STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

December 18, 2012

U. S. Army Corps of Engineers
Regulatory Field Office
3331 Heritage Trade Drive, Suite 105
Wake Forest, NC 27587

ATTN: Mr. John Thomas
NCDOT Division 9 Coordinator

SUBJECT: **Application for Section 404 Nationwide Permits 13, 23, and 33 and Section 401 Water Quality Certification** for the replacement of Bridge Nos. 29 and 30 over the Little Yadkin River on U.S. 52, Stokes County, North Carolina. Federal Aid Project No. BRNHS – 52(25), TIP No. B-4645.

Debit $240.00 from WBS Element No. 38452.1.1

The North Carolina Department of Transportation (NCDOT) proposes to replace Bridge Nos. 29 and 30 over the Little Yadkin River on U.S. 52 in Stokes County. The project will result in 204 linear feet of bank stabilization impacts and 20 linear feet of temporary jurisdictional river impacts to the Little Yadkin River, 64 linear feet of permanent jurisdictional stream impacts and 46 linear feet of temporary jurisdictional stream impacts to an Unnamed Tributary (UT) of the Little Yadkin River (Stream SB), 16 linear feet of permanent jurisdictional stream impacts and 67 linear feet of temporary jurisdictional stream impacts to another UT of the Little Yadkin River (Stream SC), <0.01 acres of permanent riparian wetland impacts to Wetland WA, and 0.01 acres of mechanized clearing impacts to Wetland WA.

Please find enclosed the Pre-Construction Notification (PCN) form, N.C. Ecosystem Enhancement Program (EEP) acceptance letter, Notification of Jurisdictional Determination, Stormwater Management Plan, permit drawings, and roadway design plans for the above-referenced project. A Categorical Exclusion (CE) was completed for this project in January 2011 and distributed shortly thereafter. Additional copies are available upon request.

This project is located in a trout county, therefore comments from the 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 within 30 calendar days of receipt of this application.

The proposed let date for this project is August 20, 2013, with a let review date of July 2, 2013. However, the let date may advance as additional funds become available.

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

Thank you for your assistance with this project. If you have any questions or need additional information, please contact Jim Mason at either jsmason@ncdot.gov or (919) 707-6136.

Sincerely,

E. L. Lusk

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

cc: NCDOT Permit Application Standard Distribution List

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

Pre-Construction Notification (PCN) Form

A. Applicant Information

1. Processing

1a. Type(s) of approval sought from the Corps:	☒ Section 404 Permit ☐ Section 10 Permit	
1b. Specify Nationwide Permit (NWP) number: 13 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 Nos. 29 and 30 over the Little Yadkin River on U.S. 52
2b. County:	Stokes
2c. Nearest municipality / town:	Pinnacle
2d. Subdivision name:	*not applicable*
2e. NCDOT only, T.I.P. or state project no:	B-4645

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 if applicable):	*not applicable*
3d. Street address:	1598 Mail Service Center
3e. City, state, zip:	Raleigh, NC 27699-1598
3f. Telephone no.:	(919) 707-6136
3g. Fax no.:	(919) 212-5785
3h. Email address:	jsmason@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: 36.3020 (DD.DDDDDD) Longitude: - 80.4157 (-DD.DDDDDD)
1c. Property size:	16.03 acres
2. Surface Waters	
2a. Name of nearest body of water (stream, river, etc.) to proposed project:	Little Yadkin River
2b. Water Quality Classification of nearest receiving water:	WS-IV
2c. River basin:	Yadkin-Pee Dee
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: U.S. 52 is classified as a principal arterial in the Statewide Functional Classification System and is a National Highway System Route . U.S. 52 will be future Interstate 74. Land use within the vicinity includes Forested Land, Agriculture, and Low- and Medium-Density Residential.	
3b. List the total estimated acreage of all existing wetlands on the property: 0.02 acres	
3c. List the total estimated linear feet of all existing streams (intermittent and perennial) on the property: 670 linear feet	
3d. Explain the purpose of the proposed project: To replace a pair of functionally obsolete bridges.	
3e. Describe the overall project in detail, including the type of equipment to be used: The project consists of replacing the existing five-span, 250-foot long bridges with three-span, 270-foot bridges. One replacement structure will be built along the same alignment as existing Bridge No. 29, while the other replacement structure will be built on an alignment slightly south of existing Bridge No. 30. Traffic will be maintained on-site by employing phased construction techniques. Standard road building equipment, such as trucks, dozers, and cranes will be used.	
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: JD obtained 2/16/12 (Action ID 201200292)	☒ 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): Principal Investigator: Jim Mason	Agency/Consultant Company: NCDOT Other:
4d. If yes, list the dates of the Corps jurisdictional determinations or State determinations and attach documentation. February 16, 2012	
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	Permanent Fill	Non-Tidal Freshwater Marsh	☐ Yes ☒ No	☒ Corps ☐ DWQ	<0.01
Site 2 ☒ P ☐ T	Mechanized Clearing	Non-Tidal Freshwater Marsh	☐ Yes ☒ No	☒ Corps ☐ DWQ	0.01
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**	<0.01 Perm. 0 Temp.

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	Permanent Fill	UT of Little Yadkin River (Stream SC)	☒ PER ☐ INT	☒ Corps ☐ DWQ	2	16
Site 2 ☐ P ☒ T	Temporary Fill	UT of Little Yadkin River (Stream SC)	☒ PER ☐ INT	☒ Corps ☐ DWQ	2	67
Site 3 ☒ P ☐ T	Permanent Fill	UT of Little Yadkin River (Stream SB)	☐ PER ☒ INT	☒ Corps ☐ DWQ	3	64
Site 4 ☐ P ☒ T	Temporary Fill	UT of Little Yadkin River (Stream SB)	☐ PER ☒ INT	☒ Corps ☐ DWQ	3	46
Site 5 ☒ P ☐ T	Bank Stabilization	Little Yadkin River	☒ PER ☐ INT	☒ Corps ☐ DWQ	40-50	204
Site 6 ☐ P ☒ T	Temporary Fill	Little Yadkin River	☒ PER ☐ INT	☒ Corps ☐ DWQ	40-50	20
					3h. **Total stream and tributary impacts**	284 Perm 133 Temp

3i. Comments:

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	0 Permanent 0 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. The proposed bridges are longer than the existing ones; Bridge No. 29 will be replaced in place; Phased constuction will be employed; A rip-rap lined lateral V-ditch will be installed from STA. 23+50 to STA. 25+00 RT to reduce stormwater velocity prior to it entering the Little Yadkin River; Rip-rap pads will be placed at stormwater pipe outlets at the following locations: L 15+27 RT, L 20+50 RT, L 24+10 RT, L 26+65 LT, L 27+09 RT, L 28+16 RT, L 31+97 RT, L 32+02 RT; A rip-rap lined special cut ditch will be installed from STA. 29+00 to STA. 30+50 LT to divert stormwater.		
1b. Specifically describe measures taken to avoid or minimize the proposed impacts through construction techniques. NCDOT Best Management Practices for Bridge Demolition and Removal will be implemented during the removal of the existing bridges; Best Management Practices for the Protection of Surface Waters will be employed		
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:	
2b. If yes, mitigation is required by (check all that apply):	☒ DWQ ☒ Corps	
2c. If yes, which mitigation 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:	204 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:**			0
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 not, explain why. Comments:	☐ 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 permit drawings.	
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 N/A
5b. Have all of the 401 Unit submittal requirements been met?	☐ Yes ☐ No N/A

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 impact resulting from this bridge replacement, this project will neither influence nearby land uses nor stimulate growth. Therefore, a detailed indirect or cumulative effects study will not be necessary.	
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? NC Natural Heritage Program data, USFWS website, NCDOT field surveys	
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? NEPA Documentation	
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: NCDOT Hydraulics Unit coordination with FEMA	
8c. What source(s) did you use to make the floodplain determination? FEMA Maps	

Dr. Gregory J. Thorpe, Ph D Applicant/Agent's Printed Name	E. L. Lusk Applicant/Agent's Signature (Agent's signature is valid only if an authorization letter from the applicant is provided.)	12-17-12 Date

Ecosystem

PROGRAM

December 11, 2012

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

Dear Dr. Thorpe:

Subject: EEP Mitigation Acceptance Letter:

B-4645, Replace Bridge Numbers 29 and 30 on US 52 over the Little Yadkin River, Stokes County

The purpose of this letter is to notify you that the Ecosystem Enhancement Program (EEP) will provide the compensatory stream mitigation for the subject project. Based on the information supplied by you on December 11, 2012, the impacts are located in CU 03040101 of the Yadkin River basin in the Central Piedmont (CP) Eco-Region, and are as follows:

Yadkin 03040101 CP	Stream			Wetlands			Buffer (Sq. Ft.)	
	Cold	Cool	Warm	Riparian	Non-Riparian	Coastal Marsh	Zone 1	Zone 2
Impacts (feet/acres)	0	0	80 (USACE) 204 (NCDWQ)	0	0	0	0	0

This impact and associated mitigation need were under projected by the NCDOT in the 2012 impact data. EEP will commit to implement sufficient compensatory stream mitigation credits to offset the impacts associated with this project as determined by the regulatory agencies using the delivery timeline listed in Section F.3.c.iii of the N.C. Department of Environment and Natural Resources' Ecosystem Enhancement Program In-Lieu Fee Instrument dated July 28, 2010. If the above referenced impact amounts are revised, then this mitigation acceptance letter will no longer be valid and a new mitigation acceptance letter will be required from EEP.

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

Sincerely,

James B. Stanfill for

Suzanne Klimek
EEP Acting Director

cc: Mr. John Thomas, USACE – Raleigh Regulatory Field Office
Ms. Amy Chapman, Division of Water Quality, Wetlands/401 Unit
File: B-4645

U.S. ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT

Action Id. **201200292** County: **Stokes** U.S.G.S. Quad: **Pinnacle**

NOTIFICATION OF JURISDICTIONAL DETERMINATION

Property Owner/Agent: **James Mason**
Address: **NC DOT**
1598 Mail Service Center
Raleigh, NC 27699-1598
Telephone No.: **919 707-6136**

Property description:
Size (acres) **3** Nearest Town **Pinnacle**
Nearest Waterway **Little Yadkin River** River Basin **Yadkin River**
USGS HUC **03040101** Coordinates N **36.3019311** W **-80.4159283**
Location description **Bridge 29&30 on US 52 adjacent to Little Yadkin River, east of Pinnacle, in Stokes County, North Carolina. TIP B-4645.**

Indicate Which of the Following Apply:

A. Preliminary Determination

_ Based on preliminary information, there may be wetlands on the above described property. We strongly suggest you have this property inspected to determine the extent of Department of the Army (DA) jurisdiction. To be considered final, a jurisdictional determination must be verified by the Corps. This preliminary determination is not an appealable action under the Regulatory Program Administrative Appeal Process (Reference 33 CFR Part 331).

B. Approved Determination

_ There are Navigable Waters of the United States within the above described property subject to the permit requirements of Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act. Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

X There are waters of the U.S. including wetlands on the above described project area subject to the permit requirements of Section 404 of the Clean Water Act (CWA)(33 USC § 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

_ We strongly suggest you have the wetlands on your property delineated. Due to the size of your property and/or our present workload, the Corps may not be able to accomplish this wetland delineation in a timely manner. For a more timely delineation, you may wish to obtain a consultant. To be considered final, any delineation must be verified by the Corps.

X The waters of the U.S. including wetland on your project area have been delineated and the delineation has been verified by the Corps. We strongly suggest you have this delineation surveyed. Upon completion, this survey should be reviewed and verified by the Corps. Once verified, this survey will provide an accurate depiction of all areas subject to CWA jurisdiction on your property which, provided there is no change in the law or our published regulations, may be relied upon for a period not to exceed five years.

_ The wetlands have been delineated and surveyed and are accurately depicted on the plat signed by the Corps Regulatory Official identified below on _____. Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

_ There are no waters of the U.S., to include wetlands, present on the above described property which are subject to the permit requirements of Section 404 of the Clean Water Act (33 USC 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

_ The property is located in one of the 20 Coastal Counties subject to regulation under the Coastal Area Management Act (CAMA). You should contact the Division of Coastal Management in Washington, NC, at (252) 946-6481 to determine their requirements.

Action ID: _______________

Placement of dredged or fill material within waters of the US and/or wetlands without a Department of the Army permit may constitute a violation of Section 301 of the Clean Water Act (33 USC § 1311). If you have any questions regarding this determination and/or the Corps regulatory program, please contact **John Thomas** at **919 554-4884 ext. 25**.

C. Basis For Determination

Stream channels and adjacent wetlands within your project site which are tributaries of Little Yadkin River which flows into the Yadkin River and the Atlantic Ocean. .

D. Remarks

___

E. Appeals Information (This information applies only to approved jurisdictional determinations as indicated in B. above)

This correspondence constitutes an approved jurisdictional determination for the above described site. If you object to this determination, you may request an administrative appeal under Corps regulations at 33 CFR part 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet and request for appeal (RFA) form. If you request to appeal this determination you must submit a completed RFA form to the following address:

District Engineer, Wilmington Regulatory Division
Attn:Jean Gibby, Project Manager,
Raleigh Regulatory Field Office
3331 Heritage Trade Drive, Suite 105
Wake Forest, North Carolina 27587

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR part 331.5, and that it has been received by the District Office within 60 days of the date of the NAP. Should you decide to submit an RFA form, it must be received at the above address by **April 17, 2012**.

It is not necessary to submit an RFA form to the District Office if you do not object to the determination in this correspondence.

Corps Regulatory Official: ______________________________

Date **02/16/2012**

The Wilmington District is committed to providing the highest level of support to the public. To help us ensure we continue to do so, please complete the Customer Satisfaction Survey located at our website at http://regulatory.usacesurvey.com/ to complete the survey online.

Copy furnished:

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL		
Applicant: NC DOT / James Mason/ B-4645	File Number: SAW 2012 00292	Date: February 16, 2012
Attached is:		See Section below
☐ INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)		A
☐ PROFFERED PERMIT (Standard Permit or Letter of permission)		B
☐ PERMIT DENIAL		C
☒ APPROVED JURISDICTIONAL DETERMINATION		D
☐ PRELIMINARY JURISDICTIONAL DETERMINATION		E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at http://www.usace.army.mil/inet/functions/cw/cecwo/reg or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- OBJECT: If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- APPEAL: If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- ACCEPT: You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- APPEAL: If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the district engineer. This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT		
REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)		
ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.		
POINT OF CONTACT FOR QUESTIONS OR INFORMATION:		
If you have questions regarding this decision and/or the appeal process you may contact: John Thomas @ 919 554-4884 ext. 25	If you only have questions regarding the appeal process you may also contact: Mr. Mike Bell, Administrative Appeal Review Officer CESAD-ET-CO-R U.S. Army Corps of Engineers, South Atlantic Division 60 Forsyth Street, Room 9M15 Atlanta, Georgia 30303-8801	
RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.		
Signature of appellant or agent.	Date:	Telephone number:

For appeals on Initial Proffered Permits and approved Jurisdictional Determinations send this form to:

District Engineer, Wilmington Regulatory Division, Attn:Jean Gibby, Project Manager, Raleigh Regulatory Field Office, 3331 Heritage Trade Drive , Suite 105, Raleigh, North Carolina 27587

For Permit denials and Proffered Permits send this form to:

Division Engineer, Commander, U.S. Army Engineer Division, South Atlantic, Attn: Mr. Mike Bell, Administrative Appeal Officer, CESAD-ET-CO-R, 60 Forsyth Street, Room 9M15, Atlanta, Georgia 30303-8801

(Version 1.2; Released July 2012)

North Carolina Department of Transportation

Highway Stormwater Program
STORMWATER MANAGEMENT PLAN
FOR LINEAR ROADWAY PROJECTS

General Project Information

Project No.:	B-4645	**Project Type:** Bridge Replacement	**Date:** 10/22/2012
NCDOT Contact:	Marshall Clawson, PE	**Contractor / Designer:**	RK&K Engineers - Eleni Riggs, PE
Address:	NCDOT Hydraulics Unit 1590 Mail Service Center Raleigh, NC 27699-1590	**Address:**	900 Ridgefield Drive Suite 350 Raleigh, NC 27609
Phone:	919-707-6713	**Phone:**	919-878-9560
Email:	mclawson@ncdot.gov	**Email:**	eriggs@rkk.com
City/Town:	Dalton	**County(ies):**	Stokes
River Basin(s):	Yadkin-Pee Dee	**CAMA County?**	No
Primary Receiving Water:	See Environmental Summary	**NCDWQ Stream Index No.:**	See Environmental Summary

NCDWQ Surface Water Classification for Primary Receiving Water	**Primary:**	Water Supply IV (WS-IV)	
	Supplemental:		
Other Stream Classification:			
303(d) Impairments:	None		
Buffer Rules in Effect	N/A		

Project Description

Project Length (lin. Miles or feet):	Total 0.577 miles	**Surrounding Land Use:**	Rural	
	Proposed Project		**Existing Site**	
Project Built-Upon Area (ac.)	4.06	ac.	3.30	ac.
Typical Cross Section Description:	4 lane divided roadway with variable width grass median. Dual structures, each 42' clear width and 270' long.			
Average Daily Traffic (veh/hr/day):	Design/Future:	82,900 (2033)	Existing:	50,300 (2013)

General Project Narrative:

This project is replacing the existing dual structures (#29 and 30) on US 52. The existing structures are five span, reinforced concrete decks on steel I-beam superstructures, approximately 250' long. The proposed bridges are three span, 54" prestressed girders, approximately 270' long. Both existing structures will be used while the replacement structure for bridge #30 is constructed approximately 50' downstream. Bridge #30 will then be utilized as the detour while structure #29 is removed and replace at the existing location. Roadway improvements will be made to accommodate adequate lane and shoulder width and to tie to the new bridge location.

References

(Version 1.2; Released July 2012)

North Carolina Department of Transportation

Highway Stormwater Program
STORMWATER MANAGEMENT PLAN
FOR LINEAR ROADWAY PROJECTS

Project/TIP No.: B-4645 **County(ies):** Stokes

Project Environmental Summary

Surface Water Impacts

Sheet No.	Station (From / To)	Feature Impacted	Water / Wetland / Buffer Type	Receiving Surface Water Name	NRTR Map ID	NCDWQ Stream Index	NCDWQ Surface Water Classification	303(d) Impairments	Type of Impact	Existing SCM	Proposed SCM
4	14+84.7 15+38.1	Stream	Perennial	Little Yadkin River	SC	12-77	WS-IV	None	Fill	N/A	None
4	14+85.4 15+30.6	Wetland	Riparian	Little Yadkin River	WA	12-77	WS-IV	None	Fill	N/A	None
5	20+89.1 21+69.6	Stream	Intermittent	Little Yadkin River	SB	12-77	WS-IV	None	Fill	N/A	None
5	25+00	Stream	Perennial	Little Yadkin River	Little Yadkin River	12-77	WS-IV	None	Stabilization	N/A	None

* List all stream and surface water impact locations regardless of jurisdiction or size.

Equalizer Pipes to be noted as a minimization of impacts.

All proposed SCMs listed must also be listed under Swales, Preformed Sour Holes and other Energy Dissipators, or Other Stormwater Control Measures.

Description of Minimization of Impacts or Mitigation

References

NCDOT Highway Stormwater Program

(Version 1.2; Released July 2012)

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR LINEAR ROADWAY PROJECTS

Project/TIP No.: B-4645 **County(ies):** Stokes

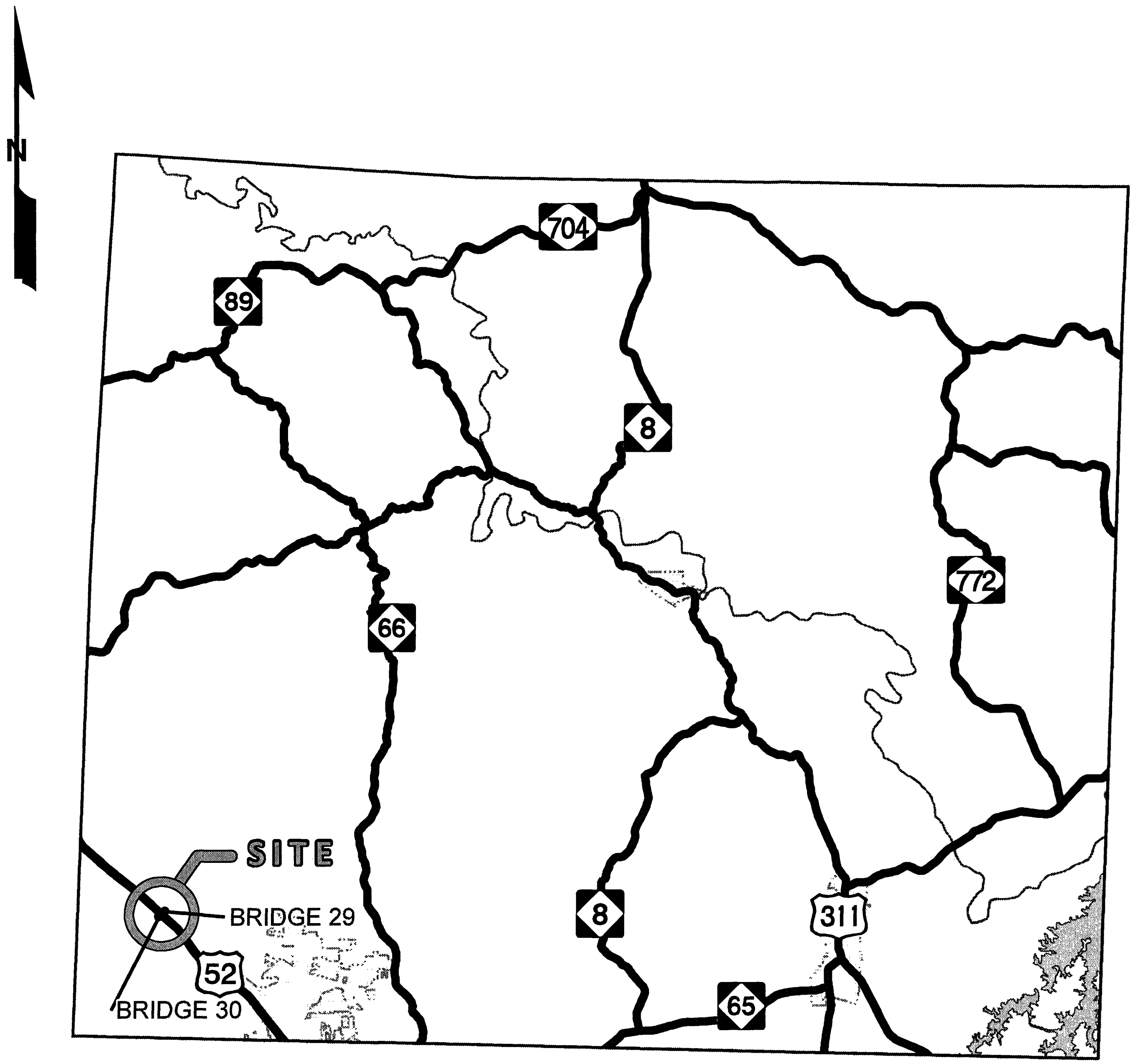
Preformed Scour Holes and Energy Dissipators

Sheet No.	Station	Energy Dissipator Type	Riprap Type	Drainage Area (ac)	Conveyance Structure	Pipe/Structure Dimensions (in)	Q10 (cfs)	V10 (fps)
4	L 15+27 RT	Riprap Apron / Pad	Class 'B'	3.07	Pipe	15" CSP	8.7	1.0
5	L 20+50 RT	Riprap Apron / Pad	Class 'B'	1.18	Pipe	15" CSP	3.0	1.1
5	L 24+10 RT	Riprap Apron / Pad	Class 'B'	1.46	Pipe	15" RCP	4.5	0.9
5	L 26+65 LT	Riprap Apron / Pad	Class 'B'	0.05	Pipe	15" CSP	0.2	0.2
5	L 27+09 RT	Riprap Apron / Pad	Class 'B'	0.05	Pipe	15" CSP	0.2	0.2
5	L 28+16 RT	Riprap Apron / Pad	Class 'B'	1.75	Pipe	15" RCP	5.3	0.9
6	L 31+97 RT	Riprap Apron / Pad	Class 'B'	3.42	Pipe	18" CSP	6.6	1.0
6	L 32+02 RT	Riprap Apron / Pad	Class 'B'	0.91	Pipe	15" CSP	2.7	0.8

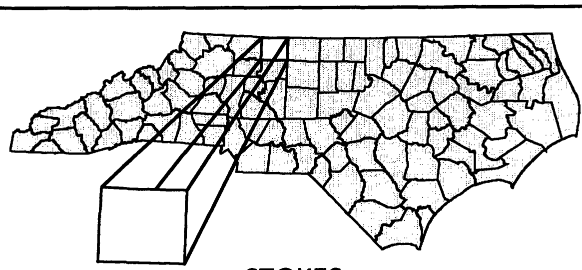
☐ YES ☐ NO Have minimum design criteria, as presented in the NCDOT Best Management Practices Toolbox (2008), NCDOT Standard Details, or FHWA HEC-14 (July 2006), been met and verified, as applicable? If No, provide further explanantion of why design criteria was not met.

Additional Comments

* Refer to the NCDOT Best Management Practices Toolbox, Version 1 (March 2008), NCDOT Standard Details, the Federal Highway Administration (FHWA) Hydraulic Engineering Circular No. 14 (HEC-14), Third Edition, Hydraulic Design of Energy Dissipators for Culverts and Channels (July 2006), as applicable, for design guidance and criteria.



VICINITY MAP

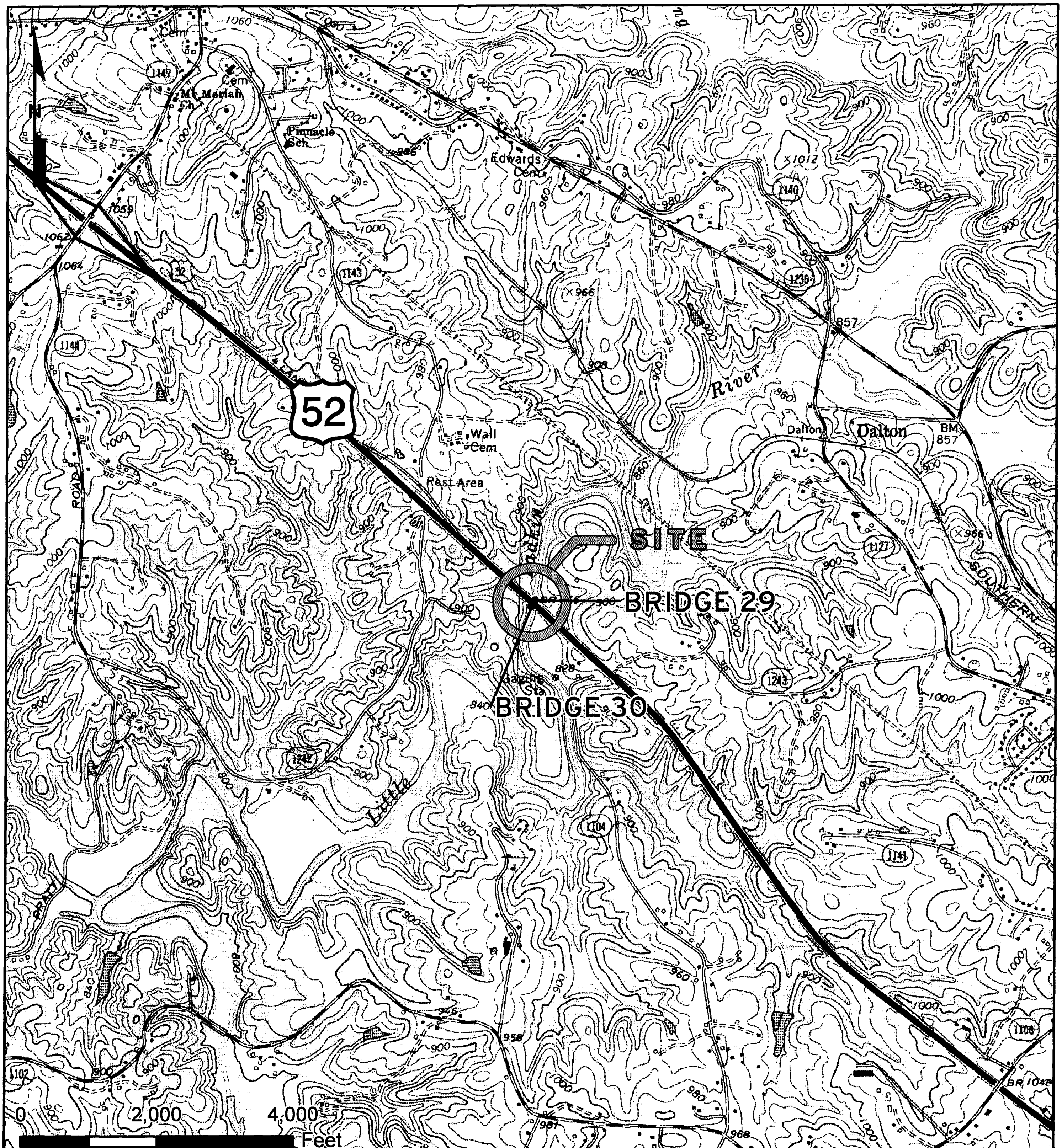


NCDOT

DIVISION OF HIGHWAYS
STOKES COUNTY

PROJECT: B-4645
BRIDGES NO. 29 & 30 OVER
THE LITTLE YADKIN RIVER
ON US 52

SHEET 1
of 11



1 inch = 2,000 feet

LOCATION MAP

NCDOT

DIVISION OF HIGHWAYS
STOKES COUNTY

PROJECT: B-4645
BRIDGES NO. 29 & 30 OVER
THE LITTLE YADKIN RIVER
ON US 52

SHEET 2 of 11

Source: USGS 7.5 Minute Quadrangle, Pinnacle, NC

PROPERTY OWNERS

NAMES AND ADDRESSES

PARCEL NO.	NAMES	ADDRESSES
1	JOHN D. PHILLIPS	

NCDOT

DIVISION OF HIGHWAYS
STOKES COUNTY
PROJECT: 38452.1.1 (B-4645)
BRIDGES NO. 29 & 30 OVER
THE LITTLE YADKIN RIVER
ON US 52

SHEET 3 OF 11 08/16/12

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	-L- 15+30 RT	30" RCP	<0.01			0.01		<0.01	<0.01	16	67	
2	-L- 21+25 RT	30" RCP						<0.01	<0.01	64	46	
3	-L- 25+0	BANK STABILIZATION						0.10	0.01	204	20	
TOTALS:			<0.01			0.01		0.11	0.02	284	133	

Notes:

Impacts at the culvert extensions (Site 1 and Site 2) are larger than expected due to construction access.

ATN Revised 3/31/05

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

STOKES COUNTY
WBS - 38452.1.1 (B-4645)

 10/11/2012

TIP PROJECT: B-4645

CONTRACT:

8/17/2012
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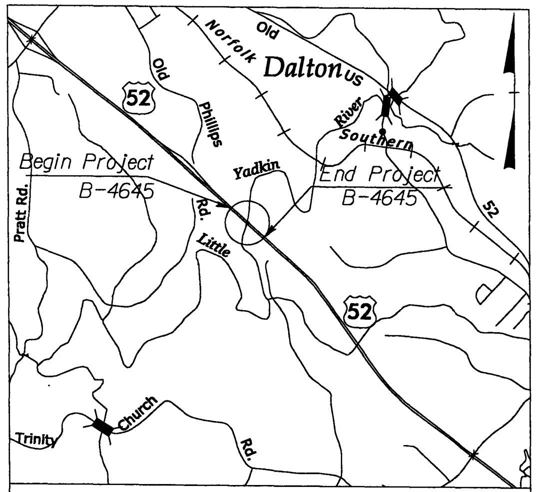
09/08/99

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols



VICINITY MAP SHOWING LOCATION OF PROJECT B-4645

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

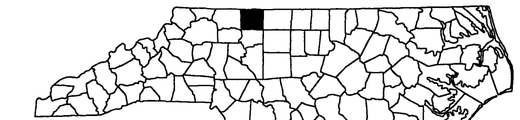
STOKES COUNTY

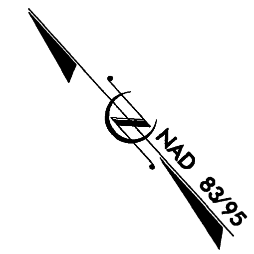
LOCATION: BRIDGES NO. 29 & 30 OVER THE LITTLE YADKIN RIVER ON US 52

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

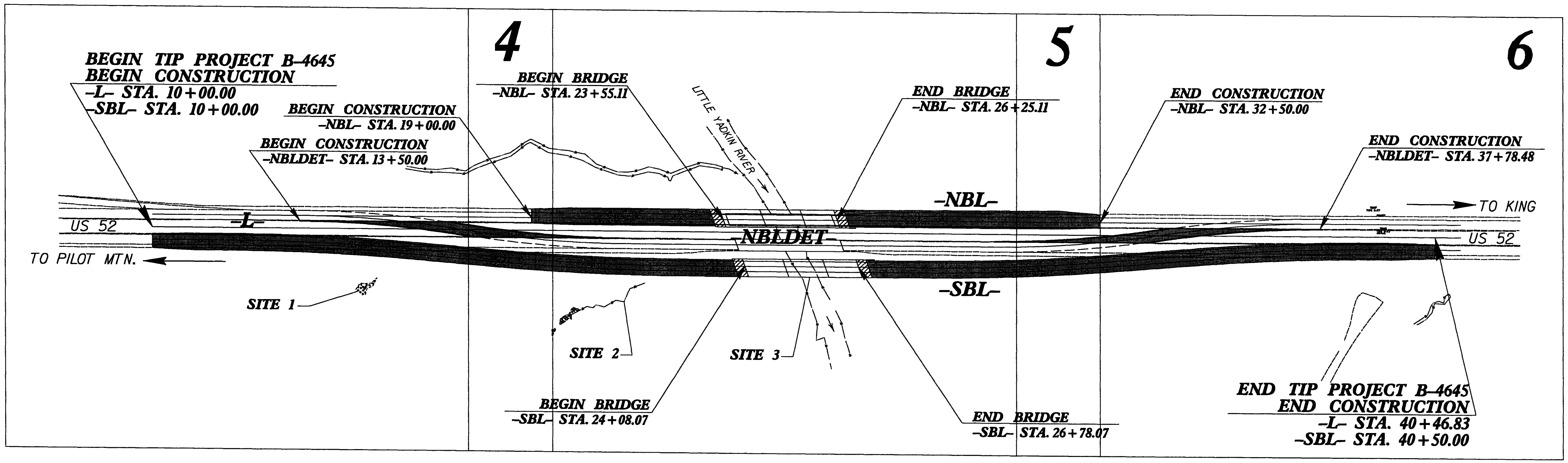
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4645	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
38452.1.1	BRNHS-52(25)	P.E.
38452.2.1	BRNHS-52(25)	R/W & UTL





PERMIT DRAWING SHEET 5 OF 11



INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

THERE IS CONTROL OF ACCESS ON THIS PROJECT
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2013 = 50,300
ADT 2033 = 82,900
DHV = 10 %
D = 60 %
T = 19 % *
V = 70 MPH
* TTST =12 DUAL 7
FUNC CLASS = INTERSTATE (FUTURE)

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT B-4645 = 0.526 MILES
LENGTH OF STRUCTURE TIP PROJECT B-4645 = 0.051 MILES
TOTAL LENGTH OF TIP PROJECT B-4645 = 0.577 MILES

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
AUGUST 17, 2012

LETTING DATE:
AUGUST 20, 2013

TONY HOUSER, P.E.
PROJECT ENGINEER

LEE ANN MOORE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

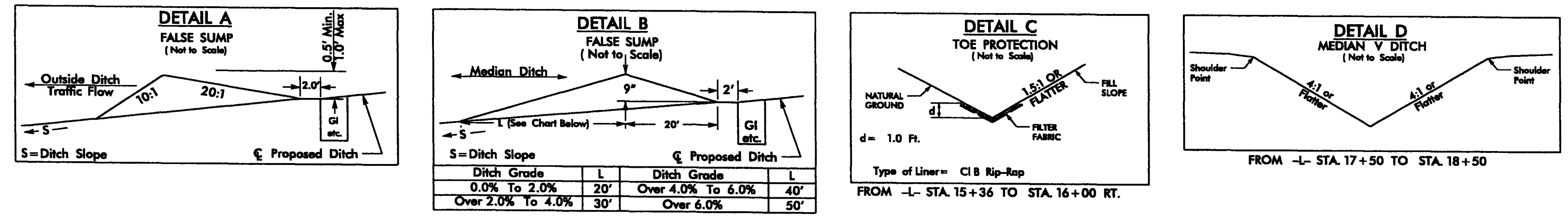
P.E.
SIGNATURE:

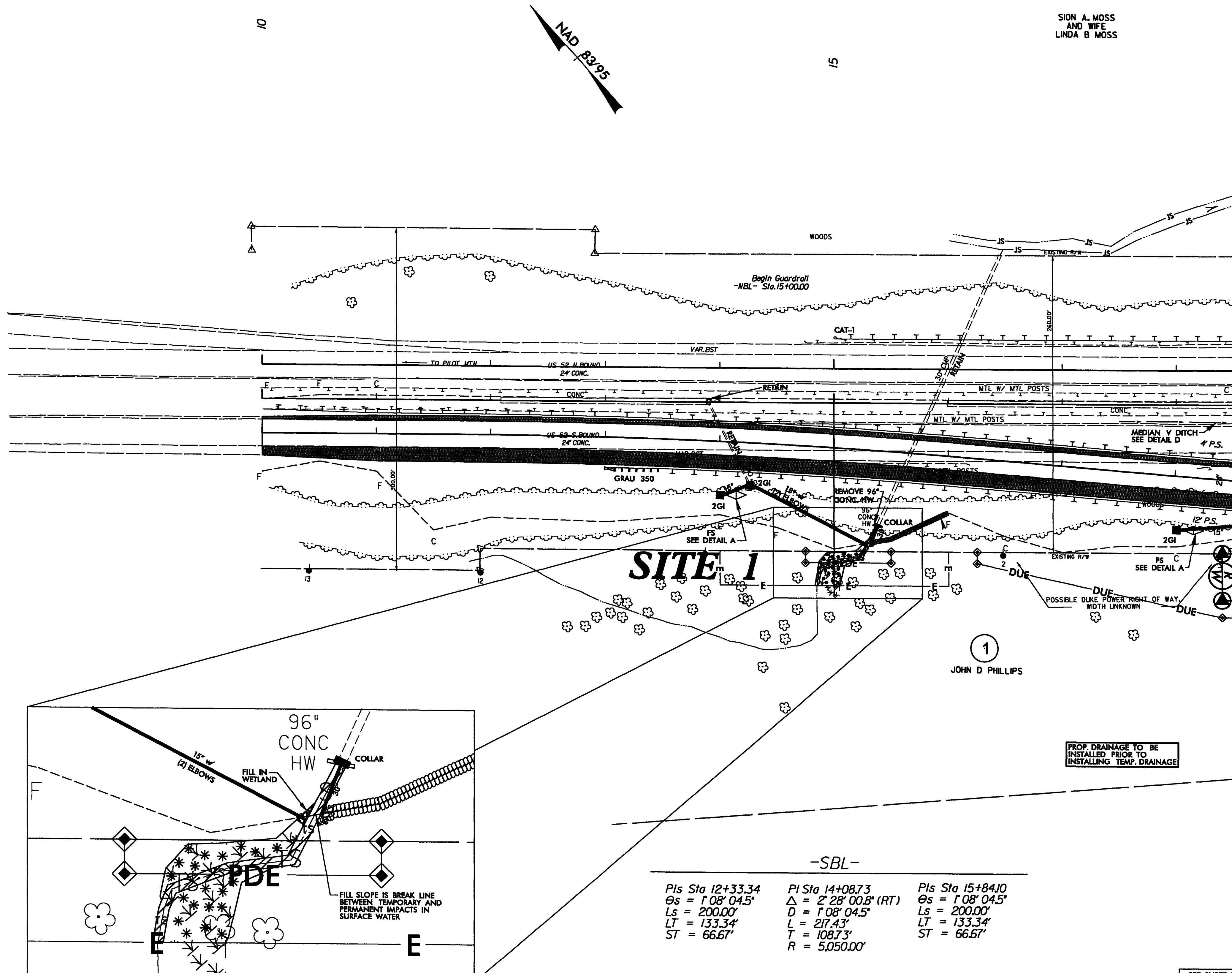
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

P.E.
STATE HIGHWAY DESIGN ENGINEER

PROJECT REFERENCE NO.	SHEET NO.
B-4645	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING
SHEET 6 OF 11





DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

DENOTES MECHANIZED CLEARING

DENOTES FILL IN WETLAND

-SBL-

PIs Sta 12+33.34	PI Sta 14+08.73	PIs Sta 15+84.10
Θs = 1°08'04.5"	Δ = 2°28'00.8" (RT)	Θs = 1°08'04.5"
Ls = 200.00'	D = 1°08'04.5"	Ls = 200.00'
LT = 133.34'	L = 217.43'	LT = 133.34'
ST = 66.67'	T = 108.73'	ST = 66.67'
	R = 5,050.00'	

SEE SHEET 2-D & 2-E FOR DETOUR
FOR -SBL- PROFILE, SEE SHEET NO. 7

REVISIONS

8/17/99

10/11/2012
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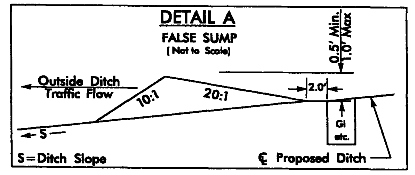
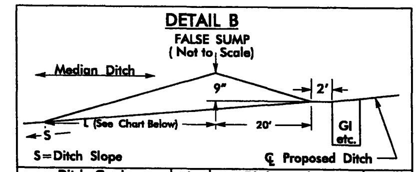
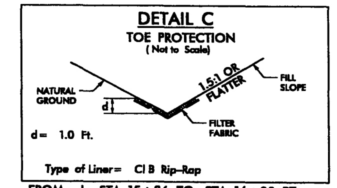
PROJECT REFERENCE NO.	SHEET NO.
B-4645	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING SHEET 7 OF 11

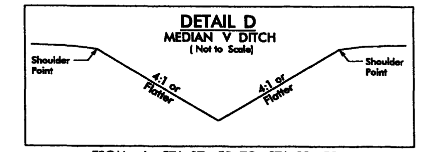




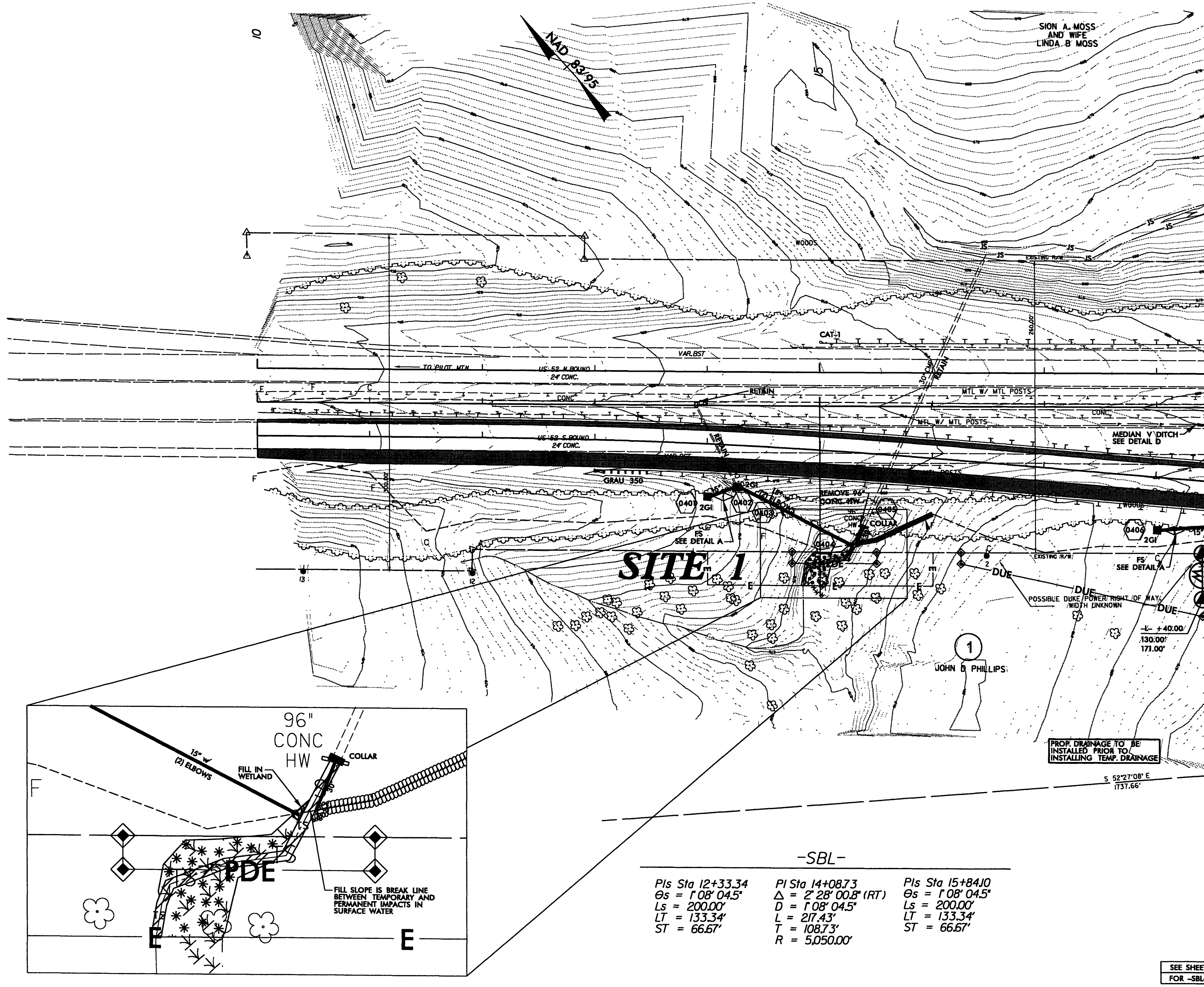
Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'



FROM -L- STA. 15+36 TO STA. 16+00 RT.



FROM -L- STA. 17+50 TO STA. 18+50



DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

DENOTES MECHANIZED CLEARING

DENOTES FILL IN WETLAND

-SBL-

PIs Sta 12+33.34	PI Sta 14+08.73	PIs Sta 15+84.10
Θs = 1° 08' 04.5"	Δ = 2° 28' 00.8" (RT)	Θs = 1° 08' 04.5"
Ls = 200.00'	D = 1° 08' 04.5"	Ls = 200.00'
LT = 133.34'	L = 217.43'	LT = 133.34'
ST = 66.67'	T = 108.73'	ST = 66.67'
	R = 5,050.00'	

SEE SHEET 2-D & 2-E FOR DETOUR
FOR -SBL- PROFILE, SEE SHEET NO. 7

REVISIONS

8/17/99

10/11/2012
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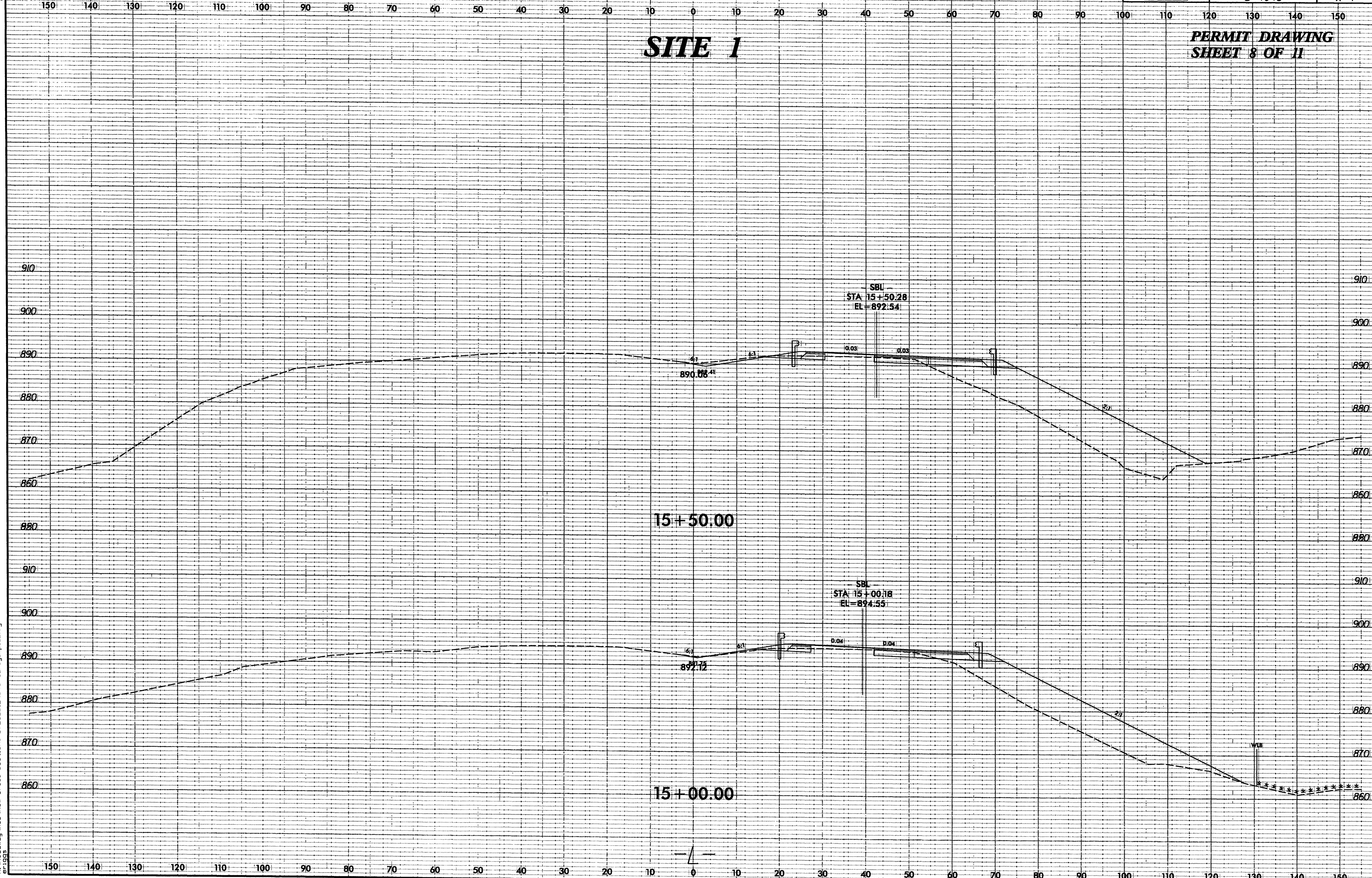
PROJ. REFERENCE NO.	SHEET NO.
B-4645	X-4

SITE 1

PERMIT DRAWING
SHEET 8 OF 11



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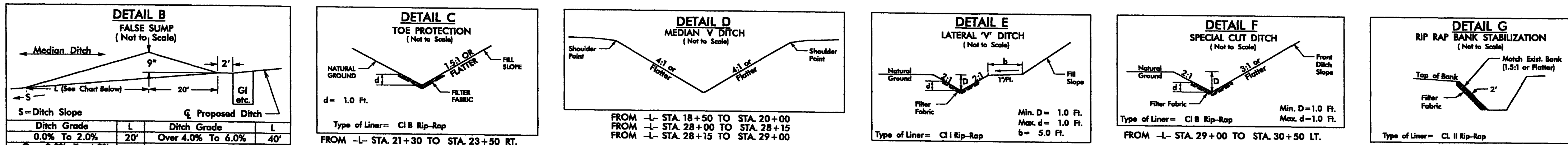
PROJECT REFERENCE NO.	SHEET NO.
B-4645	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING SHEET 9 OF 11



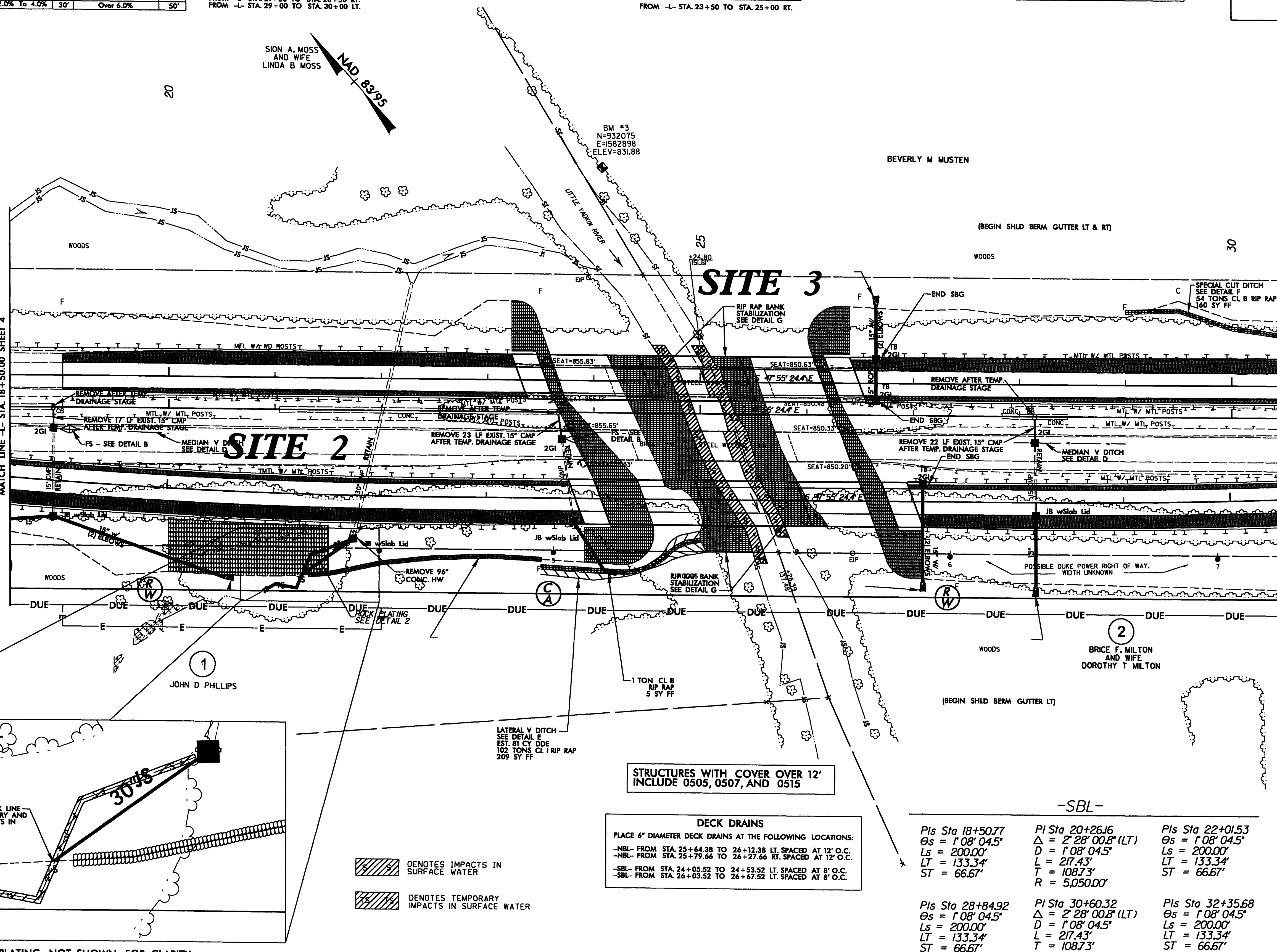
Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

DETAIL C: FROM -L- STA. 21+30 TO STA. 23+50 RT.
FROM -L- STA. 29+00 TO STA. 30+00 LT.

DETAIL D: FROM -L- STA. 18+50 TO STA. 20+00
FROM -L- STA. 28+00 TO STA. 28+15
FROM -L- STA. 28+15 TO STA. 29+00

DETAIL E: FROM -L- STA. 23+50 TO STA. 25+00 RT.

DETAIL F: FROM -L- STA. 29+00 TO STA. 30+50 LT.



STRUCTURES WITH COVER OVER 12' INCLUDE 0505, 0507, AND 0515

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

DECK DRAINS

PLACE 6" DIAMETER DECK DRAINS AT THE FOLLOWING LOCATIONS:

-NBL- FROM STA. 25+64.38 TO 26+12.38 LT. SPACED AT 12' O.C.
-NBL- FROM STA. 25+79.66 TO 26+27.66 RT. SPACED AT 12' O.C.

-SBL- FROM STA. 24+05.52 TO 24+53.52 LT. SPACED AT 8' O.C.
-SBL- FROM STA. 26+03.52 TO 26+67.52 LT. SPACED AT 8' O.C.

-SBL-

PIs Sta 18+50.77 Θs = 1°08' 04.5" Ls = 200.00' LT = 133.34' ST = 66.67'	PI Sta 20+26.16 Δ = 2° 28' 00.8" (LT) D = 1°08' 04.5" L = 217.43' T = 108.73' R = 5,050.00'	PIs Sta 22+01.53 Θs = 1°08' 04.5" Ls = 200.00' LT = 133.34' ST = 66.67'
PIs Sta 28+84.92 Θs = 1°08' 04.5" Ls = 200.00' LT = 133.34' ST = 66.67'	PI Sta 30+60.32 Δ = 2° 28' 00.8" (LT) D = 1°08' 04.5" L = 217.43' T = 108.73' R = 5,050.00'	PIs Sta 32+35.68 Θs = 1°08' 04.5" Ls = 200.00' LT = 133.34' ST = 66.67'

SEE SHEET 2-D & 2-E FOR DETOUR
FOR -NBL- PROFILE, SEE SHEET NO. 7,8
FOR -SBL- PROFILE, SEE SHEET NO. 7,8

REVISIONS

8/17/99

10/11/2012
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PROJECT REFERENCE NO.	SHEET NO.
B-4645	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING SHEET 10 OF 11

DETAIL B
FALSE SUMP
(Not to Scale)
Median Ditch
9"
2'
L (See Chart Below)
20'
GI etc.
S
S=Ditch Slope
℄ Proposed Ditch

Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

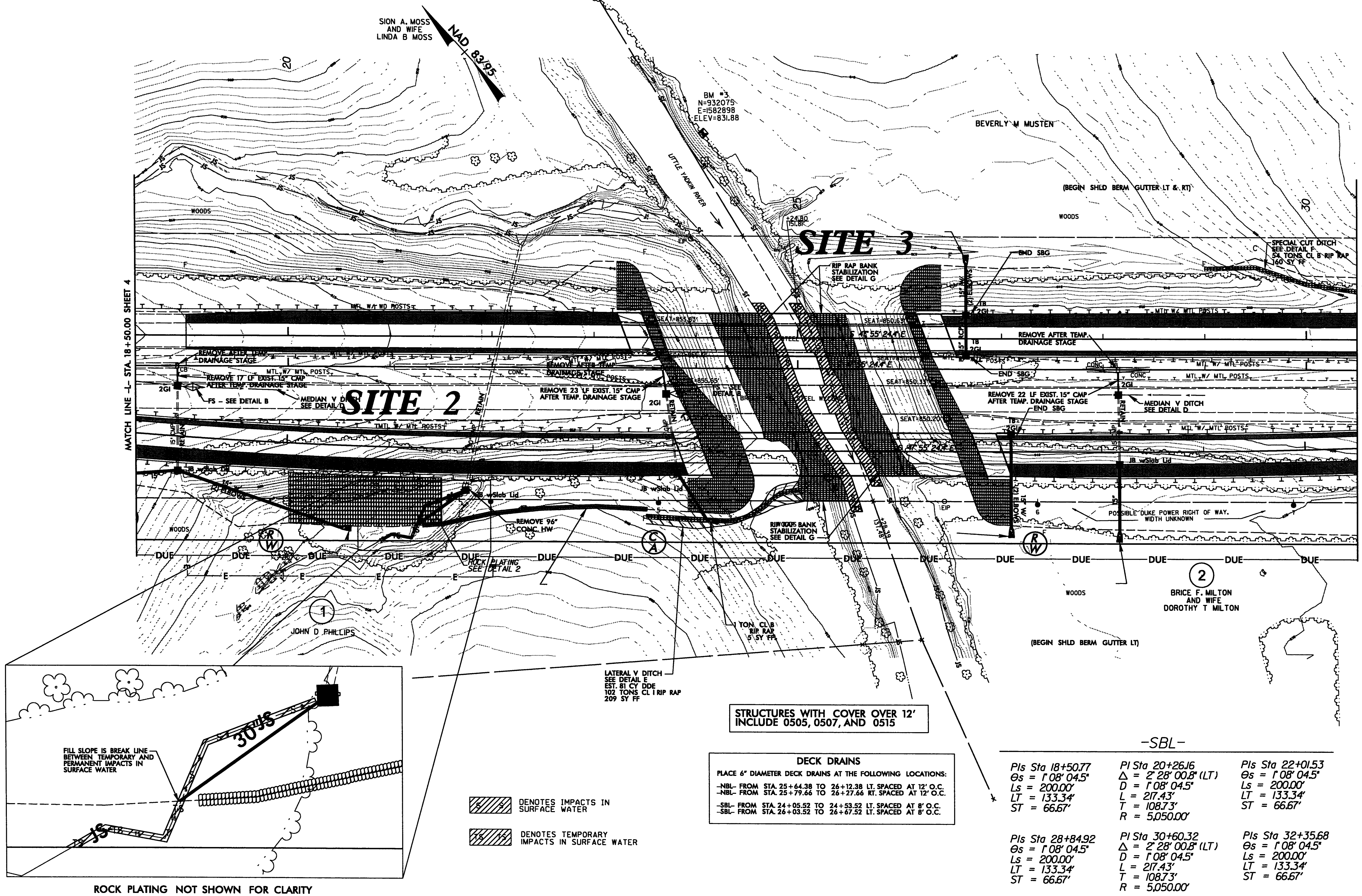
DETAIL C
TOE PROTECTION
(Not to Scale)
NATURAL GROUND
1.5:1 OR FLATTER
FILL SLOPE
FILTER FABRIC
d= 1.0 Ft.
Type of Liner= Cl B Rip-Rap
FROM -L- STA. 21+30 TO STA. 23+50 RT.
FROM -L- STA. 29+00 TO STA. 30+00 LT.

DETAIL D
MEDIAN V DITCH
(Not to Scale)
Shoulder Point
4:1 or Flatter
4:1 or Flatter
Shoulder Point
FROM -L- STA. 18+50 TO STA. 20+00
FROM -L- STA. 28+00 TO STA. 28+15
FROM -L- STA. 28+15 TO STA. 29+00

DETAIL E
LATERAL 'V' DITCH
(Not to Scale)
Natural Ground
2:1
D
2:1
b
1"/Ft.
Fill Slope
Filter Fabric
Min. D= 1.0 Ft.
Max. d= 1.0 Ft.
b= 5.0 Ft.
Type of Liner= Cl I Rip-Rap
FROM -L- STA. 23+50 TO STA. 25+00 RT.

DETAIL F
SPECIAL CUT DITCH
(Not to Scale)
Natural Ground
2:1
D
3:1 or Flatter
Front Ditch Slope
Filter Fabric
Min. D=1.0 Ft.
Max. d=1.0 Ft.
Type of Liner= Cl B Rip-Rap
FROM -L- STA. 29+00 TO STA. 30+50 LT.

DETAIL G
RIP RAP BANK STABILIZATION
(Not to Scale)
Top of Bank
Match Exist. Bank (1.5:1 or Flatter)
2'
Filter Fabric
Type of Liner= CL II Rip-Rap



ROCK PLATING NOT SHOWN FOR CLARITY

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

STRUCTURES WITH COVER OVER 12' INCLUDE 0505, 0507, AND 0515

DECK DRAINS

PLACE 6" DIAMETER DECK DRAINS AT THE FOLLOWING LOCATIONS:

-NBL- FROM STA. 25+64.38 TO 26+12.38 LT. SPACED AT 12' O.C.
-NBL- FROM STA. 25+79.66 TO 26+27.66 RT. SPACED AT 12' O.C.

-SBL- FROM STA. 24+05.52 TO 24+53.52 LT. SPACED AT 8' O.C.
-SBL- FROM STA. 26+03.52 TO 26+67.52 LT. SPACED AT 8' O.C.

-SBL-

PIs Sta 18+50.77	PI Sta 20+26.16	PIs Sta 22+01.53
Θs = 1° 08' 04.5"	Δ = 2° 28' 00.8" (LT)	Θs = 1° 08' 04.5"
Ls = 200.00'	D = 1° 08' 04.5"	Ls = 200.00'
LT = 133.34'	L = 217.43'	LT = 133.34'
ST = 66.67'	T = 108.73'	ST = 66.67'
	R = 5,050.00'	
PIs Sta 28+84.92	PI Sta 30+60.32	PIs Sta 32+35.68
Θs = 1° 08' 04.5"	Δ = 2° 28' 00.8" (LT)	Θs = 1° 08' 04.5"
Ls = 200.00'	D = 1° 08' 04.5"	Ls = 200.00'
LT = 133.34'	L = 217.43'	LT = 133.34'
ST = 66.67'	T = 108.73'	ST = 66.67'
	R = 5,050.00'	

SEE SHEET 2-D & 2-E FOR DETOUR
FOR -NBL- PROFILE, SEE SHEET NO. 7,8
FOR -SBL- PROFILE, SEE SHEET NO. 7,8

REVISIONS

8/17/99

10/11/2012
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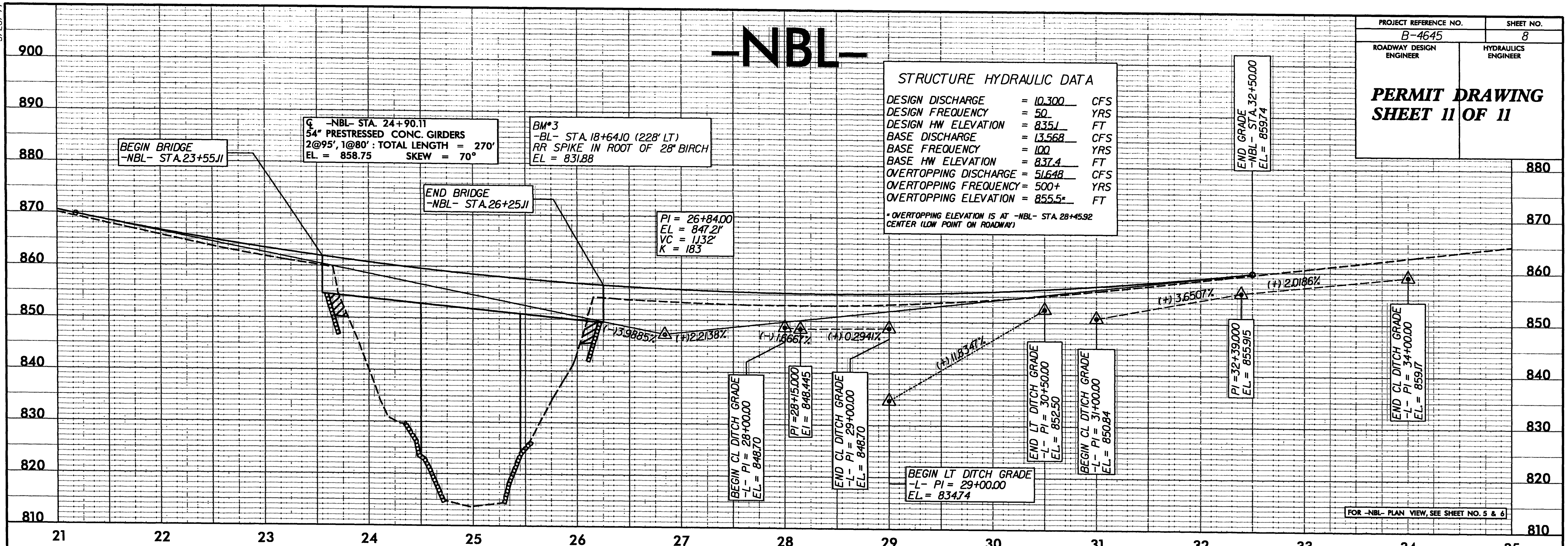
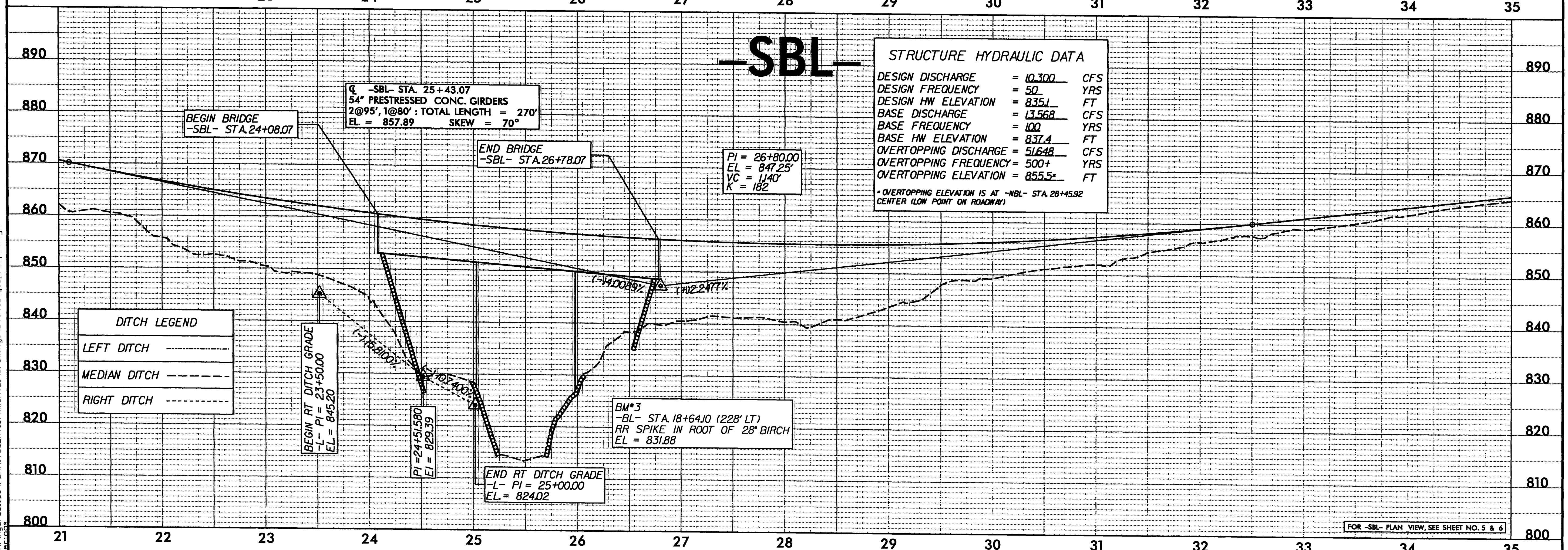
PROJECT REFERENCE NO.	SHEET NO.
B-4645	8
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING SHEET 11 OF 11





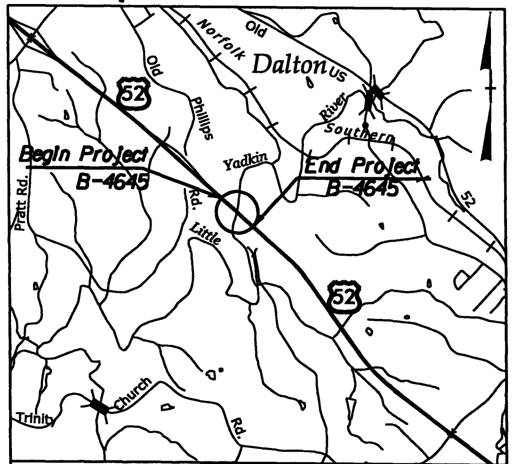
5/28/99

8/17/2012 R:\Hydraulics\PERMITS_Environmental\Drawings\b4645_hyd_prm_pfl.dgn

09/08/99

TIP PROJECT: B-4645

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols



VICINITY MAP SHOWING LOCATION OF PROJECT B-4645

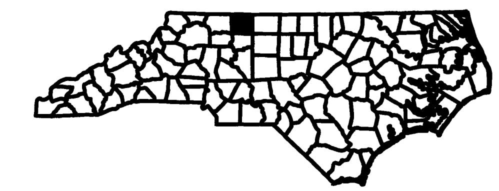
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

STOKES COUNTY

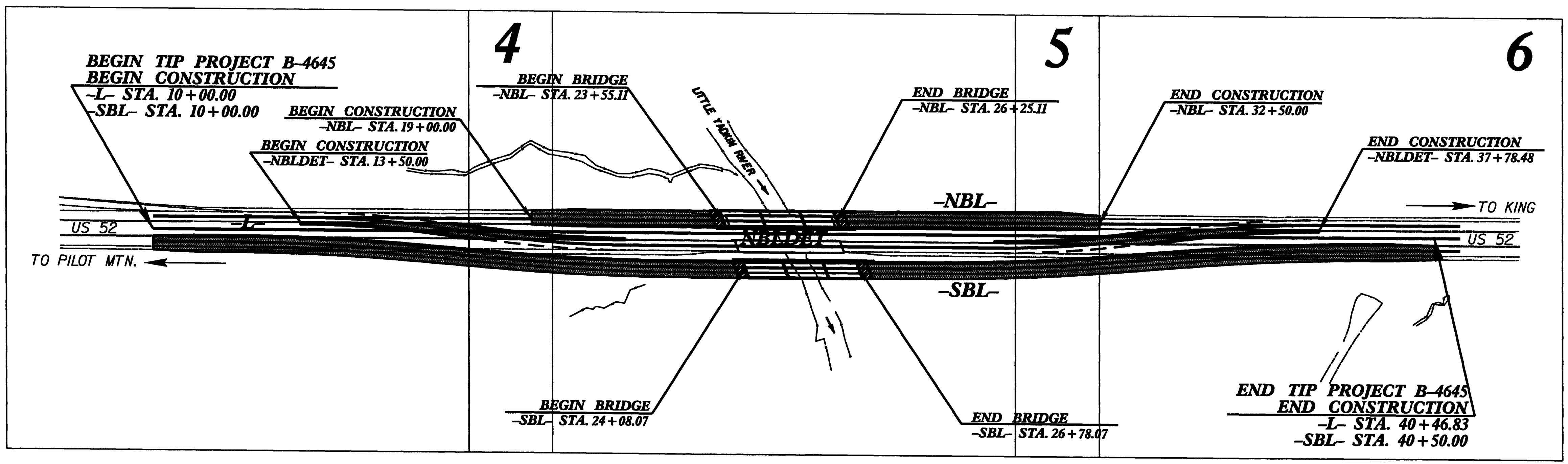
LOCATION: BRIDGES NO. 29 & 30 OVER THE LITTLE YADKIN RIVER ON US 52

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4645	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
38452.1.1	BRNHS-52(25)	P.E.	
38452.2.1	BRNHS-52(25)	R/W & UTL	



NAD 83/95



THERE IS CONTROL OF ACCESS ON THIS PROJECT
THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III

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 2013 = 50,300
ADT 2033 = 82,900
DHV = 10 %
D = 60 %
T = 19 % *
V = 70 MPH
* TTST =12 DUAL 7
FUNC CLASS = INTERSTATE (FUTURE)

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT B-4645 = 0.526 MILES
LENGTH OF STRUCTURE TIP PROJECT B-4645 = 0.051 MILES
TOTAL LENGTH OF TIP PROJECT B-4645 = 0.577 MILES

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: AUGUST 21, 2012

LETTING DATE: AUGUST 20, 2013

TONY HOUSER, P.E.
PROJECT ENGINEER

LEE ANN MOORE
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.

CONTRACT:

21-AUG-2012 13:12
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$$$$USERNAME$$$$

Note: Not to Scale

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin
- Property Corner
- Property Monument
- Parcel/Sequence Number — 23
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary — WLB
- Proposed Wetland Boundary — WLB
- Existing Endangered Animal Boundary — EAB
- Existing Endangered Plant Boundary — EPB
- Known Soil Contamination: Area or Site
- Potential Soil Contamination: Area or Site

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

- Stream or Body of Water
- Hydro, Pool or Reservoir
- Jurisdictional Stream — JS
- Buffer Zone 1 — BZ 1
- Buffer Zone 2 — BZ 2
- Flow Arrow
- Disappearing Stream
- Spring
- Wetland
- Proposed Lateral, Tail, Head Ditch — FLOW
- False Sump

RAILROADS:

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

RIGHT OF WAY:

- Baseline Control Point
- Existing Right of Way Marker
- Existing Right of Way Line
- Proposed Right of Way Line
- Proposed Right of Way Line with Iron Pin and Cap Marker
- Proposed Right of Way Line with Concrete or Granite Marker
- Existing Control of Access
- Proposed Control of Access
- Existing Easement Line — E
- Proposed Temporary Construction Easement — E
- Proposed Temporary Drainage Easement — TDE
- Proposed Permanent Drainage Easement — PDE
- Proposed Permanent Drainage / Utility Easement — DUE
- Proposed Permanent Utility Easement — PUE
- Proposed Temporary Utility Easement — TUE
- Proposed Aerial Utility Easement — AUE
- Proposed Permanent Easement with Iron Pin and Cap Marker

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Curb Ramp — CR
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:

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

EXISTING STRUCTURES:

MAJOR:

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

MINOR:

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

UTILITIES:

POWER:

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

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

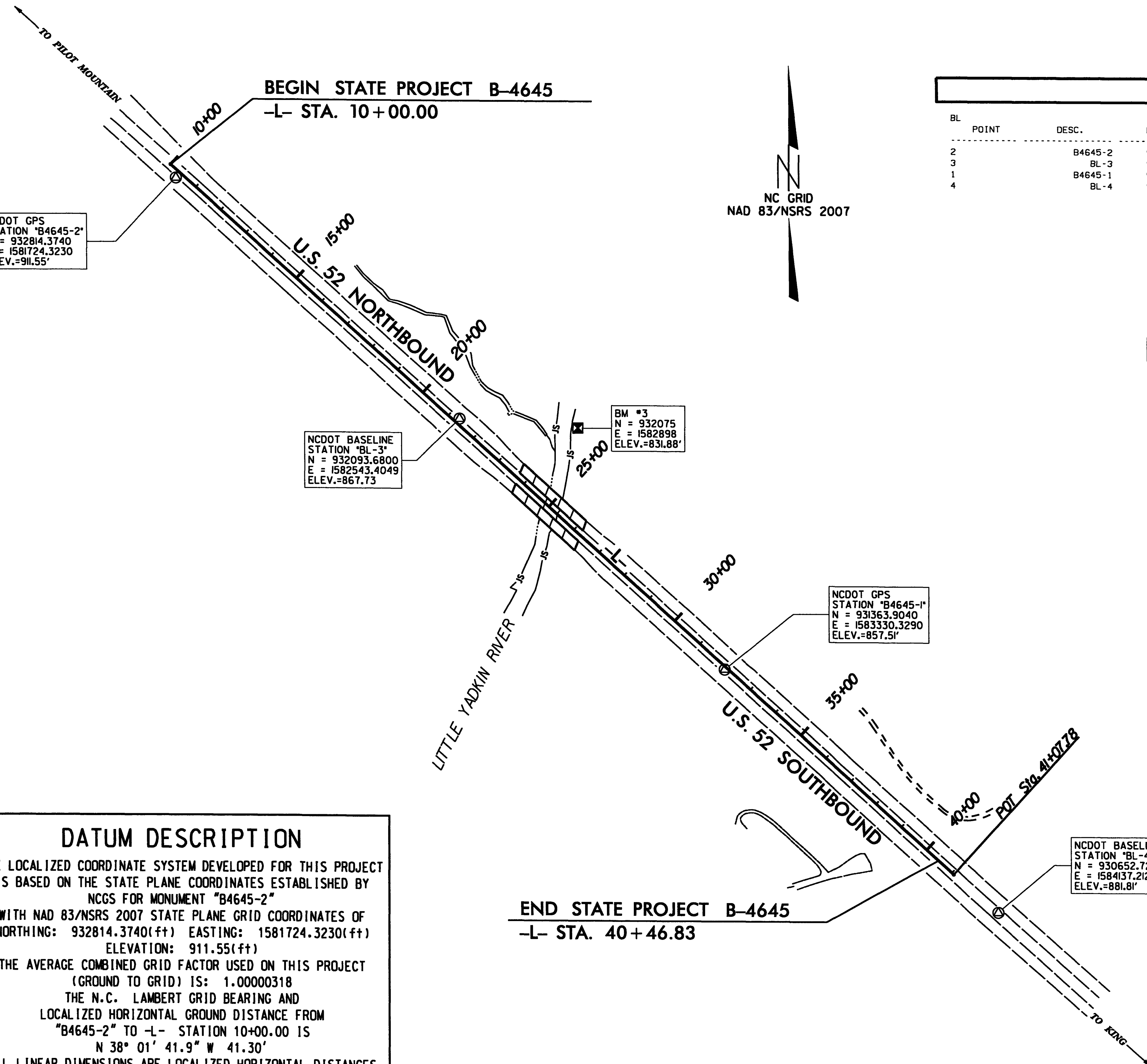
- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line — SS
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- Recorded SS Forced Main Line — FSS
- Designated SS Forced Main Line (S.U.E.*) — FSS

MISCELLANEOUS:

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

PROJECT REFERENCE NO.	SHEET NO.
B-4645	1C
Location and Surveys	

B-4645 SURVEY CONTROL SHEET



BASELINE DATA

BL POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
2	B4645-2	932814.3740	1581724.3230	911.55	10+40.69	7.10 RT
3	BL-3	932093.6800	1582543.4049	867.73	21+31.61	6.85 LT
1	B4645-1	931363.9040	1583330.3290	857.51	32+04.74	7.49 RT
4	BL-4	930652.7299	1584137.2123	881.81	OUTSIDE PROJECT LIMITS	

BENCHMARK DATA

BM1 ELEVATION = 911.55
N 932814 E 1581724
L STATION 10+41.00 7 RIGHT
REBAR WITH ALUMINUM CAP STAMPED "B4645-2". CAP IS LOCATED INSIDE THE MEDIAN OF US 52, APPROXIMATELY 9.4' NE OF EP, SOUTHBOUND LANES.

BM2 ELEVATION = 881.81
N 930653 E 1584137
L STATION 41+08.00
S 49°42'7.05" E DIST 172.53
REBAR WITH ALUMINUM CAP STAMPED "BL-4". CAP IS LOCATED INSIDE THE MEDIAN OF US 52, APPROXIMATELY 11.5' SW OF EP, NORTHBOUND LANES.

BM3 ELEVATION = 831.88
N 932075 E 1582898
L STATION 24+08.00 231 LEFT
R/R SPIKE SET IN ROOT OF 28-INCH FORKED BIRCH ON SE SIDE OF CREEK

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "B4645-2"
WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 932814.3740(ft) EASTING: 1581724.3230(ft)
ELEVATION: 911.55(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 1.00000318
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B4645-2" TO -L- STATION 10+00.00 IS
N 38° 01' 41.9" W 41.30'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

NOTES

1. *THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT: HTTP://WWW.DOH.DOT.STATE.NC.US/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/*

   THE FILES TO BE FOUND ARE AS FOLLOWS:
   b4645_ls_control.txt

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

⊗ *INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.*
PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.

NOTE: DRAWING NOT TO SCALE

12/01/2005
21-AUG-2012 13:13
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$$$$USERNAME$$$$

B-4645 SURVEY CONTROL SHEET

PRELIMINARY

ROW MARKER CONCRETE OR GRANITE-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	18+40.00	130.00	932187.5136	1582235.2518
L	18+40.00	171.00	932157.0813	1582207.7768
L	32+60.00	171.00	931205.5068	1583261.7720
L	35+75.00	130.00	931024.8503	1583523.0558

ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	14+75.00	129.98	932432.1245	1581964.3450
L	14+75.00	140.00	932424.6860	1581957.6293
L	15+50.00	140.00	932374.4267	1582013.2981
L	15+50.00	130.00	932381.8492	1582019.9993
L	16+25.00	130.00	932331.5900	1582075.6680
L	16+25.00	140.00	932324.1675	1582068.9668
L	18+40.00	186.00	932145.9476	1582197.7249
L	27+00.00	171.00	931580.7756	1582846.1119
L	27+00.00	186.00	931569.6419	1582836.0601
L	28+30.00	186.00	931482.5259	1582932.5526
L	28+30.00	171.00	931493.6597	1582942.6044
L	32+60.00	186.00	931194.3730	1583251.7201
L	35+75.00	150.00	931010.0053	1583509.6534

DESIGN ALIGNMENTS

L

TYPE	STATION	NORTH	EAST
POT	10+00.00	932846.9094	1581698.8777
POT	41+07.78	930764.3148	1584005.6278

NBL

TYPE	STATION	NORTH	EAST
POT	10+00.00	932869.1769	1581718.9814
POT	41+07.48	930786.7833	1584025.5088

SBL

TYPE	STATION	NORTH	EAST
POT	10+00.00	932824.6419	1581678.7740
TS	11+00.00	932757.6296	1581752.9990
SC	13+00.00	932622.6304	1581900.5586
CS	15+17.43	932470.3935	1582055.7761
SRS	17+17.43	932325.4788	1582193.6106
SC	19+17.43	932180.5642	1582331.4451
CS	21+34.86	932028.3273	1582486.6627
ST	23+34.86	931893.3281	1582634.2222
TS	27+51.58	931614.0720	1582943.5355
SC	29+51.58	931481.0325	1583092.8643
CS	31+69.01	931342.1310	1583260.1213
SRS	33+69.01	931219.7760	1583418.3234
SC	35+69.01	931097.4211	1583576.5254
CS	37+86.44	930958.5195	1583743.7824
ST	39+86.44	930825.4801	1583893.1112
POT	41+10.65	930742.2483	1583985.3015

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "B4645-2"
WITH NAD 83/95 STATE PLANE GRID COORDINATES OF
NORTHING: 932814.3740(ft) EASTING: 1581724.3230(ft)
ELEVATION: 911.55(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 1.00000318
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B4645-2" TO -L- STATION 10+00.00 IS
N 38° 01' 41.9" W 41.30'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

NOTES

1. *THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:*
HTTP://WWW.DOH.DOT.STATE.NC.US/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/

THE FILES TO BE FOUND ARE AS FOLLOWS:
b4645_ls_control.txt

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

INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.
PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.

12/01/2005

21-AUG-2012 13:13
R:\Roadway\Proj\B4645_Ls_1d.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
B-4645	2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

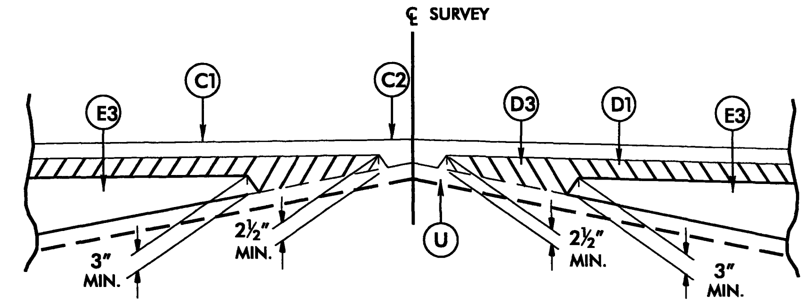
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

6/2/99

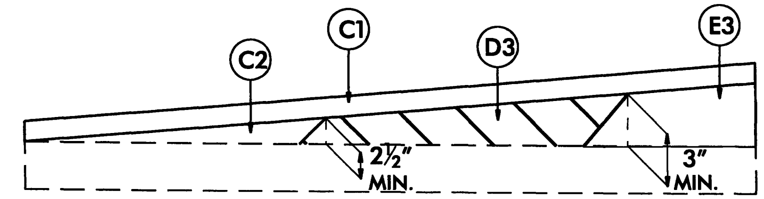
PAVEMENT SCHEDULE

C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.
D1	PROP. APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.
D2	PROP. APPROX. 3½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YD.
D3	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2½" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 15" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD. IN EACH OF THREE LAYERS.
E2	PROP. APPROX. 7" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
E3	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, 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.
R1	CONCRETE SHOULDER BERM GUTTER.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL).

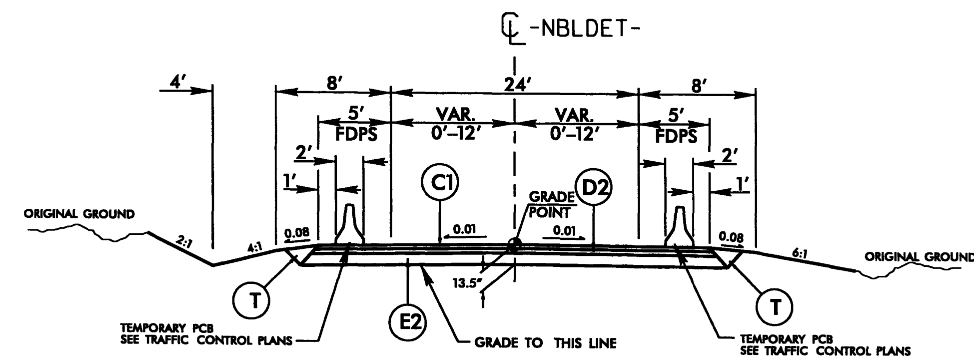
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



Detail Showing Method of Wedging



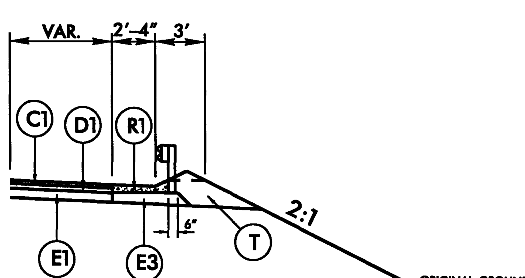
Wedging Detail For Resurfacing



TYPICAL SECTION NO. 1

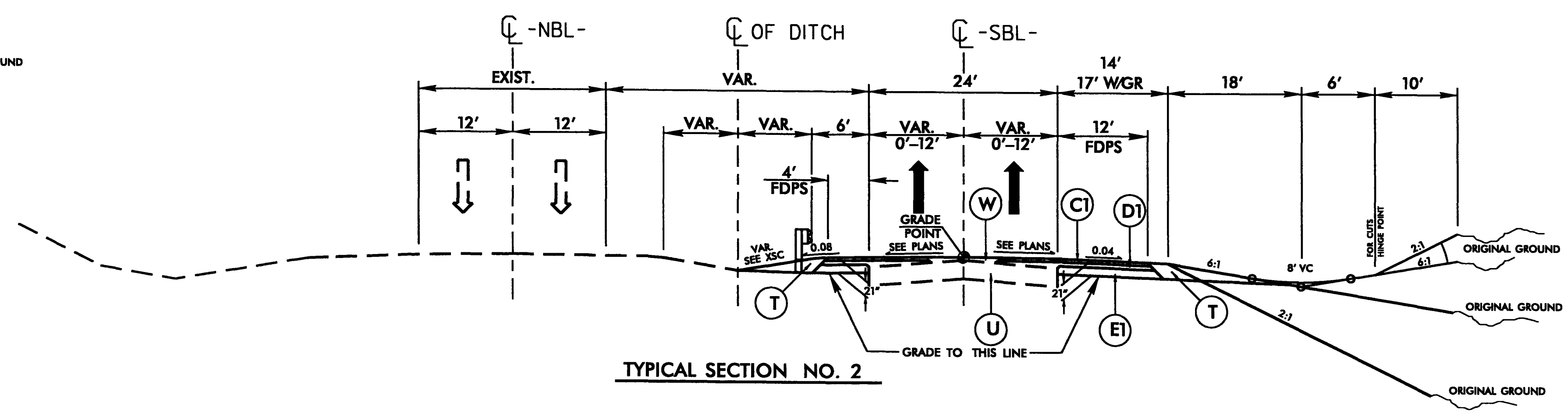
USE TYPICAL SECTION NO. 1 FOR:

-NBLDET- STA 13+50.00 TO STA 23+45.00 RT
-NBLDET- STA 14+25.00 TO STA 23+45.00 LT
-NBLDET- STA 30+03.10 TO STA 39+15.00 RT & LT



SHOULDER BERM GUTTER DETAIL

-NBL- STA 26+25.11 (END BRIDGE) TO STA 26+70.00 LT
-NBL- STA 26+25.11 (END BRIDGE) TO STA 26+70.00 RT
-SBL- STA 26+78.07 (END BRIDGE) TO STA 27+16.00 LT



TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2 FOR:

-SBL- STA 10+00.00 TO STA 16+25.00
-SBL- STA 34+50.00 TO STA 40+50.00

21-AUG-2012 13:13
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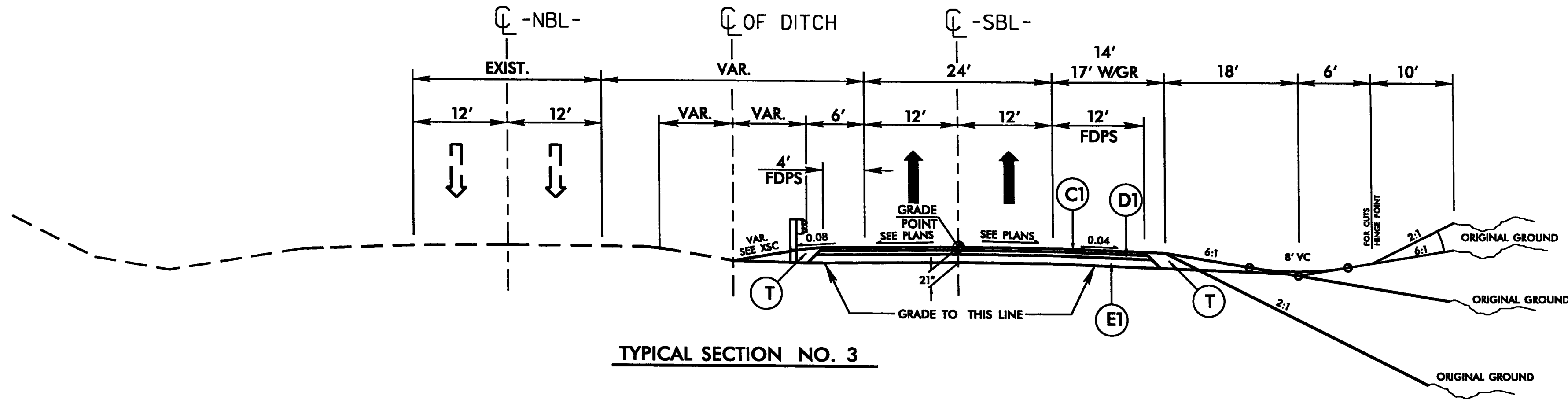
PROJECT REFERENCE NO.	SHEET NO.
B-4645	2-A
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

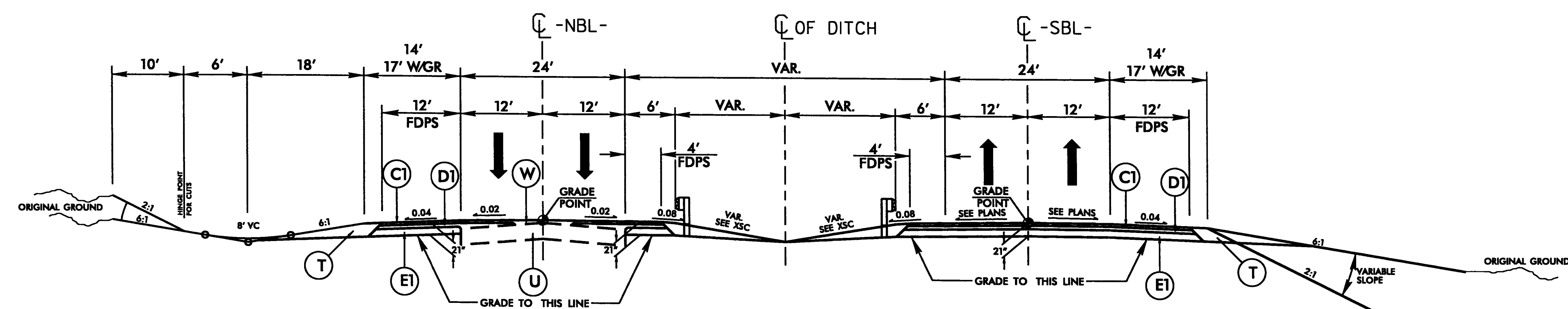


TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3 FOR:

–SBL– STA 16+25.00 TO STA 18+94.66
–SBL– STA 32+59.27 TO STA 34+50.00

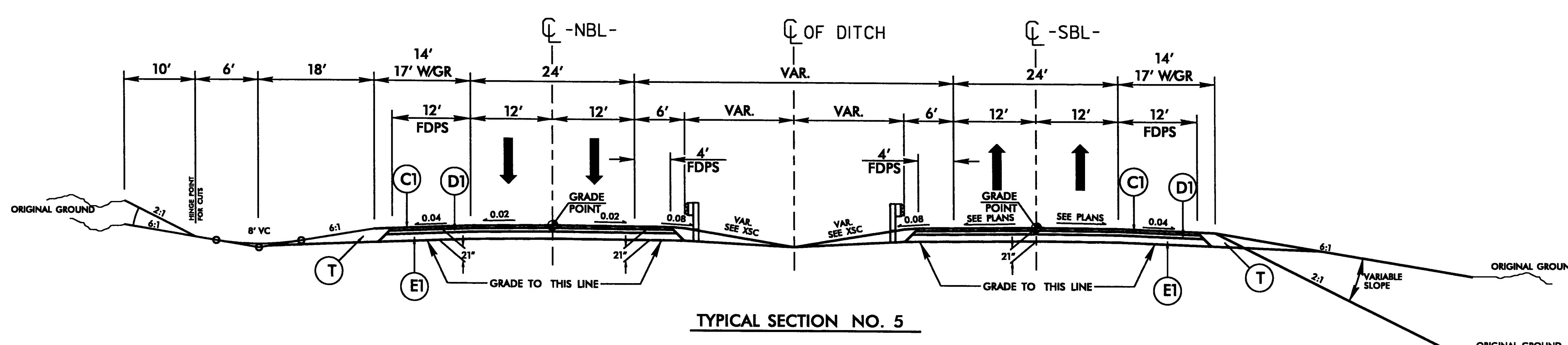
C1	3" S9.5C
C2	VAR. S9.5C
D1	3" I19.0C
D2	3½" I19.0C
D3	VAR. I19.0C
E1	15" B25.0C
E2	7" B25.0C
E3	VAR. B25.0C
R1	SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXIST. PAVEMENT
W	WEDGING



TYPICAL SECTION NO. 4

USE TYPICAL SECTION NO. 4 FOR:

–NBL– STA 19+00.00 TO STA 22+75.00
–SBL– STA 18+94.66 TO STA 22+76.40
–NBL– STA 29+00.00 TO STA 32+50.00
–SBL– STA 29+02.84 TO STA 32+59.27



TYPICAL SECTION NO. 5

USE TYPICAL SECTION NO. 5 FOR:

–NBL– STA 22+75.00 TO STA 23+55.11 (BEGIN BRIDGE)
–SBL– STA 22+76.40 TO STA 24+08.07 (BEGIN BRIDGE)
–NBL– STA 26+25.11 (END BRIDGE) TO STA 29+00.00
–SBL– STA 26+78.07 (END BRIDGE) TO STA 29+02.84

6/2/99

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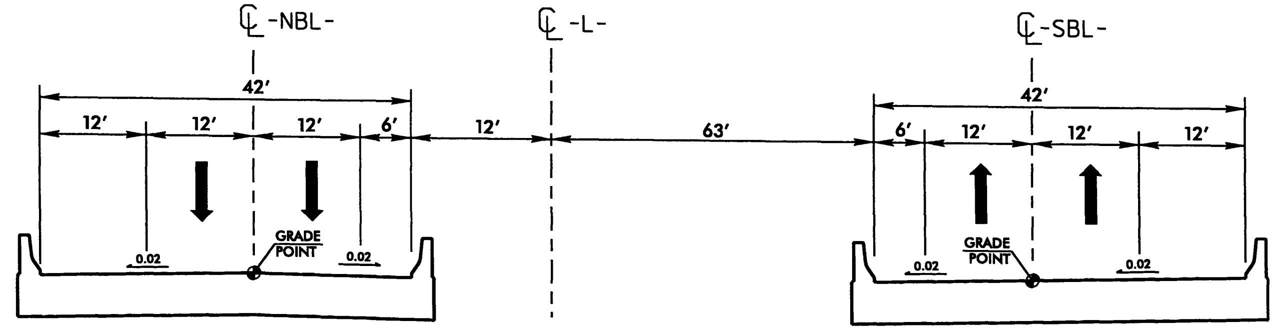
6/2/99

PROJECT REFERENCE NO.	SHEET NO.
B-4645	2-B
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



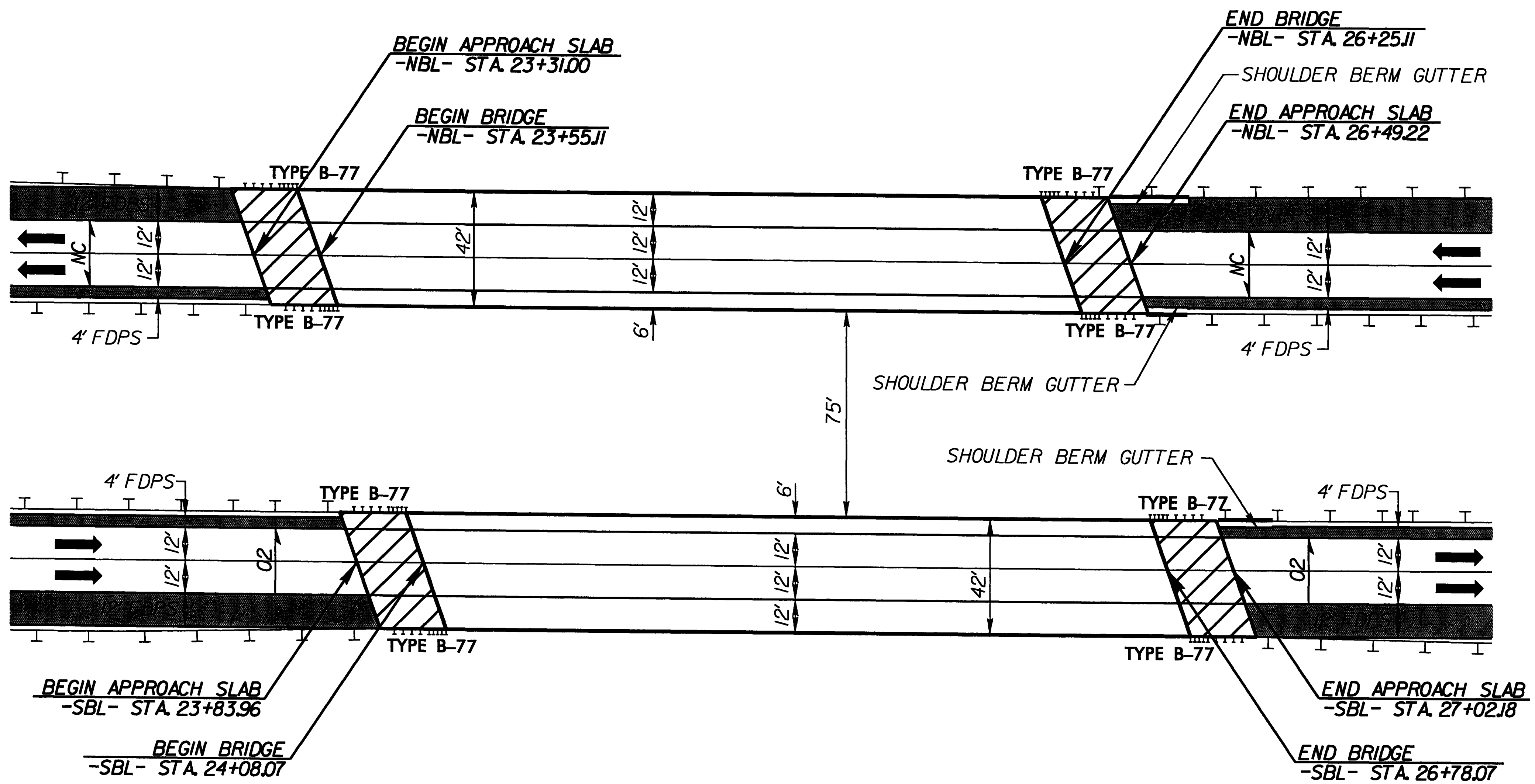
TYPICAL SECTION ON BRIDGE

USE TYPICAL SECTION FOR:

-NBL- STA 23+55.11 (BEGIN BRIDGE) TO STA 26+25.11 (END BRIDGE)

-SBL- STA 24+02.18 (BEGIN BRIDGE) TO STA 26+78.07 (END BRIDGE)

SKETCH SHOWING BRIDGE / PAVEMENT RELATIONSHIP



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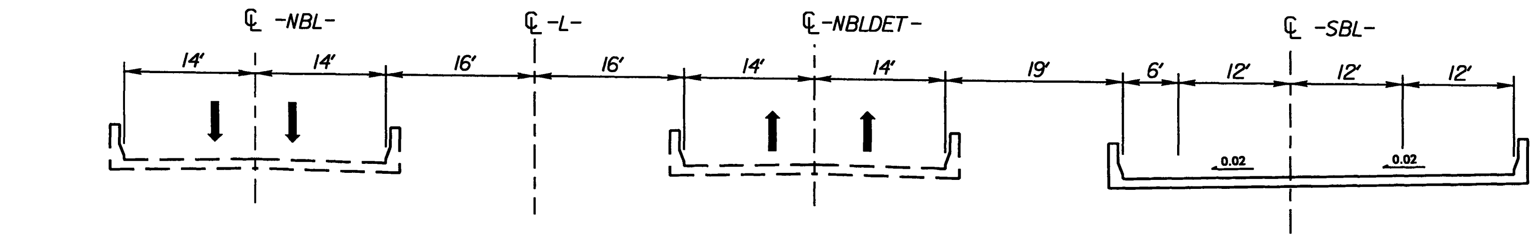
6/2/99

PROJECT REFERENCE NO.	SHEET NO.
B-4645	2-C

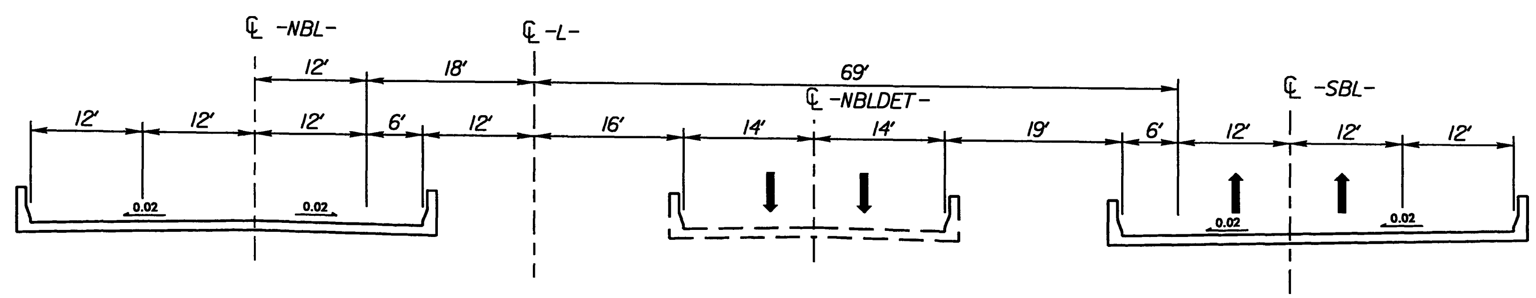
ROADWAY DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

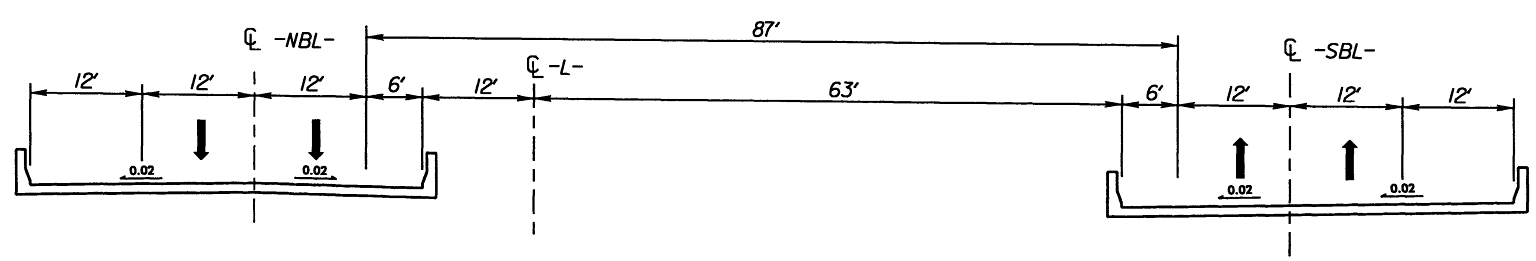
CONSTRUCTION PHASING



Phase 1:
Build New –SBL– Bridge



Phase 2:
Switch SB traffic on new –SBL– bridge
Switch NB traffic on existing –NBLDET– bridge
Remove existing –NBL– bridge
Build new –NBL– bridge



Phase 3:
Switch NB traffic on new –NBL– bridge
Remove existing –NBLDET– bridge

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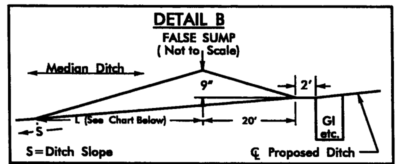
PROJECT REFERENCE NO.	SHEET NO.
B-4645	2-D

R/W SHEET NO.

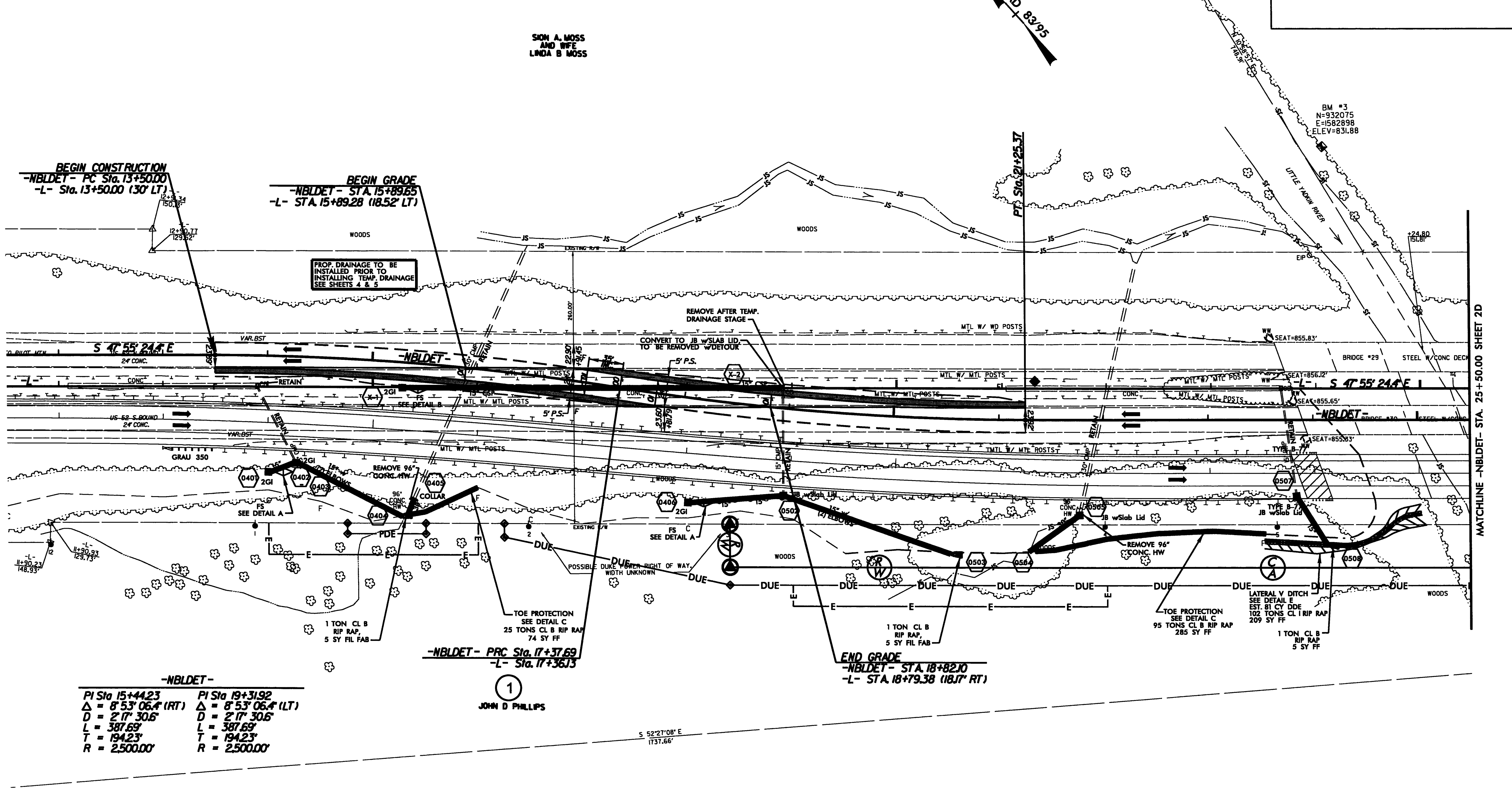
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-NBL- DETOUR



Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'



-NBLDET-

PI Sta 15+44.23	PI Sta 19+31.92
Δ = 8°53' 06.4" (RT)	Δ = 8°53' 06.4" (LT)
D = 2°17' 30.6"	D = 2°17' 30.6"
L = 387.69'	L = 387.69'
T = 194.23'	T = 194.23'
R = 2,500.00'	R = 2,500.00'

REVISIONS

8/17/99

21-AUG-2012 13:13
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FOR -NBLDET- PROFILE, SEE SHEET NO. 9

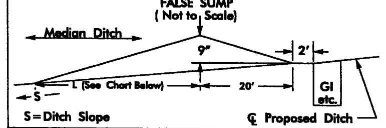
PROJECT REFERENCE NO.	SHEET NO.
B-4645	2-E
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

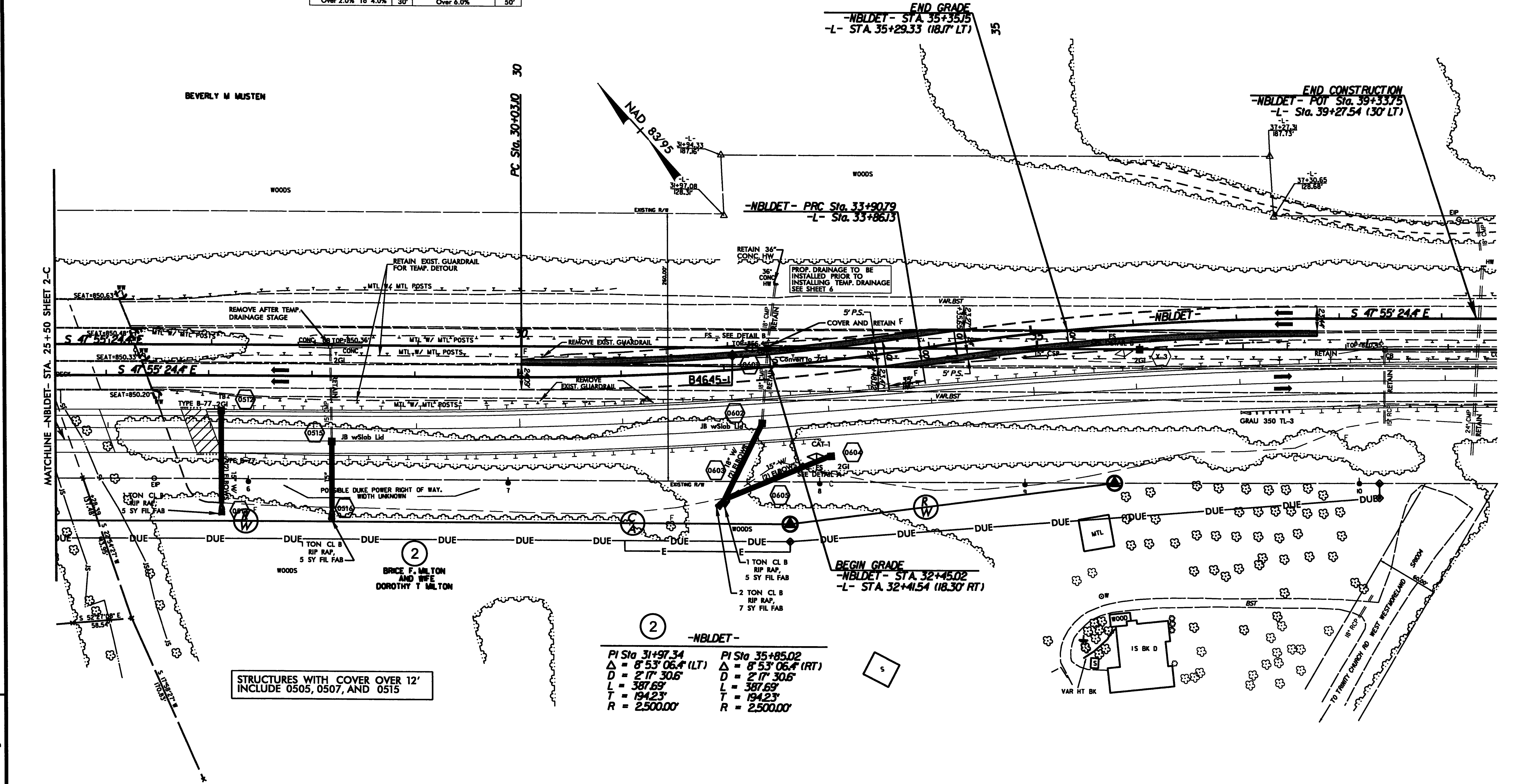
-NBL- DETOUR

DETAIL B

FALSE SUMP
(Not to Scale)



Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'



2

-NBLDET-

PI Sta 31+97.34	PI Sta 35+85.02
Δ = 8° 53' 06.4" (LT)	Δ = 8° 53' 06.4" (RT)
D = 2° 17' 30.6"	D = 2° 17' 30.6"
L = 387.69'	L = 387.69'
T = 194.23'	T = 194.23'
R = 2,500.00'	R = 2,500.00'

STRUCTURES WITH COVER OVER 12' INCLUDE 0505, 0507, AND 0515

REVISIONS

8/17/99

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FOR -NBLDET- PROFILE, SEE SHEET NO. 9

12/06/07

COMPUTED BY: C. HARRIS DATE: 5/11/12
CHECKED BY: J. BRAXTON DATE:

PROJECT REFERENCE NO.	SHEET NO.
B-4645	3-A

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF EARTHWORK

STATION	STATION	UNCL. EXCAV.	EMBANK. +%	BORROW	WASTE
PHASE I CONSTRUCTION					
L 10+00.00 RT	L 24+06.49 RT (BEG. BR)	4,753	21,886	17,133	
L 26+76.49 RT (END BR)	L 40+46.83 RT	8,175	25,251	17,076	
SUBTOTALS:		12,928	47,137	34,209	
PHASE II CONSTRUCTION					
L 19+00.00 LT	L 23+55.11 LT (BEG. BR)	682	737	55	
L 26+25.11 LT (END BR)	L 32+50.00 LT	1,028	2,731	1,703	
NBLDET 13+50.00	NBLDET 21+25.37	54	365	311	
NBLDET 30+03.10	NBLDET 37+78.48	33	480	447	
SUBTOTALS:		1,797	4,313	2,516	
PHASE III CONSTRUCTION					
L 10+00.00 MID	L 23+67.79 MID	3,980	41		3,939
L 26+37.79 MID	L 40+46.83 MID	2,993	98		2,895
	NBLDET REMOVAL	704	104		600
SUBTOTALS:		7,677	243		7,434
PROJECT SUBTOTALS:		22,402	51,693	36,725	7,434
Material For Shoulder Construction:			3,768	3,768	
Loss Due To Clearing & Grubbing:		-600		600	
Adjust for Existing Pavement Volume:		-2,700			-2,700
Waste In Lieu Of Borrow:				-4,734	-4,734
PROJECT TOTAL:		19,102	55,461	36,359	
5% To Replace Top Soil On Borrow Pit:				1,818	
GRAND TOTALS:				38,177	
SAY:		19,150		38,200	

Earthwork quantities are calculated by the Roadway Design Unit. These earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineering Unit.

SUMMARY OF REMOVAL OF EXISTING ASPHALT PAVEMENT

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD^2
-L-	19+00.00	23+55.11	LT	404.54
-L-	26+25.11	32+50.00	LT	555.46
-L-	19+00.00	23+55.11	MID	101.14
-L-	26+25.11	32+50.00	MID	138.86
-L-	10+00.00	23+86.87	MID	308.19
-L-	26+36.47	40+46.83	MID	313.41
-L-	10+00.00	23+86.87	RT	1,232.77
-L-	26+36.47	40+46.83	RT	1,253.65
-NBLDET-	13+50.00	21+25.37	CL	1,126.56
-NBLDET-	30+03.10	37+78.48	CL	1,115.78
			TOTAL:	6,550.37
			SAY:	6,560

SUMMARY OF REMOVAL OF EXISTING CONCRETE PAVEMENT

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD^2
-L-	14+00.00	23+86.87	RT	2098.32
-L-	26+36.47	36+75.00	RT	2169.41
			TOTAL:	4,267.73
			SAY:	4,270

SHOULDER BERM GUTTER SUMMARY

SURVEY LINE	STATION	STATION	LENGTH
-NBL-	26+40.38	26+70.00	29.62
-NBL-	26+55.66	26+70.00	14.34
-SBL-	26+95.52	27+16.00	20.48
		TOTAL:	64.44
		SAY:	70

"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.
G = GATING IMPACT ATTENUATOR TYPE 350
NG = NON-GATING IMPACT ATTENUATOR TYPE 350

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 RESET EXISTING GUARDRAIL	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	TYPE B-77	GRAU 350	CAT-1	EA	G	NG				
-SBL-	10+00.00	24+01.52 (BR)	LT	1401.52				24+01.52 (BR)	6	6	100		2.60		1							1346.77		TIE TO EXIST. GUARDRAIL
-SBL-	26+71.52 (BR)	40+50.00	LT	1378.48			26+71.52 (BR)		6	6		100		2.38	1							1414.25		TIE TO EXIST. GUARDRAIL
-SBL-	13+00.00	24+16.81 (BR)	RT	1116.81			14+50.00	24+16.81 (BR)	14	17	50	100	1	2	1	1						824.69		
-SBL-	26+86.81 (BR)	32+90.00	RT	609.19			26+86.81 (BR)	32+90.00	14	17	100		2		1		1					482.62		
-SBL-	37+00.00	40+50.00	RT	350			38+50.00		14	17	50	100	1	3.18		1						275.25		TIE TO EXIST. GUARDRAIL
-NBL-	15+00.00	23+46.38 (BR)	LT	846.38			23+46.38 (BR)	15+00.00	14	17	100		2		1		1					881.46		
-NBL-	26+16.38 (BR)	31+50.00	LT	633.62			30+00.00	26+16.38 (BR)	14	17	514.87		3		1	1						481.82		
-NBL-	19+00.00	23+61.66 (BR)	RT	461.66			23+61.66 (BR)		6	6		100		2.20	1							427.92		TIE TO EXIST. GUARDRAIL
-NBL-	26+31.66 (BR)	32+50.00	RT	618.34				26+31.66 (BR)	6	6	100		2.62		1							602.08		TIE TO EXIST. GUARDRAIL
-NBL-	39+05.42	39+27.59	LT																				22.17	TIE EXIST. GUARDRAIL TO PCB WITH TEMP. B-77 ANCHOR UNIT
-NBL-	33+20.00	39+27.59	RT																				607.59	TIE EXIST. GUARDRAIL TO PCB WITH TEMP. B-77 ANCHOR UNIT
-NBL-	14+30.00	18+00.00	RT																				370.00	
			SHEET TOTAL:	7416																				
			ANCHOR DEDUCTION:	312.5																				
			TOTAL:	7103.5																		TOTAL:	6736.86	999.76	
			SAY:	7150																		SAY:	6740	1010	

ANCHOR DEDUCTION:
TYPE B-77 : 8 @ 18.75 = 150
GRAU 350 : 3 @ 50 = 150
CAT-1 : 2 @ 6.25 = 12.5
$\left.\begin{array}{l}150\\150\\12.5\end{array}\right\}312.5$
ADDITIONAL GUARDRAIL POSTS : 10

21-AUG-2012 13:13
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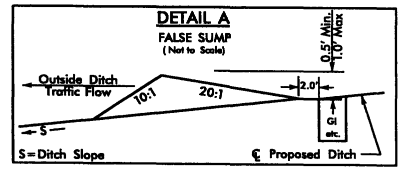
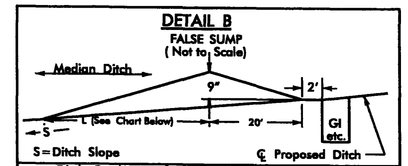
PROJECT REFERENCE NO.	SHEET NO.
B-4645	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

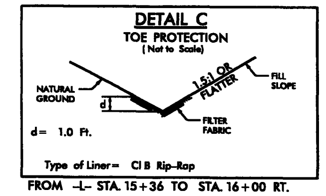
REVISIONS

8/17/99

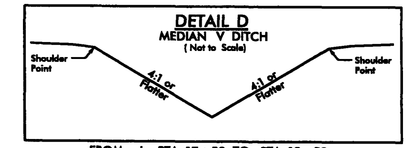




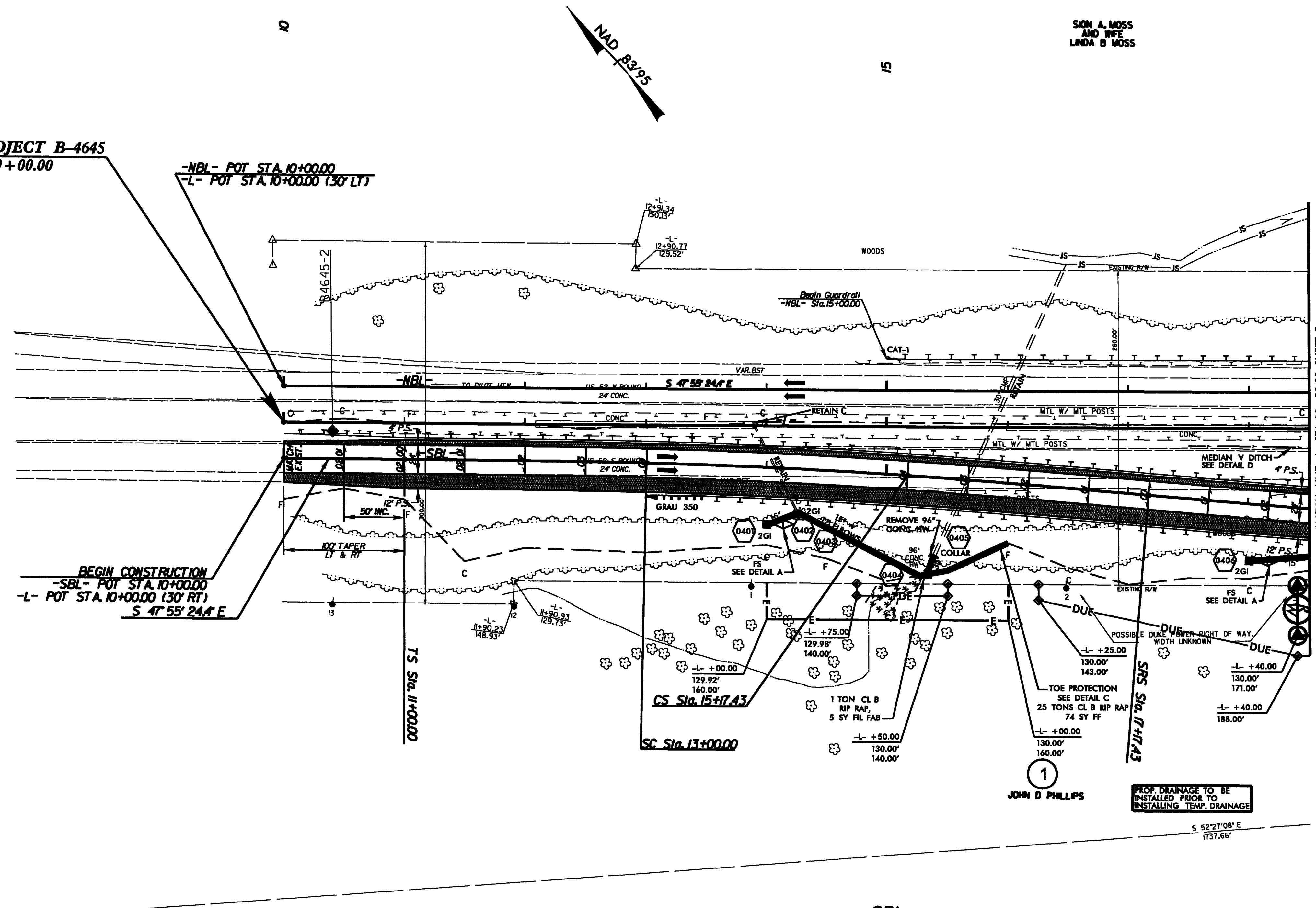
Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'



FROM -L- STA. 15+36 TO STA. 16+00 RT.



FROM -L- STA. 17+50 TO STA. 18+50



-SBL-

PIs Sta 12+33.34	PI Sta 14+08.73	PIs Sta 15+84.10
θs = 1°08' 04.5"	Δ = 2°28' 00.8" (RT)	θs = 1°08' 04.5"
Ls = 200.00'	D = 1°08' 04.5"	Ls = 200.00'
LT = 133.34'	L = 217.43'	LT = 133.34'
ST = 66.67'	T = 108.73'	ST = 66.67'
	R = 5,050.00'	

SEE SHEET 2-D & 2-E FOR DETOUR
FOR -SBL- PROFILE, SEE SHEET NO. 7

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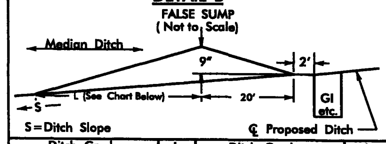
PROJECT REFERENCE NO.	SHEET NO.
B-4645	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

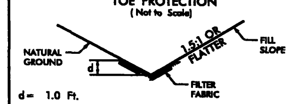
8/17/99

DETAIL B
FALSE SUMP
(Not to Scale)



Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

DETAIL C
TOE PROTECTION
(Not to Scale)

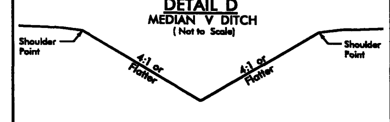


d= 1.0 Ft.

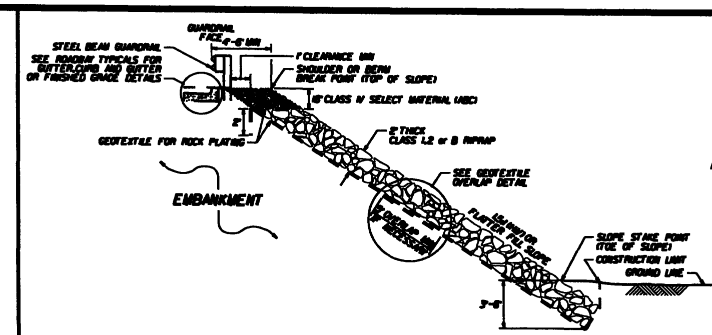
Type of Liner= Cl B Rip-Rap

FROM -L- STA. 21+30 TO STA. 23+50 RT.
FROM -L- STA. 29+00 TO STA. 30+00 LT.

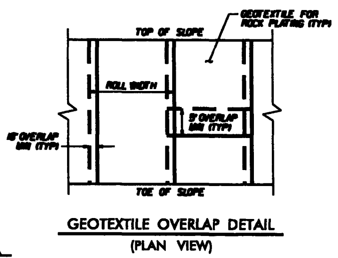
DETAIL D
MEDIAN 'V' DITCH
(Not to Scale)



FROM -L- STA. 18+50 TO STA. 20+00
FROM -L- STA. 28+00 TO STA. 28+15
FROM -L- STA. 28+15 TO STA. 29+00



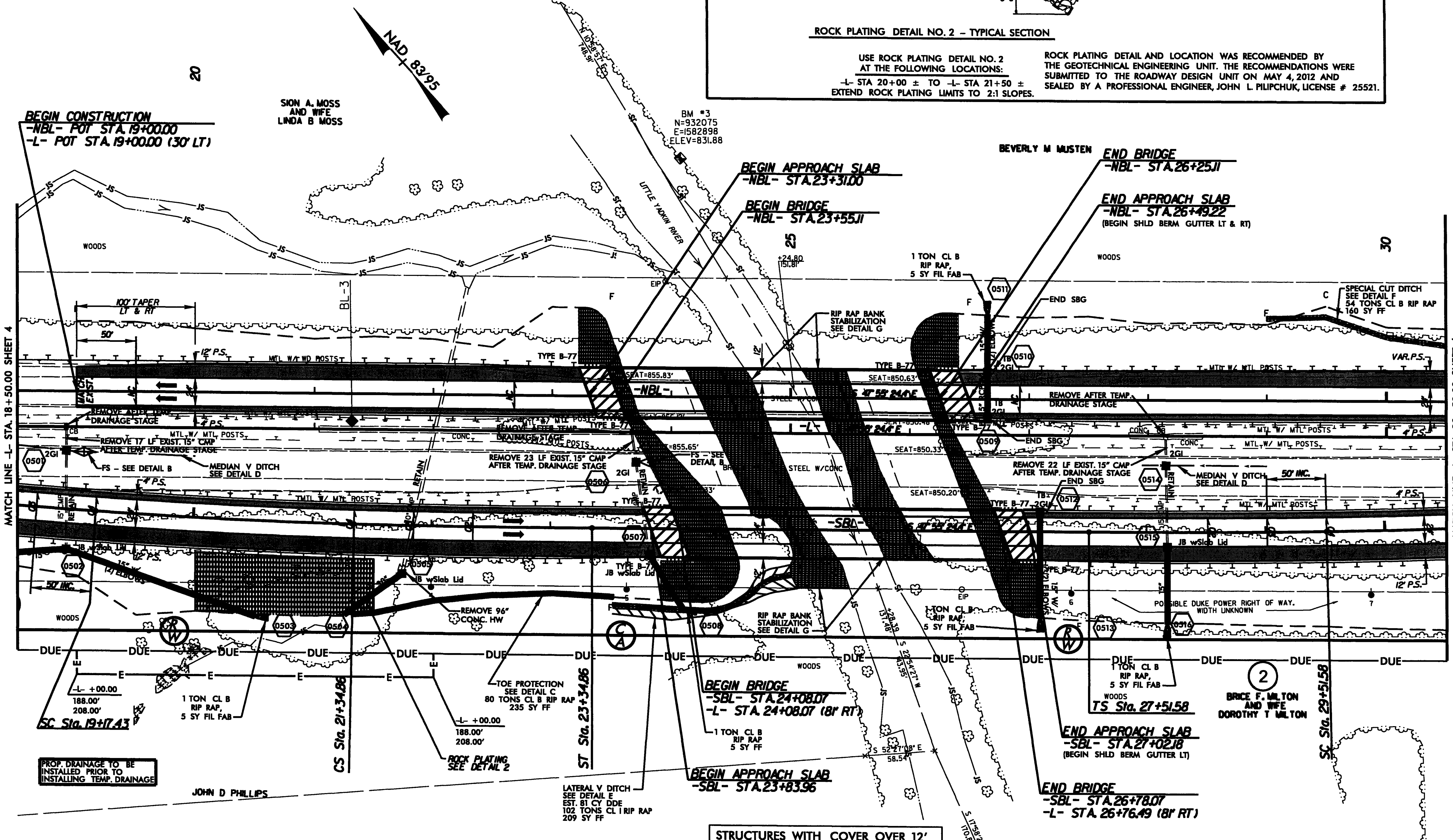
ROCK PLATING DETAIL NO. 2 - TYPICAL SECTION



GEOTEXTILE OVERLAP DETAIL
(PLAN VIEW)

USE ROCK PLATING DETAIL NO. 2
AT THE FOLLOWING LOCATIONS:
-L- STA 20+00 ± TO -L- STA 21+50 ±
EXTEND ROCK PLATING LIMITS TO 2:1 SLOPES.

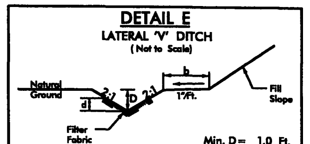
ROCK PLATING DETAIL AND LOCATION WAS RECOMMENDED BY THE GEOTECHNICAL ENGINEERING UNIT. THE RECOMMENDATIONS WERE SUBMITTED TO THE ROADWAY DESIGN UNIT ON MAY 4, 2012 AND SEALED BY A PROFESSIONAL ENGINEER, JOHN L. PILIPCHUK, LICENSE # 25521.



PROP. DRAINAGE TO BE INSTALLED PRIOR TO INSTALLING TEMP. DRAINAGE

STRUCTURES WITH COVER OVER 12'
INCLUDE 0505, 0507, AND 0515

DETAIL E
LATERAL 'V' DITCH
(Not to Scale)

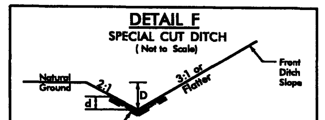


Min. D= 1.0 Ft.
Max. d= 1.0 Ft.
b= 5.0 Ft.

Type of Liner= Cl I Rip-Rap

FROM -L- STA. 23+50 TO STA. 25+00 RT.

DETAIL F
SPECIAL CUT DITCH
(Not to Scale)

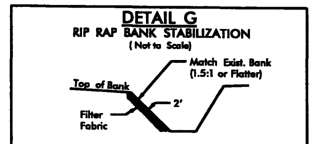


Min. D=1.0 Ft.
Max. d=1.0 Ft.

Type of Liner= Cl B Rip-Rap

FROM -L- STA. 29+00 TO STA. 30+50 LT.

DETAIL G
RIP RAP BANK STABILIZATION
(Not to Scale)



Type of Liner= CL II Rip-Rap

DECK DRAINS

PLACE 6" DIAMETER DECK DRAINS AT THE FOLLOWING LOCATIONS:

-NBL- FROM STA. 25+64.38 TO 26+12.38 LT. SPACED AT 12' O.C.
-NBL- FROM STA. 25+79.66 TO 26+27.66 RT. SPACED AT 12' O.C.

-SBL- FROM STA. 24+05.52 TO 24+53.52 LT. SPACED AT 8' O.C.
-SBL- FROM STA. 26+03.52 TO 26+67.52 LT. SPACED AT 8' O.C.

-SBL-

PI Sta 18+50.77 θs = 1°08' 04.5" Ls = 200.00' LT = 133.34' ST = 66.67'	PI Sta 20+26.16 Δ = 2°28' 00.8" (LT) D = 1°08' 04.5" L = 217.43' T = 108.73' R = 5,050.00'	PI Sta 22+01.53 θs = 1°08' 04.5" Ls = 200.00' LT = 133.34' ST = 66.67'
PI Sta 28+84.92 θs = 1°08' 04.5" Ls = 200.00' LT = 133.34' ST = 66.67'	PI Sta 30+60.32 Δ = 2°28' 00.8" (LT) D = 1°08' 04.5" L = 217.43' T = 108.73' R = 5,050.00'	PI Sta 32+35.68 θs = 1°08' 04.5" Ls = 200.00' LT = 133.34' ST = 66.67'

SEE SHEET 2-D & 2-E FOR DETOUR
FOR -NBL- PROFILE, SEE SHEET NO. 7,8
FOR -SBL- PROFILE, SEE SHEET NO. 7,8

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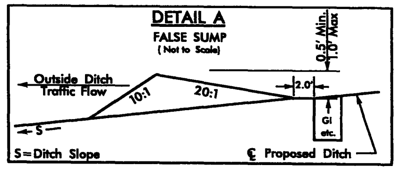
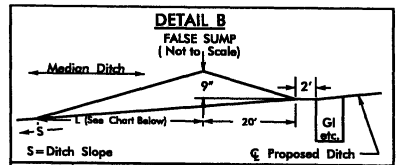
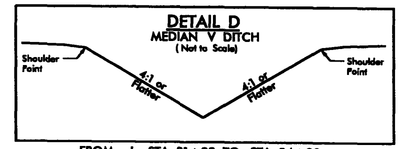
PROJECT REFERENCE NO.	SHEET NO.
B-4645	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

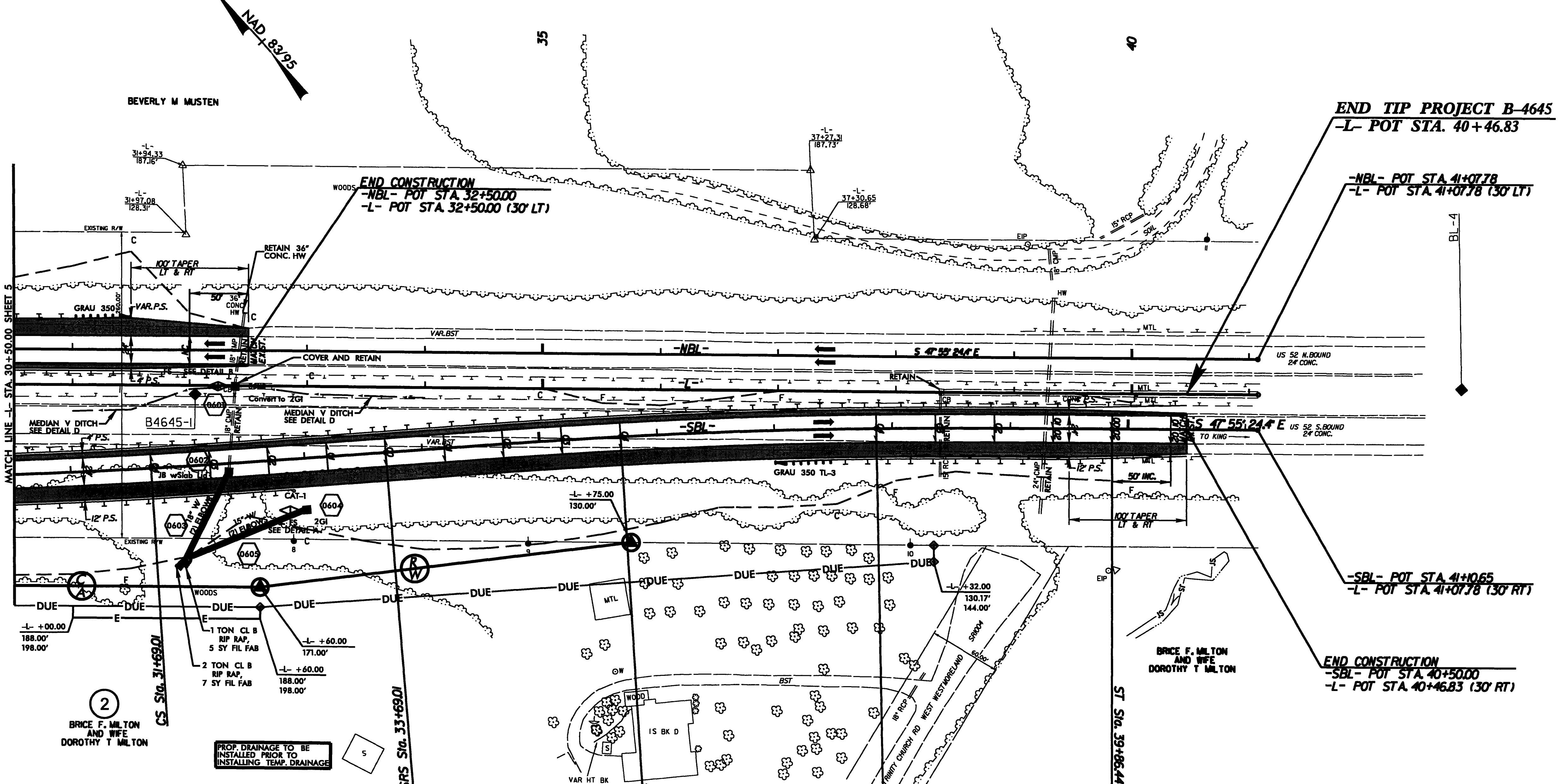




Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'



FROM -L- STA. 31+00 TO STA. 34+00



REVISIONS

-SBL-

PIs Sta 28+84.92	PI Sta 30+60.32	PIs Sta 32+35.68
Θs = 1°08' 04.5"	Δ = 2° 28' 00.8" (LT)	Θs = 1°08' 04.5"
Ls = 200.00'	D = 1°08' 04.5"	Ls = 200.00'
LT = 133.34'	L = 217.43'	LT = 133.34'
ST = 66.67'	T = 108.73'	ST = 66.67'
	R = 5,050.00'	
PIs Sta 35+02.35	PI Sta 36+77.75	PIs Sta 38+53.11
Θs = 1°08' 04.5"	Δ = 2° 28' 00.8" (RT)	Θs = 1°08' 04.5"
Ls = 200.00'	D = 1°08' 04.5"	Ls = 200.00'
LT = 133.34'	L = 217.43'	LT = 133.34'
ST = 66.67'	T = 108.73'	ST = 66.67'
	R = 5,050.00'	

SEE SHEET 2-D & 2-E FOR DETOUR
FOR -NBL- PROFILE, SEE SHEET NO. 8
FOR -SBL- PROFILE, SEE SHEET NO. 8,9

8/17/99

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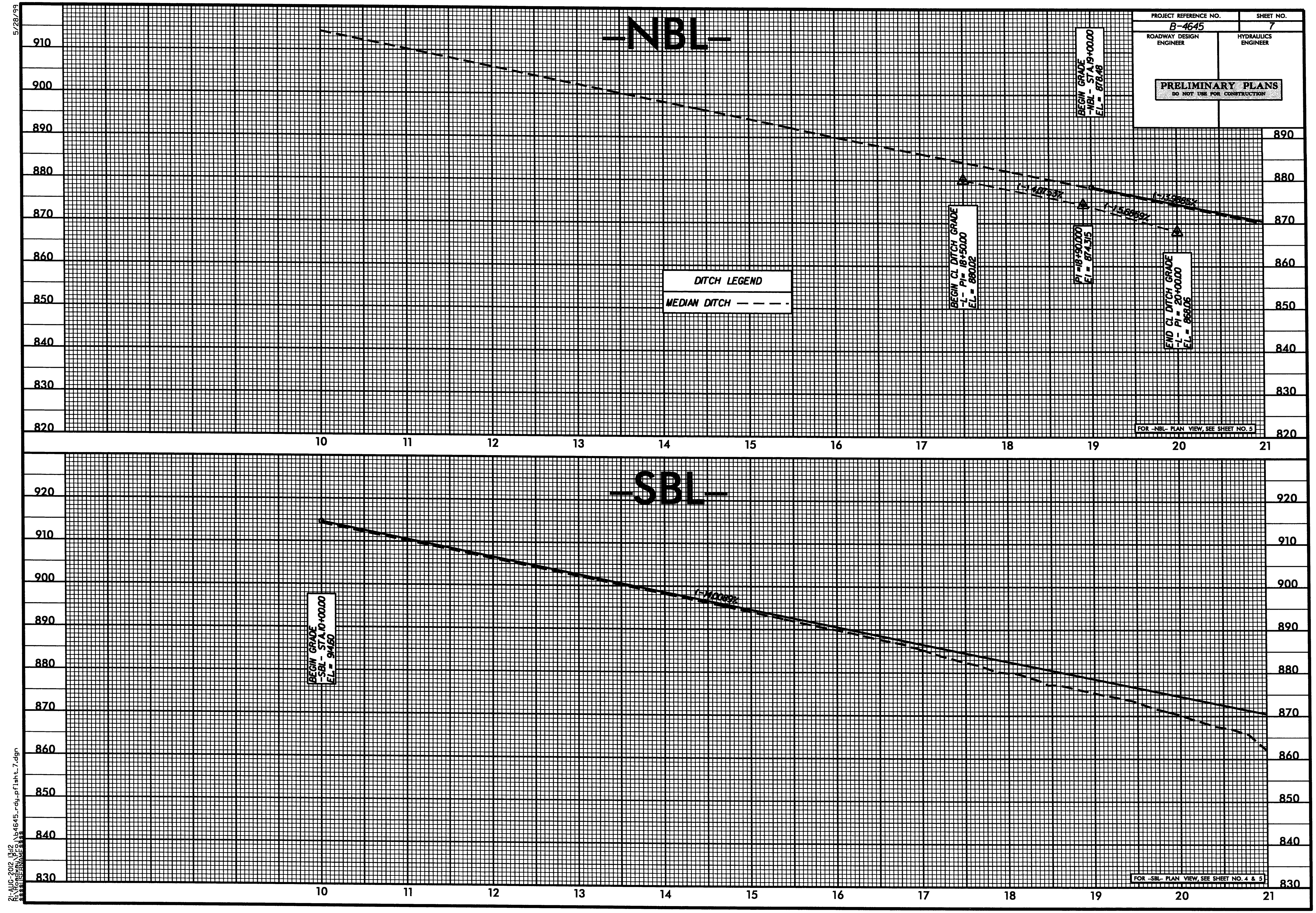
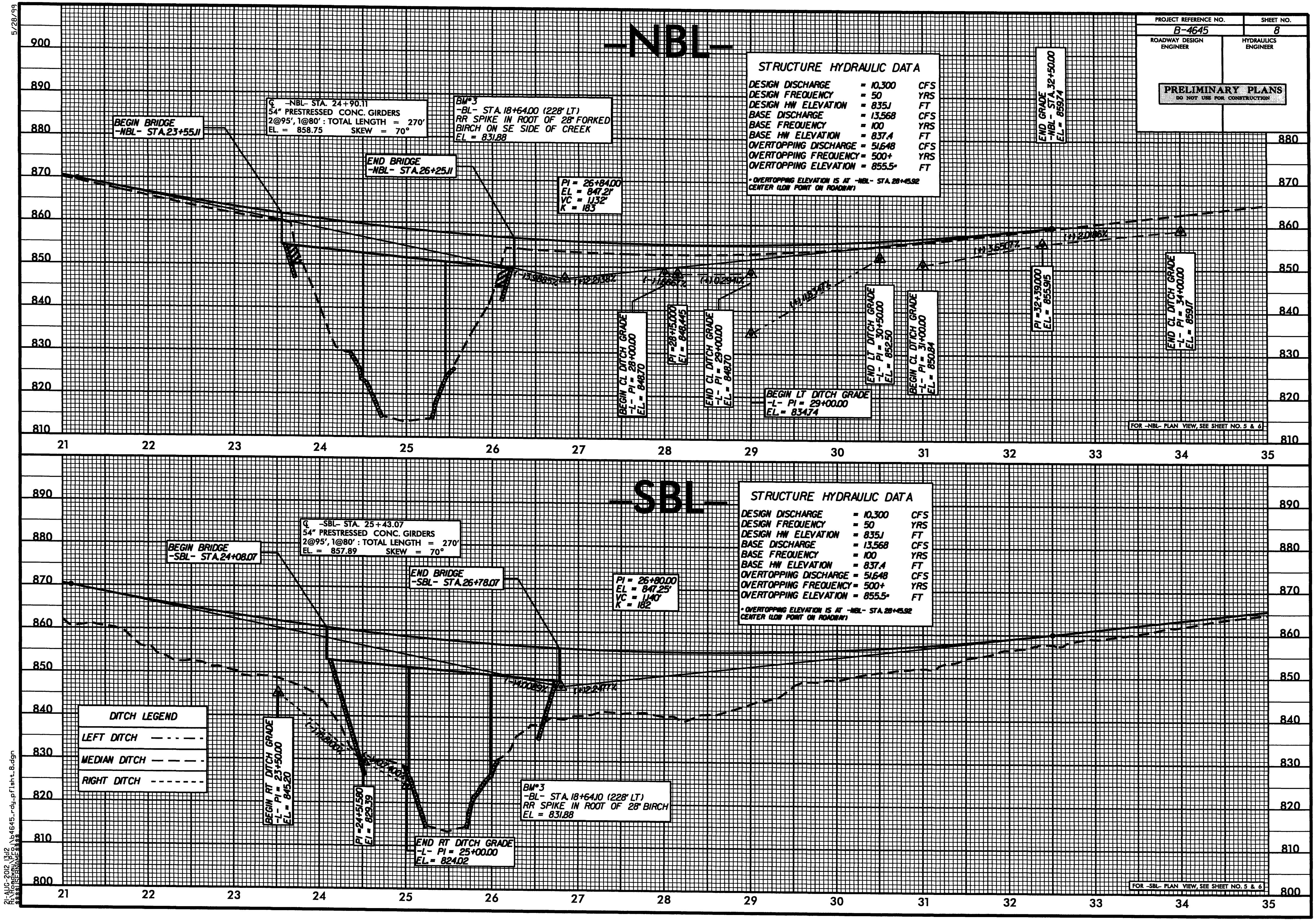
PROJECT REFERENCE NO.	SHEET NO.
B-4645	7

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION




PROJECT REFERENCE NO. B-4645
SHEET NO. 8
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
-NBL-
STRUCTURE HYDRAULIC DATA
DESIGN DISCHARGE = 10,300 CFS
DESIGN FREQUENCY = 50 YRS
DESIGN HW ELEVATION = 835.1 FT
BASE DISCHARGE = 13,568 CFS
BASE FREQUENCY = 100 YRS
BASE HW ELEVATION = 837.4 FT
OVERTOPPING DISCHARGE = 51,648 CFS
OVERTOPPING FREQUENCY = 500+ YRS
OVERTOPPING ELEVATION = 855.5* FT
* OVERTOPPING ELEVATION IS AT -NBL- STA. 28+15.92 CENTER (LOW POINT ON ROADWAY)
BEGIN BRIDGE -NBL- STA. 23+55.11
℄ -NBL- STA. 24+90.11
54" PRESTRESSED CONC. GIRDERS
2@95', 1@80' : TOTAL LENGTH = 270'
EL. = 858.75 SKEW = 70°
BM#3
-BL- STA. 18+64.00 (228' LT)
RR SPIKE IN ROOT OF 28" FORKED BIRCH ON SE SIDE OF CREEK
EL = 831.88
END BRIDGE -NBL- STA. 26+25.11
PI = 26+84.00
EL = 847.21'
VC = 1132'
K = 183
END GRADE -NBL- STA. 32+50.00 EL = 859.74
BEGIN CL DITCH GRADE -L- PI = 28+00.00 EL = 848.70
PI = 28+15.000 EL = 848.445
END CL DITCH GRADE -L- PI = 29+00.00 EL = 848.70
BEGIN LT DITCH GRADE -L- PI = 29+00.00 EL = 834.74
END LT DITCH GRADE -L- PI = 30+50.00 EL = 852.50
BEGIN CL DITCH GRADE -L- PI = 31+00.00 EL = 850.84
PI = 32+39.000 EL = 855.915
END CL DITCH GRADE -L- PI = 34+00.00 EL = 859.17
FOR -NBL- PLAN VIEW, SEE SHEET NO. 5 & 6
-SBL-
STRUCTURE HYDRAULIC DATA
DESIGN DISCHARGE = 10,300 CFS
DESIGN FREQUENCY = 50 YRS
DESIGN HW ELEVATION = 835.1 FT
BASE DISCHARGE = 13,568 CFS
BASE FREQUENCY = 100 YRS
BASE HW ELEVATION = 837.4 FT
OVERTOPPING DISCHARGE = 51,648 CFS
OVERTOPPING FREQUENCY = 500+ YRS
OVERTOPPING ELEVATION = 855.5* FT
* OVERTOPPING ELEVATION IS AT -NBL- STA. 28+15.92 CENTER (LOW POINT ON ROADWAY)
BEGIN BRIDGE -SBL- STA. 24+08.07
℄ -SBL- STA. 25+43.07
54" PRESTRESSED CONC. GIRDERS
2@95', 1@80' : TOTAL LENGTH = 270'
EL. = 857.89 SKEW = 70°
END BRIDGE -SBL- STA. 26+78.07
PI = 26+80.00
EL = 847.25'
VC = 1140'
K = 182
DITCH LEGEND
LEFT DITCH
MEDIAN DITCH
RIGHT DITCH
BEGIN RT DITCH GRADE -L- PI = 23+50.00 EL = 845.20
PI = 24+51.580 EL = 829.39
END RT DITCH GRADE -L- PI = 25+00.00 EL = 824.02
BM#3
-BL- STA. 18+64.10 (228' LT)
RR SPIKE IN ROOT OF 28" BIRCH
EL = 831.88
FOR -SBL- PLAN VIEW, SEE SHEET NO. 5 & 6
5/28/99
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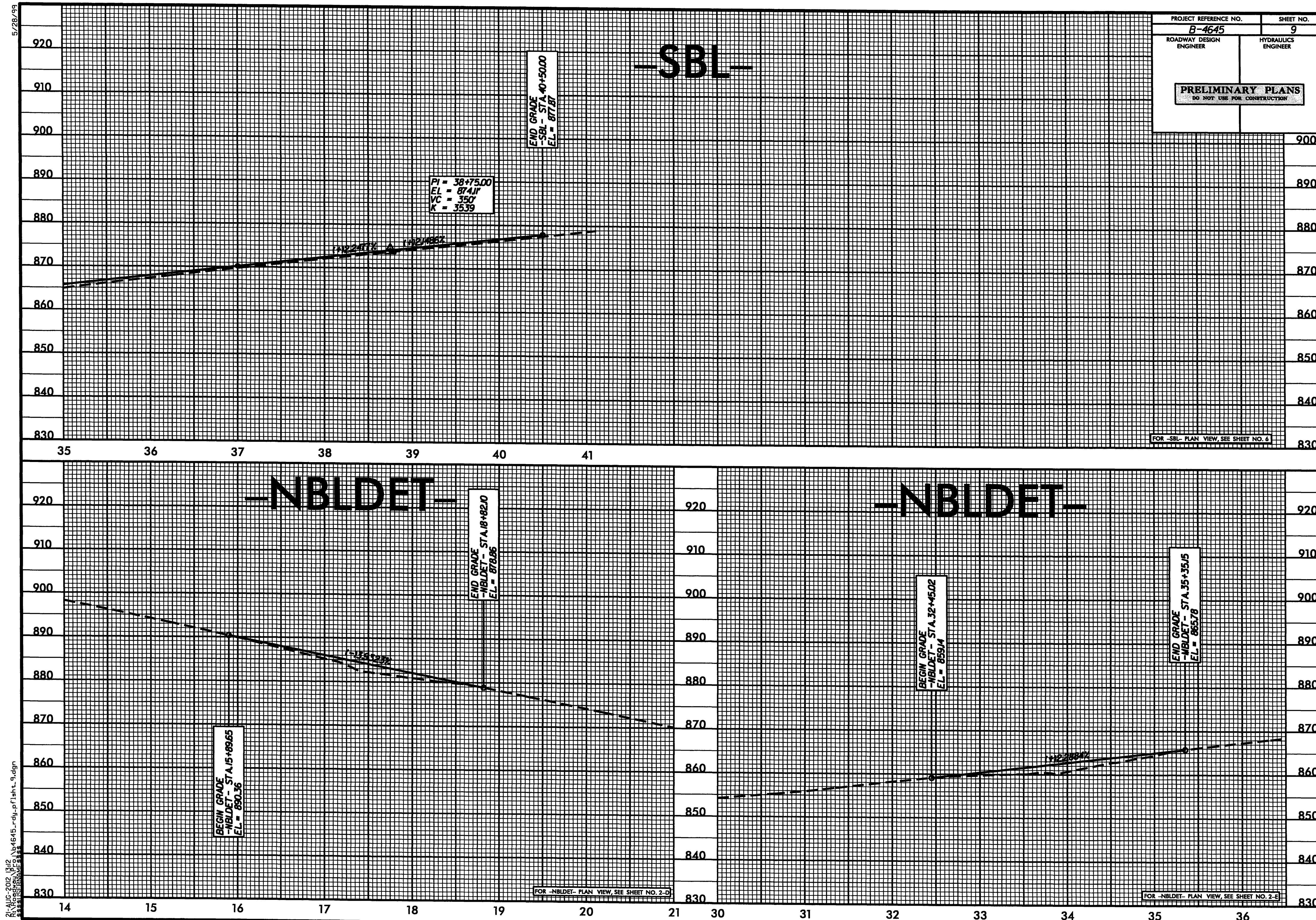
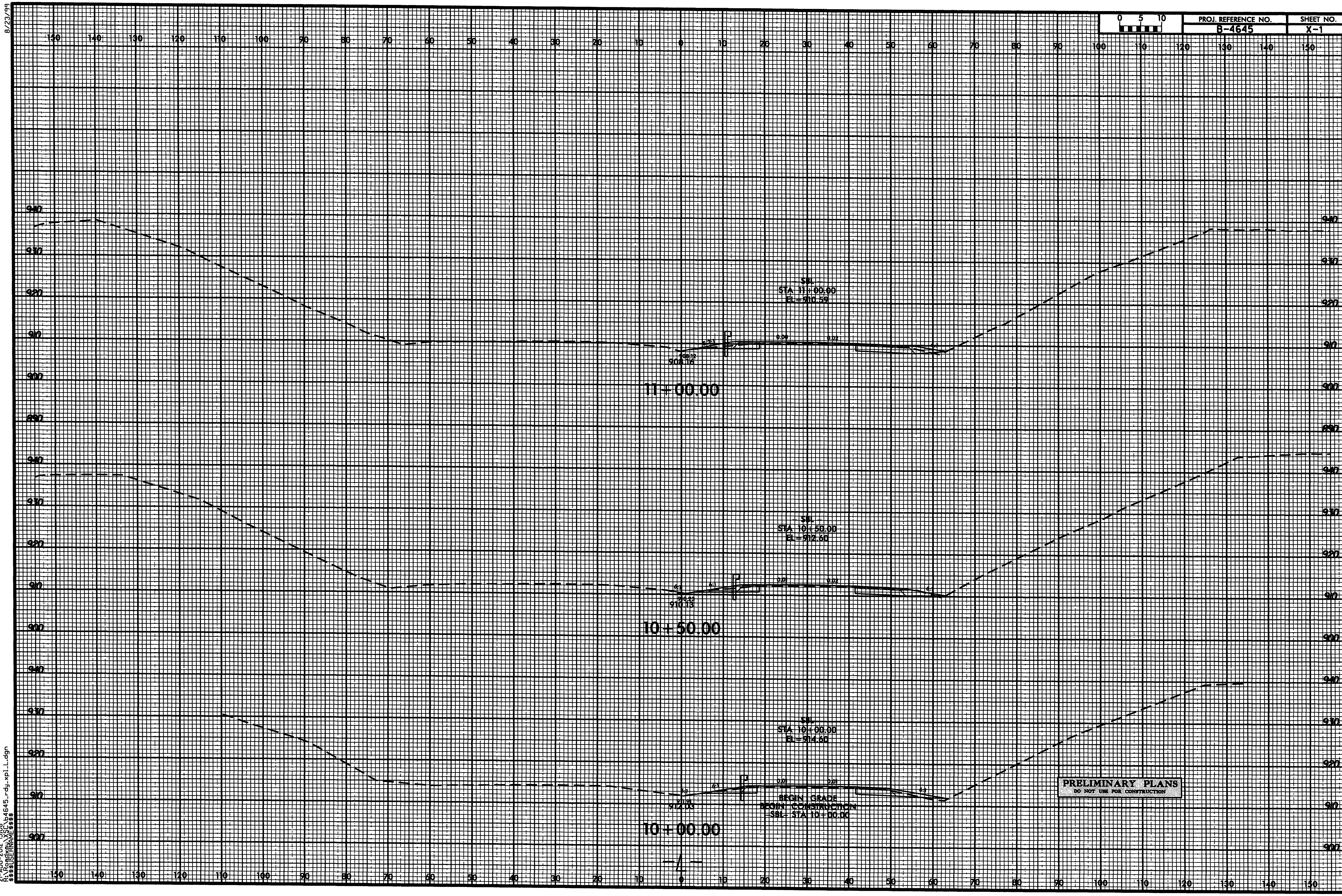


PROJECT REFERENCE NO.
B-4645
SHEET NO.
9
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
-SBL-
END GRADE -SBL- STA.40+50.00 EL= 877.87
PI = 38+75.00
EL = 874.11
VC = 350'
K = 35.39
FOR -SBL- PLAN VIEW, SEE SHEET NO. 6
-NBLDET-
END GRADE -NBLDET- STA.18+82.10 EL= 878.86
BEGIN GRADE -NBLDET- STA.15+89.65 EL= 890.36
FOR -NBLDET- PLAN VIEW, SEE SHEET NO. 2-D
-NBLDET-
BEGIN GRADE -NBLDET- STA.32+45.02 EL= 859.14
END GRADE -NBLDET- STA.35+35.15 EL= 865.78
FOR -NBLDET- PLAN VIEW, SEE SHEET NO. 2-E
5/28/99

8/23/99



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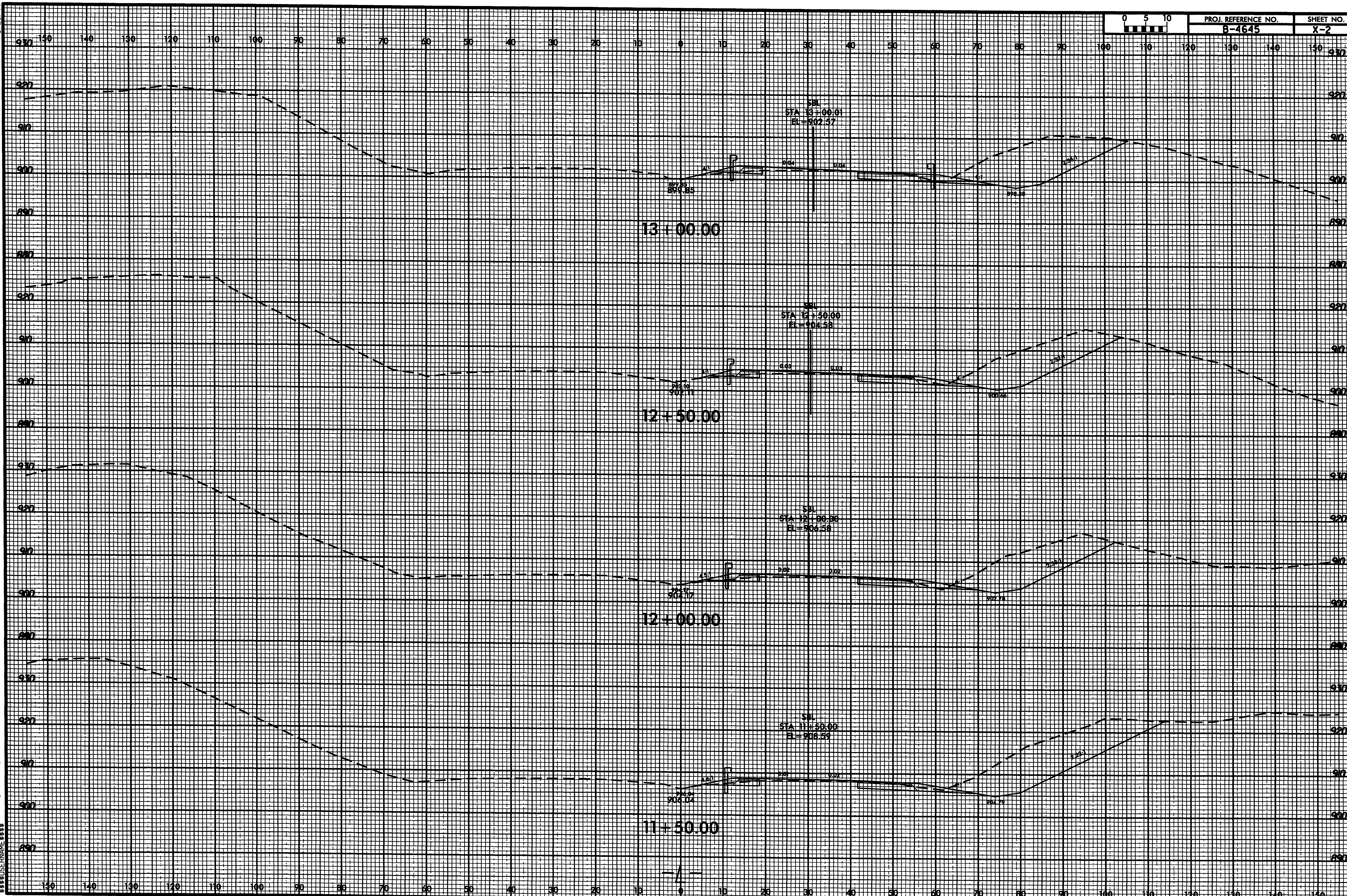
8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-4645	X-2



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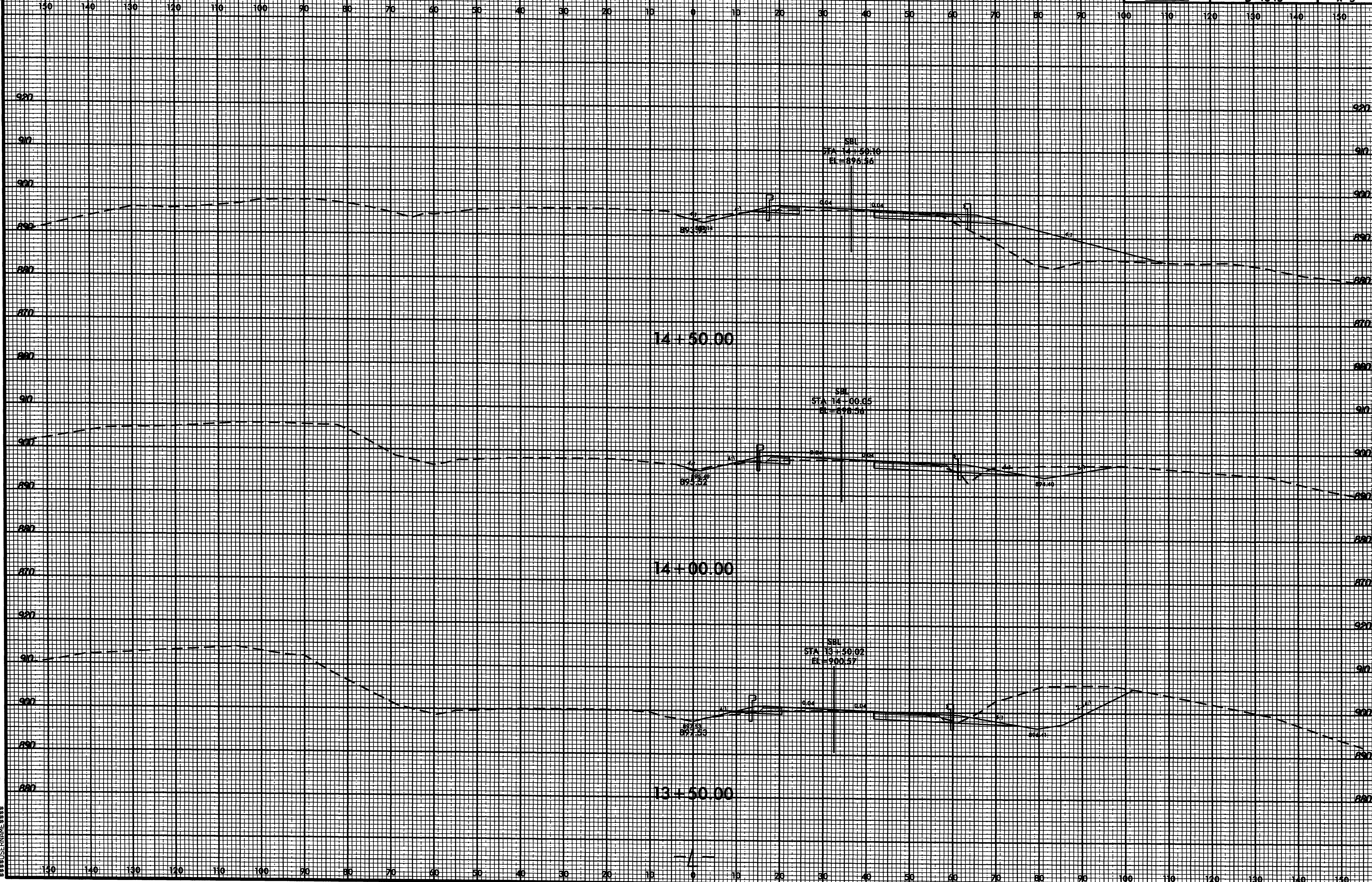
8/23/99

PROJ. REFERENCE NO.	SHEET NO.
B-4645	X-3



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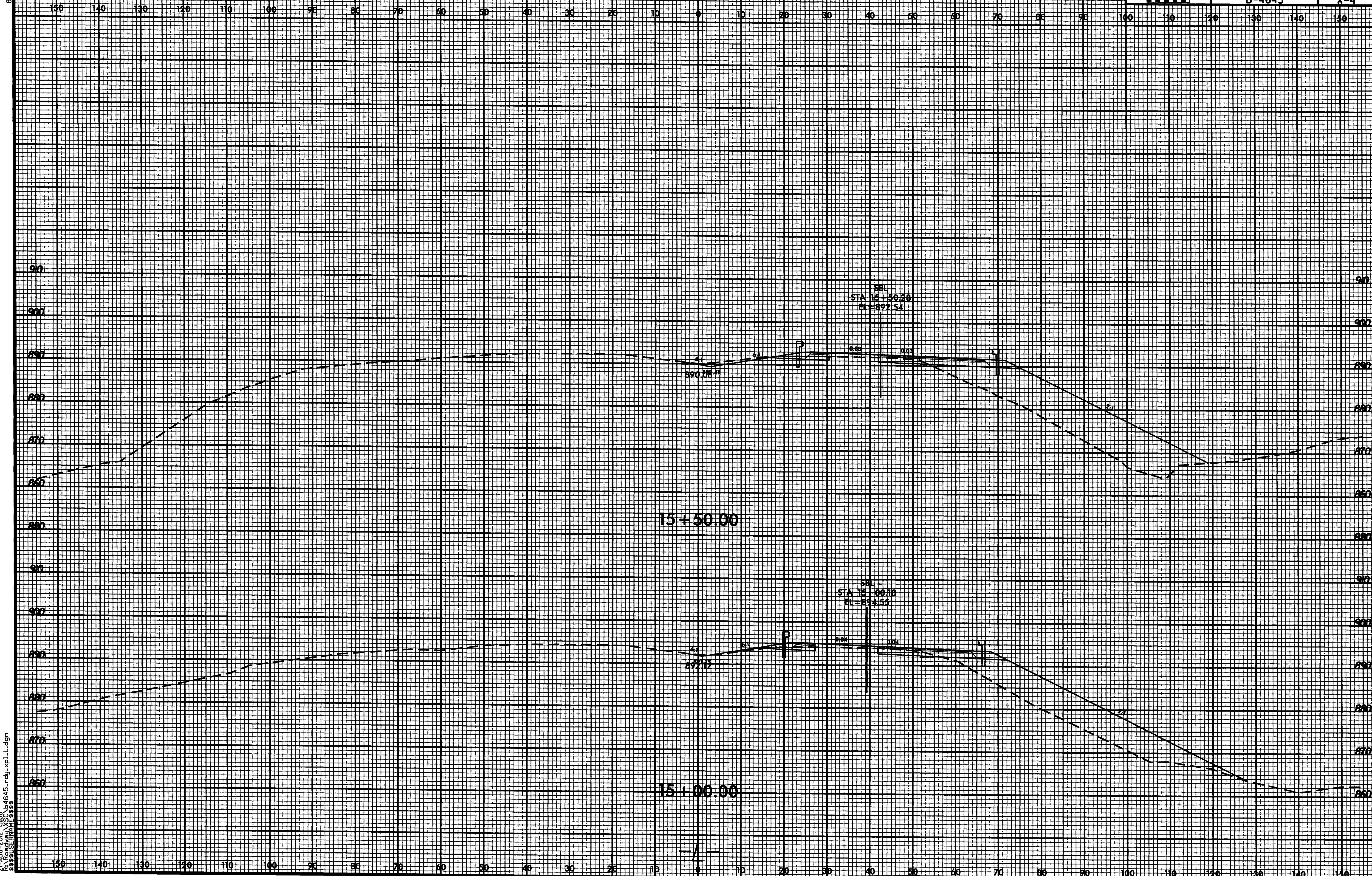
PROJ. REFERENCE NO.	SHEET NO.
B-4645	X-4



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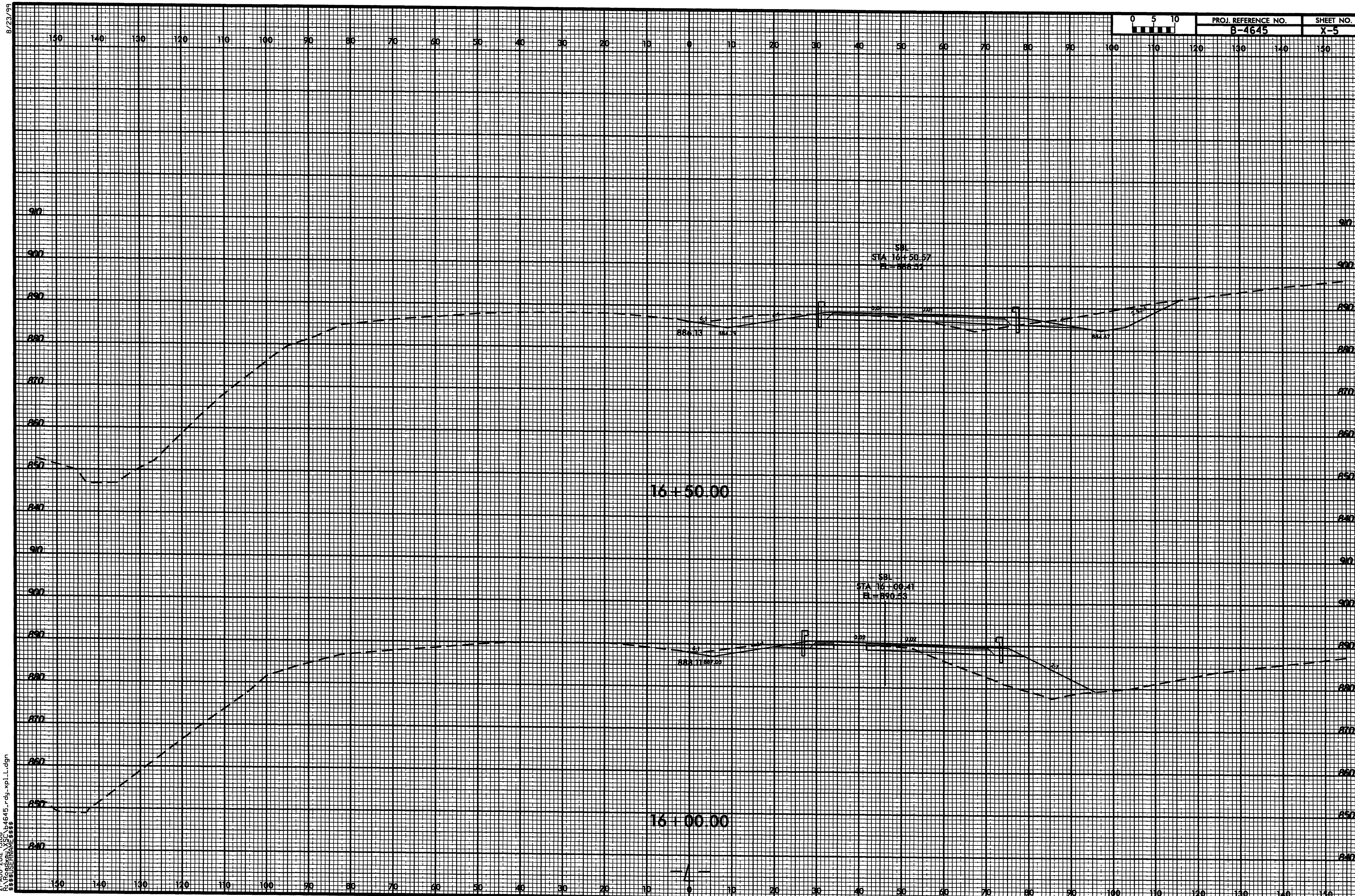
PROJ. REFERENCE NO.	SHEET NO.
B-4645	X-5



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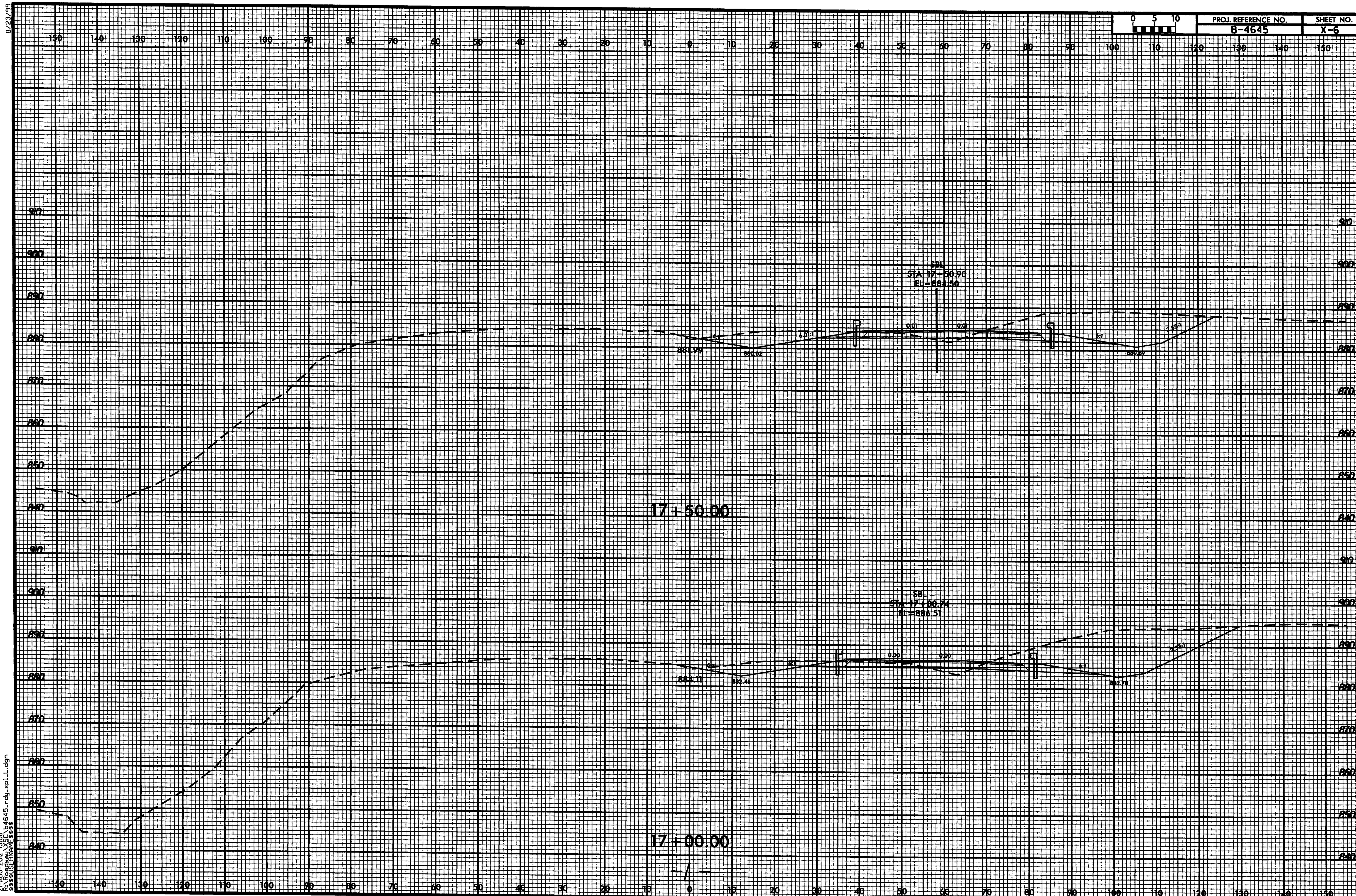
B-4645	X-6



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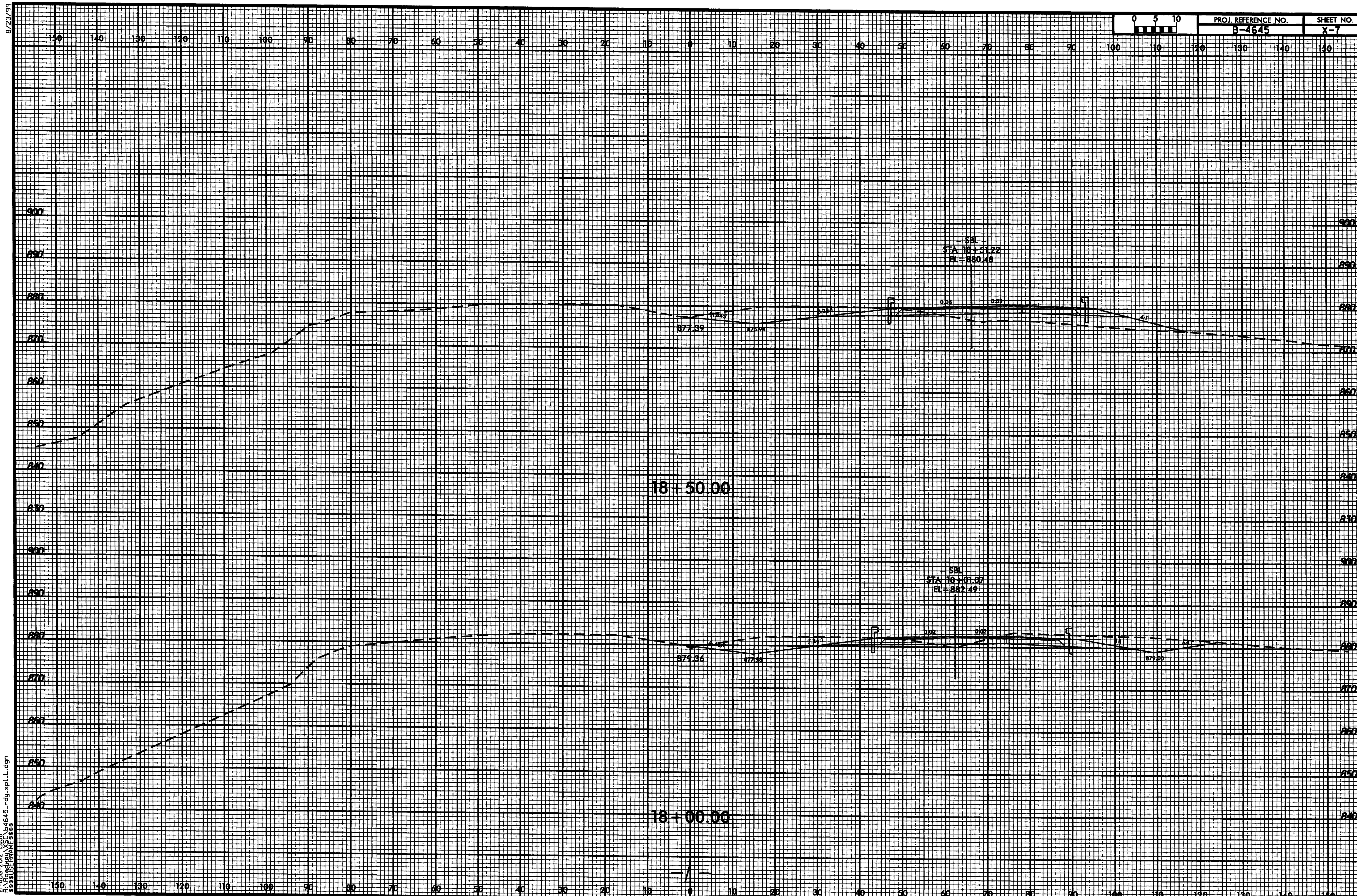
PROJ. REFERENCE NO.	SHEET NO.
B-4645	X-7



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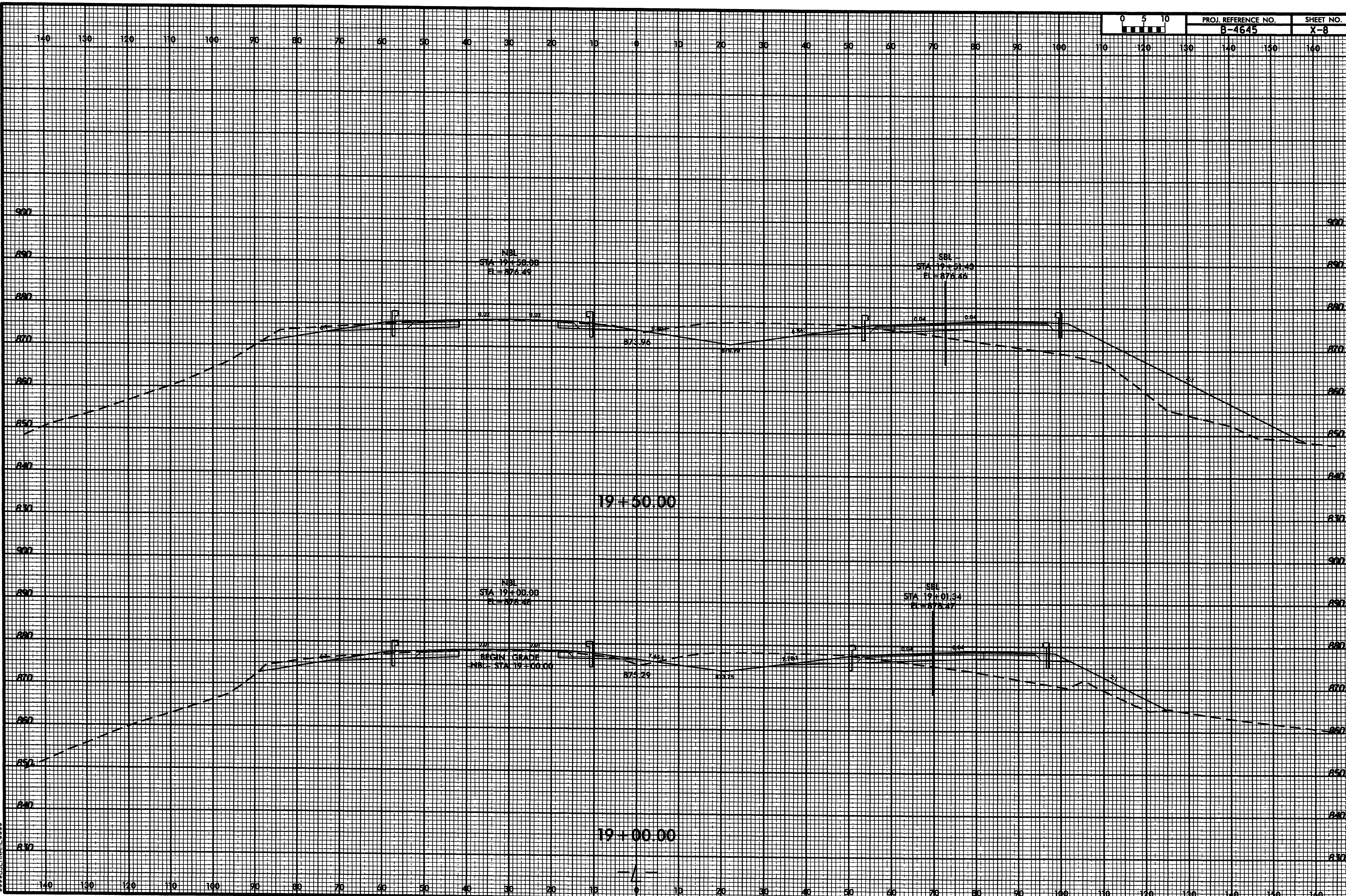

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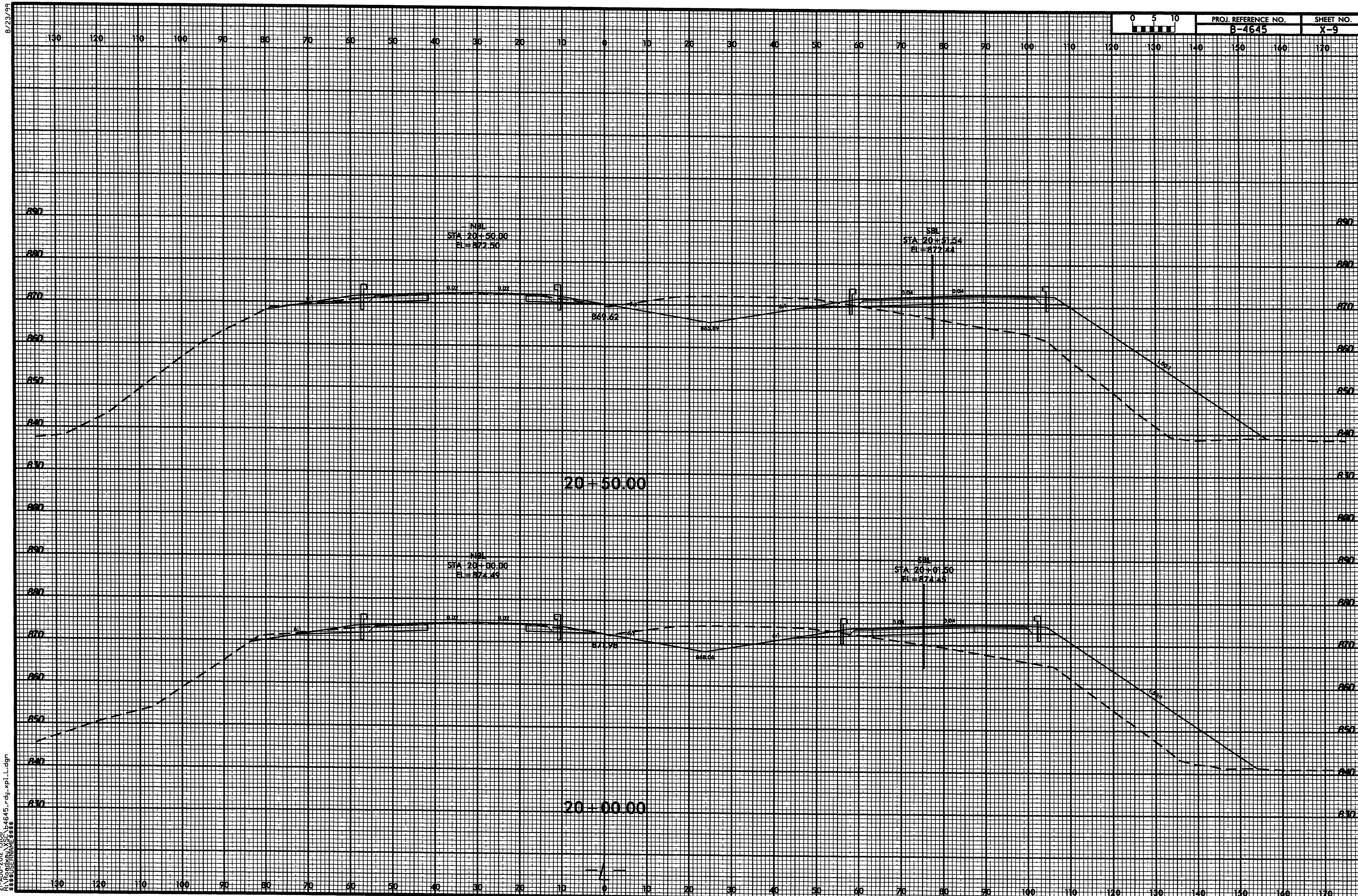

PROJ. REFERENCE NO.
B-4645
SHEET NO.
X-9
0 5 10
NBL
STA 20+50.00
EL=872.50
SBL
STA 20+51.54
EL=872.44
0.02
0.02
0.04
0.04
869.62
865.89
20+50.00
NBL
STA 20+00.00
EL=874.49
SBL
STA 20+01.50
EL=874.45
871.98
868.06
20+00.00
890
880
870
860
850
840
830
130
120
110
100
90
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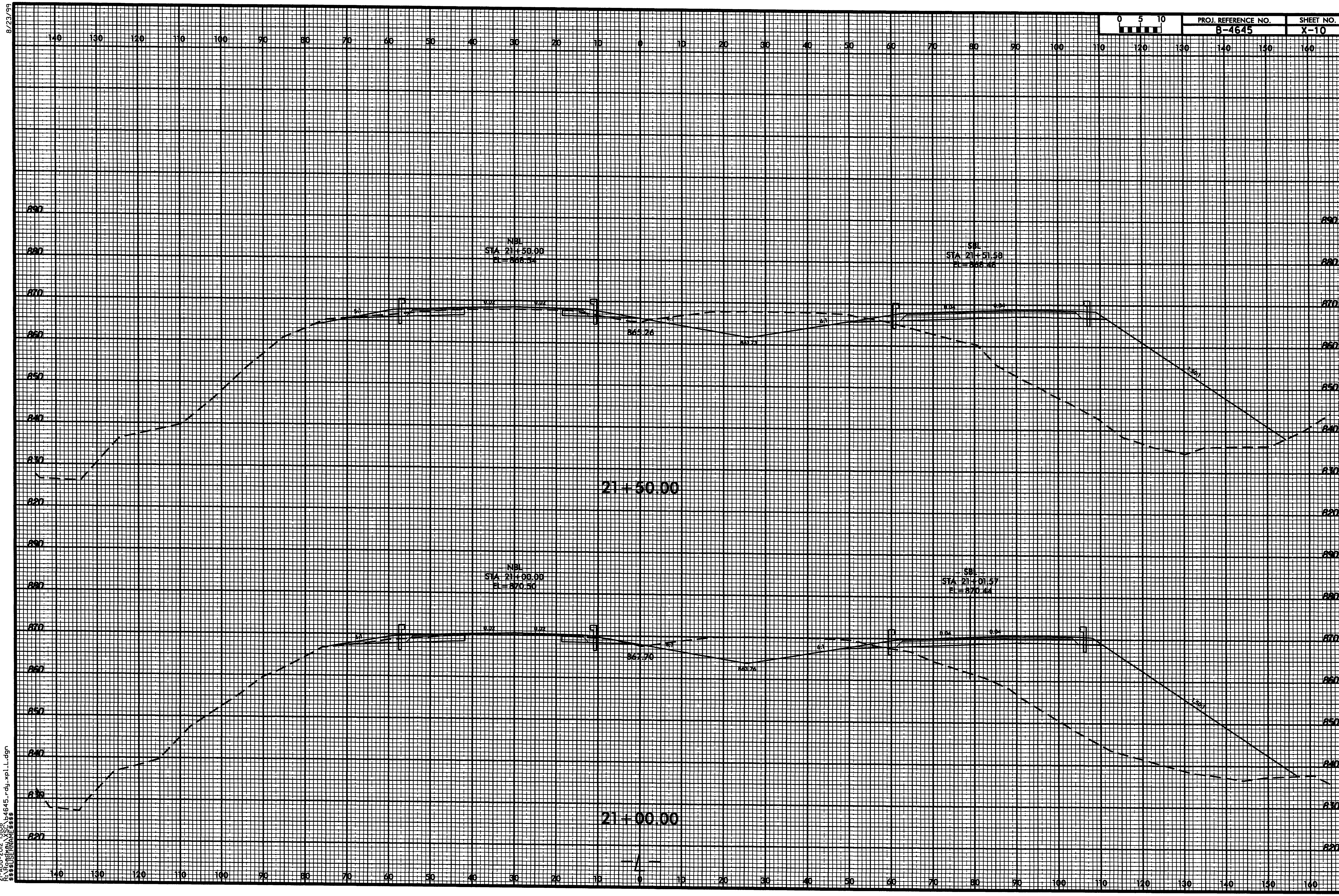

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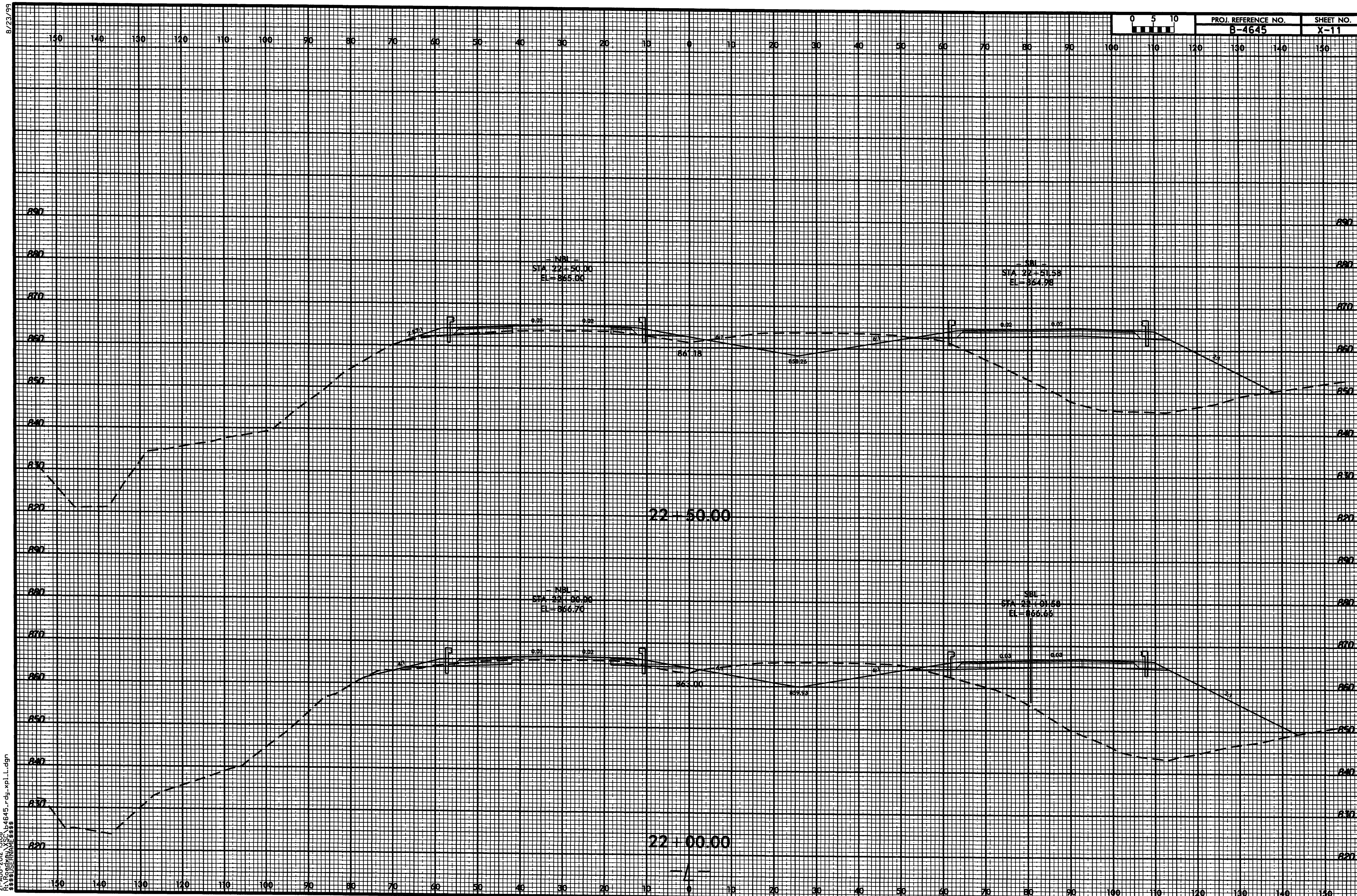

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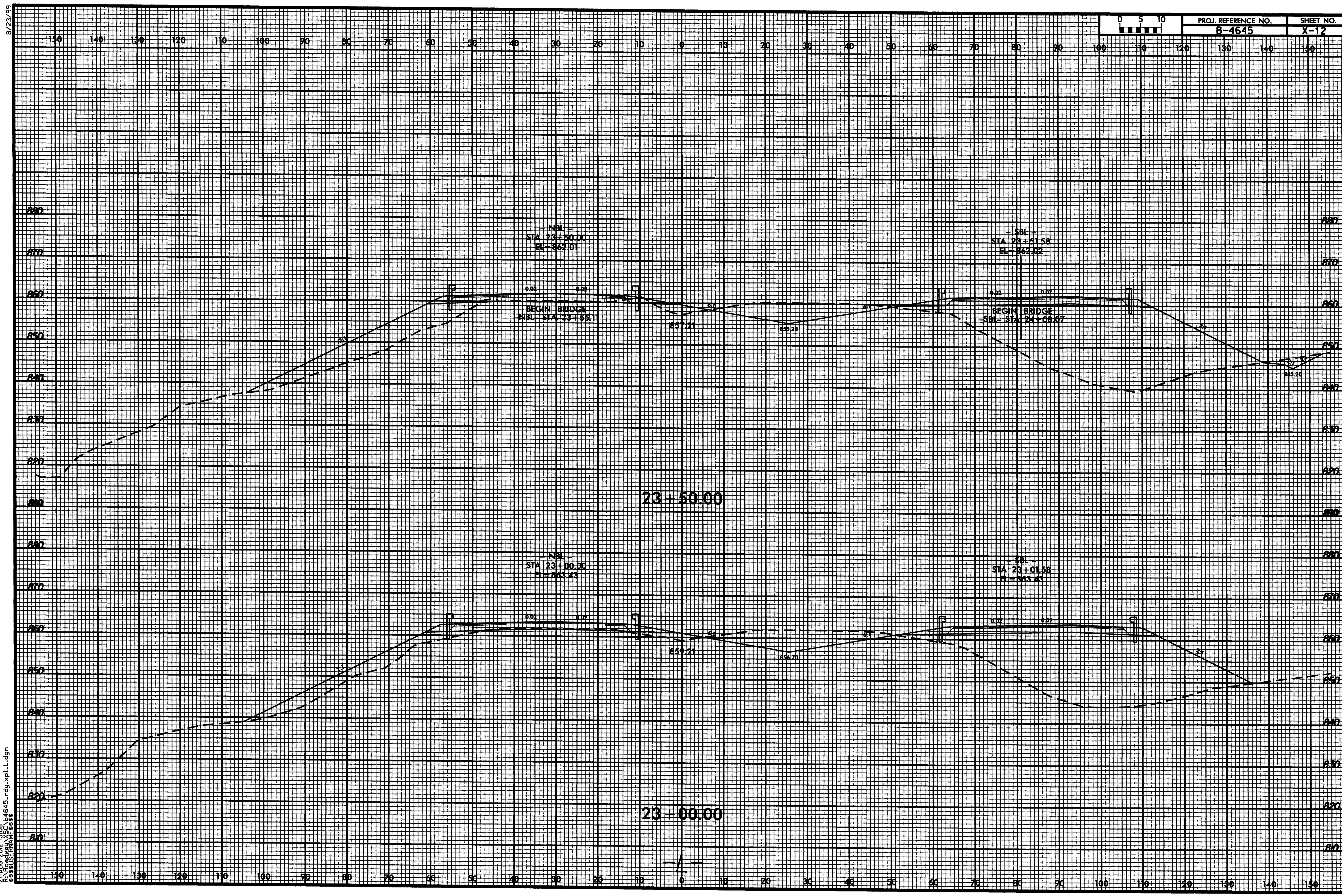

PROJ. REFERENCE NO.
B-4645
SHEET NO.
X-12
8/23/99
- NBL -
STA 23+50.00
EL=862.01
- SBL -
STA 23+51.58
EL=862.02
BEGIN BRIDGE
NBL- STA 23+55.11
BEGIN BRIDGE
SBL- STA 24+08.67
857.21
855.29
23+50.00
- NBL -
STA 23+00.00
EL=863.43
- SBL -
STA 23+01.58
EL=863.43
859.21
856.70
23+00.00
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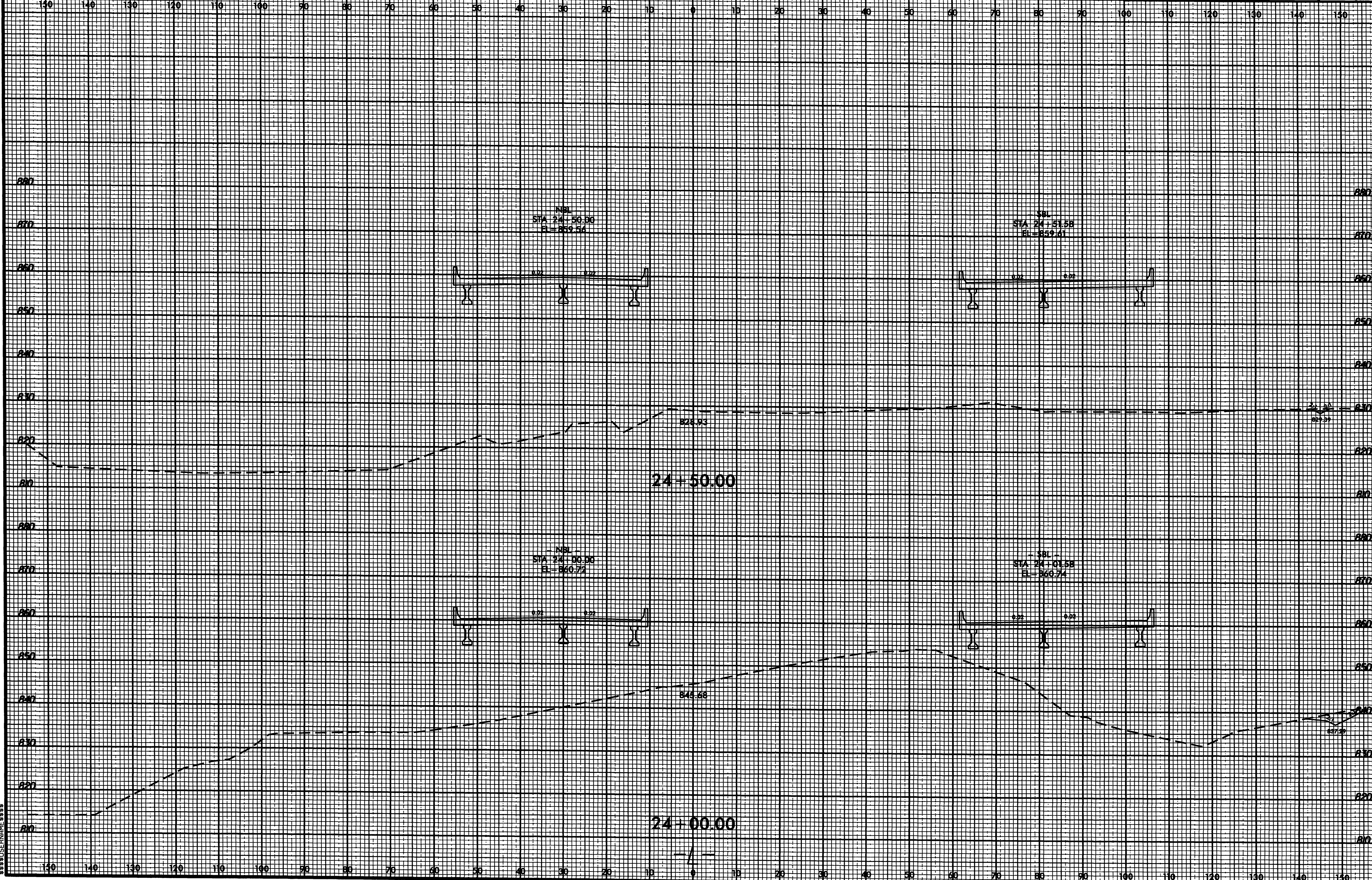
	B-4645	X-13



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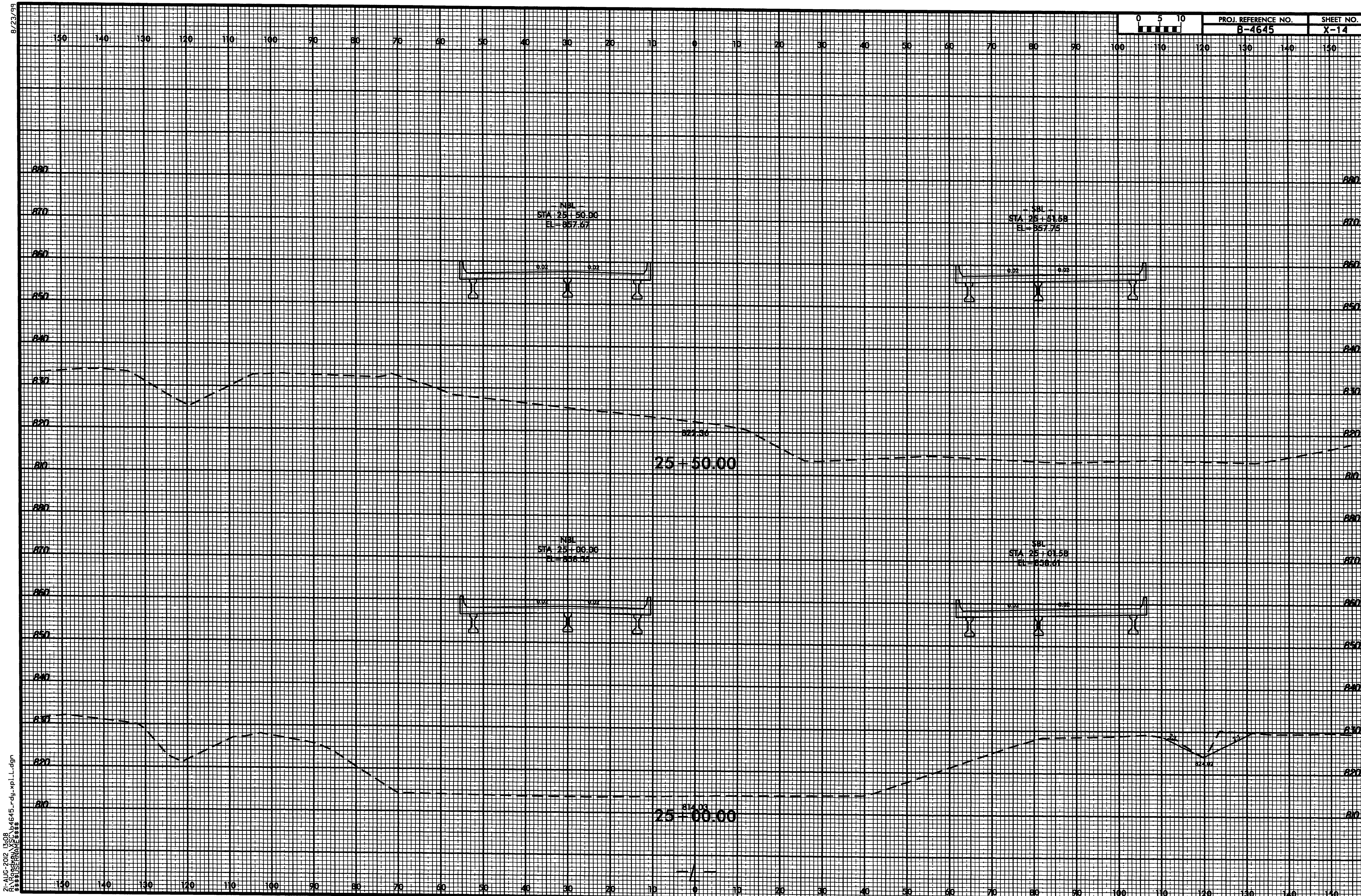
PROJ. REFERENCE NO.	SHEET NO.
B-4645	X-14



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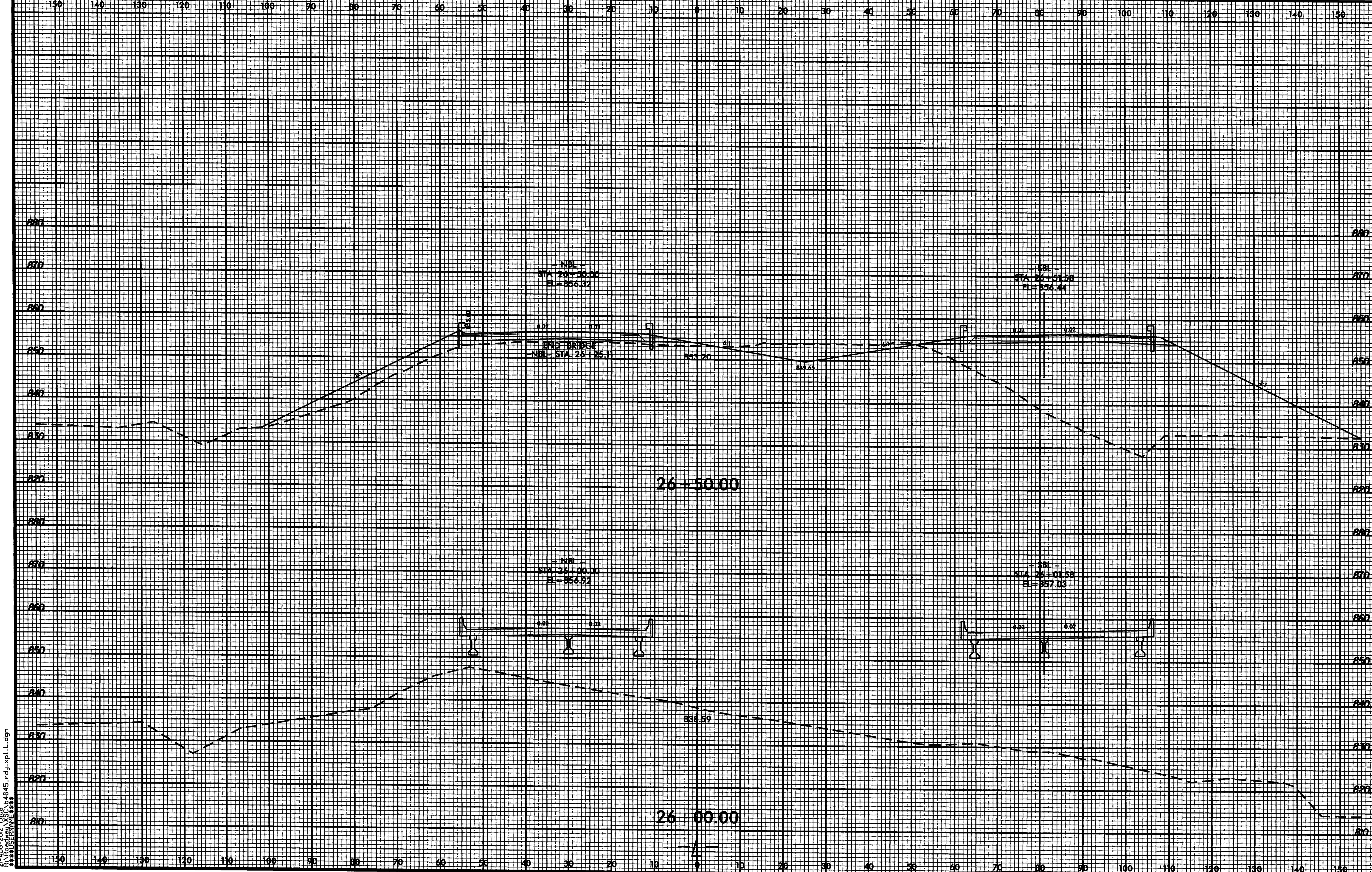
B-4645	X-15



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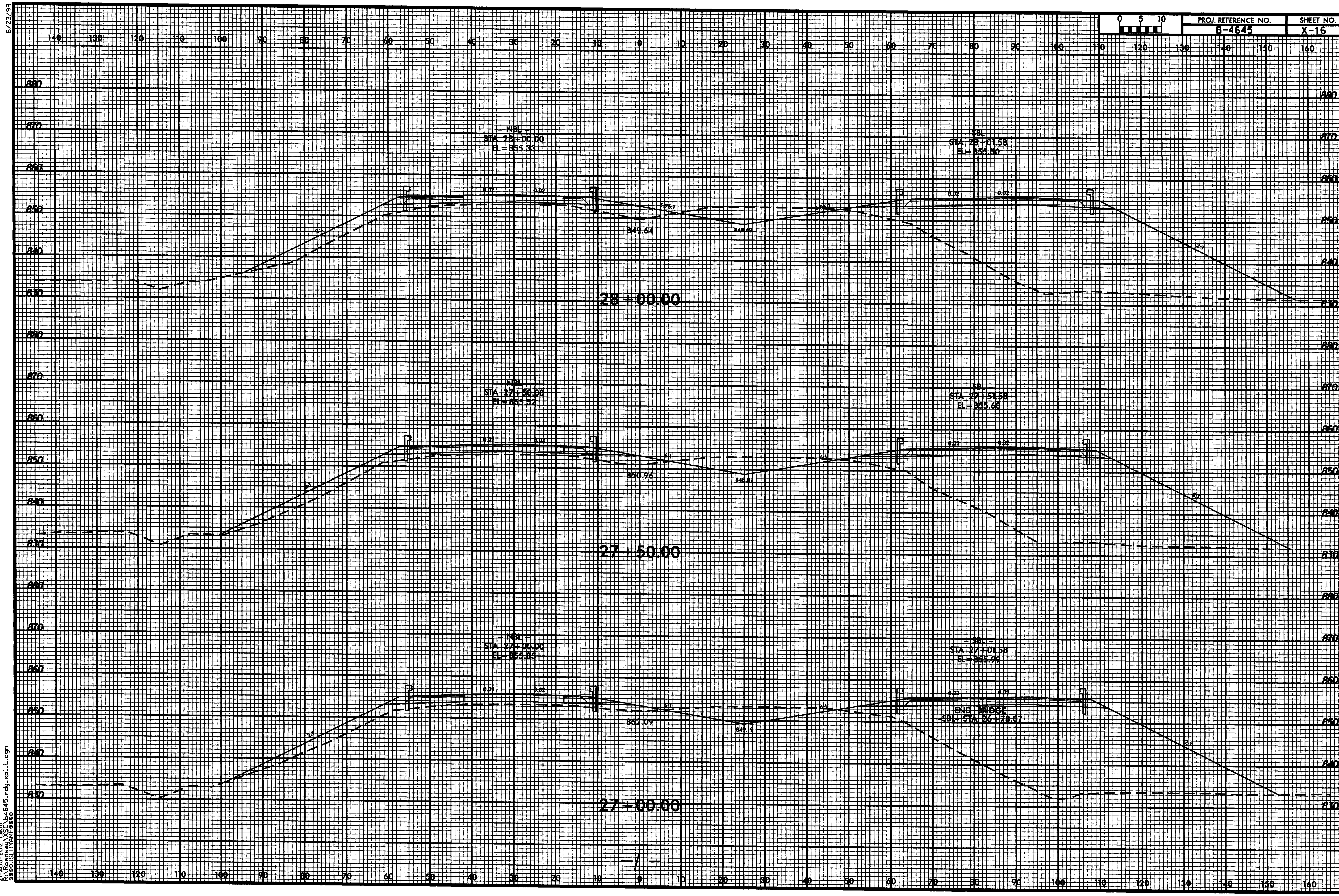
PROJ. REFERENCE NO.	SHEET NO.
B-4645	X-16



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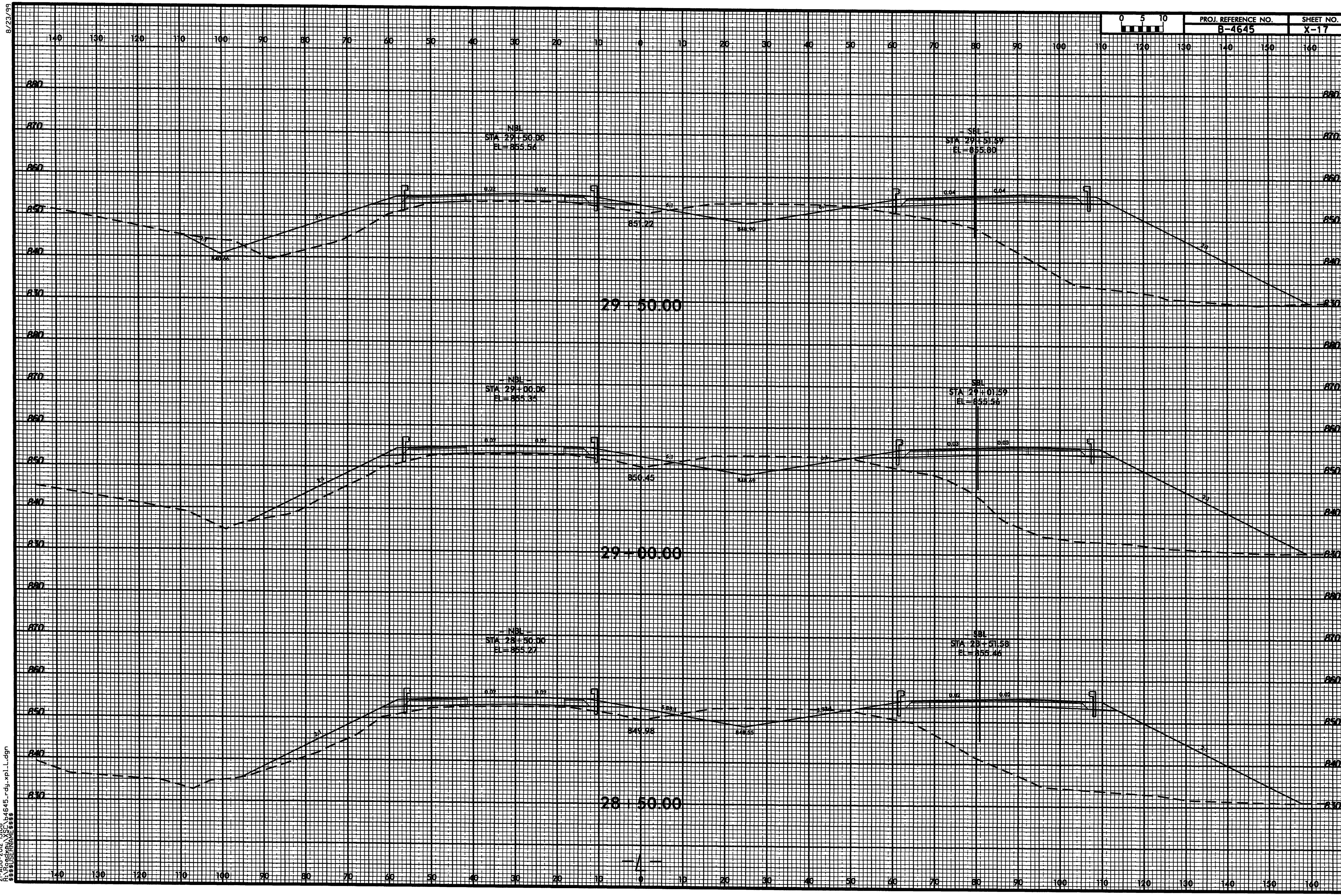

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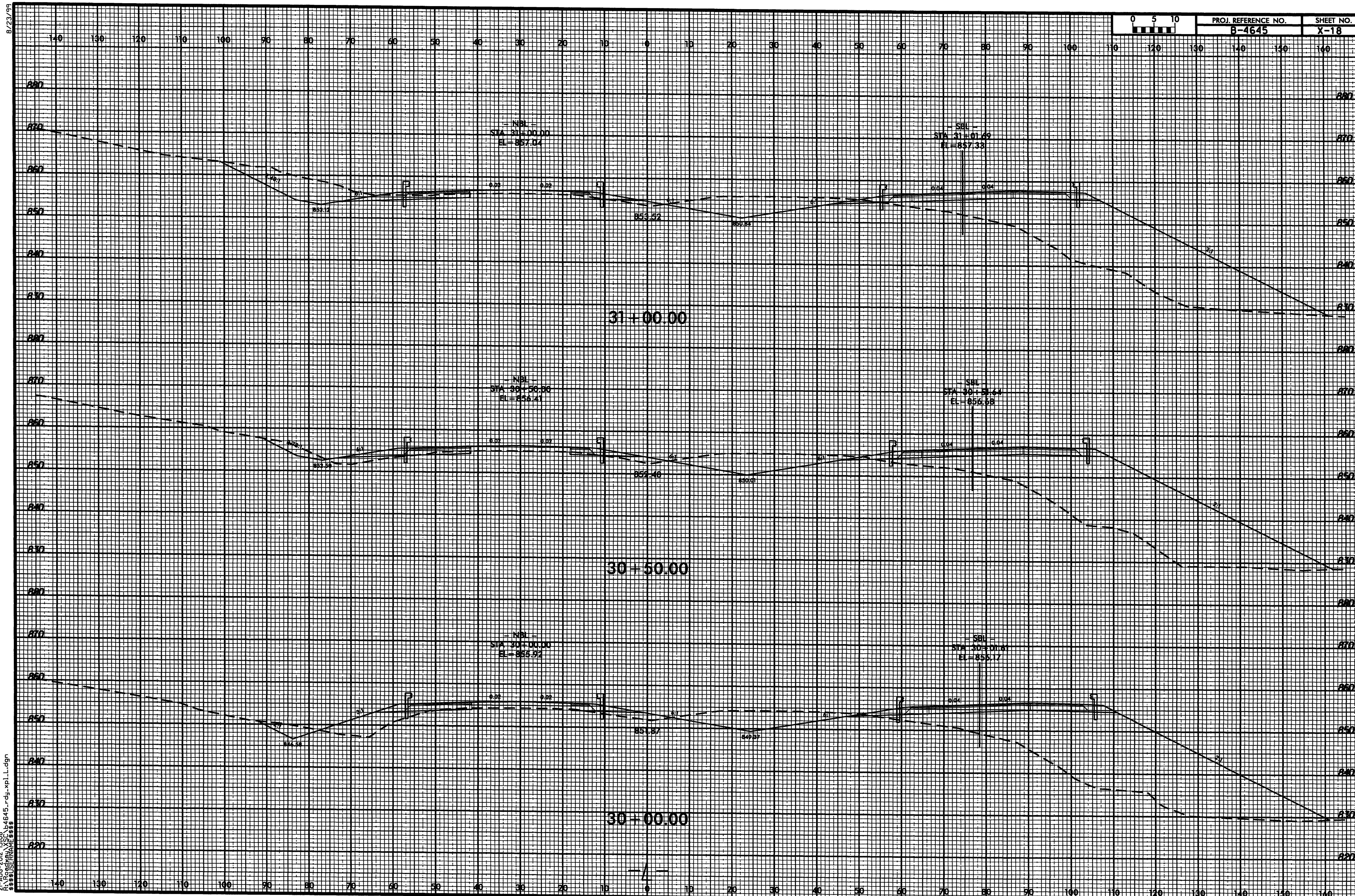

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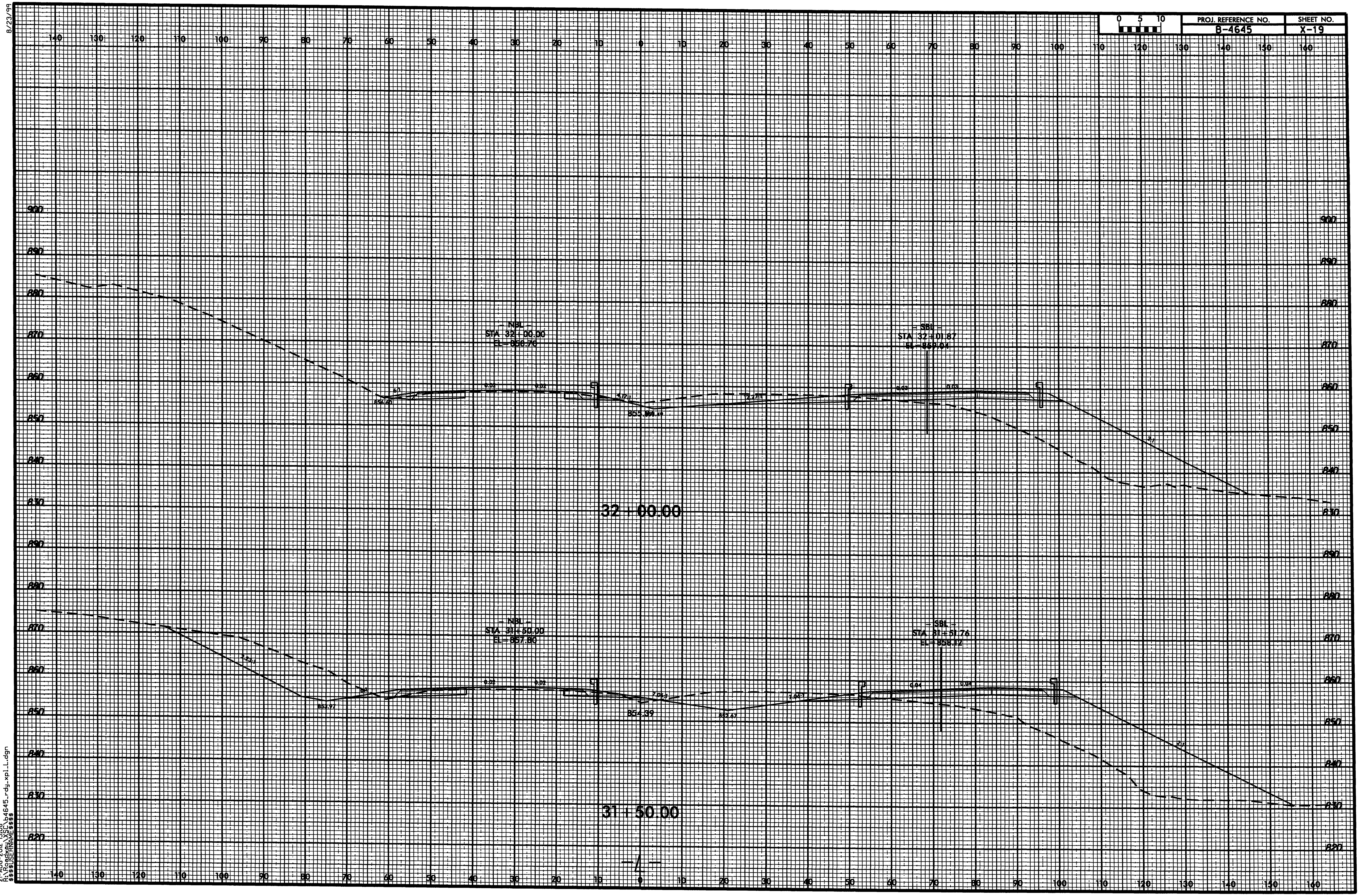
PROJ. REFERENCE NO.	SHEET NO.
B-4645	X-19



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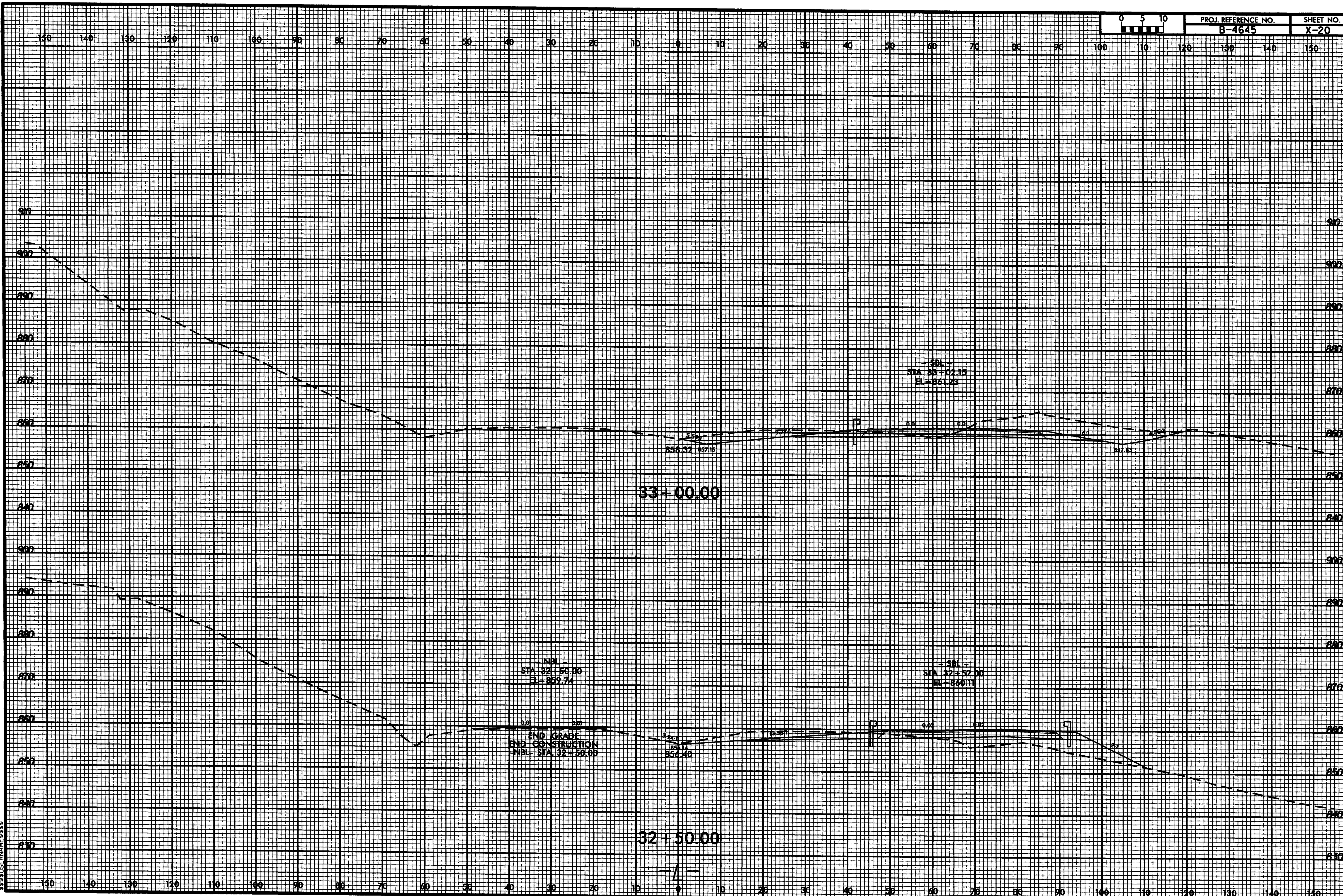
PROJ. REFERENCE NO. B-4645
SHEET NO. X-20



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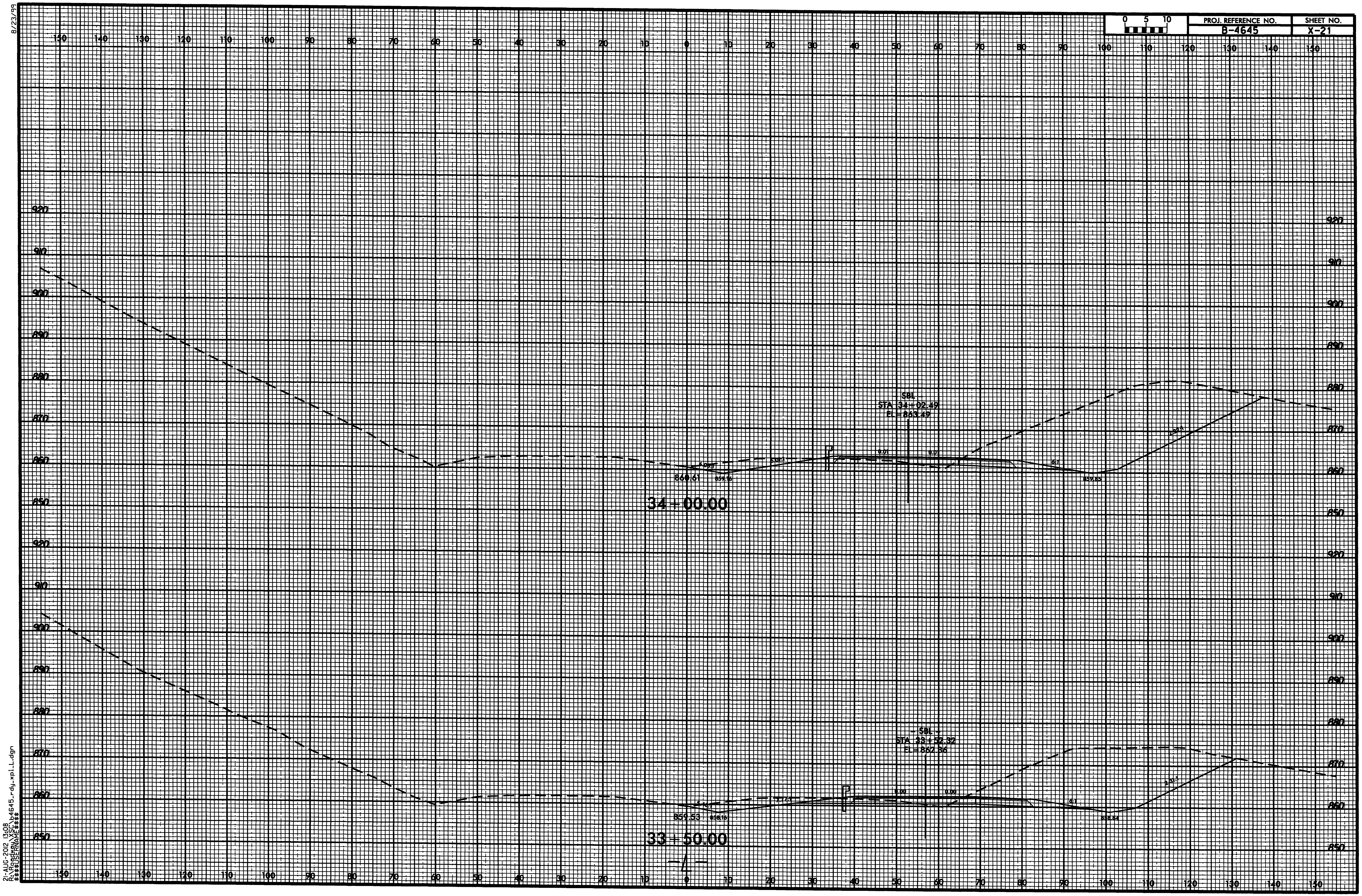

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PROJ. REFERENCE NO.
B-4645
SHEET NO.
X-21
SBL
STA 34+02.49
EL = 863.49
860.61
34+00.00
- SBL -
STA 33+52.32
EL = 862.36
859.53
33+50.00
-L-
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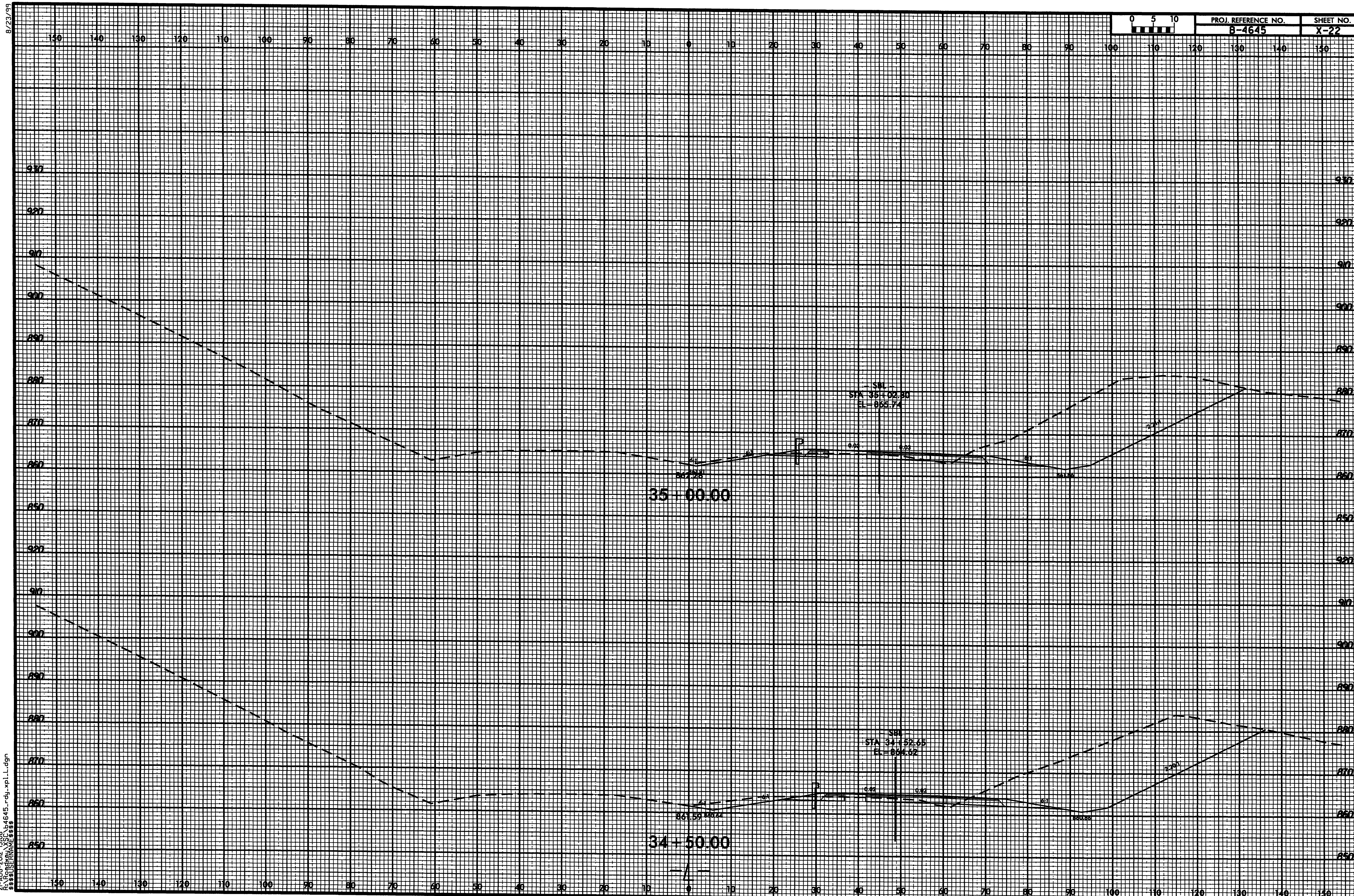
PROJ. REFERENCE NO.	SHEET NO.
B-4645	X-22



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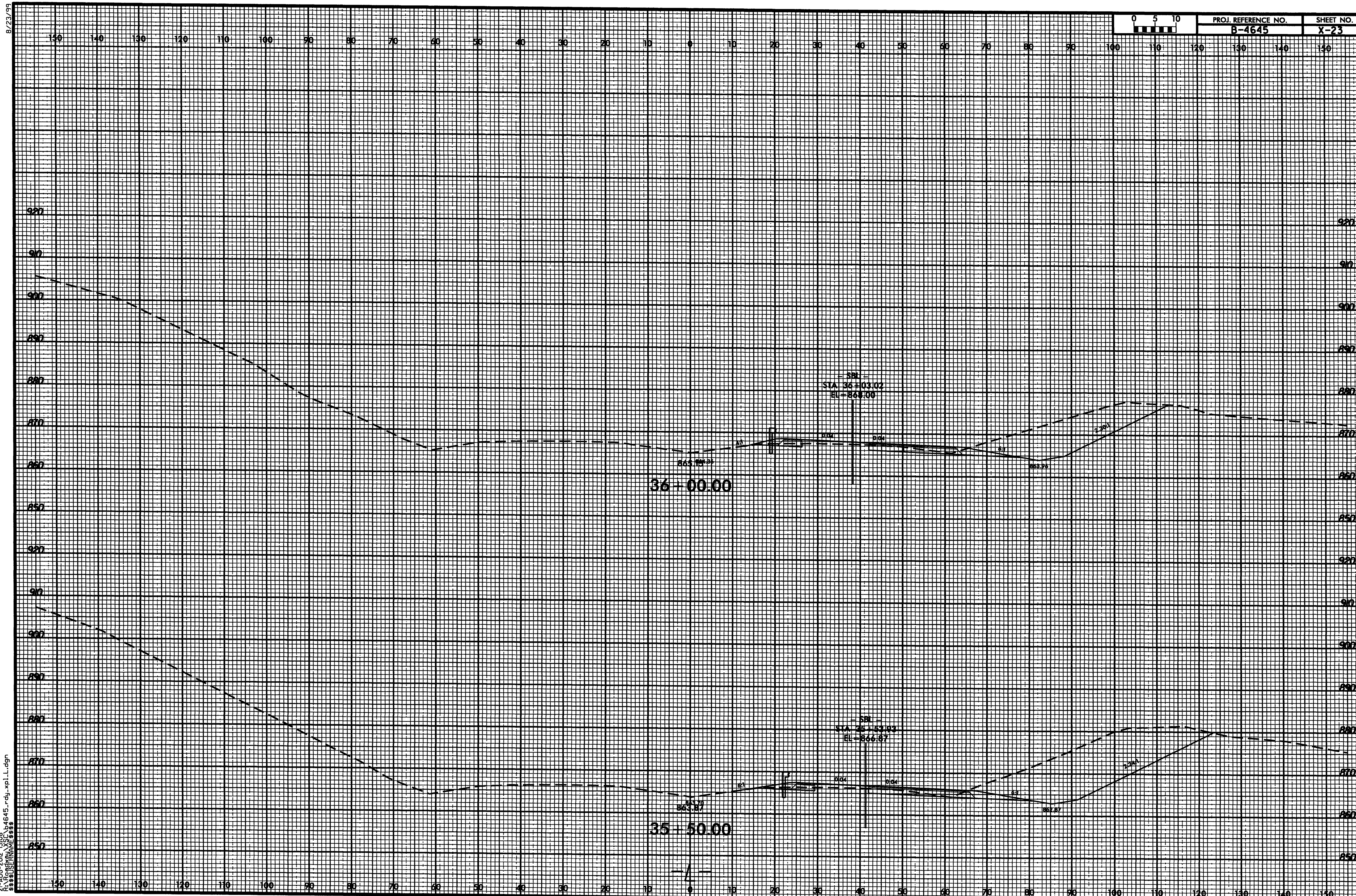

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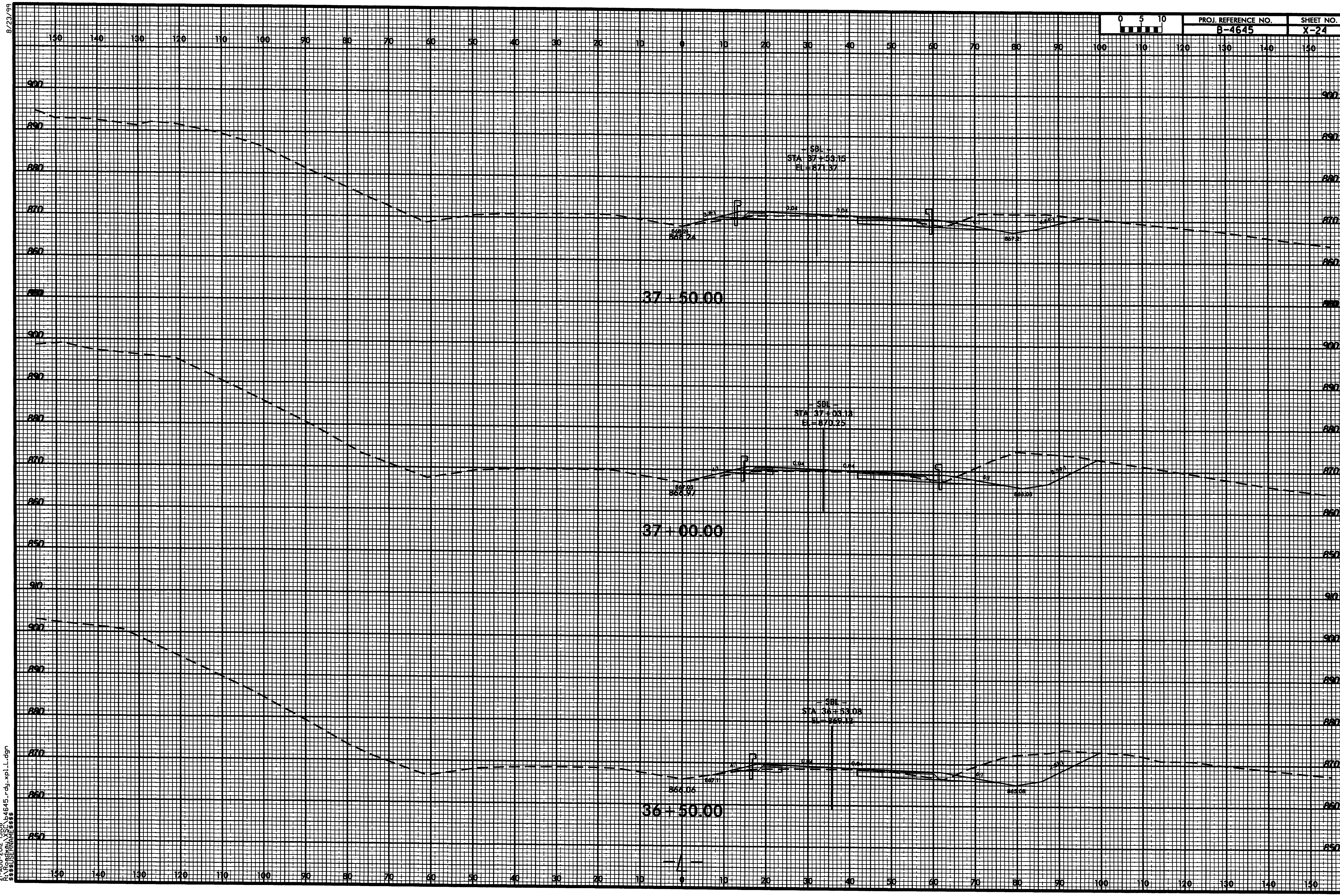

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37+50.00
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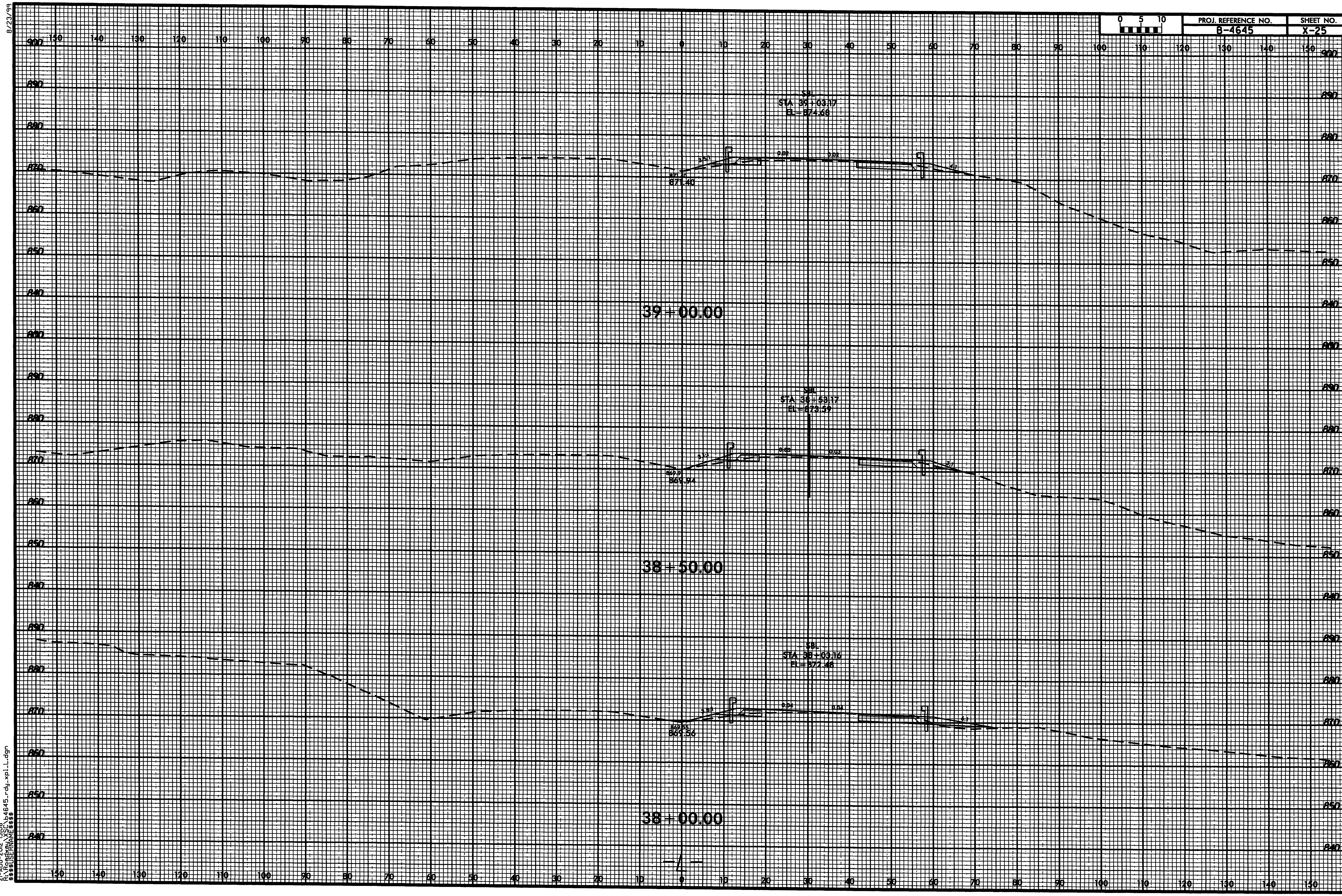
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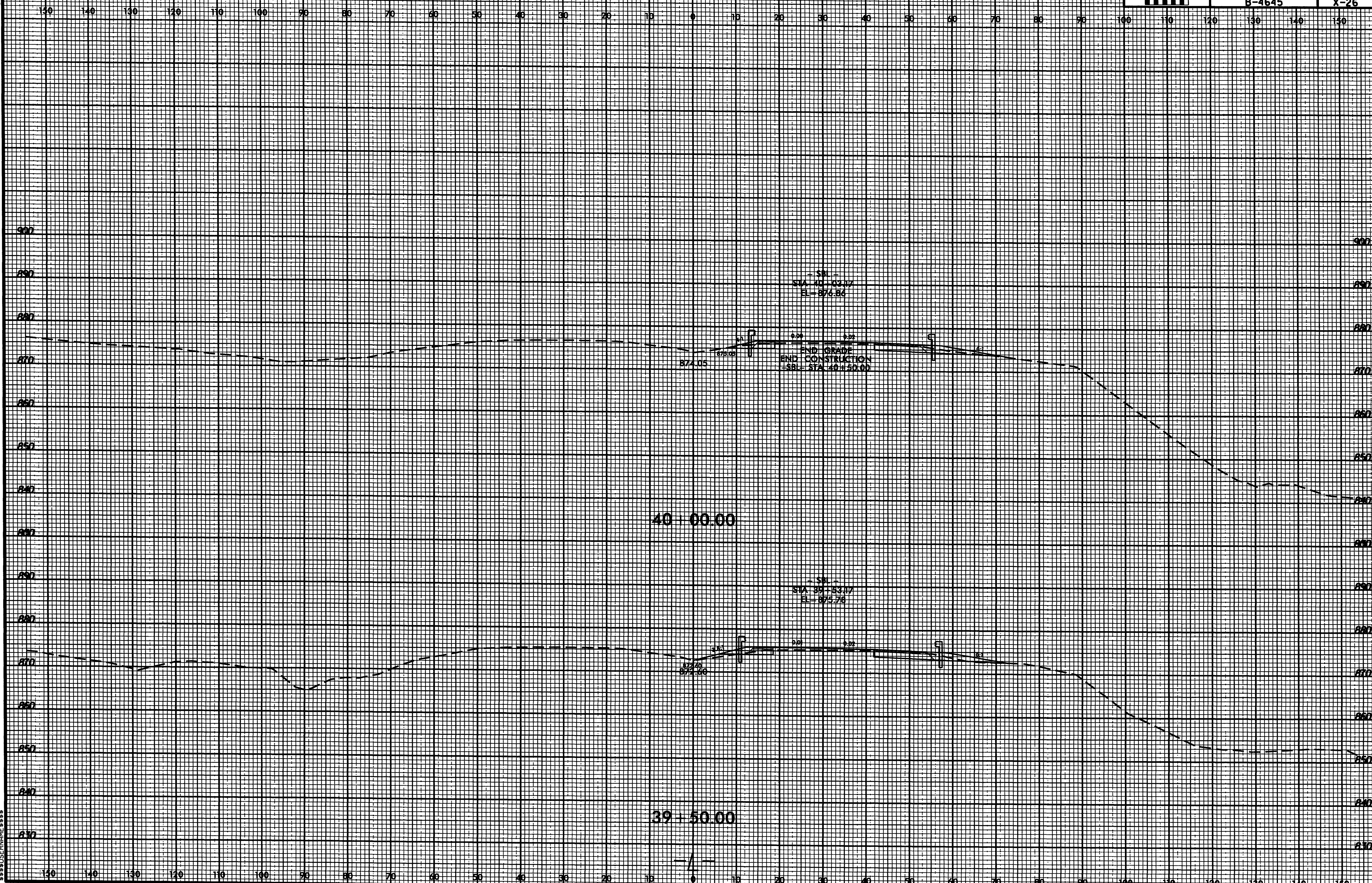

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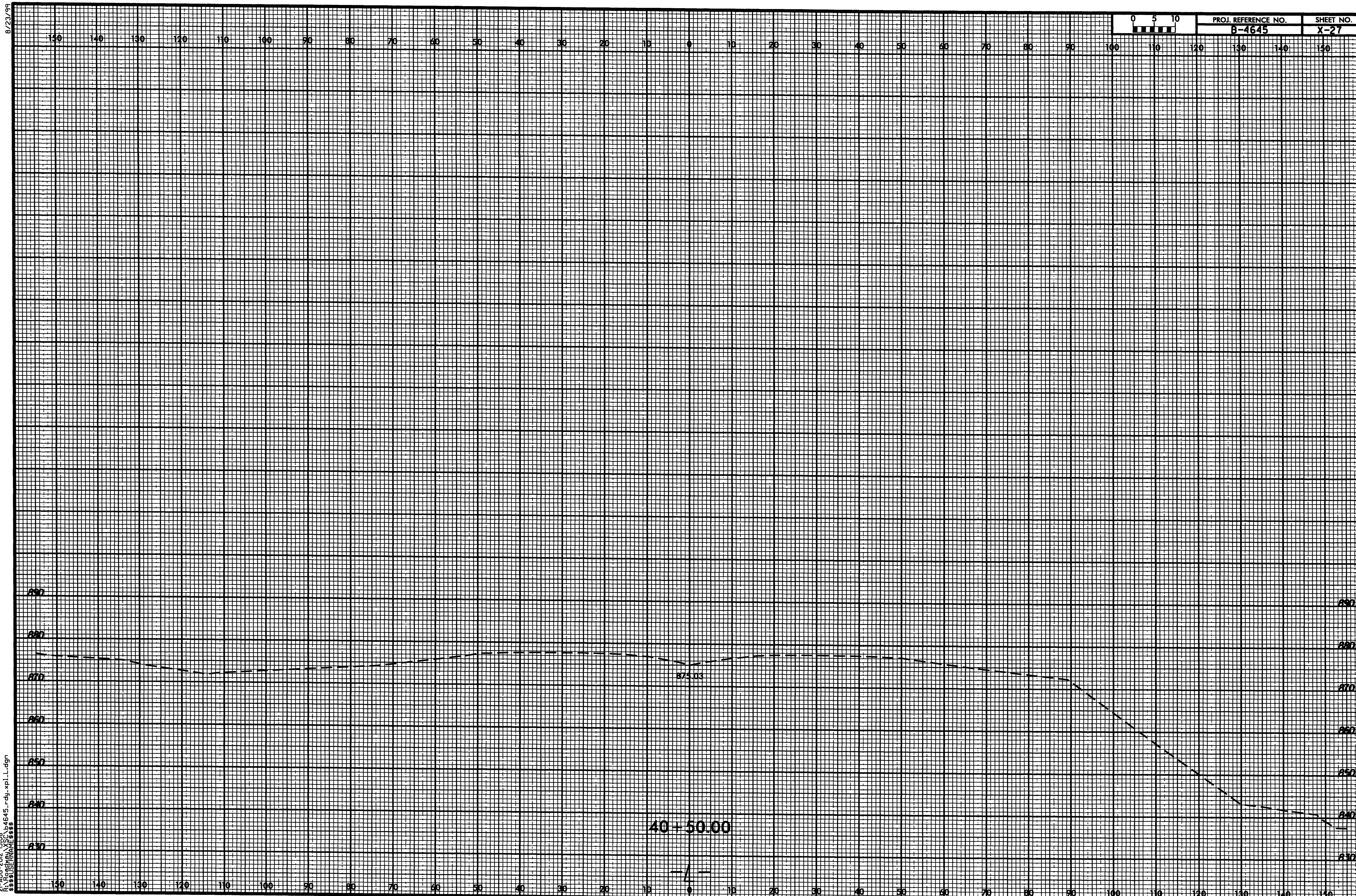

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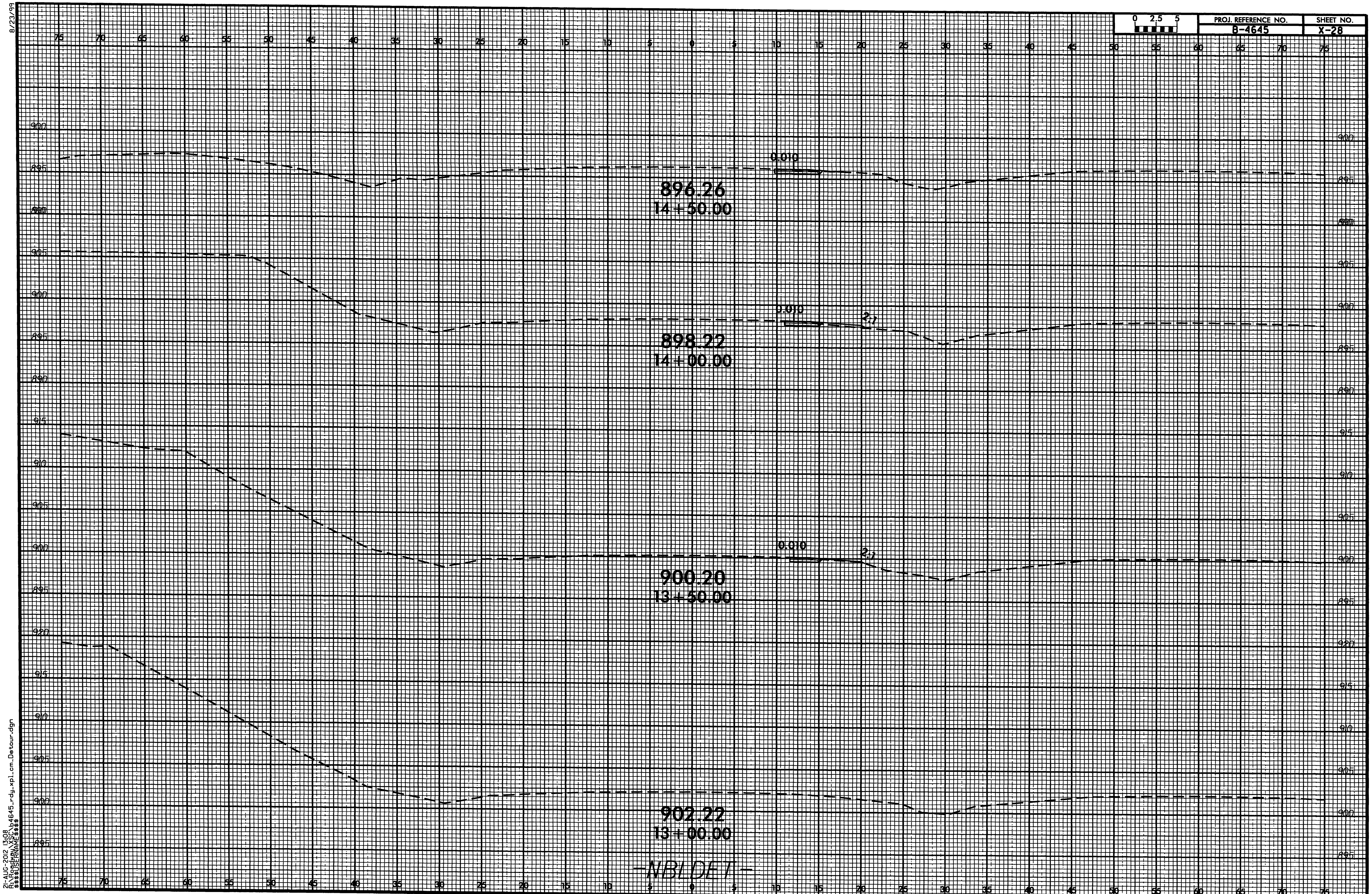

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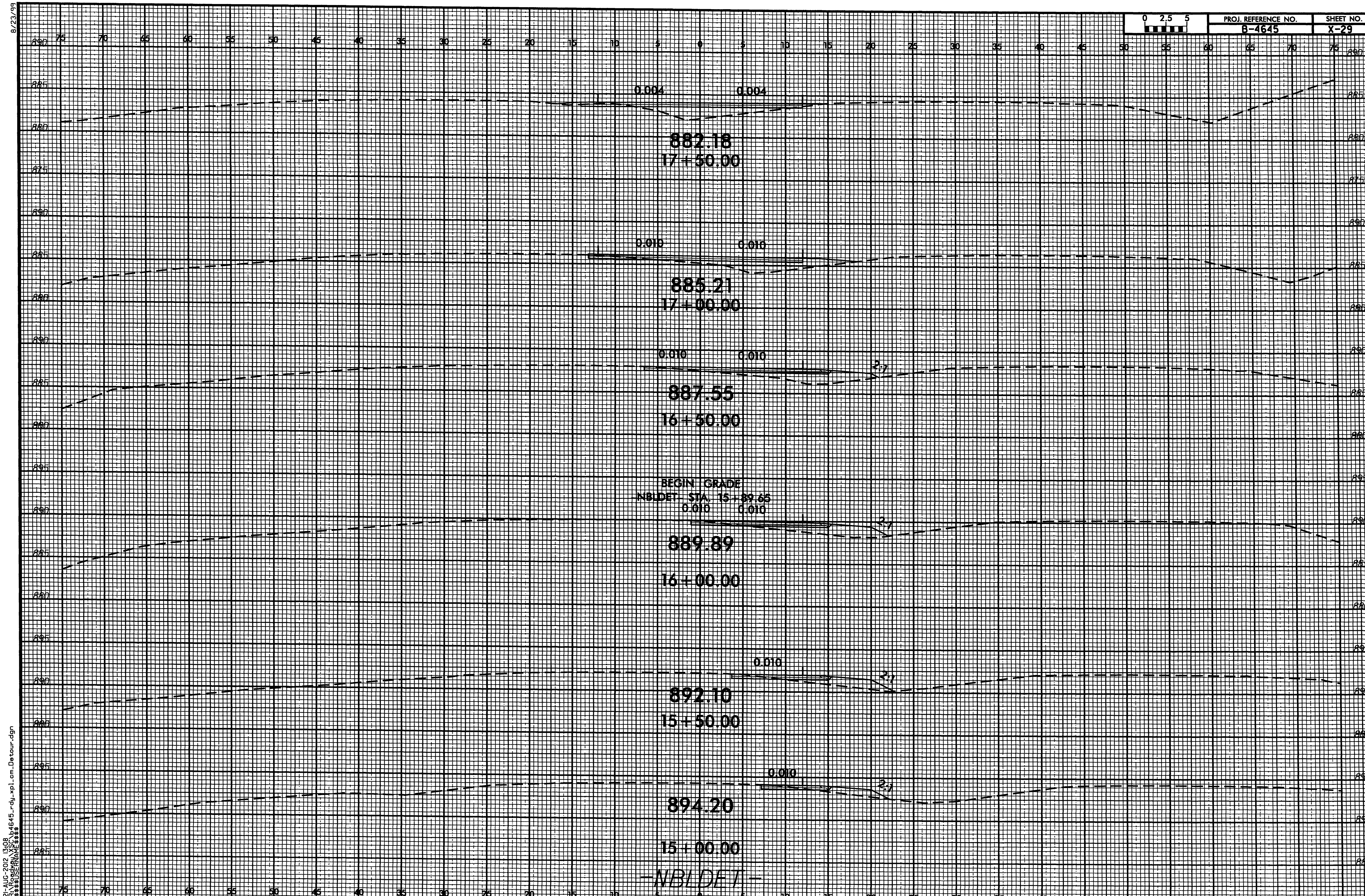

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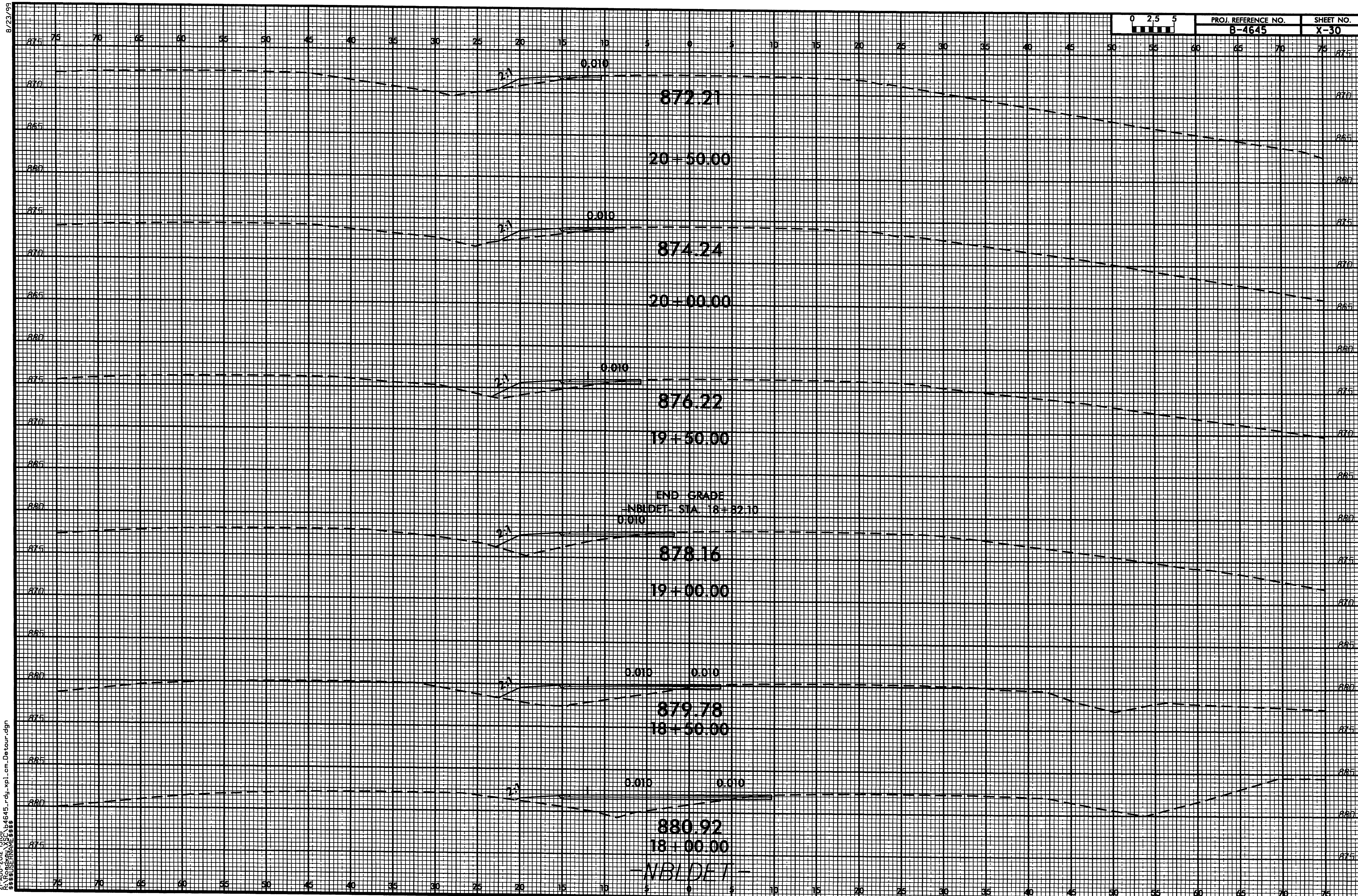

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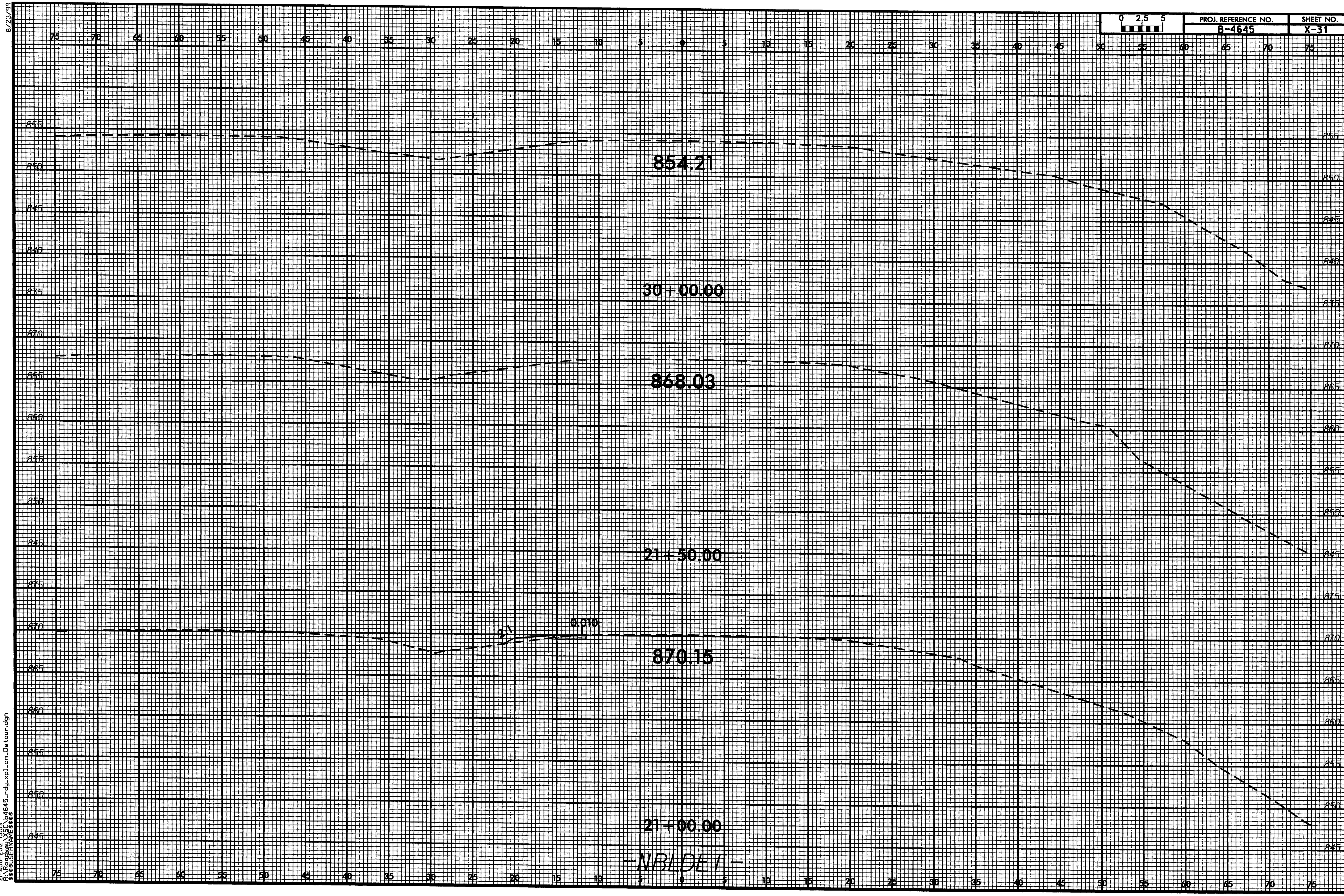

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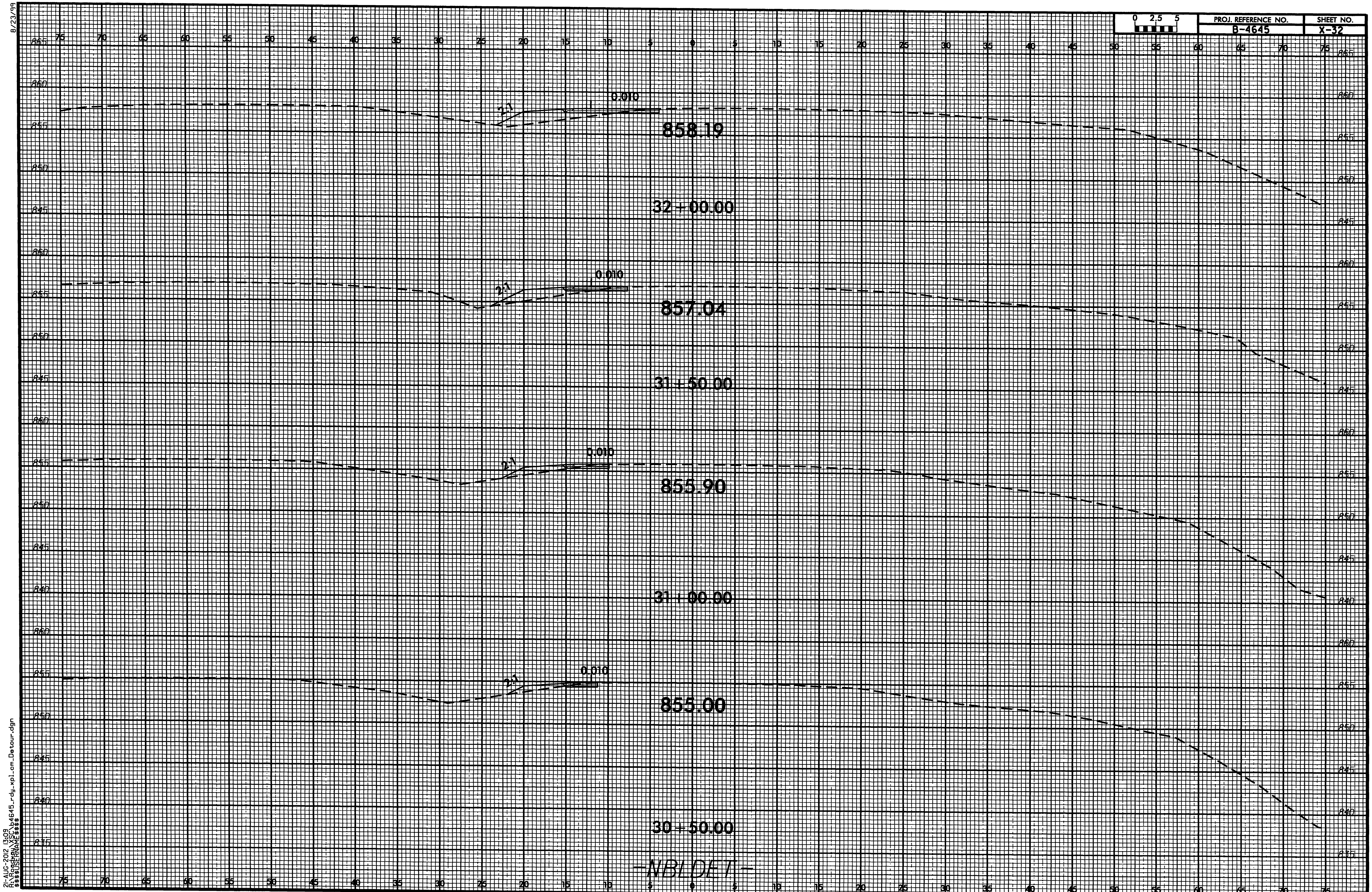

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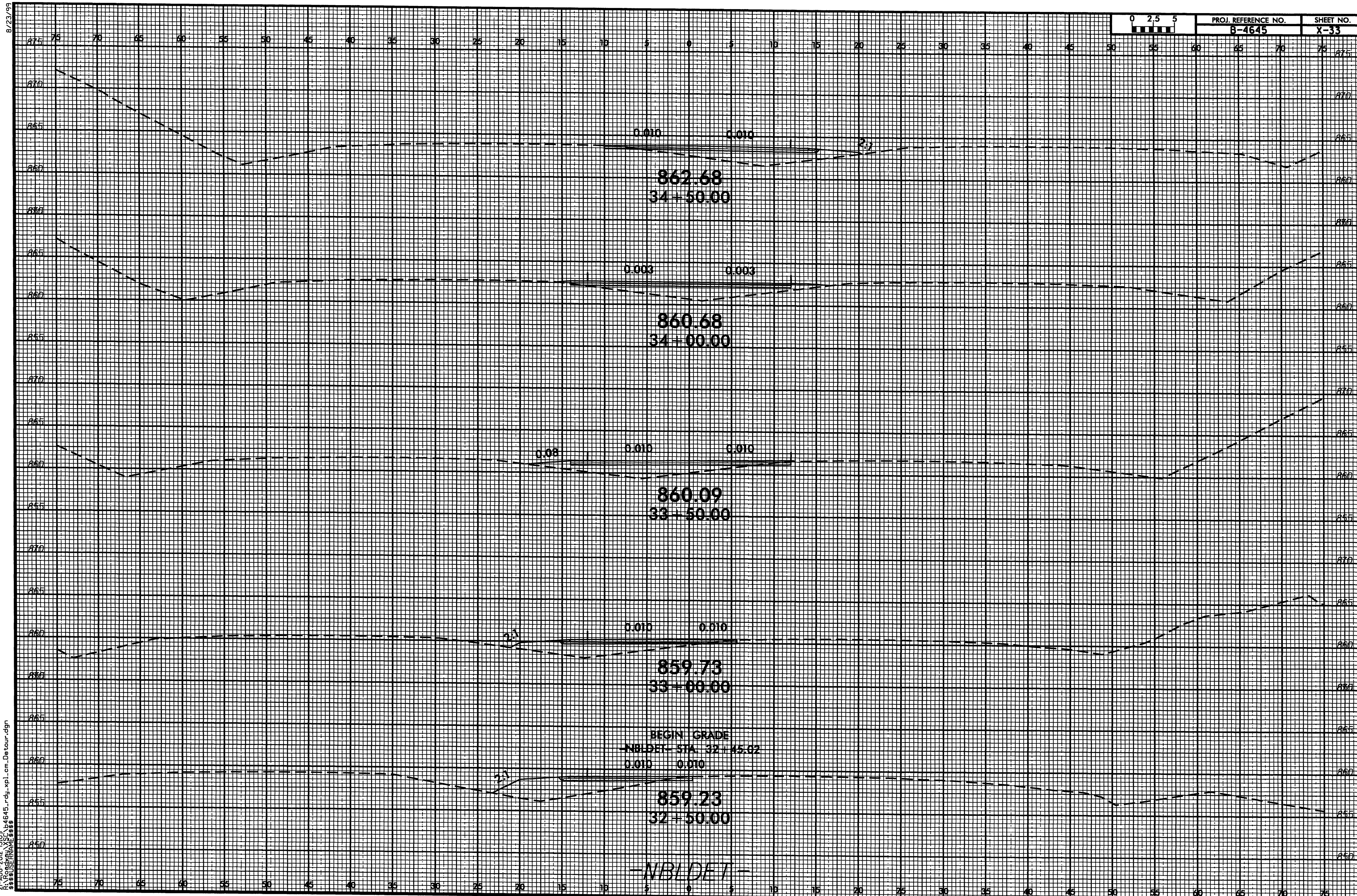

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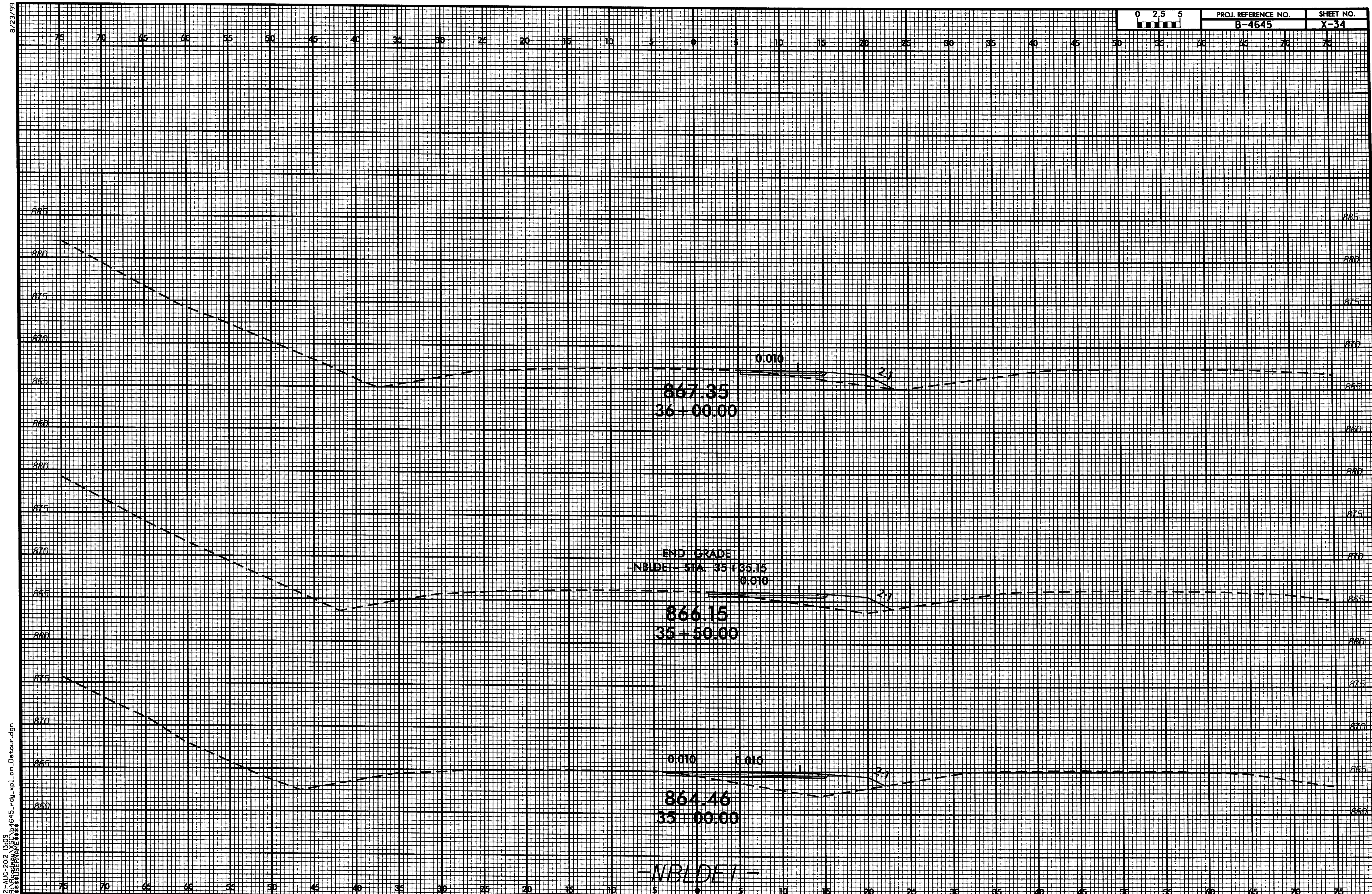

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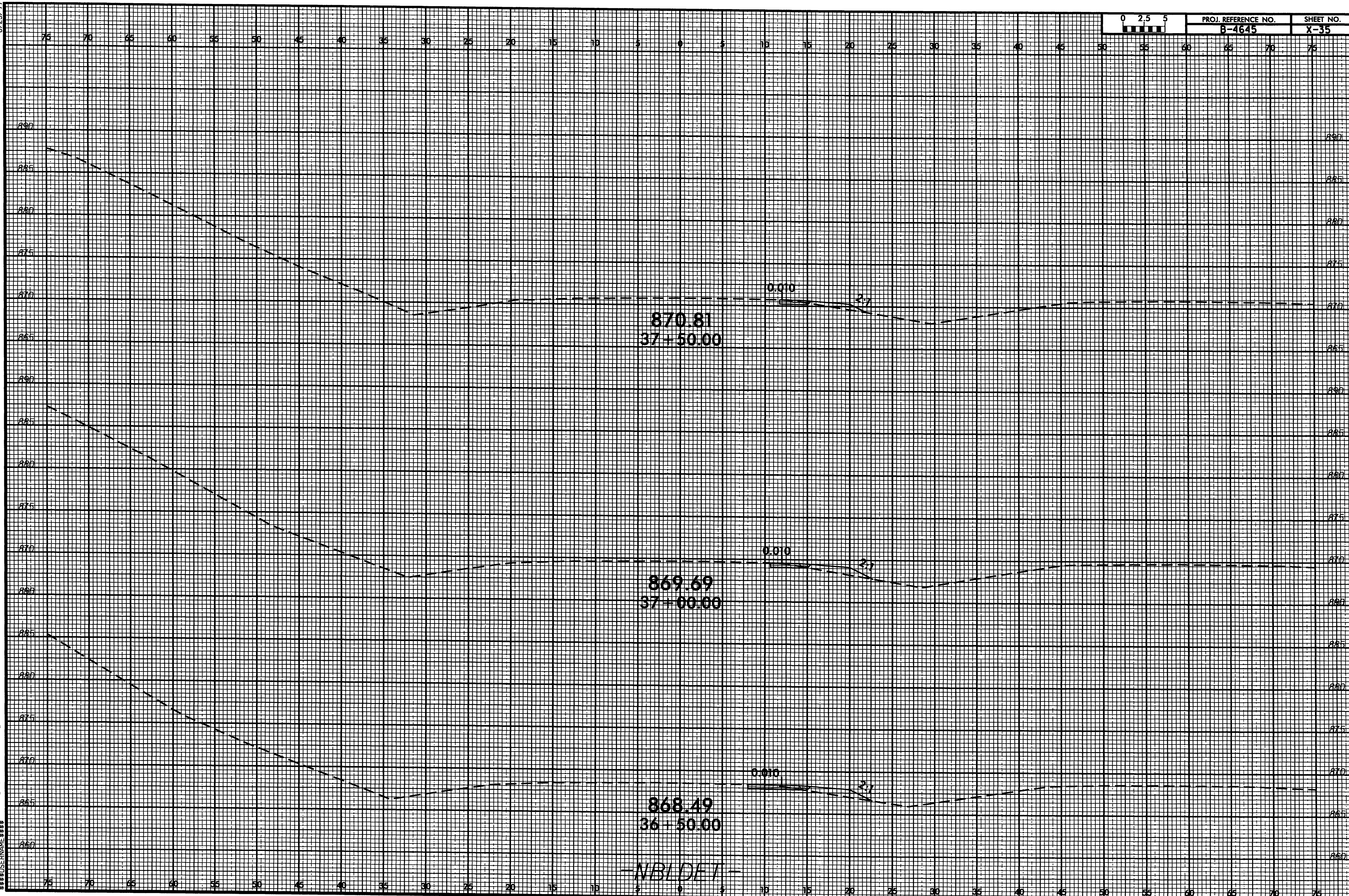

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0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
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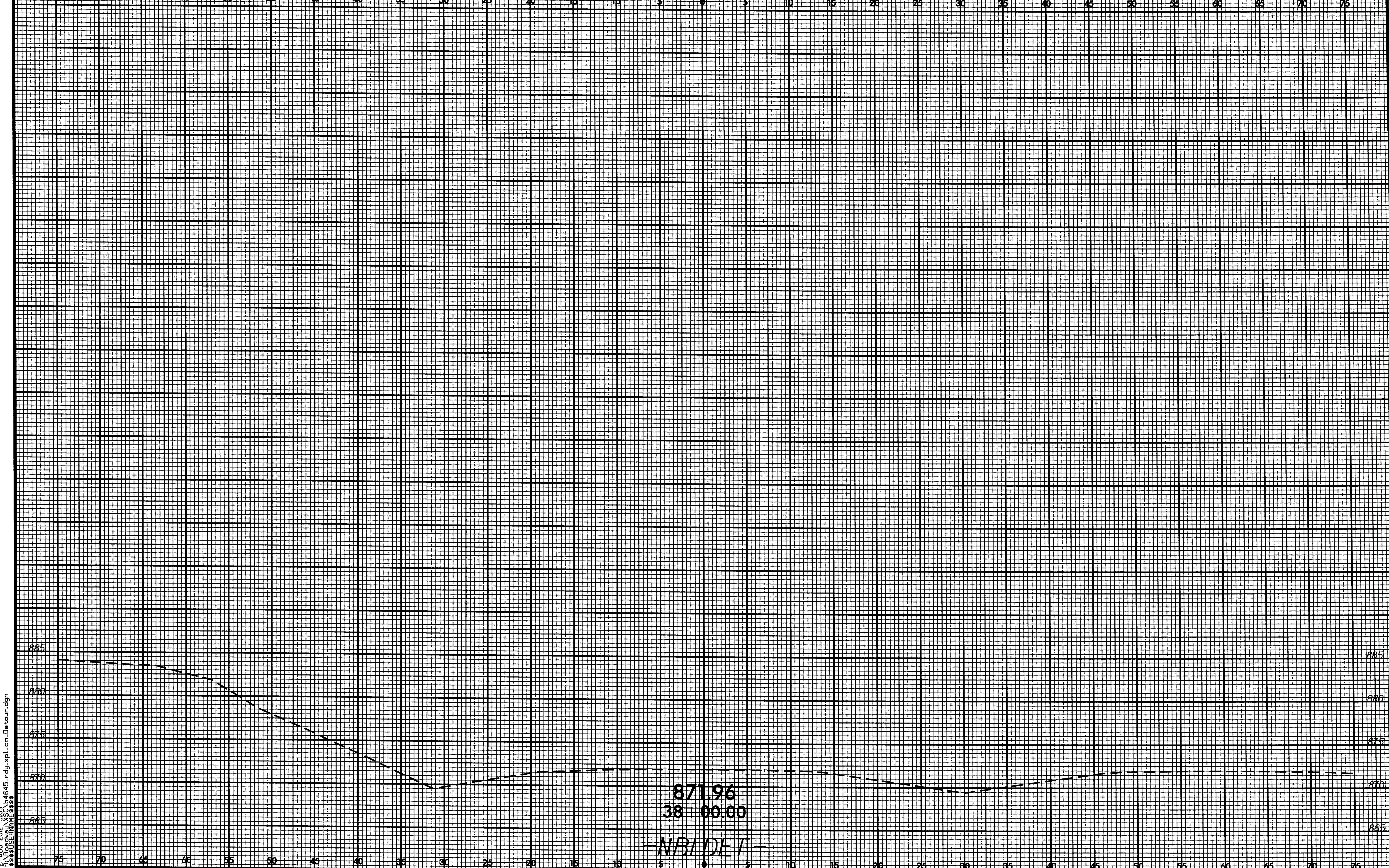

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