STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

June 1, 2004

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

ATTN: Mr. Steve Lund
NCDOT Coordinator

Dear Sir:

SUBJECT: **Nationwide 23 and 33 Permit Applications.** Replacement of Bridge No. 143 over the North Toe River on SR 1304 (Tipton Hill Road/Ray Road), Mitchell and Yancey Counties. Federal Aid Project No. BRZ-1304(4), State Project No. 8.2880401, TIP Project No. B-2848.

The NC Department of Transportation (NCDOT) proposes to replace existing Bridge No. 143 over the North Toe River on SR 1304 (Tipton Hill Road/Ray Road). The project involves replacing bridge no. 143 with a multi-span two-lane, 350-foot (108 meters) long bridge over the North Toe River (DWQ Index # 7-2-(27.7), Class "C Tr"). The bridge will be replaced approximately 50-feet (15.2 meters) downstream (northwest) of the existing structure. The bridge will have a clear roadway of 24-feet (7.2 meters) in width, including two travel lanes totaling 20-feet (6.0 meters) in width and a 2-foot (6.0 meters) shoulder on each side of the bridge.

The existing bridge will remain in place to maintain traffic during construction and will be removed when construction is complete.

IMPACTS TO WATERS OF THE UNITED STATES

No permanent impacts to Waters of the United States, in the form of wetlands or surface waters, are anticipated as a result of project construction.

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

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

WEBSITE: WWW.DOH.DOT.STATE.NC.US

LOCATION:
TRANSPORTATION BUILDING
1 SOUTH WILMINGTON STREET
RALEIGH NC

BRIDGE DEMOLITION

The existing Bridge No. 143 is a one-lane structure with five spans totaling 367-feet (111.9 meters). The superstructure consists of a reinforced concrete deck, an asphalt wearing surface, and metal guardrails. The substructure consists of reinforced concrete earth-filled spandrel arches, reinforced concrete abutments, and reinforced concrete piers. The depth from roadway crown to the streambed is approximately 28-feet (8.5 meters). Guidelines followed for the construction phase of the project are in accordance with the NCDOT Best Management Practices for Protection of Surface Waters and the Tennessee Valley Authority (TVA) Water Management Standard Conditions.

BRIDGE CONSTRUCTION

Bridge No. 143 will be a three span, steel girder, cast-in-place concrete deck superstructure. The substructure will include drilled piers for two interior bents. Construction of the bridge will require the need for a temporary causeway/workpad.

TEMPORARY CAUSEWAYS/WORKPADS

There will be 0.257 acres of temporary impacts in the North Toe River from the construction of a temporary bridge workpad for the construction of Bridge No. 143. Temporary workpads of Class II Rip Rap topped with 1-inch of Class I Rip Rap will be required to provide access to the site for construction equipment.

No permanent fill will result from the subject activity. The materials used as temporary fill in the construction of the rock causeways, will be completely removed. The entire causeway footprint shall be returned to the original contours and elevations after the purpose of the causeway has been served. After the causeways are no longer needed, the contractor will use excavating equipment to remove all materials. The causeway is estimated to be in the water for about 8 months. All causeway material will become the property of the contractor. The contractor will be required to submit a reclamation plan for removal of and disposal of all materials off-site.

FEDERALLY-PROTECTED SPECIES

Plants and animals with federal classifications of Endangered, Threatened, Proposed Endangered, and Proposed Threatened are protected under Endangered Species Act §§7 and 9. As of January 29, 2003, the US Fish and Wildlife Service (USFWS) lists 13 federally protected species for Mitchell and Yancey Counties (Table 1). Other than the Appalachian elktoe (*Alasmidonta raveneliana*), the biological conclusions of "No Effect" were reached for all listed. Currently a biological assessment (BA) is being produced for the Appalachian elktoe that will closely follow this permit application.

Table 1. Federally Protected Species for Haywood County

SCIENTIFIC NAME	COMMON NAME	COUNTY	STATUS	BIOLOGICAL CONCLUSION
Clemys muhlenbergii	Bog turtle	Y	T(S/A)	No Effect
Corynorhinus townsendii	Virginia big-eared bat	Y	E	No Effect
Felis concolor cougar	Eastern cougar	Y	E	No Effect
Glaucomys sabrinus coloratus	Carolina northern flying squirrel	M,Y	E	No Effect
Myotis sodalis	Indiana bat	M	E	No Effect
Alasmidonta raveneliana	Appalachian elktoe	M, Y	E	See BA
Geum radiatum	Spreading avens	M,Y	E	No Effect
Houstonia montana	Roan Mountain bluet	Y	E	No Effect
Liatris helleri	Heller's blazing star	M	T	No Effect
Solidago spithamaea	Blue Ridge goldenrod	M	T	No Effect
Spiraea virginiana	Virginia spiraea	M, Y	T	No Effect
Gymnoderma lineare	Rock gnome lichen	M, Y	E	No Effect
Microhexura montivaga	Spruce-fir moss spider	Y	E	No Effect

KEY:

COUNTY:

"Y" Denotes Yancey County

"M" Denotes Mitchell County

STATUS:

"E" Denotes Endangered (a species that is in danger of extinction throughout all or a significant portion of its range.

"T" Denotes Threatened (a species that is likely to become endangered species within the foreseeable future throughout all or a significant portion of its range).

"T(S/A)" Denotes Threatened due to similarity of appearance (a species that is threatened due to similarity of appearance with other rare species and is listed for its protection).

REGULATORY APPROVALS

Section 404 Permit: It is anticipated that the construction of the temporary causeways will be authorized under Section 404 Nationwide Permit 33 (Temporary Construction Access and Dewatering). We are, therefore, requesting the issuance of a Nationwide Permit 33 authorizing construction of the causeway. All other aspects of this project are being processed by the Federal Highway Administration as a "Categorical Exclusion" in accordance with 23 CFR § 771.115(b). The NCDOT requests that these activities be authorized by a Nationwide Permit 23 (FR number 10, pages 2020-2095; January 15, 2002).

Section 401 Permit: We anticipate 401 General Certifications number 3403 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.

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

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

If you have any questions or need additional information, please contact Mr. Chris Manley at (919) 715-1487 or cdmanley@dot.state.nc.us.

Sincerely,

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

cc:

Mr. John Hennessy, Division of Water Quality (7 copies)
Ms. Marella Buncick, USFWS
Ms. Marla Chambers, NCWRC
Mr. Greg Perfetti, P.E., Structure Design
Mr. Harold Draper, TVA
Mr. David Franklin, USACE, Wilmington
Mr. Jay Bennett, P.E., Roadway Design
Mr. Omar Sultan, Programming and TIP
Mr. Art McMillan, P.E., Highway Design
Mr. David Chang, P.E., Hydraulics
Mr. Mark Staley, Roadside Environmental
Mr. J. J. Swain, P.E., Division Engineer
Mr. Roger Bryan, DEO
Ms. Stephanie Caudill, P.E.

Office Use Only: Form Version May 2002

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

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

I. Processing

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

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

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

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

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

II. Applicant Information

1. Owner/Applicant Information
   Name: NCDOT
   Mailing Address: 1548 Mail Service Center
   Raleigh, NC 27699-1548
   Telephone Number: 919-733-3147 Fax Number: 919-766-9794
   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: Bridge replacement over the North Toe River

2. T.I.P. Project Number or State Project Number (NCDOT Only): B-2848

3. Property Identification Number (Tax PIN): _____

4. Location
   County: Mitchell and Yancey Nearest Town: Ramseytown
   Subdivision name (include phase/lot number): _____
   Directions to site (include road numbers, landmarks, etc.): Bridge No. 143 over the North Toe River on SR 1304
   _____
   _____

5. Site coordinates, if available (UTM or Lat/Long): 82°19'00"W, 36°01'30"N
   (Note – If project is linear, such as a road or utility line, attach a sheet that separately lists the coordinates for each crossing of a distinct waterbody.)

6. Property size (acres): _____

7. Nearest body of water (stream/river/sound/ocean/lake): North Toe River

8. River Basin: French Broad
   (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: One Lane 367 ft. bridge, consisting of a reinforced concrete deck, asphalt wearing surface, metal guardrails; substructure consists of reinforced concrete arches, abutments, and piers.

10. Describe the overall project in detail, including the type of equipment to be used:
Replacement of existing bridge on new alignment 50ft. downstream with three span, steel girder, cast-in-place concrete deck bridge. Cranes and earth moving equipment will be used.

11. Explain the purpose of the proposed work: To replace Bridge No. 143.

IV. Prior Project History

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

N/A

V. Future Project Plans

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

N/A

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

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

mitigation, list and describe the impact in Section VIII below. If additional space is needed for listing or description, please attach a separate sheet.

1. Provide a written description of the proposed impacts: Minor temporary surface water impacts due to fill for the bridge. No wetland impacts.

2. Individually list wetland impacts below:

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

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

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

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

List the total acreage (estimated) of all existing wetlands on the property: N/A
Total area of wetland impact proposed:

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

Stream Impact Site Number (indicate on map)	Type of Impact*	Length of Impact (linear feet)	Stream Name**	Average Width of Stream Before Impact	Perennial or Intermittent? (please specify)

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

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

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

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

Open Water Impact Site Number (indicate on map)	Type of Impact*	Area of Impact (acres)	Name of Waterbody (if applicable)	Type of Waterbody (lake, pond, estuary, sound, bay, ocean, etc.)
1	Temporary fill	0.398	North Toe River	River

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

5. Pond Creation

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

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

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

_____

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

_____

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

VII. Impact Justification (Avoidance and Minimization)

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

In order to minimize impacts to water resources, NCDOT "Best Management Practices for the Protection of Surface Waters" will be strickly enforced during the entire life of the project.

VIII. Mitigation

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

freshwater wetlands or greater than or equal to 150 linear feet of total impacts to perennial streams.

USACE – In accordance with the Final Notice of Issuance and Modification of Nationwide Permits, published in the Federal Register on March 9, 2000, mitigation will be required when necessary to ensure that adverse effects to the aquatic environment are minimal. Factors including size and type of proposed impact and function and relative value of the impacted aquatic resource will be considered in determining acceptability of appropriate and practicable mitigation as proposed. Examples of mitigation that may be appropriate and practicable include, but are not limited to: reducing the size of the project; establishing and maintaining wetland and/or upland vegetated buffers to protect open waters such as streams; and replacing losses of aquatic resource functions and values by creating, restoring, enhancing, or preserving similar functions and values, preferable in the same watershed.

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

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

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

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

Amount of Coastal wetland mitigation requested (acres):_____

IX. Environmental Documentation (required by DWQ)

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

Yes ☒ No ☐

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

Yes ☒ No ☐

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

Yes ☒ No ☐

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

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

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

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

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

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

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

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

XI. Stormwater (required by DWQ)

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

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.

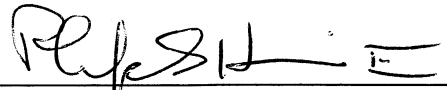
XIII. Violations (required by DWQ)

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. Other Circumstances (Optional):

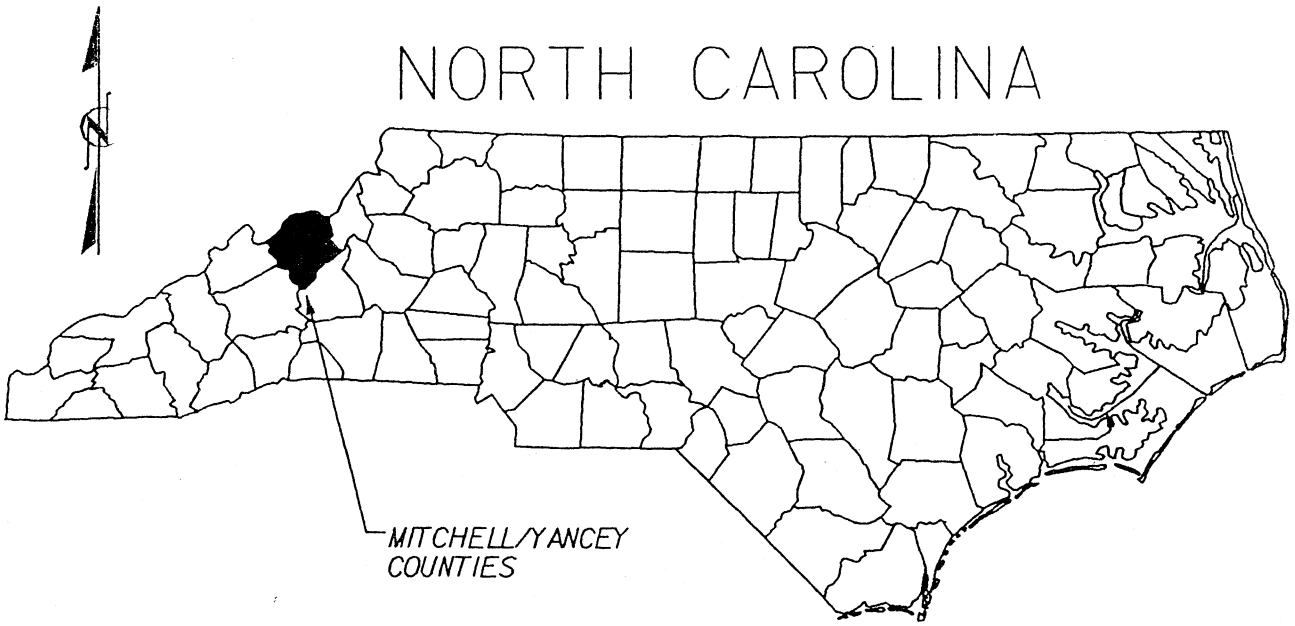
It is the applicant's responsibility to submit the application sufficiently in advance of desired construction dates to allow processing time for these permits. However, an applicant may choose to list constraints associated with construction or sequencing that may impose limits on work schedules (e.g.,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

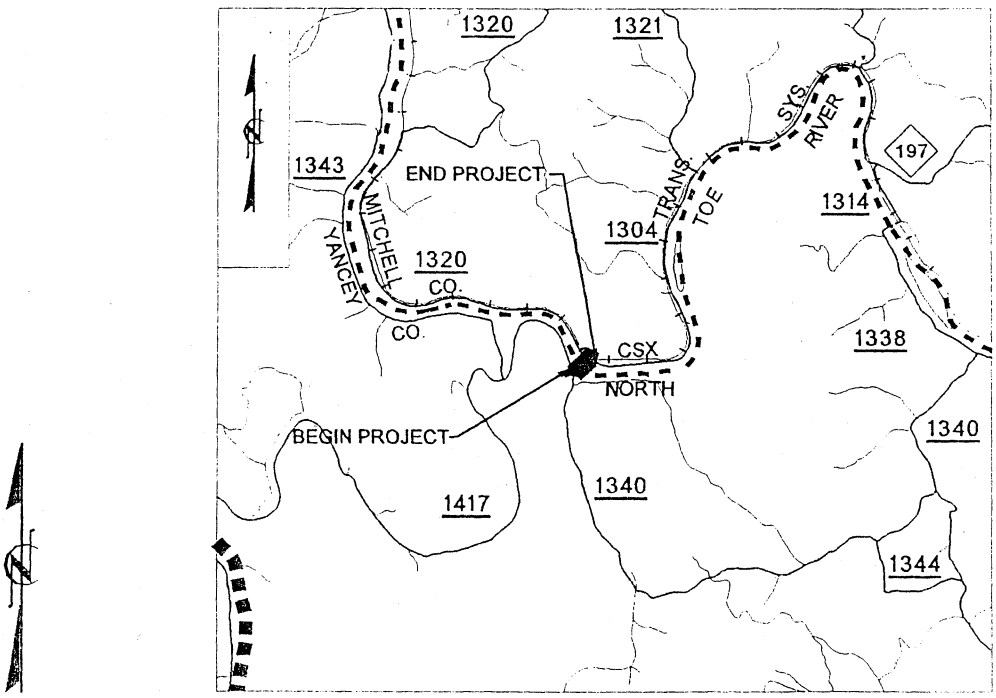


6/1/04

Applicant/Agent's Signature **Date**

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



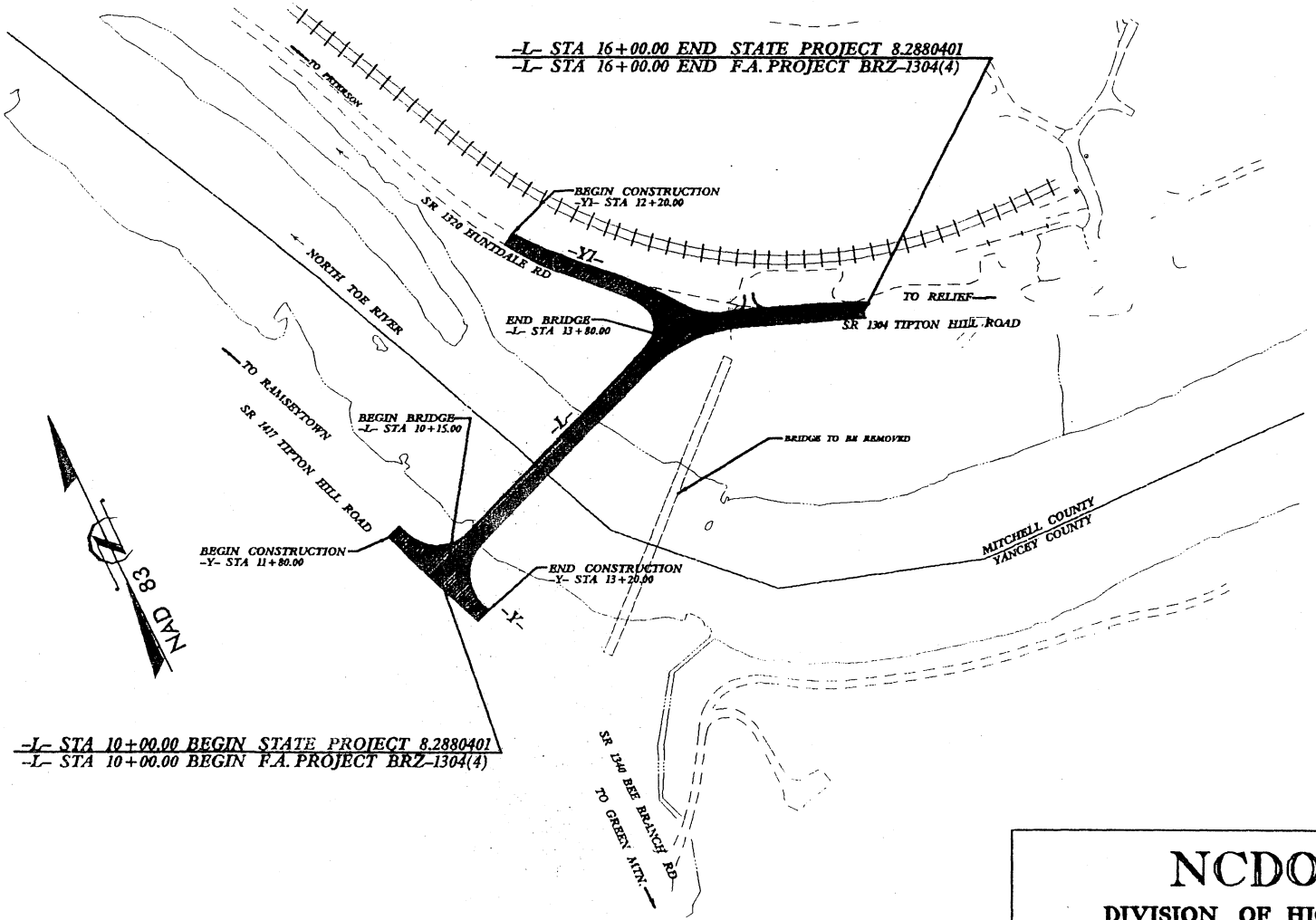


VICINITY MAP

VICINITY MAPS

NCDOT

DIVISION OF HIGHWAYS
MITCHELL / YANCEY COUNTY
PROJECT: 8.2880401 (B-2848)
BRIDGE #143 ON SR 1304
OVER NORTH TOE RIVER



SITE MAP

NCDOT

DIVISION OF HIGHWAYS

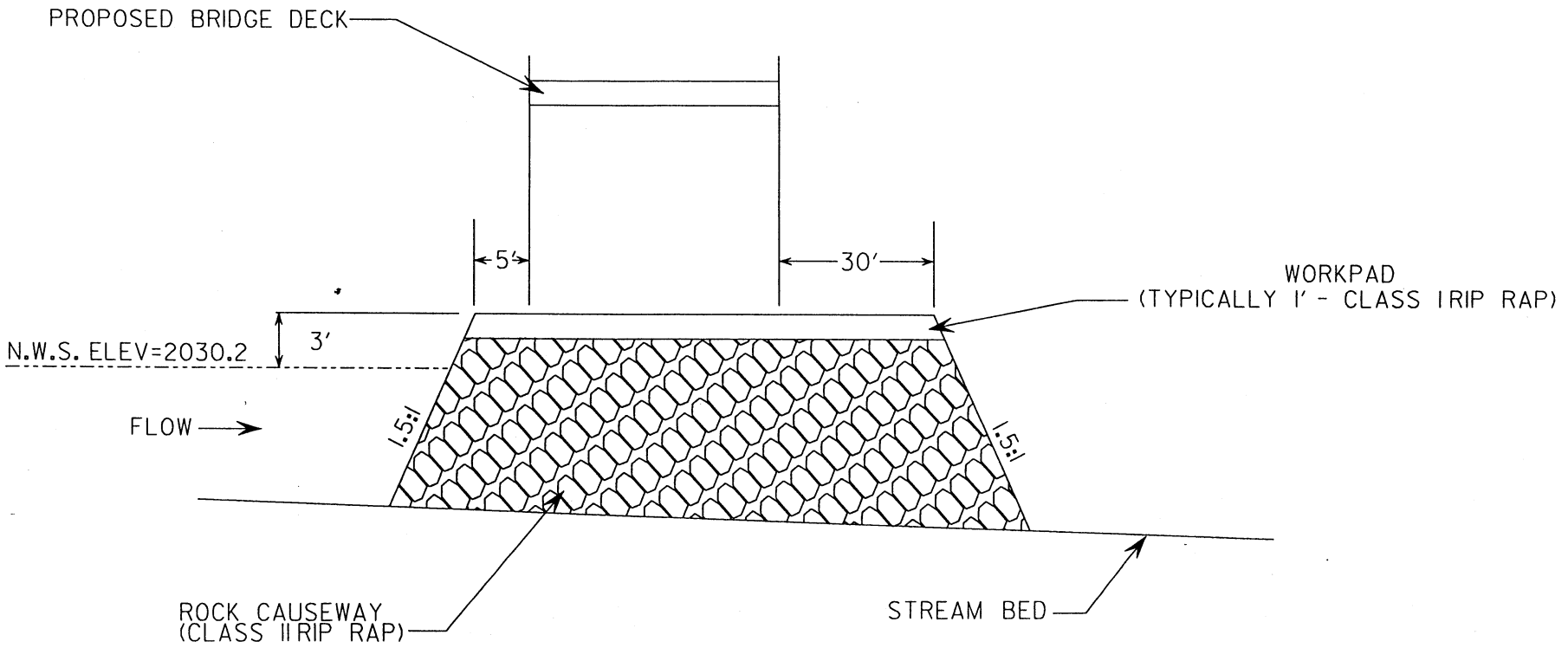
MITCHELL / YANCEY COUNTY

PROJECT: 8.2880401 (B-2848)

BRIDGE #143 ON SR 1304

OVER NORTH TOE RIVER

WORKPAD DETAIL
(NOT TO SCALE)



QUANTITIES OF ESTIMATES

VOLUME OF CLASS II RIP RAP= 2175 yds^3

AREA OF CLASS II RIP RAP= 0.398 ac

Estimate 2480 Tons Class II Rip Rap

NCDOT

DIVISION OF HIGHWAYS

MITCHELL / YANCEY COUNTY

PROJECT: 8.2880401 (B-2848)

BRIDGE #143 ON SR 1304

OVER NORTH TOE RIVER

PROPERTY OWNERS

NAMES AND ADDRESSES

NAMES	ADDRESSES
ANNA LEE HUGHES	41 PETERSON LANE GREEN MOUNTAIN, NC 28740
TROY HUGHES	41 PETERSON LANE GREEN MOUNTAIN, NC 28740
PHIN PETERSON	GREEN MOUNTAIN, NC 28740
STANLEY & IRENE TIPTON	RT 1 BOX 298 GREEN MOUNTAIN, NC 28740
BARBARA MILLER	RT 4 BOX 405 BURNSVILLE, NC 28714
CSX RAILROAD	LOCUST ST. SPRUCE PINE, NC 28777

NCDOT

DIVISION OF HIGHWAYS

MITCHELL / YANCEY COUNTY

PROJECT: 8.2880401 (B-2848)

BRIDGE #143 ON SR 1304

OVER NORTH TOE RIVER

07 / 15 / 03

WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS: Fill In Wetlands (ac)	WETLAND IMPACTS: Temp. Fill In Wetlands (ac)	WETLAND IMPACTS: Excavation In Wetlands (ac)	WETLAND IMPACTS: Mechanized Clearing (Method III) (ac)	SURFACE WATER IMPACTS: Fill In SW (Natural) (ac)	SURFACE WATER IMPACTS: Fill In SW (Pond) (ac)	SURFACE WATER IMPACTS: Temp. Fill In SW (ac)	SURFACE WATER IMPACTS: Existing Channel Impacted (ft)	SURFACE WATER IMPACTS: Natural Stream Design (ft)
1	11+97.50 -L-	TEMP BRIDGE WORKPAD							0.398		
TOTALS:			0	0	0	0	0	0	0.398	0	0

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

YANCEY/MITCHELL COUNTY
PROJECT 8.2880401 B-2848

Form Revised 3/22/01

REV 4/7/2004

Sheet 6 of 11

PROJECT REFERENCE NO.	SHEET NO.
B-2848	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

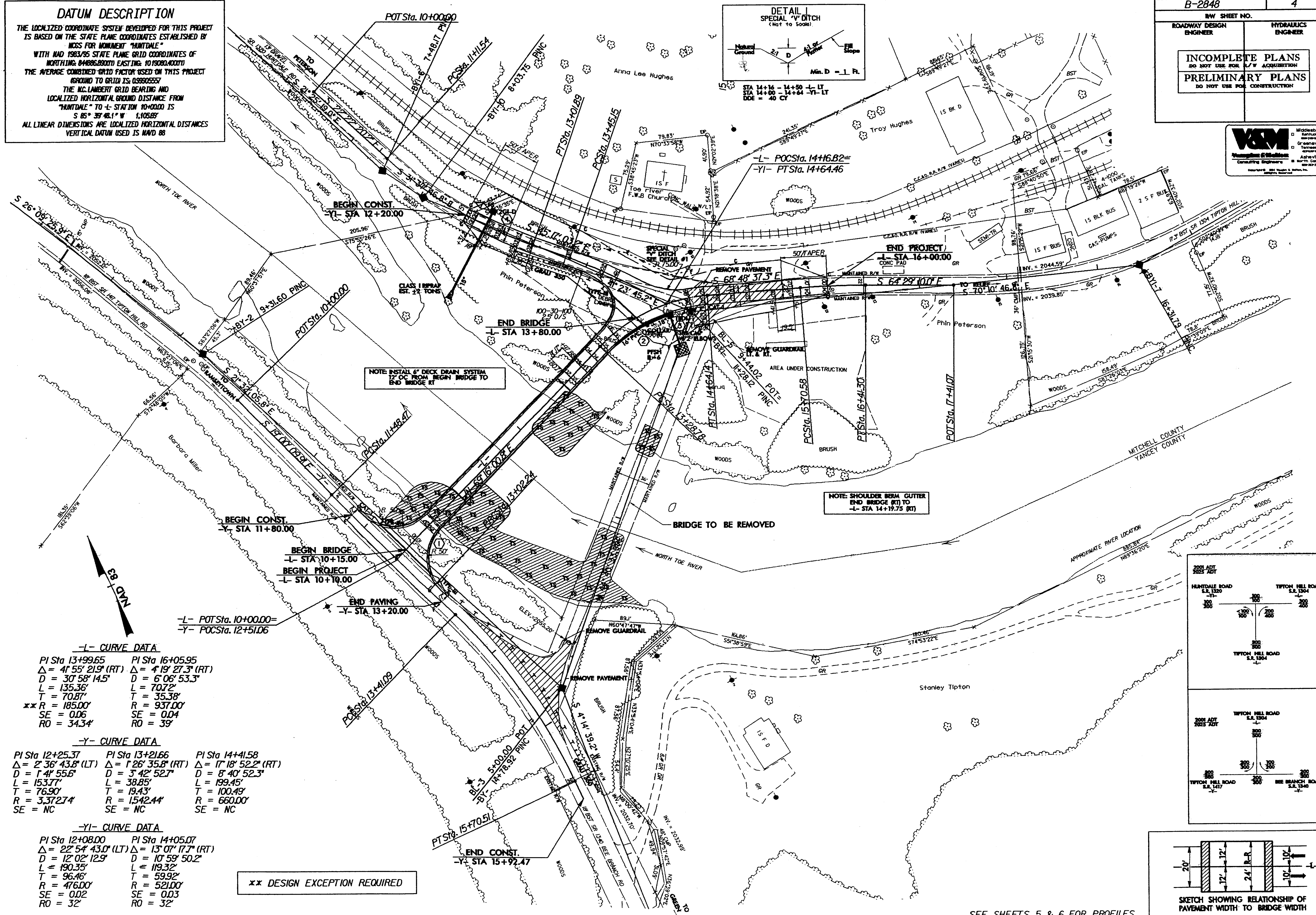
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Vaughn & Melton Consulting Engineers — Middlesboro, Kentucky; Greeneville, Tennessee; Asheville, North Carolina

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "HUNTDALE"
WITH NAD 1983/95 STATE PLANE GRID COORDINATES OF NORTHING: 844886.890(ft) EASTING: 1019080.400(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99905557
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "HUNTDALE" TO -L- STATION 10+00.00 IS
S 85° 39' 48.1" W 1,105.69'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88



-L- CURVE DATA

PI Sta 13+99.65	PI Sta 16+05.95
Δ = 41° 55' 21.9" (RT)	Δ = 4° 19' 27.3" (RT)
D = 30° 58' 14.5"	D = 6° 06' 53.3"
L = 135.36'	L = 70.72'
T = 70.87'	T = 35.38'
xx R = 185.00'	R = 937.00'
SE = 0.06	SE = 0.04
RO = 34.34'	RO = 39'

-Y- CURVE DATA

PI Sta 12+25.37	PI Sta 13+21.66	PI Sta 14+41.58
Δ = 2° 36' 43.8" (LT)	Δ = 1° 26' 35.8" (RT)	Δ = 17° 18' 52.2" (RT)
D = 1° 41' 55.6"	D = 3° 42' 52.7"	D = 8° 40' 52.3"
L = 153.77'	L = 38.85'	L = 199.45'
T = 76.90'	T = 19.43'	T = 100.49'
R = 3,372.74'	R = 1,542.44'	R = 660.00'
SE = NC	SE = NC	SE = NC

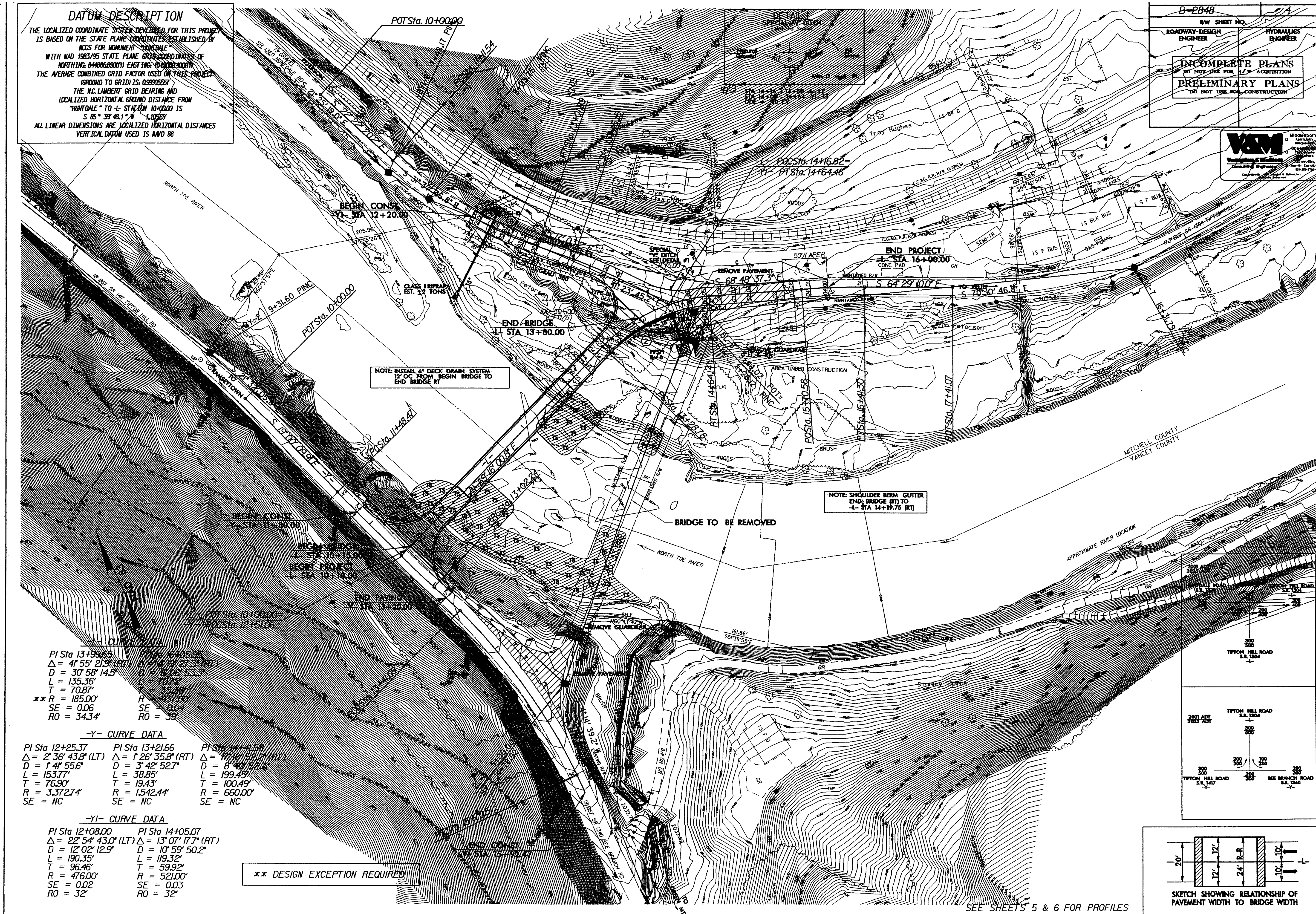
-Y1- CURVE DATA

PI Sta 12+08.00	PI Sta 14+05.07
Δ = 22° 54' 43.0" (LT)	Δ = 13° 07' 17.7" (RT)
D = 12° 02' 12.9"	D = 10° 59' 50.2"
L = 190.35'	L = 119.32'
T = 96.46'	T = 59.92'
R = 476.00'	R = 521.00'
SE = 0.02	SE = 0.03
RO = 32'	RO = 32'

xx DESIGN EXCEPTION REQUIRED

SKETCH SHOWING RELATIONSHIP OF PAVEMENT WIDTH TO BRIDGE WIDTH

SEE SHEETS 5 & 6 FOR PROFILES

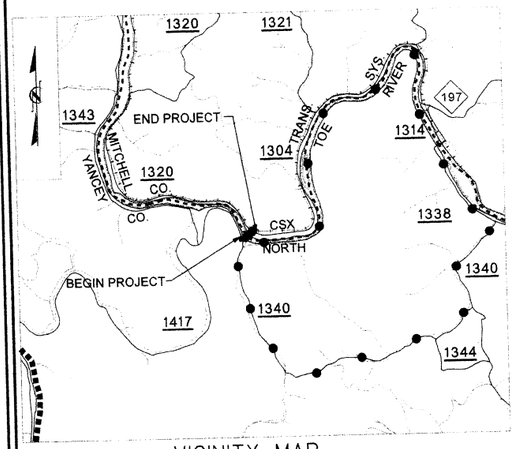


B-2848
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
DATUM DESCRIPTION
THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT
IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY
NCGS FOR MONUMENT "HUNTDALE"
WITH NAD 1983/95 STATE PLANE GRID COORDINATES OF
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT
(GROUND TO GRID) IS: 0.99905557
THE N.C. LAMBERT GRID BEARING AND
LOCALIZED HORIZONTAL GROUND DISTANCE FROM
"HUNTDALE" TO -L- STATION 10+00.00 IS
S 85° 39' 48.1" W 1,105.69'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88
POT Sta. 10+00.00
DETAIL
SPECIAL "V" DITCH
BEGIN CONST.
-Y1- STA 12+20.00
NORTH TOE RIVER
END PROJECT
-L- STA 16+00.00
S 68° 48' 37.3" E
S 64° 29' 00.0" E
S 70° 10' 46.0" E
REMOVE PAVEMENT
50' TAPER
CLASS II RIPRAP
EST. 32 TONS
END BRIDGE
-L- STA 13+80.00
-L- POC Sta. 14+16.82=
-Y1- PT Sta. 14+64.46
Troy Hughes
Erin Peterson
NOTE: INSTALL 6" DECK DRAIN SYSTEM
12' OC FROM BEGIN BRIDGE TO
END BRIDGE RT
AREA UNDER CONSTRUCTION
MITCHELL COUNTY
YANCEY COUNTY
NOTE: SHOULDER BERM GUTTER
END BRIDGE (RT) TO
-L- STA 14+19.75 (RT)
BRIDGE TO BE REMOVED
APPROXIMATE RIVER LOCATION
BEGIN CONST.
-Y- STA 11+80.00
BEGIN PROJECT
-L- STA 10+18.00
END PAVING
-Y- STA 13+20.00
-L- POT Sta. 10+00.00=
-Y- POC Sta. 12+51.06
REMOVE GUARDRAIL
REMOVE PAVEMENT
END CONST.
-Y- STA 15+92.47
TIPTON HILL ROAD
S.R. 1304
2001 ADT
2025 ADT
TIPTON HILL ROAD
S.R. 1417
BEE BRANCH ROAD
S.R. 1340
SKETCH SHOWING RELATIONSHIP OF
PAVEMENT WIDTH TO BRIDGE WIDTH
-L- CURVE DATA
PI Sta 13+99.65
Δ = 41° 55' 21.9" (RT)
D = 30° 58' 14.5"
L = 135.36'
T = 70.87'
** R = 185.00'
SE = 0.06
RO = 34.34'
-Y- CURVE DATA
PI Sta 12+25.37
Δ = 2° 36' 43.8" (LT)
D = 1° 41' 55.6"
L = 153.77'
T = 76.90'
R = 3,372.74'
SE = NC
PI Sta 13+21.66
Δ = 1° 26' 35.8" (RT)
D = 3° 42' 52.7"
L = 38.85'
T = 19.43'
R = 1,542.44'
SE = NC
PI Sta 14+41.58
L = 199.45'
T = 100.49'
R = 660.00'
SE = NC
-Y1- CURVE DATA
PI Sta 12+08.00
Δ = 22° 54' 43.0" (LT)
D = 12° 02' 12.9"
L = 190.35'
T = 96.46'
R = 476.00'
SE = 0.02
RO = 32'
PI Sta 14+05.07
Δ = 13° 07' 17.7" (RT)
D = 10° 59' 50.2"
L = 119.32'
T = 59.92'
R = 521.00'
SE = 0.03
RO = 32'
** DESIGN EXCEPTION REQUIRED
SEE SHEETS 5 & 6 FOR PROFILES

B-2848

CONTRACT:

See Sheet 1-A For Index of Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

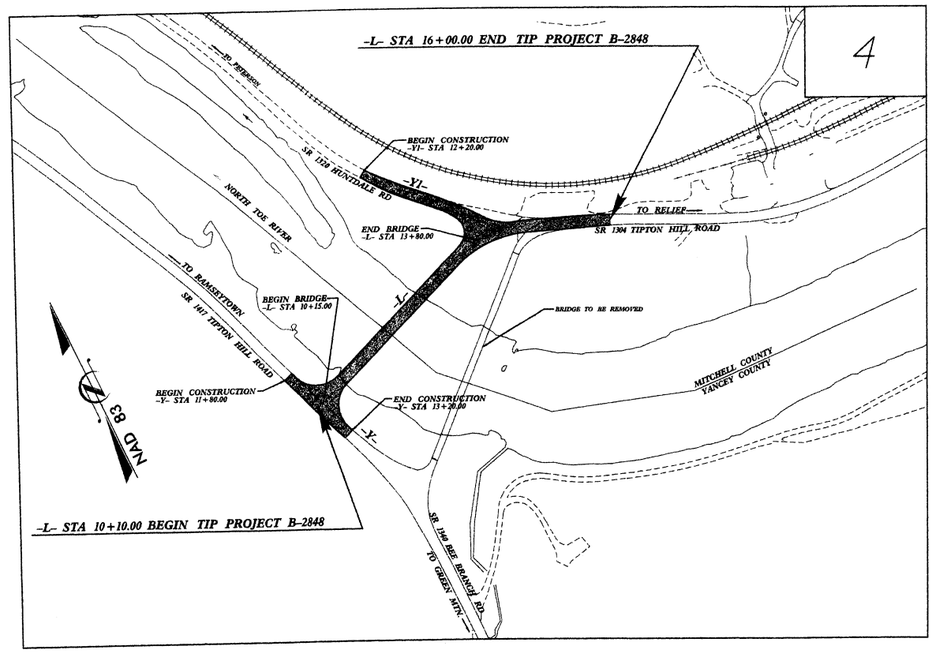
YANCEY & MITCHELL COUNTIES

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-2848	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
32728.1.1	BRZ-1304(4)	PE
32728.2.2	BRZ-1304(4)	R/W & UTIL.

LOCATION: *Bridge #143 on SR 1304 over North Toe River*

TYPE OF WORK: *Grading, Paving, Drainage, and Structure*



V&M Vaughn & Melton Consulting Engineers
Middlesboro, Kentucky 606-248-9600
Greeneville, Tennessee 423-639-0271
Asheville, North Carolina 828-253-2796

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NCDOT Contact: Teresa Bruton, PE – Project Engineer – Design Services

Clearing on this project shall be performed to the limits established by method II.

GRAPHIC SCALES

PLANS: 50 25 0 50 100

PROFILE (HORIZONTAL): 50 25 0 50 100

PROFILE (VERTICAL): 10 5 0 10 20

DESIGN DATA

ADT 2001 = 300
ADT 2025 = 500
DHV = 11 %
D = 70 %
T = 5 % *
V = 35 MPH

* TTST 2 % DUAL 3 %

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-2848 = 0.043 MI

LENGTH STRUCTURE TIP PROJECT B-2848 = 0.069 MI

TOTAL LENGTH TIP PROJECT B-2848 = 0.112 MI

Prepared For:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., NC, 27610

2002 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: AUGUST 28, 2003

LETTING DATE: JANUARY 20, 2004

JERRY CARTER, PE
PROJECT ENGINEER

REECE M. SCHULER, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE DESIGN ENGINEER P.E.

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED
DIVISION ADMINISTRATOR DATE

PROJECT REFERENCE NO.	SHEET NO.
B-2848	1-B

V&M Vaughn & Melton Consulting Engineers
Middlesboro, Kentucky 606 248 1600
Greeneville, Tennessee 423 639 0811
Asheville, North Carolina 828 253 2719

*S.U.E = SUBSURFACE UTILITY ENGINEER

CONVENTIONAL SYMBOLS

ROADS & RELATED ITEMS

- Edge of Pavement
- Curb
- Prop. Slope Stakes Cut (C)
- Prop. Slope Stakes Fill (F)
- Prop. Woven Wire Fence
- Prop. Chain Link Fence
- Prop. Barbed Wire Fence
- Prop. Wheelchair Ramp (WCR)
- Curb Cut for Future Wheelchair Ramp (CCFR)
- Exist. Guardrail
- Prop. Guardrail
- Equality Symbol
- Pavement Removal

RIGHT OF WAY

- Baseline Control Point
- Existing Right of Way Marker
- Exist. Right of Way Line w/Marker
- Prop. Right of Way Line with Proposed R/W Marker (Iron Pin & Cap)
- Prop. Right of Way Line with Proposed (Concrete or Granite) R/W Marker
- Exist. Control of Access Line (CA)
- Prop. Control of Access Line (CA)
- Exist. Easement Line (E)
- Prop. Temp. Construction Easement Line (E)
- Prop. Temp. Drainage Easement Line (TDE)
- Prop. Perm. Drainage Easement Line (PDE)

HYDROLOGY

- Stream or Body of Water
- River Basin Buffer (RBB)
- Flow Arrow
- Disappearing Stream
- Spring
- Swamp Marsh
- Shoreline
- Falls, Rapids
- Prop Lateral, Tail, Head Ditches (FLOW)

STRUCTURES

MAJOR

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

MINOR

- Head & End Wall (CONC HW)
- Pipe Culvert
- Footbridge
- Drainage Boxes
- Paved Ditch Gutter

UTILITIES

- Exist. Pole
- Exist. Power Pole
- Prop. Power Pole
- Exist. Telephone Pole
- Prop. Telephone Pole
- Exist. Joint Use Pole
- Prop. Joint Use Pole
- Telephone Pedestal (T)
- U/G Telephone Cable Hand Hold (HH)
- Cable TV Pedestal (C)
- U/G TV Cable Hand Hold (HH)
- U/G Power Cable Hand Hold (HH)
- Hydrant
- Satellite Dish
- Exist. Water Valve
- Sewer Clean Out
- Power Manhole (P)
- Telephone Booth
- Cellular Telephone Tower
- Water Manhole (W)
- Light Pole
- H-Frame Pole
- Power Line Tower
- Pole with Base
- Gas Valve
- Gas Meter
- Telephone Manhole (T)
- Power Transformer
- Sanitary Sewer Manhole
- Storm Sewer Manhole (S)
- Tank; Water, Gas, Oil
- Water Tank With Legs
- Traffic Signal Junction Box (S)
- Fiber Optic Splice Box (F)
- Television or Radio Tower
- Utility Power Line Connects to Traffic Signal Lines Cut Into the Pavement (TS)

- Recorded Water Line (W)
- Designated Water Line (S.U.E.*) (W)
- Sanitary Sewer (SS)
- Recorded Sanitary Sewer Force Main (FSS)
- Designated Sanitary Sewer Force Main(S.U.E.*) (FSS)
- Recorded Gas Line (G)
- Designated Gas Line (S.U.E.*) (G)
- Storm Sewer (S)
- Recorded Power Line (P)
- Designated Power Line (S.U.E.*) (P)
- Recorded Telephone Cable (T)
- Designated Telephone Cable (S.U.E.*) (T)
- Recorded U/G Telephone Conduit (TC)
- Designated U/G Telephone Conduit (S.U.E.*) (TC)
- Unknown Utility (S.U.E.*) (?UTL)
- Recorded Television Cable (TV)
- Designated Television Cable (S.U.E.*) (TV)
- Recorded Fiber Optics Cable (FO)
- Designated Fiber Optics Cable (S.U.E.*) (FO)
- Exist. Water Meter
- U/G Test Hole (S.U.E.*) (ATTUR)
- Abandoned According to U/G Record
- End of Information (E.O.I.)

BOUNDARIES & PROPERTIES

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Property Line Symbol (PL)
- Exist. Iron Pin (EIP)
- Property Corner
- Property Monument (ECM)
- Property Number (123)
- Parcel Number (6)
- Fence Line (WW & ISBW)
- Existing Wetland Boundaries (WLB)
- High Quality Wetland Boundary (HQ WLB)
- Medium Quality Wetland Boundaries (MQ WLB)
- Low Quality Wetland Boundaries (LQ WLB)
- Proposed Wetland Boundaries (WLB)
- Existing Endangered Animal Boundaries (EAB)
- Existing Endangered Plant Boundaries (EPB)

BUILDINGS & OTHER CULTURE

- Buildings
- Foundations
- Area Outline
- Gate
- Gas Pump Vent or U/G Tank Cap
- Church
- School
- Park
- Cemetery
- Dam
- Sign (S)
- Well (W)
- Small Mine
- Swimming Pool

TOPOGRAPHY

- Loose Surface
- Hard Surface
- Change in Road Surface
- Curb
- Right of Way Symbol (R/W)
- Guard Post (GP)
- Paved Walk
- Bridge
- Box Culvert or Tunnel
- Ferry
- Culvert
- Footbridge
- Trail, Footpath
- Light House

VEGETATION

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard (VINEYARD)

RAILROADS

- Standard Gauge (CSX TRANSPORTATION)
- RR Signal Milepost (MILEPOST 35)
- Switch (SWITCH)

revised 02/02/00

PROJECT REFERENCE NO.	SHEET NO.
B-2848	2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

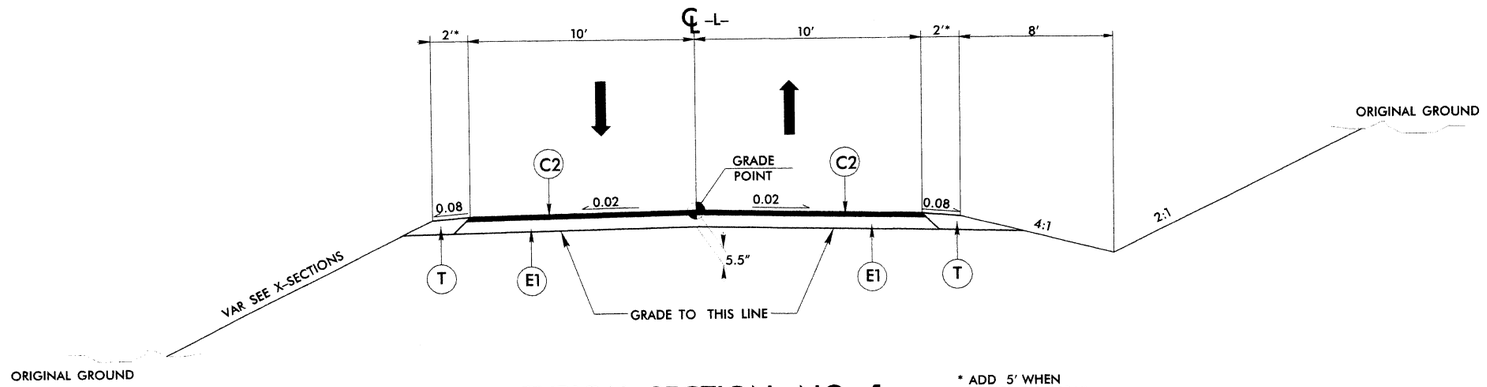
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

V&M Vaughn & Melton Consulting Engineers
Middlesboro, Kentucky 606-248-5600
Greeneville, Tennessee 423-639-0211
Asheville, North Carolina 828-253-3796

PAVEMENT SCHEDULE

C1	PROP. APPROX. 1¼" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5A, AT AN AVERAGE RATE OF 140 LBS. PER SQ. YD.
C2	PROP. APPROX. 2½"ASPHALT CONCRETE SURFACE COURSE TYPE S9.5A, AT AN AVERAGE RATE OF 140 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
E1	PROP. APPROX. 3" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.
E2	PROP. APPROX. 4½" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.

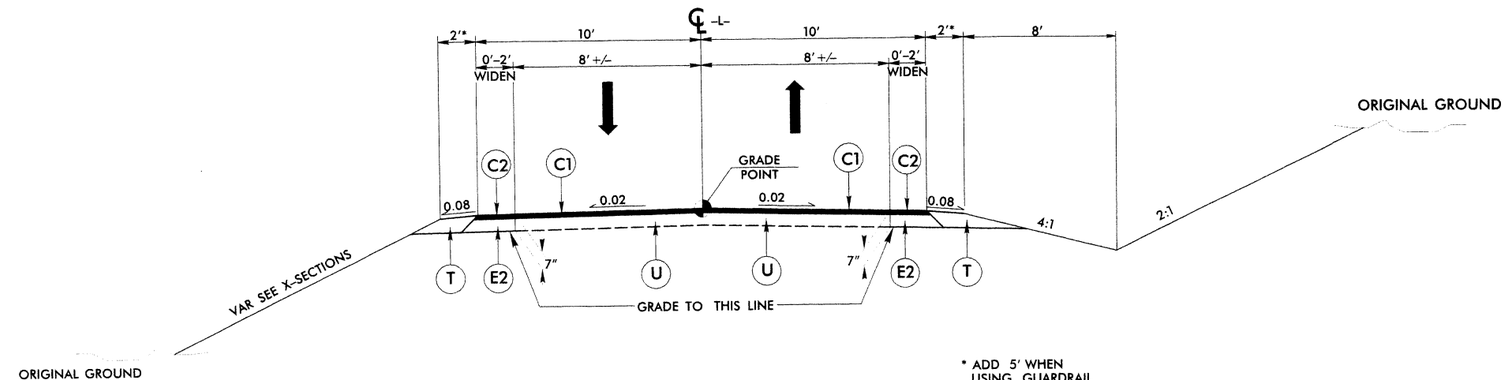
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



TYPICAL SECTION NO. 1

* ADD 5' WHEN USING GUARDRAIL

USE TYPICAL SECTION NO. 1
-L- STA. 10+10.00 TO -L- STA. 10+15.00 (BEG. BRIDGE)
-L- STA. 13+80.00 (END BRIDGE) TO STA. 15+50.00



TYPICAL SECTION NO. 2

* ADD 5' WHEN USING GUARDRAIL

USE TYPICAL SECTION NO. 2
-L- STA. 15+50.00 TO STA. 16+00.00

PROJECT REFERENCE NO.	SHEET NO.
B-2848	2-A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

V&M Vaughn & Melton Consulting Engineers
Middlesboro, Kentucky 606-248-5600
Greeneville, Tennessee 423-639-0211
Asheville, North Carolina 828-253-2796

PAVEMENT SCHEDULE

C1	PROP. APPROX. 1¼" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5A, AT AN AVERAGE RATE OF 140 LBS. PER SQ. YD.
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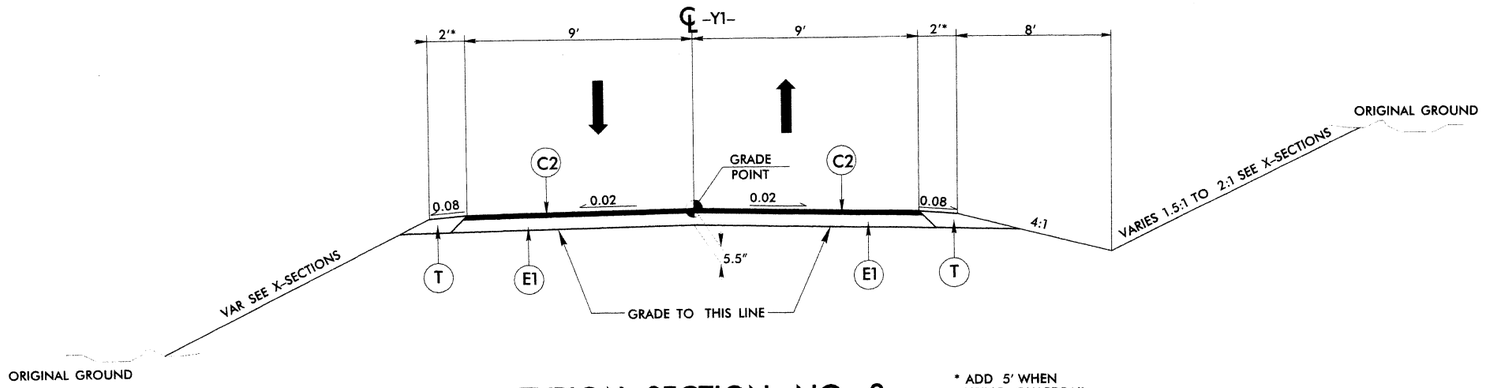
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.

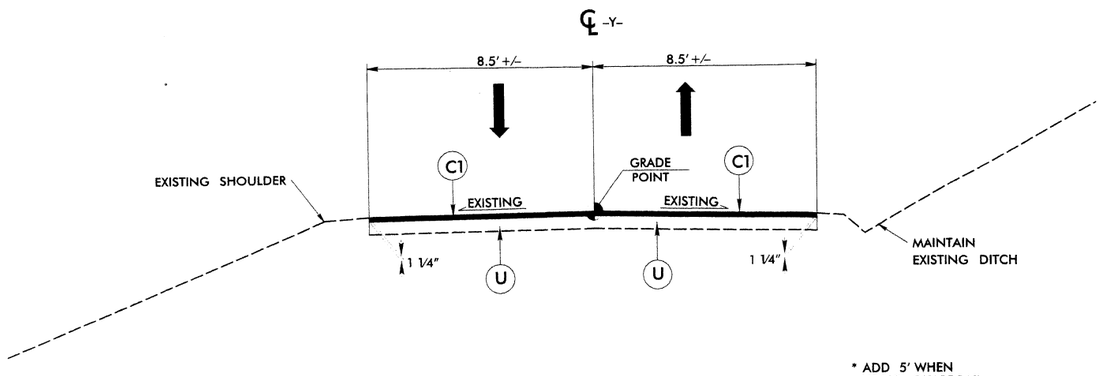
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



TYPICAL SECTION NO. 3

* ADD 5' WHEN USING GUARDRAIL

USE TYPICAL SECTION NO. 3
-Y1- STA. 12+20.00 TO STA. 14+64.46



TYPICAL SECTION NO. 4

* ADD 5' WHEN USING GUARDRAIL

USE TYPICAL SECTION NO. 2
-Y- STA. 11+80.00 TO STA. 13+20.00

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SUMMARY OF EARTHWORK

IN CUBIC YARDS

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT + %	BORROW	WASTE
SUMMARY 1					
-Y- 11+80.00 TO -Y- 13+20.00	0		1	1	
-L- 10+10.00 TO -L- 10+15.00 (BEG. BRIDGE)	0		0	0	
SUBTOTAL SUMMARY 1	0		1	1	
SUMMARY 2					
-L- 13+80.00 (END BRIDGE) TO -L- 16+00.00	320		604	284	
-Y1- 12+20.00 TO -Y1- 14+64.46	710		824	114	
SUBTOTAL SUMMARY 2	1030		1428	398	
PROJECT SUBTOTAL	1030		1429	399	
SAY	1030			400	
DDE = 40 CY					

COMPUTED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____

PROJECT REFERENCE NO. B-2848

SHEET NO. 3

PROJECT REFERENCE NO.	SHEET NO.
B-2848	3-B

COMPUTED BY: ACC DATE: 8/22/03
CHECKED BY: RMS DATE: 8/22/03

RIGHT OF WAY AREA DATA

PARCEL NO.	PROPERTY OWNERS NAMES	TOTAL ACREAGE	AREA TAKEN	AREA REMAINING RT.	AREA REMAINING LT.	CONST. EASE.	PERM. DRAIN. EASE.	TEMP. DRAIN. EASE.
1	BARBARA MILLER	14.106 ACRES	7347 SF	13.443 ACRES -Y-	0.495 ACRES -Y-	7605 SF		
2	PHIN PETERSON	3.044 ACRES	31153 SF	1.339 ACRES -L-	0.990 ACRES -L-		1530 SF	
3	ANNA LEE HUGHES	58.542 ACRES	419 SF		58.532 ACRES -Y1-			
4								
5								

PAVEMENT REMOVAL SUMMARY

IN SQUARE YARDS

LINE	LOCATION	ASPHALT REMOVAL	ASPHALT BREAK-UP	CONCRETE REMOVAL	CONCRETE REMOVAL
L	14+60.53 TO 15+50	230			
	PROJECT TOTAL	230			

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)

STATION	LOCATION (LT,RT, OR CL)	STRUCTURE NO.		TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	CLASS III R.C. PIPE (UNLESS NOTED OTHERWISE)								BITUMINOUS COATED C.S. PIPE TYPE B (UNLESS NOTED OTHRWISE)								12" PVC DRAIN PIPE	18" SIDE DRAIN PIPE	24" SIDE DRAIN PIPE	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE)		QUANTITIES FOR DRAINAGE STRUCTURES	* TOTAL L.F. FOR PAY QUANTITY SHALL BE COL 'A' + (1.3 X COL. 'B')		C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES AND HOOD STANDARD 840.03			T.B.J.B. WITH MH COVER STD. 840.34	MH FRAME & COVER STD. 840.54	T.B.D.I. STD. 840.35	M.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.29	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME & GRATE STD. 840.16	CORR. STEEL ELBOWS NO. & SIZE	PIPE COLLAR STD. 840.72	PIPE REMOVAL LIN.FT.	REMARKS
SIZE THICKNESS OR GAUGE		FROM	TO					12"	15"	18"	24"	30"	36"	42"	48"	12" .064	15" .064	18" .064	24" .064	30" .079	36" .079	42" .109	48" .109				CU. YDS. R.C.P.	CU. YDS. C.S.P.	PER EACH (0' THRU 5.0')	LIN. *FT. A 5.0' THRU 10.0'	LIN. *FT. B 10.0' AND ABOVE		TYPE OF GRATE E	F	G										
13+60 -L-	LT		1																					36																					CONNECT TO DECK DRAIN SYSTEM
13+60 -L-	RT		2																					44																					CONNECT TO DECK DRAIN SYSTEM
13+90 -L-	LT	1	3					28																																			1		CONNECT 12" PVC TO 12" RCP
14+00 -L-	RT	2	4					32																																			1		CONNECT 12" PVC TO 12" RCP
14+10 -L-	CL	3	4						48																				1							1	1								
14+17 -L-	RT	4	OUT														36												1									1	1			2-15"			
12+44 -Y1-	CL	5	OUT						96																				1											1	1				
PROJECT TOTAL								60	144								36							80					3							1	1	1	1	1	1	2-15"	2		

ABBREVIATIONS

C.B.	CATCH BASIN
N.D.I.	NARROW DROP INLET
D.I.	DROP INLET
M.D.I.	MEDIAN DROP INLET
M.D.I. (N.S.)	MEDIAN DROP INLET (NARROW SLOT)
J.B.	JUNCTION BOX
M.H.	MANHOLE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUCTION BOX

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL.
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL.
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL.

GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH		W		ANCHORS									IMPACT ATTENUATOR TYPE 350			SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	XI MOD	XI	GRAU 350	M-350	XIII	CAT-1	III	BIC	AT-1	EA	G	NG				
-L-	13+84.39	14+59.39	RT	62.5				13+84.39	2'	7'		56.25		1.13						1	1							75		REMOVE GUARDRAIL AT EX. BRIDGE
-Y-	11+84.41	12+09.41	LT	25				12+09.41	2'	7'		6.25		.13						1	1									
-Y-	12+92.47	15+92.47	LT	306.25			12+92.47		2'	7'	281.25		4				1				1							75		REMOVE GUARDRAIL AT EX. BRIDGE
-Y1-	12+90.00	14+02.50	RT	106.25			14+02.50		2'	7'	93.75		1.88				1				1									
			SUBTOTAL	500													2			2	4									
			LESS DEDUCTIONS FOR ANCHORS																											
			GRAU-350 2 @ 50'=	-100																										
			III 4 @ 18.75'=	-75																										
			CAT-1 2 @ 6.25'=	-12.50																										
			PROJECT TOTALS	312.5													2			2	4									
			ADDITIONAL GUARDRAIL POSTS=5 EA.																											

PROJECT REFERENCE NO.	SHEET NO.
B-2848	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

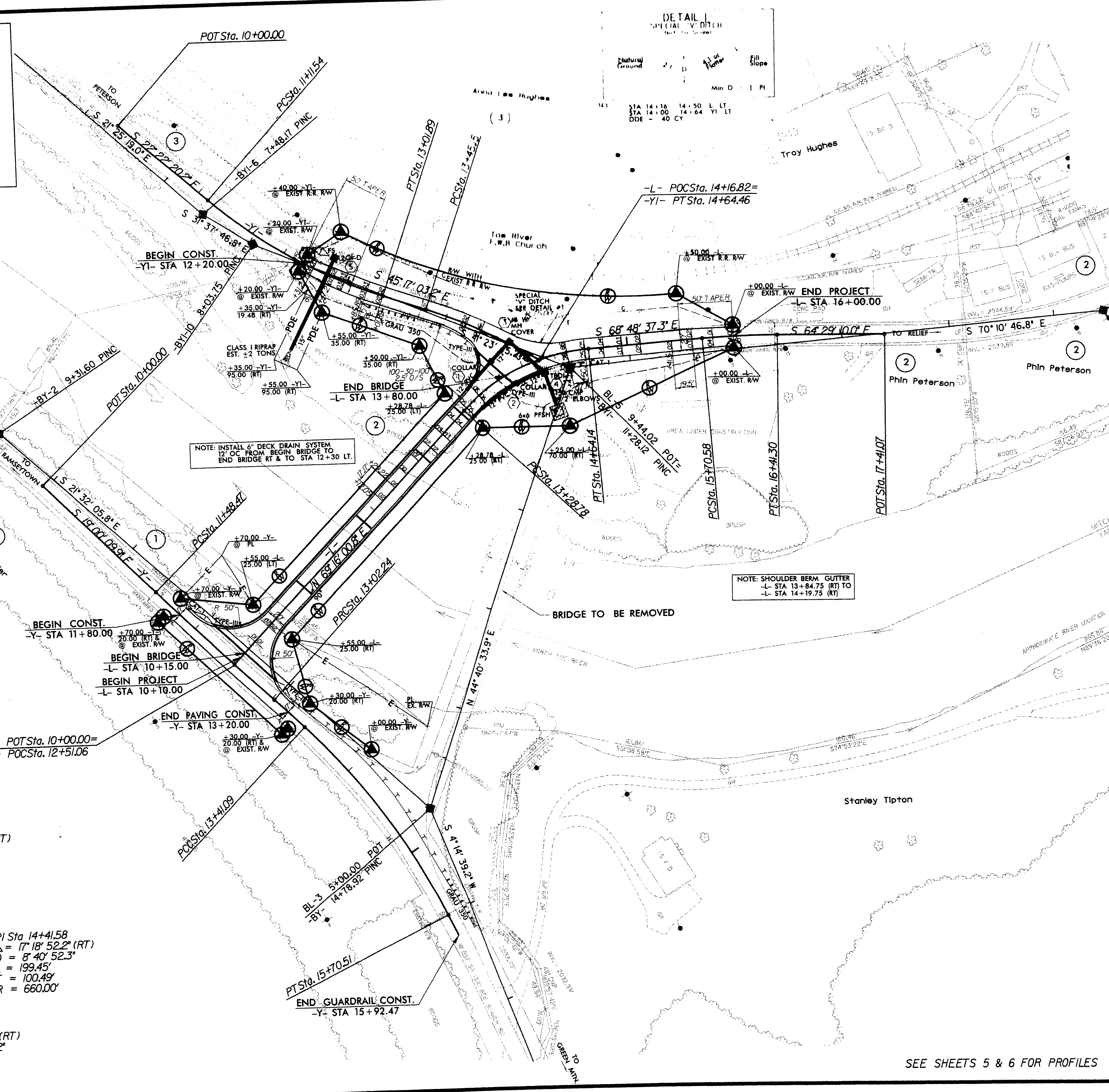
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

V&M Vaughn & Melton Consulting Engineers — Middlesboro, Kentucky; Greeneville, Tennessee; Asheville, North Carolina

REVISIONS

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "HUNTDALE"
WITH NAD 1983/95 STATE PLANE GRID COORDINATES OF
NORTHING: 844886.890(ft) EASTING: 1019080.400(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99905557
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "HUNTDALE" TO -L- STATION 10+00.00 IS
S 85° 39' 48.1" W 1,105.69'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88



POT Sta. 10+00.00
PC Sta. 11+11.54
-BYI-6 7+48.17 PINC
PT Sta. 13+01.89
PC Sta. 13+45.E
-L- POC Sta. 14+16.82=
-YI- PT Sta. 14+64.46
BEGIN CONST. -YI- STA 12+20.00
END PROJECT -L- STA 16+00.00
END BRIDGE -L- STA 13+80.00
CLASS I RIPRAP EST. ±2 TONS
NOTE: INSTALL 6" DECK DRAIN SYSTEM 12' OC FROM BEGIN BRIDGE TO END BRIDGE RT & TO STA 12+30 LT.
NOTE: SHOULDER BERM GUTTER -L- STA 13+84.75 (RT) TO -L- STA 14+19.75 (RT)
BRIDGE TO BE REMOVED
BEGIN CONST. -Y- STA 11+80.00
BEGIN BRIDGE -L- STA 10+15.00
BEGIN PROJECT -L- STA 10+10.00
END PAVING CONST. -Y- STA 13+20.00
-L- POT Sta. 10+00.00=
-Y- POC Sta. 12+51.06
END GUARDRAIL CONST. -Y- STA 15+92.47
PT Sta. 15+70.51
PCC Sta. 13+41.09
PRC Sta. 13+02.24
PC Sta. 11+48.47
POT Sta. 10+00.00 -BYI-10 8+03.75 PINC
-BY-2 9+31.60 PINC
BL-3 5+00.00 POT -BY- 14+78.92 PINC
PC Sta. 13+28.78
PT Sta. 14+64.14
PC Sta. 15+70.58
PT Sta. 16+41.30
POT Sta. 17+41.07
-BYI-7 16+31.79 PINC
S 68° 48' 37.3" E
S 64° 29' 10.0" E
S 70° 10' 46.8" E
S 45° 17' 03.2" E
N 63° 16' 00.8" E
N 44° 40' 33.9" E
S 4° 14' 39.2" W
S 21° 25' 19.0" E
S 22° 22' 20.2" E
S 26° 09' 25.9" E
S 21° 32' 05.8" E
S 19° 00' 09.9" E
TO PETERSON
TO RAMSEYTOWN
TO GREEN MTN.
TO RELIEF
Troy Hughes
Toe River F.W.B. Church
Phin Peterson
Herbert F. Dunning and wife Sheila K. Dunning
Barbara Miller
Stanley Tipton
MITCHELL COUNTY
YANCEY COUNTY
NAD 83
DETAIL 1 SPECIAL "V" DITCH
SEE SHEETS 5 & 6 FOR PROFILES

-L- CURVE DATA

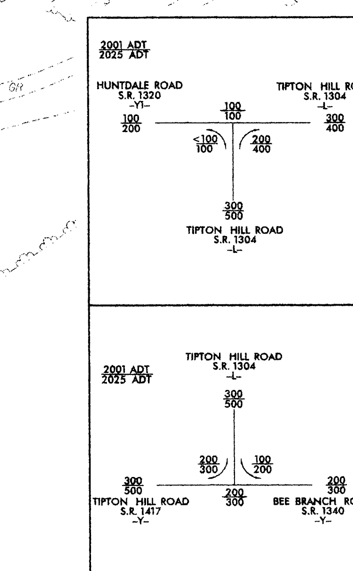
PI Sta 13+99.65	PI Sta 16+05.95
Δ = 41° 55' 21.9" (RT)	Δ = 4° 19' 27.3" (RT)
D = 30° 58' 14.5"	D = 6° 06' 53.3"
L = 135.36'	L = 70.72'
T = 70.87'	T = 35.38'
R = 185.00'	R = 937.00'
SE = 0.06	
RO = 34.34'	

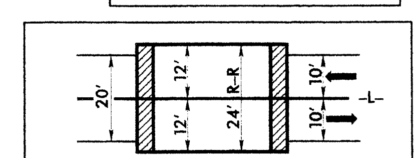
-Y- CURVE DATA

Sta 12+25.37	PI Sta 13+21.66	PI Sta 14+41.58
= 2° 36' 43.8" (LT)	Δ = 1° 26' 35.8" (RT)	Δ = 17° 18' 52.2" (RT)
= 1° 41' 55.6"	D = 3° 42' 52.7"	D = 8° 40' 52.3"
= 153.77'	L = 38.85'	L = 199.45'
= 76.90'	T = 19.43'	T = 100.49'
= 3,372.74'	R = 1,542.44'	R = 660.00'

-YI- CURVE DATA

PI Sta 12+08.00	PI Sta 14+05.07
Δ = 22° 54' 43.0" (LT)	Δ = 13° 07' 17.7" (RT)
D = 12° 02' 12.9"	D = 10° 59' 50.2"
L = 190.35'	L = 119.32'
T = 96.46'	T = 59.92'
R = 476.00'	R = 521.00'



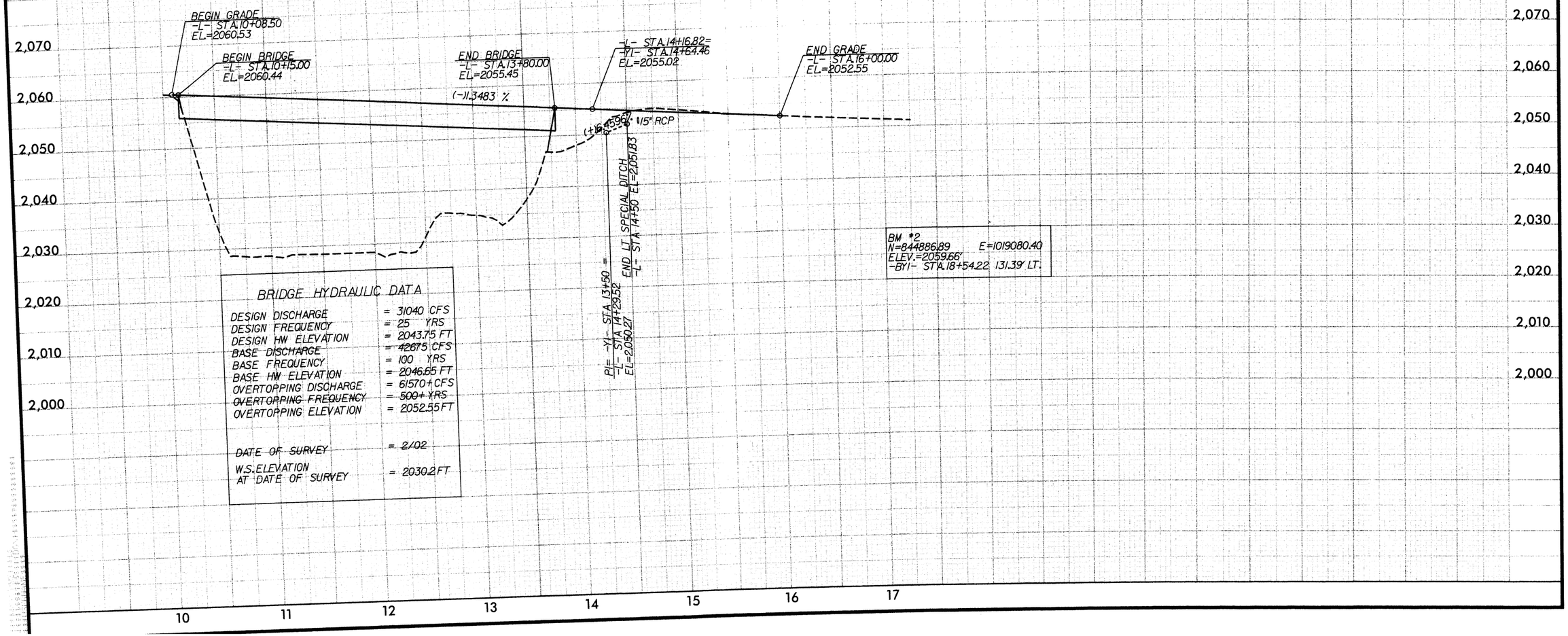


SKETCH SHOWING RELATIONSHIP OF PAVEMENT WIDTH TO BRIDGE WIDTH

SEE SHEETS 5 & 6 FOR PROFILES

PROJECT REFERENCE NO.	SHEET NO.
B-2848	5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



BRIDGE HYDRAULIC DATA

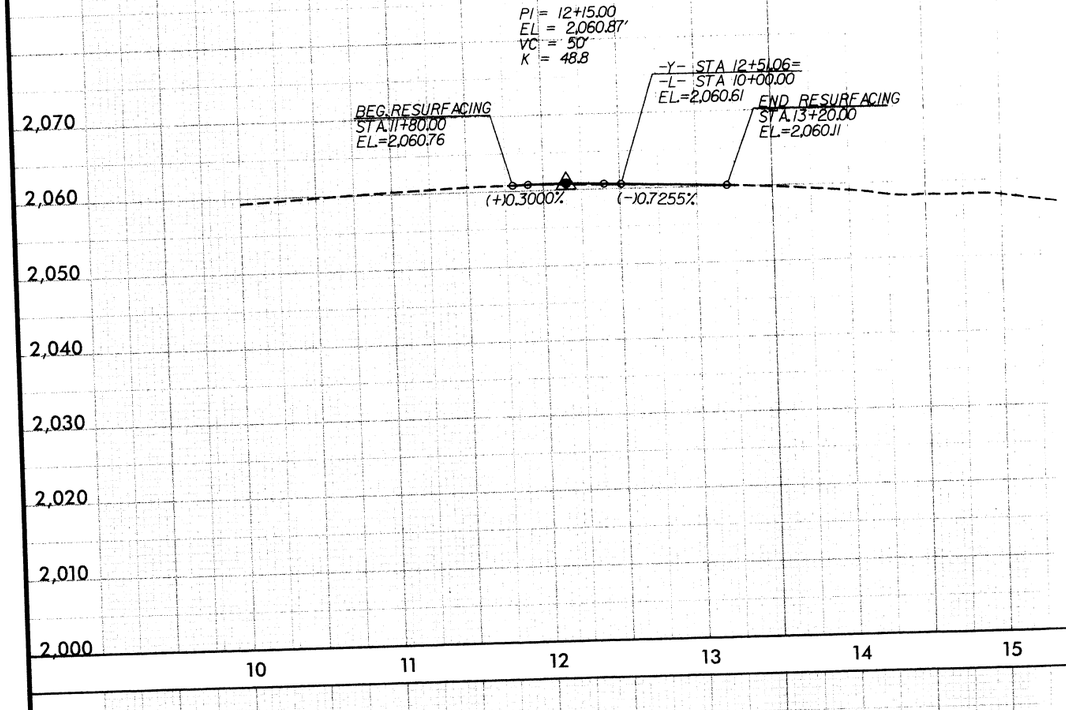
DESIGN DISCHARGE	= 31040 CFS
DESIGN FREQUENCY	= 25 YRS
DESIGN HW ELEVATION	= 2043.75 FT
BASE DISCHARGE	= 42675 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 2046.55 FT
OVERTOPPING DISCHARGE	= 61570+CFS
OVERTOPPING FREQUENCY	= 500+ YRS
OVERTOPPING ELEVATION	= 2052.55 FT
DATE OF SURVEY	= 2/02
W.S. ELEVATION AT DATE OF SURVEY	= 2030.2 FT

BM #2
N=844886.89 E=1019080.40
ELEV.=2059.66'
-BY1- STA.18+54.22 131.39' LT.

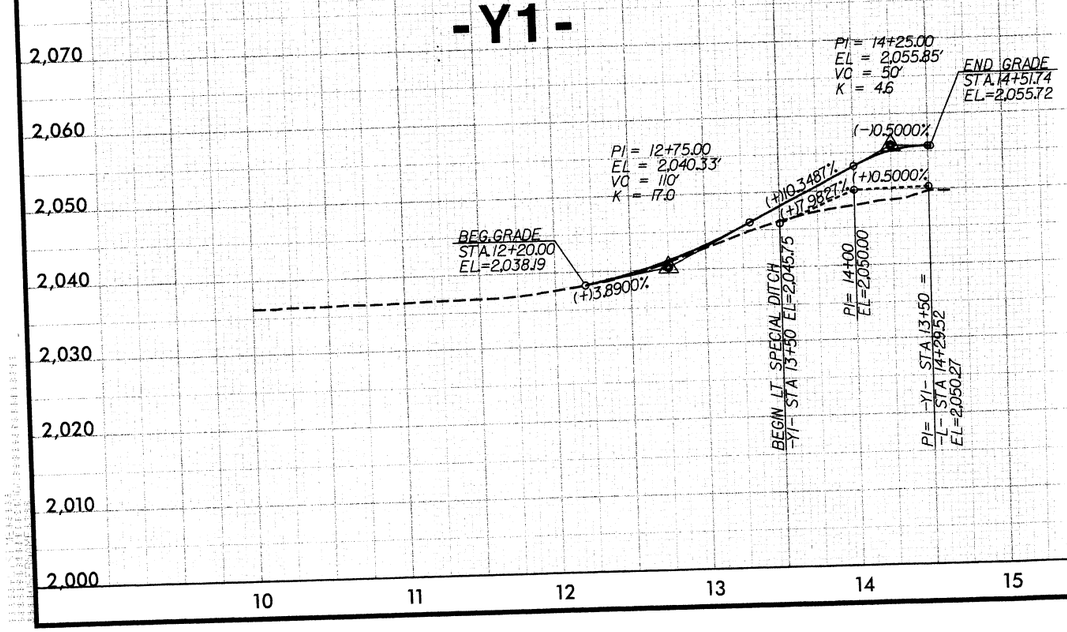
PROJECT REFERENCE NO.	SHEET NO.
B-2848	6
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y-



-Y1-



COMPUTED BY: ACC DATE: 4/23/02
CHECKED BY: RMS DATE: 4/23/02

PROJECT REFERENCE NO.	SHEET NO.
B-2848	X-1A

CROSS SECTION SUMMARY

IN CUBIC YARDS

-L- LOCATION	UNCLASSIFIED EXCAVATION	EMBT
14 + 00	0	256
14 + 50	51	334
15 + 00	123	14
15 + 50	109	0
16 + 00	37	0

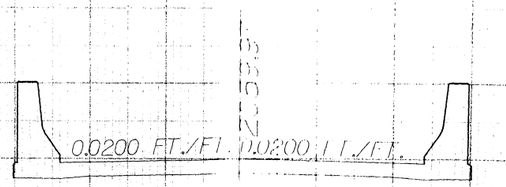
-Y- LOCATION	UNCLASSIFIED EXCAVATION	EMBT
12 + 00	0	0
12 + 50	0	0
13 + 00	0	1

-Y1- LOCATION	UNCLASSIFIED EXCAVATION	EMBT
12 + 50	110	0
13 + 00	336	41
13 + 50	208	77
14 + 00	56	259
14 + 50	0	447

0 5	PROJ. REFERENCE NO.	SHEET NO.
	B-2848	X-1

70 60 50 40 30 20 10 0 10 20 30 40 50 60 70

2070
2065
2060
2055
2050
2045
2040
2035
2030



2033.43
10+50.00

BEGIN BRIDGE
-L- STA 10+15

BEGIN PROJECT B-2848
-L- STA 10+10

2060.53
10+00.00

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L-

70 60 50 40 30 20 10 0 10 20 30 40 50 60 70

PROJ. REFERENCE NO.	SHEET NO.
B-2848	X-2

70 60 50 40 30 20 10 0 10 20 30 40 50 60 70

2065
2060
2055
2050
2045
2040
2035
2030
2025

0.0200 FT./FT. 0.0200 FT./FT.

2028.36
11+00.00

—L—

0 5	PROJ. REFERENCE NO.	SHEET NO.
	B-2848	X-3

70 60 50 40 30 20 10 0 10 20 30 40 50 60 70

2065
2060
2055
2050
2045
2040
2035
2030
2025

2058.52

0.0200 FT./FT. 0.0200 FT./FT.

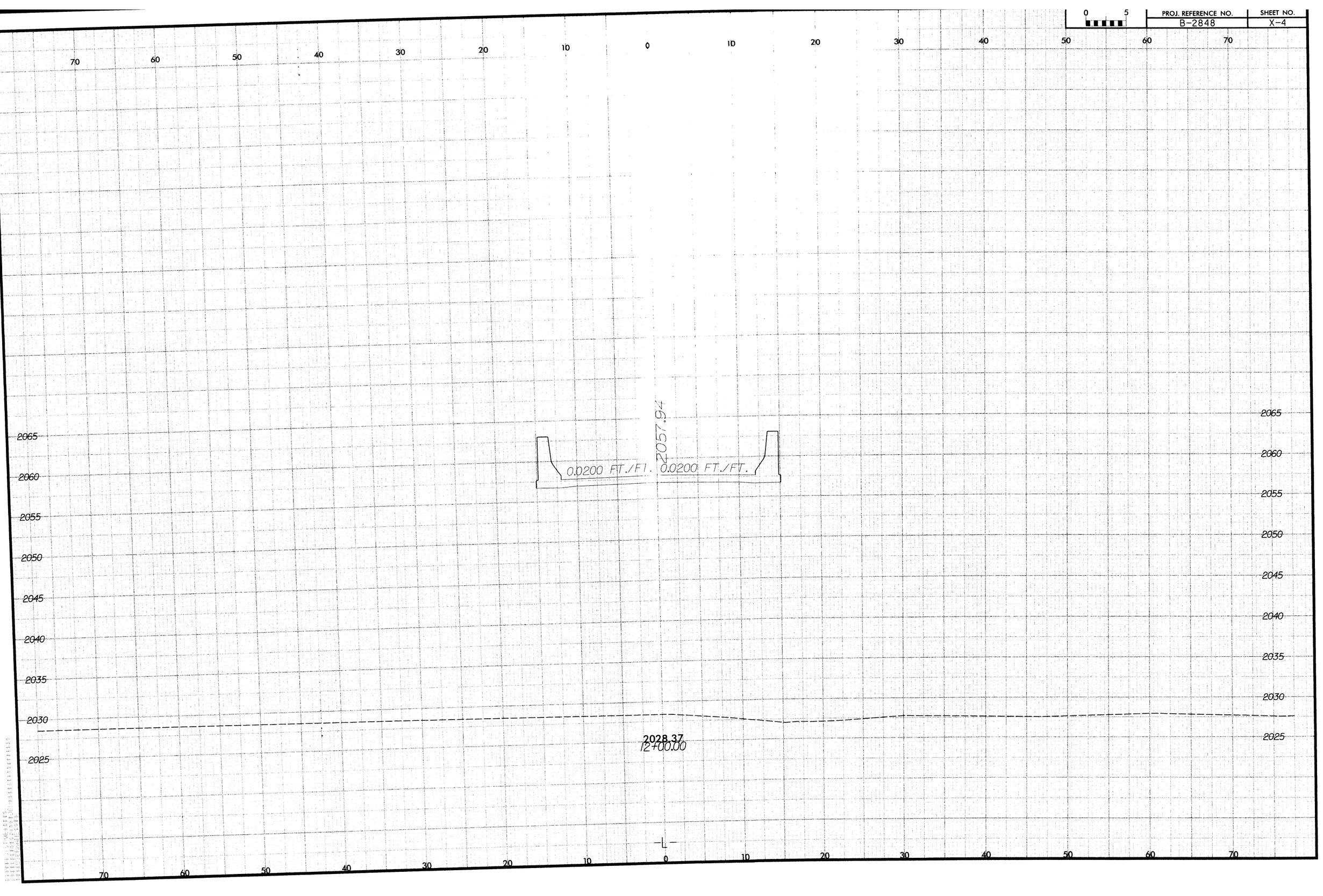
2028.37
11+50.00

-L-

70 60 50 40 30 20 10 0 10 20 30 40 50 60 70

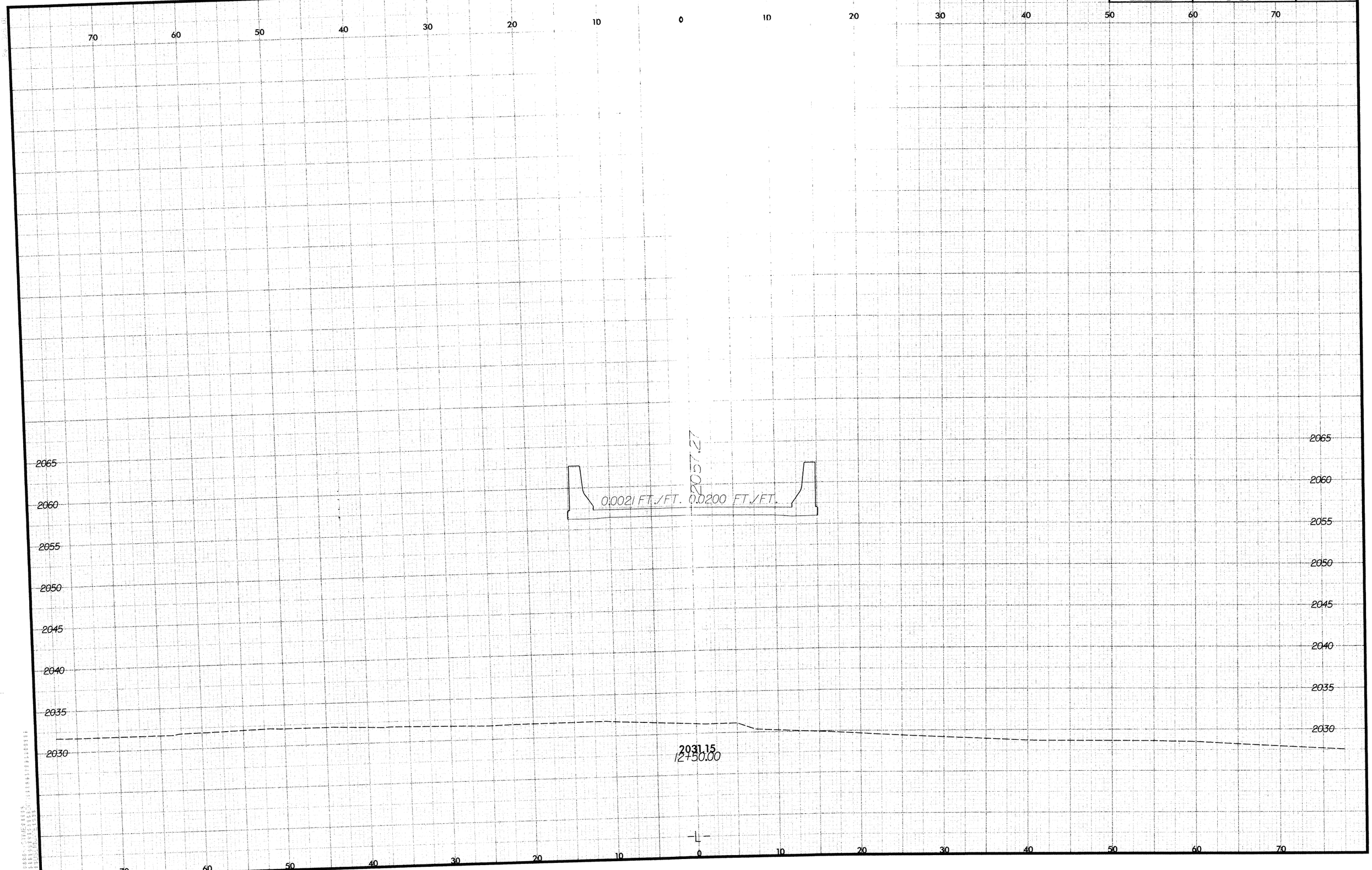
2065
2060
2055
2050
2045
2040
2035
2030
2025

0 5	PROJ. REFERENCE NO.	SHEET NO.
	B-2848	X-4



0 5

PROJ. REFERENCE NO.	SHEET NO.
B-2848	X-5



0 5	PROJ. REFERENCE NO.	SHEET NO.
	B-2848	X-6

70 60 50 40 30 20 10 0 10 20 30 40 50 60 70

2065 2060 2055 2050 2045 2040 2035

NOSECONE

0.0600 FT./FT. 0.0600 FT./FT.

2037.84
13+50.00

2065 2060 2055 2050 2045 2040 2035

2035.59

0.0312 FT./FT. 0.0312 FT./FT.

2035.05
13+00.00

70 60 50 40 30 20 10 0 10 20 30 40 50 60 70

0 5	PROJ. REFERENCE NO.	SHEET NO.
	B-2848	X-7

70 60 50 40 30 20 10 0 10 20 30 40 50 60 70

2060 2055 2050 2045 2040

6:1 0.0562 FT./FT. 0.0562 FT./FT. 4:1

2:1 2:1

2051.83 2054.21 2051.85

14+50.00

-L- STA 14+16.82 = -Y1- STA 14+64.46

2065 2060 2055 2050 2045 2040

2065.25

0.0600 FT./FT. 0.0600 FT./FT.

WIDENED SHOULDER

-Y1-

2:1

2048.03

14+00.00

END BRIDGE
-L- STA 13+80

-L-

70 60 50 40 30 20 10 0 10 20 30 40 50 60 70

0 5	PROJ. REFERENCE NO.	SHEET NO.
	B-2848	X-8

70 60 50 40 30 20 10 0 10 20 30 40 50 60 70

2060
2055
2050
2045
2040

6:1 0.0200 FT./FT. 0.0244 FT./FT. 6:1

2051.34 2053.22 2050.82

2053.28

15+50.00

6:1 0.0271 FT./FT. 0.0271 FT./FT. 6:1

2052.10 2053.90 2051.47

2054.42

15+00.00

—℄—

70 60 50 40 30 20 10 0 10 20 30 40 50 60 70

2060
2055
2050
2045
2040

0 5	PROJ. REFERENCE NO.	SHEET NO.
	B-2848	X-9

70 60 50 40 30 20 10 0 10 20 30 40 50 60 70

2060
2055
2050
2045
2040

2052.55

0 FT./FT. 0.0400 FT./FT.

2052.55

END PROJECT B-2848

16+00.00

70 60 50 40 30 20 10 0 10 20 30 40 50 60 70

PROJ. REFERENCE NO.	SHEET NO.
B-2848	X-10

BEGIN RESURFACING -Y- STA. 11+80.00

11+50.00

-Y-

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

0 5	PROJ. REFERENCE NO.	SHEET NO.
	B-2848	X-11

WIDENED SHOULDER 0.0100 FT./FT. 0.0100 FT./FT.

2060.81

2060.79

12+00.00

-Y-

PROJ. REFERENCE NO.	SHEET NO.
B-2848	X-12

0 5

70 60 50 40 30 20 10 0 10 20 30 40 50 60 70

2110 2105 2100 2095 2090 2085 2080 2075 2070 2065 2060 2055 2050 2045 2040 2035 2030

BEG. BRIDGE
℄ - STA 10+15.00
EL.=2060.44

2060.70

0.0100 FT./FT. 0.0100 FT./FT.

2060.53

12+50.00

-Y-

0 5	PROJ. REFERENCE NO.	SHEET NO.
	B-2848	X-13

END RESURFACING -Y- STA. 13+20.00

WIDENED SHOULDER

2060.25

2060.25

13+00.00

-Y-

B-2848 | X-14

70 60 50 40 30 20 10 0 10 20 30 40 50 60 70

2100 2095 2090 2085 2080 2075 2070 2065 2060 2055 2050 2045 2040 2035

13+50.00

-Y-

0 5	PROJ. REFERENCE NO.	SHEET NO.
	B-2848	X-15

70 60 50 40 30 20 10 0 10 20 30 40 50 60 70

2065 2060 2055 2050 2045 2040 2035

1.5:1

2039.62

0.02↑ FT./FT. 0.02↓ FT./FT.

6.005:1

2037.28 2037.72

12+50.00

BEGIN CONSTRUCTION B-2848
+Y1- STA 12+20

2060 2055 2050 2045 2040 2035 2030

12+00.00

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y1-

70 60 50 40 30 20 10 0 10 20 30 40 50 60 70

PROJ. REFERENCE NO.	SHEET NO.
B-2848	X-16

0 5

70 60 50 40 30 20 10 0 10 20 30 40 50 60 70

2060 2055 2050 2045 2040 2035

2045.09

2:1

0.0200 FT./FT.

0.0200 FT./FT.

WIDENED SHOULDER

2:1

2045.75

13+50.00

2065 2060 2055 2050 2045 2040 2035

2043.18

1.5:1

0.0212 FT./FT.

0.0212 FT./FT.

WIDENED SHOULDER

2:1

2040.83

13+00.00

-Y1-

70 60 50 40 30 20 10 0 10 20 30 40 50 60 70

0 5	PROJ. REFERENCE NO.	SHEET NO.
	B-2848	X-17

-Y1- STA 14+64.46 = -L- STA 14+16.82

2065.73

14+50.00

2053.27

6:1

0.0116 FT./FT.

0.0116 FT./FT.

WIDENED SHOULDER

2:1

2:1

2050.00

14+00.00

-Y1-