



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT L. MCCRORY
GOVERNOR

June 10, 2013

ANTHONY J. TATA
SECRETARY

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

ATTN: Ms. Lori Beckwith
NCDOT Coordinator

Subject: **Application for Section 404 Nationwide Permit 13, 23, and 33, and Section 401 Water Quality Certification** for the proposed replacement of Bridge No. 35 over Bald Creek on SR 1503 in Haywood County, Federal Aid Project No. BRZ-1503(8); Division 14; TIP No. B-4763. Debit WBS Element 38535.1.1 in the amount of \$570.

Dear Madam:

The North Carolina Department of Transportation (NCDOT) proposes to replace the existing 2-span, 50 foot long bridge with a 95 foot long, double barrel, 14 x 7 foot culvert. There will be 186 linear feet of permanent stream impact to Bald Creek by way of a 97 foot long culvert, 49 feet of stream alignment to direct the stream into the base flow cell, 40 feet of bank stabilization, and <0.01 (5 feet) of temporary stream impact. As no reasonable off- site detour exists; a temporary on-site detour will be established to the north (upstream) of the current alignment. This temporary detour will result in 0.02 acre (or 85 feet) of impact by way of 2 @ 9.5 foot corrugated steel pipes, 52 feet in length, and <0.01 acre (28 feet) of temporary channel work to properly align the stream to the pipes.

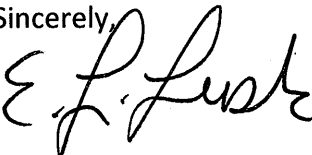
Please see enclosed copies of the Pre-Construction Notification (PCN), Ecosystem Enhancement Program (EEP) mitigation request, stormwater management plan, permit drawings, avoidance and minimization checklist, and design plans for the above-referenced project. A Categorical Exclusion (CE) was completed and distributed in November 2012. Additional copies are available upon request.

Comments from the North Carolina Wildlife Resources Commission (NCWRC) will be required prior to authorization by the United States Army Corps of Engineers (USACE). By copy of this letter and attachments, NCDOT hereby requests NCWRC's 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 March 18, 2014 and a review date of January 28, 2014. However, the date could be advanced if 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 e-mail Michael Turchy at maturchy@ncdot.gov.

Sincerely,



fa

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:	<input checked="" type="checkbox"/> Section 404 Permit	<input type="checkbox"/> 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?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
1d. Type(s) of approval sought from the DWQ (check all that apply):		
<input checked="" type="checkbox"/> 401 Water Quality Certification – Regular <input type="checkbox"/> Non-404 Jurisdictional General Permit <input type="checkbox"/> 401 Water Quality Certification – Express <input type="checkbox"/> 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: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	For the record only for Corps Permit: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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.	<input checked="" type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
1g. Is the project located in any of NC's twenty coastal counties. If yes, answer 1h below.	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
1h. Is the project located within a NC DCM Area of Environmental Concern (AEC)?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No

2. Project Information

2a. Name of project:	Replacement of Bridge 35 over Bald Creek on SR 1503
2b. County:	Haywood
2c. Nearest municipality / town:	Clyde, NC
2d. Subdivision name:	<i>not applicable</i>
2e. NCDOT only, T.I.P. or state project no.:	B-4763

3. Owner Information

3a. Name(s) on Recorded Deed:	North Carolina Department of Transportation
3b. Deed Book and Page No.	<i>not applicable</i>
3c. Responsible Party (for LLC if applicable):	<i>not applicable</i>
3d. Street address:	1598 Mail Service Center
3e. City, state, zip:	Raleigh, NC 27699-1598
3f. Telephone no.:	(919) 707-6157
3g. Fax no.:	(919) 212-5785
3h. Email address:	maturchy@ncdot.gov

4. Applicant Information (if different from owner)	
4a. Applicant is:	<input type="checkbox"/> Agent <input type="checkbox"/> Other, specify:
4b. Name:	<i>not applicable</i>
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:	<i>not applicable</i>
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):	<i>not applicable</i>
1b. Site coordinates (in decimal degrees):	Latitude: 35.604803 (DD.DDDDDD) Longitude: - 82.902242 (-DD.DDDDDD)
1c. Property size:	2 acres
2. Surface Waters	
2a. Name of nearest body of water (stream, river, etc.) to proposed project:	Bald Creek
2b. Water Quality Classification of nearest receiving water:	C
2c. River basin:	French Broad
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: Residential and agricultural	
3b. List the total estimated acreage of all existing wetlands on the property: zero.	
3c. List the total estimated linear feet of all existing streams (intermittent and perennial) on the property: 360	
3d. Explain the purpose of the proposed project: To replace a structurally deficient bridge.	
3e. Describe the overall project in detail, including the type of equipment to be used: The project involves replacing a two-span 50-foot bridge with a 95-foot long, double barrel 14' x 7' reinforced concrete box culvert (RCBC). Traffic will be maintained on a temporary alignment to the north (upstream) of the existing bridge during construction as there is no feasible detour route for SR 1503. 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:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown
4b. If the Corps made the jurisdictional determination, what type of determination was made?	<input type="checkbox"/> Preliminary <input type="checkbox"/> Final
4c. If yes, who delineated the jurisdictional areas? Name (if known):	Agency/Consultant Company: Other:
4d. If yes, list the dates of the Corps jurisdictional determinations or State determinations and attach documentation.	
5. Project History	
5a. Have permits or certifications been requested or obtained for this project (including all prior phases) in the past?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown
5b. If yes, explain in detail according to "help file" instructions.	
6. Future Project Plans	
6a. Is this a phased project?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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):						
<input type="checkbox"/> Wetlands		<input checked="" type="checkbox"/> Streams - tributaries		<input type="checkbox"/> Buffers		
<input type="checkbox"/> Open Waters		<input type="checkbox"/> 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 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
Site 2 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
Site 3 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
Site 4 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
Site 5 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
Site 6 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
2g. Total wetland impacts						
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 <input checked="" type="checkbox"/> P <input type="checkbox"/> T	Culvert	Bald Creek	<input checked="" type="checkbox"/> PER <input type="checkbox"/> INT	<input checked="" type="checkbox"/> Corps <input type="checkbox"/> DWQ	11	97
Site 1 <input checked="" type="checkbox"/> P <input type="checkbox"/> T	Stream Alignment	Bald Creek	<input checked="" type="checkbox"/> PER <input type="checkbox"/> INT	<input checked="" type="checkbox"/> Corps <input type="checkbox"/> DWQ	11	49
Site 1 <input checked="" type="checkbox"/> P <input type="checkbox"/> T	Bank Stabilization	Bald Creek	<input checked="" type="checkbox"/> PER <input type="checkbox"/> INT	<input checked="" type="checkbox"/> Corps <input type="checkbox"/> DWQ	11	40
Site 1 <input type="checkbox"/> P <input checked="" type="checkbox"/> T	Stream Alignment	Bald Creek	<input checked="" type="checkbox"/> PER <input type="checkbox"/> INT	<input checked="" type="checkbox"/> Corps <input type="checkbox"/> DWQ	11	<0.01 (5')
Site 2 <input type="checkbox"/> P <input checked="" type="checkbox"/> T	Temp Channel Work	Bald Creek	<input checked="" type="checkbox"/> PER <input type="checkbox"/> INT	<input checked="" type="checkbox"/> Corps <input type="checkbox"/> DWQ	11	<0.01 (28')
Site 2 <input type="checkbox"/> P <input checked="" type="checkbox"/> T	Temp Pipe Installation	Bald Creek	<input checked="" type="checkbox"/> PER <input type="checkbox"/> INT	<input checked="" type="checkbox"/> Corps <input type="checkbox"/> DWQ	11	0.01 (52')
3h. Total stream and tributary impacts					186' perm 0.02 (85') 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 <input type="checkbox"/> P <input type="checkbox"/> T				
O2 <input type="checkbox"/> P <input type="checkbox"/> T				
O3 <input type="checkbox"/> P <input type="checkbox"/> T				
O4 <input type="checkbox"/> P <input type="checkbox"/> T				
4f. Total open water impacts				

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?	<input type="checkbox"/> Yes	<input type="checkbox"/> 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?		<input type="checkbox"/> Neuse <input type="checkbox"/> Tar-Pamlico <input type="checkbox"/> Other: <input type="checkbox"/> Catawba <input type="checkbox"/> Randleman			
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 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> Yes <input type="checkbox"/> No		
B2 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> Yes <input type="checkbox"/> No		
B3 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> Yes <input type="checkbox"/> 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.

NCDOT is recommending a culvert for this replacement for the following reasons:

Bald Creek currently crosses under SR 1503 at a very bad skew of approximately 120 degrees. Because of this, the stream is as wide as the bridge crossing, making the stream unnaturally shallow, over-widened and occupies almost all of the space under the bridge. Therefore, the benefits traditionally seen when replacing a bridge with a bridge (floodplain connectivity, hydraulic opening, low or no impacts, and unnatural stream widening) does not exist at this crossing.

NCDOT has investigated the following avoidance and minimization designs:

A bottomless culvert was investigated, but the necessary bedrock to support this structure is too deep for this option.

The use of a longer bridge. This would likely keep the stream off of the bridge's corners, but the interior bent would have to be placed in the middle of the stream, much like the existing interior bent is, and likely not provide a natural stream width and depth.

Moving the stream/ natural stream design to improve the skew of the crossing. This would result in a higher amount of impacts to Bald Creek, most of which is currently stable. From a hydraulic calculation and floodplain connectivity standpoint, the effective flow area through the bridge remains the same as the flood plain benches that will be installed with the culvert in order to maintain normal channel width and depth.

For this project, a culvert will better mimic natural stream dimensions, and maintain those dimensions, allowing for improved aquatic movement than is present today.

Economically, the culvert is more cost effective for both construction and future maintenance.

The culvert will have a low flow barrel, which will match natural upstream and downstream widths.

Also, see included Bridge to Culvert Avoidance and Minimization Summary Sheet which also contains slope and velocity calculations.

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

Design Standards for Sensitive Waters will be used for this project. The Department will observe an in-stream moratorium for trout from October 15-April 15. Alternating low flow sills will be used. They will be spaced approximately 35 feet apart, 0.5 feet high, and provide a 10 foot wide low flow channel.

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)

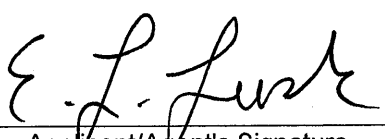
Type

Quantity

3c. Comments:				
4. Complete if Making a Payment to In-lieu Fee Program				
4a. Approval letter from in-lieu fee program is attached.		<input checked="" type="checkbox"/> Yes		
4b. Stream mitigation requested:		186 linear feet		
4c. If using stream mitigation, stream temperature:		<input type="checkbox"/> warm <input type="checkbox"/> cool <input checked="" type="checkbox"/> cold		
4d. Buffer mitigation requested (DWQ only):		square feet		
4e. Riparian wetland mitigation requested:		acres		
4f. Non-riparian wetland mitigation requested:		acres		
4g. Coastal (tidal) wetland mitigation requested:		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?			<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
1b. If yes, then is a diffuse flow plan included? If no, explain why. Comments:	<input type="checkbox"/> Yes <input type="checkbox"/> 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?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> 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?	<input type="checkbox"/> Certified Local Government <input type="checkbox"/> DWQ Stormwater Program <input checked="" type="checkbox"/> 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):	<input type="checkbox"/> Phase II <input type="checkbox"/> NSW <input type="checkbox"/> USMP <input type="checkbox"/> Water Supply Watershed <input type="checkbox"/> Other:
3c. Has the approved Stormwater Management Plan with proof of approval been attached?	<input type="checkbox"/> Yes <input type="checkbox"/> No
4. DWQ Stormwater Program Review	
4a. Which of the following state-implemented stormwater management programs apply (check all that apply):	<input type="checkbox"/> Coastal counties <input checked="" type="checkbox"/> HQW <input type="checkbox"/> ORW <input type="checkbox"/> Session Law 2006-246 <input type="checkbox"/> Other:
4b. Has the approved Stormwater Management Plan with proof of approval been attached?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
5. DWQ 401 Unit Stormwater Review	
5a. Does the Stormwater Management Plan meet the appropriate requirements?	<input type="checkbox"/> Yes <input type="checkbox"/> No N/A
5b. Have all of the 401 Unit submittal requirements been met?	<input type="checkbox"/> Yes <input type="checkbox"/> 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?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> 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)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> 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: CE Approved & Distributed November 2012.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> 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)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
2b. Is this an after-the-fact permit application?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
5b. Have you checked with the USFWS concerning Endangered Species Act impacts?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
5c. If yes, indicate the USFWS Field Office you have contacted.	<input type="checkbox"/> Raleigh <input type="checkbox"/> Asheville	
5d. What data sources did you use to determine whether your site would impact Endangered Species or Designated Critical Habitat? NHP Element Occurance Search, USFWS Website, and NCDOT onsite surveys. All species were "No Effect", due to lack of habitat, with the exception of small whorled pogonia which had marginal habitat. A survey for small whorled pogonia, and verification of lack of habitat for all other species) was conducted on June 7, 2012. No individuals of small whorled pogonia were found, and no habitat for all other species remained.		
6. Essential Fish Habitat (Corps Requirement)		
6a. Will this project occur in or near an area designated as essential fish habitat?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
6b. What data sources did you use to determine whether your site would impact Essential Fish Habitat?		
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)?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> 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?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> 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	 Applicant/Agent's Signature (Agent's signature is valid only if an authorization letter from the applicant is provided.)	6.7.13 Date



June 6, 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-4763, Replace Bridge Number 35 over Bald Creek on SR 1503 (Upper Crabtree Road), Haywood 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 May 21, 2013, the impacts are located in CU 06010106 of the French Broad River basin in the Southern Mountains (SM) Eco-Region, and are as follows:

French Broad 06010106 SM	Stream			Wetlands			Buffer (Sq. Ft.)	
	Cold	Cool	Warm	Riparian	Non-Riparian	Coastal Marsh	Zone 1	Zone 2
Impacts (feet/acres)	186.0	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.

This mitigation acceptance letter replaces the mitigation acceptance letter issued on May 21, 2013. This impact and associated mitigation need were under projected by the NCDOT in the 2013 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
 EEP Asset Management Supervisor

cc: Ms. Lori Beckwith, USACE – Asheville Regulatory Field Office
 Ms. Amy Chapman, Division of Water Quality, Wetlands/401 Unit
 File: B-4763 Revised



North Carolina Department of Transportation
Highway Stormwater Program
STORMWATER MANAGEMENT PLAN
FOR LINEAR ROADWAY PROJECTS



(Version 1.2; Released September 2011)

Project/TIP No.: B-4763 (38535.1.1)
County(ies): Haywood
Page 1 **of** 1

General Project Information

Project No.:	B-4763 (38535.1.1)	Project Type:	Bridge Replacement	Date:	4/9/2013
NCDOT Contact:	Galen Cail	Contractor / Designer:	Galen Cail/Craig Lee		
Address:	1020 Birch Ridge Dr. Raleigh, N.C. 27610	Address:	1020 Birch Ridge Dr. Raleigh, N.C. 27610		
Phone:	919.707.6711	Phone:	919.707.6711/919.707.6708		
Email:	gcail@ncdot.gov	Email:	gcail@ncdot.gov/cjlee@ncdot.gov		
City/Town:	Clyde, NC	County(ies):	Haywood		
River Basin(s):	French Broad	CAMA County?	No		
Primary Receiving Water:	Bald Creek	NCDWQ Stream Index No.:			
NCDWQ Surface Water Classification for Primary Receiving Water	Primary:	Class C			
	Supplemental:	Trout Waters (Tr)			
Other Stream Classification:					
303(d) Impairments:					
Buffer Rules in Effect	N/A				

Project Description

Project Length (lin. Miles or feet):	0.179 miles	Surrounding Land Use:	Fields		
	Proposed Project		Existing Site		
Project Built-Upon Area (ac.)	0.50 ac.		0.38 ac.		
Typical Cross Section Description:	11' Travel Lanes, 2' Paved Shoulder, 6' Grass Shoulders. 2:1 Side Slopes		9' Travel Lanes, 4' Grassed Shoulders, 2:1 Side Slopes		
Average Daily Traffic (veh/hr/day):	Design/Future:	2,200 (2035)	Existing:	1,320 (2012)	

General Project Narrative:

The project consists of replacing Bridge# 35 on SR 1503 (Upper Crabtree Road) over Bald Creek. The approach work will consist of raising the existing roadway grade and providing grass shoulders and guardrail. Bridge #35 existing single span structure (50' total length) will be replaced with 2 @ 14'x7' Reinforced Concrete Box Culvert.

Best Mgmt. Practices:

- Promotion of sheet flow and infiltration with grassed shoulders.
- Cross Pipe in NW quad outlets to rip rap on embankment.
- Rip Rap on embankment to prevent erosion.
- Culvert design to maintain natural channel width and provide normal depth of approximately 1'.
- Culvert aligns/transitions well to up and downstream flow.

References

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

HAYWOOD COUNTY

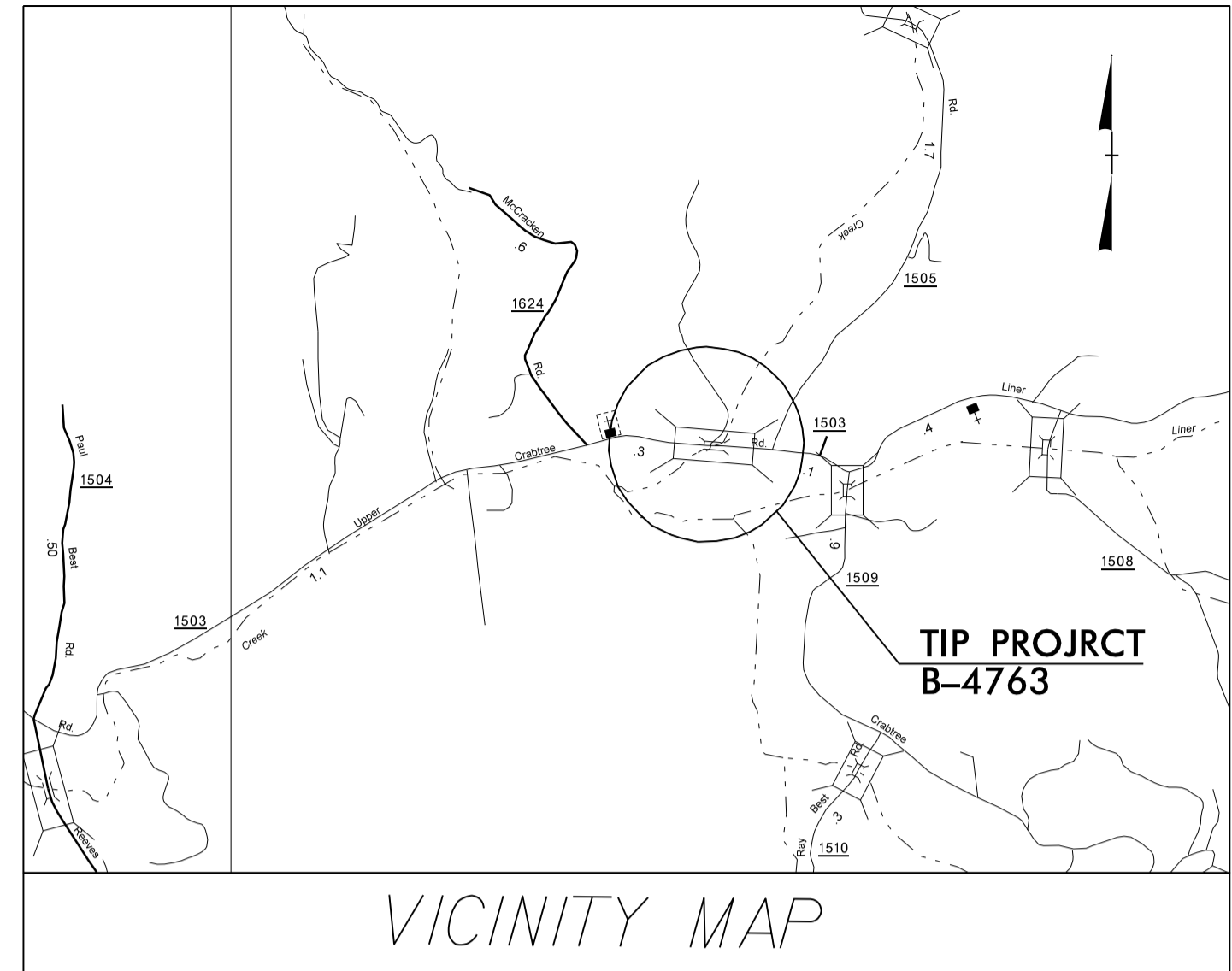
LOCATION: BRIDGE NO. 35 OVER BALD CREEK
ON SR 1503 (UPPER CRABTREE CREEK RD)

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND CULVERT

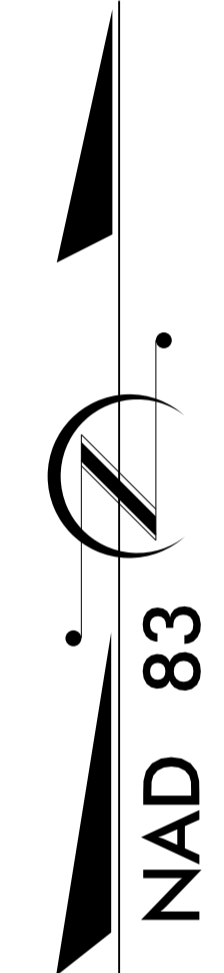
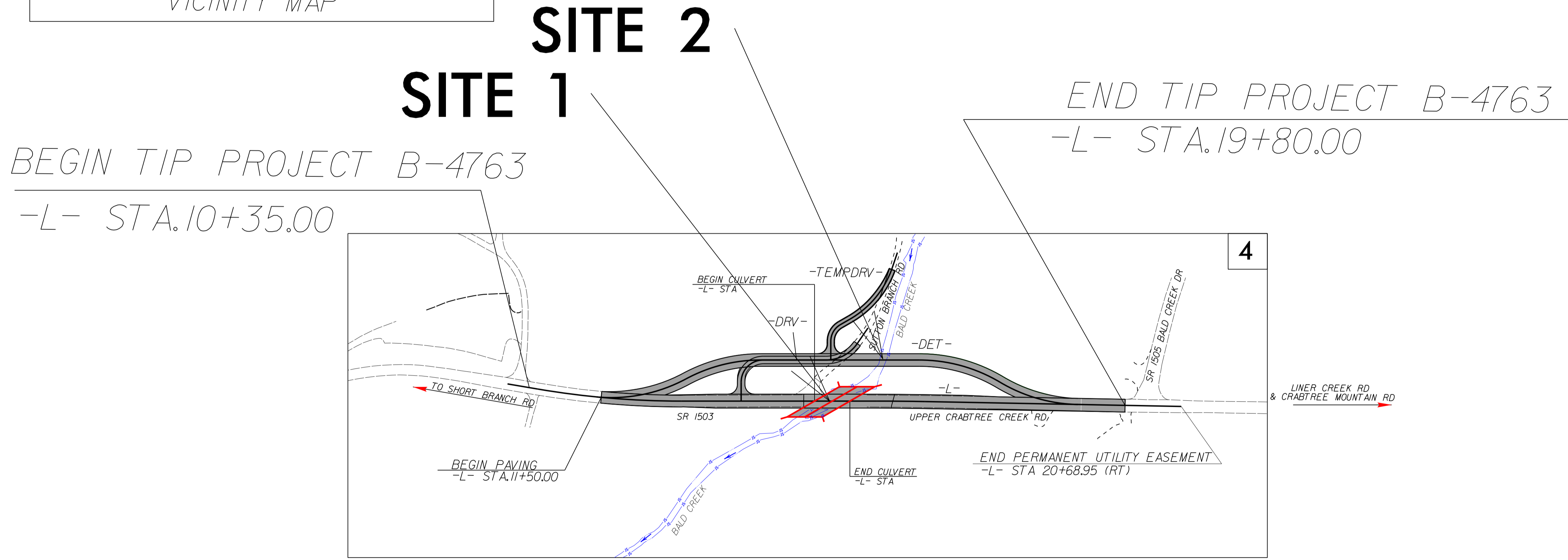
WETLAND AND SURFACE WATER IMPACTS PERMIT

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4763	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
38535.1.1	BRZ-1503(8)	PE	

**PERMIT DRAWING
SHEET 1 OF 10**



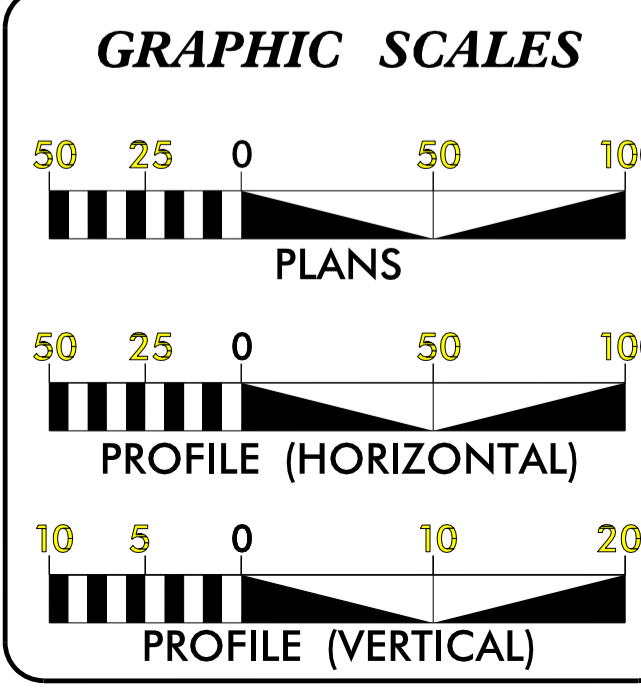
TIP PROJECT: B-4763



THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONTRACT:



DESIGN DATA

ADT 2012 =	1320
ADT 2035 =	2200
DHV =	9 %
D =	70 %
T =	8 % *
V =	50 MPH
* TTST =	1% DUAL 7%
FUNC CLASS =	RURAL, MINOR COLLECTOR
	SUB REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4763 =	0.179 MILES
TOTAL LENGTH TIP PROJECT B-4763 =	0.179 MILES

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

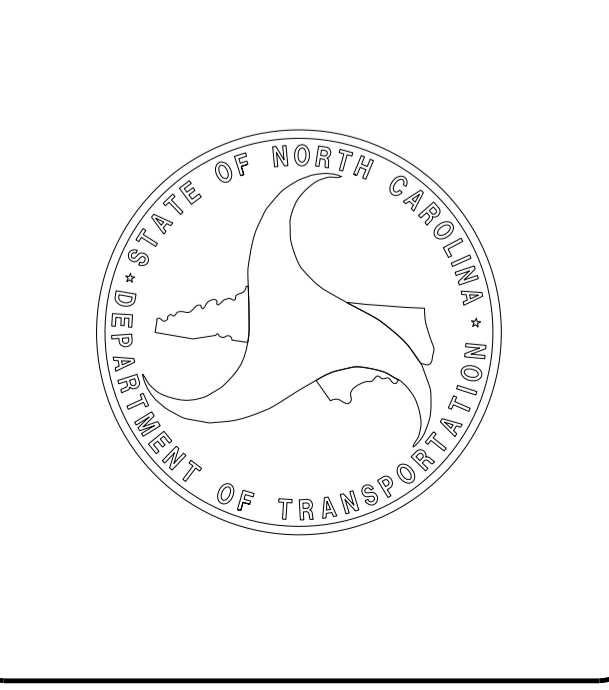
2012 STANDARD SPECIFICATIONS	
RIGHT OF WAY DATE: MARCH 25, 2013	JAMES A. SPEER, PE PROJECT ENGINEER
LETTING DATE: MARCH 18, 2014	ALLISON K. WHITE PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

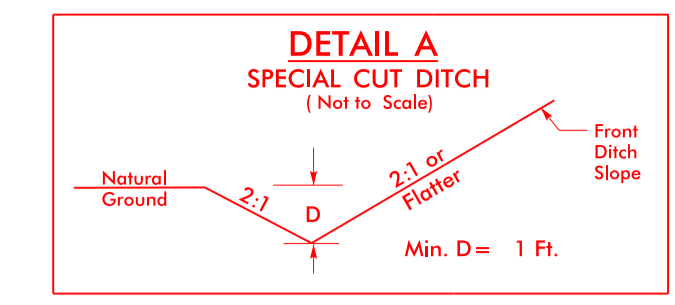
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ROADWAY DESIGN ENGINEER

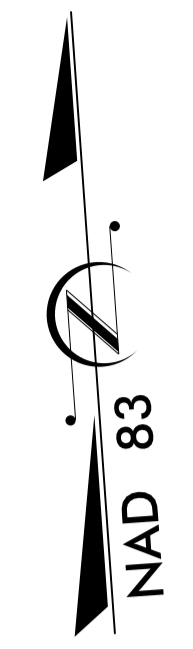
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FROM STA. 13+00 TO STA. 13+56.50 LT -L-
 FROM STA. 16+00 TO STA. 17+85 LT -L-
 FROM STA. 13+88 TO STA. 14+83 LT -L-
 FROM STA. 10+25 TO STA. 13+65 LT -DET-
 FROM STA. 10+80 TO STA. 11+87 RT -TEMPDRV-
 FROM STA. 10+60 TO STA. 12+20 RT -DRV-



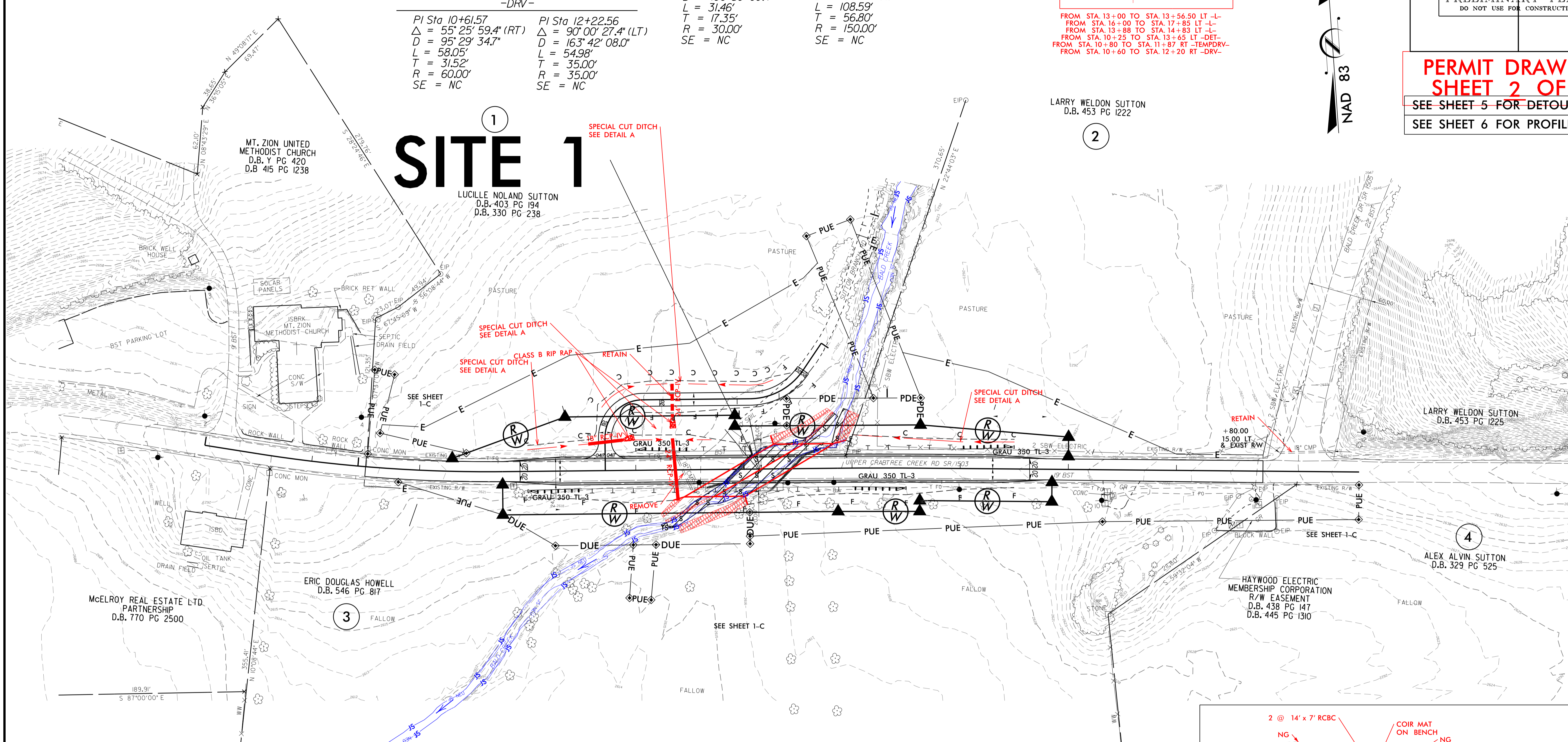
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-DRV-

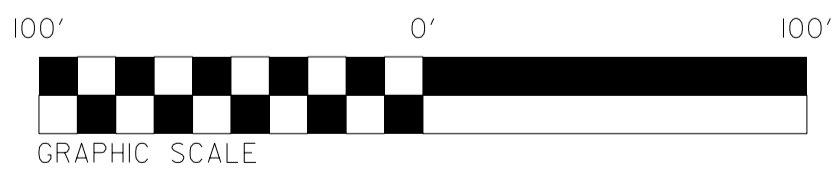
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SITE 1



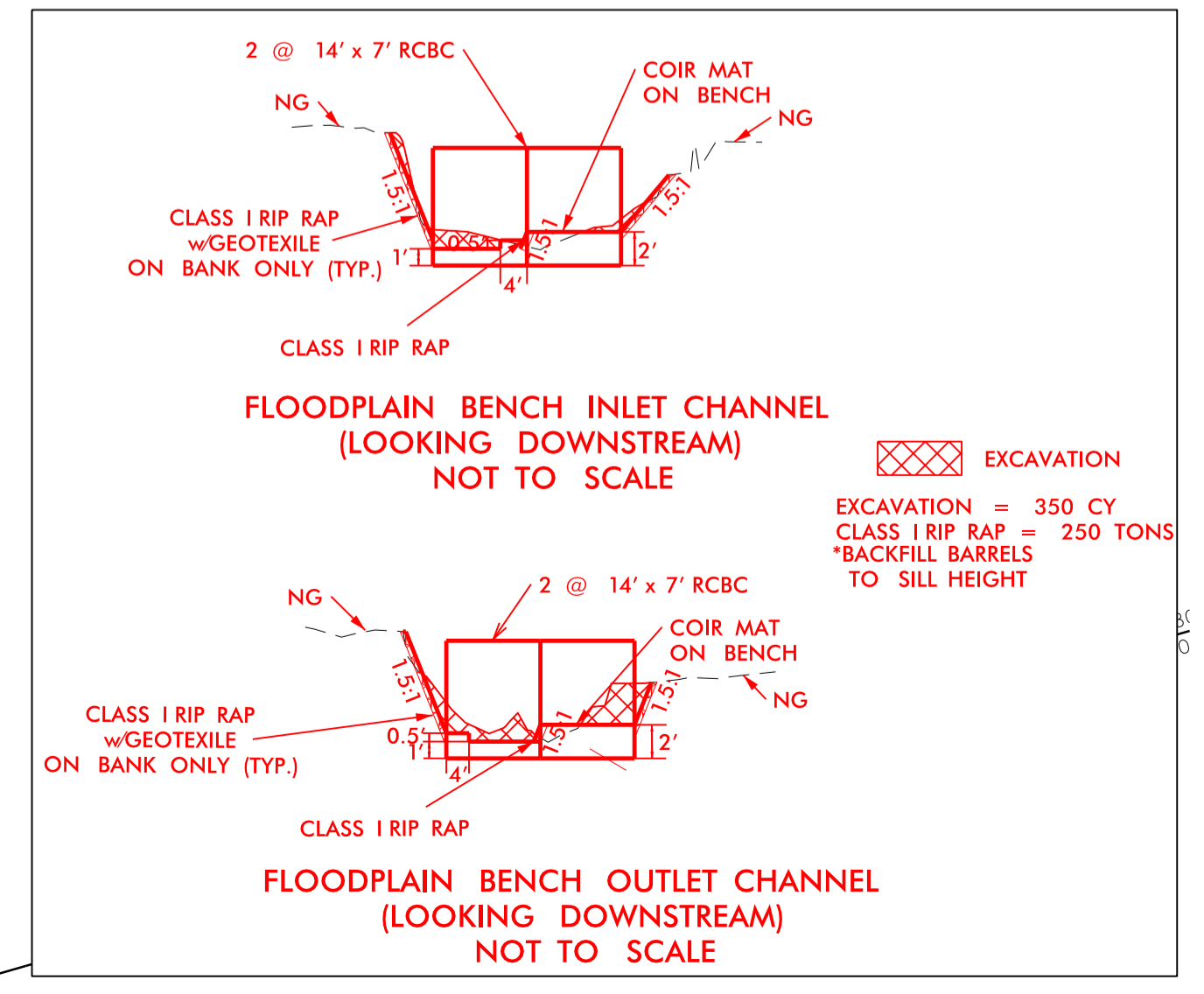
DENOTES TEMPORARY IMPACTS IN SURFACE WATER

DENOTES IMPACTS IN SURFACE WATER



-DET-

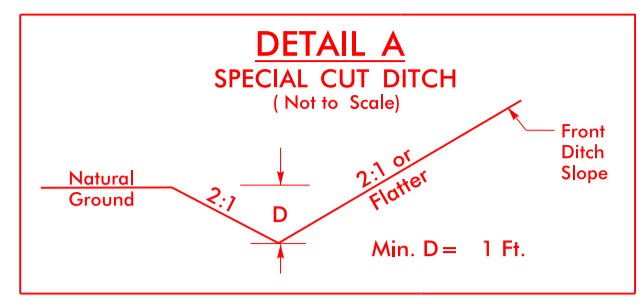
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REVISIONS

4/24/2013
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8/17/99

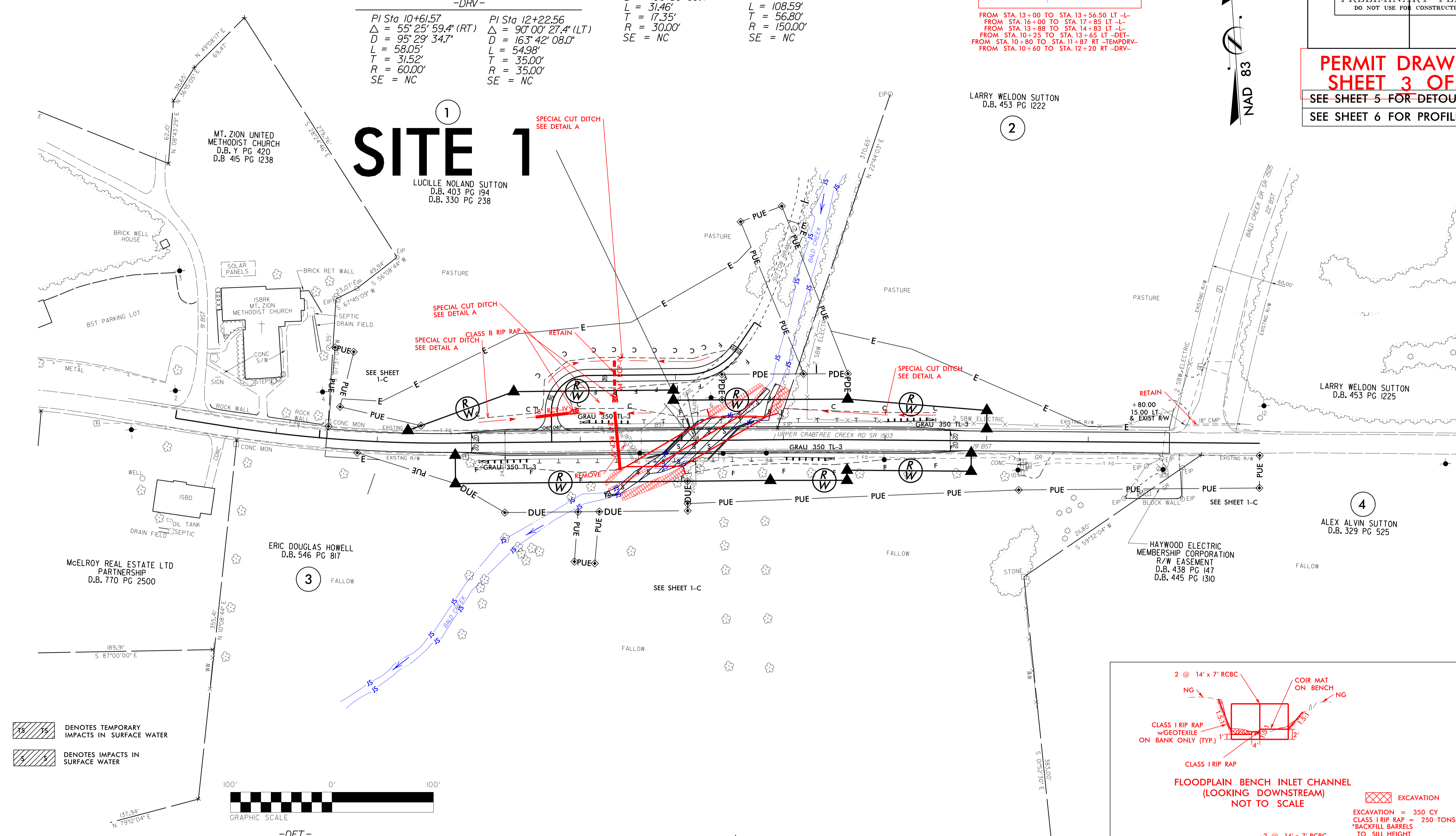


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FROM STA. 13+88 TO STA. 14+83 LT -L-
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FROM STA. 10+80 TO STA. 11+87 RT -TEMPDRV-
FROM STA. 10+60 TO STA. 12+20 RT -DRV-

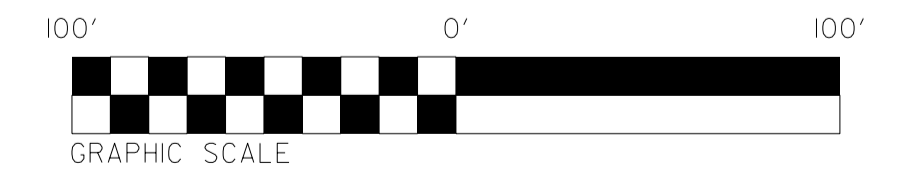


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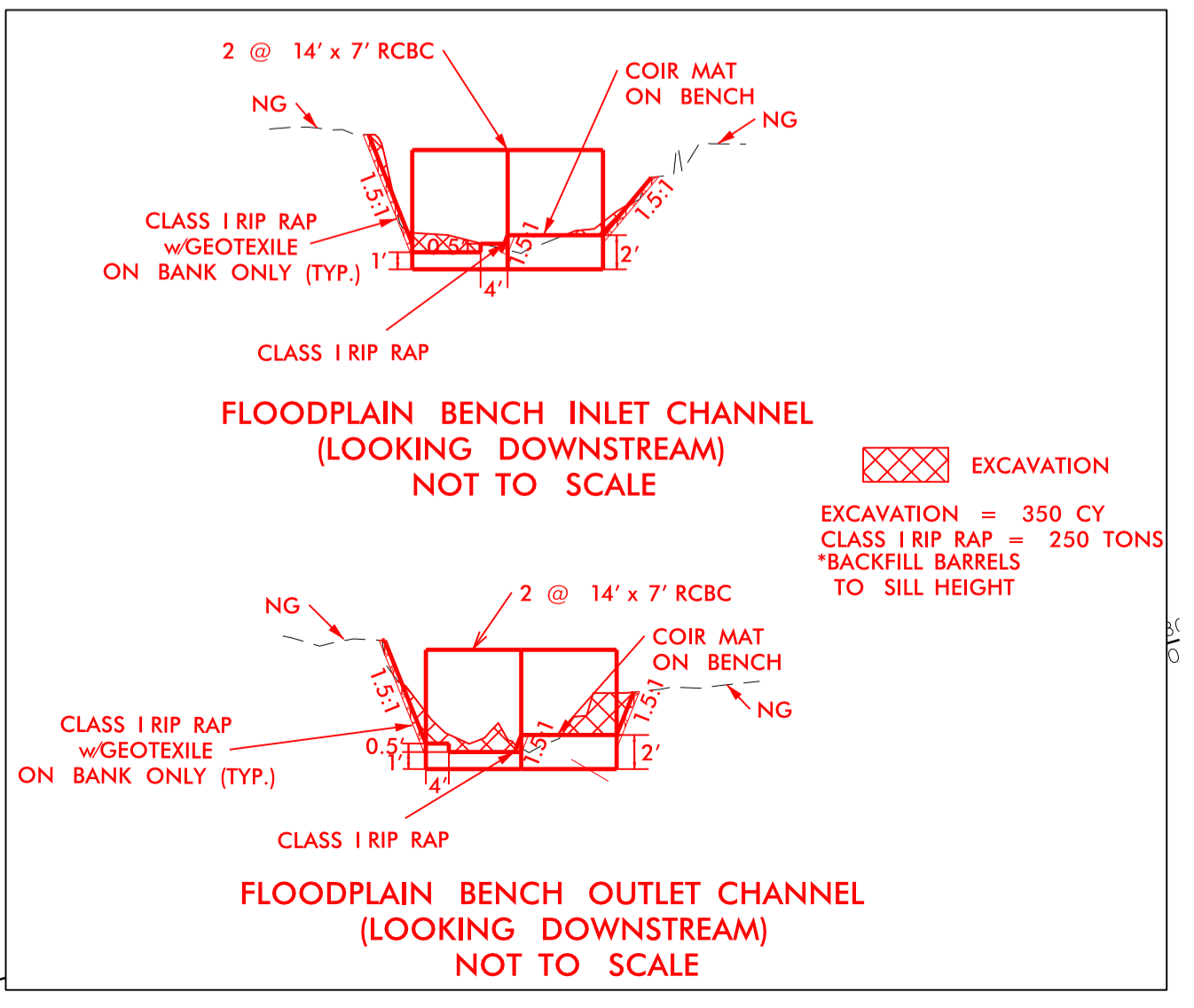
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DENOTES TEMPORARY IMPACTS IN SURFACE WATER
 DENOTES IMPACTS IN SURFACE WATER



-DET-
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-L-
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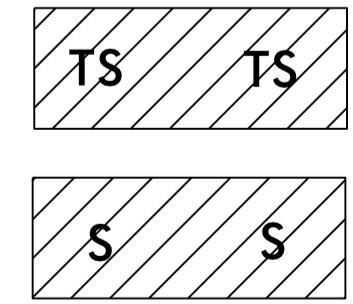
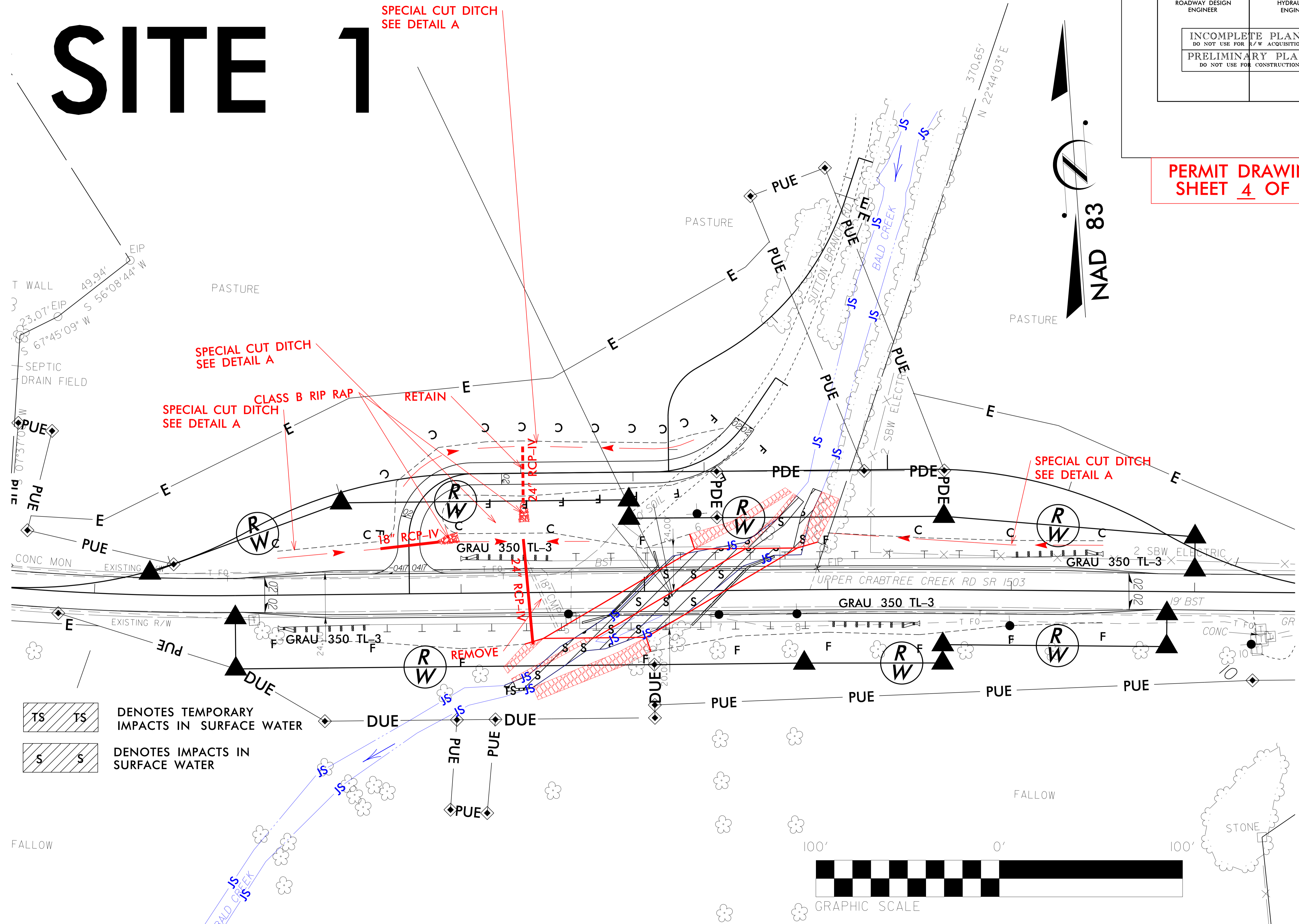
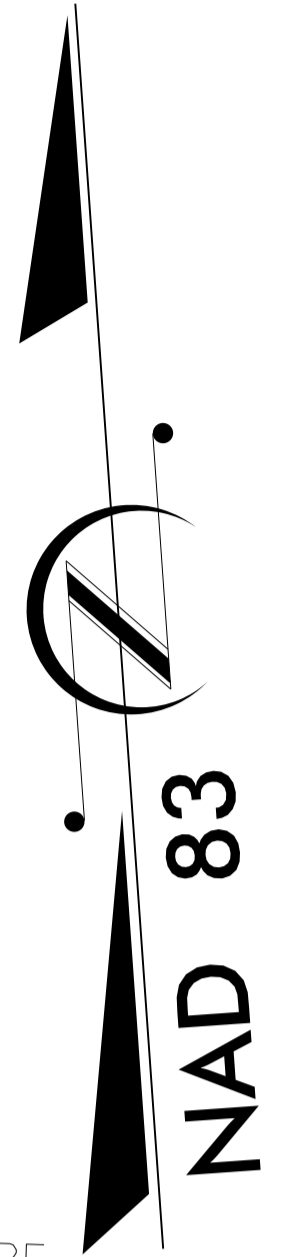


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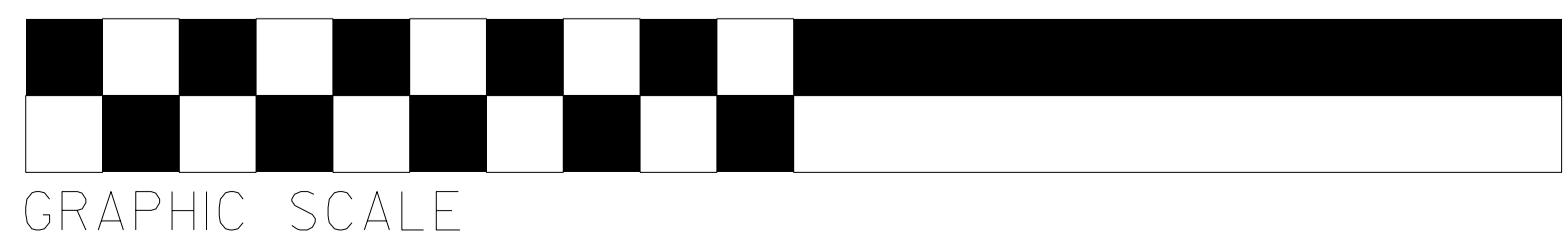
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PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

PERMIT DRAWING
SHEET 4 OF 10

SITE 1



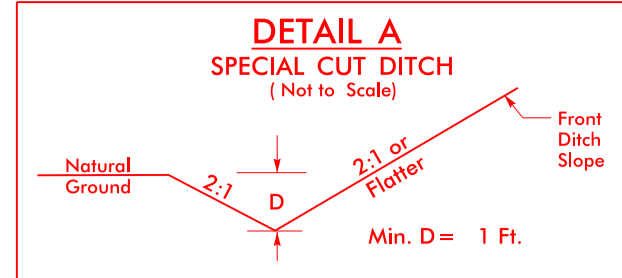
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GRAPHIC SCALE

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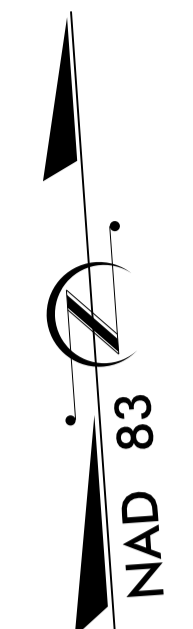
REVISIONS



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 FROM STA. 16+00 TO STA. 17+85 LT -L-
 FROM STA. 13+88 TO STA. 14+83 LT -L-
 FROM STA. 10+25 TO STA. 13+65 LT -DET-
 FROM STA. 10+80 TO STA. 11+87 RT -TEMPDRV-
 FROM STA. 10+60 TO STA. 12+20 RT -DRV-

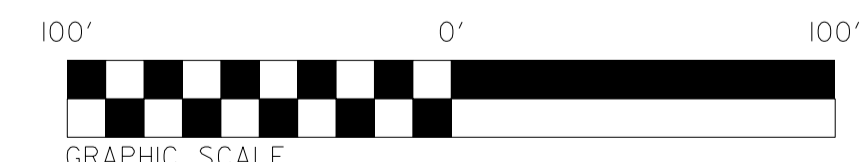
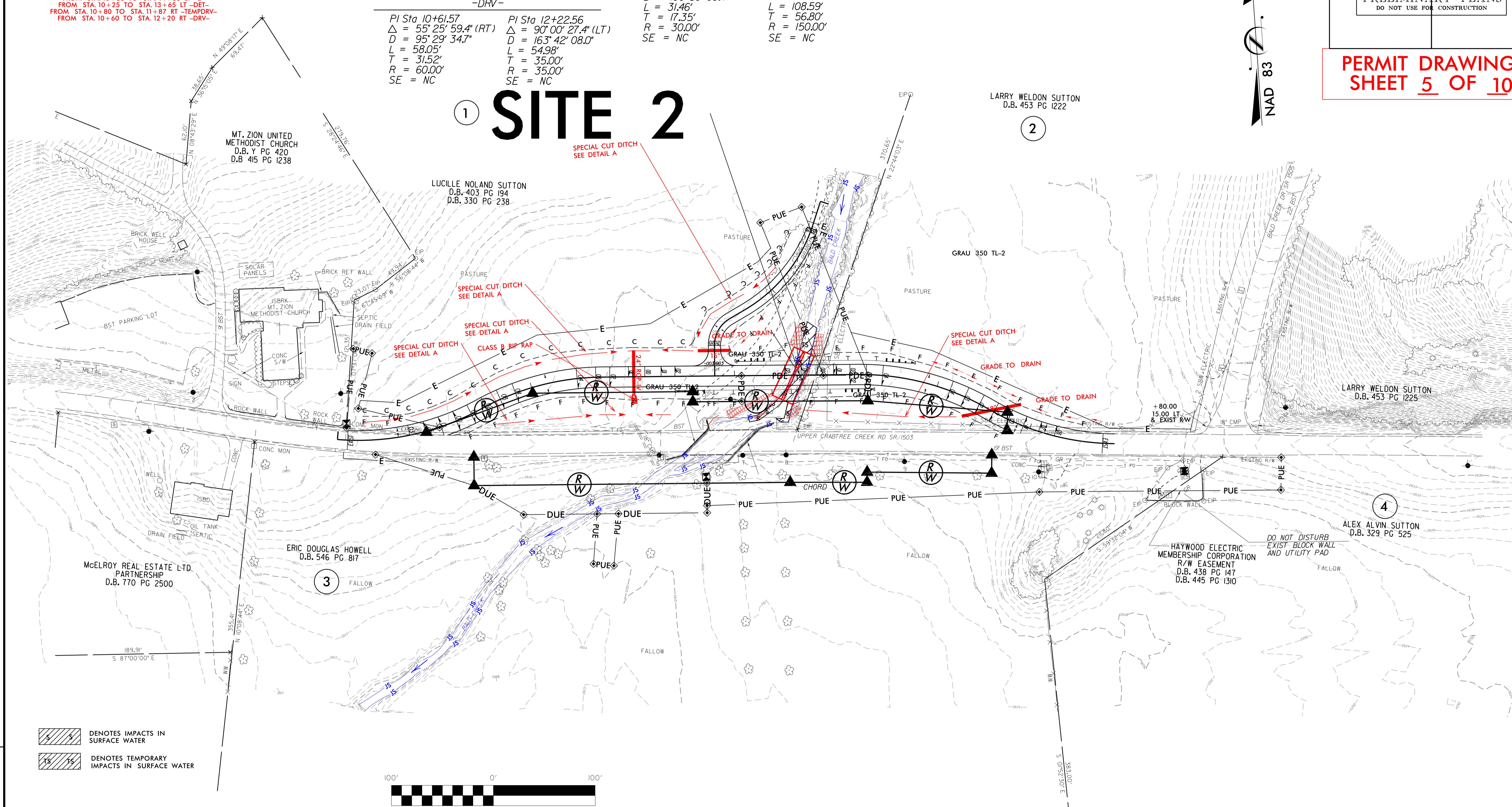
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PERMIT DRAWING
SHEET 5 OF 10



1 SITE 2

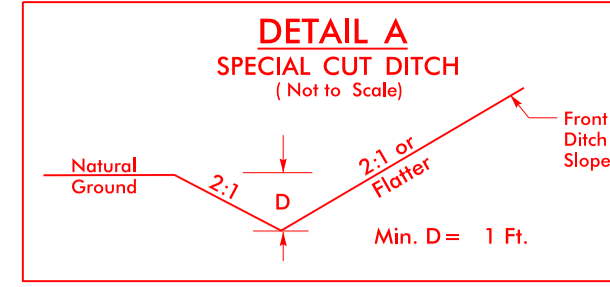
REVISIONS



DENOTES IMPACTS IN SURFACE WATER
 DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PI Sta 10+75.46 $\Delta = 33^\circ 35' 30.3" (LT)$ $D = 22^\circ 55' 05.9"$ $L = 146.57'$ $T = 75.46'$ $R = 250.00'$ $SE = VARIES (SEE PLAN)$ $RO = 64'$	PI Sta 12+09.54 $\Delta = 28^\circ 16' 26.0" (RT)$ $D = 22^\circ 55' 05.9"$ $L = 123.37'$ $T = 62.97'$ $R = 250.00'$ $SE = .04'$ $RO = 64'$	PI Sta 15+89.76 $\Delta = 30^\circ 46' 32.0" (RT)$ $D = 22^\circ 55' 05.9"$ $L = 134.28'$ $T = 68.80'$ $R = 250.00'$ $SE = .04'$ $RO = 64'$	PI Sta 17+21.51 $\Delta = 29^\circ 41' 40.9" (LT)$ $D = 22^\circ 55' 05.9"$ $L = 129.57'$ $T = 66.27'$ $R = 250.00'$ $SE = VARIES (SEE PLAN)$ $RO = 64'$	PI Sta 11+63.00 $\Delta = 9^\circ 36' 45.8" (LT)$ $D = 4^\circ 12' 57.7"$ $L = 228.00'$ $T = 114.27'$ $R = 1,359.00'$	PI Sta 16+24.83 $\Delta = 1^\circ 05' 29.0" (RT)$ $D = 1^\circ 25' 56.6"$ $L = 76.19'$ $T = 38.10'$ $R = 4,000.00'$ $SE = NC$
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FROM STA. 13+00 TO STA. 13+56.50 LT -L-
FROM STA. 16+00 TO STA. 17+85 LT -L-
FROM STA. 13+88 TO STA. 14+83 LT -L-
FROM STA. 10+25 TO STA. 13+65 LT -DET-
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FROM STA. 10+60 TO STA. 12+20 RT -DRV-

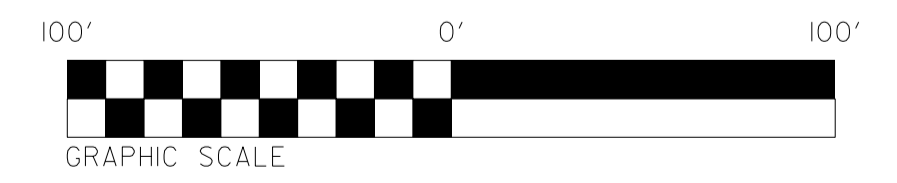
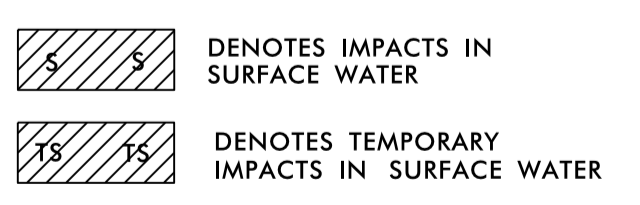
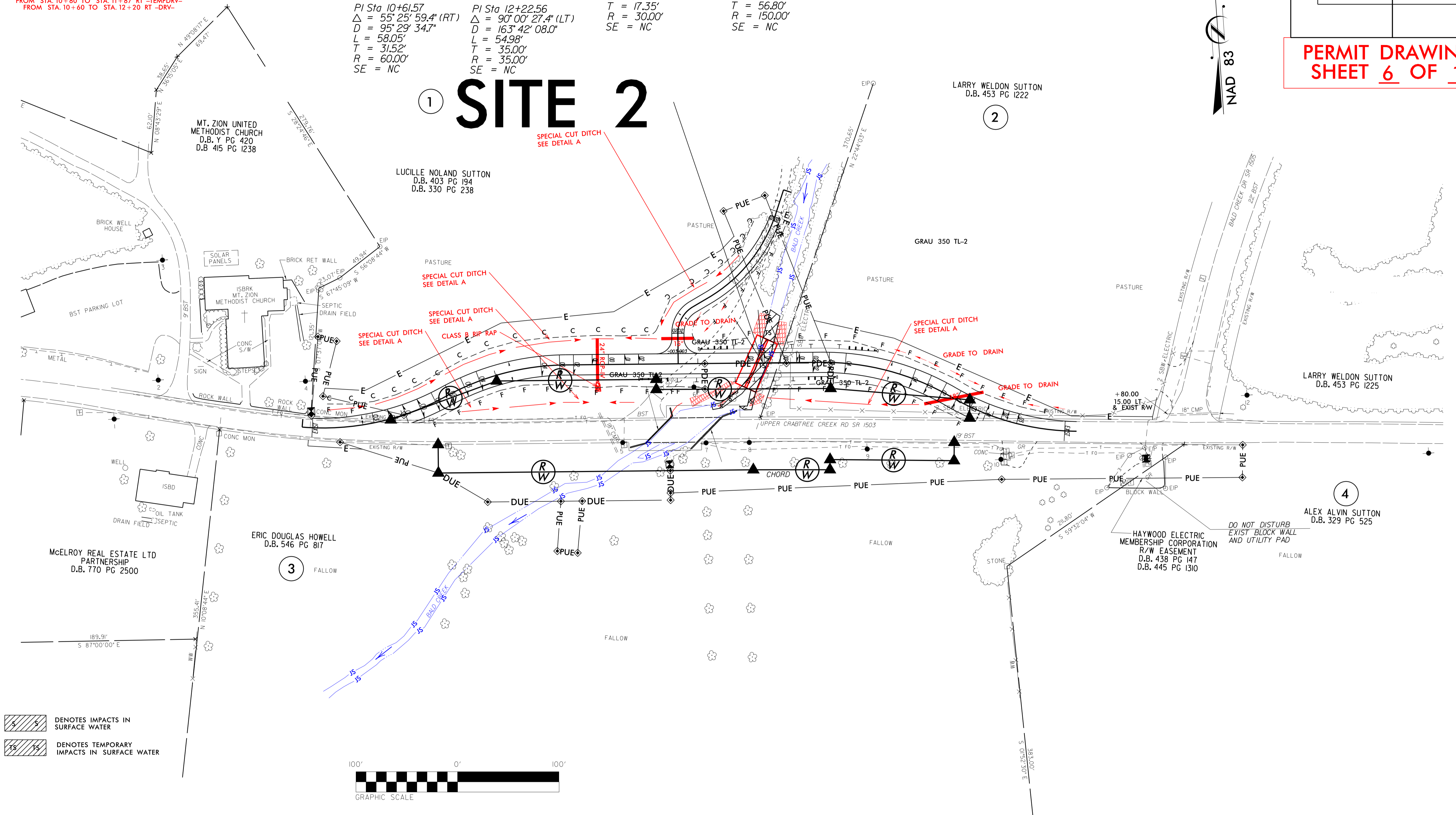
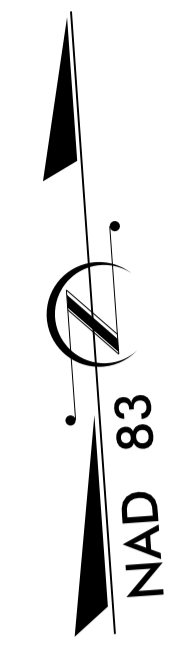
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-DRV-

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L = 58.05'	L = 54.98'
T = 31.52'	T = 35.00'
R = 60.00'	R = 35.00'
SE = NC	SE = NC

PI Sta 11+68.09	PI Sta 10+81.43
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L = 31.46'	L = 108.59'
T = 17.35'	T = 56.80'
R = 30.00'	R = 150.00'
SE = NC	SE = NC

SITE 2



-DET-

-L-

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D = 22' 55' 05.9"	D = 22' 55' 05.9"	D = 22' 55' 05.9"	D = 22' 55' 05.9"	D = 4' 12' 57.7"	D = 1' 25' 56.6"
L = 146.57'	L = 123.37'	L = 134.28'	L = 129.57'	L = 228.00'	L = 76.19'
T = 75.46'	T = 62.97'	T = 68.80'	T = 66.27'	T = 114.27'	T = 38.10'
R = 250.00'	R = 250.00'	R = 250.00'	R = 250.00'	R = 1,359.00'	R = 4,000.00'
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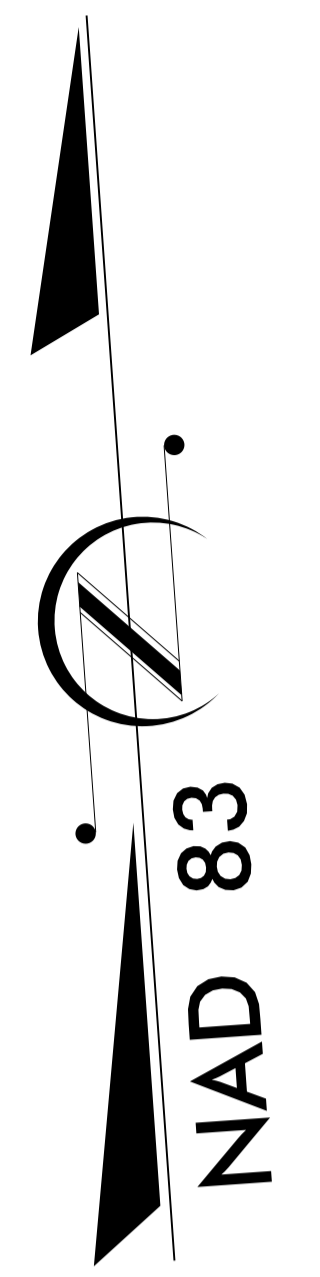
REVISIONS

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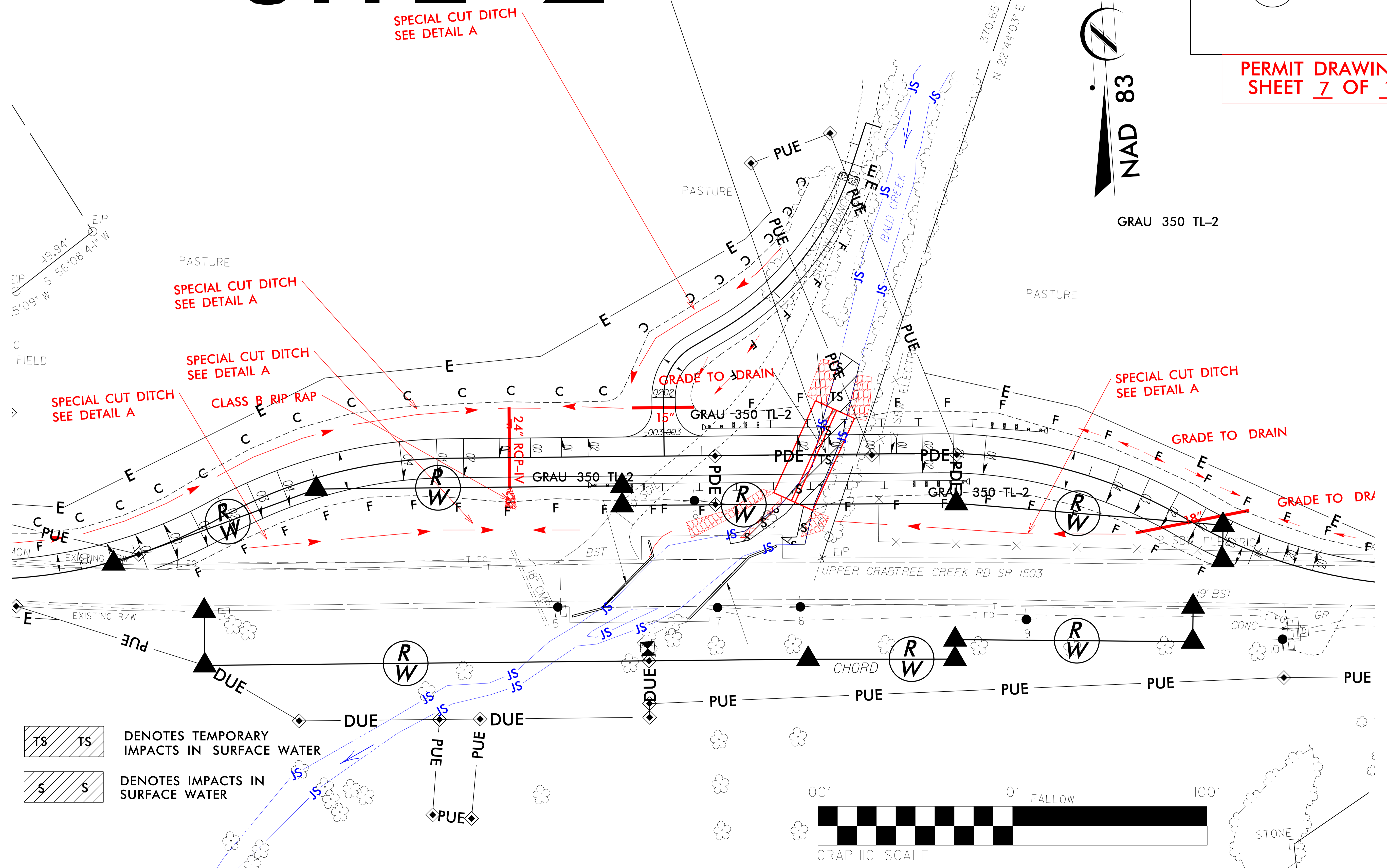
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RW SHEET NO.	
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PERMIT DRAWING
SHEET 7 OF 10

1 SITE 2

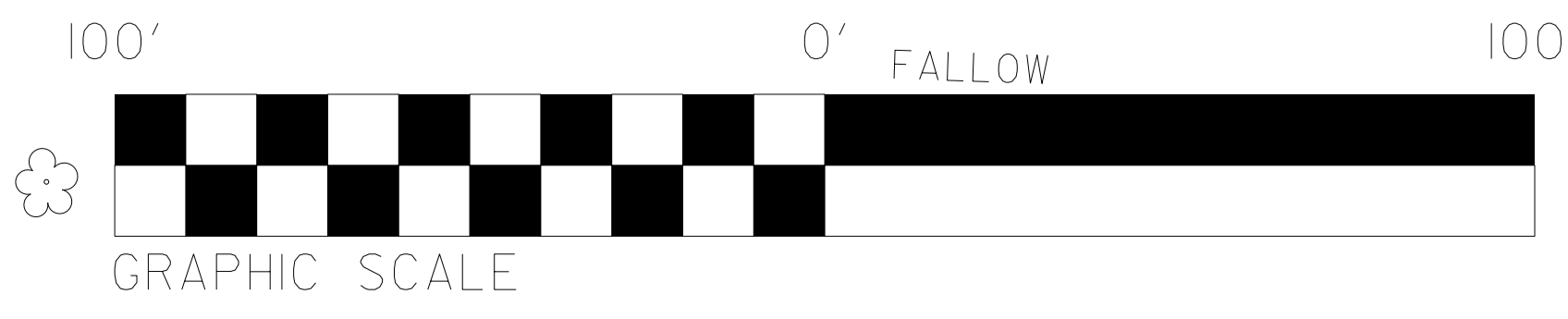


GRAU 350 TL-2



DENOTES TEMPORARY IMPACTS IN SURFACE WATER

DENOTES IMPACTS IN SURFACE WATER



REVISIONS

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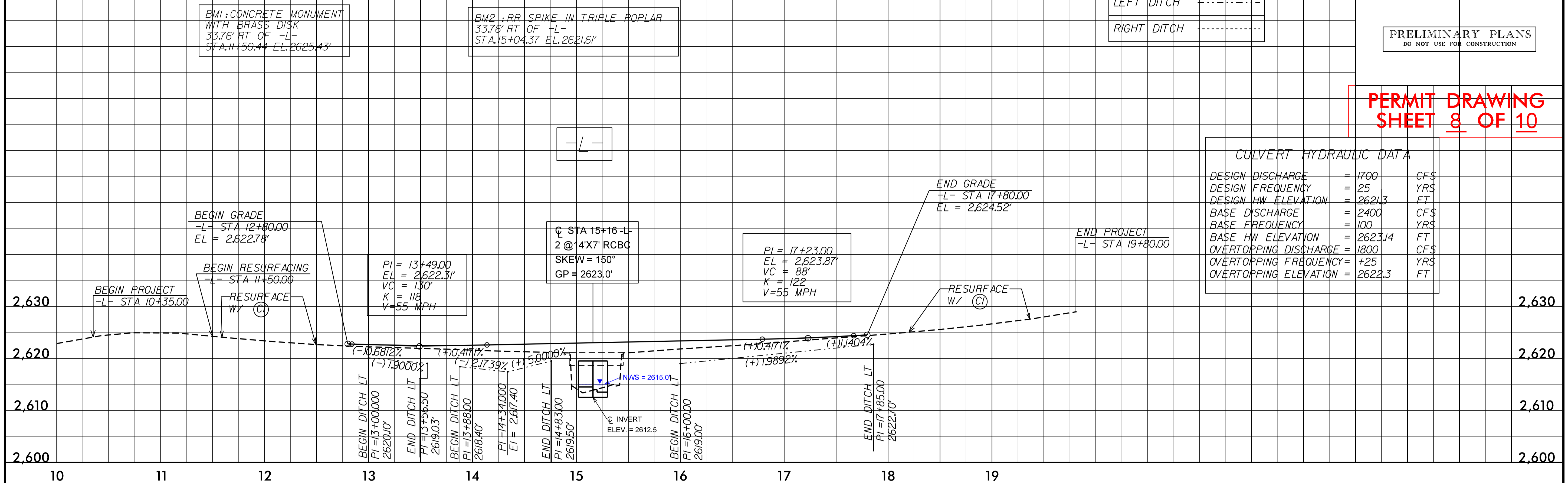
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5/28/99

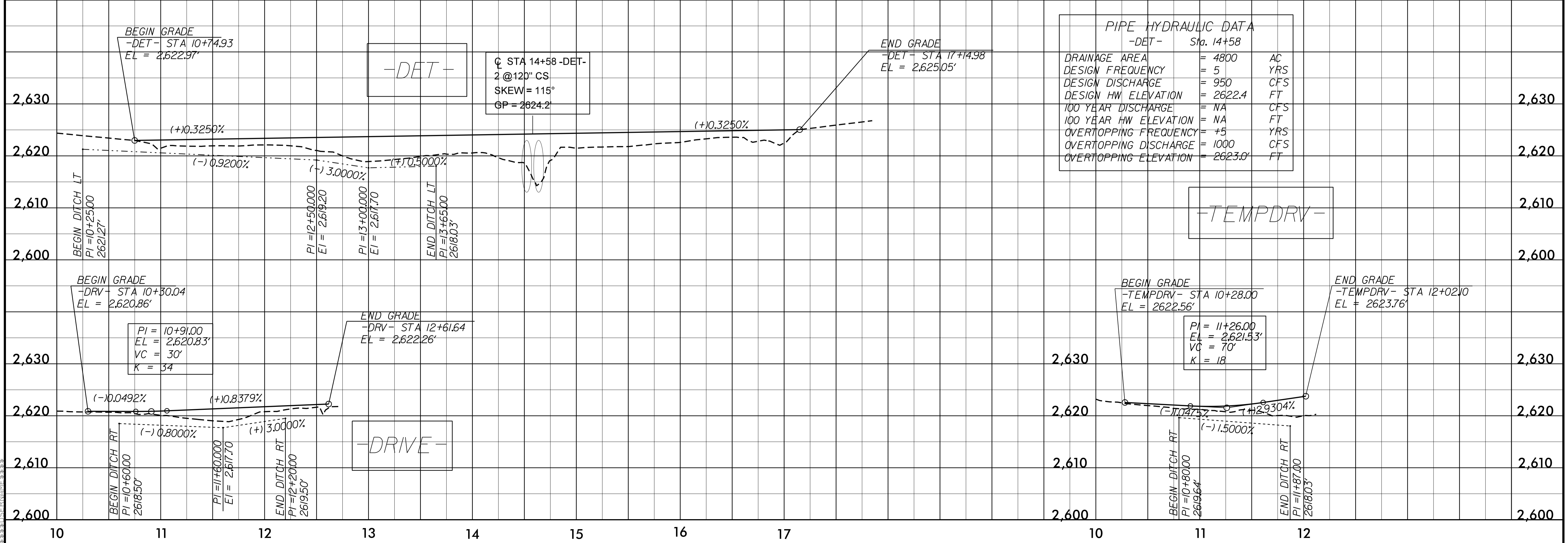
DITCH LEGEND	
LEFT DITCH	-----
RIGHT DITCH	-----

PERMIT DRAWING SHEET 8 OF 10

CULVERT HYDRAULIC DATA		
DESIGN DISCHARGE	= 1700	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 2621.3	FT
BASE DISCHARGE	= 2400	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 2623.4	FT
OVERTOPPING DISCHARGE	= 1800	CFS
OVERTOPPING FREQUENCY	= +25	YRS
OVERTOPPING ELEVATION	= 2622.3	FT



PIPE HYDRAULIC DATA		
-DET- Sta. 14+58		
DRAINAGE AREA	= 4800	AC
DESIGN FREQUENCY	= 5	YRS
DESIGN DISCHARGE	= 950	CFS
DESIGN HW ELEVATION	= 2622.4	FT
100 YEAR DISCHARGE	= NA	CFS
100 YEAR HW ELEVATION	= NA	FT
OVERTOPPING FREQUENCY	= +5	YRS
OVERTOPPING DISCHARGE	= 1000	CFS
OVERTOPPING ELEVATION	= 2623.0	FT



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WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS					SURFACE WATER IMPACTS				
			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	14+65 to 15+70 -L- RT	Stream Alignment						<0.01		49	5	
1	15+16 -L-	2 @ 14'x7' RCBC								97		
1	14+65 to 15+70 -L- LT	Bank Stabilization								40		
*2	14+45 to 14+75 -DET-	Temp. Channel Work						<0.01			28	
2	14+60 -DET-	2 @ 114" CS						0.01			52	
TOTALS:								0.02		186	85	

* Temp. Channel Work at 14+45 to 14+75 -Det- (Approximately 42') overlaps Bank Stabilization at 14+65 to 15+70 -L-

Bridge to Culvert Avoidance and Minimization Summary

Project B-4763 Haywood County

Proposed Structure Summary

Drainage Area-7.5 sq. miles

DWQ Stream Classification- C;Tr

Culvert Size and Type- 2@ 14' x 7' Reinforced Concrete Box Culvert

Culvert Length- 95'

Minimization Efforts-*The proposed culvert will be buried 1 ft. with alternating 10 ft. wide by 0.5 ft. high low flow sills for fish passage. The culvert maintains the existing stream slope, low flow channel dimensions, low flow velocities and provides a smooth transition from upstream to downstream with no sharp bends at the inlet or outlet.*

Stream Slope

Existing average stream slope = 1.2%

Proposed culvert slope =1.2%,

Fish and/or Aquatic life Passage

Existing low flow channel dimensions in the stream- *The existing low flow channel width up and downstream of the culvert is approximately 8-12 ft. with an average depth of 1.0 ft. The existing 50' bridge creates a split channel which lowers the normal depth (avg=0.8', max=1.2') and velocity (2.1 ft/s) through the bridge. Constructing a low flow channel with the proposed culvert mimics the typical natural stream section, for normal width and depth, versus the existing bridge (or a proposed bridge).*

Proposed low flow dimensions through the culvert- *culvert will have alternating low flow sills to facilitate fish passage. The low flow sills will provide a 10 ft. wide by 1.0 ft. deep low flow in the culvert.*

Existing low flow velocities in the stream- *existing low flow (normal) velocity = 2.1 ft/sec*

Proposed low flow velocities through the culvert- *proposed low flow (normal) velocity through culvert = 4.3 ft/sec*

Alternating low flow sills and/or baffles- *culvert will have alternating low flow sills to facilitate fish passage since the proposed total culvert width is larger than the existing low flow channel width.*

Culvert Burial

Existing streambed material- *cobbles, gravel and sand*

Proposed culvert burial-*1 foot*

Proposed sills and or baffles- *Alternating low flow sills will be used. The low flow sills will be spaced approximately 35 ft. apart, 0.5 ft. high and provide a 10 ft. wide low flow channel. Normal water flow depth will be 1.0' in the culvert. Culvert slope of 1.2% does not necessitate the use of baffles to hold bed material but they are being used to provide low flow channel through culvert.*

Culvert/Stream Alignment

Stream patterns upstream and downstream of the culvert that could affect fish passage and bank stability- *The stream channel has a bend at the inlet of the culvert but the skew of the culvert and the position of the low flow channel will provide aquatic passage. The stream slope is constant through the reach of the stream up and downstream of where the culvert will be placed.*

Bed forms impacted by culvert (riffles, pools glides etc.)- *There is a pool located at the upstream face of the bridge that transitions through the bridge to a riffle section downstream of the bridge. The culvert will be placed in this glide riffle section.*

Establishment of a low flow floodplain bench- *low flow floodplain bench is provided in the second barrel in order to provide a comparable flow area under existing bridge.*

Culvert alignment with stream- *culvert provides a smooth transition from the upstream to downstream with no sharp bends at entrance and outlet.*

Stream realignment necessary- *no*

Sharp bends at entrance and outlet-*no*

Bank stabilization- *Class I rip rap on banks only*

Outlet Velocities

Natural stream channel 2yr velocity-*6.4 ft/sec*

Proposed Culvert 2yr outlet velocity-*6.9 ft/sec*

Existing Bridge 2yr Velocity =*3.9 ft/s*

Natural stream channel 10yr velocity-*8.4 ft/sec*

Proposed Culvert 10yr outlet velocity-*10.8 ft/sec*

Existing Bridge 10yr Velocity =*7.7 ft/s*

Roadway Geometric Considerations

Evaluate/describe roadway geometric constraints-*N/A*

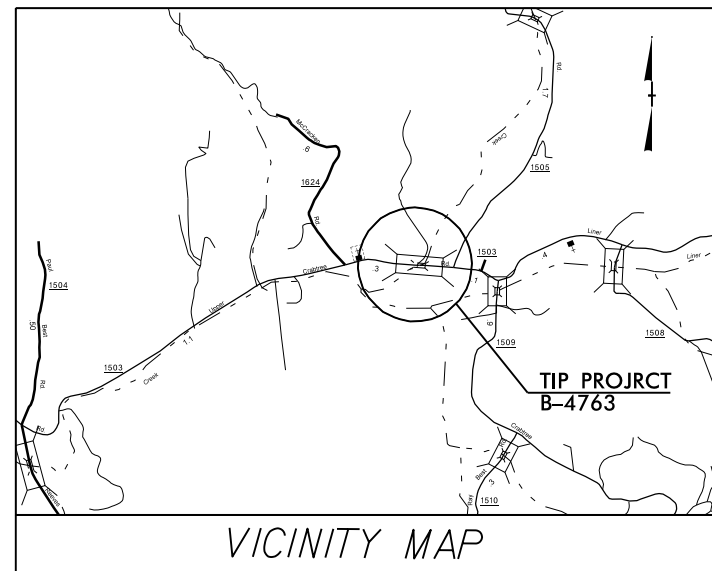
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

HAYWOOD COUNTY

LOCATION: BRIDGE NO. 35 OVER BALD CREEK
ON SR 1503 (UPPER CRABTREE CREEK RD)

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND CULVERT

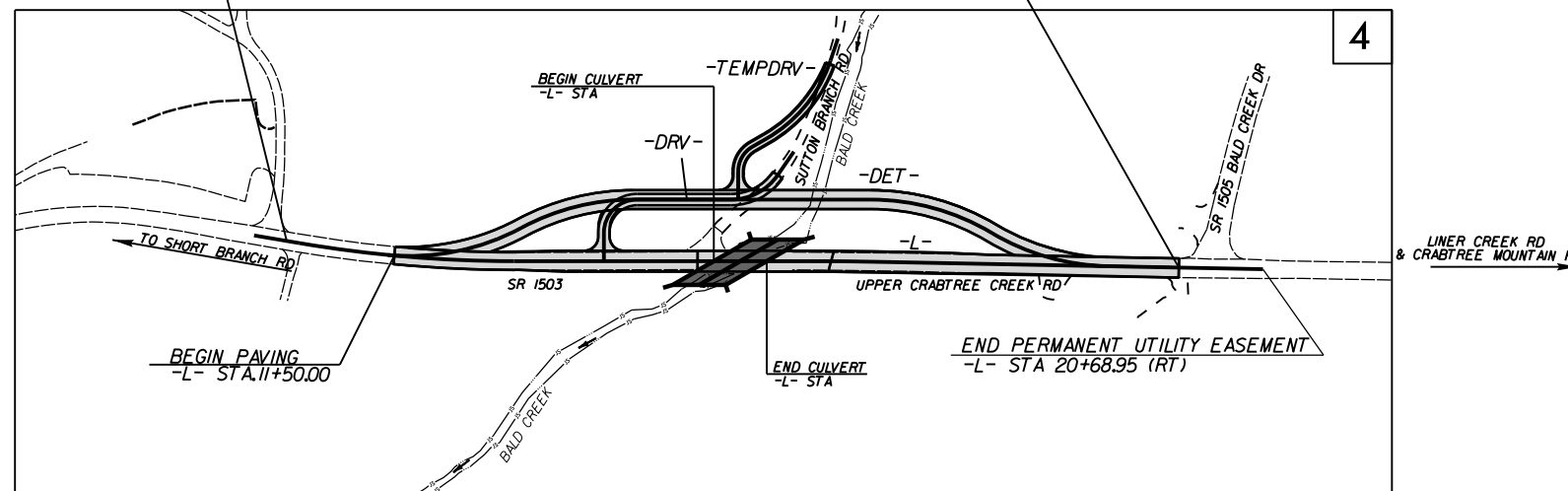
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4763	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
38535.1.1	BRZ-1503(8)	PE	



CONTRACT: TIP PROJECT: B-4763

BEGIN TIP PROJECT B-4763
-L- STA.10+35.00

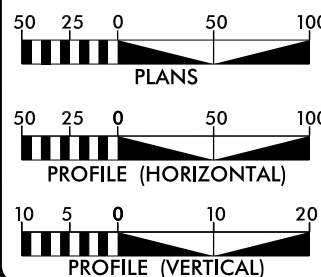
END TIP PROJECT B-4763
-L- STA.19+80.00



THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES



DESIGN DATA

ADT 2012 = 1320
ADT 2035 = 2200
DHV = 9 %
D = 70 %
T = 8 % *
V = 50 MPH
* TTST = 1% DUAL 7%
FUNC CLASS =
RURAL, MINOR COLLECTOR
SUB REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4763 = 0.179 MILES
TOTAL LENGTH TIP PROJECT B-4763 = 0.179 MILES

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
MARCH 25, 2013

LETTING DATE:
MARCH 18, 2014

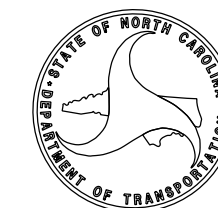
JAMES A. SPEER, PE
PROJECT ENGINEER

ALLISON K. WHITE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.
ROADWAY DESIGN ENGINEER

SIGNATURE: _____ P.E.



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale

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

04/16/11

BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○ EP
Property Corner	-----
Property Monument	□ ECM
Parcel/Sequence Number	②③
Existing Fence Line	-x-x-x-
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	-----
False Sump	-----

RAILROADS:

Standard Gauge	-----
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 RW Marker	-----
Proposed Control of Access Line with Concrete C/A 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	-----

EXISTING STRUCTURES:

MAJOR:	
Bridge, Tunnel or Box Culvert	-----
Bridge Wing Wall, Head Wall and End Wall	-----
MINOR:	
Head and End Wall	-----
Pipe Culvert	-----
Footbridge	-----
Drainage Box: Catch Basin, DI or JB	□ CB
Paved Ditch Gutter	-----
Storm Sewer Manhole	⊕
Storm Sewer	-----

UTILITIES:

POWER:	
Existing Power Pole	●
Proposed Power Pole	○
Existing Joint Use Pole	●
Proposed Joint Use Pole	○
Power Manhole	⊕
Power Line Tower	⊗
Power Transformer	⊗
U/G Power Cable Hand Hole	□
H-Frame Pole	●
Recorded U/G Power Line	-----
Designated U/G Power Line (S.U.E.*)	-----

TELEPHONE:

Existing Telephone Pole	●
Proposed Telephone Pole	○
Telephone Manhole	⊕
Telephone Booth	□
Telephone Pedestal	□
Telephone Cell Tower	⊗
U/G Telephone Cable Hand Hole	□
Recorded U/G Telephone Cable	-----
Designated U/G Telephone Cable (S.U.E.*)	-----
Recorded U/G Telephone Conduit	-----
Designated U/G Telephone Conduit (S.U.E.*)	-----
Recorded U/G Fiber Optics Cable	-----
Designated U/G Fiber Optics Cable (S.U.E.*)	-----

WATER:

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

TV:

TV Satellite Dish	☼
TV Pedestal	□
TV Tower	⊗
U/G TV Cable Hand Hole	□
Recorded U/G TV Cable	-----
Designated U/G TV Cable (S.U.E.*)	-----
Recorded U/G Fiber Optic Cable	-----
Designated U/G Fiber Optic Cable (S.U.E.*)	-----

GAS:

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

SANITARY SEWER:

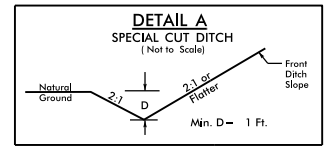
Sanitary Sewer Manhole	⊕
Sanitary Sewer Cleanout	⊕
U/G Sanitary Sewer Line	-----
Above Ground Sanitary Sewer	----- A/G Sanitary Sewer
Recorded SS Forced Main Line	-----
Designated SS Forced Main Line (S.U.E.*)	-----

MISCELLANEOUS:

Utility Pole	●
Utility Pole with Base	□
Utility Located Object	○
Utility Traffic Signal Box	□
Utility Unknown U/G Line	-----
U/G Tank; Water, Gas, Oil	□
Underground Storage Tank, Approx. Loc.	⊕
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.

SEE SHEET 5 FOR DETOUR
SEE SHEET 6 FOR PROFILE

BEGIN TIP PROJECT B-4763
-L- STA. 10+35.00



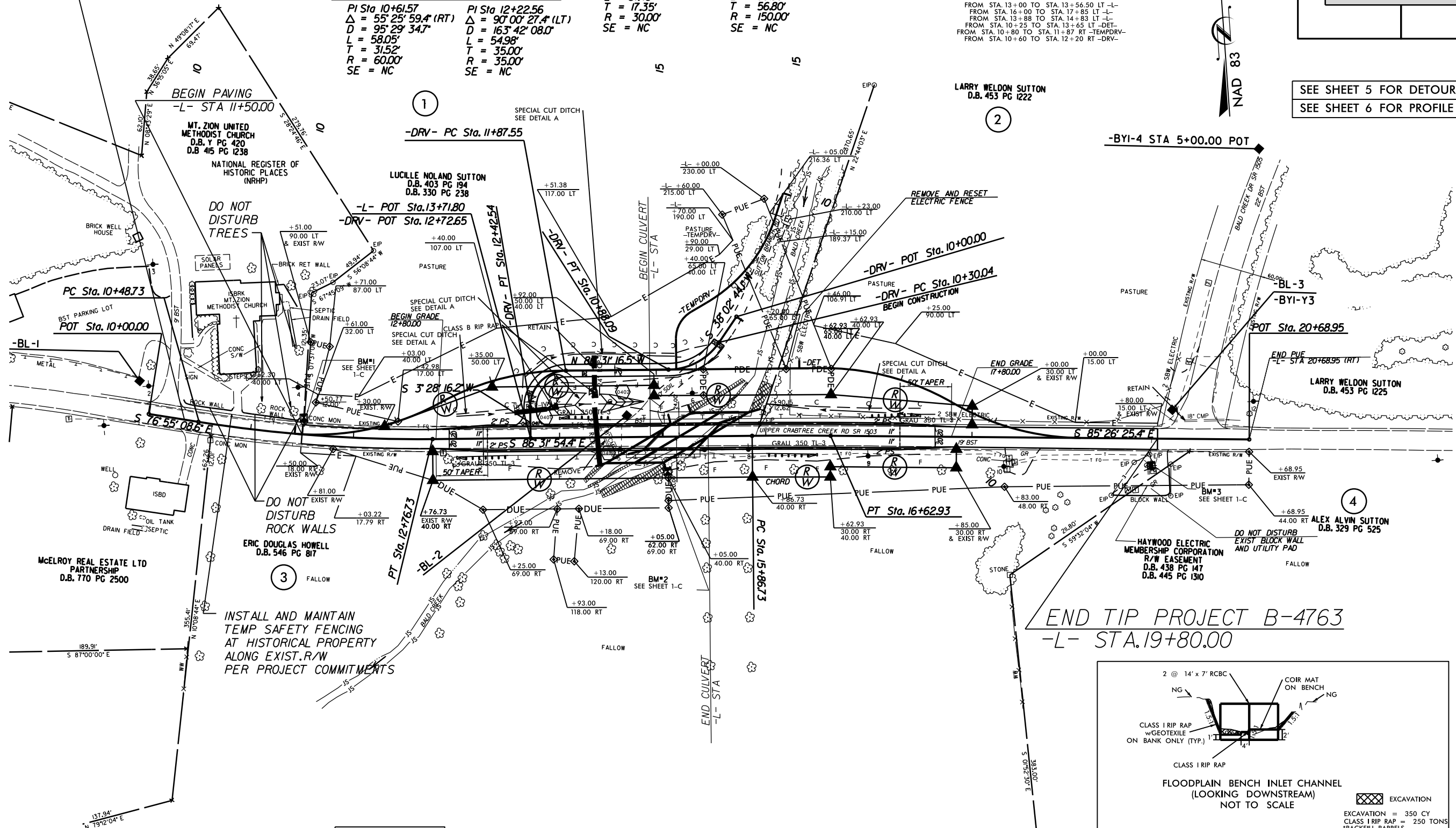
FROM STA. 13+00 TO STA. 13+56.50 LT -L-
FROM STA. 13+00 TO STA. 17+85 LT -L-
FROM STA. 13+88 TO STA. 14+83 LT -L-
FROM STA. 10+25 TO STA. 13+65 LT -DET-
FROM STA. 10+80 TO STA. 11+87 RT -TEMPDRY-
FROM STA. 10+60 TO STA. 12+20 RT -DRV-

PI Sta 11+68.09
Δ = 60° 05' 11.6" (LT)
D = 190' 59' 09.4"
L = 31.46'
T = 17.35'
R = 30.00'
SE = NC

PI Sta 10+81.43
Δ = 41° 28' 45.2" (RT)
D = 38' 11' 49.9"
L = 108.59'
T = 56.80'
R = 150.00'
SE = NC

PI Sta 10+61.57
Δ = 55° 25' 59.4" (RT)
D = 95' 29' 34.7"
L = 58.05'
T = 31.52'
R = 60.00'
SE = NC

PI Sta 12+22.56
Δ = 90° 00' 27.4" (LT)
D = 163' 42' 08.0"
L = 54.98'
T = 35.00'
R = 35.00'
SE = NC



PI Sta 10+75.46
Δ = 33° 35' 30.3" (LT)
D = 22' 55' 05.9"
L = 146.57'
T = 75.46'
R = 250.00'

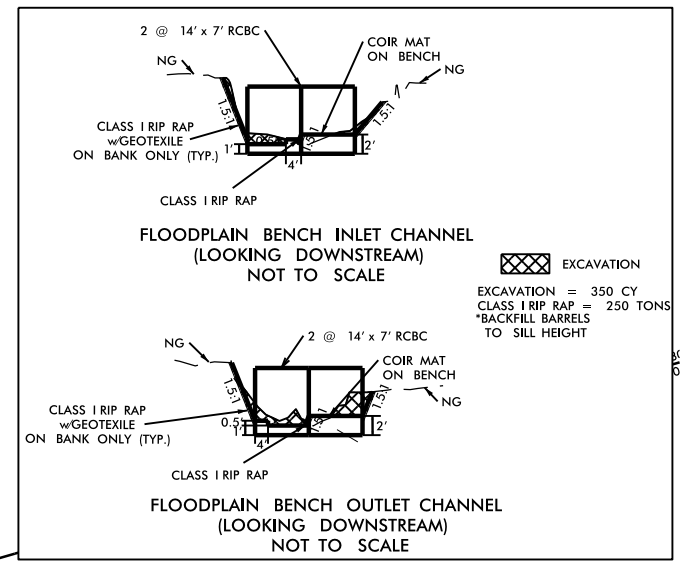
PI Sta 12+09.54
Δ = 28° 16' 26.0" (RT)
D = 22' 55' 05.9"
L = 123.37'
T = 62.97'
R = 250.00'

PI Sta 15+89.76
Δ = 30° 46' 32.0" (RT)
D = 22' 55' 05.9"
L = 134.28'
T = 68.80'
R = 250.00'

PI Sta 17+21.51
Δ = 29° 41' 40.9" (LT)
D = 22' 55' 05.9"
L = 129.57'
T = 66.27'
R = 250.00'

PI Sta 11+63.00
Δ = 9° 36' 45.8" (LT)
D = 4' 12' 57.7"
L = 228.00'
T = 114.27'
R = 1,359.00'

PI Sta 16+24.83
Δ = 1° 05' 29.0" (RT)
D = 1' 25' 56.6"
L = 76.19'
T = 38.10'
R = 4,000.00'
SE = NC



-DET- V_{DETOUR} = 30 MPH

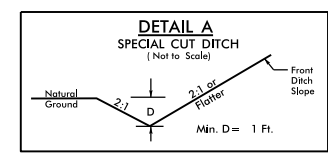
END TIP PROJECT B-4763
-L- STA. 19+80.00

REVISIONS

8/17/99

25-MAR-2013 10:39
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SEE SHEET 6 FOR PROFILE



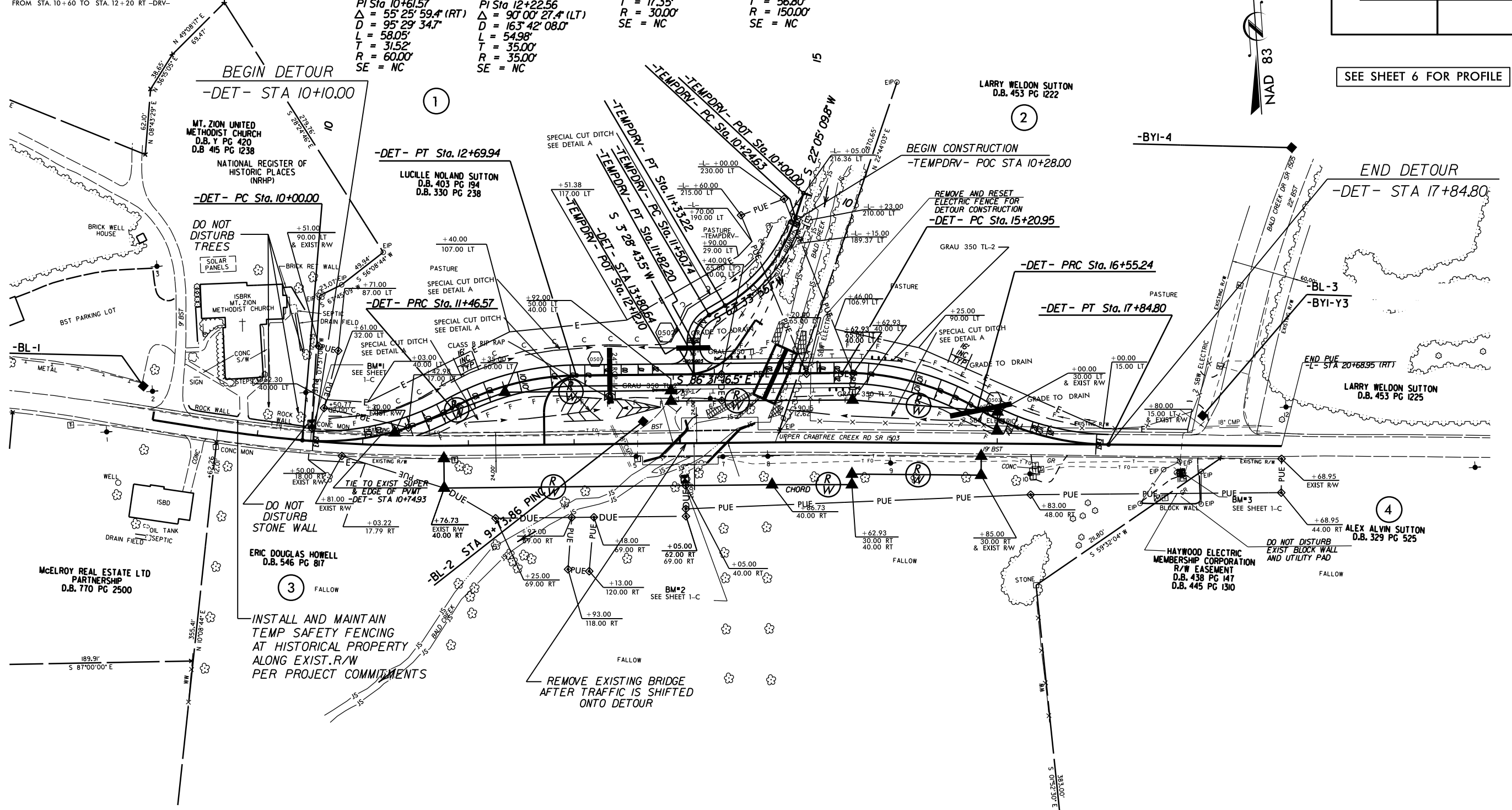
FROM STA. 13+00 TO STA. 13+56.50 LT -L-
FROM STA. 16+00 TO STA. 17+85 LT -L-
FROM STA. 13+88 TO STA. 14+83 LT -L-
FROM STA. 10+25 TO STA. 13+65 LT -DET-
FROM STA. 10+80 TO STA. 11+87 RT -TEMPDRV-
FROM STA. 10+60 TO STA. 12+20 RT -DRV-

-TEMPDRV-

PI Sta 11+68.09 Δ = 60° 05' 11.6" (LT) D = 190' 59' 09.4" L = 31.46' T = 17.35' R = 30.00' SE = NC	PI Sta 10+81.43 Δ = 41° 28' 45.2" (RT) D = 38' 11' 49.9" L = 108.59' T = 56.80' R = 150.00' SE = NC
--	---

-DRV-

PI Sta 10+61.57 Δ = 55° 25' 59.4" (RT) D = 95° 29' 34.7" L = 58.05' T = 31.52' R = 60.00' SE = NC	PI Sta 12+22.56 Δ = 90° 00' 27.4" (LT) D = 163° 42' 08.0" L = 54.98' T = 35.00' R = 35.00' SE = NC
---	--



V_{DETOUR} = 30 MPH

PI Sta 10+75.46 Δ = 33° 35' 30.3" (LT) D = 22° 55' 05.9" L = 146.57' T = 75.46' R = 250.00' SE = VARIES (SEE PLAN) RO = 64'	PI Sta 12+09.54 Δ = 28° 16' 26.0" (RT) D = 22° 55' 05.9" L = 123.37' T = 62.97' R = 250.00' SE = .04% RO = 64'	PI Sta 15+89.76 Δ = 30° 46' 32.0" (RT) D = 22° 55' 05.9" L = 134.28' T = 68.80' R = 250.00' SE = .04% RO = 64'	PI Sta 17+21.51 Δ = 29° 41' 40.9" (LT) D = 22° 55' 05.9" L = 129.57' T = 66.27' R = 250.00' SE = VARIES (SEE PLAN) RO = 64'	PI Sta 11+63.00 Δ = 9° 36' 45.8" (LT) D = 4' 12' 57.7" L = 228.00' T = 114.27' R = 1,359.00'	PI Sta 16+24.83 Δ = 1° 05' 29.0" (RT) D = 1° 25' 56.6" L = 76.19' T = 38.10' R = 4,000.00' SE = NC
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REVISIONS

8/17/99

25-MAR-2013 10:39 R:\Roadway\Proj\B-4763_Rdwy_DET_psh5.dgn