



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY PERDUE
GOVERNOR

EUGENE CONTI
SECRETARY

March 12, 2010

MEMORANDUM TO: Mr. Greg Burns, PE
Division Six Engineer

FROM: Philip S. Harris, III, P.E., Unit Head
Natural Environment Unit
Project Development and Environmental Analysis Branch

SUBJECT: Columbus County, Proposed Interchange at the Intersection of US 74/NC 130
(Andrew Jackson Highway) and NC 242 (Haynes Lennon Highway); T.I.P.
Number R-4900; Federal Aid Project No. NHF-74(78); WBS No. 40224.1.1

E. L. Furr

Attached is the U.S. Army Corps of Engineers Section 404 Individual Permit and N.C. Division of Water Quality Section 401 Individual Water Quality Certification for the above referenced project. All environmental permits have been received for the construction of this project.

A copy of this permit package will be posted on the NCDOT website at:
<http://www.ncdot.gov/doh/preconstruct/pe/neu/permit.html>

PSH/gyb

Attachment

Cc: W/attachment
Mr. Randy Garris, P.E. State Contract Officer
Mr. James J. Rerko, Division Environmental Officer
Ms. Beth Harmon, EEP

Cc: W/o attachment (see website for attachments)
Mr. Majed Alghandour, P. E., Programming and TIP
Mr. Jay Bennett, P.E., Roadway Design
Dr. David Chang, P.E., Hydraulics
Mr. Art McMillan, P.E., Highway Design
Mr. Tom Koch, P.E., Structure Design
Mr. Mark Staley, Roadside Environmental
Mr. John F. Sullivan, FHWA
Mr. Ron Hancock, P.E., State Roadway Construction Engineer
Mr. Mike Robinson, P.E., State Bridge Construction
Mr. Rob Hanson, P.E., PDEA Eastern Region Unit Head

PROJECT COMMITMENTS

Proposed Interchange at the Intersection of
US 74/NC 130 (Andrew Jackson Highway)
and NC 242 (Haynes Lennon Highway)
Columbus County
WBS Project 40224.1.1
Federal Aid Project No. NHF-74(78)
TIP PROJECT R-4900

COMMITMENTS DEVELOPED THROUGH PROJECT DEVELOPMENT AND DESIGN

Current status, changes, or additions to the project commitments as shown in the environmental document for the project are printed in *italics*.

Roadway Design/Division 6 Construction

NCDOT will use 3:1 slopes in all wetland areas for this project.

The design utilizes 3:1 slopes in all wetland areas.

Division 6 Construction

NCDOT will minimize the clearing performed within the limits of the ramp located in the southwest quadrant of the interchange.

These measures will be incorporated during construction.

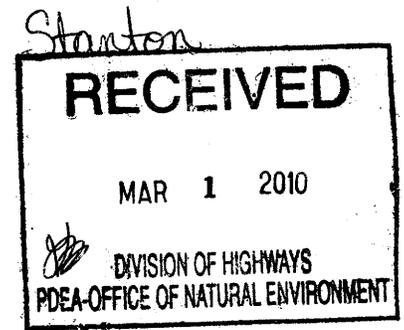
COMMITMENTS DEVELOPED THROUGH PERMITTING

No additional special conditions were developed during the permitting process.



REPLY TO
ATTENTION OF:

DEPARTMENT OF THE ARMY
WILMINGTON DISTRICT, CORPS OF ENGINEERS
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343



February 25, 2010

Regulatory Division

Action ID Number SAW-2009-01530

Dr. Gregory J. Thorpe, PhD, Manager
Project Development and Environmental Analysis Branch
North Carolina Department of Transportation
Division of Highways
1598 Mail Service Center
Raleigh, North Carolina 27699-1548

Dear Dr. Thorpe:

In accordance with your written request of October 29, 2009 and the ensuing administrative record, enclosed are two copies of a Department of the Army permit to directly discharge dredged and/or fill material into wetlands adjacent to Cow Branch and two unnamed tributaries to the aforementioned waters to facilitate the conversion of an at-grade intersection to a grade-separation intersection at U.S. 74/NC 130 and NC 242, near Evergreen, Columbus County, North Carolina. Transportation Improvement Project number R-4900. The proposed roadway upgrade is approximately two square miles in length and is more specifically located at Latitude 34.3968°N, Longitude -78.9008°W. Table 1 below indicates the authorized impacts illustrated on the attached plans.

Table 1: Authorized Impacts to Waters of the United States

Site Number	Station Number	Impact Type	Resource Type	Authorized Area of Impact (Acres)	
				Permanent	Temporary
1	31+35/38+65-Y-	Permanent roadway fill	Wetland	3.61	
1	31+35/38+65-Y-	excavation	Wetland	0.02	
1	31+35/38+65-Y-	Temporary fill for construction	Wetland		0.07
2	19+83/23+68-Y-RT	Permanent roadway fill	Wetland	0.12	
2	19+83/23+68-Y-RT	Temporary fill for construction	Wetland		0.05
3	10+30/17+85-SR-	Permanent roadway fill	Wetland	1.84	
3	10+30/17+85-SR-	Temporary fill for construction	Wetland		0.08
4	18+02/22+40-SR-	Permanent roadway fill	Wetland	0.27	
4	18+02/22+40-SR-	Temporary fill for construction	Wetland		0.08
5	10+63/21+96-RPA-	Permanent roadway fill	Wetland	1.40	
5	10+63/21+96-RPA-	Temporary fill for construction	Wetland		0.17
Total Impacts				7.26	0.45

You should acknowledge that you accept the terms and conditions of the enclosed permit by signing and dating each copy in the spaces provided ("Permittee" on page 3). Your signature, as permittee, indicates that, as consideration for the issuance of this permit, you voluntarily accept and agree to comply with all of the terms and conditions of this permit. All pages of both copies of the signed permit with drawings should then be returned to this office for final authorization. A self-addressed envelope is enclosed for your convenience.

This correspondence contains an initial proffered permit for the above described activity. If you object to this decision or the enclosed special conditions you may request that the District Commander reconsider his decision. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet and request for appeal (RFA) form.

If you request to appeal this decision you must submit a completed RFA form to the District Commander, Wilmington District Corps of Engineers at the following address:

Colonel Jefferson M. Ryscavage, District Commander
U.S. Army Corps of Engineers, Wilmington District
69 Darlington Avenue
Wilmington, North Carolina 28403

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, and that it has been received by the District Office within 60 days of the date of the NAP. Should you decide to submit an RFA form, it must be received at the above address by April 23, 2010.

It is not necessary to submit an RFA form to the District Office if you do not object to the decision contained in this correspondence.

After the permit is authorized in this office, the original copy will be returned to you; the duplicate copy will be permanently retained in this office. Should you have questions, contact Ms. Kimberly Garvey of my Wilmington Field Office regulatory staff at telephone (910) 251-4482.

Sincerely,



FOR: Jefferson M. Ryscavage
Colonel, E N
Commanding

Enclosures

DEPARTMENT OF THE ARMY PERMIT

Permittee North Carolina Department of Transportation
Permit No. SAW-2009-01530
Issuing Office USAED, WILMINGTON

NOTE: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below.

Project Description :

Directly discharge dredged and/or fill material into wetlands adjacent to Cow Branch and two unnamed tributaries to the aforementioned waters to facilitate the conversion of an at-grade intersection to a grade-separation intersection at U.S. 74/NC 130 and NC 242, near Evergreen, Columbus County, North Carolina. Transportation Improvement Project number R-4900. The proposed roadway upgrade is approximately two square miles in length and is more specifically located at Latitude 34.3968°N, Longitude -78.9008°W.

Table 1: Authorized Impacts to Waters of the United States

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2	19+83/23+68-Y-RT	Permanent roadway fill	Wetland	0.12	
2	19+83/23+68-Y-RT	Temporary fill for construction	Wetland		0.05
3	10+30/17+85-SR-	Permanent roadway fill	Wetland	1.84	
3	10+30/17+85-SR-	Temporary fill for construction	Wetland		0.08
4	18+02/22+40-SR-	Permanent roadway fill	Wetland	0.27	
4	18+02/22+40-SR-	Temporary fill for construction	Wetland		0.08
5	10+63/21+96-RPA-	Permanent roadway fill	Wetland	1.40	
5	10+63/21+96-RPA-	Temporary fill for construction	Wetland		0.17
Total Impacts				7.26	0.45

Project Location: The proposed interchange upgrade project is located at the intersection of U.S. 74/NC 130 and NC 242, near Evergreen, Columbus County, North Carolina (see attached pans). The proposed project is located in tributaries and adjacent wetlands that are hydrologically connected to Cow Branch, which drains to the Lumber River, a Section 10 Navigable Waterway. The project is more specifically located at Latitude 34.3968°N, Longitude -78.9008°W.

Permit Conditions:

General Conditions:

1. The time limit for completing the work authorized ends on **December 31, 2015**. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.
2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.

3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

ENG FORM 1721, Nov 86

EDITION OF SEP 82 IS OBSOLETE.

(33 CFR 325 (Appendix A))

4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.

5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.

6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit,

Special Conditions:

SEE ATTACHED SPECIAL CONDITIONS

Further Information:

1. Congressional Authorities: You have been authorized to undertake the activity described above pursuant to:
 - () Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).
 - (X) Section 404 of the Clean Water Act (33 U.S.C. 1344).
 - () Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413).
2. Limits of this authorization.
 - a. This permit does not obviate the need to obtain other Federal, state, or local authorizations required by law.
 - b. This permit does not grant any property rights or exclusive privileges.
 - c. This permit does not authorize any injury to the property or rights of others.
 - d. This permit does not authorize interference with any existing or proposed Federal project.
3. Limits of Federal Liability. In issuing this permit, the Federal Government does not assume any liability for the following:
 - a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.
 - b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.
 - c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.
 - d. Design or construction deficiencies associated with the permitted work.

- e. Damage claims associated with any future modification, suspension, or revocation of this permit.
4. Reliance on Applicant's Data: The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.
5. Reevaluation of Permit Decision. This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:
- a. You fail to comply with the terms and conditions of this permit.
 - b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (See 4 above).
 - c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions. General condition 1 establishes a time limit for the completion of the activity authorized by this permit, Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give favorable consideration to a request for an extension of this time limit.

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

E. L. Luik for Gregory J. Thayer, PhD March 10, 2010
 (PERMITEE) NORTH CAROLINA DEPARTMENT OF TRANSPORTATION (DATE)

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

 (DISTRICT ENGINEER) JEFFERSON M. RYSCAVAGE, COLONEL (DATE)

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

 (TRANSFEE) (DATE)

SPECIAL CONDITIONS; (Permit No. SAW-2009-01530)

In accordance with 33 U.S.C. 1341 (d), all conditions of the North Carolina Division of Water Quality 401 Certification are incorporated as part of the Department of the Army permit, and attached for your convenience. Therefore, they are not listed as special conditions. The following Special Conditions will be added to the permit.

1. Failure to institute and carry out the details of the following special conditions, below, will result in a directive to cease all ongoing and permitted work within waters and/or wetlands associated with the permitted project, or such other remedies and/or fines as the District Engineer or his authorized representatives may seek.

2. Compensatory mitigation for the unavoidable impacts to 7.71 acres of riparian wetlands associated with the proposed project shall be provided by the North Carolina Ecosystem Enhancement Program (NCEEP) within the Lumber River Basin (Cataloging Unit 03040203). The EEP will provide 14.97 acres of riparian wetland credits pursuant to Section X of Amendment Number 2 to the Memorandum of Agreement (MOA) signed 8 March 2007.

3. In the authorized temporary impact areas, all fill material and temporary erosion control measures must be removed in their entirety upon completion of roadway work and fill slopes stabilized.

4. All work must be performed in strict compliance with the attached plans, which are authorized by this permit. Any modification to the authorized permit plans must be approved in writing by the USACE prior to implementation.

5. The permittee shall schedule a preconstruction meeting between its representatives, the contractor's representatives, and the U.S. Army Corps of Engineers, Ms. Kimberly Garvey, Wilmington Regulatory Field Office, prior to any work within jurisdictional waters and wetlands to ensure that there is a mutual understanding of all of the terms and conditions contained within this Department of the Army Permit. The permittee shall notify the Corps of Engineers Project Manager a minimum of thirty (30) days in advance of the scheduled meetings in order to provide that individual with ample opportunity to schedule and participate in the required meetings. One copy of the final half-size construction drawings shall be furnished to the Corps of Engineers, Ms. Kimberly Garvey, Wilmington Regulatory Field Office prior to the pre-construction meeting.

6. The permittee shall ensure that the construction design plans for this project do not deviate from the permit plans attached to this authorization. Written verification shall be provided that the final construction drawings comply with the attached permit drawings prior to any active construction in waters of the United States, including wetlands. Any deviation in the construction design plans will be brought to the attention of the U.S. Army Corps of Engineers, Ms. Kimberly Garvey, Wilmington Regulatory Field Office prior to any active construction in waters or wetlands.

7. The permittee shall require its contractors and/or agents to comply with the terms and conditions of this permit in the construction and maintenance of this project, and shall provide each of its contractors and/or agents associated with the construction or maintenance of this project with a copy of this permit, and any authorized modifications. A copy of this permit including the authorized plans referenced in Special Condition (4) and authorized modifications, including all conditions, shall be available at the project site during construction and maintenance of this project.

8. Except as authorized by this permit or any USACE approved modification to this permit, no excavation, fill, or mechanized land-clearing activities shall take place at any time in the construction or maintenance of this project, within waters or wetlands, or shall any activities take place that cause the degradation of waters or wetlands. There shall be no excavation from, waste disposal into, or degradation of, jurisdictional wetlands or waters associated with this permit without appropriate modification of this permit, including appropriate compensatory mitigation. This prohibition applies to all borrow and fill activities connected with this project. In addition, except as specified in the plans attached to this permit, no excavation, fill or mechanized land-clearing activities shall take place at any time in the construction or maintenance of this project, in such a manner as to impair normal flows and circulation patterns within, into, or out of waters or wetlands or to reduce the reach of waters or wetlands.

9. To ensure that all borrow and waste activities occur on high ground and do not result in the degradation of adjacent wetlands and streams, except as authorized by this permit, the permittee shall require its contractors and/or agents to identify all areas to be used to borrow material, or to dispose of dredged, fill, or waste material. The permittee shall provide the USACE with appropriate maps indicating the locations of proposed borrow or waste sites as soon as the permittee has that information. The permittee will coordinate with the USACE before approving any borrow or waste sites that are within 400 feet of any streams or wetlands. All jurisdictional wetland lines on borrow and waste sites shall be verified by the USACE and shown on the approved reclamation plans. The permittee shall ensure that all such areas comply with the **preceding condition** of this permit, and shall require and maintain documentation of the location and characteristics of all borrow and disposal sites associated with this project. This information will include data regarding soils, vegetation and hydrology sufficient to clearly demonstrate compliance with the **preceding condition**. All information will be available to the USACE upon request. NCDOT shall require its contractors to complete and execute reclamation plans for each waste and borrow site and provide written documentation that the reclamation plans have been implemented and all work is completed. This documentation will be provided to the Corps of Engineers within 30 days of the completion of the reclamation work.

10. This permit does not authorize temporary placement or double handling of excavated or fill material or construction equipment within waters or wetlands outside the permitted area.

11. The permittee will report any violation of these conditions or violations of Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act in writing to the Wilmington District, U. S Army Corps of Engineers, within 24 hours of the permittee's discovery of the violation.

12. All fill material must be adequately stabilized at the earliest practicable date to prevent sediment from entering into adjacent waters or wetlands. The permittee shall remove all sediment and erosion control measures placed in wetlands or waters, and shall restore natural grades in those areas, prior to project completion.

13. NCDOT should utilize the Best Management Practices for Bridge Construction and Demolition as described in the "*Best Management Practices For Construction and Maintenance Activities*", August 2003.

14. The permittee shall comply with the conditions specified in the water quality certification, No. 3814, with conditions, issued by the North Carolina Division of Water Quality on January 12, 2010.

15. Design and placement of culverts and other structures including temporary erosion control measures shall not be conducted in a manner that may result in disequilibrium of wetlands or streambeds or banks, adjacent to, upstream or downstream of the structures. Culverts shall be placed so that the openings match the natural stream channel wherever possible. Riprap armoring of streams at culvert outlets shall be minimized, including riprap placed above the ordinary high water elevation, in favor of bioengineering techniques such as bank sloping, erosion control matting and revegetation with deep-rooted, woody plants.

16. The permittee shall use appropriate sediment and erosion control practices which equal or exceed those outlined in the most recent version of the "North Carolina Sediment and Erosion Control Planning and Design Manual" to assure compliance with the appropriate turbidity water quality standard. Erosion and sediment control practices must be in full compliance with all specifications governing the proper design, installation and operation and maintenance of such Best Management Practices in order to assure compliance with the appropriate turbidity water quality standards. This shall include, but is not limited to, the immediate installation of silt fencing or similar appropriate devices around all areas subject to soil disturbance or the movement of earthen fill, and the immediate stabilization of all disturbed areas. Additionally, the project must remain in full compliance with all aspects of the Sedimentation Pollution Control Act of 1973 (North Carolina General Statutes Chapter 113A Article 4). Adequate sedimentation and erosion control measures must be implemented prior to any ground disturbing activities to minimize impacts to downstream aquatic resources. These measures must be inspected and maintained regularly, especially following rainfall events. All fill material must be adequately stabilized at the earliest practicable date to prevent sediment from entering into adjacent waters or wetlands.

17. The permittee shall remove all sediment and erosion control measures placed in wetlands or waters, and shall restore natural grades in those areas, prior to project completion.

18. Bridge demolition shall be conducted in accordance with Section 4.6 of the Best Management Practices for Construction and Maintenance Activities, dated August 2003. All piles shall be completely removed from the waterbody or cut one foot below the invert of the waterbody and removed.

19. The permittee shall take measures to prevent live or fresh concrete from coming into contact with any surface waters until the concrete has hardened.

20. The permittee shall install barrier fencing or other acceptable forms of barrier around all wetlands that are not to be disturbed to make them readily visible and prevent construction equipment from inadvertently entering and disturbing the wetland areas that are to remain undisturbed.

21. All mechanized equipment will be regularly inspected and maintained to prevent contamination of waters and wetlands from fuels, lubricants, hydraulic fluids, or other toxic materials. No equipment staging or storage of construction material will occur in wetlands. Hydro-seeding equipment will not be discharged or washed out into any surface waters or wetlands. In the event of a spill of petroleum products or any other hazardous waste, the permittee shall immediately report it to the N.C. Division of Water Quality at (919) 733-5083 or (800) 662-7956 and provisions of the North Carolina Oil Pollution and Hazardous Substances Control Act will be followed.

22. If the permittee discovers any previously unknown historic or archeological sites while accomplishing the authorized work, he shall immediately stop work and notify the Wilmington District Engineer who will initiate the required State/Federal coordination.

23. The permittee shall maintain the authorized work in good condition and in conformance with the terms and conditions of this permit. The permittee is not relieved of this requirement if he abandons the permitted activity without transferring it to a third party.

24. Unless otherwise authorized by this permit, all fill material placed in waters or wetlands shall be generated from an upland source and will be clean and free of any pollutants except in trace quantities. Metal products, organic materials (including debris from land clearing activities), or unsightly debris will not be used.

25. This Department of the Army permit does not obviate the need to obtain other Federal, State, or local authorizations required by law.

26. In issuing this permit, the Federal Government does not assume any liability for:

a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.

b. Damages to the permitted project or uses thereof as a result of current or future Federal activities initiated on behalf of the general public.

c. Damages to other permitted or un-permitted activities or structures caused by the authorized activity.

d. Design and construction deficiencies associated with the permitted work.

e. Damage claims associated with any future modification, suspension, or revocation of this permit.



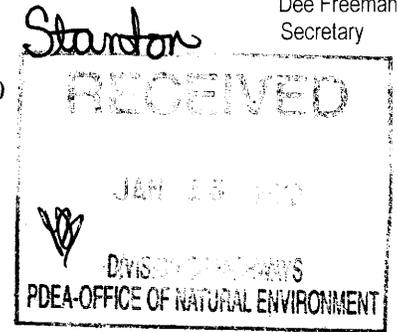
North Carolina Department of Environment and Natural Resources

Division of Water Quality
Coleen H. Sullins
Director

Beverly Eaves Perdue
Governor

Dee Freeman
Secretary

January 12, 2010



Dr. Greg Thorpe, PhD., Manager
Project Development and Environmental Analysis
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, North Carolina, 27699-1548

Subject: 401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water Act with
ADDITIONAL CONDITIONS for Proposed improvements to intersection of US 74 and NC 242 in
Columbus County, Federal Aid Project No. NHF-74(78), State Project No. 40224.1.1, TIP No. R-4900.
NCDWQ Project No. 20091149

Dear Dr. Thorpe:

Attached hereto is a copy of Certification No. 3814 issued to The North Carolina Department of Transportation
(NCDOT) dated January 12, 2010.

If we can be of further assistance, do not hesitate to contact us.

Sincerely,

Coleen H. Sullins
Director

RECEIVED
Division of Air Quality

JAN 14 2010

Project Development and
Environmental Analysis

Attachments

- cc: Kim Garvey, US Army Corps of Engineers, Wilmington Field Office
- Jim Kerko, Division 6 Environmental Officer
- Travis Wilson, NC Wildlife Resources Commission
Ecosystem Enhancement Program
- Ken Averitte, NCDWQ Fayetteville Regional Office
- Tyler Stanton, NCDOT PDEA
File Copy

401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water Act (and NEUSE/TAR-PAMLICO/CATAWBA/RANDLEMAN/JORDAN) BUFFER RULES, and ISOLATED WETLANDS PERMIT Pursuant to IWGP100000 – when applicable) with ADDITIONAL CONDITIONS

THIS CERTIFICATION is issued in conformity with the requirements of Section 401 Public Laws 92-500 and 95-217 of the United States and subject to the North Carolina Division of Water Quality (NCDWQ) Regulations in 15 NCAC 2H .0500 . This certification authorizes the NCDOT to impact 7.71 acres of jurisdictional wetlands in Columbus County. The project shall be constructed pursuant to the application dated received October 27, 2009. The authorized impacts are as described below:

Wetland Impacts in the Lumber River Basin

Site	Permanent Fill (ac)	Excavation (ac)	Mechanized Clearing (ac)	Total Wetland Impact (ac)	Wetland Mitigation Required (ac)
1	3.61	0.02	0.07	3.70	7.40
2	0.12	0	0.05	0.17	0.34
3	1.84	0	0.08	1.92	3.84
4	0.27	0	0.08	0.35	0.70
5	1.40	0	0.17	1.57	3.14
Total	7.24	0.02	0.45	7.71	15.42

Total Wetland Impact for Project: 7.71 acres.

The application provides adequate assurance that the discharge of fill material into the wetlands of the Lumber River Basin in conjunction with the proposed development will not result in a violation of applicable Water Quality Standards and discharge guidelines. Therefore, the State of North Carolina certifies that this activity will not violate the applicable portions of Sections 301, 302, 303, 306, 307 of PL 92-500 and PL 95-217 if conducted in accordance with the application and conditions hereinafter set forth.

This approval is only valid for the purpose and design that you submitted in your application dated received October 27, 2009. Should your project change, you are required to notify the NCDWQ and submit a new application. If the property is sold, the new owner must be given a copy of this Certification and approval letter, and is thereby responsible for complying with all the conditions. If any additional wetland impacts, or stream impacts, for this project (now or in the future) exceed one acre or 150 linear feet, respectively, additional compensatory mitigation may be required as described in 15A NCAC 2H .0506 (h) (6) and (7). For this approval to remain valid, you are required to comply with all the conditions listed below. In addition, you should obtain all other federal, state or local permits before proceeding with your project including (but not limited to) Sediment and Erosion control, Coastal Stormwater, Non-discharge and Water Supply watershed regulations. This Certification shall expire on the same day as the expiration date of the corresponding Corps of Engineers Permit.

Conditions of Certification:

1. Compensatory mitigation for impacts to 7.71 acres of riparian wetlands is required. We understand that you have chosen to perform compensatory mitigation for impacts to wetlands through the North Carolina Ecosystem Enhancement Program (EEP), and that the EEP has agreed to implement the mitigation for the project. EEP has indicated in a letter dated August 29, 2009 that they will assume responsibility for satisfying the federal Clean Water Act compensatory mitigation requirements for the above-referenced project, in accordance with the Tri-Party MOA signed on July 22, 2003 and the Dual-Party MOA signed on April 12, 2004
2. Unless otherwise approved in this certification, placement of culverts and other structures in open waters, streams, and wetlands shall be placed below the elevation of the streambed by one foot for all culverts with a diameter greater than 48 inches, and 20 percent of the culvert diameter for culverts having a diameter less than 48 inches, to allow low flow passage of water and aquatic life. Design and placement of culverts and other structures including temporary erosion control measures shall not be conducted in a manner that may result in dis-equilibrium of wetlands or streambeds or banks, adjacent to or upstream and down stream of the above structures. The applicant is required to provide evidence that the equilibrium is being maintained if requested in writing by NCDWQ. If this condition is unable to be met due to bedrock or other limiting features encountered during construction, please contact NCDWQ for guidance on how to proceed and to determine whether or not a permit modification will be required.

3. All fill slopes located in jurisdictional wetlands shall be placed at slopes no flatter than 3:1, unless otherwise authorized by this certification.
4. If multiple pipes or barrels are required, they shall be designed to mimic natural stream cross section as closely as possible including pipes or barrels at flood plain elevation and/or sills where appropriate. Widening the stream channel should be avoided. Stream channel widening at the inlet or outlet end of structures typically decreases water velocity causing sediment deposition that requires increased maintenance and disrupts aquatic life passage.
5. Riprap shall not be placed in the active thalweg channel or placed in the streambed in a manner that precludes aquatic life passage. Bioengineering boulders or structures should be properly designed, sized and installed.
6. For any streams being impacted due to site dewatering activities, the site shall be graded to its preconstruction contours and revegetated with appropriate native species.
7. The stream channel shall be excavated no deeper than the natural bed material of the stream, to the maximum extent practicable. Efforts must be made to minimize impacts to the stream banks, as well as to vegetation responsible for maintaining the stream bank stability. Any applicable riparian buffer impact for access to stream channel shall be temporary and be revegetated with native riparian species.
8. If concrete is used during construction, a dry work area shall be maintained to prevent direct contact between curing concrete and stream water. Water that inadvertently contacts uncured concrete shall not be discharged to surface waters due to the potential for elevated pH and possible aquatic life and fish kills.
9. During the construction of the project, no staging of equipment of any kind is permitted in waters of the U.S., or protected riparian buffers.
10. The dimension, pattern and profile of the stream above and below the crossing shall not be modified. Disturbed floodplains and streams shall be restored to natural geomorphic conditions.
11. The use of rip-rap above the Normal High Water Mark shall be minimized. Any rip-rap placed for stream stabilization shall be placed in stream channels in such a manner that it does not impede aquatic life passage.
12. The Permittee shall ensure that the final design drawings adhere to the permit and to the permit drawings submitted for approval.
13. All work in or adjacent to stream waters shall be conducted in a dry work area. Approved BMP measures from the most current version of NCDOT Construction and Maintenance Activities manual such as sandbags, rock berms, cofferdams and other diversion structures shall be used to prevent excavation in flowing water.
14. Heavy equipment shall be operated from the banks rather than in the stream channel in order to minimize sedimentation and reduce the introduction of other pollutants into the stream.
15. All mechanized equipment operated near surface waters must be regularly inspected and maintained to prevent contamination of stream waters from fuels, lubricants, hydraulic fluids, or other toxic materials.
16. No rock, sand or other materials shall be dredged from the stream channel except where authorized by this certification.
17. Discharging hydroseed mixtures and washing out hydroseeders and other equipment in or adjacent to surface waters is prohibited.
18. The permittee and its authorized agents shall conduct its activities in a manner consistent with State water quality standards (including any requirements resulting from compliance with §303(d) of the Clean Water Act) and any other appropriate requirements of State and Federal law. If NCDWQ determines that such standards or laws are not being met (including the failure to sustain a designated or achieved use) or that State or federal law is being violated, or that further conditions are necessary to assure compliance, NCDWQ may reevaluate and modify this certification.

19. A copy of this Water Quality Certification shall be maintained on the construction site at all times. In addition, the Water Quality Certification and all subsequent modifications, if any, shall be maintained with the Division Engineer and the on-site project manager.

20. The outside wetland or water boundary located within the construction corridor approved by this authorization shall be clearly marked by highly visible fencing prior to any land disturbing activities. Impacts to areas within the fencing are prohibited unless otherwise authorized by this certification.

21. The issuance of this certification does not exempt the Permittee from complying with any and all statutes, rules, regulations, or ordinances that may be imposed by other government agencies (i.e. local, state, and federal) having jurisdiction, including but not limited to applicable buffer rules, stormwater management rules, soil erosion and sedimentation control requirements, etc.

22. The Permittee shall report any violations of this certification to the Division of Water Quality within 24 hours of discovery.

23. Upon completion of the project (including any impacts at associated borrow or waste sites), the NCDOT Division Engineer shall complete and return the enclosed "Certification of Completion Form" to notify NCDWQ when all work included in the 401 Certification has been completed.

24. Native riparian vegetation (i.e., trees and shrubs native to your geographic region) must be reestablished within the construction limits of the project by the end of the growing season following completion of construction.

25. There shall be no excavation from, or waste disposal into, jurisdictional wetlands or waters associated with this permit without appropriate modification. Should waste or borrow sites, or access roads to waste or borrow sites, be located in wetlands or streams, compensatory mitigation will be required since that is a direct impact from road construction activities.

26. Erosion and sediment control practices must be in full compliance with all specifications governing the proper design, installation and operation and maintenance of such Best Management Practices in order to protect surface waters standards:

- a. The erosion and sediment control measures for the project must be designed, installed, operated, and maintained in accordance with the most recent version of the *North Carolina Sediment and Erosion Control Planning and Design Manual*.
- b. The design, installation, operation, and maintenance of the sediment and erosion control measures must be such that they equal, or exceed, the requirements specified in the most recent version of the *North Carolina Sediment and Erosion Control Manual*. The devices shall be maintained on all construction sites, borrow sites, and waste pile (spoil) projects, including contractor-owned or leased borrow pits associated with the project.
- c. For borrow pit sites, the erosion and sediment control measures must be designed, installed, operated, and maintained in accordance with the most recent version of the *North Carolina Surface Mining Manual*.
- d. The reclamation measures and implementation must comply with the reclamation in accordance with the requirements of the Sedimentation Pollution Control Act.

27. Sediment and erosion control measures shall not be placed in wetlands or waters unless otherwise approved by this Certification.

Violations of any condition herein set forth may result in revocation of this Certification and may result in criminal and/or civil penalties. This Certification shall become null and void unless the above conditions are made conditions of the Federal 404 and/or Coastal Area Management Act Permit. This Certification shall expire upon the expiration of the 404 or CAMA permit.

If this Certification is unacceptable to you have the right to an adjudicatory hearing upon written request within sixty (60) days following receipt of this Certification. This request must be in the form of a written petition conforming to Chapter 150B of the North Carolina General Statutes and filed with the Office of Administrative Hearings, 6714 Mail Service Center, Raleigh, N.C. 27699-6714. If modifications are made to an original Certification, you have the right to an adjudicatory hearing on the modifications upon written request within sixty (60) days following receipt of the Certification. Unless such demands are made, this Certification shall be final and binding.

This the 12th day of January 2010

DIVISION OF WATER QUALITY

A handwritten signature in black ink, appearing to read 'B. H. Sullins', with a long horizontal flourish extending to the right.

for Coleen H. Sullins
Director

WQC No. 3814

NCDWQ Project No.: _____

County: _____

Applicant: _____

Project Name: _____

Date of Issuance of 401 Water Quality Certification: _____

Certificate of Completion

Upon completion of all work approved within the 401 Water Quality Certification or applicable Buffer Rules, and any subsequent modifications, the applicant is required to return this certificate to the 401 Transportation Permitting Unit, North Carolina Division of Water Quality, 1650 Mail Service Center, Raleigh, NC, 27699-1650. This form may be returned to NCDWQ by the applicant, the applicant's authorized agent, or the project engineer. It is not necessary to send certificates from all of these.

Applicant's Certification

I, _____, hereby state that, to the best of my abilities, due care and diligence was used in the observation of the construction such that the construction was observed to be built within substantial compliance and intent of the 401 Water Quality Certification and Buffer Rules, the approved plans and specifications, and other supporting materials.

Signature: _____ Date: _____

Agent's Certification

I, _____, hereby state that, to the best of my abilities, due care and diligence was used in the observation of the construction such that the construction was observed to be built within substantial compliance and intent of the 401 Water Quality Certification and Buffer Rules, the approved plans and specifications, and other supporting materials.

Signature: _____ Date: _____

Engineer's Certification

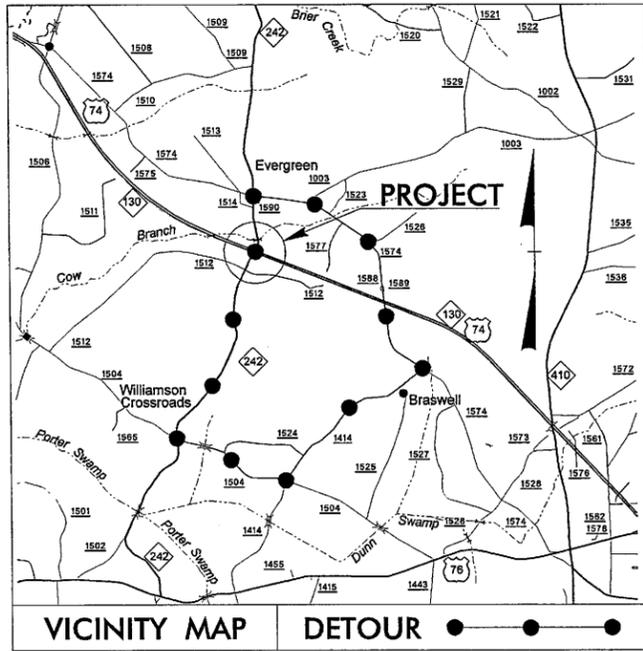
_____ Partial _____ Final

I, _____, as a duly registered Professional Engineer in the State of North Carolina, having been authorized to observe (periodically, weekly, full time) the construction of the project, for the Permittee hereby state that, to the best of my abilities, due care and diligence was used in the observation of the construction such that the construction was observed to be built within substantial compliance and intent of the 401 Water Quality Certification and Buffer Rules, the approved plans and specifications, and other supporting materials.

Signature _____ Registration No. _____

Date _____

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



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

COLUMBUS COUNTY

LOCATION: NEW INTERCHANGE US 74 - NC 130 / NC 242

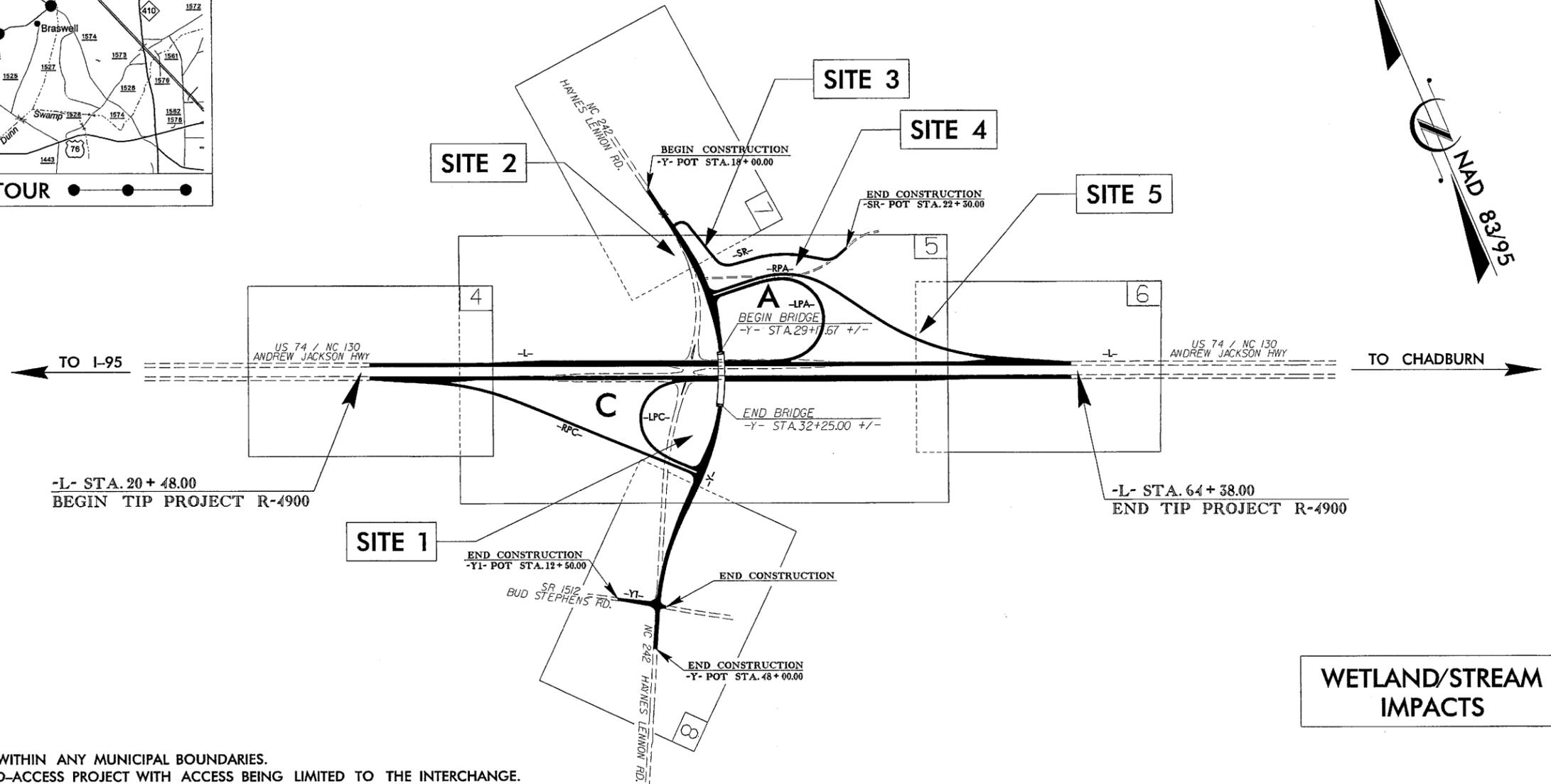
TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-4900	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
40224.1.1	HPPNHF-74(78)	PE	
40224.2.1	HPPNHF-74(78)	R/W & UTIL	

Permit Drawing
Sheet 4 of 35

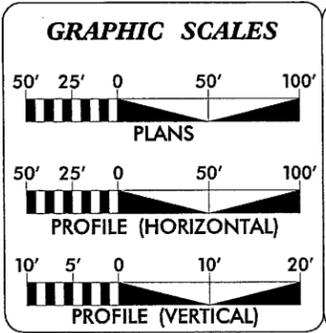
TIP PROJECT: R-4900

CONTRACT: C202441



WETLAND/STREAM
IMPACTS

- NOTES: (1) THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.
(2) THIS IS A CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO THE INTERCHANGE.
(3) CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III



DESIGN DATA

ADT 2010 =	12,600
ADT 2030 =	19,000
DHV =	10 %
D =	55 %
T =	15 % *
V =	70 MPH
FUNC. CLASS. =	INTERSTATE
* TTST 10%	DUAL 5 %

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-4900 =	0.831 MI.
TOTAL LENGTH OF TIP PROJECT R-4900 =	0.831 MI.

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

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JANUARY 12, 2009

LETTING DATE:
JULY 20, 2010

ROGER D. THOMAS, P.E.
PROJECT ENGINEER

MICHAEL W. LITTLE, P.E.
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN ENGINEER

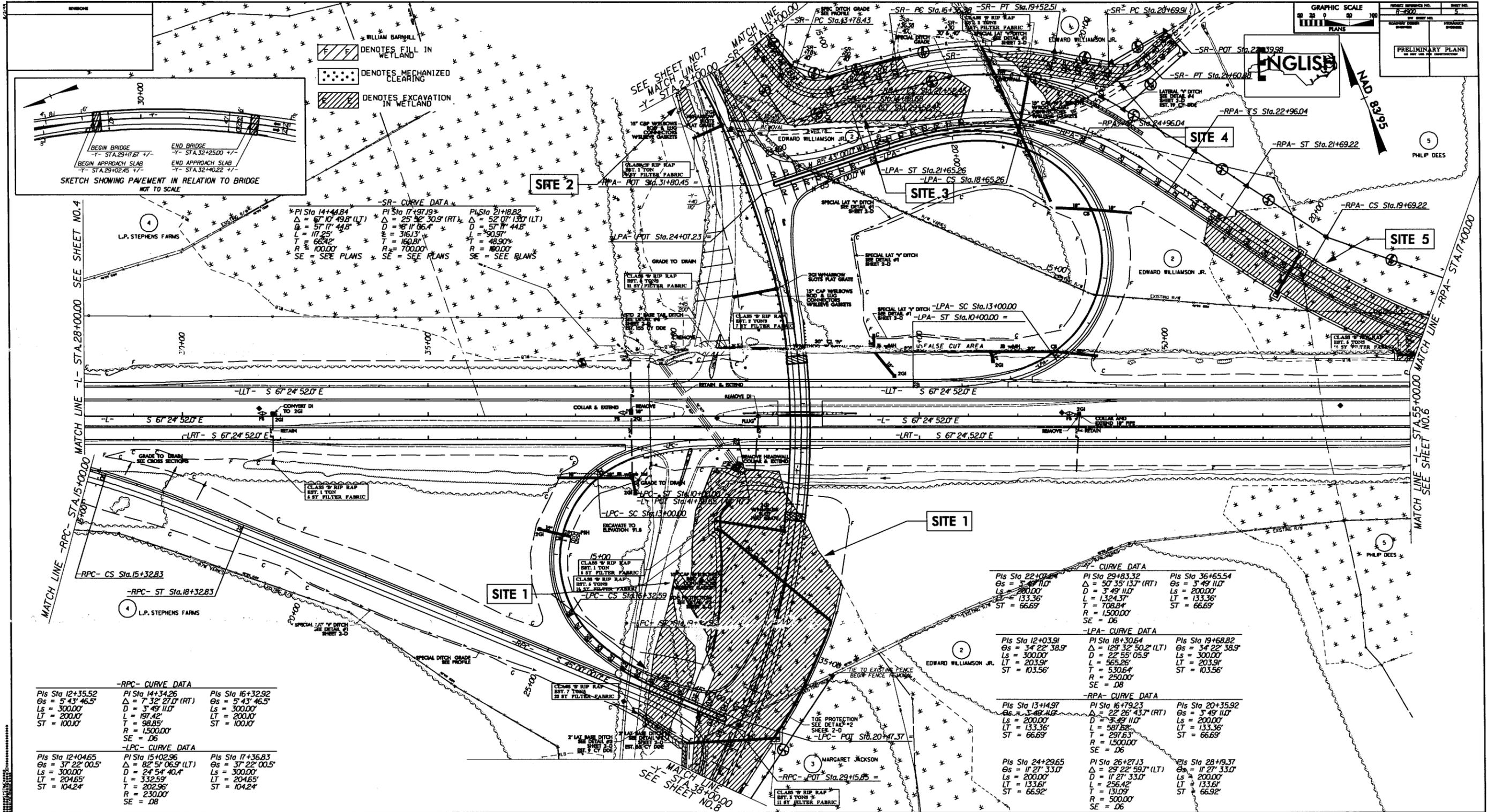
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SIGNATURE: _____ P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

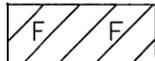
STATE HIGHWAY DESIGN ENGINEER

SYSTEMS



PROJECT REFERENCE NO. R-4900	SHEET NO. PSH 05
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	

Permit Drawing
Sheet 8 of 35

 DENOTES FILL IN WETLAND

CLASS 'B' RIP RAP
EST. 8 TONS
21 SY FILTER FABRIC

STD 2' BASE TAIL DITCH
SEE DETAIL #6
SHEET 2-D
EST. 155 CY DDE

CLASS 'B' RIP RAP
EST. 2 TONS
7 SY FILTER FABRIC

REMOVE

RETAIN & EXTEND

REMOVE DI

COLLAR & EXTEND

REMOVE 18"

FS

2GI

PLUG

SITE 1

REMOVE HEADWALL
COLLAR & EXTEND

GRADE TO DRAIN

2GI
W/NARROW



5/14/99
SYSTEMS
CONSTRUCTION
MANAGEMENT

5/14/99

SYSTEMS
DESIGN
INCORPORATING
SUSTAINABLE
DESIGN

-RPA- CURVE DATA

PIs Sta 13+14.97	PI Sta 16+79.23	PIs Sta 20+35.92
$\Theta_s = 3^\circ 49' 11.0''$	$\Delta = 22^\circ 26' 43.7''$ (RT)	$\Theta_s = 3^\circ 49' 11.0''$
$L_s = 200.00'$	$D = 3^\circ 49' 11.0''$	$L_s = 200.00'$
$LT = 133.36'$	$L = 587.62'$	$LT = 133.36'$
$ST = 66.69'$	$T = 297.63'$	$ST = 66.69'$
	$R = 1,500.00'$	
	$SE = .06$	

 DENOTES FILL IN WETLAND

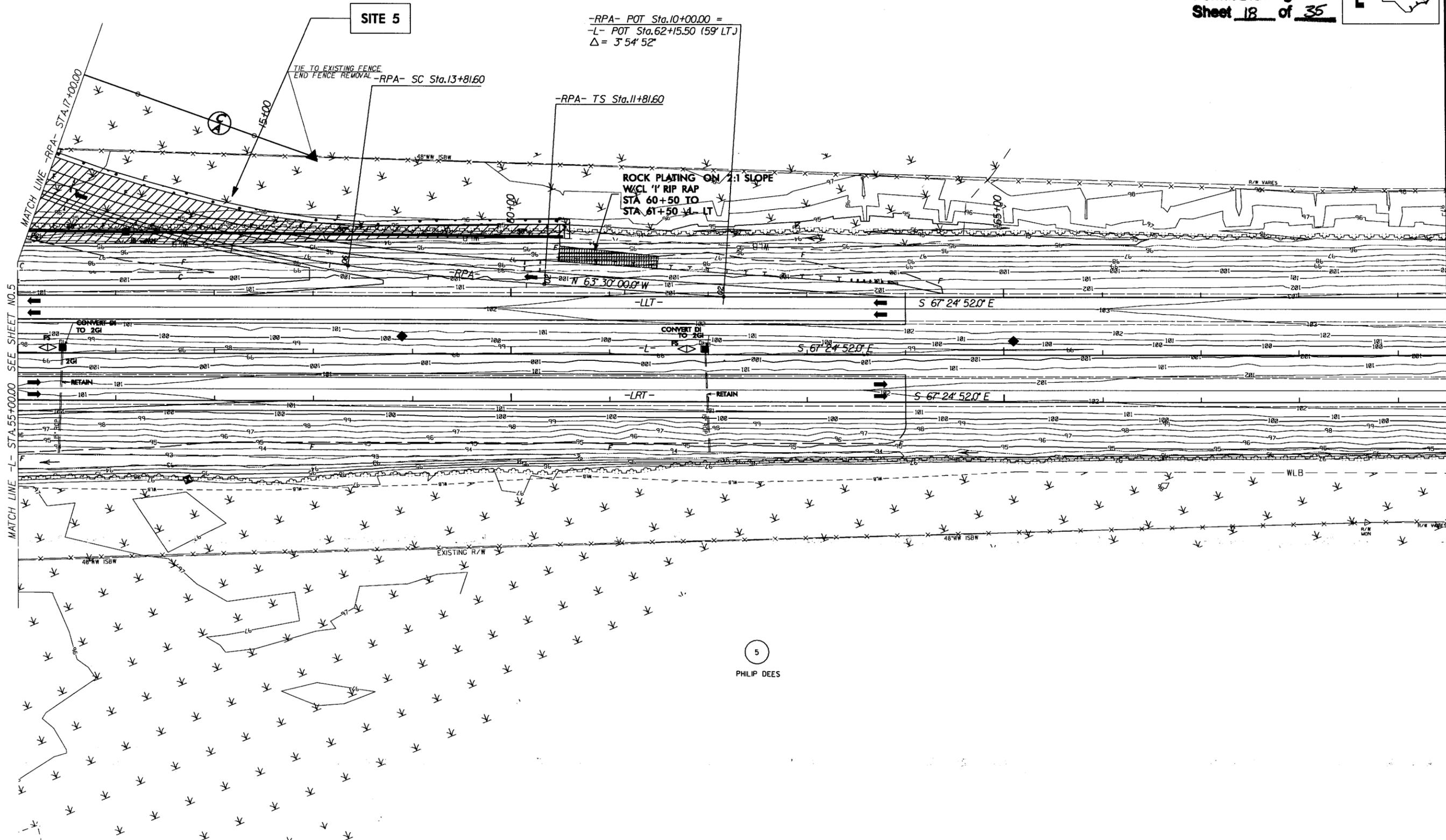
 DENOTES MECHANIZED CLEARING

PROJECT REFERENCE NO. R-4900	SHEET NO. 6
RAW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



5
PHILIP DEES

Permit Drawing
Sheet 18 of 35



5
PHILIP DEES

5/14/95

SYTIME 6555
CONDONS 6555
USPERMAN 6555

-Y- CURVE DATA

PIs Sta 22+07.84	PI Sta 29+83.32
$\theta_s = 3' 49' 11.0"$	$\Delta = 50' 35' 13.7" (RT)$
$L_s = 200.00'$	$D = 3' 49' 11.0"$
$LT = 133.36'$	$L = 1,324.37'$
$ST = 66.69'$	$T = 708.84'$
	$R = 1,500.00'$
	$SE = .06$

-SR- CURVE DATA

PI Sta 10+85.00
$\Delta = 84' 49' 43.2" (RT)$
$D = 11' 35' 29.6"$
$L = 74.03'$
$T = 45.68'$
$R = 50.00'$
SE = SEE PLANS

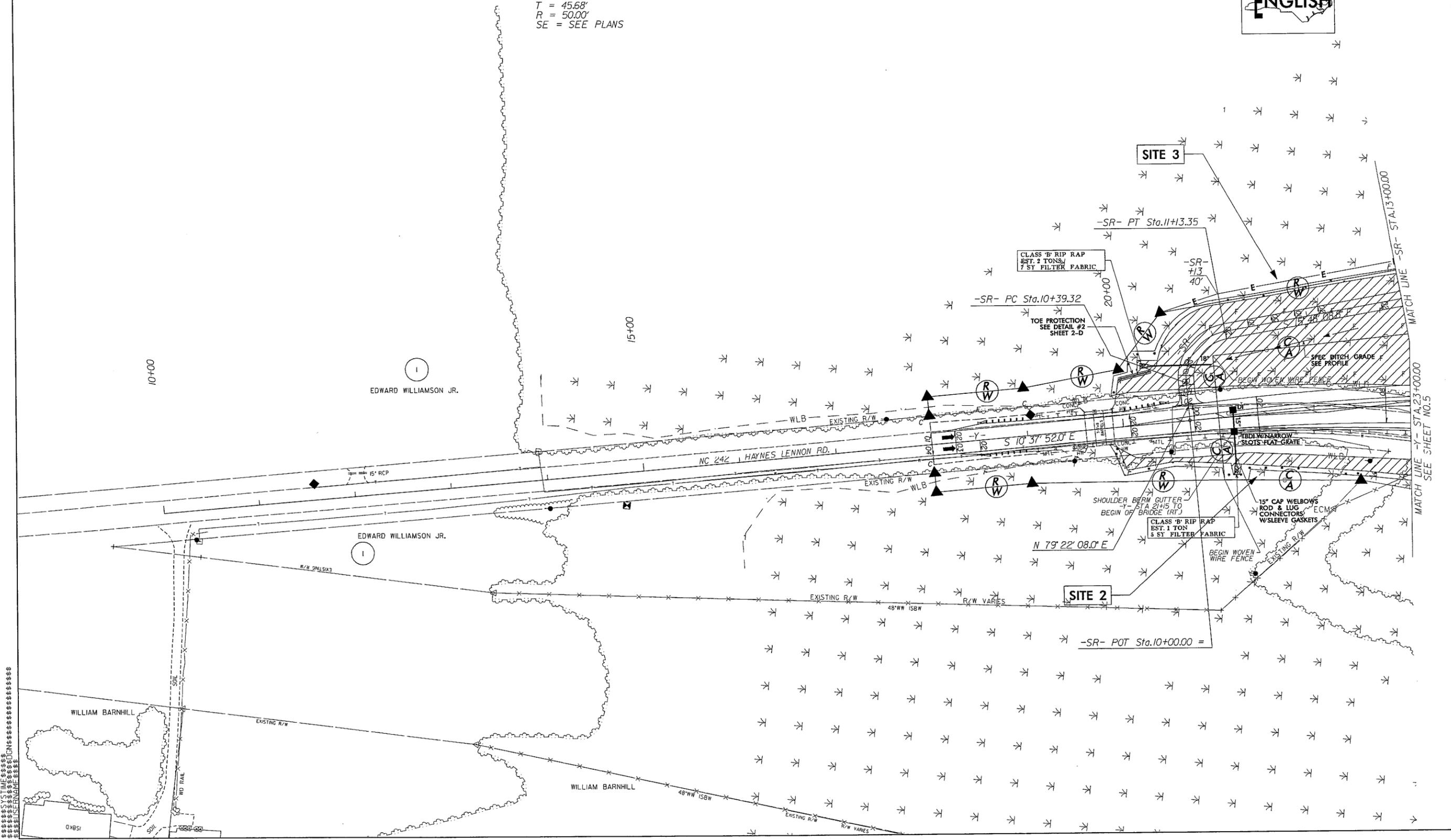
 DENOTES FILL IN WETLAND

 DENOTES MECHANIZED CLEARING



Permit Drawing
Sheet 14 of 35

PROJECT REFERENCE NO. R-4900	SHEET NO. 7
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



MATCH LINE -Y- STA. 23+00.00
SEE SHEET NO. 5

MATCH LINE -SR- STA. 13+00.00

5/14/99

SYSTEMS CONNECTIONS

-Y- CURVE DATA
 Pls Sta 22+07.84 Pls Sta 29+83.32
 $\Delta = 3^\circ 49' 11.0''$ $\Delta = 50^\circ 35' 13.7''$ (RT)
 $L_s = 200.00'$ $D = 3^\circ 49' 11.0''$
 $LT = 133.36'$ $L = 1,324.37'$
 $ST = 66.69'$ $T = 708.84'$
 $R = 1,500.00'$
 $SE = .06$

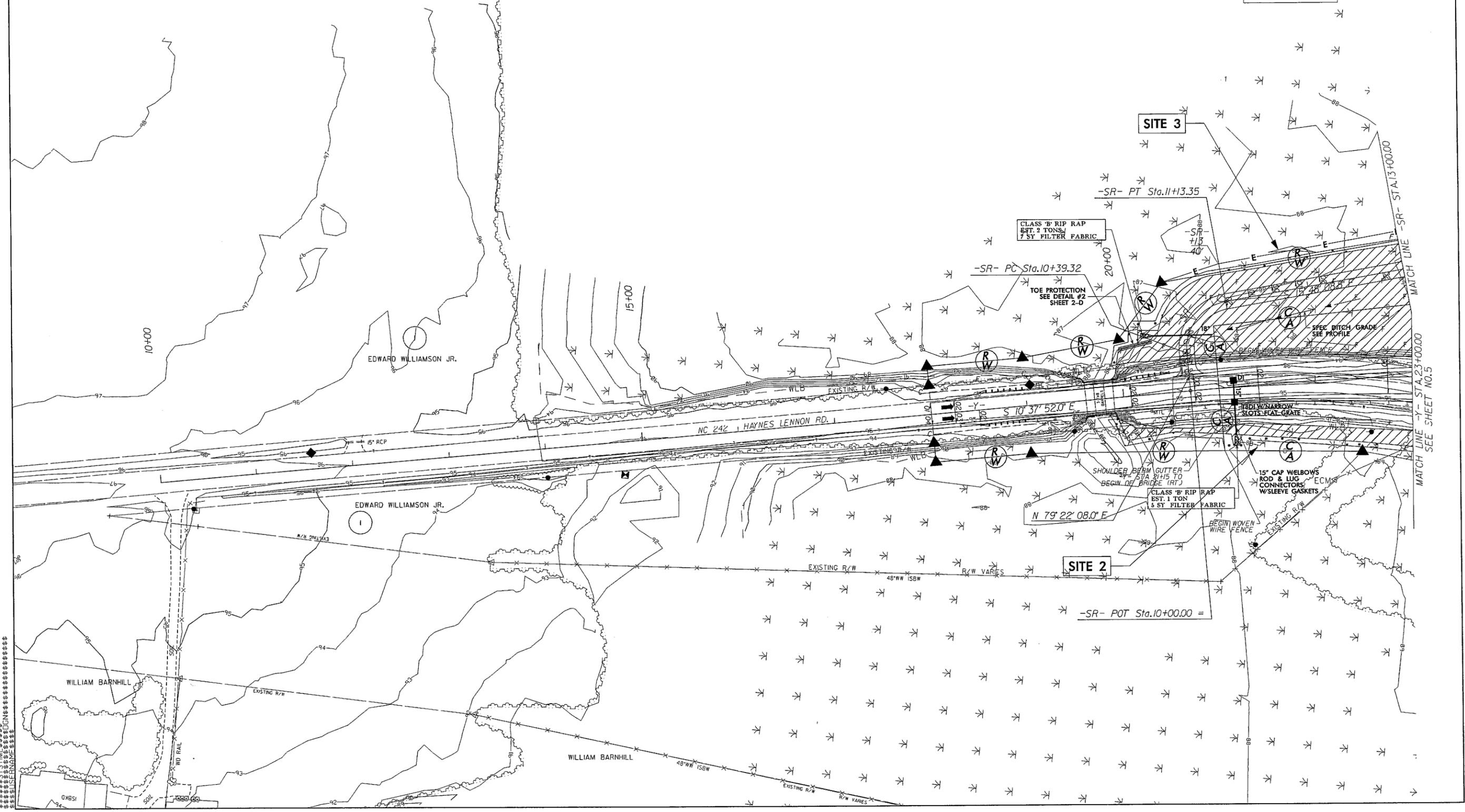
-SR- CURVE DATA
 Pls Sta 10+85.00
 $\Delta = 84^\circ 49' 43.2''$ (RT)
 $D = 114^\circ 35' 29.6''$
 $L = 74.03'$
 $T = 45.68'$
 $R = 50.00'$
 SE = SEE PLANS

 DENOTES FILL IN WETLAND
 DENOTES MECHANIZED CLEARING



Permit Drawing
Sheet 20 of 35

PROJECT REFERENCE NO. R-4900		SHEET NO. 7	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			



MATCH LINE -Y- STA. 23+00.00
 SEE SHEET NO. 5

MATCH LINE -SR- STA. 13+00.00

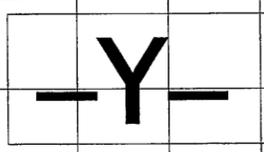
5/14/99

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 23 of 35

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO. 25

DRAINAGE AREA	= 31	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 14	CFS
DESIGN HW ELEVATION	= 92.2	FT
100 YEAR DISCHARGE	= 17	CFS
100 YEAR HW ELEVATION	= 92.5	FT
OVERTOPPING FREQUENCY	= >25	YRS
OVERTOPPING DISCHARGE	= >500	CFS
OVERTOPPING ELEVATION	= 95.0	FT



PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO. 26

DRAINAGE AREA	= 20	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 9	CFS
DESIGN HW ELEVATION	= 94.5	FT
100 YEAR DISCHARGE	= 11	CFS
100 YEAR HW ELEVATION	= 94.8	FT
OVERTOPPING FREQUENCY	= >500	YRS
OVERTOPPING DISCHARGE	= >16	CFS
OVERTOPPING ELEVATION	= 98.31	FT

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO. 27

DRAINAGE AREA	= 1	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 4.1	CFS
DESIGN HW ELEVATION	= 97.4	FT
100 YEAR DISCHARGE	= 4.4	CFS
100 YEAR HW ELEVATION	= 97.5	FT
OVERTOPPING FREQUENCY	= >500	YRS
OVERTOPPING DISCHARGE	= >5.1	CFS
OVERTOPPING ELEVATION	= 98.31	FT

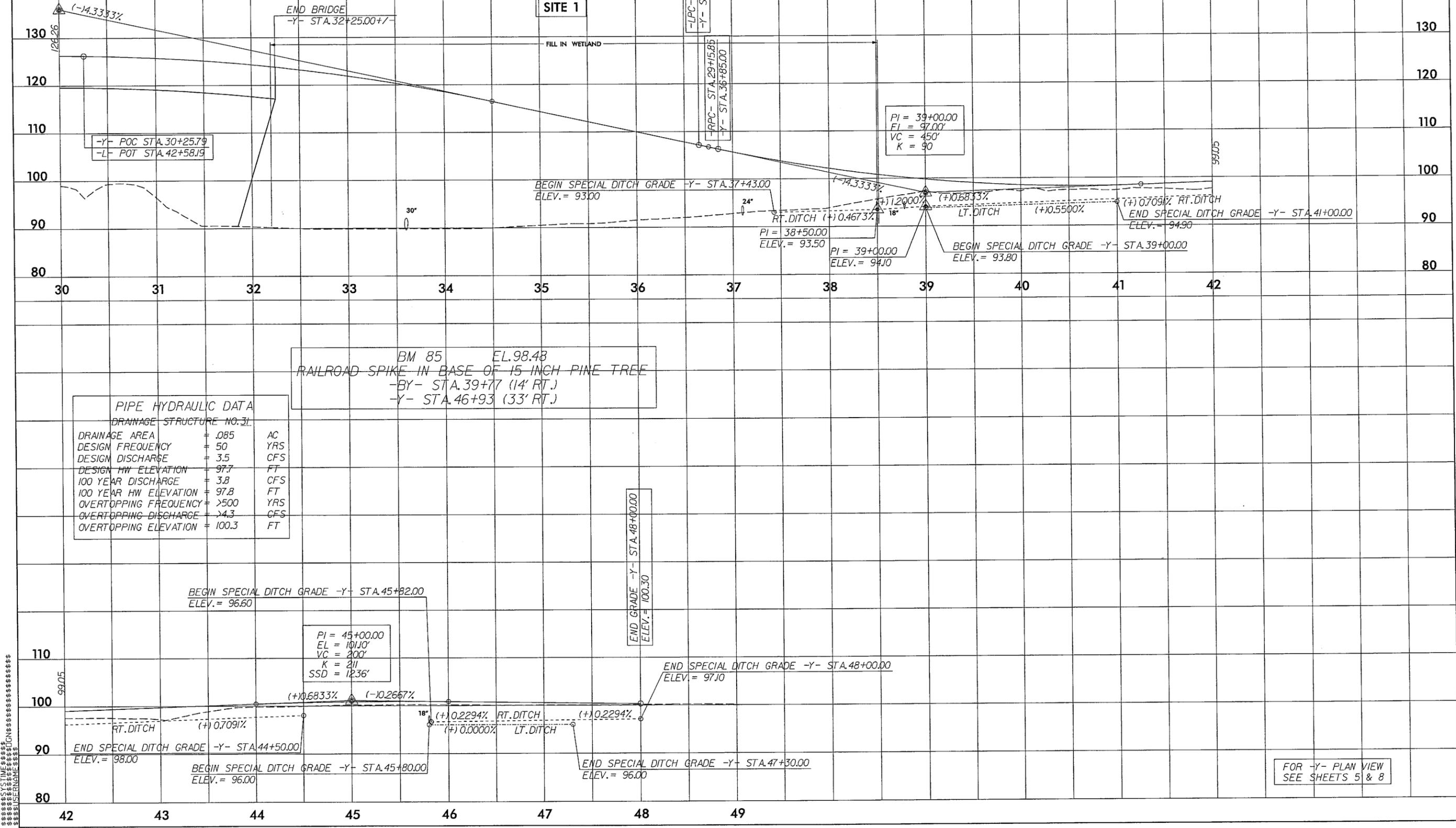
PI = 30+00.00
EL = 136.00'
VC = 900'
K = 104
SSD = 474'

PI = 39+00.00
EL = 97.00'
VC = 450'
K = 90

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO. 31

DRAINAGE AREA	= .085	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 3.5	CFS
DESIGN HW ELEVATION	= 97.7	FT
100 YEAR DISCHARGE	= 3.8	CFS
100 YEAR HW ELEVATION	= 97.8	FT
OVERTOPPING FREQUENCY	= >500	YRS
OVERTOPPING DISCHARGE	= >4.3	CFS
OVERTOPPING ELEVATION	= 100.3	FT

BM 85 EL. 98.48
RAILROAD SPIKE IN BASE OF 15 INCH PINE TREE
-BY- STA. 39+77 (14' RT.)
-Y- STA. 46+93 (33' RT.)



FOR -Y- PLAN VIEW
SEE SHEETS 5 & 8

5/14/99

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO. 53

DRAINAGE AREA	= 55	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 13	CFS
DESIGN HW ELEVATION	= 95.2	FT
100 YEAR DISCHARGE	= 16	CFS
100 YEAR HW ELEVATION	= 95.7	FT
OVERTOPPING FREQUENCY	= >500	YRS
OVERTOPPING DISCHARGE	= >23	CFS
OVERTOPPING ELEVATION	= 101.2	FT

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO. 49

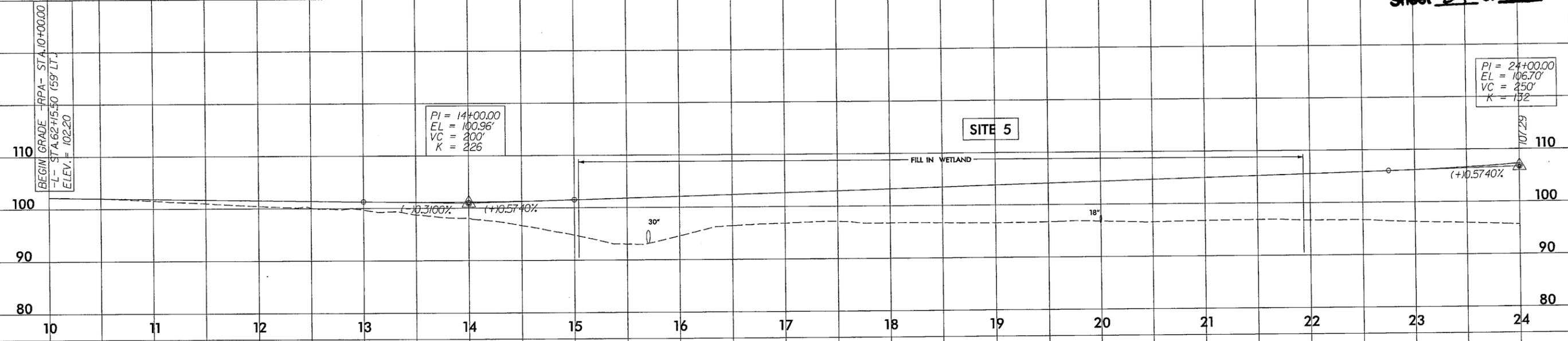
DRAINAGE AREA	= 21	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 8.6	CFS
DESIGN HW ELEVATION	= 92.2	FT
100 YEAR DISCHARGE	= 9.2	CFS
100 YEAR HW ELEVATION	= 92.5	FT
OVERTOPPING FREQUENCY	= >500	YRS
OVERTOPPING DISCHARGE	= >10.7	CFS
OVERTOPPING ELEVATION	= 102.6	FT

-RPA-

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 24 of 35

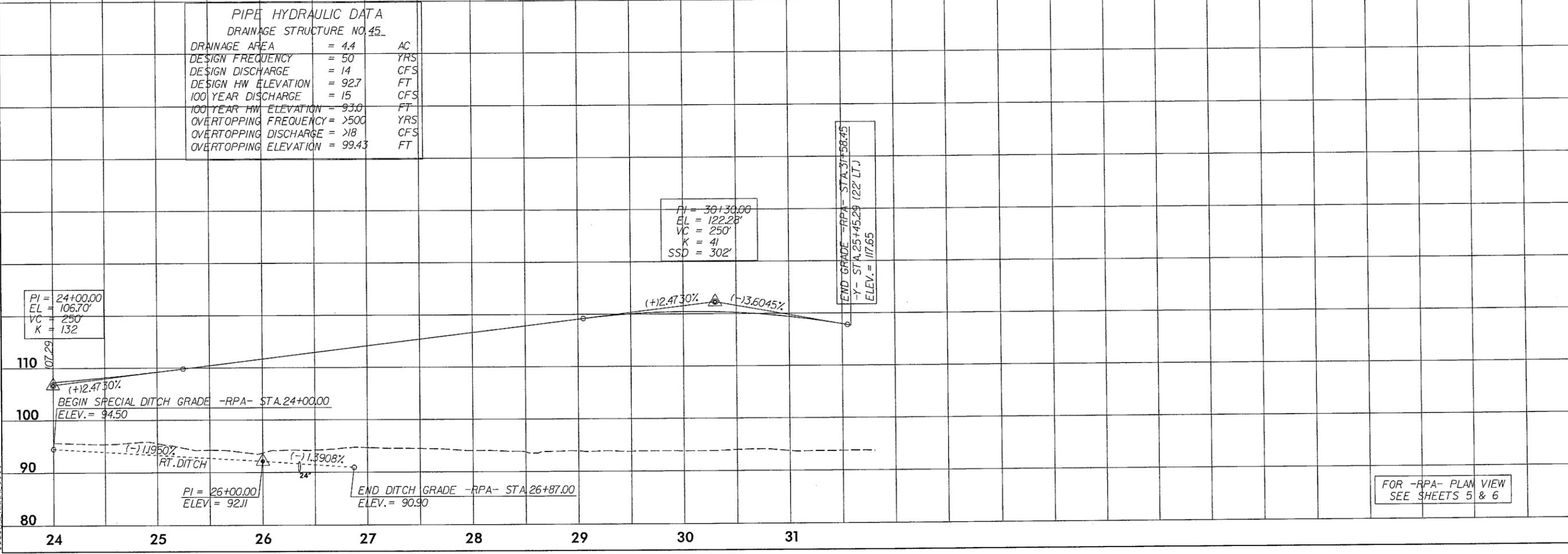
PI = 24+00.00
EL = 106.70'
VC = 250'
K = 132



PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO. 45

DRAINAGE AREA	= 4.4	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 14	CFS
DESIGN HW ELEVATION	= 92.7	FT
100 YEAR DISCHARGE	= 15	CFS
100 YEAR HW ELEVATION	= 93.0	FT
OVERTOPPING FREQUENCY	= >500	YRS
OVERTOPPING DISCHARGE	= >18	CFS
OVERTOPPING ELEVATION	= 99.43	FT

PI = 30+30.00
EL = 122.28'
VC = 250'
K = 41
SSD = 302'



FOR -RPA- PLAN VIEW
SEE SHEETS 5 & 6

SYTIME:*****
VENDOR:*****

5/14/99

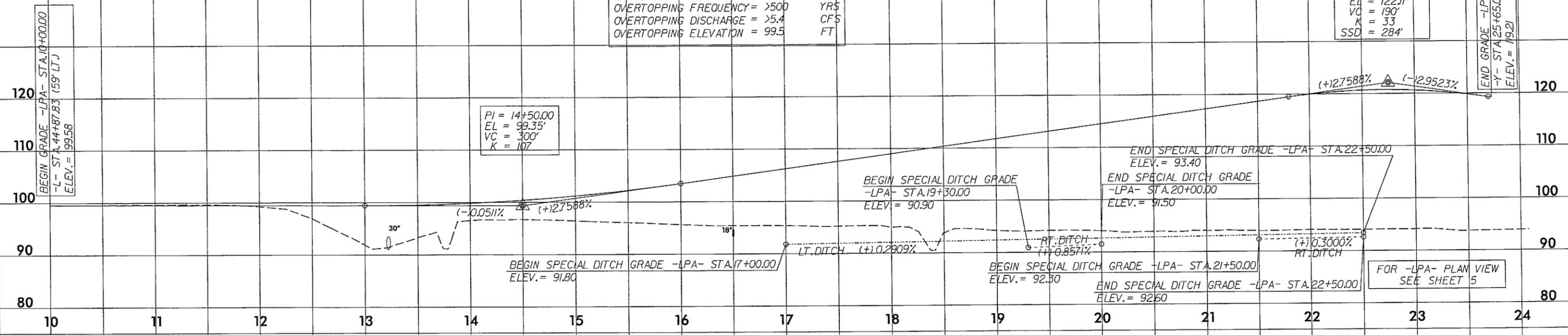
PIPE HYDRAULIC DATA DRAINAGE STRUCTURE NO. 39		
DRAINAGE AREA	= 57	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 14	CFS
DESIGN HW ELEVATION	= 93.2	FT
100 YEAR DISCHARGE	= 17	CFS
100 YEAR HW ELEVATION	= 93.5	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 25+	CFS
OVERTOPPING ELEVATION	= 99.43	FT

-LPA-

PIPE HYDRAULIC DATA DRAINAGE STRUCTURE NO. 48		
DRAINAGE AREA	= 18	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 5.2	CFS
DESIGN HW ELEVATION	= 96.8	FT
100 YEAR DISCHARGE	= 5.5	CFS
100 YEAR HW ELEVATION	= 96.8	FT
OVERTOPPING FREQUENCY	= >500	YRS
OVERTOPPING DISCHARGE	= >5.4	CFS
OVERTOPPING ELEVATION	= 99.5	FT

PI = 22+75.00
EL = 122.11'
VC = 190'
K = 33
SSD = 284'

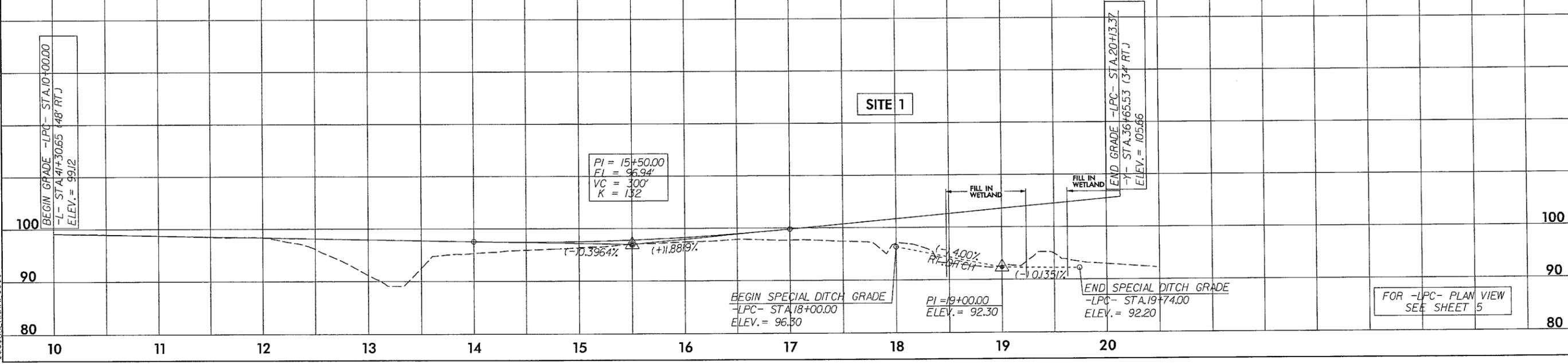
END GRADE -LPA- STA. 23+32.23
 -Y- STA. 25+65.00 (34' RT.)
 ELEV. = 119.21'



-LPC-

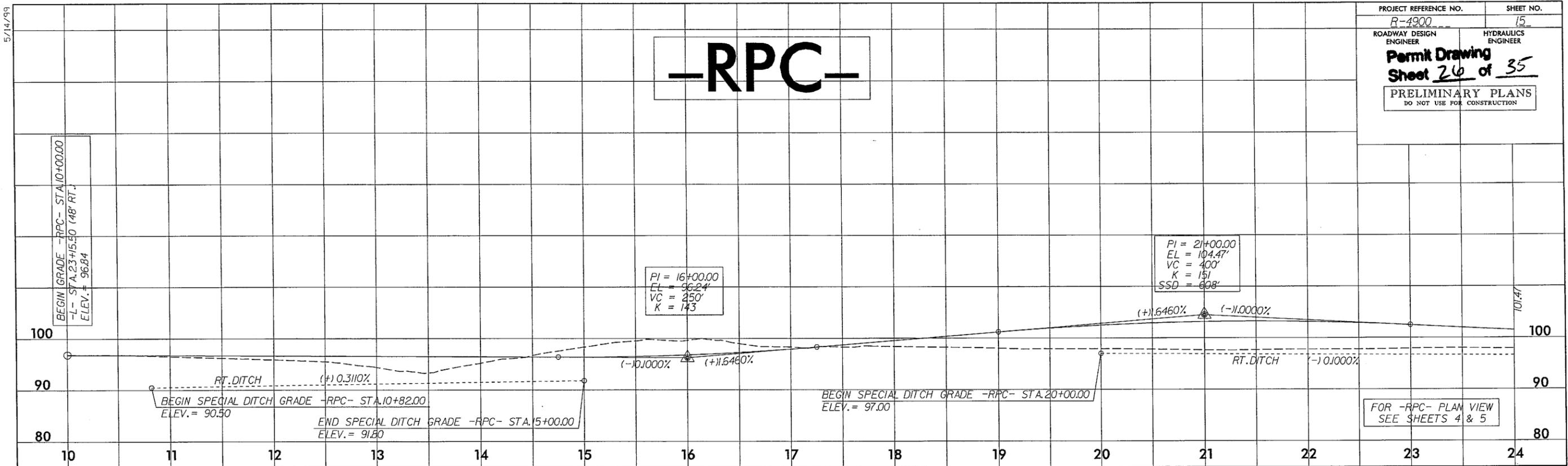
SITE 1

PI = 15+50.00
EL = 96.94'
VC = 300'
K = 132

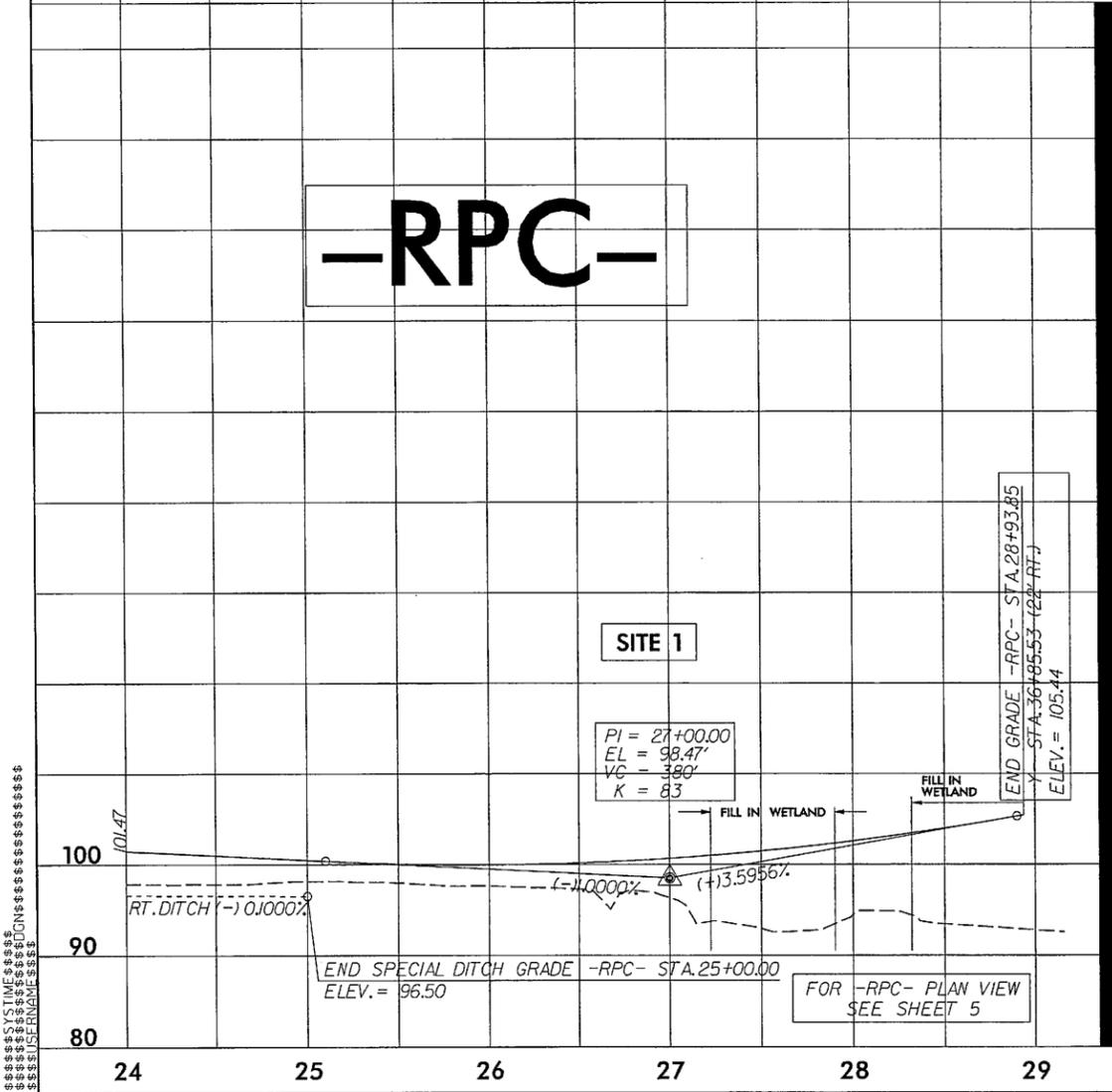


*****SYSTEM*****
*****SERIAL*****

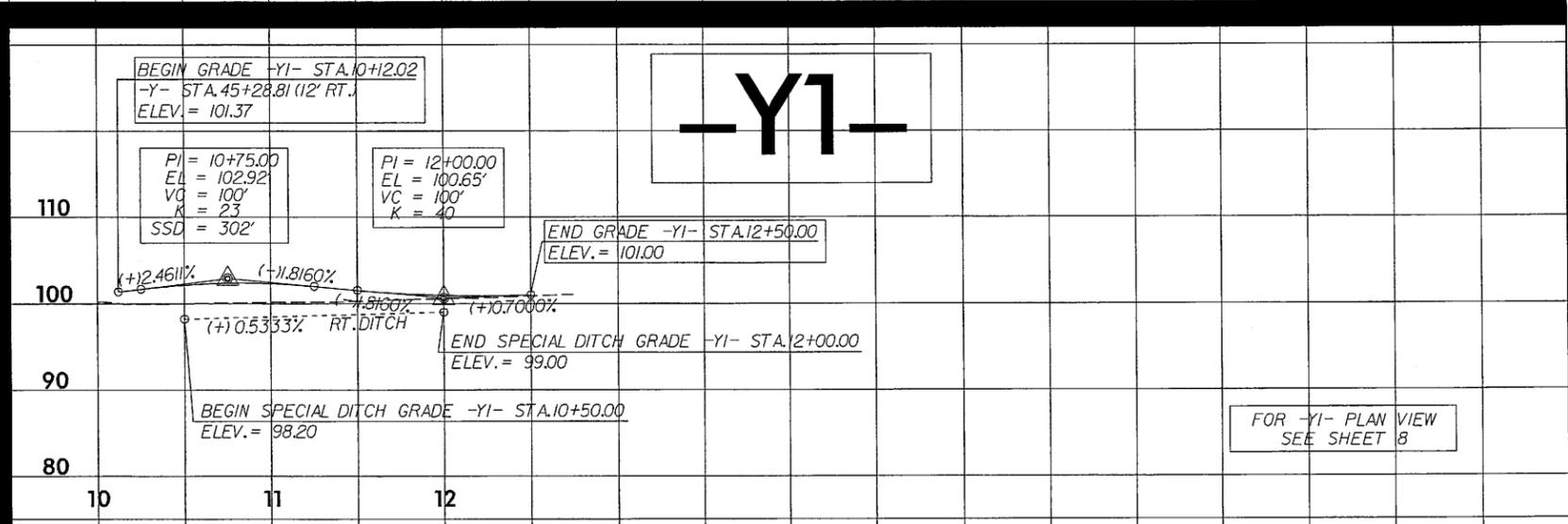
-RPC-



-RPC-



-Y1-



SYSTEM: \$\$\$\$
 USER: \$\$\$\$
 DATE: \$\$\$\$
 TIME: \$\$\$\$
 DRAWING: \$\$\$\$
 SHEET: \$\$\$\$
 PROJECT: \$\$\$\$
 TITLE: \$\$\$\$
 \$\$\$\$

5/14/99

PROJECT REFERENCE NO. R-4900 SHEET NO. 16

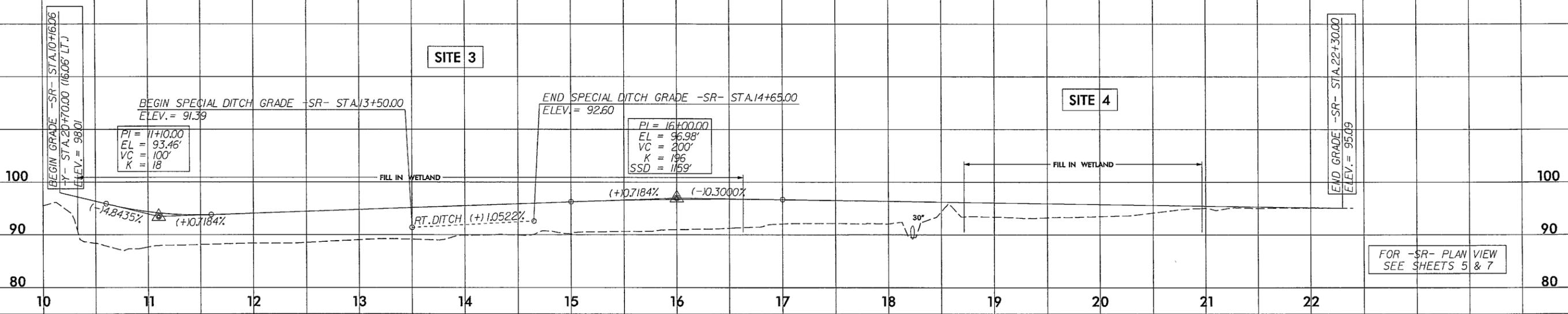
ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER

Permit Drawing Sheet 27 of 35

PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION

PIPE HYDRAULIC DATA		
DRAINAGE STRUCTURE NO. 42		
DRAINAGE AREA	= 7.4	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 24	CFS
DESIGN HW ELEVATION	= 91.9	FT
100 YEAR DISCHARGE	= 26	CFS
100 YEAR HW ELEVATION	= 92.1	FT
OVERTOPPING FREQUENCY	= 500	YRS
OVERTOPPING DISCHARGE	= 29	CFS
OVERTOPPING ELEVATION	= 94.0	FT

-SR-



SITE 3

SITE 4

FOR -SR- PLAN VIEW SEE SHEETS 5 & 7

SYTIME
USERNAM

8/23/99



PROJ. REFERENCE NO.
R-4900

SHEET NO.
X-14

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

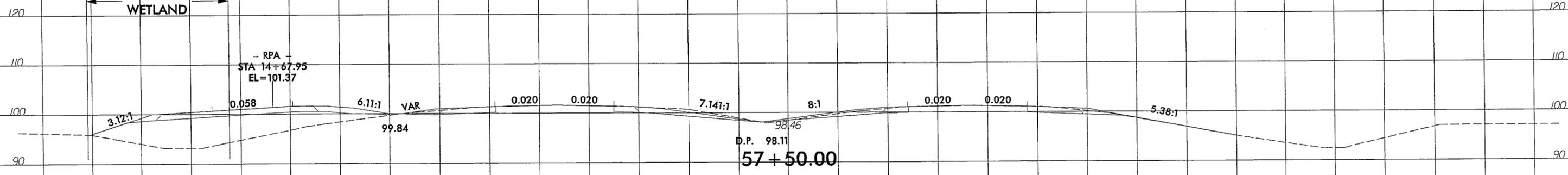
SITE 5

**Permit Drawing
Sheet 28 of 35**

MECHANIZED
CLEARING

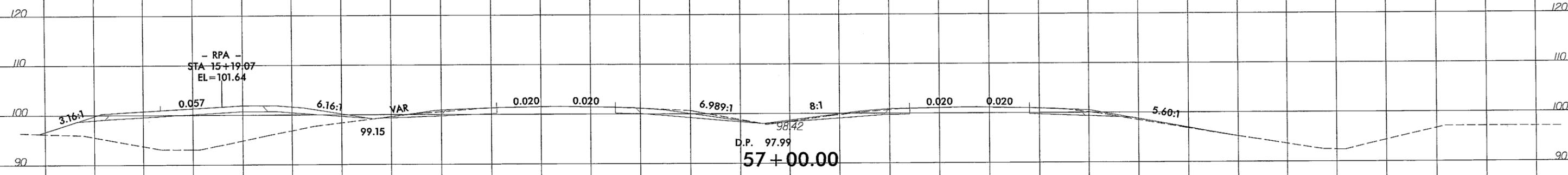
FILL IN
WETLAND

- RPA -
STA 14+67.95
EL=101.37

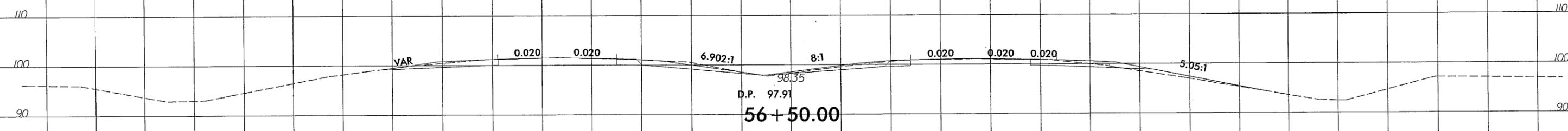


D.P. 98.11
57+50.00

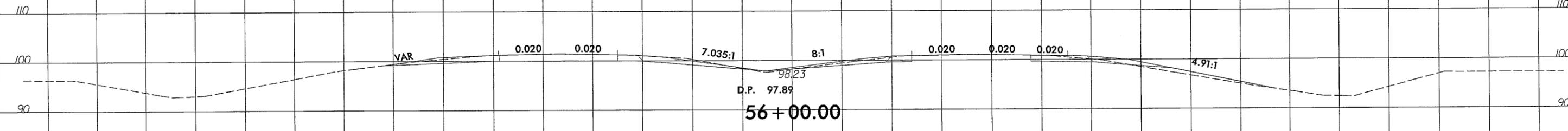
- RPA -
STA 15+19.07
EL=101.64



D.P. 97.99
57+00.00

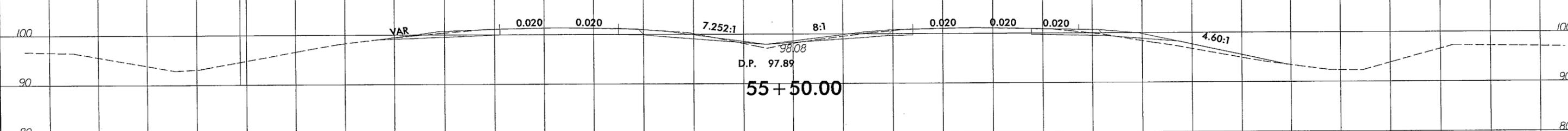


D.P. 97.91
56+50.00



D.P. 97.89
56+00.00

FILL IN WETLANDS

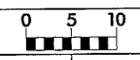


D.P. 97.89
55+50.00

SYSTEM USE ONLY

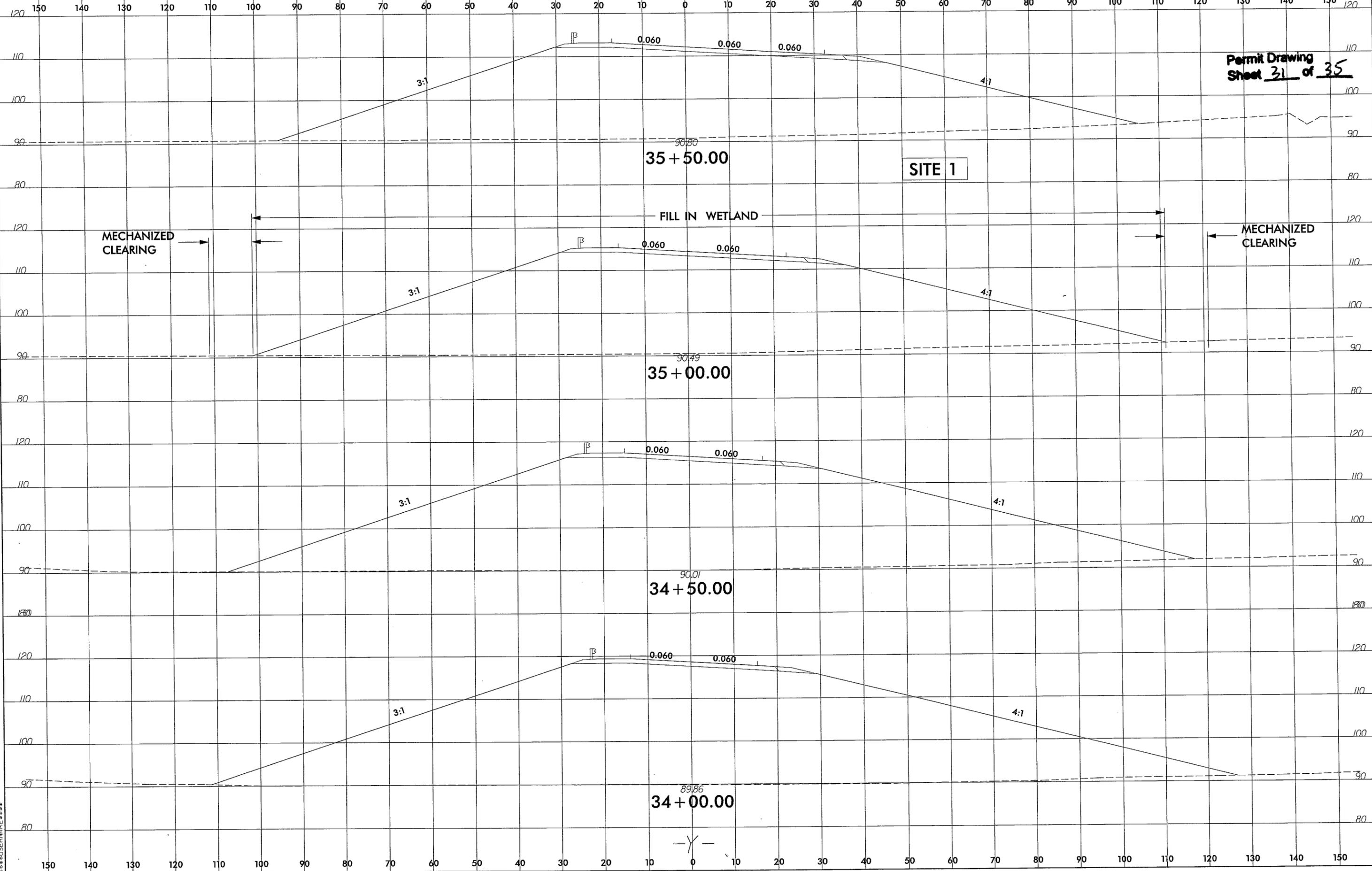
150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

8/23/99



PROJ. REFERENCE NO.
R-4900

SHEET NO.
X-27



Permit Drawing
Sheet 31 of 35

SITE 1

35 + 50.00

FILL IN WETLAND

MECHANIZED
CLEARING

MECHANIZED
CLEARING

35 + 00.00

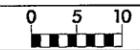
34 + 50.00

34 + 00.00



SYSTEMS
SOLUTIONS

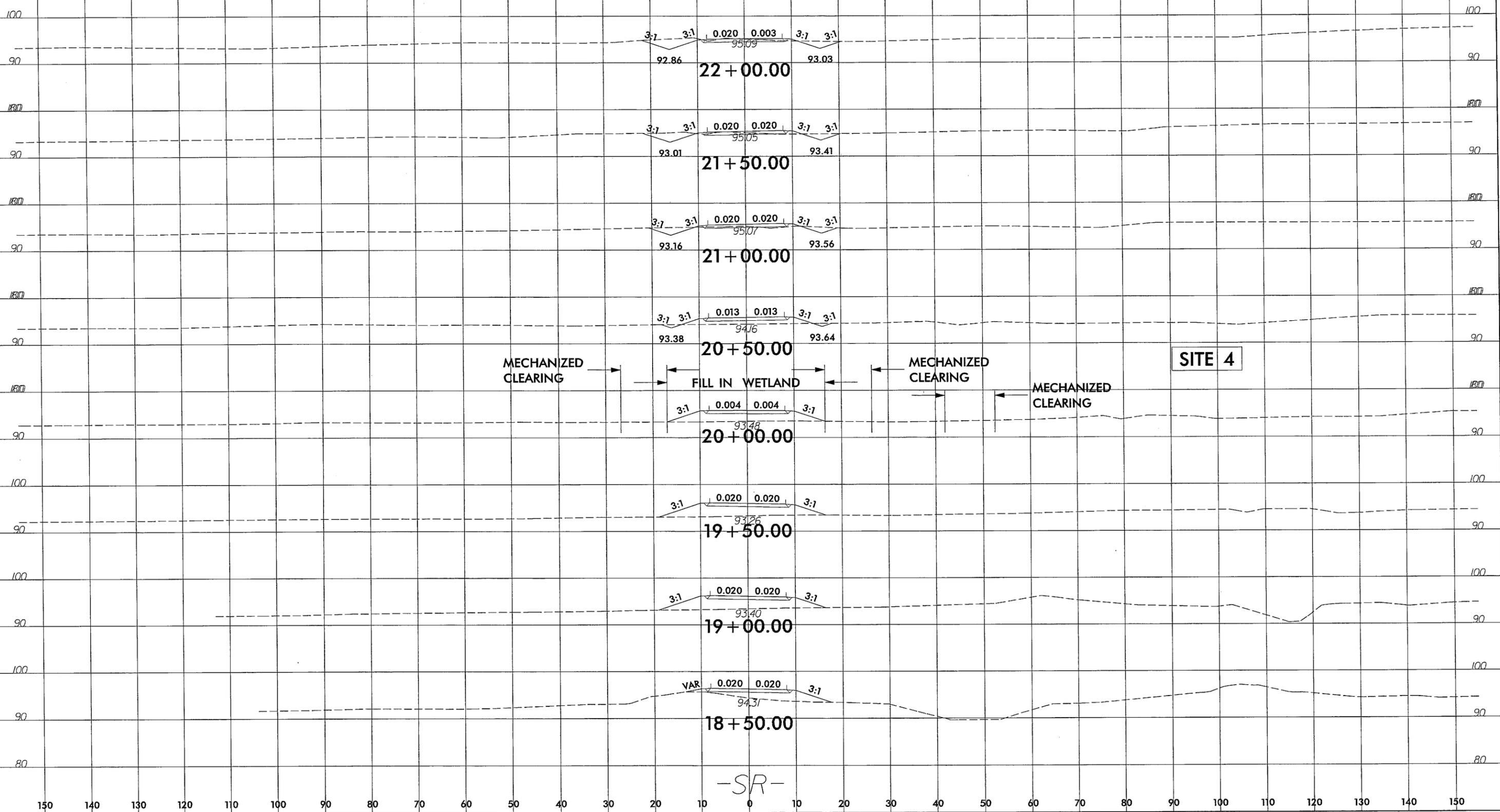
8/23/99



PROJ. REFERENCE NO. R-4900 SHEET NO. X-34

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

Permit Drawing
Sheet 32 of 35



MECHANIZED CLEARING

FILL IN WETLAND

MECHANIZED CLEARING

MECHANIZED CLEARING

SITE 4

-SR-

***** SYSTEMS DESIGN *****
***** SITE PLAN *****

8/23/99

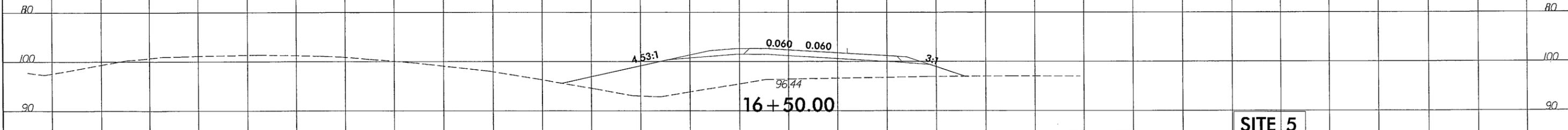
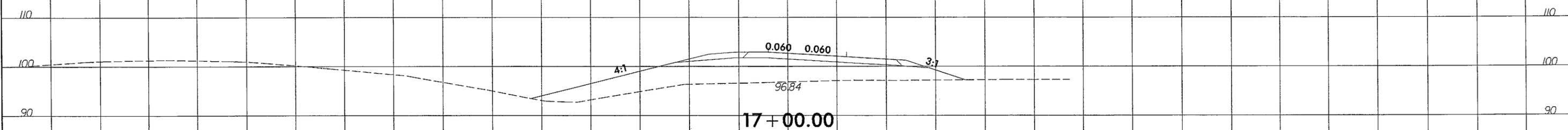
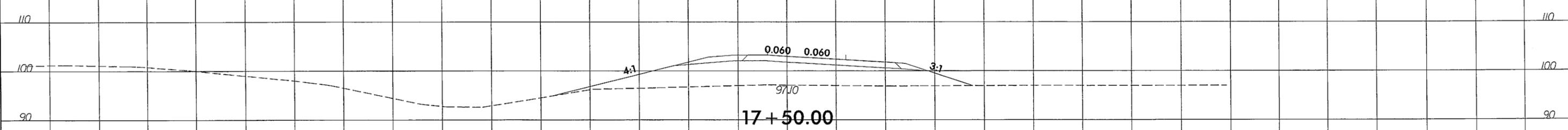
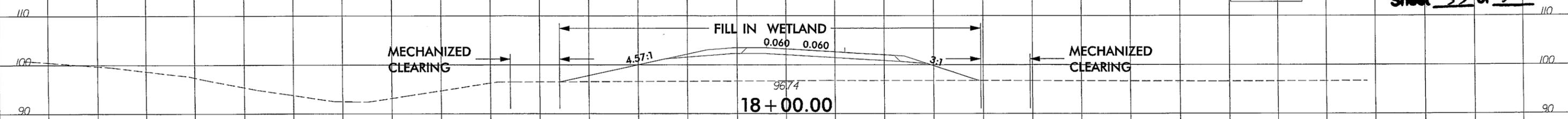


PROJ. REFERENCE NO. R-4900 SHEET NO. X-35

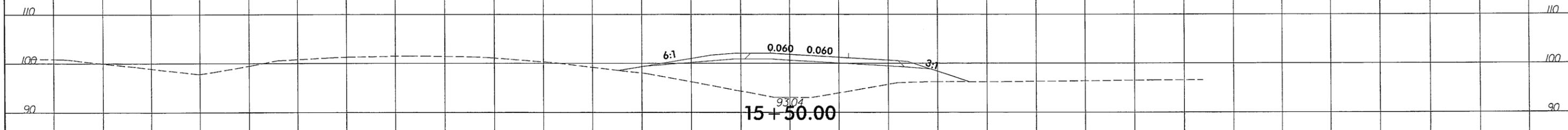
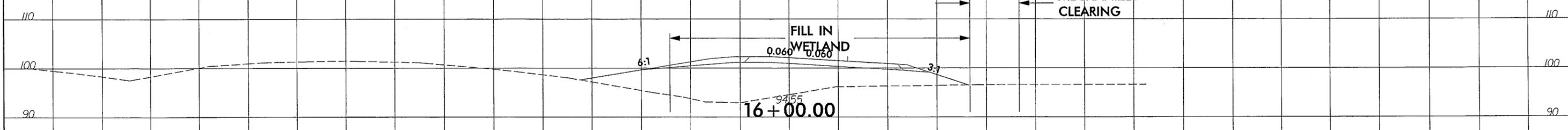
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SITE 5

Permit Drawing Sheet 33 of 35



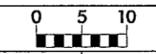
SITE 5



-RPA-

DATE: 8/23/99
DRAWN BY: [illegible]
CHECKED BY: [illegible]
SCALE: AS SHOWN

8/23/99

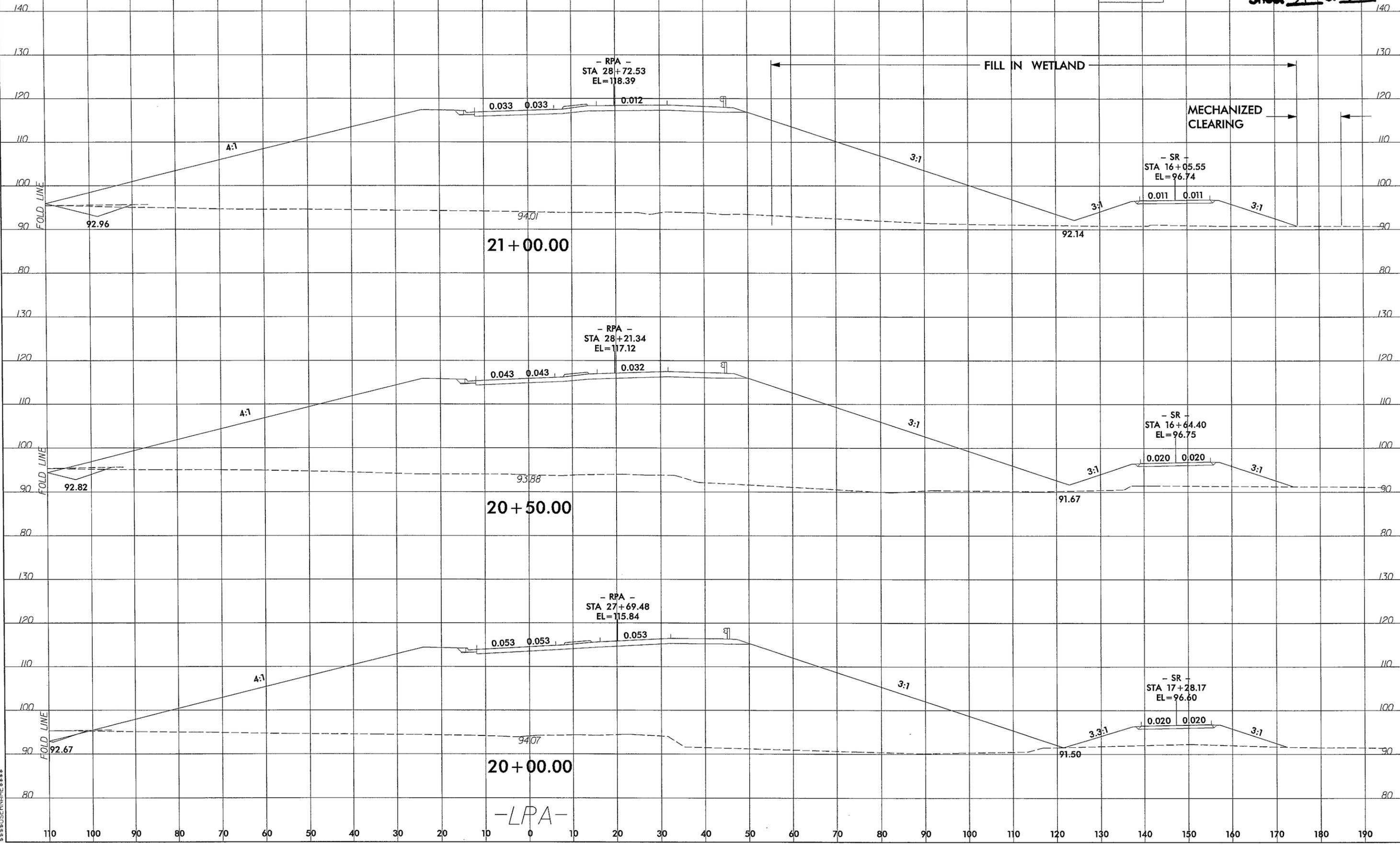


PROJ. REFERENCE NO.	SHEET NO.
R-4900	X-41

110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190

SITE 3

Permit Drawing
Sheet 34 of 35



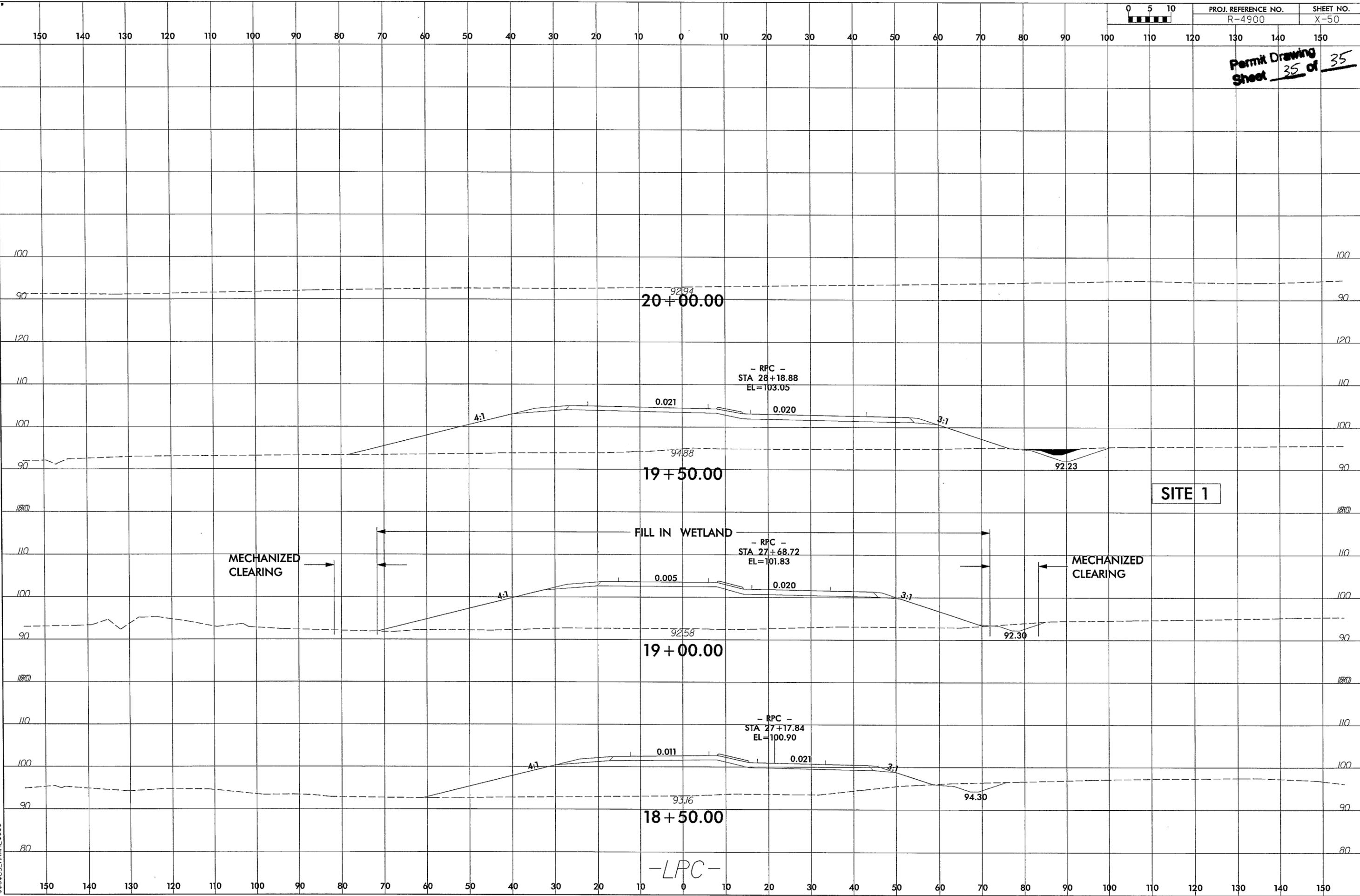
SYSTEMS TIME
PLANNING
DESIGN
CONSTRUCTION
OPERATION
MAINTENANCE

8/23/99



PROJ. REFERENCE NO. R-4900 SHEET NO. X-50

Permit Drawing Sheet 35 of 35



20 + 00.00

19 + 50.00

19 + 00.00

18 + 50.00

-LPC-

- RPC -
STA 28+18.88
EL=103.05

- RPC -
STA 27+68.72
EL=101.83

- RPC -
STA 27+17.84
EL=100.90

SITE 1

MECHANIZED
CLEARING

MECHANIZED
CLEARING

FILL IN WETLAND

SYNTHETIC
SEWER
CONDUIT
ELEVATION
AS SHOWN