STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

August 29, 2005

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 Nos. 14 and 44 on NC 8 over Town Fork Creek and Overflow, Division 9, Stokes County. Federal Aid Project No. BRSTP 8(2), State Project No. 33620.1.1, WBS Element 8.1641001, T.I.P. No. B-4280.

Please find enclosed three copies of the Categorical Exclusion (CE) Document, PCN form, permit drawings, ½ size plans, and U.S. Fish and Wildlife Service (USFWS) Concurrence letter for the above referenced project completed by the North Carolina Department of Transportation (NCDOT). Bridge No. 14 will be replaced on new alignment with a three span 220 foot long bridge with two 12-foot lanes and 5-foot offsets on each side. Bridge No. 44, containing the same structure, will be replaced on new alignment with a two span 100-foot long bridge with two 12-foot lanes and 4.5-foot offsets on each side. The approach work will consist of approximately 800 feet to the south of Bridge No. 14 and 1,100 feet to the north of Bridge No. 44. Traffic will be maintained on the existing bridges during construction.

IMPACTS TO WATERS OF THE UNITED STATES

Wetlands: There is one jurisdictional wetland within the project study area. The wetland is located approximately 350 feet north of Bridge No. 44 on the west side of the existing road. The wetland is approximately 250 feet long and 20 feet wide, directly adjacent to the shoulder of the road. This wetland is located beyond the cut/fill line and therefore will not be impacted by the proposed project.

Surface Waters: Three surface waters, Town Fork Creek and two unnamed tributaries to Town Fork Creek (UT1 and UT2), exist within the project study area. Town Fork Creek is located beneath the existing Bridge No. 14, flowing in an easterly direction. UT1 is located north of

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

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

WEBSITE: WWW.NCDOT.ORG

LOCATION:
TRANSPORTATION BUILDING
1 SOUTH WILMINGTON STREET
RALEIGH NC

Bridge No. 14 on the west side of the road, flowing south into Town Fork Creek. UT2 is located south of Bridge No. 14 and flows in an easterly direction on both sides of the road. UT1 and Town Fork Creek are considered jurisdictional under Section 404 of the Clean Water Act (33 U.S.C. 1344), however only Town Fork Creek will be impacted because UT1 is outside of the cut/fill line. UT2 is not considered jurisdictional because it is an ephemeral channel. The DWQ Index number for these water bodies is 22-25 and the Best Usage Classification is Class C. Although Stokes County is a mountain trout county, Town Fork Creek does not support trout and therefore is not designated as a mountain trout stream. The North Carolina Wildlife Resource Commission (NCWRC) has requested a moratorium for Town Fork Creek from May 1 to July 15 because of the presence of the bigeye jumprock (*Scartomyzon ariommus*), a state listed species. However, due to the lack of statutory regulations requiring this moratorium, NCDOT does not believe that this moratorium is warranted.

Town Fork Creek, which flows under Bridge No. 14, is a perennial stream with moderate flow. The approximate depth of the stream is 3 feet and the average width is 70 feet. The substrate within the stream consists of silt, cobble, and boulders.

Neither High Quality Waters (HQW), Water Supplies (WS-I: undeveloped watersheds or WS-II: predominately undeveloped watersheds) nor Outstanding Resource Waters (ORW) occur within one mile of the project study area.

Permanent Impacts: There are no permanent impacts associated with this project because the bridge will be spanning the creek.

Temporary Impacts: There will be 0.007 acre of temporary surface water impacts to Site No. 1 due to the installation of a work pad. There will be 0.004 acre of temporary surface water impacts to Site No. 2, also due to the installation of a work pad. Impacts total 0.01 acre of temporary fill in surface waters (Town Fork Creek).

One work-pad will be used to tear down the existing bridge, while the other will be used to build the new bridge. One single work-pad is not feasible due to the fact that the new bridge will be built on new alignment.

Restoration Plan: The material used for installation of the temporary work pad will be removed after its purpose has been served. The temporary fill areas will be restored to their original contours. After the temporary work pads are no longer needed, the contractor will use excavating equipment to remove all material within jurisdictional areas. All material will become the property of the contractor who will be required to submit a reclamation plan for removal and disposal of all materials off-site.

Schedule: It is assumed that the contractor will begin construction of the proposed work bridge shortly after the date of availability for the project. The Let date is June 20, 2006 with a date of availability of July 10, 2006.

Removal and Disposal: The work bridge will be removed within 90 days after it is no longer needed. All materials placed in the stream by the contractor will be removed. All other materials removed by the contractor will be disposed of at an off site, non-jurisdictional, upland location.

BRIDGE DEMOLITION

In order to protect the water quality and aquatic life in the area affected by this project, the NCDOT and all potential contractors will follow appropriate guidelines for bridge demolition and removal. These guidelines are presented in the NCDOT document *Pre-Construction Guidelines for Bridge Demolition and Removal.* Guidelines followed for bridge demolition and removal are in addition to those implemented for Best Management Practices for the Protection of Surface Waters.

The existing Bridge No. 14 has an asphalt wearing surface, with a reinforced concrete deck on steel I-beams. The substructure is composed of reinforced concrete caps on timber piles. Thus, there is potential for components of the bridge to be dropped into Waters of the United States during construction. The asphalt wearing surface will be removed prior to demolition without dropping it into the water. The resulting temporary fill associated with the reinforced concrete components of the bridge may be as much as 10 cubic yards. One work-pad will be used to effectively remove the existing bent.

The existing Bridge No. 44 has an asphalt wearing surface, with a reinforced concrete deck on steel I-beams. The substructure is composed of reinforced concrete caps on timber piles. Since there are no jurisdictional surface waters associated with this bridge, no impacts will occur due to demolition.

UTILITY IMPACTS

Within the project area there is an existing 8" PVC waterline, however the line ends before it reaches any of the surface waters. As a result, there will be no impacts to surface waters. There are also aerial power lines and telephone lines, however they will not be affected by construction within the vicinity of the two bridges.

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 January 29, 2003 the Fish and Wildlife Service (FWS) lists three federally protected species for Stokes County (See Table 1).

Table 1.
Federally Protected Species for Stokes County

Common Name	Scientific Name	Status	Biological Conclusion
James spinymussel	*Pleurobema collina*	E	No Effect
Small-anthered bittercress	*Cardamine micranthera*	E	No Effect
Schweinitz's sunflower	*Helianthus schweinitzii*	E	No Effect

E – Endangered

Although Town Fork Creek has potential habitat and the fact that no freshwater mussels of any kind means that something historically or recent is going on with the water chemistry that has limited mussels from inhabiting Town Fork Creek. Also, other surveys on Town Fork Creek have been done in the past at different crossings by NCDOT, USFWS, and NCWRC. The surveys were

done in April 1992, November 2000, and October 2001 and the only evidence of mussels that was found was the shell of an eastern floater (*Pyganodon cataracta*). Given the survey results, it is apparent that James spinymussel does not occur in the project footprint. The North Carolina Natural Heritage Program (NCNHP) does not list a known population up or downstream for James spinymussel. Therefore, this project will have no effect on the James spinymussel.

Suitable habitat in the form of roadsides was observed during the site visit. However, no Schweinitz's sunflowers were observed during the site visit. A known specimen was observed prior to the site visit. In addition, a review of the NCNHP database on October 9, 2001 indicated that there is no known occurrence of the Schweinitz's sunflower within 1.0 mile of the project area. Therefore, this project will not affect this species. No specimens of Schweinitz's sunflower were found in the project area during an additional survey on October 28, 2003, and a database search in October, 2003.

On May 2, 2005 concurrence was received from the US Fish and Wildlife Service for Schweinitz's sunflower. Although no species have been found, habitat does exist. The concurrence letter is included with this permit application.

On October 28, 2003, NCDOT biologists surveyed for small-anthered bittercress within the project study area. Although habitat does exist along the sides of both bridges, no specimens of small-anthered bittercress were found. The site was re-surveyed on April 6, 2005 in which no specimens of small-anthered bittercress were found.

AVOIDANCE, MINIMIZATION AND MITIGATION

Avoidance examines all appropriate and practicable possibilities of averting impacts to "Waters of the United States." The NCDOT is committed to incorporating all reasonable and practicable design features to avoid and minimize jurisdictional stages; minimization measures were incorporated as part of the project design. The impacts to Town Fork Creek have been minimized by extending the length of the original bridges. Bridge No. 14 was extended from 206 feet to 220 feet, and Bridge No. 44 was extended from 90 feet to 100 feet. Also, the new bridges will span the entire water bodies, therefore no impacts will result from bents in the water. The use of best management practices for construction should reduce impacts to plant communities.

Mitigation: Based upon the agreements stipulated in the "Memorandum of Agreement Among the North Carolina Department of Environment and Natural Resources, the North Carolina Department of Transportation, and the U.S. Army Corps of Engineers, Wilmington District (MOA)", it is understood that the North Carolina Department of Environment and Natural Resources Ecological Enhancement Program (EEP), will assume responsibility for satisfying the Section 404 compensatory mitigation requirements for NCDOT projects that are listed in Exhibit 1 of the subject MOA during the Ecological Enhancement Program (EEP) transition period which ends on June 30, 2005. However, since this project contains only temporary impacts, no mitigation will be necessary.

REGULATORY APPROVALS

Section 404 Permit: It is anticipated that the work-pads will be authorized under Section 404 Nationwide Permit 33 (Temporary Construction Access and Dewatering). All other aspects of this project are being processed by the Federal Highway Administration as a "Categorical Exclusion"

Exclusion" in accordance with 23 CFR 771.115(b). Therefore, we propose to proceed under a Nationwide 23 and 33 as authorized by a Nationwide Permit 23 and 33 (FR number 10, pages 2020-2095; January 15, 2002).

Section 401 Permit: We anticipate 401 General Certifications number 3361 and 3366 will apply to this project. In accordance with 15A NCAC 2H .0501(a) 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.

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

If you have any questions or need additional information, please contact Megan Willis at (919) 715-1341.

Sincerely,

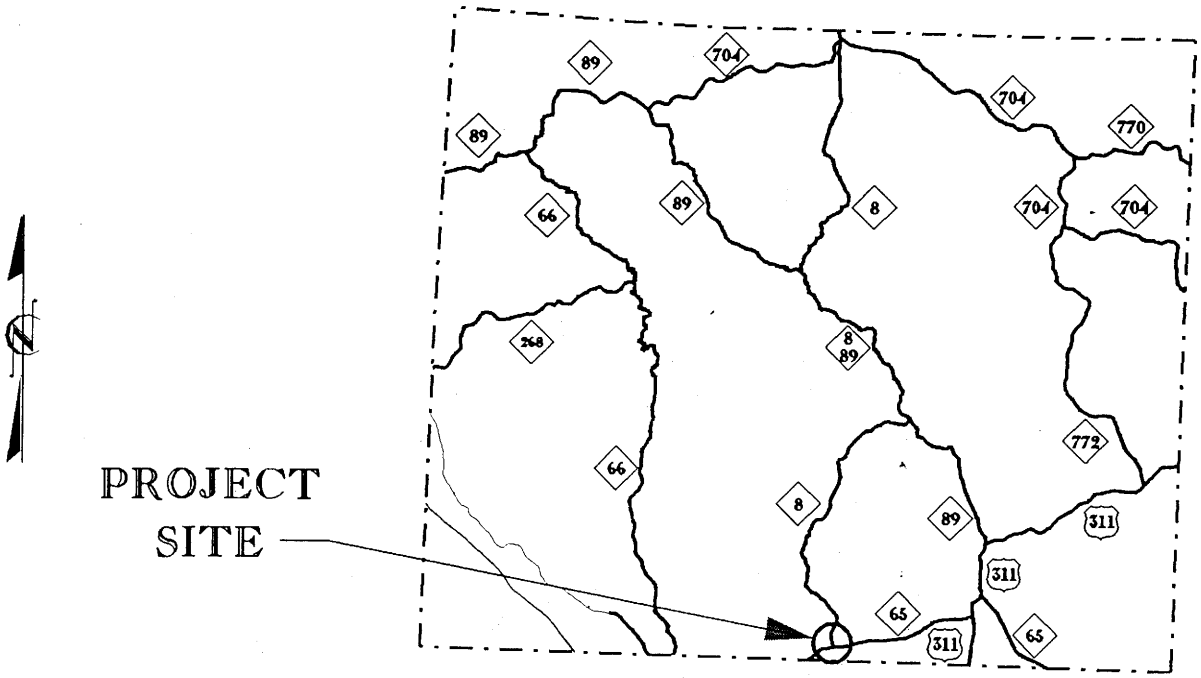
Gregory J. Thorpe, Ph.D. Environmental Management Director Project Development and Environmental Analysis Branch

w/attachment

Mr. John Hennessy, NCDWQ (2 copies)
Ms. Marla Chambers, NCWRC
Ms. Marella Buncick, USFWS
Dr. David Chang, P.E., Hydraulics
Mr. Mark Staley, Roadside Environmental
Mr. Greg Perfetti, P.E., Structure Design
Mr. S. P. Ivey, P.E., Division Engineer
Ms. Diane Hampton, P.E., DEO

w/o attachment

Mr. Jay Bennett, P.E., Roadway Design
Mr. Omar Sultan, Programming and TIP
Mr. Art McMillan, P.E., Highway Design
Mr. David Franklin, USACE
Mr. William T. Goodwin, P.E., PDEA

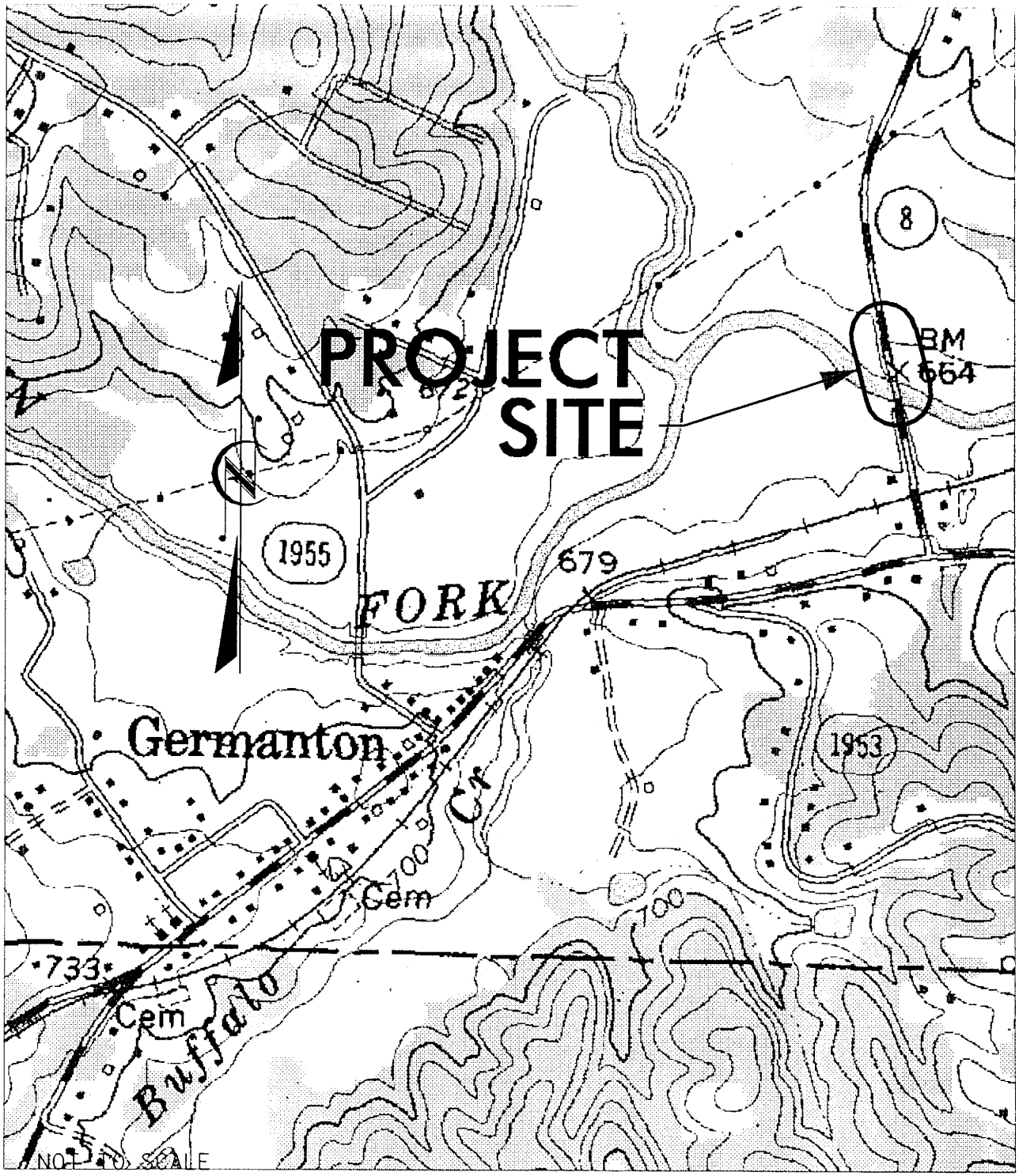


VICINITY MAP

NCDOT
DIVISION OF HIGHWAYS
STOKES COUNTY
PROJECT: 33620.1.1 (B-4280)

REPLACE BRIDGE NO's 14 AND 44 ON NC 8 OVER TOWN FORK CREEK AND TOWN FORK CREEK OVERFLOW

SHEET 1 OF 6 17 FEB 04



LOCATION MAP

NCDOT

DIVISION OF HIGHWAYS

STOKES COUNTY

PROJECT: 33620.1.1 (B-4280)

REPLACE BRIDGE NO's 14 AND 44 ON NC 8 OVER TOWN FORK CREEK AND TOWN FORK CREEK OVERFLOW

SHEET 2 OF 6 17 FEB 04

WETLAND LEGEND

WLB —— WETLAND BOUNDARY

WLB / WLB — WETLAND

F F — DENOTES FILL IN WETLAND

S S — DENOTES FILL IN SURFACE WATER

P P — DENOTES FILL IN SURFACE WATER (POND)

T T — DENOTES TEMPORARY FILL IN WETLAND

E E — DENOTES EXCAVATION IN WETLAND

TS TS — DENOTES TEMPORARY FILL IN SURFACE WATER

DENOTES MECHANIZED CLEARING

FLOW DIRECTION

TB — TOP OF BANK

WE — EDGE OF WATER

C — PROP. LIMIT OF CUT

F — PROP. LIMIT OF FILL

PROP. RIGHT OF WAY

NG — NATURAL GROUND

PL — PROPERTY LINE

TDE — TEMP. DRAINAGE EASEMENT

PDE — PERMANENT DRAINAGE EASEMENT

EAB — EXIST. ENDANGERED ANIMAL BOUNDARY

EPB — EXIST. ENDANGERED PLANT BOUNDARY

WATER SURFACE

LIVE STAKES

BOULDER

COIR FIBER ROLLS

PROPOSED BRIDGE

PROPOSED BOX CULVERT

PROPOSED PIPE CULVERT
12"-48" PIPES
54" PIPES & ABOVE

(DASHED LINES DENOTE EXISTNG STRUCTURES)

SINGLE TREE

WOODS LINE

DRAINAGE INLET

ROOTWAD

RIP RAP

5 — ADJACENT PROPERTY OWNER OR PARCEL NUMBER IF AVAILABLE

PREFORMED SCOUR HOLE

LEVEL SPREADER (LS)

DITCH / GRASS SWALE

NCDOT

DIVISION OF HIGHWAYS

STOKES COUNTY

PROJECT: 33620.1.1 (B-4280)

REPLACE BRIDGE NO's 14 AND 44 ON NC 8 OVER TOWN FORK CREEK AND TOWN FORK CREEK OVERFLOW

17 FEB 04

PROPERTY OWNERS

NAMES AND ADDRESSES

PARCEL NO.	NAMES	ADDRESSES
2	WATTS REALTY	P.O. BOX 400 GERMANTOWN, NC
3	SANDRA BROWDER WATTS	150 CHATEAU ROAD DURHAM, NC

NCDOT

DIVISION OF HIGHWAYS

STOKES COUNTY

PROJECT: 33620.1.1 (B-4280)

REPLACE BRIDGE NO's 14 AND 44 ON NC 8 OVER TOWN FORK CREEK AND TOWN FORK CREEK OVERFLOW

17 FEB 04

WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS				SURFACE WATER IMPACTS				
			Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation In Wetlands (ac)	Mechanized Clearing (Method III) (ac)	Fill In SW (Natural) (ac)	Fill In SW (Pond) (ac)	Temp. Fill In SW (ac)	Existing Channel Impacted (ft)	Natural Stream Design (ft)
1	~18+80 -L-	WORK PAD -L-							0.007		
2	~19+30 -L-	WORK PAD -L-							0.004		
TOTALS:			0	0	0	0	0	0	0.011	0	0

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

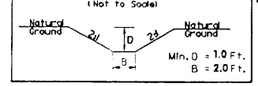
STOKES COUNTY
PROJECT 33620.1.1 B-4280

SHEET 5 OF 6 2/17/04

Form Revised 3/22/01

REVISIONS

DETAIL A
STANDARD BASE DITCH
(Not to Scale)



STA 13+44 -L- (RT & LT)

ENGLISH

B-4280	6
PERMIT SHEET 4 OF 7	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SEE SHEET 6 FOR PROFILE OF -L-

NC GRID NAD 83

LARRY O. JONES AND WIFE TREVA W. JONES AND AUBREY G JENNINGS AND WIFE JUDY H. JENNINGS
DB 460 PG 254
PB 5 PG 107

HORACE P. BONDURANT AND HENRY B. ROWE, III
DB 364 PG 1468

KEITH DALE HARTMAN AND WIFE SHARON L. HARTMAN
DB 355 PG 1560

NOTE: 4" DECK DRAINS TO BE PLACED 6' OC STARTING AT STA 19+86.9 TO STA 20+22.9 -L- LT AND STA 19+63.9 TO STA 20+05.9 -L- RT

COFFERDAM FOR REMOVAL OF EXISTING BENT

WORK BRIDGES FOR REMOVAL OF EXISTING BRIDGE

ROBERT S. HENDRIX TB AND WIFE ADA B. HENDRIX
DB 333 PG 1835

MISS JULIE'S CHILDREN'S HOUSE
DB 396 PG 1603

FRANK D. WATTS AND WIFE BETTY T. WATTS
DB 379 PG 2264
PB 5 PG 107

WATTS REALTY
DB 289 PG 847
DB 397 PG 2253

(1) DR. V. L. DEHART AND WIFE FRANCES DEHART
DB 150 PG 149
DB 227 PG 50

(2) WATTS REALTY
DB 289 PG 847
DB 397 PG 2253

(3) SANDRA BROWDER WATTS
DB 346 PG 779

MATCH LINE -L- STA. 22+00.00 SEE SHEET 5

SCALE 1" = 100'

Office Use Only: Form Version March 05

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
   - ☐ Express 401 Water Quality Certification

2. Nationwide, Regional or General Permit Number(s) Requested: NW 23 & NW 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 Ecosystem Enhancement Program (NCEEP) is proposed for mitigation of impacts, attach the acceptance letter from NCEEP, 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: Gregory J. Thorpe, Ph.D., Environmental Management Director
   Mailing Address: 1598 Mail Service Center
   Raleigh, North Carolina 27699-1598
   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: Replacement of Bridge Nos. 14 & 44 over Town Fork Creek and overflow

2. T.I.P. Project Number or State Project Number (NCDOT Only): B-4280

3. Property Identification Number (Tax PIN): _____

4. Location
   County: Stokes Nearest Town: Germanton
   Subdivision name (include phase/lot number): _____
   Directions to site (include road numbers/names, landmarks, etc.): Highway 8, off Highway 65, just north of Winston Salem

5. Site coordinates (For linear projects, such as a road or utility line, attach a sheet that separately lists the coordinates for each crossing of a distinct waterbody.)
   Decimal Degrees (6 digits minimum): 36, 15.85' °N 80, 13.96' °W

6. Property size (acres): approximately 2.75 acres

7. Name of nearest receiving body of water: Town Fork Creek

8. River Basin: Roanoke
   (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/.)

9. Describe the existing conditions on the site and general land use in the vicinity of the project at the time of this application: The majority of the project area is composed of agricultural fields.

10. Describe the overall project in detail, including the type of equipment to be used: Both bridges will be replaced on new alignment with a two span and three span cored slab bridge. Standard bridge construction equipment will be used.

11. Explain the purpose of the proposed work: To increase the safety of travelers along NC 8 by replacing the old deficient bridges with new ones.

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.

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.

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. Each impact must be listed separately in the tables below (e.g., culvert installation should be listed separately from riprap dissipater pads). Be sure to indicate if an impact is temporary. All proposed impacts, permanent and temporary, must be listed, and must be labeled and clearly identifiable on an accompanying site plan. All wetlands and waters, and all streams (intermittent and perennial) should 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: There will be no permanent impacts associated with this bridge replacement project, only 0.011 acre of temporary impacts associated with two work pads.

2. Individually list wetland impacts. Types of 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.

Wetland Impact Site Number (indicate on map)	Type of Impact	Type of Wetland (e.g., forested, marsh, herbaceous, bog, etc.)	Located within 100-year Floodplain (yes/no)	Distance to Nearest Stream (linear feet)	Area of Impact (acres)
Total Wetland Impact (acres)					

3. List the total acreage (estimated) of all existing wetlands on the property:_____

4. Individually list all intermittent and perennial stream impacts. Be sure to identify temporary impacts. Stream impacts include, but are not limited to placement of fill or culverts, dam construction, flooding, relocation, stabilization activities (e.g., cement walls, rip-rap, crib walls, 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. To calculate acreage, multiply length X width, then divide by 43,560.

Stream Impact Number (indicate on map)	Stream Name	Type of Impact	Perennial or Intermittent?	Average Stream Width Before Impact	Impact Length (linear feet)	Area of Impact (acres)
1	Town Fork Creek	Temp. Fill	Perennial	25 ft.		0.007
2	Town Fork Creek	Temp. Fill	Perennial	25 ft.		0.004
Total Stream Impact (by length and acreage)						0.011

5. Individually list all open water impacts (including lakes, ponds, estuaries, sounds, Atlantic Ocean and any other water of the U.S.). Open water impacts include, but are not limited to fill, excavation, dredging, flooding, drainage, bulkheads, etc.

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

6. List the cumulative impact to all Waters of the U.S. resulting from the project:

Stream Impact (acres):	0.011
Wetland Impact (acres):	0
Open Water Impact (acres):	0
Total Impact to Waters of the U.S. (acres)	0.011
Total Stream Impact (linear feet):	

7. Isolated Waters
Do any isolated waters exist on the property? ☐ Yes ☒ No
Describe all impacts to isolated waters, and include the type of water (wetland or stream) and the size of the proposed impact (acres or linear feet). Please note that this section only applies to waters that have specifically been determined to be isolated by the USACE.

8. 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.):
Current land use in the vicinity of the pond:
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 impacts to Town Fork Creek have been minimized by taking out the existing bents and replacing the existing bridges with ones that will span the entire water body.

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 January 15, 2002, 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 NCEEP 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.
   No compensatory mitigation is neeeded.

2. Mitigation may also be made by payment into the North Carolina Ecosystem Enhancement Program (NCEEP). Please note it is the applicant's responsibility to contact the NCEEP at (919) 715-0476 to determine availability, and written approval from the NCEEP indicating that they are will to accept payment for the mitigation must be attached to this form. For additional information regarding the application process for the NCEEP, check the NCEEP website at http://h2o.enr.state.nc.us/wrp/index.htm. If use of the NCEEP is proposed, please check the appropriate box on page five 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)

1. Does the project involve an expenditure of public (federal/state/local) funds or the use of public (federal/state) land? Yes ☒ No ☐

2. 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 ☐

3. 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.

1. Will the project impact protected riparian buffers identified within 15A NCAC 2B .0233 (Neuse), 15A NCAC 2B .0259 (Tar-Pamlico), 15A NCAC 02B .0243 (Catawba) 15A NCAC 2B .0250 (Randleman Rules and Water Supply Buffer Requirements), or other (please identify_____)? Yes ☐ No ☒

2. If "yes", 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 for Catawba)	
2		1.5	
Total			

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

3. If buffer mitigation is required, please discuss what type of mitigation is proposed (i.e., Donation of Property, Riparian Buffer Restoration / Enhancement, or Payment into the Riparian Buffer Restoration Fund). Please attach all appropriate information as identified within 15A NCAC 2B .0242 or .0244, or .0260. _____

_____

XI. Stormwater (required by DWQ)

Describe impervious acreage (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. If percent impervious surface exceeds 20%, please provide calculations demonstrating total proposed impervious level.

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.

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. Cumulative Impacts (required by DWQ)

Will this project (based on past and reasonably anticipated future impacts) result in additional development, which could impact nearby downstream water quality? Yes ☐ No ☐
If yes, please submit a qualitative or quantitative cumulative impact analysis in accordance with the most recent North Carolina Division of Water Quality policy posted on our website at http://h2o.enr.state.nc.us/ncwetlands. If no, please provide a short narrative description:

XV. 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).

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

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Asheville Field Office
160 Zillicoa Street
Asheville, North Carolina 28801

May 2, 2005

Ms. Megan Willis
Office of Natural Environment
North Carolina Department of Transportation
1598 Mail Service Center
Raleigh, North Carolina 27699-1598

Dear Ms. Willis:

Subject: Endangered Species Concurrence for the Replacement of Bridge No. 14 over Town Fork Creek and Bridge No. 44 over Town Creek Overflow, Stokes County, North Carolina (TIP Project B-4280)

We have reviewed the federally listed species survey information that was provided for the subject project and are providing the following comments in accordance with the Fish and Wildlife Coordination Act, as amended (16 U.S.C. 661-667e), and section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531-1543) (Act).

According to information in the permit application, the North Carolina Department of Transportation (NCDOT) proposes to replace Bridge No. 14 over Town Fork Creek and Bridge No. 44 over Town Creek Overflow in Stokes County.

Federally Listed Species - A survey for the federally endangered *Helianthus schweinitzii* (Schweinitz's sunflower) was conducted on October 28, 2003; no plants were discovered during the survey. A survey for the federally endangered small-anthered bittercress (*Cardamine micranthera*), which occurs throughout Stokes County, was conducted on May 23, 2002. According to the information provided potential habitat for small-anthered bittercress does exist along the stream banks of Bridge No. 14; however, no plants were discovered at either bridge.

According to our records all known occurrences of the federally endangered James spinymussel (*Pleurobema collina*) within the Dan River are more than 18 miles upstream from the confluence point of Town Fork Creek and the Dan River. Surveys for the James spinymussel were conducted at Bridge No. 14 on August 1, 2002, approximately 200 meters upstream and 150 meters downstream of the project area. No mussels were discovered during the survey.

Given the negative survey results for all three listed species, we do not believe these projects will have an effect on listed species; thus, the requirements under section 7(c) of the Act are fulfilled. However, obligations under section 7 of the Act must be reconsidered if: (1) new information reveals impacts of this identified action that may affect listed species or critical habitat in a manner not previously considered, (2) this action is subsequently modified in a manner that was not considered in this review, or (3) a new species is listed or critical habitat is determined that may be affected by the identified action.

Fish and Wildlife Resources - The information provided for these bridge replacement projects does not include detailed descriptions of the structures that will replace the existing bridges. In all cases, we recommend that an existing bridge be replaced with a new bridge. We recommend that each new bridge design include provisions for the roadbed and deck drainage to flow through a vegetated buffer prior to reaching the affected stream. This buffer should be large enough to alleviate any potential effects from the runoff of storm water and pollutants. The bridge designs should not alter the natural stream or stream-bank morphology or impede fish passage. Any piers or bents should be placed outside the bank-full width of the streams. The bridges and approaches should be designed to avoid any fill that will result in the damming or constriction of the channel or floodplain. If spanning the floodplain is not feasible, culverts should be installed in the floodplain portion of the approaches in order to restore some of the hydrological functions of the floodplain and reduce high velocities of floodwaters within the affected areas. Measures to control erosion and sedimentation should be in place prior to any ground-disturbing activities. Wet concrete should never be allowed to come into contact with the streams.

If you have questions about these comments, please contact Ms. Denise Moldenhauer of our staff at 828/258-3939, Ext. 226. In any future correspondence concerning this project, please reference our Log Number 4-2-05-186.

Sincerely,

for Brian P. Cole
Field Supervisor

cc:
Ms. Diane Hampton, Division 9 Environmental Officer, North Carolina Department of Transportation, 375 Silas Creek Parkway, Winston-Salem, NC 27127
Mr. Ron Linville, Western Piedmont Region Reviewer, North Carolina Wildlife Resources Commission, 3855 Idlewild Road, Kernersville, NC 27284-9180

Stokes County
Bridge No. 14 over Town Fork Creek
and
Bridge No. 44 over Town Fork Creek Overflow
on NC 8
Federal Aid Project No. BRSTP-8(2)
State Project No. 8.1641001
W.B.S. No. 33620.1.1
T.I.P. No. B-4280

CATEGORICAL EXCLUSION

UNITED STATES DEPARTMENT OF TRANSPORTATION

FEDERAL HIGHWAY ADMINISTRATION

AND

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

Approved:

2/28/05
DATE

for Gregory J. Thorpe, PhD, Environmental Management Director
Project Development & Environmental Analysis Branch

3/9/05
DATE

for John F. Sullivan, III, P.E., Division Administrator
Federal Highway Administration

Stokes County
Bridge No. 14 over Town Fork Creek
and
Bridge No. 44 over Town Fork Creek Overflow
on NC 8
Federal Aid Project No. BRSTP-8(2)
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CATEGORICAL EXCLUSION

Documentation Prepared in
Project Development and Environmental Analysis Branch By:

February 2005

Dennis Pipkin, PE
Project Planning Engineer

William T. Goodwin Jr., PE, Unit Head
Bridge Replacement Planning Unit

ENVIRONMENTAL COMMITMENTS:

B-4280, Stokes County

Bridge No. 14 over Town Fork Creek
and
Bridge No. 44 over Town Fork Creek Overflow
on NC 8
Federal Aid Project No. BRSTP-8(2)
State Project No. 8.1641001

1. Roadway Design Unit, Structure Design Unit, Project Development & Environmental Analysis Branch (Permits), Resident Engineer:

Bridge Demolition: The existing **Bridge No. 14** has an asphalt wearing surface, with a reinforced concrete deck on steel I-beams. The substructure is composed of reinforced concrete caps on timber piles. Thus, there is a potential for components of the bridge to be dropped into Waters of the United States during construction. The asphalt wearing surface will be removed prior to demolition without dropping into the water. The resulting temporary fill associated with the reinforced concrete components of the bridge will be as much as 10 cubic yards. During construction, Best Management Practices for Bridge Demolition and Removal will be followed.

The existing **Bridge No. 44** has an asphalt wearing surface, with a reinforced concrete deck on steel I-beams. The substructure is composed of reinforced concrete caps on timber piles. Thus, there is a potential for components of the bridge to be dropped into Waters of the United States during construction. The asphalt wearing surface will be removed prior to demolition without dropping into the water. The resulting temporary fill associated with the reinforced concrete components of the bridge will be as much as 3 cubic yards. During construction, Best Management Practices for Bridge Demolition and Removal will be followed.

Stokes County
Bridge No. 14 over Town Fork Creek
and
Bridge No. 44 over Town Fork Creek Overflow
on NC 8
Federal Aid Project No. BRSTP-8(2)
State Project No. 8.1641001
T.I.P. No. B-4280

INTRODUCTION:

Bridge No. 14 and Bridge No. 44 are included in the 2004-2010 North Carolina Department of Transportation (NCDOT) Transportation Improvement Program and are eligible for the Federal-Aid Bridge Replacement and Rehabilitation Program. The location is shown in Figure 1. No substantial environmental impacts are anticipated. The project is classified as a Federal "Categorical Exclusion".

I. PURPOSE AND NEED STATEMENT

Bridge No. 14 has a sufficiency rating of 31.9 out of a possible 100 for a new structure, as indicated by Bridge Maintenance Unit records. The bridge is considered to be structurally deficient and functionally obsolete.

According to the Federal Highway Administration (FHWA) standards, this bridge is considered to be structurally deficient since it has a deck condition rating of 4 out of 9 paired with a sufficiency rating of 31.9, which is less than the FHWA sufficiency standard of 50 or less.

Also, this bridge is considered functionally obsolete, since it has deck geometry appraisal of 2 out of 9. The bridge is therefore considered eligible for FHWA's Highway Bridge Replacement and Rehabilitation Program. The replacement of this inadequate structure will result in safer traffic operations.

Bridge No. 44 has a sufficiency rating of 29.0 out of a possible 100 for a new structure, as indicated by Bridge Maintenance Unit records. The bridge is considered to be structurally deficient and functionally obsolete.

According to the Federal Highway Administration (FHWA) standards, this bridge is considered to be structurally deficient since it has a structural appraisal of 2 out of 9 paired with a sufficiency rating of 29.0, which is less than the FHWA sufficiency standard of 50 or less.

Also, this bridge is considered functionally obsolete, since it has a deck geometry appraisal of 2 out of 9. The bridge is therefore considered eligible for FHWA's Highway Bridge Replacement and Rehabilitation Program. The replacement of this inadequate structure will result in safer traffic operations.

II. EXISTING CONDITIONS

The project is located in south central Stokes County. (see Figure 1). Development in the area is agricultural and small business in nature.

NC 8 is classified as a Rural Major Collector facility in the Statewide Functional Classification System and it is not a Federal-Aid Highway. NC 8 is not designated as a State Bicycle Route.

In the vicinity of the bridge, NC 8 has a 19-foot pavement width with 6-foot grass shoulders. The roadway of Bridge No. 14 is situated approximately 21 feet above the bed of Town Fork Creek, and the roadway of Bridge No. 44 is situated approximately 11 feet above the bed of Town Fork Creek Overflow.

Bridge No. 14 consists of three spans and is constructed of an asphalt wearing surface on a reinforced concrete deck. The substructure consists of reinforced concrete caps on timber piles. The existing bridge (see Figure 3) was constructed in 1950. The overall length of the structure is 206 feet. The clear roadway width is 24.0 feet. The bridge is not posted.

Bridge No. 44 consists of three spans and is constructed of an asphalt wearing surface on a reinforced concrete deck. The substructure consists of reinforced concrete caps on timber piles. The existing bridge (see Figure 3A) was constructed in 1950. The overall length of the structure is 90 feet. The clear roadway width is 24.0 feet. The posted weight limit on this bridge is 34 tons for all vehicles.

There are no utilities attached to the existing structures, and utility impacts are anticipated to be low.

The current traffic volume across both bridges is 6,600 vehicles per day (VPD) and is expected to increase to 12,000 VPD by the year 2025. The projected volume includes one percent truck-tractor semi-trailer (TTST) and 5 percent dual-tired vehicles (DT). Regulatory speed limits are not posted in the bridge vicinity.

There were no accidents reported in the vicinity of either bridge during a recent three year period.

The Stokes County School Bus Superintendent stated that 6 school buses cross the bridges daily. Re-routing of busses can be done; however, traffic will be maintained on-site for this project.

III. ALTERNATES

A. Project Description

The replacement structures will consist of two new bridges, placed on a new alignment of NC 8 to the east of the existing alignment. Replacement for Bridge No. 14 would be with a new 220 foot long bridge. Replacement for Bridge No. 44 would be with a new 100 foot long bridge. Travelway width for both bridges and approaches will be 24 feet. Bridge design will accommodate two 12-foot lanes. Bridge No. 14 will have 5-foot offsets on each side. Bridge No.

44 will have 4.5-foot offsets on each side. Approach roadway dimensions will be 24 feet with 8-foot shoulder widths.

The roadway grade of the new structures will be approximately the same as the existing grade at this location.

Initial design indicates that completed project will provide a design speed of 60 mph.

B. Reasonable and Feasible Alternates

Three alternates for replacing Bridge No. 14 and Bridge No. 44 are described below.

Alternate One: - Replace both bridges at approximately the same location and elevation as the existing bridges. Replacement for Bridge No. 14 would be with a new 220 foot long bridge. Replacement for Bridge No. 44 would be with a new 100 foot long bridge. Traffic would be maintained during construction using two temporary on-site detour structures placed to the **east** of the existing bridges.

Alternate Two: - Replace both bridges at approximately the same location and elevation as the existing bridges. Replacement for Bridge No. 14 would be with a new 220 foot long bridge. Replacement for Bridge No. 44 would be with a new 100 foot long bridge. Traffic would be maintained during construction using two temporary on-site detour structures placed to the **west** of the existing bridges.

Alternate Three (Preferred): - Replace both bridges on a new alignment of NC 8 to the **east** of the existing bridges. Replacement for Bridge No. 14 would be with a new 220 foot long bridge. Replacement for Bridge No. 44 would be with a new 100 foot long bridge. The approach work will consists of approximately 800 feet to the south of bridge 14 and 1,100 feet to the north of bridge 44. Traffic would be maintained on the existing bridges during construction.

C. Alternates Eliminated from Further Consideration

The "do-nothing" alternate will eventually necessitate closure of the bridges. This is not acceptable due to the traffic service provided by NC 8.

"Rehabilitation" of the old bridges is not practical due to their age and deteriorated conditions. The bridges are considered structurally deficient due to the aging of their timber components.

D. Preferred Alternate

Bridge No. 14 and Bridge No. 44 will be replaced at the new alignment as shown in Figure 2. Alternate 3 is recommended in order to avoid multiple utility corridors and buildings located along the west side of NC 8 in the vicinity of the bridges. Alternate 3 is also the most economical.

The NCDOT Division 9 Engineer concurs with the selection of Alternate 3 as the preferred alternate.

IV. The estimated costs for the two alternatives are as follows:

	Alternate 1	Alternate 2	Alternate 3 (Preferred)
Structure	$624,000	$624,000	$644,000
Roadway Approaches	377,000	377,000	484,000
Detour Structure and Approaches	700,000	775,000	00
Structure Removal	60,000	60,000	60,000
Misc & Mobilization	234,000	234,000	416,000
Contract Cost	1,995,000	2,070,000	1,604,000
Eng. & Contingencies	205,000	205,000	246,000
Total Construction Cost	2,200,000	2,275,000	1,850,000
Right-of-way Costs	153,000	143,000	92,000
Total Project Cost	**$2,353,000**	**$2,418,000**	**$1,942,000**

V. NATURAL RESOURCES

Soils

The Riverview-Toccoa-Chewacla series is the dominant soil in the study area. Descriptions of each soil type are provided in Table 1.

Table 1. Soils located within the project study area

Series name	Drainage	Runoff	Hydric	Slope	Permeability
Riverview	well drained	Slow	no	0-4 %	moderate
Toccoa	well to moderately well drained	Slow	no	0-4 %	moderately rapid
Chewacla loam	somewhat poorly drained	Slow	inclusions	0-2 %	moderate

Water Resources

This section contains information concerning surface water resources likely to be impaeted by the proposed project. Water resource assessments include the physical characteristics, best usage standards, and water quality aspects of the water resources, along with their relationship to major regional drainage systems. Probable impacts to surface water resources are also discussed, as are means to minimize impacts.

Best Usage Classification

The Division of Water Quality (DWQ) has assigned index numbers for streams and tributaries in North Carolina. Town Fork Creek and two unnamed tributaries (UT) to Town Fork Creek in the Roanoke River Basin are crossed by this project. Town Fork Creek [DWQ Index No. 22-25, (8/1/98)] carries a Best Usage Classification of **C**. Class C freshwaters are protected for

secondary recreation, fishing, aquatic life including propagation and survival, and wildlife. Unnamed tributaries (UT) carry the same classification as their receiving stream.

No waters classified as High Quality Waters (HQW), Outstanding Resource Waters (ORW), or Water Supplies (WS-I or WS-II) occur within 1.0 mi. of project study area

Physical Characteristics

One piedmont perennial stream is crossed by Bridge No. 14. At the time of the field visit, Town Fork Creek had an approximate depth of 3.0 ft. The stream had a moderate flow. The average channel width was approximately 70.0 ft. The substrate consisted primarily of silt, cobble, and boulders.

Town Fork Creek overflow is a small depression crossed by Bridge No. 44. This area, though crossed by a bridge has no distinct channel. At the time of the field visit, there was no water beneath the bridge nor on either side of the bridge. Non- hydrophytic vegetation was found under the bridge.

Two unnamed tributaries to Town Fork Creek are also located within the project area. Unnamed tributary 1 (UT1) is located near the southern end of the project, perpendicular to NC 8. The channel width was approximately 3.0 - 4.0 ft and a depth of 2.0 in. The substrate consisted of silt. The flow in the channel was slow at the date of the site visit. Unnamed tributary 2 (UT2) flows from north to south before it connects to Town Fork Creek on the west side of NC 8. This stream has a channel width of approximately 1.5 - 2.0 ft and a depth of 2.0 in. The substrate consisted of silt. There was no flow in the channel at the date of the site visit though standing water was present throughout the channel.

National Pollutant Discharge Elimination System

Point sources refer to discharges that enter surface water through a pipe, ditch, or other defined points of discharge. The term most commonly refers to discharges associated with wastewater treatment plants. Point source dischargers located throughout North Carolina are permitted through the National Pollutant Discharge Elimination System (NPDES) program. Dischargers are required to register for a permit. There are no permitted dischargers located within 1.0 mi. upstream of the project study area.

Non-point source refers to runoff that enters surface waters through stormwater flow or no defined point of discharge. There are many types of land use activities that can serve as sources of nonpoint source pollution including land development, construction, crop production, animal feeding lots, failing septic systems, landfills, roads, and parking lots. Sediment and nutrients are major pollution-causing substances associated with nonpoint source pollution. Others include fecal coliform bacteria, heavy metals, oil and grease, and any other substance that may be washed off the ground or removed from the atmosphere and carried into surface waters.

BIOTIC RESOURCES

Summary of Anticipated Impacts

Construction of the proposed project will have various impacts on the biotic resources described. This section quantifies and qualifies potential impacts to the natural communities within the project study area in terms of the area impacted and the organisms affected.

Anticipated Impacts to Terrestrial Communities

Impacts to terrestrial communities will result from project construction due to the clearing and paving of portions of the project study area, and thus the loss of community area. Calculated quantitative impacts to terrestrial communities reflect the relative abundance of each community present in the study area (Table 2). Estimated impacts are derived based on the total project length of 2,400 ft. The entire right-of-way [80.0 ft] for each alternative minus the existing road surface was used for this calculation. The entire right-of-way will probably not be impacted; therefore actual impacts to the communities may be considerably less.

Table 2. Estimated impacts to terrestrial communities.

Community type	Alternate 1 Ac	Alternate 2 Ac	Alternate 3 Ac
Maintained Roadside	0.2	0.2	0.2
Agriculture Field	3.9	3.1	3.1
Riparian Fringe	0.2	0.2	0.2
Bottomland Hardwood Forest	0.2	0.2	0.1
Total	**4.5**	**3.7**	**3.6**

Flora and fauna occurring in these communities are generally common throughout North Carolina because of their adaptability to wide ranging environmental factors. Moreover, a similar roadside shoulder community will be re-established after construction. Animals temporarily displaced by construction activities should repopulate areas suitable for the species following project completion. As a result, it is unlikely that existing species will be displaced significantly from the project study area following construction. However, to minimize the temporary effects of project construction, all cleared areas along the roadways should be revegetated promptly after project completion to minimize erosion and the loss of wildlife habitat.

Anticipated Impacts to Water Resources

Estimated impacts to Town Fork Creek due to replacing these two bridges will be minimal. Bridge No.14 over the Town Fork Creek has seven spans totaling 206 ft. in length. This bridge has an asphalt wearing surface, with a reinforced concrete deck on steel I-beams. The substructure is composed of reinforced concrete caps on timber piles. Thus, there is a potential for components of the bridge to be dropped into Waters of the United States during construction. The asphalt wearing surface will be removed prior to demolition without dropping into the water.

The resulting temporary fill associated with the reinforced concrete components of the bridge will be as much as 10 cubic yards.

Bridge No. 44 over Town Fork Creek overflow contains three spans totaling 90 ft. in length. This bridge has an asphalt wearing surface, with a reinforced concrete deck on steel I-beams. The substructure is composed of reinforced concrete caps on timber piles. Thus, there is a potential for components of the bridge to be dropped into Waters of the United States during construction. The asphalt wearing surface will be removed prior to demolition without dropping into the water. The resulting temporary fill associated with the reinforced concrete components of the bridge will be as much as 3 cubic yards. This overflow does not carry water during normal conditions.

Aquatic communities are sensitive to any changes in the environment. Any action that affects water quality can have an adverse impact on aquatic organisms. Although most of the disturbance caused by project construction will be temporary, some environmental impacts caused by the proposed project will be long term or irreversible. Installation or modification of instream structures, such as replacement of bridges, can permanently affect many physical stream parameters.

Project construction may result in the following impacts to surface waters:

- Increased silt loading and sedimentation from erosion of disturbed soils.
- Changes in light incidence, water clarity, and water temperature due to increased sediment load and riparian vegetation removal.
- Alteration of stream discharge due to silt loading and changes in surface or ground water drainage patterns.
- Increased potential for release of toxic compounds such as fuel and oil from construction equipment and other vehicles.

Precautions must be taken to minimize these and other impacts to water resources in the study area. NCDOT's Best Management Practices (BMP) for the Protection of Surface Waters must be strictly enforced throughout the construction stage of the project.

JURISDICTIONAL TOPICS

Summary of Anticipated Impacts

Estimated impacts to Town Fork Creek will be minimal due to the fact that the stream will be spanned. Estimated impacts to two unnamed tributaries to Town Fork Creek are likely to occur as a result of project construction. Impacts to a small bottomland hardwood wetland may occur as a result of project construction. Approximately 0.2 ac of the wetland may be impacted. Estimated impacts are derived based on the project length of 2,400.0 ft. The entire right-of-way [80.0 ft] for each alignment was used for this calculation. The entire right-of-way will probably not be impacted; therefore actual impacts to the stream may be considerably less. Estimated impacts for each alternate are provided in Table 3.

Table 3. Estimated Impacts to Surface Waters

Surface Water	Alternate 1 ft	Alternate 2 ft	Alternate 3 ft
Town Fork Creek	0.0	0.0	0.0
Town Fork Creek Overflow	0.0	0.0	0.0
UT 1	160.0	160.0	120.0
UT 2	250.0	250.0	0.0
Total	**410.0**	**410.0**	**120.0**

Permits

Clean Water Act §401 authorizes states to determine whether activities permitted by the federal government comply with state water quality standards. The NC Division of Water Quality (DWQ) may require a Section 401 Water Quality Certification if a project fills or substantially modifies waters or wetlands. The Section 401 Water Quality Certification allows surface waters to be temporarily impacted for the duration of the construction or other land manipulation. North Carolina developed General Certifications (GCs) that satisfy CWA §401 and correspond to the Corps of Engineers' NWPs (NCDENR, DWQ, Water Quality Section, Wetlands Water Quality Certification; undated Internet site). The issuance of a 401 permit from the DWQ is a prerequisite to issuance of a Section 404 permit. Water Quality Certification No. 3107, which corresponds to NWP 23, will likely be required for the project.

Clean Water Act §404 establishes a permit program to regulate the discharge of dredged or fill materials into Waters of the United States. The US Army Corps of Engineers (USACE), which administers the permit program under CWA §404, established nationwide permits for minor activities, specialized activities, and activities regulated by other authorities. A nationwide permit (NWP) is a permit by rule. In other words, compliance with the NWP rules satisfies the statutory provisions under Section 404 of the Clean Water Act. Forty NWPs referenced by a number currently exist (Strand, 1997). Nationwide 23, entitled Approved Categorical Exclusions, covers certain activities undertaken, assisted, authorized, regulated, funded, or financed, in whole or in part, by another Federal agency or department. Nationwide Permit 23 applies when another Federal agency or department determines that their activity, work, or discharge is categorically excluded from an environmental impact statement (EIS) under the National Environmental Policy Act (NEPA). The activity, work, or discharge becomes categorically excluded when its actions neither individually nor cumulatively have a significant effect on the human environment. The Office of the Chief of Engineers must receive notice of the agency's or department's application for the categorical exclusion and concur with the categorical exclusion determination (61 FR 65874, 65916; December 13, 1996).

A Nationwide Permit 23 CFR 330 Appendix A (B) (23) is likely to be applicable for the crossings of Town Fork Creek, Town Fork Creek Overflow, and two UT's to Town Fork Creek. This permit authorizes construction provided the following conditions are met:

- the width of the fill is limited to the minimum necessary for the actual crossing;
- the fill place in Waters of the United States is limited to a filled area of no more than 1.0 ac;

- no more than a total of 150 linear ft of the fill for the roadway can occur in special aquatic sites, including wetlands;
- the crossing is culverted, bridged or otherwise designed to prevent the restriction of, and to withstand, expected high flows and tidal flows and movement of aquatic organisms, and;
- the crossing, including all attendant features, both temporary and permanent, is part of a single and complete project for crossing of Waters of the United States.

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. An endangered species is considered to be a species that is in danger of becoming extinct throughout all or a significant portion of its range. A threatened species is considered to be a species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

As of April 23, 2004, the U.S. Fish and Wildlife Service (FWS) lists three federally protected species for Stokes County (see Table 4). Brief descriptions and biological conclusions are provided for each species below.

Table 4. Federally Protected Species for Stokes County.

SCIENTIFIC NAME	COMMON NAME	STATUS
Pleurobema collina	James spinymussel	**Endangered**
Cardamine micranthera	Small-anthered bittercress	**Endangered**
Helianthus schweinitzii	Schweinitz's sunflower	**Endangered**

Name: James spinymussel (*Pleurobema collina*)

Mussel surveys were conducted on August 1, 2002 by NCDOT biologists, Jared Gray, Neil Medlin, and Jeff Burleson. The Town Fork Creek crossing at NC 8 contains a natural levee and the substrate above and below the bridge on NC 8 consists of silt, sand, clay, bedrock, boulders, cobble, and gravel with moderate current. Surveys were conducted by wading using a batiscope from approximately 200 meter downstream to 150 meter upstream of the project crossing. No freshwater mussels were found in 1.5 man-hours of survey time.

BIOLOGICAL CONCLUSION: NO EFFECT

Although Town Fork Creek has potential habitat and the fact that no freshwater mussels of any kind means that something historically or recent is going on with the water chemistry that has limited mussels from inhabiting Town Fork Creek. Also, other surveys on Town Fork Creek have been done in the past at different crossings by NCDOT, USFWS and NCWRC. The surveys were done in April 1992, November 2000, October 2001 and the only mussel that was found was a shell of eastern floater (*Pyganodon cataracta*). Given the survey results, it is apparent that James spinymussel does not occur in the project footprint. The North Carolina Natural Heritage Program (NCNHP) does not list a known population up or downstream for James spinymussel. Therefore, this project will have no effect on the James spinymussel.

Name: Schweinitz's sunflower (*Helianthus schweinitzii*)

This species is threatened by fire suppression, urbanization such as residential and industrial development, highway construction and roadside and utility right of way maintenance.

In 1988 the NC Natural Heritage Program initiated a cooperative effort with NCDOT and the USFWS to prevent the mowing of *H. schweinitzii* populations during the flowering and fruiting period of August through October. Additionally, these populations should not be mowed during any part of the growing season extending from April through October.

Biological Conclusion: **No Effect**

Suitable habitat in the form of roadsides was observed during the site visit. However, no Schweinitz's sunflowers were observed during the site visit. A known specimen was observed prior to the site visit. In addition, a review of the North Carolina Natural Heritage Program (NCNHP) database on October 9, 2001 indicated that there is no known occurrence of the Schweinitz's sunflower within 1.0 mi. of the project area. Therefore, this project will not affect this species. No specimens of Schweinitz's sunflower were found in the project area during an additional survey on October 28, 2003, and a database search in October, 2003. The entire project area was surveyed.

Name: Small-anthered bittercress (*Cardamine micranthera*)

Small-anthered bittercress is endemic to the Dan River drainage in north-central North Carolina and south-central Virginia. It is commonly found in seepages, wet rock crevices, streambanks, sandbars, and wet woods along small streams. Threats to this species include stream impoundment, channelization, conversion of habitat for agriculture or silviculture, flooding, encroachment of exotic species and trampling by cattle.

Biological Conclusion: **No Effect**

Suitable habitat in the form of streambanks was observed during the site visit. A review of the North Carolina Natural Heritage Program (NCNHP) database in May 2002 indicated that there is no known occurrence of the small-anthered bittercress within 1.0 mi. of the project area.

On October 28, 2003, NCDOT biologists surveyed for small-anthered bittercress within the project. Habitat exists for this species along the streambanks of Bridge No. 14 over Town Fork Creek. Habitat does not exist for the overflow bridge (Bridge No. 44). No species of small-anthered bittercress were found.

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 Federal agencies to take into account the effect of their undertakings (federally funded, licensed, or permitted) on properties included in or eligible for inclusion in the National Register of Historic Places and afford the Advisory Council a reasonable opportunity to comment on such undertakings.

B. Historic Architecture

The NC Historic Preservation Office (HPO) stated in a letter dated January 3, 2000, that no historic architectural survey is recommended.

C. Archaeology

The NC Historic Preservation Office (HPO) stated in a letter dated January 3, 2000, that an archeological survey is recommended. A survey was completed and a report was issued dated October 2001. The report stated that the investigation resulted in a determination that no cultural artifact deposits or features were found within the area of potential effect. The HPO concurred with the report's findings in a letter dated November 27, 2001. Thus it is concluded that this project will not affect any sites eligible for the National Register of Historic Places.

VII. GENERAL ENVIRONMENTAL EFFECTS

The project is expected to have an overall positive impact. Replacement of an inadequate bridge will result in safer 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 North Carolina Department of Transportation standards and 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 impact on families or communities is anticipated. Right-of-Way acquisition will be limited. No relocatees are expected with implementation of the proposed alternative.

No adverse effect on public facilities or services is expected. The project is not expected to adversely affect social, economic, or religious opportunities in the area.

The proposed project will not require right-of-way acquisition or easement from any land protected under Section 4(f) of the Department of Transportation Act of 1966.

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 no soils classified as prime, unique, or having state or local importance in the vicinity

of the project. Therefore, the project will not involve the direct conversion of farmland acreage within these classifications.

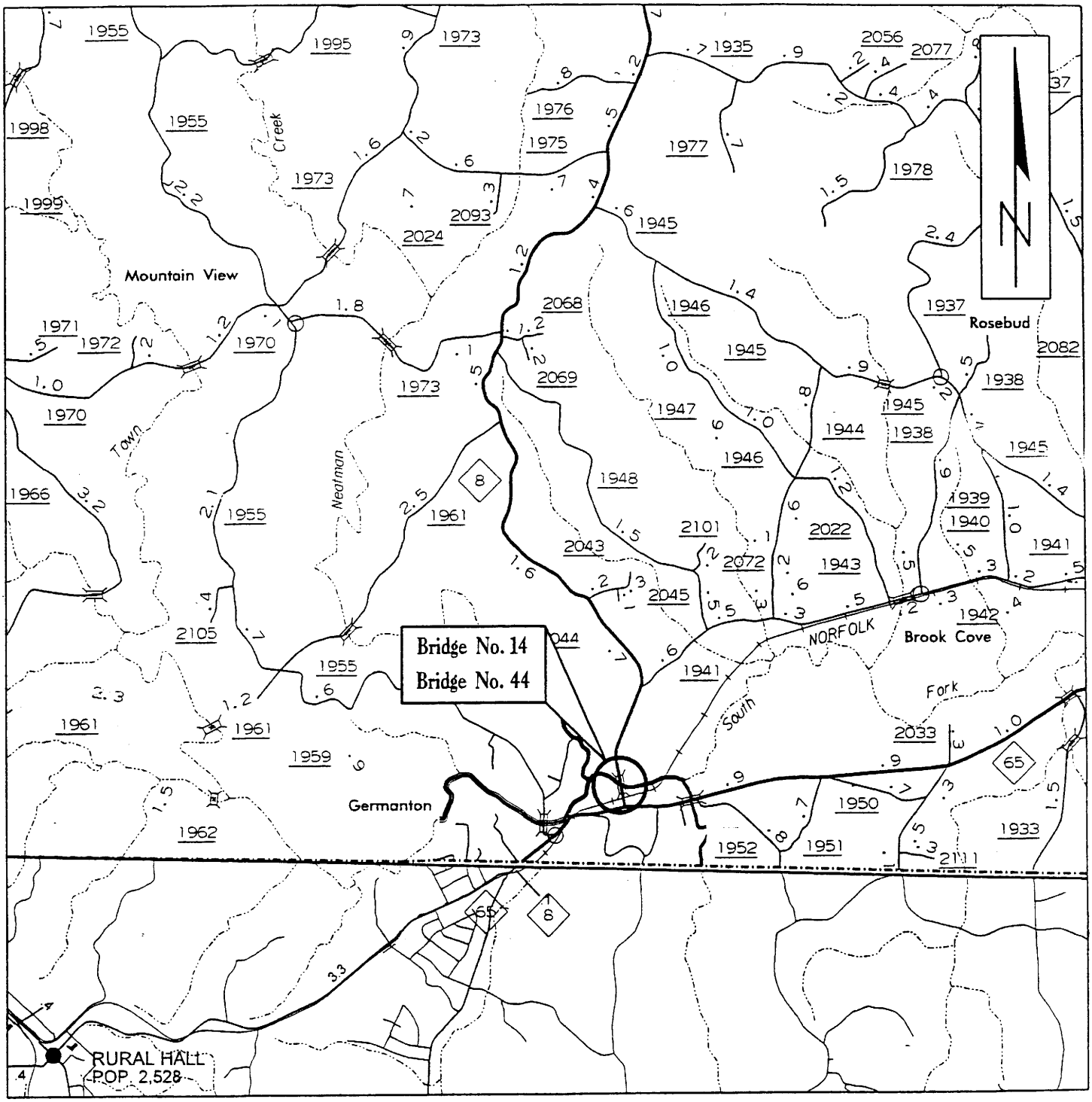
This project is an air quality "neutral" project, so it is not required to be included in the regional emissions analysis and a project level CO analysis is not required. If vegetation is disposed of by burning, all burning shall be done in accordance with applicable local laws and regulations of the North Carolina State Implementation Plan (SIP) for air quality in compliance with 15 NCAC 2D.0520.

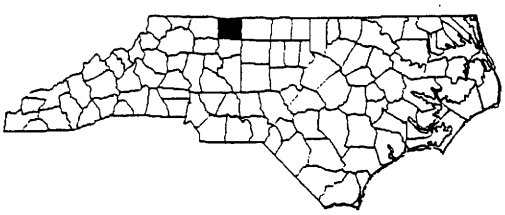
Noise levels could increase during construction but will be temporary. This evaluation completes the assessment requirements for highway traffic noise of Title 23, Code of Federal Regulation (CFR), Part 772 and for air quality (1990 Clean Air Act Amendments and the National Environmental Policy Act) and no additional reports are required.

An examination of records at the North Carolina Department of Environment and Natural Resources, Division of Environmental Management, Groundwater Section and the North Carolina Department of Human Resources, Solid Waste Management Section revealed no underground storage tanks or hazardous waste sites in the project area.

Stokes County is a participant in the National Flood Insurance Program. These crossings of Town Fork Creek and Town Fork Creek Overflow are within a designated 100-year flood zone. There are no practical alternatives to crossing the floodplain area. Any shift in alignment will result in an impact area of about the same magnitude. The proposed project is not anticipated to increase the level or extent of upstream flood potential.

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





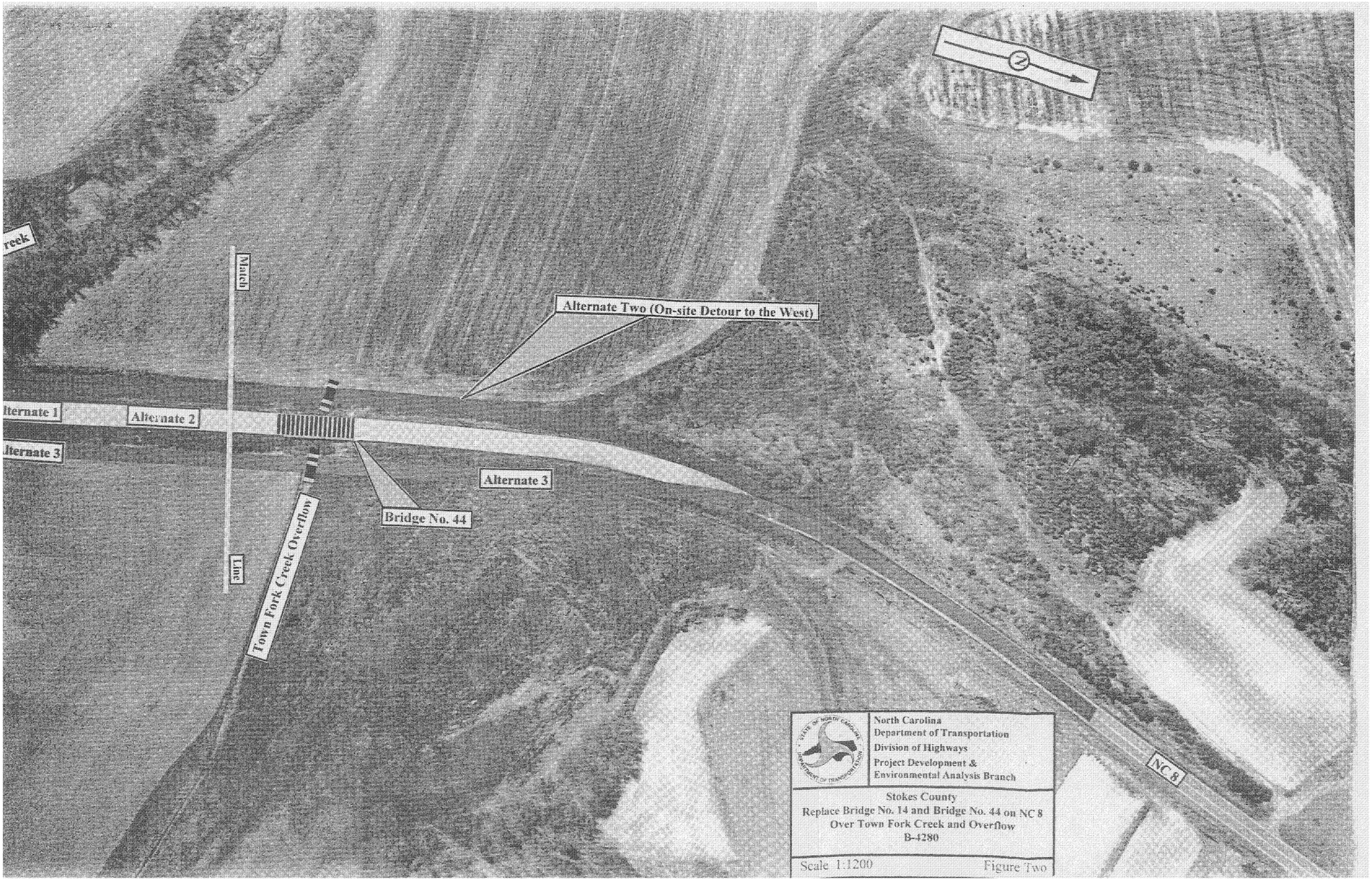
North Carolina
Department of Transportation
Division of Highways
Project Development &
Environmental Analysis Branch

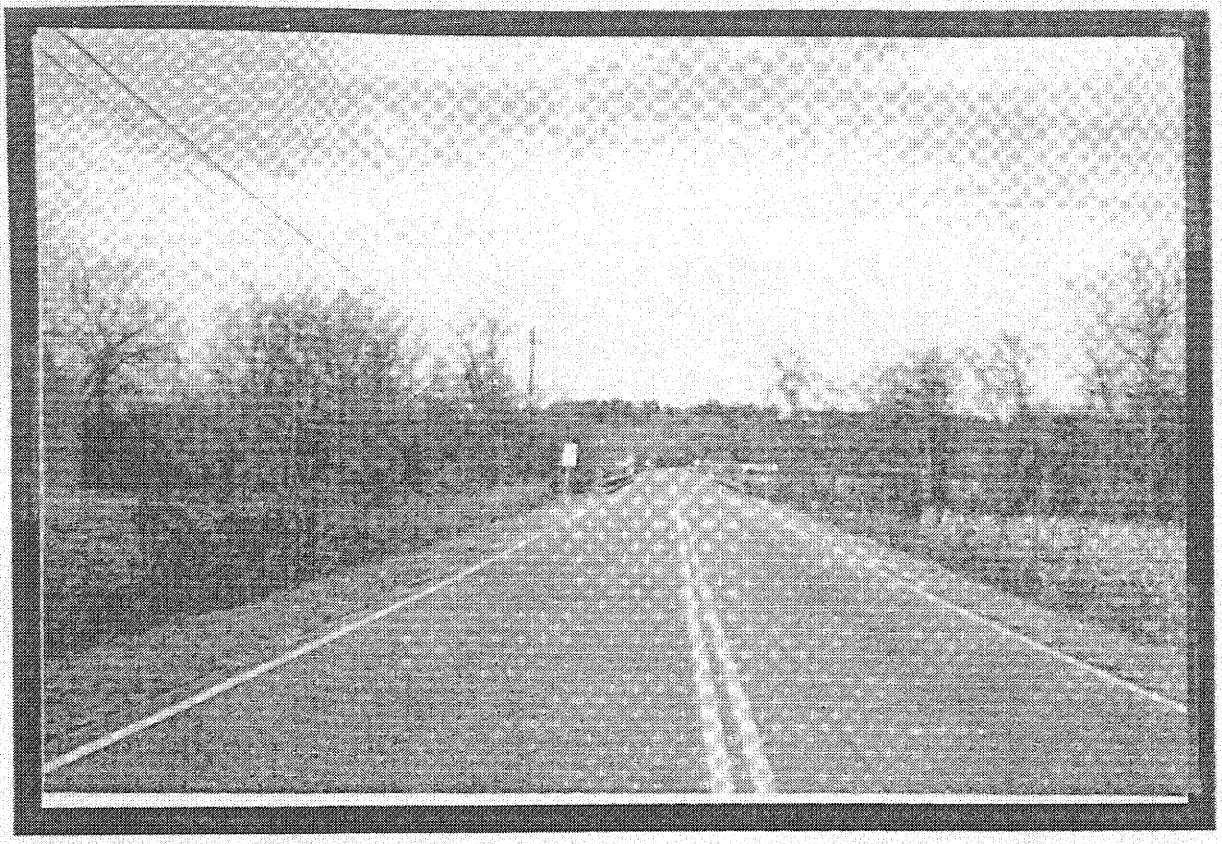
Stokes County
Replace Bridge No. 14 and Bridge No. 44 On NC 8
Over Town Fork Creek and Overflow
B-4280

SCALE: 1 in = 1 mi

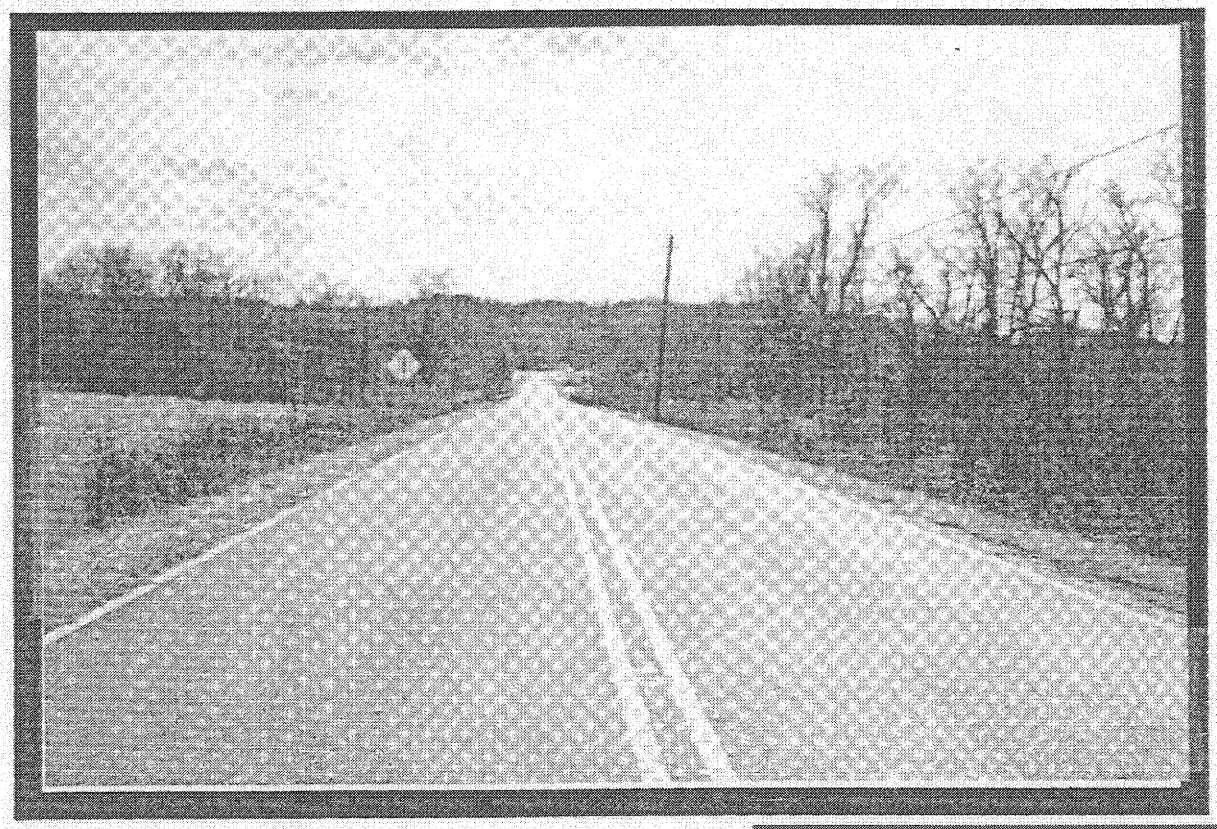
Figure 1


Town Fork Creek
NC 8
Bridge No. 14
Alternate 1
Alternate 2
Alternate 3
Alternate One (On-site Detour to the East)
Match
Line


reek
Match
Alternate Two (On-site Detour to the West)
lternate 1
Alternate 2
lternate 3
Alternate 3
Bridge No. 44
Town Fork Creek Overflow
Line
NC 8
North Carolina
Department of Transportation
Division of Highways
Project Development &
Environmental Analysis Branch
Stokes County
Replace Bridge No. 14 and Bridge No. 44 on NC 8
Over Town Fork Creek and Overflow
B-4280
Scale 1:1200
Figure Two



Looking north across Bridge No. 14

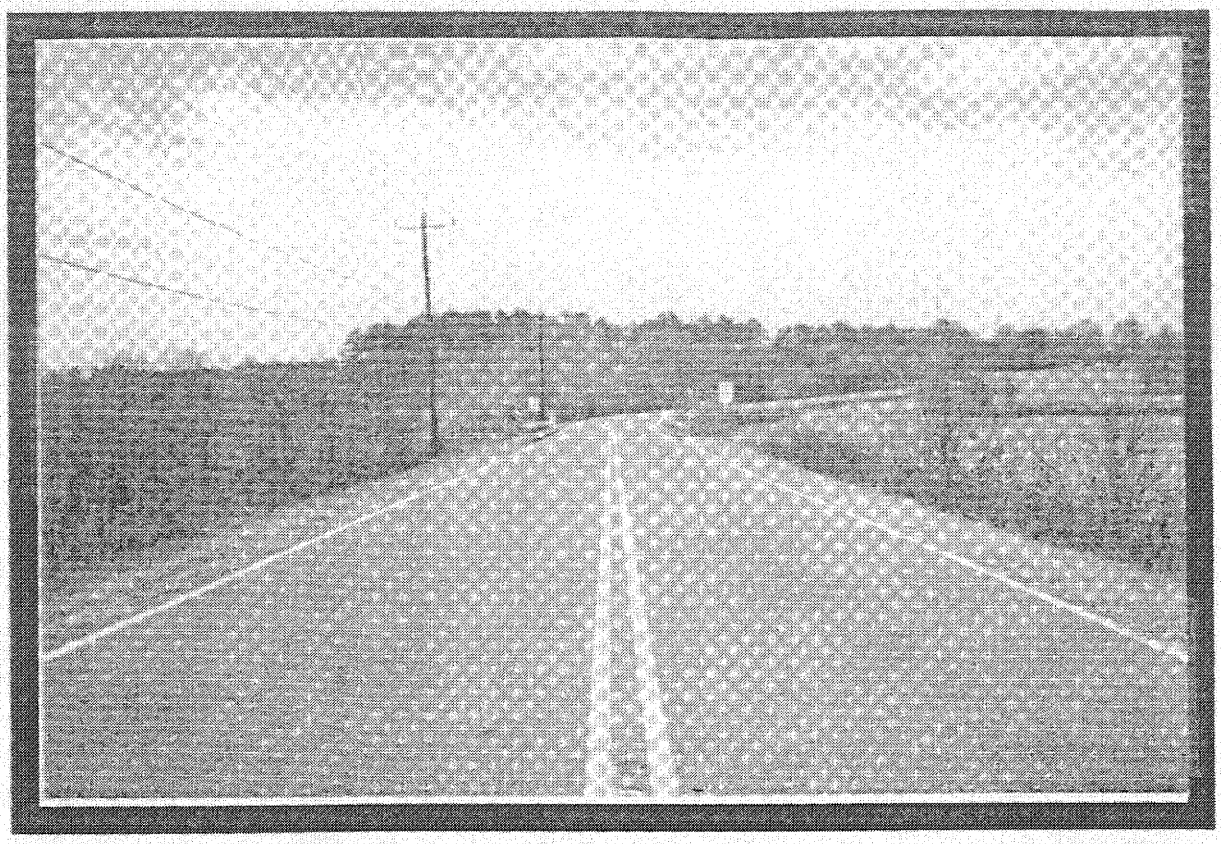


Looking south across Bridge No. 14

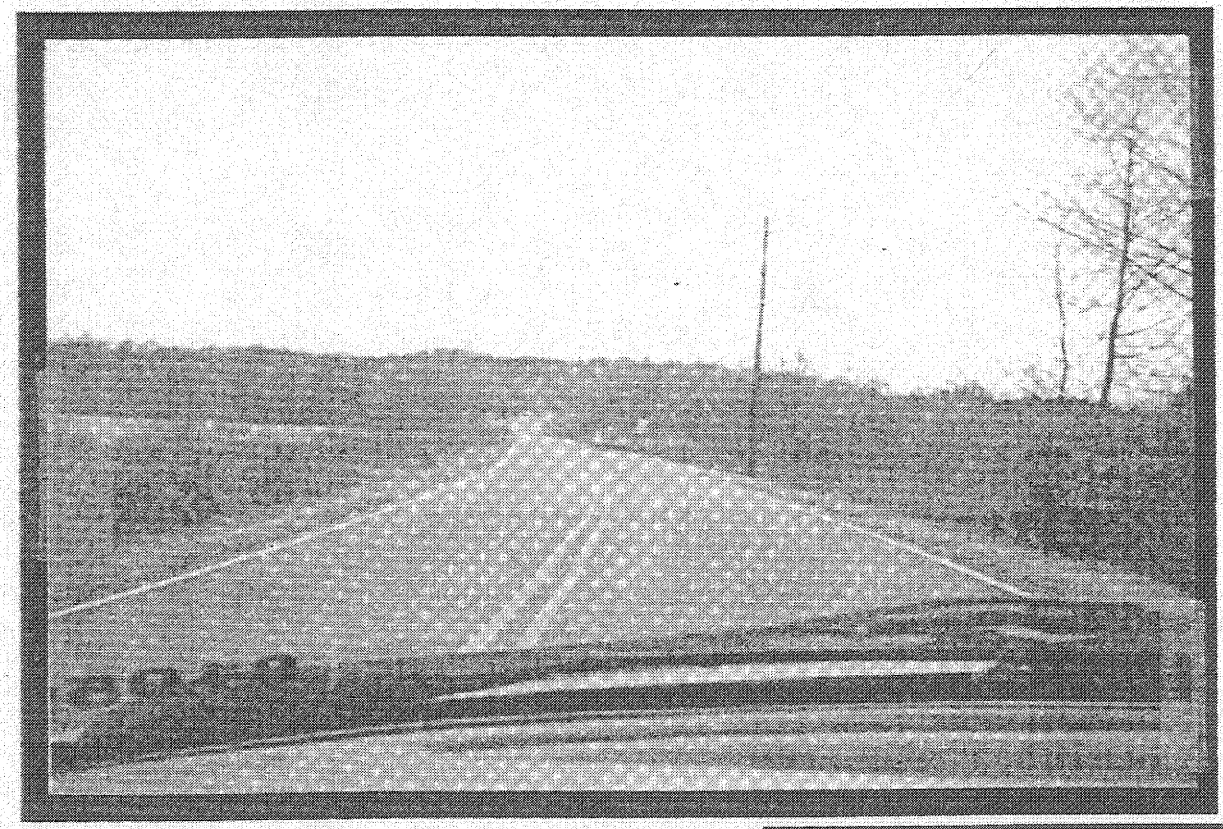
North Carolina Department of Transportation
Division of Highways
Project Development & Environmental Analysis Branch

Stokes County
Replace Bridge No. 14 and Bridge No. 44 on NC 8
Over Town Fork Creek and Overflow
B-4280

Figure 3-A



Looking north across Bridge No. 44



Looking south across Bridge No. 44

North Carolina Department of Transportation
Division of Highways
Project Development & Environmental Analysis Branch

Stokes County
Replace Bridge No. 14 and Bridge No. 44 on NC 8
Over Town Fork Creek and Overflow
B-4280

Figure 3-B

North Carolina Department of Cultural Resources

James B. Hunt, Jr., Governor
Betty Ray McCain, Secretary

Division of Archives and History
William S. Price, Jr., Director

January 3, 2000

MEMORANDUM

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

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

Re: Replacement of Bridge No. 14 & 44 on NC 8 over Town Fork Creek and Town Fork Creek Overflow, TIP No. B-4280, Stokes County, ER 01-7914

On November 30, 2000, April Montgomery of our staff met with North Carolina Department of Transportation (NCDOT) staff for a meeting of the minds concerning the above project. She reported our available information on historic architectural and archaeological surveys and resources along with our recommendations. NCDOT provided project area photographs and aerial photographs at the meeting.

Based upon our review of the photographs and the information discussed at the meeting, we offer our preliminary comments regarding this project.

In terms of historic architectural resources we are aware of no historic structures located within the area of potential effect. We recommend that no historic architectural survey be conducted for this project.

There are several recorded archaeological sites within the general project area, although none will be effected by the replacement. Based on our present knowledge of the area, this is an extremely high probability area, possible village sites with burials may be present. We, therefore, recommend that an archaeological investigation which includes deep testing in the floodplain for burial deposits should be conducted in connection with this project.

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 any questions concerning the above comment, contact Renee Gledhill-Earley, Environmental Review Coordinator, at 919 733-4763.

DB:kgc

cc: T. Padgett

PIPKIN

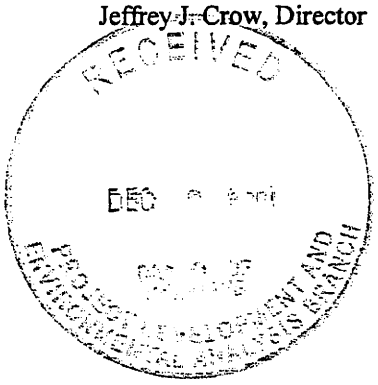
North Carolina Department of Cultural Resources

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



November 27, 2001

MEMORANDUM

TO: William D. Gilmore, Manager
Project Development and Environmental Analysis Branch
Division of Highways
Department of Transportation

FROM: David Brook per for David Brook

SUBJECT: Archaeological Study, Replacement of Bridge No. 14 and No. 44 on NC 8 over Town Fork Creek, Stokes County, State Project 8.1641001, TIP No. B-4280, ER 01-7914, ER 02-8081

Thank you for your letter of November 1, 2001, transmitting the final archaeological survey report by Brad Duplantis of for the above project.

As noted in our review of the draft report, no archaeological resources were located during the survey and Mr. Duplantis recommended no additional archaeological investigation in connection with this project as currently proposed. We concur with this recommendation. We will place the final report in our report library.

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, please contact Renee Gledhill-Earley, environmental review coordinator, at 919/733-4763. In all future communication concerning this project, please cite the above-referenced tracking number.

DB:kgc

cc: Gerold Glover, NCDOT
Brad Duplantis, The Louis Berger Group, Inc.

	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

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

James B. Hunt, Jr., Governor
Bill Holman, Secretary
Kerr T. Stevens, Director

December 7, 2000

MEMORANDUM

To: William D. Gilmore, P.E., Manager
NCDOT, Project Development & Environmental Analysis

Through: John Dorney, NC Division of Water Quality

From: Cynthia F. Van Der Wiele CVDW

Subject: Scoping comments on the proposed replacement of Bridge Nos. 14 & 44 on NC 8 over Town Fork Creek in Stokes County, T.I.P. Project B-4280.

This memo is in reference to your correspondence dated October 20, 2000, in which you requested scoping comments for the above project. The DWQ index number for the stream is 22-25-(0.5), and is classified as C waters. The Division of Water Quality requests that NCDOT consider the following environmental issues for the proposed project:

A. DWQ prefers replacement of bridges with bridges. However, if the new structure is to be a culvert, it should be countersunk to allow unimpeded fish and other aquatic organisms passage through the crossing. Please be aware that floodplain culverts are required under Nationwide 14.

B. The document should provide a detailed and itemized presentation of the proposed impacts to wetlands and streams with corresponding mapping.

C. There should be a discussion on mitigation plans for unavoidable impacts. If mitigation is required, it is preferable to present a conceptual (if not finalized) mitigation plan with the environmental documentation. While the NCDWQ realizes that this may not always be practical, it should be noted that for projects requiring mitigation, appropriate mitigation plans will be required prior to issuance of a 401 Water Quality Certification.

D. When practical, the DWQ requests that bridges be replaced on the existing location with road closure. If a detour proves necessary, remediation measures in accordance with the NCDWQ requirements for General 401 Certification 2726/Nationwide Permit No. 33 (Temporary Construction, Access and Dewatering) must be followed.

E. If applicable, DOT should not install the bridge bents in the creek, to the maximum extent practicable.

F. Wetland and stream impacts should be avoided (including sediment and erosion control structures/measures) to the maximum extent practical. If this is not possible, alternatives

that minimize wetland impacts should be chosen. Mitigation for unavoidable impacts will be required by DWQ for impacts to wetlands in excess of one acre and/or to streams in excess of 150 linear feet.

G. Borrow/waste areas should not be located in wetlands. It is likely that compensatory mitigation will be required if wetlands are impacted by waste or borrow.

H. If foundation test borings are necessary; it should be noted in the document. Geotechnical work is approved under General 401 Certification Number 3027/Nationwide Permit No. 6 for Survey Activities.

I. In accordance with the NCDWQ Wetlands Rules {15A NCAC 2H.0506(b)(6)}, mitigation will be required for impacts of greater than 150 linear feet to any single perennial stream. In the event that mitigation becomes required, the mitigation plan should be designed to replace appropriate lost functions and values. In accordance with the NCDWQ Wetlands Rules {15A NCAC 2H.0506 (h)(3)}, the Wetland Restoration Program may be available for use as stream mitigation.

J. Sediment and erosion control measures should not be placed in wetlands.

K. The 401 Water Quality Certification application will need to specifically address the proposed methods for stormwater management. More specifically, stormwater should not be permitted to discharge directly into the creek. Instead, stormwater should be designed to drain to a properly designed stormwater detention facility/apparatus.

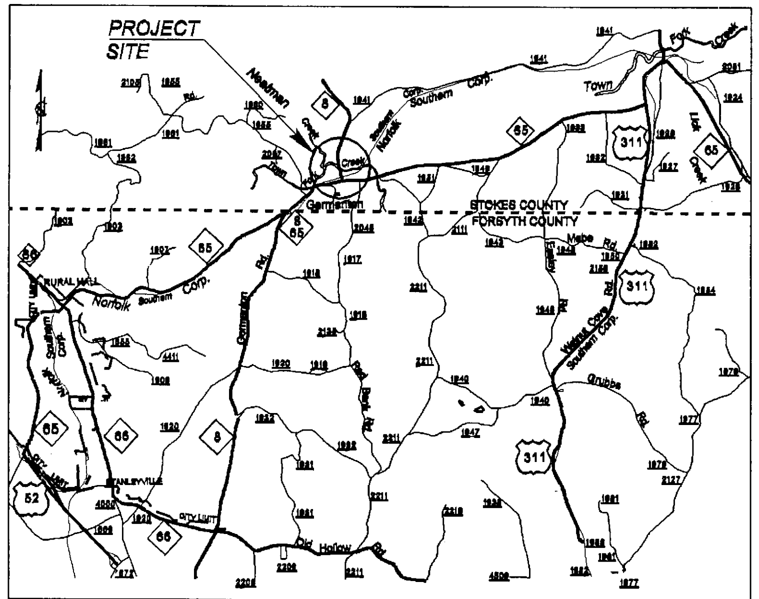
L. While the use of National Wetland Inventory (NWI) maps and soil surveys is a useful office tool, their inherent inaccuracies require that qualified personnel perform onsite wetland delineations prior to permit approval.

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
Marella Buncick, USFWS
David Cox, NCWRC
File Copy
Central Files

TIP PROJECT: B-4280

See Sheet 1-A For Index of Sheets



VICINITY MAP

THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

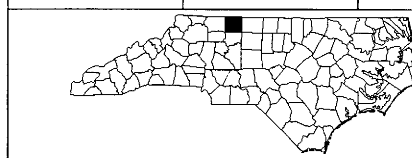
STOKES COUNTY

LOCATION: BRIDGE 14 AND BRIDGE 44 ON NC 8 OVER TOWN FORK CREEK AND TOWN FORK CREEK OVERFLOW

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURES

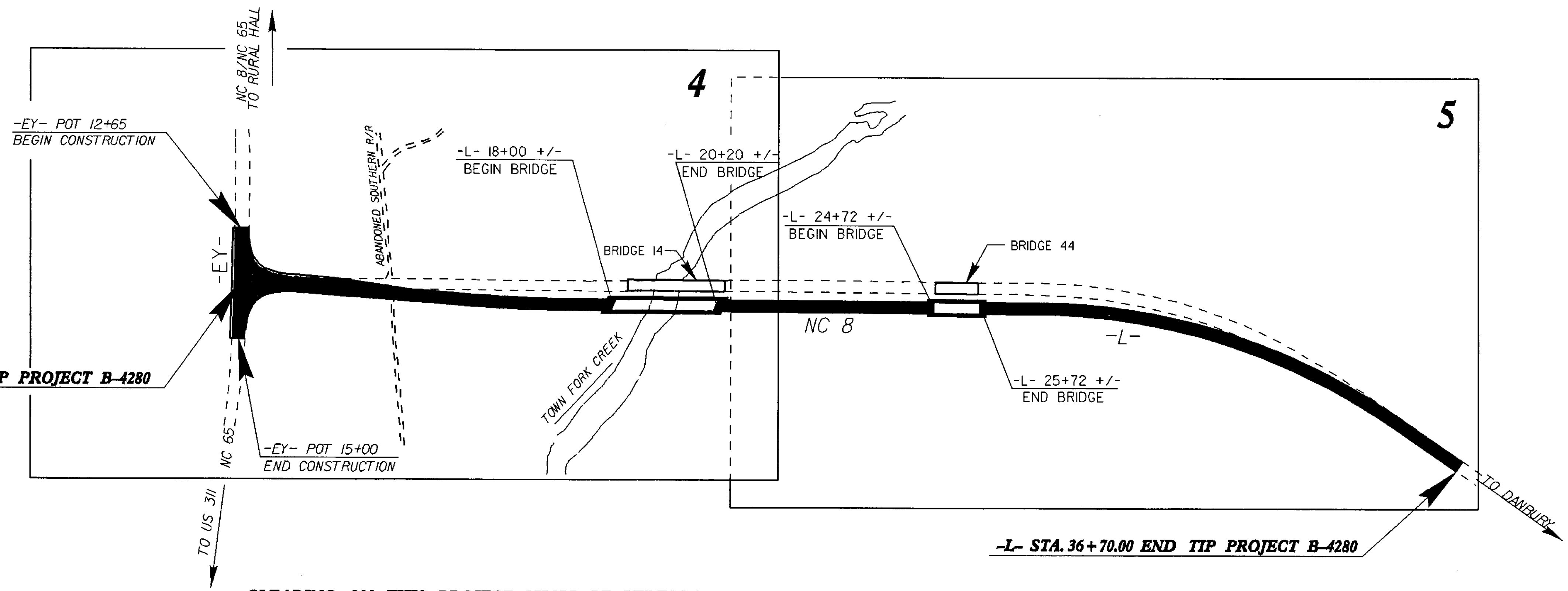
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4280	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
33620.1.1	BRSTP-8(2)	PE



PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83



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

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2003 = 6,600
ADT 2025 = 12,200
DHV = 13 %
D = 60 %
*T = 6 %
V = 60 MPH
*TTST 1 % DUAL 5 %

FUNCTIONAL CLASSIFICATION
RURAL MAJOR COLLECTOR

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4280 = 0.445 Miles

LENGTH STRUCTURE TIP PROJECT B-4280 = 0.061 Miles

TOTAL LENGTH OF TIP PROJECT B-4280 = 0.506 Miles

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

2002 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
MAY 19, 2005

LETTING DATE:
JUNE 21, 2006

G. E. BREW, PE
PROJECT ENGINEER

I. T. YOUNIS
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

P.E.
SIGNATURE:

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

P.E.
STATE DESIGN ENGINEER

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED
DIVISION ADMINISTRATOR DATE

CONTRACT:

19-MAY-2005 11:11
r:\roadway\proj\b4280_rdy_tsh.dgn
KDAldridge AT RD223168

PROJECT REFERENCE NO.	SHEET NO.
B-4280	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 — 23
- 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 — HQ WLB
- 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
- 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 — C
- 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 — PUTL
- 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-4280	1-C

SURVEY CONTROL SHEET

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONTROL DATA

BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
3	BL-3	917780.9840	1639676.8380	683.63	10+34.52	68.68 LT
1	B4280-1	918331.8060	1639614.7300	664.28	15+90.75	61.92 LT
15	(EQUALITY NOT SET)	918649.6912	1639579.7622	UNKNOWN	19+11.89	37.86 LT
4	BL-4	918781.3730	1639565.2770	663.62	20+43.92	26.99 LT
5	BL-5	919322.4720	1639460.9320	663.26	25+94.99	26.31 LT
2	B4280-2	919915.8000	1639490.5770	665.97	31+92.87	28.17 RT

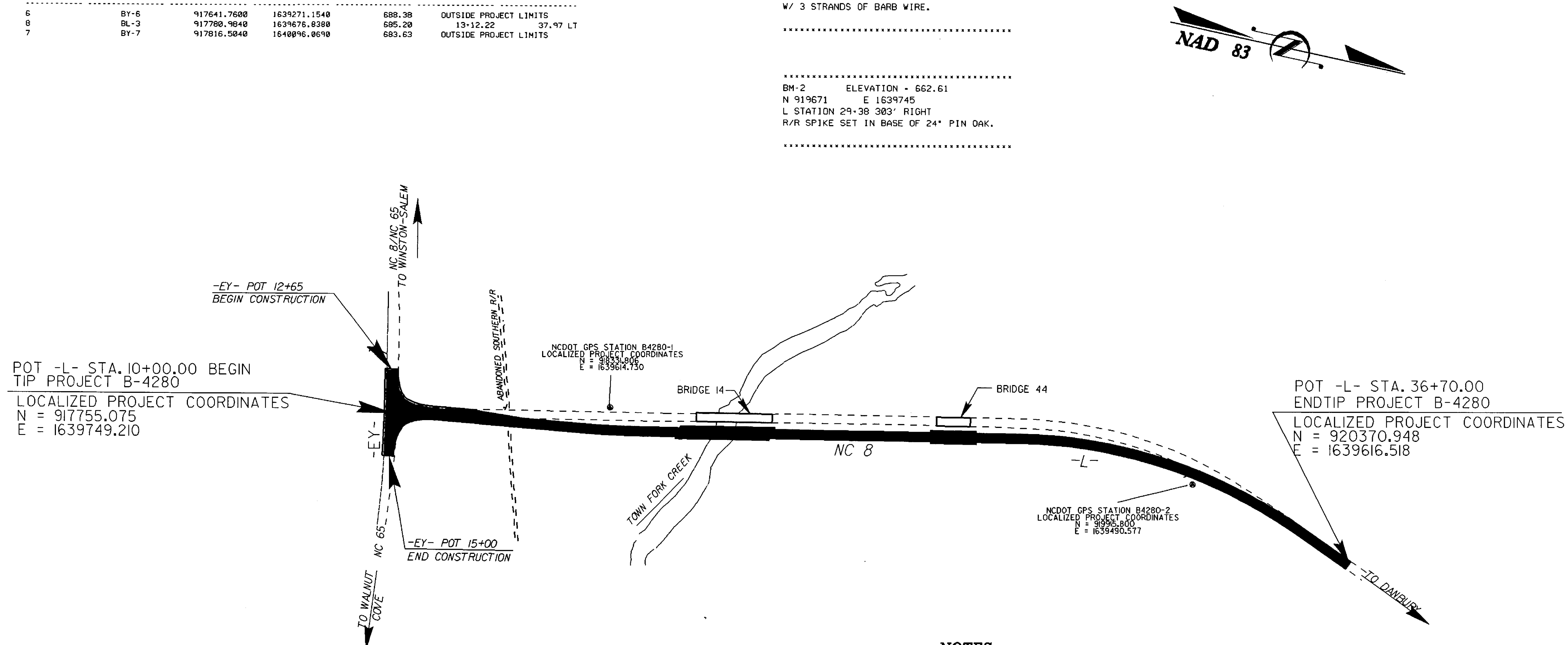
BY

POINT	DESC.	NORTH	EAST	ELEVATION	EY STATION	OFFSET
6	BY-6	917641.7600	1639271.1540	688.38	OUTSIDE PROJECT LIMITS	
8	BL-3	917780.9840	1639676.8380	685.20	13+12.22	37.97 LT
7	BY-7	917816.5040	1640096.0690	683.63	OUTSIDE PROJECT LIMITS	

BENCHMARK DATA

BM-1 ELEVATION - 679.60
N 917930 E 1640337
L STATION 11+03 605 RIGHT
CHISLED SQUARE IN SOUTHERN MOST CORNER OF LIGHT POLE W/ CONC. BASE. SAID CONER BEING THE NEAREST TO NORTHERN EP OF NC 65. POLE BEING 30' EAST OF POST OFFICE AND 5' WEST OF CHAIN LINK FENCE W/ 3 STRANDS OF BARB WIRE.

BM-2 ELEVATION - 662.61
N 919671 E 1639745
L STATION 29+38 303' RIGHT
R/R SPIKE SET IN BASE OF 24" PIN OAK.



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B4280-1"
WITH NAD 1983/95 STATE PLANE GRID COORDINATES OF NORTHING: 918331.806(ft) EASTING: 1639614.730(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 1.00000304
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B4280-1" TO -L- STATION 10+00.00 IS
S 13°07'32" E 592.20'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

NOTES:

THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:

HTTP:\WWW.DOH.DOT.STATE.NC.US/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT

SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT.
IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

⊚ INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.

PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.

NETWORK ESTABLISHED FROM NGS ONLINE POSITIONING USER SERVICE (OPUS)

SEE GPS CALIBRATION SHEET FOR HORIZONTAL AND VERTICAL COORDINATE VALUES.

NOTE: DRAWING NOT TO SCALE

19-MAY-2005 11:12

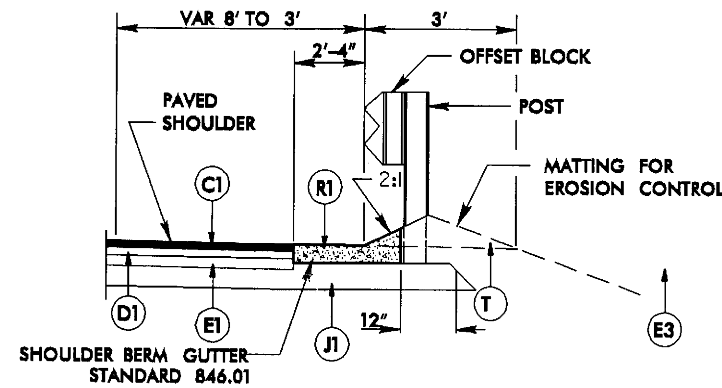
PROJECT REFERENCE NO.	SHEET NO.
B-4280	2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

FINAL PAVEMENT SCHEDULE

C1	PROP. APPROX. 2½"ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B, AT AN AVERAGE RATE OF 140 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1½" IN DEPTH.
D1	PROP. APPROX. 2¼" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 256.50 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2¼" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 3" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.
E2	PROP. APPROX. 7" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
E3	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
J	PROP. 8" AGGREGATE BASE COURSE.
J1	PROP. VAR. DEPTH AGGREGATE BASE COURSE.
R1	SHOULDER BERM GUTTER.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT.

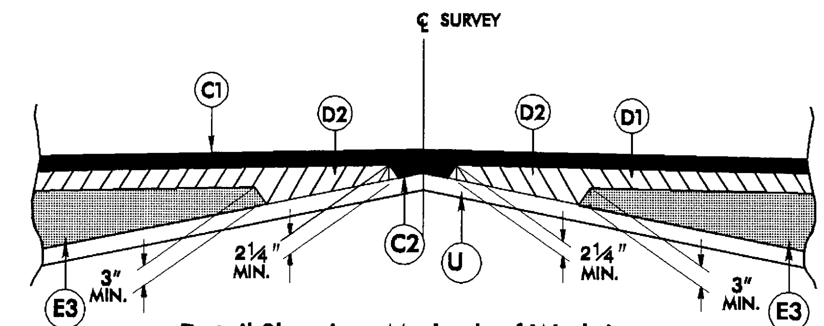
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



DETAIL SHOWING SHOULDER BERM GUTTER

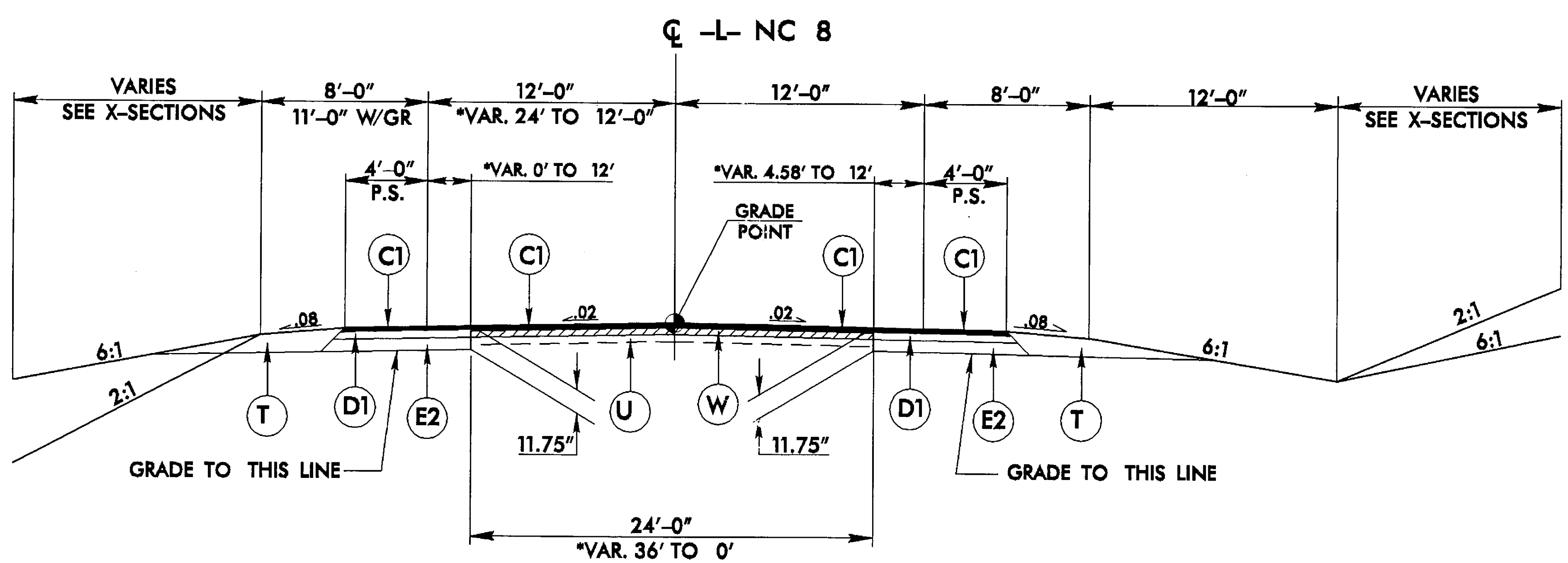
USE AT SHOULDER BERM GUTTER LOCATIONS

(SEE STANDARD 862.01 FOR GUARDRAIL PLACEMENT)



Detail Showing Method of Wedging

(USE WITH TYPICAL SECTION 1)



TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1

* -L- STA. 10+18.27 TO 13+58.81

-L- STA. 32+00.00 TO 36+70.00

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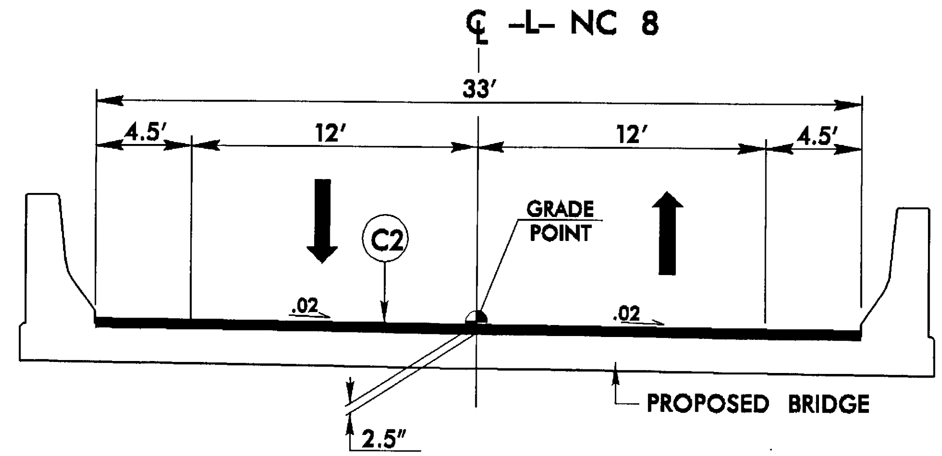
6/2/99

PROJECT REFERENCE NO.	SHEET NO.
B-4280	2-A
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

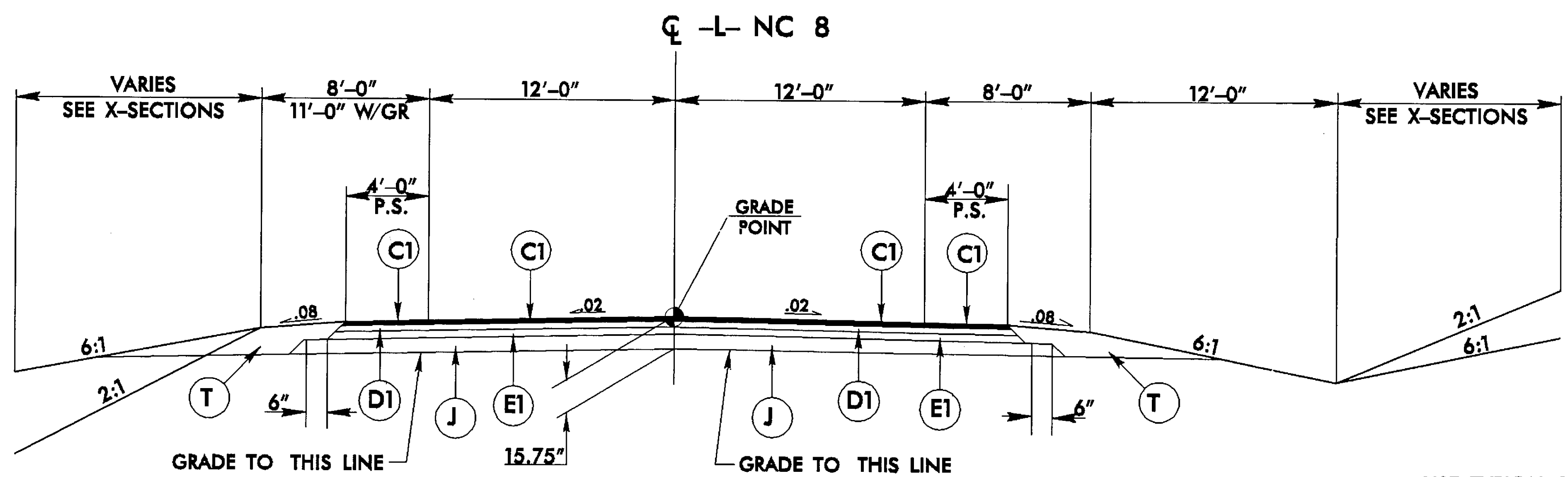
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

FINAL PAVEMENT DESIGN	
C1	2½" S9.5B
C2	VAR. S9.5B
D1	2¼" I19.0B
E1	3" B25.0B
J	8" ABC
T	EARTH MATERIAL
U	EXIST PAVEMENT



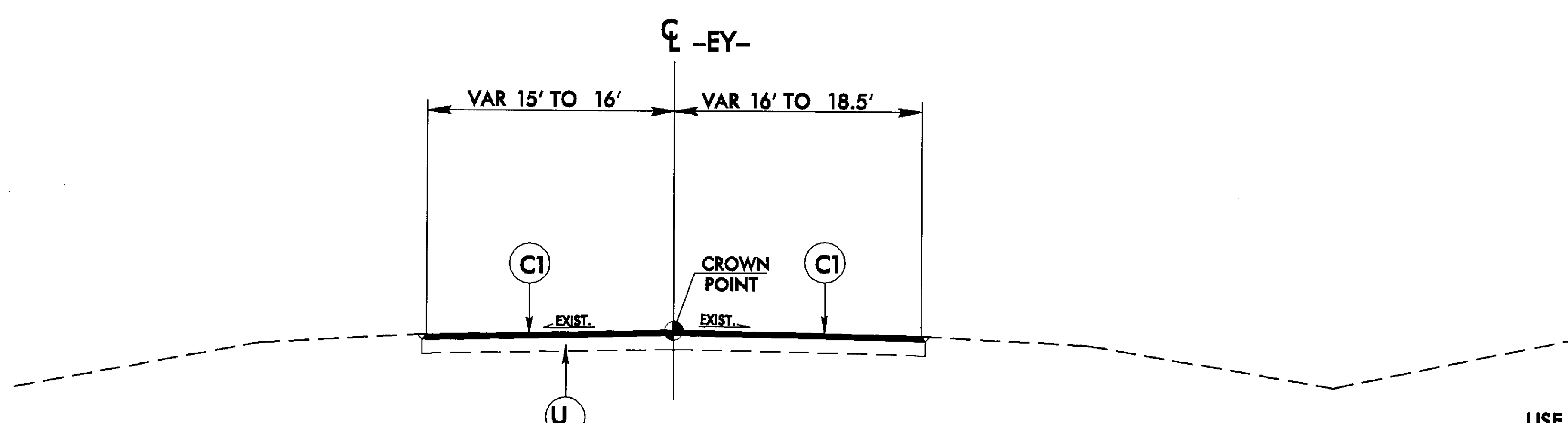
TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2
-L- STA. 24+72 TO 25+72



TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3
-L- STA. 13+58.81 TO 18+00.00 (BEGIN BRIDGE)
-L- STA. 20+20.00 (END BRIDGE) TO 24+72.00 (BEGIN BRIDGE)
-L- STA. 25+72.00 (END BRIDGE) TO 32+00.00



TYPICAL SECTION NO. 4

USE TYPICAL SECTION NO. 4
-EY- STA. 12+65.00 TO 15+00.00

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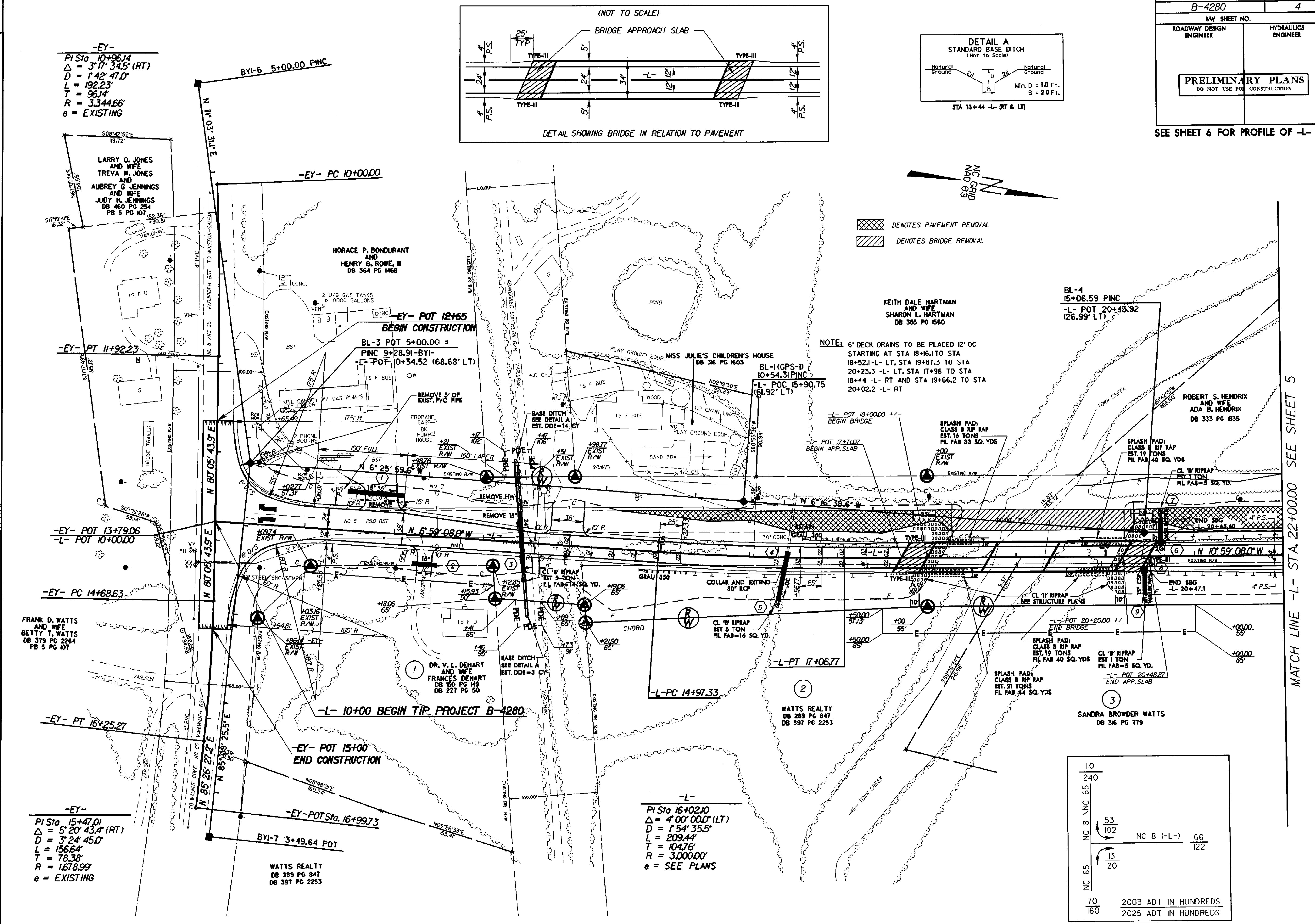
KDAldridge AT R0223168

PROJECT REFERENCE NO.	SHEET NO.
B-4280	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SEE SHEET 6 FOR PROFILE OF -L-



REVISIONS

8/17/99

18-AUG-2005 12:37
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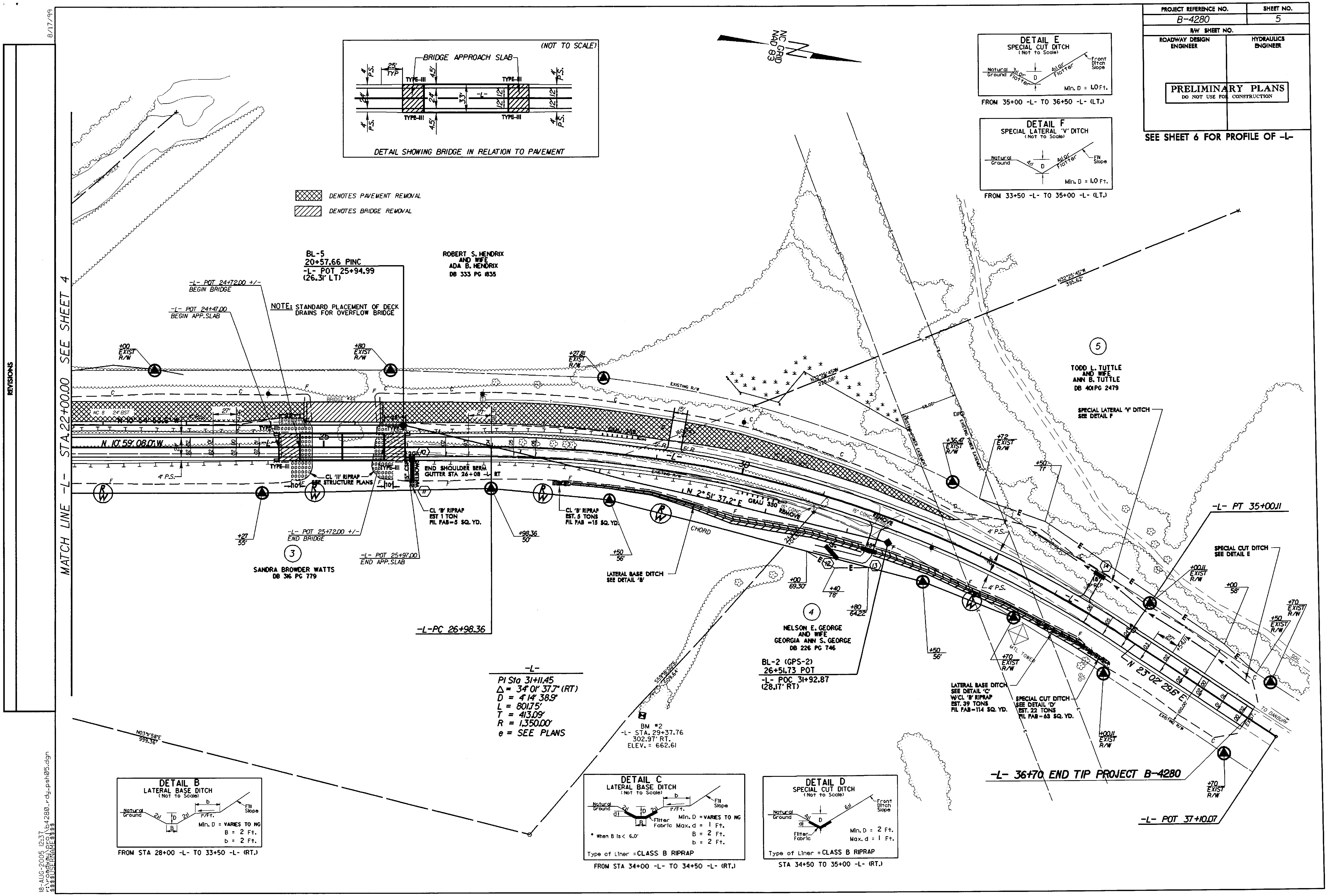
PROJECT REFERENCE NO.	SHEET NO.
B-4280	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

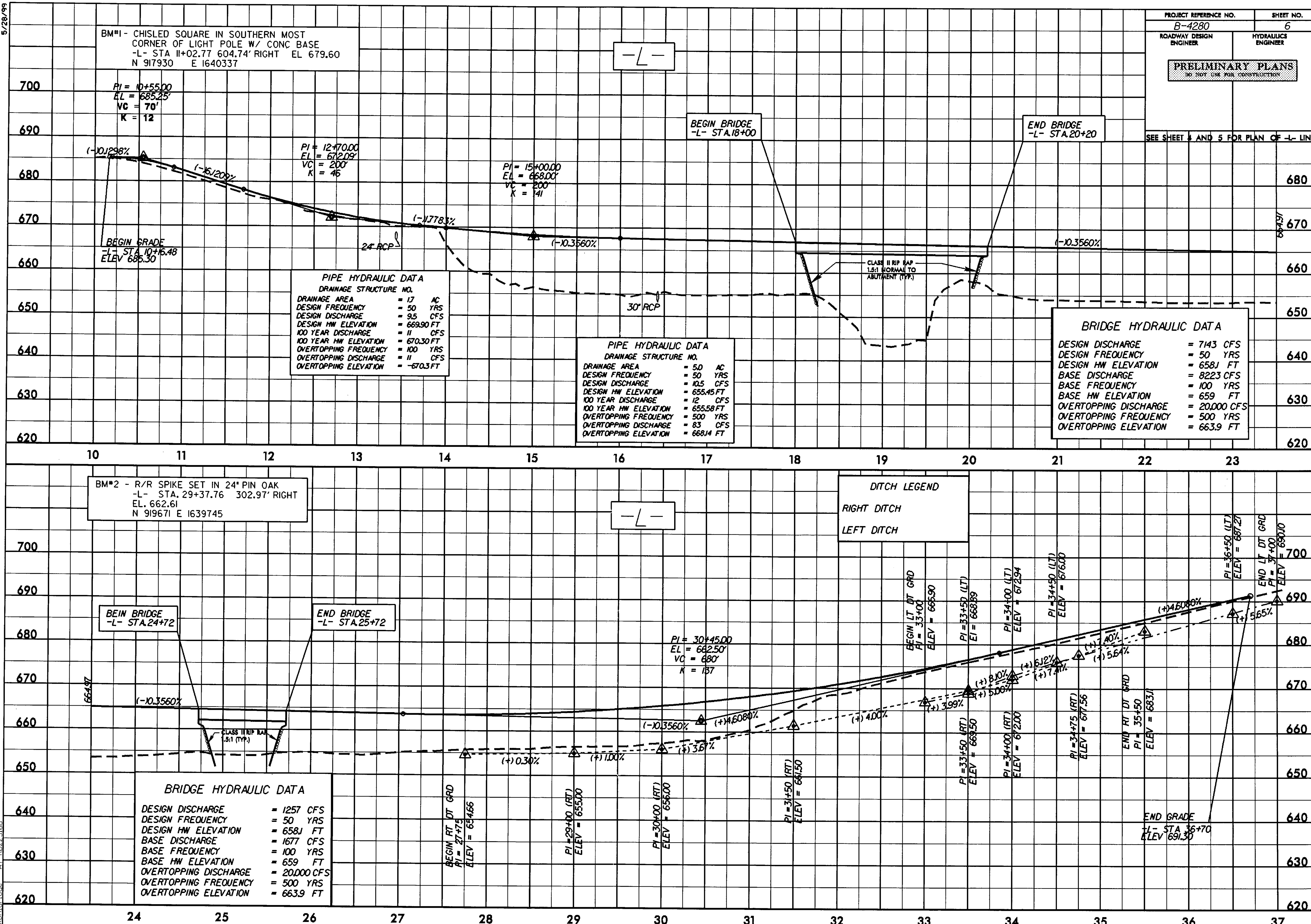
SEE SHEET 6 FOR PROFILE OF -L-



PROJECT REFERENCE NO.	SHEET NO.
B-4280	6
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SEE SHEET 4 AND 5 FOR PLAN OF -L- LINE



PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.

DRAINAGE AREA	= 17 AC
DESIGN FREQUENCY	= 50 YRS
DESIGN DISCHARGE	= 9.5 CFS
DESIGN HW ELEVATION	= 669.90 FT
100 YEAR DISCHARGE	= 11 CFS
100 YEAR HW ELEVATION	= 670.30 FT
OVERTOPPING FREQUENCY	= 100 YRS
OVERTOPPING DISCHARGE	= 11 CFS
OVERTOPPING ELEVATION	= -670.3 FT

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.

DRAINAGE AREA	= 5.0 AC
DESIGN FREQUENCY	= 50 YRS
DESIGN DISCHARGE	= 10.5 CFS
DESIGN HW ELEVATION	= 655.45 FT
100 YEAR DISCHARGE	= 12 CFS
100 YEAR HW ELEVATION	= 655.58 FT
OVERTOPPING FREQUENCY	= 500 YRS
OVERTOPPING DISCHARGE	= 83 CFS
OVERTOPPING ELEVATION	= 668.14 FT

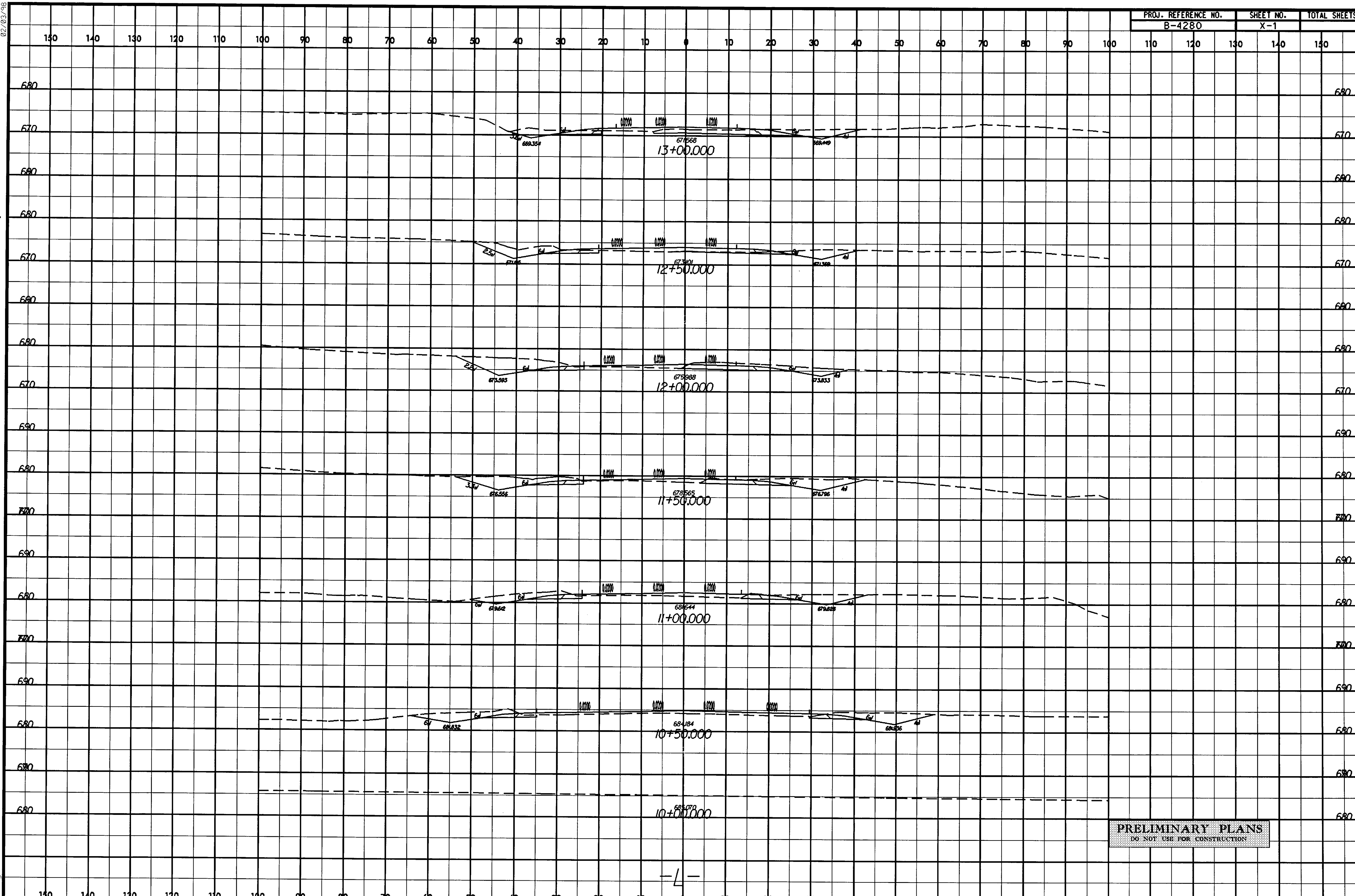
BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 7143 CFS
DESIGN FREQUENCY	= 50 YRS
DESIGN HW ELEVATION	= 658.1 FT
BASE DISCHARGE	= 8223 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 659 FT
OVERTOPPING DISCHARGE	= 20,000 CFS
OVERTOPPING FREQUENCY	= 500 YRS
OVERTOPPING ELEVATION	= 663.9 FT

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 1257 CFS
DESIGN FREQUENCY	= 50 YRS
DESIGN HW ELEVATION	= 658.1 FT
BASE DISCHARGE	= 1677 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 659 FT
OVERTOPPING DISCHARGE	= 20,000 CFS
OVERTOPPING FREQUENCY	= 500 YRS
OVERTOPPING ELEVATION	= 663.9 FT

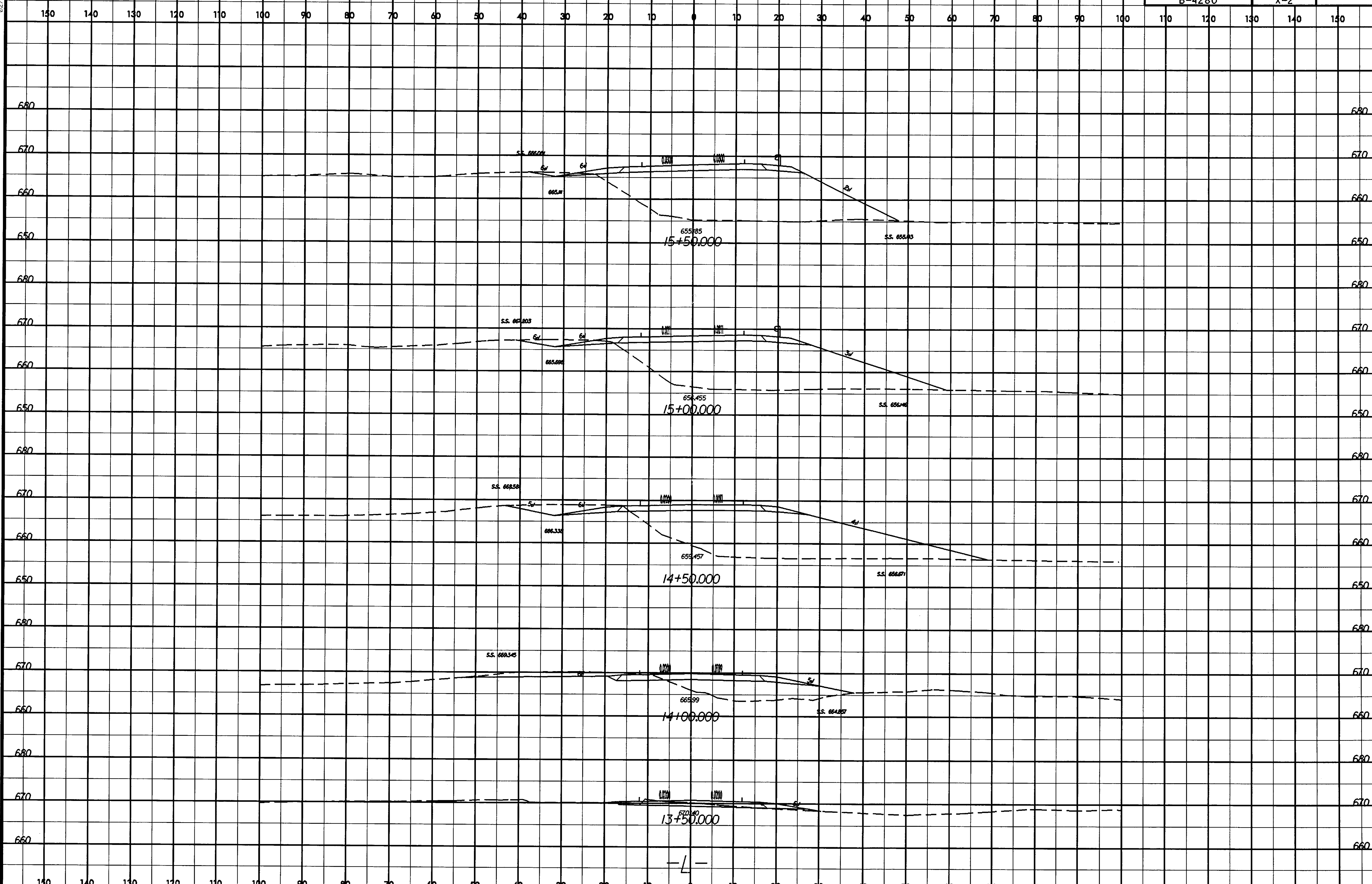
PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
B-4280	X-1	



PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

02/03/98

PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
B-4280	X-2	



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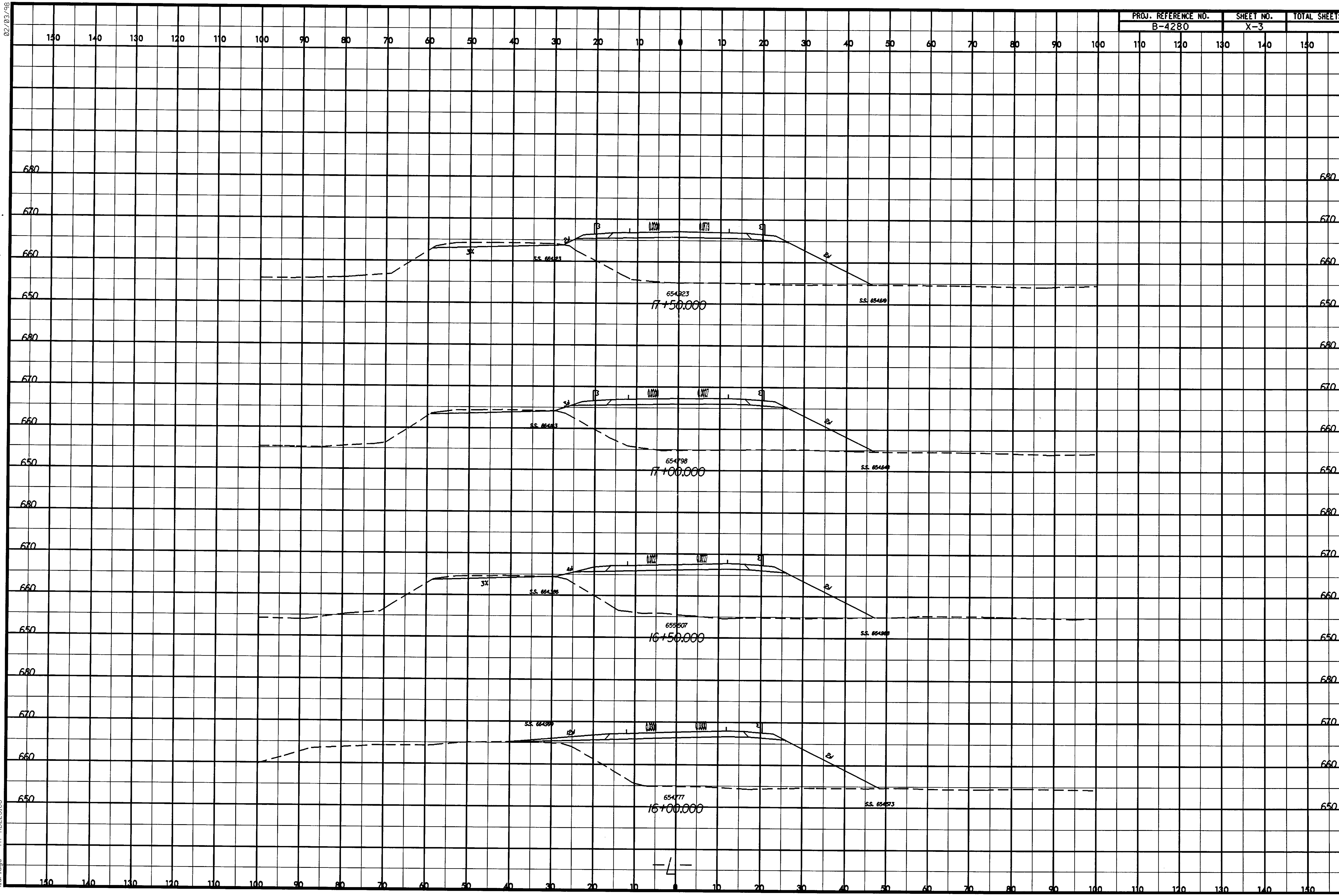
aldridge AT RD223168

PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
B-4280	X-3	



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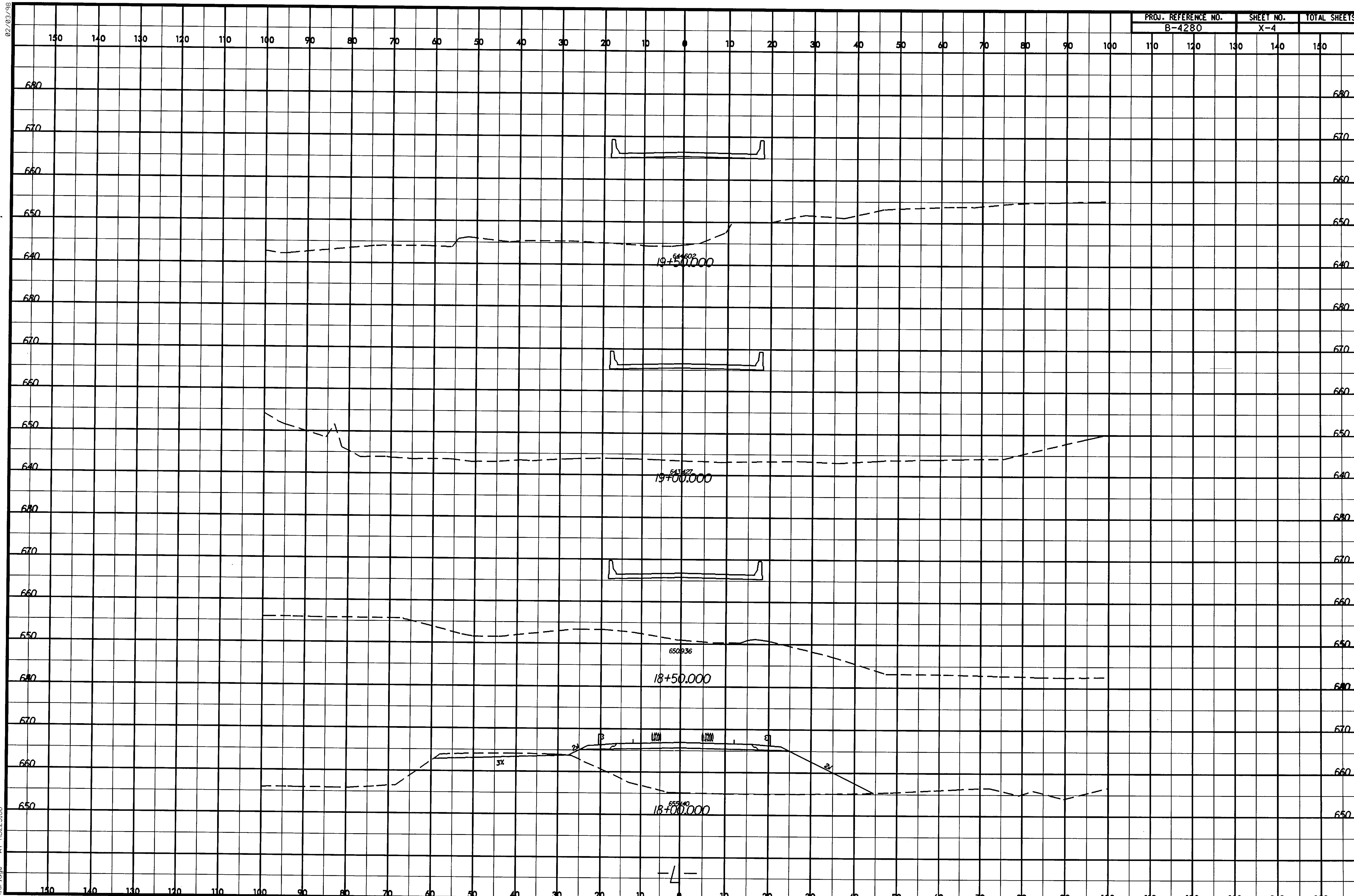
Aldridge AT RD223168

PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
B-4280	X-4	



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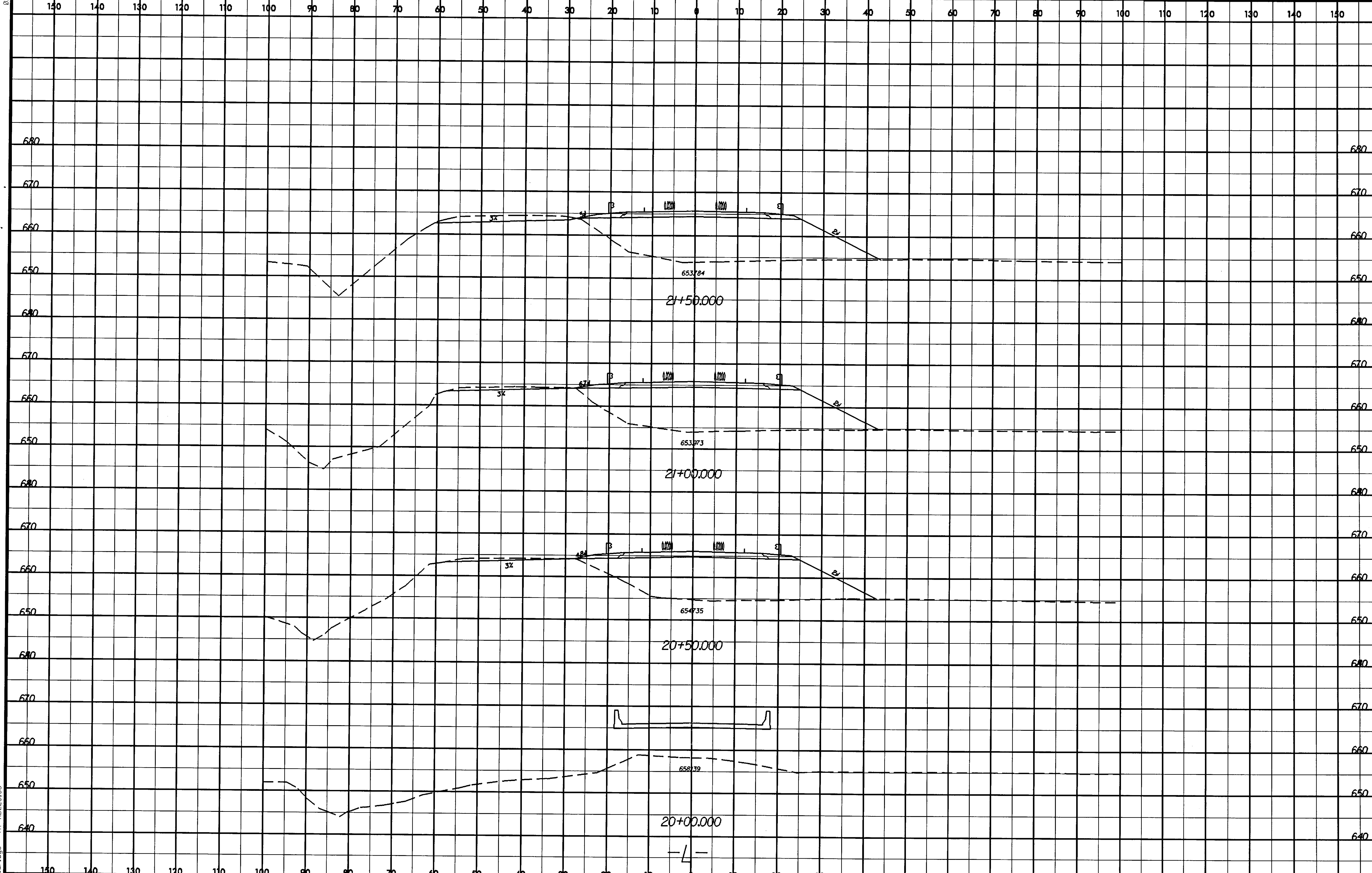
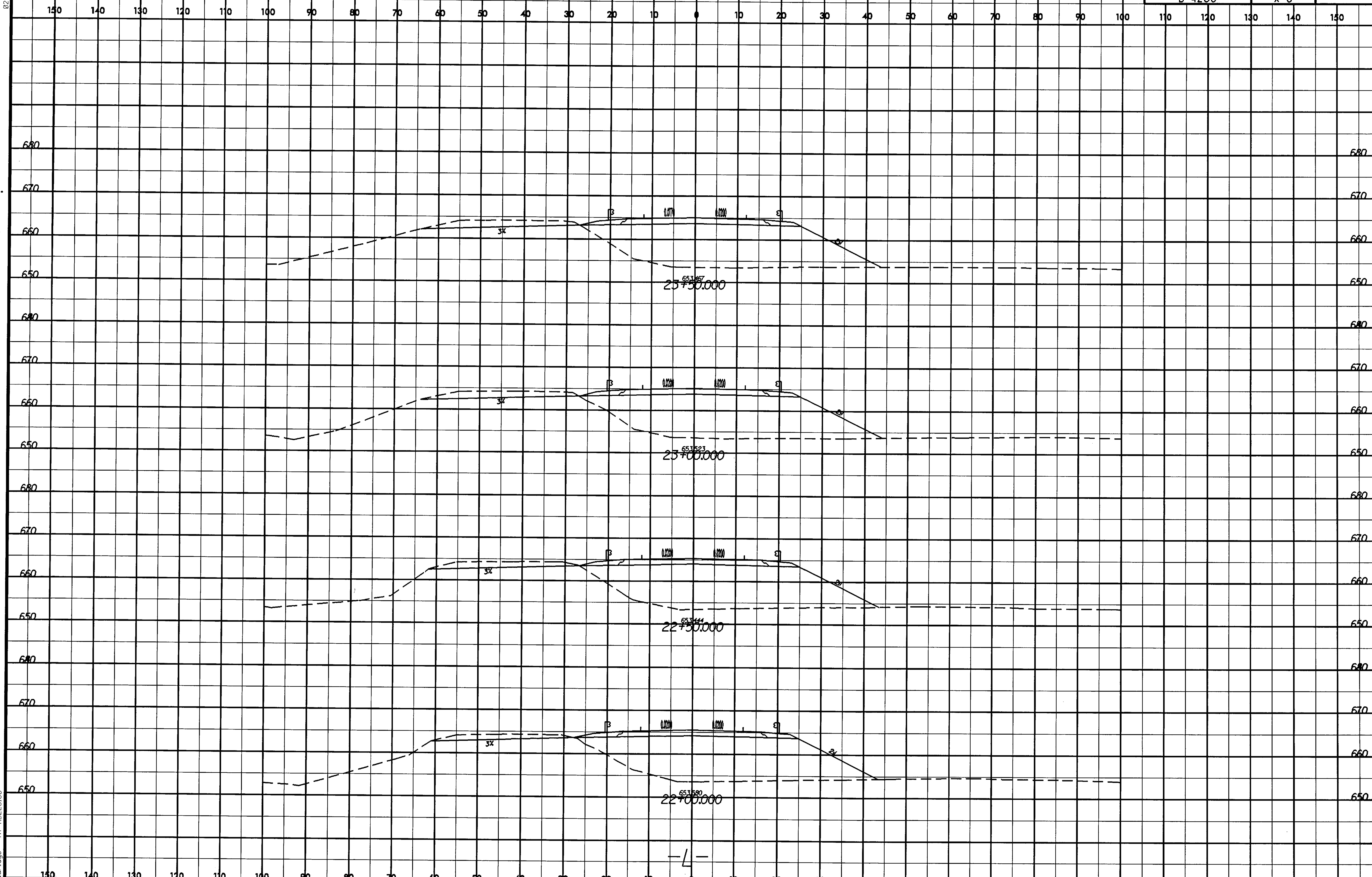
PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
B-4280	X-5	



PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
B-4280	X-6	



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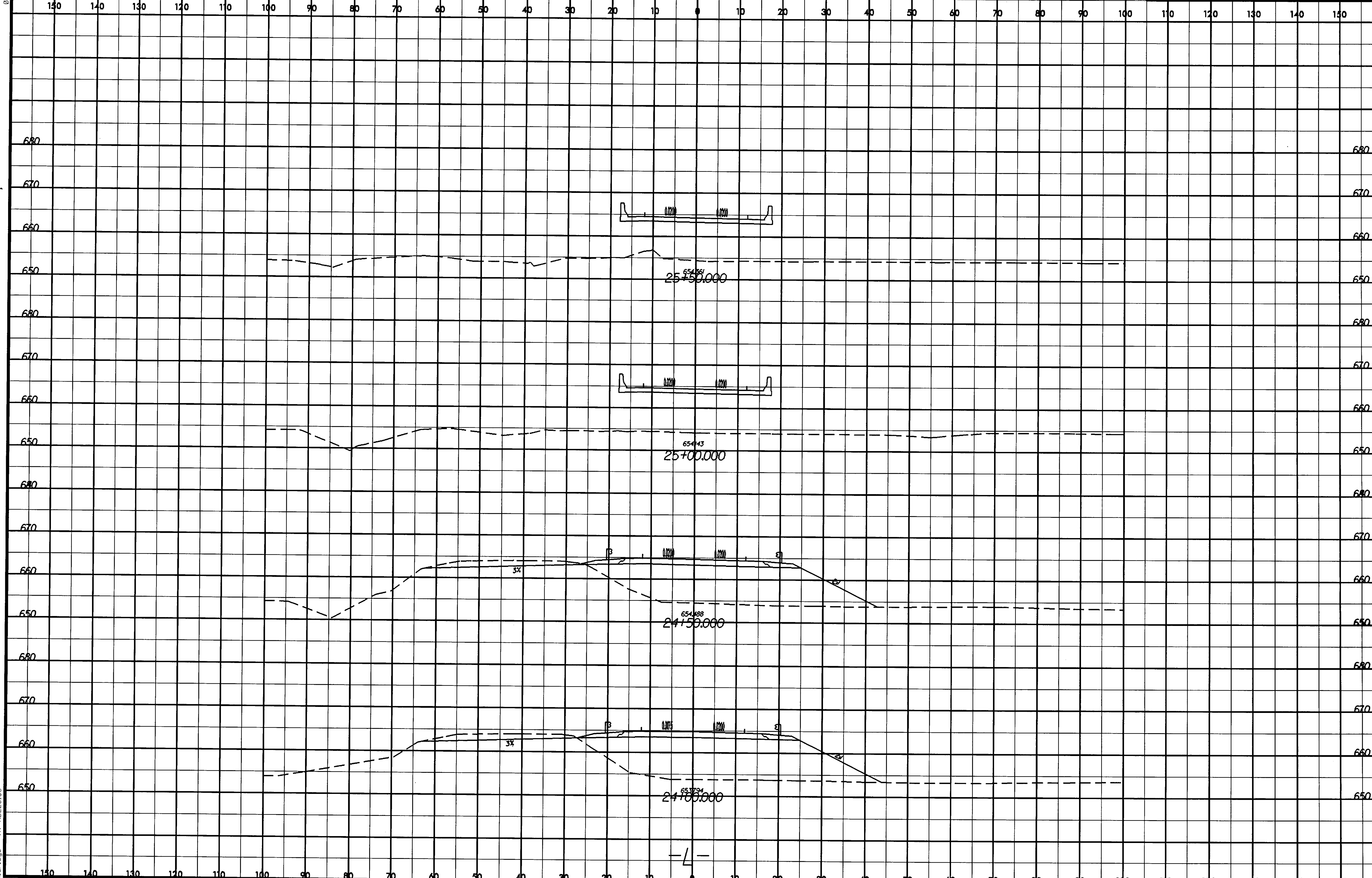
aldridge AT RD223168

PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
B-4280	X-7	

02/03/98



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Aldridge AT RD223168

PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
B-4280	X-8	

28+00.000

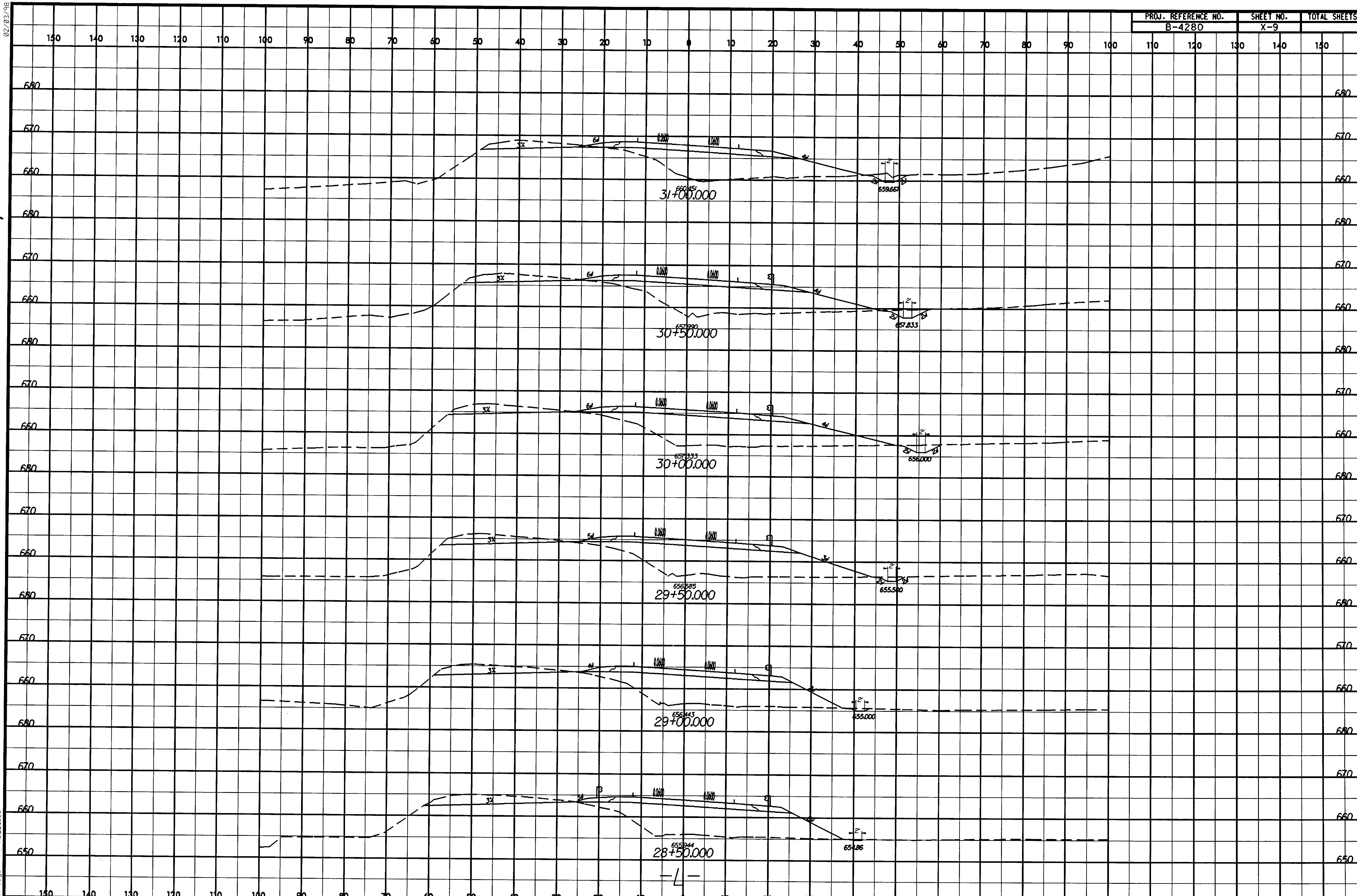
27+50.000

27+00.000

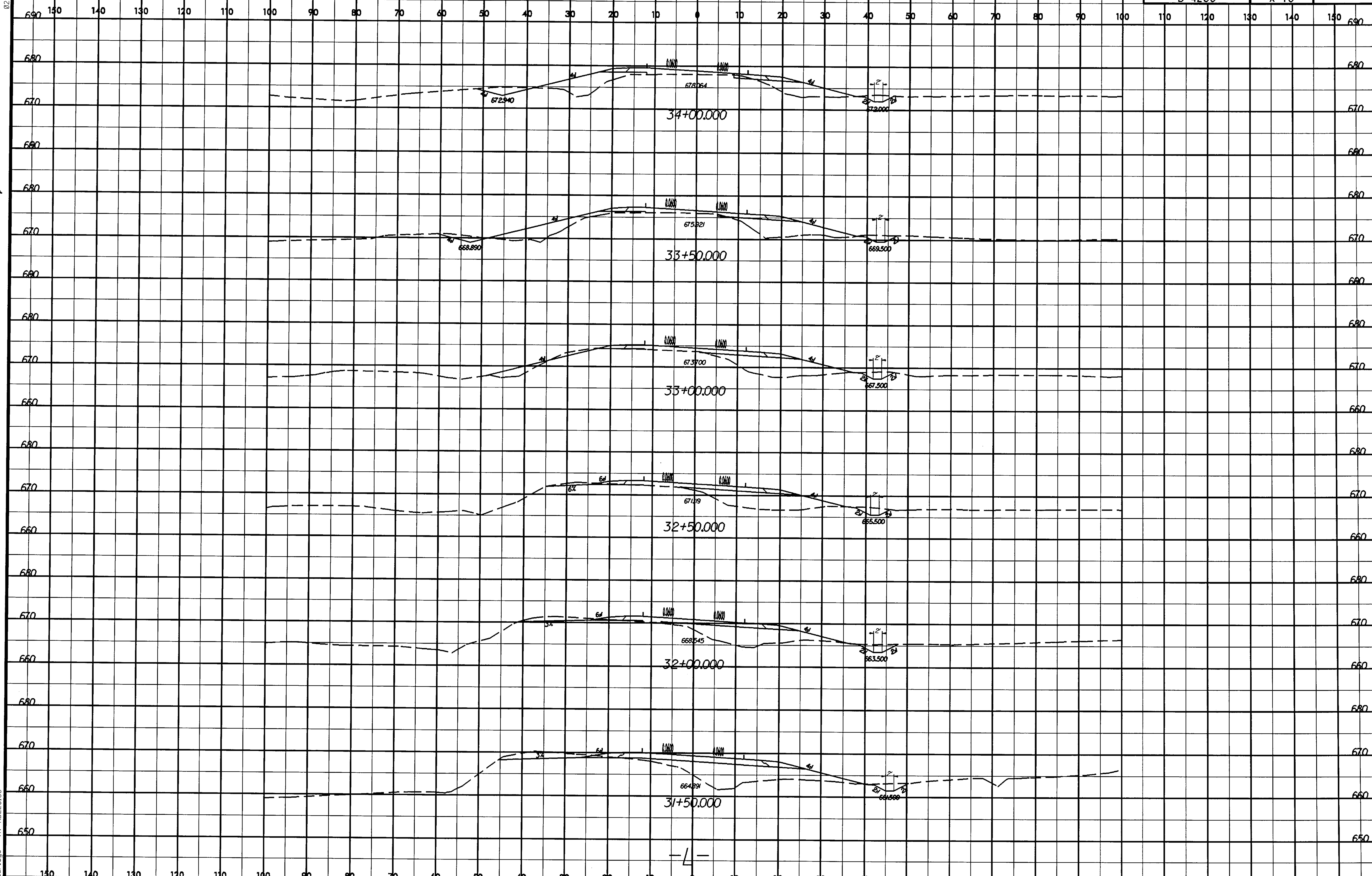
26+50.000

26+00.000

PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
B-4280	X-9	



PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
B-4280	X-10	



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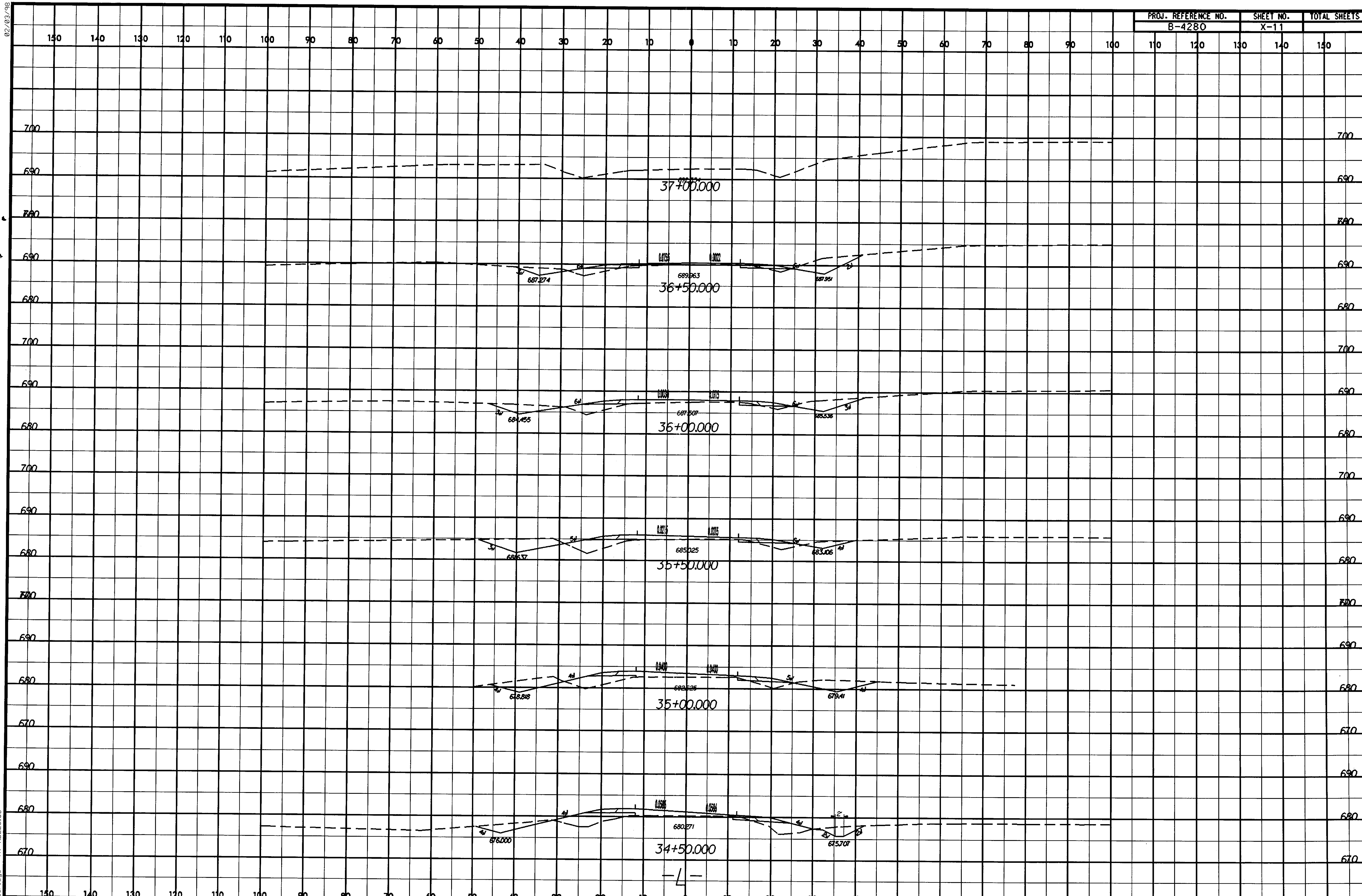
Aldridge AT RD223168

PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
B-4280	X-11	



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02/03/98