



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

JAMES H. TROGDON, III
SECRETARY

March 7, 2017

Washington Regulatory Field Office
U. S. Army Corps of Engineers
2407 West 5th Street
Washington, North Carolina 27889

ATTN: Mr. Tom Steffens
NCDOT Coordinator

Subject: **Application for Section 404 Regional General Permit 198200031, Nationwide Permit 12, Section 401 Water Quality Certification, and Buffer Authorization** for the proposed improvements to U.S. Highway 70 and Slocum Road at the Cherry Point Military Base in Craven County. TIP No. R-5516. Debit \$570 from WBS 45492.1.1

Dear Sir:

The North Carolina Department of Transportation (NCDOT) proposes to construct a grade separation at SR 1130 (Modlin Road) and interchange at Old NC 11/ SR 1213 (Old NC 11 Road) in Craven County, NC. Proposed permanent impacts to jurisdictional areas total 1.14 acres of wetland, 1,054 feet of stream, and 0.17 acre of surface water in the project area. Proposed temporary impacts to jurisdictional areas total 273 feet of stream and 0.06 acre of surface waters. Additionally, there will be 0.01 acre of temporary fill in wetlands from utility relocations.

Please see enclosed copies of the Pre-Construction Notification (PCN), stormwater management plan, permit drawings, utility permit drawings, roadway plans, Three Swamp Mitigation Site Debit Ledger Update, and DMS acceptance letter. The Categorical Exclusion (CE) was completed in April 2014 and distributed shortly after. Subsequently, a FHWA Right-of-Way Consultation was completed March 15, 2015. Additional copies are available at the NCDOT website:
<http://207.4.62.65/PDEA/EnvironmentalDocs/>.

This project calls for a letting date of June 20, 2017 and a review date of May 2, 2017.

Regulatory Approvals

Section 404: We anticipate that the bridge replacement, including all approach work will be authorized under Section 404 Regional General Permit (RGP) No. 198200031 (NCDOT Bridges) and the utility relocations under a Section 404 Nationwide Permit (NWP) 12 in accordance with Section 404 of the Clean Water Act (33 U.S.C. 1344).

Section 401 Permit: We anticipate 401 General Certification numbers 3884 and 3886 will apply to this project. NCDOT is requesting written concurrence from the North Carolina Department of Environmental Quality, Division of Water Resources.

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

Neuse Riparian Buffer Authorization: NCDOT is requesting a Neuse Riparian Buffer Authorization from the North Carolina Department of Environmental Quality, Division of Water Resources.

A copy of this permit request and its distribution list will be posted on the NCDOT website at:
<https://connect.ncdot.gov/resources/Environmental>

Thank you for your assistance with this project. If you have any questions or need additional information, please contact Tyler Stanton at tstanton@ncdot.gov or (919) 707-6156.

Sincerely,



PHS

Philip S. Harris III, P.E., C.P.M.
Natural Environment Section Head

cc:

NCDOT Permit Application Standard Distribution List



Office Use Only:

Corps action ID no. _____

DWQ project no. _____

Form Version 1.4 January 2009

Pre-Construction Notification (PCN) Form

A. Applicant Information

1. Processing

1a. Type(s) of approval sought from the Corps:	☒ Section 404 Permit ☐ Section 10 Permit
1b. Specify Nationwide Permit (NWP) number: 12 or General Permit (GP) number: 198200031	
1c. Has the NWP or GP number been verified by the Corps?	☒ Yes ☐ No
1d. Type(s) of approval sought from the DWQ (check all that apply): ☒ 401 Water Quality Certification – Regular ☐ Non-404 Jurisdictional General Permit ☐ 401 Water Quality Certification – Express ☒ Riparian Buffer Authorization	
1e. Is this notification solely for the record because written approval is not required?	For the record only for DWQ 401 Certification: ☐ Yes ☒ No
	For the record only for Corps Permit: ☐ Yes ☒ No
1f. Is payment into a mitigation bank or in-lieu fee program proposed for mitigation of impacts? If so, attach the acceptance letter from mitigation bank or in-lieu fee program.	☒ Yes ☐ No
1g. Is the project located in any of NC's twenty coastal counties. If yes, answer 1h below.	☒ Yes ☐ No
1h. Is the project located within a NC DCM Area of Environmental Concern (AEC)?	☐ Yes ☒ No

2. Project Information

2a. Name of project:	Proposed improvements to U.S. Highway 70 and Slocum Road at the Cherry Point Military Base
2b. County:	Craven
2c. Nearest municipality / town:	Havelock
2d. Subdivision name:	n/a
2e. NCDOT only, T.I.P. or state project no:	R-5516

3. Owner Information

3a. Name(s) on Recorded Deed:	North Carolina Department of Transportation
3b. Deed Book and Page No.	
3c. Responsible Party (for LLC if applicable):	
3d. Street address:	1598 Mail Service Center
3e. City, state, zip:	Raleigh, NC 27699-1598
3f. Telephone no.:	919-707-6156
3g. Fax no.:	919-212-5785
3h. Email address:	tstanton@ncdot.gov

4. Applicant Information (if different from owner)	
4a. Applicant is:	☐ Agent ☐ Other, specify:
4b. Name:	
4c. Business name (if applicable):	
4d. Street address:	
4e. City, state, zip:	
4f. Telephone no.:	
4g. Fax no.:	
4h. Email address:	
5. Agent/Consultant Information (if applicable)	
5a. Name:	
5b. Business name (if applicable):	
5c. Street address:	
5d. City, state, zip:	
5e. Telephone no.:	
5f. Fax no.:	
5g. Email address:	

B. Project Information and Prior Project History	
1. Property Identification	
1a. Property identification no. (tax PIN or parcel ID):	
1b. Site coordinates (in decimal degrees):	Latitude: 34.9173 (DD.DDDDDD) Longitude: - 76.9418 (-DD.DDDDDD)
1c. Property size:	Approximately 30 acres
2. Surface Waters	
2a. Name of nearest body of water (stream, river, etc.) to proposed project:	Sandy Run
2b. Water Quality Classification of nearest receiving water:	SC;Sw,NSW
2c. River basin:	Neuse
3. Project Description	
3a. Describe the existing conditions on the site and the general land use in the vicinity of the project at the time of this application: Land use is generally retail/commercial development and residential development in the vicinity.	
3b. List the total estimated acreage of all existing wetlands on the property: Approximately 4.7 acre	
3c. List the total estimated linear feet of all existing streams (intermittent and perennial) on the property: 2,797'	
3d. Explain the purpose of the proposed project: Improve traffic operations at the existing at grade intersection of US 70 and Slocum Road by addressing capacity deficiencies and queuing issues associated with access to Marine Corps Air Station (MCAS) Cherry Point Gate along Slocum Road.	
3e. Describe the overall project in detail, including the type of equipment to be used: Construct interchange improvements at Slocum Road and US 70 at Cherry Point Military Base in Havelock, NC. Improvements include maintaining the existing roadway while adding a flyover, turn/merge lanes, and access management improvements. The project includes the extension of an existing 6'x5' RCBC carrying Sandy Run under US 70, a proposed 10'x7' RCBC carrying Sandy Run under Marsha's Way, and double 66" RCPs carrying UT to Sandy Run under Slocum Road. Standard road and bridge building equipment, such as trucks, dozers, and cranes will be used.	
4. Jurisdictional Determinations	
4a. Have jurisdictional wetland or stream determinations by the Corps or State been requested or obtained for this property / project (including all prior phases) in the past? Comments:	☒ Yes ☐ No ☐ Unknown
4b. If the Corps made the jurisdictional determination, what type of determination was made?	☒ Preliminary ☐ Final
4c. If yes, who delineated the jurisdictional areas? Name (if known):	Agency/Consultant Company: ESI, Inc. Other:
4d. If yes, list the dates of the Corps jurisdictional determinations or State determinations and attach documentation. September 10, 2012	
5. Project History	
5a. Have permits or certifications been requested or obtained for this project (including all prior phases) in the past?	☐ Yes ☒ No ☐ Unknown
5b. If yes, explain in detail according to "help file" instructions. Please see attached cover letter.	

6. Future Project Plans	
6a. Is this a phased project?	☐ Yes ☒ No
6b. If yes, explain.	
C. Proposed Impacts Inventory	
1. Impacts Summary	
1a. Which sections were completed below for your project (check all that apply):	
☒ Wetlands	☒ Streams - tributaries ☒ Buffers
☒ Open Waters	☐ Pond Construction

2. Wetland Impacts If there are wetland impacts proposed on the site, then complete this question for each wetland area impacted.						
2a. Wetland impact number – Permanent (P) or Temporary (T)	2b. Type of impact	2c. Type of wetland (if known)	2d. Forested	2e. Type of jurisdiction (Corps - 404, 10 DWQ – non-404, other)	2f. Area of impact (acres)	
W1 ☒ P ☐ T	roadway	riparian	☒ Yes ☐ No	☒ Corps ☐ DWQ	0.26	
W2 ☒ P ☐ T	roadway	riparian	☒ Yes ☐ No	☒ Corps ☐ DWQ	0.02	
W3 ☒ P ☐ T	roadway	riparian	☒ Yes ☐ No	☒ Corps ☐ DWQ	0.16	
W4 ☒ P ☐ T	roadway	riparian	☒ Yes ☐ No	☒ Corps ☐ DWQ	0.03	
W6 ☒ P ☐ T	roadway	riparian	☒ Yes ☐ No	☒ Corps ☐ DWQ	0.19	
W7 ☒ P ☐ T	roadway	riparian	☒ Yes ☐ No	☒ Corps ☐ DWQ	0.48	
W7 ☐ P ☒ T	sewer Line	riparian	☒ Yes ☐ No	☒ Corps ☐ DWQ	0.01	
2g. Total wetland impacts					1.14 ac. perm 0.01 ac. temp	
2h. Comments: See attached Permit Drawings and Wetland Permit Impact Summary for additional detail.						
3. Stream Impacts If there are perennial or intermittent stream impacts (including temporary impacts) proposed on the site, then complete this question for all stream sites impacted.						
3a. Stream impact number - Permanent (P) or Temporary (T)	3b. Type of impact	3c. Stream name	3d. Perennial (PER) or intermittent (INT)?	3e. Type of jurisdiction (Corps - 404, 10 DWQ – non-404, other)	3f. Average stream width (feet)	3g. Impact length (linear feet)
S1 ☒ P ☐ T	culvert extension	Sandy Run (SA)	☒ PER ☐ INT	☒ Corps ☐ DWQ		329
S1 ☐ P ☒ T	culvert extension	Sandy Run (SA)	☒ PER ☐ INT	☒ Corps ☐ DWQ		132
S2 ☒ P ☐ T	ditch	UT to Sandy Run (SB)	☒ PER ☐ INT	☒ Corps ☐ DWQ		111
S5 ☒ P ☐ T	RCP	UT to Sandy Run (SE)	☒ PER ☐ INT	☒ Corps ☐ DWQ		137
S5 ☐ P ☒ T	RCP	UT to Sandy Run (SE)	☒ PER ☐ INT	☒ Corps ☐ DWQ		47
S6 ☒ P ☐ T	RCP	UT to Sandy Run (SB)	☒ PER ☐ INT	☒ Corps ☐ DWQ		166
S6 ☐ P ☒ T	bank stabilization/road fill	UT to Sandy Run (SB)	☒ PER ☐ INT	☒ Corps ☐ DWQ		51
S7 ☒ P ☐ T	RCBC	UT to Sandy Run (SB)	☒ PER ☐ INT	☒ Corps ☐ DWQ		311
S7 ☐ P ☒ T	bank stabilization	UT to Sandy Run (SB)	☒ PER ☐ INT	☒ Corps ☐ DWQ		43
3h. Total stream and tributary impacts						1,054 perm 273 temp

3i. Comments:									
4. Open Water Impacts If there are proposed impacts to lakes, ponds, estuaries, tributaries, sounds, the Atlantic Ocean, or any other open water of the U.S. then individually list all open water impacts below.									
4a. Open water impact number – Permanent (P) or Temporary (T)	4b. Name of waterbody (if applicable)	4c. Type of impact			4d. Waterbody type	4e. Area of impact (acres)			
O1 ☒ P ☐ T	Sandy Run (SA)	RCBC			Stream	0.05			
O1 ☐ P ☒ T	Sandy Run (SA)	RCBC			Stream	0.02			
O2 ☒ P ☐ T	UT to Sandy Run (SB)	ditch			Stream	0.02			
O5 ☒ P ☐ T	UT to Sandy Run (SE)	RCP			Stream	0.05			
O5 ☐ P ☒ T	UT to Sandy Run (SE)	RCP			Stream	0.01			
O6 ☐ P ☒ T	UT to Sandy Run (SB)	RCP			Stream	0.02			
O6 ☐ P ☒ T	UT to Sandy Run (SB)	bank stabilization/road fill			Stream	< 0.01			
O7 ☒ P ☐ T	UT to Sandy Run (SB)	RCBC			Stream	0.03			
O7 ☐ P ☒ T	UT to Sandy Run (SB)	bank stabilization			Stream	<0.01			
4f. Total open water impacts						0.16 perm 0.05 Temp			
4g. Comments:									
5. Pond or Lake Construction If pond or lake construction proposed, then complete the chart below.									
5a. Pond ID number	5b. Proposed use or purpose of pond	5c. Wetland Impacts (acres)			5d. Stream Impacts (feet)			5e. Upland (acres)	
		Flooded	Filled	Excavated	Flooded	Filled	Excavated	Flooded	
P1									
P2									
5f. Total									
5g. Comments:									
5h. Is a dam high hazard permit required?		☐ Yes ☐ No If yes, permit ID no:							
5i. Expected pond surface area (acres):									
5j. Size of pond watershed (acres):									
5k. Method of construction:									

6. Buffer Impacts (for DWQ)						
If project will impact a protected riparian buffer, then complete the chart below. If yes, then individually list all buffer impacts below. If any impacts require mitigation, then you MUST fill out Section D of this form.						
6a. Project is in which protected basin?			☒ Neuse ☐ Tar-Pamlico ☐ Other: ☐ Catawba ☐ Randleman			
6b. Buffer impact number – Permanent (P) or Temporary (T)	6c. Reason for impact	6d. Stream name	6e. Buffer mitigation required?	6f. Zone 1 impact (square feet)	6g. Zone 2 impact (square feet)	
B1 ☒ P ☐ T	RCBC	Sandy Run (SA)	☒ Yes ☐ No	25,351	15,896	
B2 ☒ P ☐ T	Ditch	UT to Sandy Run (SB)	☐ Yes ☒ No	4,990	1,804	
B3 ☒ P ☐ T	Clearing around roadway fill	Tucker Creek	☒ Yes ☐ No	0	874	
B5 ☒ P ☐ T	RCP	UT to Sandy Run (SE)	☒ Yes ☐ No	9,538	5,519	
B6 ☒ P ☐ T	RCP	UT to Sandy Run (SB)	☒ Yes ☐ No	11,717	8,272	
B7 ☒ P ☐ T	RCBC	UT to Sandy Run (SB)	☒ Yes ☐ No	18,155	8,105	
B7 ☒ P ☐ T	8" Sanitary Sewer	UT to Sandy Run (SB)	☐ Yes ☒ No	215	728	
6h. Total buffer impacts				69,966	41,198	
6i. Comments:						
D. Impact Justification and Mitigation						
1. Avoidance and Minimization						
1a. Specifically describe measures taken to avoid or minimize the proposed impacts in designing project. NCDOT has utilized an alignment which attempts to avoid and minimize impacts to streams and wetlands to the greatest extent practicable. All of the proposed drainage has been designed to have as little environmental and surface water impacts as possible. Ditches were designed using BMP grassed swale criteria. Velocities at wetland features are non-erosive. Design Standards in Sensitive Watersheds will be implemented.						
1b. Specifically describe measures taken to avoid or minimize the proposed impacts through construction techniques. Culvert structures have been designed with a 1' buried depth in order to promote natural habitat within the culverts. Effort has been made to maintain existing drainage patterns. Grass swales have been incorporated into the design in order to provide treatment to stormwater runoff. No staging of construction equipment or storage of construction supplies will be allowed in wetlands or near surface waters. NCDOT and its contractors will not excavate, fill, or perform land clearing activities within Waters of the U.S. or any areas under the jurisdiction of the USACE, except as authorized by the USACE.						
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 yes, mitigation is required by (check all that apply):			☒ DWQ ☒ Corps			
2c. If yes, which mitigation option will be used for this project?			☐ Mitigation bank ☒ Payment to in-lieu fee program ☒ Permittee Responsible Mitigation			

3. Complete if Using a Mitigation Bank				
3a. Name of Mitigation Bank: The riparian wetland impacts will be offset by debiting NCDOT's Three Swamp Mitigation Site. Stream impacts will be provided by NCDMS. See attached mitigation information.				
3b. Credits Purchased (attach receipt and letter)		Type	Quantity	
3c. Comments:				
4. Complete if Making a Payment to In-lieu Fee Program				
4a. Approval letter from in-lieu fee program is attached.		☒ Yes		
4b. Stream mitigation requested:		1,054 linear feet		
4c. If using stream mitigation, stream temperature:		☒ warm ☐ cool ☐ cold		
4d. Buffer mitigation requested (DWQ only):		0 square feet		
4e. Riparian wetland mitigation requested:		1.14 acres		
4f. Non-riparian wetland mitigation requested:		0 acres		
4g. Coastal (tidal) wetland mitigation requested:		0 acres		
4h. Comments:				
5. Complete if Using a Permittee Responsible Mitigation Plan				
5a. If using a permittee responsible mitigation plan, provide a description of the proposed mitigation plan.				
6. Buffer Mitigation (State Regulated Riparian Buffer Rules) – required by DWQ				
6a. Will the project result in an impact within a protected riparian buffer that requires buffer mitigation?			☒ Yes ☐ No	
6b. If yes, then identify the square feet of impact to each zone of the riparian buffer that requires mitigation. Calculate the amount of mitigation required.				
Zone	6c. Reason for impact	6d. Total impact (square feet)	Multiplier	6e. Required mitigation (square feet)
Zone 1	Culverts, pipes, roadway fill	24,047	3 (2 for Catawba)	72,141
Zone 2	Culverts, pipes, roadway fill	33,018	1.5	49,527
6f. Total buffer mitigation required:				121,668
6g. If buffer mitigation is required, discuss what type of mitigation is proposed (e.g., payment to private mitigation bank, permittee responsible riparian buffer restoration, payment into an approved in-lieu fee fund). DMS in-lieu fee				
6h. Comments: An updated DMS acceptance letter is forth-coming.				

E. Stormwater Management and Diffuse Flow Plan (required by DWQ)	
1. Diffuse Flow Plan	
1a. Does the project include or is it adjacent to protected riparian buffers identified within one of the NC Riparian Buffer Protection Rules?	☒ Yes ☐ No
1b. If yes, then is a diffuse flow plan included? If no, explain why. Comments:	☒ Yes ☐ No
2. Stormwater Management Plan	
2a. What is the overall percent imperviousness of this project?	N/A
2b. Does this project require a Stormwater Management Plan?	☒ Yes ☐ No
2c. If this project DOES NOT require a Stormwater Management Plan, explain why:	
2d. If this project DOES require a Stormwater Management Plan, then provide a brief, narrative description of the plan: See attached permit drawings and stormwater management plan.	
2e. Who will be responsible for the review of the Stormwater Management Plan?	☐ Certified Local Government ☐ DWQ Stormwater Program ☒ DWQ 401 Unit
3. Certified Local Government Stormwater Review	
3a. In which local government's jurisdiction is this project?	N/A
3b. Which of the following locally-implemented stormwater management programs apply (check all that apply):	☐ Phase II ☐ NSW ☐ USMP ☐ Water Supply Watershed ☐ Other:
3c. Has the approved Stormwater Management Plan with proof of approval been attached?	☐ Yes ☐ No
4. DWQ Stormwater Program Review	
4a. Which of the following state-implemented stormwater management programs apply (check all that apply):	☐ Coastal counties ☐ HQW ☐ ORW ☐ Session Law 2006-246 ☐ Other:
4b. Has the approved Stormwater Management Plan with proof of approval been attached?	☐ Yes ☐ No N/A
5. DWQ 401 Unit Stormwater Review	
5a. Does the Stormwater Management Plan meet the appropriate requirements?	☐ Yes ☐ No N/A
5b. Have all of the 401 Unit submittal requirements been met?	☐ Yes ☐ No N/A

F. Supplementary Information	
1. Environmental Documentation (DWQ Requirement)	
1a. Does the project involve an expenditure of public (federal/state/local) funds or the use of public (federal/state) land?	☒ Yes ☐ No
1b. If you answered "yes" to the above, does the project require preparation of an environmental document pursuant to the requirements of the National or State (North Carolina) Environmental Policy Act (NEPA/SEPA)?	☒ Yes ☐ No
1c. If you answered "yes" to the above, has the document review been finalized by the State Clearing House? (If so, attach a copy of the NEPA or SEPA final approval letter.) Comments: Catigorical Exclusion (CE)	☒ Yes ☐ No
2. Violations (DWQ Requirement)	
2a. Is the site in violation of DWQ Wetland Rules (15A NCAC 2H .0500), Isolated Wetland Rules (15A NCAC 2H .1300), DWQ Surface Water or Wetland Standards, or Riparian Buffer Rules (15A NCAC 2B .0200)?	☐ Yes ☒ No
2b. Is this an after-the-fact permit application?	☐ Yes ☒ No
2c. If you answered "yes" to one or both of the above questions, provide an explanation of the violation(s):	
3. Cumulative Impacts (DWQ Requirement)	
3a. Will this project (based on past and reasonably anticipated future impacts) result in additional development, which could impact nearby downstream water quality?	☐ Yes ☒ No
3b. If you answered "yes" to the above, submit a qualitative or quantitative cumulative impact analysis in accordance with the most recent DWQ policy. If you answered "no," provide a short narrative description. An Indirect and Cumulative Effects Screening Report for R-5516 was prepared in March, 2013. This study rendered a determination of "Indirect Scenario Assessment Not Likely" in the screening matrix, and no further study was recommended.	
4. Sewage Disposal (DWQ Requirement)	
4a. Clearly detail the ultimate treatment methods and disposition (non-discharge or discharge) of wastewater generated from the proposed project, or available capacity of the subject facility. Not applicable.	

5. Endangered Species and Designated Critical Habitat (Corps Requirement)		
5a. Will this project occur in or near an area with federally protected species or habitat?	☐ Yes	☒ No
5b. Have you checked with the USFWS concerning Endangered Species Act impacts?	☐ Yes	☒ No
5c. If yes, indicate the USFWS Field Office you have contacted.	☒ Raleigh ☐ Asheville	
5d. What data sources did you use to determine whether your site would impact Endangered Species or Designated Critical Habitat? USFWS & NMFS websites and agency consultations; CE		
6. Essential Fish Habitat (Corps Requirement)		
6a. Will this project occur in or near an area designated as essential fish habitat?	☐ Yes	☒ No
6b. What data sources did you use to determine whether your site would impact Essential Fish Habitat? NMFS county index; CE		
7. Historic or Prehistoric Cultural Resources (Corps Requirement)		
7a. Will this project occur in or near an area that the state, federal or tribal governments have designated as having historic or cultural preservation status (e.g., National Historic Trust designation or properties significant in North Carolina history and archaeology)?	☐ Yes	☒ No
7b. What data sources did you use to determine whether your site would impact historic or archeological resources? NEPA documentation (CE)		
8. Flood Zone Designation (Corps Requirement)		
8a. Will this project occur in a FEMA-designated 100-year floodplain?	☒ Yes	☐ No
8b. If yes, explain how project meets FEMA requirements: NCDOT Hydraulics Unit coordination with FEMA		
8c. What source(s) did you use to make the floodplain determination? FEMA Maps		
for Philip S. Harris, III, P.E. Applicant/Agent's Printed Name	 Applicant/Agent's Signature (Agent's signature is valid only if an authorization letter from the applicant is provided.)	03-07-2017 Date



ROY COOPER
Governor

February 21, 2017

Mr. Philip S. Harris, P.E., CPM
Project Development and Environmental Analysis Unit
North Carolina Department of Transportation
1598 Mail Service Center
Raleigh, North Carolina 27699-1598

Dear Mr. Harris:

Subject: EEP Mitigation Acceptance Letter:

R-5516, US 70 Improvements at Solcum Road at the Cherry Point Military Base,
Craven County

The purpose of this letter is to notify you that the Division of Mitigation Services (DMS) will provide the stream and buffer mitigation for the subject project. Based on the information supplied by you on February 21, 2017, the stream and buffer impacts are located in CU 03020204 of the Neuse River basin in the Southern Outer Coastal Plain (SOCP) Eco-Region, and are as follows:

Stream and Wetlands	River Basin	CU Location	Eco-Region	Stream			Wetlands		
				Cold	Cool	Warm	Riparian	Non-Riparian	Coastal Marsh
Impacts	Neuse	03020204	SOCP	0	0	1,054.0	0	0	0

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

All buffer mitigation requests and approvals are administrated through the Riparian Restoration Buffer Fund. The NCDOT will be responsible to ensure that appropriate compensation for the buffer mitigation will be provided in the agreed upon method of fund transfer. Upon receipt of the NCDWR's Buffer Authorization Certification, DMS will transfer funds from the NCDOT 2984 Fund into the Riparian Restoration Buffer Fund. Upon completion of transfer payment, NCDOT will have completed its riparian buffer mitigation responsibility for TIP Number R-5516. Subsequently, DMS will conduct a review of current NCDOT ILF Program mitigation projects in the river basin to determine if available buffer mitigation credits exist. If there are buffer mitigation credits available, then the Riparian Restoration Buffer Fund will purchase the appropriate amount of buffer mitigation credits from NCDOT ILF Program.



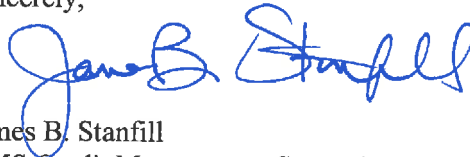
Mr. Harris
February 21, 2017
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NCDOT TIP R-5516

Buffer	River Basin	CU	Eco-Region	Buffer Impacts		
				Zone 1	Zone 2	TOTAL
Impacts	Neuse	03020204	SOCP	30,212.0	31,907.0	62,119.0

This mitigation acceptance letter replaces the mitigation acceptance letter issued on February 8, 2017. DMS commits to implementing sufficient compensatory stream mitigation credits to offset the impacts associated with this project as determined by the regulatory agencies in accordance with the In-Lieu Fee Instrument dated July 28, 2010. If the above referenced impact amounts are revised, then this mitigation acceptance letter will no longer be valid and a new mitigation acceptance letter will be required from DMS

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

Sincerely,



James B. Stanfill
DMS Credit Management Supervisor

Cc: Mr. Tom Steffens, USACE – Washington Regulatory Field Office
Ms. Amy Chapman, NC Division of Water Resources
File: R-5516 Revised



Three Swamp Mitigation Site
ONEID 069-001

The Three Swamp Mitigation Site is located in Pamlico and Craven County within the USGS hydrologic unit 03020204 of the Neuse River. NCDOT acquired the 3.90 acre site to mitigate for unavoidable, jurisdictional impacts associated with TIP R-2539A/B. Monitoring requirements were performed from 2007 to 2012 and the site was closed out in 2013. Table 1 shows the final mitigation quantities approved for the site. The site has been placed on the NCDOT On-site Debit Ledger for use within HUC 03020204. Table 2 indicates all mitigation debits that have occurred per regulatory agency approval.

In order to offset unavoidable Riparian Wetland Impacts for R-5516, the Three Swamp Site will be debited 1.14 acres of Riparian Wetland Mitigation.

Table 1. Mitigation Quantities Approved

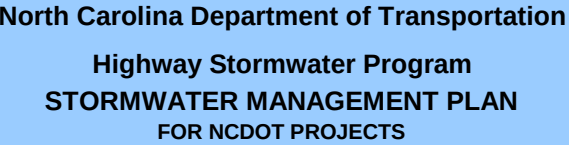
HUC	Mitigation Type	Starting Amount	Additional Notes
3020105	Riparian Wetland Enhancement	11.99	
3020105	Riparian Wetland Restoration	4.23	

Table 2. Mitigation Debits – Riparian Wetland Restoration

Mitigation Type	Debit Amount	Status	Site TIP	Action ID#	Notes
Riparian Wetland Restoration	1.39	Close Out	R-2539B	199303531	
Riparian Wetland Restoration	1.14	Close Out	R-5516		

		North Carolina Department of Transportation Highway Stormwater Program STORMWATER MANAGEMENT PLAN FOR NCDOT PROJECTS									
(Version 2.06; Released June 2016)											
WBS Element: 45491.1.1		TIP No.: R-5516		County(ies): Craven			Page 1 of 3				
General Project Information											
WBS Element:		45491.1.1		TIP Number: R-5516		Project Type: Roadway Widening		Date: 10/4/2016			
NCDOT Contact:		Paul Atkinson, PE			Contractor / Designer:		William Stephens, PE				
	Address:		Highway Design Branch 1020 Birch Ridge Rd. Raleigh, NC 27610				Address:		701 Corporate Center Dr. Ste. 475 Raleigh, NC, 27607		
	Phone:		919-707-6707				Phone:		919-854-6200		
	Email:		patkinson@ncdot.gov				Email:		william.stephens@aecom.com		
City/Town:		Havelock, NC			County(ies):		Craven				
River Basin(s):		Neuse			CAMA County?		Yes				
Wetlands within Project Limits?		Yes									
Project Description											
Project Length (lin. miles or feet):		1.2 miles		Surrounding Land Use:		Woods, Residential, Commercial					
		Proposed Project				Existing Site					
Project Built-Upon Area (ac.)		24.0 ac.				12.3 ac.					
Typical Cross Section Description:		Four lane divided highway with 12' lanes and 24' grass median. In addition, 12' turn/merge lanes to be added near the interchange.				Four lane divided highway with 12' lanes and 24' grass median.					
Annual Avg Daily Traffic (veh/hr/day):		Design/Future: 38,100		Year: 2040		Existing: 32,900		Year: 2017			
General Project Narrative: (Description of Minimization of Water Quality Impacts)		Construct interchange improvements at Slocum Road and US 70 at Cherry Point Military Base in Havelock, NC. Improvements include maintaining the existing roadway while adding a flyover, turn/merge lanes, and access management improvements. The project includes the extension of an existing 6'x5' RCBC carrying Sandy Run under US 70, a proposed 10'x7' RCBC carrying Sandy Run under Marsha's Way, and double 66" RCPs carrying UT to Sandy Run under Slocum Road. Culvert structures have been designed with a 1' buried depth in order to promote natural habitat within the culverts. Effort has been made to maintain existing drainage patterns. Grass swales have been incorporated into the design in order to provide treatment to stormwater runoff.									
Waterbody Information											
Surface Water Body (1):		Sandy Run			NCDWR Stream Index No.:		27-112-6-3				
NCDWR Surface Water Classification for Water Body				Primary Classification:		Class SC					
				Supplemental Classification:		Swamp Waters (Sw) (NSW)					
Other Stream Classification:		None									
Impairments:		None									
Aquatic T&E Species?		No		Comments:							
NRTR Stream ID:						Buffer Rules in Effect:		Neuse			
Project Includes Bridge Spanning Water Body?		Yes		Deck Drains Discharge Over Buffer?		No		Dissipator Pads Provided in Buffer?			
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 2.06; Released June 2016)											
WBS Element: 45491.1.1		TIP No.: R-5516		County(ies): Craven			Page 2 of 3				
Additional Waterbody Information											
Surface Water Body (2):		Tucker Creek			NCDWR Stream Index No.:		27-112-6				
NCDWR Surface Water Classification for Water Body				Primary Classification:		Class SC					
				Supplemental Classification:		Swamp Waters (Sw) (NSW)					
Other Stream Classification:		None									
Impairments:		None									
Aquatic T&E Species?		No		Comments:							
NRTR Stream ID:							Buffer Rules in Effect:		Neuse		
Project Includes Bridge Spanning Water Body?				Deck Drains Discharge Over Buffer?		No		Dissipator Pads Provided in Buffer?		N/A	
Deck Drains Discharge Over Water Body?				(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)											



(Version 2.06; Released June 2016)

WBS Element: 45491.1.1 TIP No.: R-5516 County(ies): Craven Page 3 of 3

Swales

[illegible]

Additional Comments

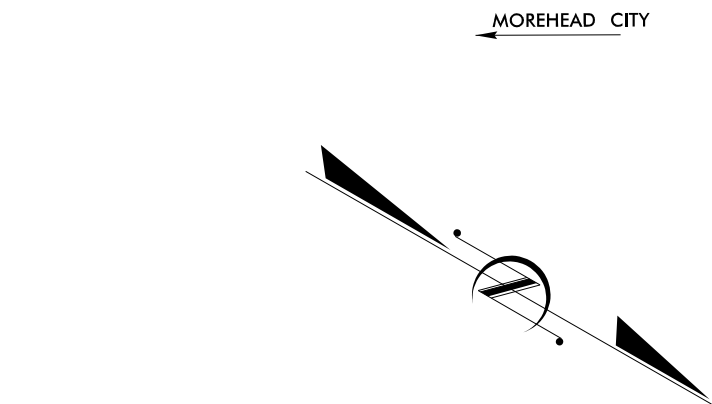
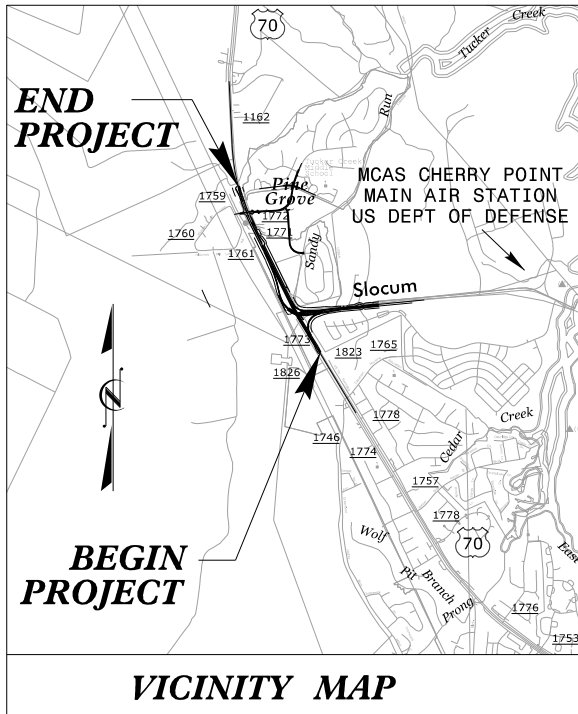
Notes:

Sheet 5: Topography does not allow for a steeper swale design.
Sheet 11: Velocities slightly greater than 2.0 ft/s threshold are still considered to be within a non-erosive range.
Site constraints limit the length of swale to 450 feet in these areas.

TIP PROJECT: R-5516

CONTRACT:

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

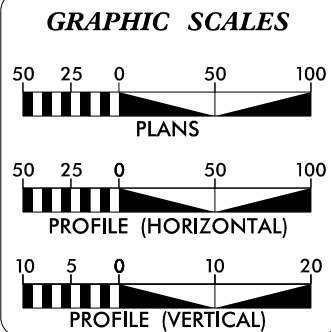


WETLAND AND SURFACE WATER IMPACTS PERMIT

PORTIONS OF THIS PROJECT ARE WITHIN THE MUNICIPAL BOUNDARY OF THE CITY OF HAVELOCK.

THIS IS A PARTIAL CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO POINTS AS SHOWN ON THE PLANS.

METHOD "III" CLEARING SHALL BE USED ON THIS PROJECT

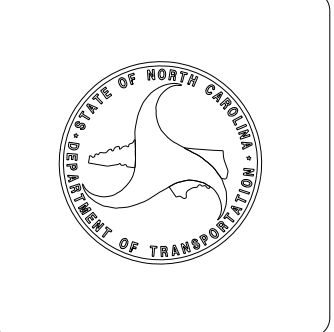


DESIGN DATA	
ADT 2017	= 32,900
ADT 2040	= 38,100
K	= 10 %
D	= 70 %
T	= 12 % *
V	= 60 MPH
* TTST 2 % DUAL 10%	
FUNC CLASS =	
PRINCIPAL ARTERIAL	
STATEWIDE TIER	

PROJECT LENGTH	
LENGTH ROADWAY TIP PROJECT R-5516	= 1.169 MILES
LENGTH STRUCTURE TIP PROJECT R-5516	= 0.000 MILES
TOTAL LENGTH TIP PROJECT R-5516	= 1.169 MILES

Prepared in the Office of:	
AECOM	
2012 STANDARD SPECIFICATIONS	
RIGHT OF WAY DATE:	
June 30, 2015	
LETTING DATE:	
June 20, 2017	
LEN HILL, PE PROJECT ENGINEER	
TOM HILDEBRAND, PE PROJECT DESIGN ENGINEER	
GARY LOVERING, PE PROJECT ENGINEER NCDOT ROADWAY DESIGN	

HYDRAULICS ENGINEER	
SIGNATURE:	P.E.
ROADWAY DESIGN ENGINEER	
SIGNATURE:	P.E.

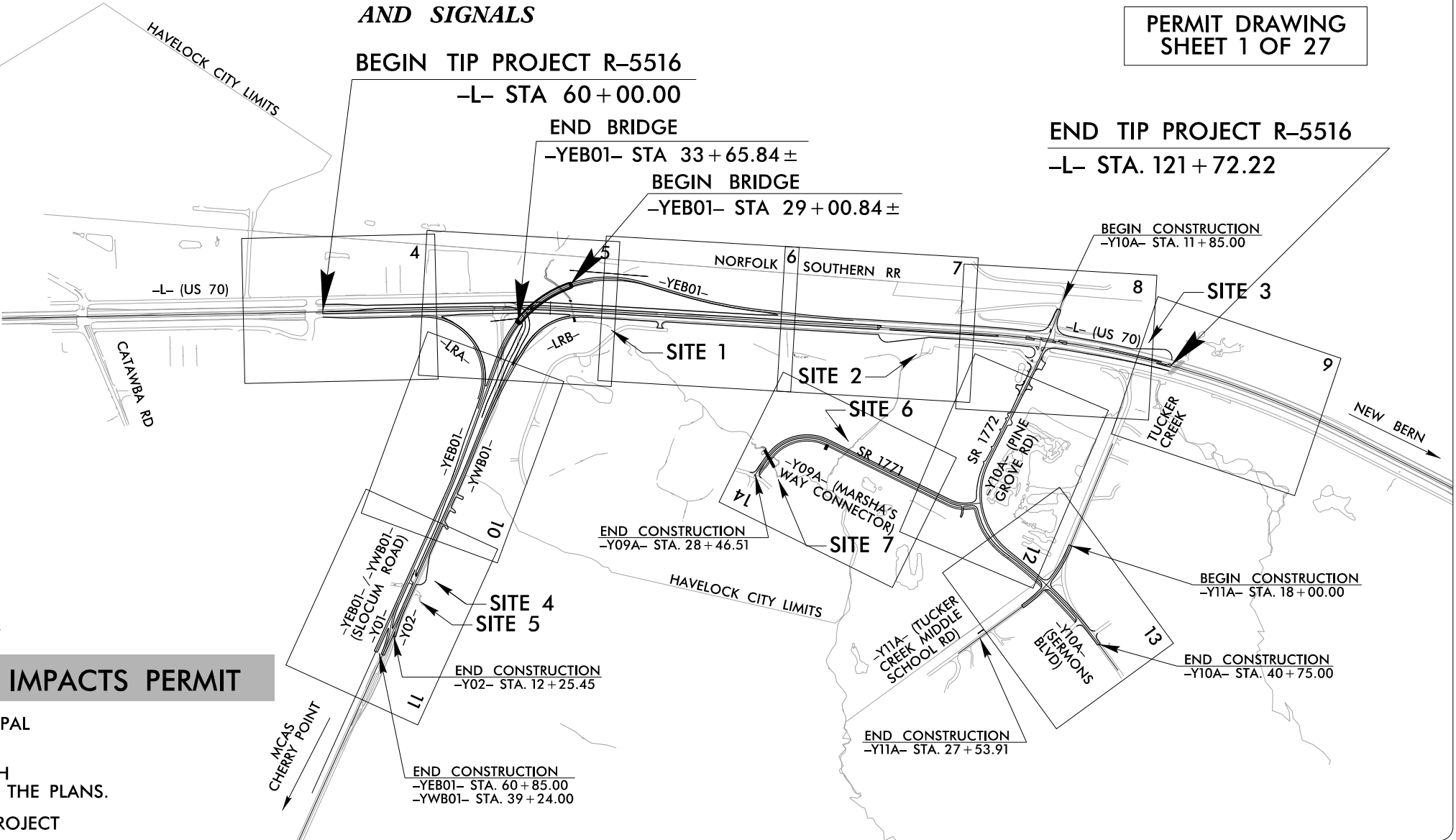


STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CRAVEN COUNTY

LOCATION: INTERCHANGE FROM US 70 TO SLOCUM ROAD AT CHERRY POINT MILITARY BASE

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



STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-5516	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
45492.1.1	NHS-0070(154)	P.E.	
45492.2.1	NHS-0070(154)	RW & UTIL.	

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 1 OF 27

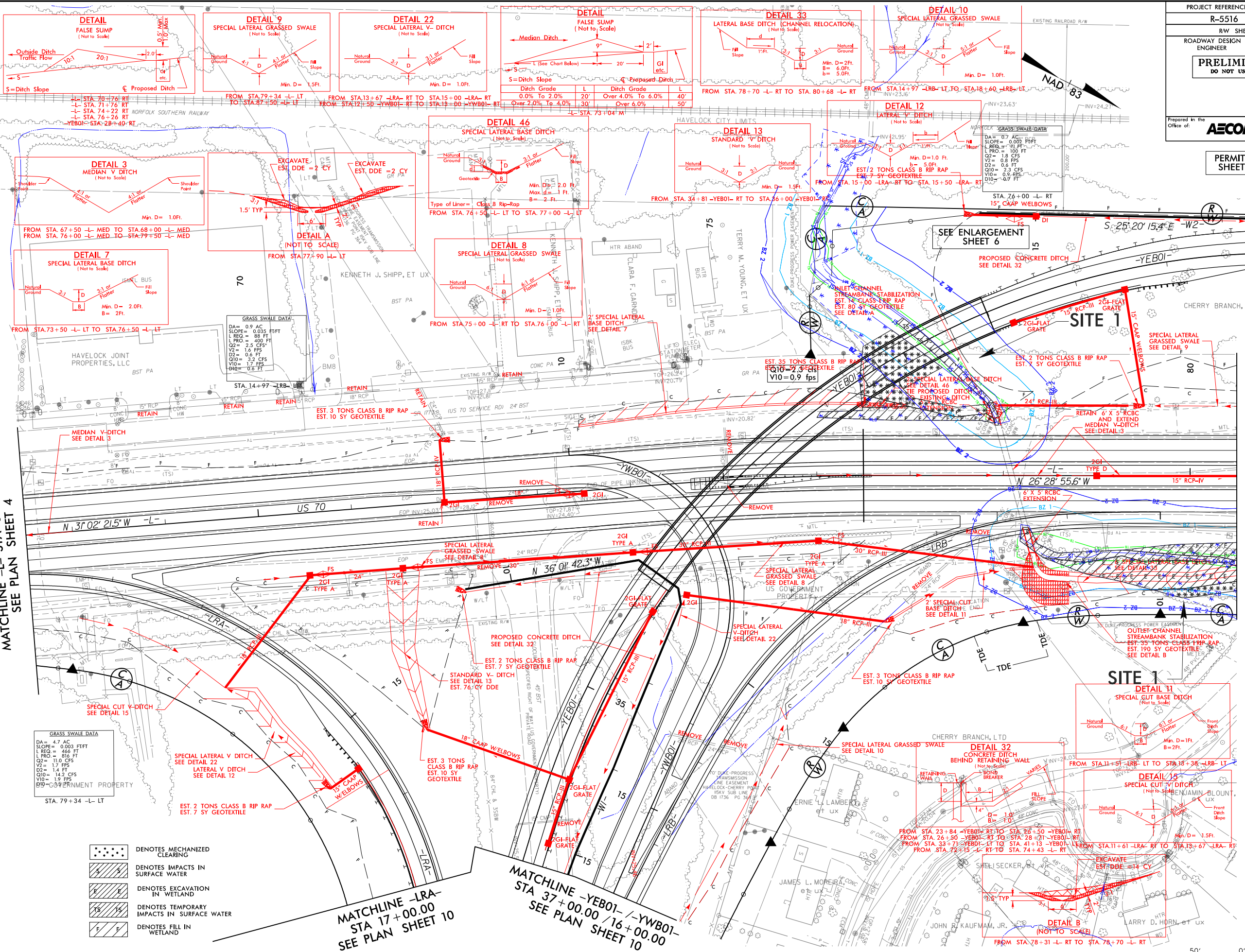
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SEE PLAN SHEET 6

MATCHLINE -L- STA 80+50.00
SEE PLAN SHEET 6

MATCHLINE -L- STA 67+50.00
SEE PLAN SHEET 4

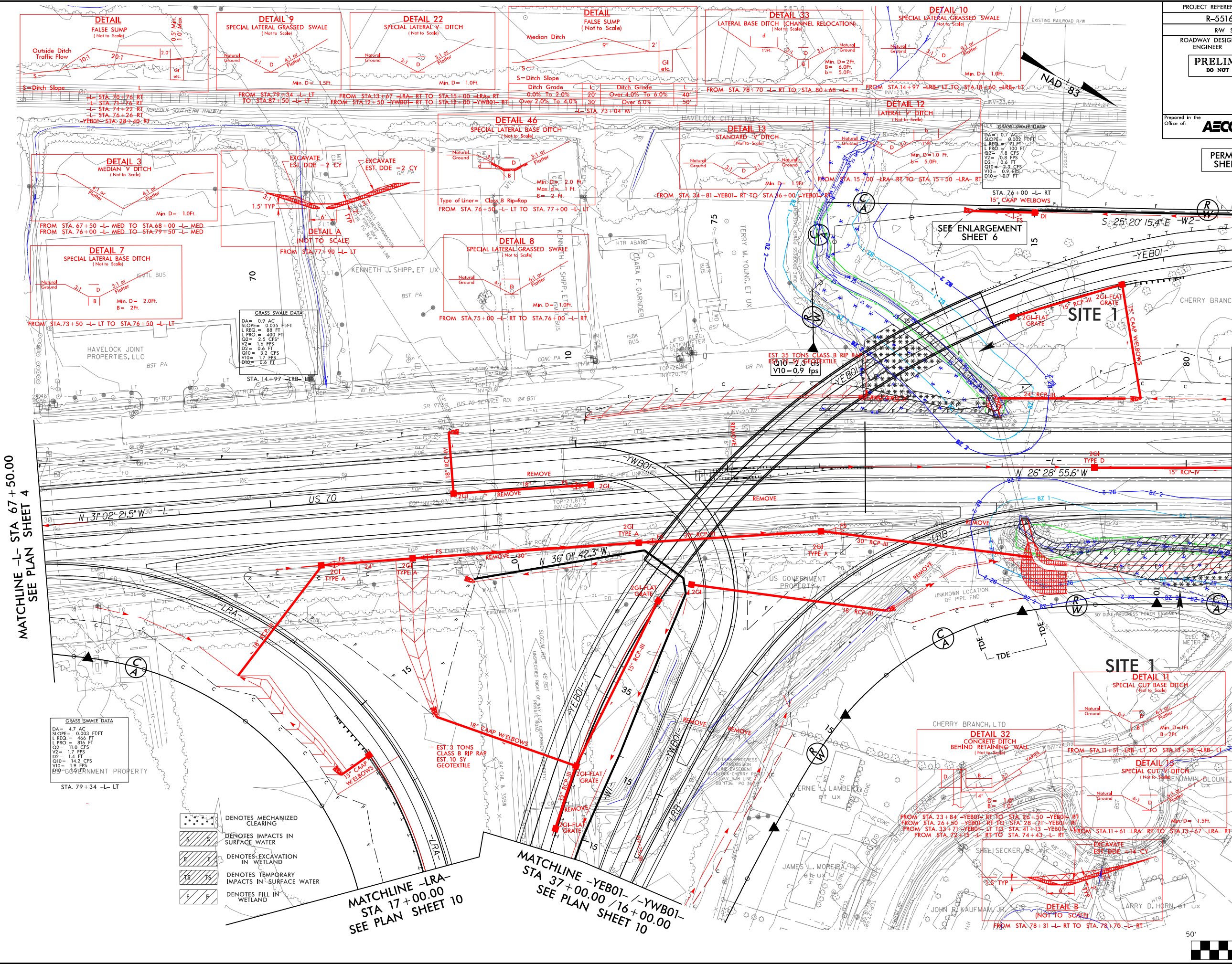
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STA 17+00.00
SEE PLAN SHEET 10

MATCHLINE -YEB01- /-YWB01-
STA 37+00.00 /16+00.00
SEE PLAN SHEET 10



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





MATCHLINE -YEB01-
STA 26+00.00
SEE PLAN SHEET 6

MATCHLINE -L- STA 80+50.00
SEE PLAN SHEET 6

MATCHLINE -LRA-
STA 17+00.00 / 16+00.00
SEE PLAN SHEET 10

MATCHLINE -L- STA 67+50.00
SEE PLAN SHEET 4

GRASS SWALE DATA

DA = 4.7 AC
SLOPE = 0.003 FT/FT
L REQ = 466 FT
L PRO = 816 FT
Q2 = 11.0 CFS
Q10 = 14.2 CFS
Q100 = 19.9 CFS
V10 = 1.9 FPS
919-GOVERNMENT PROPERTY

STA. 79+34 -L- LT

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

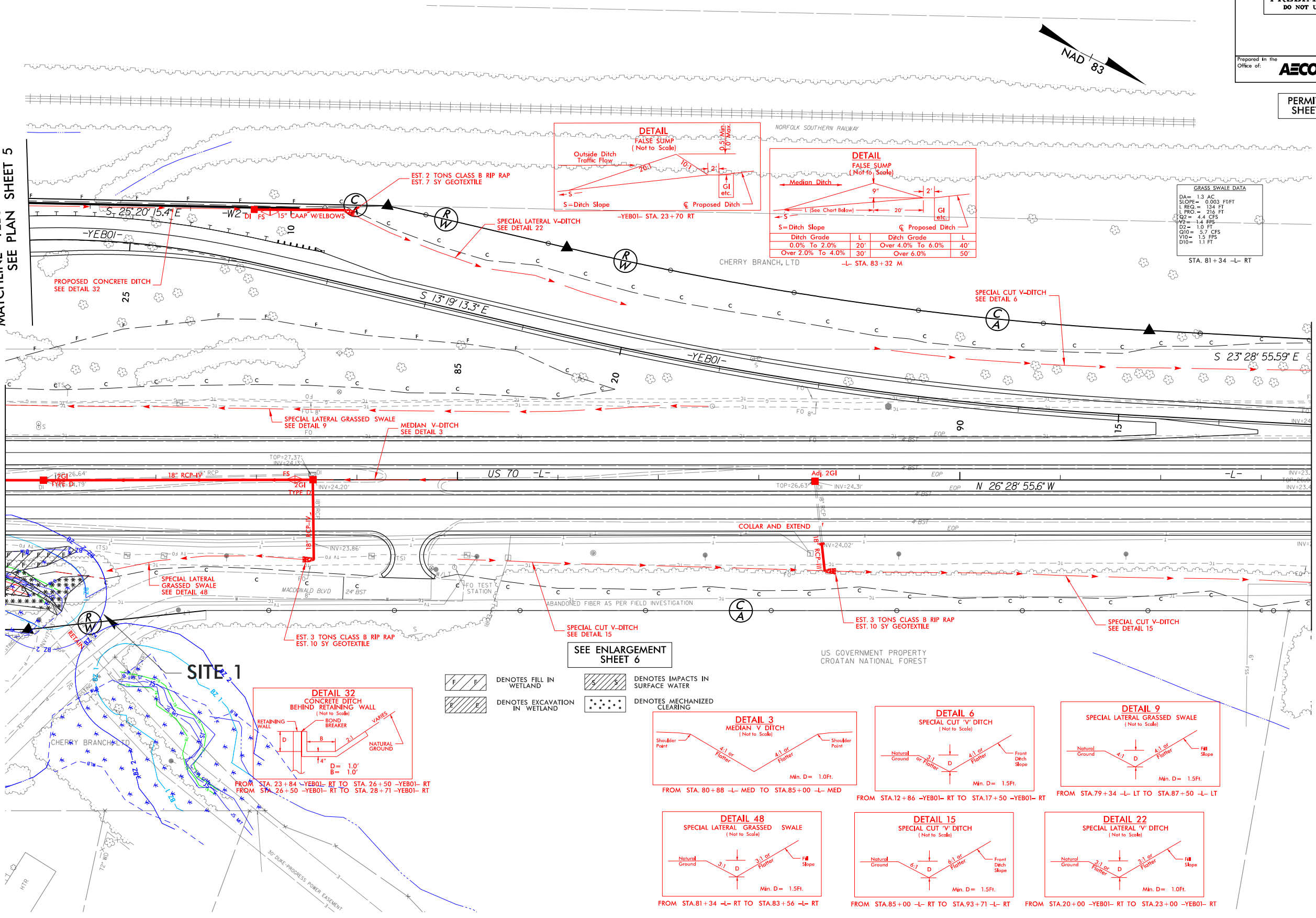


REVISIONS

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SEE PLAN SHEET 5

MATCHLINE -L- STA 80+50.00
SEE PLAN SHEET 5

MATCHLINE -L- /-YEB01- STA 93+50.00 /13+07.88
SEE PLAN SHEET 7



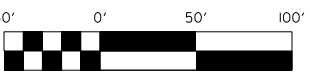
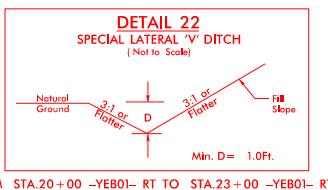
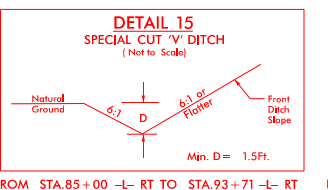
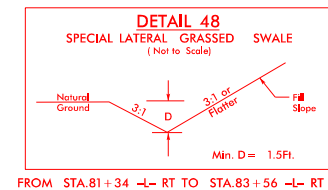
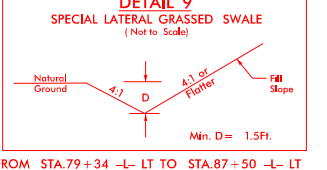
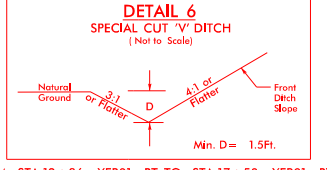
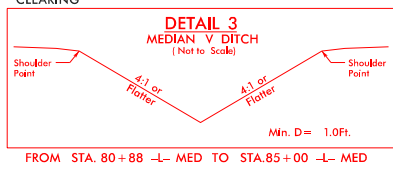
GRASS SWALE DATA

DA=	1.3 AC
SLOPE=	0.003 F/F
L REQ=	134 FT
PRO=	216 FT
Q2=	4.4 CFS
Q10=	1.0 FT
Q10=	5.7 CFS
V10=	1.5 FPS
D10=	1.1 FT

DETAIL FALSE SUMP (Not to Scale)

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

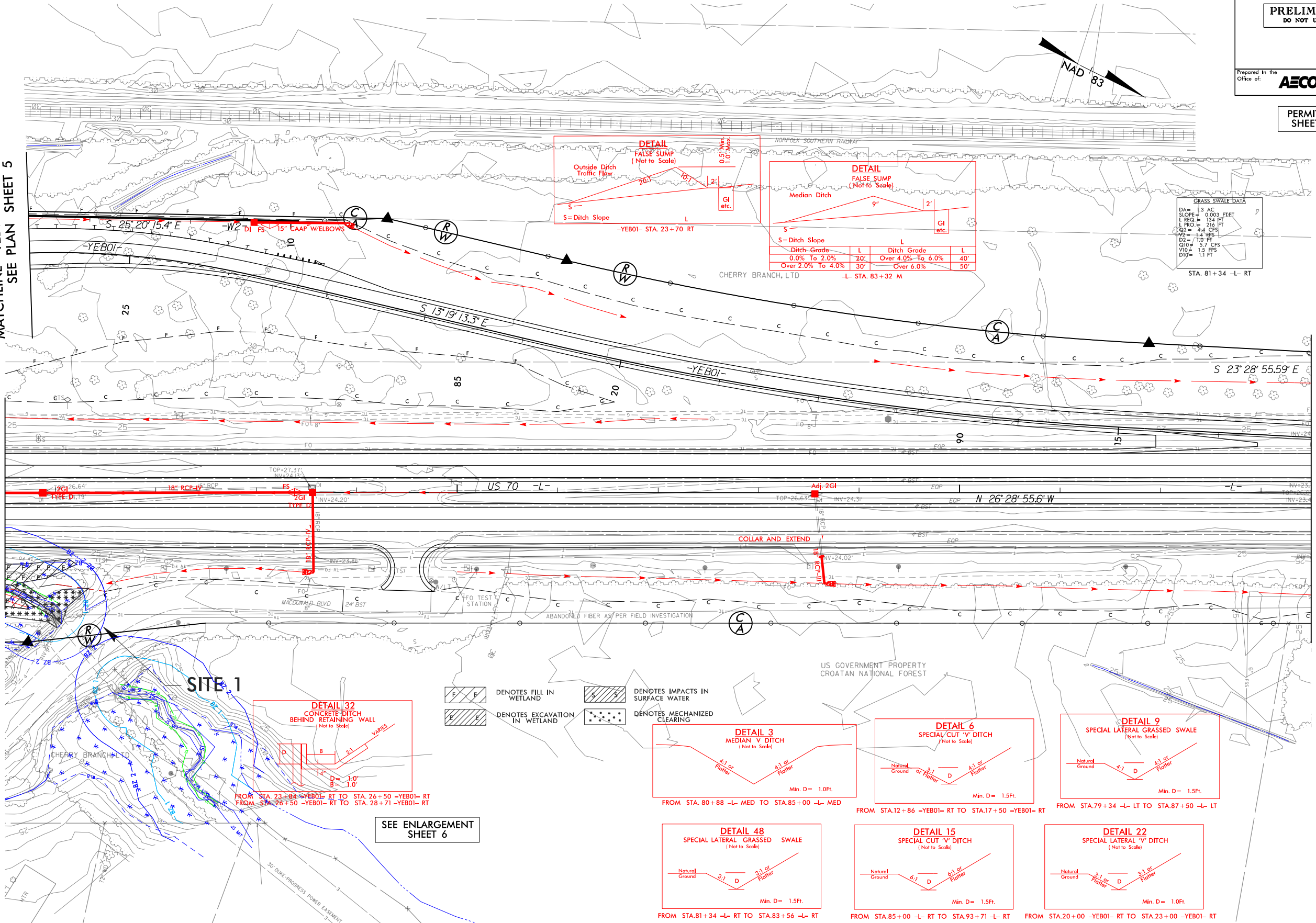
- Denotes Fill in Wetland
- Denotes Impacts in Surface Water
- Denotes Excavation in Wetland
- Denotes Mechanized Clearing



MATCHLINE -YEB01- STA 26+00.00
SEE PLAN SHEET 5

MATCHLINE -L- STA 80+50.00
SEE PLAN SHEET 5

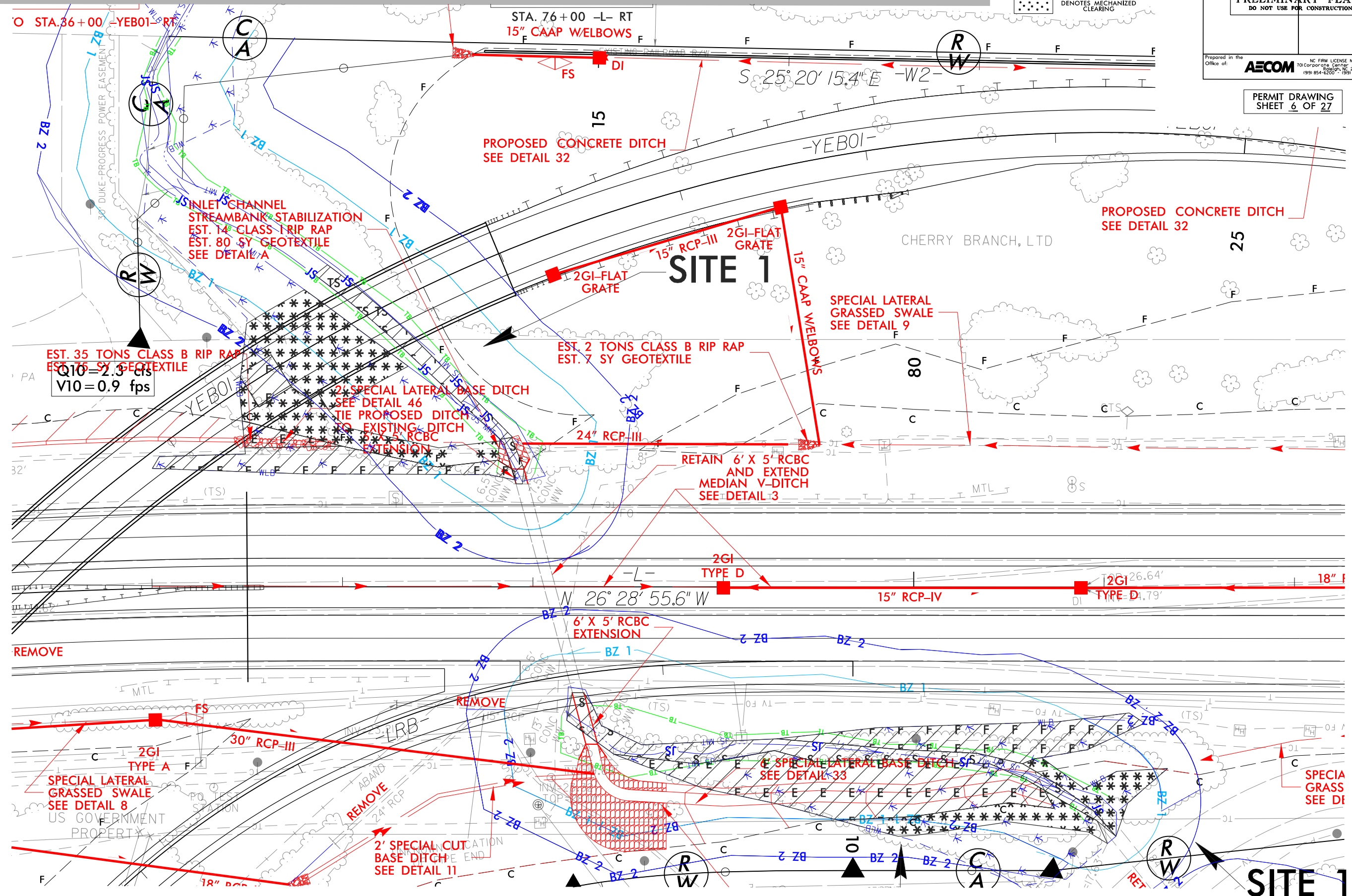
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STA 93+50.00 / 13+07.88
SEE PLAN SHEET 7



WETLAND AND SURFACE WATER IMPACTS PERMIT

PROJECT REFERENCE NO.	SHEET NO.
R-5516	
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
Prepared in the Office of: 	
NC FIRM LICENSE No.F-0342 701 Corporate Center Drive, Suite 2100 Raleigh, NC 27603 (919) 854-6200 • (919) 854-6259/FAX	

PERMIT DRAWING
SHEET 6 OF 27



DATE/TIME: 3:07:06 PM
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RETAIN EXISTING CULVERT

EXISTING TOB LT

EXISTING TOB RT

3:1 NORMAL

PROPOSED CULVERT SLOPE = 0.133%

PROPOSED CHANNEL BED SLOPE = 0.0081 FT/FT

EXISTING BED PROFILE ALONG STREAM CENTERLINE

NWS (8/27/14) = 20.4'

PROPOSED CULVERT SLOPE = 0.133%

EXISTING TOB LT

EXISTING TOB RT

3:1 NORMAL

CL ELEV = 19.44'

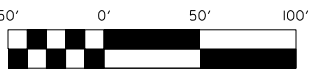
PROPOSED CULVERT SLOPE = 0.133%

PROPOSED CHANNEL BED SLOPE = 0.0081 FT/FT

CL STA 78+08.84
1 @ 6' x 5' RCBC W/BEVELED HEADWALL
PROP. G.P. ELEV. = 27.70
TOTAL LENGTH = 148'
SKEW = 75°15'36"

Native Material consists of material that is excavated from the stream bed or floodplain at the project site during culvert construction. Only material that is excavated from the stream bed may be used to line the low flow culvert barrel. Rip rap may be used to supplement the Native Material in the high flow culvert barrel(s). If rip rap is used to line the high flow culvert barrel(s), Native Material should be placed on top to fill voids and provide a flat surface for animal passage. Native Material is subject to approval by the engineer and may be subject to permit conditions.

PERMIT DRAWING
SHEET 7 OF 27

PERMIT DRAWING
SHEET 8 OF 27

REVISIONS

MATCHLINE -L- / -YEB01-
STA 93 + 50.00 / STA 13 + 07.88
SEE PLAN SHEET 6

MATCHLINE -L- STA 107+00.00
SEE PLAN SHEET 8

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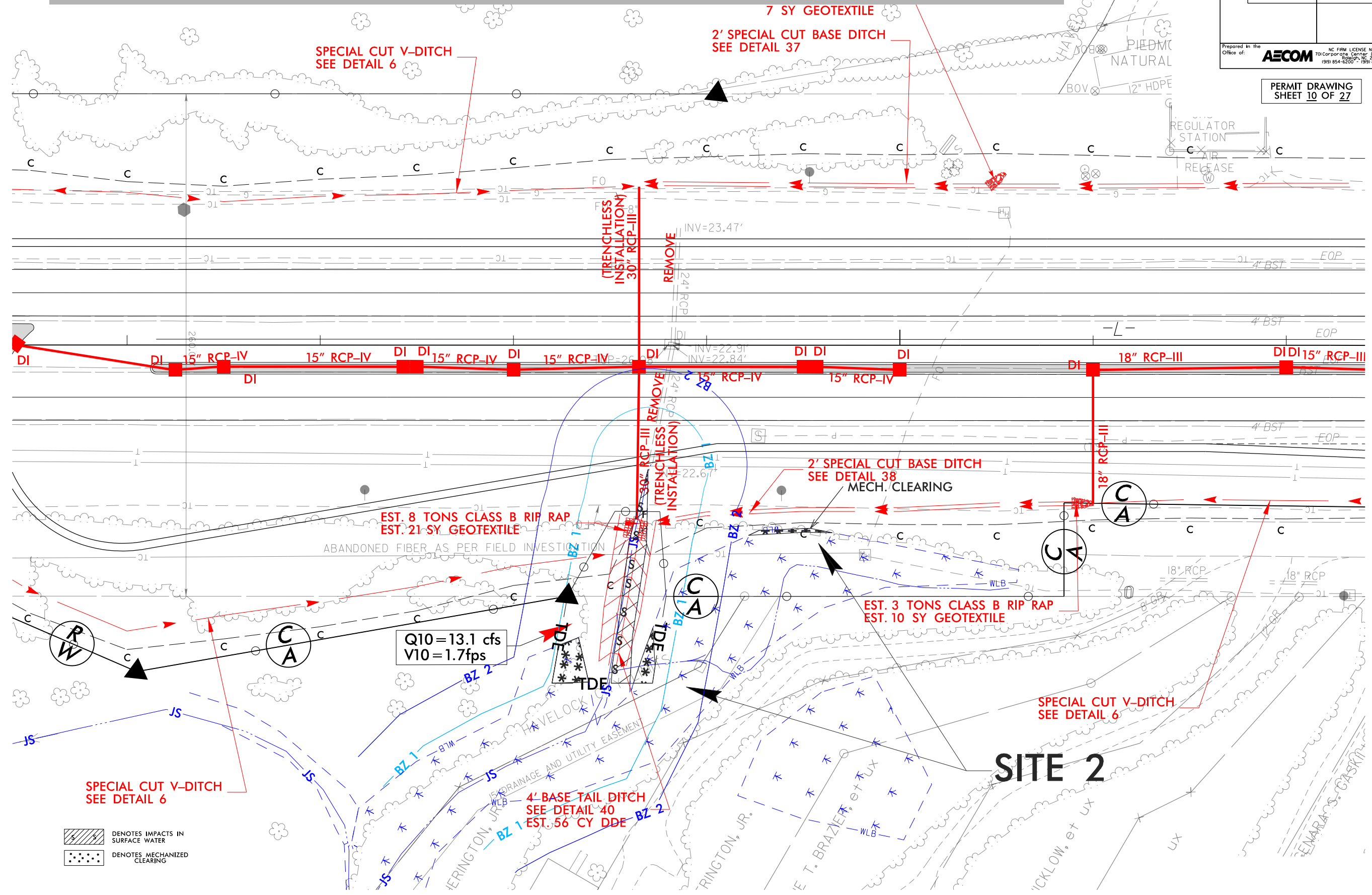
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SEE PLAN SHEET 8

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
R-5516	
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
Prepared by the Office of: AECOM	
NC FIRM LICENSE No: F-0542 701 Corporate Center Dr., Suite 475 Raleigh, NC 27601 (919) 854-6200 • (919) 854-6259(Fax)	

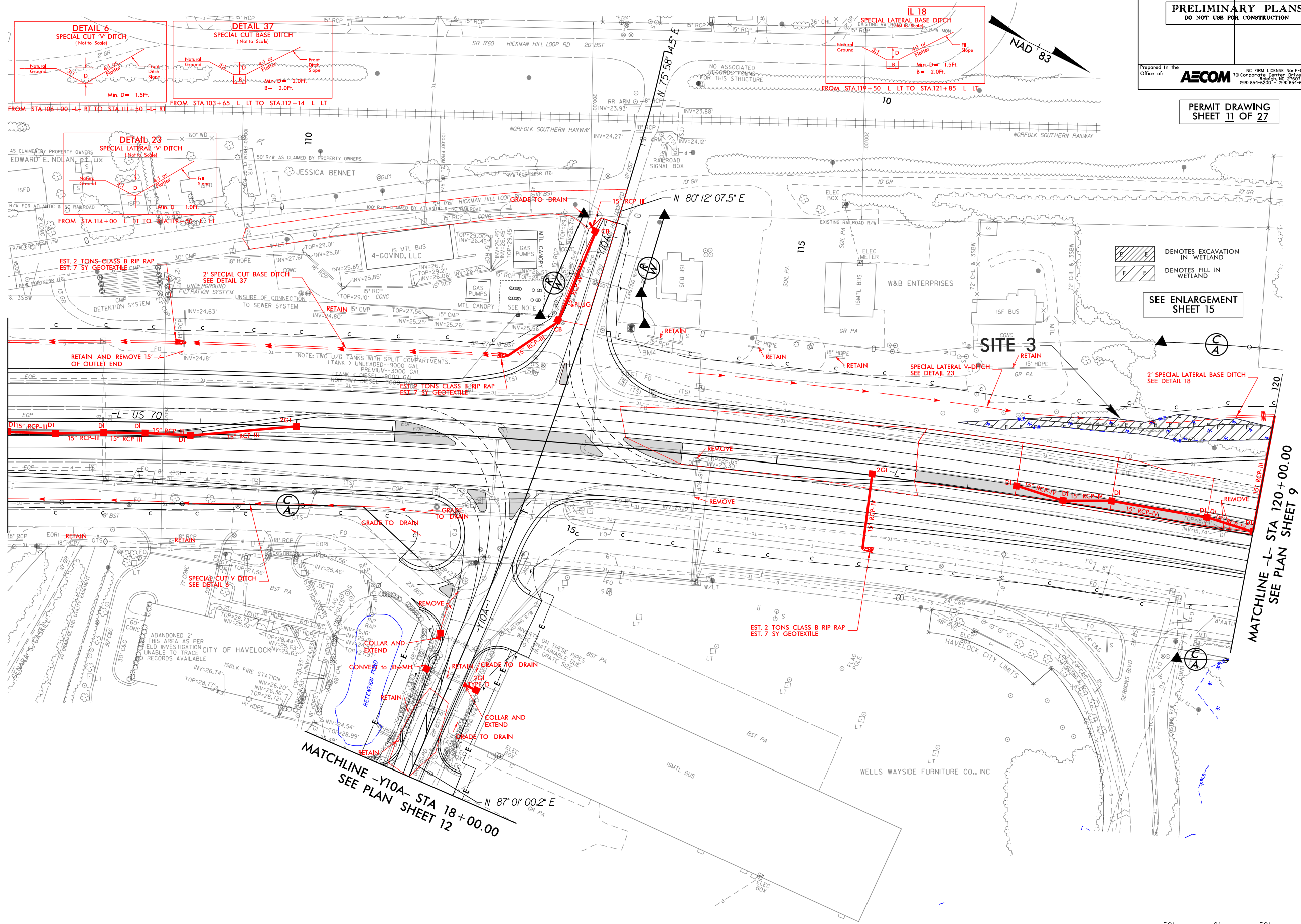
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SHEET 10 OF 27



REVISIONS

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SEE PLAN SHEET 7



MATCHLINE -L- STA 120+00.00
SEE PLAN SHEET 9

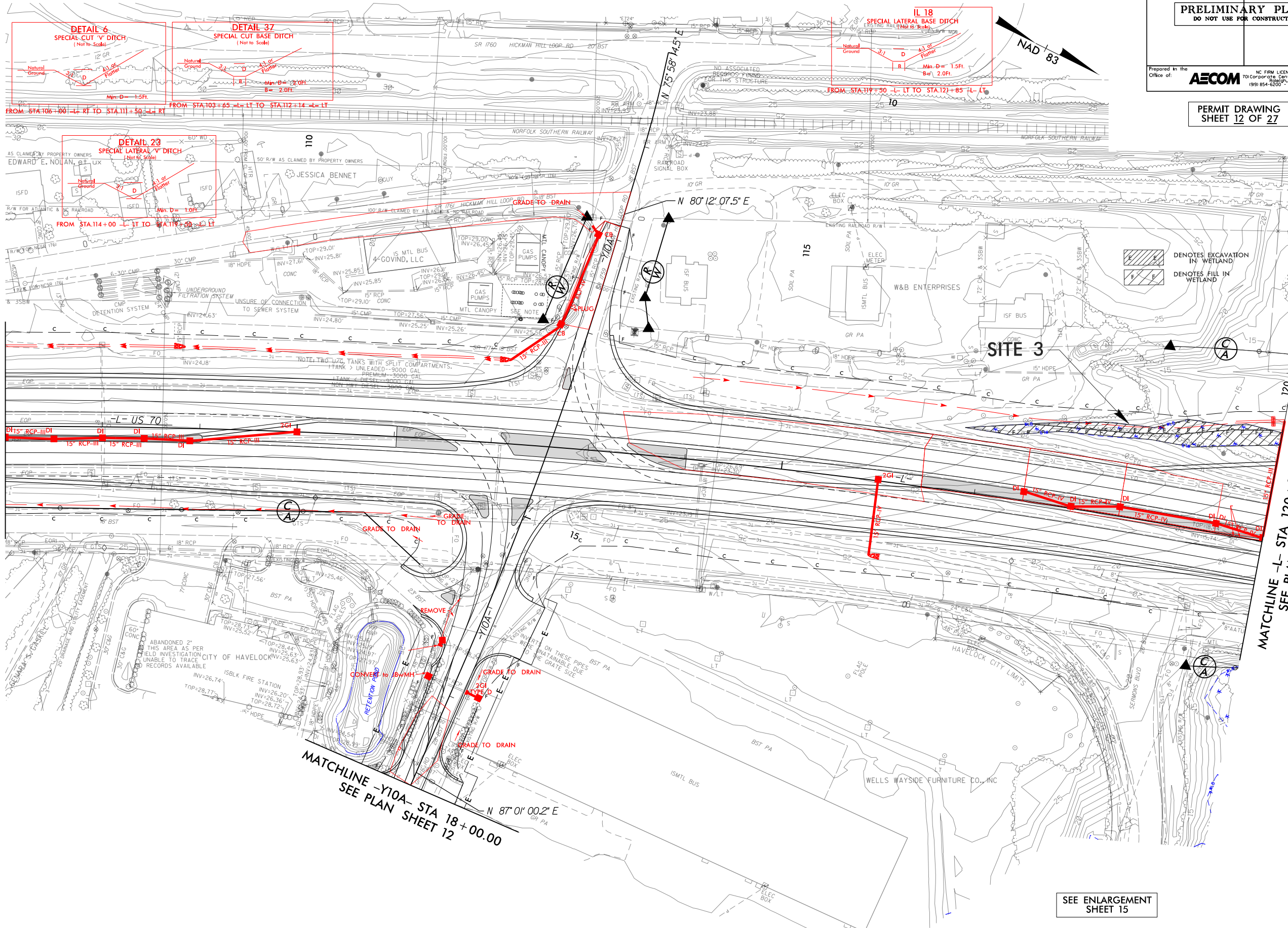
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SEE PLAN SHEET 12

SEE ENLARGEMENT
SHEET 15



PERMIT DRAWING
SHEET 12 OF 27

MATCHLINE -L- STA 107+00.00
SEE PLAN SHEET 7



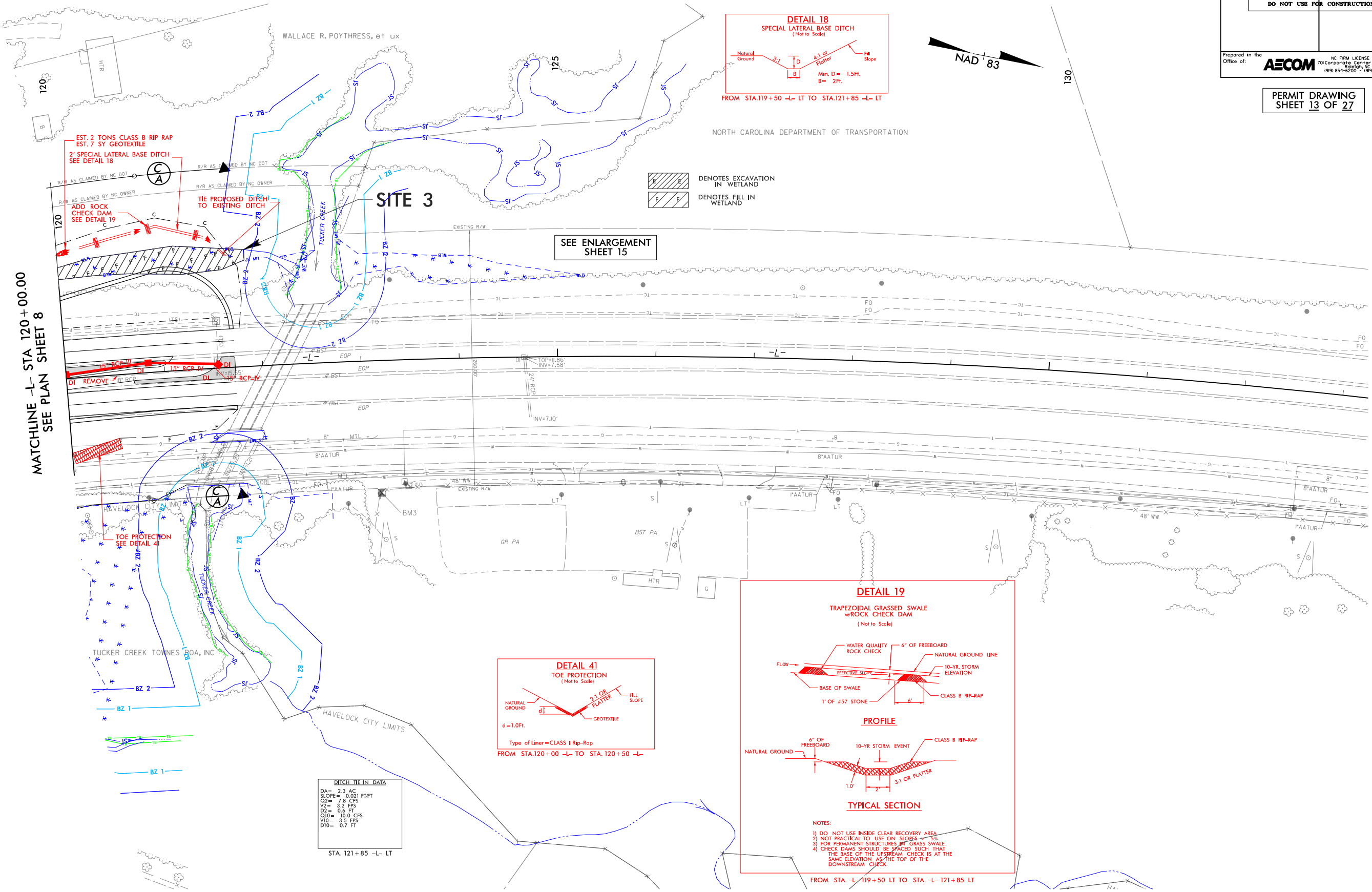
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SHEET 15



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SEE PLAN SHEET 9

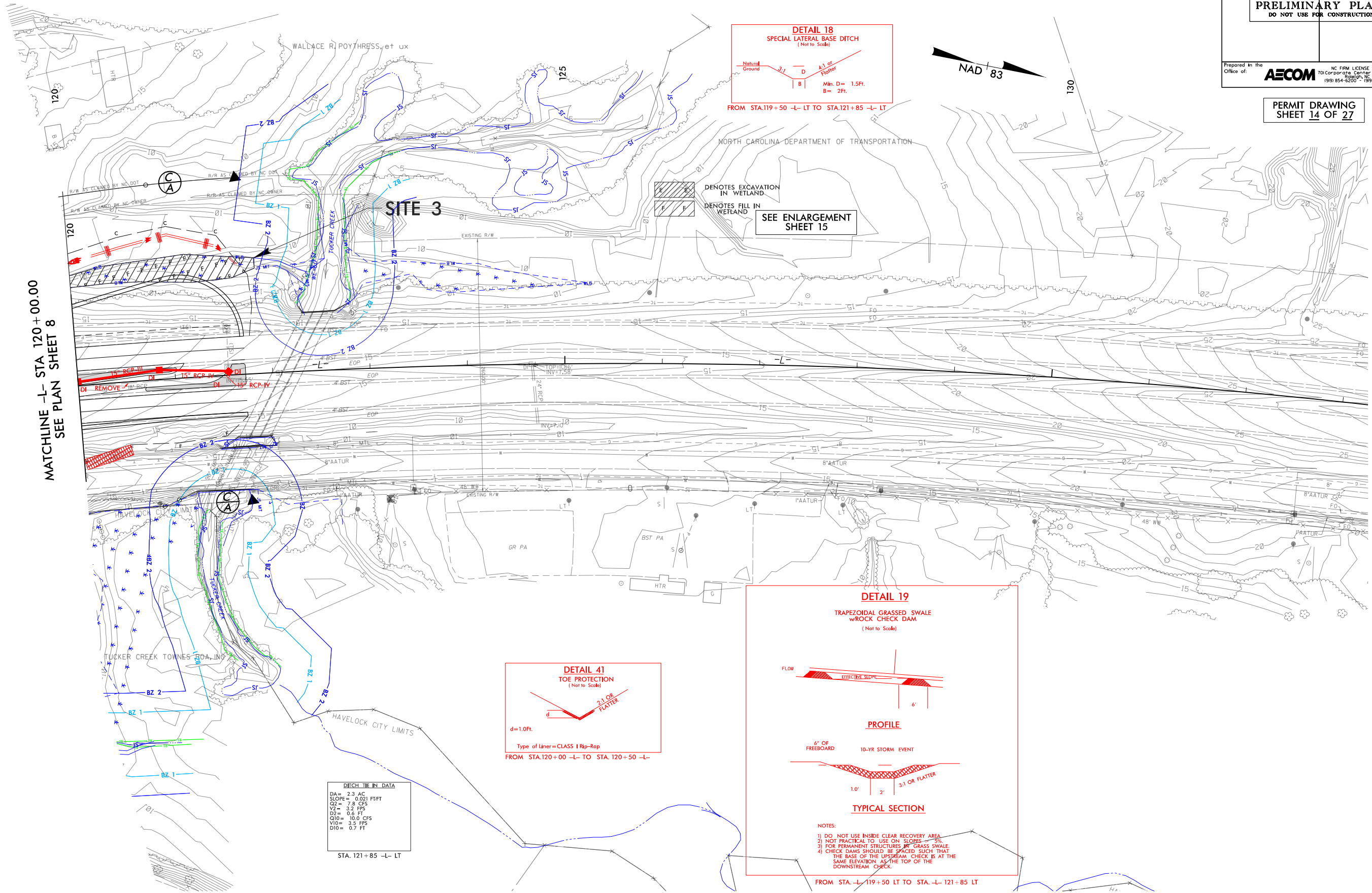
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SEE PLAN SHEET 12

REVISIONS



REVISIONS

MATCHLINE -L- STA 120+00.00
SEE PLAN SHEET 8



MATCHLINE -L- STA 120+00.00
SEE PLAN SHEET 8

REVISIONS

DITCH THE IN DATA
DA= 2.3 AC
SLOPE = 0.021 FT/FT
Q2 = 7.8 CFS
V2 = 3.2 FPS
D2 = 0.6 FT
Q10 = 10.0 CFS
V10 = 3.5 FPS
D10 = 0.7 FT
STA. 121+85 -L- LT

DETAIL 41
TOE PROTECTION
(Not to Scale)
d = 1.0ft.
Type of Liner = CLASS 1 Rip-Rap
FROM STA. 120+00 -L- TO STA. 120+50 -L-

DETAIL 18
SPECIAL LATERAL BASE DITCH
(Not to Scale)
Natural Ground
D
4:1 or Flatter
Min. D = 1.5ft.
B = 2ft.
FROM STA. 119+50 -L- LT TO STA. 121+85 -L- LT

DETAIL 19
TRAPEZOIDAL GRASSSED SWALE
w/ ROCK CHECK DAM
(Not to Scale)
FLOW
EFFECTIVE SLOPE
6'
PROFILE
6" OF FREEBOARD
10-YR STORM EVENT
1.0' 2' 3:1 OR FLATTER
TYPICAL SECTION
NOTES:
1) DO NOT USE INSIDE CLEAR RECOVERY AREA.
2) NOT PRACTICAL TO USE ON SLOPES > 5%.
3) FOR PERMANENT STRUCTURES RT GRASS SWALE.
4) CHECK DAMS SHOULD BE SPACED SUCH THAT THE BASE OF THE UPSTREAM CHECK IS AT THE SAME ELEVATION AS THE TOP OF THE DOWNSTREAM CHECK.
FROM STA. -L- 119+50 LT TO STA. -L- 121+85 LT



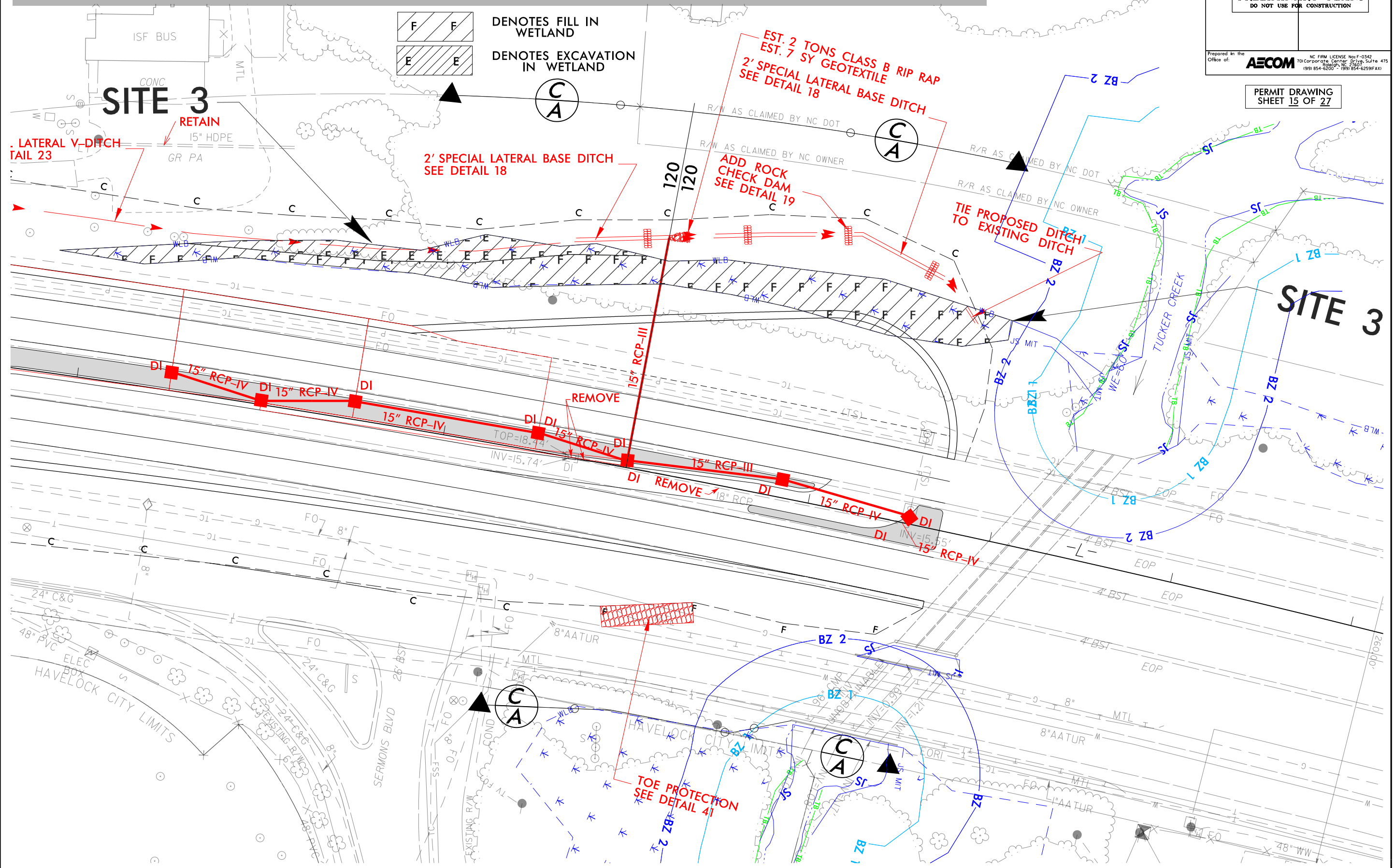
WETLAND AND SURFACE WATER IMPACTS PERMIT

PROJECT REFERENCE NO.	SHEET NO.
R-5516	
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

Prepared in the
Office of:

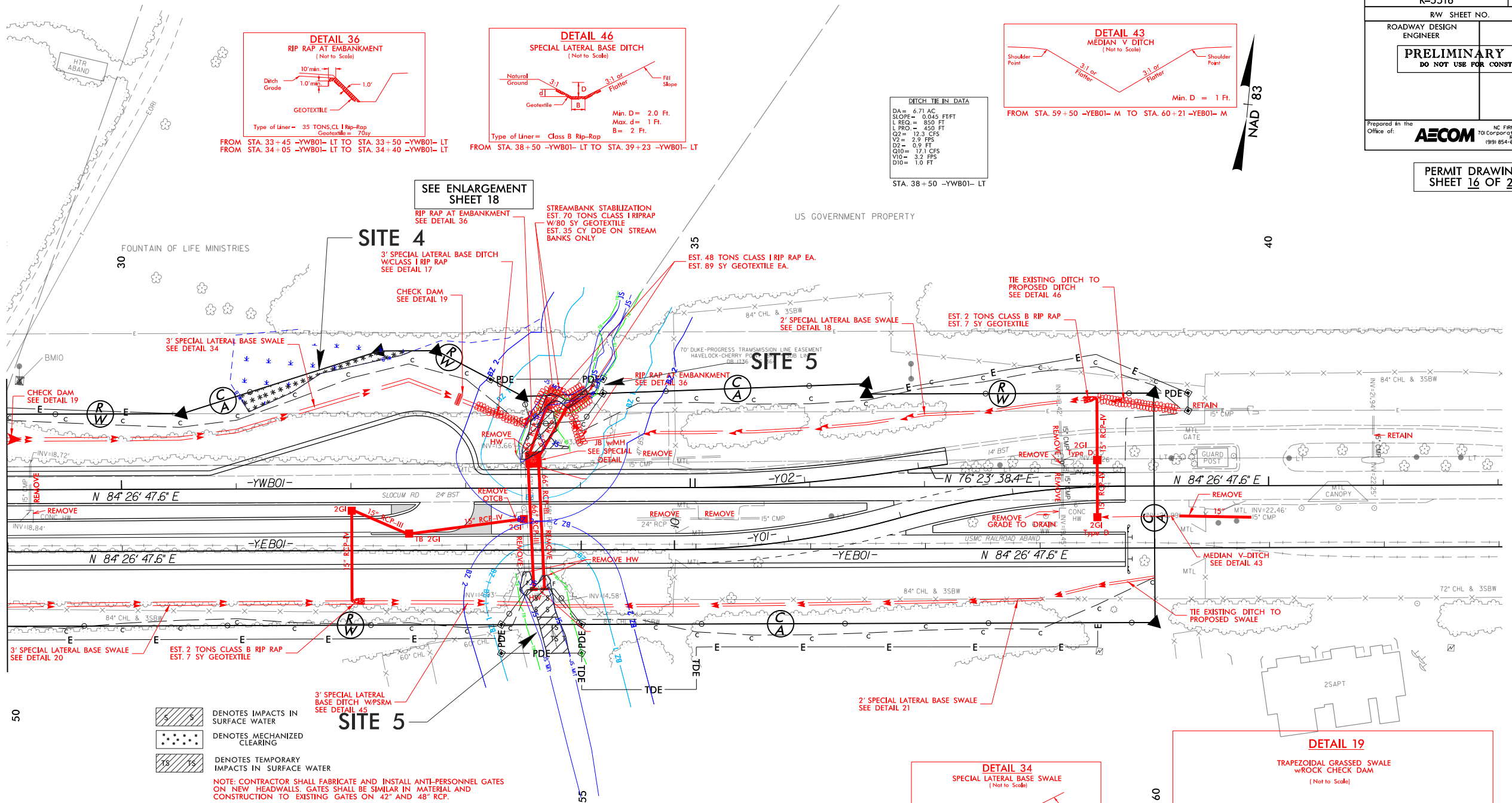
NC FIRM LICENSE NO# 0342
701 Corporate Center Drive, Suite 475
Raleigh, NC 27601
(919) 854-6200 - (919) 854-6259(FAX)

AECOM

PERMIT DRAWING
SHEET 15 OF 27

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STA 50+00.00 / 29+00.00
SEE PLAN SHEET 10

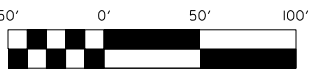
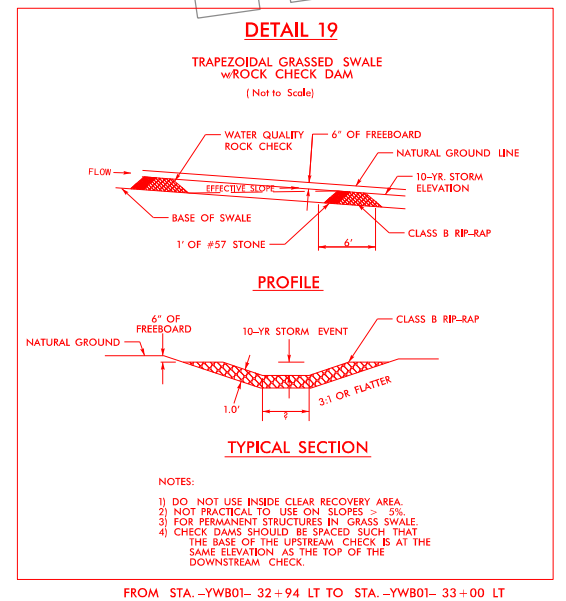
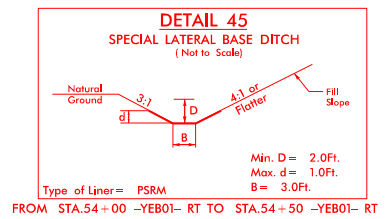
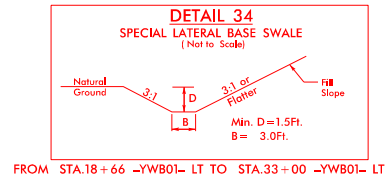
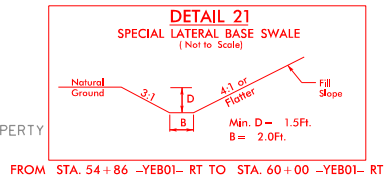
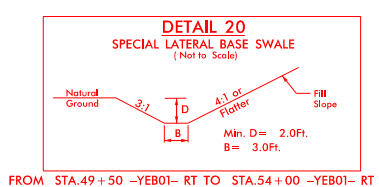
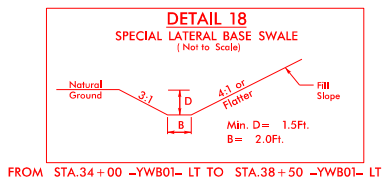
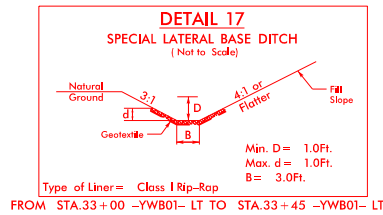


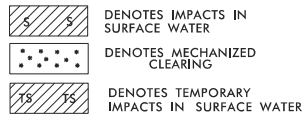
GRASS SWALE DATA
DA= 7.09 AC
SLOPE= 0.006 FTFIT
L REQ= 150 FT
L PRO= 570 FT
Q2= 12.3 CFS
V2= 2.3 FPS
D2= 0.9 FT
Q10= 16.3 CFS
V10= 3.0 FT
D10= 0.9 FT

GRASS SWALE DATA
DA= 8.46 AC
SLOPE= 0.003 FTFIT
L REQ= 200 FT
L PRO= 445 FT
Q2= 16.3 CFS
V2= 1.9 FPS
D2= 1.3 FT
Q10= 21.3 CFS
V10= 2.0 FT
D10= 1.5 FT

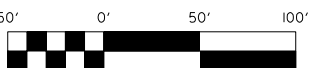
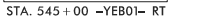
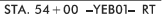
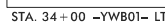
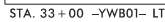
GRASS SWALE DATA
DA= 7.64 AC
SLOPE= 0.003 FTFIT
L REQ= 150 FT
L PRO= 495 FT
Q2= 19.7 CFS
V2= 2.0 FPS
D2= 1.3 FT
Q10= 25.4 CFS
V10= 2.2 FT
D10= 1.4 FT

GRASS SWALE DATA
DA= 2.5 AC
SLOPE= 0.014 FTFIT
L REQ= 254 FT
L PRO= 514 FT
Q2= 5.5 CFS
V2= 2.1 FPS
D2= 0.6 FT
Q10= 7.2 CFS
V10= 2.3 FT
D10= 0.7 FT



PERMIT DRAWING
SHEET 17 OF 27

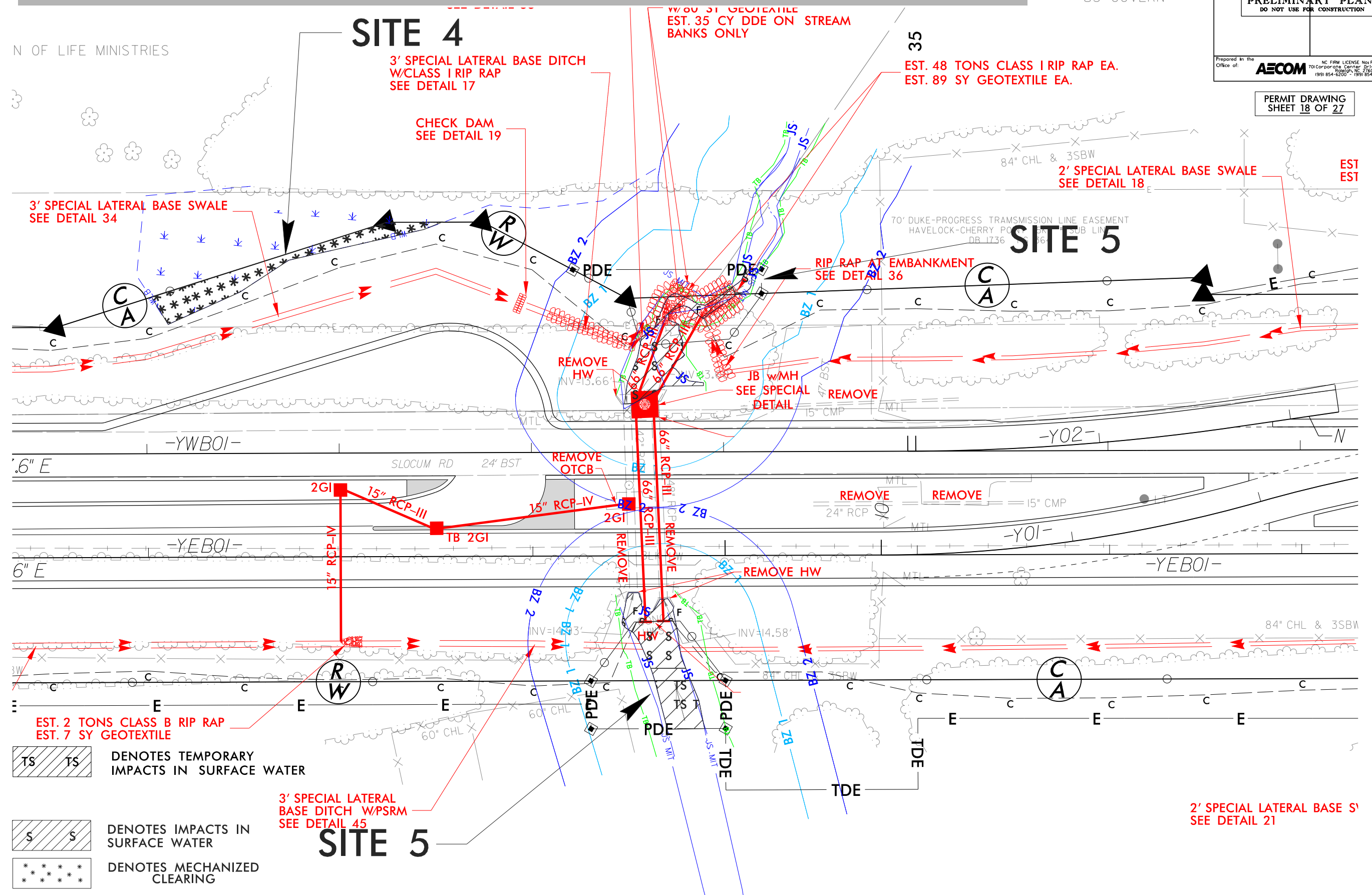
NOTE: CONTRACTOR SHALL FABRICATE AND INSTALL ANTI-PERSONNEL GATES ON NEW HEADWALLS. GATES SHALL BE SIMILAR IN MATERIAL AND CONSTRUCTION TO EXISTING GATES ON 42" AND 48" RCP.



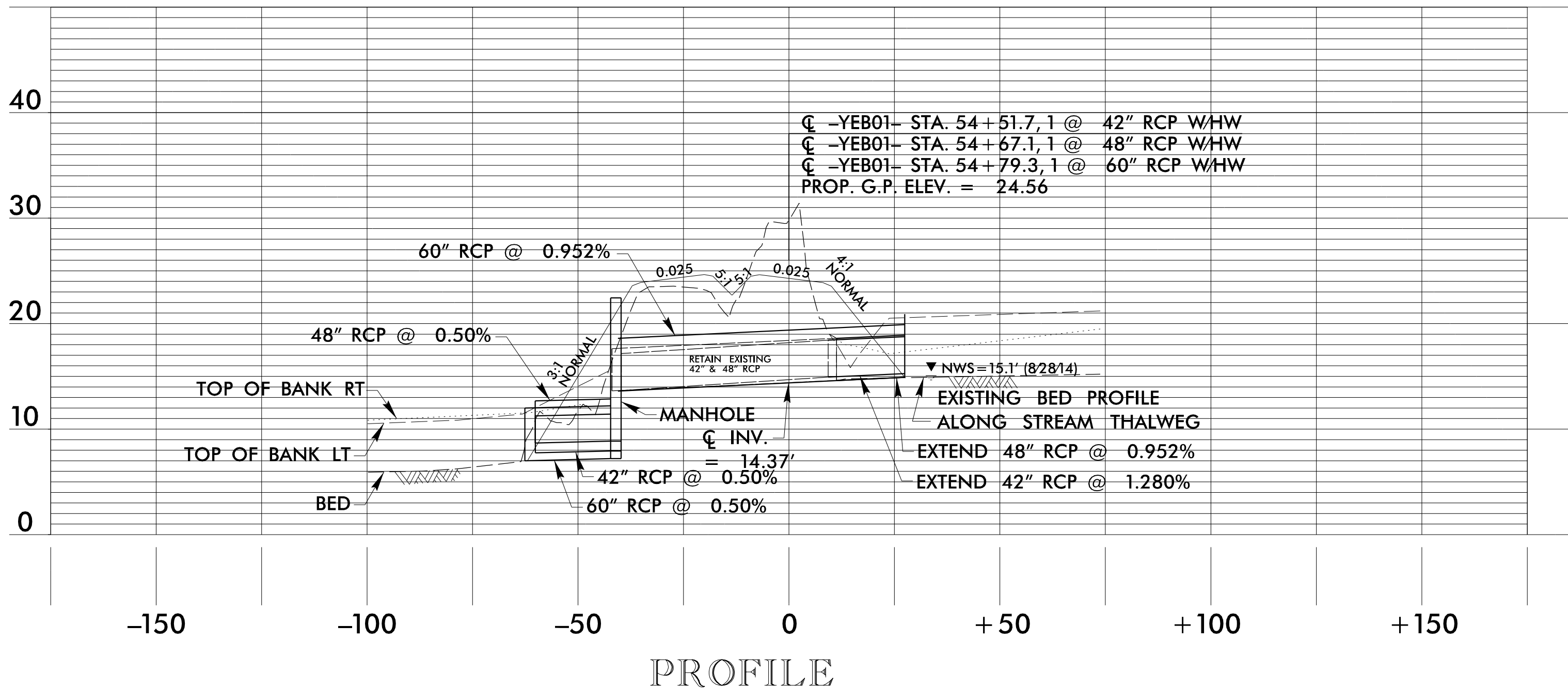
WETLAND AND SURFACE WATER IMPACTS PERMIT

US GOVERN

PROJECT REFERENCE NO.		SHEET NO.	
R-5516			
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			
Prepared in the Office of:		NC FIRM LICENSE NO F-0342	
		501 Corporate Center Drive, Suite 475 Raleigh, NC 27601 (919) 854-6200 ~ (919) 854-6259(FAX)	
			

PERMIT DRAWING
SHEET 18 OF 27

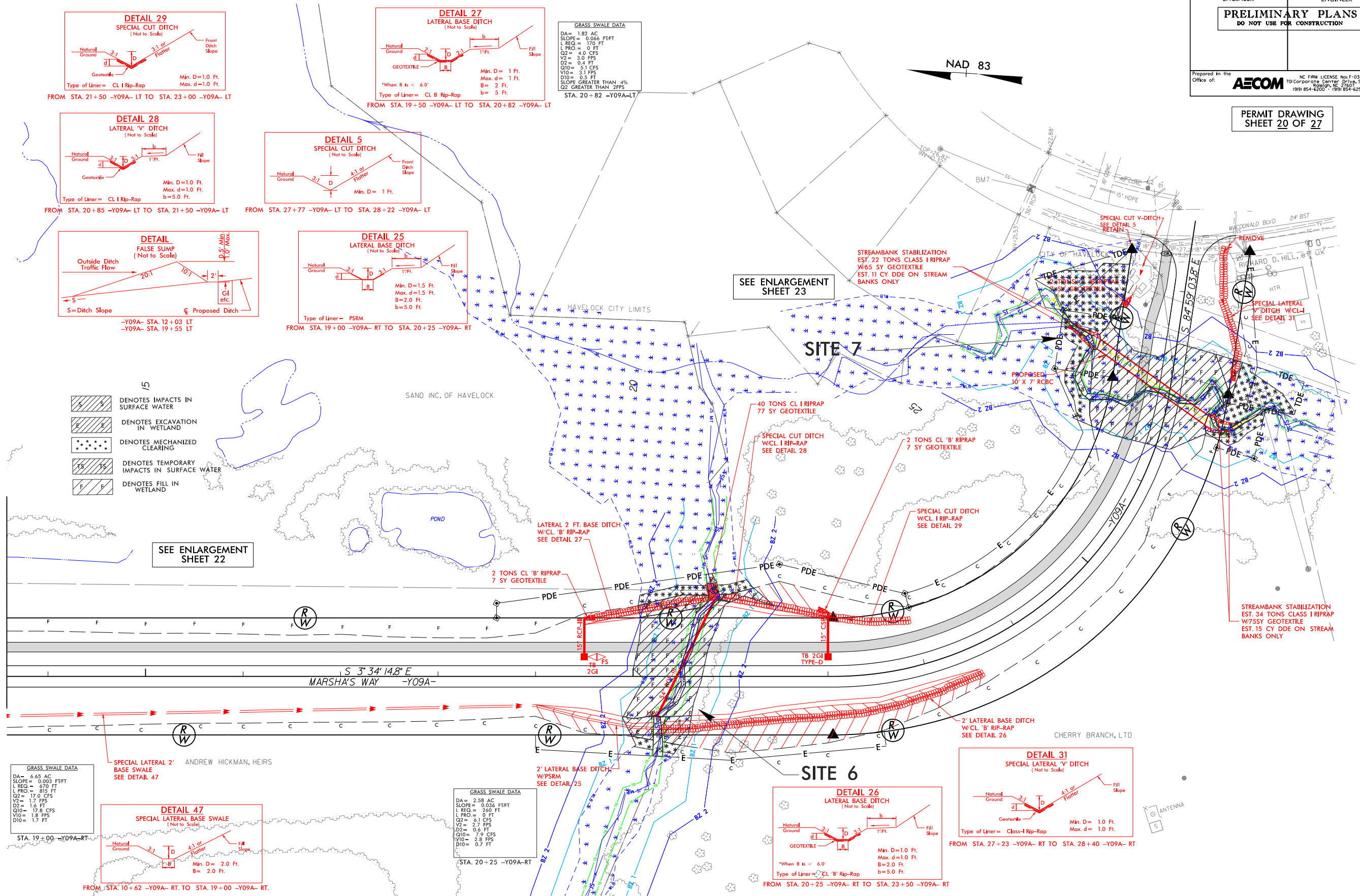
SITE 5 – PROFILE VIEW ALONG STRUCTURE



Native Material consists of material that is excavated from the stream bed or floodplain at the project site during culvert construction. Only material that is excavated from the stream bed may be used to line the low flow culvert barrel. Rip rap may be used to supplement the Native Material in the high flow culvert barrel(s). If rip rap is used to line the high flow culvert barrel(s), Native Material should be placed on top to fill voids and provide a flat surface for animal passage. Native Material is subject to approval by the engineer and may be subject to permit conditions.

NCDOT
DIVISION OF HIGHWAYS
CRAVEN COUNTY
PROJECT: 45492.1.1 (R-5516)
INTERCHANGE FROM US 70 TO
SLOCUM ROAD AT CHERRY
POINT MILITARY BASE
SITE 5

MATCHLINE -Y09A- STA 14+00.00
SEE PLAN SHEET 12



- LEGEND
- 1/5
 - DENOTES IMPACTS IN SURFACE WATER
 - DENOTES EXCAVATION IN WETLAND
 - DENOTES MECHANIZED CLEARING
 - DENOTES TEMPORARY IMPACTS IN SURFACE WATER
 - DENOTES FILL IN WETLAND

GRASS SWALE DATA
DA= 6.65 AC
SLOPE= 0.003 FT/FT
L REQ= 670 FT
L PRO= 815 FT
Q2= 17.0 CFS
V2= 1.7 FPS
Q10= 17.8 CFS
V10= 1.8 FPS
D10= 1.7 FT

DETAIL 47
SPECIAL LATERAL BASE SWALE
(Not to Scale)

Min. D= 2.0 Ft.
B= 2.0 Ft.

GRASS SWALE DATA
DA= 2.58 AC
SLOPE= 0.036 FT/FT
L REQ= 260 FT
L PRO= 0 FT
Q2= 6.1 CFS
V2= 2.7 FPS
Q10= 7.0 CFS
V10= 2.8 FPS
D10= 0.7 FT

DETAIL 26
LATERAL BASE DITCH
(Not to Scale)

Min. D=1.0 Ft.
Max. d=1.0 Ft.
B=2.0 Ft.
b=5.0 Ft.

DETAIL 31
SPECIAL LATERAL 'V' DITCH
(Not to Scale)

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





REVISIONS

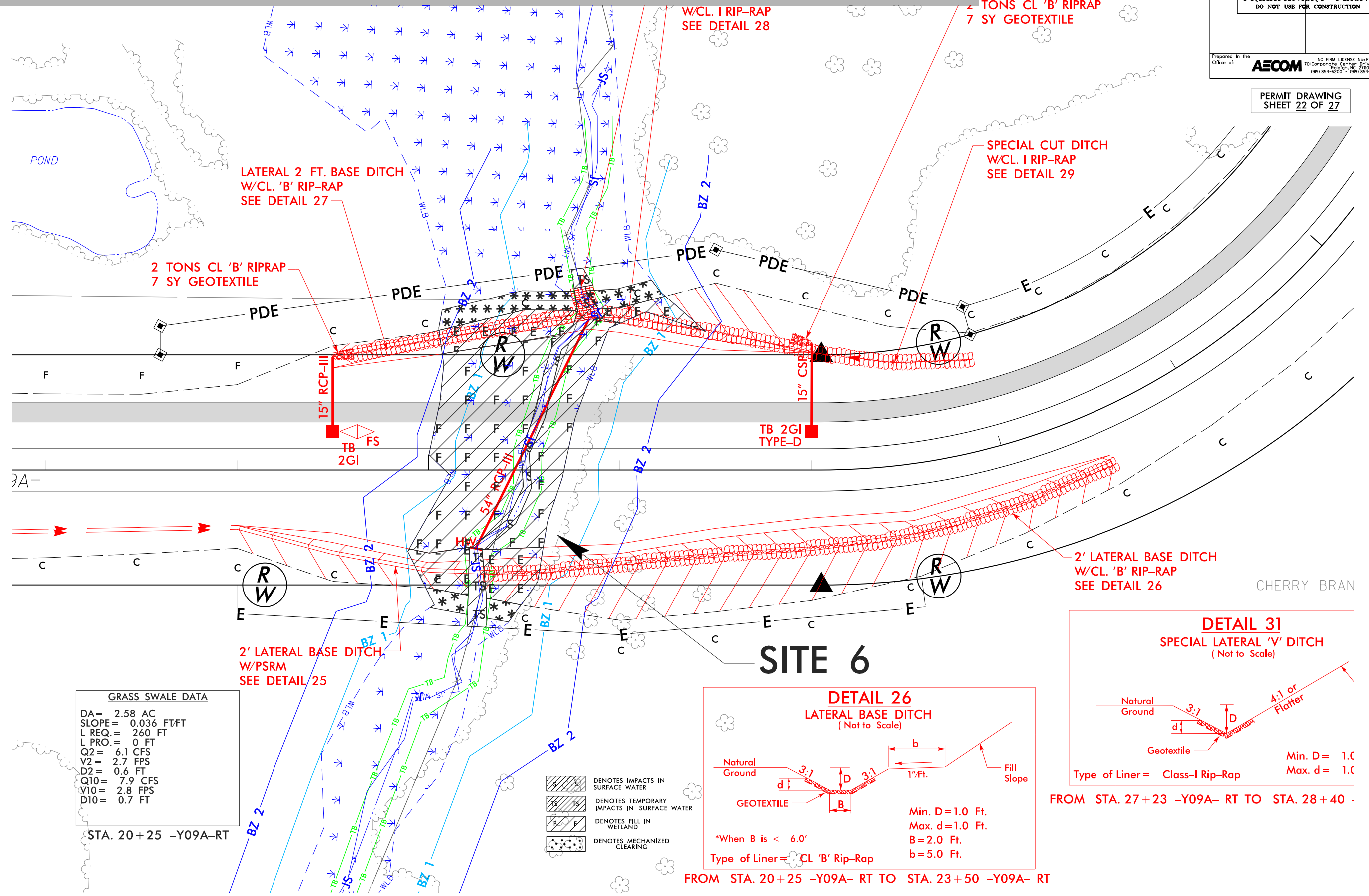
MATCHLINE -Y09A- STA 14+00.00
SEE PLAN SHEET 12

DATE/TIME: 3:08:47 PM
DGN: R:\Hydraulics\PERMITS_ENVIRONMENT\DRAWINGS\5516_hyd_Prm_psh_14_cont.dgn

WETLAND AND SURFACE WATER IMPACTS PERMIT

PROJECT REFERENCE NO.	SHEET NO.
R-5516	
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
Prepared in the Office of: AECOM NC FIRM LICENSE No. F-0342 701 Corporate Center Drive, Suite 475 Raleigh, NC 27607 (919) 854-6200 • (919) 854-6259 (FAX)	

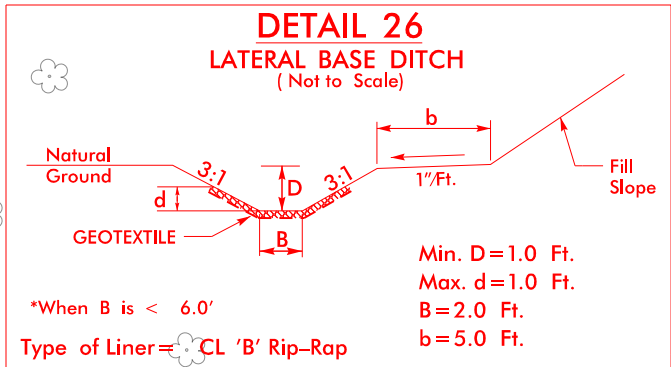
PERMIT DRAWING
SHEET 22 OF 27



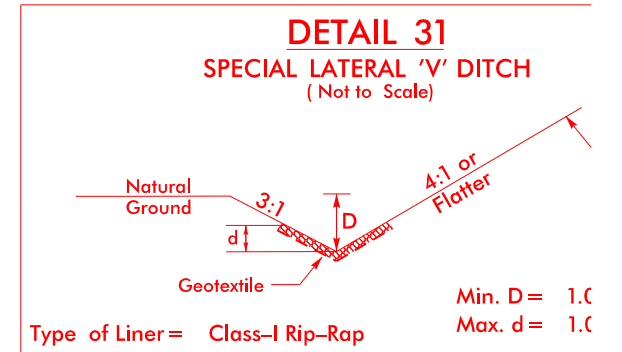
GRASS SWALE DATA	
DA =	2.58 AC
SLOPE =	0.036 FT/FT
L REQ. =	260 FT
L PRO. =	0 FT
Q2 =	6.1 CFS
V2 =	2.7 FPS
D2 =	0.6 FT
Q10 =	7.9 CFS
V10 =	2.8 FPS
D10 =	0.7 FT

STA. 20+25 -Y09A-RT

SITE 6



FROM STA. 20+25 -Y09A- RT TO STA. 23+50 -Y09A- RT



FROM STA. 27+23 -Y09A- RT TO STA. 28+40

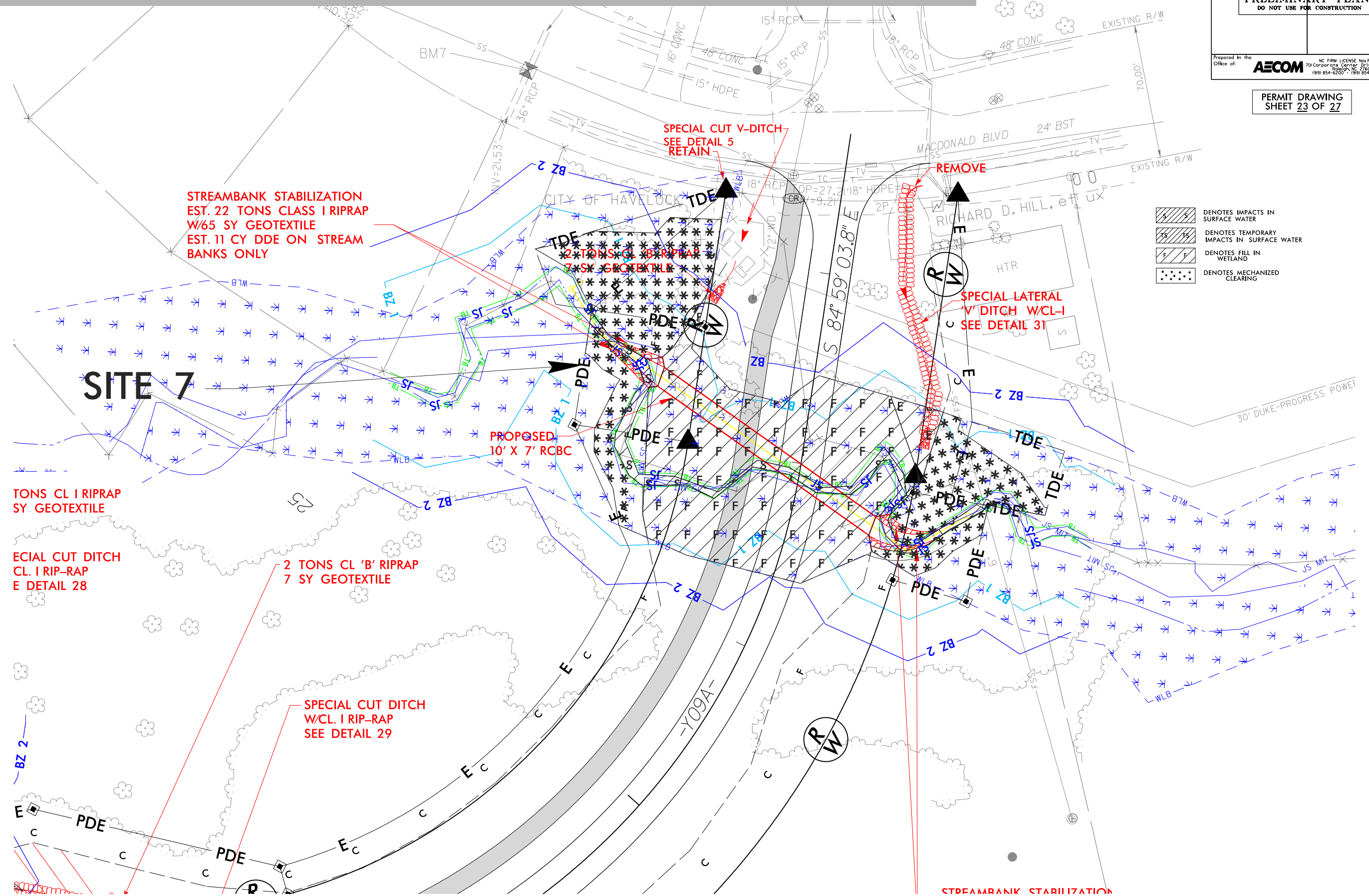


WETLAND AND SURFACE WATER IMPACTS PERMIT

PROJECT REFERENCE NO.	SHEET NO.
R-5516	
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
Prepared in the Office of: AECOM NC FIRM LICENSE No F-0342 701 Corporate Center Drive, Suite 475 Raleigh, NC 27607 (919) 854-6200 • (919) 854-6259 (FAX)	

PERMIT DRAWING
SHEET 23 OF 27

- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES FILL IN WETLAND
- DENOTES MECHANIZED CLEARING

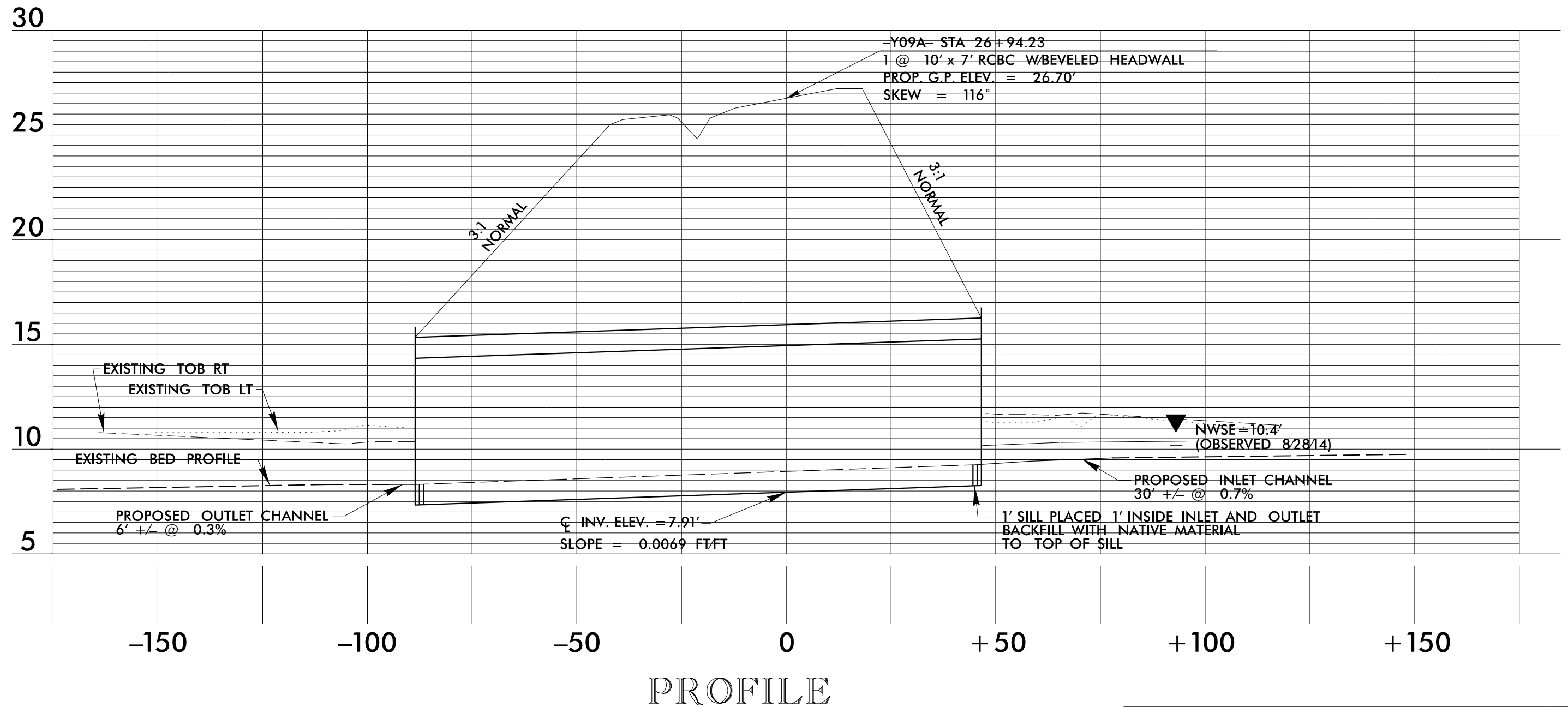


REVISIONS

DATE/TIME: 3/29/2017 PM
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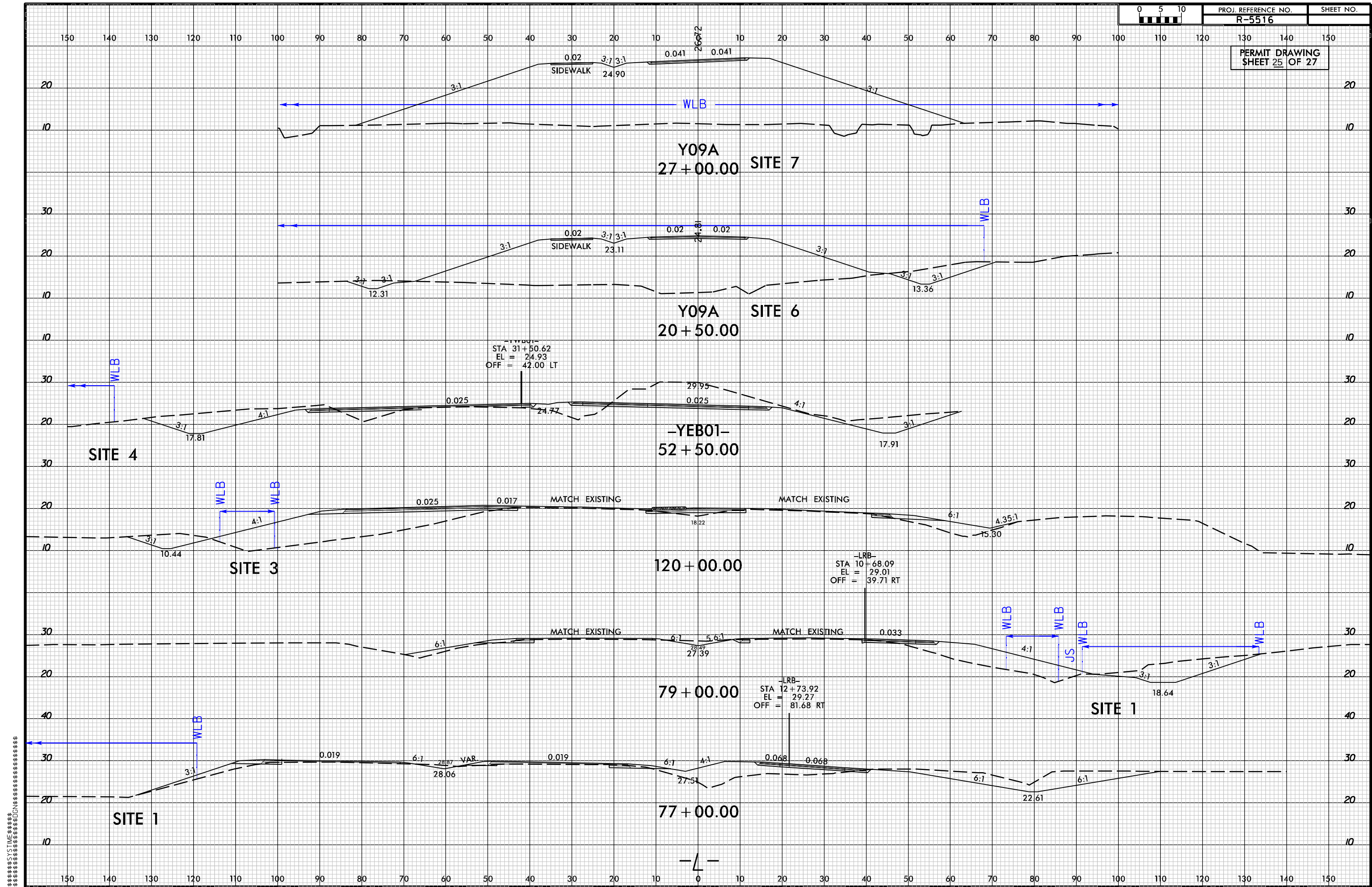
SITE 7 – PROFILE VIEW ALONG STRUCTURE



Native Material consists of material that is excavated from the stream bed or floodplain at the project site during culvert construction. Only material that is excavated from the stream bed may be used to line the low flow culvert barrel. Rip rap may be used to supplement the Native Material in the high flow culvert barrel(s). If rip rap is used to line the high flow culvert barrel(s), Native Material should be placed on top to fill voids and provide a flat surface for animal passage. Native Material is subject to approval by the engineer and may be subject to permit conditions.

NCDOT
DIVISION OF HIGHWAYS
CRAVEN COUNTY
PROJECT: 45492.1.1 (R-5516)
INTERCHANGE FROM US 70 TO
SLOCUM ROAD AT CHERRY
POINT MILITARY BASE
SITE 7

PERMIT DRAWING
SHEET 24 OF 27



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	76+47 to 76+73 -L-	Bridge Construction	< 0.01									
1	76+47 to 77+89 -L-	Bridge Construction				0.11						
1	76+02 to 77+91 -L-	Roadway Fill	0.04									
1	76+49 to 77+00 -L-	Roadway Fill			< 0.01							
1	77+10 to 77+97 -L-	6'x5' RCBC Extend (Stream)						< 0.01	0.02	26	132	
1	79+28 to 81+21 -L-	Roadway Fill	0.05									
1	78+66 to 80+74 -L-	Channel Change			0.11							
1	79+60 to 81+33 -L-	Channel Change				0.05						
1	78+18 to 81+06 -L-	6'x5' RCBC Extend (Stream)						0.05		303		
2	104+22 to 104+65 -L-	Roadway Excavation				0.01						
2	103+20 to 103+72 -L-	Proposed Ditch				0.01		0.02		111		
3	117+48 to 119+90 -L-	Roadway Excavation			0.04							
3	116+80 to 121+87-L-	Roadway Fill	0.16									
4	31+02 to 32+55 -YWB01-	Roadway Excavation				0.03						
TOTALS*:			0.26		0.16	0.21		0.07	0.02	440	132	0

*Rounded totals are sum of actual impacts

NOTES:
See page 27 for full totals

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
10/4/2016
CRAVEN
R-5516
WBS-45492.1.1

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)
5	36+46 to 33+90 -YWB01-	(2) 66" RCP (Upstream)						0.02	0.01	41	32	
5	33+48 to 34+16 -WYB01-	(2) 66" RCP (Downstream)						0.03	< 0.01	96	15	
6	19+87 to 21+44 -Y09A-	54" RCP (Stream)						0.02		166		
6	20+66 to 20+85 -Y09A-	Bank Stabilization							< 0.01		10	
6	20+21 to 20+30 -Y09A-	Roadway							< 0.01		41	
6	19+87 to 21+44 -Y09A-	Roadway	0.16		0.06	0.03						
7	26+39 to 27+96 -Y09A-	Roadway SS	0.28		0.01	0.20						
7	26+39 to 27+96 -Y09A-	10'x7' RCBC (Stream)						0.03		311		
7	26+39 to 27+96 -Y09A-	Bank Stabilization							< 0.01		18	
7	26+39 to 27+96 -Y09A-	Bank Stabilization							< 0.01		25	
N/A	Sheet 26 Totals		0.26		0.16	0.21		0.07	0.02	440	132	
TOTALS*:			0.70		0.23	0.44		0.16	0.05	1054	273	0

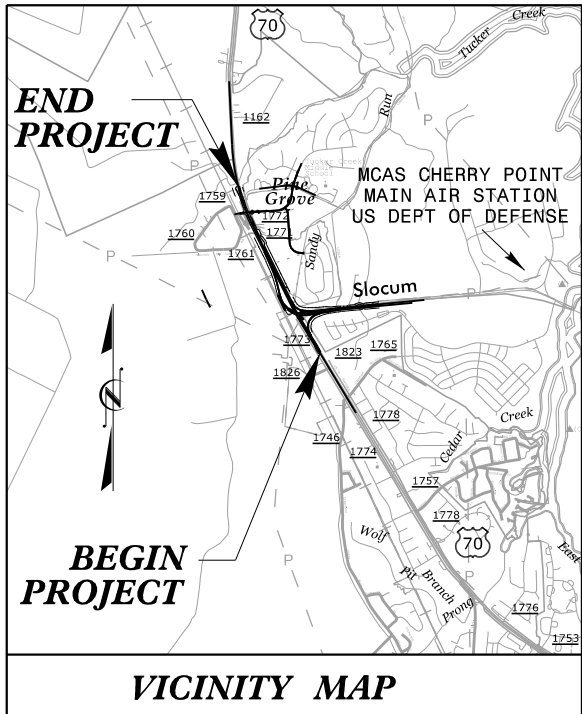
*Rounded totals are sum of actual impacts

NOTES:

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
1/5/2017
CRAVEN
R-5516
WBS-45492.1.1
SHEET 27 OF 27

TIP PROJECT: R-5516

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



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CRAVEN COUNTY

LOCATION: INTERCHANGE FROM US 70 TO SLOCUM
ROAD AT CHERRY POINT MILITARY BASE

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

BEGIN TIP PROJECT R-5516

-L- STA 60+00.00

END BRIDGE

-YEB01- STA 33+65.84±

BEGIN BRIDGE

-YEB01- STA 29+00.84±

END TIP PROJECT R-5516

-L- STA. 121+72.22

BEGIN CONSTRUCTION
-Y10A- STA. 11+85.00

SITE 3

BEGIN CONSTRUCTION
-Y11A- STA. 18+00.00

END CONSTRUCTION
-Y10A- STA. 40+75.00

END CONSTRUCTION
-Y11A- STA. 27+53.91

END CONSTRUCTION
-YEB01- STA. 60+85.00
-YWB01- STA. 39+24.00

END CONSTRUCTION
-Y02- STA. 12+25.45

END CONSTRUCTION
-Y09A- STA. 28+46.51

HAVELOCK CITY LIMITS

SR 1771

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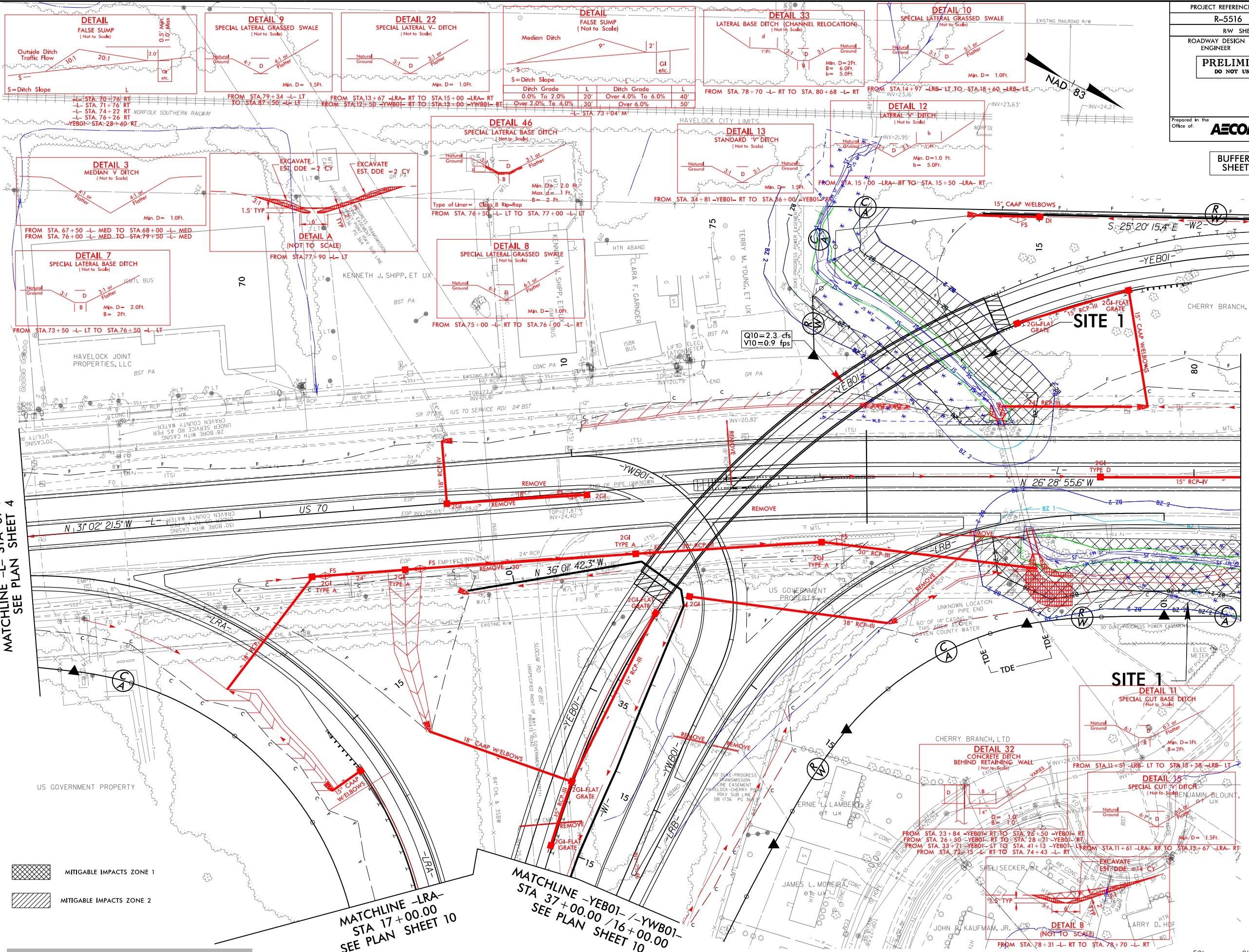
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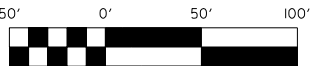
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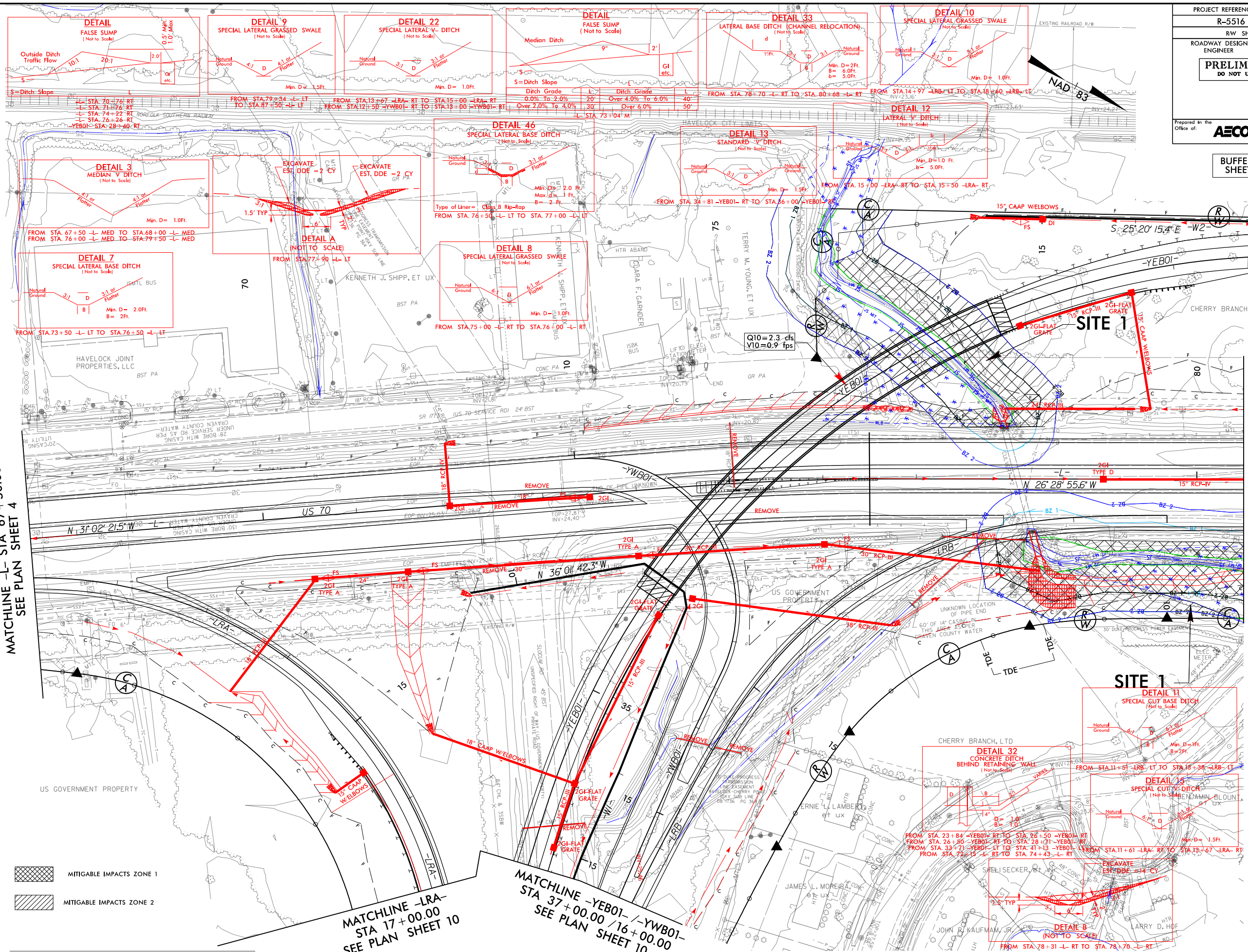
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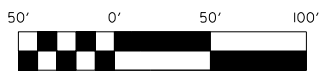
BUFFER IMPACTS PERMIT





MITIGABLE IMPACTS ZONE 1
MITIGABLE IMPACTS ZONE 2

BUFFER IMPACTS PERMIT



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REVISIONS

MATCHLINE -L- STA 67+50.00
SEE PLAN SHEET 4

MATCHLINE -LRA- STA 17+00.00
SEE PLAN SHEET 10

MATCHLINE -YEB01- /-YWB01- STA 37+00.00 /16+00.00
SEE PLAN SHEET 10

MATCHLINE -L- STA 80+50.00
SEE PLAN SHEET 6

MATCHLINE -YEB01- STA 26+00.00
SEE PLAN SHEET 6

BUFFER IMPACTS PERMIT

PROJECT REFERENCE NO.
R-5516

SHEET NO.
6

RW SHEET NO.

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PRELIMINARY PLANS

DO NOT USE FOR CONSTRUCTION

Prepared in the Office of:

AECOM

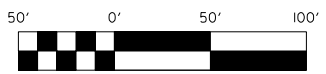
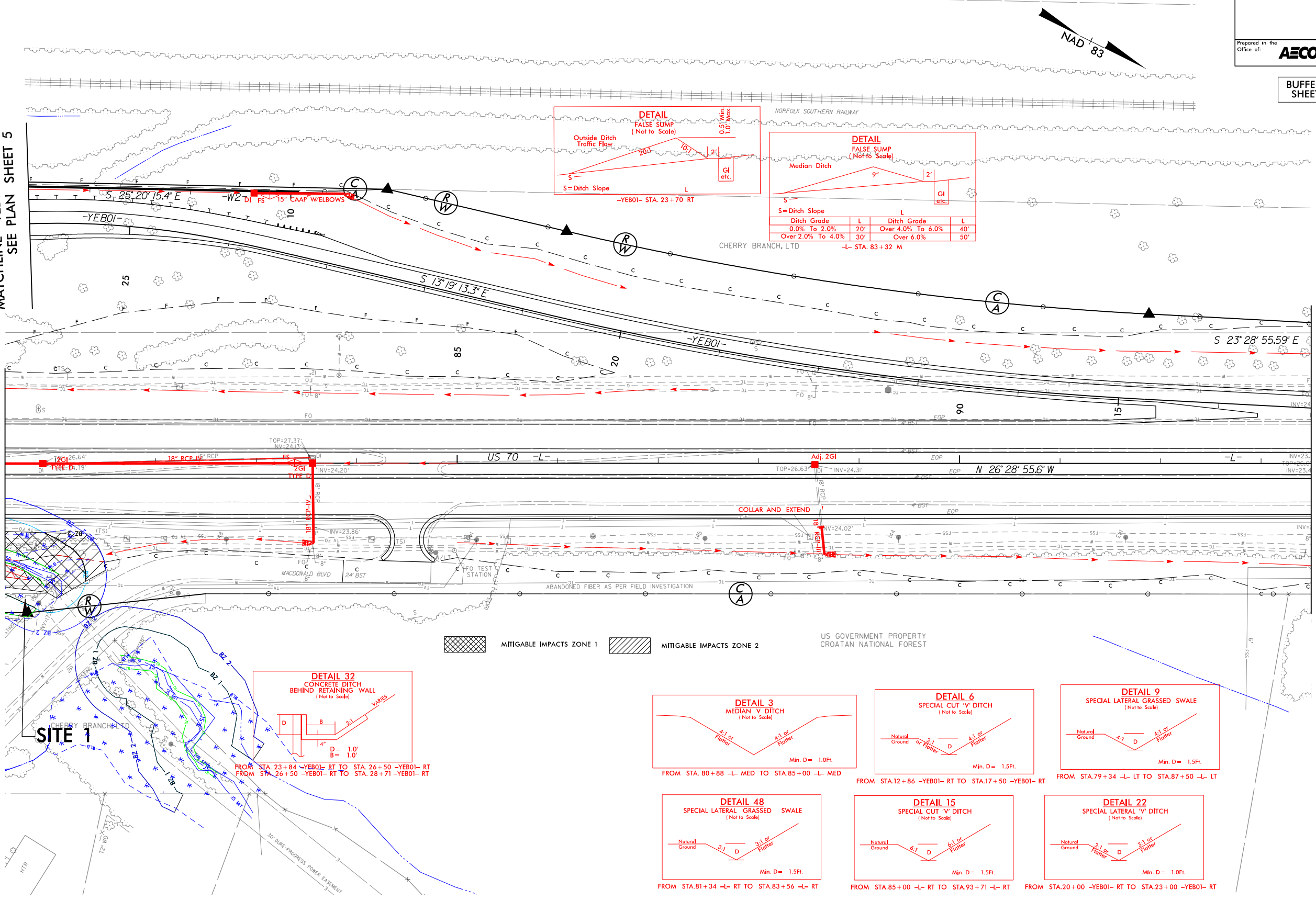
NC FIRM LICENSE No. F-0342
701 Corporate Center Drive, Suite 475
Raleigh, NC 27607
(919) 854-6200 • (919) 854-6259 (FAX)

BUFFER DRAWING
SHEET 4 OF 15

MATCHLINE -YEB01- STA 26+00.00
SEE PLAN SHEET 5

MATCHLINE -L- STA 80+50.00
SEE PLAN SHEET 5

MATCHLINE -L- /-YEB01-
STA 93+50.00 /13+07.88
SEE PLAN SHEET 7



DATE/TIME: 3/26/20 PM
DWG: HYDRAULICS/PERMITS/ENVIRONMENT/ALDRINGS/5516.dwg, Jm.Prm, Bui, jpm, 06/20/20

BUFFER IMPACTS PERMIT

PROJECT REFERENCE NO.
R-5516

SHEET NO.
6

RW SHEET NO.

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PRELIMINARY PLANS

DO NOT USE FOR CONSTRUCTION

Prepared in the Office of:

AECOM

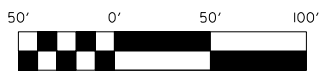
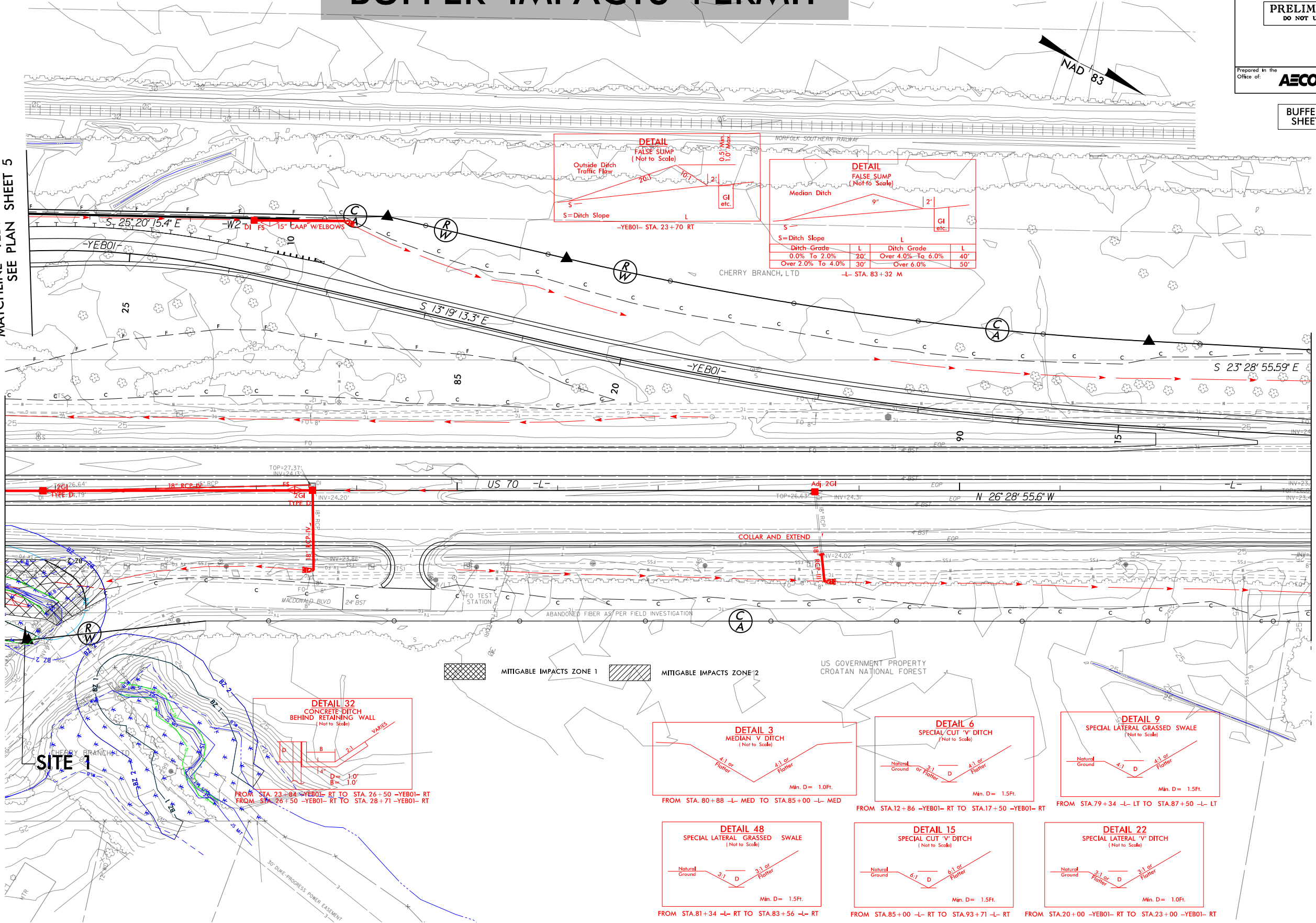
NC FIRM LICENSE No F-0342
701 Corporate Center Drive, Suite 475
Raleigh, NC 27607
(919) 854-6200 • (919) 854-6259 (Fax)

BUFFER DRAWING
SHEET 5 OF 15

MATCHLINE -YEB01- STA 26+00.00
SEE PLAN SHEET 5

MATCHLINE -L- STA 80+50.00
SEE PLAN SHEET 5

MATCHLINE -L- /-YEB01-
STA 93+50.00 / 13+07.88
SEE PLAN SHEET 7



DATE/TIME: 3/29/26 PM
DW: R/HYDRAULICS/PERMITS, ENVIRONMENT/ALDRING/5516, JPL, Pm, Bui, jpl, 06:00pm

REVISIONS

US GOVERNMENT PROPERTY
CROATIAN NATIONAL FOREST

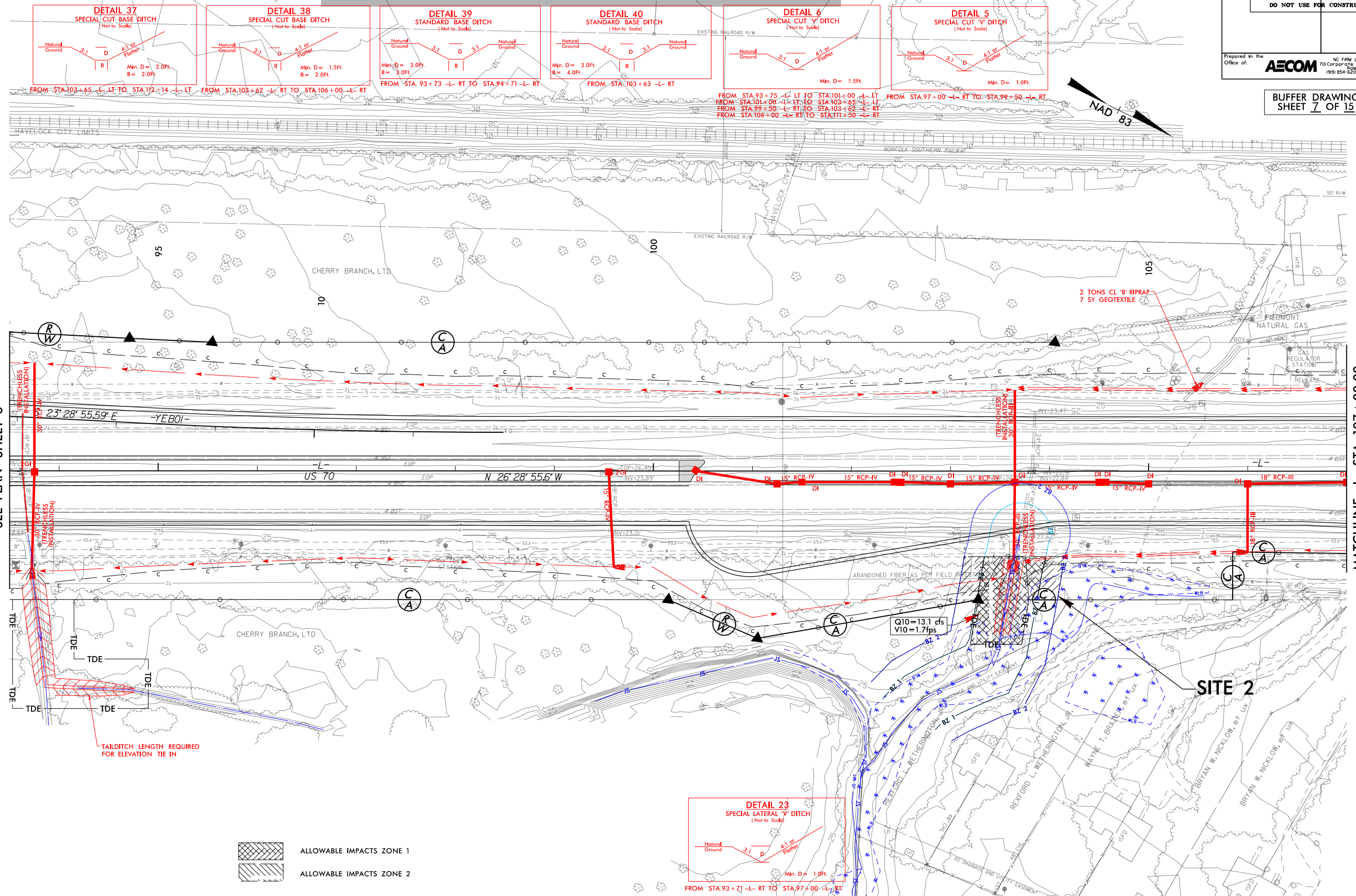
GREEN CHAPEL MISSIONARY BAPTIST CHURCH

Prepared in the
Office of:

AECOM

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Raleigh, NC 27607
(919) 854-6200 (919) 854-6259(FAX)

BUFFER DRAWING
SHEET 7 OF 15



MATCHLINE -L- /-YEB01-
STA 93+50.00 /STA 13+07.88
SEE PLAN SHEET 6

MATCHLINE -L- STA 107 + 00.00
SEE PLAN SHEET 8

SITE 2

TAILEDITCH LENGTH REQUIRED
FOR ELEVATION TIE IN

ALLOWABLE IMPACTS ZONE 1

ALLOWABLE IMPACTS ZONE 2

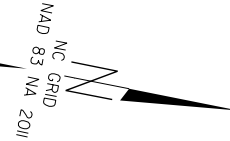
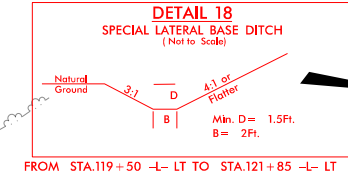
DETAIL 23
SPECIAL LATERAL 'V'
(Not to Scale)

FROM STA.93+71 -L- RT TO STA.97+00 -L- RT

BUFFER IMPACTS PERMIT

PROJECT REFERENCE NO.	SHEET NO.
R-5516	9
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
Prepared in the Office of: AECOM NC FIRM LICENSE No F-0342 701 Corporate Center Drive, Suite 475 Raleigh, NC 27607 (919) 854-6200 • (919) 854-6259 (FAX)	

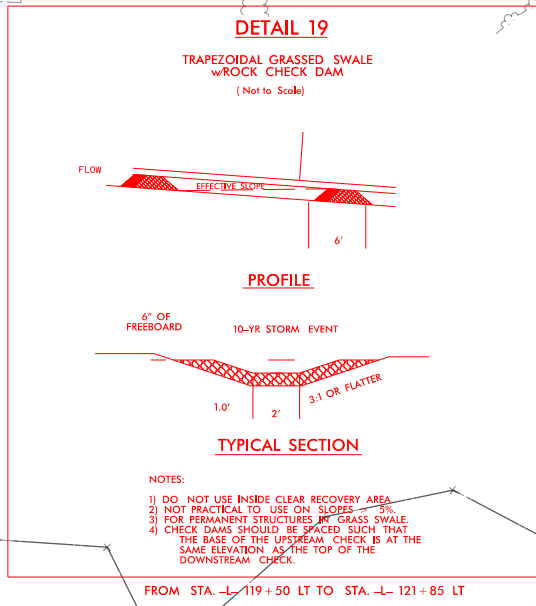
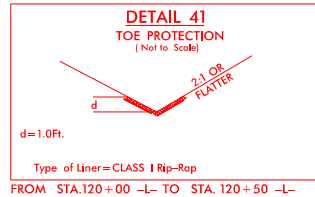
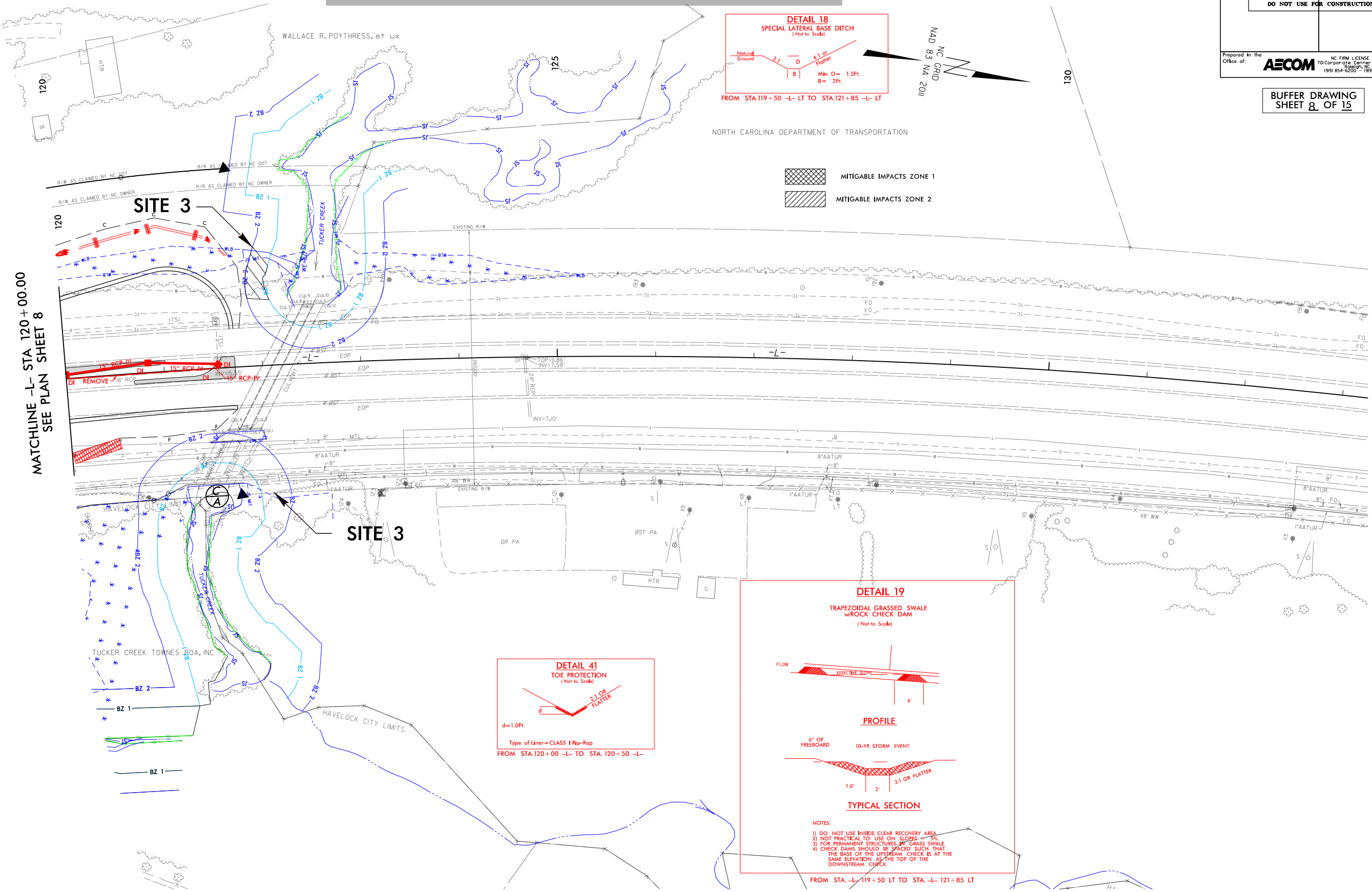
BUFFER DRAWING
SHEET 8 OF 15



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

- MITIGABLE IMPACTS ZONE 1
- MITIGABLE IMPACTS ZONE 2

MATCHLINE -L- STA 120+00.00
SEE PLAN SHEET 8



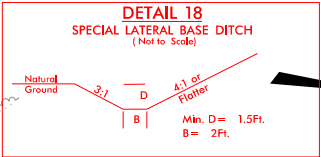
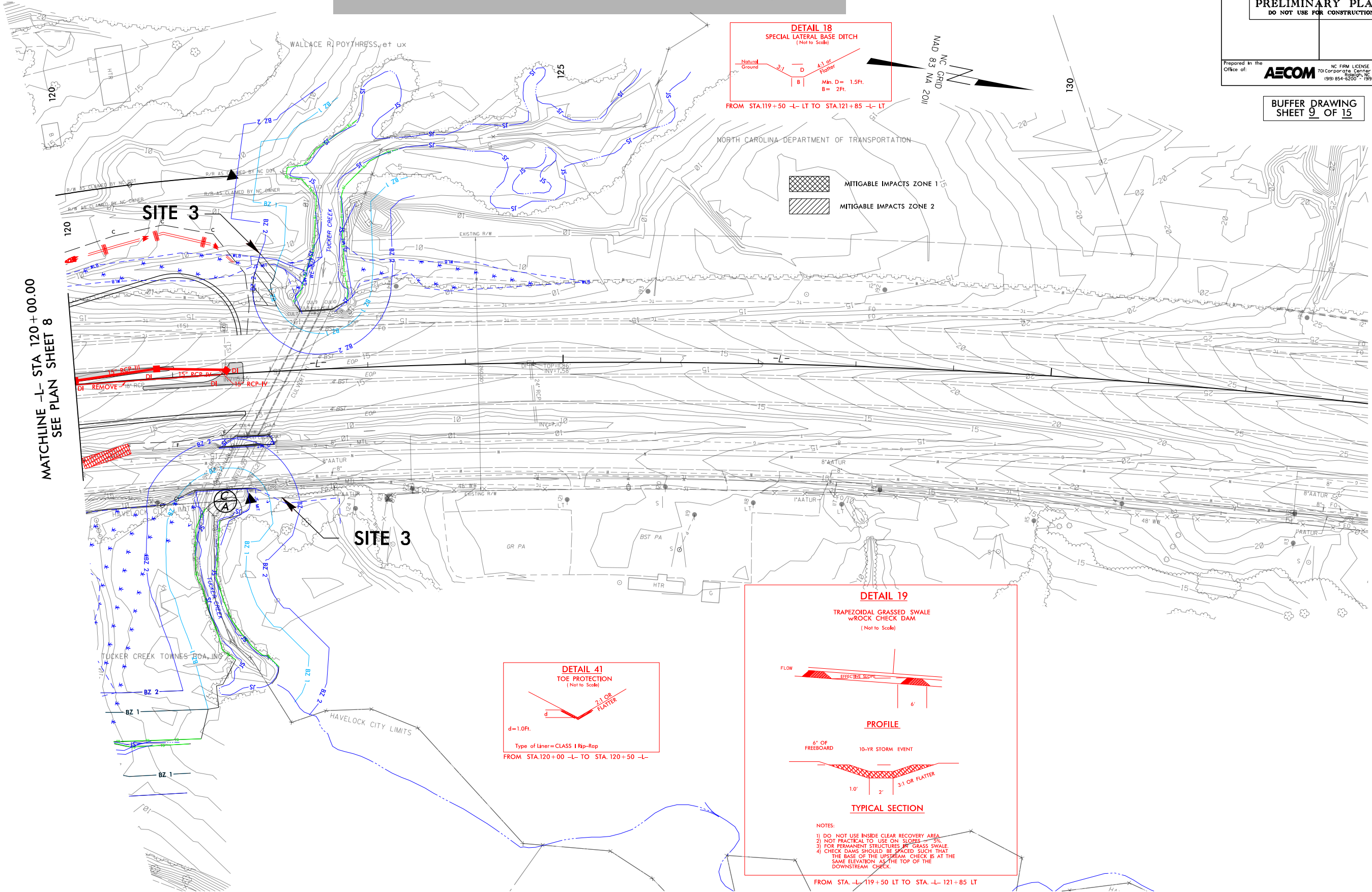
REVISIONS

DATE/TIME: 3.35.25 PM
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BUFFER IMPACTS PERMIT

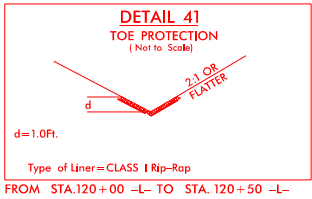
PROJECT REFERENCE NO.	SHEET NO.
R-5516	9
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
Prepared in the Office of: AECOM NC FIRM LICENSE No F-0342 701 Corporate Center Drive, Suite 475 Raleigh, NC 27607 (919) 854-6200 • (919) 854-6259 (FAX)	

BUFFER DRAWING
SHEET 9 OF 15

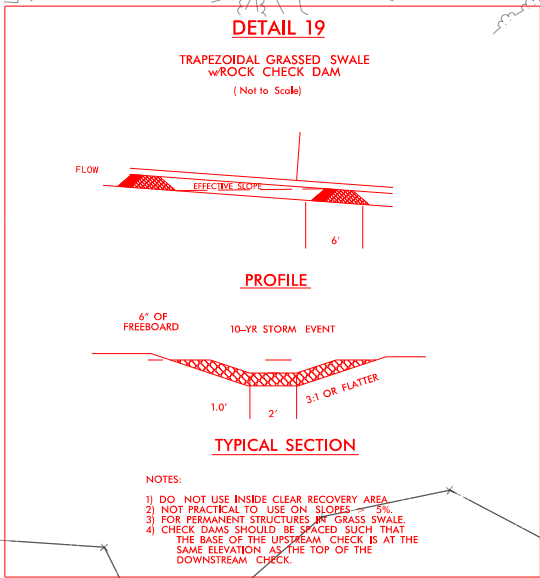


FROM STA. 119+50 -L- TO STA. 121+85 -L- LT

MITIGABLE IMPACTS ZONE 1
MITIGABLE IMPACTS ZONE 2



FROM STA. 120+00 -L- TO STA. 120+50 -L-



NOTES:
1) DO NOT USE INSIDE CLEAR RECOVERY AREA.
2) NOT PRACTICAL TO USE ON SLOPES > 5%.
3) FOR PERMANENT STRUCTURES RT GRASS SWALE.
4) CHECK DAMS SHOULD BE SPACED SUCH THAT THE BASE OF THE UPSTREAM CHECK IS AT THE SAME ELEVATION AS THE TOP OF THE DOWNSTREAM CHECK.

FROM STA. -L- 119+50 LT TO STA. -L- 121+85 LT

MATCHLINE -L- STA 120+00.00
SEE PLAN SHEET 8

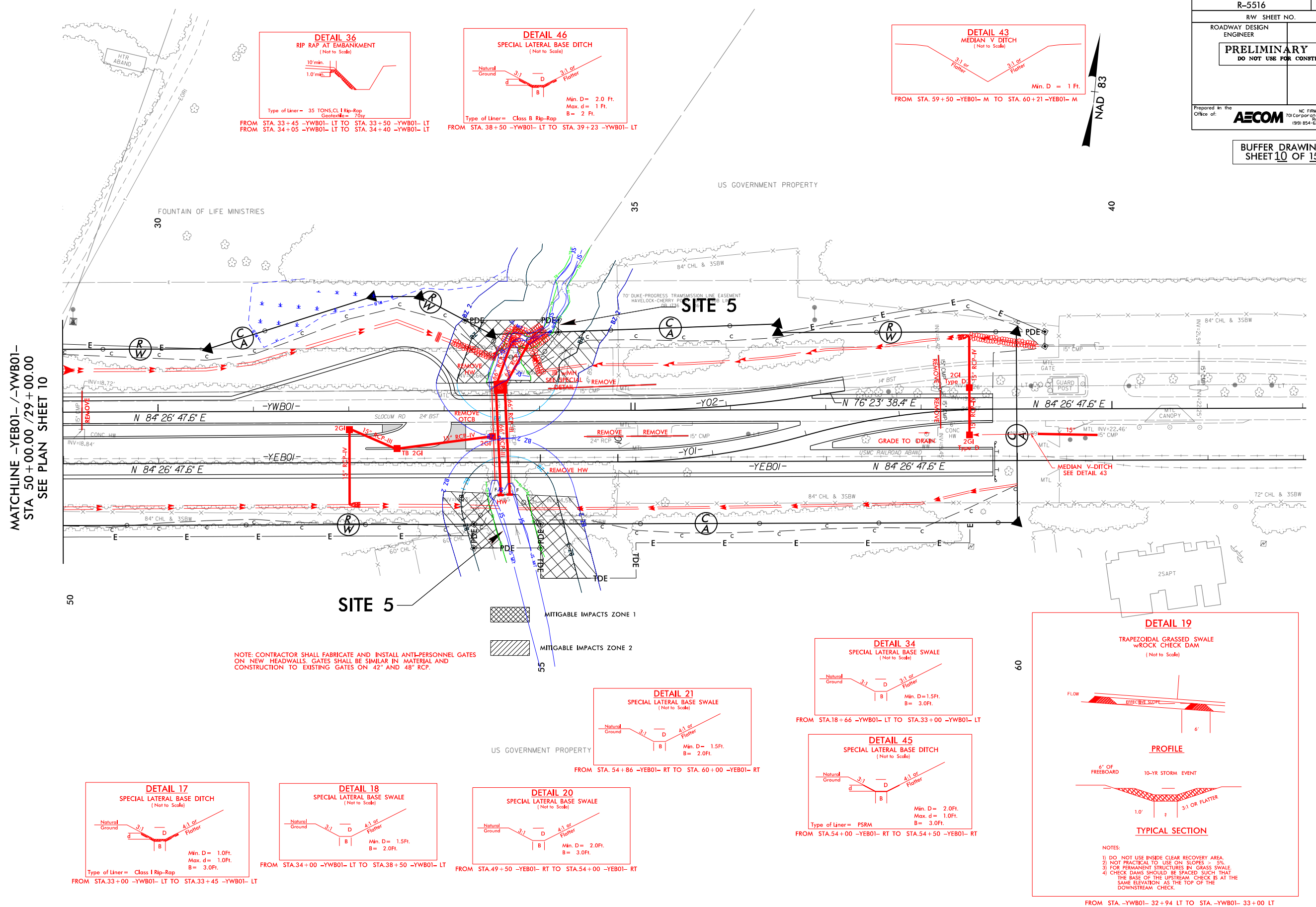
REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
R-5516	11
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
Prepared in the Office of:	
NC FIRM LICENSE No-F-0342 701 Corporate Center Drive, Suite 475 Raleigh, NC 27607 (919) 854-6200 • (919) 854-6259(FAX)	

**BUFFER DRAWING
SHEET 10 OF 15**



BUFFER IMPACTS PERMIT



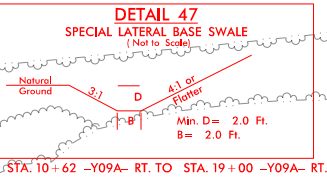
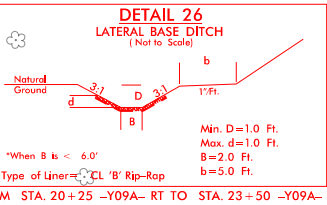
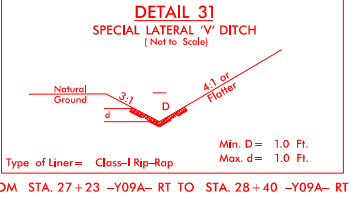
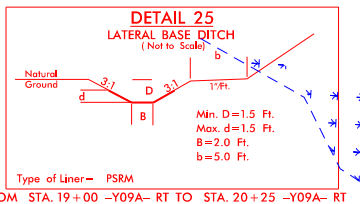
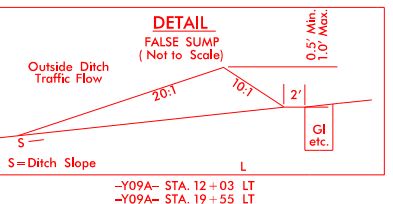
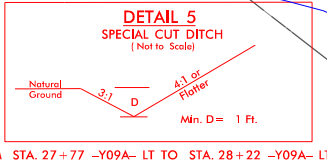
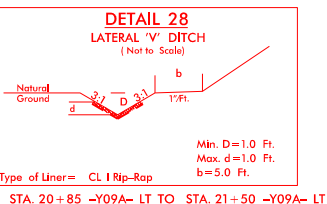
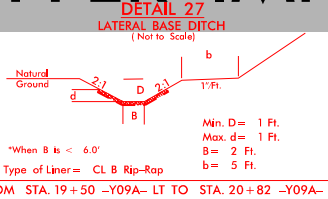
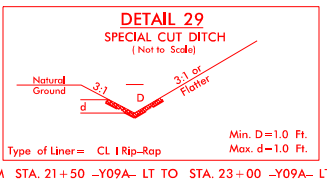
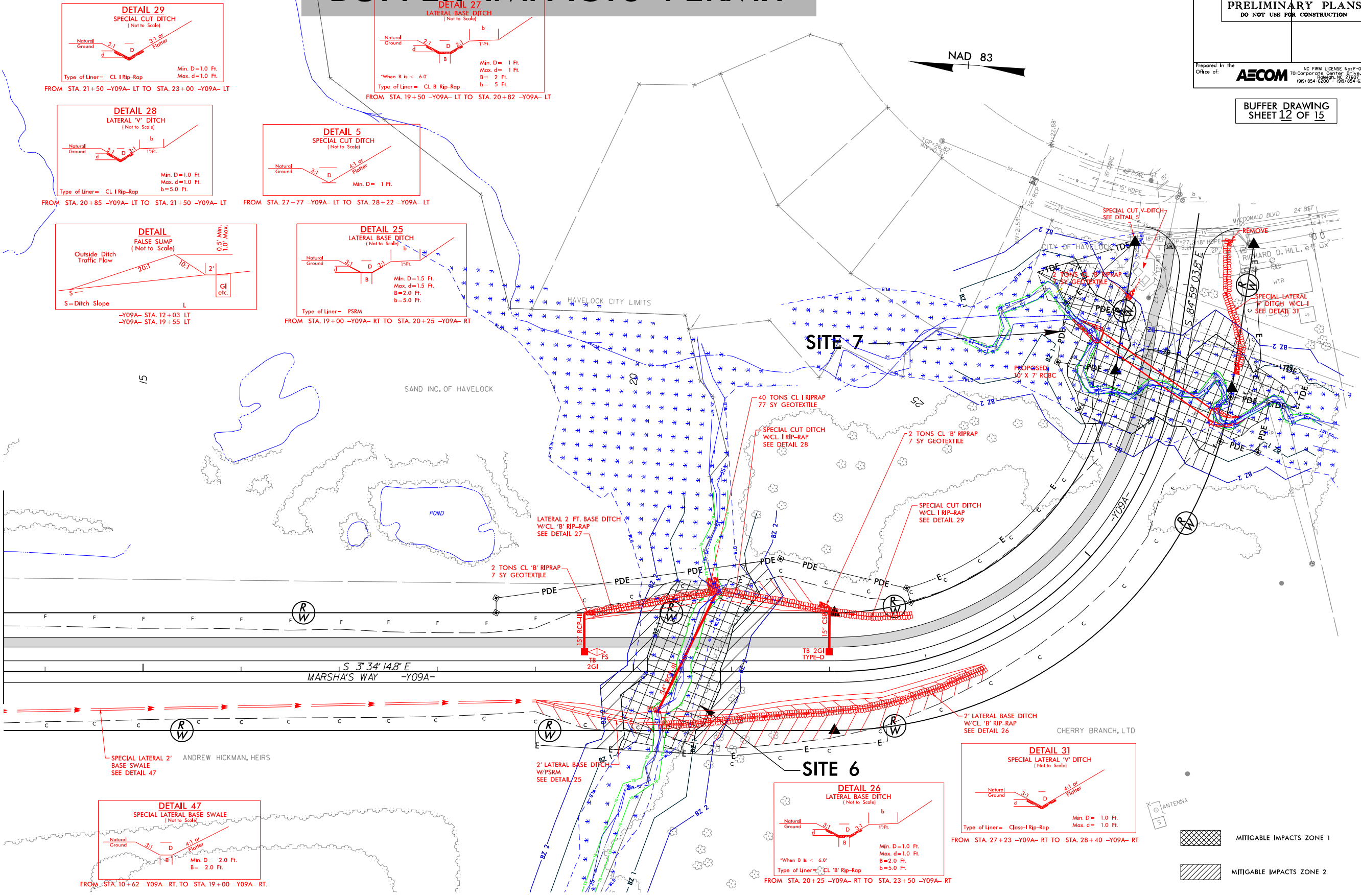
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BUFFER IMPACTS PERMIT

PROJECT REFERENCE NO.	SHEET NO.
R-5516	14
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
Prepared in the Office of: AECOM NC FIRM LICENSE No F-0342 701 Corporate Center Drive, Suite 475 Raleigh, NC 27607 (919) 854-6200 • (919) 854-6259 (FAX)	

BUFFER DRAWING
SHEET 12 OF 15

MATCHLINE -Y09A- STA 14+00.00
SEE PLAN SHEET 12



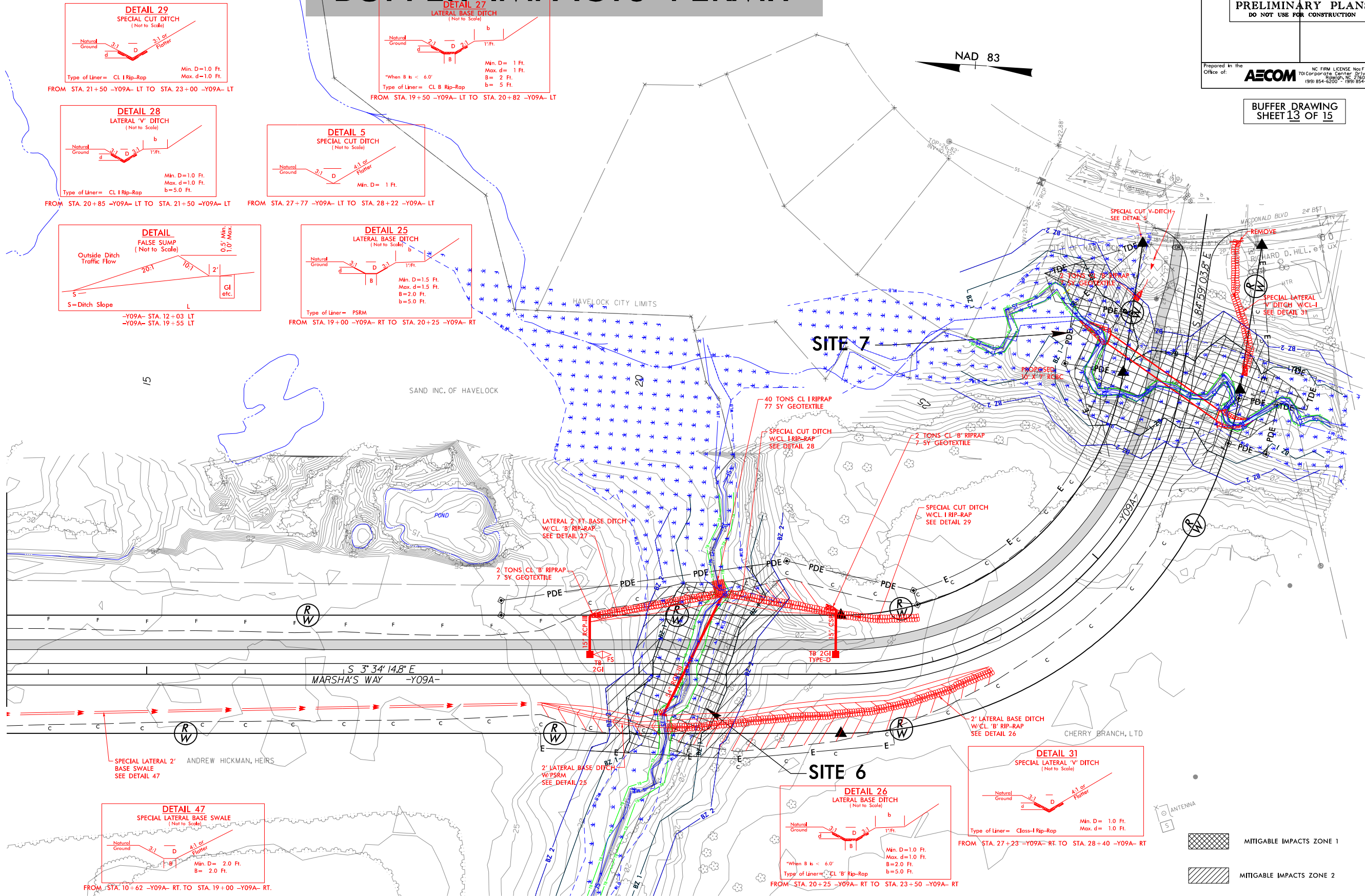
MITIGABLE IMPACTS ZONE 1
MITIGABLE IMPACTS ZONE 2



BUFFER IMPACTS PERMIT

PROJECT REFERENCE NO.	SHEET NO.
R-5516	14
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
Prepared in the Office of: AECOM NC FIRM LICENSE No F-0342 701 Corporate Center Drive, Suite 475 Raleigh, NC 27607 (919) 854-6200 • (919) 854-6259 (FAX)	

BUFFER DRAWING
SHEET 13 OF 15



MATCHLINE -Y09A- STA 14+00.00
SEE PLAN SHEET 12

REVISIONS

DATE/TIME: 3/20/21 PM
JOB: HYDRAULICS/PERMITS/ENVIRONMENTAL/DRAWINGS/5516_14.dwg
JOB: 14.dwg

BUFFER IMPACTS SUMMARY	
------------------------	--

			IMPACT									BUFFER REPLACEMENT	
SITE NO.	STRUCTURE SIZE / TYPE	STATION (FROM/TO)	TYPE			ALLOWABLE			MITIGABLE				
			ROAD CROSSING	BRIDGE	PARALLEL IMPACT	ZONE 1 (ft²)	ZONE 2 (ft²)	TOTAL (ft²)	ZONE 1 (ft²)	ZONE 2 (ft²)	TOTAL (ft²)	ZONE 1 (ft²)	ZONE 2 (ft²)
1	6'x5' RCBC	-L- Sta. 75+97	x						25351	15896	41247		
		-L- Sta. 81+50											
2	Proposed Tail Ditch	-L- Sta. 103+00	x			4990.0	1804.0	6794.0					
		-L- Sta. 104+0											
3	Proposed Roadway	-L- Sta. 120+64	x							874	874		
		-L- Sta. 122+23											
5	(2) 66" RCP	-YWBO1- Sta. 32+90	x						9538	5519	15057		
		-YWBO1- Sta. 34+50											
6	54" RCP	-Y09A- Sta. 20+00	x						11717	8272	19989		
		-Y09A- Sta. 21+50											
7	10'x7' RCBC	-Y09A- Sta. 26+15	x						18155	8105	26658		
TOTAL:						4990.0	1804.0	6794.0	58597	39777	103825		

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

CRAVEN COUNTY
PROJECT: 45492.1.1 (R-5516)

2/6/2017
SHEET 14 OF 15

WETLANDS IN BUFFER IMPACTS SUMMARY

SITE NO.	STATION (FROM/TO)		WETLANDS IN BUFFERS	
			ZONE 1 (ft ²)	ZONE 2 (ft ²)
1	-L- Sta. 75+50		9690	2360
	-L- Sta. 81+50			
2	-L- Sta. 103+00		1231	0
	-L- Sta. 104+00			
6	-Y09A- Sta. 20+00		7965	1635
	-Y09A- Sta. 21+50			
7	-Y09A- Sta. 26+15		16895	2764
	-Y09A- Sta. to 27+80			
TOTAL:			35781	6759

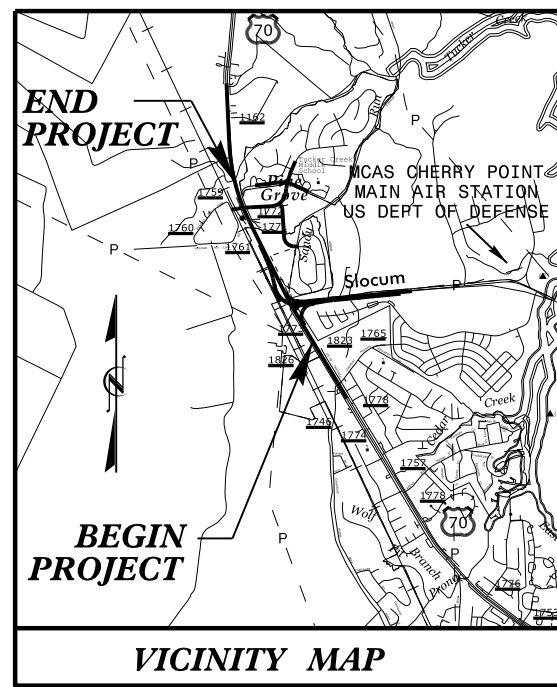
N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

CRAVEN COUNTY
PROJECT: 45492.1.1 (R-5516)

2/6/2017
SHEET 15 OF 15

TIP PROJECT: R-5516

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



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CRAVEN COUNTY

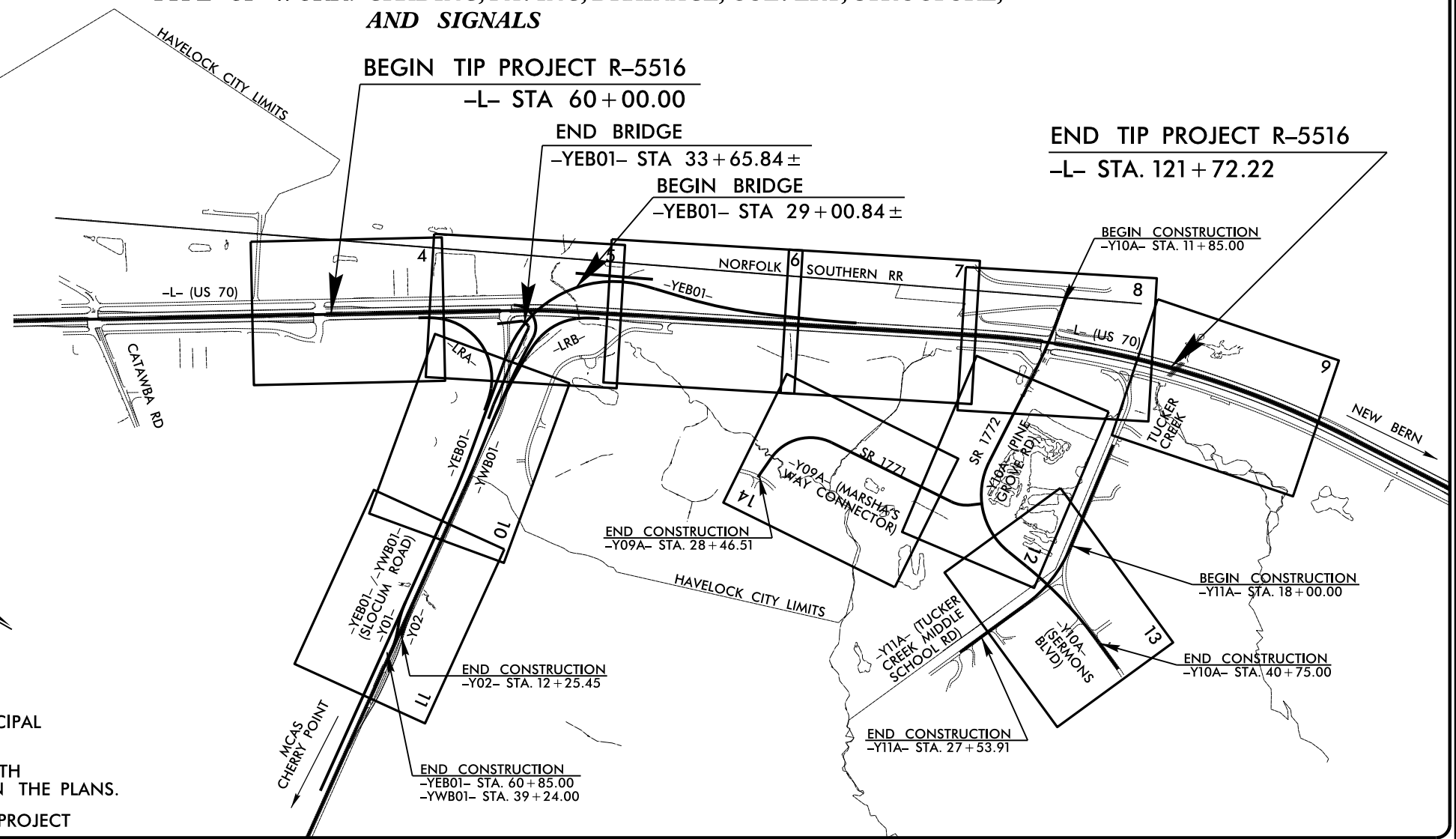
NES PERMIT PLANS
(August 26, 2016)

LOCATION: INTERCHANGE FROM US 70 TO SLOCUM
ROAD AT CHERRY POINT MILITARY BASE

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-5516	1	
STATE PROJ.NO.	F.A. PROJ.NO.	DESCRIPTION	
45492.1.1	NHS-0070(154)	P.E.	
45492.2.1	NHS-0070(154)	R/W & UTIL.	

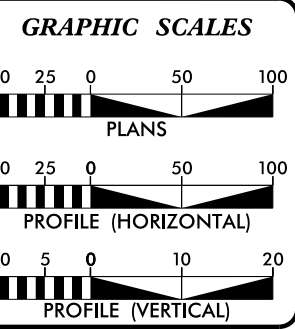
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



PORTIONS OF THIS PROJECT ARE WITHIN THE MUNICIPAL
BOUNDARY OF THE CITY OF HAVELOCK.

THIS IS A PARTIAL CONTROLLED-ACCESS PROJECT WITH
ACCESS BEING LIMITED TO POINTS AS SHOWN ON THE PLANS.

METHOD "III" CLEARING SHALL BE USED ON THIS PROJECT



DESIGN DATA
ADT 2017 = 32,900
ADT 2040 = 38,100
K = 10 %
D = 70 %
T = 12 % *
V = 60 MPH
* TTST 2 % DUAL 10%
FUNC CLASS =
PRINCIPAL ARTERIAL
STATEWIDE TIER

PROJECT LENGTH
LENGTH ROADWAY TIP PROJECT R-5516 = 1.169 MILES
LENGTH STRUCTURE TIP PROJECT R-5516 = 0.000 MILES
TOTAL LENGTH TIP PROJECT R-5516 = 1.169 MILES

Prepared in the Office of:

AECOM

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: June 30, 2015

LETTING DATE: June 20, 2017

NC FIRM LICENSE No F-0342

701 Corporate Center Drive, Suite 475

Raleigh, NC 27607

(919) 854-6200 - (919) 854-6259(FAX)

LEN HILL, PE
PROJECT ENGINEER

TOM HILDEBRAND, PE
PROJECT DESIGN ENGINEER

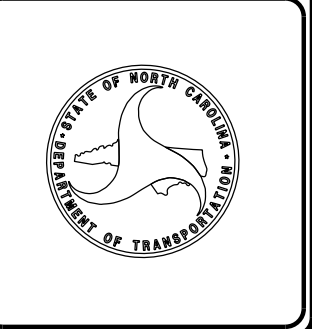
GARY LOVERING, PE
PROJECT ENGINEER
NCDOT ROADWAY DESIGN

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: _____ P.E.

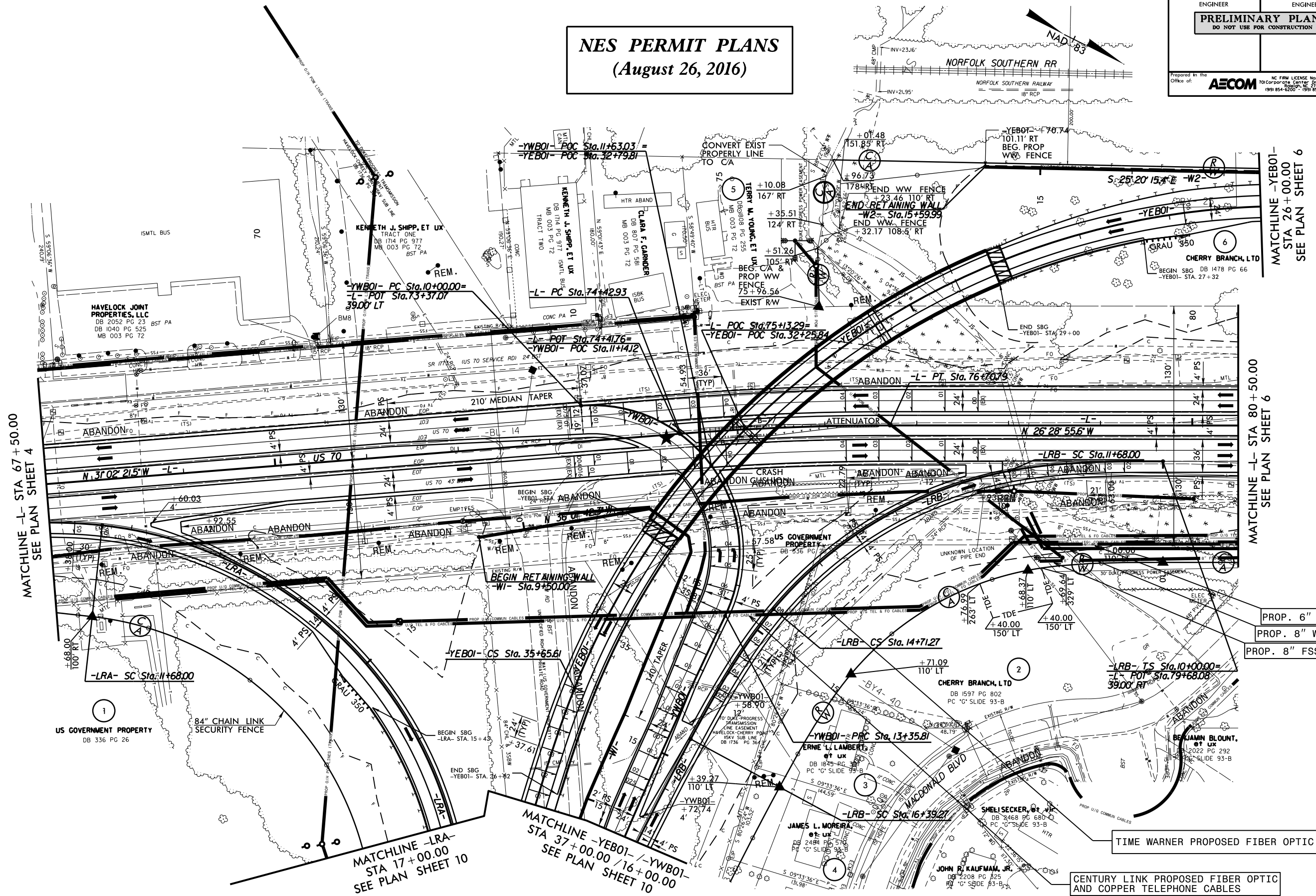


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CONTRACT:

NES PERMIT PLANS
(August 26, 2016)

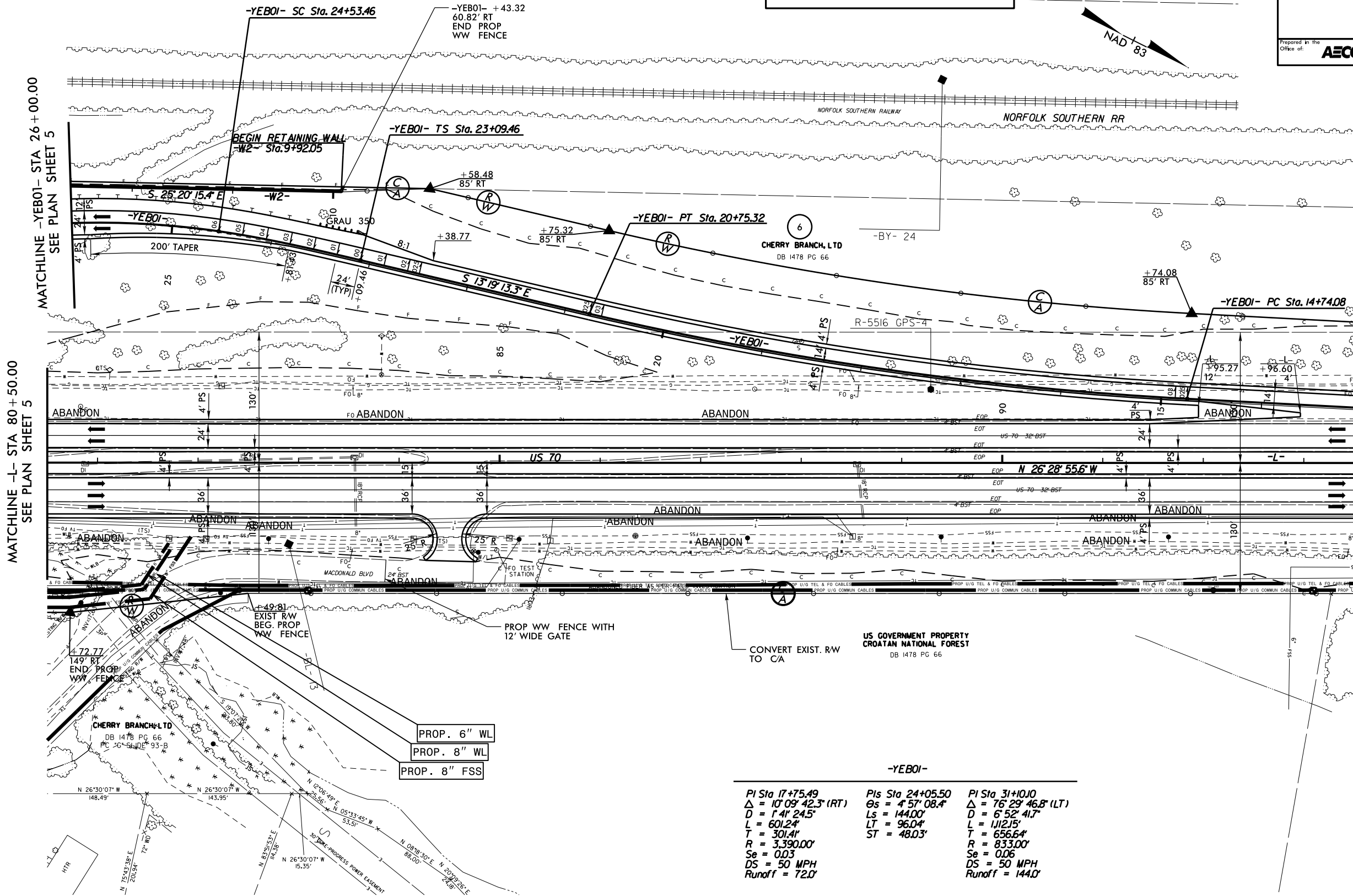
PROJECT REFERENCE NO.		SHEET NO.	
R-5516		NES - 2	
RW SHEET NO.		HYDRAULICS	
ROADWAY DESIGN ENGINEER		ENGINEER	
PRELIMINARY PLANS			
DO NOT USE FOR CONSTRUCTION			
Prepared in the Office of:		AECOM	
		NC FIRM LICENSE No. F-0342 701 Corporate Center, Suite 475 Raleigh, NC 27601 (919) 854-6200 • (919) 854-6299 FAX	



DATE/TIME: 26-AUG-2016 15:08
Dsn: R:\Utilities\Engineering\Permit Plans\NES.D2.R5516.rdw

NES PERMIT PLANS
(August 26, 2016)

PROJECT REFERENCE NO.	SHEET NO.
R-5516	NES - 3
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
Prepared in the Office of: AECOM NC FIRM LICENSE No. F-0342 701 Corporate Center Drive, Suite 475 Raleigh, NC 27603 (919) 854-6200 • (919) 854-6259 FAX	



-YEB01-		
PI Sta 17+75.49	PIs Sta 24+05.50	PI Sta 31+01.0
$\Delta = 10^{\circ}09'42.3"$ (RT)	$\Delta = 4^{\circ}57'08.4"$	$\Delta = 76^{\circ}29'46.8"$ (LT)
D = 141' 24.5"	Ls = 144.00'	D = 6' 52' 41.7"
L = 601.24'	LT = 96.04'	L = 1112.15'
T = 301.41'	ST = 48.03'	T = 656.64'
R = 3,390.00'		R = 833.00'
Se = 0.03		Se = 0.06
DS = 50 MPH		DS = 50 MPH
Runoff = 72.0'		Runoff = 144.0'

DATE/TIME: 26-AUG-2016 15:40
CON: R:\Utilities\Engineering\Permit Plans\NES_03_P5516_1000.dwg

NES PERMIT PLANS
(August 26, 2016)

US GOVERNMENT PROPERTY
CROATAN NATIONAL FOREST

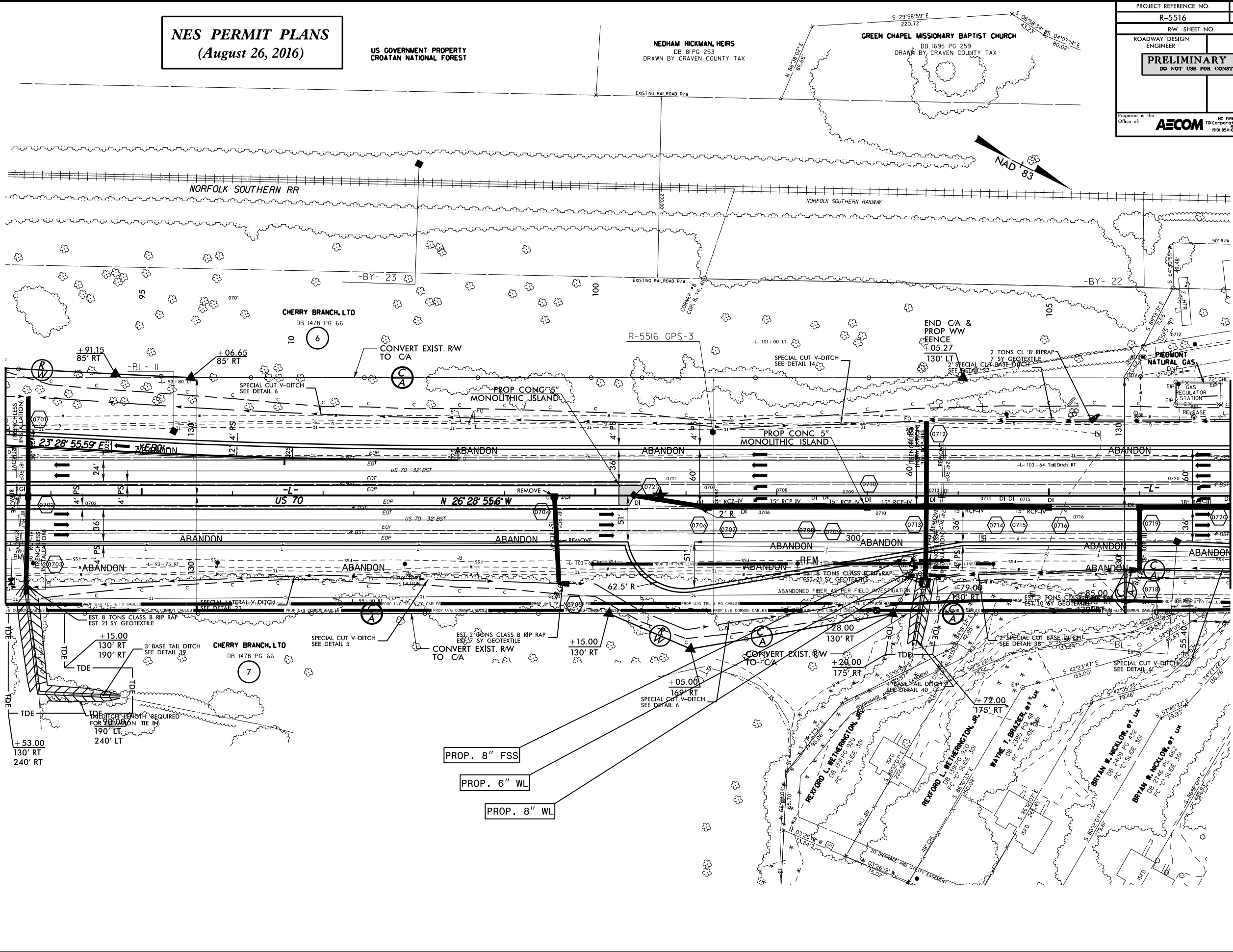
NEDHAM HICKMAN, HEIRS
DB 81PG 253
DRAWN BY CRAVEN COUNTY TAX

GREEN CHAPEL MISSIONARY BAPTIST CHURCH
DB 1695 PG 259
DRAWN BY CRAVEN COUNTY TAX

PROJECT REFERENCE NO.		SHEET NO.	
R-5516		NES - 4	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			
Prepared in the Office of:		NC FIRM LICENSE No. F-0342 70 Corporate Center Drive, Suite 475 (919) 854-6200 • (919) 854-6259 (FAX)	

MATCHLINE -L- /-YEB01-
STA 93+50.00 /STA 13+07.88
SEE PLAN SHEET 6

MATCHLINE -L- STA 107+00.00
SEE PLAN SHEET 8



PROJECT REFERENCE NO.	SHEET NO.
R-5516	NES - 5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

Prepared in the
Office of:

NC FIRM LICENSE No. F-0542
70 Corporate Center Drive, Suite 415
(919) 854-6200 • (919) 854-6259(FAX)

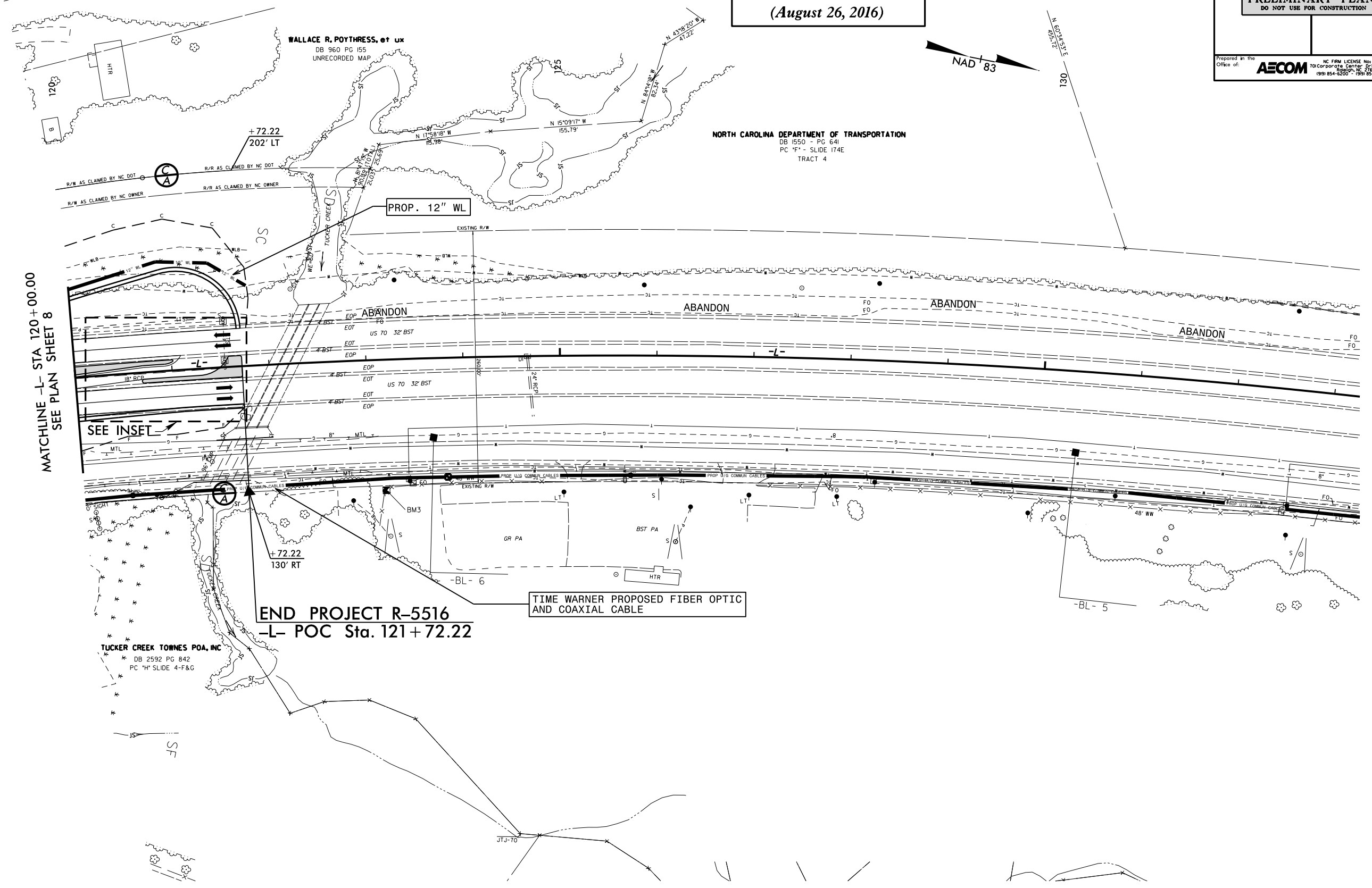
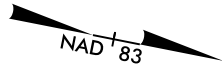
AECOM



PROJECT REFERENCE NO.	SHEET NO.
R-5516	NES - 6
8W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
Prepared in the Office of: AECOM NC FIRM LICENSE No. F-0342 701 Corporate Center Drive, Suite 475 Raleigh, NC 27601 (919) 854-6200 • (919) 854-6259 FAX	

NES PERMIT PLANS
(August 26, 2016)

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DB 1550 - PG 641
PC *F* - SLIDE 174E
TRACT 4



MATCHLINE -L- STA 120+00.00
SEE PLAN SHEET 8

END PROJECT R-5516
-L- POC Sta. 121+72.22

TIME WARNER PROPOSED FIBER OPTIC
AND COAXIAL CABLE

TUCKER CREEK TOWNES POA, INC
DB 2592 PG 842
PC *H* SLIDE 4-F&G

WALLACE R. POYTHRESS, et ux
DB 960 PG 155
UNRECORDED MAP

REVISIONS

DATE/TIME: 26-AUG-2016 15:35
CON: R:\Utilities\Engineering\DESIGN\Permit Plans\NES.DB\PS516.rvt_03.dwg

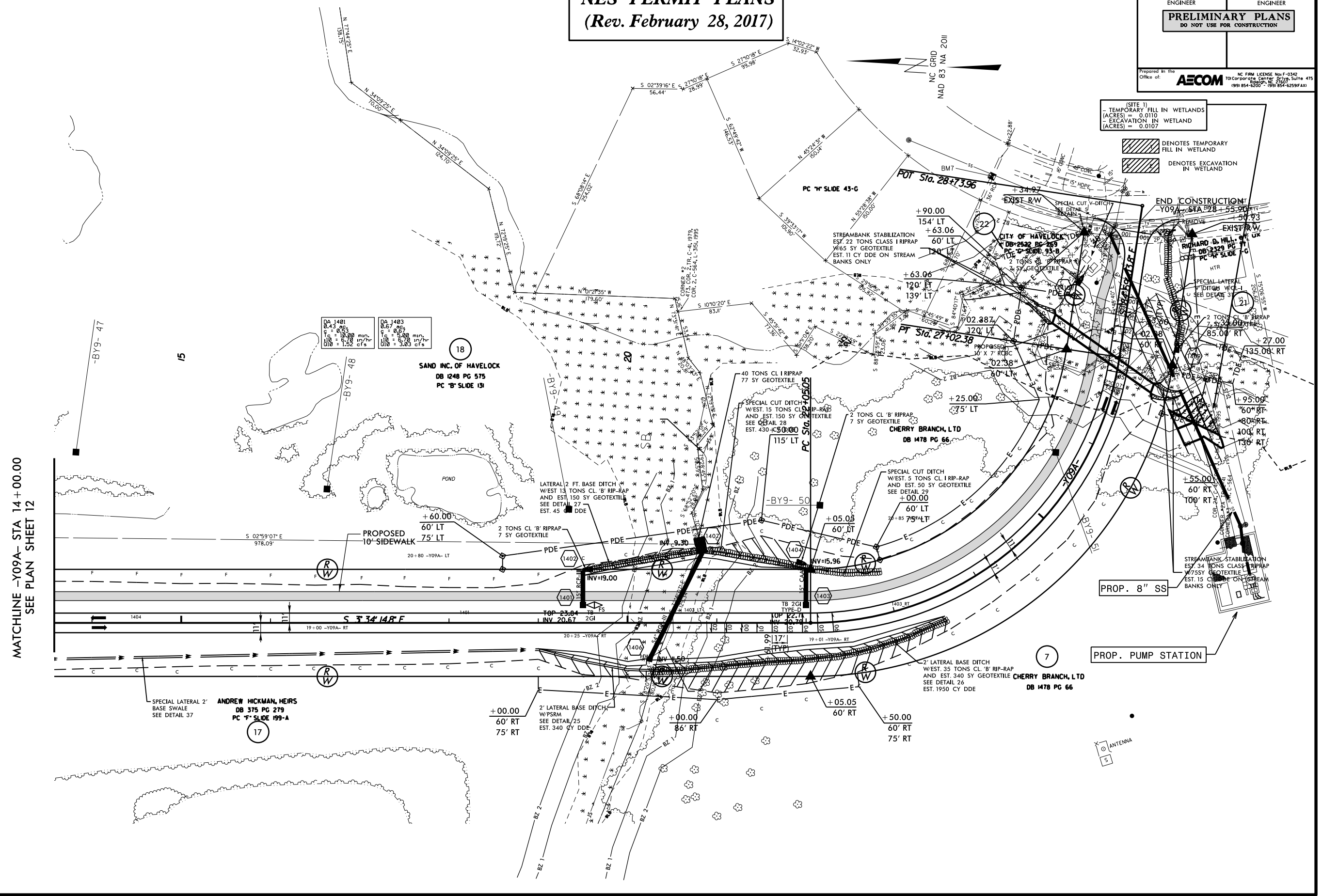
NES PERMIT PLANS
(Rev. February 28, 2017)

PROJECT REFERENCE NO.	SHEET NO.
R-5516	NES - 7
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
Prepared in the Office of:	
	
NC FIRM LICENSE No: F-0342 70 Corporate Center Drive, Suite 475 Raleigh, NC 27603 (919) 854-6200 • (919) 854-6299(Fax)	

(SITE 1)
- TEMPORARY FILL IN WETLANDS
(ACRES) = 0.0110
- EXCAVATION IN WETLAND
(ACRES) = 0.0107

 DENOTES TEMPORARY
FILL IN WETLAND

 DENOTES EXCAVATION
IN WETLAND



REVISIONS	
RW REVISION	(10/16/15): REVISED PROPOSED RIGHT-OF-WAY AND EASEMENTS DUE TO RE-ALIGNING -709A- ON PARCELS 7, 17, 18, 21, AND 22. TH
RW REVISION	(2/4/16): ADDED PDE MONUMENT AND STATION OFFSET CALLOUT ON PARCEL 22. EDS

MATCHLINE -Y09A- STA 14+00.00
SEE PLAN SHEET 12

DATE/TIME: 28-FEB-2017 18:03
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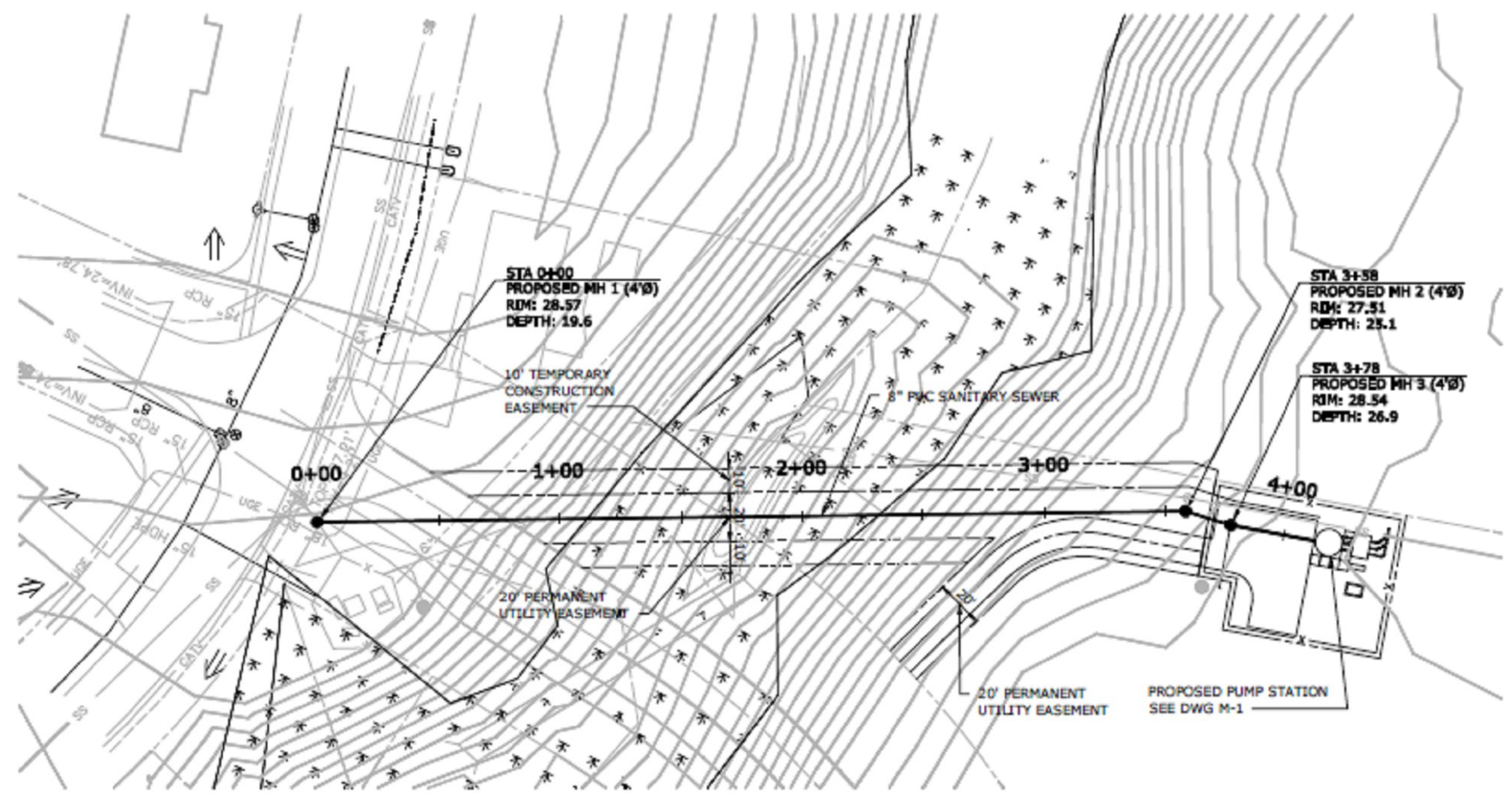
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PROJECT REFERENCE NO.	SHEET NO.
R-5516	NES - 8

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NES PERMIT PLANS
(August 26, 2016)



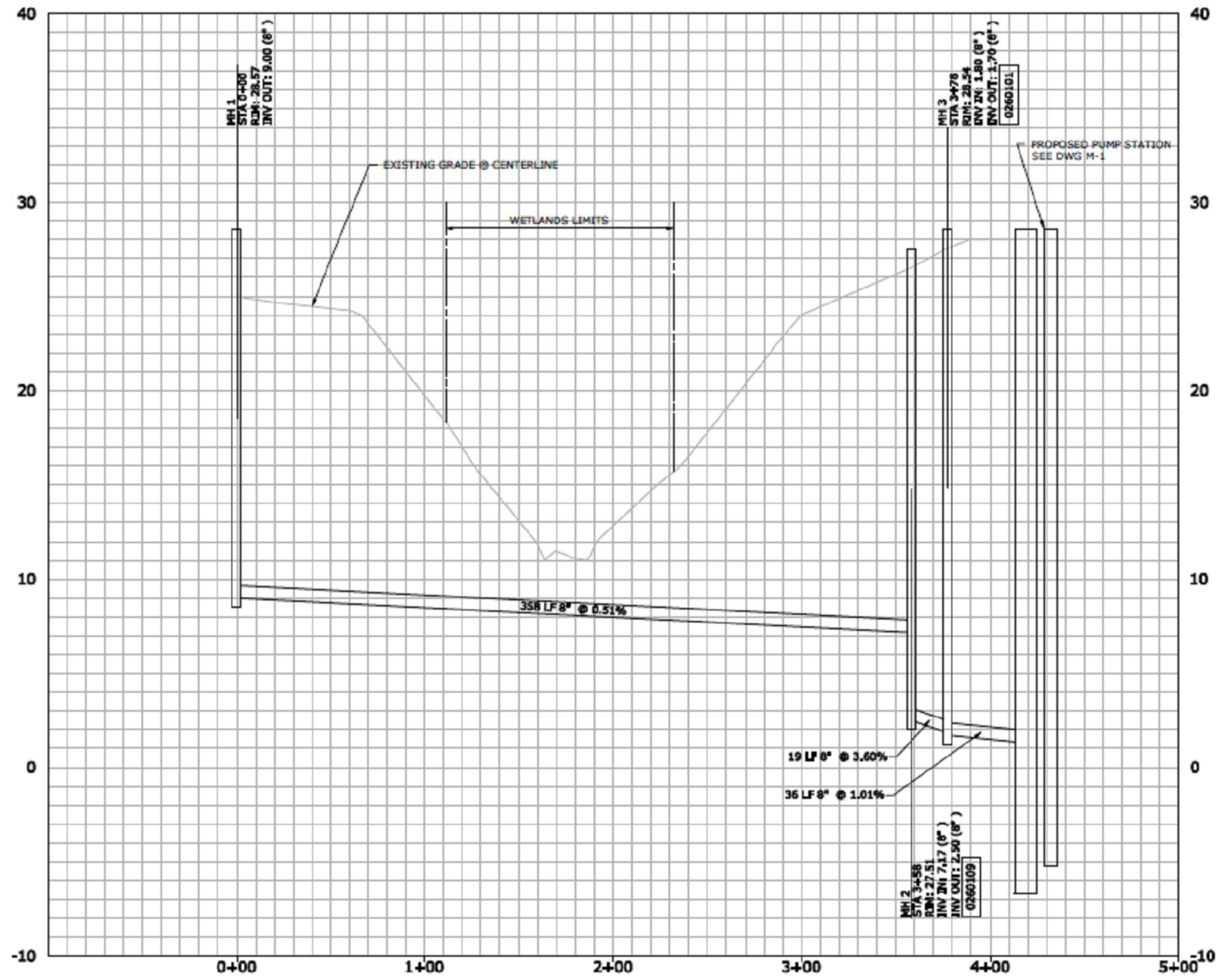
PUMP STATION PLAN VIEW

26-AUG-2016 15:30
F:\GIS\Projects\NES\Permit Plans\NES-08-R5516-A.psh.dgn
5/14/99

PROJECT REFERENCE NO.	SHEET NO.
R-5516	NES- 9

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NES PERMIT PLANS
(August 26, 2016)



PUMP STATION PROFILE VIEW

WETLAND PERMIT IMPACT SUMMARY												
			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	-Y9A-26+52 TO 26+81	Sewer line by cut open		0.01								
1	-Y9A-26+53 TO 26+76	Sewer line by cut open			0.01							
TOTALS*:			0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00

*Rounded totals are sum of actual impacts

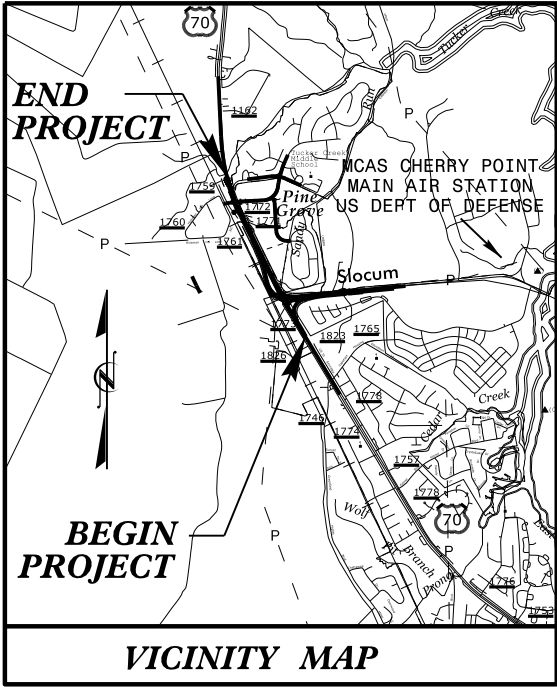
Note :

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
CRAVEN COUNTY
TIP PROJECT (R-5516)

TIP PROJECT: R-5516

CONTRACT:

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



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
CRAVEN COUNTY

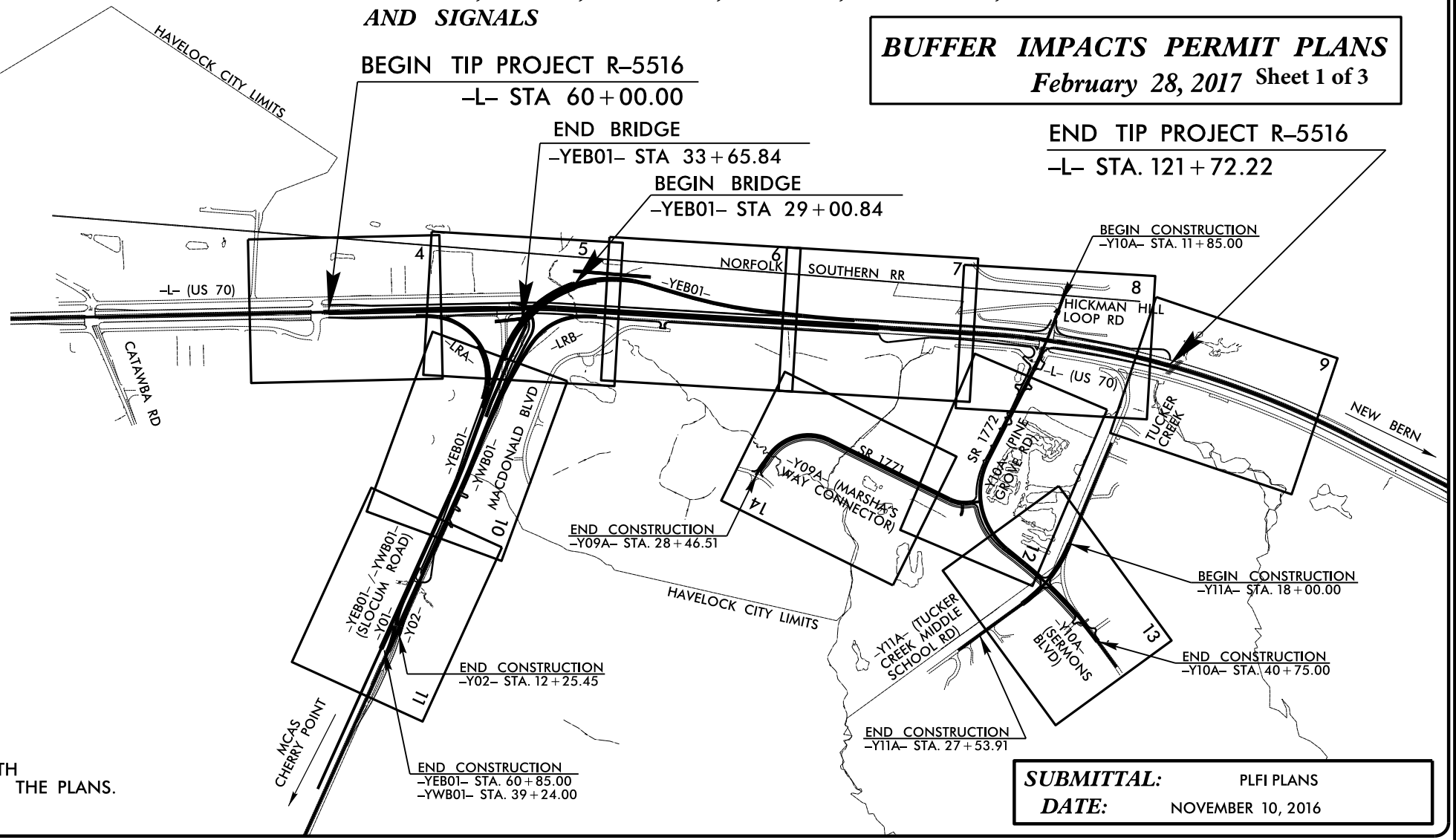
LOCATION: INTERCHANGE FROM US 70 TO SLOCUM
ROAD AT CHERRY POINT MILITARY BASE

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

BUFFER IMPACTS PERMIT PLANS
February 28, 2017 Sheet 1 of 3

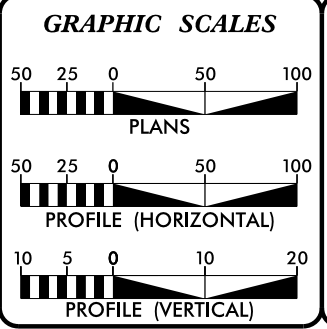
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-5516	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
45492.1.1	NHS-0070(154)	P.E.	
45492.2.1	NHS-0070(154)	R/W & UTIL.	

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



THIS IS A PARTIAL CONTROLLED-ACCESS PROJECT WITH
ACCESS BEING LIMITED TO POINTS AS SHOWN ON THE PLANS.

SUBMITTAL: PLFI PLANS
DATE: NOVEMBER 10, 2016



DESIGN DATA

ADT 2017 =	32,900
ADT 2040 =	38,100
K =	10 %
D =	70 %
T =	12 % *
V =	60 MPH
* TTST 2 % DUAL 10%	
FUNC CLASS =	PRINCIPAL ARTERIAL
STATEWIDE TIER	

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-5516 =	1.169 MILES
LENGTH STRUCTURE TIP PROJECT R-5516 =	0.000 MILES
TOTAL LENGTH TIP PROJECT R-5516 =	1.169 MILES

Prepared in the Office of:
AECOM
2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
June 30, 2015

LETTING DATE:
June 20, 2017

NC FIRM LICENSE No: F-0342
701 Corporate Center Drive, Suite 475
Raleigh, NC 27607
(919) 854-6200 • (919) 854-6259(FAX)

LEN HILL, PE
PROJECT ENGINEER

ERIC SPALDING, EI
PROJECT DESIGN ENGINEER

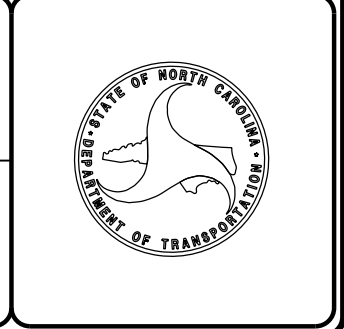
GARY LOVERING, PE
PROJECT ENGINEER
NCDOT ROADWAY DESIGN

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: _____ P.E.



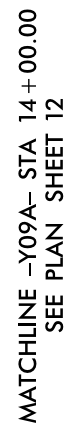
DATE/TIME: 28-FEB-2017 17:16
C:\Users\Engineering\My Documents\Projects\01_R-5516\01_R-5516.dwg

February 28, 2017 Sheet 2 of 3

NC FIRM LICENSE No: F-0342
701 Corporate Center Drive, Suite 475
Raleigh, NC 27607
(919) 854-6200 - (919) 854-6259(FAX)

 DENOTES ALLOWABLE
IMPACT ZONE 1

 DENOTES ALLOWABLE
IMPACT ZONE 2



DATE/TIME: 28-FEB-2017 16:47
LOG: R:\Utilities\Engineer\p\p\WF\Permit Plans\NFS 07 R5516 rdv4 - Copy.docx

BUFFER IMPACTS SUMMARY

			IMPACT									BUFFER REPLACEMENT	
SITE NO.	STRUCTURE SIZE / TYPE	STATION (FROM/TO)	TYPE			ALLOWABLE			MITIGABLE				
			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)	ZONE 1 (ft ²)	ZONE 2 (ft ²)
1	Pump Station	Y9A 26+33 To 26+55				215							
1	Pump Station	Y9A 26+45 To 26+60					728						
TOTAL:						215	728	0	0	0	0		

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

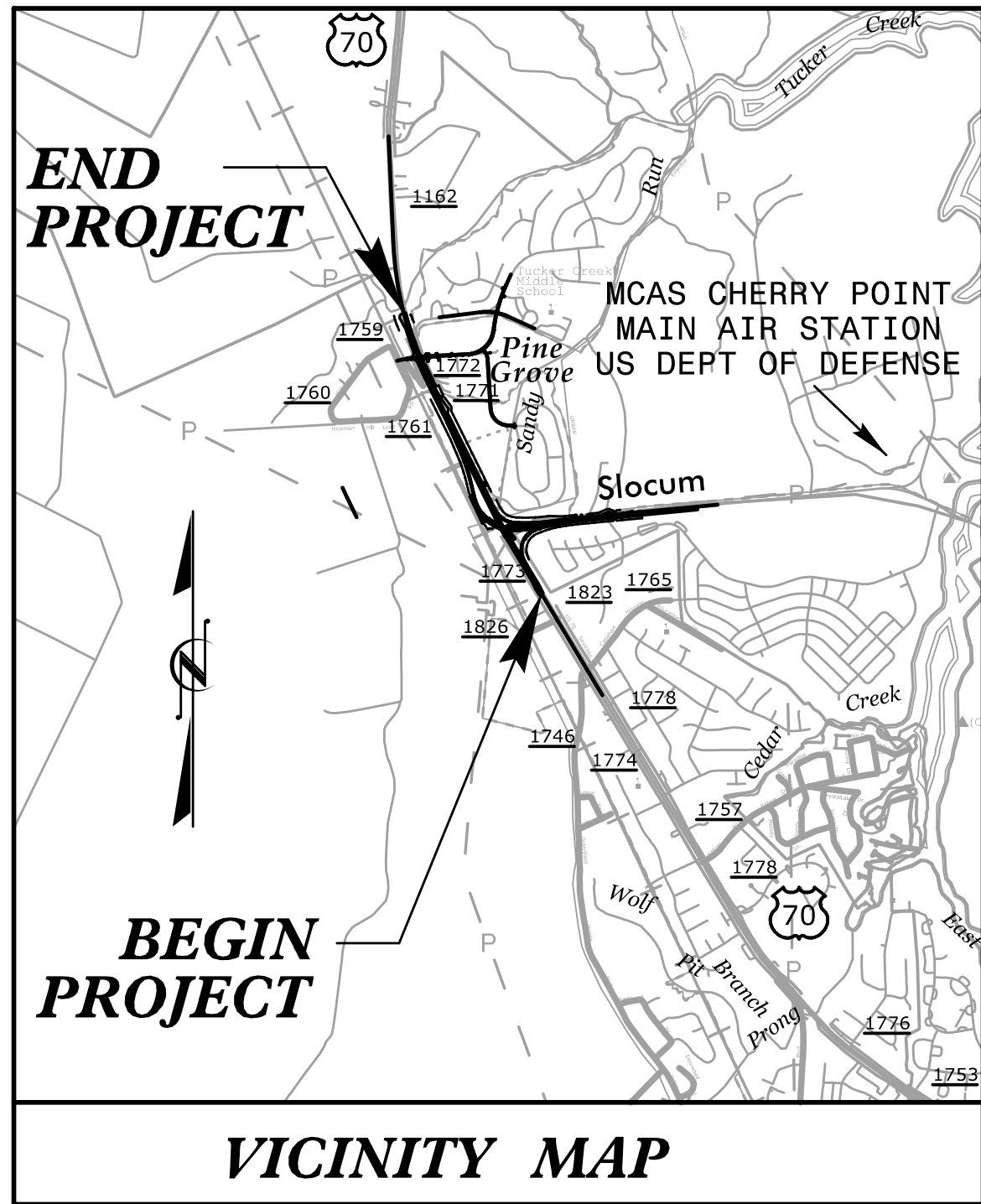
CRAVEN COUNTY
PROJECT: R-5516

2/28/2017
Buffer Drawing SHEET 3 OF 3

TIP PROJECT: R-5516

CONTRACT:

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

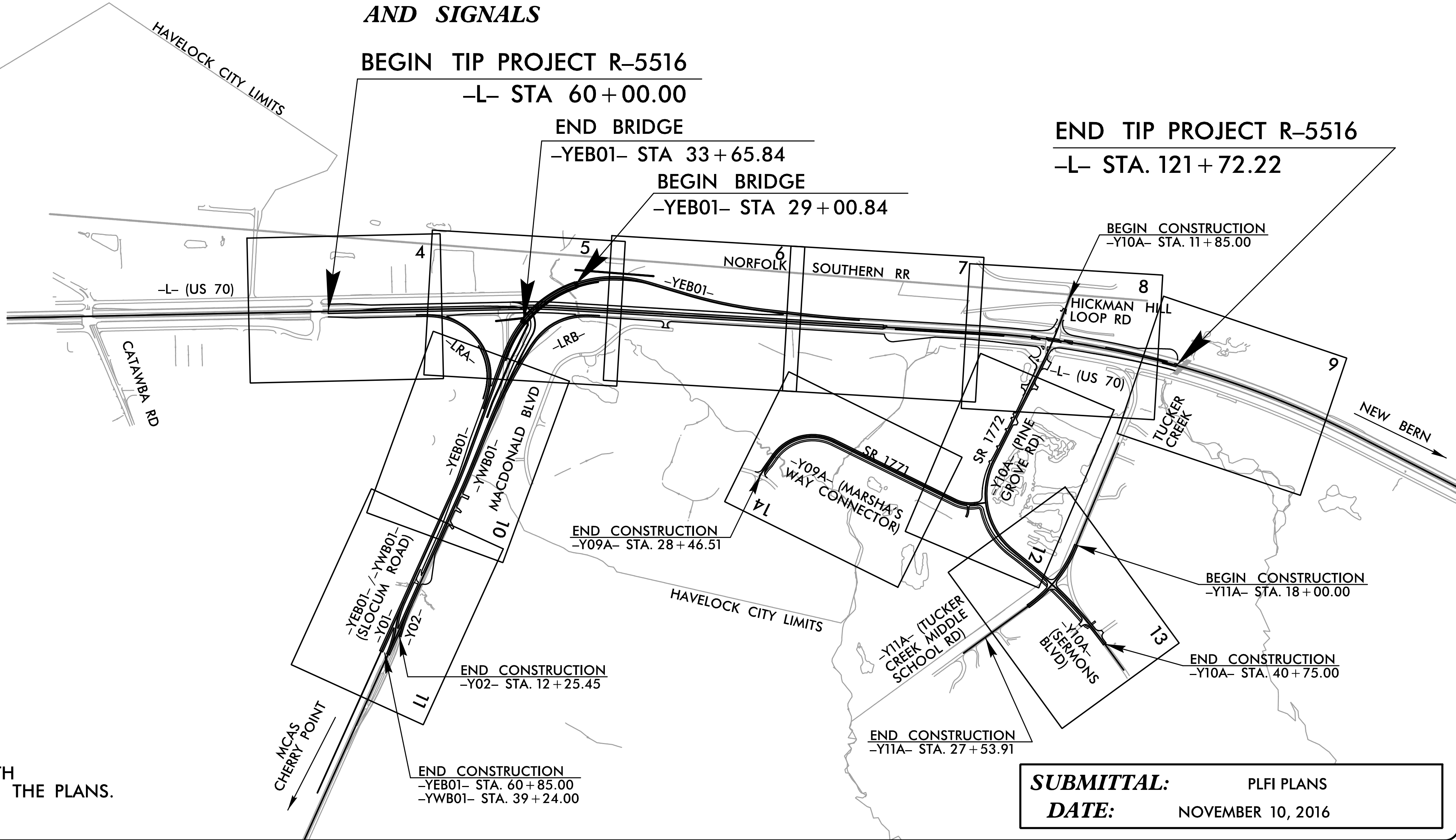


STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CRAVEN COUNTY

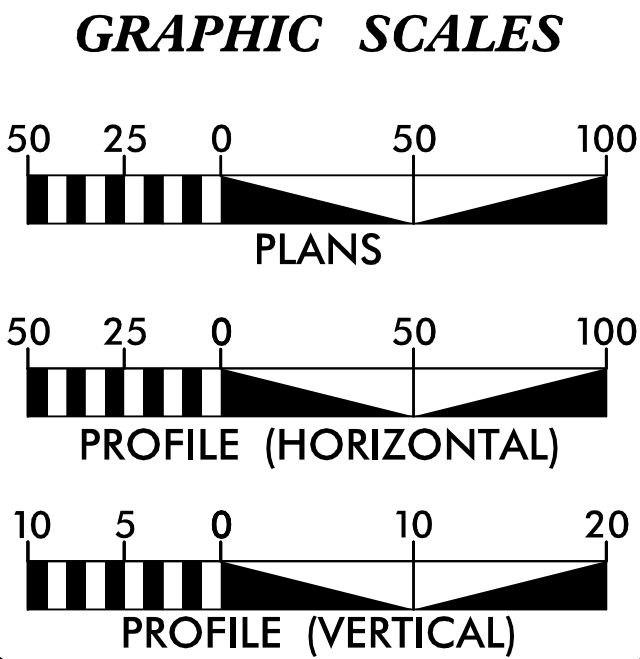
**LOCATION: INTERCHANGE FROM US 70 TO SLOCUM
ROAD AT CHERRY POINT MILITARY BASE**

**TYPE OF WORK: GRADING, PAVING, DRAINAGE, CULVERT, STRUCTURE,
AND SIGNALS**



THIS IS A PARTIAL CONTROLLED-ACCESS PROJECT WITH
ACCESS BEING LIMITED TO POINTS AS SHOWN ON THE PLANS.

SUBMITTAL: PLFI PLANS
DATE: NOVEMBER 10, 2016



DESIGN DATA	
ADT 2017 =	32,900
ADT 2040 =	38,100
K =	10 %
D =	70 %
T =	12 % *
V =	60 MPH
* TTST 2 % DUAL 10%	
FUNC CLASS =	
PRINCIPAL ARTERIAL	
STATEWIDE TIER	

PROJECT LENGTH	
LENGTH ROADWAY TIP PROJECT R-5516 =	1.169 MILES
LENGTH STRUCTURE TIP PROJECT R-5516 =	0.000 MILES
TOTAL LENGTH TIP PROJECT R-5516 =	1.169 MILES

Prepared in the Office of:

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2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
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NC FIRM LICENSE No: F-0342
701 Corporate Center Drive, Suite 475
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(919) 854-6200 - (919) 854-6259(FAX)

LEN HILL, PE
PROJECT ENGINEER

ERIC SPALDING, EI
PROJECT DESIGN ENGINEER

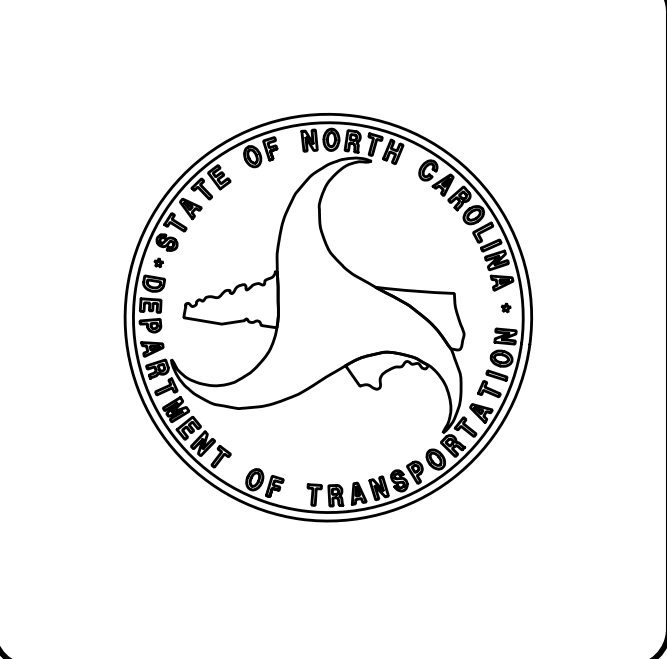
GARY LOVERING, PE
PROJECT ENGINEER
NCDOT ROADWAY DESIGN

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: _____ P.E.



STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS
CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale

*S.U.E. = Subsurface Utility Engineering

PROJECT REFERENCE NO.	SHEET NO.
R-5516	1B-1

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	o
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	☠☠
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	○
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	CSX TRANSPORTATION
RR Signal Milepost	MILEPOST 35
Switch	SWITCH
RR Abandoned	—
RR Dismantled	—

RIGHT OF WAY:

Baseline Control Point	◆
Existing Right of Way Marker	△
Existing Right of Way Line	—
Proposed Right of Way Line	R/W
Proposed Right of Way Line with Iron Pin and Cap Marker	R/W ▲
Proposed Right of Way Line with Concrete or Granite RW Marker	R/W ▲
Proposed Control of Access Line with Concrete C/A Marker	C/A
Existing Control of Access	C/A
Proposed Control of Access	C/A
Existing Easement Line	E
Proposed Temporary Construction Easement	E
Proposed Temporary Drainage Easement	TDE
Proposed Permanent Drainage Easement	PDE
Proposed Permanent Drainage / Utility Easement	DUE
Proposed Permanent Utility Easement	PUE
Proposed Temporary Utility Easement	TUE
Proposed Aerial Utility Easement	AUE
Proposed Permanent Easement with Iron Pin and Cap Marker	◆

ROADS AND RELATED FEATURES:

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

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	PH
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	PH
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

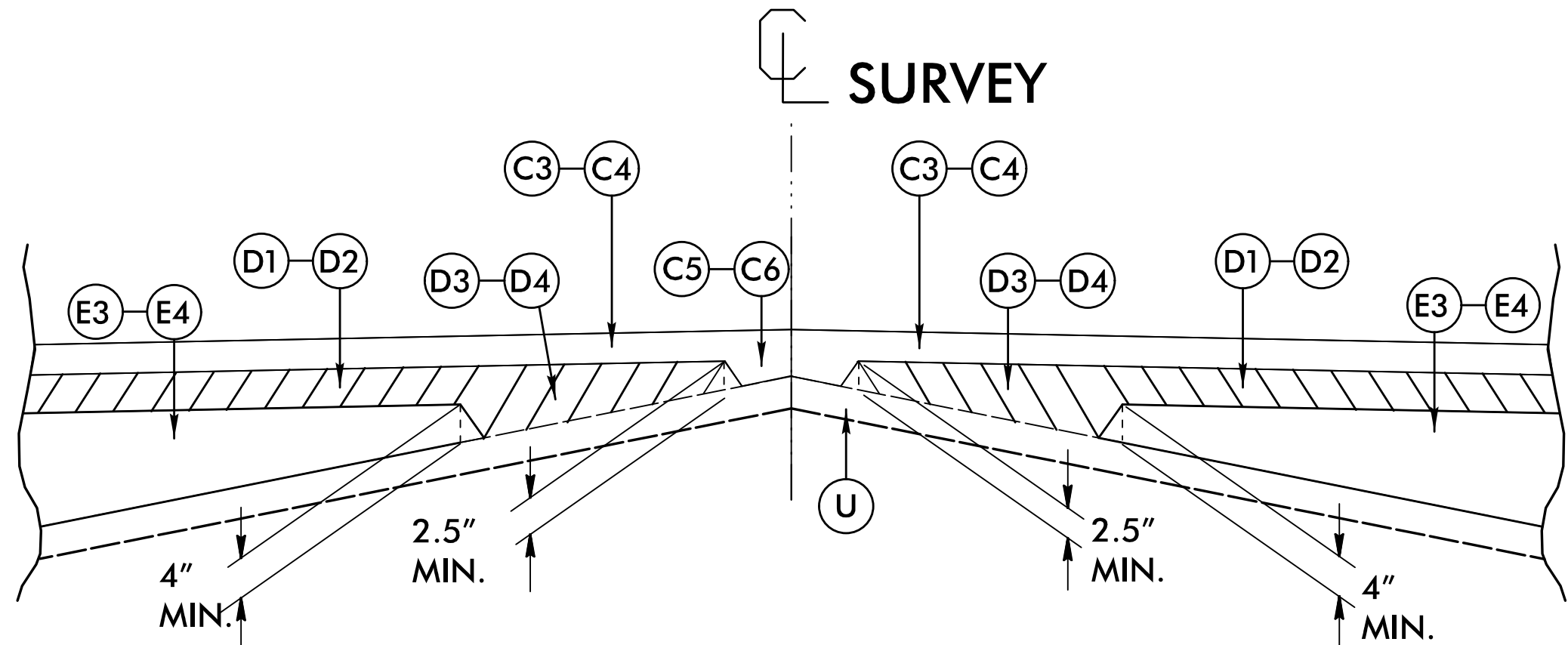
MISCELLANEOUS:

Utility Pole	●
Utility Pole with Base	□
Utility Located Object	○
Utility Traffic Signal Box	Ⓟ
Utility Unknown U/G Line LOS B (S.U.E.*)	UTUL
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.

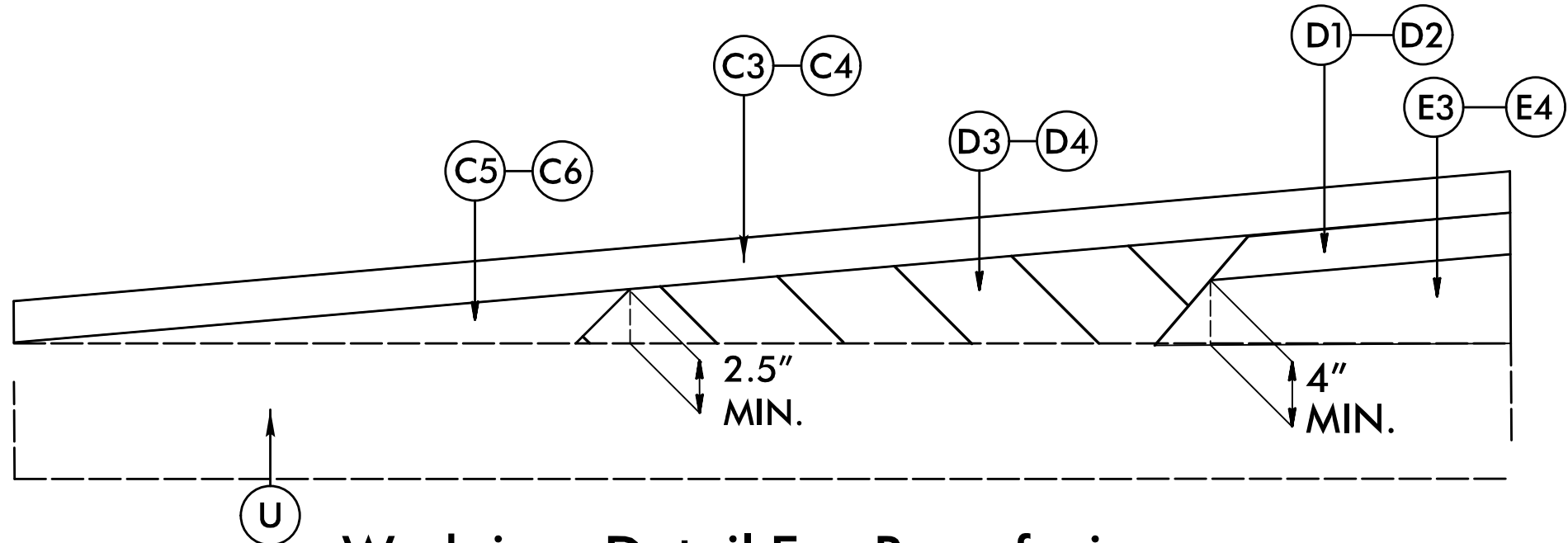
REVISIONS

DATE/TIME: 9/30/25 AM
DSN: R:\Roadway\Proj\5516_rdy_bpadgm

PAVEMENT SCHEDULE			
FINAL PAVEMENT DESIGN			
C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	D4	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2½" IN DEPTH OR GREATER THAN 4" IN DEPTH.
C2	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
C3	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.	E2	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
C4	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	E3	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 4" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
C5	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.	E4	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 4" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
C6	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.	J1	PROP. 8" AGGREGATE BASE COURSE
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	R	PROP. 5" MONOLITHIC CONCRETE ISLAND (KEYED-IN)
D2	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	T	EARTH MATERIAL.
D3	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" IN DEPTH OR GREATER THAN 4" IN DEPTH.	U	EXISTING PAVEMENT.
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.		W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAILS).

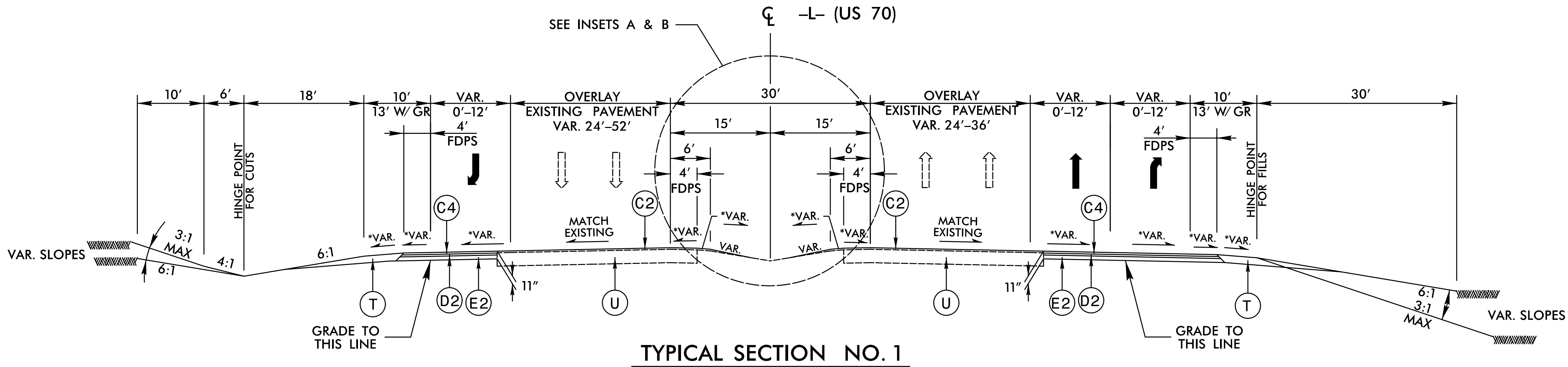


Detail Showing Method of Wedging



Wedging Detail For Resurfacing

PROJECT REFERENCE NO.	SHEET NO.
R-5516	2A-1
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
Prepared in the Office of: AECOM NC FIRM LICENSE No F-0342 701 Corporate Center Drive, Suite 415 Raleigh, NC 27607 (919) 854-6200 • (919) 854-6259 (FAX)	

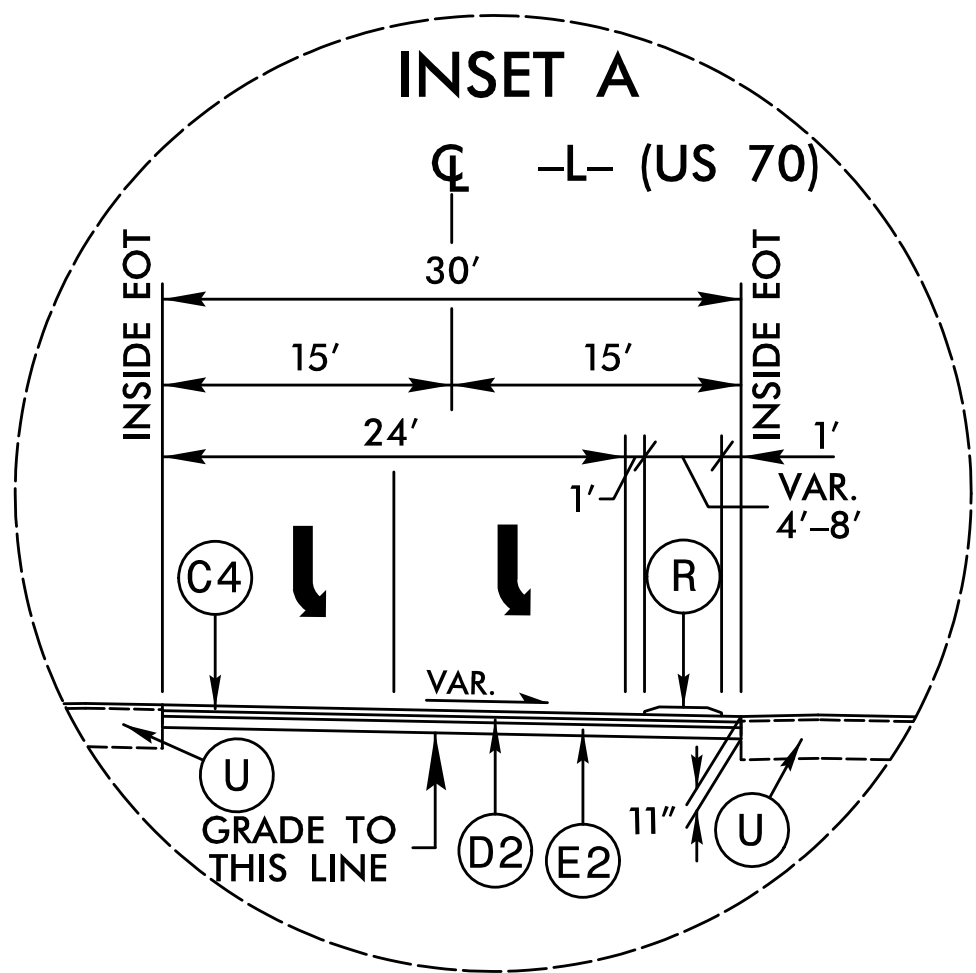


TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1

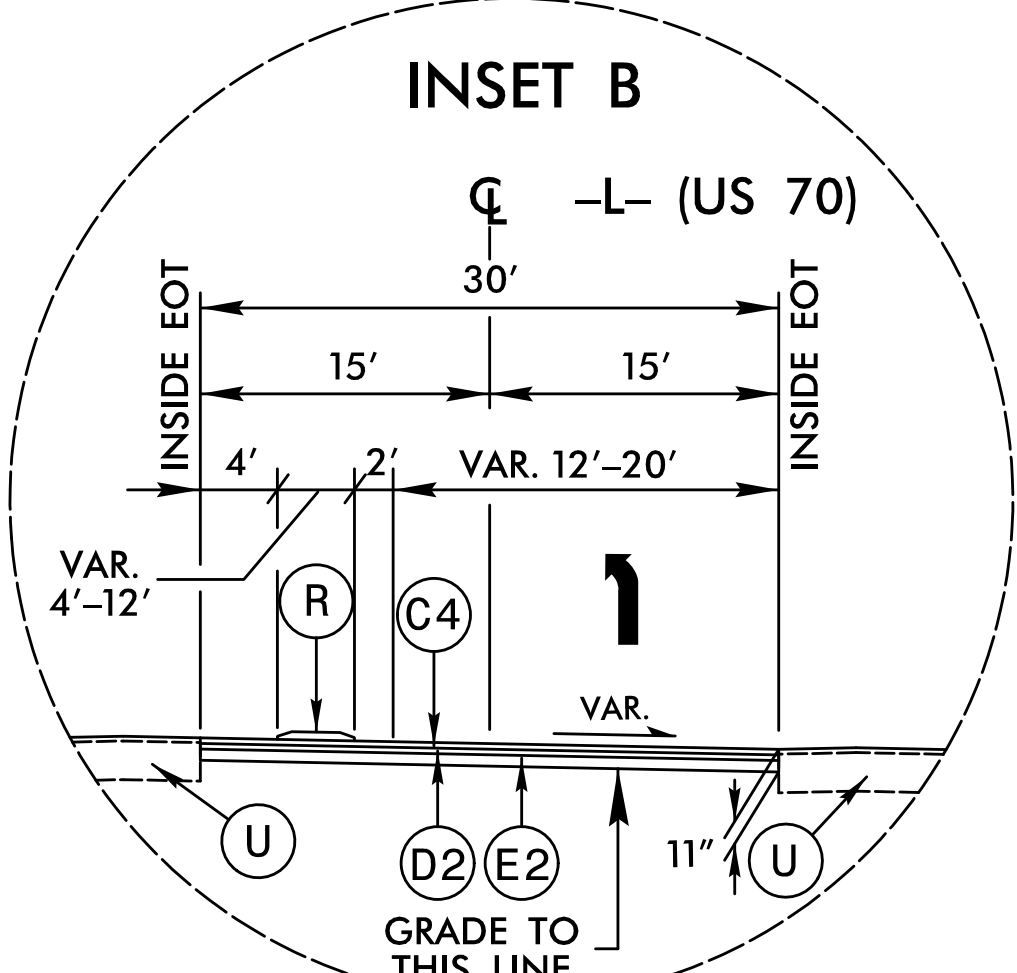
-L- STA. 60+00.00 TO -L- STA. 73+25.00
-L- STA. 77+66.79 TO -L- STA. 121+72.22

* PROPOSED WIDENING AND 4' PAVED SHOULDER TO MATCH SLOPE OF EXISTING THRU LANES. FOLLOW NCDOT RDY. STD. DWG. 560.02 FOR TURF SHOULDER SLOPE



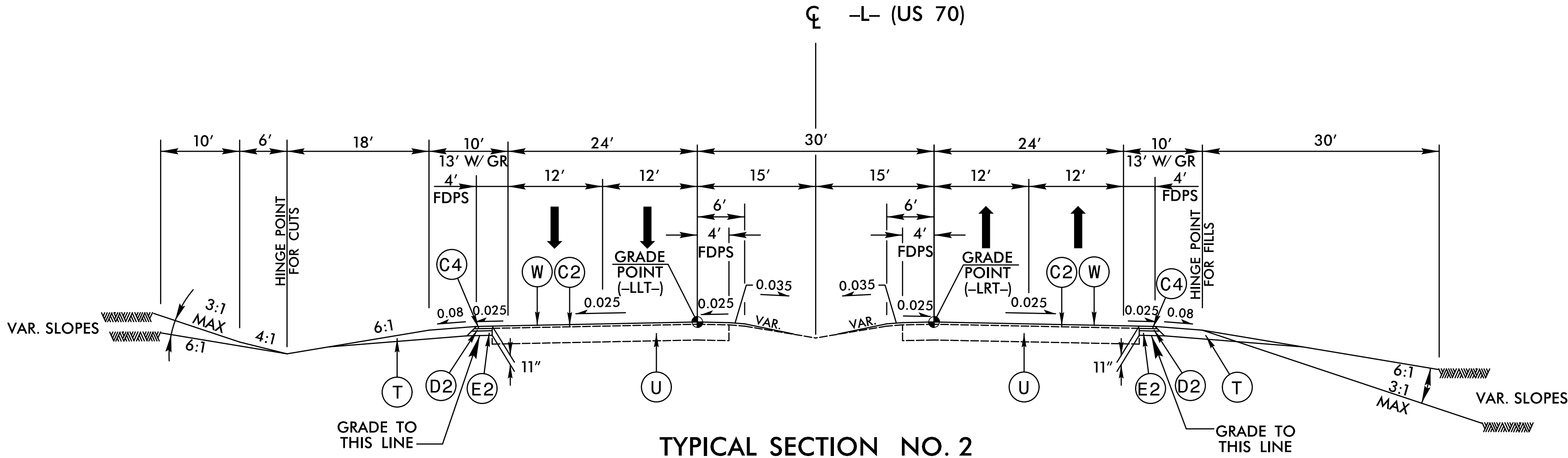
USE IN CONJUNCTION w/TYPICAL SECTION NO. 1

-L- STA. 100+26.06 TO -L- STA. 110+21.62



USE IN CONJUNCTION w/TYPICAL SECTION NO. 1

-L- STA. 115+17.03 TO -L- STA. 121+72.22



TYPICAL SECTION NO. 2

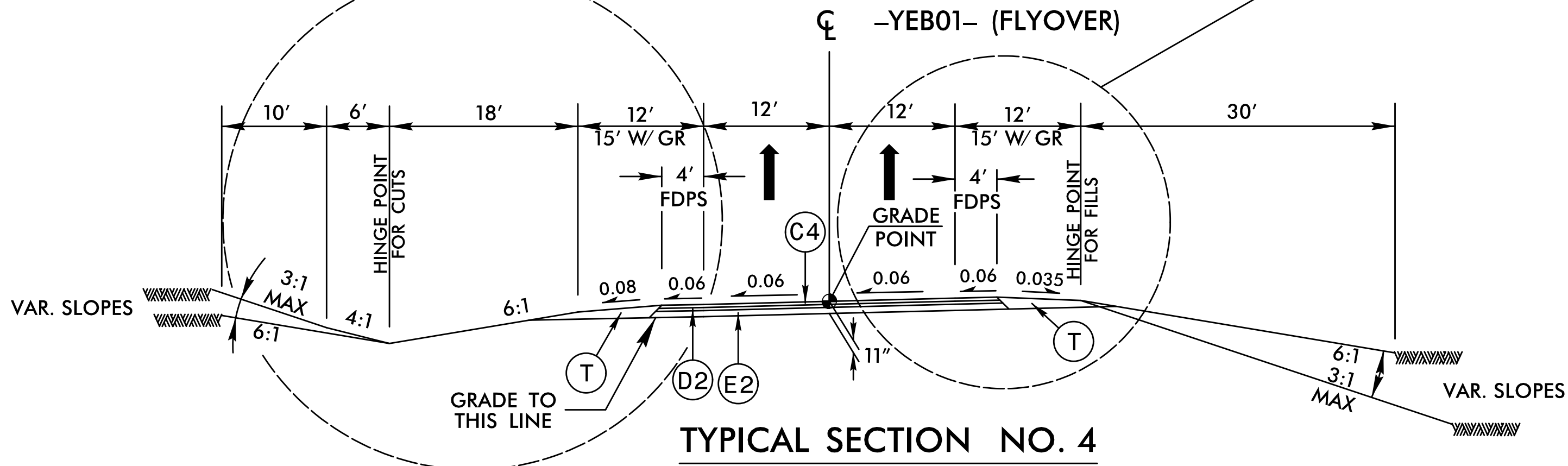
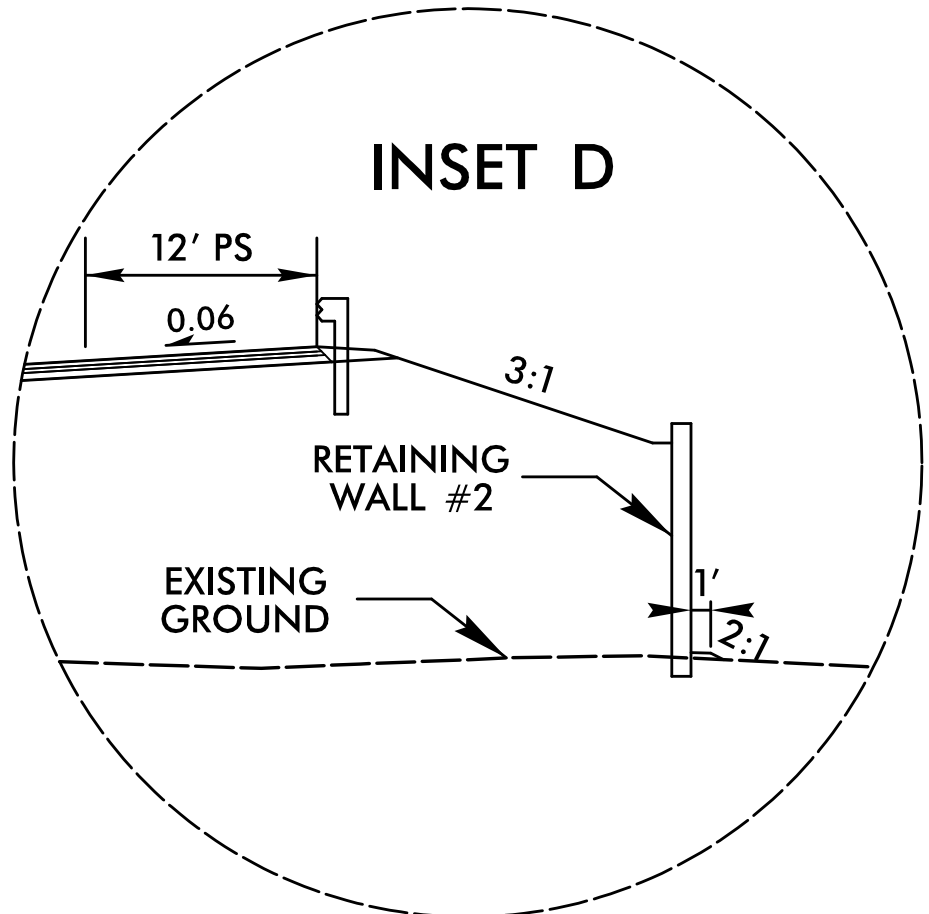
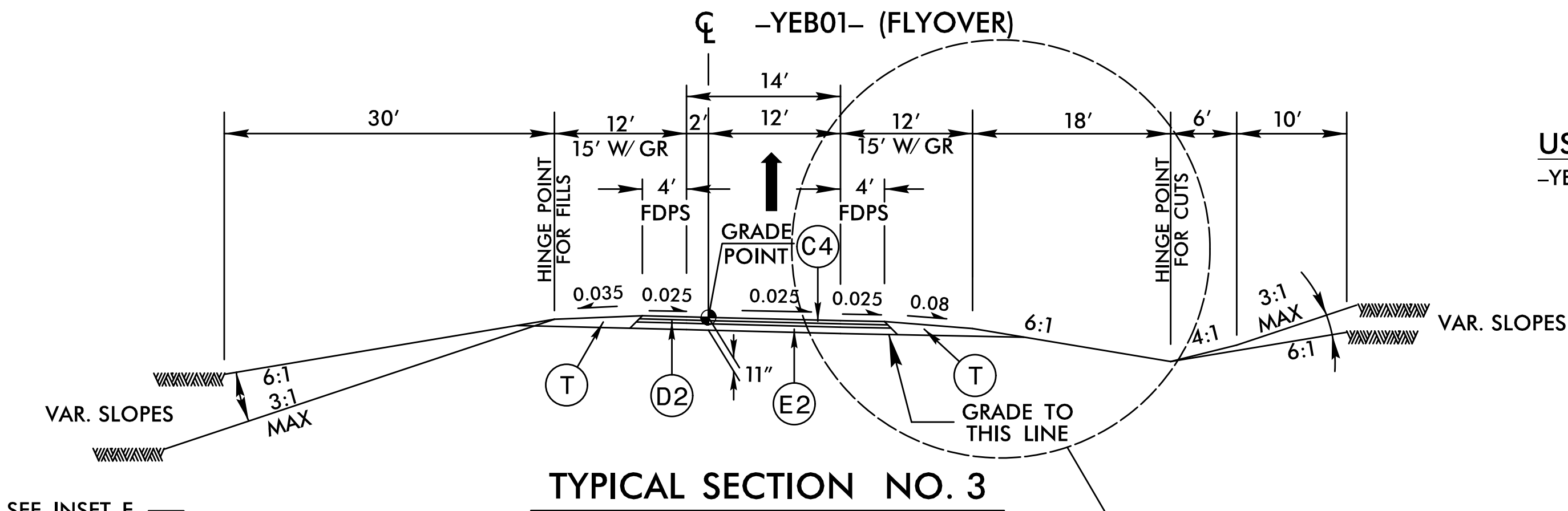
USE TYPICAL SECTION NO. 2

-L- STA. 73+25.00 TO -L- STA. 77+66.79

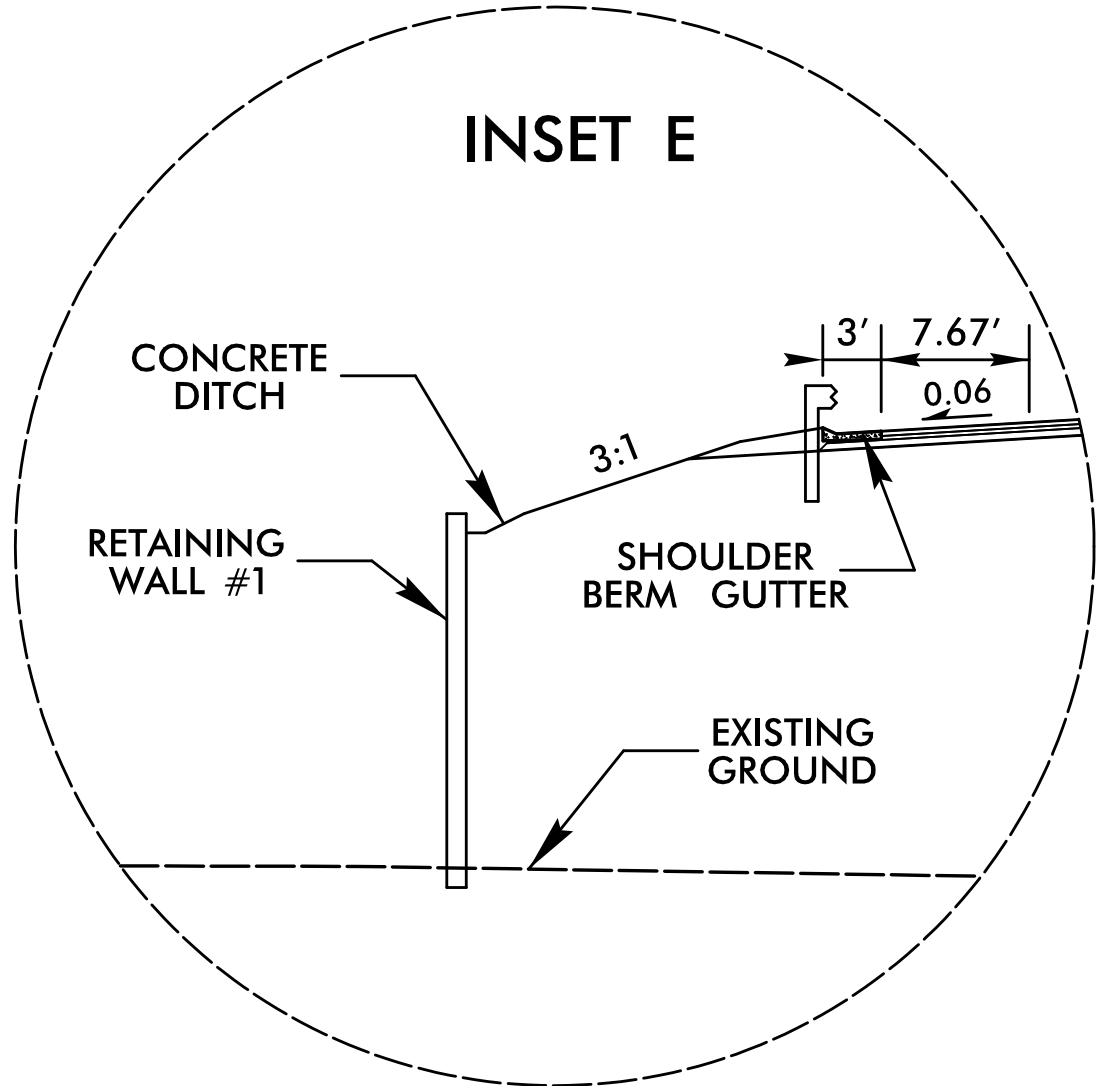
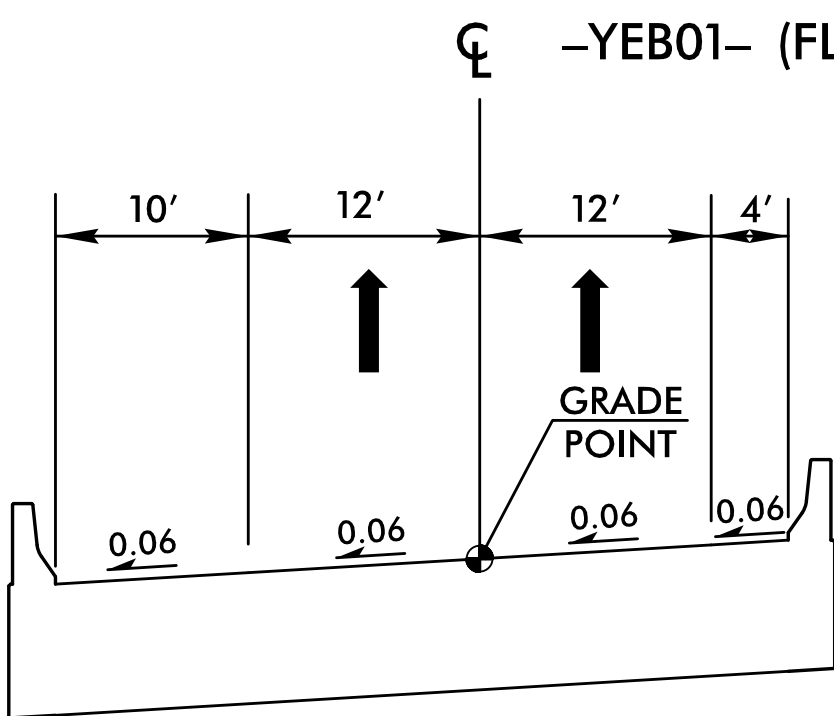
C1	1.5" S9.5B
C2	1.5" S9.5C
C3	3" S9.5B
C4	3" S9.5C
C5	VAR. S9.5B
C6	VAR. S9.5C
D1	4" I19.0B
D2	4" I19.0C
D3	VAR. I19.0B
D4	VAR. I19.0C
E1	4" B25.0B
E2	4" B25.0C
E3	VAR. B25.0B
E4	VAR. B25.0C
J1	8" ABC
R	5" MONO CONC ISLAND
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	WEDGING

REVISIONS

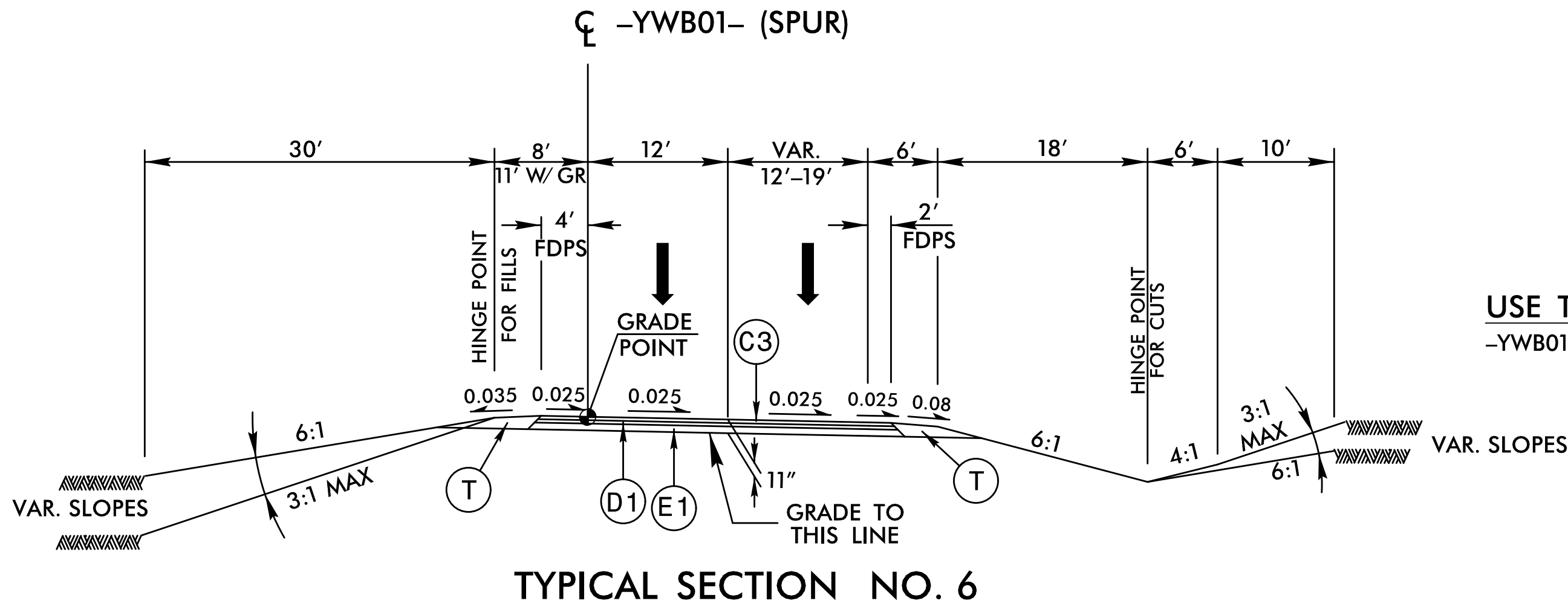
C1	1.5"	S9.5B
C2	1.5"	S9.5C
C3	3"	S9.5B
C4	3"	S9.5C
C5	VAR.	S9.5B
C6	VAR.	S9.5C
D1	4"	I19.0B
D2	4"	I19.0C
D3	VAR.	I19.0B
D4	VAR.	I19.0C
E1	4"	B25.0B
E2	4"	B25.0C
E3	VAR.	B25.0B
E4	VAR.	B25.0C
J1	8"	ABC
T	EARTH MATERIAL.	
U	EXISTING PAVEMENT.	
W	WEDGING	



USE TYPICAL SECTION NO. 4
-YEB01- STA. 25+81.43 TO -YEB01- STA. 29+00.84 +/- (BEGIN BRIDGE)
-YEB01- STA. 33+65.84 +/- (END BRIDGE) TO -YEB01- STA. 38+00.00

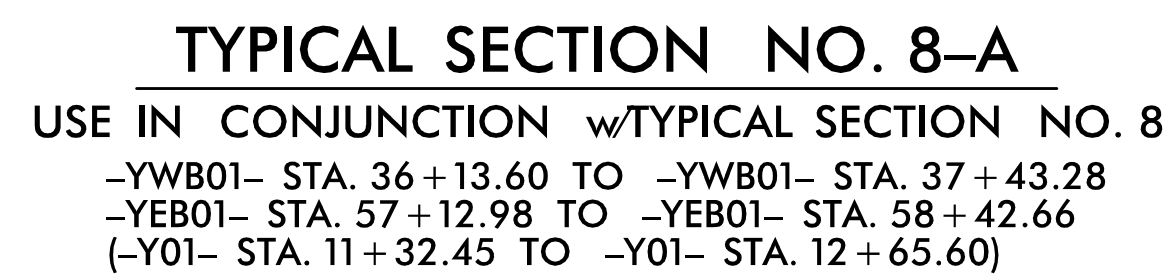
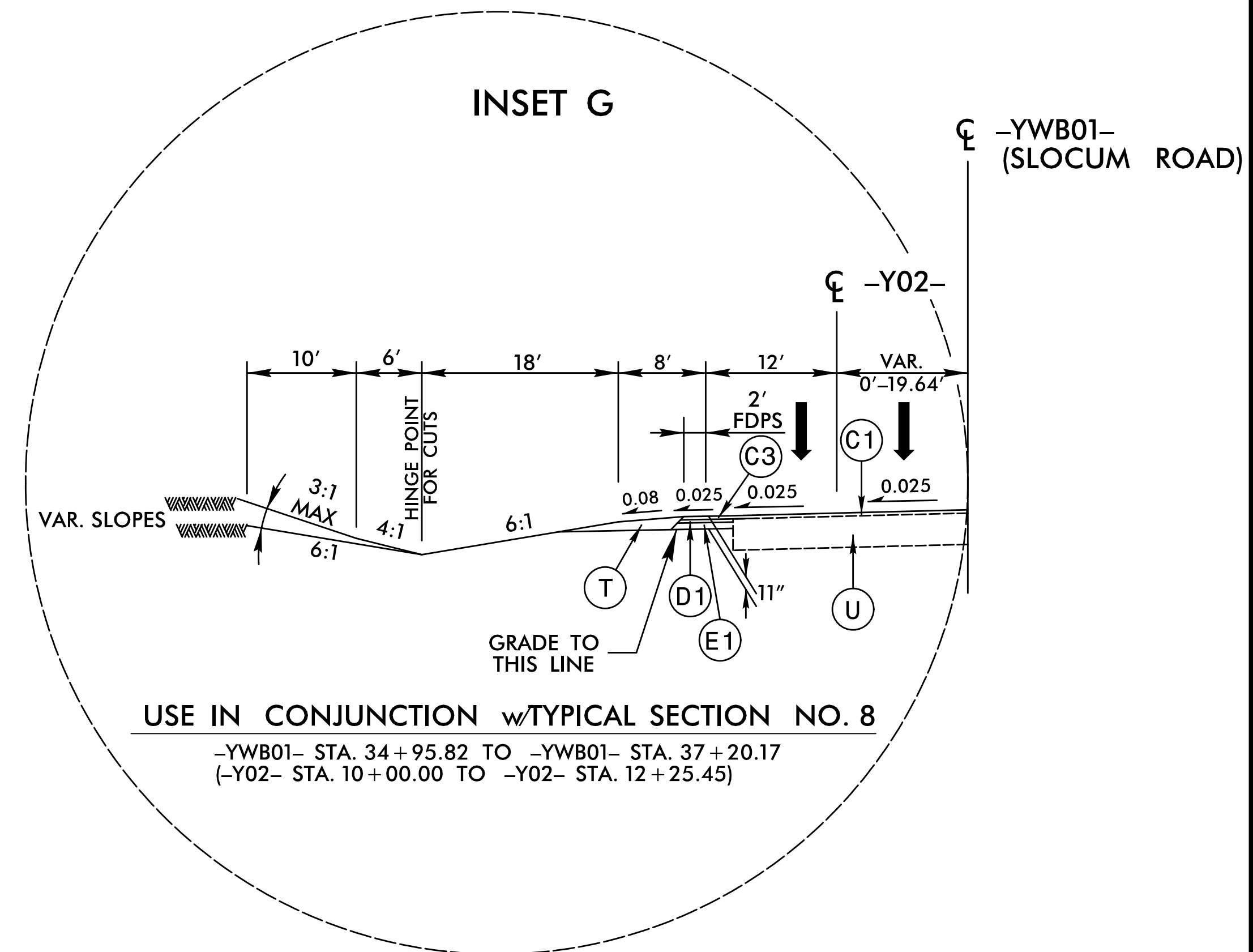
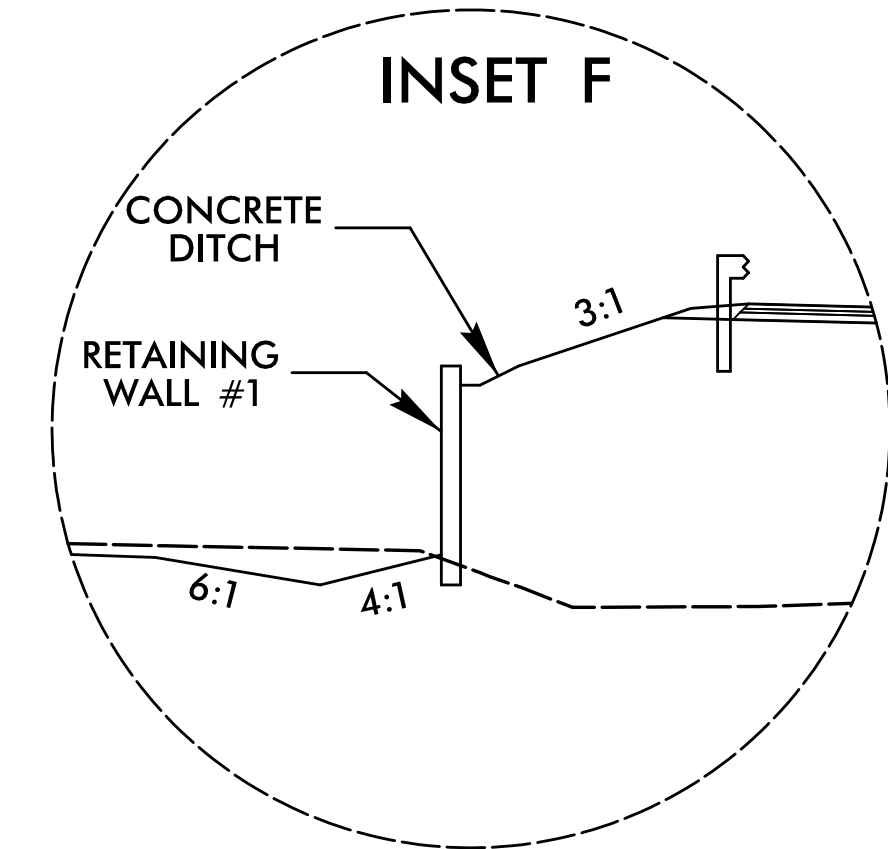


USE IN CONJUNCTION w/ TYPICAL SECTION NO. 4
-YEB01- STA. 33+56.84 TO -YEB01- STA. 38+00.00

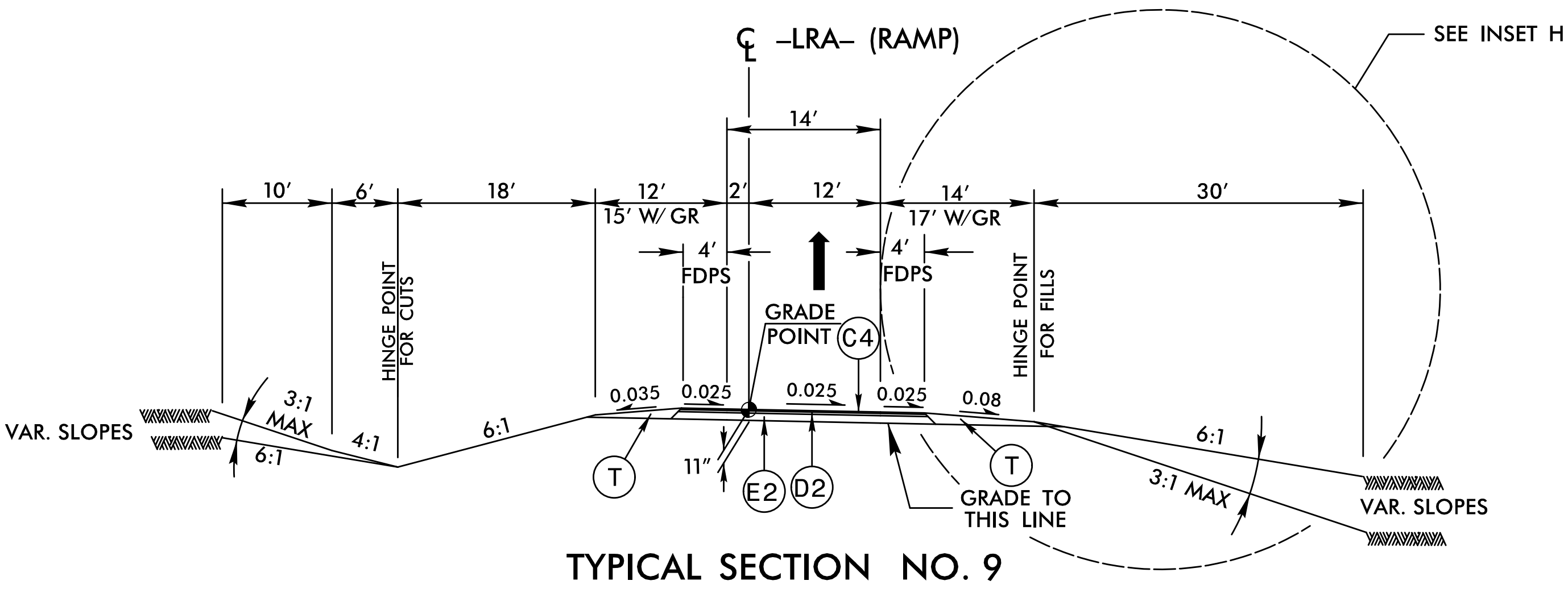


REVISIONS

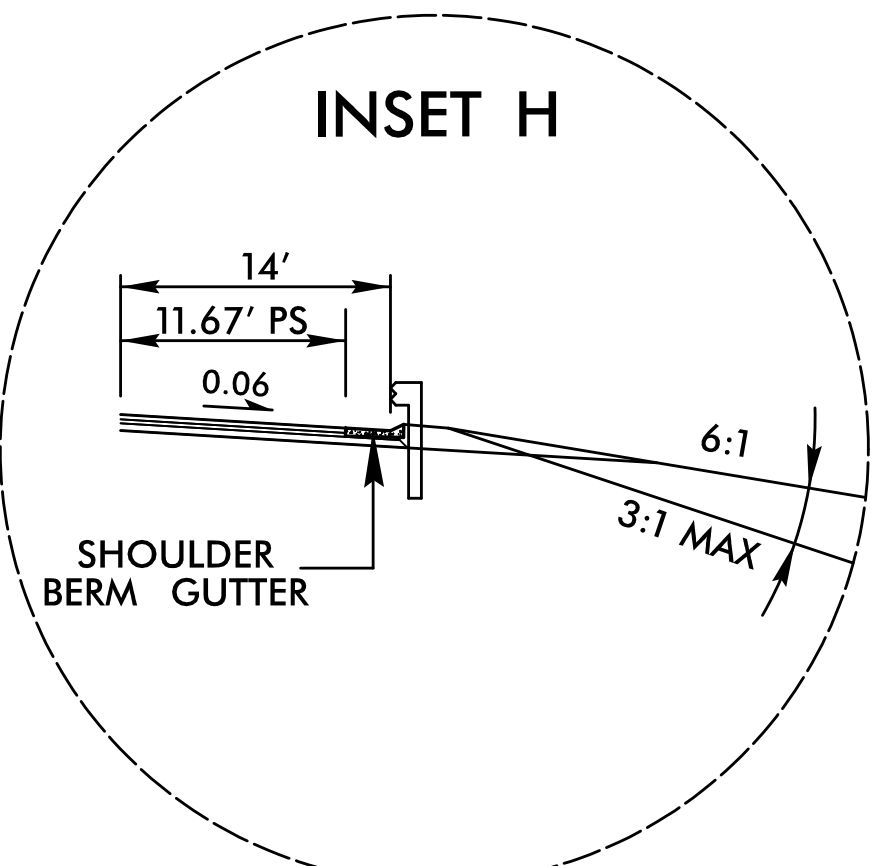
C1	1.5"	S9.5B
C2	1.5"	S9.5C
C3	3"	S9.5B
C4	3"	S9.5C
C5	VAR.	S9.5B
C6	VAR.	S9.5C
D1	4"	I19.0B
D2	4"	I19.0C
D3	VAR.	I19.0B
D4	VAR.	I19.0C
E1	4"	B25.0B
E2	4"	B25.0C
E3	VAR.	B25.0B
E4	VAR.	B25.0C
J1	8"	ABC
T	EARTH MATERIAL.	
U	EXISTING PAVEMENT.	
W	WEDGING	



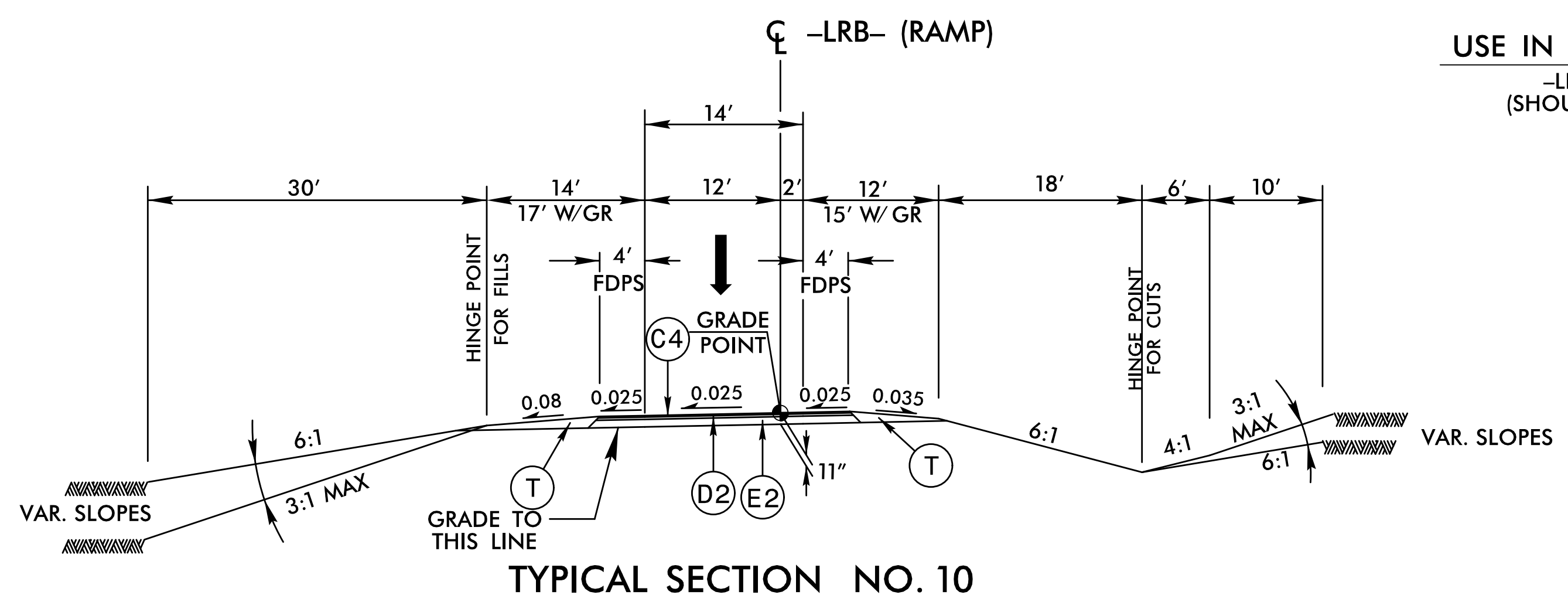
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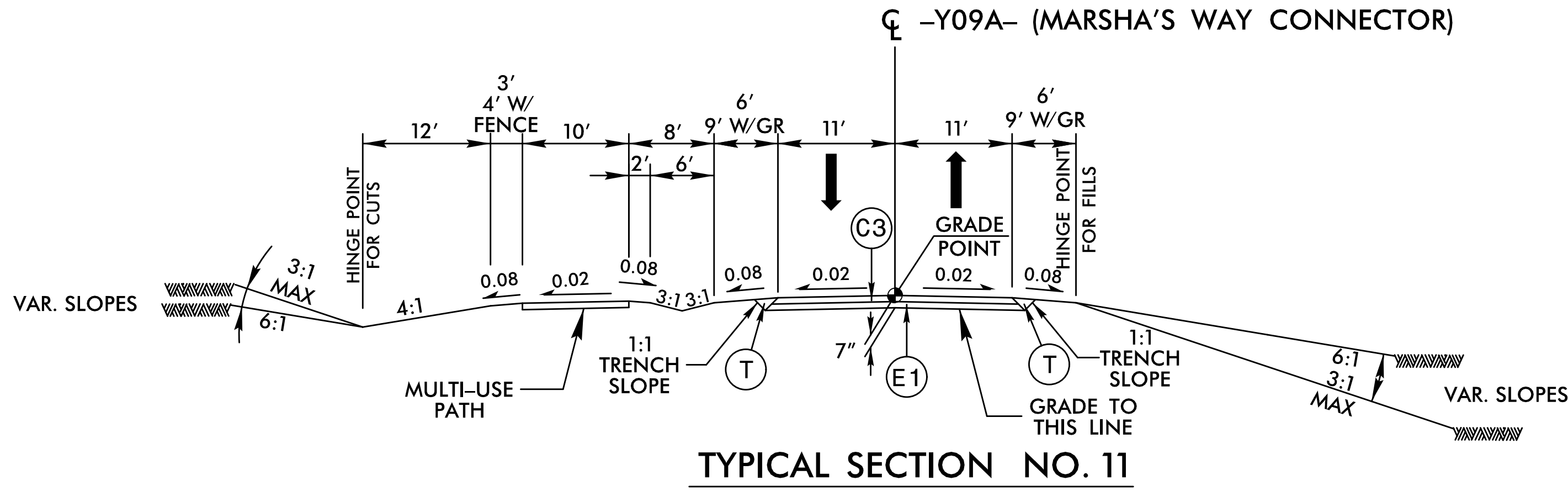
USE TYPICAL SECTION NO. 9
-LRA- STA. 10+00.00 TO -LRA- STA. 20+30.63



USE IN CONJUNCTION wTYPICAL SECTION NO. 9
-LRA- STA. 14+32.69 TO -LRA- STA. 20+30.63
(SHOULDER BERM GUTTER FROM 15+43 TO 19+65)



USE TYPICAL SECTION NO. 10
-LRB- STA. 10+00.00 TO -LRB- STA. 22+57.97

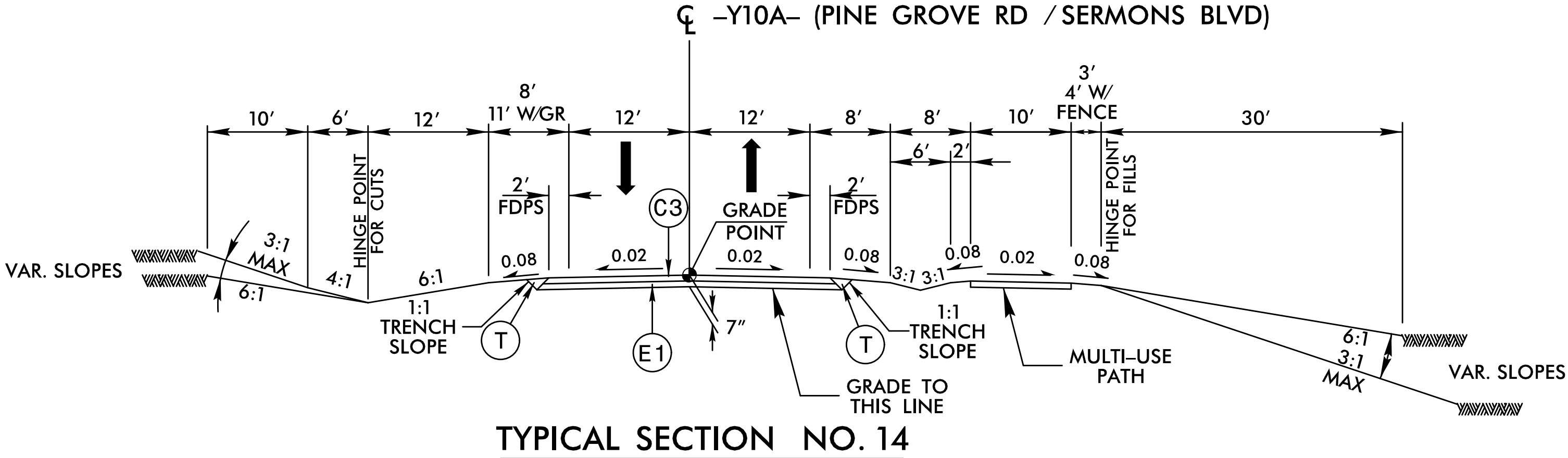
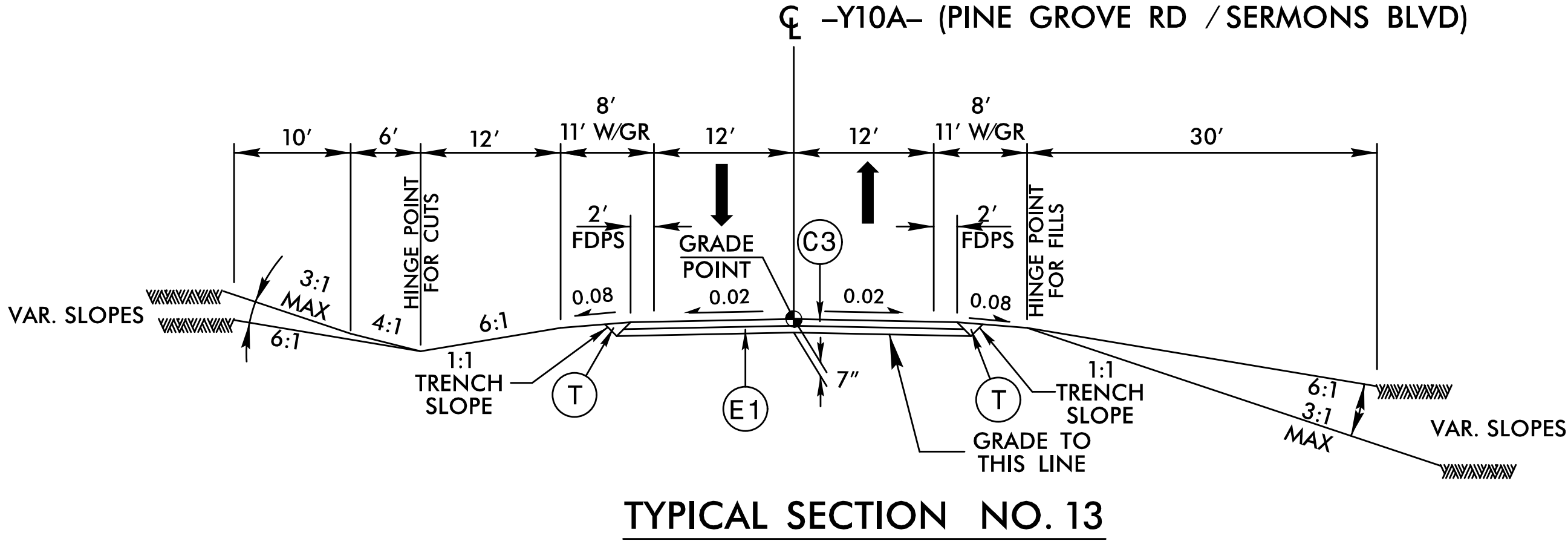
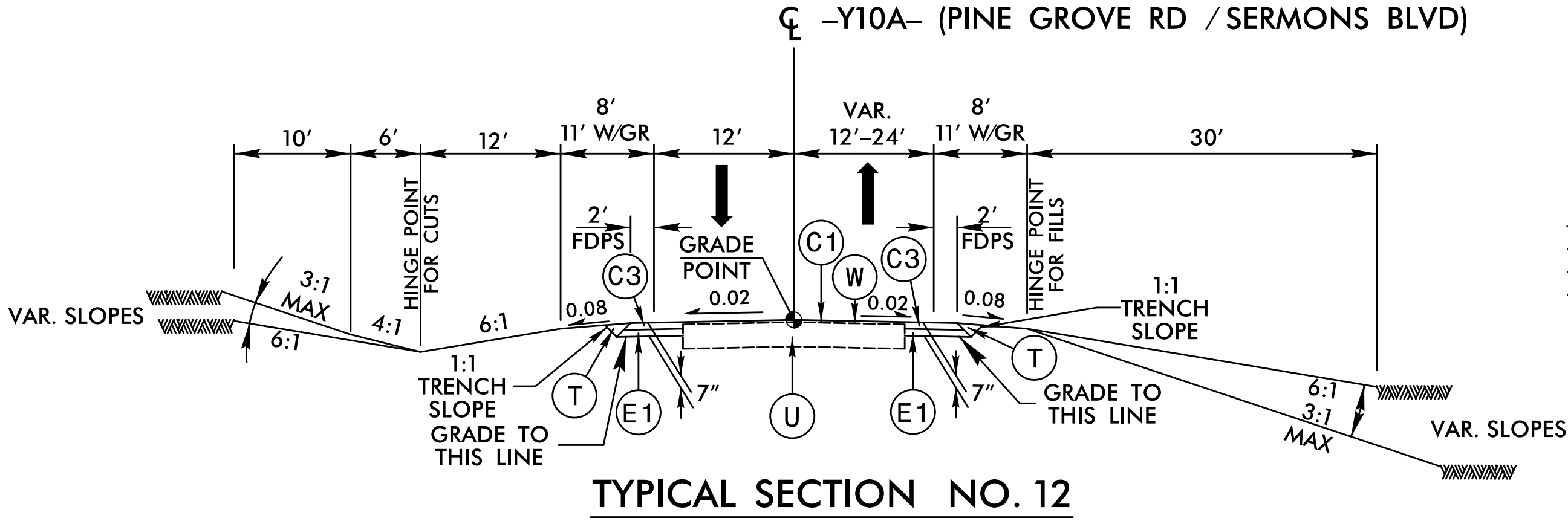


USE TYPICAL SECTION NO. 11
-Y09A- STA. 10+24.00 TO -Y09A- STA. 28+46.51

NOTE: VERIFY PAVEMENT DESIGN OF MUP @ PLFI

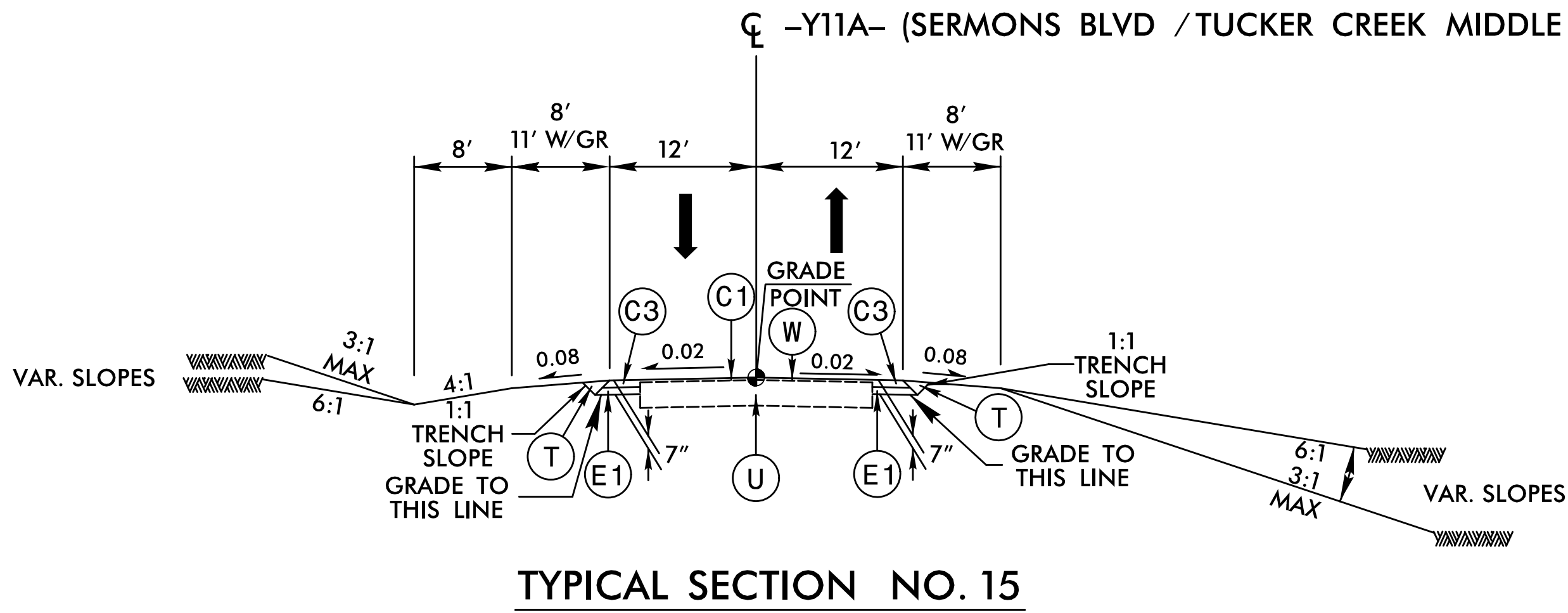
C1	1.5"	S9.5B
C2	1.5"	S9.5C
C3	3"	S9.5B
C4	3"	S9.5C
C5	VAR.	S9.5B
C6	VAR.	S9.5C
D1	4"	I19.0B
D2	4"	I19.0C
D3	VAR.	I19.0B
D4	VAR.	I19.0C
E1	4"	B25.0B
E2	4"	B25.0C
E3	VAR.	B25.0B
E4	VAR.	B25.0C
J1	8"	ABC
T	EARTH MATERIAL.	
U	EXISTING PAVEMENT.	
W	WEDGING	

REVISIONS



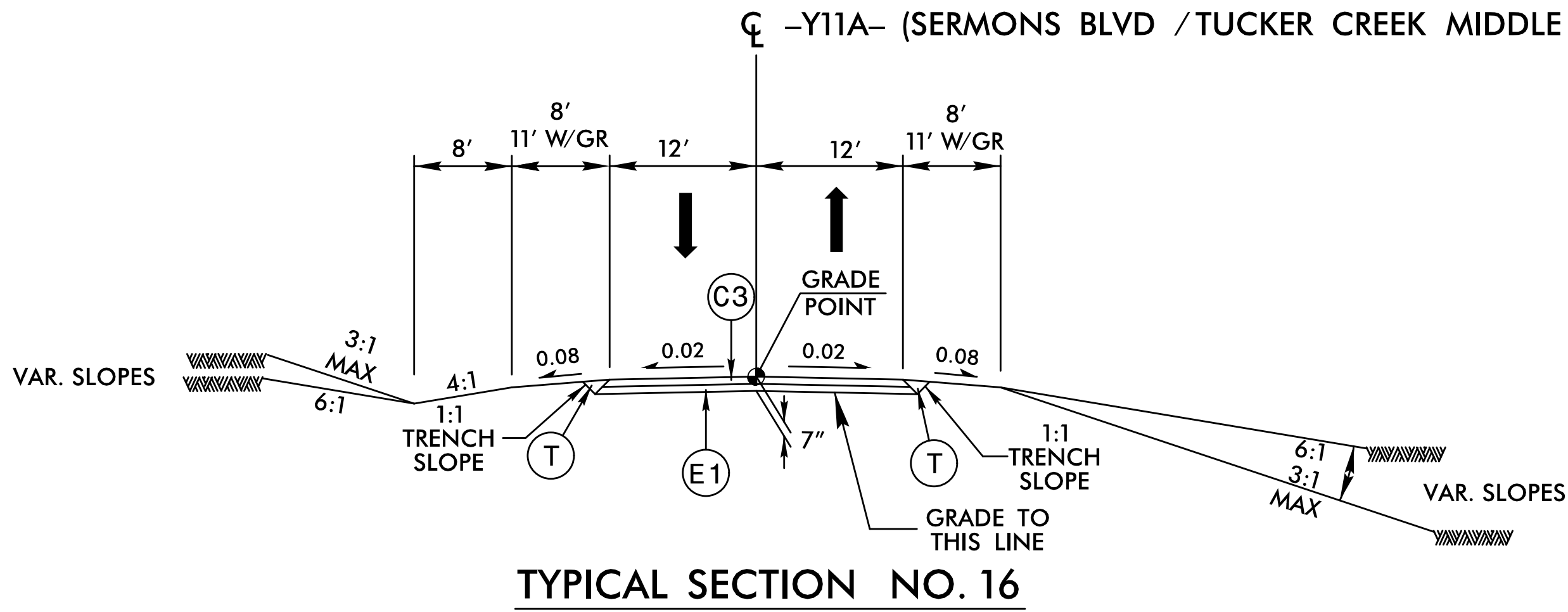
C1	1.5"	S9.5B
C2	1.5"	S9.5C
C3	3"	S9.5B
C4	3"	S9.5C
C5	VAR.	S9.5B
C6	VAR.	S9.5C
D1	4"	I19.0B
D2	4"	I19.0C
D3	VAR.	I19.0B
D4	VAR.	I19.0C
E1	4"	B25.0B
E2	4"	B25.0C
E3	VAR.	B25.0B
E4	VAR.	B25.0C
J1	8"	ABC
T	EARTH MATERIAL.	
U	EXISTING PAVEMENT.	
W	WEDGING	

REVISIONS



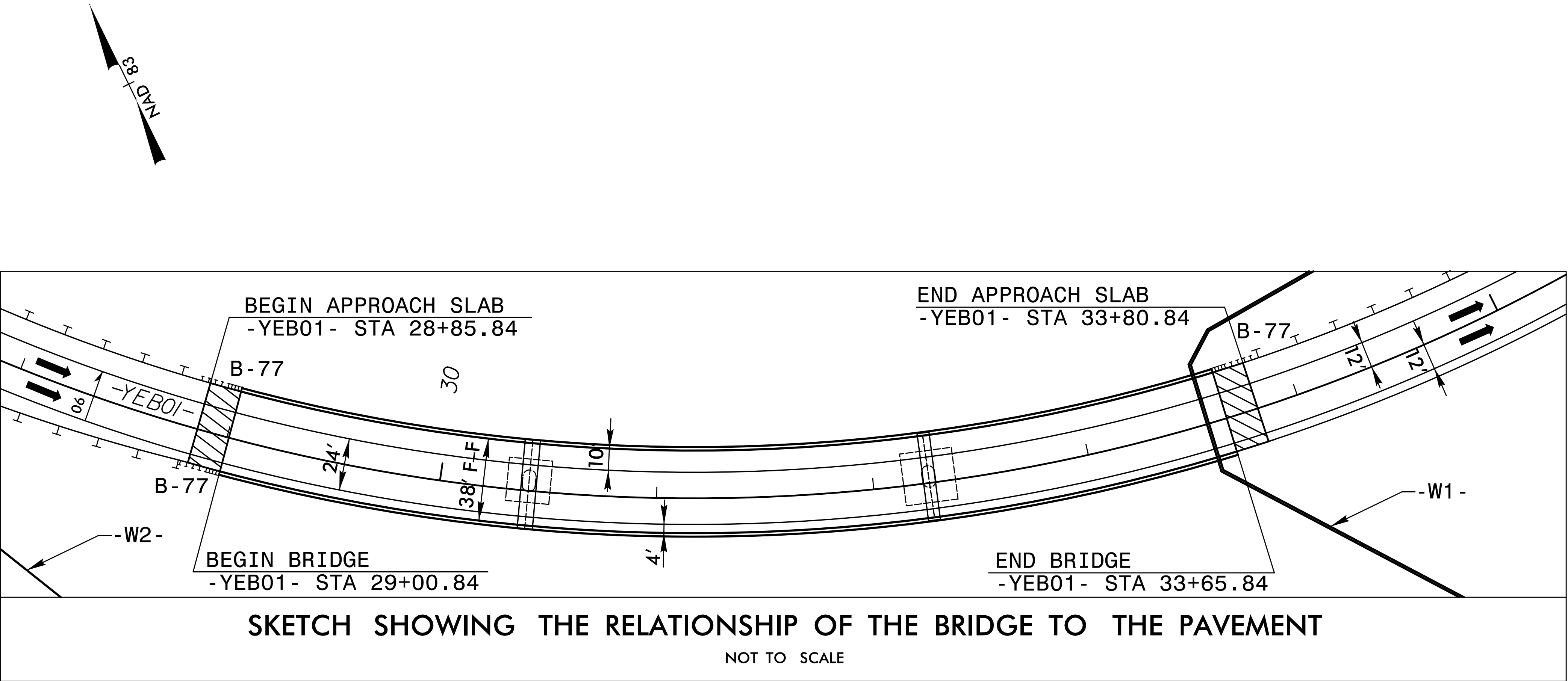
USE TYPICAL SECTION NO. 15
-Y11A- STA. 18+00.00 TO -Y11A- STA. 19+15.60
-Y11A- STA. 22+17.09 TO -Y11A- STA. 23+70.00

C1	1.5"	S9.5B
C2	1.5"	S9.5C
C3	3"	S9.5B
C4	3"	S9.5C
C5	VAR.	S9.5B
C6	VAR.	S9.5C
D1	4"	I19.0B
D2	4"	I19.0C
D3	VAR.	I19.0B
D4	VAR.	I19.0C
E1	4"	B25.0B
E2	4"	B25.0C
E3	VAR.	B25.0B
E4	VAR.	B25.0C
J1	8"	ABC
T	EARTH MATERIAL.	
U	EXISTING PAVEMENT.	
W	WEDGING	

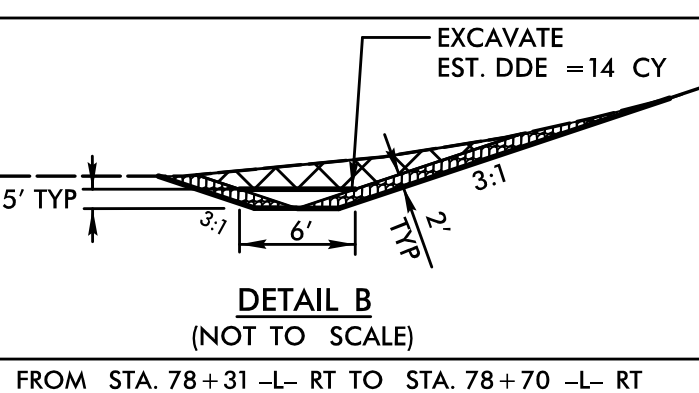
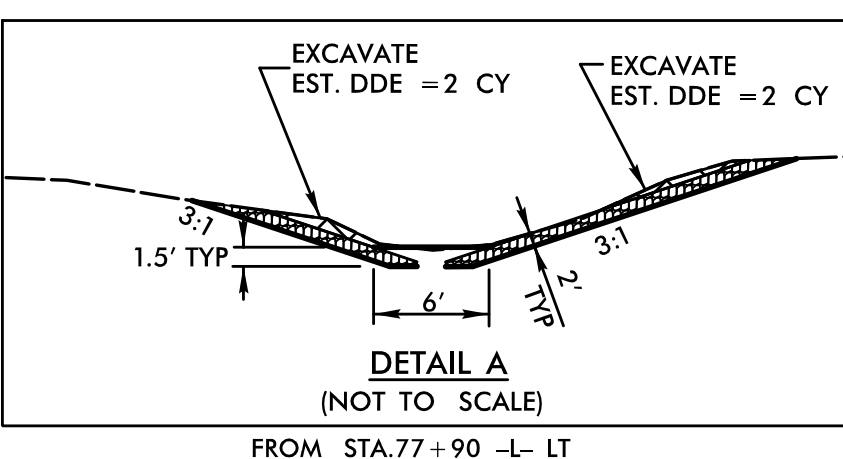
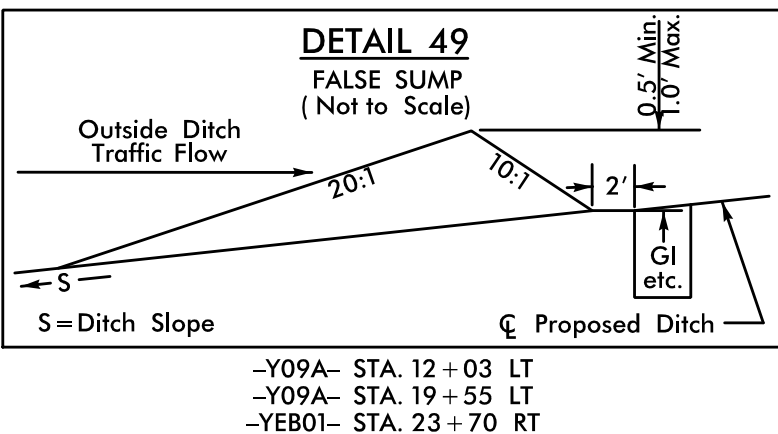
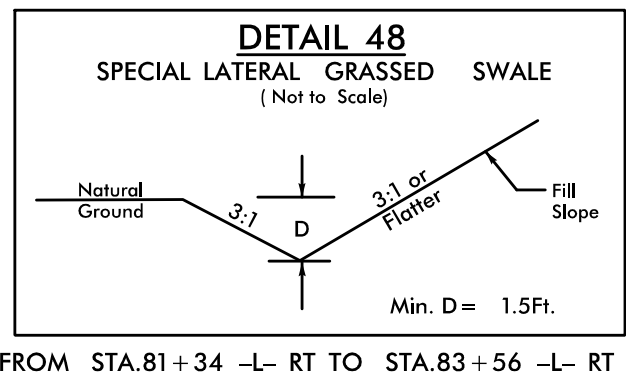
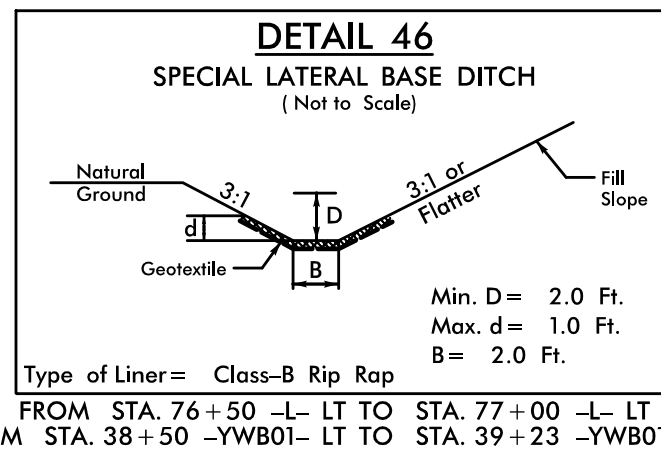
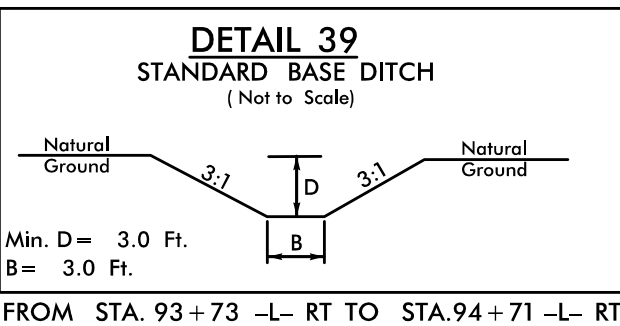
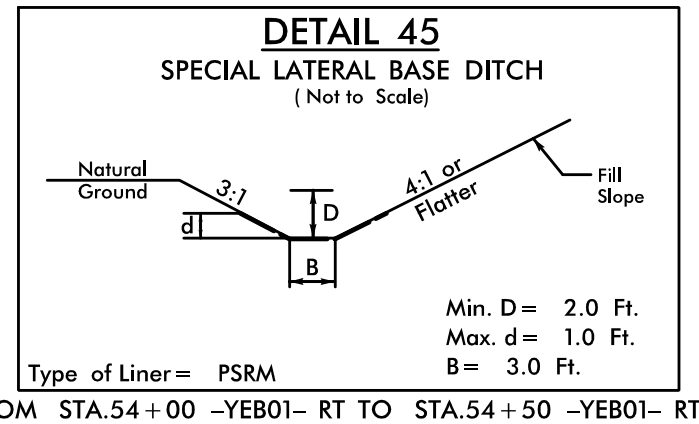
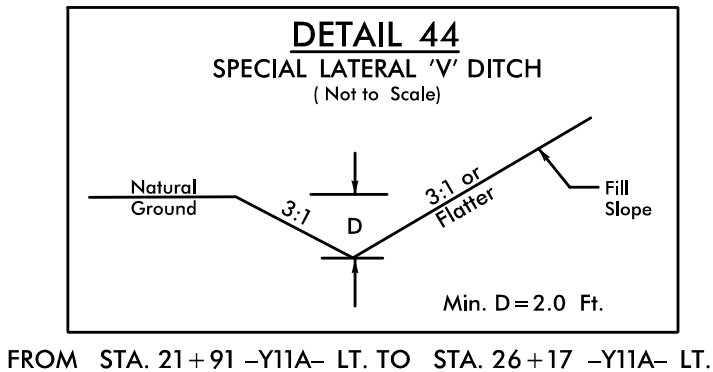
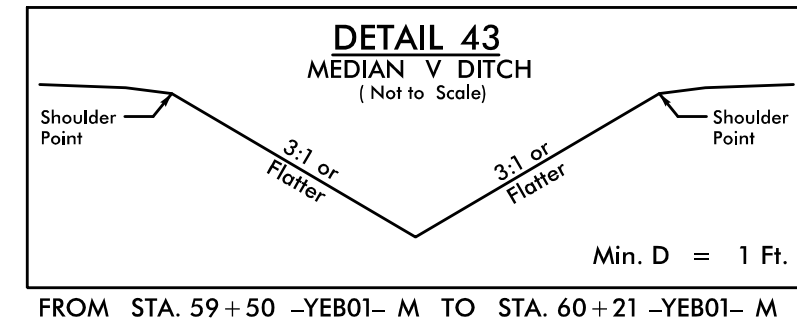
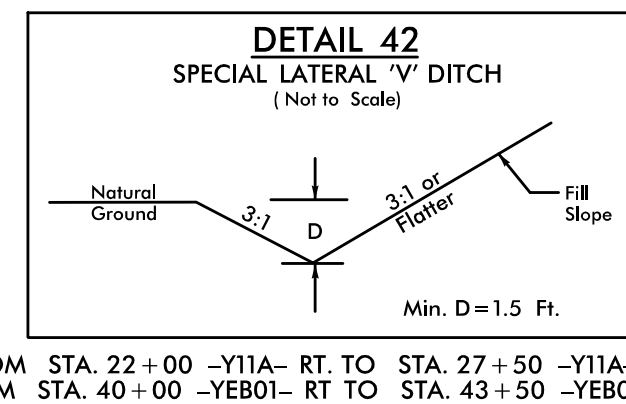
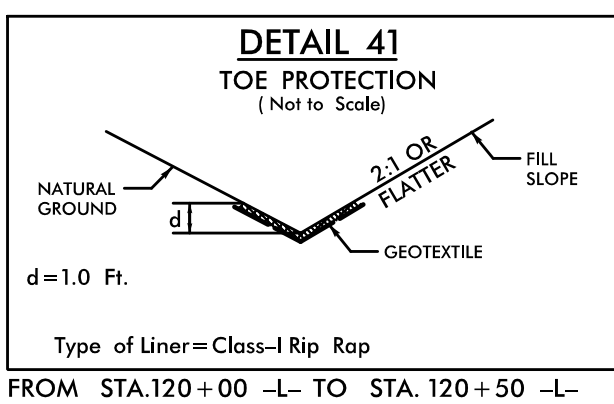
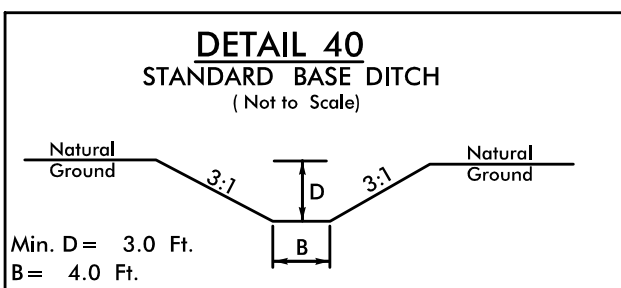
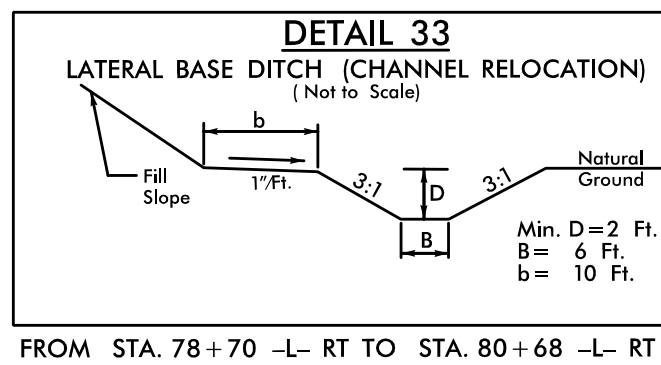
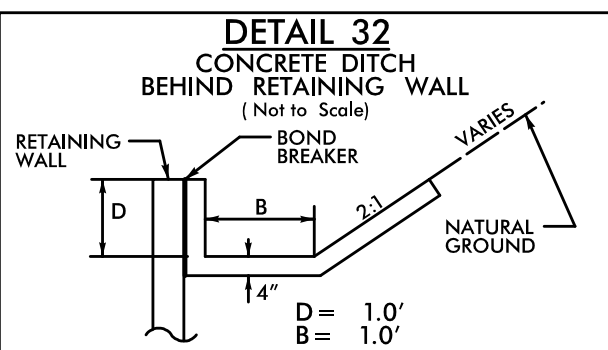
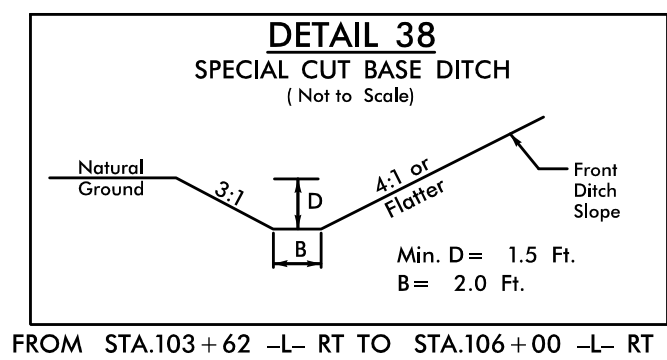
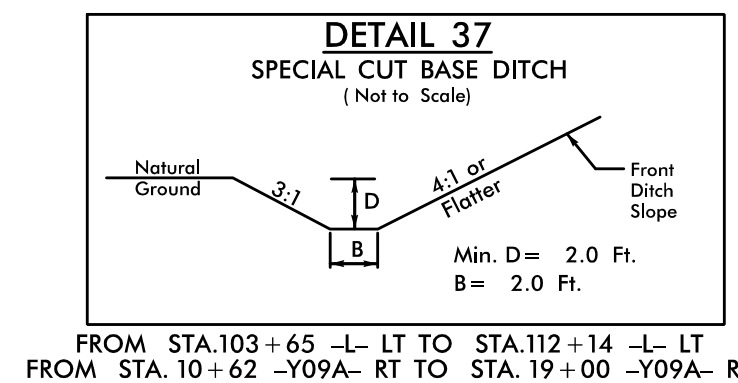
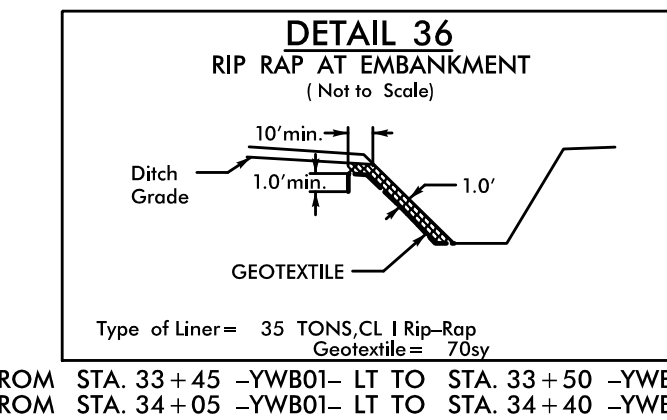
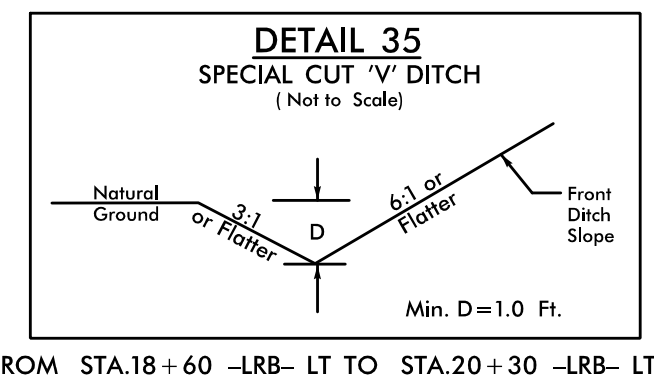
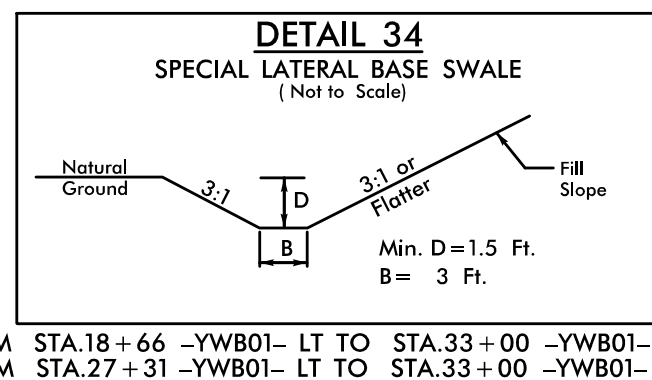
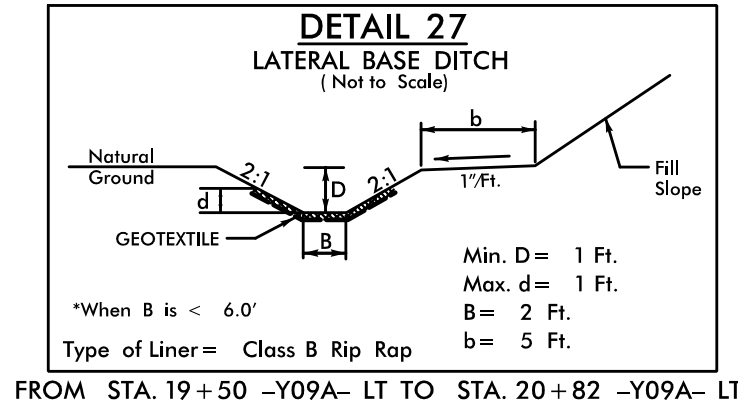
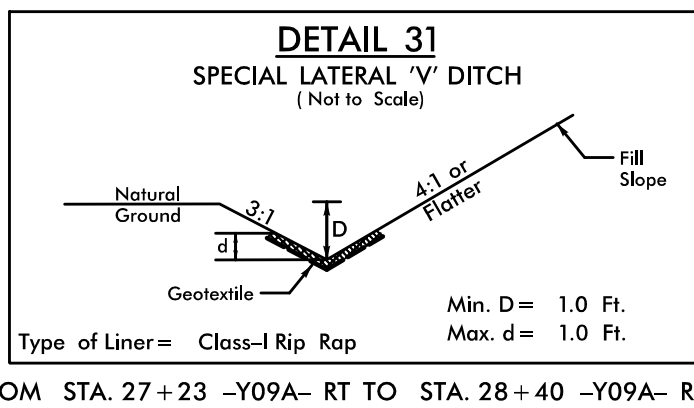
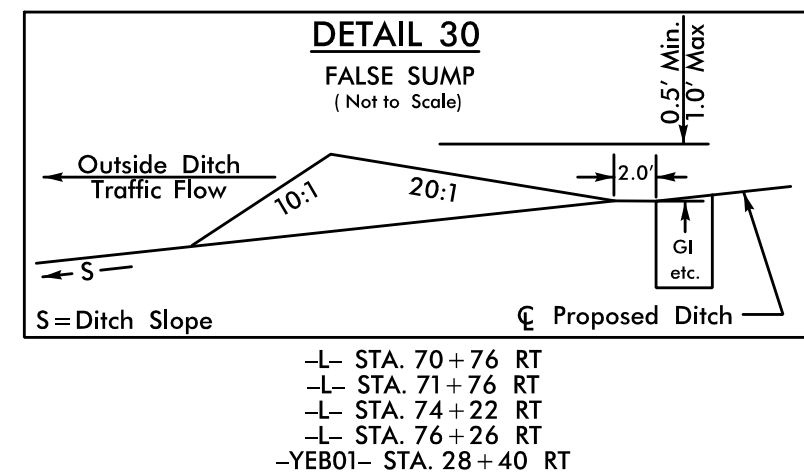
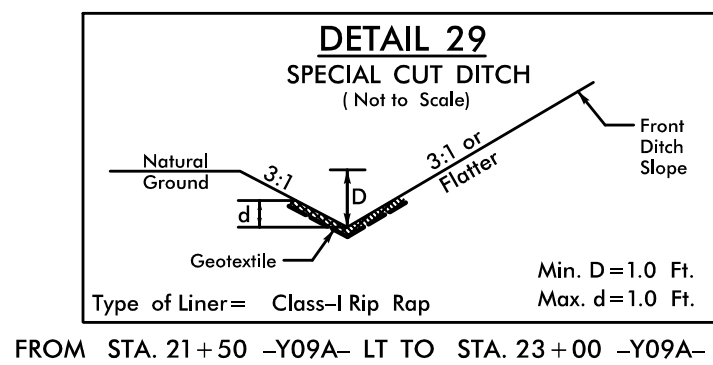
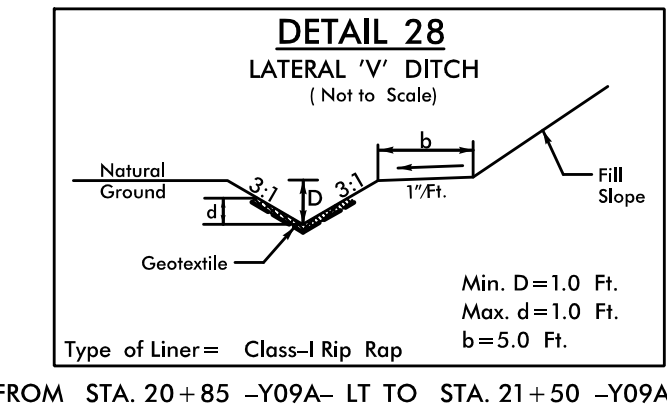
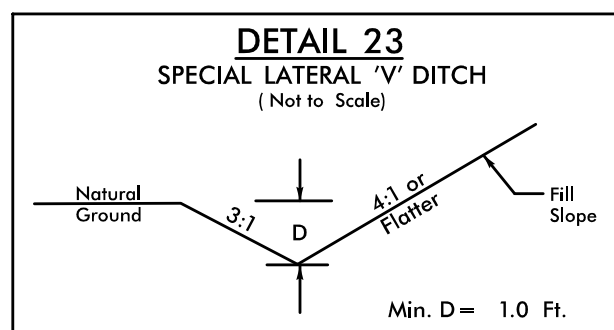
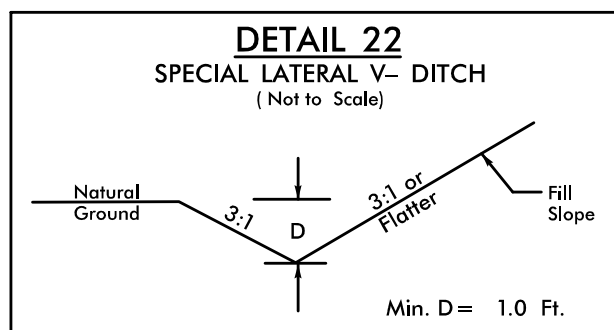
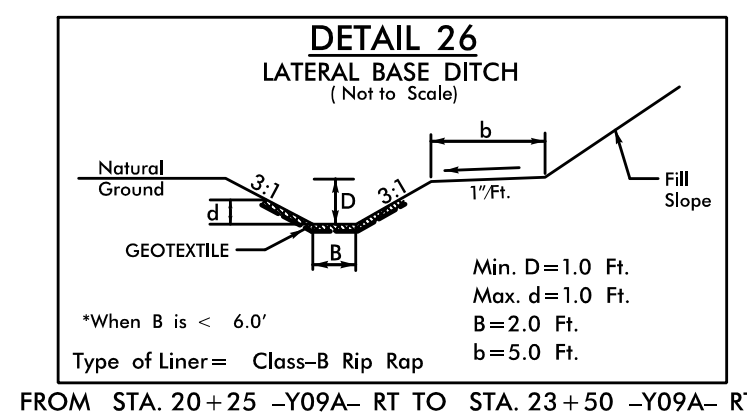
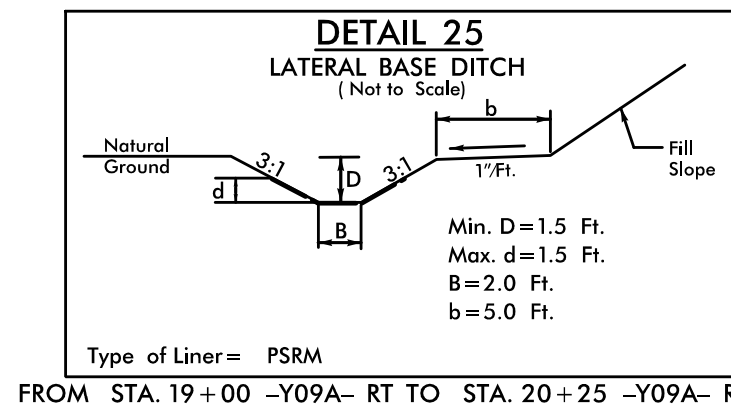
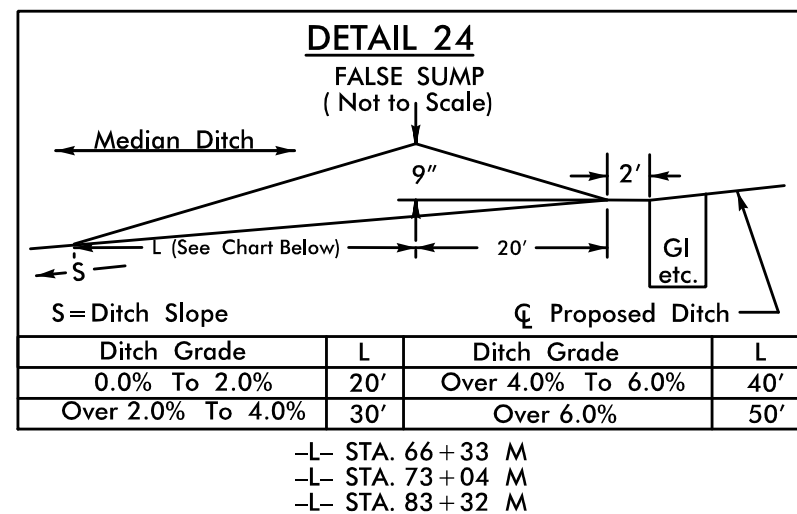
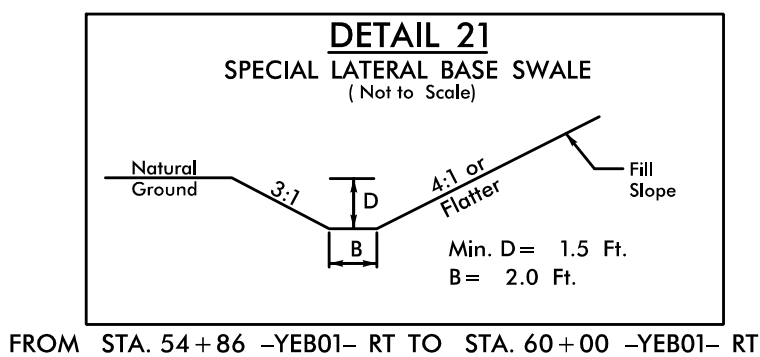
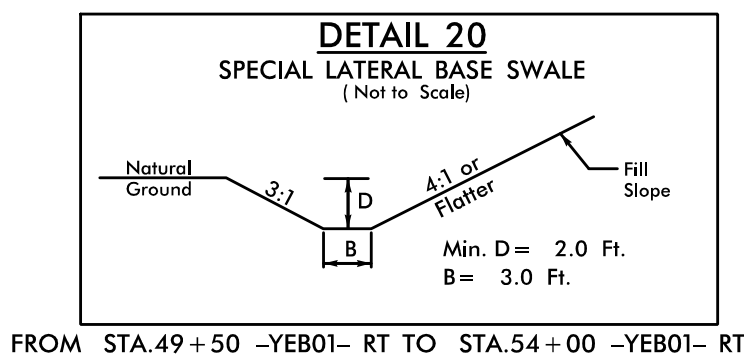
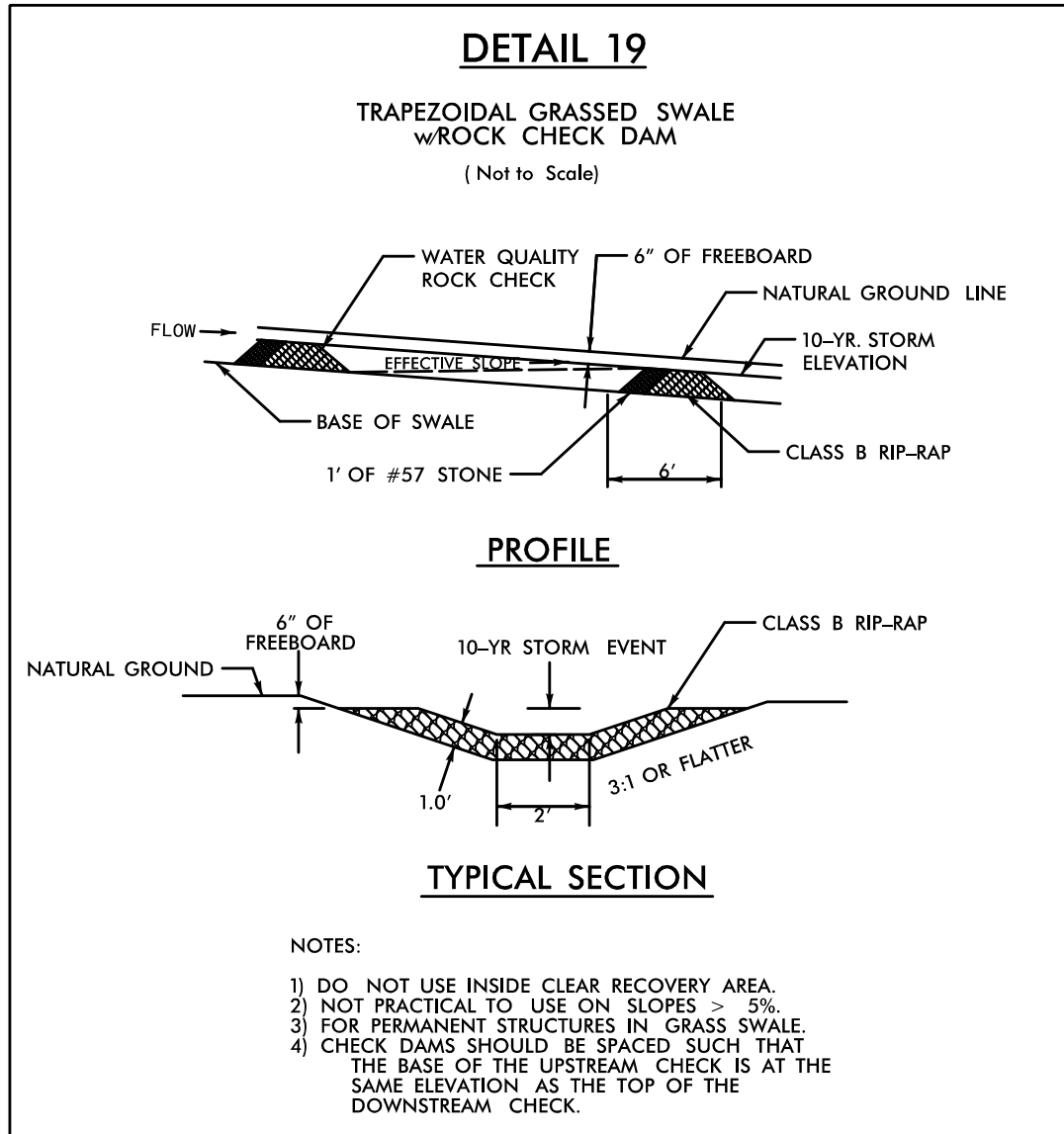
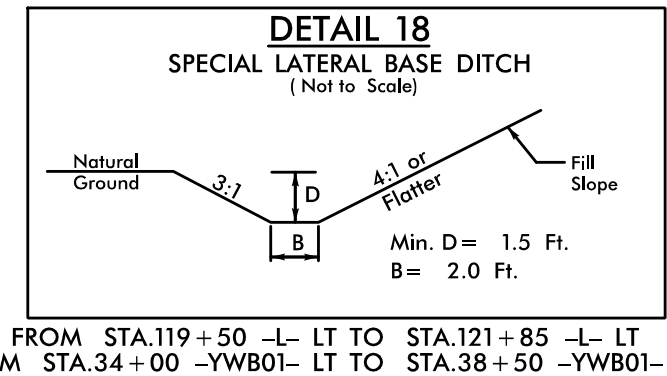
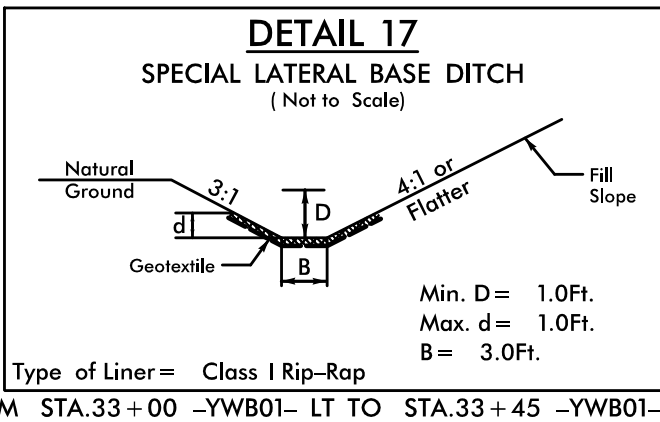
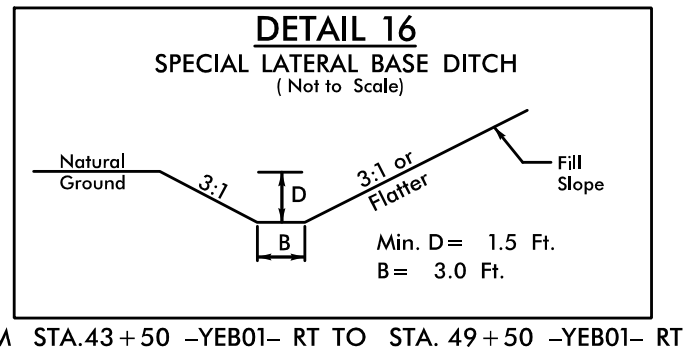
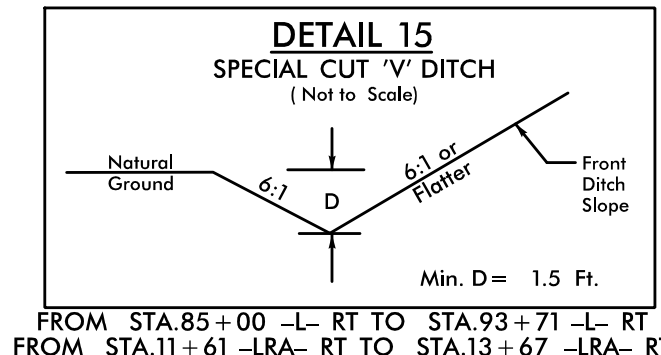
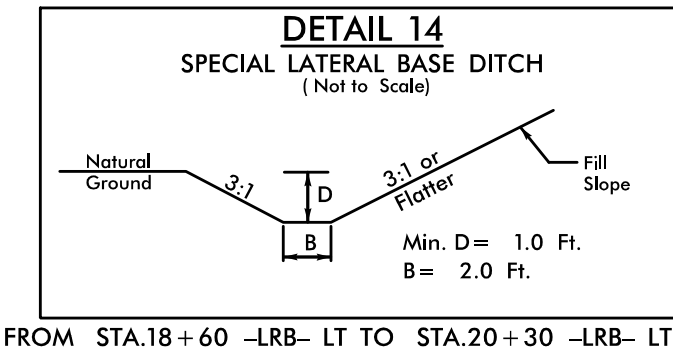
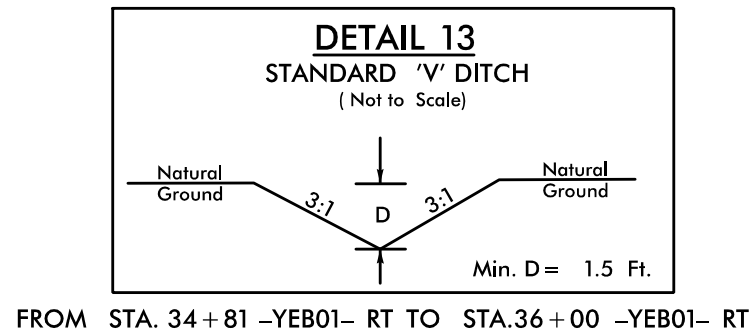
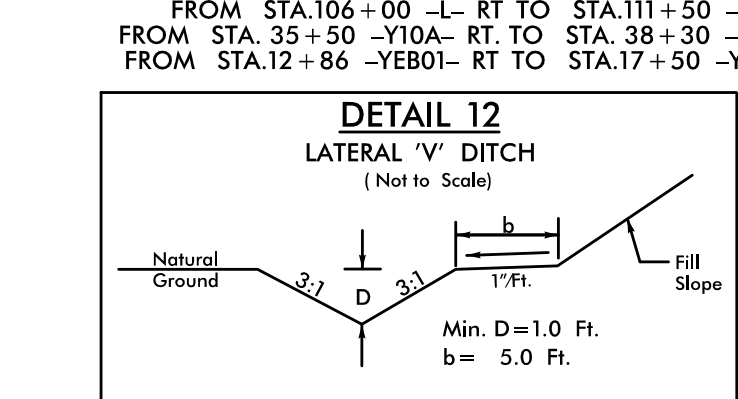
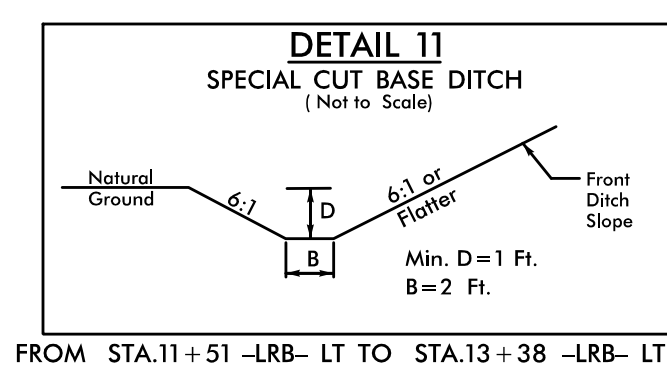
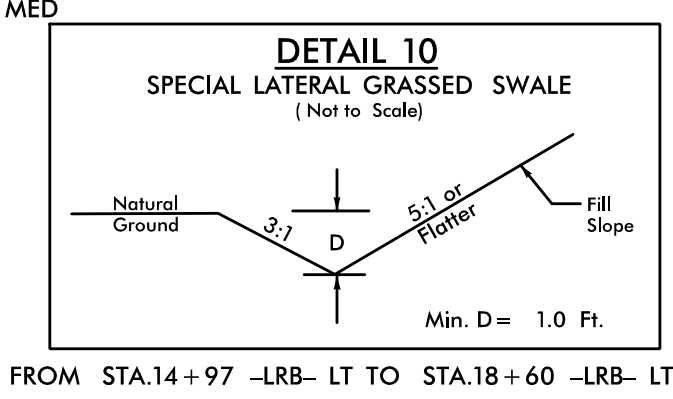
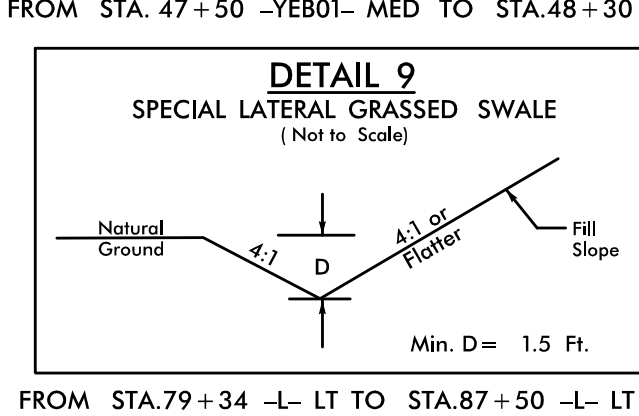
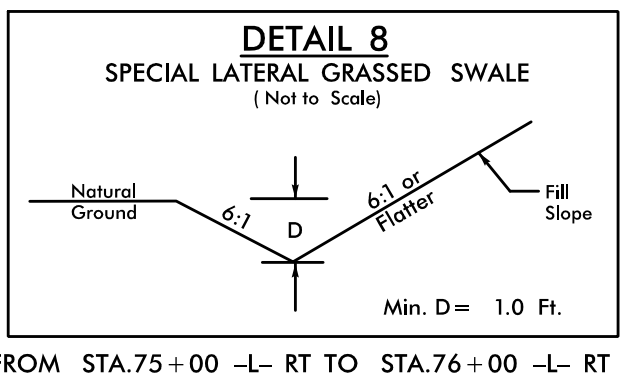
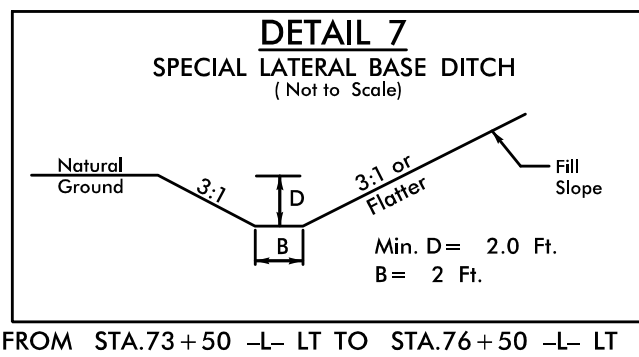
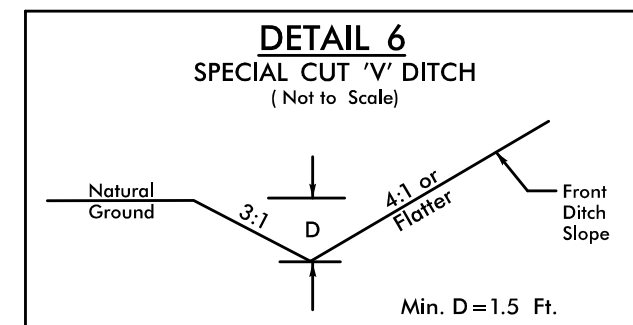
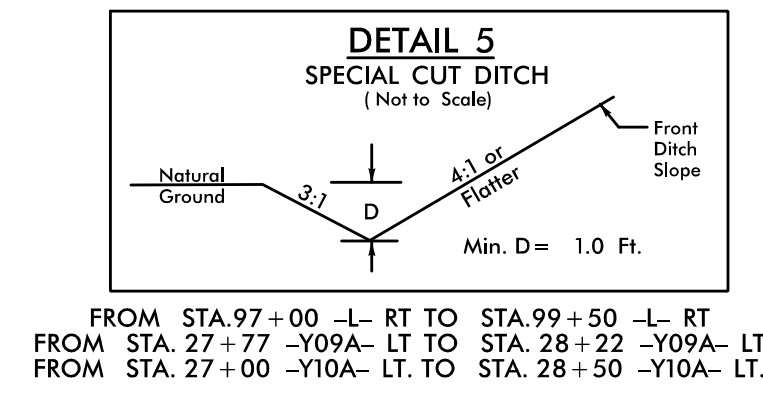
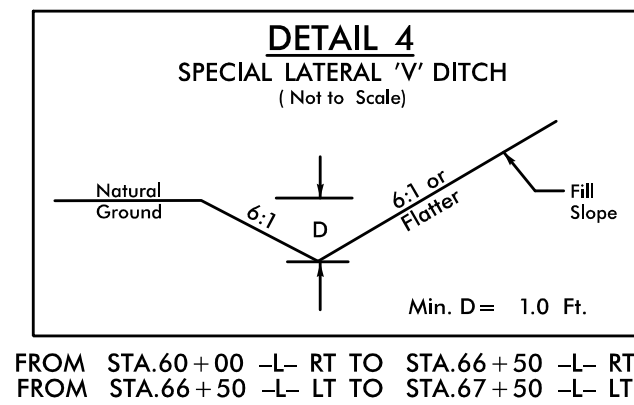
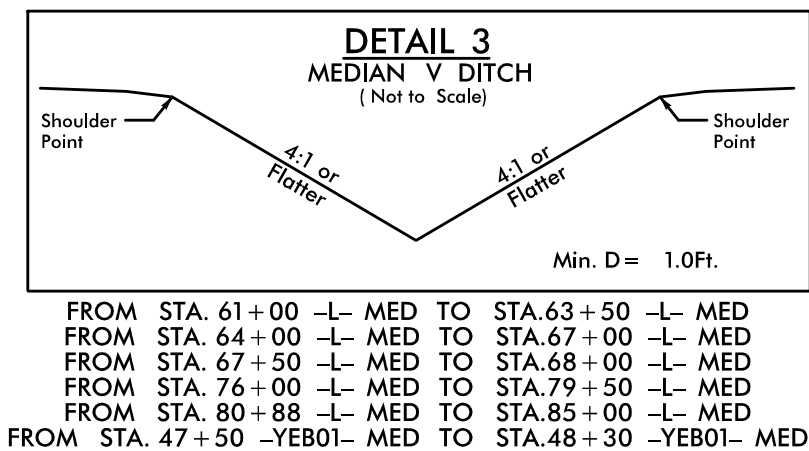
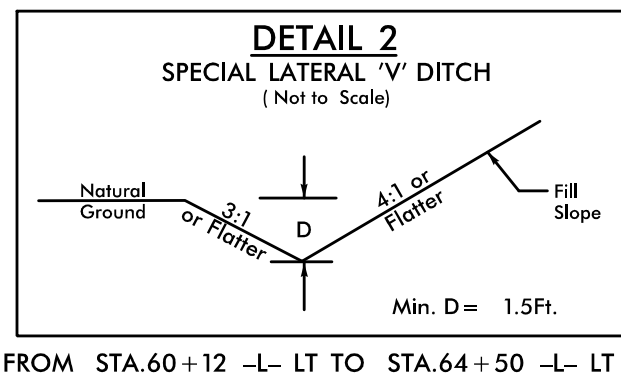
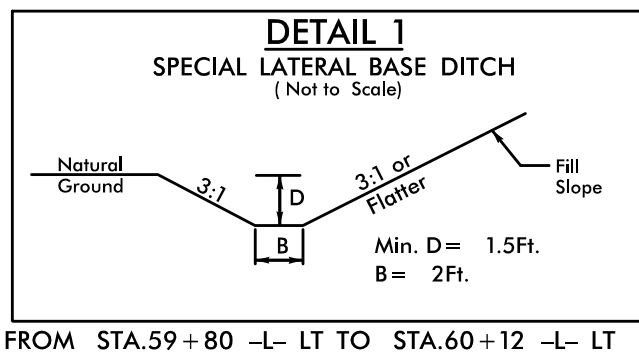


USE TYPICAL SECTION NO. 16
-Y11A- STA. 19+15.60 TO -Y11A- STA. 21+22.03
-Y11A- STA. 21+50.05 TO -Y11A- STA. 22+17.09

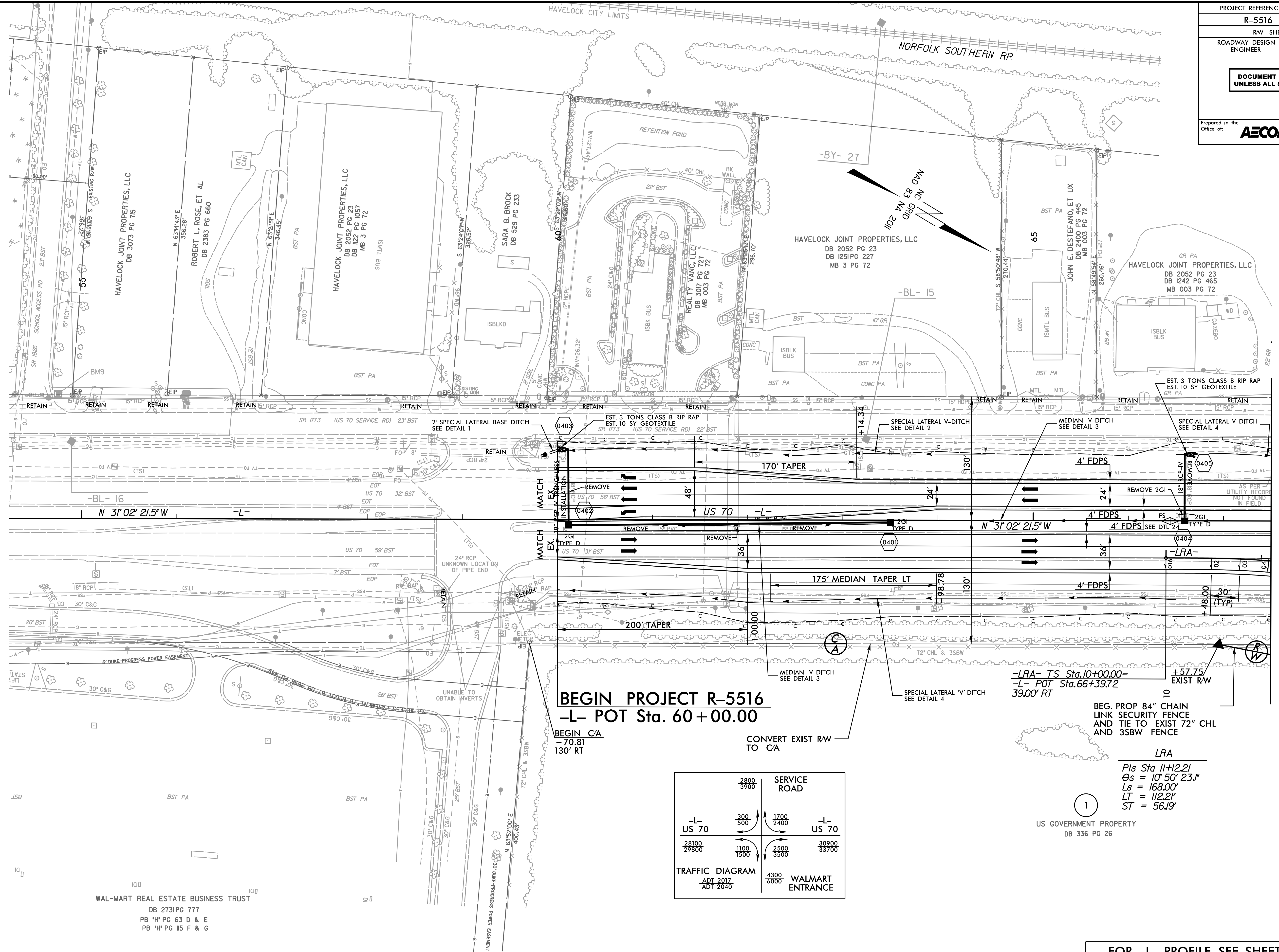
REVISIONS



REVISIONS



REVISIONS



FOR -L- PROFILE, SEE SHEET NO. 15
FOR -LRA- PROFILE, SEE SHEET NO. 18

REVISIONS

MATCHLINE -L- STA 67+50.00
SEE PLAN SHEET 5

DATE/TIME: 9:41:33 AM
DGN: R:\Roadway\Proj\N5516_rdy_psh_04.dgn

-L-
PI Sta 75+56.92
Δ = 4° 33' 25.9" (RT)
D = 2' 00" 00.0"
L = 227.86'
T = 113.99'
R = 2,864.79'
Se = 0.04
DS = 50 MPH
Runoff = 144.0'

-LRA-
PI Sta 11+12.21
Δs = 10° 50' 23.1"
Ls = 168.00'
LT = 112.21'
ST = 56.19'

-LRB-
PI Sta 11+12.21
Δs = 10° 50' 23.1"
Ls = 168.00'
LT = 112.21'
ST = 56.19'

-YWB01-
PI Sta 12+78.54
Δ = 120° 15' 08.0" (RT)
D = 35° 48' 35.5"
L = 335.81'
T = 278.54'
R = 160.00'
Se = 0.06
DS = 20 MPH
Runoff = 175.0'

-YWB01-
PI Sta 17+02.36
Δ = 6° 59' 27.5" (LT)
D = 0° 57' 17.3"
L = 732.19'
T = 366.55'
R = 6000.83'
Se = NC
DS = 40 MPH
Runoff = N/A

-YWB01-
PI Sta 16+09.21
Δ = 89° 38' 18.4" (RT)
D = 12° 54' 16.0"
L = 694.63'
T = 441.21'
R = 444.00'
Se = 0.08
DS = 40 MPH
Runoff = 168.0'

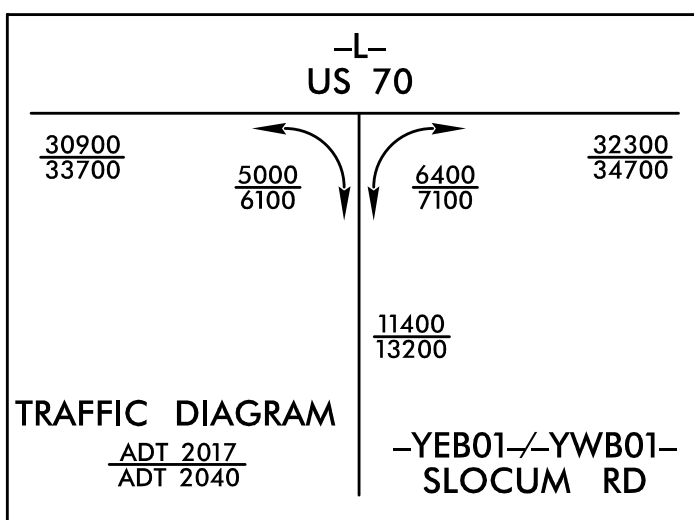
-YWB01-
PI Sta 13+25.82
Δ = 39° 08' 05.9" (LT)
D = 12° 54' 16.0"
L = 303.27'
T = 157.82'
R = 444.00'
Se = 0.08
DS = 40 MPH
Runoff = 168.0'

-YWB01-
PI Sta 15+31.36
Δs = 0° 47' 54.6"
Ls = 10° 50' 35.8"
L = 168.00'
LT = 108.40'
ST = 60.09'

-YWB01-
PI Sta 31+10.10
Δs = 76° 29' 46.8" (LT)
D = 6° 52' 41.7"
L = 1112.15'
T = 656.64'
R = 833.00'
Se = 0.06
DS = 50 MPH
Runoff = 144.0'

-YWB01-
PI Sta 36+13.64
Δs = 4° 57' 08.4"
Ls = 144.00'
LT = 96.04'
ST = 48.03'

MATCHLINE -L- STA 67+50.00
SEE PLAN SHEET 4



MATCHLINE -LRA-
STA 17+00.00
SEE PLAN SHEET 10

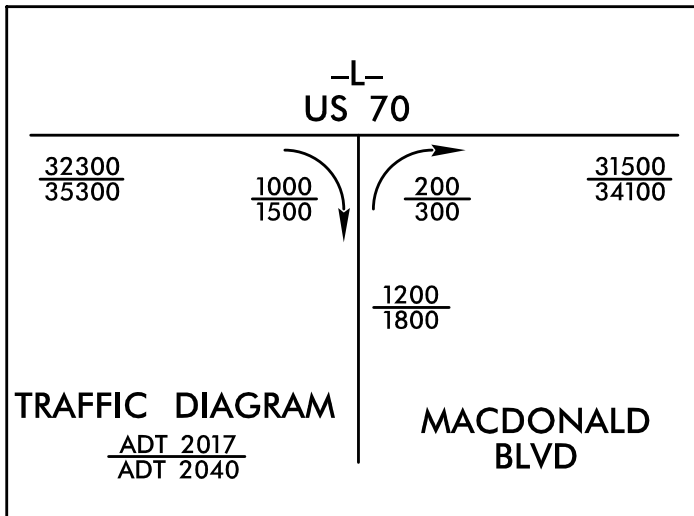
MATCHLINE -YWB01-
STA 37+00.00
SEE PLAN SHEET 10

MATCHLINE -YWB01-
STA 16+00.00
SEE PLAN SHEET 10

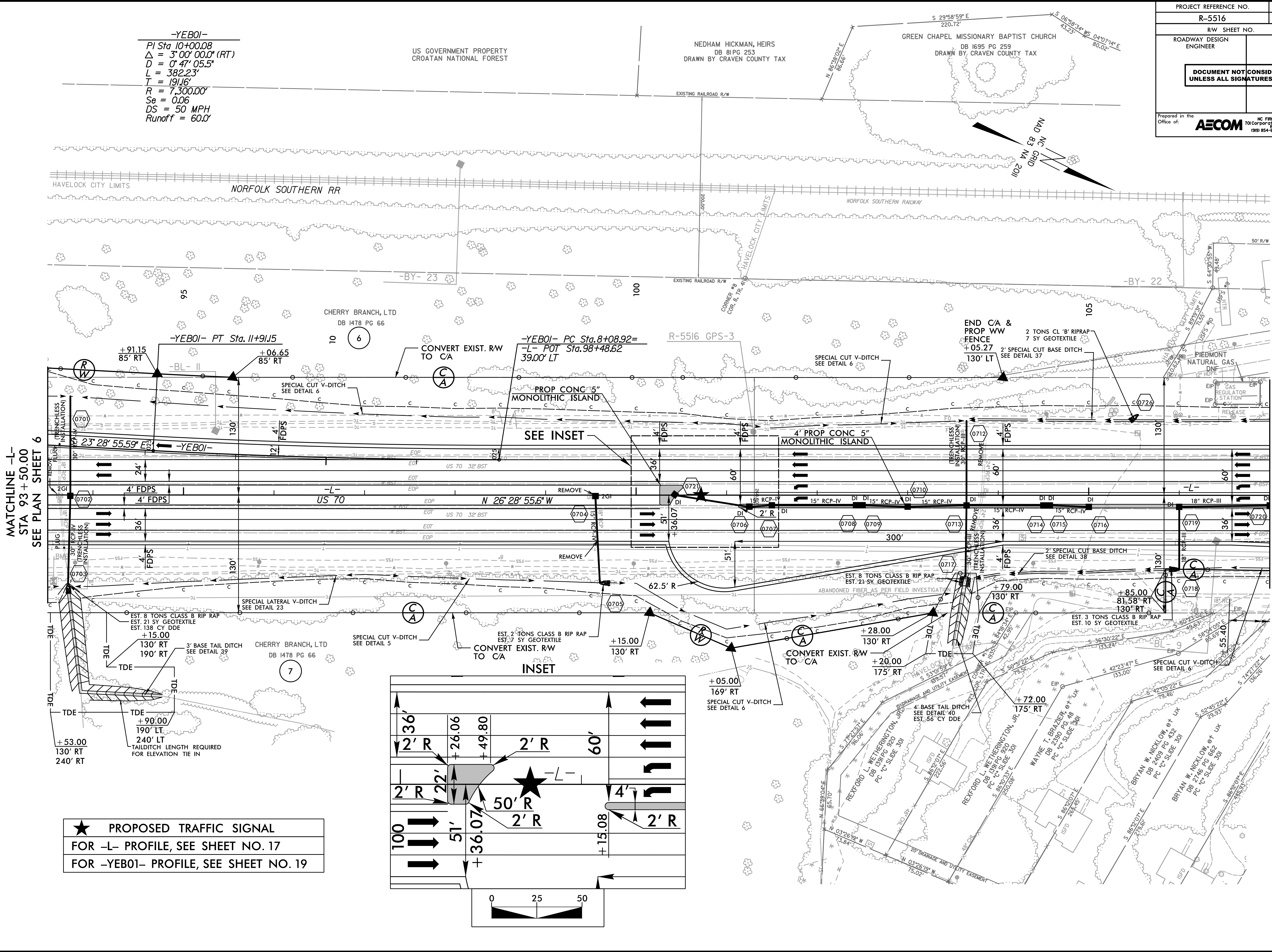
★ PROPOSED TRAFFIC SIGNAL
FOR BRIDGE SKETCH, SEE SHEET NO. 2B-1
FOR -L RT- PROFILE, SEE SHEET NO. 15
FOR -L LT- PROFILE, SEE SHEET NO. 16
FOR -LRA- PROFILE, SEE SHEET NO. 18
FOR -LRB- PROFILE, SEE SHEET NO. 19
FOR -YWB01- PROFILE, SEE SHEET NO. 20
FOR -YWB01- PROFILE, SEE SHEET NO. 21

MATCHLINE -L- STA 80+50.00
SEE PLAN SHEET 6

MATCHLINE -YWB01-
STA 26+00.00
SEE PLAN SHEET 6



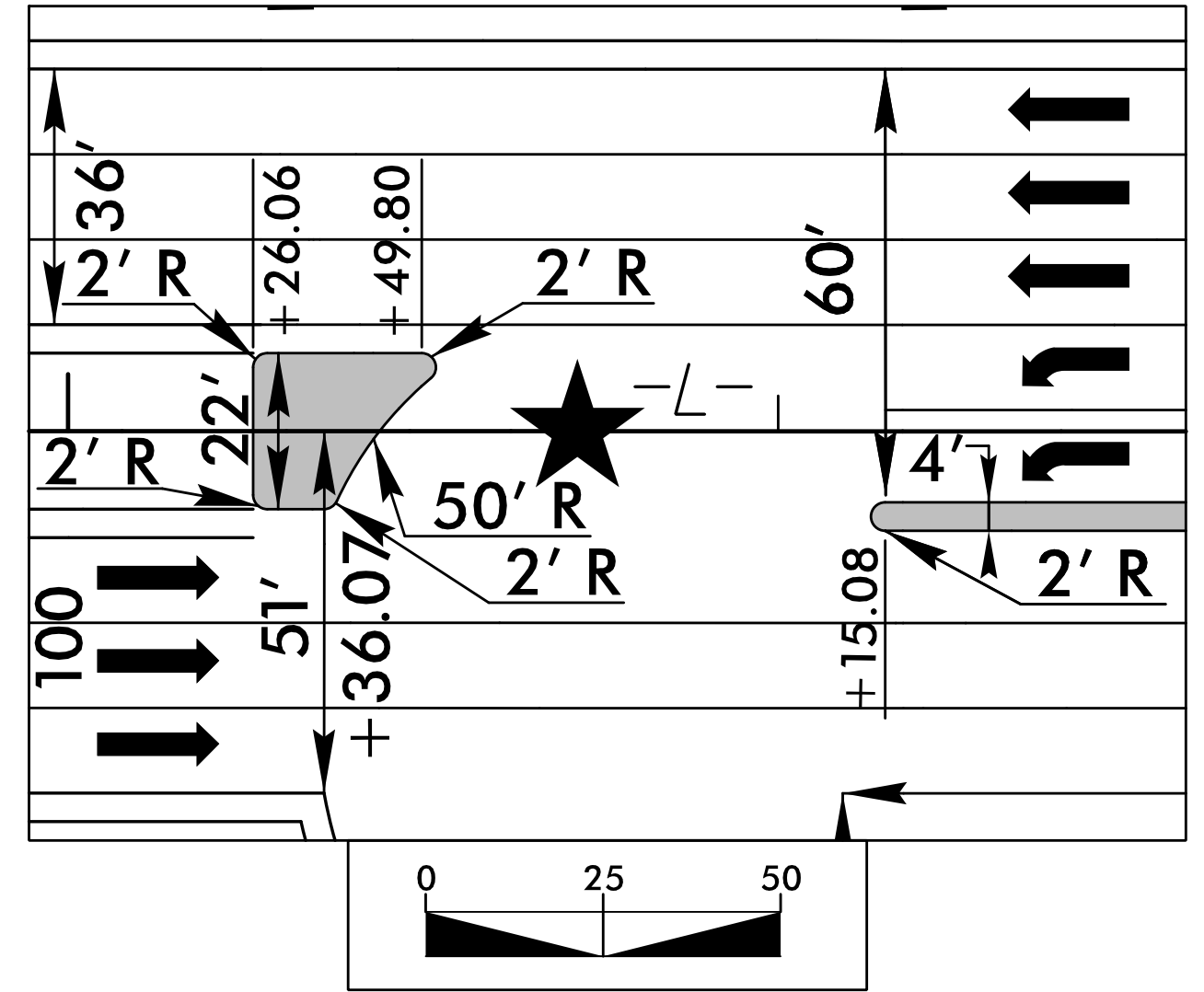
FOR -L- PROFILE, SEE SHEET NO. 16
FOR -YEB01- PROFILE, SEE SHEET NOS. 19 & 20



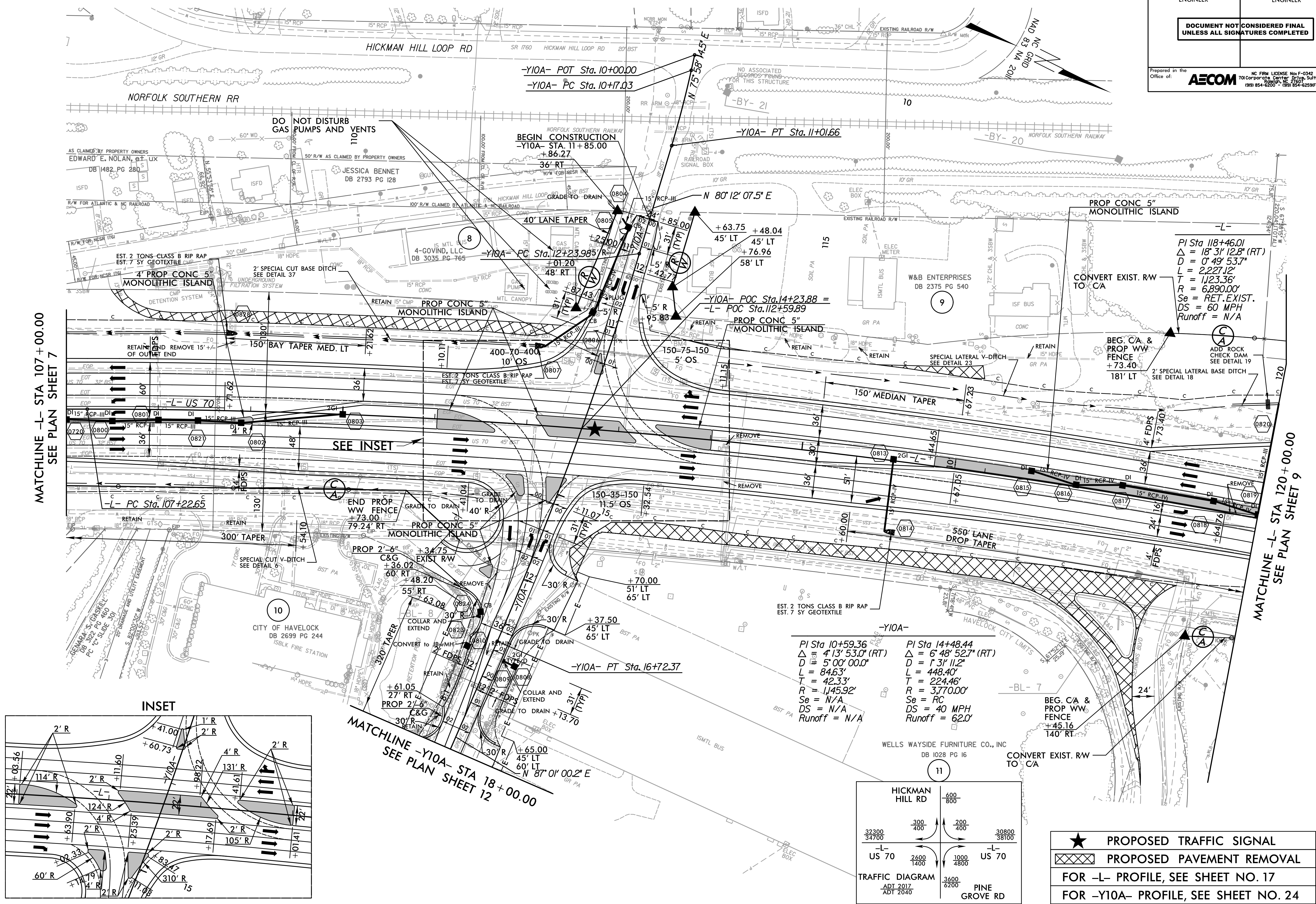
MATCHLINE -L- STA 93+50.00
SEE PLAN SHEET 6

MATCHLINE -L- STA 107+00.00
SEE PLAN SHEET 8

★ PROPOSED TRAFFIC SIGNAL
FOR -L- PROFILE, SEE SHEET NO. 17
FOR -YEB01- PROFILE, SEE SHEET NO. 19

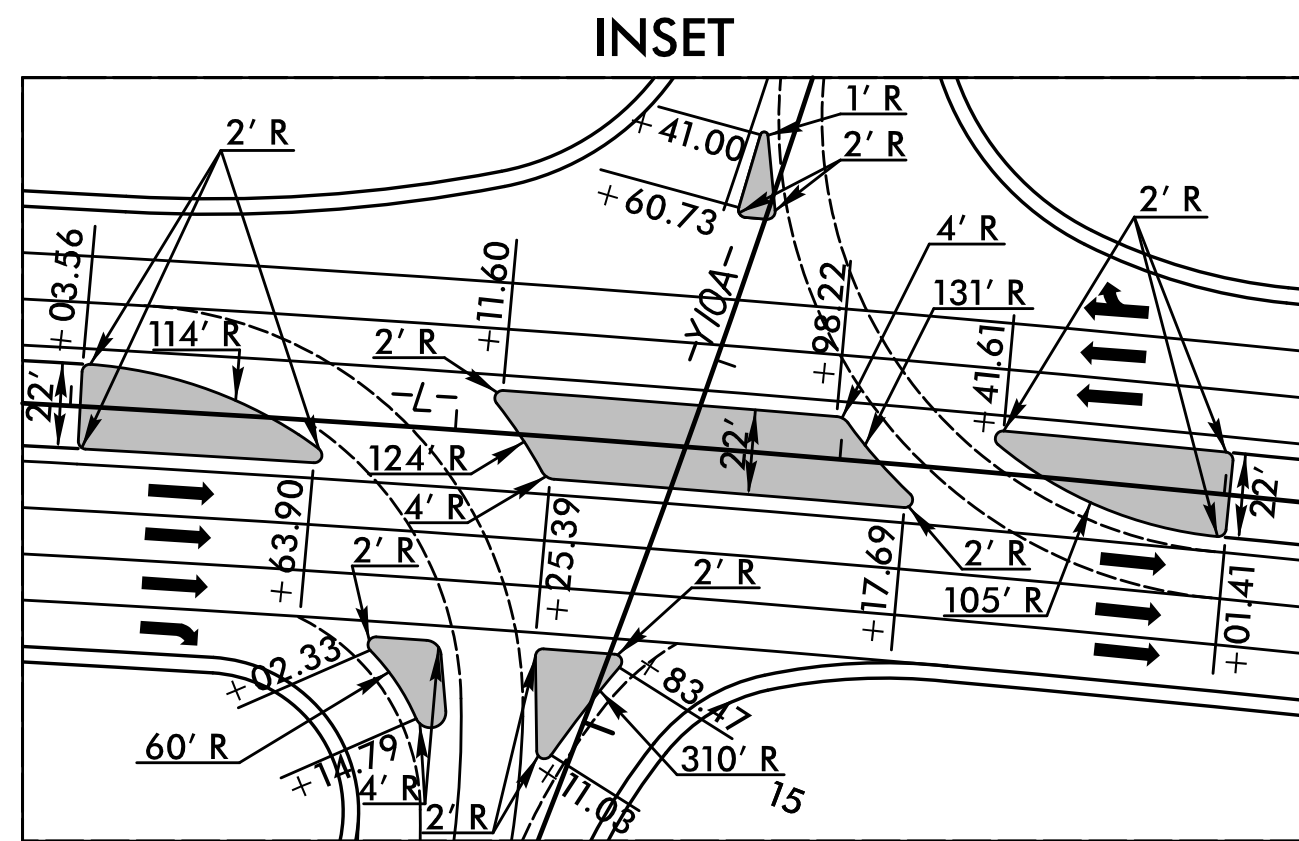


DATE/TIME: 9/4/25 AM
DWN: R:\Roadway\Proj\5516_rdw_dgn\07.dgn



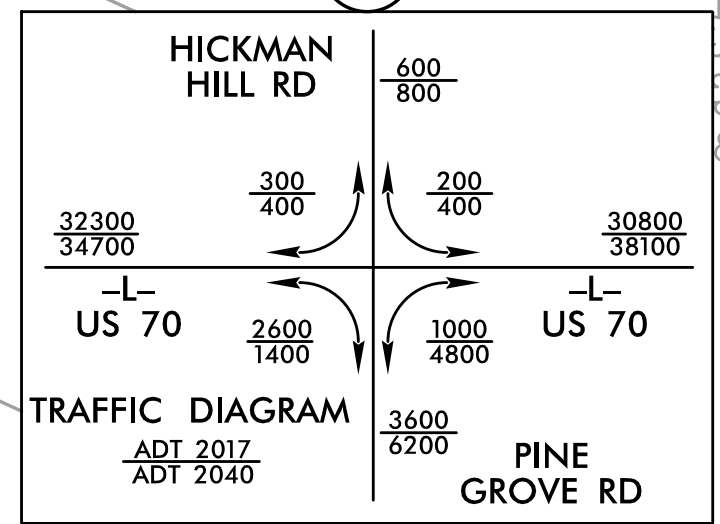
MATCHLINE -L- STA 107+00.00
SEE PLAN SHEET 7

MATCHLINE -L- STA 120+00.00
SEE PLAN SHEET 9



-Y10A-
PI Sta 10+59.36
 $\Delta = 4'13''53.0''$ (RT)
 $D = 5'00''00.0''$
 $L = 84.63'$
 $T = 42.33'$
 $R = 1,145.92'$
 $Se = RC$
 $DS = N/A$
 $Runoff = N/A$

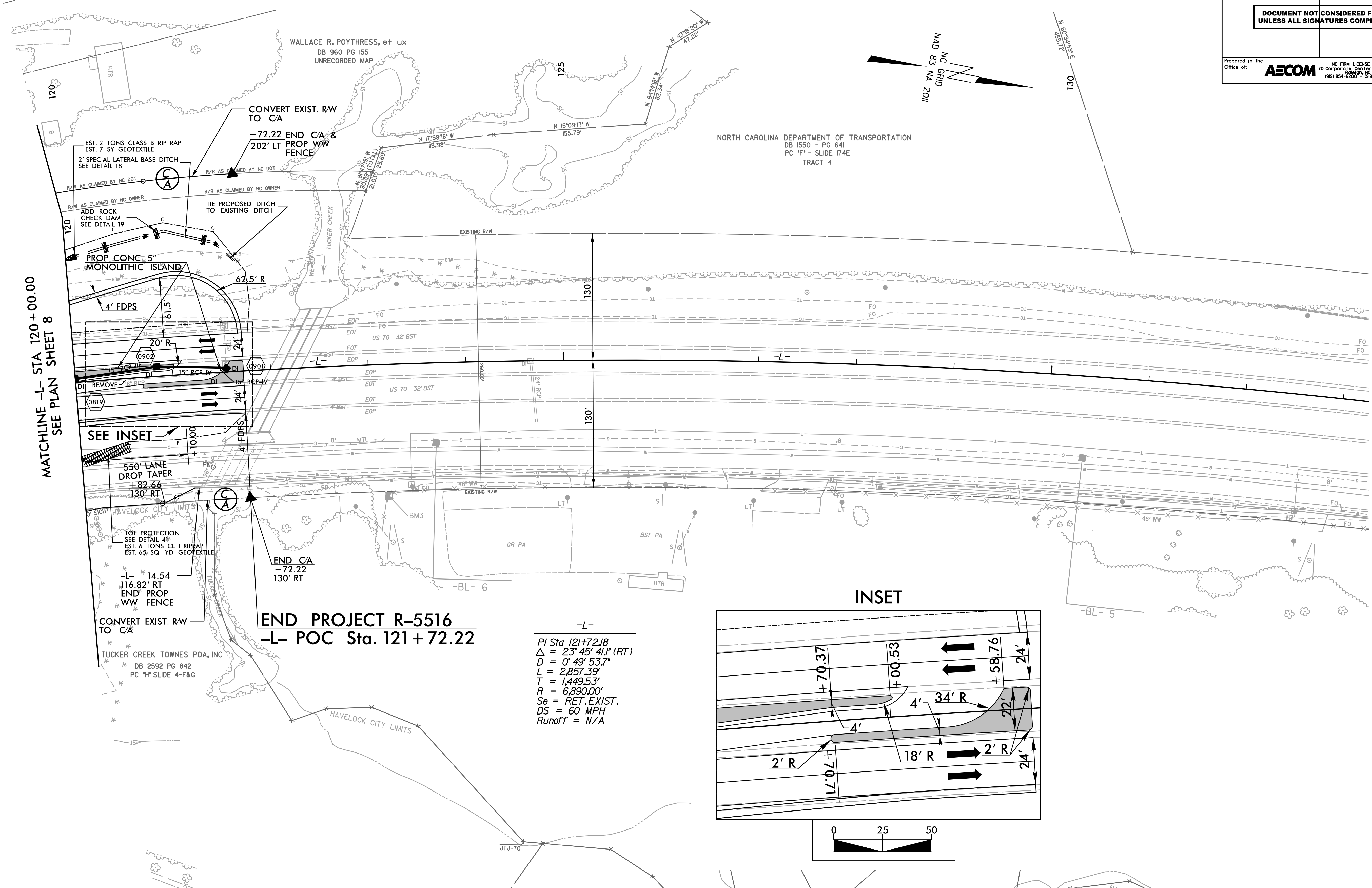
PI Sta 14+48.44
 $\Delta = 6'48''52.7''$ (RT)
 $D = 1'31''11.2''$
 $L = 448.40'$
 $T = 224.46'$
 $R = 3,770.00'$
 $Se = RC$
 $DS = 40$ MPH
 $Runoff = 62.0'$



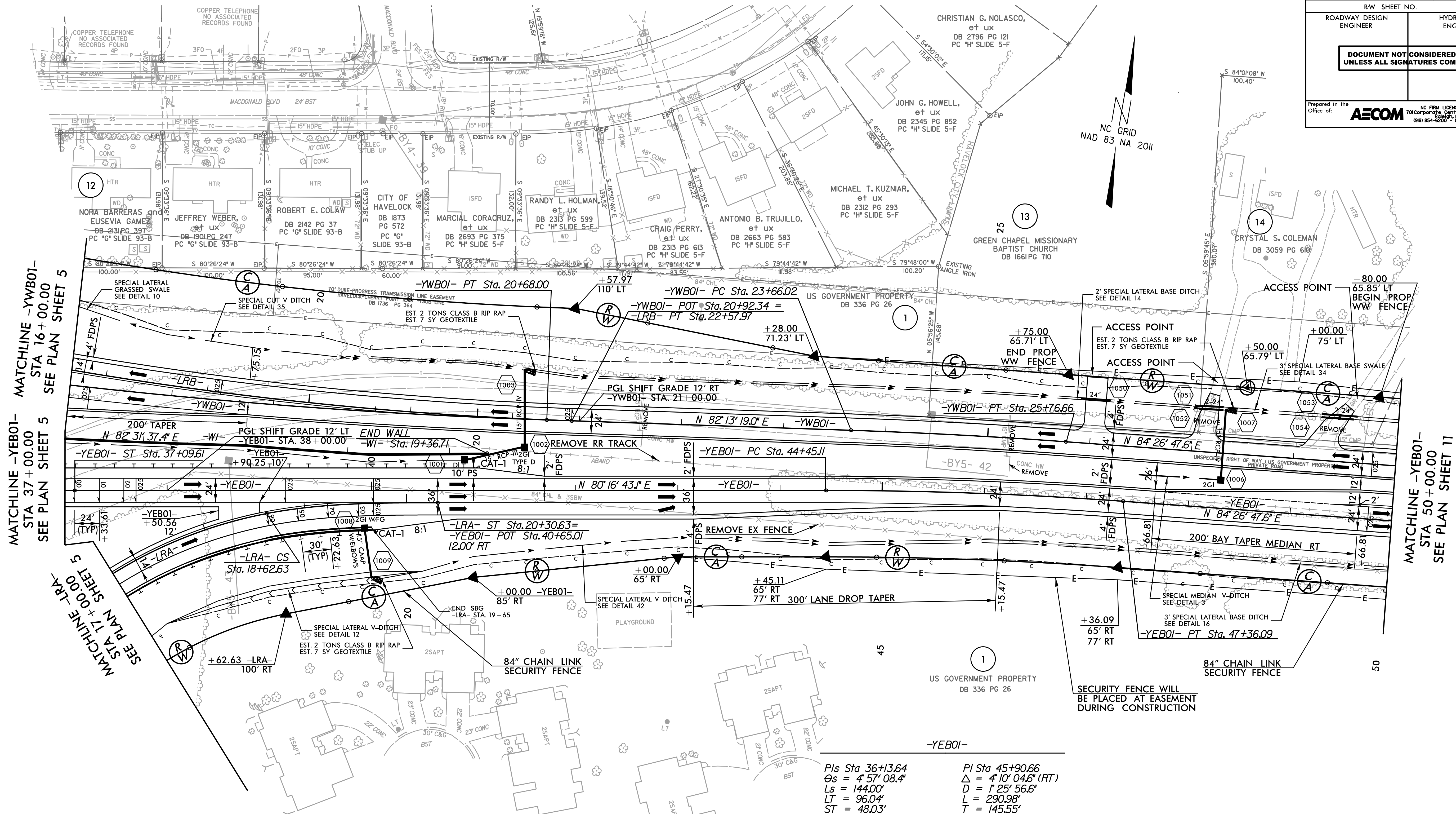
★ PROPOSED TRAFFIC SIGNAL
XXXX PROPOSED PAVEMENT REMOVAL
FOR -L- PROFILE, SEE SHEET NO. 17
FOR -Y10A- PROFILE, SEE SHEET NO. 24

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
R-5516	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
Prepared in the Office of: NC FIRM LICENSE No: F-0342 701 Corporate Center Drive, Suite 475 Raleigh, NC 27607 (919) 854-6200 - (919) 854-6259(AJX)	



FOR -L- PROFILE, SEE SHEET NO. 18



MATCHLINE -YWB01-
STA 37+00.00
SEE PLAN SHEET 5

MATCHLINE -LRA-
SEE STA 17+00.00
SEE PLAN SHEET 5

MATCHLINE -YEB01-
STA 50+00.00
SEE PLAN SHEET 11

-LRA-
PI Sta 16+09.21
 $\Delta = 89^\circ 38' 18.4''$ (RT)
D = 12' 54' 16.0"
L = 694.63'
T = 441.21'
R = 444.00'
Se = 0.08
DS = 40 MPH
Runoff = 168.0'

PIs Sta 19+18.82
 $\Delta = 10^\circ 50' 23.1''$
Ls = 168.00'
LT = 112.21'
ST = 56.19'

-LRB-
PI Sta 19+49.36
 $\Delta = 9^\circ 40' 46.0''$ (LT)
D = 1' 33' 52.1"
L = 618.70'
T = 310.09'
R = 3,662.29'
Se = RC
DS = 40 MPH
Runoff = 121.5'

PIs Sta 36+13.64
 $\Delta = 4^\circ 57' 08.4''$
Ls = 144.00'
LT = 96.04'
ST = 48.03'

PI Sta 45+90.66
 $\Delta = 4^\circ 10' 04.6''$ (RT)
D = 1' 25' 56.6"
L = 290.98'
T = 145.55'
R = 4,000.00'
Se = 0.025
DS = 40 MPH
Runoff = 144.0'

PI Sta 17+02.36
 $\Delta = 6^\circ 59' 27.5''$ (LT)
D = 0' 57' 17.3"
L = 732.19'
T = 366.55'
R = 6,000.83'
Se = 0.025
DS = 40 MPH
Runoff = N/A

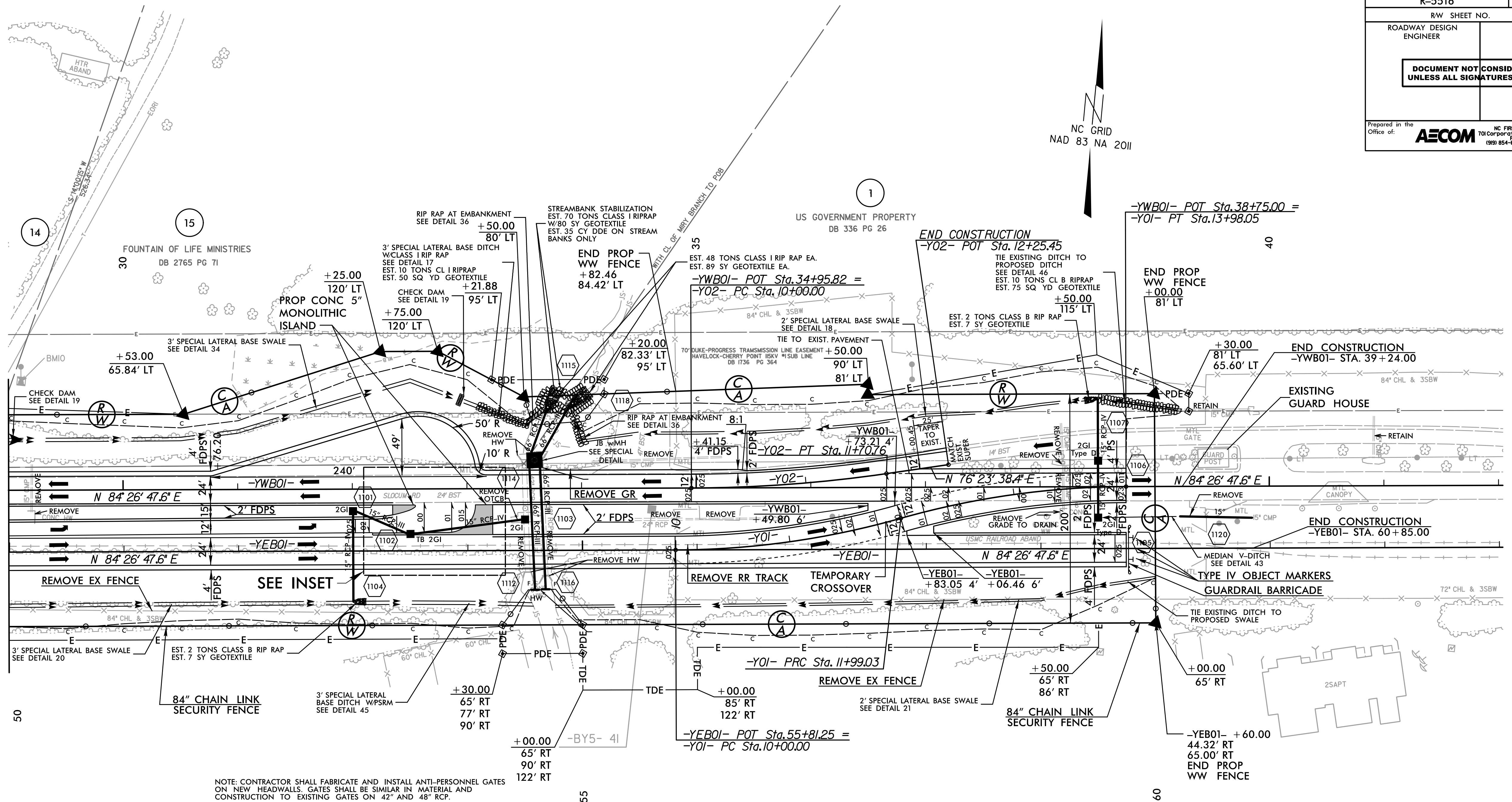
PI Sta 24+71.35
 $\Delta = 2^\circ 13' 28.6''$ (RT)
D = 1' 03' 22.1"
L = 210.64'
T = 105.33'
R = 5,425.00'
Se = 0.025
DS = 40 MPH
Runoff = N/A

FOR -LRA- PROFILE, SEE SHEET NO. 18
FOR -LRB- PROFILE, SEE SHEET NO. 19
FOR -YWB01- PROFILE, SEE SHEET NO. 22

FOR -YEB01- PROFILE, SEE SHEET NOS. 20 & 21
ALL DRIVEWAY TURNOUT RADII ARE 10'
UNLESS OTHERWISE NOTED

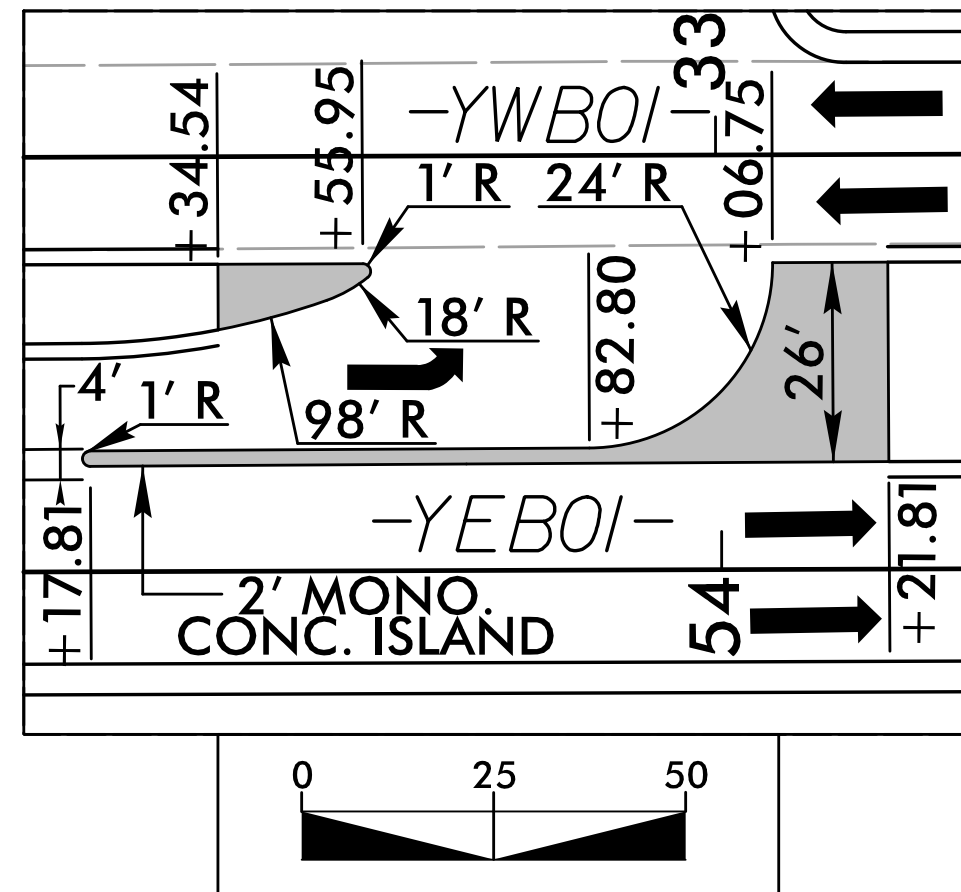
REVISIONS

MATCHLINE -YEB01-
STA 50+00.00
SEE PLAN SHEET 10



NOTE: CONTRACTOR SHALL FABRICATE AND INSTALL ANTI-PERSONNEL GATES ON NEW HEADWALLS. GATES SHALL BE SIMILAR IN MATERIAL AND CONSTRUCTION TO EXISTING GATES ON 42" AND 48" RCP.

INSET

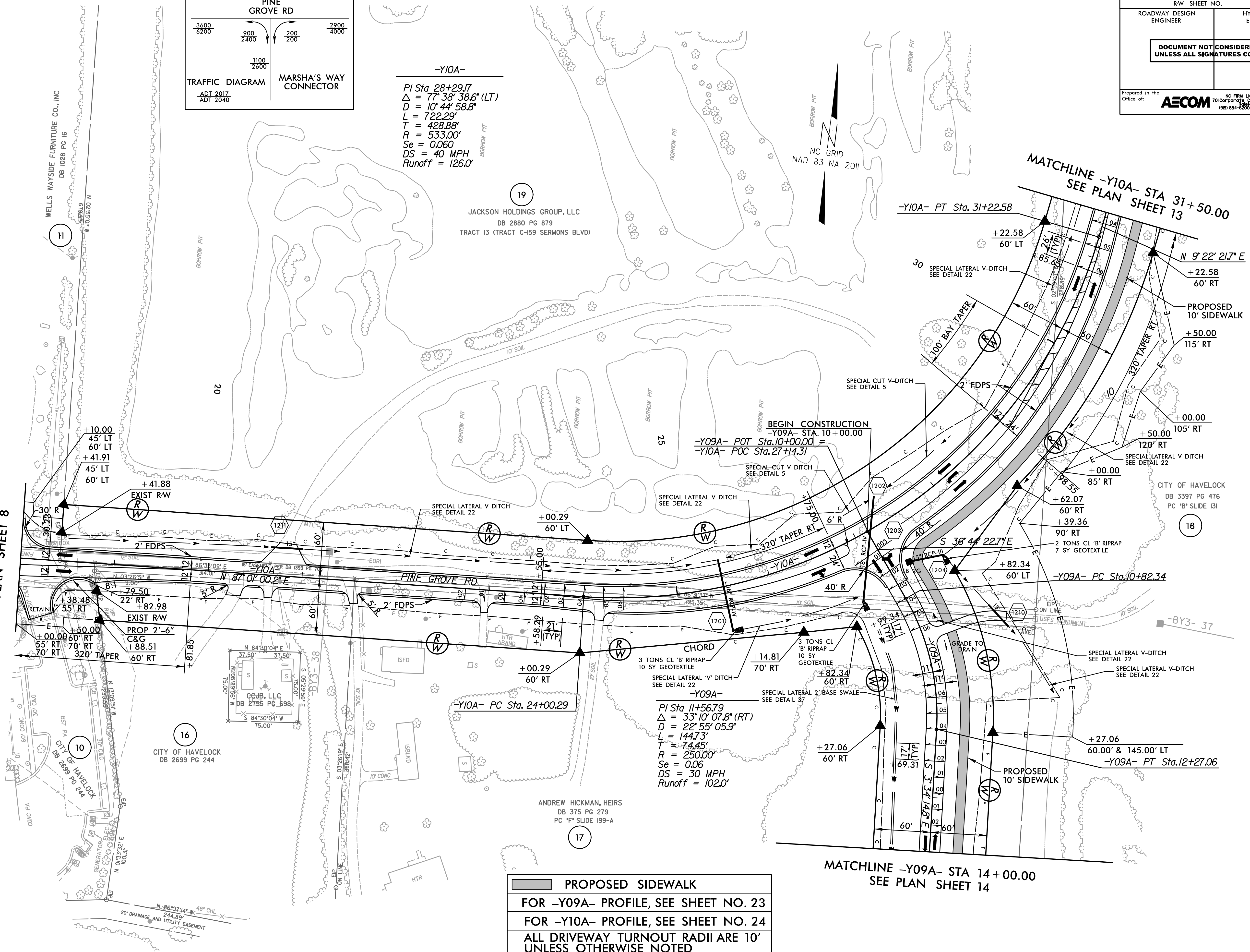
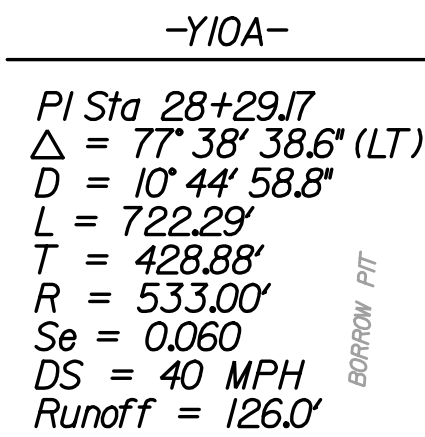


US GOVERNMENT PROPERTY
DB 336 PG 26

-Y01-	-Y02-
PI Sta 11+00.14 $\Delta = 15^\circ 38' 32.9''$ (LT) $D = 7^\circ 51' 34.2''$ $L = 199.03'$ $T = 100.14'$ $R = 729.00'$ $S_e = \text{VARIES}$ $DS = 40 \text{ MPH}$ $\text{Runoff} = 84.0'$	PI Sta 12+99.16 $\Delta = 15^\circ 38' 32.9''$ (RT) $D = 7^\circ 51' 34.2''$ $L = 199.03'$ $T = 100.14'$ $R = 729.00'$ $S_e = \text{VARIES}$ $DS = 40 \text{ MPH}$ $\text{Runoff} = 84.0'$

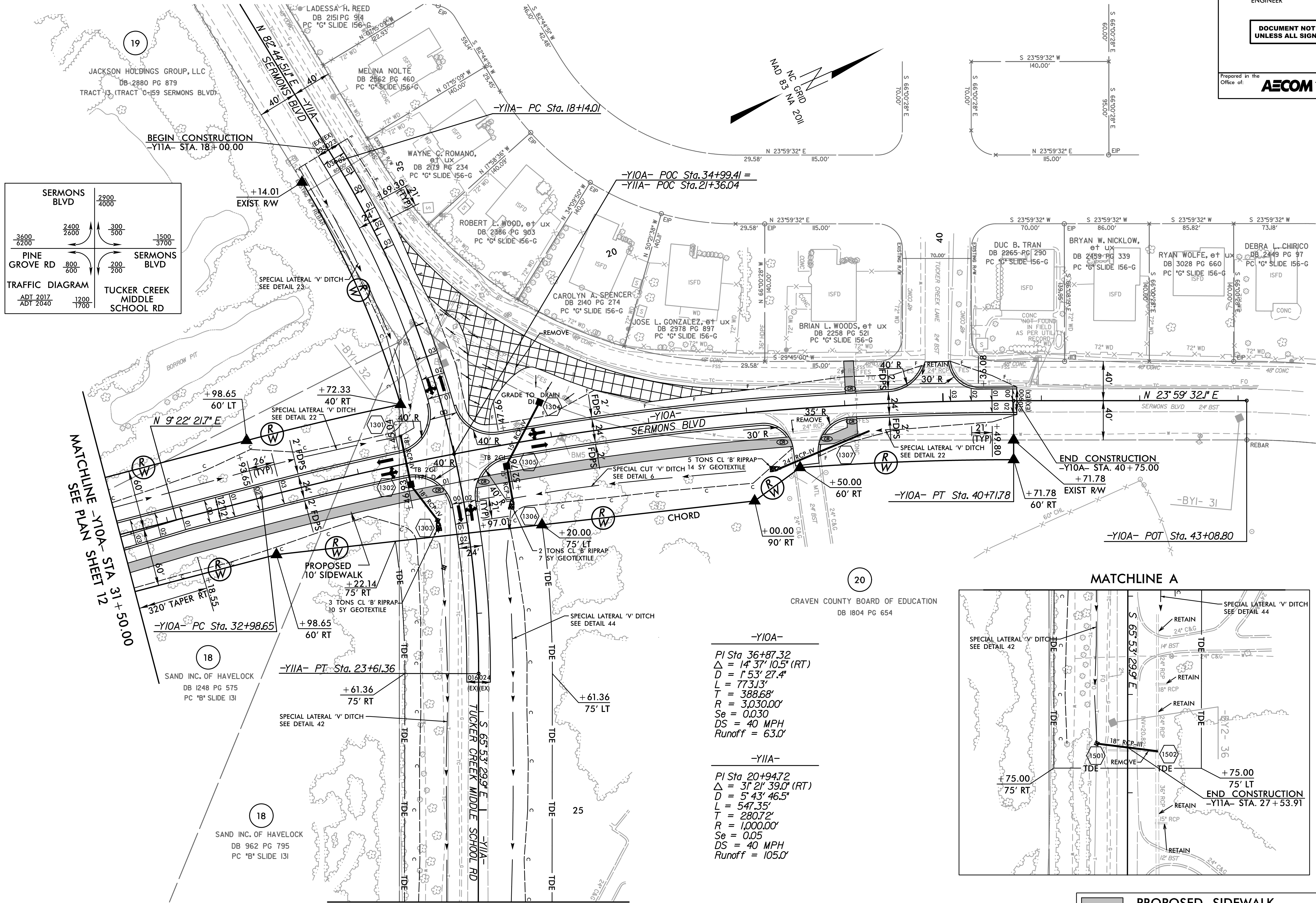
-Y02-
PI Sta 10+85.52 $\Delta = 8^\circ 03' 09.2''$ (LT) $D = 4^\circ 42' 56.5''$ $L = 170.76'$ $T = 85.52'$ $R = 1,215.00'$ $S_e = \text{RC}$ $DS = 40 \text{ MPH}$

FOR -YEB01- PROFILE, SEE SHEET NO. 21
FOR -YWB01- PROFILE, SEE SHEET NO. 22
FOR -Y01- PROFILE, SEE SHEET NO. 26
FOR -Y02- PROFILE, SEE SHEET NO. 26

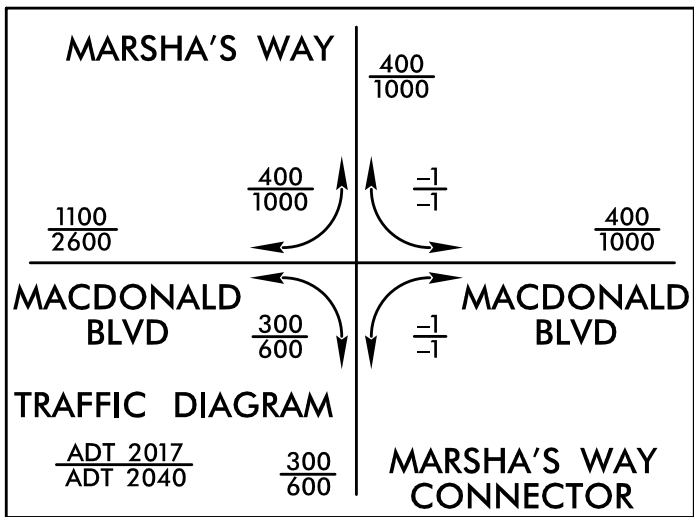


	PROPOSED SIDEWALK
	FOR -Y09A- PROFILE, SEE SHEET NO. 23
	FOR -Y10A- PROFILE, SEE SHEET NO. 24
	ALL DRIVEWAY TURNOUT RADII ARE 10' UNLESS OTHERWISE NOTED

DATE/TIME: 9:41:41 AM
DGN: R:\Roadway\Proj\5516_rdy_psh\J2.dgn



MATCHLINE -Y09A- STA 14+00.00
SEE PLAN SHEET 12



-Y09A-

PI Sta 25+06.17

$\Delta = 81^{\circ}24'49.0"$ (LT)

$D = 16^{\circ}22'12.8"$

$L = 497.33'$

$T = 301.12'$

$R = 350.00'$

$Se = 0.06$

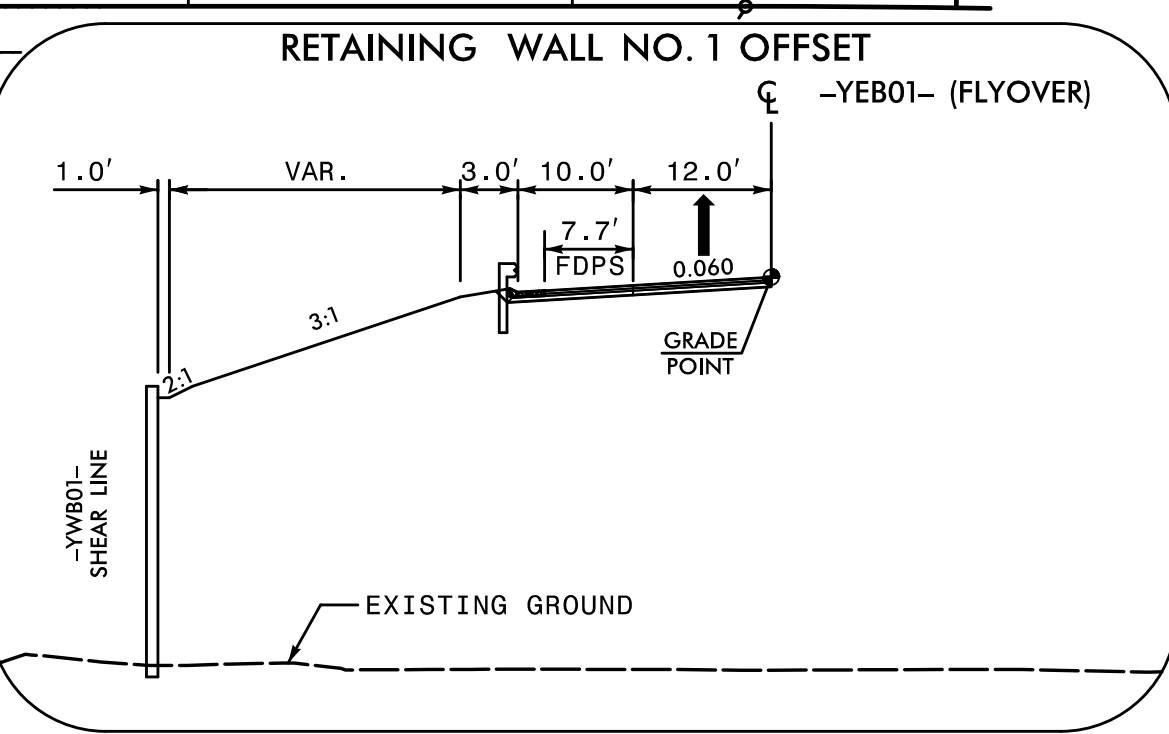
$DS = 30$ MPH

Runoff = 102.0'

PROPOSED SIDEWALK

FOR -Y09A- PROFILE, SEE SHEET NO. 23

WALL NO. 1 ENVELOPE



—YEB01— STA. 34+00.00 TO —YEB01— STA. 41+00.00 LT

—W/—
APPROXIMATE WALL
FACE AREA = 15,650 SF

END WALL 2
W2- POC Sta. 15+59.99
-YEB01- Sta. 28+70.74
RIGHT 102.11'

BEGIN WALL 2
W2- POC Sta. 9+92.05
-YEB01- Sta. 23+43.32
RIGHT 62.82'

CHERRY BRANCH, LTD
DB 1478 PG 66
-YEB01- SC Sta. 24+53.46
-YEB01- TS Sta. 23+09.46

CHERRY DB 1

WALL NO. 1 ENVELOPE

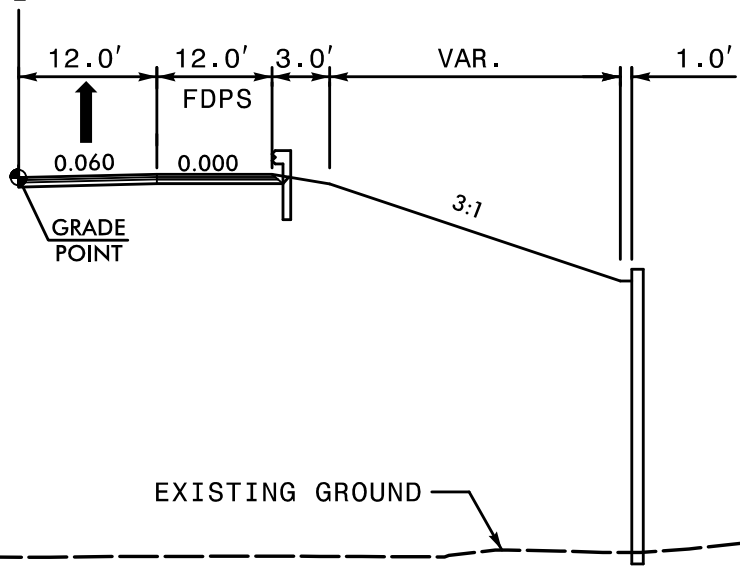
RETAINING WALL NO. 2 OFFSET
-YEB01- (FLYOVER)

12.0' 12.0' 3.0' VAR.
FDPS
0.060 0.000

Diagram illustrating the cross-section of a retaining wall. The wall has a vertical face and a sloped top surface. Key dimensions and labels include:

- 1.0' (Vertical dimension from the top of the wall to the top of the sloped surface)
- 3:1 (Slope ratio of the top surface)
- TOP OF WALL
- WALL GRADE ELEV.
- ASSUMED WALL THICKNESS = 12"
- BOTTOM OF WALL
- EXISTING GROUND

☒ -YEB01- (FLYOVER)



-YEB01- STA. 23+50.96 TO -YEB01- STA. 29+00.00 R1

