STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT L. MCCRORY
GOVERNOR

ANTHONY J. TATA
SECRETARY

July 12, 2013

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

ATTN: Mr. Lori Beckwith
NCDOT Coordinator

Subject: **Application for Section 404 Nationwide Permits 23 and 33** for the proposed replacement of Bridge No. 107 over the Tuckasegee River on SR 1797 in Jackson County, Federal Aid Project No. BRZ-1731(6); Division 14; TIP No. B-3861; WBS 33308.1.1

Reference: Section 404 Nationwide Permit Nos. 23 & 33, #2011-02360, issued February 23, 2012

Dear Ms. Beckwith:

The North Carolina Department of Transportation (NCDOT) is in the process of replacing Bridge No. 107 over the Tuckasegee River. The new bridge will be located on the existing alignment. Traffic will use a temporary detour bridge during construction. There will be 60 ft^2 of permanent stream impacts from bridge bents, 0.12 acre of temporary impacts from temporary work pads, 20 ft^2 of temporary impacts from the on site detour bridge and 10 ft^2 of temporary impacts from a temporary work bridge.

Due to an unusual amount of rain occurring in the past couple of months, there have been a couple of events at the construction site. A synopsis of the events follows below:

On the evening of May 4th and during the day of May 5th the project received 3" of rainfall and the Duke Energy Hydro Electric Plant released a significant amount of water in both the East Fork and West Fork of the Tuckasegee River. At this time the Contractor was using the temporary work bridge and the river was reduced to 50% of flow by the rip-rap causeway. Due to the excessive rain and the release of water from the Duke Hydro Plant both causeways were completely compromised and approximately 50% of the rip-rap causeway material was lost. The temporary work bridge was in use at this time and remained in place because it was cabled to H-piles which had been driven into the ground above the causeway work area.

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

TELEPHONE: 919-707-6000
FAX: 919-212-5785

WEBSITE:NCDOT.GOV

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

On the 7th of May the contractor removed the work bridge and began to take it apart in order to reconstruct the causeway. The causeway was completely reconstructed on the 9th of May and a concrete barrier rail was placed at the bottom of the causeway on end bent #2 in order to help hold the material in the event of another major rain event. The temporary work bridge was replaced and functional by the 15th of May.

On the day of July 3rd the project received 4.5" of rain. Throughout the night and through the day of July 4th the project received 5.5" inches of rain and the Duke Hydro Plant released a peak rate of 2830 cfs (cubic feet per second) in the West Fork and 3330 cfs in the East Fork of the Tuckasegee River. Approximately 50% of the causeway material was lost over the night of the 4th and throughout Friday the 5th. The contractor was instructed by the NCDOT on the evening of the July 4th to move the 35 ton Link-Belt crane to an area free of any flood risk. After the instruction, on the evening of the 4th, the Contractor moved the crane approximately 8' to 10' above the causeway on the End Bent #1 side of the project. However, because of the excessive rain and water released from the Duke Hydro Plant the causeway material was compromised and the area was washed out. Once the material was displaced the front end of the crane had no solid material to rest on and toppled into the river. The crane came to rest on the remaining substructure of the existing truss bridge and the boom of the crane came to rest across the temporary work bridge. Throughout the day of July 5th the contractor and NCDOT representatives monitored the water levels and coordinated with the Duke Hydro Plant in an effort to assess the damage and formulate a plan for the removal of the crane. Due to the unsafe work conditions presented by the high water levels the contractor was unable to begin the removal process until Monday the 8th. At this time the contractor removed the boom of the crane and repositioned the crane up on its tracks. On Tuesday the 9th the contractor contacted an Auto company in Clyde that specializes in the removal and towing of tractor trailers on I-40. Two of the company's wrecker trucks equipped with Rotator booms were dispatched to the project and assisted in the removal of the crane from the river.

On the day of July 10th the contractor had planned on proceeding with the removal of the temporary work bridge and the remaining substructure of the Truss bridge. The contractor was promptly stopped when it was brought to the Department's attention that the Nationwide permits had expired. No further in water work was allowed at this time. The contractor was made aware of upcoming storm event predictions and has planned to bring in another crane to remove the work bridge and complete the demo and removal of the existing truss bridge without being in the water.

At this time, the proposed plan to move forward with construction will be as follows:

- The temporary work bridge is being removed, and what is left of the existing structure can be removed by having the crane set at the top of the old end bents. The crane will not have to be on the causeway. This should take no more than 1 day.
- The contractor is planning to have a causeway in on both sides, which was allowed by the original plans. He is planning to have the drilled pier subcontractor work from the causeway at end bent #2 while the soil nail contractor was working from the causeway at end bent #1. Once this work was complete the drilled pier sub will move to the causeway on end bent #1. The causeway will need to be constructed to about 5' past the casings for the drilled piers. As soon as the drilled piers are complete this causeway can be pulled back 5' to 7' reducing the size of causeway

even further. This will allow restricting the river by 40% instead of 50% while drilling and only about 30-35% once drilling is complete. By reducing the footprint of the causeway, removing the temporary work bridge and lowering the causeway as much as possible, this should greatly reduce the "damming" affect in this area. This is the only way the contractor can get the work completed in the water before the trout moratorium starts in October. This plan for construction will greatly reduce the amount of time that we will have the causeway in the water, thus reducing the exposure time to be affected by these abnormally high rain events. It will also get the project permanently stabilized and vegetation established sooner without extending into another construction season.

- There will be jersey barriers placed around the upstream perimeter of the causeways in order to get the benefit of protection from the high flow events.

When construction is complete, the causeway rock (shot rock) that exists on the substrate downstream should be removed as much as reasonably possible. In addition, the banks where the causeways are located should be rebuilt to ensure stability (and if possible, with vegetation) along the previously unstable bank where the causeway wash out occurred. The Division will investigate the best method to accomplish stability along the banks.

Request for concurrence from the United States Fish and Wildlife Service (USFWS) is required prior to authorization by the Corps of Engineers. By copy of this letter NCDOT is requesting concurrence from the USFWS for the May Affect Not Likely to Adversely Affect biological conclusion for the Appalachian Elktoe.

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

Please see enclosed copies of the Pre-Construction Notification (PCN) Form, stormwater management plan, permit drawings and design plans. The Categorical Exclusion (CE) was completed on May 11, 2011. Documents were distributed shortly thereafter. Additional copies are available upon request.

If you have any questions or need additional information, please call Carla Dagnino at (919) 707-6110. A copy of this permit application and distribution list will be posted on the NCDOT Website at: http://connect.ncdot.gov/resources/Environemntal.

Sincerely,

for E. L. Luck

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

Cc:
NCDOT Permit Application Standard Distribution List

Office Use Only:
Corps action ID no. _____
DWQ project no. _____
Form Version 1.3 Dec 10 2008

Pre-Construction Notification (PCN) Form

A. Applicant Information

1. Processing

1a. Type(s) of approval sought from the Corps:	☒ Section 404 Permit	☐ Section 10 Permit
1b. Specify Nationwide Permit (NWP) number: 23 & 33 or General Permit (GP) number:		
1c. Has the NWP or GP number been verified by the Corps?	☐ Yes	☒ No

1d. Type(s) of approval sought from the DWQ (check all that apply):

☒ 401 Water Quality Certification – Regular ☐ Non-404 Jurisdictional General Permit

☐ 401 Water Quality Certification – Express ☐ Riparian Buffer Authorization

1e. Is this notification solely for the record because written approval is not required?	For the record only for DWQ 401 Certification: ☒ Yes ☐ No	For the record only for Corps Permit: ☐ Yes ☒ No
1f. Is payment into a mitigation bank or in-lieu fee program proposed for mitigation of impacts? If so, attach the acceptance letter from mitigation bank or in-lieu fee program.		☐ Yes ☒ No
1g. Is the project located in any of NC's twenty coastal counties. If yes, answer 1h below.		☐ Yes ☒ No
1h. Is the project located within a NC DCM Area of Environmental Concern (AEC)?		☐ Yes ☒ No

2. Project Information

2a. Name of project:	Replacement of Bridge no. 107 on SR 1731 over Tuckasegee River
2b. County:	Jackson
2c. Nearest municipality / town:	Cullowhee
2d. Subdivision name:	*not applicable*
2e. NCDOT only, T.I.P. or state project no:	B-3861

3. Owner Information

3a. Name(s) on Recorded Deed:	North Carolina Department of Transportation
3b. Deed Book and Page No.	*not applicable*
3c. Responsible Party (for LLC i f applicable):	*not applicable*
3d. Street address:	1598 Mail Service Center
3e. City, state, zip:	Raleigh, NC 27699-1598
3f. Telephone no.:	(919) 707-6000
3g. Fax no.:	(919) 212-5785
3h. Email address:	cdagnino@ncdot.gov

4. Applicant Information (if different from owner)	
4a. Applicant is:	☐ Agent ☐ Other, specify:
4b. Name:	*not applicable*
4c. Business name (if applicable):	
4d. Street address:	
4e. City, state, zip:	
4f. Telephone no.:	
4g. Fax no.:	
4h. Email address:	
5. Agent/Consultant Information (if applicable)	
5a. Name:	*not applicable*
5b. Business name (if applicable):	
5c. Street address:	
5d. City, state, zip:	
5e. Telephone no.:	
5f. Fax no.:	
5g. Email address:	

B. Project Information and Prior Project History		
1. Property Identification		
1a. Property identification no. (tax PIN or parcel ID):	*not applicable*	
1b. Site coordinates (in decimal degrees):	Latitude: 35.31222 (DD.DDDDDD)	Longitude: -81.165463 (-DD.DDDDDD)
1c. Property size:	2 acres	
2. Surface Waters		
2a. Name of nearest body of water (stream, river, etc.) to proposed project:	Tuckasegee River	
2b. Water Quality Classification of nearest receiving water:	WS-III, B, Tr	
2c. River basi n:	Little Tennessee	
3. Project Description		
3a. Describe the existing conditions on the site and the general land use in the vicinity of the project at the time of this application: Traffic currently uses a steel truss, fracture critical two lane bridge with a roadway width of 20 feet. The land use surrounding the proposed bridge replacement is rural in nature and consists of residential, forestland and agricultural land.		
3b. List the total estimated acreage of all existing wetlands on the property: 0		
3c. List the total estimated linear feet of all existing streams (intermittent and perennial) on the property: 150		
3d. Explain the purpose of the proposed project: To replace a structurally deficient and fracture critical structure that is approaching the end of its useful life.		
3e. Describe the overall project in detail, including the type of equipment to be used: The project involves replacing a single span, 144-foot long, 20-foot wide steel truss bridge with a three span, 157-foot, long, 33-foot wide bridge. Traffic will use an onsite detour during construction. Construction will require the use of work pads and a work bridge for construction of the new bridge and removal of the old bridge.		
4. Jurisdictional Determinations		
4a. Have jurisdictional wetland or stream determinations by the Corps or State been requested or obtained for this property / project (including all prior phases) in the past? Comments:	☐ Yes	☒ No ☐ Unknown
4b. If the Corps made the jurisdictional determination, what type of determination was made?	☐ Preliminary	☐ Final
4c. If yes, who delineated the jurisdictional areas? Name (if known): NCDOT	Agency/Consultant Company: Other:	
4d. If yes, list the dates of the Corps jurisdictional determinations or State determinations and attach documentation.		
5. Project History		
5a. Have permits or certifications been requested or obtained for this project (including all prior phases) in the past?	☒ Yes	☐ No ☐ Unknown
5b. If yes, explain in detail according to "help file" instructions.		
6. Future Project Plans		
6a. Is this a phased project?	☐ Yes	☒ No
6b. If yes, explain.		

C. Proposed Impacts Inventory

1. Impacts Summary

1a. Which sections were completed below for your project (check all that apply):

☐ Wetlands ☒ Streams - tributaries ☐ Buffers

☐ Open Waters ☐ Pond Construction

2. Wetland Impacts

If there are wetland impacts proposed on the site, then complete this question for each wetland area impacted.

2a. Wetland impact number – Permanent (P) or Temporary (T)	2b. Type of impact	2c. Type of wetland (if known)	2d. Forested	2e. Type of jurisdiction (Corps - 404, 10 DWQ – non-404, other)	2f. Area of impact (acres)
Site 1 ☐ P ☐ T			☐ Yes ☐ No	☐ Corps ☐ DWQ	
Site 2 ☐ P ☐ T			☐ Yes ☐ No	☐ Corps ☐ DWQ	
Site 3 ☐ P ☐ T			☐ Yes ☐ No	☐ Corps ☐ DWQ	
Site 4 ☐ P ☐ T			☐ Yes ☐ No	☐ Corps ☐ DWQ	
Site 5 ☐ P ☐ T			☐ Yes ☐ No	☐ Corps ☐ DWQ	
Site 6 ☐ P ☐ T			☐ Yes ☐ No	☐ Corps ☐ DWQ	
				2g. **Total wetland impacts**	0 Permanent 0 Temporary

2h. Comments:

3. Stream Impacts

If there are perennial or intermittent stream impacts (including temporary impacts) proposed on the site, then complete this question for all stream sites impacted.

3a. Stream impact number - Permanent (P) or Temporary (T)	3b. Type of impact	3c. Stream name	3d. Perennial (PER) or intermittent (INT)?	3e. Type of jurisdiction (Corps - 404, 10 DWQ – non-404, other)	3f. Average stream width (feet)	3g. Impact length (linear feet)
Site 1 ☐ P ☒ T	Temporary Fill	Tuckasegee River	☒ PER ☐ INT	☒ Corps ☐ DWQ	90	0.12 acre
Site 2 ☒ P ☐ T	Fill*	Tuckasegee River	☒ PER ☐ INT	☒ Corps ☐ DWQ	90	60 square feet (0.001 acre)
Site 3 ☐ P ☒ T	Fill	Tuckasegee River	☒ PER ☐ INT	☒ Corps ☐ DWQ	90	20 square feet (0.0005 acre)
Site 4 ☐ P ☒ T	Fill	Tuckasegee River	☒ PER ☐ INT	☒ Corps ☐ DWQ	90	10 square feet (0.0002 acre)
Site 5 ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
Site 6 ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
					3h. **Total stream and tributary impacts**	Perm: 0.001 acre Temp: ~0.12 acre

3i. Comments: *Replacement bridge bents are composed of two interior bents with 3-36" drilled piers in the Tuckasegee River

4. Open Water Impacts

If there are proposed impacts to lakes, ponds, estuaries, tributaries, sounds, the Atlantic Ocean, or any other open water of the U.S. then individually list all open water impacts below.

4a. Open water impact number – Permanent (P) or Temporary (T)	4b. Name of waterbody (if applicable)	4c. Type of impact	4d. Waterbody type	4e. Area of impact (acres)
O1 ☐ P ☐ T				
O2 ☐ P ☐ T				
O3 ☐ P ☐ T				
O4 ☐ P ☐ T				
			4f. Total open water impacts	X Permanent X Temporary

4g. Comments:

5. Pond or Lake Construction

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

5a. Pond ID number	5b. Proposed use or purpose of pond	5c. Wetland Impacts (acres)			5d. Stream Impacts (feet)			5e. Upland (acres)
		Flooded	Filled	Excavated	Flooded	Filled	Excavated	Flooded
P1								
P2								
	5f. Total							

5g. Comments:

5h. Is a dam high hazard permit required?	☐ Yes ☐ No If yes, permit ID no:
5i. Expected pond surface area (acres):	
5j. Size of pond watershed (acres):	
5k. Method of construction:	

6. Buffer Impacts (for DWQ)

If project will impact a protected riparian buffer, then complete the chart below. If yes, then individually list all buffer impacts below. If any impacts require mitigation, then you **MUST** fill out Section D of this form.

6a. Project is in which protected basin?			☐ Neuse ☐ Catawba	☐ Tar-Pamlico ☐ Randleman	☐ Other:
6b. Buffer impact number – Permanent (P) or Temporary (T)	6c. Reason for impact	6d. Stream name	6e. Buffer mitigation required?	6f. Zone 1 impact (square feet)	6g. Zone 2 impact (square feet)
B1 ☐ P ☐ T			☐ Yes ☐ No		
B2 ☐ P ☐ T			☐ Yes ☐ No		
B3 ☐ P ☐ T			☐ Yes ☐ No		
		6h. **Total buffer impacts**			
6i. Comments:					

D. Impact Justification and Mitigation

1. Avoidance and Minimization

1a. Specifically describe measures taken to avoid or minimize the proposed impacts in designing project.

No deck drains will discharge into the Tuckasegee River. Design Standards for Sensitive Watersheds. The new bridge elevation will be raised approximately 1-foot to prevent any changes to upstream flood potential.

1b. Specifically describe measures taken to avoid or minimize the proposed impacts through construction techniques.

Best Management Practices will be followed during construction. Construction will be phased such that no more than half of the channel will be blocked by the work pads. A moratorium for in stream construction during the trout spawning period of October 15 to April 15 will be implemented.

2. Compensatory Mitigation for Impacts to Waters of the U.S. or Waters of the State

2a. Does the project require Compensatory Mitigation for impacts to Waters of the U.S. or Waters of the State?	☐ Yes ☒ No If no, explain: The only permanent impacts that occur are from bridge bents. All other impacts are temporary.
2b. If yes, mitigation is required by (check all that apply):	☐ DWQ ☐ Corps
2c. If yes, which mitigat ion option will be used for this project?	☐ Mitigation bank ☐ Payment to in-lieu fee program ☐ Permittee Responsible Mitigation

3. Complete if Using a Mitigation Bank

3a. Name of Mitigation Bank: not applicable

3b. Credits Purchased (attach receipt and letter)	Type	Quantity

3c. Comments:

4. Complete if Making a Payment to In-lieu Fee Program

4a. Approval letter from in-lieu fee program is attached.	☐ Yes
4b. Stream mitigation requested:	linear feet
4c. If using stream mitigation, stream temperature:	☐ warm ☐ cool ☐ cold
4d. Buffer mitigation requested (DWQ only):	0 square feet
4e. Riparian wetland mitigation requested:	0 acres
4f. Non-riparian wetland mitigation requested:	0 acres
4g. Coastal (tidal) wetland mitigation requested:	0 acres

4h. Comments:

5. Complete if Using a Permittee Responsible Mitigation Plan

5a. If using a permittee responsible mitigation plan, provide a description of the proposed mitigation plan.

6. **Buffer Mitigation (State Regulated Riparian Buffer Rules) – required by DWQ**				
6a. Will the project result in an impact within a protected riparian buffer that requires buffer mitigation?			☐ Yes	☒ No
6b. If yes, then identify the square feet of impact to each zone of the riparian buffer that requires mitigation. Calculate the amount of mitigation required.				
Zone	6c. Reason for impact	6d. Total impact (square feet)	Multiplier	6e. Required mitigation (square feet)
Zone 1			3 (2 for Catawba)	
Zone 2			1.5	
	6f. **Total buffer mitigation required:**			
6g. If buffer mitigation is required, discuss what type of mitigation is proposed (e.g., payment to private mitigation bank, permittee responsible riparian buffer restoration, payment into an approved in-lieu fee fund).				
6h. Comments:				

E. Stormwater Management and Diffuse Flow Plan (required by DWQ)	
1. Diffuse Flow Plan	
1a. Does the project include or is it adjacent to protected riparian buffers identified within one of the NC Riparian Buffer Protection Rules?	☐ Yes ☒ No
1b. If yes, then is a diffuse flow plan included? If no, explain why. Comments: NA	☐ Yes ☐ No
2. Stormwater Management Plan	
2a. What is the overall percent imperviousness of this project?	N/A
2b. Does this project require a Stormwater Management Plan?	☒ Yes ☐ No
2c. If this project DOES NOT require a Stormwater Management Plan, explain why:	
2d. If this project DOES require a Stormwater Management Plan, then provide a brief, narrative description of the plan: See attached	
2e. Who will be responsible for the review of the Stormwater Management Plan?	☐ Certified Local Government ☐ DWQ Stormwater Program ☒ DWQ 401 Unit
3. Certified Local Government Stormwater Review	
3a. In which local government's jurisdiction is this project?	not applicable
3b. Which of the following locally-implemented stormwater management programs apply (check all that apply):	☐ Phase II ☐ NSW ☐ USMP ☐ Water Supply Watershed ☐ Other:
3c. Has the approved Stormwater Management Plan with proof of approval been attached?	☐ Yes ☐ No
4. DWQ Stormwater Program Review	
4a. Which of the following state-implemented stormwater management programs apply (check all that apply):	☐ Coastal counties ☐ HQW ☐ ORW ☐ Session Law 2006-246 ☐ Other:
4b. Has the approved Stormwater Management Plan with proof of approval been attached?	☐ Yes ☐ No
5. DWQ 401 Unit Stormwater Review	
5a. Does the Stormwater Management Plan meet the appropriate requirements?	☐ Yes ☐ No NA
5b. Have all of the 401 Unit submittal requirements been met?	☐ Yes ☐ No NA

F. Supplementary Information		
1. Environmental Documentation (DWQ Requirement)		
1a. Does the project involve an expenditure of public (federal/state/local) funds or the use of public (federal/state) land?	☒ Yes	☐ No
1b. If you answered "yes" to the above, does the project require preparation of an environmental document pursuant to the requirements of the National or State (North Carolina) Environmental Policy Act (NEPA/SEPA)?	☒ Yes	☐ No
1c. If you answered "yes" to the above, has the document review been finalized by the State Clearing House? (If so, attach a copy of the NEPA or SEPA final approval letter.) Comments:	☒ Yes	☐ No
2. Violations (DWQ Requirement)		
2a. Is the site in violation of DWQ Wetland Rules (15A NCAC 2H .0500), Isolated Wetland Rules (15A NCAC 2H .1300), DWQ Surface Water or Wetland Standards, or Riparian Buffer Rules (15A NCAC 2B .0200)?	☐ Yes	☒ No
2b. Is this an after-the-fact permit application?	☐ Yes	☒ No
2c. If you answered "yes" to one or both of the above questions, provide an explanation of the violation(s):		
3. Cumulative Impacts (DWQ Requirement)		
3a. Will this project (based on past and reasonably anticipated future impacts) result in additional development, which could impact nearby downstream water quality?	☐ Yes ☒ No	
3b. If you answered "yes" to the above, submit a qualitative or quantitative cumulative impact analysis in accordance with the most recent DWQ policy. If you answered "no," provide a short narrative description. Due to the minimal transportation impacts resulting from this bridge replacement, this project will neither influence nearby land uses nor stimulate growth. Therefore, a detailed indirect and cumulative effects study will not be necessary.		
4. Sewage Disposal (DWQ Requirement)		
4a. Clearly detail the ultimate treatment methods and disposition (non-discharge or discharge) of wastewater generated from the proposed project, or available capacity of the subject facility. not applicable		

5. Endangered Species and Designated Critical Habitat (Corps Requirement)		
5a. Will this project occur in or near an area with federally protected species or habitat?	☒ Yes	☐ No
5b. Have you checked with the USFWS concerning Endangered Species Act impacts?	☒ Yes	☐ No
5c. If yes, ind icate the USFWS Field Office you have contacted.	☐ Raleigh ☒ Asheville	
5d. What data sources did you use to determine whether your site would impact Endangered Species or Designated Critical Habitat? USFWS web page of T&E species for Jackson County NHP database of elemental occurrences. Surveys have been conducted for all species known to occur in Jackson County for the CE. All species originally received a Biological Conclusion of "No Effect" in the CE. Following the completion of the CE, the USFWS requested that the NCDOT change the biological conclusion for the Appalachian elktoe to "May affect, not likely to adversely affect" Additional concurrence from the USFWS is pending.		
6. Essential Fish Habitat (Corps Requirement)		
6a. Will this project occur in or near an area designated as essential fish habitat?	☐ Yes	☒ No
6b. What data sources did you use to determine whether your site would impact Essential Fish Habitat? NMFS County Index		
7. Historic or Prehistoric Cultural Resources (Corps Requirement)		
7a. Will this project occur in or near an area that the state, federal or tribal governments have designated as having historic or cultural preservation status (e.g., National Historic Trust designation or properties significant in North Carolina history and archaeology)?	☒ Yes	☐ No
7b. What data sources did you use to determine whether your site would impact historic or archeological resources? MOA between NCDOT and SHPO, dated October 8, 2001		
8. Flood Zone Designation (Corps Requirement)		
8a. Will this project occur in a FEMA-designated 100-year floodplain?	☒ Yes	☐ No
8b. If yes, explain how project meets FEMA requirements: By building the new bridge in the same location as the old bridge and raising the elevation, no impacts are expected to occur to upstream flooding.		
8c. What source(s) did you use to make the floodplain determination? NCDOT Hydraulics Unit Coordination w/ FEMA		

Dr. Gregory J. Thorpe, Ph D Applicant/Agent's Printed Name	E. L. Luer Applicant/Agent's Signature (Agent's signature is valid only if an authorization letter from the applicant is provided.)	July 12, 2013 Date

NCDOT Highway Stormwater Program

Released: July 2010 (DRAFT)

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

Version 1.1

General Project Information

Project No.:	B-3861		**Date:**	8/12/2011		
City/Town:			**Designer:**	PA		
County(ies):	Jackson County		**Project Manager:**	JWT		
River Basin(s):	**Little Tennessee**		**CAMA County?**	no	**TVA County?**	yes
Primary Receiving Water:	Tuckasegee R.		**NCDWQ Stream Index:**			
NCDWQ Surface Water Classification for Primary Receiving Water		**Primary:**	WS-III Protected B Tr			
		Supplemental:				
Other Stream Classification:						
303(d) Stream?	no	**Type(s) of Impairment:**				
State Stormwater Permit Required?	no	**If yes, why?**				
Could the Project Impact Threatened or Endangered Species?			no			
Description:						
Anadromous Fish Present?	**no**					
Description:						
Buffer Rules in Effect?	no		**Buffer Rules:**			

Existing Site

Description of Existing Project Area:	Rural/sparse residential
Average Daily Traffic (existing):	
Existing Cross Section:	2-lane 2-way
Surrounding Land Use:	
General Comments:	Existing bridge is a truss-type bridge with direct discharge into the water.

Project Description

Description of Proposed Project:	Bridge replacement with minimal approach work		
Average Daily Traffic (proposed):			
Proposed Cross-Section:	2-lane 2-way		
Interchange Modification:		**Median Type:**	
Terminus:			
Terminus:			
Project Length (lin. miles/feet):		**Added Impervious Area (ac.):**	
General Comments:	Deck drains have been omitted over the Tuckasegee R. The project has one pipe outlet collecting a small amount of bridge/road discharge which is discharged on the abutment rip rap; terrain and site conditions do not permit any treatment options (roads run along both banks). There are no ditches associated with this project. There are no wetlands on the project, and no permanent surface water impacts (other than proposed bridge interior bents). Temporary impacts associated with temp. work pads are shown on permit dwgs.		

See Sheet 1-A For Index of Sheets

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

JACKSON COUNTY

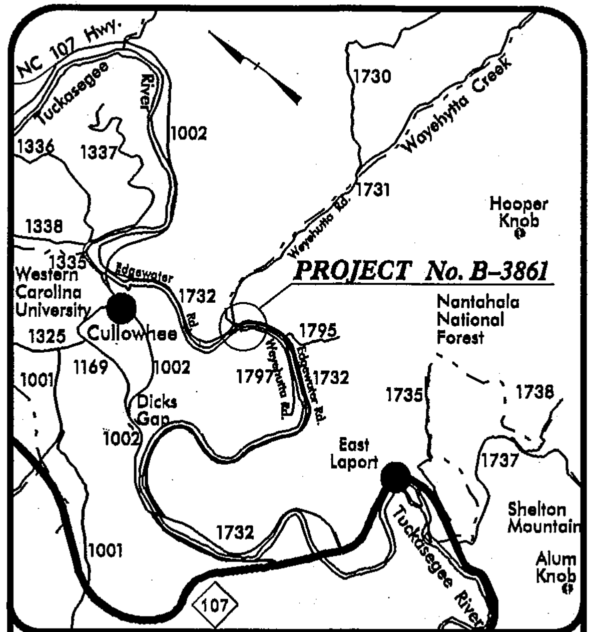
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3861	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33308.1.1	BRZ-1731 (6)	P.E.	
		R/W & UTILITIES	
		CONSTRUCTION	

ENGLISH

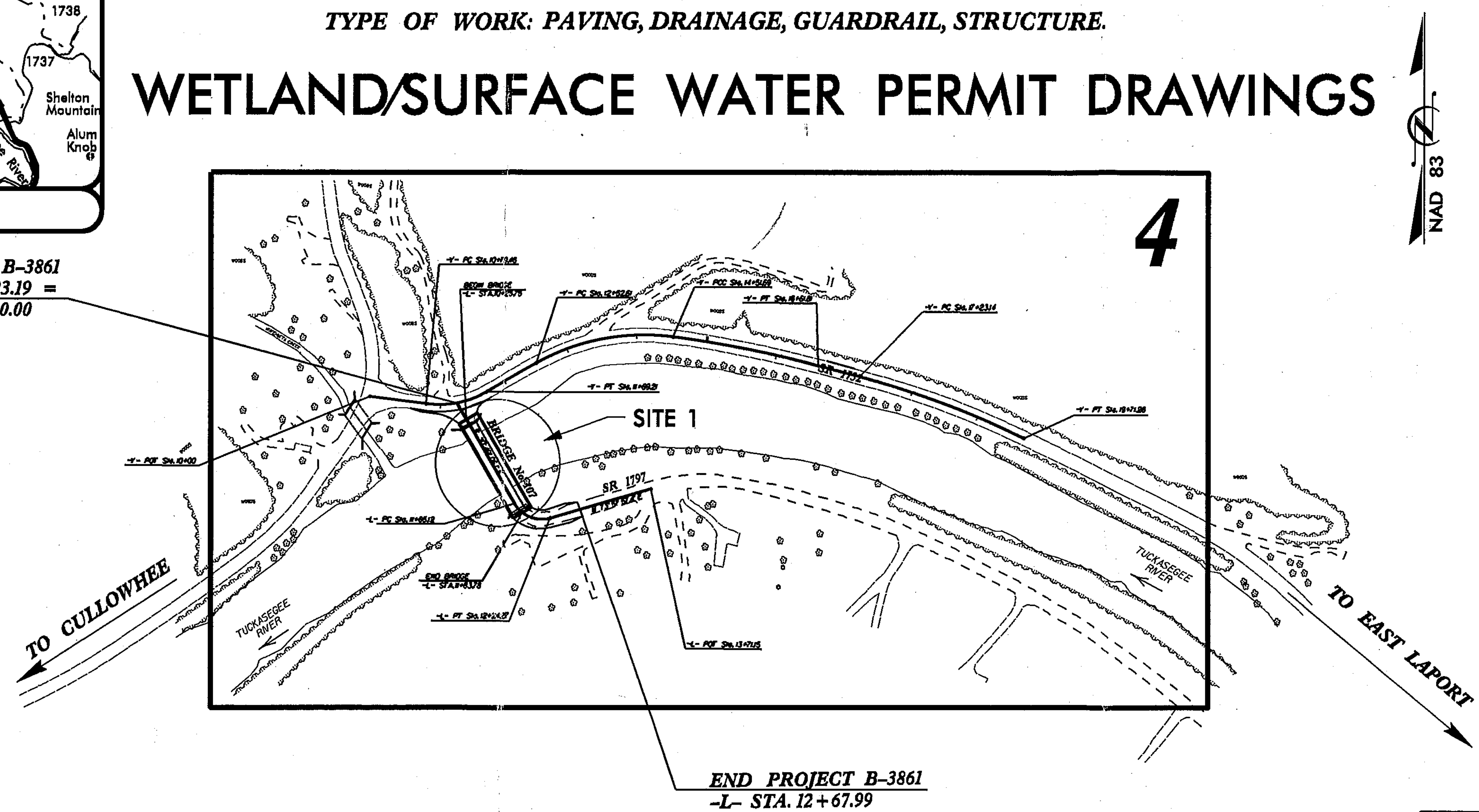
LOCATION: REPLACEMENT OF BRIDGE No. 107 ON SR 1797 OVER TUCKASEGEE RIVER.

TYPE OF WORK: PAVING, DRAINAGE, GUARDRAIL, STRUCTURE.

WETLAND/SURFACE WATER PERMIT DRAWINGS



VICINITY MAP



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

Permit Drawing Sheet 1 of 6

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

TIP PROJECT: B-3861

CONTRACT: 33308.1.1

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 2010 = 320
ADT 2030 = 560
DHV = 10 %
D = 60 %
T = 4 % *
V = 15 MPH
*TTST = 2% DUAL = 2%

FUNC. CLASS. = LOCAL SUB-TIER DESIGN

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT No. B-3861 = 0.021 Miles.
LENGTH STRUCTURE TIP PROJECT No B-3861 = 0.030 Miles.

TOTAL LENGTH TIP PROJECT No. B-3861 = 0.051 Miles.

NOTE: THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.

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

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: June 15, 2011

LETTING DATE: JULY 17, 2012

J. S. GOODNIGHT, PE — PROJECT ENGINEER

S. D. KENDALL, PE — PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE HIGHWAY DESIGN ENGINEER P.E.

09/08/99

$$$$SYSTIME$$$$ $$$$USERNAME$$$$ $$$$DGN$$$$

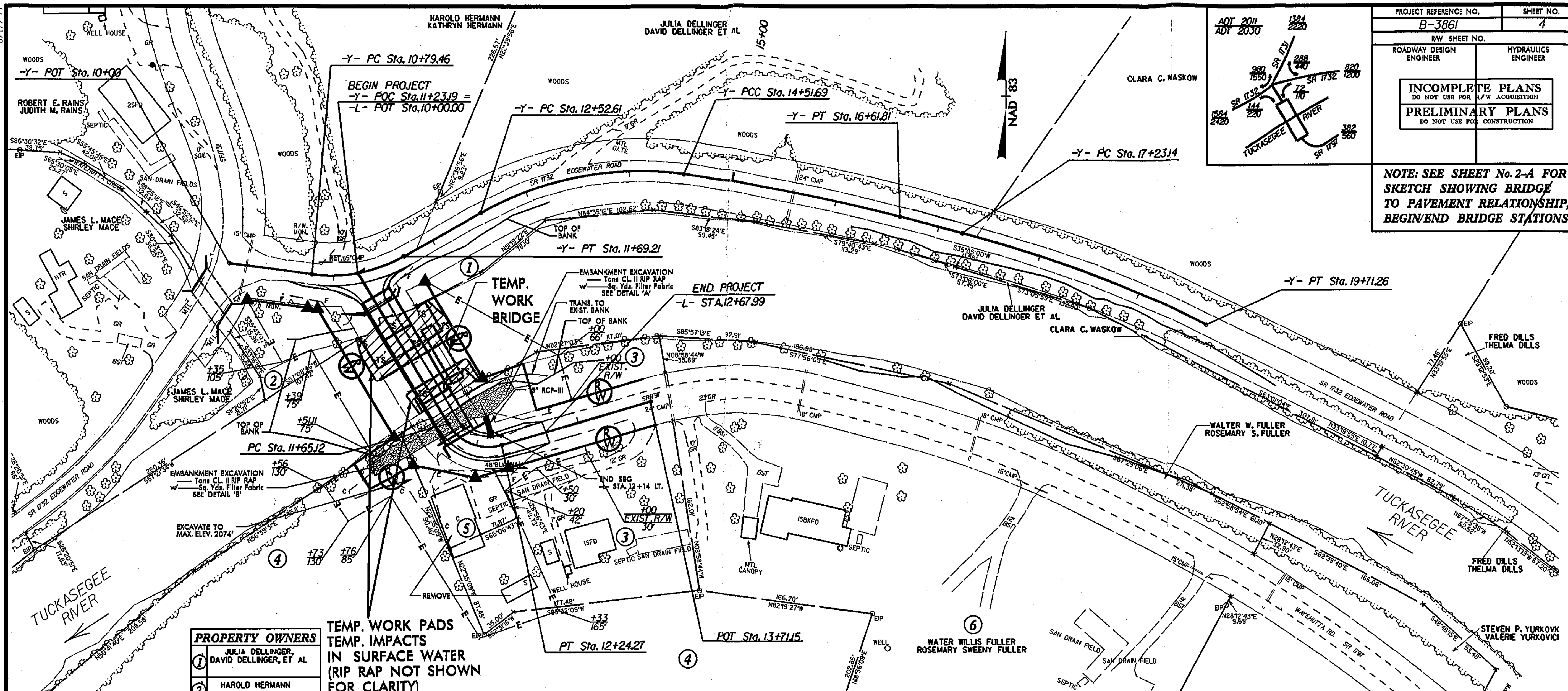
8/17/99

PROJECT REFERENCE NO.	SHEET NO.
B-3861	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

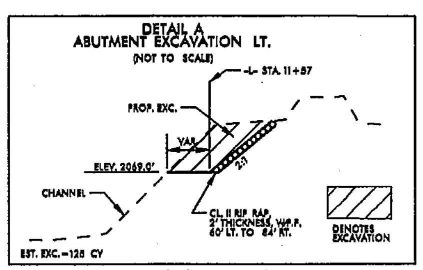
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NOTE: SEE SHEET No. 2-A FOR SKETCH SHOWING BRIDGE TO PAVEMENT RELATIONSHIP, BEGIN/END BRIDGE STATIONS.

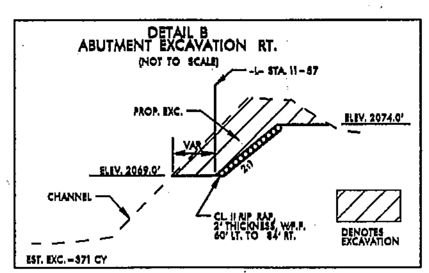


TEMP. WORK PADS
TEMP. IMPACTS
IN SURFACE WATER
(RIP RAP NOT SHOWN FOR CLARITY)

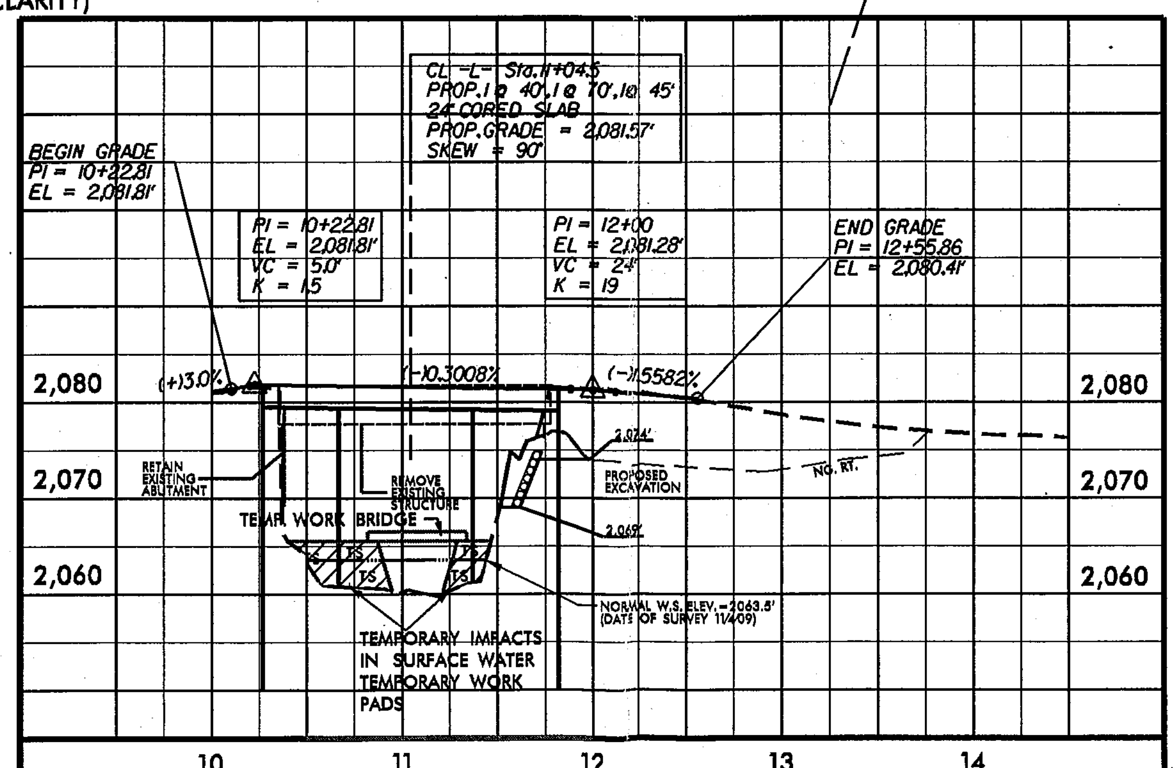
PROPERTY OWNERS	
1	JULIA DELLINGER, DAVID DELLINGER, ET AL
2	HAROLD HERMANN
3	FRANK J. BRYSON, Jr.
4	CLYDE L. BRYSON



-L- STA. 11+50 TO STA. 12+75, 60' LT. TO 20' LT.



-L- STA. 11+50 TO STA. 11+95, 20' LT. TO 84' RT.



BRIDGE HYDRAULIC DATA
Bridge No. 107

DESIGN DISCHARGE	=	22,620	CFS
DESIGN FREQUENCY	=	50	YR
DESIGN HW ELEVATION	=	2,081.27	FT
BASE DISCHARGE	=	28,985	CFS
BASE FREQUENCY	=	100	YR
BASE HW ELEVATION	=	2,082.17	FT
OVERTOPPING DISCHARGE	=	20,000	CFS
OVERTOPPING FREQUENCY	=	25 +	YR
OVERTOPPING ELEVATION	=	2,078.0	FT

NOTE: WATER LEVEL WILL FLUCTUATE BASED ON RELEASE RATE FROM DAM UPSTREAM. CONTRACTOR WILL NEED TO COORDINATE WITH OWNER OF DAM FOR TIME AND RELEASE RATE.

Permit Drawing Sheet 2 of 6

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

100' 0' 100'
GRAPHIC SCALE

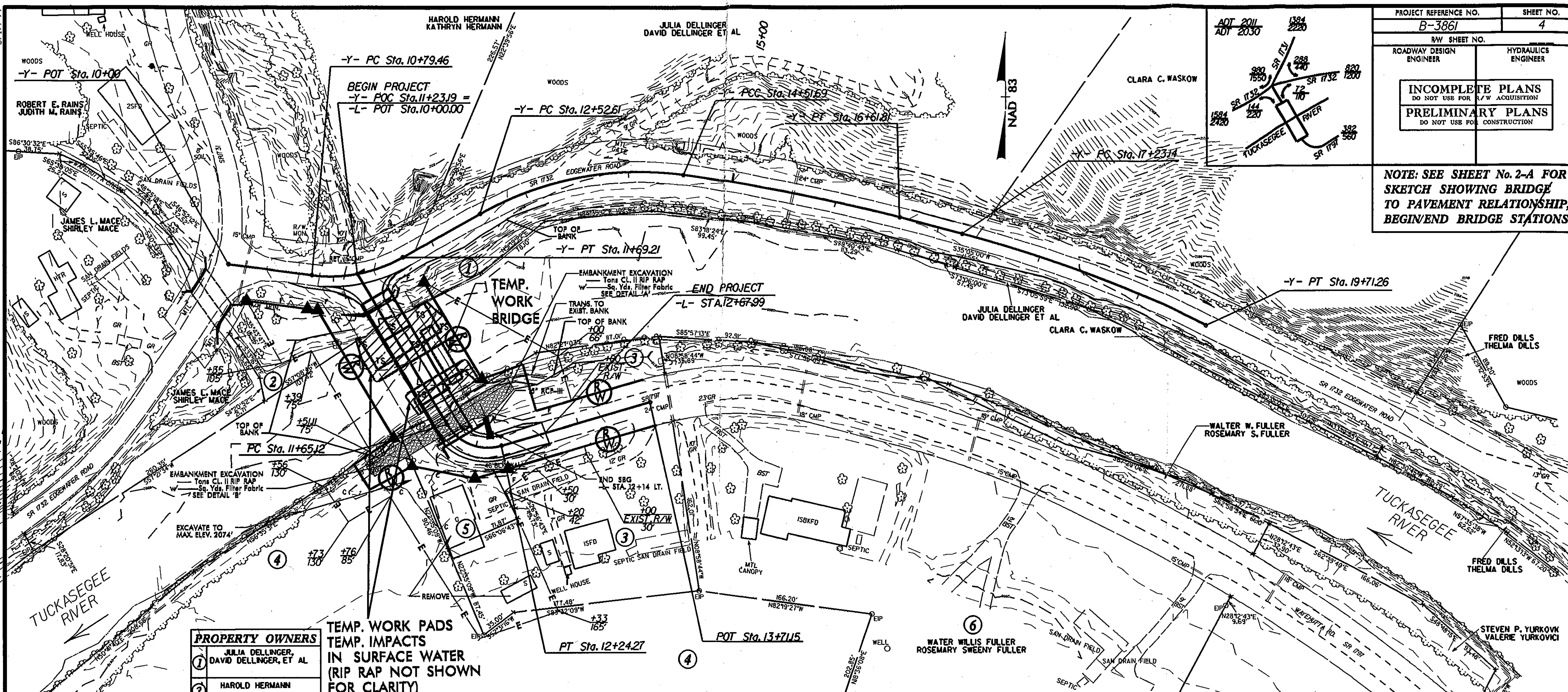
$$$$$$SYSTIME$$$$$ $$$$$$$$$$$$$$$$$$$$$DGN$$$$ $$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
B-3861	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

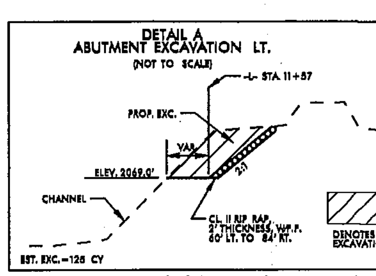
NOTE: SEE SHEET No. 2-A FOR SKETCH SHOWING BRIDGE TO PAVEMENT RELATIONSHIP, BEGIN/END BRIDGE STATIONS.



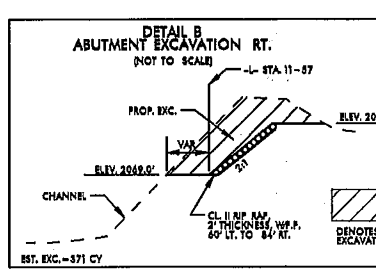
-Y- POT Sta. 10+00
-Y- PC Sta. 10+79.46
BEGIN PROJECT
-Y- POC Sta. 11+23.19 =
-L- POT Sta. 10+00.00
-Y- PC Sta. 12+52.61
PCC Sta. 14+51.69
-Y- PT Sta. 16+61.81
-Y- PC Sta. 17+23.14
-Y- PT Sta. 11+69.21
END PROJECT
-L- STA. 12+67.99
-Y- PT Sta. 19+71.26
PC Sta. 11+65.12
PT Sta. 12+24.27
POT Sta. 13+71.15
TEMP. WORK BRIDGE
TEMP. WORK PADS
TEMP. IMPACTS IN SURFACE WATER
(RIP RAP NOT SHOWN FOR CLARITY)
HAROLD HERMANN
KATHRYN HERMANN
JULIA DELLINGER
DAVID DELLINGER ET AL
CLARA C. WASKOW
ROBERT E. RAINS
JUDITH M. RAINS
JAMES L. MACE
SHIRLEY MACE
WALTER W. FULLER
ROSEMARY S. FULLER
WATER WILLIS FULLER
ROSEMARY SWEENY FULLER
FRED DILLS
THELMA DILLS
STEVEN P. YURKOVICH
VALERIE YURKOVICH
TUCKASEGEE RIVER
SR 1732 EDGEWATER ROAD
NAD 83
WOODS
EMBANKMENT EXCAVATION
EXCAVATE TO MAX. ELEV. 2074'
REMOVE
ADT 2011
ADT 2030

PROPERTY OWNERS

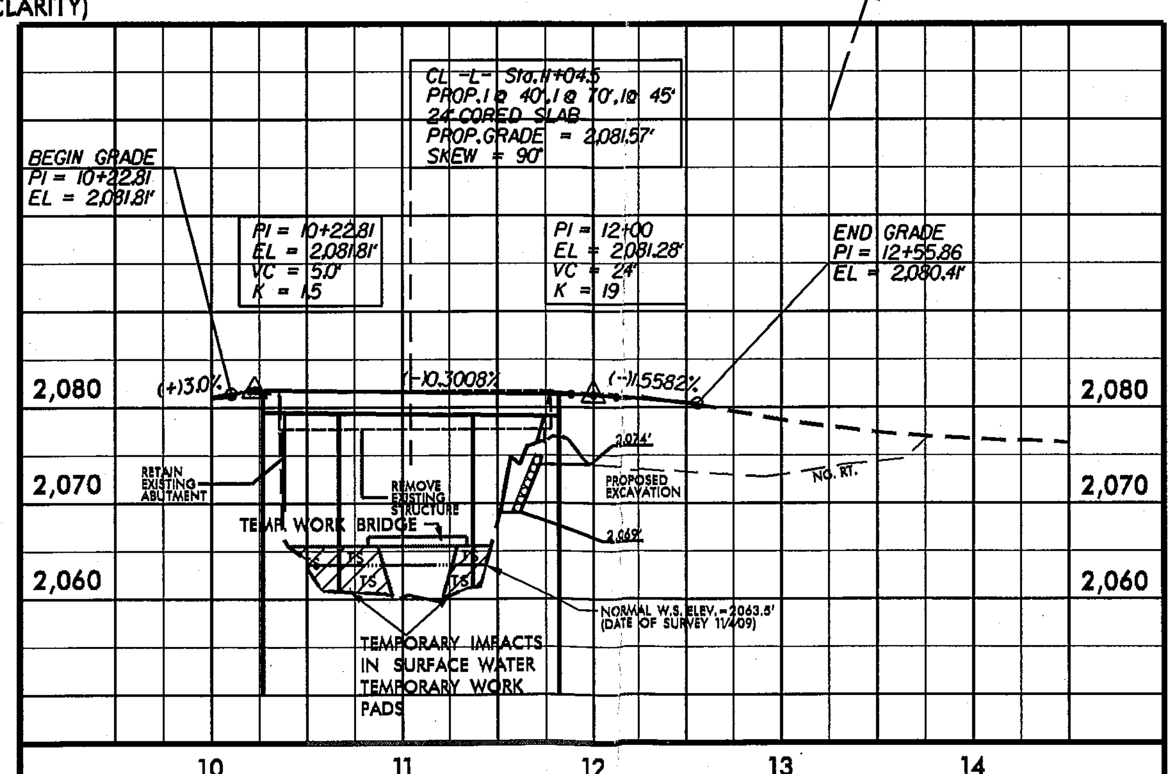
1	JULIA DELLINGER, DAVID DELLINGER, ET AL
2	HAROLD HERMANN
3	FRANK J. BRYSON, Jr.
4	CLYDE L. BRYSON



-L- STA. 11+50 TO STA. 12+75, 60' LT. TO 20' LT.



-L- STA. 11+50 TO STA. 11+95, 20' LT. TO 84' RT.



CL -L- Sta. 11+04.5
PROP. 1 @ 40', 1 @ 70', 1 @ 45'
24" CORED SLAB
PROP. GRADE = 2,081.57'
SKEW = 90°
BEGIN GRADE
PI = 10+22.81
EL = 2,081.81'
PI = 10+22.81
EL = 2,081.81'
VC = 50'
K = 15
PI = 12+00
EL = 2,081.28'
VC = 24'
K = 19
END GRADE
PI = 12+55.86
EL = 2,080.41'
(+)3.0%
(-)0.3008%
(-)1.5582%
2,080
2,070
2,060
RETAIN EXISTING ABUTMENT
REMOVE EXISTING STRUCTURE
TEMP. WORK BRIDGE
PROPOSED EXCAVATION
NORMAL W.S. ELEV. = 2063.5' (DATE OF SURVEY 11/409)
TEMPORARY IMPACTS IN SURFACE WATER
TEMPORARY WORK PADS
10
11
12
13
14

BRIDGE HYDRAULIC DATA
Bridge No. 107

DESIGN DISCHARGE	=	22,620	CFS
DESIGN FREQUENCY	=	50	YR
DESIGN HW ELEVATION	=	2,081.27	FT
BASE DISCHARGE	=	28,985	CFS
BASE FREQUENCY	=	100	YR
BASE HW ELEVATION	=	2,082.17	FT
OVERTOPPING DISCHARGE	=	20,000	CFS
OVERTOPPING FREQUENCY	=	25 +	YR
OVERTOPPING ELEVATION	=	2,078.0	FT

NOTE: WATER LEVEL WILL FLUCTUATE BASED ON RELEASE RATE FROM DAM UPSTREAM. CONTRACTOR WILL NEED TO COORDINATE WITH OWNER OF DAM FOR TIME AND RELEASE RATE.

Permit Drawing
Sheet 3 of 6

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

100' 0' 100'
GRAPHIC SCALE

8/17/99

8/17/99

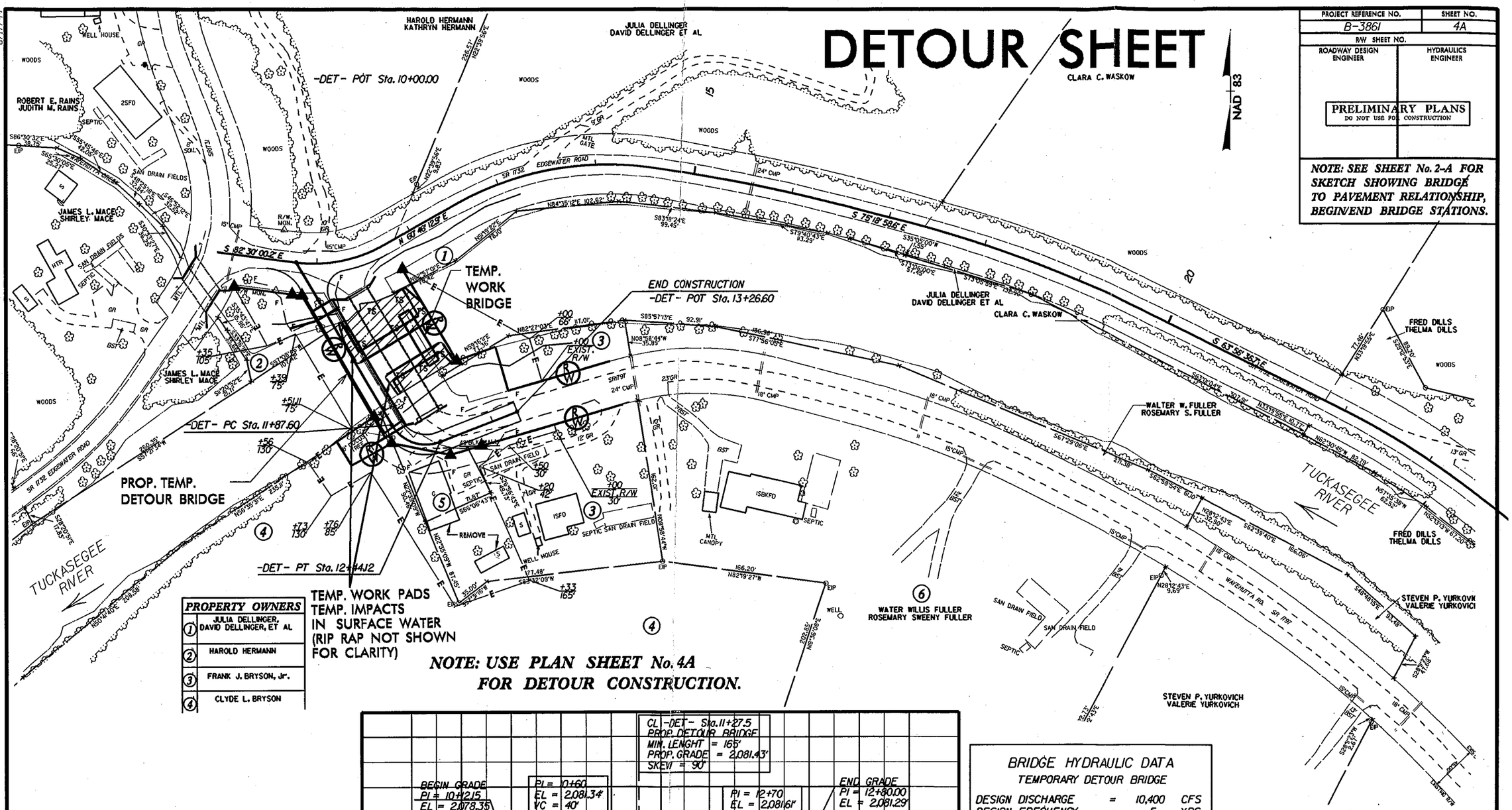
DETOUR SHEET

PROJECT REFERENCE NO.	SHEET NO.
B-3861	4A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83

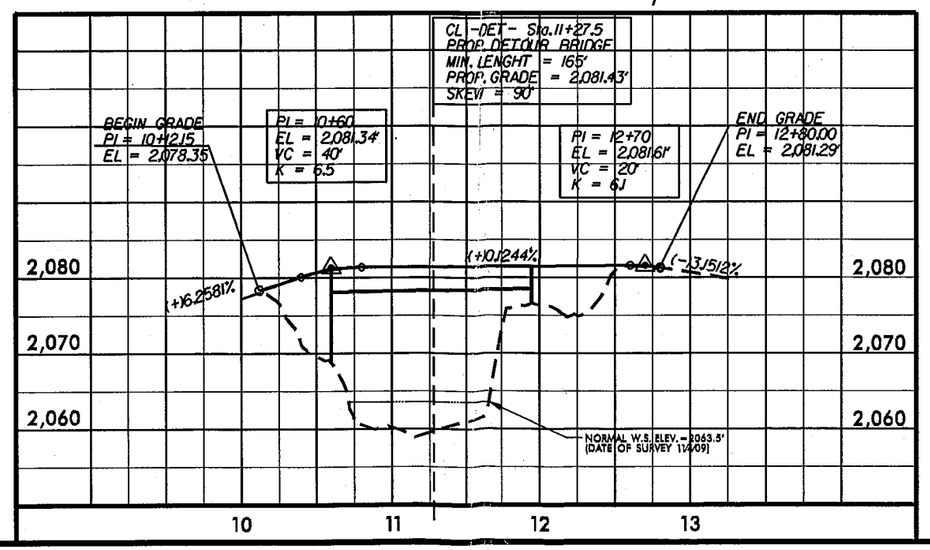
NOTE: SEE SHEET No. 2-A FOR SKETCH SHOWING BRIDGE TO PAVEMENT RELATIONSHIP, BEGIN/END BRIDGE STATIONS.



PROPERTY OWNERS	
1	JULIA DELLINGER, DAVID DELLINGER, ET AL
2	HAROLD HERMANN
3	FRANK J. BRYSON, Jr.
4	CLYDE L. BRYSON

TEMP. WORK PADS
TEMP. IMPACTS IN SURFACE WATER (RIP RAP NOT SHOWN FOR CLARITY)

NOTE: USE PLAN SHEET No. 4A FOR DETOUR CONSTRUCTION.



BRIDGE HYDRAULIC DATA		
TEMPORARY DETOUR BRIDGE		
DESIGN DISCHARGE	= 10,400	CFS
DESIGN FREQUENCY	= 5	YRS
DESIGN HW ELEVATION	= 2,073.7	FT

-DET-

NOTE: WATER LEVEL WILL FLUCTUATE BASED ON RELEASE RATE FROM DAM UPSTREAM. CONTRACTOR WILL NEED TO COORDINATE WITH OWNER OF DAM FOR TIME AND RELEASE RATE.

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

GRAPHIC SCALE 100' 0' 100'

Permit Drawing Sheet 4 of 6

\$\$\$\$SYSTIME\$\$\$\$
\$\$\$\$DGN\$\$\$\$
\$\$\$\$USERNAME\$\$\$\$

PROJECT REFERENCE NO.	SHEET NO.
B-3861	
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PROPERTY OWNERS

NAMES AND ADDRESSES

PARCEL NO.	NAMES	ADDRESSES
1	HAROLD HERMANN	4128 Lenox Dr Fairfax, V.A 22032 703-978-8690

PARCEL NO.	NAMES	ADDRESSES

Permit Drawing
Sheet 5 of 6

5/14/9
$$$$SYSTIME$$$$
$$$USERNAME$$$$
$$$DGN$$$$

WETLAND PERMIT IMPACT SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	11+00-L-	Temp. Work Pads							0.12		88	
TOTALS:									0.12		88	

Notes:

1. Permanent Impact due to proposed bridge substructure: 60 sq. ft.
2. Temporary Impact for on-site detour bridge substructure: 20 sq. ft.
3. Temporary Impact for temporary work bridge: 10 sq. ft.

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
Location: Brg. No. 107 on SR 1797
JACKSON COUNTY
WBS - 33308.1.1 (B-3861)

ATN Revised 3/31/05

SHEET 1 6 of 6 8/12/2011

09/08/59

TIP PROJECT: B-3861

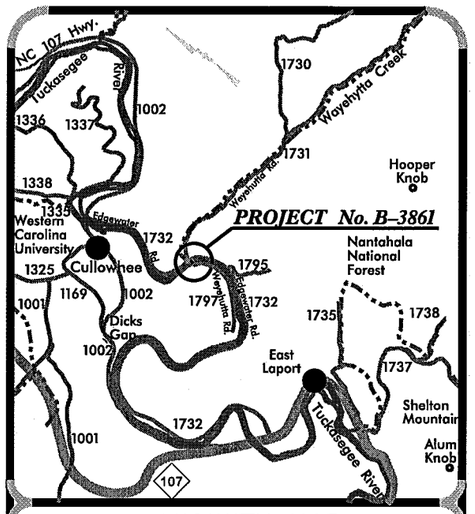
CONTRACT: 33308.1.1

$$$$$$$SYSTIME$$$$$

$$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$

$$$$USERNAME$$$$

See Sheet 1-A For Index of Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

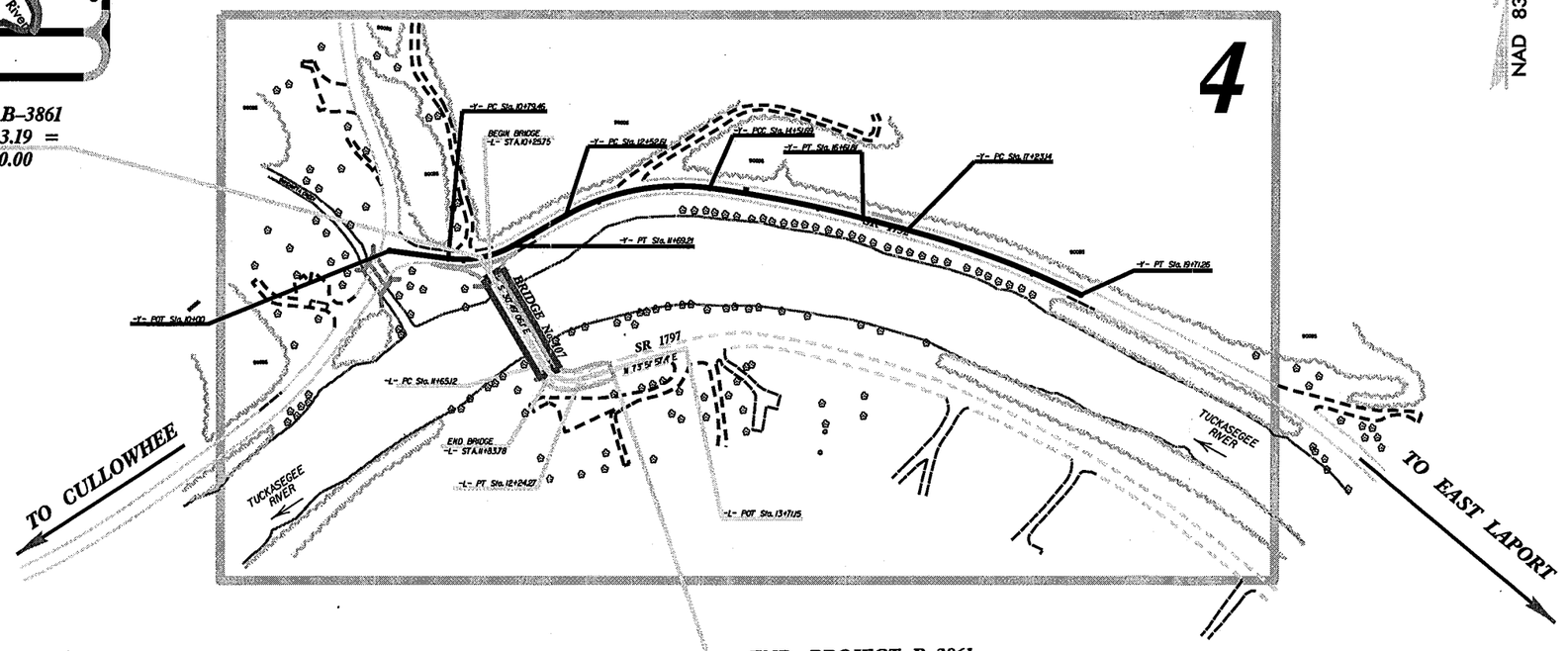
JACKSON COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3861	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33308.1.1	BRZ-1731 (6)	P.E.	
		R/W & UTILITIES	
		CONSTRUCTION	

LOCATION: REPLACEMENT OF BRIDGE No. 107 ON SR 1797 OVER TUCKASEGEE RIVER.

TYPE OF WORK: PAVING, DRAINAGE, GUARDRAIL, STRUCTURE.

BEGIN PROJECT B-3861
-Y- POC Sta. 11+23.19 =
-L- POT Sta. 10+00.00



END PROJECT B-3861
-L- STA. 12+67.99

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

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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 2010 = 320
ADT 2030 = 560
DHV = 10 %
D = 60 %
T = 4 % *
V = 15 MPH
*TTST = 2% DUAL = 2%

FUNC. CLASS. = LOCAL
SUB-TIER DESIGN

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT No. B-3861 = 0.021 Miles.
LENGTH STRUCTURE TIP PROJECT No B-3861 = 0.030 Miles.

TOTAL LENGTH TIP PROJECT No. B-3861 = 0.051 Miles.

NOTE: THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.

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

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: June 25, 2011

LETTING DATE: JULY 17, 2012

J. S. GOODNIGHT, PE
PROJECT ENGINEER

S. D. KENDALL, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE HIGHWAY DESIGN ENGINEER P.E.

6/2/99

PROJECT REFERENCE NO.	SHEET NO.
B-3861	2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

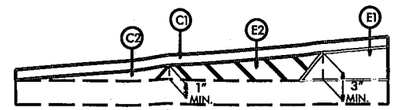
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PAVEMENT SCHEDULE

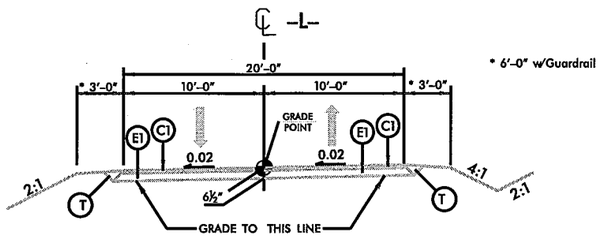
FINAL PAVEMENT DESIGN

C1	PROP. APPROX. 2 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 275 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0, 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.	U	EXISTING PAVEMENT.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5X, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1½" IN DEPTH.	J	PROP. 6" AGGREGATE BASE COURSE.	T	EARTH MATERIAL.
E1	PROP. APPROX. 3" ASPHALT CONCRETE BASE COURSE, TYPE B25.0, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.	P	PRIME COAT AT THE RATE OF .35 GAL. PER SQ. YD.	W	VARIABLE DEPTH ASPHALT PAVEMENT, SEE STANDARD WEDGING DETAIL

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

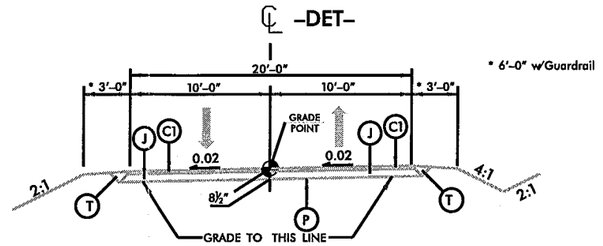


Wedging Detail For Resurfacing



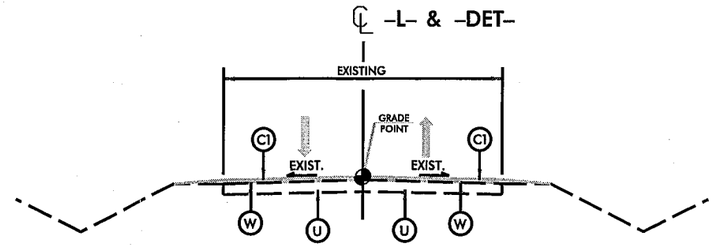
TYPICAL SECTION NO. 1

-L- Sta. 10+10.36 to Sta. 10+25.75 BEGIN BRIDGE
-L- Sta. 11+83.78 END BRIDGE to Sta. 12+50.00



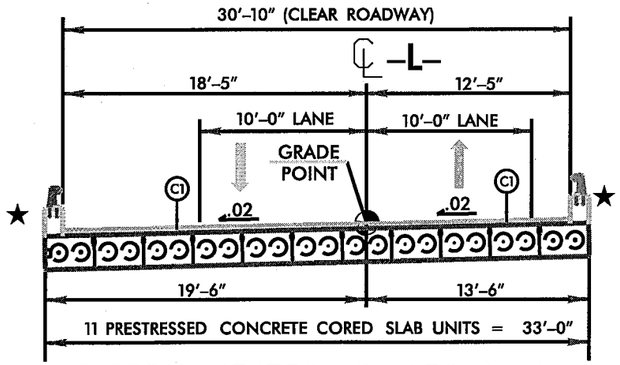
TYPICAL SECTION NO. 2

-DET- Sta. 10+12.15 to Sta. 15+50.00 BEGIN BRIDGE
-DET- Sta. 11+97.93 END BRIDGE to Sta. 12+83.05



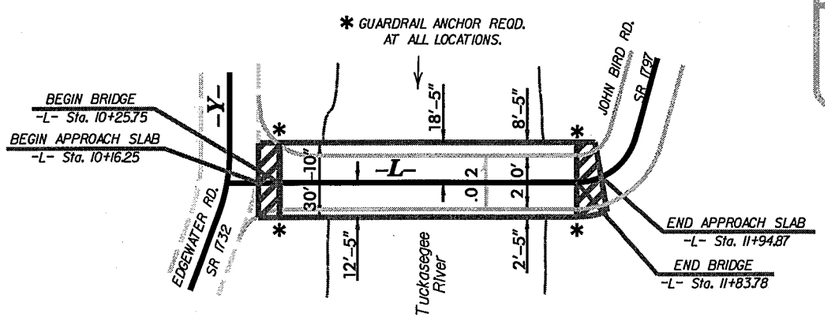
TYPICAL SECTION NO. 3

-L- Sta. 12+50.00 to Sta. 12+67.99
-DET- Sta. 12+83.05 to Sta. 13+26.60

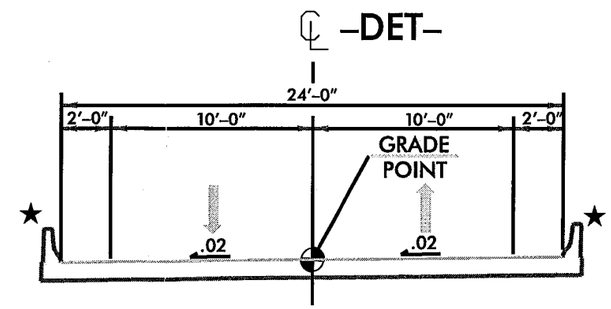


TYPICAL SECTION ON STRUCTURE

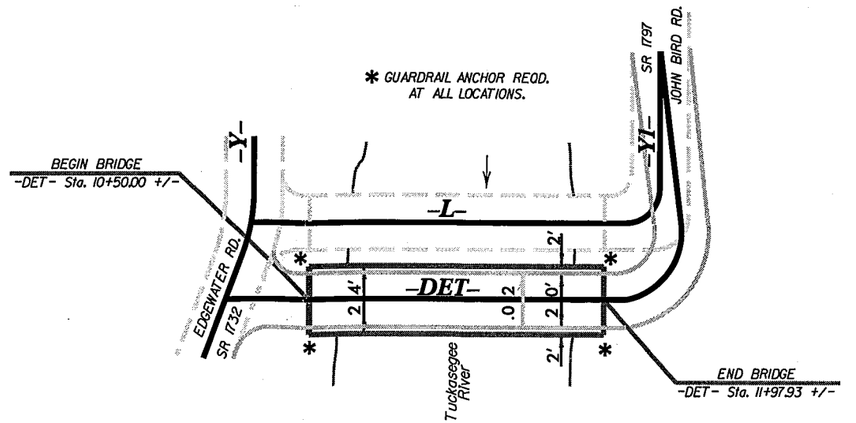
DESIGN DATA	
ADT 2010	= 320
ADT 2030	= 560
DHV	= 10 %
D	= 60 %
T	= 4 % *
V	= 15 MPH
* TTST 2%	DUAL 2%
FUNC. CLASS.	= LOCAL
SUB-TIER DESIGN	
★ BRIDGE RAIL TO BE DETERMINED BY STRUCTURE DESIGN UNIT	



SKETCH SHOWING PAVEMENT/BRIDGE RELATIONSHIP



TYPICAL SECTION ON DETOUR STRUCTURE



SKETCH SHOWING PAVEMENT/BRIDGE RELATIONSHIP

$$$$USERNAME$$$$
$$$$DATE$$$$
$$$$TIME$$$$

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
B-3861	4A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NOTE: SEE SHEET No. 2-A FOR SKETCH SHOWING BRIDGE TO PAVEMENT RELATIONSHIP, BEGIN/END BRIDGE STATIONS.

-Y- POT Sta. 10+00
HAROLD HERMANN
KATHRYN HERMANN
D.B.686 PG.218

BEGIN CONSTRUCTION
-Y- PC Sta. 10+79.46 =
-DET- POT Sta. 10+00.00

-Y- PC Sta. 12+52.61

JULIA DELLINGER
DAVID DELLINGER ET AL
D.B.1062 PG.73

-Y- PCC Sta. 14+51.69

-Y- PT Sta. 16+61.81

CLARA C. WASKOW
D.B.954 PG.219

NAD 83

-Y- PC Sta. 17+23.14

-Y- PT Sta. 19+71.26

-Y- PT Sta. 11+69.21

END CONSTRUCTION
-DET- POT Sta. 13+26.60

-Y- PC Sta. 21+99.38

FRED DILLS
THELMA DILLS
D.B.1060 PG.807

JAMES L. MACE
SHIRLEY MACE
D.B.908 PG.58

JULIA DELLINGER
DAVID DELLINGER ET AL
D.B.1062 PG.73

CLARA C. WASKOW
D.B.954 PG.219

WALTER W. FULLER
ROSEMARY S. FULLER
D.B.1016 PG.360
D.B.1090 PG.379

-DET- PC Sta. 11+87.60

-DET- PT Sta. 12+44.12

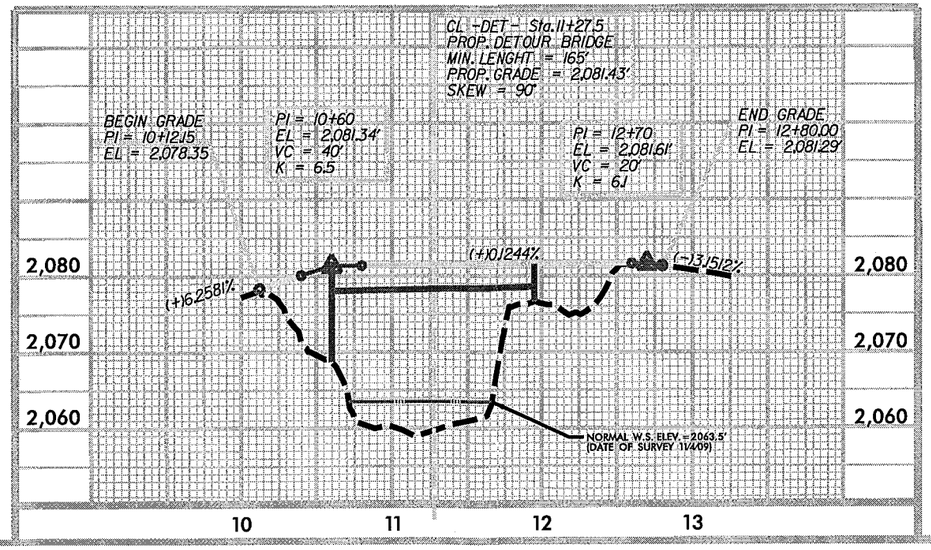
TUCKASEGEE RIVER

STEVEN P. YURKOVICH
VALERIE YURKOVICH
D.B.1080 PG.774

WATER WILLIS FULLER
ROSEMARY SWEENY FULLER
D.B.1090 PG.379
D.B.1016 PG.360

PROPERTY OWNERS	
1	JULIA DELLINGER, DAVID DELLINGER, ET AL D.B.1062 PG.73
2	HAROLD HERMANN D.B.686 PG.218
3	FRANK J. BRYSON, Jr. D.B.483 PG.112
4	CLYDE L. BRYSON D.B.498 PG.157
5	RUSSELL A. BRYSON, CONNIE BRYSON D.B.796 PG.286

NOTE: USE PLAN SHEET No. 4A FOR DETOUR CONSTRUCTION.



BRIDGE HYDRAULIC DATA		
TEMPORARY DETOUR BRIDGE		
DESIGN DISCHARGE	=	10,400 CFS
DESIGN FREQUENCY	=	5 YRS
DESIGN HW ELEVATION	=	2,073.7 FT

-DET-
PI Sta 12+21.74
Δ = 80° 57' 33.52" (LT)
D = 143° 14' 22.02"
L = 56.52'
T = 34.14'
R = 40.00'

-Y-

PI Sta 11+25.93	PI Sta 13+55.72	PI Sta 15+56.89	PI Sta 18+47.61
Δ = 36° 43' 46.9" (LT)	Δ = 36° 47' 44.8" (RT)	Δ = 7° 07' 03.7" (RT)	Δ = 11° 22' 21.9" (RT)
D = 40° 55' 32.0"	D = 18° 28' 57.0"	D = 3° 23' 14.8"	D = 4° 35' 01.2"
L = 89.75'	L = 199.08'	L = 210.12'	L = 248.11'
T = 46.48'	T = 103.11'	T = 105.20'	T = 124.47'
R = 140.00'	R = 310.00'	R = 1,691.42'	R = 1,250.00'

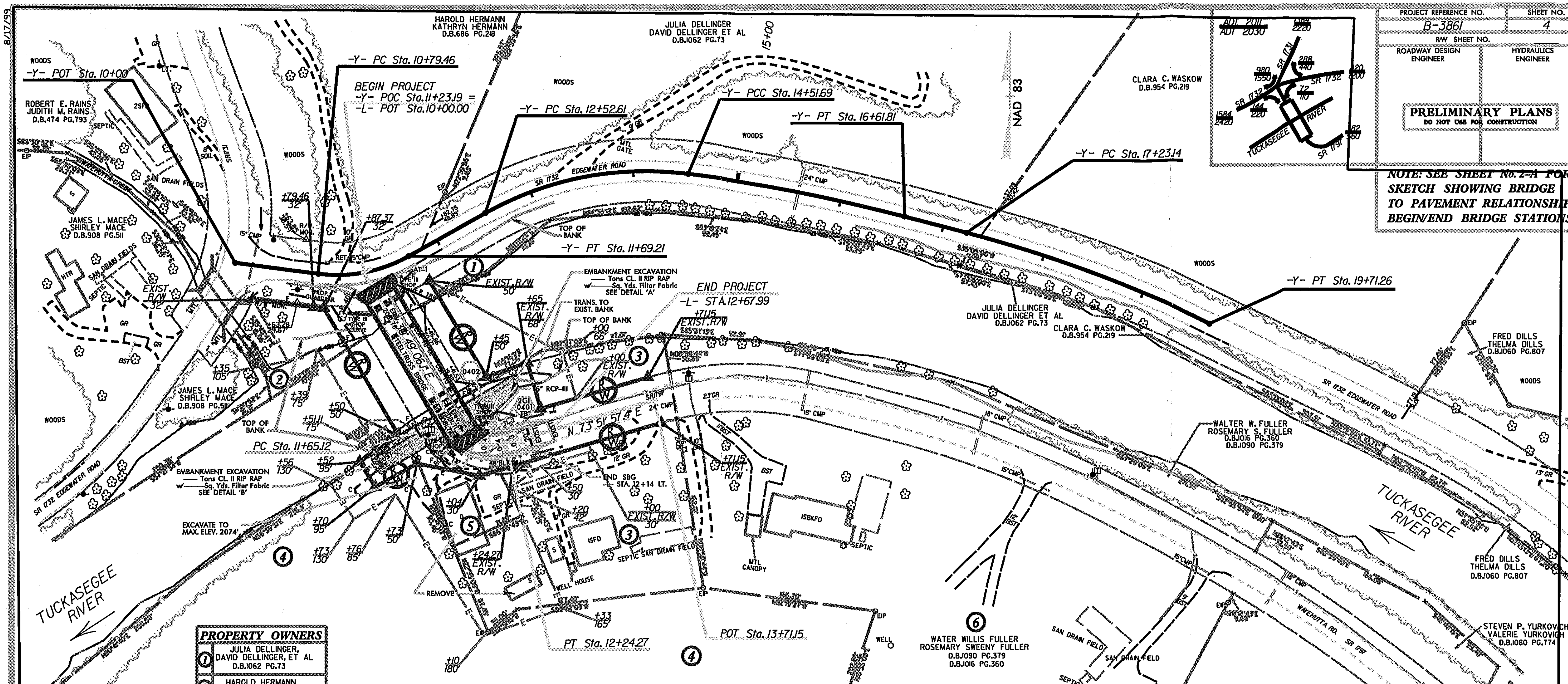
$$$$SYSTIME$$$$
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
B-3861	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

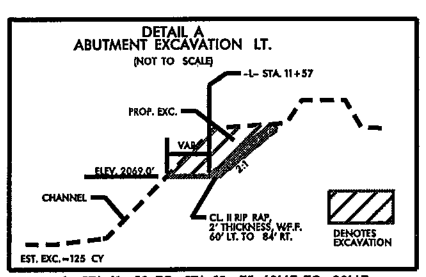
NOTE: SEE SHEET No. 2-A FOR SKETCH SHOWING BRIDGE TO PAVEMENT RELATIONSHIP, BEGIN/END BRIDGE STATIONS.

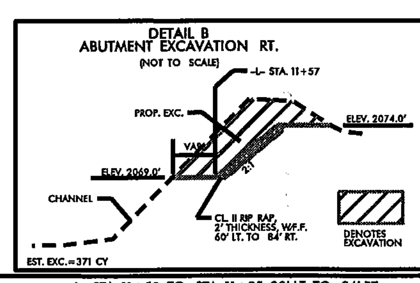
8/17/99

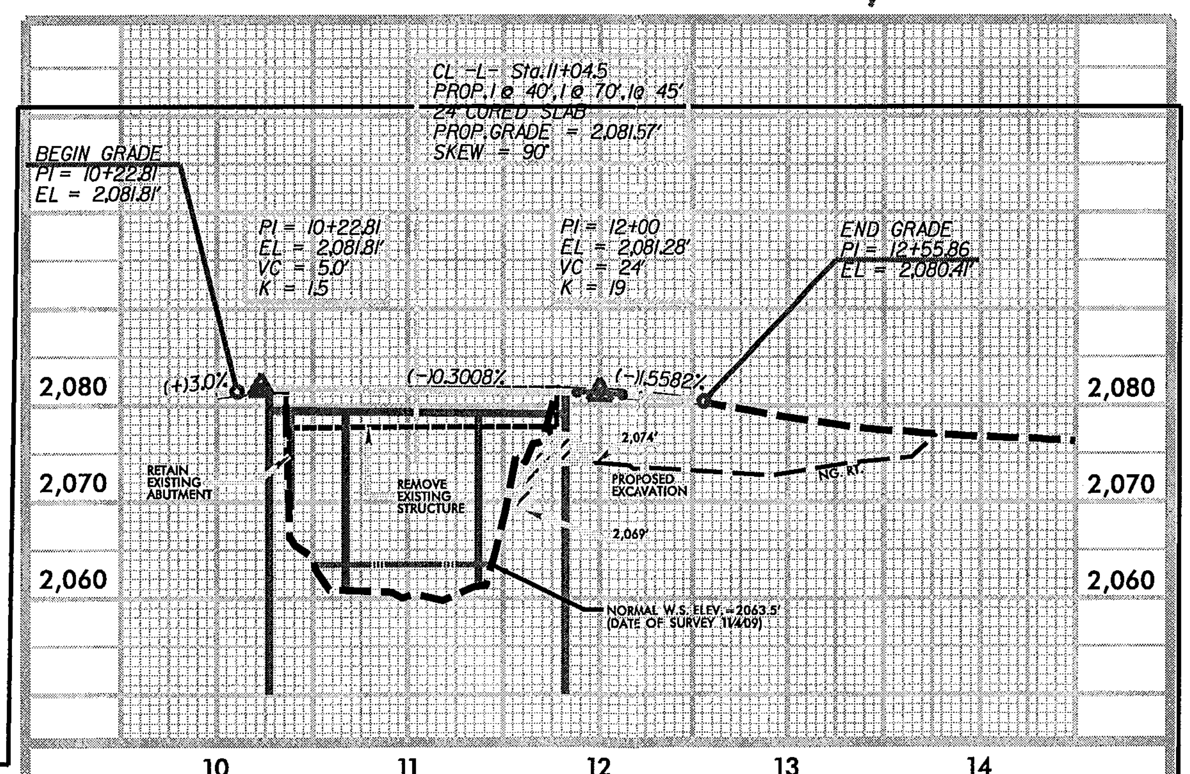


PROPERTY OWNERS

No.	Owner
1	JULIA DELLINGER, DAVID DELLINGER, ET AL D.B.1062 PG.73
2	HAROLD HERMANN D.B.686 PG.218
3	FRANK J. BRYSON, Jr. D.B.483 PG.112
4	CLYDE L. BRYSON D.B.498 PG.157
5	RUSSELL A. BRYSON, CONNIE BRYSON D.B.796 PG.286







BRIDGE HYDRAULIC DATA

Bridge No. 107

DESIGN DISCHARGE	=	22,620	CFS
DESIGN FREQUENCY	=	50	YR
DESIGN HW ELEVATION	=	2,081.27	FT
BASE DISCHARGE	=	28,985	CFS
BASE FREQUENCY	=	100	YR
BASE HW ELEVATION	=	2,082.17	FT
OVERTOPPING DISCHARGE	=	20,000	CFS
OVERTOPPING FREQUENCY	=	25 +	YR
OVERTOPPING ELEVATION	=	2,078.0	FT

-L-

PI Sta 11+99.85
Δ = 75° 18' 56.5" (LT)
D = 127° 19' 26.2"
L = 59.15'
T = 34.73'
R = 45.00'

-Y-

PI Sta 11+25.93	PI Sta 13+55.72	PI Sta 15+56.89	PI Sta 18+47.61
Δ = 36° 43' 46.9" (LT)	Δ = 36° 47' 44.8" (RT)	Δ = 7° 07' 03.7" (RT)	Δ = 11° 22' 21.9" (RT)
D = 40° 55' 32.0"	D = 18° 28' 57.0"	D = 3° 23' 14.8"	D = 4° 35' 01.2"
L = 89.75'	L = 199.08'	L = 210.12'	L = 248.11'
T = 46.48'	T = 103.11'	T = 105.20'	T = 124.47'
R = 140.00'	R = 310.00'	R = 1,691.42'	R = 1,250.00'

$$$$$SYSTIME$$$$$
$$$$$DGN$$$$$
$$$$$USERNAME$$$$$