



Pre-Construction Notification (PCN) Form

For Nationwide Permits and Regional General Permits

(along with corresponding Water Quality Certifications)

December 15, 2017 Ver 2.2

*Please note: fields marked with a red asterisk * below are required. You will not be able to submit the form until all mandatory questions are answered.*

Also, if at any point you wish to print a copy of the E-PCN, all you need to do is right-click on the document and you can print a copy of the form.

Below is a link to the online help file.

<http://edocs.deq.nc.gov/WaterResources/0/doc/603610/Page1.aspx>

A. Processing Information

County (or Counties) where the project is located: *

Wake

Is this project a public transportation project? * (?)

Yes No

Is this a NCDOT Project? *

Yes No

(NCDOT only) T.I.P. or state project number:

B-5237

WBS #

42838.1.1

(for NCDOT use only)

1a. Type(s) of approval sought from the Corps: *

- Section 404 Permit (wetlands, streams and waters, Clean Water Act)
 Section 10 Permit (navigable waters, tidal waters, Rivers and Harbors Act)

1b. What type(s) of permit(s) do you wish to seek authorization? *

- Nationwide Permit (NWP)
 Regional General Permit (RGP)

Nationwide Permit (NWP) Number:

13 - Bank Stabilization

NWP Number Other:

List all NW numbers you are applying for not on the drop down list.

1c. Type(s) of approval sought from the DWR: *

check all that apply

- 401 Water Quality Certification - Regular
 Non-404 Jurisdictional General Permit
 401 Water Quality Certification - Express
 Riparian Buffer Authorization
-

1d. Is this notification solely for the record because written approval is not required? *

For the record only for DWR 401 Certification:

Yes No

For the record only for Corps Permit:

Yes No

1e. 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

1f. Is the project located in any of NC's twenty coastal counties? *

Yes No

1h. Is the project located in a designated trout watershed? *

Yes No

Link to trout information: <http://www.saw.usace.army.mil/Missions/Regulatory-Permit-Program/Agency-Coordination/Trout.aspx>

B. Applicant Information

1a. Who is the Primary Contact? *

NCDOT

1b. Primary Contact Email: *

driffey@ncdot.gov

1c. Primary Contact Phone: *

(xxx)xxx-xxxx

(919)707-6151

1d. Who is applying for the permit?

Owner Applicant (other than owner) Agent/Consultant
(Check all that apply)

2. Owner Information

2a. Name(s) on recorded deed:

2b. Deed book and page no.:

2c. Responsible party:

(for Corporations)

2d. Address

Street Address

Address Line 2

City

State / Province / Region

Postal / Zip Code

Country

2e. Telephone Number:

(xxx)xxx-xxxx

2f. Fax Number:

(xxx)xxx-xxxx

2g. Email Address: *

pharris@ncdot.gov

C. Project Information and Prior Project History

1. Project Information

1a. Name of project: *

B-5237 Bridge No. 248 on SR 2703 (New Bethel Church Rd) over Mahler's Creek

1b. Subdivision name:

(if appropriate)

1c. Nearest municipality / town: *

Garner

1d. Driving directions *

If it is a new project and can not easily be found in a GPS mapping system. Please provide directions.

35.662939, -78.599707

2. Project Identification

2a. Property Identification Number:

(tax PIN or parcel ID)

2b. Property size:

(in acres)

2c. Project Address

Street Address

Address Line 2

City

State / Province / Region

Postal / Zip Code

Country

2d. Site coordinates in decimal degrees

Please collect site coordinates in decimal degrees. Use between 4-6 digits (unless you are using a survey-grade GPS device) after the decimal place as appropriate, based on how the location was determined. (For example, most mobile phones with GPS provide locational precision in decimal degrees to map coordinates to 5 or 6 digits after the decimal place.)

Latitude: *

35.662939

ex: 34.208504

Longitude: *

-78.599707

-77.796371

3. Surface Waters

3a. Name of the nearest body of water to proposed project: *

Mahler's Creek

3b. Water Resources Classification of nearest receiving water: *

C;NSW

[Surface Water Lookup](#)

3c. What river basin(s) is your project located in? *

Neuse

4. Project Description

4a. 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 within the vicinity is agricultural, residential, and forestland.

4b. Attach an 8 1/2 X 11 excerpt from the most recent version of the USGS topographic map indicating the location of the project site. (for DWR)

Click the upload button or drag and drop files here to attach document

File type must be pdf

4c. Attach an 8 1/2 X 11 excerpt from the most recent version of the published County NRCS Soil Survey map depicting the project site. (for DWR)

Click the upload button or drag and drop files here to attach document

File type must be pdf

4d. List the total estimated acreage of all existing wetlands on the property:

0

4e. List the total estimated linear feet of all existing streams on the property:

(intermittent and perennial)

153 ft

4f. Explain the purpose of the proposed project: *

Bridge replacement

4g. Describe the overall project in detail, including indirect impacts and the type of equipment to be used: *

The project involves replacement of existing Bridge No.248, a 50-foot long three span bridge with a single span 85-foot long bridge. The new bridge will have two 11-foot travel lanes with 4-foot lanes to accommodate bikes and curb and gutter. The new bridge will be placed on the same alignment as the existing bridge. A temporary on-site detour bridge will be used during construction. Standard road building equipment, such as trucks, bulldozers, and cranes will be used.

4h. Please upload project drawings for the proposed project.

Click the upload button or drag and drop files here to attach document

B-5237 Permit Drawings 2017-12-27_print.pdf

3.01MB

B5237_RDY_PLAN.pdf

3.84MB

File type must be pdf

5. Jurisdictional Determinations

5a. Have the wetlands or streams been delineated on the property or proposed impact areas? *

Yes

No

Unknown

Comments:

5b. If the Corps made a jurisdictional determination, what type of determination was made? *

Preliminary

Approved

Unknown

N/A

Corps AID Number:

Example: SAW-2017-99999

SAW-2011-00047

5c. If 5a is yes, who delineated the jurisdictional areas?

Name (if known):

James Pflaum

Agency/Consultant Company:

NCDOT

5c. If 5a is yes, who delineated the jurisdictional areas?

Other:

5d. If yes, list the dates of the Corps jurisdictional determinations or State determinations and attach documentation.

December 5, 2011

5d1. Jurisdictional determination upload

Click the upload button or drag and drop files here to attach document

PrelimJD_reduced.pdf

1.67MB

File type must be PDF

6. Project History

6a. Have permits or certifications been requested or obtained for this project (including all prior phases) in the past? *

Yes

No

Unknown

7. Future Project Plans

7a. Is this a phased project? *

Yes

No

Are any other NWP(s), regional general permit(s), or individual permits(s) used, or intended to be used, to authorize any part of the proposed project or related activity? This includes other separate and distant crossing for linear projects that require Department of the Army authorization but don't require pre-construction notification.

D. Proposed Impacts Inventory

1. Impacts Summary

1a. Where are the impacts associated with your project? (check all that apply):

Wetlands

Streams-tributaries

Buffers

Open Waters

Pond Construction

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. Site # - Reason for impact *	3b. Impact type *	3c. Type of impact *	3d. Stream name *	3e. Stream Type *	3f. Type of Jurisdiction *	3g. Stream width *	3h. Impact length *
Site 1 - Bridge <small>Map label (e.g. Road Crossing 1)</small>	P <small>Permanent (P) or Temporary (T)</small>	Bank Stabilization	Mahler's Creek	Perennial <small>Perennial (PER) or intermittent (INT)</small>	Both	14 <small>Average (feet)</small>	91 <small>(linear feet)</small>
Site 1 - Bridge <small>Map label (e.g. Road Crossing 1)</small>	T <small>Permanent (P) or Temporary (T)</small>	Bank Stabilization	Mahler's Creek	Perennial <small>Perennial (PER) or intermittent (INT)</small>	Both	14 <small>Average (feet)</small>	10 <small>(linear feet)</small>
Site 1 - Detour <small>Map label (e.g. Road Crossing 1)</small>	P <small>Permanent (P) or Temporary (T)</small>	Bank Stabilization	Mahler's Creek	Perennial <small>Perennial (PER) or intermittent (INT)</small>	Both	14 <small>Average (feet)</small>	36 <small>(linear feet)</small>
Site 1 - Detour <small>Map label (e.g. Road Crossing 1)</small>	T <small>Permanent (P) or Temporary (T)</small>	Bank Stabilization	Mahler's Creek	Perennial <small>Perennial (PER) or intermittent (INT)</small>	Both	14 <small>Average (feet)</small>	27 <small>(linear feet)</small>

** All Perennial or Intermittent streams must be verified by DWR or delegated local government.

3i. Total jurisdictional ditch impact in square feet:

0

3i. Total permanent stream impacts:

127

3i. Total temporary stream impacts:

37

3i. Total stream and tributary impacts:

164

3j. Comments:

6. Buffer Impacts (for DWR)

If project will impact a protected riparian buffer, then complete the chart below. Individually list all buffer impacts below.

6a. Project is in which protect basin(s)? *

Check all that apply.

Neuse

Tar-Pamlico

Catawba

Randleman

Goose Creek

Jordan Lake

Other

6b. Impact Type *

6c. Per or Temp *

6d. Stream name *

6e. Buffer mitigation required? *

6f. Zone 1 impact *

6g. Zone 2 impact *

S1- Allowable- Road Crossing

Location and Exempt, Allowable, allowable w/ mitigation

P

Permanent (P) or Temporary (T)

Mahler's Creek

No

241

(square feet)

3,099

(square feet)

S1- Allowable - Bridge

Location and Exempt, Allowable, allowable w/ mitigation

P

Permanent (P) or Temporary (T)

Mahler's Creek

No

4,084

(square feet)

383

(square feet)

S1- Allowable - Detour Bridge

Location and Exempt, Allowable, allowable w/ mitigation

P

Permanent (P) or Temporary (T)

Mahler's Creek

No

3,437

(square feet)

737

(square feet)

S1- Allowable - Detour Road Crossing

Location and Exempt, Allowable, allowable w/ mitigation

P

Permanent (P) or Temporary (T)

Mahler's Creek

No

3,480

(square feet)

3,081

(square feet)

6h. Total buffer impacts:

	Zone 1	Zone 2
Temporary impacts:	0.00	0.00

	Zone 1	Zone 2
Permanent impacts:	11,242.00	7,300.00

	Zone 1	Zone 2
Total buffer impacts:	11,242.00	7,300.00

6i. Comments:

Zone 1 and 2 Summary Sheet Totals are different from ePCN due to rounding, however total buffer amounts match Summary Sheet Totals.

Supporting Documentation - i.e. Impact Maps, Plan Sheet, etc.

Click the upload button or drag and drop files here to attach document

File must be PDF

E. Impact Justification and Mitigation

1. Avoidance and Minimization

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

Replace in place was incorporated to minimize jurisdictional impacts along with lengthening the bridge. Roadway drainage sheet flows over grassed slopes before entering stream. A swale has been designed to allow for treatment of the additional flow from the bridge and has been designed to have non-erosive velocities as it discharges into the buffer zone. Other than no build the minimal effects to the stream on this project is unavoidable.

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

NCDOT Design Standards in Sensitive Watersheds will be adhered to. Rip rap has been placed on the embankments of creek under the bridge and where the swale ties into the stream channel to mitigate erosion. Rip rap lined channels have been utilized where needed to eliminate the risk of ditch erosion. A rip rap pad has been placed at the proposed pipe outlet to eliminate localized erosion at the pipe.

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

2b. If this project DOES NOT require Compensatory Mitigation, explain why:

Bank stabilization does not require compensatory mitigation

F. Stormwater Management and Diffuse Flow Plan (required by DWR)

*** Recent changes to the stormwater rules have required updates to this section .***

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. All buffer impacts and high ground impacts require diffuse flow or other form of stormwater treatment. If the project is subject to a state implemented riparian buffer protection program, include a plan that fully documents how diffuse flow will be maintained.

All Stormwater Control Measures (SCM)s must be designed in accordance with the [NC Stormwater Design Manual](#). Associated supplement forms and other documentation shall be provided.

What type of SCM are you providing?

Level Spreader

Vegetated Conveyance (lower SHWT)

Wetland Swale (higher SHWT)

Other SCM that removes minimum 30% nitrogen

(check all that apply)

For a list of options to meet the diffuse flow requirements, click [here](#).

Diffus Flow Documentation

Click the upload button or drag and drop files here to attach document

File type must be PDF

2. Stormwater Management Plan

2a. Is this a NCDOT project subject to compliance with NCDOT's Individual NPDES permit NCS000250? *

Yes No

G. Supplementary Information

1. Environmental Documentation

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.) *

Yes No

NEPA or SEPA Final Approval Letter

Click the upload button or drag and drop files here to attach document

FILE TYPE MUST BE PDF

2. Violations (DWR Requirement)

2a. Is the site in violation of DWR Water Quality Certification Rules (15A NCAC 2H .0500), Isolated Wetland Rules (15A NCAC 2H .1300), or DWR 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

3. Cumulative Impacts (DWR 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 "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 (DWR Requirement)

4a. Is sewage disposal required by DWR for this project? *

Yes No N/A

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

5d. Is another Federal agency involved? *

Yes

No

Unknown

5e. Is this a DOT project located within Division's 1-8? *

Yes No

5j. What data sources did you use to determine whether your site would impact Endangered Species or Designated Critical Habitat? *

USFWS county list and NCNHP database along with field surveys. Habitat exists for Michaux's sumac. Habitat was not found for dwarf wedgemussel or red-cockaded woodpecker. A resurvey was last done in June 2016 for Michaux's sumac. Biological conclusion is No Effect for dwarf wedgemussel, red-cockaded woodpecker, and Michaux's sumac.

6. Essential Fish Habitat (Corps Requirement)

6a. Will this project occur in or near an area designated as an Essential Fish Habitat? *

Yes

No

6b. What data sources did you use to determine whether your site would impact an Essential Fish Habitat? *

NMFS County Index

7. Historic or Prehistoric Cultural Resources (Corps Requirement)

Link to the State Historic Preservation Office Historic Properties Map (does not include archaeological data: <http://gis.ncdcr.gov/hpoweb/>)

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

7c. Historic or Prehistoric Information Upload

Click the upload button or drag and drop files here to attach document

File must be PDF

8. Flood Zone Designation (Corps Requirement)

Link to the FEMA Floodplain Maps: <https://msc.fema.gov/portal/search>

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

Miscellaneous

Miscellaneous attachments not previously requested.

Click the upload button or drag and drop files here to attach document

File must be PDF

Signature

*

By checking the box and signing below, I certify that:

- I have given true, accurate, and complete information on this form;
- I agree that submission of this PCN form is a “transaction” subject to Chapter 66, Article 40 of the NC General Statutes (the “Uniform Electronic Transactions Act”);
- I agree to conduct this transaction by electronic means pursuant to Chapter 66, Article 40 of the NC General Statutes (the “Uniform Electronic Transactions Act”);
- I understand that an electronic signature has the same legal effect and can be enforced in the same way as a written signature; AND
- I intend to electronically sign and submit the PCN form.

Full Name: *

Colin Mellor

Signature

A rectangular box containing a handwritten signature in black ink that reads "Colin Mellor".

Date:

current_date

**U.S. ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT**

Action Id. SAW-2011-00047

County: Wake

U.S.G.S. Quad: NC-GARNER

NOTIFICATION OF JURISDICTIONAL DETERMINATION



Property Owner: NC Department of Transportation
Gregory Thorpe
Address: 1598 Mail Service Center
Raleigh, NC, 27699-1598
919.707.6105 (Rachelle Beauregarde)

Property description: TIP B-5237; Nearest Town Garner Nearest Waterway Mahlers Creek

River Basin Neuse HUC 03020201 Coordinates Latitude: 35.6629 Longitude: -78.5997

Location description: TIP B-5237; Bridge No. 248 over Mahler's Creek, on SR 2703 (New Bethel Church Road), south of Garner, NC.

Indicate Which of the Following Apply:

A. Preliminary Determination

Based on preliminary information, there may be wetlands on the above described project area. We strongly suggest you have this property inspected to determine the extent of Department of the Army (DA) jurisdiction. To be considered final, a jurisdictional determination must be verified by the Corps. This preliminary determination is not an appealable action under the Regulatory Program Administrative Appeal Process (Reference 33 CFR Part 331). If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also, you may provide new information for further consideration by the Corps to reevaluate the JD.

B. Approved Determination

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

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

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

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

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

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

Action Id. SAW-2011-00047

Placement of dredged or fill material within waters of the US and/or wetlands without a Department of the Army permit may constitute a violation of Section 301 of the Clean Water Act (33 USC § 1311). If you have any questions regarding this determination and/or the Corps regulatory program, please contact **Eric Alsmeyer** at **919-554-4884 ext. 23 /Eric.C.Alsmeier@usace.army.mil.**

Basis For Determination: The impact area contains intermittent and perennial streams, with indicators of ordinary high water marks (Mahlers Creek and an unnamed tributary), and an impoundment of a tributary.

Note: This JD is based on a site inspection by Eric Alsmeyer on 4/21/2011. There are no wetlands in the project area. The attached map generally depicts the waters of the US in the project area.

Attention USDA Program Participants: This delineation/determination has been conducted to identify the limits of Corps' Clean Water Act jurisdiction for the particular site identified in this request. The delineation/determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985. If you or your tenant are USDA Program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service, prior to starting work.

Corps Regulatory Official: _____



Date: 12/5/2011

Expiration Date: 12/5/2016

The Wilmington District is committed to providing the highest level of support to the public. To help us ensure we continue to do so, please complete the attached customer Satisfaction Survey or visit <http://per2.nwp.usace.army.mil/survey.html> to complete the survey online.

**NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND
REQUEST FOR APPEAL**

Applicant: **NC Department of Transportation** File Number: **SAW-2011-00047** Date:

Attached is: See Section below

<input type="checkbox"/>	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
<input type="checkbox"/>	PROFFERED PERMIT (Standard Permit or Letter of permission)	B
<input type="checkbox"/>	PERMIT DENIAL	C
<input type="checkbox"/>	APPROVED JURISDICTIONAL DETERMINATION	D
<input checked="" type="checkbox"/>	PRELIMINARY JURISDICTIONAL DETERMINATION	E

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

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

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

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

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

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

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

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

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

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact:

**District Engineer, Wilmington Regulatory Division,
Attn: Eric Alsmeyer
US Army Corps of Engineers, Wilmington District
Raleigh Regulatory Field Office
3331 Heritage Trade Drive, Suite 105
Wake Forest, NC 27587**

If you only have questions regarding the appeal process you may also contact:

**Mr. Jason Steele, Administrative Appeal Review Officer
CESAD-PDO
U.S. Army Corps of Engineers, South Atlantic Division
60 Forsyth Street, Room 10M15
Atlanta, Georgia 30303-8801
Phone: (404) 562-5137**

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.

Signature of appellant or agent.

Date:

Telephone number:

For appeals on Initial Proffered Permits send this form to:

District Engineer, Wilmington Regulatory Division, Attn: Eric Alsmeyer, 69 Darlington Avenue, Wilmington, North Carolina 28403

For Permit denials, Proffered Permits and approved Jurisdictional Determinations send this form to:

**Division Engineer, Commander, U.S. Army Engineer Division, South Atlantic, Attn: Mr. Jason Steele, Administrative Appeal Officer, CESAD-PDO, 60 Forsyth Street, Room 10M15, Atlanta, Georgia 30303-8801
Phone: (404) 562-5137**

ATTACHMENT

PRELIMINARY JURISDICTIONAL DETERMINATION FORM

BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR PRELIMINARY JURISDICTIONAL DETERMINATION (JD): 12/5/2011.

B. NAME AND ADDRESS OF PERSON REQUESTING PRELIMINARY JD:
NCDOT TIP B-4808, Building B, 1001 Birch Ridge Dr, Raleigh, NC 27610
C/O James Pflaum *Rachelle Beauregarde*

C. DISTRICT OFFICE, FILE NAME, AND NUMBER: *Wilmington/NCDOT/B-52397/*
SR 2703/New Bethel Church Rd

D. PROJECT LOCATION(S) AND BACKGROUND INFORMATION: Bridge *SAW-2011-00047*
No. 248 on New Bethel Road (SR 2703) over Mahler's Creek.

(USE THE ATTACHED TABLE TO DOCUMENT MULTIPLE WATERBODIES AT DIFFERENT SITES)

State: NC County/parish/borough: Wake City: Garner
Center coordinates of site (lat/long in degree decimal format): Lat. 35.662980°, Long. -78.599386°

Universal Transverse Mercator:

Name of nearest waterbody: Lake Benson

Identify (estimate) amount of waters in the review area:

Non-wetland waters: 270 linear feet: 10 width (ft) and/or acres.

Cowardin Class: ~~R2~~ R2 & R4

Stream Flow: Perennial & Intermittent

Wetlands: 0.0 acres.

Cowardin Class:

Pond: ~ 0.02 acres L2

Name of any water bodies on the site that have been identified as Section 10 waters:

Tidal:

Non-Tidal:

E. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

Office (Desk) Determination. Date:

Field Determination. Date(s): 4/21/2011

SUPPORTING DATA. Data reviewed for preliminary JD (check all that apply)

- checked items should be included in case file and, where checked and requested, appropriately reference sources below):

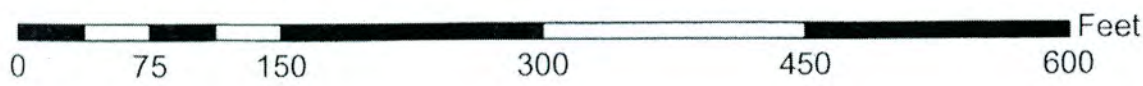
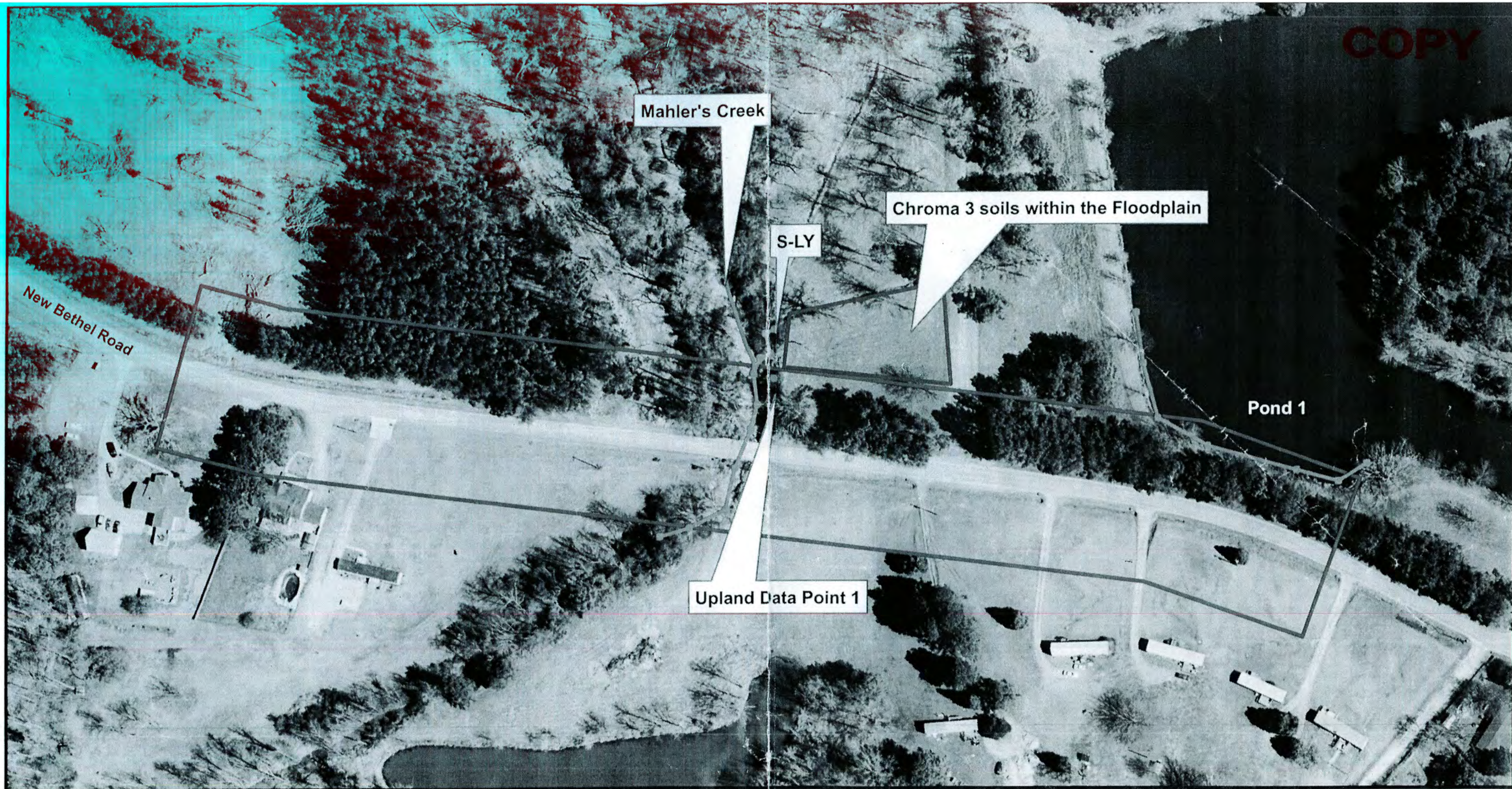
- Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant:
- Data sheets prepared/submitted by or on behalf of the applicant/consultant.
 - Office concurs with data sheets/delineation report.
 - Office does not concur with data sheets/delineation report.
- Data sheets prepared by the Corps:
- Corps navigable waters' study:
- U.S. Geological Survey Hydrologic Atlas:
 - USGS NHD data.
 - USGS 8 and 12 digit HUC maps.
- U.S. Geological Survey map(s). Cite scale & quad name: Garner.
- USDA Natural Resources Conservation Service Soil Survey. Citation: Wake County / *Web Soil Survey, GA*
- National wetlands inventory map(s). Cite name: *GTS, GA*
- State/Local wetland inventory map(s):
- FEMA/FIRM maps:
- 100-year Floodplain Elevation is: (National Geodetic Vertical Datum of 1929)
- Photographs: Aerial (Name & Date): Wake 2009 (NAIP).
or Other (Name & Date):
- Previous determination(s). File no. and date of response letter:
- Other information (please specify):

IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.

Eric C. [Signature] 12/5/2011
Signature and date of
Regulatory Project Manager
(REQUIRED)

[Signature] 4/8/11
Signature and date of
person requesting preliminary JD
(REQUIRED, unless obtaining
the signature is impracticable)

COPY



- B5237_JS_Features
- B5237_NEU_Study_Area

**B-5237 Bridge No. 248 on New Bethel Road (SR 2703) over Mahler's Creek
Wake County**

RECEIVED

APR 18 2011





North Carolina Department of Transportation

Highway Stormwater Program
STORMWATER MANAGEMENT PLAN
 FOR NCDOT PROJECTS



(Version 2.07; Released October 2016)

WBS Element: 42838.1.1 TIP No.: B-5237 County(ies): Wake Page 1 of 2

General Project Information

WBS Element:	42838.1.1	TIP Number:	B-5237	Project Type:	Bridge Replacement	Date:	3/30/2017
NCDOT Contact:	William (Bill) H. Elam, Jr., PE		Contractor / Designer:	Mead & Hunt/ Roger Weadon, PE			
Address:	1590 Mail Service Center Raleigh, NC 27699-1590		Address:	133 Fayetteville Street, Suite 210 Raleigh, NC 27601			
	Phone:	919-707-6718		Phone:	919-714-8817		
	Email:	belam@ncdot.gov		Email:	roger.weadon@meadhunt.com		
City/Town:	Garner		County(ies):	Wake			
River Basin(s):	Neuse		CAMA County?	No			
Wetlands within Project Limits?	No						

Project Description

Project Length (lin. miles or feet):	0.161 Miles	Surrounding Land Use:	Residential
	Proposed Project		Existing Site
Project Built-Upon Area (ac.)	0.7 ac.		0.5 ac.
Typical Cross Section Description:	2-11 foot travel lanes, 4 foot bike lanes, curb and gutter, sidewalks, and shoulder sections with variable side slopes to tie in to natural ground.		20' BST shoulder section, one portion of curb and gutter and sidewalk.

Annual Avg Daily Traffic (veh/hr/day):	Design/Future: 9065	Year: 2038	Existing: 4650	Year: 2018
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General Project Narrative:
(Description of Minimization of Water Quality Impacts)

The project involves replacing bridge number 248 on SR 2703 (New Bethel Church Rd.) over Mahler's Creek in Wake County. This project also involves some widening to accommodate 4 ft. bike lanes along with the installation of curb and gutter and sidewalks along a portion of the project. The existing structure is a 3-span, 50' bridge, and will be replaced with a 1 span, 85' long, box beam bridge in the existing location. The proposed project also includes resurfacing a portion of SR 2703 (New Bethel Rd.) outside of the project limits. The existing roadway consists of 20' of BST with shoulder section along with portions of curb and gutter and sidewalk. The following stormwater control measures have been implemented to minimize water quality impacts: No deck drains will be present over open waters. A proposed swale has been designed to allow for treatment of the additional flow from the bridge and the swale has been designed so it has non-erosive velocities as it discharges into the buffer zone. Rip rap has been placed on the embankments of Mahler's Creek under the bridge and where the proposed swale ties into the stream channel to mitigate erosion. Rip rap lined channels have been utilized where needed to eliminate the risk of ditch erosion. A rip rap pad has been placed at the proposed pipe outlet to eliminate localized erosion at the pipe.

Waterbody Information

Surface Water Body (1):	Mahlers Creek		NCDWR Stream Index No.:	27-43-9	
NCDWR Surface Water Classification for Water Body	Primary Classification:	Class C			
	Supplemental Classification:	Nutrient Sensitive Waters (NSW)			
Other Stream Classification:	None				
Impairments:	None				
Aquatic T&E Species?	No	Comments:			
NRTR Stream ID:	Mahlers Creek		Buffer Rules in Effect:	Neuse	
Project Includes Bridge Spanning Water Body?	Yes	Deck Drains Discharge Over Buffer?	No	Dissipator Pads Provided in Buffer?	No
Deck Drains Discharge Over Water Body?	No	(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)	
	(If yes, provide justification in the General Project Narrative)				



North Carolina Department of Transportation



Highway Stormwater Program
STORMWATER MANAGEMENT PLAN
 FOR NCDOT PROJECTS

(Version 2.07; Released October 2016)

WBS Element: 42838.1.1 TIP No.: B-5237 County(ies): Wake Page **2** of **2**

Sheet No.	Station & Coordinates (Road and Non Road Projects)	Surface Water Body	Base Width (ft)	Front Slope (H:1)	Back Slope (H:1)	Drainage Area (ac)	Swales								Rock Checks Used	BMP Associated w/ Buffer Rules?
							Recommended Treatm't Length (ft)	Actual Length (ft)	Longitudinal Slope (%)	Q2 (cfs)	V2 (fps)	Q10 (cfs)	V10 (fps)			
4	39+50 40+00	(1)Mahlers Creek	5.0	3.0	4.0	0.2	17	50	0.30%	22.0	2.0	29.0	2.2	No	Yes	

Additional Comments
 Swales were designed to have a slope less than 4% and a 2 yr. velocity less than 2.0 fps. Discharges and velocities are based on entire drainage approaching the buffer

09/28/19

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WAKE COUNTY

LOCATION: BRIDGE NO. 248 OVER MAHLER'S CREEK
ON SR 2703 (NEW BETHEL CHURCH ROAD)

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE

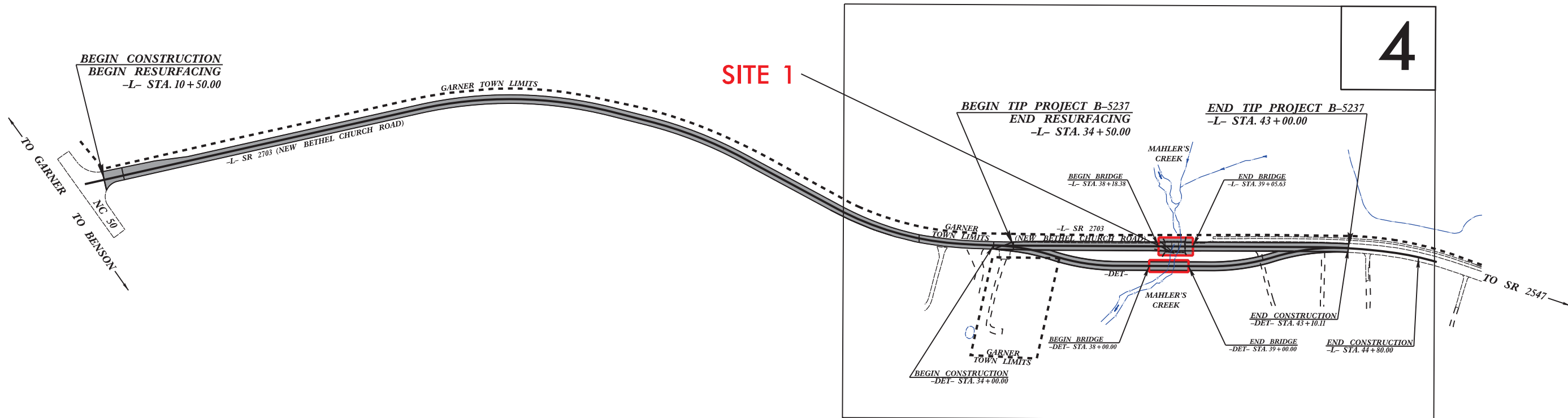
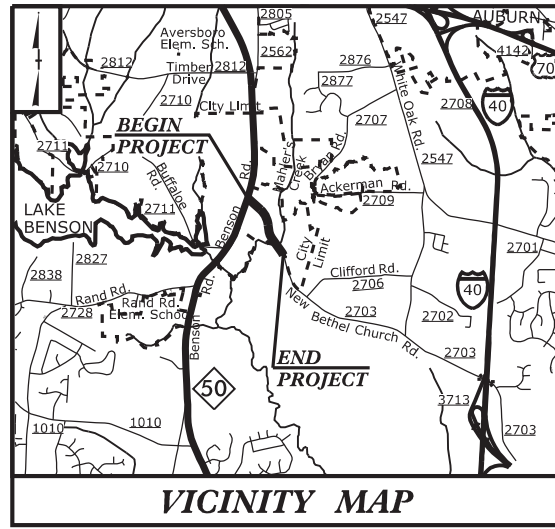
**WETLAND AND SURFACE
WATER IMPACTS PERMIT**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5237	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
42838.1.1	BRZ-2703(1)	PE	
42838.2.1		R/W & UTILITY	

PERMIT DRAWING
SHEET 1 OF 8



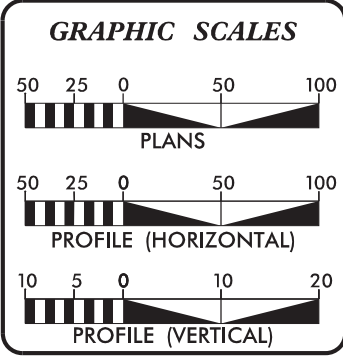
TIP PROJECT: B-5237



A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARY OF THE TOWN OF GARNER.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.
THERE IS NO CONTROL OF ACCESS ON THIS PROJECT.

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

CONTRACT:



DESIGN DATA

ADT 2018 =	4650
ADT 2038 =	9065
K =	10 %
D =	60 %
T =	4 % *
V =	40 MPH
*(TTST= 1% + DUAL= 3%)	
FUNC CLASS =	LOCAL
SUBREGIONAL TIER	

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-5237	=	0.144 MILES
LENGTH STRUCTURE TIP PROJECT B-5237	=	0.017 MILES
TOTAL LENGTH TIP PROJECT B-5237	=	0.161 MILES

Prepared for NCDOT In the Office of:

Mead&Hunt
133 Fayetteville Street, Suite 210
Raleigh, North Carolina 27601
919-714-8670 | meadhunt.com
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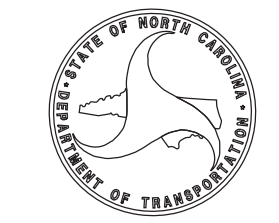
2012 STANDARD SPECIFICATIONS	RICK DECOLA, PE PROJECT ENGINEER
	VASIM BARODAWALA PROJECT DESIGN ENGINEER
RIGHT OF WAY DATE: AUGUST 22, 2017	DAVID STUTTS, PE NCDOT CONTACT
LETTING DATE: APRIL 17, 2018	

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN ENGINEER

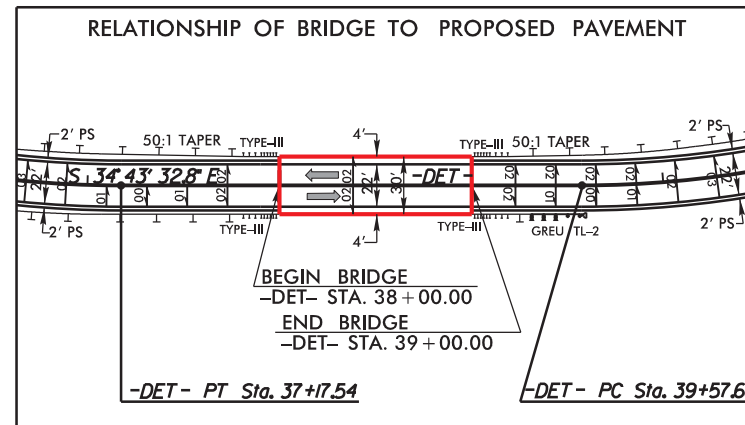
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WETLAND AND SURFACE WATER IMPACTS PERMIT

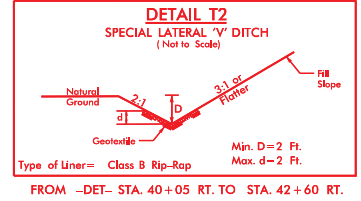
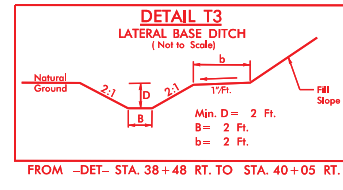
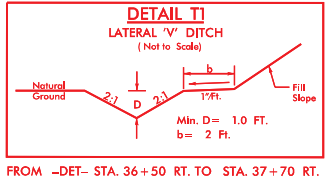
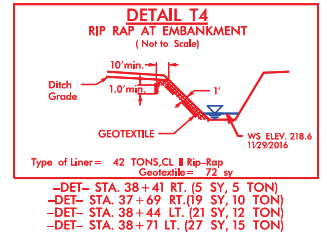
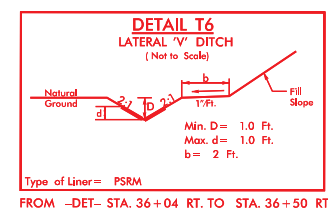
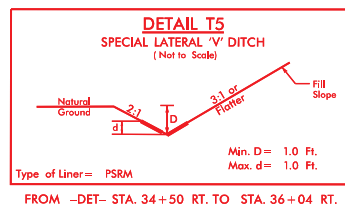
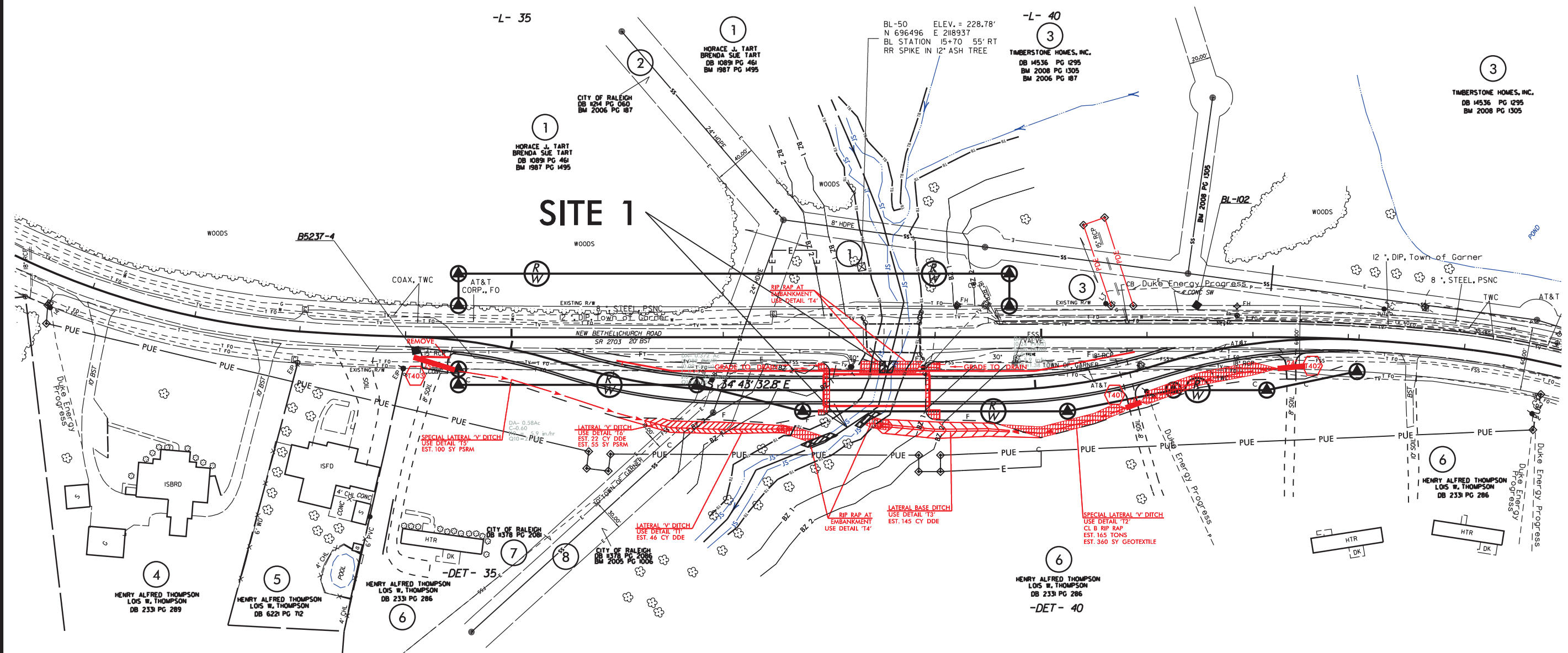
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
 DENOTES IMPACTS IN SURFACE WATER



TEMPORARY DETOUR

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PERMIT DRAWING SHEET 2 OF 8



NOTE: ALL TEMP DRIVEWAY RADII ARE 10'
FOR -L- DESIGN, SEE SHEET 4
FOR -DET- PROFILE, SEE SHEET 5

REVISIONS

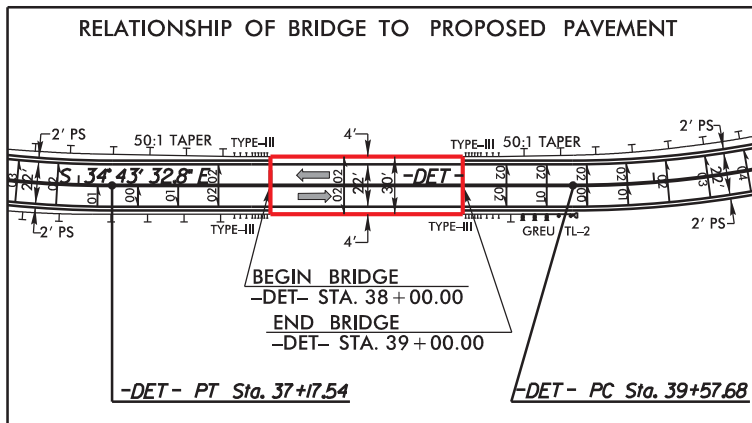
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WETLAND AND SURFACE WATER IMPACTS PERMIT

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

DENOTES IMPACTS IN SURFACE WATER

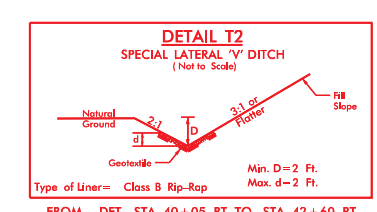
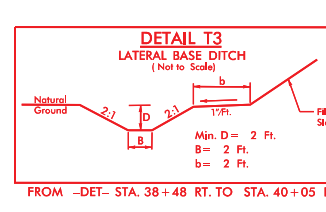
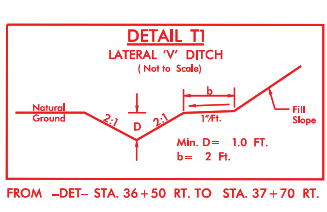
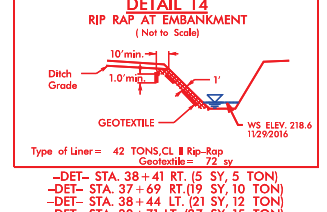
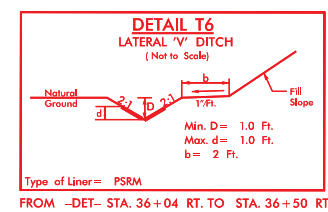
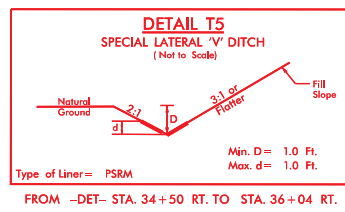
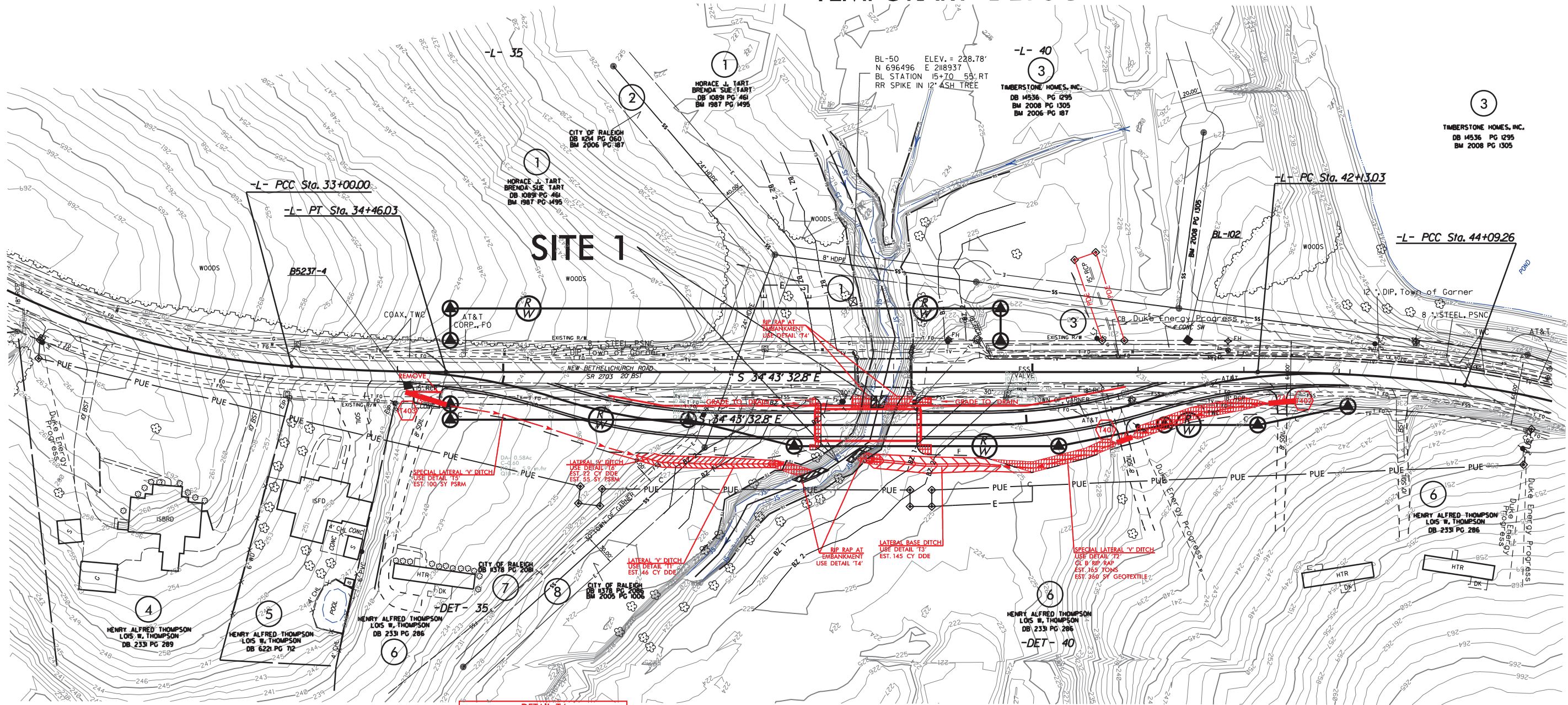


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TEMPORARY DETOUR



NOTE: ALL TEMP DRIVEWAY RADII ARE 10'

FOR -L- DESIGN, SEE SHEET 4

FOR -DET- PROFILE, SEE SHEET 5

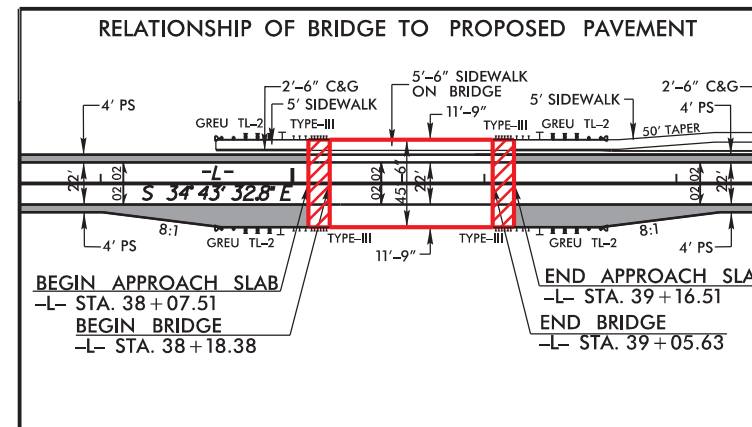
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WETLAND AND SURFACE WATER IMPACTS PERMIT

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

DENOTES IMPACTS IN SURFACE WATER



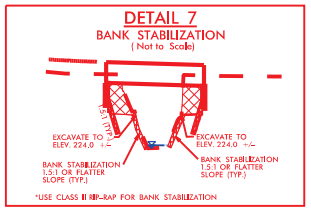
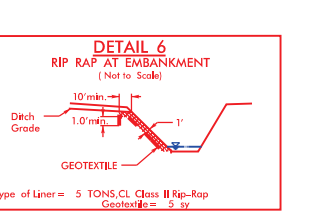
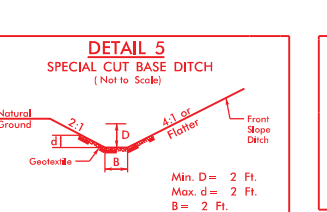
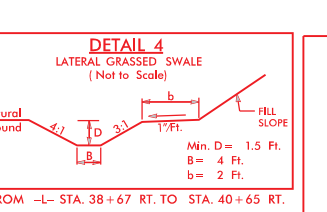
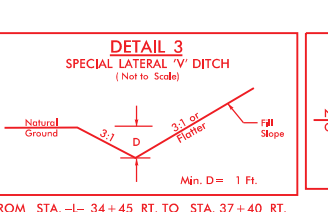
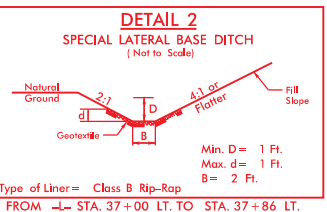
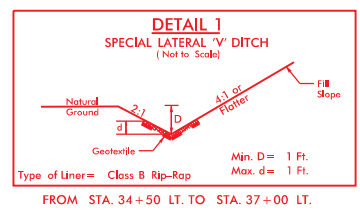
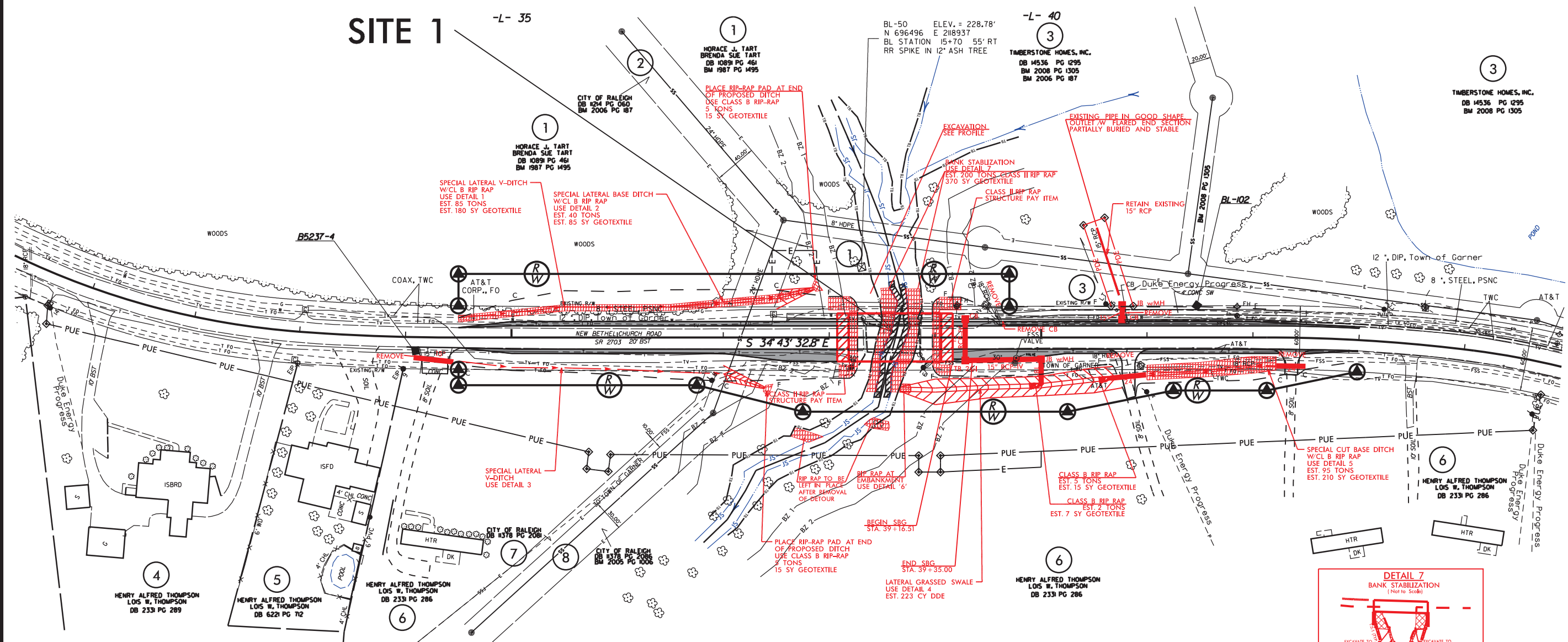
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NOTE: ALL DRIVEWAY RADII ARE 15'

BRIDGE APPROACH SLAB

FOR -DET- DESIGN, SEE SHEET 2B-1

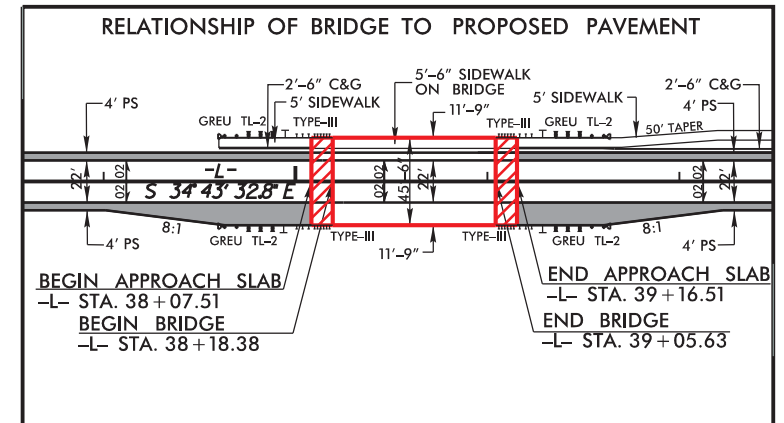
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WETLAND AND SURFACE WATER IMPACTS PERMIT

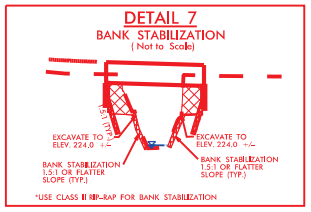
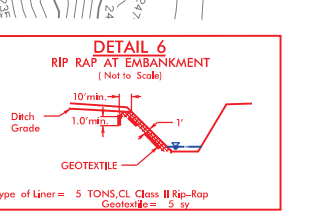
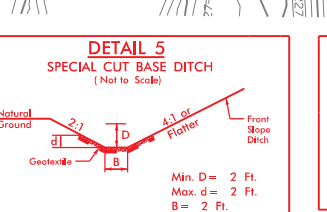
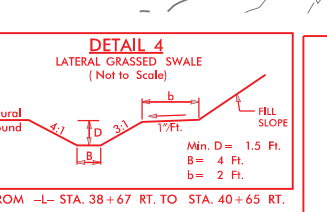
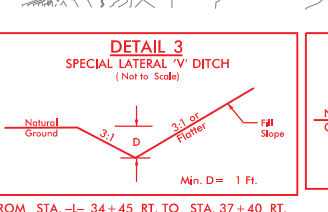
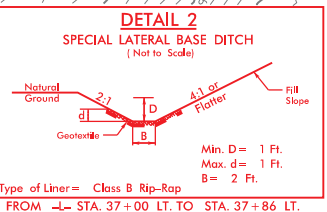
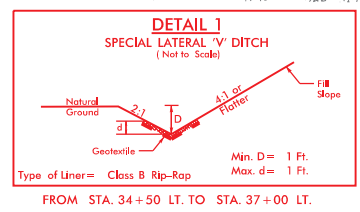
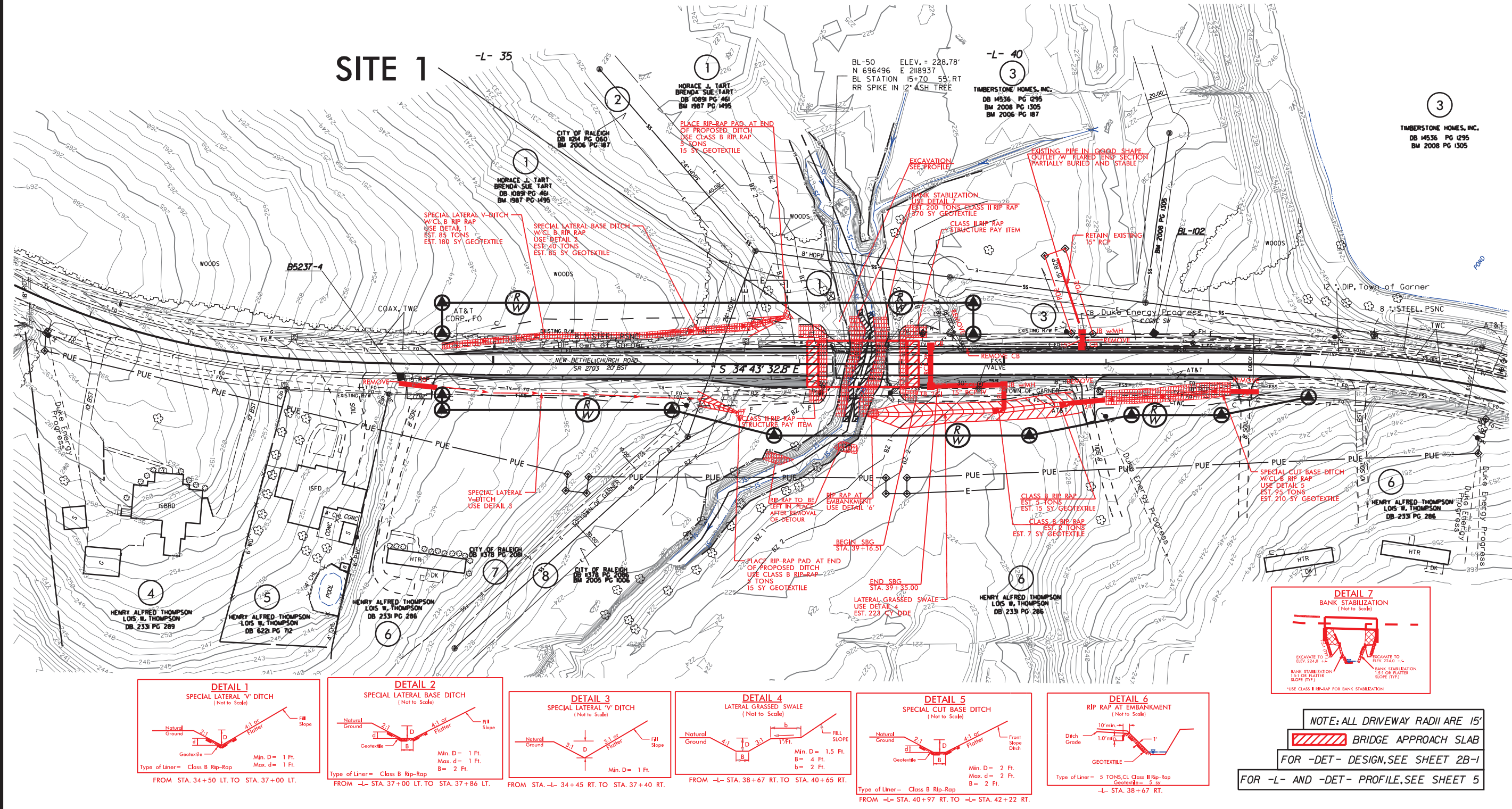
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-  DENOTES IMPACTS IN SURFACE WATER

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SHEET 5 OF 8



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NOTE: ALL DRIVEWAY RADII ARE 15'

 BRIDGE APPROACH SLAB

FOR -DET- DESIGN, SEE SHEET 2B-1

FOR -L- AND -DET- PROFILE, SEE SHEET 5

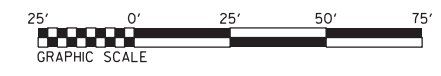
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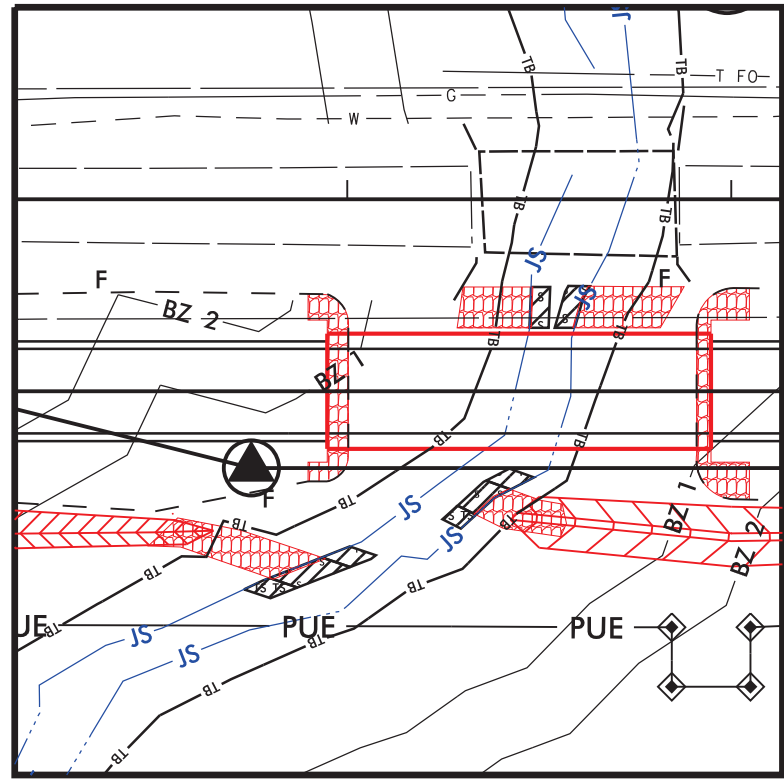
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PERMIT DRAWING
SHEET 6 OF 8

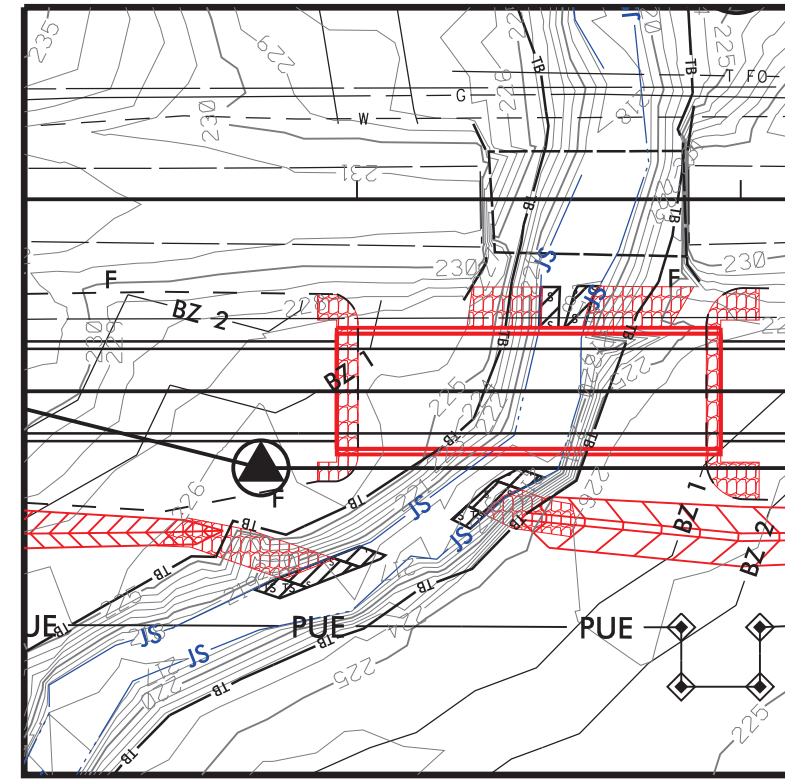
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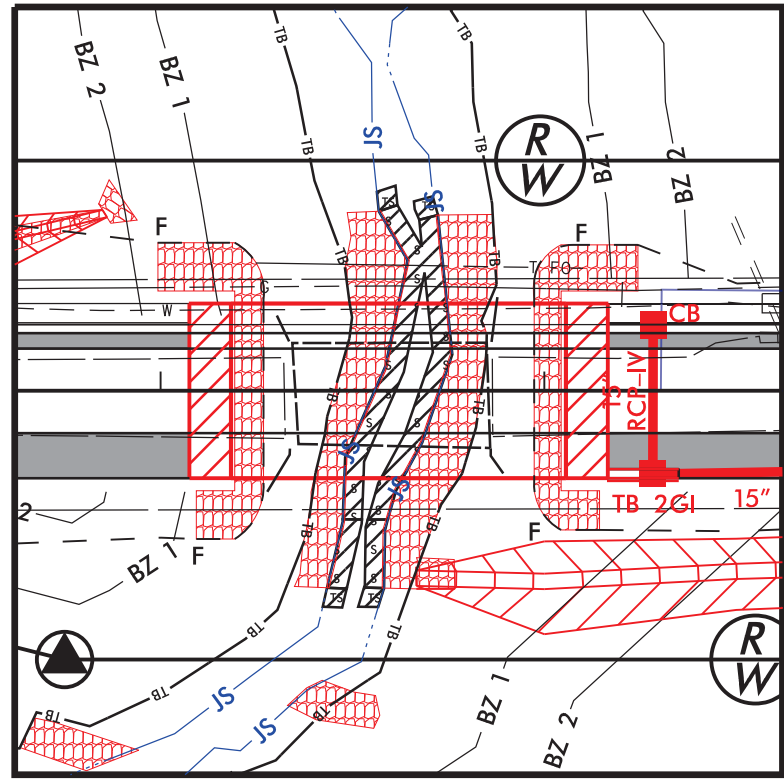
-  DENOTES TEMPORARY IMPACTS IN SURFACE WATER
-  DENOTES IMPACTS IN SURFACE WATER



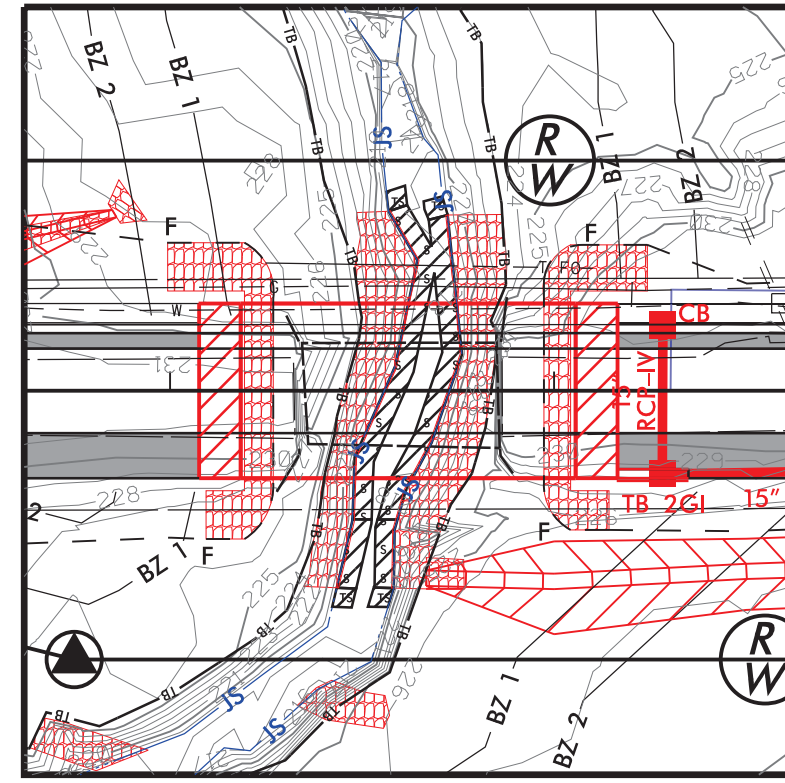
SITE 1 - DETOUR IMPACTS



SITE 1 - DETOUR IMPACTS



SITE 1 - MAINLINE IMPACTS



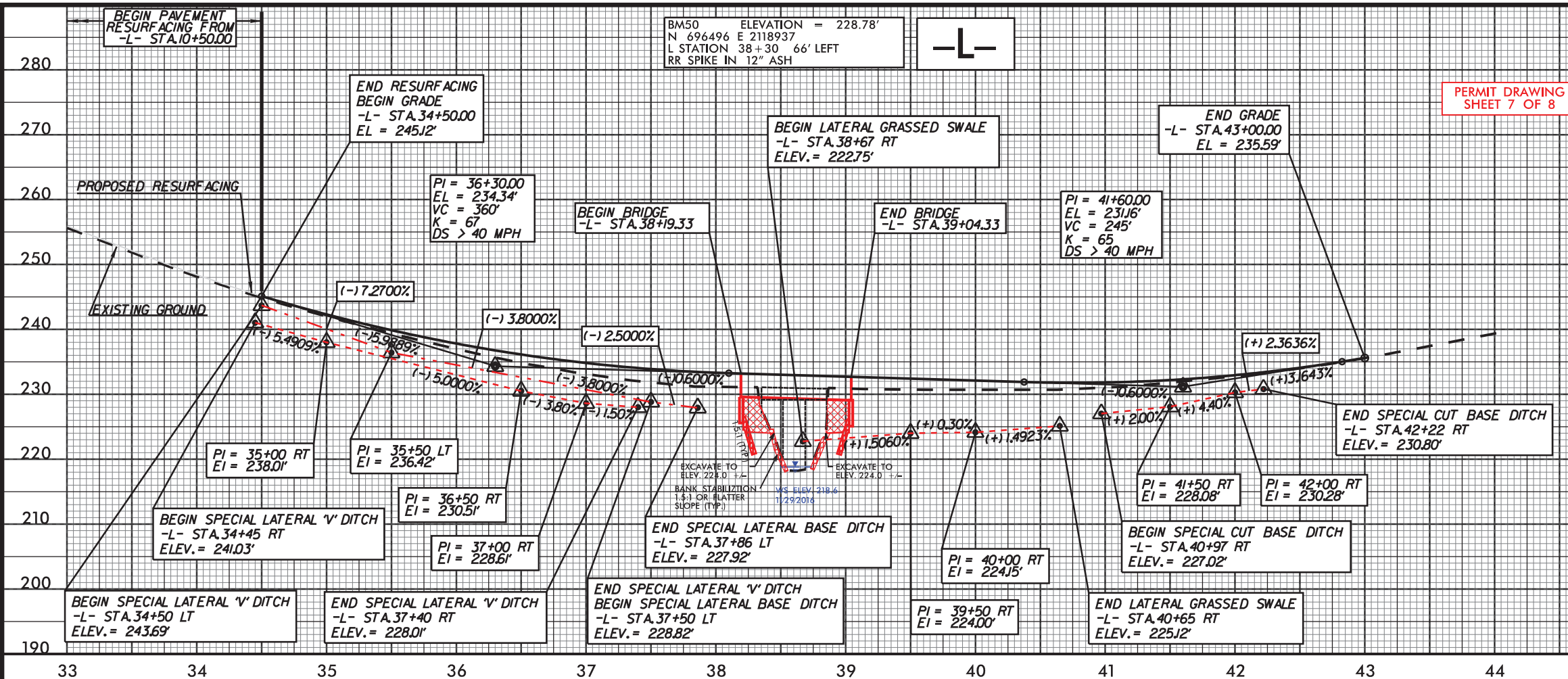
SITE 1 - MAINLINE IMPACTS

5/28/99

PROJECT REFERENCE NO. B-5237	SHEET NO. 5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING SHEET 7 OF 8

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



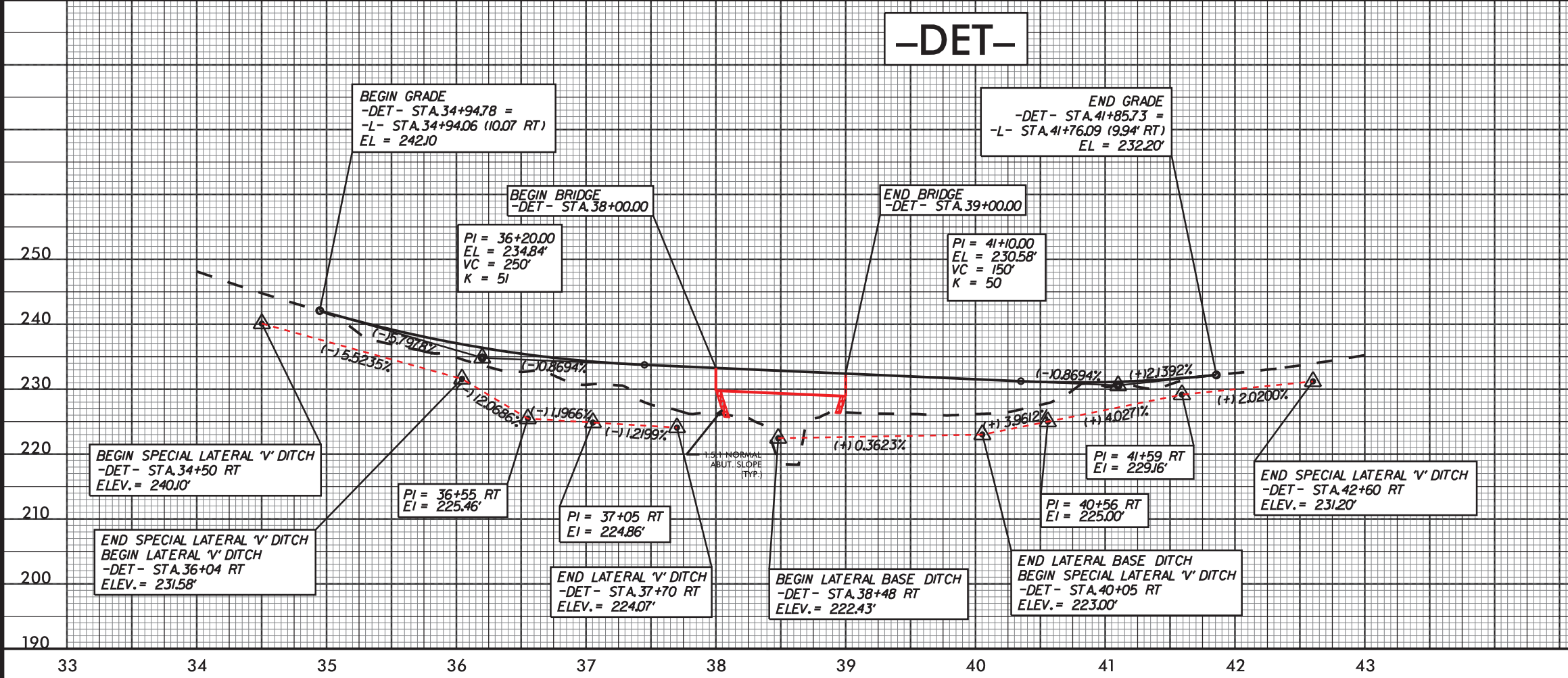
-L- BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 1700	CFS	250
DESIGN FREQUENCY	= 25	YRS	
DESIGN HW ELEVATION	= 228.0	FT	
BASE DISCHARGE	= 2200	CFS	240
BASE FREQUENCY	= 100	YRS	
BASE HW ELEVATION	= 228.80	FT	
OVERTOPPING DISCHARGE	= 4475	CFS	230
OVERTOPPING FREQUENCY	= 500+	YRS	
OVERTOPPING ELEVATION	= 231.8	FT	

DATE OF SURVEY = 11/29/2016
W.S.ELEVATION AT DATE OF SURVEY = 218.6 FT

RIGHT DITCH - - - - -
LEFT DITCH - - - - -
FOR -L- PLAN, SEE SHEET 4

-DET-



-DET- BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 1200	CFS	240
DESIGN FREQUENCY	= 10	YRS	
DESIGN HW ELEVATION	= 227.6	FT	
BASE DISCHARGE	= 2200	CFS	230
BASE FREQUENCY	= 100	YRS	
BASE HW ELEVATION	= 228.9	FT	
OVERTOPPING DISCHARGE	= 3600	CFS	220
OVERTOPPING FREQUENCY	= 500+	YRS	
OVERTOPPING ELEVATION	= 231.1	FT	

DATE OF SURVEY = 11/29/2016
W.S.ELEVATION AT DATE OF SURVEY = 218.6 FT

RIGHT DITCH - - - - -
FOR -DET- PLAN, SEE SHEET 2B-1

12-OCT-2017 10:40 AM
C:\Users\paul\Documents\Drawings\B5237_Rdy_PFL_5.dgn

WETLAND AND SURFACE WATER IMPACTS 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	-DET- 37+78 - 38+13 RT	Bank Stabilization						< 0.01	< 0.01	15	15	
***1	-DET- 38+30 - 38+54 RT	Bank Stabilization						< 0.01	< 0.01	10	12	
**1	-DET- 38+53 - 38+68 LT	Bank Stabilization						< 0.01		11		
1	-L- 38+43 - 38+76	Bank Stabilization						0.02	< 0.01	91	10	
TOTALS*:								0.03	< 0.01	127	37	0

*Rounded totals are sum of actual impacts

- NOTES:
 ** A portion of -L- Bank Stabilization will be placed during Detour construction and is accounted for in -DET- Sta. 38+53 to 38+68 LT.
 *** Rip rap from temporary ditches south of Detour will be left in place. These permanent impacts are shown on the Detour drawings.

NC DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 10/24/2017
 WAKE COUNTY
 B-5237
 42838.1.1
 SHEET 8 OF 8

09/28/19

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WAKE COUNTY

**LOCATION: BRIDGE NO. 248 OVER MAHLER'S CREEK
ON SR 2703 (NEW BETHEL CHURCH ROAD)**

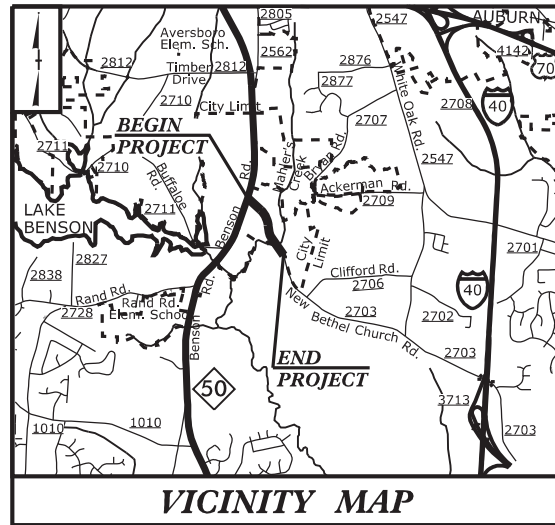
TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5237	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
42838.1.1	BRZ-2703(1)	PE	
42838.2.1		RW & UTILITY	

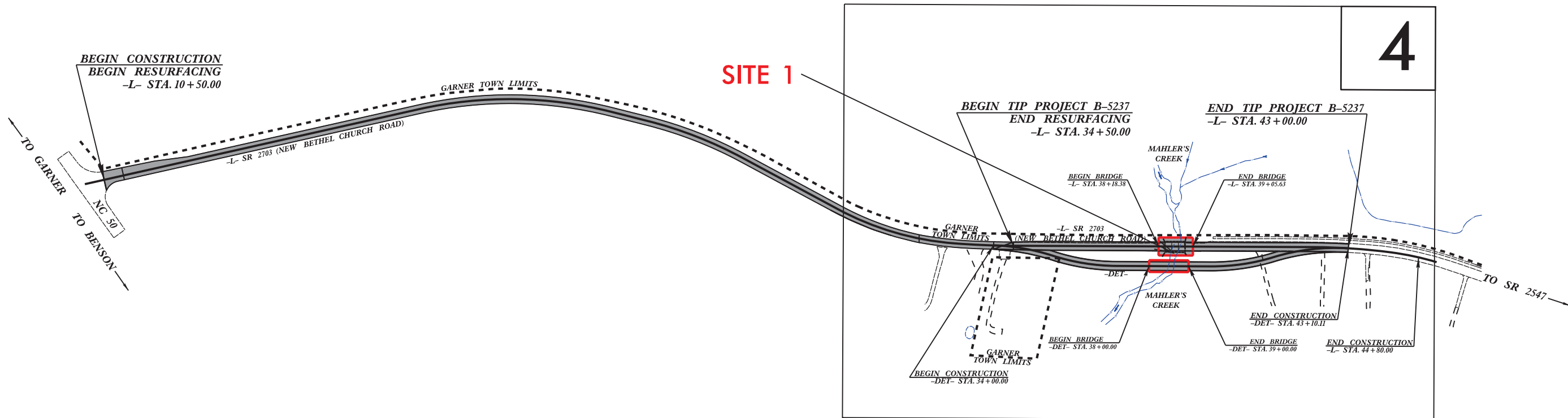
**BUFFER DRAWING
SHEET 1 OF 5**



TIP PROJECT: B-5237



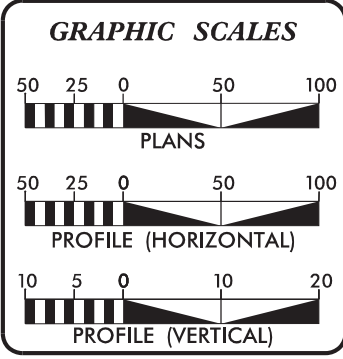
BUFFER IMPACTS PERMIT



A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARY OF THE TOWN OF GARNER. CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III. THERE IS NO CONTROL OF ACCESS ON THIS PROJECT.

**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

CONTRACT:



DESIGN DATA

ADT 2018 =	4650
ADT 2038 =	9065
K =	10 %
D =	60 %
T =	4 % *
V =	40 MPH
*(TTST= 1% + DUAL= 3%)	
FUNC CLASS =	LOCAL
SUBREGIONAL TIER	

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-5237	=	0.144 MILES
LENGTH STRUCTURE TIP PROJECT B-5237	=	0.017 MILES
TOTAL LENGTH TIP PROJECT B-5237	=	0.161 MILES

Prepared for NCDOT In the Office of:

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133 Fayetteville Street, Suite 210
Raleigh, North Carolina 27601
919-714-8670 | meadhunt.com
NC License No. F-1235

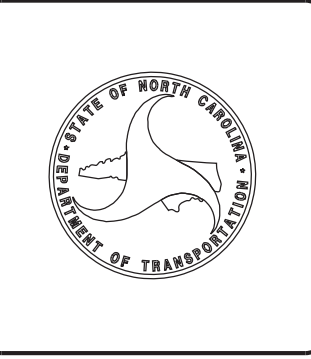
2012 STANDARD SPECIFICATIONS	RICK DECOLA, PE PROJECT ENGINEER
	VASIM BARODAWALA PROJECT DESIGN ENGINEER
RIGHT OF WAY DATE: AUGUST 22, 2017	DAVID STUTTS, PE NCDOT CONTACT
LETTING DATE: APRIL 17, 2018	

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN ENGINEER

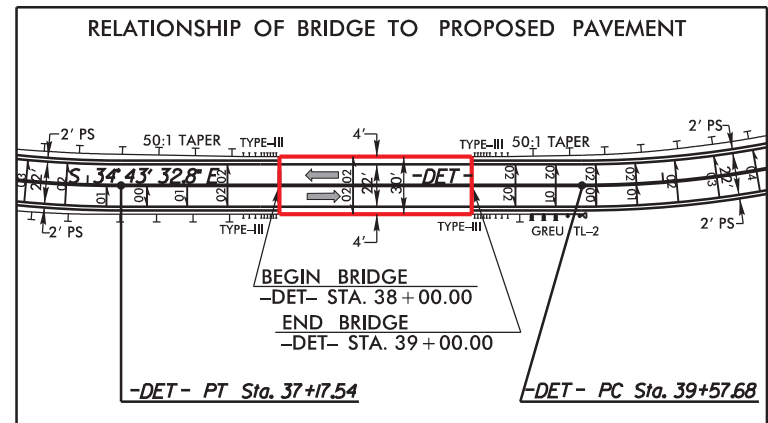
SIGNATURE: _____ P.E.



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178411d

BUFFER IMPACTS PERMIT

RELATIONSHIP OF BRIDGE TO PROPOSED PAVEMENT

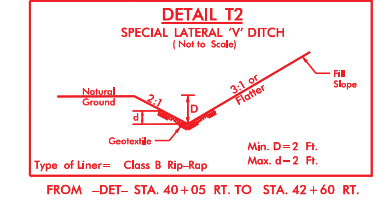
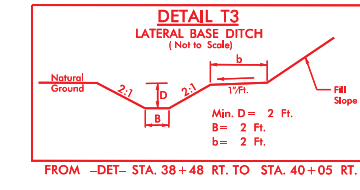
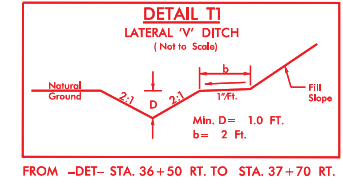
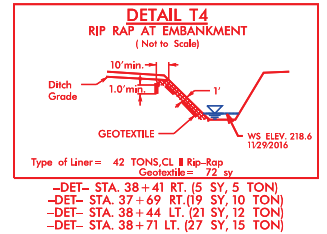
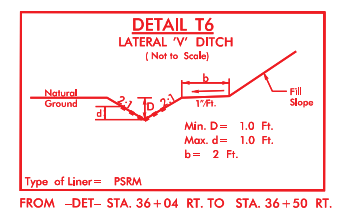
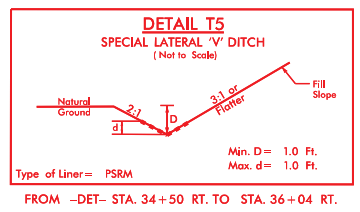
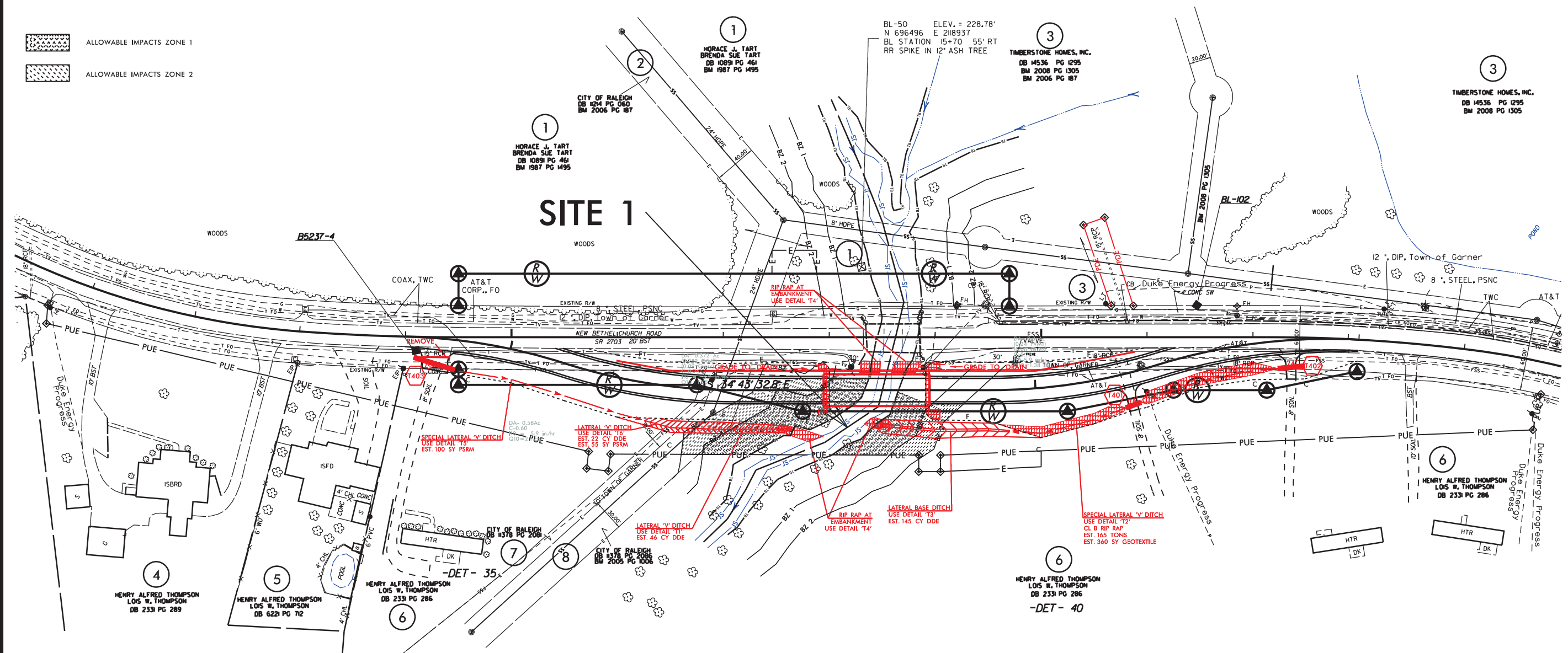


TEMPORARY DETOUR

PROJECT REFERENCE NO. B-5237	SHEET NO. 2B-1
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
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**BUFFER DRAWING
SHEET 2 OF 5**

- ALLOWABLE IMPACTS ZONE 1
- ALLOWABLE IMPACTS ZONE 2



NOTE: ALL TEMP DRIVEWAY RADII ARE 10'
FOR -L- DESIGN, SEE SHEET 4
FOR -DET- PROFILE, SEE SHEET 5

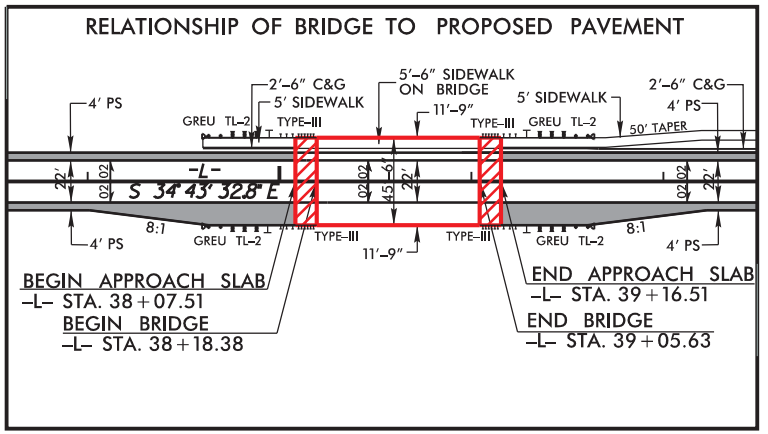
REVISIONS

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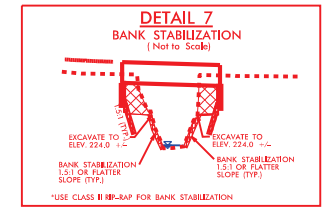
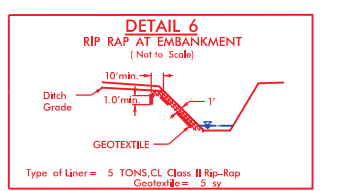
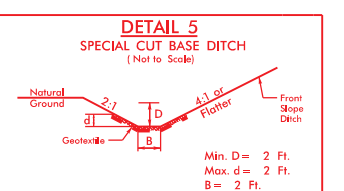
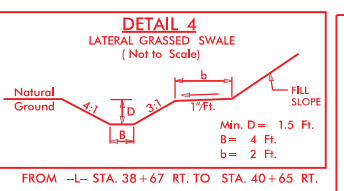
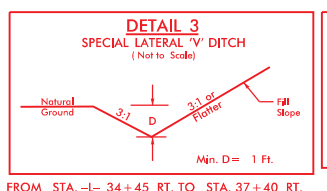
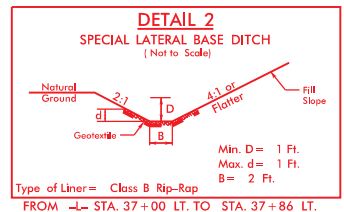
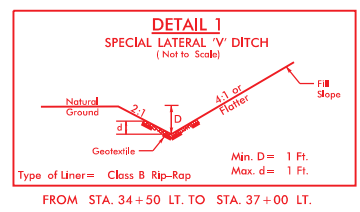
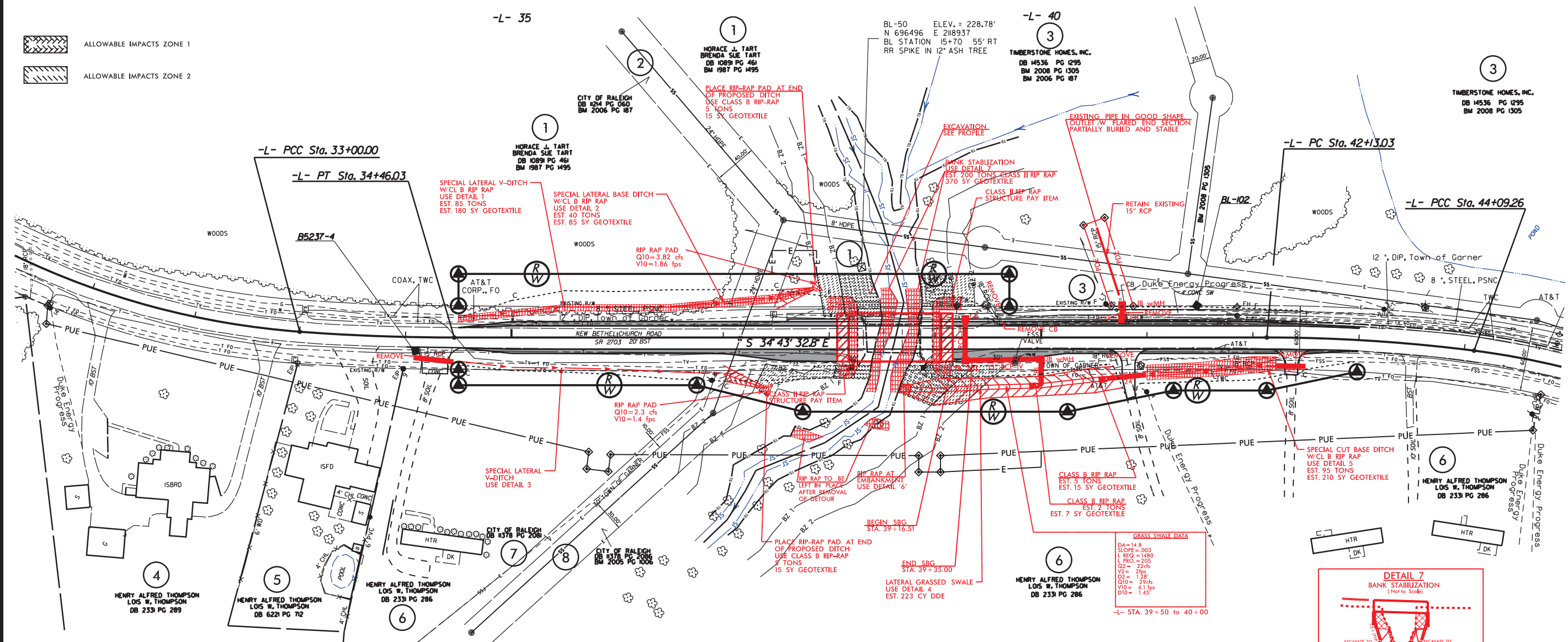
BUFFER IMPACTS PERMIT

PROJECT REFERENCE NO. B-5237		SHEET NO. 4	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
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**BUFFER DRAWING
SHEET 3 OF 5**



NAD 83/NSRS 2007



NOTE: ALL DRIVEWAY RADII ARE 15'

BRIDGE APPROACH SLAB

FOR -DET- DESIGN, SEE SHEET 2B-1

FOR -L- AND -DET- PROFILE, SEE SHEET 5

REVISIONS

8/17/99
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8/17/99

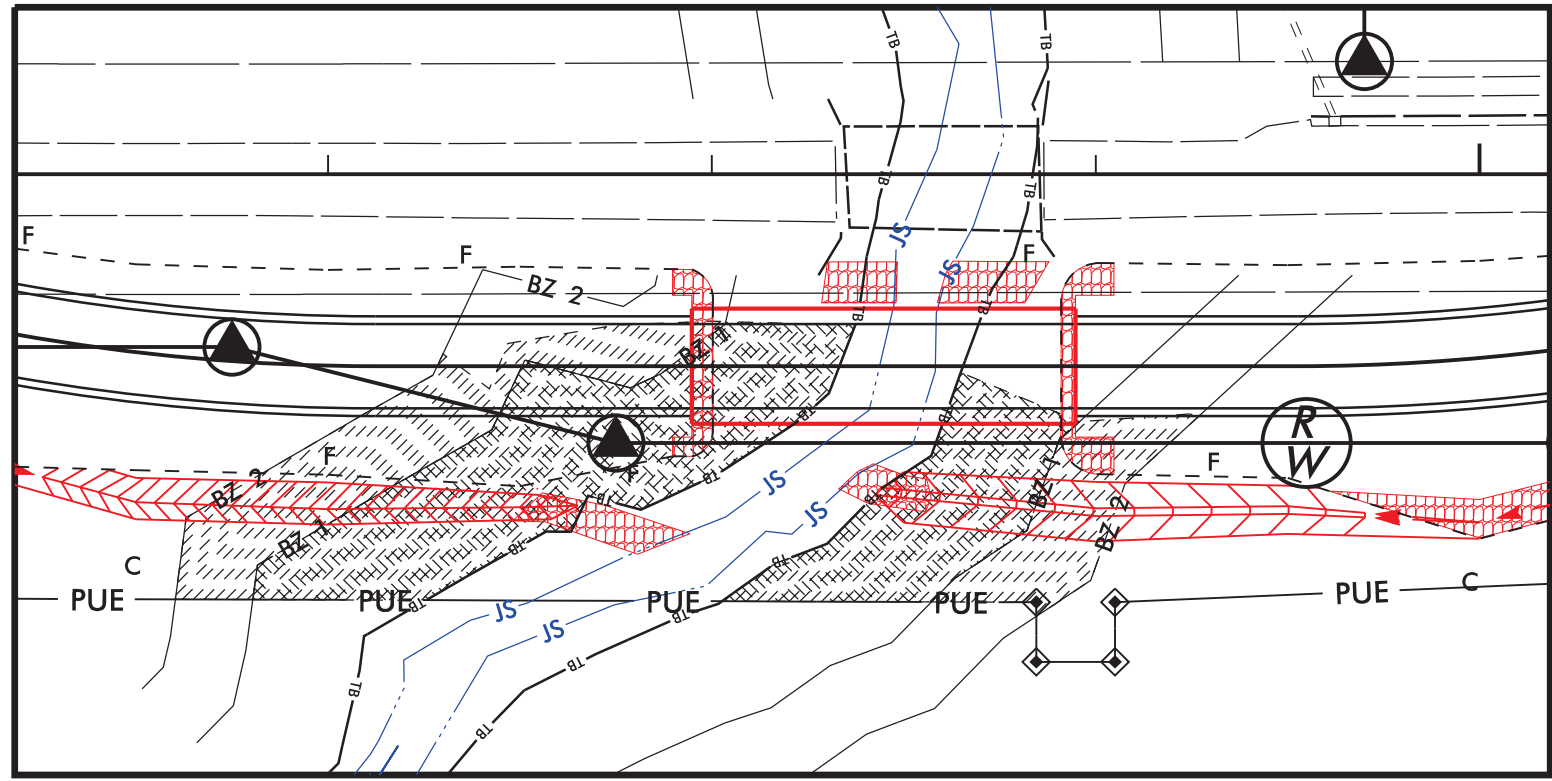
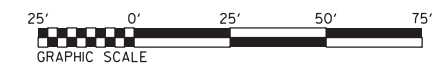
REVISIONS

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PROJECT REFERENCE NO. B-5237	SHEET NO. INSET
RW SHEET NO.	
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DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
Mead&Hunt <small>133 Fayetteville Street, Suite 210 Raleigh, North Carolina 27601 919-714-8870 meadhunt.com NC License No. F-1235</small>	

NAD 83/NSRS 2007

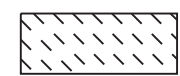
PERMIT DRAWING
SHEET 4 OF 5



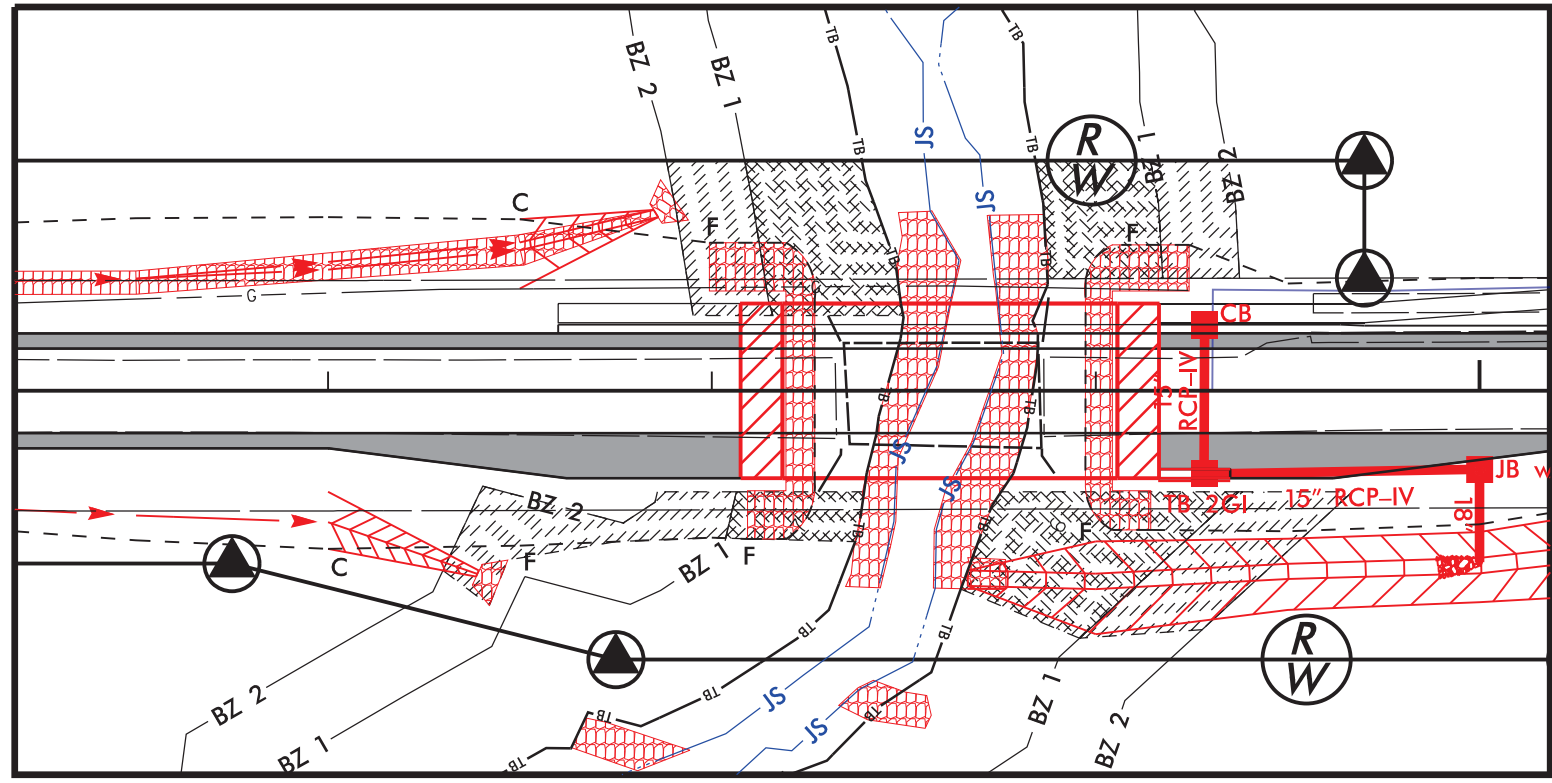
SITE 1 – DETOUR IMPACTS



ALLOWABLE IMPACTS ZONE 1



ALLOWABLE IMPACTS ZONE 2



SITE 1 – MAINLINE IMPACTS

BUFFER IMPACTS SUMMARY

SITE NO.	STRUCTURE SIZE / TYPE	STATION (FROM/TO)	IMPACT									BUFFER REPLACEMENT	
			TYPE			ALLOWABLE			MITIGABLE			ZONE 1 (ft ²)	ZONE 2 (ft ²)
			ROAD CROSSING	BRIDGE	PARALLEL IMPACT	ZONE 1 (ft ²)	ZONE 2 (ft ²)	TOTAL (ft ²)	ZONE 1 (ft ²)	ZONE 2 (ft ²)	TOTAL (ft ²)		
1	1@ 109' -L-	-L- STA 37+30 to 38+08 & STA 39+17 to 39+78	X			241	3099	3341					
1	1@ 109' -L-	-L- STA 38+08 to 39+17		X		4084	383	4467					
1	1 @ 100' -DET-	-DET- STA 36+71 to 38+00 & STA 39+00 to 39+33	X			3480	3081	6560					
1	1 @ 100' -DET-	-DET- STA 38+00 to 39+00		X		3437	737	4174					
TOTAL:						11243	7299	18542					

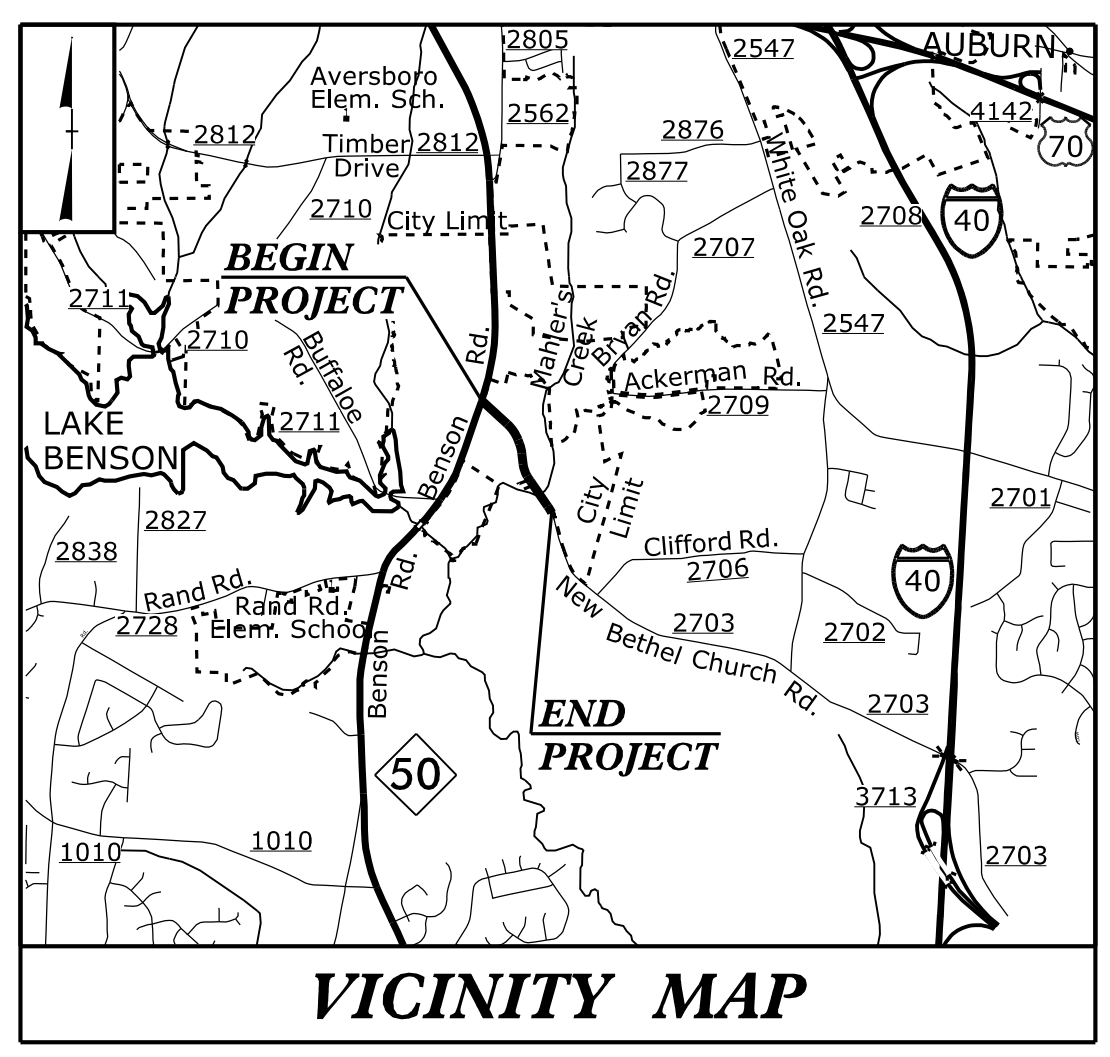
Note:

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

WAKE COUNTY
B-5237
42838.1.1

09.08/99

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



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
WAKE COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5237	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
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42838.2.1		RW & UTILITY	
42838.3.1		CONST	

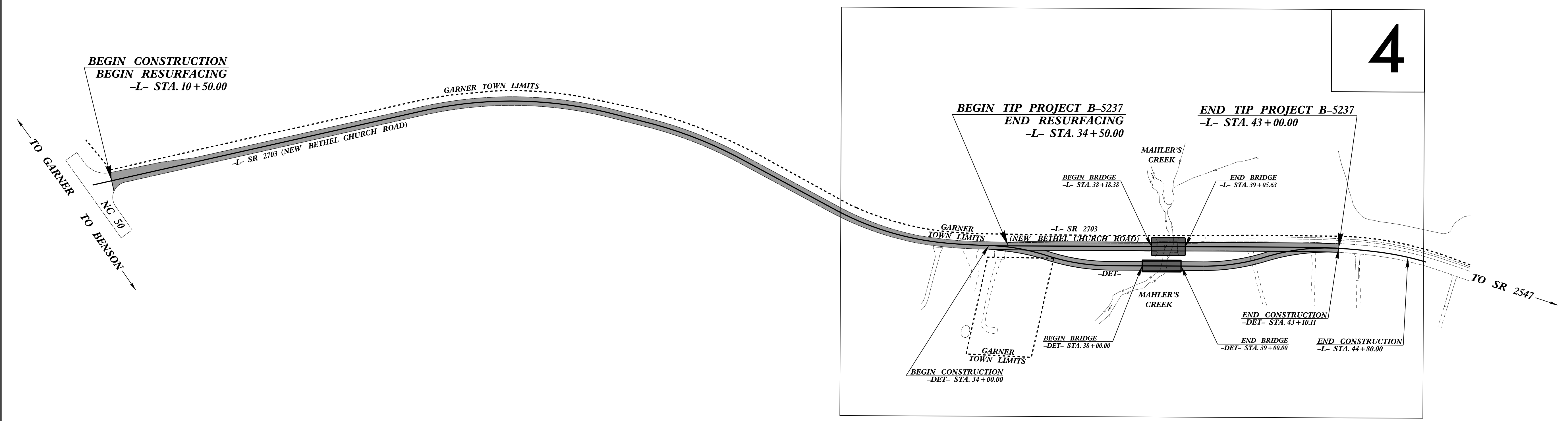
**LOCATION: BRIDGE NO. 248 OVER MAHLER'S CREEK
ON SR 2703 (NEW BETHEL CHURCH ROAD)**

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE

90% PLANS

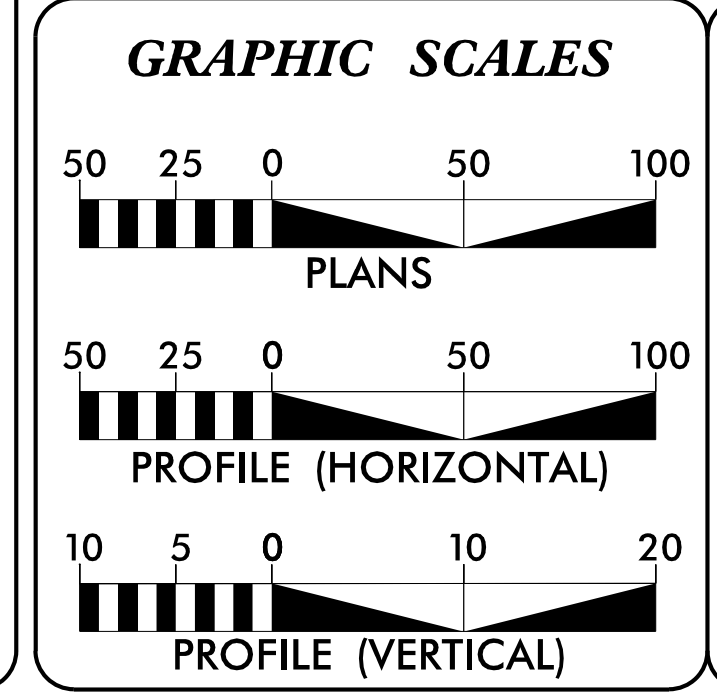
TIP PROJECT: B-5237

CONTRACT: C204112



THERE IS NO CONTROL OF ACCESS ON THIS PROJECT.

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



DESIGN DATA

ADT 2018	=	4650
ADT 2038	=	9065
K	=	10 %
D	=	60 %
T	=	4 % *
V	=	40 MPH
*(TTST=1%+DUAL=3%)		
FUNC CLASS	=	LOCAL
SUBREGIONAL TIER	=	

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-5237	=	0.144 MILES
LENGTH STRUCTURE TIP PROJECT B-5237	=	0.017 MILES
TOTAL LENGTH TIP PROJECT B-5237	=	0.161 MILES

Prepared for NCDOT in the Office of:

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133 Fayetteville Street, Suite 210
Raleigh, North Carolina 27601
919-714-8670 | meadhunt.com
NC License No. F-1235

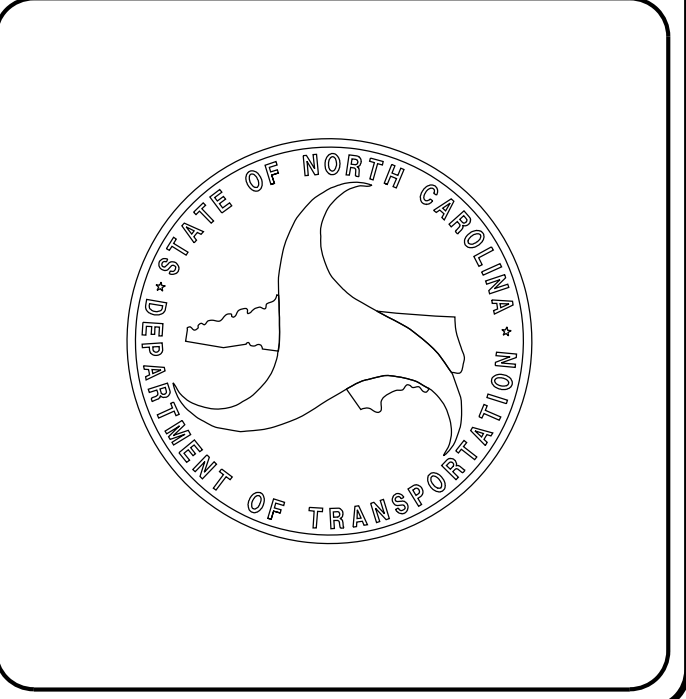
2018 STANDARD SPECIFICATIONS	RICK DECOLA, PE PROJECT ENGINEER
RIGHT OF WAY DATE: AUGUST 22, 2017	VASIM BARODAWALA PROJECT DESIGN ENGINEER
LETTING DATE: APRIL 17, 2018	DAVID STUTTS, PE NCDOT CONTACT

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: _____ P.E.



02-NOV-2017 16:34
F:\Roadway\Proj\B5237_rdy_tsh.dgn
1784r1d

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

12/2/2016

BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○ EIP
Computed Property Corner	-----
Property Monument	□ ECM
Parcel/Sequence Number	①23
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 ---
Existing Historic Property Boundary	--- HPB ---
Known Contamination Area: Soil	☠-s-☠
Potential Contamination Area: Soil	☠-s-☠
Known Contamination Area: Water	☠-w-☠
Potential Contamination Area: Water	☠-w-☠
Contaminated Site: Known or Potential	☠?

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	--- WLB ---
Proposed Lateral, Tail, Head Ditch	--- FLOW ---
False Sump	▽

RAILROADS:

Standard Gauge	-----
RR Signal Milepost	○ MILEPOST 35
Switch	□ SWITCH
RR Abandoned	-----
RR Dismantled	-----

RIGHT OF WAY & PROJECT CONTROL:

Secondary Horiz and Vert Control Point	◆
Primary Horiz Control Point	○
Primary Horiz and Vert Control Point	◆
Exist Permanent Easement Pin and Cap	◇
New Permanent Easement Pin and Cap	◆
Vertical Benchmark	▲
Existing Right of Way Marker	△
Existing Right of Way Line	-----
New Right of Way Line	○ R W
New Right of Way Line with Pin and Cap	○ R W ▲
New Right of Way Line with Concrete or Granite R/W Marker	▲ R W
New Control of Access Line with Concrete C/A Marker	△ C/A
Existing Control of Access	△ C/A
New Control of Access	△ C/A
Existing Easement Line	--- E ---
New Temporary Construction Easement	--- E ---
New Temporary Drainage Easement	--- TDE ---
New Permanent Drainage Easement	--- PDE ---
New Permanent Drainage / Utility Easement	--- DUE ---
New Permanent Utility Easement	--- PUE ---
New Temporary Utility Easement	--- TUE ---
New Aerial Utility Easement	--- AUE ---

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	--- T ---
Proposed Guardrail	--- T ---
Existing Cable Guiderail	--- T ---
Proposed Cable Guiderail	--- T ---
Equality Symbol	⊕
Pavement Removal	⊗

VEGETATION:

Single Tree	☼
Single Shrub	☼

Note: Not to Scale *S.U.E. = *Subsurface Utility Engineering*

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	⊕
Power Line Tower	⊗
Power Transformer	⊗
U/G Power Cable Hand Hole	○
H-Frame Pole	●
U/G Power Line LOS B (S.U.E.*)	--- P ---
U/G Power Line LOS C (S.U.E.*)	--- P ---
U/G Power Line LOS D (S.U.E.*)	--- P ---

TELEPHONE:

Existing Telephone Pole	●
Proposed Telephone Pole	○
Telephone Manhole	⊕
Telephone Pedestal	⊕
Telephone Cell Tower	⊕
U/G Telephone Cable Hand Hole	○
U/G Telephone Cable LOS B (S.U.E.*)	--- T ---
U/G Telephone Cable LOS C (S.U.E.*)	--- T ---
U/G Telephone Cable LOS D (S.U.E.*)	--- T ---
U/G Telephone Conduit LOS B (S.U.E.*)	--- TC ---
U/G Telephone Conduit LOS C (S.U.E.*)	--- TC ---
U/G Telephone Conduit LOS D (S.U.E.*)	--- TC ---
U/G Fiber Optics Cable LOS B (S.U.E.*)	--- T FO ---
U/G Fiber Optics Cable LOS C (S.U.E.*)	--- T FO ---
U/G Fiber Optics Cable LOS D (S.U.E.*)	--- T FO ---

WATER:

Water Manhole	⊕
Water Meter	○
Water Valve	⊗
Water Hydrant	⊕
U/G Water Line LOS B (S.U.E.*)	--- W ---
U/G Water Line LOS C (S.U.E.*)	--- W ---
U/G Water Line LOS D (S.U.E.*)	--- W ---
Above Ground Water Line	--- A/G Water ---

TV:

TV Pedestal	⊕
TV Tower	⊗
U/G TV Cable Hand Hole	○
U/G TV Cable LOS B (S.U.E.*)	--- TV ---
U/G TV Cable LOS C (S.U.E.*)	--- TV ---
U/G TV Cable LOS D (S.U.E.*)	--- TV ---
U/G Fiber Optic Cable LOS B (S.U.E.*)	--- TV FO ---
U/G Fiber Optic Cable LOS C (S.U.E.*)	--- TV FO ---
U/G Fiber Optic Cable LOS D (S.U.E.*)	--- TV FO ---

GAS:

Gas Valve	◇
Gas Meter	⊕
U/G Gas Line LOS B (S.U.E.*)	--- G ---
U/G Gas Line LOS C (S.U.E.*)	--- G ---
U/G Gas Line LOS D (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 ---
SS Forced Main Line LOS B (S.U.E.*)	--- FSS ---
SS Forced Main Line LOS C (S.U.E.*)	--- FSS ---
SS Forced Main Line LOS D (S.U.E.*)	--- FSS ---

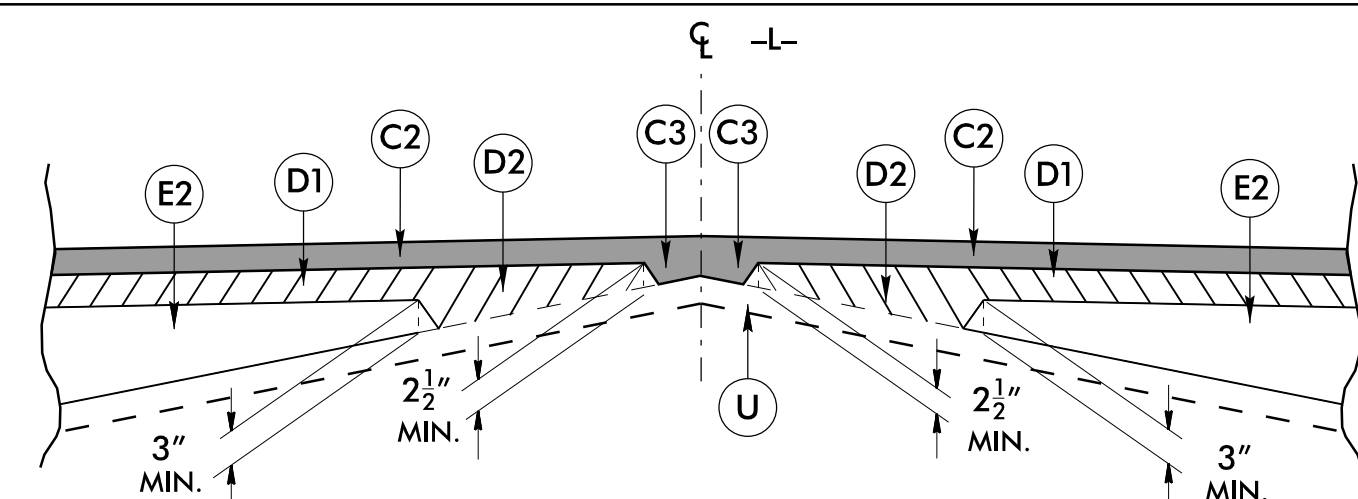
MISCELLANEOUS:

Utility Pole	●
Utility Pole with Base	□
Utility Located Object	○
Utility Traffic Signal Box	⊕
Utility Unknown U/G Line LOS B (S.U.E.*)	--- 7UTL ---
U/G Tank; Water, Gas, Oil	□
Underground Storage Tank, Approx. Loc.	⊕
A/G Tank; Water, Gas, Oil	□
Geoenvironmental Boring	⊕
U/G Test Hole LOS A (S.U.E.*)	⊕
Abandoned According to Utility Records	AATUR
End of Information	E.O.I.

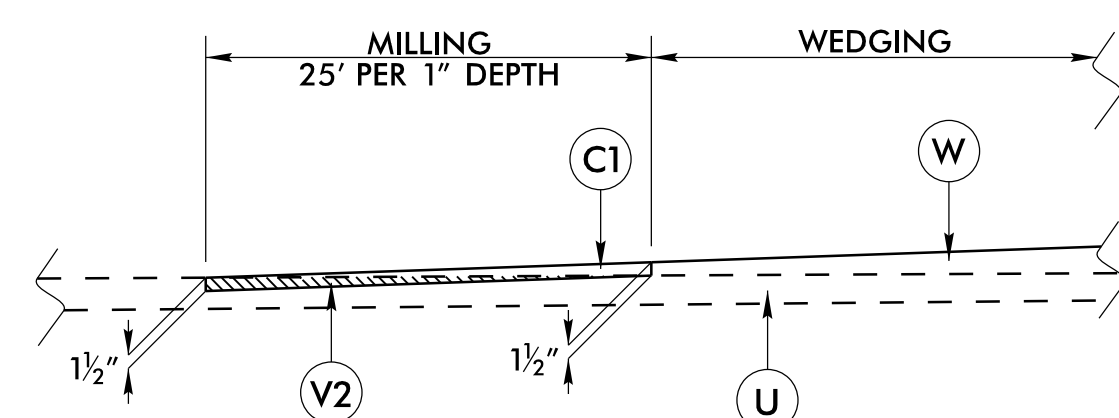
6/2/99

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 2½" OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	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 THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
J1	PROP. 8" AGGREGATE BASE COURSE
R1	2'-6" CONCRETE CURB AND GUTTER
R2	CONCRETE SHOULDER BERM GUTTER
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	ASPHALT PAVEMENT MILLING 0" TO 3"
V2	INCIDENTAL MILLING
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL)

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

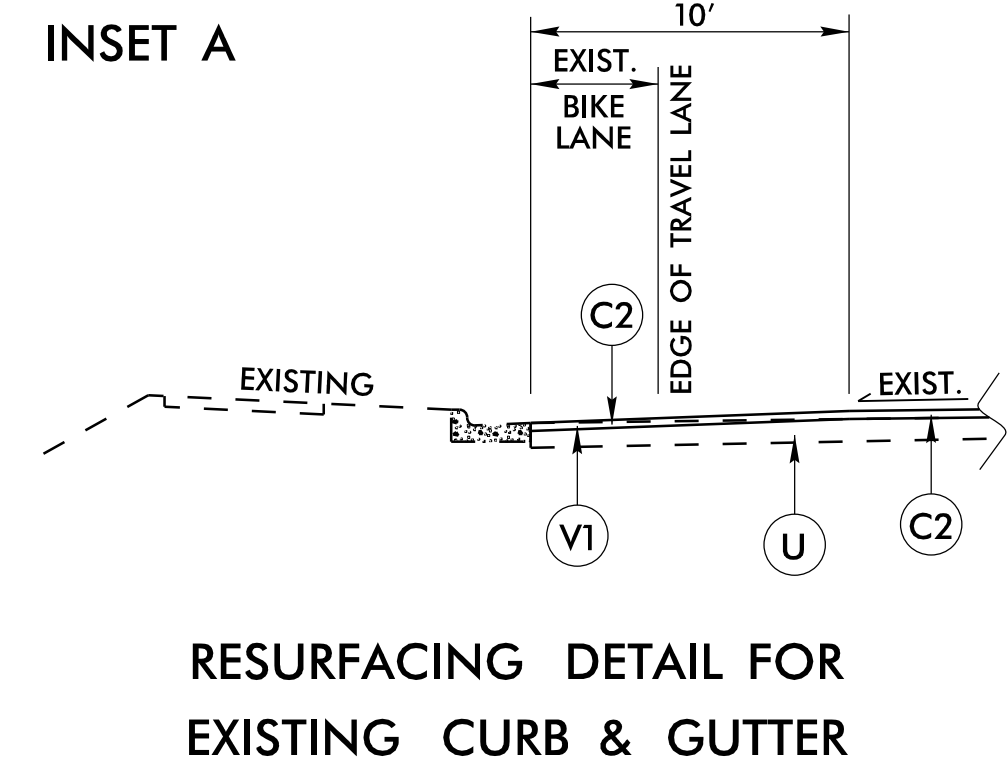


STANDARD WEDGING DETAIL

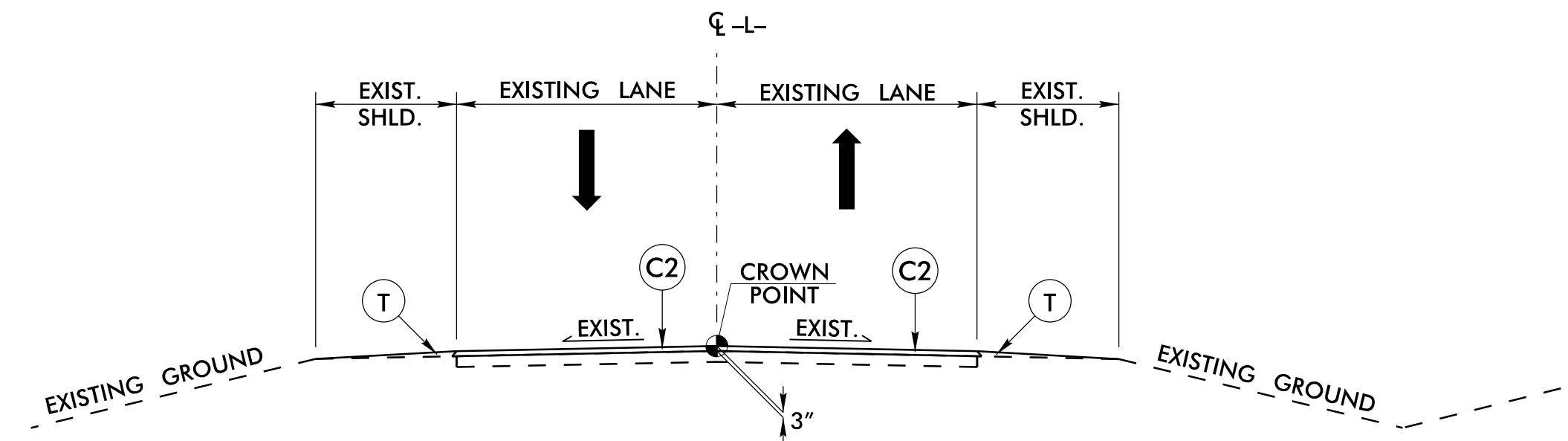


NOTE: FEATHER OUT THE FIRST 1½" LIFT OF SURFACE COURSE AND TIE THE SECOND 1½" LIFT INTO THE MILLED JOINT.

DETAIL OF MILLING AT PAVEMENT TIE-INS

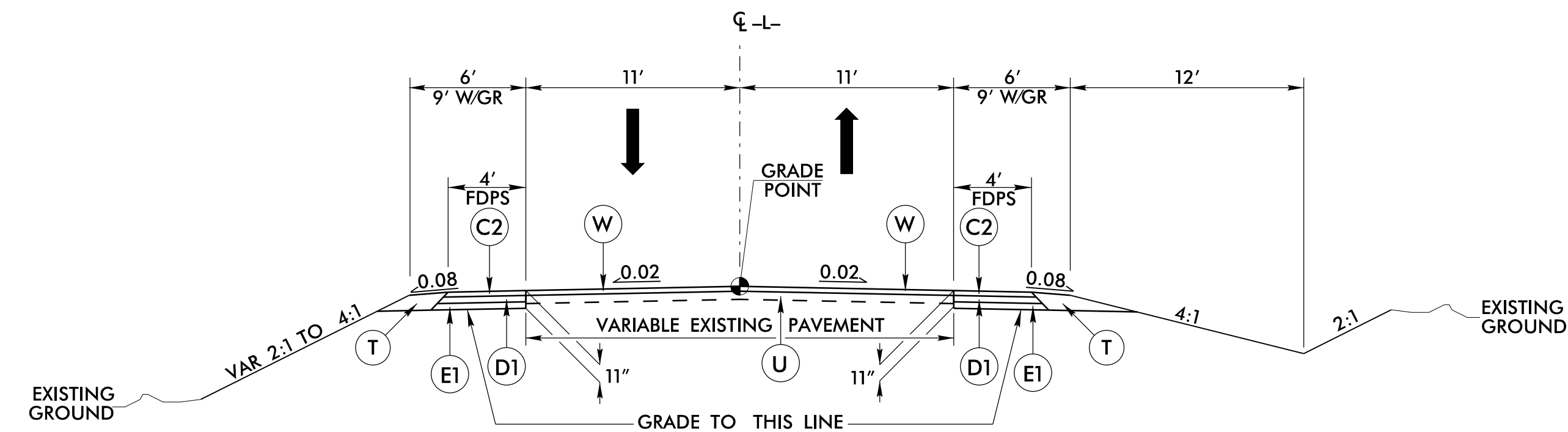


RESURFACING DETAIL FOR EXISTING CURB & GUTTER



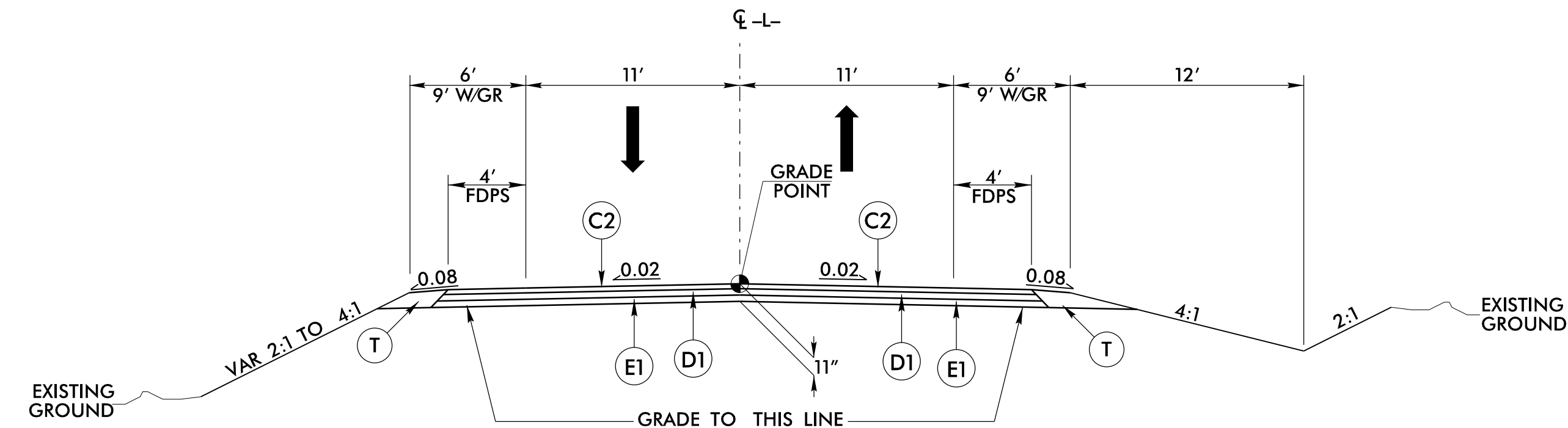
TYPICAL SECTION NO. 1
RESURFACING DETAIL
SEE INSET A FOR CURB & GUTTER SECTIONS

USE TYPICAL SECTION NO. 1
-L- STA. 10+50.00 TO STA. 34+50.00



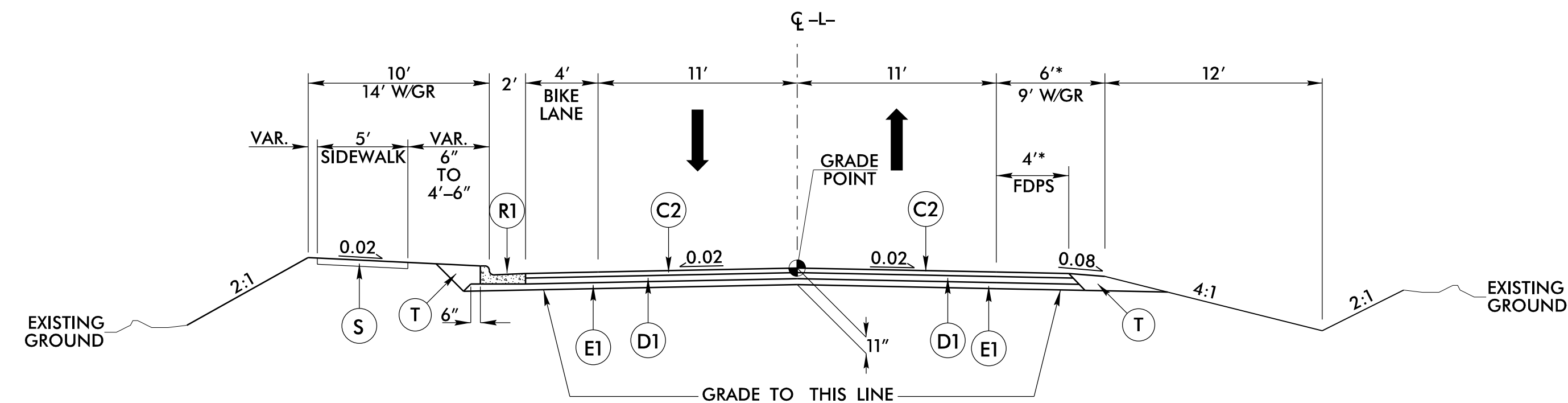
TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2
-L- STA. 34+50.00 TO STA. 36+00.00



TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3
-L- STA. 36+00.00 TO STA. 37+60.00



TYPICAL SECTION NO. 4

* SEE INSET B FOR SHOULDER WIDENING

USE TYPICAL SECTION NO. 4
-L- STA. 37+60.00 TO STA. 38+18.38 (BEGIN BRIDGE)
-L- STA. 39+05.63 (END BRIDGE) TO STA. 40+50.00

PROJECT REFERENCE NO. B-5237	SHEET NO. 2A-1
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

133 Fayetteville Street, Suite 210
Raleigh, North Carolina 27601
919-714-8670 | meadhunt.com
NC License No. F-1235

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 1784

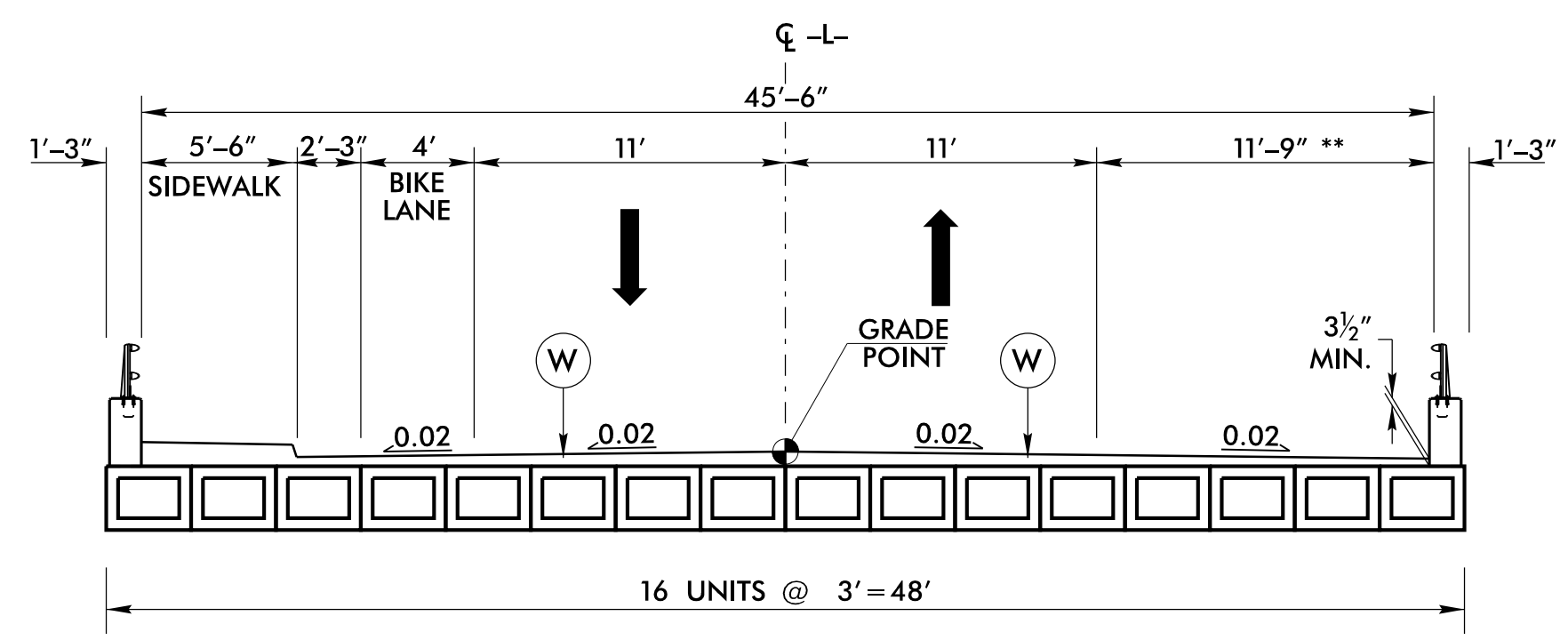
PROJECT REFERENCE NO. <i>B-5237</i>	SHEET NO. <i>2A-2</i>
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

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 NC License No. F-1235

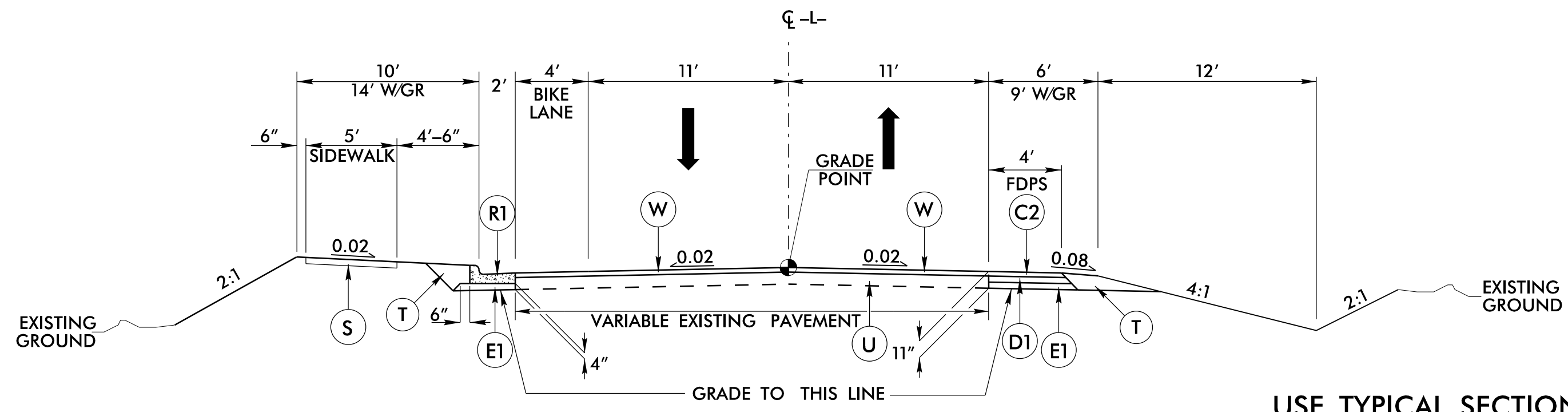
PAVEMENT SCHEDULE

C1	1½" TYPE S9.5B
C2	3" TYPE S9.5B
C3	VAR. TYPE S9.5B
D1	4" TYPE I19.0B
D2	VAR. TYPE I19.0B
E1	4" TYPE B25.0B
E2	VAR. TYPE B25.0B
J1	8" AGGREGATE BASE COURSE
R1	2'-6" CONCRETE C&G
R2	CONC. SHOULDER BERM GUTTER
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	0"-3" PAVEMENT MILLING
V2	INCIDENTAL MILLING
W	WEDGING



TYPICAL SECTION NO. 5
****WIDENING FOR FUTURE SIDEWALK AND BIKE LANE**

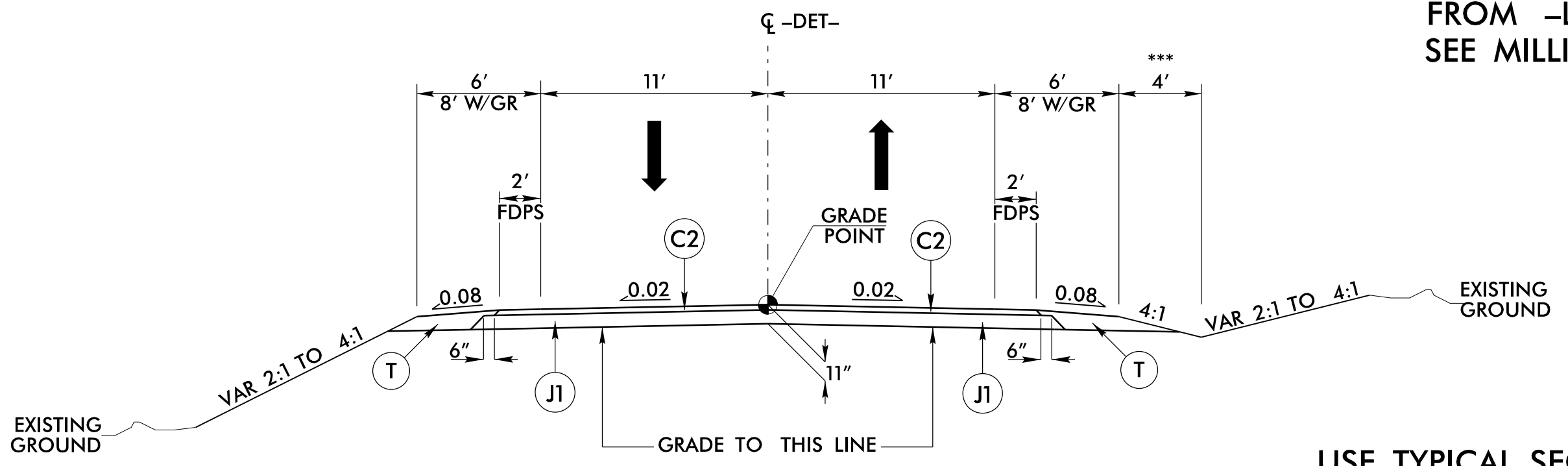
USE TYPICAL SECTION NO. 5
 -L- STA. 38+18.38 (BEGIN BRIDGE) TO STA. 39+05.63 (END BRIDGE)



TYPICAL SECTION NO. 6

USE TYPICAL SECTION NO. 6
 -L- STA. 40+50.00 TO STA. 42+50.00

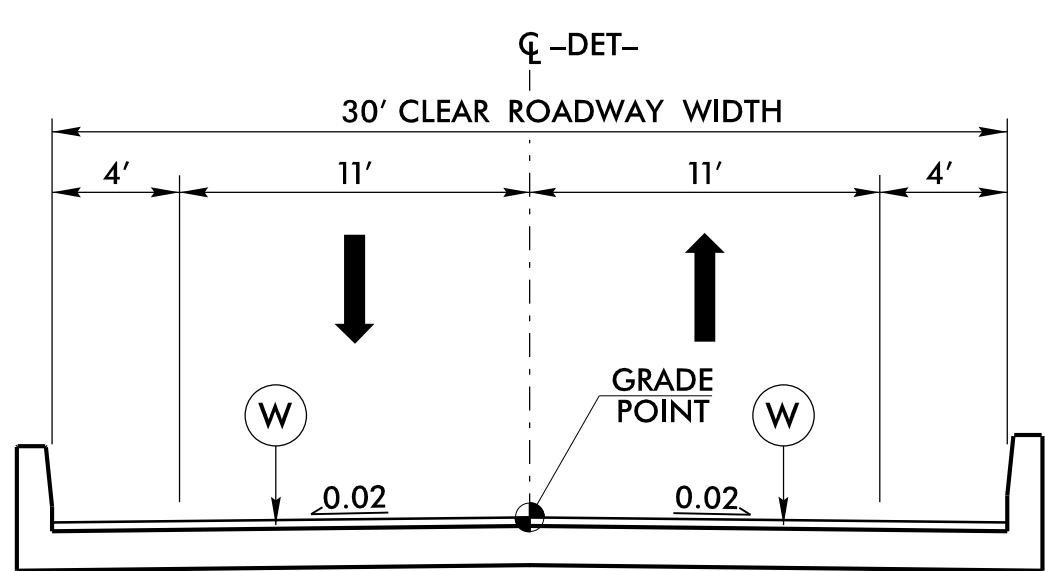
**NOTE: TRANSITION FROM TYPICAL SECTION NO. 6 TO EXISTING
 FROM -L- STA. 42+50.00 TO 43+00.00
 SEE MILLING DETAIL**



TYPICAL SECTION NO. 7

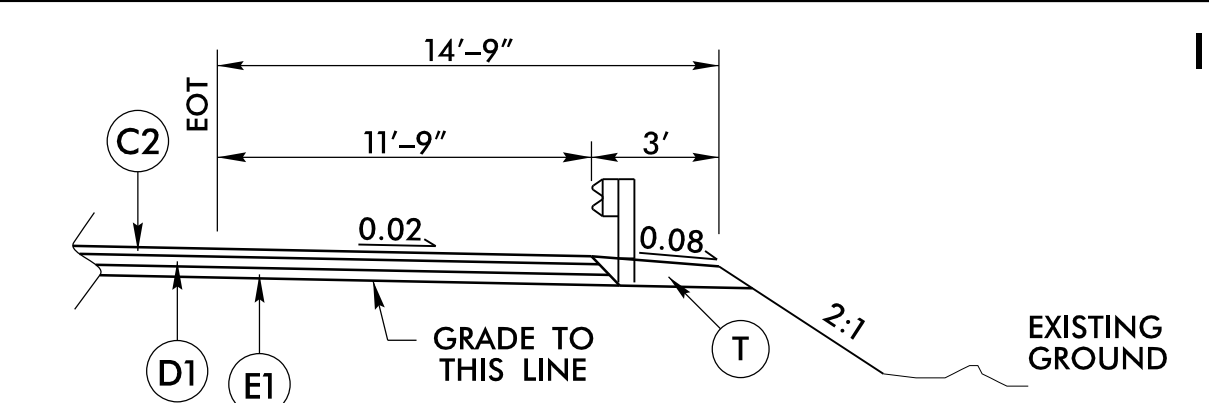
*****MINIMUM 1' DITCH DEPTH**

USE TYPICAL SECTION NO. 7
 -DET- STA. 34+94.78 TO STA. 38+00.00 (BEGIN BRIDGE)
 -DET- STA. 39+00.00 (END BRIDGE) TO STA. 41+85.73



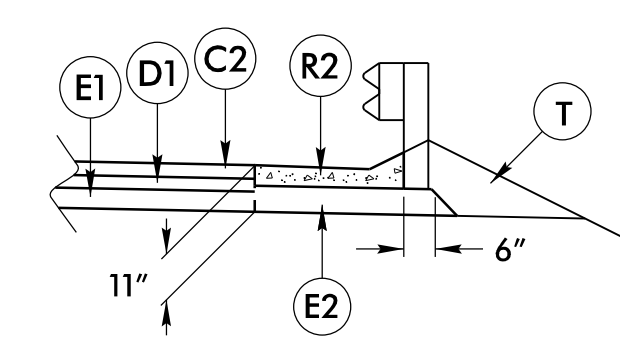
TYPICAL SECTION NO. 8

USE TYPICAL SECTION NO. 8
 -DET- STA. 38+00.00 (BEGIN BRIDGE) TO STA. 39+00.00 (END BRIDGE)



INSET B

WIDENING FOR FUTURE SIDEWALK AND BIKE LANE
USE INSET B
 -L- STA. 37+56.90 RT. TO STA. 38+18.38 RT. (BEGIN BRIDGE)
 -L- STA. 39+05.63 RT. (END BRIDGE) TO STA. 39+66.95 RT.



USE DETAIL
 -L- STA. 39+16.51 TO STA. 39+35.00 RT.

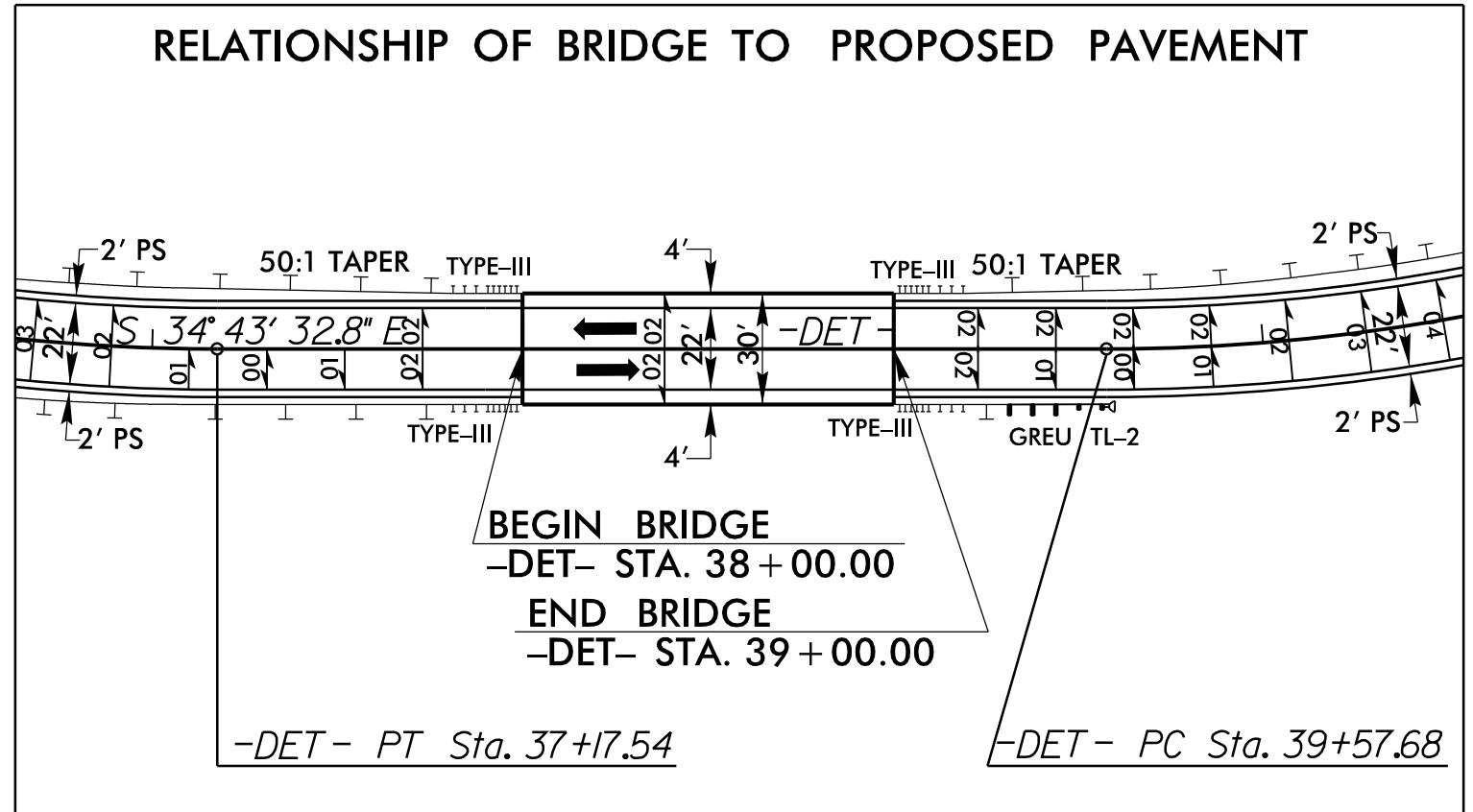
SHOULDER BERM GUTTER DETAIL

-L- CURVE DATA

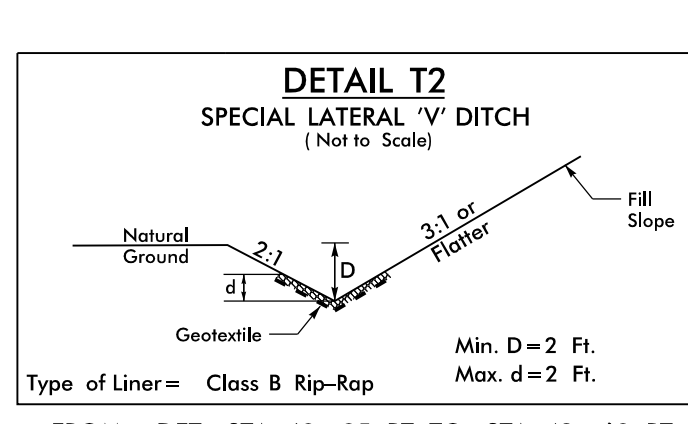
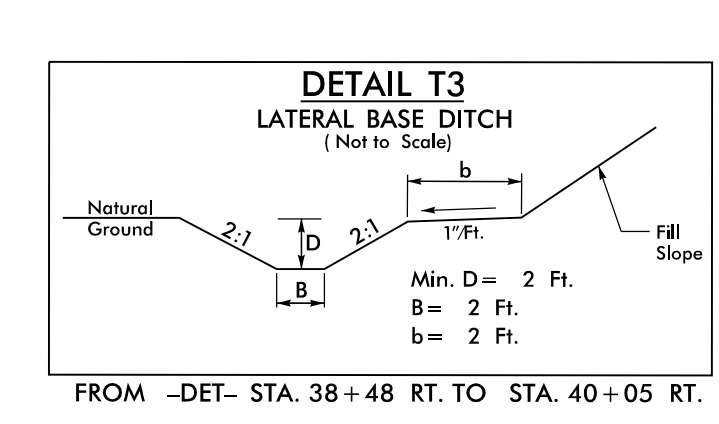
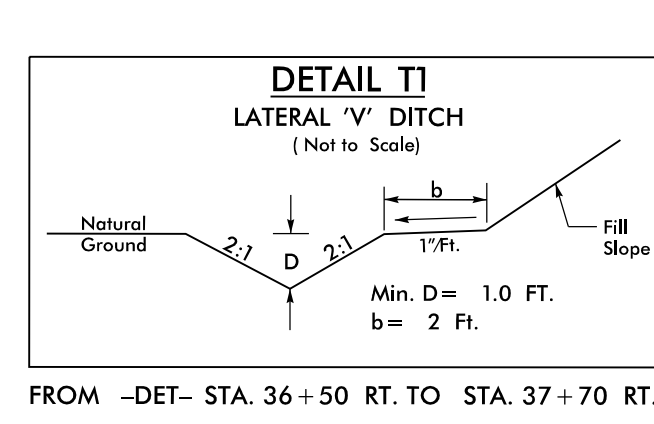
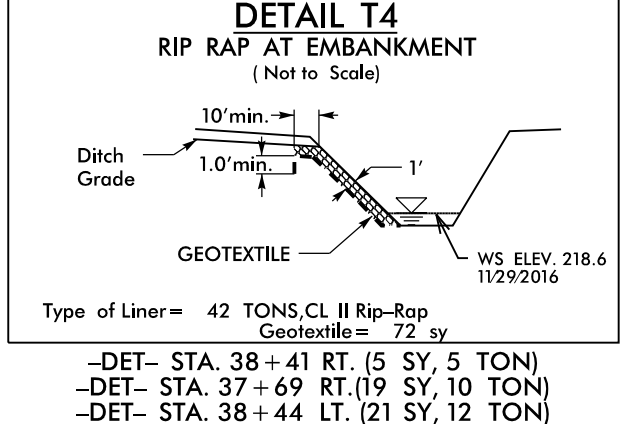
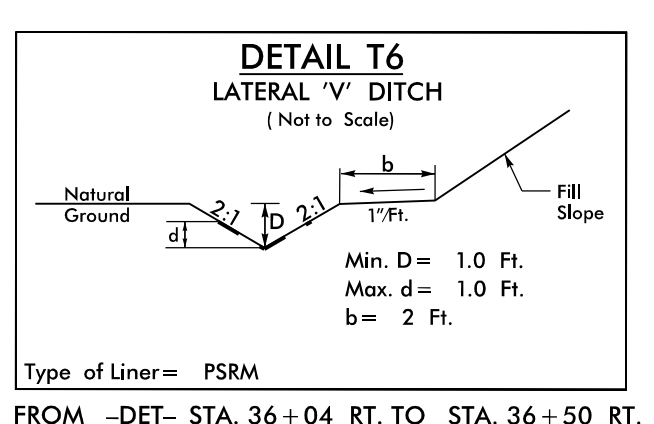
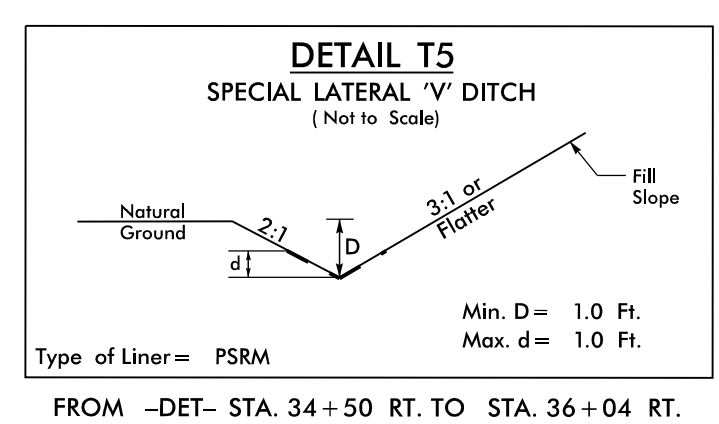
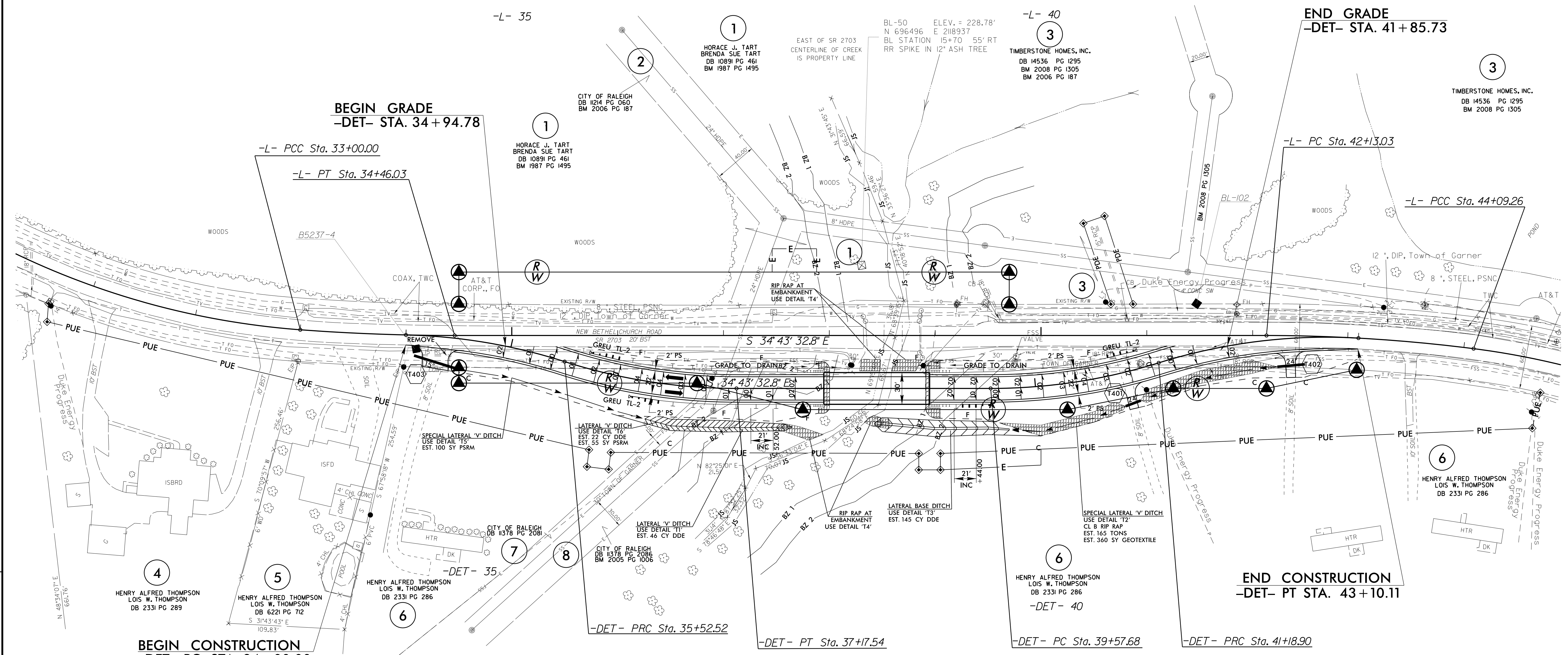
PI Sta 21+19.80 Δ = 26° 51' 04.5" (RT) D = 5' 27' 24.3" L = 492.07' T = 250.64' R = 1,050.00'	PI Sta 25+86.78 Δ = 14° 06' 58.7" (RT) D = 5' 27' 24.3" L = 258.69' T = 130.01' R = 1,050.00'	PI Sta 31+46.58 Δ = 23° 47' 17.3" (LT) D = 7' 38' 22.0" L = 311.39' T = 157.97' R = 750.00'	PI Sta 33+73.05 Δ = 4° 15' 52.3" (LT) D = 2' 55' 13.1" L = 146.03' T = 73.05' R = 1,961.98'	PI Sta 43+11.28 Δ = 7° 16' 19.9" (RT) D = 3' 42' 21.4" L = 196.23' T = 98.25' R = 1,546.05'	PI Sta 44+68.50 Δ = 9° 02' 12.3" (RT) D = 7' 38' 34.4" L = 118.24' T = 59.24' R = 749.66'
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-DET- CURVE DATA

PI Sta 34+76.78 Δ = 16° 23' 43.4" (RT) D = 10' 44' 58.8" L = 152.52' T = 76.78' R = 533.00' SE = 4% RO = 84'	PI Sta 36+35.70 Δ = 17° 44' 22.6" (LT) D = 10' 44' 58.8" L = 165.02' T = 83.18' R = 533.00' SE = 4% RO = 84'	PI Sta 40+38.91 Δ = 17° 19' 52.9" (LT) D = 10' 44' 58.8" L = 161.23' T = 81.23' R = 533.00' SE = 4% RO = 84'	PI Sta 42+15.55 Δ = 20° 33' 16.1" (RT) D = 10' 44' 58.8" L = 191.21' T = 96.64' R = 533.00' SE = 4% RO = 84'
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TEMPORARY DETOUR



NOTE: ALL TEMP DRIVEWAY RADII ARE 10'
FOR -L- DESIGN, SEE SHEET 4
FOR -DET- PROFILE, SEE SHEET 5

REVISIONS

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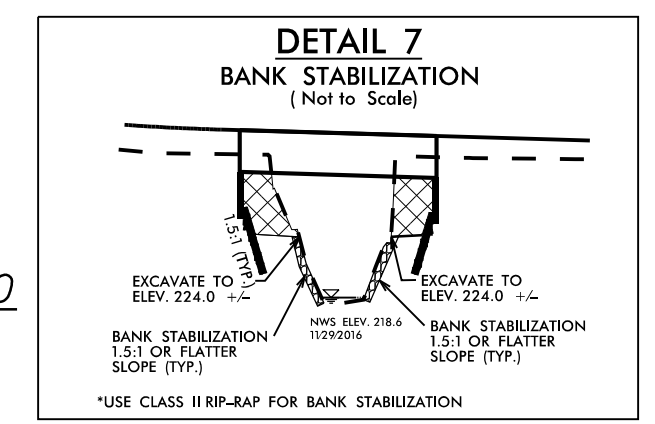
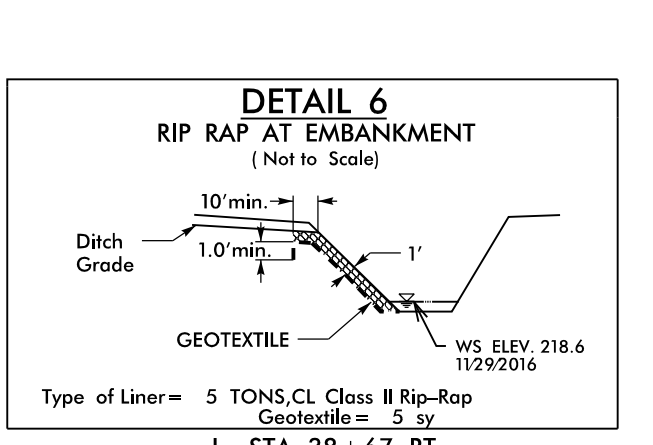
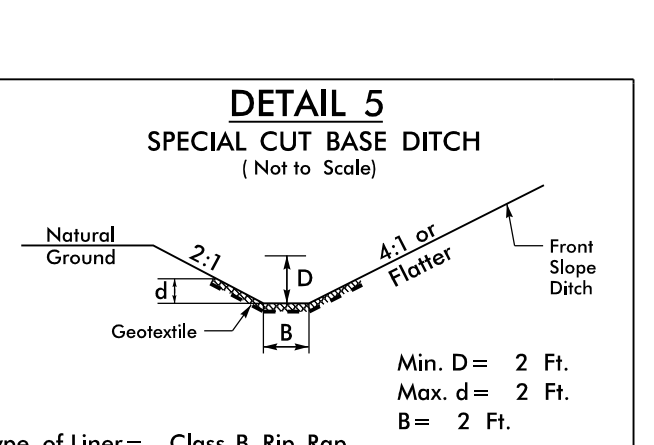
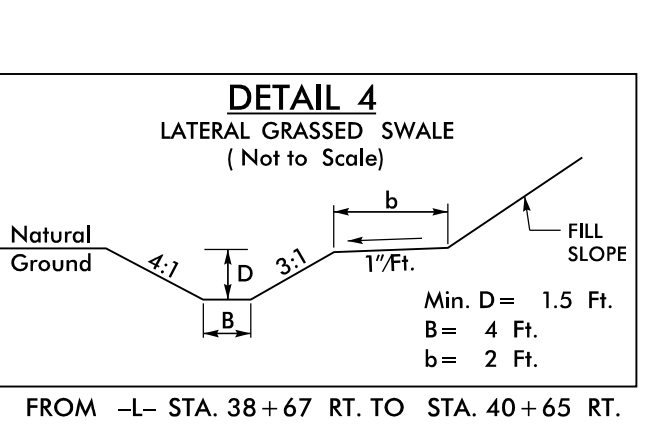
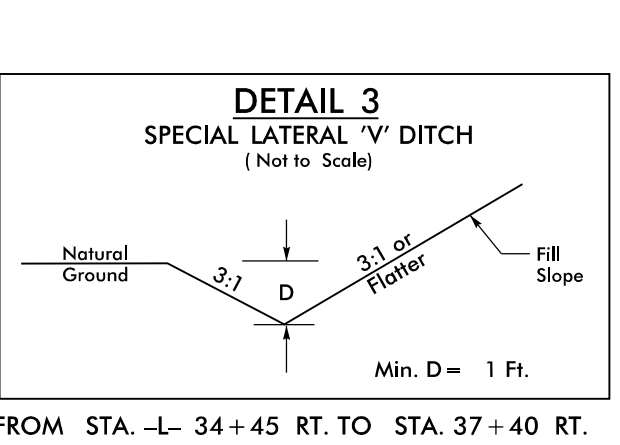
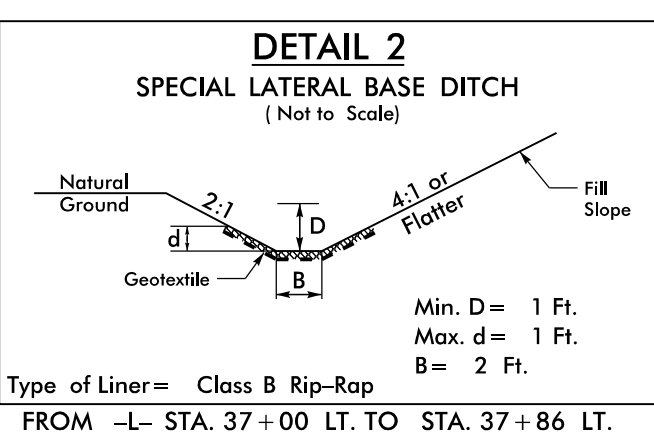
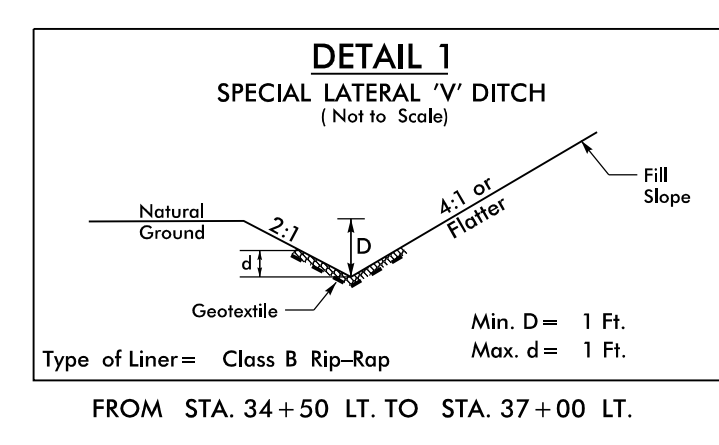
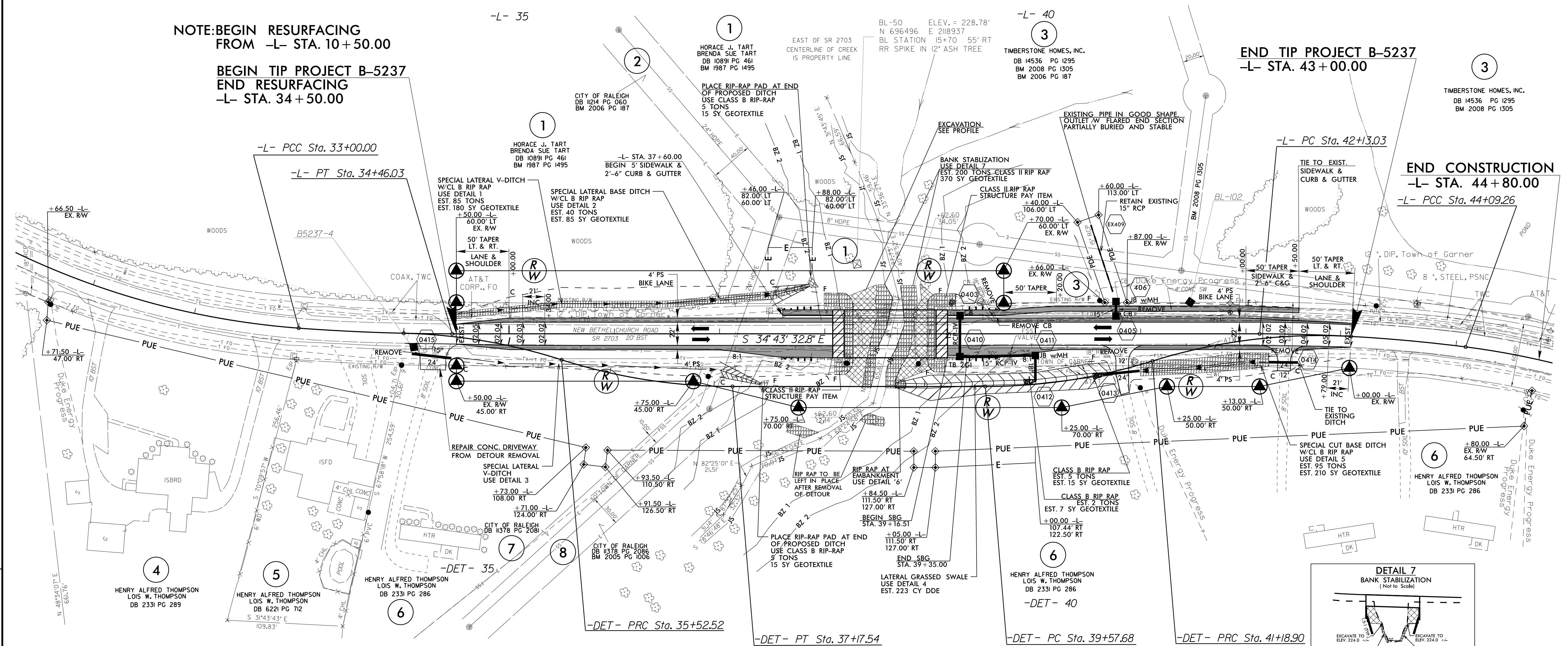
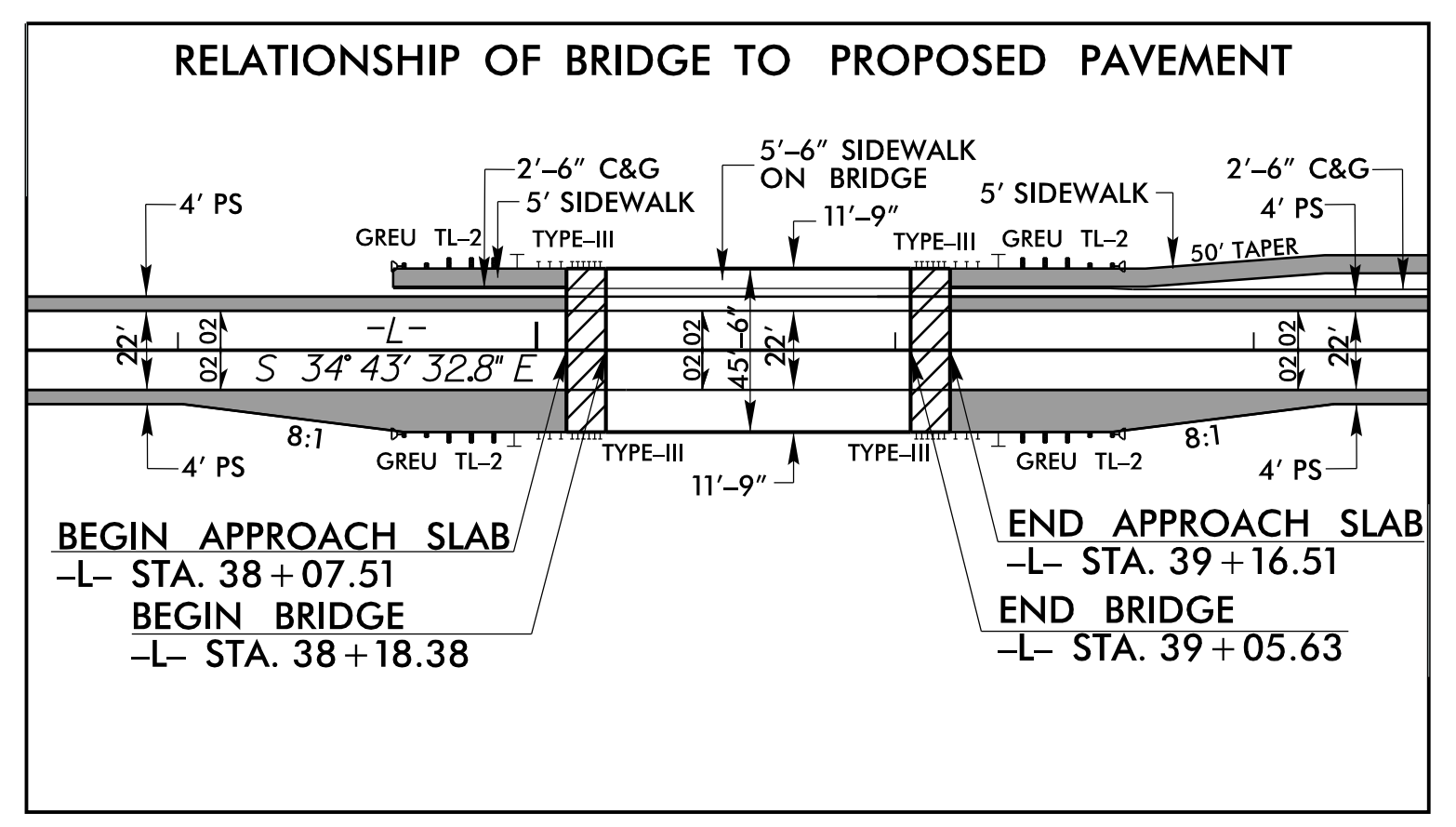
8/17/99

-L- CURVE DATA

PI Sta 21+19.80 Δ = 26° 51' 04.5" (RT) D = 5' 27' 24.3" L = 492.07' T = 250.64' R = 1,050.00'	PI Sta 25+86.78 Δ = 14° 06' 58.7" (RT) D = 5' 27' 24.3" L = 258.69' T = 130.01' R = 1,050.00'	PI Sta 31+46.58 Δ = 23° 47' 17.3" (LT) D = 7' 38' 22.0" L = 311.39' T = 157.97' R = 750.00'	PI Sta 33+73.05 Δ = 4° 15' 52.3" (LT) D = 2' 55' 13.1" L = 146.03' T = 73.05' R = 1,961.98'	PI Sta 43+11.28 Δ = 7° 16' 19.9" (RT) D = 3' 42' 21.4" L = 196.23' T = 98.25' R = 1,546.05'	PI Sta 44+68.50 Δ = 9° 02' 12.3" (RT) D = 7' 38' 34.4" L = 118.24' T = 59.24' R = 749.66'
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-DET- CURVE DATA

PI Sta 34+76.78 Δ = 16° 23' 43.4" (RT) D = 10' 44' 58.8" L = 152.52' T = 76.78' R = 533.00' SE = 4% RO = 84'	PI Sta 36+35.70 Δ = 17° 44' 22.6" (LT) D = 10' 44' 58.8" L = 165.02' T = 83.18' R = 533.00' SE = 4% RO = 84'	PI Sta 40+38.91 Δ = 17° 19' 52.9" (LT) D = 10' 44' 58.8" L = 161.23' T = 81.23' R = 533.00' SE = 4% RO = 84'	PI Sta 42+15.55 Δ = 20° 33' 16.1" (RT) D = 10' 44' 58.8" L = 191.21' T = 96.64' R = 533.00' SE = 4% RO = 84'
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NOTE: ALL DRIVEWAY RADII ARE 15'

BRIDGE APPROACH SLAB
FOR -DET- DESIGN, SEE SHEET 2B-1
FOR -L- AND -DET- PROFILE, SEE SHEET 5

8/17/99
REVISIONS
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DATUM DESCRIPTION

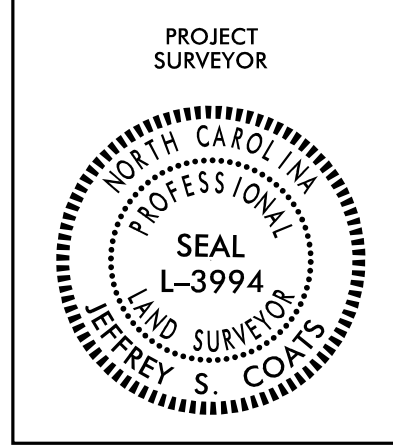
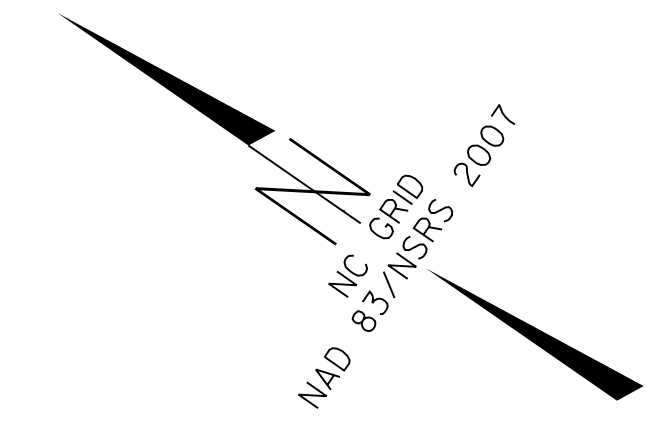
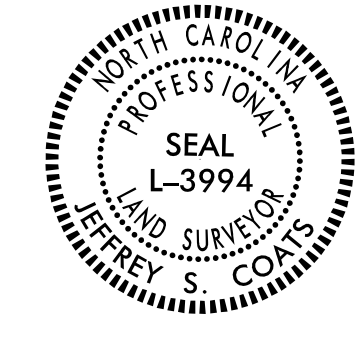
THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B5237-1"
 WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 693649.803(ft) EASTING: 2120669.063(ft) ELEVATION: 298.06(ft)
 THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99988927
 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B5237-1" TO -L- STATION IS
 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

I, JEFFREY S. COATS, a Professional Land Surveyor in the state of North Carolina hereby certify to the best of my knowledge and belief that the following work item(s) (R/W Staking) performed under my responsible charge meet NCDOT Survey Standards as directed in the NCDOT Location & Surveys guidelines and procedures.

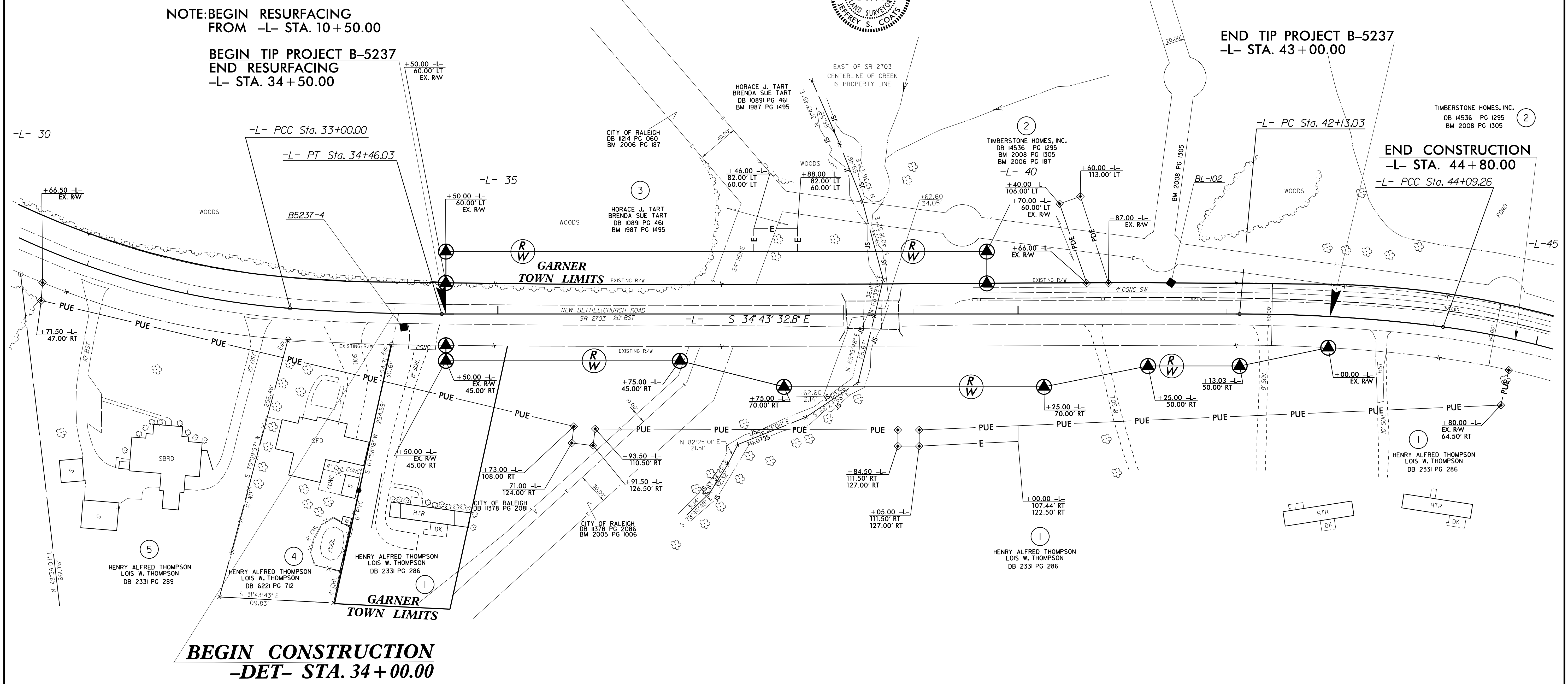
I further certify that the right of way and permanent easement points shown herein and outlined in the tables shown hereon (localized coordinates, station/offset) have been checked and are accurate representations of the right of way and permanent easement points depicted on the corresponding highway plans. I also certify that the right of way and permanent easement points shown herein have been field monumented under my supervision from existing survey control provided by others; that the depicted property data shown herein were surveyed by others; and these monuments denote the right of way and easement boundaries at the time of staking which may be subject to change due to right of way revisions (See deeds for final determination).

Witness my original signature, registration number and seal this 6th day of October, 2017.

Professional Land Surveyor L-3994 PLS # Seal



PI Sta 43+11.28 Δ = 7' 16" 19.9" (RT) D = 3' 42" 21.4" L = 196.23' T = 98.25' R = 1,546.05'
 PI Sta 44+68.50 Δ = 9' 02" 12.3" (RT) D = 7' 38" 34.4" L = 118.24' T = 59.24' R = 749.66'



NOTES:

- IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
- PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.

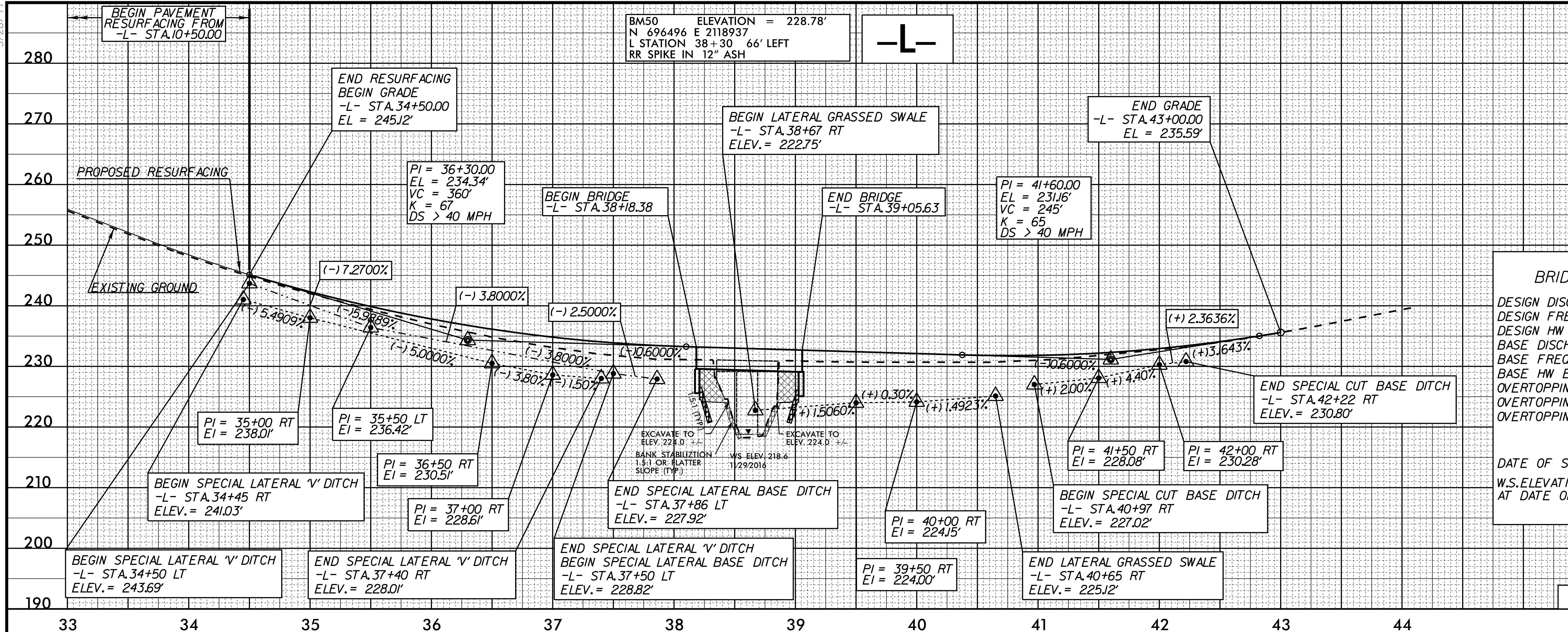
NOTE: DRAWING NOT TO SCALE

5/28/19

PROJECT REFERENCE NO. B-5237	SHEET NO. 5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

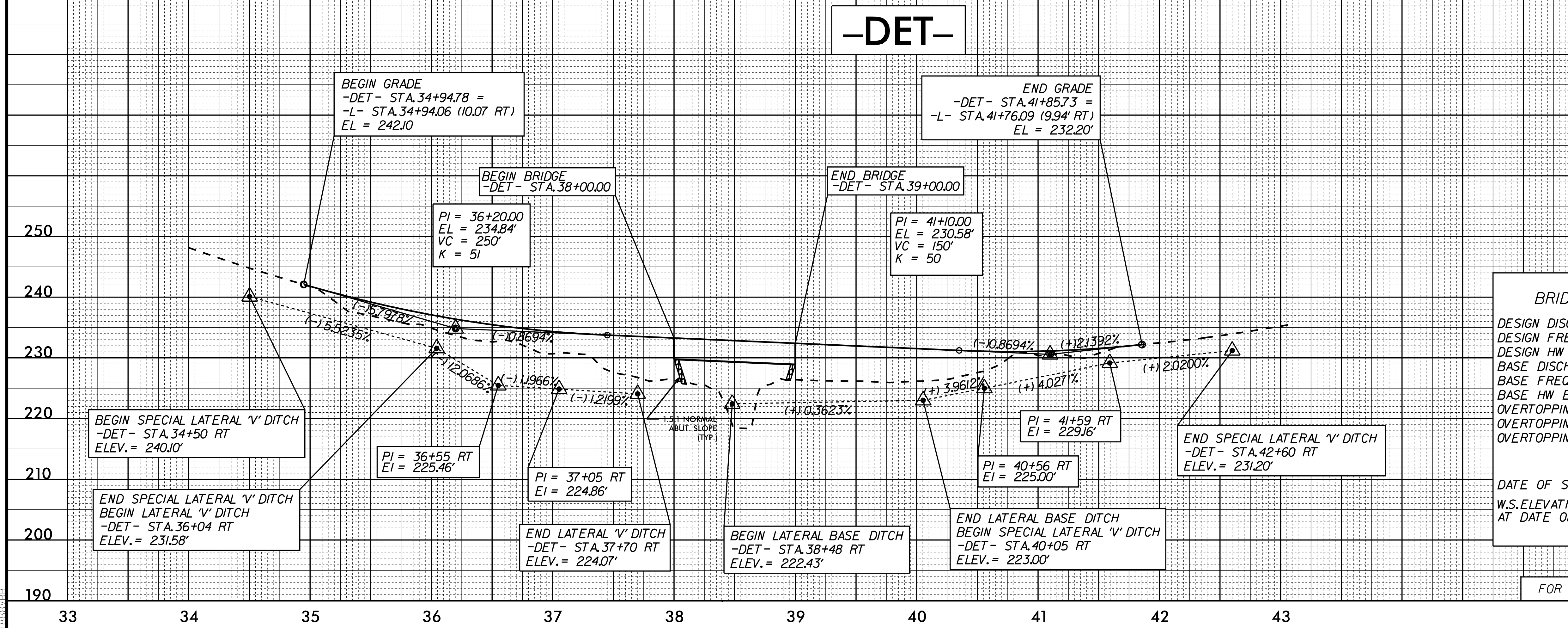
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 Raleigh, North Carolina 27601
 919-714-8670 | meadhunt.com
 NC License No. F-1235



-L- BRIDGE HYDRAULIC DATA		
DESIGN DISCHARGE	= 1700	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 228.0	FT
BASE DISCHARGE	= 2200	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 228.80	FT
OVERTOPPING DISCHARGE	= 4475	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 231.8	FT
DATE OF SURVEY = 11/29/2016		
W.S.ELEVATION AT DATE OF SURVEY = 218.6 FT		
RIGHT DITCH	-----	200
LEFT DITCH	-----	200
FOR -L- PLAN, SEE SHEET 4		

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-DET-



-DET- BRIDGE HYDRAULIC DATA		
DESIGN DISCHARGE	= 1200	CFS
DESIGN FREQUENCY	= 10	YRS
DESIGN HW ELEVATION	= 227.6	FT
BASE DISCHARGE	= 2200	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 228.9	FT
OVERTOPPING DISCHARGE	= 3600	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 231.1	FT
DATE OF SURVEY = 11/29/2016		
W.S.ELEVATION AT DATE OF SURVEY = 218.6 FT		
RIGHT DITCH	-----	200
FOR -DET- PLAN, SEE SHEET 2B-1		

