STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT L. MCCRORY
GOVERNOR

ANTHONY J. TATA
SECRETARY

April 10, 2013

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

ATTN: Mr. Monte Matthews
NCDOT Coordinator

Subject: **Application for Section 404 Nationwide Permit 23, 33 and 13 and Section 401 Water Quality Certification** for the proposed replacement of Bridge No. 302 over Middle Fork Reddies River on SR 1562 (Old NC 16) in Wilkes County, Federal Aid Project No. BRZ-1562(2), Division 11, TIP No. B-5146, Debit $240 from WBS 42307.1.1.

Dear Sir:

The North Carolina Department of Transportation (NCDOT) proposes to replace Bridge No. 302 over Middle Fork Reddies River on SR 1562 with a single-span box beam bridge on the existing alignment. Traffic will be maintained during construction via a temporary on-site detour.

There will be 23 linear feet of permanent stream impacts due to stream relocation, 67 linear feet of bank stabilization resulting from the stream relocation as well as bank reconstruction under the new structure, and <0.01 acre (28 linear feet) of temporary stream impacts due to the stream relocation and temporary detour bridge.

Please see enclosed copies of the Pre-Construction Notification (PCN), EEP acceptance letter, stormwater management plan, permit drawings and design plans for the above-referenced project. The Categorical Exclusion (CE) was completed in January 2012 and distributed shortly thereafter. Additional copies are available upon request.

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

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

WEBSITE:NCDOT.GOV

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

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.

This project calls for a letting date of January 21, 2014 and a review date of December 3, 2013; however, the let date may advance as additional funding becomes available.

A copy of this permit application and its distribution list will be posted on the NCDOT Website at: http://connect.ncdot.gov/resources/Environmental. If you have any questions or need additional information, please call Erin Cheely at (919) 707-6108.

Sincerely,

E. L. Lupk

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: 23 33 13	or General Permit (GP) number:
1c. Has the N WP 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 #302 over Middle Fork Reddies River on SR 1562
2b. County:	Wilkes
2c. Nearest municipality / town:	Wilbar
2d. Subdivision name:	*not applicable*
2e. NCDOT only, T.I.P. or state project no:	B-5146

3. Owner Information

3a. Name(s) on Recorded Deed:	North Carolina Department of Transportation
3b. Deed Book and Page No.	*not applicable*
3c. Responsible Party (for LLC i f applicable):	*not applicable*
3d. Street address:	1598 Mail Service Center
3e. City, state, zip:	Raleigh, NC 27699-1598
3f. Telephone no.:	(919) 707-6108
3g. Fax no.:	(919) 212-5785
3h. Email address:	ekcheely@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: 36.28545 (DD.DDDDDD) Longitude: - 81.318355 (-DD.DDDDDD)
1c. Property size:	1.5 acres
2. Surface Waters	
2a. Name of nearest body of water (stream, river, etc.) to proposed project:	Middle Fork Reddies River
2b. Water Quality Classification of nearest receiving water:	WS-II, Tr, HQW
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: Land use in the vicinity consists of about 80% forest land (including hardwood and acid cove forests), 15% developed or disturbed lands (roadsides, utility corridors and residential areas) and 5% cultivated land (agricultural fields and pastures).	
3b. List the total estimated acreage of all existing wetlands on the property: No wetlands within construction limits.	
3c. List the total estimated linear feet of all existing streams (intermittent and perennial) on the property: 275	
3d. Explain the purpose of the proposed project: The purpose of this project is to replace a structurally deficient and functionally obsolete bridge. Sufficiency rating 10.1 of 100, structural evaluation 2 of 9 and deck geometry 3 of 9.	
3e. Describe the overall project in detail, including the type of equipment to be used: The project involves replacing a 100-foot, three-span bridge with a 100-foot, single-span bridge on the existing alignment while maintaining traffic on a temporary on-site detour during construction. 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 Requested in 2009, field verified only	☒ Yes ☐ No ☐ Unknown JD package sent to USACE and NCDWQ 9/1/09.
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): Erin Cheely	Agency/Consultant Company: NCDOT Other:
4d. If yes, list the dates of the Corps jurisdictional determinations or State determinations and attach documentation. Monte Matthews of the USACE and Amy Euliss of NCDWQ field verified the streams and wetlands (wetlands no longer within project footprint) as jurisdictional on October 28, 2009 with NCDOT biologists	
5. Project History	
5a. Have permits or certifications been requested or obtained for this project (including all prior phases) in the past?	☐ Yes ☒ No ☐ Unknown
5b. If yes, explain in detail according to "help file" instructions.	
6. Future Project Plans	
6a. Is this a phased project?	☐ Yes ☒ No
6b. If yes, explain.	

C. Proposed Impacts Inventory

1. Impacts Summary

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

☐ Wetlands ☒ Streams - tributaries ☐ Buffers

☐ Open Waters ☐ Pond Construction

2. Wetland Impacts

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

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

2h. Comments: No wetlands located within the construction footprint of this project.

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 1-1 ☒ P ☐ T	Bank Stabilization	Middle Fork Reddies River	☒ PER ☐ INT	☒ Corps ☐ DWQ	30	61
Site 1-2 ☒ P ☐ T	Stream Relocation	S3 (UT to MF Reddies River)	☒ PER ☐ INT	☒ Corps ☐ DWQ	1	23
Site 1-2 ☒ P ☐ T	Bank Stabilization	S3 (UT to MF Reddies River)	☒ PER ☐ INT	☒ Corps ☐ DWQ	1	6
Site 1-2 ☐ P ☒ T	Stream Relocation	S3 (UT to MF Reddies River)	☒ PER ☐ INT	☒ Corps ☐ DWQ	1	<0.01ac (12 feet)
Site 1-3 ☐ P ☒ T	Temporary On-Site Detour	Middle Fork Reddies River	☒ PER ☐ INT	☒ Corps ☐ DWQ	30	<0.01ac (16 feet)
Site 2 ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
					3h. **Total stream and tributary impacts**	90 Perm <0.01 ac Temp (28 feet Temp)

3i. Comments: Of the 90 total feet of permanent stream impact, 67 total feet are from bank stabilization. The existing 30" CMP crossing under SR 1562 carrying stream S3 is being removed, and S3 will be piped along the south side of the road via a new 30" CMP flowing into MF Reddies River.

4. Open Water Impacts

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

4a. Open water impact number – Permanent (P) or Temporary (T)	4b. Name of waterbody (if applicable)	4c. Type of impact	4d. Waterbody type	4e. Area of impact (acres)
O1 ☐ P ☐ T				
O2 ☐ P ☐ T				
O3 ☐ P ☐ T				
O4 ☐ P ☐ T				
			4f. Total open water impacts	0 Permanent 0 Temporary

4g. Comments: No open waters.

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: This project is not located within a protected buffer area.

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 bridge will span the creek and will be constructed on the existing alignment. Bridge deck drainage will not be allowed to discharge directly into the water. In the northeast quadrant, a stormwater outlet containing bridge deck drainage will outlet into a riprap pad and provide diffuse flow and non-erosive velocities at the outlet prior to entering the stream. Bank reconstruction with Class II riprap will be provided along the eastern bank of the MF Reddies River to provide long-term bank stability and to prevent erosion. The stormdrain in the southwest quadrant drains into riprap protection, providing a non-erosive outlet prior to entering the stream.

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

Best Management Practices (BMPs) will be utilized during construction to attempt to reduce the stormwater impacts to the receiving stream due to erosion and runoff. Design Standards in Sensitive Watersheds will be implemented during construction. A trout moratorium from October 15 – April 15 will be adhered to in order to protect reproducing trout.

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 mitigat ion option will be used for this project?	☐ Mitigation bank ☒ Payment to in-lieu fee program ☐ Permittee Responsible Mitigation

3. Complete if Using a Mitigation Bank

3a. Name of Mitigation Bank: not applicable

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

3c. Comments:

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

4a. Approval letter from in-lieu fee program is attached.	☒ Yes
4b. Stream mitigation requested:	23 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: The NCDOT does not propose mitigation for the 67 linear feet of stream bank stabilization or the <0.01 acre of temporary stream impacts from stream relocation and the temporary on-site detour. These actions do not require permanent fill in the stream bed and, therefore, under Section 404 of the Clean Water Act, do not constitute Loss of Waters of the U.S. and are not subject to compensatory mitigation. Furthermore, the proposed bank stabilization activities are necessary to prevent erosion and sedimentation, i.e. preventing bank destabilization.

5. Complete if Using a Permittee Responsible Mitigation Plan

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

6. **Buffer Mitigation (State Regulated Riparian Buffer Rules) – required by DWQ**	
6a. Will the project result in an impact within a protected riparian buffer that requires buffer mitigation?	☐ Yes ☒ No

6b. If yes, then identify the square feet of impact to each zone of the riparian buffer that requires mitigation. Calculate the amount of mitigation required.

Zone	6c. Reason for impact	6d. Total impact (square feet)	Multiplier	6e. Required mitigation (square feet)
Zone 1			3 (2 for Catawba)	
Zone 2			1.5	
			6f. **Total buffer mitigation required:**	

6g. If buffer mitigation is required, discuss what type of mitigation is proposed (e.g., payment to private mitigation bank, permittee responsible riparian buffer restoration, payment into an approved in-lieu fee fund).

6h. Comments:

E. Stormwater Management and Diffuse Flow Plan (required by DWQ)	
1. Diffuse Flow Plan	
1a. Does the project include or is it adjacent to protected riparian buffers identified within one of the NC Riparian Buffer Protection Rules?	☐ Yes ☒ No
1b. If yes, then is a diffuse flow plan included? If not, explain why. Comments: If required from 1a, see attached buffer permit drawings.	☐ 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 N/A
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: Categorical Exclusion (CE) approved January 2012	☒ 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? As of September 22, 2010 the USFWS lists only one federally listed species for Wilkes County, the bog turtle. No habitat for the bog turtle exists within the project limits, therefore the biological conclusion for this species is "No Effect".	
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. Luck Applicant/Agent's Signature (Agent's signature is valid only if an authorization letter from the applicant is provided.)	4.10.13 Date

Ecosystem Enhancement PROGRAM

March 26, 2013

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-5146, Replace Bridge 302 over Middle Fork Reddies River on SR 1562, Wilkes 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 March 22, 2013, the impacts are located in CU 03040101 of the Yadkin River basin in the Northern Mountains (NM) Eco-Region, and are as follows:

Yadkin 03040101 NM	Stream			Wetlands			Buffer (Sq. Ft.)	
	Cold	Cool	Warm	Riparian	Non-Riparian	Coastal Marsh	Zone 1	Zone 2
Impacts (feet/acres)	23.0	0	0	0	0	0	0	0

*Some of the stream and wetland impacts may be proposed to be mitigated at a 1:1 mitigation ratio. See permit application for details.

EEP commits to implementing sufficient compensatory stream mitigation credits to offset the impacts associated with this project as determined by the regulatory agencies in accordance with 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

James B. Stanfill
EEP Asset Management Supervisor

cc: Mr. Monte Matthews, USACE – Raleigh Regulatory Field Office
Ms. Amy Chapman, Division of Water Quality, Wetlands/401 Unit
File: B-5146

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR LINEAR ROADWAY PROJECTS

(Version 1.2; Released July 2012)

Project/TIP No.: B-5146 **County(ies):** Wilkes

General Project Information

Project No.:	B-5146	**Project Type:**	Bridge Replacement	**Date:**	3/6/2013
NCDOT Contact:	Charles Smith, PE	**Contractor / Designer:**	Trent Cormier, PE; Florence & Hutcheson		
Address:	NCDOT Hydraulics Unit 1590 Mail Service Center Raleigh, NC 27699-1590	**Address:**	5121 Kingdom Way, Suite 100 Raleigh, NC 27607		
Phone:	919-707-6716	**Phone:**	919-900-1608		
Email:	crsmith5@ncdot.gov	**Email:**	tcormier@flohut.com		
City/Town:		**County(ies):**	Wilkes		
River Basin(s):	Yadkin-Pee Dee	**CAMA County?**	No		
Primary Receiving Water:	Middle Fork Reddies River	**NCDWQ Stream Index No.:**	12-40-02		
NCDWQ Surface Water Classification for Primary Receiving Water	**Primary:**	Water Supply II (WS-II)	None		
	Supplemental:	High Quality Waters (HQW)	Trout Waters (Tr)		
Other Stream Classification:					
303(d) Impairments:	None				
Buffer Rules in Effect	N/A				

Project Description

Project Length (lin. Miles or feet):	0.115 Miles	**Surrounding Land Use:**	Mountainous Rural Area

	Proposed Project	**Existing Site**
Project Built-Upon Area (ac.)	0.31 ac.	0.25 ac.
Typical Cross Section Description:	Open shoudler section, 2 @ 9' paved lane (total 18' wide), 4' unpaved shoulder on the left side, 2' unpaved shoulder on the right side	Open shoulder section, 2 @ 9' paved lane (total 18' wide), 4' unpaved shoulder on the left side, 3' unpaved shoulder on the right side
Average Daily Traffic (veh/hr/day):	Design/Future: 720	Existing: 370

General Project Narrative:

Replacement of Wilkes County Bridge No.302 over Middle Fork Reddies River on SR 1562 (Old NC 16)
Existing Wilkes County Bridge No. 302 is a three span, 1@19'-6", 1@40'-0", 1@40'-6"; OAL length = 100'. Timber floor on I-beams, supported by timber caps & piles & concrete sills.
Proposed Wilkes County Bridge No. 302 is a Single Span 1@100'; 39" Prestressed Concrete Box Beam.
There are two jurisdictional wetlands in the project vicinity, but there are no impacts to the wetlands.
BEST MANAGEMENT PRACTICES:
Sheet flow on grass shoulders along the roadway: This will promote infiltration and filtration of pavement runoff by directing sheet flow over grassed shoulder slopes.
Efforts to Achieve treatment prior to entering HQW:
NW quadrant: Proposed roadway is in cut section and a proposed cut ditch is expected to outlet (concentrated flow) is into the stream. A water quality swale meeting grassed swale criteria was investigated and based on ROW limits and adjacent terrain was deemed not feasible. The ROW limits and adjacent terrain limit treatment options to the ditch line.
NE quadrant: Proposed roadway is in fill section and no proposed ditch (concentrated flow) is expected. Proposed stormwater outlet containing bridge deck drainage will outlet into rip rap pad and provide diffuse flow and non-erosive velocities at the outlet prior to entering the stream.
SE quadrant: Proposed roadway is in fill section and no proposed ditch or storm drain outlet (concentrated flow) is expected.
SW quadrant: Proposed roadway is in cut section and a proposed cut ditch is expected to flow into inlet and combine with jurisdictional stream within the stormwater system. Drainage in the ditch line is from adjacent mountainside and not from the roadway as a result of the superelevation. A water quality swale meeting grassed swale criteria was investigated and based on ROW limits and adjacent terrain was deemed not feasible. The ROW limits and adjacent terrain limit treatment options to the ditch line. The stormdrain outlets into rip rap bank protection, providing a non-erosive outlet prior to entering the stream.
No deck drains: This will avoid direct discharge of storm water from the bridge deck into the receiving water.
Bank Reconstruction: Bank reconstruction with class II rip rap is provided at along the eastern bank to provide long-term bank stability and to prevent erosion. This will provide a stable stream that will not degrade in the evolution process.

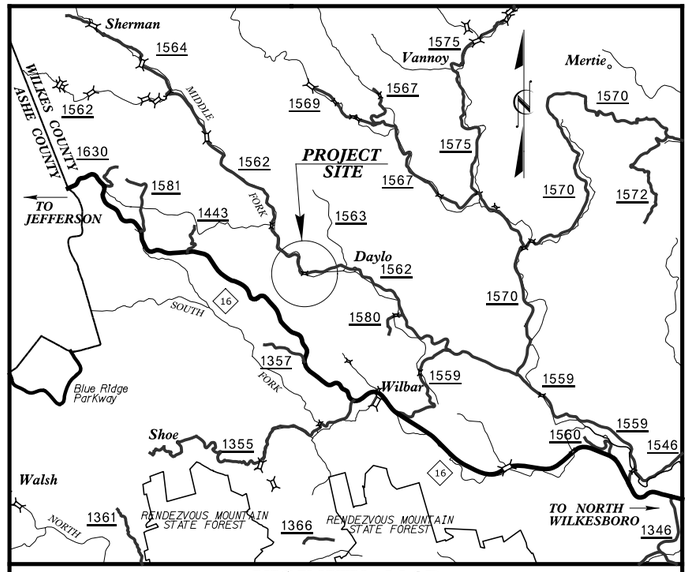
References

09/08/99

TIP PROJECT: B-5146

CONTRACT: C203303

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



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WILKES COUNTY

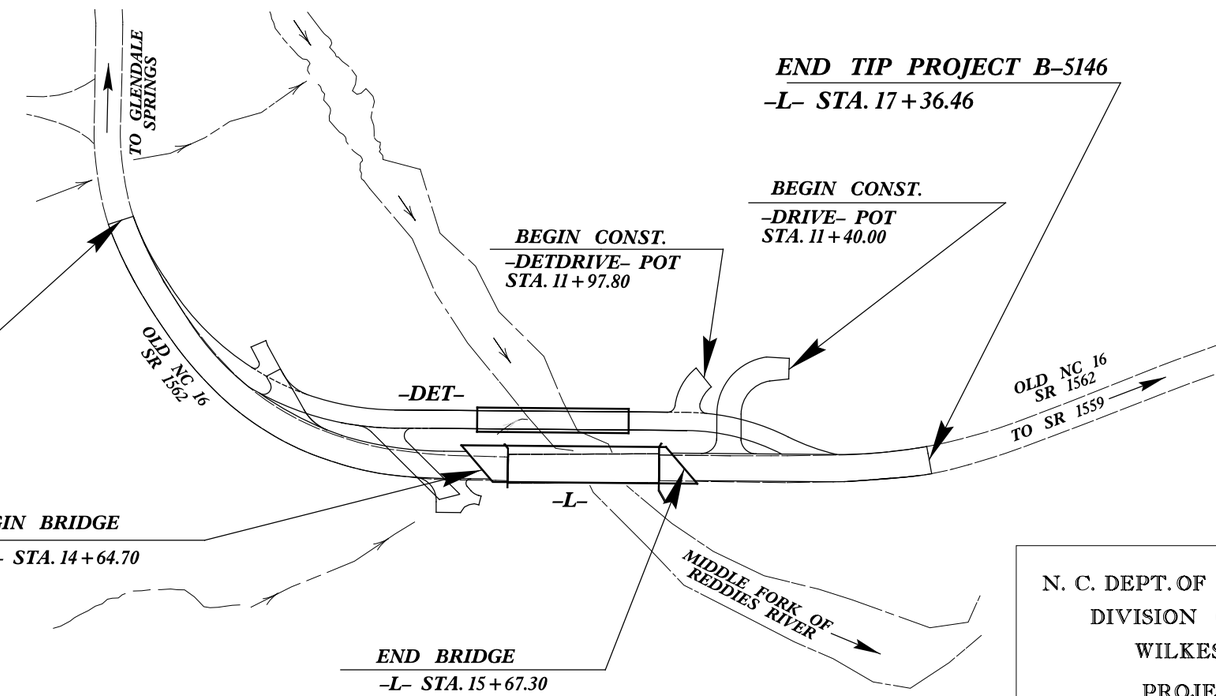
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5146	1	

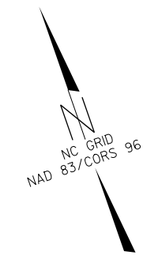
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
42307.1.1	BRZ-1562(2)	P.E.
42307.2.1	BRZ-1562(2)	ROW/UTIL.
42307.3.1	BRZ-1562(2)	CONST.

LOCATION: BRIDGE 302 OVER MIDDLE FORK OF REDDIES RIVER ON SR 1562 (OLD NC 16)

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

WETLAND AND SURFACE WATER IMPACTS PERMIT





ENGLISH

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

PROJECT: B-5146
BRIDGE 302 OVER MIDDLE FORK OF REDDIES RIVER ON SR 1562 (OLD NC 16)

SHEET 1 OF 7

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 = 165 VPD
ADT 2039 = 250 VPD
DHV = 10 %
D = 60 %
* T = 3 %
V = 40 MPH
*(TTST 1% + DUAL 2%)
FUNC. CLASS. = RURAL LOCAL
SUBREGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-5146	=	0.096	MILE
LENGTH STRUCTURE TIP PROJECT B-5146	=	0.019	MILE
TOTAL LENGTH TIP PROJECT B-5146	=	0.115	MILE

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JANUARY 18, 2013

LETTING DATE:
JANUARY 21, 2014

JASON MOORE, PE
PROJECT ENGINEER

BRYAN KEY, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER
SIGNATURE: P.E.

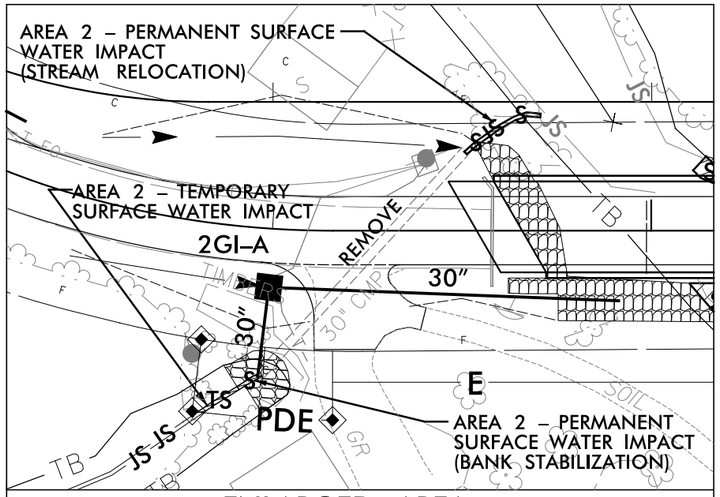
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2/26/2013
R:\Hydraulics\PERMITS_Environmental\Drawings\B-5146_hyd_prm_tsh.dgn
Florence & Hutcheson, Inc.

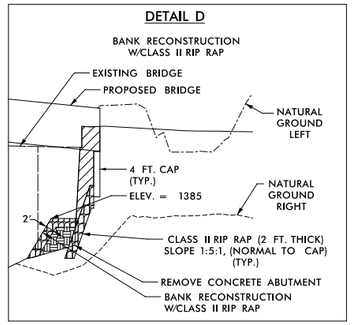
PROJECT REFERENCE NO.	SHEET NO.
B-5146	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

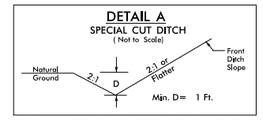
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WETLAND AND SURFACE WATER IMPACTS PERMIT

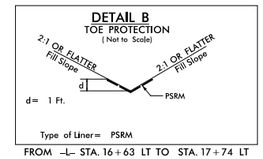


ENLARGED AREA SCALE: 1" = 40'



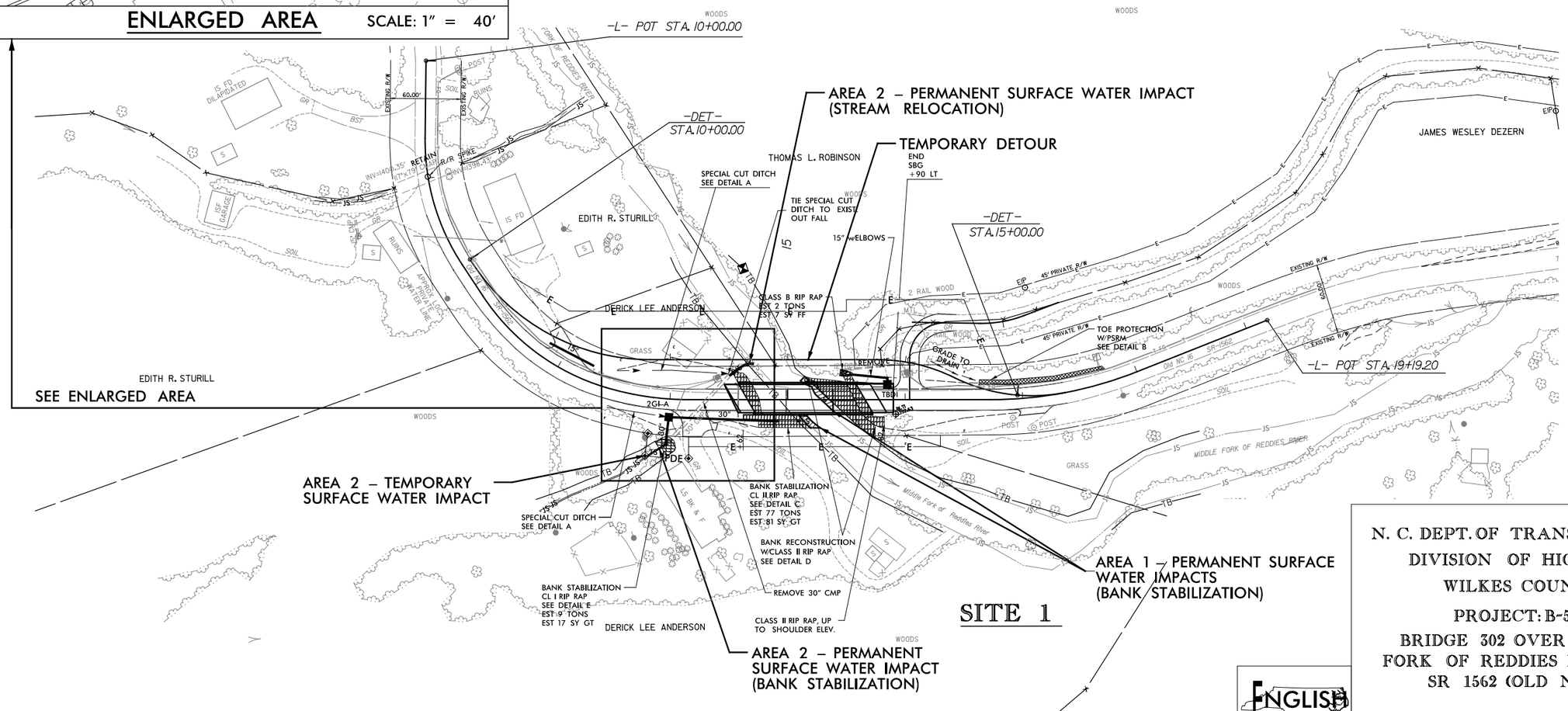


FROM –L– STA. 13+50 LT TO STA. 14+51 LT
FROM –L– STA. 13+50 RT TO STA. 14+00 RT



FROM –L– STA. 16+63 LT TO STA. 17+74 LT

NC GRID NAD 83/CORS 96



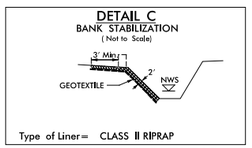
SITE 1

N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
WILKES COUNTY
PROJECT: B-5146
BRIDGE 302 OVER MIDDLE FORK OF REDDIES RIVER ON SR 1562 (OLD NC 16)

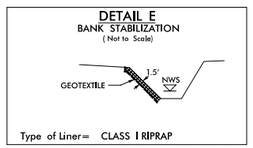
ENGLISH

SHEET 2 OF 7

100 0 50 100
SCALE: 1"= 100' HORIZ.



FROM –L– STA. 14+75 RT TO 15+20 RT



FROM –L– STA. 13+90 RT TO 14+06 RT

LEGEND

RIP RAP

DENOTES PERMANENT IMPACTS IN SURFACE WATERS

DENOTES TEMPORARY IMPACTS IN SURFACE WATERS

NOTES:
1.) FOR –DET– PLAN VIEW SEE SHEET 2–B.
2.) FOR –L– AND –DRIVE– PROFILES SEE SHEET 5
3.) FOR –DRIVE– PROFILE SEE SHEETS 5 & 6.
4.) ALL DRIVEWAY RADII ARE 10' UNLESS NOTED OTHERWISE ON PLANS.
5.) FOR STRUCTURE PLANS SEE SHEET S–1 THRU S–?
6.) SEE SHEET 2–C FOR CURVE DATA & DETAILS

5/14/99
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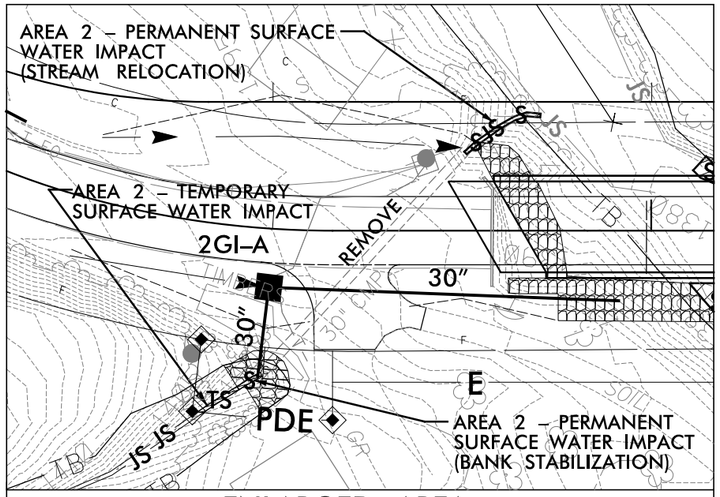
3/6/2013
pace & Hutchison, Inc.

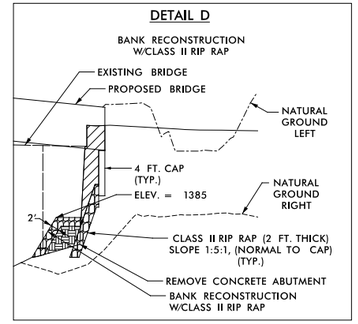
PROJECT REFERENCE NO.	SHEET NO.
B-5146	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

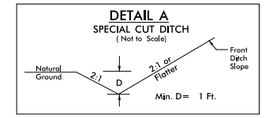
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WETLAND AND SURFACE WATER IMPACTS PERMIT

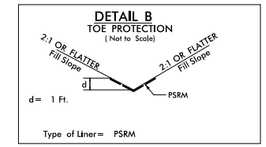


ENLARGED AREA SCALE: 1" = 40'



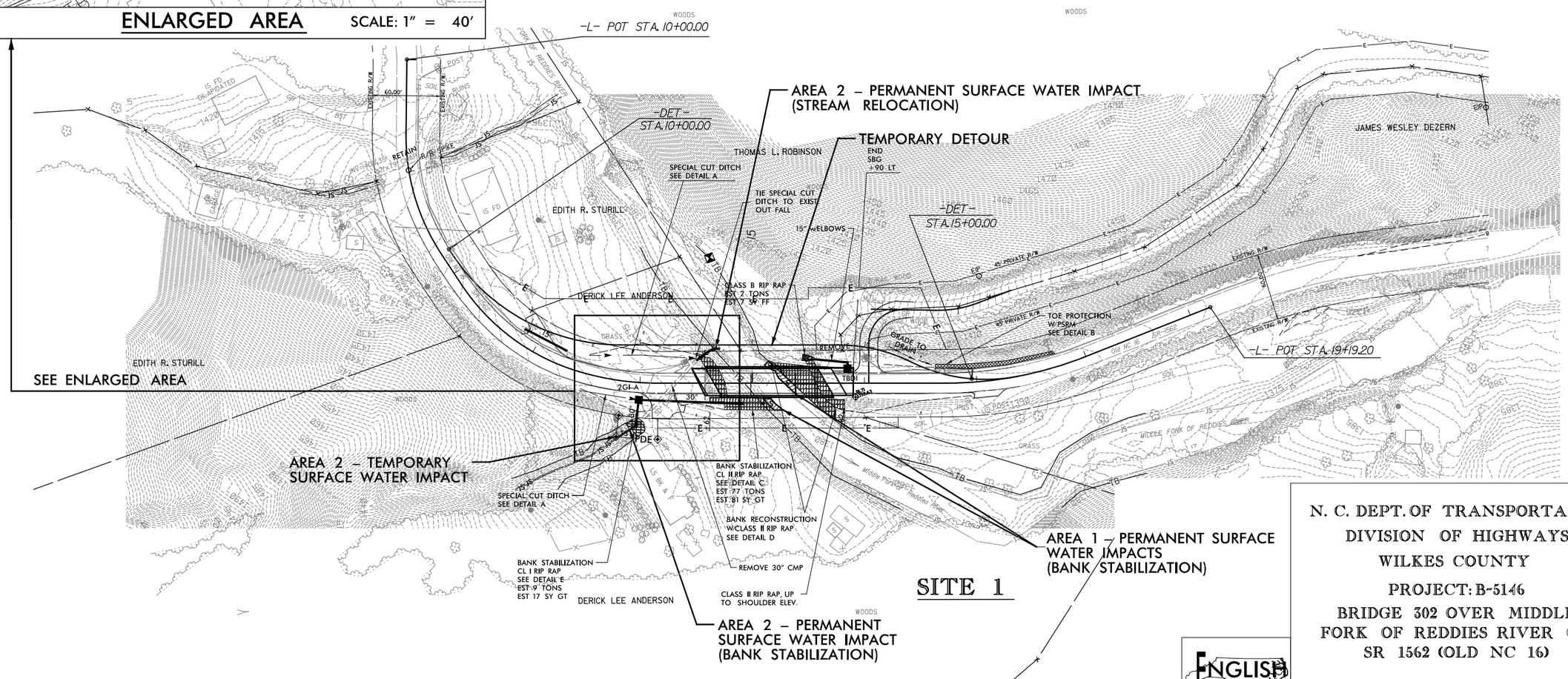


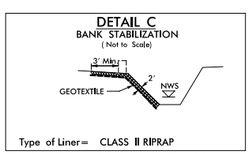
FROM –L– STA. 13+50 LT TO STA. 14+51 LT
FROM –L– STA. 13+50 RT TO STA. 14+00 RT



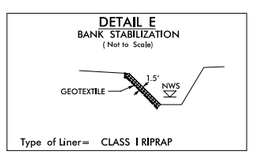
FROM –L– STA. 16+63 LT TO STA. 17+74 LT

NC GRID NAD 83/CORS 96





FROM –L– STA. 14+75 RT TO 15+20 RT



FROM –L– STA. 13+90 RT TO 14+06 RT

LEGEND

RIP RAP

DENOTES PERMANENT IMPACTS IN SURFACE WATERS

DENOTES TEMPORARY IMPACTS IN SURFACE WATERS

100 0 50 100
SCALE: 1"= 100' HORIZ.

N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
WILKES COUNTY
PROJECT: B-5146
BRIDGE 302 OVER MIDDLE FORK OF REDDIES RIVER ON SR 1562 (OLD NC 16)

ENGLISH

SHEET 3 OF 7

NOTES:
1.) FOR –DET– PLAN VIEW SEE SHEET 2–B.
2.) FOR –L– AND –DRIVE– PROFILES SEE SHEET 5
3.) FOR –DRIVE– PROFILE SEE SHEETS 5 & 6.
4.) ALL DRIVEWAY RADII ARE 10' UNLESS NOTED OTHERWISE ON PLANS.
5.) FOR STRUCTURE PLANS SEE SHEET S–1 THRU S–?
6.) SEE SHEET 2–C FOR CURVE DATA & DETAILS

5/14/99
3/6/2013
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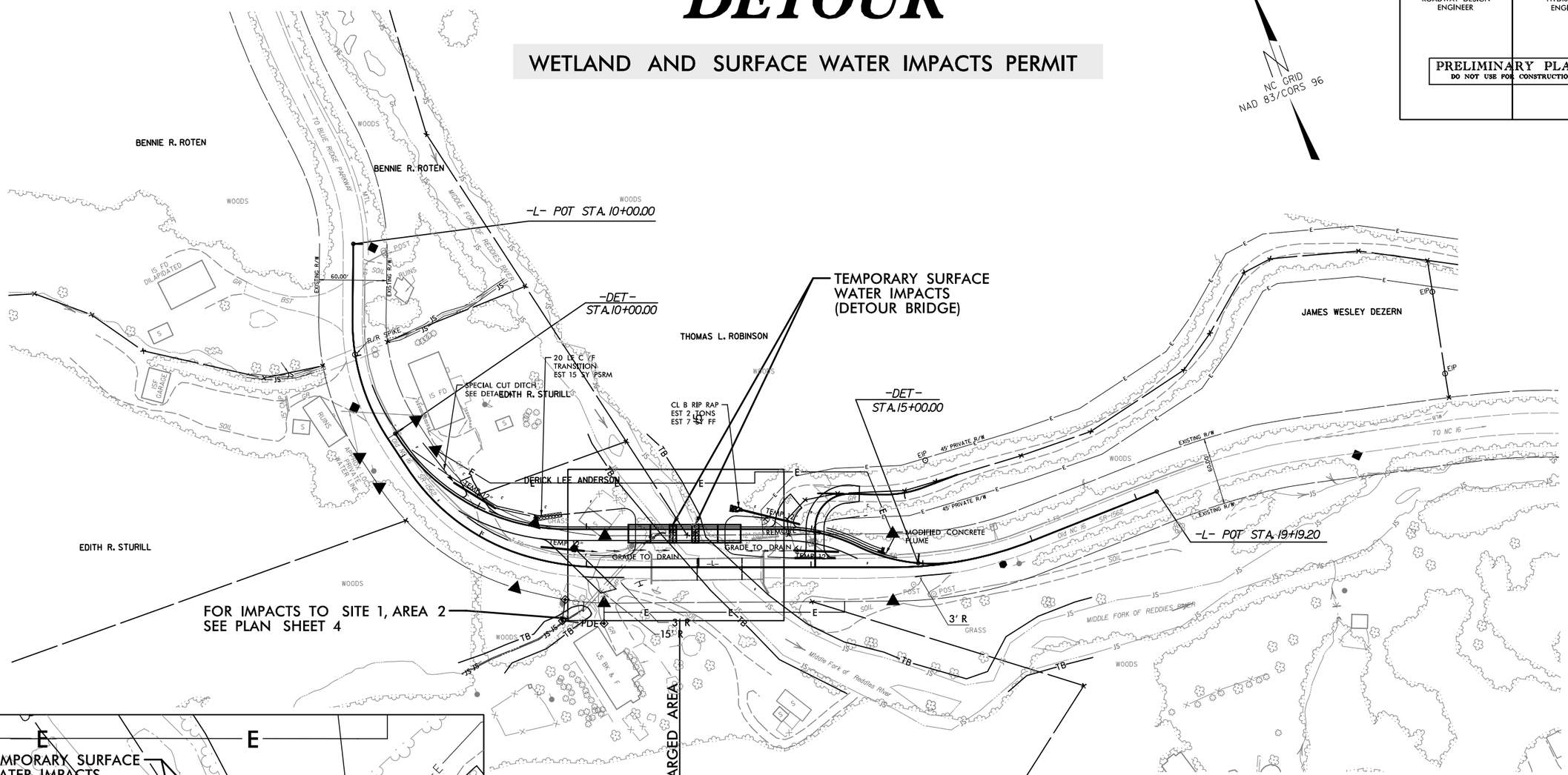
Price & Hutchison Inc.

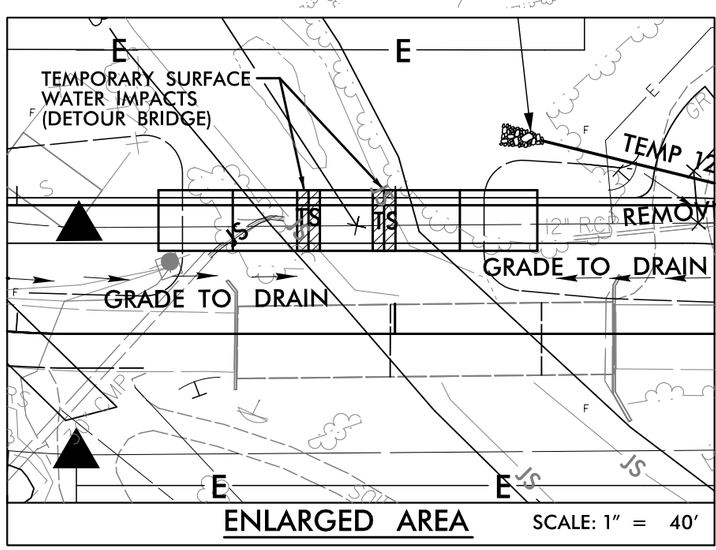
PROJECT REFERENCE NO.	SHEET NO.
B-5146	2-B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DETOUR

WETLAND AND SURFACE WATER IMPACTS PERMIT





ENLARGED AREA SCALE: 1" = 40'

SITE 1 - AREA 3

LEGEND

TS DENOTES TEMPORARY IMPACTS IN SURFACE WATERS

100 0 50 100

SCALE: 1"= 100' HORIZ.

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

PROJECT: B-5146

DETOUR FOR BRIDGE 302 OVER MIDDLE FORK OF REDDIES RIVER ON SR 1562 (OLD NC 16)

SHEET 4 OF 7

ENGLISH

NOTES:
1.) FOR -L- PLAN VIEW SEE SHEET 4.
2.) FOR -DET-, -DETDRIVE-, AND -TEMPDRIVE- PROFILES SEE SHEET 5.
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4.) FOR STRUCTURE PLANS SEE SHEET S-1 THRU S-?
5) SEE SHEET 2-C FOR CURVE DATA AND DETAILS

5/14/99

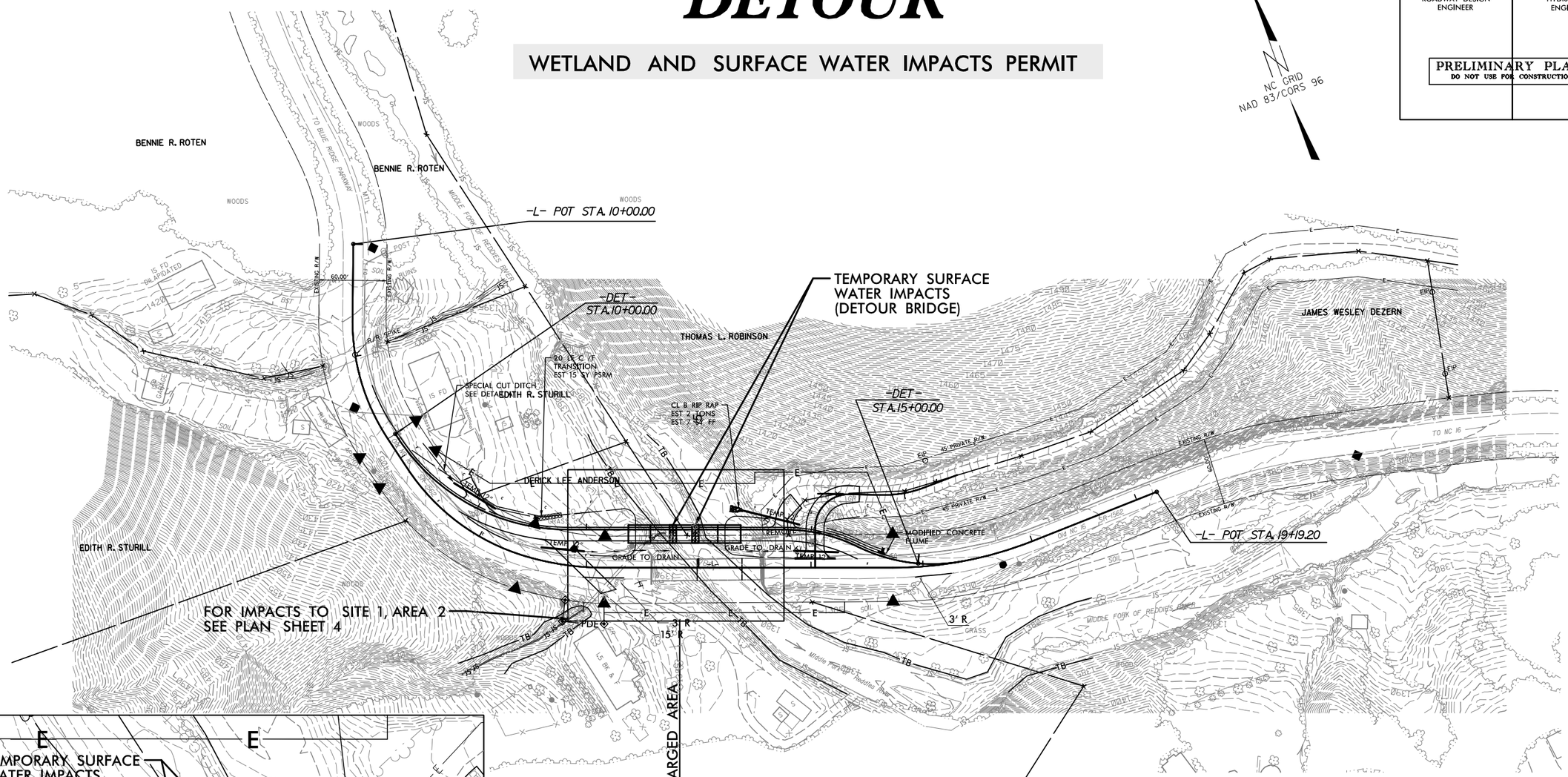
3/6/2013
4ITS_Environmental\Drawings\B-5146_hyd_prm_wet_detour.dgn

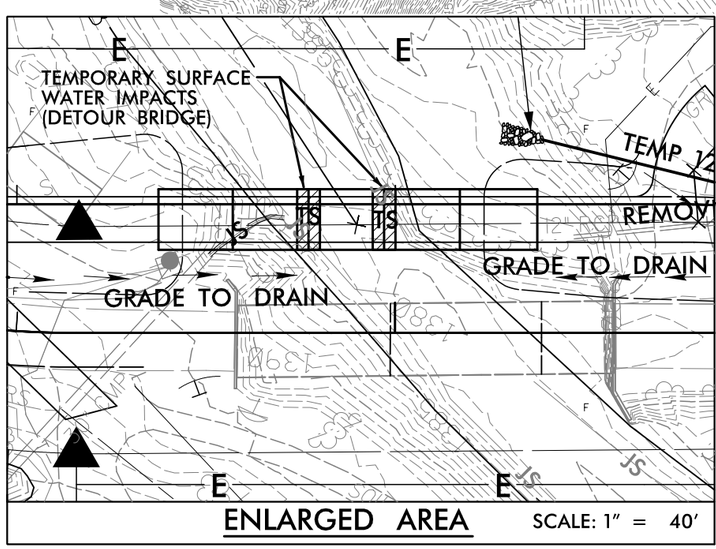
PROJECT REFERENCE NO.	SHEET NO.
B-5146	2-B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DETOUR

WETLAND AND SURFACE WATER IMPACTS PERMIT





ENLARGED AREA SCALE: 1" = 40'

SITE 1 - AREA 3

LEGEND

TS DENOTES TEMPORARY IMPACTS IN SURFACE WATERS

100 0 50 100

SCALE: 1"= 100' HORIZ.

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

PROJECT: B-5146

DETOUR FOR BRIDGE 302 OVER MIDDLE FORK OF REDDIES RIVER ON SR 1562 (OLD NC 16)

SHEET 5 OF 7

ENGLISH

NOTES:
1.) FOR -L- PLAN VIEW SEE SHEET 4.
2.) FOR -DET-, -DETDRIVE-, AND -TEMPDRIVE- PROFILES SEE SHEET 5.
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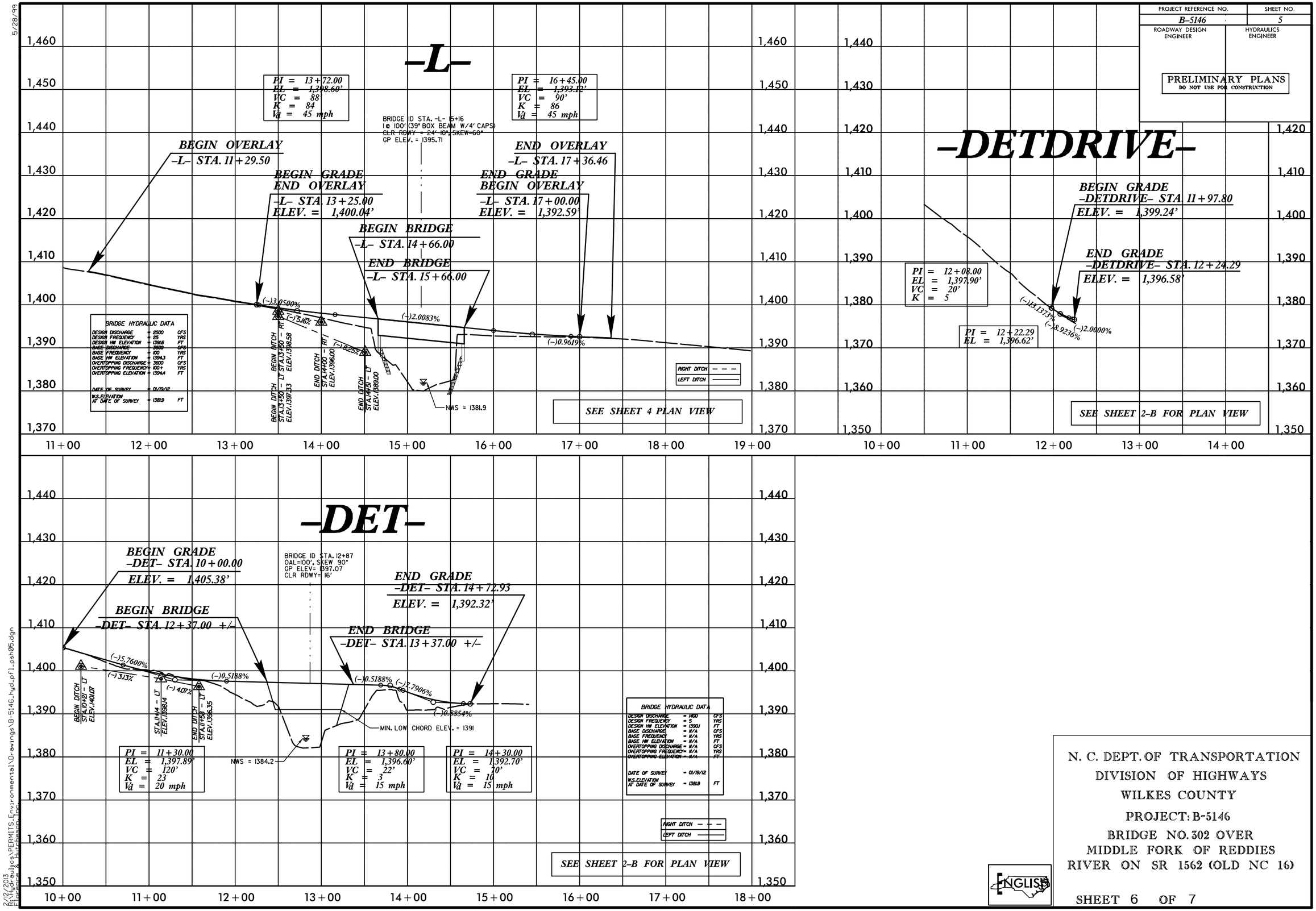
5) SEE SHEET 2-C FOR CURVE DATA AND DETAILS

5/14/99

3/6/2013
4ITS_Environmental\Drawings\B-5146_hyd_prm_wet_detour.dgn

PROJECT REFERENCE NO.	SHEET NO.
B-5146	5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



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

PROJECT: B-5146

BRIDGE NO. 302 OVER
MIDDLE FORK OF REDDIES
RIVER ON SR 1562 (OLD NC 16)

ENGLISH

SHEET 6 OF 7

5/28/99

2/12/2013
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Florence & Hutcheson, Inc.

WETLAND PERMIT IMPACT SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Station (From/To)	Structure Size / Type	Quadrant	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)
SITE 1 -AREA 1												
-L- 15+16	1 @ 100' (39" BOX BEAM)							---	---	---	---	
-L- 15+16	Bank Stabilization									61		
SITE 1 - AREA 2												
-L- 14+31	30" CMP Relocation							< 0.01	< 0.01	23	12	
-L- 14+31	Bank Stabilization									6		
SITE 1 - AREA 3												
-DET- 12+87	100' DETOUR BRIDGE								< 0.01		16	
TOTALS:			0.00	0.00	0.00	0.00	0.00	< 0.01	< 0.01	90	28	0

NOTES:
The existing 30" CMP crossing under SR 1562 carrying stream S3 is being removed , and S3 will be piped along the south side of the road via a new 30" CMP flowing into the Middle Fork, Reddies River.

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

WILKES COUNTY
BRIDGE #302 ON SR 1562
OVER MIDDLE FORK REDDIES RIVER

SHEET 7 OF 7

ATN Revised 3/31/05

SHT OF

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5146	1	

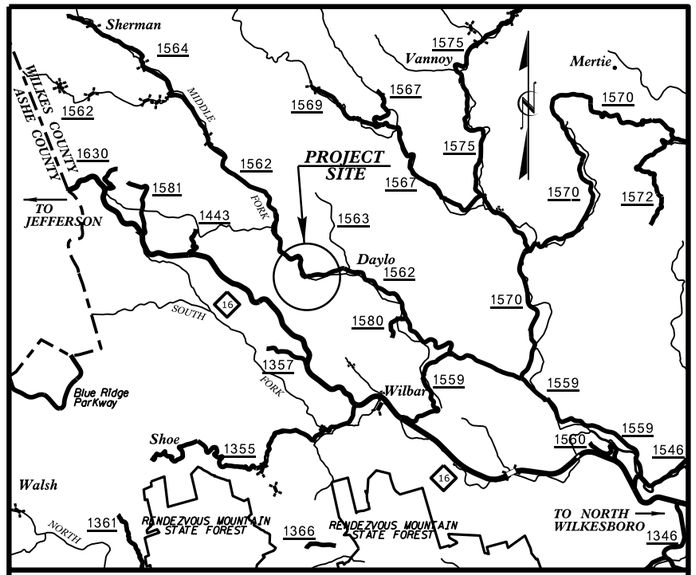
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
42307.1.1	BRZ-1562(2)	P.E.
42307.2.1	BRZ-1562(2)	ROW/UTIL.
42307.3.1	BRZ-1562(2)	CONST.

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

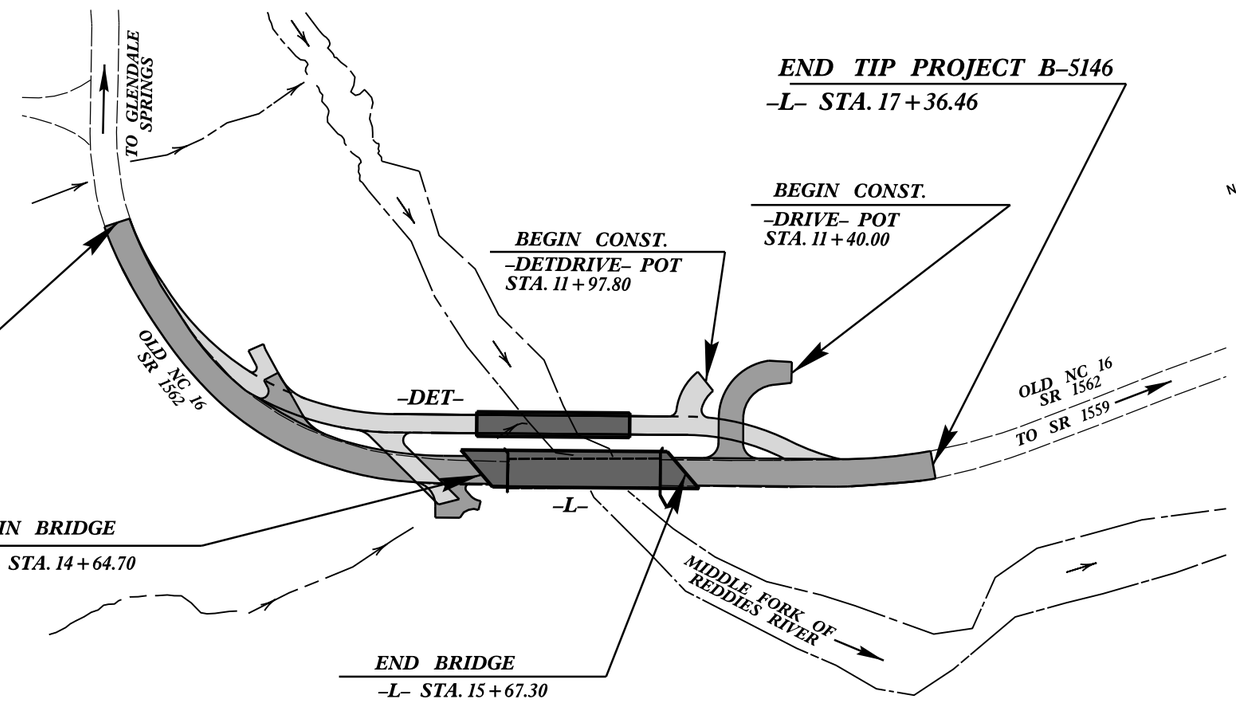
WILKES COUNTY

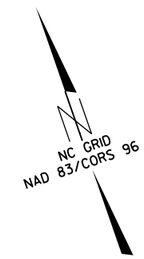
LOCATION: BRIDGE 302 OVER MIDDLE FORK OF REDDIES RIVER ON SR 1562 (OLD NC 16)

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



VICINITY MAP





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

TIP PROJECT: B-5146

CONTRACT: C203303

14-FEB-2013 18:08
R:\Roadway\Proj\B-5146_rdy_tsh.dgn
$$$$USERNAME$$$$

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 = 165 VPD
ADT 2039 = 250 VPD
DHV = 10 %
D = 60 %
* T = 3 %
V = 40 MPH
* (TTST 1% + DUAL 2%)
FUNC. CLASS. = RURAL LOCAL
SUBREGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-5146	=	0.096	MILE
LENGTH STRUCTURE TIP PROJECT B-5146	=	0.019	MILE
TOTAL LENGTH TIP PROJECT B-5146	=	0.115	MILE

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JANUARY 18, 2013

LETTING DATE:
JANUARY 21, 2014

JASON MOORE, PE
PROJECT ENGINEER

BRYAN KEY, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER
SIGNATURE: P.E.

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

04/16/11

Note: Not to Scale

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

PROJECT REFERENCE NO.	SHEET NO.
B-5146	1-B

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — EIP
- Property Corner
- Property Monument — ECM
- Parcel/Sequence Number — 123
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary — WLB
- Proposed Wetland Boundary — WLB
- Existing 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 — S
- Well — W
- 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 — RW
- Proposed Right of Way Line with Iron Pin and Cap Marker — RW
- Proposed Right of Way Line with Concrete or Granite Marker — RW
- Existing Control of Access — CA
- Proposed Control of Access — CA
- 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 — HH
- Recorded U/G Telephone Cable — T
- Designated U/G Telephone Cable (S.U.E.*) — T
- Recorded U/G Telephone Conduit — TC
- Designated U/G Telephone Conduit (S.U.E.*) — TC
- Recorded U/G Fiber Optics Cable — T FO
- Designated U/G Fiber Optics Cable (S.U.E.*) — T FO

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

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

MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line — ?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.

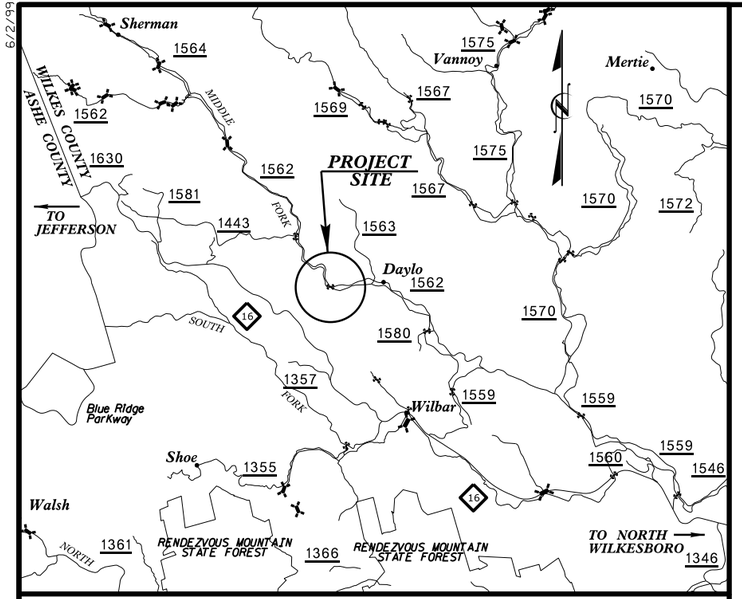
PROJECT REFERENCE NO.	SHEET NO.
B-5146	1-C
Location and Surveys	

SURVEY CONTROL SHEET B-5146

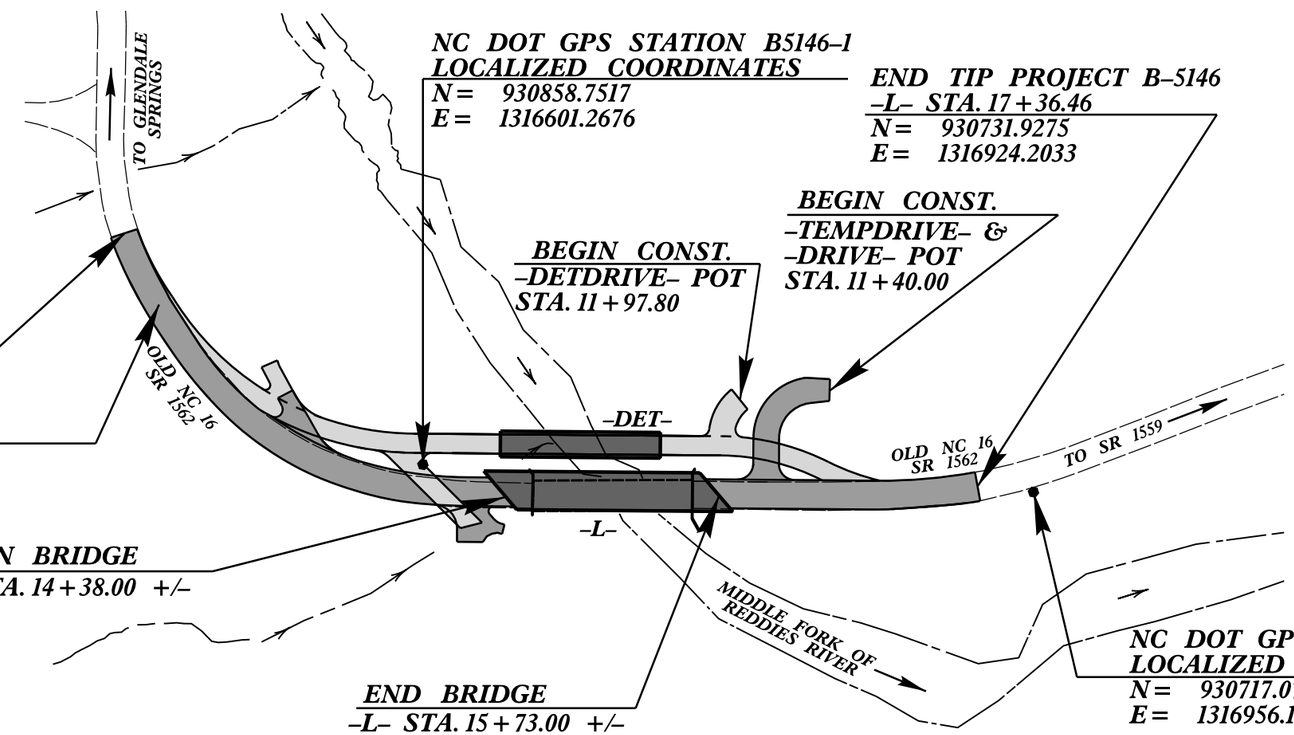
BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
BL3	BL-3	931171.3801	1316522.5997	1412.19	10+03.24	17.49 LT
BL4	BL-4	931042.7058	1316459.4562	1407.45	11+42.69	13.28 RT
B51461	GPS B5146-1	930858.7517	1316601.2676	1396.49	13+87.49	15.21 LT
B51462	GPS B5146-2	930717.0723	1316956.1406	1391.84	17+69.25	11.40 RT
BL5	BL-5	930702.6653	1317285.5628	1385.68	OUTSIDE PROJECT LIMITS	

BM1 ELEVATION = 1389.44'
N 930924. E 1316702.
L STATION 14+62.00 112' LEFT
8" SPIKE IN 8" BEECH TREE



VICINITY MAP



NC DOT GPS STATION B5146-1
LOCALIZED COORDINATES
N = 930858.7517
E = 1316601.2676

END TIP PROJECT B-5146
-L- STA. 17+36.46
N = 930731.9275
E = 1316924.2033

BEGIN CONST.
-TEMPDRIVE- &
-DRIVE- POT
STA. 11+40.00

BEGIN CONST.
-DETDRIVE- POT
STA. 11+97.80

BEGIN CONSTRUCTION
-L- STA. 11+29.50

BEGIN TIP PROJECT B-5146
-L- STA. 11+79.50
N = 931006.9524
E = 1316477.9608

BEGIN BRIDGE
-L- STA. 14+38.00 +/-

END BRIDGE
-L- STA. 15+73.00 +/-

NC DOT GPS STATION B5146-2
LOCALIZED COORDINATES
N = 930717.0723
E = 1316956.1406

NAD 83/ CORS 96

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B5146-1"
WITH NAD 83/CORS 96 STATE PLANE GRID COORDINATES OF
NORTHING: 930858.7517(ft) EASTING: 1316601.2676(ft)
ELEVATION: 1396.49(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9999738207
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B5146-1" TO -L- 11+79.50 IS
N 39°45'41" W 192.79
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.NCDOT.ORG/DOH/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/

THE FILES TO BE FOUND ARE AS FOLLOWS:
B5146_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

6/2/99
14-FEB-2013 18:08
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$$$$USERNAME$$$$

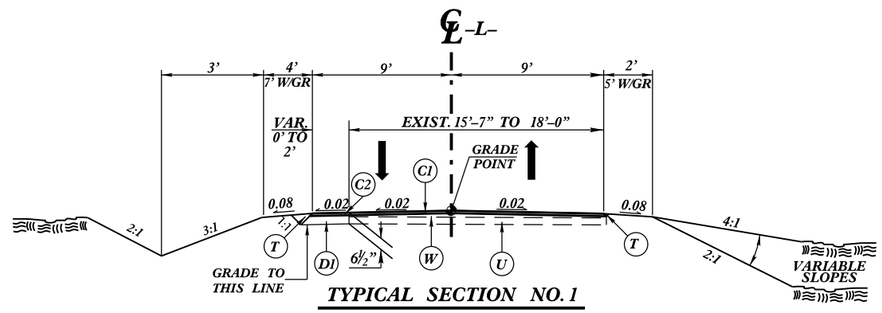
PROJECT REFERENCE NO.	SHEET NO.
B-5146	2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

FINAL PAVEMENT SCHEDULE

C1	PROP. APPROX. 1 1/4" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD.	J2	PROP. 8" AGGREGATE BASE COURSE.
C2	PROP. APPROX. 2 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	T	EARTH MATERIAL.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 1" IN DEPTH OR GREATER THAN 1 1/2" IN DEPTH.	P	PRIME COAT AT THE RATE OF 0.35 GAL. PER SQ. YARD.
D1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	R	EXPRESSWAY GUTTER.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAT 3" IN DEPTH OR GREATER THAN 5 1/2" IN DEPTH.	U	EXISTING PAVEMENT.
J1	PROP. 6" AGGREGATE BASE COURSE.	W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE DETAIL SHOWING METHOD OF WEDGING).

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



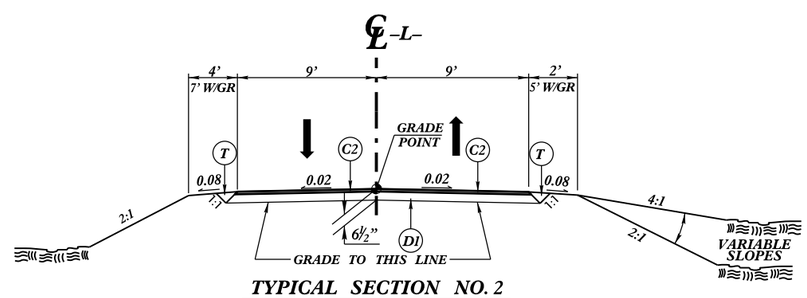
TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1 AT THE FOLLOWING LOCATIONS:

-L- STA. 13+25.00 TO STA. 14+00.00
-L- STA. 16+00.00 TO STA. 17+00.00

NOTE: OVERLAY EXISTING PAVEMENT WITH 1 1/4" OF SF9.5A AT -L- STA. 11+29.50 TO STA. 13+25.00
-L- STA. 17+00.00 TO STA. 17+36.46

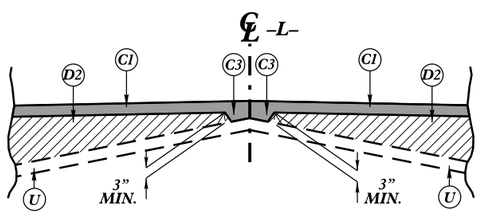
NOTE: USE 2' SHOULDERS FROM
-L- STA. 16+50.00 LT. TO STA. 17+00.00 LT.



TYPICAL SECTION NO. 2

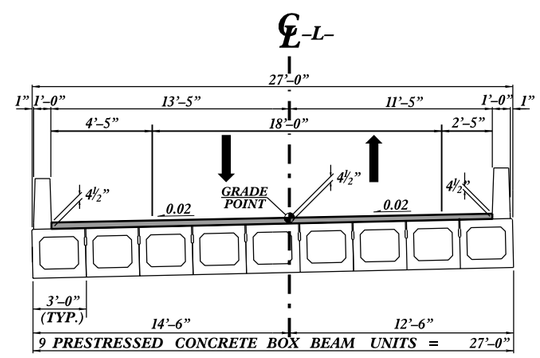
USE TYPICAL SECTION NO. 2 AT THE FOLLOWING LOCATIONS:

-L- STA. 14+00.00 TO STA. 14+64.70 (BEGIN BRIDGE)
-L- STA. 15+67.30 (END BRIDGE) TO STA. 16+00.00



DETAIL SHOWING METHOD OF WEDGING

USE IN CONJUNCTION WITH TYPICAL SECTION NO. 1



TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3 AT THE FOLLOWING LOCATION:

-L- STA. 14+64.70 (BEGIN BRIDGE) TO
-L- STA. 15+67.30 (END BRIDGE)

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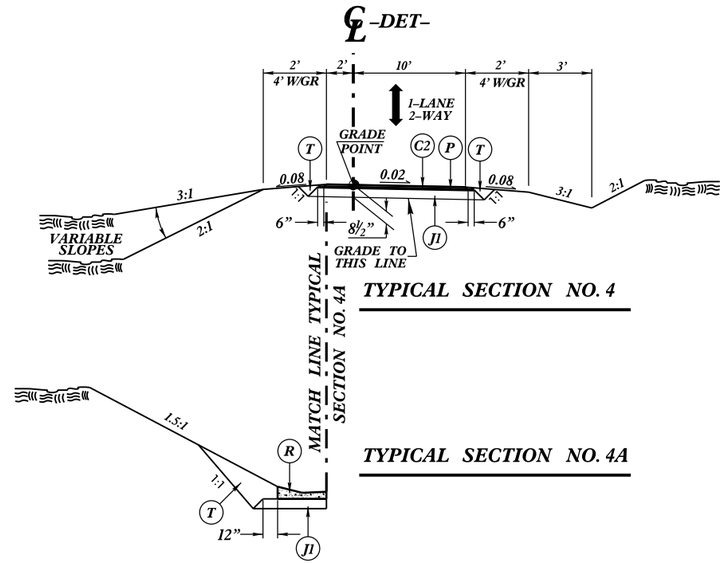
PROJECT REFERENCE NO.	SHEET NO.
B-5146	2-A
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

C2	2 1/2" SF9.5A
J1	6" AGGREGATE BASE COURSE
J2	8" AGGREGATE BASE COURSE
P	PRIME COAT
R	EXPRESSWAY GUTTER
T	EARTH MATERIAL



TYPICAL SECTION NO. 4

TYPICAL SECTION NO. 4A

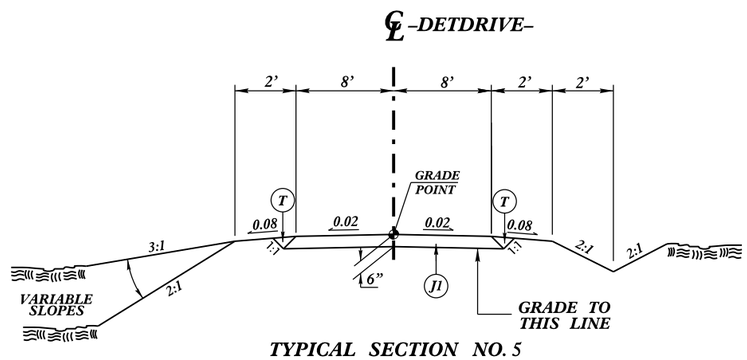
USE TYPICAL SECTION NO. 4
AT THE FOLLOWING LOCATIONS:

-DET- STA. 10+00.00 TO STA. 12+37.00 +/- (BEGIN BRIDGE)
-DET- STA. 13+37.00 +/- (END BRIDGE) TO STA. 14+80.34

NOTE:
FOR NARROW WIDENING ON THE DETOUR
4" OF B25.0B MAY BE USED IN LIEU OF ABC.

USE TYPICAL SECTION NO. 4A
IN CONJUNCTION WITH TYPICAL SECTION NO. 4
AT THE FOLLOWING LOCATION:

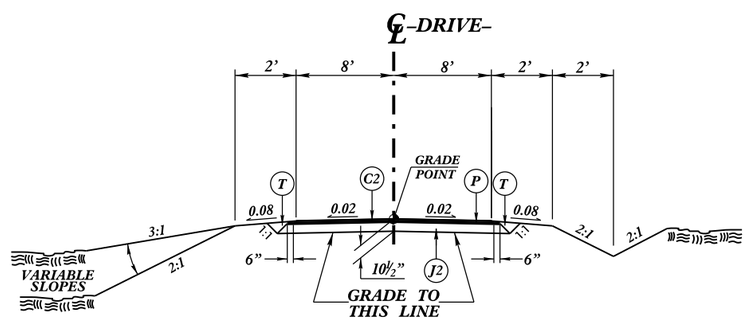
-DET- STA. 14+13.00 LT. TO STA. 14+65.00 LT.



TYPICAL SECTION NO. 5

USE TYPICAL SECTION NO. 5 AT
THE FOLLOWING LOCATIONS:

-DETDRIVE- STA. 11+97.80 TO STA. 12+24.29



TYPICAL SECTION NO. 6

USE TYPICAL SECTION NO. 6 AT
THE FOLLOWING LOCATION:

-DRIVE- STA. 11+40.00 TO STA. 12+22.84

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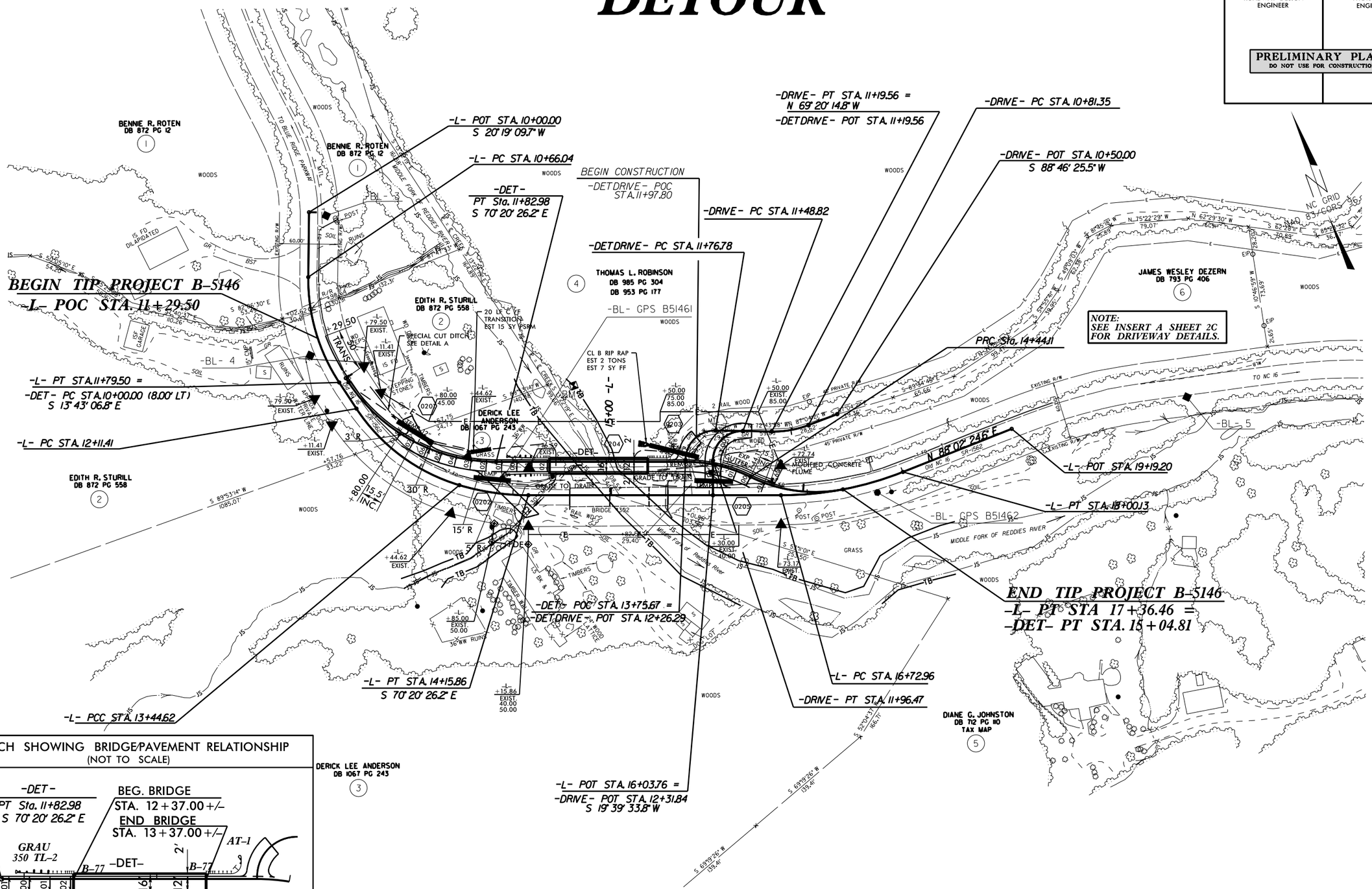
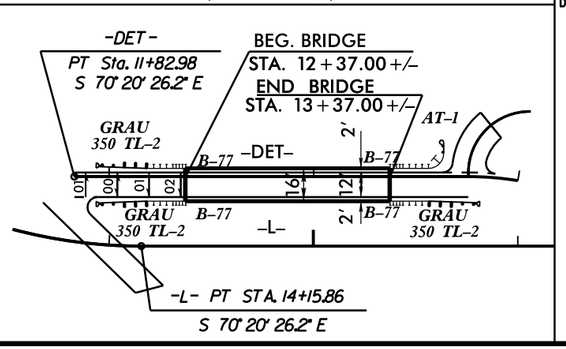
PROJECT REFERENCE NO.	SHEET NO.
B-5146	2-B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DETOUR



SKETCH SHOWING BRIDGE/PAVEMENT RELATIONSHIP
(NOT TO SCALE)



NOTES:
1.) FOR -L- PLAN VIEW SEE SHEET 4.
2.) FOR -DET-, -DETDRIVE-, AND -TEMPDRIVE- PROFILES SEE SHEET 5.
3.) ALL DRIVEWAY RADII ARE 10' UNLESS NOTED OTHERWISE ON PLANS.
4.) FOR STRUCTURE PLANS SEE SHEET S-1 THRU S-?
5) SEE SHEET 2-C FOR CURVE DATA AND DETAILS

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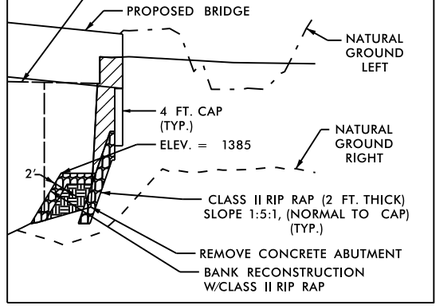
PROJECT REFERENCE NO.	SHEET NO.
B-5146	2-C
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DETAIL D

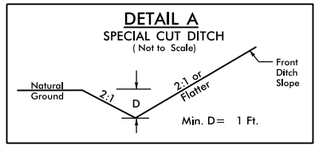
BANK RECONSTRUCTION W/CLASS II RIP RAP



(SEE SHEET 4 FOR PLAN VIEW)

DETAIL A

SPECIAL CUT DITCH
(Not to Scale)

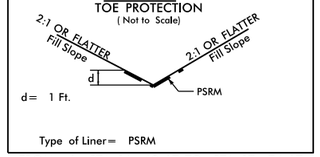


FROM –L– STA. 13+50 LT TO STA. 14+51 LT
FROM –L– STA. 13+50 RT TO STA. 14+00 RT

(SEE SHEET 4 FOR PLAN VIEW)

DETAIL B

TOE PROTECTION
(Not to Scale)

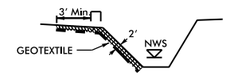


FROM –L– STA. 16+63 LT TO STA. 17+74 LT

(SEE SHEET 4 FOR PLAN VIEW)

DETAIL C

BANK STABILIZATION
(Not to Scale)



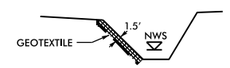
Type of Liner= CLASS II RIPRAP

FROM –L– STA. 14+75 RT TO 15+20 RT

(SEE SHEET 4 FOR PLAN VIEW)

DETAIL E *(DET)*

BANK STABILIZATION
(Not to Scale)



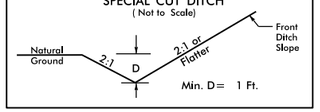
Type of Liner= CLASS I RIPRAP

FROM –L– STA. 13+90 RT TO 14+06 RT

(SEE SHEET 2-B FOR PLAN VIEW)

DETAIL A

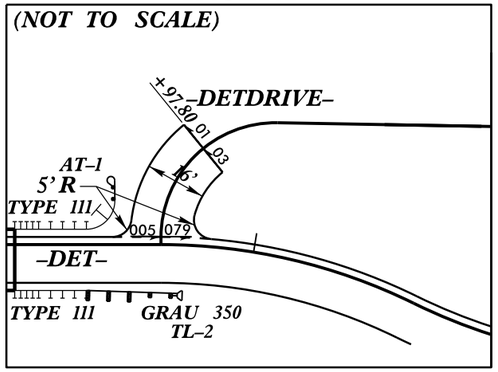
SPECIAL CUT DITCH
(Not to Scale)



FROM –DET– STA. 10+21 LT TO STA. 11+58 LT

INSERT A

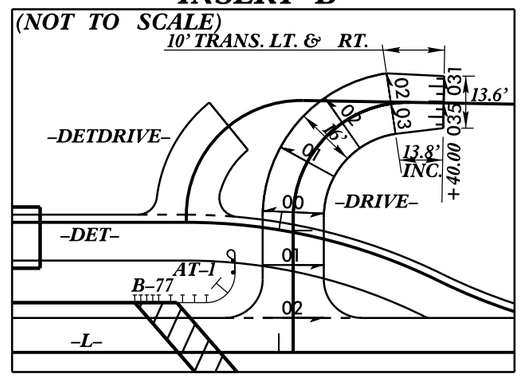
(NOT TO SCALE)



(SEE SHEET 2-B FOR PLAN VIEW)

INSERT B

(NOT TO SCALE)



(SEE SHEET 4 FOR PLAN VIEW)

–DET–

PI Sta 11+02.07	PI Sta 14+10.50	PI Sta 14+94.21
S 13° 43' 06.8" W (BACK)	Δ = 26° 08' 33.2" (RT)	S 81° 08' 07.5"E (AHEAD)
Δ = 56° 37' 19.5" (LT)	D = 38° 11' 49.9"	Δ = 36° 56' 15.6" (RT)
D = 31° 49' 51.6"	L = 68.44'	D = 38° 11' 49.9"
L = 177.88'	T = 34.83'	L = 96.70'
T = 96.96'	R = 150.00'	T = 50.10'
R = 180.00'		R = 150.00'

(SEE SHEET 2-B FOR PLAN VIEW)

–DRIVE–

PI Sta 10+43.56	PI Sta 11+00.69	PI Sta 11+79.35
N 86° 32' 03.2" W (BACK)	Δ = 21° 53' 19.7" (RT)	S 19° 39' 33.8" W (AHEAD)
Δ = 4° 41' 31.3" (LT)	D = 57° 17' 44.8"	Δ = 91° 00' 11.4" (LT)
D = 38° 11' 49.9"	L = 38.20'	D = 190° 59' 09.4"
L = 12.28'	T = 19.34'	L = 47.65'
T = 6.15'	R = 100.00'	T = 30.53'
R = 150.00'		R = 30.00'

(SEE SHEETS 2-B & 4 FOR PLAN VIEW)

–L–

PI Sta 11+24.50	PI Sta 12+80.85	PI Sta 13+80.49	PI Sta 17+37.31
S 20° 19' 09.7" W (BACK)	Δ = 39° 57' 42.7" (LT)	Δ = 16° 39' 36.7" (LT)	N 88° 02' 24.6"E (AHEAD)
Δ = 34° 02' 16.5" (LT)	D = 30° 00' 00.0"	D = 23° 23' 09.7"	Δ = 21° 37' 09.2" (LT)
D = 30° 00' 00.0"	L = 133.21'	L = 71.24'	D = 17° 00' 00.0"
L = 113.46'	T = 69.44'	T = 35.87'	L = 127.17'
T = 58.46'	R = 190.99'	R = 245.00'	T = 64.35'
R = 190.99'	SE = EXIST.	SE = EXIST.	R = 337.03'
SE = EXIST.	V_D = EXIST.	V_D = EXIST.	SE = EXIST.
V_D = EXIST.			V_D = EXIST.

(SEE SHEET 4 FOR PLAN VIEW)

–DETDRIVE–

PI Sta 12+07.31
N 69° 20' 14.8" W (BACK)
S 19° 39' 33.8" W (AHEAD)
Δ = 91° 00' 11.4" (LT)
D = 190° 59' 09.4"
L = 47.65'
T = 30.53'
R = 30.00'

(SEE SHEET 2-B FOR PLAN VIEW)

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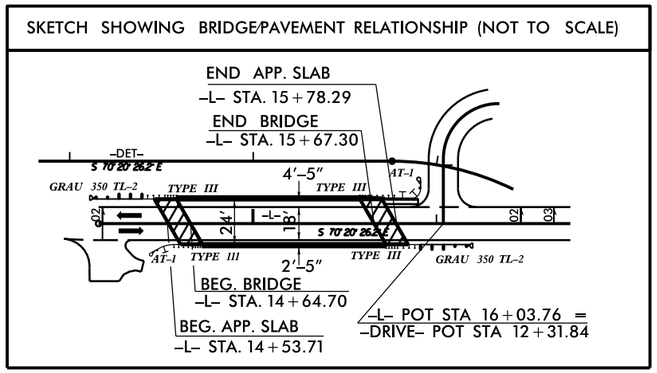
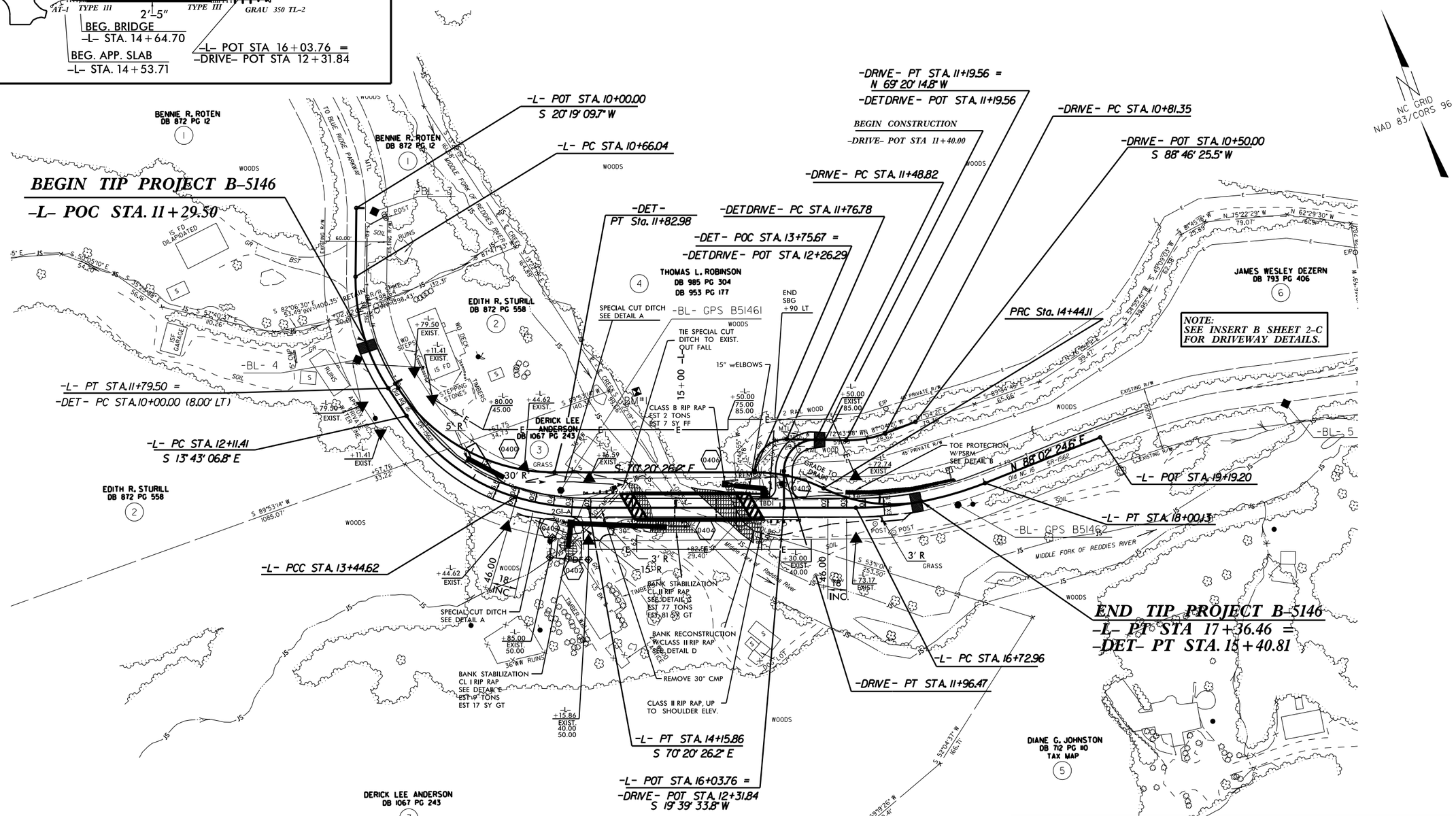
PROJECT REFERENCE NO.	SHEET NO.
B-5146	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





NOTES:
1.) FOR -DET- PLAN VIEW SEE SHEET 2-B.
2.) FOR -L- AND -DRIVE- PROFILES SEE SHEET 5
3.) FOR -DRIVE- PROFILE SEE SHEETS 5 & 6.
4.) ALL DRIVEWAY RADII ARE 10' UNLESS NOTED OTHERWISE ON PLANS.
5.) FOR STRUCTURE PLANS SEE SHEET S-1 THRU S-?
6.) SEE SHEET 2-C FOR CURVE DATA & DETAILS

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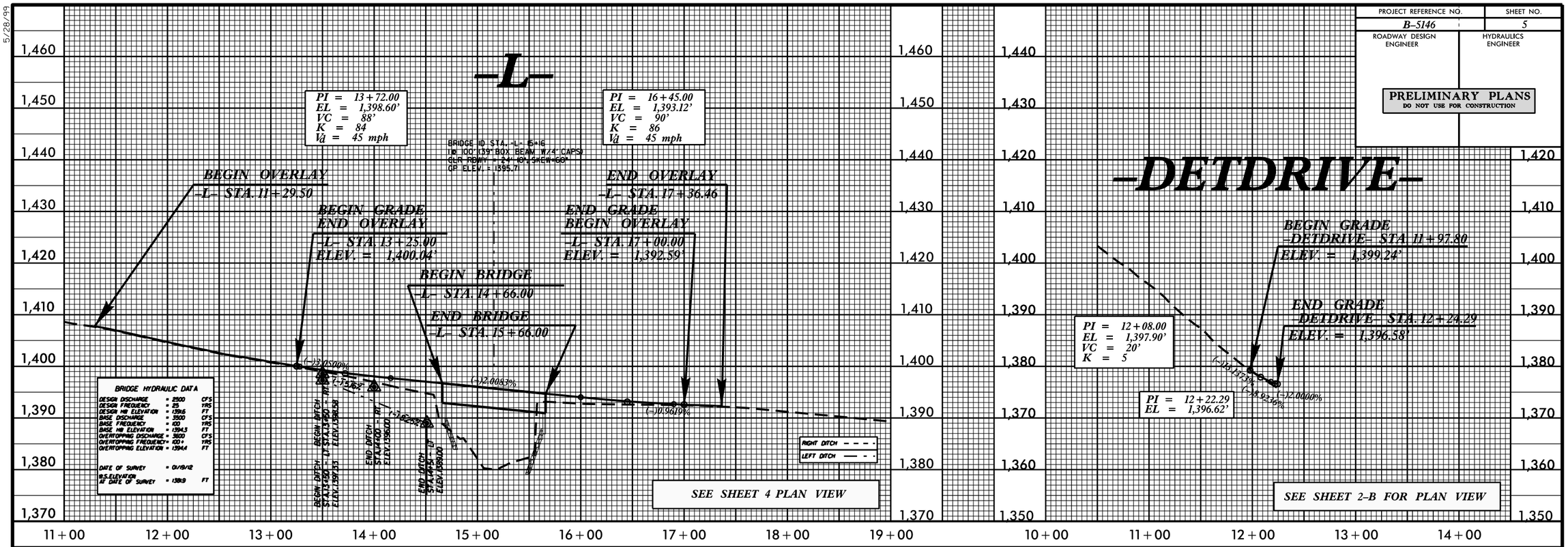
PROJECT REFERENCE NO.	SHEET NO.
B-5146	5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



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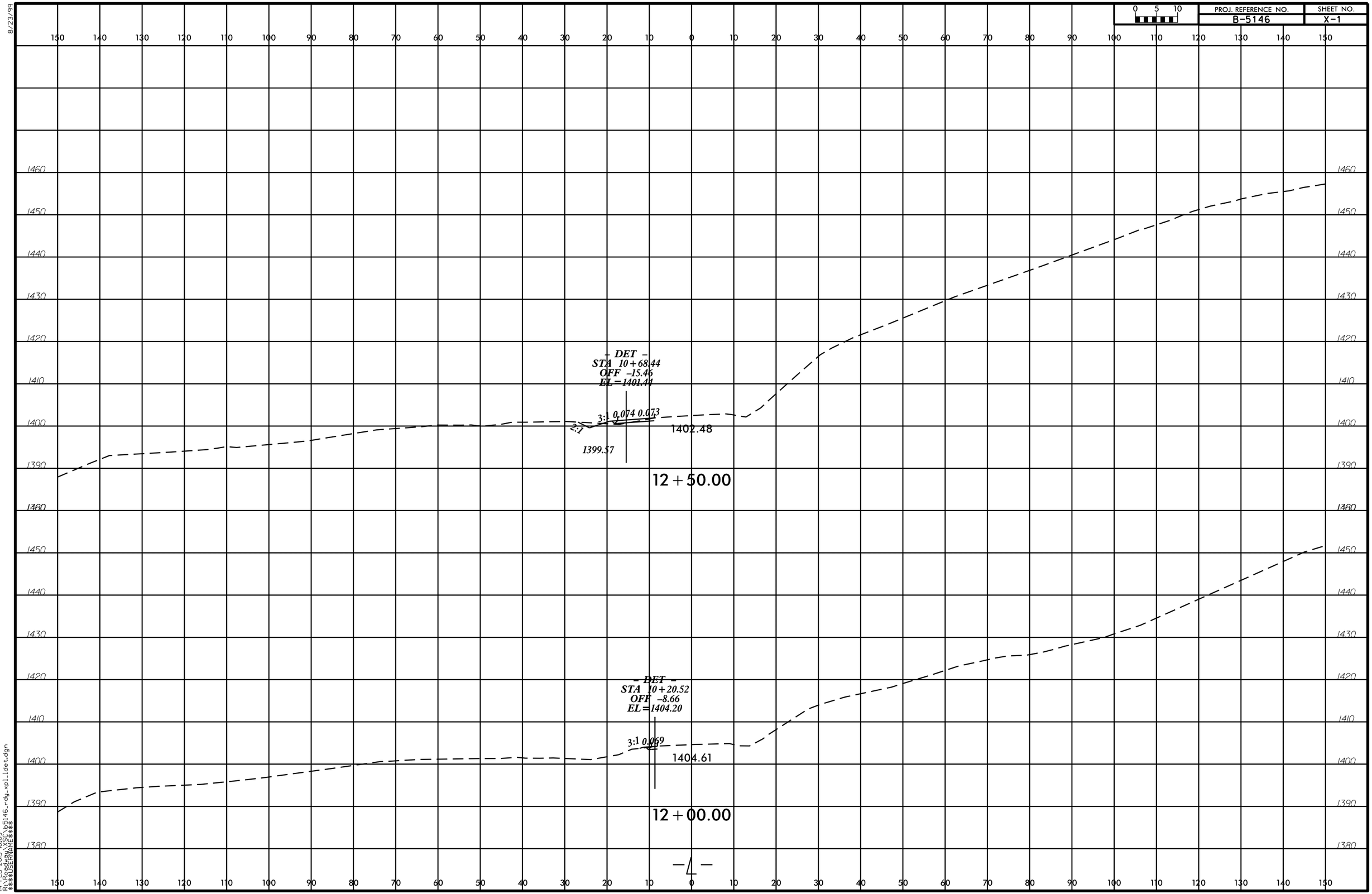

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B-5146	X-2

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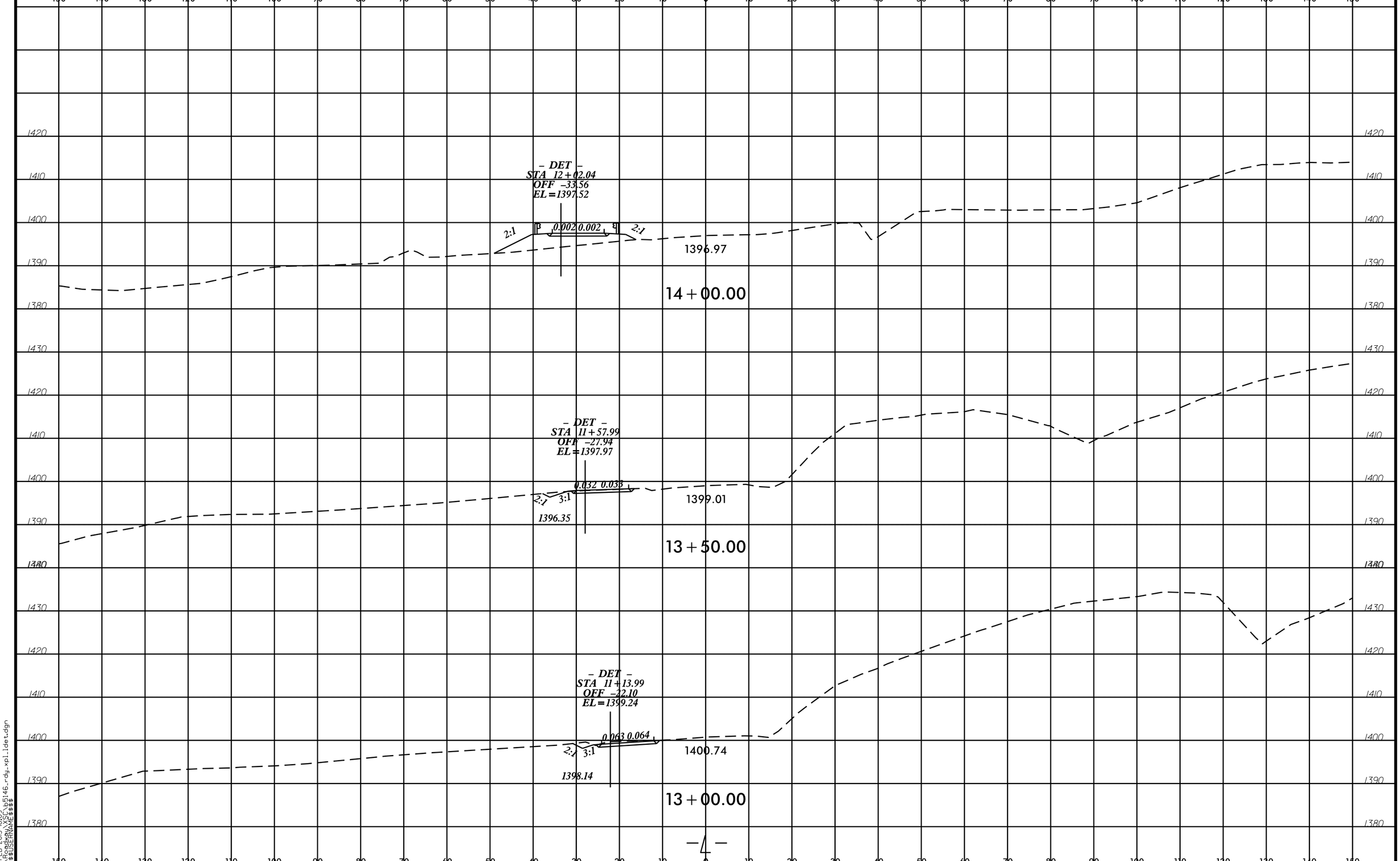

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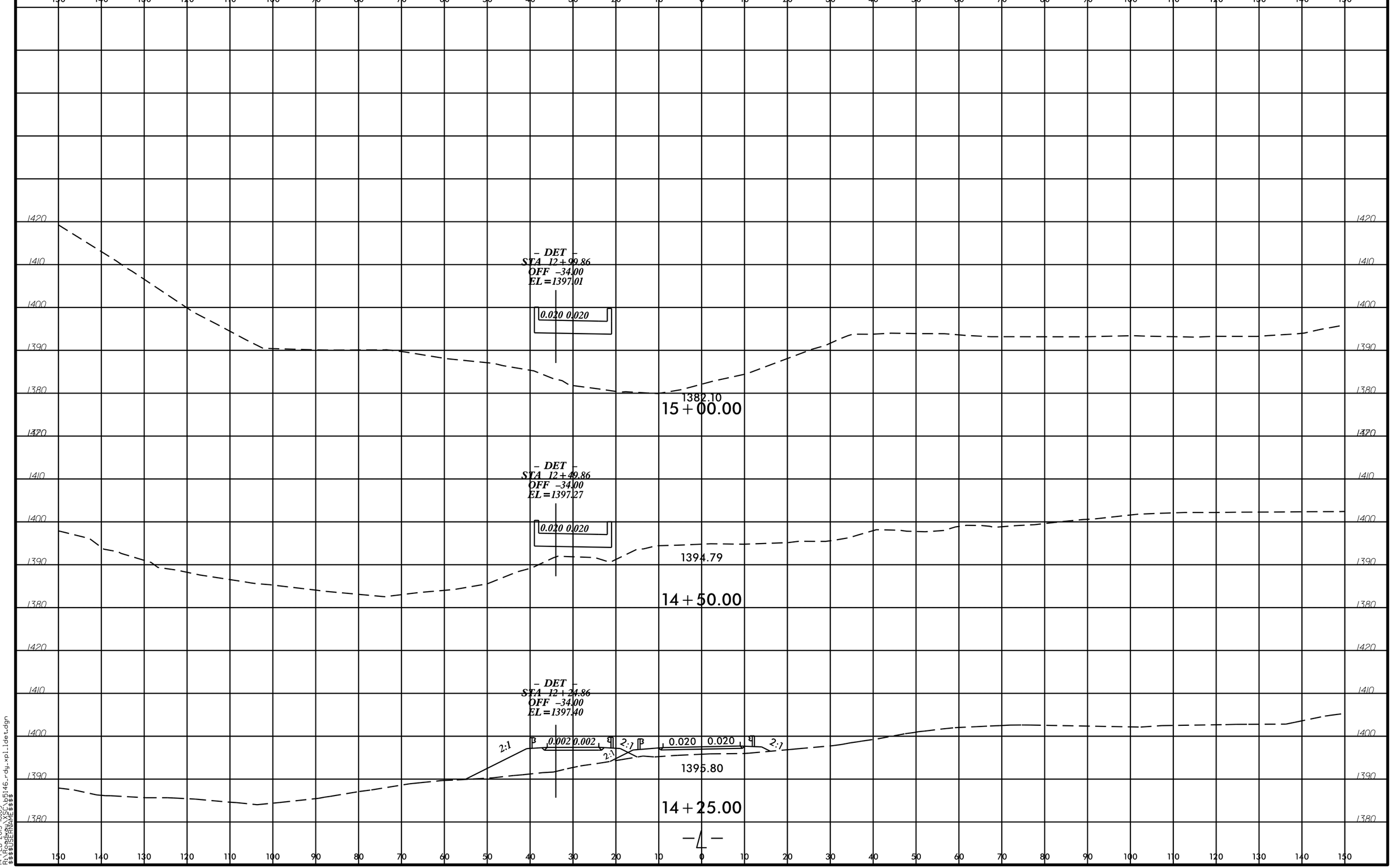

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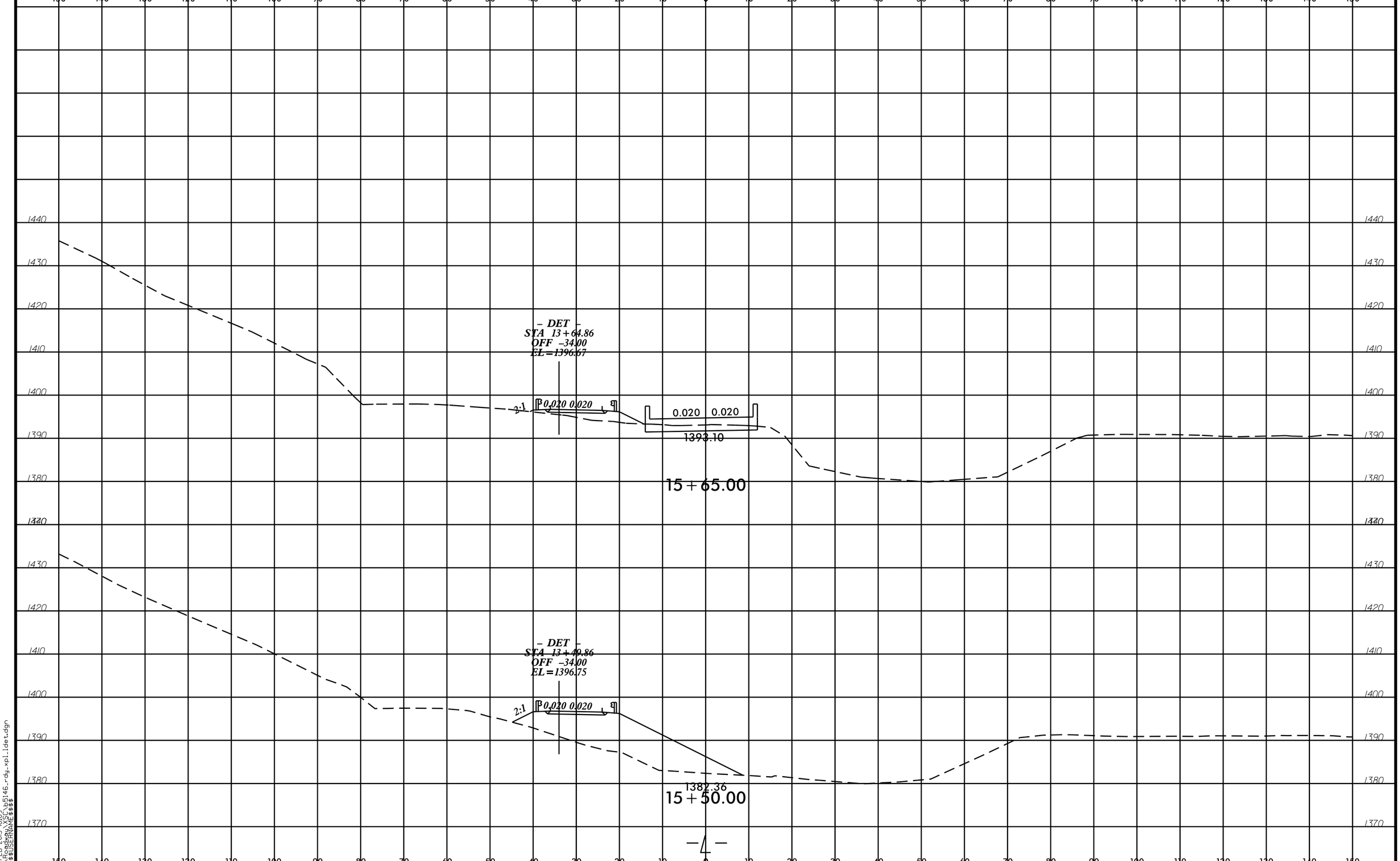

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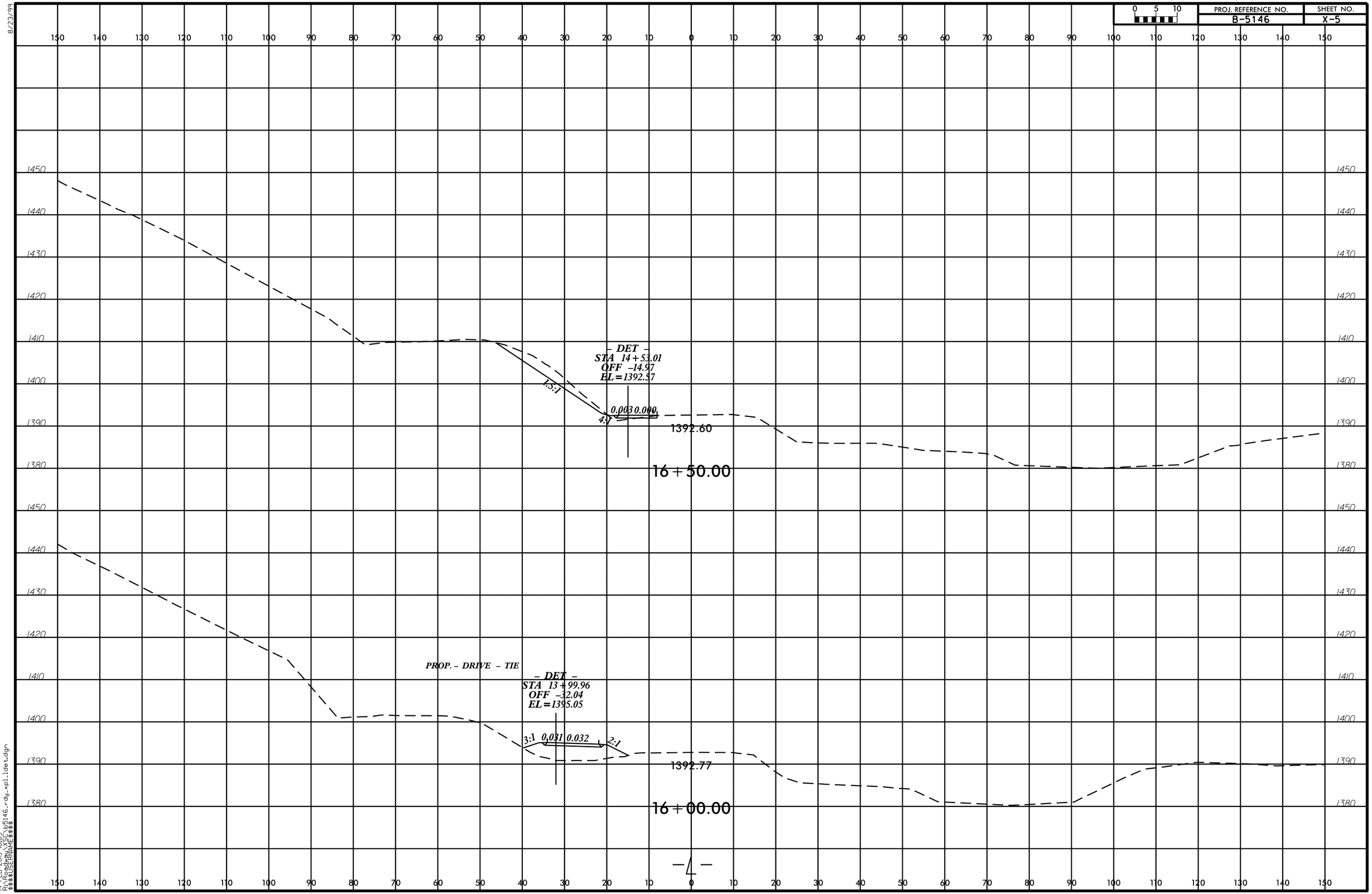

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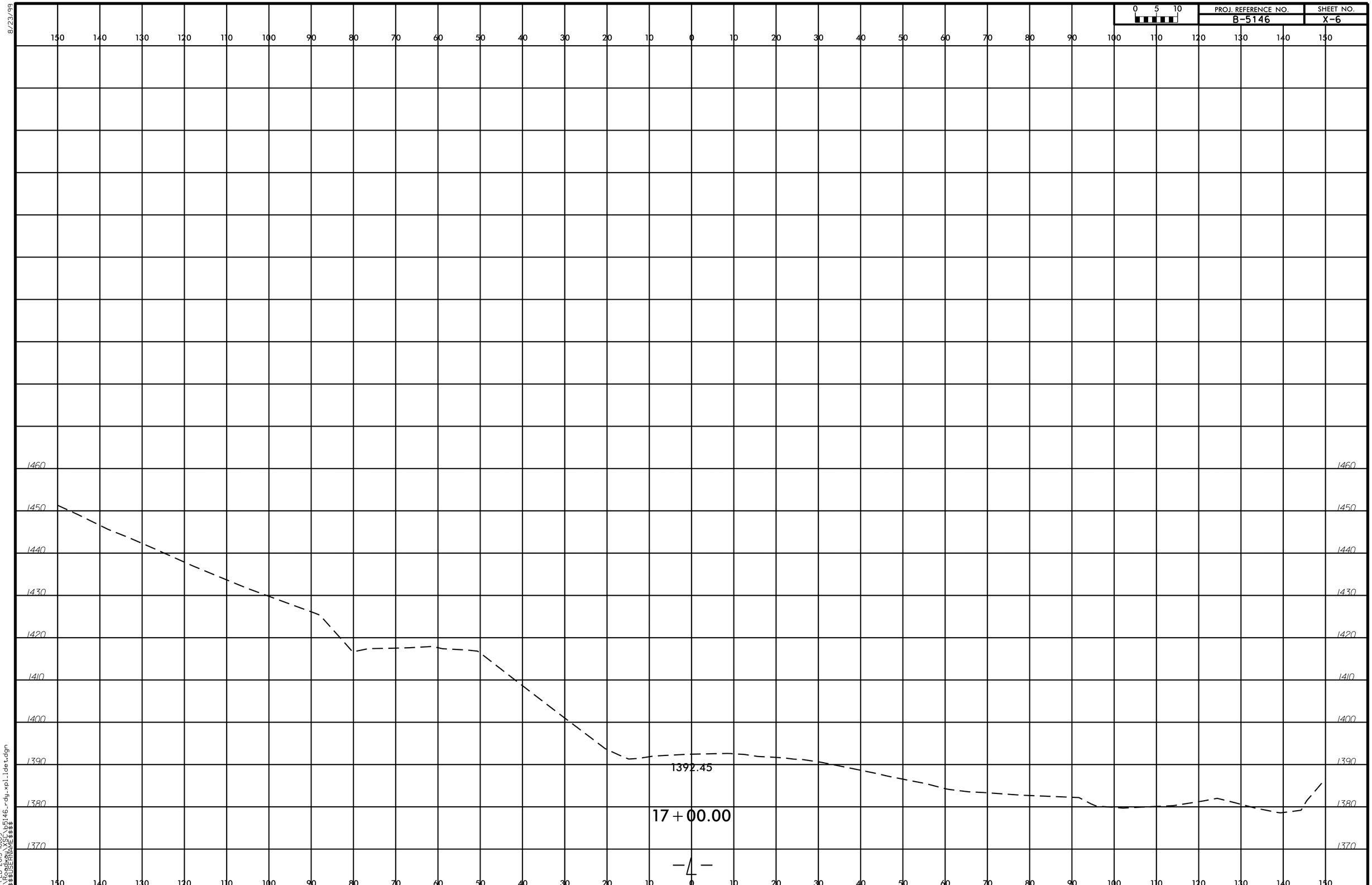

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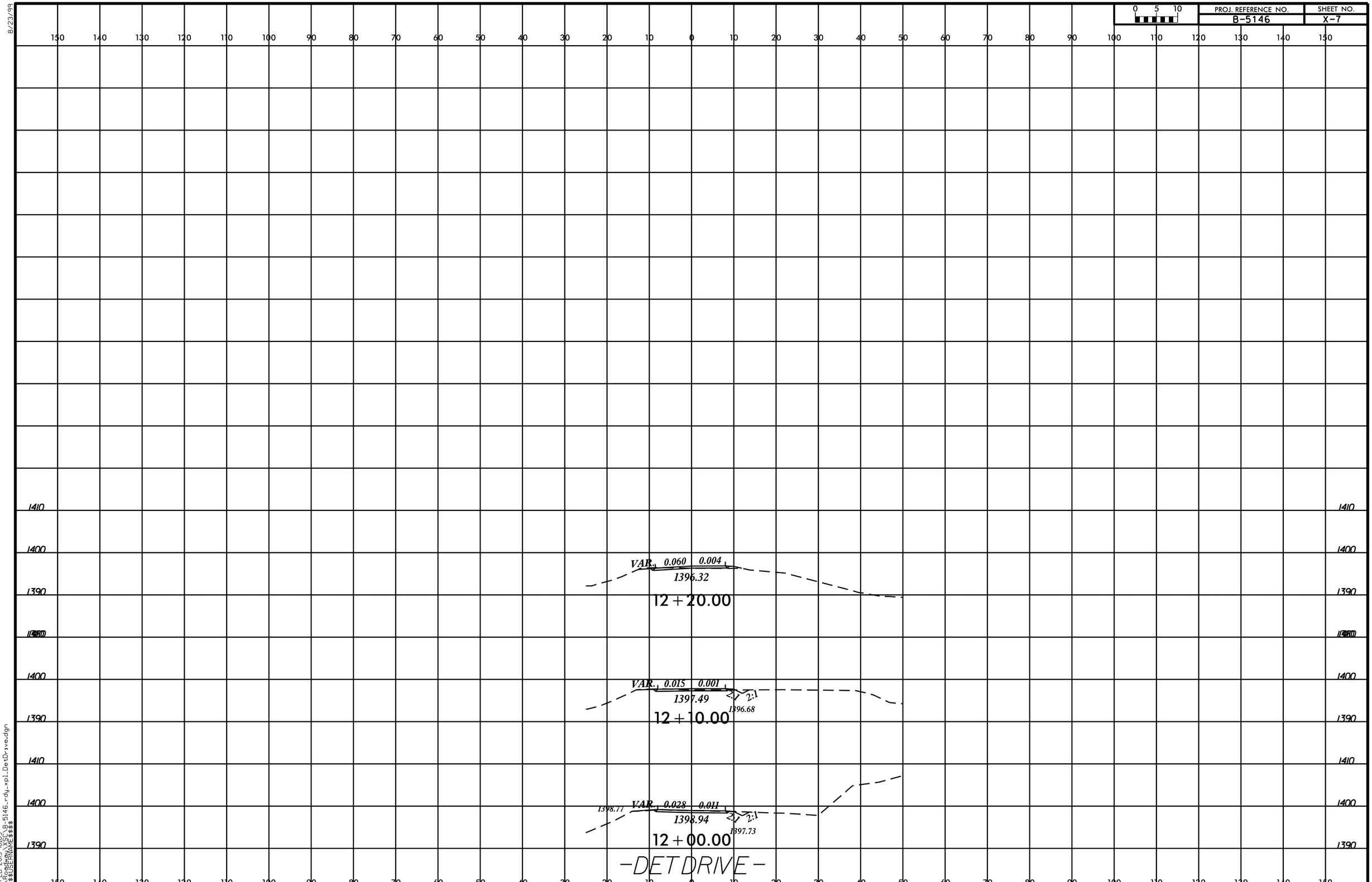

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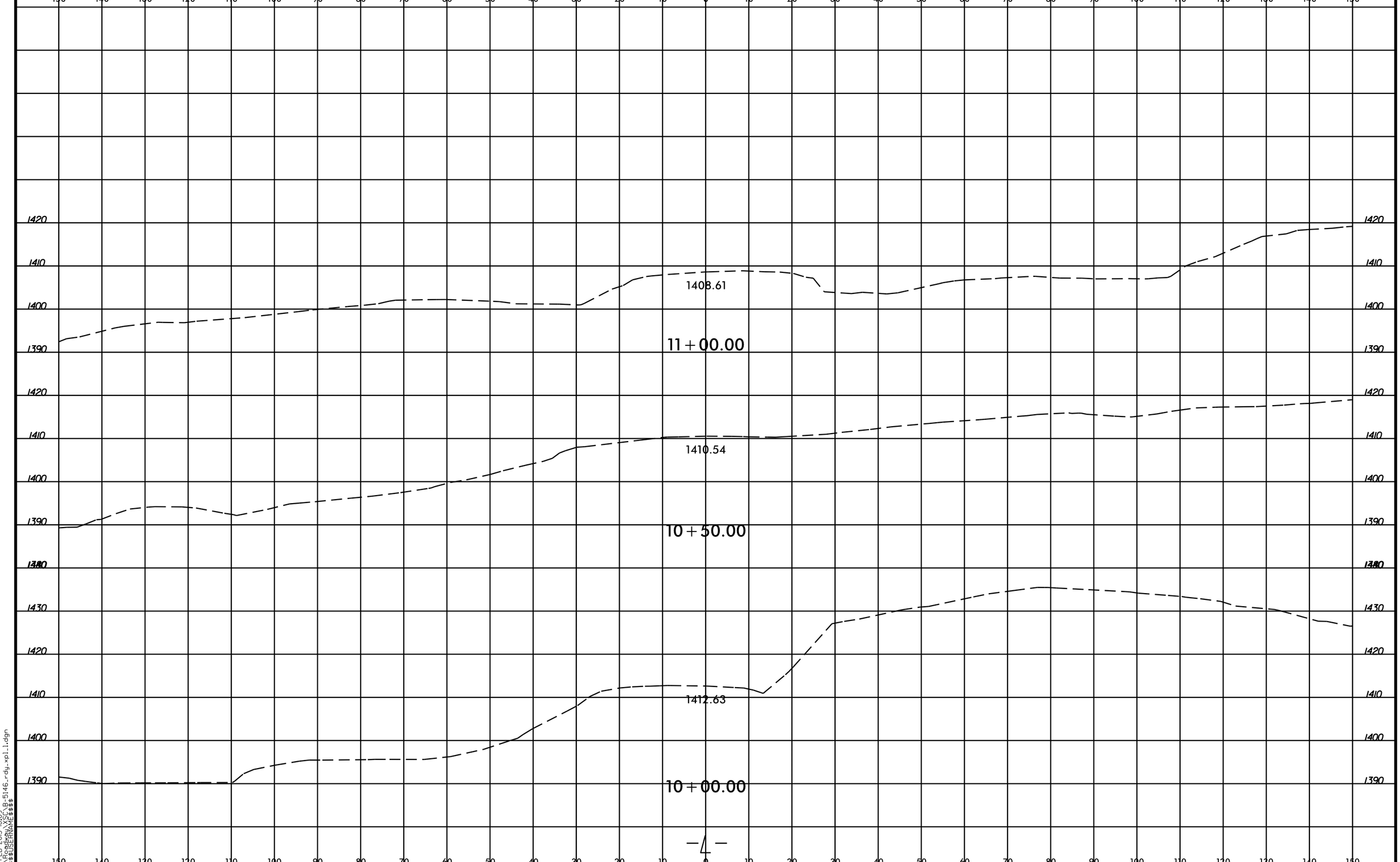

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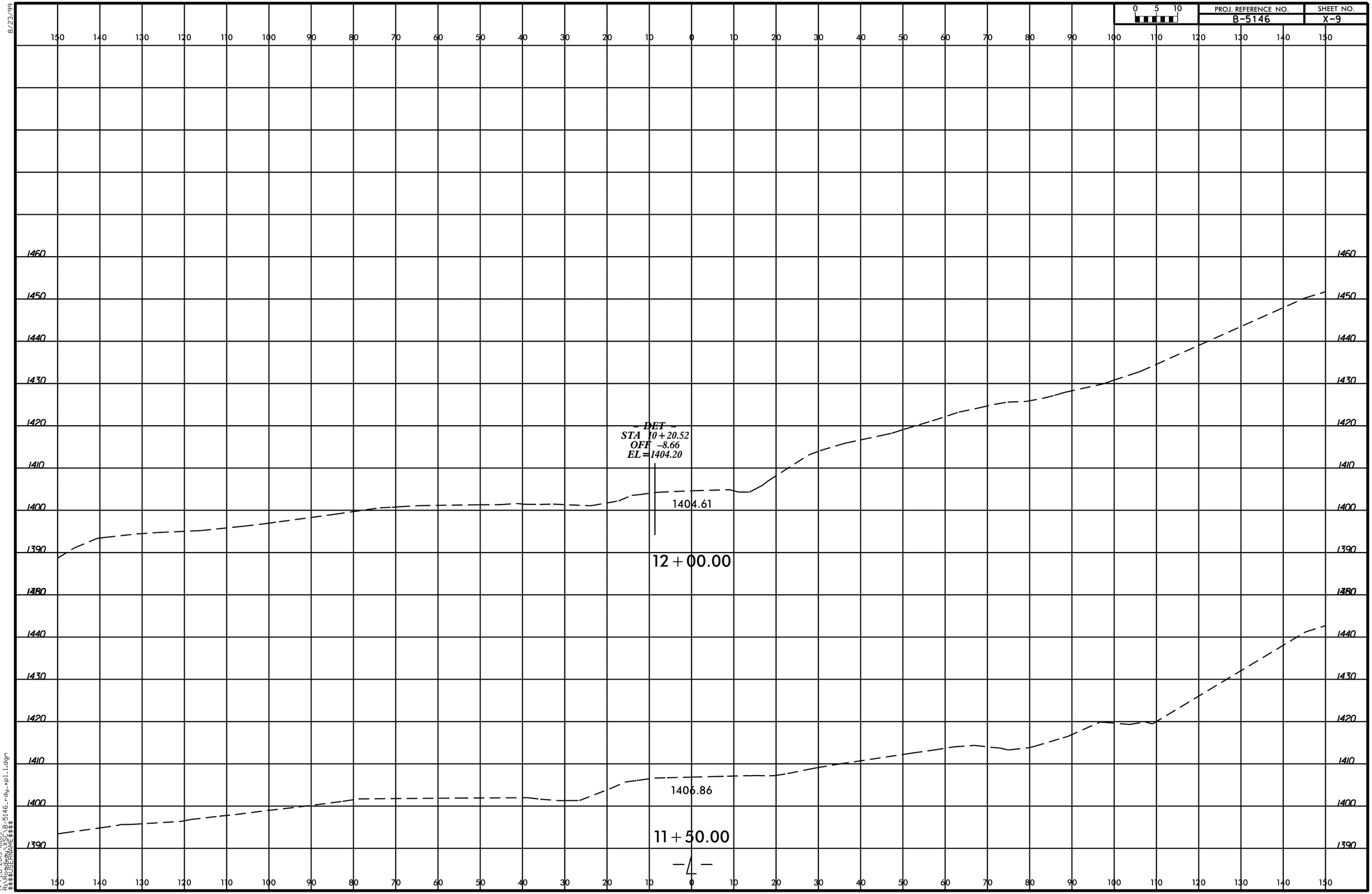

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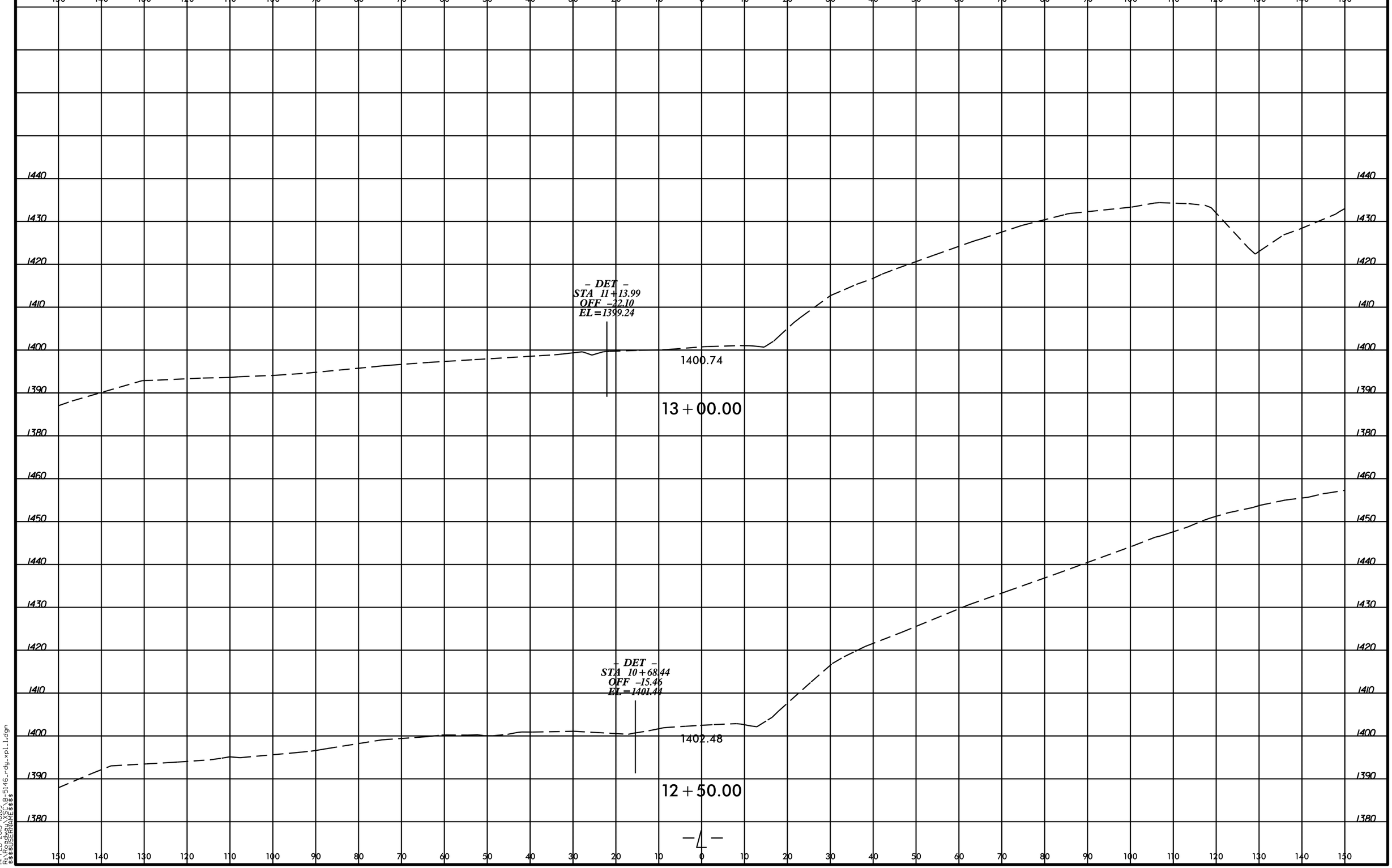

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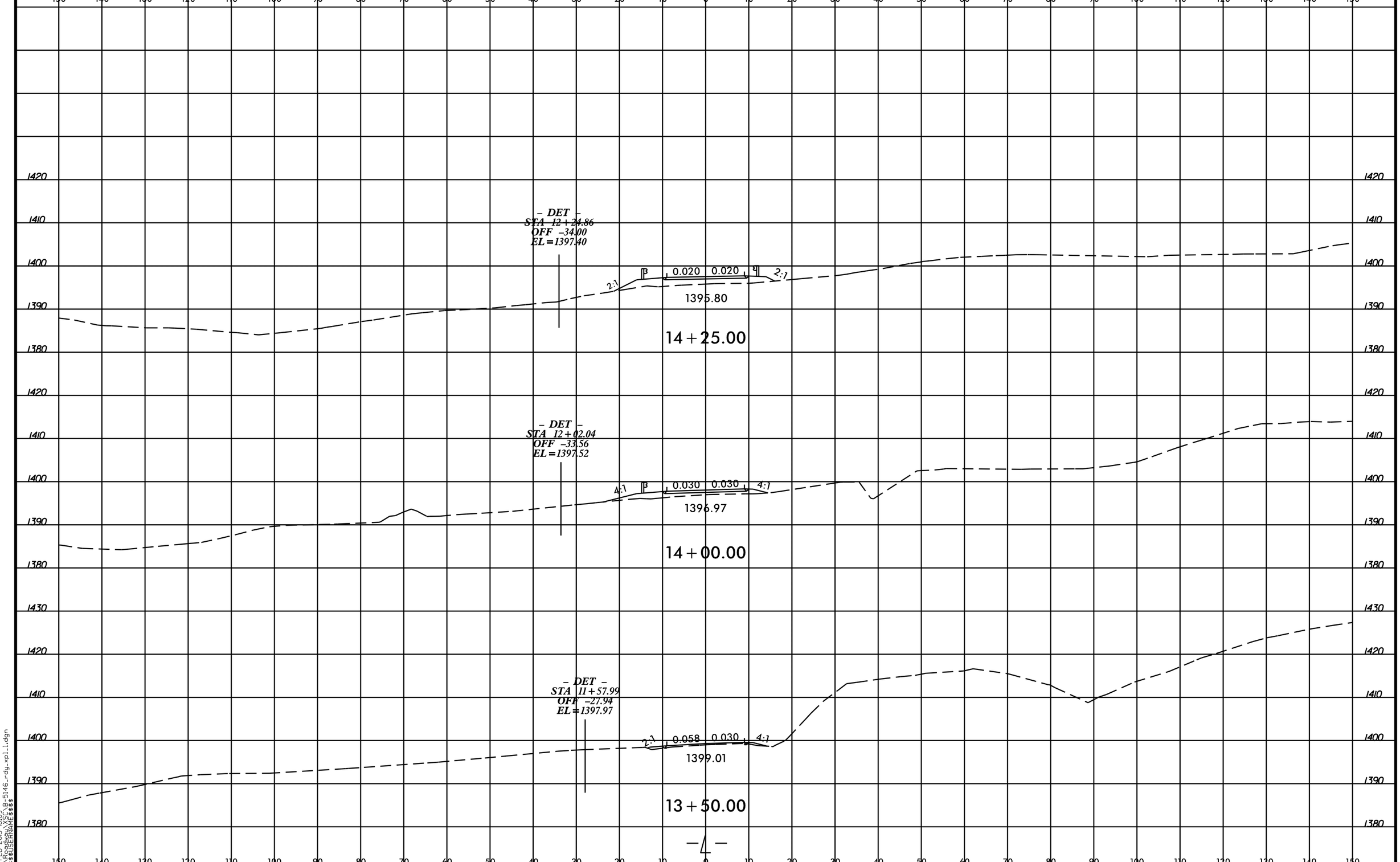

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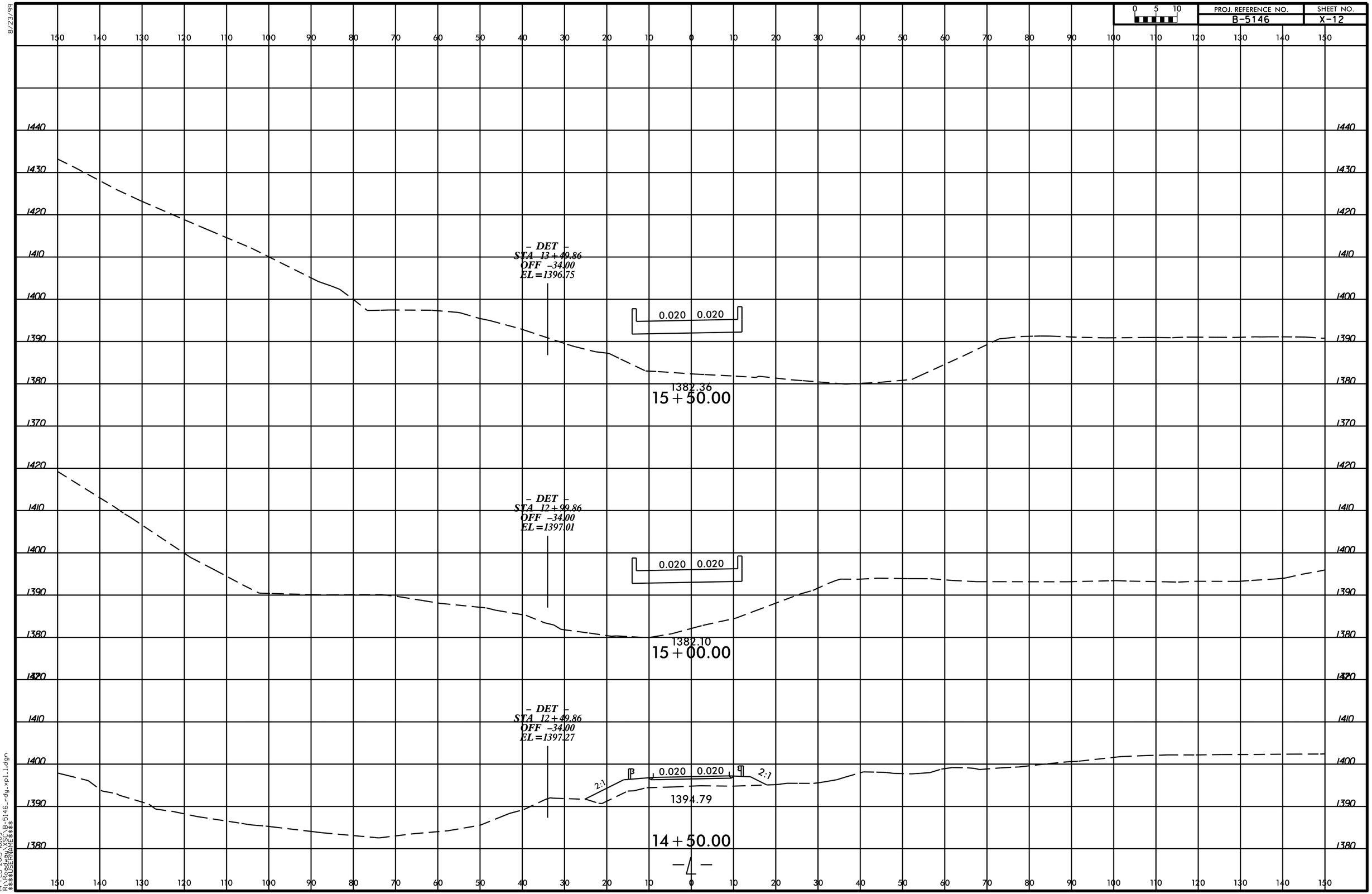

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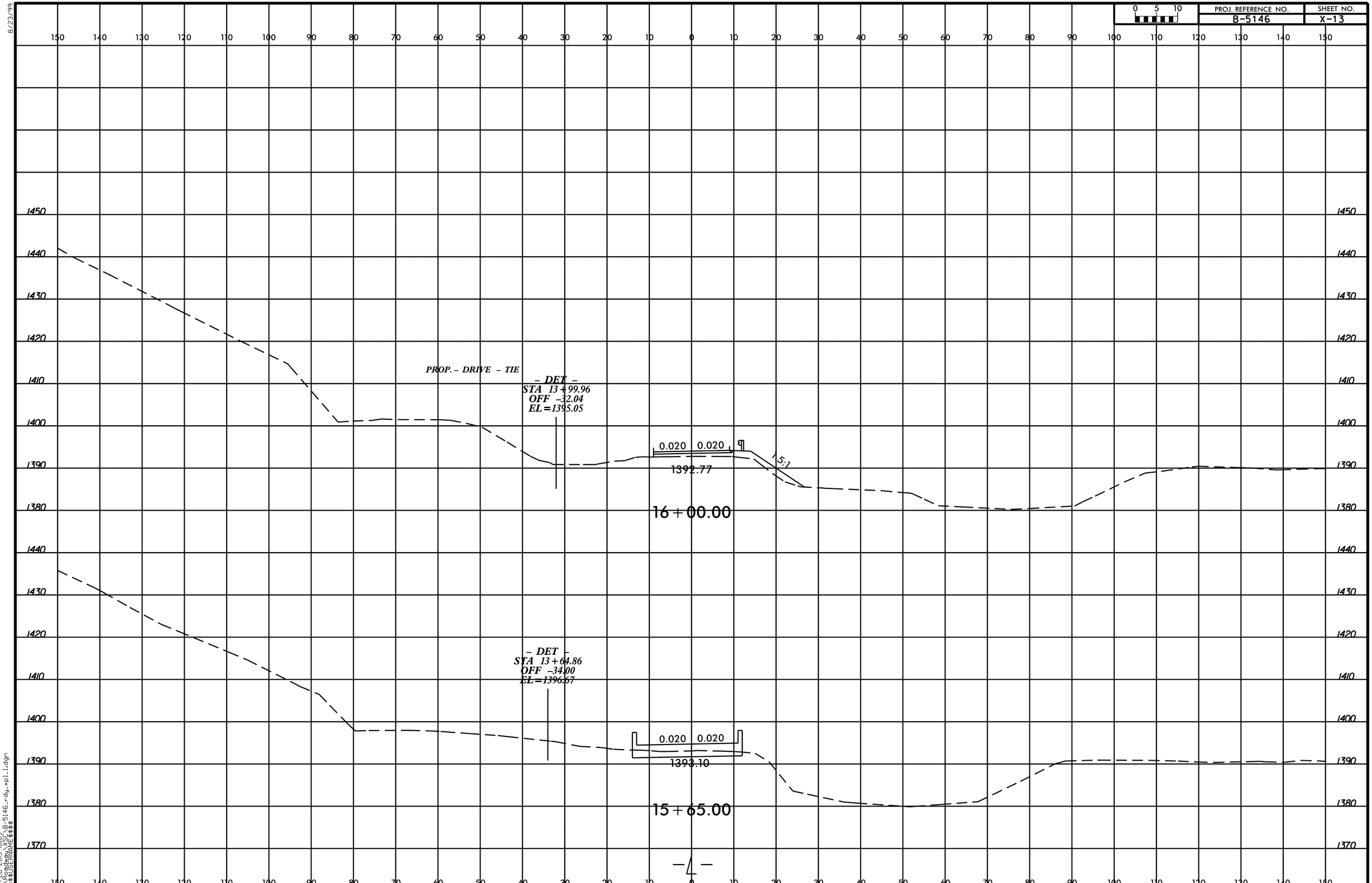

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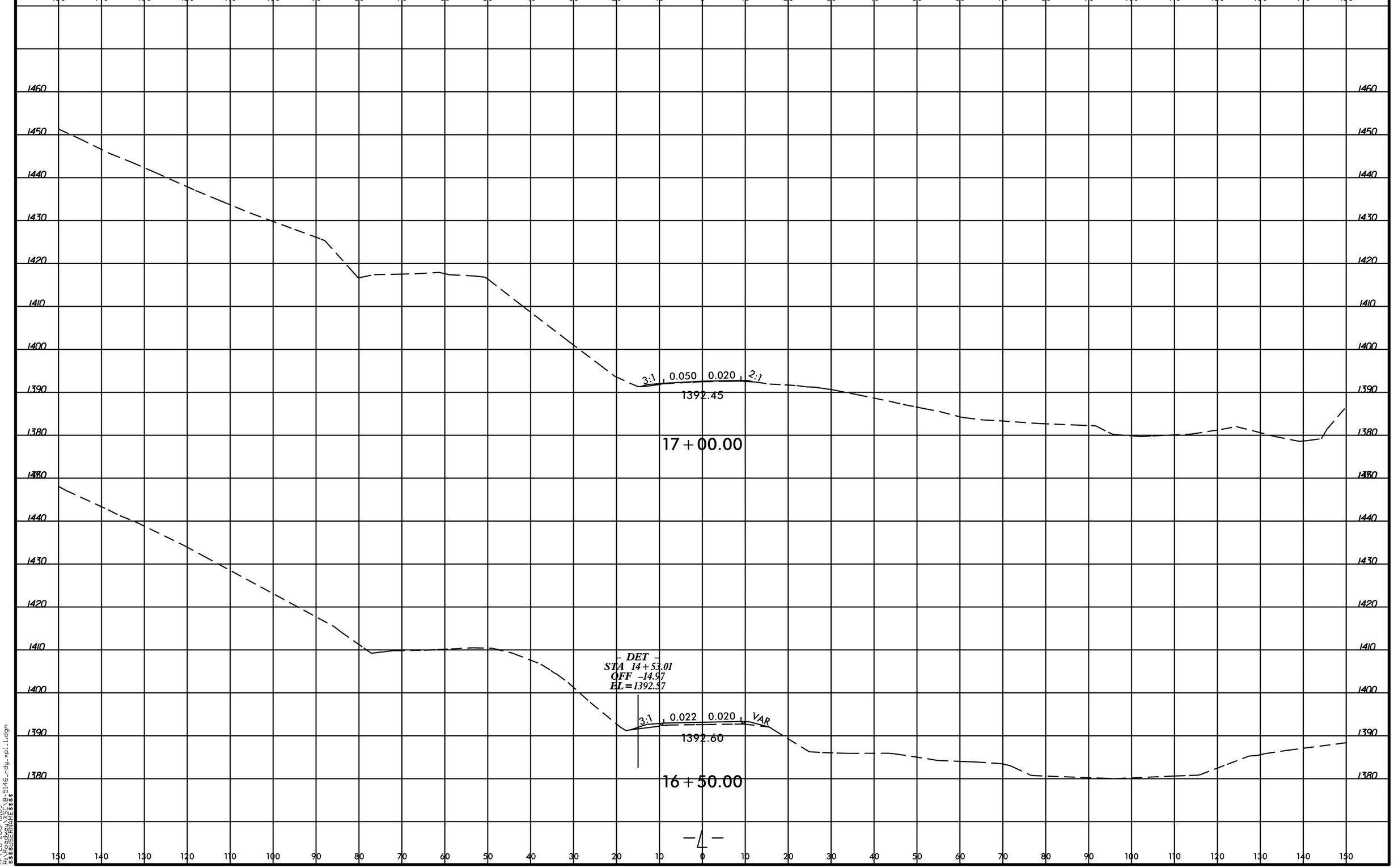

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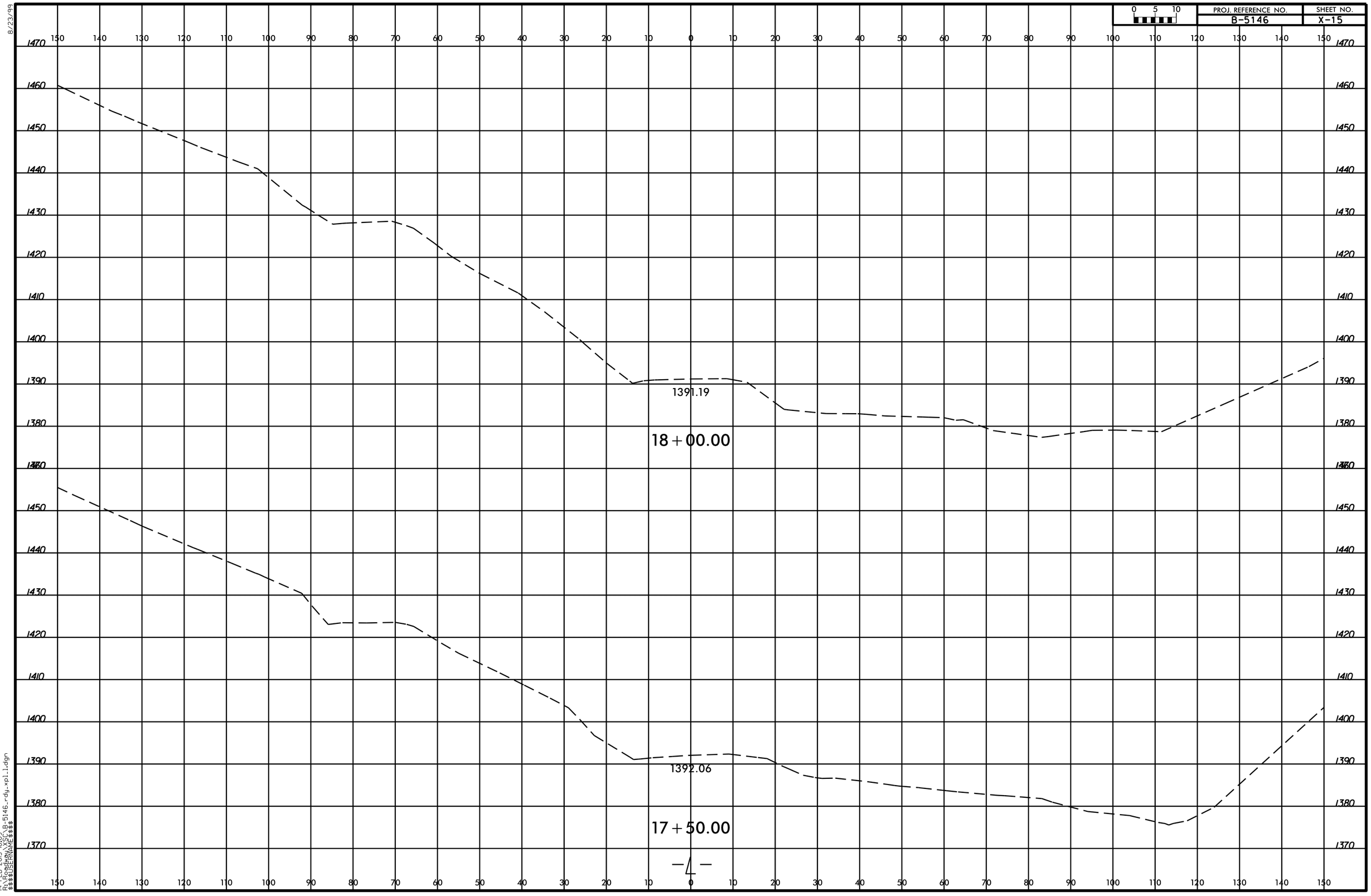

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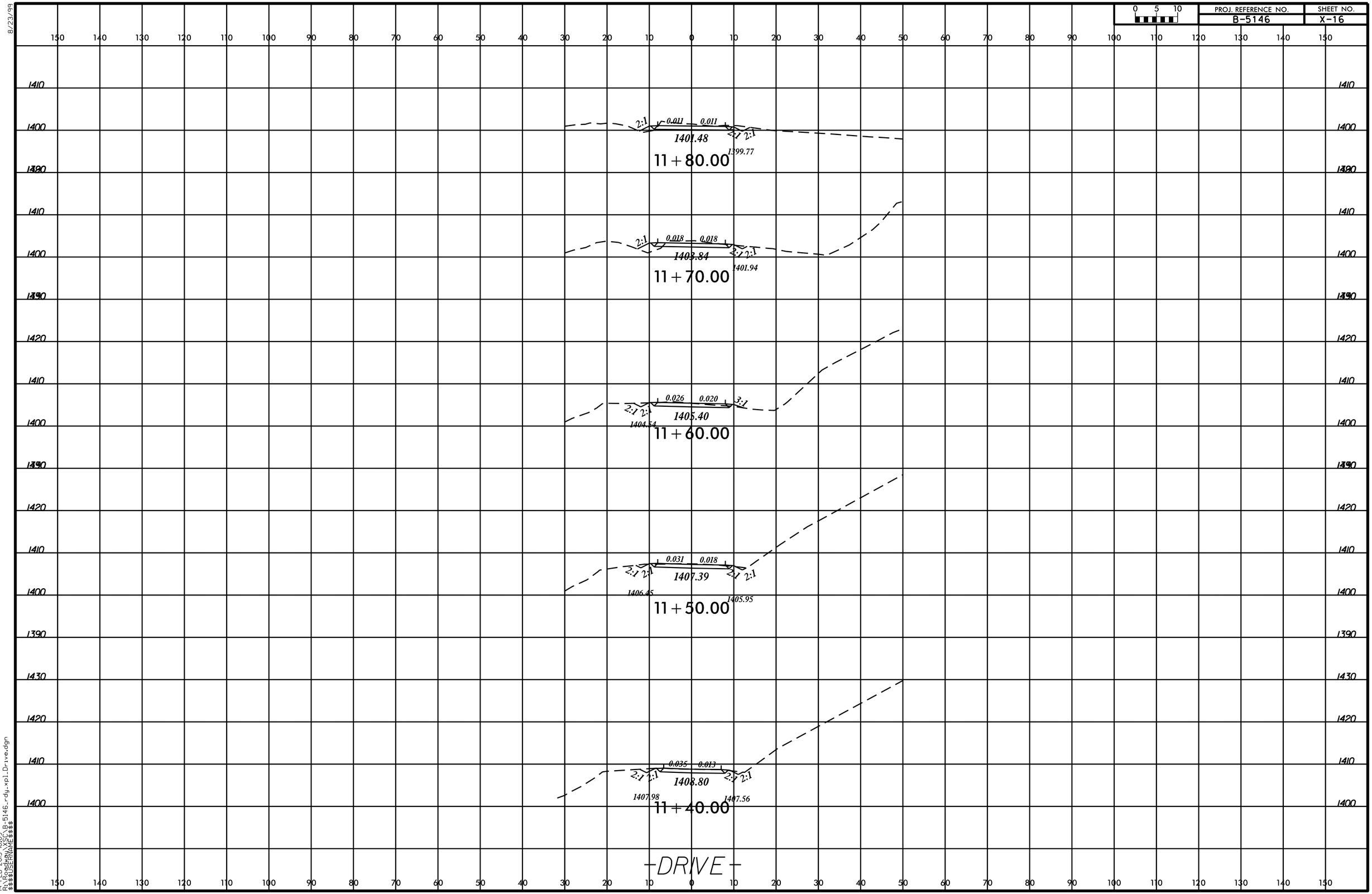
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0.026
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0.018
1407.39
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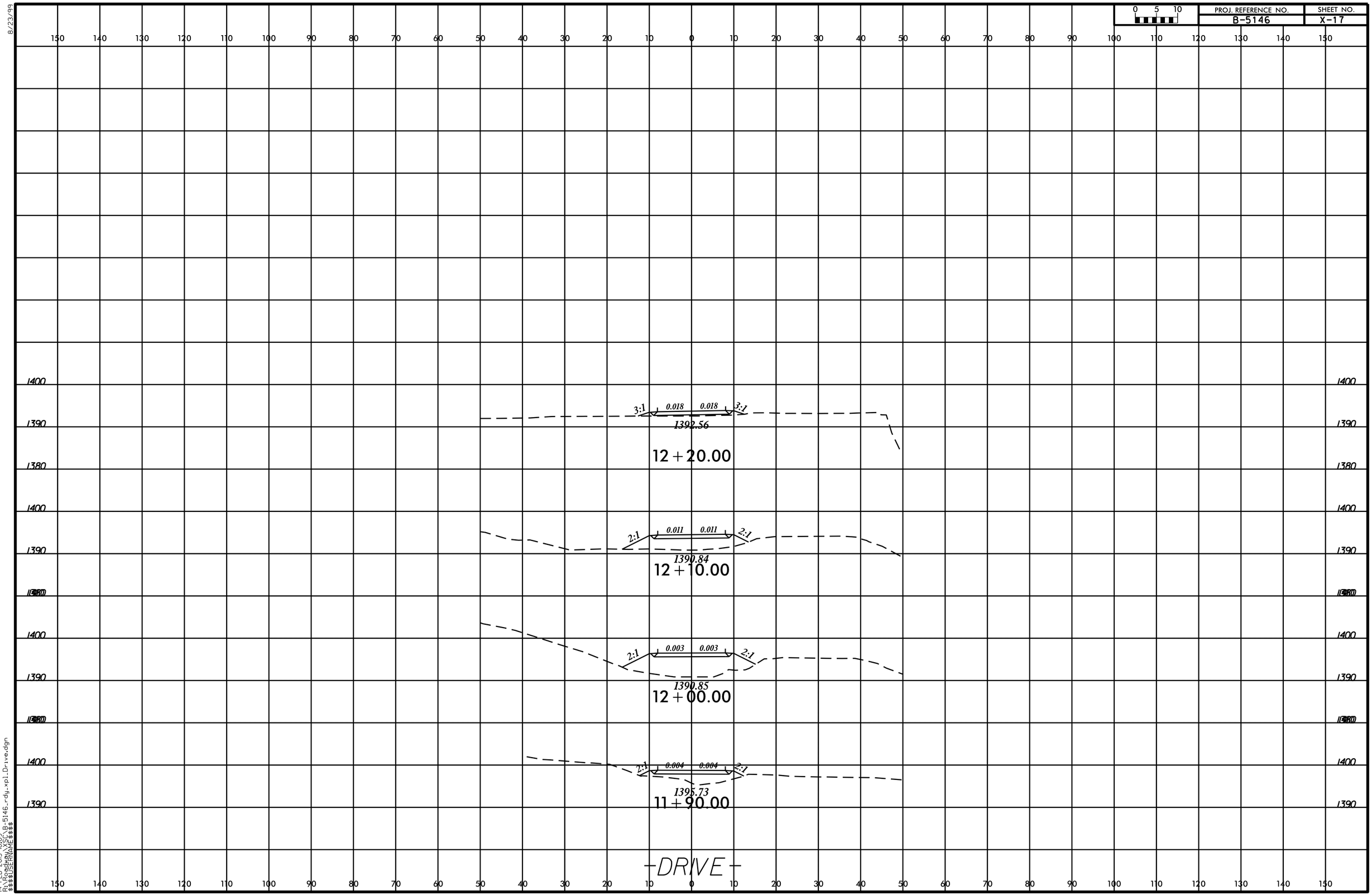

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