



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

BEVERLY PERDUE  
GOVERNOR

EUGENE CONTI  
SECRETARY

August 10, 2012

MEMORANDUM TO: Ms. Karen E. Fussell, PE  
Division 3 Engineer

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

SUBJECT: Onslow County, Improvements to SR 1406 (Piney Green Rd)  
from NC 24 to US 17; Federal Aid Project No. STP-  
1406(4); WBS Element 35801.1.1.; **TIP U-3810**

A handwritten signature in blue ink, appearing to read "E. S. Fussell", is written over the recipient's name.

Attached are the U.S. Army Corps of Engineers Section 404 Individual Permit, the N.C. Division of Water Quality Section 401 Water Quality Certification, the N.C. Division of Coastal Management CAMA Permit, and the N.C. Division of Water Resources Central Coastal Plain Capacity Use Analysis Permit. All environmental permits have been received for construction of this project.

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

cc:

Mr. Randy Garris, Contract Standards and Development Unit  
Mr. Majed Alghandour, P. E., Programming and TIP  
Mr. Jay Bennett, P.E., Roadway Design Unit  
Mr. Dewayne Sykes, P.E. Utilities Unit  
Mr. Art McMillan, P.E., Hydraulics Unit  
Mr. Greg Perfetti, P.E., Structure Design Unit  
Mr. Ron Hancock, P.E., State Roadway Construction Engineer  
Mr. Mike Robinson, P.E., State Bridge Construction Engineer  
Mr. Stoney Mathis, Division Environmental Officer  
Mr. Ted Devens, P.E., PDEA  
Ms. Beth Harmon, EEP  
Mr. Phillip Ayscue, Office of Inspector General  
Mr. Clarence Coleman, P.E., FHWA

**MAILING ADDRESS:**  
NC DEPARTMENT OF TRANSPORTATION  
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS  
1598 MAIL SERVICE CENTER  
RALEIGH NC 27699-1598

TELEPHONE: 919-707-6100  
FAX: 919-212-5785

WEBSITE: [WWW.NCDOT.ORG](http://WWW.NCDOT.ORG)

**LOCATION:**  
1020 BIRCH RIDGE DRIVE  
RALEIGH NC 27610-4328

# PROJECT COMMITMENTS

**TIP PROJECT NO. U-3810**  
**WIDENING OF SR 1406 (PINEY GREEN ROAD)**  
From NC 24 (Lejeune Boulevard) to US 17 (Marine Boulevard)  
Jacksonville, Onslow County, North Carolina  
WBS No. 35801.1.1  
Federal Aid No. STP-1406 (4)

## COMMITMENTS FROM PROJECT DEVELOPMENT AND DESIGN

### **Division Construction / Project Services Unit**

The Stream Crossing Guidelines for Anadromous Fish Passage will be implemented, as applicable.

An in-stream work moratorium of February 15 to June 15 is required for Northeast Creek, Poplar Creek, and Little Northeast Creek for anadromous fish species.

NCDOT will adhere to Guidelines for Avoiding Impacts to the West Indian Manatee: Precautionary Measures for Construction Activities in North Carolina Waters for this project.

### **Hydraulics Unit / Division 3**

The NCDOT Hydraulics Unit will coordinate with the Federal Emergency Management Agency (FEMA) to determine if a Conditional Letter of Map Revision (CLOMR) and a subsequent final Letter of Map Revision (LOMR) are required for the project. If required, the Division will submit sealed as-built construction plans to the Hydraulics Unit upon project completion certifying the project was built as shown on construction plans.

### **Roadway Design Unit**

NCDOT (Roadway Design) will coordinate during final design with the Jacksonville MPO, Onslow County Schools, and the Division to determine if school bus U-turns should be incorporated into final designs.

*Coordination ensued. Specific locations for bus U-turns and turn-outs were determined and incorporated into current plans.*

TIP Project U-4409 improvements will not be funded under U-3810. However, during final design, NCDOT will consider relocating the currently proposed full-movement access at the northernmost intersection of Piney Green Road and Birchwood Lane (Y-27) to the southernmost access (Y-28). This would allow enough spacing for the future Hemlock Drive / Corbin Street Connector to have a full movement intersection at Piney Green Road.

*Current plans change the location of the full-movement intersection of the Birchwood Lane loop. Plans at FONSI phase showed a full-movement intersection of Piney Green Road with the*

*northern-most end of the loop, with a right-in, right-out configuration at the southern-most intersection. Current plans reverse the location of the full-movement access intersection, as well as the right-in, right-out intersection.*

The U-3810 Merger Process Team met on April 17, 2008, and concurred with the avoidance and minimization measures for the proposed widening of SR 1406 (Piney Green Road) in Jacksonville, NC, provided additional consideration is investigated for use of retaining walls or other options at Wetland sites 2 and 5 (as identified at CP4A) at Concurrence Point 4B. NCDOT (Roadway Design) will study further potential minimization efforts during final design (for example, retaining walls) and report findings at the Concurrence Point 4B meeting (when hydraulic plans are 30 percent complete). *NCDOT investigated additional minimization opportunities at CP4B. The merger team agreed to the use of 3:1 side slopes at both sites, but not retaining walls.*

NCDOT will provide a directional crossover median opening for emergency vehicle access in front of Highland Crossing Shopping Center, aligned with the easternmost driveway (in front of Food Lion). A flush-mounted concrete median for emergency vehicle access will be provided in front of the fire station located on Piney Green Road near the Camp Lejeune Railroad.

*These design changes are incorporated into final plans.*

NCDOT will provide 14- foot wide outside lanes to accommodate bicycles.

*Final plans incorporate 14-foot outside lanes.*

NCDOT will investigate and determine the locations of the sidewalks and pedestrian crossings in coordination with the City.

*Coordination ensued with the City of Jacksonville and with Onslow County. Resultantly, the City committed to cost-share for sidewalks within city limits. Therefore, final plans show sidewalks at agreed-upon locations. Pedestrian crossings are provided.*

### **GeoEnvironmental Section**

The GeoEnvironmental Section will provide soil and groundwater assessments on each of the properties listed in the GeoEnvironmental Impact Evaluation after identification of the selected alternative and before right of way acquisition.

*Geotechnical assessments were conducted on seventeen properties. Contaminated soil and groundwater are known to exist within the project limits, as shown on plans. A special provision will be added to the construction contract to address any contaminated material found during construction.*

## COMMITMENTS FROM PERMITTING

### Division 3 Construction

The middle culvert of three placed in Poplar Creek shall be buried at least one foot below normal bed elevation to allow for passage of water and aquatic life.

The temporary diversion channel and detour structure constructed at Poplar Creek shall be removed immediately upon completion of the permanent culvert and associated roadway.

The reinforced concrete box culverts at Permit Sites 1, 4, 6 and 8 shall be backfilled to the adjacent natural streambed and/or floodplain elevations. The culverts must be backfilled and compacted with the same type of native material that is excavated from the streambed and/or floodplain during the construction of these structures.

Channel relocations shall be completed and stabilized, and approved on site by DWQ staff, prior to diverting water into the new channel. Stream banks shall be matted with coir-fiber matting. Vegetation used for bank stabilization shall be limited to native riparian vegetation, and should include establishment of a vegetated buffer on both sides of the relocated channel to the maximum extent practical. Also, rip-rap may be allowed if it is necessary to maintain the physical integrity of the stream, but the applicant must provide written justification and any calculations used to determine the extent of the rip-rap coverage requested. Once the stream has been turned into the new channel, it may be necessary to relocate stranded fish to the new channel to prevent fish kills.

### Natural Environment Section / Division 3 Construction / Roadside Environmental Unit

The permittee must implement the "On-site Mitigation Plan SR 1406 (Piney Green Road) from NC 24 to US 17 Jacksonville, Onslow County, North Carolina" dated June 21, 2012. **The elevation of the restoration site should be field confirmed by the USACE Wilmington Field Office prior to release of construction equipment so that any field level changes can be completed.** The on-site mitigation consists of 7.87 acres of wetland preservation, 0.14 acre of non-tidal freshwater marsh, and 0.91 acre of riverine swamp forest restoration. The ratios applied to the mitigation effort are 10:1, 2: 1, and 1:1 respectively. In total this is the equivalent of 1.76 acres of riparian wetland mitigation credits to be only used for this project. The mitigation work must be complete before the project final inspection and the contractor is released.

The permittee shall maintain the entire mitigation site in its natural condition, as altered by the work in the mitigation plan, in perpetuity. Prohibited activities within the mitigation site specifically include, but are not limited to: filling; grading; excavating; earth movement of any kind; construction of roads, walkways, buildings, signs, or any other structure; any activity that may alter the drainage patterns on the property; the destruction, cutting, removal, mowing, or other alteration of vegetation on the property; disposal or storage of any garbage, trash, debris or other waste material; graze or water animals, or use for any agricultural or horticultural purpose; or any other activity which would result in the property being adversely impacted or destroyed, except as specifically authorized by the permit.

All on-site mitigation sites shall be protected in perpetuity by a conservation easement or through NCDOT fee simple acquisition and recorded in the NCDOT Natural Environment Unit mitigation geodatabase.

For the forested wetland mitigation site located from Station -L- Sta. 222+68 to 233+71.50 Lt., the permittee shall plant 680 stems/acre. Vegetation success shall be measured by survivability over a 5-year monitoring period. Survivability will be based on 320 stems/acre after three (3) years and 260 stems after five (5) years. A survey of vegetation during the growing season shall be conducted annually over the five-year monitoring period.

**Natural Environment Section**

In order to compensate for impacts to 992 linear feet of stream / 0.78 acre of wetlands , the permittee shall make payment to the North Carolina Ecosystem Enhancement Program (NCEEP) in the amount determined by the NCEEP, sufficient to perform the restoration of 1,984 linear feet of warm water stream / 1.56 acres of riparian riverine wetlands in the White Oak River Basin, Cataloging Unit 03030001. Construction within jurisdictional areas on the property may begin upon permit issuance; however, within 30 days of permit issuance, NCDOT shall provide written confirmation to the Corps that NCEEP agrees to accept responsibility for the mitigation work required, in compliance with the NCEEP In-Lieu Fee Instrument, approved by the United States Army Corps of Engineers, Wilmington District on July, 28, 2010. Until the Corps receives this confirmation letter from NCEEP, NCDOT remains responsible for this mitigation requirement. If the Corps has not received a confirmation from NCEEP within 150 days of the date of this verification, NCDOT shall provide plans to accomplish the required mitigation to the Corps of Engineers within 210 days of the date of this permit decision.



REPLY TO  
ATTENTION OF:

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

August 8, 2012

Regulatory Division

Action ID SAW-2005-9988695; TIP Project No. U-3810 Onslow County, North Carolina.

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

Dear Dr. Thorpe:

In accordance with your written request of April 20, 2012 and the ensuing administrative record, enclosed are two copies of a Department of the Army permit to directly discharge fill material into waters and wetlands adjacent to Northeast Creek, Little Northeast Creek, Poplar Creek, Mott Creek, and their tributaries in order to complete improvements to Piney Green Road (SR 1406), Onslow County, North Carolina. The proposed improvements total 6.6 miles in length.

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.

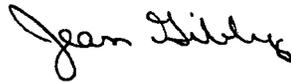
This correspondence contains a proffered permit for the above described site. If you object to this decision, you may request an administrative appeal under Corps regulations at 33 CFR part 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet and Request for Appeal (RFA) form. If you request to appeal this decision you must submit a completed RFA form to the South Atlantic Division, Division Office at the following address:

Administrative Appeal Review Officer  
CESAD-ET-CO-R  
U.S. Army Corps of Engineers, South Atlantic Division  
60 Forsyth Street, Room 9M15  
Atlanta, Georgia 30303-8801

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete; that it meets the criteria for appeal under 33 CFR part 331.5, and that it has been received by the Division Office within 60 days of the date of the NAP.

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 Mr. Brad Shaver of my Wilmington Field Office regulatory staff at telephone (910) 251-4611.

Sincerely,

A handwritten signature in cursive script that reads "Jean Gibby".

Jean Gibby, Acting Chief  
Regulatory Division

Enclosures

## DEPARTMENT OF THE ARMY PERMIT

**Permittee:** North Carolina Department of Transportation (NCDOT)

**Permit No.:** SAW-2005-9988695

**Issuing Office:** CESAW-RG-L

**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:** The overall purpose of the proposed highway project is to improve traffic flow and safety on Piney Green Road between NC 24 (Lejeune Blvd.) and US 17 (Marines Blvd.), in Jacksonville, Onslow County.

**Project Location:** Piney Green Road (SR 1406) is located within Jacksonville and connects US 17 (Marines Blvd) from the north and terminates south into NC 24 across from an existing United States Marine Corps (USMC) – Camp Lejeune Base entrance, Onslow County, North Carolina. Piney Green Road spans and bisects waters and wetlands adjacent to Northeast Creek, Little Northeast Creek, Poplar Creek, Mott Creek, and their tributaries ultimately draining to the New River. The road is physically located at 34.7750 N and -77.3610 W and is located in the White Oak River Basin and lies within Hydrologic Unit 03030001 (Subbasin 03-05-02).

### **General Conditions:**

- 1. The time limit for completing the work authorized ends on December 31, 2017. 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.**
- 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).
- 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. Lusk for Gregory J. Thape, PhD  
(PERMITEE) NORTH CAROLINA DEPARTMENT  
OF TRANSPORTATION (NCDOT)

Aug 13, 2012  
(DATE)

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

Steven A. Baker  
for (DISTRICT ENGINEER) STEVEN A. BAKER, COLONEL

17 Aug 2012  
(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.

\_\_\_\_\_  
(TRANSFEEE)

\_\_\_\_\_  
(DATE)

## SAW-2005-9988695, SPECIAL CONDITIONS

In accordance with 33 U.S.C. 1341(d), all conditions of the North Carolina Division of Water Quality 401 Water Quality Certification #3928 and the North Carolina Division of Coastal Management Consistency Certification # 88-12 are incorporated as part of the Department of the Army permit.

- a) 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 of the United States, including wetlands, associated with the permitted project, or such other remedies and/or fines as the U.S. Army Corps of Engineers District Commander or his authorized representatives may seek.
- b) All work authorized by this permit must be performed in strict compliance with the attached plans, which are a part of this permit. Any modification to these plans must be approved by the US Army Corps of Engineers (USACE) prior to implementation.
- c) The permittee must implement the "On-site Mitigation Plan SR 1406 (Piney Green Road) from NC 24 to US 17 Jacksonville, Onslow County, North Carolina" dated June 21, 2012. The elevation of the restoration site should be field confirmed by the USACE Wilmington Field Office prior to release of construction equipment so that any field level changes can be completed. The on-site mitigation consists of 7.87 acres of wetland preservation, 0.14 acre of non-tidal freshwater marsh, and 0.91 acre of riverine swamp forest restoration. The ratios applied to the mitigation effort are 10:1, 2:1, and 1:1 respectively. In total this is the equivalent of 1.76 acres of riparian wetland mitigation credits to be only used for this project. The mitigation work must be complete before the project final inspection and the contractor is released.
- d) The permittee shall maintain the entire mitigation site in its natural condition, as altered by the work in the mitigation plan, in perpetuity. Prohibited activities within the mitigation site specifically include, but are not limited to: filling; grading; excavating; earth movement of any kind; construction of roads, walkways, buildings, signs, or any other structure; any activity that may alter the drainage patterns on the property; the destruction, cutting, removal, mowing, or other alteration of vegetation on the property; disposal or storage of any garbage, trash, debris or other waste material; graze or water animals, or use for any agricultural or horticultural purpose; or any other activity which would result in the property being adversely impacted or destroyed, except as specifically authorized by this permit.
- e) In order to compensate for impacts to 992 linear feet of stream / 0.78 acre of wetlands, the permittee shall make payment to the North Carolina Ecosystem Enhancement Program (NCEEP) in the amount determined by the NCEEP, sufficient to perform the restoration of 1,984 linear feet of warm water stream / 1.56 acres of riparian riverine

wetlands in the White Oak River Basin, Cataloging Unit 03030001. Construction within jurisdictional areas on the property may begin upon permit issuance; however, within 30 days of permit issuance, NCDOT shall provide written confirmation to the Corps that NCEEP agrees to accept responsibility for the mitigation work required, in compliance with the NCEEP In-Lieu Fee Instrument, approved by the United States Army Corps of Engineers, Wilmington District on July, 28, 2010. Until the Corps receives this confirmation letter from NCEEP, NCDOT remains responsible for this mitigation requirement. If the Corps has not received a confirmation from NCEEP within 150 days of the date of this verification, NCDOT shall provide plans to accomplish the required mitigation to the Corps of Engineers within 210 days of the date of this permit decision.

- f) For culvert installations, measures should be included in the construction/installation that will promote the safe passage of fish and other aquatic organisms. These measures may include where appropriate; sills, baffles, created floodplain benches, and pre charged culverts. The dimension, pattern, and profile of the stream above and below a pipe or culvert should not be modified by widening the stream channel or by reducing the depth of the stream in connection with the construction activity. The width, height, and gradient of a proposed culvert should be such as to pass the average historical low flow and spring flow without adversely altering flow velocity. Spring flow should be determined from gage data, if available. In the absence of such data, bankfull flow can be used as a comparable level installation.
- g) Culverts along this project should be buried at least one foot below the normal bed elevation. The excavation required, typically noted as temporary stream impact, should be restored to its original elevation at the completion of the culvert installation. A waiver from the depth specifications in this condition may be requested in writing. The waiver would be issued if it can be demonstrated that the proposal would result in the least impacts to the aquatic environment.
- h) Culverts are to be designed and constructed in a manner that minimizes destabilization and head cutting. Destabilizing the channel and head cutting upstream should be considered and appropriate actions incorporated in the design and placement of the culvert.
- i) Culverts placed within riparian and/or riverine wetlands must be installed in a manner that does not restrict the flow and circulation patterns of waters of the United States. Culverts placed across wetland fills purely for the purposes of equalizing surface water do not have to be buried.
- j) As described in the project commitments, the permittee will adhere to an in-stream work moratorium of February 15 to June 15 for Northeast Creek, Poplar Creek, and Little Northeast Creek for anadromous fish species.
- k) During the clearing phase of the project, heavy equipment must not be operated in surface waters or stream channels. Temporary stream crossings will be used to access

the opposite sides of stream channels. All temporary diversion channels and stream crossings will be constructed of non-erodible materials. Grubbing of riparian vegetation will not occur until immediately before construction begins on a given segment of stream channel.

- l) Also as described in the project commitments, the permittee will adhere to *Guidelines for Avoiding Impacts to the West Indian Manatee: Precautionary Measures for Construction Activities in North Carolina Waters* (Appendix F in EA) for this project.
- m) 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.
- n) 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. This permit does not authorize temporary placement or double handling of excavated or fill material within waters or wetlands outside the permitted area. This prohibition applies to all borrow and fill activities (including access roads) associated with this project.
- o) 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 waters or wetlands or to reduce the reach of waters or wetlands.
- p) 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. 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 1(800) 858- 0368 and provisions of the North Carolina Oil Pollution and Hazardous Substances Control Act will be followed.
- q) The permittee shall advise the Corps in writing prior to beginning the work authorized by this permit and again upon completion of the work authorized by this permit.
- r) 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.

- s) 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. A copy of this permit, including all conditions, shall be available at the project site during construction and maintenance of this project
- t) The permittee shall employ all sedimentation and erosion control measures necessary to prevent an increase in sedimentation or turbidity within waters and wetlands outside the permit area. 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).
- u) No fill or excavation for the purposes of sedimentation and erosion control shall occur within jurisdictional waters, including wetlands, unless it is included on the plan drawings and specifically authorized by this permit.
- v) The permittee shall remove all sediment and erosion control measures placed in wetlands or waters, and shall restore natural grade in those areas, prior to project completion.
- w) The permittee, upon receipt of a notice of revocation of this permit or upon its expiration before completion of the work will, without expense to the United States and in such time and manner as the Secretary of the Army or his authorized representative may direct, restore the water or wetland to its pre-project condition.
- x) Violations of these conditions or violations of Section 404 of the Clean Water Act must be reported in writing to the Wilmington District U.S. Army Corps of Engineers within 24 hours of the permittee's discovery of the violation.
- y) Prior to commencing construction within jurisdictional waters of the United States, the permittee shall forward the latest version of project construction drawings to the USACE, Wilmington Regulatory Field Office NCDOT Regulatory Project Manager or confirm that the permit drawings submitted during application have not changed. Half-size drawings are acceptable.

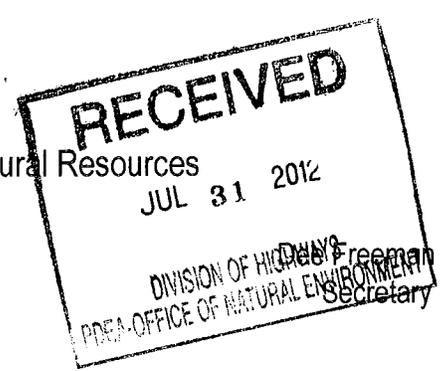
- z) The permittee shall schedule an environmental preconstruction meeting between its representatives, the contractor's representatives, and the USACE, Wilmington Regulatory Field Office NCDOT Regulatory Project Manager, prior to any work within jurisdictional waters and wetlands to ensure that there is a mutual understanding of all of the terms and conditions contained within this Department of the Army Permit. The permittee shall schedule the environmental preconstruction meeting for a time when the USACE and North Carolina Division of Water Quality (NCDWQ) Project Managers can attend. The permittee shall invite the USACE and NCDWQ Project Managers a minimum of two weeks in advance of the scheduled meeting in order to provide those individuals with ample opportunity to schedule and participate in the required meeting.
- aa) The permittee shall install barrier fencing around all wetlands that are not to be disturbed to make them readily visible and prevent construction equipment from inadvertently entering or disturbing these areas.
- bb) If the permittee discovers any previously unknown historic or archaeological sites while accomplishing the authorized work, he shall immediately stop work and notify the Wilmington District Commander who would initiate the required State/Federal coordination.



North Carolina Department of Environment and Natural Resources  
Division of Coastal Management

Beverly Eaves Perdue  
Governor

Braxton C. Davis  
Director



7/27/12

Gregory J. Thorpe, Ph.D.  
Environmental Manager Director  
Project Development and Environmental Analysis Branch  
NC Department of Transportation  
1598 Mail Service Center  
Raleigh, North Carolina 27699-1598

Dear Dr. Thorpe:

The enclosed permit constitutes authorization under the Coastal Area Management Act, and where applicable, the State Dredge and Fill Law, for you to proceed with your project proposal. The original (buff-colored form) is retained by you and it must be available on site when the project is inspected for compliance. Please sign both the original and the copy and return the copy to this office in the enclosed envelope. Signing the permit and proceeding means you have waived your right of appeal described below.

If you object to the permit or any of the conditions, you may request a hearing pursuant to NCGS 113A-121.1 or 113-229. Your petition for a hearing must be filed in accordance with NCGS Chapter 150B with the Office of Administrative Hearings, 6714 Mail Service Center, Raleigh, NC 27611-6714, (919) 733-2698 within twenty (20) days of this decision on your permit. You should also be aware that if another qualified party submits a valid objection to the issuance of this permit within twenty (20) days, the matter must be resolved prior to work initiation. The Coastal Resources Commission makes the final decision on any appeal.

The project plan is subject to those conditions appearing on the permit form. Otherwise, all work must be carried out in accordance with your application. Modifications, time extensions, and future maintenance require additional approval. Please read your permit carefully prior to starting work and review all project plans, as approved. If you are having the work done by a contractor, it would be to your benefit to be sure that he fully understands all permit requirements.

From time to time, Department personnel will visit the project site. To facilitate this review, we request that you complete and mail the enclosed Notice Card just prior to work initiation. However, if questions arise concerning permit conditions, environmental safeguards, or problem areas, you may contact Department personnel at any time for assistance. By working in accordance with the permit, you will be helping to protect our vitally important coastal resources.

Sincerely,

Douglas V. Huggett  
Major Permits and Consistency Manager

Enclosure

Permit Class  
NEW

Permit Number  
88-12

STATE OF NORTH CAROLINA  
Department of Environment and Natural Resources  
and  
Coastal Resources Commission

# Permit

for

- Major Development in an Area of Environmental Concern pursuant to NCGS 113A-118
- Excavation and/or filling pursuant to NCGS 113-229

Issued to N.C. Department of Transportation, 1548 Mail Service Center, Raleigh, NC 27699-1548

Authorizing development in Onslow County at Little Northeast Creek, Northeast Creek, and Poplar Creek on SR 1406 (Piney Green Road) as requested in the permittee's application dated 4/19/12 including the attached drawings as referenced in Condition No. 1 of this permit.

This permit, issued on 7/27/12, is subject to compliance with the application (where consistent with the permit), all applicable regulations, special conditions and notes set forth below. Any violation of these terms may be subject to fines, imprisonment or civil action; or may cause the permit to be null and void.

### Widening of Piney Green Road (TIP No. U-3810)

- 1) Unless specifically altered herein, all work authorized by this permit shall be carried out in accordance with the following ninety nine (99) workplan drawings:

1/2 size drawings: Forty seven (47) drawings dated 10/11/11, thirteen (13) drawings dated 11/30/11, twelve (12) drawings dated 9/22/11, eight (8) drawings dated 2/16/12, five (5) drawings dated 10/18/11, four (4) drawings dated 4/28/11, two (2) drawings dated 6/17/11, two (2) drawings dated 2/7/11, one (1) drawing dated 10/12/11, one (1) drawing dated 12/8/11, one (1) drawing dated 3/8/12, one (1) drawing dated 3/23/12, and two (2) drawings dated as received on 4/23/12.

### (See attached sheets for Additional Conditions)

This permit action may be appealed by the permittee or other qualified persons within twenty (20) days of the issuing date. An appeal requires resolution prior to work initiation or continuance as the case may be.

This permit must be accessible on-site to Department personnel when the project is inspected for compliance.

Any maintenance work or project modification not covered hereunder requires further Division approval.

All work must cease when the permit expires on

### No Expiration Date, pursuant to GS 136-44.7B

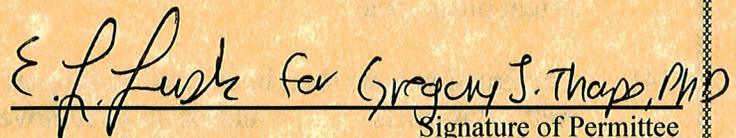
In issuing this permit, the State of North Carolina agrees that your project is consistent with the North Carolina Coastal Management Program.

Signed by the authority of the Secretary of DENR and the Chairman of the Coastal Resources Commission.



Braxton C. Davis, Director  
Division of Coastal Management

This permit and its conditions are hereby accepted.

  
Signature of Permittee

**ADDITIONAL CONDITIONS**

- 2) In order to protect anadromous fish during spawning periods and through embryonic, larval or juvenile life stages, and in accordance with project commitments made by the permittee within the CAMA permit application, no in-water work shall be conducted from February 15 through June 15 of any year in Little Northeast Creek, Northeast Creek and Poplar Creek. Any schedule modification shall require prior approval by the NC Division of Coastal Management (DCM), in consultation with the NC Wildlife Resources Commission (WRC).
- 3) Any debris resulting from the demolition or construction of bridges or culverts shall not enter wetlands or waters of the State, even temporarily.
- 4) The permittee and/or his contractor shall exercise all available precautions in day-to-day operations to prevent waste from entering the adjacent waters.
- 5) Any waste materials and debris associated with construction, demolition, or other activities shall be disposed of at an approved upland site or shall be recycled in an environmentally appropriate manner provided appropriate authorizations are obtained from any relevant state, federal, or local authorities.
- 6) The permittee and/or his contractor shall provide for proper storage and handling of all oils, chemicals, etc., necessary to carry out the project.
- 7) Construction staging areas shall be located only in upland areas, and not in wetlands or waters of the State.
- 8) The installation of bridge piles shall be performed by pile driving and/or the use of vibratory hammer. Should the permittee and/or its contractor desire to utilize another type of pile installation, such as drilled shaft or jetting, additional DCM authorization shall be required.
- 9) Live concrete shall not be allowed to contact waters of the State or water that will enter waters of the State or adjacent wetlands.
- 10) Placement of riprap shall be limited to the areas as depicted on the attached workplan drawings. The riprap material shall be free from loose dirt or any pollutant. The riprap material shall consist of clean rock or masonry materials, such as but not limited to, granite, marl, or broken concrete.
- 11) The middle culvert of three placed in Poplar Creek shall be buried at least one foot below normal bed elevation to allow for passage of water and aquatic life.
- 12) The temporary diversion channel and detour structure constructed at Poplar Creek shall be removed immediately upon completion of the permanent culvert and associated roadway.
- 13) The permittee shall minimize the need to cross wetlands in transporting equipment to the maximum extent practicable.
- 14) Construction mats shall be utilized to support equipment within wetland areas to minimize temporary wetland impacts. These mats shall be removed immediately following project completion.

### **ADDITIONAL CONDITIONS**

- 15) There shall be no clearing or grubbing of wetlands outside of the areas indicated on the attached workplan drawings without prior approval from DCM.
- 16) In accordance with DWQ's 401 Water Quality Certification, bridge deck drains shall not discharge into the stream.

### **Excavation and Fill**

- 17) No excavation shall take place at any time in any vegetated wetlands or surrounding waters outside of the alignment of the areas indicated on the attached workplan drawings, without permit modification.
- 18) Material excavated may be used in fill areas associated with the project or shall be removed from the site and taken to an approved high ground location.
- 19) All excavated materials shall be confined above normal water level and landward of regularly or irregularly flooded wetlands behind adequate dikes or other retaining structures to prevent spillover of solids into any wetlands or surrounding waters.
- 20) No excavated or fill material shall be placed at any time in any vegetated wetlands or surrounding waters outside of the alignment of the areas as indicated on the attached workplan drawings, without permit modification.
- 21) All fill material shall be clean and free of any pollutants except in trace quantities.

### **Sedimentation and Erosion Control**

- 22) This project shall conform to all requirements of the NC Sedimentation Pollution Control Act and NC DOT's Memorandum of Agreement with the Division of Land Resources.
- 23) Unless specifically altered herein, the permittee shall follow "Best Management Practices for the Protection of Surface Waters (3/97)" and shall also implement sedimentation and erosion control measures sufficient to protect aquatic resources. At a minimum, appropriate sedimentation and erosion control devices, measures or structures shall be implemented to ensure that eroded materials do not enter adjacent wetlands, watercourses, and property (e.g. silt fence, diversion swales or berms, etc.).

### **Compensatory Mitigation**

- 24) Unless specifically altered herein, on-site mitigation shall be carried out as described in the document entitled "On-Site Mitigation Plan, SR 1406 (Piney Green Road) from NC 24 to US 17, Jacksonville, Onslow County, North Carolina T.I.P. Number U-3810", dated 6/21/2012.

### ADDITIONAL CONDITIONS

**NOTE:** The permittee is advised that additional mitigation or other remedial actions may be required for permanent wetland impacts if the on-site mitigation fails to meet its success criteria within 5 years of construction.

**NOTE:** The Ecosystem Enhancement Program (EEP) agreed to provide mitigation for 0.78 acres of riparian wetlands and 1,140 linear feet of stream impacts per the EEP Mitigation Acceptance Letter, dated 3/27/12.

#### Utilities Relocation

25) Any relocation of utility lines that has not been previously permitted by DCM or is not already depicted on the attached work plan drawings, or described within the attached permit application, shall require approval by DCM, either under the authority of this permit, or by the utility company obtaining separate authorization.

#### General

26) DWQ authorized the proposed project on June 25, 2012 by DWQ Project No. 110931v3 and modified by DWQ Project No. 110931v4 under Certification No. 3928. Any violation of the Certification approved by the DWQ shall be considered a violation of this CAMA permit.

**NOTE:** DWQ provided confirmation that the subject project is excluded from State Coastal Stormwater permitting requirements by way of the Stormwater Permit Exclusion letter, dated 11/4/11 (Project No. SW8110221).

27) The permittee and/or contractor shall contact the DCM Transportation Field Representative at (252) 808-2808 extension No. 208 to schedule a pre-construction conference prior to project initiation.

**NOTE:** If it is determined that additional permanent and/or temporary impacts are necessary that are not shown on the attached permit drawings or described in the authorized permit application, permit modification or additional authorization from DCM may be required.

**NOTE:** This permit does not eliminate the need to obtain any additional state, federal, or local permits, approvals, or authorizations that may be required, including, but not limited to, the US Army Corps of Engineers and/or the US Coast Guard.

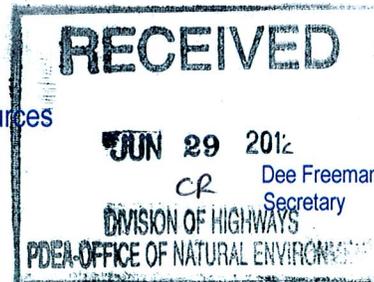


North Carolina Department of Environment and Natural Resources

Division of Water Quality  
Charles Wakild, P.E.  
Director

Beverly Eaves Perdue  
Governor

June 25, 2012



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 widening of SR 1406 (Piney Green Road) from NC 24 to US  
17 in Onslow County, Federal Aid Project No. STP-1406(4), WBS No. 35801.1.1.1, TIP U-3810.  
NCDWQ Project No. 11-0931v.3

Dear Dr. Thorpe:

Attached hereto is a copy of Certification No. 3928 issued to The North Carolina Department of Transportation  
(NCDOT) dated June 25, 2012.

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

Sincerely,

  
For Charles Wakild  
Director

Attachments

cc: Brad Shaver, US Army Corps of Engineers, Wilmington Field Office  
Karen Fussell, PE, Division 3 Engineer  
Stoney Mathis, Division 3 Environmental Officer (electronic copy only)  
Chris Militscher, Environmental Protection Agency (electronic copy only)  
Gary Jordan, US Fish and Wildlife Service (electronic copy only)  
Travis Wilson, NC Wildlife Resources Commission (electronic copy only)  
Jason Elliott, NCDOT, Roadside Environmental Unit  
Steve Sollod, Division of Coastal Management  
Michael Ellison, Ecosystem Enhancement Program  
Sonia Carrillo, NCDWQ Central Office  
File Copy

Transportation and Permitting Unit  
1650 Mail Service Center, Raleigh, North Carolina 27699-1617  
Location: 512 N. Salisbury St. Raleigh, North Carolina 27604  
Phone: 919-807-6300 \ FAX: 919-807-6492  
Internet: [www.ncwaterquality.org](http://www.ncwaterquality.org)

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**401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water Act 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 2.70 acres of jurisdictional wetlands and 1,676 linear feet of jurisdictional streams in Onslow County. The project shall be constructed pursuant to the application dated received April 20, 2012. The authorized impacts are as described below:

**Stream Impacts in the White Oak River Basin**

Site	Station	Permanent Fill in Intermittent Stream (linear ft)	Temporary Fill in Intermittent Stream (linear ft)	Permanent Fill in Perennial Stream (linear ft)	Temporary Fill in Perennial Stream (linear ft)	Bank Stabilization (linear ft)	Total Stream Impact (linear ft)	Stream Impacts Requiring Mitigation (linear ft)
1	-L-50+67 to 52+76	0	0	121	15	116	252	237
2	-L-79+00 to 86+30	0	0	86	0	0	86	0
3	117+87 to 119+25 Lt/Rt	88	16	0	0	0	104	0
4	-L-165+53 to 168+89	0	0	290	48	28	366	318
5	-L-231+47 to 242+32	0	0	36	0	0	36	0
6	-L-273+75 to 274+85	0	0	209	47	73	329	282
8	-L-328+58 to 329+72	0	0	45	49	66	160	0
11	-L-69+55 to 70+09 Lt/Rt	110	21	0	0	26	157	0
12	-L-192+46 Rt/Lt & 194+10 Rt	155	31	0	0	0	186	155
<b>Total</b>		<b>353</b>	<b>68</b>	<b>787</b>	<b>159</b>	<b>309</b>	<b>1,676</b>	<b>992</b>

**Total Stream Impact for Project: 1,676 linear feet**

**Wetland Impacts in the White Oak River Basin (riparian)**

Site	Station	Fill (ac)	Fill (temporary) (ac)	Excavation (ac)	Excavation (temporary) (ac)	Mechanized Clearing (ac)	Hand Clearing (ac)	Total Wetland Impact (ac)	Impacts Requiring Mitigation
2	-L-79+00 to 86+30	0.49	0	0.02	0	0.15	0.03	0.69	0.66
3	117+87 to 119+25 Lt/Rt	0.02	0	0	0	0.02	0	0.04	0.04
4	-L-165+53 to 168+89	0.32	0	0.09	0.02 <sup>a</sup>	0.13	0	0.56	0.54
5	-L-231+47 to 242+32	0.72	0	0	0.07 <sup>b</sup>	0.22	0.04	1.05	0.94
7	-L-284+98 to 286+16 Lt	0.19	0	0	0	0	0	0.19	0.19
9	-Y-21+80 to 23+60 Lt	0.10	0	0	0	0	0	0.10	0.10
10	-L-11+50 Rt	0.01	0	0.06	0	0	0	0.07	0.07
<b>Total</b>		<b>1.85</b>	<b>0</b>	<b>0.17</b>	<b>0.09</b>	<b>0.52</b>	<b>0.07</b>	<b>2.70</b>	<b>2.54</b>

**Total Wetland Impact for Project: 2.70 acres.**

<sup>a)</sup>Denotes temporary excavation for temporary diversion in proposed culvert phasing

<sup>b)</sup>Denotes temporary excavation for mitigation site tie in.

The application provides adequate assurance that the discharge of fill material into the waters of the White Oak 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 April 20, 2012. 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.

**Condition(s) of Certification:**

**Project Specific Conditions**

1. The NCDOT Division Environmental Officer or Environmental Assistant will conduct a pre-construction meeting with all appropriate staff to ensure that the project supervisor and essential staff understand the potential issues with stream and pipe alignment at the permitted site. NCDWQ staff shall be invited to the pre-construction meeting.
2. The permittee will need to adhere to all appropriate in-water work moratoria (including the use of pile driving or vibration techniques) prescribed by the NC Wildlife Resources Commission. No in-water work is permitted between February 15 and June 15 of any year, without prior approval from the NC Division of Water Quality and the NC Wildlife Resources Commission. In addition, the permittee shall conform to the NCDOT policy entitled "Stream Crossing Guidelines for Anadromous Fish Passage (May 12, 1997) at all times.
3. 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.
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. The reinforced concrete box culverts at Permit Sites 1, 4, 6 and 8 shall be backfilled to the adjacent natural streambed and/or floodplain elevations. The culverts must be backfilled and compacted with the same type of native material that is excavated from the streambed and/or floodplain during the construction of these structures.
6. No drill slurry or water that has been in contact with uncured concrete shall be allowed to enter surface waters. This water shall be captured, treated, and disposed of properly.
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. Channel relocations shall be completed and stabilized, and approved on site by DWQ staff, prior to diverting water into the new channel. Stream banks shall be matted with coir-fiber matting. Vegetation used for bank stabilization shall be limited to native riparian vegetation, and should include establishment of a vegetated buffer on both sides of the relocated channel to the maximum extent practical. Also, rip-rap may be allowed if it is necessary to maintain the physical integrity of the stream, but the applicant must provide written justification and any calculations used to determine the extent of rip-rap coverage requested. Once the stream has been turned into the new channel, it may be necessary to relocate stranded fish to the new channel to prevent fish kills.
9. Pipes and culverts used exclusively to maintain equilibrium in wetlands and/or served as floodplain pipes, where aquatic life passage is not a concern shall not be buried. These pipes shall be installed at natural ground elevation.
10. Strict adherence to the most recent version of NCDOT's Best Management Practices For Bridge Demolition and Removal approved by the US Army Corps of Engineers is a condition of the 401 Water Quality Certification.

11. Bridge deck drains shall not discharge directly into the stream. Stormwater shall be directed across the bridge and pre-treated through site-appropriate means (grassed swales, pre-formed scour holes, vegetated buffers, etc.) before entering the stream. Please refer to the most current version of *Stormwater Best Management Practices*.
12. Bridge piles and bents shall be constructed using driven piles (hammer or vibratory) or drilled shaft construction methods. More specifically, jetting or other methods of pile driving are prohibited without prior written approval from NCDWQ first.
13. Compensatory mitigation for 992 linear feet of impact to streams is required. We understand that you have chosen to perform compensatory mitigation for impacts to streams 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 March 27, 2012 that they will assume responsibility for satisfying the federal Clean Water Act compensatory mitigation requirements for the above-referenced project, in accordance with the EEP Mitigation Banking Instrument signed July 28, 2010.
14. Compensatory mitigation for impacts to 2.54 acres of riparian wetlands. The permittee shall comply with the revised on-site wetland mitigation plan dated June 19, 2012. All on-site mitigation sites shall be protected in perpetuity by a conservation easement or through NCDOT fee simple acquisition and recorded in the NCDOT Natural Environment Unit mitigation geodatabase. The onsite mitigation shall comprise of 0.91 acres of riverine swamp forest restoration at 1:1 ratio (0.91 credits), 0.14 acres of non-tidal freshwater marsh at 2:1 ratio (0.07 credits) and 7.87 acres of riverine swamp preservation at 10:1 ratio (0.78 credits).
15. For the forested wetland mitigation site located from Station -L- Sta. 222+68 to 233+71.50 Lt., the permittee shall plant 680 stems/acre. Vegetation success shall be measured by survivability over a 5-year monitoring period. Survivability will be based on 320 stems/acre after three (3) years and 260 stems after five (5) years. A survey of vegetation during the growing season shall be conducted annually over the five-year monitoring period and submitted to the NC Division of Water Quality. If the surviving vegetation densities are below the required thresholds after the five-year monitoring period, the site may still be declared successful at the discretion of and with written approval from the NC Division of Water Quality.
16. Compensatory mitigation for the remaining impacts to 0.78 acre 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 March 27, 2012 that they will assume responsibility for satisfying the federal Clean Water Act compensatory mitigation requirements for the above-referenced project, in accordance with the EEP Mitigation Banking Instrument signed July 28, 2010.
17. The project shall be constructed in accordance with the Stormwater Management Plan submitted in the application dated April 20, 2012.

### **General Condition**

18. Unless otherwise approved in this certification, placement of culverts and other structures in open waters and streams 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.
19. 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.

20. 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.
21. 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.
22. 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.
23. The Permittee shall ensure that the final design drawings adhere to the permit and to the permit drawings submitted for approval.
24. 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.
25. 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.
26. 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.
27. No rock, sand or other materials shall be dredged from the stream channel except where authorized by this certification.
28. Discharging hydroseed mixtures and washing out hydroseeders and other equipment in or adjacent to surface waters is prohibited.
29. 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.
30. All fill slopes located in jurisdictional wetlands shall be placed at slopes no flatter than 3:1, unless otherwise authorized by this certification..
31. 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.
32. The outside buffer, 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.
33. 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.
34. The Permittee shall report any violations of this certification to the Division of Water Quality within 24 hours of discovery.
35. 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.

36. Native riparian vegetation must be reestablished in the riparian areas within the construction limits of the project by the end of the growing season following completion of construction.
37. 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.
38. 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.
39. 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 you wish to contest any statement in the attached Certification you must file a petition for an administrative hearing. You may obtain the petition form from the office of Administrative hearings. You must file the petition with the office of Administrative Hearings within sixty (60) days of receipt of this notice. A petition is considered filed when it is received in the office of Administrative Hearings during normal office hours. The Office of Administrative Hearings accepts filings Monday through Friday between the hours of 8:00am and 5:00pm, except for official state holidays. The original and one (1) copy of the petition must be filed with the Office of Administrative Hearings.

The petition may be faxed-provided the original and one copy of the document is received by the Office of Administrative Hearings within five (5) business days following the faxed transmission. The mailing address for the Office of Administrative Hearings is:

Office of Administrative Hearings  
6714 Mail Service Center  
Raleigh, NC 27699-6714  
Telephone: (919)-431-3000, Facsimile: (919)-431-3100

A copy of the petition must also be served on DENR as follows:

Mr. William Cary, General Counsel  
Department of Environment and Natural Resources  
1601 Mail Service Center  
Raleigh, NC 27699-1601

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 \_\_\_\_\_

This the 25th day of June 2012

DIVISION OF WATER QUALITY

A handwritten signature in blue ink, appearing to read "Charles Wakild".

for Charles Wakild  
Director

WQC No. 3928

## Permit For The Withdrawal And Use Of Water In The Central Coastal Plain Capacity Use Area

In accordance with the provisions of Part 2, Article 21 of Chapter 143, General Statutes of North Carolina as amended, and any other applicable Laws, Rules and Regulations,

### Permission Is Hereby Granted To

NC Department of Transportation

Project No. U-3810  
Improvements to SR 1406 (Piney Green Rd) from US 17 (Marine Blvd) to NC 24 (Freedom Way)

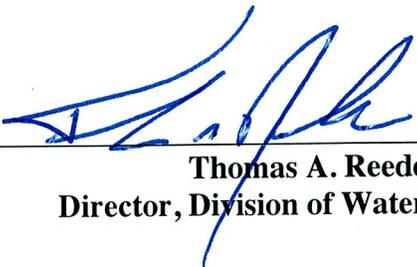
FOR THE

Withdrawal and Use of Water in Onslow County, North Carolina in accordance with the grantee's application dated January 10, 2012, and any supporting data submitted with the application, all of which are filed with the Department of Environment and Natural Resources and are considered part of this Permit.

This Permit shall be effective from the date of its issuance until January 31, 2017, and shall be subject to the specified conditions and/or limitations contained in Sections I - X of this Permit.

Permit issued this the 21 day of MARCH, 2012.

NORTH CAROLINA ENVIRONMENTAL MANAGEMENT COMMISSION

BY   
Thomas A. Reeder  
Director, Division of Water Resources

By Authority of the Secretary of the Department of Environment and Natural Resources

PERMIT #CU4027

**I. WITHDRAWALS**

**A. USE**

This Permit allows the withdrawal of water for the purpose of dewatering borrow pits to extract material for road construction.

**B. RATES OF WITHDRAWALS**

The maximum quantity of water that may be withdrawn shall not exceed what is established in the Reclamation Plan as specified in NCDOT's CCPCUA Special Provisions document.

**C. SOURCE(s) OF WITHDRAWALS**

Ground Water Source(s): Withdrawals shall be made from sumps in borrow pits in the surficial aquifer.

**D. MONITORING OF WITHDRAWALS**

Withdrawals from each source, whether well or sump, shall be measured by an approved metering device equipped with a totalizing indicator, and having an accuracy within plus or minus five percent.

**II. WATER LEVELS**

**A. MAXIMUM DRAWDOWN LEVELS**

1. Pump intakes for the well(s) shall not be set below the depth specified in the permit application or associated documentation without prior approval of the Division of Water Resources.
2. In the event that data from the permitted wells or other wells within the zone influenced by pumping of the permitted wells indicates a deterioration of quality or quantity in surrounding aquifers or the source aquifer, an alternate maximum pumping level may be established by the Division of Water Resources.

**B. MONITORING OF WATER LEVELS**

1. The pumping water level in each supply well shall be measured once a month:
  - a. by a steel or electric tape from a fixed reference point, or by using the air-line method
  - b. within accuracy limits of plus or minus one percent,
  - c. just prior to shutting off the pump, or after sufficient time of pumping, so that a maximum drawdown may be obtained, and
  - d. during the last planned pumping day of the month, or within the last five days of the month.

2. The static water level in each supply well shall be measured once a month:
  - a. by a steel or electric tape from a fixed reference point, or by using the air-line method
  - b. within accuracy limits of plus or minus one percent,
  - c. after the pump is shut off for approximately 12 hours, and
  - d. within the last five days of the month.
3. Unused supply wells or other suitable wells that may be available shall be monitored when such monitoring is specified by the Division of Water Resources and when pertinent to observation or evaluation of the effects of withdrawals made under this permit.

### **III. OTHER PROVISIONS**

#### **A. WELL CONSTRUCTION APPROVAL**

A Well Construction Permit shall be required prior to the construction of any well that will be used to withdraw any portion of the water regulated under this Permit. Application for these permits must be submitted to the Washington Regional Office, Division of Water Quality, P.O. Box 2188, Washington, NC 27889.

#### **B. ACCESS TO FACILITIES**

The Environmental Management Commission and employees of the Department of Environment and Natural Resources shall have reasonable access to areas owned and under control of the permittee for observation and inspection of water use and related facilities pertinent to the provisions of this permit and other regulations.

### **IV. REPORTS REQUIRED**

#### **A. WITHDRAWALS**

Monthly reports of daily withdrawal totals from each well or sump shall be furnished to the Division on a quarterly basis, within 30 days after the end of March, June, September and December.

#### **B. WATER LEVELS**

Water level measurements for each supply well shall be measured in accordance with Condition II. B. 1. of this permit and submitted to the Division not later than 30 days after the end of the calendar month in which the measurement was taken.

**V. MODIFICATION OR REVOCATION**

**A. MODIFICATION**

1. The Permittee must notify the Director of any proposed major changes in usage and apply for a modification of the permit for such changes or for any revisions of the terms of this permit.
2. The Director may modify the terms of the permit, after 60 days written notice to the permittee, if he finds that the terms of the permit and/or the resulting water use are found to be contrary to the purposes of the Water Use Act of 1967 or contrary to public interest or having an unreasonably adverse effect upon other water uses in the capacity use area. Modifications may include, but are not limited to, requirements for alternate pumping levels or the collection, analysis, and reporting of ground or surface water quality samples.

**B. REVOCATION**

The Director may revoke the permit if he finds that:

1. the Permittee has violated the terms of the permit; or
2. the terms of the Permit and/or the resulting water use are contrary to the purpose of the Water Use Act of 1967 or contrary to the public interest or having an unreasonably adverse effect upon other water uses in the capacity use area and cannot be cured by modification; or
3. the Permittee made false or fraudulent statements in the application for the water use permit; or
4. water withdrawn under the terms of the permit is used for purposes other than those set forth in the permit.

**VI. CONSTRUCTION OF PERMIT**

- A. The terms and conditions shall not be construed to relieve the Permittee of any legal obligation or liability, which it owes or may incur to third parties as the result of the conduct of its operations in conformity with this Permit.
- B. When under the terms hereof, any provision of this Permit requires approval of the Department or becomes effective at the discretion of the Department, the notice of approval or the exercise of such discretion shall be evidenced by written instrument issued by the Department.
- C. The terms and conditions of this Permit shall not be construed as a limitation of the powers, duties, and authority vested in the Environmental Management Commission or any other State, Federal, or local agency, or any applicable laws hereafter enacted.

**VII. ADDITIONAL CONDITIONS**

- A. This Permit shall be subject to any limitations or conditions in other State permits, including but not limited to permits required pursuant to North Carolina General Statutes §143-215.1.
- B. Issuance of this Permit shall have no bearing on subsequent State decision(s) regarding any other water use or other permit application(s) submitted or which may be submitted by the Permittee, its successors or assigns.
- C. Compliance with the terms and conditions in this permit does not relieve the permittee of compliance with any provision, now in force or hereafter enacted or promulgated, of the Water Use Act of 1967, the regulations promulgated thereunder, or any other provision of State law.

**VIII. PENALTIES**

Violations of the terms and conditions of this Permit are subject to penalties as set forth in North Carolina General Statutes §143-215.17.

**IX. PERMIT NONTRANSFERABLE**

Water Use Permits shall not be transferred except with approval of the Environmental Management Commission.

**X. RENEWAL OF PERMIT**

The Permittee, at least three (3) months prior to the expiration of this permit, shall request its extension. Upon receipt of the request, the Commission will review the adequacy of the facilities described therein, and if warranted, will extend the permit for such period of time and under such conditions and limitations as it may deem appropriate.





**Report of Water Withdrawals  
from Each Source**

**North Carolina Department of Environment and Natural Resources**

**Mail To:** Division of Water Resources - NC DENR  
 1611 Mail Service Center  
 Raleigh, North Carolina 27699-1611  
 Attention : Capacity Use Administration

Check Box If No Use This Month

For month of: \_\_\_\_\_ Year: \_\_\_\_\_ Facility: **NCDOT (U-3810)** Permit #: **CU4027** Sheet \_\_\_ of \_\_\_

Well/Sump ID →	meter readings		gallons per day	meter readings		gallons per day	meter readings		gallons per day	Total Withdrawn
	→	←		→	←		→	←		
Beginning reading →										
Day 1										
Day 2										
Day 3										
Day 4										
Day 5										
Day 6										
Day 7										
Day 8										
Day 9										
Day 10										
Day 11										
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Day 24										
Day 25										
Day 26										
Day 27										
Day 28										
Day 29										
Day 30										
Day 31										

DWR CCPCUA-4 Name: \_\_\_\_\_ Signature: \_\_\_\_\_ Date: \_\_\_\_\_





# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

Raleigh Field Office  
Post Office Box 33726

Raleigh, North Carolina 27636-3726

### **GUIDELINES FOR AVOIDING IMPACTS TO THE WEST INDIAN MANATEE Precautionary Measures for Construction Activities in North Carolina Waters**

The West Indian manatee (*Trichechus manatus*), also known as the Florida manatee, is a Federally-listed endangered aquatic mammal protected under the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*) and the Marine Mammal Protection Act of 1972, as amended (16 U.S.C. 1461 *et seq.*). The manatee is also listed as endangered under the North Carolina Endangered Species Act of 1987 (Article 25 of Chapter 113 of the General Statutes). The U.S. Fish and Wildlife Service (Service) is the lead Federal agency responsible for the protection and recovery of the West Indian manatee under the provisions of the Endangered Species Act.

Adult manatees average 10 feet long and weigh about 2,200 pounds, although some individuals have been recorded at lengths greater than 13 feet and weighing as much as 3,500 pounds. Manatees are commonly found in fresh, brackish, or marine water habitats, including shallow coastal bays, lagoons, estuaries, and inland rivers of varying salinity extremes. Manatees spend much of their time underwater or partly submerged, making them difficult to detect even in shallow water. While the manatee's principal stronghold in the United States is Florida, the species is considered a seasonal inhabitant of North Carolina with most occurrences reported from June through October.

To protect manatees in North Carolina, the Service's Raleigh Field Office has prepared precautionary measures for general construction activities in waters used by the species. Implementation of these measure will allow in-water projects which do not require blasting to proceed without adverse impacts to manatees. In addition, inclusion of these guidelines as conservation measures in a Biological Assessment or Biological Evaluation, or as part of the determination of impacts on the manatee in an environmental document prepared pursuant to the National Environmental Policy Act, will expedite the Service's review of the document for the fulfillment of requirements under Section 7 of the Endangered Species Act. These measures include:

1. The project manager and/or contractor will inform all personnel associated with the project that manatees may be present in the project area, and the need to avoid any harm to these endangered mammals. The project manager will ensure that all construction personnel know the general appearance of the species and their habit of moving about completely or partially submerged in shallow water. All construction personnel will be informed that they are responsible for observing water-related activities for the presence of manatees.
2. The project manager and/or the contractor will advise all construction personnel that

there are civil and criminal penalties for harming, harassing, or killing manatees which are protected under the Marine Mammal Protection Act and the Endangered Species Act.

3. If a manatee is seen within 100 yards of the active construction and/or dredging operation or vessel movement, all appropriate precautions will be implemented to ensure protection of the manatee. These precautions will include the immediate shutdown of moving equipment if a manatee comes within 50 feet of the operational area of the equipment. Activities will not resume until the manatee has departed the project area on its own volition (i.e., it may not be herded or harassed from the area).

4. Any collision with and/or injury to a manatee will be reported immediately. The report must be made to the U.S. Fish and Wildlife Service (ph. 919.856.4520 ext. 16), the National Marine Fisheries Service (ph. 252.728.8762), and the North Carolina Wildlife Resources Commission (ph. 252.448.1546).

5. A sign will be posted in all vessels associated with the project where it is clearly visible to the vessel operator. The sign should state:

CAUTION: The endangered manatee may occur in these waters during the warmer months, primarily from June through October. Idle speed is required if operating this vessel in shallow water during these months. All equipment must be shut down if a manatee comes within 50 feet of the vessel or operating equipment. A collision with and/or injury to the manatee must be reported immediately to the U.S. Fish and Wildlife Service (919-856-4520 ext. 16), the National Marine Fisheries Service (252.728.8762), and the North Carolina Wildlife Resources Commission (252.448.1546).

6. The contractor will maintain a log detailing sightings, collisions, and/or injuries to manatees during project activities. Upon completion of the action, the project manager will prepare a report which summarizes all information on manatees encountered and submit the report to the Service's Raleigh Field Office.

7. All vessels associated with the construction project will operate at "no wake/idle" speeds at all times while in water where the draft of the vessel provides less than a four foot clearance from the bottom. All vessels will follow routes of deep water whenever possible.

8. If siltation barriers must be placed in shallow water, these barriers will be: (a) made of material in which manatees cannot become entangled; (b) secured in a manner that they cannot break free and entangle manatees; and, (c) regularly monitored to ensure that manatees have not become entangled. Barriers will be placed in a manner to allow manatees entry to or exit from essential habitat.

Prepared by (rev. 06/2003):  
U.S. Fish and Wildlife Service  
Raleigh Field Office  
Post Office Box 33726  
Raleigh, North Carolina 27636-3726  
919/856-4520

Figure 1. The whole body of the West Indian manatee may be visible in clear water; but in the dark and muddy waters of coastal North Carolina, one normally sees only a small part of the head when the manatee raises its nose to breathe.

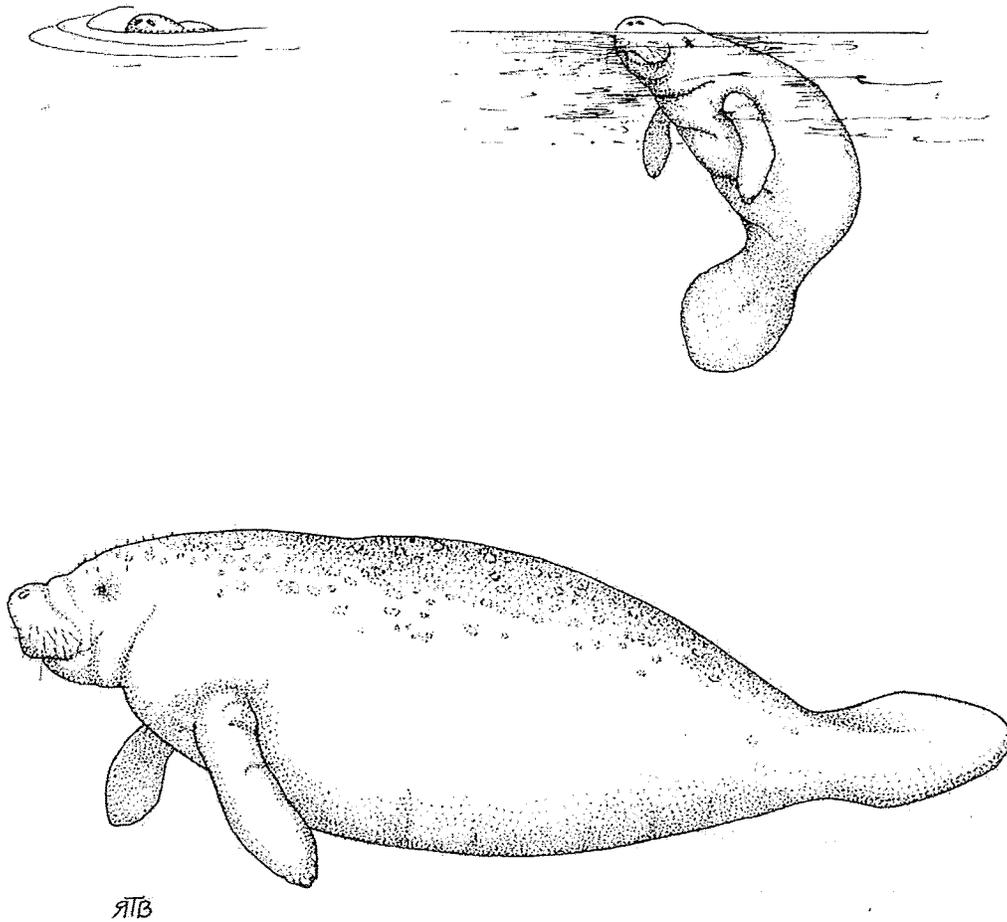
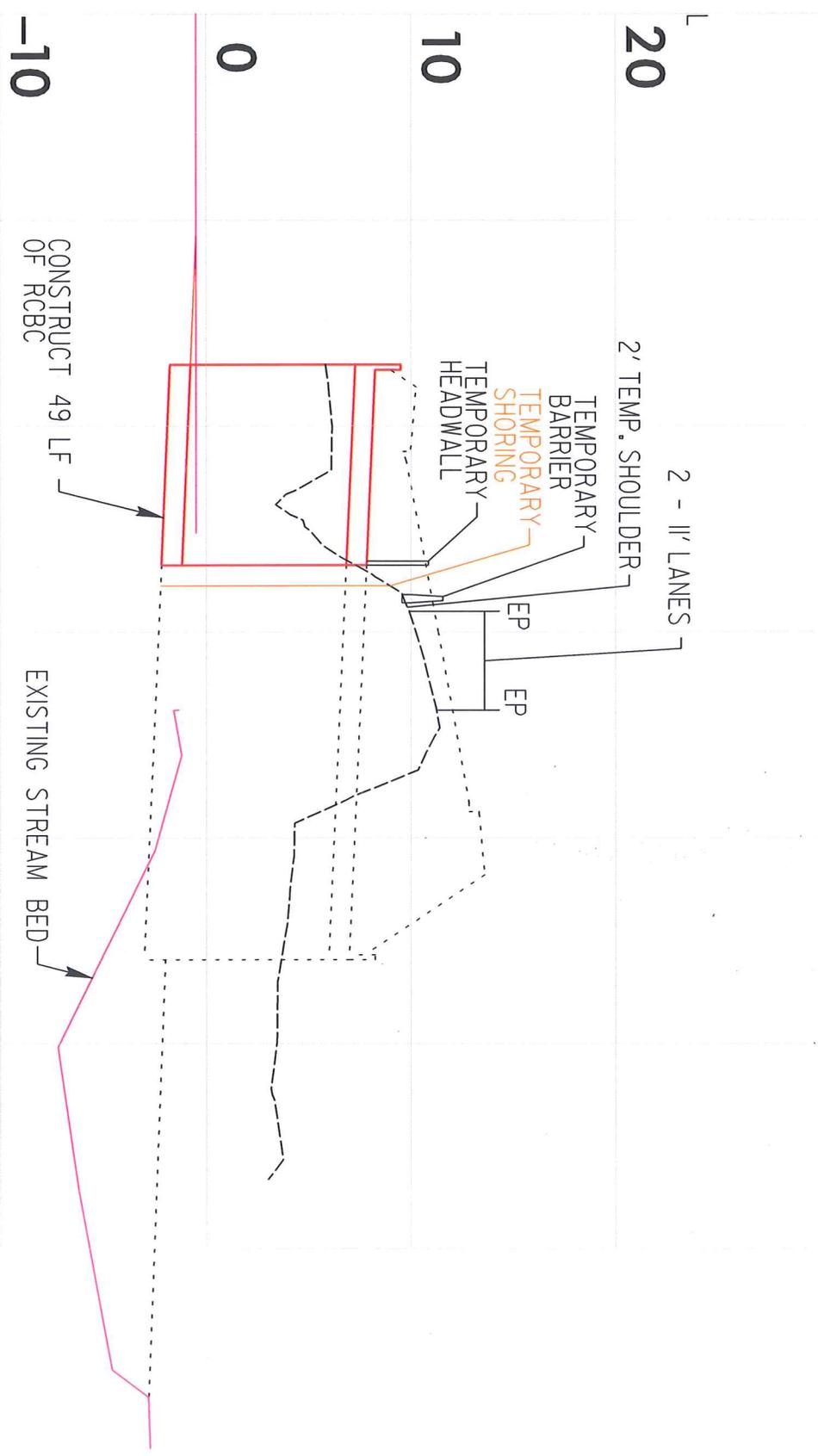


Illustration used with the permission of the North Carolina State Museum of Natural Sciences.  
Source: Clark, M. K. 1987. Endangered, Threatened, and Rare Fauna of North Carolina: Part I.  
A re-evaluation of the mammals. Occasional Papers of the North Carolina Biological Survey 1987-  
3. North Carolina State Museum of Natural Sciences. Raleigh, NC. pp. 52.



-150    -100    -50    0    50    100    150



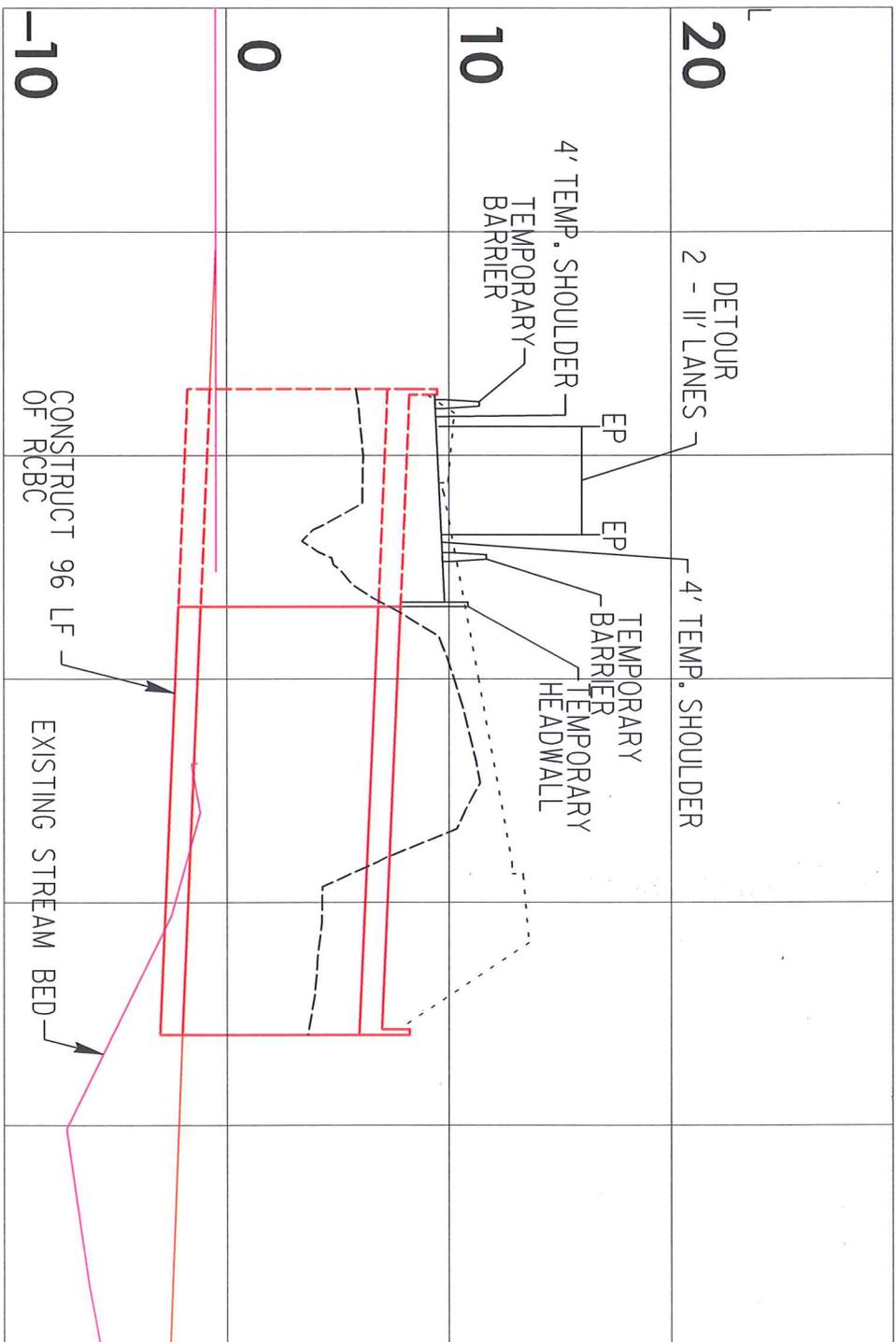
# CULVERT TEMPLATE VIEW

**PHASE 1**

**-L- 167 + 39**



-150    -100    -50    **0**    50    100    150

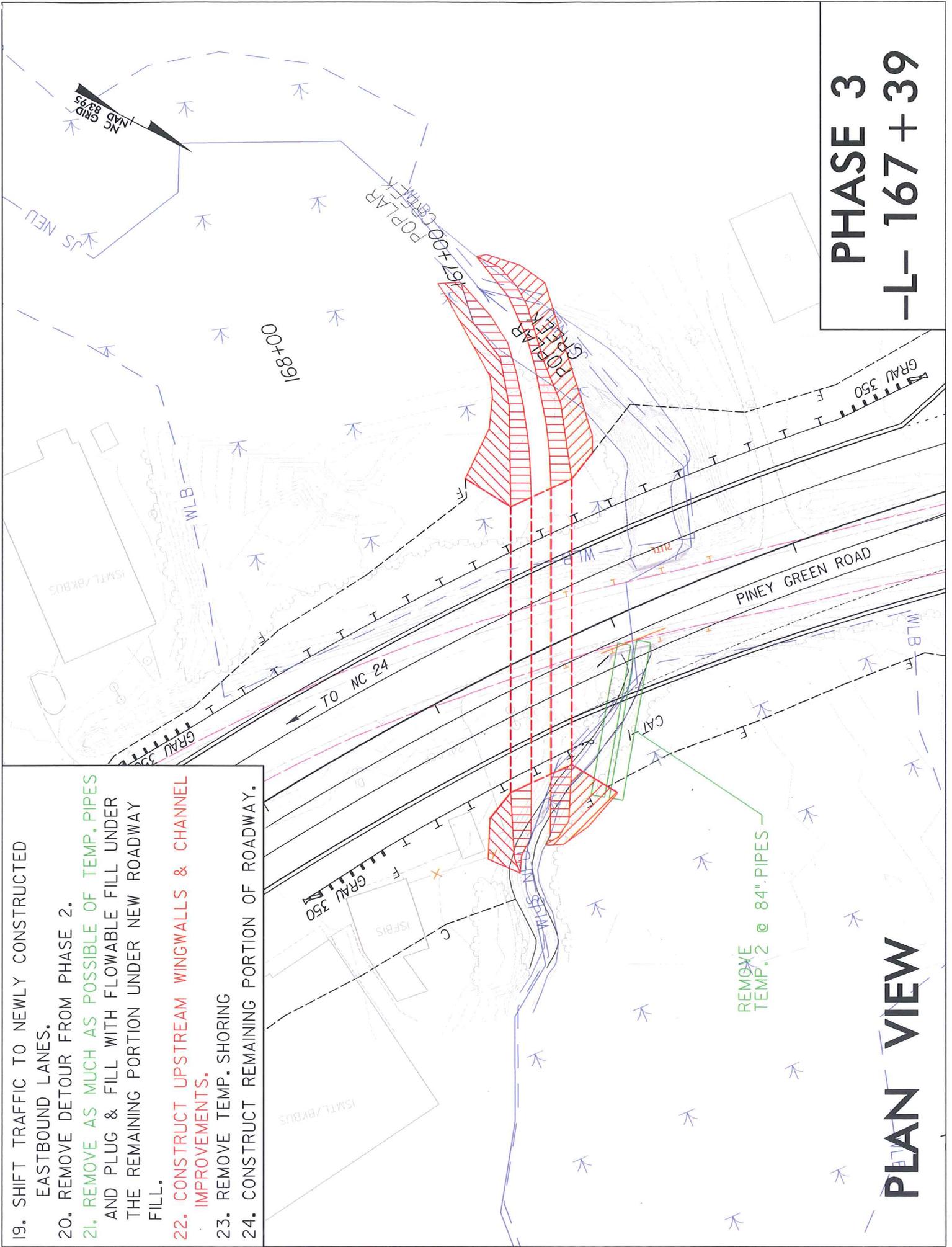


# CULVERT TEMPLATE VIEW

**PHASE 2**

**-L- 167 + 39**

19. SHIFT TRAFFIC TO NEWLY CONSTRUCTED EASTBOUND LANES.
20. REMOVE DETOUR FROM PHASE 2.
21. REMOVE AS MUCH AS POSSIBLE OF TEMP. PIPES AND PLUG & FILL WITH FLOWABLE FILL UNDER THE REMAINING PORTION UNDER NEW ROADWAY FILL.
22. CONSTRUCT UPSTREAM WINGWALLS & CHANNEL IMPROVEMENTS.
23. REMOVE TEMP. SHORING
24. CONSTRUCT REMAINING PORTION OF ROADWAY.



**PHASE 3**  
**-L- 167+39**

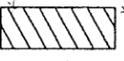
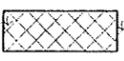
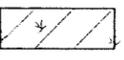
**PLAN VIEW**

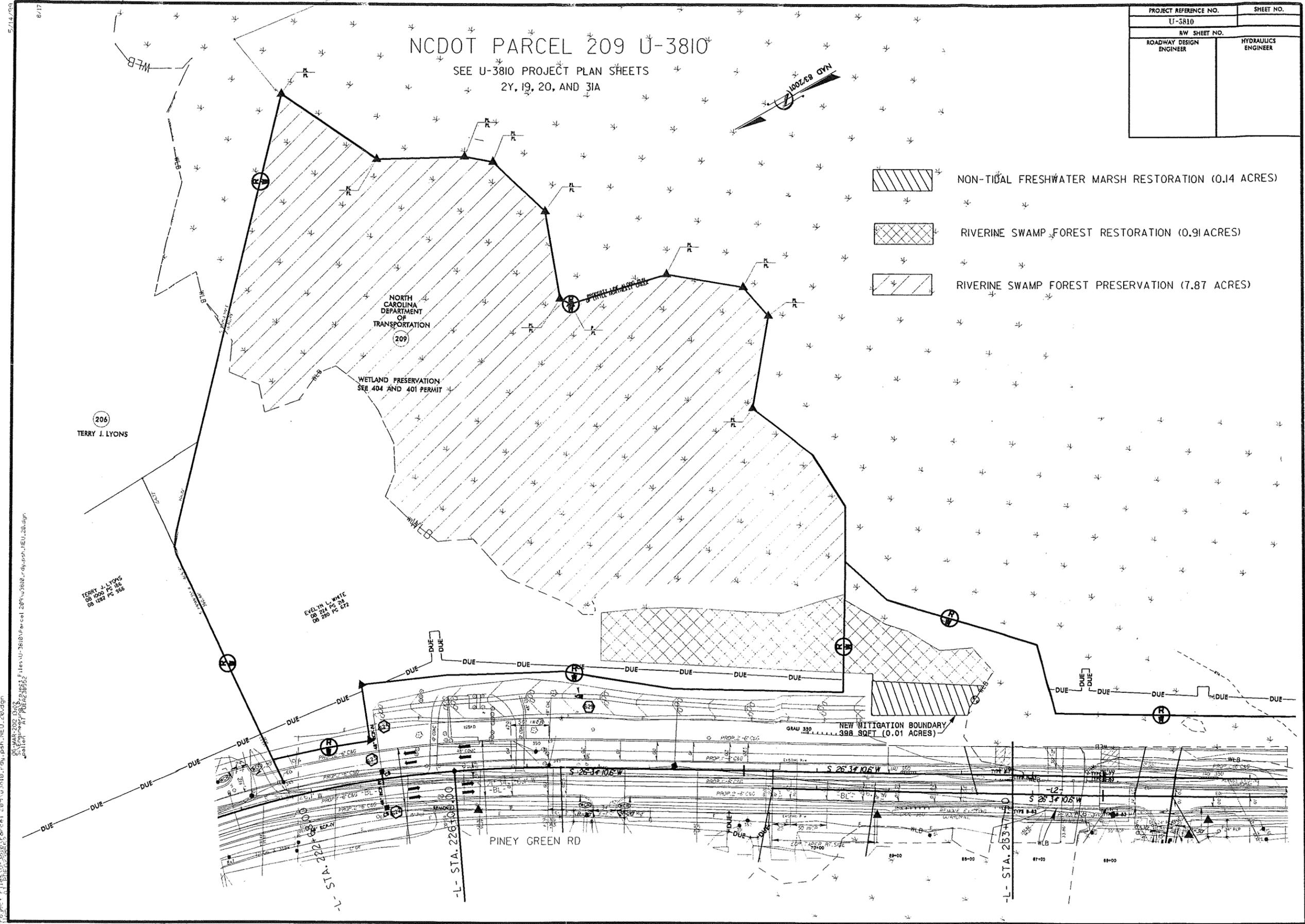
REMOVE  
TEMP. 2 @ 84" PIPES

PROJECT REFERENCE NO.	SHEET NO.
U-3810	
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NCDOT PARCEL 209 U-3810  
 SEE U-3810 PROJECT PLAN SHEETS  
 2Y, 19, 20, AND 31A



-  NON-TIDAL FRESHWATER MARSH RESTORATION (0.14 ACRES)
-  RIVERINE SWAMP FOREST RESTORATION (0.91 ACRES)
-  RIVERINE SWAMP FOREST PRESERVATION (7.87 ACRES)



DE: MAR 2012 15:02  
 C:\Program Files\AutoCAD\MapTools\Parcel 209 U-3810.rdw.psh\_NEU.dwg  
 DATE: MAR 2012 15:02  
 SCALE: 1/8" = 1'-0"  
 POSITION: AT P08238952  
 FILE: U-3810\Parcel 209 U-3810.rdw.psh\_NEU.dwg

206  
 TERRY J. LYONS

TERRY J. LYONS  
 08 1000 PG 86  
 08 1282 PG 968

EVELYN L. WHITE  
 08 280 PG 672

NORTH CAROLINA  
 DEPARTMENT  
 OF  
 TRANSPORTATION  
 209

WETLAND PRESERVATION  
 SEE 404 AND 401 PERMIT

PINEY GREEN RD

NEW MITIGATION BOUNDARY  
 GRAU 330  
 388.80 FT (0.01 ACRES)

-L- STA. 222+00

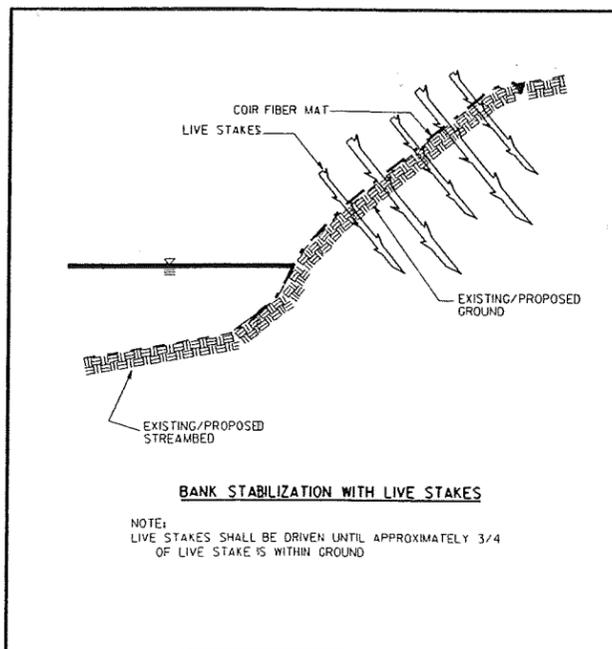
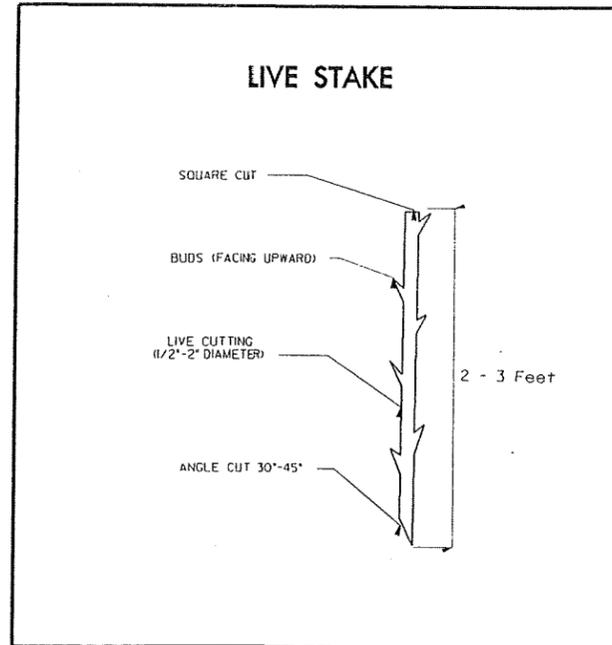
-L- STA. 226+00

-L- STA. 253+00

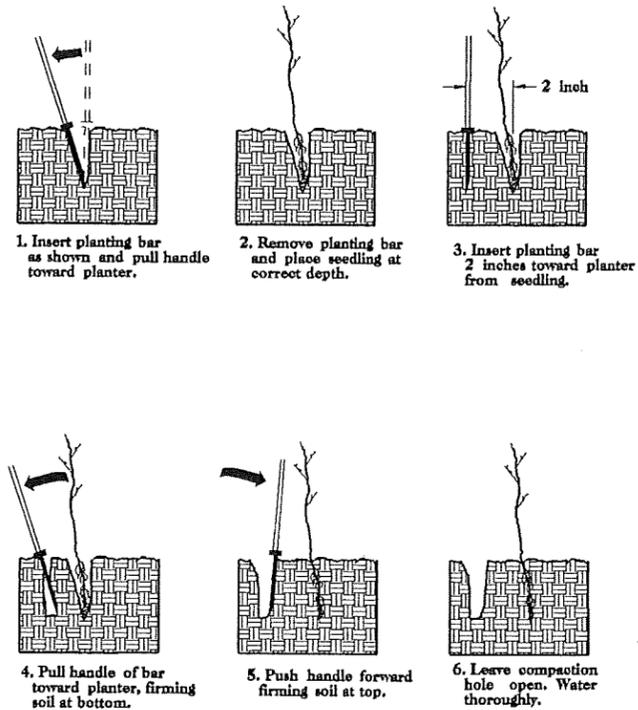
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-3810	1	2
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	

# PLANTING DETAILS

## LIVE STAKES PLANTING DETAIL



## BAREROOT PLANTING DETAIL DIBBLE PLANTING METHOD USING THE KBC PLANTING BAR



### PLANTING NOTES:

**PLANTING BAG**  
During planting, seedlings shall be kept in a moist canvas bag or similar container to prevent the root systems from drying.

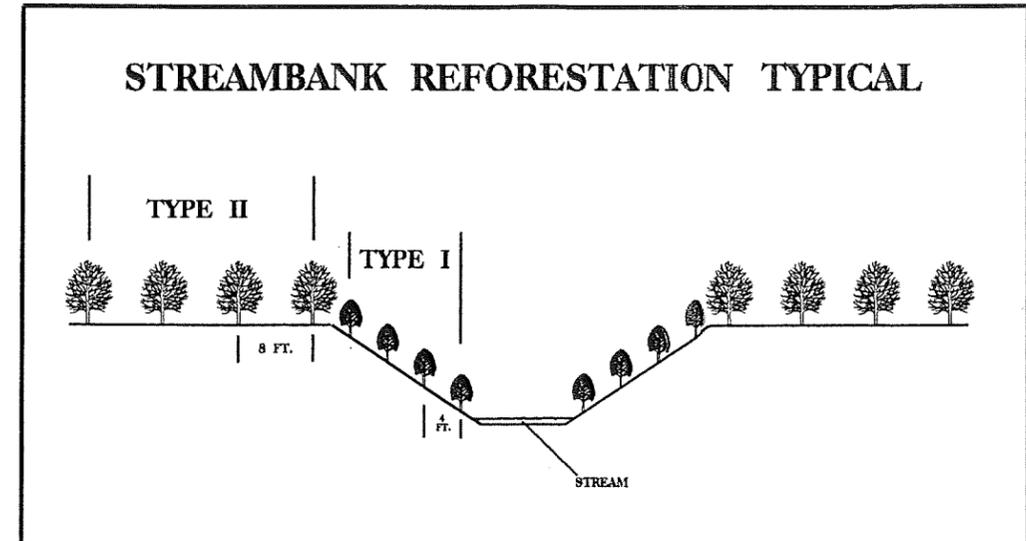


**KBC PLANTING BAR**  
Planting bar shall have a blade with a triangular cross section, and shall be 12 inches long, 4 inches wide and 1 inch thick at center.



**ROOT PRUNING**  
All seedlings shall be root pruned, if necessary, so that no roots extend more than 10 inches below the root collar.

- TYPE 1 STREAMBANK REFORESTATION SHALL BE PLANTED 3 FT. TO 5 FT. ON CENTER, RANDOM SPACING, AVERAGING 4 FT. ON CENTER, APPROXIMATELY 2724 PLANTS PER ACRE.
- TYPE 2 STREAMBANK REFORESTATION SHALL BE PLANTED 6 FT. TO 10 FT. ON CENTER, RANDOM SPACING, AVERAGING 8 FT. ON CENTER, APPROXIMATELY 680 PLANTS PER ACRE.
- NOTE: TYPE 1 AND TYPE 2 STREAMBANK REFORESTATION SHALL BE PAID FOR AS "STREAMBANK REFORESTATION"



### STREAMBANK REFORESTATION

MIXTURE, TYPE, SIZE, AND FURNISH SHALL CONFORM TO THE FOLLOWING:

#### TYPE 1

50% SALIX NIGRA	BLACK WILLOW	2 ft - 3 ft LIVE STAKES
50% CORNUS AMOMUM	SILKY DOGWOOD	2 ft - 3 ft LIVE STAKES

#### TYPE 2

20% NYSSA SYLVATICA VAR.	SWAMP BLACKGUM	12 in - 18 in BR
20% TAXODIUM DISTICHUM,	BALDCYPRESS	12 in - 18 in BR
20% FRAXINUS PENNSYLVANICA,	GREEN ASH	12 in - 18 in BR
20% NYSSA AQUATICA,	WATER TUPELO	12 in - 18 in BR
20% LIRIODENDRON TULIPIFERA,	TULIP POPLAR	12 in - 18 in BR

- SEE PLAN SHEETS FOR AREAS TO BE PLANTED

## STREAMBANK REFORESTATION DETAIL SHEET

N.C.D.O.T. - ROADSIDE ENVIRONMENTAL UNIT

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-3810	1	
STATE PROJ. NO.	P.A. PROJ. NO.	DESCRIPTION	
35801.1.1	STP-1406(4)	PE	
35801.2.1	STP-1406(6)	RW & UTIL	

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**ONSLOW COUNTY**

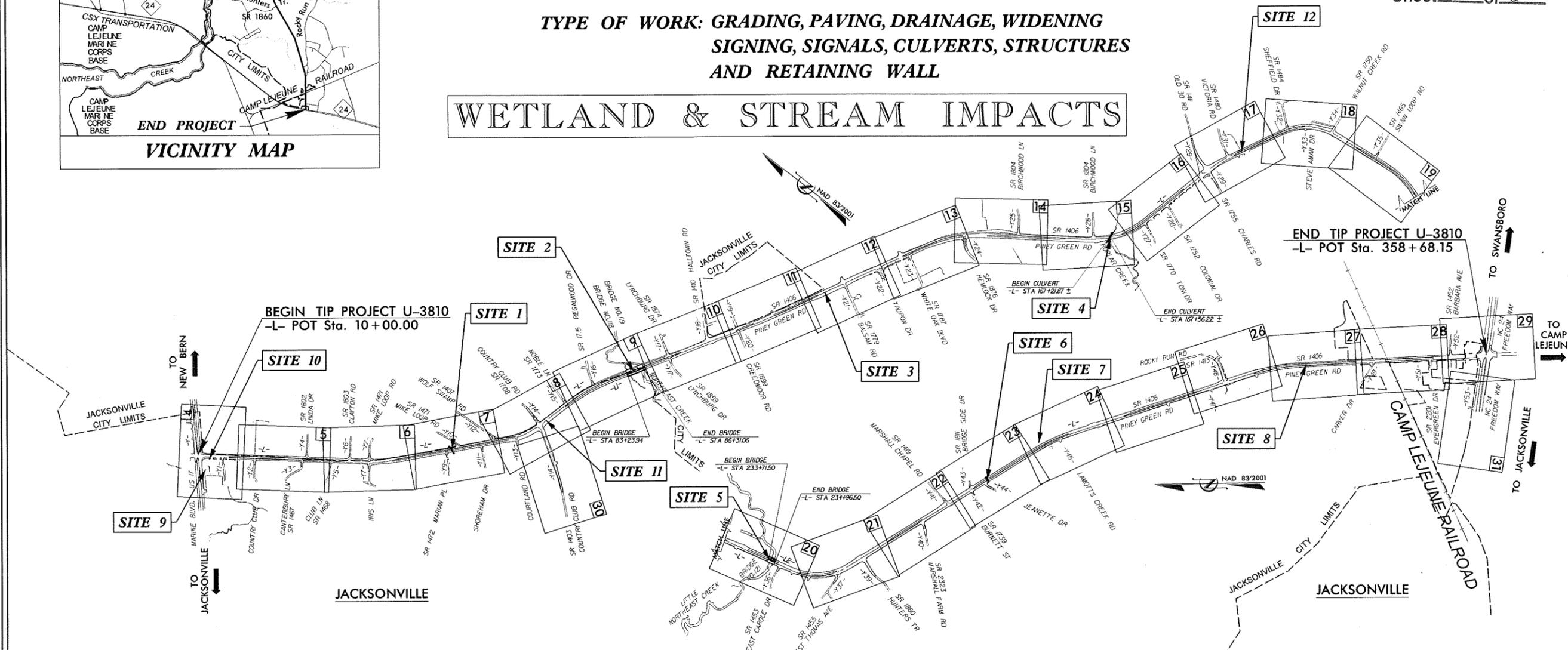
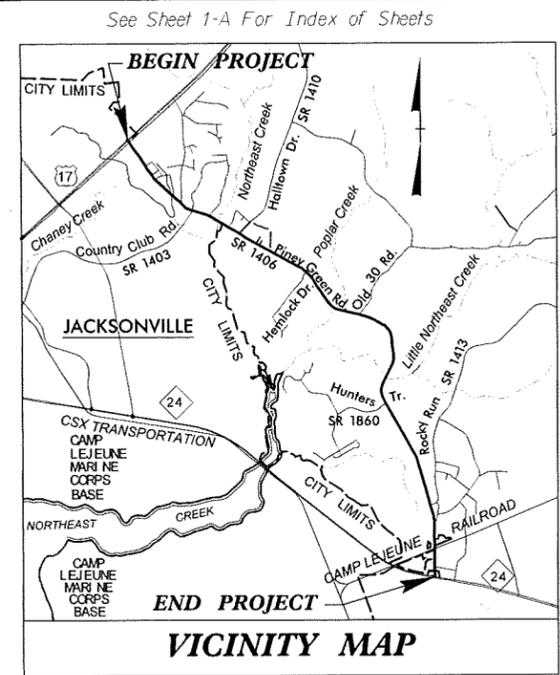
**LOCATION: SR 1406 (PINEY GREEN ROAD) FROM US 17  
(MARINE BOULEVARD) TO NC 24 (FREEDOM WAY)**

**TYPE OF WORK: GRADING, PAVING, DRAINAGE, WIDENING  
SIGNING, SIGNALS, CULVERTS, STRUCTURES  
AND RETAINING WALL**

**WETLAND & STREAM IMPACTS**

Permit Drawing  
Sheet 1 of 64

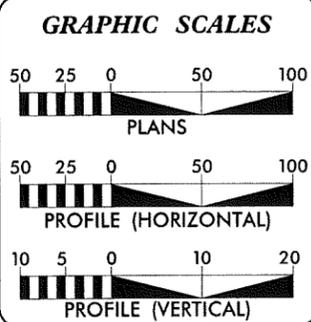
**TIP PROJECT: U-3810**



NOTES: CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.  
PORTIONS OF THIS PROJECT ARE WITHIN THE MUNICIPAL BOUNDRIES OF JACKSONVILLE.

PRELIMINARY PLANS  
DO NOT USE FOR CONSTRUCTION

**CONTRACT:**



**DESIGN DATA**

ADT 2005 =	24,000
ADT 2030 =	35,300
DHV =	7 %
D =	60 %
T =	5 % *
V =	50 MPH
FUNC CLASS =	URBAN ARTERIAL
* TTST 1 % +	DUAL 4 %
TIER =	SUB-REGIONAL

**PROJECT LENGTH**

LENGTH ROADWAY TIP PROJ. U-3810	= 6.514 MILES +/-
LENGTH STRUCTURES TIP PROJ. U-3810	= 0.090 MILES +/-
TOTAL LENGTH OF TIP PROJ. U-3810	= 6.604 MILES +/-

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

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:  
NOVEMBER 30, 2009

LETTING DATE:  
SEPTEMBER 18, 2012

**HYDRAULICS ENGINEER**

SIGNATURE: \_\_\_\_\_ P.E.

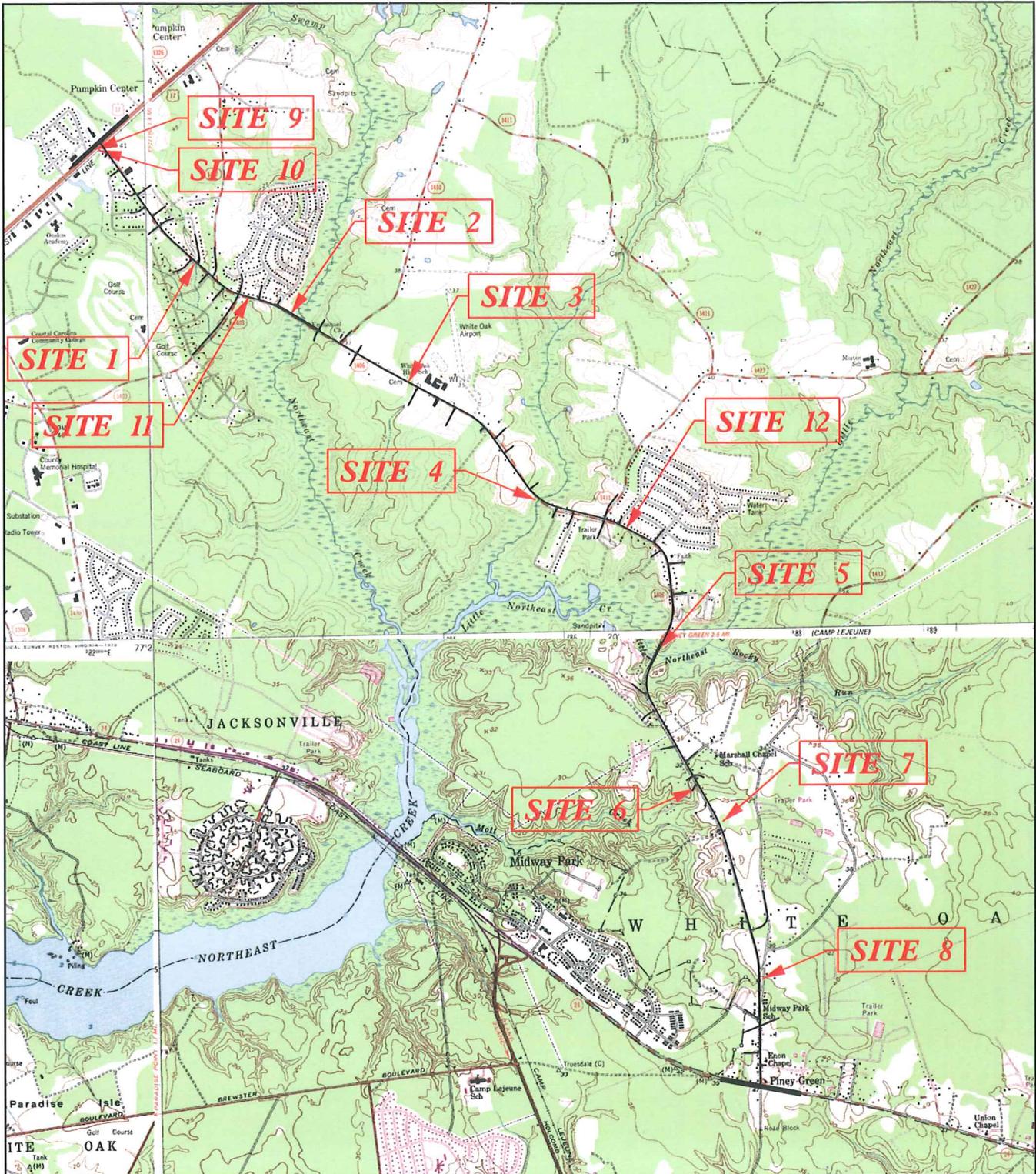
**ROADWAY DESIGN ENGINEER**

SIGNATURE: \_\_\_\_\_ P.E.

**DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA**

STATE HIGHWAY DESIGN ENGINEER

2/16/2012 2:16:20 PM C:\Users\Permits\Environmental\Drawings\U3810\_hyd\_prm\_tsh.dgn



TOPO MAP

SCALE: 1" = 4000'

NCDOT

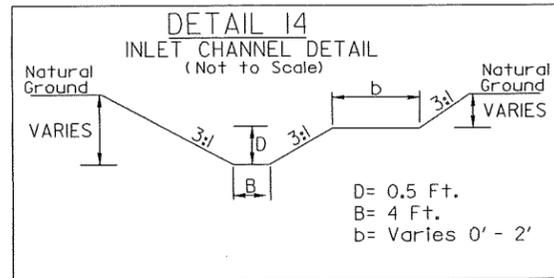
DIVISION OF HIGHWAYS  
 ONSLOW COUNTY

PROJECT: U-3810

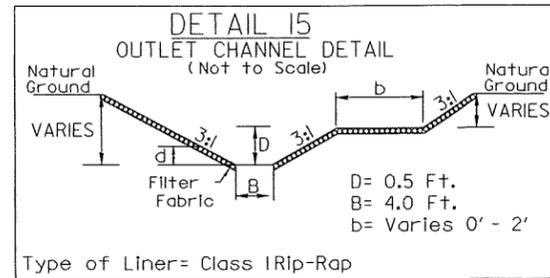
SR 1406 (PINEY GREEN ROAD)  
 FROM US 17 (MARINE BLVD)  
 TO NC 24 (FREEDOM WAY)



PROJECT REFERENCE NO. U-3810	SHEET NO. 2-1
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

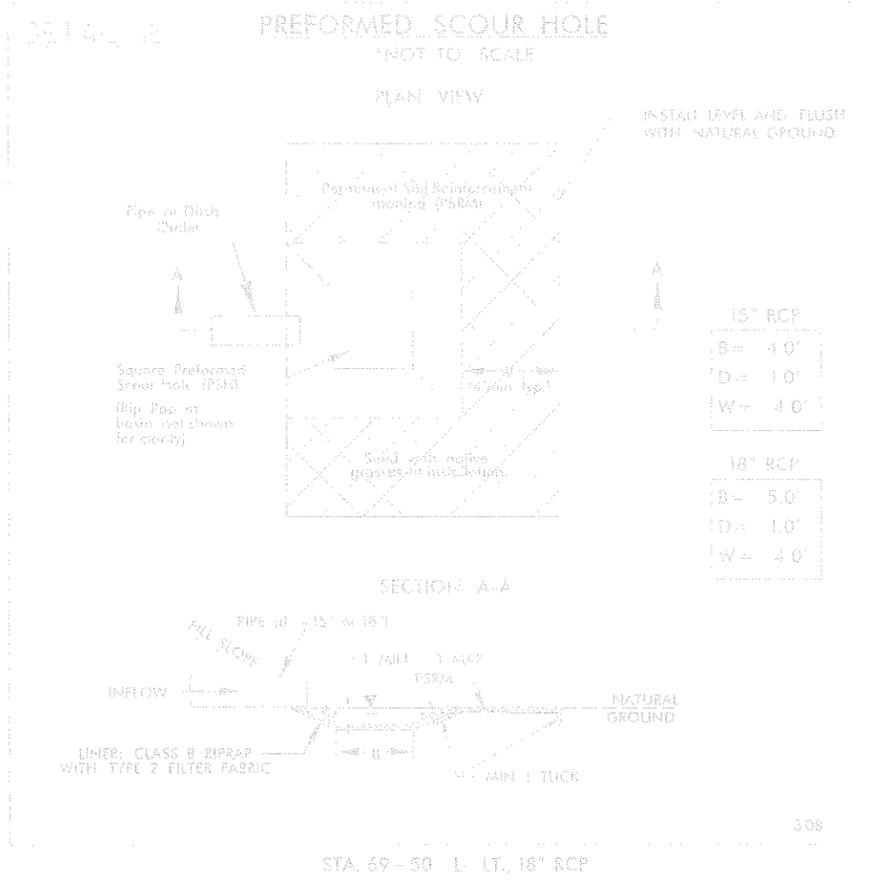


STA. 69+67 -L- LT., DDE=65 CY



Type of Liner= Class IRip-Rap

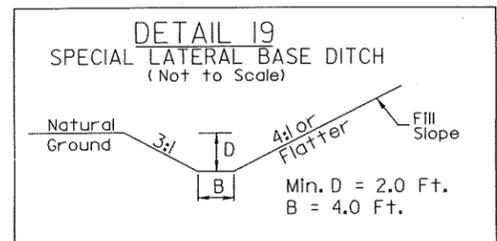
STA. 69+95 -L- RT., 52 TON, 73 SY FF, DDE=30CY



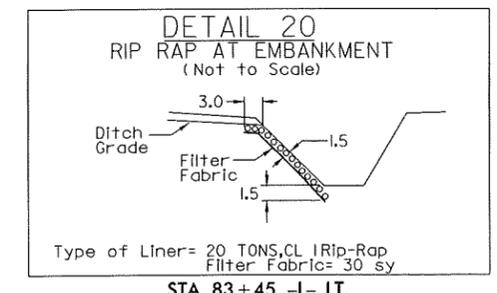
Permit Drawing  
Sheet 4 of 64

PSH8

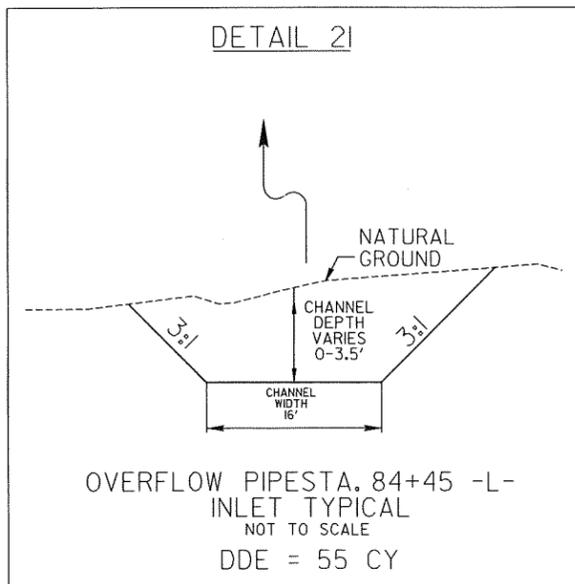
PSH9



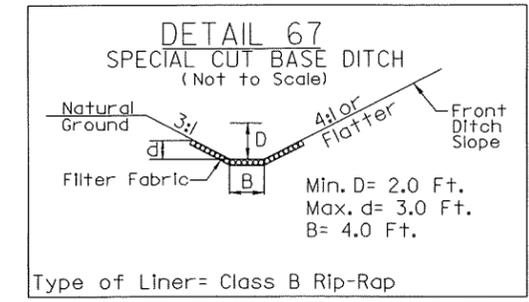
FROM STA. 78+20 TO STA. 81+60 -L- LT



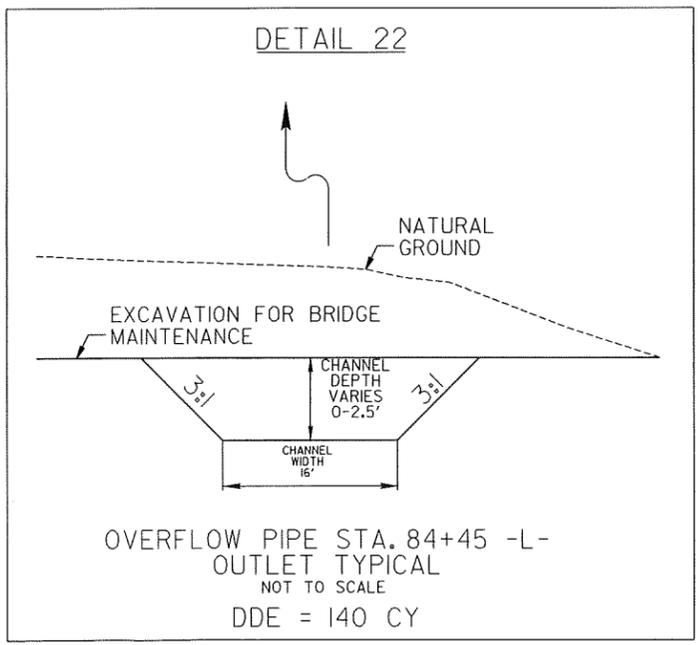
Type of Liner= 20 TONS, CL IRip-Rap  
Filter Fabric= 30 sy  
STA. 83+45 -L- LT.



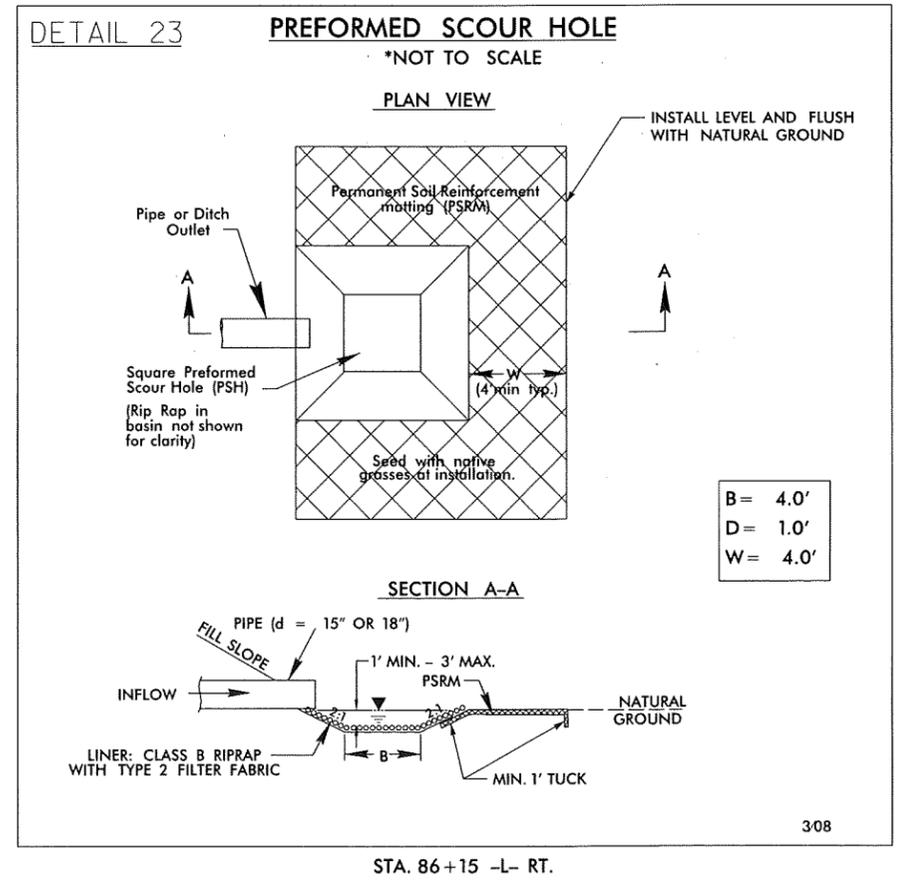
DDE = 55 CY



Type of Liner= Class B Rip-Rap  
FROM STA. 81+60 TO STA. 83+45 -L- LT



DDE = 140 CY



STA. 86+15 -L- RT.

REVISIONS

2/16/2012  
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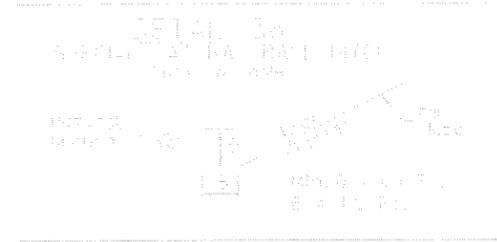
PROJECT REFERENCE NO. U-3810	SHEET NO. 2-K
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

Permit Drawing  
Sheet 6 of 64

**PSH17**



FROM STA. 168+10 TO STA. 178+50 -L- LT.  
FROM STA. 182+49 TO STA. 185+69 -L- LT.



FROM STA. 178+50 TO STA. 182+49 -L- LT.  
FROM STA. 182+49 TO STA. 185+69 -L- LT.

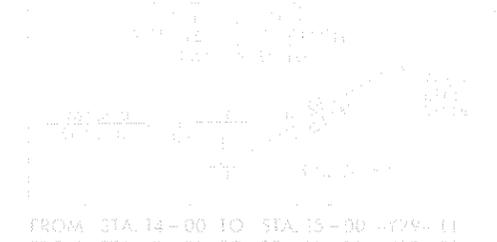
**PSH16**



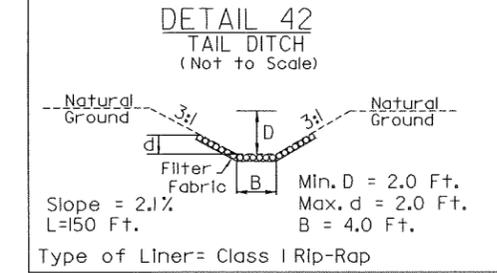
FROM STA. 182+49 TO STA. 185+69 -L- LT, B=4.0 Ft.  
FROM STA. 15+00 TO STA. 16+51 -Y29- RT, B=2.0 Ft.



FROM STA. 20+00 TO STA. 20+93 -Y29- LT.  
FROM STA. 20+00 TO STA. 20+83 -Y29- RT



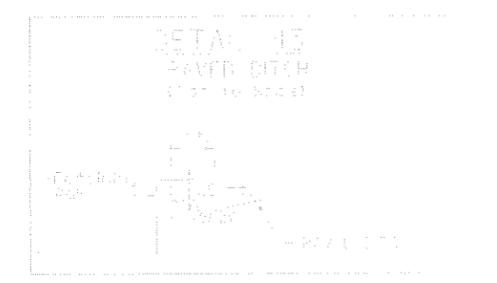
FROM STA. 14+00 TO STA. 15+00 -Y29- LT.  
FROM STA. 12+00 TO STA. 15+00 -Y29- RT.  
FROM STA. 15+00 TO STA. 16+00 -Y29- LT.



FROM STA. 194+23 -L- RT, 240 TON, 540 SY FF, DDE=680 CY

DETAIL 42  
TAIL DITCH  
(Not to Scale)  
Slope = 2.1%  
L=150 Ft.  
Type of Liner= Class I Rip-Rap  
Min. D = 2.0 Ft.  
Max. d = 2.0 Ft.  
B = 4.0 Ft.

REVISIONS



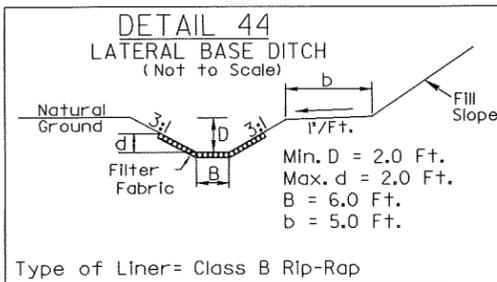
FROM STA. 201+17.00 TO STA. 202+58.76 -L- RT  
FROM STA. 202+38.76 TO STA. 203+45.00 -L- RT

**PSH18**

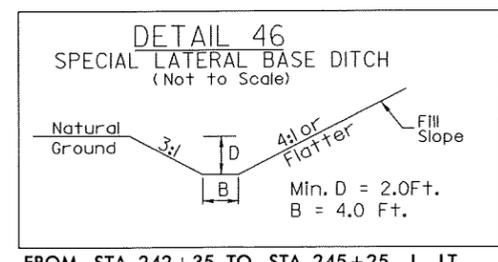


FROM STA. 225+00 TO STA. 231+65 -L- LT.

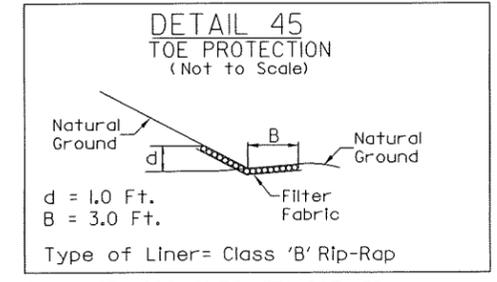
**PSH19**



FROM STA. 225+00 TO STA. 231+65 -L- LT.

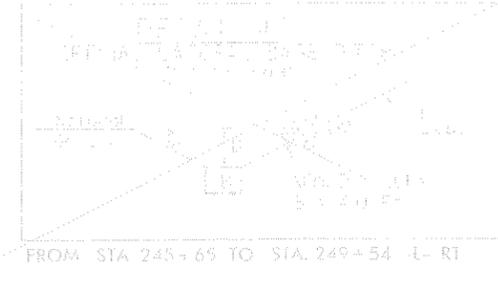


FROM STA. 242+35 TO STA. 245+25 -L- LT.



FROM STA. 235+11 TO STA. 237+50 -L- LT.

**PSH20**



FROM STA. 245+65 TO STA. 249+54 -L- RT

**PSH21**



FROM STA. 263+21 -L- LT, 52 TON, 78 SY FF, 40 CY DDE, Slope=9.5%, L=36 Ft.  
FROM STA. 264+96 -L- LT, 19 TON, 28 SY FF, 14 CY DDE, Slope=8.15%, L=20 Ft.

**PSH22**

8/17/99  
2/16/2021  
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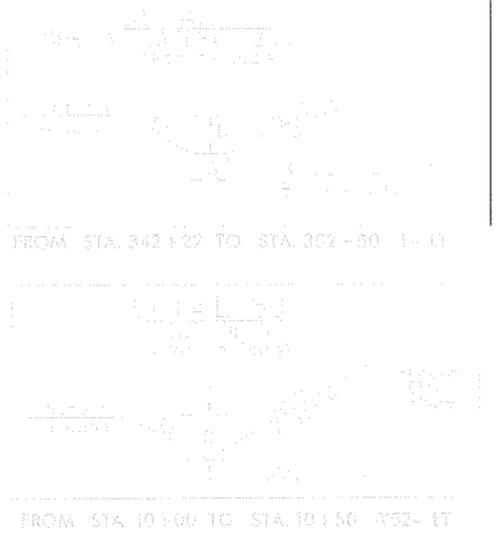


PROJECT REFERENCE NO.	SHEET NO.
U-3810	2-M
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

Permit Drawing  
Sheet 8 of 64



**PSH28**

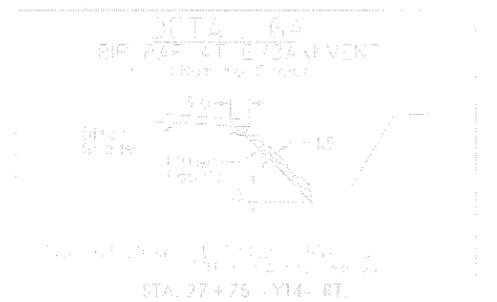
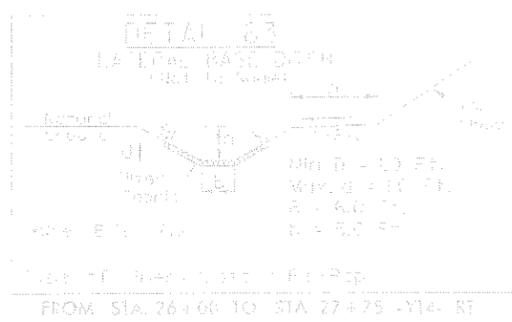
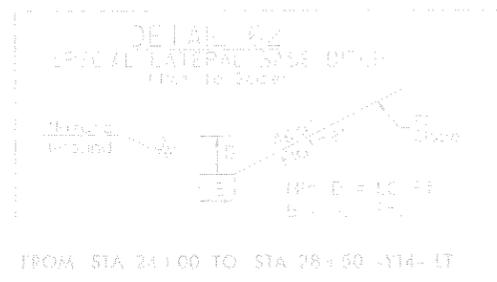
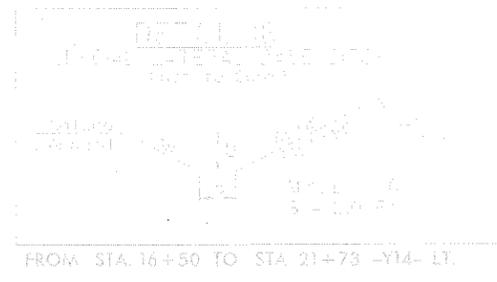


**PSH29**



**PSH31**

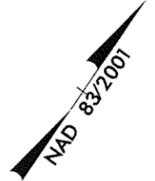
REVISIONS



**PSH30**

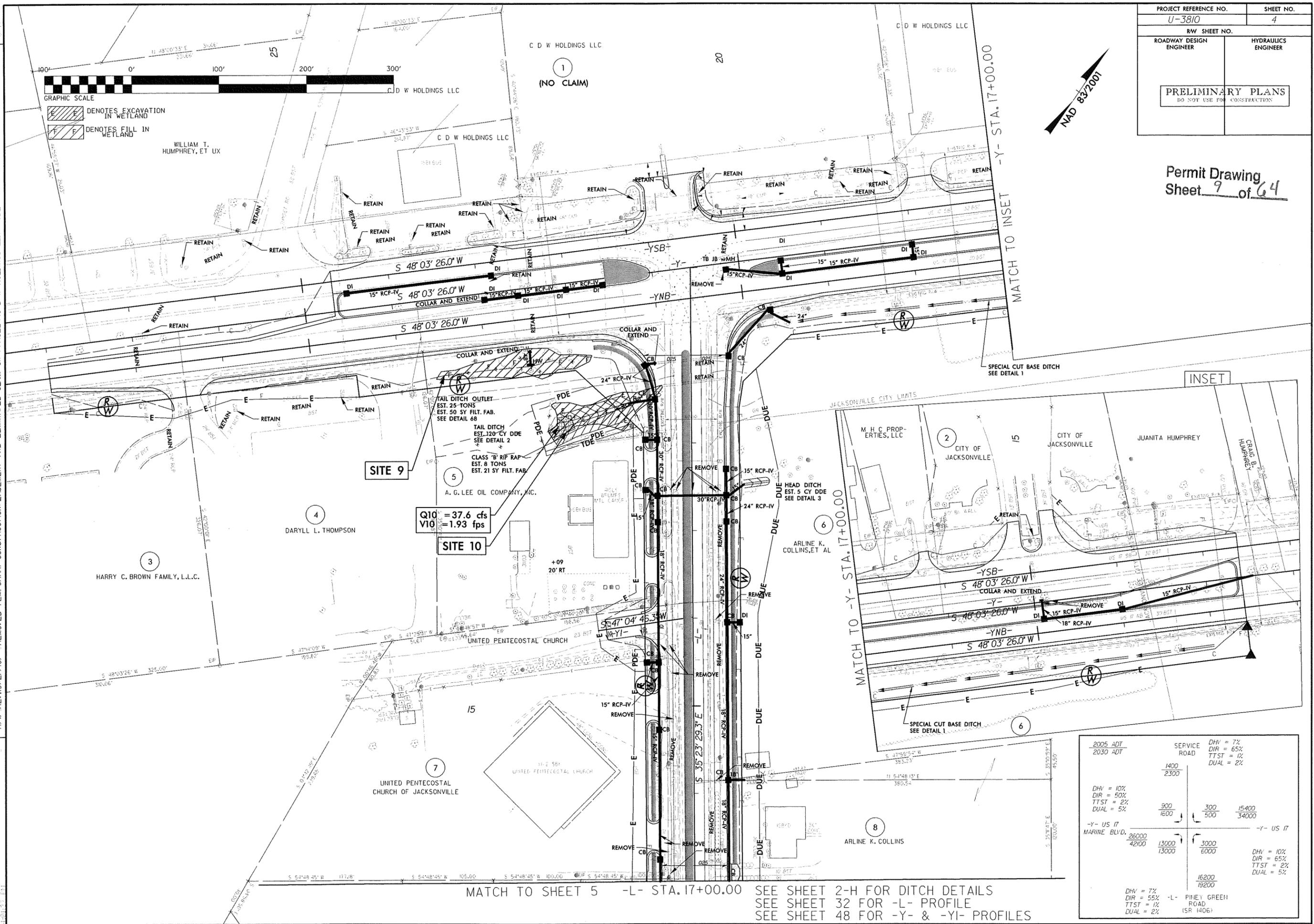
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Permit Drawing Sheet 9 of 64



DENOTES EXCAVATION IN WETLAND  
DENOTES FILL IN WETLAND

REVISIONS  
 R/W REV. 09/10/10 - INCORPORATED STA AND OFFSETS CALCULATED BY LOCATION & SURVEYS IN STAKING THE R/W. DCS  
 R/W REV. 09/22/10 - REMOVED TEMPORARY CONSTRUCTION EASEMENT ON PARCEL (C.D.W. HOLDINGS LLC) - JDE  
 R/W REV. 09/27/10 - REMOVED TEMPORARY CONSTRUCTION EASEMENT AND ELIMINATED CLAIM ON PARCEL (C.D.W. HOLDINGS LLC) - JDE

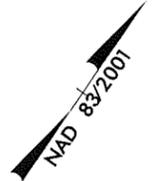


Q10 = 37.6 cfs  
V10 = 1.93 fps

2005 ADT	1400	300	15400
2030 ADT	2300	500	34000
DHV = 10% DIR = 50% TTST = 2% DUAL = 5%	900	3000	16200
	1600	6000	19200
-Y- US 17 MARINE BLVD.	26000	13000	3000
	42100	13000	6000
DHV = 7% DIR = 55% TTST = 1% DUAL = 2%			16200
			19200
		-L- PINEY GREEN ROAD (SR 1406)	

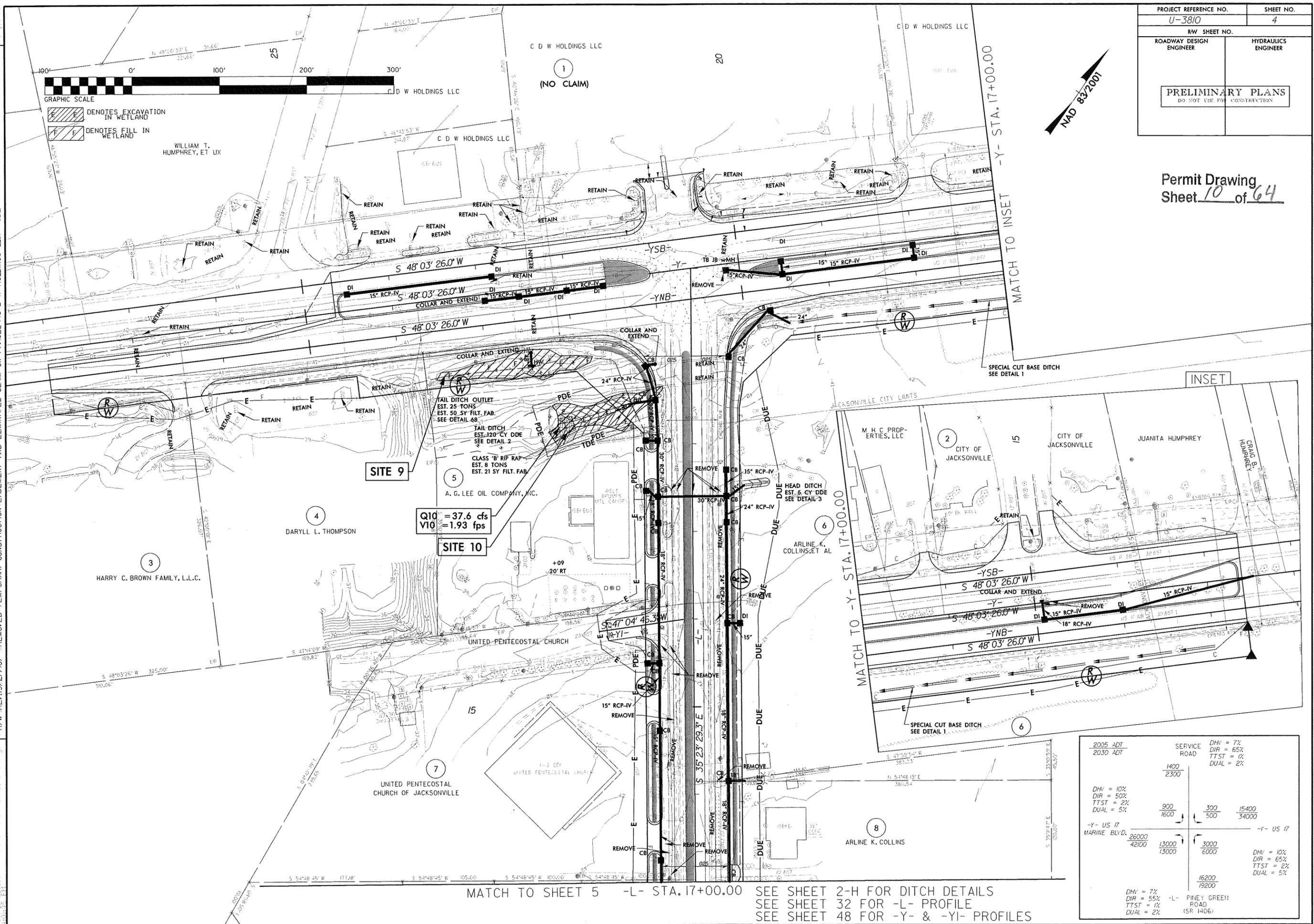
MATCH TO SHEET 5 -L- STA. 17+00.00  
 SEE SHEET 2-H FOR DITCH DETAILS  
 SEE SHEET 32 FOR -L- PROFILE  
 SEE SHEET 48 FOR -Y- & -YI- PROFILES

Permit Drawing  
Sheet 10 of 64



GRAPHIC SCALE  
 DENOTES EXCAVATION IN WETLAND  
 DENOTES FILL IN WETLAND

REVISIONS  
 R/W REV. 19/10/10 - INCORPORATED STA AND OFFSETS CALCULATED BY LOCATION & SURVEYS IN STAKING THE R/W. DCS  
 R/W REV. 19/22/10 - REMOVED TEMPORARY CONSTRUCTION EASEMENT ON PARCEL (C D W HOLDINGS LLC) JDE  
 R/W REV. 19/27/10 - REMOVED TEMPORARY CONSTRUCTION EASEMENT AND ELIMINATED CLAIM ON PARCEL (C D W HOLDINGS LLC) JDE



Q10 = 37.6 cfs  
 V10 = 1.93 fps  
**SITE 10**  
 A.G. LEE OIL COMPANY, INC.

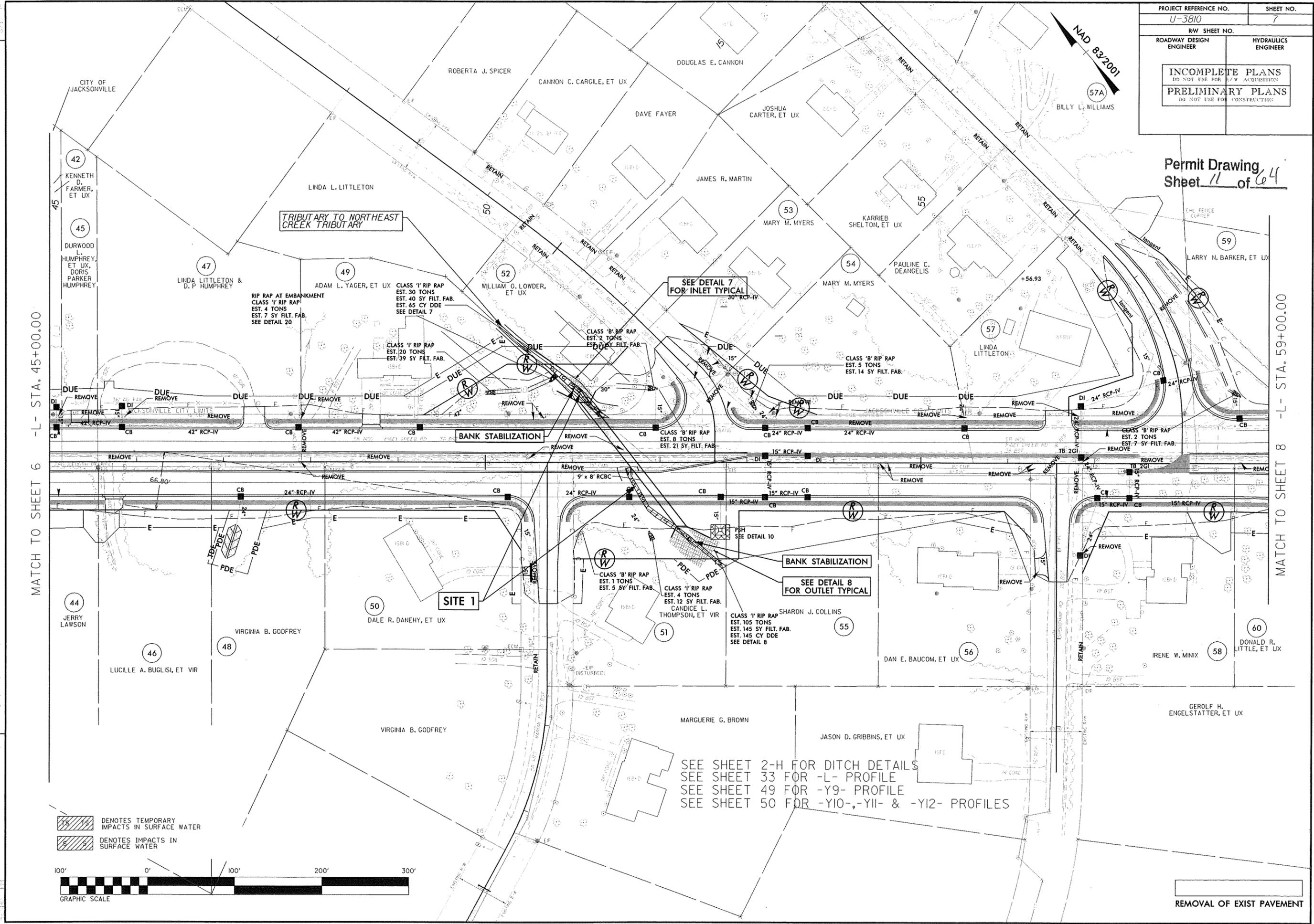
**SITE 9**

MATCH TO SHEET 5 -L- STA. 17+00.00  
 MATCH TO -Y- STA. 17+00.00  
 MATCH TO -Y- STA. 17+00.00  
 SEE SHEET 2-H FOR DITCH DETAILS  
 SEE SHEET 32 FOR -L- PROFILE  
 SEE SHEET 48 FOR -Y- & -YI- PROFILES

2005 ADT 2030 ADT	SERVICE ROAD 1400 2300	DHW = 7% DIR = 65% TTST = 1% DUAL = 2%
DHW = 10% DIR = 50% TTST = 2% DUAL = 5%	900 1600	300 500
-Y- US 17 MARINE BLVD.	26000 42100	15400 34000
DHW = 7% DIR = 55% TTST = 1% DUAL = 2%	13000 13000	3000 6000
-L- PINEY GREEN ROAD (SR 1406)	16200 19200	DHW = 10% DIR = 65% TTST = 2% DUAL = 5%

PROJECT REFERENCE NO. U-3810	SHEET NO. 7
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION <b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	

Permit Drawing  
Sheet 11 of 64

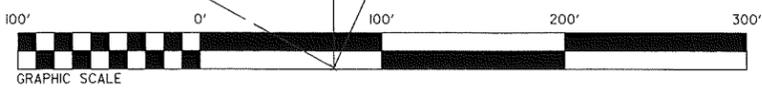


MATCH TO SHEET 6 - L- STA. 45+00.00

MATCH TO SHEET 8 - L- STA. 59+00.00

REVISIONS

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



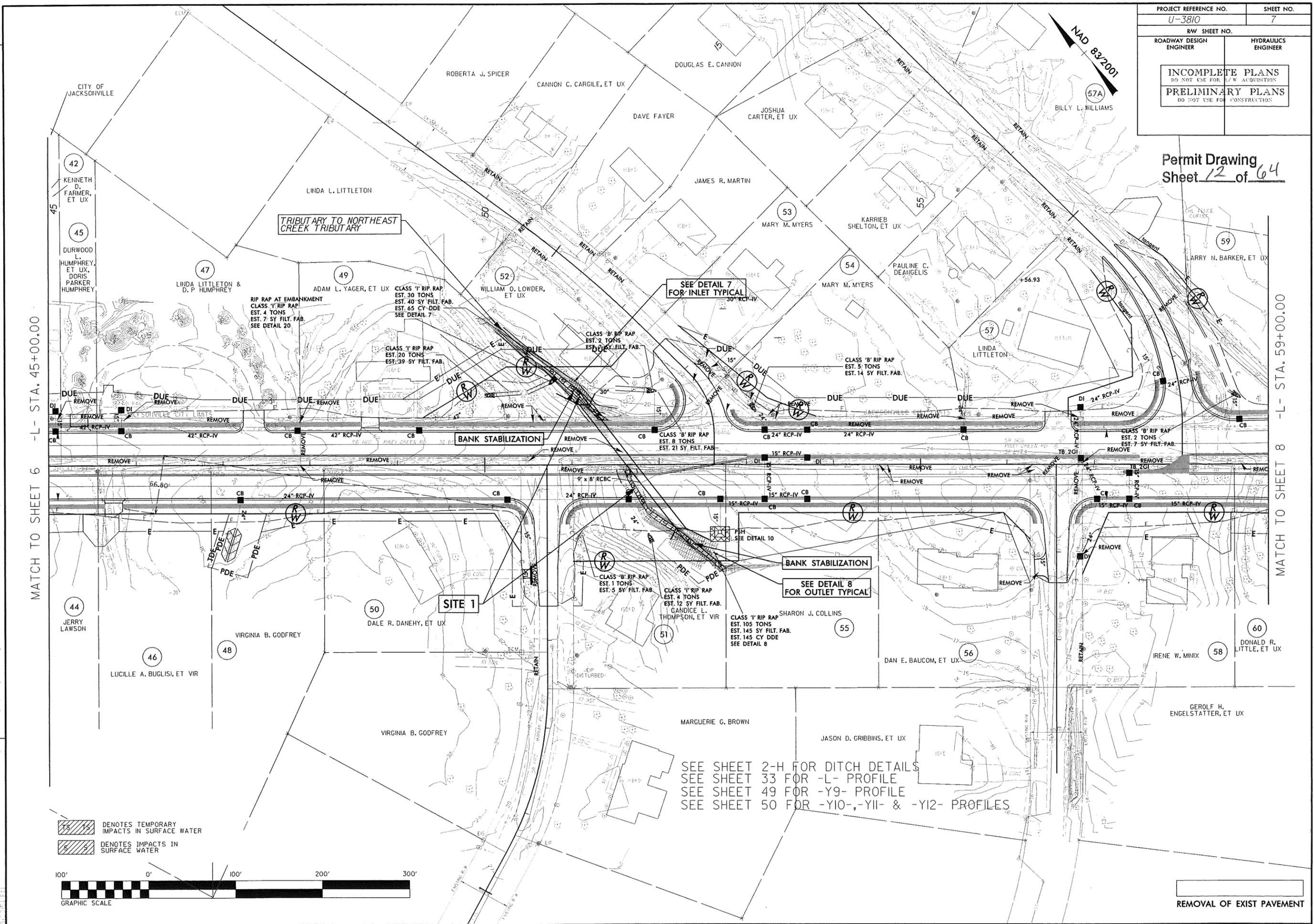
SEE SHEET 2-H FOR DITCH DETAILS  
 SEE SHEET 33 FOR -L- PROFILE  
 SEE SHEET 49 FOR -Y9- PROFILE  
 SEE SHEET 50 FOR -Y10-, -Y11- & -Y12- PROFILES

REMOVAL OF EXIST PAVEMENT

130101.dwg, highd, perm, ptab, 07, cadp  
 130101.dwg, highd, perm, ptab, 07, cadp  
 130101.dwg, highd, perm, ptab, 07, cadp

PROJECT REFERENCE NO. U-3810	SHEET NO. 7
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR ACQUISITION <b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	

Permit Drawing  
Sheet 12 of 64

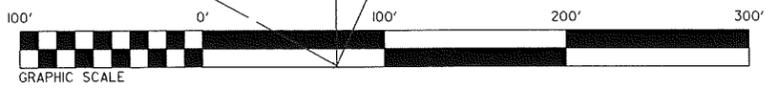


MATCH TO SHEET 6 -L- STA. 45+00.00

MATCH TO SHEET 8 -L- STA. 59+00.00

REVISIONS

DENOTES TEMPORARY IMPACTS IN SURFACE WATER  
 DENOTES IMPACTS IN SURFACE WATER



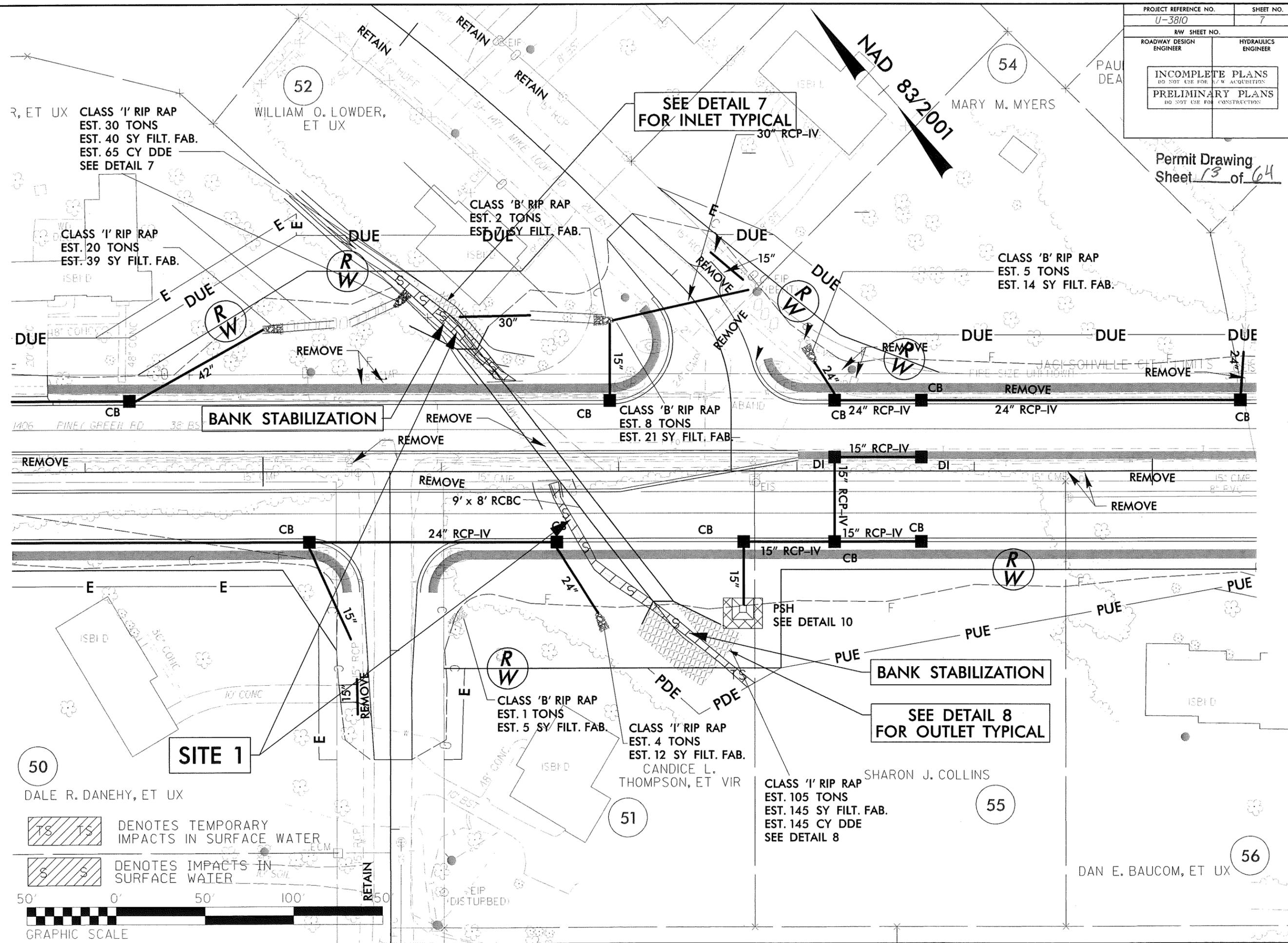
SEE SHEET 2-H FOR DITCH DETAILS  
 SEE SHEET 33 FOR -L- PROFILE  
 SEE SHEET 49 FOR -Y9- PROFILE  
 SEE SHEET 50 FOR -Y10-, -Y11- & -Y12- PROFILES

REMOVAL OF EXIST PAVEMENT

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Permit Drawing  
Sheet 13 of 64

NAD 83/2001



CLASS '1' RIP RAP  
EST. 30 TONS  
EST. 40 SY FILT. FAB.  
EST. 65 CY DDE  
SEE DETAIL 7

CLASS '1' RIP RAP  
EST. 20 TONS  
EST. 39 SY FILT. FAB.

CLASS 'B' RIP RAP  
EST. 2 TONS  
EST. 7 SY FILT. FAB.

CLASS 'B' RIP RAP  
EST. 5 TONS  
EST. 14 SY FILT. FAB.

SEE DETAIL 7  
FOR INLET TYPICAL

BANK STABILIZATION

BANK STABILIZATION

SEE DETAIL 8  
FOR OUTLET TYPICAL

50  
DALE R. DANEHY, ET UX

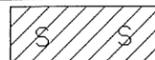
CLASS 'B' RIP RAP  
EST. 1 TONS  
EST. 5 SY FILT. FAB.

CLASS '1' RIP RAP  
EST. 4 TONS  
EST. 12 SY FILT. FAB.  
CANDICE L.  
THOMPSON, ET VIR

CLASS '1' RIP RAP  
EST. 105 TONS  
EST. 145 SY FILT. FAB.  
EST. 145 CY DDE  
SEE DETAIL 8

SHARON J. COLLINS

55

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

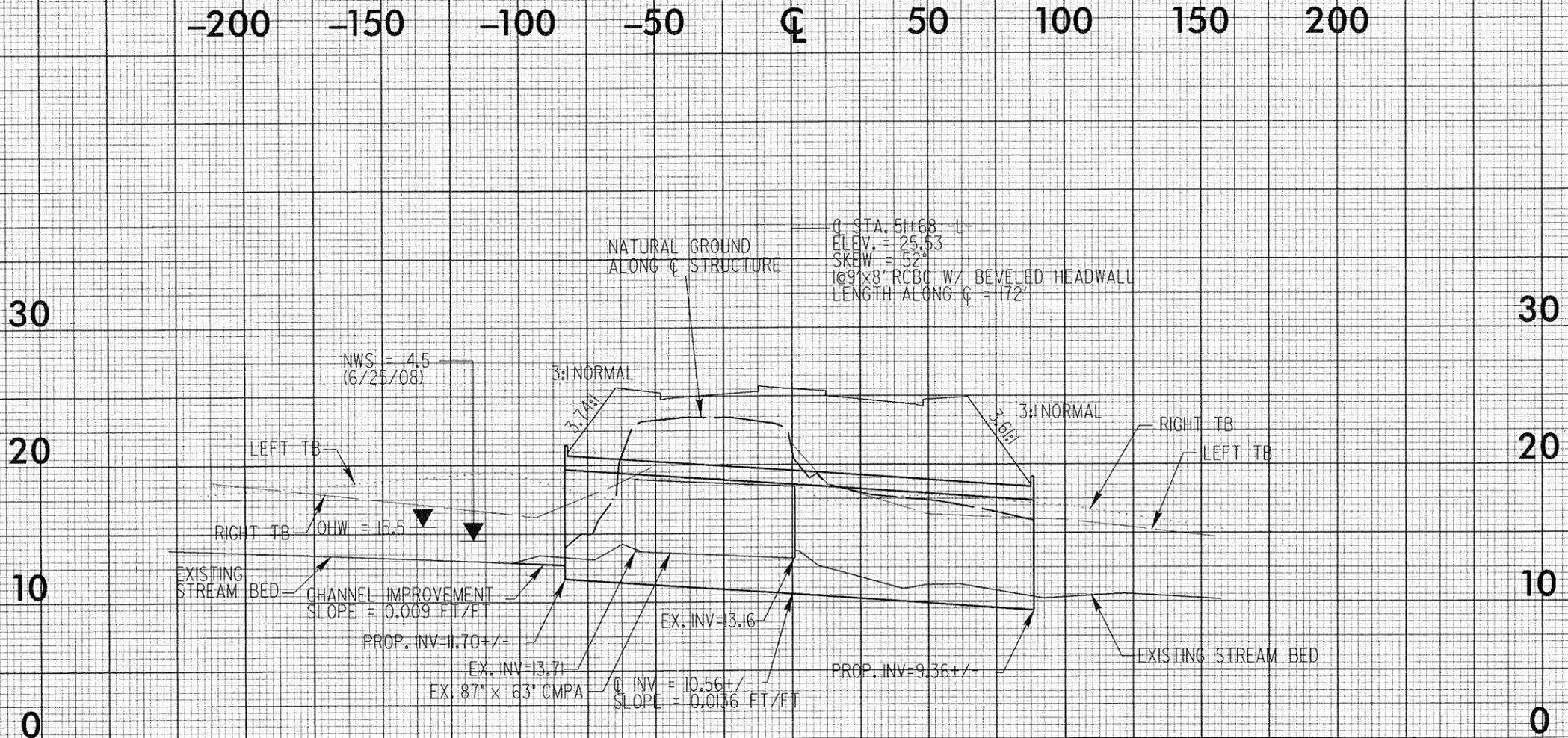


DAN E. BAUCOM, ET UX

56

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# SITE 1 JURISDICTIONAL STREAM PROFILE -L- 51+68



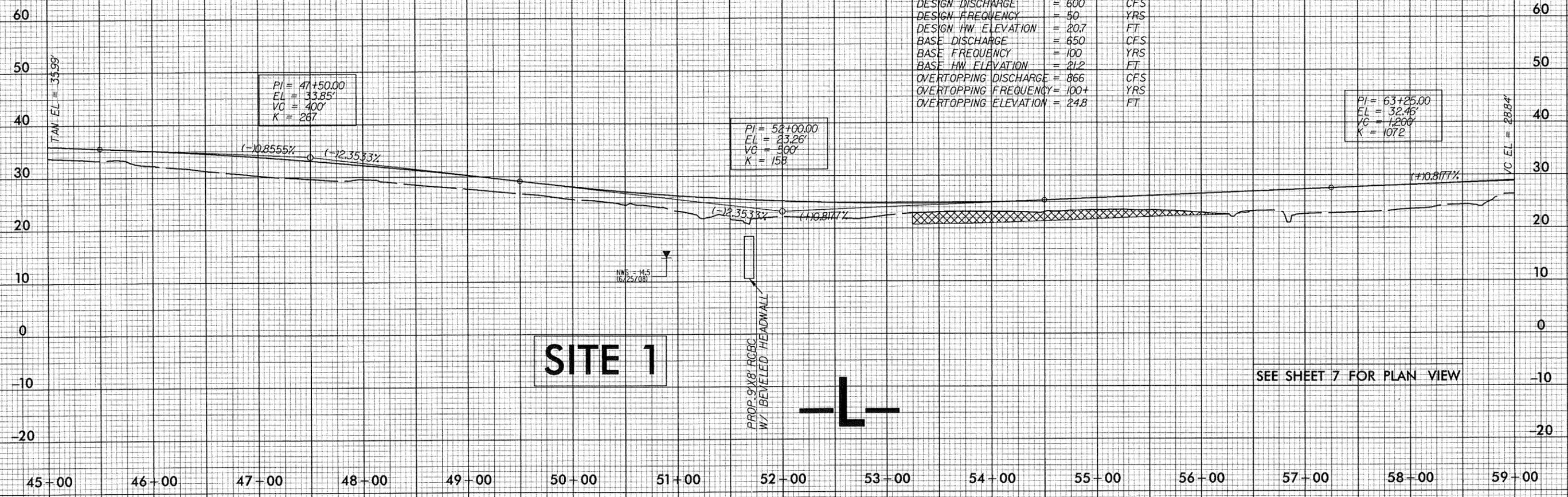
PROFILE ALONG STRUCTURE

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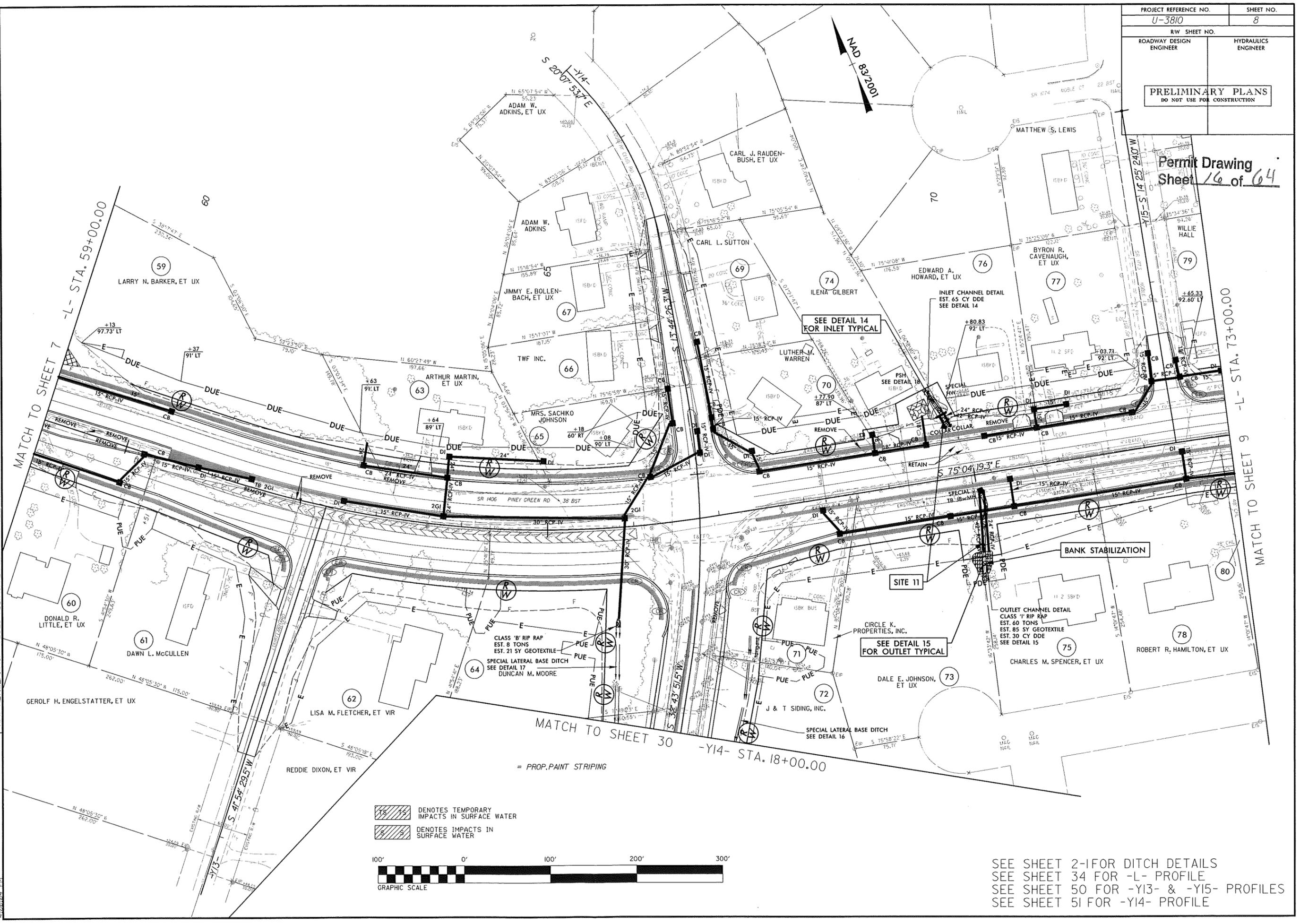
**CULVERT HYDRAULIC DATA**  
 L - STA. 51+68

DESIGN DISCHARGE	= 600	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 20.7	FT
BASE DISCHARGE	= 650	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 21.2	FT
OVERTOPPING DISCHARGE	= 866	CFS
OVERTOPPING FREQUENCY	= 100+	YRS
OVERTOPPING ELEVATION	= 24.8	FT

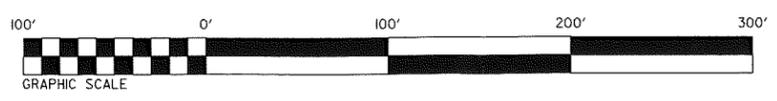


Permit Drawing  
Sheet 16 of 64

REVISIONS  
 R/W REV 12/25/10 INCREASED TCE ON PARCELS 71, 73, 75 & 78 AND REDUCED PDE & ROW ON PARCELS 73 & 75 IN ASSOCIATION WITH DRAINAGE REV. DCS  
 R/W REV 12/27/10 DELETED TCE ON PARCEL 71 AND REDUCED TCE ON PARCEL 77  
 R/W REV 10/10/10 INCORPORATED STA AND OFFSETS CALCULATED BY LOCATION & SURVEYS IN STAKING THE R/W. DCS  
 R/W REV 10/10/10 INCORPORATED STA AND OFFSETS CALCULATED BY LOCATION & SURVEYS IN STAKING THE R/W. JDE  
 R/W REV 10/27/10 INCORPORATED STA AND OFFSETS CALCULATED BY LOCATION & SURVEYS IN STAKING THE R/W. JDE  
 R/W REV 10/27/10 ADDED ADDITIONAL TCE ON PARCEL 59 AND REDUCED PUE ON PARCEL 62. MRN



DENOTES TEMPORARY IMPACTS IN SURFACE WATER  
 DENOTES IMPACTS IN SURFACE WATER

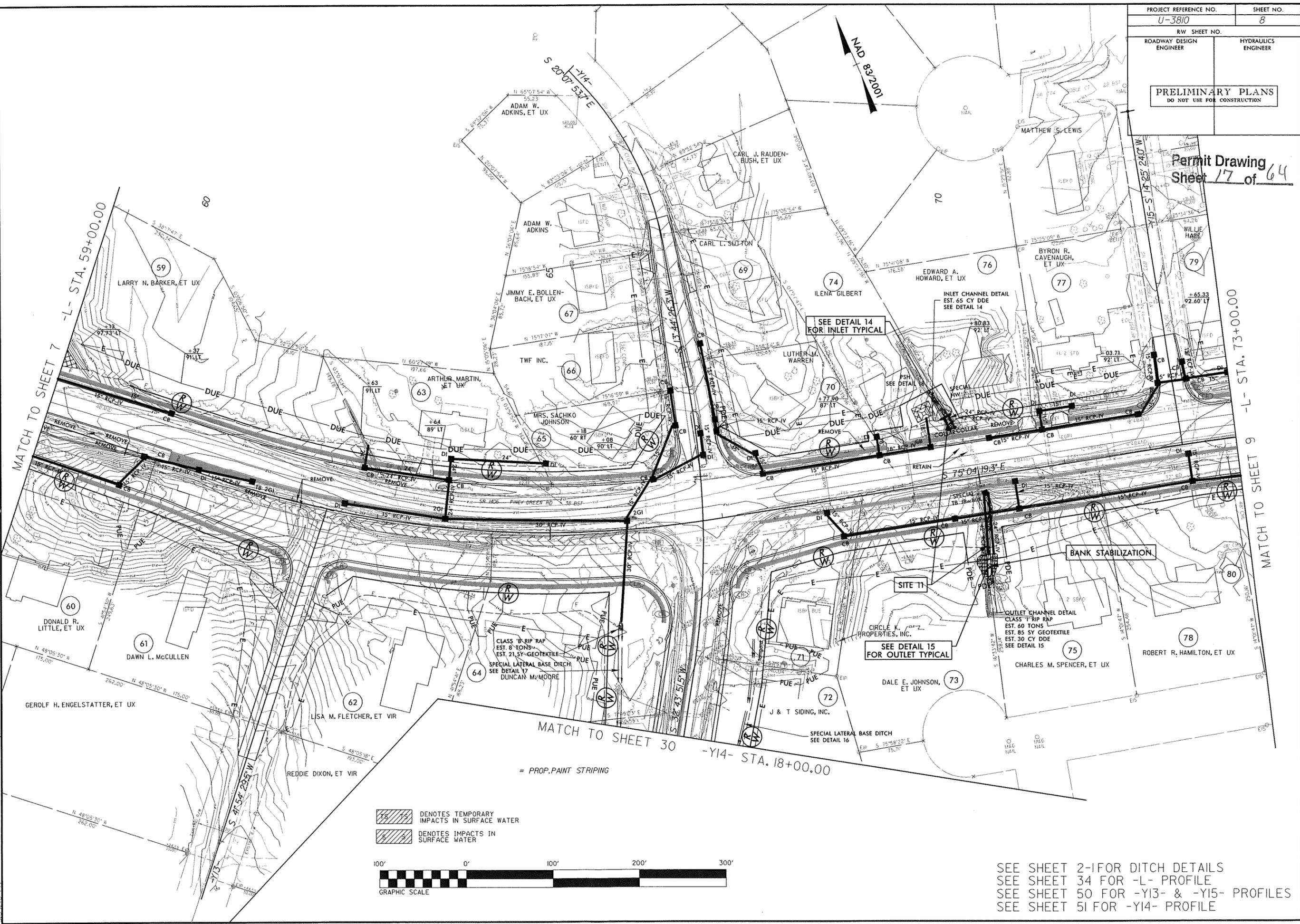


SEE SHEET 2-1 FOR DITCH DETAILS  
 SEE SHEET 34 FOR -L- PROFILE  
 SEE SHEET 50 FOR -Y13- & -Y15- PROFILES  
 SEE SHEET 51 FOR -Y14- PROFILE

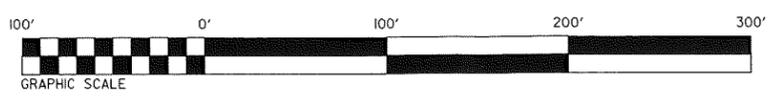
PROJECT REFERENCE NO. U-3810	SHEET NO. 8
R/W SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	

Permit Drawing  
Sheet 17 of 64

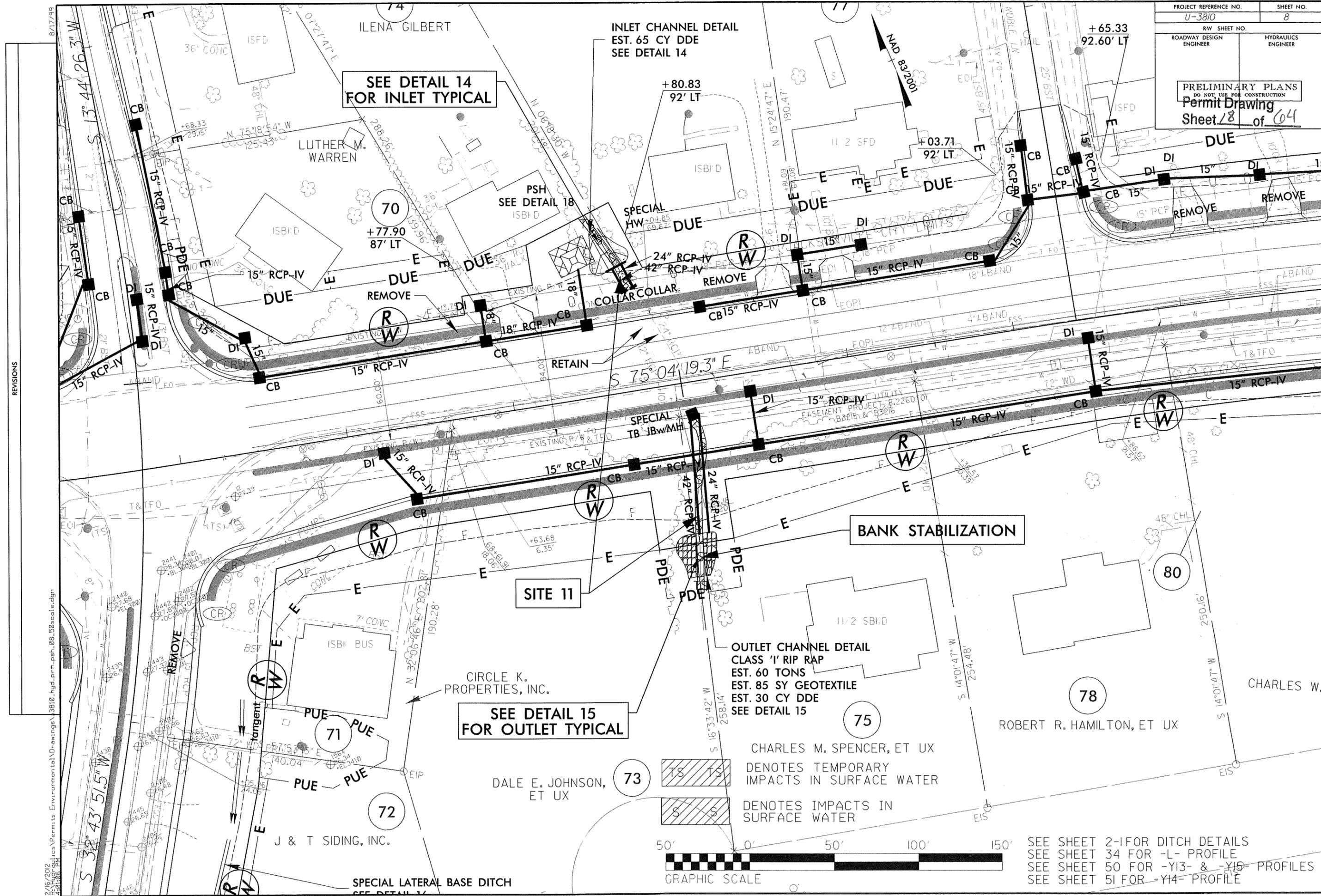
REVISIONS  
 R/W REV 12/25/10 INCREASED TCE ON PARCELS 71, 73, 75 & 78 AND REDUCED PDE & ROW ON PARCELS 73 & 75 IN ASSOCIATION WITH DRAINAGE REV. DCS  
 R/W REV 11/27/10 ADDED TCE ON PARCEL 77 TO ALSO REVISED TCE ON PARCEL 77 JDE  
 R/W REV 10/10/10 INCORPORATED STA AND OFFSETS CALCULATED BY LOCATION & SURVEYS IN STAKING THE R/W. DCS  
 R/W REV 09/27/10 INCORPORATED STA AND OFFSETS CALCULATED BY LOCATION & SURVEYS IN STAKING THE R/W. JDE  
 R/W REV 07/20/10 ADDED ADDITIONAL TCE ON PARCEL 59 AND REDUCED PUE ON PARCEL 62. MRN



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



SEE SHEET 2-1 FOR DITCH DETAILS  
 SEE SHEET 34 FOR -L- PROFILE  
 SEE SHEET 50 FOR -Y13- & -Y15- PROFILES  
 SEE SHEET 51 FOR -Y14- PROFILE



SEE DETAIL 14  
FOR INLET TYPICAL

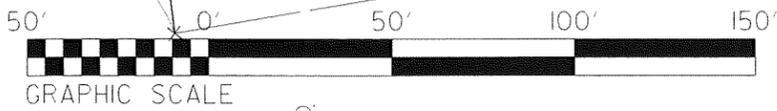
INLET CHANNEL DETAIL  
EST. 65 CY DDE  
SEE DETAIL 14

SEE DETAIL 15  
FOR OUTLET TYPICAL

BANK STABILIZATION

OUTLET CHANNEL DETAIL  
CLASS 'I' RIP RAP  
EST. 60 TONS  
EST. 85 SY GEOTEXTILE  
EST. 30 CY DDE  
SEE DETAIL 15

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER  
S S DENOTES IMPACTS IN SURFACE WATER



SEE SHEET 2-1 FOR DITCH DETAILS  
SEE SHEET 34 FOR -L- PROFILE  
SEE SHEET 50 FOR -Y13- & -Y15- PROFILES  
SEE SHEET 51 FOR -Y14- PROFILE

REVISIONS

2/16/2012  
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8/17/99







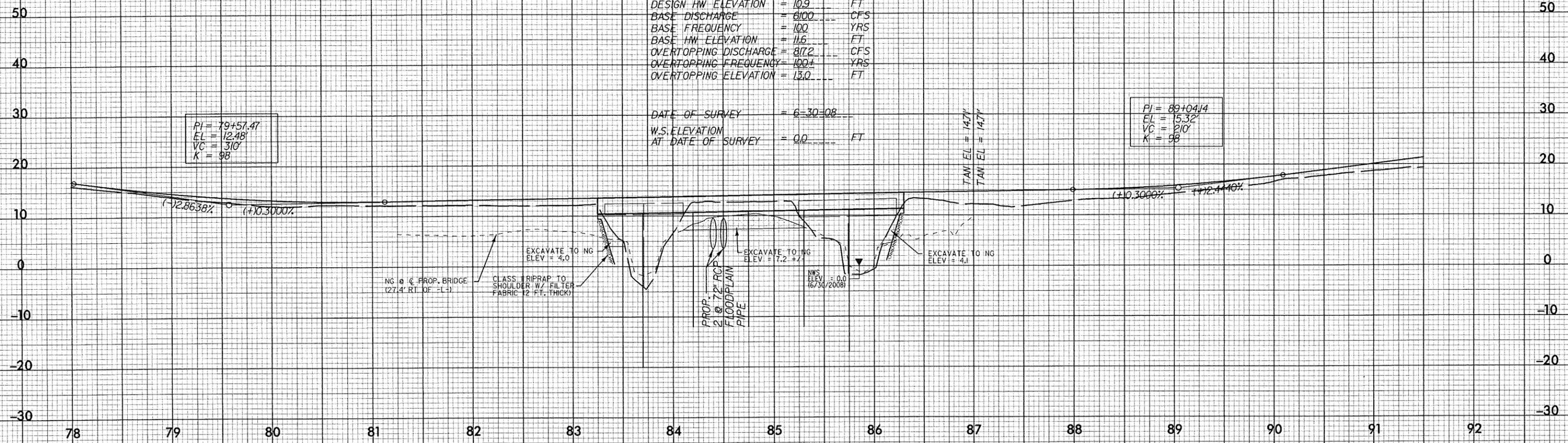
BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 5400	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 10.9	FT
BASE DISCHARGE	= 6100	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 11.6	FT
OVERTOPPING DISCHARGE	= 8172	CFS
OVERTOPPING FREQUENCY	= 100+	YRS
OVERTOPPING ELEVATION	= 13.0	FT

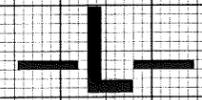
DATE OF SURVEY = 6-30-08  
 W.S. ELEVATION AT DATE OF SURVEY = 0.0 FT

PI = 79+57.47  
 EL = 12.48'  
 VC = 310'  
 K = 98

PI = 89+04.14  
 EL = 15.32'  
 VC = 210'  
 K = 98



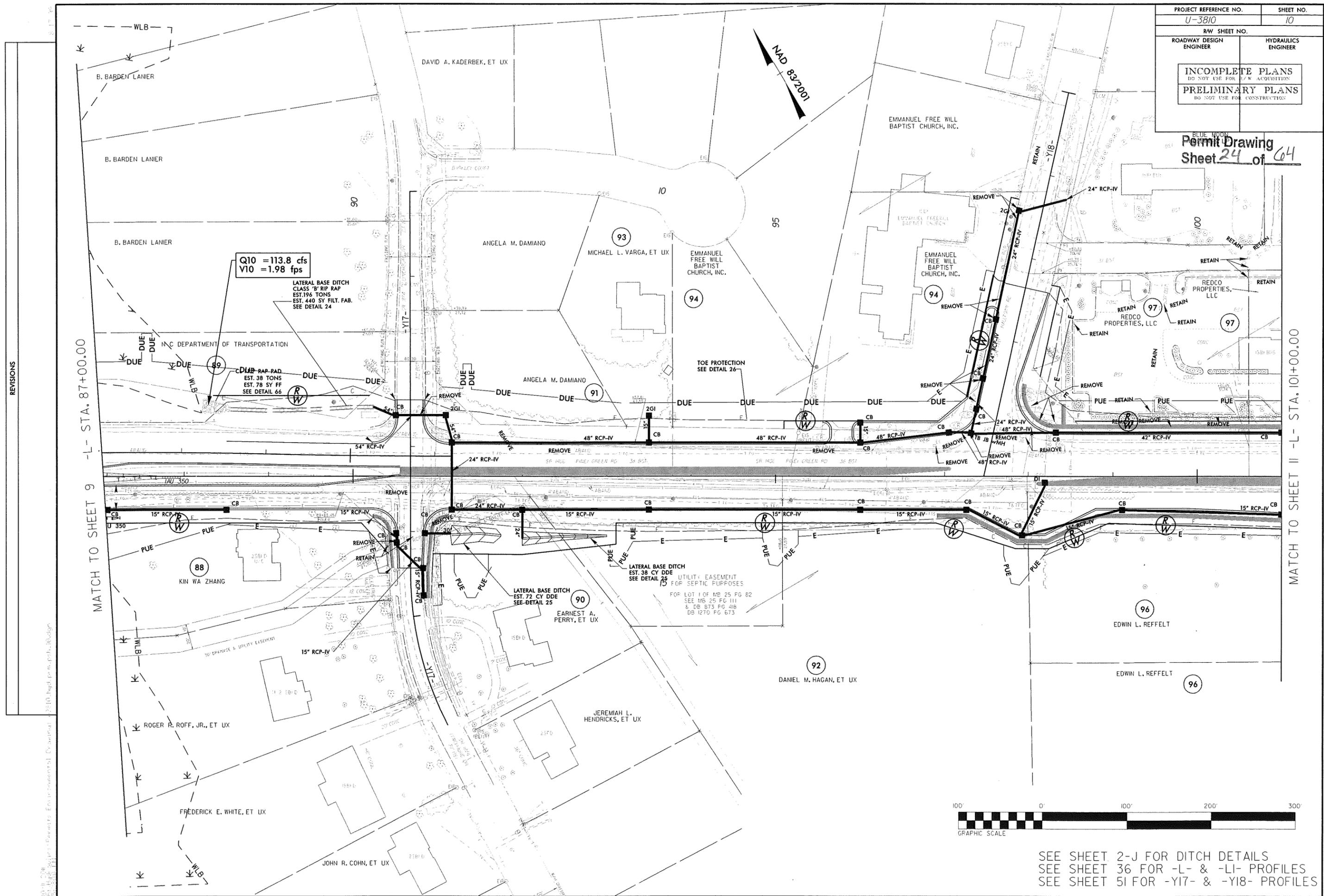
SITE 2



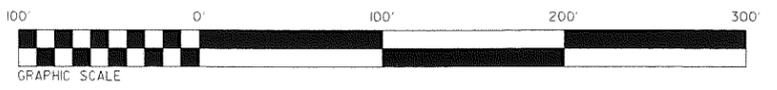


PROJECT REFERENCE NO. U-3810	SHEET NO. 10
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR E/W ACQUISITION <b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	

Permit Drawing  
Sheet 24 of 64



REVISIONS



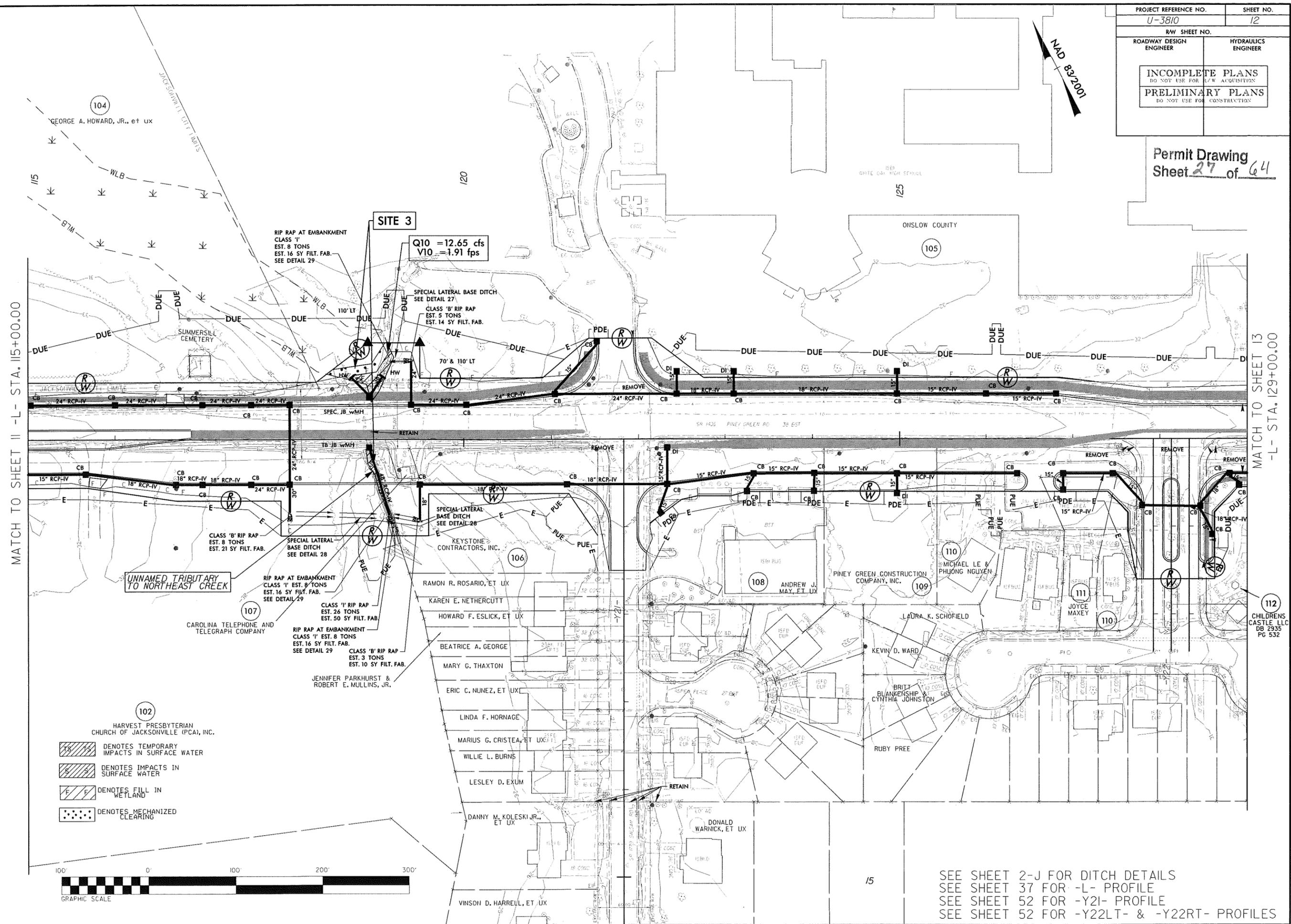
SEE SHEET 2-J FOR DITCH DETAILS  
 SEE SHEET 36 FOR -L- & -LI- PROFILES  
 SEE SHEET 51 FOR -Y17- & -Y18- PROFILES





PROJECT REFERENCE NO. U-3810	SHEET NO. 12
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION <b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	

Permit Drawing  
Sheet 27 of 64

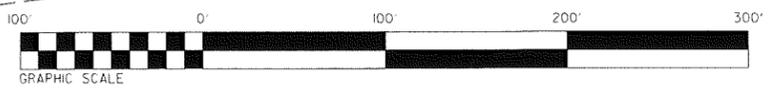


MATCH TO SHEET II -L- STA. 115+00.00

MATCH TO SHEET 13  
-L- STA. 129+00.00

REVISIONS

- 102 HARVEST PRESBYTERIAN CHURCH OF JACKSONVILLE (PCA), INC.
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
  - DENOTES IMPACTS IN SURFACE WATER
  - DENOTES FILL IN WETLAND
  - DENOTES MECHANIZED CLEARING



SEE SHEET 2-J FOR DITCH DETAILS  
 SEE SHEET 37 FOR -L- PROFILE  
 SEE SHEET 52 FOR -Y21- PROFILE  
 SEE SHEET 52 FOR -Y22LT- & -Y22RT- PROFILES

10-11-2011 10:58 AM C:\Users\j\Documents\Projects\U-3810\U-3810.dwg (jordan.pugh) L:\dgn

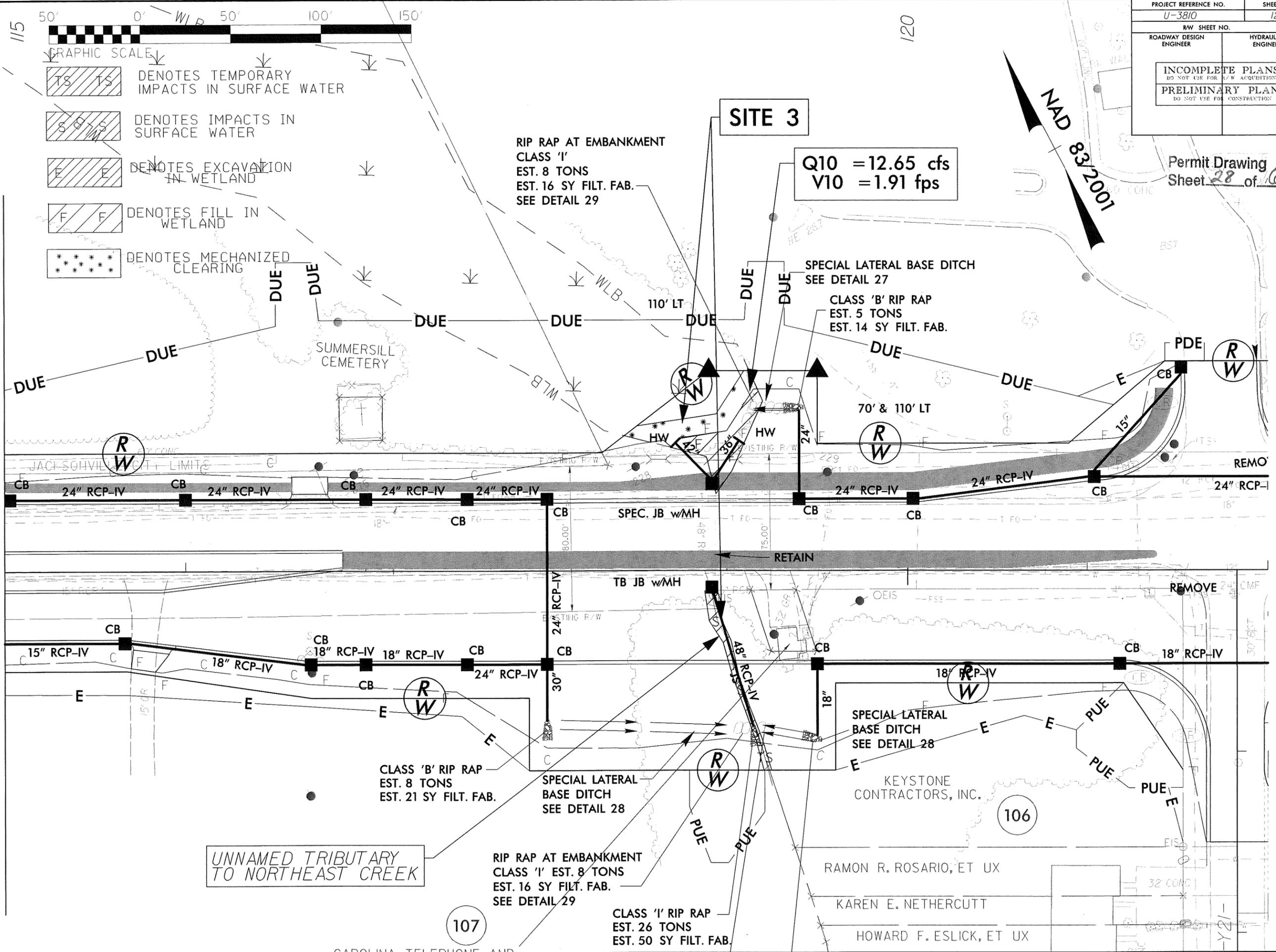
PROJECT REFERENCE NO. U-3810	SHEET NO. 12
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

Permit Drawing  
Sheet 28 of 64



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

MATCH TO SHEET II - L - STA. 115+00.00



REVISIONS

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107

106

Y21-

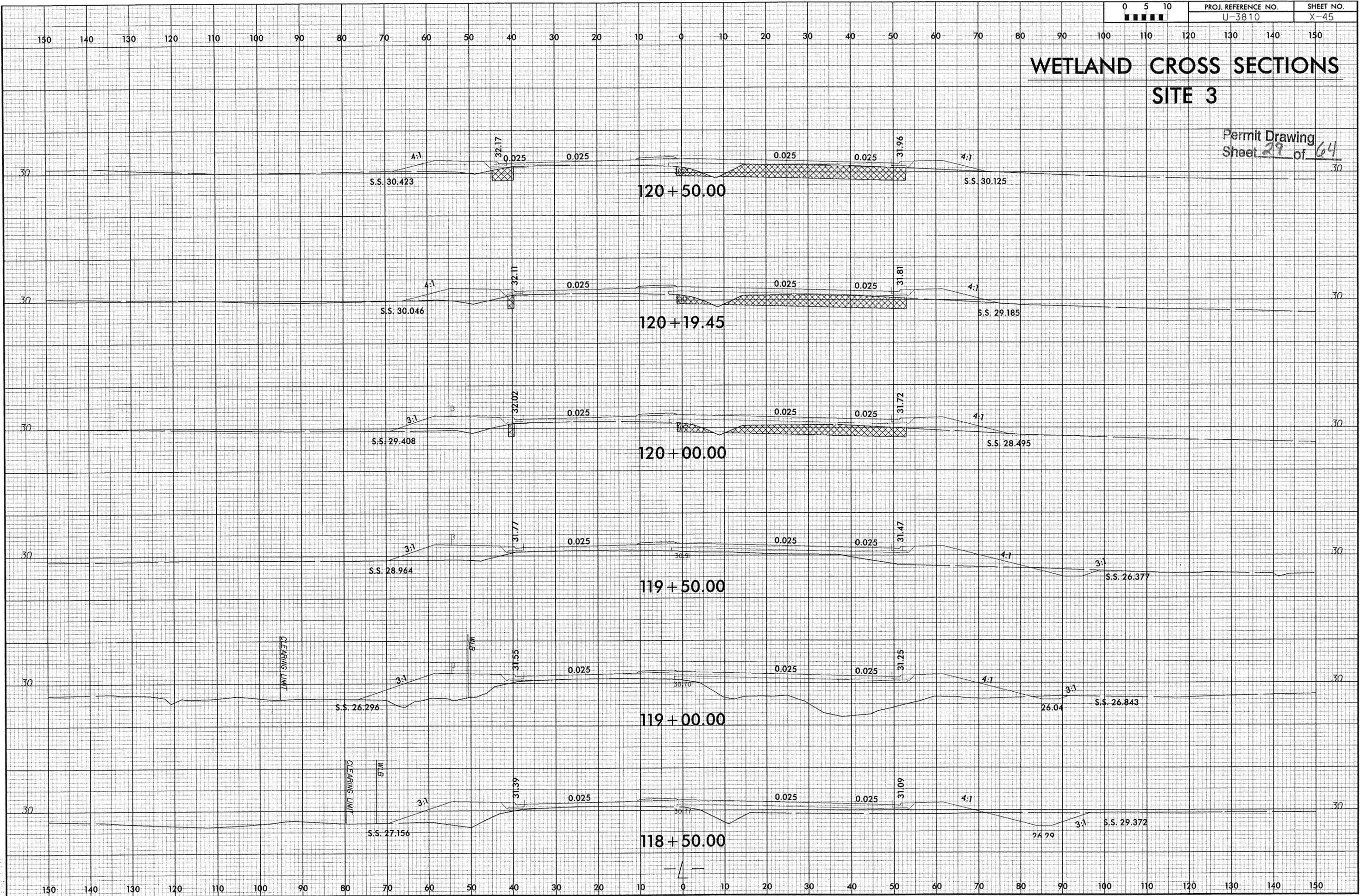
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PROJ. REFERENCE NO.  
U-3810

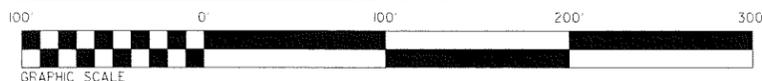
SHEET NO.  
X-45

# WETLAND CROSS SECTIONS SITE 3

Permit Drawing  
Sheet 29 of 64



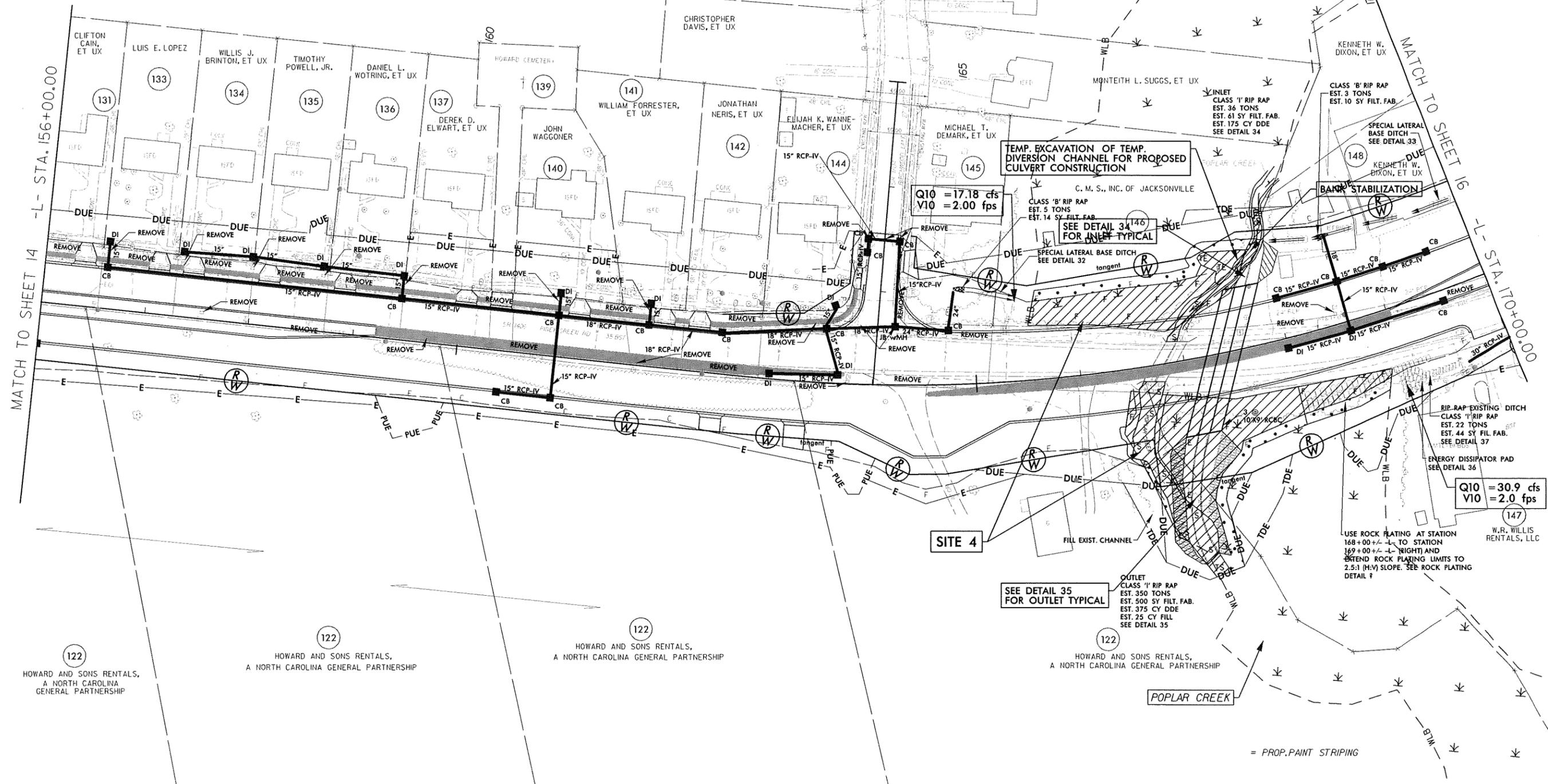
10/11/2018  
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180101.dwg



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

PROJECT REFERENCE NO. U-3810	SHEET NO. 15
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR A/W ACQUISITION <b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	

Permit Drawing  
Sheet 30 of 64



REVISIONS

MATCH TO SHEET 14 -L- STA. 156+00.00

MATCH TO SHEET 16 -L- STA. 170+00.00

**SITE 4**

8.17.2011  
 10:30 AM  
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 3810.Dwg4 (perm.dwg) (15.dwg)  
 3810.Dwg4 (perm.dwg) (15.dwg)

= PROP. PAINT STRIPING

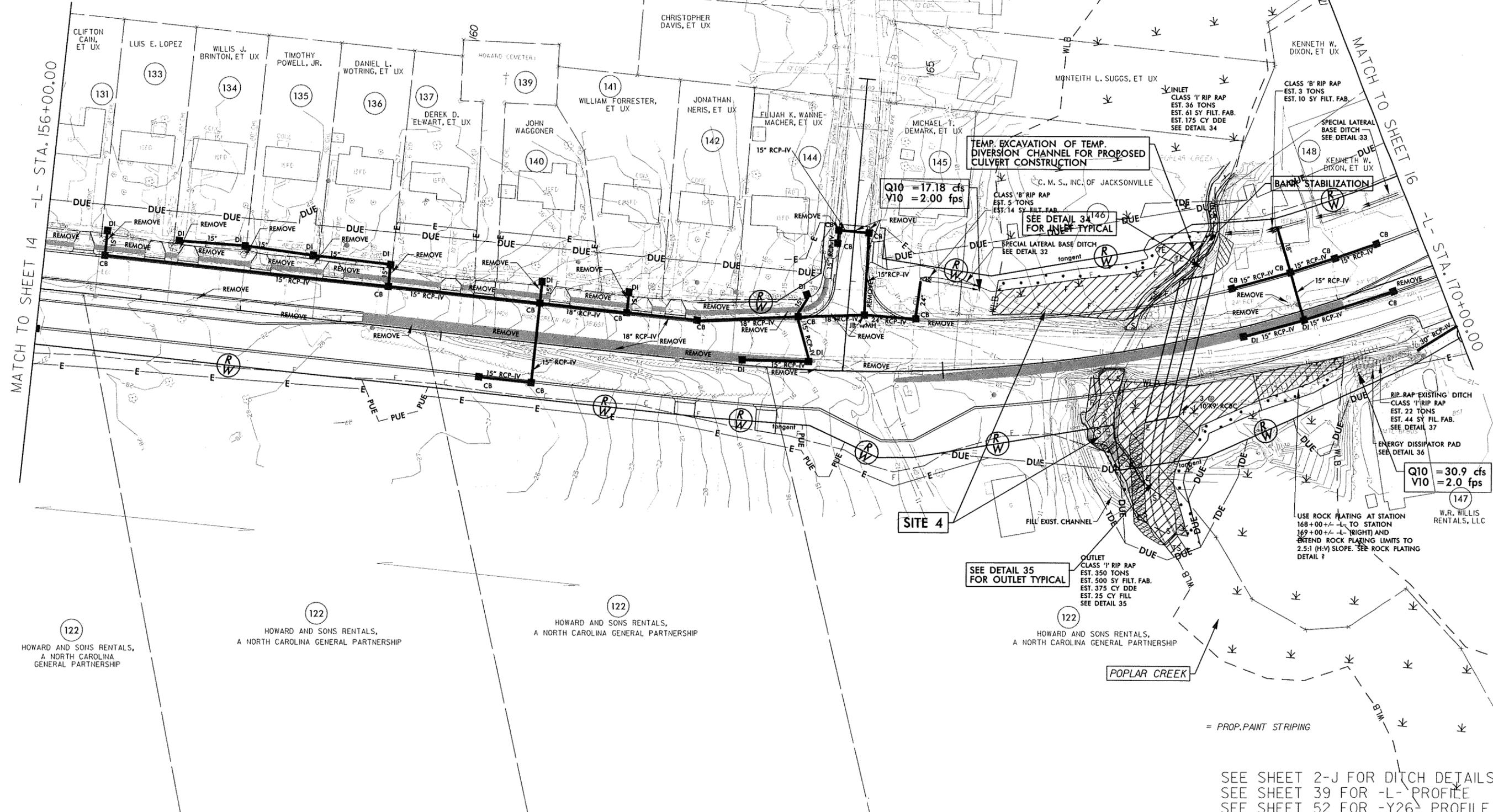
SEE SHEET 2-J FOR DITCH DETAILS  
 SEE SHEET 39 FOR -L- PROFILE  
 SEE SHEET 52 FOR -Y26- PROFILE



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

PROJECT REFERENCE NO. U-3810	SHEET NO. 15
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR E/W ACQUISITION <b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	

Permit Drawing Sheet 31 of 64



REVISIONS

MATCH TO SHEET 14 -L- STA. 156+00.00

MATCH TO SHEET 16 -L- STA. 170+00.00

Q10 = 17.18 cfs  
V10 = 2.00 fps

Q10 = 30.9 cfs  
V10 = 2.0 fps

SITE 4

122 HOWARD AND SONS RENTALS, A NORTH CAROLINA GENERAL PARTNERSHIP

122 HOWARD AND SONS RENTALS, A NORTH CAROLINA GENERAL PARTNERSHIP

122 HOWARD AND SONS RENTALS, A NORTH CAROLINA GENERAL PARTNERSHIP

122 HOWARD AND SONS RENTALS, A NORTH CAROLINA GENERAL PARTNERSHIP

147 W.R. WILLIS RENTALS, LLC

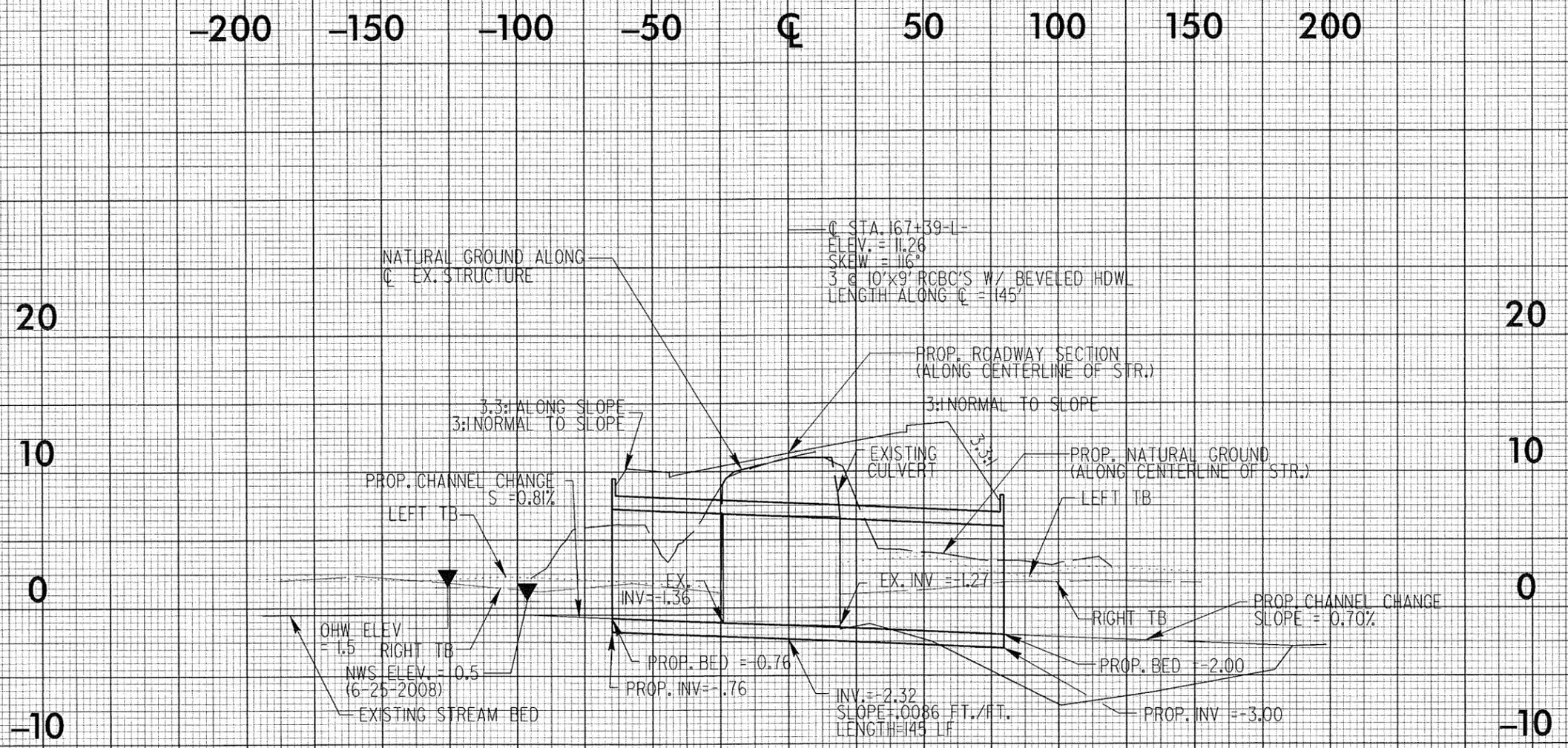
= PROP. PAINT STRIPING

SEE SHEET 2-J FOR DITCH DETAILS  
SEE SHEET 39 FOR -L- PROFILE  
SEE SHEET 52 FOR -Y26- PROFILE

10/19/2011 8:42:00 AM C:\Users\jgibson\Documents\Drawings\13810\13810.dwg (proj) (ask) (B) (dgn)



## SITE 4 JURISDICTIONAL STREAM PROFILE -L- 167+39



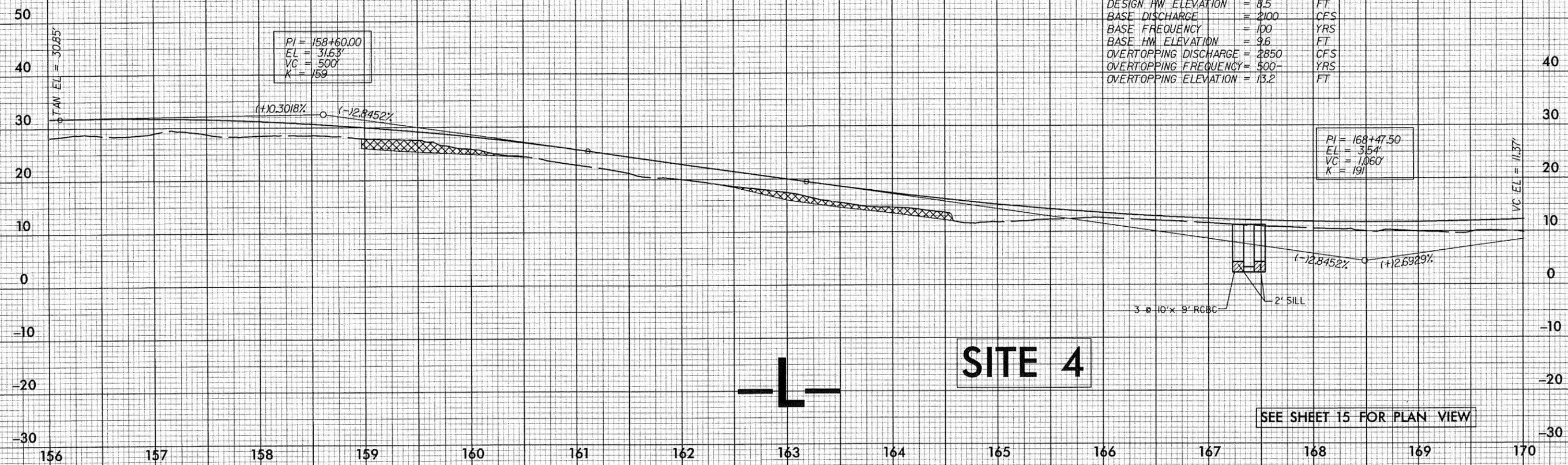
10/11/2011  
 Environmental Drawings  
 U-3810-167+39-4

CULVERT HYDRAULIC DATA  
L- STA 167+39

DESIGN DISCHARGE	= 1800	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 8.5	FT
BASE DISCHARGE	= 2100	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 9.6	FT
OVERTOPPING DISCHARGE	= 2850	CFS
OVERTOPPING FREQUENCY	= 500	YRS
OVERTOPPING ELEVATION	= 13.2	FT

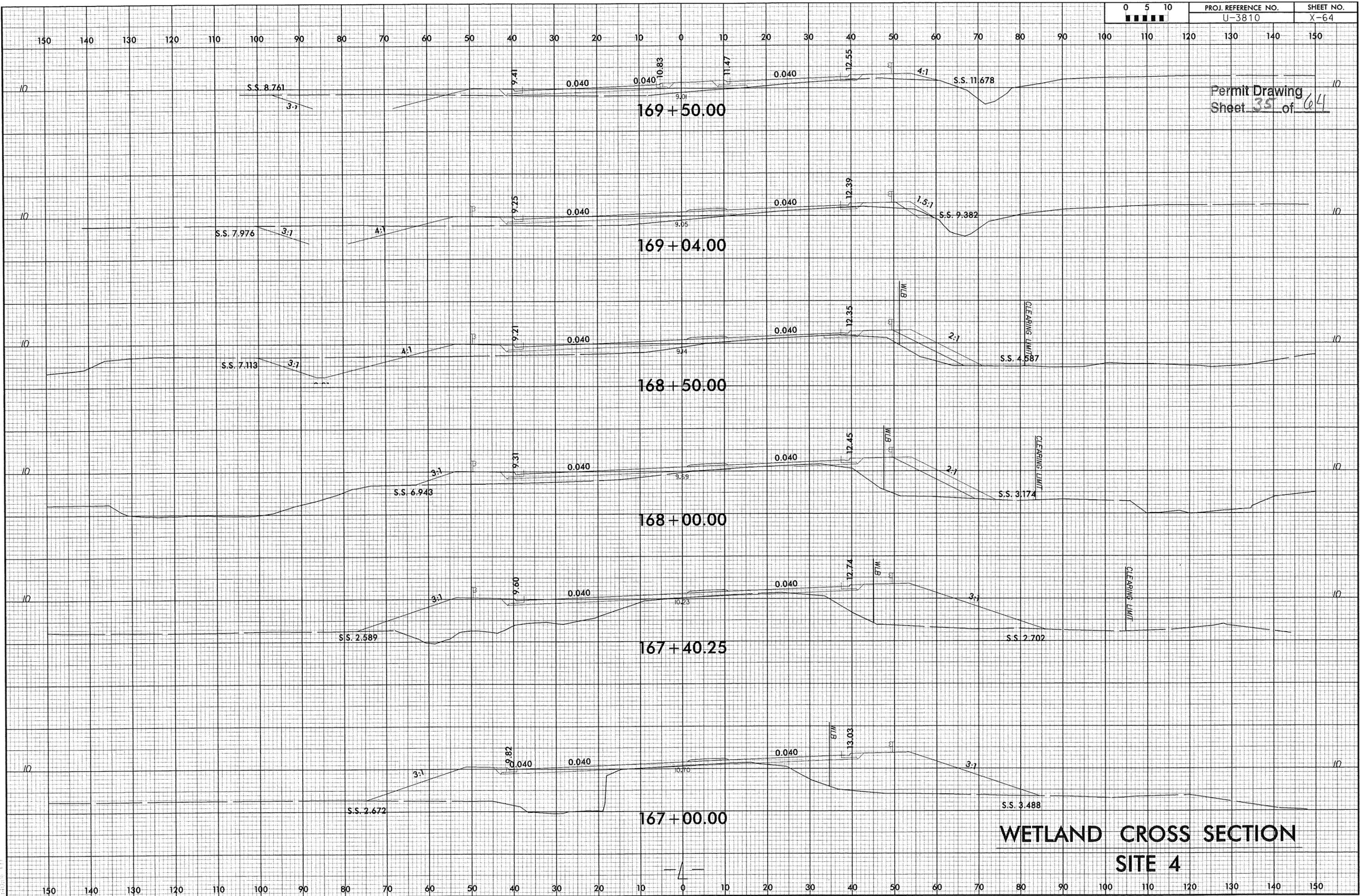
PI = 158+60.00  
EL = 31.63'  
VC = 500'  
K = 159

PI = 168+47.50  
EL = 31.54'  
VC = 1060'  
K = 191



**SITE 4**

SEE SHEET 15 FOR PLAN VIEW



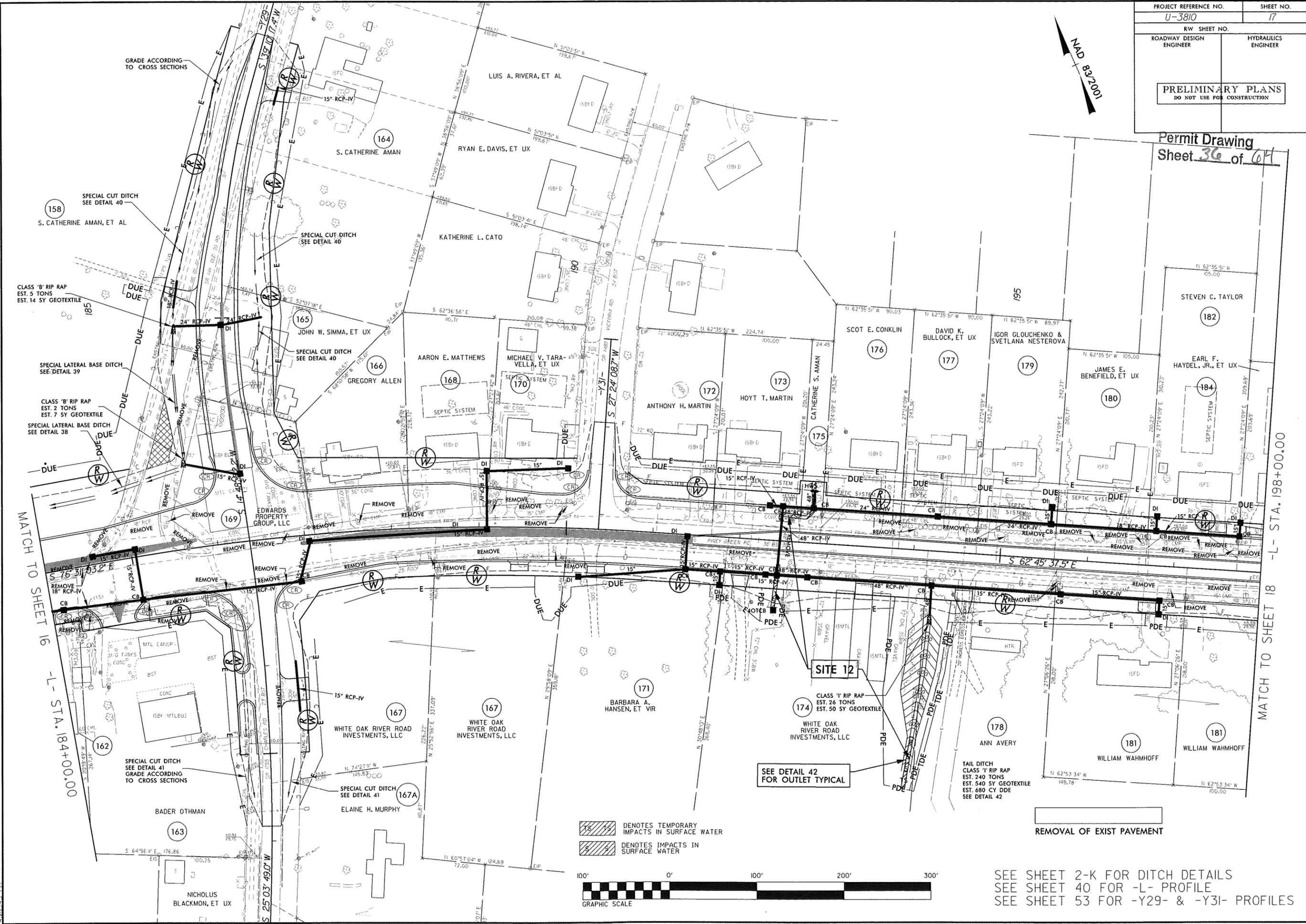
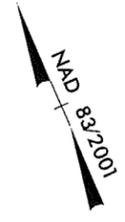
Permit Drawing  
Sheet 35 of 64

**WETLAND CROSS SECTION  
SITE 4**

04.11.2018  
E:\Projects\2018\Permits\_Env\18000001\18000001\18000001.dwg  
pl.Ldd

PROJECT REFERENCE NO. U-3810	SHEET NO. 17
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

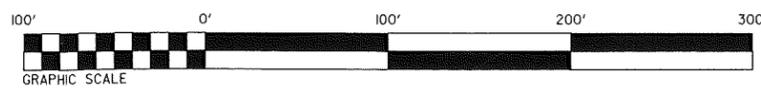
Permit Drawing  
Sheet 36 of 64



MATCH TO SHEET 16  
-L- STA. 184+00.00

MATCH TO SHEET 18  
-L- STA. 198+00.00

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

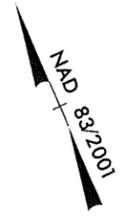


REMOVAL OF EXIST PAVEMENT

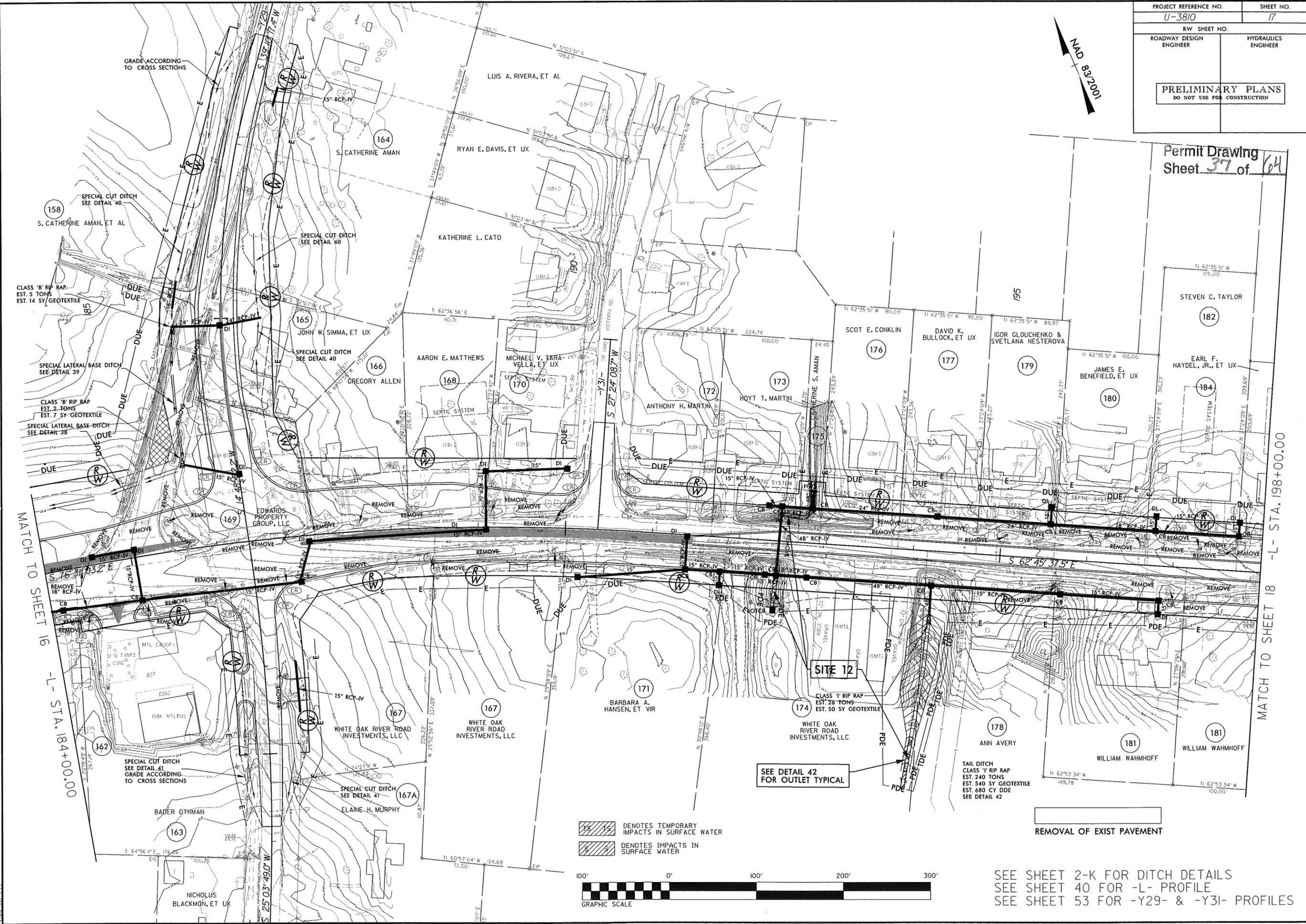
SEE SHEET 2-K FOR DITCH DETAILS  
SEE SHEET 40 FOR -L- PROFILE  
SEE SHEET 53 FOR -Y29- & -Y31- PROFILES

8/17/99  
2/16/2012  
C:\Hyd\aulica\Permits Environmental\0-swings\3810\_hyd\_prm-ps-17.dgn

PROJECT REFERENCE NO. U-3810	SHEET NO. 17
RW SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	



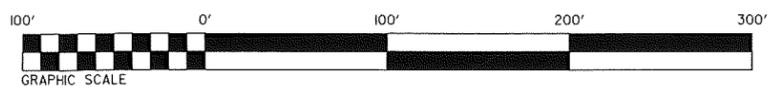
Permit Drawing Sheet **37** of **64**



MATCH TO SHEET 16  
-L- STA. 184+00.00

MATCH TO SHEET 18  
-L- STA. 198+00.00

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



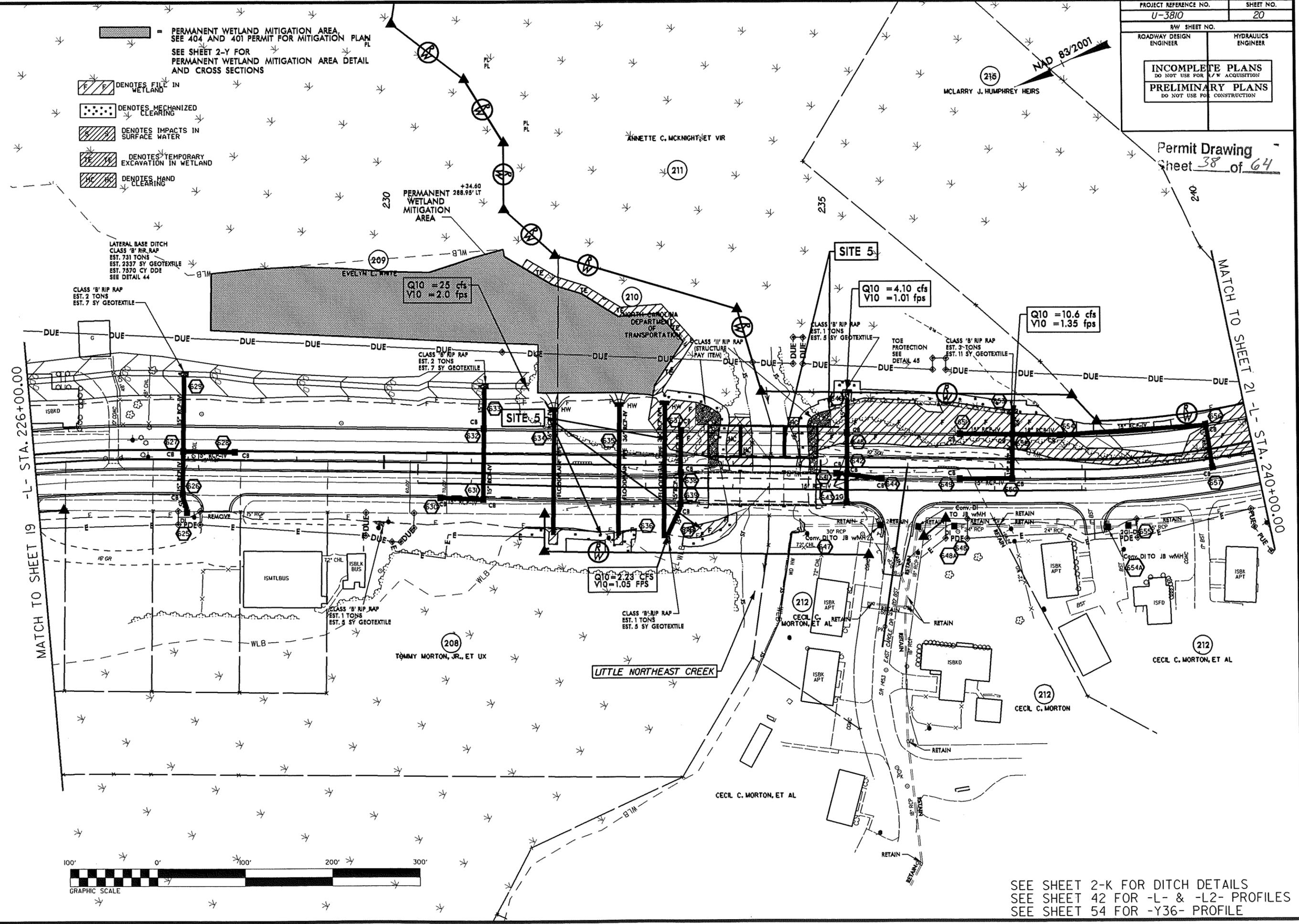
REMOVAL OF EXIST PAVEMENT

SEE SHEET 2-K FOR DITCH DETAILS  
SEE SHEET 40 FOR -L- PROFILE  
SEE SHEET 53 FOR -Y29- & -Y31- PROFILES

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4:02:16 PM

PROJECT REFERENCE NO. U-3810	SHEET NO. 20
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION <b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	

Permit Drawing  
Sheet 38 of 64



- PERMANENT WETLAND MITIGATION AREA. SEE 404 AND 401 PERMIT FOR MITIGATION PLAN PL. SEE SHEET 2-Y FOR PERMANENT WETLAND MITIGATION AREA DETAIL AND CROSS SECTIONS
- DENOTES FIT IN WETLAND
- DENOTES MECHANIZED CLEARING
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY EXCAVATION IN WETLAND
- DENOTES HAND CLEARING

LATERAL BASE DITCH  
CLASS 'B' RIP RAP  
EST. 731 TONS  
EST. 2337 SY GEOTEXTILE  
EST. 7570 CY DDE  
SEE DETAIL 44

CLASS 'B' RIP RAP  
EST. 2 TONS  
EST. 7 SY GEOTEXTILE

Q10 = 25 cfs  
V10 = 2.0 fps

Q10 = 4.10 cfs  
V10 = 1.01 fps

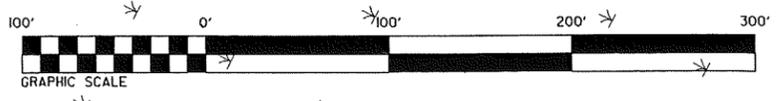
Q10 = 10.6 cfs  
V10 = 1.35 fps

Q10 = 2.23 cfs  
V10 = 1.05 fps

CLASS 'B' RIP RAP  
EST. 1 TONS  
EST. 3 SY GEOTEXTILE

MATCH TO SHEET 19 -L- STA. 226+00.00

MATCH TO SHEET 21 -L- STA. 240+00.00



SEE SHEET 2-K FOR DITCH DETAILS  
SEE SHEET 42 FOR -L- & -L2- PROFILES  
SEE SHEET 54 FOR -Y36- PROFILE

REVISIONS

PROJECT REFERENCE NO. U-3810	SHEET NO. 20
RAW SHEET NO. 20	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

Permit Drawing  
Sheet 39 of 64

█ = PERMANENT WETLAND MITIGATION AREA.  
SEE 404 AND 401 PERMIT FOR MITIGATION PLAN PL  
SEE SHEET 2-Y FOR  
PERMANENT WETLAND MITIGATION AREA DETAIL  
AND CROSS SECTIONS

- DENOTES FILLED IN WETLAND
- DENOTES MECHANIZED CLEARING
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY EXCAVATION IN WETLAND
- DENOTES HAND CLEARING

LATERAL BASE DITCH  
CLASS 'B' RIP RAP  
EST. 731 TONS  
EST. 2337 SY GEOTEXTILE  
EST. 7570 CY DOE  
SEE DETAIL 44

CLASS 'B' RIP RAP  
EST. 2 TONS  
EST. 7 SY GEOTEXTILE

PERMANENT WETLAND MITIGATION AREA  
+34.60  
288.95' LT

Q10 = 25 cfs  
V10 = 2.0 fps

SITE 5

Q10 = 4.10 cfs  
V10 = 1.01 fps

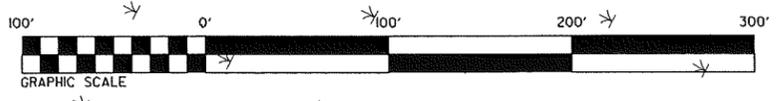
Q10 = 10.6 cfs  
V10 = 1.35 fps

Q10 = 2.23 CFS  
V10 = 1.05 FPS

LITTLE NORTHEAST CREEK

MATCH TO SHEET 19 -L- STA. 226+00.00

MATCH TO SHEET 21 -L- STA. 240+00.00

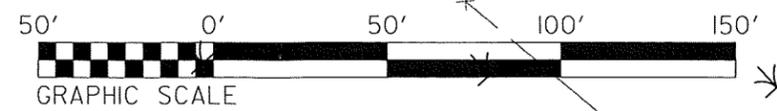


SEE SHEET 2-K FOR DITCH DETAILS  
SEE SHEET 42 FOR -L- & -L2- PROFILES  
SEE SHEET 54 FOR -Y36- PROFILE

REVISIONS  
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PROJECT REFERENCE NO. U-3810	SHEET NO. 20
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION <b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	

Permit Drawing  
Sheet 40 of 64



NAD 83/2001

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

+34.60  
8.95' LT

**SITE 5**

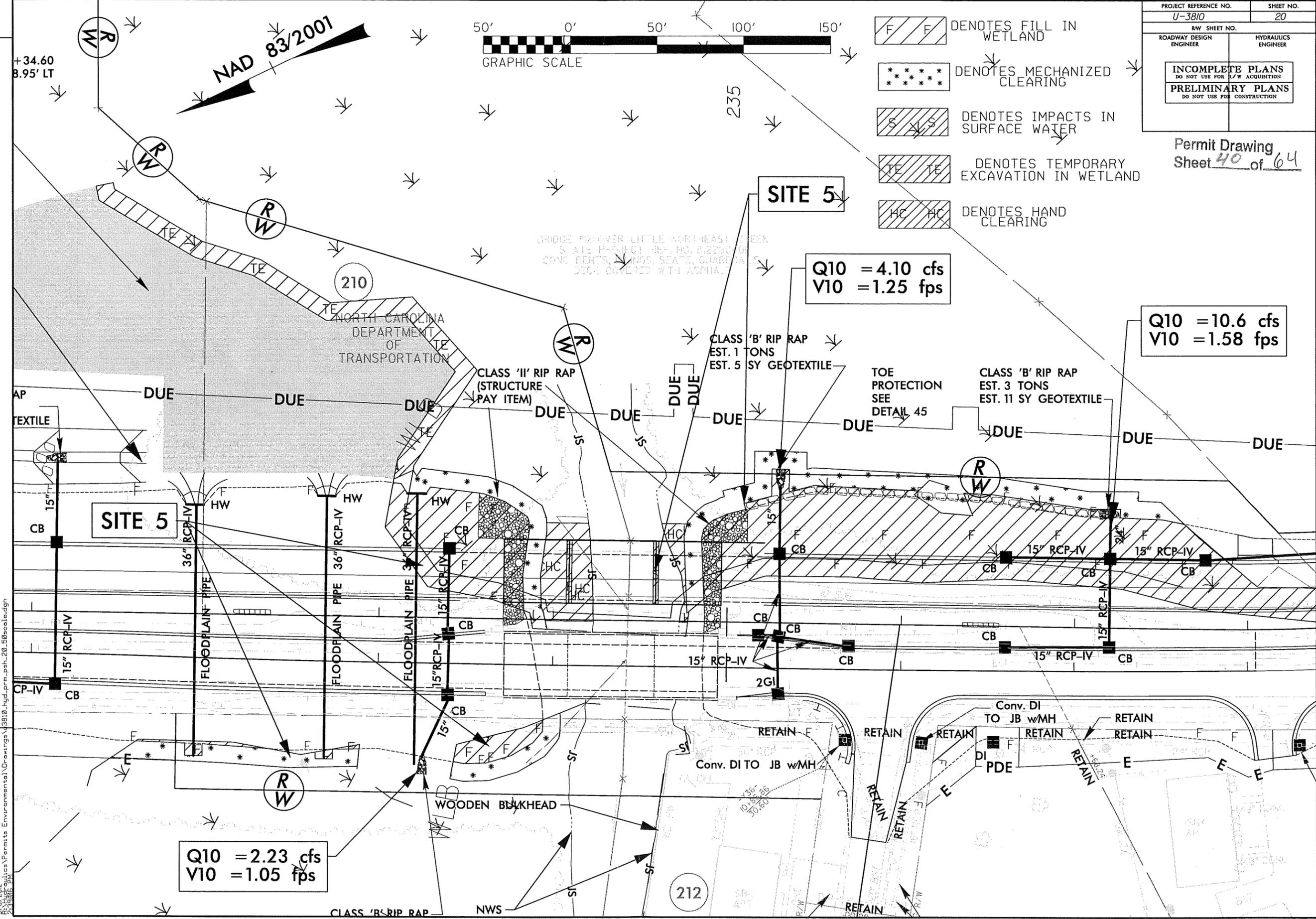
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V10 = 1.25 fps

Q10 = 10.6 cfs  
V10 = 1.58 fps

**SITE 5**

Q10 = 2.23 cfs  
V10 = 1.05 fps

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BRIDGE #12 OVER LITTLE NORTHEAST CREEK  
 STATE PROJECT #11-111, NO. P.2250  
 CONC. BENTS, BRIDGE SEATS, GUARDRAILS  
 DECK COVERED WITH ASPHALT

NORTH CAROLINA  
 DEPARTMENT  
 OF  
 TRANSPORTATION

CLASS 'II' RIP RAP  
 (STRUCTURE  
 PAY ITEM)

CLASS 'B' RIP RAP  
 EST. 1 TONS  
 EST. 5 SY GEOTEXTILE

TOE  
 PROTECTION  
 SEE  
 DETAIL 45

CLASS 'B' RIP RAP  
 EST. 3 TONS  
 EST. 11 SY GEOTEXTILE

Conv. DI TO JB w/MH

Conv. DI TO JB w/MH

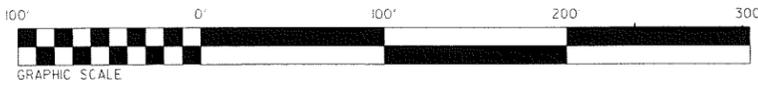
DI PDE

212

CLASS 'B' RIP RAP

NWS

REVISIONS



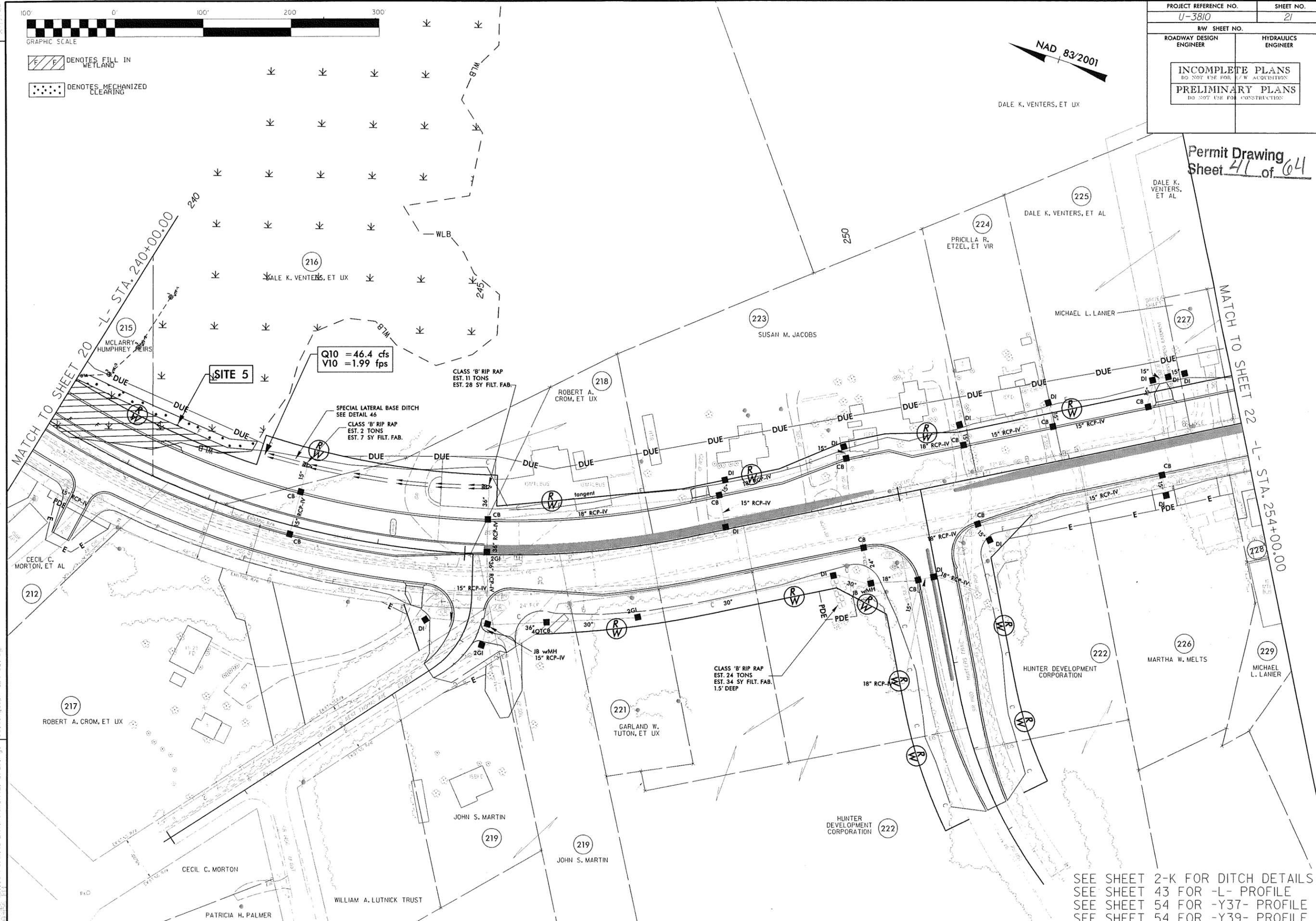
DENOTES FILL IN WETLAND  
 DENOTES MECHANIZED CLEARING

PROJECT REFERENCE NO. U-3810	SHEET NO. 21
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR ACQUISITION <b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	

NAD 83/2001  
 DALE K. VENTERS, ET UX

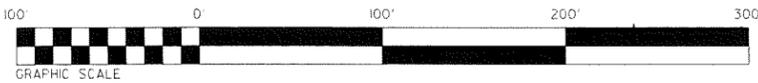
Permit Drawing  
 Sheet 41 of 64

REVISIONS



SEE SHEET 2-K FOR DITCH DETAILS  
 SEE SHEET 43 FOR -L- PROFILE  
 SEE SHEET 54 FOR -Y37- PROFILE  
 SEE SHEET 54 FOR -Y39- PROFILE

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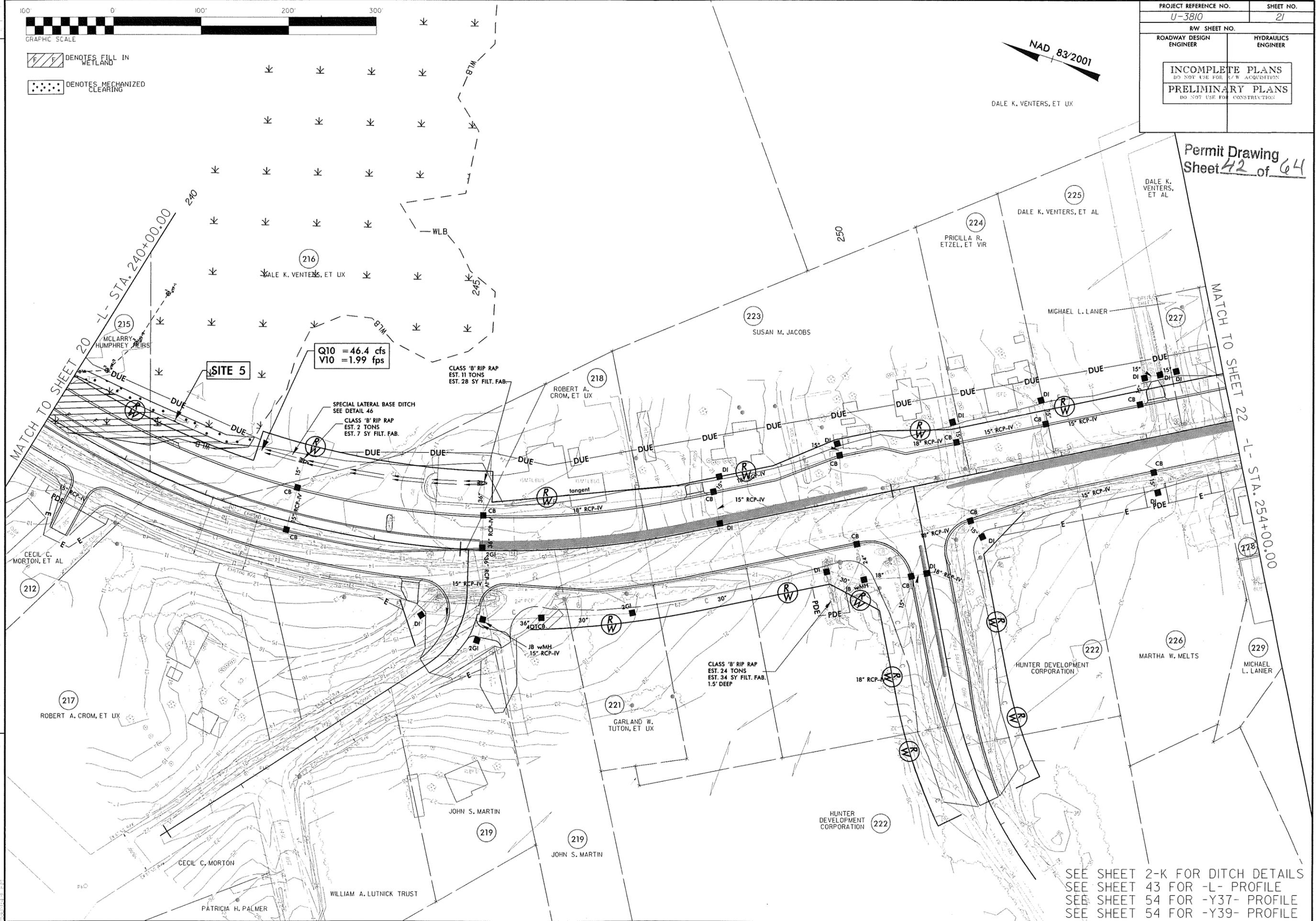
DENOTES FILL IN WETLAND  
 DENOTES MECHANIZED CLEARING

PROJECT REFERENCE NO. U-3810	SHEET NO. 21
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

NAD 83/2001  
 DALE K. VENTERS, ET UX

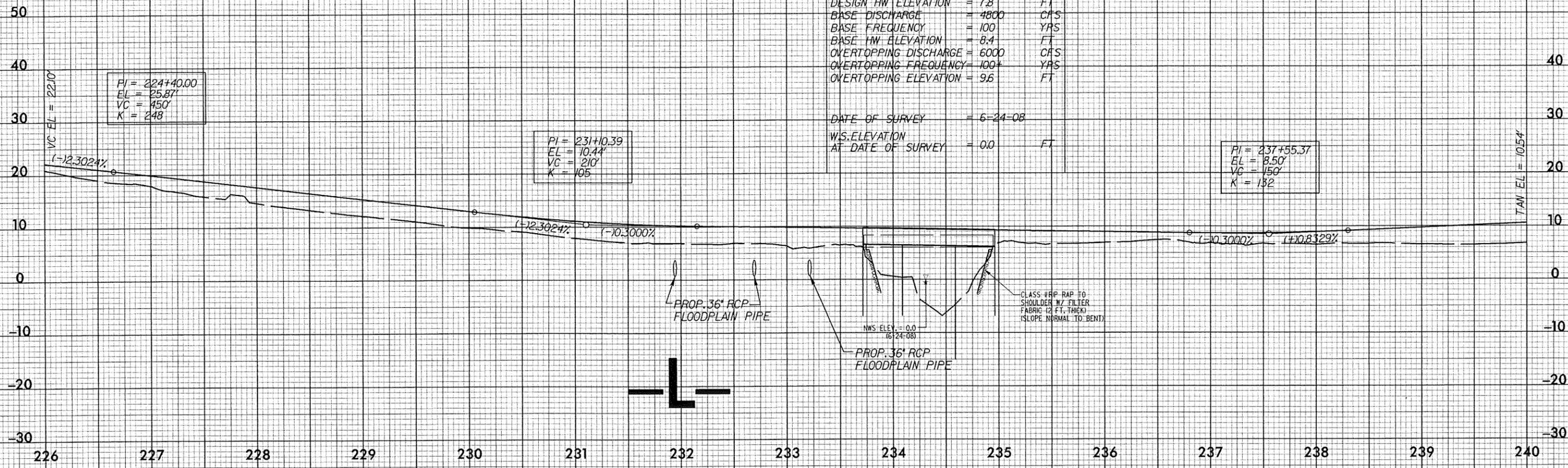
Permit Drawing  
 Sheet 42 of 64

REVISIONS



SEE SHEET 2-K FOR DITCH DETAILS  
 SEE SHEET 43 FOR -L- PROFILE  
 SEE SHEET 54 FOR -Y37- PROFILE  
 SEE SHEET 54 FOR -Y39- PROFILE

BRIDGE HYDRAULIC DATA		
DESIGN DISCHARGE	= 4300	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 7.8	FT
BASE DISCHARGE	= 4800	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 8.4	FT
OVERTOPPING DISCHARGE	= 6000	CFS
OVERTOPPING FREQUENCY	= 100+	YRS
OVERTOPPING ELEVATION	= 9.6	FT
DATE OF SURVEY = 6-24-08		
W.S. ELEVATION AT DATE OF SURVEY = 0.0 FT		



**SITE 5**

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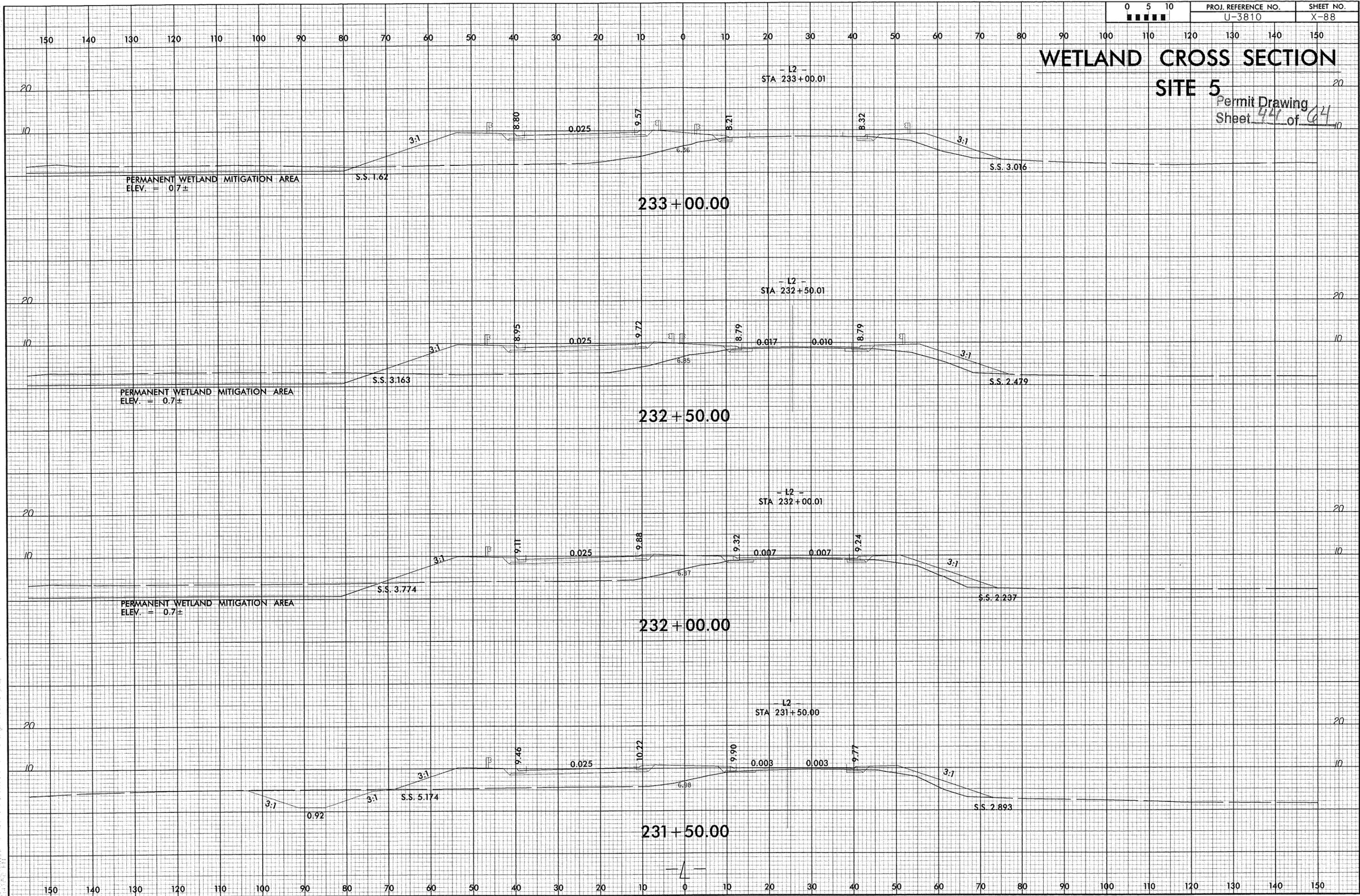
PROJ. REFERENCE NO.  
U-3810

SHEET NO.  
X-88

# WETLAND CROSS SECTION

## SITE 5

Permit Drawing  
Sheet 44 of 64



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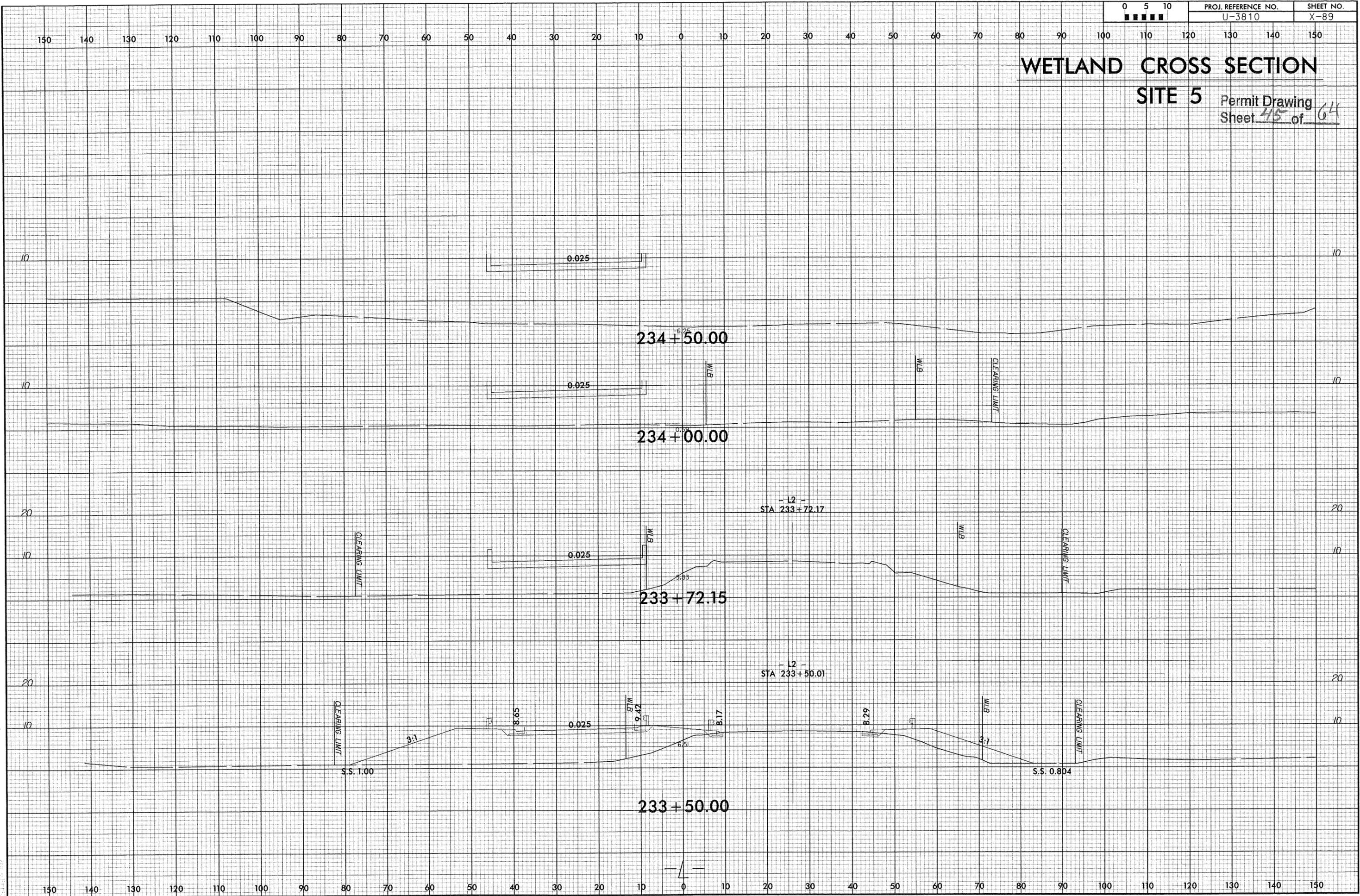
PROJ. REFERENCE NO.  
U-3810

SHEET NO.  
X-89

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# WETLAND CROSS SECTION

SITE 5 Permit Drawing  
Sheet 45 of 64



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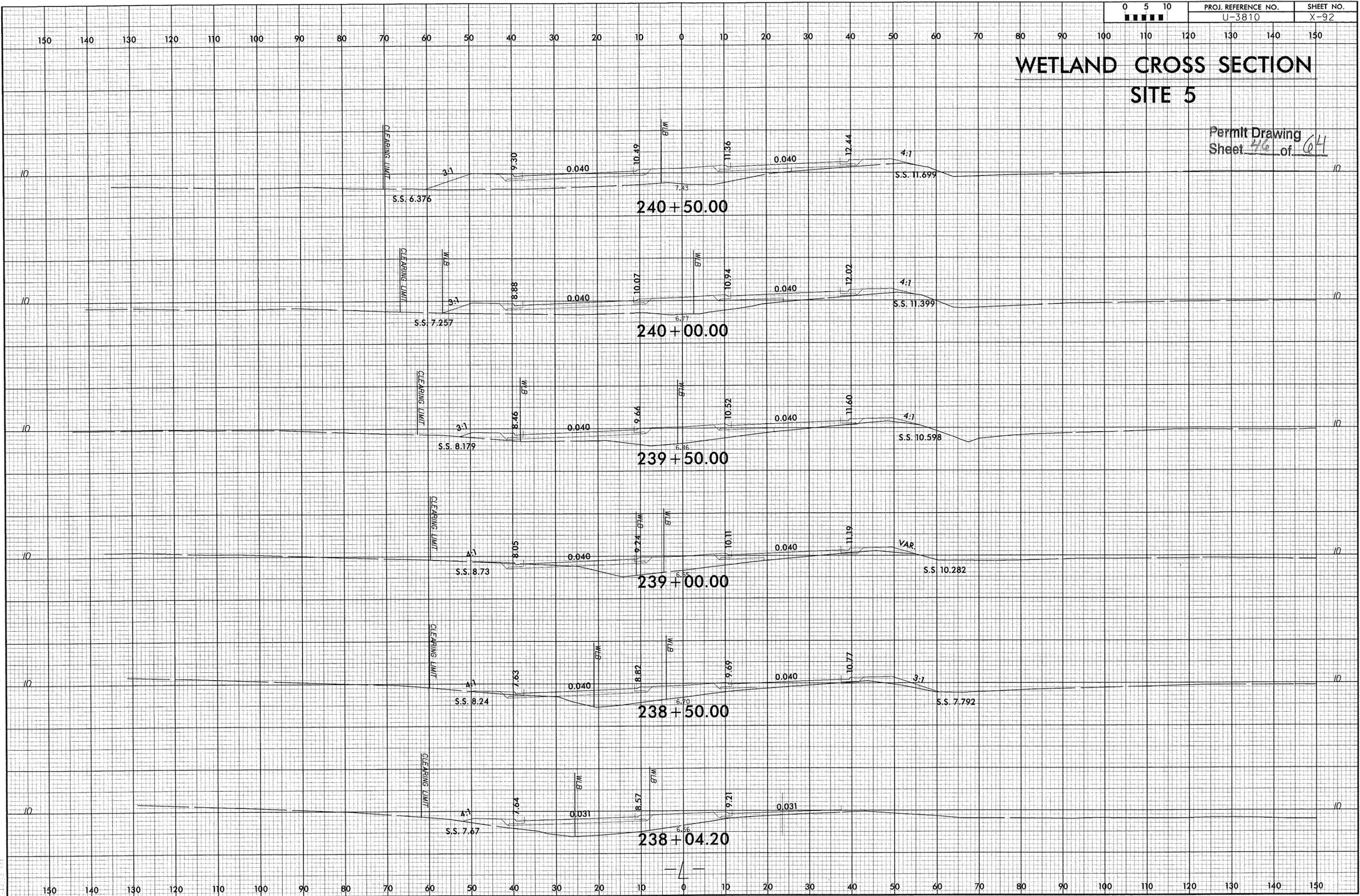
0 5 10  
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PROJ. REFERENCE NO.  
U-3810

SHEET NO.  
X-92

# WETLAND CROSS SECTION SITE 5

Permit Drawing  
Sheet 46 of 64



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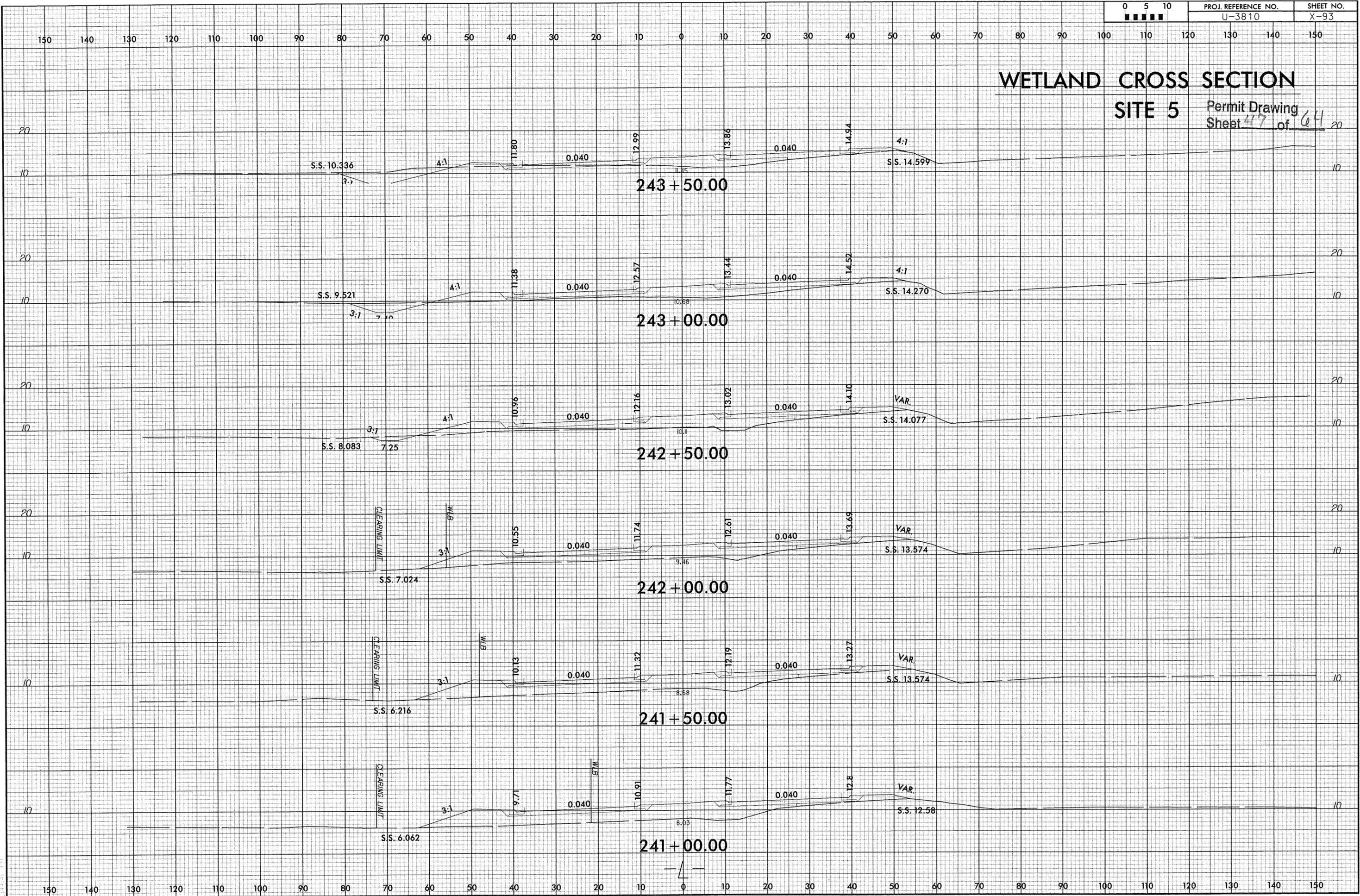
PROJ. REFERENCE NO.  
U-3810

SHEET NO.  
X-93

# WETLAND CROSS SECTION

## SITE 5

Permit Drawing  
Sheet 47 of 64



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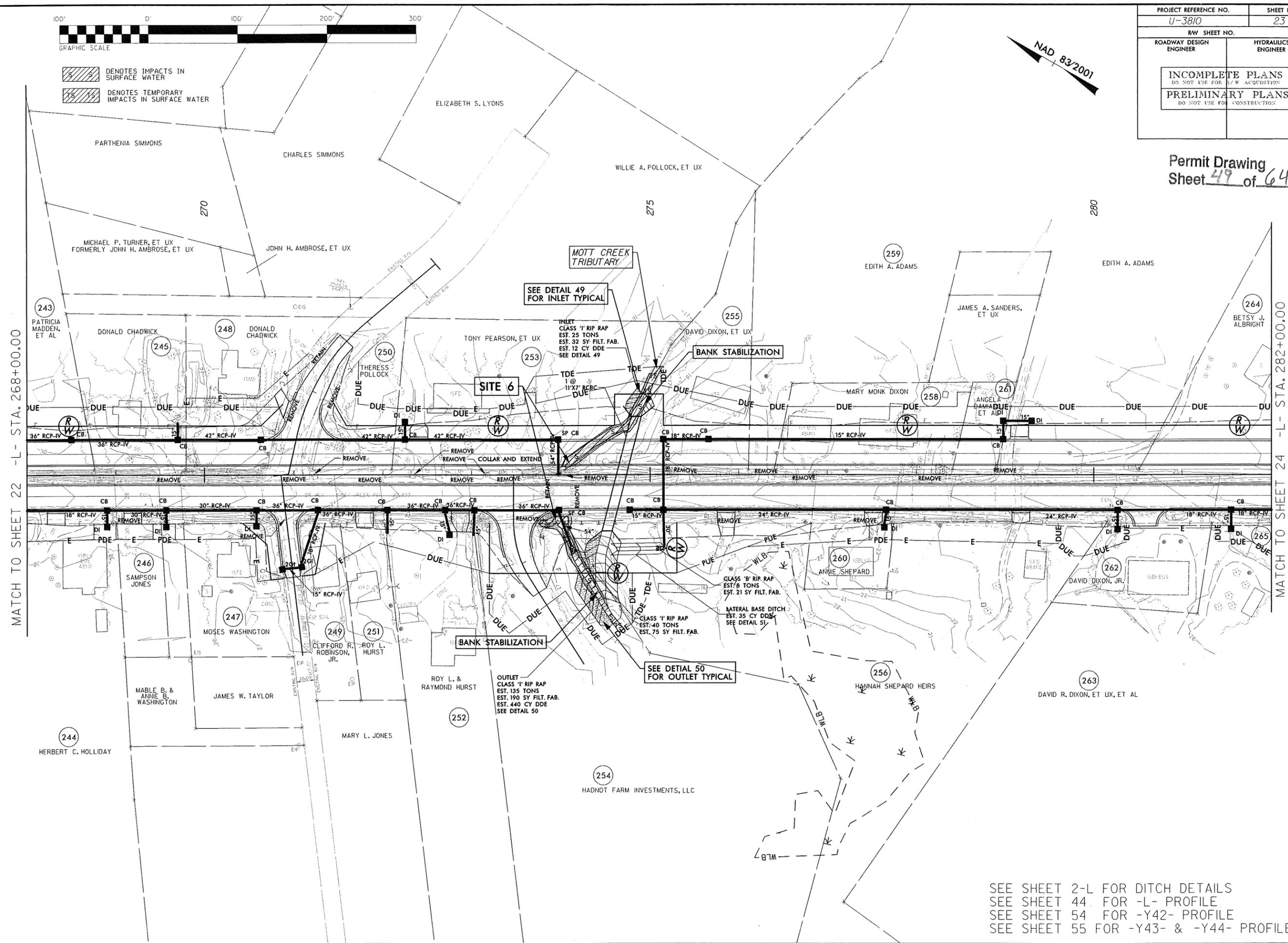




DENOTES IMPACTS IN SURFACE WATER  
 DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO. U-3810	SHEET NO. 23
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION <b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	

Permit Drawing Sheet 49 of 64



MATCH TO SHEET 22 -L- STA. 268+00.00

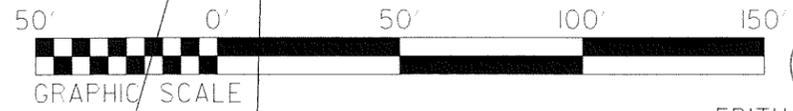
MATCH TO SHEET 24 -L- STA. 282+00.00

REVISIONS

SEE SHEET 2-L FOR DITCH DETAILS  
 SEE SHEET 44 FOR -L- PROFILE  
 SEE SHEET 54 FOR -Y42- PROFILE  
 SEE SHEET 55 FOR -Y43- & -Y44- PROFILES

10:11:2010 11:11:2010 12:11:2010 13:11:2010 14:11:2010 15:11:2010 16:11:2010 17:11:2010 18:11:2010 19:11:2010 20:11:2010 21:11:2010 22:11:2010 23:11:2010 24:11:2010 25:11:2010 26:11:2010 27:11:2010 28:11:2010 29:11:2010 30:11:2010 31:11:2010 32:11:2010 33:11:2010 34:11:2010 35:11:2010 36:11:2010 37:11:2010 38:11:2010 39:11:2010 40:11:2010 41:11:2010 42:11:2010 43:11:2010 44:11:2010 45:11:2010 46:11:2010 47:11:2010 48:11:2010 49:11:2010 50:11:2010 51:11:2010 52:11:2010 53:11:2010 54:11:2010 55:11:2010 56:11:2010 57:11:2010 58:11:2010 59:11:2010 60:11:2010 61:11:2010 62:11:2010 63:11:2010 64:11:2010

PROJECT REFERENCE NO. U-3810	SHEET NO. 23
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR ACQUISITION	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



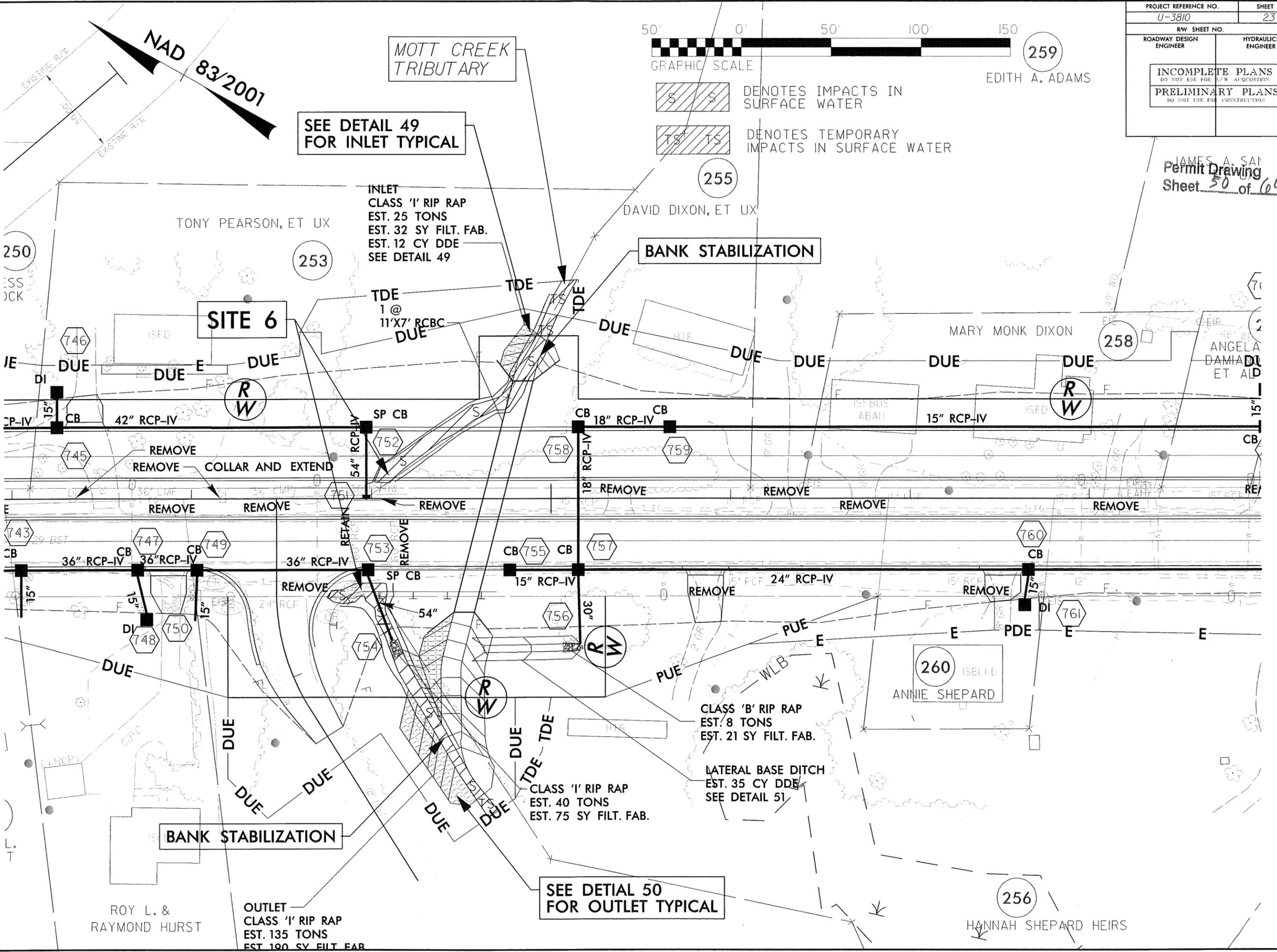
259

EDITH A. ADAMS

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

JAMES A. SA...  
Permit Drawing  
Sheet 50 of 64



REVISIONS

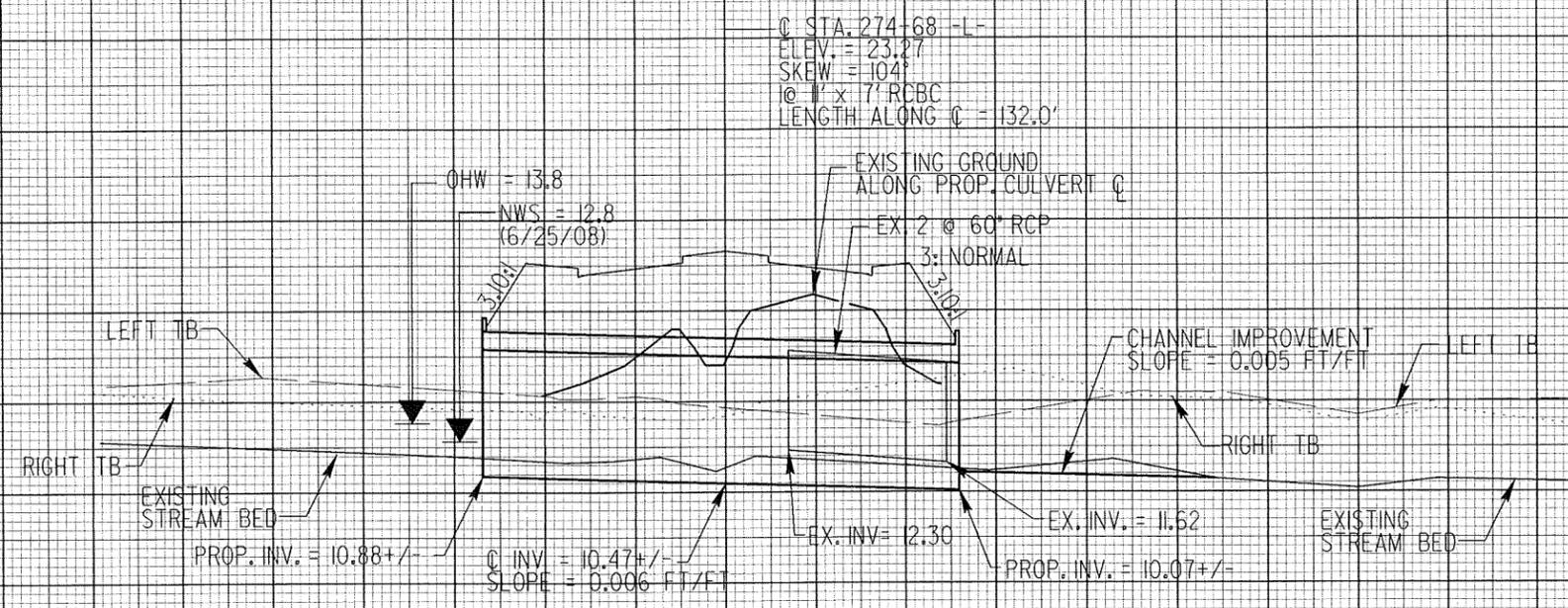
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 Encouragement  
 11/11/2010 10:41:10 AM

### SITE 6 JURISDICTIONAL STREAM PROFILE -L- 274+68

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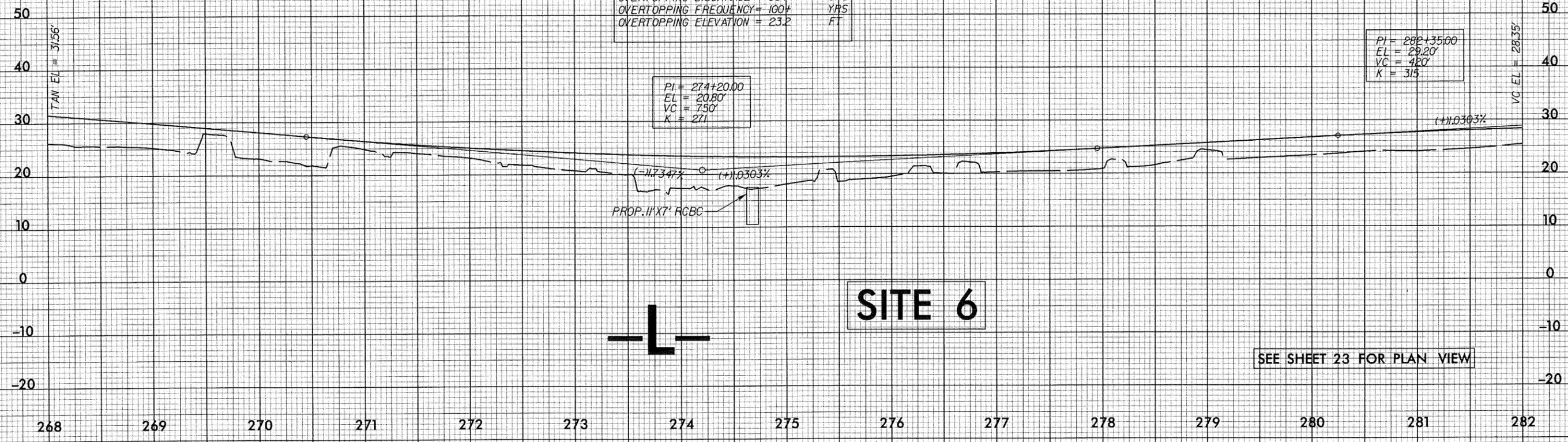
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Permit Drawing  
Sheet 52 of 64

CULVERT HYDRAULIC DATA		
-L- STA. 274+68		
DESIGN DISCHARGE	= 550	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 18.8	FT
BASE DISCHARGE	= 650	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 20.0	FT
OVERTOPPING DISCHARGE	= 864	CFS
OVERTOPPING FREQUENCY	= 100+	YRS
OVERTOPPING ELEVATION	= 23.2	FT

PI = 274+20.00  
EL = 20.80'  
VC = 7.50'  
K = 271

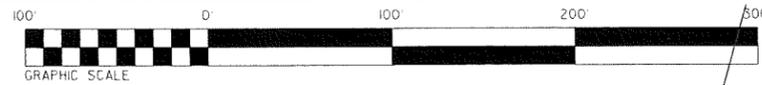
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EL = 29.20'  
VC = 4.00'  
K = 315



**SITE 6**

SEE SHEET 23 FOR PLAN VIEW

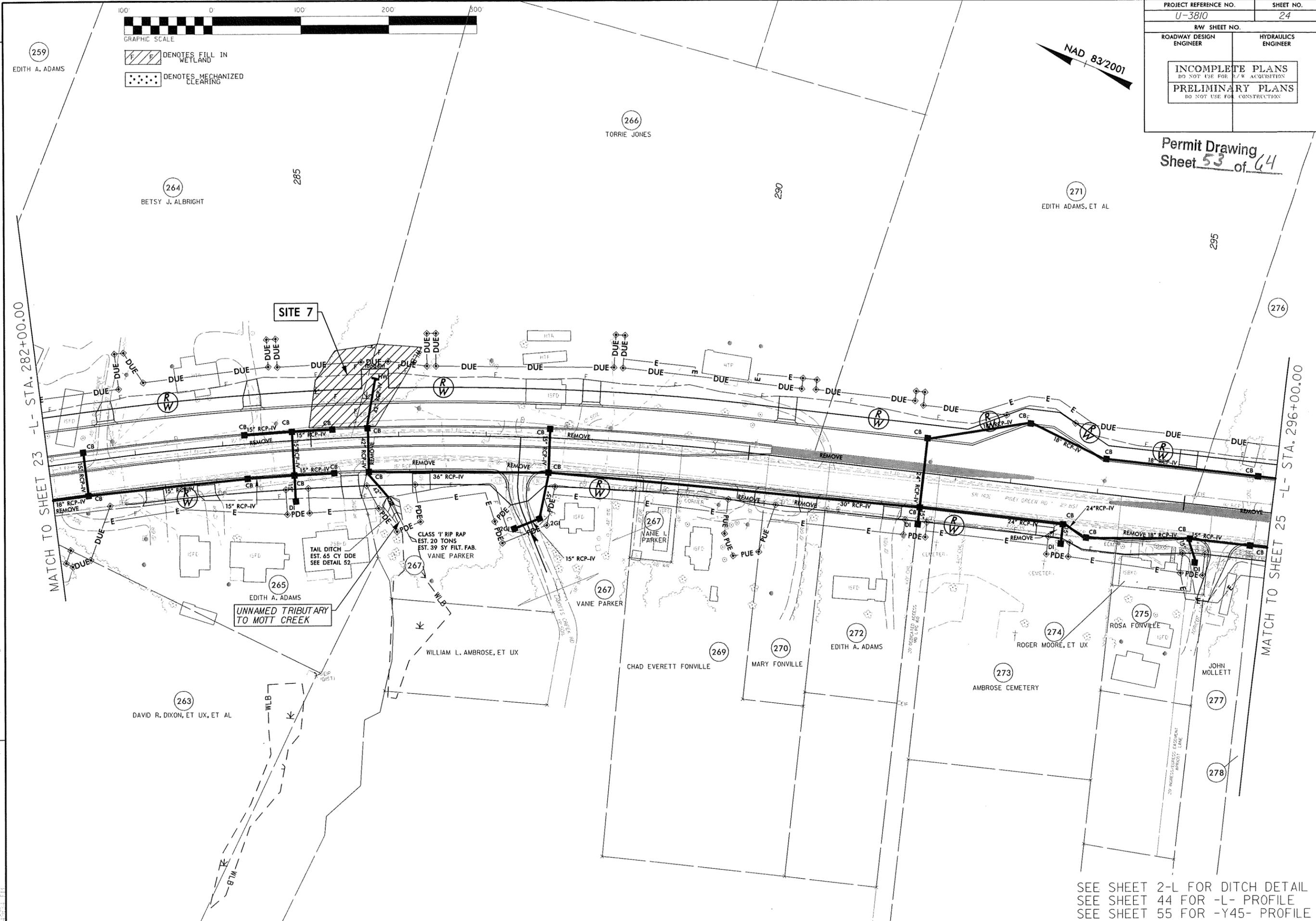
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DENOTES FILL IN WETLAND  
 DENOTES MECHANIZED CLEARING

PROJECT REFERENCE NO. U-3810	SHEET NO. 24
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION <b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	

Permit Drawing  
Sheet 53 of 64



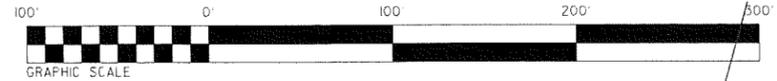
MATCH TO SHEET 23 -L- STA. 282+00.00

MATCH TO SHEET 25 -L- STA. 296+00.00

REVISIONS

SEE SHEET 2-L FOR DITCH DETAIL  
 SEE SHEET 44 FOR -L- PROFILE  
 SEE SHEET 55 FOR -Y45- PROFILE

10/11/2011 Project Parents Environmental Engineering 3810.dwg (per.mpb, 24.dwg)

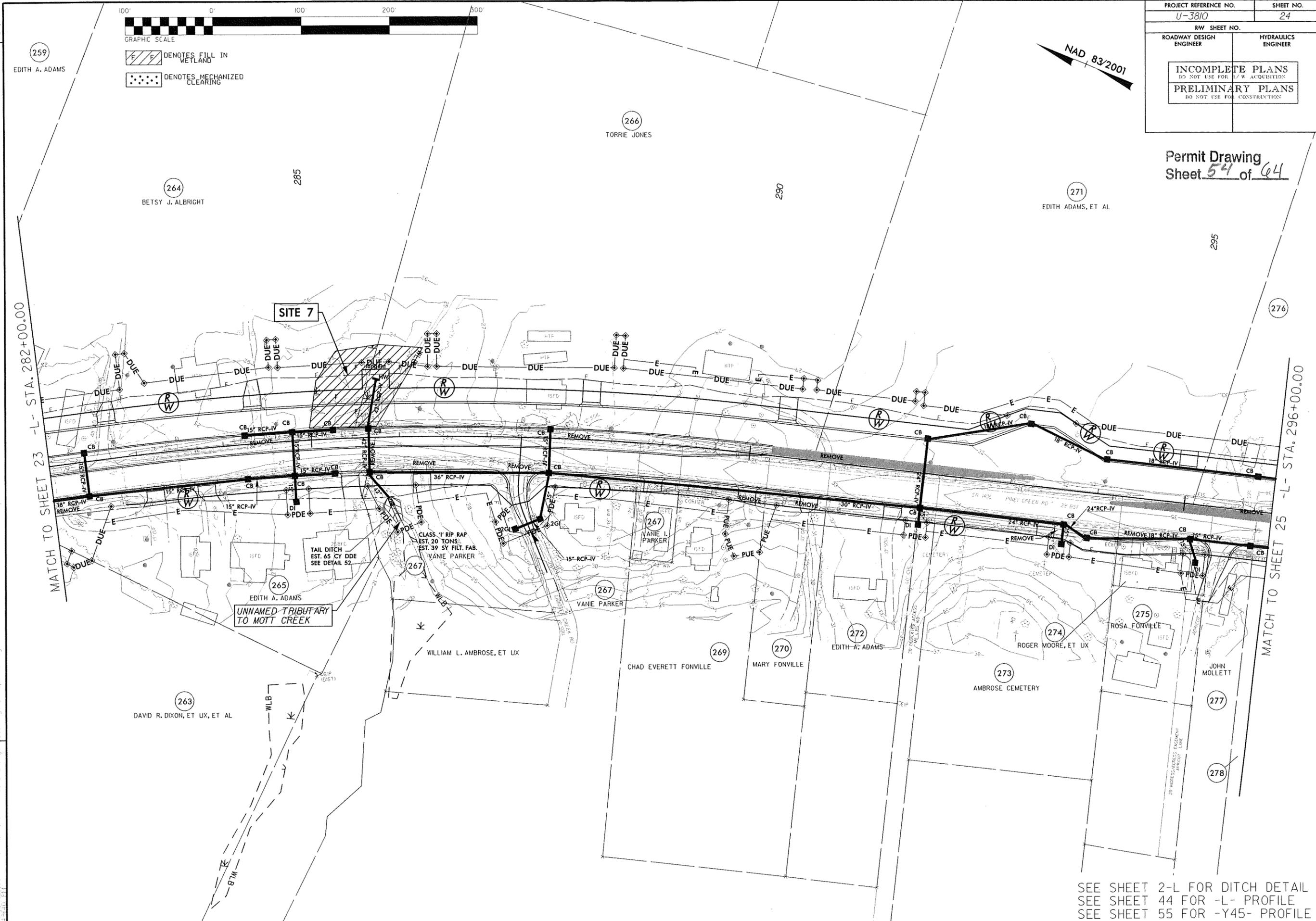


DENOTES FILL IN WETLAND  
 DENOTES MECHANIZED CLEARING

PROJECT REFERENCE NO. U-3810		SHEET NO. 24	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION		PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



Permit Drawing  
 Sheet 54 of 64



SEE SHEET 2-L FOR DITCH DETAIL  
 SEE SHEET 44 FOR -L- PROFILE  
 SEE SHEET 55 FOR -Y45- PROFILE

2010/01/21 11:51 AM C:\Users\j... Environmental\10-3810\figd\perm\psb\_24.dgn  
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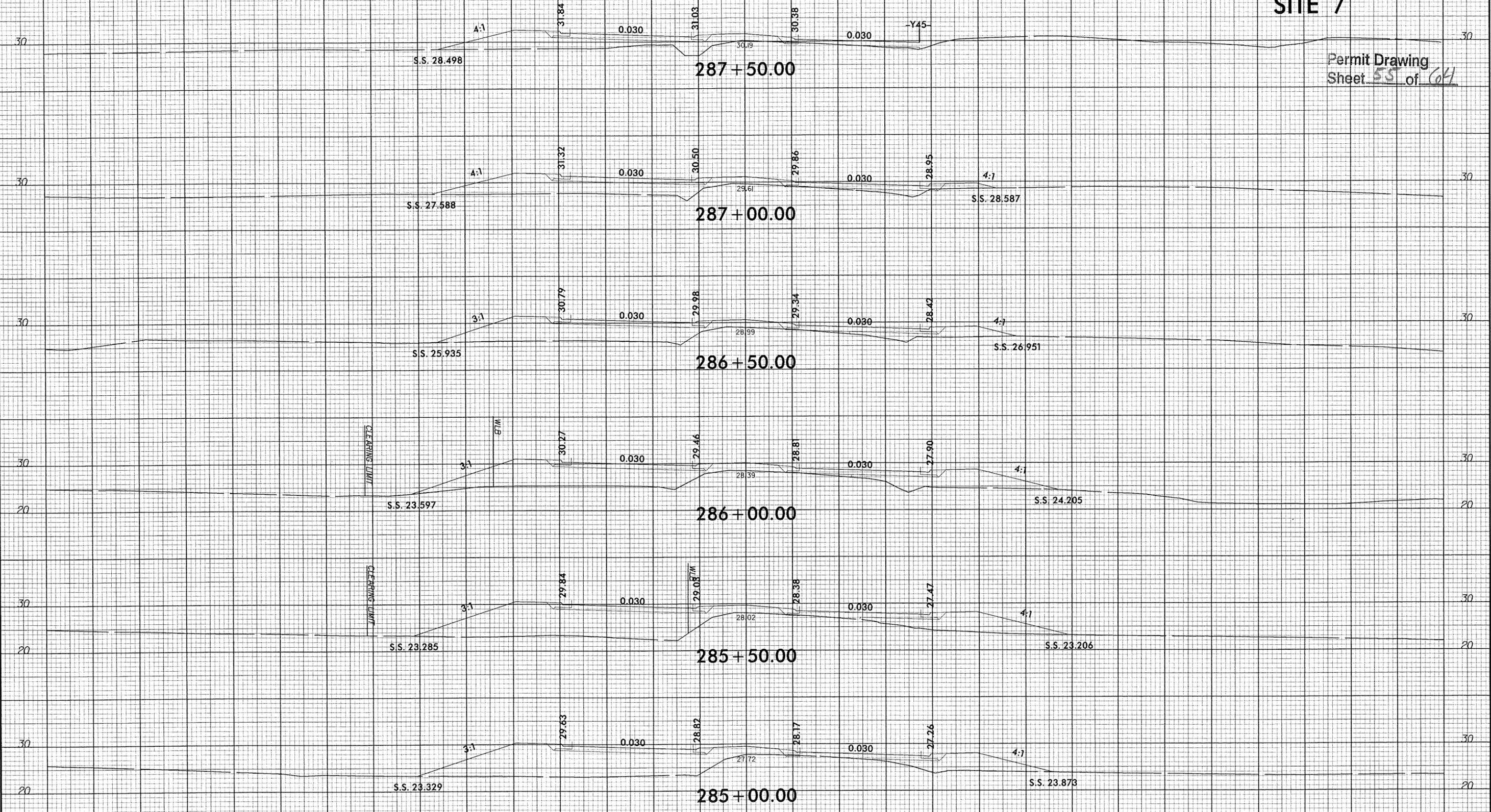
PROJ. REFERENCE NO.  
U-3810

SHEET NO.  
X-109

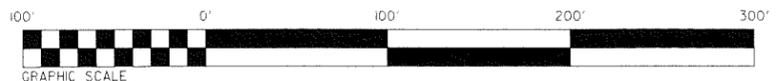
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# WETLAND CROSS SECTION SITE 7

Permit Drawing  
Sheet 55 of 64



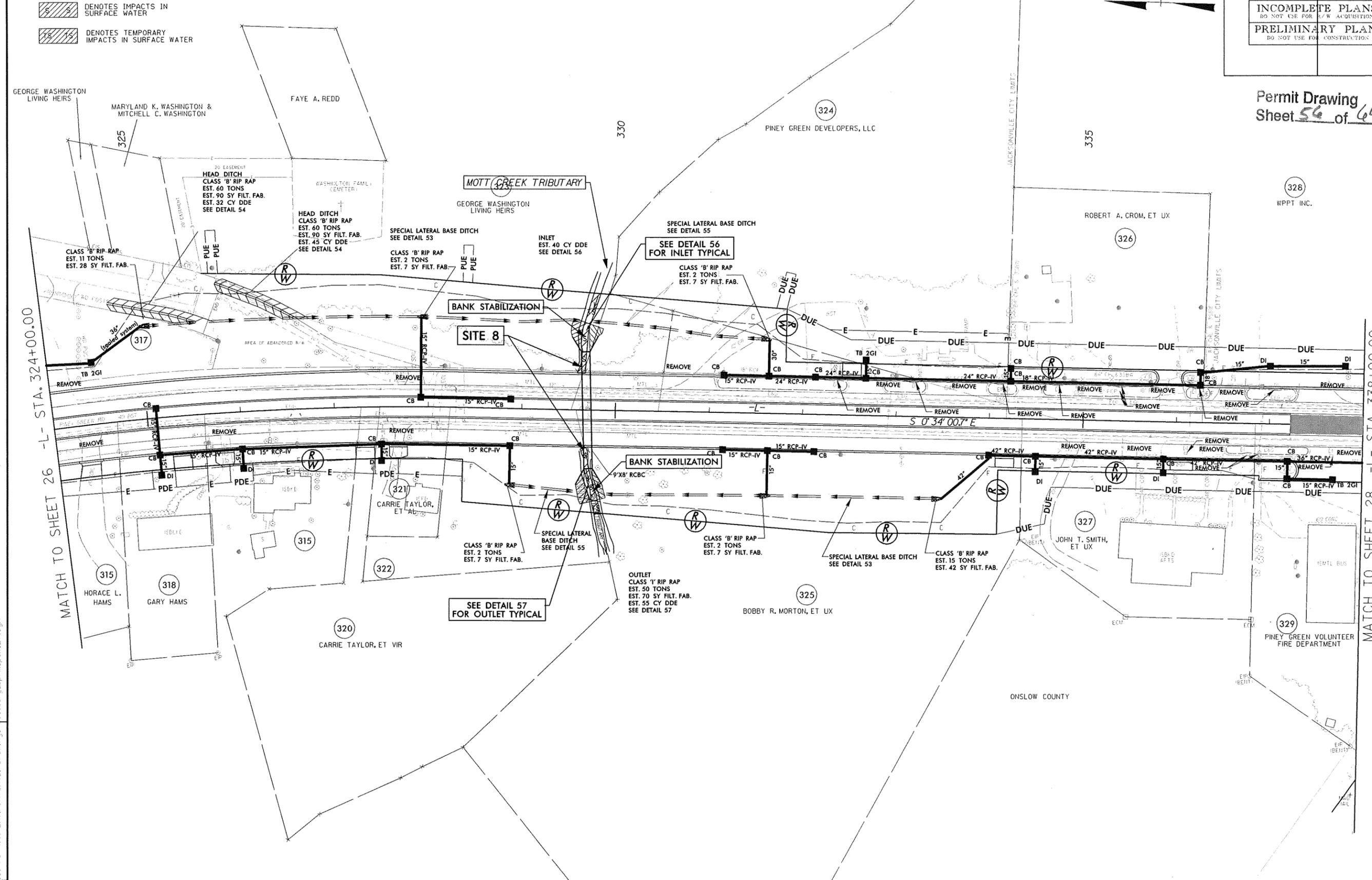
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PROJECT REFERENCE NO. U-3810	SHEET NO. 27
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR ACQUISITION <b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	

NAD 83/2001

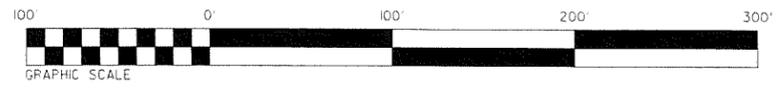
Permit Drawing  
Sheet 56 of 64



REVISIONS

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 3/17/24

SEE SHEET 2-L FOR DITCH DETAILS  
SEE SHEET 46 FOR -L- PROFILE

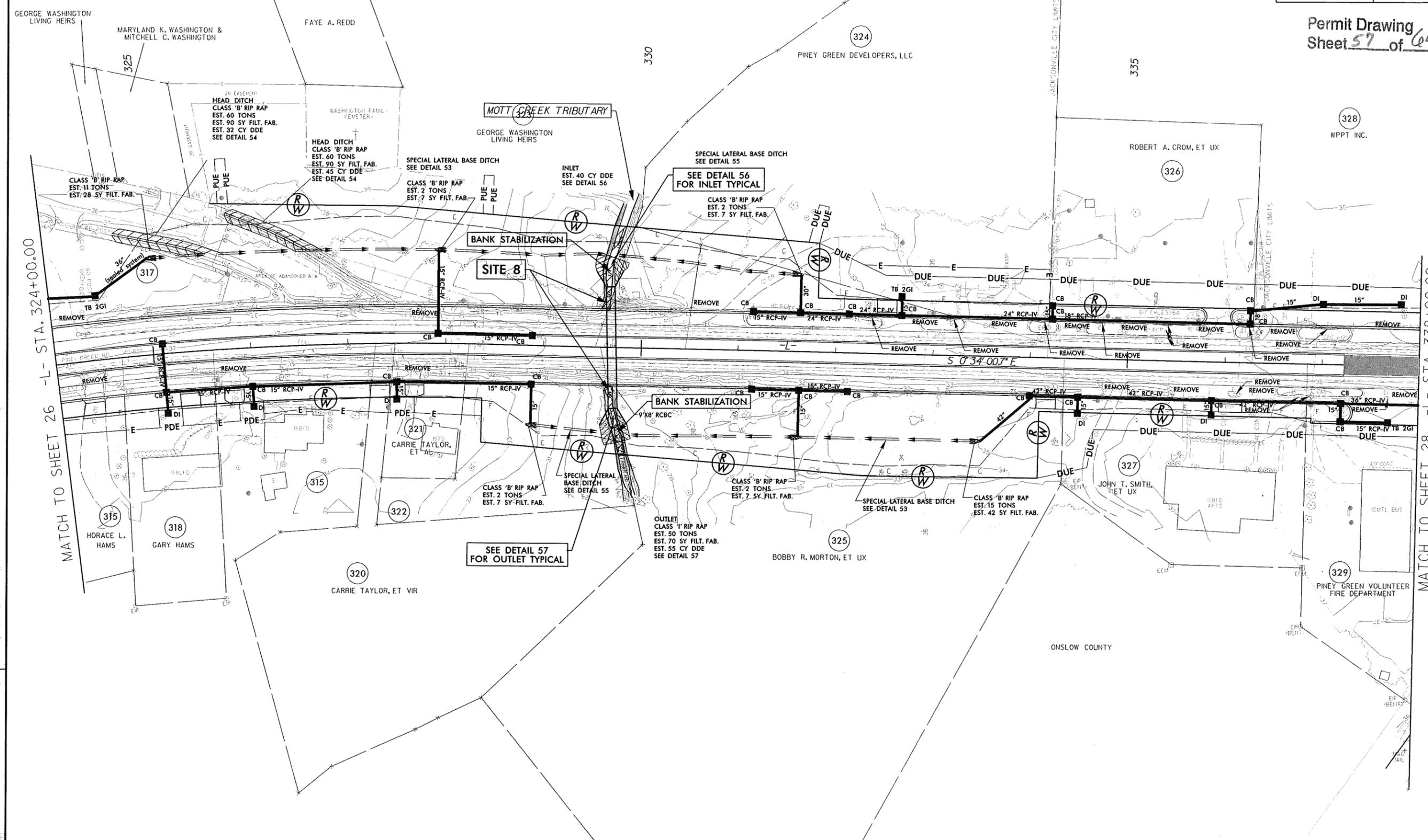


DENOTES IMPACTS IN SURFACE WATER  
 DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO. U-3810	SHEET NO. 27
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION <b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	

Permit Drawing Sheet 57 of 64

NAD 83/2001



MATCH TO SHEET 26 -L- STA. 324+00.00

MATCH TO SHEET 28 -L- STA. 338+00.00

REVISIONS

D:\11-2011\11-2011-Permits-Environmental\Drawings\3810-Engd-perm-path-27.dwg

SEE SHEET 2-L FOR DITCH DETAILS  
SEE SHEET 46 FOR -L- PROFILE

NAD 83/2001



GRAPHIC SCALE



DENOTES IMPACTS IN SURFACE WATER



DENOTES TEMPORARY IMPACTS IN SURFACE WATER

SPECIAL LATERAL BASE DITCH  
SEE DETAIL 55

SEE DETAIL 56  
FOR INLET TYPICAL

CLASS 'B' RIP RAP  
EST. 2 TONS  
EST. 7 SY FILT. FAB.

INLET  
EST. 40 CY DDE  
SEE DETAIL 56

SPECIAL LATERAL BASE DITCH  
SEE DETAIL 53

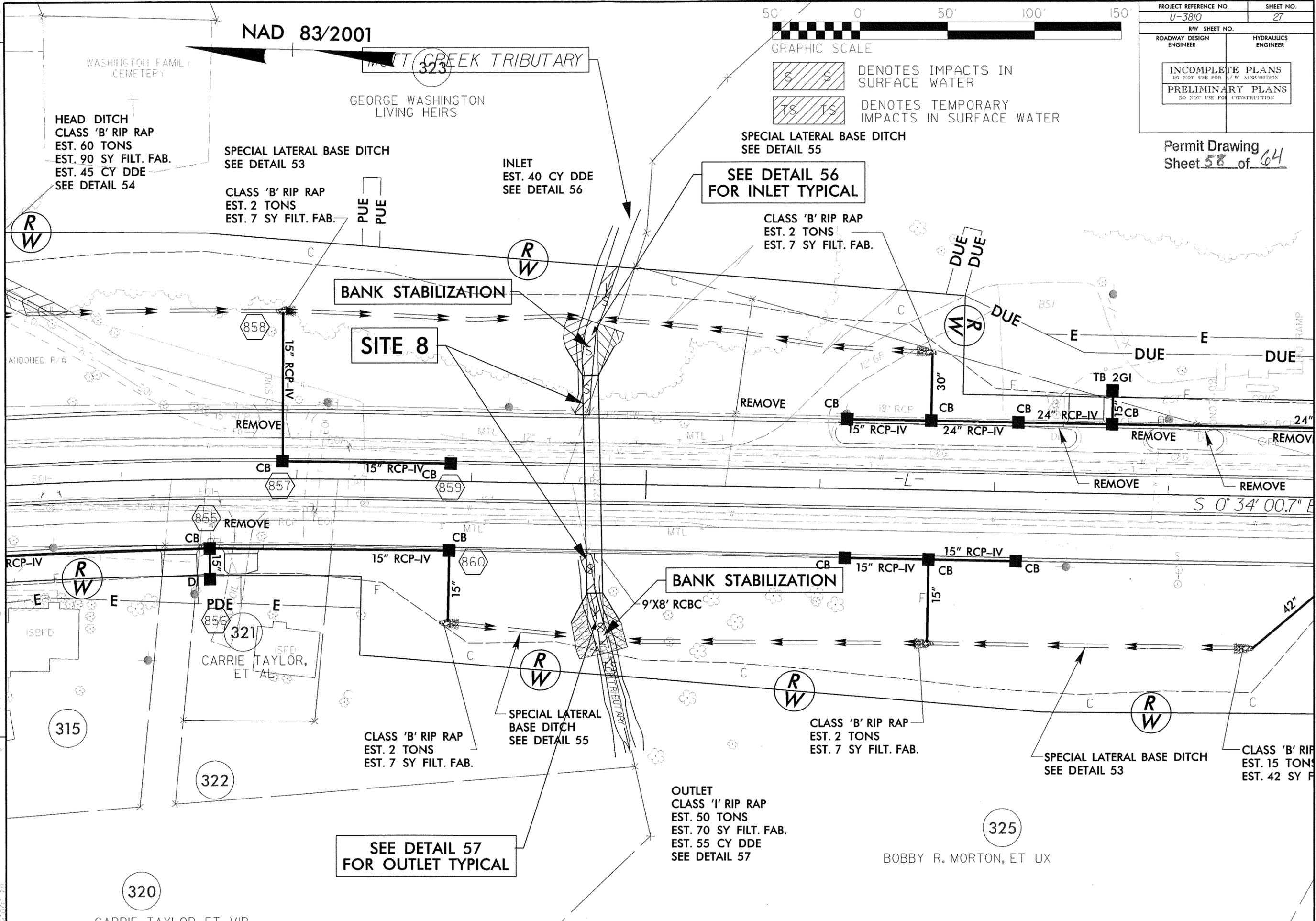
CLASS 'B' RIP RAP  
EST. 2 TONS  
EST. 7 SY FILT. FAB.

HEAD DITCH  
CLASS 'B' RIP RAP  
EST. 60 TONS  
EST. 90 SY FILT. FAB.  
EST. 45 CY DDE  
SEE DETAIL 54

PROJECT REFERENCE NO. U-3810	SHEET NO. 27
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

Permit Drawing  
Sheet 58 of 64

REVISIONS



SEE DETAIL 57  
FOR OUTLET TYPICAL

OUTLET  
CLASS 'I' RIP RAP  
EST. 50 TONS  
EST. 70 SY FILT. FAB.  
EST. 55 CY DDE  
SEE DETAIL 57

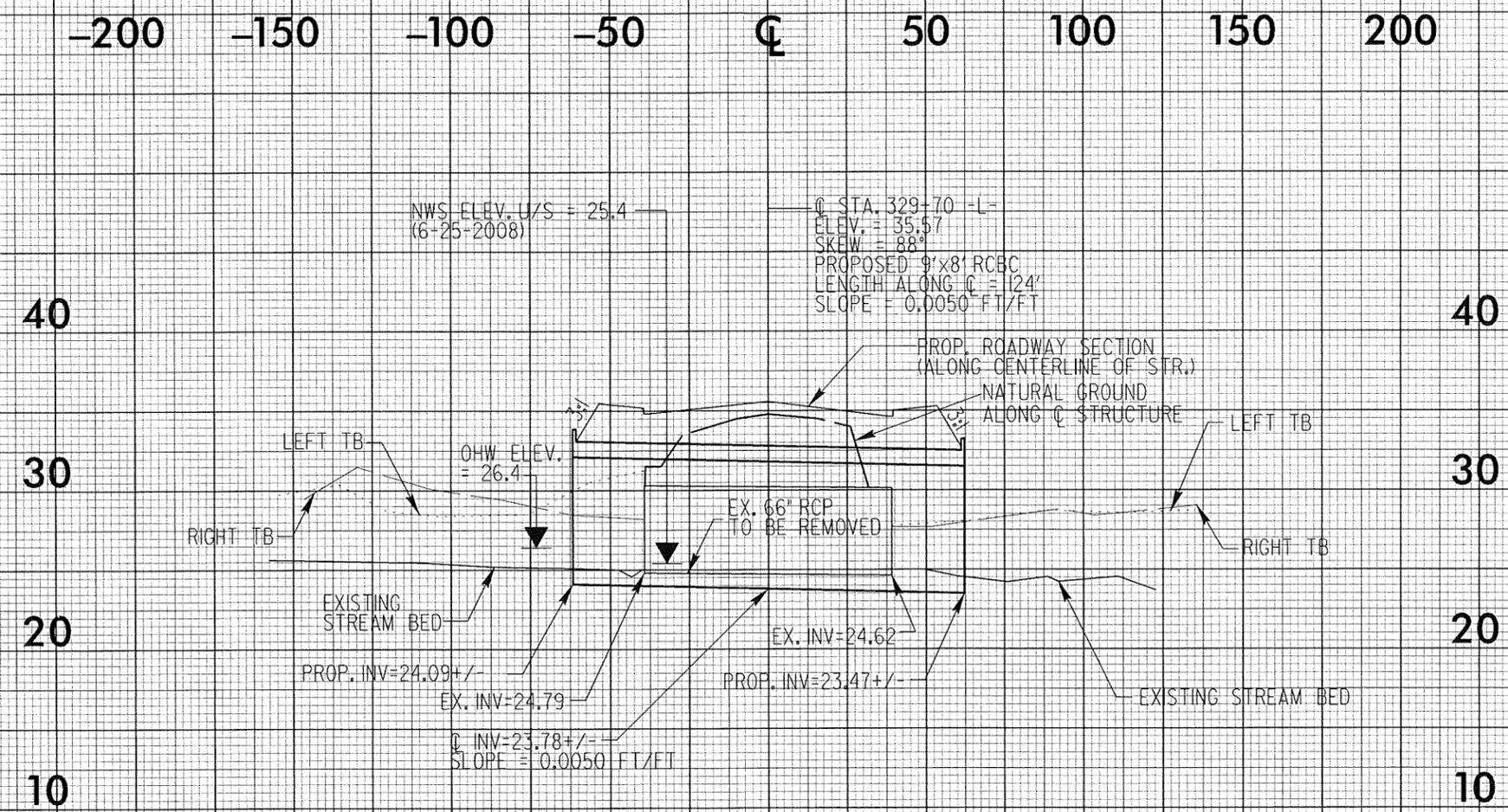
325

BOBBY R. MORTON, ET UX

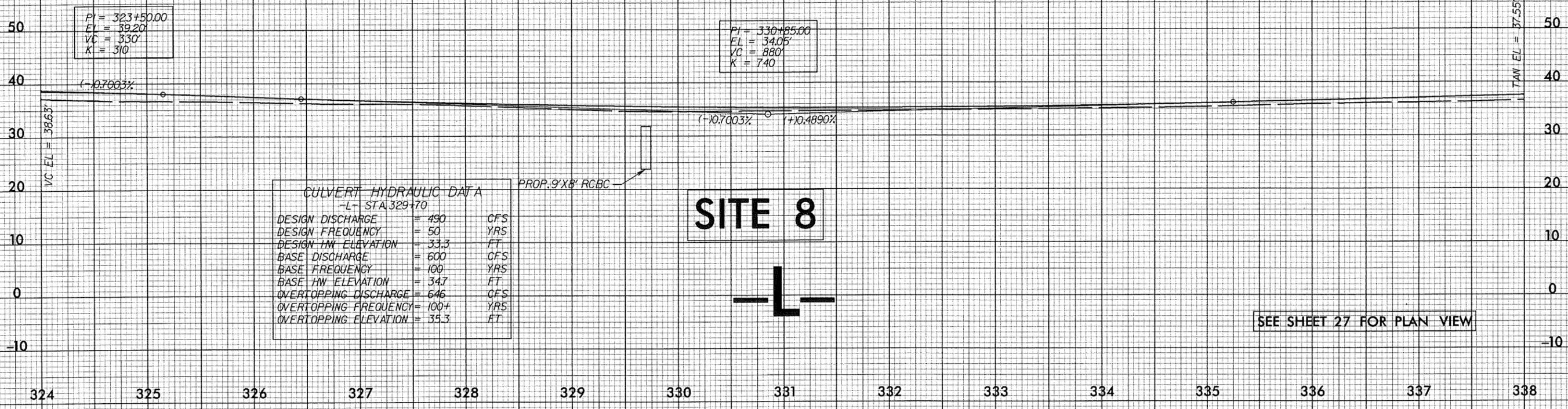
320

CARRIE TAYLOR, ET VIR

### SITE 8 JURISDICTIONAL STREAM PROFILE -L- 329+70



D:\B\308\308.dwg 10/10/08 10:00 AM



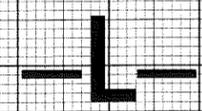
PI = 323+50.00  
EI = 39.20'  
VC = 330'  
K = 310

PI = 330+85.00  
EI = 34.05'  
VC = 880'  
K = 740

CULVERT HYDRAULIC DATA  
L- STA 329+70

DESIGN DISCHARGE	= 490	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 33.3	FT
BASE DISCHARGE	= 600	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 34.7	FT
OVERTOPPING DISCHARGE	= 646	CFS
OVERTOPPING FREQUENCY	= 100+	YRS
OVERTOPPING ELEVATION	= 35.3	FT

**SITE 8**



SEE SHEET 27 FOR PLAN VIEW

# PROPERTY OWNERS

NAMES AND ADDRESSES

REFERENCE NO.	NAMES	ADDRESSES
5	A.G.LEE OIL COMPANY, INC.	PO BOX 237 SMITHFIELD, NC 27577
49	ADAM YAGER	405 PINEY GREEN ROAD JACKSONVILLE, NC 28546
51	CANDICE THOMPSON	104 MARION PLACE JACKSONVILLE, NC 28546
52	WILLIAM LOWDER	732 LYNCHBURG DRIVE JACKSONVILLE, NC 28546
73	DALE E. JOHNSON	312 PEBBLE LANE JACKSONVILLE, NC 28546
74	ILENA GILBERT	567 PINEY GREEN ROAD JACKSONVILLE, NC 28546
75	CHARLES M. SPENCER	1009 BEECH TREE ROAD JACKSONVILLE, NC 28546
85	WILLIE HALL	444 GRANTS CREEK ROAD JACKSONVILLE, NC 28546
86	RONALD MABEE	2476 NORTHWOODS AVE. JACKSONVILLE, NC 28540
87	J&J REALTY, INC	PO BOX 7252 JACKSONVILLE, NC 28540
104	GEORGE HOWARD, JR.	100 PRESTON DR. JACKSONVILLE, NC 28540
105	ONSLow COUNTY	118 OLD BRIDGE STREET JACKSONVILLE, NC 28540

NCDOT

DIVISION OF HIGHWAYS

ONSLow COUNTY

PROJECT: U-3810

SR 1406 (PINEY GREEN ROAD)

FROM US 17 (MARINE BLVD)

TO NC 24 (FREEDOM WAY)

Permit Drawing  
SHEET 61 OF 64 10/11/11

# PROPERTY OWNERS

NAMES AND ADDRESSES

REFERENCE NO.	NAMES	ADDRESSES
143	HOWARD AND SONS RENTALS	100 PRESTON DR. JACKSONVILLE, NC 28540
146	C.M.S., INC	PO BOX 5052 JACKSONVILLE, NC 28540
147	W.R. WILLIS RENTALS	123 TIGER HILL DR. JACKSONVILLE, NC 28546
148	KENNETH DIXON	2121 KINSTON HWY. RICHLANDS, NC 28574
173	HOYT T. MARTIN	1551 PINEY GREEN ROAD JACKSONVILLE, NC 28540
174	WHITE OAK RIVER ROAD INVESTMENTS	2705 WHITE OAK RIVER ROAD MAYSVILLE, NC 28555
175	CATHERINE S. AMAN	122 OLD 30 ROAD JACKSONVILLE, NC 28546
208	TOMMY MORTON, JR.	1844 PINEY GREEN ROAD JACKSONVILLE, NC 28546
210	NCDOT	306 DIVISION DRIVE WILMINGTON, NC 28401
211	ANNETTE MCKNIGHT	3305 MEADOW RUN DRIVE DURHAM, NC 27707
215	MCLARRY HUMPHREY	5000 STENTON AVE. PHILADELPHIA, PA 19144

**NCDOT**  
 DIVISION OF HIGHWAYS  
 ONSLOW COUNTY  
 PROJECT: U-3810  
 SR 1406 (PINEY GREEN ROAD)  
 FROM US 17 (MARINE BLVD)  
 TO NC 24 (FREEDOM WAY)

SHEET 02 OF 64  
 Permit Drawing  
 Sheet 02 of 64

10 / 11 / 11

PROPERTY OWNERS  
NAMES AND ADDRESSES

REFERENCE NO.	NAMES	ADDRESSES
216	DALE VENTERS	2043 PINEY GREEN ROAD JACKSONVILLE, NC 28540
253	TONY PEARSON	2195 PINEY GREEN ROAD JACKSONVILLE, NC 28540
254	ONSLow CARTERET PROPERTIES	PO BOX 7287 JACKSONVILLE, NC 28541
264	BETSY ALBRIGHT	2273 PINEY GREEN ROAD MIDWAY PARK, NC 28544
266	EDITH ADAMS	2282 PINEY GREEN ROAD MIDWAY PARK, NC 28544
323	GEORGE WAHINGTON LIVING HEIRS	108 BURNETTE STREET JACKSONVILLE NC 28546
324	PINEY GREEN DEVELOPERS	PO BOX 1685 JACKSONVILLE, NC 28540
322	TOMMY MORTON, JR.	2626 PINEY GREEN ROAD MIDWAY PARK, NC 28544
325	BOBBY MORTON	1212 DECATUR ROAD JACKSONVILLE, NC 28540

**NCDOT**  
 DIVISION OF HIGHWAYS  
 ONSLOW COUNTY  
 PROJECT: U-3810  
 SR 1406 (PINEY GREEN ROAD)  
 FROM US 17 (MARINE BLVD)  
 TO NC 24 (FREEDOM WAY)

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)	Temp. 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	-L- 50+67 to 52+76	1@9'x8' RCBC								0.02	<0.01	121.00	15.00	
	Bank Stabilization									0.01		116.00		
2	-L- 79+00 to 86+30	305' Bridge	0.49		0.02			0.15	0.03	0.01		86.00		
3	117+87 to 119+25 Lt/Rt	42" RCP / 36" RCP / 48" RCP	0.02					0.02		0.01	<0.01	88.00	16.00	
4	-L- 165+53 to 168+89	3@10'x9' RCBC	0.32		0.09	0.02 <sub>1</sub>		0.13		0.10	0.01	290.00	48.00	
	Bank Stabilization									0.01		28.00		
5	-L- 231+47 to 242+32	125' Bridge	0.72			0.07 <sub>2</sub>		0.22	0.04	<0.01		36.00		
6	-L-273+75 to 274+85	1@11'x7' RCBC								0.03	0.01	209.00	47.00	
	Bank Stabilization									0.01		73.00		
7	-L- 284+98 to 286+16 Lt	42" RCP	0.19											
8	-L-329+58 to 329+72	1@9'x8' RCBC								0.01	0.01	45.00	49.00	
	Bank Stabilization									0.01		66.00		
9	-Y- 21+80 to 23+60 Lt.	Roadway Fill	0.10											
10	-L- 11+50 Rt.	Proposed Ditch	0.01		0.06									
11	-L- 69+55 to 70+09 Lt/Rt	42" RCP / 24" RCP								0.01	<0.01	110.00	21.00	
	Bank Stabilization									<0.01		26.00		
12	-L- 192+46 Rt/Lt	48" RCP								0.01	<0.01	115.00	11.00	
	-L- 194+10 Rt	Proposed Ditch								<0.01	<0.01	40.00	20.00	
TOTALS:			1.85	0.00	0.17	0.09	0.52	0.07	0.23	0.03	1449.00	227.00		

Bent Impacts at Bridge Site 2 = 240 SF  
<sub>1</sub>Temporary Excavation due to Temporary Diversion for Proposed Culvert Phasing  
<sub>2</sub>Temporary Excavation due to Mitigation Site  
 Bent Impacts at Bridge Site 5 = 240 SF  
 Site 5 Wetland Mitigation = 1.05 Ac.

NC DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
  
 ONSLOW COUNTY  
 WBS - 35801.1.1 (U-3810)  
  
 SHEET 3/20/2012