STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

March 16, 2004

US Army Corps of Engineers
Regulatory Field Office
6508 Falls of Neuse Road, Suite 120
Raleigh, NC 27615

ATTENTION: Mr. John Thomas
NCDOT Coordinator

Dear Sir:

Subject: **Nationwide 23 and 33 Permit Application** for the Replacement of Bridge No. 503 over Buffalo Creek on SR 1674, Ashe County. Federal Aid Project No. BRZ-1674(3), State Project No. 8.2711901, TIP Project No. B-3607.

Please find enclosed three copies of the project planning report for the above referenced project. The document states that Bridge No. 503 will be replaced with a new 90-foot long bridge, 50 feet downstream of the existing structure. Traffic will be maintained on the existing bridge during construction.

There are no wetland impacts associated with this project. The only surface water impacted by this project is Buffalo Creek. Anticipated impacts to Buffalo Creek are temporary and consist of 90 feet of channel impacts or 0.015 ac of fill. Buffalo Creek is located in the New River Basin and is classified by the Division of Water Quality as Class C Tr. NCDOT's High Quality Waters Standards will be enforced throughout project construction.

Demolition: Bridge No. 503 is composed of a timber floor and steel with timber piers. The existing timber piers will be cut at streambed level and the concrete footings will remain. This bridge will be removed without dropping any components into Buffalo Creek. This project is classified as Case 2, which requires no in stream work and land disturbance within the 25-foot wide buffer zone between October 15 through March 31. The old bridge site will be replanted with woody vegetation following the removal of the old bridge. A planting plan has been included with this application for your convenience.

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

TELEPHONE: 919-733-3141
FAX: 919-733-9794

WEBSITE: WWW.NCDOT.ORG

LOCATION:
TRANSPORTATION BUILDING
1 SOUTH WILMINGTON STREET
RALEIGH NC

Temporary Causeways

There will be 0.015 acres of temporary impacts from the construction of a temporary rock causeways in 63 linear feet of Buffalo Creek (see permit drawing Sheets 4, 5 and 8 of 8). A temporary rock causeway will be required to provide access to the site by the construction equipment on the west side of the creek. The causeways will consist of rip rap.

Restoration Plan: No permanent fill will result from the subject activity. The materials used as temporary fill in the construction of the causeways will be removed. The temporary fill areas will be graded back to the original contours. Elevations and contours in the vicinity of the proposed causeways are available from the field survey notes. No planting will be conducted in the area of the causeway because the area will be covered be the new bridge.

Schedule for Restoration of Temporary Fill Areas: It is assumed that the Contractor will begin construction of the proposed causeway shortly after the date of availability for the project. The Let date is May 18, 2004 with a date of availability of June 29, 2004.

Removal and Disposal: The causeways will be removed within 90 days after it is no longer needed. The temporary rock causeways will be removed by the Contractor using excavating equipment. All materials placed in the stream by the Contractor will be removed. The Class II riprap that is removed will be used as permanent rip rap around end bent 1. All other materials removed by the Contractor will be disposed of at an off site upland location.

FEDERALLY-PROTECTED SPECIES

Plants and animals with federal classifications of Endangered, Threatened, Proposed Endangered, and Proposed Threatened are protected under provisions of Section 7 and Section 9 of the Endangered Species Act of 1973, as amended. As of February 5, 2003 the Fish and Wildlife Service (FWS) lists seven federally protected species for Ashe County (Table 1).

Biological conclusions of "No Effect" were reached for all applicable species as reflected in the attached CE dated June 2002. Resurveys were conducted on October 8, 2003 to update previous surveys. In a letter dated December 31, 2003, the Fish and Wildlife Service concurred that the project will have "No Effect" on any federally protected species

Table 1. Federally-Protected Species for Ashe County

Common Name	Scientific Name	Federal Status	Habitat Present	Biological Conclusion
Bog Turtle	Clemmys muhlenbergii	T(S/A)	N	NA
Heller's Blazing Star	Liatris helleri	T	N	No Effect
Roan Mountain Bluet	Houstonia montana (=Hedyotis purpurea var. montana)	E	N	No Effect
Spreading Avens	Geum radiatum	T	N	No Effect
Swamp pink	Helonias bullata	T	N	No Effect
Virginia spirea	Spiraea virginiana	T	Y	No Effect
Rock gnome lichen	Gymnoderma lineare	E	N	No Effect

"E" - denotes Endangered (a species that is in danger of extinction throughout all or a significant portion of its range).
"T"- denotes Threatened a species that is likely to become endangered species within the foreseeable future throughout all or a significant portion of its range.

Regulatory Approvals

Section 404 Permit: It is anticipated that the construction of the causeways will be authorized under Section 404 Nationwide Permit 33 (Temporary Construction Access and Dewatering). We are, therefore, requesting the issuance of a Nationwide Permit 33 authorizing construction of the causeway. All other aspects of this project are being processed by the Federal Highway Administration as a "Categorical Exclusion" in accordance with 23 CFR 771.115(b). Therefore, we do not anticipate requesting an individual permit, but propose to proceed under a Nationwide 23 as authorized by a Nationwide Permit 23 (FR number 10, pages 2020-2095; January 15, 2002).

Section 401 Permit: We anticipate 401 General Certifications numbers 3403 and 3366 will apply to this project. In accordance with 15A NCAC 2H .0500(a) and 15A NCAC 2B .0200 we are providing two copies of this application to the North Carolina Department of Environment and Natural Resources, Division of Water Quality, for their records.

We also anticipate that comments from the North Carolina Wildlife Resources Commission (NCWRC) will be required prior to authorization by the Corps of Engineers. By copy of this letter and attachment, NCDOT hereby requests NCWRC review. NCDOT requests that NCWRC forward their comments to the Corps of Engineers.

A copy of this permit application will be posted on the DOT website at: http://www.ncdot.org/planning/pe/naturalunit/permit.html.

If you have any questions or need additional information, please contact Brett Feulner at (919) 715-1488.

Sincerely,

Gregory J. Thorpe, Ph.D. Environmental Management Director,
Project Development and Environmental Analysis Branch

w/ attachment:
Mr. John Hennessy, NC DWQ (2 copies)
Ms. Marella Buncick, USFWS
Ms. Marla Chambers, NCWRC
Mr. Omar Sultan, Programming and TIP
Mr. Art McMillan, PE, Highway Design
Mr. David Chang, P.E., Hydraulics
Mr. Greg Perfetti, P.E., Structure Design
Mr. Carl McCann, P.E., Division Engineer
Mr. David Franklin, USACE, Wilmington
Mr. Heath Slaughter, DEO
Mr. Jay Bennett, P.E., Roadway Design
Mr. Drew Joyner, Planning Engineer
Mr. Keith Phillips, Roadside Environmental

Office Use Only: Form Version May 2002

USACE Action ID No. _____ **DWQ No.** _____

(If any particular item is not applicable to this project, please enter "Not Applicable" or "N/A".)

I. Processing

1. Check all of the approval(s) requested for this project:
   - ☒ Section 404 Permit
   - ☐ Section 10 Permit
   - ☐ 401 Water Quality Certification
   - ☐ Riparian or Watershed Buffer Rules
   - ☐ Isolated Wetland Permit from DWQ

2. Nationwide, Regional or General Permit Number(s) Requested: NW 23 and 33

3. If this notification is solely a courtesy copy because written approval for the 401 Certification is not required, check here: ☒

4. If payment into the North Carolina Wetlands Restoration Program (NCWRP) is proposed for mitigation of impacts (verify availability with NCWRP prior to submittal of PCN), complete section VIII and check here: ☐

5. If your project is located in any of North Carolina's twenty coastal counties (listed on page 4), and the project is within a North Carolina Division of Coastal Management Area of Environmental Concern (see the top of page 2 for further details), check here: ☐

II. Applicant Information

1. Owner/Applicant Information
   Name: NCDOT
   Mailing Address: Project Development and Environmental Analysis
   1548 Mail Service Center
   Raleigh, NC 27966-1548
   Telephone Number: (919) 733-3141 Fax Number: (919) 733-9794
   E-mail Address: gthorpe@dot.state.nc.us

2. Agent/Consultant Information (A signed and dated copy of the Agent Authorization letter must be attached if the Agent has signatory authority for the owner/applicant.)
   Name: _____
   Company Affiliation: _____
   Mailing Address: _____
   Telephone Number: _____ Fax Number: _____

E-mail Address:_____

III. Project Information

Attach a **vicinity map** clearly showing the location of the property with respect to local landmarks such as towns, rivers, and roads. Also provide a detailed **site plan** showing property boundaries and development plans in relation to surrounding properties. Both the vicinity map and site plan must include a scale and north arrow. The specific footprints of all buildings, impervious surfaces, or other facilities must be included. If possible, the maps and plans should include the appropriate USGS Topographic Quad Map and NRCS Soil Survey with the property boundaries outlined. Plan drawings, or other maps may be included at the applicant's discretion, so long as the property is clearly defined. For administrative and distribution purposes, the USACE requires information to be submitted on sheets no larger than 11 by 17-inch format; however, DWQ may accept paperwork of any size. DWQ prefers full-size construction drawings rather than a sequential sheet version of the full-size plans. If full-size plans are reduced to a small scale such that the final version is illegible, the applicant will be informed that the project has been placed on hold until decipherable maps are provided.

1. Name of project: B-3607: Replacement of Bridge 503 on SR 1674 over the Buffalo Creek

2. T.I.P. Project Number or State Project Number (NCDOT Only): B-3607

3. Property Identification Number (Tax PIN):_____

4. Location
   County: Ashe Nearest Town: West Jefferson
   Subdivision name (include phase/lot number):_____
   Directions to site (include road numbers, landmarks, etc.):_____

Site coordinates, if available (UTM or Lat/Long): UTM 17 451614E 4046438N

(Note – If project is linear, such as a road or utility line, attach a sheet that separately lists the coordinates for each crossing of a distinct waterbody.)

5. Property size (acres):_____

6. Nearest body of water (stream/river/sound/ocean/lake): Buffalo Creek

7. River Basin: New River
   (Note – this must be one of North Carolina's seventeen designated major river basins. The River Basin map is available at http://h2o.enr.state.nc.us/admin/maps/.)

8. Describe the existing conditions on the site and general land use in the vicinity of the project at the time of this application: Farmland and pasture.

9. Describe the overall project in detail, including the type of equipment to be used: Plans for replacing the bridge include replacing the current bridge upstream of the existing bridge. Equipment used will include regular equipment utilized on bridge replacement projects.

10. Explain the purpose of the proposed work: The purpose is to replace the old bridge that is functionally obsolete and structurally deficient.

IV. Prior Project History

If jurisdictional determinations and/or permits have been requested and/or obtained for this project (including all prior phases of the same subdivision) in the past, please explain. Include the USACE Action ID Number, DWQ Project Number, application date, and date permits and certifications were issued or withdrawn. Provide photocopies of previously issued permits, certifications or other useful information. Describe previously approved wetland, stream and buffer impacts, along with associated mitigation (where applicable). If this is a NCDOT project, list and describe permits issued for prior segments of the same T.I.P. project, along with construction schedules.

N/A

V. Future Project Plans

Are any future permit requests anticipated for this project? If so, describe the anticipated work, and provide justification for the exclusion of this work from the current application.

N/A

VI. Proposed Impacts to Waters of the United States/Waters of the State

It is the applicant's (or agent's) responsibility to determine, delineate and map all impacts to wetlands, open water, and stream channels associated with the project. The applicant must also provide justification for these impacts in Section VII below. All proposed impacts, permanent and temporary, must be listed herein, and must be clearly identifiable on an accompanying site plan. All wetlands and waters, and all streams (intermittent and perennial) must be shown on a delineation map, whether or not impacts are proposed to these systems. Wetland and stream evaluation and delineation forms should be included as appropriate. Photographs may be included at the applicant's discretion. If this proposed impact is strictly for wetland or stream mitigation, list and describe the impact in Section VIII below. If additional space is needed for listing or description, please attach a separate sheet.

1. Provide a written description of the proposed impacts: The proposed project will temporary place 0.015 acres of fill in Buffalo Creek. The fill will be necessary to construct the new bridge and will act as a work bridge.

2. Individually list wetland impacts below: 0

Wetland Impact Site Number (indicate on map)	Type of Impact*	Area of Impact (acres)	Located within 100-year Floodplain** (yes/no)	Distance to Nearest Stream (linear feet)	Type of Wetland***

* List each impact separately and identify temporary impacts. Impacts include, but are not limited to: mechanized clearing, grading, fill, excavation, flooding, ditching/drainage, etc. For dams, separately list impacts due to both structure and flooding.

** 100-Year floodplains are identified through the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Maps (FIRM), or FEMA-approved local floodplain maps. Maps are available through the FEMA Map Service Center at 1-800-358-9616, or online at http://www.fema.gov.

*** List a wetland type that best describes wetland to be impacted (e.g., freshwater/saltwater marsh, forested wetland, beaver pond, Carolina Bay, bog, etc.) Indicate if wetland is isolated (determination of isolation to be made by USACE only).

List the total acreage (estimated) of all existing wetlands on the property: 0

Total area of wetland impact proposed: 0

3. Individually list all intermittent and perennial stream impacts below:

Stream Impact Site Number (indicate on map)	Type of Impact*	Length of Impact (linear feet)	Stream Name**	Average Width of Stream Before Impact	Perennial or Intermittent? (please specify)
1	Temporary Fill	90	Buffalo Creek	30 ft	Perennial

* List each impact separately and identify temporary impacts. Impacts include, but are not limited to: culverts and associated rip-rap, dams (separately list impacts due to both structure and flooding), relocation (include linear feet before and after, and net loss/gain), stabilization activities (cement wall, rip-rap, crib wall, gabions, etc.), excavation, ditching/straightening, etc. If stream relocation is proposed, plans and profiles showing the linear footprint for both the original and relocated streams must be included.

** Stream names can be found on USGS topographic maps. If a stream has no name, list as UT (unnamed tributary) to the nearest downstream named stream into which it flows. USGS maps are available through the USGS at 1-800-358-9616, or online at www.usgs.gov. Several internet sites also allow direct download and printing of USGS maps (e.g., www.topozone.com, www.mapquest.com, etc.).

Cumulative impacts (linear distance in feet) to all streams on site: 90

4. Individually list all open water impacts (including lakes, ponds, estuaries, sounds, Atlantic Ocean and any other water of the U.S.) below:

Open Water Impact Site Number (indicate on map)	Type of Impact*	Area of Impact (acres)	Name of Waterbody (if applicable)	Type of Waterbody (lake, pond, estuary, sound, bay, ocean, etc.)

* List each impact separately and identify temporary impacts. Impacts include, but are not limited to: fill, excavation, dredging, flooding, drainage, bulkheads, etc.

5. Pond Creation

If construction of a pond is proposed, associated wetland and stream impacts should be included above in the wetland and stream impact sections. Also, the proposed pond should be described here and illustrated on any maps included with this application.

Pond to be created in (check all that apply): ☐ uplands ☐ stream ☐ wetlands

Describe the method of construction (e.g., dam/embankment, excavation, installation of draw-down valve or spillway, etc.):_____

_____

Proposed use or purpose of pond (e.g., livestock watering, irrigation, aesthetic, trout pond, local stormwater requirement, etc.):_____

_____

Size of watershed draining to pond:_____ Expected pond surface area:_____

VII. Impact Justification (Avoidance and Minimization)

Specifically describe measures taken to avoid the proposed impacts. It may be useful to provide information related to site constraints such as topography, building ordinances, accessibility, and financial viability of the project. The applicant may attach drawings of alternative, lower-impact site layouts, and explain why these design options were not feasible. Also discuss how impacts were minimized once the desired site plan was developed. If applicable, discuss construction techniques to be followed during construction to reduce impacts.

The site topography and the proximity of SR 1674 do not allow enough area to set up equipment.

_____

VIII. Mitigation

DWQ - In accordance with 15A NCAC 2H .0500, mitigation may be required by the NC Division of Water Quality for projects involving greater than or equal to one acre of impacts to freshwater wetlands or greater than or equal to 150 linear feet of total impacts to perennial streams.

USACE – In accordance with the Final Notice of Issuance and Modification of Nationwide Permits, published in the Federal Register on March 9, 2000, mitigation will be required when necessary to ensure that adverse effects to the aquatic environment are minimal. Factors

including size and type of proposed impact and function and relative value of the impacted aquatic resource will be considered in determining acceptability of appropriate and practicable mitigation as proposed. Examples of mitigation that may be appropriate and practicable include, but are not limited to: reducing the size of the project; establishing and maintaining wetland and/or upland vegetated buffers to protect open waters such as streams; and replacing losses of aquatic resource functions and values by creating, restoring, enhancing, or preserving similar functions and values, preferable in the same watershed.

If mitigation is required for this project, a copy of the mitigation plan must be attached in order for USACE or DWQ to consider the application complete for processing. Any application lacking a required mitigation plan or NCWRP concurrence shall be placed on hold as incomplete. An applicant may also choose to review the current guidelines for stream restoration in DWQ's Draft Technical Guide for Stream Work in North Carolina, available at http://h2o.enr.state.nc.us/ncwetlands/strmgide.html.

1. Provide a brief description of the proposed mitigation plan. The description should provide as much information as possible, including, but not limited to: site location (attach directions and/or map, if offsite), affected stream and river basin, type and amount (acreage/linear feet) of mitigation proposed (restoration, enhancement, creation, or preservation), a plan view, preservation mechanism (e.g., deed restrictions, conservation easement, etc.), and a description of the current site conditions and proposed method of construction. Please attach a separate sheet if more space is needed.
   N/A

2. Mitigation may also be made by payment into the North Carolina Wetlands Restoration Program (NCWRP). Please note it is the applicant's responsibility to contact the NCWRP at (919) 733-5208 to determine availability and to request written approval of mitigation prior to submittal of a PCN. For additional information regarding the application process for the NCWRP, check the NCWRP website at http://h2o.enr.state.nc.us/wrp/index.htm. If use of the NCWRP is proposed, please check the appropriate box on page three and provide the following information:

   Amount of stream mitigation requested (linear feet):_____
   Amount of buffer mitigation requested (square feet):_____
   Amount of Riparian wetland mitigation requested (acres):_____
   Amount of Non-riparian wetland mitigation requested (acres):_____
   Amount of Coastal wetland mitigation requested (acres):_____

IX. Environmental Documentation (required by DWQ)

Does the project involve an expenditure of public (federal/state) funds or the use of public (federal/state) land?

Yes ☒ No ☐

If yes, does the project require preparation of an environmental document pursuant to the requirements of the National or North Carolina Environmental Policy Act (NEPA/SEPA)? Note: If you are not sure whether a NEPA/SEPA document is required, call the SEPA coordinator at (919) 733-5083 to review current thresholds for environmental documentation.

Yes ☒ No ☐

If yes, has the document review been finalized by the State Clearinghouse? If so, please attach a copy of the NEPA or SEPA final approval letter.

Yes ☒ No ☐

X. Proposed Impacts on Riparian and Watershed Buffers (required by DWQ)

It is the applicant's (or agent's) responsibility to determine, delineate and map all impacts to required state and local buffers associated with the project. The applicant must also provide justification for these impacts in Section VII above. All proposed impacts must be listed herein, and must be clearly identifiable on the accompanying site plan. All buffers must be shown on a map, whether or not impacts are proposed to the buffers. Correspondence from the DWQ Regional Office may be included as appropriate. Photographs may also be included at the applicant's discretion.

Will the project impact protected riparian buffers identified within 15A NCAC 2B .0233 (Neuse), 15A NCAC 2B .0259 (Tar-Pamlico), 15A NCAC 2B .0250 (Randleman Rules and Water Supply Buffer Requirements), or other (please identify_____)?

Yes ☐ No ☒ If you answered "yes", provide the following information:

Identify the square feet and acreage of impact to each zone of the riparian buffers. If buffer mitigation is required calculate the required amount of mitigation by applying the buffer multipliers.

Zone*	Impact (square feet)	Multiplier	Required Mitigation
1		3	
2		1.5	
Total			

* Zone 1 extends out 30 feet perpendicular from near bank of channel; Zone 2 extends an additional 20 feet from the edge of Zone 1.

If buffer mitigation is required, please discuss what type of mitigation is proposed (i.e., Donation of Property, Conservation Easement, Riparian Buffer Restoration / Enhancement, Preservation or

Payment into the Riparian Buffer Restoration Fund). Please attach all appropriate information as identified within 15A NCAC 2B .0242 or .0260.

XI. Stormwater (required by DWQ)

Describe impervious acreage (both existing and proposed) versus total acreage on the site. Discuss stormwater controls proposed in order to protect surface waters and wetlands downstream from the property.

N/A

XII. Sewage Disposal (required by DWQ)

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.

N/A

XIII. Violations (required by DWQ)

Is this site in violation of DWQ Wetland Rules (15A NCAC 2H .0500) or any Buffer Rules?

Yes ☐ No ☒

Is this an after-the-fact permit application?

Yes ☐ No ☒

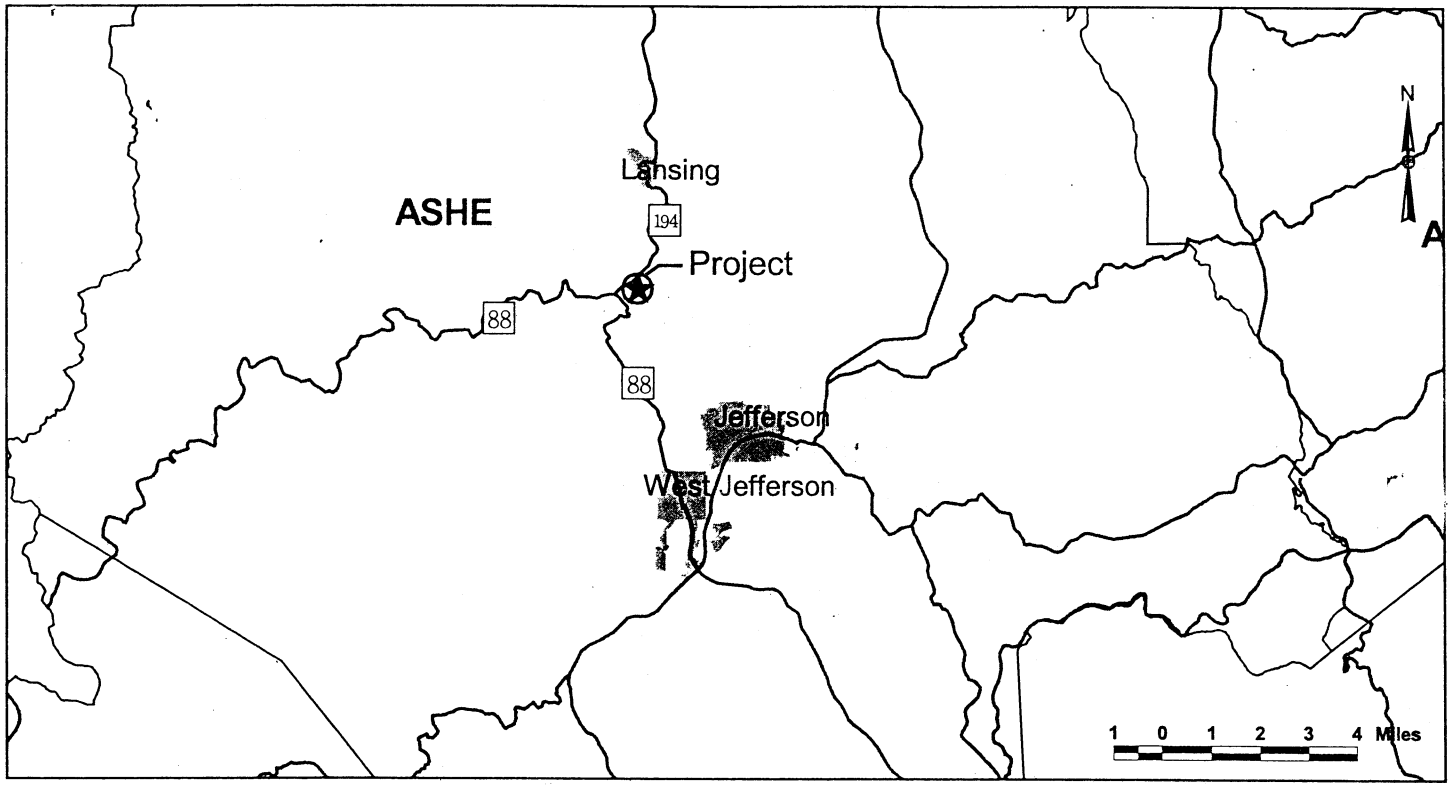
XIV. Other Circumstances (Optional):

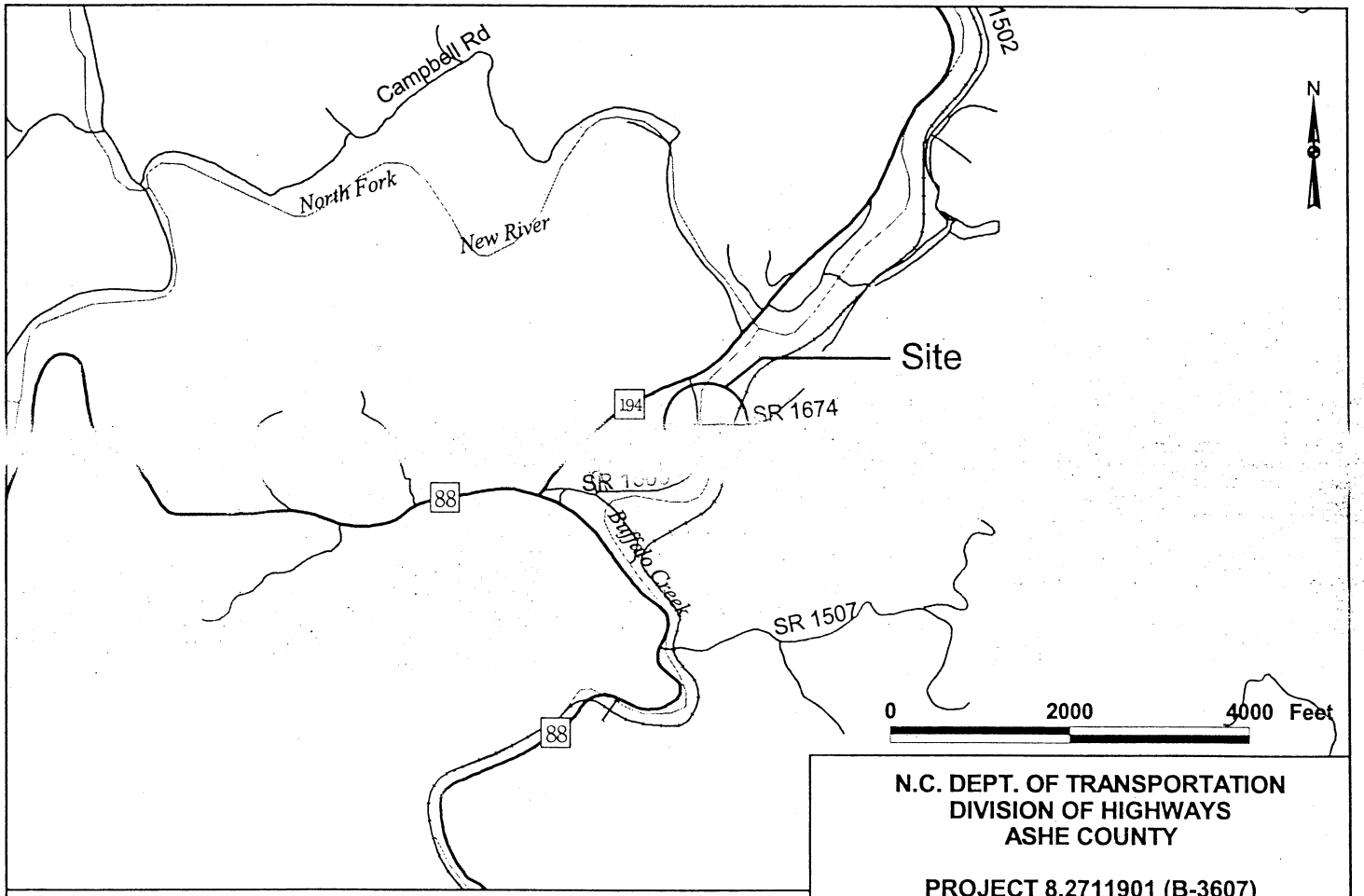
It is the applicant's responsibility to submit the application sufficiently in advance of desired construction dates to allow processing time for these permits. However, an applicant may choose to list constraints associated with construction or sequencing that may impose limits on work schedules (e.g., draw-down schedules for lakes, dates associated with Endangered and Threatened Species, accessibility problems, or other issues outside of the applicant's control).

3/15/04

Applicant/Agent's Signature **Date**

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





WETLAND VICINITY MAPS

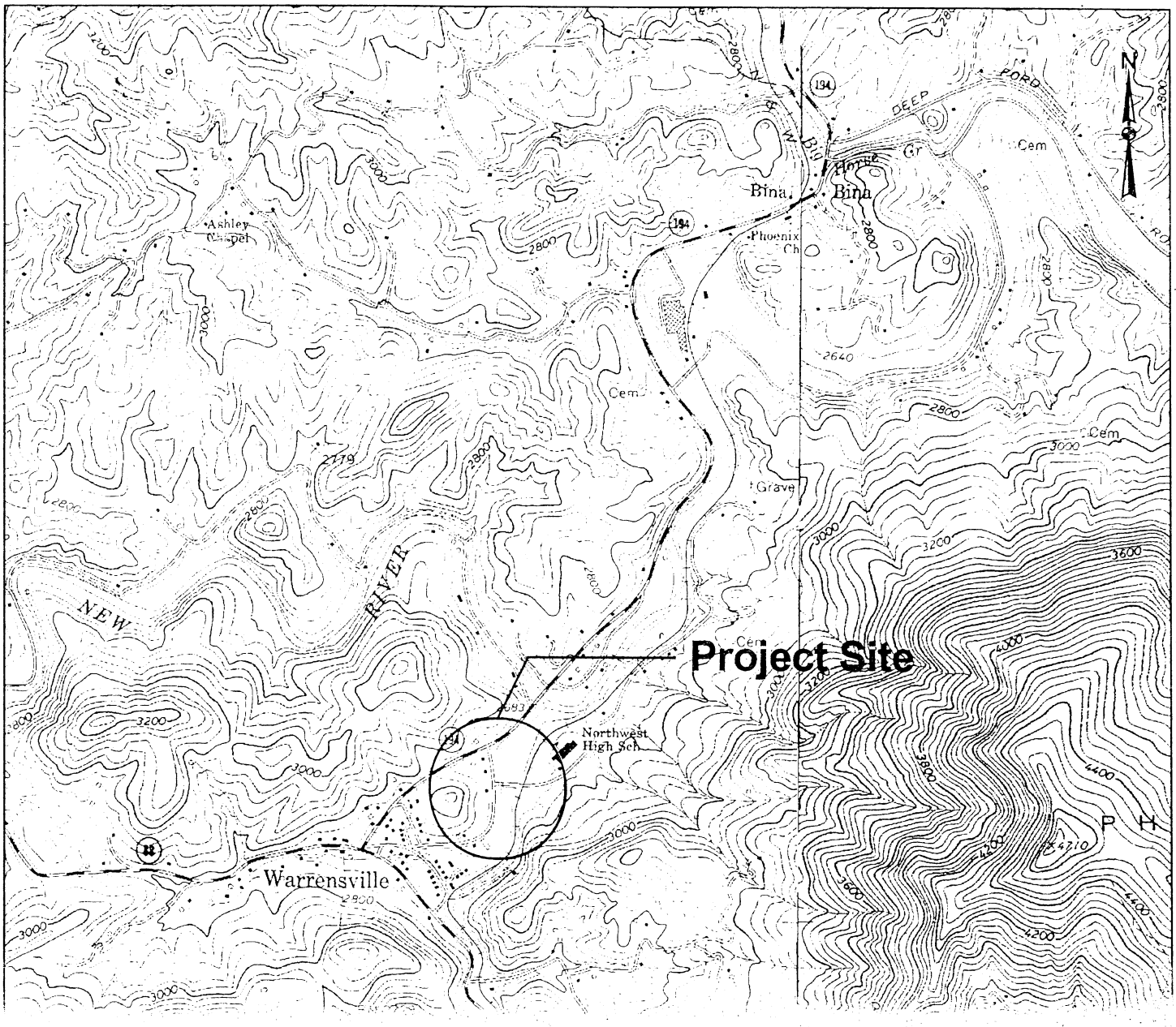
N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
ASHE COUNTY

PROJECT 8.2711901 (B-3607)

BRIDGE NO. 503 ON SR 1674 OVER BUFFALO CREEK

1 of 9

1/30/04



LOCATION

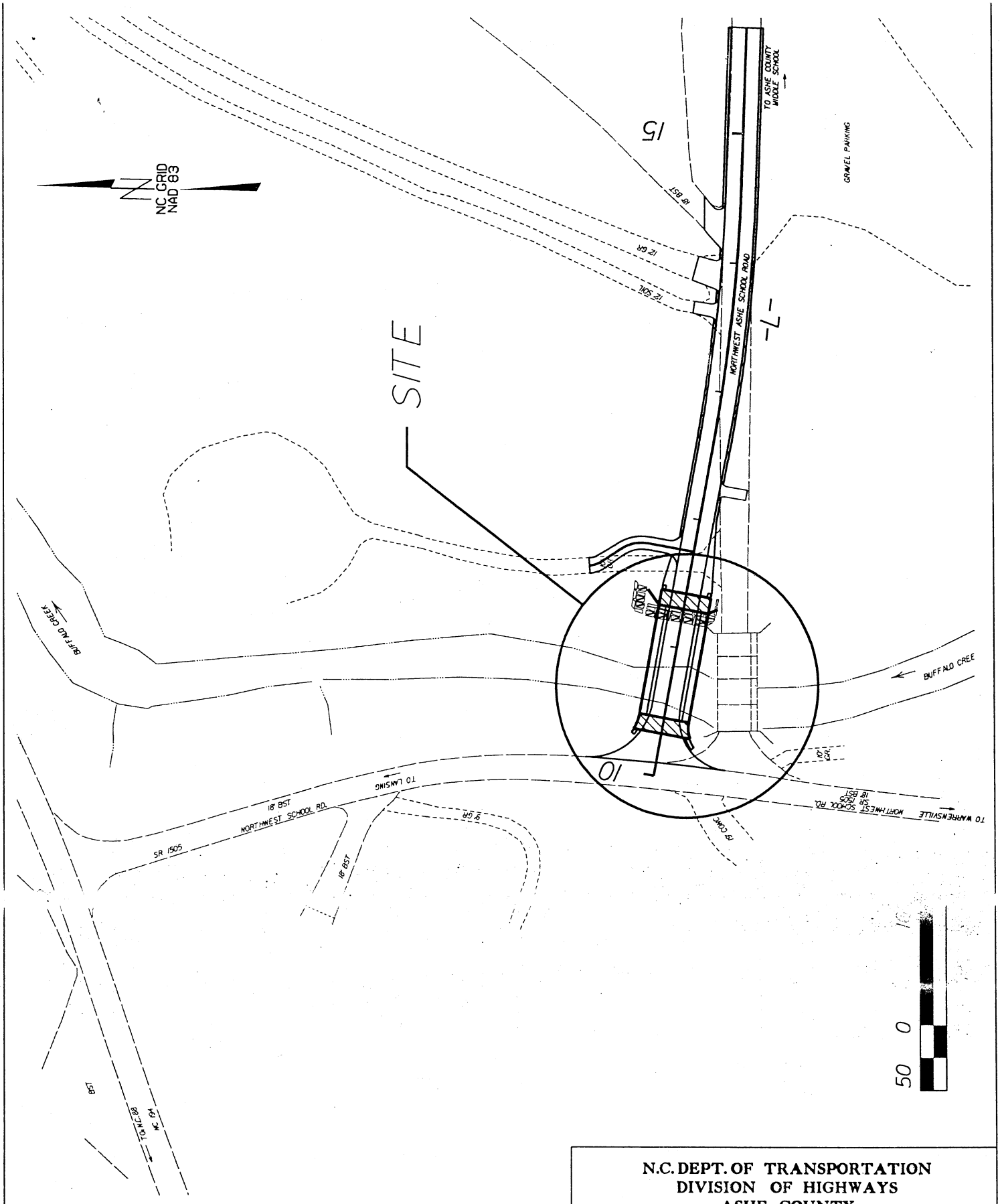
Scale: 1" = 2000'

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
ASHE COUNTY

PROJECT 8.2711901 (B-3607)

BRIDGE NO. 503 ON SR 1674 OVER BUFFALO CREEK

1/30/04



SITE MAP

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
ASHE COUNTY

PROJECT 8.2711901 (B-3607)

BRIDGE NO. 503 ON SR 1674
OVER BUFFALO CREEK

3 OF 9

01 / 30 / 04

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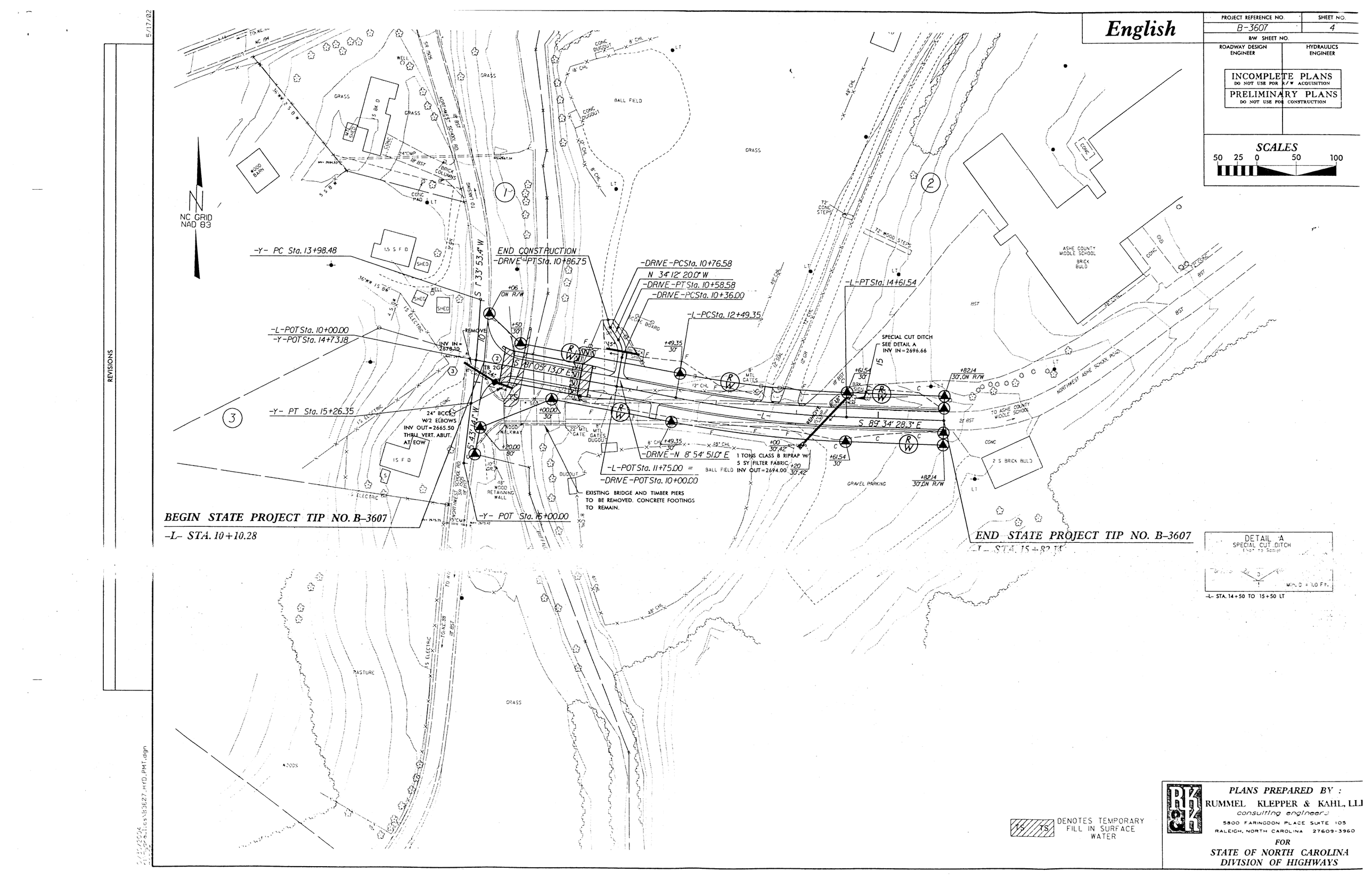
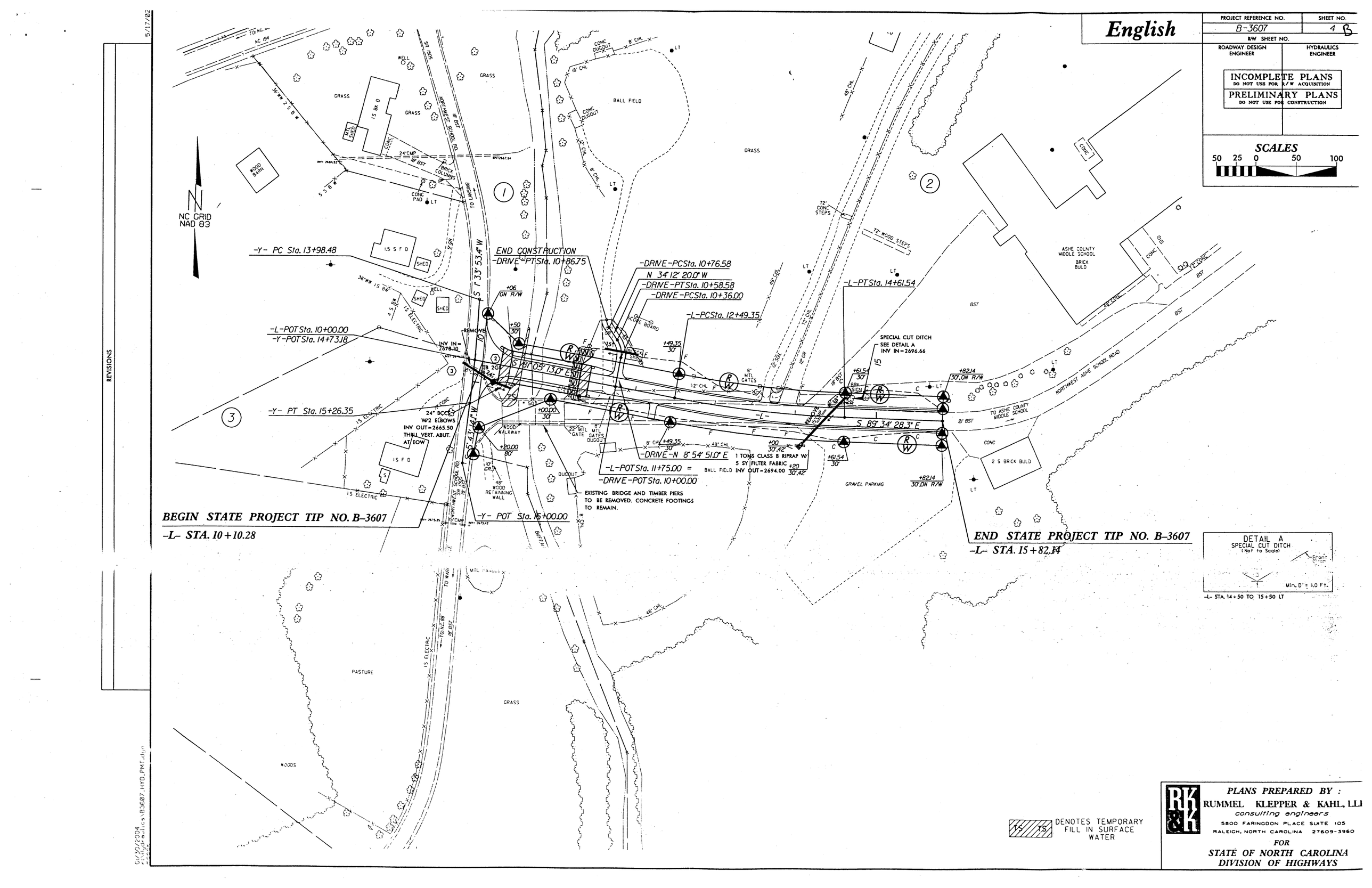

English
PROJECT REFERENCE NO.
B-3607
SHEET NO.
4
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
SCALES
50 25 0 50 100
5/17/02
REVISIONS
NC GRID NAD 83
-Y- PC Sta. 13+98.48
END CONSTRUCTION
-DRIVE-PT Sta. 10+86.75
S 1° 33' 53.4" W
-DRIVE-PC Sta. 10+76.58
N 34° 12' 20.0" W
-DRIVE-PT Sta. 10+58.58
-DRIVE-PC Sta. 10+36.00
-L-PC Sta. 12+49.35
-L-PT Sta. 14+61.54
-L-POT Sta. 10+00.00
-Y-POT Sta. 14+73.18
-Y- PT Sta. 15+26.35
S 6° 43' 41" W
S 89° 05' 13.0" E
S 89° 34' 28.3" E
-DRIVE-N 8° 54' 51.0" E
-L-POT Sta. 11+75.00 =
-DRIVE-POT Sta. 10+00.00
-Y- POT Sta. 15+00.00
BEGIN STATE PROJECT TIP NO. B-3607
-L- STA. 10+10.28
END STATE PROJECT TIP NO. B-3607
-L- STA. 15+82.14
SPECIAL CUT DITCH
SEE DETAIL A
INV IN = 2696.66
24" BCCP W/2 ELBOWS
INV OUT = 2665.50
THRU VERT. ABUT. AT EOW
INV IN = 2678.10
EXISTING BRIDGE AND TIMBER PIERS TO BE REMOVED. CONCRETE FOOTINGS TO REMAIN.
1 TONS CLASS B RIPRAP W/ 5 SY FILTER FABRIC
BALL FIELD INV OUT = 2694.00
ASHE COUNTY MIDDLE SCHOOL
BRICK BUILD
NORTHWEST ASHE SCHOOL ROAD
TO ASHE COUNTY MIDDLE SCHOOL
GRAVEL PARKING
2 S BRICK BUILD
WOOD BARN
BALL FIELD
PASTURE
GRASS
DETAIL A
SPECIAL CUT DITCH
MIN. D = 1.0 Ft.
-L- STA. 14+50 TO 15+50 LT
DENOTES TEMPORARY FILL IN SURFACE WATER
PLANS PREPARED BY :
RUMMEL KLEPPER & KAHL, LLP
consulting engineers
5800 FARINGDON PLACE SUITE 105
RALEIGH, NORTH CAROLINA 27609-3960
FOR
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS


English
PROJECT REFERENCE NO.
B-3607
SHEET NO.
4 B
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
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INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
SCALES
50 25 0 50 100
REVISIONS
5/17/02
NC GRID NAD 83
-Y- PC Sta. 13+98.48
END CONSTRUCTION
-DRIVE-PT Sta. 10+86.75
-DRIVE-PC Sta. 10+76.58
N 34° 12' 20.0" W
-DRIVE-PT Sta. 10+58.58
-DRIVE-PC Sta. 10+36.00
-L-PC Sta. 12+49.35
-L-PT Sta. 14+61.54
-L-POT Sta. 10+00.00
-Y-POT Sta. 14+73.18
-Y- PT Sta. 15+26.35
-L-POT Sta. 11+75.00 =
-DRIVE-POT Sta. 10+00.00
-DRIVE-N 8° 54' 51.0" E
-Y- POT Sta. 16+00.00
S 1° 33' 53.4" W
S 5° 43' 31.0" W
S 89° 34' 28.3" E
SPECIAL CUT DITCH
SEE DETAIL A
INV IN = 2696.66
INV IN = 2678.10
INV OUT = 2665.50
EXISTING BRIDGE AND TIMBER PIERS TO BE REMOVED. CONCRETE FOOTINGS TO REMAIN.
1 TONS CLASS B RIPRAP W/ 5 SY FILTER FABRIC
BALL FIELD INV OUT = 2694.00
BEGIN STATE PROJECT TIP NO. B-3607
-L- STA. 10+10.28
END STATE PROJECT TIP NO. B-3607
-L- STA. 15+82.14
DETAIL A
SPECIAL CUT DITCH
(Not to Scale)
Min. D = 1.0 Ft.
-L- STA. 14+50 TO 15+50 LT
DENOTES TEMPORARY FILL IN SURFACE WATER
PLANS PREPARED BY :
RUMMEL KLEPPER & KAHL, LLP
consulting engineers
5800 FARINGDON PLACE SUITE 105
RALEIGH, NORTH CAROLINA 27609-3960
FOR
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
9/30/2004
c:\projects\b3607_HYD_PM1.dgn

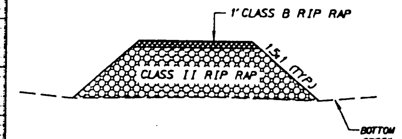
PROJECT REFERENCE NO.	SHEET NO.
B-3607	5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

TEMPORARY CAUSEWAY

NOT TO SCALE



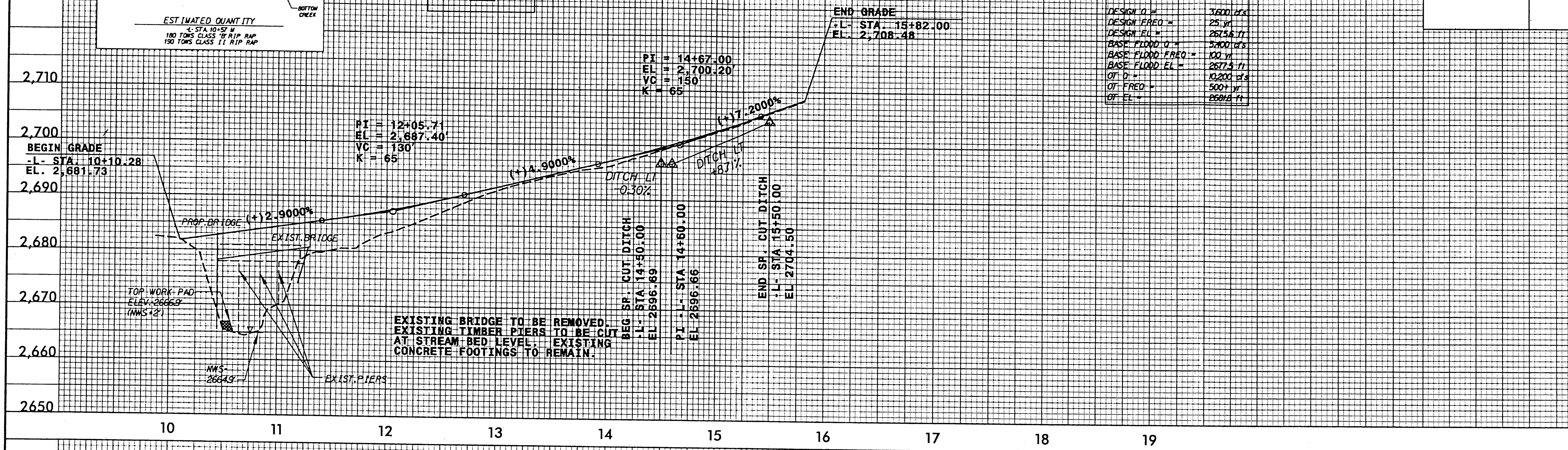
ESTIMATED QUANTITY
-L- STA.10+57 M
180 TONS CLASS 'B' RIP RAP
190 TONS CLASS II RIP RAP

-L-

BRIDGE DATA

BRIDGE #503
OVER BUFFALO CREEK

DESIGN Q =	3,600 cfs
DESIGN FREQ =	25 yr
DESIGN EL =	2675.6 ft
BASE FLOOD Q =	5,400 cfs
BASE FLOOD FREQ =	100 yr
BASE FLOOD EL =	2677.5 ft
OT Q =	10,200 cfs
OT FREQ =	500+ yr
OT EL =	2681.8 ft



2,710
2,700
2,690
2,680
2,670
2,660
2650
BEGIN GRADE
-L- STA. 10+10.28
EL. 2,681.73
PI = 12+05.71
EL = 2,687.40'
VC = 130'
K = 65
PI = 14+67.00
EL = 2,700.20'
VC = 150
K = 65
END GRADE
-L- STA. 15+82.00
EL. 2,708.48
PROP. BRIDGE
(+)2.9000%
(+)4.9000%
(+)7.2000%
EXIST. BRIDGE
DITCH LT -0.30%
DITCH LT +8.7%
TOP WORK PAD ELEV. 2666.9' (NWS+2')
NWS 2664.9'
EXIST. PIERS
EXISTING BRIDGE TO BE REMOVED. EXISTING TIMBER PIERS TO BE CUT AT STREAM BED LEVEL. EXISTING CONCRETE FOOTINGS TO REMAIN.
BEG SP. CUT DITCH -L- STA 14+50.00 EL 2596.69
PI -L- STA 14+60.00 EL 2596.66
END SP. CUT DITCH -L- STA 15+50.00 EL 2704.50
10
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5/28

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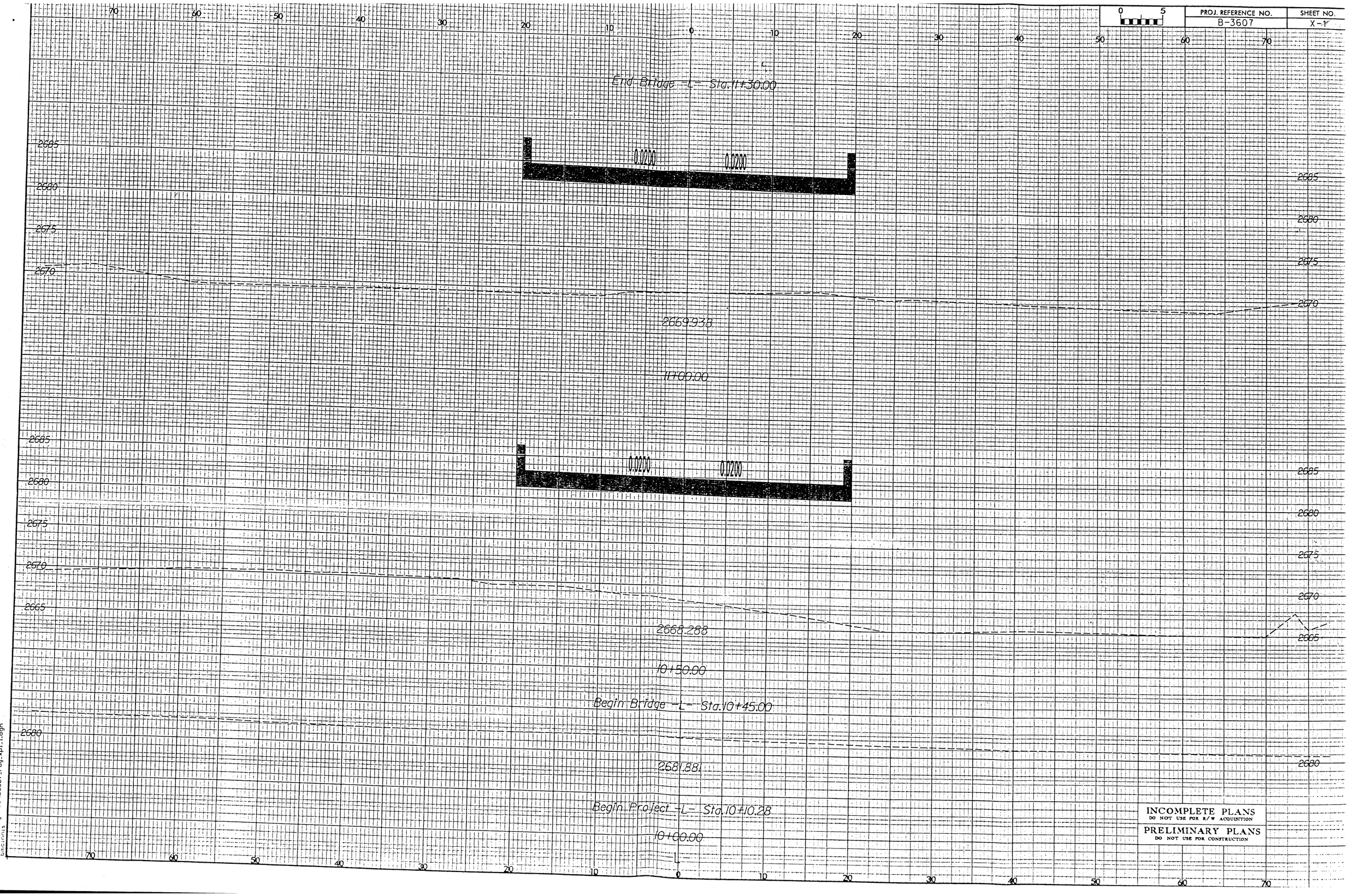
PROJ. REFERENCE NO.	SHEET NO.
B-3607	X-1



INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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Cincinnis

PROJ. REFERENCE NO.	SHEET NO
B-3507	X-2

0 5

PROPERTY NO.	PROPERTY OWNER NAME	DEED INFO
(1)	WAYNE BLEVINS, EVA TURNER BLEVINS	DB 5 PG 176

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
ASHE COUNTY

PROJECT 8.2711901 (B-3607)

BRIDGE NO. 503 ON SR 1674
OVER BUFFALO CREEK

8 of 9

01/30/04

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WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS: Fill In Wetlands (ac)	WETLAND IMPACTS: Temp. Fill In Wetlands (ac)	WETLAND IMPACTS: Excavation In Wetlands (ac)	WETLAND IMPACTS: Mechanized Clearing (Method III) (ac)	SURFACE WATER IMPACTS: Fill In SW (Natural) (ac)	SURFACE WATER IMPACTS: Fill In SW (Pond) (ac)	SURFACE WATER IMPACTS: Temp. Fill In SW (ac)	SURFACE WATER IMPACTS: Existing Channel Impacted (ft)	SURFACE WATER IMPACTS: Natural Stream Design (ft)
1	-L- 10+57 M	Work Pad							0.015	90	
TOTALS:			0	0	0	0	0	0	0.015	0	0

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

ASHE COUNTY
PROJECT 8.2711901 B-3607

9 of 9

1/30/2004

Form Revised 3/22/01

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Ashe County

Bridge No. 503 on SR 1674 (Northwest Lane)

Over Buffalo Creek

Federal Aid Project No. BRZ-1674 (3)

State Project No. 8.2711901

T.I.P. No. B-3607

CATEGORICAL EXCLUSION
AND
PROGRAMMATIC SECTION 4(f)
EVALUATION AND APPROVAL

UNITED STATES DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
AND
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

APPROVED:

7/2/02
DATE

for William D. Gilmore, P.E., Manager
Project Development and Environmental Analysis Branch
North Carolina Department of Transportation

7/11/02
DATE

for Nicholas L. Graf, P.E.
Division Administrator
Federal Highway Administration

Ashe County

Bridge No. 503 on SR 1674 (Northwest Lane)

Over Buffalo Creek

Federal Aid Project No. BRZ-1674 (3)

State Project No. 8.2711901

T.I.P. No. B-3607

CATEGORICAL EXCLUSION
AND
PROGRAMMATIC SECTION 4(f)
EVALUATION AND APPROVAL

July 2002

Document Prepared By:

Rummel, Klepper & Kahl, LLP

Kimberly S. Leight

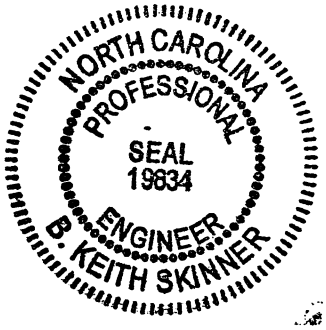
Kimberly S. Leight

Project Manager

B. Keith Skinner 7/01/02

B. Keith Skinner, P.E.

Associate



For the North Carolina Department of Transportation

Robert Andrew Joyner

Robert Andrew Joyner, P.E.

Project Manager

Consultant Engineering Unit

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PROJECT COMMITMENTS

Ashe County
Bridge No. 503 on SR 1674 (Northwest Lane)
Over Buffalo Creek
Federal Aid Project No. BRZ-1674 (3)
State Project No. 8.2711901
T.I.P. No. B-3607

DESIGN SERVICES UNIT, DIVISION 11

- North Carolina Wildlife Resources Commission (NCWRC) has prohibited any in-stream work and land disturbance activities associated with this project during trout spawning season of October 15 through April 15.

DESIGN SERVICES UNIT

- During final design an additional sidewalk will be added to the north side of the bridge to better accommodate pedestrian traffic going to and from Ashe County Middle School.

- Due to impacts to Ashe County Middle School athletic fields, NCDOT will coordinate final design with the Ashe County Board of Education.

Ashe County
Bridge No. 503 on SR 1674 (Northwest Lane)
Over Buffalo Creek
Federal Aid Project No. BRZ-1674 (3)
State Project No. 8.2711901
T.I.P. No. B-3607

INTRODUCTION: The replacement of Bridge No. 503 is included in the 2002-2008 North Carolina Department of Transportation (NCDOT) Transportation Improvement Program (TIP) and in the Federal Aid Bridge Replacement Program. The location of this bridge is shown on Figure 1. No substantial environmental impacts are anticipated. The project is classified as a Federal "Categorical Exclusion".

I. PURPOSE AND NEED STATEMENT

Bridge Maintenance Unit records indicate that Bridge No. 503 was inspected in February 1996 and received a sufficiency rating of 47.4 out of a possible 100 for a new structure. The floor was replaced and re-rated in March 2002. With the temporary fix, the new sufficiency rating is 56.3 out of a possible 100 for a new structure. Although the sufficiency rating has increased, this bridge project is still needed. The replacement of this inadequate structure will result in safer and more efficient traffic operations.

II. EXISTING CONDITIONS

The project is located in Ashe County on SR 1674 (Northwest Lane), approximately 15 feet [4.6 meters (m)] east of the junction of SR 1505 (Northwest School Road). The local area surrounding the proposed project is described as mountainous and land use is best described as residential, forest vegetation and pasture areas. An existing school with athletic fields and a small storage building lie in the project study area.

According to NCDOT Statewide Planning Branch, SR 1674 (Northwest Lane) is classified as a rural local route in the Statewide Functional Classification System. The NC Bicycle Highways maps have been reviewed by RK&K to determine if any established routes would be affected. No designated bicycle routes are located on SR 1674 over Buffalo Creek. Pedestrians regularly use SR 1674 to access Ashe County Middle School. There is a 5-foot (1.5 m) sidewalk on the south side of the existing bridge.

In the vicinity of the bridge, SR 1674 is a 19-foot (5.8–m) paved, 2-lane roadway. The roadway grade is relatively flat through the project area. The bridge height from crown to bed is approximately 17 feet (5.2 m) above the streambed at Bridge No. 503 (See Figure 4a and 4b).

The 2002 traffic volume of 1,000 vehicles per day (VPD) is expected to increase to 1,800 VPD by the year 2025. The projected volume includes 1-percent truck-tractor semi-trailer (TTST) and 5-percent dual-tired vehicles (DT). The speed limit in the project area is not posted.

There was one accident reported in the vicinity of Bridge No. 503 during the 3-year period beginning January 01, 1998 through December 31, 2000. These figures resulted in a total accident rate of 2,388.5 accidents (ACC)/100 million vehicle miles (MVM).

Bridge No. 503 consists of four spans totaling 76 feet (23.2 m) with a clear roadway width of 24.9 feet (7.6 m). The bridge has an asphalt-wearing surface on a timber floor supported by ten lines of 16-inch [40.6-centimeters (cm)] steel I-beams (See Figure 4a and 4b). The end bents consist of timber caps with timber posts and concrete sills. The weight limit on this bridge for single vehicles and tractor trailer/semi-trucks (TTSTs) is not posted. Bridge No. 503 was built in 1963 and is in fair condition.

There are no visible conflicts with any overhead utilities. Overall, utility impacts are anticipated to be low and any specific impacts will be coordinated with appropriate utility personnel during construction.

There are no rail interactions anticipated on this project.

According to the Ashe County Board of Education, Bridge No. 503 is crossed forty-two times each school day by school buses on their routes.

III. ALTERNATIVES

A. Project Description

The replacement structure will consist of a two-span bridge, approximately 90 feet (27.4 m) long and 28 feet (8.4 m) wide (See Figure 3a). There will be a vertical spill-through abutment on the west side and a standard spill-through abutment on the east side. The vertical spill-through abutment on the west side acts as a retaining wall to minimize impacts to SR 1505 and maintains the existing distance from the

bridge to SR 1505. The replacement structure includes a 5-foot (1.5-m) sidewalk on the south side. An additional sidewalk to the north side will be added during final design. This structure provides two 11-foot (3.3-m) lanes with 3-foot (0.9-m) shoulders on each side. The proposed approach roadway will consist of a 22-foot (6.6-m) pavement width to provide two 11-foot (3.3-m) lanes with 2-foot (0.6-m) paved shoulders on each side in accordance with current NCDOT Policy (See Figure 3a).

The recommended bridge length is based on a preliminary hydraulic review. The final design of the bridge will be such that the backwater elevation will not increase the current 100-year floodplain limit. The proposed roadway and structure will be placed at approximately the same elevation and have the same bridge opening to avoid effecting the floodplain and causing an increase in the backwater upstream of the proposed construction. The new structure will improve existing conditions, accommodate design flows, and minimize environmental impacts on any sensitive natural ecosystems that may be in the vicinity of the project study area.

B. Build Alternatives

The alternatives studied for replacing Bridge No. 503 are shown on Figure 2 and described below:

Alternative 1 – replaces the bridge with a 95-foot (29-m) long bridge on the existing alignment. The approach work will extend from approximately 30 feet (9.1 m) west of the bridge to approximately 180 feet (54.9 m) east of the bridge for a total distance of 305 feet (92.9 m). During construction, traffic will be maintained on a temporary detour structure located approximately 40 feet (12.2 m) north (downstream) of the existing bridge. The detour structure will be approximately 85 feet (25.9 m) long and 26 feet (7.8 m) wide with a 5-foot (1.5 m) sidewalk on the south side (See Figure 3b). The approach work for the detour will extend from approximately 35 feet (10.7 m) west of the bridge to approximately 360 feet (109.7 m) east of the bridge for a total distance of 480 feet (146.3 m). The design speed is 40 miles per hour (mph) [64 kilometers per hour (km/h)]. A design exception will not be necessary for this alternative. This alternative is not recommended because it temporarily impacts the football fieldhouse and does not resolve the issue with the sharp turning radius from SR 1505 (Northwest School Road) to SR 1674 (Northwest Lane).

Alternative 2 (Preferred) – replaces the bridge with a 90-foot (27.4-m) bridge on a new location approximately 50 feet (15.2 m) north (downstream) of the existing structure. Existing Bridge No.

503 will be used to maintain traffic during construction. The approach work will extend from approximately 30 feet (9.1 m) west of the bridge to approximately 365 feet (111.3 m) east of the bridge for a total distance of 485 feet (149 m). The design speed is 40 mph (60 km/h). A design exception will not be necessary for this alternative.

Alternative 3 – replaces the bridge with a 90-foot (27.4-m) long bridge on a new location approximately 50 feet (15.24 m) south (upstream) of the existing structure. The existing Bridge No. 503 will be used to maintain traffic during construction. The approach work will extend approximately 40 feet (12.2 m) west of the bridge to approximately 370 feet (112.8 m) east of the bridge for a total distance of 500 feet (152.4 m). The new alignment will have a design speed of 40 mph (60 km/h). A design exception will not be necessary for this alternative. This alternative is not recommended because it impacts the softball field.

C. Alternatives Eliminated from Further Study

An alternative that replaces the bridge north of proposed Alternative 2 was considered. This alternative was eliminated due to the infringement on the school football field. This alternative was considered per comments received at the Ashe County Local Official's Meeting on May 16, 2001.

An alternative that replaces the bridge further south than Alternative 3 was considered. This alternative was eliminated because it impacts the softball field and cuts into a mountain.

A box culvert was considered but is not a feasible alternative for this location.

A No Build or "Do Nothing" alternative will eventually necessitate closure of the bridge. This is not acceptable because it eliminates access to the school.

"Rehabilitation" of the existing structure is not feasible due to its age and deteriorated condition.

D. Preferred Alternative

Alternative 2, replacing the existing bridge 50 feet (15.2 m) north of the existing bridge is the preferred alternate. It is the least disruptive to the athletic field and least expensive.

The NCDOT Division Engineer and Ashe County Middle School officials concur with Alternative 2 as the Preferred Alternative.

IV. ESTIMATED COSTS

The estimated costs, based on current prices (2001), are as follows:

Table 1.0 Estimated Costs per Alternative

	Alternative 1	Alternative 2 (Preferred)	Alternative 3
Structure	294,525	232,900	244,375
Roadway Approaches	83,100	78,950	92,475
Structure Removal	15,800	15,800	15,800
Misc. and Mobilization	199,450	122,350	122,350
Temporary On-Site Detour	157,125	0	0
Engineering & Contingencies	100,000	75,000	75,000
TOTAL CONSTRUCTION COST	850,000	525,000	550,000
Right of Way / Utilities	73,500	57,000	76,525
TOTAL PROJECT COST	923,500	582,000	626,525

The estimated cost of the project, shown in the 2002-2008 North Carolina Department of Transportation's Transportation Improvement Program (TIP) is $ 393,000, including $ 35,000 for right-of-way and $ 358,000 for construction.

V. NATURAL RESOURCES

The information contained in this section is based on the Natural Systems Technical Report (March 2002) prepared by Environmental Services Inc.

A. Methodology

The project study area was visited, walked, and visually surveyed for significant features on May 1, 2001 and August 9, 2001. The project study area encompasses the various alternatives under consideration and is approximately 6.9 acres [2.8 hectares (ha)] in area extent. Impacts calculated for each alignment using a width of approximately 60 feet (18.3 m); actual impacts will occur within construction limits and will be less than those calculated for this report. Special concerns evaluated in the field include potential habitat for protected species, streams, and water quality protection.

Materials and research data in support of this investigation have been derived from a number of sources including applicable U.S. Geological Survey (USGS) 7.5-minute topographical quadrangle mapping (Warrensville, NC 1966), U.S. Fish and Wildlife Service (FWS) National Wetlands Inventory (NWI) mapping, Natural Resources Conservation Service (NRCS) Ashe County Soil Survey (USDA 1985), and recent aerial photography (scale 1:1200) furnished by NCDOT.

Plant community descriptions are based on a classification system utilized by the North Carolina Natural Heritage Program (NHP) (Schafale and Weakley 1990). When appropriate, community classifications were modified to better reflect field observations. Vascular plant names follow nomenclature found in Radford *et al.* (1968). Jurisdictional areas were identified using the three parameter approach (hydrophytic vegetation, hydric soils, wetland hydrology) following U.S. Army Corps of Engineers (COE) delineation guidelines (DOA 1987). Jurisdictional areas were characterized according to a classification scheme established by Cowardin *et al.* (1979). Habitat used by terrestrial wildlife and aquatic organisms, as well as expected population distributions, were determined through field observations, evaluation of available habitat, and supportive documentation (Martof *et al.* 1980, Webster *et al.* 1985, Menhinick 1991, Hamel 1992, Rohde *et al.* 1994, Palmer and Brazwell 1995). Water quality information for area streams and tributaries was derived from available sources (DEM 1989, DEM 1993, DENR 2001a, DWQ 1999, DWQ 2000). Quantitative sampling was not undertaken to support existing data.

The most current FWS listing of federally protected species with ranges which extend into Ashe County was obtained prior to initiation of the field investigation (list date February 26, 2001, updated through May 24, 2001). In addition, NHP records documenting presence of federal or state listed species were consulted before commencing the field investigation and reviewed periodically (most recent review date October 10, 2001).

B. Physiography and Soils

The project study area is located in the Mountain physiographic province in the northwestern part of North Carolina. Topography is characterized by rolling to steep mountainous terrain. Elevations in the project study area range from approximately 2,650 feet (807.7 m) above mean sea level (MSL) to approximately 2,700 feet (823 m) above MSL (USGS Warrensville, NC quadrangle).

The project study area crosses four soil mapping units, one hydric mapping unit and three non-hydric mapping units (USDA 1985). The hydric mapping unit is the Toxaway loam (Cumulic

Humaquept), which is a poorly drained soil when on level terrain but very poorly drained soils when positioned along major streams throughout Ashe County. The three non-hydric soil mapping units are the Braddock-Urban land complex (Typic Hapludult), the Evard loam, 25-45% slopes (Typic Dystrochrept), and the Tusquitee and Spivey stony soils, 15-25% slopes (Umbric Dystrochrept, Typic Haplumbrept). The Braddock-Urban land complex includes those areas of well-drained Braddock soils and Urban lands which are too small and intertwined to be mapped separately. The Evard loam is a well-drained soil found on side slopes near drainages. The Tusquitee and Spivey stony soils consist of well-drained stony soils found on foot slopes and colluvial fans.

C. Water Resources

1. Waters Impacted

The project study area is located within the sub-basin 050702 of the New River Basin (DEM 2000). This area is part of USGS hydrologic unit 05050001 (USGS 1974). Buffalo Creek originates south of NC 88/194 near the Town of Warrensville, in Ashe County, and flows north to its confluence with the North Fork New River, north of the project study area. This stream has been assigned Stream Index Number (SIN) 10-2-20 by DWQ from its source to the North Fork New River.

2. Water Resource Characteristics

Stream Characteristics

Buffalo Creek is a perennial mountain stream with moderate flow over substrate consisting of sand, gravel and cobble. A geomorphic characterization of the stream section within the project study area indicates Buffalo Creek is a "B" type channel (Rosgen 1996). This designation indicates a stream, which exists on moderately steep to gently sloped terrain with a predominant landform of a narrow and moderately sloping basin. The "B" stream type exhibits low sinuosity and is dominated by rapids with relatively deep scour pools. Buffalo Creek is a single channel stream with a constricted bankfull width of approximately 30 to 40 feet (9.1 to 12.2 m) in width with a bankfull depth ranging from 24 to 36 inches (61 to 91 cm). The stream channel has apparently been channelized and relocated to its current location.

Best Usage Classifications and Water Quality

Classifications are assigned to waters of the State of North Carolina based on the existing or contemplated best usage of various streams or segments of streams in the basin. Buffalo Creek has a best usage classification of **C Tr+** (DEM 1993, DENR 2001a). The designation **C** denotes appropriate uses including aquatic life propagation and survival, fishing, wildlife, secondary recreation, and agriculture. Secondary recreation refers to human body contact with waters on an infrequent or incidental basis. The

supplemental classification **Tr** is used for trout waters characterized as waters suitable for natural trout propagation and maintenance of stocked trout. The special designation + identifies waters that are subject to a special management strategy specified in 15A NCAC 2B .0225, the Outstanding Resource Waters (ORW) rule, to protect downstream waters designated as ORW.

No High Quality Waters (**HQW**), **ORW**, WS-I, or WS-II Waters occur within 3.0 miles (4.8 km) of the project study area. Buffalo Creek is not designated as a North Carolina Natural and Scenic River, nor as a National Wild and Scenic River.

Ashe County is among the twenty-five mountain counties designated as having trout waters. Buffalo Creek is not a Designated Public Mountain Trout Water (DPMTW) by WRC, but is designated as a Trout Water by DWQ. The WRC prohibits any in-stream work and land disturbance activities associated with this project during trout spawning season of October 15 through April 15 (See letter dated August 6, 2001 in Appendix).

There are two permitted point source dischargers located within 4 miles (6.4 km) of Buffalo Creek (DENR 2001a). Discharges range from 0.01 million gallons per day (MGD) [0.03 million liters per day (MLD)] to 0.37 MGD (1.4 MLD). They are located on an unnamed tributary to Little Buffalo Creek and Buffalo Creek itself and are listed in Table 2.0 below.

Table 2.0 Permitted Point Source Dischargers

Permit	Facility	Receiving stream	Discharge	Distance
NC0020451	West Jefferson – WWTP	UT Little Buffalo Creek	0.37 MGD (1.4 MLD)	2.6 miles (4.2 km) upstream
NC0030325	Buffalo Meadows – DDK, Env.	Buffalo Creek	0.01 MGD (0.03 MLD)	3.4 miles (5.5 km) upstream

DWQ assigns bioclassifications to streams and portions of streams based on species richness and overall biomass, which are considered reflections of water quality. In 1993, benthic macroinvertebrate samples were taken from the source of Buffalo Creek to the North Fork New River. Benthic samples were taken in 1998 in the same location. The data collected from 1993 to 1998 suggests a decline in water quality with bioclassifications of Excellent to Good-Fair (DWQ 2000).

Another measure of water quality being used by DWQ is the North Carolina Index of Biotic Integrity (NCIBI), which assesses biological integrity using the structure and health of the fish community. No NCIBI sampling has been reported for Buffalo Creek. However, in 1998 a sample was taken approximately 3.0 miles (4.8 km) upstream of the confluence of the North Fork New River and Buffalo Creek at SR 1119 (W. Peak Road) over the North Fork New River and received a rating of Good-Fair (DWQ 1999).

3. Anticipated Impacts to Water Resources

Short-term impacts to water quality, such as sedimentation and turbidity, can be anticipated from construction-related activities. Best Management Practices (BMP's) can minimize impacts during construction, including implementing stringent erosion and sedimentation control measures, and avoiding using wetlands as staging areas can minimize construction impacts.

Other impacts to water quality that are anticipated as a result of this project include: changes in water temperature as a result of increased exposure to sunlight, increased shade due to the construction of the bridges, and changes in stormwater flows due to changes in the amount of impervious surface adjacent to the stream channels. However, due to the limited amount of overall change in the surrounding areas, impacts are expected to be temporary in nature.

Ashe County is among the twenty-five mountain counties designated as having trout waters. Buffalo Creek is not a Designated Public Mountain Trout Water (DPMTW) by WRC, but is designated as a Trout Water by DWQ. See Section V.C.2. for more information on the trout moratorium.

No adverse long-term impacts to water resources are expected to result from this project. New location alternatives will result in limited clearing of some canopy along the stream bank, resulting in potential for localized increase in sunlight and stream temperature. All alternatives for the proposed project include a channel spanning structure, which will allow for continuation of present stream flow within the existing channel, thereby protecting stream integrity.

4. Impacts Related to Bridge Demolition and Removal

The timber and steel components are slated for removal in a manner that will avoid dropping any bridge components into Buffalo Creek.

Disturbance of the stream channel must be limited to only what is necessary to perform the bridge demolition and removal. Heavy equipment must be operated from the banks rather than in the stream channel in order to minimize sedimentation and reduce the likelihood of introducing other pollutants into the stream (See N.C. Division of Water Quality letter dated August 15, 2001 in Appendix).

D. Biotic Resources

1. Plant Communities

Five distinct plant communities were identified within the project study area: piedmont/low mountain alluvial forest, maintained/disturbed, pasture, white pine forest, and rocky bar and shore. These plant communities are described below.

a. Man-Dominated Community

Pasture – Pastures cover approximately 0.45 acre (0.18 ha) (6.5 percent) of the project study area and are grassy areas used for grazing animals. Grasses are not maintained by mowing to allow animals to feed. A horse pasture within the project study area is located southwest of Buffalo Creek.

Maintained/Disturbed Areas – The maintained/disturbed areas cover approximately 4.17 acres (1.69 ha) (60.6 percent) of the project study area and includes roadsides, maintained residential yards, powerline right-of-way corridors, and areas where other human related activities dominate. Roadsides and powerline right-of-ways are maintained by mowing and/or herbicides. Residential yards are dominated by various grasses, shrubs and ornamentals and are mowed regularly. The project study area includes maintained horse stables, baseball and other athletic fields.

b. Other

Piedmont/Low Mountain Alluvial Forest – The Piedmont/low mountain alluvial forest covers approximately 0.09 acre (0.04 ha) (1.3 percent) of the project study area and is associated with the Buffalo Creek floodplain. This community is located in river and stream floodplains in which separate fluvial landforms and associated vegetation zones are too small to distinguish (Schafale and Weakley 1990). This community is characterized by location in a floodplain and the presence of alluvial species such as American sycamore (*Platanus occidentalis*), silky dogwood (*Cornus amomum*), yellow buckeye (*Aesculus octandra*), silver maple (*Acer saccharinum*) and boxelder (*Acer negundo*).

White Pine Forest – The white pine forest covers approximately 0.07 acre (0.03 ha) (1.0 percent) of the project study area and is associated with disturbed areas and is often a successional forest type. This community type is found at the southeastern edge of the project study area and has a canopy of white pine

(*Pinus strobus*) with a dense shrub layer of Canadian hemlock (*Tsuga canadensis*), yellow poplar (*Liriodendron tulipifera*) and rosebay (*Rhododendron maximum*).

Rocky Bar and Shore – Rocky bars cover less than 0.01 acre (0.004 ha) (0.1 percent) of the project study area and are in or adjacent to rivers and streams, which are too rocky, too wet, or too severely flooded to support trees. Community dynamics are dominated by flooding, sediment input, and disturbance by the creek. The rocky bar in the project study area is located north of Bridge No. 503 in the center of Buffalo Creek.

2. Wildlife

The study project area was visually surveyed for signs of terrestrial and aquatic wildlife. Little evidence of wildlife was observed during the field effort. The project study area is surrounded by roadways, a school, pasture, and residential yards. Alluvial forests along streams such as Buffalo Creek provide cover and food and allow animals to travel between more optimal habitats; however, the fragmented nature of the alluvial forest within the project study area is expected to provide little cover and food. Other expected wildlife species are those adapted to ecotones between the maintained roadsides and adjacent natural forest.

Few bird species were observed within or adjacent to the project study area. Bird species observed include red-winged blackbird (*Agelaius phoeniceus*), eastern towhee (*Pipilo erythrophthalmus*) as well as a female domestic Muscovy duck (*Cairina moschata*). Species that commonly occur in other regional alluvial forests include barred owl (*Salix varia*), belted kingfisher (*Megaceryle alcyon*), and pileated woodpecker (*Dryocopus pileatus*).

No mammals were observed within the project study area. The following mammals can be found within the project study area: white-tail deer (*Odocoileus virginianus*), eastern cottontail (*Sylvilagus floridanus*), domestic dog (*Canis familiaris*), woodchuck (*Marmota monax*), striped skunk (*Mephitis mephitis*), Virginia opossum (*Didelphis virginiana*), northern short-tailed shrew (*Blarina brevicauda*), and raccoon (*Procyon lotor*).

Due to the season in which the field work was conducted, no terrestrial reptiles were observed within the project study area. Expected reptile species include eastern garter snake (*Thamnophis sirtalis*), ringneck snake (*Diadophis punctatus*), black rat snake (*Elaphe obsoleta*), ringneck snake (*Diadophis punctatus*), and eastern box turtle (*Terrapene carolina*).

No terrestrial amphibians were observed within the project study area. Species expected to occur within the project study area include slimy salamander (*Plethodon spp.*), Fowler's toad (*Bufo woodhouseii*), spring peeper (*Pseudacris crucifer*) and northern cricket frog (*Acris crepitans*).

3. Aquatic Communities

Limited kick-netting, seining, dip-netting, and visual observation of stream banks and channel within the project study area of Buffalo Creek. Fish species documented in the segment of Buffalo Creek are rock bass (*Ambloplithes rupestris*), brown trout (*Salmo trutta*), smallmouth bass (*Microterus dolomieu*), central stoneroller (*Campostoma anomalum*), and northern hogsucker (*Hypentelium nigricans*).

Aquatic invertebrate surveys consisted of kick-netting, sweep-netting, leaf pack sampling, visual sampling, limited bottom sampling and walking all streambanks in the project study area to locate freshwater mussel middens. Visual observation of streambanks revealed evidence of freshwater mussels (*Pelecypoda*); however, no live mussels were found during surveys conducted in August 2001. Surveys conducted within the channel yielded a variety of aquatic macroinvertebrates. Organisms collected within Buffalo Creek were identified to the Order and include mayflies (Ephemeroptera), stoneflies (Plecoptera), caddisflies (Trichoptera), dragonflies (Odonata), craneflies (Diptera), water beetles (Coleoptera), midges (Diptera) and crayfish (Decapoda). Identifications are based on McCafferty (1998) and Merritt and Cummins (1996).

No aquatic reptiles were observed within the project study area. Species expected to occur within the project study area include northern water snake (*Nerodia sipedon*), queen snake (*Regina septemvittata*), painted turtle (*Chrysemys picta*) and common snapping turtle (*Chelydra serpentina*).

No aquatic amphibians were observed within the project study area. Species expected to occur within the project study area include red-spotted newt (*Notophthalmus viridescens*), bullfrog (*Rana catesbeiana*) and pickerel frog (*Rana palustris*).

4. Anticipated Impacts to Biotic Communities

a. Terrestrial Communities

Anticipated impacts to plant communities are estimated based on the acreage of each plant community present within the proposed right-of-way of 60 feet (18 m); actual impacts within construction limits will be less. A summary of potential community impacts is presented in Table 3.0:

Table 3.0 Potential Impacts to Plant Communities

PLANT COMMUNITY	ESTIMATED IMPACTS In acres (hectares)			
	Alternative 1		Alternative 2 (Preferred)	Alternative 3
	Impacts	Temp. Detour Impacts[a]	Impacts	Impacts
Piedmont/Low Mountain Alluvial Forest	0.04 (0.02)	0.00	0.00	0.02 (0.01)
Maintained/Disturbed	0.19 (0.06)	0.34 (0.14)	0.39 (0.16)	0.34 (0.14)
Pasture	0.00	0.00	0.00	0.00
White Pine Forest	0.00	0.00	0.00	0.00
Rocky Bar and Shore	<0.01[b]	<0.01[b]	<0.01[b]	0.00
Total:	0.23 (0.09)	0.34 (0.14)	0.39 (0.16)	0.36 (0.15)
Total for Alts:	0.57 (0.23)		0.39 (0.16)	0.36 (0.15)

[a] - *Temporary construction impacts are based on the portion of the impacts not included in the construction limits for the permanent structure.*

[b] - *Calculated impacts are no greater than 0.007 acre (0.003 ha).*

Alternative 1 contains the largest area of potential impact of 0.57 acre (0.23 ha), but the least amount of permanent impacts of 0.23 acre (0.09 ha), with the majority of impacts occurring in the Maintained/Disturbed areas. Alternative 1 contains potential impacts to the Rocky Bar and Shore, with approximately half of the existing Rocky Bar being subject to permanent impacts. Alternative 3 contains the median amount of permanent impacts of 0.36 acre (0.15 ha), with the majority of impacts occurring to the Maintained/Disturbed areas. Alternative 3 does not impact the Rocky Bar, but does impact the Piedmont/Low Mountain Alluvial Forest. Alternative 2 contains the largest amount of potential permanent impacts of 0.39 acre (0.16 ha) with the majority of the impacts occurring to the Maintained/Disturbed areas. Alternative 2 contains potential impacts to the Rocky Bar.

Due to the limited extent of infringement on natural communities, the proposed bridge replacement will not result in significant loss or displacement of known terrestrial animal populations. Wildlife movement corridors are currently limited within the project study area and are not expected to be significantly impacted by the proposed project.

b. Wetland Communities

Wetlands subject to review under Section 404 of the Clean Water Act (33 U.S.C. 1344) are defined by the presence of three primary criteria: hydric soils, hydrophytic vegetation and evidence of hydrology at or near the surface for a portion (12.5 percent) of the growing season (DOA 1987). Based on this three-parameter approach, jurisdictional wetlands do not occur within the project study area.

Anticipated impacts to open water areas are estimated based on the amount of each jurisdictional area within the proposed right-of-way width of 60 feet (18 m); actual areas within construction limits will be less. Open water areas of Buffalo Creek (R2UBH) are included in this table. During bridge removal, Best Management Practices (BMP's), including erosion control measures will be used. Therefore, it is anticipated that removing the existing bridge will result in no impact to surrounding surface waters. A summary of potential jurisdictional impacts is presented below:

Table 4.0 Estimated Impacts to Jurisdictional Areas per Alternative

JURISDICTIONAL AREAS	ESTIMATED IMPACTS			
	Alternative 1		Alternative 2 (Preferred)	Alternative 3
	Impacts	Temp. Construction Impacts	Impacts	Impacts
Open Water in acres (hectares)	0.04 (0.02)	0.02 (0.01)	0.03 (0.01)	0.05 (0.02)
TOTAL FOR ALTS:	0.06 (0.02)		0.03 (0.01)	0.05 (0.02)
Stream Channel Impacts in feet (meters)	60 (18)	40 (12)	60 (18)	60 (18)
TOTAL FOR ALTS:	100 (30)		60 (18)	60 (18)

Note: Temporary construction impacts are based on the portion of the impacts not included in the construction limits for the permanent structure.

All alternatives contain approximately 60 linear feet (18 m) of stream channel associated with the bridge replacement. Alternative 1 contains the largest open water area at 0.06 acre (0.02 ha), although a portion of this area is within the temporary detour. Alternative 1 also includes an additional 40 linear feet (12 m) of stream channel associated with its temporary detour. Alternative 3 contains the median open water area at approximately 0.05 acre (0.02 ha) because Buffalo Creek is slightly wider at the point this alternative crosses the channel. Alternative 2 contains the least amount of open water area at 0.03 acre (0.01 ha).

c. Aquatic Communities

Potential down-stream impacts to aquatic habitat will be avoided by bridging the system to maintain regular flow and stream integrity. In addition, temporary impacts to downstream habitat from increased sediment during construction are expected to be reduced by limiting the in-stream work to an absolute minimum, except for the removal of the portion of the substructure below the water. Best Management Practices for the protection of surface waters should be strictly enforced to reduce impacts. BMP-BDRs will be followed to minimize impacts due to anticipated bridge demolition. Avoiding all in-stream work during the trout-spawning season, between October 15 and April 15, will minimize impacts to trout populations.

E. Special Topics

1. "Waters of the United States": Jurisdictional Issues

Surface waters within the embankments of Buffalo Creek are subject to jurisdictional consideration under Section 404 of the Clean Water Act as "Waters of the United States" (33 CFR 328.3). The waters of the reach of Buffalo Creek within the project study area exhibit characteristics of riverine, upper perennial, unconsolidated bottom, permanently flooded waters (R2UBH) (Cowardin *et al.* 1979).

2. Permits

a. Section 404 of the Clean Water Act

This project is being processed as a Categorical Exclusion (CE) under Federal Highway Administration (FHWA) guidelines. Nationwide Permit (NWP) #23 [33 CFR 330.5(a)(23)] has been issued by the U.S. Army Corps of Engineers (COE) for use with projects classified as CEs due to expected minimal impact. In the event that NWP #23 will not suffice, minor impacts attributed to bridging and associated approach improvements are expected to qualify under General Bridge Permit 031. Notification to COE is required if this general permit is utilized. NWP #33 may be used if temporary structures, work and discharges, including cofferdams are necessary for this project.

b. Section 401 Water Quality Certification

Section 401 of the CWA delegates authority to the states to issue a 401 Water Quality Certification for all projects that require a Federal Permit, such as a Section 404 Permit. DWQ has issued a General 401 Water Quality Certification for NWP #23. However, use of this permit will require written notice to DWQ.

c. Bridge Demolition and Removal

Section 402-2 of NCDOT's Standard Specifications for Roads and Structures is labeled **Removal of Existing Structure**. This section outlines restrictions and Best Management Practices for Bridge Demolition and Removal (BMP-BDRs), as well as guidelines for calculating maximum potential fill in the creek resulting from demolition. After construction activities are completed, abandoned approaches associated with the existing structure and/or temporary detours will be removed and revegetated in accordance with NCDOT guidelines. This project falls under "Case 2" of the BMP-BDR, which allows no work in the water at all during the moratorium period of October 15 through April 15.

d. Coast Guard

Bridge replacement or construction over navigable waters used for commerce or that have a maintained navigation channel may require U.S. Coast Guard (USCG) authorization pursuant to 33 CFR 114-115. Buffalo Creek is not classified as a navigable water; therefore, USCG authorization is not required.

e. Tennessee Valley Authority

Bridge No. 503 is located outside of the Tennessee River drainage area and no TVA land or land rights are involved. Therefore, TVA's approval of the plans pursuant to Section 26a of the TVA Act for Bridges and Indicated Locations is not required.

f. Designated Public Mountain Trout Water

Ashe County is among the twenty-five mountain counties designated as having trout waters. Buffalo Creek is not a Designated Public Mountain Trout Water (DPMTW) by WRC, but is designated as a Trout Water by DWQ. The WRC prohibits any in-stream work and land disturbance activities associated with this project during trout spawning season of October 15 through April 15 (See letter dated August 6, 2001 in Appendix)

g. Special Waters

No High Quality Waters (**HQW**), **ORW**, **WS-I**, or **WS-II** Waters occur within 3.0 miles (4.8 km) upstream or downstream of the project study area (DEM 1993). Buffalo Creek is not designated as a North Carolina Natural and Scenic Rivers, nor as National Wild and Scenic Rivers.

3. Buffer Rules

No buffer rules currently apply to the New River Basin.

4. Mitigation

Avoidance –Each alternative contains jurisdictional open water areas which will be subject to impact. However, open water will be bridged from high ground such that no fill will be placed in the "Waters of the U.S." for any of the alternatives. All proposed alternatives avoid impacts to jurisdictional wetlands. Stream impacts for each alternative are previously discussed in Section V.D.4.b.

Minimization – The alternative corridors presented were developed in part to demonstrate minimization of stream impacts. Impacts to open water areas will be minimized by removing the existing facility in a manner designed to avoid dropping bridge components into Buffalo Creek. Further efforts to minimize impacts to surface waters will be made during final design phase of this project.

Mitigation - Compensatory mitigation is not proposed for this project due to the limited nature of project impacts. However, utilization of BMPs is recommended in an effort to minimize impacts including avoiding placing staging areas within wetlands. Temporary impacts associated with the construction activities could be mitigated by replanting disturbed areas with native species and removal of temporary fill material within the floodplain upon project completion.

F. Rare and Protected Species

1. Federally Endangered and Threatened Species

Species with the federal classification of Endangered (E) or Threatened (T), or officially proposed (P) for such listing, are protected under the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*). The following federal protected species are listed for Ashe County (FWS list dated February 26, 2001, updated through May 24, 2001):

Common Name	Scientific Name	Status
Bog turtle	*Clemmys muhlenburgii*	T(S/A)
Swamp pink	*Helonias bullata*	T
Virginia spiraea	*Spiraea virginiana*	T
Spreading avens	*Geum radiatum*	E
Roan Mountain bluet	*Houstonia montana*	E
Heller's blazing star	*Liatris helleri*	T
Rock gnome lichen	*Gymnoderma lineare*	E

Bog Turtle - The bog turtle is a small turtle reaching an adult size of approximately 3 to 4 inches (7.6 to 10.2 cm). This otherwise darkly-colored species is readily identifiable by the presence of a bright orange or yellow blotch on the sides of the head and neck (Martof *et. al.* 1980). The bog turtle is typically found in bogs, marshes, and wet pastures, usually in association with aquatic or semi-aquatic vegetation and small, shallow streams over soft bottoms (Palmer and Braswell 1995). In North Carolina, bog turtles have a discontinuous distribution in the Mountains and western Piedmont. NHP records do not indicate that bog turtle has been documented within 3.0 miles (4.8 km) of the project study area.

BIOLOGICAL CONCLUSION: The bog turtle is listed as Threatened due to Similarity of Appearance [T(S/A]. T(S/A) species are not subject to Section 7 consultation and a biological conclusion is not required. However, this project is not expected to affect the bog turtle due to lack of suitable habitat within the project study area, with coarse-bottomed rather than soft-bottomed stream channels, and no jurisdictional wetland areas. **NO EFFECT.**

Swamp Pink – Swamp pink is a perennial, hydrophytic herb in the lily family with simple leaves in a basal rosette. Small scale-like leaves or bracts are found on a hollow flowering stem which may be 16 inches (40.6 cm) tall in flower and 24 inches (61.0 cm) tall in fruit (USFWS 1991). The inflorescence consists of pink to lavender flowers borne on a raceme without bracts. Fruits consist of three- lobed papery capsules. Flowering occurs in April and persists through July. Vegetative portions of the plant may emerge in April and persist through September (Massey *et al.* 1983).

In North Carolina, swamp pink is found in mountain swamps and bogs. Swamp pink occurs along small watercourses in permanently saturated, acidic, organic soils or black muck which is mostly sphagnous (Porter and Wieboldt 1991). Swamp pink does not tolerate prolonged inundation, but can survive

infrequent and brief flooding. NHP records do not indicate that swamp pink has been documented within 3.0 miles (4.8 m) of the project study area.

> **BIOLOGICAL CONCLUSION:** The proposed project is not expected to affect swamp pink due to a lack of potential habitat. This species requires swamp and bog environments to survive, which are not present within the project study area. **NO EFFECT.**

Virginia Spiraea – Virginia spiraea is a deciduous shrub with a modular growth form (USFWS 1992). This clonal shrub that averages 3 to 10 feet (0.9 to 3.0 m) in height, but may reach heights of 13 feet (4.0 m). Its short-stalked leaves are alternate, nearly toothless, and narrowly elliptic with a pointed tip (Radford et al. 1968). Numerous small, white, 5-petaled flowers are produced on terminal clusters in June to July. Dried corymbs often persist through winter. Seed production is reported to be sporadic and most colonies are believed to arise from downstream dispersal and establishment of fragments of horizontal rootstock (Porter and Wieboldt 1991).

Endemic to the southern Appalachians, Virginia spiraea is restricted to disturbance-prone riverine areas, specifically along scoured banks of high gradient streams, meander scrolls, point bars, natural levees, and braided features of lower stream reaches (Porter and Wieboldt 1991). Disturbance is required for removal of woody competitors and to aid in establishment of colonies. NHP files do not indicate that Virginia spiraea has been documented neither within Buffalo Creek upstream of the project study area nor within 3.0 miles (4.8 km) of the project study area.

> **BIOLOGICAL CONCLUSION:** Suitable habitat for Virginia spiraea was identified within the project study area; specifically, the rocky bar located downstream of the existing bridge. Detailed surveys for this species were conducted on August 9, 2001. Prior to the initiation of the survey, a reference population was reviewed to familiarize ESI biologists with the flowering status and growth stage of this species. Systematic surveys were conducted in potential habitat within the project study area, as well as 100 feet (30.5 m) upstream and downstream of the project study area. No evidence of Virginia spiraea was noted. **NO EFFECT.**

Spreading Avens - Spreading avens is an erect, densely hairy, perennial herb up to 20 inches (50.8 cm) tall. A basal rosette of odd-pinnately compound leaves is produced from a horizontal rhizome. These leaves are long stalked and terminated by a large kidney-shaped lobe; tiny leaflets are usually present below the terminal lobe (Kral 1983). Small, sessile, serrated leaves are found on the flowering stem.

Lanceolate sepals and relatively long petal lengths of 0.5 to 0.8 inches (1.3 to 2.0 cm) help differentiate spreading avens from related species (Massey *et al.* 1983). Bright yellow, five-petaled flowers approximately 2.4 to 3.1 inches (6.1 to 7.9 cm) across are produced from June to August; these are followed between July and October by hairy achenes with a persistent, straight style approximately 0.2 inches (0.5 cm) long (Massey *et al.* 1983). Vegetative parts may emerge in May and persist through October.

Spreading avens usually occurs at elevations greater than 5,000 feet (1,524 m) above MSL in mountain grass balds or in grassy clearings in heath balds as well as in crevices of granitic rock. This species cannot tolerate shading or crowding (Kral 1983). Spreading avens is found in a few northwestern counties of North Carolina, and in nearby counties of Tennessee. NHP records indicate that a 1989 occurrence of spreading avens was documented on Phoenix Mountain approximately 2.7 miles (4.3 km) east of the project study area.

> **BIOLOGICAL CONCLUSION:** The proposed project is not expected to affect spreading avens since elevations within the project study area are a maximum of 2,700 feet (823 m) above MSL, significantly below the reported minimum elevation of 5,000 feet (1,524 m) for this species. Suitable habitat for this species, consisting of balds or rock outcroppings, was not identified within the project study area. **NO EFFECT.**

Roan Mountain Bluet - Roan Mountain bluet, formerly treated as a variety of the summer bluet (*Houstonia* [=*Hedyotis*] *purpurea*), is a low, erect to spreading perennial herb with a squarish stem typically growing to 6 inches (15 cm) high. The leaves are opposite, sessile, rounded basally but taper to a pointed tip and have smooth, toothless margins. Small, deep purple, tubular flowers are produced on small terminal clusters in May and August with fruiting occurring in August and September. It differs from the more common *H. purpurea* by having larger, smooth-edged leaves, and by larger flowers, capsules, and seeds (Weakley 1993).

Roan Mountain bluet is endemic to the high Blue Ridge Mountains of North Carolina and Tennessee, mostly from 4,200 to 6,300 feet (1,280 to 1,920 m) above MSL in elevation. It grows in crevices of rock outcrops as well as in thin, gravelly soils of grassy balds near summit outcrops (Weakley 1993). NHP records indicate that Roan Mountain bluet was documented 1.0 mile (1.6 km) southwest of Dresden, North Carolina on the north side of Three Top Mountain Summit.

BIOLOGICAL CONCLUSION: The proposed project is not expected to affect Roan Mountain bluet since elevations within the project study area are a maximum of 2,700 feet (823 m) above MSL, significantly below the reported minimum elevation of 4,200 feet (1,280 m) for this species. Suitable habitat for this species, consisting of balds, was not identified within the project study area. **NO EFFECT.**

Heller's Blazing Star - Heller's blazing star is an erect herbaceous perennial with glabrous stems that reaches heights of 4 to 20 inches (10 to 51 cm). The leaves are simple, linear to lanceolate, alternate, and arranged spirally along the stem. Leaf size is variable, with a gradual decrease in size up the stem. The inflorescence consists of compact heads arranged in a raceme-like fashion along the stem. The heads typically contain seven to ten tubular florets which may be purple to lavender in color. Heller's blazing star is distinguished from related species by shorter height and relatively short pappus (modified calyx lobes) half or less the length of the corolla tube. Flowers are produced from July to September, with fruiting occurring from August to October (Massey *et al.* 1983).

Heller's blazing star has been found on rocky summits at high elevations in the mountains of western North Carolina. This species typically is found in full sun growing in shallow, acidic soils on or around granitic outcrops, ledges, and cliff faces (Kral 1983, Massey *et al.* 1983). Heller's blazing star is reported to occur at elevations between approximately 3,500 to 6,200 feet (1,067 to 1,890 m) above MSL. NHP records do not indicate that Heller's blazing star has been documented within 3.0 miles (4.8 km) of the project study area.

BIOLOGICAL CONCLUSION: The proposed project is not expected to affect Heller's blazing star since elevations within the project study area are a maximum of 2,700 feet (823 m) above MSL, below the reported minimum elevation of 3,500 feet (1,067 m) for this species. Suitable habitat for this species, consisting of rocky summits, ledges or cliffs exposed to full sunlight, was not identified within the project study corridor. **NO EFFECT.**

2. Federal Species of Concern

The February 26, 2001 FWS list (updated through May 24, 2001) also includes a category of species designated as "Federal species of concern" (FSC). The FSC designation provides no federal protection under the ESA for the species listed. The presence of potential suitable habitat (Amoroso 1999, LeGrand and Hall 1999) within the project study area has been evaluated for the following FSC species listed for Ashe County and are presented in Table 5.0.

Table 5.0 Federal Species of Concern for Ashe County, NC			
Common Name	Scientific Name	State Status	Potential Habitat
Appalachian Bewick's wren	*Thryomanes bewickii altus*	E	N
Pygmy snaketail	*Ophiogomphus howei*	SR	Y
Gammon's stenelmis riffle beetle	*Stenelmis gammoni*	SR	N
Kanawha minnow	*Phenacobius teretulus*	SC	Y
Diana fritillary butterfly	*Speyeria diana*	SR	Y
Regal fritillary butterfly	*Speyeria idala*	SR	N
Appalachian cottontail	*Sylvilagus obscurus*	SR	N
Green floater	*Lasmigona subviridus*	E	Y
Appalachian oak fern	*Gymnocarpium appalachianum*	E	N
Carolina saxifrage	*Saxifraga caroliniana*	C	Y
Bluff Mountain reindeer lichen	*Cladonia psoromica*	C	N
Tall larkspur	*Delphinium exaltatum*	E-SC	N
Glade spurge	*Euphorbia purpurea*	C	N
Butternut	*Juglans cinerea*	W5	Y
Gray's lily	*Lilium grayi*	T-SC	Y
Bog bluegrass	*Poa paludigena*	E	N

*E-Endangered, T-Threatened, SC- Special Concern, C –Candidate, SR – Significantly Rare, W – Watch List, P_ - Proposed

NHP files do not document any FSC occurrences within the project study area. NHP files do document eleven FSC occurrences within 3.0 miles (4.8 km) of the project study area; one occurrence of Kanawha minnow and ten occurrences of Carolina saxifrage. The first occurrence is a 1972 record of Kanawha minnow located in the North Fork New River, approximately 1.5 miles (2.4 km) northeast of the project study area. The second occurrence is a 1997 record of Carolina saxifrage located along the North Fork New River approximately 0.5 mile (0.8 km) east of the project study area, a 1997 record located on Phoenix Mountain, approximately 1.0 mile (1.6 km) northeast of the project study area, a 1997 record located on Three Top Mountain approximately 1.8 miles (2.9 km) southwest of the project study area, and a 1997 record located on Three Top Mountain approximately 1.9 miles (3.1 km) southwest of the project study area. The remaining six records are greater than 2.0 miles (3.0 km) from the project study area.

3. Summary of Anticipated Impacts

Due to the federal status of the bog turtle [T(S/A)], this species is not subject to Section 7 consultation and a biological conclusion is not required. This project is not expected to affect the bog turtle nor the other six threatened and endangered species located in Ashe County. Potential habitat occurs for six of the listed sixteen federal species of concern.

VI. CULTURAL RESOURCES

A. Compliance Guidelines

This project is subject to compliance with Section 106 of the National Historic Preservation Act of 1966, as amended, implemented by the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106, codified at Title 36 CFR Part 800. Section 106 requires that for federally funded, licensed, or permitted projects having an effect on properties listed in or eligible for inclusion in the National Register of Historic Places, the Advisory Council on Historic Preservation be given the opportunity to comment.

B. Historic Architecture

A field survey of the Area of Potential Effect (APE) was conducted on October 18, 2001. All structures within the APE were photographed and later reviewed by the State Historic Preservation Office (HPO). In a concurrence form dated October 18, 2001 and a memorandum dated October 26, 2001, the State Historic Preservation Officer (SHPO) concurred that there are no historic architectural resources either listed in or eligible for listing in the National Register Historic Places within the APE. A copy of the concurrence form and the memorandum are included in the Appendix.

C. Archaeology

The State Historic Preservation Officer (SHPO) determination on archaeological impact is pending.

VII. ENVIRONMENTAL EFFECTS

Field surveys were performed and a Hydraulic Technical Memorandum was produced for this project in February 2001. Ashe County is a participant in the National Flood Insurance Program. Bridge No. 503 is located in a 100-year Federal Emergency Management Agency (FEMA) floodplain, Zone AE (See Figure 5). A detailed study was prepared and established a 100-year flood elevation of 2,675.2 feet (815.4 m) for Bridge No. 503. There is a USGS gage approximately 2,000 feet (610 m) upstream at site

03162110 on Buffalo Creek near Warrensville, North Carolina. The amount of floodplain area to be affected is not substantial. The project will not increase the upstream limits of the 100-year floodplain.

The project is expected to have an overall positive impact on the local area. Replacement of an inadequate bridge will result in safer and more efficient traffic operations.

The project is considered to be a Federal "Categorical Exclusion" due to its limited scope and lack of substantial environmental consequences.

The bridge replacement will not have an adverse effect on the quality of the human or natural environment with the use of the current NCDOT standards or specifications.

The project is not in conflict with any plan, existing land use, or zoning regulation. No change in land use is expected to result from the construction of the project.

No adverse effect on individual families or communities is anticipated. Right-of-way acquisition will be limited. No relocatees are expected with implementation of the Preferred Alternative (Alternative 2).

The studied route does not contain any bicycle accommodations, nor is it a designated bicycle route. Pedestrians regularly use SR 1674 to access Ashe County Middle School. A 5-foot (1.5 m) sidewalk to the south side of the bridge is included in the bridge design. During final design, an additional sidewalk will be added to the north side of the bridge to better accommodate for pedestrian traffic going to and from the school.

No adverse effect on public facilities or services is anticipated with the implementation of the Preferred Alternative (Alternative 2). The project is not expected to adversely affect social, economic, or religious opportunities in the surrounding area.

No geodetic survey markers will be impacted.

This project has been coordinated with the United States Natural Resources Conservation Service (NRCS). The Farmland Protection Policy Act requires all Federal agencies or their representatives to consider the potential impact to prime farmland of all land acquisition and construction projects. There

are soils classified as prime, unique, or having state or local importance within a 0.5-mile (0.8-km) radius of Bridge No. 503. The only prime farmland soil included in this area is Tusquitee loam (TsD), 8 to 15% slopes. State and local important soils in this area are as follows: Toxaway loam (To); Colvard fine sandy loam (Co); Clifton loam (CfE), 15 to 25% slopes; and Evard loam (EvE), 15 to 25% slopes. This project will not involve the direct conversion of any unique soils within the vicinity of the project. The only soil found within the project study area is Toxaway loam.

This project is in an air quality "neutral" project, so it is not required to be included in the regional emissions analysis and a project level CO analysis is not required.

This project is located in Ashe County, which has been determined to be in compliance with the National Ambient Air Quality Standards. 40 CFR Part 51 is not applicable because the proposed project is located in an attainment area.

Noise levels could increase during construction but will be temporary. If vegetation is disposed of by burning, all burning shall be done in accordance with applicable local laws and regulations of the North Carolina State Implementation Plan (SIP) for air quality in compliance with 15 NCAC2D.0520. This evaluation completes the assessment requirements for highway traffic noise of Title 23, Code of Federal Regulations (CFR), Part 772 and for air quality (1190 Clean Air Act Amendments and the National Environmental Policy Act) and no additional reports are required.

A search was performed of the project study area utilizing the ASTM Standard Practice for Environmental Site Assessments (E 1527-97). This search included the NPL (National Priority List), CERCLIS (Comprehensive Environmental Response, Compensation, and Liability Information System), RCRIS (Resource Conservation and Recovery Information), and UST (Petroleum Underground Storage Tank Database) as well as other applicable databases. The results of this search documented two UST sites, Ashe County Middle School and Blue Ridge Elementary School, within the 0.5-mile (0.8-km) ASTM search radius. Ashe County Middle School was contacted by RK&K on February 21, 2001 for the location of the UST. The UST is a fuel storage tank located behind the school and should not be impacted by the proposed alternatives. Blue Ridge Elementary School is located at 5778 NC HWY 88, about 0.5-mile (0.8 km) from the project study area and will not be impacted by the proposed alternatives. No other mapped sites were found within the ASTM search radius.

There are no other practical alternatives to crossing the floodplain area. Any shift in alignment will result in a crossing of about the same magnitude. All reasonable measures will be taken to minimize any possible harm.

On the basis of the above discussion, it is concluded that no significant adverse environmental effects will result from implementation of the proposed project.

VIII. PUBLIC INVOLVEMENT

Public involvement for this project initially involved compiling a database of property owners, area businesses and local public officials. This database was used to send out Newsletter No. 1 in October 2001 announcing the project and detailing the three alternatives being considered (See Appendix). A local official's meeting was scheduled for May 16, 2001 to discuss the bridge replacement alternatives at the Ashe County Middle School with Ashe County school officials. Comments were received from the transportation coordinator and principal (see letter in Appendix). One comment received from a citizen requested that a turning lane be placed on NC 194 that goes to the school. No other written comments or questions were received.

IX. AGENCY COMMENTS

Agencies have commented upon the proposed bridge replacement. These comments have been noted, considered in the environmental and design processes, and included in the Appendix.

X. SECTION 4(f) RESOURCES

Section 4(f) of the Department of Transportation Act of 1966, as amended, states in part "The Secretary may approve a transportation project or program requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge, or land of a historic site of national, state, or local significance (as determined by the Federal, State or local officials having jurisdiction over the park, recreation area, refuge, or site) only if –

(1) there is no prudent and feasible alternative to using land; and
(2) the program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from such use."

The proposed project requires right-of-way acquisition and/or easement from Ashe County Middle School. The school is located at 255 SR 1674 (Northwest Lane) in Warrensville, North Carolina.

The school grounds are used as a public park and recreation area. In the vicinity of Bridge No. 503, there is a football field, a softball field, a field house, gates, and a scoreboard. The fields are used outside of school hours primarily by little league teams and other organized groups. Inside the school is an indoor pool facility which is open year round, seven days a week.

Since it is anticipated that the proposed project will require the use of property from Ashe County Middle School, a Section 4(f) Evaluation is required.

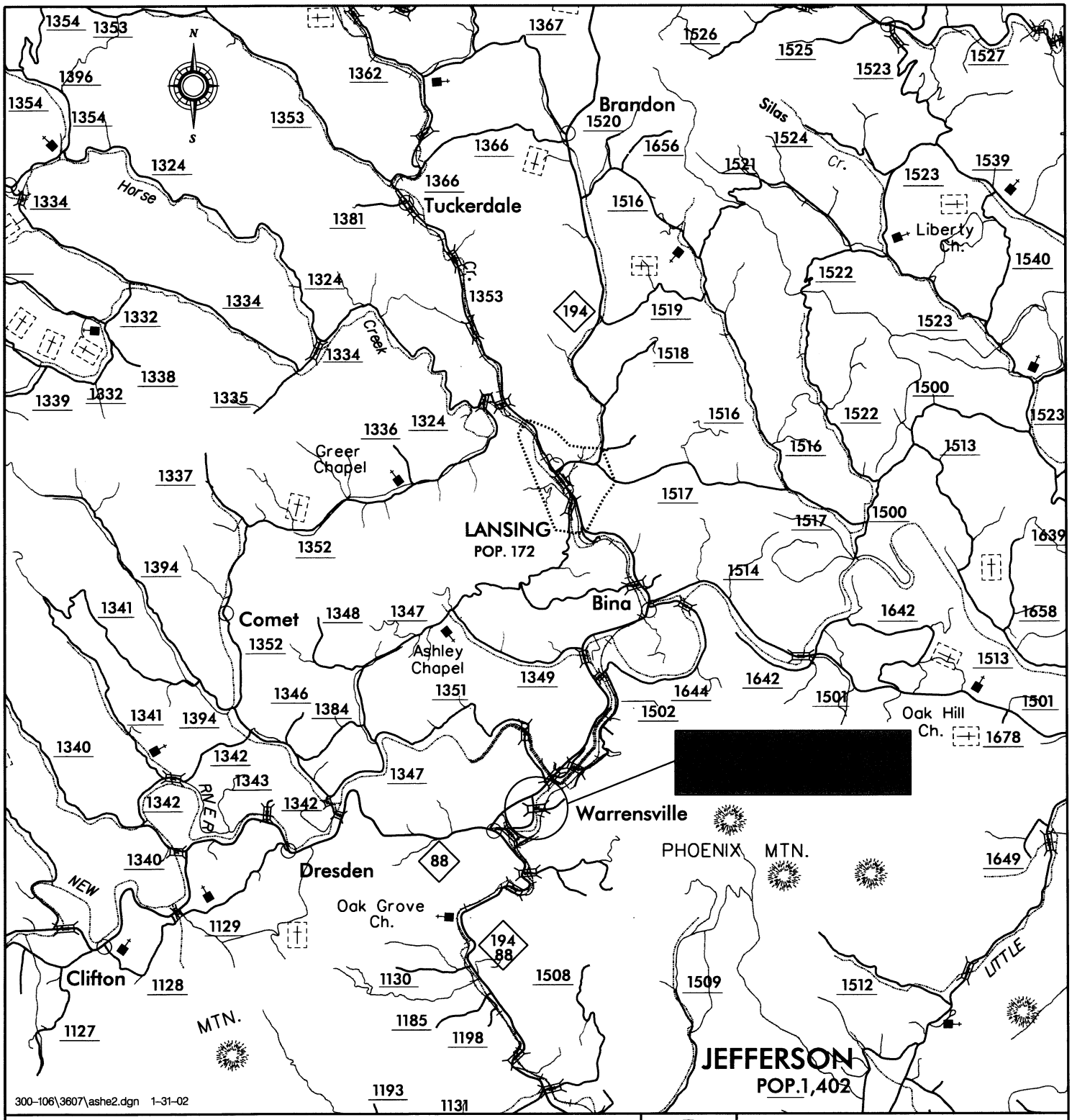
The Ashe County Middle School principal was contacted and was involved in the design of the proposed alternatives. The school officials agreed that Alternative 2 was the least disruptive to the school and athletic fields. Alternative 2 does encroach on the fieldhouse next to the football field, but avoids impacts to the football and softball fields. It also provides the best turning radius for school buses when turning off SR 1505 (Northwest School Road) onto SR 1674.

The Ashe County Board of Education requested that the Ashe County school system not incur any cost related to this project and the following be implemented (See letter dated June 29, 2001 in Appendix):

- that DOT, or their contractors be responsible for the removal of the existing field house and for the replacement of said field house with a comparable facility;
- that DOT, or their contractors be responsible for removing the portion of the security fence taken by the project and that the fence be reinstalled whenever feasible during the project; and
- that DOT, or their contractors replace the security gate at the east end of the new bridge.

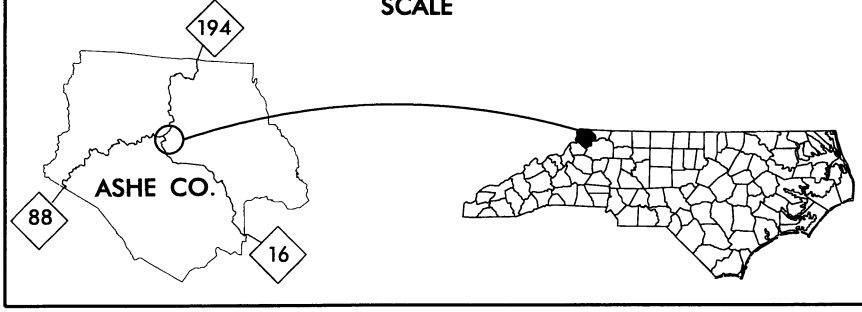
Approval of the Programmatic Section 4(f) Evaluation by the Federal Highway Administration is included in the Appendix.

EXHIBITS



1 0 1 2 MILES

SCALE



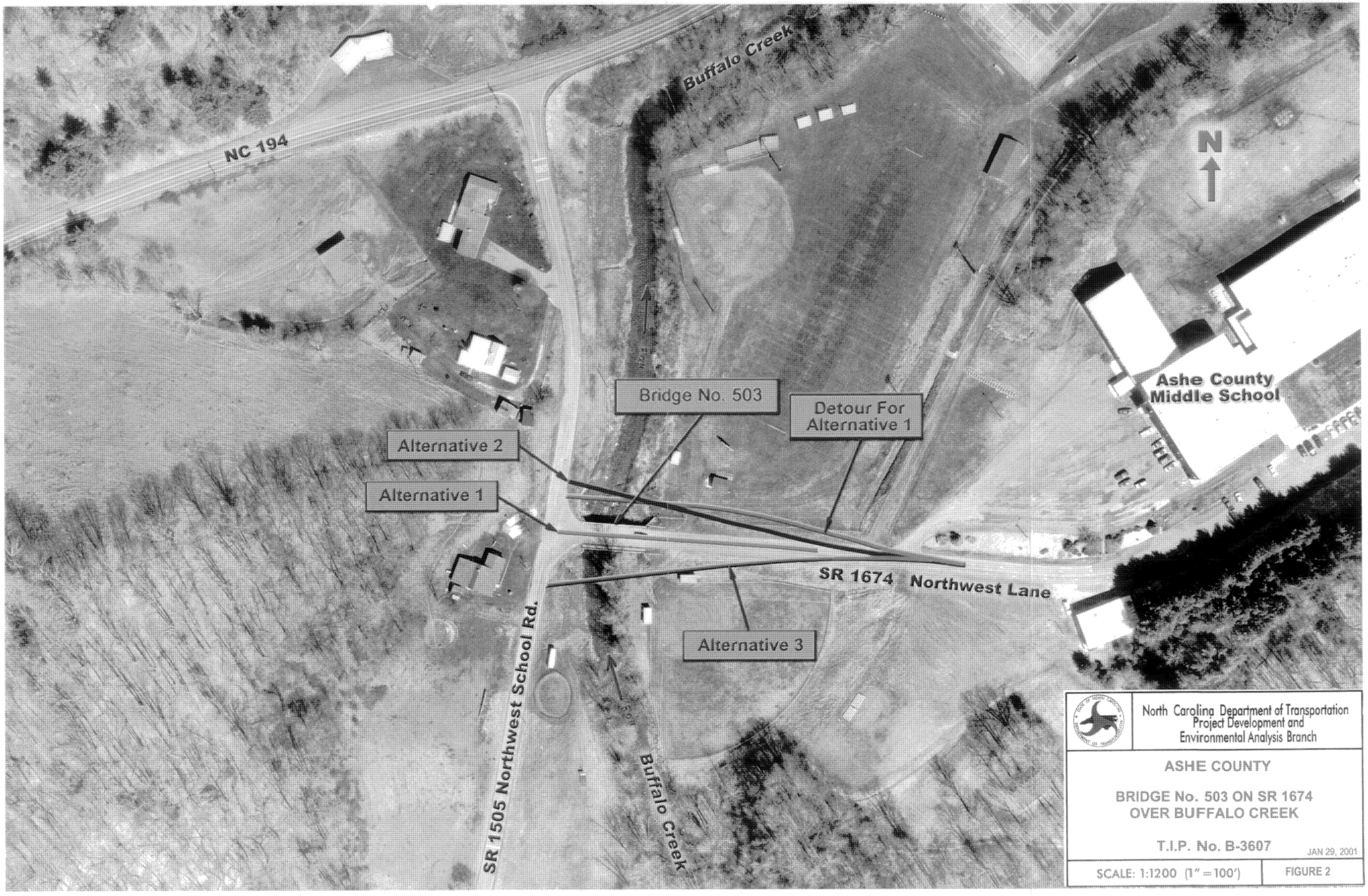
North Carolina Department of Transportation
Project Development and Environmental Analysis Branch

ASHE COUNTY

BRIDGE No. 503 ON SR 1674 NORTHWEST LANE OVER BUFFALO CREEK

T.I.P. No. B-3607

FIGURE 1



North Carolina Department of Transportation
Project Development and Environmental Analysis Branch

ASHE COUNTY

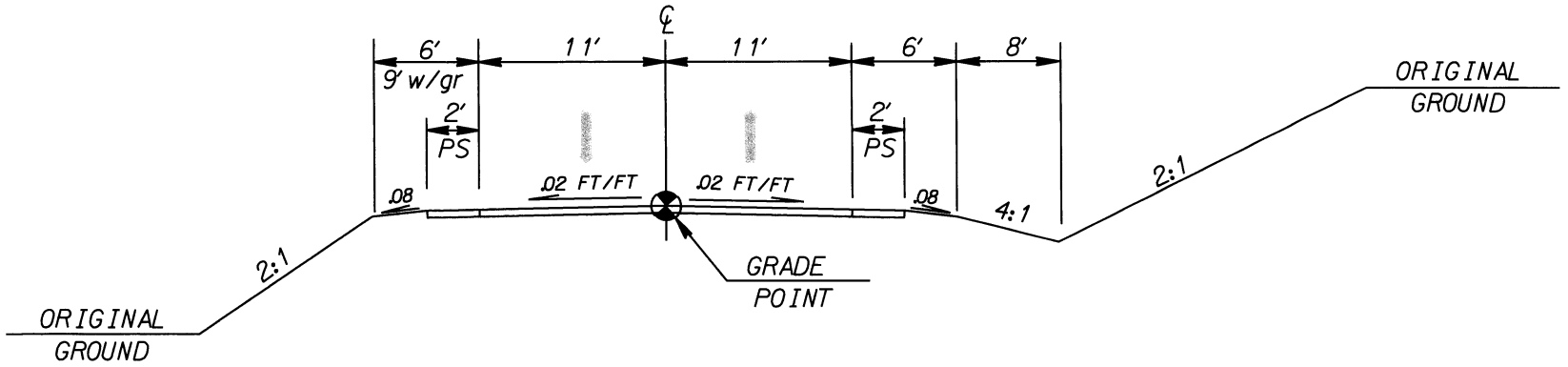
BRIDGE No. 503 ON SR 1674
OVER BUFFALO CREEK

T.I.P. No. B-3607

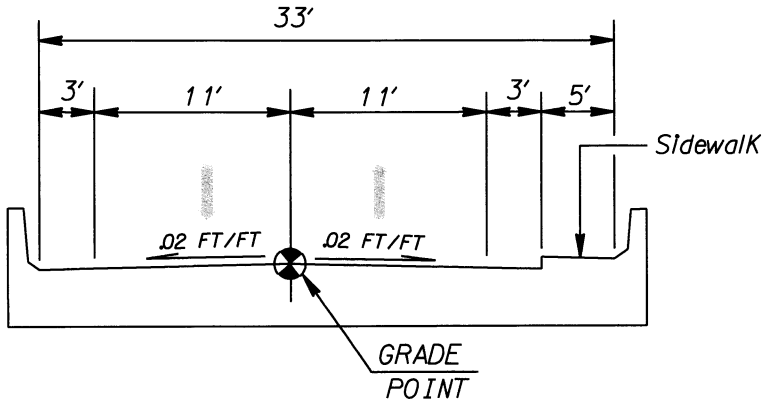
JAN 29, 2001

SCALE: 1:1200 (1" = 100')

FIGURE 2



TYPICAL SECTION



TYPICAL BRIDGE SECTION
EXISTING BRIDGE LENGTH = 76′

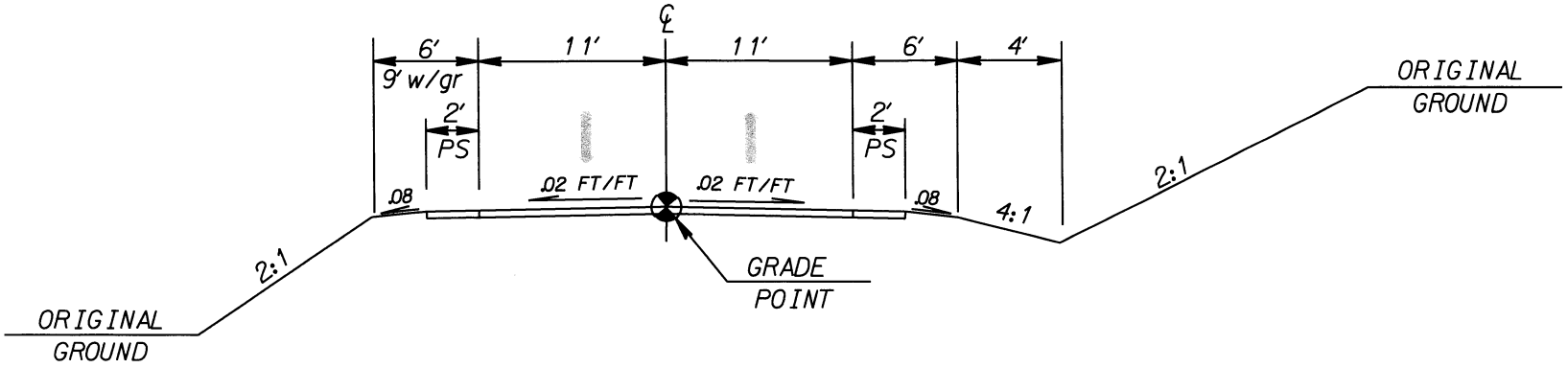
North Carolina Department of Transportation
Project Development and
Environmental Analysis Branch

ASHE COUNTY

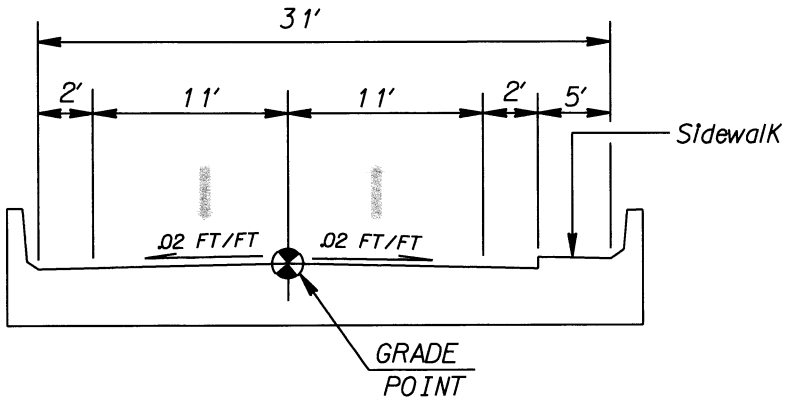
BRIDGE No. 503 ON SR 1674
NORTHWEST LANE
OVER BUFFALO CREEK

T.I.P. No. B-3607

FIGURE 3a



DETOUR TYPICAL SECTION



TYPICAL DETOUR BRIDGE SECTION

North Carolina Department of Transportation
Project Development and
Environmental Analysis Branch

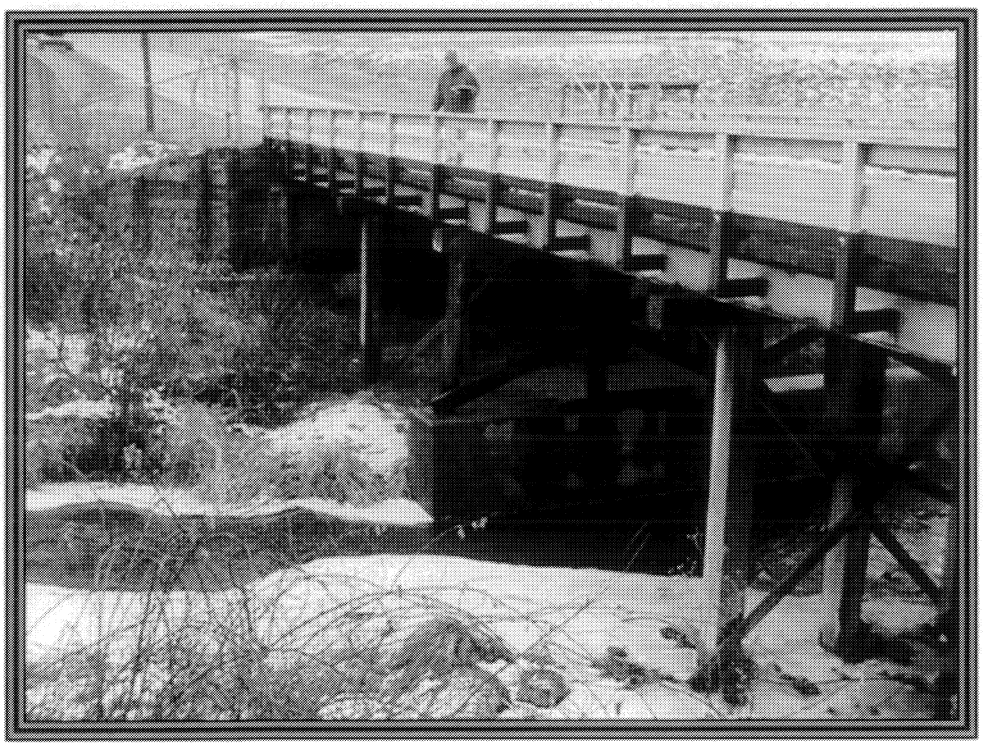
ASHE COUNTY

BRIDGE No. 503 ON SR 1674
NORTHWEST LANE
OVER BUFFALO CREEK

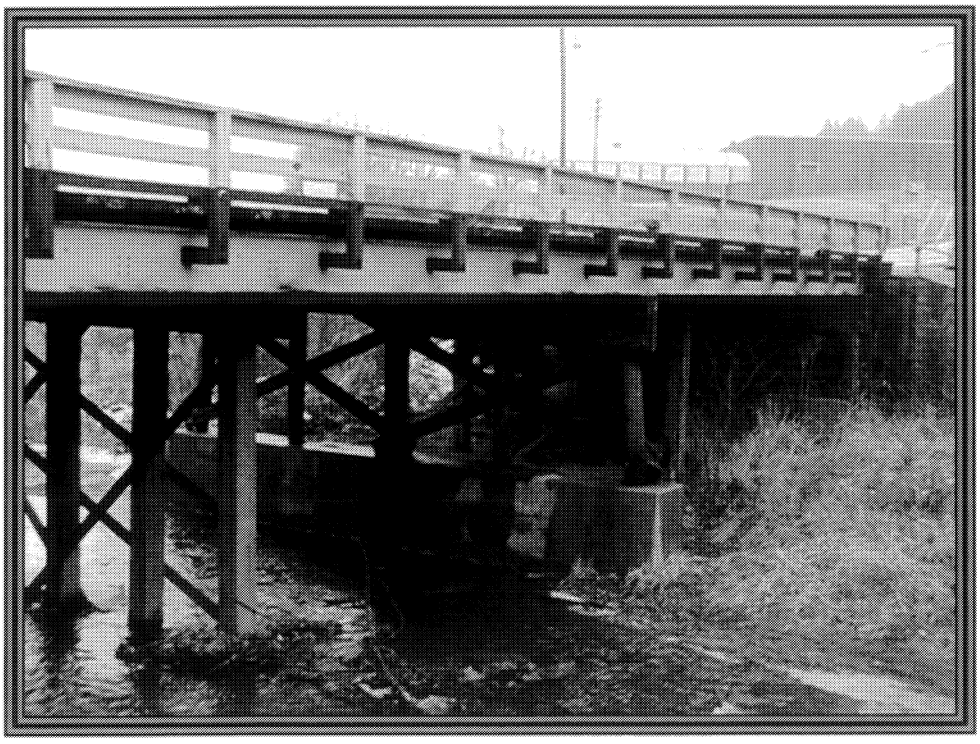
T.I.P. No. B-3607

FIGURE 3b

ASHE COUNTY
BRIDGE No. 503
B-3607



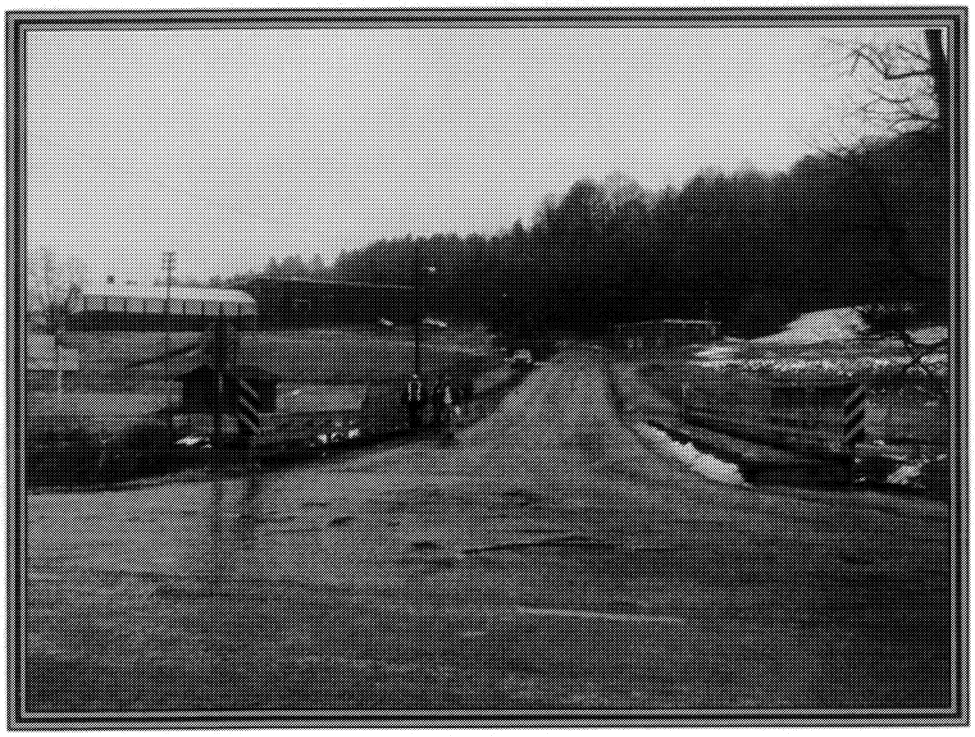
Looking at North side



Looking at South side

Figure 4a

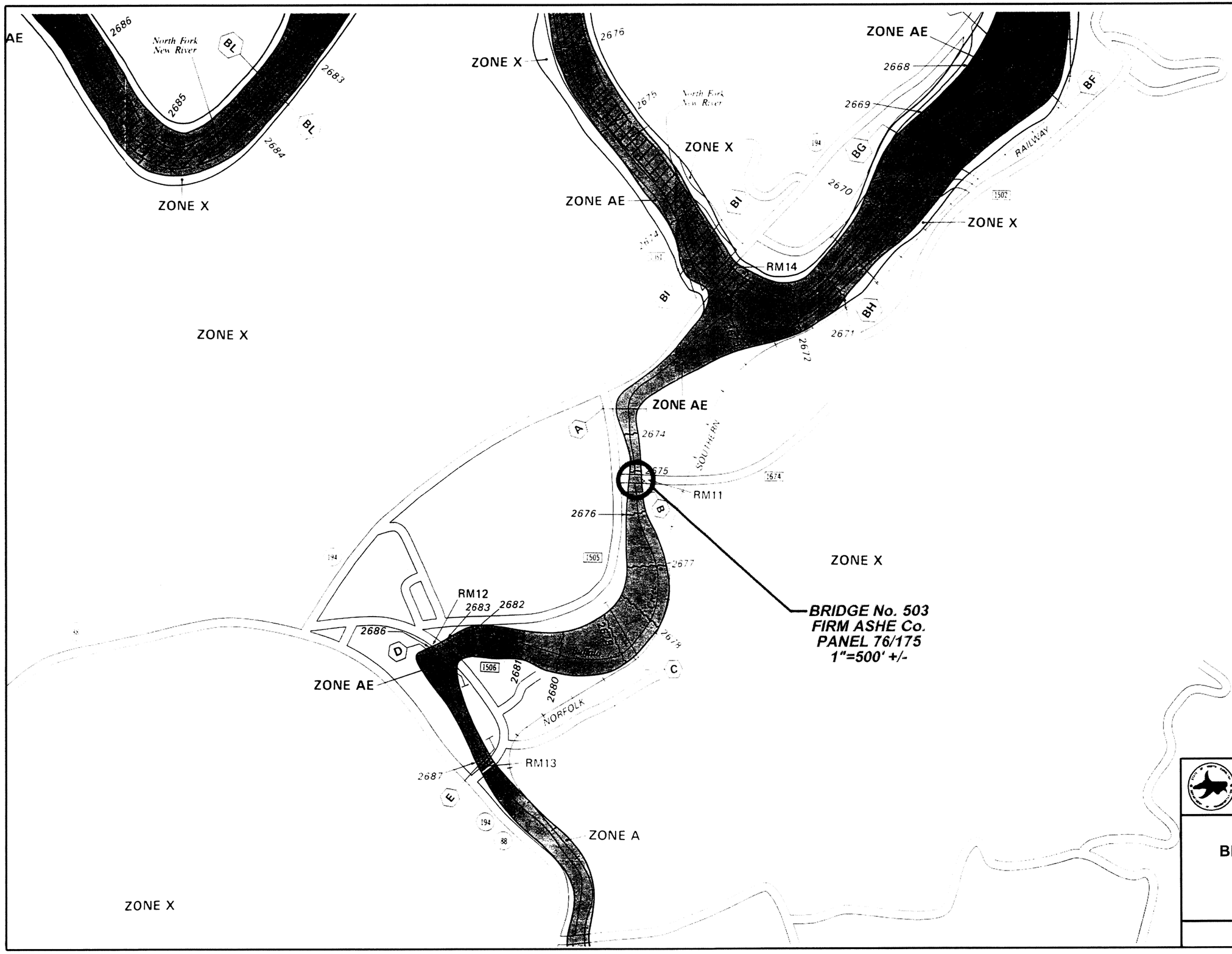
ASHE COUNTY
BRIDGE No. 503
B-3607



Looking East

Looking West

Figure 4b



FEMA - FLOODPLAIN MAP OF PROJECT AREA

Jan 29, 2002

North Carolina Department of Transportation
Project Development and
Environmental Analysis Branch

ASHE COUNTY

BRIDGE No. 503 ON SR 1674
NORTHWEST LANE
OVER BUFFALO CREEK

T.I.P. No. B-3607

FIGURE 5

APPENDIX

NORTH CAROLINA DIVISION
FINAL NATIONWIDE SECTION 4(f) EVALUATION AND APPROVAL
FOR FEDERALLY-AIDED HIGHWAY PROJECTS WITH MINOR INVOLVEMENT
WITH PUBLIC PARKS, RECREATION LANDS, AND WILDLIFE AND
WATERFOWL REFUGES

F. A. Project BRZ – 1674 (3)

State Project 8.2711901

T. I. P. No. B-3607

Description:
Replacement of Bridge No. 503 on SR 1674 (Northwest Lane) over Buffalo Creek in Ashe County.

		Yes	No
1.	Is the proposed project designed to improve the operational characteristics, safety, and/or physical condition of existing highway facilities on essentially the same location?	X	
2.	Is the project on new location?	X	
3.	Is the Section 4(f) land a publicly owned public park, recreation land, or wildlife and waterfowl refuge located adjacent to the existing highway?	X	
4.	Does the amount and location of the land to be used impair the use of the remaining Section 4(f) land, in whole or in part, for its intended purpose? (See chart below)		X

Total size of section 4(f) site	Maximum to be acquired
less than 10 acres	10 percent of site
10 acres-100 acres	1 acre
greater than 100 acres	1 percent of site

		Yes	No
5.	Do the proximity impacts of the project (e.g., noise, air and water pollution, wildlife and habitat effects, aesthetic values) on the remaining Section 4(f) land impair the use of such land for its intended purpose?	☐	X
6.	Do the officials having jurisdiction over the Section 4(f) land agree, in writing, with the assessment of the impacts of the proposed project on, and the proposed mitigation for, the Section 4(f) lands?	X	☐
7.	Does the project use land from a site purchased or improved with funds under the Land and Water Conservation Act (Section 6(f)), the Federal Aid in Fish Restoration Act (Dingell-Johnson Act), the Federal Aid in Wildlife Act (Pittman-Robertson Act), or similar laws, or are the lands otherwise encumbered with a Federal interest (e.g., former Federal surplus property)?	☐	X
8.	If the project involves lands described in Item 7 above, does the appropriate Federal Agency object to the land conversion or transfer?	☐	X
9.	Does the project require preparation of an EIS?	☐	X

ALTERNATIVES CONSIDERED AND FOUND NOT TO BE FEASIBLE AND PRUDENT

	Yes	No
The following alternatives were evaluated and found not to be feasible and prudent:	X	☐

1. Do-nothing.

   Does the "do nothing" alternative:

		Yes	No
	(a) correct capacity deficiencies?	☐	X
or	(b) correct existing safety hazards?	☐	X
or	(c) correct deteriorated conditions?	☐	X
and	(d) create costs, unusual problems, or impacts of extraordinary measure?	X	☐

2.	Improvement of the highway without using the adjacent public park, recreational land, or wildlife waterfowl refuge.	X	☐
	(a) Have minor alignment shifts, changes in standards, use of retaining walls, etc., or traffic management measures been evaluated?	X	☐

(b) The items in 2(a) would result in (circle, as appropriate)

(i) substantial adverse community impact

or (ii) substantial increased costs

or (iii) unique engineering, transportation, maintenance, or safety problems

or (iv) substantial social, environmental, or economic impacts

or (v) a project which does not meet the need

and (vi) impacts, costs, or problems which are extraordinary magnitude

PROGRAMMATIC SECTION 4 (f) EVALUATION

(Reponse to the boxed item on the Programmatic Section 4 (f) form)

Is the project on new location? Yes. Alternative 2 (Preferred) is located on a new location approximately 50 feet north of the existing bridge. NCDOT will mitigate for any impacts to the park.

COORDINATION

The proposed project has been coordinated with the following (attach correspondence):

a. Officials having jurisdiction over the Section 4(f) Land
b. Local/State/Federal Agencies
c. US Coast Guard (for bridges requiring bridge permits)
d. DOI, if Section 6(f) lands are involved

SUMMARY AND APPROVAL

The project meets all criteria included in the programmatic 4(f) evaluation approved on December 23, 1986.

All required alternatives have been evaluated and the findings made are clearly applicable to this project. There are no feasible or prudent alternatives which avoid use of the Section 4(f) land.

The project includes all possible planning to minimize harm, and there are assurances that the measures to minimize harm will be incorporated in the project.

All appropriate coordination has been successfully completed.

Approved:

7/2/02 _____
Date — Manager, Project Development and Environmental Analysis Branch
NCDOT

7/11/02 _____
Date — Division Administrator, FHWA

JTP
F/300-106(A
(B-3607)
cc: KSL
CLM
JTP
BKS
MTM
Scott Blevins
Elmo Vance

Ashe County Board of Education

PO Box 604, 320 South Street • Courier No. 15-65-01 • Jefferson, North Carolina 28640
(336) 246-7175 • (336) 246-7609 Fax

June 29, 2001

RECEIVED
JUL 02 2001
RUMMEL, KLEPPER & KAHL
RALEIGH, NC

Ms. Elizabeth Mack
Rummel, Klepper and Kahl, LLP
5800 Farrington Place, Suite 105
Raleigh, North Carolina 27609-3960

Ms. Mack:

This letter is in regard to the replacement of Bridge #503 (T.I.P.B.-3607) which is located at the entrance to Ashe County Middle School.

After reviewing the maps and other materials from your company and visually inspecting the site, we have determined that Alternate 2, which places the new bridge just north of the existing bridge, is the least disruptive to the football field. Beginning with the 2001/02 school year, the middle grades football program will heavily use this field and surrounding area.

In meeting with all interested parties, we determined that our school system should not incur any cost related to this bridge project. To this end, we would need assurance of the following:

- that DOT or their contractors be responsible for the removal of the existing field house and for the replacement of said field house with a comparable facility;
- that DOT or their contractors be responsible for removing the portion of the security fence taken by the project and that the fence be reinstalled whenever feasible during the project;
- that DOT or their contractors replace the security gate at the east end of the new bridge.

We hope this information is helpful in planning for this project. Also, please direct all future correspondence to Superintendent Johnson at the above address since Ken Cooper, with whom you met at the initial meeting, is retiring.

Sincerely,

Donnie Johnson
Superintendent

Nancy Reeves
Nancy Reeves, Principal
Ashe County Middle School

North Carolina Wildlife Resources Commission

Charles R. Fullwood, Executive Director

TO: Ms. Kim Leight
Rummel, Klepper & Kahl

FROM: Maryellen Haggard, Highway Project Coordinator
Habitat Conservation Program Maryellen Haggard

DATE: August 6, 2001

SUBJECT: NCDOT Bridge Replacements in Ashe, Wilkes, Watauga, and Alleghany counties of North Carolina. TIP Nos. B-3300, B-3607, B-3714, B-3922, B-3925, B-3926, B-3928, B-4007, and B-4010

Biologists with the N. C. Wildlife Resources Commission (NCWRC) have reviewed the information provided and have the following preliminary comments on the subject project. Our comments are provided in accordance with provisions of the National Environmental Policy Act (42 U.S.C. 4332(2)(c)) and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661-667d).

On bridge replacement projects of this scope our standard recommendations are as follows:

1. We generally prefer spanning structures. Spanning structures usually do not require work within the stream and do not require stream channel realignment. The horizontal and vertical clearances provided by bridges allows for human and wildlife passage beneath the structure, does not block fish passage, and does not block navigation by canoeists and boaters.

2. Bridge deck drains should not discharge directly into the stream.

3. Wet concrete should not be allowed to contact stream water. This will lessen the chance of altering the stream's water chemistry and causing a fish kill.

4. If possible, bridge supports (bents) should not be placed in the stream.

5. If temporary access roads or detours are constructed, they should be removed back to original ground elevations immediately upon the completion of the project. Disturbed areas should be seeded or mulched to stabilize the soil and native tree species should

Mailing Address: Division of Inland Fisheries • 1721 Mail Service Center • Raleigh, NC 27699-1721
Telephone: (919) 733-3633 ext. 281 • Fax: (919) 715-7643

be planted with a spacing of not more than 10'x10'. If possible, when using temporary structures the area should be cleared but not grubbed. Clearing the area with chain saws, mowers, bush-hogs, or other mechanized equipment and leaving the stumps and root mat intact, allows the area to revegetate naturally and minimizes disturbed soil.

6. A clear bank (riprap free) area of at least 10 feet should remain on each side of the stream underneath the bridge.

7. In trout waters, the N.C. Wildlife Resources Commission reviews all U.S. Army Corps of Engineers nationwide and general '404' permits. We have the option of requesting additional measures to protect trout and trout habitat and we can recommend that the project require an individual '404' permit.

8. In streams that contain threatened or endangered species, NCDOT biologist Mr. Tim Savidge should be notified. Special measures to protect these sensitive species may be required. NCDOT should also contact the U.S. Fish and Wildlife Service for information on requirements of the Endangered Species Act as it relates to the project.

9. In streams that are used by anadromous fish, the NCDOT official policy entitled "Stream Crossing Guidelines for Anadromous Fish Passage (May 12, 1997)" should be followed.

10. In areas with significant fisheries for sunfish, seasonal exclusions may also be recommended.

11. Sedimentation and erosion control measures sufficient to protect aquatic resources must be implemented prior to any ground disturbing activities. Structures should be maintained regularly, especially following rainfall events.

12. Temporary or permanent herbaceous vegetation should be planted on all bare soil within 15 days of ground disturbing activities to provide long-term erosion control.

13. All work in or adjacent to stream waters should be conducted in a dry work area. Sandbags, rock berms, cofferdams, or other diversion structures should be used where possible to prevent excavation in flowing water.

14. Heavy equipment should be operated from the bank rather than in stream channels in order to minimize sedimentation and reduce the likelihood of introducing other pollutants into streams.

15. Only clean, sediment-free rock should be used as temporary fill (causeways), and should be removed without excessive disturbance of the natural stream bottom when construction is completed.

16. All mechanized equipment operated near surface waters should be regularly inspected and maintained to prevent contamination of stream waters from fuels, lubricants, hydraulic fluids, or other toxic materials.

If corrugated metal pipe arches, reinforced concrete pipes, or concrete box culverts are used:

1. The culvert must be designed to allow for fish passage. The culvert or pipe invert should be buried at least 1 foot below the natural streambed. The installation of the culvert or pipe should insure that all waters flow without freefalling or damming on either end during low flow conditions. If culverts are long, notched baffles should be placed in reinforced concrete box culverts at 15 foot intervals to allow for the collection of sediments in the culvert, to reduce flow velocities, and to provide resting places for fish and other aquatic organisms moving through the structure.

2. When two pipes are installed, only the lower pipe should be buried 12" into the substrate so that all base flows continue uninterrupted in the lower pipe during normal and low flow conditions to maintain aquatic life passage. The bottom of the second pipe should be placed at grade or at bankfull elevation. The second pipe should remain dry during normal flows to allow for wildlife passage. Where disrupted, natural floodplain benching should be restored upstream and downstream of the second, "dry", pipe.

3. Culverts or pipes should be situated so that no channel realignment or widening is required. Widening of the stream channel at the inlet or outlet of structures usually causes a decrease in water velocity causing sediment deposition that will require future maintenance.

4. Riprap should not be placed on the streambed.

In most cases, we prefer the replacement of the existing structure at the same location with road closure. If road closure is not feasible, a temporary detour should be designed and located to avoid wetland impacts, minimize the need for clearing and to avoid destabilizing stream banks. If the structure will be on a new alignment, the old structure should be removed and the approach fills removed from the 100-year floodplain. Approach fills should be removed down to the natural ground elevation. The area should be stabilized with grass and planted with native tree species. If the area that is reclaimed was previously wetlands, NCDOT should restore the area to wetlands. If successful, the site may be used as wetland mitigation for the subject project or other projects in the watershed.

Project specific comments:

1. B-3300 – Ashe County – Bridge No. 57 over Buffalo Creek. Buffalo Creek at this location in all likelihood contains wild trout. The bridge is located at a major intersection. A culvert would be a hindrance to fish as well as wildlife passage. We will require a trout moratorium from Oct. 15th - April 15th.

2. B-3607 – Ashe County – Bridge No. 503 over Buffalo Creek. Buffalo Creek at the bridge replacement in all likelihood contains wild trout. We will require a trout moratorium from Oct. 15th - April 15th.

3. B-3714 – Wilkes County – Bridge No. 83 over Mulberry Creek. Mulberry Creek supports small mouth bass and redbreast sunfish at this location. We will require a moratorium from May 1st - June 30th.

4. B-3922 – Watauga County – Bridge No. 316 over Cove Creek. Cove Creek is designated Public Mountain Trout Water. In addition to stocked fish, it contains some wild brown trout. We will require a trout moratorium from Oct. 15th - April 15th. The bridge should be replaced with another bridge. We are concerned that a box culvert will impede fish passage.

5. B-3925 – Watauga County – Bridge No. 35 over Meat Camp Creek. Meat Camp Creek is designated Public Mountain Trout Water. In addition to stocked fish, it contains some wild brown trout. We will require a trout moratorium from Oct. 15th - April 15th. The bridge should be replaced with another bridge. We are concerned that a box culvert will impede fish passage.

6. B-3926 – Watauga County – Bridge No. 36 over Meat Camp Creek. Same comments as B-3925.

7. B-3928 – Watauga-Ashe County – Bridge No. 334 over South Fork New River. We will require a small mouth bass/ rock bass moratorium from May 1st - June 30th. The South Fork New River is high quality water and designated "scenic" by the National Wild and Scenic Rivers System. The bridge should be replaced with another bridge. This is a popular canoe section; the new bridge should be at the appropriate height so boaters do not have to portage.

8. B-4007 – Alleghany County – Bridge No. 38 over Crab Creek. Crab Creek is in a High Quality Water Zone and is designated Hatchery Supported Water. We will require a trout moratorium from Oct. 15th - April 15th.

9. B-4010 – Ashe County – Bridge No. 7 over South Fork New River. We will require a small mouth bass/ rock bass moratorium from May 1st - June 30th. The South Fork New River is high quality water and designated "scenic" by the National Wild and Scenic Rivers System. The bridge should be replaced with another bridge.

We request that NCDOT routinely minimize adverse impacts to fish and wildlife resources in the vicinity of bridge replacements. The NCDOT should install and maintain sedimentation control measures throughout the life of the project and prevent wet concrete from contacting water in or entering into these streams. We are comfortable with the bridge demolition proposed, but are concerned about aquatic life passage with the new structure. Replacement of bridges with spanning structures of some type, as opposed to pipe or box culverts, is recommended in most cases. Spanning structures allow wildlife passage along streambanks; reducing habitat fragmentation and vehicle related mortality at highway crossings.

If you need further assistance or information on NCWRC concerns regarding bridge replacements, please contact me at (336) 527-1549. Thank you for the opportunity to review and comment on these projects.

00-106
ESM
KSL

Michael F. Easley, Governor
William G. Ross Jr., Secretary
North Carolina Department of Environment and Natural Resources

Gregory J. Thorpe, Ph.D.
Acting Director
Division of Water Quality

August 15, 2001

MEMORANDUM

To: Elmo Vance, NCDOT Project Development & Environmental Analysis Branch
Through: John Dorney, NC Division of Water Quality
From: Cynthia F. Van Der Wiele, NCDOT Coordinator

Subject: Scoping Comments for Eleven Bridge Replacement Projects

This memo is in reference to your correspondence dated July 23, 2001, in which you requested scoping comments for the above projects. The Division of Water Quality (DWQ) requests that the following topics be addressed:

1. Bridge projects shall comply with the requirements for Water Supply Watershed, High Quality Waters and Outstanding Resource Waters with regards to stormwater management, sedimentation and erosion control and buffer requirements.
2. Ensure that sediment & erosion control measures are not placed in wetlands.
3. Borrow/waste areas should avoid wetlands to the maximum extent practicable. Prior to the approval of any borrow/waste site in a wetland, the contractor must obtain a 401 certification from DWQ.
4. The DWQ prefers that the structures that will be replacing the eleven deficient bridges will be bridges. All structures shall be installed in such a manner that the original stream profiles are not altered (i.e. the depth of the channel must not be reduced by a widening of the streambed). Existing stream dimensions are to be maintained above and below locations of culvert extensions.
5. All work shall be performed during low flow conditions.
6. Disturbance of the stream channels must be limited to only what is necessary to perform the bridge demolition and removal. Heavy equipment must be operated from the banks rather than in the stream channel in order to minimize sedimentation and reduce the likelihood of introducing other pollutants into the stream.
7. All mechanized equipment operated near surface waters should be regularly inspected and maintained to prevent contamination of stream waters from fuels, lubricants, hydraulic fluids, or other toxic materials.
8. Written concurrence of 401 Water Quality Certification may be required for these projects (e.g., applications requesting coverage under NW 14 or Regional General Permit 198200031). Please be aware that 401 certification may be denied if wetland or water impacts have not been avoided and minimized to the maximum extent practicable.

Thank you for requesting our input at this time. The DOT is reminded that issuance of a 401 Water Quality Certification requires that appropriate measures be instituted to ensure that water quality standards are met and designated uses are not degraded or lost. If you have any questions or require additional information, please contact Cynthia Van Der Wiele at (919) 733.5715.

Pc: Eric Alsmeyer, USACE Raleigh Field Office
Steve Lund, USACE Asheville Field Office
Tom McCartney, USFWS Raleigh Field Office
Marella Buncick, USFWS Asheville Field Office
MaryEllen Haggard, NCWRC
File Copy

Vance

JTP
F/300-106
cc: KSL
JTP
ESM
BKS
MTM
BKE

North Carolina Department of Cultural Resources
State Historic Preservation Office
David L. S. Brook, Administrator

Michael F. Easley, Governor
Lisbeth C. Evans, Secretary

Division of Archives and History
Jeffrey J. Crow, Director

August 27, 2001

MEMORANDUM

To: William D. Gilmore, P.E., Manager
Project Development and Environmental Analysis Branch

AUG 29 2001

From: David Brook for David Brook
Deputy State Historic Preservation Officer

Re: Replace Bridge No. 503 on SR 1674, B-3607, Ashe County, ER 02-7211

Thank you for your letter of July 23, 2001, concerning the above project.

There are no recorded archaeological sites within the proposed project area. If the replacement is to be located along the existing alignment, it is unlikely that significant archaeological resources would be affected and no investigations would be recommended. If, however, the replacement is to be in a new location, please forward a map to this office indicating the location of the new alignment so we may evaluate the potential effects of the replacement upon archaeological resources.

We recommend that an architectural historian with NCDOT identify and evaluate all properties over fifty years of age within the project area and report the findings to us.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, contact Renee Gledhill-Earley, Environmental Review Coordinator, at 919/733-4763.

DB:kgc

cc: Mary Pope Furr, NCDOT
Thomas Padgett, NCDOT

RECEIVED
AUG 31 2001
RUMMEL, KLEPPER & KAHL
RALEIGH, NC

	Location	Mailing Address	Telephone/Fax
Administration	507 N. Blount St, Raleigh, NC	4617 Mail Service Center, Raleigh 27699-4617	(919) 733-4763 •733-8653
Restoration	515 N. Blount St, Raleigh , NC	4613 Mail Service Center, Raleigh 27699-4613	(919) 733-6547 •715-4801
Survey & Planning	515 N. Blount St, Raleigh, NC	4618 Mail Service Center, Raleigh 27699-4618	(919) 733-4763 •715-4801

Federal Aid : Z-1674 *TIP* # B-3607 *nty*: Ashe

CONCURRENCE FORM FOR PROPERTIES NOT ELIGIBLE FOR THE NATIONAL REGISTER OF HISTORIC PLACES

Project Description: Replace Bridge No. 503 on SR 1674 over Buffalo Creek

On 10/18/01, representatives of the

- [x] North Carolina Department of Transportation (NCDOT)
- [x] Federal Highway Administration (FHWA)
- [x] North Carolina State Historic Preservation Office (HPO)
- [ ] Other

Reviewed the subject project at

- [ ] Scoping meeting
- [x] Historic architectural resources photograph review session/consultation
- [ ] Other

All parties present agreed

- [ ] There are no properties over fifty years old within the project's area of potential effects.
- [x] There are no properties less than fifty years old which are considered to meet Criteria Consideration G within the project's area of potential effects.
- [x] There are properties over fifty years old within the project's Area of Potential Effects (APE), but based on the historical information available and the photographs of each property, properties identified as Prop 1 – 3 are considered not eligible for the National Register and no further evaluation of them is necessary.
- [x] There are no National Register-listed or Study Listed properties within the project's area of potential effects.
- [ ] All properties greater than 50 years of age located in the APE have been considered at this consultation, and based upon the above concurrence, all compliance for historic architecture with Section 106 of the National Historic Preservation Act and GS 121-12(a) has been completed for this project.
- [x] There are no historic properties affected by this project. (*Attach any notes or documents as needed*)

Signed:

Mary Pope Furr — 10·18·01
Representative, NCDOT — Date

Michael C. Dawson — 10/18/01
FHWA, for the Division Administrator, or other Federal Agency — Date

Claudia R. Brown — 10-18-01
Representative, HPO — Date

David Brook — 10/18/01
State Historic Preservation Officer — Date

If a survey report is prepared, a final copy of this form and the attached list will be included.

Historic Architecture

Memo

To: Elmo Vance / KSL

From: Mary Pope Furr

Date: 10/26/01

Re: Bridge Group 34

Status of Projects in Bridge Group 34

B-3300, Ashe County
No eligible properties in APE, concurrence form is attached. COMPLETE

B-3607, Ashe County
No eligible properties in APE, concurrence form is attached. COMPLETE

B-3714, Wilkes County
No eligible properties in APE, concurrence form is attached. COMPLETE

B-3847, Guilford County
No eligible properties in APE, concurrence form is attached. COMPLETE

B-3848, Guilford County
No eligible properties in APE, concurrence form is attached. COMPLETE

B-3922, Watauga County
Will show photos to HPO on 11/1/2001

B-3926, Watauga County
Will show photos to HPO on 11/1/2001

B-3928, Watauga County
Assigned to Heather Fearnbach. She will survey and complete report by 2/28/2002.

B-4007, Alleghany County
Assigned to Richard Silverman. He will survey and complete report by 2/28/2002.

B-4010, Madison County
Will show photos to HPO on 11/1/2001

REPLACEMENT OF BRIDGE NO. 503 OVER BUFFALO CREEK

Ashe County, North Carolina

October 2001 | *T.I.P. No. B-3607* | *Newsletter No. 1*

NCDOT to Replace Bridge No. 503

This newsletter is published by the North Carolina Department of Transportation (NCDOT) to inform citizens about the proposed replacement of Bridge No. 503 on SR 1674 (Northwest Ashe County School Road) over Buffalo Creek (tributary to the New River) in Ashe County. Right-of-way acquisition and construction are scheduled to begin in 2003 and 2004, respectively.

Planning Studies Initiated

During **Step 1** of the planning process, information was collected on the existing human and natural environments. This information was used to identify preliminary alternatives for replacing Bridge No. 503. In **Step 2**, the preliminary alternatives were evaluated and, based on their potential impacts, three "reasonable and feasible" alternatives were selected for detailed environmental studies. **Step 3** involves conducting detailed environmental studies for the "reasonable and feasible" alternatives. Following completion of the detailed studies, **Step 4** will consist of selecting the preferred alternative. **Step 5** will be the completion of the environmental document.

PROJECT SCHEDULE

The schedule for the project is shown below:

Fall 2002	Complete Environmental Document
Fall 2002	Select Preferred Alternative
2003	Begin Right-of-Way Acquisition
2004	Begin Construction

HOTLINE

A project HOTLINE has been established to provide a toll free telephone number for information requests. Please call **(888) 521-4455** for information regarding the replacement of Bridge No. 503 over Buffalo Creek (T.I.P. No. B-3607).

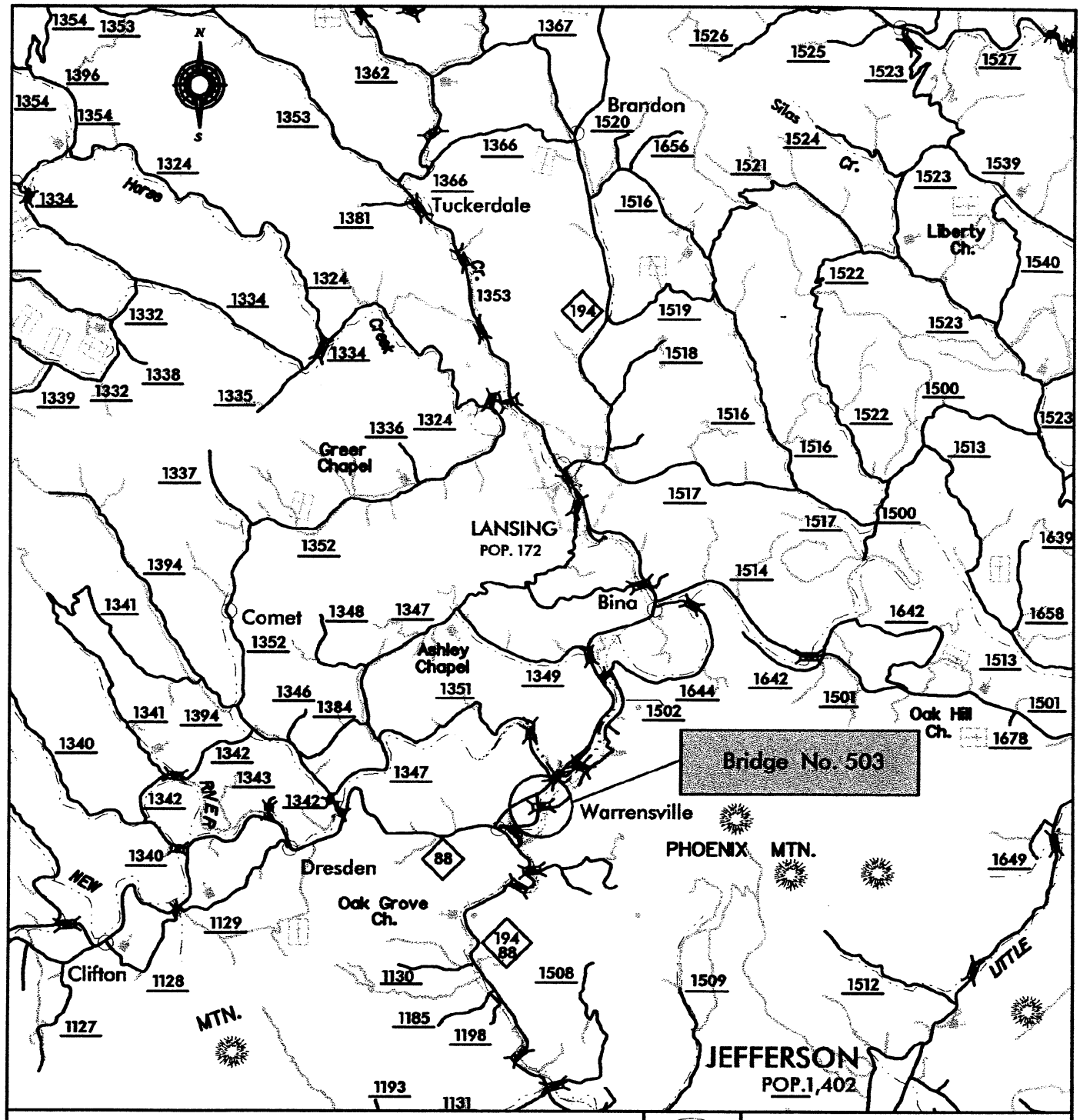
Description of Alternatives

Step 3 involves the evaluation of three "reasonable and feasible" alternatives. These alternatives are briefly described below:

Alternative 1 – replaces bridge on the existing alignment. An "on-site" detour located along the north side will be used to maintain traffic during the construction period.

Alternative 2 - replaces bridge on a new location approximately 50 feet north of existing bridge. Traffic will be maintained on the existing bridge during construction.

Alternative 3 - replaces bridge on a new location approximately 50 feet south of existing bridge. Traffic will be maintained on the existing bridge during construction.



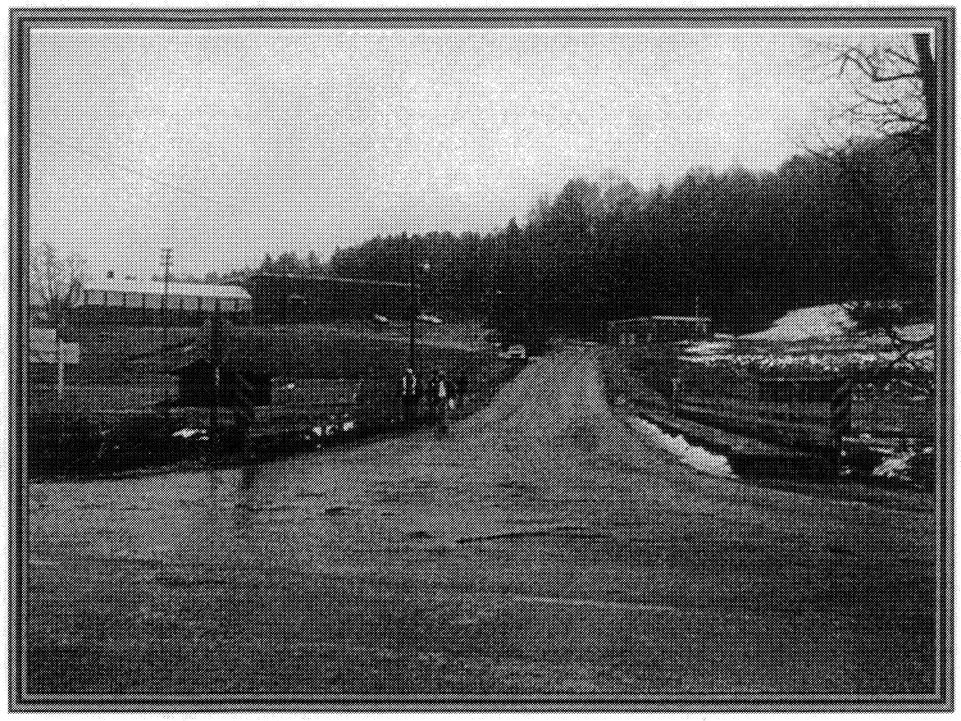
North Carolina Department of Transportation
Project Development and Environmental Analysis Branch

ASHE COUNTY

BRIDGE No. 503 ON SR 1674
Ashe School Road
Buffalo Creek

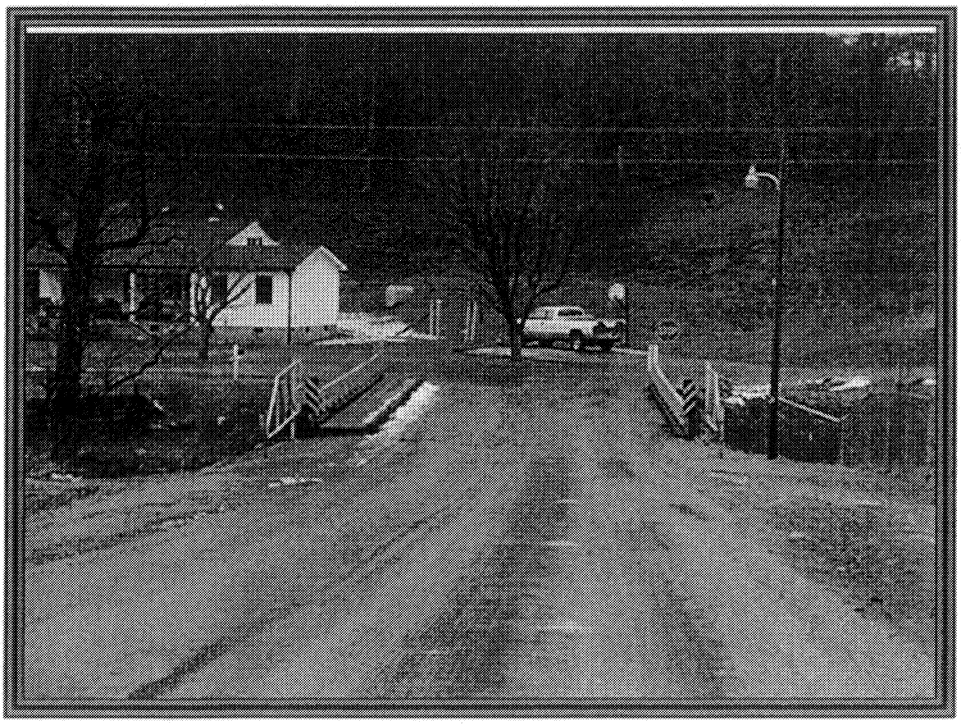
T.I.P. No. B-3607

FIGURE 1



ASHE COUNTY
BRIDGE No. 503
B-3607

Looking East



Looking West

NCDOT Welcomes Citizen Input

Public Involvement is an important part of the planning process. The North Carolina Department of Transportation is committed to ensuring all issues of concern to the public are addressed and considered before any recommendations or decisions are made. Your opinions are important to us! Please send your comments to the addresses listed below:

Mr. Elmo Vance
Project Development & Environmental Analysis Branch
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, NC 27699-1548
(919) 733-3141 Ext. 262
eevance@dot.state.nc.us

or

Mr. J. T. Peacock, Jr., P.E.
or **Ms. Kimberly S. Leight**
Rummel, Klepper & Kahl, LLP
5800 Faringdon Place, Suite 105
Raleigh, NC 27609-3960
(888) 521-4455
kleight@rkkengineers.com

If you have questions on other transportation projects, please call our Customer Service Office toll free at 1-877-DOT-4YOU or check our website at www.dot.state.nc.us.

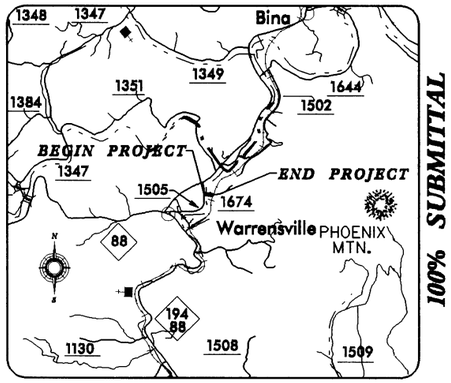
Mr. Elmo Vance
North Carolina Department of Transportation
Project Development & Environmental Analysis Branch
1548 Mail Service Center
Raleigh, NC 27699-1548

ADDRESS CORRECTION REQUESTED

09/08/99

CONTRACT: C200843 TIP PROJECT: B-3607

See Sheet 1-A For Index of Sheets



VICINITY MAP

100% SUBMITTAL

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

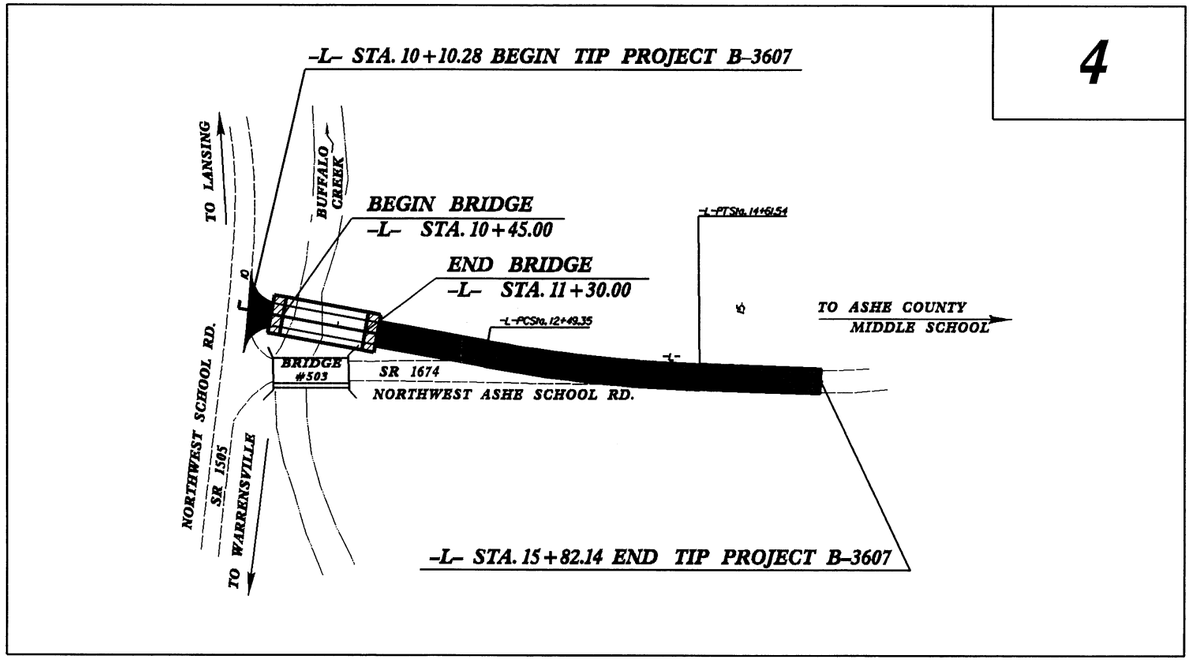
ASHE COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3607	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
33160.1.1	BRZ-1674(3)	PE
33160.2.2	BRZ-1674(3)	RW/UTILITIES
33160.3.1	BRZ-1674(4)	CONST.

LOCATION: BRIDGE NO. 503 ON SR 1674 (NORTHWEST ASHE SCHOOL RD.) OVER BUFFALO CREEK

TYPE OF WORK: GRADING, STRUCTURES, DRAINAGE, & PAVING



NCGRID
NAD 83

GRAPHIC SCALES

PLANS: 50 25 0 50 100

PROFILE (HORIZONTAL): 50 25 0 50 100

PROFILE (VERTICAL): 10 5 0 10 20

DESIGN DATA

ADT 2004 = 1,070
ADT 2025 = 1,800
DHV = 6 %
D = 60 %
T = 6 % *
V = 40 MPH

* TTST 1 % DUAL 5 %

PROJECT LENGTH

Length Roadway TIP Project B-3607 ..... = 0.092 mile

Length Structure TIP Project B-3607 ..... = 0.016 mile

Total Length TIP Project B-3607 ..... = 0.108 mile

PLANS PREPARED BY :
RUMMEL KLEPFER & KAHL, LLP
consulting engineers
5800 FARINGDON PLACE SUITE 105
RALEIGH, NORTH CAROLINA 27609-3960
FOR DIVISION OF HIGHWAYS

2002 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: MAY 30, 2003

LETTING DATE: MAY 18, 2004

B. KEITH SKINNER, P.E.
PROJECT ENGINEER

MICHAEL T. MERRITT, P.E.
PROJECT DESIGN ENGINEER

NCDOT CONTACT: TERESA M. BRUTON, P.E.
PROJECT ENGINEER-DESIGN SERVICES

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE DESIGN ENGINEER P.E.

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED
DIVISION ADMINISTRATOR DATE

26-FEB-2004 lkDl
R:\Roadway\Proj\B3607_ROY_TSH.dgn
kmoland AT 1:2

CONTRACT: C200843 TIP PROJECT: B-3607

PROJECT REFERENCE NO.	SHEET NO.
B-3607	1-B

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 — EIP
- Property Corner
- Property Monument — ECM
- Parcel/Sequence Number — 123
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary — WLB
- Proposed Wetland Boundary — WLB
- Existing High Quality Wetland Boundary
- Existing Endangered Animal Boundary — EAB
- Existing Endangered Plant Boundary — EPB

BUILDINGS AND OTHER CULTURE:

- Gas Pump Vent or U/G Tank Cap
- Sign — S
- Well — W
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:

- Stream or Body of Water
- Hydro, Pool or Reservoir
- River Basin Buffer — RBB
- Flow Arrow
- Disappearing Stream
- Spring
- Swamp Marsh
- Proposed Lateral, Tail, Head Ditch — FLOW
- False Sump

RAILROADS:

- Standard Guage — CSX TRANSPORTATION
- RR Signal Milepost — MILEPOST 35
- Switch — SWITCH
- RR Abandoned
- RR Dismantled

RIGHT OF WAY:

- Baseline Control Point
- Existing Right of Way Marker
- Existing Right of Way Line
- Proposed Right of Way Line
- 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 — CA
- 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 Utility Easement — PUE

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Wheel Chair Ramp — WCR
- Curb Cut for Future Wheel Chair Ramp — CCFR
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equaility Symbol
- Pavement Removal

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard — Vineyard

EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert — CONC
- Bridge Wing Wall, Head Wall and End Wall — CONC WW

MINOR:

- Head and End Wall — CONC HW
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB — CB
- Paved Ditch Gutter
- Storm Sewer Manhole — S
- Storm Sewer — S

UTILITIES:

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole — P
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole — HH
- H-Frame Pole
- Recorded U/G Power Line — P
- Designated U/G Power Line (S.U.E.*) — P

TELEPHONE:

- Existing Telephone Pole
- Proposed Telephone Pole
- Telephone Manhole — T
- Telephone Booth
- Telephone Pedestal — T
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole — HH
- Recorded U/G Telephone Cable — T
- Designated U/G Telephone Cable (S.U.E.*) — T
- Recorded U/G Telephone Conduit — TC
- Designated U/G Telephone Conduit (S.U.E.*) — TC
- Recorded U/G Fiber Optics Cable — T FO
- Designated U/G Fiber Optics Cable (S.U.E.*) — T FO

WATER:

- Water Manhole — W
- Water Meter
- Water Valve
- Water Hydrant
- Recorded U/G Water Line — W
- Designated U/G Water Line (S.U.E.*) — W
- Above Ground Water Line — A/G Water

TV:

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

GAS:

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

SANITARY SEWER:

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

MISCELLANEOUS:

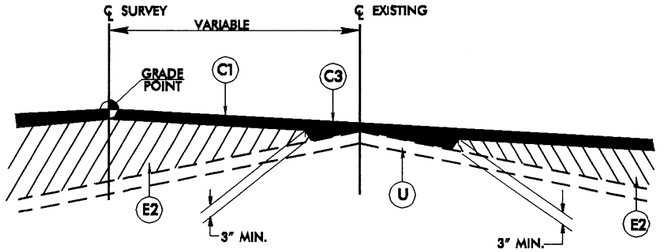
- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line — ?UTL
- U/G Tank; Water, Gas, Oil
- A/G Tank; Water, Gas, Oil
- U/G Test Hole (S.U.E.*)
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

PROJECT REFERENCE NO.	SHEET NO.
B-3607	2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

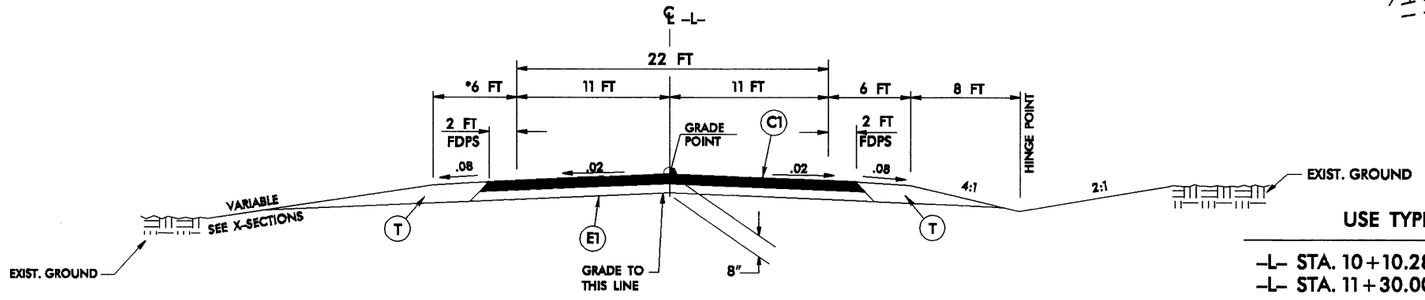
PAVEMENT SCHEDULE

ITEM	DESCRIPTION	ITEM	DESCRIPTION
C1	PROP. APPROX. 2 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5A, AT AN AVERAGE RATE OF 140 LBS. PER SQ. YD. IN EACH OF TWO LAYERS	E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT GREATER THAN 5 1/2" IN DEPTH OR LESS THAN 3" IN DEPTH.
C2	PROP. APPROX. 1 1/4" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5A, AT AN AVERAGE RATE OF 140 LBS. PER SQ. YD. IN ONE LAYERS	J	PROP. 6" AGGREGATE BASE COURSE
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5A, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT TO EXCEED 1 1/2" IN DEPTH.	T	EARTH MATERIAL
E1	PROP. APPROX. 5 1/2" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.	U	EXISTING PAVEMENT
		W1	WEDGING

NOTE: All Pavement Edge Slopes Are To Be 1:1.



Detail Showing Method Of Wedging



* ADD 3.0 FT FOR GUARDRAIL

TYPICAL SECTION NO. 1

USE TYPICAL SECTION No. 1

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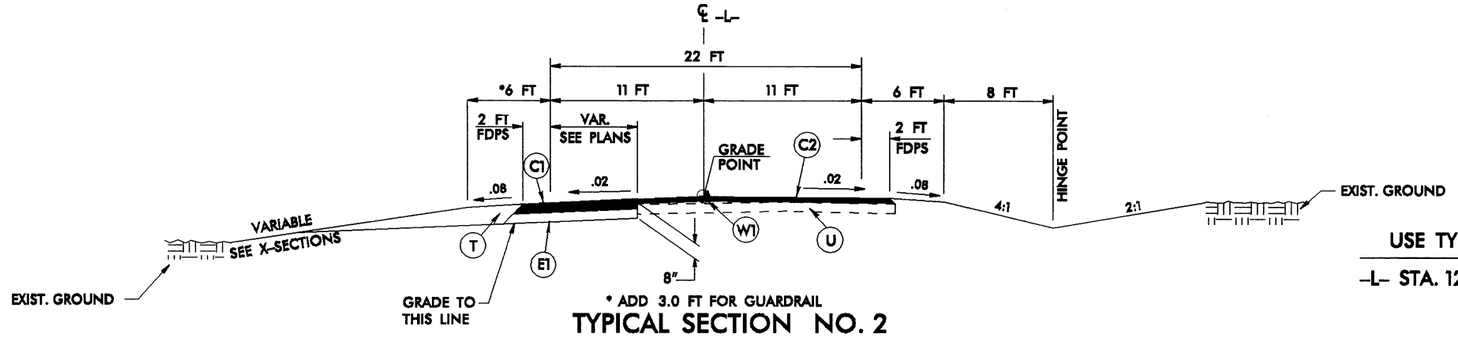
-L- STA. 11+30.00 (End Bridge) TO 12+16.97

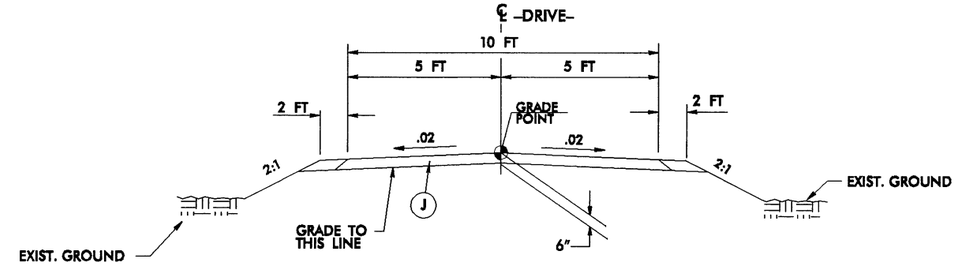


* ADD 3.0 FT FOR GUARDRAIL

TYPICAL SECTION NO. 2

USE TYPICAL SECTION No. 2

-L- STA. 12+16.97 TO 15+82.14



TYPICAL SECTION NO. 3

USE TYPICAL SECTION No. 3

-DRIVE- STA. 10+11.00 TO 10+86.75

NOTE: SHOULDER NOT TRENCHED PER DIVISION

PLANS PREPARED BY :
RUMMEL KLEPPER & KAHL, LLP
consulting engineers
5800 FARINGDON PLACE SUITE 105
RALEIGH, NORTH CAROLINA 27609-3960
FOR
DIVISION OF HIGHWAYS

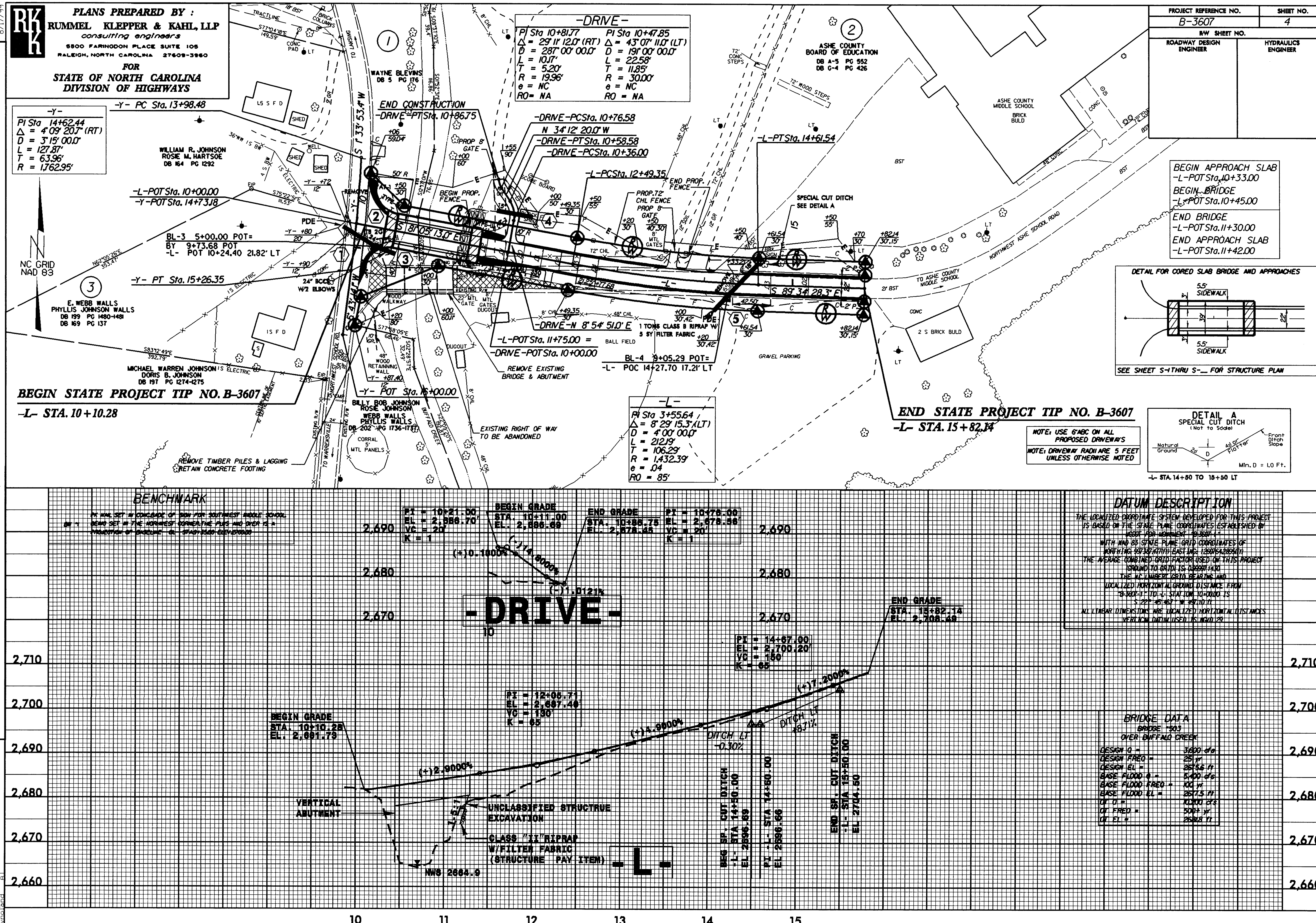
6/2/99

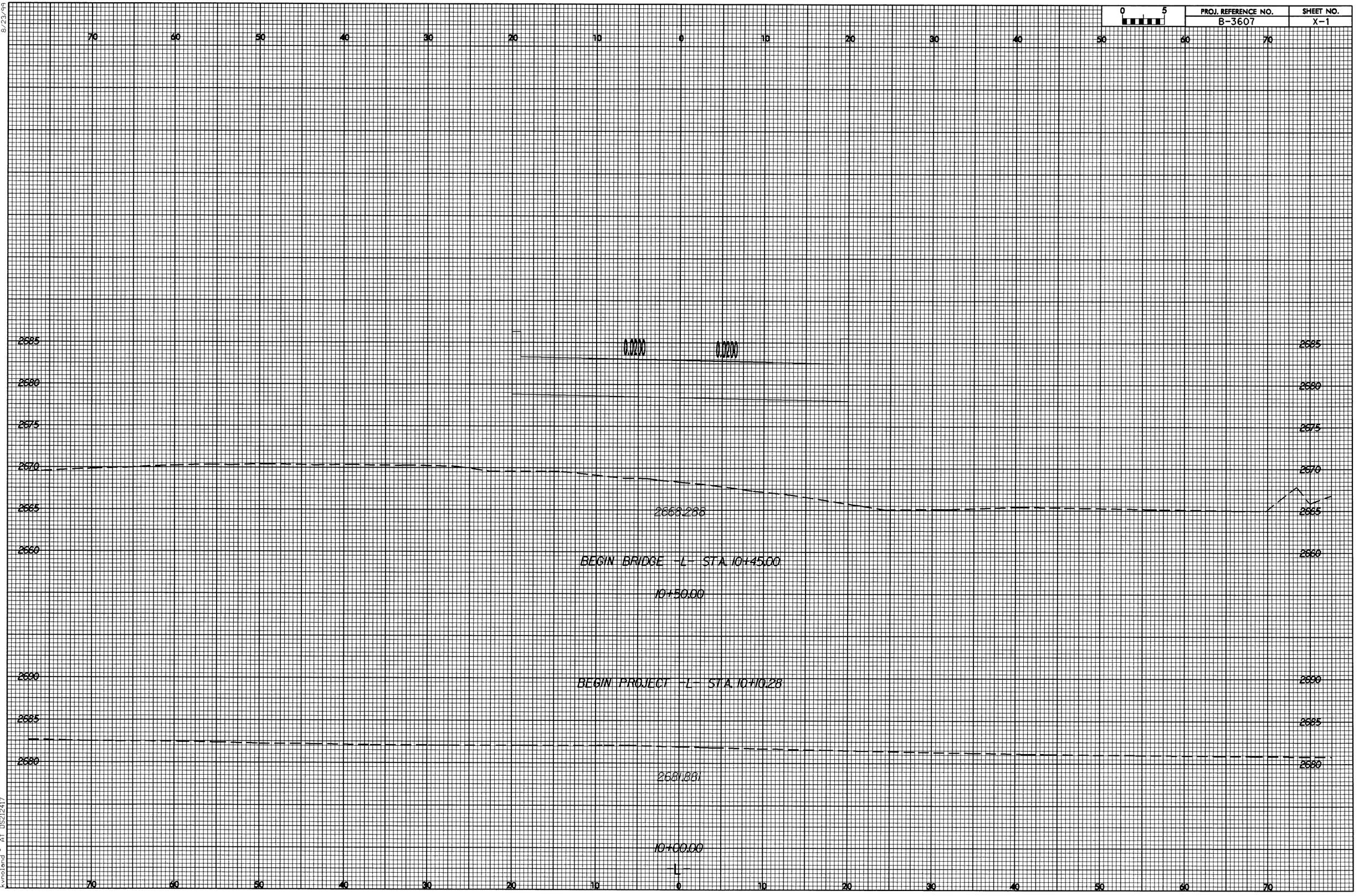
26-FEB-2004 11:05
R:\Roadway\Proj\B3607_RDY_TYP.dgn
kmorland

REVISIONS

DATE: -PARCEL 1: REVISED PARCEL NAME. PARCEL 12 AND 3: REVISED FLAGS FOR ROW AND EASEMENT AS INSTRUCTED. (INITIAL CONTACTS)

8/17/99

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PROJ. REFERENCE NO.
B-3607
SHEET NO.
X-1
70 60 50 40 30 20 10 0 10 20 30 40 50 60 70
2685
2680
2675
2670
2665
2660
2690
2685
2680
2668.286
BEGIN BRIDGE -L- STA. 10+45.00
10+50.00
BEGIN PROJECT -L- STA. 10+10.28
2681.881
10+00.00
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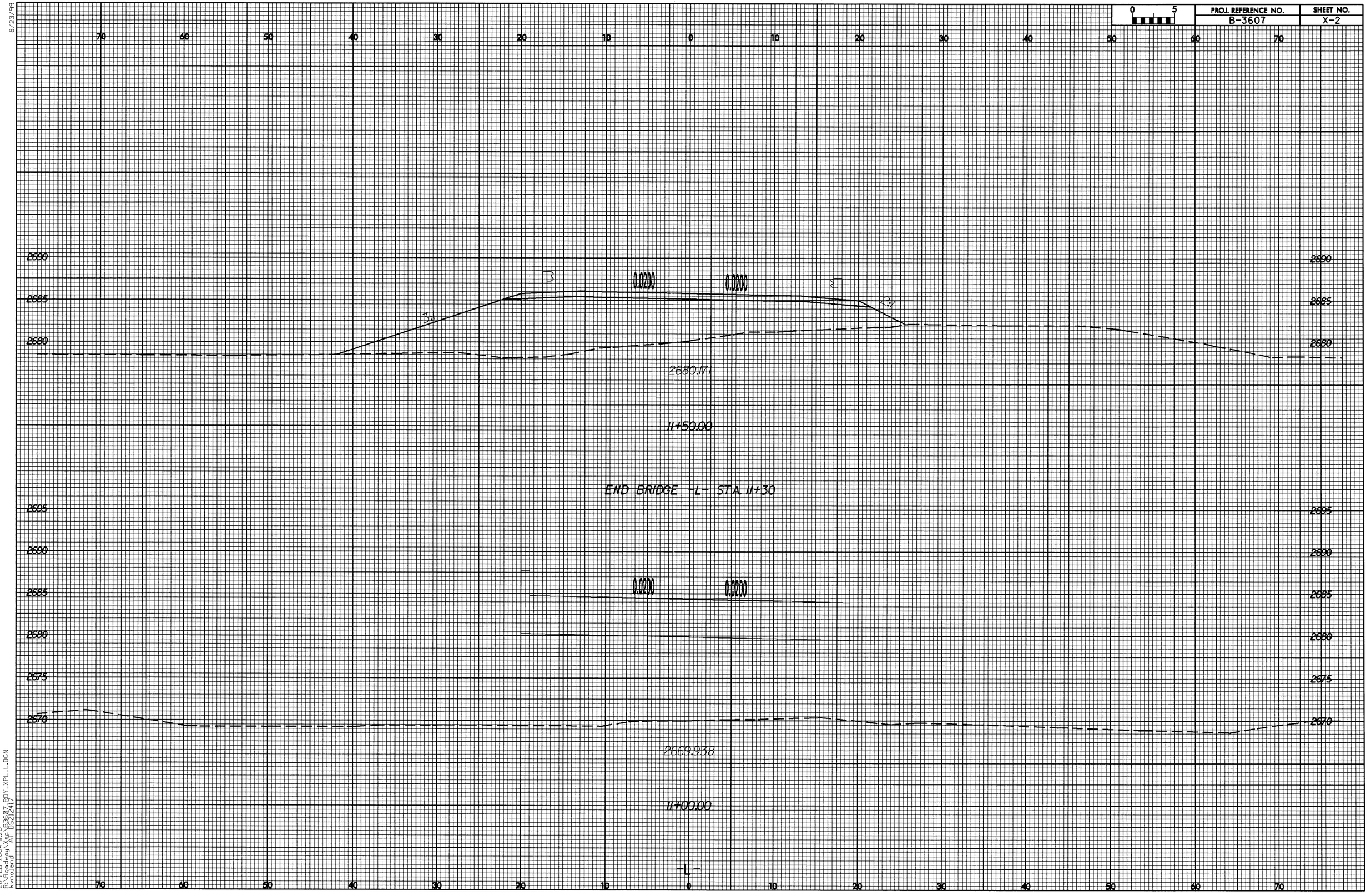
kynoland
AT D5212417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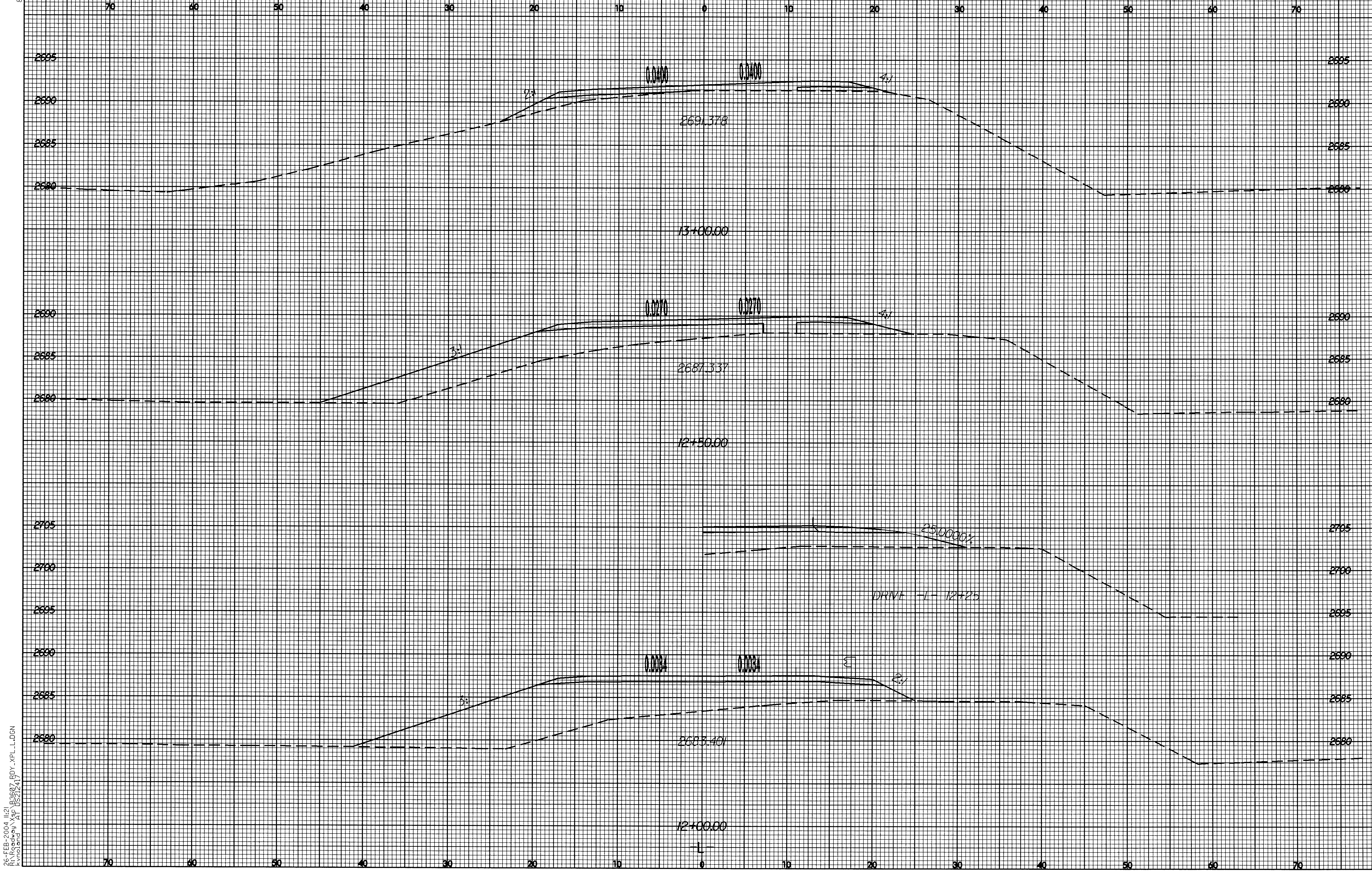
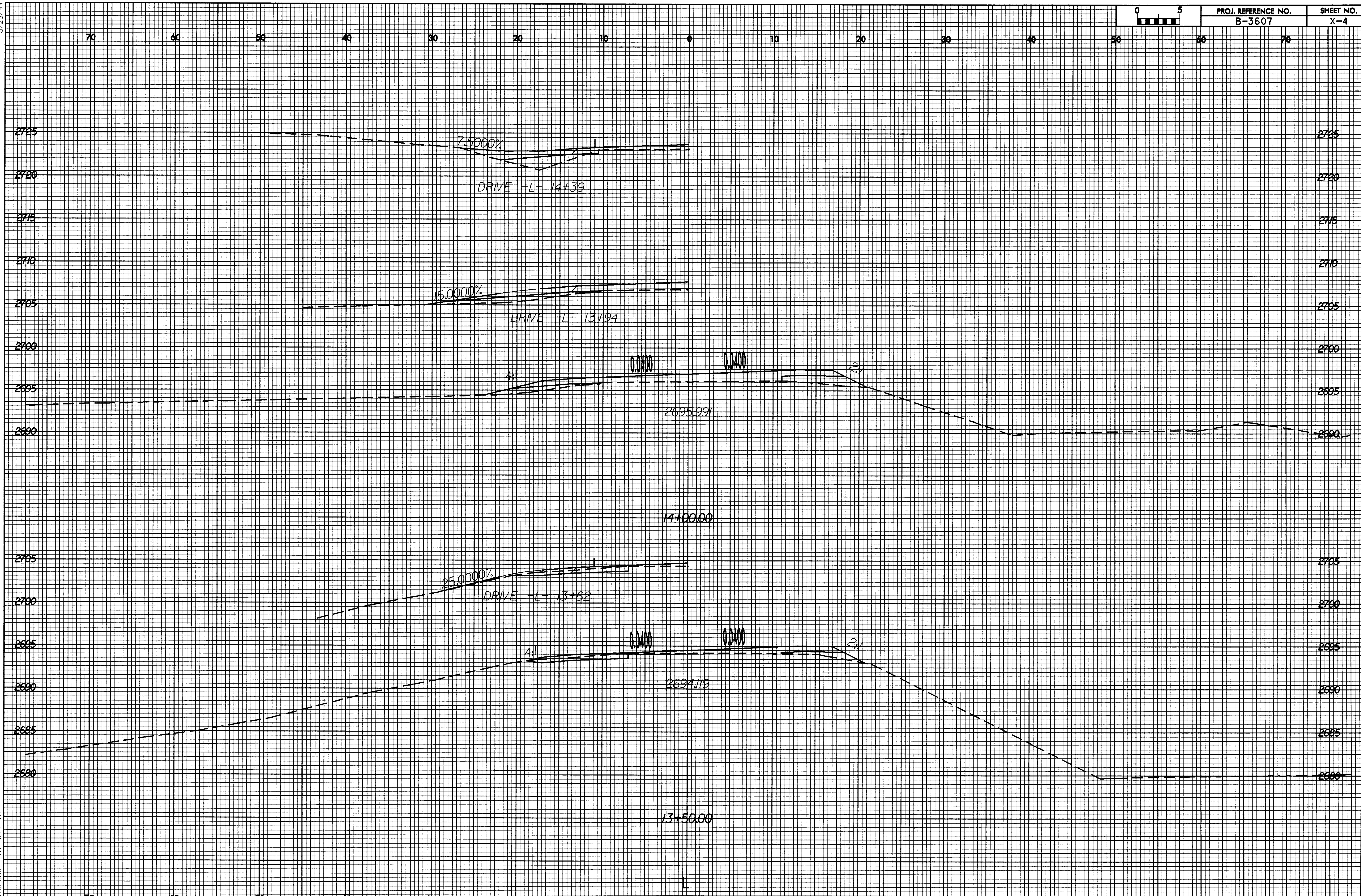
PROJ. REFERENCE NO.
B-3607
SHEET NO.
X-2
8/23/99
70 60 50 40 30 20 10 0 10 20 30 40 50 60 70
2690
2685
2680
3:1
2:1
2680.171
11+50.00
END BRIDGE -L- STA. 11+30
2695
2690
2685
2680
2675
2670
2669.938
11+00.00
-L-
26-FEB-2004 11:20
R:\Roadway\Xsc\B3607_RDY_XPL_L.DGN
kynoland
AT D5212417

PROJ. REFERENCE NO.	SHEET NO.
B-3607	X-3



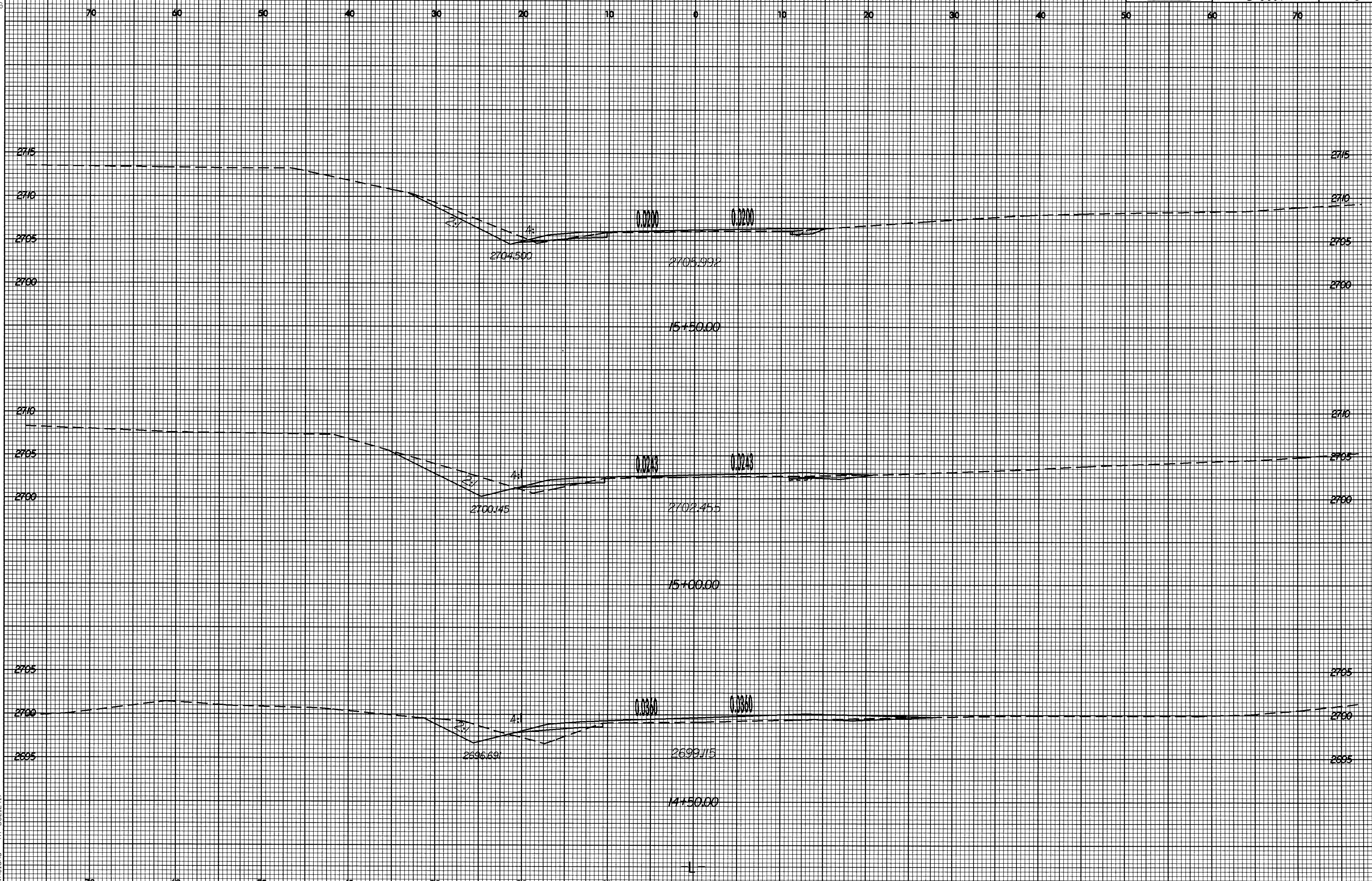
PROJ. REFERENCE NO.	SHEET NO.
B-3607	X-4



8/23/99

26-FEB-2004 11:21
R:\Roadway\Xsc\B3607_RDY_XPL_L.DGN
kvnoland AT DS212417

PROJ. REFERENCE NO.	SHEET NO.
B-3607	X-5



26-FEB-2004 11:21
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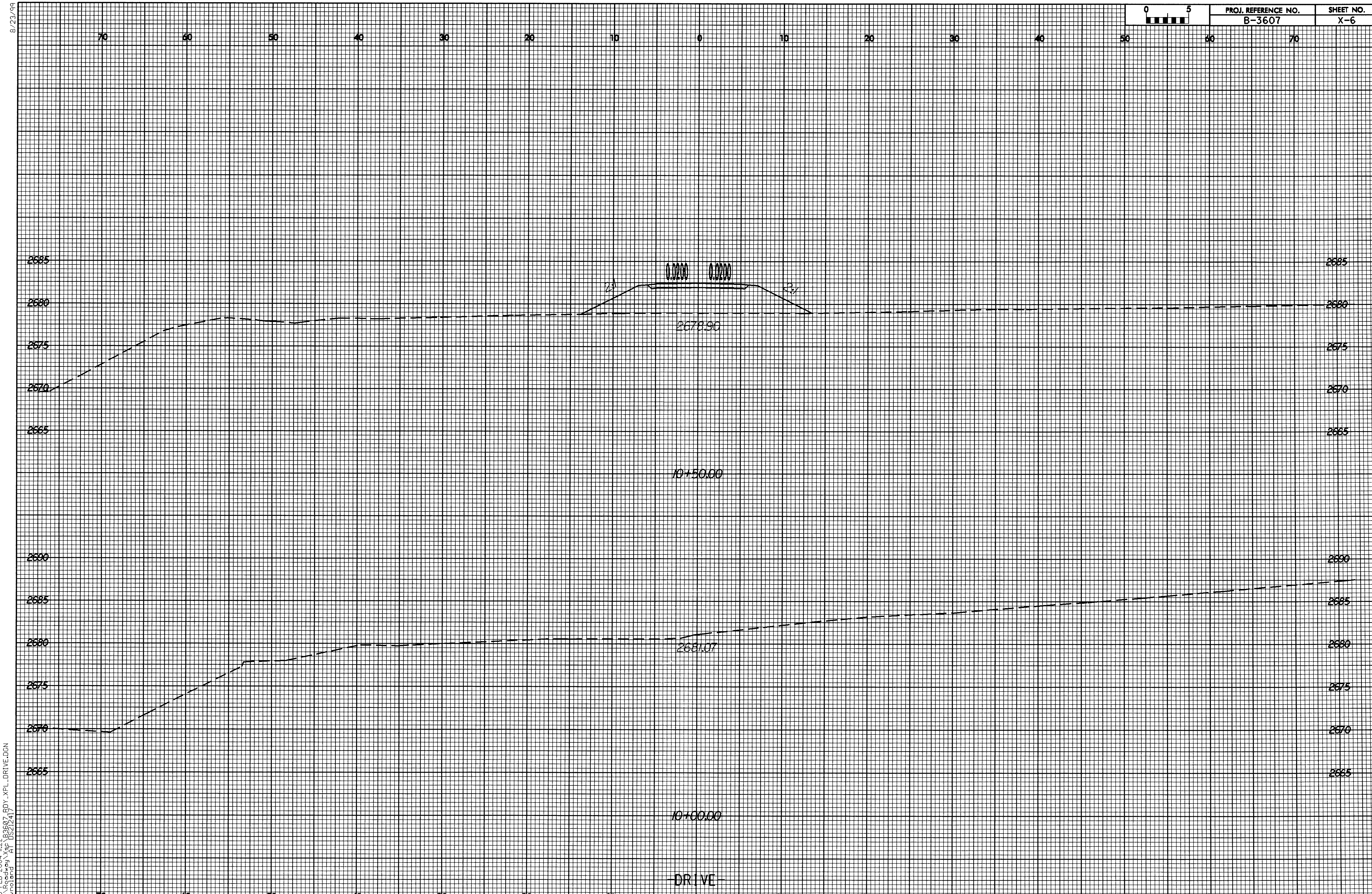
kvnoland AT DS212417

8/23/99



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