



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT L. MCCRORY
GOVERNOR

ANTHONY J. TATA
SECRETARY

September 23, 2013

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

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

SUBJECT: New Hanover and Brunswick Counties, Wilmington Bypass, from
US 17 in Brunswick County, north of the NC 87 Intersection, to US
421; Federal Aid NHF-0017 (96) and STM-0017 (97); WBS
Element 34491.1.3.GV2, 34491.3.ST1, 34491.1.2; **TIP R-2633B.**

Attached are modifications to 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 Major Development Permit, and the U.S. Coast Guard Permit. These modifications and permits approve construction of Section B. Except as revised by these modifications, all permit conditions in the original R-2633 permits remain valid.

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, P.E., 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 3 Environmental Officer
Mr. Rob Hanson, P.E., PDEA
Ms. Leilani Paugh, NES
Mr. Randy Griffin, P.E., NES
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

LOCATION:
1020 BIRCH RIDGE DRIVE
RALEIGH NC 27610-4328

PROJECT COMMITMENTS

T.I.P Project No. R-2633AA/AB and B
Wilmington Bypass, from US 17 in Brunswick County,
north of the NC 87 Intersection, to US 421
Brunswick and New Hanover Counties
Federal Aid Project No. NHF-0017 (96) and STM-0017 (97)
WBS Project Nos. 34491.1.3.GV2, 34491.3.ST1, 34491.1.2

COMMITMENTS FROM PROJECT DEVELOPMENT AND DESIGN

Project Development and Environmental Analysis Unit

Study proposed noise barrier at the southwest quadrant of the interchange at SR 1430 (Cedar Hill Road). This issue shall be presented for review and comment at the Design Public Hearing to receive input from the residents affected. A decision on whether or not to construct a noise barrier or to implement other noise abatement measures, if any, will be made after the public comment period expires.
A majority of property owners voted to not have a noise barrier or other noise abatement measures.

Roadway Design Unit/ Structure Design Unit / Geotechnical Engineering Unit/ Roadside Environmental Unit

Wetlands on the periphery of the Cape Fear River will be bridged to minimize impacts. USCOE gave concurrence that Alternative 9 represented the Preferred Alternative in March of 1998 on the condition that the Cape Fear River floodplain wetlands be bridged. NCDOT intends to bridge the wetland zones on both banks of the river. Fill slopes will not encroach into the jurisdictional wetland boundaries. The bridge(s) will be constructed such that wetland impacts are minimized and construction practices that minimize impacts to populations of shortnose sturgeon known to utilize the river during spawning season (February to June) will be implemented. In order to protect shortnose sturgeon and other anadromous fish, there shall be no in-water work in the Cape Fear River and Toomers Creek between February 1 and June 15 of any year. For the purposes of this moratorium, in-water is defined as the main channel where the vegetation line meets open water and extending 35 meters (115 feet) into adjacent wetlands on both sides of the channel’.

This condition was developed specifically for this project in coordination with the National Marine Fisheries Service (NMFS), the North Carolina Division of Marine Fishes (NCDMF), and the North Carolina Wildlife Resources Commission (NCWRC). The 35-meter (115-foot) buffer from where the vegetation line meets the open water includes wetlands only and not upland areas. Construction equipment will be allowed to traverse the temporary work bridges during the moratorium period.

This environmental commitment will be implemented during construction of the project.

Roadway Design Unit/ Division 3/PDEA/ Roadside Environmental Unit

Fill slopes within the Natural Heritage Program (NHP) US 421 Sand Ridge Significant Natural Heritage Area (SNHA) located east of the Cape Fear River will be minimized to the greatest extent possible so that impacts to populations of Pickering's daffodil (*Stylisma pickeringii* var. *pickeringii*) will be avoided and minimized. Construction easements within the US 421 Sand Ridge SNHA will be limited to the greatest extent practicable. Several populations of this floral species, which is listed as a Federal Species of Concern and is state-listed as endangered, are present within and along the right of way. Minimizing slope and construction easement footprints and temporary protective fencing will be installed during construction on the south side of the project construction limits from station 208+40 to station 211+00 and from station 212+00 to station 213+00 to ensure that no inadvertent impacts occur outside the limits of the construction easement. Coordination with NHP shall continue well in advance of project construction regarding protection of this species, as NHP may want to relocate populations of this species that would be impacted by the project.

Roadway Design will put the required fencing locations on their plans, and the Roadside Environmental Unit will write the required special provisions and put the quantities of fencing required in their plans.

Provide temporary protective fencing between project construction area and archaeological site 31NH39.** As currently designed, the proposed highway plans do not directly impact sites 31NH39** and 31BW604. However, because the sites are close to the edge of the proposed highway corridor, temporary protective fencing will be installed during construction on the south side of the project construction limits from station 208+40 to station 211+00 and on the west side of the project construction limits from station 13+75 to station 15+50 to ensure that no inadvertent impacts occur. If the final highway design changes such that avoidance is not possible and if the effect of this alternative on these sites is adverse, pursuant to 36CFR800.5, then appropriate measures to address these adverse effects will be developed.

This environmental commitment will be implemented during construction of the project. Roadway Design will put the required fencing locations on their plans, and the Roadside Environmental Unit will write the required special provisions and put the quantities of fencing required in their plans.

Wildlife passages will be provided at locations agreed to by federal and state resource agencies and the dimensions of each passage shall be constructed as specified on the preliminary design plans. Wildlife passages will be provided at three locations on the mainline: one (a box culvert designed for small animal passage) will be located within a wetland between US 74/76 and SR 1426 and two bridge structures will be located between SR 1414 and US 74/76. Additional wildlife passage will be accommodated by lengthening bridge structures over stream and wetland areas as indicated on the preliminary design plans. Bridge structures and fill slopes will be placed outside jurisdictional wetland boundaries such that sufficient ground-to-structure clearance and dry passage is provided for large-bodied wildlife. The crossing areas under the bridge structures will provide a minimum of eight feet of vertical clearance. The

horizontal width is specific to each crossing and is identified on the preliminary design plans. The box culvert crossing will have a vertical clearance of 6 feet and a horizontal clearance of 12 feet. Fencing will be installed for a distance of approximately 2,500 feet on either side of any of the proposed crossings and will be of sufficient height to guide wildlife into the passageways. The final distance and height of the fence shall be determined during final design through coordination between NCDOT, US Fish and Wildlife Service, and the NC Division of Wildlife Resource Conservation. Locations of wildlife crossings and bridge lengths (toe of slope limits at abutments) were determined using a global positioning system (GPS) and through agency coordination.

At a meeting with NCDOT, US Fish and Wildlife Service and NC Division of Wildlife Resource Conservation, it was determined that the wildlife fences should be the lengths shown on the plans, and should be ten (10) feet high standard galvanized chain link fencing. It was also determined that wildlife crossing culverts should be buried one (1) foot, and that bollards should be placed in front of them to prevent four wheelers from entering the crossing. It was also stated that no holes should be allowed under the fencing as many animals will go through them instead of following the fence as intended.

Due to construction of a housing development near the wildlife crossing between US 74/76 and SR 1426 on plan sheet 10, the North Carolina Division of Wildlife Resource Commission and the US Fish and Wildlife Service requested that the crossing on plan sheet 10 and the fencing associated with it be deleted from the plans.

Geotechnical Engineering Unit

Revise Phase I Environmental Site Assessment. For all sites identified within the corridor ranked low for severity of potential impact, the data accumulated for the initial Phase I Assessment will be revisited prior to project right-of-way acquisition and construction and an updated review of agency files and public records will be conducted to determine if there has been any substantial change in the status since the report was prepared. For those sites ranked with a moderate to high expected severity of impact, a further review of records will be conducted to determine the status of any contamination assessments or remedial actions taking place at those sites. Phase II Site Assessments, including, at a minimum, soil and water sampling, will be conducted as necessary.

All the sites of concern have been tested for contaminated soil by the GeoEnvironmental Section. Parcel 59A, D&G Properties, has low levels of arsenic in the soil which is believed to be naturally occurring and not a concern for construction. Two underground home heating oil tanks and an oil and water separator tank were removed from the project limits without incident. Parcel 910, Tidewater Transit Company, Inc., has low levels of petroleum contaminated soil on their property that are not anticipated to be encountered during construction. The GeoEnvironmental Section is not aware of any outstanding geoenvironmental issues on this project.

Provide evergreen vegetation along National Register-eligible boundary of the Goodman House and Doctor's Office. Native evergreen vegetation will be planted at the edge of the project right-of-way from station 34 + 50 to station 36 + 00 on the preliminary design plans between the roadway and the Goodman House and Doctor's Office. Best planning practices will be used for tree removal to reduce impacts to the woods adjacent to the Goodman House and Doctor's Office.

This environmental commitment will be implemented during construction of the project.

Division 3

Implement moratorium on construction of the Bridge over the Cape Fear and Toomers Creek from February 1 to June 15. A construction moratorium shall be imposed as follows:

In order to protect shortnose sturgeon and other anadromous fish, there shall be no in-water work in the Cape Fear River and Toomer's Creek between February 1 and June 15 of any year. For the purposes of this moratorium, inwater is defined as the main channel where the vegetation line meets open water and extending 35 meters (115 feet) into adjacent wetlands on both sides of the channel. This condition was developed specifically for this project in coordination with the National Marine Fisheries Service, NC Division of Marine Fisheries and the NC Wildlife Resources Commission and applies to either vibratory or impact pile driving and activities associated with the construction of any temporary work bridge.

The 35-meter (115-foot) buffer from where the vegetation line meets the open water includes wetlands only and not upland areas.

Procedures for construction of bridges over wetlands will utilize temporary work bridges to minimize impacts to wetlands. Temporary work bridges will be required to construct the project's bridges over wetland areas at tributaries to Morgan's Branch, Cartwheel Branch, and Cape Fear River/ Toomers Creek. It is anticipated that both single and dual work bridges will be constructed. Finger bridges will be constructed at bent locations. Preliminary work bridge plans, including pile construction information, will be prepared before Concurrence Points 4B and 4C can be achieved. Construction within the main channel of the Cape Fear River may be accomplished using a barge. NCDOT has identified a wetland fill area on the west bank of the Cape Fear River adjacent to the proposed bridge location. This area appears to be an old roadbed leading to the remains of a pier on the river, south of the proposed alignment. NCDOT will consider using this as a temporary work bridge/construction easement for construction of the proposed bridge and the post construction removal of this fill area as a potential mitigation measure.

This environmental commitment will be implemented during construction of the project.

The Project Engineer or contractor will inform all personnel associated with the project construction that manatees may be present in the project area during the months of June through October. The Project Engineer will ensure that the Contractor has a copy of the US Fish and Wildlife Service *Guidelines for Avoiding Impacts to the West Indian Manatee - Precautionary Measures for Construction Activities in North Carolina Waters* on-site during construction. A copy of the Guidelines can be found in the Appendix of the Final EIS or at the following website address (<http://nc-es.fws.gov/es/publications.html>). The contractor is responsible for complying with the *Guidelines* and reviewing them with all personnel associated with the project construction.

This environmental commitment will be implemented during construction of the project.

COMMITMENTS DEVELOPED DURING PERMITTING

Division 3

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 the NCDWQ first.

All pile driving or drilling activities shall be enclosed in turbidity curtains unless otherwise approved by the NCDWQ.

All bridge construction shall be performed from the existing bridge, temporary work bridges, temporary causeways, or floating or sunken barges. If work conditions require barges, they shall be floated into position and then sunk. The barges shall not be sunk and then dragged into position. Under no circumstances should barges be dragged along the bottom of the surface water.

The permittee shall conform to the NCDOT policy entitled "Stream Crossing Guidelines for Anadromous Fish Passage (May 12, 1997) at all times.

Division 3/Roadside Environmental Unit

The post-construction removal of any temporary bridge structures must return the project site to its preconstruction contours and elevations. The impacted areas shall be revegetated with appropriate native species.

With exception of Creeping Red Fescue (*Festuca rubra*), tall fescue shall not be used in the establishment of temporary or permanent groundcover within riparian areas. For the establishment of permanent herbaceous cover, erosion control matting shall be used in conjunction with appropriate seeding on disturbed soils within the riparian area and on disturbed steep slopes with the following exception. Erosion control matting is not necessary if the area is contained by perimeter erosion control devices such as silt fence, temporary sediment ditches, basins, etc. Matting should be secured in place with staples, stakes, or wherever possible, live stakes of native trees. Erosion control matting placed in riparian areas shall not contain a nylon mesh grid, which can impinge and entrap small animals. For the establishment of temporary groundcover within riparian areas, hydroseeding along with wood or cellulose based hydro mulch applied from a fertilizer- and limestone-free tank is allowable at the appropriate rate in conjunction with the erosion control measures. Discharging hydroseed mixtures and wood or cellulose mulch into surface waters is prohibited. Riparian areas are defined as a distance 25 feet landward from top of stream bank.

All portions of the proposed project draining to 303(d) listed watersheds that are impaired due to turbidity shall be designed, constructed, and operated with sediment and erosion control measures that meet Design Standards in Sensitive Watersheds [15A NCAC 4B

.0124]. However, due to the size of the project, NCDOT shall not be required to meet 15A NCAC 4B .0124(a) regarding the maximum amount of uncovered acres.
This environmental commitment applies to Section B only.

NCDOT shall use best practices for tree removal to reduce impacts to the woods adjacent to the Goodman House and Doctor's Office and plant the edge of the right of way between stations 34+50 and 36+00 with native evergreens to further screen the new facility from the Goodman House and Doctor's Office, in accordance with the Concurrence Form for Assessment of Effects, agreed to and signed on January 1, 2006.
This environmental commitment applies to Section A only.

In accordance with project commitments, archaeological sites 31NH39** (*Section B*) and 31BW604** (*Section A*) shall be avoided by the installation of temporary protective fencing prior to construction to ensure no inadvertent impacts occur.
This environmental commitment applies to Sections AA & AB only.

Hydraulics Unit/Division 3

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.

Equalizer pipes in wetlands shall be installed at grade and shall not be installed below the wetland ground level for purposes of aquatic organism passage.

Natural Environment Section

The Department must implement the "Stream and Wetland Restoration Plan, Bishop Branch at NC87/Maco Road Brunswick County" dated September 9, 2010 submitted with the application package received October 19, 2010 for R-2633AA. 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 2.95 acres of wetland preservation, 570 linear feet of stream preservation, 0.63 acres of wetland restoration, and 66 linear feet of stream restoration. In total this is the equivalent of 0.925 acres of riparian wetland mitigation credits and 123 linear feet of stream restoration credits.

The applicant shall continue to pursue on-site mitigation opportunities as the plans are finalized for R-2633 B.

Addressed through final design and permit process for Section B.

As requested by the US Fish and Wildlife Service, the Department should conduct golden sedge (*Carex lutea*) surveys within suitable habitat for the New Hanover County portion of the project during the appropriate survey window (mid-April to mid-June) in 2011.

These findings must be provided to the Corps of Engineers and the Service for their review. In the event that golden sedge is found within the project corridor, the permittee will immediately contact a representative of the Corps of Engineers and the US Fish and Wildlife Service in order to determine if consultation under the ESA will be required. *Habitat for golden sedge was assessed in January 2013. No habitat was found. USFWS concurred in a letter dated April 23, 2013*

Section 404 Permit

Compensatory mitigation for the unavoidable impacts (Section AA/AB and B) to 8.09 acres of riparian wetlands, 80.14 acres of non-riparian wetlands and 780 linear feet of stream associated with the proposed project shall be provided by the Ecosystem Enhancement Program (EEP), as outlined in the letter dated January 21, 2011 from William D. Gilmore, EEP Director. Pursuant to the In-Lieu-Fee Instrument signed July 28, 2010 between the State of North Carolina, Ecosystem Enhancement Program and the US Army Corps of Engineers the EEP will provide 16.19 acres of restoration equivalent riparian wetlands, 160.28 acres of restoration equivalent non-riparian wetlands and 1,560 linear feet of restoration equivalent warm water stream channel in the Cape Fear River Basin (Hydrologic Cataloging Unit 03030005 in accordance with Section F of the instrument. For wetlands, a minimum of 1:1 (impact to mitigation) must be in the form of wetland restoration.

Updated mitigation totals can be found in the latest 404, 401, and CAMA permits.

Division 3/Roadside Environmental/Natural Environment Section

Section 401 Permit

Mitigation for permanent impacts to 849 linear feet of stream is required. Mitigation will be provided through a combination of both on-site and offsite mitigation. It is understood that impacts and mitigation requirements for Section B are preliminary and may change once final design is completed.

Updated mitigation totals can be found in the latest 404, 401, and CAMA permits.

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. Please be reminded that as-builts for the completed streams shall be submitted to the North Carolina Division of Water Quality 401 Wetlands Unit with the as-builts for the rest of the project. If the parameters of this condition are not met, then the permittee shall supply additional stream mitigation for the 66 linear feet of restoration.

Updated mitigation totals can be found in the latest 404, 401, and CAMA permits.

We understand that you have chosen to perform compensatory mitigation for permanent impacts to 669 linear feet of jurisdictional streams through the North Carolina Ecosystem Enhancement Program (EEP). EEP has indicated in a letter dated October 12, 2010 that they will assume responsibility for satisfying the federal Clean Water Act compensatory mitigation requirements for the above-referenced project, in accordance with the Tri-Party MOA signed on July 22, 2003 and the Dual-Party MOA signed on April 12, 2004.

Updated mitigation totals can be found in the latest 404, 401, and CAMA permits.

Mitigation for permanent impacts to 89.17 acres of wetland is required. Mitigation will be provided through a combination of both onsite and offsite mitigation. It is understood that impacts and mitigation requirements for Section B are preliminary and may change once final design is completed.

This has been resolved through the permit modification process.

We understand that you have chosen to perform compensatory mitigation for the remaining 87.94 acres of impact (7.80 acres riparian and 80.14 acres non-riparian) 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 October 12, 2010 that they will assume responsibility for satisfying the federal Clean Water Act compensatory mitigation requirements for the above-referenced project, in accordance with the Tri-Party MOA signed on July 22, 2003 and the Dual-Party MOA signed on April 12, 2004.

Updated mitigation totals can be found in the latest 404, 401, and CAMA permits.

Natural Environment Section/Division 3

Impacts to Sections AA and AB of the project authorized when final design plans are completed for R-2633 Section B, a modification to the 401 Water Quality Certification shall be submitted with five copies and fees to the NC Division of Water Quality. Final designs shall reflect all appropriate avoidance, minimization, and mitigation for impacts to wetlands, streams, and other surface waters, and buffers. No construction activities that impact any wetlands, streams, or surface waters R-2633 Section B shall begin until after the permittee applies for, and receives, a written modification.

This has been resolved through the permit modification process.

The permit plans for R-2633 B dated 10/5/2010, received on 10/19/2010; permit drawings 1-61 or 61 are currently in the preliminary state and, accordingly R-2633B is not authorized for construction at this time. Construction may commence on Section B only after all appropriate and practicable avoidance and minimization measures have been employed, final design has been completed and plans have been approved by the District Commander. Prior to construction a modification request must be submitted to the District Commander. Also prior to authorization of the final project phase, a final JD on the LEDPA corridor must be complete.

This has been resolved through the permit modification process.

Upon completion of the final design plans for R-2633B, the NCDOT shall submit a CAMA Major Permit Application to DCM. No construction may begin on R-2633B until a CAMA permit is issued in accordance with the rules of the NC Coastal Resources Commission and permit modifications to the existing Section 404 and 401 permits.

This has been resolved through the permit modification process.

Permit Modification conditions for Section B

All original conditions in the February 28, 2011 Section 404 Permit remain valid.

All of the authorized activities and conditions of the original Section 401 Water Quality Certification dated January 7, 2011 (reissuance on January 11, 2011) and modifications dated May 9, 2011 and April 5, 2012 still apply except where superseded by the Section 401 Certification.

Division 3/Roadside Environmental Unit

Turbidity curtains shall be used to isolate all in-water work areas from adjacent waterbody, including but not limited to pile driving/drilling or removal activities and excavation and filling activities. The turbidity curtains shall encircle the immediate work area but, shall not impede navigation. The turbidity curtains shall be properly maintained and retained in the water until construction is complete and shall only be removed when turbidity within the curtains reaches ambient levels.

Division 3

Excavated material from the drill-shaft construction shall be removed from encasements directly into containment vessels and sufficient efforts shall be utilized to minimize spillage of spoil material into waters of the State.

The temporary work bridges shall be removed in their entirety within 90 days after they are no longer needed. However, if this timeframe occurs while the moratorium referenced in Condition No. 2 of the CAMA permit is in effect, then the temporary work bridge shall be removed in its entirety within 90 days of the moratorium end date.

During bridge construction, the permittee shall make every attempt to allow the same navigation that is currently possible in the Cape Fear River. If this is not possible, then adequate notice shall be provided to the public that navigation will be limited during construction. The notice shall include an estimate of the amount of time that the limited navigation will occur.

Barges shall be removed promptly when they are no longer needed.

Barges shall be utilized only in areas of sufficient depth such that the barges do not rest on the bottom during periods of low tide.

Caution shall be exercised with placement and removal of any barges to ensure that impacts to shallow water habitat are avoided and minimized to the maximum extent practicable.

The authorized project is located within a Primary Nursery Area (PNA). Therefore, in accordance with T15A:07H.0208 of the rules of the Coastal Resources Commission, no new dredging or excavation within PNA shall be permitted. Dredging in any manner, including "kicking" with boat propellers is not authorized. This prohibition shall be

applied and enforced throughout the construction and any following maintenance activities.

US Coast Guard Permit

The Contractor shall submit the plans and schedules of operation for approval at least 45 days prior to commencement of work in the waterways. One copy of such information shall be submitted concurrently to your Resident Engineer, the United States Coast Guard Commander (dpb); Federal Building, 4th Floor, 431 Crawford Street; Portsmouth, VA 23704-5004, and the U.S. Coast Guard Sector North Carolina at 2301 East Fort Macon Road, Atlantic Beach, NC 28512-5633. The information shall include a sketch of the waterways; the bridges; the location of any restrictions that will be placed in the waterways such as barges, anchors, and anchor lines; the location and height above mean high water and detailed description of any scaffolding, or netting; detailed description indicating the placement, type and dimension of any cofferdams if used. The schedules should also include the hours of operation and whether or not the equipment will be removed at night. The contractor shall comply with all provisions of the Navigation Rules International - Inland, available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. The Contractor shall submit to the Resident Engineer a copy of all correspondence between the Coast Guard. No deviation from the approved plans and schedules of operation may be made unless the modification has previously been submitted and approved by the Coast Guard.

At no time during the work will the waterways be closed to navigation without prior approval from the Coast Guard. You are required to maintain close and regular contact with Coast Guard Sector North Carolina to keep them informed to activities in waterways at (252) 247-4570.

Barges that are used in the waterways during the project must be marked. *LIGHTING REQUIREMENTS FOR BARGES AND STRUCTURES NOT PART OF A BRIDGE OR APPROACH STRUCTURE* outlines temporary marking and lighting requirements for barges and structures not part of the bridge that will be used during construction. If barge or float anchor lines are used, they must be marked by buoys, which should be lighted. If you should have any questions, regarding lights on the barges or work floats, please contact Mr. John Walters, Chief, Waterways Management Section, at (757) 398-6230. Floating equipment shall have a radiotelephone capable of operation from its main control station in accordance with Part 26 of Title 33, Code of Federal Regulations and shall be monitored during all periods the floating equipment is on station.

During the progress of work, while the channels are in operation, should any material, machinery or equipment be lost, dumped, thrown overboard, sunk or misplaced which may be dangerous to or obstruct navigation, immediate notice shall be given to the Coast Guard and the object removed with the utmost dispatch. Until removal can be effected, the objects shall be properly marked in order to protect navigation. Notice to the Coast Guard shall give a description and location of any such object and the action taken or being taken to protect navigation.

Upon completion of the proposed project, an inspection of the waterways bottom shall be performed to insure that all construction waste materials have been completely removed. Certification will be required in writing by a licensed engineer or licensed surveyor that the waterway has not been impaired and all construction related debris has been cleared from it. The certification shall include the actual method used to conduct the inspection. The Contractor shall remove any bridge related debris, resulting from the current or prior work or occurrences, discovered during this survey.

Upon completion of the bridgework, a responsible official of the North Carolina Department of Transportation shall verify as-built clearances and a statement attesting to the correctness of the clearances shall be forwarded to this office for record purpose. In lieu of verification by the above listed official, certification by a licensed surveyor or registered professional engineer registered in the State of North Carolina will be accepted.

Except as shown on the plans, no dredging, excavation, filling, rip-rap, or other work affecting the bottom, shall be done in conjunction with this work.

If during the periods of construction, permanent lighting cannot be maintained operable, the fenders of each pier shall be marked with a battery or power operated white light of not less than 60 flashes per minute and visible for a range of 2,000 yards on 90% of the nights of the year. Generally, a lamp of 20-candle power will meet these requirements. If necessary to obtain coverage required, a light or lights on the upstream and downstream sides shall be installed. The piers shall be so marked until the construction has been completed and permanent navigational lighting has been reinstalled and determined to be operating satisfactorily. Written approval from the Coast Guard of temporary lighting during periods of construction is required. No existing bridge navigation lights shall be impaired or blocked during darkness or periods of reduced visibility .

Compliance with the requirements stated herein does not relieve the contractor of the obligation or responsibility for compliance with the provisions of any other law or regulation as may be under the jurisdiction of the State of North Carolina, or any other federal, state or local authority having cognizance of any aspect of the location, construction or maintenance of said bridge. It is advised that the Coast Guard can levy monetary civil penalties for violations of bridge regulations and statutes.

No deviation from the approved plans may be made either before or after completion of the structures unless the modification of said plans has previously been submitted to and received the approval of the Commandant.

The construction of falsework, pilings, cofferdams or other obstructions, if required, shall be in accordance with plans submitted to and approved by the Commander, Fifth Coast Guard District, prior to construction of the bridges. All work shall be so conducted that the free navigation of the waterway is not unreasonably interfered with and the present navigable depths are not impaired. Timely notice of any and all events that may affect navigation shall be given to the District Commander

during construction of the bridges. The channel or channels through the structures shall be promptly cleared of all obstructions placed therein or caused by the construction of the bridges to the satisfaction of the District Commander, when in the judgment of the District Commander the construction work has reached a point where such action should be taken, but in no case later than 90 days after the bridges have been opened to traffic.

A bridge fendering system shall be installed and maintained in good condition by and at the expense of the owner of the bridges when so required by the District Commander. Said installation and maintenance shall be for the safety of navigation and be in accordance with plans submitted to and approved by the District Commander prior to its construction.

The bridge design accounts for vessel collision in accordance with Load and Resistance Factor Design Specifications and list the design vessel, therefore a fendering system is not required.

Clearance gauges shall be installed and maintained in a good and legible condition by and at the expense of the owner of the bridges when so required by the District Commander. The type of gauges and the locations in which they are to be installed will be submitted to the District Commander for approval.

Division 3/Natural Environment Section

In accordance with project commitments made within the Record of Decision, dated October 2007, protective fencing shall be installed to ensure that no inadvertent impacts occur to populations of Pickering's Dawnflower, a listed Federal species of Concern and state-listed endangered species, outside the limits of the construction easement.

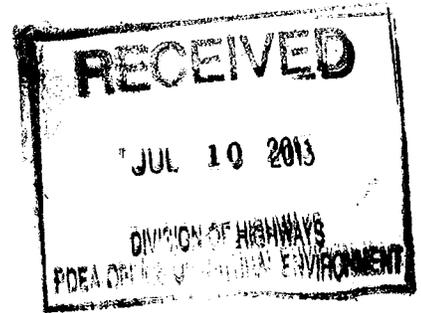
Natural Environment Section

Due to the possibility that compaction, mechanized clearing and/or other site alterations might prevent any temporary coastal Wetland impact area from re-attaining pre-project coastal wetland functions, the permittee shall monitor temporary coastal wetland impacts for 3 years after project completion. The permittee shall schedule a meeting with DCM to verify the extent and location of temporary impacts upon project completion. The permittee shall then provide an annual update on any coastal wetland areas temporarily impacted by this project. This annual update shall consist of photographs and written report on the progress of these temporarily impacted areas in re-attaining coastal wetland jurisdictional status. Three years after project completion, the permittee shall schedule an agency field meeting with DCM to determine if the coastal wetland areas temporarily impacted by this project have re-attained pre-project coastal wetland functions. If, at the end of 3 years, the coastal wetland areas temporarily impacted by this project have not re-attained pre-project coastal wetland functions, DCM shall determine whether compensatory coastal wetland mitigation shall be required.



REPLY TO
ATTENTION OF:

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



July 9, 2013

Regulatory Division

Action ID No. SAW-1994-03552

Gregory J. Thorpe, Ph.D.
Environmental Management Director, PDEA
N.C. Department of Transportation
1598 Mail Service Center
Raleigh, North Carolina 27699-1598

Dear Mr. Thorpe:

Reference the Department of the Army (DA) permit issued on February 28, 2011, for the discharge of fill material into waters and wetlands adjacent to various Creeks, and their tributaries in order to construct Section A of TIP# R -2633 (Wilmington Bypass), Brunswick County, North Carolina. Reference is also made to your permit modification dated April 8, 2013 with revisions dated May 2, 6, 14, and 24, 2013. With the referenced revisions and updated information received for Section B, which totals 8.02 miles starting along Highway 74/76 in Leland, Brunswick County and terminating at US 421 north of Wilmington in New Hanover County, the existing permit is currently being modified to include the Section B.

I have determined that the proposed project modifications described above are not contrary to the public interest and consistent with the 404 (B)(1) and therefore, the DA permit is hereby modified. The following conditions specific to Section B have been added:

All original conditions in the February 28, 2011 permit remain valid and are enforceable with Section B authorization. The Special Conditions for the permit modification are the following:

1. This permit modification only authorizes work on Section B of TIP R-2633. The permittee has minimized impacts to waters and wetlands to the maximum extent practicable, any modifications to the plans, and a compensatory mitigation plan, have been approved by the US Army Corps of Engineers (COE). Approved permit plans for Section B are attached.
2. In order to compensate for impacts associated with this permit, mitigation shall be provided in accordance with the provisions outlined on the most recent version of the attached Compensatory Mitigation Responsibility Transfer Form. The requirements

of this form, including any special conditions listed on this form, are hereby incorporated as special conditions of this permit modification authorization.

Section A impact breakdown is:

- Riparian 7.16 acres (2:1 ratio from offsite) = 14.32 acres
- Non Riparian 16.38 acres (2:1 ratio from offsite) = 32.76 acres
- Stream 504 linear feet (2:1 ratio from offsite) = 1008 linear feet

Section B impact breakdown is:

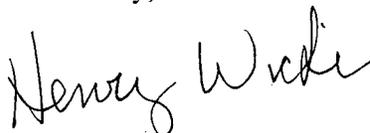
- Riparian 0.12 acre (2:1 ratio from offsite) = 0.24 acre
- Non Riparian 39.65 acres (2:1 ratio from offsite) = 79.30 acres
- Stream 5 linear feet (2:1 ratio from offsite) = 10 linear feet

Total: Riparian 14.56 acres, Non riparian 112.06, and stream 1,018 linear feet

The attached mitigation transfer form will cover the combined impacts of Section A and B.

This modification approval will be utilized for future compliance of the project. If you have questions, please contact Brad Shaver of the Wilmington Regulatory Field Office, at telephone (910) 251-4611.

Sincerely,



for

Steven A. Baker
Colonel, U. S. Army
District Commander

Enclosures

Copies Furnished (electronic w/o attachments):

Mr. Mason Herndon, NCDWQ
Mr. Stoney Mathis, NCDOT
Mr. Chris Rivenbark, NCDOT
Mr. Rachelle Beauregard, NCDOT
Mr. Chris Militscher, USEPA
Mr. Gary Jordan, USFWS
Mr. Travis Wilson, NCWRC
Ms. Beth Harmon, NCEEP
Mr. Todd Tugwell, USACE

U.S. ARMY CORPS OF ENGINEERS

Wilmington District

Compensatory Mitigation Responsibility Transfer Form

Permittee: North Carolina Department of Transportation
Project Name: R-2633 A and B Wilmington Bypass

Action ID: SAW-1994-03552
County: Brunswick

Instructions to Permittee: The Permittee must provide a copy of this form to the Mitigation Sponsor, either an approved Mitigation Bank or the North Carolina Ecosystem Enhancement Program (NCEEP), who will then sign the form to verify the transfer of the mitigation responsibility. Once the Sponsor has signed this form, it is the Permittee's responsibility to ensure that to the U.S. Army Corps of Engineers (USACE) Project Manager identified on page two is in receipt of a signed copy of this form before conducting authorized impacts, unless otherwise specified below. If more than one mitigation Sponsor will be used to provide the mitigation associated with the permit, or if the impacts and/or the mitigation will occur in more than one 8-digit Hydrologic Unit Code (HUC), multiple forms will be attached to the permit, and the separate forms for each Sponsor and/or HUC must be provided to the appropriate mitigation Sponsors.

Instructions to Sponsor: The Sponsor must verify that the mitigation requirements shown below are available at the identified site. By signing below, the Sponsor is accepting full responsibility for the identified mitigation, regardless of whether or not they have received payment from the Permittee. Once the form is signed, the Sponsor must update the appropriate ledger and provide a copy of the signed form to the Permittee and to the USACE Bank/In-Lieu Fee Program Manager. The Sponsor must also comply with all reporting requirements established in their authorizing instrument.

Permitted Impacts and Compensatory Mitigation Requirements:

Permitted Impacts Requiring Mitigation*			8-digit HUC and Basin: 03030005, Cape Fear River Basin			
Stream Impacts (linear feet)			Wetland Impacts (acres)			
Warm	Cool	Cold	Riparian Riverine	Riparian Non-riverine	Non-Riparian	Coastal
509				7.28	56.03	

*If more than one mitigation sponsor will be used for the permit, only include impacts to be mitigated by this sponsor.

Compensatory Mitigation Requirements:			8-digit HUC and Basin: 03030005, Cape Fear River Basin			
Stream Mitigation (credits)			Wetland Mitigation (credits)			
Warm	Cool	Cold	Riparian Riverine	Riparian Non-riverine	Non-Riparian	Coastal
1,018				14.56	112.06	

Mitigation Site Debited: NCEEP
 (List the name of the bank to be debited. For umbrella banks, also list the specific site. For NCEEP, list NCEEP. If the NCEEP acceptance letter identifies a specific site, also list the specific site to be debited).

Section to be completed by the Mitigation Sponsor

Statement of Mitigation Liability Acceptance: I, the undersigned, verify that I am authorized to approve mitigation transactions for the Mitigation Sponsor shown below, and I certify that the Sponsor agrees to accept full responsibility for providing the mitigation identified in this document (see the table above), associated with the USACE Permittee and Action ID number shown. I also verify that released credits (and/or advance credits for NCEEP), as approved by the USACE, are currently available at the mitigation site identified above. Further, I understand that if the Sponsor fails to provide the required compensatory mitigation, the USACE Wilmington District Engineer may pursue measures against the Sponsor to ensure compliance associated with the mitigation requirements.

Mitigation Sponsor Name: _____

Name of Sponsor's Authorized Representative: _____

Signature of Sponsor's Authorized Representative

Date of Signature

**USACE Wilmington District
Compensatory Mitigation Responsibility Transfer Form, Page 2**

Conditions for Transfer of Compensatory Mitigation Credit:

- Once this document has been signed by the Mitigation Sponsor and the USACE is in receipt of the signed form, the Permittee is no longer responsible for providing the mitigation identified in this form, though the Permittee remains responsible for any other mitigation requirements stated in the permit conditions.
- Construction within jurisdictional areas authorized by the permit identified on page one of this form can begin only after the USACE is in receipt of a copy of this document signed by the Sponsor, confirming that the Sponsor has accepted responsibility for providing the mitigation requirements listed herein. For authorized impacts conducted by the North Carolina Department of Transportation (NCDOT), construction within jurisdictional areas may proceed upon permit issuance; however, a copy of this form signed by the Sponsor must be provided to the USACE within 30 days of permit issuance. NCDOT remains fully responsible for the mitigation until the USACE has received this form, confirming that the Sponsor has accepted responsibility for providing the mitigation requirements listed herein.
- Signed copies of this document must be retained by the Permittee, Mitigation Sponsor, and in the USACE administrative records for both the permit and the Bank/ILF Instrument. It is the Permittee's responsibility to ensure that the USACE Project Manager (address below) is provided with a signed copy of this form.
- If changes are proposed to the type, amount, or location of mitigation after this form has been signed and returned to the USACE, the Sponsor must obtain case-by-case approval from the USACE Project Manager and/or North Carolina Interagency Review Team (NCIRT). If approved, higher mitigation ratios may be applied, as per current District guidance and a new version of this form must be completed and included in the USACE administrative records for both the permit and the Bank/ILF Instrument.

Comments/Additional Conditions:

This transfer form combines the impacts previously authorized in the section A authorization and combines them with the new section B authorization impact numbers and required mitigation.

This form is not valid unless signed by the mitigation Sponsor and USACE Project Manager. For questions regarding this form or any of the conditions of the permit authorization, contact the Project Manager at the address below.

USACE Project Manager: Brad Shaver
USACE Field Office: Wilmington Regulatory Field Office
US Army Corps of Engineers
69 Darlington Avenue
Wilmington, NC 28403

Email:



USACE Project Manager Signature

July 8, 2013

Date of Signature

Current Wilmington District mitigation guidance, including information on mitigation ratios, functional assessments, and mitigation bank location and availability, and credit classifications (including stream temperature and wetland groupings) is available at <http://ribits.usace.army.mil>.

Memo to File:

Date: 8/19/2013

Action ID#: SAW-1994-03352

From: Brad Shaver

Subject: R-2633 (B) modification to cover utility impacts from of water and sewer installation

On July 9, 2013, the Corps issued a major modification to a standard permit issued to the Department first on January 13, 2011 for the construction of Section B of the Wilmington Bypass. As indicated the initial permit was issued for A and B understanding that the B phase would come online later and would only be authorized for construction once additional avoidance and minimization was considered which did occur on the aforementioned July date. Section B of the Wilmington Bypass originates at Hwy 74 in Brunswick County and progresses north and east until it reaches section C of the Bypass at US 421 in New Hanover County.

On July 31, 2013, the Corps received a modification request in order to install a water and sewer line contrary to the previously approved plans necessitated when the utility company took a closer look at the water and sewer locations in relation to the toe of fill. The new water and sewer lines must be separated by 10 feet to meet current DENR regulations and thus the total impact expected by this modification would be <0.01 acre of wetland for temporary impact in wetlands. Additionally there would be temporary excavation in the stream channel of less than 0.01 acre and 16 feet of temporary stream impact originating for dewatering activities.

If conducted as planned there will be no permanent impact to waters of the U.S. The fact that dewatering activities are occurring should further minimize the potential for impacts to waters during construction. I see no reason why this permit should not be modified.



REPLY TO
ATTENTION OF:

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

August 23, 2013

Regulatory Division

Action ID No. SAW-1994-03552

Phil Harris
Manager, PDEA
North Carolina Department of Transportation
1598 Mail Service Center
Raleigh, North Carolina 27699-1598

Dear Mr. Harris:

Reference the Department of the Army permit issued on January 13, 2011 and subsequent phased modification issued on July 9, 2013, to construct a fully controlled access freeway on new alignment from north of U 74/76 in Brunswick County to US 421 in New Hanover County approximately 7.6 miles. Reference is also made to your permit modification request dated July 31, 2013, revised plan view drawings, and revised impact summary sheet dated 8/15/2013. The modification request is to construct two open trench cut utility lines through Cartwheel Branch and its abutting wetlands.

We have determined that the proposed change is minor, and that a supplemental public notice is not necessary. Your permit is hereby modified to include the aforementioned changes as described in the July 31, 2013 modification request. It is understood that all other conditions of the original permit and previous modifications remain applicable, including the permit expiration date of December 31, 2016.

This modification approval and referenced plans (attached) will be utilized for future compliance of the project. If you have questions, please contact Brad Shaver of the Wilmington Regulatory Field Office, at telephone (910) 251-4611.

Sincerely,



Steven A. Baker
Colonel, U. S. Army
District Commander

Copies Furnished:

Mr. Mason Herndon
Division of Water Quality
North Carolina Department of
Environment and Natural Resources
225 Green Street, Suite 714
Fayetteville, North Carolina 28301-5094

Mr. Stephen Lane
Division of Coastal Management
North Carolina Department of
Environment and Natural Resources
400 Commerce Avenue
Morehead City, North Carolina 28557

Electronic Copy:

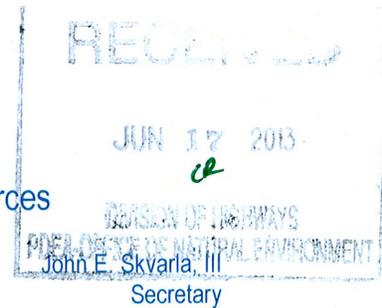
Mr. Stoney Mathis, NCDOT
Ms. Rachelle Beauregard, NCDOT



North Carolina Department of Environment and Natural Resources

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

Pat McCrory
Governor



May 31, 2013

Dr. Greg Thorpe, PhD., Manager
Project Development and Environmental Analysis
North Carolina Department of Transportation
1598 Mail Service Center
Raleigh, North Carolina, 27699-1598

Subject: Modification to the 401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water Act and ISOLATED WETLANDS PERMIT Pursuant to IWGP100000 with ADDITIONAL CONDITIONS for Proposed improvements to the Wilmington Bypass from US 17 in Brunswick County, north of the NC 87 intersection, to US 421 in New Hanover County. Federal Aid Project Nos. NHF-0017(96) and STM-0017(97), State Project Nos. 34491.1.3.GV2 and 34497.3.ST1, Brunswick and New Hanover Counties, TIP R-2633AA/AB and R-2633B.

NCDWQ Project No. 20100867 v. 4

Dear Dr. Thorpe:

Attached hereto is a modification of Certification No. 3842 issued to The North Carolina Department of Transportation (NCDOT) dated January 7, 2011 and reissuance dated January 13, 2011.

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

Sincerely,

Charles Wakild
Director

Attachments

cc: Brad Shaver, US Army Corps of Engineers, Wilmington Field Office (electronic copy only)
Stoney Mathis, Division 3 Environmental Officer
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)
Rachelle Beauregard, NCDOT, Natural Environment Section (electronic copy only)
Jason Elliot, NCDOT, Natural Environment Section (electronic copy only)
Steve Sollod, NC Coastal Management (electronic copy only)
Jim Stanfill, 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

An Equal Opportunity \ Affirmative Action Employer

One
North Carolina
Naturally

**Modification to the 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 modification authorizes the NCDOT to impact 103.65 acres of jurisdictional wetlands, 0.22 acres of isolated wetlands, 0.23 acres of waters and 978 linear feet of jurisdictional streams in Brunswick and New Hanover Counties. The project shall be constructed pursuant to the modification dated received April 3, 2013 and revisions received on May 8, 2013, May 14, 2013 and May 24, 2013. The modified authorized impacts are as described below:

Stream Impacts in the Cape Fear 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)	Total Stream Impact (linear ft)	Stream Impacts Requiring Mitigation (linear ft)
SECTION AA & AB⁽¹⁾							
Total		16	115	683	30	844	627
SECTION B							
19	-Y7- 52+90	0	0	5	39	44	0
19	-Y7 DET- 16+45	0	0	0	90	90	0
Total		0	0	5	129	134	0
Project Total		16	115	688	159	978	627

⁽¹⁾Impacts authorized in the original 401 certification dated January 7, 2011, reissuance on January 11, 2011 and modifications dated May 9, 2011 and April 5, 2012.

Total Stream Impact for Project: 978 linear feet (134 linear feet for Section B)

Wetland Impacts in the Cape Fear River Basin

Site	Station	Wetland Type ⁽¹⁾	Fill (ac)	Fill (temporary) (ac)	Excavation (ac)	Mechanized Clearing (ac)	Hand Clearing (ac)	Total Wetland Impact (ac)	Impacts Requiring Mitigation (ac)
SECTION AA & AB⁽²⁾									
Total			22.56	0.53	0.34	1.57	1.70	26.70	24.47
SECTION B									
3	-LREV- 339+73 to 358+92	NR	7.45	0	0.03	0	0.58	8.06	7.48
5	-LREV-372+74 to-L-85+08	NR	1.04	0	0	0	0.12	1.16	1.04
6	-L- 109+28 to 134+54	NR	9.72	0	0	0	1.13	10.85	9.72
6A	-L- 138+11 to 140+70	NR	0.68	0	0	0	0	0.68	0.68
6B	-L-141+20 to 144+29	NR	0.41	0	0	0	0.02	0.43	0.41
7	-L- 146+78 to 165+66	NR	10.55	0	0	0	0.98	11.53	10.55
9	-L- 186+97 to 191+88	NR	1.04	0	0	0	0.09	1.13	1.04
11	-L- 194+75 to 216+13	NR	8.72	0	0	0	0.93	9.65	8.72
14	-L- 264+32 to 266+94	R	0	0	0	0.03	0.30	0.33	0.03
15	-L- 319+46 to 387+92	R	0.05	0	0.93 ⁽³⁾	0	29.40	30.38	0.05
19	-Y7 DET- 16+45	R	0	0.06	0	0	0.03	0.09	0
20	-Y8- 47+74 to 49+95	R	<0.01	0	0	0.04	0.31	0.35	0.04
	EC measures in HC areas		0	0.75	0	0	0	0.75	0
SECTION B UTILITIES									
1	-Y8- 48+60	R	0	0	0	0	0.15	0.15	0
1	-Y8- 48+58	R	<0.01	0	0	0	0	<0.01	0
2	-L- 138+96 to 141+92	NR	0	0	0	0	0.83	0.83	0
2	-L- 140+36 to 140+74	NR	0	0	0.02 ⁽³⁾	0	0	0.02 ⁽³⁾	0
2	-L- 140+62 to 147+63	NR	0	0	0	0	0.48	0.48	0
2	-L- 147+50 to 147+89	NR	0	0	0.02 ⁽³⁾	0	0	0.02 ⁽³⁾	0
2	-L- 147+75 to 148+80	NR	0	0	0	0	0.05	0.05	0

Total*	39.67	0.81	1.00	0.07	35.40	76.95	39.77
Project Total	62.23	1.34	1.34	1.64	37.10	103.65	64.24

⁽¹⁾ Wetland Type: R = Riparian; NR=Non-Riparian. ⁽²⁾ Impacts authorized in the original 401 certification dated January 7, 2011, reissuance on January 11, 2011 and modifications dated May 9, 2011 and April 5, 2012. ⁽³⁾ Denotes temporary excavation and does not require mitigation. *totals may not match sum of individual impacts due to rounding.

Total Wetland Impact for Project: 103.65 (76.95 acres for Section B)

Isolated Wetland Impacts in the Cape Fear River Basin

Site	Station	Fill (ac)	Fill (temporary) (ac)	Excavation (ac)	Mechanized Clearing (ac)	Hand Clearing (ac)	Total Wetland Impact (ac)	Impacts Requiring Mitigation (ac)
SECTION AA & AB⁽¹⁾								
Total		0	0	0	0	0	0	0
SECTION B								
16	-L-399+43 to 400+51	0.22	0	0	0	0	0.22	0.22
Total		0.22	0	0	0	0	0.22	0.22
Project Total		0.22	0	0	0	0	0.22	0.22

Total Isolated Wetland Impact for Project: 0.22 acres.

Open Water (Ponds/Tributary) Impacts in the Cape Fear River Basin

Site	Station	Permanent Fill in Open Waters (ac)	Temporary Fill in Open Waters (ac)	Total Fill in Open Waters (ac)
R-2303A⁽¹⁾				
Total		0	0	0
R-2303B				
11	-L- 194+75 to 216+13	0.07	<0.01	0.07
14	-L- 264+32 to 266+94	<0.01	0	<0.01
15	-L- 319+46 to 387+92	0.13	0.03	0.16
Total		0.20	0.03	0.23
Project Total		0.20	0.03	0.23

⁽¹⁾ Impacts authorized in the original 401 certification dated January 7, 2011, reissuance on January 11, 2011 and modifications dated May 9, 2011 and April 5, 2012.

Total Open Water Impact for Project: 0.23 acres. (0.23 acres for Section B)

The application provides adequate assurance that the discharge of fill material into the waters of the Cape Fear 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 modified application dated received April 3, 2013 and revisions received on May 8, 2013. All the authorized activities and conditions of certification associated with the original Water Quality Certification dated January 7, 2011 (reissuance on January 11, 2011) and modifications dated May 9, 2011 and April 5, 2012 still apply except where superceded by this certification. Should your project change, you are required to notify 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. This modification is applicable only to the additional proposed activities. All of the authorized activities and conditions of certification associated with the original Water Quality Certification dated January 7, 2011 (reissuance on January 11, 2011) and modifications dated May 9, 2011 and April 5, 2012 still apply except where superseded by this certification
2. The B-Section of this project must be constructed in accordance with the Stormwater Management Plan submitted in the application and dated April 3, 2013.
3. Compensatory mitigation for permanent impacts to 627 linear feet of streams is required for R-2633AA & AB and R-2633B based on the final impact numbers provided for the B-section. Mitigation will be provided through a combination of both onsite and offsite mitigation. Mitigation will be credited as detailed below:
 - a. The NCDOT will provide compensatory mitigation for 180 linear feet of streams to be performed onsite at Bishops Branch Mitigation Site at a required 1:1 ratio. Compensatory mitigation for the above impacts to jurisdictional streams will be through a combination of restoration and preservation. The NCDOT will restore 66 linear feet of stream via removal of the existing culvert at a 1:1 credit ratio (66 linear feet). Additionally, 570 linear feet of preservation will occur at a 5:1 ratio for 114 linear feet of credit. The onsite restoration shall be constructed in accordance with the design submitted in your application dated October 18, 2010.
 - b. All onsite mitigation requirements listed in Conditions 17 b, 17c and 17d in the original Water Quality Certification dated January 7, 2011 (reissuance on January 11, 2011) still apply.
 - c. We understand that you have chosen to perform compensatory mitigation for the remaining permanent impacts to 447 linear feet of jurisdictional 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 May 30, 2013 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.

Based on the above information, stream mitigation can be summarized as follows:

Mitigation Source	Mitigation Required (feet)	Debit Ratio	Debits Required (feet)
Sections AA & AB			
EEP	447	1:1	447
On Site Restoration	66	1:1	66
On Site Preservation	114	5:1	570
TOTAL:	627		1,083
Section B			
TOTAL:	0		0
Project Total			
TOTAL:	627		1,083

4. Mitigation for permanent impacts to 64.46 acres of wetland (404 and isolated) is required for R-2633AA & AB and R-2633B based on the final impact numbers provided for the B-section. Mitigation will be provided through a combination of both onsite and offsite mitigation. Mitigation will be credited as detailed below:
 - a. The NCDOT will provide compensatory mitigation impacts for 1.22 acres (0.63 acres restoration and 0.59 acres preservation) on site at the Bishop Branch Mitigation Site. The permittee shall comply with the on-site wetland mitigation plan submitted with the application dated October 18, 2010.
 - b. All onsite mitigation requirements listed in Conditions 18 b and 18c in the original Water Quality Certification dated January 7, 2011 (reissuance on January 11, 2011) still apply.
 - c. We understand that you have chosen to perform compensatory mitigation for the remaining 63.24 acres of impact (6.99 acres riparian and 56.25 acres non-riparian) 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 May 30, 2013 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.

Based on the above information, wetland mitigation can be summarized as follows:

Mitigation Source	Wetland Type	Mitigation Credits Required	Debit Ratio	Credit or Debits (acres) Required
Sections AA & AB				
EEP	Riparian	6.87	2:1	13.74 (credits)
EEP	Non Riparian	16.38	2:1	32.76 (credits)
On Site Restoration	Riparian	0.63	1:1	0.63 (acres)
On Site Preservation	Riparian	0.59	5:1	2.95 (acres)
Section B				
EEP	Riparian	0.12	2:1	0.24
EEP	Non Riparian	39.87	2:1	79.74

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. Lacy Presnell, General Counsel
Department of Environment and Natural Resources
1601 Mail Service Center
Raleigh, NC 27699-1601

This the 31st day of May 2013

DIVISION OF WATER QUALITY



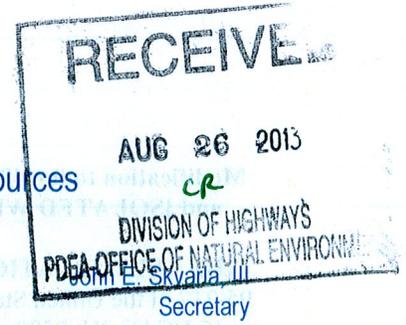
Charles Wakild
Director



North Carolina Department of Environment and Natural Resources

Division of Water Resources
Water Quality Programs
Thomas A. Reeder
Director

Pat McCrory
Governor



DIVISION OF HIGHWAYS
PDEA OFFICE OF NATURAL ENVIRONMENTAL
Secretary

August 19, 2013

Dr. Greg Thorpe, PhD., Manager
Project Development and Environmental Analysis
North Carolina Department of Transportation
1598 Mail Service Center
Raleigh, North Carolina, 27699-1598

Subject: Modification to the 401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water Act and ISOLATED WETLANDS PERMIT Pursuant to IWGP100000 with ADDITIONAL CONDITIONS for Proposed improvements to the Wilmington Bypass from US 17 in Brunswick County, north of the NC 87 intersection, to US 421 in New Hanover County. Federal Aid Project Nos. NHF-0017(96) and STM-0017(97), State Project Nos. 34491.1.3.GV2 and 34497.3.ST1, Brunswick and New Hanover Counties, TIP R-2633AA/AB and R-2633B.

NCDWR Project No. 20100867 v. 5

Dear Dr. Thorpe:

Attached hereto is a modification of Certification No. 3842 issued to The North Carolina Department of Transportation (NCDOT) dated January 13, 2011 and modifications dated May 9, 2011 and April 5, 2012 and May 31, 2013.

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

Sincerely,

Thomas A. Reeder

Attachments

- cc: Brad Shaver, US Army Corps of Engineers, Wilmington Field Office (electronic copy only)
- Stoney Mathis, Division 3 Environmental Officer
- 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)
- Rachelle Beauregard, NCDOT, Natural Environment Section (electronic copy only)
- Jason Elliot, NCDOT, Natural Environment Section (electronic copy only)
- Steve Sollod, NC Coastal Management (electronic copy only)
- Sonia Carrillo, NCDWQ Central Office
- File Copy

Transportation and Permitting Unit
1650 Mail Service Center, Raleigh, North Carolina 27699-1650
Location: 512 N. Salisbury St. Raleigh, North Carolina 27604
Phone: 919-807-6300 \ FAX: 919-807-6488
Internet: www.ncwaterquality.org

An Equal Opportunity \ Affirmative Action Employer

One
North Carolina
Naturally

Modification to the 401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water Act, and ISOLATED WETLANDS PERMIT Pursuant to IWGP100000) 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 Resources (NCDWR) Regulations in 15 NCAC 2H .0500 and ISOLATED WETLANDS PERMIT Pursuant to IWGP100000. This certification authorizes the NCDOT to impact an additional 0.01 acres of jurisdictional wetlands and 16 linear feet of jurisdictional streams in Brunswick County. The project shall be constructed pursuant to the modification dated received August 1, 2013 and revisions received on August 19, 2013. The authorized impacts are as described below:

Stream Impacts in the Cape Fear River Basin

Site	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)	Total Stream Impact (linear ft)	Stream Impacts Requiring Mitigation (linear ft)
Original approved utility impacts at Sta. -Y8- 46+77 to 48+10	0	0	0	0	0	0
New utility impacts with this approval at Sta. -Y8- 46+77 to 48+10	0	0	0	16	16	0
Total	0	0	0	16	16	0

Total New Stream Impact for (Site/Modification): 16 linear feet

Wetland Impacts in the Cape Fear River Basin (riparian)

Site	Fill (ac)	Fill (temporary) (ac)	Excavation (temporary) (ac)	Mechanized Clearing (ac)	Hand Clearing (ac)	Total Wetland Impact (ac)
Original approved utility impacts at Sta. -Y8- 46+77 to 48+10	0	0	0	0	0	0
New utility impacts with this approval at Sta. -Y8- 46+77 to 48+10	0	0	<0.01	0	0	<0.01
Original approved utility impacts at Sta. -Y8- 46+72 to 47+58	0	0	0	0	0	0
New utility impacts with this approval at Sta. -Y8- 46+72 to 47+58	0	0	<0.01	0	0	<0.01
Total	0	0	0.01	0	0	0.01

Total Wetland Impact for (Site/Modification): 0.01 acres.

The application provides adequate assurance that the discharge of fill material into the waters of the Cape Fear 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 modified application dated received August 1, 2013 and revision received on August 19, 2013. All the authorized activities and conditions of certification associated with the original Water Quality Certification dated January 13, 2011 and modifications dated May 9, 2011 and April 5, 2012 and May 31, 2013 still apply except where superceded by this certification. Should your project change, you are required to notify the NCDWR 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:

1. This modification is applicable only to the additional proposed activities. All of the authorized activities and conditions of certification associated with the original Water Quality Certification dated January 13, 2011 and subsequent modifications dated May 9, 2011 and April 5, 2012 and May 31, 2013 still apply except where superseded by this certification.
2. Material temporarily excavated for utility installation shall be stockpiled in an upland area and placed back into the excavated area in a manner that restores the original grade and soil profile with the organic/root layer on top.

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. Lacy Presnell, General Counsel
Department of Environment and Natural Resources
1601 Mail Service Center

This the 19th day of August 2013

DIVISION OF WATER RESOURCES



Thomas A. Reeder



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



Pat McCrory
Governor

Braxton C. Davis
Director

Secretary

June 28, 2013

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



North Carolina Department of Environment and Natural Resources

Division of Water Resources
Water Quality Programs

Pat McCrory
Governor

Thomas A. Reeder
Director

John E. Skvarla, III
Secretary

NCDWR 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 Resources, 1650 Mail Service Center, Raleigh, NC, 27699-1650. This form may be returned to NCDWR 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 _____

Transportation and Permitting Unit
1650 Mail Service Center, Raleigh, North Carolina 27699-1650
Location: 512 N. Salisbury St. Raleigh, North Carolina 27604
Phone: 919-807-6300 | FAX: 919-807-6488
Internet: www.ncwaterquality.org



Permit Class
NEW

Permit Number
76-13

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, 1598 Mail Service Center, Raleigh, NC 27699-1548

Authorizing development in Brunswick and New Hanover County at a new crossing of the Cape Fear River and Toomers Creek (US 17 Wilmington Bypass) as requested in the permittee's application dated 4/3/13, including the attached drawings as referenced in Condition No. 1 of this permit.

This permit, issued on 6/28/13, 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.

US 17 Bypass of Wilmington (TIP No. R-2633B)

- 1) Unless specifically altered herein, all work authorized by this permit shall be carried out in accordance with the following seventy seven (76) workplan drawings:

½ size drawings: Twenty six (26) drawings dated 11/30/12, five (5) drawings dated 12/3/12, two (2) drawings dated 2/8/13, three (3) drawings dated as received on 4/8/13, twenty four (24) drawings dated 5/2/13, three (3) drawings dated 5/6/13, two (2) drawings dated 5/14/13, and eleven (11) drawings dated 5/24/13.

(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.

Douglas V. Haggitt
for

Braxton C. Davis, Director
Division of Coastal Management

This permit and its conditions are hereby accepted.

E. L. Luke for Gregory J. Thayer
Signature of Permittee

ADDITIONAL CONDITIONS

- 2) In accordance with project commitments made within the CAMA permit application, and in order to protect anadromous fish during spawning periods and through embryonic, larval or juvenile life stages, no in-water work shall be conducted in the Cape Fear River and Toomers Creek from February 1st through June 15th of any year without prior approval of the NC Division of Coastal Management (DCM), in consultation with the NC Wildlife Resources Commission (WRC) and the NC Division of Marine Fisheries (DMF). For the purposes of this moratorium, in-water is defined as extending 35 meters (115 feet) from the main channel where the vegetation line meets open water and into adjacent wetlands. The in-water work moratorium prohibits pile installation, both vibratory and impact, and activities associated with the construction of any temporary work bridge.
- 3) Unless specifically altered herein, the permittee shall implement NCDOT's Stream Crossing Guidelines for Anadromous Fish Passage.
- 4) The West Indian Manatee, *Trichechus manatus*, which is listed as a federally endangered species, has been reported in North Carolina waters. Therefore, in accordance with commitments made by the permittee and in order to protect the West Indian Manatee all work should be done during the period from November 1 to May 31. If work must be done during the period from June through October the enclosed guidelines prepared by the U.S. Fish and Wildlife Service (USFWS), entitled "Guidelines for Avoiding Impacts to the West Indian Manatee: Precautionary Measures for Construction Activities in North Carolina Waters (rev. 06/03)" shall be followed.
- 5) The authorized project is located within a Primary Nursery Area (PNA). Therefore, in accordance with T15A:07H.0208 of the rules of the Coastal Resources Commission, no new dredging or excavation within PNA shall be permitted. Dredging in any manner, including "kicking" with boat propellers is not authorized. This prohibition shall be applied and enforced throughout the construction and any following maintenance activities.
- 6) The permanent and temporary work bridge piles shall be installed with vibratory hammer, pile driver, or drilling. Should jetting of any bridge piles become necessary, additional authorization shall be required by DCM in consultation with the appropriate resource agencies.
- 7) Turbidity curtains shall be used to isolate all in-water work areas from the adjacent waterbody, including but not limited to pile driving/drilling or removal activities and excavation and filling activities. The turbidity curtains shall encircle the immediate work area but, shall not impede navigation. The turbidity curtains shall be properly maintained and retained in the water until construction is complete and shall only be removed when turbidity within the curtains reaches ambient levels.
- 8) Drill slurry, uncured concrete, and water that has been in contact with uncured concrete, shall not be allowed to contact waters of the State or water that will enter waters of the State. Drilling fluids shall be disposed of in an upland disposal site. Water returning to the river shall be of sufficient quality so as not to pose as threat to aquatic organisms or otherwise violate State water quality standards.
- 9) Excavated material from the drill-shaft construction shall be removed from the encasements directly into containment vessels and sufficient efforts shall be utilized to minimize spillage of spoil material into waters of the State.

ADDITIONAL CONDITIONS

- 10) Excavated material from the drill-shaft construction shall be removed from the encasements directly into containment vessels and sufficient efforts shall be utilized to minimize spillage of spoil material into waters of the State.
- 11) The permittee and/or his contractor shall exercise all available precautions in day-to-day operations to prevent waste from entering the adjacent waters and wetlands.
- 12) Any debris resulting from the construction of the new bridges shall not enter wetlands or waters of the State, even temporarily.
- 13) Any waste materials and debris associated with bridge construction 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.
- 14) The permittee and/or his contractor shall provide for proper storage and handling of all oils, chemicals, etc., necessary to carry out the project.
- 15) Construction staging areas shall be located only in upland areas, and not in wetlands or waters of the State.
- 16) 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.
- 17) The temporary work bridges shall be removed in their entirety within 90 days after they are no longer needed. However, if this timeframe occurs while the moratorium referenced in Condition No. 2 of this permit is in effect, then the temporary work bridge shall be removed in its entirety within 90 days of the moratorium end date.
- 18) The permittee shall minimize the need to cross wetlands in transporting equipment to the maximum extent practicable.
- 19) 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.
- 20) There shall be no clearing or grubbing of wetlands outside of the areas indicated on the attached workplan drawings without prior approval from DCM.
- 21) In accordance with project commitments made within the permit application, bridge deck drains shall not be located over the open waters of the Cape Fear River or Toomers Creek and shall not cause erosion of adjacent wetlands.
- 22) During bridge construction, the permittee shall make every attempt to allow the same navigation that is currently possible in the Cape Fear River. If this is not possible, then adequate notice shall be provided to the public that navigation will be limited during construction. The notice shall include an estimate of the amount of time that the limited navigation will occur.

ADDITIONAL CONDITIONS

- 23) During bridge construction, the permittee shall make every attempt to allow the same navigation that is currently possible in the Cape Fear River. If this is not possible, then adequate notice shall be provided to the public that navigation will be limited during construction. The notice shall include an estimate of the amount of time that the limited navigation will occur.
- 24) In accordance with project commitments made within the Record of Decision, dated October 2007, protective fencing shall be installed to ensure that no inadvertent impacts occur to populations of Pickering's Dawnflower, a listed Federal Species of Concern and state-listed endangered species, outside the limits of the construction easement.

Excavation and Fill

- 25) No excavation or filling 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.
- 26) 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.
- 27) All excavated materials shall be confined above normal high 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.
- 28) 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.
- 29) The temporary placement and double handling of any excavated or fill material within waters or vegetated wetlands is not authorized.
- 30) All fill material shall be clean and free of any pollutants except in trace quantities.

Barges

- 31) Barges shall be removed promptly when they are no longer needed.
- 32) Barges shall be utilized only in areas of sufficient depth such that the barges do not rest on the bottom during periods of low tide.
- 33) Caution shall be exercised with placement and removal of any barges to ensure that impacts to shallow water habitat are avoided and minimized to the maximum extent practicable.

ADDITIONAL CONDITIONS

Sedimentation and Erosion Control

- 34) 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 Energy, Mineral and Land Resources.
- 35) 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

- 36) Due to the possibility that compaction, mechanized clearing and/or other site alterations might prevent any temporary Coastal Wetland impact area from re-attaining pre-project Coastal Wetland functions, the permittee shall monitor temporary Coastal Wetland impacts for three years after project completion. The permittee shall schedule a meeting with DCM to verify the extent and location of temporary impacts upon project completion. The permittee shall then provide an annual update on any Coastal Wetland areas temporarily impacted by this project. This annual update shall consist of photographs and written report on the progress of these temporarily impacted areas in re-attaining Coastal Wetland jurisdictional status. Three years after project completion, the permittee shall schedule an agency field meeting with DCM to determine if the Coastal Wetland areas temporarily impacted by this project have re-attained pre-project Coastal Wetland functions. If at the end of 3 years the Coastal Wetland areas temporarily impacted by this project have not re-attained pre-project Coastal Wetland functions, DCM shall determine whether compensatory Coastal Wetland mitigation shall be required.

NOTE: The Ecosystem Enhancement Program (EEP) agreed to provide mitigation for the entire project (R-2633AA&AB and R-2633B) impacts of 7.28 acres of riparian wetlands, 56.25 acres of non-riparian wetlands, and 509.0 linear feet of stream impacts, in accordance to the EEP Mitigation Acceptance Letter, dated 5/30/13.

Utilities Relocation

- 37) 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

- 38) 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.

ADDITIONAL CONDITIONS

39) DWQ authorized the proposed project (DWQ Project No. 20100867 v.4) on 5/31/13 under Certification No. 3842 as a modification to the original Water Quality Certification, dated 1/7/11 and reissued on 1/13/11. 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 ~~12/17/10~~ **5/13/13** (Project No. SW8 101115).

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 shall 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 Coastal Management

Pat McCrory
Governor

Braxton C. Davis
Director

John E. Skvarla, III
Secretary

August 22, 2013

Gregory J. Thorpe, Ph.D.
Environmental Management Director
Project Development and Environmental Analysis Branch
N.C. Dept. of Transportation
1548 Mail Service Center
Raleigh, N.C. 27699-1548

RE: Refinement of CAMA Major Development Permit No. 76-13 (TIP No. R-2633B).
Wilmington Bypass (B-Section), Brunswick County and New Hanover County.

Dear Dr. Thorpe:

This letter is in response to your request dated July 31, 2013, with additional information received from the North Carolina Department of Transportation on August 19, 2013, requesting authorization to revise the construction plans for the proposed water and sewer utility lines between Station 46+72 and Station 48+10 right of -Y8- on the Wilmington Bypass project.

Originally, the proposed water line was designed and permitted to cross under the fill and rip rap near the beginning of the proposed bridge over Cartwheel Branch. The revised design for the water line is to cross under the stream and adjacent wetland utilizing a 3' wide temporary trench, which would be immediately backfilled following completion of the utility line installation. The installation of the water line would be performed "in the dry" utilizing sand bags and a pump to divert the stream flow around the proposed work.

The sewer line was inadvertently omitted from the original permit plans. Current plans propose to construct the sewer line 10' from the proposed water line. The sewer line relocation would stop prior to crossing the stream and tie into the existing sewer force main. Additional total impacts from the water and sewer line relocation are 0.01 acre of temporary excavation in riparian wetlands, <0.01 acre of temporary excavation in surface waters, and 16 linear feet of stream impact.

This **Letter of Refinement** authorizes the revision to the water and sewer utility lines as described in your request dated July 31, 2013, with additional information received on August 19, 2013, including revised Utility Permit Drawing Sheets 14 of 15 and 15 of 15. This letter shall be attached to the original of amended CAMA Permit No. 76-13 and all documents must be readily available on site when a DCM representative inspects the NCDOT – Wilmington Bypass (T.I.P. R-2633B)

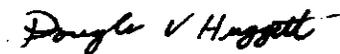
August 22, 2013

Page 2

project for compliance. All conditions and stipulations of the active permit remain in force unless altered herein.

Please contact Stephen Lane at (252) 808-2808 ext. 213 if you have any questions or concerns.

Sincerely,



Doug Huggett
Major Permits and Consistency Coordinator

cc: Rachelle Beauregard, NCDOT
Stephen Lane, NCDCM
Elizabeth Lusk, NCDOT
Chris Rivenbark, NCDOT
Steve Sollod, NCDCM
Brad Shaver, USACE
Mason Herndon, DWQ
Stonewall Mathis, NCDOT



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.

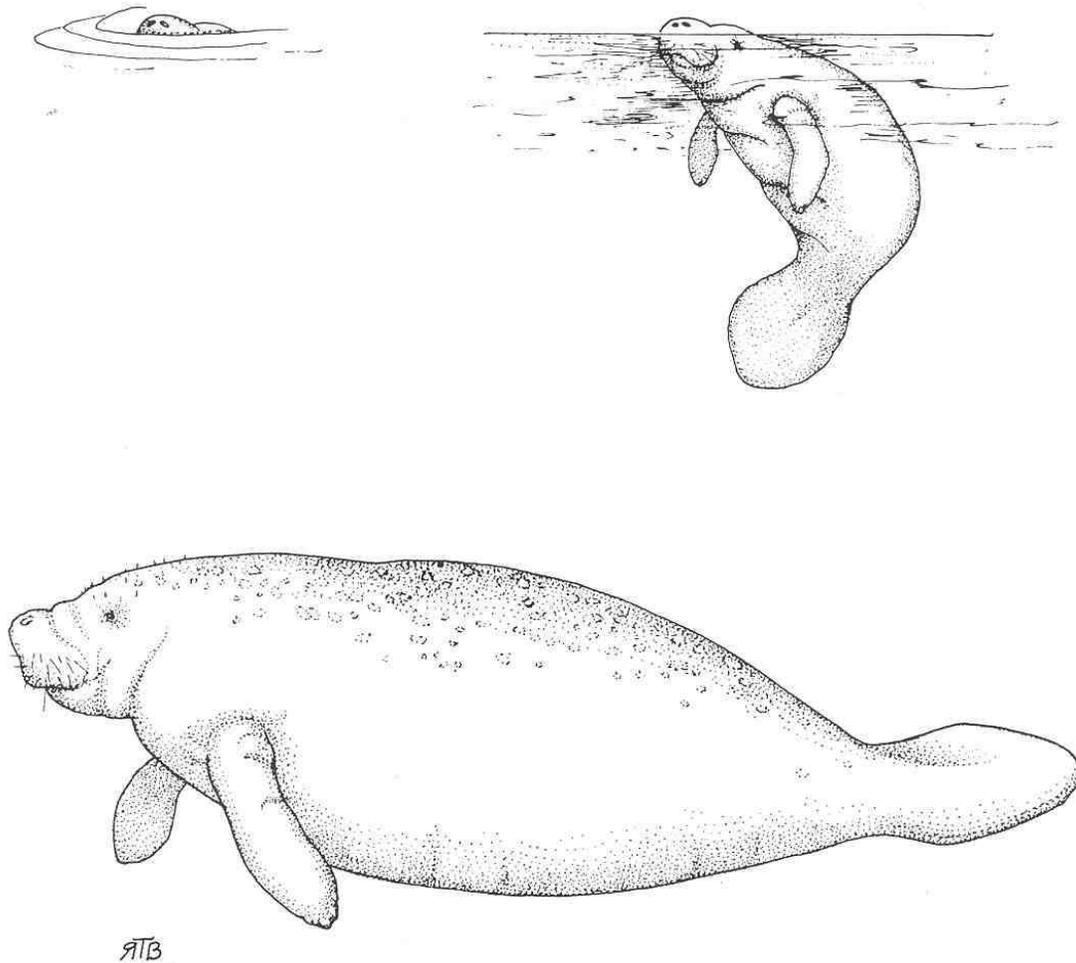


Illustration used with the permission of the North Carolina State Museum of Natural Sciences.
Source: Clark, M. K. 1987. Endangered, Threatened, and Rare Fauna of North Carolina: Part I. A re-evaluation of the mammals. Occasional Papers of the North Carolina Biological Survey 1987-3. North Carolina State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

U.S. Department of
Homeland Security

United States
Coast Guard



Commander
United States Coast Guard
Fifth Coast Guard District

431 Crawford Street
Portsmouth, Va. 23704-5004
Staff Symbol: (dpb)
Phone: (757) 398-6587
Fax: (757) 398-6334
Email: Terrance.A.Knowles@uscg.mil

16591
10 Sep 2013

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

Dear Dr. Thorpe:

Enclosed are the Coast Guard Bridge Permits 6-13-5 and 7-13-5 dated September 5, 2013, approving the proposed construction of bridges across Cape Fear River, at mile 35.5 and Toomers Creek, at mile 1.4, near Wilmington, Brunswick and New Hanover Counties, NC, respectively. The following stipulations shall be adhered to:

a. The Contractor shall submit the plans and schedules of operation for approval at least 45 days prior to commencement of work in the waterways. One copy of such information shall be submitted concurrently to your Resident Engineer, the United States Coast Guard Commander (dpb); Federal Building, 4th Floor, 431 Crawford Street; Portsmouth, VA 23704-5004, and the U. S. Coast Guard Sector North Carolina at 2301 East Fort Macon Road, Atlantic Beach, NC 28512-5633. The information shall include a sketch of the waterways; the bridges; the location of any restrictions that will be placed in the waterways such as barges, anchors, and anchor lines; the location and height above mean high water and detailed description of any scaffolding, or netting; detailed description indicating the placement, type and dimension of any cofferdams if used. The schedules should also include the hours of operation and whether or not the equipment will be removed at night. The contractor shall comply with all provisions of the Navigation Rules International - Inland, available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. The Contractor shall submit to the Resident Engineer a copy of all correspondence between the Coast Guard. No deviation from the approved plans and schedules of operation may be made unless the modification has previously been submitted and approved by the Coast Guard.

b. At no time during the work will the waterways be closed to navigation without prior approval from the Coast Guard. You are required to maintain close and regular contact with Coast Guard Sector North Carolina to keep them informed to activities in waterways at (252) 247-4570.

c. Barges that are used in the waterways during the project must be marked. Enclosure (2) outlines temporary marking and lighting requirements for barges and structures not part of the bridge that will be used during construction. If barge or float anchor lines are used, they must be marked by buoys, which should be lighted. If you should have any questions, regarding lights on the barges or work floats, please contact Mr. John Walters, Chief, Waterways Management Section, at (757) 398-6230. Floating equipment shall have a radiotelephone capable of operation

from its main control station in accordance with Part 26 of Title 33, Code of Federal Regulations and shall be monitored during all periods the floating equipment is on station.

d. During the progress of work, while the channels are in operation, should any material, machinery or equipment be lost, dumped, thrown overboard, sunk or misplaced which may be dangerous to or obstruct navigation, immediate notice shall be given to the Coast Guard and the object removed with the utmost dispatch. Until removal can be effected, the objects shall be properly marked in order to protect navigation. Notice to the Coast Guard shall give a description and location of any such object and the action taken or being taken to protect navigation.

e. Upon completion of the proposed project, an inspection of the waterways bottom shall be performed to insure that all construction waste materials have been completely removed. Certification will be required in writing by a licensed engineer or licensed surveyor that the waterway has not been impaired and all construction related debris has been cleared from it. The certification shall include the actual method used to conduct the inspection. The Contractor shall remove any bridge related debris, resulting from the current or prior work or occurrences, discovered during this survey.

f. Upon completion of the bridgework, a responsible official of the North Carolina Department of Transportation shall verify as-built clearances and a statement attesting to the correctness of the clearances shall be forwarded to this office for record purpose. In lieu of verification by the above listed official, certification by a licensed surveyor or registered professional engineer registered in the State of North Carolina will be accepted.

g. Except as shown on the plans, no dredging, excavation, filling, rip-rap, or other work affecting the bottom, shall be done in conjunction with this work.

h. If during the periods of construction, permanent lighting cannot be maintained operable, the fenders of each pier shall be marked with a battery or power operated white light of not less than 60 flashes per minute and visible for a range of 2,000 yards on 90% of the nights of the year. Generally, a lamp of 20-candle power will meet these requirements. If necessary to obtain coverage required, a light or lights on the upstream and downstream sides shall be installed. The piers shall be so marked until the construction has been completed and permanent navigational lighting has been reinstalled and determined to be operating satisfactorily. Written approval from the Coast Guard of temporary lighting during periods of construction is required. No existing bridge navigation lights shall be impaired or blocked during darkness or periods of reduced visibility.

i. Compliance with the requirements stated herein does not relieve the contractor of the obligation or responsibility for compliance with the provisions of any other law or regulation as may be under the jurisdiction of the State of North Carolina, or any other federal, state or local authority having cognizance of any aspect of the location, construction or maintenance of said bridge. It is advised that the Coast Guard can levy monetary civil penalties for violations of bridge regulations and statutes.

16591
10 Sep 2013

j. In accordance with Title 33 Code of Federal Regulations Part 118.25 – Application procedure, approval of lights and other signals required shall be obtained prior to construction. Application shall be by letter accompanied by duplicate sets of drawings showing (1) the plan and elevation of the structure showing lights and signals proposed, and (2) a small scale vicinity chart showing proposed bridges and all other bridges within 1,000 feet above or below the proposed bridge.

The office of the Bridge Administrator, Fifth Coast Guard District, shall be notified immediately upon completion of the project. If you should have any questions regarding this matter, please contact Mr. Terrance Knowles at the above listed address or telephone number.

Sincerely,



WAVERLY W. GREGORY, JR.
Bridge Program Manager
By direction of the Commander
Fifth Coast Guard District

Encl: (1) Bridge Permits 6-13-5 and 7-13-5 dated September 5, 2013
(2) USCG Temporary Marking & Lighting

Copy: John Walters, (dpw) w/encl
USCG Sector North Carolina, Waterways Management w/encl

***LIGHTING REQUIREMENTS FOR BARGES AND STRUCTURES NOT PART OF A
BRIDGE OR APPROACH STRUCTURE***

88.13 Lights on barges at bank or dock.

- (a) The following barges shall display at night and, if practicable, in periods of restricted visibility the lights described in paragraph (b) of this section -
 - (1) Every barge projecting into a buoyed or restricted channel.
 - (2) Every barge so moored that it reduces the available navigable width of any channel to less than 80 meters.
 - (3) Barges moored in groups of more than two barges wide or to a maximum width of over 25 meters.
 - (4) Every barge not moored parallel to the bank or dock.
- (b) Barges described in paragraph (a) shall carry two unobstructed white lights of an intensity to be visible for a least one mile on a clear dark night and arranged as follows:
 - (1) On a single moored barge, lights shall be placed on the two corners farthest from the bank or dock.
 - (2) On barges moored in group formation, a light shall be placed on each of the upstream and downstream ends of the group, on the corners farthest from the bank or dock.
 - (3) Any barge in a group, projecting from the main body of the group toward the channel, shall be lighted as a single barge.
- (c) Barges moored in any slip or slough, which is used primarily for mooring purposes, are exempt from the lighting requirements of this section.

***33 CODE OF FEDERAL REGULATIONS, SECTION 118.95
LIGHTS ON STRUCTURES NOT PART OF A BRIDGE OR APPROACH STRUCTURE***

Lights on sheer booms, isolated piers, obstructions, and other structures not part of a bridge or approach structure must meet the requirements for aids to navigation in Subpart 66.01 of Part 66 of this chapter.

33 CODE OF FEDERAL REGULATIONS, SECTION 66.01-10

- (a) The characteristics of a private aid to navigation shall conform to the United States Aids to Navigation System described in Subpart B of Part 62 of this subchapter, except that only tungsten-incandescent light sources will be approved for electric lights.

Therefore in accordance with 33 CFR 66.01-10(a), the above lights shall be marked with slow flashing yellow lights visible for two miles on a clear dark night. Lights similar to the Tideland ML-120 Barge Light may be used. Only tungsten-incandescent light sources will be approved for electric lights.



BRIDGE PERMIT

§ SEP 2013

(6-13-5)

WHEREAS by Title V of an act of Congress approved August 2, 1946, entitled "General Bridge Act of 1946," as amended (33 U.S.C. 525-533), the consent of Congress was granted for the construction, maintenance and operation of bridges and approaches thereto over the navigable waters of the United States;

AND WHEREAS the Secretary of Homeland Security has delegated the authority of Section 502(b) of that act to the Commandant, U.S. Coast Guard by Department of Homeland Security Delegation Number: 0170.1;

AND WHEREAS before construction is commenced, the Commandant must approve the location and plans of any such bridge and may impose any specific conditions relating to the construction, maintenance and operation of the structure deemed necessary in the interest of public navigation, such conditions to have the force of law;

AND WHEREAS the - STATE OF NORTH CAROLINA - has submitted for approval the location and plans of dual bridges to be constructed across the Cape Fear River near Wilmington, North Carolina;

NOW THEREFORE, This is to certify that the location and plans dated 28 March 2013 are hereby approved by the Commandant, subject to the following conditions:

1. No deviation from the approved plans may be made either before or after completion of the structures unless the modification of said plans has previously been submitted to and received the approval of the Commandant.

2. The construction of falsework, pilings, cofferdams or other obstructions, if required, shall be in accordance with plans submitted to and approved by the Commander, Fifth Coast Guard District, prior to construction of the bridges. All work shall be so conducted that the free navigation of the waterway is not unreasonably interfered with and the present navigable depths are not impaired. Timely notice of any and all events that may affect navigation shall be given to the District Commander during construction of the bridges. The channel or channels through the structures shall be promptly cleared of all obstructions placed therein or caused by the construction of the bridges to the satisfaction of the District Commander, when in the judgment of the District Commander the construction work has reached a point where such action should be taken, but in no case later than 90 days after the bridges have been opened to traffic.

(6-13-5)

3. Issuance of this permit does not relieve the permittee of the obligation or responsibility for compliance with the provisions of any other law or regulation as may be under the jurisdiction of the U.S. Department of Commerce, National Marine Fisheries Service, or any other federal, state or local authority having cognizance of any aspect of the location, construction or maintenance of said bridges.

4. A bridge fendering system shall be installed and maintained in good condition by and at the expense of the owner of the bridges when so required by the District Commander. Said installation and maintenance shall be for the safety of navigation and be in accordance with plans submitted to and approved by the District Commander prior to its construction.

5. Clearance gauges shall be installed and maintained in a good and legible condition by and at the expense of the owner of the bridges when so required by the District Commander. The type of gauges and the locations in which they are to be installed will be submitted to the District Commander for approval.

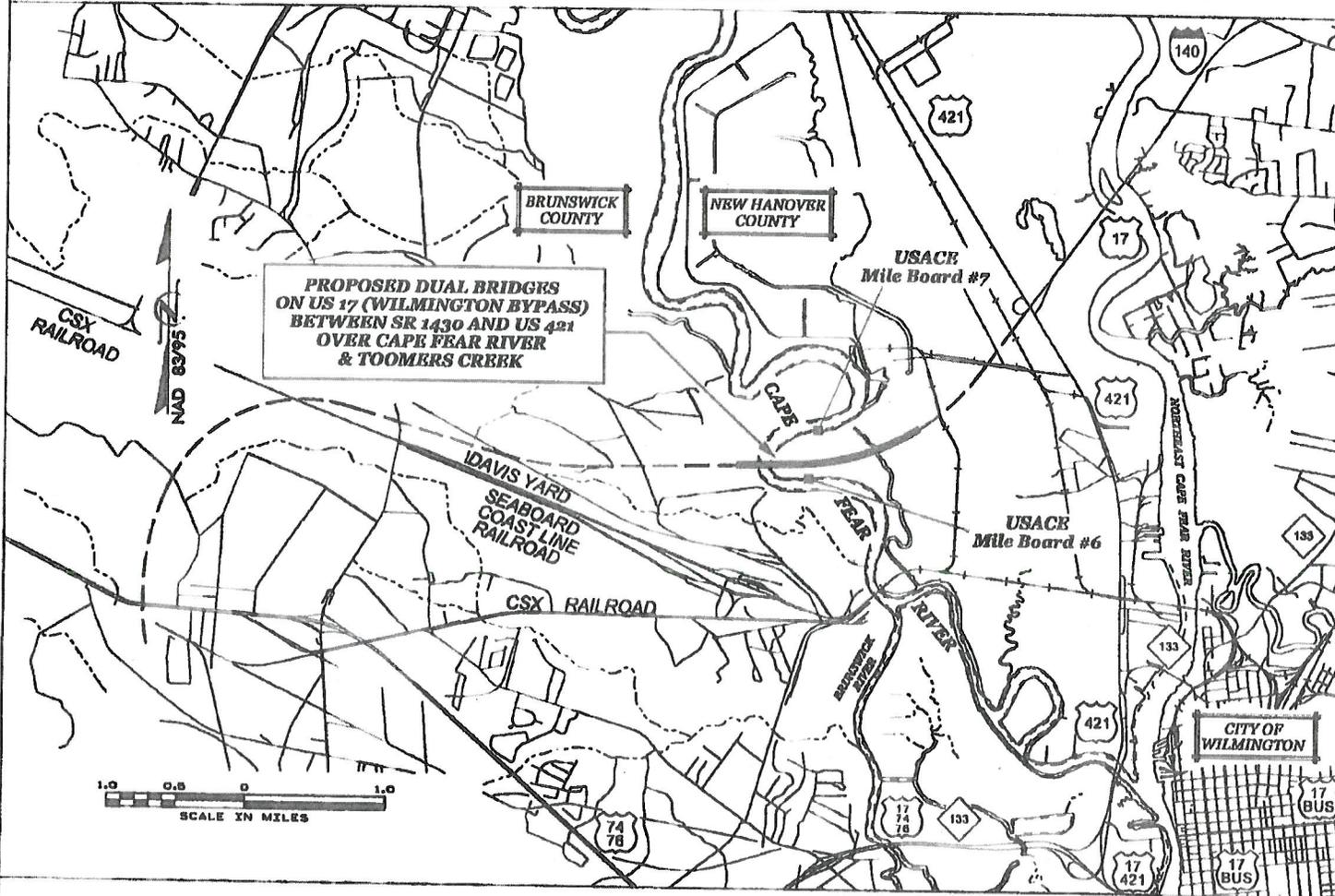
6. When the proposed bridges are no longer used for transportation purposes, they shall be removed in their entirety or to an elevation deemed appropriate by the District Commander and the waterway cleared to the satisfaction of the District Commander. Such removal and clearance shall be completed by and at the expense of the owner of the bridges upon due notice from the District Commander.

7. The approval hereby granted shall cease and be null and void unless construction of the bridges is commenced within three years and completed within five years after the date of this permit.



Brian L. Dunn
Chief, Office of Bridge Programs
U.S. Coast Guard
By direction of the Commandant

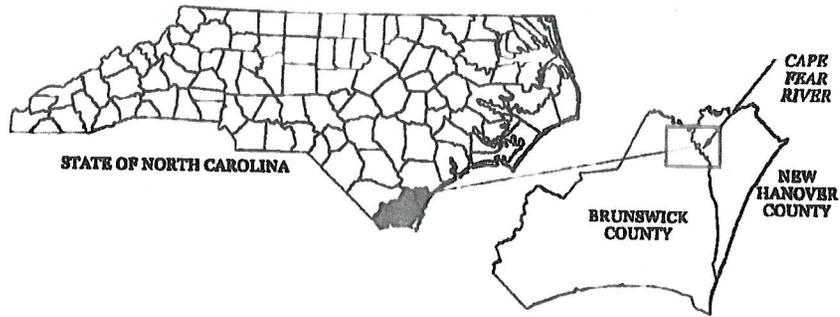
VICINITY MAP



For portions of these bridges in and adjacent to Cape Fear River, the design vessel is the tugboat, "Gale", with the tank barge, "B201", in tow.

Tugboat and tank barge owner, Chatham Towing Company, Inc.

For all other portions of these bridges, where applicable, the design vessel (per AASHTO Guide Specifications) is the load associated with an empty, drifting 195 - foot by 35 - foot hopper barge.



This bridge has been designed in accordance with the requirements of AASHTO LRFD bridge design specifications, including requirements for vessel collision



State of North Carolina

Department of Transportation
Raleigh, NC

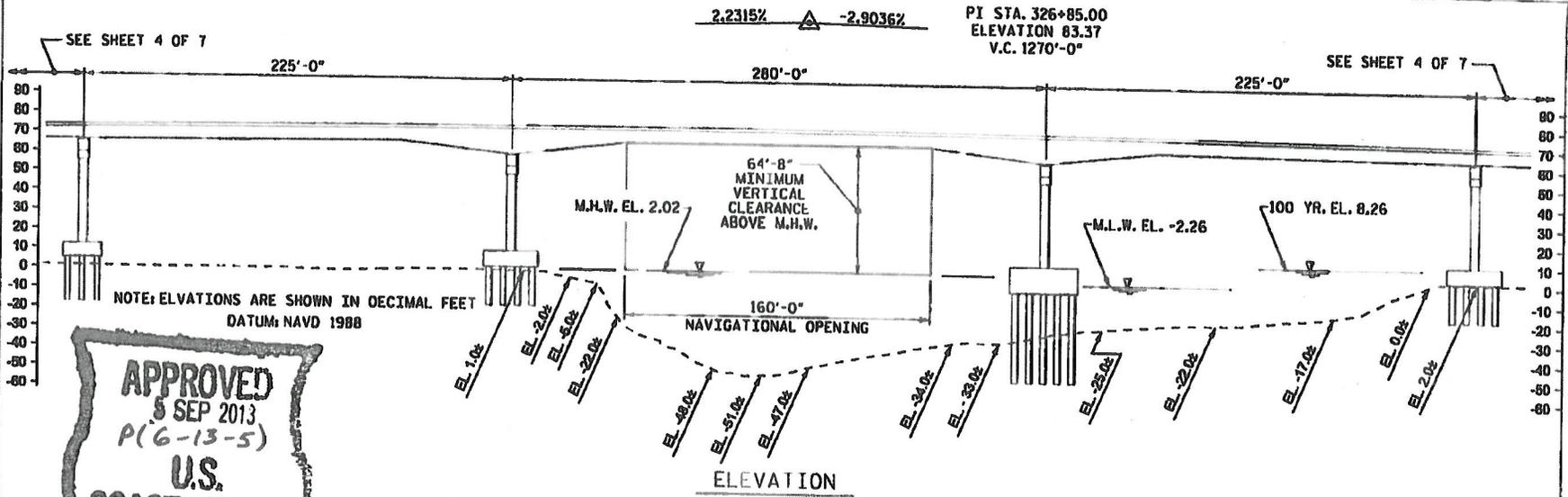
Proposed Dual Bridges on US 17 (Wilmington Bypass) between SR 1430 and US 421 over Cape Fear River, Mile Point 35.5 near Wilmington, NC

Brunswick & New Hanover Counties

State Project No.: R-2839BB

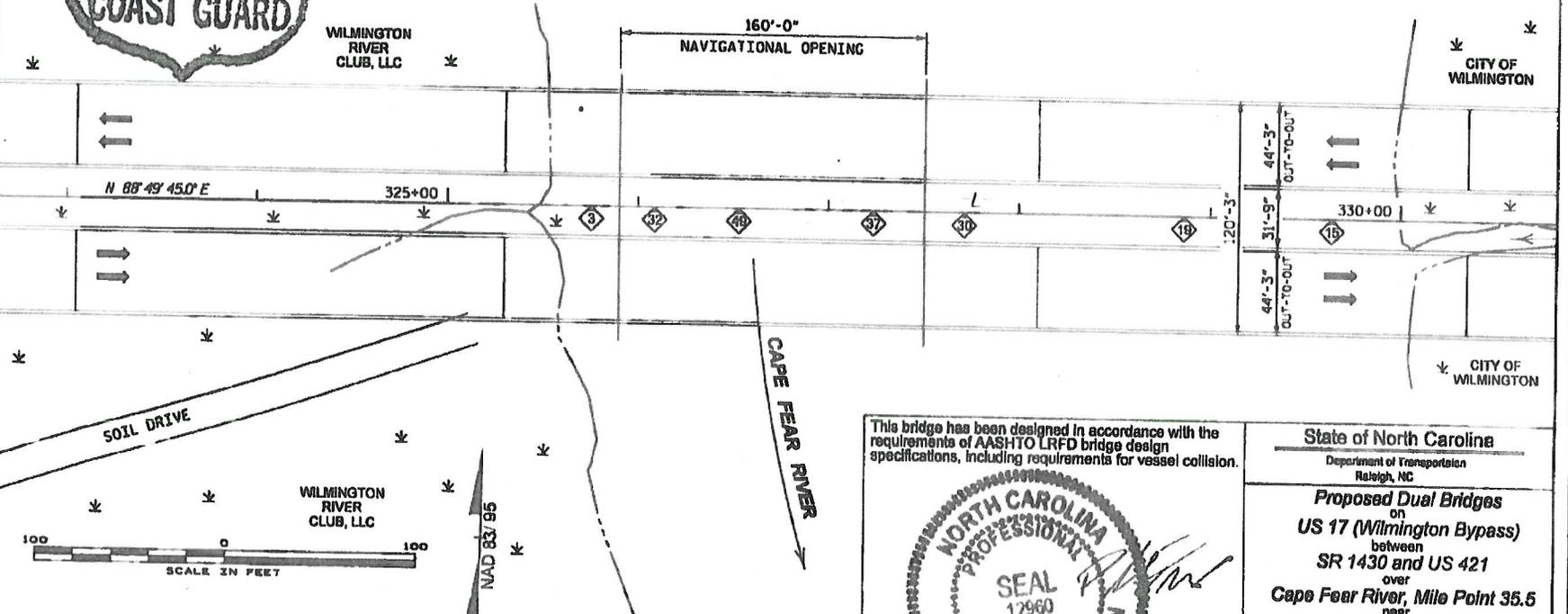
March 28, 2013

Sheet 1 of 2



APPROVED
 5 SEP 2013
 P(6-13-5)
 U.S.
 COAST GUARD

NOTE: ELEVATIONS ARE SHOWN IN DECIMAL FEET
 DATUM: NAVD 1988



◇ DENTOTES APPROXIMATE WATER DEPTH AT MEAN LOW WATER

This bridge has been designed in accordance with the requirements of AASHTO LRFD bridge design specifications, including requirements for vessel collision.



State of North Carolina	
Department of Transportation Raleigh, NC	
Proposed Dual Bridges on US 17 (Wilmington Bypass) between SR 1430 and US 421 over Cape Fear River, Mile Point 35.5 near Wilmington, NC	
Brunswick & New Hanover Counties	
State Project No. : R-2633BB	
March 28, 2013	Sheet 2 of 2



BRIDGE PERMIT

5 SEP 2013

(7-13-5)

WHEREAS by Title V of an act of Congress approved August 2, 1946, entitled "General Bridge Act of 1946," as amended (33 U.S.C. 525-533), the consent of Congress was granted for the construction, maintenance and operation of bridges and approaches thereto over the navigable waters of the United States;

AND WHEREAS the Secretary of Homeland Security has delegated the authority of Section 502(b) of that act to the Commandant, U.S. Coast Guard by Department of Homeland Security Delegation Number: 0170.1;

AND WHEREAS before construction is commenced, the Commandant must approve the location and plans of any such bridge and may impose any specific conditions relating to the construction, maintenance and operation of the structure deemed necessary in the interest of public navigation, such conditions to have the force of law;

AND WHEREAS the - STATE OF NORTH CAROLINA - has submitted for approval the location and plans of dual bridges to be constructed across Toomers Creek near Wilmington, North Carolina;

NOW THEREFORE, This is to certify that the location and plans dated 28 March 2013 are hereby approved by the Commandant, subject to the following conditions:

1. No deviation from the approved plans may be made either before or after completion of the structures unless the modification of said plans has previously been submitted to and received the approval of the Commandant.

2. The construction of falsework, pilings, cofferdams or other obstructions, if required, shall be in accordance with plans submitted to and approved by the Commander, Fifth Coast Guard District, prior to construction of the bridges. All work shall be so conducted that the free navigation of the waterway is not unreasonably interfered with and the present navigable depths are not impaired. Timely notice of any and all events that may affect navigation shall be given to the District Commander during construction of the bridges. The channel or channels through the structures shall be promptly cleared of all obstructions placed therein or caused by the construction of the bridges to the satisfaction of the District Commander, when in the judgment of the District Commander the construction work has reached a point where such action should be taken, but in no case later than 90 days after the bridges have been opened to traffic.

**Bridges across Toomers Creek near Wilmington, North
Carolina**5 SEP 2013
BRIDGE PERMIT

(7-13-5)

3. Issuance of this permit does not relieve the permittee of the obligation or responsibility for compliance with the provisions of any other law or regulation as may be under the jurisdiction of the U.S. Department of Commerce, National Marine Fisheries Service, or any other federal, state or local authority having cognizance of any aspect of the location, construction or maintenance of said bridges.

4. A bridge fendering system shall be installed and maintained in good condition by and at the expense of the owner of the bridges when so required by the District Commander. Said installation and maintenance shall be for the safety of navigation and be in accordance with plans submitted to and approved by the District Commander prior to its construction.

5. Clearance gauges shall be installed and maintained in a good and legible condition by and at the expense of the owner of the bridges when so required by the District Commander. The type of gauges and the locations in which they are to be installed will be submitted to the District Commander for approval.

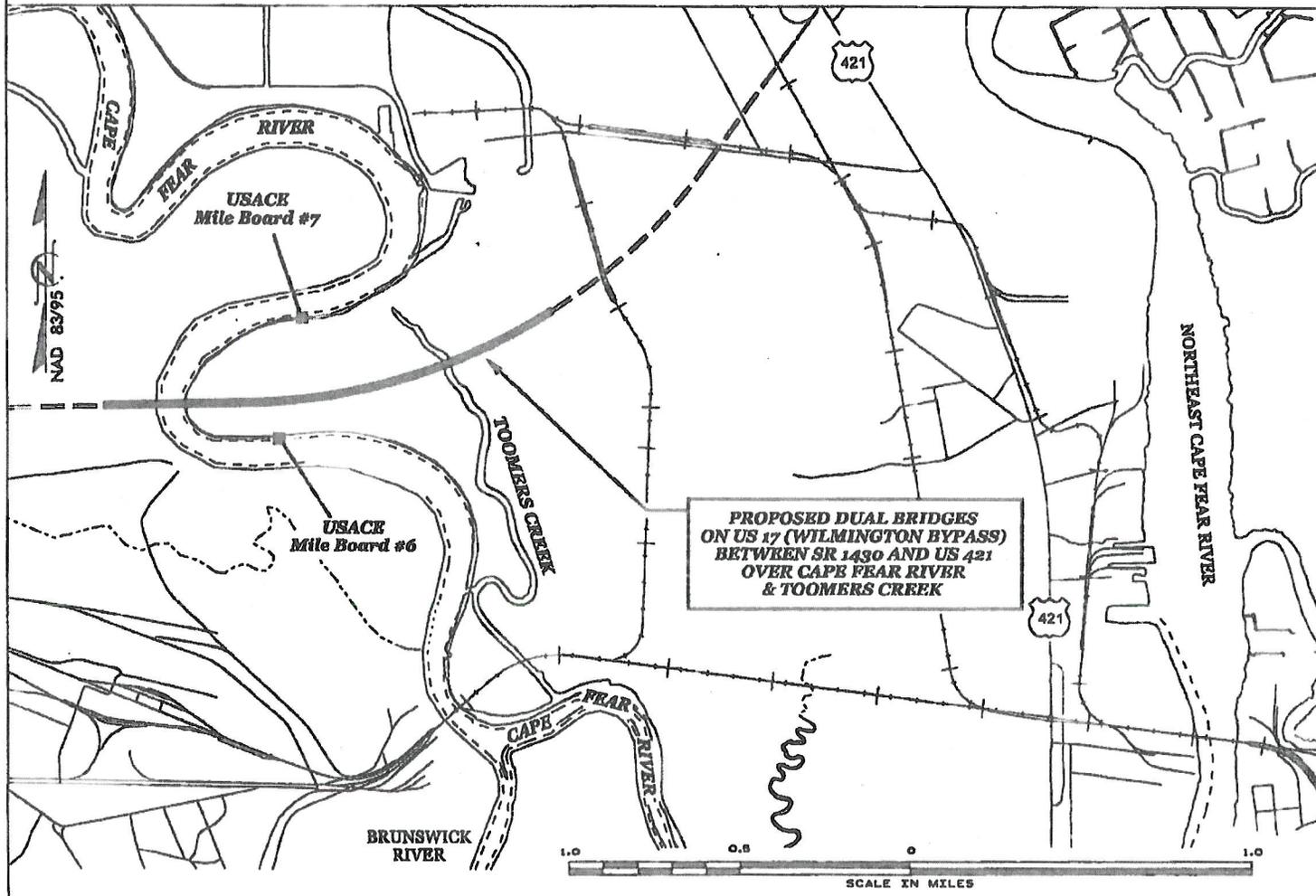
6. When the proposed bridges are no longer used for transportation purposes, they shall be removed in their entirety or to an elevation deemed appropriate by the District Commander and the waterway cleared to the satisfaction of the District Commander. Such removal and clearance shall be completed by and at the expense of the owner of the bridges upon due notice from the District Commander.

7. The approval hereby granted shall cease and be null and void unless construction of the bridges is commenced within three years and completed within five years after the date of this permit.



Brian L. Dunn
Chief, Office of Bridge Programs
U.S. Coast Guard
By direction of the Commandant

VICINITY MAP

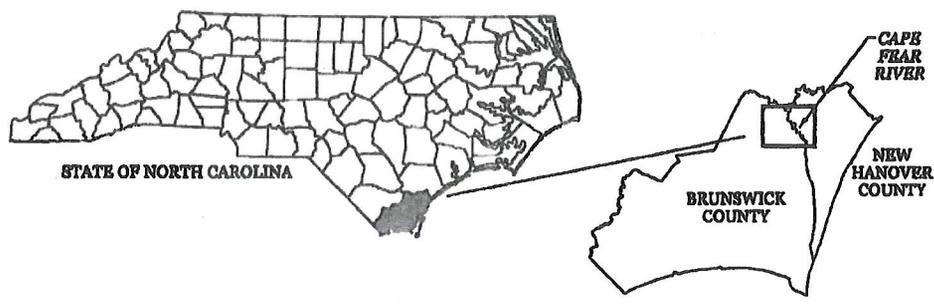


**PROPOSED DUAL BRIDGES
ON US 17 (WILMINGTON BYPASS)
BETWEEN SR 1430 AND US 421
OVER CAPE FEAR RIVER
& TOOMERS CREEK**

For portions of these bridges in and adjacent to Cape Fear River, the design vessel is the tugboat, "Gate", with the tank barge, "B201", in tow

Tugboat and tank barge owner: Chatham Towing Company, Inc.

For all other portions of these bridges, where applicable, the design vessel (per AASHTO Guide Specifications) is the load associated with an empty, drifting 195 - foot by 35 - foot hopper barge.



This bridge has been designed in accordance with the requirements of AASHTO LRFD bridge design specifications, including requirements for vessel collision



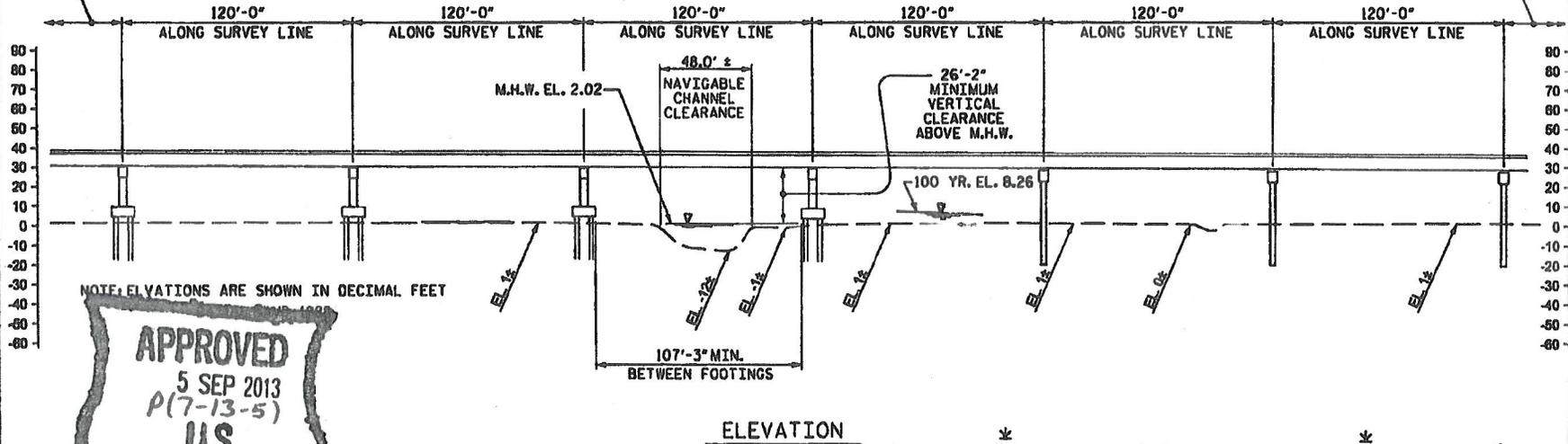
State of North Carolina	
Department of Transportation Raleigh, NC	
Proposed Dual Bridges on US 17 (Wilmington Bypass) between SR 1430 and US 421 over Toomers Creek, Mile Point 1.4 near Wilmington, NC	
Brunswick & New Hanover Counties	
State Project No. : R-2833BB	
March 28, 2013	Sheet 1 of 2

PI STA. 391+80.00
 ELEVATION 30.685
 V.C. 550'-0"

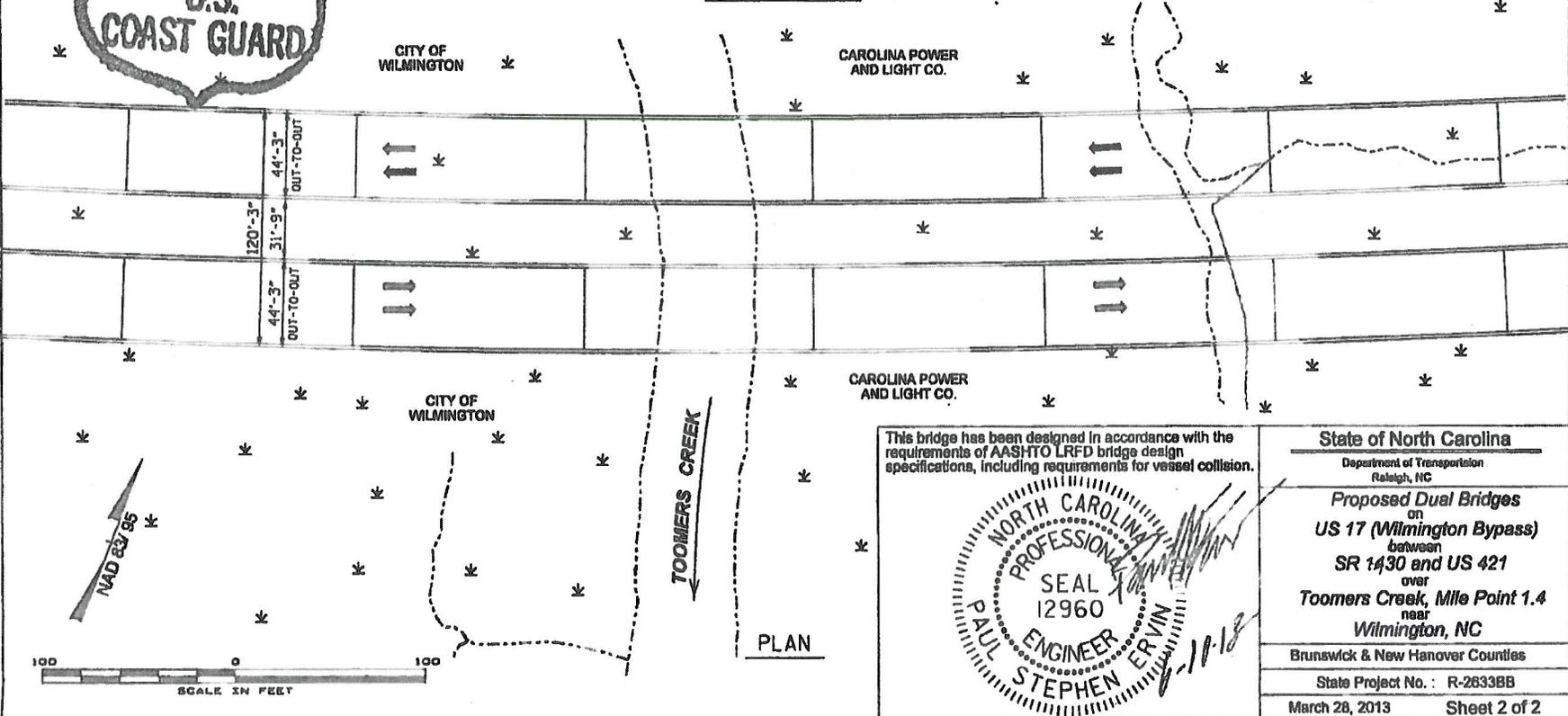
-0.300% Δ 2.7042%

SEE SHEET 4 OF 5

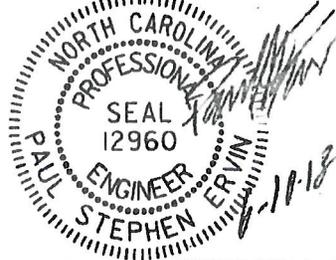
SEE SHEET 4 OF 5



NOTE: ELEVATIONS ARE SHOWN IN DECIMAL FEET



This bridge has been designed in accordance with the requirements of AASHTO LRFD bridge design specifications, including requirements for vessel collision.



State of North Carolina	
Department of Transportation Raleigh, NC	
Proposed Dual Bridges on US 17 (Wilmington Bypass) between SR 1430 and US 421 over Toomers Creek, Mile Point 1.4 near Wilmington, NC	
Brunswick & New Hanover Counties	
State Project No. : R-2633BB	
March 28, 2013	Sheet 2 of 2

U.S. Department of
Homeland Security

United States
Coast Guard



Commander
United States Coast Guard
Fifth Coast Guard District

431 Crawford Street
Portsmouth, Va. 23704-5004
Staff Symbol: (dpb)
Phone: (757) 398-6587
Fax: (757) 398-6334
Email: Terrance.A.Knowles@uscg.mil

16591
10 Sep 2013

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

Dear Dr. Thorpe:

We reviewed the bridge lighting plans for the proposed dual bridges on US 17 (Wilmington Bypass) between SR 1430 and US 421 over Cape Fear River near Wilmington, NC. The bridge lighting plan is approved and a copy enclosed for your files. No deviation from the approved plan may be made unless the modifications are submitted to and approved by this office.

Please contact Terrance Knowles at the above-listed telephone number, if you should have any questions regarding this matter,.

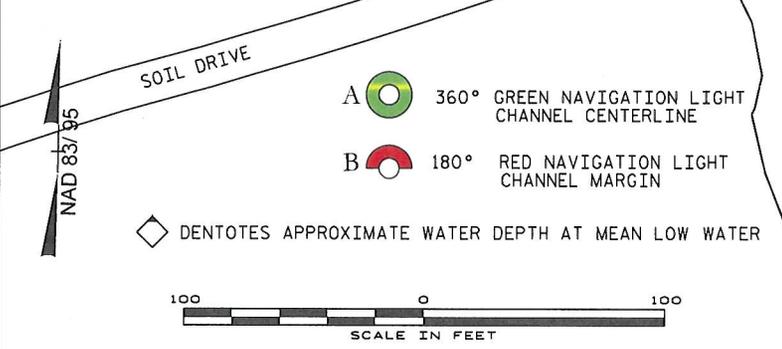
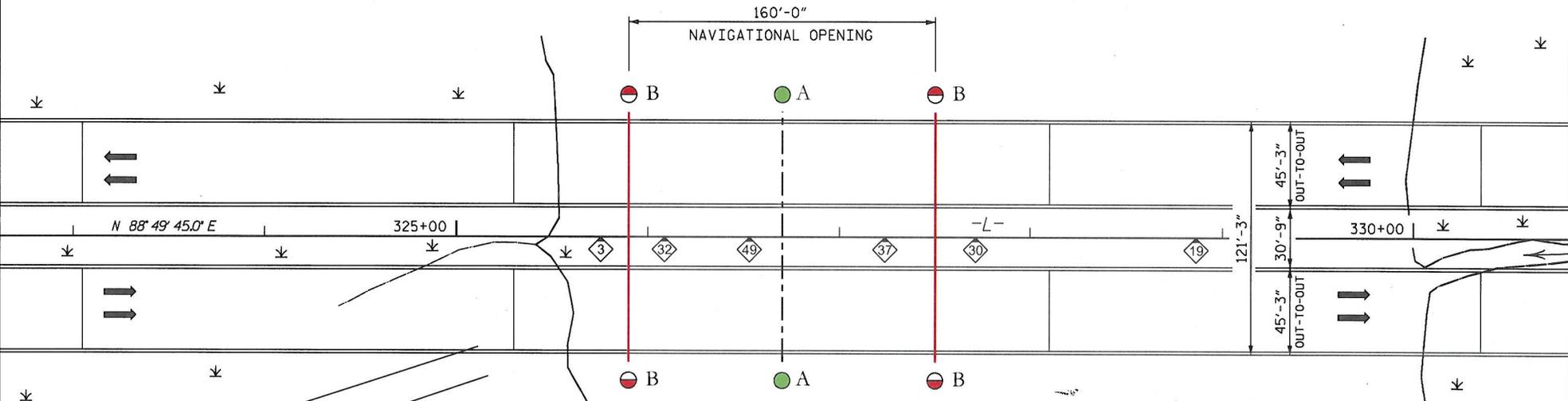
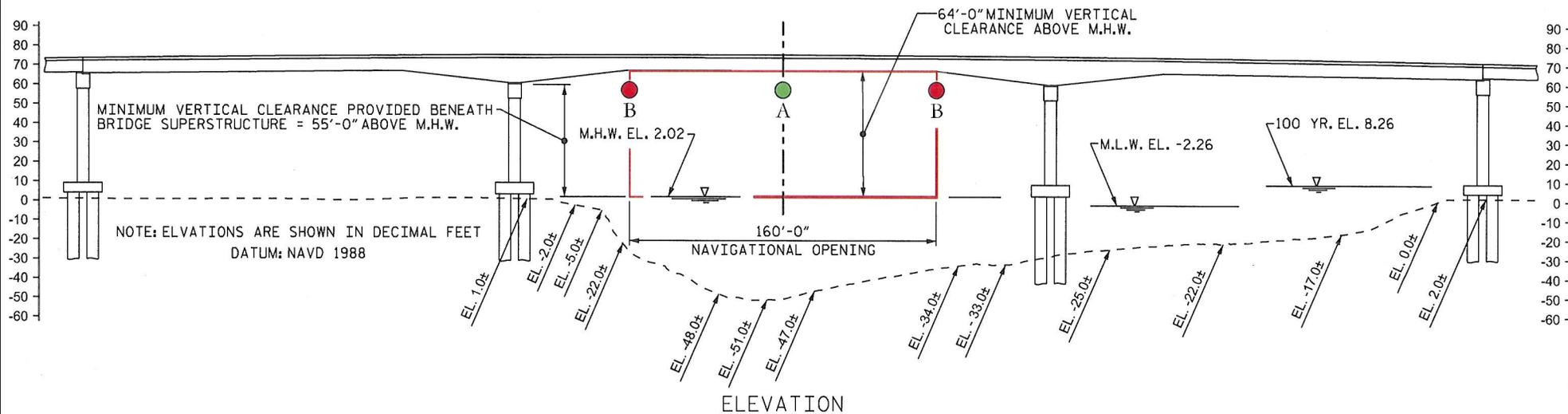
Sincerely,

A handwritten signature in blue ink that reads "Waverly W. Gregory, Jr.".

WAVERLY W. GREGORY, JR.
Bridge Program Manager
By direction of the Commander
Fifth Coast Guard District

Encl: Copy of approved navigational lighting plan

Copy: CG Sector North Carolina, Waterways Management w/encl



Office, Commander, Fifth Coast Guard District
431 Crawford Street
Portsmouth, VA 23708

Navigation lights and other signals approved as shown.

Lashly P. Soyars 9/10/13
Chief, Bridge Administrator Date

State of North Carolina
Department of Transportation
Raleigh, NC

Proposed Dual Bridges
on
US 17 (Wilmington Bypass)
between
SR 1430 and US 421
over
Cape Fear River, Mile Point 35.5
near
Wilmington, NC

Brunswick & New Hanover Counties

State Project No.: R-2633BB

March 28, 2012 Sheet 2 of 2

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2633B	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
34491.1.2	STPNHF-17(1)	P.E.	
34491.2.3		R / W	

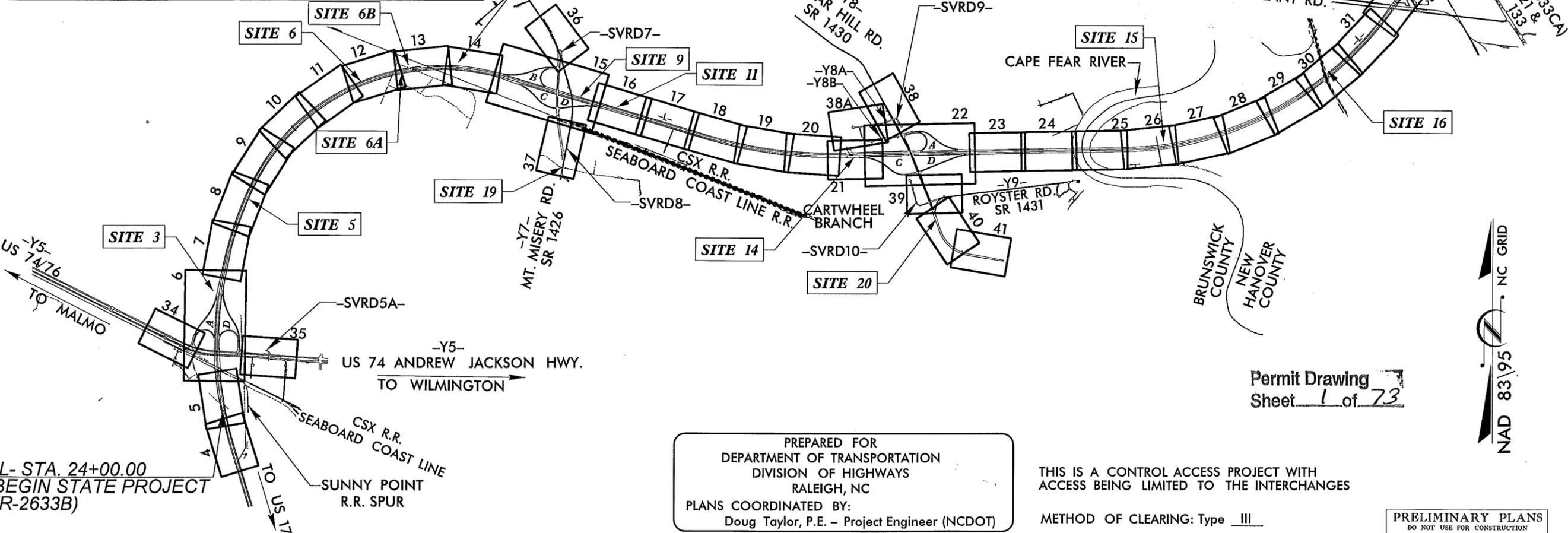
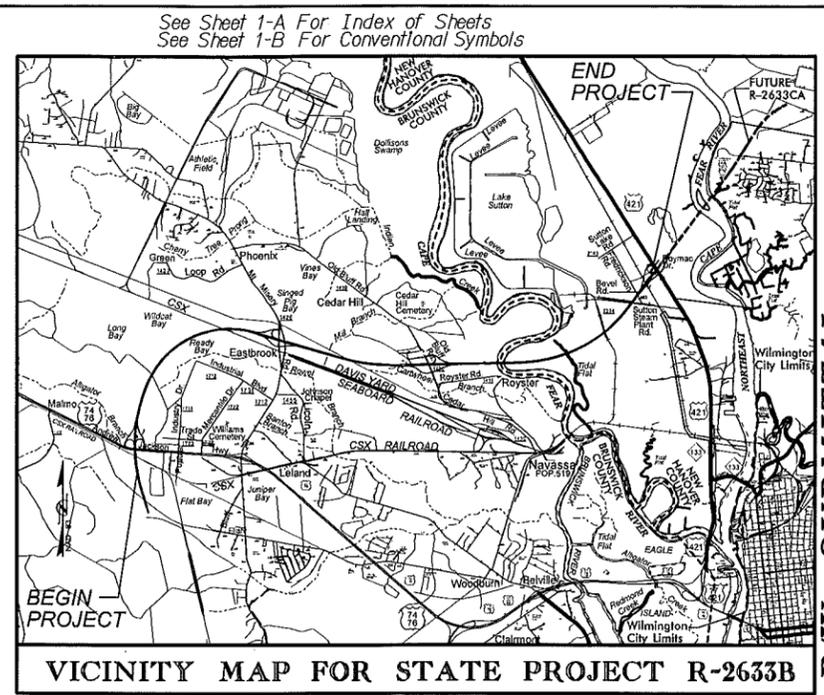
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

BRUNSWICK & NEW HANOVER COUNTIES

LOCATION: US 17 (WILMINGTON BYPASS) FROM US 74/76
EAST OF MALMO IN BRUNSWICK COUNTY TO US 421
NORTH OF WILMINGTON IN NEW HANOVER COUNTY

STREAM & WETLAND IMPACTS

-L- STA. 447+24.07
END STATE PROJECT
(R-2633B)



Permit Drawing
Sheet 1 of 73

NAD 83/95 • NC GRID

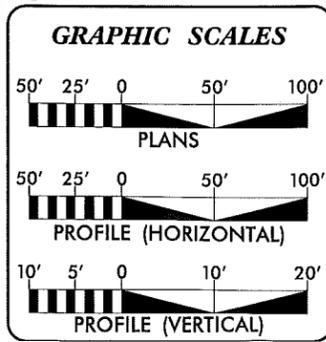
PREPARED FOR
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, NC
PLANS COORDINATED BY:
Doug Taylor, P.E. - Project Engineer (NCDOT)

THIS IS A CONTROL ACCESS PROJECT WITH
ACCESS BEING LIMITED TO THE INTERCHANGES
METHOD OF CLEARING: Type III

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONTRACT: TIP PROJECT: R-2633B

CONTRACT: TIP PROJECT: R-2633B



DESIGN DATA

ADT 2009 =	16,400
ADT 2025 =	24,900
DHV =	12 %
D =	60 %
T =	15 % *
V =	70 MPH
* TTST 10% DUAL 5%	
FUNC. CLASS. =	INTERSTATE

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-2633B= 6.24 Miles
LENGTH STRUCTURES TIP PROJECT R-2633B= 1.78 Miles
TOTAL LENGTH STATE TIP PROJECT R-2633B= 8.02 Miles

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

Prepared In the Office of:
LOCHNER
H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH, NC 27612

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
June 20, 2008

LETTING DATE:
July 19, 2011

Brian K. Eason, P.E.
PROJECT ENGINEER

Jeffrey R. Hext
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: _____ P.E.

**DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA**

STATE HIGHWAY DESIGN ENGINEER

\$\$\$SYTIME\$\$\$\$\$
\$\$\$DGN\$\$\$\$\$
\$\$\$USERNAME\$\$\$\$\$

LOCHNER

H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH, NC 27612

PROJECT REFERENCE NO. SHEET NO.

R-2633B 06

R/W SHEET NO.

ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INFORMATION PROVIDED ON THIS PLAN SHEET IS FROM INTERCHANGE PLAN SHEET 6

-  DENOTES FILL IN WETLAND
-  DENOTES HAND CLEARING
-  DENOTES EXCAVATION IN WETLAND

Permit Drawing
Sheet 3 of 73
rev. 5/2/13

Q10 = 42 cfs
V10 = 1.46 fps

Q10 = 2.3 cfs
V10 = 0.76 fps

SITE 3

BEGIN STATE PROJECT R-2633B
BEGIN PAVING
+LREV - PCC STA. 339+13.00

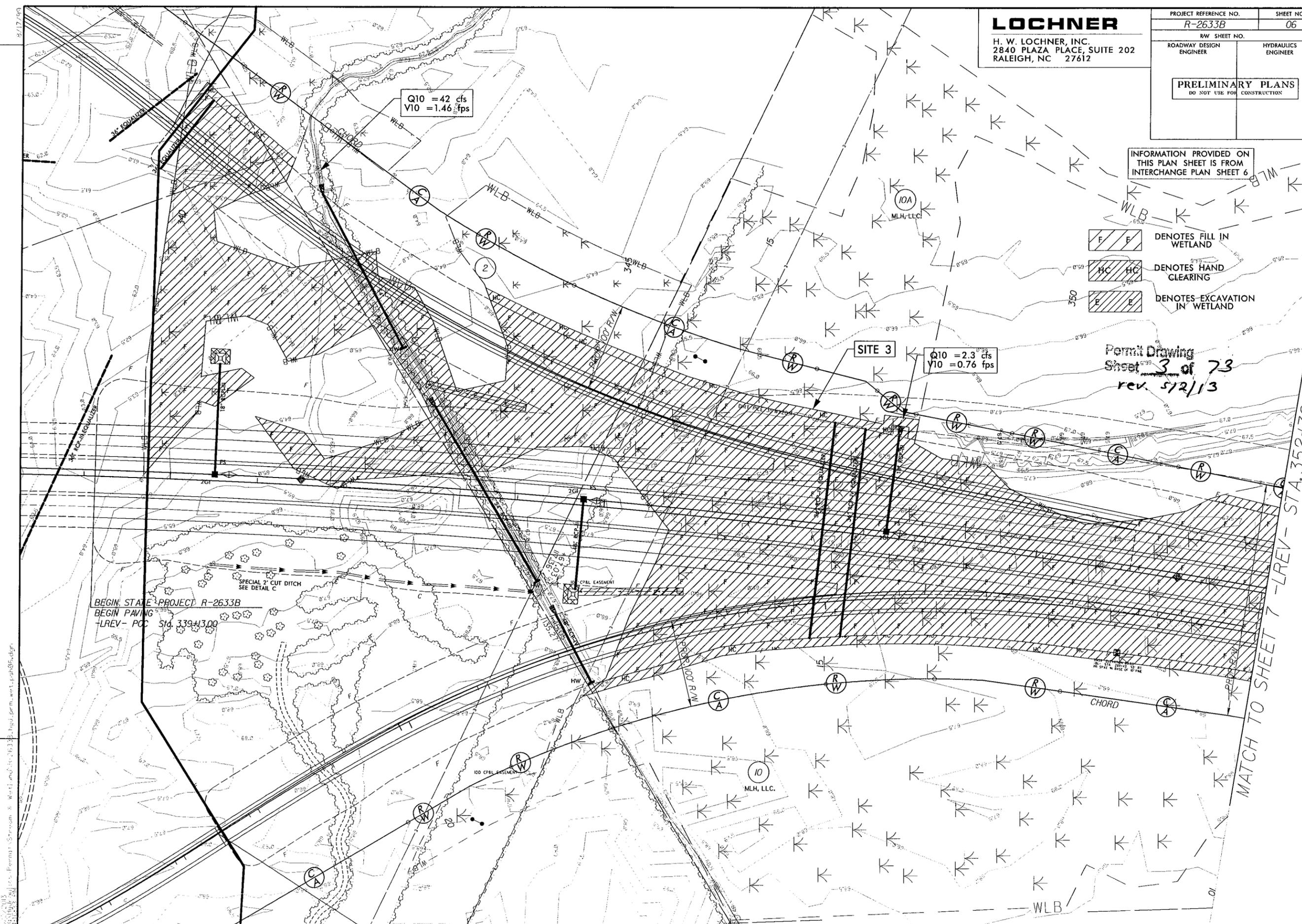
SPECIAL 7" CUT DITCH
SEE DETAIL C

CPAL EASEMENT

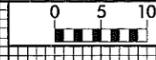
100 CPAL EASEMENT

MATCH TO SHEET 7 - LREV - STA. 352+70.00

REVISIONS



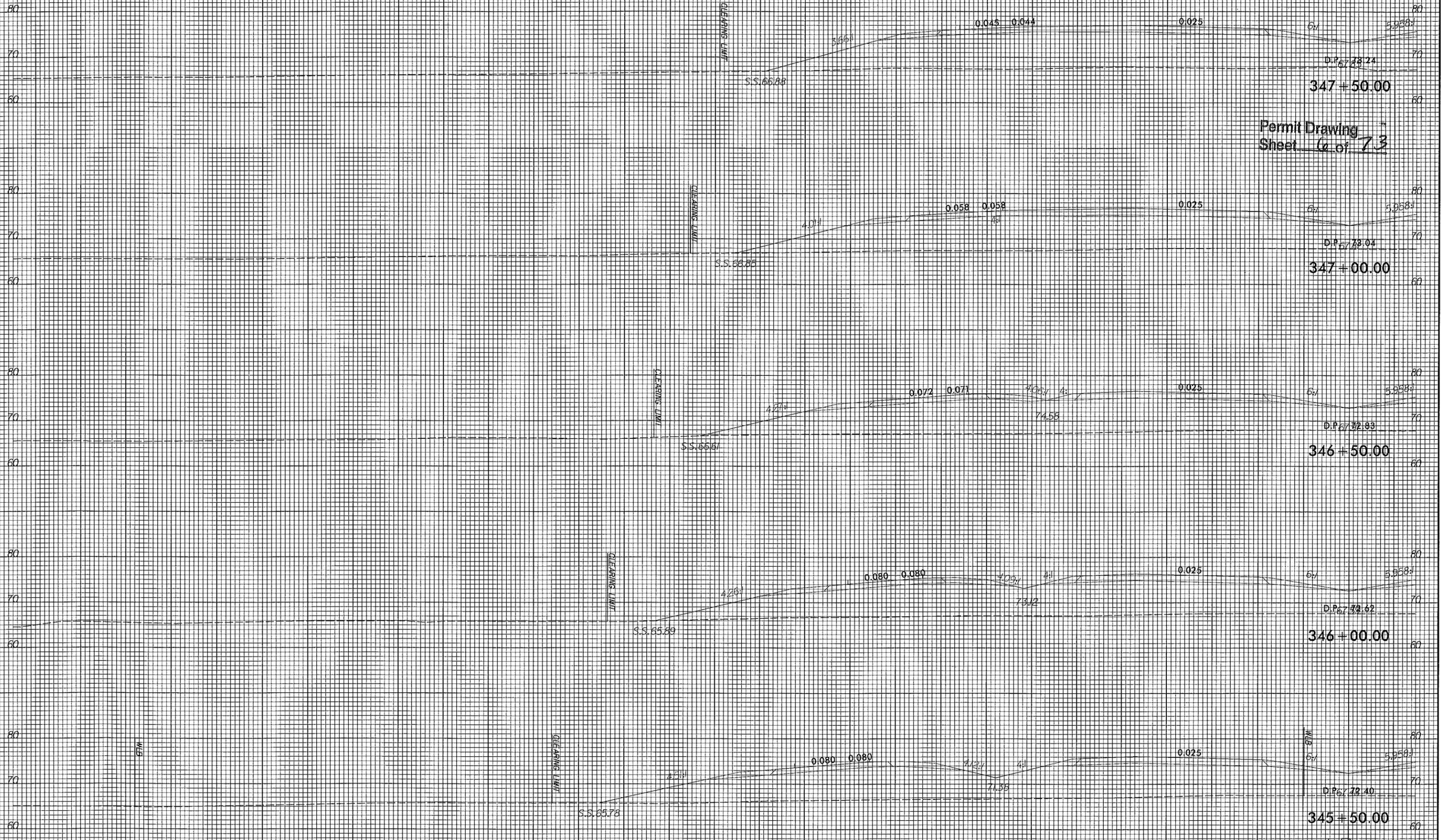
8/23/99



PROJ. REFERENCE NO. R-2633BA SHEET NO. X-4

290 280 270 260 250 240 230 220 210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10

WETLAND CROSS SECTION SITE 3

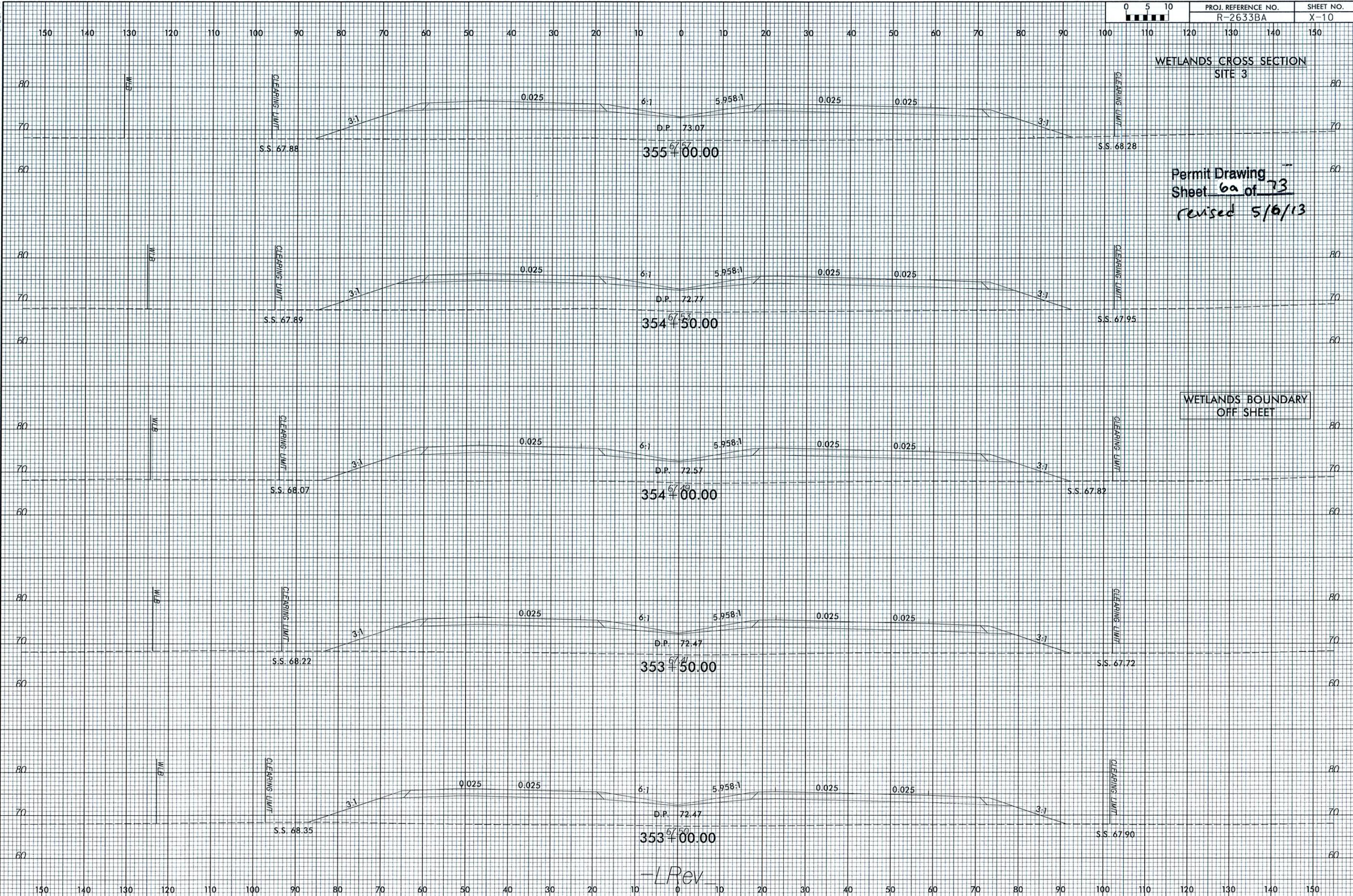


Permit Drawing Sheet 6 of 73

-1 Rev

11/30/2012 2:33:59 PM \\scc\p1\p-2633BA_RDY...xp1.LREV.L.T.dgn

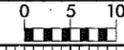
8/23/09



-L/Rev

5/6/2013 5:00:56 PM \\s:\permits\2633BA\RDY_xpl\LREV2.dgn

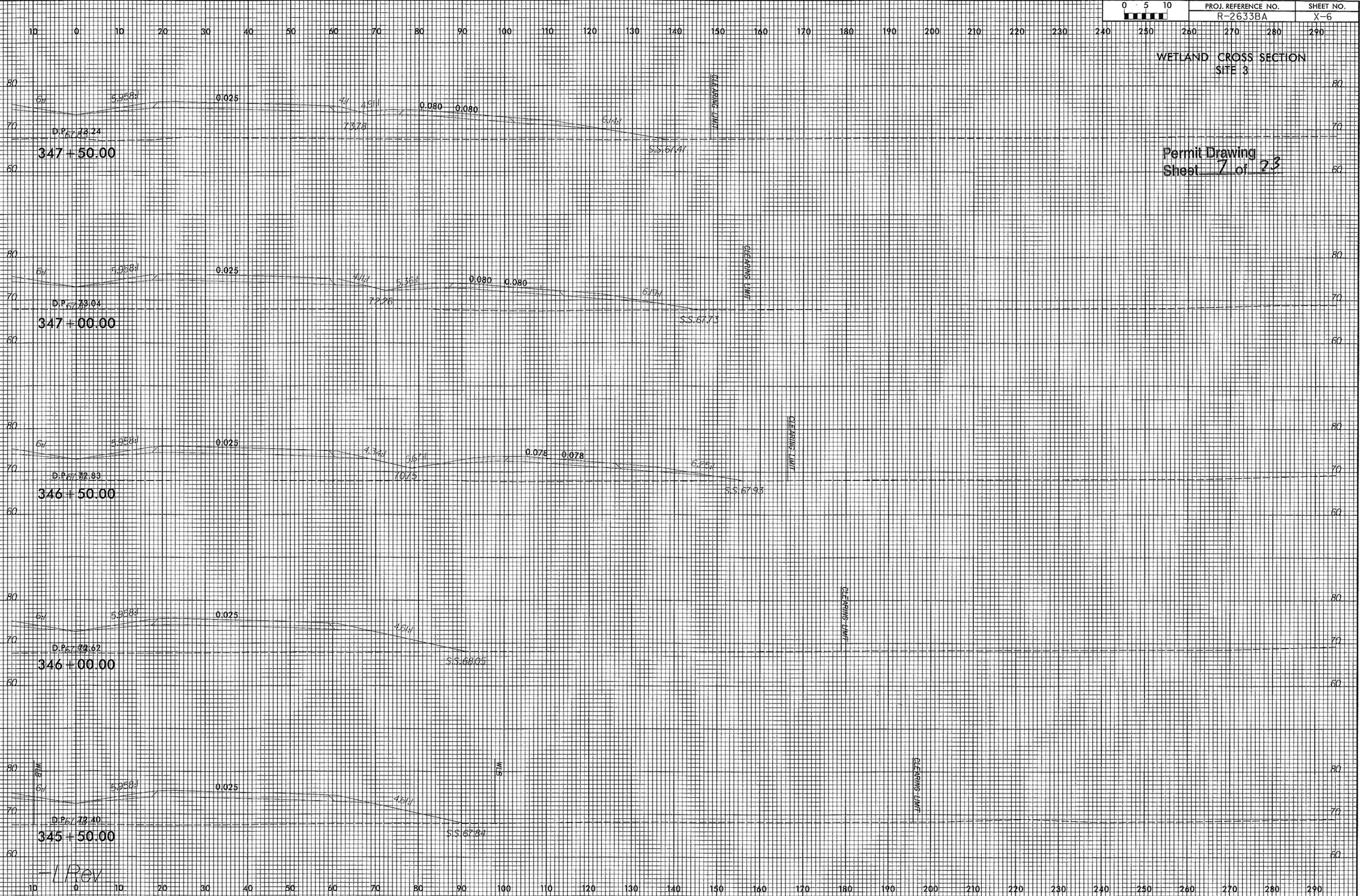
8/23/99



PROJ. REFERENCE NO. R-2633BA SHEET NO. X-6

WETLAND CROSS SECTION SITE 3

Permit Drawing Sheet 7 of 23



11/30/2012 2:36:28 PM \\sco\p1\R-2633BA.RDY...xp\LLREV_RT.dgn

-1 Rev

8/17/94

LOCHNER
H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH, NC 27612

PROJECT REFERENCE NO. R-2633B	SHEET NO. 08
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

EQUALIZER PIPE INVERTS WILL NOT BE BURIED



DENOTES FILL IN WETLAND

DENOTES HAND CLEARING



rev. 5/2/13
Permit Drawing
Sheet 9 of 73

REVISIONS

R/W REVISION: 10/ /09 - NAME AND DEED CHANGE PARCEL 10.
R/W REVISION: 1/ /11 - MOVED OWNERS NAME ON PARCEL 11.

\\p01\proj\1111111111\1111111111.dwg
8/17/94
WCM ENTERPRISES, LLC

MATCH TO SHEET 7 -LREV- STA. 367+00.00

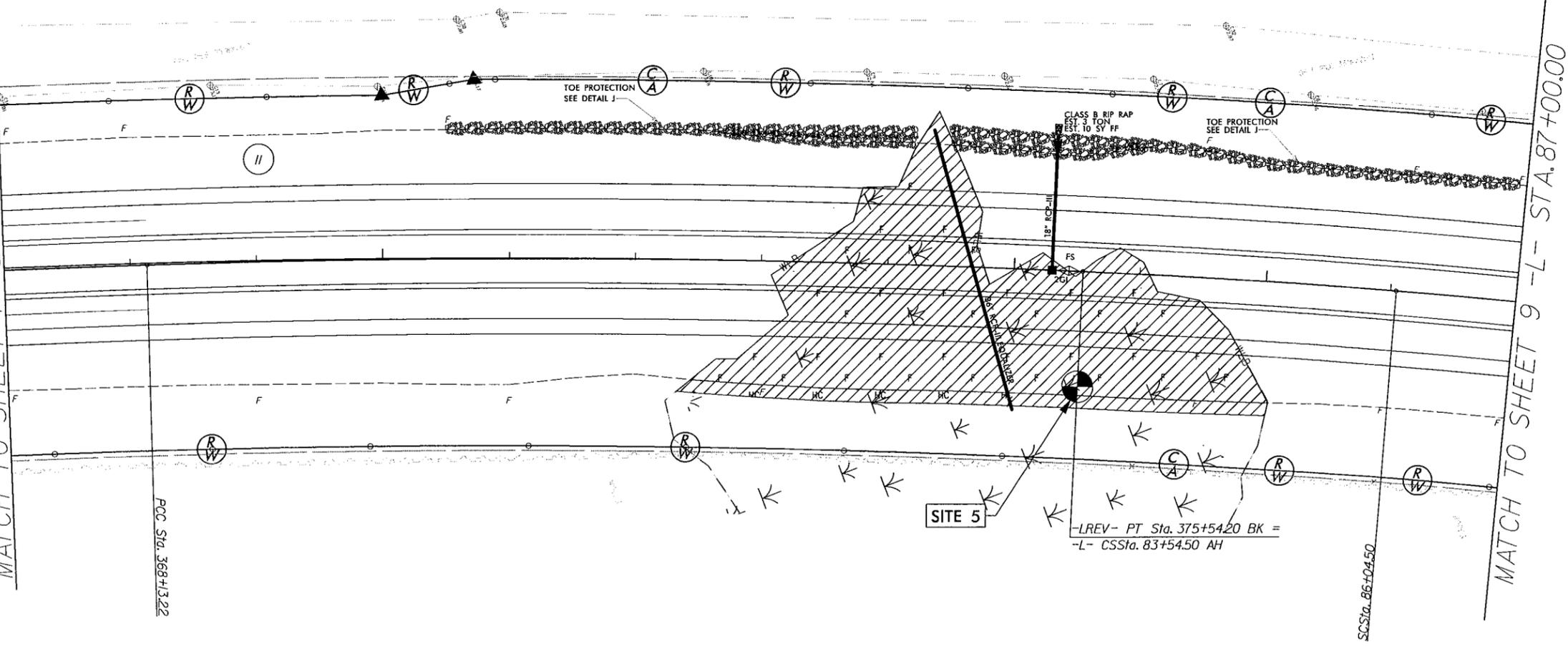
PCC Sta. 368+3.22

370

10
WCM ENTERPRISES, LLC.

375

85



MATCH TO SHEET 9 -L- STA. 87+00.00

WCM ENTERPRISES, LLC.

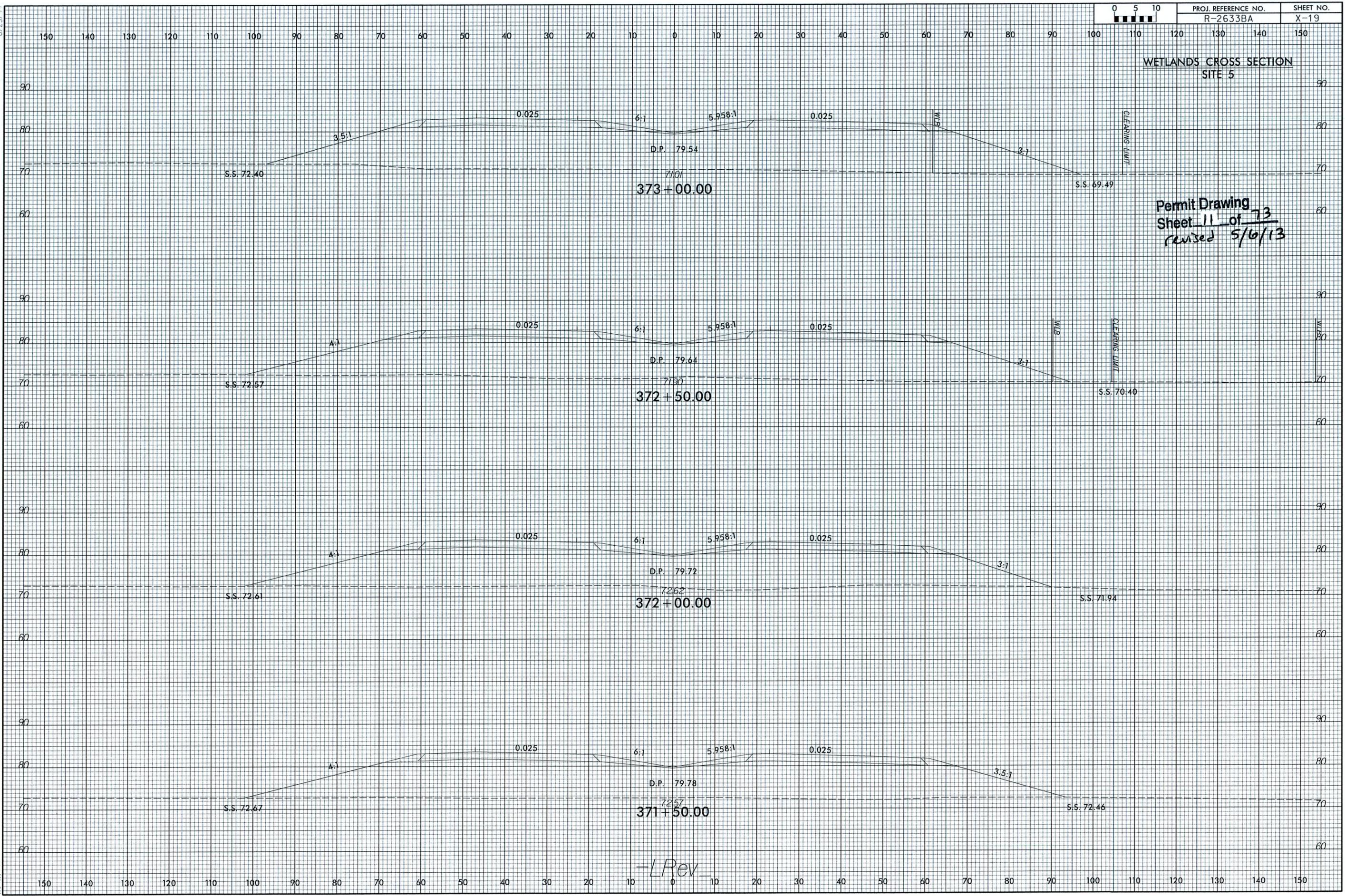
SEE SHEET 44 FOR -LREV- PROFILE

8/23/99



WETLANDS CROSS SECTION SITE 5

Permit Drawing
Sheet 11 of 73
revised 5/6/13



-1 Rev

5/6/2013
R:\proj\2013\Permit\X-19\2633BA_R-2633BA_RDY_xpl_LREV2.dgn

8/23/09

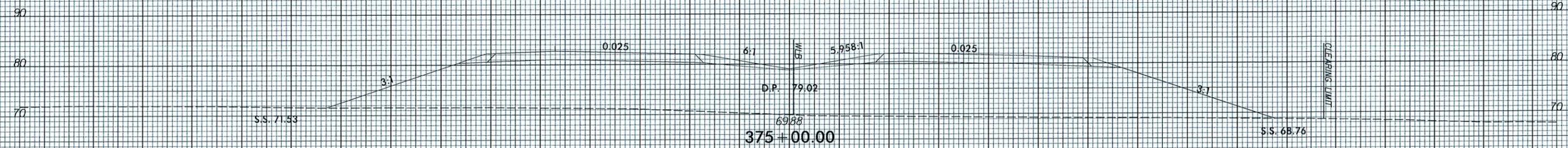


PROJ. REFERENCE NO.
R-2633BA

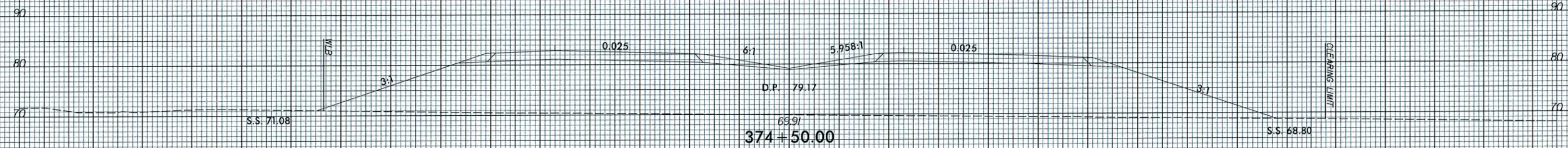
SHEET NO.
X-20

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

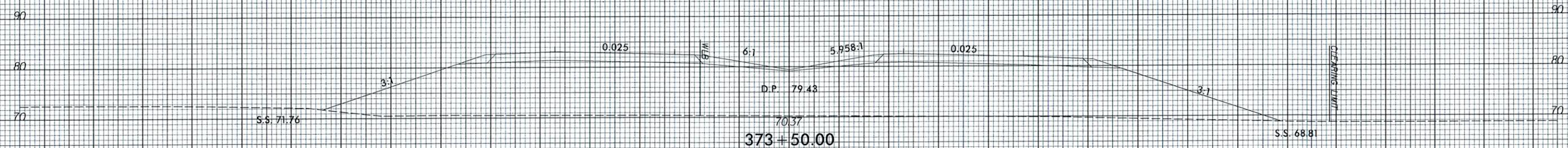
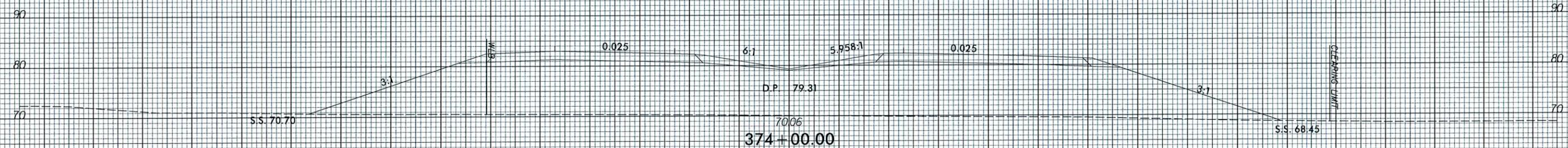
WETLANDS CROSS SECTION
SITE 5



Permit Drawing
Sheet 12 of 73
revised 5/6/13



WETLANDS BOUNDARY
OFF SHEET



-L Rev

5/6/2013
R:\HighR\Projects\Permit\Site R-2633BA_RDY_xpl_LREV2.dgn
1:55:23 PM

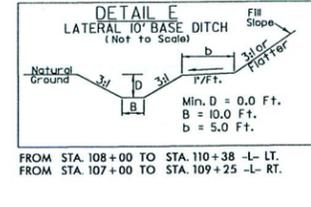
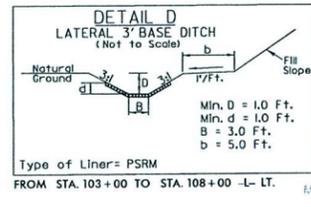
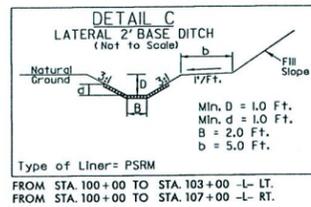
8/17/09

LOCHNER

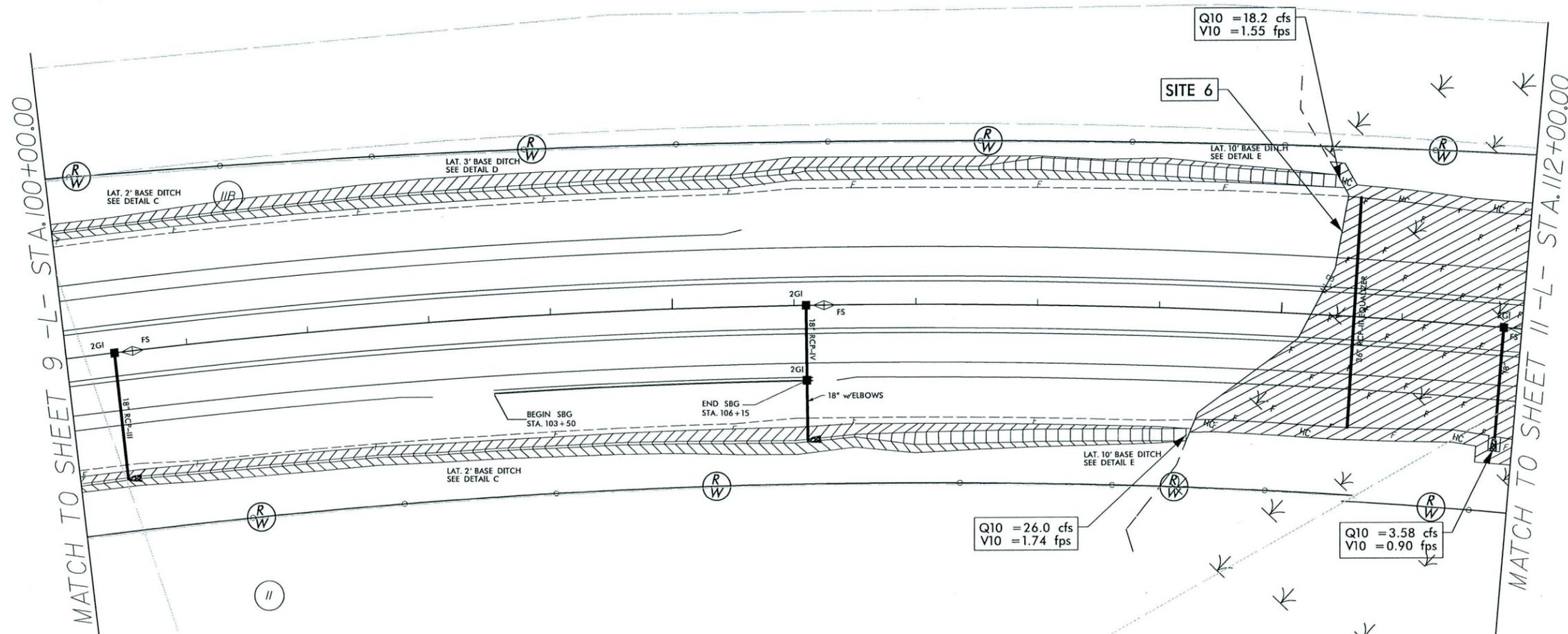
H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH, NC 27612

PROJECT REFERENCE NO. R-2633B	SHEET NO. 10
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

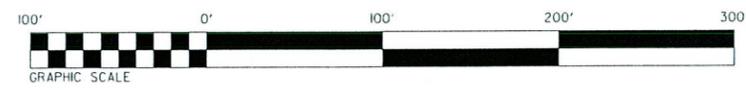
EQUALIZER PIPE INVERTS WILL NOT BE BURIED



Rev. 5/14/13
Permit Drawing
Sheet 13 of 73



- DENOTES FILL IN WETLAND
- DENOTES HAND CLEARING



SEE SHEET 45 FOR -L- PROFILE

5/14/2013
C:\Users\jlochner\Documents\Projects\Permit\Stream & Wetland\R-2633B_hydr.prm.wet1.psh10.dgn

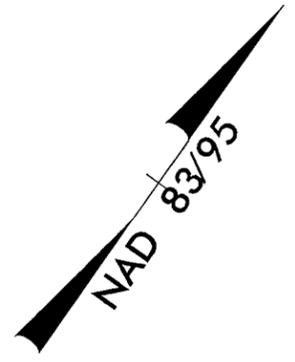
REVISIONS

8/17/94

LOCHNER
H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH, NC 27612

PROJECT REFERENCE NO. R-2633B	SHEET NO. 11
RAW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

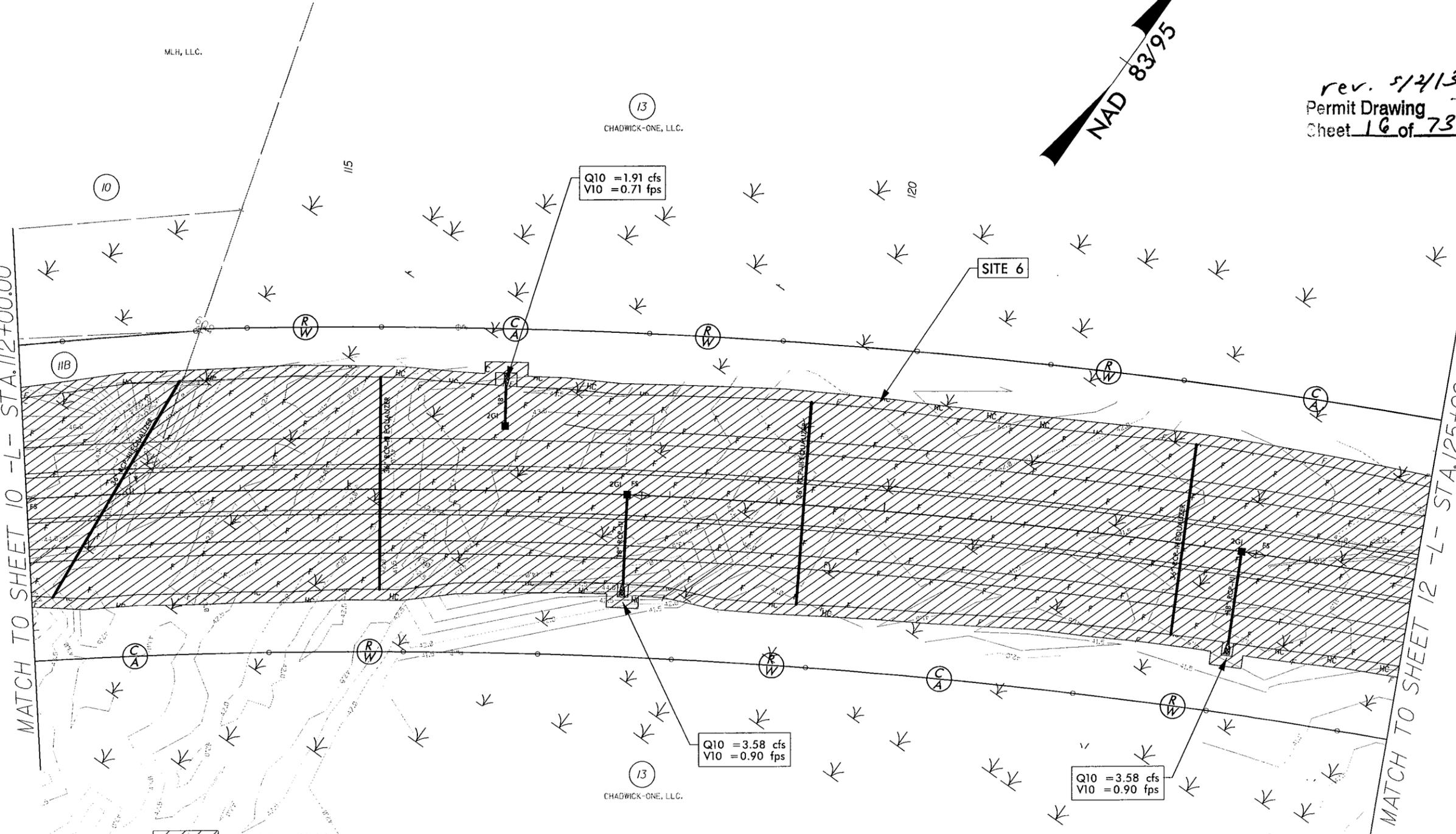
EQUALIZER PIPE INVERTS WILL NOT BE BURIED



rev. 5/2/13
Permit Drawing
Sheet 16 of 73

MATCH TO SHEET 10 -L- STA.112+00.00

MATCH TO SHEET 12 -L- STA.125+00.00



DENOTES FILL IN WETLAND

DENOTES HAND CLEARING

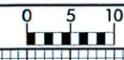


SEE SHEET 45 FOR -L- PROFILE

REVISIONS

\\p0101\proj\13\Permit\13\13-011\13-011.mxd R-2633B.dgn 8/17/94

8/23/99

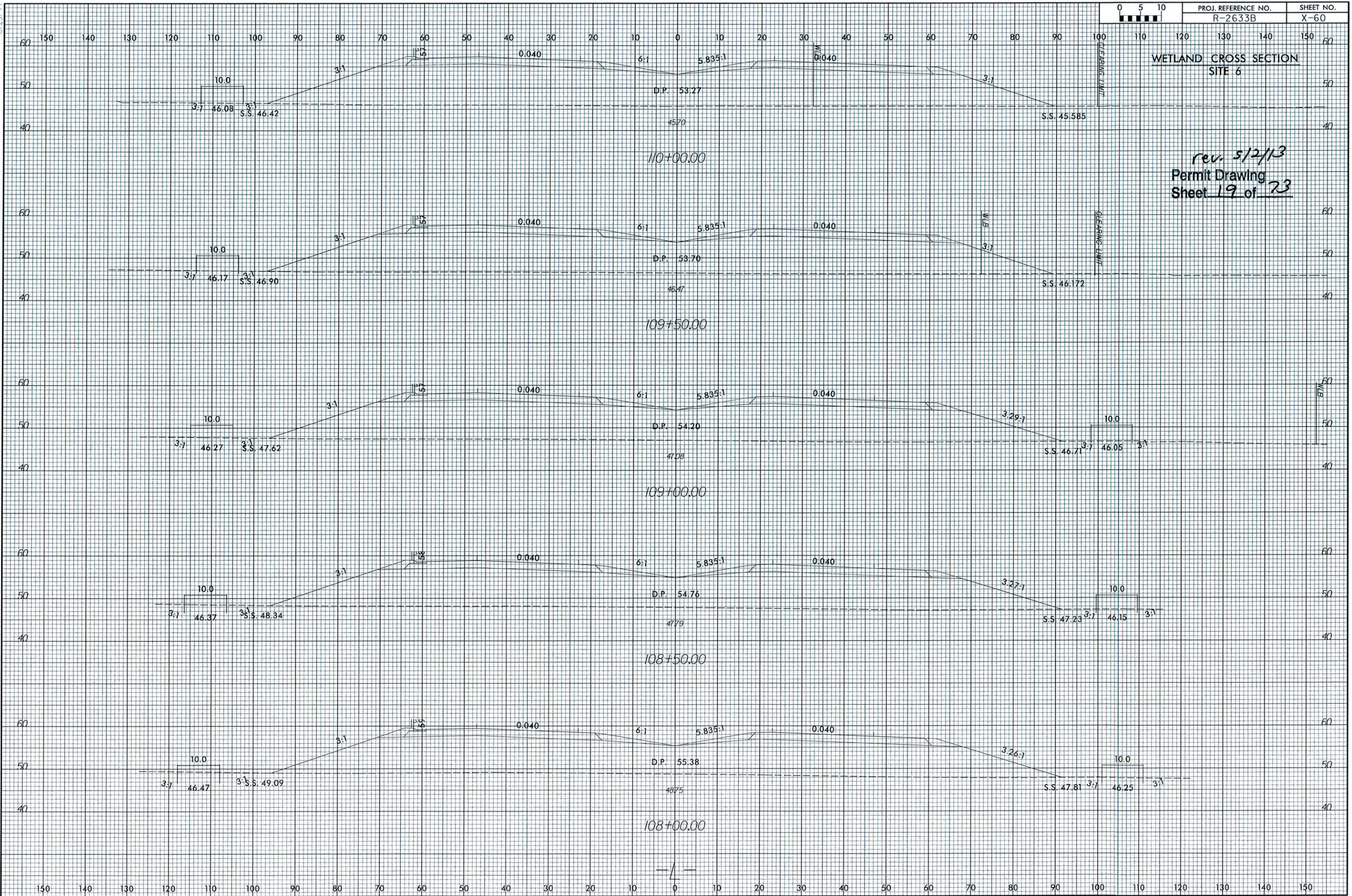


PROJ. REFERENCE NO.
R-2633B

SHEET NO.
X-60

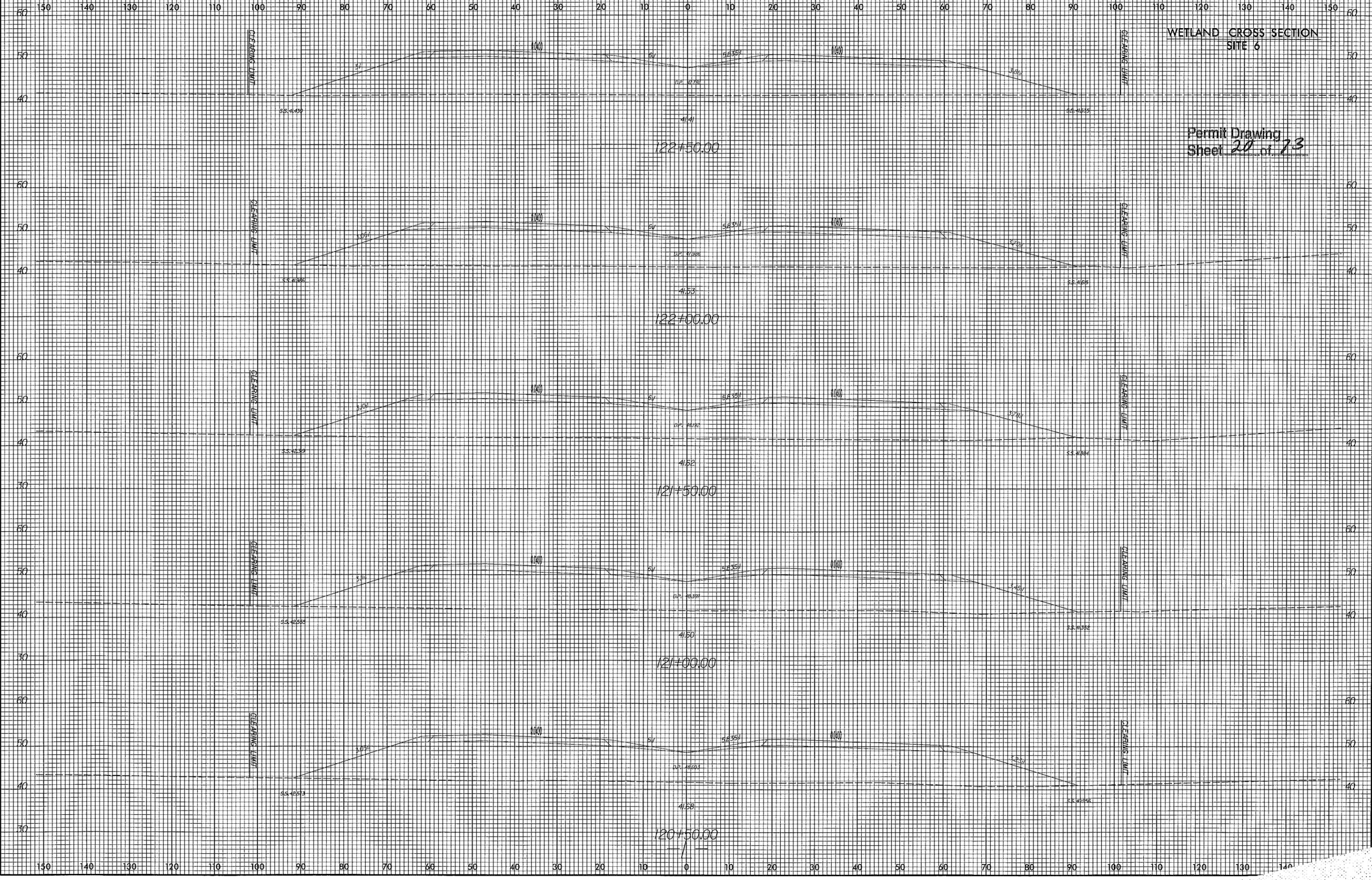
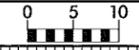
WETLAND CROSS SECTION
SITE 6

rev. 5/2/13
Permit Drawing
Sheet 19 of 23



5/2/2013
5:11:58 PM
C:\Users\jgallagher\Documents\Permit\X-60\X-60.dgn

8/23/95



WETLAND CROSS SECTION
SITE 6

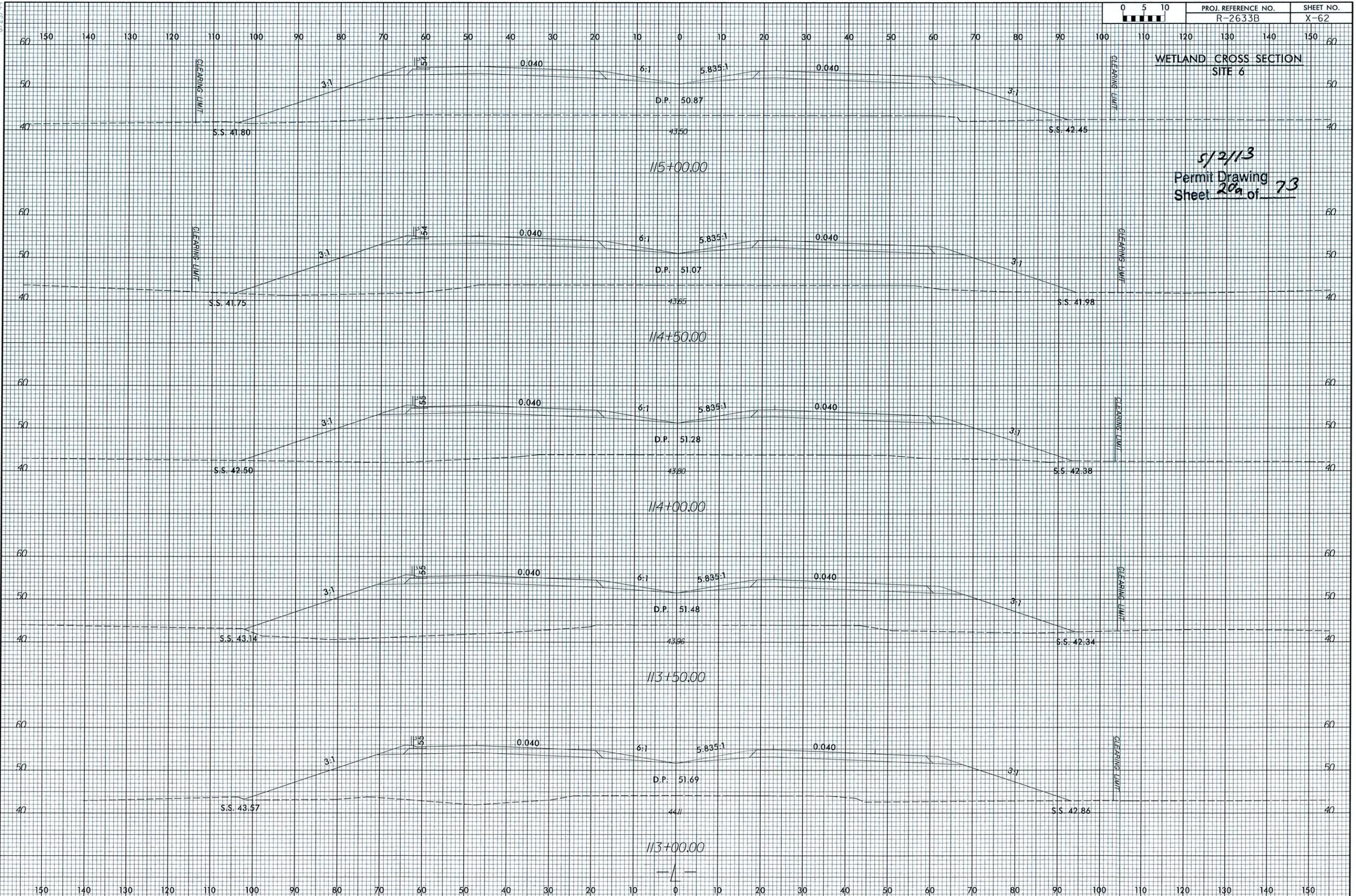
Permit Drawing
Sheet 20 of 23

11/30/2002 5:16:02 PM \\sca\ppl\R-2633B_RDY_xp1.L.dgn

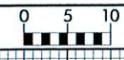
8/23/99



PROJ. REFERENCE NO. R-2633B	SHEET NO. X-62
--------------------------------	-------------------

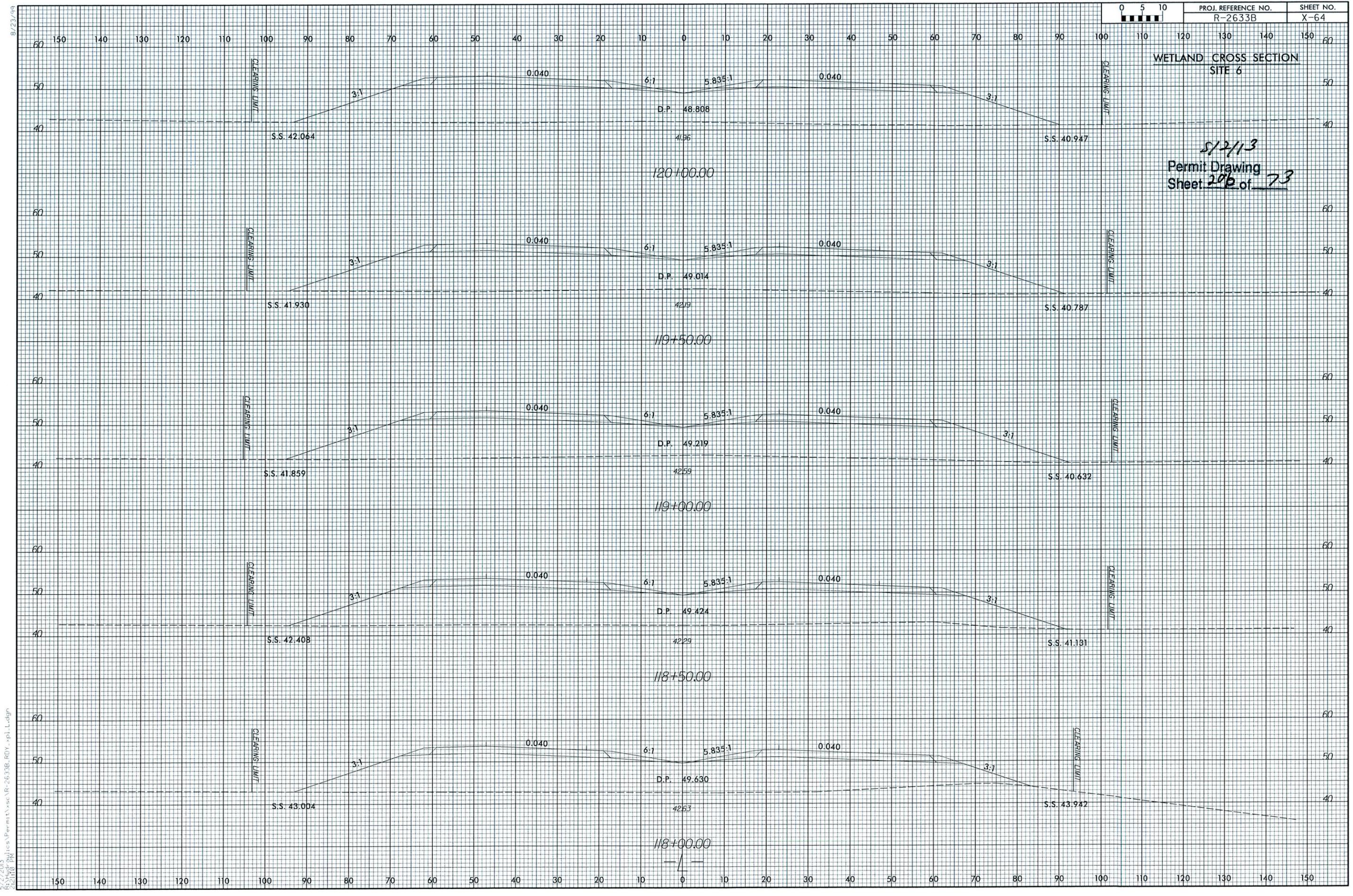


5/2/2013 5:12:25 PM \\s:\projects\Permit\113\113-2633B_R01\exp1.dgn



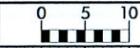
WETLAND CROSS SECTION SITE 6

5/2/13
Permit Drawing
Sheet 200 of 73



8/23/13
5/2/2013
6:24:00 PM
C:\Users\jgiles\Documents\Permit\1305\1305-R-2633B-RD.V\1305-R-2633B-RD.V.dgn

8/23/99

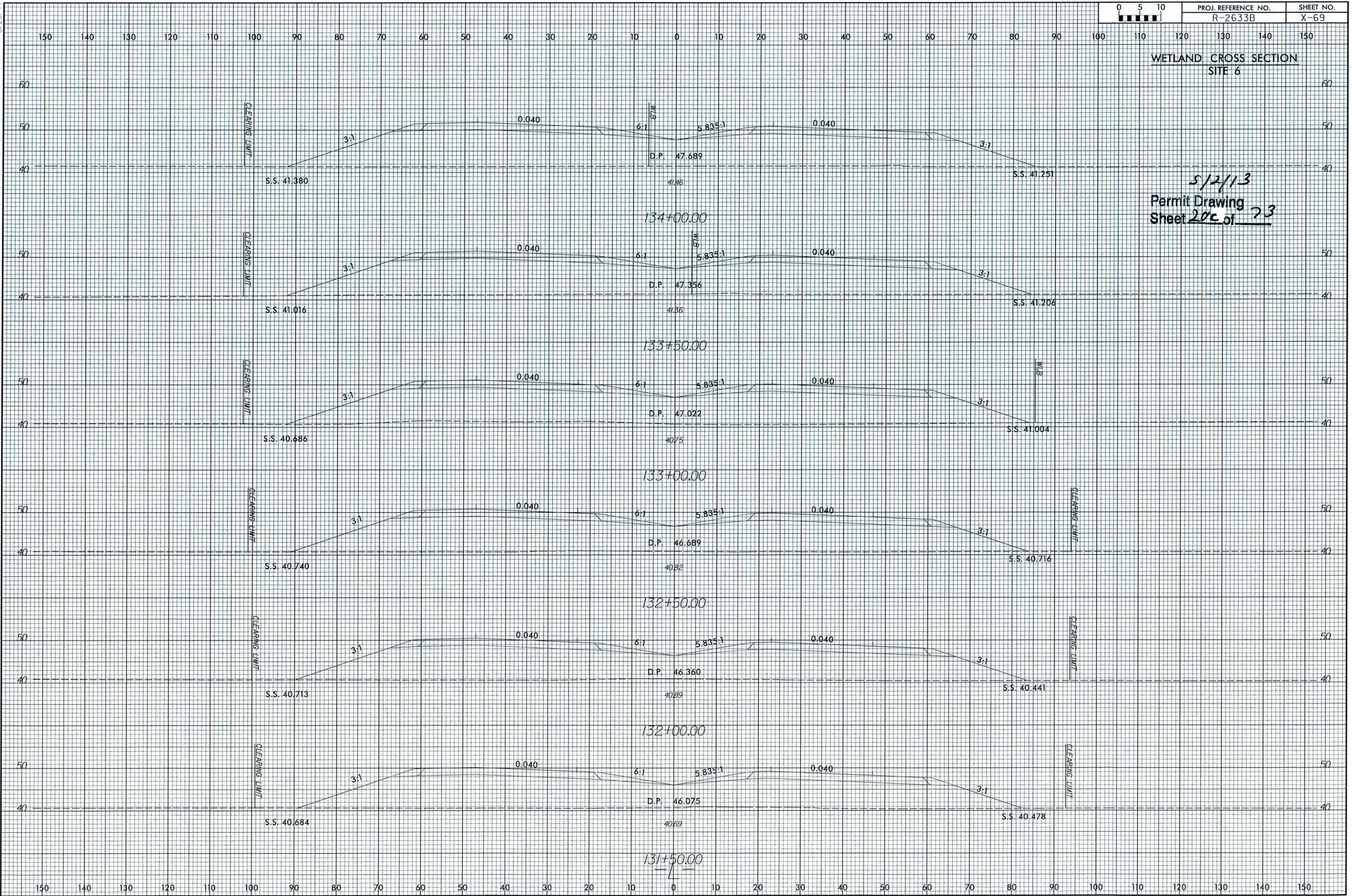


PROJ. REFERENCE NO.
R-2633B

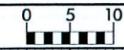
SHEET NO.
X-69

WETLAND CROSS SECTION SITE 6

5/2/13
Permit Drawing
Sheet 20C of 23

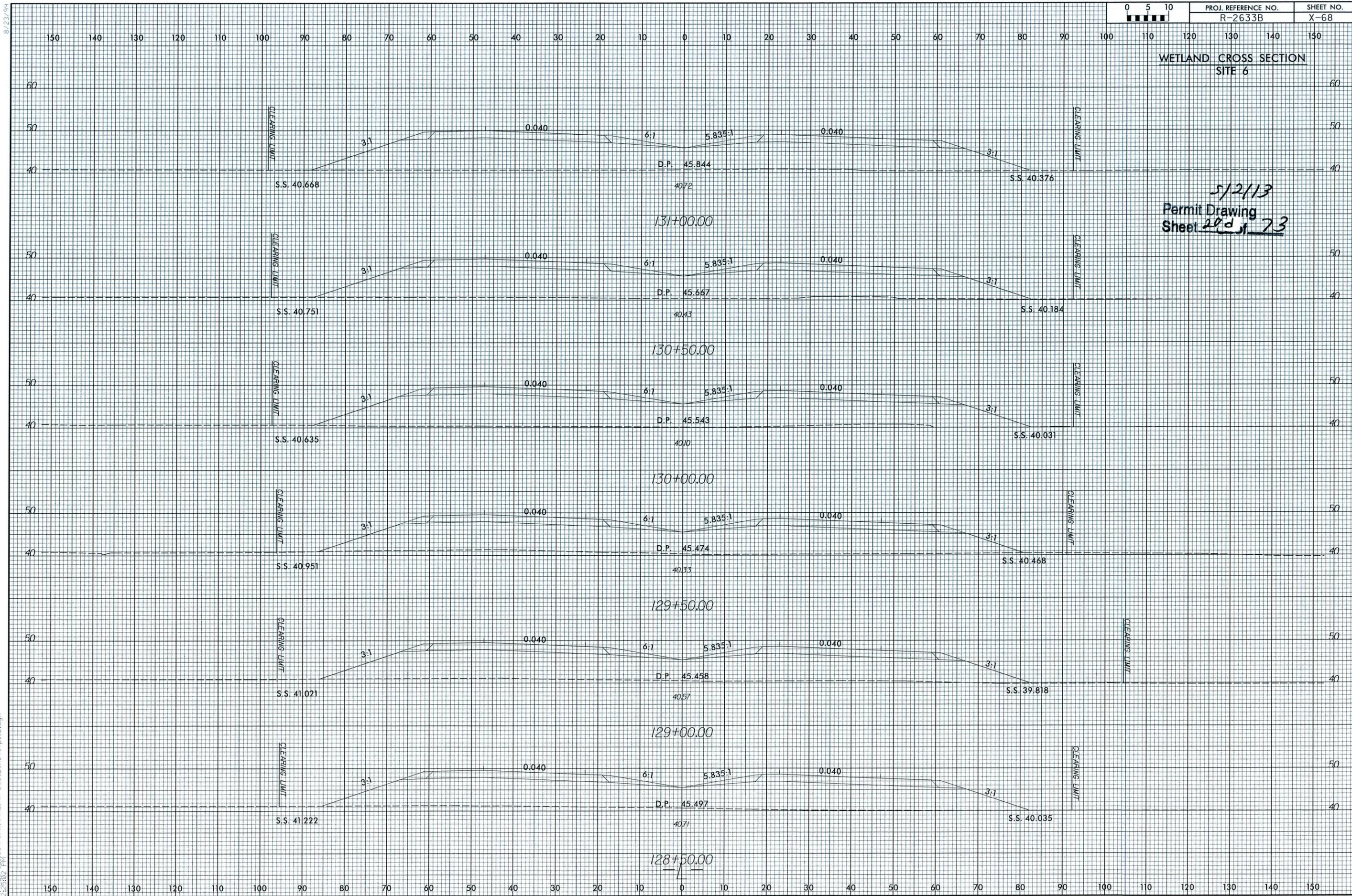


5/2/2013
S:\Projects\Permit\SSC\R-2633B-RDY_xpl.dgn
2:28:14



WETLAND CROSS SECTION SITE 6

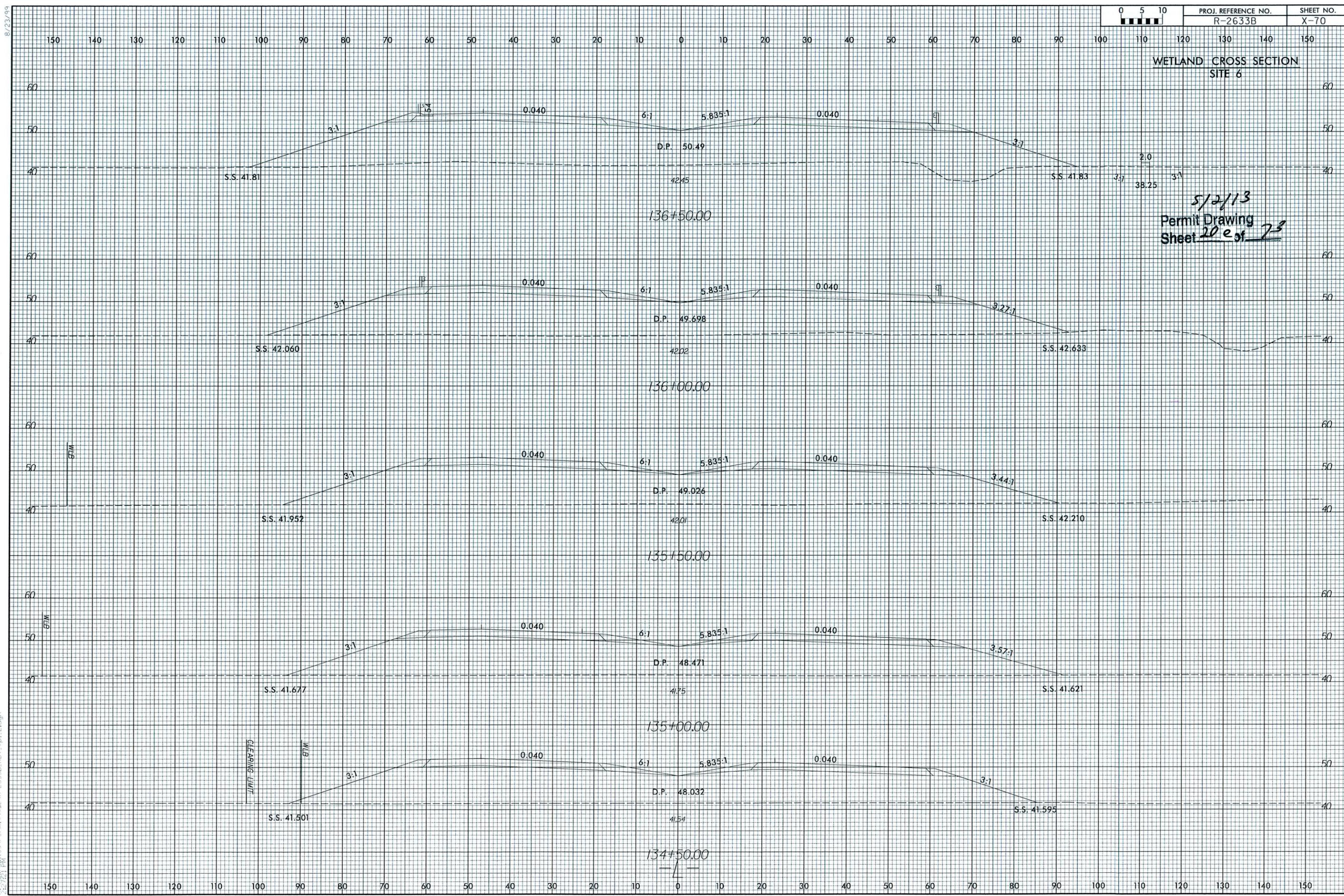
5/2/13
Permit Drawing
Sheet 2 of 73



8/23/99
5/2/2013
G:\Projects\2633B\Permit\Drawings\2633B-RD1.dgn



WETLAND CROSS SECTION
SITE 6



5/2/13
Permit Drawing
Sheet 20 of 23

8/23/99
5/2/2013
R:\Projects\Permit\X-2633B\FD\X-70.dgn

LOCHNER
 H. W. LOCHNER, INC.
 2840 PLAZA PLACE, SUITE 202
 RALEIGH, NC 27612

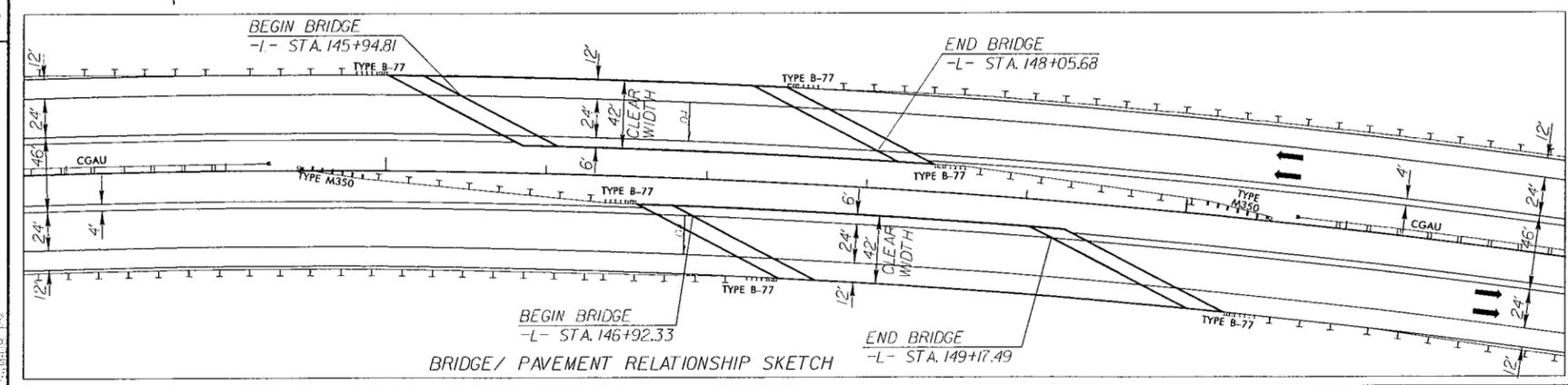
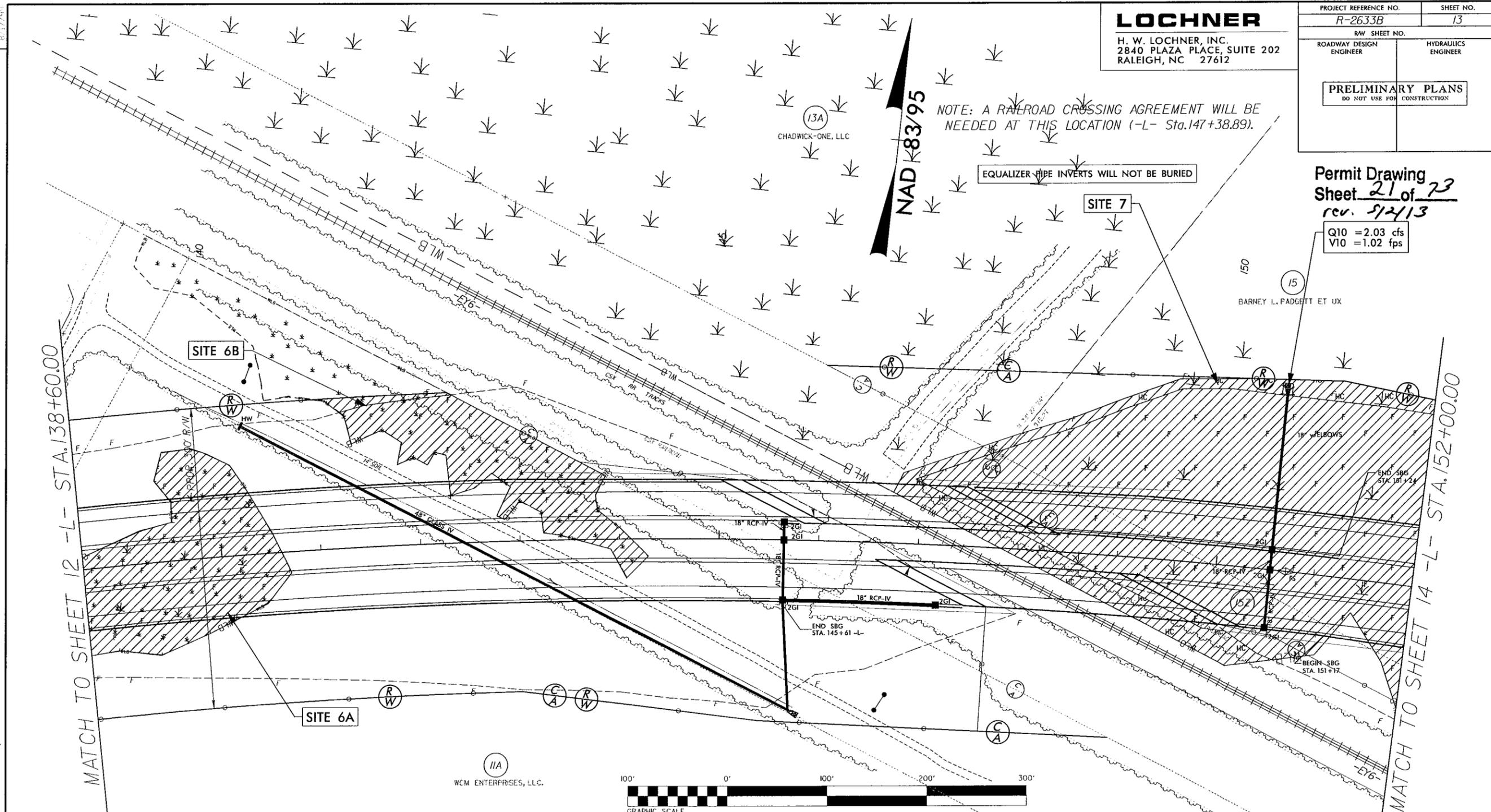
PROJECT REFERENCE NO. R-2633B	SHEET NO. 13
RAW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

Permit Drawing Sheet 21 of 23
 rev. 9/2/13
 Q10 = 2.03 cfs
 V10 = 1.02 fps

NOTE: A RAILROAD CROSSING AGREEMENT WILL BE NEEDED AT THIS LOCATION (-L- Sta.147+38.89).

EQUALIZER PIPE INVERTS WILL NOT BE BURIED

REVISIONS
 10/ /09 - CHANGED PARCEL #1 TO IIA COMBINED PARCEL 13 AND 14 AND ELIMINATED 14. CORRECTED PROPERTY LINES AND RAILROAD R/W LINE ON PARCEL 15.
 11/ /11 - CHANGED PARCEL #13 TO 13A. ADDED CA AND FENCE TO RAILROAD. R/W. CHANGED STATION ON MONUMENT TO 142+318.17.



DENOTES FILL IN WETLAND
 DENOTES HAND CLEARING

SEE SHEET 46 FOR -L- PROFILE

LOCHNER
 H. W. LOCHNER, INC.
 2840 PLAZA PLACE, SUITE 202
 RALEIGH, NC 27612

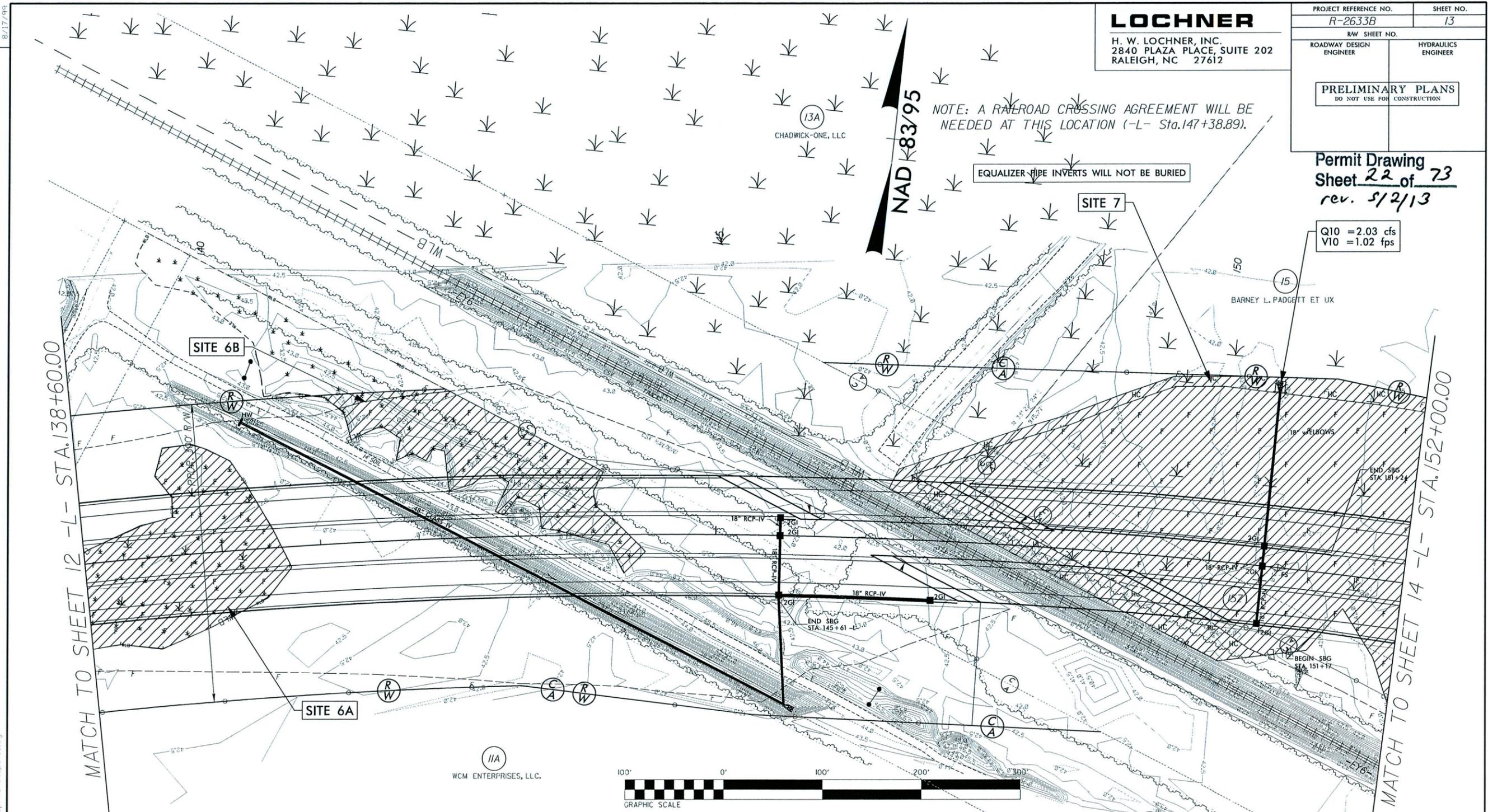
PROJECT REFERENCE NO. R-2633B	SHEET NO. 13
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

Permit Drawing
 Sheet 22 of 73
 rev. 5/2/13

Q10 = 2.03 cfs
 V10 = 1.02 fps

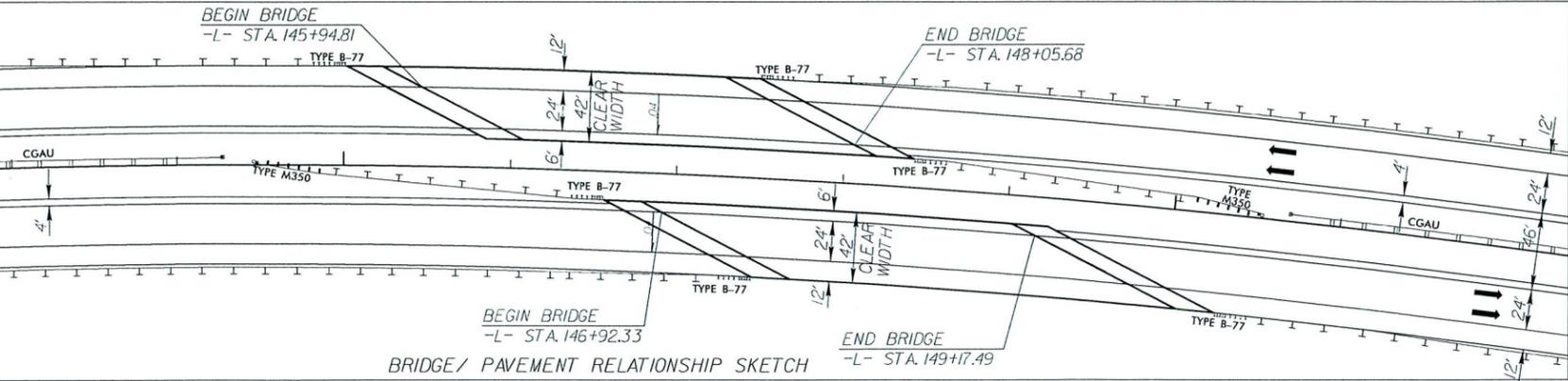
NOTE: A RAILROAD CROSSING AGREEMENT WILL BE NEEDED AT THIS LOCATION (-L- Sta.147+38.89).

EQUALIZER PIPE INVERTS WILL NOT BE BURIED



REVISIONS
 10/1/09 - CHANGED PARCEL #1 TO 11A. CORRECTED PROPERTY LINES AND RAILROAD R/W LINE ON PARCEL 15.
 1/1/11 - CHANGED PARCEL #13 TO 13A. ADDED CA AND FENCE TO RAILROAD R/W. CHANGED STATION ON MONUMENT TO 142+319.97.

8/17/99
 8/17/2013
 C:\Users\Permit1\Documents & Settings\Permit1\My Documents\Projects\Permit1\Stream & Wetland\R-2633B_hyd_perm_wet_psh13.dgn



DENOTES FILL IN WETLAND
 DENOTES HAND CLEARING



SEE SHEET 46 FOR -L- PROFILE

8/23/99

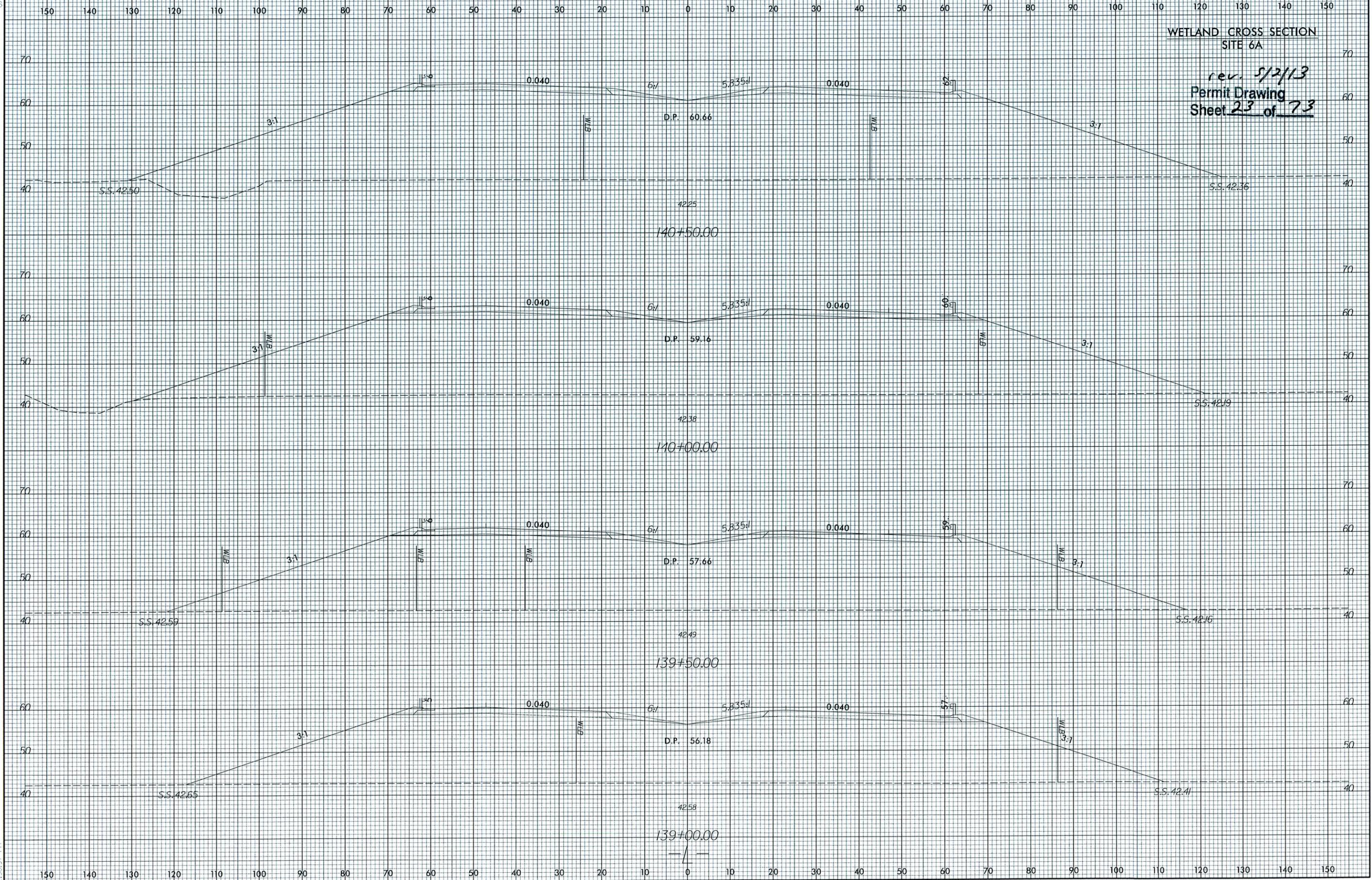


PROJ. REFERENCE NO.
R-2633B

SHEET NO.
X-72

WETLAND CROSS SECTION
SITE 6A

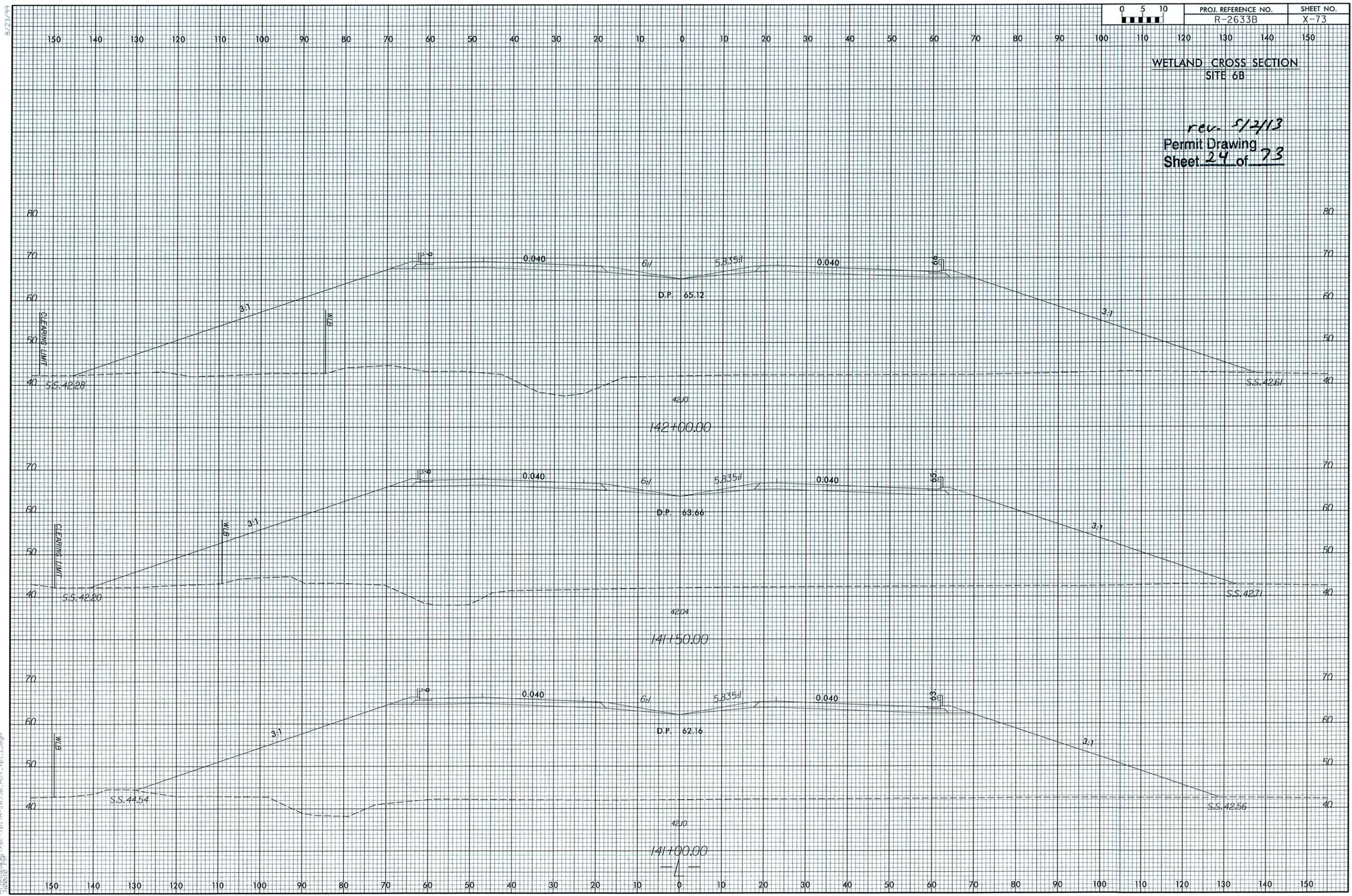
rev. 5/2/13
Permit Drawing
Sheet 23 of 73



I:\30_2012\Projects\2633B\XSEC\X-72\X-72.dgn
2/5/2013 10:57:57 AM

WETLAND CROSS SECTION
SITE 6B

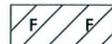
rev. 5/2/13
Permit Drawing
Sheet 24 of 73



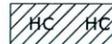
8/17/99



GRAPHIC SCALE



DENOTES FILL IN WETLAND



DENOTES HAND CLEARING

EQUALIZER PIPE INVERTS WILL NOT BE BURIED

LOCHNER

H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH, NC 27612

PROJECT REFERENCE NO. R-2633B	SHEET NO. 14
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

rev. 5/2/13
Permit Drawing
Sheet 26 of 73

NAD 83/95

15
BARNEY L. PADGETT ET UX

160

SITE 7

155

Q10 = 0.51 cfs
V10 = 0.78 fps

MATCH TO SHEET 13 -L- STA. 152+00.00

MATCH TO SHEET 15 -L- STA. 166+00.00

Q10 = 6.06 cfs
V10 = 1.10 fps

Q10 = 6.68 cfs
V10 = 1.14 fps

15
BARNEY L. PADGETT ET UX

11A

WCM ENTERPRISES, LLC.

SEE SHEET 47 FOR -L- PROFILE SEE SHEET 64 FOR -RAMP_B2- PROFILE

REVISIONS

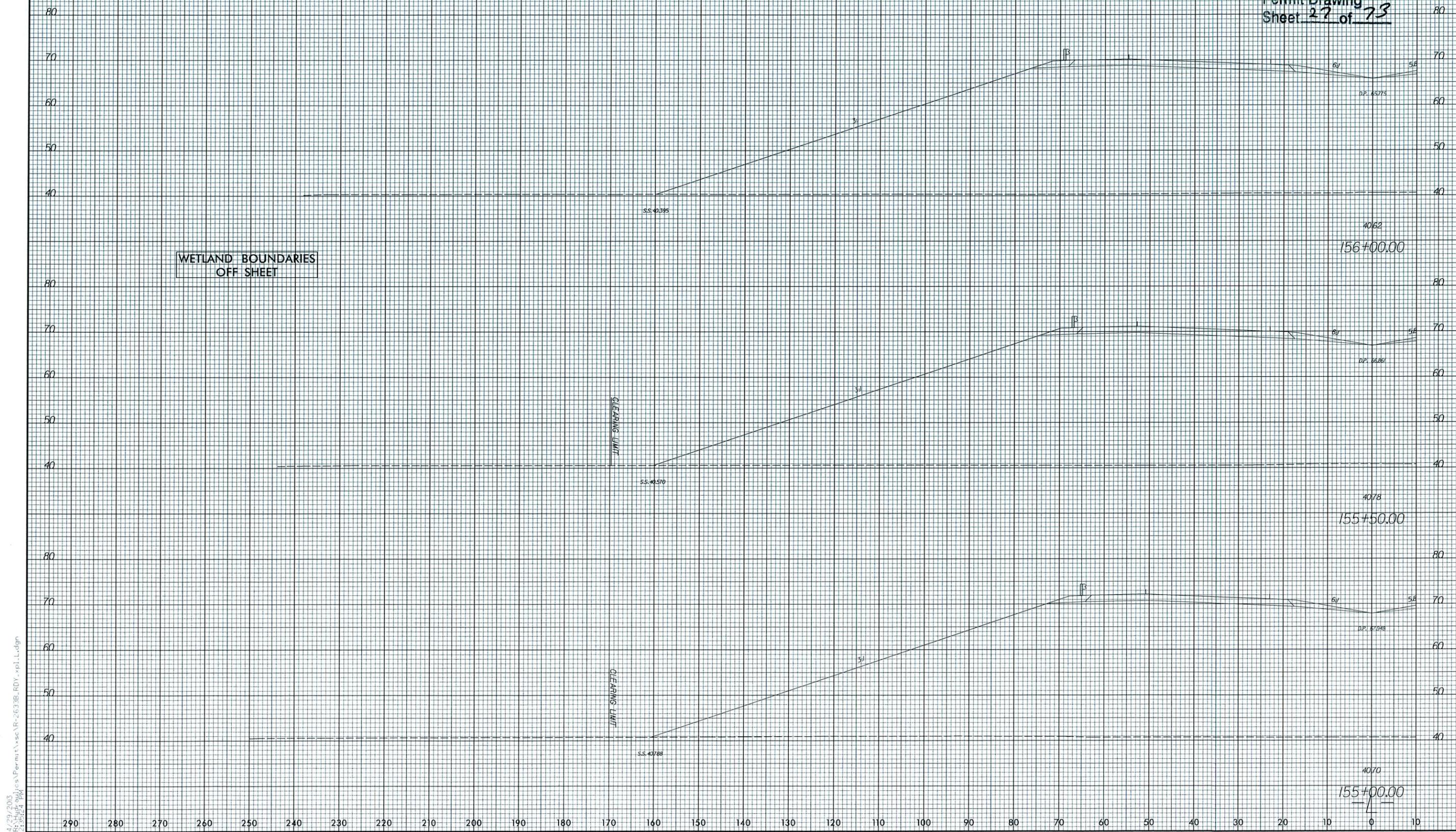
5/2/2013
R:\1103\1103\1103\Permit\Stream & Wetland\R-2633B-hyd_perm_wet-psh1.dgn

8/23/99
4/29/2013
R:\Hug\00\jects\Permit\asc\F-c6338.RDY_xpl.L.dgn
2:35:24 PM

290 280 270 260 250 240 230 220 210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10

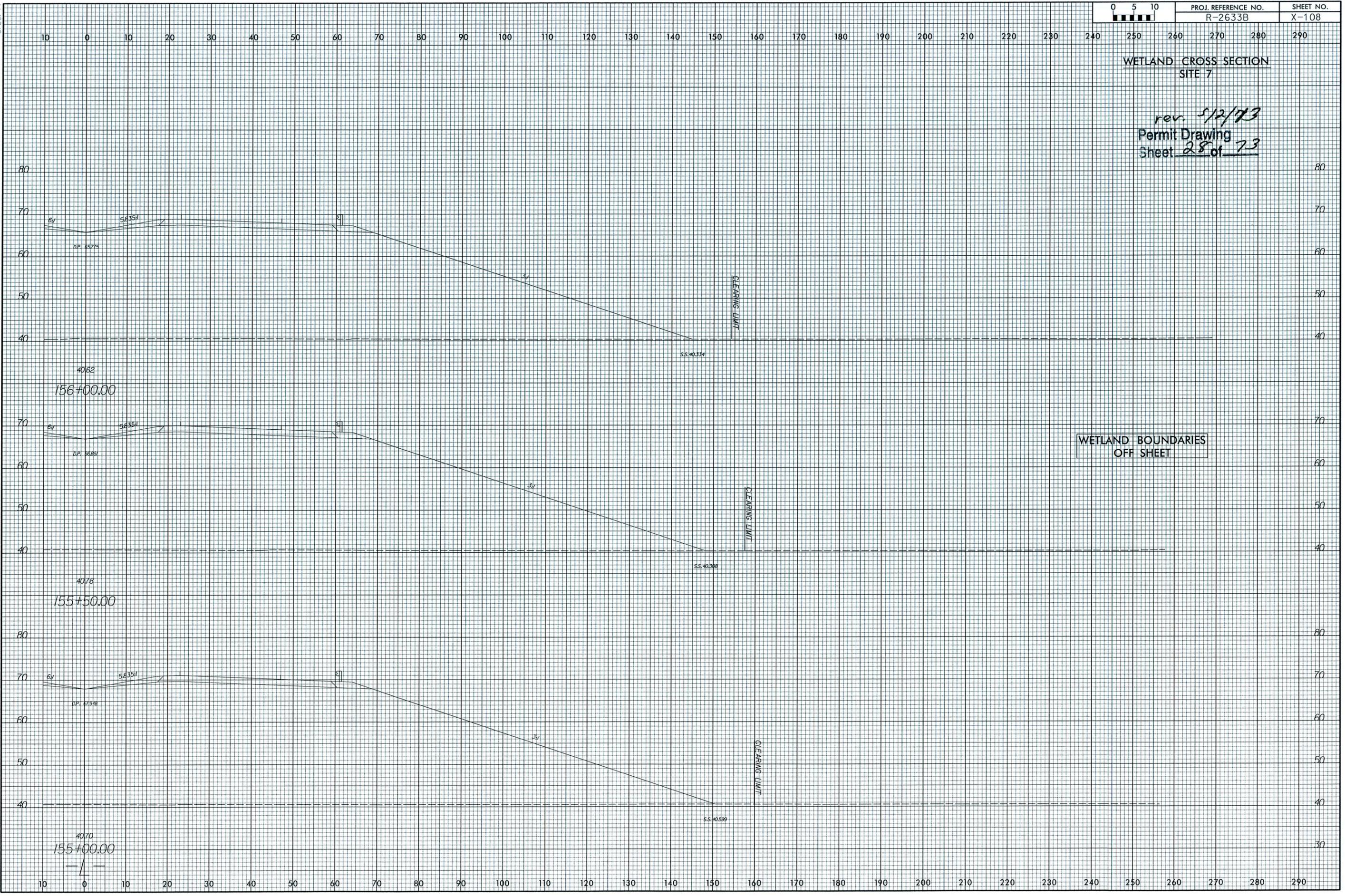
WETLAND CROSS SECTION
SITE 7
REV. 5/2/13
Permit Drawing
Sheet 27 of 73

WETLAND BOUNDARIES
OFF SHEET



WETLAND CROSS SECTION
SITE 7

rev. 5/12/73
Permit Drawing
Sheet 28 of 73



WETLAND BOUNDARIES
OFF SHEET

8/23/99
 4/29/2013
 S:\Projects\Permit\1\sc\R-2633B.RDV.rpt.dgn

8/17/99



LOCHNER

H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH, NC 27612

PROJECT REFERENCE NO. SHEET NO.

R-2633B 15

R/W SHEET NO.

ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

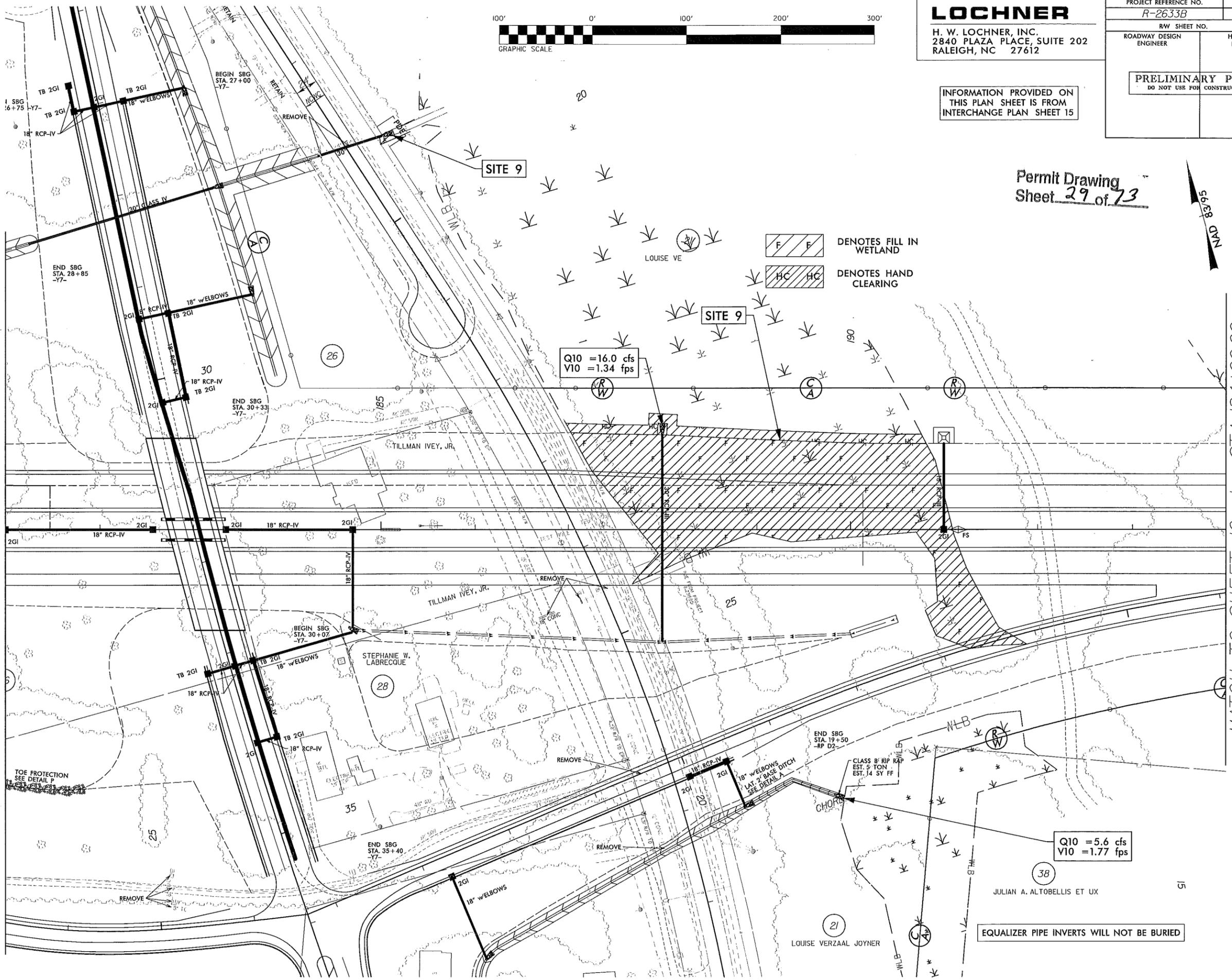
INFORMATION PROVIDED ON
THIS PLAN SHEET IS FROM
INTERCHANGE PLAN SHEET 15

Permit Drawing
Sheet 29 of 73



-L- STA. 181+00.00

MATCH TO SHEET 16 -L- STA. 194+00.00



F F DENOTES FILL IN WETLAND
HC HC DENOTES HAND CLEARING

Q10 = 16.0 cfs
V10 = 1.34 fps

Q10 = 5.6 cfs
V10 = 1.77 fps

EQUALIZER PIPE INVERTS WILL NOT BE BURIED

REVISIONS

12/3/2012
H:\Hydro\Permit\Stream & Wetland\R-2633B_hyd_prm_wet_psh15.dgn
7:51:55 AM

8/17/99

REVISIONS

12/3/2012
R:\Hydro\1015\Permit\Stream & Wetland\R-2633B_hyd_prm_wet_psh15.dgn
7:51:38 AM



LOCHNER

H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH, NC 27612

PROJECT REFERENCE NO. R-2633B	SHEET NO. 15
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

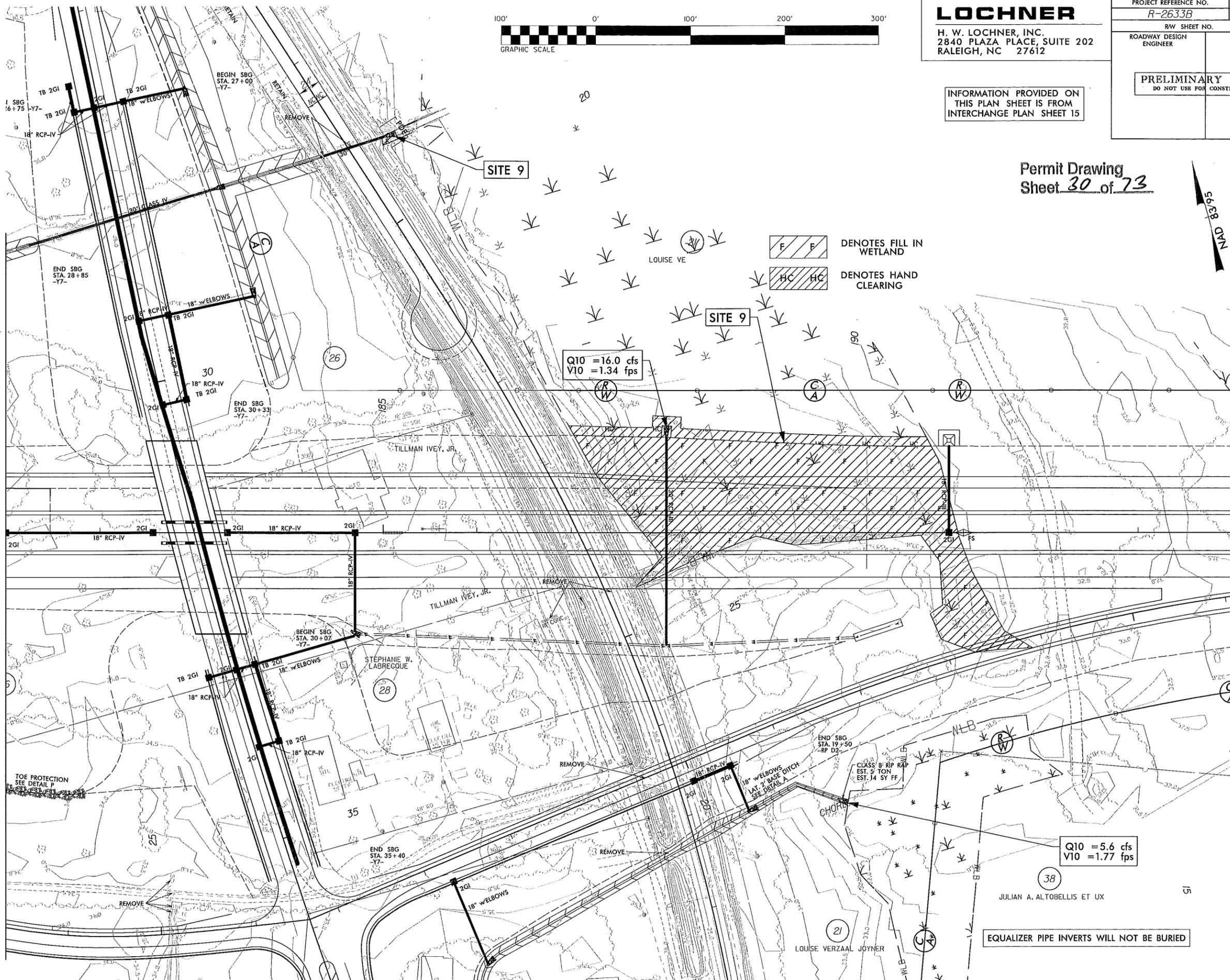
INFORMATION PROVIDED ON THIS PLAN SHEET IS FROM INTERCHANGE PLAN SHEET 15

Permit Drawing
Sheet 30 of 73



-L- STA. 81+00.00

MATCH TO SHEET 16 -L- STA. 194+00.00



DENOTES FILL IN WETLAND
 DENOTES HAND CLEARING

Q10 = 16.0 cfs
V10 = 1.34 fps

Q10 = 5.6 cfs
V10 = 1.77 fps

EQUALIZER PIPE INVERTS WILL NOT BE BURIED

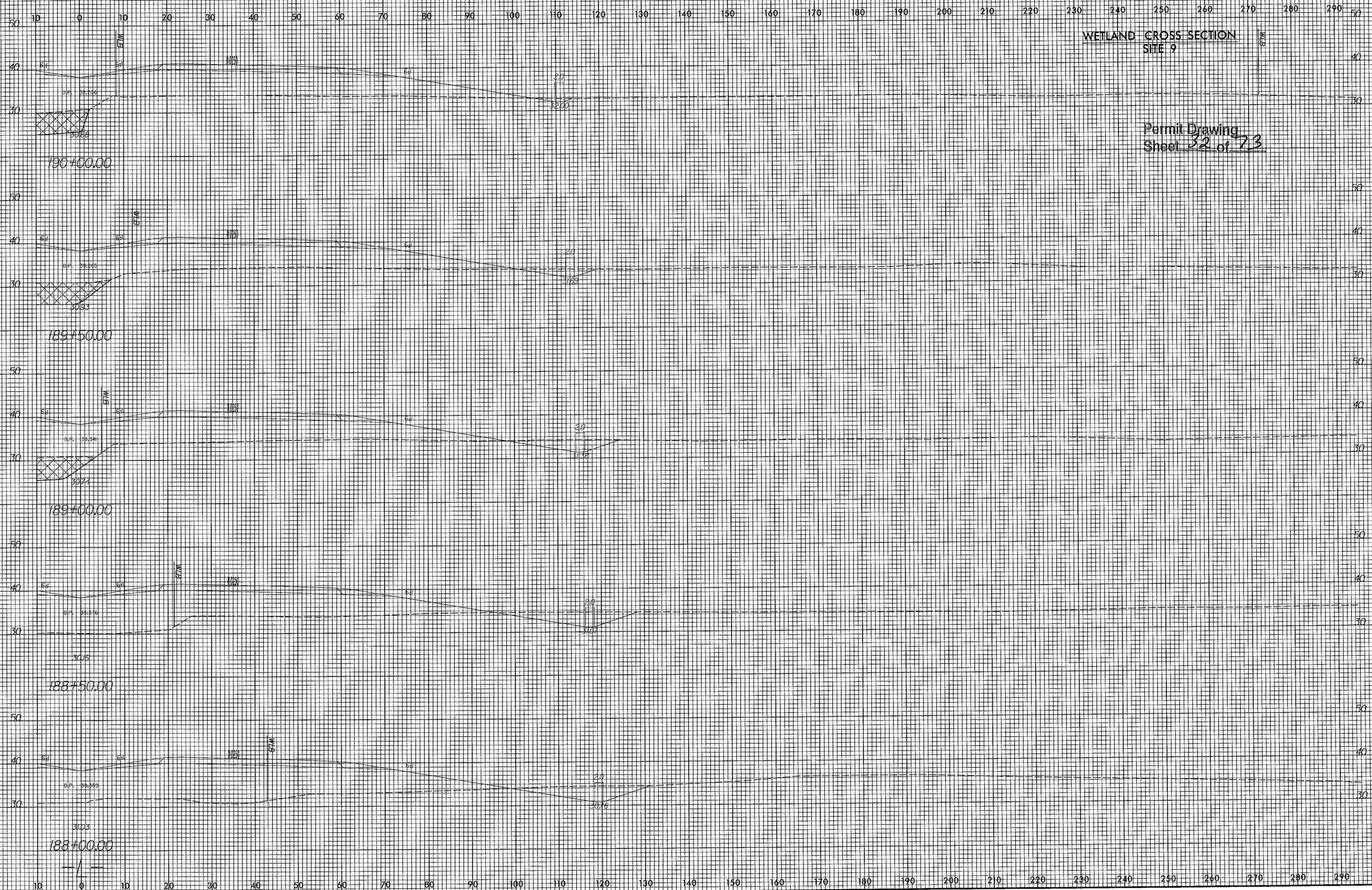
8/23/99



PROJ. REFERENCE NO. R-2633B SHEET NO. X-122

WETLAND CROSS SECTION SITE 9

Permit Drawing
Sheet 32 of 73

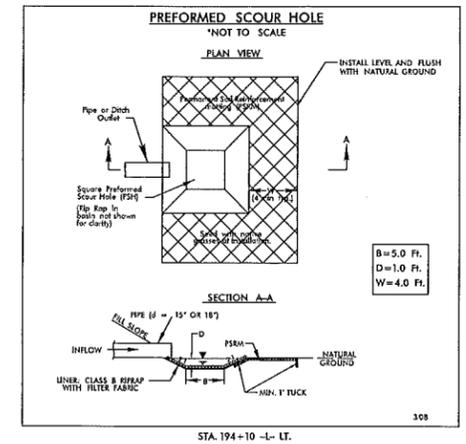


I:\30\2012
R:\reg\del\Xac\Xpl\AR-2633B_RCY_xpl.L.dgn
3/2/2005 10:42:05 AM

8/17/99

LOCHNER
H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH, NC 27612

PROJECT REFERENCE NO. R-2633B	SHEET NO. 16
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



EQUALIZER PIPE INVERTS WILL NOT BE BURIED

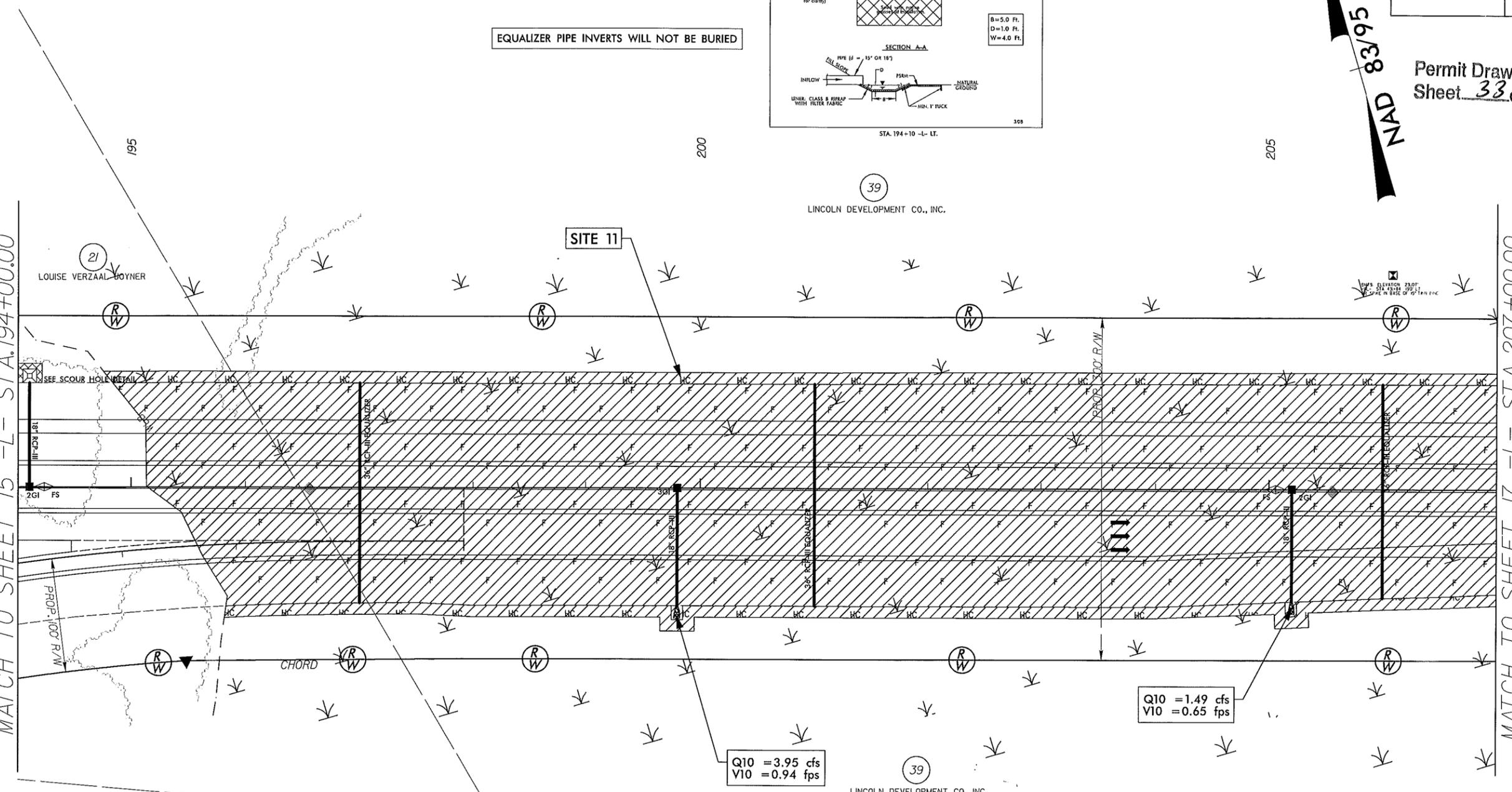
NAD 83/95

Permit Drawing
Sheet 33 of 73

REVISIONS

MATCH TO SHEET 15 -L- STA.194+00.00

MATCH TO SHEET 17 -L- STA.207+00.00



Q10 = 3.95 cfs
V10 = 0.94 fps

Q10 = 1.49 cfs
V10 = 0.65 fps

DENOTES FILL IN WETLAND

DENOTES HAND CLEARING



SEE SHEET 48 FOR -L- PROFILE

SEE SHEET 66 FOR -RAMP_D2- PROFILE

I:\Projects\Permit\Stream & Wetland\NR-2633B-hyd.prm.wet.psh16.dgn
 8/17/2012 10:55 AM

38
JULIAN A. ALTOBELLIS ET UX

39
LINCOLN DEVELOPMENT CO., INC.

21
LOUISE VERZAAL BOYNER

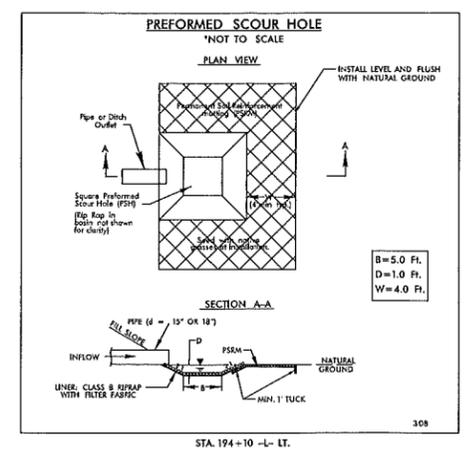
39
LINCOLN DEVELOPMENT CO., INC.

8/17/99

LOCHNER
H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH, NC 27612

PROJECT REFERENCE NO. R-2633B	SHEET NO. 16
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

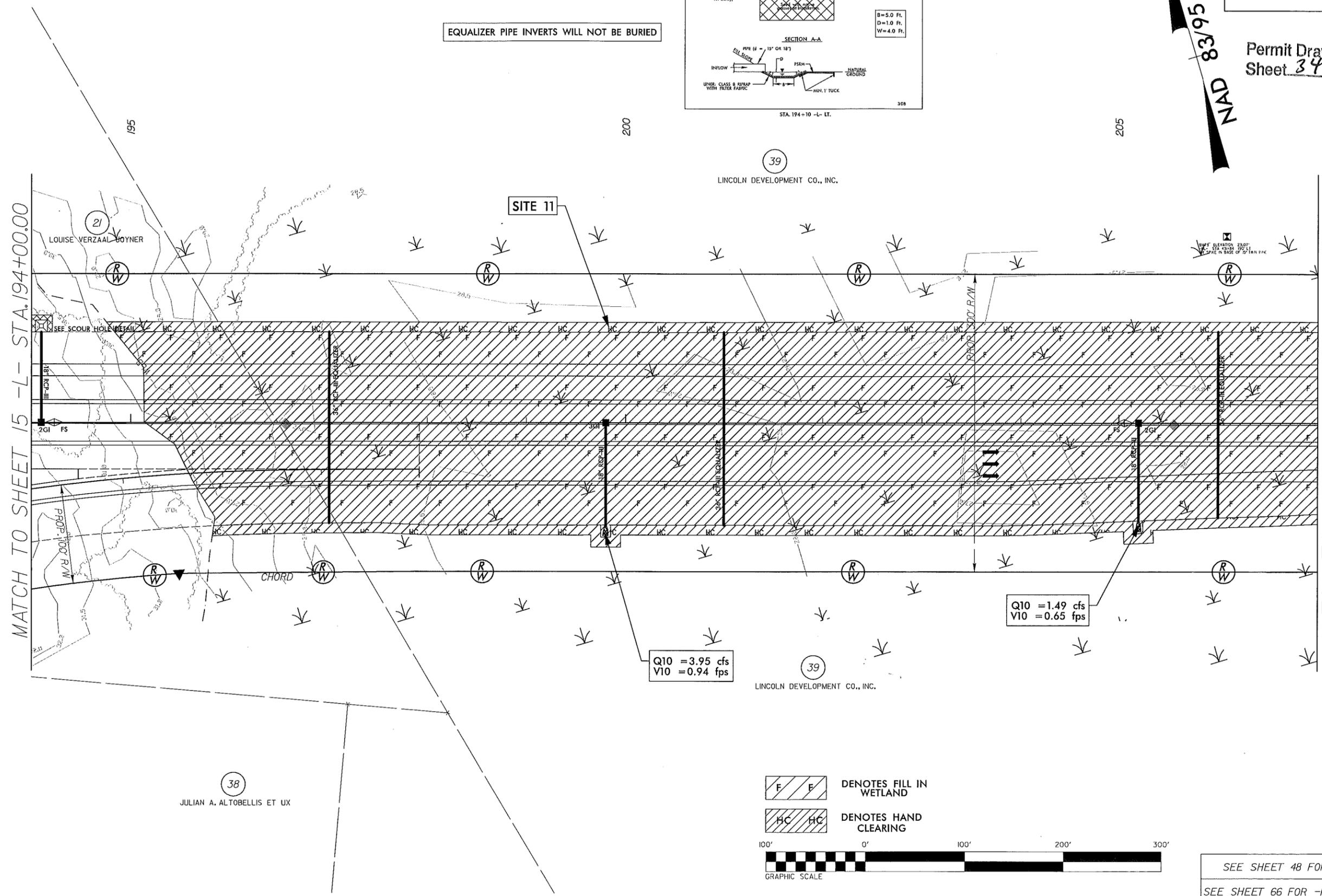
Permit Drawing
Sheet 34 of 73



EQUALIZER PIPE INVERTS WILL NOT BE BURIED

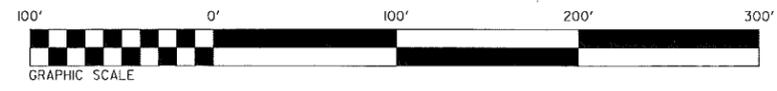
MATCH TO SHEET 15 -L- STA. 194+00.00

MATCH TO SHEET 17 -L- STA. 207+00.00



DENOTES FILL IN WETLAND

DENOTES HAND CLEARING



SEE SHEET 48 FOR -L- PROFILE

SEE SHEET 66 FOR -RAMP_D2- PROFILE

REVISIONS

R:\2012\01\cs\Permit\Stream & Wetland\R-2633B_hyd_prm_wet_psh16.dgn

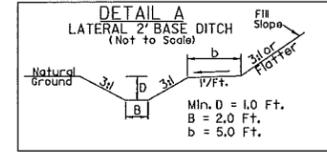
38
JULIAN A. ALTOBELLIS ET UX

8/17/99

LOCHNER

H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH, NC 27612

PROJECT REFERENCE NO. R-2633B	SHEET NO. 17
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



FROM STA. 216+10 TO STA. 221+00 -L- LT.
FROM STA. 216+00 TO STA. 221+00 -L- RT.

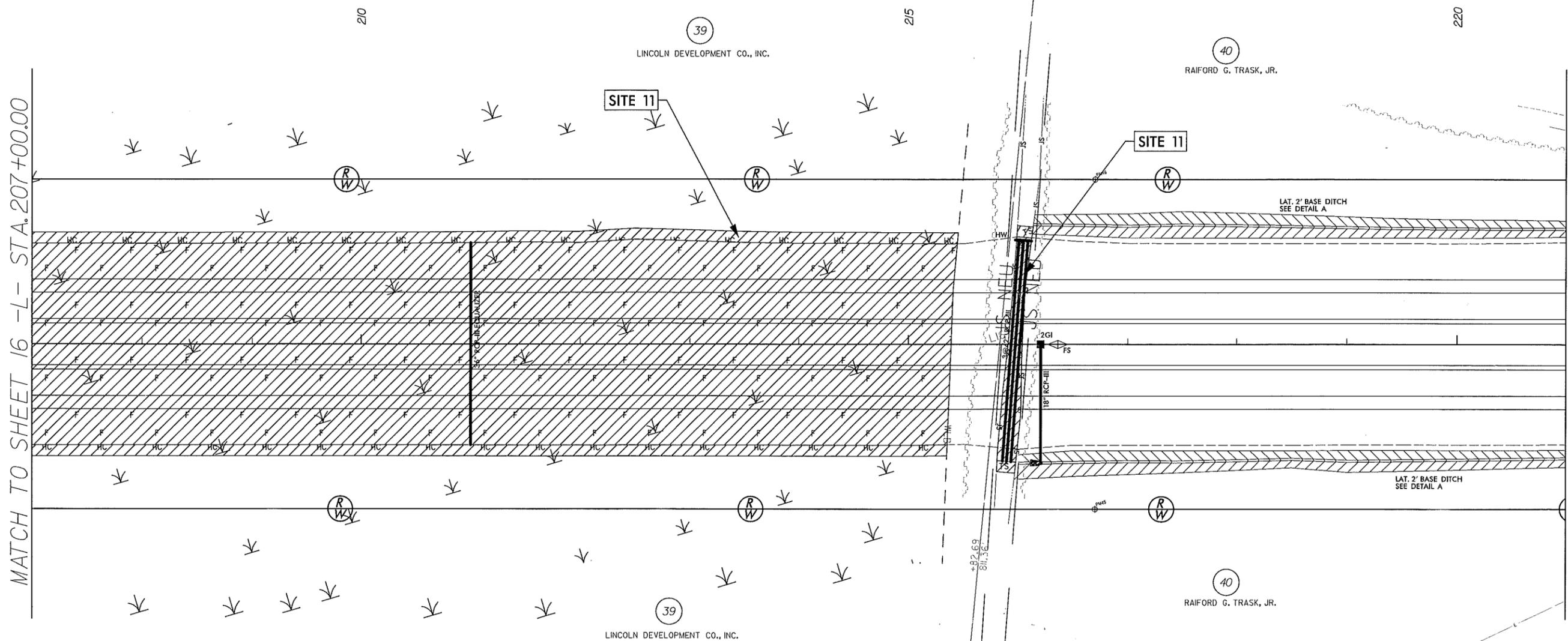
EQUALIZER PIPE INVERTS WILL NOT BE BURIED

NAD 83/95

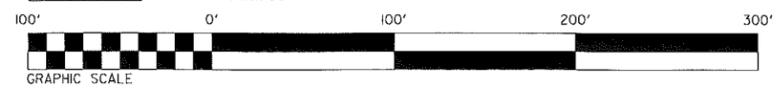
Permit Drawing
Sheet 36 of 73

MATCH TO SHEET 16 -L- STA. 207+00.00

MATCH TO SHEET 18 -L- STA. 221+00.00



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



SEE SHEET 49 FOR -L- PROFILE

REVISIONS

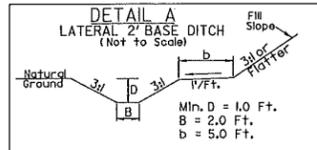
I:\20\20P\H:\Hydro\Locs\Permit\Stream & Wetland\VR-2633B_hyd_prm_wet_psh17.dgn

8/17/99

LOCHNER

H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH, NC 27612

PROJECT REFERENCE NO. R-2633B		SHEET NO. 17	
RAW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			



FROM STA. 216+10 TO STA. 221+00 -L- LT.
FROM STA. 216+00 TO STA. 221+00 -L- RT.

EQUALIZER PIPE INVERTS WILL NOT BE BURIED

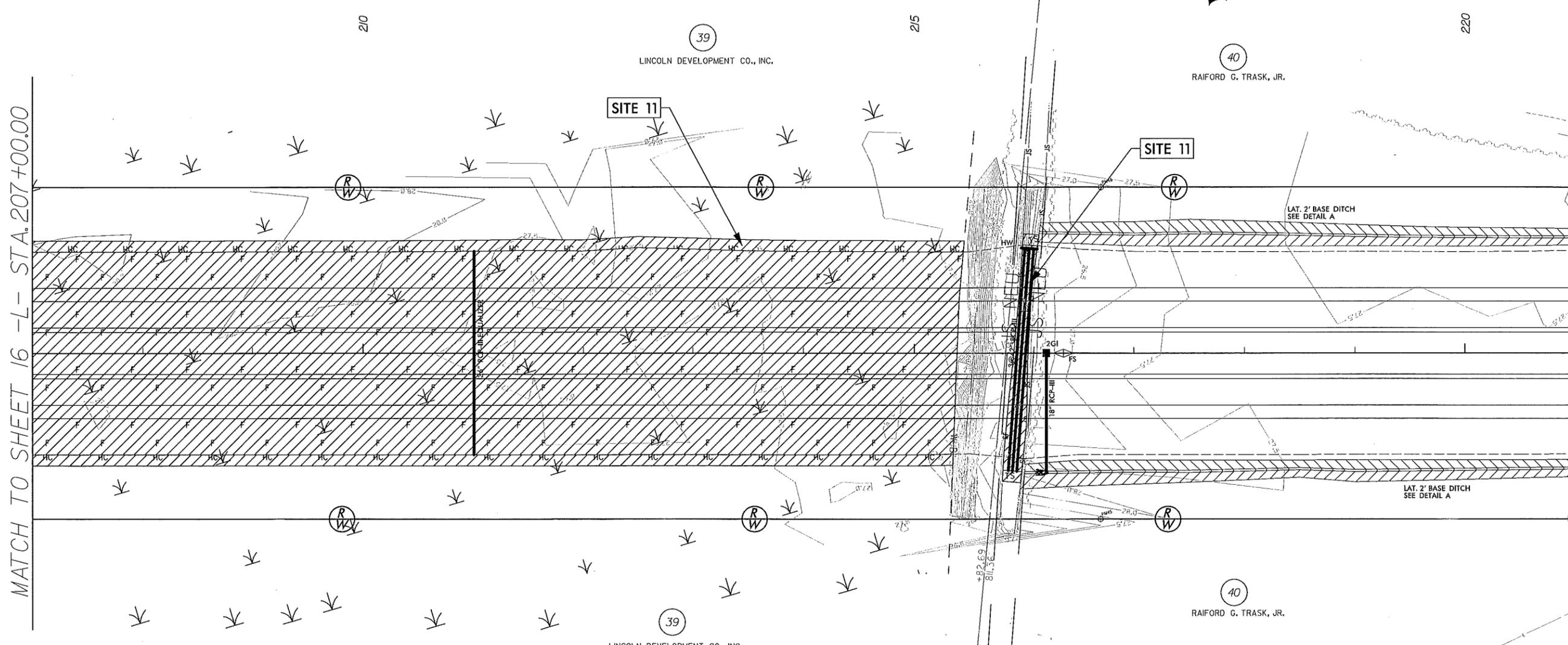
NAD 83/95

Permit Drawing
Sheet 36 of 73

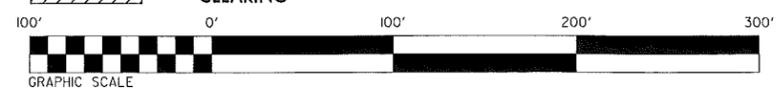
REVISIONS

MATCH TO SHEET 16 -L- STA. 207+00.00

MATCH TO SHEET 18 -L- STA. 221+00.00

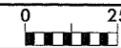


- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES FILL IN WETLAND
- DENOTES HAND CLEARING



SEE SHEET 49 FOR -L- PROFILE

I:\2010\Projects\Permit\Stream & Wetland\R-2633B_hyd.prm_wet.psh17.dgn



PROJ. REFERENCE NO.
R-2633B

SHEET NO.
-L- 215+95

350

300

250

200

150

100

50

0

50

100

150

200

250

300

350

Permit Drawing
Sheet 38 of 73

SITE 11 JURISDICTIONAL STREAM PROFILE -L- 215+95

70

65

60

55

50

45

40

35

30

25

20

70

65

60

55

50

45

40

35

30

25

20

NWS=25.50 ▼ N

INV.= 22.50

3@42" RCP

stream bottom

INV.= 22.07

215+95 -L-

350

300

250

200

150

100

50

0

50

100

150

200

250

300

350

5/28/99

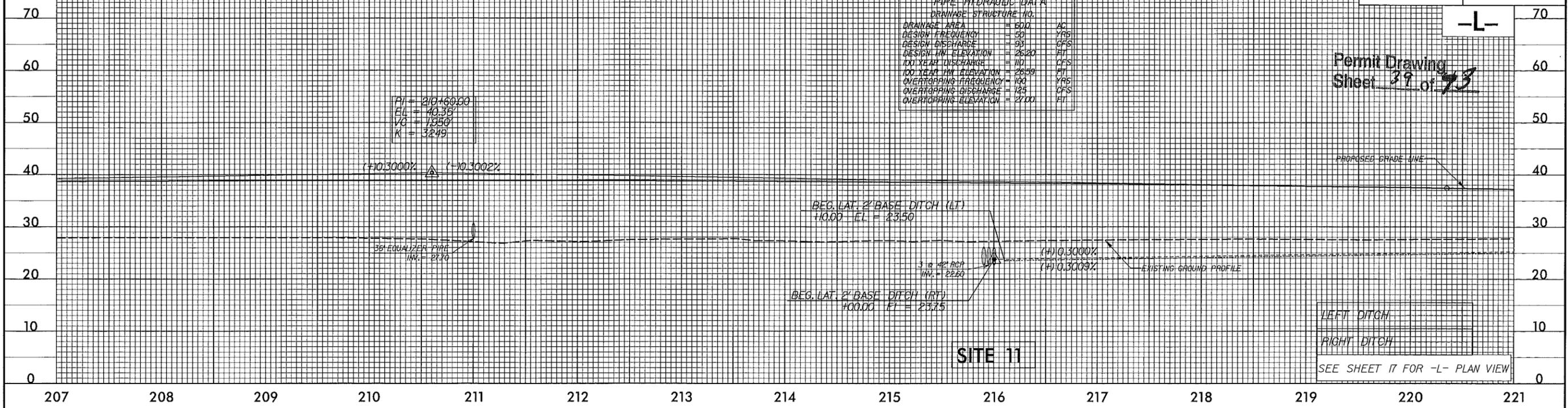
PROJECT REFERENCE NO. R-2633B	SHEET NO. 49
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

-L-

Permit Drawing
Sheet 39 of 43

PIPE HYDRAULIC DATA	
DRAINAGE STRUCTURE NO.	
DRAINAGE AREA	= 600 AC
DESIGN FREQUENCY	= 50 YRS
DESIGN DISCHARGE	= 93 CFS
DESIGN HW ELEVATION	= 26.20 FT
100 YEAR DISCHARGE	= 110 CFS
100 YEAR HW ELEVATION	= 26.59 FT
OVERTOPPING FREQUENCY	= 10 YRS
OVERTOPPING DISCHARGE	= 123 CFS
OVERTOPPING ELEVATION	= 27.00 FT

PI = 210+60.00
 EL = 40.36
 VC = 1350'
 K = 3249



SITE 11

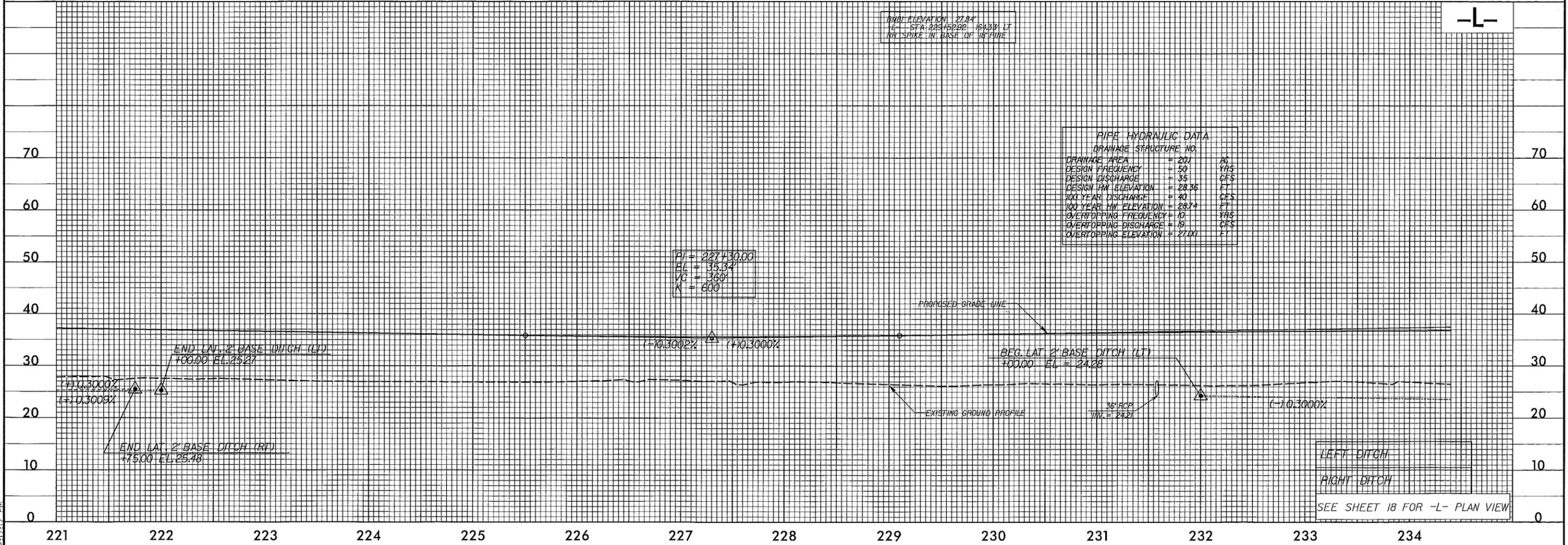
LEFT DITCH
 RIGHT DITCH
 SEE SHEET 17 FOR -L- PLAN VIEW

-L-

HW ELEVATION 27.84
 AT STA 225+50.00
 IN BASE OF UT BINE

PIPE HYDRAULIC DATA	
DRAINAGE STRUCTURE NO.	
DRAINAGE AREA	= 201 AC
DESIGN FREQUENCY	= 50 YRS
DESIGN DISCHARGE	= 35 CFS
DESIGN HW ELEVATION	= 28.36 FT
100 YEAR DISCHARGE	= 40 CFS
100 YEAR HW ELEVATION	= 28.74 FT
OVERTOPPING FREQUENCY	= 10 YRS
OVERTOPPING DISCHARGE	= 49 CFS
OVERTOPPING ELEVATION	= 27.00 FT

PI = 227+30.00
 EL = 35.34
 VC = 360'
 K = 800

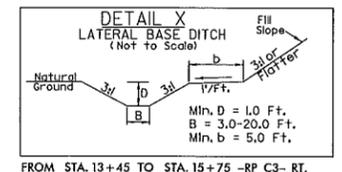
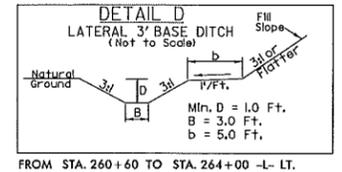
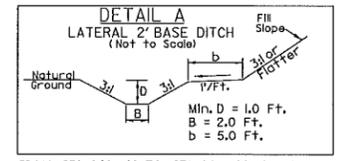
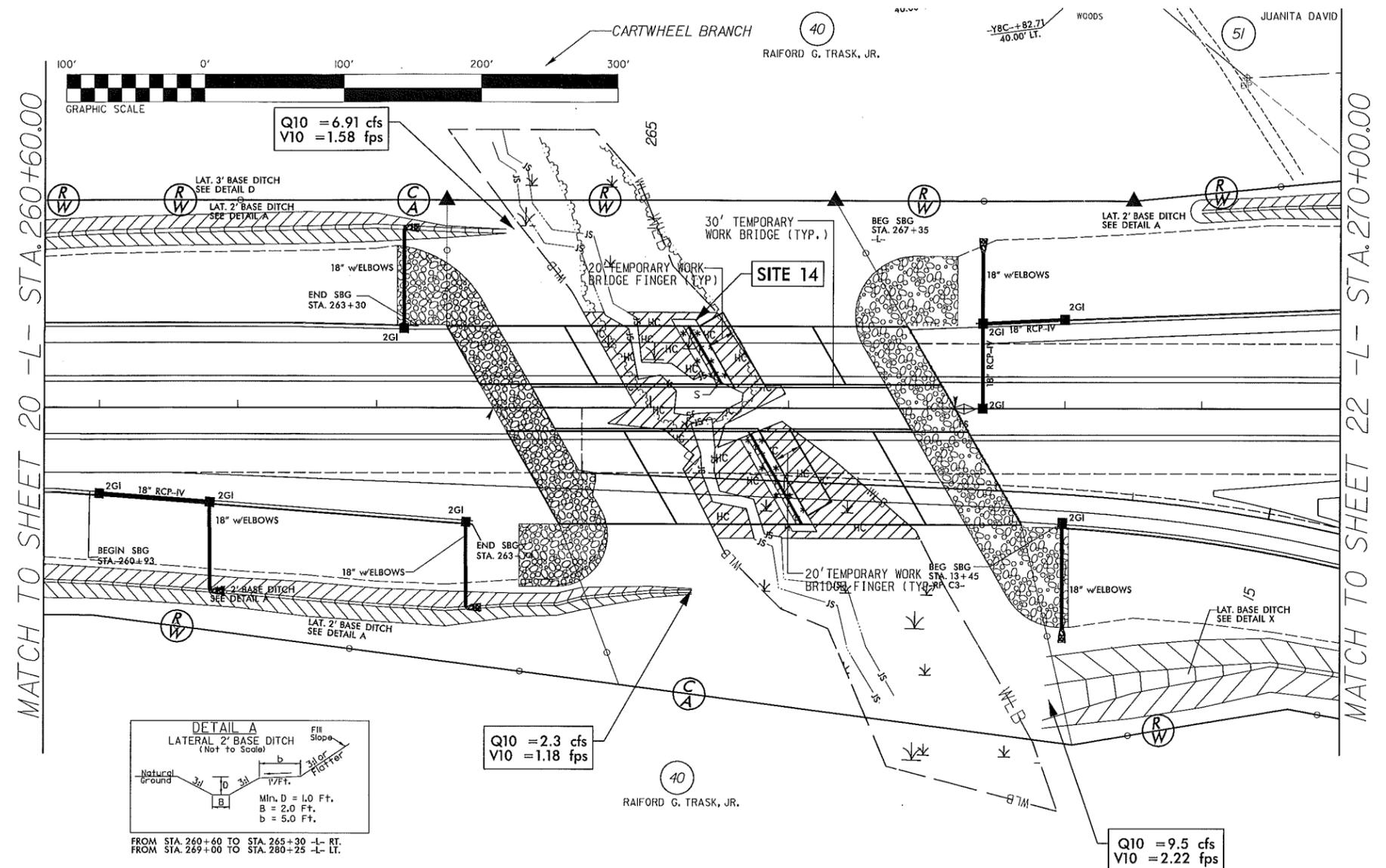


LEFT DITCH
 RIGHT DITCH
 SEE SHEET 18 FOR -L- PLAN VIEW

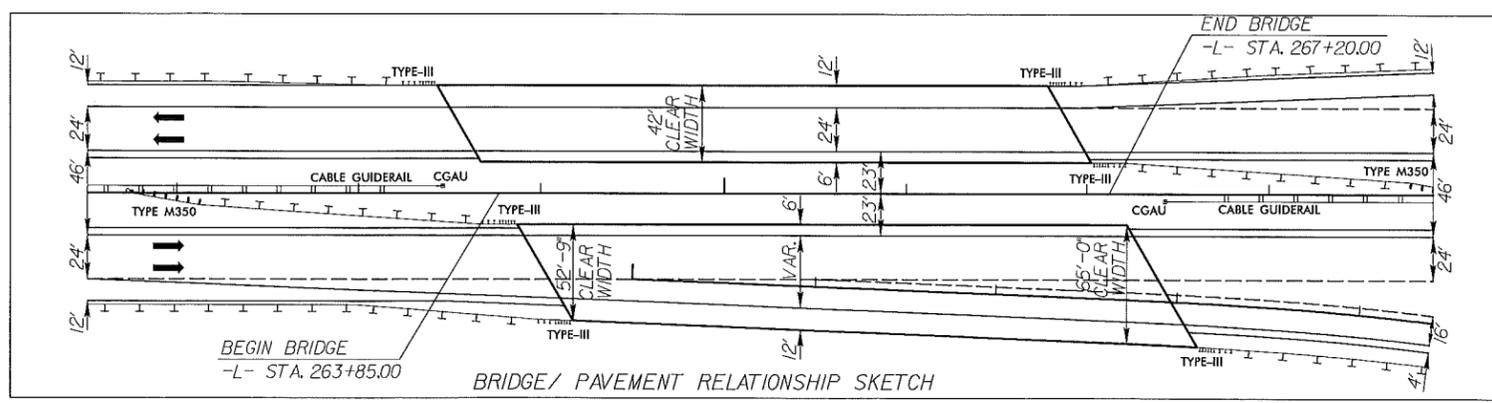
K:\30\2012
 R:\Hyd\99\Permit\Stream & Wetland\R-26333B.RDY_PFL_SHEETS.dgn
 2/17/99

PROJECT REFERENCE NO. R-2633B	SHEET NO. 21
RAW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

Permit Drawing
 Sheet 40 of 73



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



SEE SHEETS 72 FOR -RP_C3- PROFILE
 SEE SHEET 51 FOR -L- PROFILE

REVISIONS

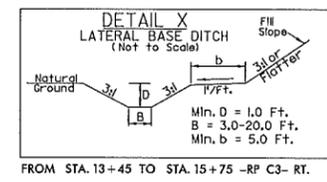
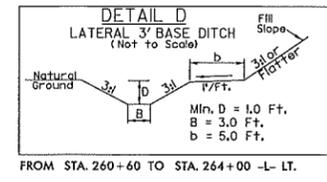
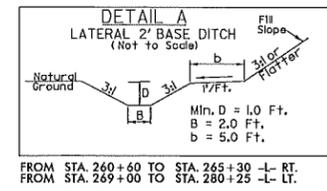
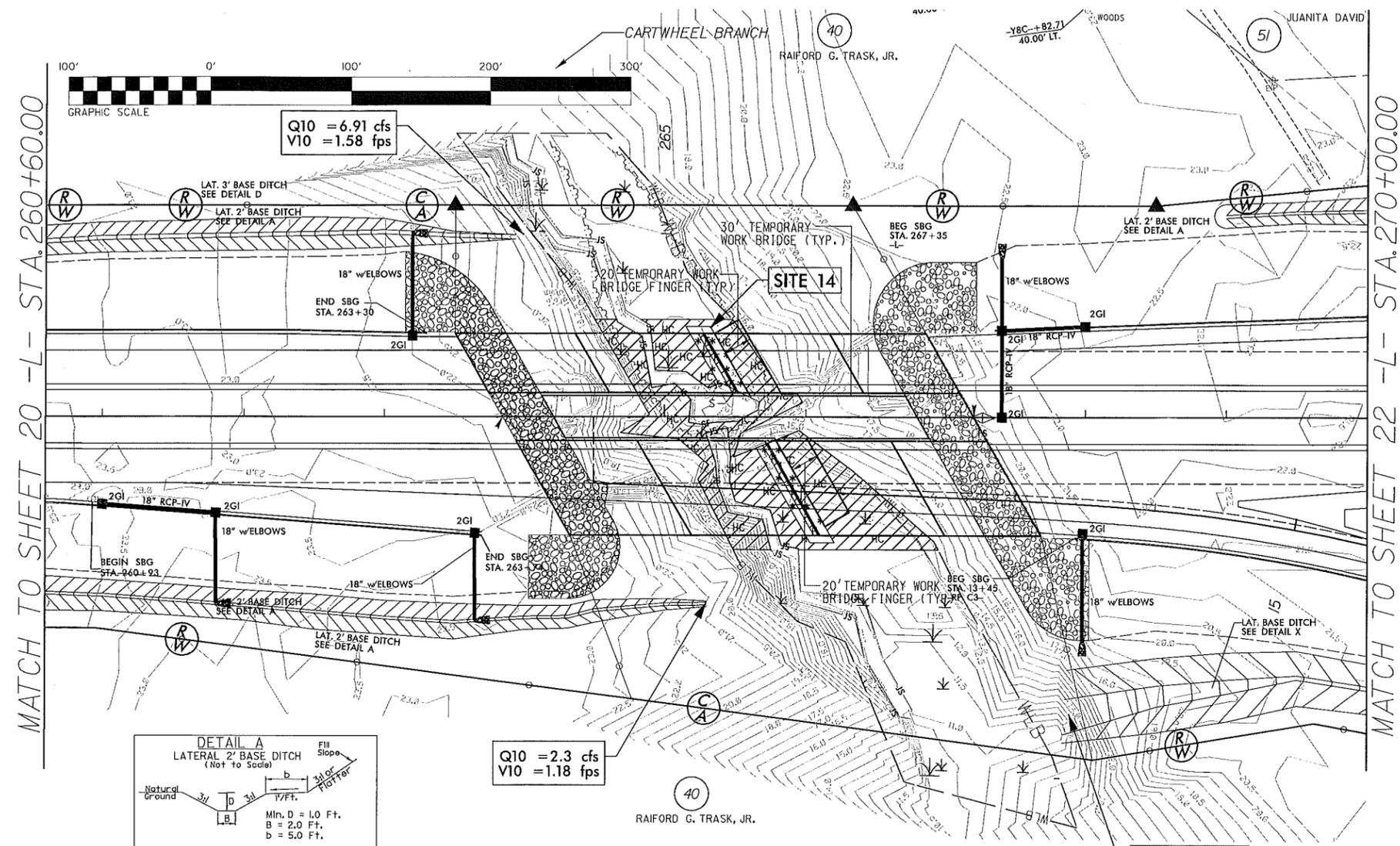
RW Revision: August 5, 2008, Revised w/ label from -RP_C2- to -RP_C3-

I:\30\2012\Hydro\Permit\Stream & Wetland\R-2633B-hyd.prm.wet.psh21.dgn

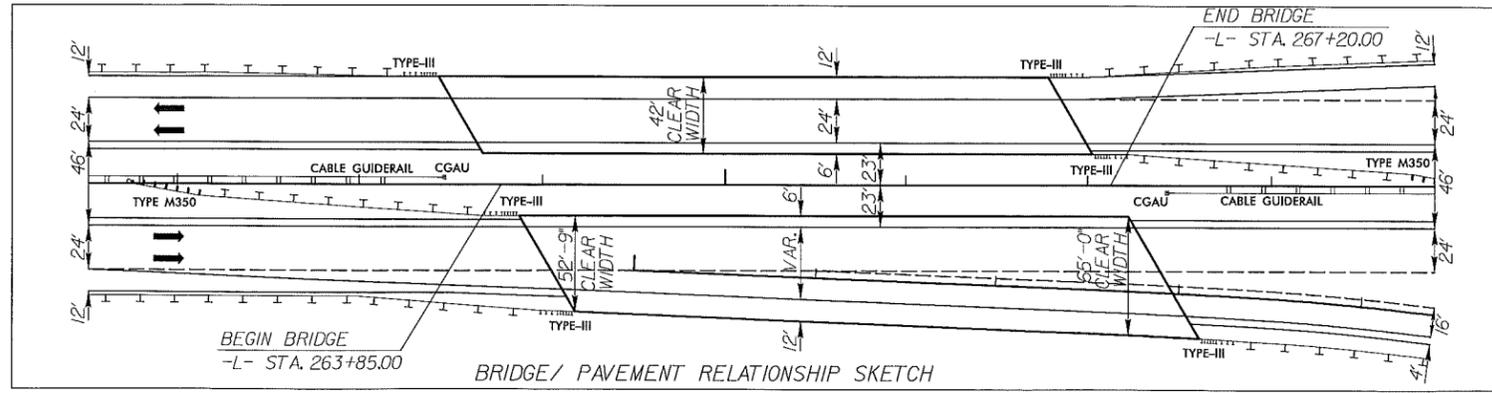
8/17/99

PROJECT REFERENCE NO. R-2633B	SHEET NO. 21
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

Permit Drawing
 Sheet 41 of 73



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



SEE SHEETS 72 FOR -RP_C3- PROFILE
 SEE SHEET 51 FOR -L- PROFILE

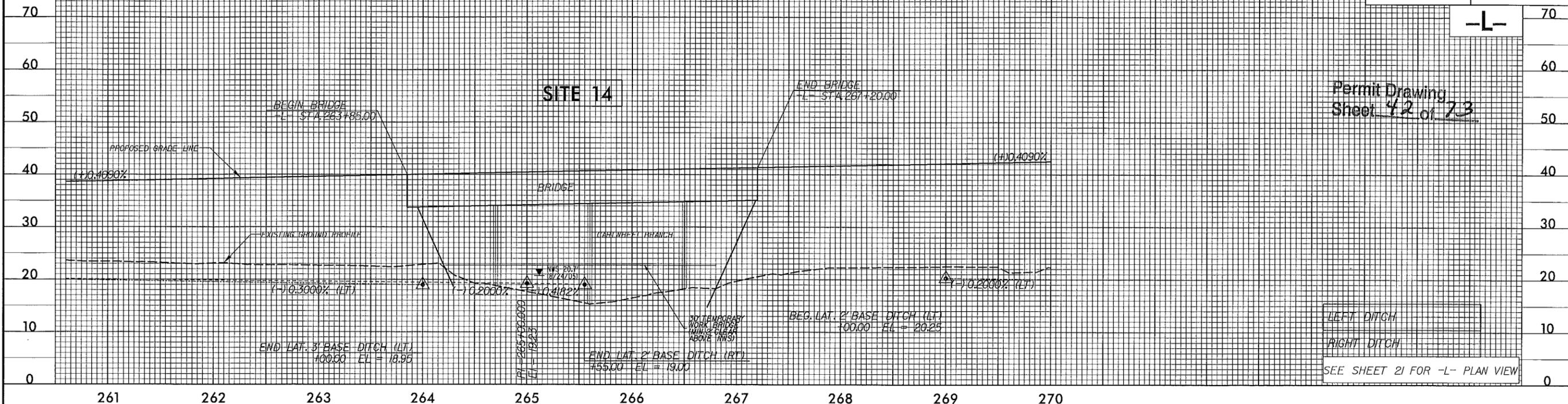
REVISIONS
 RW Revision: August 5, 2008, Revised r/w label from -RP_C2- to -RP_C3-
 K:\3072012\Roadway\Permit\Stream & Wetland\R-2633B_hyd_prm_wet_psh21.dgn
 11/24/07 AM

B.17/99

5/28/99

EMBE ELEVATION BASE
L STA 263+85.00 437.64 FT
BR SLOPE IN BASE OF BRIDGE

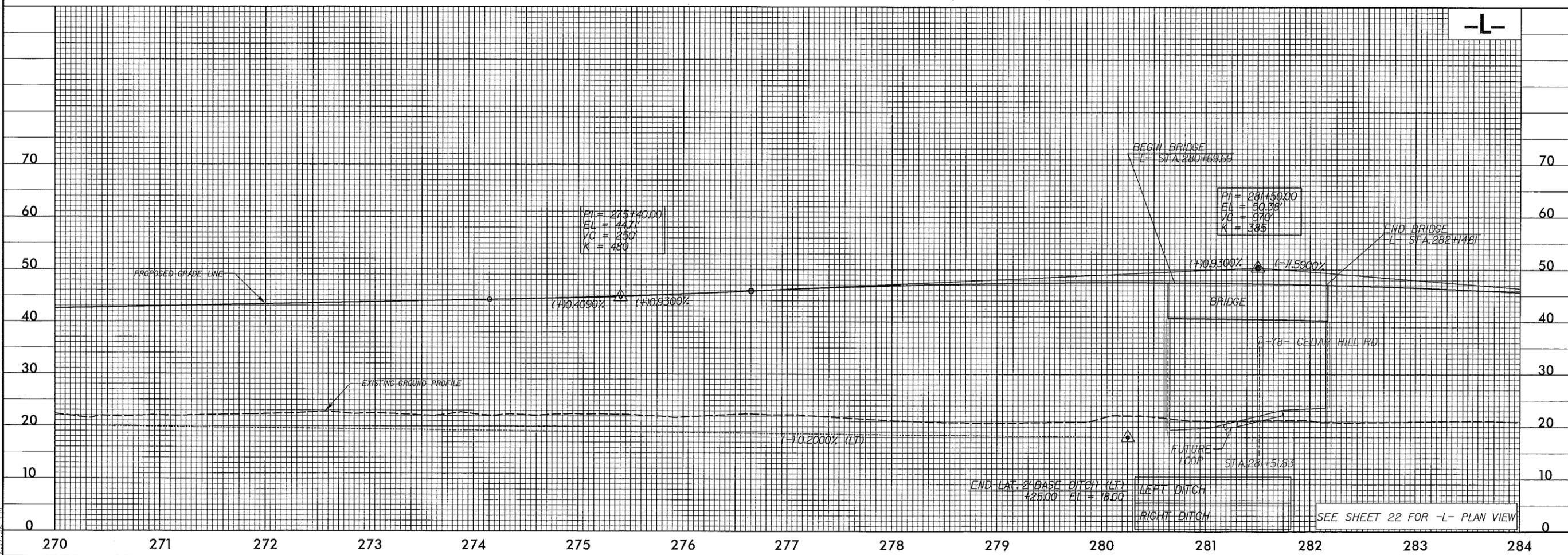
PROJECT REFERENCE NO. R-2633B	SHEET NO. 51
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



Permit Drawing
Sheet 42 of 73

-L-

I:\30\2012\Hydro\gules\Permit\Stream & Wetland\R-2633B_RDY_PFL_SHEETS.dgn
2/17/99 BW



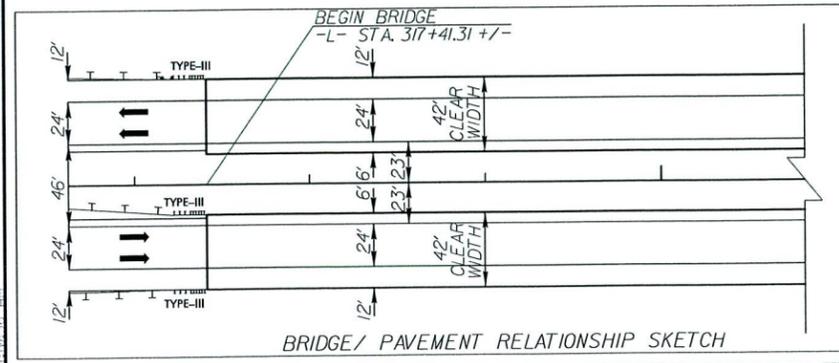
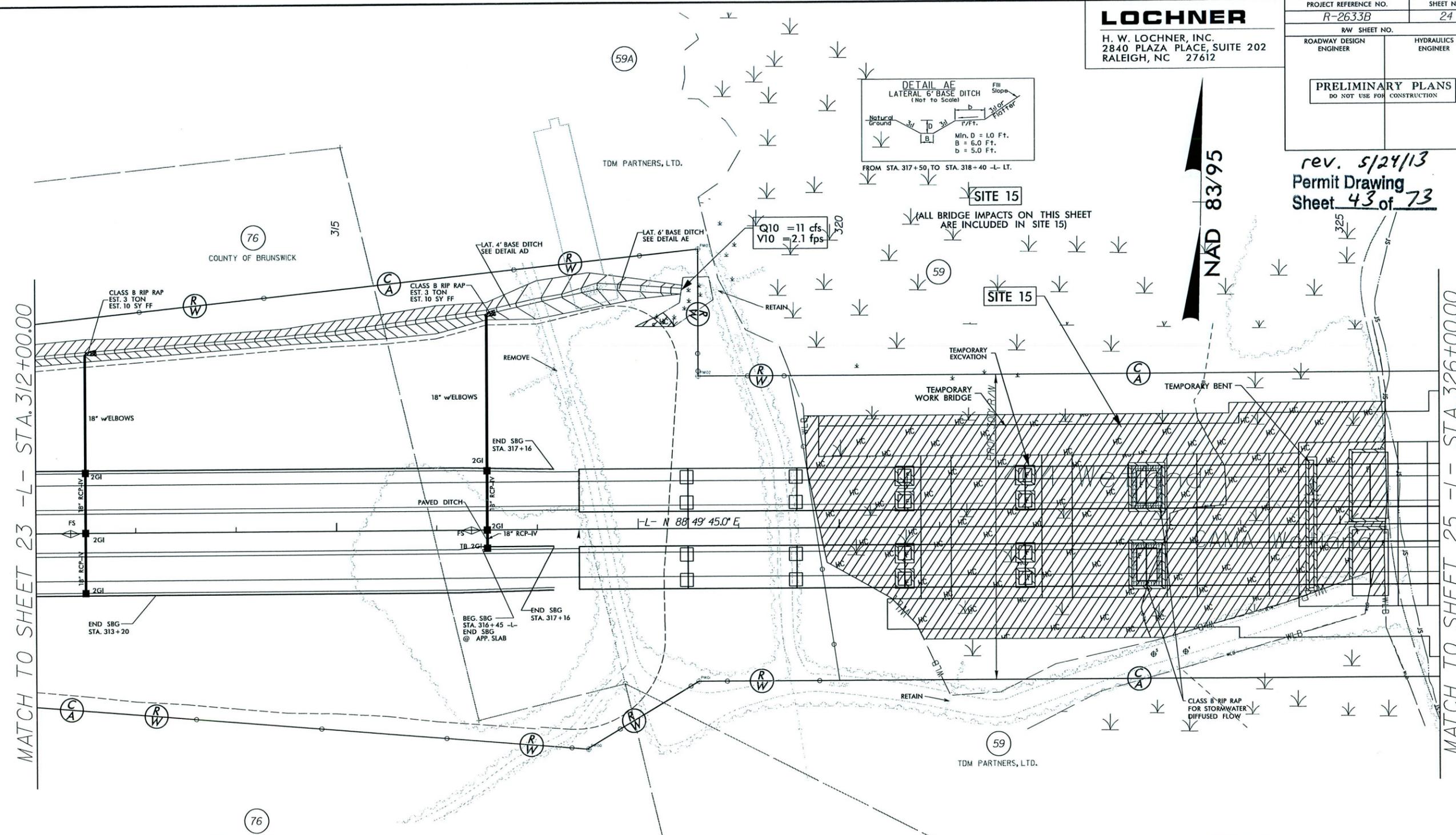
-L-

LOCHNER
 H. W. LOCHNER, INC.
 2840 PLAZA PLACE, SUITE 202
 RALEIGH, NC 27612

PROJECT REFERENCE NO. R-2633B	SHEET NO. 24
RAW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

rev. 5/24/13
 Permit Drawing
 Sheet 43 of 73

8/17/99
 REVISIONS
 5/24/2013
 R:\Hydraulics\Permit\Stream & Wetland\N-2633B_hyd_prm_wet_pah2.dgn
 1:10:46 AM



77
 HIGH RISE SERVICE
 CO., INC.

100' 0' 100' 200' 300'
 GRAPHIC SCALE

DETAIL D
 LATERAL 3' BASE DITCH
 (Not to Scale)

Min. D = 1.0 Ft.
 B = 3.0 Ft.
 b = 5.0 Ft.

DETAIL AD
 LATERAL 4' BASE DITCH
 (Not to Scale)

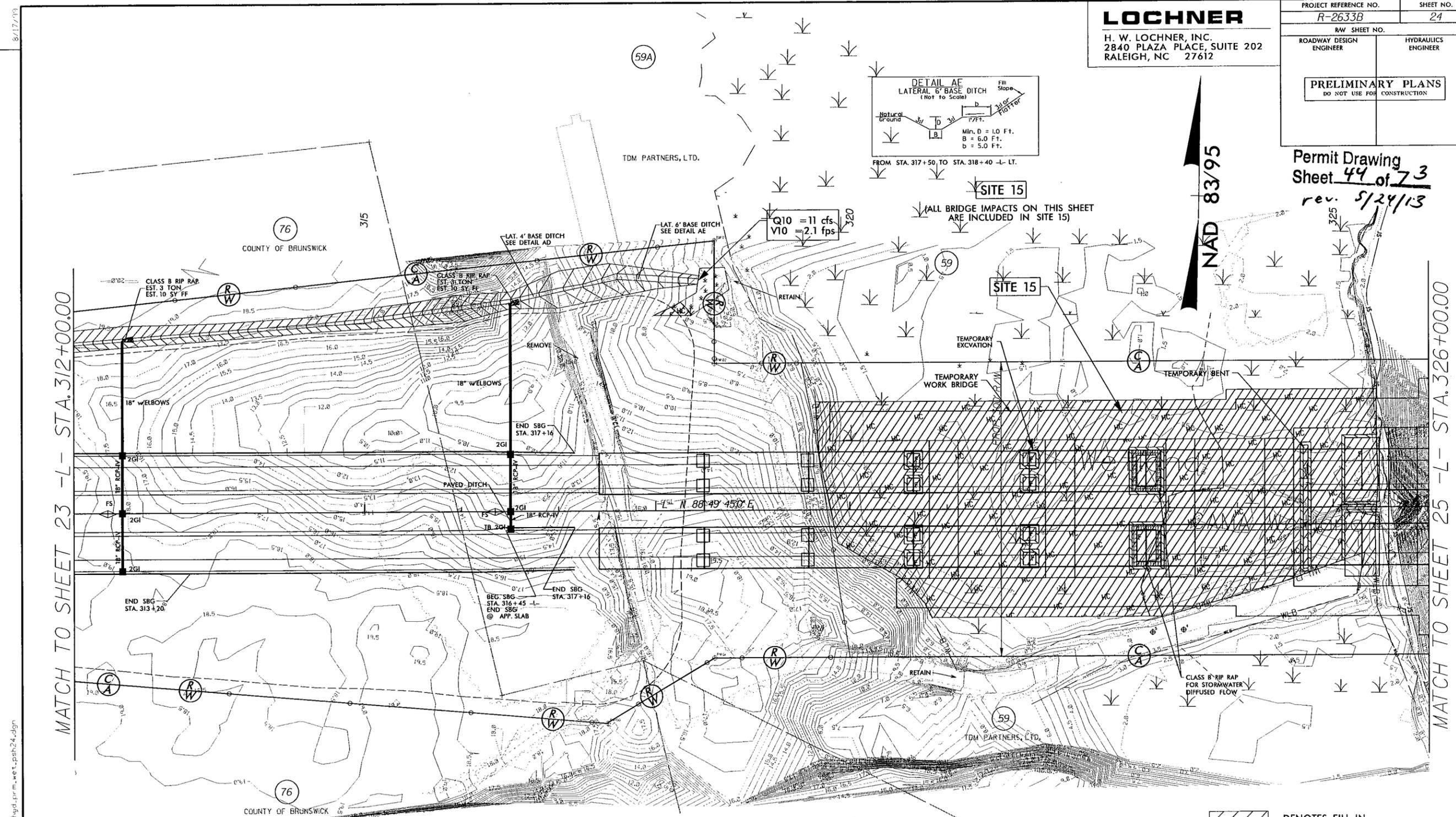
Min. D = 1.0 Ft.
 B = 4.0 Ft.
 b = 5.0 Ft.

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

SEE SHEET 53 FOR -L- PROFILE

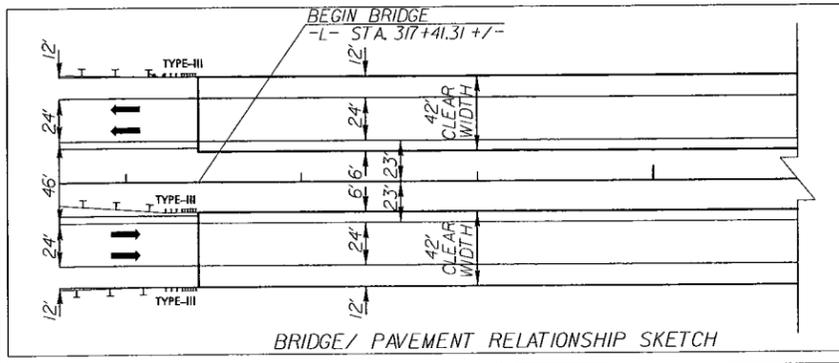
PROJECT REFERENCE NO. R-2633B	SHEET NO. 24
RAW SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

Permit Drawing
 Sheet 44 of 73
 rev. 5/24/13



MATCH TO SHEET 23 -L- STA. 312+00.00

MATCH TO SHEET 25 -L- STA. 326+00.00



(77)
HIGH RISE SERVICE CO., INC.

100' 0' 100' 200' 300'

GRAPHIC SCALE

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

DETAIL D
LATERAL 3' BASE DITCH
(Not to Scale)

FROM STA. 304+60 TO STA. 315+00 -L- LT.

DETAIL AD
LATERAL 4' BASE DITCH
(Not to Scale)

FROM STA. 315+00 TO STA. 317+50 -L- LT.

SEE SHEET 53 FOR -L- PROFILE

REVISIONS

5/24/2013 11:51:11 AM C:\Permits\1307\1307-2633B_hyd.prm_wet_psh24.dgn

B:\17\049
F:\2013\2013\Permit\Stream & Wetland\R-2633B-hyd.prm.wet-psh-25.dgn
5/24/2013 11:11:56 AM

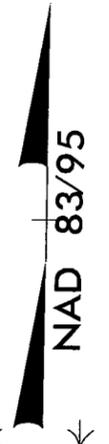


- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY EXCAVATION IN WETLAND
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES FILL IN WETLAND
- DENOTES HAND CLEARING

LOCHNER
H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH, NC 27612

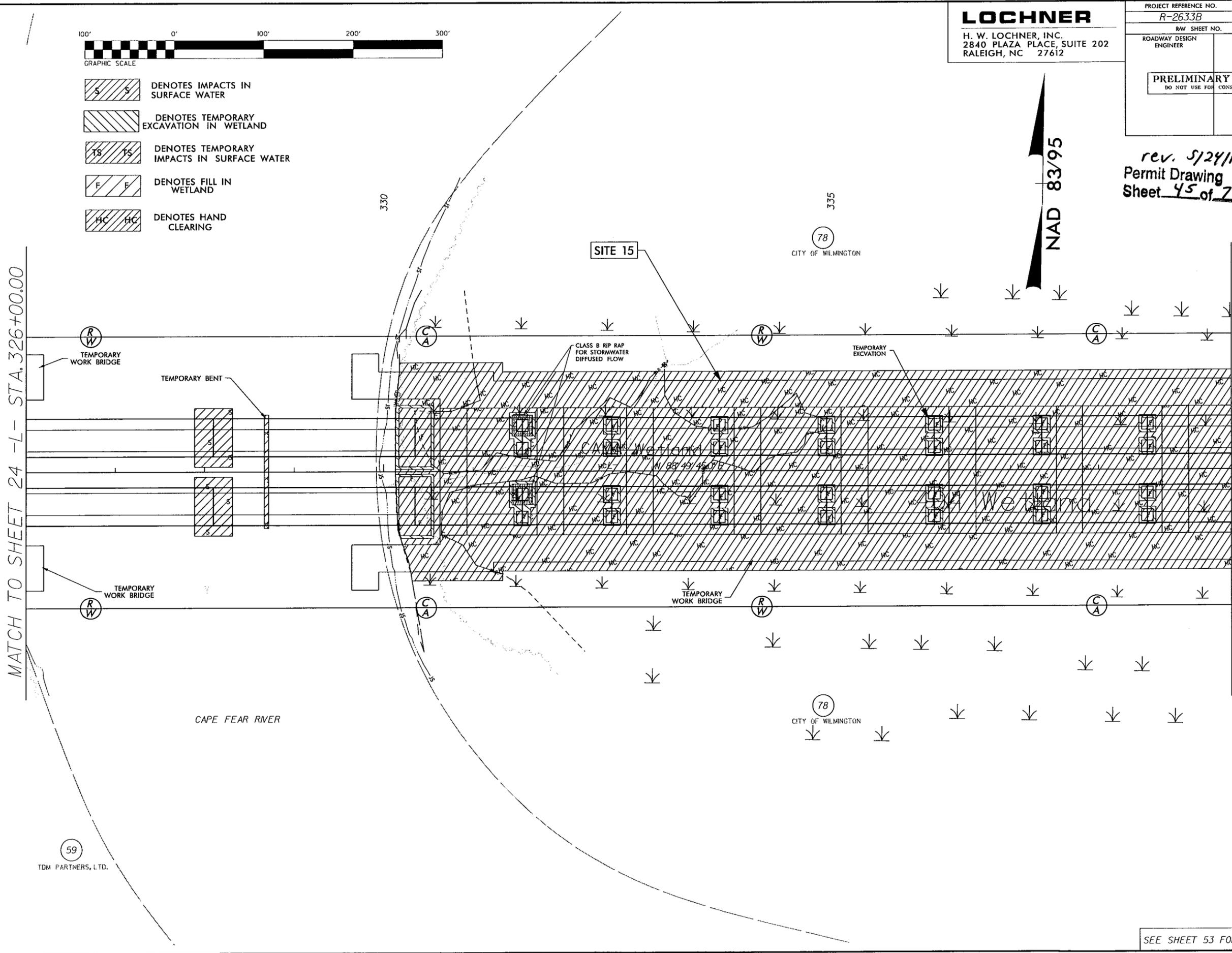
PROJECT REFERENCE NO. R-2633B	SHEET NO. 25
RAW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

rev. 5/24/13
Permit Drawing
Sheet 45 of 73



MATCH TO SHEET 24 -L- STA. 326+00.00

MATCH TO SHEET 26 -L- STA. 339+50.00



REVISIONS

59
TDM PARTNERS, LTD.

SEE SHEET 53 FOR -L- PROFILE

8/17/09
5/24/2013
H:\Projects\Permits\Storm\Wetland\2633B\hyd.prm.wet\path25.dgn
TDM PARTNERS, L.T.D.

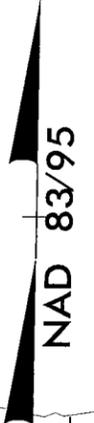


- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY EXCAVATION IN WETLAND
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES FILL IN WETLAND
- DENOTES HAND CLEARING

LOCHNER
H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH, NC 27612

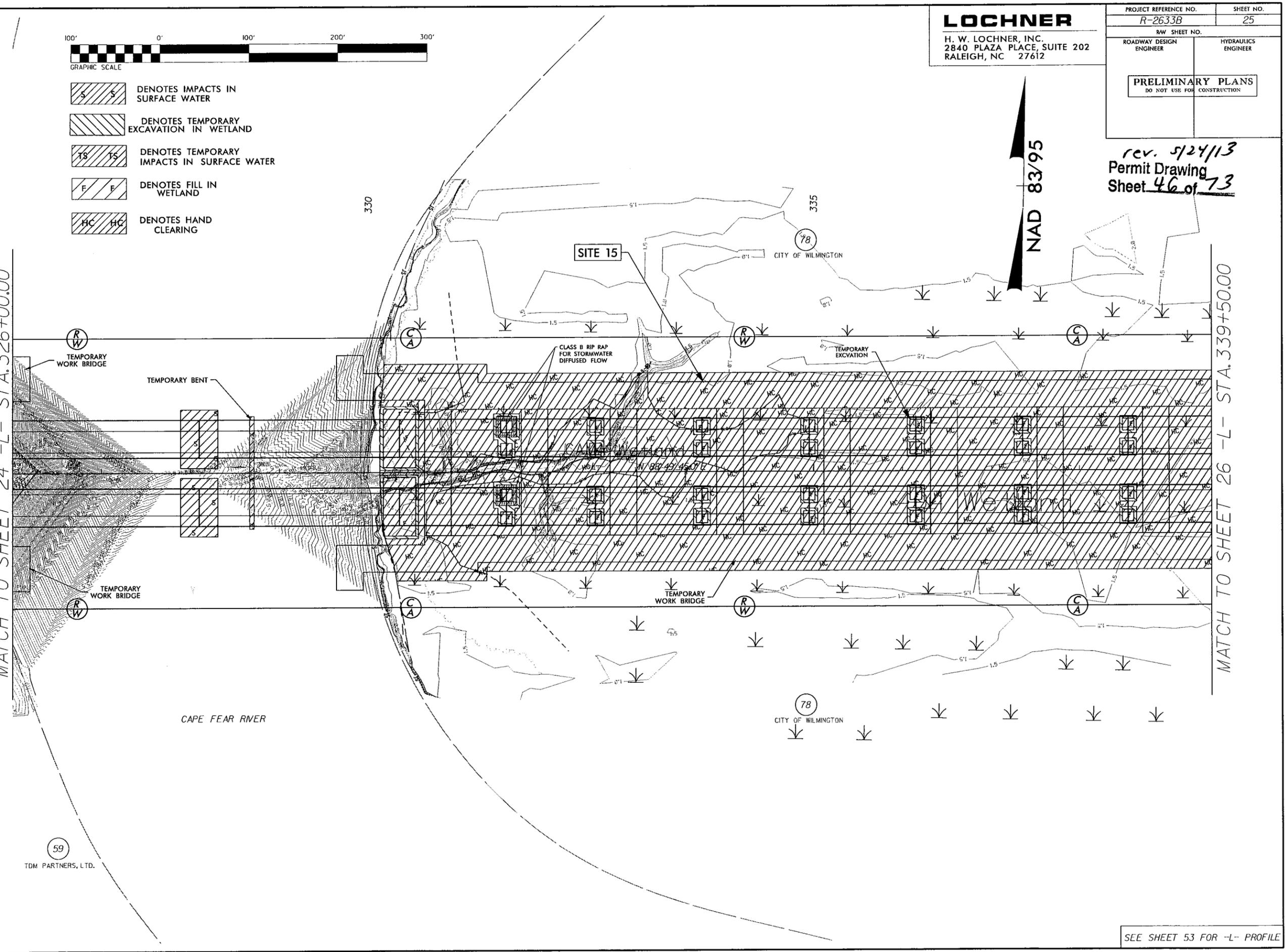
PROJECT REFERENCE NO. R-2633B	SHEET NO. 25
RAW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

rev. 5/24/13
Permit Drawing
Sheet 46 of 73



MATCH TO SHEET 24 -L- STA. 326+00.00

MATCH TO SHEET 26 -L- STA. 339+50.00



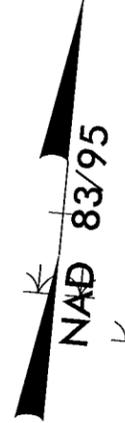
SEE SHEET 53 FOR -L- PROFILE

8/17/99

LOCHNER
H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH, NC 27612

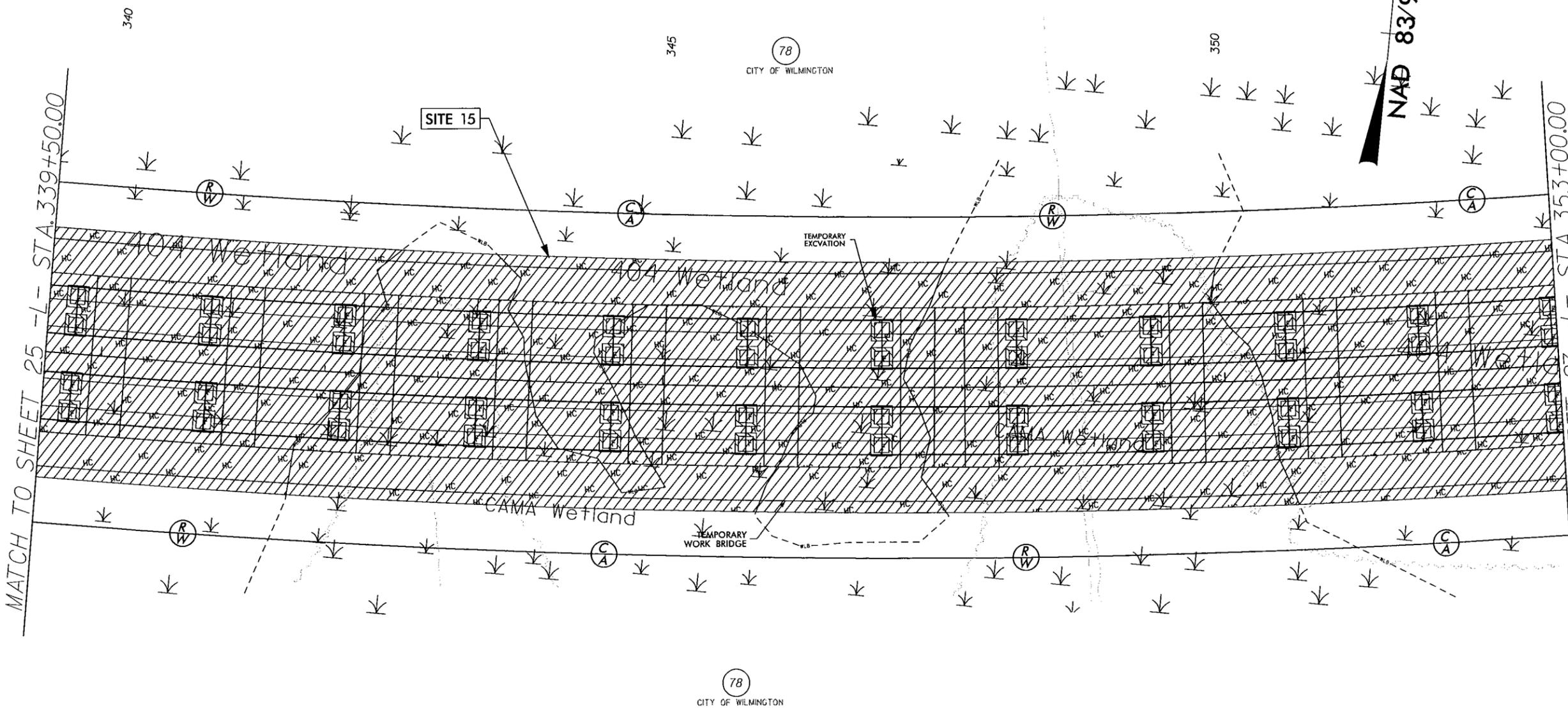
PROJECT REFERENCE NO. R-2633B	SHEET NO. 26
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

rev. 5/24/13
Permit Drawing
Sheet 47 of 73



MATCH TO SHEET 25 -L- STA. 339+50.00

MATCH TO SHEET 27 -L- STA. 353+00.00



REVISIONS

5:\04\2013\1\us\Fermit\1\5\sur\sum & Wetland\RB-26333\hyd_perm_wet_paf\26.dgn
11/13/2013 11:11 AM

-  DENOTES TEMPORARY EXCAVATION IN WETLAND
-  DENOTES FILL IN WETLAND
-  DENOTES HAND CLEARING

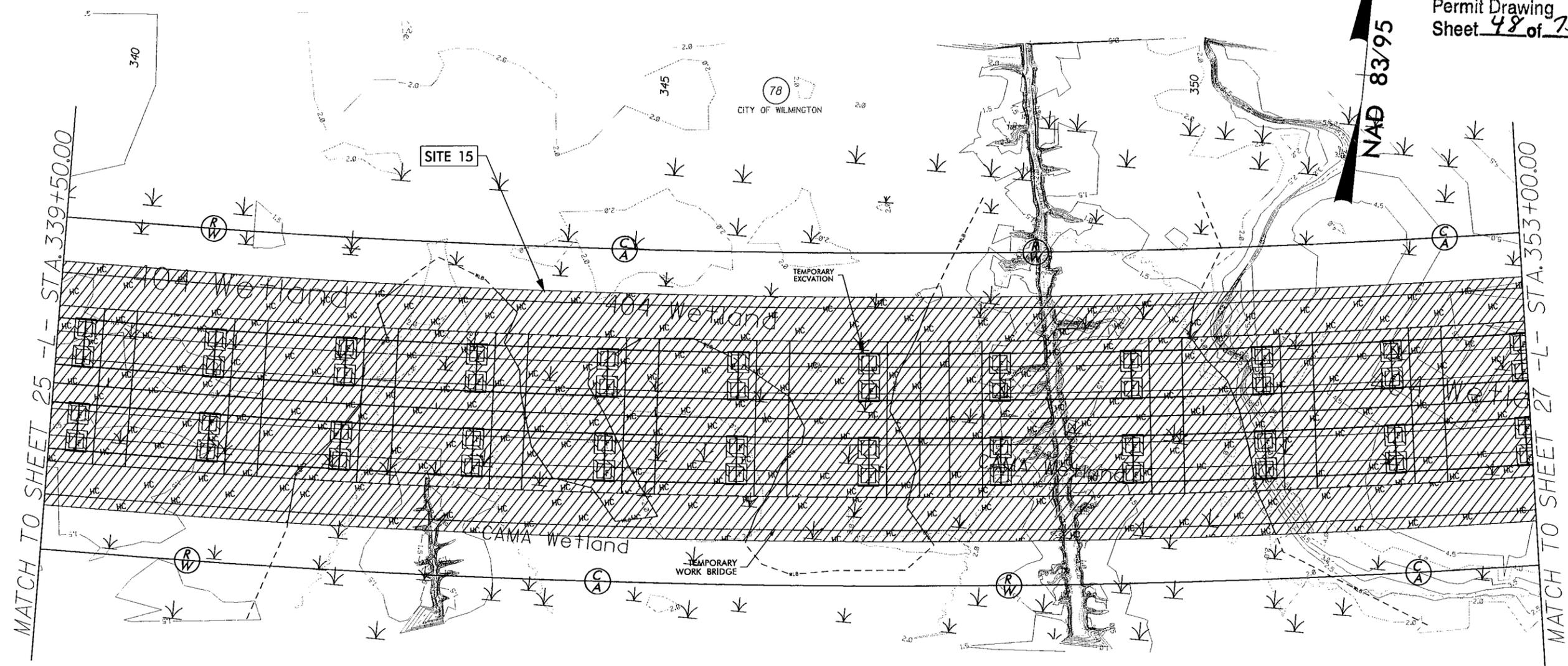


SEE SHEET 54 FOR -L- PROFILE

LOCHNER
 H. W. LOCHNER, INC.
 2840 PLAZA PLACE, SUITE 202
 RALEIGH, NC 27612

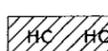
PROJECT REFERENCE NO. R-2633B	SHEET NO. 26
RAW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

rev. 5/24/13
 Permit Drawing
 Sheet 48 of 73



REVISIONS

5/24/2013
 P:\Projects\2013\Permit\13-26\13-26.dwg
 8: We1.dwg\13-26.dwg

-  DENOTES TEMPORARY EXCAVATION IN WETLAND
-  DENOTES FILL IN WETLAND
-  DENOTES HAND CLEARING

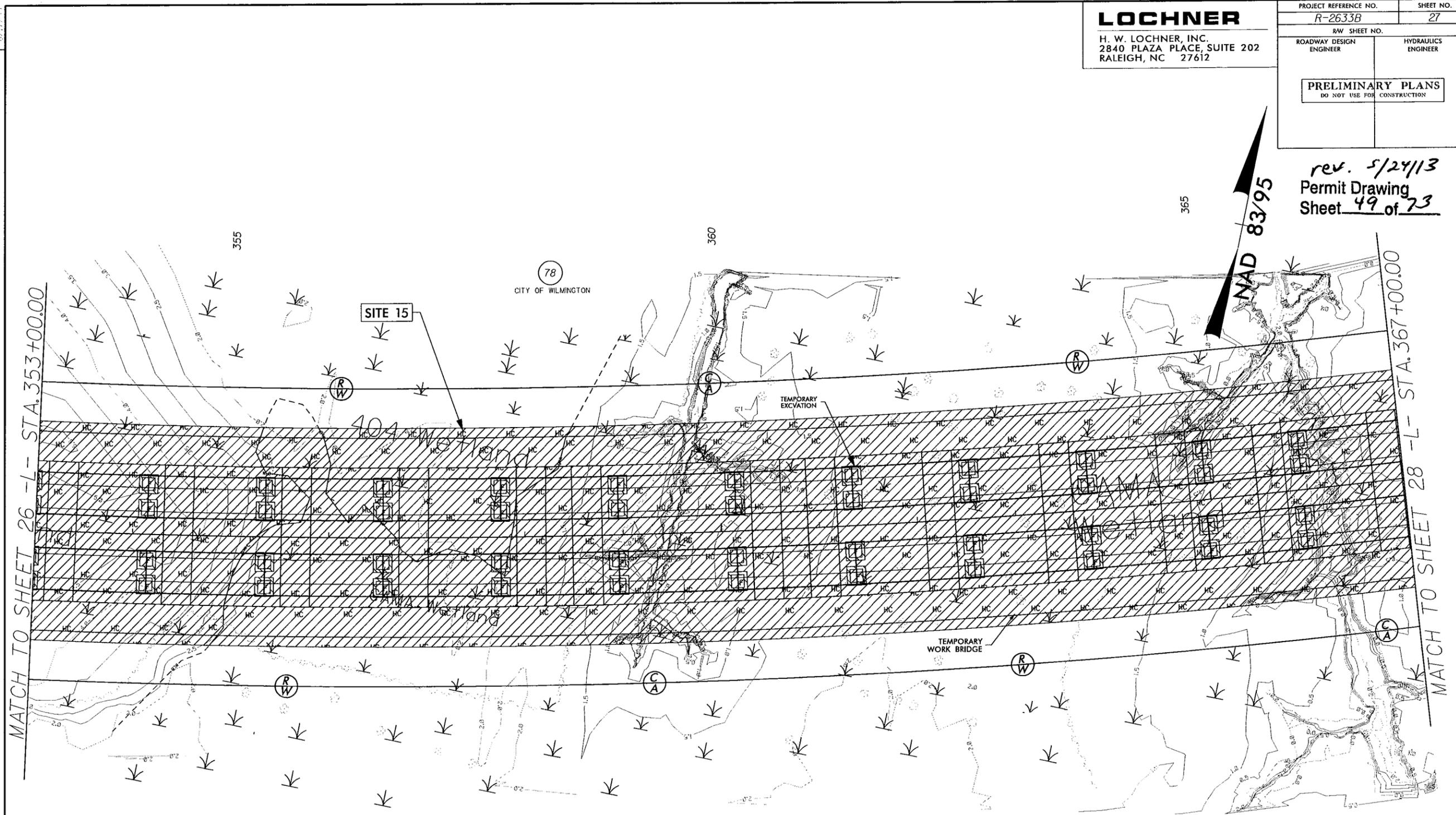


SEE SHEET 54 FOR -L- PROFILE

LOCHNER
 H. W. LOCHNER, INC.
 2840 PLAZA PLACE, SUITE 202
 RALEIGH, NC 27612

PROJECT REFERENCE NO. R-2633B	SHEET NO. 27
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

rev. 5/24/13
 Permit Drawing
 Sheet 49 of 73



-  DENOTES TEMPORARY EXCAVATION IN WETLAND
-  DENOTES FILL IN WETLAND
-  DENOTES HAND CLEARING



SEE SHEET 54 FOR -L- PROFILE

5/24/13 10:30 AM
 F:\Projects\2633B\Permit\Drawings\2633B_hyd_perm_wet\p0427.dgn
 M:\1\and\NR-2633B_hyd_perm_wet\p0427.dgn
 8 M:\1\and\NR-2633B_hyd_perm_wet\p0427.dgn
 11/15/13 10:30 AM

8/17/99

LOCHNER
H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH, NC 27612

PROJECT REFERENCE NO. R-2633B	SHEET NO. 27
RAW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

Permit Drawing
Sheet 50 of 73
rev. 5/24/13

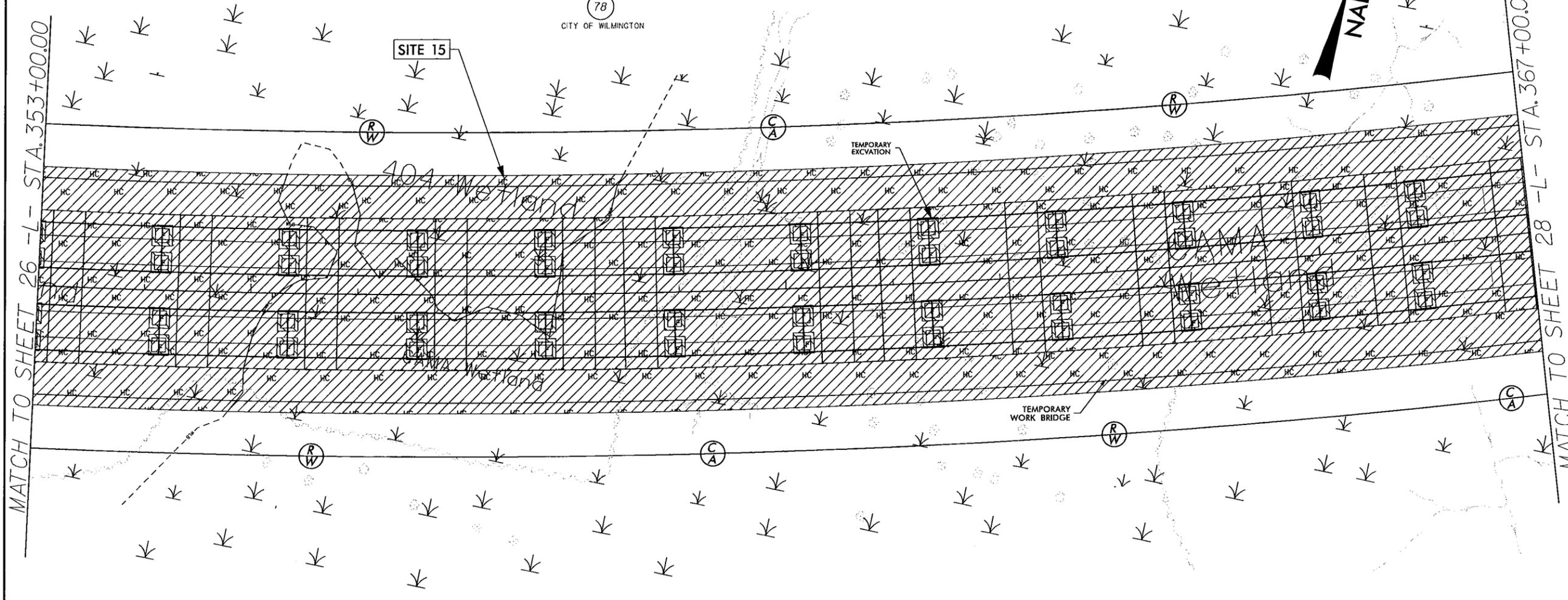
NAD 83/95
365

MATCH TO SHEET 26 -L- STA. 353+00.00

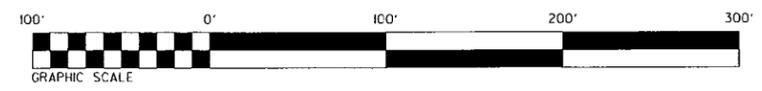
MATCH TO SHEET 28 -L- STA. 367+00.00

REVISIONS

1/24/2013
F:\Highway\Public\Streams & Wetland\R-2633B\hyd.prj\m.wetland\psh27.dgn



-  DENOTES TEMPORARY EXCAVATION IN WETLAND
-  DENOTES FILL IN WETLAND
-  DENOTES HAND CLEARING



SEE SHEET 54 FOR -L- PROFILE

8/17/99

LOCHNER
H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH, NC 27612

PROJECT REFERENCE NO. R-2633B	SHEET NO. 28
RAW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



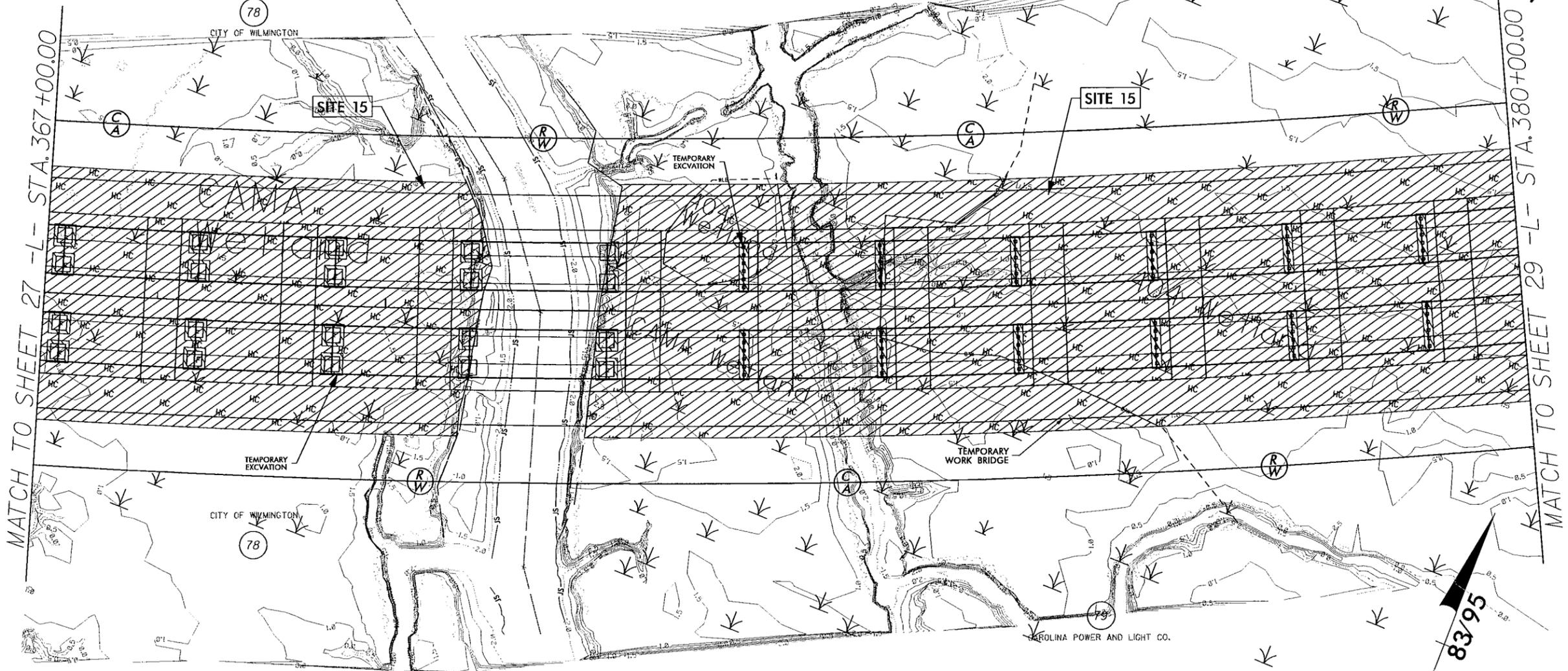
- DENOTES FILL IN WETLAND
- DENOTES HAND CLEARING
- DENOTES TEMPORARY EXCAVATION IN WETLAND

79
CAROLINA POWER AND LIGHT CO.

Permit Drawing
Sheet 52 of 73
rev. 5/24/13

MATCH TO SHEET 27 -L- STA. 367+00.00

MATCH TO SHEET 29 -L- STA. 380+00.00



SEE SHEET 55 FOR -L- PROFILE

REVISIONS

5/24/2013
C:\Users\jgall\Documents\Permit\511\pdm & Wetland\NR-2633B_hyd.prm_wet.pln_28.dgn

8/17/99

LOCHNER
H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH, NC 27612

PROJECT REFERENCE NO. R-2633B	SHEET NO. 28
RAW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



- DENOTES FILL IN WETLAND
- DENOTES HAND CLEARING
- DENOTES TEMPORARY EXCAVATION IN WETLAND

79
CAROLINA POWER AND LIGHT CO.

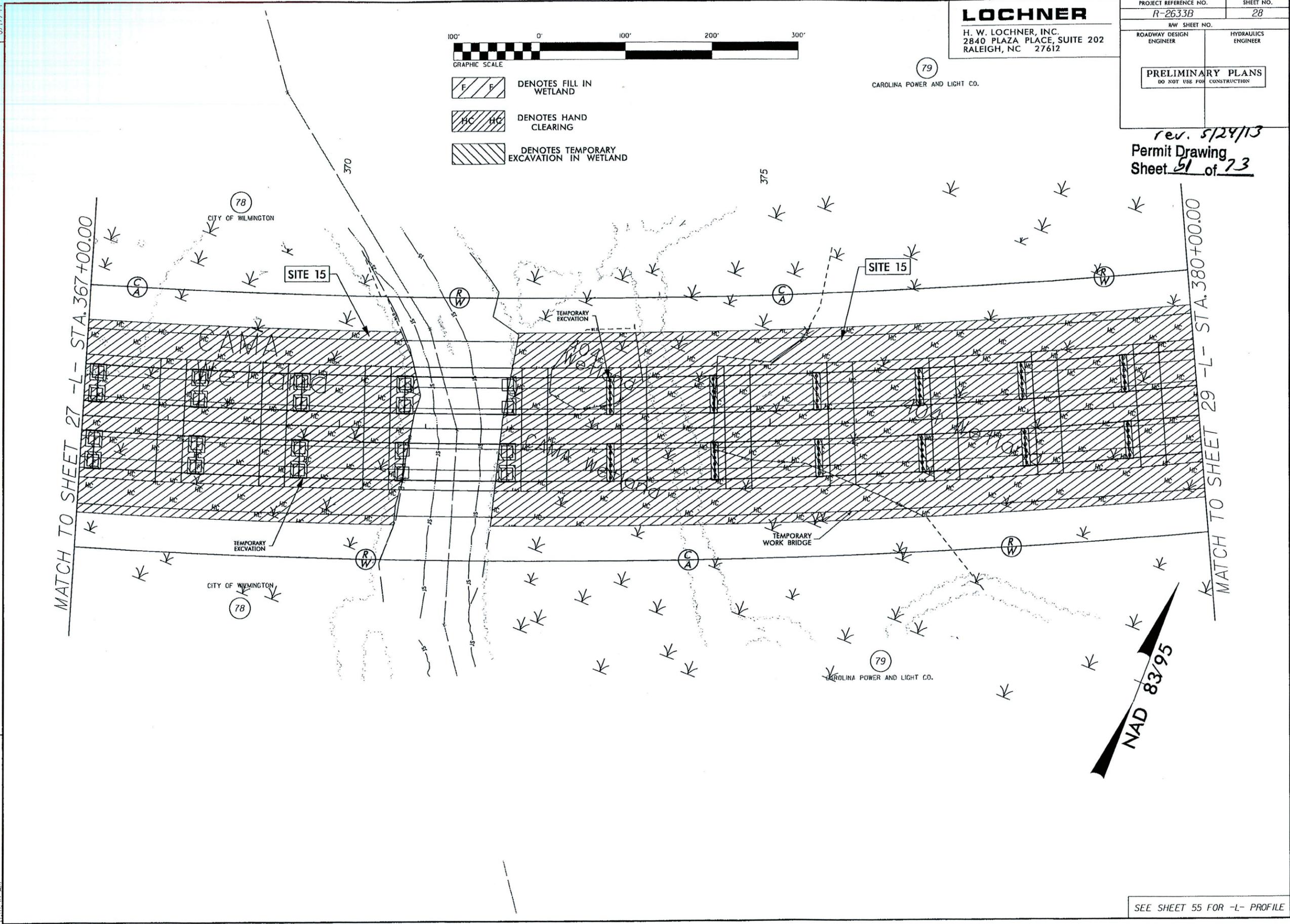
rev. 5/24/13
Permit Drawing
Sheet 51 of 73

REVISIONS

MATCH TO SHEET 27 -L- STA. 367+00.00

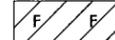
MATCH TO SHEET 29 -L- STA. 380+00.00

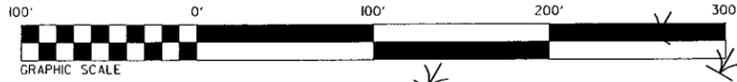
5/24/2013
C:\Users\ayl\Documents\Permit\Stream & Wetland\R-2633B-hyd.prm.wet.psh28.dgn
14:28:56



SEE SHEET 55 FOR -L- PROFILE

8/17/99

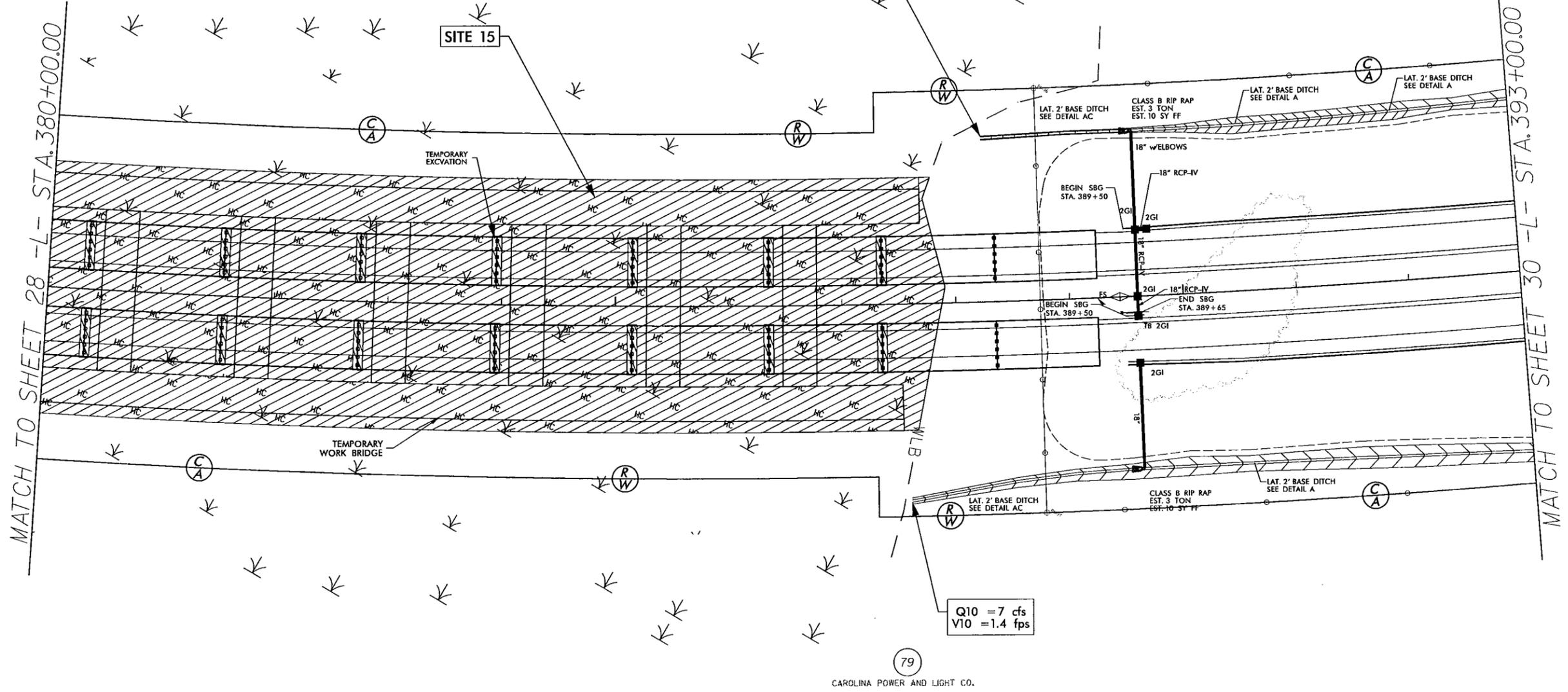
-  DENOTES TEMPORARY EXCAVATION IN WETLAND
-  DENOTES FILL IN WETLAND
-  DENOTES HAND CLEARING



LOCHNER
 H. W. LOCHNER, INC.
 2840 PLAZA PLACE, SUITE 202
 RALEIGH, NC 27612

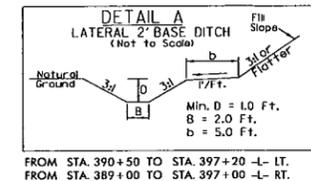
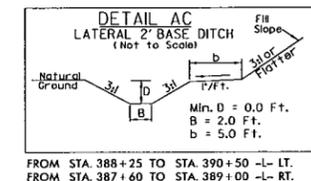
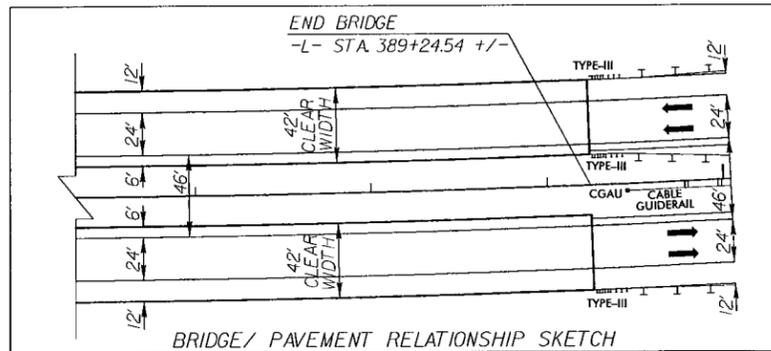
PROJECT REFERENCE NO. R-2633B	SHEET NO. 29
RAW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

Permit Drawing
 Sheet 53 of 73
 rev. 5/24/13



REVISIONS

P:\24\005\1\cs\Permit\Strasam & Wetland\Re-2633B_hyd_perm_wet_posh2.dgn
 11/15/05 10:20 AM



SEE SHEET 55 FOR -L- PROFILE

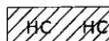
8/17/99

5/24/2013
C:\Users\jg11\Documents\Permits\Stream & Wetland\R-2633B_hyd.prm_wet.pst29.dgn

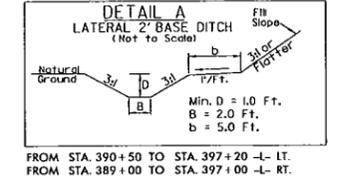
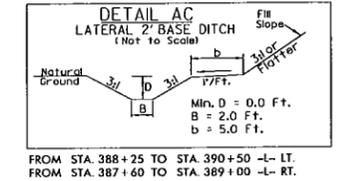
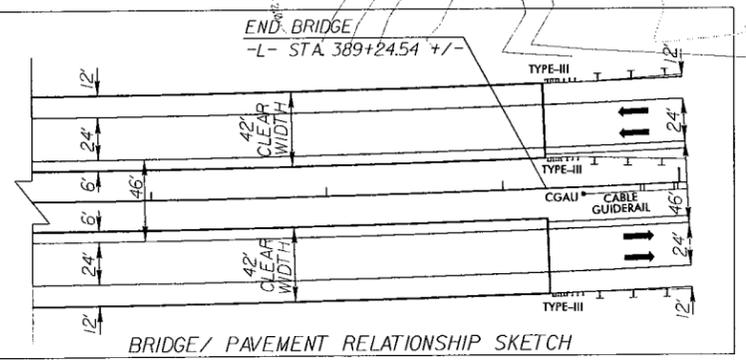
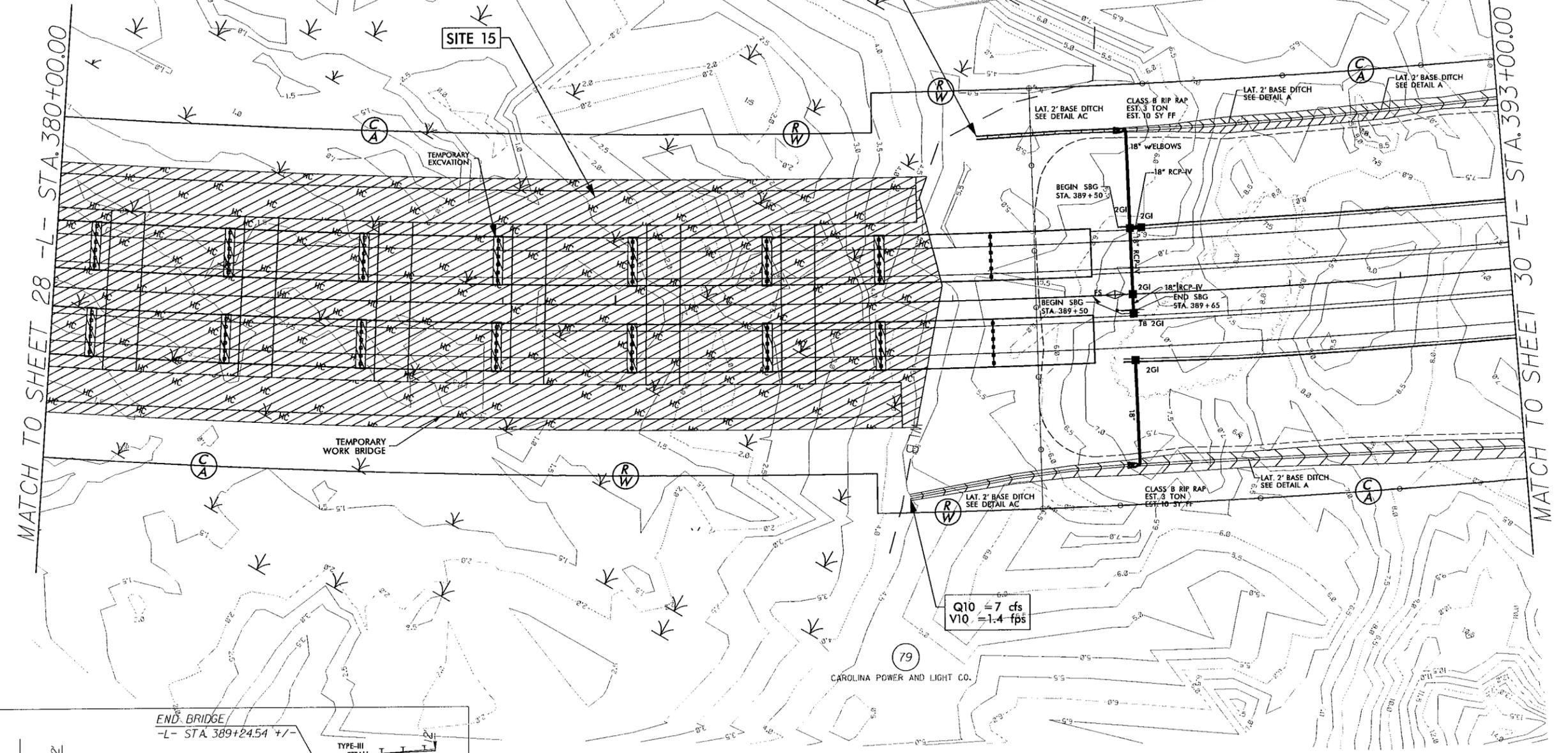
PROJECT REFERENCE NO. R-2633B		SHEET NO. 29	
RAW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			

LOCHNER
 H. W. LOCHNER, INC.
 2840 PLAZA PLACE, SUITE 202
 RALEIGH, NC 27612

Permit Drawing
 Sheet 54 of 73
 rev. 5/24/13

 DENOTES TEMPORARY EXCAVATION IN WETLAND
 DENOTES FILL IN WETLAND
 DENOTES HAND CLEARING

100' 0' 100' 200' 300'
 GRAPHIC SCALE



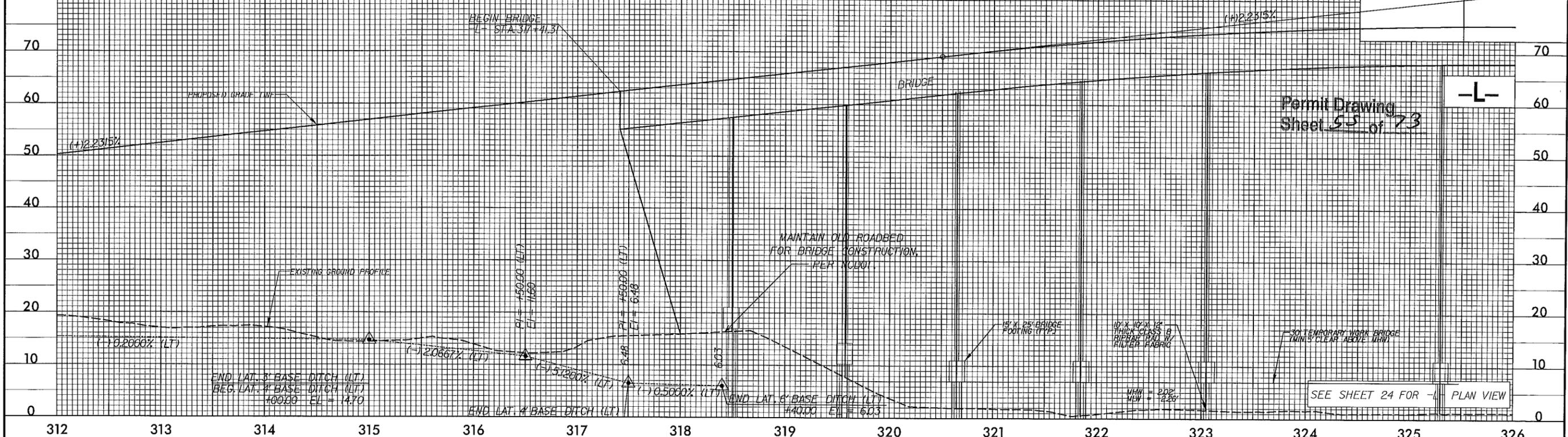
SEE SHEET 55 FOR -L- PROFILE

5/28/99

PROJECT REFERENCE NO. R-2633B	SHEET NO. 53
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

PI = 326+85.00
 EL = 83.37'
 VC = 1270'
 K = 247

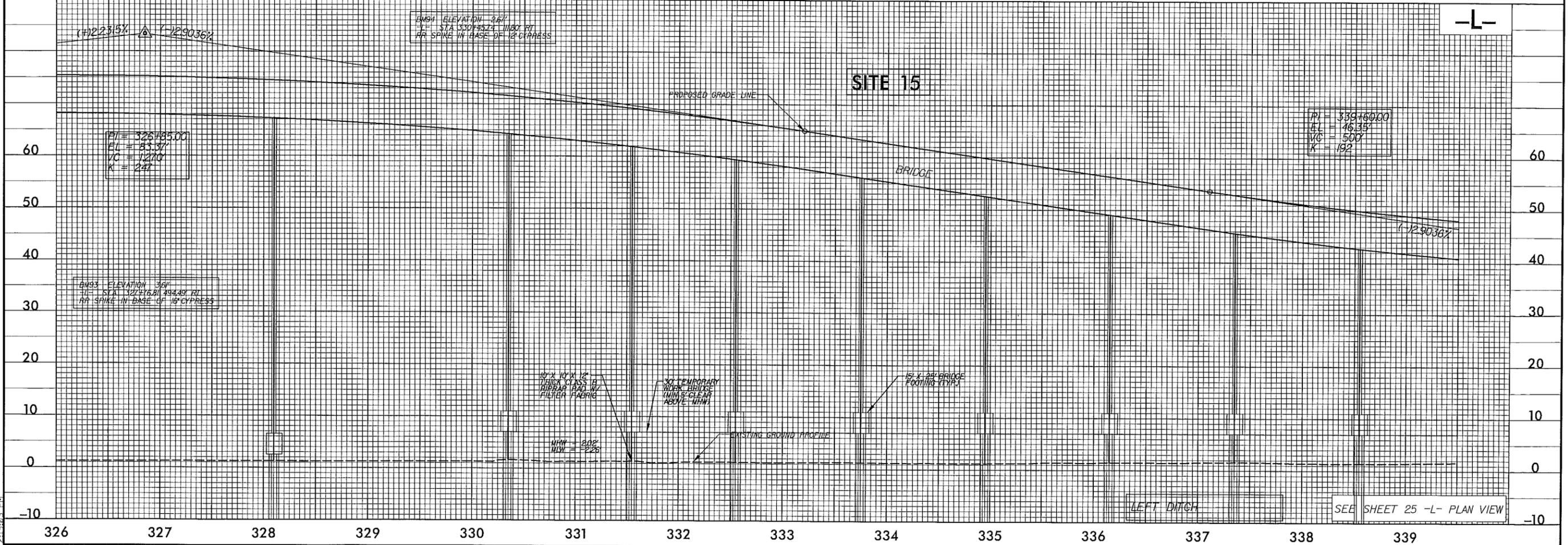
SITE 15



Permit Drawing
 Sheet 53 of 73

-L-

SEE SHEET 24 FOR -L- PLAN VIEW



SITE 15

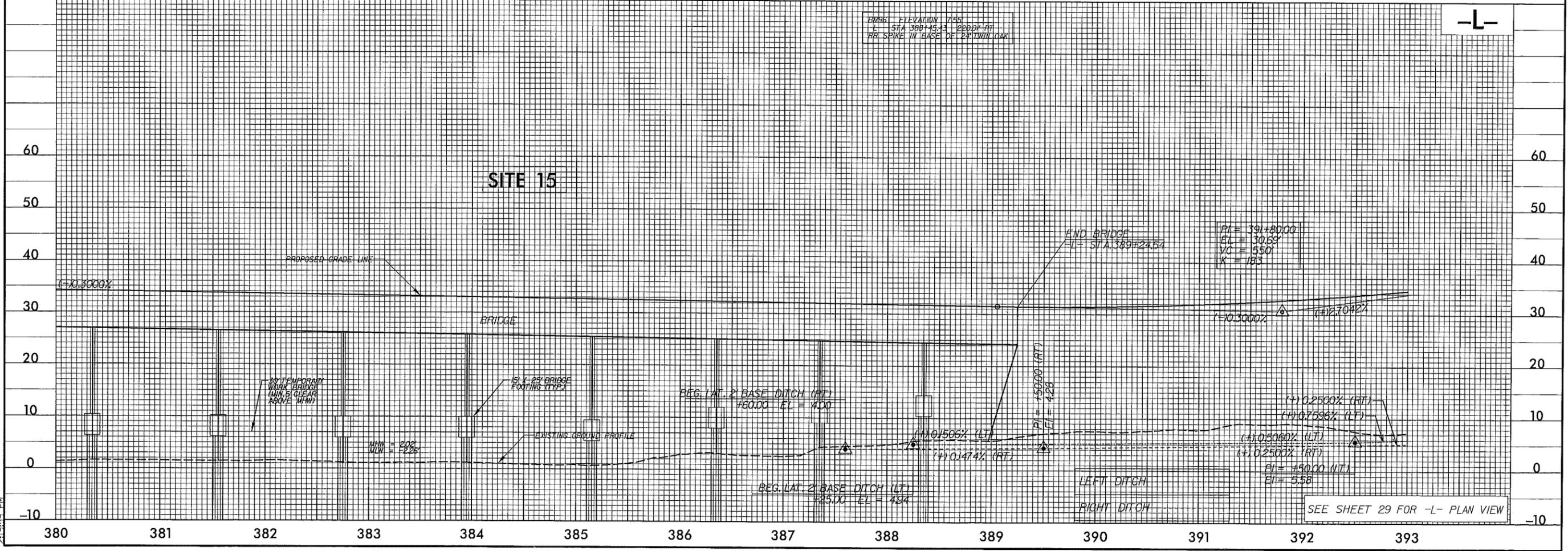
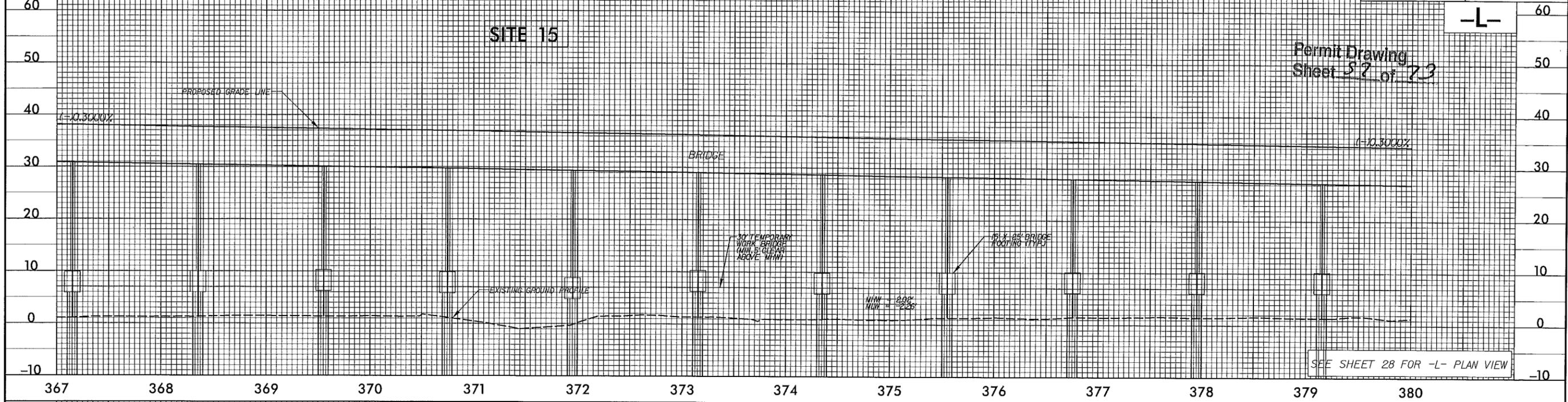
-L-

SEE SHEET 25 -L- PLAN VIEW

I:\30\2002\Hydro\Utilities\Permit\Stream & Wetland\R-2633B_RDY_PFL_SHEETS.dgn
 2:10:33 PM

5/28/99

PROJECT REFERENCE NO. R-2633B	SHEET NO. 55
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



I:\302012\Hydraulics\Permit\Stream & Wetland\R-2633B_RDY_PFL_SHEETS.dgn 2:19:56 PM

8/17/99



DENOTES FILL IN WETLAND

LOCHNER

H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH, NC 27612

PROJECT REFERENCE NO. R-2633B SHEET NO. 30

R/W SHEET NO. ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER

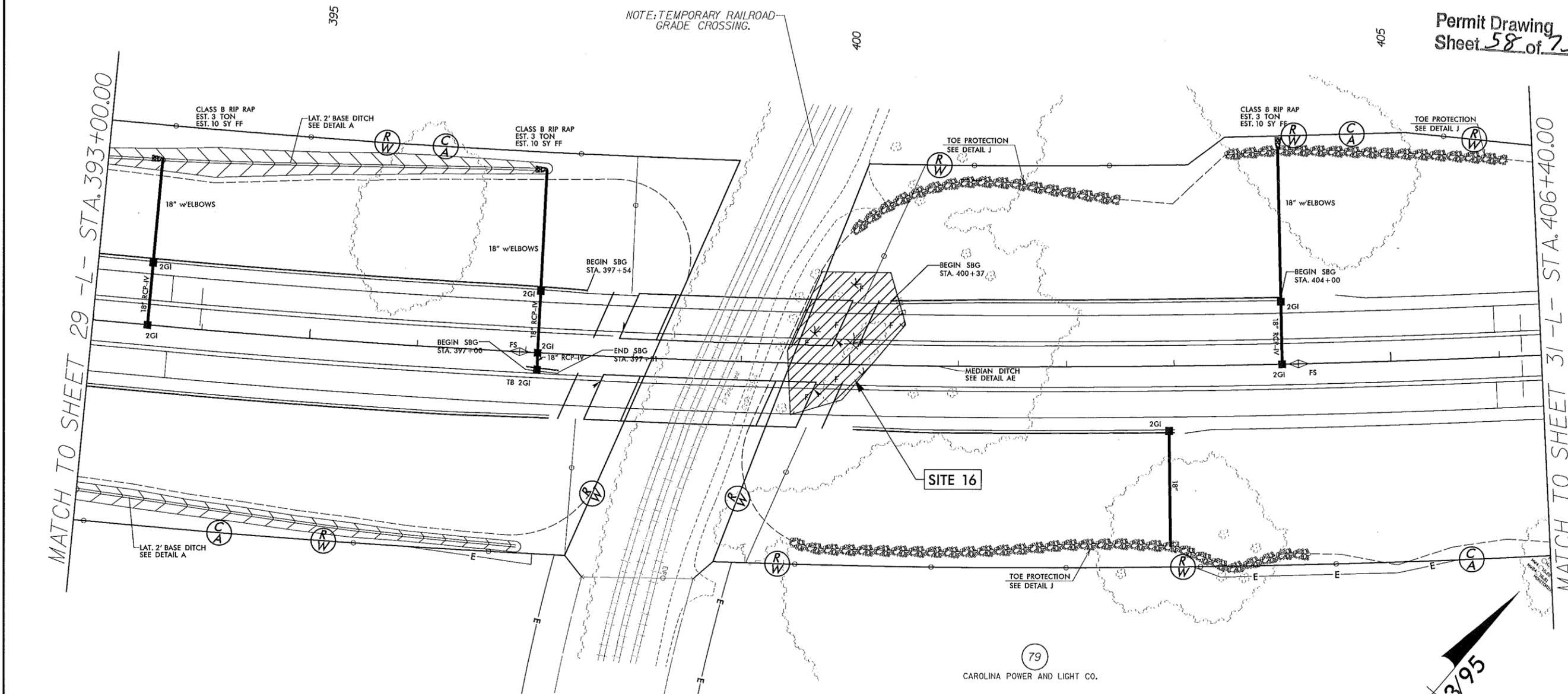
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

79
CAROLINA POWER AND LIGHT CO.

Permit Drawing
Sheet 58 of 73

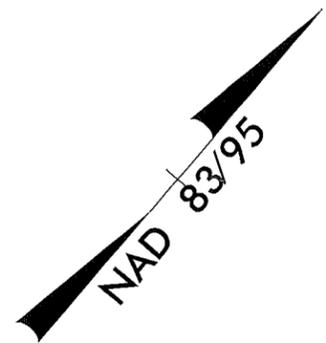
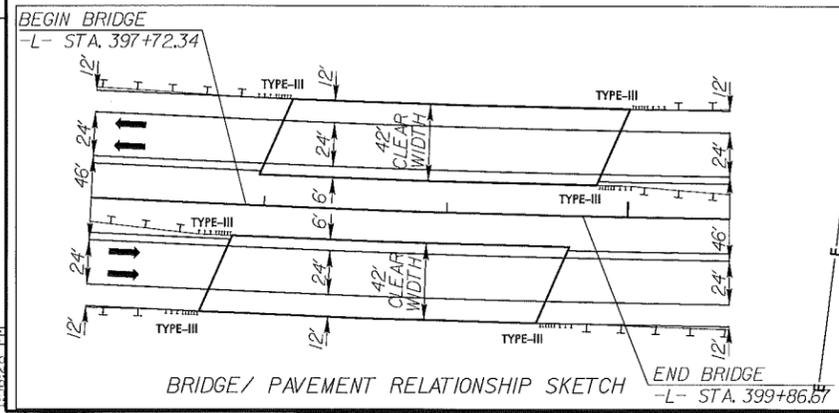
MATCH TO SHEET 29 -L- STA. 393+00.00

MATCH TO SHEET 31 -L- STA. 406+40.00



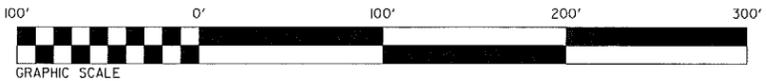
REVISIONS
R/W Revision: August 5, 2008, Revised r/w label -L- Sta. 397+15 from 205' RT to 195' RT.

I:\30\2012\RA\Hyd\equil\Permit\Stream & Wetland\R-2633B_hyd.prm_wet.psh30.dgn
11/30/2012 11:38:28 AM



SEE SHEET 56 FOR -L- PROFILE

8/17/99



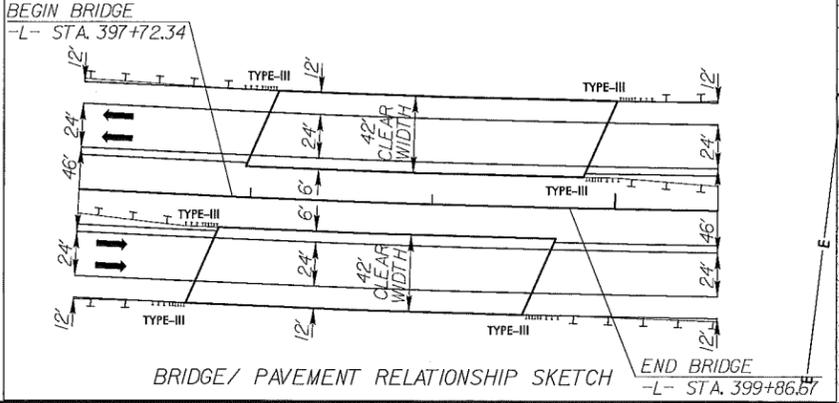
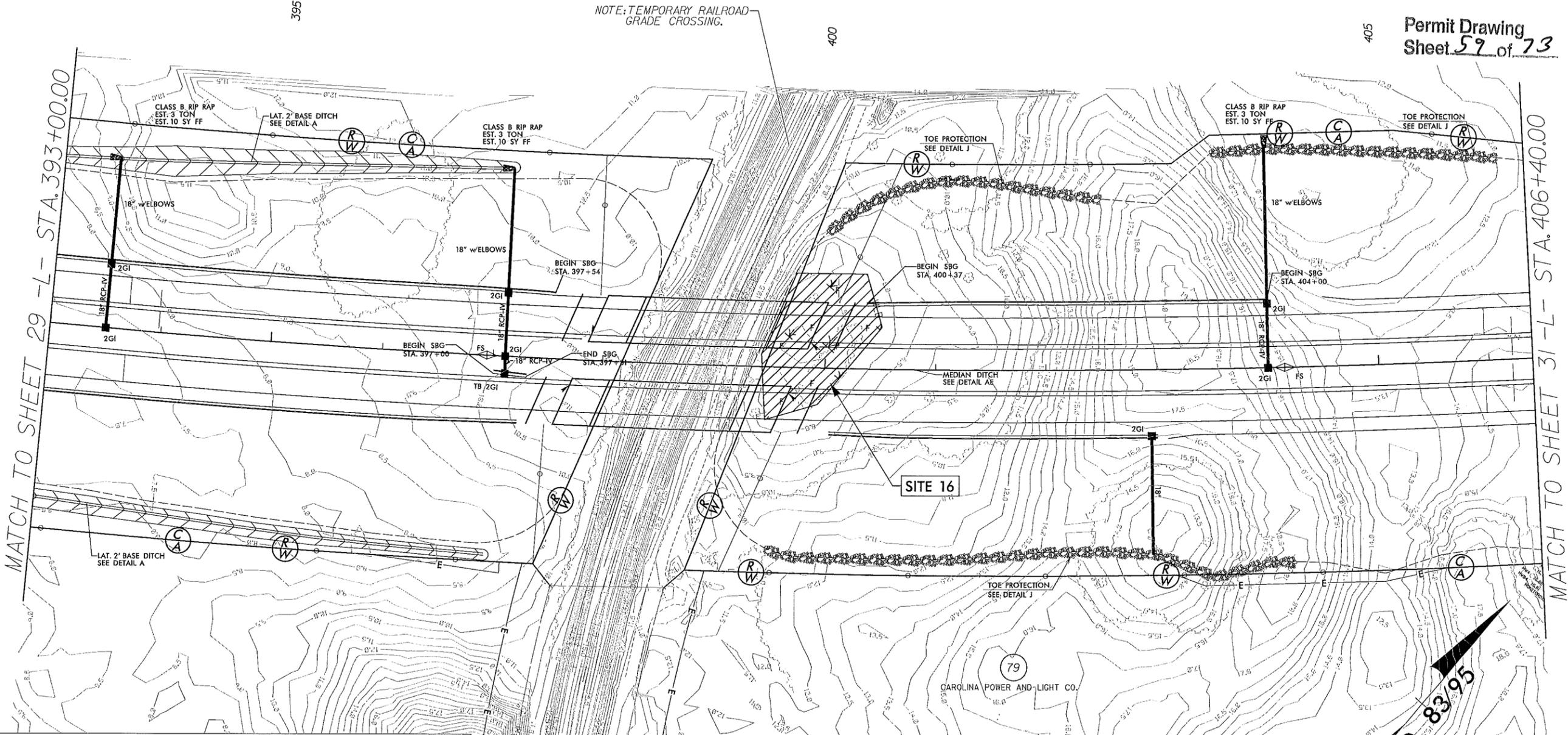
DENOTES FILL IN WETLAND

LOCHNER
H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH, NC 27612

PROJECT REFERENCE NO. R-2633B	SHEET NO. 30
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

79
CAROLINA POWER AND LIGHT CO.

Permit Drawing
Sheet 59 of 73



REVISIONS
RW Revision: August 5, 2008, Revised s/w label -L- Sta. 397+15 from 205' RT to 195' RT.

I:\70_202\Projects\Permit\Stream & Wetland\NR-2633B_hyd.prm_wet.psh30.dgn

SEE SHEET 56 FOR -L- PROFILE

8/23/99



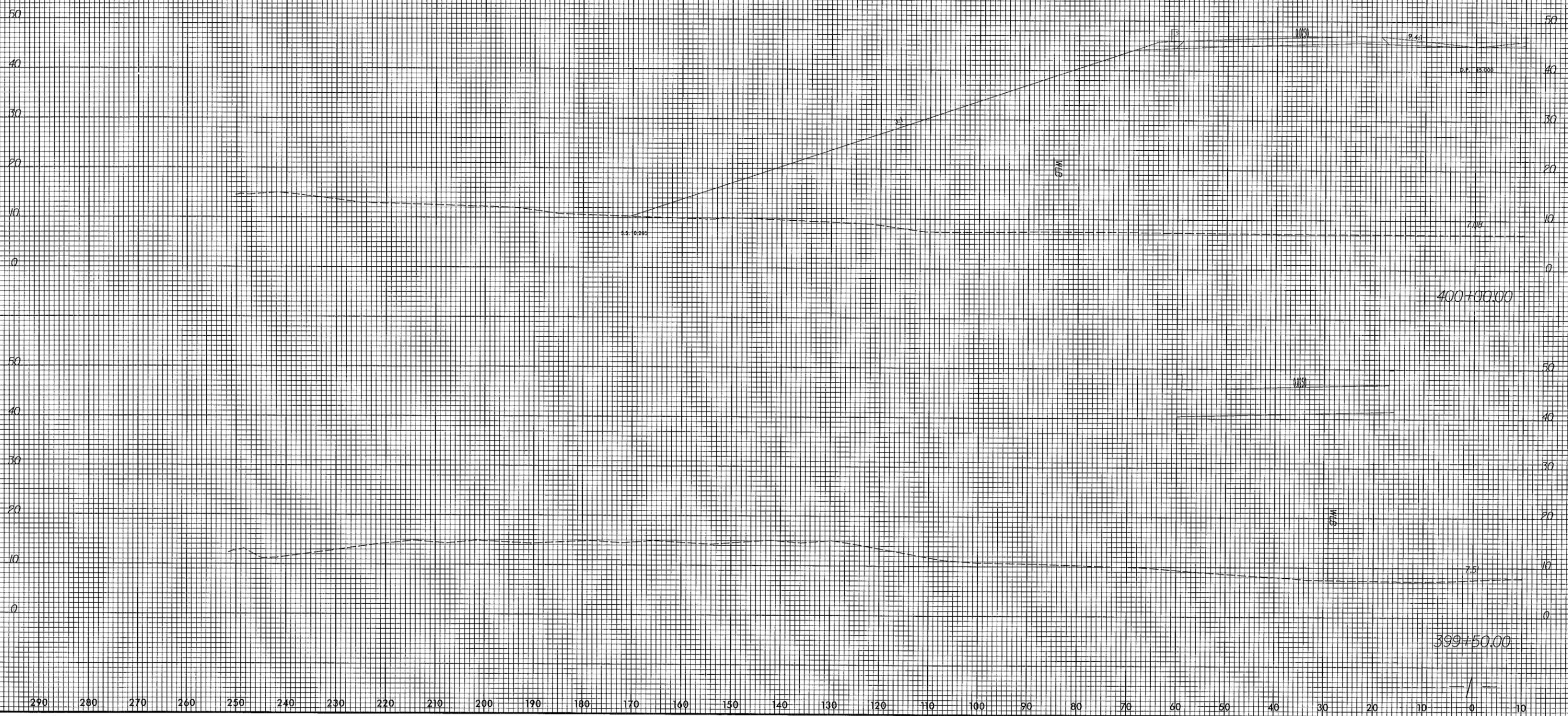
PROJ. REFERENCE NO.
R-2633B

SHEET NO.
X-288

290 280 270 260 250 240 230 220 210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10

WETLAND CROSS SECTION
SITE 16

Permit Drawing
Sheet 60 of 73



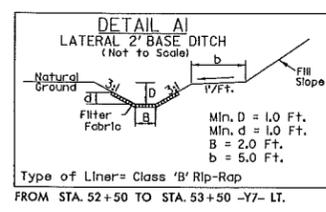
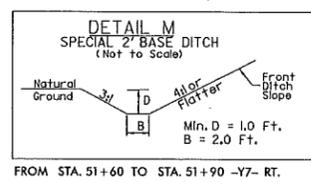
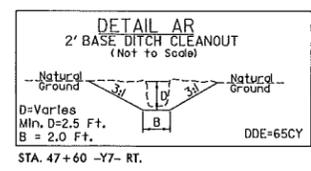
I:\30\2012
300823.dwg
V:\se\wp1\R-2633B_RDY_xp1.L.dgn

290 280 270 260 250 240 230 220 210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10

8/17/99

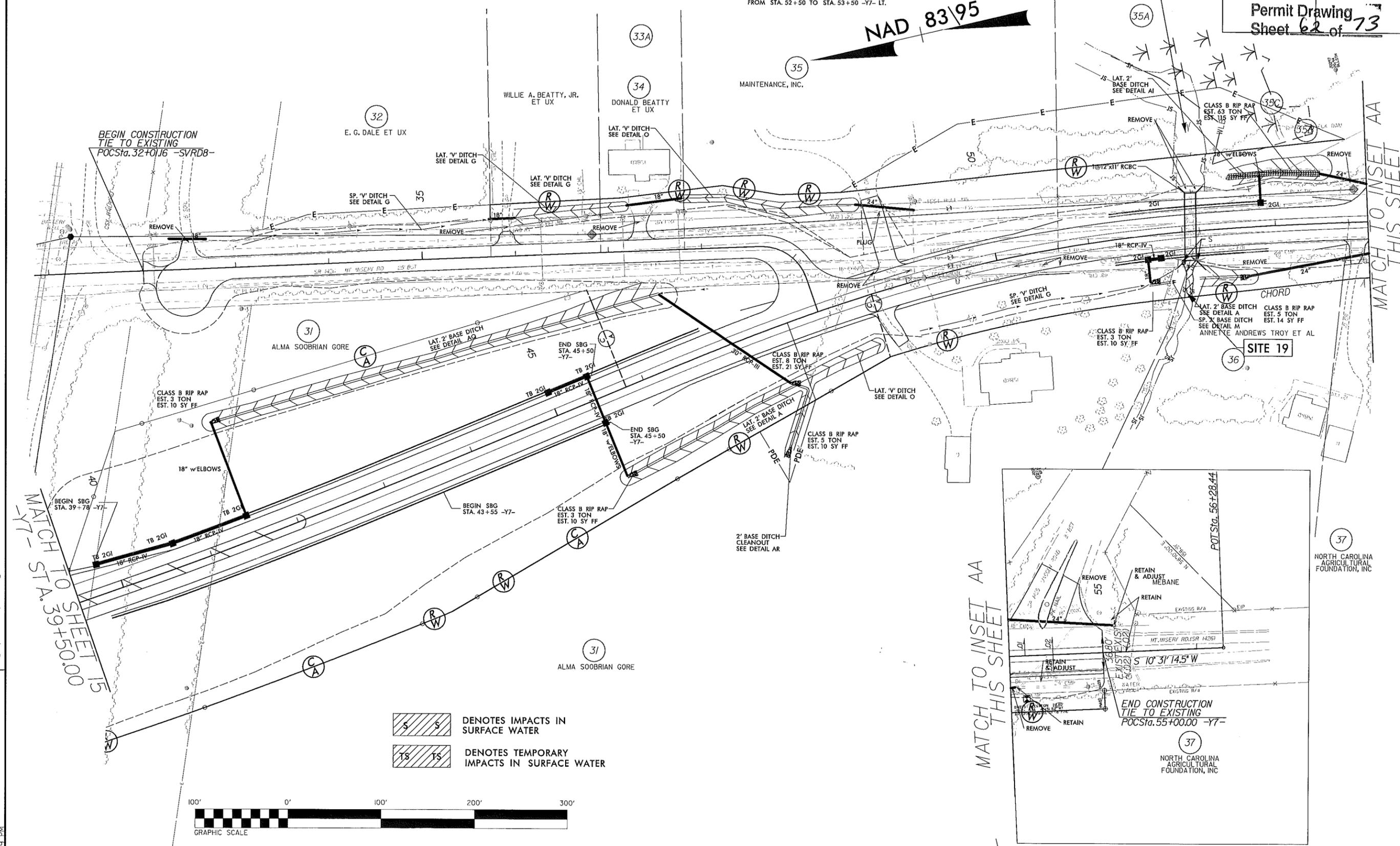
LOCHNER
H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH, NC 27612

PROJECT REFERENCE NO. R-2633B		SHEET NO. 37	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			
Permit Drawing Sheet 62 of 73			



SEE SHEET 2-K FOR IMPACTS IN THIS AREA

NAD 83/95



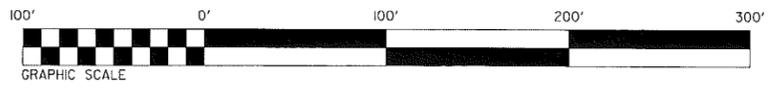
BEGIN CONSTRUCTION TIE TO EXISTING POCSta. 32+01.16 -SVRD8-

MATCH TO INSET AA THIS SHEET
STA. 39+50.00

MATCH TO INSET AA THIS SHEET

MATCH TO INSET AA THIS SHEET

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



NOTE: ALL DRIVEWAY RADII ARE TO BE 10', UNLESS OTHERWISE NOTED.

SEE SHEETS 67 & 68 FOR -SVRD8- PROFILE SEE SHEETS 63 & 64 FOR -Y7- PROFILE

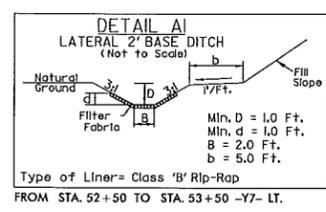
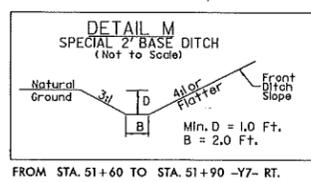
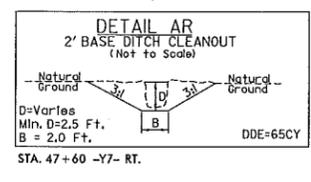
REVISIONS

I:\30_2012\11\es\Permits\Stream & Wetland\NR-2633B_hyd.prm_wet.psh37.dgn

8/17/99

LOCHNER
H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH, NC 27612

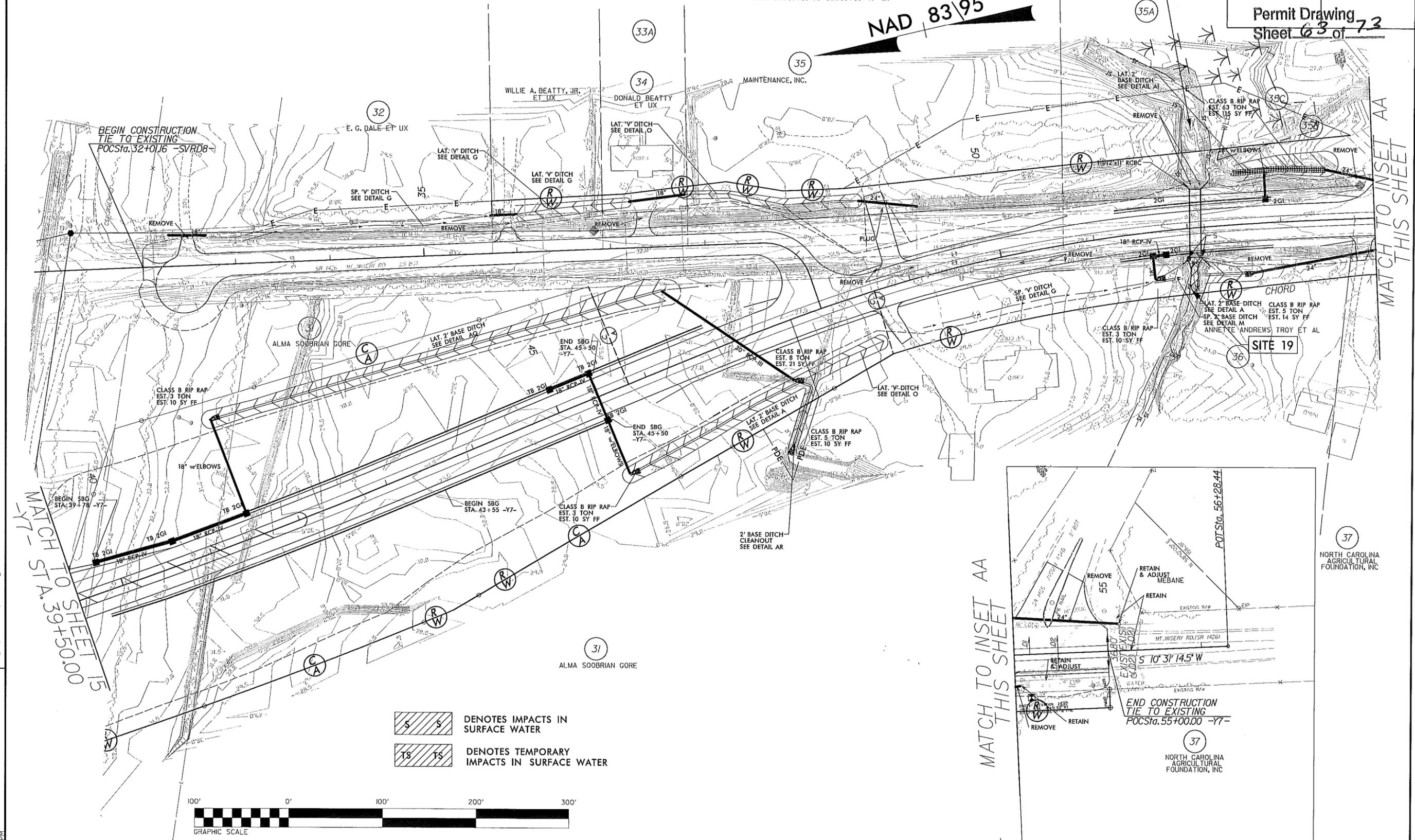
PROJECT REFERENCE NO. R-2633B	SHEET NO. 37
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



SEE SHEET 2-K FOR IMPACTS IN THIS AREA

Permit Drawing
Sheet 63 of 73

NAD 83/95



MATCH TO SHEET 15
STA. 39+78 -Y7-

MATCH TO INSET AA
THIS SHEET

MATCH TO INSET AA
THIS SHEET

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



NOTE: ALL DRIVEWAY RADII ARE TO BE 10', UNLESS OTHERWISE NOTED.

SEE SHEETS 67 & 68 FOR -SVRDB- PROFILE SEE SHEETS 63 & 64 FOR -Y7- PROFILE

REVISIONS

I:\70_2002\11\11\Permit\Stream & Wetland\NR-2633B_hyd.prm.wet.psh37.dgn

B/17/99

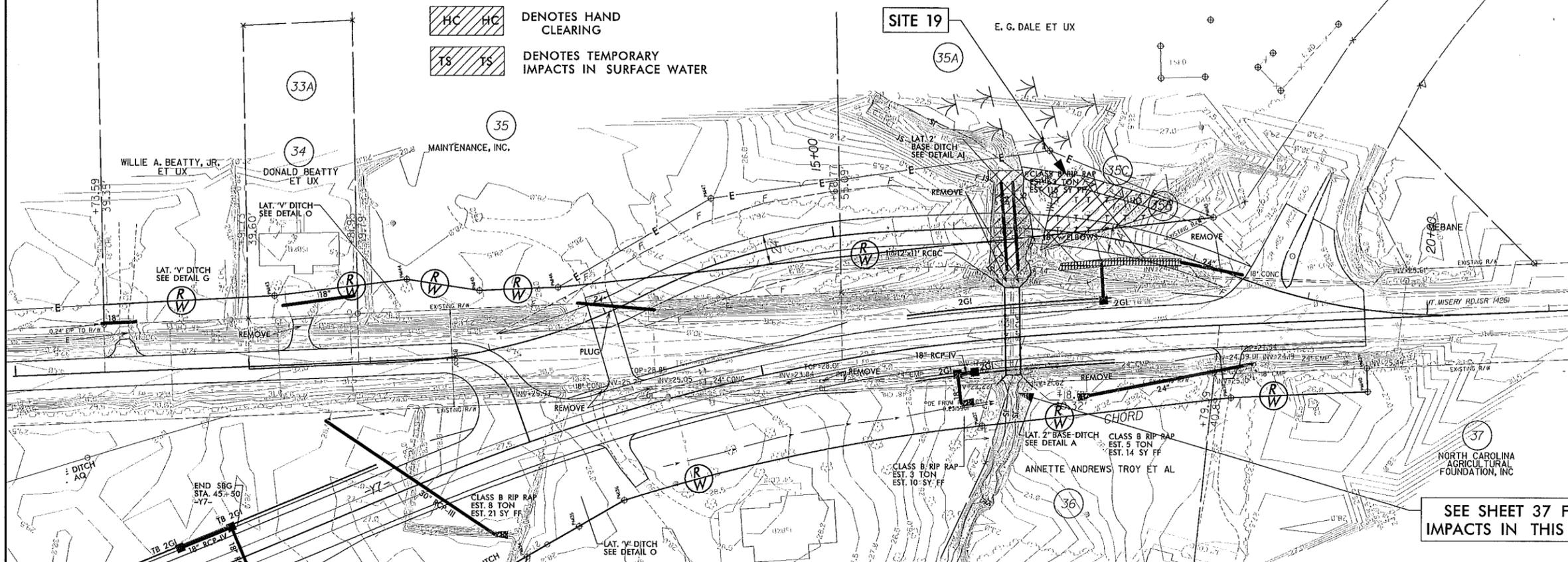


- DENOTES TEMPORARY FILL IN WETLAND
- DENOTES HAND CLEARING
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER

LOCHNER
H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH, NC 27612

PROJECT REFERENCE NO. R-2633B	SHEET NO. 2-L
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

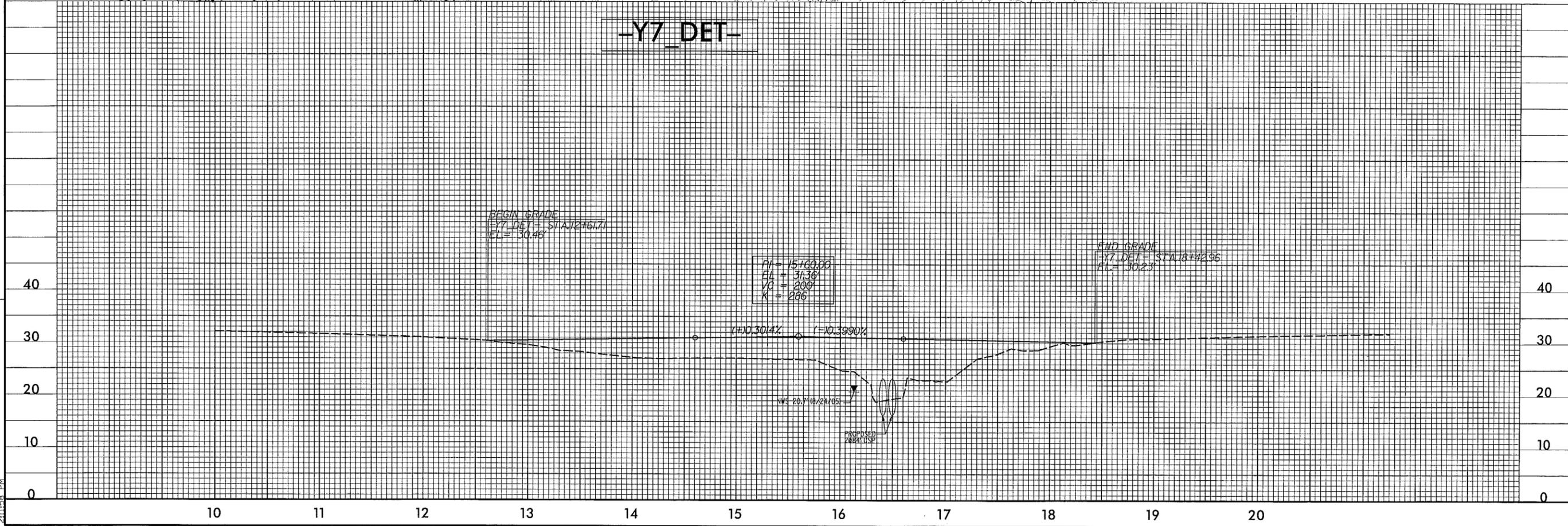
Permit Drawing
Sheet 65 of 73



NAD 83/95

SEE SHEET 37 FOR IMPACTS IN THIS AREA

-Y7_DET-

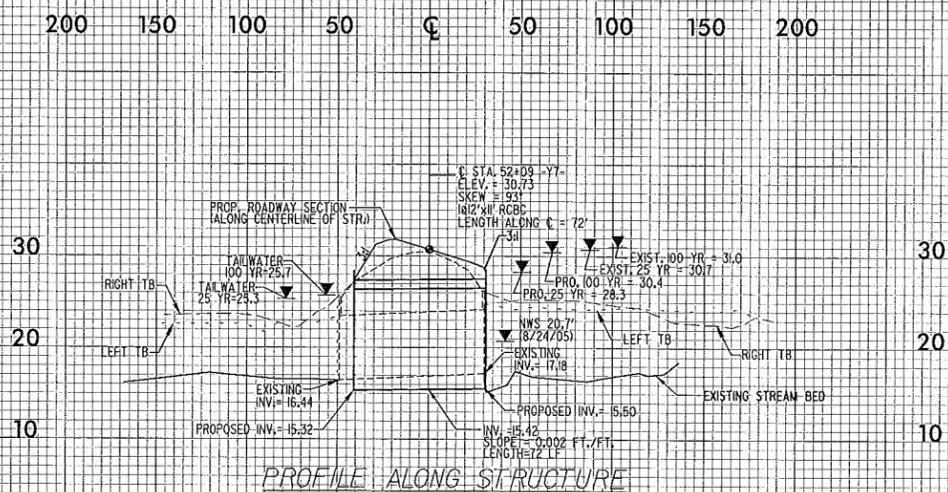


REVISIONS

I:\30_202
211155
R\Hydro\Permit\Stream & Wetland\R-2633B_hyd.prm_wet_psh02L.dgn

Permit Drawing
Sheet 66 of 73

SITE 19 JURISDICTIONAL STREAM PROFILE -Y7- 52+09



5/28/99

PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION

HW229 ELEVATION 28.80
Y1 STA 54+16.48 461 RT
RA SPIKE IN BASE OF 18" PIPE

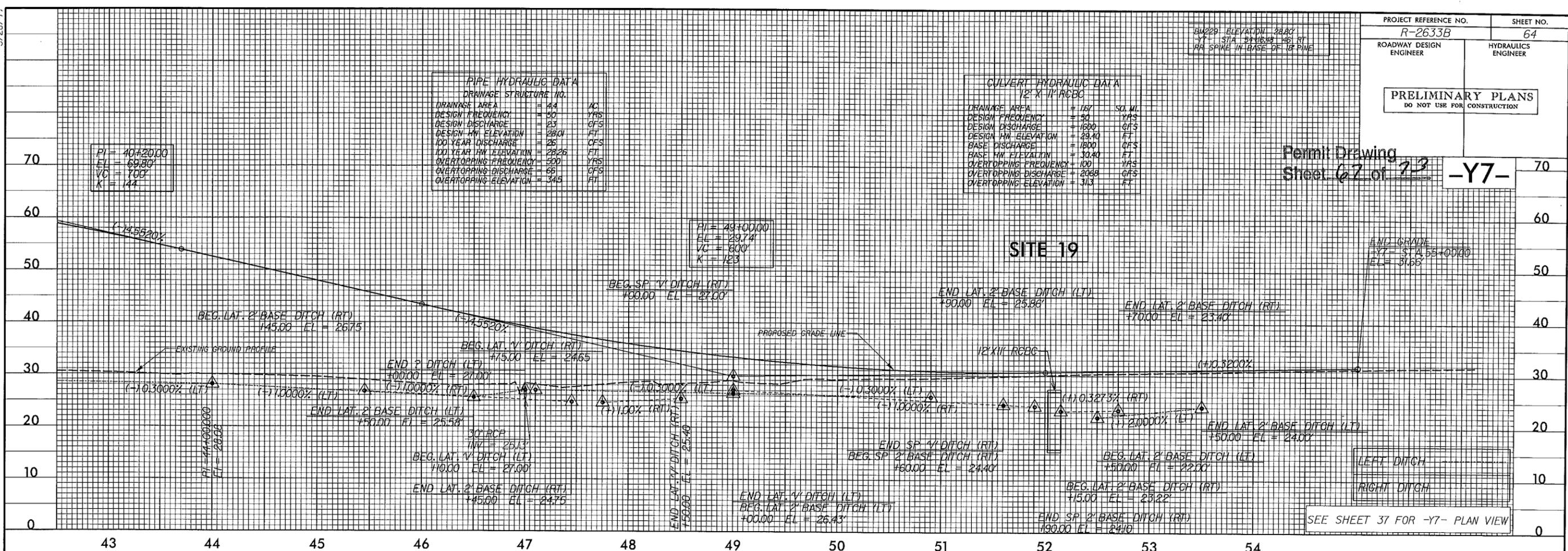
Permit Drawing
Sheet 67 of 73 -Y7-

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.

DRAINAGE AREA	= 44	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 23	CFS
DESIGN HW ELEVATION	= 28.01	FT
100 YEAR DISCHARGE	= 26	CFS
100 YEAR HW ELEVATION	= 28.26	FT
OVERTOPPING FREQUENCY	= 500	YRS
OVERTOPPING DISCHARGE	= 66	CFS
OVERTOPPING ELEVATION	= 34.5	FT

CULVERT HYDRAULIC DATA
12" X 11" RCBC

DRAINAGE AREA	= 167	SQ. MI.
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 1800	GFS
DESIGN HW ELEVATION	= 29.40	FT
BASE DISCHARGE	= 1800	CFS
BASE HW ELEVATION	= 30.40	FT
OVERTOPPING FREQUENCY	= 100	YRS
OVERTOPPING DISCHARGE	= 2068	GFS
OVERTOPPING ELEVATION	= 31.3	FT

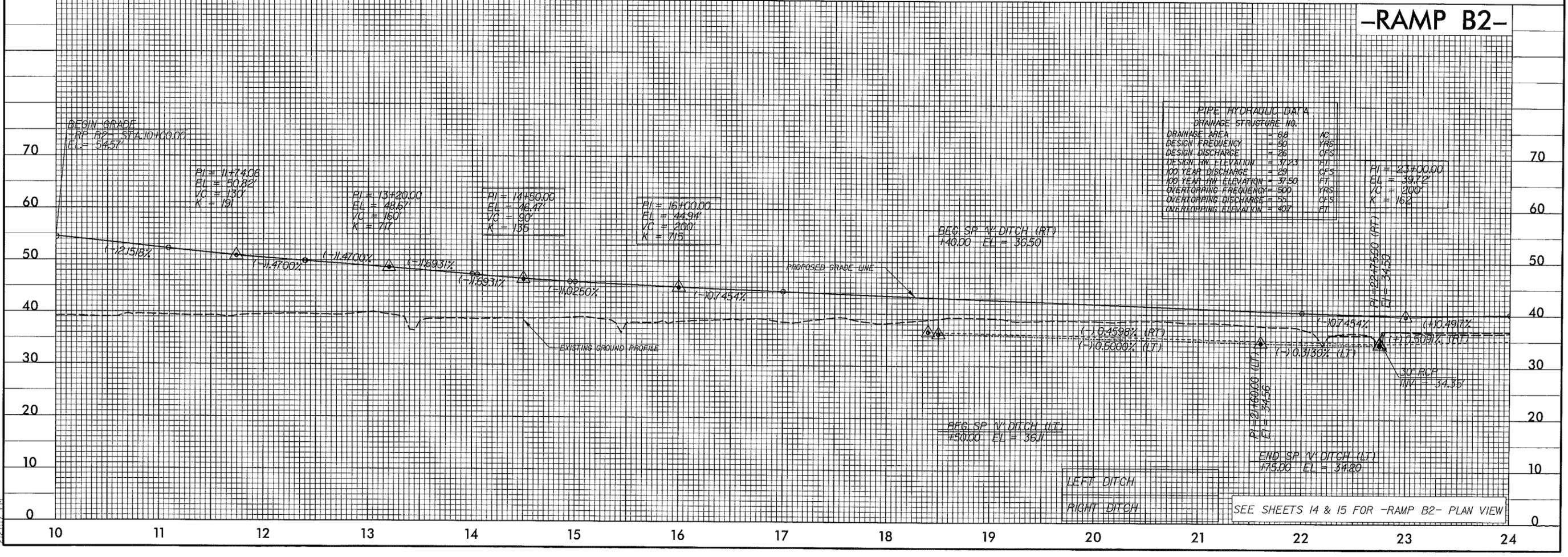


-RAMP B2-

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.

DRAINAGE AREA	= 68	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 26	CFS
DESIGN HW ELEVATION	= 37.23	FT
100 YEAR DISCHARGE	= 29	CFS
100 YEAR HW ELEVATION	= 37.50	FT
OVERTOPPING FREQUENCY	= 500	YRS
OVERTOPPING DISCHARGE	= 55	CFS
OVERTOPPING ELEVATION	= 40.7	FT

PI = 23+00.00
EL = 39.72'
VC = 200'
K = 162

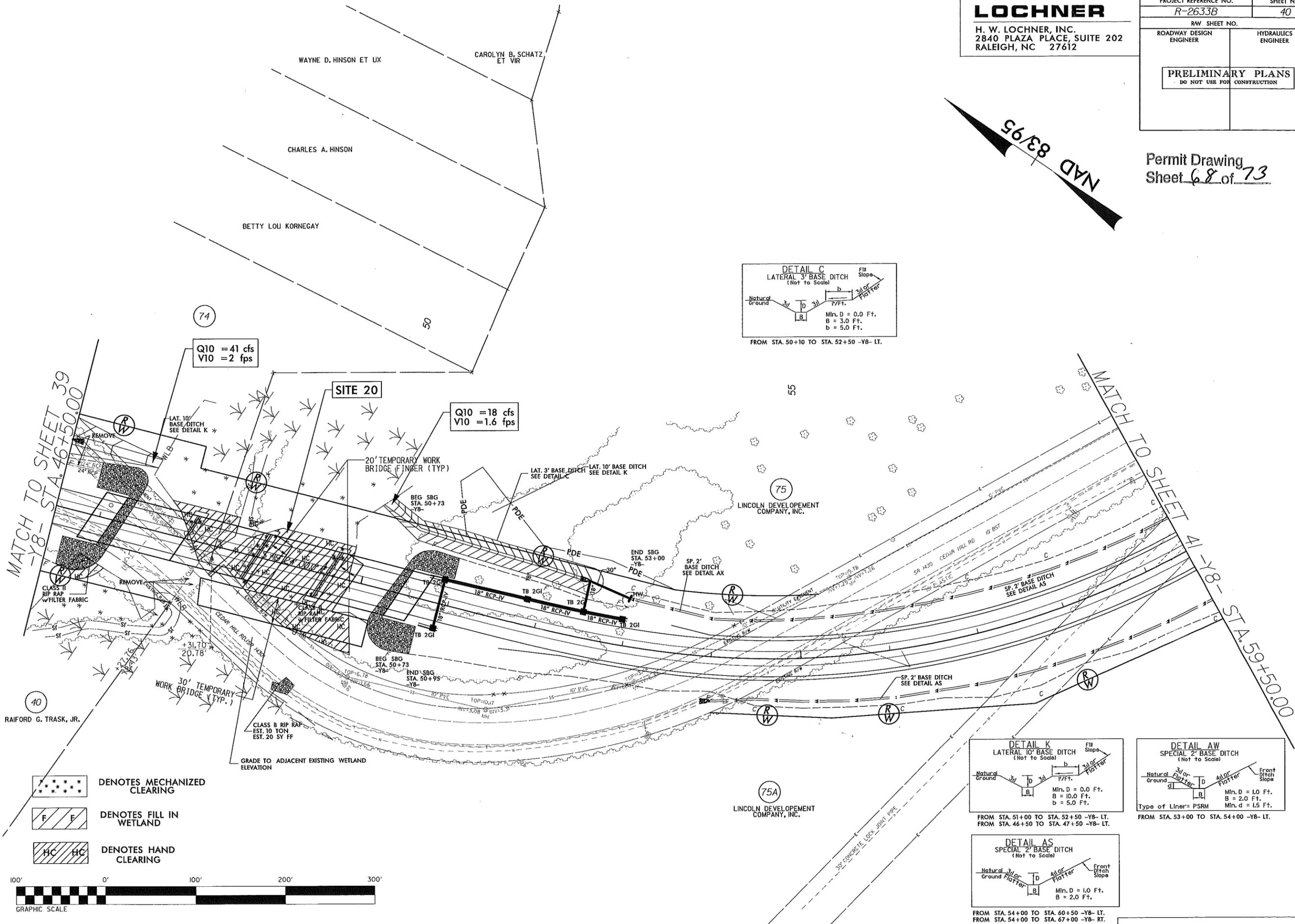
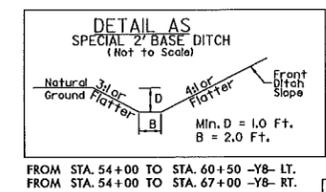
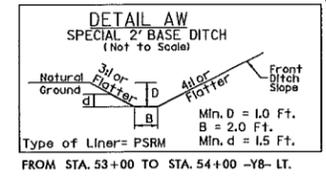
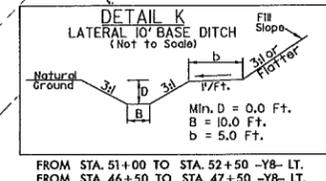
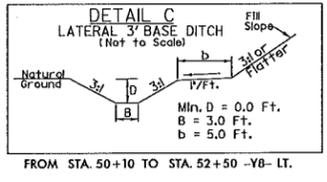
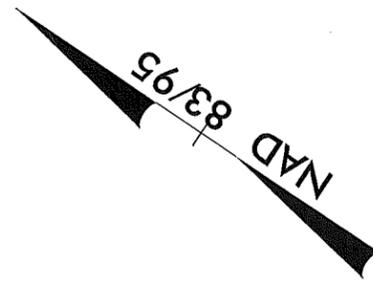


U:\30\202 R-2633B\Hydraulics\Permit\Stream & Wetland\R-2633B_RDY_PFL_SHEETS.dgn 2:21:17 PM

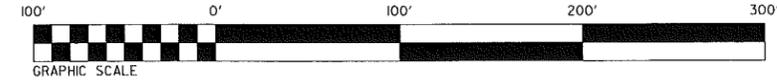
PROJECT REFERENCE NO. R-2633B	SHEET NO. 40
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

LOCHNER
H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH, NC 27612

Permit Drawing
Sheet 68 of 73



- DENOTES MECHANIZED CLEARING
- DENOTES FILL IN WETLAND
- DENOTES HAND CLEARING



REVISIONS

8/17/99

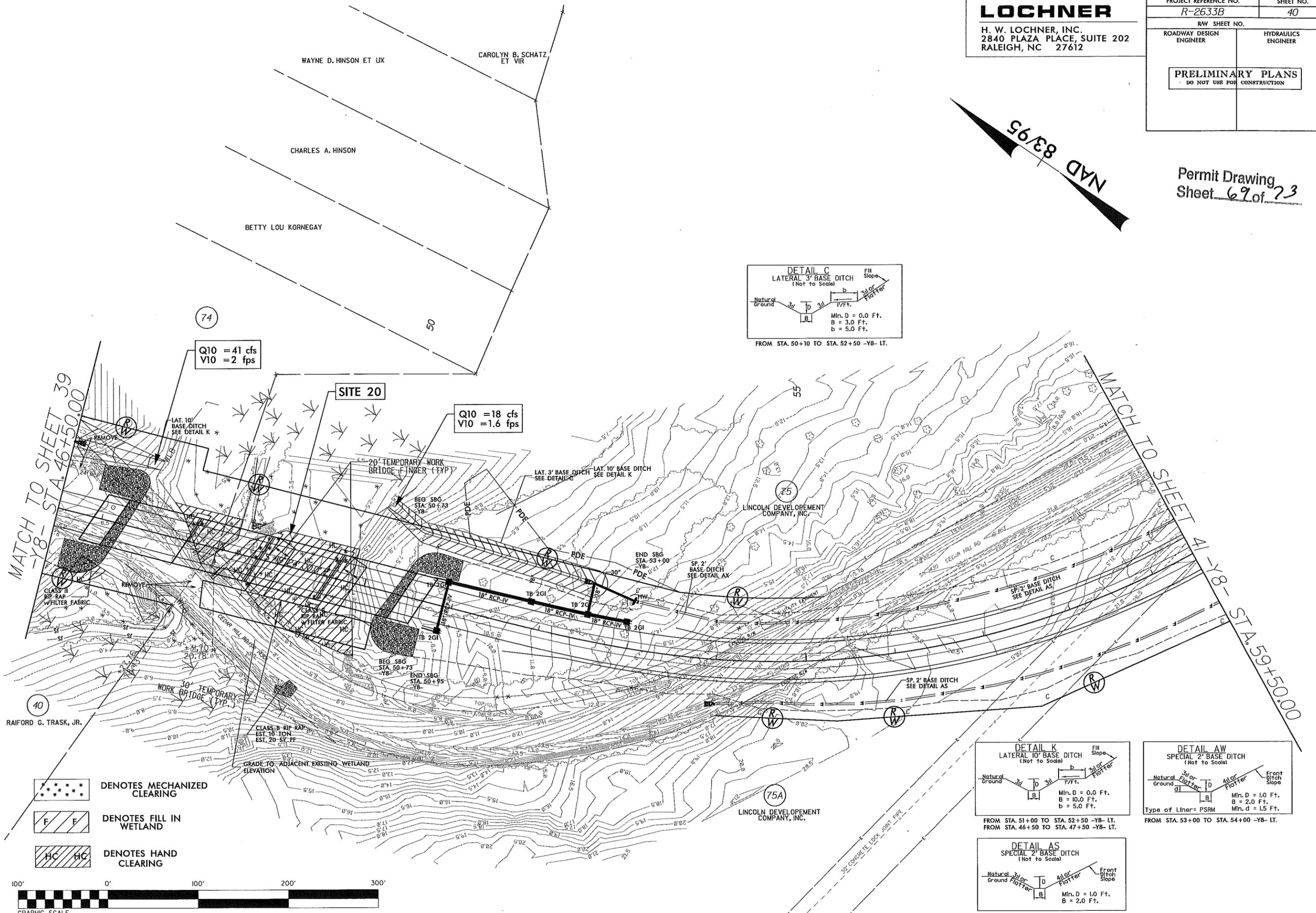
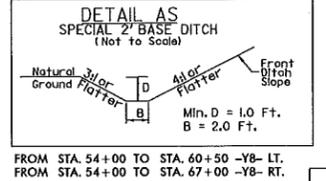
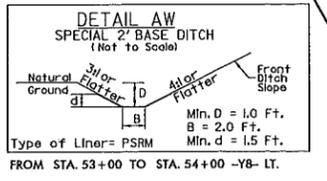
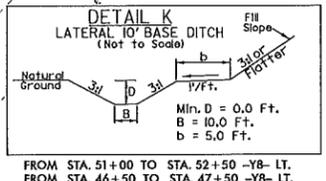
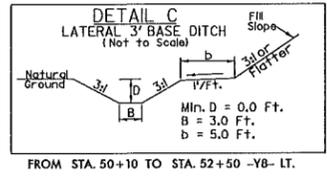
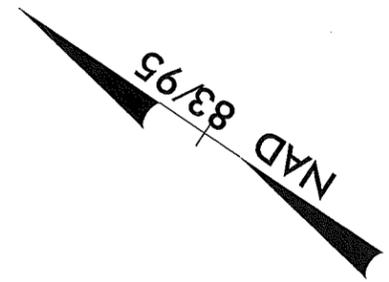
2/8/2013
C:\Users\perry\Documents\Permit\Stream & Wetland\NR-2633B-hyd.prm-wet.psk\40.dgn

SEE SHEETS 69 & 70 FOR -Y8- PROFILE

LOCHNER
 H. W. LOCHNER, INC.
 2840 PLAZA PLACE, SUITE 202
 RALEIGH, NC 27612

PROJECT REFERENCE NO. R-2633B	SHEET NO. 40
RAW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

Permit Drawing
 Sheet 69 of 73



Q10 = 41 cfs
 V10 = 2 fps

Q10 = 18 cfs
 V10 = 1.6 fps

- DENOTES MECHANIZED CLEARING
- DENOTES FILL IN WETLAND
- DENOTES HAND CLEARING



SEE SHEETS 69 & 70 FOR -Y8- PROFILE.

REVISIONS

8/17/99

2/8/2015
 C:\Hydraulics\Permit\Stream & Wetland\R-2633B_hyd_prm_wet_psh40.dgn
 12:44:20 PM

5/28/99

BW233 ELEVATION 23.14
 MB STA 37+43.4 1/4" X 3/4" LT
 RR SPIKE IN BASE OF 20' PINE

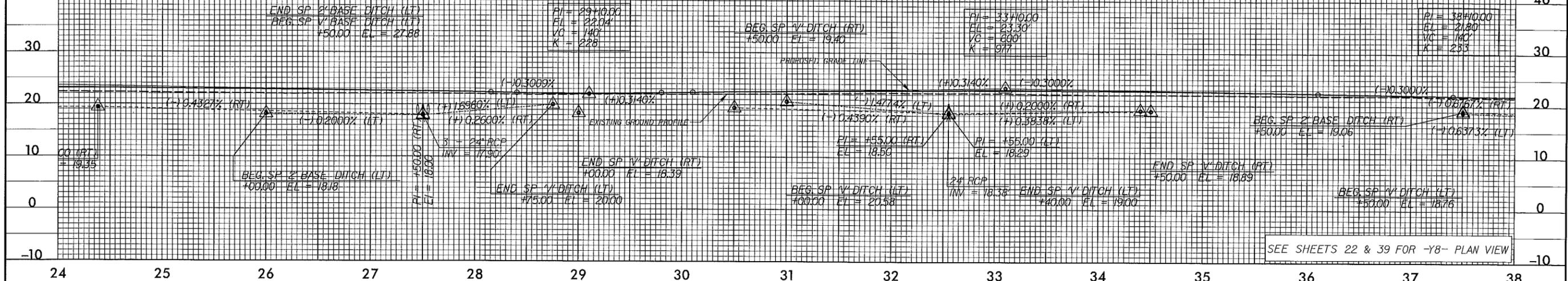
PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.

DRAINAGE AREA	= 15.5	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 41	CFS
DESIGN HW ELEVATION	= 20.68	FT
100 YEAR DISCHARGE	= 37	CFS
100 YEAR HW ELEVATION	= 21.1	FT
OVERTOPPING FREQUENCY	= 500	YRS
OVERTOPPING DISCHARGE	= 41	CFS
OVERTOPPING ELEVATION	= 20.7	FT

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.

DRAINAGE AREA	= 3.5	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 11.3	CFS
DESIGN HW ELEVATION	= 20.35	FT
100 YEAR DISCHARGE	= 12.6	CFS
100 YEAR HW ELEVATION	= 20.50	FT
OVERTOPPING FREQUENCY	= 500	YRS
OVERTOPPING DISCHARGE	= 12.6	CFS
OVERTOPPING ELEVATION	= 20.5	FT

Permit Drawing
 Sheet 70 of 73



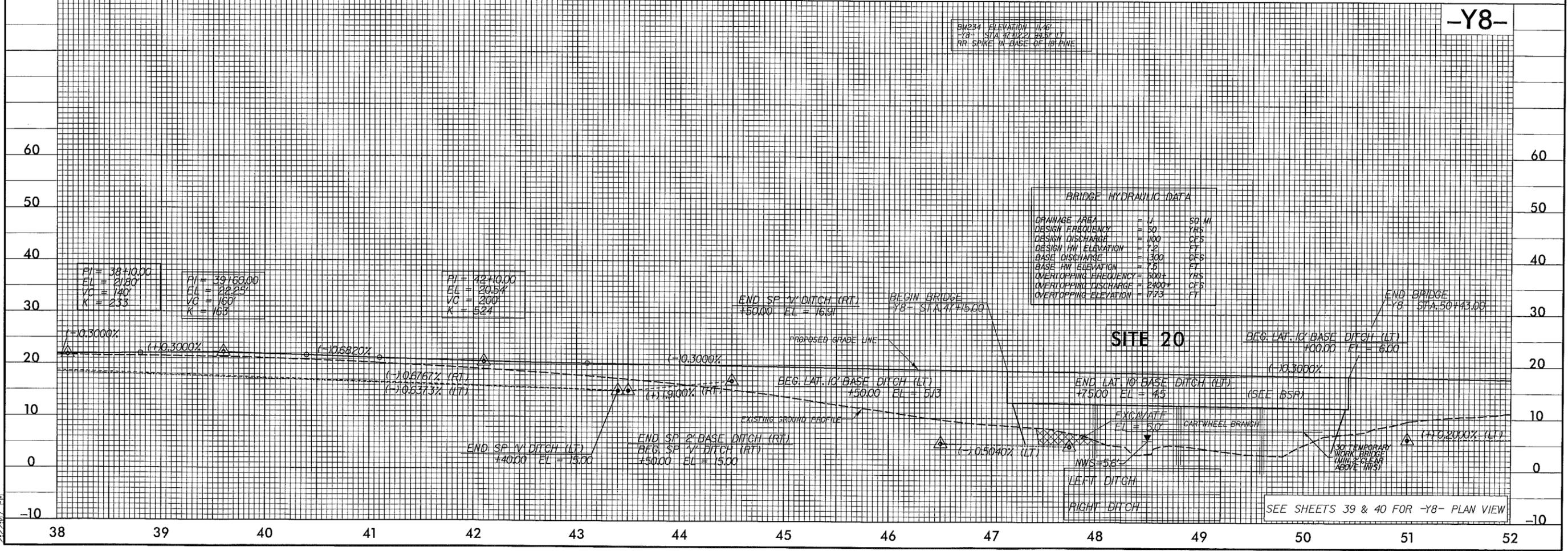
SEE SHEETS 22 & 39 FOR -Y8- PLAN VIEW

I:\30\2002\30\2002\Permit\Stream & Wetland\AR-2633B.RDY_PFL_SHEETS.dgn
 5/28/99 10:25:47 AM

BW234 ELEVATION 11.6
 MB STA 47+32.2 3/4" X 1" LT
 RR SPIKE IN BASE OF 18' PINE

BRIDGE HYDRAULIC DATA

DRAINAGE AREA	= 1	50 MI
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 100	CFS
DESIGN HW ELEVATION	= 7.2	FT
BASE DISCHARGE	= 1300	CFS
BASE HW ELEVATION	= 7.5	FT
OVERTOPPING FREQUENCY	= 500	YRS
OVERTOPPING DISCHARGE	= 2400	CFS
OVERTOPPING ELEVATION	= 7.73	FT



SEE SHEETS 39 & 40 FOR -Y8- PLAN VIEW

PROPERTY OWNERS

NAMES AND ADDRESSES

REFERENCE NO.	NAMES	ADDRESSES
35	E.G.DALE ET UX	PO BOX 157 LELAND, NC 28451
36	ANNETTE ANDREWS TROY ET AL	2107 MT MISERY ROAD LELAND, NC 28451
39	LINCOLN DEVELOPMENT CO., INC.	PO BOX 2021 WILMINGTON, NC 28402
40	RAEFORD G. TRASK, JR.	1202 EASTWOOD ROAD WILMINGTON, NC 28403
59	TOM PARTNERS, LTD.	1508 MILITARY CUTOFF RD WILMINGTON, NC 28403
74	ESTATE OF ESSIE BLIZZARD	7524 ELKMONT CIRCLE WILMINGTON, NC 28411
75	LINCOLN LAND DEVELOPMENT CO., INC.	PO BOX 2021 WILMINGTON, NC 28402
78	CITY OF WILMINGTON	PO BOX 1810 WILMINGTON, NC 28408
79	CAROLINA POWER AND LIGHT CO.	410 SOUTH WILMINGTON ST RALEIGH, NC 27601

NCDOT

DIVISION OF HIGHWAYS
BRUNSWICK AND NEW HANOVER
COUNTIES
PROJECT: R-2633B

US 17 FROM 74/76
IN BRUNSWICK COUNTY TO
US 421 IN NEWHANOVER COUNTY

PROPERTY OWNERS

NAMES AND ADDRESSES

REFERENCE NO.	NAMES	ADDRESSES
2	T.F.LIMITED HOLDINGS PARTNERSHIP	1202 EASTWOOD ROAD. WILMIINGTON, NC 28403
3	JOHN M.HEWITT,ETUX	PO BOX 273 LELAND, NC 28451
4	V.A.CREECH, JR.	PO BOX 66 LELAND, NC 28451
10	MLH, LLC.	PO BOX 1967 WILMINGTON, NC 28402
11	WCM ENTERPRISES, LLC.	305 COLONIAL DRIVE WILMINGTON, NC 28403
13	CHADWICK-ONE, LLC.	PO BOX 452 LELAND, NC 28451
15	BARNEY L.PADGETT ET UX	PO BOX 7332 WILMINGTON, NC 28456
21	LOUISE VERZAAL JOYNER	5644 56th WAY WEST PALM BEACH, FL 33409

NCDOT

DIVISION OF HIGHWAYS
BRUNSWICK AND NEW HANOVER
COUNTIES
PROJECT: R-2633B

US 17 FROM 74//76
IN BRUNSWICK COUNTY TO
US 421 IN NEWHANOVER COUNTY

WETLAND PERMIT IMPACT SUMMARY

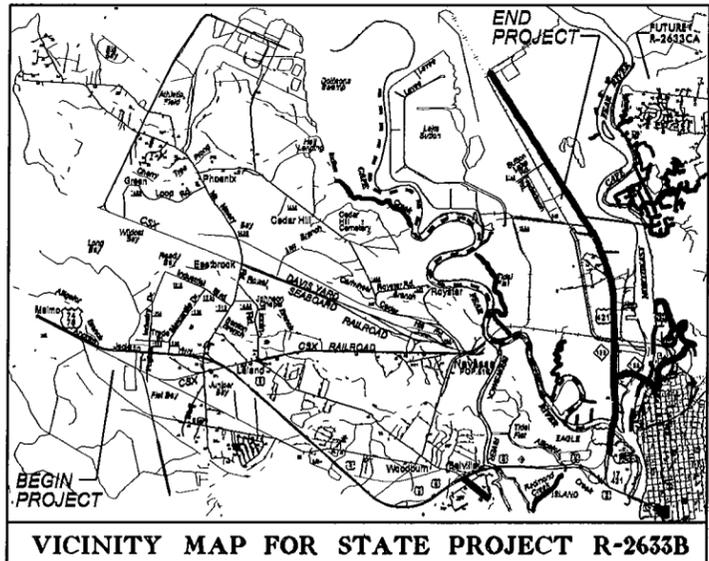
Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS							SURFACE WATER IMPACTS				
			404 Permanent Fill In Wetlands (ac)	CAMA Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	404 Hand Clearing in Wetlands (ac)	CAMA 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-24+75 Lt.	Roadway Fill												
2***	-L-37+96 Rt.	Bridge												
3****	-LREV- 339+73 to 358+92	Roadway Fill	7.45			0.03			0.58					
4	-RP D1- 22+60	Deleted due to new JS delineation												
5*	-LREV- 372+74 to -L-85+08	Roadway Fill	1.04						0.12					
6*	-L- 109+28 to 134+54	Roadway Fill	9.72						1.13					
6A**	-L- 138+11 to 140+70	Roadway Fill	0.68											
6B**	-L- 141+20 to 144+29	Roadway Fill	0.41						0.02					
7*	-L- 146+78 to 165+66	Roadway Fill	10.55						0.98					
8	-L 166+60	Deleted due to new JS delineation												
9*	-L- 186+97 to 191+88	Roadway Fill	1.04						0.09					
10	-RP D2- 19+20 Lt.	Deleted due to new JS delineation												
11*	-L- 194+75 to 216+13	Roadway Fill; 3@42"	8.72						0.93	0.07	<0.01	205	20	
12	-L- 230+39 to 242+11	Deleted due to new JS delineation												
13	-L- 256+36 to 265+87	Deleted due to new JS delineation												
14*	-L- 264+32 to 266+94	Bridge					0.03	0.20		<0.01				
		Temp. Work Bridge						0.10						
15*	319+46 to 387+92	Bridge	0.05			*****0.93		10.48	7.79	0.13	0.03			
		Temp. Work Bridge						6.43	4.70					
16*	-L- 399+43 to 400+51	Roadway Fill	0.22											
17***	-Y5-16+25 Rt	48" RCP												
18***	-Y5-16+25 Lt	48" RCP												
19*	-Y7- 52+09	Culvert								<0.01	<0.01	5	39	
	-Y7 DET- 16+45	Detour Culvert			0.06			0.03			0.61		90	
20*	-Y8- 47+74 to 49+88	Bridge	<0.01					0.04	0.17					
	-Y8- 48+78 to 49+95	Temp. Work Bridge							0.14					
TOTALS:			39.89		0.06	0.96	0.07	21.40	12.49	0.20	0.63	210	149	0.00

Site 14 See Structures sheet for Bridge Impacts on Cartwheel Branch
 Site 15 Impacts for Permanent Dual Bridges CAMA=0.07 Ac, 404=0.07 Ac, Surface Water=0.0 1Ac; Total=0.15 Ac.
 Site 15 Impacts for Temporary Work Bridge CAMA=0.16 Ac, 404=0.21 Ac, Surface Water=0.01 Ac; Total=0.38 Ac.
 * Revised due to new JS Delineation
 ** New Site due to new JS Delineation
 *** Sites 1, 2, 17, and 18 are now permitted with R-2633AA & AB and the impacts are included with that project.
 **** A portion of Site 3 is now permitted with R-2633AA & AB and the impacts are included with that project.
 ***** Temporary Excavation. CAMA=0.41Ac, 404 =0.52 Ac.; Total=0.91 Ac.
 0.75 acres of Temp. Fill in 404 Wetlands in the Hand Clearing areas for Erosion Control Measures

NC DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 BRUNSWICK AND NEW HANOVER COUNTIES
 WBS - 34491.1.2 (R-2633B)

SHEET **73 of 73**
 rev. 5/24/13

TIP PROJECT: R-2633B



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

**NEU PERMIT PLANS BRUNSWICK
-NEW HANOVER COUNTY**

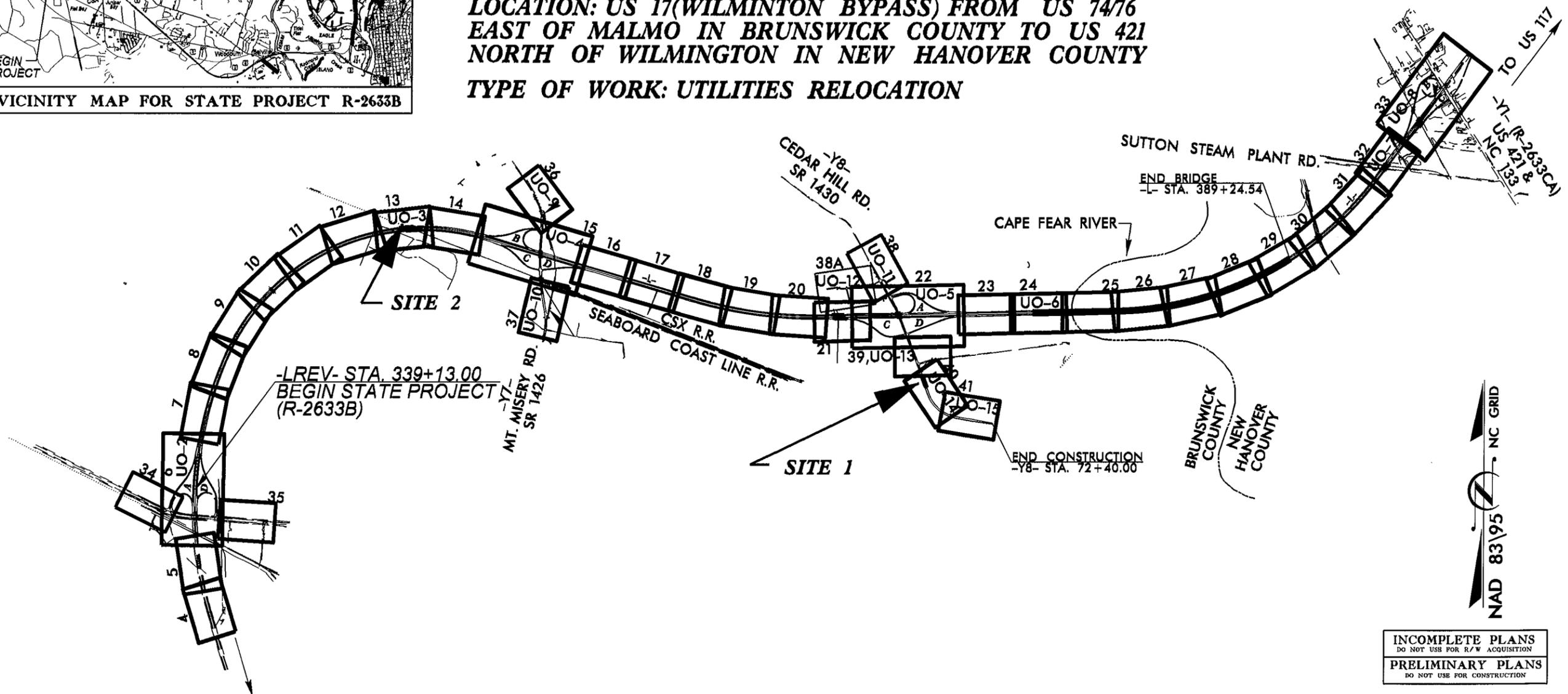
**LOCATION: US 17(WILMINGTON BYPASS) FROM US 7476
EAST OF MALMO IN BRUNSWICK COUNTY TO US 421
NORTH OF WILMINGTON IN NEW HANOVER COUNTY**

TYPE OF WORK: UTILITIES RELOCATION

T.I.P. NO.	SHEET NO.
R-2633B	1

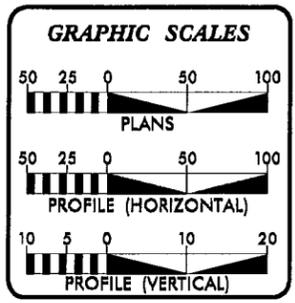
**PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION**

**Utility Permit Drawing
Sheet 1 of 15
Revised 3/28/13**



NAD 83/95 - NC GRID

**INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION**



INDEX OF SHEETS

SHEET NO.	DESCRIPTION
NUO-1	TITLE SHEET
NUO-2 THRU NUO-3	UTILITY'S WETLAND IMPACT

UTILITY OWNERS ON PROJECT

- POWER : PROGRESS ENERGY
- TELEPHONE : AT & T
- GAS : PIEDMONT NATURAL GAS

PREPARED IN THE OFFICE OF:
**DIVISION OF HIGHWAYS
UTILITIES UNIT
UTILITIES ENGINEERING**

1555 MAIL SERVICES CENTER
RALEIGH NC 27699-1555
PHONE (919) 707-6690
FAX (919) 230-4151

Roger Worthington, P.E. UTILITIES SECTION ENGINEER
R.B. Wilkins, P.E. UTILITIES SQUAD LEADER PROJECT ENGINEER
Jong-Tae Yoon UTILITIES PROJECT DESIGNER

28-MAR-2013 08:52
F:\Utilities\RDY-Ut\Proj\R2633B-Ut_Title-WETO1.psh.dgn
\$\$\$\$\$USERNAME\$\$\$\$\$

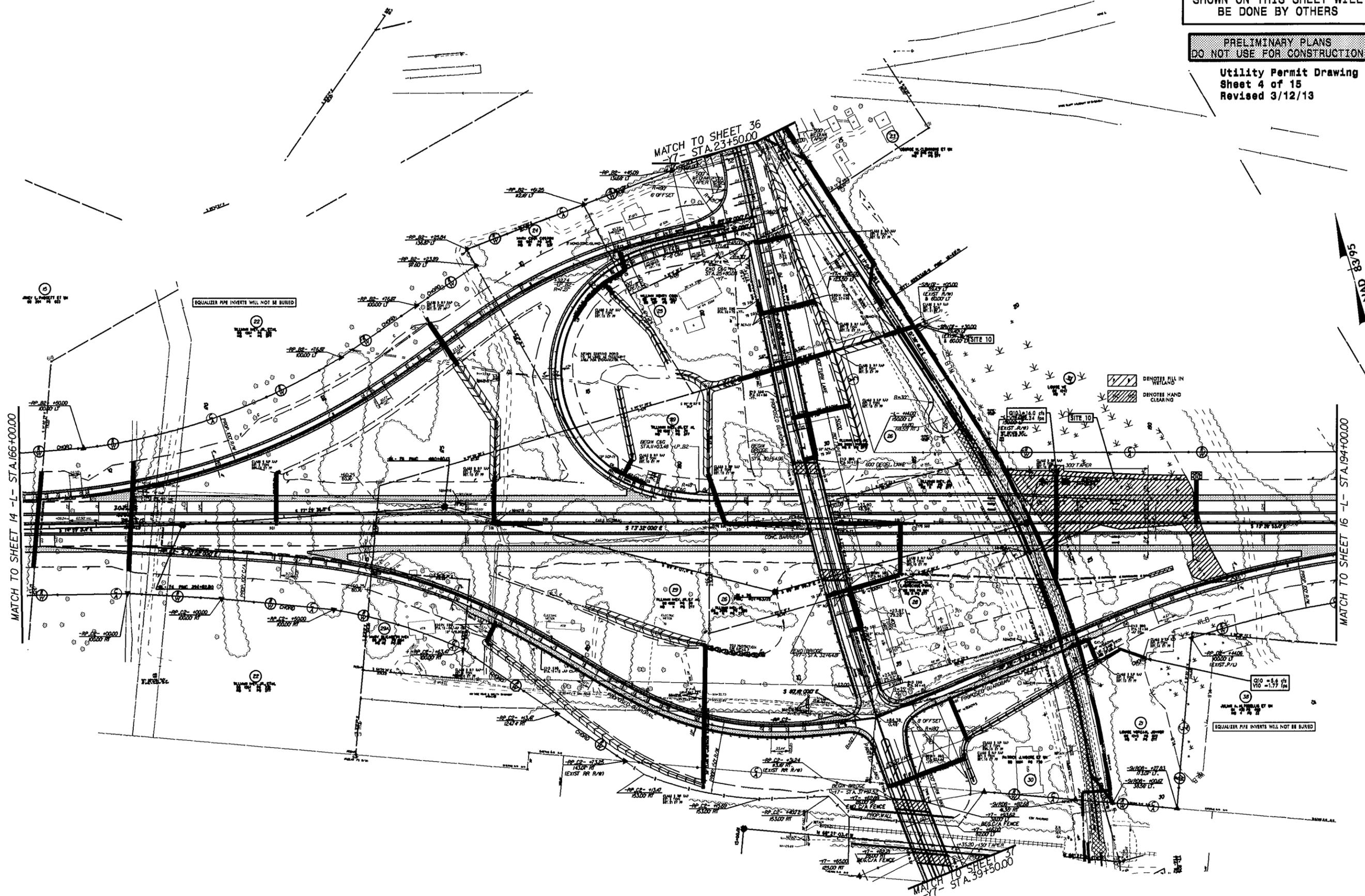
UTILITIES BY OTHERS

NOTE:
ALL PROPOSED UTILITY WORK
SHOWN ON THIS SHEET WILL
BE DONE BY OTHERS

**PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION**

Utility Permit Drawing
Sheet 4 of 15
Revised 3/12/13

5/14/99



12-MAR-2013 09:12 \\R2633B.Ut.15.U04.psh.dgn
 7:58:58 AM

UTILITIES BY OTHERS

NOTE:
ALL PROPOSED UTILITY WORK
SHOWN ON THIS SHEET WILL
BE DONE BY OTHERS

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

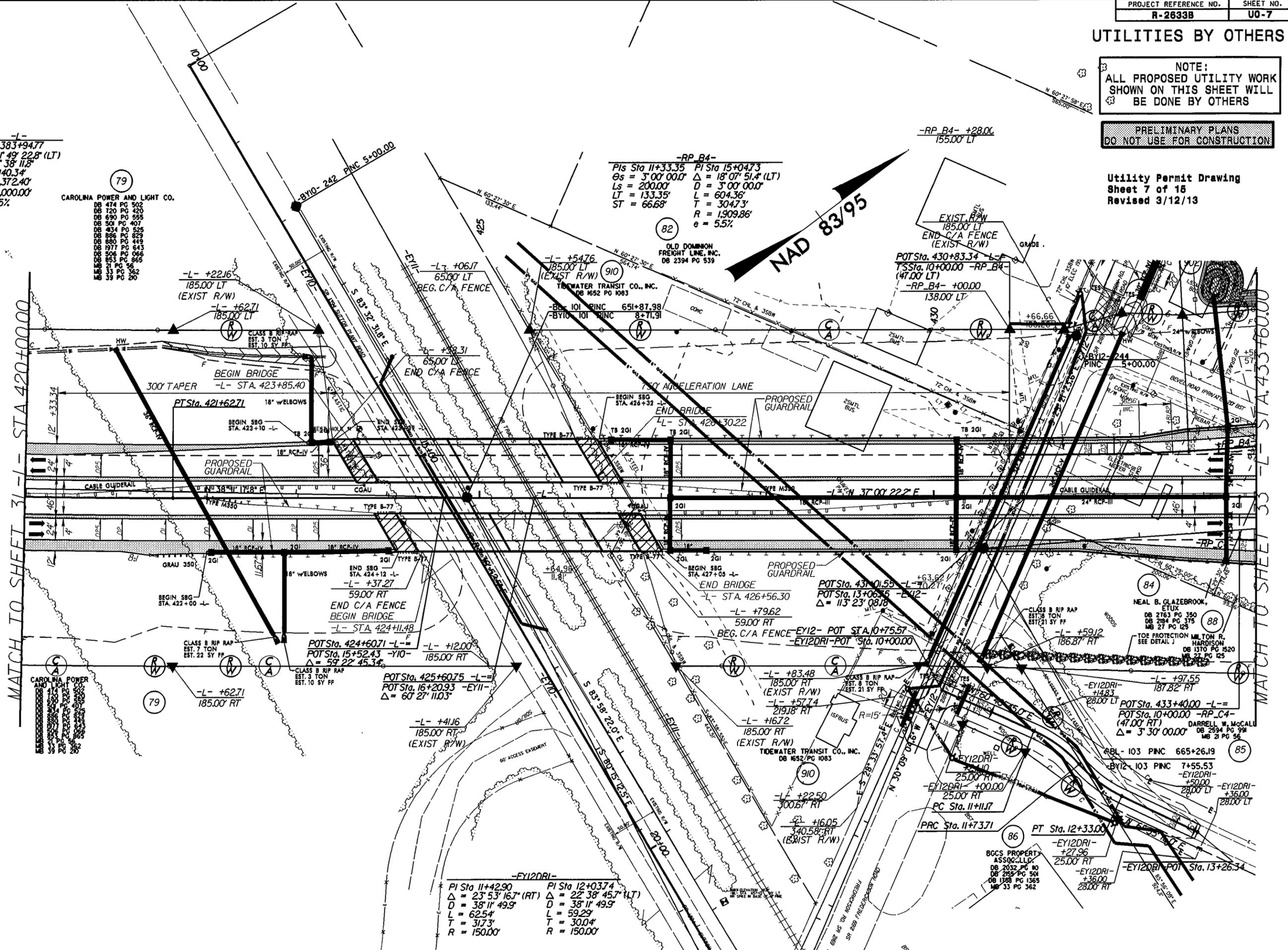
Utility Permit Drawing
Sheet 7 of 15
Revised 3/12/13

PI Sta 383+94.77
Δ = 51° 49' 22.8" (LT)
D = 0' 38" 11.8"
L = 8,140.34'
T = 4,372.40'
R = 9,000.00'
e = 2.5%

- CAROLINA POWER AND LIGHT CO.
- DB 474 PG 502
 - DB 120 PG 420
 - DB 690 PG 555
 - DB 501 PG 407
 - DB 434 PG 525
 - DB 856 PG 823
 - DB 680 PG 449
 - DB 1977 PG 643
 - DB 506 PG 066
 - DB 853 PG 865
 - MB 21 PG 56
 - MB 33 PG 362
 - MB 39 PG 20

-RP B4-
PIs Sta 11+33.35 PI Sta 15+04.73
Δs = 3° 00' 00.0" Δ = 18° 07' 51.4" (LT)
Ls = 200.00' D = 3° 00' 00.0"
LT = 133.35' L = 604.36'
ST = 66.68' T = 304.73'
R = 1,909.86'
e = 5.5%

-EY12DRI-
PI Sta 11+42.90 PI Sta 12+03.74
Δ = 23° 53' 16.7" (RT) Δ = 22° 38' 45.7" (LT)
D = 38' 11" 49.9" D = 38' 11" 49.9"
L = 62.54' L = 59.29'
T = 317.3' T = 300.4'
R = 150.00' R = 150.00'



MATCH TO SHEET 31 - STA 420+00.00

MATCH TO SHEET 33 - STA 433+00.00

UTILITIES BY OTHERS

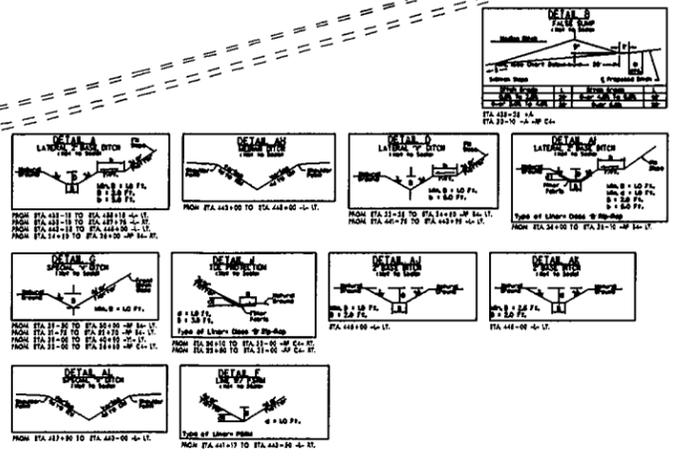
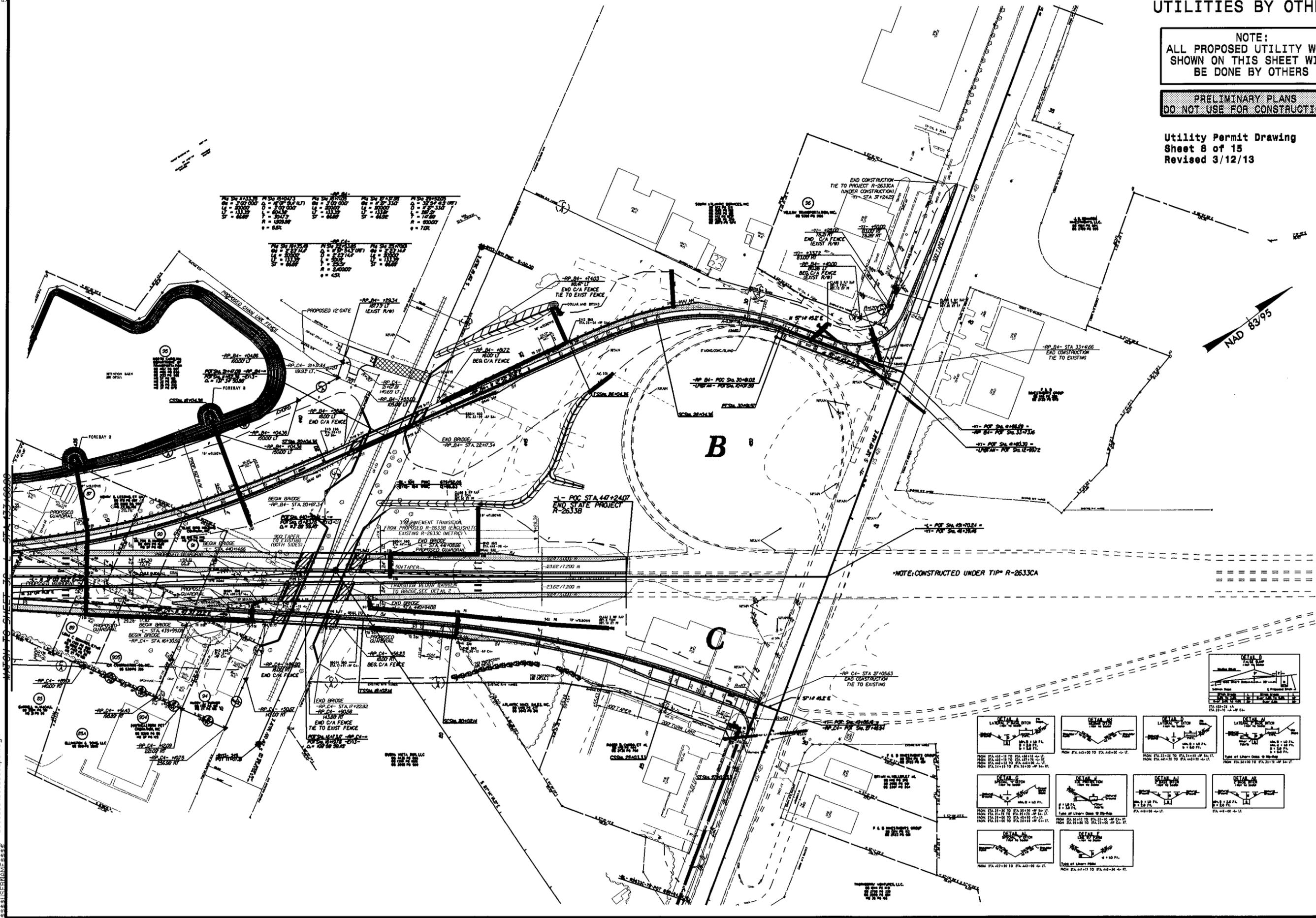
NOTE:
ALL PROPOSED UTILITY WORK
SHOWN ON THIS SHEET WILL
BE DONE BY OTHERS

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Utility Permit Drawing
Sheet 8 of 15
Revised 3/12/13

5/14/99

12-MAR-2013 09:01 \\P2633B-Ut-33_U08.psh.dgn



UTILITIES BY OTHERS

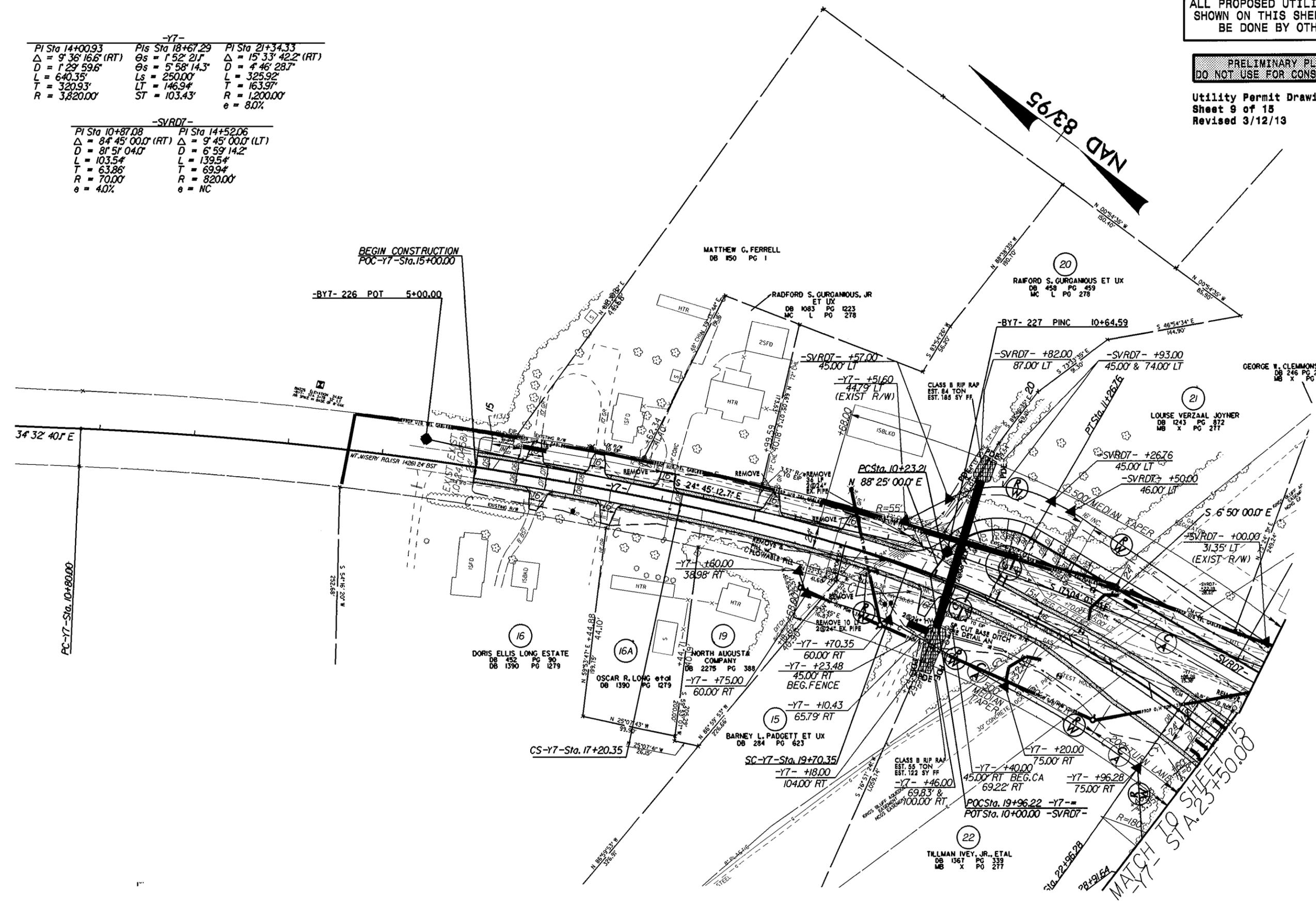
NOTE:
ALL PROPOSED UTILITY WORK
SHOWN ON THIS SHEET WILL
BE DONE BY OTHERS

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Utility Permit Drawing
Sheet 9 of 15
Revised 3/12/13

-Y7-		
PI Sta 14+00.93	PIs Sta 18+67.29	PI Sta 21+34.33
$\Delta = 9' 36" 16.6'$ (RT)	$\Theta s = 1' 52" 21'$	$\Delta = 15' 33" 42.2'$ (RT)
$D = 1' 29' 59.6"$	$\Theta s = 5' 58" 14.3"$	$D = 4' 46' 28.7"$
$L = 640.35'$	$Ls = 250.00'$	$L = 325.92'$
$T = 320.93'$	$LT = 146.94'$	$T = 163.97'$
$R = 3,820.00'$	$ST = 103.43'$	$R = 1,200.00'$
		$e = 8.0\%$

-SVRD7-		
PI Sta 10+87.08	PI Sta 14+52.06	
$\Delta = 84' 45" 00.0'$ (RT)	$\Delta = 9' 45" 00.0'$ (LT)	
$D = 8' 51' 04.0"$	$D = 6' 59' 14.2"$	
$L = 103.54'$	$L = 139.54'$	
$T = 63.86'$	$T = 69.94'$	
$R = 70.00'$	$R = 820.00'$	
$e = 4.0\%$	$e = NC$	



5/14/09
 12-MAR-2013 08:04 \\R2633B\U-36_UC09_psh.dgn
 11:55:55 AM

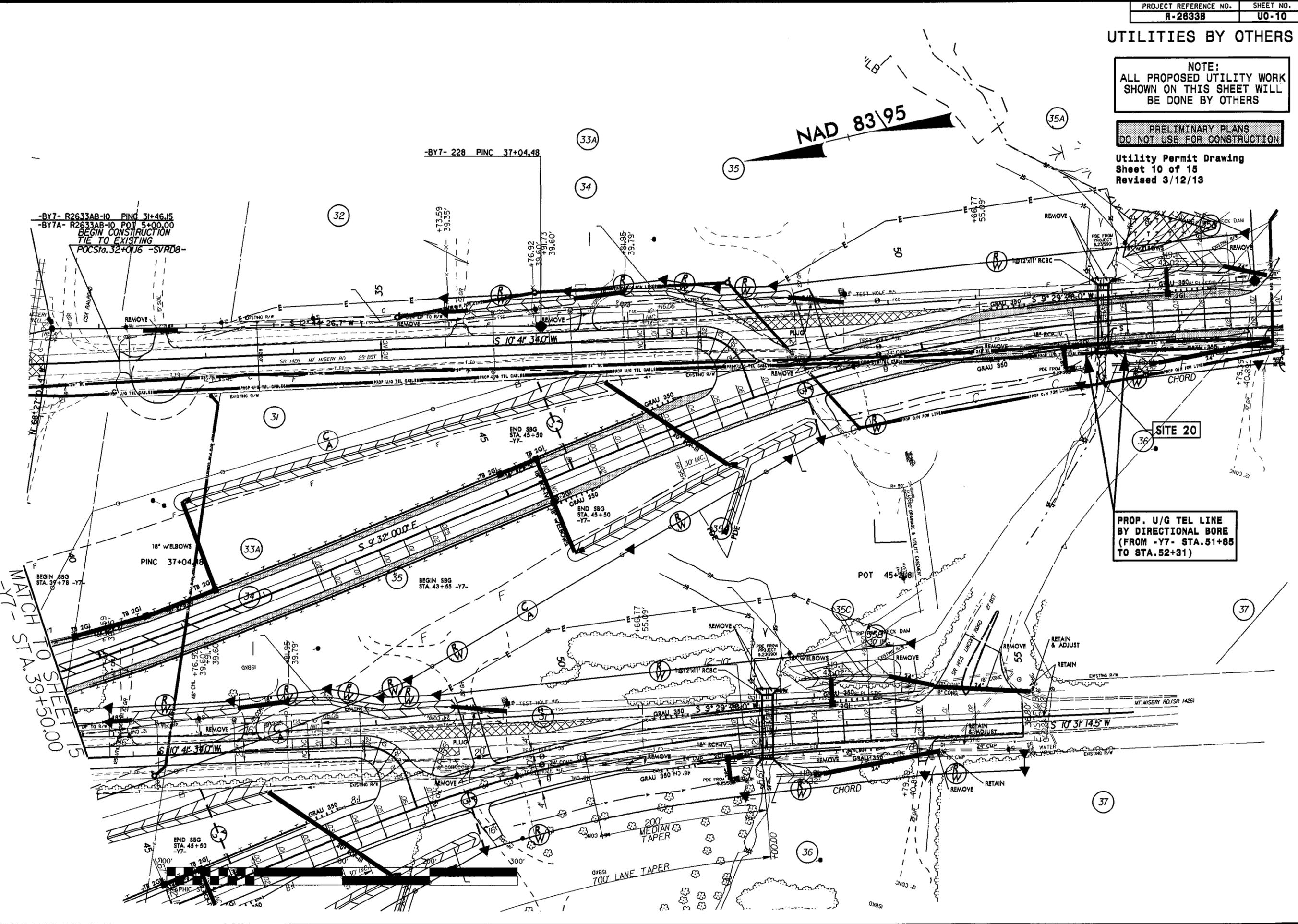
UTILITIES BY OTHERS

NOTE:
ALL PROPOSED UTILITY WORK
SHOWN ON THIS SHEET WILL
BE DONE BY OTHERS

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Utility Permit Drawing
Sheet 10 of 15
Revised 3/12/13

5/14/99
12-MAR-2015 09:22 R2633B-U-37_U010.psh.dgn



-BY7- R2633AB-10 PINC 31+46.15
-BY7A- R2633AB-10 POT 5+00.00
BEGIN CONSTRUCTION
TIE TO EXISTING
POC Sta. 32+01.16 -SVRD8-

-BY7- 228 PINC 37+04.48

NAD 83/95

SITE 20

PROP. U/G TEL LINE
BY DIRECTIONAL BORE
(FROM -Y7- STA. 51+85
TO STA. 52+31)

MATCH TO SHEET
-Y7- STA. 39+50.00

END SBG
STA. 43+50
-Y7-

BEGIN SBG
STA. 43+55
-Y7-

POT 45+48.81

200' MEDIAN TAPER

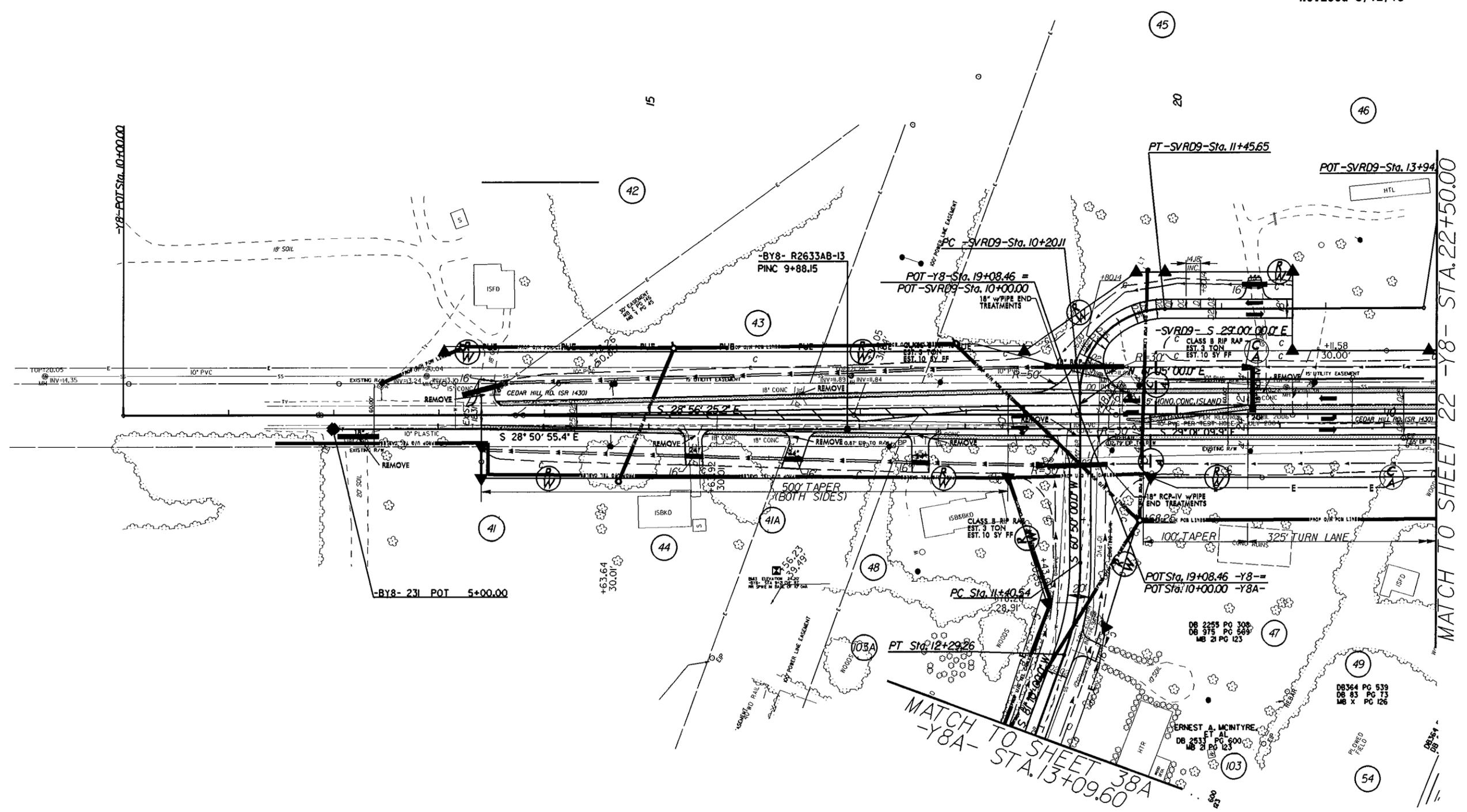
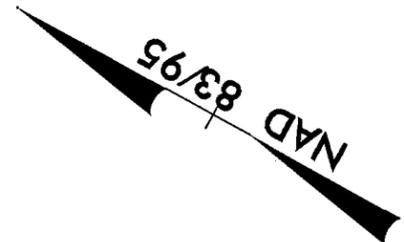
700' LANE TAPER

UTILITIES BY OTHERS

NOTE:
ALL PROPOSED UTILITY WORK
SHOWN ON THIS SHEET WILL
BE DONE BY OTHERS

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Utility Permit Drawing
Sheet 11 of 15
Revised 3/12/13



5/14/99
 12-MAR-2011 08:25 \\R2633B-Ut-38-LU011.psh.dgn

MATCH TO SHEET 22 -Y8- STA.22+50.00

MATCH TO SHEET 38A -Y8A- STA.13+09.60

DB364 PG 539
DB 83 PG 73
MB X PG 126

DB 2255 PG 308
DB 975 PG 649
MB 21 PG 123

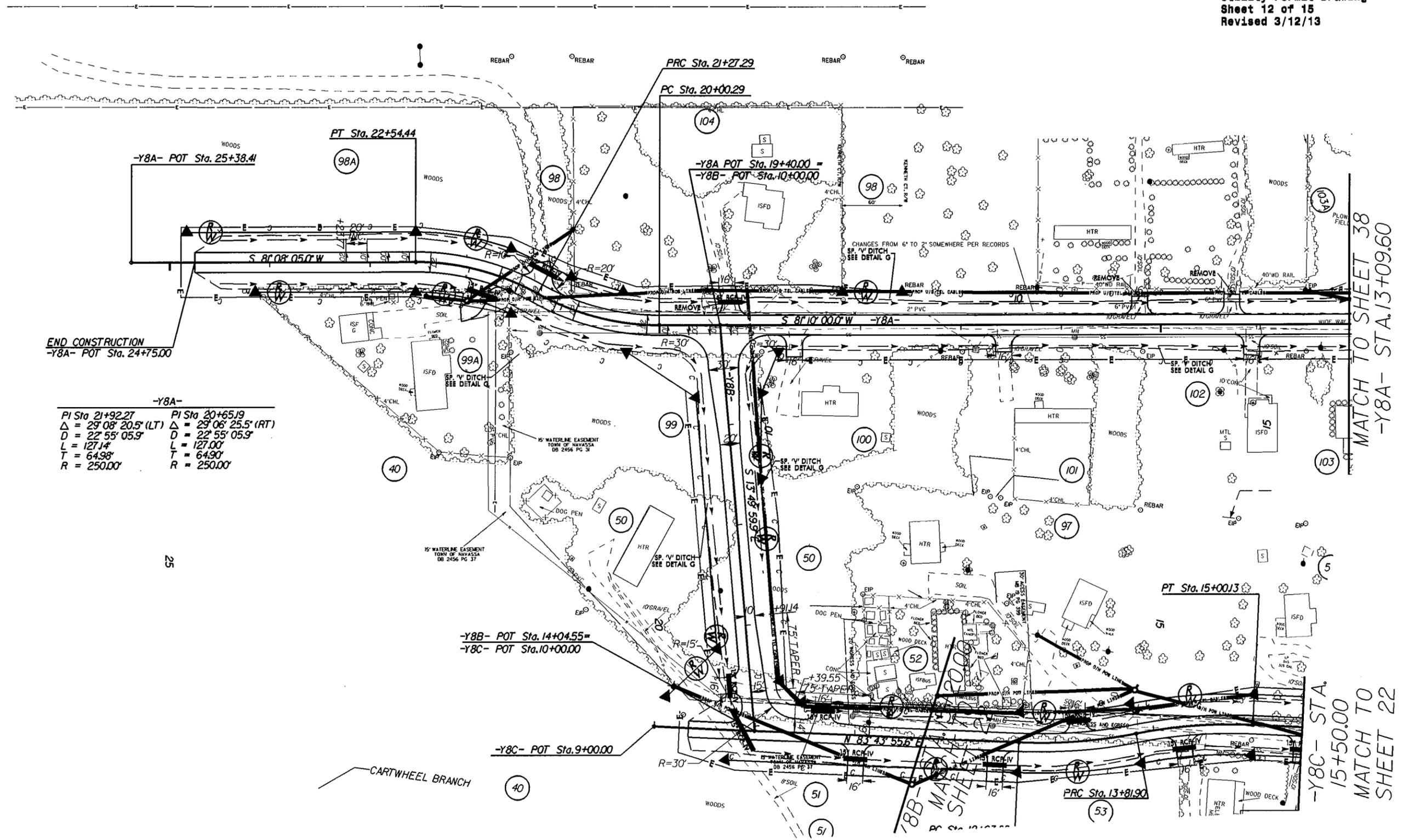
DB 2533 PG 600
MB 21 PG 123

UTILITIES BY OTHERS

NOTE:
ALL PROPOSED UTILITY WORK
SHOWN ON THIS SHEET WILL
BE DONE BY OTHERS

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Utility Permit Drawing
Sheet 12 of 15
Revised 3/12/13



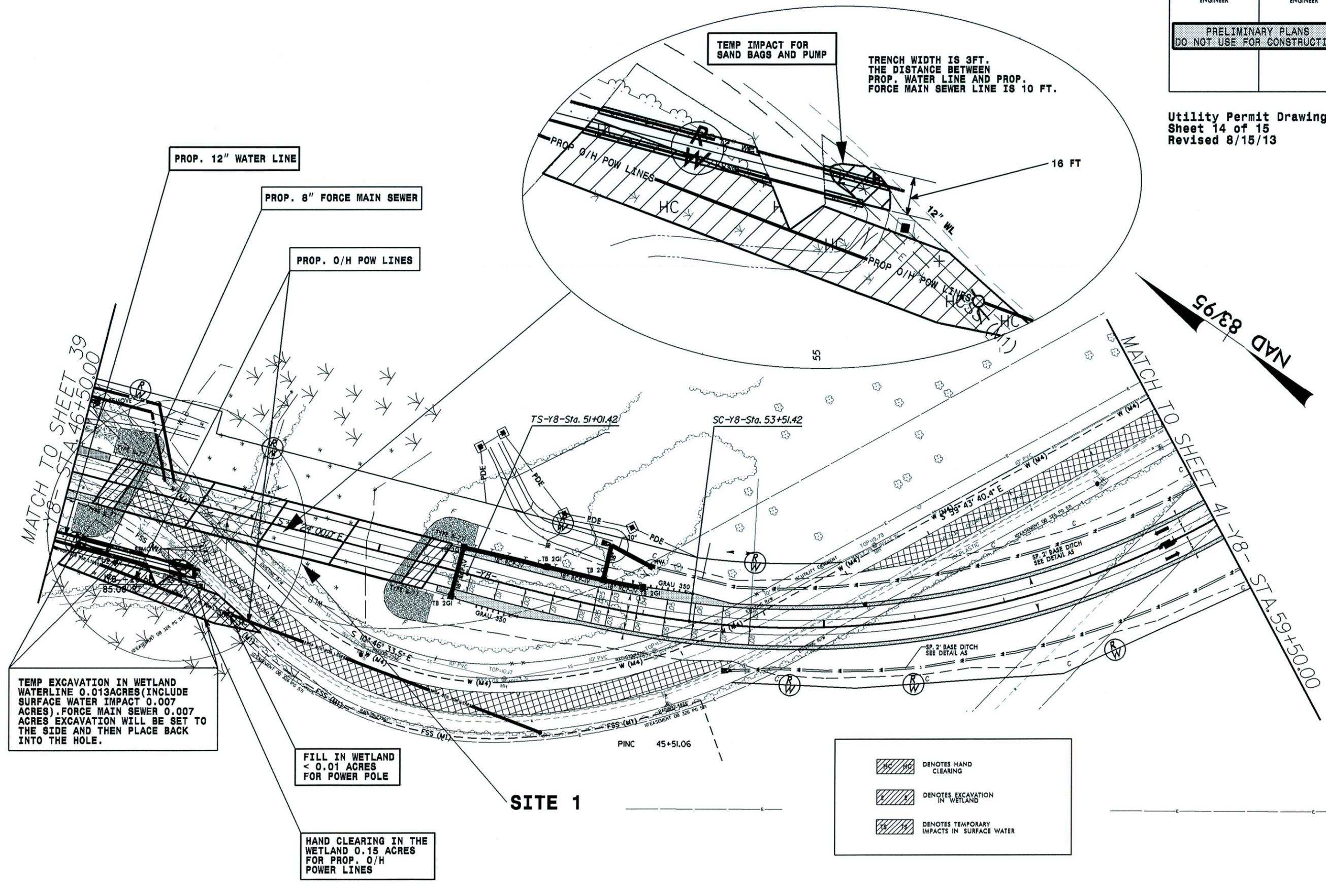
-Y8A-	
PI Sta 21+92.27	PI Sta 20+65.19
$\Delta = 29^{\circ} 08' 20.5''$ (LT)	$\Delta = 29^{\circ} 06' 25.5''$ (RT)
D = 22' 55" 05.9"	D = 22' 55" 05.9"
L = 127.14'	L = 127.00'
T = 64.98'	T = 64.90'
R = 250.00'	R = 250.00'

5/14/99
12-MAR-2013 09:28 R2633B.U0-12.pst.dgn

PROJECT REFERENCE NO. R-2633B	SHEET NO. 40
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

Utility Permit Drawing
Sheet 14 of 15
Revised 8/15/13

8/17/99
 REVISIONS
 R/W REVISION: 03/30/09 - ADDED PARCEL 75 LINCOLN DEVELOPMENT.
 R/W REVISION: 02/11/10 - REVISED R/W ON PARCELS 74 AND 75 TO ACCOMMODATE WORK BRIDGE ALONG PROPOSED STRUCTURE.
 R/W REVISION: 07/11/11 - CHANGED MONUMENT ON PARCEL 40 TO PC-ADDED R/W MONUMENTS ON EXISTING R/W-CHANGED PARCEL 75A TO RODGERS-FAMILY PROPERTIES, LLC DB 2722 PG 0782.
 18-AUG-2013 09:01
 R:\Utility\Wetland\Permit\R-2633B-Wetland\Permit\Drawings\Site\Site1.dwg
 \$\$\$\$FRMAME\$\$\$\$



TEMP EXCAVATION IN WETLAND WATERLINE 0.013 ACRES (INCLUDE SURFACE WATER IMPACT 0.007 ACRES). FORCE MAIN SEWER 0.007 ACRES EXCAVATION WILL BE SET TO THE SIDE AND THEN PLACE BACK INTO THE HOLE.

FILL IN WETLAND < 0.01 ACRES FOR POWER POLE

HAND CLEARING IN THE WETLAND 0.15 ACRES FOR PROP. 0/H POWER LINES

SITE 1

	DENOTES HAND CLEARING
	DENOTES EXCAVATION IN WETLAND
	DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NAD 83/95

MATCH TO SHEET 39
Y8-STA. 46+50.00

MATCH TO SHEET 41
Y8-STA. 59+50.00

TEMP IMPACT FOR SAND BAGS AND PUMP

TRENCH WIDTH IS 3FT. THE DISTANCE BETWEEN PROP. WATER LINE AND PROP. FORCE MAIN SEWER LINE IS 10 FT.

WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS						SURFACE WATER IMPACTS						
			404 Permanent Fill In Wetlands (ac)	CAMA Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	404 Hand Clearing in Wetlands (ac)	CAMA 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	-Y8- 46+60	Prop. O/H Power line							0.15						
	-Y8- 48+58	Prop. Power Pole	<0.01												
	-Y8_ 46+77 ~ 48+10	Prop. Water Line				<0.01*					<0.01*		16		
	-Y8- 46+72 ~ 47+58	Prop. Force Main Sewer				<0.01*									
2	-L- 138+96~141+92	Rig set up of bores 4" gas line							0.83						
	-L- 140+36~140+74	Bell holes for tie-ins 4" gas line				0.02*									
	-L- 140+62~147+63	Equipment Movement							0.48						
	-L- 147+50~147+89	Bell holes for tie-ins 4" gas line				0.02*									
	-L- 147+75~148+80	Weld pipe for bore							0.05						
TOTALS:			<0.01		0.00	0.05	0.00		1.51	0.00	0.00	<0.01	0	16	0.00

* Temporary Excavation
 * Excavation will be set to the side and then place back into the hole.

NC DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 BRUNSWICK AND NEW HANOVER COUNTIES
 WBS - 34491.1.2 (R-2633B)

SHEET *15 of 15*
rev. 8/15/13