



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

JAMES H. TROGDON, III
SECRETARY

August 15, 2017

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

ATTN: Mr. David Bailey
NCDOT Division 7 Project Coordinator

SUBJECT: **Application for Section 404 Nationwide Permit Nos. 13, 23, and 33, Section 401 Water Quality Certification, and Jordan Lake Riparian Buffer Certification** for the replacement of Bridge No. 126 over Mill Race and Bridge No. 119 over Haw River on NC 87, Division 7, Alamance County, Federal Aid Project No. BRSTP-0087(29) WBS # 42841.1.1, TIP Project No. B-5239.
Debit \$240.00

Dear Sir:

The North Carolina Department of Transportation (NCDOT) proposes to replace Bridge Nos. 126 over Mill Race and 119 over the Haw River with two new bridges. The bridge over Mill Race will be a 70-foot, single span bridge and the bridge over the Haw River will be a 275-foot, 5 span bridge. There will be an onsite detour to maintain traffic along NC 87.

There will be 28 linear feet of permanent bank stabilization impacts and 247 linear feet of temporary impacts (from bank stabilization and causeways) to streams; <0.01 acre of permanent excavation and 0.07 acre of temporary impacts (from fill and rip rap) to wetlands; 8,074 square feet of permanent impacts in buffer zone 1 and 5,141 square feet of permanent impacts in buffer zone 2; and 6,483 square feet of temporary impacts in buffer zone 1 and 4,296 square feet of temporary impacts in buffer zone 2. The proposed buffer impacts are allowable road and bridge crossings.

Please find enclosed the Pre-Construction Notification; Stormwater Management Plan; permit drawings; buffer drawings; and roadway plans for the subject project. A Categorical Exclusion (CE) was completed for this project in July 2016.

The proposed let date for this project is November 7, 2014, with a let review date of October 3, 2017. However, the let date may advance as additional funds become available.

A copy of this permit application will be posted on the NCDOT Website at <https://connect.ncdot.gov/resources/Environmental/Pages/default.aspx>, under *Quick Links* >


Mailing Address:
NC DEPARTMENT OF TRANSPORTATION
NATURAL ENVIRONMENT SECTION
1598 MAIL SERVICE CENTER
RALEIGH NC 27699-1598

Telephone: (919) 707-6000
Fax: (919) 212-5785
Customer Service: 1-877-368-4968
Website: www.ncdot.gov

Location:
1020 BIRCH RIDGE DRIVE
RALEIGH NC 27610

A copy of this permit application will be posted on the NCDOT Website at <https://connect.ncdot.gov/resources/Environmental/Pages/default.aspx>, under *Quick Links > Permit Applications*. A copy of the CE is also available at the above website address under *Quick Links > Environmental Documents*. Thank you for your assistance with this project. If you have any questions or need additional information, please contact Bill Barrett at either wabarrett@ncdot.gov or (919) 707-6103.

Sincerely,


for Philip S. Harris III, P.E., C.P.M.
Environmental Analysis Unit

cc:
NCDOT Permit Application Standard Distribution List



Pre-Construction Notification (PCN) Form

For Nationwide Permits and Regional General Permits

(along with corresponding Water Quality Certifications)

June 28, 2017 Ver 1.8

*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.*

Below is a link to the DRAFT online help file.

<http://edocs.deq.nc.gov/WaterResources/0/doc/549884/Page1.aspx>

A. Processing Information

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

Alamance

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-5239

WBS #

42841.1.1

(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

Nationwide Permit (NWP) Number: 33 - Temporary Construction

Nationwide Permit (NWP) Number: 23 - Categorical Exclusions

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

B. Applicant Information

1a. Who is the Primary Contact? *

William Barrett

1b. Primary Contact Email: *

wabarrett@ncdot.gov

1c. Primary Contact Phone: *

(xxx)xxx-xxxx

(919)707-6103

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:*

Replacement of Bridge 126 over Mill Race and Bridge 119 over Haw River on NC 87

1b. Subdivision name:

(if appropriate)

1c. Nearest municipality / town:*

Altamahaw

1d. Driving directions*

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

GPS Mapping

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:*

36.182594

ex: 34.208504

Longitude:*

-79.5009942

-77.796371

3. Surface Waters

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

Haw River

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

WS-V, NSW

[Surface Water Lookup](#)

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

Cape Fear

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: *

The area of the project consists mostly of some residential areas, some undeveloped areas with a paddle access (Altamahaw Paddle Access) and commercial property (former mill).

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:

0.13

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

(intermittent and perennial)

700

4f. Explain the purpose of the proposed project:

To replace structurally deficient bridges (Bridge No. 119 has a sufficiency rating of 39.86 out of 100; and Bridge No. 126 has a sufficiency rating of 15.37 out of 100 and a substructure appraisal of 4 out of 9) that are also functionally obsolete (Bridge No. 119 has a structural appraisal of 3 out of 9 and a geometry appraisal of 3 out of 9; and Bridge No. 126 has a structural appraisal of 3 out of 9 and a deck geometry appraisal of 2 out of 9).

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

The project involves replacing Bridge No. 119 (a 275-foot bridge with a 285-foot, 5-span bridge) and Bridge No. 126 (a 51-foot bridge with a 70-foot bridge, single span bridge) on their existing alignments with an on-site detour to maintain traffic along NC 87.

The on-site detour will be located approximately 20 feet east of the existing roadway within a temporary easement. The total length of the on-site detour alignment is approximately 1, 485 feet. The detour alignment will utilize two 26-foot wide temporary bridges: one 265 feet long over the Haw River and one 86 feet long over the mill race. Both temporary structures will consist of two 11-foot lanes with 2-foot offsets on either side. Temporary connections will be made between the detour and SR 1558 (Old NC 87), SR 1002 (Altamahaw Union Bridge Road) and the parking area for the Altamahaw Paddle Access canoe point. The picnic area at the Altamahaw Paddle Access will remain open during construction, although a temporary closure of the driveway may be required in order to complete the tie of the driveway to the detour.

Standard road building equipment, such as trucks, dozers, 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

B5239_Hydro_Permit_Drawings.pdf 11.47MB

B-5239 Roadway Drawings.pdf 3.8MB

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

Corps AID Number:

Example: SAW-2017-99999

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

Name (if known): Greg Price
Agency/Consultant Company: NCDOT
Other:

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

5d1. Jurisdictional determination upload

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

B-5239 Prel JD signature.pdf	88.54KB
B-5239 Wetland forms.pdf	1.04MB
Revised B-5239 Figure 2 topo.pdf	45.44KB
Revised B-5239 Figure 3 Aerial.pdf	129.48KB

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

2. Wetland Impacts

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

2a. Site # - Reason for impact	2b. Impact type *	2c. Type of wetland	2d. Wetland name	2e. Forested	2f. Jurisdiction area type	2g. Impact
Site 1 CSP - detour Map label (e.g. Road Crossing 1)	T Permanent (P) or Temporary (T)	Bottomland Hardwood Forest		Yes	Corps (404, 10) or DWR (401, other)	0.020 (acres)
Site 2 Fill - rip rap Map label (e.g. Road Crossing 1)	T Permanent (P) or Temporary (T)	Bottomland Hardwood Forest		Yes	Corps (404, 10) or DWR (401, other)	0.010 (acres)

2a. Site # - Reason for impact	2b. Impact type *	2c. Type of wetland	2d. Wetland name	2e. Forested	2f. Jurisdiction type	2g. Impact area
Site 2 - Excavation Map label (e.g. Road Crossing 1)	P Permanent (P) or Temporary (T)	Bottomland Hardwood Forest		Yes	Corps (404, 10) or DWR (401, other)	0.010 (acres)
Site 2 - Fill - roadway Map label (e.g. Road Crossing 1)	T Permanent (P) or Temporary (T)	Bottomland Hardwood Forest		Yes	Corps (404, 10) or DWR (401, other)	0.040 (acres)

2g. Temporary Wetland Impact

0.070

2g. Permanent Wetland Impact

0.010

2g. Total Wetland Impact

0.080

2h. Comments:

There will be <0.01 acre of hand clearing in wetland at site 1.
The Permanent impact at site 2 is <0.01 acres.

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. Jurisdiction type	3g. Stream width	3h. Impact length
Site 1 Map label (e.g. Road Crossing 1)	T Permanent (P) or Temporary (T)	Other	Haw River	Perennial Perennial (PER) or intermittent (INT)	Corps	Average (feet)	82 (linear feet)
Site 1 Map label (e.g. Road Crossing 1)	P Permanent (P) or Temporary (T)	Bank Stabilization	Haw River	Perennial Perennial (PER) or intermittent (INT)	Corps	Average (feet)	10 (linear feet)
Site 1 Map label (e.g. Road Crossing 1)	T Permanent (P) or Temporary (T)	Bank Stabilization	Haw River	Perennial Perennial (PER) or intermittent (INT)	Corps	Average (feet)	10 (linear feet)
Site 1 Map label (e.g. Road Crossing 1)	T Permanent (P) or Temporary (T)	Other	Haw River	Perennial Perennial (PER) or intermittent (INT)	Corps	Average (feet)	53 (linear feet)
Site 2 Map label (e.g. Road Crossing 1)	T Permanent (P) or Temporary (T)	Other	Mill Race	Perennial Perennial (PER) or intermittent (INT)	Corps	Average (feet)	97 (linear feet)
Site 2 Map label (e.g. Road Crossing 1)	P Permanent (P) or Temporary (T)	Bank Stabilization	Mill Race	Perennial Perennial (PER) or intermittent (INT)	Corps	Average (feet)	18 (linear feet)
Site 2 Map label (e.g. Road Crossing 1)	T Permanent (P) or Temporary (T)	Bank Stabilization	Mill Race	Perennial Perennial (PER) or intermittent (INT)	Corps	Average (feet)	5 (linear feet)

** 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:

28

3i. Total temporary stream impacts:

247

3i. Total stream and tributary impacts:

275

3j. Comments:

4. Open Water Impacts

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

5. Pond or Lake Construction

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

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

Catawba

Goose Creek

Other

Tar-Pamlico

Randleman

Jordan Lake

6b. Impact Type	6c. Per or Temp	6d. Stream name	6e. Buffer mitigation required?	6f. Zone 1 impact	6g. Zone 2 impact
site 1 Road Allowable Location and Exempt, Allow able, allow able w/ mitigation	P Permanent (P) or Temporary (T)	Haw River	No	(square feet)	182 (square feet)
Site 1 Bridge Allowable Location and Exempt, Allow able, allow able w/ mitigation	P Permanent (P) or Temporary (T)	Haw River	No	4,997 (square feet)	2,631 (square feet)
Site 1 Road Allowable Location and Exempt, Allow able, allow able w/ mitigation	T Permanent (P) or Temporary (T)	Haw River	No	(square feet)	464 (square feet)
Site 1 Bridge Allowable Location and Exempt, Allow able, allow able w/ mitigation	T Permanent (P) or Temporary (T)	Haw River	No	3,224 (square feet)	1,722 (square feet)
Site 1 Road Allowable Location and Exempt, Allow able, allow able w/ mitigation	T Permanent (P) or Temporary (T)	Haw River	No	446 (square feet)	1,149 (square feet)
Site 2 Road Allowable Location and Exempt, Allow able, allow able w/ mitigation	P Permanent (P) or Temporary (T)	Mill Race	No	545 (square feet)	1,372 (square feet)
Site 2 Bridge Allowable Location and Exempt, Allow able, allow able w/ mitigation	P Permanent (P) or Temporary (T)	Mill Race	No	1,573 (square feet)	(square feet)

6b. Impact Type	6c. Per or Temp	6d. Stream name	6e. Buffer mitigation required?	6f. Zone 1 impact	6g. Zone 2 impact
Site 2 Road Allowable Location and Exempt, Allowable, allowable w/ mitigation	P Permanent (P) or Temporary (T)	Mill Race	No	959 (square feet)	956 (square feet)
Site 2 Bridge Allowable Location and Exempt, Allowable, allowable w/ mitigation	T Permanent (P) or Temporary (T)	Mill Race	No	1,731 (square feet)	53 (square feet)
Site 2 Road Allowable Location and Exempt, Allowable, allowable w/ mitigation	T Permanent (P) or Temporary (T)	Mill Race	No	1,082 (square feet)	908 (square feet)

6h. Total buffer impacts:

	Zone 1	Zone 2
Temporary impacts:	6,483.00	4,296.00
Permanent impacts:	8,074.00	5,141.00
Total buffer impacts:	14,557.00	9,437.00

6i. Comments:

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: *

The proposed bridge no. 119 is 10 feet longer than the existing bridge and proposed bridge no. 126 is 19 feet longer than the existing bridge; the proposed bridges will be at approximately the same grade as the existing structure; and 2:1 fill slopes will be used adjacent to wetlands and elsewhere as practicable.

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

This project requires a detour structure. The detour bridge will not discharge any water from the deck and will have minimal impacts to the stream. The detour structure will be removed and all disturbances will be stabilized.

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:

Permanent impacts to Wetlands = <0.01

Permanent impacts to Streams = 28 linear feet of Bank Stabilization (not loss of waters)

All Buffer Impacts are allowable

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

1a. Does this project require a Stormwater Management Plan?

Yes No

1b. If this project DOES require a Stormwater Management Plan, then provide a brief, narrative description of the plan:

See attached permit drawings

1c. What is the overall percent imperviousness of this project?

%

1d. Who will be responsible for the review of the Stormwater Management Plan? *

Certified Local Government DEMLR Stormwater Review
 DWR 401 & Buffer Permitting Branch DWR Transportation Permitting Branch

2. Diffuse Flow Plan

2a. Does the project include or is it adjacent to protected riparian buffers identified within one of the NC Riparian Buffer Protection Rules?

Yes No

5. DWR 401 Stormwater Review

5a. Is the Stormwater Management Plan (including BMP Supplemental Forms and Operation and Maintenance Agreements) attached?

Yes No

Stormwater Management Plan Upload

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

file type must be pdf

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

2c. If you answered "yes" to one or both of the above questions, provide an explanation of the violation(s):

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. Describe, in detail, the treatment methods and dispositions (non-discharge or discharge) of wastewater generated from the proposed project. If the wastewater will be treated at a treatment plant, list the capacity available at that plant.

5. Endangered Species and Designated Critical Habitat (Corps Requirement)

5a. Will this project occur in or near an area with federally protected species or habitat? *

Yes No

5b. Have you checked with the USFWS concerning Endangered Species Act impacts? *

Yes No

5c. If yes, indicate the USFWS Field Office you have contacted.

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

Yes
 No

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

There are no listed federally listed species in Alamance County.

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:

Upon completion of the project, the Division shall submit sealed as-built construction plans to the hydraulics Unit certifying that the drainage structures and roadway embankment that are located within the 100-year floodplain were built as shown in the construction plans, both horizontally and vertically.

8c. What source(s) did you use to make the floodplain determination? *

NC Floodplain Mapping Program (FMP)

Miscellaneous attachments not previously requested.

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

B-5239 Cover Letter.pdf

322.37KB

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

Colin Mellor



North Carolina Department of Transportation

Highway Stormwater Program
STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS



(Version 2.07; Released October 2016)

WBS Element: 42841.1.1 TIP No.: B-5239 County(ies): Alamance Page 1 of 5

General Project Information

WBS Element:	42841.1.1	TIP Number:	B-5239	Project Type:		Date:	11/22/2016
NCDOT Contact:	William (Bill) Elam, PE		Contractor / Designer:	Dan Duffield, PE			
	Address:	1590 Mail Service Center Raleigh, NC 27699-1590		Address:	Summit Design and Engineering Services 100 East Six Forks Road, Suite 300 Raleigh, NC 27609		
	Phone:	919.707.6700		Phone:	919.322.0115		
	Email:	belam@ncdot.gov		Email:	dan.duffield@summitde.net		
City/Town:	Altamahaw, NC		County(ies):	Alamance			
River Basin(s):	Cape Fear		CAMA County?	No			
Wetlands within Project Limits?	Yes						

Project Description

Project Length (lin. miles or feet):	0.28 mile	Surrounding Land Use:	Rural, residential, light industry downstream					
	Proposed Project			Existing Site				
Project Built-Up Area (ac.)	1.5	ac.	1.2	ac.				
Typical Cross Section Description:	The proposed bridges have two 12' lanes with 8 foot paved shoulders with guardrail outside the limits of the bridges for safety. The temporary onsite detour bridges have two 11 ft lanes with 2 foot paved shoulders with guardrail outside the limits of the detour bridges for safety.			This project includes the replacement of structure 000119 over the Haw River and the replacement of structure 000126 over Mill Race. Both the existing bridges are two 11 foot lanes and 1 foot shoulders with varied paved shoulders outside the bridges				
Annual Avg Daily Traffic (veh/hr/day):	Design/Future:	8500	Year:	2035	Existing:	7150	Year:	2017
General Project Narrative: (Description of Minimization of Water Quality Impacts)	This project includes two bridge replacements on NC 87 in Alamance County. The first bridge replacement is bridge structure 000119 which is 275 feet long over the Haw River and it has a sufficiency rating of 39.86 out of 100 and the second bridge replacement is bridge structure 000126 which is 51 feet long over Mill Race and has a sufficiency rating of 15.37 out of 100. This project also includes the need for an onsite detour to facilitate construction of structures 000119 and 000126. Both the existing bridges and the detour bridges are all two lane bridges. The proposed bridges don't discharge any water from the decks and being spanning structures they both have minimal impacts to the water quality. The detour structure will be removed and all disturbances will be stabilized.							

Waterbody Information

Surface Water Body (1):	Haw River		NCDWR Stream Index No.:	16-(10.5)			
NCDWR Surface Water Classification for Water Body	Primary Classification:	Water Supply IV (WS-IV)					
	Supplemental Classification:	Nutrient Sensitive Waters (NSW)					
Other Stream Classification:							
Impairments:							
Aquatic T&E Species?	Comments:						
NRTR Stream ID:					Buffer Rules in Effect:	Jordan Lake	
Project Includes Bridge Spanning Water Body?	Yes	Deck Drains Discharge Over Buffer?	No	Dissipator Pads Provided in Buffer?	N/A		
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: 42841.1.1 TIP No.: B-5239 County(ies): Alamance Page 2 of 5

Additional Waterbody Information

Surface Water Body (2):	Mill Race		NCDWR Stream Index No.:	16-(10.5)	
NCDWR Surface Water Classification for Water Body	Primary Classification:	Water Supply IV (WS-IV)			
	Supplemental Classification:	Nutrient Sensitive Waters (NSW)			
Other Stream Classification:					
Impairments:					
Aquatic T&E Species?		Comments:			
NRTR Stream ID:			Buffer Rules in Effect:	Jordan Lake	
Project Includes Bridge Spanning Water Body?	Yes	Deck Drains Discharge Over Buffer?	No	Dissipator Pads Provided in Buffer?	N/A
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: **TIP No.:** B-5239 **County(ies):** Alamance **Page** 4 **of** 5

Preformed Scour Holes and Energy Dissipators

Sheet No.	Station & Coordinates (Road and Non Road Projects)	Surface Water Body	Energy Dissipator Type	Riprap Type	Drainage Area (ac)	Conveyance Structure	Pipe/Structure Dimensions (in)	Q10 (cfs)	V10 (fps)	BMP Associated w/ Buffer Rules?
4	Station 19+80 -L- Lt		PSH	N/A	4.2	Pipe	18	7.7	1.0	Yes

Additional Comments

* Refer to the NCDOT Best Management Practices Toolbox (2014), NCDOT Standards, the Federal Highway Administration (FHWA) Hydraulic Engineering Circular No. 14 (HEC-14), Third Edition, Hydraulic Design of Energy Dissipators for Culverts and Channels (July 2006), as applicable, for design guidance and criteria.



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



(Version 2.07; Released October 2016)

WBS Element: 42841.1.1

TIP No.: B-5239

County(ies): Alamance

Page 5 of 5

Other Best Management Practices

Sheet No.	Station & Coordinates (Road and Non Road Projects)	Surface Water Body	BMP Type	Drainage Area (ac)	New Built-Up on Area (ac)	Volume Treated (ac-ft)	Precipitation Depth Treated over NBUA (in)	BMP Associated w/ Buffer Rules?
	Stat 19+80 -L-Lt	(2)Mill Race	PSH	1.2	0.0	120	45913.04	Yes

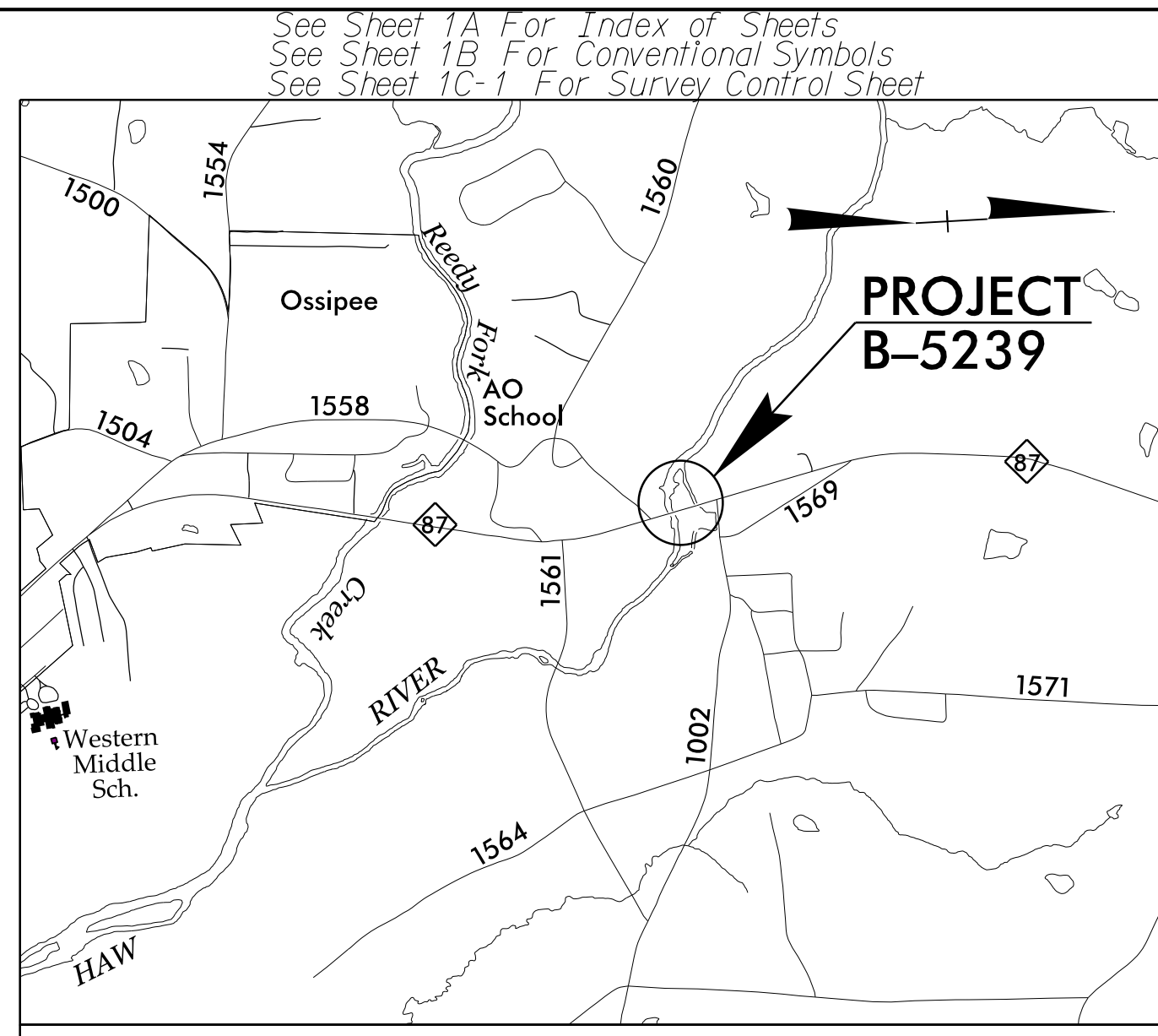
Additional Comments

(Empty area for additional comments)

09.08/2019

TIP PROJECT: B-5239

CONTRACT: C203676



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ALAMANCE COUNTY

PERMIT DRAWING
SHEET 1 OF 12

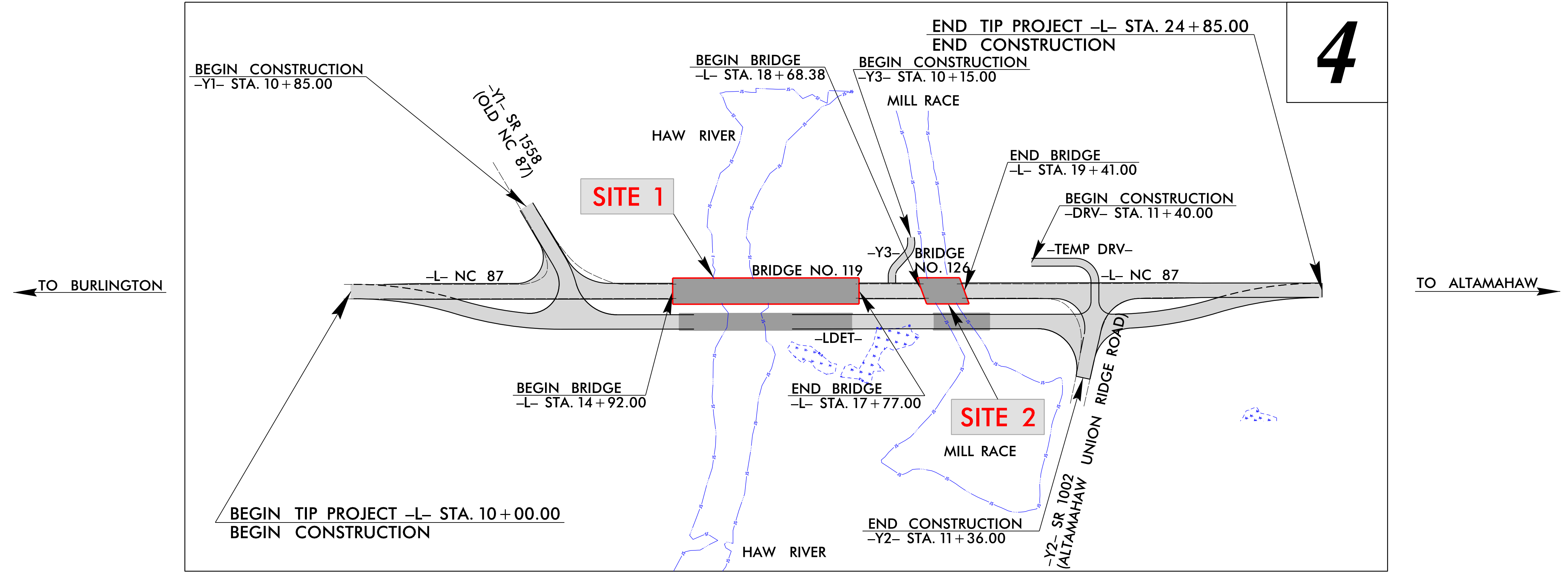
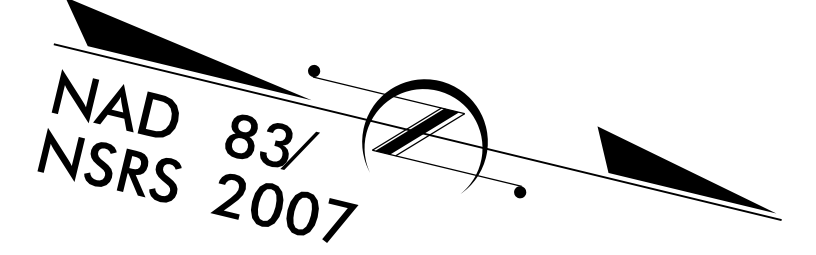
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N.C.	B-5239	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
42841.1.1	BRSTP-0087(29)	PE	
42841.1.2.2		RW & UTILITIES CONST.	
42841.1.3.2			

LOCATION: BRIDGE NO.126 OVER MILL RACE
& BRIDGE NO.119 OVER HAW RIVER ON NC 87

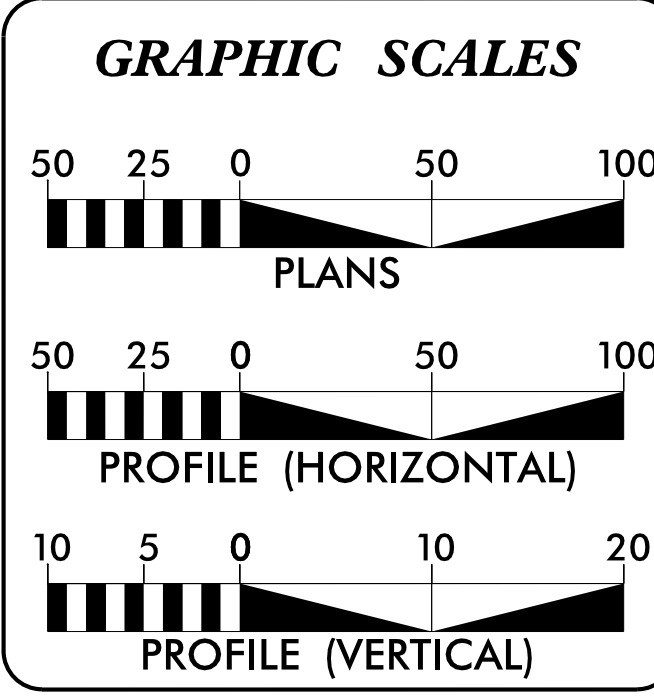
TYPE OF WORK: GRADING, PAVING, DRAINAGE AND STRUCTURES

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

WETLAND AND SURFACE WATER IMPACTS PERMIT



4



DESIGN DATA

ADT 2017	=	7150
ADT 2037	=	8650
K	=	10 %
D	=	60 %
T	=	6 % *
V	=	50 MPH
V _{DET}	=	40 MPH

* TTST = 2% + DUAL = 4%
FUNC CLASS =
PRINCIPAL ARTERIAL
"STATEWIDE TIER"

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-5239	=	0.213 MILES
LENGTH STRUCTURES TIP PROJECT B-5239	=	0.068 MILES
TOTAL LENGTH TIP PROJECT B-5239	=	0.281 MILES

NCDOT POINT OF CONTACT:
GARY LOVERING, PE
PROJECT ENGINEER

JMT. Prepared in the Office of:
JOHNSON, MIRMIRAN, & THOMPSON, INC.
1130 Situs Court, Suite 200, Raleigh NC, 27606

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
DECEMBER 16, 2016

LETTING DATE:
DECEMBER 19, 2017

JAMES W. JENKINS, PE
PROJECT ENGINEER

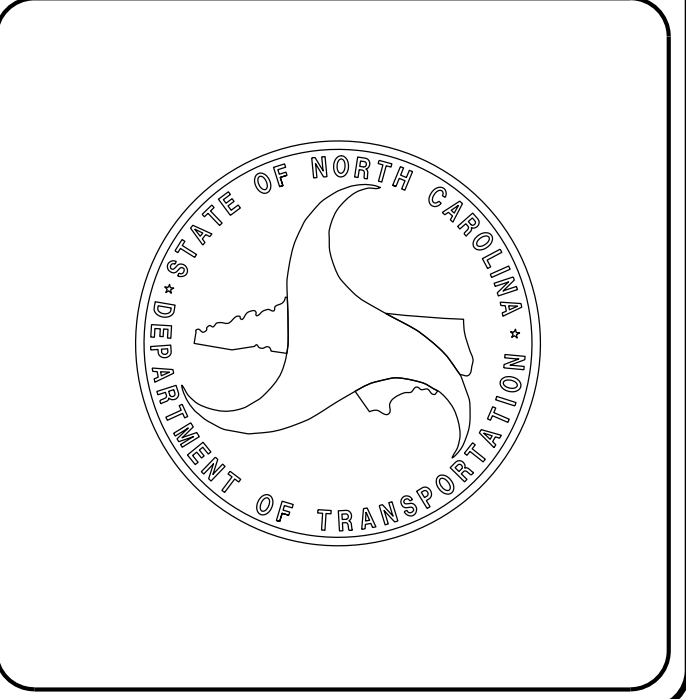
ENRICO A. ROQUE, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

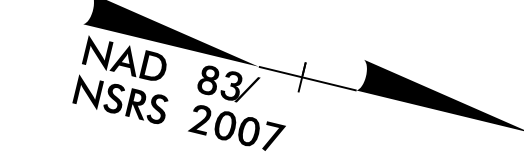
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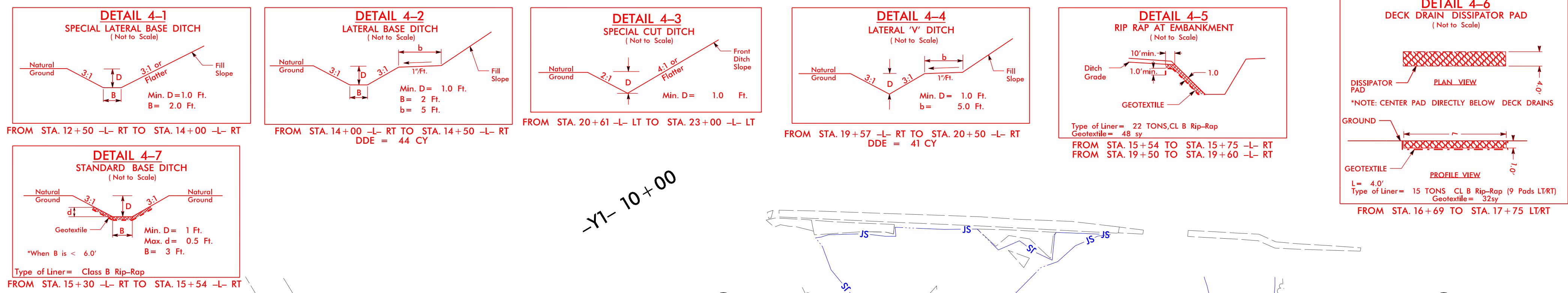
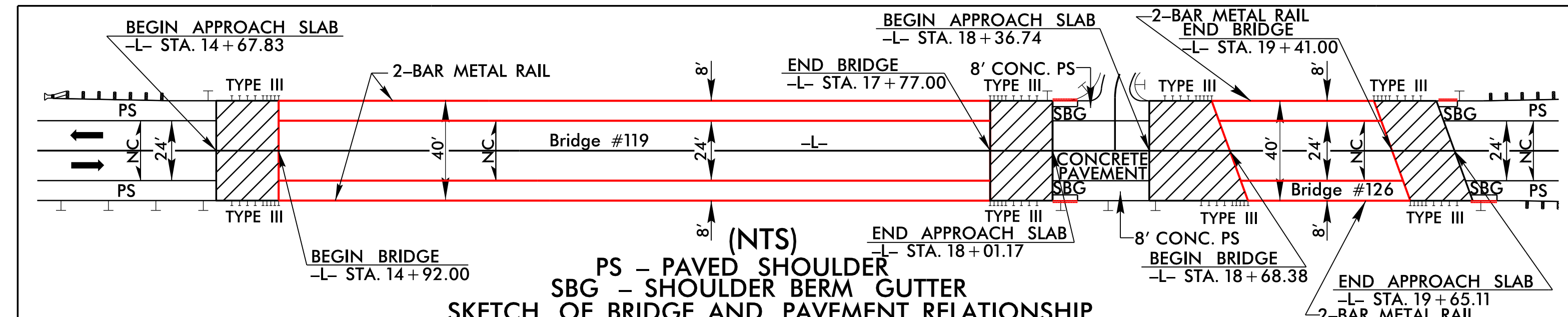


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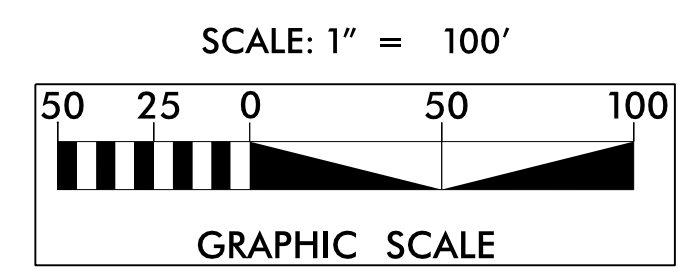
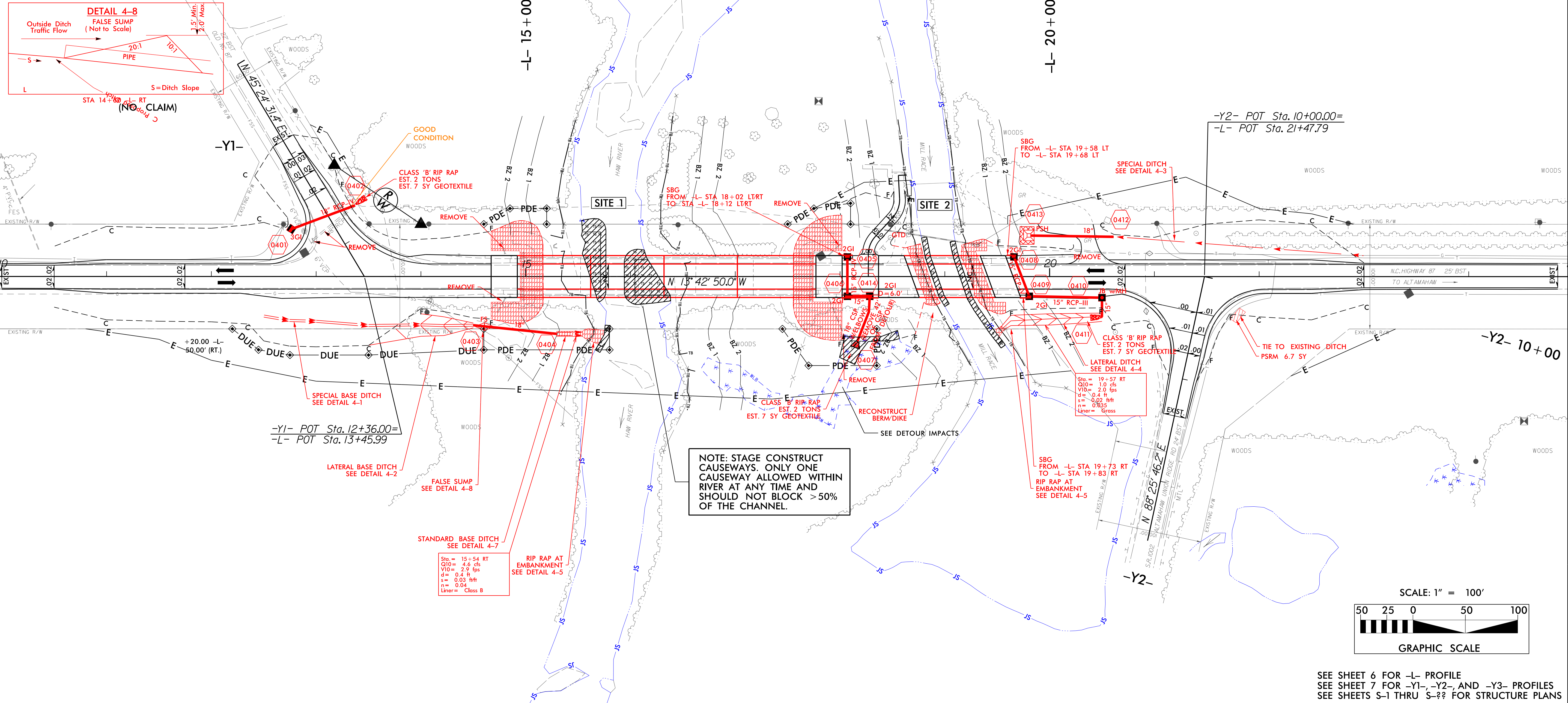
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DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



-Y3-	
PI Sta 10+76.43 Δ = 42° 20' 16.3" (LT) D = 229' 10" 59.2" L = 18.47' T = 9.68' R = 25.00'	PI Sta 10+32.44 Δ = 45° 21' 39.1" (RT) D = 229' 10" 59.2" L = 19.79' T = 10.45' R = 25.00'



- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY FILL IN WETLAND
- DENOTES EXCAVATION IN WETLAND



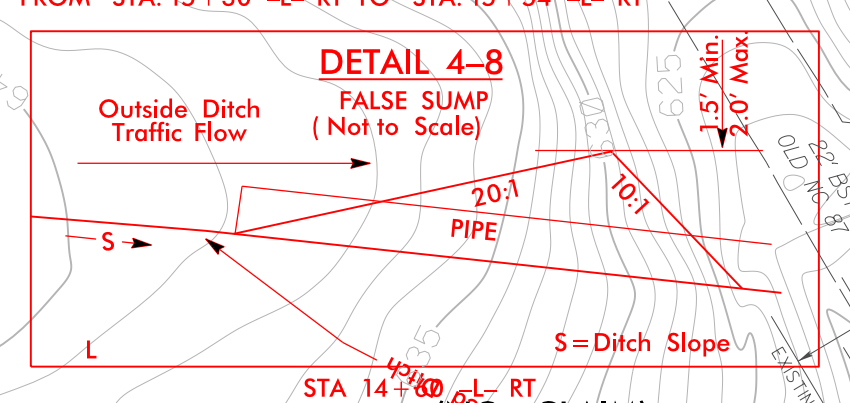
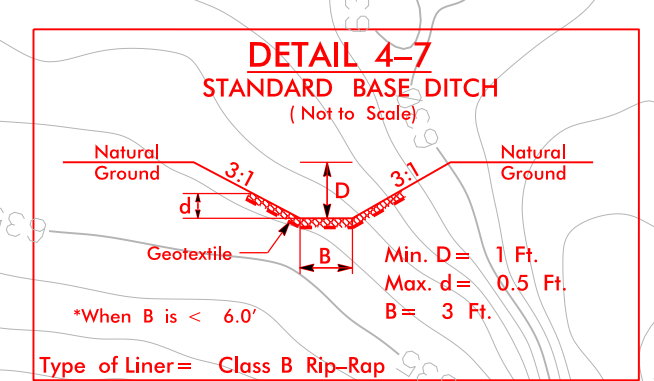
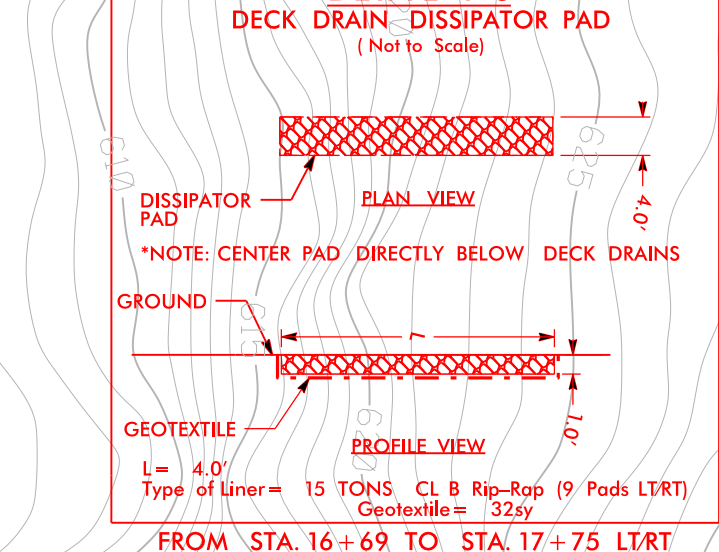
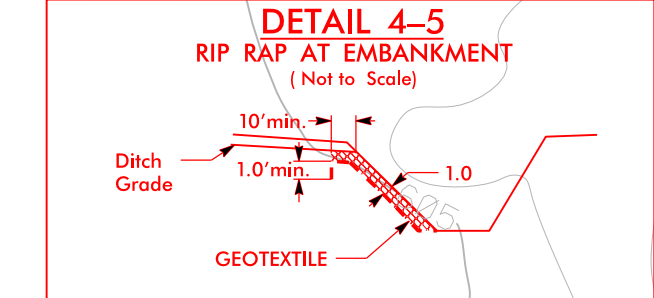
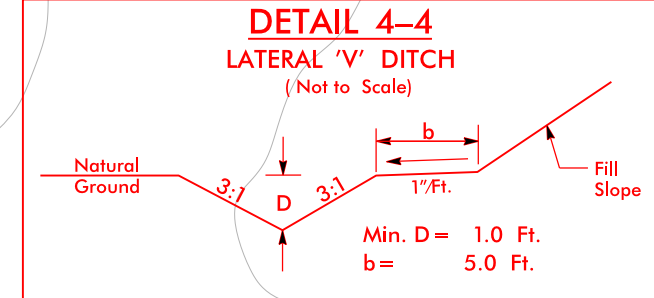
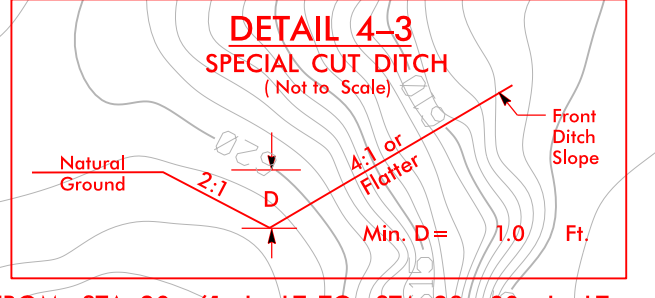
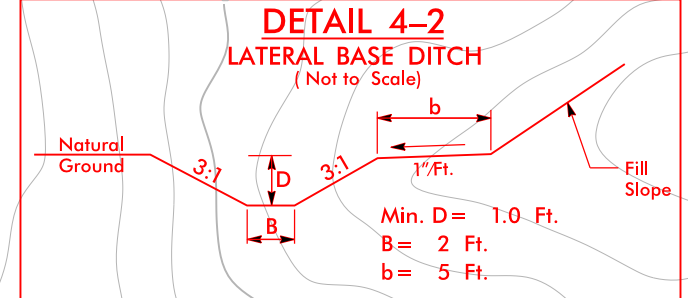
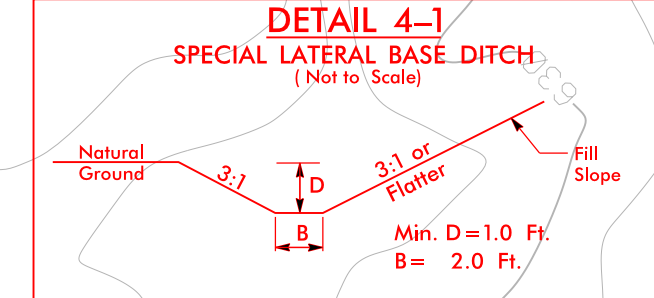
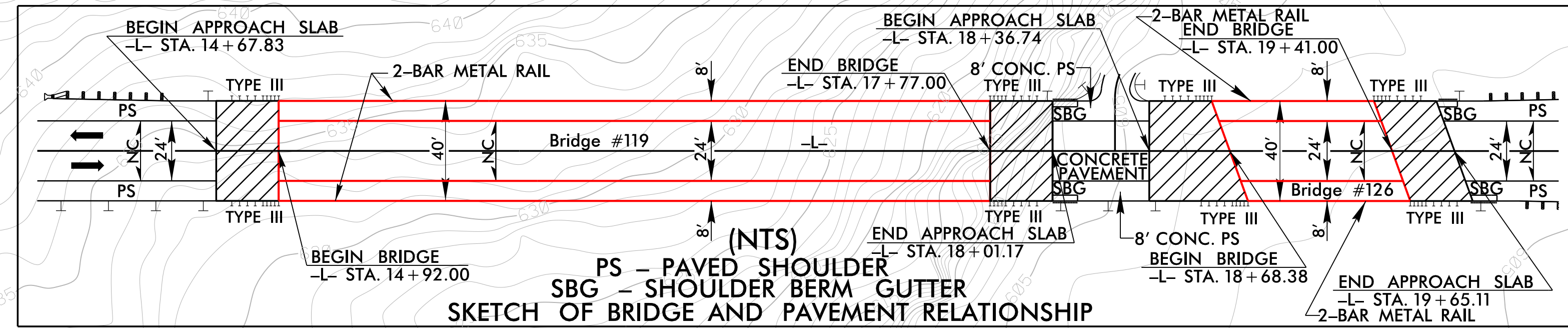
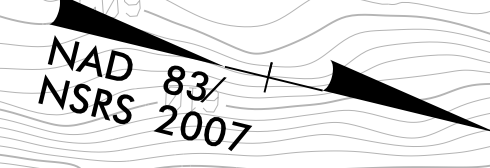
SEE SHEET 6 FOR -L- PROFILE
SEE SHEET 7 FOR -Y1-, -Y2-, AND -Y3- PROFILES
SEE SHEETS S-1 THRU S-?? FOR STRUCTURE PLANS

REVISIONS

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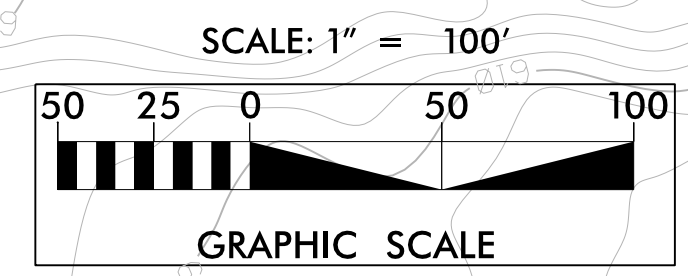
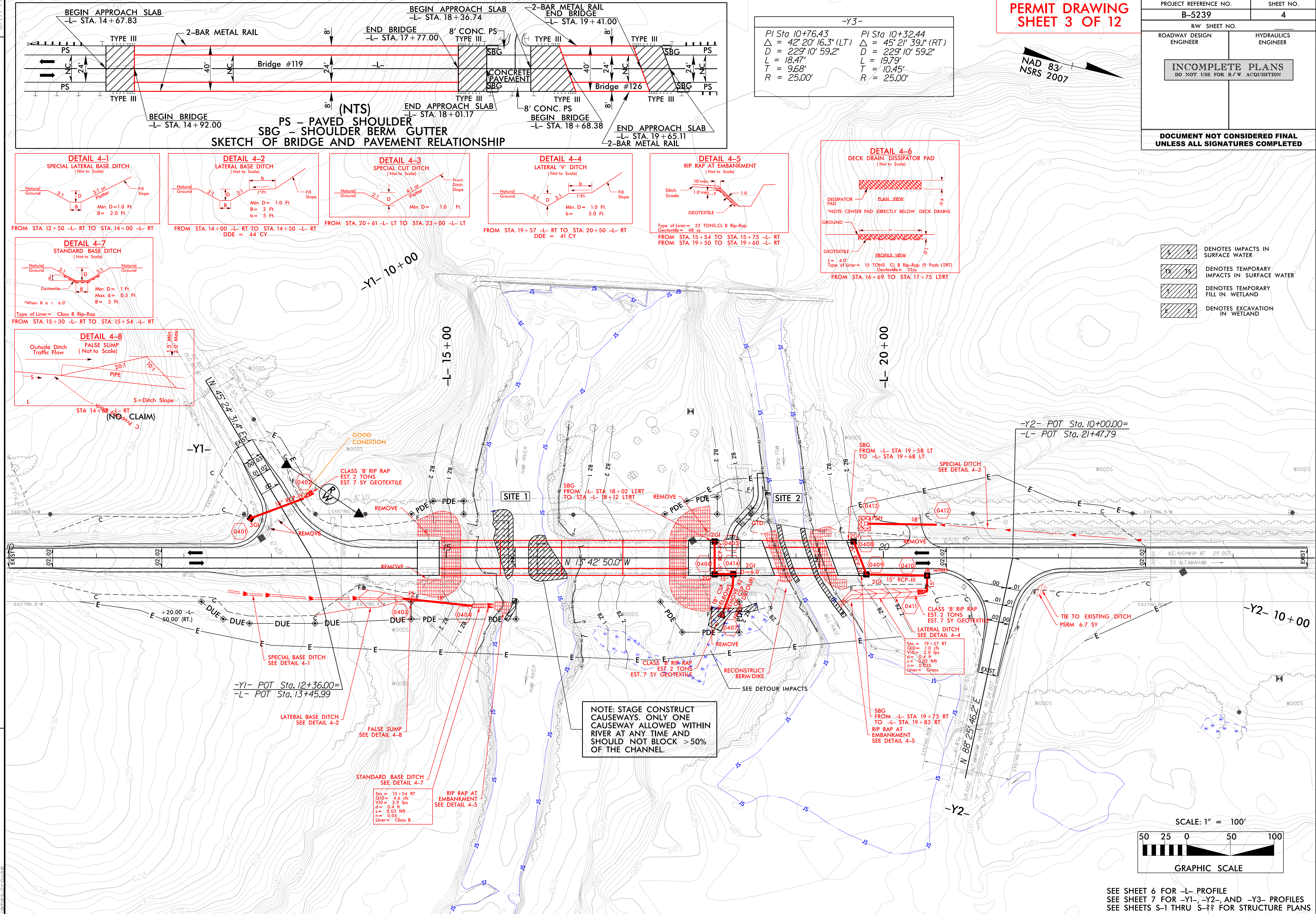
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DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

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- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY FILL IN WETLAND
- DENOTES EXCAVATION IN WETLAND

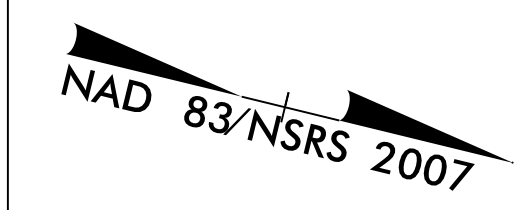
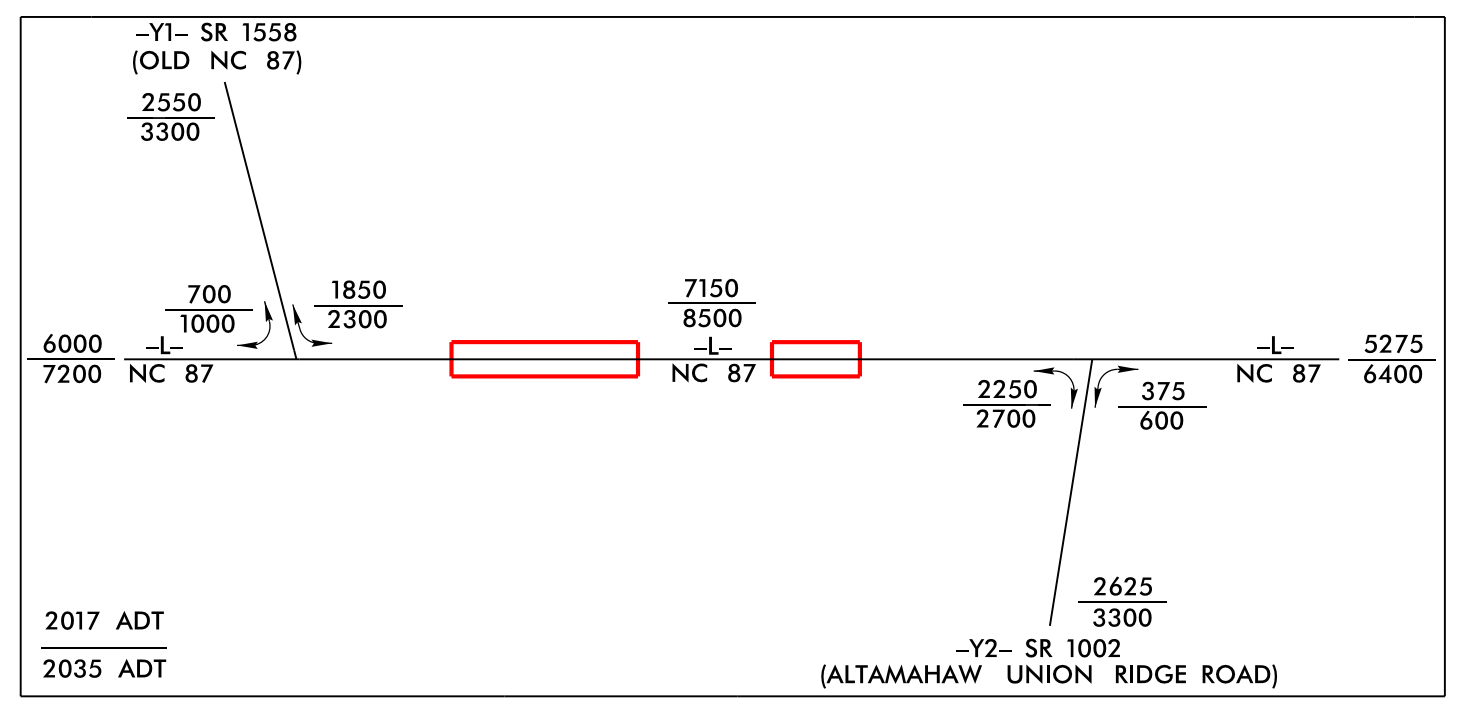
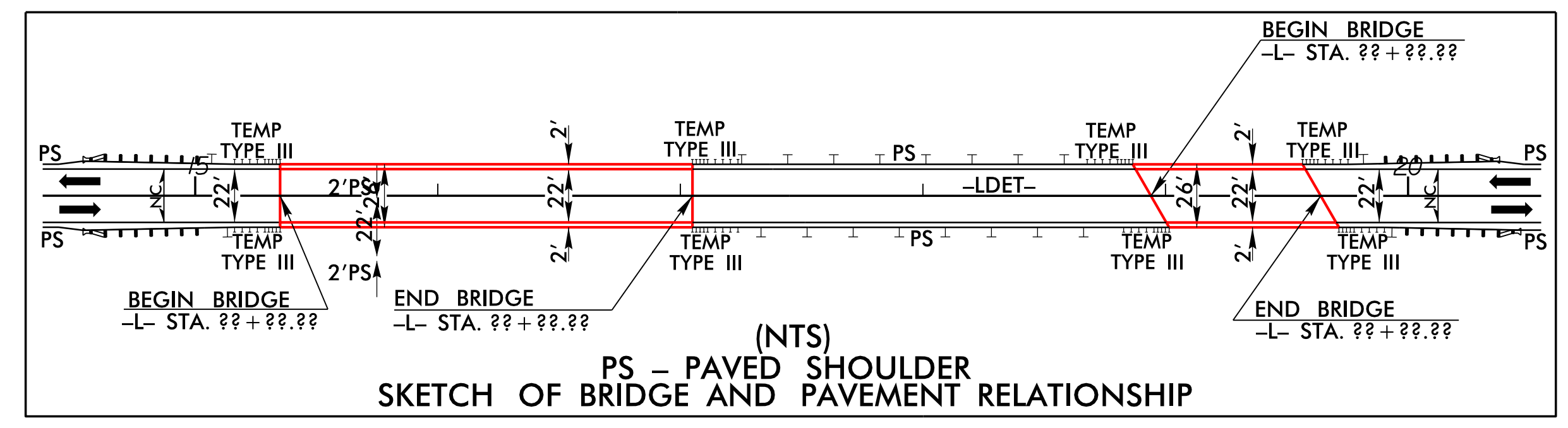
REVISIONS



SEE SHEET 6 FOR -L- PROFILE
SEE SHEET 7 FOR -Y1-, -Y2-, AND -Y3- PROFILES
SEE SHEETS S-1 THRU S-?? FOR STRUCTURE PLANS

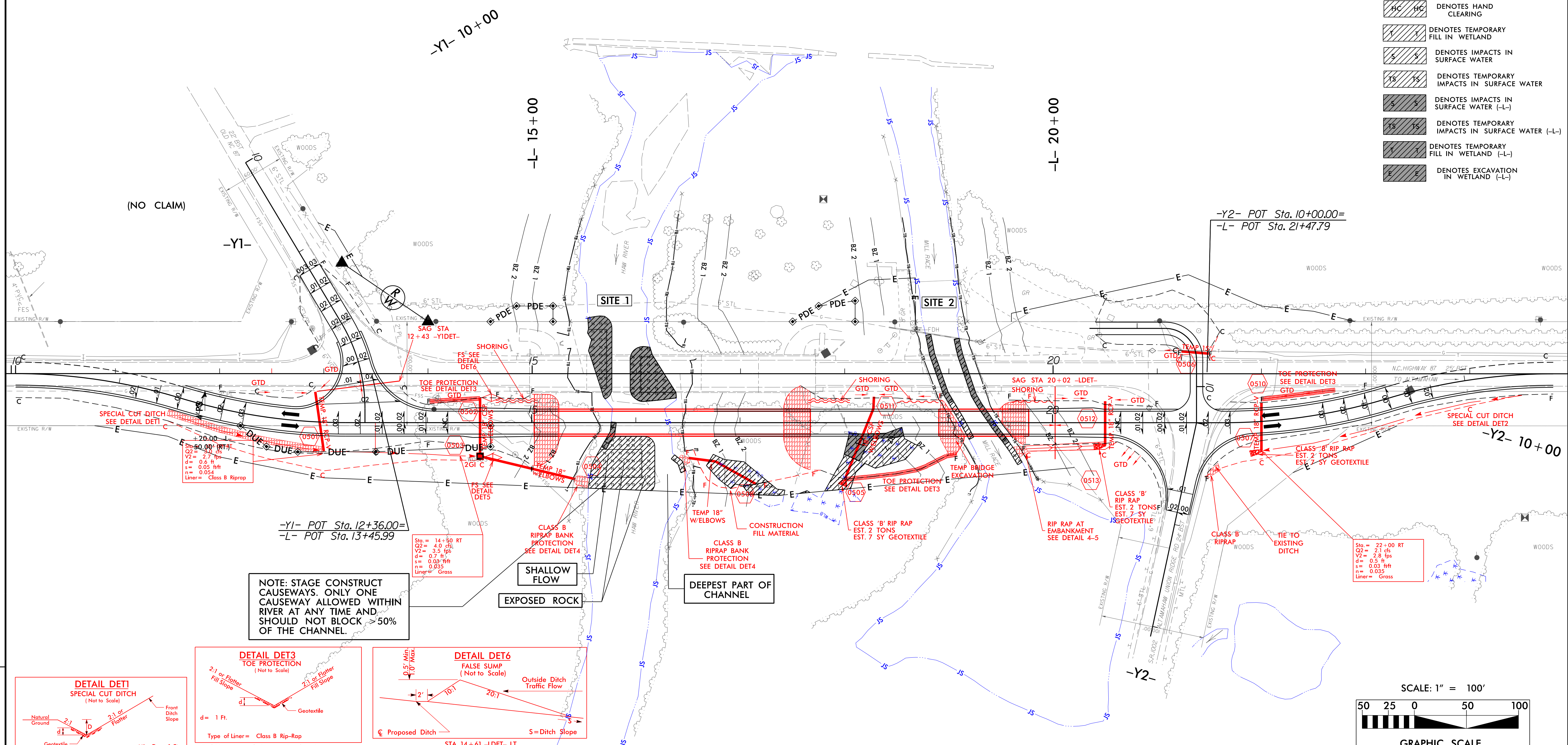
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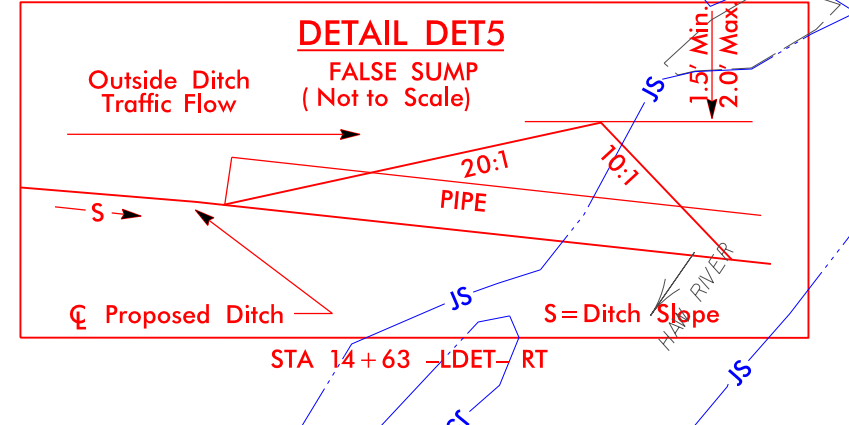
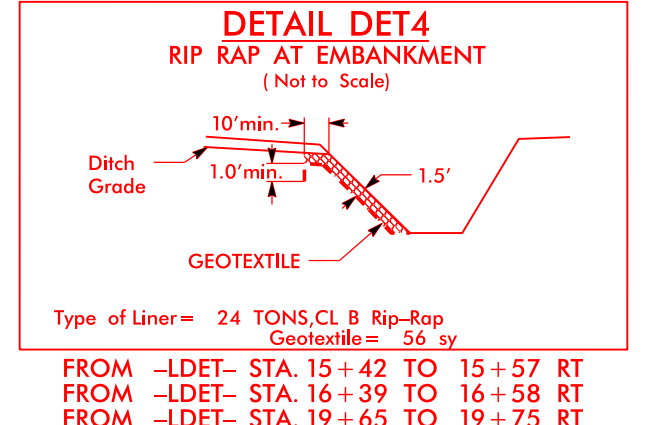
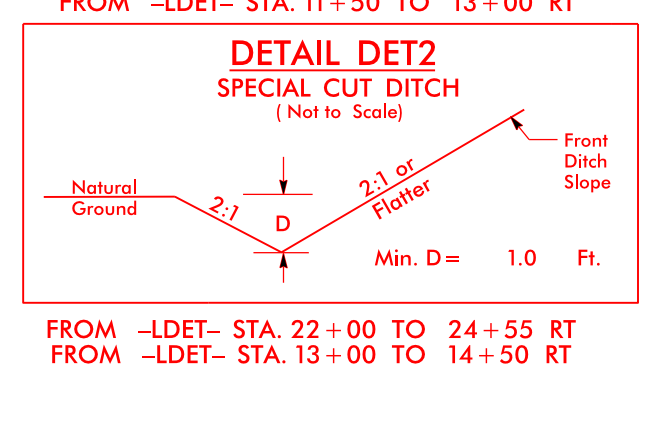
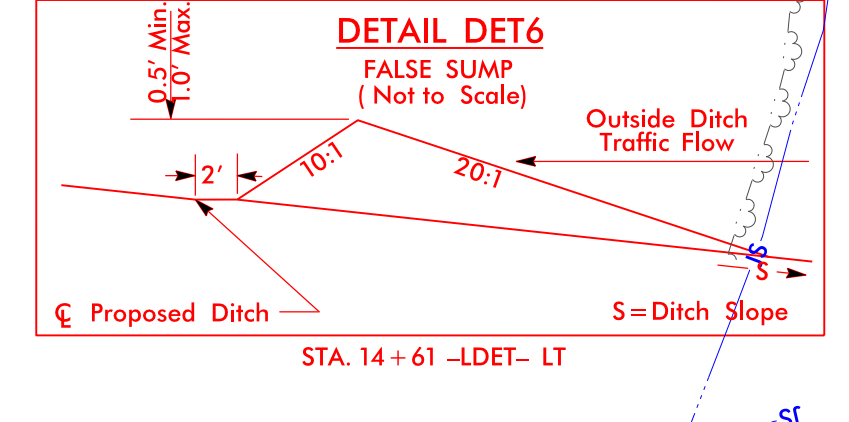
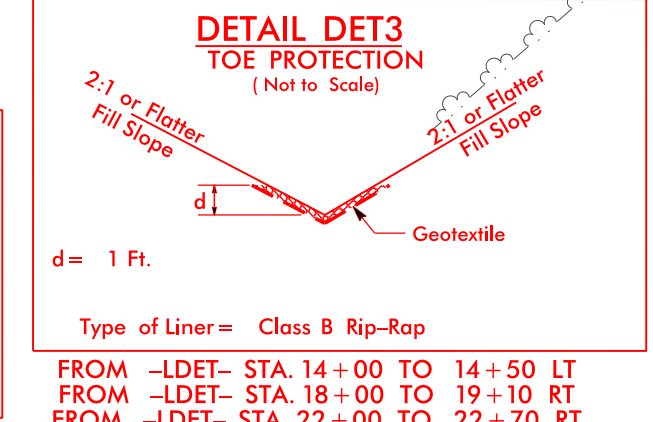
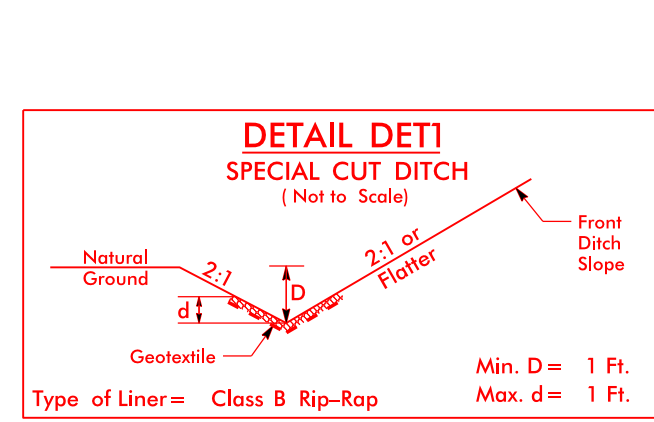


- DENOTES HAND CLEARING
- DENOTES TEMPORARY FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES IMPACTS IN SURFACE WATER (-L-)
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER (-L-)
- DENOTES TEMPORARY FILL IN WETLAND (-L-)
- DENOTES EXCAVATION IN WETLAND (-L-)

REVISIONS



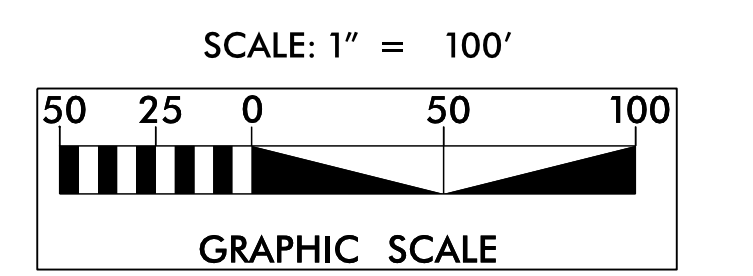
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Vdet = 40 MPH
-LDET-

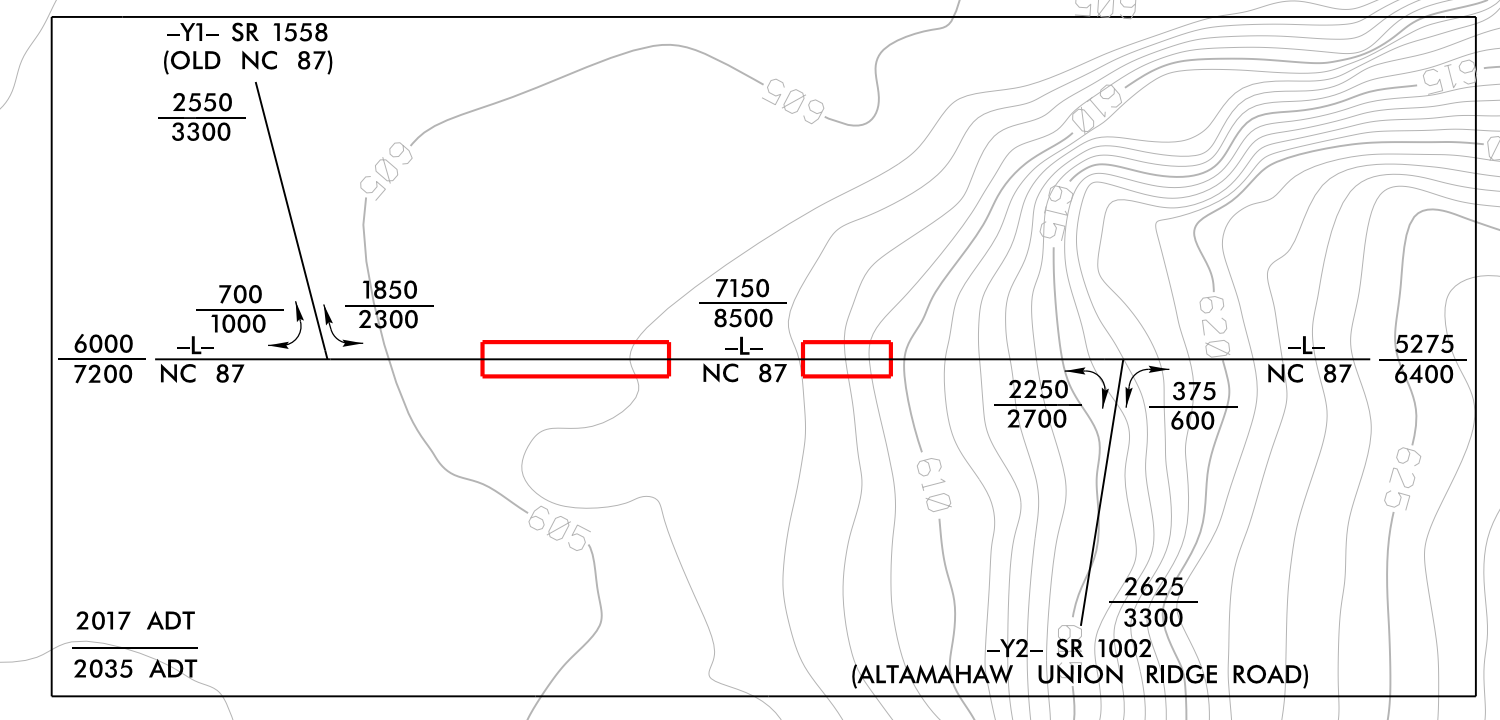
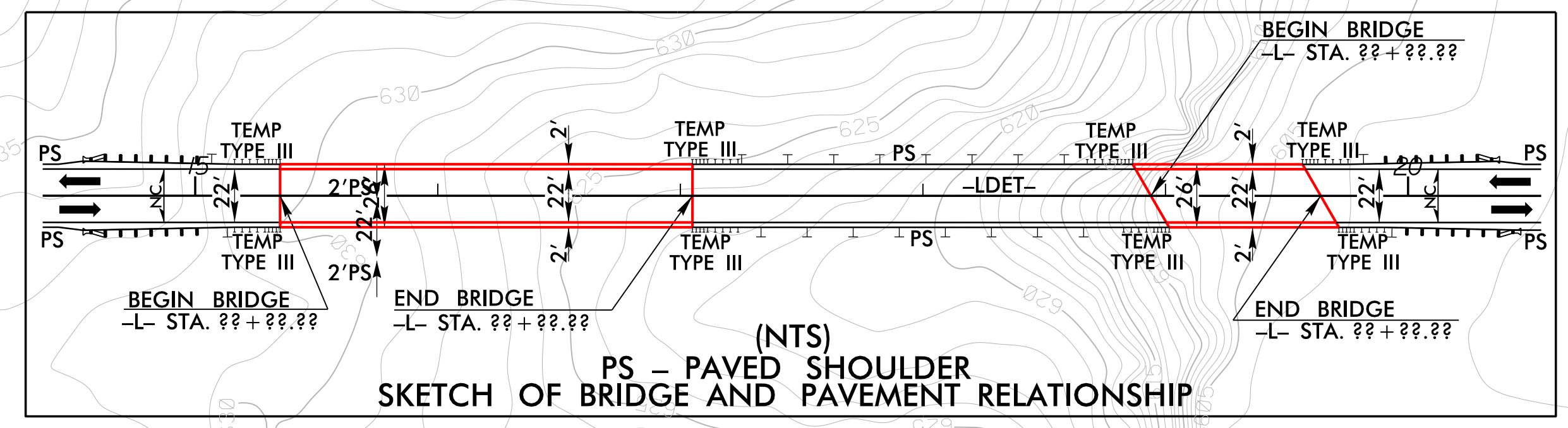
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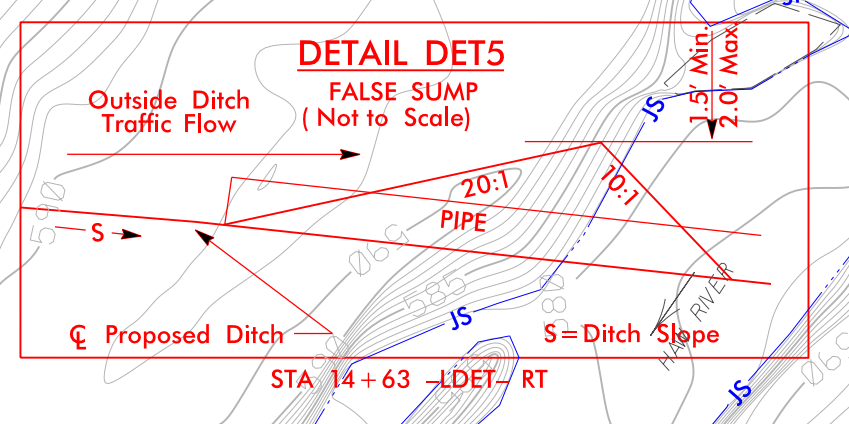
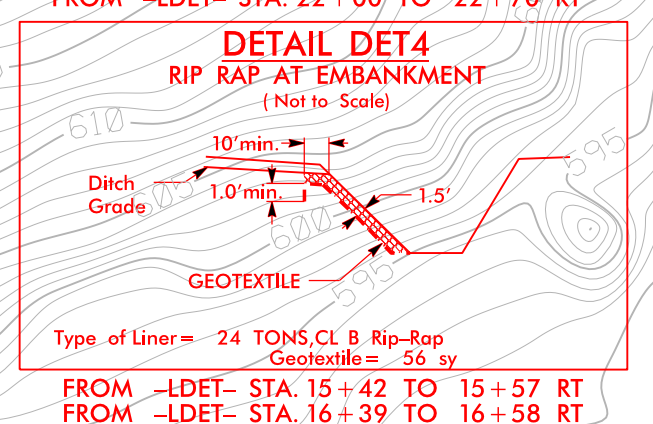
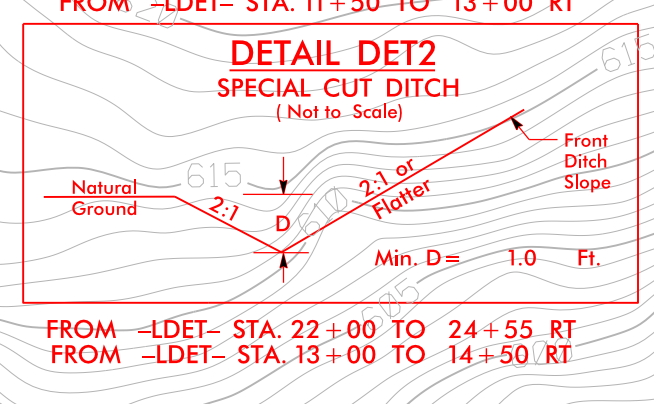
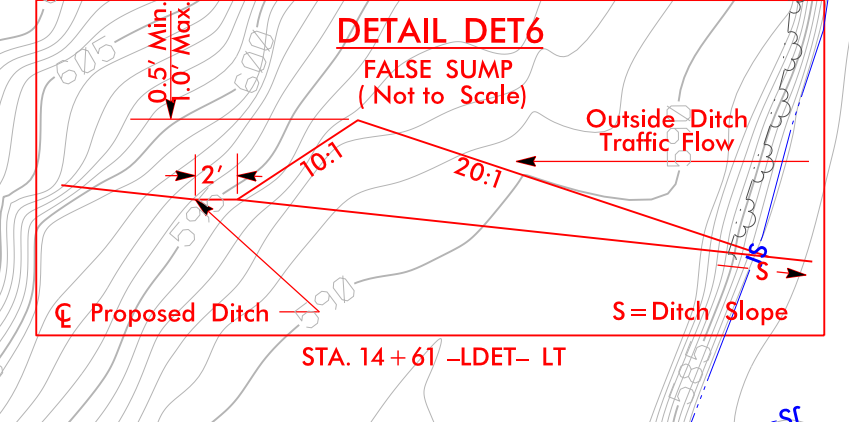
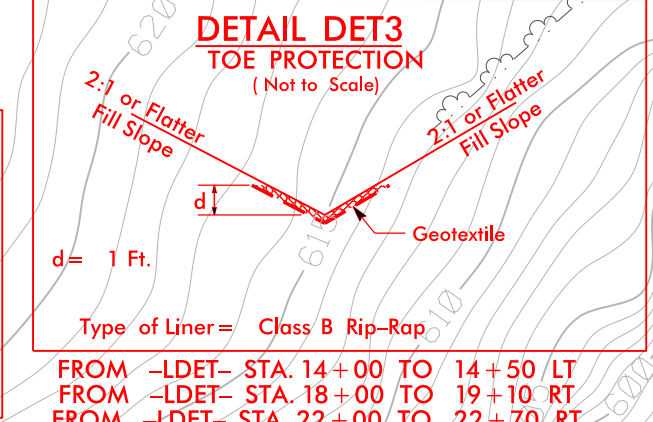
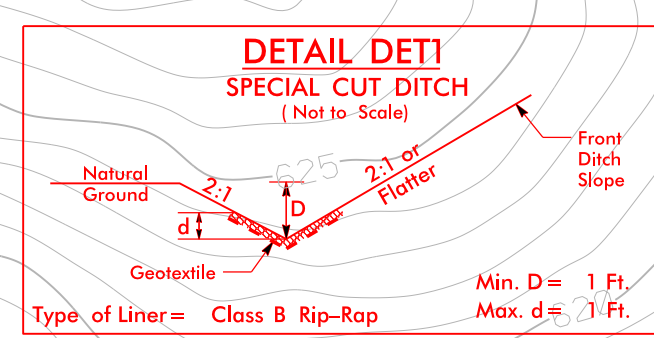
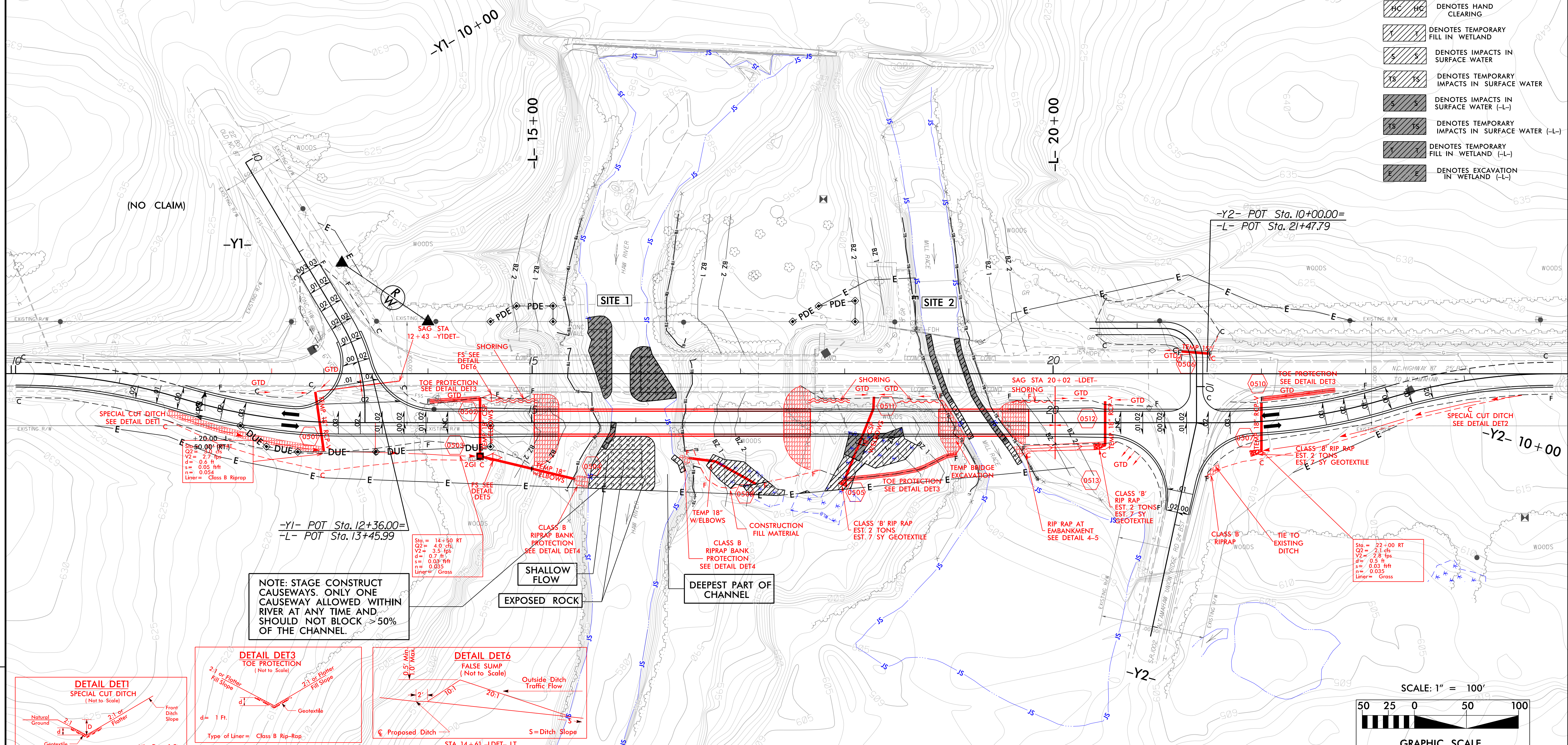
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INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



- DENOTES HAND CLEARING
- DENOTES TEMPORARY FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES IMPACTS IN SURFACE WATER (-L)
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- DENOTES TEMPORARY FILL IN WETLAND (-L)
- DENOTES EXCAVATION IN WETLAND (-L)

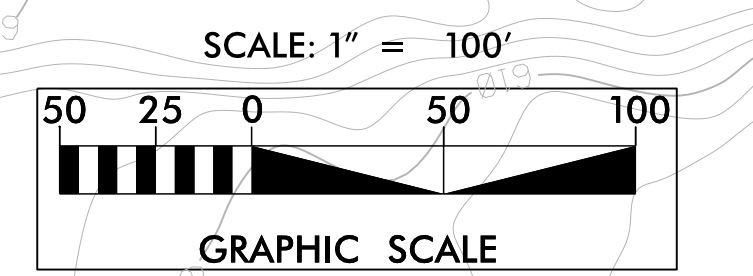
REVISIONS



Vdet = 40 MPH
-LDET-

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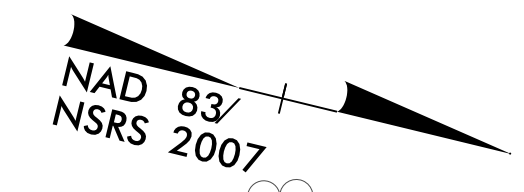
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James.Crowe

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INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

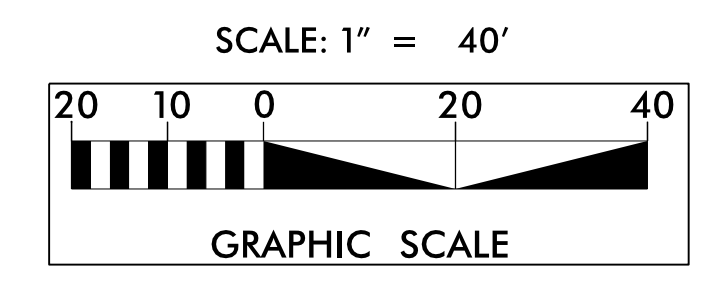
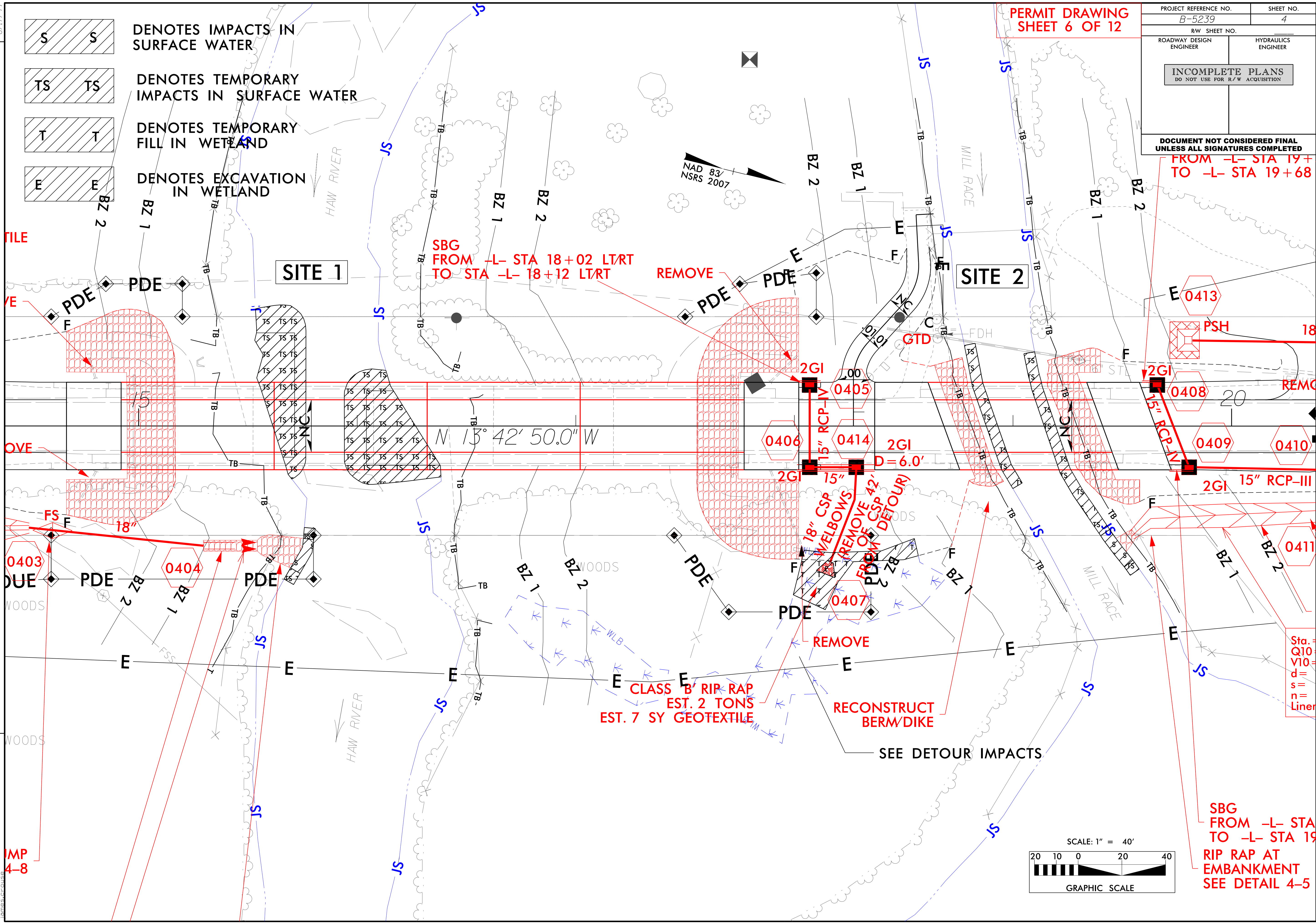
FROM -L- STA 19+ TO -L- STA 19+68

- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY FILL IN WETLAND
- DENOTES EXCAVATION IN WETLAND



REVISIONS

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lomas.crouse



SBG FROM -L- STA TO -L- STA 19
RIP RAP AT EMBANKMENT
SEE DETAIL 4-5

Sta. =
Q10 =
V10 =
d =
s =
n =
Liner

PROJECT REFERENCE NO. B-5239	SHEET NO. 5
RW SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
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HC HC DENOTES HAND CLEARING

T T DENOTES TEMPORARY FILL IN WETLAND

S S DENOTES IMPACTS IN SURFACE WATER

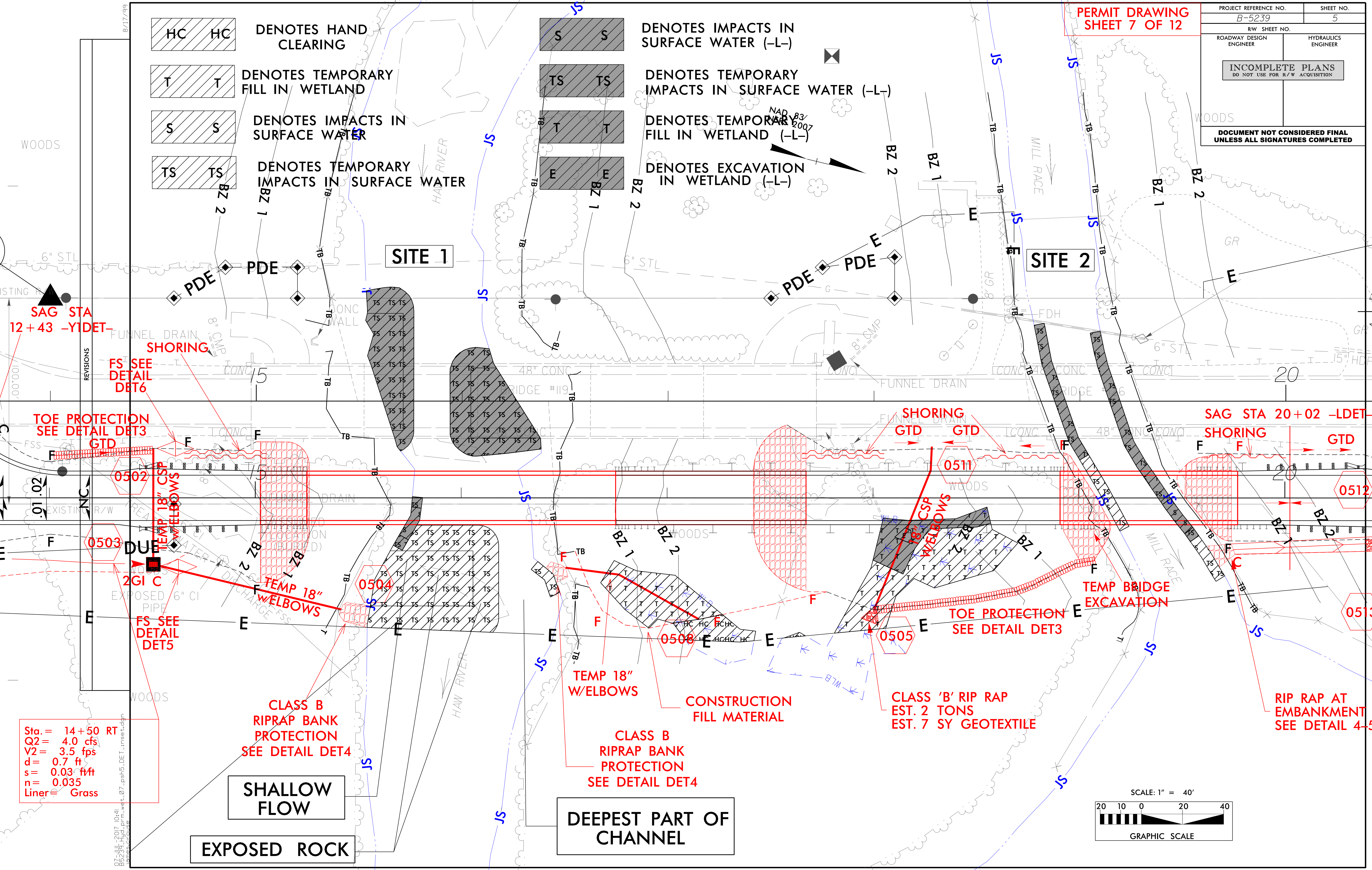
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S S DENOTES IMPACTS IN SURFACE WATER (-L-)

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER (-L-)

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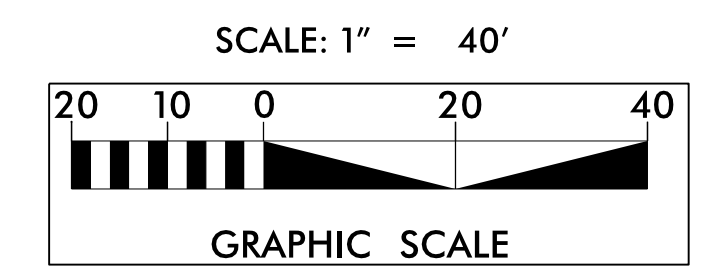
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SAG STA 12+43 -YIDET-

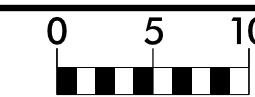
SAG STA 20+02 -LDET- SHORING GTD

Sta. = 14+50 RT
Q2 = 4.0 cfs
V2 = 3.5 fps
d = 0.7 ft
s = 0.03 f/ft
n = 0.035
Liner = Grass



07-MAR-2017 10:41 AM
B:\2391_Hold_in_wet_07_psh5_DET_inset.dgn
lomas.chouse

6/23/16

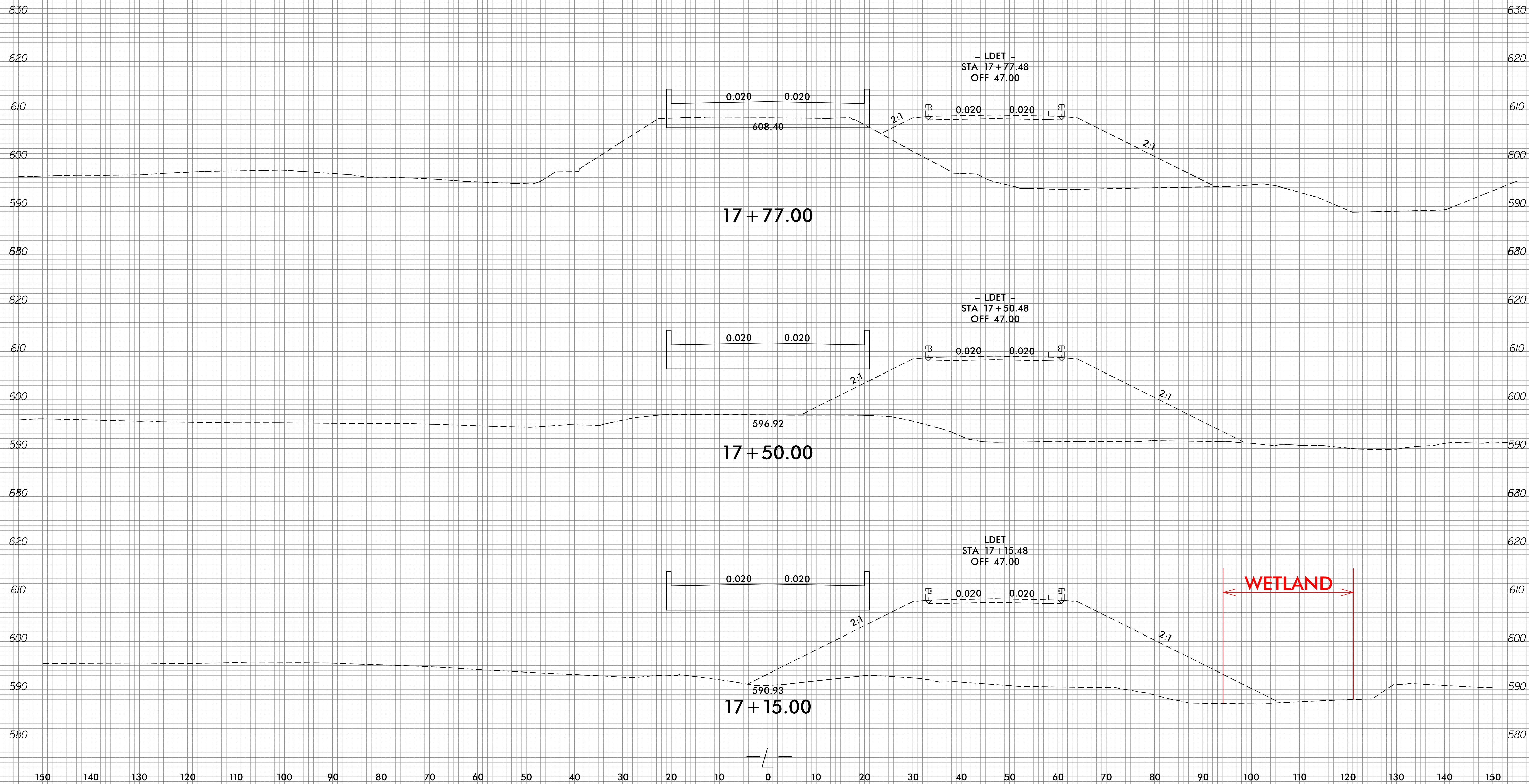


PROJ. REFERENCE NO.
B-5239

SHEET NO.
X-6

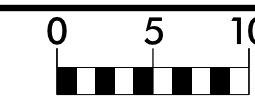
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**PERMIT DRAWING
SHEET 8 OF 12**



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jamescrouse

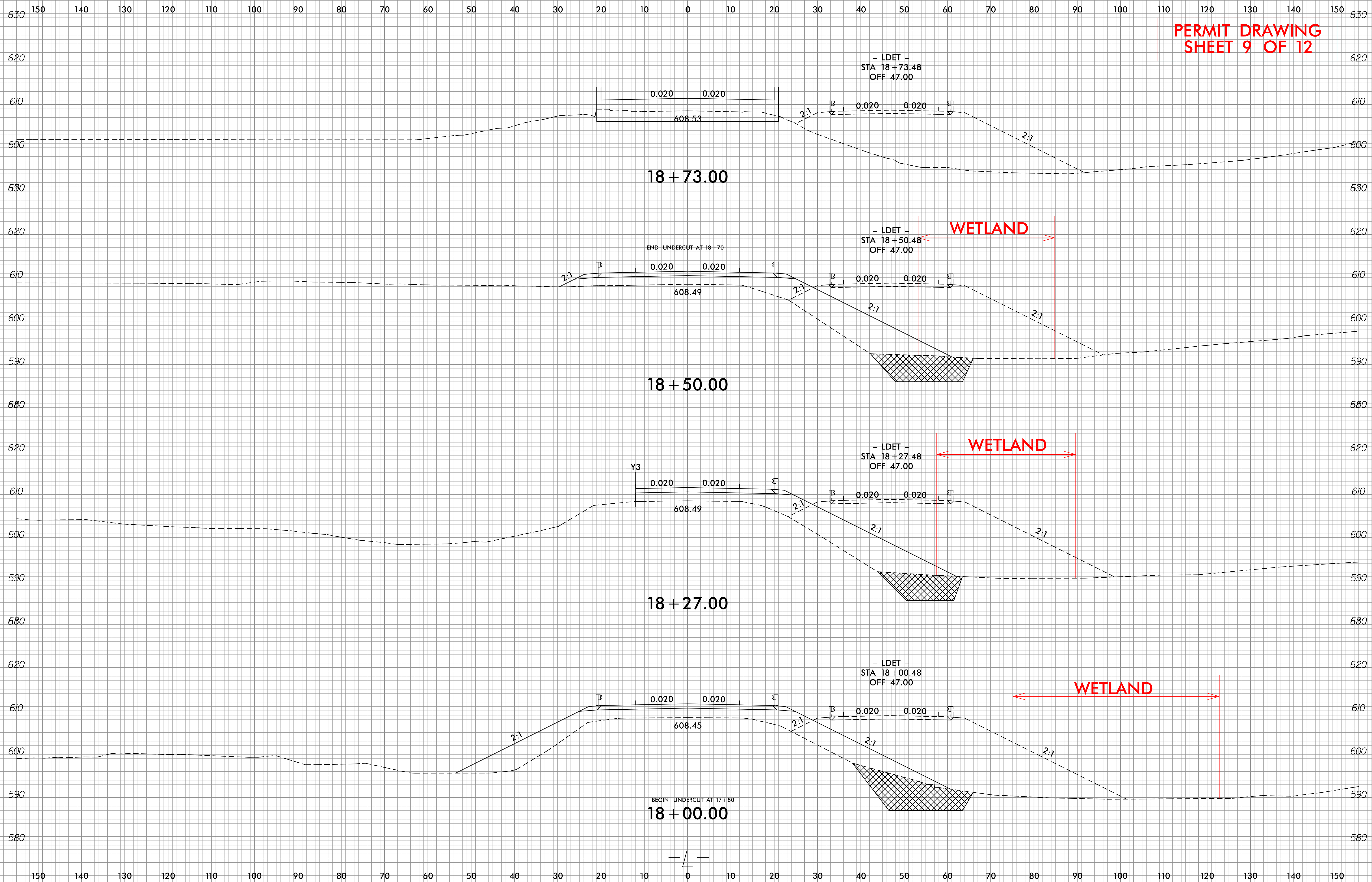
6/23/16



PROJ. REFERENCE NO.
B-5239

SHEET NO.
X-7

**PERMIT DRAWING
SHEET 9 OF 12**



07-JUL-2017 10:41
B5239_Hyd_prm_wet_08-09_XPL.dgn
jamescruse

PROJECT REFERENCE NO. B-5239	SHEET NO. 6
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE = 15,300 CFS
 DESIGN FREQUENCY = 50 YRS
 DESIGN HW ELEVATION = 602.6 FT
 BASE DISCHARGE = 17,400 CFS
 BASE FREQUENCY = 100 YRS
 BASE HW ELEVATION = 604.44 FT
 OVERTOPPING DISCHARGE = 22,700 CFS
 OVERTOPPING FREQUENCY = 500± YRS
 OVERTOPPING ELEVATION = 611.6 FT

DATE OF SURVEY = 11/20/13
 W.S. ELEVATION AT DATE OF SURVEY = 584.0 FT

BRIDGE HYDRAULIC DATA

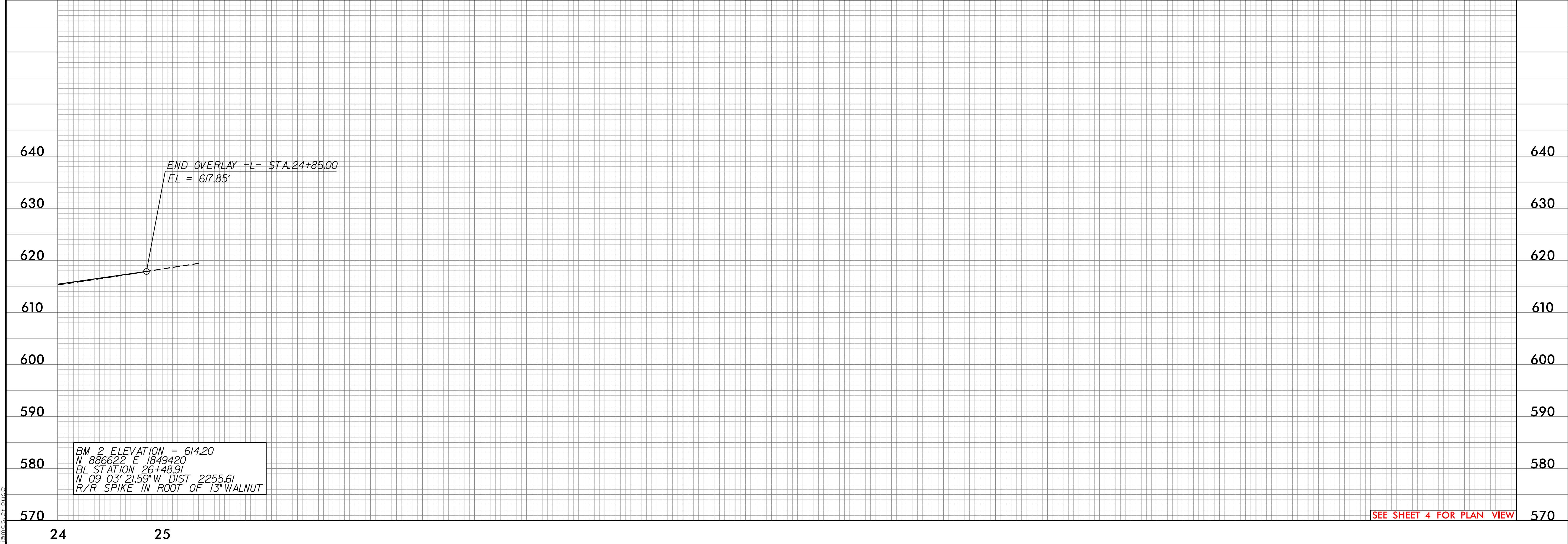
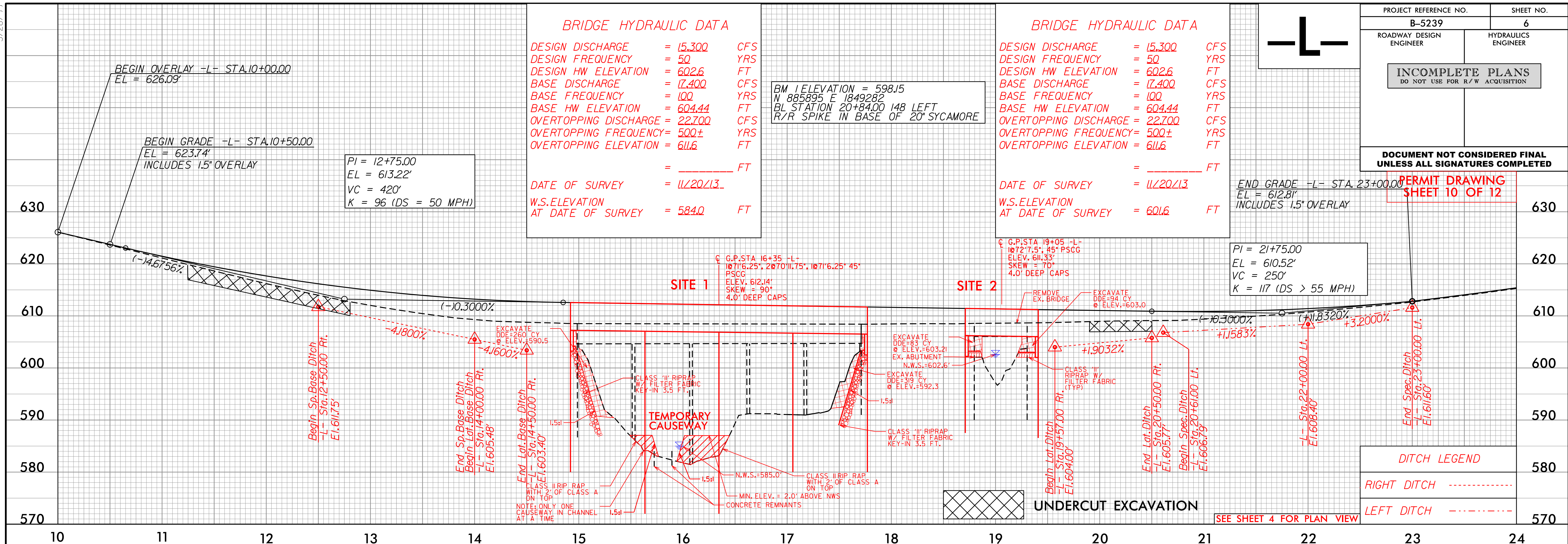
DESIGN DISCHARGE = 15,300 CFS
 DESIGN FREQUENCY = 50 YRS
 DESIGN HW ELEVATION = 602.6 FT
 BASE DISCHARGE = 17,400 CFS
 BASE FREQUENCY = 100 YRS
 BASE HW ELEVATION = 604.44 FT
 OVERTOPPING DISCHARGE = 22,700 CFS
 OVERTOPPING FREQUENCY = 500± YRS
 OVERTOPPING ELEVATION = 611.6 FT

DATE OF SURVEY = 11/20/13
 W.S. ELEVATION AT DATE OF SURVEY = 601.6 FT

BM 1 ELEVATION = 598.15
 N 885895 E 1849282
 BL STATION 20+84.00 148 LEFT
 R/R SPIKE IN BASE OF 20' SYCAMORE

END GRADE -L- STA. 23+00.00
 EL = 612.8'
 INCLUDES 1.5' OVERLAY

PERMIT DRAWING
SHEET 10 OF 12



07/11/2017 10:41
 B:\Projects\10411
 062381_H01_n.m.wet_10_p1.dgn
 James Causeway

5/28/19

PROJECT REFERENCE NO. B-5239	SHEET NO. 8
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

-LDET-

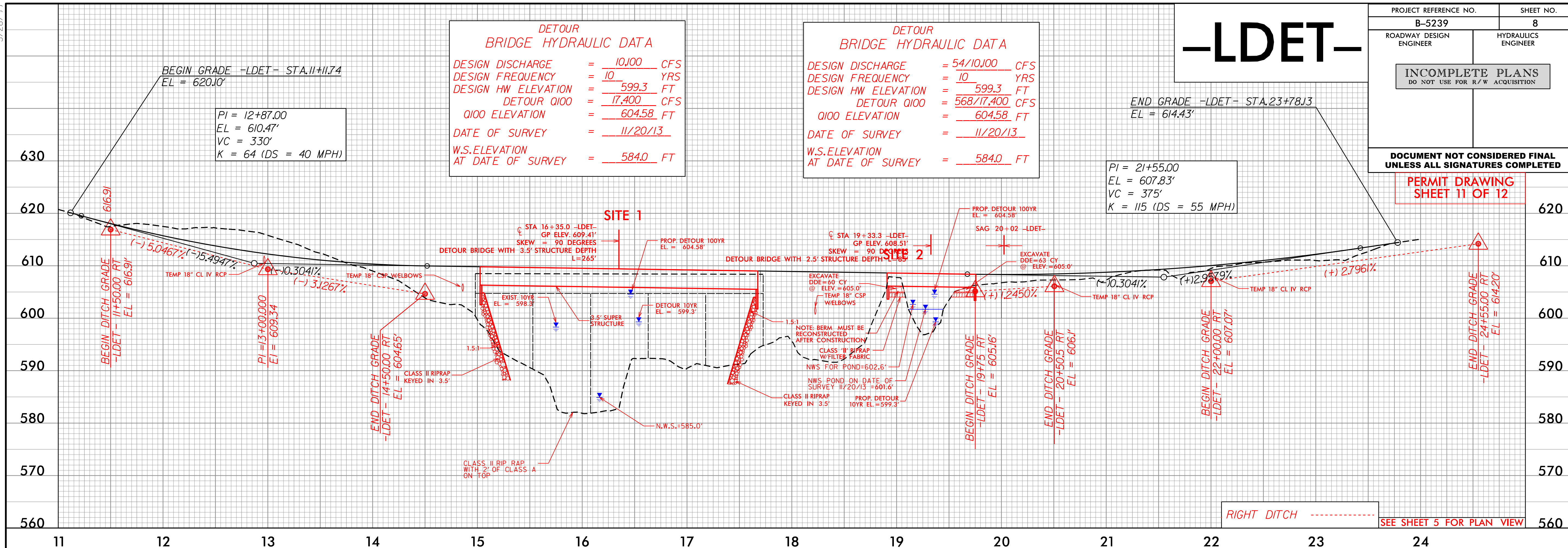
DETOUR BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE = 10,100 CFS
 DESIGN FREQUENCY = 10 YRS
 DESIGN HW ELEVATION = 599.3 FT
 DETOUR Q100 = 17,400 CFS
 Q100 ELEVATION = 604.58 FT
 DATE OF SURVEY = 11/20/13
 W.S.ELEVATION AT DATE OF SURVEY = 584.0 FT

DETOUR BRIDGE HYDRAULIC DATA

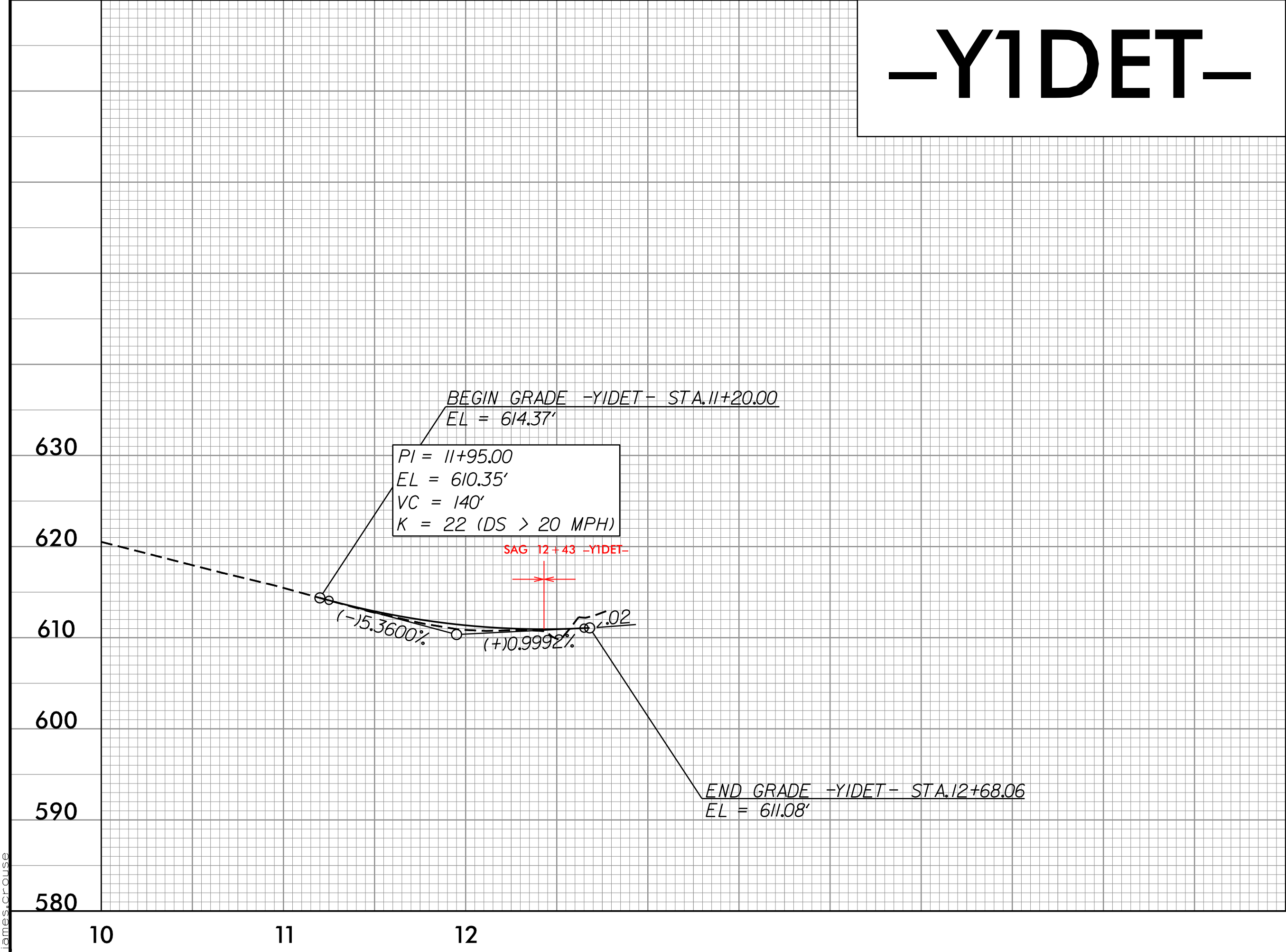
DESIGN DISCHARGE = 54/10,100 CFS
 DESIGN FREQUENCY = 10 YRS
 DESIGN HW ELEVATION = 599.3 FT
 DETOUR Q100 = 568/17,400 CFS
 Q100 ELEVATION = 604.58 FT
 DATE OF SURVEY = 11/20/13
 W.S.ELEVATION AT DATE OF SURVEY = 584.0 FT

PI = 21+55.00
 EL = 607.83'
 VC = 375'
 K = 115 (DS = 55 MPH)

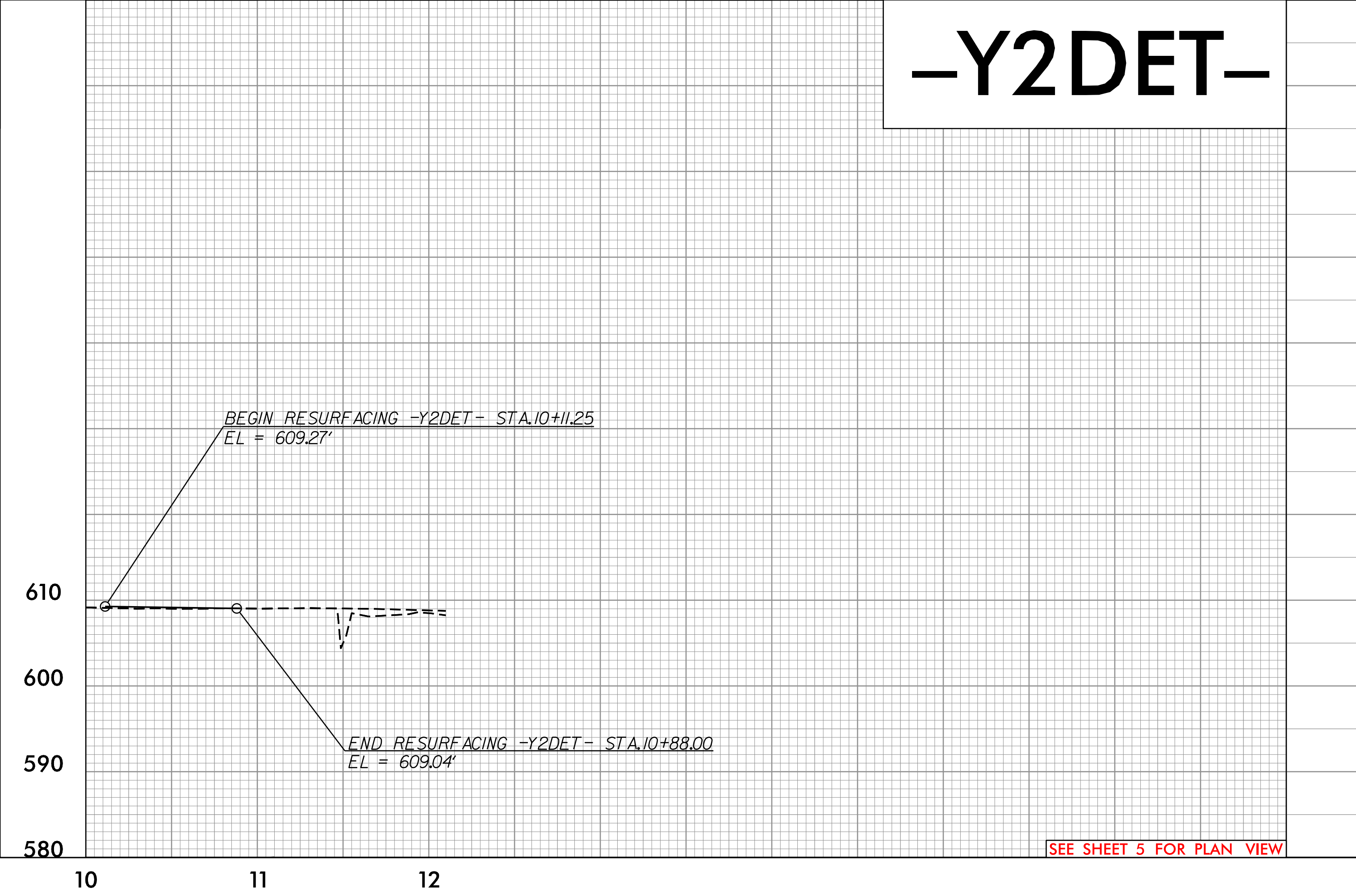


PERMIT DRAWING
SHEET 11 OF 12

-Y1DET-



-Y2DET-



SEE SHEET 5 FOR PLAN VIEW

B:\7-11-2017_10:41 AM\1917_HD\1917_n-wet-11.pfl.dgn
10/23/19 10:41 AM
10/23/19 10:41 AM
10/23/19 10:41 AM

WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS					SURFACE WATER IMPACTS				
			Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	15+53 TO 16+38 -L-	TEMPORARY CAUSEWAY						0.07		82		
1	15+67 TO 15+81 -L-	BANK STABLIZATION						< 0.01	< 0.01	10	10	
2	18+05 TO 18+58 -L-	ROADWAY FILL/RIP RAP PAD		0.01	< 0.01							
2	18+79 TO 19+44 -L-	BENCHING UNDER BRIDGE						0.01		97		
2	19+44 TO 19+60 -L-	BANK STABILIZATION								18	5	
1	15+43 TO 16+18 -DET-	TEMPORARY CAUSEWAY						0.07		53		
1	16+34 TO 16+48 -DET-	BANK STABILIZATION						< 0.01		9		
1	16+67 TO 17+16 -DET-	TEMP 18" CSP		0.02			< 0.01					
2	17+87 TO 18+70 -DET-	TEMP ROADWAY FILL		0.04								
2	19+54 TO 19+69 -DET-	BANK STABILIZATION						< 0.01		23		
TOTALS*:				0.08	< 0.01		< 0.01	< 0.01	0.15	28	279	0

*Rounded totals are sum of actual impacts

NOTES:

Per the Structures Unit, impacts due to proposed drilled piers = 20 sq. ft.

Site 1 - Total Stream Impacts Less than 150'

Site 2 - Total Stream Impacts Less than 150'

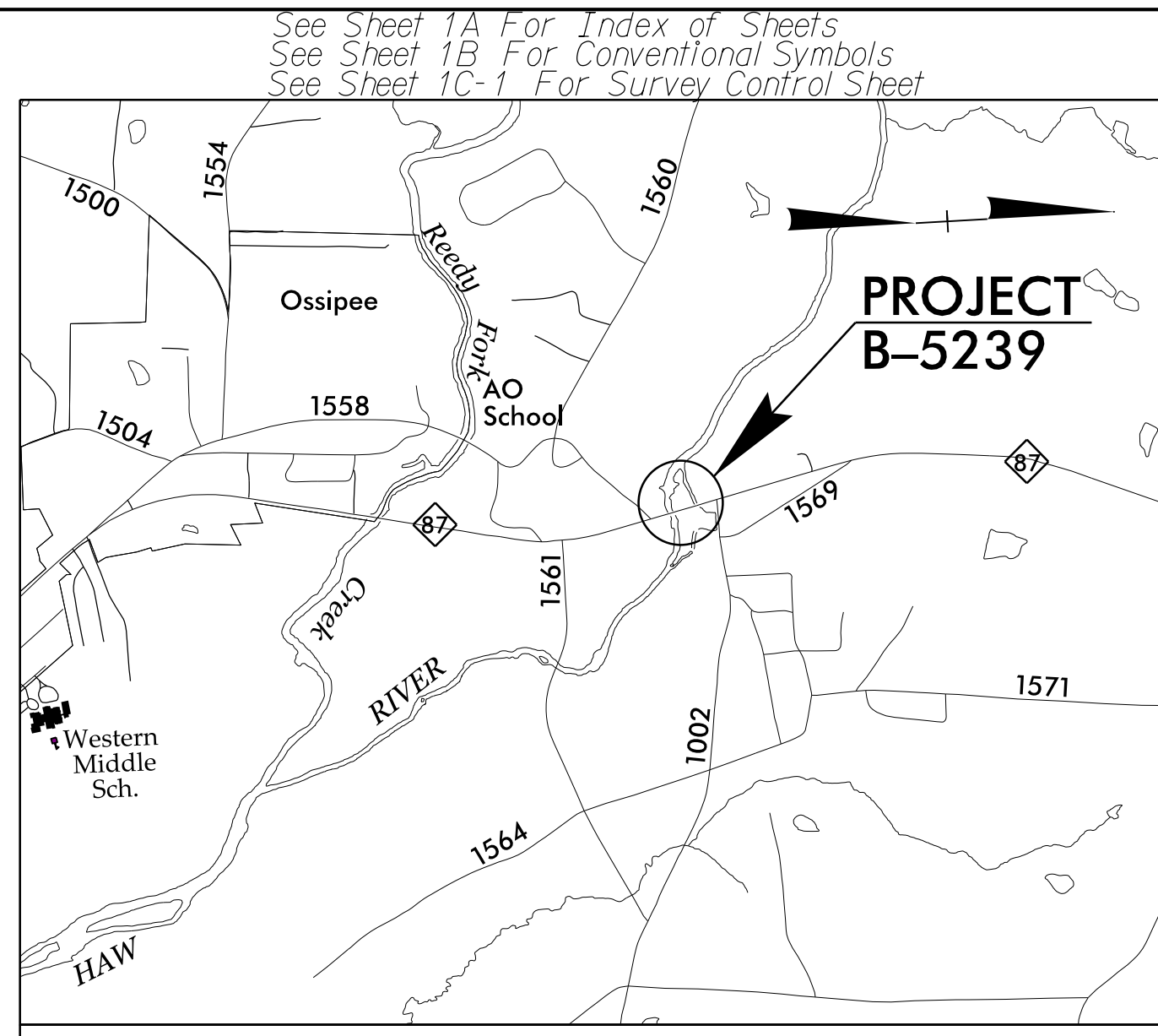
Temporary Impacts to Wetlands: Proposed temporary impacts to wetlands of <0.01 acre of Temporary fill in the Hand Clearing area for the installation of erosion control measures including Temporary silt fence and/or Special Sediment Control Fence.

NC DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 2017 02 01
 ALAMANCE COUNTY
 B-5239
 B-5239
 SHEET 12 OF 12

09.08/2017

TIP PROJECT: B-5239

CONTRACT: C203676



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ALAMANCE COUNTY

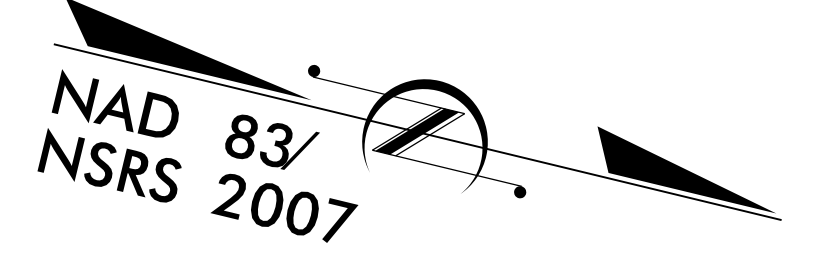
LOCATION: BRIDGE NO. 126 OVER MILL RACE
& BRIDGE NO. 119 OVER HAW RIVER ON NC 87

TYPE OF WORK: GRADING, PAVING, DRAINAGE AND STRUCTURES

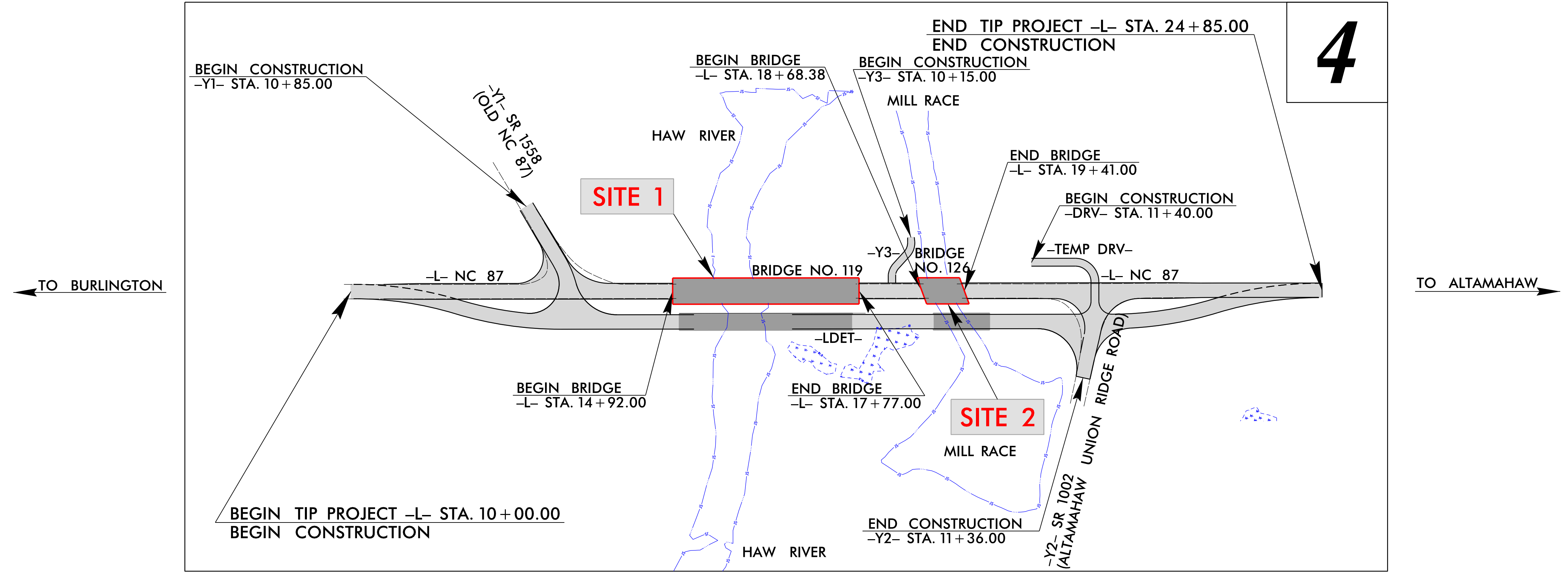
**BUFFER DRAWING
SHEET 1 OF 7**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5239	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
42841.1.1	BRSTP-0087(29)	PE	
42841.1.2.2		RW & UTILITIES	
42841.1.3.2		CONST.	

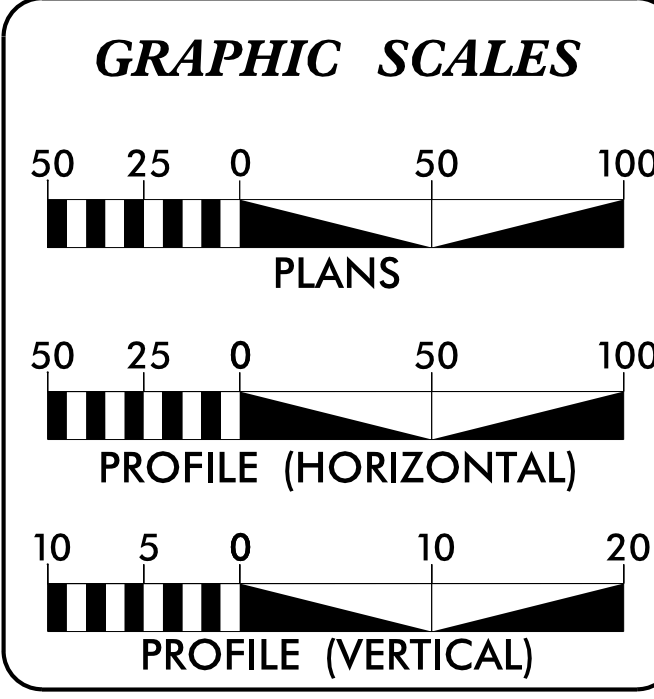
**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**



BUFFER IMPACTS PERMIT



4



DESIGN DATA

ADT 2017	=	7150
ADT 2037	=	8650
K	=	10 %
D	=	60 %
T	=	6 % *
V	=	50 MPH
V _{DET}	=	40 MPH

* TTST = 2% + DUAL = 4%
FUNC CLASS =
PRINCIPAL ARTERIAL
"STATEWIDE TIER"

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-5239	=	0.213 MILES
LENGTH STRUCTURES TIP PROJECT B-5239	=	0.068 MILES
TOTAL LENGTH TIP PROJECT B-5239	=	0.281 MILES

NCDOT POINT OF CONTACT:
GARY LOVERING, PE
PROJECT ENGINEER

JMT. Prepared in the Office of:
JOHNSON, MIRMIRAN, & THOMPSON, INC.
1130 Situs Court, Suite 200, Raleigh NC, 27606

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
DECEMBER 16, 2016

LETTING DATE:
DECEMBER 19, 2017

JAMES W. JENKINS, PE
PROJECT ENGINEER

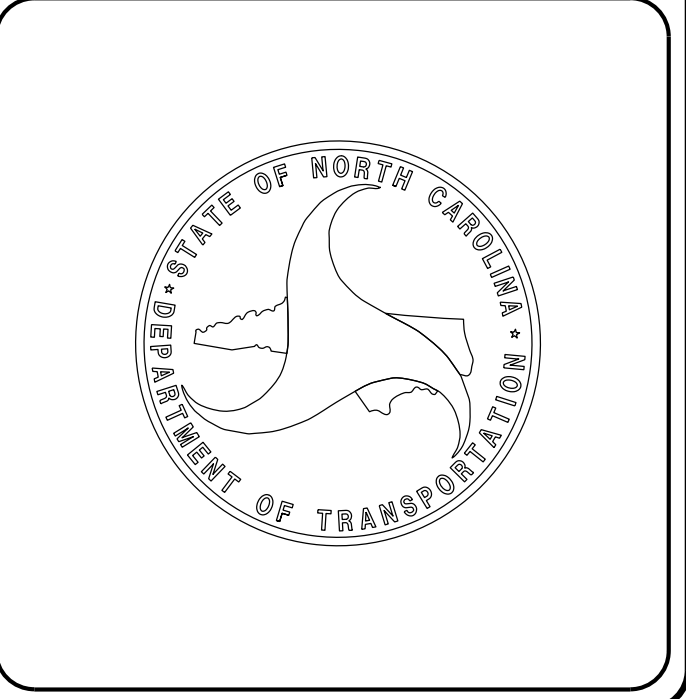
ENRICO A. ROQUE, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

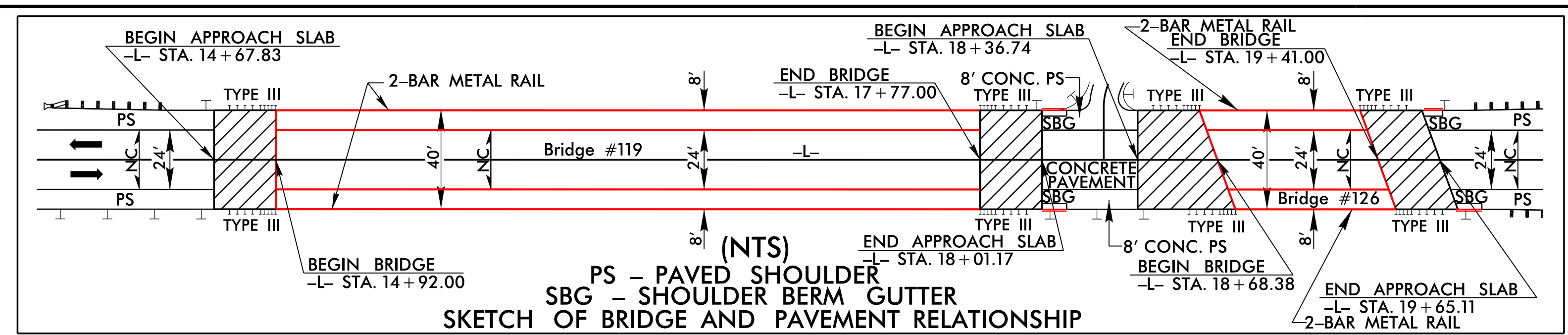
ROADWAY DESIGN ENGINEER

SIGNATURE: _____ P.E.



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james.crouse

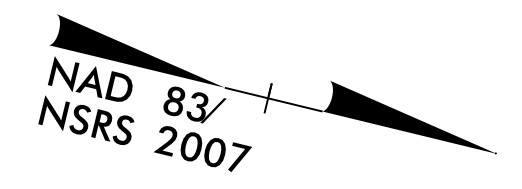
8.17.19



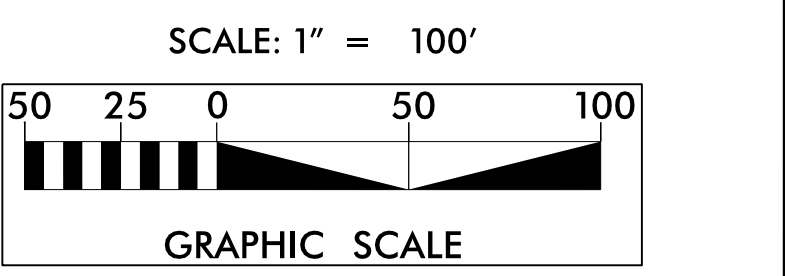
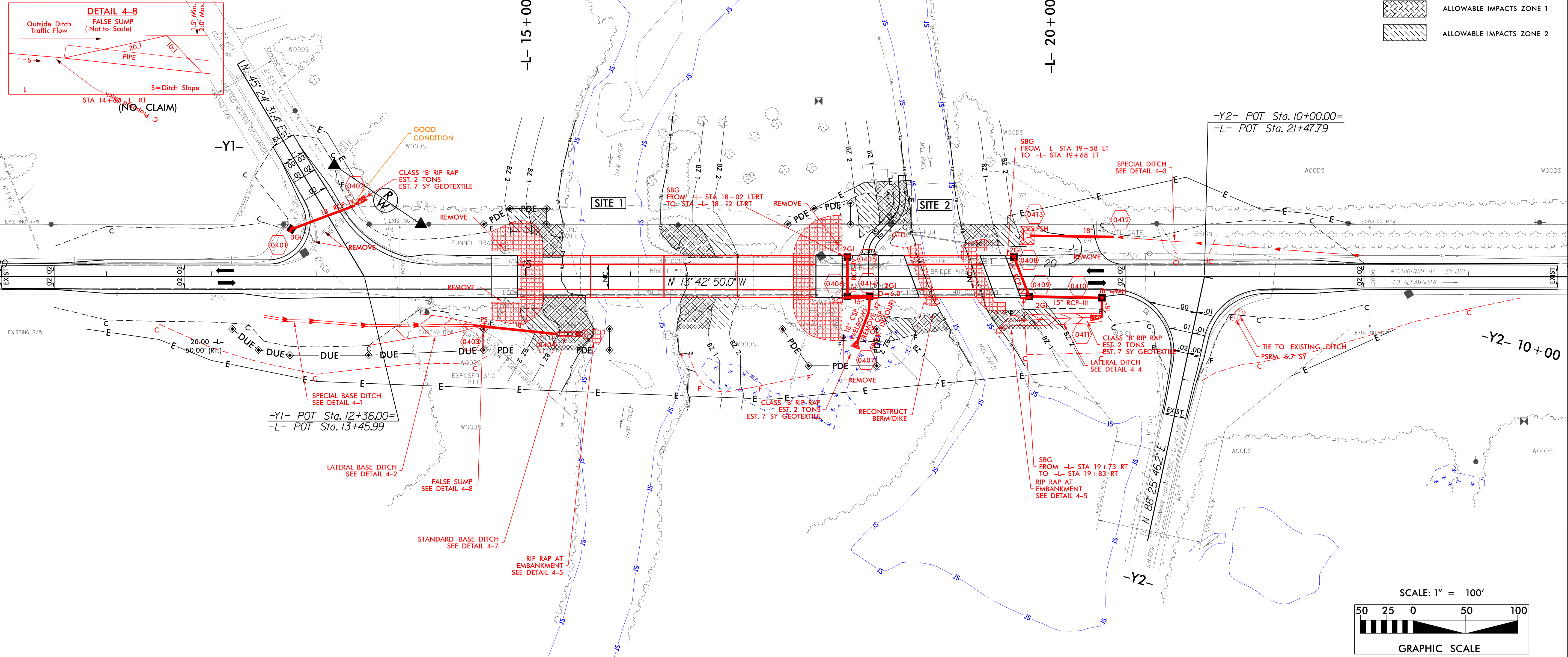
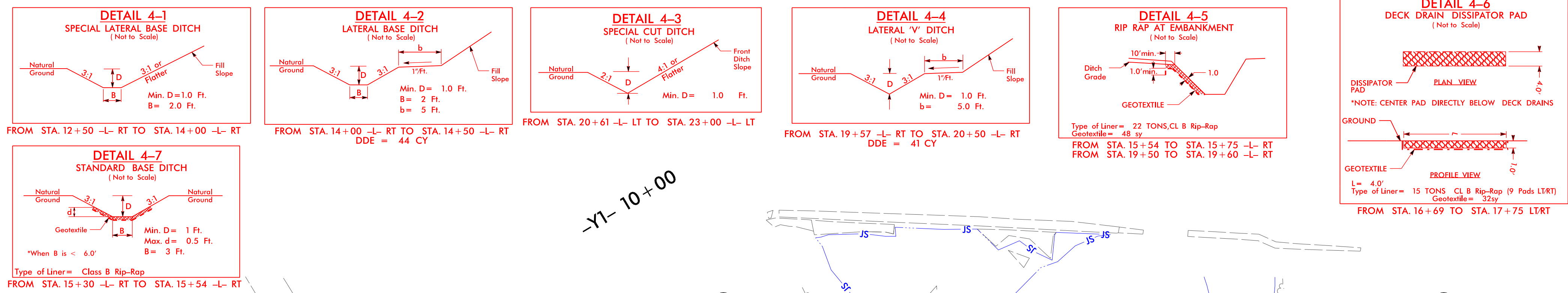
-Y3-

PI Sta 10+76.43 Δ = 42° 20' 16.3" (LT) D = 229' 10" 59.2" L = 18.47' T = 9.68' R = 25.00'	PI Sta 10+32.44 Δ = 45° 21' 39.1" (RT) D = 229' 10" 59.2" L = 19.79' T = 10.45' R = 25.00'
--	---

PERMIT DRAWING SHEET 2 OF 7



PROJECT REFERENCE NO. B-5239	SHEET NO. 4
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



SEE SHEET 6 FOR -L- PROFILE
SEE SHEET 7 FOR -Y1-, -Y2-, AND -Y3- PROFILES
SEE SHEETS S-1 THRU S-?? FOR STRUCTURE PLANS

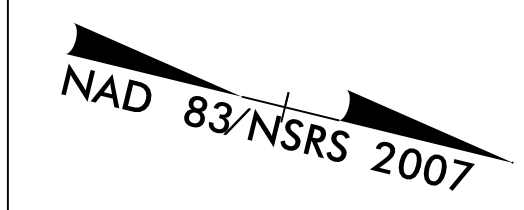
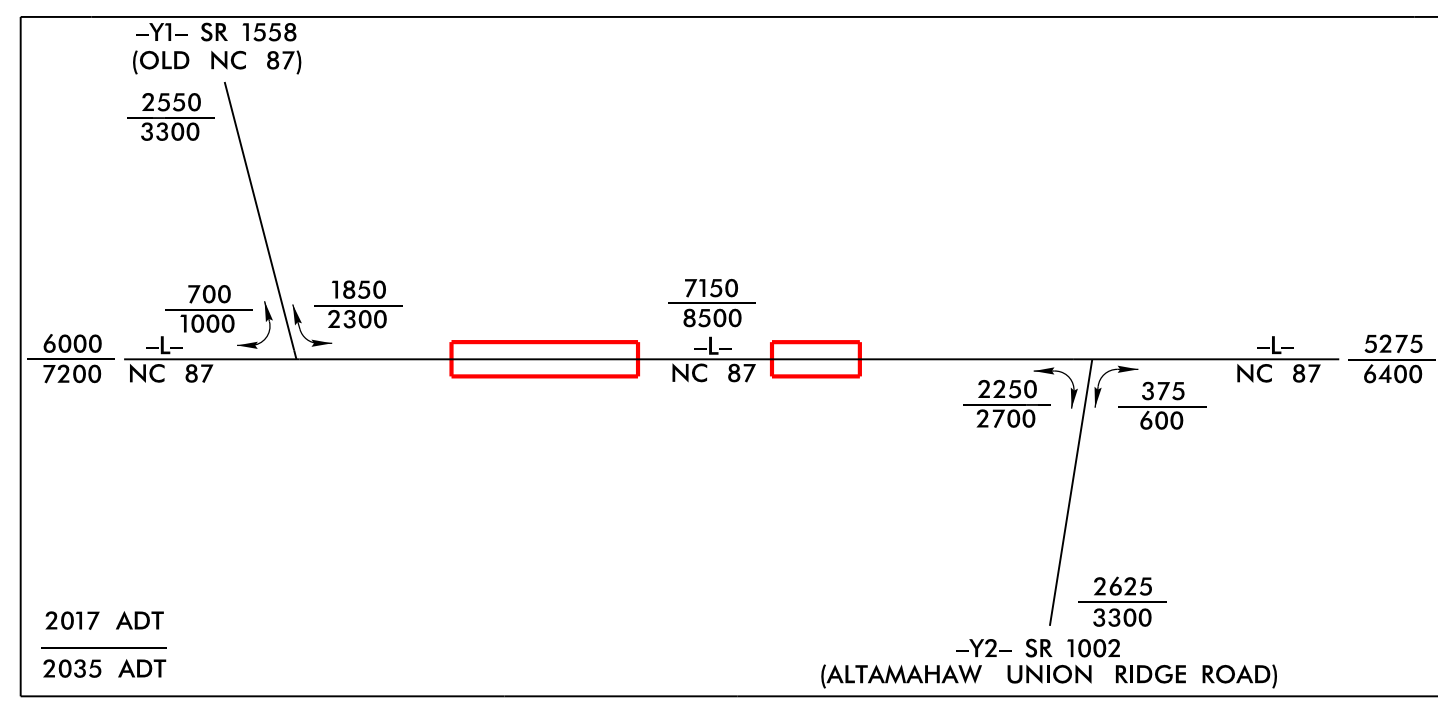
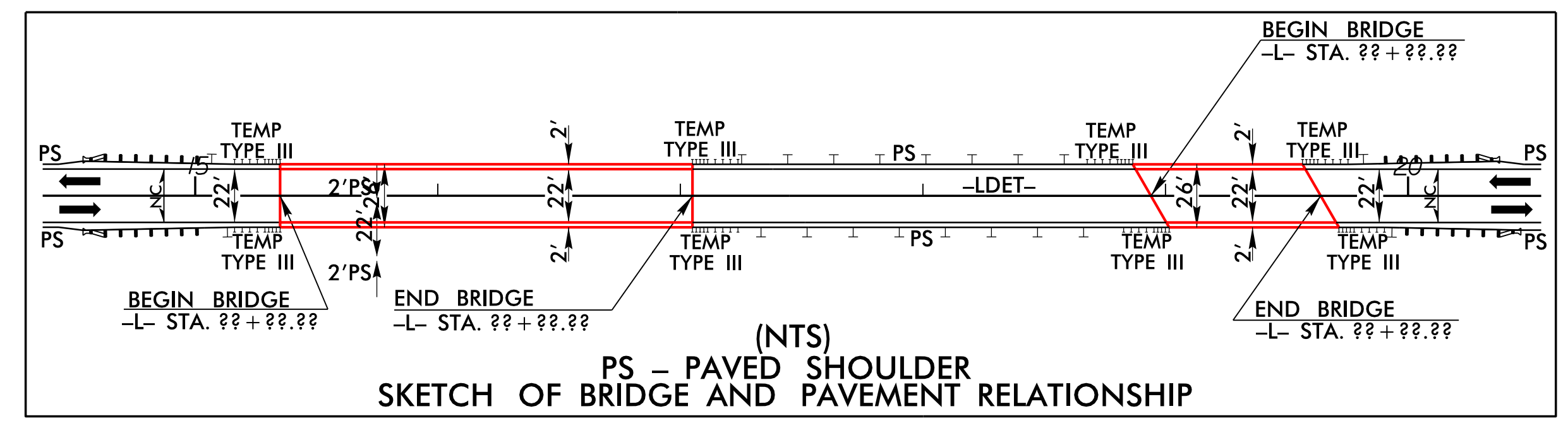
REVISIONS

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lomaschouse

81799

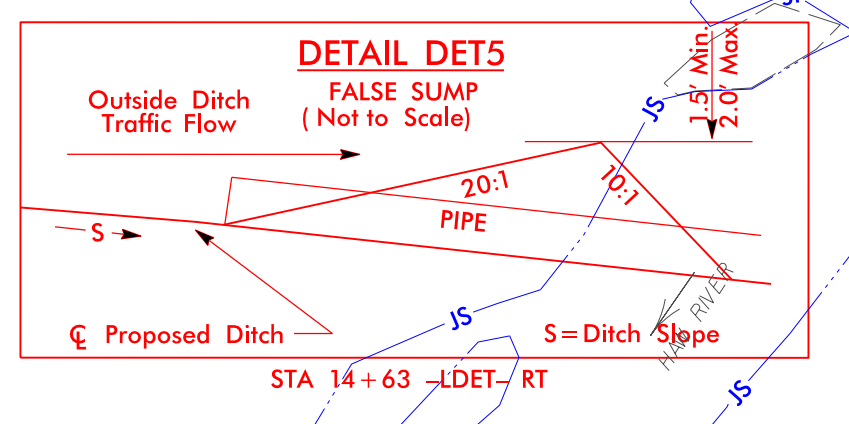
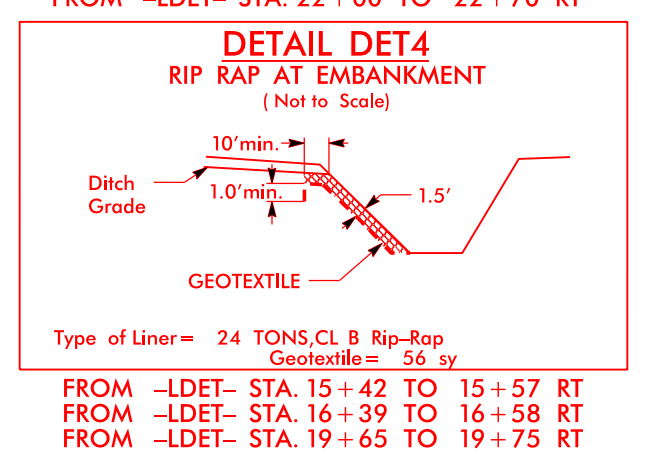
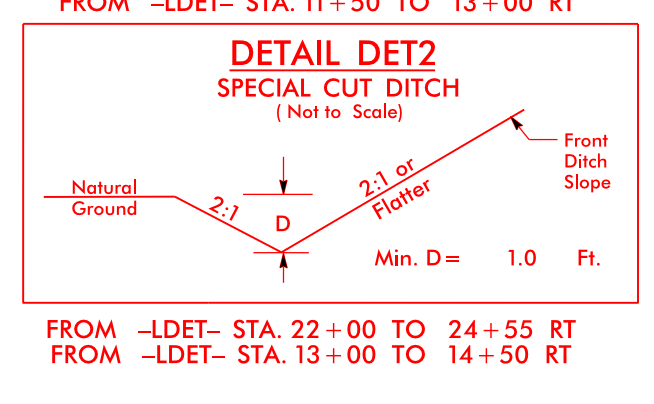
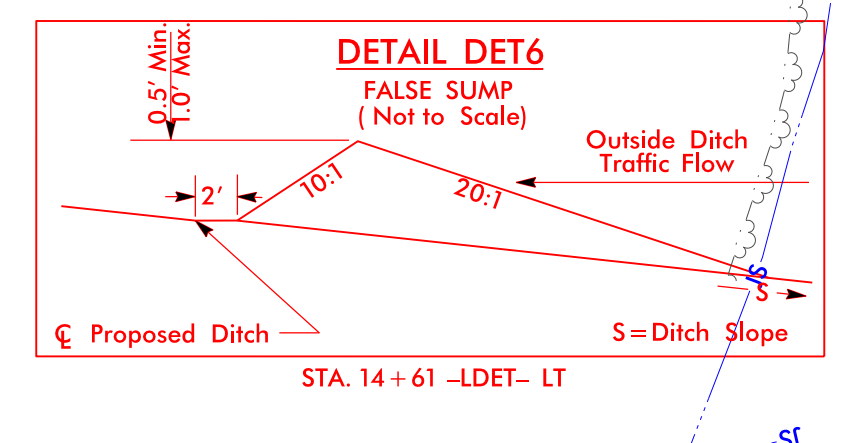
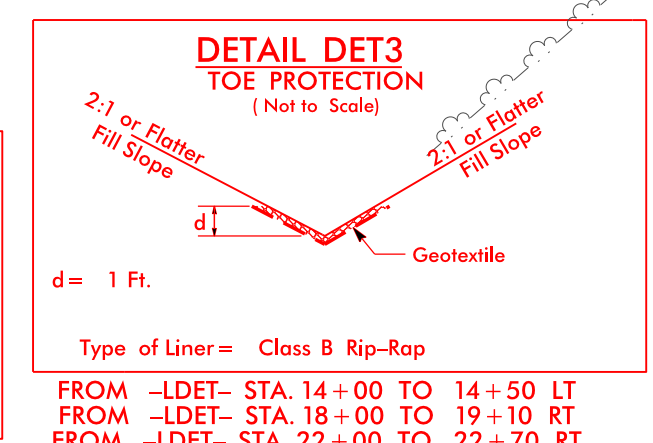
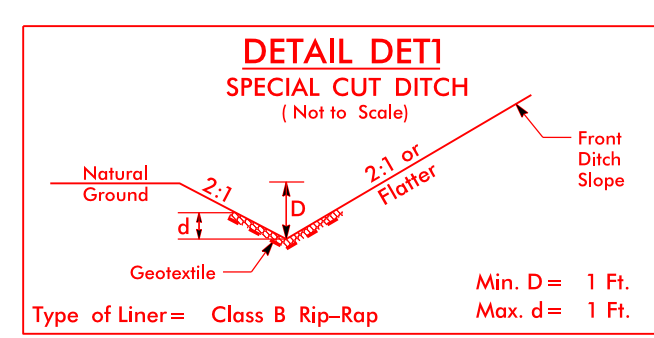
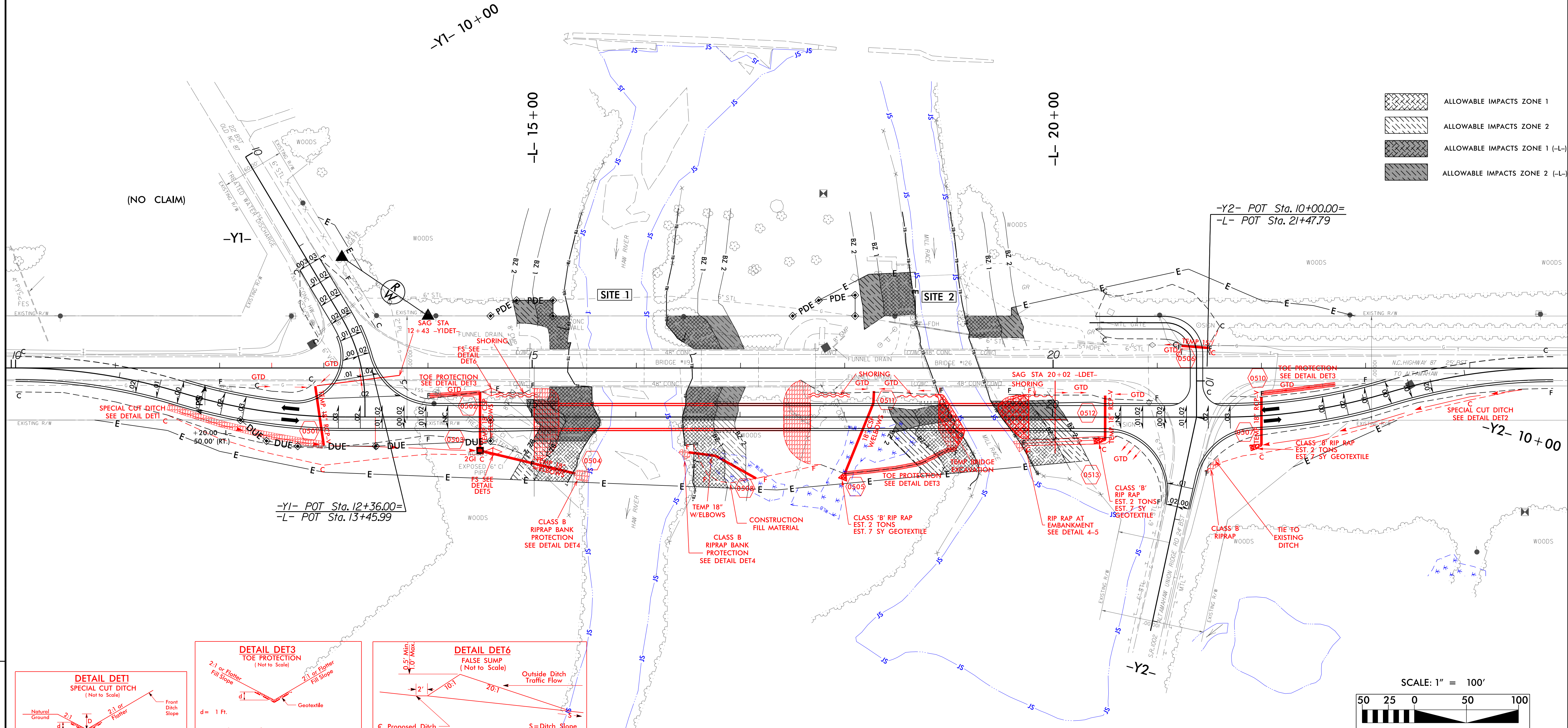
PERMIT DRAWING SHEET 3 OF 7

PROJECT REFERENCE NO. B-5239	SHEET NO. 5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



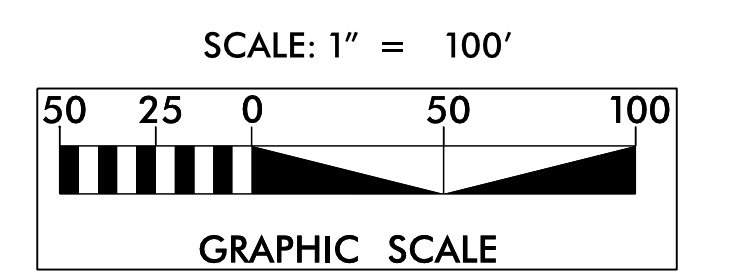
- ALLOWABLE IMPACTS ZONE 1
- ALLOWABLE IMPACTS ZONE 2
- ALLOWABLE IMPACTS ZONE 1 (-L)
- ALLOWABLE IMPACTS ZONE 2 (-L)

REVISIONS



Vdet = 40 MPH
-LDET-

PI Sta 10+80.90	PI Sta 12+41.53	PI Sta 22+44.83	PI Sta 24+05.46	-YIDET-	-DRV-
$\Delta = 16' 53'' 12.3''$ (RT)	$\Delta = 16' 53'' 12.3''$ (LT)	$\Delta = 16' 53'' 12.3''$ (LT)	$\Delta = 16' 53'' 12.3''$ (RT)	PI Sta 12+23.42	PI Sta 10+55.85
D = 10' 30' 46.8"	D = 10' 30' 46.8"	D = 10' 30' 46.8"	D = 10' 30' 46.8"	D = 30' 53' 33.6" (RT)	$\Delta = 90' 00' 00.0''$ (LT)
L = 160.63'	L = 160.63'	L = 160.63'	L = 160.63'	D = 35' 48' 35.5"	D = 190' 59' 09.4"
T = 80.90'	T = 80.90'	T = 80.90'	T = 80.90'	L = 86.27'	L = 47.12'
R = 545.00'	R = 545.00'	R = 545.00'	R = 545.00'	T = 44.21'	T = 30.00'
SE = SEE PLANS	SE = SEE PLANS	SE = SEE PLANS	SE = SEE PLANS	R = 160.00'	R = 30.00'



SEE SHEET 7 FOR -DRV- PROFILE
SEE SHEET 8 FOR -LDET-, -YIDET-, AND -Y2DET- PROFILE

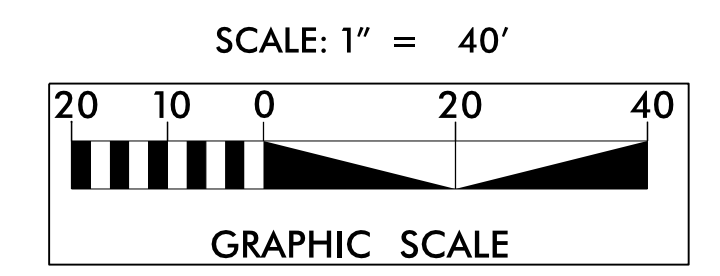
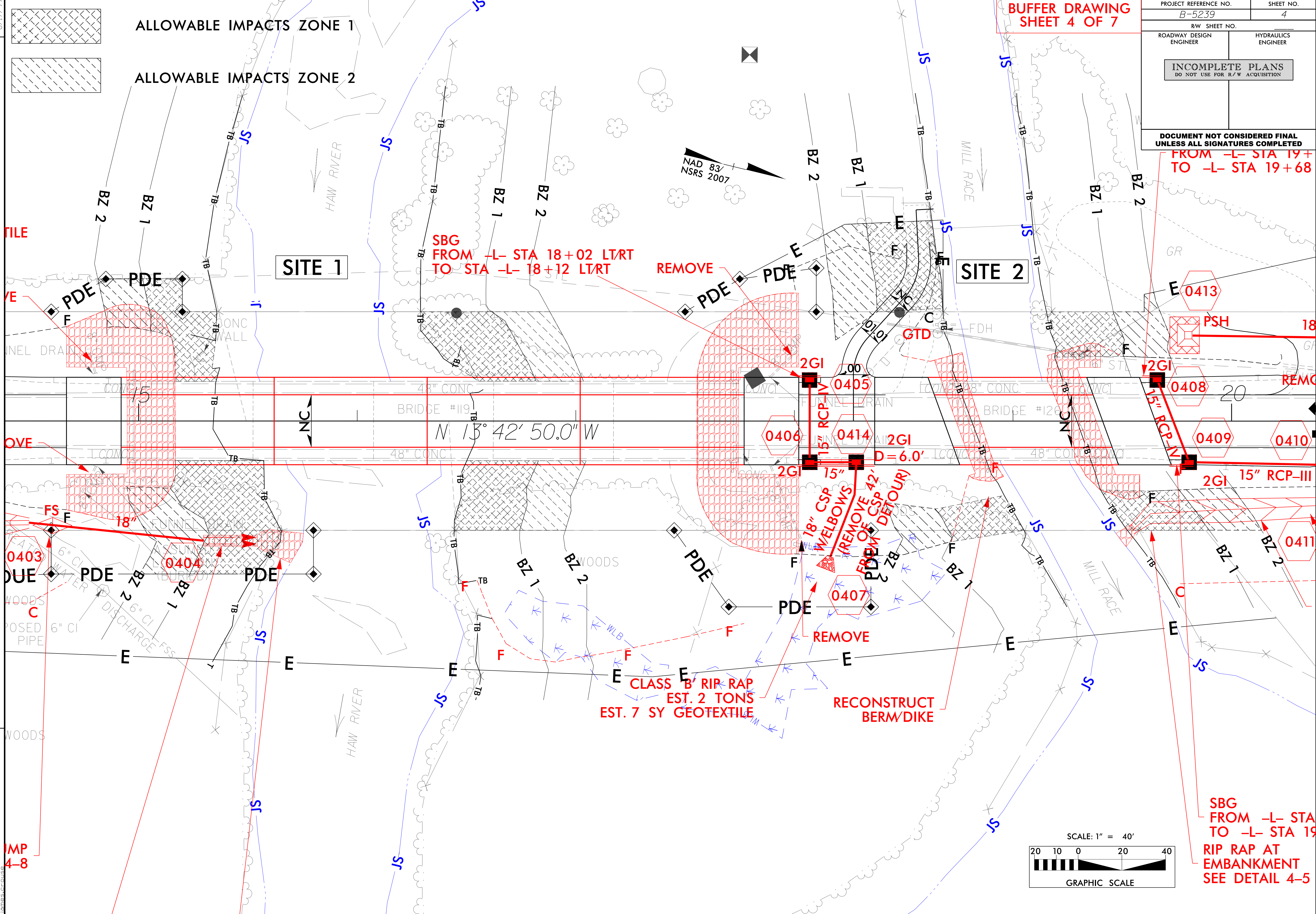
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james.crowe

PROJECT REFERENCE NO. B-5239	SHEET NO. 4
RW SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

FROM -L- STA 19+
TO -L- STA 19+68

BUFFER DRAWING
SHEET 4 OF 7



SBG FROM -L- STA
TO -L- STA 19
RIP RAP AT
EMBANKMENT
SEE DETAIL 4-5

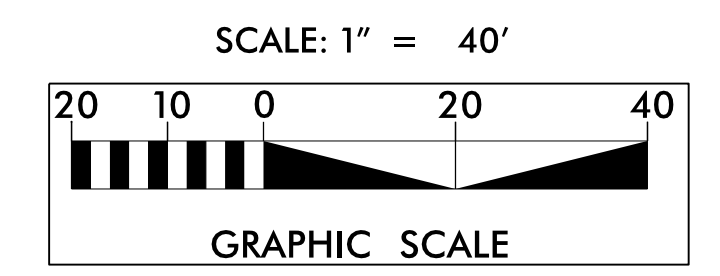
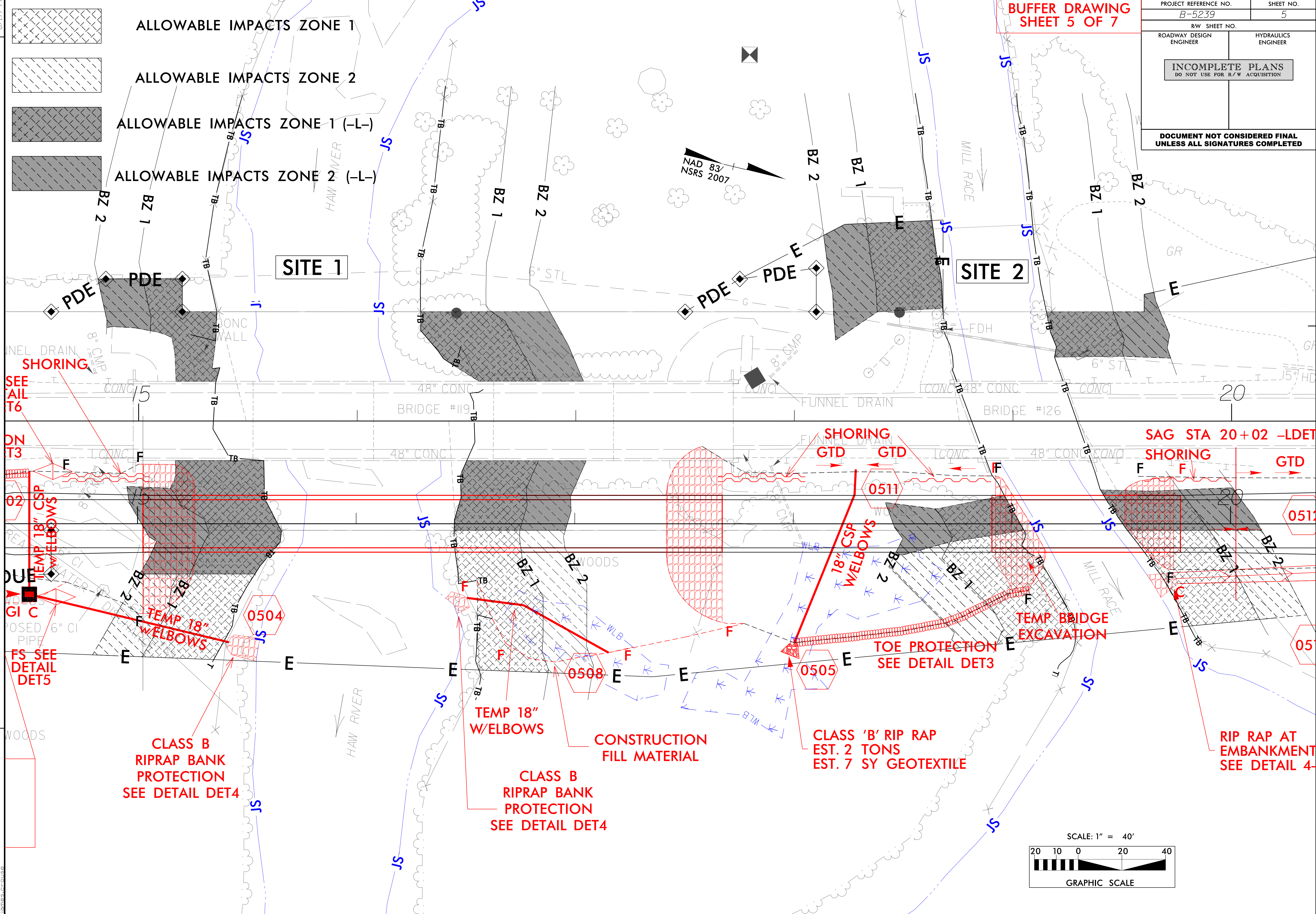
REVISIONS

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lomas.chouse

IMP
4-8

PROJECT REFERENCE NO. B-5239	SHEET NO. 5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

BUFFER DRAWING SHEET 5 OF 7



REVISIONS

07-MIL-2017-10-41
 B5239-Haw_rn-buf_05_psh5_DET_inset.dgn
 lomas.chouse

RIPARIAN 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	BRIDGE 3@70', 1@75', 45' PSCG	14+81 TO 14+92 - L-	X					182					
1	BRIDGE 3@70', 1@75', 45' PSCG	14+92 TO 17+03 -L-		X		4997	2631						
2	BRIDGE 1@72'-7.5", 45" PSCG	18+13 TO 18+68 -L-	X			545	1372						
2	BRIDGE 1@72'-7.5", 45" PSCG	18+68 TO 19+41-L-		X		1573							
2	BRIDGE 1@72'-7.5", 45" PSCG	19+41 TO 20+14-L-	X			959	956						
1	TEMP BRIDGE 1@265'	14+79 TO 15+03-DET-	X				464						
1	TEMP BRIDGE 1@265'	15+03 TO 17+08-DET-		X		3224	1722						
1	TEMP BRIDGE 1@85'	18+43 TO 18+91 -DET	X			446	1149						
2	TEMP BRIDGE 1@85'	18+91 TO 19+77 -DET-		X		1731	53						
2	TEMP BRIDGE 1@85'	19+77 TO 20+35 -DET	X			1082	908						
TOTAL:						14557	9437	0.0	0.0	0.0	0.0	0.0	0.0

Site 1 - Less than 1/3 ac of Impacts
 Site 2 - Less than 1/3 ac of Impacts

N.C. DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS

ALAMANCE COUNTY
 PROJECT: B-5239

2/1/2017
 SHEET 6 OF 7

WETLANDS IN BUFFER IMPACTS SUMMARY

SITE NO.	STATION (FROM/TO)	WETLANDS IN BUFFERS	
		ZONE 1 (ft ²)	ZONE 2 (ft ²)
1	16+67 TO 17+08 -DET-	295	502
2	18+43 TO 18+70 -DET-		371
TOTAL:		295	873

N.C. DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS

 ALAMANCE COUNTY
 PROJECT: B-5239

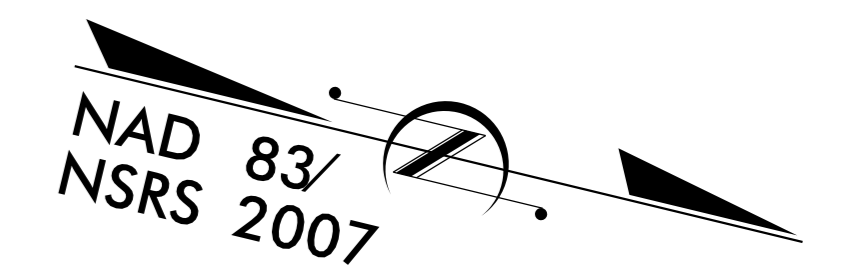
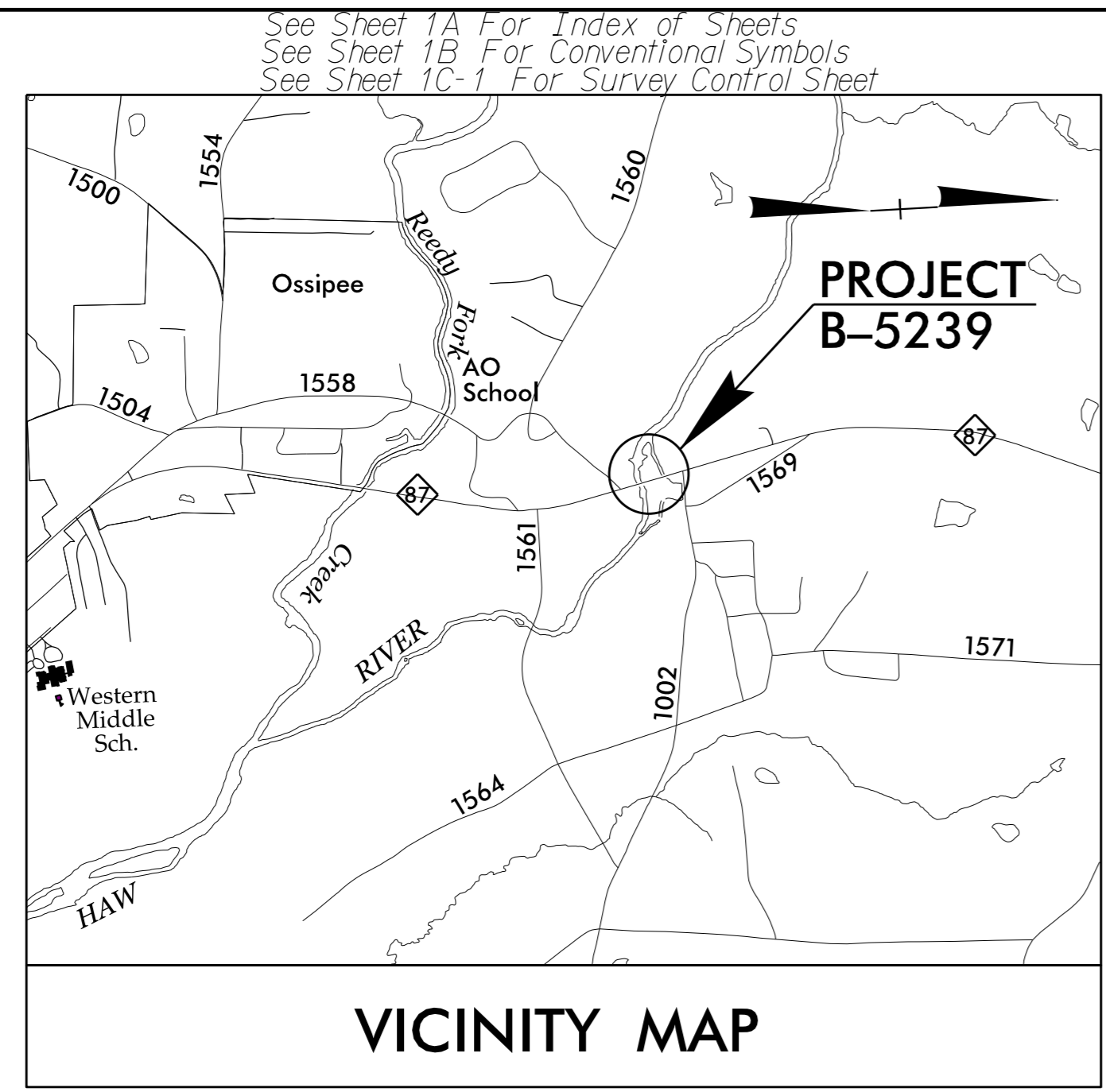
 2/1/2017
 SHEET 7 OF 7

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5239	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
42841.1.1	BRSTP-0087(29)	PE	
42841.1.2.2		RW & UTILITIES	

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ALAMANCE COUNTY

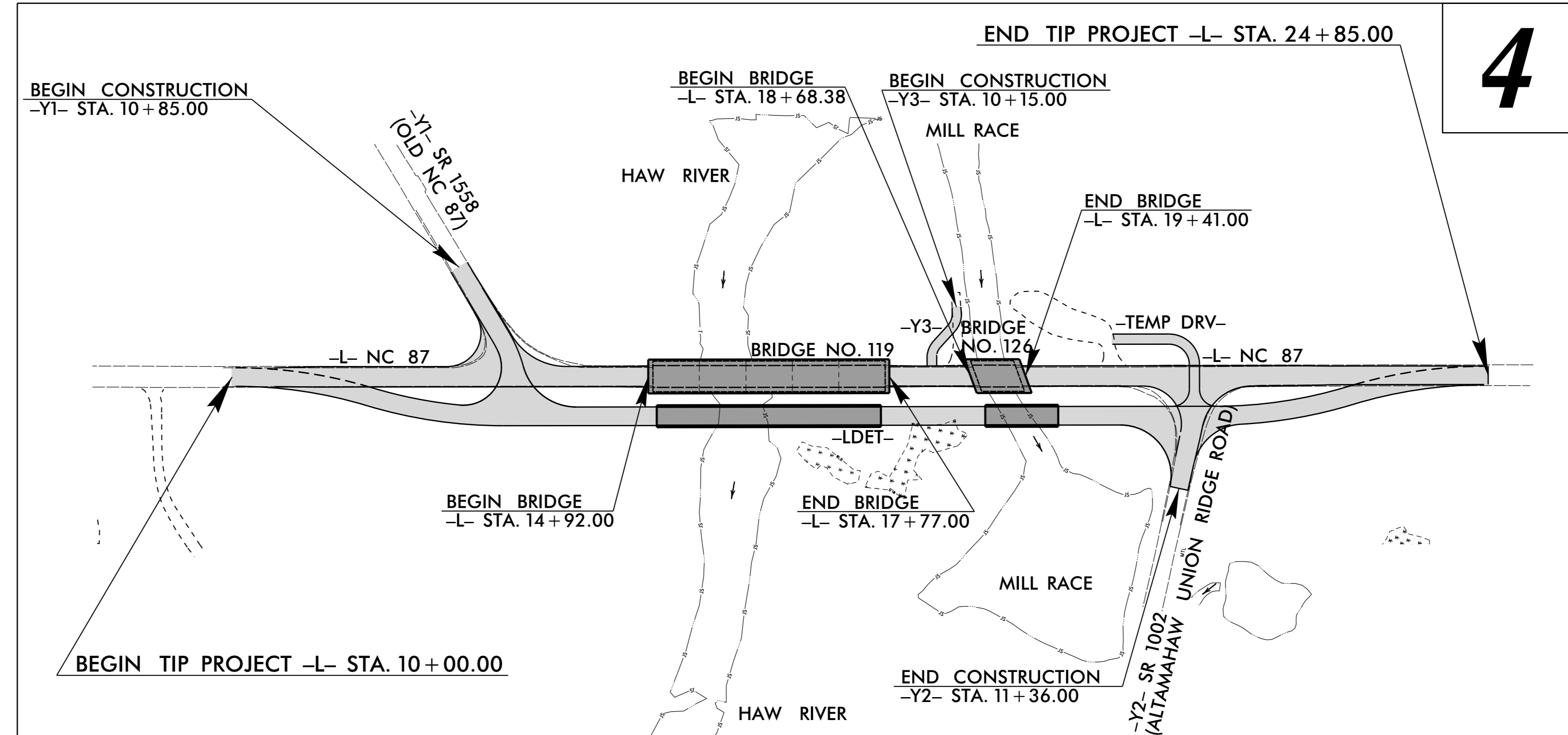
**LOCATION: BRIDGE NO. 126 OVER MILL RACE
& NO. 119 OVER HAW RIVER ON NC 87**

TYPE OF WORK: GRADING, PAVING, DRAINAGE AND STRUCTURES



TIP PROJECT: B-5239

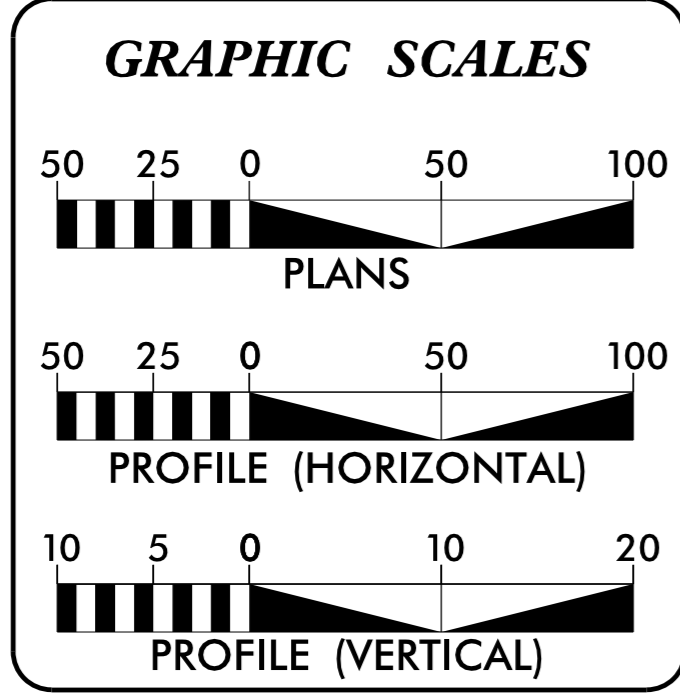
CONTRACT: C203676



4

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

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



DESIGN DATA

ADT 2017 =	7150
ADT 2035 =	8500
K =	10 %
D =	60 %
T =	6 % *
V =	50 MPH
V _{DET} =	40 MPH
* TTST =	2% DUAL = 4%
FUNC CLASS =	PRINCIPAL ARTERIAL
	"STATEWIDE TIER"

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-5239	=	0.213 MILES
LENGTH STRUCTURES TIP PROJECT B-5239	=	0.068 MILES
TOTAL LENGTH TIP PROJECT B-5239	=	0.281 MILES

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

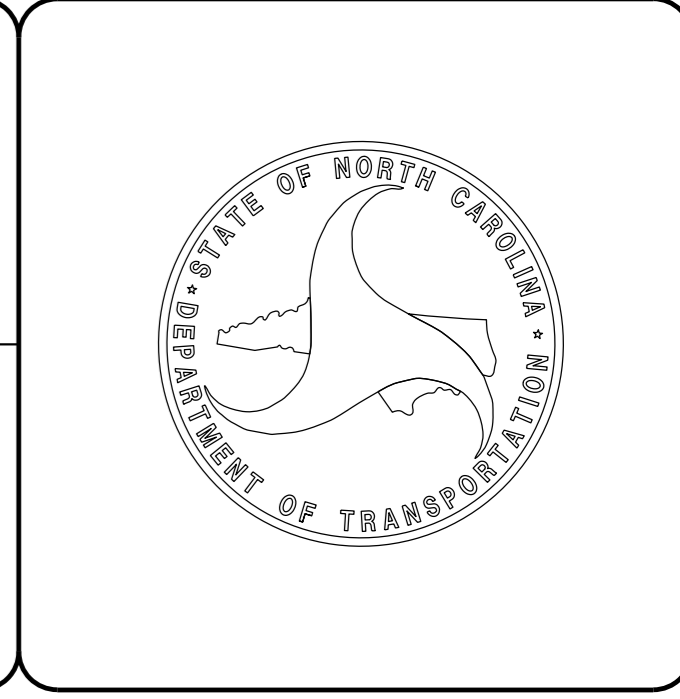
2012 STANDARD SPECIFICATIONS	
RIGHT OF WAY DATE: DECEMBER 16, 2016	JAMES A. SPEER, PE PROJECT ENGINEER
LETTING DATE: DECEMBER 19, 2017	DANIEL W. GARDNER, JR, PE PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: _____ P.E.



21-DEC-2016 10:00
R:\Roadway\Proj\B5239_Rdy_tsh.dgn
\$\$\$\$\$USERNAME\$\$\$\$\$

04/06/15

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

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

BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○ EP
Property Corner	-----
Property Monument	□ EDM
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	---RLB---
Proposed Wetland Boundary	---RLB---
Existing Endangered Animal Boundary	---EAB---
Existing Endangered Plant Boundary	---EPB---
Existing Historic Property Boundary	---HPB---
Known Contamination Area: Soil	☠☠
Potential Contamination Area: Soil	☠☠
Known Contamination Area: Water	☠☠
Potential Contamination Area: Water	☠☠
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	-----
Proposed Lateral, Tail, Head Ditch	-----
False Sump	-----

RAILROADS:

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

RIGHT OF WAY:

Baseline Control Point	◇
Existing Right of Way Marker	△
Existing Right of Way Line	-----
Proposed Right of Way Line	---RW---
Proposed Right of Way Line with Iron Pin and Cap Marker	---RW---▲
Proposed Right of Way Line with Concrete or Granite R/W Marker	---RW---▲
Proposed Control of Access Line with Concrete CA Marker	---CA---

EXISTING CONTROL OF ACCESS:

Existing Control of Access	---CA---
Proposed Control of Access	---CA---
Existing Easement Line	---E---
Proposed Temporary Construction Easement	---E---
Proposed Temporary Drainage Easement	---TDE---
Proposed Permanent Drainage Easement	---PDE---
Proposed Permanent Drainage / Utility Easement	---DUE---
Proposed Permanent Utility Easement	---PUE---
Proposed Temporary Utility Easement	---TUE---
Proposed Aerial Utility Easement	---AUE---
Proposed Permanent Easement with Iron Pin and Cap Marker	---E---▲

ROADS AND RELATED FEATURES:

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

VEGETATION:

Single Tree	☼
Single Shrub	☼
Hedge	-----
Woods Line	-----

Orchard	☼☼☼☼
Vineyard	□ Vineyard

EXISTING STRUCTURES:

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

UTILITIES:

POWER:	
Existing Power Pole	●
Proposed Power Pole	○
Existing Joint Use Pole	●
Proposed Joint Use Pole	○
Power Manhole	⊕
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:

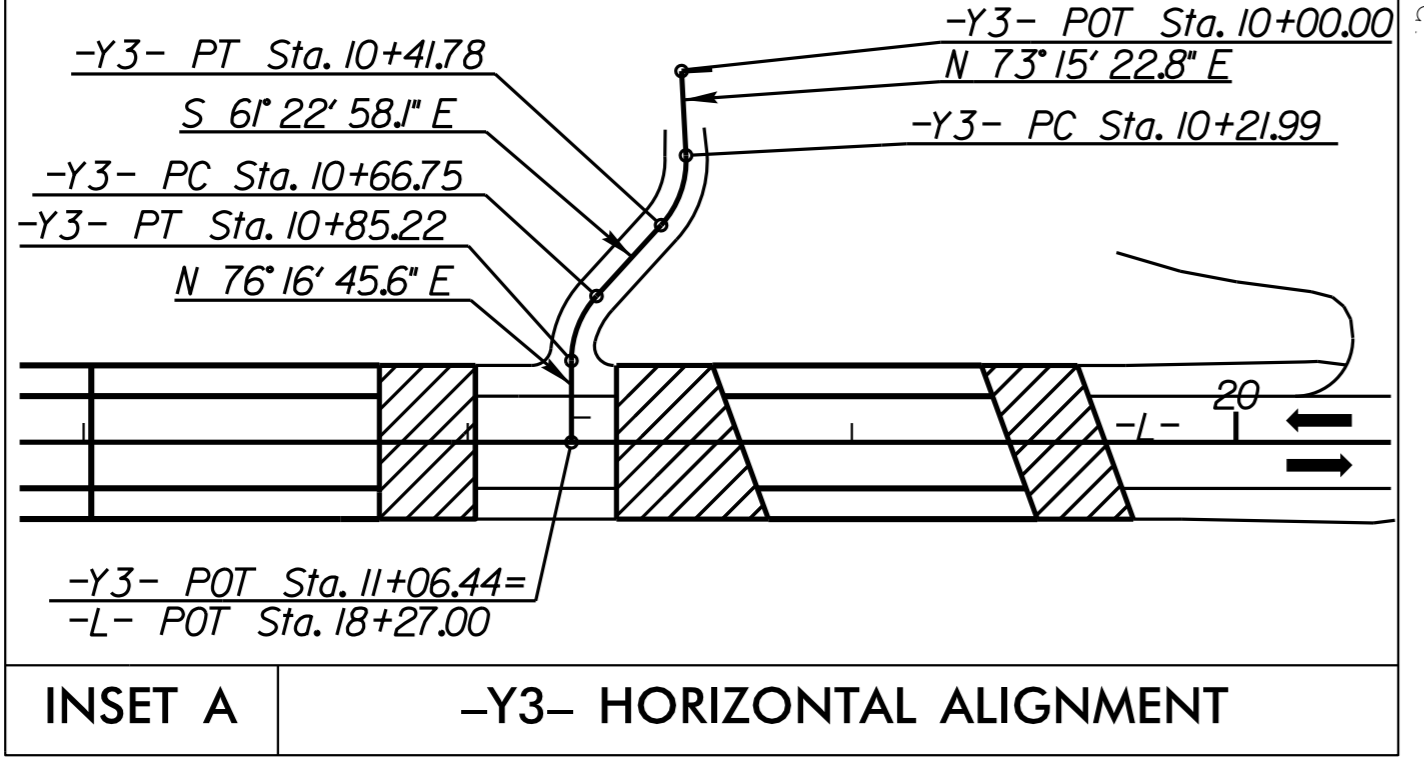
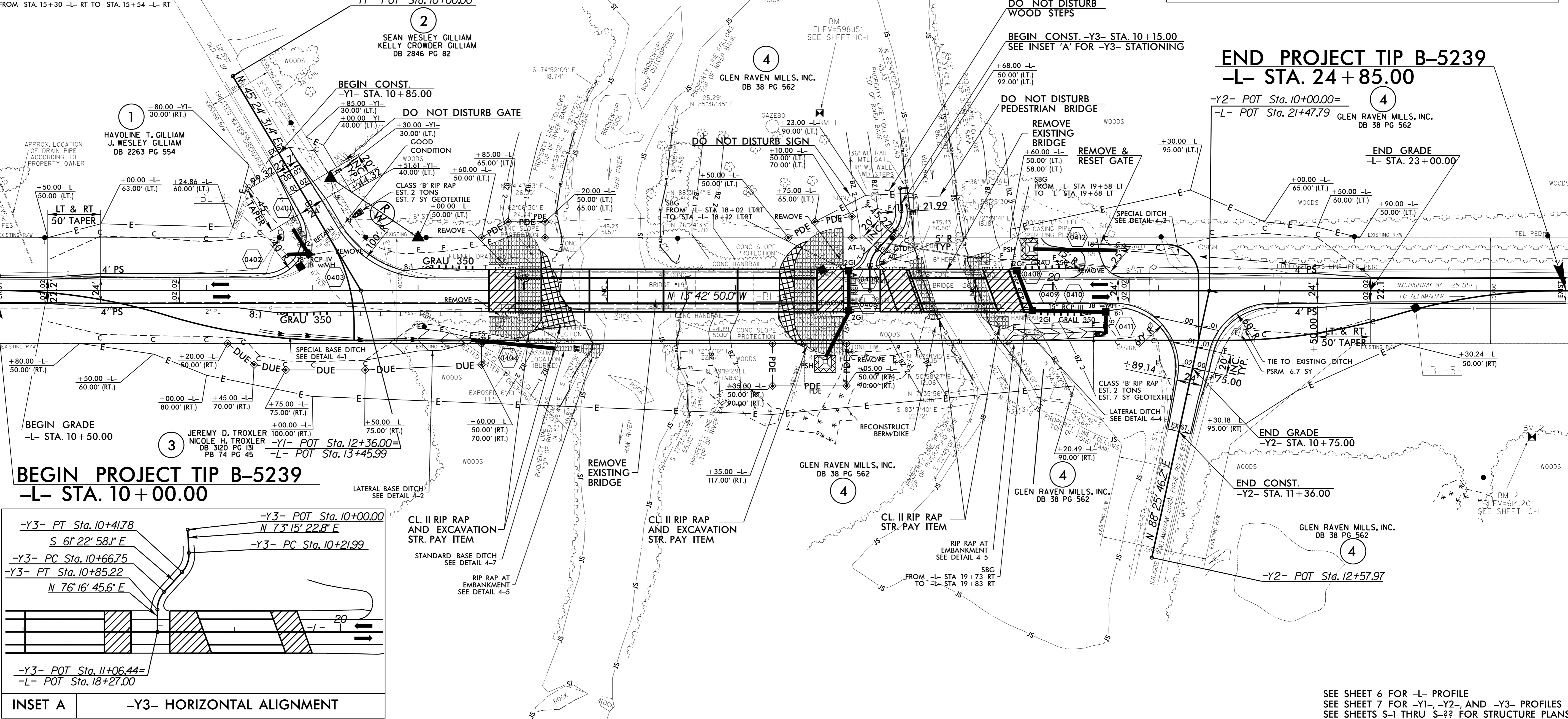
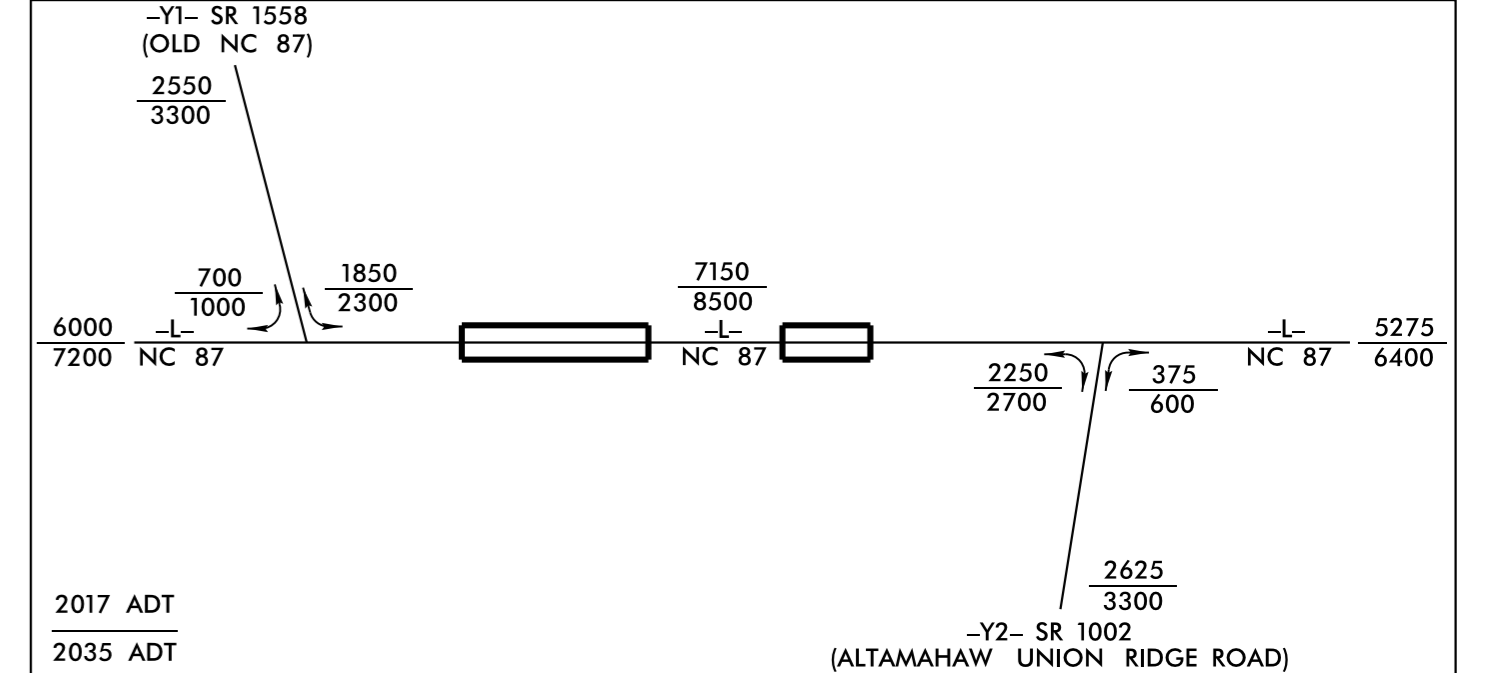
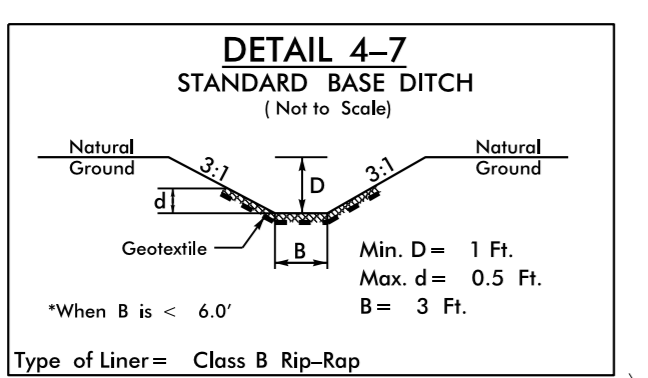
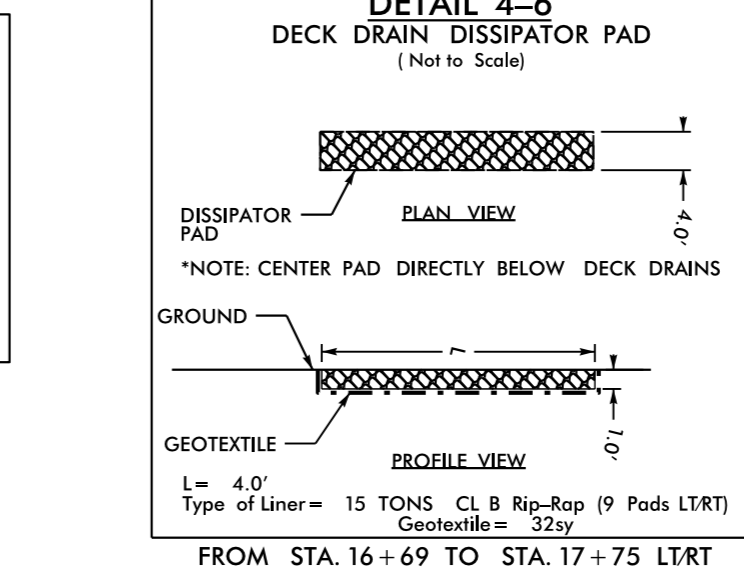
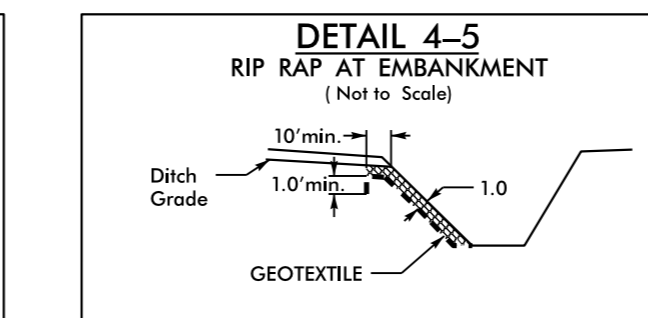
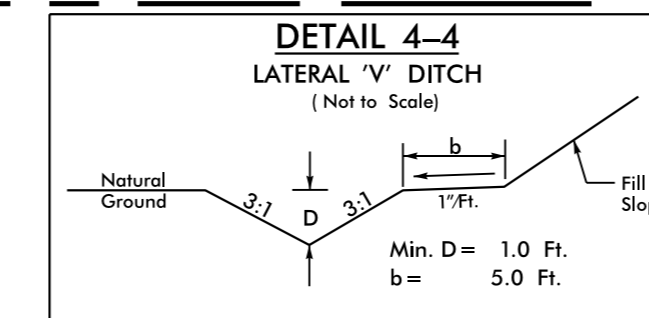
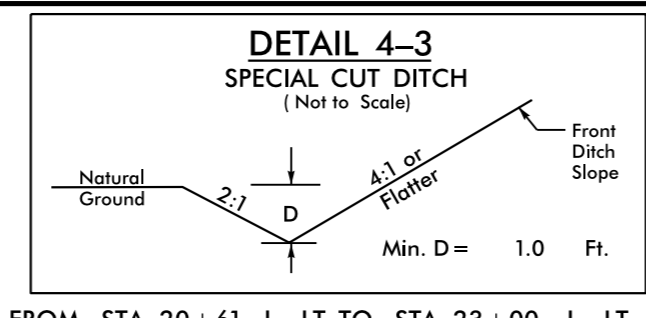
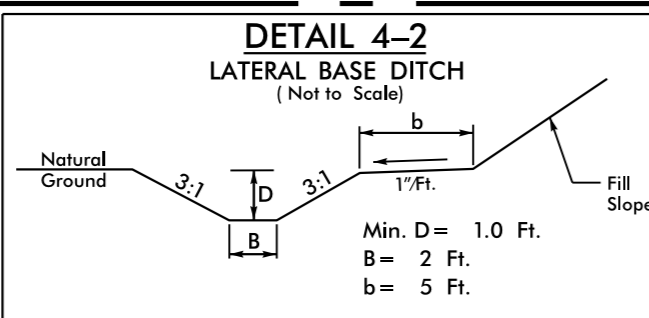
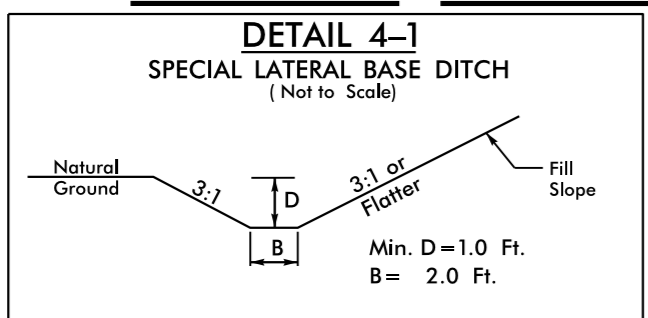
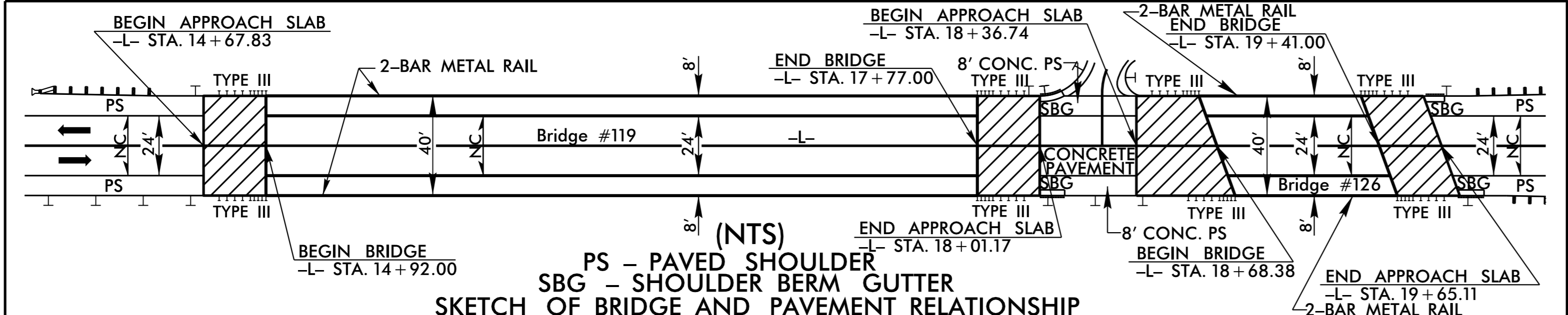
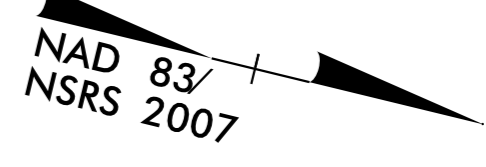
Sanitary Sewer Manhole	⊕
Sanitary Sewer Cleanout	⊕
U/G Sanitary Sewer Line	---SS---
Above Ground Sanitary Sewer	---A/G Sanitary Sewer---
SS Forced Main Line LOS B (S.U.E.*)	---FSS---
SS Forced Main Line LOS C (S.U.E.*)	---FSS---
SS Forced Main Line LOS D (S.U.E.*)	---FSS---

MISCELLANEOUS:

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

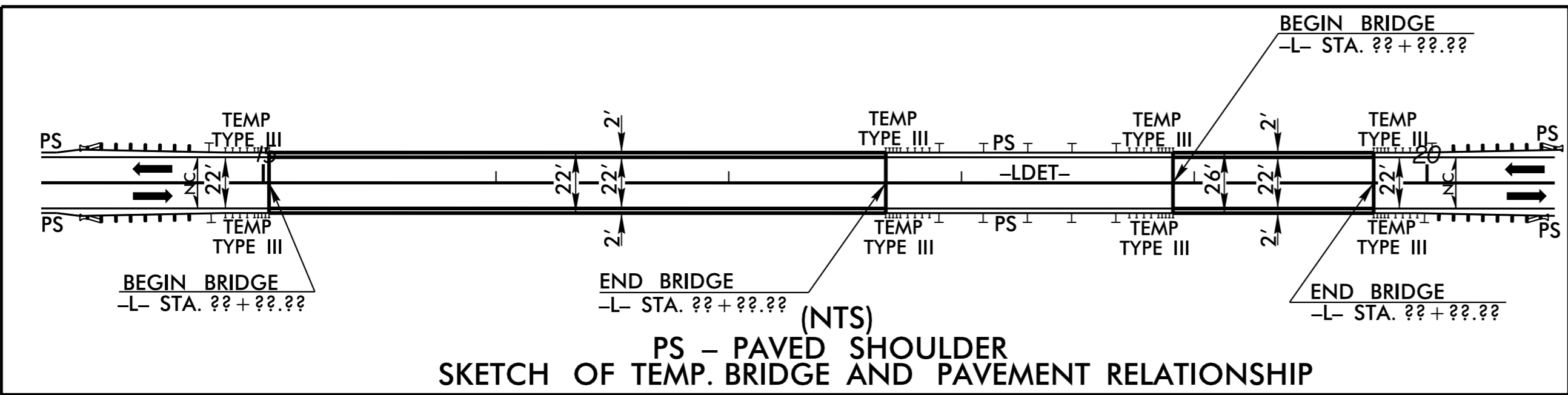
-Y3-

PI Sta 10+76.43 Δ = 42° 20' 16.3" (LT) D = 229' 10" 59.2" L = 18.47' T = 9.68' R = 25.00'	PI Sta 10+32.44 Δ = 45° 21' 39.1" (RT) D = 229' 10" 59.2" L = 19.79' T = 10.45' R = 25.00'
--	---

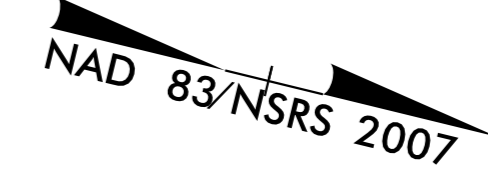


SEE SHEET 6 FOR -L- PROFILE
SEE SHEET 7 FOR -Y1-, -Y2-, AND -Y3- PROFILES
SEE SHEETS S-1 THRU S-?? FOR STRUCTURE PLANS

8/17/09
21-DEC-2016 10:01 \\s\proj\B5239_Rdy\psh4.dgn

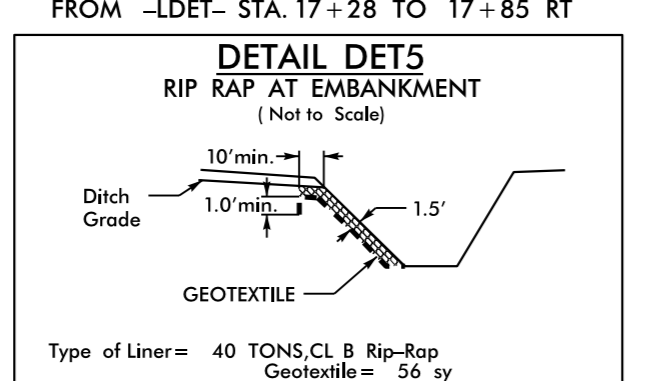
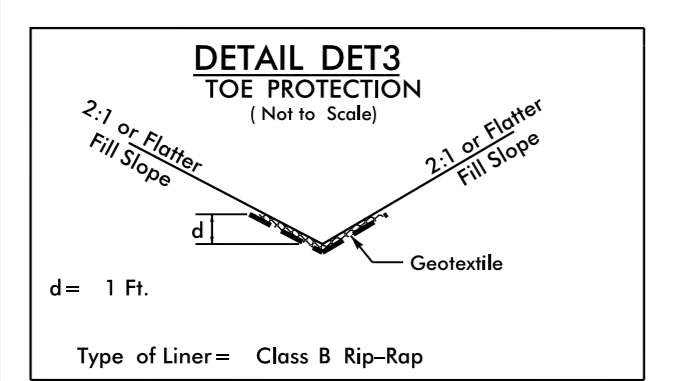
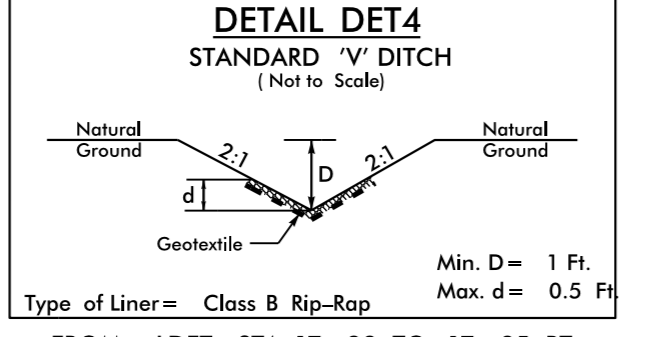
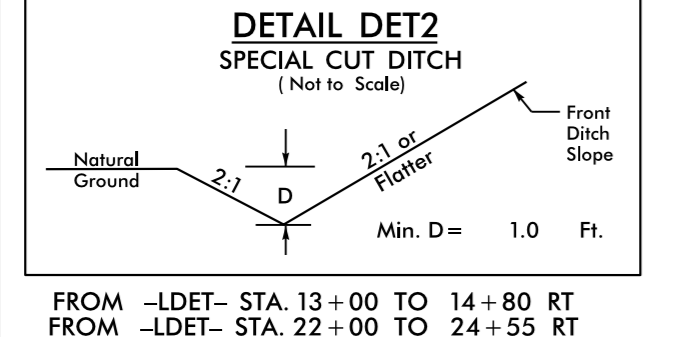
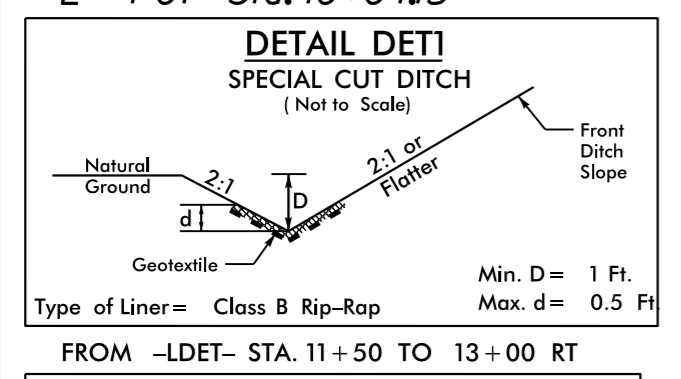
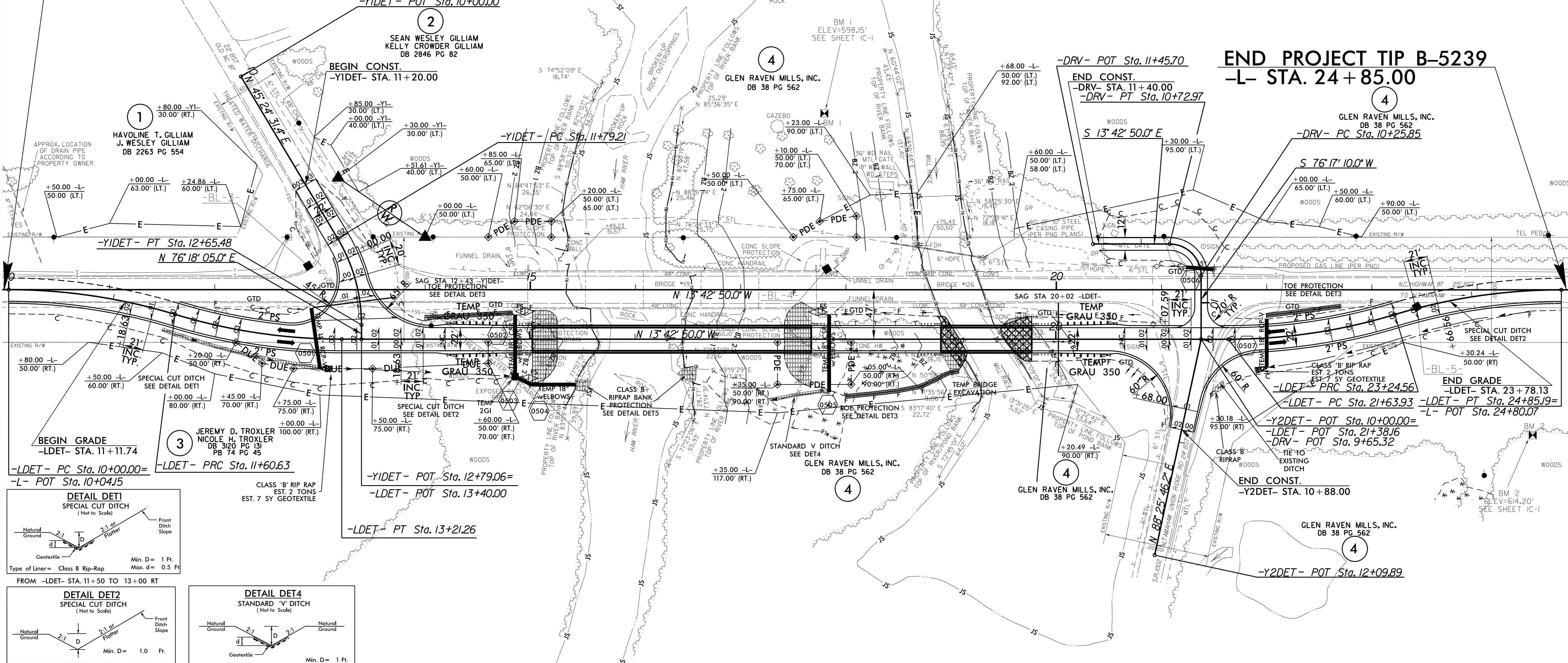


DETAIL OF DETOUR



BEGIN PROJECT TIP B-5239
-L- STA. 10+00.00

END PROJECT TIP B-5239
-L- STA. 24+85.00



Vdet = 40 MPH
-LDET-

PI Sta	PI Sta	PI Sta	PI Sta	-YIDET-	-DRV-
10+80.90	12+41.53	22+44.83	24+05.46	12+23.42	10+55.85
$\Delta = 16' 53" 12.3" (RT)$	$\Delta = 16' 53" 12.3" (LT)$	$\Delta = 16' 53" 12.3" (LT)$	$\Delta = 16' 53" 12.3" (RT)$	$\Delta = 30' 53" 33.6" (RT)$	$\Delta = 90' 00" 00.0" (LT)$
$D = 10' 30' 46.8"$	$D = 10' 30' 46.8"$	$D = 10' 30' 46.8"$	$D = 10' 30' 46.8"$	$D = 35' 48' 35.5"$	$D = 190' 59' 09.4"$
$L = 160.63'$	$L = 160.63'$	$L = 160.63'$	$L = 160.63'$	$L = 86.27'$	$L = 47.12'$
$T = 80.90'$	$T = 80.90'$	$T = 80.90'$	$T = 80.90'$	$T = 44.21'$	$T = 30.00'$
$R = 545.00'$	$R = 545.00'$	$R = 545.00'$	$R = 545.00'$	$R = 160.00'$	$R = 30.00'$
SE = SEE PLANS	SE = SEE PLANS	SE = SEE PLANS	SE = SEE PLANS	SE = SEE PLANS	SE = SEE PLANS

SEE SHEET 7 FOR -DRV- PROFILE
SEE SHEET 8 FOR -LDET-, -YIDET-, AND -Y2DET- PROFILE

REVISIONS

81799

21-DEC-2016, 10:01 AM
5535158781
RAY.P515.DGN