



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY PERDUE
GOVERNOR

EUGENE CONTI
SECRETARY

November 23, 2011

MEMORANDUM TO: Mr. Barry Moose, PE
Division 10 Engineer

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

SUBJECT: Mecklenburg County, Charlotte Outer Loop/ I-485;

R-2248 E Federal Aid Project No. NHF-117-1(38)
WBS Element 33410

R-2123 CE Federal Aid Project No. NHF-0485(26)
WBS Element 34379

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

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

cc:

Dr. Gregory J. Thorpe, PhD, PDEA Unit Manager
Mr. Majed Alghandour, P. E., Programming and TIP
Mr. Jay Bennett, P.E., Roadway Design Unit
Mr. Dewayne Sykes, P.E. Utilities Unit
Dr. David Chang, 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
Ms. Teresa Hart, P.E., CPM, Western Region Section Head
Mr. Larry Thompson, RS, PWS, Division Environmental Officer
Mr. Rodger Rochelle, P.E., Transportation Program Management Unit

PROJECT COMMITMENTS

T.I.P. No. R-2123CE
I-485/I-85 Interchange Creation/ Modification
Mecklenburg County
Federal Aid Project No.
WBS Number 34379.1.17

COMMITMENTS FROM PROJECT DEVELOPMENT AND DESIGN

Division 10

The project involves construction activities on, or adjacent to, FEMA-regulated stream(s). Therefore, the Division shall submit sealed as-built construction plans to the Hydraulics Unit, upon completion of project construction, certifying that the drainage structure(s) and roadway embankments are located within the 100-year floodplain were built as shown in the construction plans, both horizontally and vertically.

Division 10, Natural Environment Unit

Utility relocations on Mallard Creek Road, west of I-85, should completely avoid the sunflower populations. If it is not possible, utilities should be directionally bored to reduce impacts on the surrounding populations.

Utilities will be directionally bored, and will avoid all impacts to sunflower populations.

For trees surrounding the sunflower population on Mallard Creek Road, trees should be hand cleared (instead of mechanically cleared) in order to protect and improve sunflower habitat along the south side of Mallard Creek Road.

The clearing limits have changed in the vicinity and impacts have been avoided.

Natural Environment Unit

Prior to construction, or any staging of equipment along Mallard Creek Road west of I-85, NCDOT will place orange “avoidance” fencing around the sunflower populations to avoid impacts to the population.

This commitment has been fulfilled.

During construction resulting in adjacent ground disturbing activities, NCDOT will use native seeding. Future maintenance of the population will be done using standard roadside management techniques adjacent to federally protected plant species.

Hydraulics Unit

The Hydraulics Unit will coordinate with Charlotte-Mecklenburg Storm Water Services for approval of a Conditional Letter of Map Revision (CLOMR) and subsequent final Letter of Map Revision (LOMR). A Mecklenburg Floodplain Development Permit is also anticipated.

Roadway Design Unit

Mallard Creek Road Bridge over I-85: The existing Mallard Creek Road bridge will be replaced to the north with a bridge of sufficient width such that it could be widened in the future to a four-lane section with bike lanes in each direction and sidewalks along both sides as described in the Municipal Agreement provided by MUMPO.

COMMITMENTS FROM PERMITTING

Division 10

All work authorized by this permit must be performed in strict compliance with the attached plans, which are a part of this permit. Any modification to these plans must be approved by the US Army Corps of Engineers (USACE) prior to implementation.

The permittee shall schedule a preconstruction meeting between its representatives, the contractor's representatives, and the Corps of Engineers, Asheville Regulatory Field Office, NCDOT Regulatory Project Manager, prior to any work within jurisdictional waters and wetlands to ensure that there is a mutual understanding of all of the terms and conditions contained within this Department of the Army Permit. The permittee shall provide the USACE, Asheville Regulatory Field Office, NCDOT Regulatory Project Manager, with a copy of the final plans at least two weeks prior to the preconstruction meeting along with a description of any changes that have been made to the project's design, construction methodology or construction timeframe. The permittee shall schedule the preconstruction meeting for a time when the USACE and North Carolina Division of Water Quality (NCDWQ) Project Managers can attend. The permittee shall invite the Corps and NCDWQ Project Managers a minimum of thirty (30) days in advance of the scheduled meeting in order to provide those individuals with ample opportunity to schedule and participate in the required meeting.

Except as authorized by this permit or any USACE approved modification to this permit, no excavation, fill or mechanized land-clearing activities shall take place at any time in the construction or maintenance of this project, within waters or wetlands. This permit does not authorize temporary placement or double handling of excavated or fill material within waters or wetlands outside the permitted area. This prohibition applies to all borrow and fill activities connected with this project.

Except as specified in the plans attached to this permit, no excavation, fill or mechanized land-clearing activities shall take place at any time in the construction or maintenance of this project, in such a manner as to impair normal flows and circulation patterns within waters or wetlands or to reduce the reach of waters or wetlands.

The North Carolina Division of Water Quality has issued a conditioned Water Quality Certification for your project. The conditions of that certification are hereby incorporated as special conditions of this permit. For your convenience, a copy of the certification is attached as Exhibit A. These referenced conditions are hereby incorporated as special conditions of this permit.

All mechanized equipment will be regularly inspected and maintained to prevent contamination of waters and wetlands from fuels, lubricants, hydraulic fluids, or other toxic materials. In the event of a spill of petroleum products or any other hazardous waste, the permittee shall immediately report it to the N.C. Division of Water Quality at (919) 733-5083, Ext. 526 or (800) 662-7956 and provisions of the North Carolina Oil Pollution and Hazardous Substances Control Act will be followed.

The permittee shall advise the Corps in writing prior to beginning the work authorized by this permit and again upon completion of the work authorized by this permit.

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

The permittee shall require its contractors and/or agents to comply with the terms and conditions of this permit in the construction and maintenance of this project, and shall provide each of its contractors and/or agents associated with the construction or maintenance of this project with a copy of this permit. A copy of this permit, including all conditions, shall be available at the project site during construction and maintenance of this project.

The permittee shall employ all sedimentation and erosion control measures necessary to prevent an increase in sedimentation or turbidity within waters and wetlands outside the permit area. This shall include, but is not limited to, the immediate installation of silt fencing or similar appropriate devices around all areas subject to soil disturbance or the movement of earthen fill, and the immediate stabilization of all disturbed areas. Additionally, the project must remain in full compliance with all aspects of the Sedimentation Pollution Control Act of 1973 (North Carolina General Statutes Chapter 113A Article 4).

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

During the clearing phase of the project, heavy equipment must not be operated in surface waters or stream channels. Temporary stream crossings will be used to access the opposite sides of stream channels. All temporary diversion channels and stream crossings will be constructed of non-erodible materials. Grubbing of riparian vegetation will not occur until immediately before construction begins on a given segment of stream channel.

No fill or excavation for the purposes of sedimentation and erosion control shall occur within jurisdictional waters, including wetlands, unless it is included on the plan drawings and specifically authorized by this permit.

The permittee, upon receipt of a notice of revocation of this permit or upon its expiration before completion of the work will, without expense to the United States and in such time and manner as the Secretary of the Army or his authorized representative may direct, restore the water or wetland to its pre-project condition.

Violations of these conditions or violations of Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act must be reported in writing to the Wilmington District U.S. Army Corps of Engineers within 24 hours of the permittee's discovery of the violation.

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

Prior to commencing construction within jurisdictional waters of the United States for any portion of the proposed project, the permittee shall forward the latest version of project construction drawings to the Corps of Engineers, Asheville Regulatory Field Office NCDOT Regulatory Project Manager. Half-size drawings will be acceptable.

Measures will be included in the construction/installation that will promote the safe passage of fish and other aquatic organisms. The dimension, pattern, and profile of the stream above and below a pipe or culvert should not be modified by widening the stream channel or by reducing the depth of the stream in connection with the construction activity. The width, height, and gradient of a proposed opening should be such as to pass the average historical low flow and spring flow without adversely altering flow velocity. Spring flow should be determined from gauge data, if available. In the absence of such data, bank full flow can be used as a comparable level.

Unless otherwise requested in the applicant's application and Merger team meeting notes, culverts greater than 48 inches in diameter will be buried at least one foot below the bed of the stream. Culverts 48 inches in diameter or less shall be buried or placed on the stream bed as practicable and appropriate to maintain aquatic passage, and every effort shall be made to maintain the existing channel slope. The bottom of the culvert must be placed at a depth below the natural stream bottom to provide for passage during drought or low flow conditions. Destabilizing the channel and head cutting upstream should be considered in the placement of the culvert. A waiver from the depth specifications in this condition may be requested in writing. The waiver will be issued if it can be demonstrated that the proposal would result in the least impacts to the aquatic environment.

To ensure that all borrow and waste activities occur on high ground and do not result in the degradation of adjacent wetlands and streams, except as authorized by this permit, the permittee shall require its contractors and/or agents to identify all areas to be used to borrow material, or to dispose of dredged, fill, or waste material. The permittee shall provide the USACE with appropriate maps indicating the locations of proposed borrow or waste sites as soon as the permittee has that information. The permittee will coordinate with the USACE before approving any borrow or waste sites that are within 400 feet of any streams or wetlands.

Compensatory mitigation for the unavoidable impacts to 622 acres of riparian wetlands, 0.42 acres non-riparian wetlands and 6,800 linear feet of stream fill within the Yadkin River Basin; 0.17 acres of riparian wetlands and 551 linear feet of stream fill within the Catawba River Basin associated with R-2248 E and to 0.79 acres of riparian wetlands and 5,639 linear feet of stream fill associated with R-2123 CE shall be provided by the Ecosystem Enhancement Program (EEP), as outlined in the letters dated April 21, 2011 and June 7, 2011 respectively 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 0.34 acres restoration equivalent riparian wetlands and 1,102 linear feet of restoration equivalent warm water stream channel in the Catawba River Basin (Hydrologic Cataloging Unit 03050101) and 16.44 acres equivalent riparian wetlands, 0.84 acres equivalent non-riparian wetlands and 24,878 linear feet of restoration equivalent warm water stream channel in the Yadkin River Basin 03040105 in accordance with Section F of the instrument.

The applicant will implement the recommendations outlined in the US FWS concurrence letter dated March 24, 2010 specifically relating to the R-2123 CE project:

- 1) Place orange fencing around sunflower Units C, D and G in order to avoid equipment staging or storage.
- 2) Avoid completely or directionally bore (instead of trenching) relocated utility lines in the vicinity of Units D and E.
- 3) Clear trees by hand where sunflowers are currently being shaded out in the tree-clearing limits of sunflower Unit A.
- 4) Use NCDOT Roadside Environmental Unit's native seed mix for erosion control along Mallard Creek Road.

Many of the stream impacts on the project result from culvert extensions on either the up or downstream end of an existing pipe with the exception of the installation of new culvert at Permit Site 8. Therefore, DWQ will not require the burial of culverts at Permit Sites 1, 2, 3, 5, 7, 9, 10, 11, 13 and 17. At Permit Site 8, the culvert shall be placed below the elevation of the streambed by one (1) foot for all culverts with a diameter greater than 48 inches, and 20 percent of the culvert diameter for culverts having a diameter less than 48 inches, to allow low flow passage of water and aquatic life. Design and placement of culverts and other structures including temporary erosion control measures shall not be conducted in a manner that may result in dis-equilibrium of wetlands or streambeds or banks, adjacent to or upstream and downstream of the above structures. The applicant is required to provide evidence that the equilibrium is being maintained if requested in writing by NCDWQ. If this condition is unable to be met due to bedrock or other limiting features encountered during construction, please contact NCDWQ for guidance on how to proceed and to determine whether or not a permit modification will be required.

Riprap at the outlets of the 42" RCP and the 48" RCP (Permit Site 2) shall be Class I as indicated on the revised drawings dated and received August 12, 2011 (not Class B as indicated on Detail DO).

Class II riprap shall be used at the confluence of the Permit Site 2 and Permit Site 5 as depicted in Detail LL.

Riprap at the outlet of the 30" RCP, at the inlet of Permit Site 5, shall be placed on the banks only and not in the streambed.

The streams at Permit Sites 7 and 15 will be relocated and rock vanes and j-hooks will be constructed throughout the relocated stream channels. DWQ is requiring that the Division 10 Environmental Officer

and/or Environmental Specialist be present to direct the construction of these structures in the relocated channel. Additionally, coir fiber matting shall be used on all relocated stream banks.

Class I riprap shall be used on the banks at Permit Sites 8 and 11 as indicated on the revised plans received August 12, 2011.

Riprap located at the outlet of the 18" RCP (from the basin) at Permit Site 10 shall be placed on the banks only and be of sufficient size to prevent migration of the riprap into the active stream channel.

Class I riprap shall be used at the outlet of the 30" RCP and embedded in the relocated stream at Permit Site 14 such that low flow of water and aquatic passage are not impeded.

All Class II riprap shall be embedded in the relocated channel at Permit Site 16.

Class II riprap shall be used in lieu of Class B where the ditch ties into the stream at the outlet of Permit Site 17.

DWQ is concerned about the stability of the reinforced slope both during and after construction at the outlet of Permit Site 2, along Stony Creek (a 303d listed stream for impaired ecological/biological integrity). The appropriate erosion control measures must be installed and maintained on this slope in order to prevent sediment deposition in the stream. In addition, tree removal along the banks must be minimized to ensure stream bank stability.

DWQ is concerned about the proximity of the cut slope from the jurisdictional stream depicted on Permit Drawing Sheet 41 of 56 at approximately Station 75. Appropriate construction staging and erosion control measures must be installed and maintained in order to prevent sediment deposition in the stream and/or stream bank failure.

Stream impacts associated with the sewer line relocation at Permit Site 15 shall not exceed those authorized in this certification. If additional impacts are required, this certification must be modified.

Compensatory mitigation for 5,476 linear feet of impact to streams and 0.79 acres of wetlands for Project R-2123CE is required. We understand that the North Carolina Ecosystem Enhancement Program (EEP) has agreed to implement the stream mitigation for the project. EEP has indicated in a letter dated June 7, 2011, that they will assume responsibility for satisfying the federal Clean Water Act compensatory mitigation requirements for the above-referenced project, in accordance with the North Carolina Department of Environment and Natural Resources' Ecosystem Enhancement Program In-Lieu Fee Instrument signed July 28, 2010.

All culverts shall be placed below the elevation of the streambed by one (1) foot for all culverts with a diameter greater than 48 inches, and 20 percent of the culvert diameter for culverts having a diameter less than 48 inches, to allow low flow passage of water and aquatic life. Design and placement of culverts and other structures including temporary erosion control measures shall not be conducted in a manner that may result in dis-equilibrium of wetlands or streambeds or banks, adjacent to or upstream and downstream of the above structures. The applicant is required to provide evidence that the equilibrium is being maintained if requested in writing by NCDWQ. If this condition is unable to be met due to bedrock or other limiting features encountered during construction, please contact NCDWQ for guidance on how to proceed and to determine whether or not a permit modification will be required.

If multiple pipes or barrels are required, they shall be designed to mimic the natural stream cross section as closely as possible, including pipes or barrels at floodplain elevation and/or sills, where appropriate. Widening the stream channel shall be avoided. Stream channel widening at the inlet or outlet end of the

structure(s) typically decreases water velocity causing sediment deposition that requires increased maintenance and disrupts aquatic life passage.

The site shall be graded to its preconstruction contours and revegetated with appropriate native species for the 1,035 linear feet of streams being impacted due to site dewatering activities.

The riprap used for stream bank stabilization, ditchline stabilization along stream banks and floodplain bench construction shall be of sufficient size to prevent migration of the riprap into the active stream channel.

If concrete is used during construction, a dry work area shall be maintained to prevent direct contact between curing concrete and stream water. Water that inadvertently contacts uncured concrete shall not be discharged to surface waters due to the potential for elevated pH and possible aquatic life and fish kills.

During the construction of the project, no staging of equipment of any kind is permitted in waters of the U.S., or protected riparian buffers.

The dimension, pattern and profile of the stream above and below the crossing shall not be modified. Disturbed floodplains and streams shall be restored to natural geomorphic conditions.

The Permittee shall ensure that the final design drawings adhere to the permit and to the permit drawings submitted for approval.

All work in or adjacent to stream waters shall be conducted in a dry work area. Approved BMP measures from the most current version of NCDOT Construction and Maintenance Activities manual such as sandbags, rock berms, cofferdams and other diversion structures shall be used to prevent excavation in flowing water.

Heavy equipment shall be operated from the banks rather than in the stream channel in order to minimize sedimentation and reduce the introduction of other pollutants into the stream.

The permittee and its authorized agents shall conduct its activities in a manner consistent with State water quality standards (including any requirements resulting from compliance with §303(d) of the Clean Water Act) and any other appropriate requirements of State and Federal law. If NCDWQ determines that such standards or laws are not being met (including the failure to sustain a designated or achieved use) or that State or federal law is being violated, or that further conditions are necessary to assure compliance, NCDWQ may reevaluate and modify this certification.

All fill slopes located in jurisdictional wetlands shall be placed at slopes no flatter than 3:1, unless otherwise authorized by this certification.

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

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

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

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

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

Native riparian vegetation must be reestablished in the riparian areas within the construction limits of the project by the end of the growing season following completion of construction.

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

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

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

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

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

PROJECT COMMITMENTS

T.I.P. No. R-2248E
I-485/ Charlotte Outer Loop
from NC 115 (Old Statesville Road) to interchange with I-85
Mecklenburg County
Federal Aid Project NHF-117-1(38)
State Project No. 8.U672206

COMMITMENTS FROM PROJECT DEVELOPMENT AND DESIGN

Project Development and Environmental Analysis Branch:

The three proposed crossroads over I-485 within the project study area, Prosperity Ridge Road, Loganville Road, and relocated Prosperity Church Road, will be included in the overall permit applications for R-2248E. In addition, relocated Johnston-Oehler Road/DeArmon Road and the proposed Ridge Road extension (up to relocated Prosperity Ridge Road), will also be included in the permit application. For all other proposed roads in the study area to be constructed by developers and/or the City of Charlotte, permits will need to be obtained by the developers and/or the City of Charlotte.

This information was provided in the permit application.

Project Development and Environmental Analysis Branch, Roadway Design Unit, Roadside Environmental Unit, and Division 10 Engineer:

In order to provide protection for the Schweinitz's sunflower population (Element Occurrence 224) during construction, the area will be delineated with construction fencing and further protected by identification as an "environmentally sensitive" area on the construction plans. Also, native seeding will be used in the adjacent area, and after construction, the population will be cataloged and managed with mowing restrictions by NCDOT. Fencing will also be erected on the boundary between the plants and the subdivision to prevent unauthorized moving or other disturbance.

The area as already been delineated with the materials as described above.

Hydraulics Unit

The Hydraulics Unit will coordinate with Charlotte-Mecklenburg Storm Water Services for approval of a Conditional Letter of Map Revision (CLOMR) and subsequent final Letter of Map Revision (LOMR).

This process has been completed.

Division 10

This project involves construction activities on or adjacent to FEMA-regulated stream(s). Therefore, the Division shall submit sealed as-built construction plans to the Hydraulics Unit upon completion of project construction, certifying that the drainage structure(s) and roadway embankment that are located within the 100-year floodplain were built as shown in the construction plans, both horizontally and vertically.

COMMITMENTS FROM PERMITTING

Division 10

All work authorized by this permit must be performed in strict compliance with the attached plans, which are a part of this permit. Any modification to these plans must be approved by the US Army Corps of Engineers (USACE) prior to implementation.

The permittee shall schedule a preconstruction meeting between its representatives, the contractor's representatives, and the Corps of Engineers, Asheville Regulatory Field Office, NCDOT Regulatory Project Manager, prior to any work within jurisdictional waters and wetlands to ensure that there is a mutual understanding of all of the terms and conditions contained within this Department of the Army Permit. The permittee shall provide the USACE, Asheville Regulatory Field Office, NCDOT Regulatory Project Manager, with a copy of the final plans at least two weeks prior to the preconstruction meeting along with a description of any changes that have been made to the project's design, construction methodology or construction timeframe. The permittee shall schedule the preconstruction meeting for a time when the USACE and North Carolina Division of Water Quality (NCDWQ) Project Managers can attend. The permittee shall invite the Corps and NCDWQ Project Managers a minimum of thirty (30) days in advance of the scheduled meeting in order to provide those individuals with ample opportunity to schedule and participate in the required meeting.

Except as authorized by this permit or any USACE approved modification to this permit, no excavation, fill or mechanized land-clearing activities shall take place at any time in the construction or maintenance of this project, within waters or wetlands. This permit does not authorize temporary placement or double handling of excavated or fill material within waters or wetlands outside the permitted area. This prohibition applies to all borrow and fill activities connected with this project.

Except as specified in the plans attached to this permit, no excavation, fill or mechanized land-clearing activities shall take place at any time in the construction or maintenance of this project, in such a manner as to impair normal flows and circulation patterns within waters or wetlands or to reduce the reach of waters or wetlands.

The North Carolina Division of Water Quality has issued a conditioned Water Quality Certification for your project. The conditions of that certification are hereby incorporated as special conditions of this (the 404) permit. For your convenience, a copy of the certification is attached as Exhibit A. These referenced conditions are hereby incorporated as special conditions of this permit.

All mechanized equipment will be regularly inspected and maintained to prevent contamination of waters and wetlands from fuels, lubricants, hydraulic fluids, or other toxic materials. In the event of a spill of petroleum products or any other hazardous waste, the permittee shall immediately report it to the N.C. Division of Water Quality at (919) 733-5083, Ext. 526 or (800) 662-7956 and provisions of the North Carolina Oil Pollution and Hazardous Substances Control Act will be followed.

The permittee shall advise the Corps in writing prior to beginning the work authorized by this permit and again upon completion of the work authorized by this permit.

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

The permittee shall require its contractors and/or agents to comply with the terms and conditions of this permit in the construction and maintenance of this project, and shall provide each of its contractors and/or agents associated with the construction or maintenance of this project with a copy of this permit. A copy of this permit, including all conditions, shall be available at the project site during construction and maintenance of this project.

The permittee shall employ all sedimentation and erosion control measures necessary to prevent an increase in sedimentation or turbidity within waters and wetlands outside the permit area. This shall include, but is not limited to, the immediate installation of silt fencing or similar appropriate devices around all areas subject to soil disturbance or the movement of earthen fill, and the immediate stabilization of all disturbed areas. Additionally, the project must remain in full compliance with all aspects of the Sedimentation Pollution Control Act of 1973 (North Carolina General Statutes Chapter 113A Article 4).

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

During the clearing phase of the project, heavy equipment must not be operated in surface waters or stream channels. Temporary stream crossings will be used to access the opposite sides of stream channels. All temporary diversion channels and stream crossings will be constructed of non-erodible materials. Grubbing of riparian vegetation will not occur until immediately before construction begins on a given segment of stream channel.

No fill or excavation for the purposes of sedimentation and erosion control shall occur within jurisdictional waters, including wetlands, unless it is included on the plan drawings and specifically authorized by this permit.

The permittee, upon receipt of a notice of revocation of this permit or upon its expiration before completion of the work will, without expense to the United States and in such time and manner as the Secretary of the Army or his authorized representative may direct, restore the water or wetland to its pre-project condition.

Violations of these conditions or violations of Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act must be reported in writing to the Wilmington District U.S. Army Corps of Engineers within 24 hours of the permittee's discovery of the violation.

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

Prior to commencing construction within jurisdictional waters of the United States for any portion of the proposed project, the permittee shall forward the latest version of project construction drawings to the Corps of Engineers, Asheville Regulatory Field Office NCDOT Regulatory Project Manager. Half-size drawings will be acceptable.

Measures will be included in the construction/installation that will promote the safe passage of fish and other aquatic organisms. The dimension, pattern, and profile of the stream above and below a pipe or culvert should not be modified by widening the stream channel or by reducing the depth of the stream in connection with the construction activity. The width, height, and gradient of a proposed opening should be such as to pass the average historical low flow and spring flow without adversely altering flow velocity. Spring flow should be determined from gauge data, if available. In the absence of such data, bank full flow can be used as a comparable level.

Unless otherwise requested in the applicant's application and Merger team meeting notes, culverts greater than 48 inches in diameter will be buried at least one foot below the bed of the stream. Culverts 48 inches in diameter or less shall be buried or placed on the stream bed as practicable and appropriate to maintain aquatic passage, and every effort shall be made to maintain the existing channel slope. The bottom of the culvert must be placed at a depth below the natural stream bottom to provide for passage during drought or low flow conditions. Destabilizing the channel and head cutting upstream should be considered in the placement of the culvert. A waiver from the depth specifications in this condition may be requested in writing. The waiver will be issued if it can be demonstrated that the proposal would result in the least impacts to the aquatic environment.

To ensure that all borrow and waste activities occur on high ground and do not result in the degradation of adjacent wetlands and streams, except as authorized by this permit, the permittee shall require its contractors and/or agents to identify all areas to be used to borrow material, or to dispose of dredged, fill, or waste material. The permittee shall provide the USACE with appropriate maps indicating the locations of proposed borrow or waste sites as soon as the permittee has that information. The permittee will coordinate with the USACE before approving any borrow or waste sites that are within 400 feet of any streams or wetlands.

Compensatory mitigation for the unavoidable impacts to 622 acres of riparian wetlands, 0.42 acres non-riparian wetlands and 6,800 linear feet of stream fill within the Yadkin River Basin; 0.17 acres of riparian wetlands and 551 linear feet of stream fill within the Catawba River Basin associated with R-2248 E and to 0.79 acres of riparian wetlands and 5,639 linear feet of stream fill associated with R-2123 CE shall be provided by the Ecosystem Enhancement Program (EEP), as outlined in the letters dated April 21, 2011 and June 7, 2011 respectively 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 0.34 acres restoration equivalent riparian wetlands and 1,102 linear feet of restoration equivalent warm water stream channel in the Catawba River Basin (Hydrologic Cataloging Unit 03050101) and 16.44 acres equivalent riparian wetlands, 0.84 acres equivalent non-riparian wetlands and 24,878 linear feet of restoration equivalent warm water stream channel in the Yadkin River Basin 03040105 in accordance with Section F of the instrument.

The applicant will also implement the recommendations outlined in the US FWS concurrence letter dated August 25, 2009. And, in order to further protect the population throughout the project's construction, the population is surrounded by orange safety fencing and clearly marked on the plans. Upon completion of the project, 50 feet of woven wire fencing, centered about the population will be installed to separate the population from the adjacent property lines.

The riprap at Permit Sites 1, 2 and 8 must be embedded such that low flow of water and aquatic passage are not impeded. Additionally, the riprap shall be Class I as indicated on the revised plans received June 9, 2011.

The outfall of the ditch on the upstream side of Permit Site 11 must be Class II riprap as per detail M21 on plans.

Fifty (50) feet of stream is being proposed as mitigation. An existing culvert will be removed from the stream at Permit Site 14, resulting in 50 feet of "daylighted" stream. In order to receive mitigation credit for "daylighting" this stream, the mitigation area must be constructed in accordance with Permit Drawing 8 of 108, revised mitigation/reforestation plans received August 22, 2011. DWQ will not require monitoring for this site, however, DWQ will visit the site periodically upon completion of construction to ensure that the stream buffer is adequate.

Class II riprap shall be provided on the face of the constructed floodplain bench at Permit Site 14 as depicted on the revised plans received June 9, 2011.

Pipes and culverts used exclusively to maintain equilibrium in wetlands, where aquatic life passage is not a concern, shall not be buried. These pipes shall be installed at natural ground elevation.

DWQ is very concerned with potential construction impacts that could adversely affect the Nature Conservancy Site (Sheet 208). NCDOT shall take all necessary precautions (i.e., signage) to avoid direct impacts to this site during construction.

All portions of the proposed project draining to 303(d) listed watersheds that are impaired due to turbidity (Rocky River) shall be designed, constructed, and operated with sediment and erosion control measures that meet Design Standards in Sensitive Watersheds [15A NCAC 48 .0124]. However, due to the size of the project, NC DOT shall not be required to meet 15A NCAC 48 .0124(a) regarding the maximum amount of uncovered acres.

R-2248 E Permit Greensheet
November 2011

All portions of the proposed project draining to 303(d) listed watersheds (Rocky River, Clarks Creek and Stony Creek) that are impaired due to biological criteria exceedances shall not discharge storm water directly to surface waters. Storm water shall be treated using appropriate best management practices (e.g., vegetated conveyances, constructed wetlands, detention ponds, etc.) prior to discharging to surface waters.

No drill slurry or water that has been in contact with uncured concrete shall be allowed to enter surface waters. This water shall be captured, treated and disposed of properly.

Bridge piles and bents shall be constructed using driven piles (hammer or vibratory) or drilled shaft construction methods. More specifically, jetting or other methods of pile driving are prohibited without prior written approval from NCDWQ.

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

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 shall the barges be dragged along the bottom of the surface water.

At Permit Sites 8, 11 and 16, where ponds will be drained, proper measures will be taken to drain the pond with limited impact to upstream and downstream channel stability as well as to native aquatic species. Proper measures will be taken to avoid sediment release and/or sediment accumulation downstream as a result of pond draining. If typical pond draining techniques will create a significant disturbance to native aquatic species, additional measures such as collection and relocation may be necessary to prevent a significant fish kill. NCDOT shall consult with the North Carolina Wildlife Resources staff to determine if there are any sensitive species, and the most appropriate measures to limit impacts to these species. The Permittee shall observe any natural channel re-establishment, or utilize natural channel construction techniques, to ensure that the jurisdictional stream channel above and below the drained pond remain stable and that no additional impacts occur within the natural stream channel as a result of draining the pond.

Compensatory mitigation for 7,364 linear feet of impact to streams and 7.62 acres of wetlands for Project R-22248E is required. We understand that the North Carolina Ecosystem Enhancement Program (EEP) has agreed to implement the stream mitigation for the project. EEP has indicated in a letter dated April 21, 2011, that they will assume responsibility for satisfying the federal Clean Water Act compensatory mitigation requirements for the above-referenced project, in accordance with the North Carolina Department of Environment and Natural Resources' Ecosystem Enhancement Program In-Lieu Fee Instrument signed July 28, 2010.

All culverts shall be placed below the elevation of the streambed by one (1) foot for all culverts with a diameter greater than 48 inches, and 20 percent of the culvert diameter for culverts having a diameter less than 48 inches, to allow low flow passage of water and aquatic life. Design and placement of culverts and other structures including temporary erosion control measures shall not be conducted in a manner that may result in dis-equilibrium of wetlands or streambeds or banks, adjacent to or upstream and downstream of the above structures. The applicant is required to provide evidence that the equilibrium is being maintained if requested in writing by NCDWQ. If this condition is unable to be met due to bedrock or other limiting features encountered during construction, please contact NCDWQ for guidance on how to proceed and to determine whether or not a permit modification will be required.

R-2248 E Permit Greensheet
November 2011

If multiple pipes or barrels are required, they shall be designed to mimic the natural stream cross section as closely as possible, including pipes or barrels at floodplain elevation and/or sills, where appropriate. Widening the stream channel shall be avoided. Stream channel widening at the inlet or outlet end of the structure(s) typically decreases water velocity causing sediment deposition that requires increased maintenance and disrupts aquatic life passage.

The site shall be graded to its preconstruction contours and revegetated with appropriate native species for the 1,035 linear feet of streams being impacted due to site dewatering activities.

The riprap used for stream bank stabilization, ditchline stabilization along stream banks and floodplain bench construction shall be of sufficient size to prevent migration of the riprap into the active stream channel.

If concrete is used during construction, a dry work area shall be maintained to prevent direct contact between curing concrete and stream water. Water that inadvertently contacts uncured concrete shall not be discharged to surface waters due to the potential for elevated pH and possible aquatic life and fish kills.

During the construction of the project, no staging of equipment of any kind is permitted in waters of the U.S., or protected riparian buffers.

The dimension, pattern and profile of the stream above and below the crossing shall not be modified. Disturbed floodplains and streams shall be restored to natural geomorphic conditions.

The Permittee shall ensure that the final design drawings adhere to the permit and to the permit drawings submitted for approval.

All work in or adjacent to stream waters shall be conducted in a dry work area. Approved BMP measures from the most current version of NCDOT Construction and Maintenance Activities manual such as sandbags, rock berms, cofferdams and other diversion structures shall be used to prevent excavation in flowing water.

The permittee and its authorized agents shall conduct its activities in a manner consistent with State water quality standards (including any requirements resulting from compliance with §303(d) of the Clean Water Act) and any other appropriate requirements of State and Federal law. If NCDWQ determines that such standards or laws are not being met (including the failure to sustain a designated or achieved use) or that State or federal law is being violated, or that further conditions are necessary to assure compliance, NCDWQ may reevaluate and modify this certification.

All fill slopes located in jurisdictional wetlands shall be placed at slopes no flatter than 3: 1, unless otherwise authorized by this certification.

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

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

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

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

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

Native riparian vegetation must be reestablished in the riparian areas within the construction limits of the project by the end of the growing season following completion of construction.

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

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

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

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

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

DEPARTMENT OF THE ARMY PERMIT

Permittee **North Carolina Department of Transportation**

Permit No. **SAW-2011-01237**

Issuing Office **CESAW-RG-A**

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

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

Project Description: to impact jurisdictional waters of the U.S. in order to facilitate the completion of the North Charlotte Outer Loop (I-485, R-2248 E) and the I-485/I-85 interchange modification (R-2123 CE) in Mecklenburg and Cabarrus Counties, North Carolina. Permanent impacts include 14,155 linear feet of stream channel and 7.64 acres of wetlands. Temporary impacts total 1,035 linear feet of stream channel and 0.05 acre wetland. Impacts to jurisdictional waters of the U.S. are associated with the construction and installation of culverts, pipes, wingwalls, roadway fill, temporary work bridges, bridge construction, mechanized land clearing, and bank stabilization.

Project Location: North Charlotte Outer Loop (I-485, R-2248 E) and the I-485/I-85 interchange modification (R-2123 CE) in Mecklenburg and Cabarrus Counties, North Carolina

Permit Conditions:

General Conditions:

1. The time limit for completing the work authorized ends on **December 31, 2016**. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.
2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.
3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.
5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.
6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit,

Special Conditions:

SEE ATTACHED SPECIAL CONDITIONS

Further Information:

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

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

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

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

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

E. L. Lusk for Gregory J. Thorne, PhD 11-18-11
 (PERMITEE) **North Carolina Department of Transportation** (DATE)

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

M. Scott Jones for STEVEN A. BAKER, COL 22 NOV 2011
 (DISTRICT COMMANDER) **STEVEN A. BAKER** (DATE)
COLONEL

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

 (TRANSFEEE) (DATE)

SPECIAL CONDITIONS
Action ID: SAW-2011-01237

Work Limits

a) All work authorized by this permit must be performed in strict compliance with the attached plans, which are a part of this permit. Any modification to these plans must be approved by the US Army Corps of Engineers (USACE) prior to implementation.

b) The permittee shall schedule a preconstruction meeting between its representatives, the contractor's representatives, and the Corps of Engineers, Asheville Regulatory Field Office, NCDOT Regulatory Project Manager, prior to any work within jurisdictional waters and wetlands to ensure that there is a mutual understanding of all of the terms and conditions contained within this Department of the Army Permit. The permittee shall provide the USACE, Asheville Regulatory Field Office, NCDOT Regulatory Project Manager, with a copy of the final plans at least two weeks prior to the preconstruction meeting along with a description of any changes that have been made to the project's design, construction methodology or construction timeframe. The permittee shall schedule the preconstruction meeting for a time when the USACE and North Carolina Division of Water Quality (NCDWQ) Project Managers can attend. The permittee shall invite the Corps and NCDWQ Project Managers a minimum of thirty (30) days in advance of the scheduled meeting in order to provide those individuals with ample opportunity to schedule and participate in the required meeting.

c) Except as authorized by this permit or any USACE approved modification to this permit, no excavation, fill or mechanized land-clearing activities shall take place at any time in the construction or maintenance of this project, within waters or wetlands. This permit does not authorize temporary placement or double handling of excavated or fill material within waters or wetlands outside the permitted area. This prohibition applies to all borrow and fill activities connected with this project.

d) Except as specified in the plans attached to this permit, no excavation, fill or mechanized land-clearing activities shall take place at any time in the construction or maintenance of this project, in such a manner as to impair normal flows and circulation patterns within waters or wetlands or to reduce the reach of waters or wetlands.

Related Laws

f) The North Carolina Division of Water Quality has issued a conditioned Water Quality Certification for your project. The conditions of that certification are hereby incorporated as special conditions of this permit. For your convenience, a copy of the certification is attached as Exhibit A. These referenced conditions are hereby incorporated as special conditions of this permit.

g) All mechanized equipment will be regularly inspected and maintained to prevent contamination of waters and wetlands from fuels, lubricants, hydraulic fluids, or other toxic materials. In the event of a spill of petroleum products or any other hazardous waste, the

permittee shall immediately report it to the N.C. Division of Water Quality at (919) 733-5083, Ext. 526 or (800) 662-7956 and provisions of the North Carolina Oil Pollution and Hazardous Substances Control Act will be followed.

Project Maintenance

h) The permittee shall advise the Corps in writing prior to beginning the work authorized by this permit and again upon completion of the work authorized by this permit.

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

j) The permittee shall require its contractors and/or agents to comply with the terms and conditions of this permit in the construction and maintenance of this project, and shall provide each of its contractors and/or agents associated with the construction or maintenance of this project with a copy of this permit. A copy of this permit, including all conditions, shall be available at the project site during construction and maintenance of this project.

k) The permittee shall employ all sedimentation and erosion control measures necessary to prevent an increase in sedimentation or turbidity within waters and wetlands outside the permit area. This shall include, but is not limited to, the immediate installation of silt fencing or similar appropriate devices around all areas subject to soil disturbance or the movement of earthen fill, and the immediate stabilization of all disturbed areas. Additionally, the project must remain in full compliance with all aspects of the Sedimentation Pollution Control Act of 1973 (North Carolina General Statutes Chapter 113A Article 4).

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

m) During the clearing phase of the project, heavy equipment must not be operated in surface waters or stream channels. Temporary stream crossings will be used to access the opposite sides of stream channels. All temporary diversion channels and stream crossings will be constructed of non-erodible materials. Grubbing of riparian vegetation will not occur until immediately before construction begins on a given segment of stream channel.

n) No fill or excavation for the purposes of sedimentation and erosion control shall occur within jurisdictional waters, including wetlands, unless it is included on the plan drawings and specifically authorized by this permit.

o) The permittee, upon receipt of a notice of revocation of this permit or upon its expiration before completion of the work will, without expense to the United States and in such time and manner as the Secretary of the Army or his authorized representative may direct, restore the water or wetland to its pre-project condition.

Enforcement

- p) Violations of these conditions or violations of Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act must be reported in writing to the Wilmington District U.S. Army Corps of Engineers within 24 hours of the permittee's discovery of the violation.
- q) The permittee will ensure that the construction design plans for this project do not deviate from the permit plans attached to this authorization. Written verification shall be provided that the final construction drawings comply with the attached permit drawings prior to any active construction in waters of the United States, including wetlands. Any deviation in the construction design plans will be brought to the attention of the Corps of Engineers, Asheville Regulatory Field Office prior to any active construction in waters or wetlands.
- r) Prior to commencing construction within jurisdictional waters of the United States for any portion of the proposed project, the permittee shall forward the latest version of project construction drawings to the Corps of Engineers, Asheville Regulatory Field Office NCDOT Regulatory Project Manager. Half-size drawings will be acceptable.
- s) Measures will be included in the construction/installation that will promote the safe passage of fish and other aquatic organisms. The dimension, pattern, and profile of the stream above and below a pipe or culvert should not be modified by widening the stream channel or by reducing the depth of the stream in connection with the construction activity. The width, height, and gradient of a proposed opening should be such as to pass the average historical low flow and spring flow without adversely altering flow velocity. Spring flow should be determined from gauge data, if available. In the absence of such data, bankfull flow can be used as a comparable level.
- t) Unless otherwise requested in the applicant's application and Merger team meeting notes, culverts greater than 48 inches in diameter will be buried at least one foot below the bed of the stream. Culverts 48 inches in diameter or less shall be buried or placed on the stream bed as practicable and appropriate to maintain aquatic passage, and every effort shall be made to maintain the existing channel slope. The bottom of the culvert must be placed at a depth below the natural stream bottom to provide for passage during drought or low flow conditions. Destabilizing the channel and head cutting upstream should be considered in the placement of the culvert. A waiver from the depth specifications in this condition may be requested in writing. The waiver will be issued if it can be demonstrated that the proposal would result in the least impacts to the aquatic environment.
- u) To ensure that all borrow and waste activities occur on high ground and do not result in the degradation of adjacent wetlands and streams, except as authorized by this permit, the permittee shall require its contractors and/or agents to identify all areas to be used to borrow material, or to dispose of dredged, fill, or waste material. The permittee shall provide the USACE with appropriate maps indicating the locations of proposed borrow or waste sites as soon as the permittee has that information. The permittee will coordinate with the USACE before approving any borrow or waste sites that are within 400 feet of any streams or wetlands.

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

Mitigation

w) Compensatory mitigation for the unavoidable impacts to 6.22 acres of riparian wetlands, 0.42 acres non-riparian wetlands and 6,800 linear feet of stream fill within the Yadkin River Basin; 0.17 acres of riparian wetlands and 551 linear feet of stream fill within the Catawba River Basin associated with R-2248 E and to 0.79 acres of riparian wetlands and 5,639 linear feet of stream fill associated with R-2123 CE shall be provided by the Ecosystem Enhancement Program (EEP), as outlined in the letters dated April 21, 2011 and June 7, 2011 respectively 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 0.34 acres restoration equivalent riparian wetlands and 1,102 linear feet of restoration equivalent warm water stream channel in the Catawba River Basin (Hydrologic Cataloging Unit 03050101) and 16.44 acres equivalent riparian wetlands, 0.84 acres equivalent non-riparian wetlands and 24,878 linear feet of restoration equivalent warm water stream channel in the Yadkin River Basin 03040105 in accordance with Section F of the instrument.

x) The applicant will implement the recommendations outlined in the US FWS concurrence letter dated March 24, 2010 specifically relating to the R- 2123 CE project:

1. Place orange fencing around sunflower Units C, D, and G in order to avoid equipment staging or storage
2. Avoid completely or directionally bore (instead of trenching) relocated utility lines in the vicinity of Units D and E.
3. Clear trees by hand where sunflowers are currently being shaded out in the tree-clearing limits of sunflower Unit A.
4. Use NCDOT Roadside Environmental Unit's native seed mix for erosion control along Mallard Creek Road.

y) The applicant will also implement the recommendations outlined in the US FWS concurrence letter dated August 25, 2009. And, in order to further protect the population throughout the project's construction, the population is surrounded by orange safety fencing and clearly marked on the plans. Upon completion of the project, 50 feet of woven wire fence, centered about the population will be installed to separate the population from the adjacent property lines.

Action Id.: 2011-01237

This delineation/determination has been conducted to identify the limits of COE's Clean Water Act jurisdiction for the particular site identified in this request. The delineation/determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985. If you or your tenant are USDA Program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service, prior to starting work.

Placement of dredged or fill material within waters of the US and/or wetlands without a Department of the Army permit may constitute a violation of Section 301 of the Clean Water Act (33 USC § 1311). If you have any questions regarding this determination and/or the Corps regulatory program, please contact **Liz Hair** at **828-271-7980**.

C. Basis For Determination

The site contains wetlands as determined by the USACE 1987 Wetland Delineation Manual and is adjacent to stream channels located on the property that exhibit indicators of ordinary high water marks. The stream channels on the property is are known as Stony Creek and its UT's, Rocky River and its UT's, UT to Dixon Branch, Clarks Creek and UT's, UT to Rocky River which flows into the Cataba River (TNW) and Yadkin-Pee Dee River (TNW).

D. Remarks

E. Attention USDA Program Participants

This delineation/determination has been conducted to identify the limits of Corps' Clean Water Act jurisdiction for the particular site identified in this request. The delineation/determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985. If you or your tenant are USDA Program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service, prior to starting work.

F. Appeals Information (This information applies only to approved jurisdictional determinations as indicated in B. above)

This correspondence constitutes an approved jurisdictional determination for the above described site. If you object to this determination, you may request an administrative appeal under Corps regulations at 33 CFR Part 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet and request for appeal (RFA) form. If you request to appeal this determination you must submit a completed RFA form to the following address:

US Army Corps of Engineers
South Atlantic Division
Attn: Jason Steele, Review Officer
60 Forsyth Street SW, Room 10M15
Atlanta, Georgia 30303-8801

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR part 331.5, and that it has been received by the Division Office within 60 days of the date of the NAP. Should you decide to submit an RFA form, it must be received at the above address by January 16, 2012.

It is not necessary to submit an RFA form to the Division Office if you do not object to the determination in this correspondence.

Corps Regulatory Official: Liz Hair **HAIR.SARAH.E**
A.1054693512

Digitally signed by HAIR.SARAH.E
A.1054693512
DN: c=US, o=U.S. Government,
ou=DoD, ou=PKI, ou=USA,
cn=HAIR.SARAH.E.A.1054693512
Date: 2011.11.16 16:27:23 -05'00'

Issue Date: November 16, 2011

Expiration Date: November 16, 2016

The Wilmington District is committed to providing the highest level of support to the public. To help us ensure we continue to do so, please complete the attached customer Satisfaction Survey or visit <http://per2.nwp.usace.army.mil/survey.html> to complete the survey online.



North Carolina Department of Environment and Natural Resources
Division of Water Quality

Beverly Eaves Perdue
Governor

Coleen H. Sullins
Director

Dee Freeman
Secretary

October 14, 2011

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

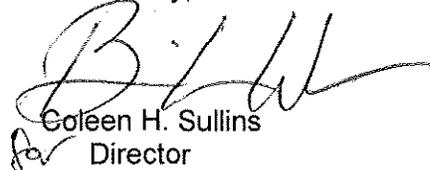
Subject: 401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water Act with Additional Conditions for the Proposed Construction of the Charlotte Outer Loop (I-485) between NC 115 and the I-85 Interchange and I-85/I-485 Interchange Modification Mecklenburg County, TIP No.s R-2248E and R-2123CE, WBS Element No.s 34410.3.GV2 and 34379.1.17, NCDWQ Project No. 11-0431

Dear Dr. Thorpe:

Attached hereto is a copy of Certification No. 3868 issued to The North Carolina Department of Transportation (NCDOT) dated October 14, 2011.

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

Sincerely,



Coleen H. Sullins
Director

Attachments

cc: Sarah Hair, US Army Corps of Engineers, Asheville Field Office
Chris Militscher, Environmental Protection Agency (electronic copy only)
Marla Chambers, NC Wildlife Resources Commission (electronic copy only)
Marella Buncick, US Fish and Wildlife Service (electronic copy only)
William Gilmore, Ecosystem Enhancement Program
Michael Turchy, NCDOT PDEA
Larry Thompson, NCDOT Division 10 Environmental Officer
Sonia Carrillo, NCDWQ Transportation Permitting Unit
Polly Lespinasse, NCDWQ Mooresville Regional Office
Brian Wrenn, NCDWQ Transportation Permitting Unit
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Mooresville Regional Office
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**401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water Act with
ADDITIONAL CONDITIONS**

THIS CERTIFICATION is issued in conformity with the requirements of Section 401 Public Laws 92-500 and 95-217 of the United States and subject to the North Carolina Division of Water Quality (NCDWQ) Regulations in 15 NCAC 2H .0500. This certification authorizes the NCDOT to **permanently impact** 14,134 linear feet of jurisdictional streams, 8.14 acres of jurisdictional wetlands, and **temporarily impact** 1,035 linear feet of streams and 0.66 acres of jurisdictional wetlands in Mecklenburg County. The project shall be constructed pursuant to the applications received May 6, 2011, June 8, 2011, and additional information received electronically on June 6, 2011, August 12, 2011, August 25, 2011, and September 1, 2011. The authorized impacts are as described below:

Stream Impacts in the Catawba River Basin R-2248E

Permit Site No. / Station No.s	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)
Site 1/Station -L- (1259+00/1260+50)	297 lf (culvert)				297 lf	179 lf*
Site 2/Station -L- 1266+00/1266+50)	602 lf (culvert)				602 lf	372 lf**
Total	899 lf	0	0	0	899 lf	551 lf

*Mitigation for 118 lf previously provided under TIP No. R-2248D leaving 179 lf requiring mitigation.

**Mitigation for 230 lf previously provided under TIP No. R-2248D leaving 372 lf requiring mitigation.

Total Stream Impacts for Catawba River Basin: 899 linear feet

Stream Impacts in the Yadkin-Pee Dee River Basin R-2248E

Permit Site No. / Station No.s	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)
Site 3/Station -Y10- (65+50)			72 lf (48 lf for culvert, 24 lf for bank stabilization)	38 lf	110 lf	0
Site 4/Station -L- (1297+00/1299+50)			497 lf (428 for culvert, 69 lf for bank stabilization)	8 lf	505 lf	497 lf
Site 5/Station -L- (1342+00/1343+00)			545 lf (489 lf for culvert, 56 lf for bank stabilization)	184 lf	729 lf	545 lf
Site 6/Station -L- (1345+00)			312 lf (276 lf for culvert, 36 lf for bank stabilization)	96 lf	408 lf	312 lf
Site 7/Station -L- (1355+00/1367+00)	46 lf for culvert		1,515 lf (1,494 lf for culvert and 21 lf bank stabilization)	127 lf	1,688 lf	1,561 lf
Site 8/Station -L- (1390+00/1415+00)	835 lf for culvert		1,690 lf (1,662 lf for culvert and 28 lf bank stabilization)	56 lf	2,581 lf	2,525 lf

Site 9/Station -L- (1421+00)	118 lf (81 lf for culvert, 37 lf for bank stabilization)	8 lf			126 lf	0
Site 10/Station -L- (1441+00)	95 lf (44 lf for culvert, 51 lf for bank stabilization)	18 lf			113 lf	0
Site 11/Station -L- (1465+00/1476+00)			138 lf for culvert	48 lf	186 lf	0
Site 14/Station -L- (1486+00/1495+00) and -Y25-(23+23)	838 lf (803 lf for culvert, 35 lf for bank stabilization)	91 lf			929 lf	838 lf
Site 15/Station - Y22-(86+00/90+00)	97 lf for culvert	21 lf	248 lf (198 lf for culvert and 50 lf bank stabilization)		366 lf	345 lf
Site 16/Station -L- (1526+20/1526+45)	190 lf (30 lf for culvert and 160 lf for stream stabilization)				190 lf	190 lf
Total	2,219 lf	138 lf	5,017 lf	557 lf	7,931 lf	6,813 lf

Total Stream Impacts for Yadkin-Pee Dee River Basin (R-2248E): 7,931 linear feet

Stream Impacts in the Yadkin-Pee Dee River Basin R-2123CE

Permit Site No. / Station No.s	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)
Site 1/Station RPG 28+00 RT			49 lf for culvert		49 lf	0
Site 2/Station L83+50CL RPF 33+80 RT			1,132 (1,069 lf for culvert, 63 lf for bank stabilization)	47 lf	1,179 lf	1,132 lf
Site 3/Station L 80+50 RT			239 lf for culvert		239 lf	239 lf
Site 5/Station Y 71+00 RT & LT			651 lf (456 lf for culvert, 195 lf for bank stabilization)	27 lf	678 lf	651 lf
Site 6/Station RPB 28+00 RT & LT			80 lf for bank stabilization	92 lf	172 lf	0
Site 7/Station PG 28+20 RT RPF 56+95 L	1,461 lf for culvert	37 lf			1,498 lf	1,461 lf
Site 8/Station RPE 67+75 CL	280 lf for culvert	11 lf			291 lf	280 lf
Site 9/Station RPE 68+00 CL	147 lf for culvert	16 lf			163 lf	0
Site 10/Station L 98+00 LT	286 lf (276 lf for culvert, 10 lf for bank stabilization)	20 lf			306 lf	286 lf
Site 11/Station L 100+50 LT	55 lf (45 lf for culvert, 10 lf for bank stabilization)	11 lf			66 lf	0

*Site 12/Station Y 61+00 LT	151 lf for stream relocation				151 lf	151 lf
Site 13/Station Y 62+50 RT			48 lf for culvert		48 lf	0
*Site 14/Station Y 61+40-66+75 LT			554 lf for stream relocation	20 lf	574 lf	554 lf
*Site 15/Station Y 69+00 LT			198 lf for stream relocation	10 lf	208 lf	198 lf
*Site 16/Station Y 131+50-135+60 RT			524 lf for stream relocation	23 lf	547 lf	524 lf
Site 17/Station Y 148+00 LT & RT			144 lf (62 lf for culvert, 82 lf for bank stabilization)	26 lf	170 lf	0
Total	2,380 lf	95 lf	3,619 lf	245 lf	6,339 lf	5,476 lf

*Note: These stream relocations are not eligible for mitigation credit.

Total Stream Impacts for Yadkin-Pee Dee River Basin (R-2123CE): 6,339 linear feet

Total Stream Impacts for Yadkin-Pee Dee River Basin (R-2248E and R-2123CE): 14,270 linear feet
Total Stream Impacts for both R-2248E and R2123CE (Catawba and Yadkin-Pee Dee River Basins):
15,169 linear feet

Wetland Impacts in the Catawba River Basin (Riverine) R-2248E

Permit Site No./ Station No.s	Permanent Fill/Excavation/ Clearing Impacts (ac)	Temporary Impacts (ac)	Total Wetland Impact (ac)	Wetland Impacts Requiring Mitigation (ac)
Site 1/Station -L- (1259+00/1260+50)	0.39 ac (fill), 0.02 ac (clearing)		0.41 ac	0.11 ac*
Site 2/Station -L- (1266+00/1266+50)	0.22 ac (fill), 0.03 ac (clearing)		0.25 ac	0.06 ac**
Total	0.66 ac	0	0.66 ac	0.17 ac

*Mitigation for 0.30 ac previously provided under TIP No. R-2248D leaving 0.11 ac requiring mitigation.

**Mitigation for 0.19 ac previously provided under TIP No. R-2248D leaving 0.06 ac requiring mitigation.

Total Wetland Impacts for Catawba River Basin: 0.66 acres

Wetland Impacts in the Yadkin-Pee Dee River Basin (Riverine) R-2248E

Permit Site No./ Station No.s	Permanent Fill/Excavation/ Clearing Impacts (ac)	Temporary Impacts (ac)	Total Wetland Impact (ac)	Wetland Impacts Requiring Mitigation (ac)
Site 3/Station -Y10- (65+50)	0.03 ac (0.02 ac. fill, 0.01 ac clearing)		0.03 ac	0.03 ac

Site 4/Station -L- (1297+00/1299+50)	0.63 ac (0.51 fill, 0.04 excavation, 0.08 ac clearing)		0.63 ac	0.63 ac
Site 5/Station -L- (1342+00/1343+00)	0.12 ac (fill)		0.12 ac	0.12 ac
Site 7/Station -L- (1355+00/1367+00)	1.78 ac (1.72 ac fill in 4 separate wetlands, 0.06 ac clearing in 1 wetland)		1.78 ac	1.78 ac
Site 8/Station -L- (1390+00/1415+00)	1.06 ac (fill in 2 separate wetlands)		1.06 ac	1.06 ac
Site 11/Station -L- (1465+00/1476+00)	0.14 ac (fill)		0.14 ac	0.14 ac
Site 12/Station -Y22- (54+00/60)	1.80 ac (1.64 ac fill, 0.16ac clearing)	0.66 ac (0.05 ac temporary fill and 0.61 ac hand clearing)	2.46 ac	2.50 ac
Site 14/Station -L- (1486+00/1495+00) and - Y25- (23+23)	0.62 ac (fill in 2 separate wetlands)		0.62 ac	0.62ac
Site 15/Station -Y22- (86+00/90+00)	0.09 acre (0.08 ac fill, 0.01 ac clearing)		0.09	0.09 ac
Total	6.27 ac	0.66 ac	6.93 ac	6.27 ac

Total Wetland Impacts for Yadkin-Pee Dee River Basin (Riverine): 6.93 acres

Wetland Impacts in the Yadkin-Pee Dee River Basin (Non-Riverine and Isolated) R-2248E

Permit Site No./ Station No.s	Permanent Fill/Excavation/ Clearing Impacts (ac)	Temporary Impacts (ac)	Total Wetland Impact (ac)	Wetland Impacts Requiring Mitigation (ac)
Site 12/Station -Y22- (54+00/60+00)	0.05 ac (fill)		0.05 ac	0.05 ac
Site 13/Station -Y20- (41+00/48+00)	0.34 ac (0.31 ac fill in 3 separate wetlands, 0.03 ac clearing)		0.34 ac	0.34 ac
Site 16/Station -L- (1526+20/1526+45)	0.03 ac (fill)		0.03 ac	0.03 ac
Total	0.42 ac	0	0.42 ac	0.42 ac

Total Wetland Impacts for Yadkin-Pee Dee River Basin (Non-Riverine and Isolated): 0.42 acres

Total Wetland Impacts (Riverine and Non-Riverine) for the Yadkin-Pee Dee River Basin (R-2248E): 8.01 acres

Wetland Impacts in the Yadkin-Pee Dee River Basin (Riverine) R-2123CE

Permit Site No./ Station No.s	Permanent Fill/Excavation/ Clearing Impacts (ac)	Temporary Impacts (ac)	Total Wetland Impact (ac)	Wetland Impacts Requiring Mitigation (ac)
Site 2/Station L 83+50CL RPF 33+80 RT	0.04 ac (fill)		0.04 ac	0.04 ac
Site 4/Station RPH 70+00 RT	0.72 ac (fill)		0.72 ac	0.72 ac
Site 10/Station L 98+00 LT	0.02 ac (fill)		0.02 ac	0.02 ac
Site 14/Station Y 61+40-66+75 LT	0.01 ac (fill)		0.01 ac	0.01 ac
Total	0.79 ac	0	0.79 ac	0.79 ac

Total Wetland Impacts for Yadkin-Pee Dee River Basin (R-2123CE): 0.79 acres

Total Wetland Impacts for Yadkin-Pee Dee River Basin (R-2248E and R-2123CE): 8.14 acres

Total Wetland Impacts for both R-2248E and R2123CE (Catawba and Yadkin-Pee Dee River Basins): 8.80 acres

Open Water Impacts in the Yadkin-Pee Dee River Basin R-2248E

Permit Site No.	Permanent Fill/ Draining in Open Waters (ac)	Temporary Fill/ Draining in Open Waters (ac)	Total Fill/ Draining in Open Waters (ac)
Site 8	1.56 ac (fill)		1.56 ac
Site 11	0.13 ac (fill)		0.13a ac
Site 16	0.67 ac (draining)		0.67 ac
Total	2.36 ac	0	2.36 ac

Total Open Water Impacts for Yadkin-Pee Dee River Basin: 2.36 acres

***No open water impacts in the Catawba River Basin**

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

This approval is only valid for the purpose and design that you submitted in your application dated May 6, 2011, June 8, 2011, and additional information received electronically on June 6, 2011, August 12, 2011, August 25, 2011, and September 1, 2011. Should your project change, you are required to notify the NCDWQ and submit a new application.

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

Specific Conditions of Certification for R-2248E:

1. The riprap at Permit Sites 1, 2 and 8 must be embedded such that low flow of water and aquatic passage are not impeded. Additionally, the riprap shall be Class I as indicated on the revised plans received June 9, 2011.
2. The outfall of the ditch on the upstream side of Permit Site 11 must be Class II riprap as per detail M21 on plans.
3. Fifty (50) feet of stream is being proposed as mitigation. An existing culvert will be removed from the stream at Permit Site 14, resulting in 50 feet of "daylighted" stream. In order to receive mitigation credit for "daylighting" this stream, the mitigation area must be constructed in accordance with Permit Drawing 8 of 108, revised mitigation/reforestation plans received August 22, 2011. DWQ will not require monitoring for this site, however, DWQ will visit the site periodically upon completion of construction to ensure that the stream buffer is adequate.
4. Class II riprap shall be provided on the face of the constructed floodplain bench at Permit Site 14 as depicted on the revised plans received June 9, 2011.
5. Pipes and culverts used exclusively to maintain equilibrium in wetlands, where aquatic life passage is not a concern, shall not be buried. These pipes shall be installed at natural ground elevation.
6. DWQ is very concerned with potential construction impacts that could adversely affect the Nature Conservancy Site (Sheet 20B). NCDOT shall take all necessary precautions (i.e., signage) to avoid direct impacts to this site during construction.
7. All portions of the proposed project draining to 303(d) listed watersheds that are impaired due to turbidity (Rocky River) 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, NC DOT shall not be required to meet 15A NCAC 4B .0124(a) regarding the maximum amount of uncovered acres.
8. All portions of the proposed project draining to 303(d) listed watersheds (Rocky River, Clarks Creek and Stony Creek) that are impaired due to biological criteria exceedances shall not discharge stormwater directly to surface waters. Stormwater shall be treated using appropriate best management practices (e.g., vegetated conveyances, constructed wetlands, detention ponds, etc.) prior to discharging to surface waters.
9. No drill slurry or water that has been in contact with uncured concrete shall be allowed to enter surface waters. This water shall be captured, treated and disposed of properly.

10. Bridge piles and bents shall be constructed using driven piles (hammer or vibratory) or drilled shaft construction methods. More specifically, jetting or other methods of pile driving are prohibited without prior written approval from NCDWQ.
11. All pile driving or drilling activities shall be enclosed in turbidity curtains unless otherwise approved by NCDWQ in this certification.
12. 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 shall be barges be dragged along the bottom of the surface water.
13. At Permit Sites 8, 11 and 16, where ponds will be drained, proper measures will be taken to drain the pond with limited impact to upstream and downstream channel stability as well as to native aquatic species. Proper measures will be taken to avoid sediment release and/or sediment accumulation downstream as a result of pond draining. If typical pond draining techniques will create a significant disturbance to native aquatic species, additional measures such as collection and relocation may be necessary to prevent a significant fish kill. NCDOT shall consult with the North Carolina Wildlife Resources staff to determine if there are any sensitive species, and the most appropriate measures to limit impacts to these species. The Permittee shall observe any natural channel re-establishment, or utilize natural channel construction techniques, to ensure that the jurisdictional stream channel above and below the drained pond remain stable and that no additional impacts occur within the natural stream channel as a result of draining the pond.
14. Compensatory mitigation for 7,364 linear feet of impact to streams and 7.62 acres of wetlands for Project R-22248E is required. We understand that the North Carolina Ecosystem Enhancement Program (EEP) has agreed to implement the stream mitigation for the project. EEP has indicated in a letter dated April 21, 2011, that they will assume responsibility for satisfying the federal Clean Water Act compensatory mitigation requirements for the above-referenced project, in accordance with the North Carolina Department of Environment and Natural Resources' Ecosystem Enhancement Program In-Lieu Fee Instrument signed July 28, 2010.

Specific Conditions of Certification for R-2123CE:

15. Many of the stream impacts on the project result from culvert extensions on either the up or downstream end of an existing pipe with the exception of the installation of new culvert at Permit Site 8. Therefore, DWQ will not require the burial of culverts at Permit Sites 1, 2, 3, 5, 7, 9, 10, 11, 13 and 17. At Permit Site 8, the culvert shall be placed below the elevation of the streambed by one (1) foot for all culverts with a diameter greater than 48 inches, and 20 percent of the culvert diameter for culverts having a diameter less than 48 inches, to allow low flow passage of water and aquatic life. Design and placement of culverts and other structures including temporary erosion control measures shall not be conducted in a manner that may result in dis-equilibrium of wetlands or streambeds or banks, adjacent to or upstream and downstream of the above structures. The applicant is required to provide evidence that the equilibrium is being maintained if requested in writing by NCDWQ. If this condition is unable to be met due to bedrock or other limiting features encountered during construction, please contact NCDWQ for guidance on how to proceed and to determine whether or not a permit modification will be required.
16. Riprap at the outlets of the 42" RCP and the 48" RCP (Permit Site 2) shall be Class I as indicated on the revised drawings dated and received August 12, 2011 (not Class B as indicated on Detail DD).

17. Class II riprap shall be used as the confluence of the Permit Site 2 and Permit Site 5 as depicted in Detail LL.
18. Riprap at the outlet of the 30" RCP, at the inlet of Permit Site 5, shall be placed on the banks only and not in the streambed.
19. The streams at Permit Sites 7 and 15 will be relocated and rock vanes and j-hooks will be constructed throughout the relocated stream channels. DWQ is requiring that the Division 10 Environmental Officer and/or Environmental Specialist be present to direct the construction of these structures in the relocated channel. Additionally, coir fiber matting shall be used on all relocated streambanks.
20. Class I riprap shall be used on the banks at Permit Sites 8 and 11 as indicated on the revised plans received August 12, 2011.
21. Riprap located at the outlet of the 18" RCP (from the basin) at Permit Site 10 shall be placed on the banks only and be of sufficient size to prevent migration of the riprap into the active stream channel.
22. Class I riprap shall be used at the outlet of the 30" RCP and embedded in the relocated stream at Permit Site 14 such that low flow of water and aquatic passage are not impeded.
23. All Class II riprap shall be embedded in the relocated channel at Permit Site 16.
24. Class II riprap shall be used in lieu of Class B where the ditch ties into the stream at the outlet of Permit Site 17.
25. DWQ is concerned about the stability of the reinforced slope both during and after construction at the outlet of Permit Site 2, along Stony Creek (a 303d listed stream for impaired ecological/biological integrity). The appropriate erosion control measures must be installed and maintained on this slope in order to prevent sediment deposition in the stream. In addition, tree removal along the banks must be minimized to ensure streambank stability.
26. DWQ is concerned about the proximity of the cut slope from the jurisdictional stream depicted on Permit Drawing Sheet 41 of 56 at approximately Station 75. Appropriate construction staging and erosion control measures must be installed and maintained in order to prevent sediment deposition in the stream and/or streambank failure.
27. Stream impacts associated with the sewer line relocation at Permit Site 15 shall not exceed those authorized in this certification. If additional impacts are required, this certification must be modified.
28. Compensatory mitigation for 5,476 linear feet of impact to streams and 0.79 acres of wetlands for Project R-2123CE is required. We understand that the North Carolina Ecosystem Enhancement Program (EEP) has agreed to implement the stream mitigation for the project. EEP has indicated in a letter dated June 7, 2011, that they will assume responsibility for satisfying the federal Clean Water Act compensatory mitigation requirements for the above-referenced project, in accordance with the North Carolina Department of Environment and Natural Resources' Ecosystem Enhancement Program In-Lieu Fee Instrument signed July 28, 2010.

Conditions for both R-2248E and R-2123CE:

29. All culverts shall be placed below the elevation of the streambed by one (1) foot for all culverts with a diameter greater than 48 inches, and 20 percent of the culvert diameter for culverts having a diameter less than 48 inches, to allow low flow passage of water and aquatic life. Design and placement of culverts and other structures including temporary erosion control measures shall not be conducted in a manner that may result in dis-equilibrium of wetlands or streambeds or banks, adjacent to or upstream and downstream of the above structures. The applicant is required to provide evidence that the equilibrium is being maintained if requested in writing by NCDWQ. If this condition is unable to be met due to bedrock or other limiting features encountered during construction, please contact NCDWQ for guidance on how to proceed and to determine whether or not a permit modification will be required.
30. If multiple pipes or barrels are required, they shall be designed to mimic the natural stream cross section as closely as possible, including pipes or barrels at floodplain elevation and/or sills, where appropriate. Widening the stream channel shall be avoided. Stream channel widening at the inlet or outlet end of the structure(s) typically decreases water velocity causing sediment deposition that requires increased maintenance and disrupts aquatic life passage.
31. The site shall be graded to its preconstruction contours and revegetated with appropriate native species for the 1,035 linear feet of streams being impacted due to site dewatering activities.
32. The riprap used for streambank stabilization, ditchline stabilization along streambanks and floodplain bench construction shall be of sufficient size to prevent migration of the riprap into the active stream channel.
33. If concrete is used during construction, a dry work area shall be maintained to prevent direct contact between curing concrete and stream water. Water that inadvertently contacts uncured concrete shall not be discharged to surface waters due to the potential for elevated pH and possible aquatic life and fish kills.
34. During the construction of the project, no staging of equipment of any kind is permitted in waters of the U.S., or protected riparian buffers.
35. The dimension, pattern and profile of the stream above and below the crossing shall not be modified. Disturbed floodplains and streams shall be restored to natural geomorphic conditions.
36. The Permittee shall ensure that the final design drawings adhere to the permit and to the permit drawings submitted for approval.
37. All work in or adjacent to stream waters shall be conducted in a dry work area. Approved BMP measures from the most current version of NCDOT Construction and Maintenance Activities manual such as sandbags, rock berms, cofferdams and other diversion structures shall be used to prevent excavation in flowing water.
38. Heavy equipment shall be operated from the banks rather than in the stream channel in order to minimize sedimentation and reduce the introduction of other pollutants into the stream.
39. All mechanized equipment operated near surface waters must be regularly inspected and maintained to prevent contamination of stream waters from fuels, lubricants, hydraulic fluids, or other toxic materials.
40. No rock, sand or other materials shall be dredged from the stream channel except where authorized by this certification.

41. Discharging hydroseed mixtures and washing out hydroseeders and other equipment in or adjacent to surface waters is prohibited.
42. The permittee and its authorized agents shall conduct its activities in a manner consistent with State water quality standards (including any requirements resulting from compliance with §303(d) of the Clean Water Act) and any other appropriate requirements of State and Federal law. If NCDWQ determines that such standards or laws are not being met (including the failure to sustain a designated or achieved use) or that State or federal law is being violated, or that further conditions are necessary to assure compliance, NCDWQ may reevaluate and modify this certification.
43. All fill slopes located in jurisdictional wetlands shall be placed at slopes no flatter than 3:1, unless otherwise authorized by this certification.
44. A copy of this Water Quality Certification shall be maintained on the construction site at all times. In addition, the Water Quality Certification and all subsequent modifications, if any, shall be maintained with the Division Engineer and the on-site project manager.
45. The outside buffer, wetland or water boundary located within the construction corridor approved by this authorization shall be clearly marked by highly visible fencing prior to any land disturbing activities. Impacts to areas within the fencing are prohibited unless otherwise authorized by this certification.
46. The issuance of this certification does not exempt the Permittee from complying with any and all statutes, rules, regulations, or ordinances that may be imposed by other government agencies (i.e. local, state, and federal) having jurisdiction, including but not limited to applicable buffer rules, stormwater management rules, soil erosion and sedimentation control requirements, etc.
47. The Permittee shall report any violations of this certification to the Division of Water Quality within 24 hours of discovery.
48. Upon completion of the project (including any impacts at associated borrow or waste sites), the NCDOT (or their authorized agent) shall complete and return the enclosed "Certification of Completion Form" to notify NCDWQ when all work included in the 401 Certification has been completed.
49. Native riparian vegetation must be reestablished in the riparian areas within the construction limits of the project by the end of the growing season following completion of construction.
50. There shall be no excavation from, or waste disposal into, jurisdictional wetlands or waters associated with this permit without appropriate modification. Should waste or borrow sites, or access roads to waste or borrow sites, be located in wetlands or streams, compensatory mitigation will be required since that is a direct impact from road construction activities.
51. Erosion and sediment control practices must be in full compliance with all specifications governing the proper design, installation and operation and maintenance of such Best Management Practices in order to protect surface waters standards:
 - a. The erosion and sediment control measures for the project must be designed, installed, operated, and maintained in accordance with the most recent version of the *North Carolina Sediment and Erosion Control Planning and Design Manual*.

- b. The design, installation, operation, and maintenance of the sediment and erosion control measures must be such that they equal, or exceed, the requirements specified in the most recent version of the *North Carolina Sediment and Erosion Control Manual*. The devices shall be maintained on all construction sites, borrow sites, and waste pile (spoil) projects, including contractor-owned or leased borrow pits associated with the project.
 - c. For borrow pit sites, the erosion and sediment control measures must be designed, installed, operated, and maintained in accordance with the most recent version of the *North Carolina Surface Mining Manual*.
 - d. The reclamation measures and implementation must comply with the reclamation in accordance with the requirements of the Sedimentation Pollution Control Act.
52. Sediment and erosion control measures shall not be placed in wetlands or waters unless otherwise approved by this Certification.
53. 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 Permit. This Certification shall expire upon the expiration of the 404 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:

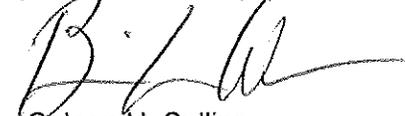
Office of Administrative Hearings
6714 Mail Service Center
Raleigh, NC 27699-6714
Telephone: (919)-733-2698, Facsimile: (919)-733-3478

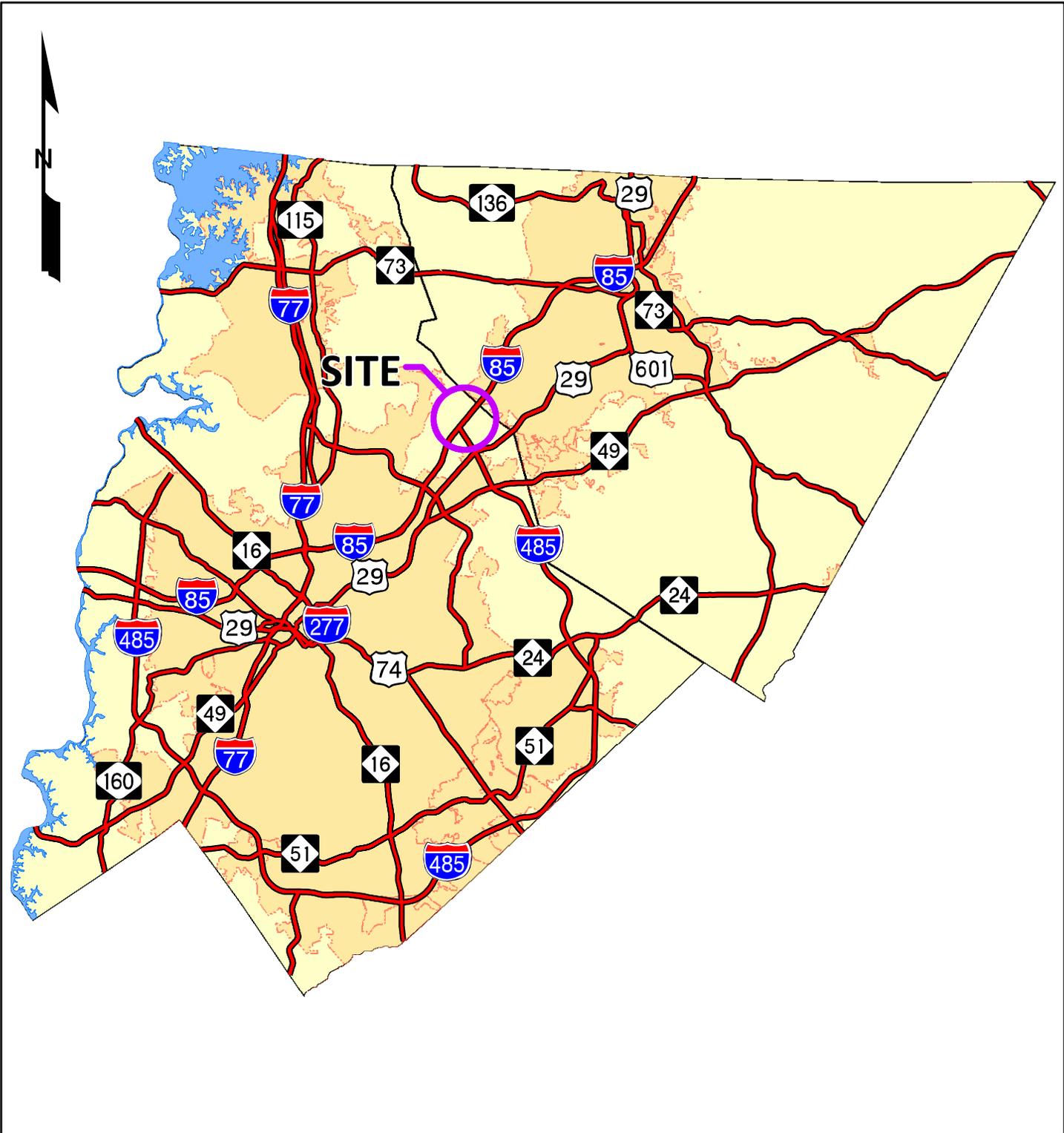
A copy of the petition must also be served on DENR as follows:

Ms. Mary Penny Thompson, General Counsel
Department of Environment and Natural Resources
1601 Mail Service Center
Raleigh, NC 27699-1601

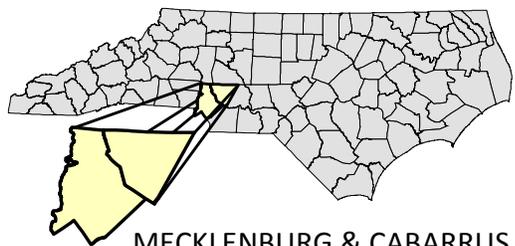
This, the 14th day of October 2011

DIVISION OF WATER QUALITY


Coleen H. Sullins
Director



VICINITY MAP

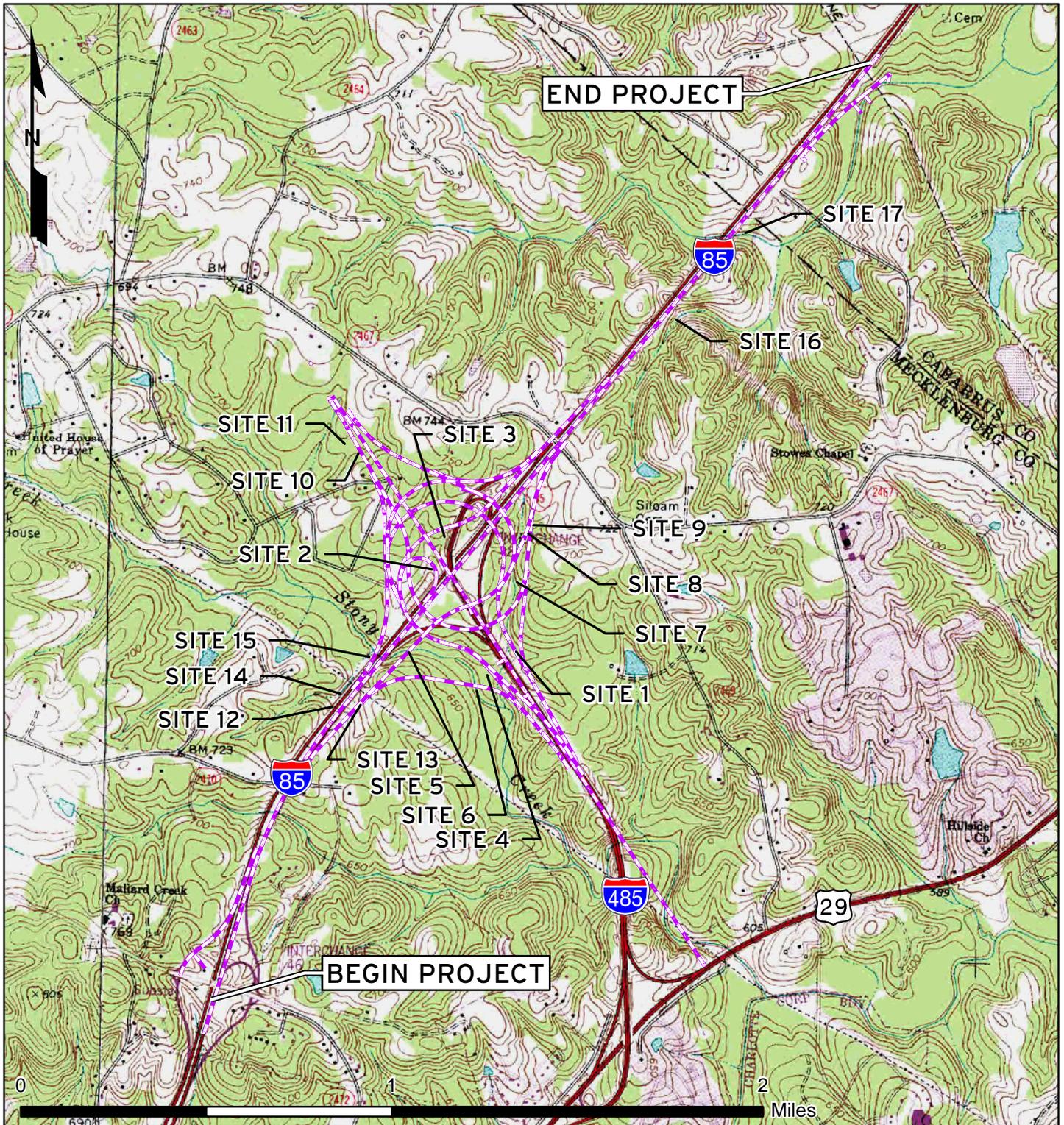


MECKLENBURG & CABARRUS

NCDOT

DIVISION OF HIGHWAYS
MECKLENBURG AND CABARRUS COUNTIES

PROJECT C202523 (R-2123CE)
I-85/ I-485 INTERCHANGE



**LOCATION
MAP**

NCDOT

DIVISION OF HIGHWAYS
MECKLENBURG AND CABARRUS COUNTIES

PROJECT C20523 (R-2123CE)
I-85/ I-485 INTERCHANGE

SHEET 2

WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS					SURFACE WATER IMPACTS					
			Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)	
1	RPG 28+00 RT	48" RCP							0.01		49		
2	L 83+50CL RPF 33+80RT	48" RCP	0.04						0.06	0.01	1132	47	
3	L 80+50 RT	42" RCP							0.03		239		
4	RPH 70+00 RT	84" RCP	0.72										
5	Y 71+00 RT & LT	2@ 9'X10' RCBC							0.27	0.01	651	27	
6	RPB 28+00 RT & LT	84" LRFD							0.03	0.04	80	92	
7	PG 28+20RT RPF 56+95L	84" RCP							0.14	0.00 *	1461	37	
8	RPE 67+75 CL	66" RCP							0.03	0.00 *	280	11	
9	RPE 68+00 CL	66" RCP							0.01	0.00 *	147	16	
10	L 98+00 LT	30" CSP	0.02						0.02	0.00 *	286	20	
11	L 100+50 LT	30" RCP							0.01	0.00 *	55	11	
12	Y 61+00 LT	NA							0.01		151		
13	Y 62+50 RT	36" RCP							0.00 *		48		
14	Y 61+40-66+75 LT	NA	0.01						0.07	0.00 *	554	20	
15	Y 69+00 LT	NA							0.03	0.00 *	198	10	
16	Y 131+50-135+60 RT	NA							0.07	0.00 *	524	23	
17	Y 148+00 LT & RT	6' X 8' RCBC							0.04	0.01	144	26	
TOTALS:			0.79						0.83	0.09	5999	340	

*: < 0.01ac

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

MECKLENBURG AND CABARRUS COUNTIES
PROJECT: C202523 (R-2123CE)

PERMIT DRAWING SHEET 3 OF 56

LABELS FOR PROPERTY OWNERS
LOCATED UNDER SEPARATE COVER

WETLAND AND STREAM IMPACTS

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

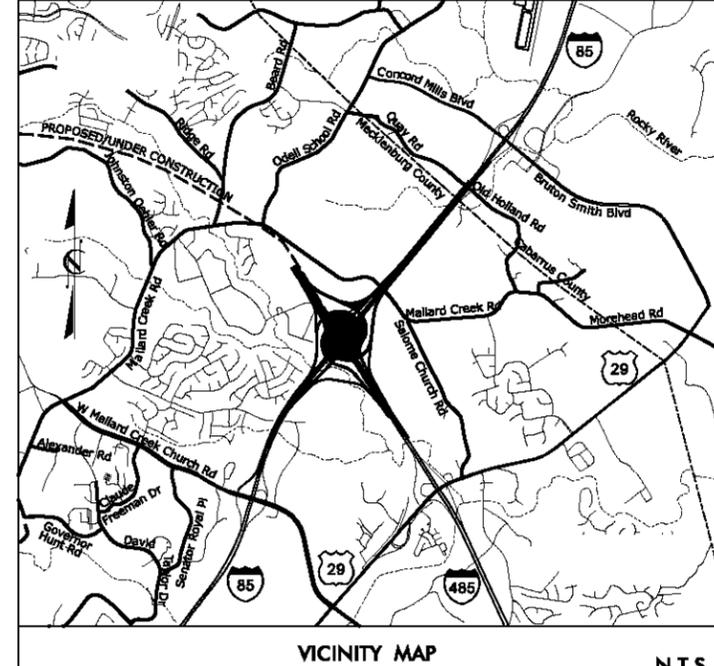
MECKLENBURG AND CABARRUS COUNTIES
PROJECT: C202523 (R-2123CE)

PERMIT DRAWING SHEET 4 OF 56

TIP PROJECT: R-2123CE

CONTRACT: C202523

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



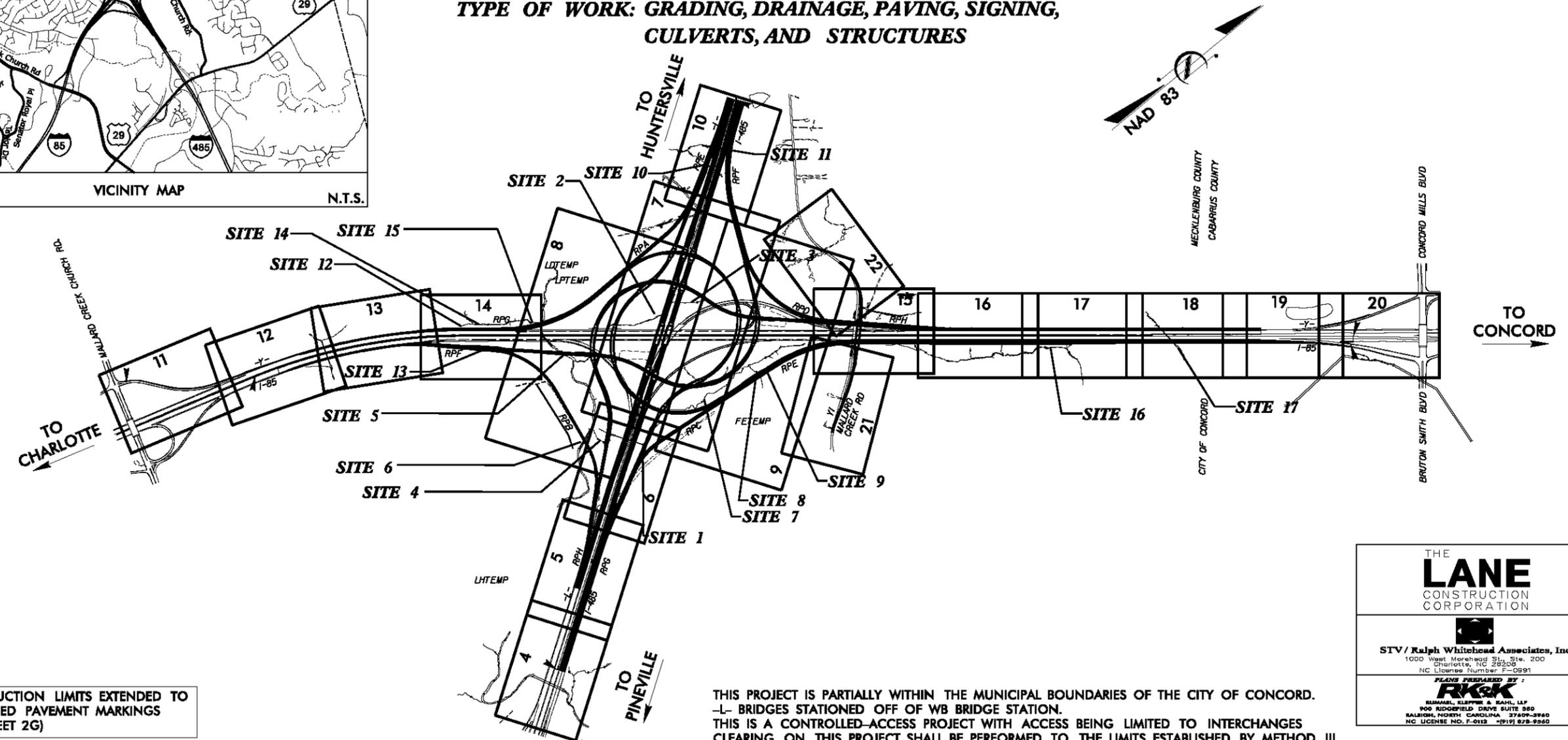
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

MECKLENBURG & CABARRUS COUNTY

LOCATION: I-485 (CHARLOTTE EASTERN OUTER LOOP) / I-85
TYPE OF WORK: GRADING, DRAINAGE, PAVING, SIGNING, CULVERTS, AND STRUCTURES

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2123CE	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
34379.1J7	NHF-0485(26)	PE	
34379.2J7		R/W & UTILITY	
34379.3J7		CONST.	

PERMIT DRAWING
SHEET 5 OF 56



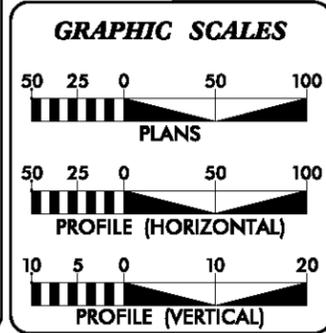
NOTE: CONSTRUCTION LIMITS EXTENDED TO COVER PROPOSED PAVEMENT MARKINGS (SEE DETAIL SHEET 2G)

THIS PROJECT IS PARTIALLY WITHIN THE MUNICIPAL BOUNDARIES OF THE CITY OF CONCORD.
-L- BRIDGES STATIONED OFF OF WB BRIDGE STATION.
THIS IS A CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III

THE
LANE
CONSTRUCTION CORPORATION

STV / Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License Number E-0891

RK&K
RUMBLE, KLEPPER & KAHL, LLP
908 RIDGEMOUNT DRIVE SUITE 300
RALEIGH, NORTH CAROLINA 27609-2940
NC LICENSE NO. E-0112 (01/91) 878-2560



DESIGN DATA
I-485 (-L-)

ADT 2008	= 66,600
ADT 2035	= 155,800
DHV	= 10%
D	= 55%
T	= 13% *
V	= 70 mph

FUNCTIONAL CLASSIFICATION:
INTERSTATE
* (TTST 8% + DUAL 5%)

DESIGN DATA
I-85 (-Y-)

ADT 2008	= 104,600
ADT 2035	= 190,400
DHV	= 10%
D	= 55%
T	= 15% *
V	= 70 mph

FUNCTIONAL CLASSIFICATION:
INTERSTATE
* (TTST 10% + DUAL 5%)

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT R-2123CE = 1.270 MILES
LENGTH OF STRUCTURE TIP PROJECT R-2123CE = 0.135 MILES (BASED ON WB BRIDGES)
TOTAL LENGTH OF TIP PROJECT R-2123CE = 1.405 MILES

NC DOT CONTACT: **RODGER ROCHELLE, PE**
Project Engineer - Alternate Delivery Unit

PLANS PREPARED FOR THE NCDOT BY:
STV/RALPH WHITEHEAD ASSOCIATES, INC.
1000 West Morehead St., Ste. 200, Charlotte NC, 28208
NC License Number E-0991

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
SEPTEMBER 28, 2010

LETTING DATE:
SEPTEMBER 28, 2010

JOHN N. JOHNSON, PE
PROJECT ENGINEER

JOSEPH A. FREEMAN, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

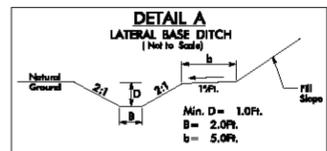
SIGNATURE: _____ P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: _____ P.E.

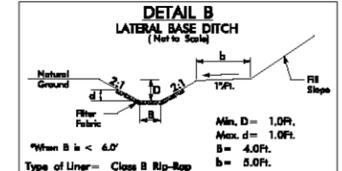
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

\$FILES\$
\$DATE\$



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

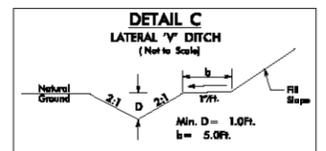
-L- STA. 71+70 TO STA. 74+57 RT
-RPE- STA. 37+25 TO STA. 39+00 RT
-RPG- STA. 33+50 TO STA. 34+00 LT
-RPG- STA. 39+60 TO STA. 41+75 LT
-Y- STA. 56+50 TO STA. 59+00 LT
-FETEMP- STA. 146+50 TO STA. 57+00 RT
-LITEMP- STA. 14+75 TO STA. 16+50 RT



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

Type of Liner = Class B Rip-Rap

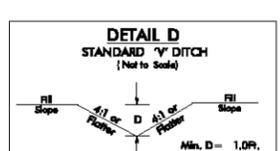
-L- STA. 77+85 TO STA. 82+25 LT
-RPE- STA. 27+89 TO STA. 28+35 RT
-RPE- STA. 39+00 TO STA. 41+10 RT
-RPE- STA. 67+73 TO STA. 68+25 RT
-Y- STA. 59+00 TO STA. 61+47 LT
-RPG- STA. 34+00 TO STA. 35+75 LT
-RPH- STA. 18+28 TO STA. 23+20.13 LT
-Y- STA. 146+67 TO STA. 150+00 LT
-Y- STA. 20+00 TO STA. 22+00 RT



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

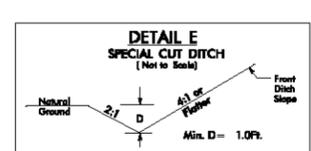
Type of Liner = Class B Rip-Rap

-L- STA. 79+90 TO STA. 82+00 RT
-L- STA. 83+13 TO STA. 86+00 LT
-L- STA. 83+35 TO STA. 85+50 RT
-RPF- STA. 65+50 TO STA. 67+50 LT
-RPG- STA. 34+00 TO STA. 35+75 LT
-RPH- STA. 18+28 TO STA. 23+20.13 LT
-Y- STA. 167+00 TO STA. 169+50 RT
-Y- STA. 20+00 TO STA. 22+00 RT



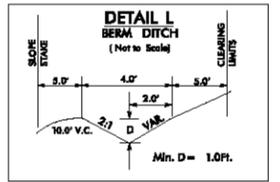
Min. D = 1.0Ft.

-L- STA. 54+50 TO STA. 60+00 RT
-RPE- STA. 29+50 TO STA. 31+33.99 LT
-RPG- STA. 63+00 TO STA. 65+50 RT



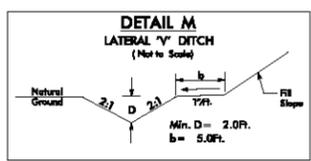
Min. D = 1.0Ft.

-L- STA. 42+50 TO STA. 43+50 LT
-L- STA. 92+50 TO STA. 98+00 LT
-L- STA. 104+50 TO STA. 106+50 RT
-RPE- STA. 25+00 TO STA. 27+50 LT
-RPG- STA. 11+60.65 TO STA. 14+13.15 RT
-RPG- STA. 12+73.34 TO STA. 18+88.41 RT
-RPE- STA. 19+90 TO STA. 21+90 RT
-RPF- STA. 68+50 TO STA. 72+00 RT
-RPH- STA. 20+50 TO STA. 23+50 RT
-RPH- STA. 33+25 TO STA. 34+00 RT
-RPH- STA. 37+50 TO STA. 41+50 RT
-Y- STA. 48+00 TO STA. 50+00 RT
-Y- STA. 105+00 TO STA. 108+00 RT
-Y- STA. 128+00 TO STA. 131+00 LT
-Y- STA. 157+00 TO STA. 160+50 RT
-Y- STA. 157+00 TO STA. 160+50 RT
-Y- STA. 29+50 TO STA. 31+00 RT



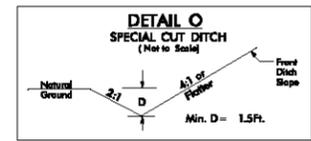
Min. D = 1.0Ft.

-L- STA. 89+50 TO STA. 95+00 RT
-L- STA. 105+50 TO STA. 107+00 RT
-RPE2- STA. 17+00 TO STA. 18+75 RT
-RPE- STA. 63+50 TO STA. 66+00 RT
-RPF- STA. 45+25 TO STA. 46+00 RT
-RPF- STA. 71+80 TO STA. 74+00 RT
-RPF- STA. 74+00 TO STA. 76+50 RT
-RPH- STA. 78+87 TO STA. 80+75 RT
-Y- STA. 45+18 TO STA. 55+00 RT
-Y- STA. 53+50 TO STA. 55+50 LT
-Y- STA. 112+44 TO STA. 114+50 LT
-Y- STA. 129+50 TO STA. 132+50 LT



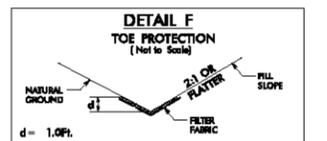
Min. D = 2.0Ft.
b = 5.0Ft.

-Y- STA. 91+96 TO STA. 96+70 LT
-Y- STA. 31+00 TO STA. 32+20 RT
-FETEMP- STA. 55+00 TO STA. 55+90 LT



Min. D = 1.5Ft.

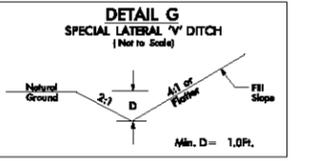
-RPE- STA. 19+50 TO STA. 28+50 RT



Min. D = 1.0Ft.

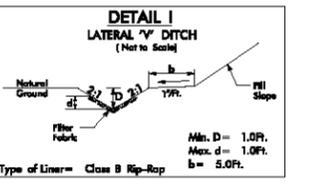
Type of Liner = Class B Rip-Rap

-L- STA. 78+10 TO STA. 79+90 RT
-RPE- STA. 47+35 TO STA. 47+85 LT
-RPF- STA. 17+50 TO STA. 24+00 LT
-RPF- STA. 30+00 TO STA. 33+50 LT
-RPG- STA. 27+00 TO STA. 32+15 LT
-RPG- STA. 41+45 TO STA. 41+95 LT
-RPG- STA. 51+50 TO STA. 52+50 RT
-RPG- STA. 79+40 TO STA. 81+10 LT
-RPH- STA. 69+00 TO STA. 72+10 LT
-Y- STA. 135+65 TO STA. 136+25 RT
-FETEMP- STA. 53+50 TO STA. 65+00 LT
-LITEMP- STA. 61+00 TO STA. 63+30 RT
-LITEMP- STA. 62+50 TO STA. 63+50 LT
-LITEMP- STA. 68+00 TO STA. 68+85 LT



Min. D = 1.0Ft.

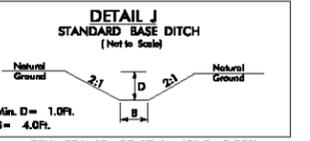
-RPG- STA. 14+13.15 TO STA. 17+50 RT
-RPF- STA. 79+84 TO STA. 80+78 LT
-Y- STA. 113+00 TO STA. 114+80 RT
-Y- STA. 21+00 TO STA. 23+70 LT
-LITEMP- STA. 50+00 TO STA. 52+00 LT
-LITEMP- STA. 52+00 TO STA. 53+50 RT



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

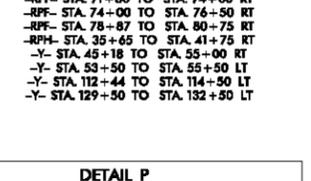
Type of Liner = Class B Rip-Rap

-RPF- STA. 30+50 TO STA. 32+75 RT
-RPF- STA. 55+25 TO STA. 58+00 LT
-RPF- STA. 63+00 TO STA. 65+50 LT
-Y- STA. 145+50 TO STA. 146+67 LT



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

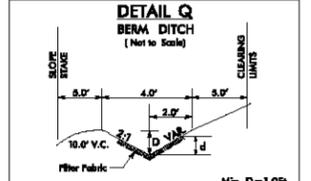
-RPH- STA. 63+85 LT; L=43', S=3.33%
BEG EL=631.43, END EL=630.00
(TIE TO PROPOSE PIPE)



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

Type of Liner = Class B Riprap

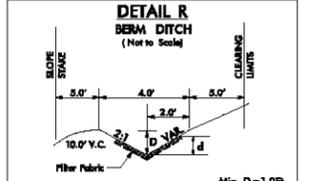
-RPE- STA. 12+90 TO STA. 15+88.41 RT
-RPE2- STA. 18+75 TO STA. 21+50 RT
-RPE- STA. 61+50 TO STA. 63+80 RT
-RPF- STA. 76+50 TO STA. 78+87 RT
-RPG- STA. 57+25 TO STA. 58+65 RT
-Y- STA. 132+50 TO STA. 135+40 LT



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

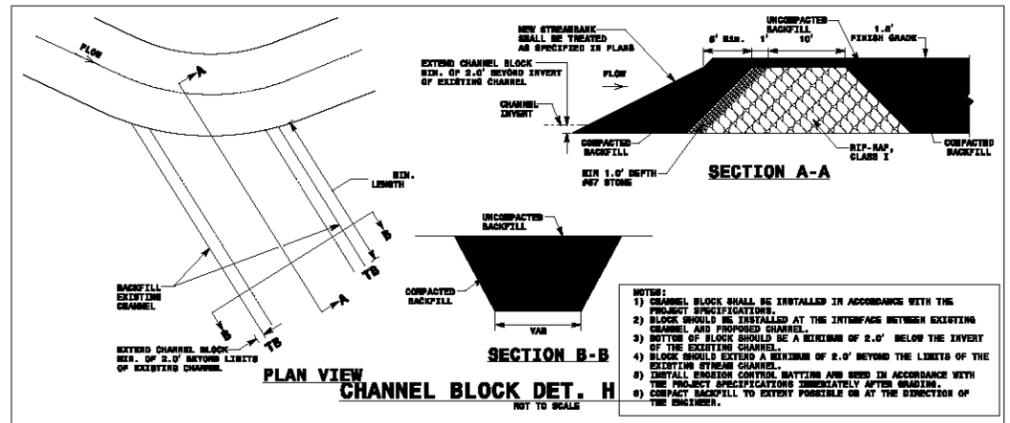
Type of Liner = PSRM

-L- STA. 88+00 TO STA. 89+50 RT
-L- STA. 98+00 TO STA. 105+50 RT
-RPE2- STA. 21+50 TO STA. 24+00 RT
-RPF- STA. 70+75 TO STA. 71+80 RT
-RPG- STA. 52+50 TO STA. 57+25 RT
-RPG- STA. 66+00 TO STA. 70+00 LT
-RPH- STA. 28+20 TO STA. 25+20 RT
-Y- STA. 55+00 TO STA. 61+50 RT
-Y- STA. 55+50 TO STA. 56+50 LT
-Y- STA. 114+50 TO STA. 119+15 LT
-Y- STA. 155+00 TO STA. 159+00 LT



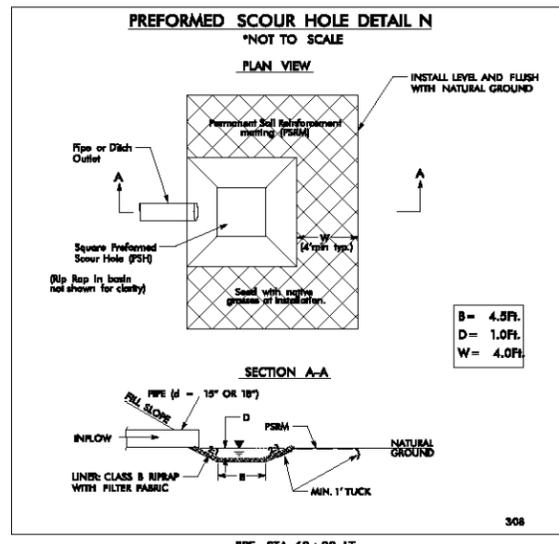
Min. D = 1.0Ft.
Max. d = 1.0Ft.

-L- STA. 104+50 TO STA. 105+50



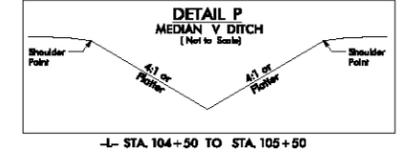
Min. D = 1.0Ft.
Max. d = 1.0Ft.

-RPE- STA. 59+00 LT
-RPF- STA. 56+60 RT
-RPF- STA. 57+33 RT
-RPG- STA. 82+35 RT



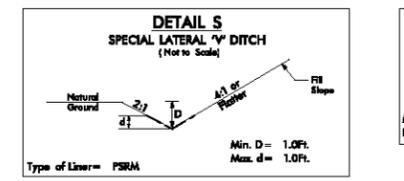
Min. D = 1.0Ft.
Max. d = 1.0Ft.

-RPE- STA. 60+90 LT
-RPE- STA. 66+52 LT
-RPF- STA. 59+11 RT
-RPF- STA. 55+25 RT
-RPH- STA. 68+68 RT
-Y- STA. 129+59 RT



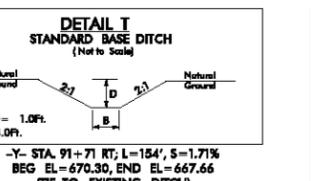
Min. D = 1.0Ft.
Max. d = 1.0Ft.

-RPE- STA. 17+07.54 TO STA. 18+42.12 RT



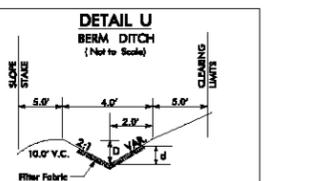
Min. D = 1.0Ft.
Max. d = 1.0Ft.

-RPE- STA. 17+07.54 TO STA. 18+42.12 RT



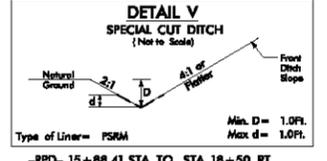
Min. D = 1.0Ft.
b = 4.0Ft.

-Y- STA. 91+71 RT; L=154', S=1.71%
BEG EL=670.30, END EL=667.66
(TIE TO EXISTING DITCH)



Min. D = 1.5Ft.
Max. d = 1.5Ft.

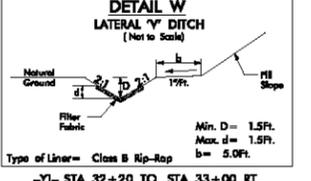
-RPE- STA. 15+88.41 TO STA. 23+40 RT



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

Type of Liner = PSRM

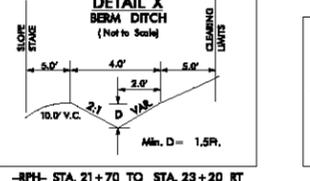
-RPE- 15+88.41 STA. TO STA. 18+50 RT
-L- 42+50 STA. TO STA. 43+50 LT



Min. D = 1.5Ft.
Max. d = 1.5Ft.
b = 5.0Ft.

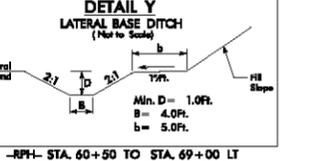
Type of Liner = Class B Rip-Rap

-Y- STA. 32+20 TO STA. 33+00 RT



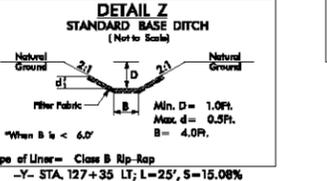
Min. D = 1.5Ft.

-RPH- STA. 21+70 TO STA. 23+20 RT



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

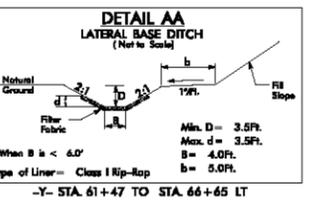
-RPH- STA. 60+50 TO STA. 69+00 LT
-Y- STA. 114+80 TO STA. 115+92 RT
-LITEMP- STA. 27+00 TO STA. 33+50 LT
-LITEMP- STA. 66+00 TO STA. 68+00 LT



Min. D = 1.0Ft.
Max. d = 0.5Ft.
b = 4.0Ft.

Type of Liner = Class B Rip-Rap

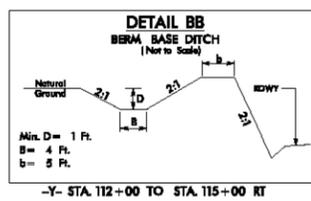
-Y- STA. 127+35 LT; L=25', S=15.08%
BEG EL=656.77, END EL=653.00



Min. D = 3.5Ft.
Max. d = 3.5Ft.
b = 4.0Ft.
b = 5.0Ft.

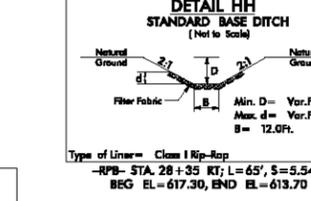
Type of Liner = Class I Rip-Rap

-Y- STA. 61+47 TO STA. 66+65 LT



Min. D = 1 Ft.
b = 4 Ft.
b = 5 Ft.

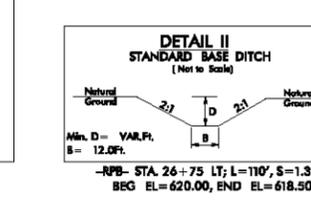
-Y- STA. 112+00 TO STA. 115+00 RT



Min. D = Var.Ft.
Max. d = Var.Ft.
b = 12.0Ft.

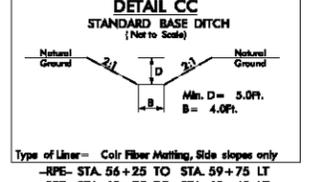
Type of Liner = Class I Rip-Rap

-RPE- STA. 28+35 RT; L=65', S=5.54%
BEG EL=617.30, END EL=613.70



Min. D = Var.Ft.
b = 12.0Ft.

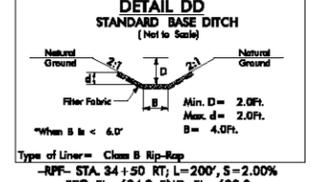
-RPE- STA. 26+75 LT; L=110', S=1.36%
BEG EL=620.00, END EL=618.50



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

Type of Liner = Coir Fiber Matting, Side slopes only

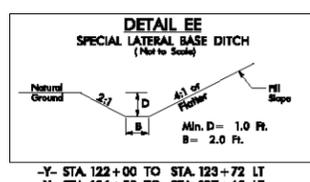
-RPE- STA. 56+25 TO STA. 59+75 LT
-RPE- STA. 63+75 TO STA. 68+45 LT
-RPE- STA. 67+53 LT; L=50', S=1.00%
BEG EL=657.9, END EL=657.4



Min. D = 2.0Ft.
Max. d = 2.0Ft.
b = 4.0Ft.

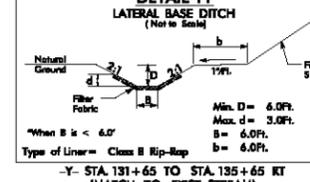
Type of Liner = Class B Rip-Rap

-RPF- STA. 34+50 RT; L=200', S=2.00%
BEG EL=624.0, END EL=620.0



Min. D = 1.0 Ft.
b = 2.0 Ft.

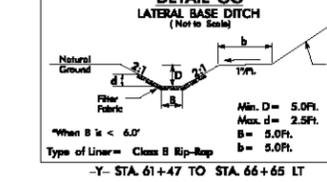
-Y- STA. 122+00 TO STA. 123+72 LT
-Y- STA. 126+50 TO STA. 127+65 LT



Min. D = 6.0Ft.
Max. d = 3.0Ft.
b = 6.0Ft.
b = 8.0Ft.

Type of Liner = Class B Rip-Rap

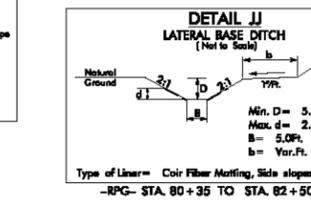
-Y- STA. 131+65 TO STA. 135+65 RT
(MATCH TO EXIST. STREAM)



Min. D = 5.0Ft.
Max. d = 2.5Ft.
b = 5.0Ft.
b = 5.0Ft.

Type of Liner = Class B Rip-Rap

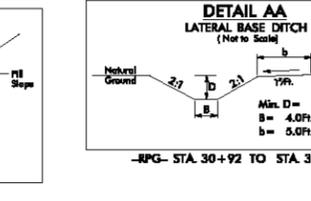
-Y- STA. 61+47 TO STA. 66+65 LT



Min. D = 5.0Ft.
Max. d = 2.5Ft.
b = 5.0Ft.
b = 5.0Ft.

Type of Liner = Coir Fiber Matting, Side slopes only

-RPG- STA. 80+35 TO STA. 82+50 RT

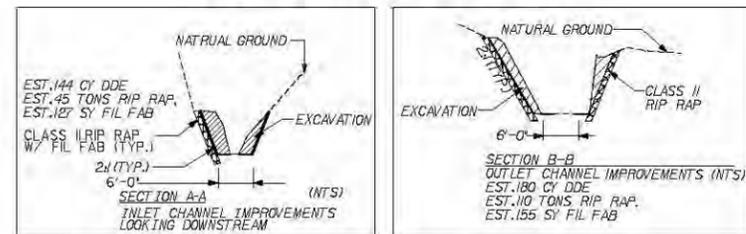


Min. D = 2.5Ft.
b = 4.0Ft.
b = 5.0Ft.

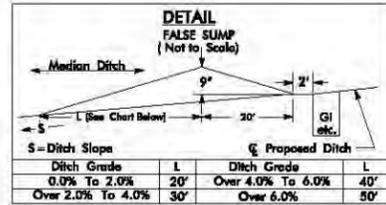
-RPG- STA. 30+92 TO STA. 31+92 RT

\$DATE\$ \$FILE\$

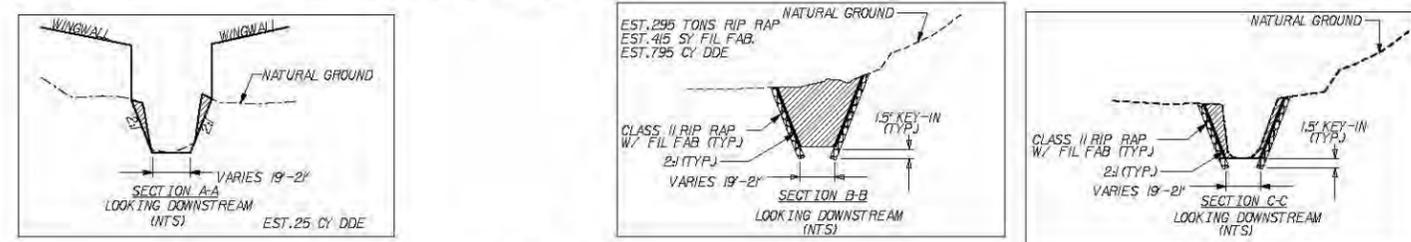
**DETAIL KK
UT TO ROCKY RIVER RCBC EXCAVATION**



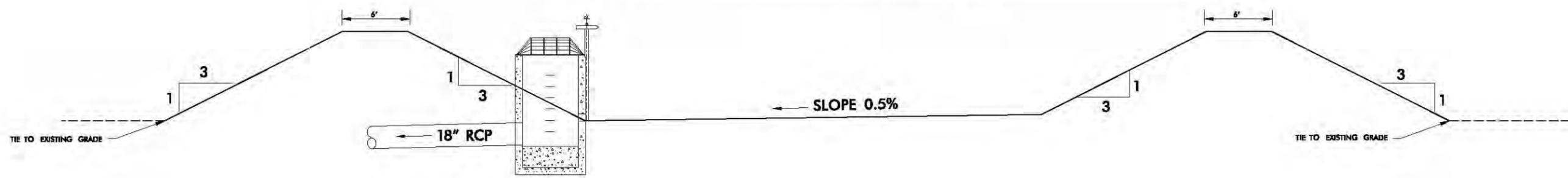
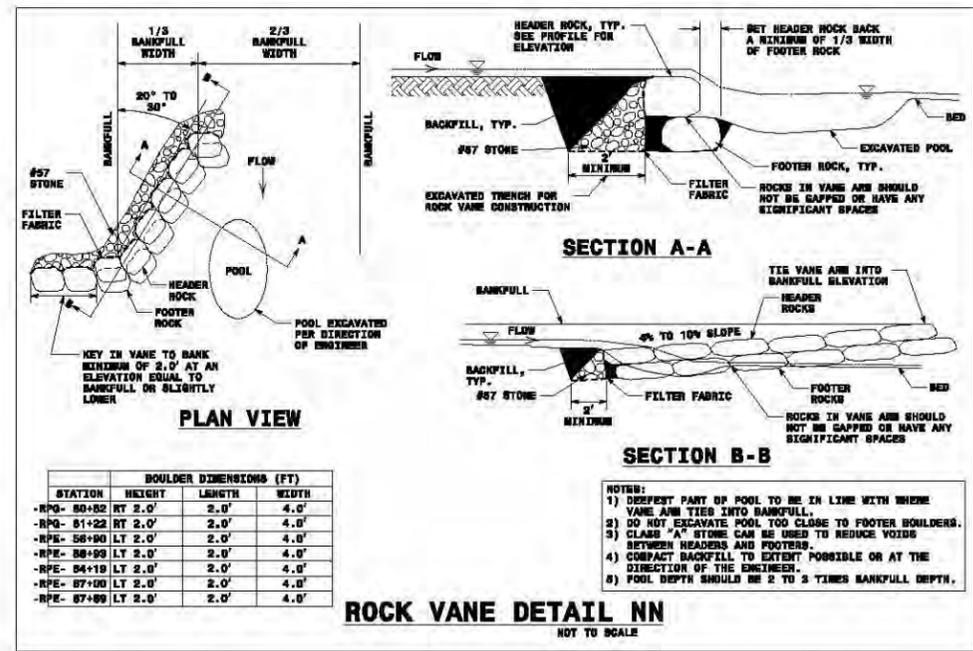
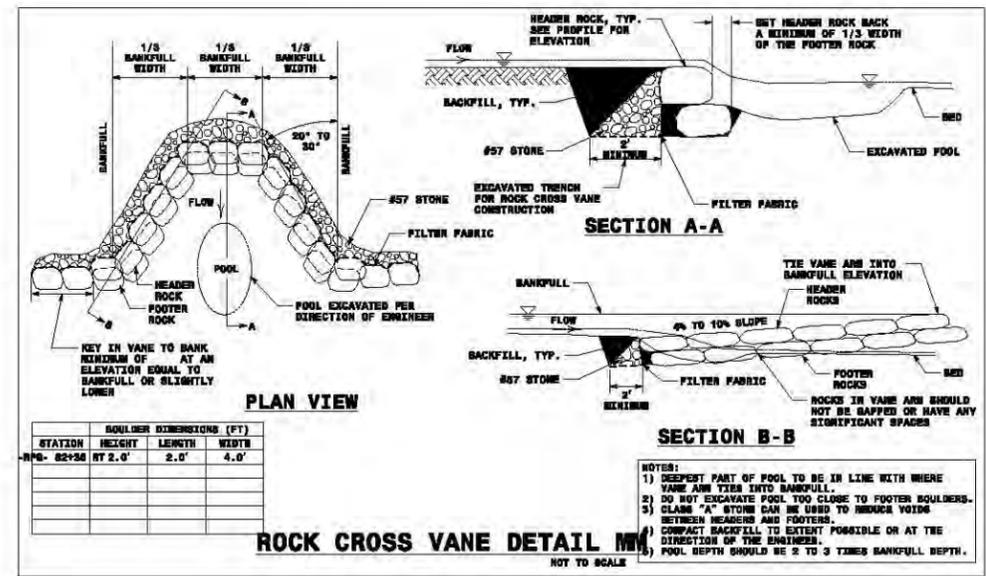
-Y- STA. 148+00



**DETAIL LL
STONY CREEK RCBC EXCAVATION**

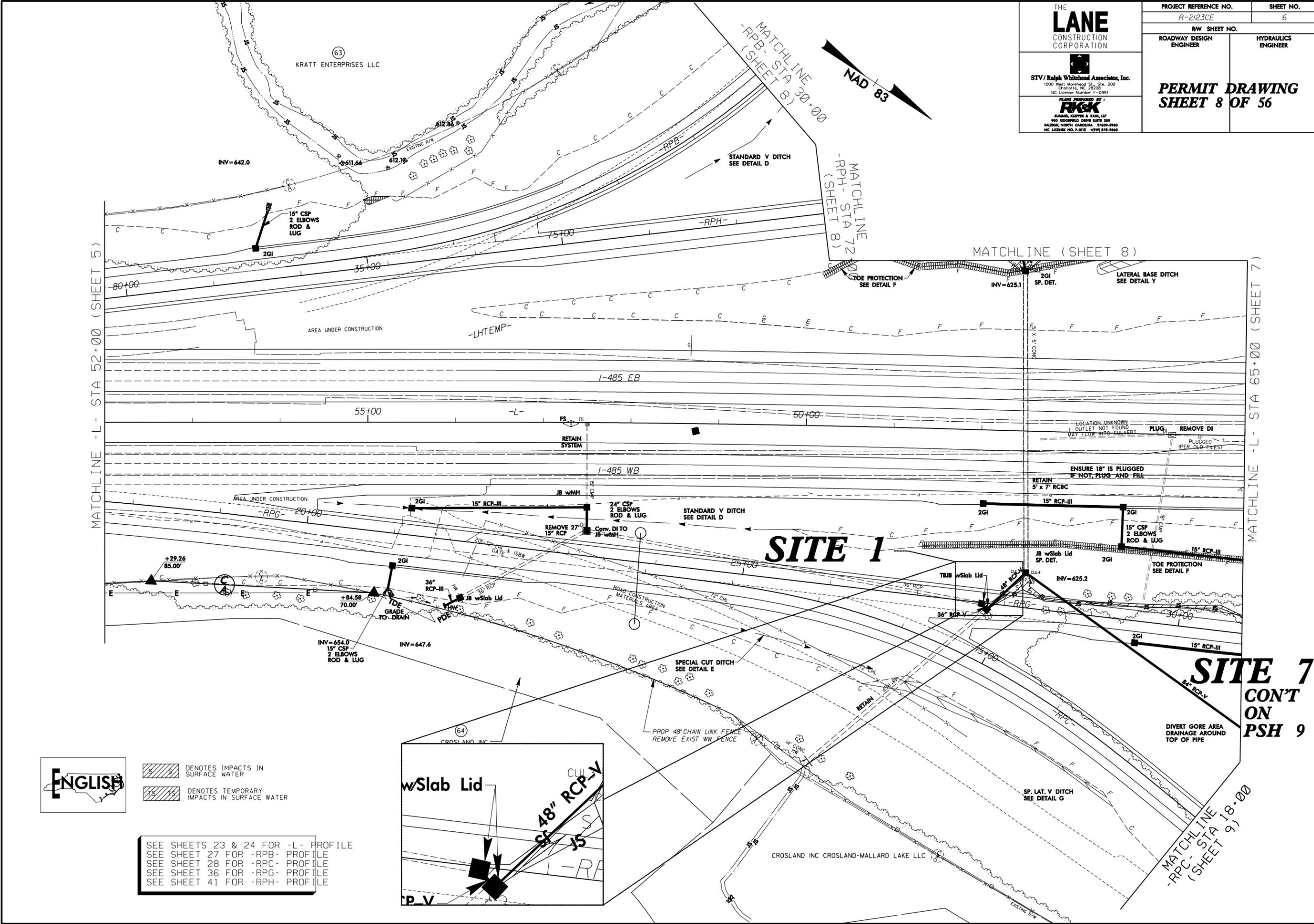


-Y- STA. 70+00



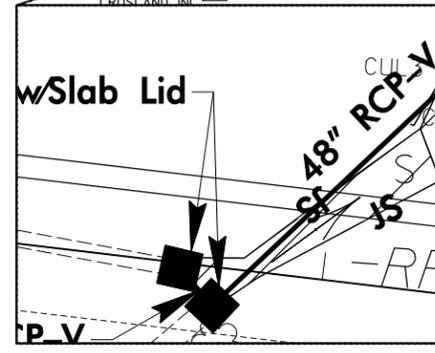
TYPICAL SECTION A-A - MODIFIED BASIN
N.T.S.

\$DATE\$ \$FILE\$



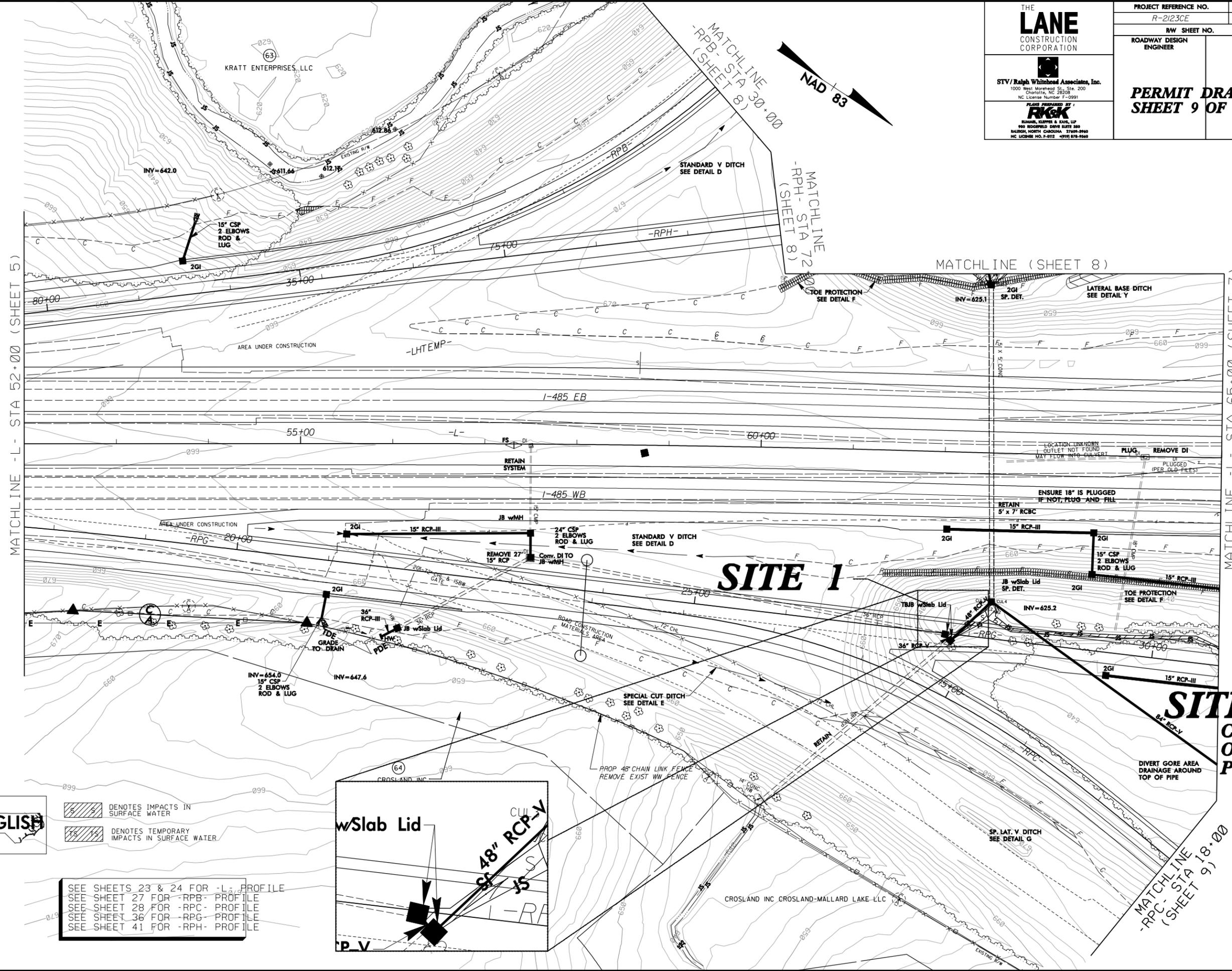
 DENOTES IMPACTS IN SURFACE WATER
 DENOTES TEMPORARY IMPACTS IN SURFACE WATER

SEE SHEETS 23 & 24 FOR -L- PROFILE
 SEE SHEET 27 FOR -RPB- PROFILE
 SEE SHEET 28 FOR -RPC- PROFILE
 SEE SHEET 36 FOR -RPG- PROFILE
 SEE SHEET 41 FOR -RPH- PROFILE



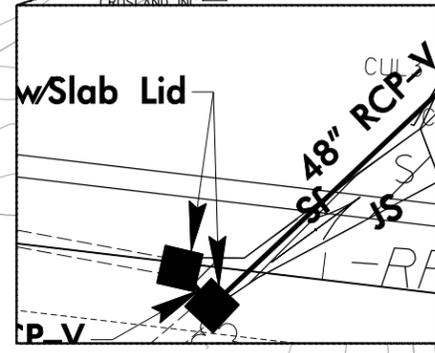
\$FILE\$

\$DATE\$



 DENOTES IMPACTS IN SURFACE WATER
 DENOTES TEMPORARY IMPACTS IN SURFACE WATER

SEE SHEETS 23 & 24 FOR -L- PROFILE
 SEE SHEET 27 FOR -RPB- PROFILE
 SEE SHEET 28 FOR -RPC- PROFILE
 SEE SHEET 36 FOR -RPG- PROFILE
 SEE SHEET 41 FOR -RPH- PROFILE



\$DATE\$

MATCHLINE -L- STA 65+00 (SHEET 7)

MATCHLINE -L- STA 52+00 (SHEET 5)

**SITE 7
CONT
ON
PSH 9**

MATCHLINE
-RPC- STA 18+00
(SHEET 9)

MATCHLINE
-RPB- STA 30+00
(SHEET 8)

MATCHLINE
-RPH- STA 72+00
(SHEET 8)

MATCHLINE (SHEET 8)

SITE 1

**SITE 7
CONT
ON
PSH 9**

MATCHLINE
-RPC- STA 18+00
(SHEET 9)

MATCHLINE
-RPB- STA 30+00
(SHEET 8)

MATCHLINE
-RPH- STA 72+00
(SHEET 8)

MATCHLINE (SHEET 8)

SITE 1

**SITE 7
CONT
ON
PSH 9**

MATCHLINE
-RPC- STA 18+00
(SHEET 9)

\$DATE\$

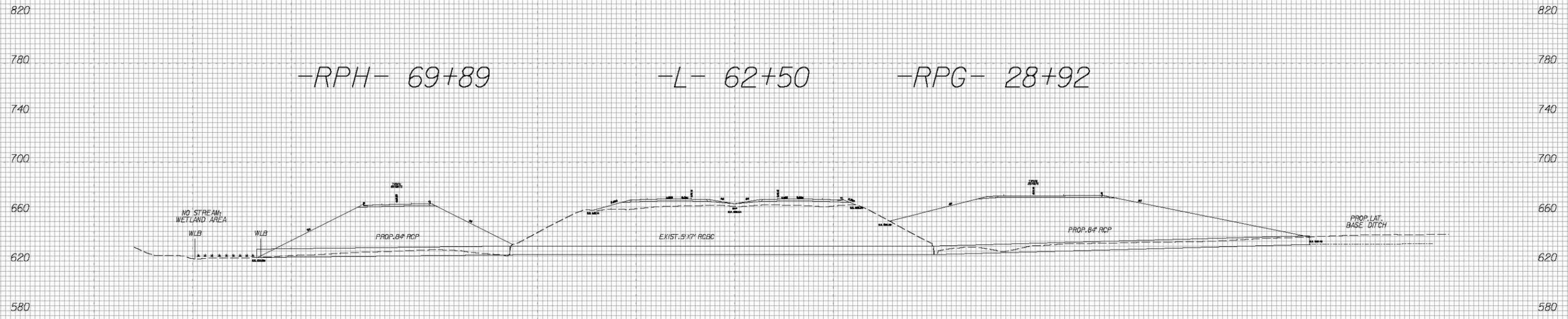
8/23/99

0 20 40	PROJ. REFERENCE NO.	SHEET NO.
	R-2123CE	X-1

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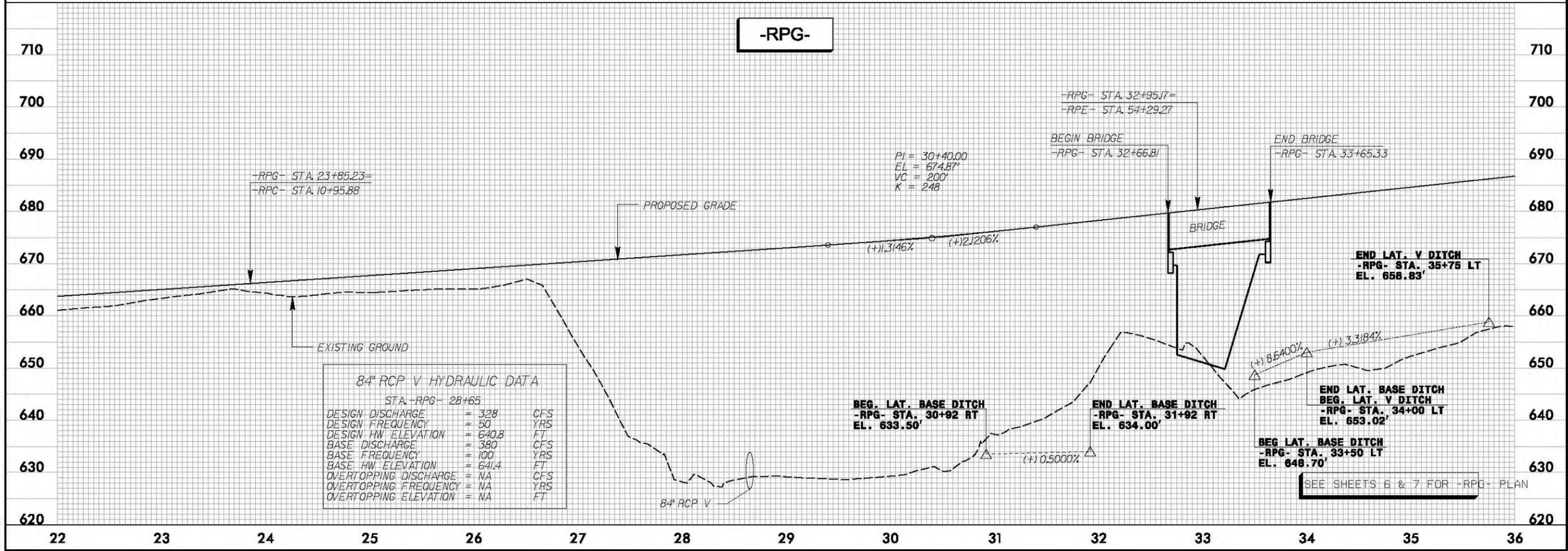
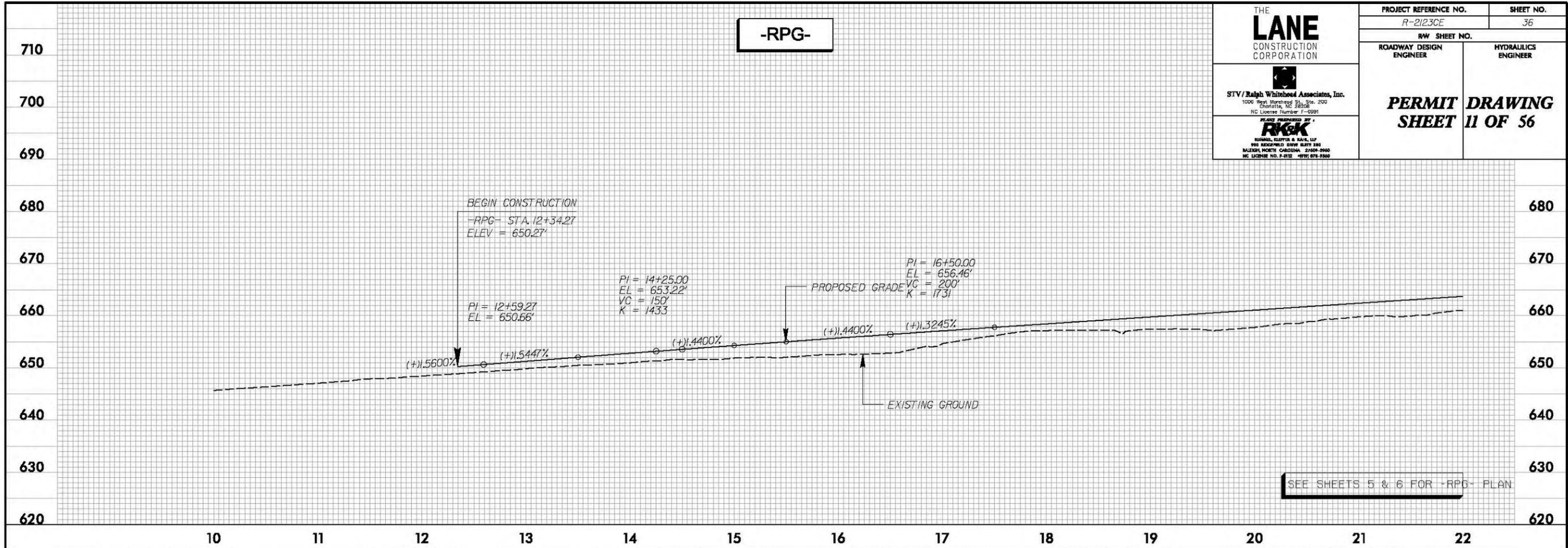
**PERMIT DRAWING
SHEET 10 OF 56**

SITE 7



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 mcoak



SHEET 7A

MATCHLINE -Y- STA 78+50 (SHEET 8)

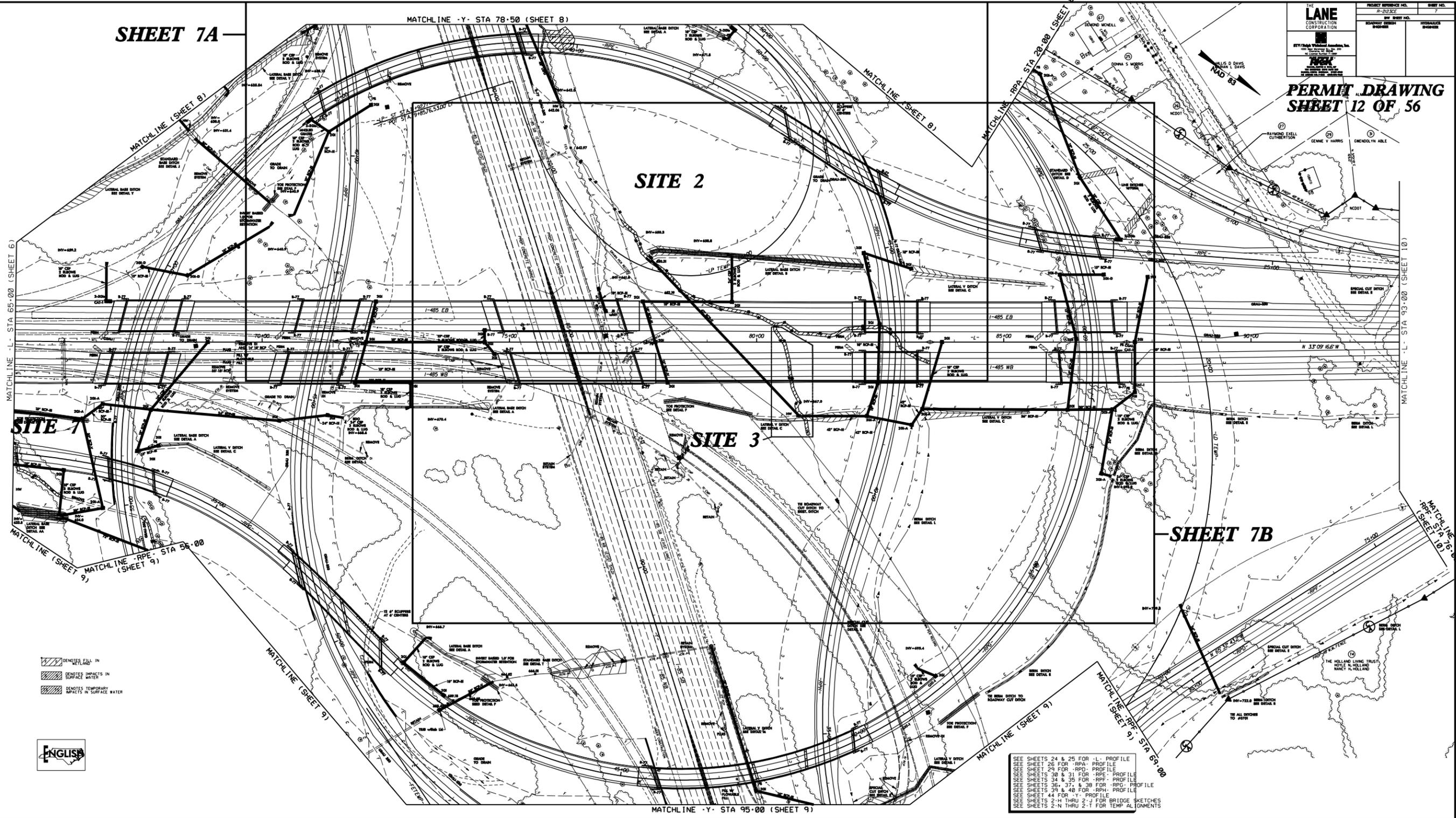
SITE 2

SITE 3

SHEET 7B

PROJECT REFERENCE NO. R-21232		SHEET NO. 7	
BY D. DAVIS		DATE 11/11/10	
DESIGNED BY D. DAVIS		CHECKED BY D. DAVIS	
DRAWN BY D. DAVIS		APPROVED BY D. DAVIS	

PERMIT DRAWING
SHEET 12 OF 56



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



SHEETS 24 & 25 FOR -L- PROFILE
 SHEET 26 FOR -RPA- PROFILE
 SHEET 29 FOR -RPO- PROFILE
 SHEETS 30 & 31 FOR -RPE- PROFILE
 SHEETS 34 & 35 FOR -RPF- PROFILE
 SHEETS 36, 37, & 38 FOR -RPG- PROFILE
 SHEETS 39 & 40 FOR -RPH- PROFILE
 SHEET 44 FOR -Y- PROFILE
 SHEETS 2-H THRU 2-J FOR BRIDGE SKETCHES
 SHEETS 2-N THRU 2-T FOR TEMP ALIGNMENTS

DATE

SHEET 7A

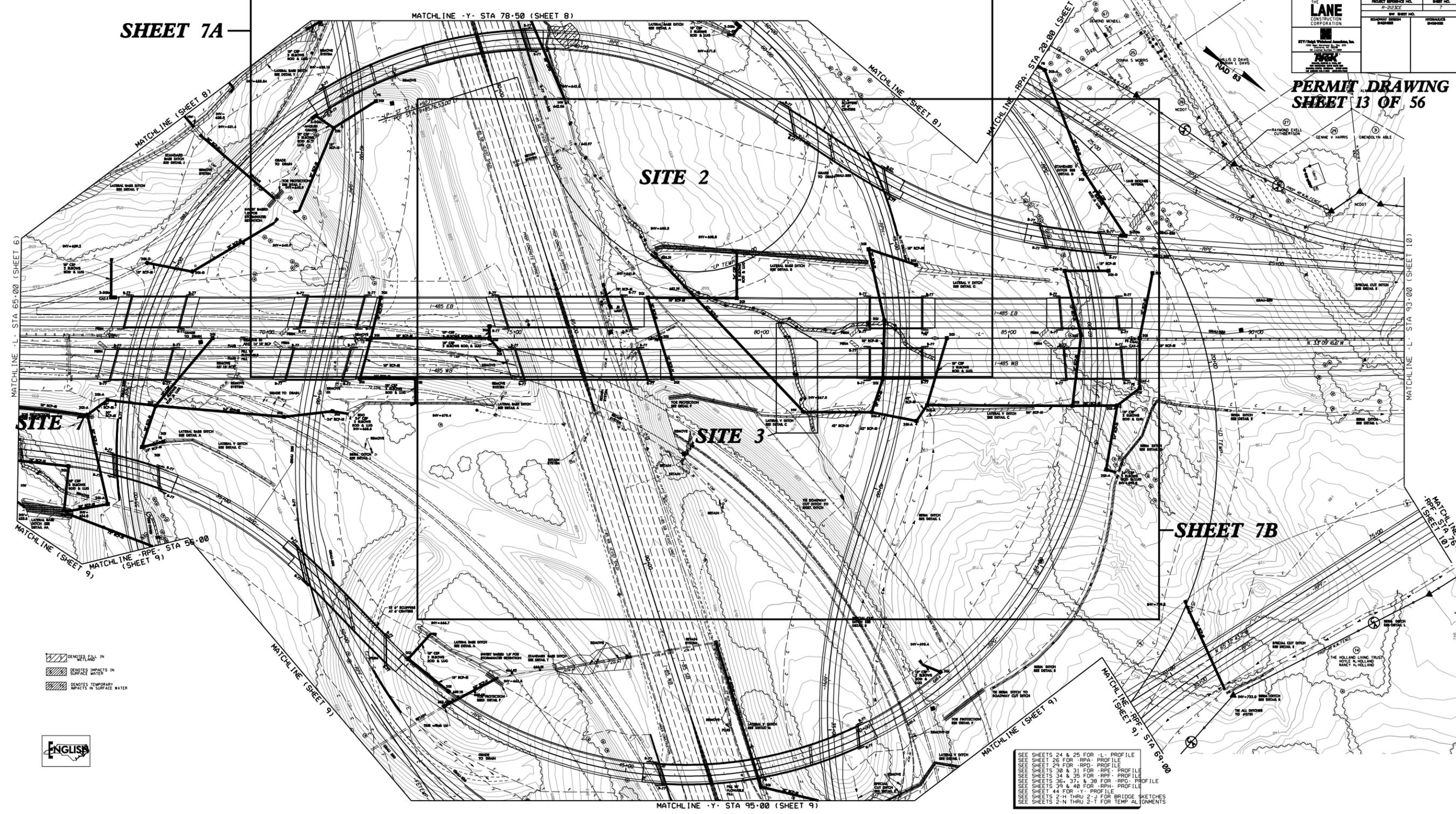
MATCHLINE -Y- STA 78+50 (SHEET 8)

MATCHLINE -RPA- STA 20+00 (SHEET 9)

PROJECT REFERENCE NO. R-21232		SHEET NO. 7	
BY DATE NO.		DATE	
DESIGNED BY	CHECKED BY	PROJECT ENGINEER	TRAVELER ENGINEER

THE LANE CONSTRUCTION CORPORATION
 10000 W. HOLLAND TRAIL, SUITE 100, HOUSTON, TEXAS 77055
 (713) 865-1100
 FREDERICK H. HARRIS, P.E.
 PROJECT ENGINEER

PERMIT DRAWING SHEET 13 OF 56



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



SEE SHEETS 24 & 25 FOR -L- PROFILE
 SEE SHEET 26 FOR -RPA- PROFILE
 SEE SHEET 29 FOR -RPO- PROFILE
 SEE SHEETS 30 & 31 FOR -RPE- PROFILE
 SEE SHEETS 34 & 35 FOR -RPF- PROFILE
 SEE SHEETS 36, 37, & 38 FOR -RPG- PROFILE
 SEE SHEETS 39 & 40 FOR -RPH- PROFILE
 SEE SHEET 44 FOR -Y- PROFILE
 SEE SHEETS 2-H THRU 2-J FOR BRIDGE SKETCHES
 SEE SHEETS 2-N THRU 2-T FOR TEMP ALIGNMENTS

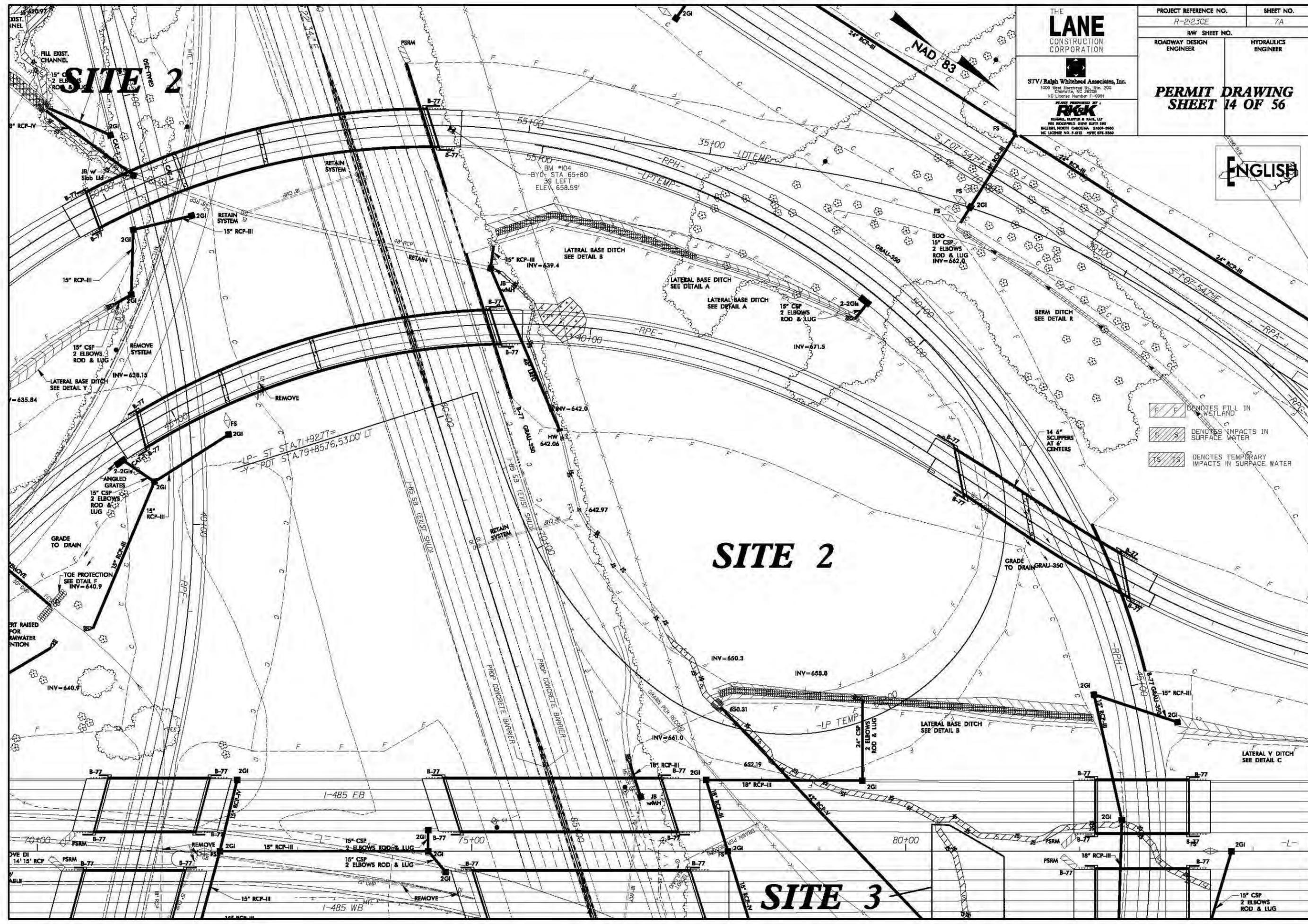
DATE: 11/15/11

STV/Ralph Whitehead Associates, Inc.
1000 West Northwood St., Ste. 200
Charlotte, NC 28204
NC License Number E-0991

RELAY PREPARED BY
RJK
RUMBLE, KLETTER & PAUL, LLP
1900 ROCKFORD DRIVE SUITE 500
MILFORD NORTH CAROLINA 28050-2000
NC LICENSE NO. P-012 (PPL) 878-2500

**PERMIT DRAWING
SHEET 14 OF 56**

ENGLISH



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

SITE 2

SITE 2

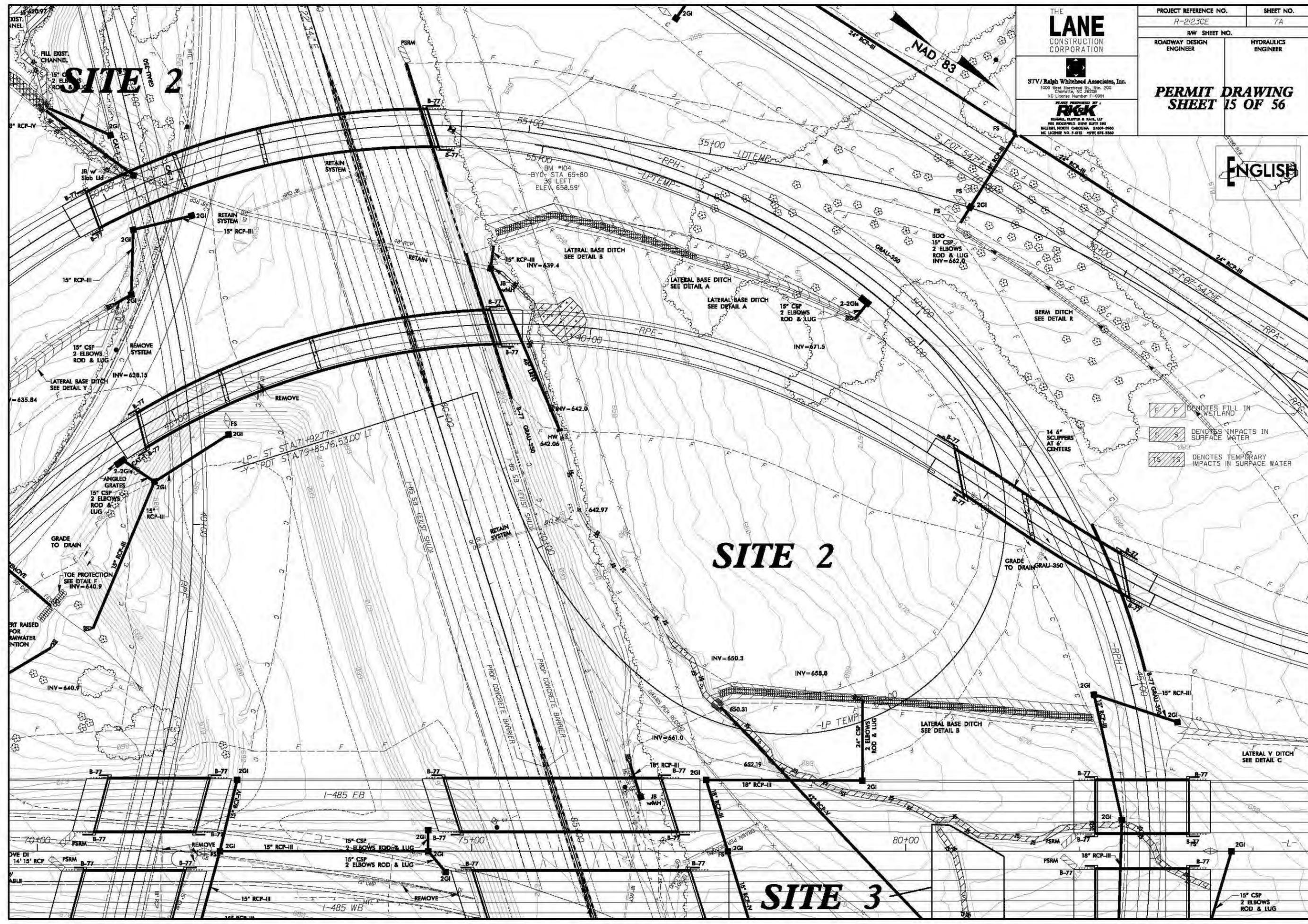
SITE 3

STV/Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28203
NC License Number E-0991

DESIGN PREPARED BY
RJK
RUSSELL, KLEPPER & PAUL, LLP
1900 ROCKFORD DRIVE SUITE 200
MILFORD NORTH CAROLINA 28050-2000
NC LICENSE NO. P-0122 (09/91) 07/2-2000

**PERMIT DRAWING
SHEET 15 OF 56**

ENGLISH



8/23/99

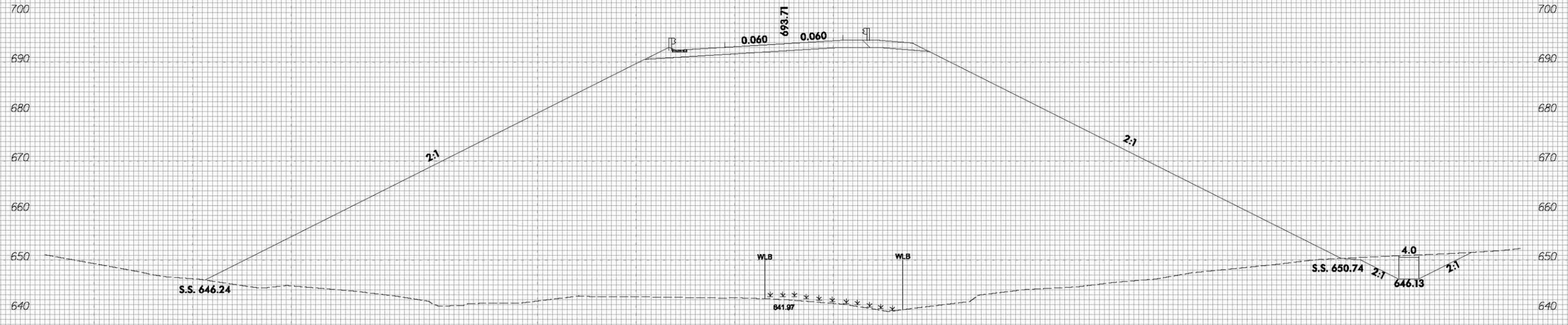


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R-2123CE	X-234

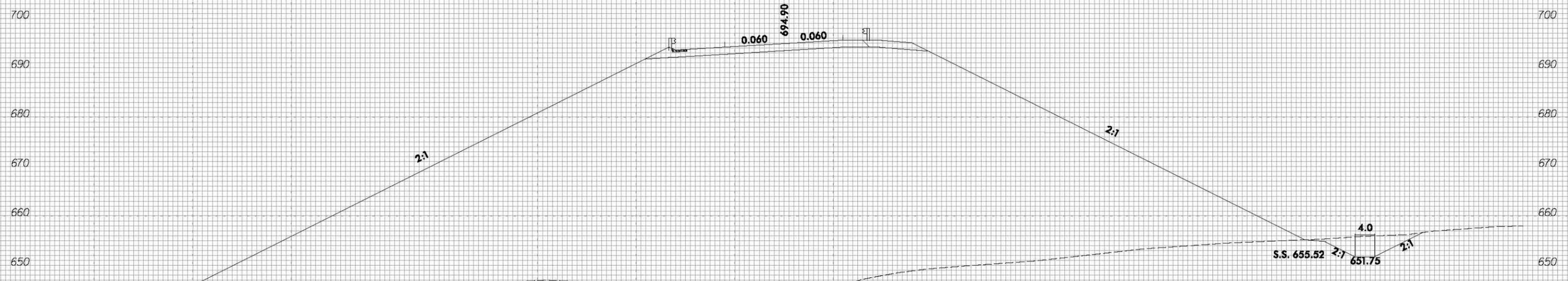
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SITE 2

PERMIT DRAWING
SHEET 16 OF 56



40+50



40+00

-RPE-

05\25\11\11502
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mcoak

STV/Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28204
NC License Number E-0991

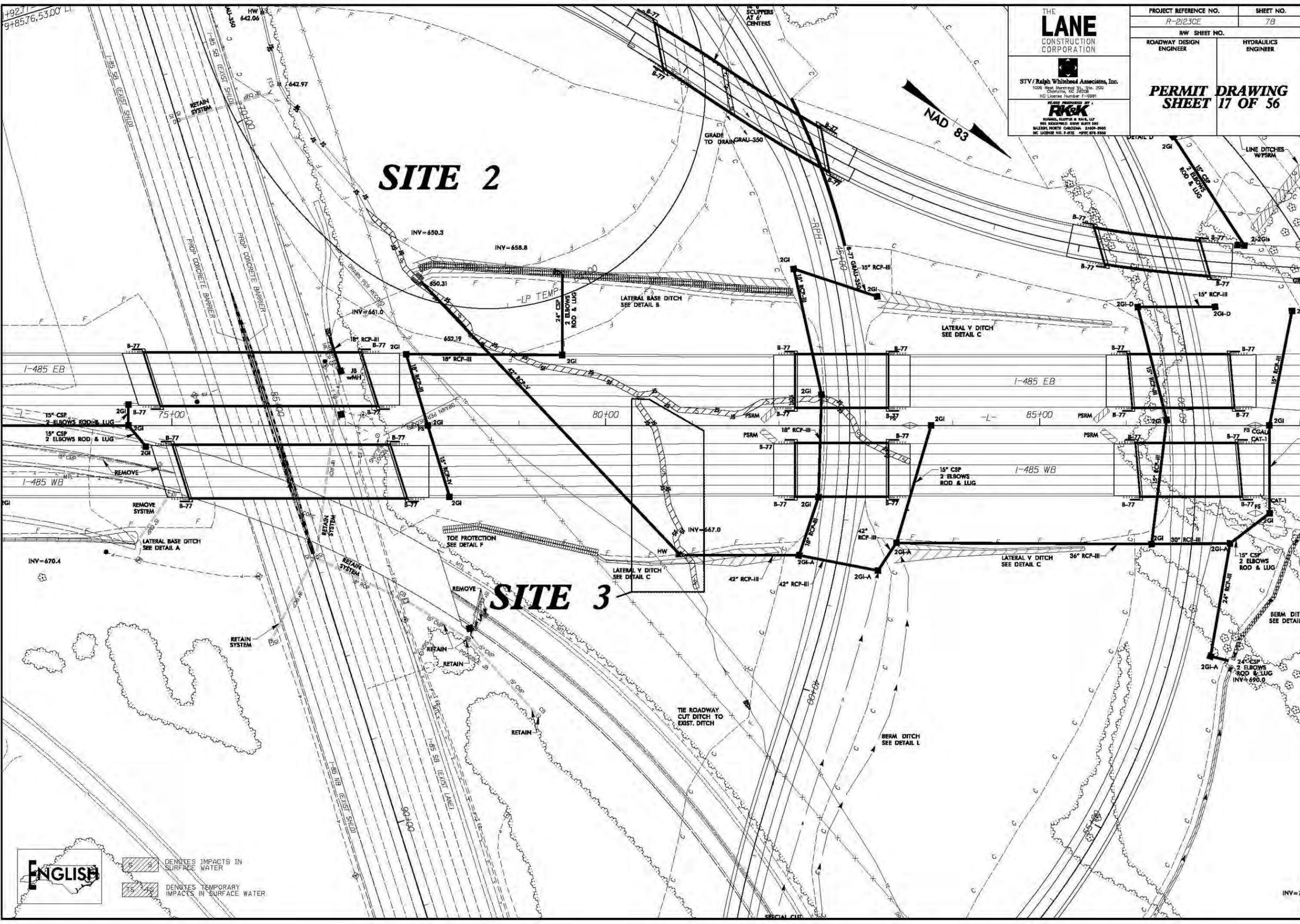
DESIGN PREPARED BY
RJK
RICHARD J. KLEPPER & PAUL L. LEE
190 ROCKFORD DRIVE SUITE 200
MILFORD NORTH CAROLINA 28050-2000
NC LICENSE NO. E-0122 (407) 878-2500

**PERMIT DRAWING
SHEET 17 OF 56**



SITE 2

SITE 3



ENGLISH

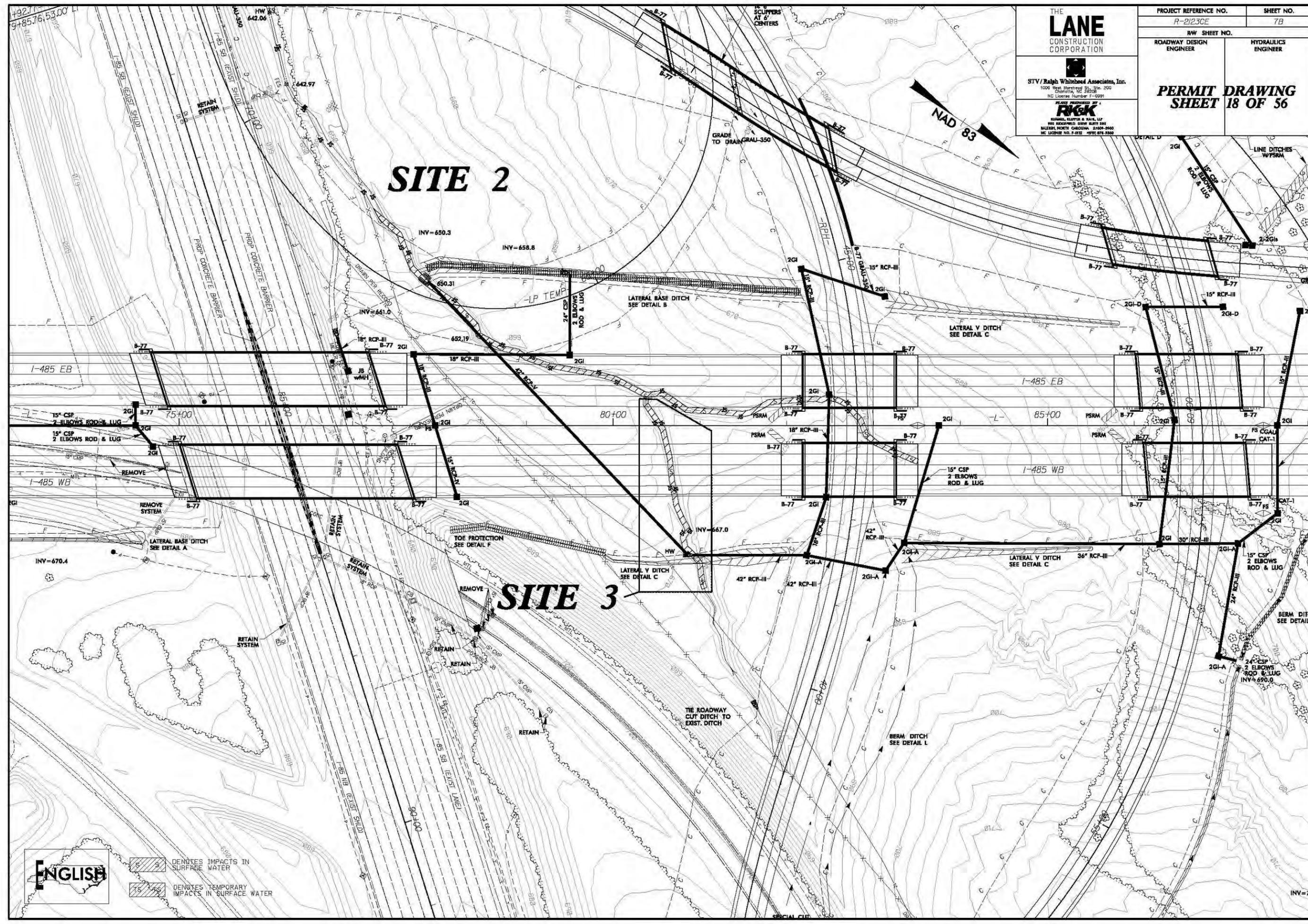
	DENOTES IMPACTS IN SURFACE WATER
	DENOTES TEMPORARY IMPACTS IN SURFACE WATER

INV=7

STV/Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28204
NC License Number E-0991

RELAY PREPARED BY
RJK
RICHARD KLEPPER & PAUL, LLP
190 ROCKFORD DRIVE SUITE 200
MILFORD NORTH CAROLINA 27040-2000
NC LICENSE NO. E-0112 4/19/1 878-3300

**PERMIT DRAWING
SHEET 18 OF 56**



ENGLISH

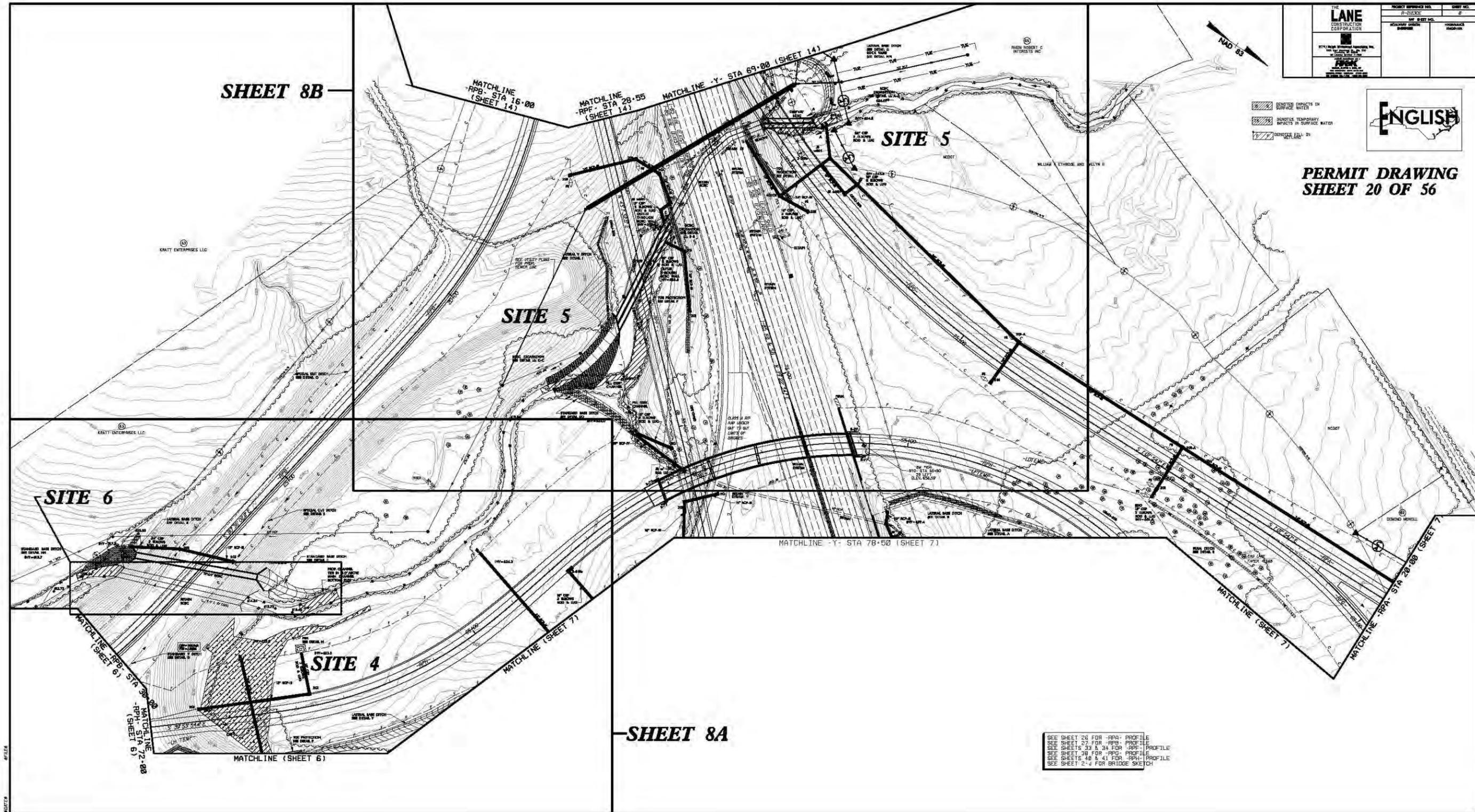
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER

THE LANE CONSTRUCTION CORPORATION <small>2711 PARKWAY WEST, SUITE 100 FORT WORTH, TEXAS 76102 PHONE: (817) 339-2200 FAX: (817) 339-2201</small>	PROJECT SHEET NO.	SHEET NO.
	PROJECT NO.	SHEET NO.
DATE	SCALE	DATE



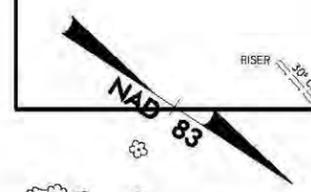
**PERMIT DRAWING
SHEET 20 OF 56**

- EROSION CONTROL MEASURES
- TEMPORARY EROSION CONTROL MEASURES
- EROSION CONTROL MEASURES



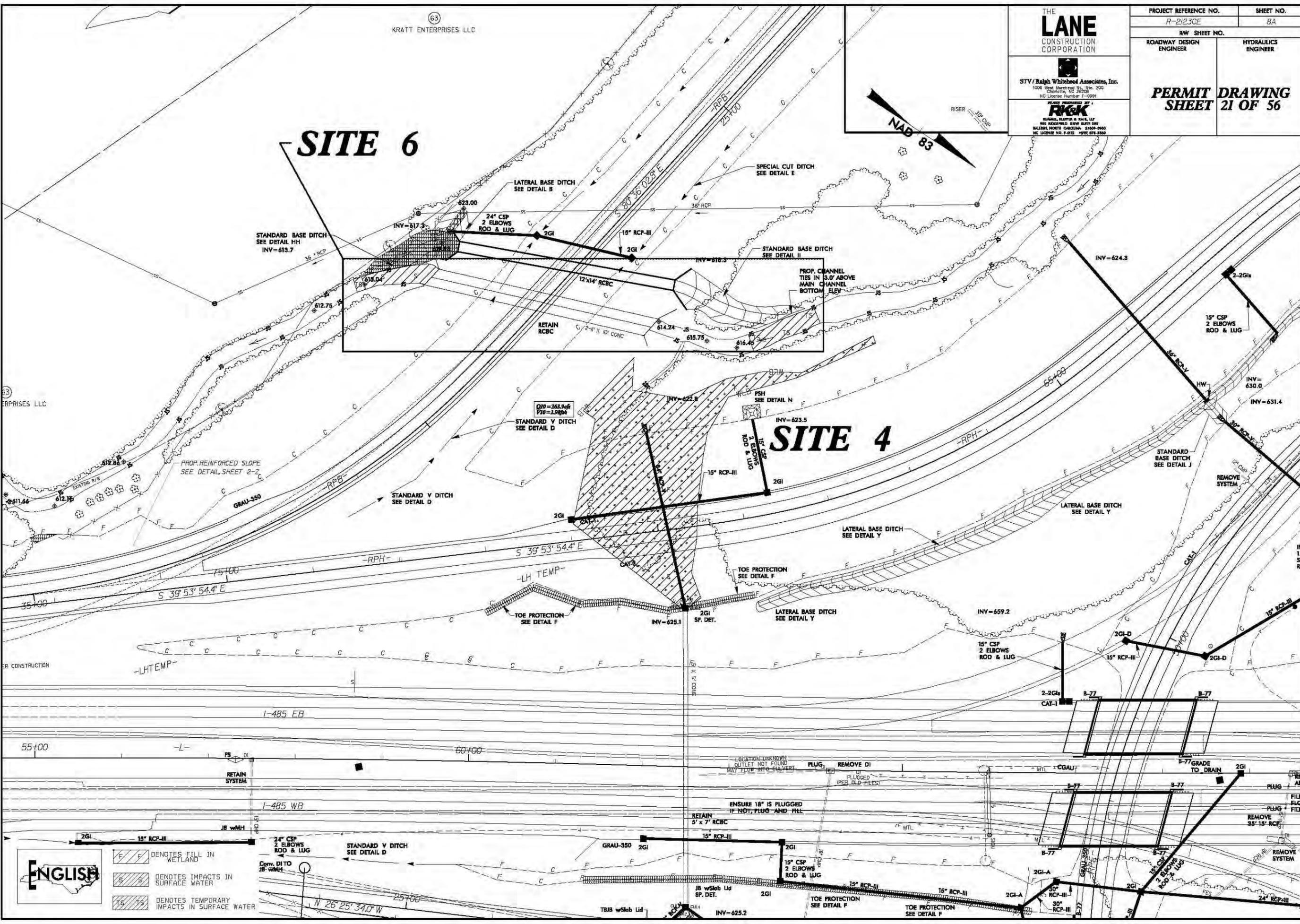
SEE SHEET 26 FOR -RPA- PROFILE
 SEE SHEET 27 FOR -RFB- PROFILE
 SEE SHEETS 33 & 34 FOR -RPH- PROFILE
 SEE SHEET 38 FOR -RPG- PROFILE
 SEE SHEETS 40 & 41 FOR -RPH- PROFILE
 SEE SHEET 2-4 FOR BRIDGE SKETCH

DATE



SITE 6

SITE 4



ENGLISH

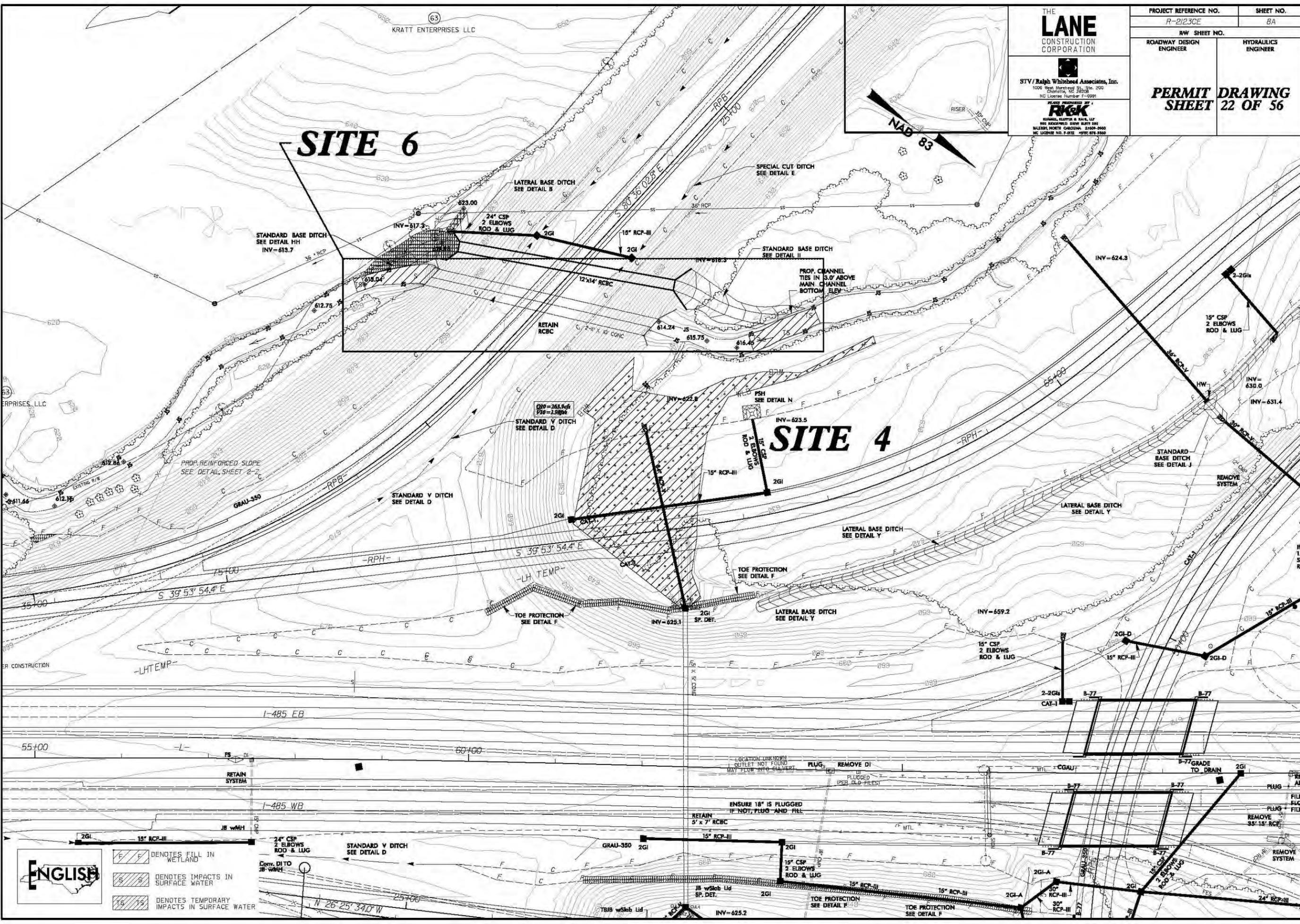
	DENOTES FILL IN WETLAND
	DENOTES IMPACTS IN SURFACE WATER
	DENOTES TEMPORARY IMPACTS IN SURFACE WATER

LOCATION DISCUSSION
OUTLET NOT FOUND
MAY FLOW INTO CULVERT

PLUG

REMOVE DI
IF PLUGGED
(PER OLD FILES)

ENSURE 18\"/>



ENGLISH

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



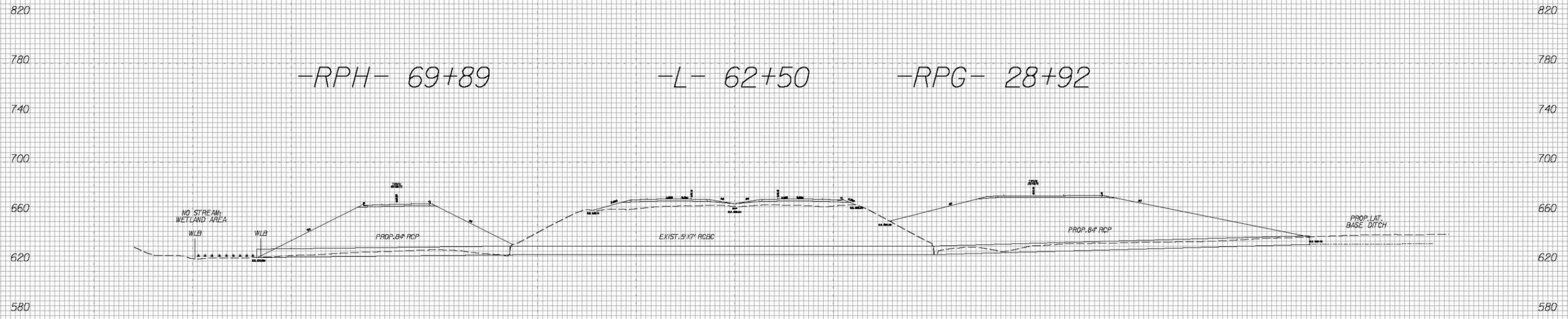
8/23/99

0 20 40	PROJ. REFERENCE NO.	SHEET NO.
	R-2123CE	X-1

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**PERMIT DRAWING
SHEET 23 OF 56**

SITE 4



G:\25\11157-21
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 mcdk

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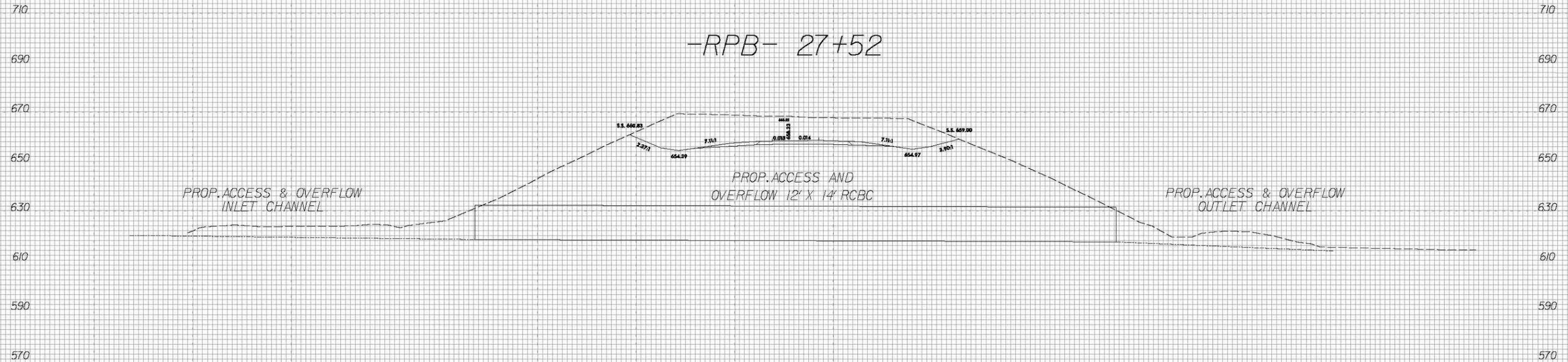
8/23/99

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	R-2123CE	

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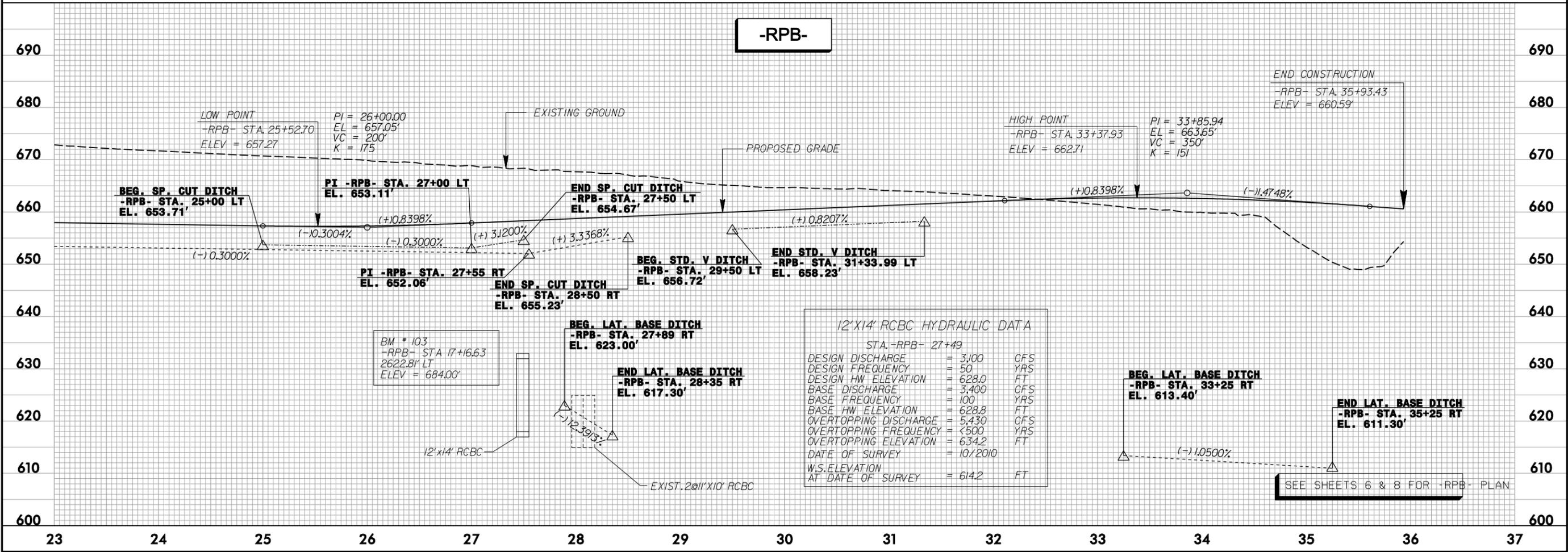
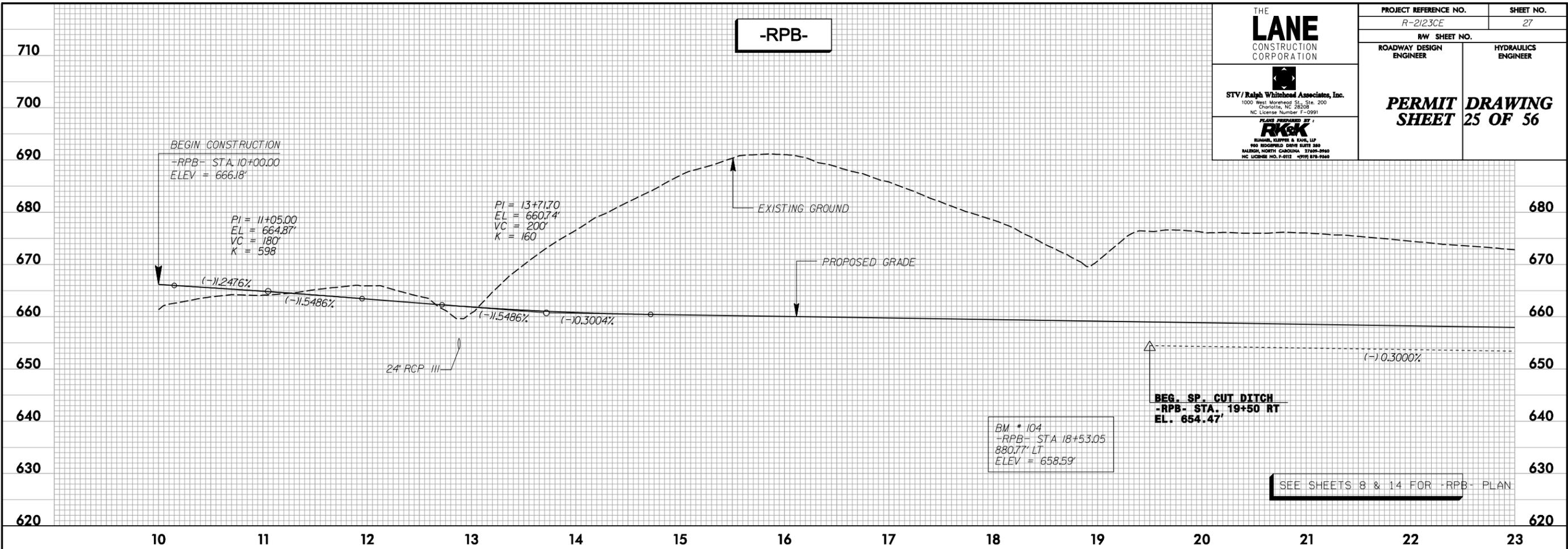
SITE 6

**PERMIT DRAWING
SHEET 24 OF 56**



05\25\1540\02
hydro\105\permits_environmental\Xsc\R2123CE_CULVERT_XPL_Site7.dgn
mcdk

300 280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300



\$DATE\$

8/23/99

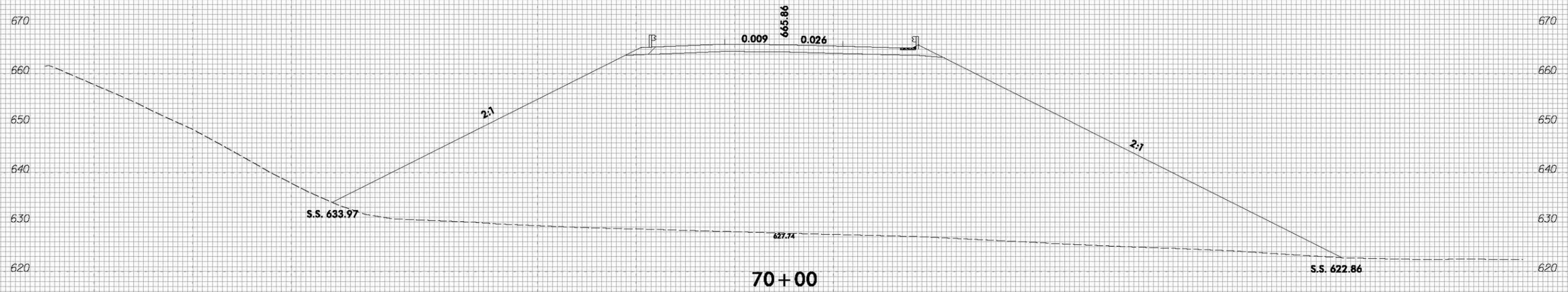
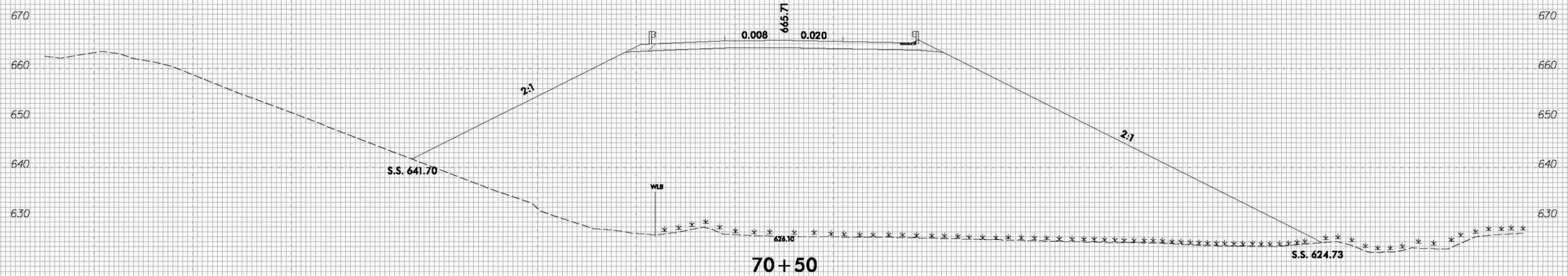


PROJ. REFERENCE NO.	SHEET NO.
R-2123CE	X-362

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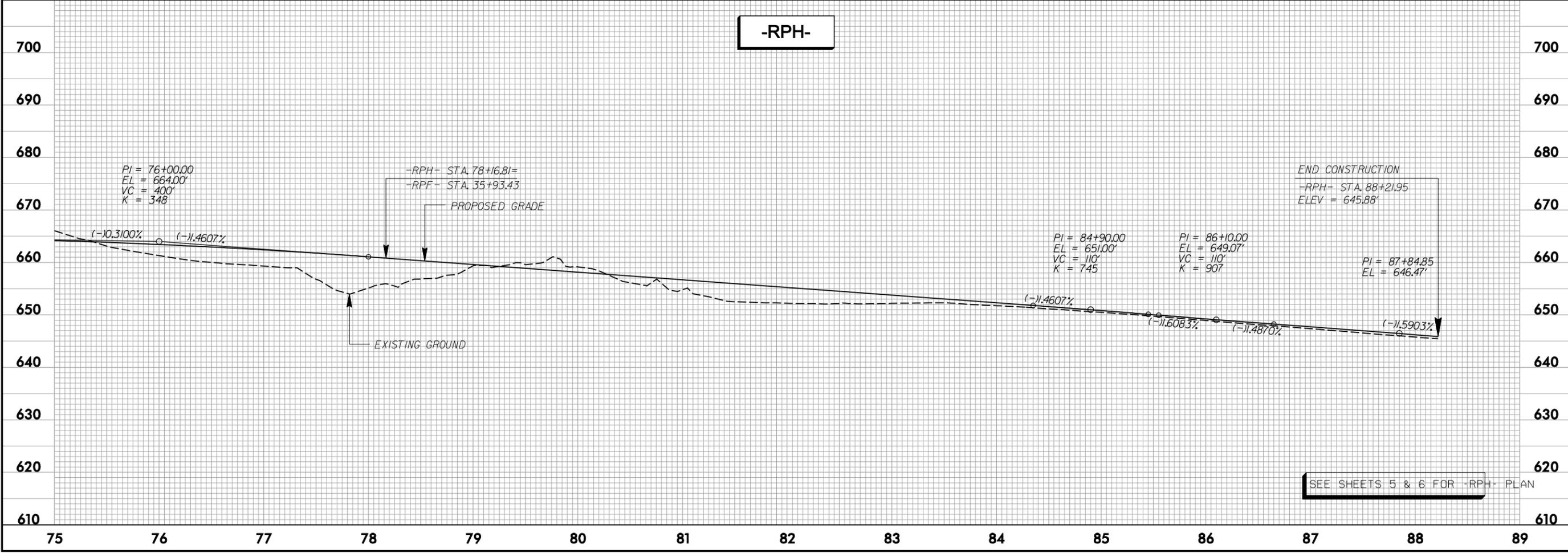
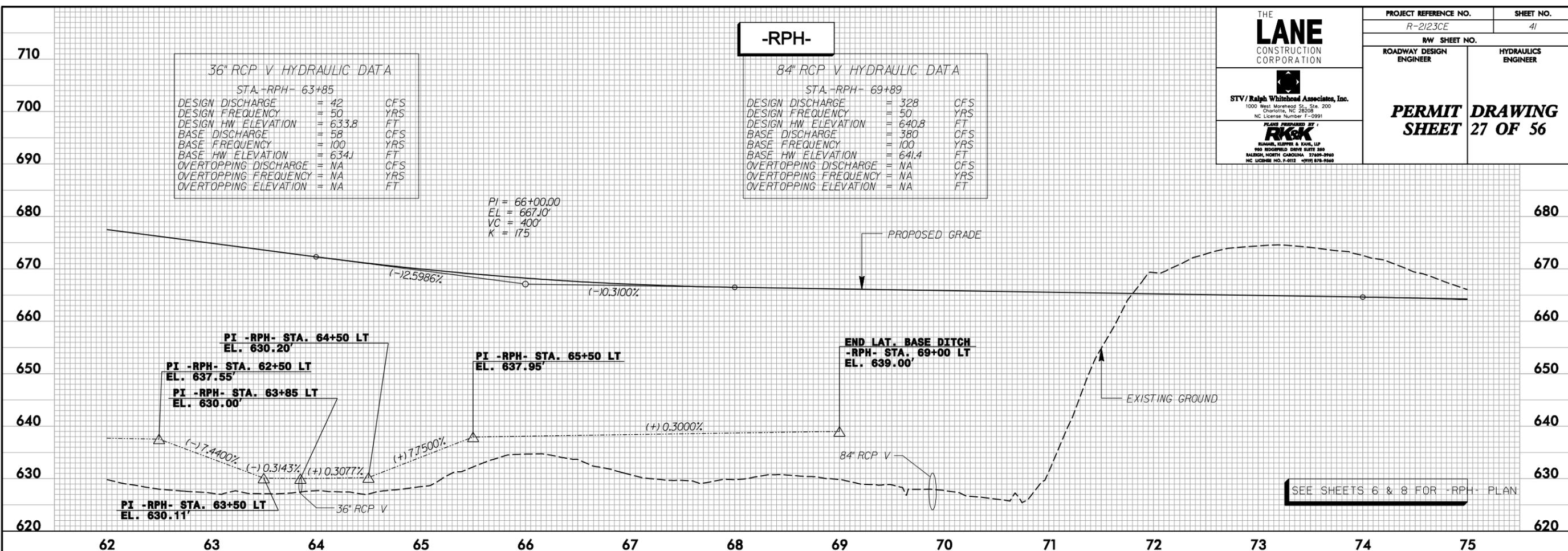
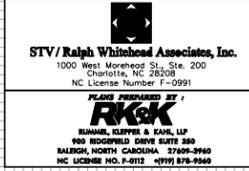
**PERMIT DRAWING
SHEET 26 OF 56**

SITE 4



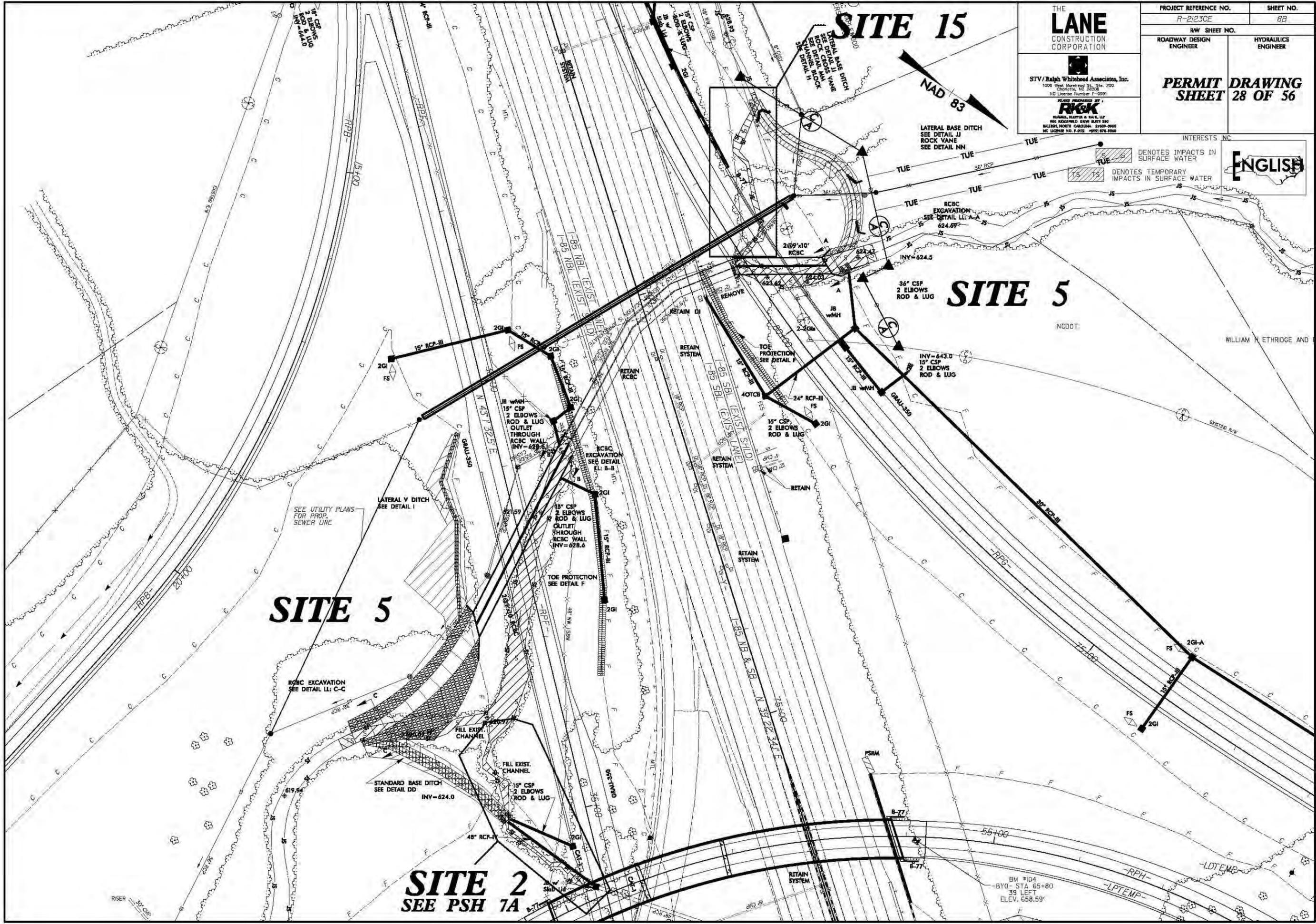
-RPH-

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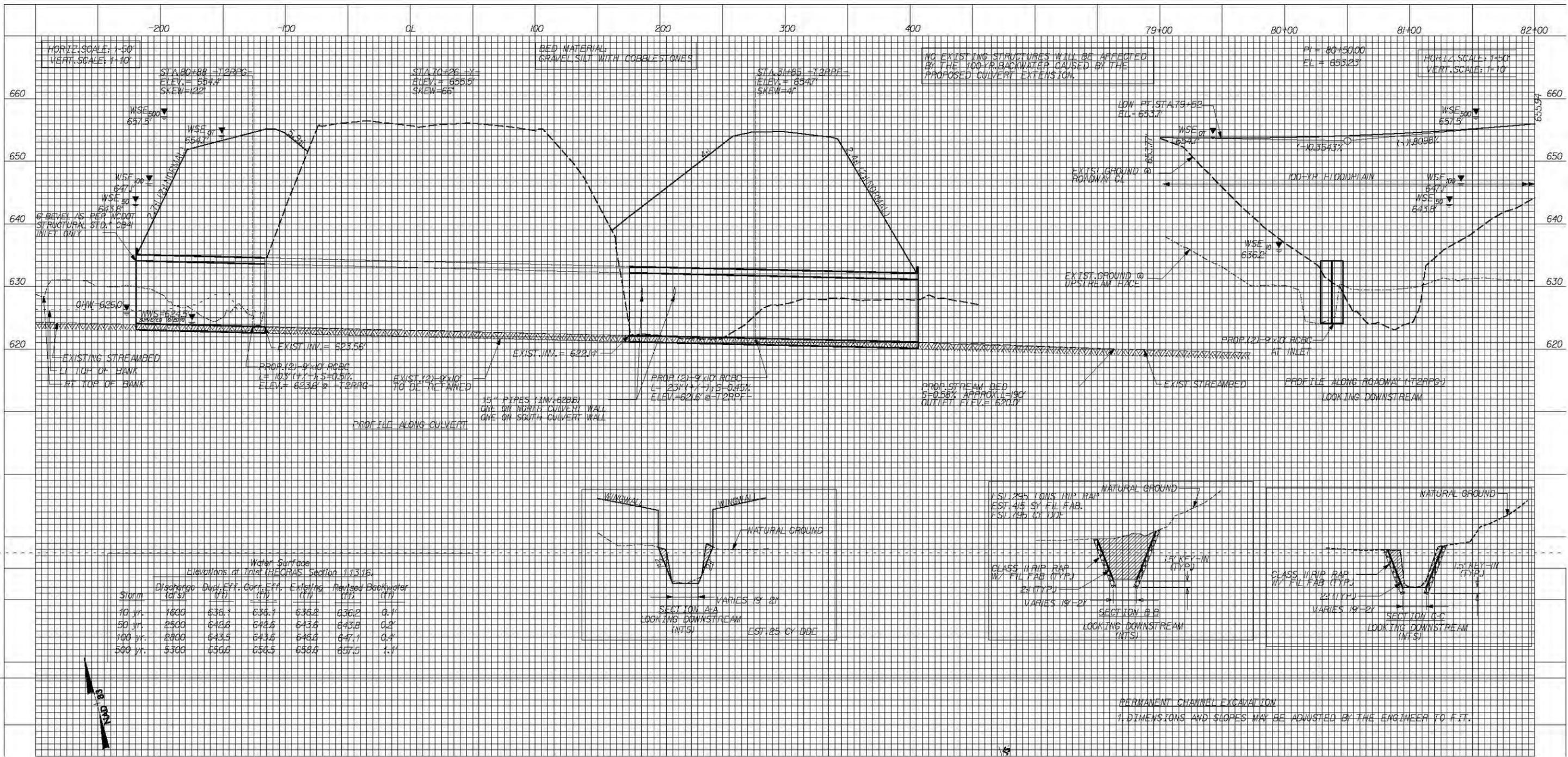
THE LANE CONSTRUCTION CORPORATION  STV/Ralph Whitehead Associates, Inc. 1000 West Marchwood St., Ste. 200 Charlotte, NC 28203 NC License Number F-0991 RELAY PREPARED BY: RICK RUMMEL, KLEPPER & PAUL, LLP 800 ROCKFORD DRIVE SUITE 200 WALKER NORTH CAROLINA 27080-2000 NC LICENSE NO. F-012 (99) 878-2500	PROJECT REFERENCE NO. R-2123CE	SHEET NO. 88
	ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING SHEET 28 OF 56



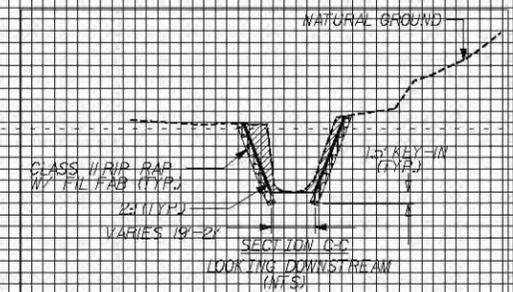
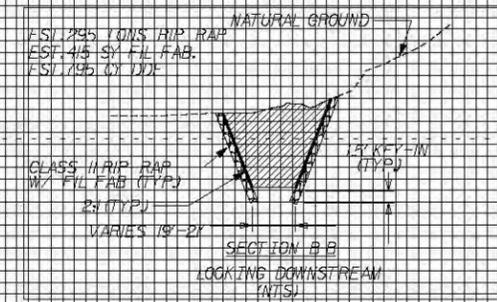
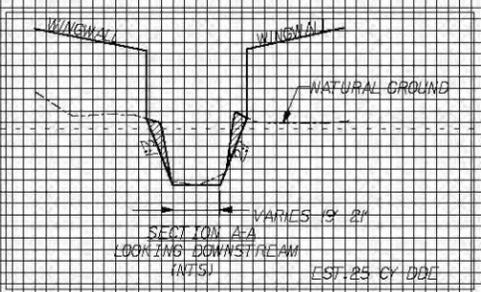
SITE 5

PERMIT DRAWING SHEET 30 OF 56



Water Surface Elevations of Inlet (HECRAS) section 11345

Storm	Discharge (cfs)	Dual Eff. (ft)	Corr. Eff. (ft)	Existing (ft)	Proposed (ft)	Backwater (ft)
10 yr.	1600	636.2	636.1	636.2	636.2	0.0
50 yr.	2500	642.6	642.6	643.6	643.6	0.2
100 yr.	2900	643.5	643.6	647.1	647.1	0.4
500 yr.	5300	656.6	656.5	658.6	657.5	1.1

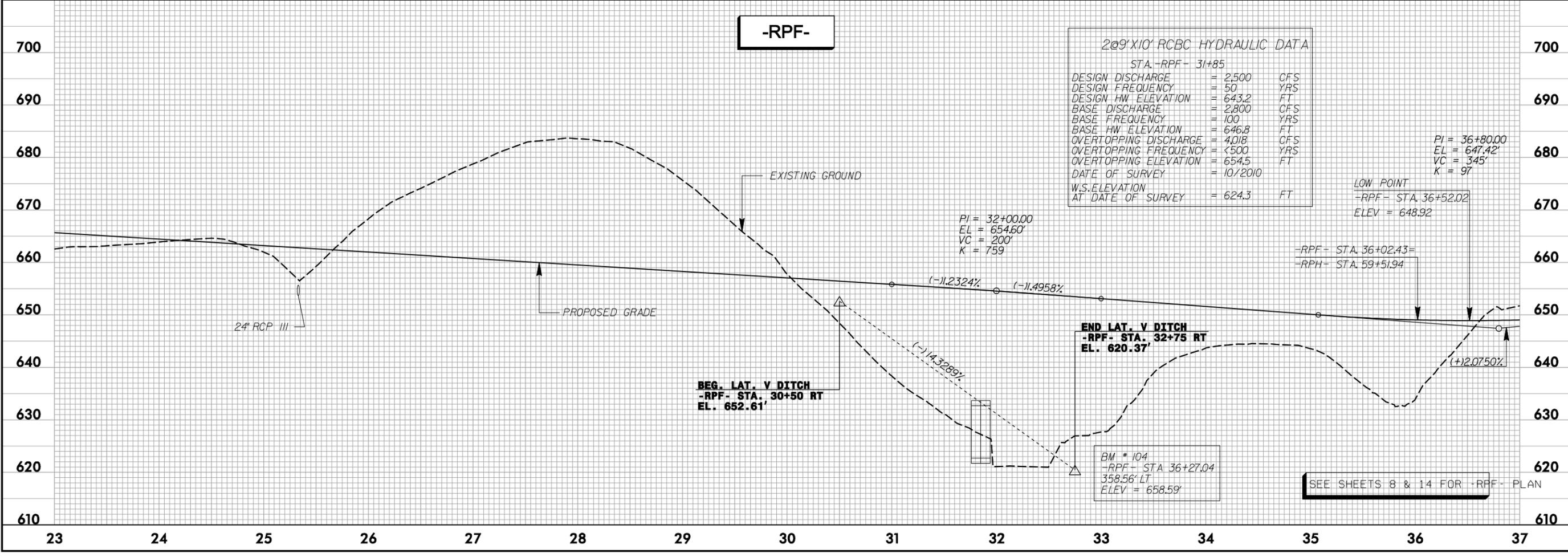
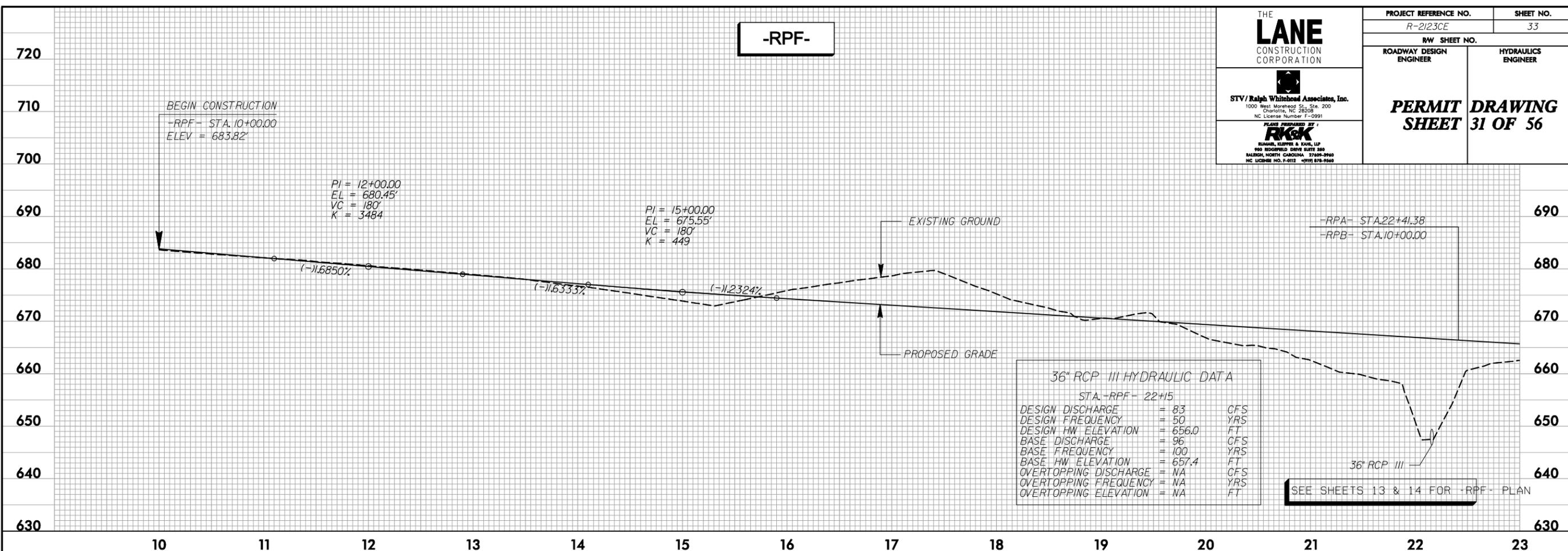


PERMANENT CHANNEL EXCAVATION
 1. DIMENSIONS AND SLOPES MAY BE ADJUSTED BY THE ENGINEER TO F.F.T.

05A_25X1124108
 C:\hydrotools\permits\environmental\Xsec\R2123CE_CULVERT_XPL_Site6.dgn
 mcbok

STV/Ralph Whithead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License Number F-0991

PLANS PREPARED BY:
R&K
RUMMEL, KLEPPER & KAHN, LLP
300 HODGSON DRIVE SUITE 200
RALEIGH, NORTH CAROLINA 27601-2940
NC LICENSE NO. F-0112 09/91 878-9540

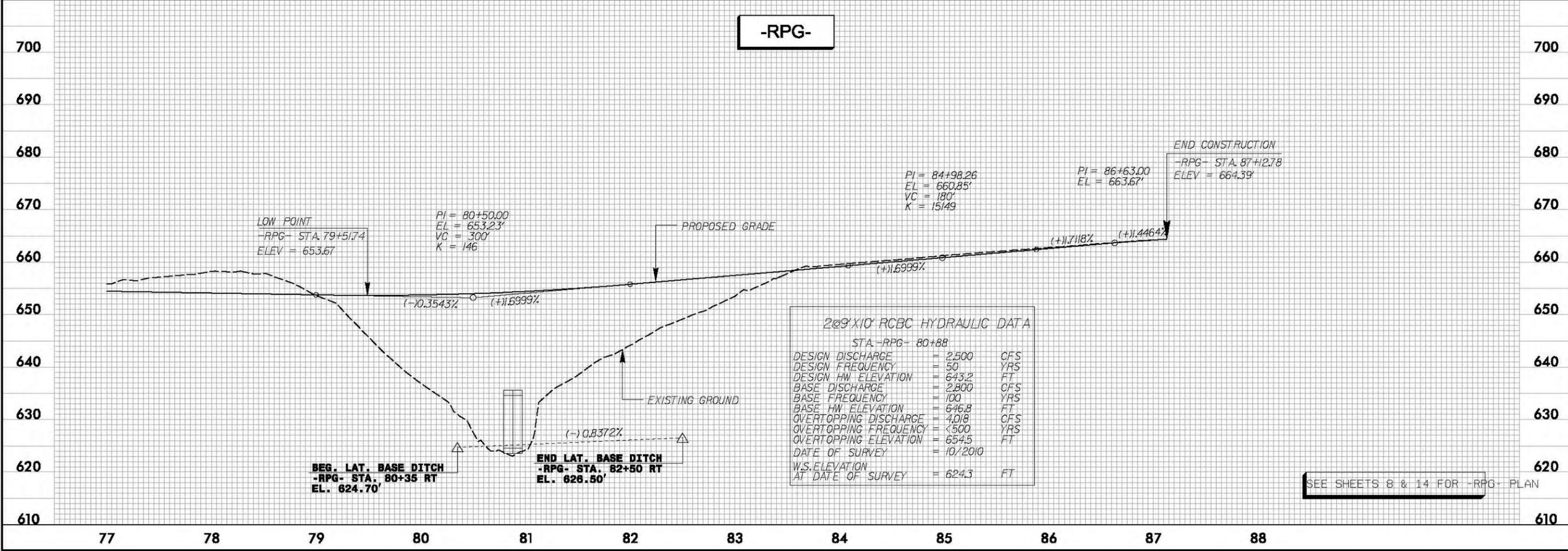
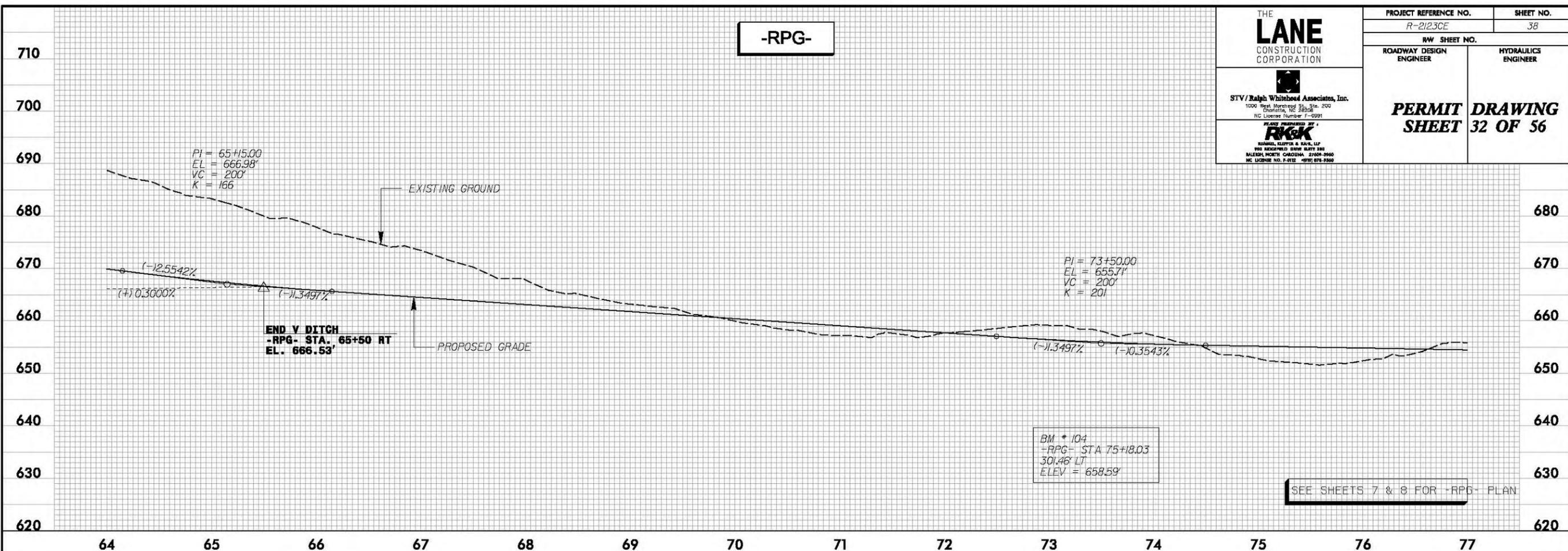


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\$DATE\$

STV/Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28204
NC License Number F-0991

RELAY PREPARED BY:
RJK
RUSSELL, ELLIOTT & HAY, LLP
2500 MOREHEAD DRIVE SUITE 200
ALEXANDRIA, NORTH CAROLINA 27604-2000
NC LICENSE NO. F-012 (1997) 878-9300



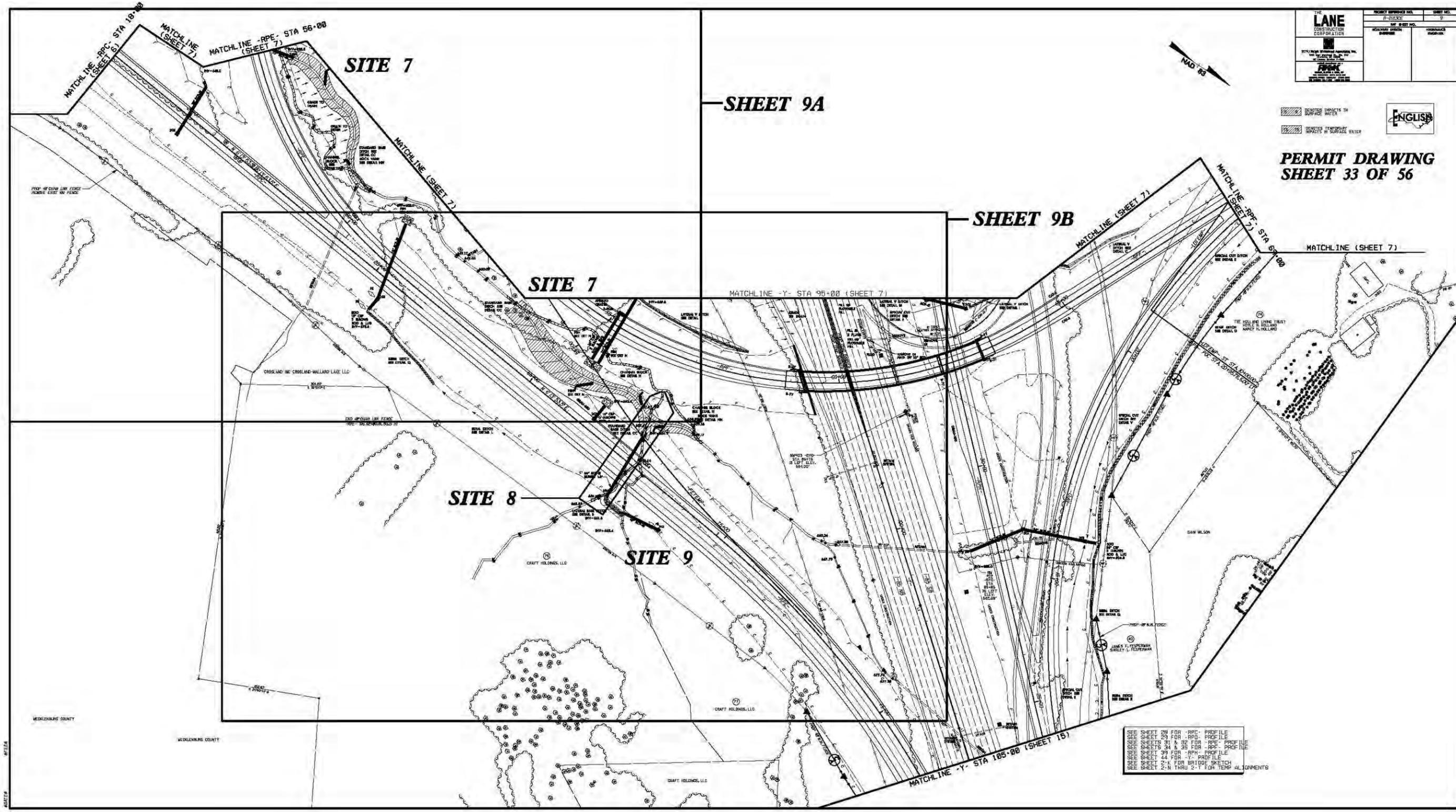
	PROJECT SHEET NO.	SHEET NO.
	100-000000	9
	DATE	ISSUED
	08/15/2014	08/15/2014



DISTURBED IMPACTS IN SURFACE WATER
 DISTURBED IMPACTS IN SUBSURFACE WATER



**PERMIT DRAWING
SHEET 33 OF 56**



- SEE SHEET 28 FOR -RPC- PROFILE
- SEE SHEET 29 FOR -RPE- PROFILE
- SEE SHEETS 31 & 32 FOR -RPF- PROFILE
- SEE SHEETS 34 & 35 FOR -RPF- PROFILE
- SEE SHEET 39 FOR -RPH- PROFILE
- SEE SHEET 44 FOR -Y- PROFILE
- SEE SHEET 24 FOR BRIDGE SKETCH
- SEE SHEET 2-N THRU 2-1 FOR TEMP ALIGNMENTS

DATE: 08/15/14

WEDONRANS COUNTY

WEDONRANS COUNTY

CRAFT HOLDINGS, LLC

DAN WILSON

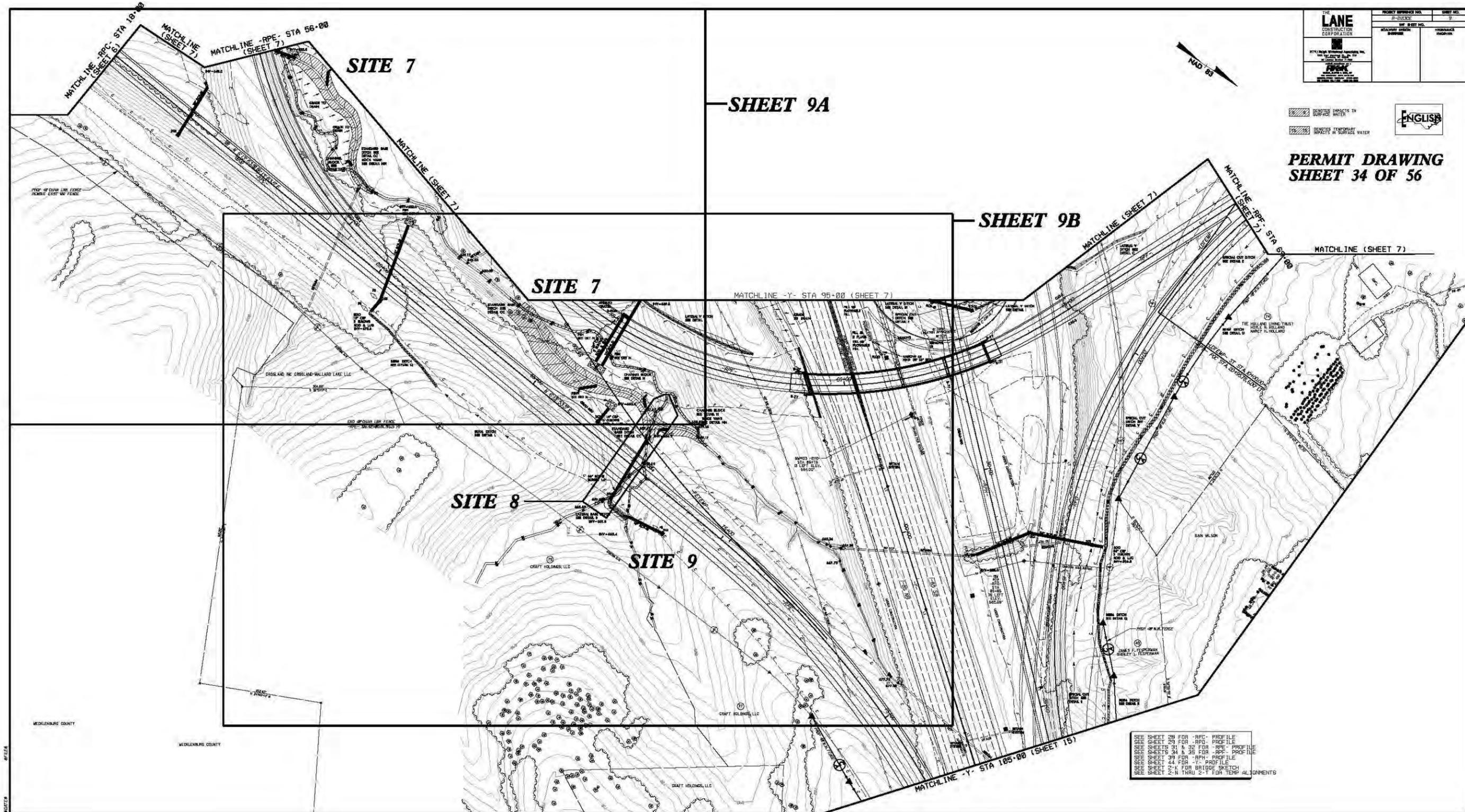
JAMES T. PEREZMAN
SHEETS 1-10, PEREZMAN

	PROJECT SHEET NO.	SHEET NO.
	100-000000	34
	DATE	SCALE
	08/20/2014	AS SHOWN



DENOTES IMPACTS IN SURFACE WATER
 DENOTES TEMPORARY IMPACTS IN SURFACE WATER

**PERMIT DRAWING
SHEET 34 OF 56**

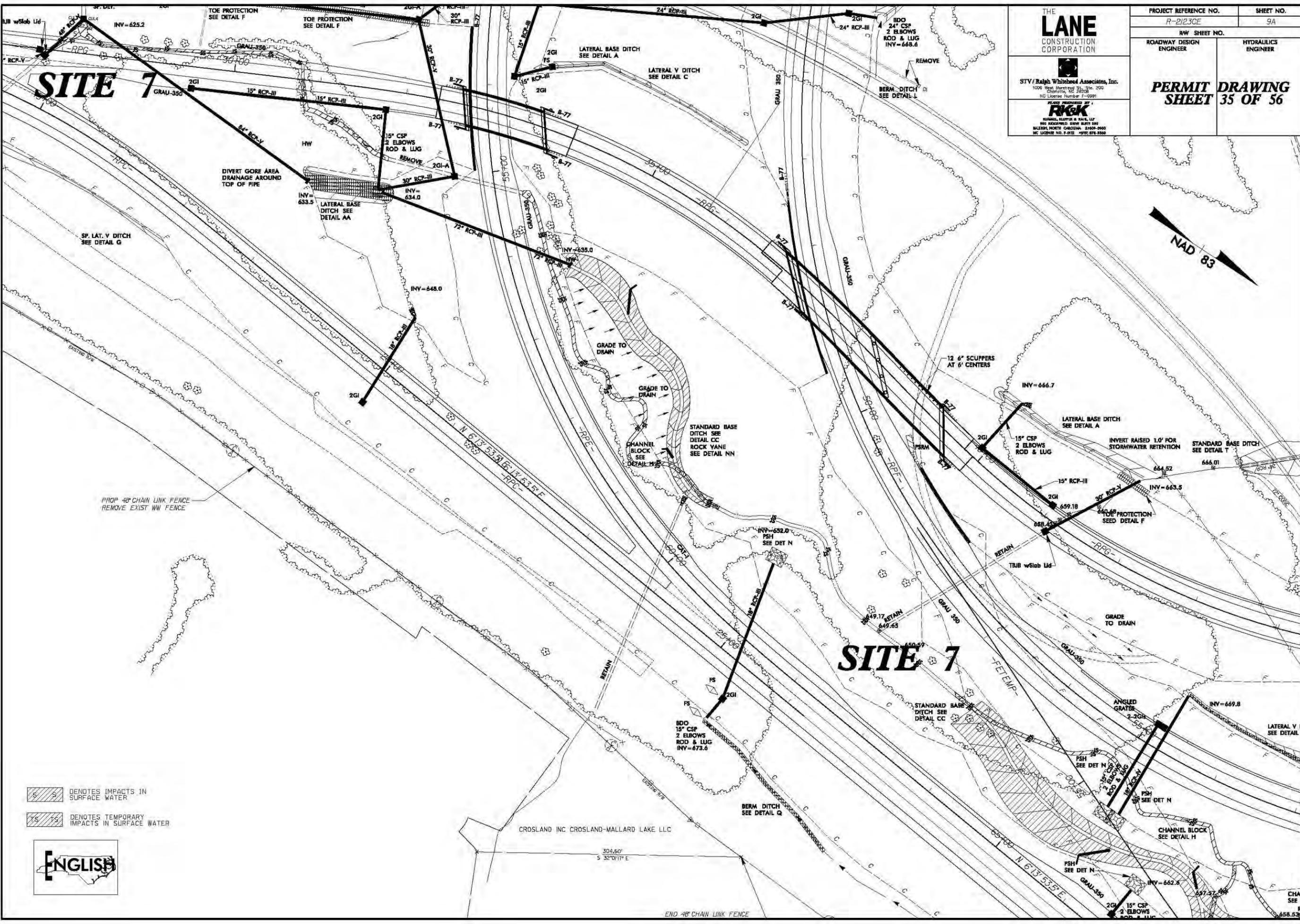


SEE SHEET 28 FOR -RPC- PROFILE
 SEE SHEET 29 FOR -RPE- PROFILE
 SEE SHEETS 31 & 32 FOR -RPE- PROFILE
 SEE SHEETS 34 & 35 FOR -RPC- PROFILE
 SEE SHEET 39 FOR -RPM- PROFILE
 SEE SHEET 44 FOR -Y- PROFILE
 SEE SHEET 2-K FOR BRIDGE SKETCH
 SEE SHEET 2-N THRU 2-T FOR TEMP ALIGNMENTS

STV/Ralph Whitehead Associates, Inc.
1000 West Hargett St., Ste. 200
Charlotte, NC 28203
NC License Number E-0991

PREPARED BY
RJK
RICHARD J. KLEIN, P.E.
190 HICKORY DRIVE EAST 2ND
MILFORD NORTH CAROLINA 28050-2000
NC LICENSE NO. E-012 (9/97) ETS-2500

PERMIT DRAWING SHEET 35 OF 56



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



CROSLAND INC CROSLAND-MALLARD LAKE LLC

304.60°
S 32°01'17\"/>

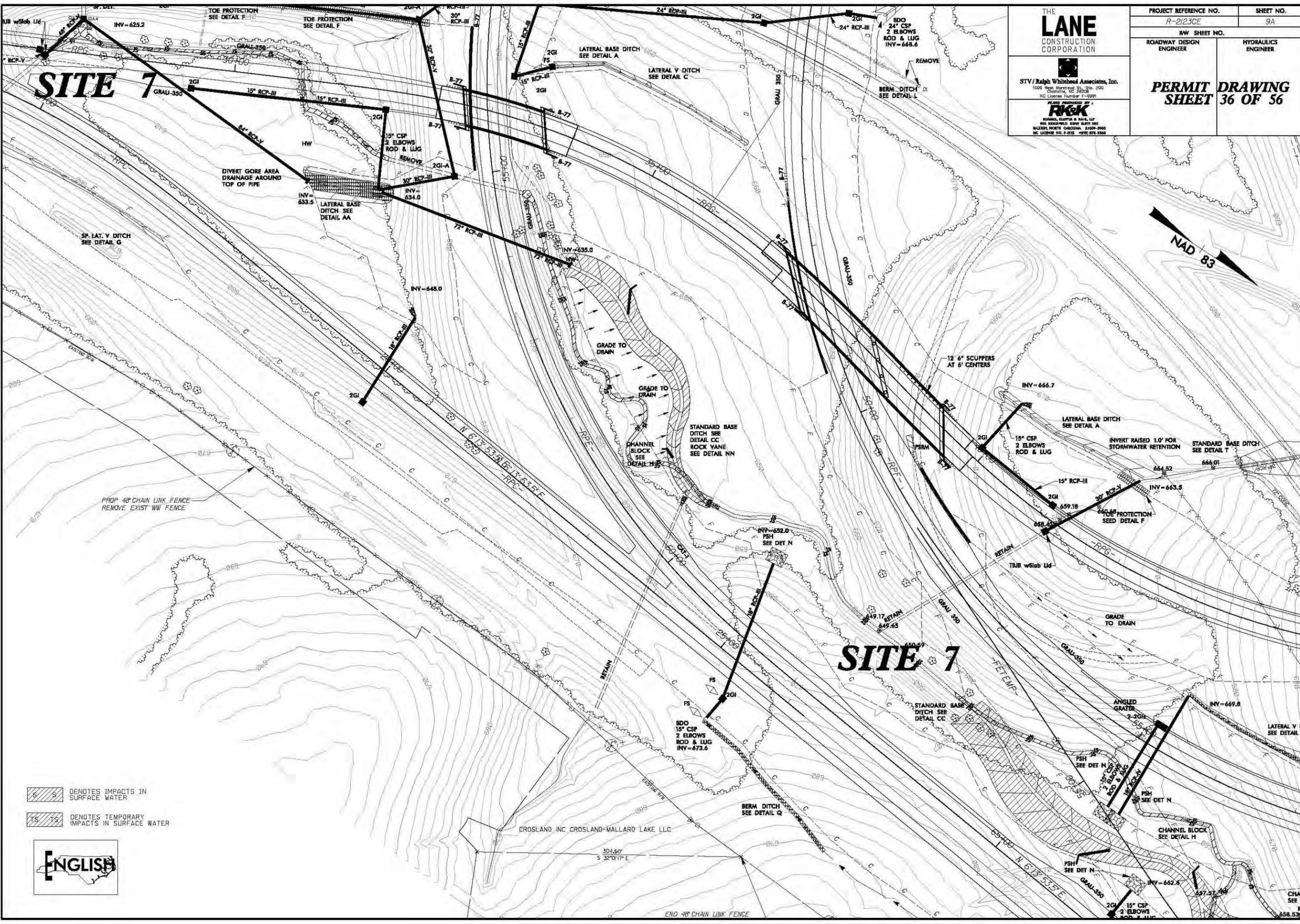
END 48\"/>



STV/Ralph Whitehead Associates, Inc.
1000 West Marshall St., Ste. 200
Charlotte, NC 28204
NC License Number F-0991

DESIGN PREPARED BY
RICK
RICHARD KLEPPER & PAUL LLP
200 ROCKFORD DRIVE SUITE 200
MILFORD NORTH CAROLINA 28050-2000
NC LICENSE NO. F-012 (9/91) 874-2500

**PERMIT DRAWING
SHEET 36 OF 56**



DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER



CROSLAND INC CROSLAND-MALLARD LAKE LLC

END 48\"/>

CHAN
SEE I
658.52

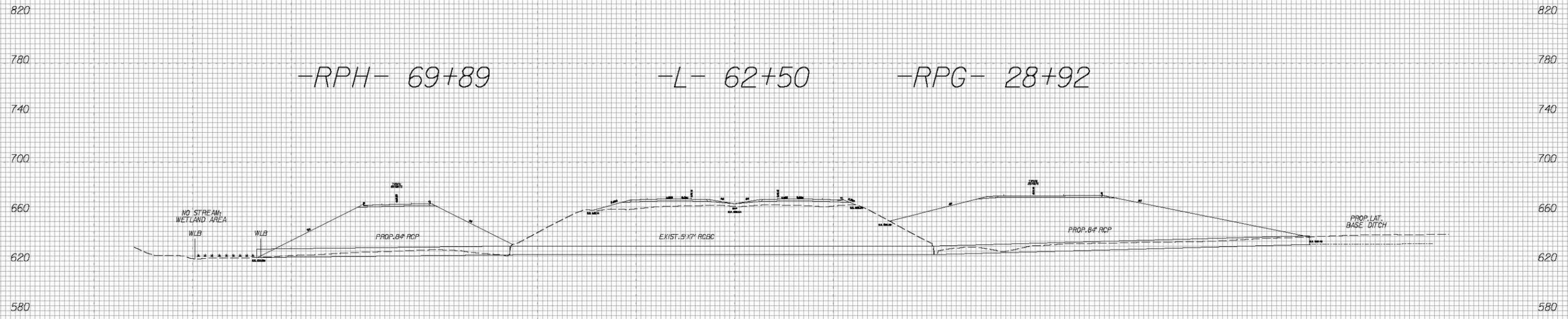
8/23/99

0 20 40	PROJ. REFERENCE NO.	SHEET NO.
	R-2123CE	X-1

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**PERMIT DRAWING
SHEET 37 OF 56**

SITE 7



-RPH- 69+89

-L- 62+50

-RPG- 28+92

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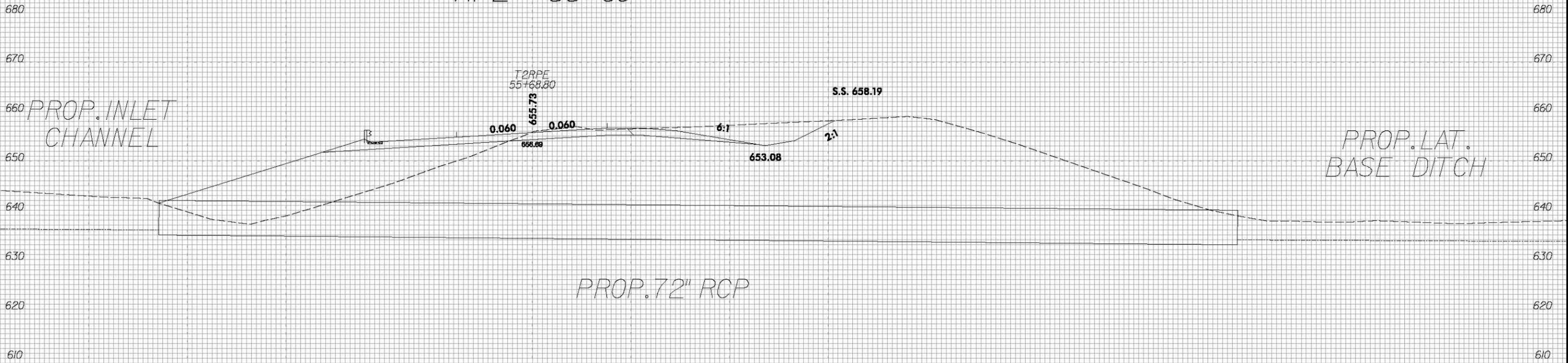
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**PERMIT DRAWING
SHEET 38 OF 56**

SITE 7

-RPE- 55+69



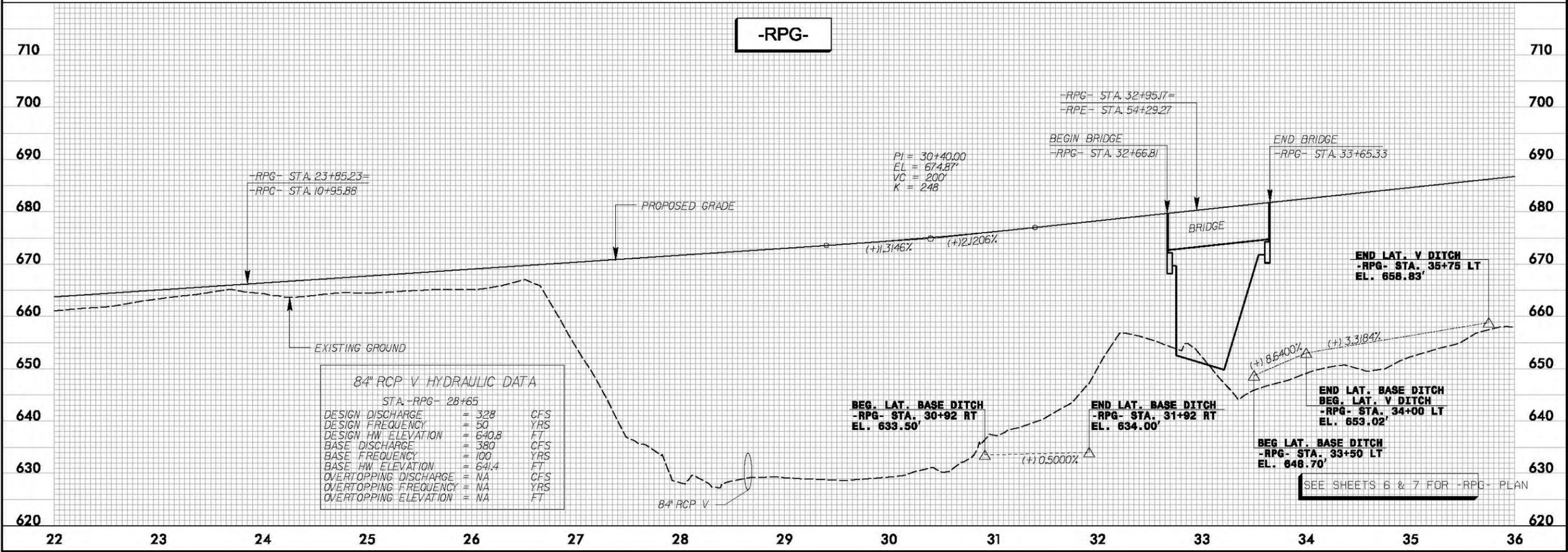
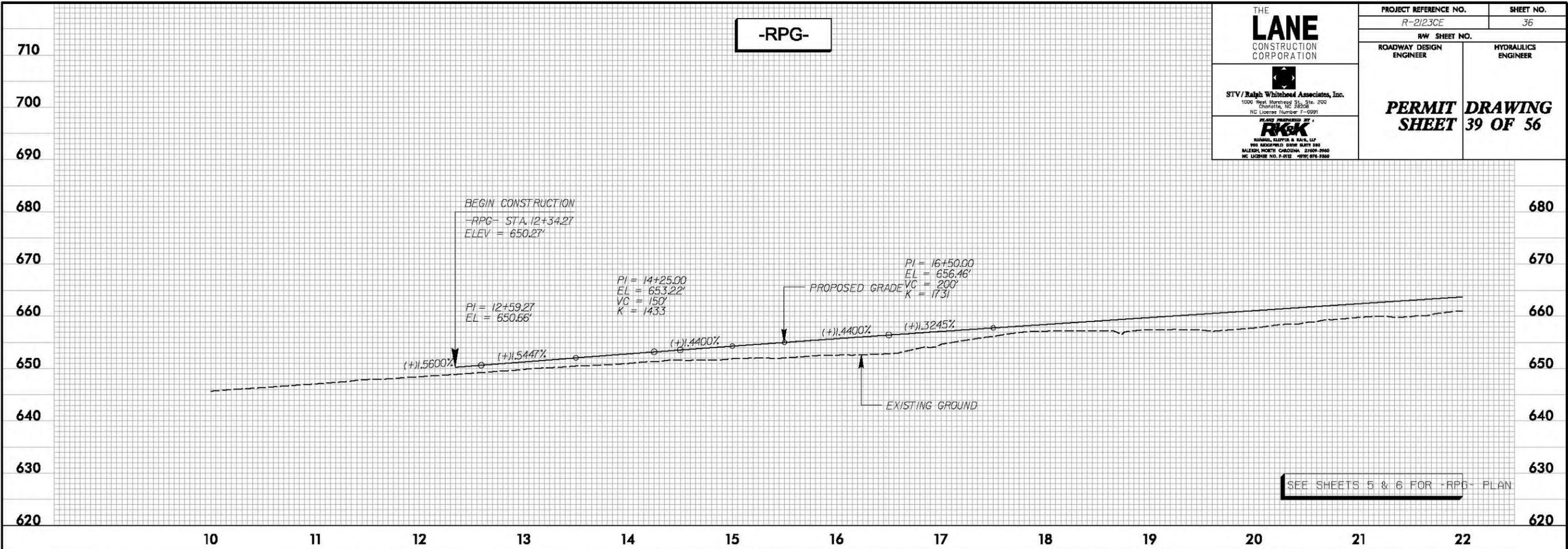
*PROP. INLET
CHANNEL*

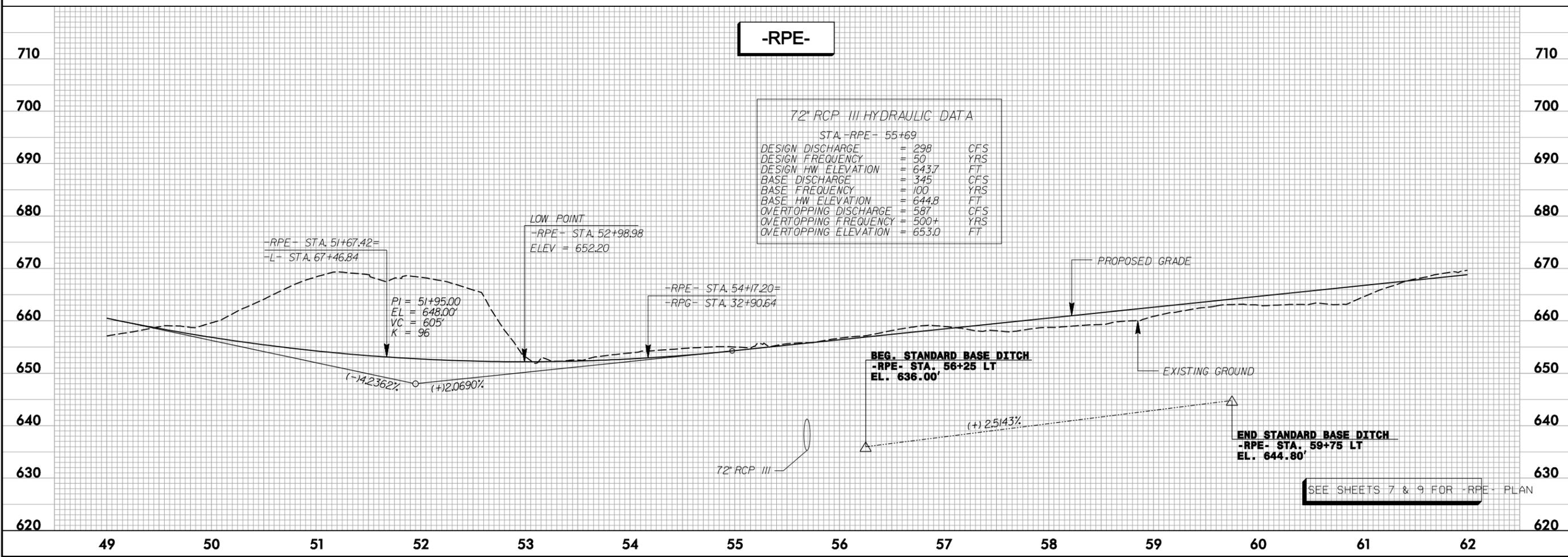
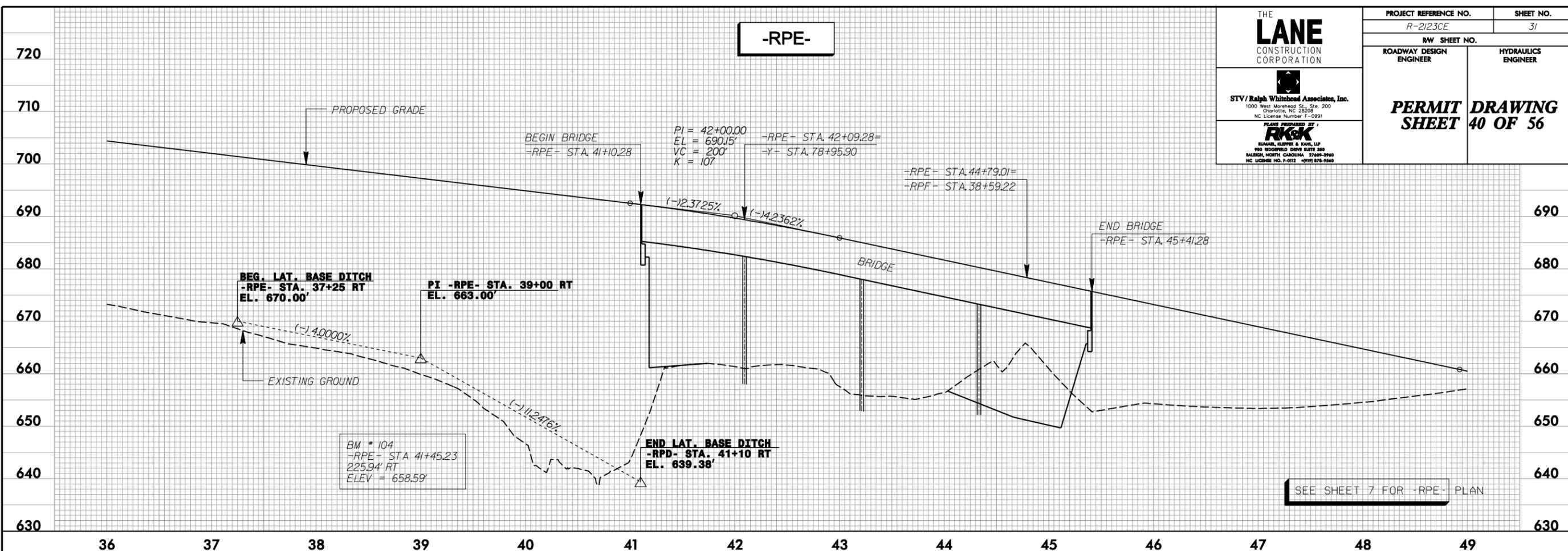
*PROP. LAT.
BASE DITCH*

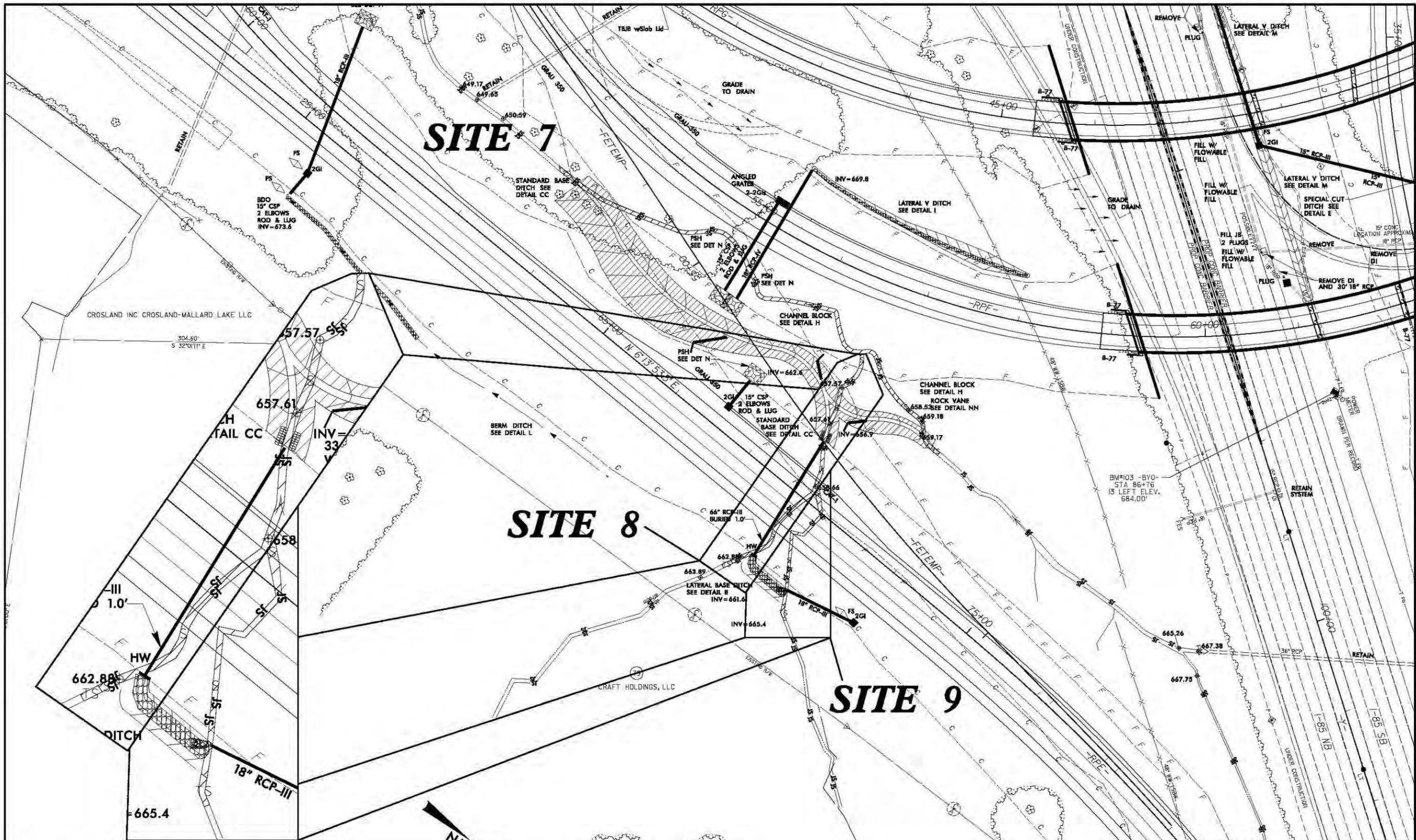
PROP. 72" RCP

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	R-2123CE	36
	ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	PERMIT DRAWING SHEET 39 OF 56	
<small>STV/Ralph Whitehead Associates, Inc. 1000 West Marchwood St., Ste. 200 Charlotte, NC 28203 NC License Number F-0991</small>		
<small>DESIGN PREPARED BY: RWK RUSSELL, KLETTER & HAY, LLP 2500 ROCKFORD DRIVE SUITE 200 ALEXANDRIA, NORTH CAROLINA 27604-2000 NC LICENSE NO. F-0112 - 09/91 878-3300</small>		







PROJECT REFERENCE NO.
R-21230E

SHEET NO.
9B

R/W SHEET NO.
ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

**PERMIT DRAWING
SHEET 41 OF 56**

THE
LANE
CONSTRUCTION
CORPORATION

STV/Ralph Whitehead Associates, Inc.
1000 West North Street, Suite 200
Charlotte, NC 28208
NC License Number F-0991

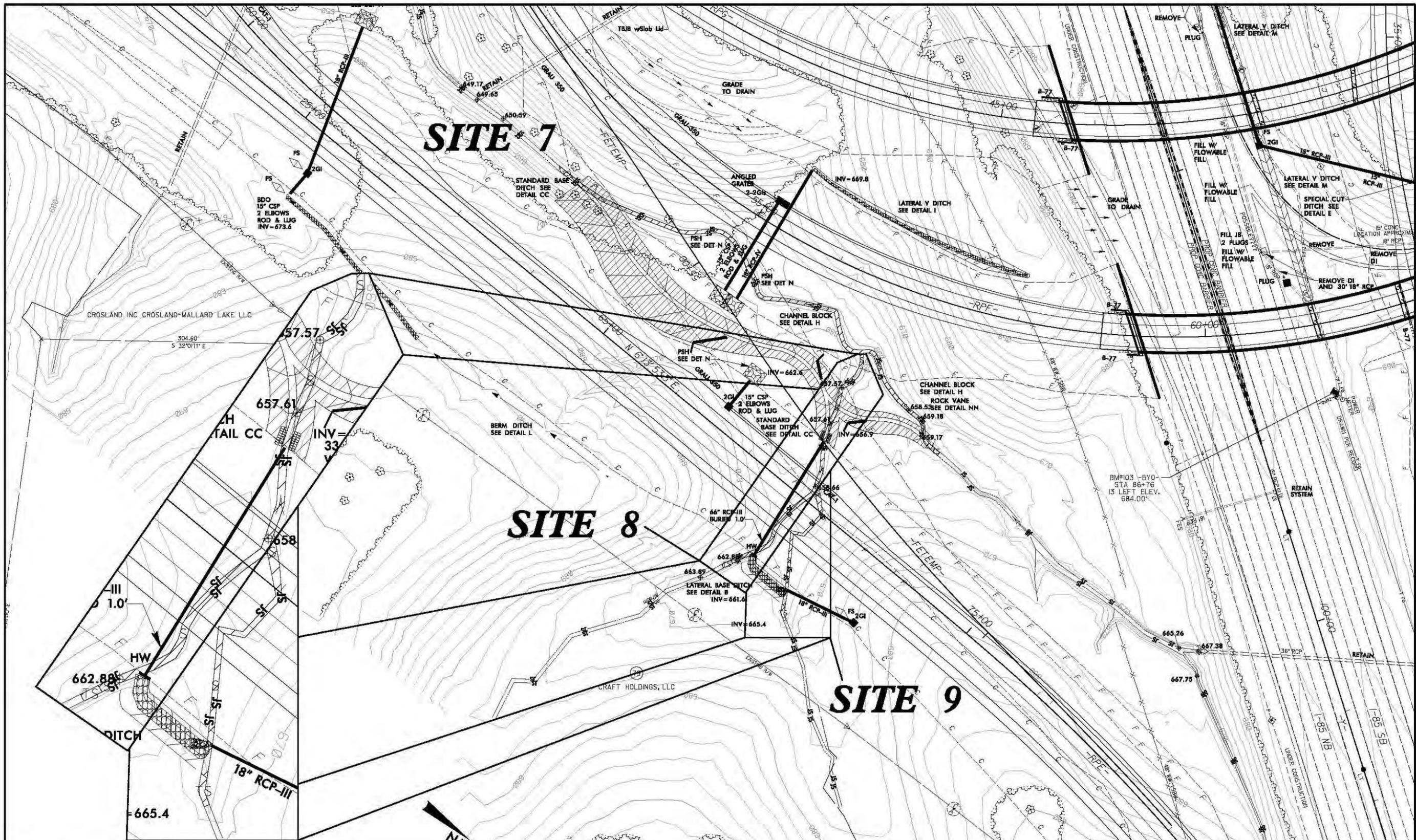
RKK
RANKINS, KEITH & KYLE, LP
PO BOX 100000
DURHAM, NORTH CAROLINA 27699-0000
NC LICENSE NO. F-0112 2019 072-0000

ENGLISH

TS IS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

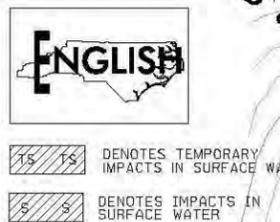
SS S DENOTES IMPACTS IN SURFACE WATER

17
CRAFT HOLDINGS, LLC



PROJECT REFERENCE NO. R-2123CE
 SHEET NO. 9B
 HW SHEET NO. ROADWAY DESIGN ENGINEER
 HYDRAULICS ENGINEER
PERMIT DRAWING SHEET 42 OF 56

THE LANE CONSTRUCTION CORPORATION
 STV/Ralph Whitehead Associates, Inc.
 1300 West Northside St., Ste. 200
 Charlotte, NC 28208
 NC License Number F-10971
RWK
 RICHARD W. KESTER & PARTNERS
 100 HICKORY CREEK DRIVE SUITE 200
 HARBOR, NORTH CAROLINA 27839-9999
 NC LICENSE NO. F-1012 2019 873-2448



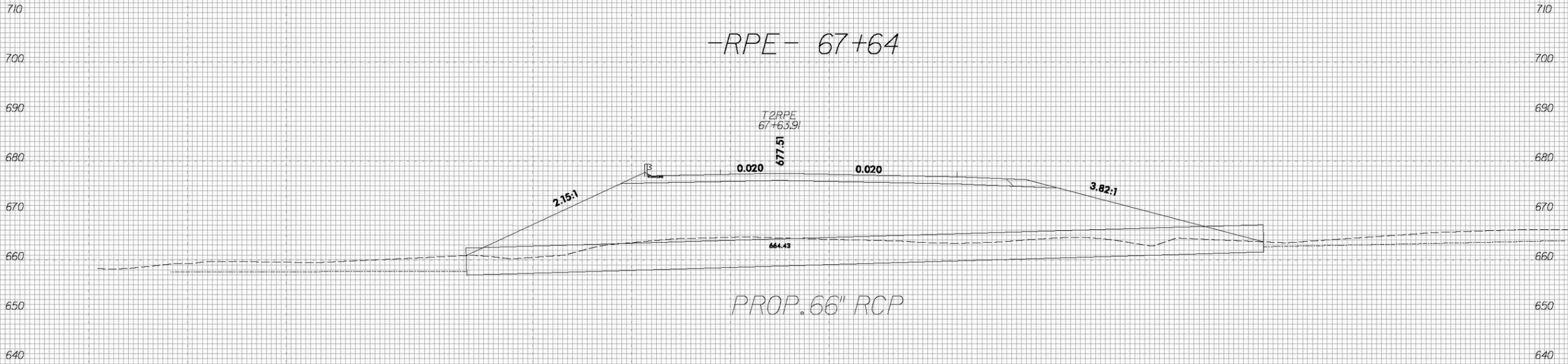
17
 CRAFT HOLDINGS, LLC

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

**PERMIT DRAWING
SHEET 43 OF 56**

SITE 8

-RPE- 67+64



PROP. 66" RCP

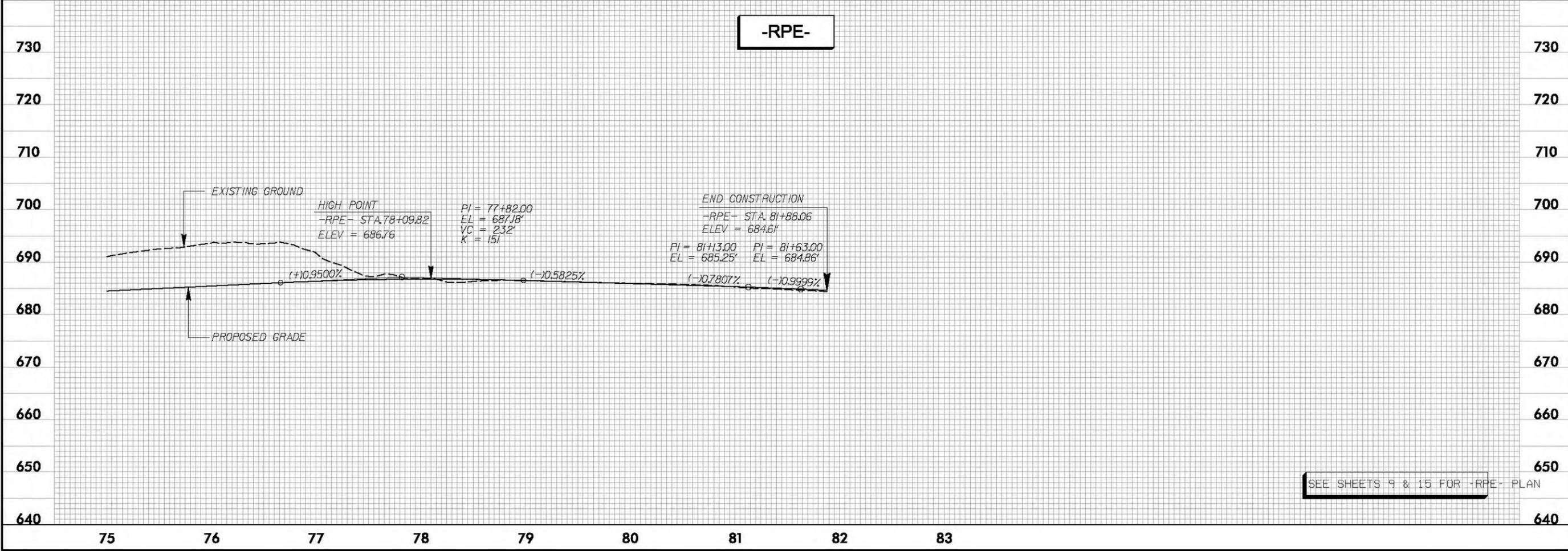
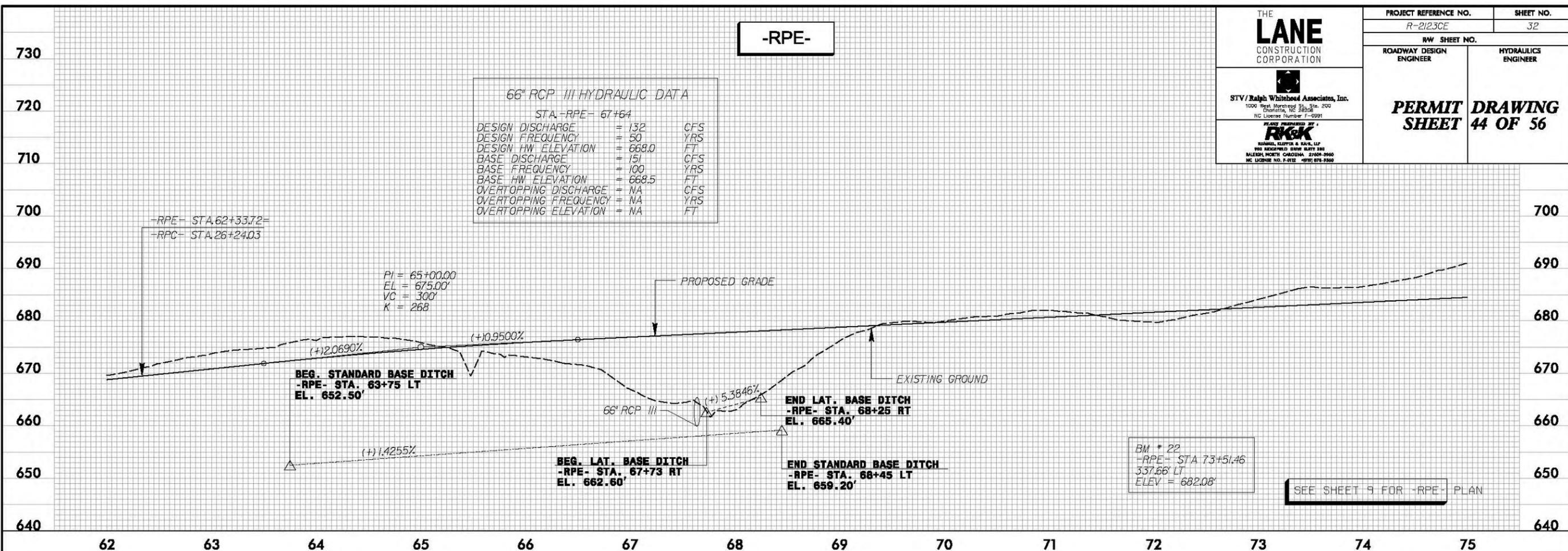
150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150



66" RCP III HYDRAULIC DATA

STA. -RPE- 67+64

DESIGN DISCHARGE	= 132	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 668.0	FT
BASE DISCHARGE	= 151	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 668.5	FT
OVERTOPPING DISCHARGE	= NA	CFS
OVERTOPPING FREQUENCY	= NA	YRS
OVERTOPPING ELEVATION	= NA	FT



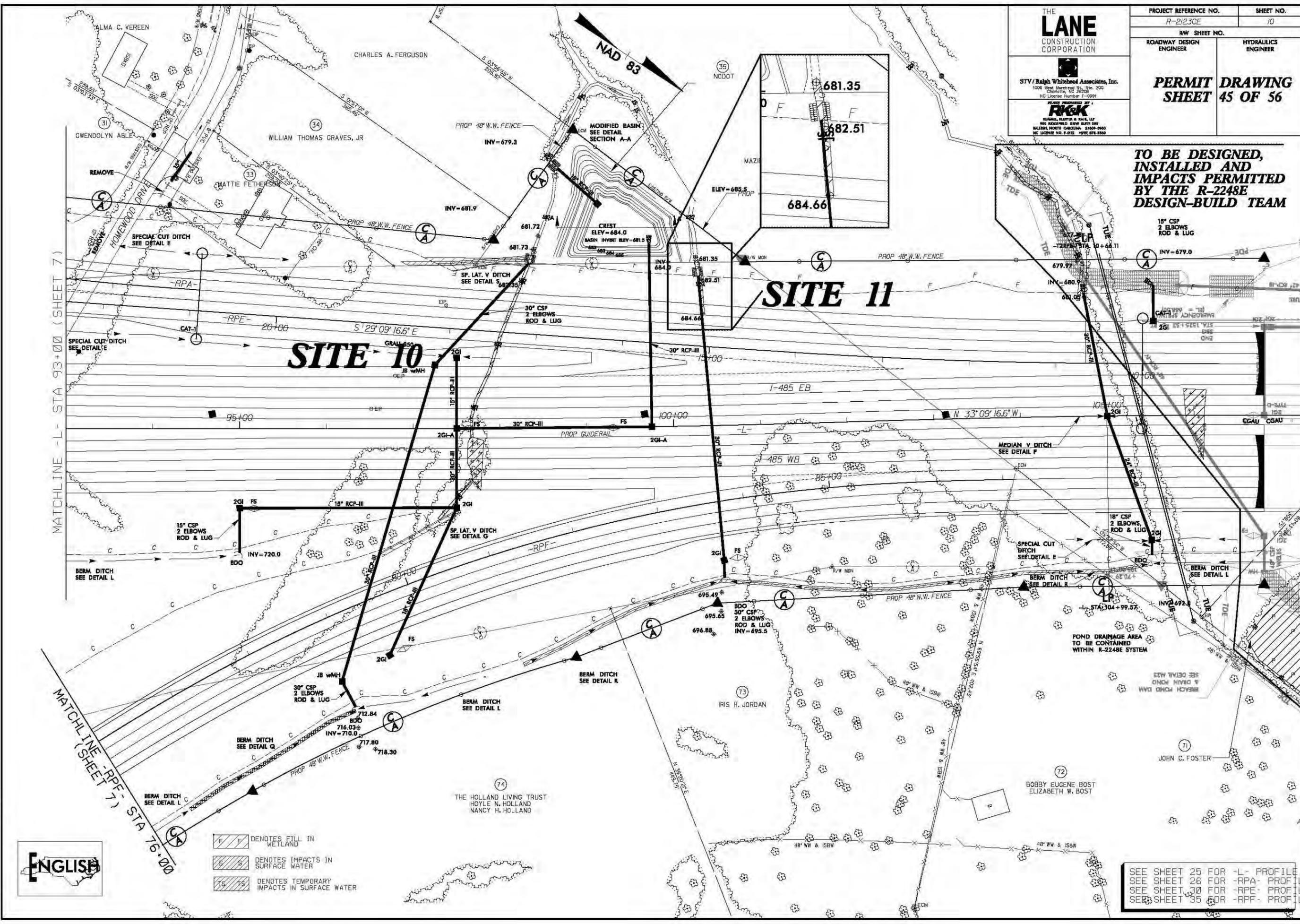
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\$DATE\$

STV/Ralph Whitehead Associates, Inc.
1000 West Northwood St., Ste. 200
Charlotte, NC 28204
NC License Number E-0991

DESIGN PREPARED BY
RJK
RUSSELL, KLEPPER & PAUL, LLP
100 ROCKFORD DRIVE SUITE 500
MILFORD NORTH CAROLINA 28050-2000
NC LICENSE NO. E-0112 EXP. 07/31/2000

**PERMIT DRAWING
SHEET 45 OF 56**

**TO BE DESIGNED,
INSTALLED AND
IMPACTS PERMITTED
BY THE R-2248E
DESIGN-BUILD TEAM**



MATCHLINE - L- STA 93+00 (SHEET 7)

MATCHLINE (SHEET 7) STA 76+00

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



SEE SHEET 25 FOR -L- PROFILE
SEE SHEET 26 FOR -RPA- PROFILE
SEE SHEET 30 FOR -RPE- PROFILE
SEE SHEET 35 FOR -RPF- PROFILE

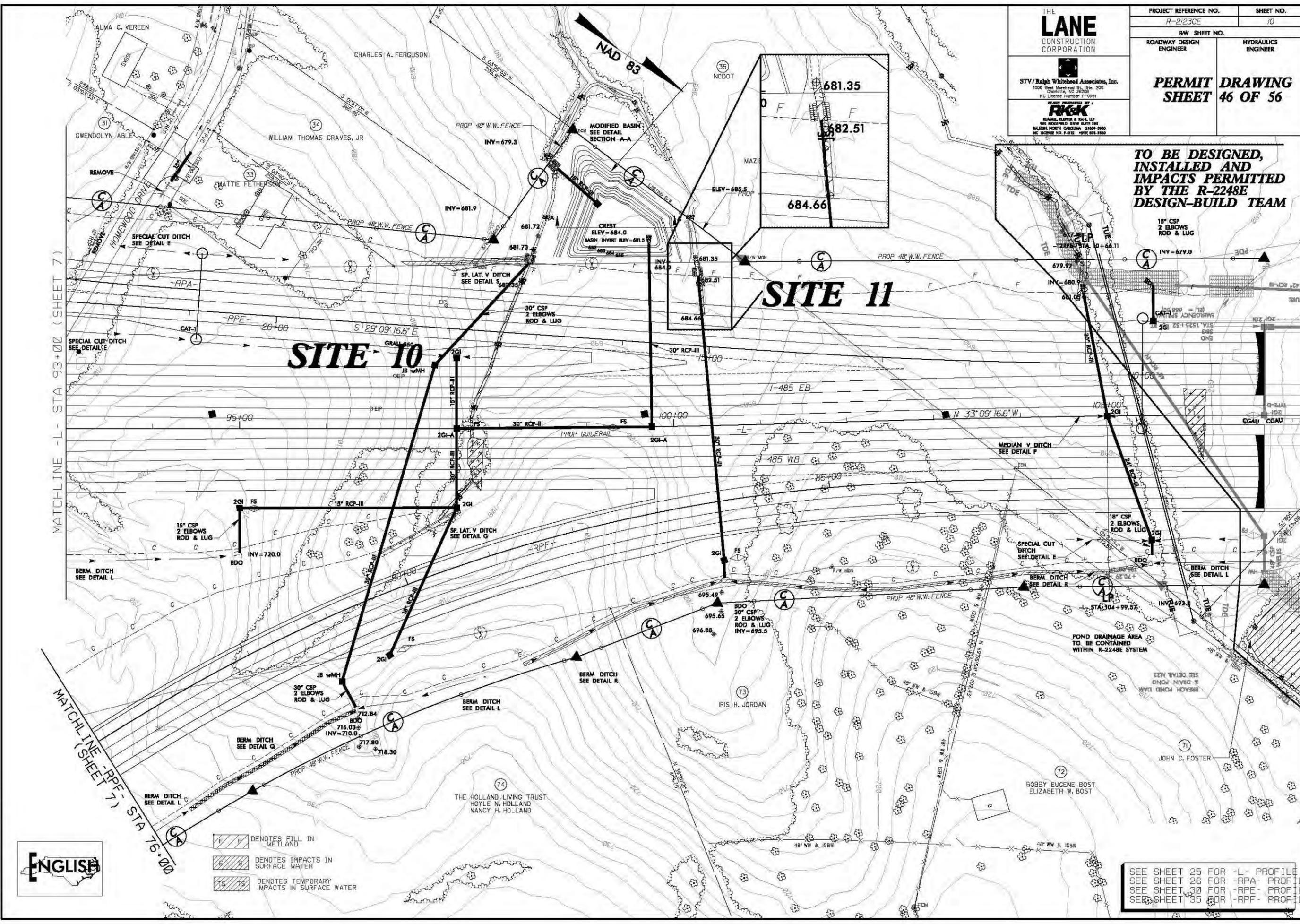
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\$DATES

STV/Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28204
NC License Number F-0991

RELAY PREPARED BY
RJK
RUSSELL, KLEPPER & RAY, LLP
1000 W. MOREHEAD STREET, SUITE 200
CHARLOTTE, NORTH CAROLINA 28204-2000
NC LICENSE NO. F-0112 1991-07-2000

**PERMIT DRAWING
SHEET 46 OF 56**

**TO BE DESIGNED,
INSTALLED AND
IMPACTS PERMITTED
BY THE R-2248E
DESIGN-BUILD TEAM**



MATCHLINE - L- STA 93+00 (SHEET 7)

MATCHLINE (RPF) STA 76+00 (SHEET 7)

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



SEE SHEET 25 FOR -L- PROFILE
SEE SHEET 26 FOR -RPA- PROFILE
SEE SHEET 30 FOR -RPE- PROFILE
SEE SHEET 35 FOR -RPF- PROFILE

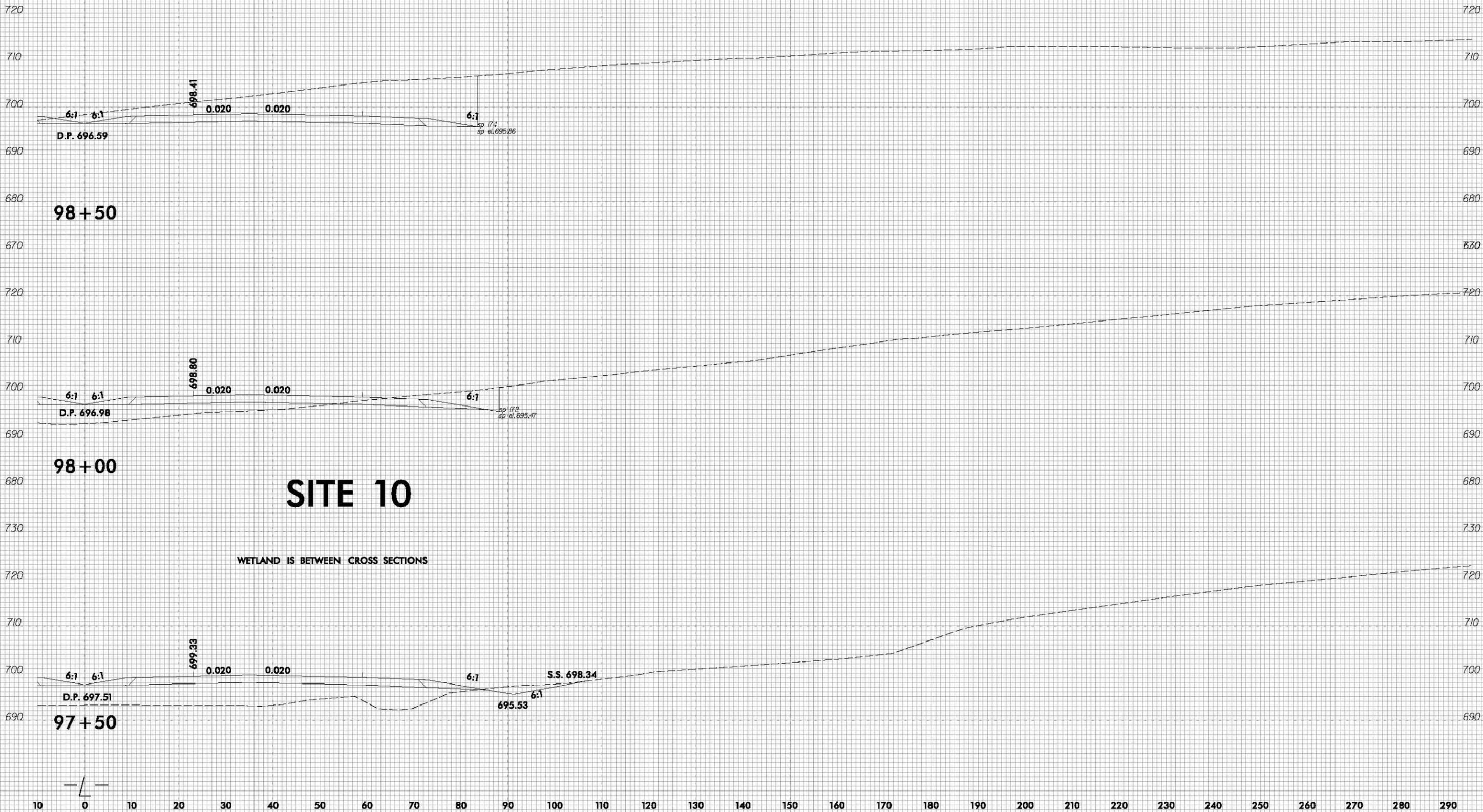
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\$DATES

8/23/99

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	R-2123CE	X-83

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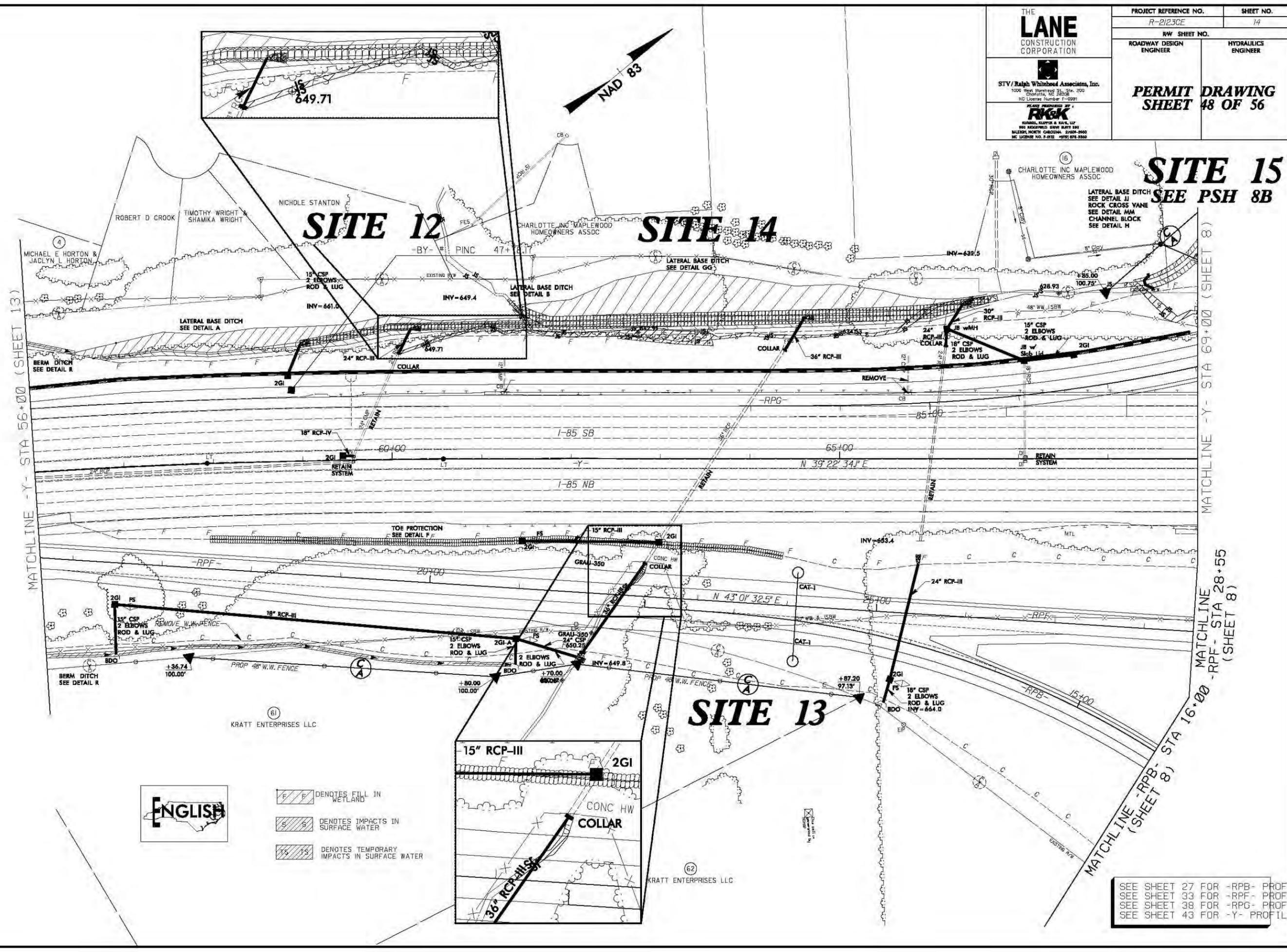
**PERMIT DRAWING
SHEET 47 OF 56**



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THE LANE CONSTRUCTION CORPORATION  STV/Ralph Whitehead Associates, Inc. 1000 West Marshall St., Ste. 200 Charlotte, NC 28204 NC License Number: F-0991 REG RUSSELL, KLEPPER & PAUL, LLP 800 ROCKFORD DRIVE SUITE 500 WALKER NORTH CAROLINA 28080-5000 NC LICENSE NO. F-012 (P) 078-2000	PROJECT REFERENCE NO. R-2123CE	SHEET NO. 14
	RW SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	PERMIT DRAWING SHEET 48 OF 56	



SITE 15
 SEE PSH 8B

MATCHLINE -Y- STA 56+00 (SHEET 13)

MATCHLINE -Y- STA 69+00 (SHEET 8)

MATCHLINE -RPF- STA 28+55 (SHEET 8)

MATCHLINE -RPB- STA 16+00 (SHEET 8)



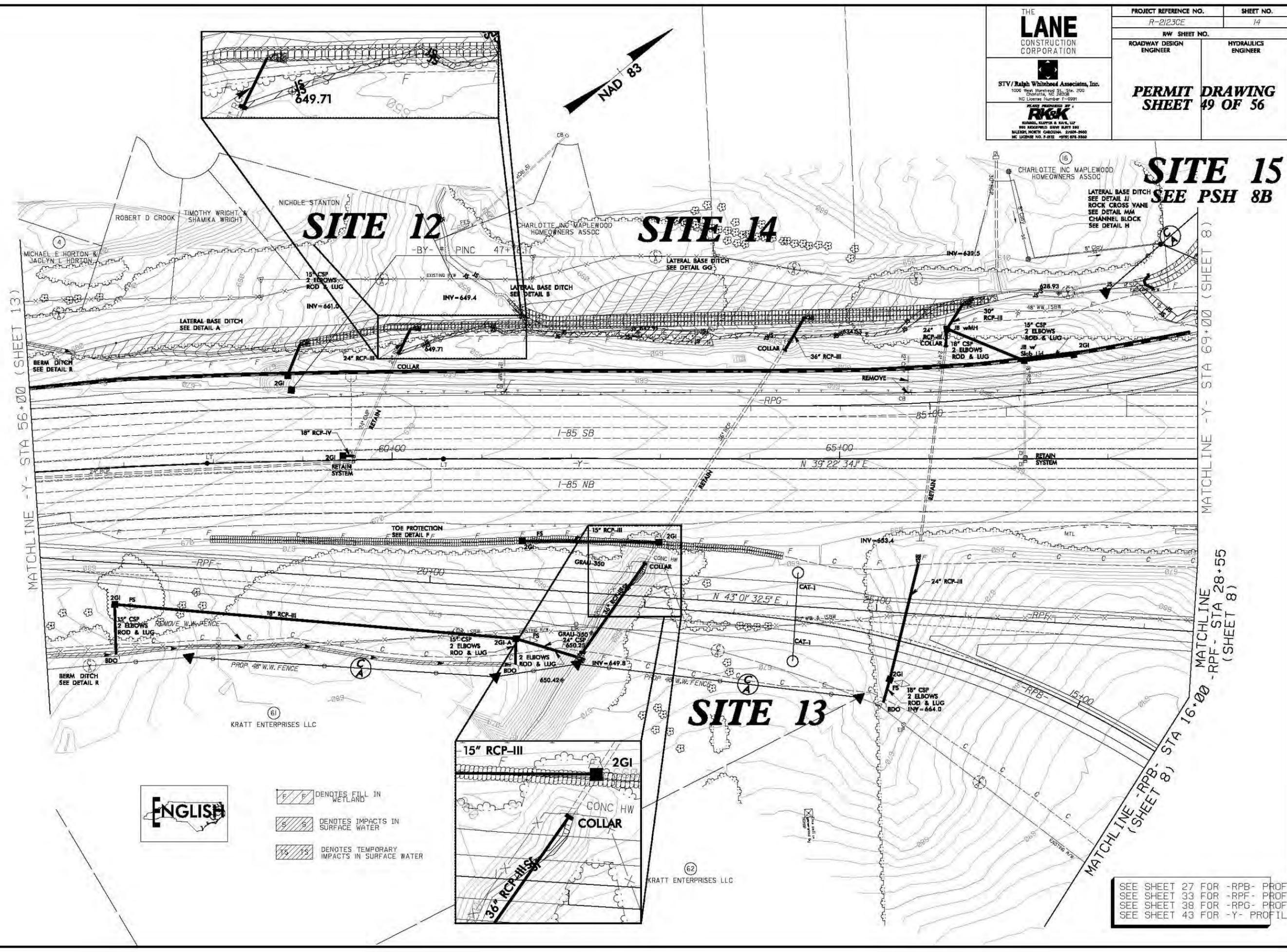
-  DENOTES FILL IN WETLAND
-  DENOTES IMPACTS IN SURFACE WATER
-  DENOTES TEMPORARY IMPACTS IN SURFACE WATER

SEE SHEET 27 FOR -RPB- PROF
 SEE SHEET 33 FOR -RPF- PROF
 SEE SHEET 38 FOR -RPG- PROF
 SEE SHEET 43 FOR -Y- PROF

\$FILES\$
 \$DATES\$

PERMIT DRAWING SHEET 49 OF 56

SITE 15
SEE PSH 8B



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

SEE SHEET 27 FOR -RPB- PROF
 SEE SHEET 33 FOR -RPF- PROF
 SEE SHEET 38 FOR -RPG- PROF
 SEE SHEET 43 FOR -Y- PROF

\$FILES\$
\$DATES\$

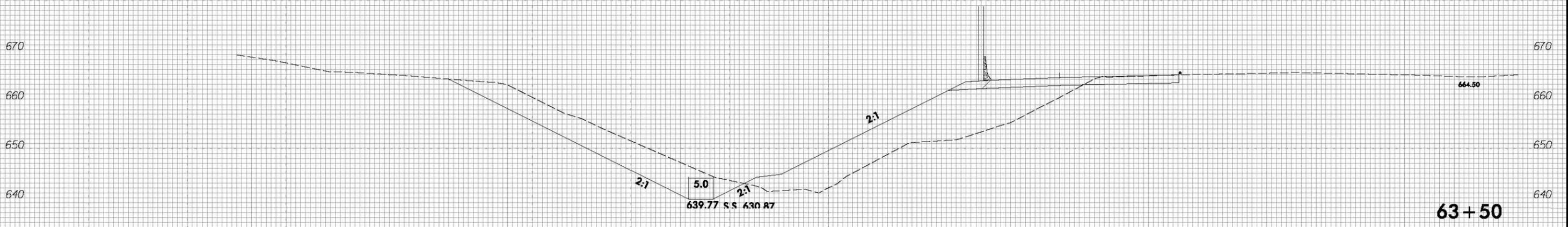
8/23/99



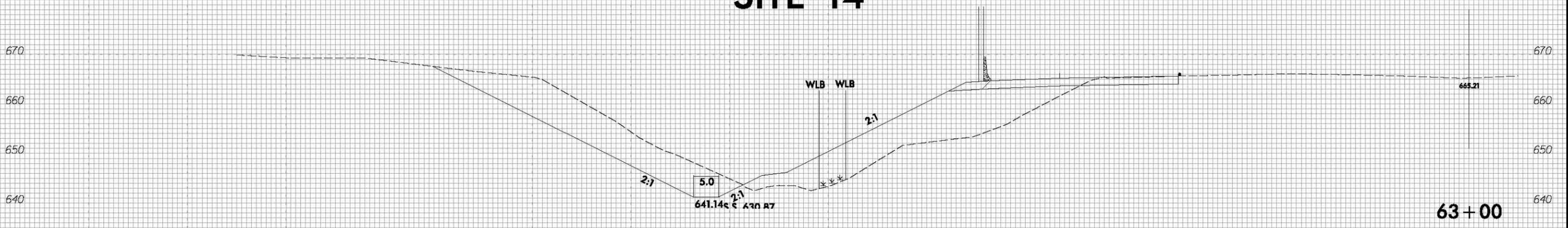
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R-2123CE	X-100

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**PERMIT DRAWING
SHEET 50 OF 56**



SITE 14

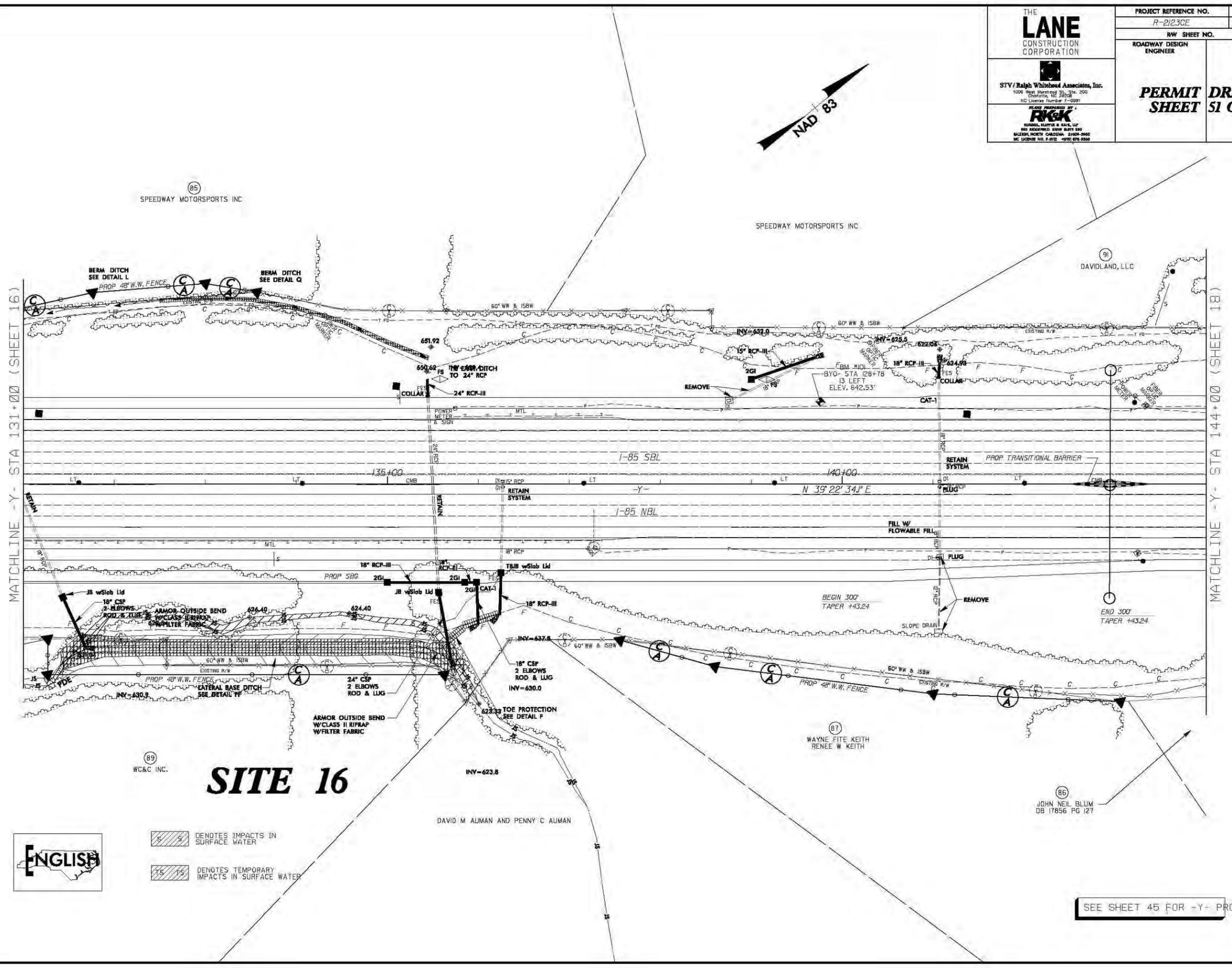


-Y-

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THE LANE CONSTRUCTION CORPORATION STV/Ralph Whitehead Associates, Inc. 1000 West Marchwood St., Ste. 200 Charlotte, NC 28208 NC License Number: F-0991 PLANS PREPARED BY: RJK RUMMEL, KLEPPER & PAUL, LLP 800 ROCKFORD DRIVE SUITE 500 WELLS RICHMOND SQUARE NC LICENSE NO. F-0112 EXP. 07/31/2000	PROJECT REFERENCE NO. R-2123CE	SHEET NO. 17
	ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING
SHEET 51 OF 56



MATCHLINE -Y- STA 131+00 (SHEET 16)

MATCHLINE -Y- STA 144+00 (SHEET 18)

SITE 16



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

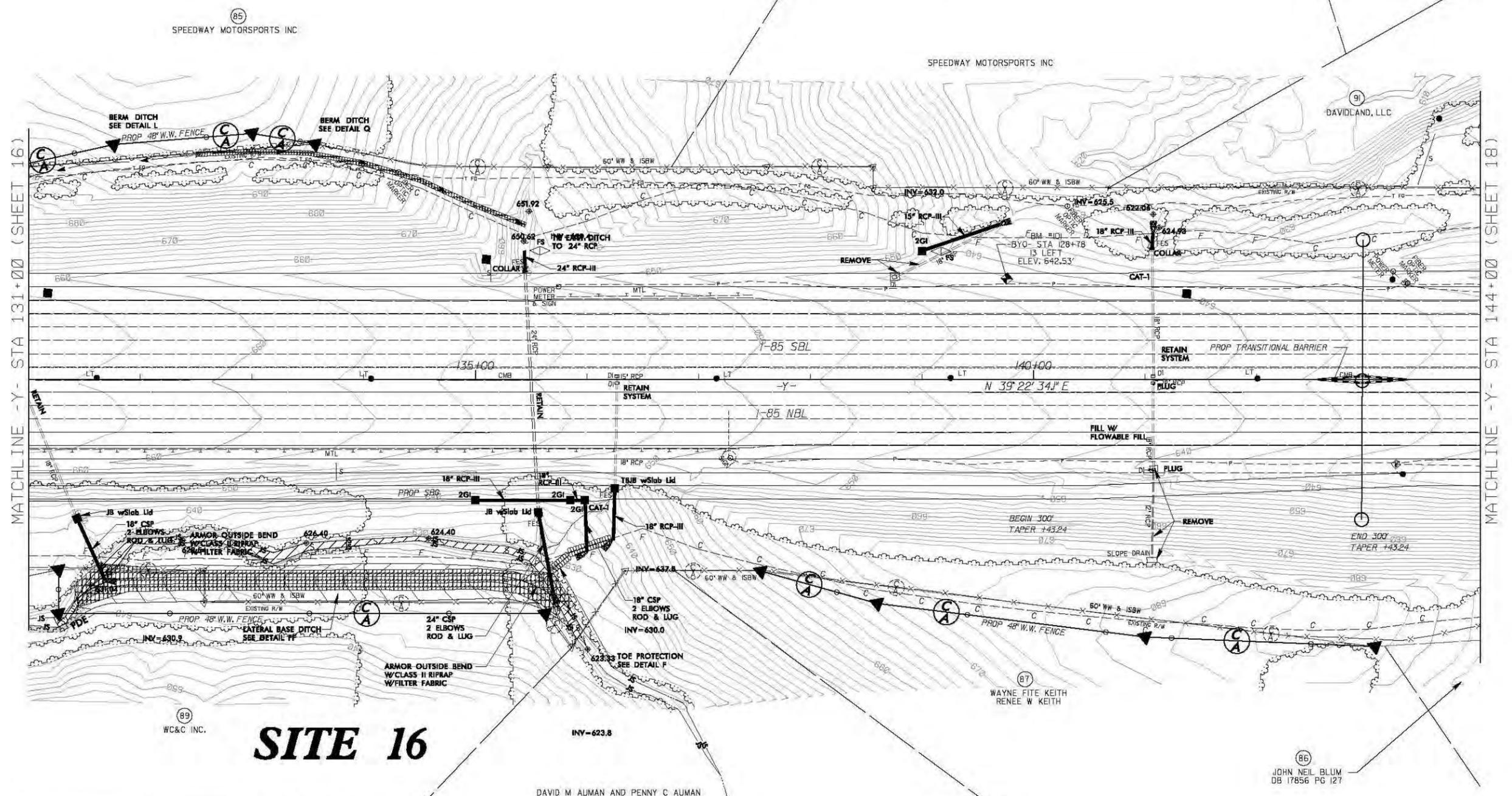
SEE SHEET 45 FOR -Y- PROFILE

\$FILES
\$DATES

STV/Ralph Whitehead Associates, Inc.
1000 West Marshwood St., Ste. 200
Charlotte, NC 28204
NC License Number F-0991

DESIGN PREPARED BY:
RJK
RICHARD J. KEITH, P.E.
1800 ROCKFORD DRIVE SUITE 200
MILFORD NORTH CAROLINA 28050-2000
NC LICENSE NO. F-0112 4/19/91 878-3500

PERMIT DRAWING
SHEET 52 OF 56



MATCHLINE -Y- STA 131+00 (SHEET 16)

MATCHLINE -Y- STA 144+00 (SHEET 18)

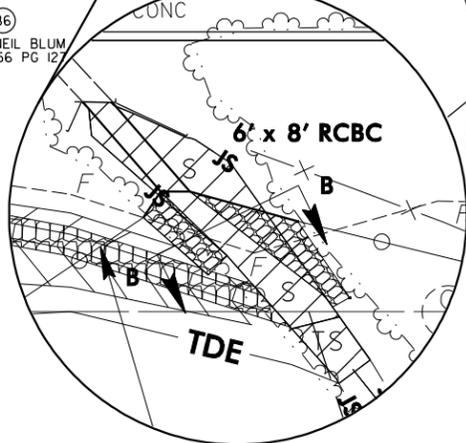
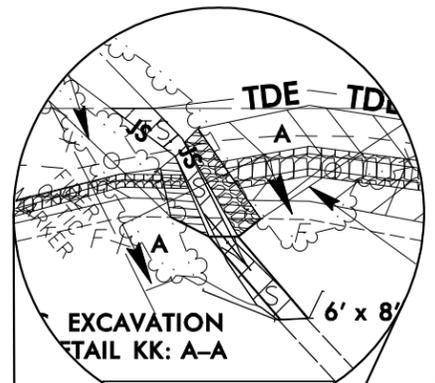
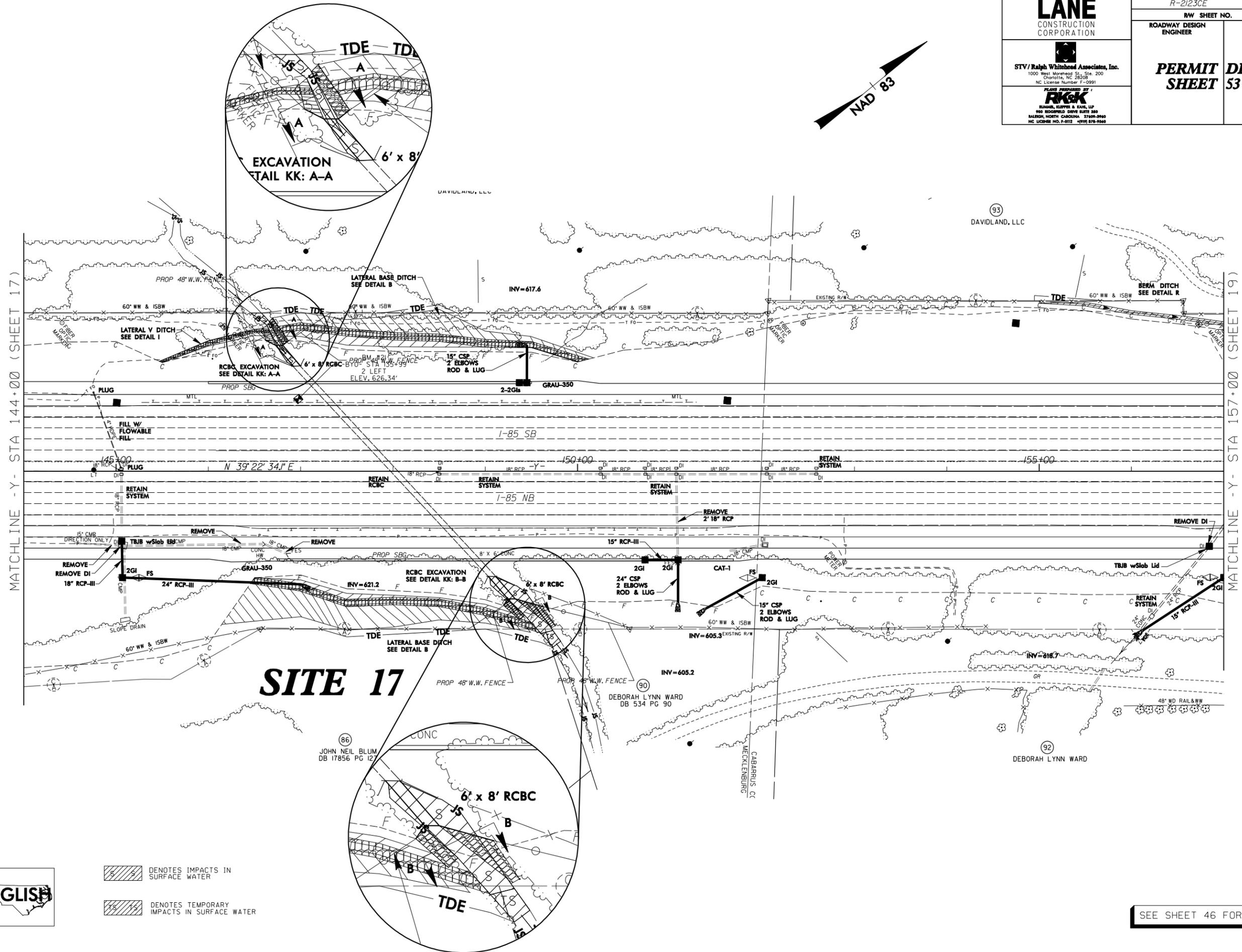
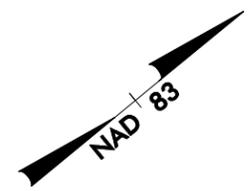
SITE 16



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

SEE SHEET 45 FOR -Y- PROFILE

\$FILES\$
\$DATES\$



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

SEE SHEET 46 FOR -Y- PROFILE

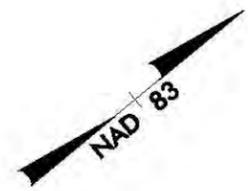
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\$DATE\$

STV/Ralph Whitehead Associates, Inc.
1000 West Marchwood St., Ste. 200
Charlotte, NC 28208
NC License Number E-0991

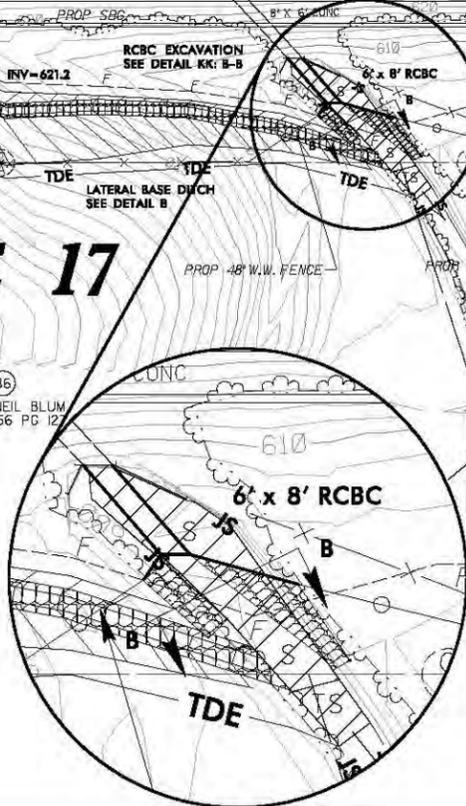
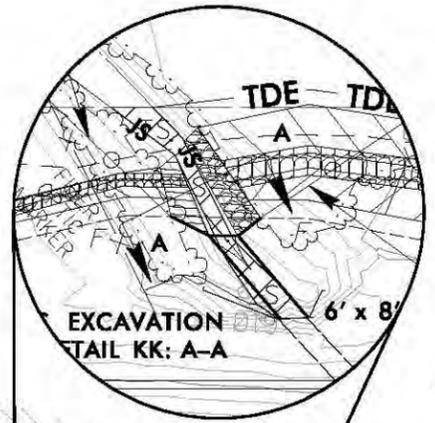
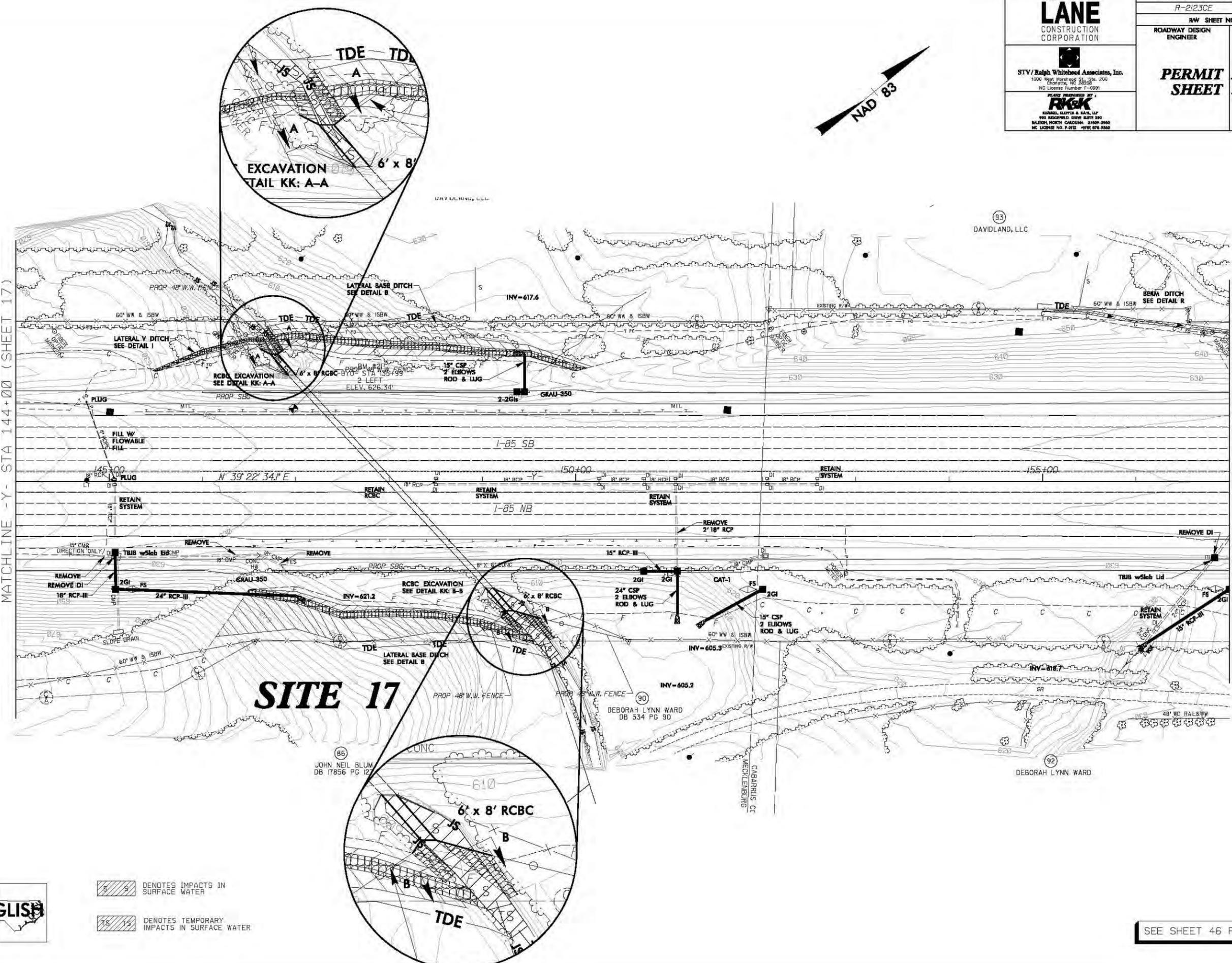
PLEASE PURCHASE BY:
RJK
RUMMEL, KLEPPER & PAUL, LLP
200 ROCKFORD DRIVE SUITE 500
MILFORD NORTH CAROLINA 28050-5000
NC LICENSE NO. P-012 (970) 878-3500

PERMIT DRAWING SHEET 54 OF 56



MATCHLINE -Y- STA 144+00 (SHEET 17)

MATCHLINE -Y- STA 157+00 (SHEET 19)



SITE 17



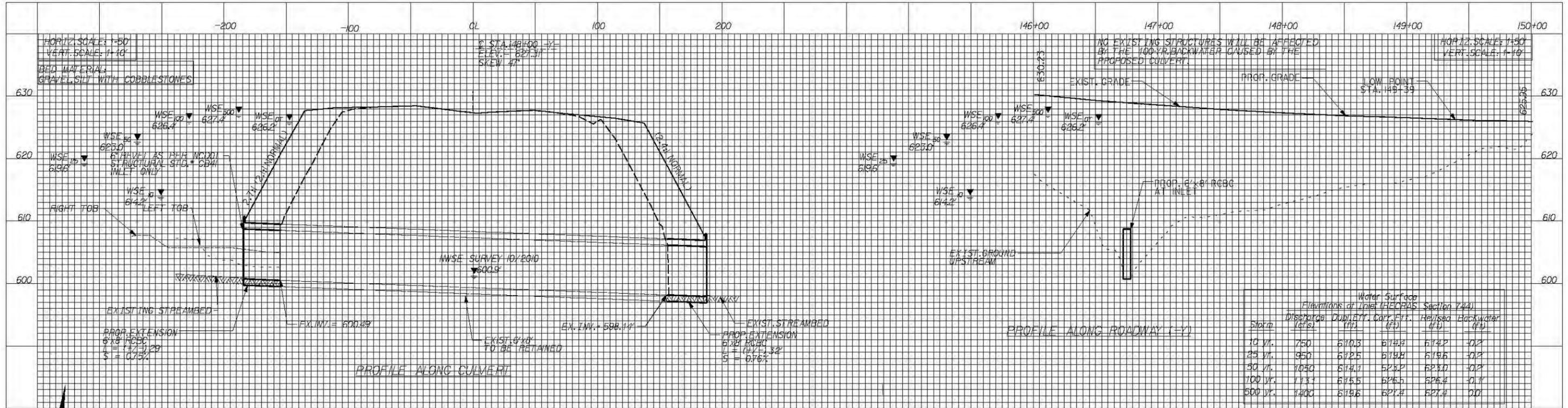
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER

SEE SHEET 46 FOR -Y- PROFILE

\$FILES\$
\$DATES\$

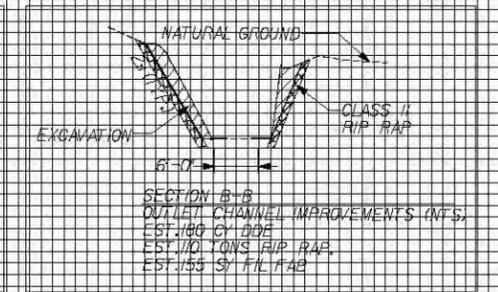
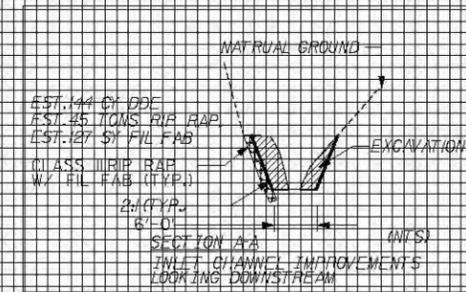
PERMIT DRAWING SHEET 55 OF 56

SITE 17



Water Surface Elevations at Inlet (HECRAS Section 7.44)

Storm	Discharge (cfs)	Depth (ft)	Velocity (ft/s)	Backwater (ft)
10 yr.	750	610.3	614.2	614.2
25 yr.	950	612.5	614.8	614.8
50 yr.	1050	614.1	615.2	615.0
100 yr.	1183	615.5	615.5	615.4
500 yr.	1400	618.6	617.7	617.4



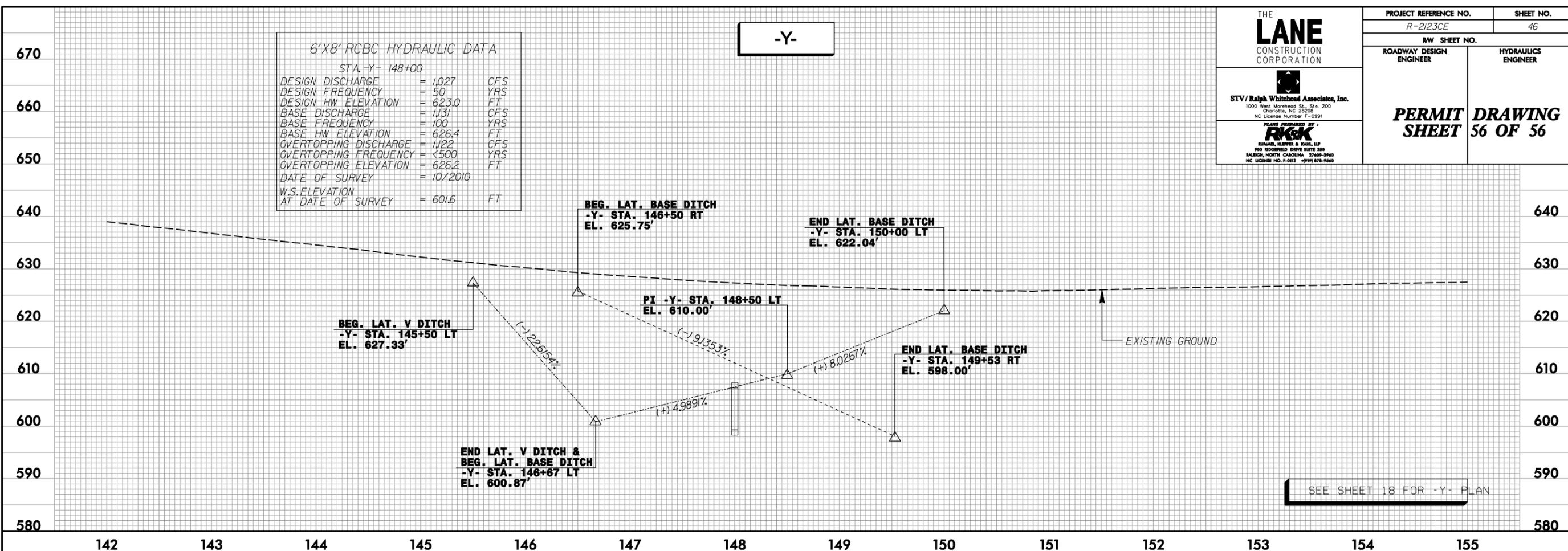


6'X8' RCBC HYDRAULIC DATA

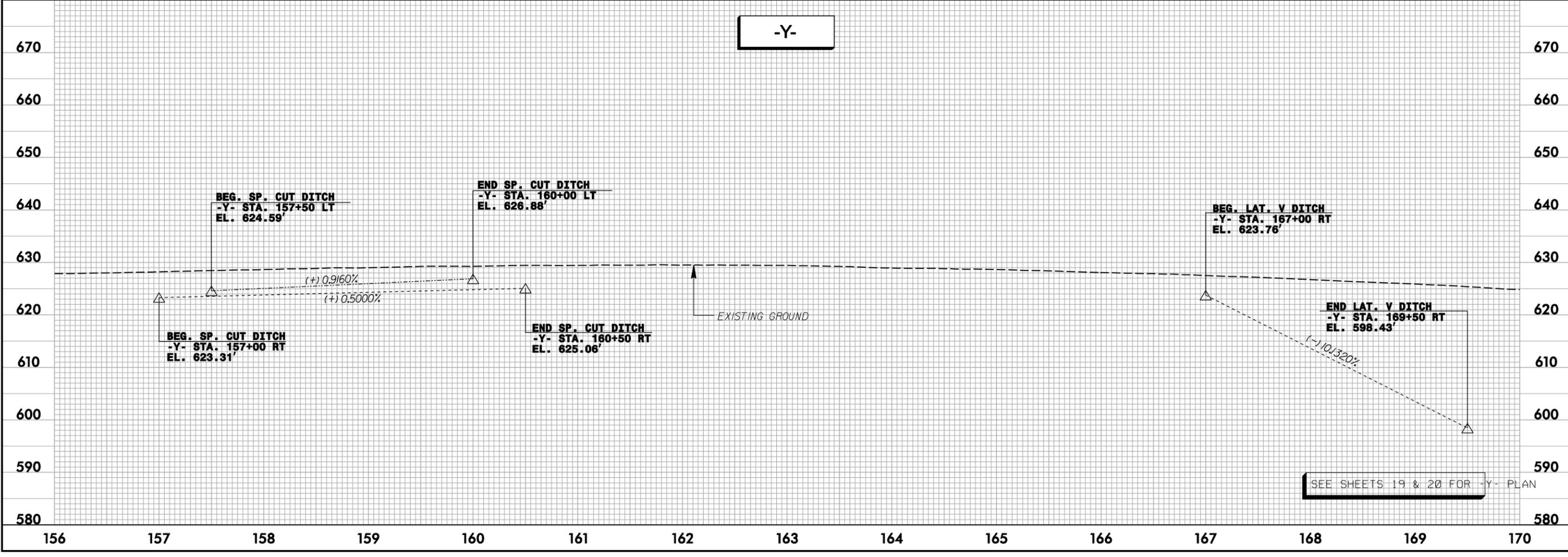
STA. -Y- 148+00

DESIGN DISCHARGE	= 1.027	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 623.0	FT
BASE DISCHARGE	= 1.131	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 626.4	FT
OVERTOPPING DISCHARGE	= 1.122	CFS
OVERTOPPING FREQUENCY	= <500	YRS
OVERTOPPING ELEVATION	= 626.2	FT
DATE OF SURVEY	= 10/2010	
W.S. ELEVATION AT DATE OF SURVEY	= 601.6	FT

-Y-



-Y-



\$DATE\$ \$FILE\$

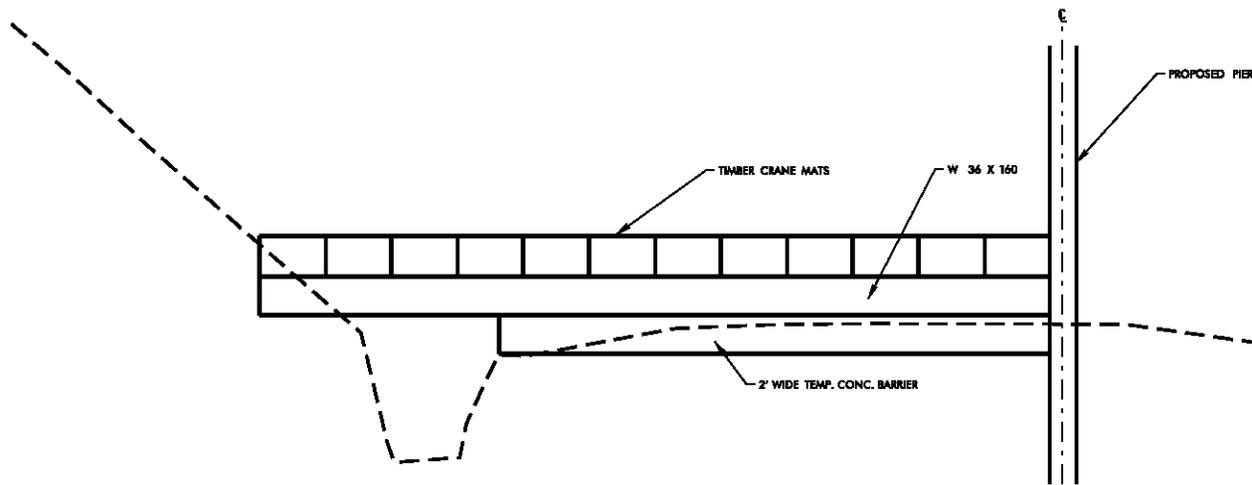
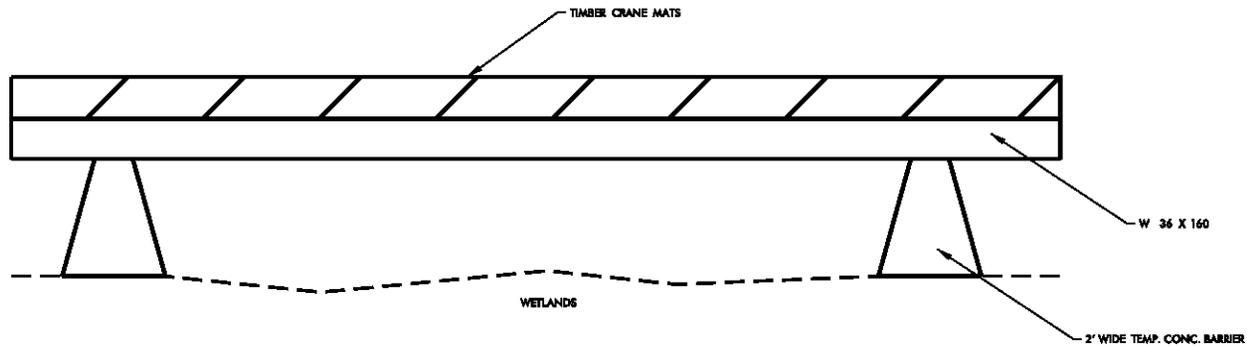
WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS					SURFACE WATER IMPACTS				
			Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	-L- (1259+00/1260+50)	Roadway Fill	0.385			0.020		0.02		297		
2	-L- (1266+00/1266+50)	Roadway Fill	0.222			0.028		0.05		602		
3	-Y10- (65+50)	54" Pipe	0.015			0.011		<0.01	<0.01	48	38	
3		Bank Stabilization								24		
4	-L- (1297+00/1299+50)	84" Pipe	0.507		0.042	0.079		0.08	<0.01	428	8	
4		Bank Stabilization								69		
5	-L- (1342+00/1343+00)	8'x7' RCBC	0.116					0.04	0.01	489	184	
5		Bank Stabilization								56		
6	-L- (1345+00)	9'X7' RCBC						0.02	<0.01	276	96	
6		Bank Stabilization								36		
7	-L- (1355+00/1367+00)	Roadway Fill	1.723			0.061		0.09	0.01	1561	127	
7		Bank Stabilization								21		
8	-L- (1390+00/1415+00)	Roadway Fill	1.060					0.22	<0.01	2497	56	
8		Bank Stabilization								28		
9	-L- (1421+00)	42" Pipe						<0.01	<0.01	81	8	
9		Bank Stabilization								37		
10	-L- (1441+00)	60" Pipe						<0.01	<0.01	44	18	
10		Bank Stabilization								51		
11	-L- (1465+00/1476+00)	Roadway Fill	0.144					<0.01	<0.01	138	48	
12	-Y22- (54+00/60+00)	Roadway Fill	1.609			0.164						
12		Temp. Wrk. Br.		0.051								
12		Bridge/Int. Bents	0.010				0.612					
12		Bridge/Splash Pads	0.017									
13	-Y20- (41+00/48+00)	Roadway Fill	0.311			0.030						
14	-L- (1486+00/1495+00)	Roadway Fill	0.596					0.40	<0.01	803	34	
14	-Y25- (23+23)	2 @ 7' x 8' RCBC	0.021					0.01	0.01		57	
14		Bank Stabilization								35		
15	-Y22- (86+00/90+00)	72" Pipe	0.080			0.012		0.03	<0.01	295	21	
15		Bank Stabilization								50		
16	-L- (1526+20/1526+45)	48" Pipe	0.031					0.01		190		
TOTALS:			6.85	0.05	0.04	0.41	0.61	1.00	0.08	8156	695	0

Site 8 - 1.556 ac. Perm. Surface Water Impact - Fill in Isolated Pond
 Site 11 - 0.128 ac. Perm. Surface Water Impact - Fill in Isolated Pond
 Site 14 - 50 lf of 24" rcp Pipe Removal
 Site 16 - 0.667 ac. Perm. Surface Water Impact - Drained Isolated Pond

NC DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 MECKLENBURG COUNTY
 WBS - 34410.3.GV2 (R-2248E)

STA. 52+90 -Y22- WORK BRIDGE TYPICAL
2 - 90' X 36' TIMBER WORK BRIDGES



NCDOT

DIVISION OF HIGHWAYS
MECKELNBURG COUNTY
PROJECT: C202521 (R-2248E)

I-485 (CHARLOTTE OUTER LOOP)
FROM EAST OF I-77 TO
WEST OF I-85

09.08/09

TIP PROJECT: R-2248E

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

MECKLENBURG COUNTY

WETLAND & STREAM
IMPACT PERMIT
DRAWINGS

LOCATION: I-485 (CHARLOTTE OUTER LOOP) FROM
EAST OF I-77 TO WEST I-85

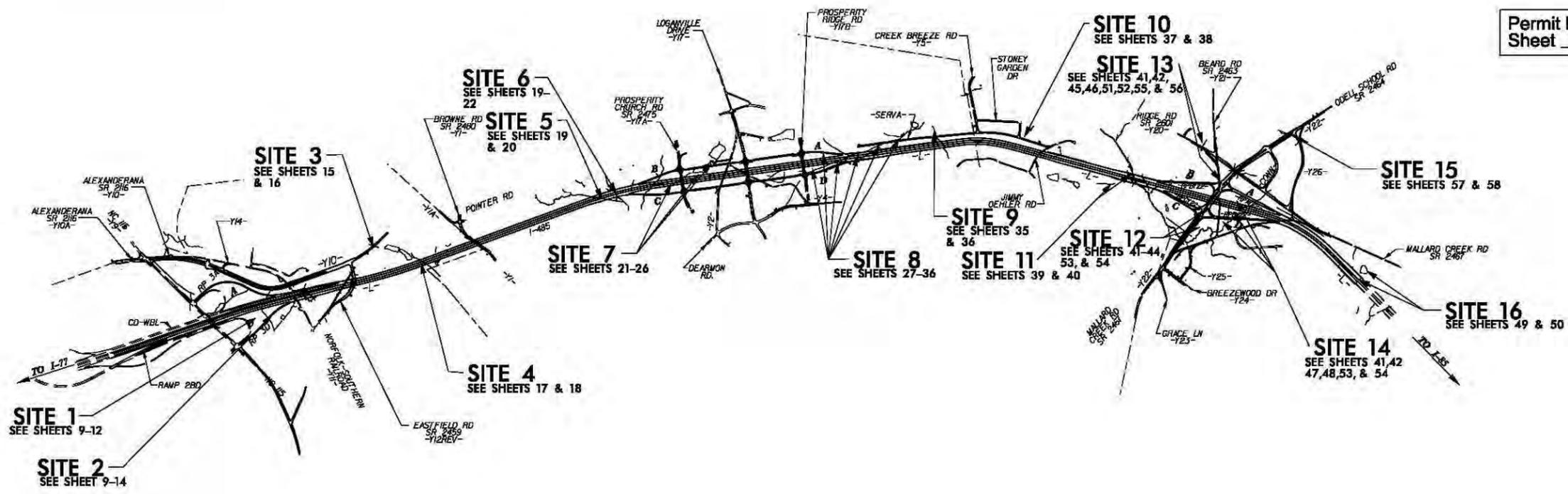
TYPE OF WORK: GRADING, DRAINAGE, PAVING, STRUCTURES, CULVERTS,
NOISE WALLS, RETAINING WALLS, SIGNING AND SIGNALS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2248E	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
34410.3.GV2	NHF-04GS(27)	PE	



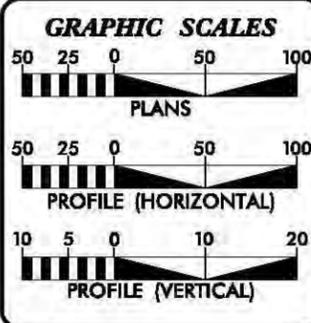
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 4 of 108



A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES
OF THE CITY OF CHARLOTTE AND THE TOWN OF HUNTERSVILLE

THIS IS A CONTROLLED ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES.



DESIGN DATA

ADT 2006 =	62,000
ADT 2035 =	161,600
DHV =	10 %
D =	55 %
T =	15 % *
V =	70 mph
* TTST 10% DUAL 5%	

FUNCTIONAL CLASSIFICATION
FREEWAY

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-2248E =	5.594 miles
LENGTH STRUCTURES TIP PROJECT R-2248E =	0.121 miles
TOTAL LENGTH OF TIP PROJECT R-2248E =	5.715 miles

Prepared In the Office of:
WILBUR SMITH ASSOCIATES
421 Fayetteville Street, Suite 1303, Raleigh, NC 27601 Phone (919) 755-8583
2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: _____

LETTING DATE: _____

DAVID L. WILVER, P.E.
PROJECT ENGINEER

PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN ENGINEER

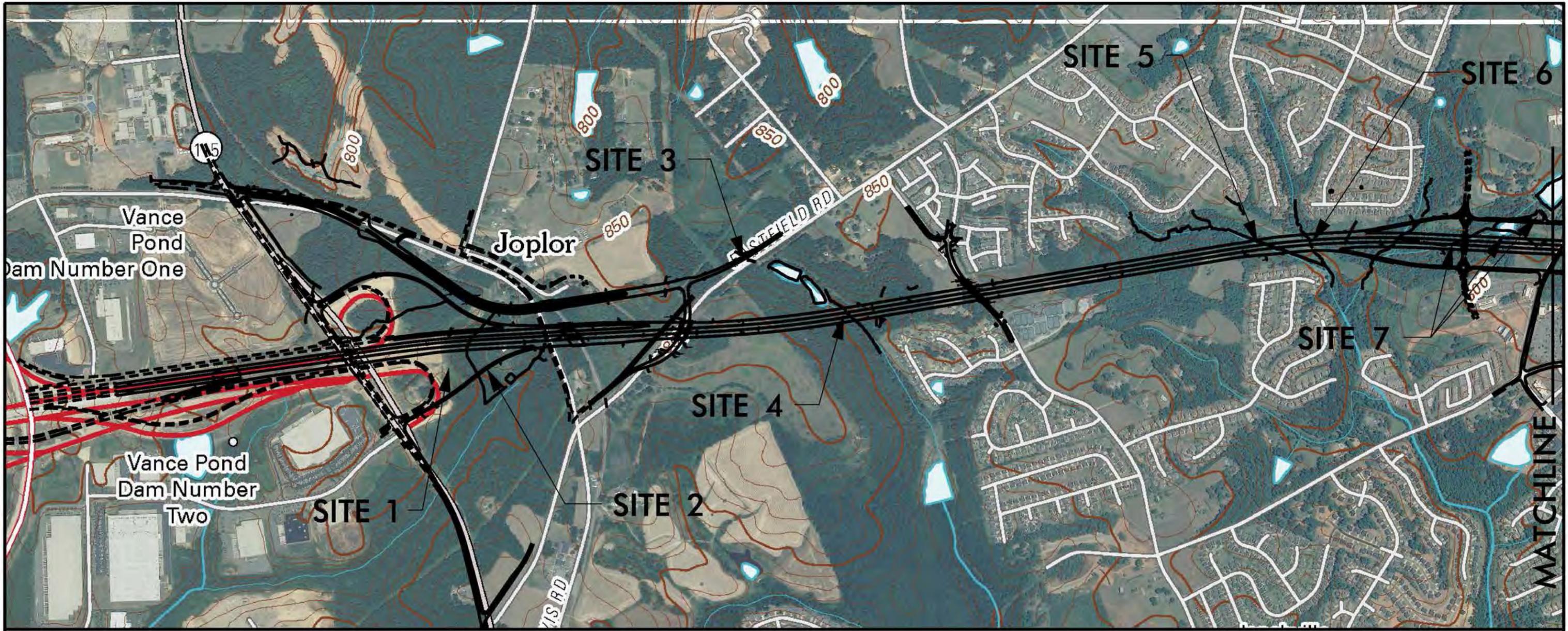
SIGNATURE: _____ P.E.

**DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA**

STATE HIGHWAY DESIGN ENGINEER P.E.

FILE: R:\ncdot\2248E\Hydro\Drawings\Drawings\2248e_rfp_wd_01.dwg
DATE: 4/20/11

CONTRACT: C202521



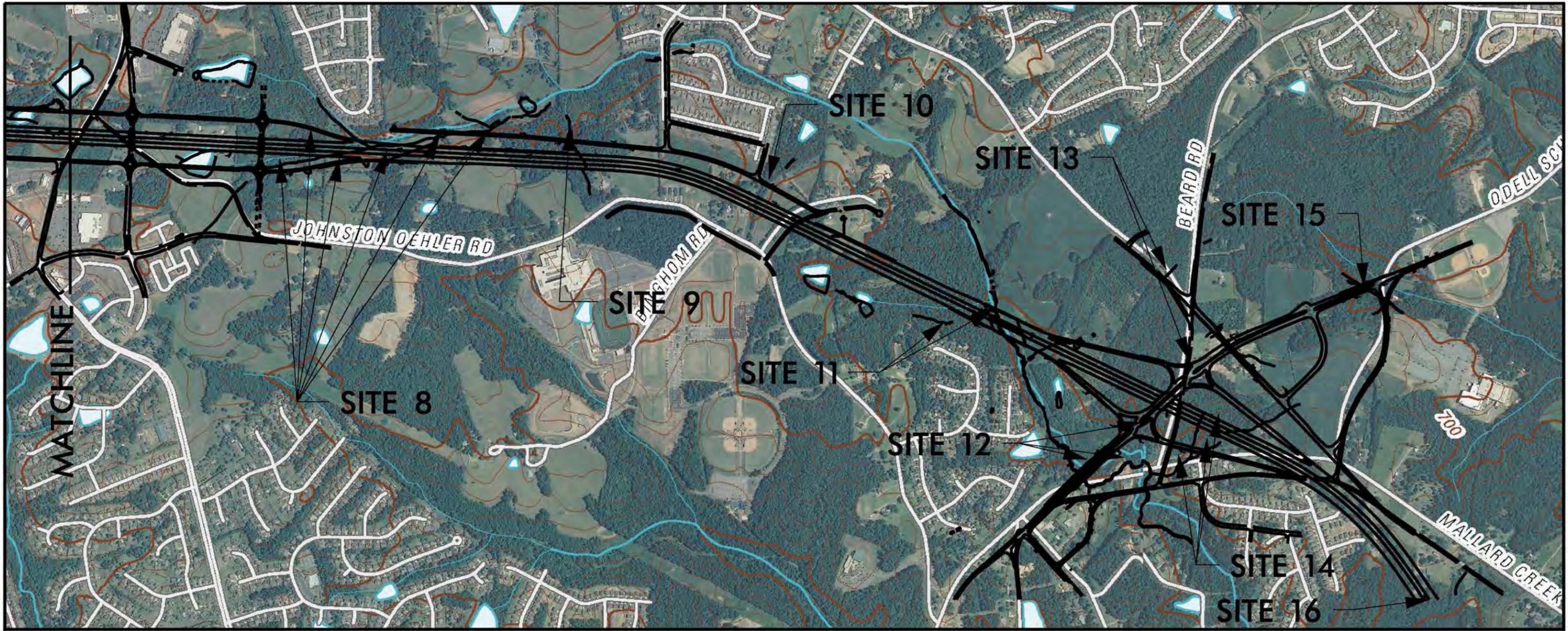
***VICINITY
MAPS***

Permit Drawing
Sheet 5 of 108

NCDOT

***DIVISION OF HIGHWAYS
MECKLENBURG COUNTY
PROJECT: C202521 (R-2248E)***

***I-485 (CHARLOTTE OUTER LOOP)
FROM EAST OF I-77 TO
WEST I-85***



***VICINITY
MAPS***

Permit Drawing
Sheet 6 of 108

NCDOT

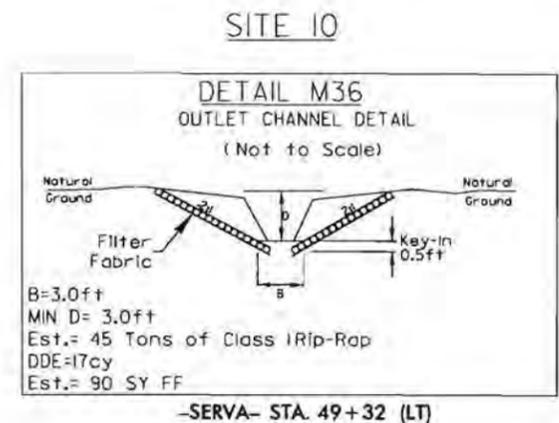
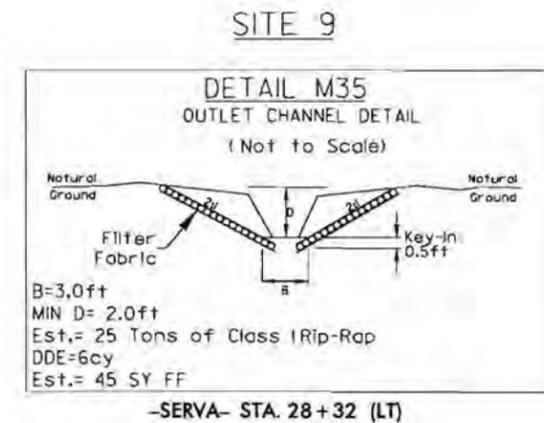
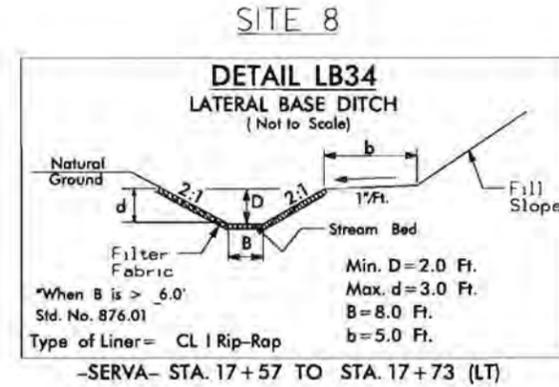
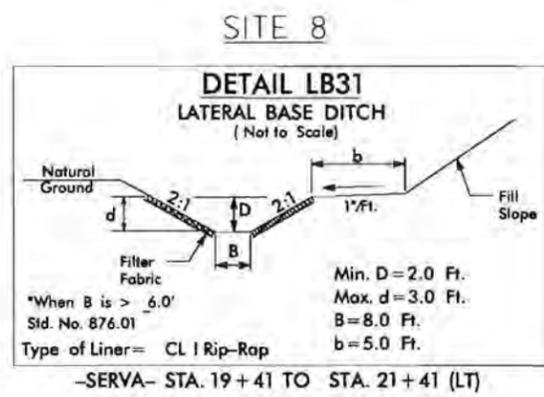
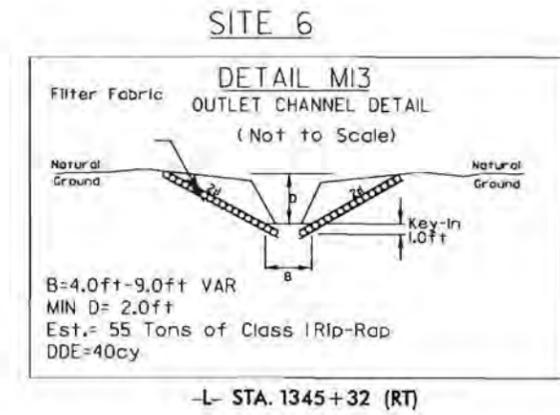
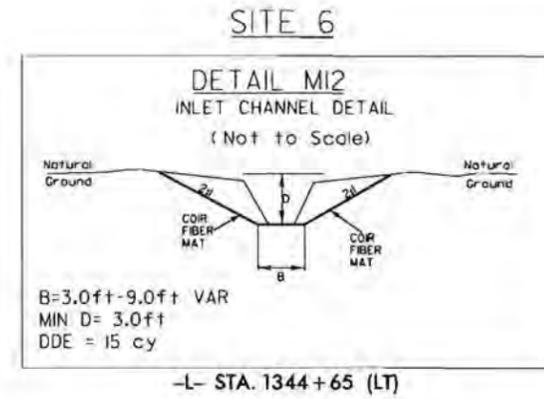
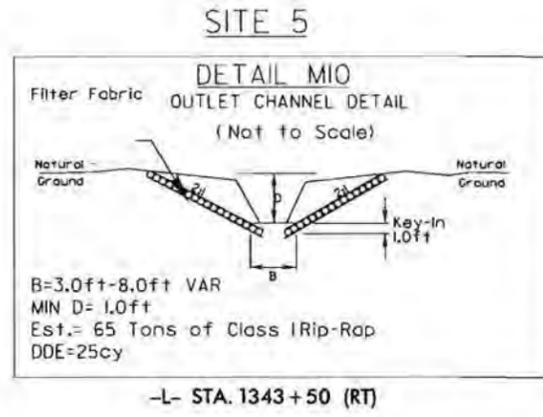
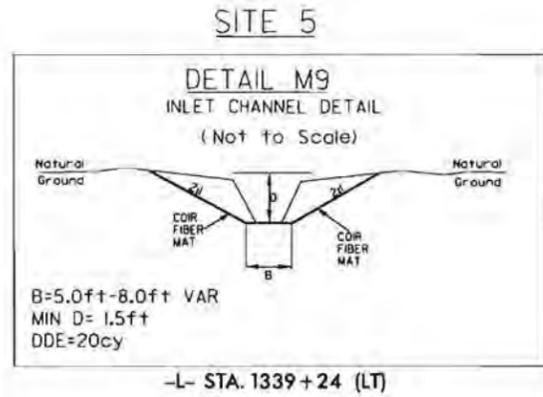
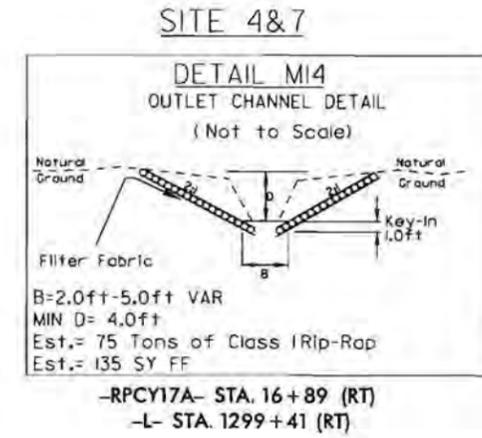
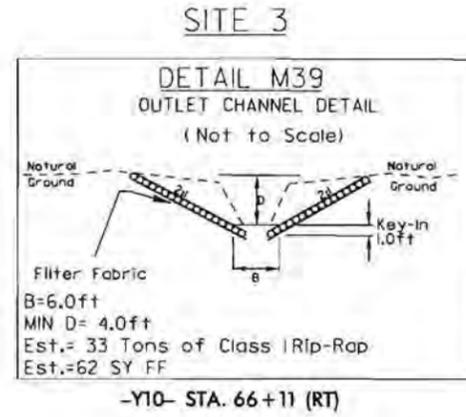
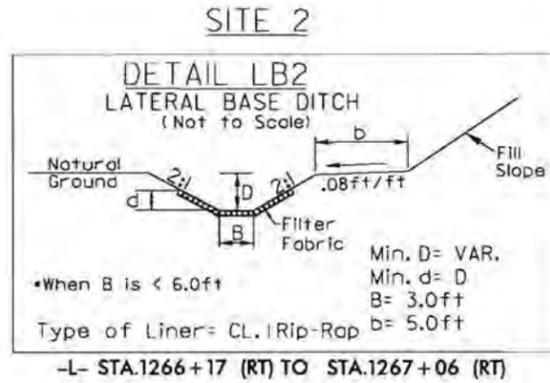
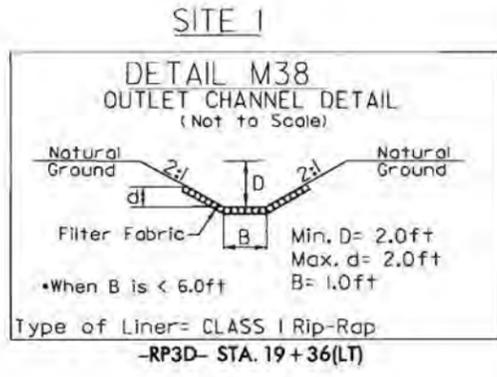
***DIVISION OF HIGHWAYS
MECKLENBURG COUNTY
PROJECT: C202521 (R-2248E)***

***I-485 (CHARLOTTE OUTER LOOP)
FROM EAST OF I-77 TO
WEST I-85***

PROJECT REFERENCE NO.	SHEET NO.
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

Permit Drawing Sheet 7 of 108

Revised 6-9-2011

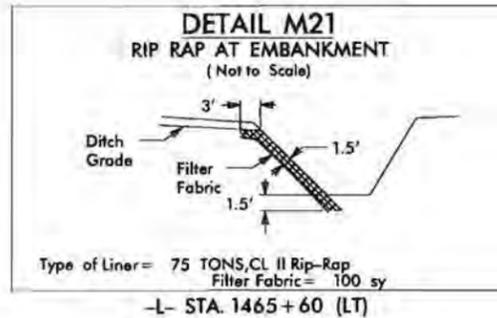


PROJECT REFERENCE NO.	SHEET NO.
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

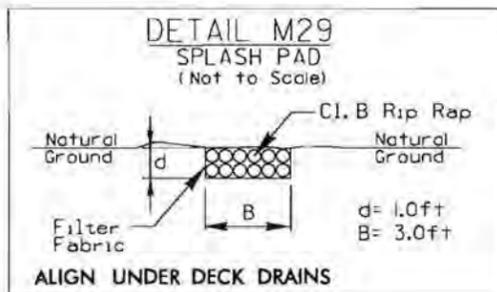
Permit Drawing
Sheet 8 of 108

Revised 6-9-2011

SITE 11



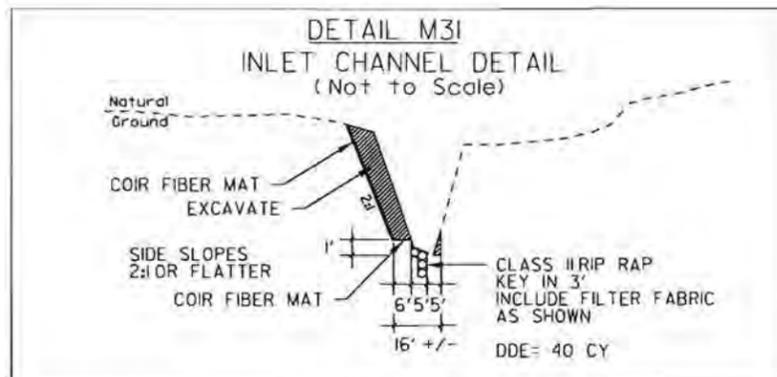
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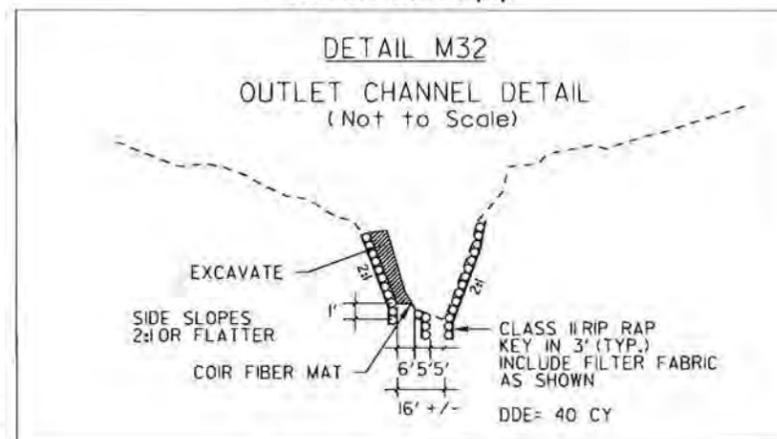
DETAIL M29:

- L- STA. 1465+56 TO STA. 1466+38 & STA. 1466+74 TO STA. 1468+75 WB LT
- L- STA. 1466+59 TO STA. 1467+09 & STA. 1467+39 TO STA. 1469+64 WB RT
- L- STA. 1466+79 TO STA. 1467+23 & STA. 1467+50 TO STA. 1469+84 EB LT
- L- STA. 1467+62 TO STA. 1468+10 & STA. 1468+69 TO STA. 1470+75 EB RT
- Y22- STA. 52+33 TO STA. 52+61 & STA. 53+01 TO STA. 54+25 LT
- Y22- STA. 52+30 TO STA. 52+61 & STA. 53+01 TO STA. 54+25 RT

SITE 14

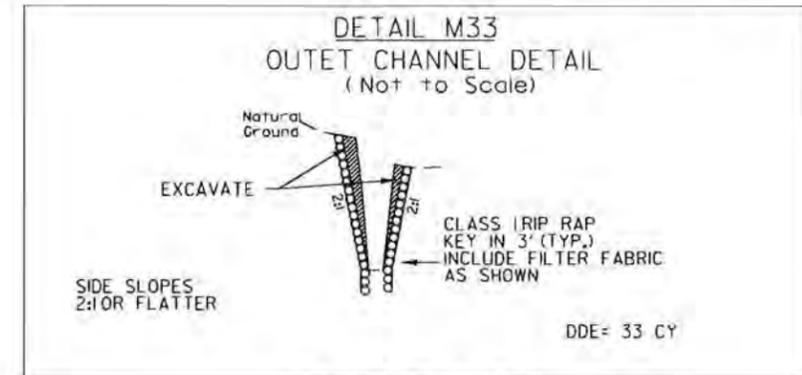


-Y25- STA. 23+23 (LT)



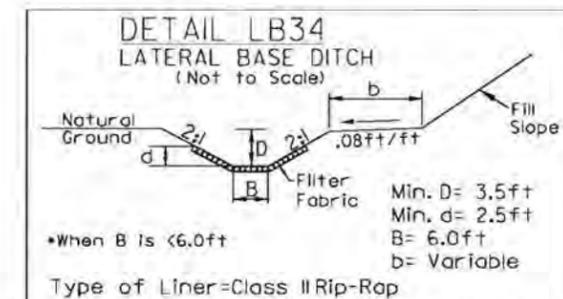
-Y25- STA. 23+23 (RT)

SITE 15



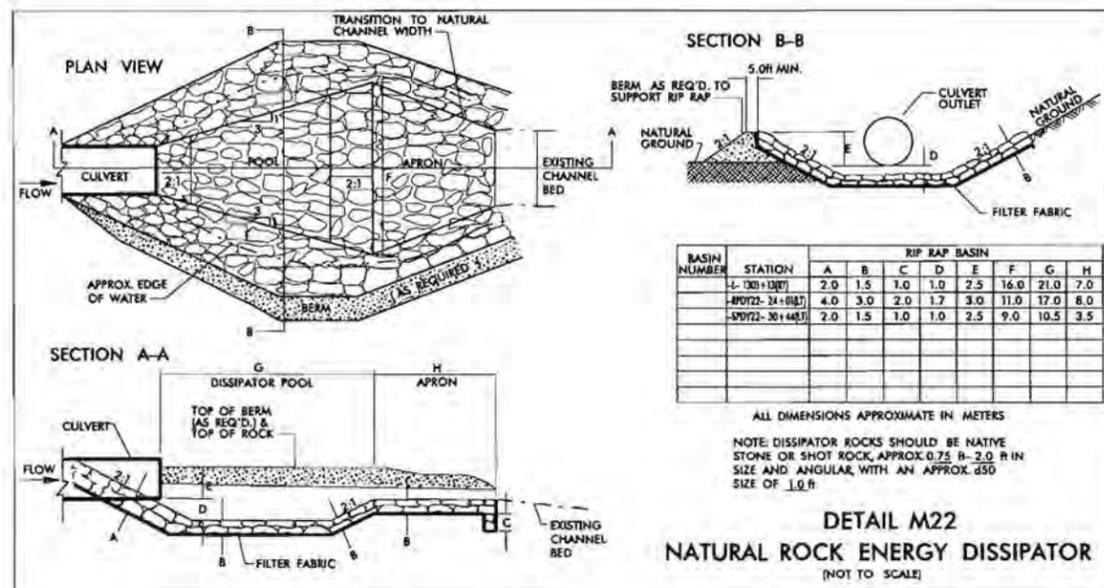
-Y26- STA. 12+51 (LT)

SITE 15

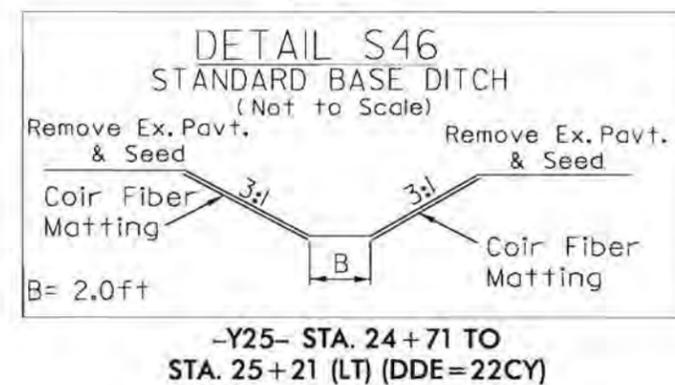


-Y26- STA. 10+83.50 TO STA. 11+32.50 (RT)

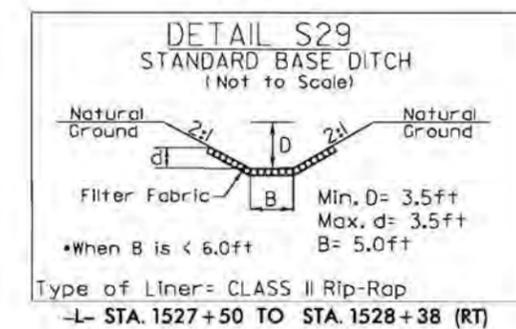
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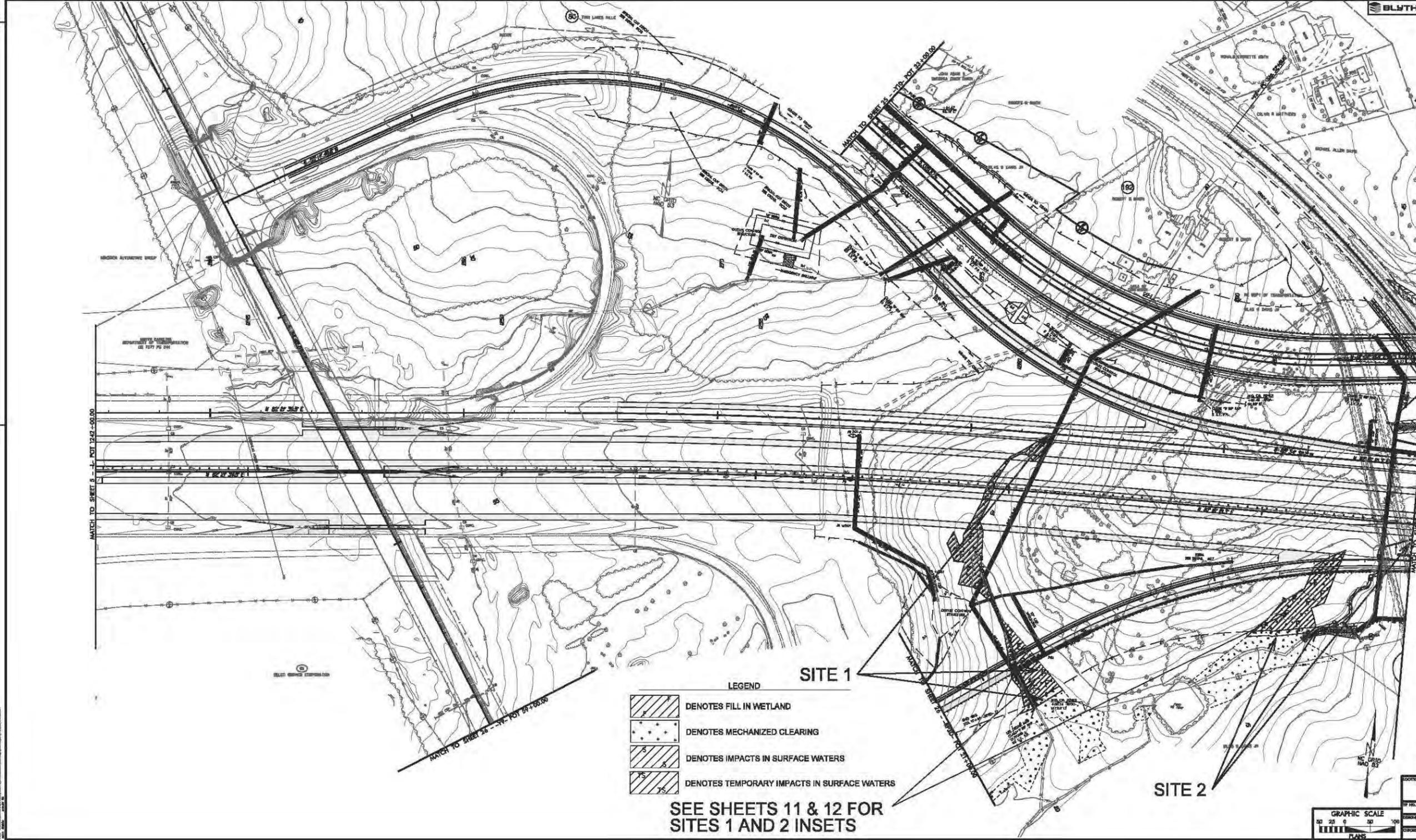


SITE 14



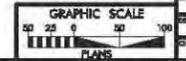
SITE 16





- LEGEND**
-  DENOTES FILL IN WETLAND
 -  DENOTES MECHANIZED CLEARING
 -  DENOTES IMPACTS IN SURFACE WATERS
 -  DENOTES TEMPORARY IMPACTS IN SURFACE WATERS

**SEE SHEETS 11 & 12 FOR
 SITES 1 AND 2 INSETS**



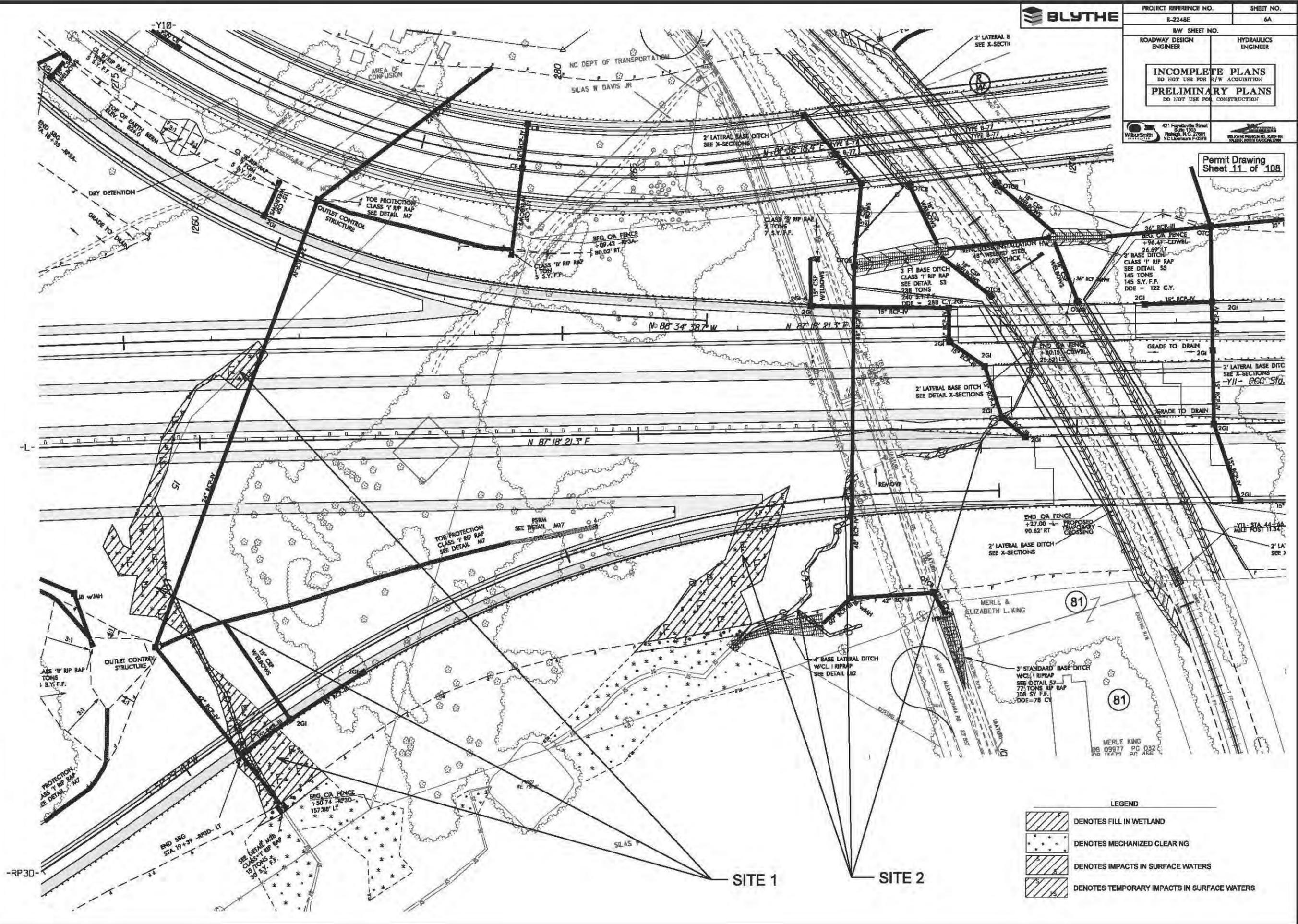
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DATE	4/25/2011	DATE	4/25/2011
DESIGNED BY	SES	DATE	4/25/2011
CHECKED BY	DLV	DATE	4/25/2011

LOCATION: I-485 (CHARLOTTE OUTER LOOP) FROM WEST OF NC 113 TO WEST OF I-85 I-485 AND NC 116 INTERCHANGE

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

421 Fayetteville Street
Suite 1303
Raleigh, N.C. 27601
NC License # F-0378

Permit Drawing
Sheet 11 of 108

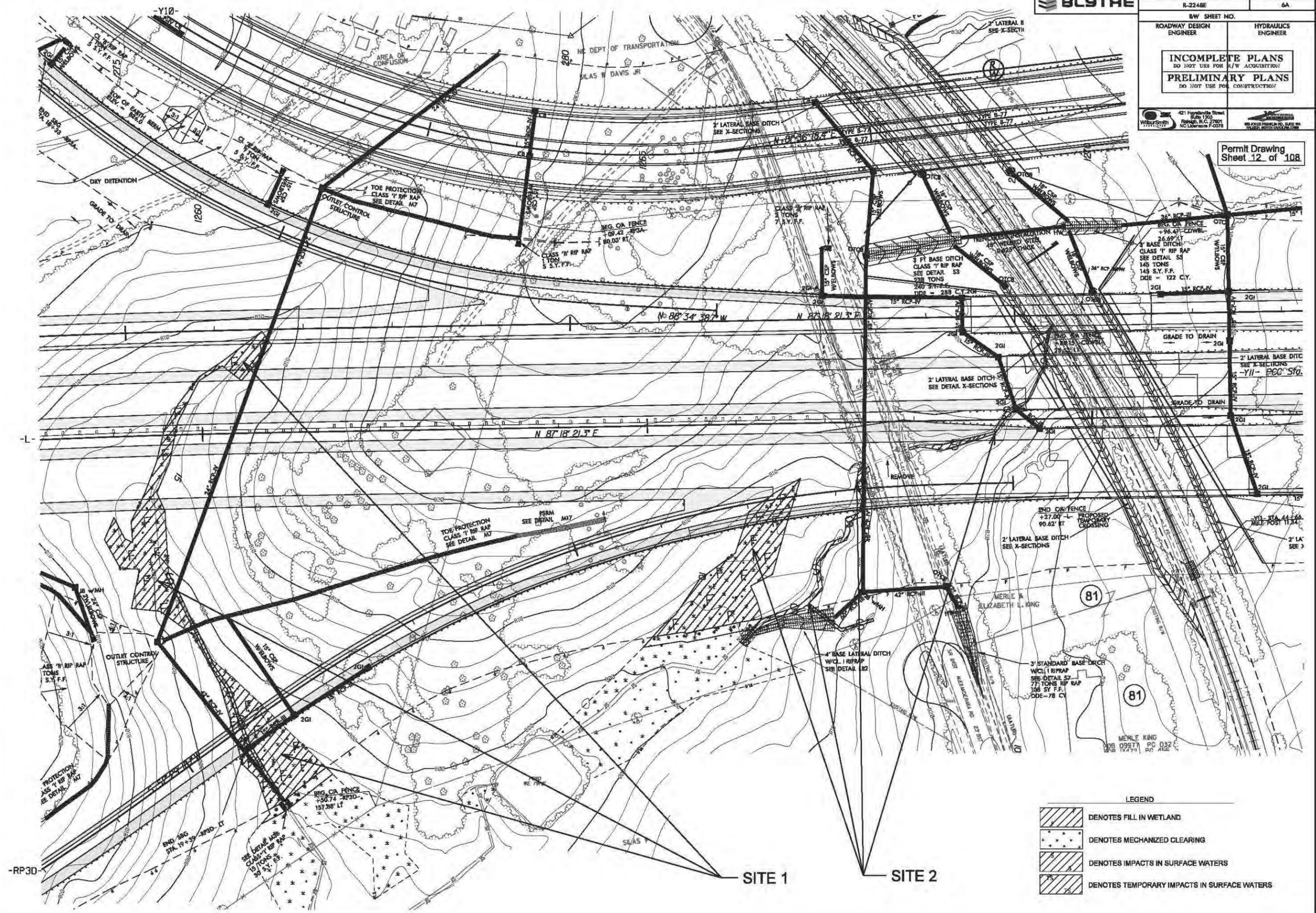


REVISIONS

FILE: R:\blythe\2248E\Hydro\2248E\2248E_RWD\2248E_RWD.dwg
DATE: 4/20/11
5:16:09 PM

LEGEND

	DENOTES FILL IN WETLAND
	DENOTES MECHANIZED CLEARING
	DENOTES IMPACTS IN SURFACE WATERS
	DENOTES TEMPORARY IMPACTS IN SURFACE WATERS

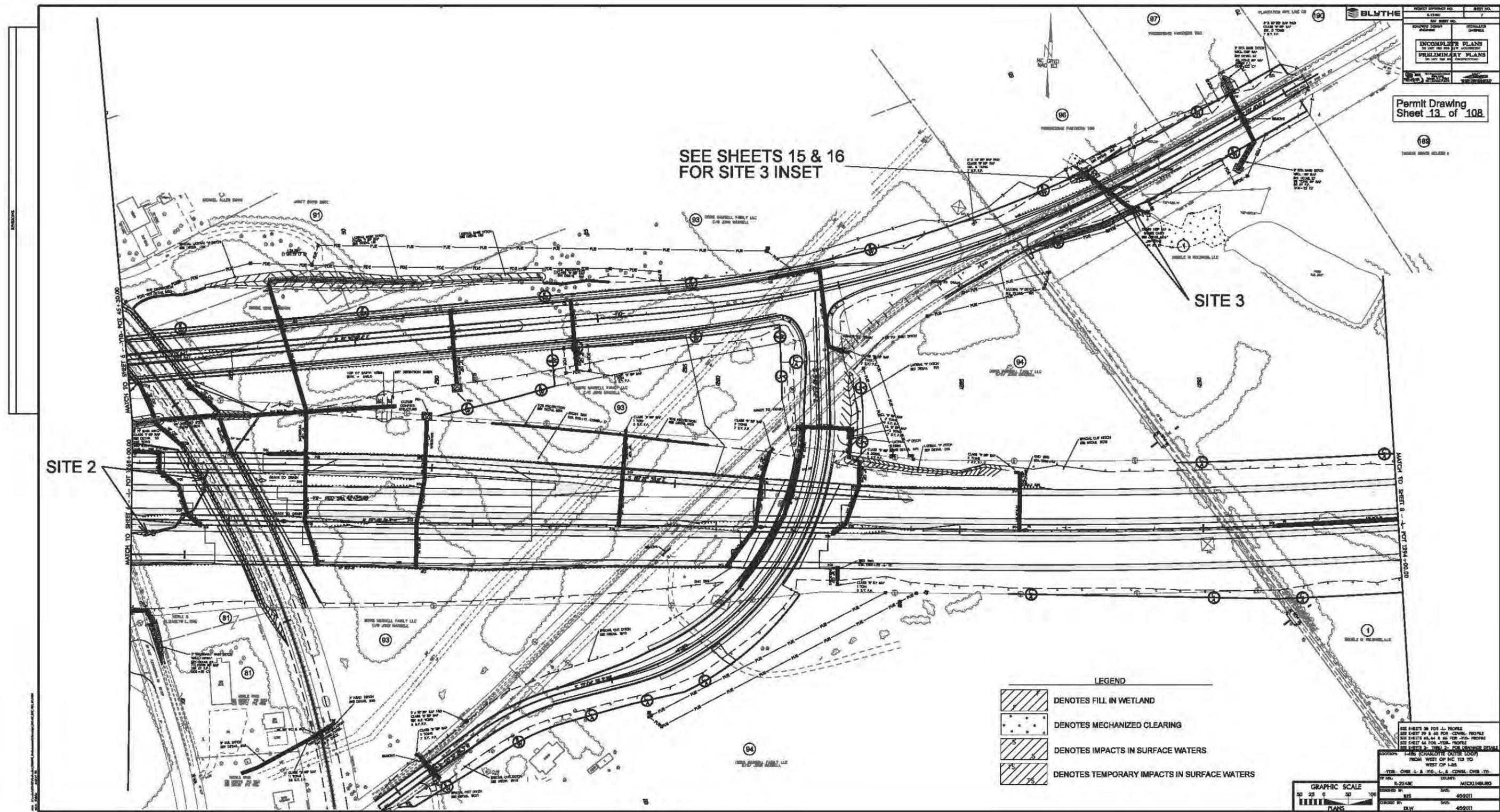


REVISIONS

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 DATE: 4/20/11

LEGEND

	DENOTES FILL IN WETLAND
	DENOTES MECHANIZED CLEARING
	DENOTES IMPACTS IN SURFACE WATERS
	DENOTES TEMPORARY IMPACTS IN SURFACE WATERS



SEE SHEETS 15 & 16
FOR SITE 3 INSET

SITE 2

SITE 3

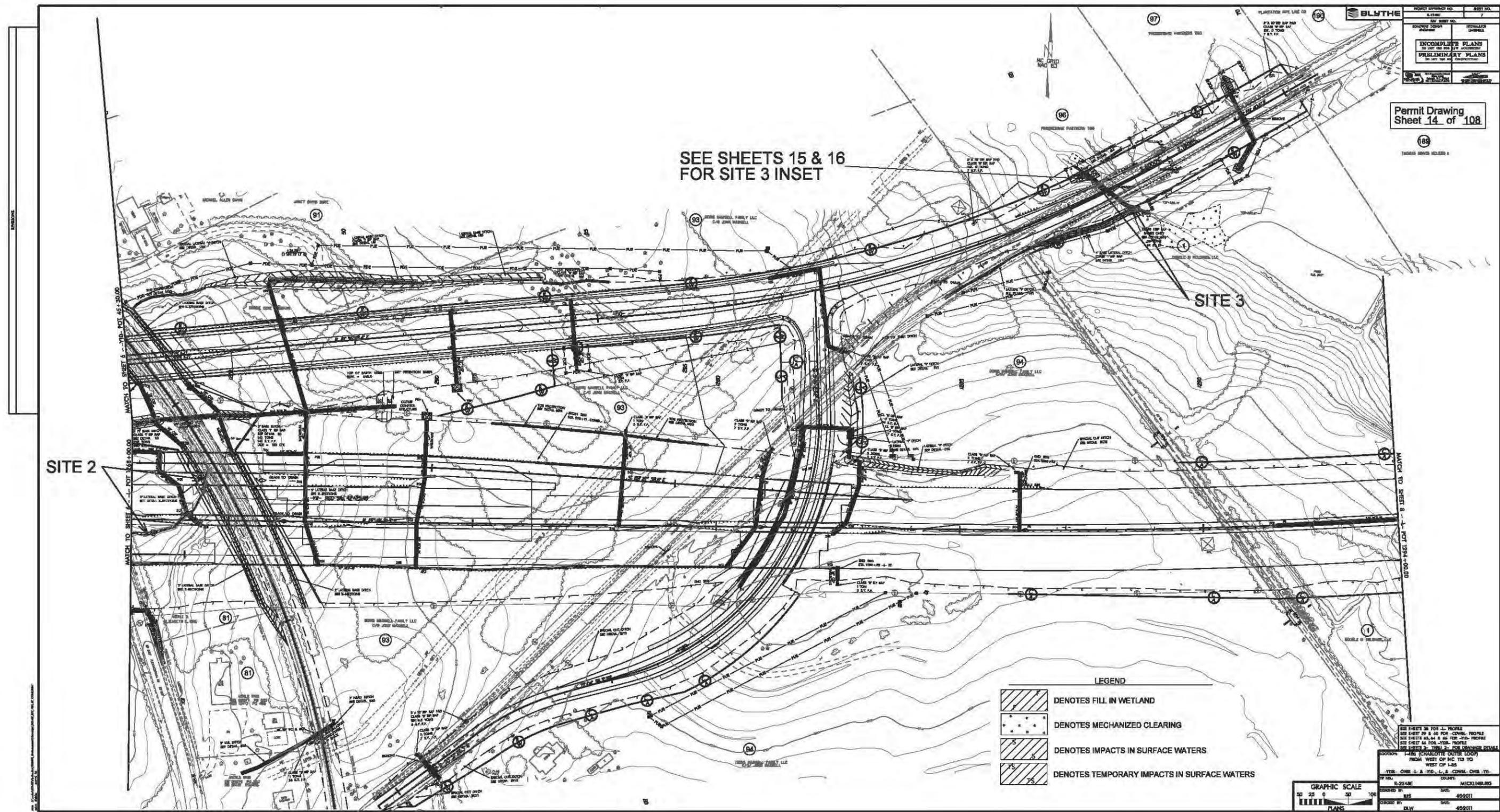
PROJECT REFERENCE NO. 452011
SHEET NO. 13
DATE 08/11/2011
DRAWN BY BLS
CHECKED BY BLS
INCOMPLETE PLANS
DO NOT USE FOR CONSTRUCTION
PRELIMINARY PLANS
FOR PERMITTING PURPOSES

Permit Drawing
Sheet 13 of 108

- LEGEND
-  DENOTES FILL IN WETLAND
 -  DENOTES MECHANIZED CLEARING
 -  DENOTES IMPACTS IN SURFACE WATERS
 -  DENOTES TEMPORARY IMPACTS IN SURFACE WATERS



SEE SHEETS 14 FOR -L- PROFILES
SEE SHEET 15 FOR -CROSS- PROFILES
SEE SHEETS 16, 17, 18 FOR -TYP- PROFILES
SEE SHEET 19 FOR -TYP- PROFILES
SEE SHEETS 20, 21, 22 FOR -TYP- PROFILES
LOCATION: 1-180 (CHARLOTTE OUTER LOOP)
FROM WEST OF I-77 TO WEST OF I-85
BY MD: 8-2242E COUNTY: MCKENNA
DRAWN BY: BLS DATE: 08/11/2011
CHECKED BY: BLS DATE: 08/11/2011
PLANS: BLS



SEE SHEETS 15 & 16
FOR SITE 3 INSET

SITE 2

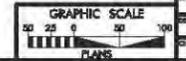
SITE 3

PROJECT REFERENCE NO. 452011
SHEET NO. 14
DATE 05/20/11
DRAWN BY SSS
CHECKED BY BLY
DESIGNED BY SSS
DATE 05/20/11

Permit Drawing
Sheet 14 of 108

LEGEND

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



SEE SHEETS 14 FOR J. PEOPLE
SEE SHEET 15 FOR C. PEOPLE
SEE SHEET 16 FOR M. PEOPLE
SEE SHEET 17 FOR T. PEOPLE
SEE SHEET 18 FOR S. PEOPLE
SEE SHEET 19 FOR W. PEOPLE
SEE SHEET 20 FOR N. PEOPLE
SEE SHEET 21 FOR E. PEOPLE
SEE SHEET 22 FOR S. PEOPLE
SEE SHEET 23 FOR W. PEOPLE
SEE SHEET 24 FOR N. PEOPLE
SEE SHEET 25 FOR E. PEOPLE
SEE SHEET 26 FOR S. PEOPLE
SEE SHEET 27 FOR W. PEOPLE
SEE SHEET 28 FOR N. PEOPLE
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SEE SHEET 31 FOR W. PEOPLE
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SEE SHEET 98 FOR S. PEOPLE
SEE SHEET 99 FOR W. PEOPLE
SEE SHEET 100 FOR N. PEOPLE
SEE SHEET 101 FOR E. PEOPLE
SEE SHEET 102 FOR S. PEOPLE
SEE SHEET 103 FOR W. PEOPLE
SEE SHEET 104 FOR N. PEOPLE
SEE SHEET 105 FOR E. PEOPLE
SEE SHEET 106 FOR S. PEOPLE
SEE SHEET 107 FOR W. PEOPLE
SEE SHEET 108 FOR N. PEOPLE

NC GRID
NAD 83



PROJECT REFERENCE NO. R-2248E	SHEET NO. 7A
R/W SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

LEGEND

	DENOTES FILL IN WETLAND
	DENOTES MECHANIZED CLEARING
	DENOTES IMPACTS IN SURFACE WATERS
	DENOTES TEMPORARY IMPACTS IN SURFACE WATERS

-Y10- PT Sta. 67+62.17

Permit Drawing
Sheet 15 of 108

96

PROGRESSIVE PARTNERS TWO

SITE 3

5' X 10' RIP RAP PAD
CLASS 'B' RIP RAP
EST. 5 TONS
7 S.Y. F.F.

TOE PROTECTION
SEE DETAIL M4

CLASS I RIP RAP
BANKS ONLY
SEE DETAIL M39*
33 TONS
62 SY FF

4' BASE LATERAL DITCH
CLASS 'I' RIP RAP
SEE DETAIL LB4

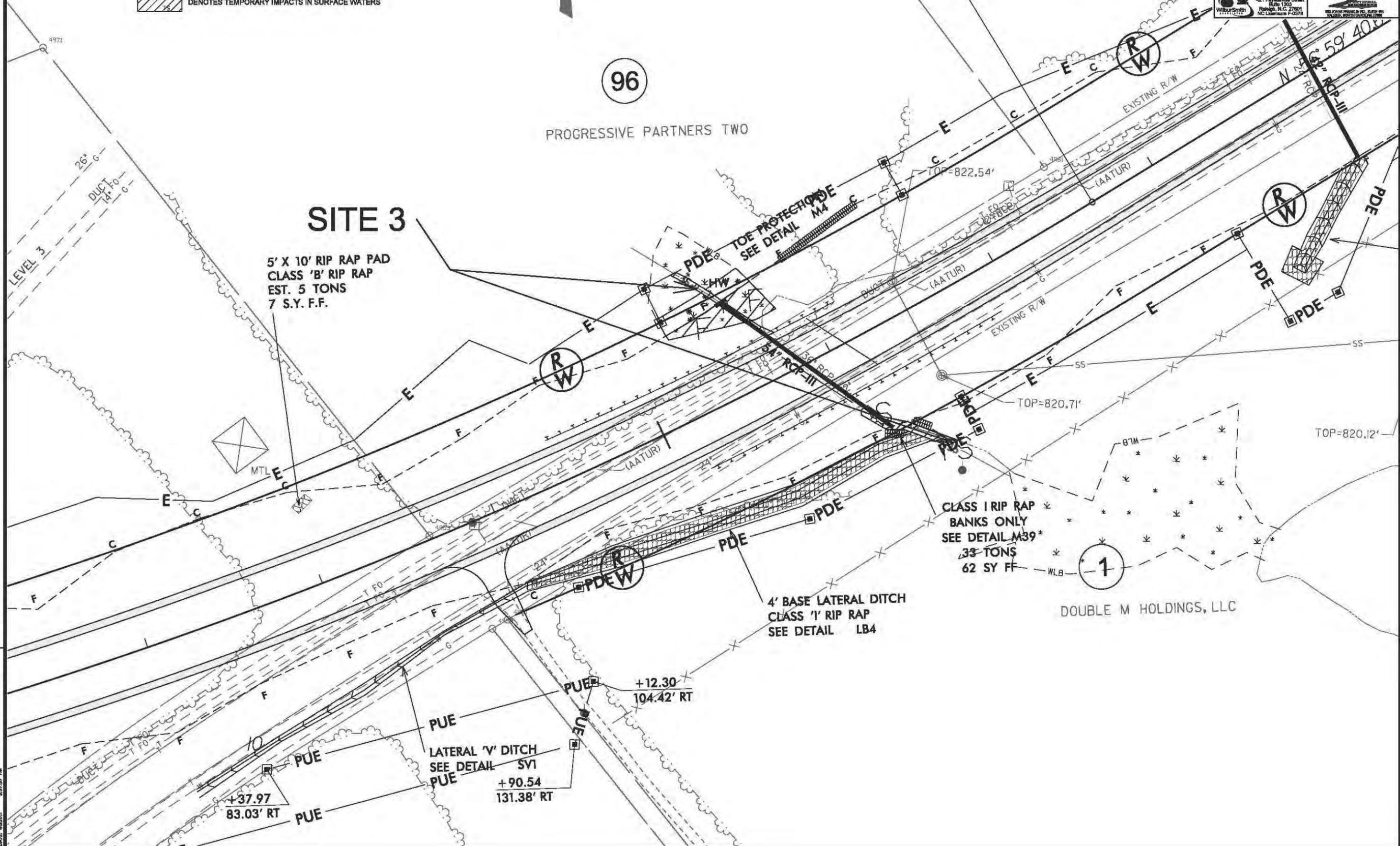
DOUBLE M HOLDINGS, LLC

4971

LEVEL 3
DUCT
26' G
14' G

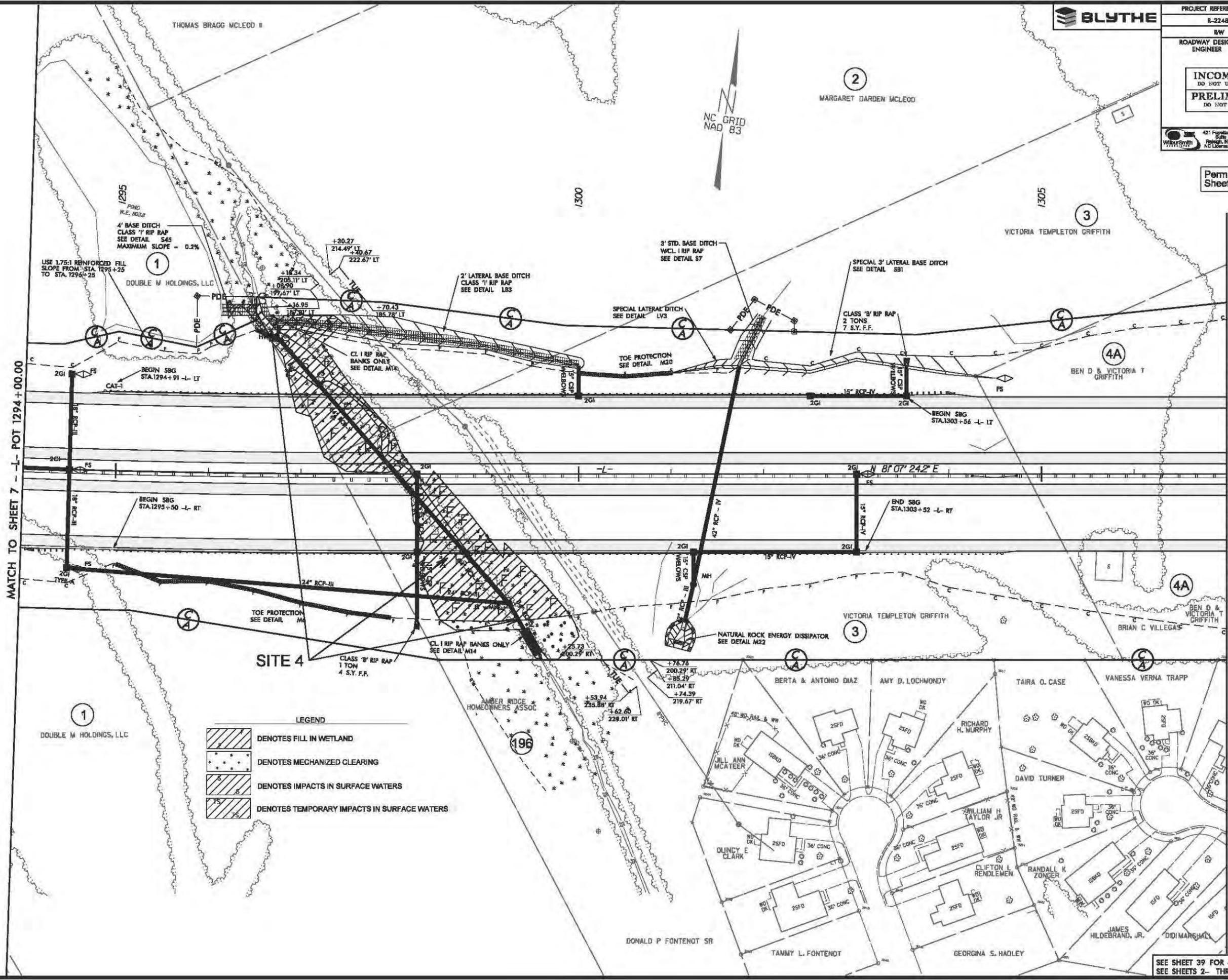
REVISIONS

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PROJECT REFERENCE NO. R-2248E	SHEET NO. 8
R/W SHEET NO. ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
<small>421 Fayetteville Street, Suite 1303, Raleigh, N.C. 27601, NC License No. F-0378</small>	

Permit Drawing
Sheet 17 of 108



MATCH TO SHEET 7 - L- POT 1294 + 00.00

MATCH TO SHEET 9 - L- POT 1307 + 00.00

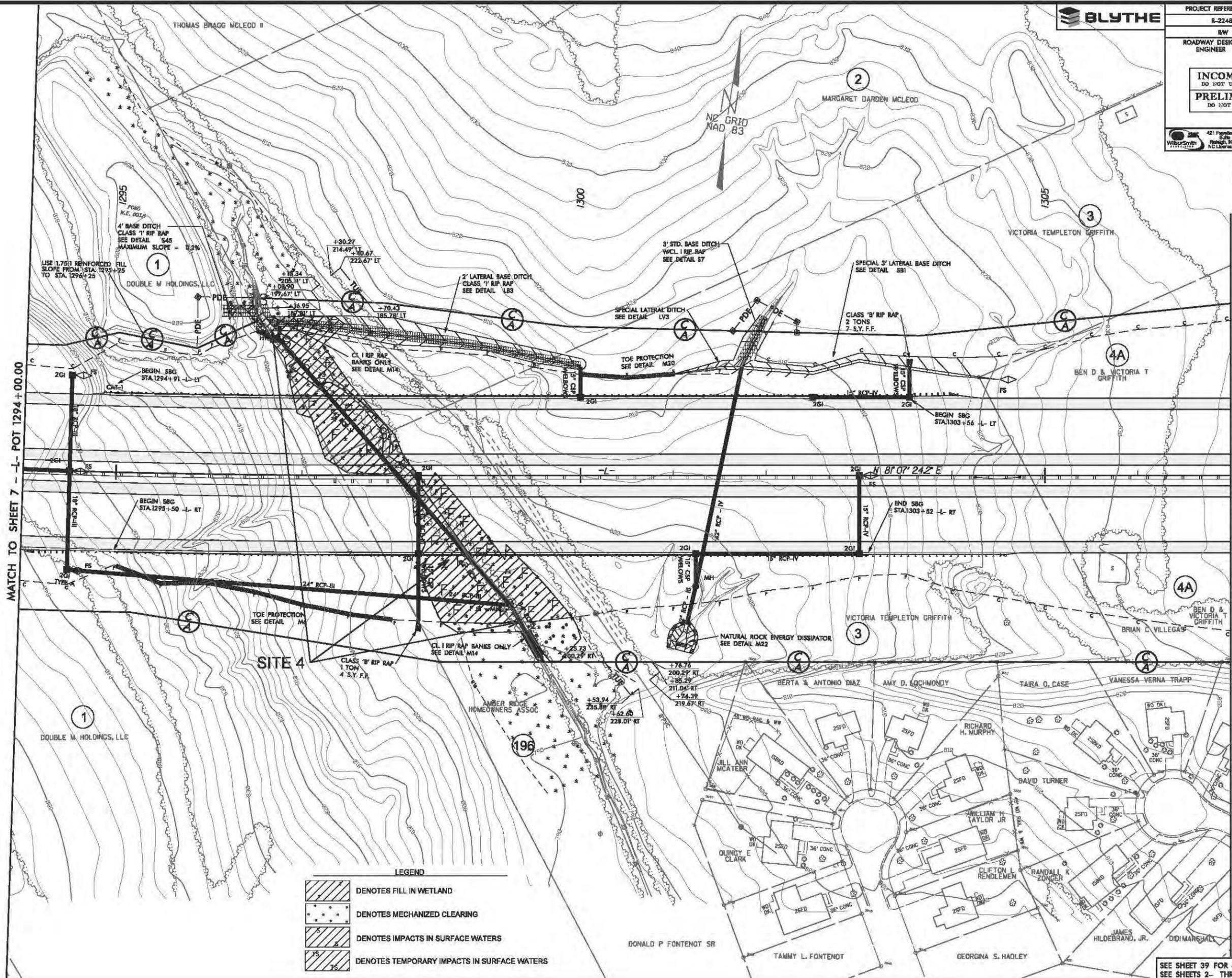
LEGEND

	DENOTES FILL IN WETLAND
	DENOTES MECHANIZED CLEARING
	DENOTES IMPACTS IN SURFACE WATERS
	DENOTES TEMPORARY IMPACTS IN SURFACE WERS

REVISIONS

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 5:07:15 PM

SEE SHEET 39 FOR -L- PROFILE
SEE SHEETS 2- THRU 2- FOR DRAINAGE DETAILS



REVISIONS

MATCH TO SHEET 7 - L- POT 1294 + 00.00

MATCH TO SHEET 9 - L- POT 1307 + 00.00

LEGEND

	DENOTES FILL IN WETLAND
	DENOTES MECHANIZED CLEARING
	DENOTES IMPACTS IN SURFACE WATERS
	DENOTES TEMPORARY IMPACTS IN SURFACE WATERS

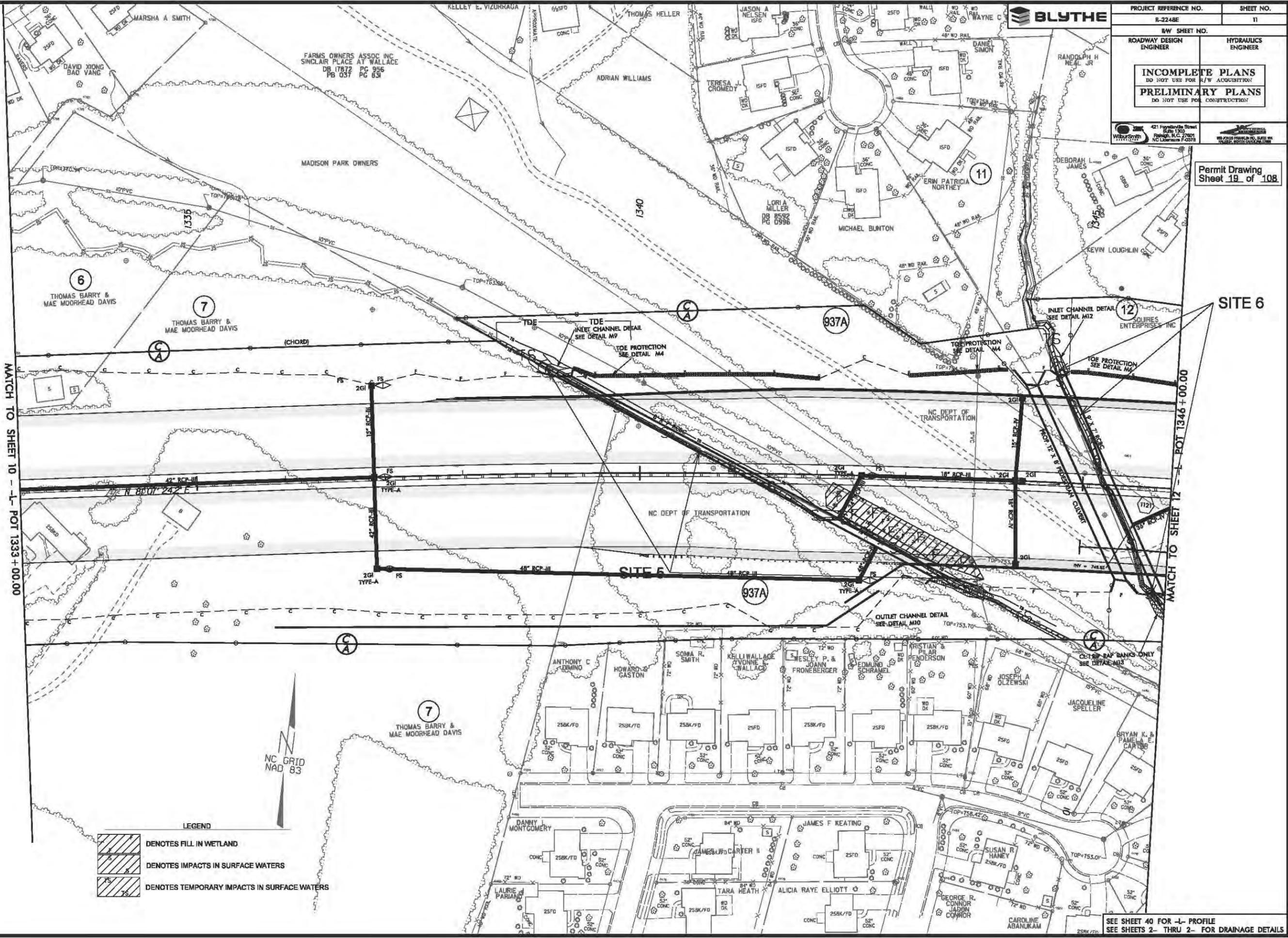
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SEE SHEET 39 FOR -L- PROFILE
SEE SHEETS 2- THRU 2- FOR DRAINAGE DETAILS

PROJECT REFERENCE NO. R-2248E	SHEET NO. 11
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

421 Fayetteville Street
 Suite 1303
 Raleigh, N.C. 27601
 NC License # F-0378

Permit Drawing
 Sheet 19 of 108



MATCH TO SHEET 10 - L- POT 1333 + 00.00

MATCH TO SHEET 12 - L- POT 1346 + 00.00

LEGEND

	DENOTES FILL IN WETLAND
	DENOTES IMPACTS IN SURFACE WATERS
	DENOTES TEMPORARY IMPACTS IN SURFACE WATERS



REVISIONS

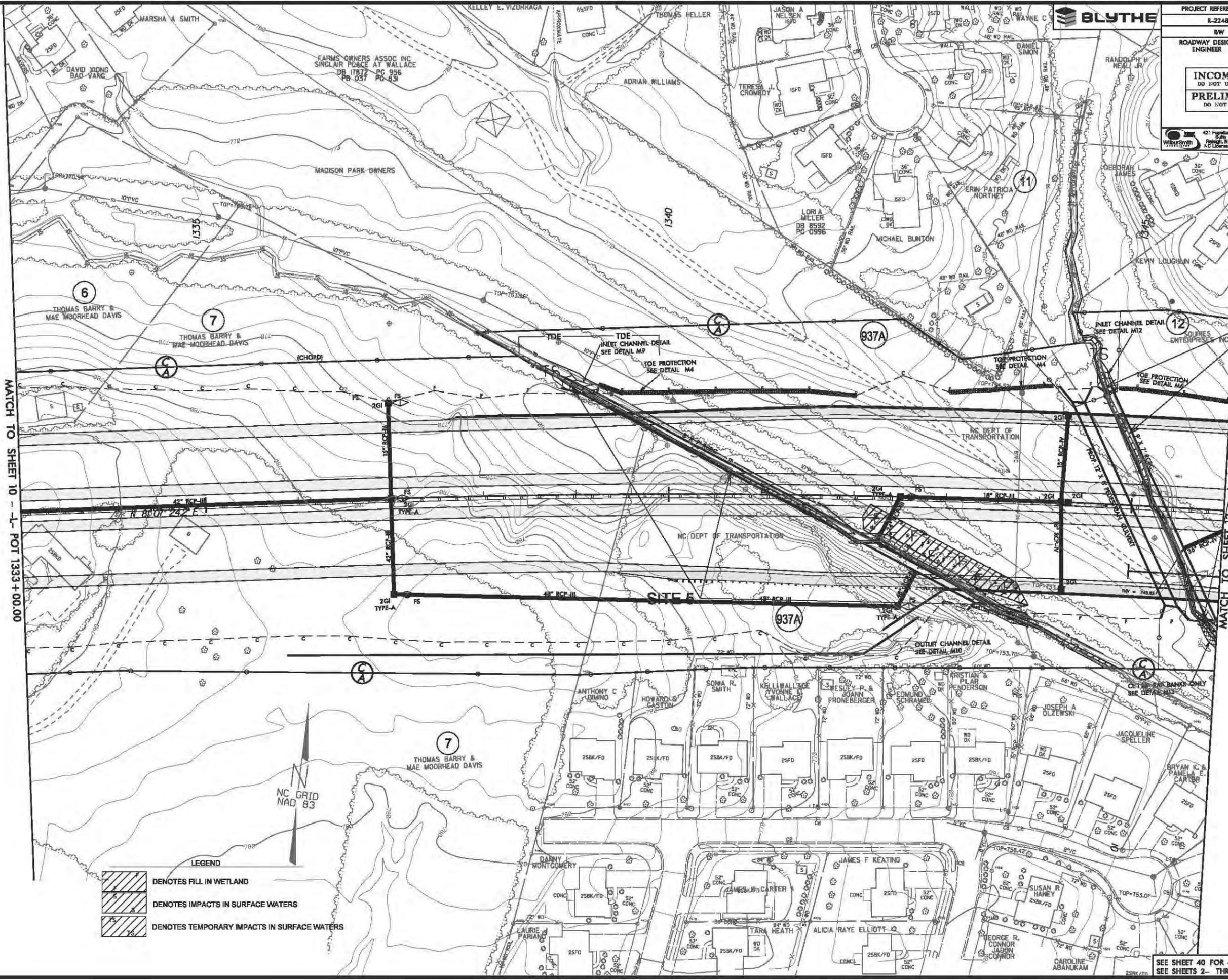
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SEE SHEET 40 FOR -L- PROFILE
 SEE SHEETS 2- THRU 2- FOR DRAINAGE DETAILS

PROJECT REFERENCE NO. R-2248E	SHEET NO. 11
R/W SHEET NO. ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

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Raleigh, N.C. 27601
NC License # F-0378

Permit Drawing
Sheet 20 of 108



LEGEND

	DENOTES FILL IN WETLAND
	DENOTES IMPACTS IN SURFACE WATERS
	DENOTES TEMPORARY IMPACTS IN SURFACE WATERS

NC GRID
NAD 83

MATCH TO SHEET 10 - L- POT 1333 + 00.00

MATCH TO SHEET 12 - L- POT 1346 + 00.00

SITE 6

SITE 5

REVISIONS

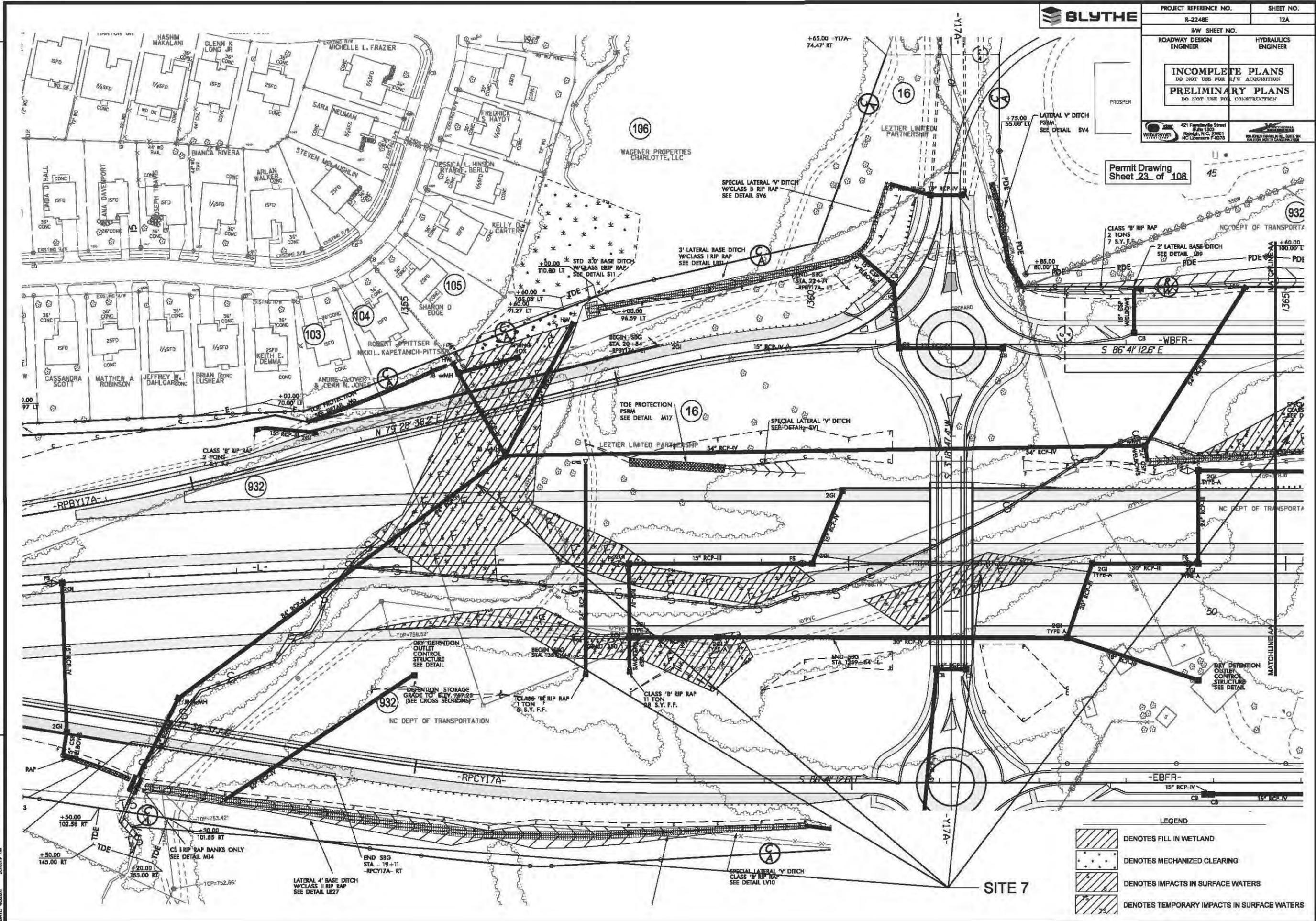
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DATE: 4/20/11

SEE SHEET 40 FOR -L- PROFILE
SEE SHEETS 2- THRU 2- FOR DRAINAGE DETAILS

Permit Drawing
Sheet 23 of 108

45

REVISIONS



LEGEND

	DENOTES FILL IN WETLAND
	DENOTES MECHANIZED CLEARING
	DENOTES IMPACTS IN SURFACE WATERS
	DENOTES TEMPORARY IMPACTS IN SURFACE WATERS

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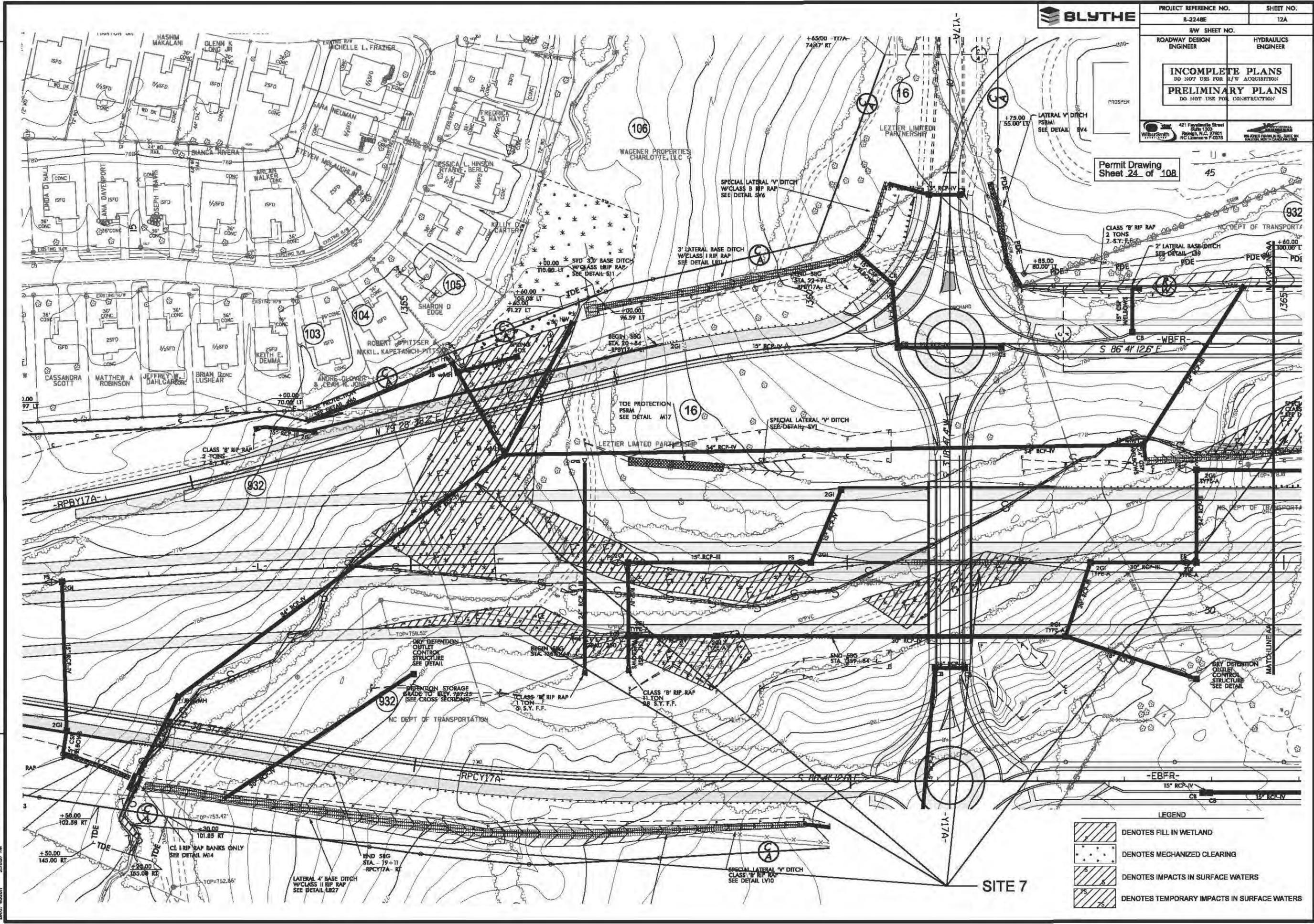
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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Suite 1303
Raleigh, NC 27601
NC License # F-0078

Permit Drawing
Sheet 24 of 108

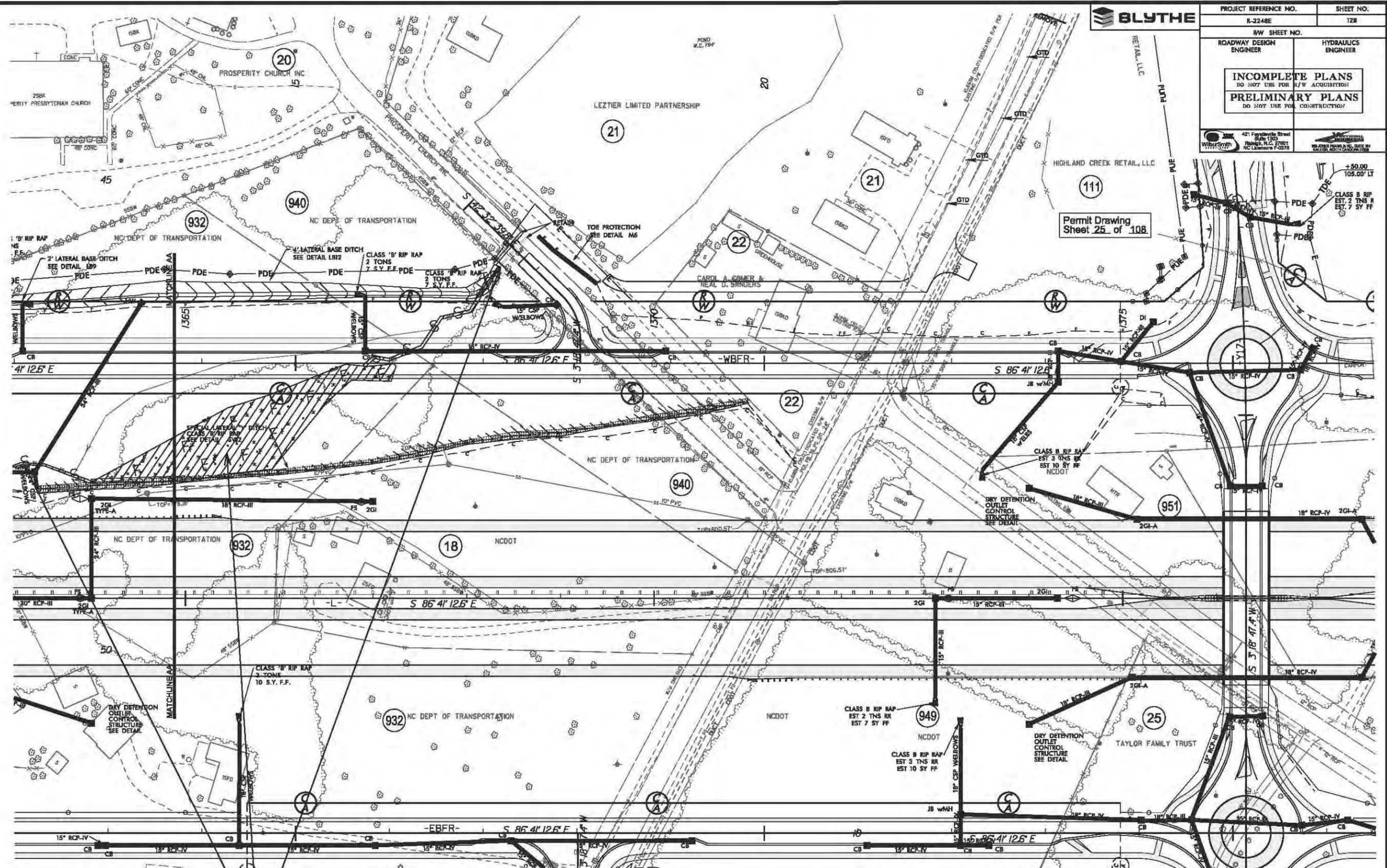
REVISIONS



LEGEND

	DENOTES FILL IN WETLAND
	DENOTES MECHANIZED CLEARING
	DENOTES IMPACTS IN SURFACE WATERS
	DENOTES TEMPORARY IMPACTS IN SURFACE WATERS

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DATE: 4/20/11 5:20:57 PM



Permit Drawing
Sheet 25 of 108

- LEGEND
- DENOTES FILL IN WETLAND
 - DENOTES IMPACTS IN SURFACE WATERS
 - DENOTES TEMPORARY IMPACTS IN SURFACE WATERS

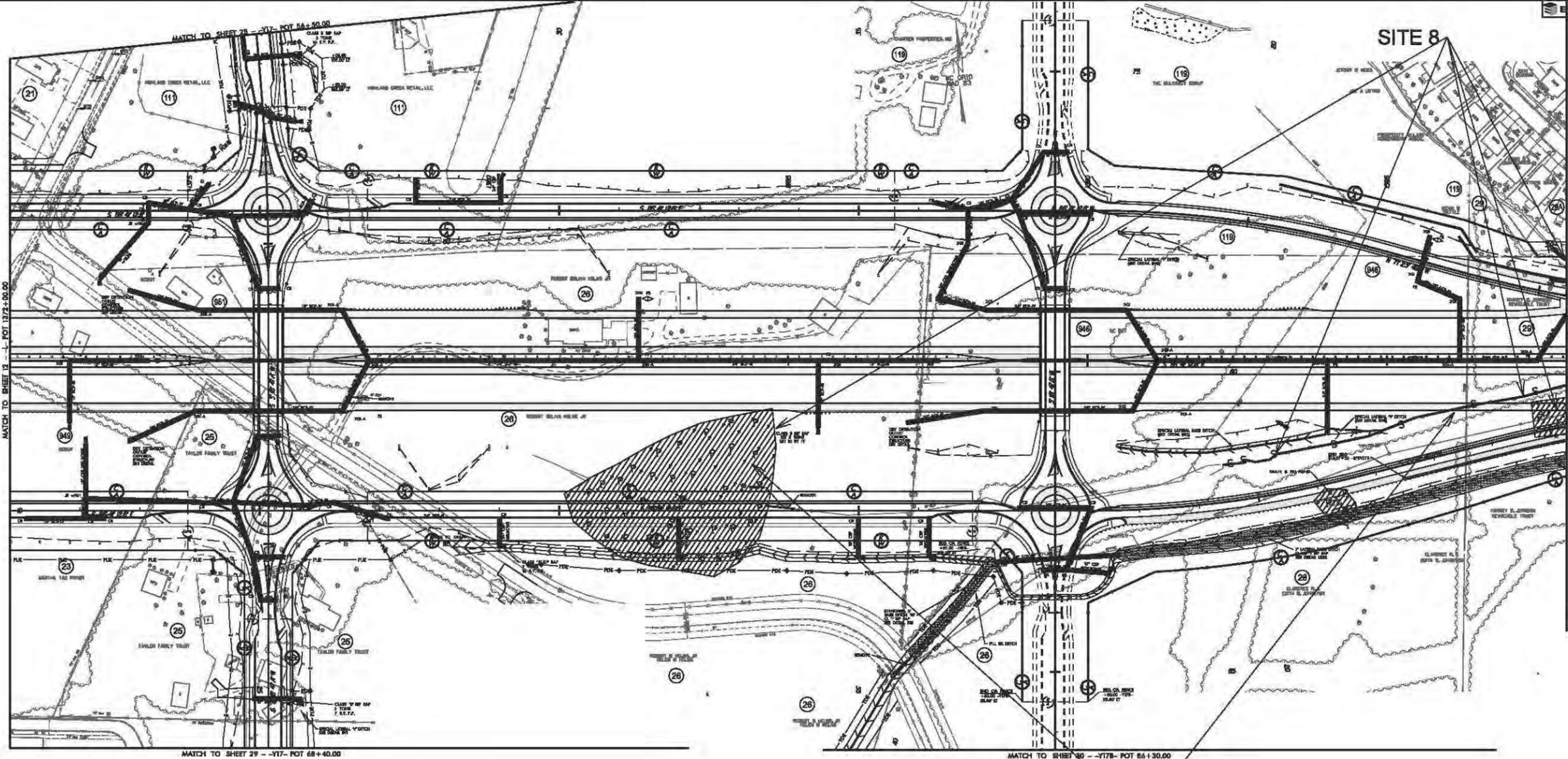
SITE 7

REVISIONS

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DATE: 4/20/21

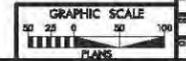
INCOMPLETE PLANS
 PRELIMINARY PLANS
 FOR THE PROJECT

Permit Drawing
 Sheet 27 of 108



- LEGEND**
-  DENOTES FILL IN WETLAND
 -  DENOTES IMPACTS IN SURFACE WATERS
 -  DENOTES TEMPORARY IMPACTS IN SURFACE WATERS
 -  DENOTES IMPACTS IN SURFACE WATERS (POND)

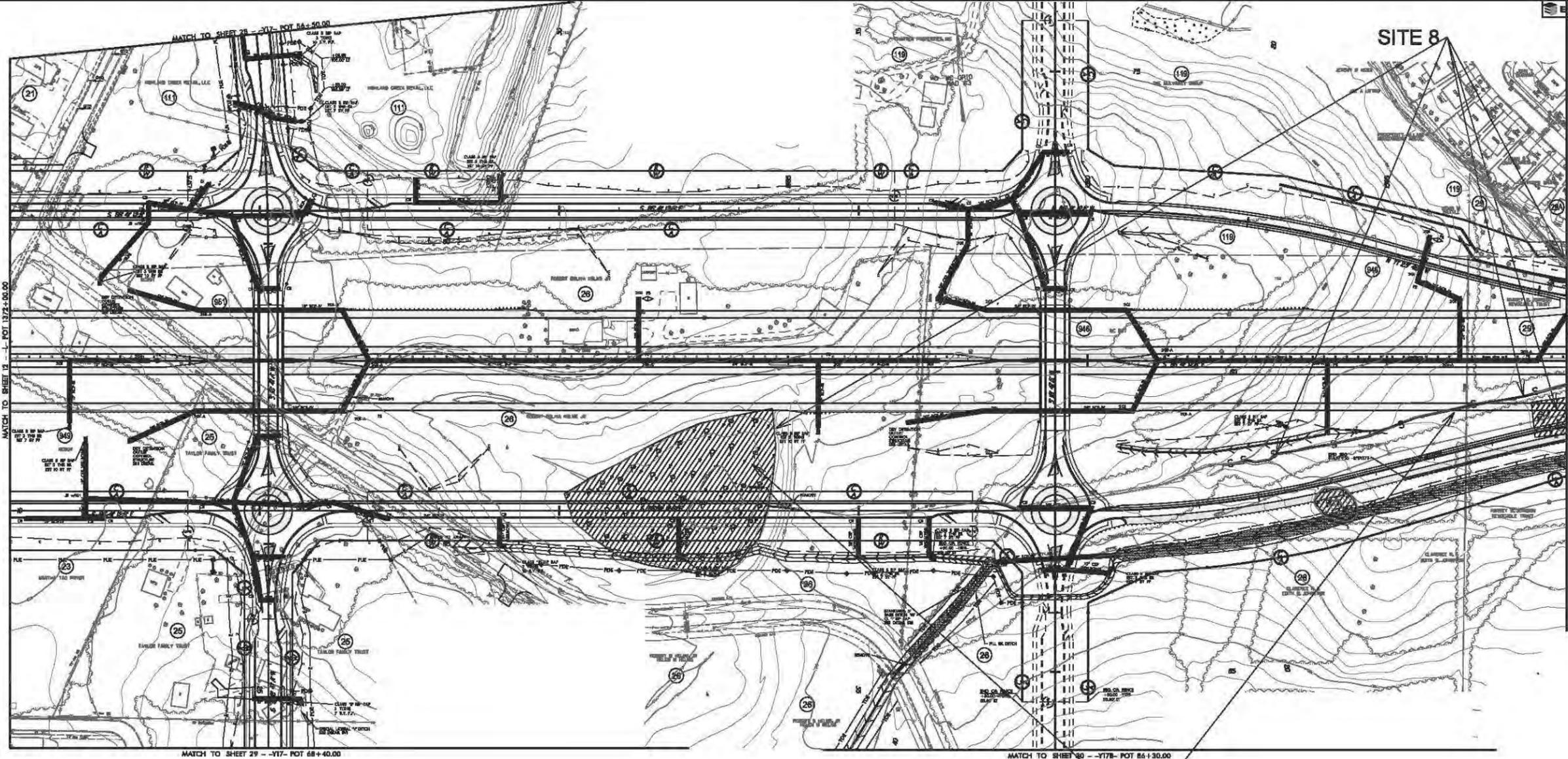
SEE SHEETS 29-32
 FOR SITE 8 INSETS



NO. SHEETS	48
NO. SHEETS FOR FILL	12
NO. SHEETS FOR TEMPORARY IMPACTS	12
NO. SHEETS FOR PERMANENT IMPACTS	24
NO. SHEETS FOR POND IMPACTS	0
NO. SHEETS FOR OTHER IMPACTS	0
NO. SHEETS FOR TOTAL IMPACTS	36
NO. SHEETS FOR TOTAL SHEETS	48
DATE	4/22/2011
BY	DES
CHECKED BY	DES
DATE	4/22/2011
BY	DES
CHECKED BY	DES
DATE	4/22/2011

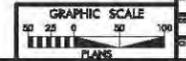
LOCATION: I-85 (CHAMBERLAIN OVERLOOK)
 FROM WEST OF I-85 TO
 WEST OF I-85
 PROPERTY CHURCH ROAD INTERCHANGE

BY HWY: 15-22-001 COUNTY: MECKLENBURG



- LEGEND**
-  DENOTES FILL IN WETLAND
 -  DENOTES IMPACTS IN SURFACE WATERS
 -  DENOTES TEMPORARY IMPACTS IN SURFACE WATERS
 -  DENOTES IMPACTS IN SURFACE WATERS (POND)

SEE SHEETS 29-32
 FOR SITE 8 INSETS

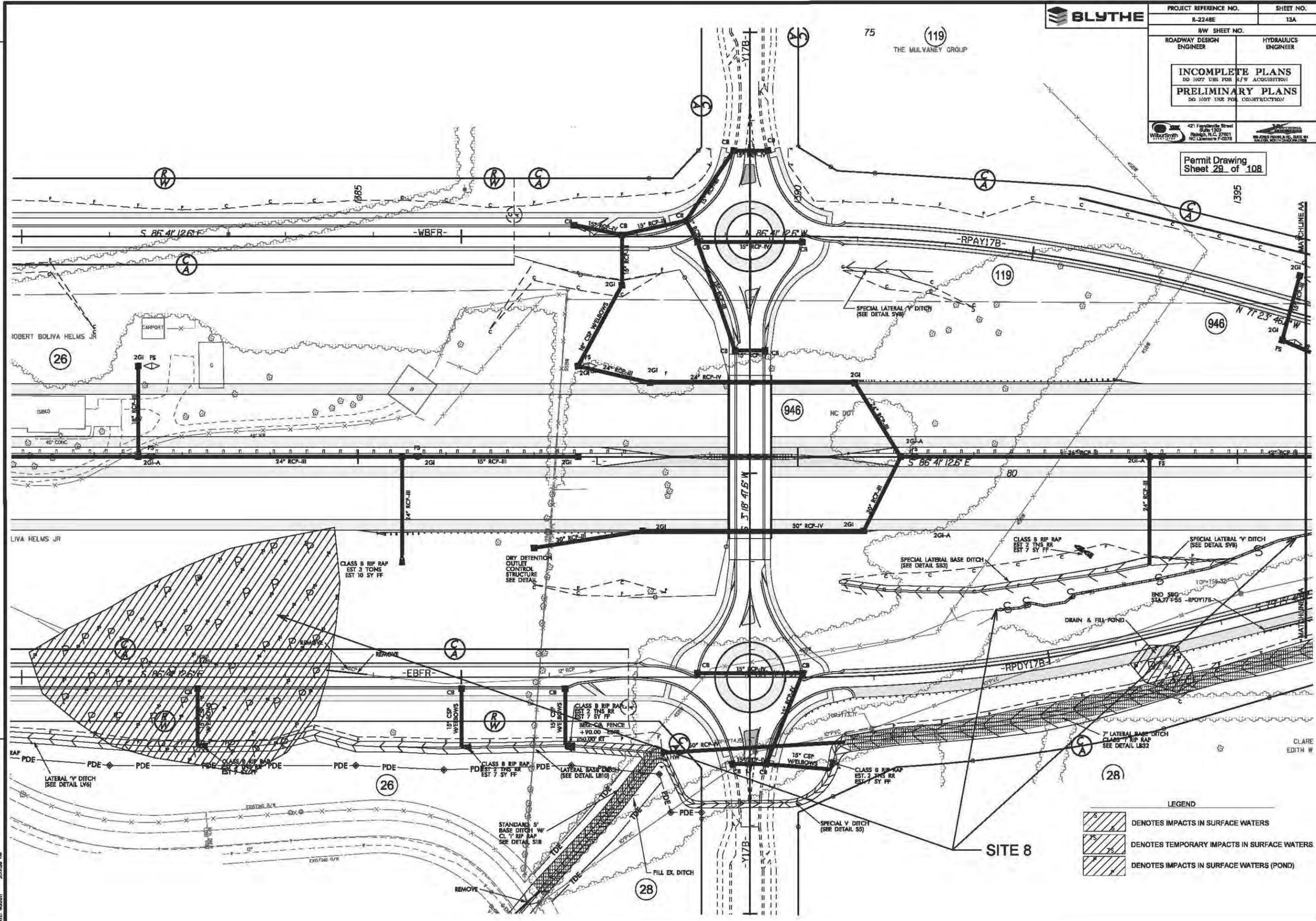


SEE SHEET 43 FOR 4'- PROFILE	SEE SHEET 47 FOR 4'- VERTICAL PROFILE
SEE SHEET 49 FOR 4'- VERTICAL PROFILE	SEE SHEET 51 FOR 4'- VERTICAL PROFILE
SEE SHEET 53 FOR 4'- VERTICAL PROFILE	SEE SHEET 55 FOR 4'- VERTICAL PROFILE
SEE SHEET 57 FOR 4'- VERTICAL PROFILE	SEE SHEET 59 FOR 4'- VERTICAL PROFILE
SEE SHEET 63 FOR 4'- VERTICAL PROFILE	SEE SHEET 65 FOR 4'- VERTICAL PROFILE
SEE SHEET 67 FOR 4'- VERTICAL PROFILE	SEE SHEET 69 FOR 4'- VERTICAL PROFILE
SEE SHEET 73 FOR 4'- VERTICAL PROFILE	SEE SHEET 75 FOR 4'- VERTICAL PROFILE
SEE SHEET 79 FOR 4'- VERTICAL PROFILE	SEE SHEET 81 FOR 4'- VERTICAL PROFILE
SEE SHEET 85 FOR 4'- VERTICAL PROFILE	SEE SHEET 87 FOR 4'- VERTICAL PROFILE
SEE SHEET 93 FOR 4'- VERTICAL PROFILE	SEE SHEET 95 FOR 4'- VERTICAL PROFILE
SEE SHEET 99 FOR 4'- VERTICAL PROFILE	SEE SHEET 101 FOR 4'- VERTICAL PROFILE

LOCATION: I-85 (CHARLOTTE OUTER LOOP)
 FROM WEST OF I-85 TO WEST OF I-85
 PROPERTY CHURCH ROAD INTERCHANGE

BY NO.	DATE	COUNTY
5-22-06		MECKLENBURG
DRAWN BY	DATE	
SES	4/22/01	
CHECKED BY	DATE	
DLV	4/22/01	

REVISIONS



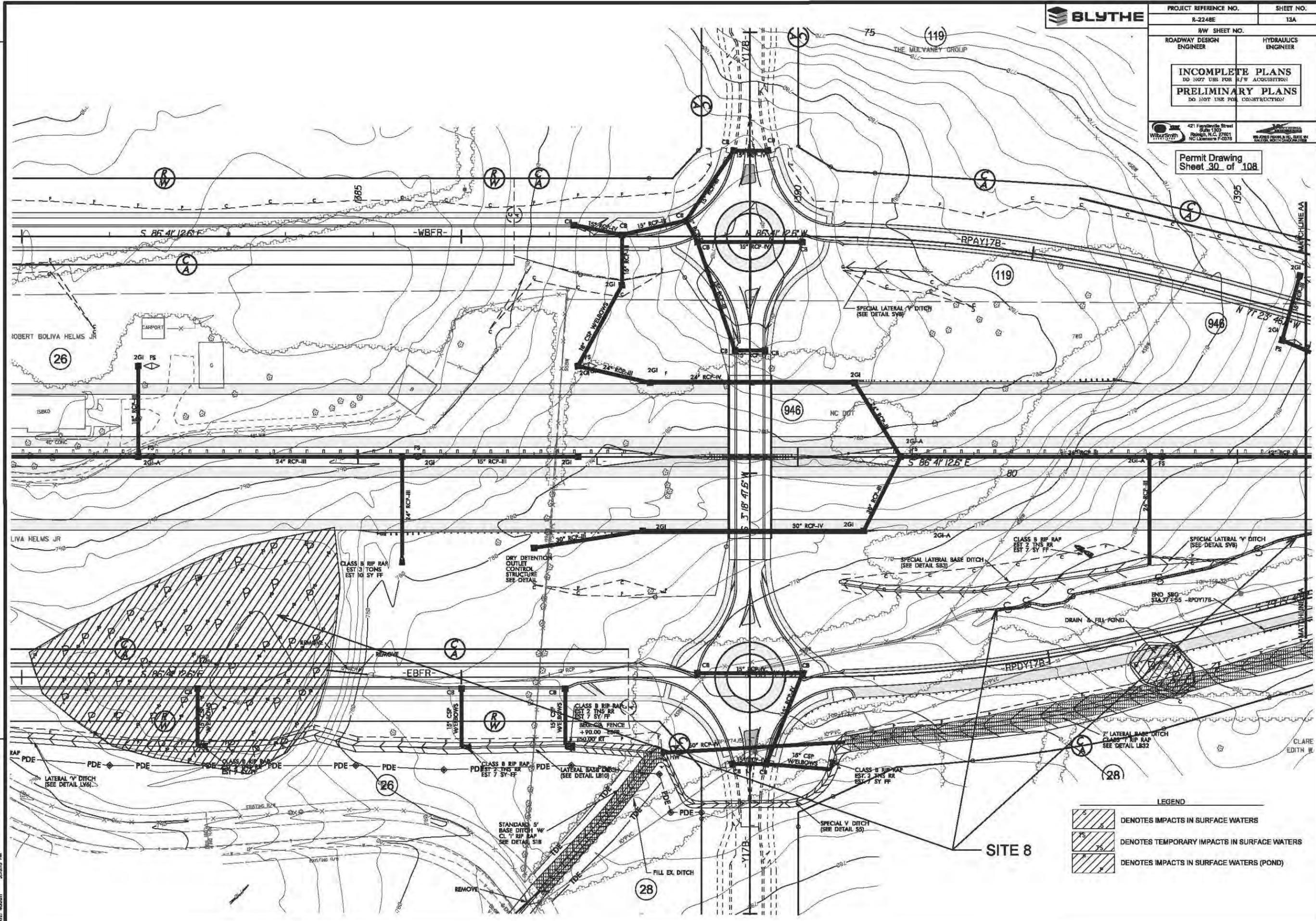
LEGEND

	DENOTES IMPACTS IN SURFACE WATERS
	DENOTES TEMPORARY IMPACTS IN SURFACE WATERS
	DENOTES IMPACTS IN SURFACE WATERS (POND)

FILE: R:\Project\2248E\Hydraulics\2248E_Hydraulics\Drawings\2248E_RWD_Site_8.DWG
 DATE: 4/20/21
 5:27:58 PM

Permit Drawing
Sheet 30 of 108

REVISIONS

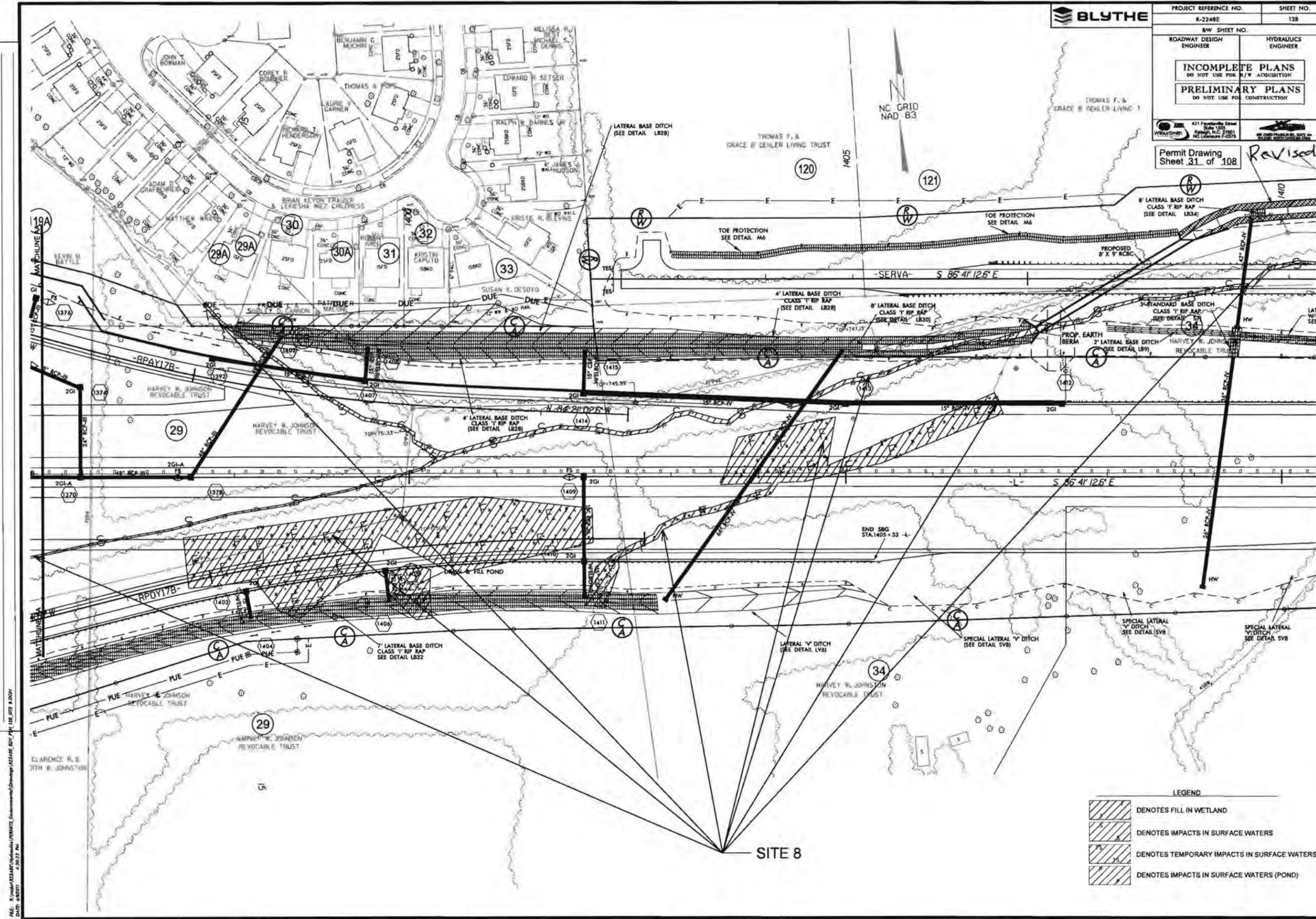


LEGEND

	DENOTES IMPACTS IN SURFACE WATERS
	DENOTES TEMPORARY IMPACTS IN SURFACE WATERS
	DENOTES IMPACTS IN SURFACE WATERS (POND)

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Revised 6-9-2011



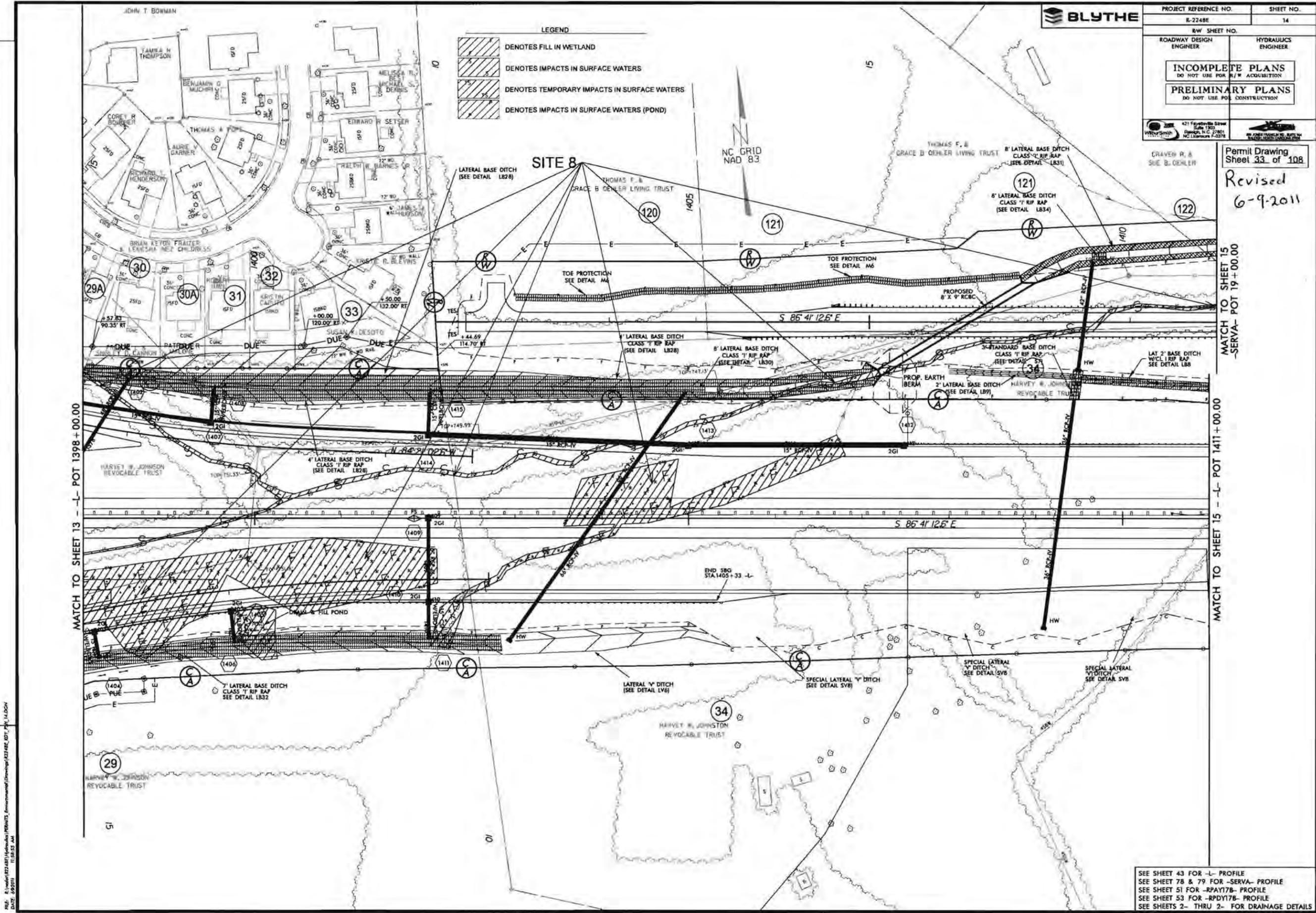
REVISIONS

FILE: K:\proj\2248E\Hydro\138\138_Site_8.dwg
 DATE: 6/9/11

LEGEND

	DENOTES FILL IN WETLAND
	DENOTES IMPACTS IN SURFACE WATERS
	DENOTES TEMPORARY IMPACTS IN SURFACE WATERS
	DENOTES IMPACTS IN SURFACE WATERS (POND)

SITE 8



LEGEND

	DENOTES FILL IN WETLAND
	DENOTES IMPACTS IN SURFACE WATERS
	DENOTES TEMPORARY IMPACTS IN SURFACE WATERS
	DENOTES IMPACTS IN SURFACE WATERS (POND)

BLYTHE

PROJECT REFERENCE NO. R-2248E	SHEET NO. 14
RW SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR P/W ACQUISITION	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

471 Fayetteville Drive
 Suite 100
 Chapel Hill, NC 27610
 NC License # F-0278

Permit Drawing
 Sheet 33 of 108
 Revised
 6-9-2011

MATCH TO SHEET 13 - L - POT 1398+00.00

MATCH TO SHEET 15 - L - POT 1411+00.00

MATCH TO SHEET 15
 -SERVA- POT 19+00.00

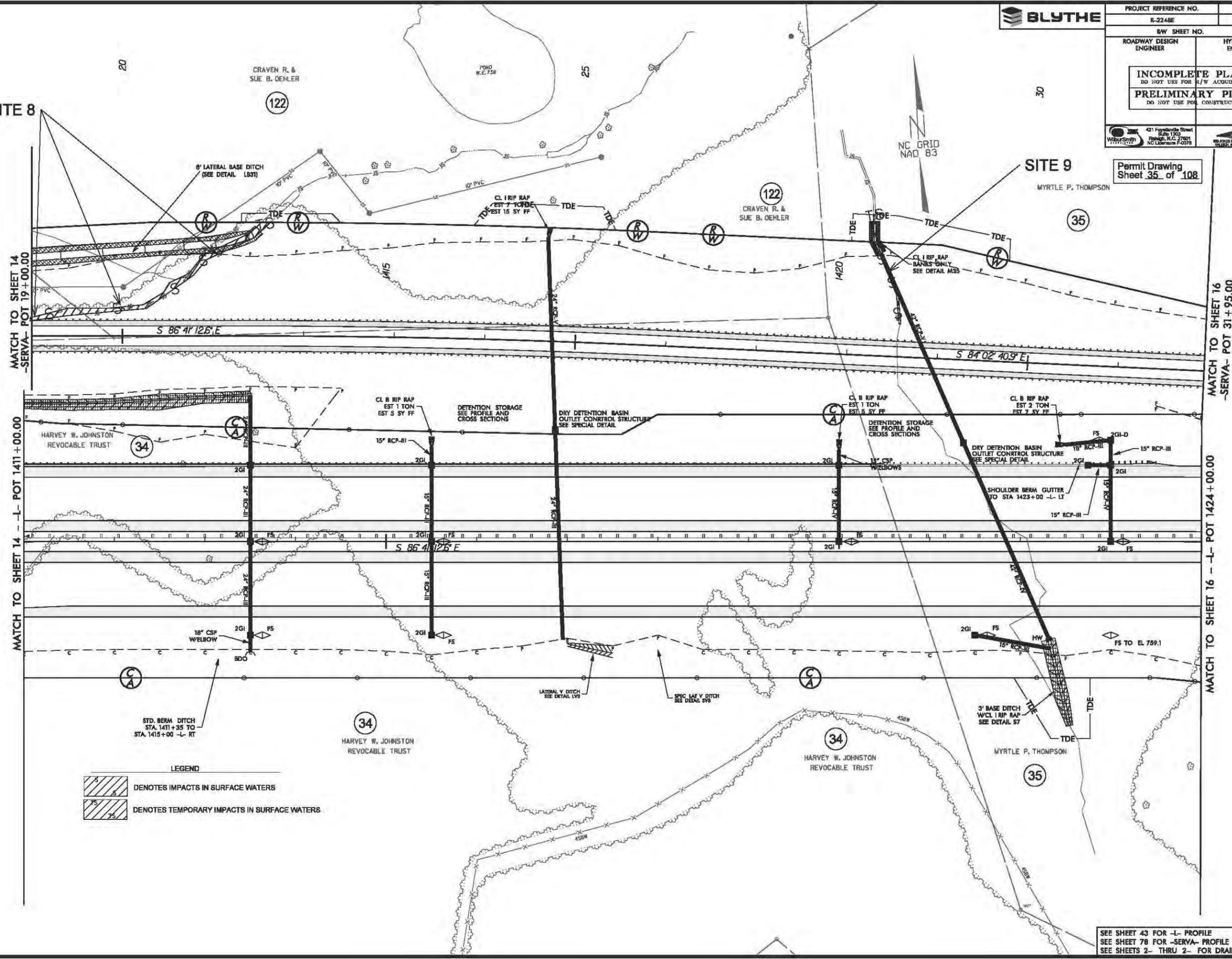
REVISIONS

DATE: 02/20/11
 DRAWN BY: JLD/DAW
 CHECKED BY: JLD/DAW
 APPROVED BY: JLD/DAW

SEE SHEET 43 FOR -L- PROFILE
 SEE SHEET 78 & 79 FOR -SERVA- PROFILE
 SEE SHEET 51 FOR -RPAY17B- PROFILE
 SEE SHEET 53 FOR -RPDY17B- PROFILE
 SEE SHEETS 2- THRU 2- FOR DRAINAGE DETAILS

SITE 8

SITE 9
MYRTLE P. THOMPSON



LEGEND

	DENOTES IMPACTS IN SURFACE WATERS
	DENOTES TEMPORARY IMPACTS IN SURFACE WATERS

REVISIONS

FILE: R:\projects\2248E\Hydro\2248E_Hydro\2248E_RWD_P15.DWG
DATE: 4/20/21 5:24:44 PM

SEE SHEET 43 FOR -L- PROFILE
SEE SHEET 78 FOR -SERVA- PROFILE
SEE SHEETS 2- THRU 2- FOR DRAINAGE DETAILS

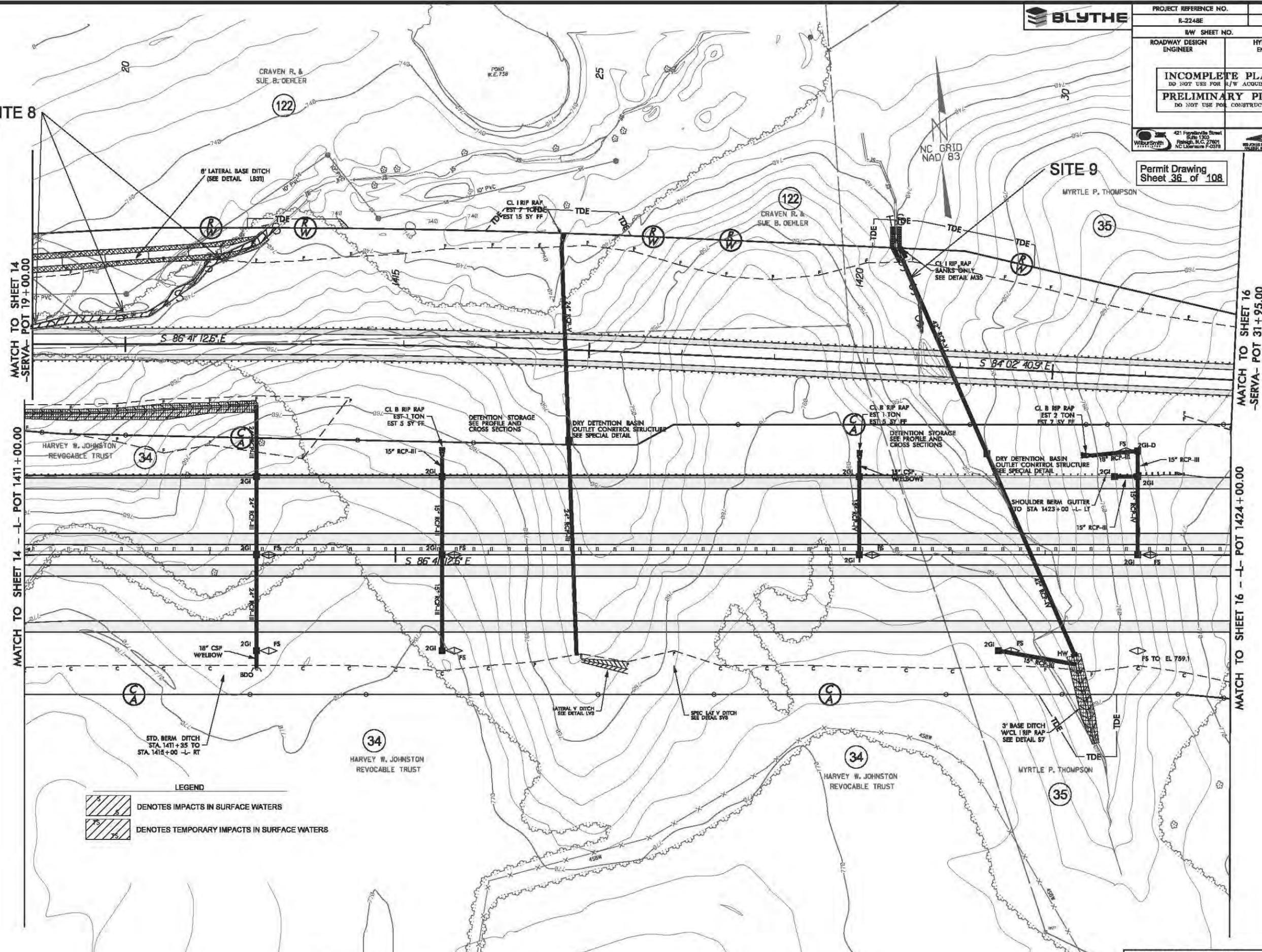
BLYTHE

PROJECT REFERENCE NO. R-2248E	SHEET NO. 15
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
<small>421 Fayetteville Street, Suite 1303, Raleigh, N.C. 27601, NC License # F-0378</small>	

Permit Drawing Sheet 36 of 108

SITE 8

SITE 9
MYRTLE P. THOMPSON



MATCH TO SHEET 14
-SERVA- POT 19+00.00

MATCH TO SHEET 14 -L- POT 1411+00.00

MATCH TO SHEET 16
-SERVA- POT 31+95.00

MATCH TO SHEET 16 -L- POT 1424+00.00

LEGEND

DENOTES IMPACTS IN SURFACE WATERS

DENOTES TEMPORARY IMPACTS IN SURFACE WATERS

SEE SHEET 43 FOR -L- PROFILE
SEE SHEET 78 FOR -SERVA- PROFILE
SEE SHEETS 2- THRU 2- FOR DRAINAGE DETAILS

REVISIONS

FILE: R:\projects\2248E\Hydro\2248E_Hydro\2248E_RWD_Plan_15.dwg
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PROJECT REFERENCE NO.	SHEET NO.
R-2248E	17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

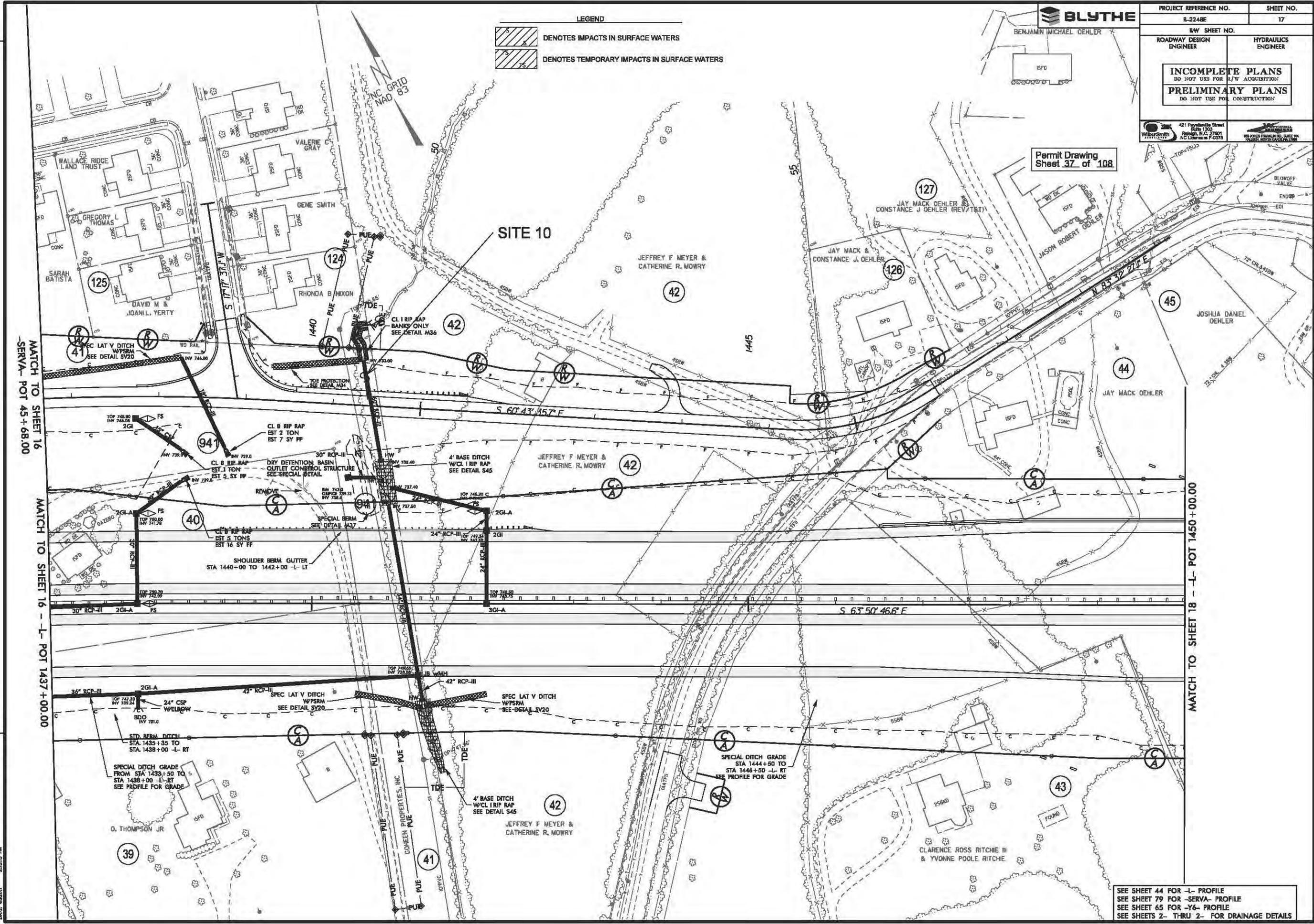
421 Fayetteville Street
 Suite 1303
 Raleigh, N.C. 27601
 NC License # F-0378

Permit Drawing
 Sheet 37 of 108

LEGEND

 DENOTES IMPACTS IN SURFACE WATERS

 DENOTES TEMPORARY IMPACTS IN SURFACE WATERS



MATCH TO SHEET 16
-SERVA- POT 45+68.00

MATCH TO SHEET 16 -L- POT 1437+00.00

MATCH TO SHEET 18 -L- POT 1450+00.00

SEE SHEET 44 FOR -L- PROFILE
 SEE SHEET 79 FOR -SERVA- PROFILE
 SEE SHEET 65 FOR -Y6- PROFILE
 SEE SHEETS 2- THRU 2- FOR DRAINAGE DETAILS

REVISIONS

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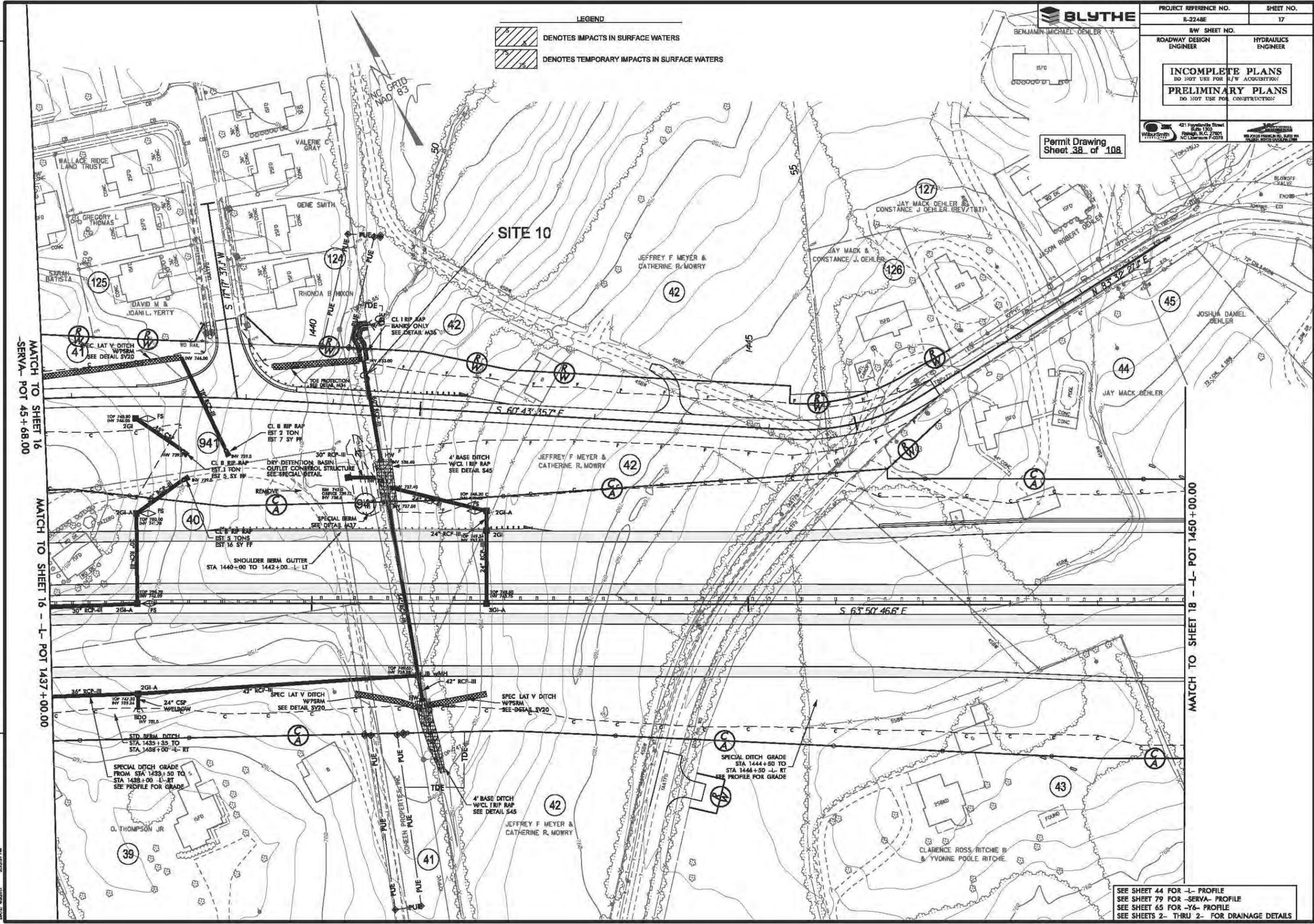
PROJECT REFERENCE NO.	SHEET NO.
R-2248E	17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

Permit Drawing
Sheet 38 of 108

LEGEND

 DENOTES IMPACTS IN SURFACE WATERS

 DENOTES TEMPORARY IMPACTS IN SURFACE WATERS



MATCH TO SHEET 16
SERVA - POT 45 + 68.00

MATCH TO SHEET 16 - L- POT 1437 + 00.00

MATCH TO SHEET 18 - L- POT 1450 + 00.00

SEE SHEET 44 FOR -L- PROFILE
 SEE SHEET 79 FOR -SERVA- PROFILE
 SEE SHEET 65 FOR -Y6- PROFILE
 SEE SHEETS 2- THRU 2- FOR DRAINAGE DETAILS

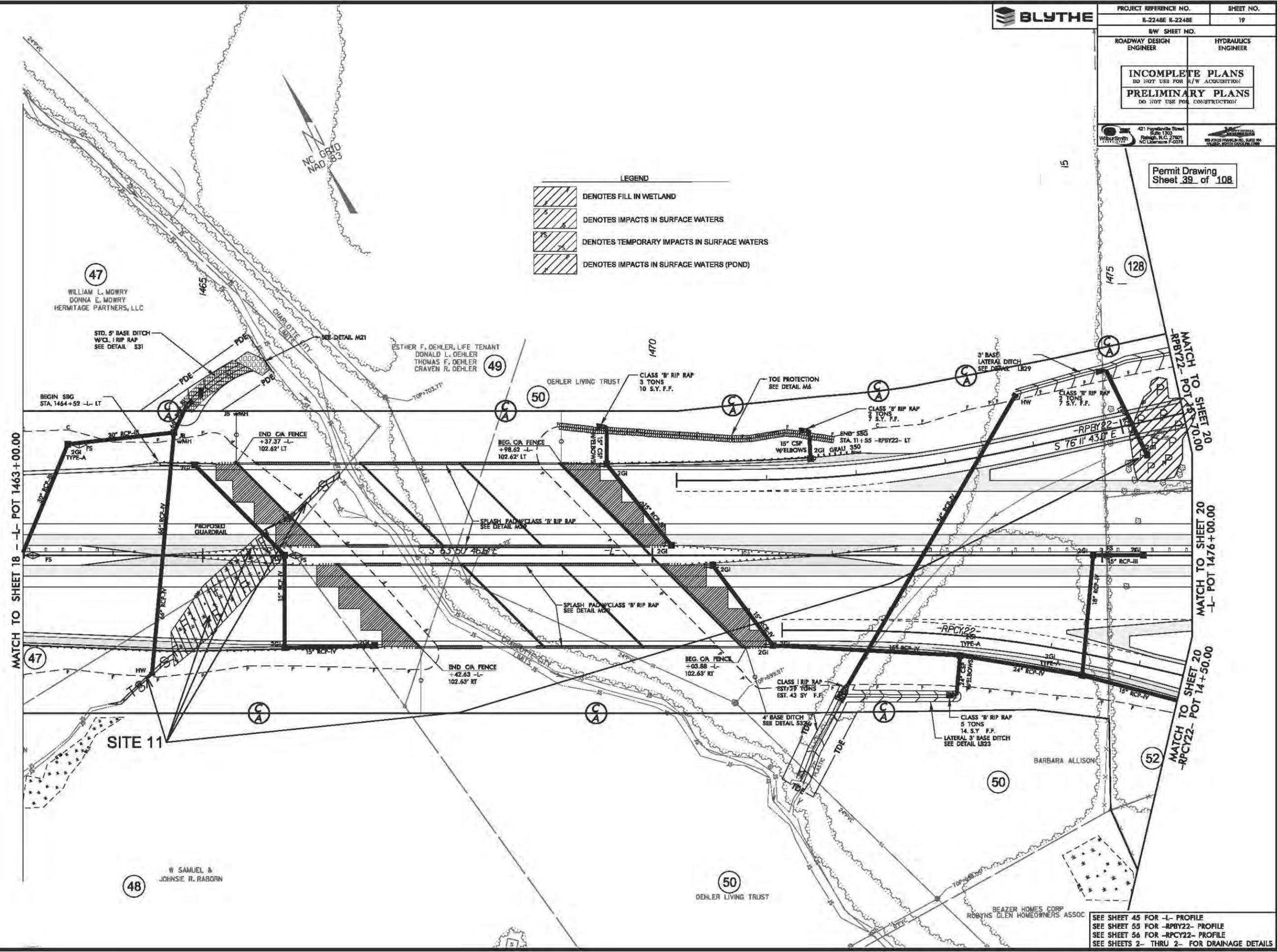
REVISIONS

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Permit Drawing
Sheet 39 of 108

LEGEND

	DENOTES FILL IN WETLAND
	DENOTES IMPACTS IN SURFACE WATERS
	DENOTES TEMPORARY IMPACTS IN SURFACE WATERS
	DENOTES IMPACTS IN SURFACE WATERS (POND)



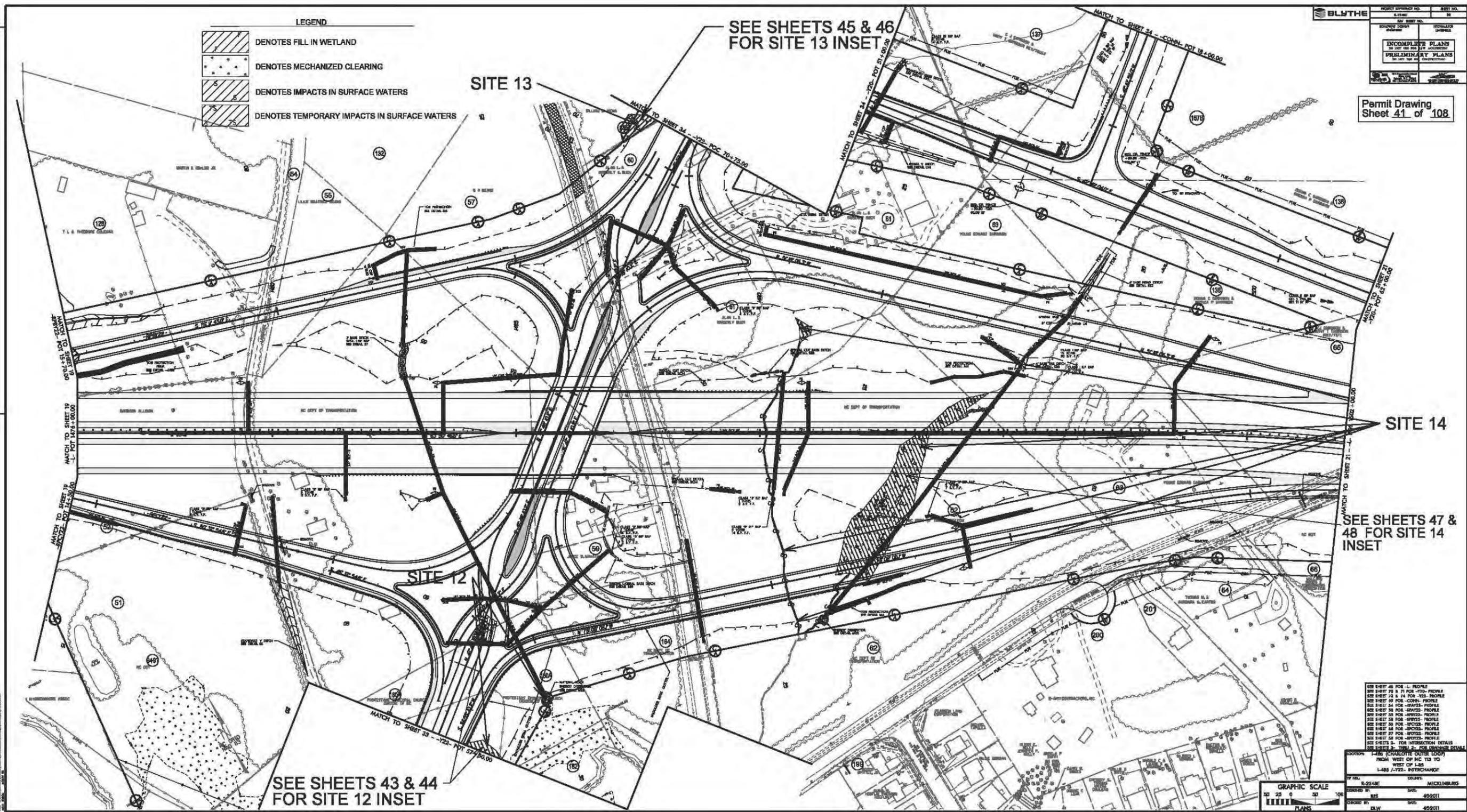
REVISIONS

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SEE SHEET 45 FOR -L- PROFILE
 SEE SHEET 55 FOR -RBY22- PROFILE
 SEE SHEET 56 FOR -RPCY22- PROFILE
 SEE SHEETS 2- THRU 2- FOR DRAINAGE DETAILS

LEGEND

	DENOTES FILL IN WETLAND
	DENOTES MECHANIZED CLEARING
	DENOTES IMPACTS IN SURFACE WATERS
	DENOTES TEMPORARY IMPACTS IN SURFACE WATERS



SEE SHEETS 45 & 46
 FOR SITE 13 INSET

SEE SHEETS 43 & 44
 FOR SITE 12 INSET

SEE SHEETS 47 &
 48 FOR SITE 14
 INSET

GRAPHIC SCALE
 0 25 50 100
 FEET

BY NO. COUNTY
 452011 452011
 DESIGNED BY DATE
 DWY 4/20/11
 CHECKED BY DATE
 DWY 4/20/11

LOCATION
 I-85 (CHARLOTTE OTHER LOOP)
 FROM WEST OF I-77 TO
 WEST OF I-85
 I-85 / I-77 INTERCHANGE