PROJECT SPECIAL PROVISION

(10-18-95) Z-1

PERMITS

The Contractor's attention is directed to the following permits which have been issued to the Department of Transportation by the authority granting the permit.

PERMIT	AUTHORITY GRANTING THE PERMIT
Dredge and Fill and/or Work in Navigable Waters (404)	U. S. Army Corps of Engineers
Water Quality (401)	Division of Environmental Management, DENR State of North Carolina

The Contractor shall comply with all applicable permit conditions during construction of this project. Those conditions marked by * are the responsibility of the department and the Contractor has no responsibility in accomplishing those conditions.

Agents of the permitting authority will periodically inspect the project for adherence to the permits.

The Contractor's attention is also directed to Articles 107-10 and 107-14 of the *Standard Specifications* and the following:

Should the Contractor propose to utilize construction methods (such as temporary structures or fill in waters and/or wetlands for haul roads, work platforms, cofferdams, etc.) not specifically identified in the permit (individual, general, or nationwide) authorizing the project it shall be the Contractor's responsibility to coordinate with the Engineer to determine what, if any, additional permit action is required. The Contractor shall also be responsible for initiating the request for the authorization of such construction method by the permitting agency. The request shall be submitted through the Engineer. The Contractor shall not utilize the construction method until it is approved by the permitting agency. The request normally takes approximately 60 days to process; however, no extensions of time or additional compensation will be granted for delays resulting from the Contractor's request for approval of construction methods not specifically identified in the permit.

Where construction moratoriums are contained in a permit condition which restricts the Contractor's activities to certain times of the year, those moratoriums will apply only to the portions of the work taking place in the waters or wetlands provided that activities outside those areas is done in such a manner as to not affect the waters or wetlands.

U.S. ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT

Action ID. 200220393 & 200421561 **County** Durham

GENERAL PERMIT (REGIONAL AND NATIONWIDE) VERIFICATION

Property Owner/Agent: NCDOT/NC 54/ TIP R-2904
Address: Attn: Mr. Gregory J. Thorpe, PhD., Planning & Environmental Branch
1584 Mail Service Center
Raleigh, North Carolina 27699-1548
Telephone No.: (919) 733-3141
Size and Location of project (waterway, road name/number, town, etc.): NC 54 widening from SR 1999 (Davis Drive) to SR 1959 (Miami Boulevard) south of Durham, in Durham County, North Carolina. The project is located adjacent to unnamed tributaries of Burdens Creek.

Description of Activity
The proposed project involves the widening of NC 54 from a two lane to a four lane divided shoulder facility with a 17.5 foot raised median form Davis Drive to approximately 200 feet west of the railroad structure and then from that point a five lane curb and gutter section to Miami Boulevard, south of Durham in Durham County. The total project length will be 1.1 miles. Traffic will remain onsite during construction. Project construction will require approximately 40 linear feet of temporary stream channel impacts to allow for culvert construction and dewatering. (These temporary construction fill impacts are authorized under NW 33.) This project will impact 2 separate stream channels for a total of 209 linear feet of surface waters of which 49 linear feet are perennial stream channels that require compensatory mitigation. This project is included in the list of transition period projects that the Natural Resources Ecosystem Enhancement Program (EEP) will provide compensatory mitigation for unavoidable jurisdictional waters impacts. The EEP will provide compensatory mitigation for 49 linear feet of stream channel impacts at a ratio up to 2:1 in Cataloging Unit 3030002 of the Cape Fear River Basin (see attached special condition. **) Note: This verification does not include impacts to waters of the United States, including wetlands, from any spoil disposal or borrow sites. These impacts would have to be permitted separately if they become necessary.

__X__ Section 404 (Clean Water Act, 33 USC 1344) only.
____ Section 10 (River and Harbor Act of 1899) only.
____ Section 404 and Section 10.
__23 & 33__ Nationwide General Permits.

The work is authorized by the above referenced permit(s) provided it is accomplished in strict accordance with the attached conditions, special conditions listed at the end of this form, and the submitted plans. Any violation of the attached conditions or special conditions, or deviation from the submitted plans may subject the permittee to a stop work order, a restoration order and/or appropriate legal action.

This verification will remain valid until the expiration date shown below, unless the nationwide authorization is modified, reissued or revoked. If, prior to the expiration date shown

below, the nationwide permit authorization is reissued and/or modified, this verification will remain valid until expiration date shown below, provided it complies with all modifications. If the nationwide permit authorization expires or is suspended, revoked, or is modified, such that the activity would no longer comply with the terms and conditions of the nationwide permit, activities which have commenced (i.e. are under construction) or are under contract to commence in reliance upon the nationwide permit, will remain authorized provided the activity is completed within twelve months of the date of the nationwide permit's expiration, modification or revocation, unless discretionary authority has been exercised on a case-by-case basis to modify, suspend or revoke the authorization.

This Department of the Army verification does not relieve the permittee of the responsibility to obtain any other required Federal, State, or local approvals/permits. Activities subject to Section 404 (as indicated above) may also require an individual Section 401 Water Quality Certification. You should contact the NC Division of Water Quality at telephone (919) 733-1786 to determine Section 401 requirements.

For activities occurring within the twenty coastal counties subject to regulation under the Coastal Area Management Act (CAMA), prior to beginning work you must contact the N.C. Division of Coastal Management.

If you have any questions regarding this verification, any of the attached conditions or special conditions of the Permit, or the Corps of Engineers regulatory program, please contact John Thomas at telephone 919 876-8441 ext. 25.

Regulatory Project Manager Signature John S. Thomas

Date September 10, 2004 **Expiration Date** September 10, 2006

** Compensatory mitigation for the unavoidable impacts to 49 linear feet of stream channels associated with the proposed project shall be provided by the Ecosystem Enhancement Program (EEP), as outlined in the letter dated August 30, 2004, from William D. Gilmore, EEP Transition Manager. Pursuant to the EEP Memorandum of Agreement (MOA) between the State of North Carolina and the US Army Corps of Engineers signed on July 22, 2003, the EEP will provide a minimum ratio of 1:1 inkind restoration of riverine wetlands and water stream channel (e.g. warm) in the Cape Fear River basin (Hydrologic Cataloging Unit 3030002) by July 22, 2005 and half of the proposed preservation mitigation would be available at that time for mitigation for other project impacts. The NCDOT shall, within 30 days of the issue date of this permit, certify that sufficient funds have been provided to EEP to complete the required mitigation, pursuant to Paragraph V. of the MOA.

Permit Number: 2001220393

Name of Permittee: NCDOT/NC 54/TIP R-2904, road upgrade widening

Issuance: 09/14/04

Upon completion of the activity authorized by this permit and any mitigation required by the permit, sign this certification and return it to the following address:

US ARMY CORPS OF ENGINEERS
RALEIGH REGULATORY FIELD OFFICE
6508 FALLS OF NEUSE ROAD, SUITE 120
RALEIGH, NORTH CAROLINA 27615

Please note that your permitted activity is subject to a compliance inspection by an U.S. Army Corps of Engineers representative. If you fail to comply with this permit you are subject to permit suspension, modification, or revocation.

I hereby certify that the work authorized by the above referenced permit has been completed in accordance with the terms and condition of the said permit, and required mitigation was completed in accordance with the permit conditions.

_____

Signature of Permittee

NATIONWIDE PERMIT 23
DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS
FINAL NOTICE OF ISSUANCE AND MODIFICATION OF NATIONWIDE PERMITS
FEDERAL REGISTER
AUTHORIZED MARCH 18, 2002

Approved Categorical Exclusions: Activities undertaken, assisted, authorized, regulated, funded, or financed, in whole or in part, by another Federal agency or department where that agency or department has determined, pursuant to the Council on Environmental Quality Regulation for Implementing the Procedural Provisions of the National Environmental Policy Act (NEPA) (40 CFR part 1500 et seq.), that the activity, work, or discharge is categorically excluded from environmental documentation because it is included within a category of actions which neither individually nor cumulatively have a significant effect on the human environment, and the Office of the Chief of Engineers (ATTN: CECW-OR) has been furnished notice of the agency's or department's application for the categorical exclusion and concurs with that determination. Before to approval for purposes of this nationwide permit of any agency's categorical exclusions, the Chief of Engineers will solicit public comment. In addressing these comments, the Chief of Engineers may require certain conditions for authorization of an agency's categorical exclusions under this nationwide permit. (Sections 10 and 404)

NATIONWIDE PERMIT GENERAL CONDITIONS

The following General Conditions must be followed in order for any authorization by a NWP to be valid:

1. Navigation. No activity may cause more than a minimal adverse effect on navigation.

2. Proper Maintenance. Any structure or fill authorized shall be properly maintained, including maintenance to ensure public safety.

3. Soil Erosion and Sediment Controls. Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow.

4. Aquatic Life Movements. No activity may substantially disrupt the necessary life-cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. Culverts placed in streams must be installed to maintain low flow conditions.

5. Equipment. Heavy equipment working in wetlands must be placed on mats, or other measures must be taken to minimize soil disturbance.

6. Regional and Case-By-Case Conditions. The activity must comply with any regional conditions that may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state or tribe in its Section 401 Water Quality Certification and Coastal Zone Management Act consistency determination.

7. Wild and Scenic Rivers. No activity may occur in a component of the National Wild and Scenic River System; or in a river officially designated by Congress as a 'study river" for possible inclusion in the system, while the river is in an official study status; unless the appropriate Federal agency, with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation, or study status. Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency in the area (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service).

8. Tribal Rights. No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.

9. Water Quality.

a. In certain states and tribal lands an individual 401 Water Quality Certification must be obtained or waived (See 33 CFR 330.4(c)).

b. For NWPs 12, 14, 17, 18, 32, 39, 40, 42, 43, and 44, where the state or tribal 401 certification (either generically or individually) does not require or approve water quality management measures, the permittee must provide water quality management measures that will ensure that the authorized work does not result in more than minimal degradation of water quality (or the Corps determines that compliance with state or local standards, where applicable, will ensure no more than minimal adverse effect on water quality). An important component of water quality management includes stormwater management that minimizes degradation of the downstream aquatic system, including water quality (refer to General Condition 21 for stormwater management requirements). Another important component of water quality management is the establishment and maintenance of vegetated buffers next to open waters, including streams (refer to General Condition 19 for vegetated buffer requirements for the NWPs).

This condition is only applicable to projects that have the potential to affect water quality. While appropriate measures must be taken, in most cases it is not necessary to conduct detailed studies to identify such measures or to require monitoring.

10. Coastal Zone Management. In certain states, an individual state coastal zone management consistency concurrence must be obtained or waived (see 33 CFR 330.4(d)).

11. Endangered Species.

a. No activity is authorized under any NWP which is likely to jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will destroy or adversely modify the critical habitat of such species. Non-federal permittees shall notify the District Engineer if any listed species or designated critical habitat might be affected or is in the vicinity of the project, or is located in the designated critical habitat and shall not begin work on the activity until notified by the District Engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that may affect Federally-listed endangered or threatened species or designated critical habitat, the notification must include the name(s) of the endangered or threatened species that may be affected by the proposed work or that utilize the designated critical habitat that may be affected by the proposed work. As a result of formal or informal consultation with the FWS or NMFS the District Engineer may add species-specific regional endangered species conditions to the NWPs.

b. Authorization of an activity by a NWP does not authorize the "take" of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with "incidental take" provisions, etc.) from the USFWS or the NMFS, both lethal and non-lethal "takes" of protected species are in violation of the ESA. Information on the location of threatened and endangered species and their critical

habitat can be obtained directly from the offices of the USFWS and NMFS or their World Wide Web pages at http://www.fws.gov/r9endspp/endspp.html and http://www.nfms.noaa.gov/protres/overview/es.html respectively.

12. Historic Properties. No activity that may affect historic properties listed, or eligible for listing, in the National Register of Historic Places is authorized, until the District Engineer has complied with the provisions of 33 CFR part 325, Appendix C. The prospective permittee must notify the District Engineer if the authorized activity may affect any historic properties listed, determined to be eligible, or which the prospective permittee has reason to believe may be eligible for listing on the National Register of Historic Places, and shall not begin the activity until notified by the District Engineer that the requirements of the National Historic Preservation Act have been satisfied and that the activity is authorized. Information on the location and existence of historic resources can be obtained from the State Historic Preservation Office and the National Register of Historic Places (see 33 CFR 330.4(g)). For activities that may affect historic properties listed in, or eligible for listing in, the National Register of Historic Places, the notification must state which historic property may be affected by the proposed work or include a vicinity map indicating the location of the historic property.

* 13. Notification.

a. Timing; where required by the terms of the NWP, the prospective permittee must notify the District Engineer with a preconstruction notification (PCN) as early as possible. The District Engineer must determine if the notification is complete within 30 days of the date of receipt and can request additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the District Engineer will notify the prospective permittee that the notification is still incomplete and the PCN review process will not commence until all of the requested information has been received by the District Engineer. The prospective permittee shall not begin the activity:

1. Until notified in writing by the District Engineer that the activity may proceed under the NWP with any special conditions imposed by the District or Division Engineer; or

2. If notified in writing by the District or Division Engineer that an Individual Permit is required; or

3. Unless 45 days have passed from the District Engineer's receipt of the complete notification and the prospective permittee has not received written notice from the District or Division Engineer. Subsequently, the permittee's right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).

b. Contents of Notification: The notification must be in writing and include the following information:

1. Name, address and telephone numbers of the prospective permittee;

2. Location of the proposed project;

3. Brief description of the proposed project; the project's purpose; direct and indirect adverse environmental effects the project would cause; any other NWP(s), Regional General Permit(s), or Individual Permit(s) used or intended to be used to authorize any part of the proposed project or any related activity. Sketches should be provided when necessary to show that the activity complies with the terms of the NWP (Sketches usually clarify the project and when provided result in a quicker decision.);

4. For NWPs 7, 12, 14, 18, 21, 34, 38, 39, 40, 41, 42, and 43, the PCN must also include a delineation of affected special aquatic sites, including wetlands, vegetated shallows (e.g., submerged aquatic vegetation, seagrass beds), and riffle and pool complexes (see paragraph 13(f));

5. For NWP 7 (Cutfall Structures and Maintenance), the PCN must include information regarding the original design capacities and configurations of those areas of the facility where maintenance dredging or excavation is proposed;

6. For NWP 14 (Linear Transportation Projects), the PCN must include a compensatory mitigation proposal to offset permanent losses of waters of the US and a statement describing how temporary losses of waters of the US will be minimized to the maximum extent practicable;

7. For NWP 21 (Surface Coal Mining Activities), the PCN must include an Office of Surface Mining (OSM) or state-approved mitigation plan, if applicable. To be authorized by this NWP, the District Engineer must determine that the activity complies with the terms and conditions of the NWP and that the adverse environmental effects are minimal both individually and cumulatively and must notify the project sponsor of this determination in writing;

8. For NWP 27 (Stream and Wetland Restoration Activities), the PCN must include documentation of the prior condition of the site that will be reverted by the permittee;

9. For NWP 29 (Single-Family Housing), the PCN must also include:

i. Any past use of this NWP by the Individual Permittee and/or the permittee's spouse;

ii. A statement that the single-family housing activity is for a personal residence of the permittee;

iii. A description of the entire parcel, including its size, and a delineation of wetlands. For the purpose of this NWP, parcels of land measuring \1/4\-acre or less will not require a formal on-site delineation. However, the applicant shall provide an indication of where the wetlands are and the amount of wetlands that exists on the property. For parcels greater than

\1/4\-acre in size, formal wetland delineation must be prepared in accordance with the current method required by the Corps. (See paragraph 13(f));

iv. A written description of all land (including, if available, legal descriptions) owned by the prospective permittee and/or the prospective permittee's spouse, within a one mile radius of the parcel, in any form of ownership (including any land owned as a partner, corporation, joint tenant, co-tenant, or as a tenant-by-the-entirety) and any land on which a purchase and sale agreement or other contract for sale or purchase has been executed;

10. For NWP 31 (Maintenance of Existing Flood Control Facilities), the prospective permittee must either notify the District Engineer with a PCN prior to each maintenance activity or submit a five-year (or less) maintenance plan. In addition, the PCN must include all of the following:

i. Sufficient baseline information identifying the approved channel depths and configurations and existing facilities. Minor deviations are authorized, provided the approved flood control protection or drainage is not increased;

ii. A delineation of any affected special aquatic sites, including wetlands; and,

iii. Location of the dredged material disposal site;

11. For NWP 33 (Temporary Construction, Access, and Dewatering), the PCN must also include a restoration plan of reasonable measures to avoid and minimize adverse effects to aquatic resources;

12. For NWPs 39, 43 and 44, the PCN must also include a written statement to the District Engineer explaining how avoidance and minimization for losses of waters of the US were achieved on the project site;

13. For NWP 39 and NWP 42, the PCN must include a compensatory mitigation proposal to offset losses of waters of the US or justification explaining why compensatory mitigation should not be required. For discharges that cause the loss of greater than 300 linear feet of an intermittent stream bed, to be authorized, the District Engineer must determine that the activity complies with the other terms and conditions of the NWP, determine adverse environmental effects are minimal both individually and cumulatively, and waive the limitation on stream impacts in writing before the permittee may proceed;

14. For NWP 40 (Agricultural Activities), the PCN must include a compensatory mitigation proposal to offset losses of waters of the US. This NWP does not authorize the relocation of greater than 300 linear feet of existing serviceable drainage ditches constructed in non-tidal streams unless, for drainage ditches constructed in intermittent nontidal streams, the District Engineer waives this criterion in writing, and the District Engineer has determined that the project complies with all terms and conditions of this NWP, and that any adverse impacts of the project on the aquatic environment are minimal, both individually and cumulatively;

15. For NWP 43 (Stormwater Management Facilities), the PCN must include, for the construction of new stormwater management facilities, a maintenance plan (in accordance with state and local requirements, if applicable) and a compensatory mitigation proposal to offset losses of waters of the US. For discharges that cause the loss of greater than 300 linear feet of an intermittent stream bed, to be authorized, the District Engineer must determine that the activity complies with the other terms and conditions of the NWP, determine adverse environmental effects are minimal both individually and cumulatively, and waive the limitation on stream impacts in writing before the permittee may proceed;

16. For NWP 44 (Mining Activities), the PCN must include a description of all waters of the US adversely affected by the project, a description of measures taken to minimize adverse effects to waters of the US, a description of measures taken to comply with the criteria of the NWP, and a reclamation plan (for all aggregate mining activities in isolated waters and non-tidal wetlands adjacent to headwaters and any hard rock/mineral mining activities);

17. For activities that may adversely affect Federally-listed endangered or threatened species, the PCN must include the name(s) of those endangered or threatened species that may be affected by the proposed work or utilize the designated critical habitat that may be affected by the proposed work; and

18. For activities that may affect historic properties listed in, or eligible for listing in, the National Register of Historic Places, the PCN must state which historic property may be affected by the proposed work or include a vicinity map indicating the location of the historic property.

c. Form of Notification: The standard Individual Permit application form (Form ENG 4345) may be used as the notification but must clearly indicate that it is a PCN and must include all of the information required in (b) (1)-(18) of General Condition 13. A letter containing the requisite information may also be used.

d. District Engineer's Decision: In reviewing the PCN for the proposed activity, the District Engineer will determine whether the activity authorized by the NWP will result in more than minimal individual or cumulative adverse environmental effects or may be contrary to the public interest. The prospective permittee may submit a proposed mitigation plan with the PCN to expedite the process. The District Engineer will consider any proposed compensatory mitigation the applicant has included in the proposal in determining whether the net adverse environmental effects to the aquatic environment of the proposed work are minimal. If the District Engineer determines that the activity complies with the terms and conditions of the NWP and that the adverse effects on the aquatic environment are minimal, after considering mitigation, the District Engineer will notify the permittee and include any conditions the District Engineer deems necessary. The District Engineer must approve any compensatory mitigation proposal before the permittee commences work. If the prospective permittee is required to submit a compensatory mitigation proposal with the PCN, the proposal may be either conceptual or detailed. If the prospective permittee elects to submit a compensatory mitigation plan with the

PCN, the District Engineer will expeditiously review the proposed compensatory mitigation plan. The District Engineer must review the plan within 45 days of receiving a complete PCN and determine whether the conceptual or specific proposed mitigation would ensure no more than minimal adverse effects on the aquatic environment. If the net adverse effects of the project on the aquatic environment (after consideration of the compensatory mitigation proposal) are determined by the District Engineer to be minimal, the District Engineer will provide a timely written response to the applicant. The response will state that the project can proceed under the terms and conditions of the NWP.

If the District Engineer determines that the adverse effects of the proposed work are more than minimal, then the District Engineer will notify the applicant either:

1. That the project does not qualify for authorization under the NWP and instruct the applicant on the procedures to seek authorization under an Individual Permit;

2. that the project is authorized under the NWP subject to the applicant's submission of a mitigation proposal that would reduce the adverse effects on the aquatic environment to the minimal level; or

3. that the project is authorized under the NWP with specific modifications or conditions. Where the District Engineer determines that mitigation is required to ensure no more than minimal adverse effects occur to the aquatic environment, the activity will be authorized within the 45-day PCN period. The authorization will include the necessary conceptual or specific mitigation or a requirement that the applicant submit a mitigation proposal that would reduce the adverse effects on the aquatic environment to the minimal level. When conceptual mitigation is included, or a mitigation plan is required under item (2) above, no work in waters of the US will occur until the District Engineer has approved a specific mitigation plan.

e. Agency Coordination: The District Engineer will consider any comments from Federal and state agencies concerning the proposed activity's compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the project's adverse environmental effects to a minimal level.

For activities requiring notification to the District Engineer that result in the loss of greater than \1/2\-acre of waters of the US, the District Engineer will provide immediately (e.g., via facsimile transmission, overnight mail, or other expeditious manner) a copy to the appropriate Federal or state offices (USFWS, state natural resource or water quality agency, EPA, State Historic Preservation Officer (SHPO), and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will then have 10 calendar days from the date the material is transmitted to telephone or fax the District Engineer notice that they intend to provide substantive, site-specific comments. If so contacted by an agency, the District Engineer will wait an additional 15 calendar days before making a decision on the notification. The District Engineer will fully consider agency comments received within the specified time frame, but will provide no response to the resource agency, except as provided below. The District Engineer will indicate in the administrative record associated with each notification that the resource agencies'

concerns were considered. As required by section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act, the District Engineer will provide a response to NMFS within 30 days of receipt of any Essential Fish Habitat conservation recommendations. Applicants are encouraged to provide the Corps multiple copies of notifications to expedite agency notification.

f. Wetland Delineations: Wetland delineations must be prepared in accordance with the current method required by the Corps (For NWP 29 see paragraph (b)(9)(iii) for parcels less than (\1/4\-acre in size). The permittee may ask the Corps to delineate the special aquatic site. There may be some delay if the Corps does the delineation. Furthermore, the 45-day period will not start until the wetland delineation has been completed and submitted to the Corps, where appropriate.

* 14. Compliance Certification. Every permittee who has received NWP verification from the Corps will submit a signed certification regarding the completed work and any required mitigation. The certification will be forwarded by the Corps with the authorization letter and will include:

a. A statement that the authorized work was done in accordance with the Corps authorization, including any general or specific conditions;

b. A statement that any required mitigation was completed in accordance with the permit conditions; and

c. The signature of the permittee certifying the completion of the work and mitigation.

15. Use of Multiple Nationwide Permits. The use of more than one NWP for a single and complete project is prohibited, except when the acreage loss of waters of the US authorized by the NWPs does not exceed the acreage limit of the NWP with the highest specified acreage limit (e.g. if a road crossing over tidal waters is constructed under NWP 14, with associated bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the US for the total project cannot exceed \ 1/3\-acre) .

16. Water Supply Intakes. No activity, including structures and work in navigable waters of the US or discharges of dredged or fill material, may occur in the proximity of a public water supply intake except where the activity is for repair of the public water supply intake structures or adjacent bank stabilization.

17. Shellfish Beds. No activity, including structures and work in navigable waters of the US or discharges of dredged or fill material, may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWP 4.

18. Suitable Material. No activity, including structures and work in navigable waters of the US or discharges of dredged or fill material, may consist of unsuitable material (e.g., trash,

debris, car bodies, asphalt, etc.) and material used for construction or discharged must be free from toxic pollutants in toxic amounts (see section 307 of the CWA).

19. Mitigation. The District Engineer will consider the factors discussed below when determining the acceptability of appropriate and practicable mitigation necessary to offset adverse effects on the aquatic environment that are more than minimal.

a. The project must be designed and constructed to avoid and minimize adverse effects to waters of the US to the maximum extent practicable at the project site (i.e., on site).

b. Mitigation in all its forms (avoiding, minimizing, rectifying, reducing or compensating) will be required to the extent necessary to ensure that the adverse effects to the aquatic environment are minimal.

c. Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland impacts requiring a PCN, unless the District Engineer determines in writing that some other form of mitigation would be more environmentally appropriate and provides a project-specific waiver of this requirement. Consistent with National policy, the District Engineer will establish a preference for restoration of wetlands as compensatory mitigation, with preservation used only in exceptional circumstances.

d. Compensatory mitigation (i.e., replacement or substitution of aquatic resources for those impacted) will not be used to increase the acreage losses allowed by the acreage limits of some of the NWPs. For example, \1/4\-acre of wetlands cannot be created to change a,\3/4\acre loss of wetlands to a \1/2\-acre loss associated with NWP 39 verification. However, \1/2\-acre of created wetlands can be used to reduce the impacts of a \1/2\-acre loss of wetlands to the minimum impact level in order to meet the minimal impact requirement associated with NWPs.

e. To be practicable, the mitigation must be available and capable of being done considering costs, existing technology, and logistics in light of the overall project purposes. Examples of mitigation that may be appropriate and practicable include, but are not limited to: reducing the size of the project; establishing and maintaining wetland or upland vegetated buffers
to protect open waters such as streams; and replacing losses of aquatic resource functions and values by creating, restoring, enhancing, or preserving similar functions and values, preferably in the same watershed.

f. Compensatory mitigation plans for projects in or near streams or other open waters will normally include a requirement for the establishment, maintenance, and legal protection (e.g., easements, deed restrictions) of vegetated buffers to open waters. In many cases, vegetated buffers will be the only compensatory mitigation required. Vegetated buffers should consist of native species. The width of the vegetated buffers required will address documented water quality or aquatic habitat loss concerns. Normally, the vegetated buffer .will be 25 to 50 feet wide on each side of the stream, but the District Engineers may require slightly wider vegetated buffers to address documented water quality or habitat loss concerns. Where both wetlands and

open waters exist on the project site, the Corps will determine the appropriate compensatory mitigation (e.g., stream buffers or wetlands compensation) based on what is best for the aquatic environment or, a watershed basis. In cases where vegetated buffers are determined to be the most appropriate form of compensatory mitigation, the District Engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland impacts.

g. Compensatory mitigation proposals submitted with the " notification" may be either conceptual or detailed. If conceptual plans are approved under the verification, then the Corps will condition the verification to require detailed plans be submitted and approved by the Corps prior to construction of the authorized activity in waters of the US.

h. Permittees may propose the use of mitigation banks, in-lieu fee arrangements or separate activity-specific compensatory mitigation. In all cases that require compensatory mitigation, the mitigation provisions will specify the party responsible for accomplishing and/or complying with the mitigation plan.

20. Spawning Areas. Activities, including structures and work in navigable waters of the US or discharges of dredged or fill material, in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., excavate, fill, or smother downstream by substantial turbidity) of an important spawning area are not authorized.

21. Management of Water Flows. To the maximum extent practicable, the activity must be designed to maintain preconstruction downstream flow conditions (e.g., location, capacity, and flow rates). Furthermore, the activity must not permanently restrict or impede the passage of normal or expected high flows (unless the primary purpose of the fill is to impound waters) and the structure or discharge of dredged or fill material must withstand expected high flows. The activity must, to the maximum extent practicable, provide for retaining excess flows from the site, provide for maintaining surface flow rates from the site similar to preconstruction conditions, and provide for not increasing water flows from the project site, relocating water, or redirecting water flow beyond preconstruction conditions. Stream channelizing will be reduced to the minimal amount necessary, and the activity must, to the maximum extent practicable, reduce
adverse effects such as flooding or erosion downstream and upstream of the project site, unless the activity is part of a larger system designed to manage water flows. In most cases, it will not be a requirement to conduct detailed studies and monitoring of water flow.

This condition is only applicable to projects that have the potential to affect waterflows. While appropriate measures must be taken, it is not necessary to conduct detailed studies to identify such measures or require monitoring to ensure their effectiveness. Normally, the Corps will defer to state and local authorities regarding management of water flow.

22. Adverse Effects From Impoundments. If the activity creates an impoundment of water, adverse effects to the aquatic system due to the acceleration of the passage of water, and/or the restricting its flow shall be minimized to the maximum extent practicable. This includes

structures and work in navigable waters of the US, or discharges of dredged or fill material.

23. Waterfowl Breeding Areas. Activities, including structures and work in navigable waters of the US or discharges of dredged or fill material, into breeding areas for migratory waterfowl must be avoided to the maximum extent practicable.

24. Removal of Temporary Fills. Any temporary fills must be removed in their entirety and the affected areas returned to their preexisting elevation.

25. Designated Critical Resource Waters. Critical resource waters include, NOAA-designated marine sanctuaries, National Estuarine Research Reserves, National Wild and Scenic Rivers, critical habitat for Federally listed threatened and endangered species, coral reefs, state natural heritage sites, and outstanding national resource waters or other waters officially designated by a state as having particular environmental or ecological significance and identified by the District Engineer after notice and opportunity for public comment. The District Engineer may also designate additional critical resource waters after notice and opportunity for comment.

a. Except as noted below, discharges of dredged or fill material into waters of the US are not authorized by NWPs 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, and 44 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters. Discharges of dredged or fill materials into waters of the US may be authorized by the above NWPs in National Wild and Scenic Rivers if the activity complies with General Condition 7. Further, such discharges may be authorized in designated critical habitat for Federally listed threatened or endangered species if the activity complies with General Condition 11 and the USFWS or the NMFS has concurred in a determination of compliance with this condition.

b. For NWPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, and 38, notification is required in accordance with General Condition 13, for any activity proposed in the designated critical resource waters including wetlands adjacent to those waters. The District Engineer may authorize activities under these NWPs only after it is determined that the impacts to the critical resource waters will be no more than minimal.

26. Fills Within 100-Year Floodplains. For purposes of this General Condition, 100-year floodplains will be identified through the existing Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Maps or FEMA-approved local floodplain maps.

a. Discharges in Floodplain; Below Headwaters. Discharges of dredged or fill material into waters of the US within the mapped 100year floodplain, below headwaters (i.e. five cfs), resulting in permanent above-grade fills, are not authorized by NWPs 39, 40, 42, 43, and 44.

b. Discharges in Floodway; Above Headwaters. Discharges of dredged or fill material into waters of the US within the FEMA or locally mapped floodway, resulting in permanent above-grade fills, are not authorized by NWPs 39, 40, 42, and 44.

c. The permittee must comply with any applicable FEMA-approved state or local

floodplain management requirements.

27. Construction Period. For activities that have not been verified by the Corps and the project was commenced or under contract to commence by the expiration date of the NWP (or modification or revocation date), the work must be completed within 12-months after such date (including any modification that affects the project).

For activities that have been verified and the project was commenced or under contract to commence within the verification period, the work must be completed by the date determined by the Corps.

For projects that have been verified by the Corps, an extension of a Corps approved completion date maybe requested. This request must be submitted at least one month before the previously approved completion date.

FURTHER INFORMATION

1. District Engineers have authority to determine if an activity complies with the terms and conditions of a NWP.

2. NWPs do not obviate the need to obtain other Federal, State, or local permits, approvals, or authorizations required by law.

3. NWPs do not grant any property rights or exclusive privileges.

4. NWPs do not authorize any injury to the property or rights of others.

5. NWPs do not authorize interference with any existing or proposed Federal project.

DEFINITIONS

Best Management Practices (BMPs): BMPs are policies, practices, procedures, or structures implemented to mitigate the adverse environmental effects on surface water quality resulting from development. BMPs are categorized as structural or nonstructural. A BMP policy may affect the limits on a development.

Compensatory Mitigation: For purposes of Section 10/404, compensatory mitigation is the restoration, creation, enhancement, or in exceptional circumstances, preservation of wetlands and/or other aquatic resources for the purpose of compensating for unavoidable adverse impacts, which remain, after all appropriate and practicable avoidance and minimization has been achieved.

Creation: The establishment of a wetland or other aquatic resource where one did not formerly

exist.

Enhancement: Activities conducted in existing wetlands or other aquatic resources that increase one or more aquatic functions.

Ephemeral Stream: An ephemeral stream has *flowing* water only during and for a short duration after, precipitation events in a typical year. Ephemeral stream beds are located above the water table year-round. Groundwater is not a source of water for the stream. Runnoff from rainfall is the primary source of water for stream flow.

Farm Tract: A unit of contiguous land under one ownership that is operated as a farm or part of a farm.

Flood Fringe: That portion of the 100-year floodplain outside of the floodway (often referred to as "floodway fringe").

Floodway: The area regulated by Federal, state, or local requirements to provide for the discharge of the base flood so the cumulative increase in water surface elevation is no more than a designated amount (not to exceed one foot as set by the National Flood Insurance Program) within the 100-year floodplain.

Independent Utility: A test to determine what constitutes a single and complete project in the Corps regulatory program. A project is considered to have independent utility if it would be constructed absent the construction of other projects in the project area. Portions of a multi-phase project that depend upon other phases of the project do not have independent utility. Phases of a project that would be constructed even if the other phases were not built can be considered as separate single and complete projects with independent utility.

Intermittent Stream: An intermittent stream has flowing water during certain times of the year, when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow.

Loss of waters of the US: Waters of the US that include the filled area and other waters that are permanently adversely affected by flooding, excavation, or drainage because of the regulated activity. Permanent adverse effects include permanent above-grade, at-grade, or below-grade fills that change an aquatic area to dry land, increase the bottom elevation of a waterbody, or change the use of a waterbody. The acreage of loss of waters of the US is the threshold measurement of the impact to existing waters for determining whether a project may qualify for a NWP; it is not a net threshold that is calculated after considering compensatory mitigation that may be used to offset losses of aquatic functions and values. The loss of stream bed includes the linear feet of stream bed that is filled or excavated. Waters of the US temporarily filled, flooded, excavated, or drained, but restored to preconstruction contours and elevations after construction, are not included in the measurement of loss of waters of the US. Impacts to ephemeral waters are only not included in the acreage or linear foot measurements of loss of waters of the US or loss of stream bed, for the purpose of determining compliance with the threshold limits of the NWPs.

Non-tidal Wetland: An area that, during a year with normal patterns of precipitation has standing or flowing water for sufficient duration to establish an ordinary high water mark. Aquatic vegetation within the area of standing or flowing water is either non-emergent, sparse, or absent. Vegetated shallows are considered to be open waters. The term "open water" includes rivers, streams, lakes, and ponds. For the purposes of the NWPs, this term does not include ephemeral waters.

Perennial Stream: A perennial stream has flowing water year-round during a typical year. The water table is located above the stream bed for the most of the year. Groundwater is the primary source of water for stream flow. Runoff from rainfall is a supplemental source of water for stream flow.

Permanent Above-grade Fill: A discharge of dredged or fill material into waters of the US, including wetlands, that results in a substantial increase in ground elevation and permanently converts part or all of the waterbody to dry land. Structural fills authorized by NWPs 3, 25, 36, etc. are not included.

Preservation: The protection of ecologically important wetlands or other aquatic resources in perpetuity through the implementation of appropriate legal and physical mechanisms. Preservation may include protection of upland areas adjacent to wetlands as necessary to ensure protection and/or enhancement of the overall aquatic ecosystem.

Restoration: Re-establishment of wetland and/or other aquatic resource characteristics and function(s) at a site where they have ceased to exist, or exist in a substantially degraded state.

Riffle and Pool Complex: Riffle and pool complexes are special aquatic sites under the

404(b)(1) Guidelines. Riffle and pool complexes sometimes characterize steep gradient sections of streams. Such stream sections are recognizable by their hydraulic characteristics. The rapid movement of water over a course substrate in riffles results in a rough flow, a turbulent surface and high dissolved oxygen levels in the water. Pools are deeper areas associated with riffles. A slower stream velocity, a streaming flow, a smooth surface, and a finer substrate characterize pools.

Single and Complete Project: The term "single and complete project" is defined at 33 CFR 330.2(i) as the total project proposed or accomplished by one owner/developer or partnership or other association of owners/developers (see definition of independent utility). For linear projects, the "single and complete project" (i.e., a single and complete crossing) will apply to each crossing of a separate water of the US (i.e., a single waterbody) at that location. An exception is for linear projects crossing a single waterbody several times at separate and distant locations; each crossing is considered a single and complete project. However, individual channels in a braided stream or river, or individual arms of a large, irregularly shaped wetland or lake, etc., are not separate waterbodies.

Stormwater Management: Stormwater management is the mechanism for controlling stormwater runoff for the purposes of reducing downstream erosion, water quality degradation, and flooding and mitigating the adverse effects of changes in land use on the aquatic environment.

Stormwater Management Facilities: Stormwater management facilities are those facilities, including but not limited to, stormwater retention and detention ponds and BMPs, which retain water for a period of time to control runoff and/or improve the quality (i.e., by reducing the concentration of nutrients, sediments, hazardous substances and other pollutants) of stormwater runoff.

Stream Channelization: The manipulation of a stream channel to increase the rate of water flow through the stream channel. Manipulation may include deepening, widening, straightening, armoring, or other activities that change the stream cross-section or other aspects of stream channel geometry to increase the rate of water flow through the stream channel. A channelized stream remains a water of the US, despite the modifications to increase the rate of water flow.

Tidal Wetland: A tidal wetland is a wetland (i.e., water of the US) that is inundated by tidal waters. The definitions of a wetland and tidal waters can be found at 33 CFR 328.3(b) and 33 CFR 328.3(f), respectively. Tidal waters rise and fall in a predictable and measurable rhythm or cycle due to the gravitational pulls of the moon and sun. Tidal waters end where the rise and fall of the water surface can no longer be practically measured in a predictable rhythm due to masking by other waters, wind, or other effects. Tidal wetlands are located channelward of the high tide line (i.e., spring high tide line) and are inundated by tidal waters two times per lunar month, during spring high tides.

Vegetated Buffer: A vegetated upland or wetland area next to rivers, streams, lakes, or other open waters, which separates the open water from developed areas, including agricultural land. Vegetated buffers provide a variety of aquatic habitat functions and values (e.g., aquatic habitat

for fish and other aquatic organisms, moderation of water temperature changes, and detritus for aquatic food webs) and help improve or maintain local water quality. A vegetated buffer can be established by maintaining an existing vegetated area or planting native trees, shrubs, and herbaceous plants on land next to openwaters. Mowed lawns are not considered vegetated buffers because they provide little or no aquatic habitat functions and values. The establishment and maintenance of vegetated buffers I a method of compensatory mitigation that can be used in conjunction with the restoration, creation, enhancement or preservation of aquatic habitats to ensure that activities authorized by NWPs result in minimal adverse effects to the aquatic environment. (See General Condition 19.)

Vegetated Shallows: Vegetated shallows are special aquatic sites under the 404(b)(1) Guidelines. They are areas that are permanently inundated and under normal circumstances have rooted aquatic vegetation, such as seagrasses in marine and estuarine systems and a variety of vascular rooted plants in freshwater systems.

Waterbody: A waterbody is any area that in a normal year has water flowing or standing above ground to the extent that evidence of an ordinary high water mark is established. Wetlands contiguous to the waterbody are considered part of the waterbody.

FINAL REGIONAL CONDITIONS FOR NATIONWIDE PERMITS IN THE WILMINGTON DISTRICT

1. Waters Excluded from NWP or Subject to Additional Notification Requirements:

a. The Corps identified waters that will be excluded from use of this NWP. These waters are:

1. Discharges into Waters of the United States designated by either the North Carolina Division of Marine Fisheries (NCDMF) or the North Carolina Wildlife Resources Commission (NCWRC) as anadromous fish spawning area are prohibited during the period between February 15 and June 30, without prior written approval from NCDMF or NCWRC and the Corps.

2. Discharges into Waters of the United States designated as sturgeon spawning areas are prohibited during the period between February 1 and June 30, without prior written approval from the National Marine Fisheries Service (NMFS).

✱b. The Corps identified waters that will be subject to additional notification requirements for activities authorized by this NWP. These waters are:

1. Prior to the use of any NWP in any of the following North Carolina *designated waters*, applicants must comply with Nationwide Permit General Condition 13. In addition, the applicant must furnish a written statement of compliance with all of the conditions of the applicable Nationwide Permit. The North Carolina *designated waters* that require additional notification requirements are "Outstanding Resource Waters" (ORW) and "High Quality

Waters" (HQW) (as defined by the North Carolina Division of Water Quality), or "Inland Primary Nursery Areas" (IPNA) (as defined by the North Carolina Wildlife Resources Commission), or contiguous wetlands (as defined by the North Carolina Division of Water Quality), or "Primary Nursery Areas" (PNA) (as defined by the North Carolina Division of Marine Fisheries).

2. Applicants for any NWP in a designated "Area of Environmental Concern" (AEC) in the twenty (20) coastal counties of Eastern North Carolina covered by the North Carolina Coastal Area Management Act (CAMA), must also obtain the required CAMA permit. Construction activities may not commence until a copy of the approved CAMA permit is furnished to the appropriate Wilmington District Regulatory Field Office (Wilmington Field Office – P.O. Box 1890, Wilmington, NC 28402 or Washington Field Office – P.O. Box 1000, Washington, NC 27889) for authorization to begin work.

3. Prior to the use of any NWP on a Barrier Island of North Carolina, applicants must comply with Nationwide Permit General Condition 13. In addition, the applicant shall furnish a written statement of compliance with all of the conditions listed of the applicable Nationwide Permit.

4. Prior to the use of any NWP in a "Mountain or Piedmont Bog" of North Carolina, applicants shall comply with Nationwide Permit General Condition 13. In addition, the applicant shall furnish a written statement of compliance with all of the conditions listed of the applicable NWP.

Note: The following wetland community types identified in the N.C. Natural Heritage Program document, "Classification of Natural communities of North Carolina (Michael P. Schafale and Alan S. Weakley, 1990), are subject to this regional condition.

Mountain Bogs	Piedmont Bogs
Swamp Forest-Bog Complex	Upland Depression Swamp Forest
Swamp Forest-Bog Complex (Spruce Subtype)	
Southern Appalachian Bog (Northern Subtype)	
Southern Appalachian Bog (Southern Subtype)	
Southern Appalachian Fen	

5. Prior to the use of any NWP in Mountain Trout Waters within twenty-five (25) designated counties of North Carolina, applicants shall comply with Nationwide General Condition 13. In addition, the applicant shall furnish a written statement of compliance with all of the conditions listed of the applicable NWP. Notification will include a letter of comments and recommendations from the North Carolina Wildlife Resources Commission (NCWRC), the

location of work, a delineation of wetlands, a discussion of alternatives to working in the Mountain Trout Waters, why other alternatives were not selected, and a plan to provide compensatory mitigation for all unavoidable adverse impacts to the Mountain Trout Waters. To facilitate coordination with the NCWRC, the proponent may provide a copy of the notification to the NCWRC concurrent with the notification to the District Engineer. The NCWRC will respond both to the proponent and directly to the Corps of Engineers.

The twenty-five (25) designated counties are:

Alleghany	Ashe	Avery	Yancey
Buncombe	Burke	Caldwell	Wilkes
Cherokee	Clay	Graham	Swain
Haywood	Henderson	Jackson	Surry
Macon	Madison	McDowell	Stokes
Mitchell	Polk	Rutherford	
Transylvania	Watauga		

6. Applicants shall notify the NCDENR Shellfish Sanitation Section prior to dredging in or removing sediment from an area closed to shell fishing where the effluent may be released to an area open for shell fishing or swimming in order to avoid contamination of the disposal area and allow a temporary shellfish closure to be made. Any disposal of sand to the beach should occur between November 1 and April 30 when recreational usage is low. Only clean sand should be used and no dredged sand from closed shell fishing areas. If beach disposal was to occur at times other than stated above or if sand from a closed shell fishing area is to be used, a swim advisory shall be posted and a press release shall be made. NCDENR Shellfish Sanitation Section must be notified before commencing this activity.

2. List of Final Corps Regional Modifications and Conditions for All Nationwide Permits

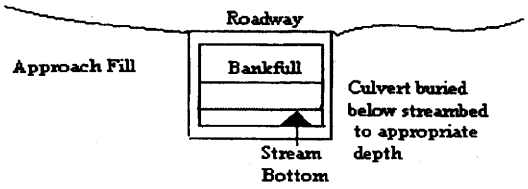
a. Individual or multiple NWPs may not be used for activities that result in the cumulative loss or degradation of greater than 300 total linear feet of perennial streambed or intermittent streambed that exhibits important aquatic function(s).

b. Prior to the use of any NWP (except 13, 27, and 39) for any activity that has more than a total of 150 total linear feet of perennial streambed impacts or intermittent streambed impacts (if the intermittent stream has important aquatic function), the applicant must comply with Nationwide Permit General Condition 13. In addition, the applicant shall furnish a written statement of compliance with all of the conditions listed of the applicable NWP. Compensatory mitigation is typically required for any impact that requires such notification. [Note: The Corps uses the Intermittent Channel Evaluation Form, located with Permit Information on the Regulatory Program Web Site, to aid in the determination of the intermittent channel stream status. Also, NWPs 13, 27 and 39 have specific reporting requirements.]

c. For all Nationwide Permits which allow the use of concrete as a building material, measures will be taken to prevent live or fresh concrete, including bags of uncured concrete, from coming into contact with waters of the state until the concrete has hardened.

d. For all Nationwide Permits that allow for the use of riprap material for bank stabilization, filter cloth must be placed underneath the riprap as an additional requirement of its use in North Carolina waters.

e. For all NWPs that involve the construction of culverts, measures will be included in the construction that will promote the safe passage of fish and other aquatic organisms.
All culverts in the 20 CAMA coastal counties must be buried to a depth of one foot below the



bed of the stream or wetland. For all culvert construction activities, 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. Culvert inverts will be buried at least one foot below the bed of the stream for culverts greater than 48 inches in diameter. For culverts 48 inches in diameter or smaller, culverts must be buried below the bed of the stream to a depth equal to or greater than 20 percent of the diameter of the culvert. Bottomless arch culverts will satisfy this condition. A waiver from the depth specifications in this Regional Condition may be requested in writing. The waiver will only be issued if it can be demonstrated that the impacts of complying with this Regional Condition would result in more adverse impacts to the aquatic environment.

NORTH CAROLINA DIVISION OF WATER QUALITY
GENERAL CERTIFICATION CONDITIONS
GC3361

*1. Proposed fill or substantial modification of wetlands or waters (including streams) under this General Certification requires notification to the Division of Water Quality. Two copies shall be submitted to DWQ at the time of notification in accordance with 15A NCAC 2H .0501(a). Written concurrence from DWQ is not required unless any standard conditions of this Certification cannot be met;

2. Appropriate sediment and erosion control practices which equal or exceed those outlined in the most recent version of the "North Carolina Sediment and Erosion Control Planning and Design Manual" or the "North Carolina Surface Mining Manual" whichever is more appropriate (available from the Division of Land Resources (DLR) in the DENR Regional or Central Offices) shall be in full compliance with all specifications governing the proper design, installation and operation and maintenance of such Best Management Practices in order to assure compliance
with the appropriate turbidity water quality standard;

3. In accordance with 15A NCAC 2H .0506 (h) compensatory mitigation may be required for impacts to 150 linear feet or more of streams and/or one acre or more of wetlands. In addition, buffer mitigation may be required for any project with Buffer Rules in effect at the time of application for buffer impacts resulting from activities classified as "allowable with mitigation" within the "Table of Uses" section of the Buffer Rules or require a variance under the Buffer Rules. A determination of buffer, wetland and stream mitigation requirements shall be made for any Certification for this Nationwide Permit. The most current design and monitoring protocols from DWQ shall be followed and written plans submitted for DWQ approval as required in those protocols. When compensatory mitigation is required for a project, the mitigation plans must be approved by DWQ in writing before the impacts approved by the Certification occur. The mitigation plan must be implemented and/or constructed before any permanent building or structure on site is occupied. In the case of public road projects, the mitigation plan must be implemented before the road is opened to the traveling public;

4. Compensatory stream mitigation shall be required at a 1:1 ratio for all perennial and intermittent stream impacts equal to or exceeding 150 feet and that require application to DWQ in watersheds classified as ORW, HQW, Tr, WS-I and WS-II;

5. All sediment and erosion control measures placed in wetlands or waters shall be removed and the original grade restored within two months after the Division of Land Resources has released the project;

6. Measures shall be taken to prevent live or fresh concrete from coming into contact with waters of the state until the concrete has hardened;

7. In accordance with North Carolina General Statute Section 143-215.3D(e), any request for written concurrence for a 401 Water Quality Certification must include the appropriate fee. If a project also requires a CAMA Permit, one payment to both agencies shall be submitted and will be the higher of the two fees;

* 8. Impacts to any stream length in the Neuse, Tar-Pamlico, Randleman and Catawba River Basins (or any other river basins with Riparian Area Protection Rules [Buffer Rules] in effect at the time of application) requires written concurrence from DWQ in accordance with 15A NCAC 2B.0200. Activities listed as "exempt" from these rules do not need to apply for written concurrence under this Certification. New development activities located in the protected 50-foot wide riparian areas (whether jurisdictional wetlands or not) within the Neuse, Tar-Pamlico, Randleman and Catawba River Basins shall be limited to "uses" identified within and constructed in accordance with 15A NCAC 2B .0200. All new development shall be located, designed, constructed, and maintained to have minimal disturbance to protect water quality to the maximum extent practicable through the use of best management practices;

9. Additional site-specific conditions may be added to projects for which written concurrence is required or requested under this Certification in order to ensure compliance with all applicable water quality and effluent standards;

10. Concurrence from DWQ that this Certification applies to an individual project shall expire three years from the date of the cover letter from DWQ or on the same day as the expiration date of the corresponding Nationwide and Regional General Permits, whichever is sooner;

11. When written concurrence is required, the applicant is required to use the most recent version of the Certification of Completion form to notify DWQ when all work included in the 401 Certification has been completed.

NORTH CAROLINA DIVISION OF COASTAL MANAGEMENT STATE CONSISTENCY

Consistent.

Citations:
2002 Nationwide Permits - Federal Register Notice 15 Jan 2002
2002 Nationwide Permits Corrections - Federal Register Notice 13 Feb 2002
2002 Regional Conditions – Authorized 17 May 2002

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WQC #3403

GENERAL CERTIFICATION FOR PROJECTS ELIGIBLE FOR CORPS OF ENGINEERS NATIONWIDE PERMIT NUMBER 23 (APPROVED CATEGORICAL EXCLUSIONS) AND RIPARIAN AREA PROTECTION RULES (BUFFER RULES)

This General 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 Regulations in 15A NCAC 2H, Section .0500 and 15A NCAC 2B .0200 for the discharge of fill material to waters and wetland areas as described in 33 CFR 330 Appendix A (B) (23) and for the Riparian Area Protection Rules (Buffer Rules) in 15A NCAC 2B .0200. This Certification replaces Water Quality Certification Number 2670 issued on January 21, 1992, Certification Number 2734 issued on May 1 1993, Certification Number 3107 issued on February 11, 1997 and Water Quality Certification Number 3361 issued March 18, 2002. This WQC is rescinded when the Corps of Engineers re-authorizes Nationwide Permit 23 or when deemed appropriate by the Director of the DWQ.

The State of North Carolina certifies that the specified category of activity will not violate applicable portions of Sections 301, 302, 303, 306 and 307 of the Public Laws 92-500 and 95-217 if conducted in accordance with the conditions hereinafter set forth.

Conditions of Certification:

* 1. Proposed fill or substantial modification of wetlands or waters (including streams) under this General Certification requires notification to the Division of Water Quality. Two copies shall be submitted to DWQ at the time of notification in accordance with 15A NCAC 2H .0501(a). Written concurrence from DWQ is not required unless any standard conditions of this Certification cannot be met;

2. Appropriate sediment and erosion control practices which equal or exceed those outlined in the most recent version of the "North Carolina Sediment and Erosion Control Planning and Design Manual" or the "North Carolina Surface Mining Manual" whichever is more appropriate (available from the Division of Land Resources (DLR) in the DENR Regional or Central Offices) shall be in full compliance with all specifications governing the proper design, installation and operation and maintenance of such Best Management Practices in order to assure compliance with the appropriate turbidity water quality standard;

3. In accordance with 15A NCAC 2H .0506 (h) compensatory mitigation may be required for impacts to 150 linear feet or more of streams and/or one acre or more of wetlands. In addition, buffer mitigation may be required for any project with Buffer Rules in effect at the time of application for buffer impacts resulting from activities classified as "allowable with mitigation" within the "Table of Uses" section of the Buffer Rules or require a variance under the Buffer Rules. A determination of buffer, wetland and stream mitigation requirements shall be made for any Certification for this Nationwide Permit. The most current design and monitoring protocols from DWQ shall be followed and written plans submitted for DWQ approval as required in those protocols. When compensatory mitigation is required for a project, the mitigation plans must be approved by DWQ in writing before the impacts approved by the Certification occur. The mitigation plan must be implemented and/or constructed before any permanent building or structure on

site is occupied. In the case of public road projects, the mitigation plan must be implemented before the road is opened to the travelling public;

4. Compensatory stream mitigation shall be required at a 1:1 ratio for not only perennial but also intermittent stream impacts equal to or exceeding 150 feet and that require application to DWQ in watersheds classified as ORW, HQW, Tr, WS-I and WS-II unless the project is a linear, publicly-funded transportation project, which has a 150-foot per-stream impact allowance;

5. All sediment and erosion control measures placed in wetlands or waters shall be removed and the original grade restored within two months after the Division of Land Resources has released the project;

6. Measures shall be taken to prevent live or fresh concrete from coming into contact with freshwaters of the state until the concrete has hardened;

7. In accordance with North Carolina General Statute Section 143-215.3D(e), any request for written concurrence for a 401 Water Quality Certification must include the appropriate fee. If a project also requires a CAMA Permit, one payment to both agencies shall be submitted and will be the higher of the two fees;

* 8. Impacts to any stream length in the Neuse, Tar-Pamlico, Randleman and Catawba River Basins (or any other river basins with Riparian Area Protection Rules [Buffer Rules] in effect at the time of application) requires written concurrence from DWQ in accordance with 15A NCAC 2B.0200. Activities listed as "exempt" from these rules do not need to apply for written concurrence under this Certification. New development activities located in the protected 50-foot wide riparian areas (whether jurisdictional wetlands or not) within the Neuse, Tar-Pamlico, Randleman and Catawba River Basins shall be limited to "uses" identified within and constructed in accordance with 15A NCAC 2B .0200. All new development shall be located, designed, constructed, and maintained to have minimal disturbance to protect water quality to the maximum extent practicable through the use of best management practices;

9. Additional site-specific conditions may be added to projects for which written concurrence is required or requested under this Certification in order to ensure compliance with all applicable water quality and effluent standards;

10. Concurrence from DWQ that this Certification applies to an individual project shall expire three years from the date of the cover letter from DWQ or on the same day as the expiration date of the corresponding Nationwide and Regional General Permits, whichever is sooner;

11. When written concurrence is required, the applicant is required to use the most recent version of the Certification of Completion form to notify DWQ when all work included in the 401 Certification has been completed.

Non-compliance with or violation of the conditions herein set forth by a specific fill project shall result in revocation of this Certification for the project and may result in criminal and/or civil penalties.

WQC #3403

The Director of the North Carolina Division of Water Quality may require submission of a formal application for individual certification for any project in this category of activity that requires written concurrence under this certification, if it is determined that the project is likely to have a significant adverse effect upon water quality or degrade the waters so that existing uses of the wetland, stream or downstream waters are precluded.

Public hearings may be held for specific applications or group of applications prior to a Certification decision if deemed in the public's best interest by the Director of the North Carolina Division of Water Quality.

Effective date: March 2003

DIVISION OF WATER QUALITY

By

Alan W. Klimek, P.E.

Director

WQC # 3403

NATIONWIDE PERMIT 33
DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS
FINAL NOTICE OF ISSUANCE AND MODIFICATION OF NATIONWIDE PERMITS
FEDERAL REGISTER
AUTHORIZED MARCH 18, 2002

Temporary Construction, Access and Dewatering: Temporary structures, work and discharges, including cofferdams, necessary for construction activities or access fills or dewatering of construction sites; provided that the associated primary activity is authorized by the Corps of Engineers or the U.S. Coast Guard (USCG), or for other construction activities not subject to the Corps or USCG regulations. Appropriate measures must be taken to maintain near normal downstream flows and to minimize flooding. Fill must be of materials, and placed in a manner, that will not be eroded by expected high flows. The use of dredged material may be allowed if it is determined by the District Engineer that it will not cause more than minimal adverse effects on aquatic resources. Temporary fill must be entirely removed to upland areas, or dredged material returned to its original location, following completion of the construction activity, and the affected areas must be restored to the pre-project conditions. Cofferdams cannot be used to dewater wetlands or other aquatic areas so as to change their use. Structures left in place after cofferdams are removed require a section 10 permit if located in navigable waters of the United States. (See 33 CFR part 322). The permittee must notify the District Engineer in accordance with the "Notification" general condition. The notification must also include a restoration plan of reasonable measures to avoid and minimize adverse effects to aquatic resources. The District Engineer will add special conditions, where necessary, to ensure environmental adverse effects is minimal. Such conditions may include: Limiting the temporary work to the minimum necessary; requiring seasonal restrictions; modifying the restoration plan; and requiring alternative construction methods (e.g., construction mats in wetlands where practicable.). (Sections 10 and 404)

NATIONWIDE PERMIT GENERAL CONDITIONS

The following General Conditions must be followed in order for any authorization by a NWP to be valid:

1. Navigation. No activity may cause more than a minimal adverse effect on navigation.

2. Proper Maintenance. Any structure or fill authorized shall be properly maintained, including maintenance to ensure public safety.

3. Soil Erosion and Sediment Controls. Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow.

4. Aquatic Life Movements. No activity may substantially disrupt the necessary life-cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. Culverts placed in streams must be installed to maintain low flow conditions.

5. Equipment. Heavy equipment working in wetlands must be placed on mats, or other measures must be taken to minimize soil disturbance.

6. Regional and Case-By-Case Conditions. The activity must comply with any regional conditions that may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state or tribe in its Section 401 Water Quality Certification and Coastal Zone Management Act consistency determination.

7. Wild and Scenic Rivers. No activity may occur in a component of the National Wild and Scenic River System; or in a river officially designated by Congress as a 'study river" for possible inclusion in the system, while the river is in an official study status; unless the appropriate Federal agency, with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation, or study status. Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency in the area (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service).

8. Tribal Rights. No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.

9. Water Quality.

a. In certain states and tribal lands an individual 401 Water Quality Certification must be obtained or waived (See 33 CFR 330.4(c)).

b. For NWPs 12, 14, 17, 18, 32, 39, 40, 42, 43, and 44, where the state or tribal 401 certification (either generically or individually) does not require or approve water quality management measures, the permittee must provide water quality management measures that will ensure that the authorized work does not result in more than minimal degradation of water quality (or the Corps determines that compliance with state or local standards, where applicable, will ensure no more than minimal adverse effect on water quality). An important component of water quality management includes stormwater management that minimizes degradation of the downstream aquatic system, including water quality (refer to General Condition 21 for stormwater management requirements). Another important component of water quality management is the establishment and maintenance of vegetated buffers next to open waters, including streams (refer to General Condition 19 for vegetated buffer requirements for the NWPs).

This condition is only applicable to projects that have the potential to affect water quality. While appropriate measures must be taken, in most cases it is not necessary to conduct detailed studies to identify such measures or to require monitoring.

10. Coastal Zone Management. In certain states, an individual state coastal zone management consistency concurrence must be obtained or waived (see 33 CFR 330.4(d)).

11. Endangered Species.

a. No activity is authorized under any NWP which is likely to jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will destroy or adversely modify the critical habitat of such species. Non-federal permittees shall notify the District Engineer if any listed species or designated critical habitat might be affected or is in the vicinity of the project, or is located in the designated critical habitat and shall not begin work on the activity until notified by the District Engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that may affect Federally-listed endangered or threatened species or designated critical habitat, the notification must include the name(s) of the endangered or threatened species that may be affected by the proposed work or that utilize the designated critical habitat that may be affected by the proposed work. As a result of formal or informal consultation with the FWS or NMFS the District Engineer may add species-specific regional endangered species conditions to the NWPs.

b. Authorization of an activity by a NWP does not authorize the "take" of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with "incidental take" provisions, etc.) from the USFWS or the NMFS, both lethal and non-lethal "takes" of protected species are in violation of the ESA. Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the USFWS and NMFS or their World Wide

Web pages at http://www.fws.gov/r9endspp/endspp.html and http://www.nfms.noaa.gov/protres/overview/es.html respectively.

12. Historic Properties. No activity that may affect historic properties listed, or eligible for listing, in the National Register of Historic Places is authorized, until the District Engineer has complied with the provisions of 33 CFR part 325, Appendix C.* The prospective permittee must notify the District Engineer if the authorized activity may affect any historic properties listed, determined to be eligible, or which the prospective permittee has reason to believe may be eligible for listing on the National Register of Historic Places, and shall not begin the activity until notified by the District Engineer that the requirements of the National Historic Preservation Act have been satisfied and that the activity is authorized. Information on the location and existence of historic resources can be obtained from the State Historic Preservation Office and the National Register of Historic Places (see 33 CFR 330.4(g)). For activities that may affect historic properties listed in, or eligible for listing in, the National Register of Historic Places, the notification must state which historic property may be affected by the proposed work or include a vicinity map indicating the location of the historic property.

* 13. Notification.

a. Timing; where required by the terms of the NWP, the prospective permittee must notify the District Engineer with a preconstruction notification (PCN) as early as possible. The District Engineer must determine if the notification is complete within 30 days of the date of receipt and can request additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the District Engineer will notify the prospective permittee that the notification is still incomplete and the PCN review process will not commence until all of the requested information has been received by the District Engineer. The prospective permittee shall not begin the activity:

1. Until notified in writing by the District Engineer that the activity may proceed under the NWP with any special conditions imposed by the District or Division Engineer; or

2. If notified in writing by the District or Division Engineer that an Individual Permit is required; or

3. Unless 45 days have passed from the District Engineer's receipt of the complete notification and the prospective permittee has not received written notice from the District or Division Engineer. Subsequently, the permittee's right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).

b. Contents of Notification: The notification must be in writing and include the following information:

1. Name, address and telephone numbers of the prospective permittee;

2. Location of the proposed project;

3. Brief description of the proposed project; the project's purpose; direct and indirect adverse environmental effects the project would cause; any other NWP(s), Regional General Permit(s), or Individual Permit(s) used or intended to be used to authorize any part of the proposed project or any related activity. Sketches should be provided when necessary to show that the activity complies with the terms of the NWP (Sketches usually clarify the project and when provided result in a quicker decision.);

4. For NWPs 7, 12, 14, 18, 21, 34, 38, 39, 40, 41, 42, and 43, the PCN must also include a delineation of affected special aquatic sites, including wetlands, vegetated shallows (e.g., submerged aquatic vegetation, seagrass beds), and riffle and pool complexes (see paragraph 13(f));

5. For NWP 7 (Cutfall Structures and Maintenance), the PCN must include information regarding the original design capacities and configurations of those areas of the facility where maintenance dredging or excavation is proposed;

6. For NWP 14 (Linear Transportation Projects), the PCN must include a compensatory mitigation proposal to offset permanent losses of waters of the US and a statement describing how temporary losses of waters of the US will be minimized to the maximum extent practicable;

7. For NWP 21 (Surface Coal Mining Activities), the PCN must include an Office of Surface Mining (OSM) or state-approved mitigation plan, if applicable. To be authorized by this NWP, the District Engineer must determine that the activity complies with the terms and conditions of the NWP and that the adverse environmental effects are minimal both individually and cumulatively and must notify the project sponsor of this determination in writing;

8. For NWP 27 (Stream and Wetland Restoration Activities), the PCN must include documentation of the prior condition of the site that will be reverted by the permittee;

9. For NWP 29 (Single-Family Housing), the PCN must also include:

i. Any past use of this NWP by the Individual Permittee and/or the permittee's spouse;

ii. A statement that the single-family housing activity is for a personal residence of the permittee;

iii. A description of the entire parcel, including its size, and a delineation of wetlands. For the purpose of this NWP, parcels of land measuring \1/4\-acre or less will not require a formal on-site delineation. However, the applicant shall provide an indication of where the wetlands are and the amount of wetlands that exists on the property. For parcels greater than \1/4\-acre in size, formal wetland delineation must be prepared in accordance with the current

method required by the Corps. (See paragraph 13(f));

iv. A written description of all land (including, if available, legal descriptions) owned by the prospective permittee and/or the prospective permittee's spouse, within a one mile radius of the parcel, in any form of ownership (including any land owned as a partner, corporation, joint tenant, co-tenant, or as a tenant-by-the-entirety) and any land on which a purchase and sale agreement or other contract for sale or purchase has been executed;

10. For NWP 31 (Maintenance of Existing Flood Control Facilities), the prospective permittee must either notify the District Engineer with a PCN prior to each maintenance activity or submit a five-year (or less) maintenance plan. In addition, the PCN must include all of the following:

i. Sufficient baseline information identifying the approved channel depths and configurations and existing facilities. Minor deviations are authorized, provided the approved flood control protection or drainage is not increased;

ii. A delineation of any affected special aquatic sites, including wetlands; and,

iii. Location of the dredged material disposal site;

11. For NWP 33 (Temporary Construction, Access, and Dewatering), the PCN must also include a restoration plan of reasonable measures to avoid and minimize adverse effects to aquatic resources;

12. For NWPs 39, 43 and 44, the PCN must also include a written statement to the District Engineer explaining how avoidance and minimization for losses of waters of the US were achieved on the project site;

13. For NWP 39 and NWP 42, the PCN must include a compensatory mitigation proposal to offset losses of waters of the US or justification explaining why compensatory mitigation should not be required. For discharges that cause the loss of greater than 300 linear feet of an intermittent stream bed, to be authorized, the District Engineer must determine that the activity complies with the other terms and conditions of the NWP, determine adverse environmental effects are minimal both individually and cumulatively, and waive the limitation on stream impacts in writing before the permittee may proceed;

14. For NWP 40 (Agricultural Activities), the PCN must include a compensatory mitigation proposal to offset losses of waters of the US. This NWP does not authorize the relocation of greater than 300 linear feet of existing serviceable drainage ditches constructed in non-tidal streams unless, for drainage ditches constructed in intermittent nontidal streams, the District Engineer waives this criterion in writing, and the District Engineer has determined that the project complies with all terms and conditions of this NWP, and that any adverse impacts of the project on the aquatic environment are minimal, both individually and cumulatively;

15. For NWP 43 (Stormwater Management Facilities), the PCN must include, for the construction of new stormwater management facilities, a maintenance plan (in accordance with state and local requirements, if applicable) and a compensatory mitigation proposal to offset losses of waters of the US. For discharges that cause the loss of greater than 300 linear feet of an intermittent stream bed, to be authorized, the District Engineer must determine that the activity complies with the other terms and conditions of the NWP, determine adverse environmental effects are minimal both individually and cumulatively, and waive the limitation on stream impacts in writing before the permittee may proceed;

16. For NWP 44 (Mining Activities), the PCN must include a description of all waters of the US adversely affected by the project, a description of measures taken to minimize adverse effects to waters of the US, a description of measures taken to comply with the criteria of the NWP, and a reclamation plan (for all aggregate mining activities in isolated waters and non-tidal wetlands adjacent to headwaters and any hard rock/mineral mining activities);

17. For activities that may adversely affect Federally-listed endangered or threatened species, the PCN must include the name(s) of those endangered or threatened species that may be affected by the proposed work or utilize the designated critical habitat that may be affected by the proposed work; and

18. For activities that may affect historic properties listed in, or eligible for listing in, the National Register of Historic Places, the PCN must state which historic property may be affected by the proposed work or include a vicinity map indicating the location of the historic property.

c. Form of Notification: The standard Individual Permit application form (Form ENG 4345) may be used as the notification but must clearly indicate that it is a PCN and must include all of the information required in (b) (1)-(18) of General Condition 13. A letter containing the requisite information may also be used.

d. District Engineer's Decision: In reviewing the PCN for the proposed activity, the District Engineer will determine whether the activity authorized by the NWP will result in more than minimal individual or cumulative adverse environmental effects or may be contrary to the public interest. The prospective permittee may submit a proposed mitigation plan with the PCN to expedite the process. The District Engineer will consider any proposed compensatory mitigation the applicant has included in the proposal in determining whether the net adverse environmental effects to the aquatic environment of the proposed work are minimal. If the District Engineer determines that the activity complies with the terms and conditions of the NWP and that the adverse effects on the aquatic environment are minimal, after considering mitigation, the District Engineer will notify the permittee and include any conditions the District Engineer deems necessary. The District Engineer must approve any compensatory mitigation proposal before the permittee commences work. If the prospective permittee is required to submit a compensatory mitigation proposal with the PCN, the proposal may be either conceptual or detailed. If the prospective permittee elects to submit a compensatory mitigation plan with the PCN, the District Engineer will expeditiously review the proposed compensatory mitigation

plan. The District Engineer must review the plan within 45 days of receiving a complete PCN and determine whether the conceptual or specific proposed mitigation would ensure no more than minimal adverse effects on the aquatic environment. If the net adverse effects of the project on the aquatic environment (after consideration of the compensatory mitigation proposal) are determined by the District Engineer to be minimal, the District Engineer will provide a timely written response to the applicant. The response will state that the project can proceed under the terms and conditions of the NWP.

If the District Engineer determines that the adverse effects of the proposed work are more than minimal, then the District Engineer will notify the applicant either:

1. That the project does not qualify for authorization under the NWP and instruct the applicant on the procedures to seek authorization under an Individual Permit;

2. that the project is authorized under the NWP subject to the applicant's submission of a mitigation proposal that would reduce the adverse effects on the aquatic environment to the minimal level; or

3. that the project is authorized under the NWP with specific modifications or conditions. Where the District Engineer determines that mitigation is required to ensure no more than minimal adverse effects occur to the aquatic environment, the activity will be authorized within the 45-day PCN period. The authorization will include the necessary conceptual or specific mitigation or a requirement that the applicant submit a mitigation proposal that would reduce the adverse effects on the aquatic environment to the minimal level. When conceptual mitigation is included, or a mitigation plan is required under item (2) above, no work in waters of the US will occur until the District Engineer has approved a specific mitigation plan.

e. Agency Coordination: The District Engineer will consider any comments from Federal and state agencies concerning the proposed activity's compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the project's adverse environmental effects to a minimal level.

For activities requiring notification to the District Engineer that result in the loss of greater than \1/2\-acre of waters of the US, the District Engineer will provide immediately (e.g., via facsimile transmission, overnight mail, or other expeditious manner) a copy to the appropriate Federal or state offices (USFWS, state natural resource or water quality agency, EPA, State Historic Preservation Officer (SHPO), and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will then have 10 calendar days from the date the material is transmitted to telephone or fax the District Engineer notice that they intend to provide substantive, site-specific comments. If so contacted by an agency, the District Engineer will wait an additional 15 calendar days before making a decision on the notification. The District Engineer will fully consider agency comments received within the specified time frame, but will provide no response to the resource agency, except as provided below. The District Engineer will indicate in the administrative record associated with each notification that the resource agencies' concerns were considered. As required by section 305(b)(4)(B) of the Magnuson-Stevens

Fishery Conservation and Management Act, the District Engineer will provide a response to NMFS within 30 days of receipt of any Essential Fish Habitat conservation recommendations. Applicants are encouraged to provide the Corps multiple copies of notifications to expedite agency notification.

f. Wetland Delineations: Wetland delineations must be prepared in accordance with the current method required by the Corps (For NWP 29 see paragraph (b)(9)(iii) for parcels less than (\1/4\-acre in size). The permittee may ask the Corps to delineate the special aquatic site. There may be some delay if the Corps does the delineation. Furthermore, the 45-day period will not start until the wetland delineation has been completed and submitted to the Corps, where appropriate.

* 14. Compliance Certification. Every permittee who has received NWP verification from the Corps will submit a signed certification regarding the completed work and any required mitigation. The certification will be forwarded by the Corps with the authorization letter and will include:

a. A statement that the authorized work was done in accordance with the Corps authorization, including any general or specific conditions;

b. A statement that any required mitigation was completed in accordance with the permit conditions; and

c. The signature of the permittee certifying the completion of the work and mitigation.

15. Use of Multiple Nationwide Permits. The use of more than one NWP for a single and complete project is prohibited, except when the acreage loss of waters of the US authorized by the NWPs does not exceed the acreage limit of the NWP with the highest specified acreage limit (e.g. if a road crossing over tidal waters is constructed under NWP 14, with associated bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the US for the total project cannot exceed \ 1/3\-acre) .

16. Water Supply Intakes. No activity, including structures and work in navigable waters of the US or discharges of dredged or fill material, may occur in the proximity of a public water supply intake except where the activity is for repair of the public water supply intake structures or adjacent bank stabilization.

17. Shellfish Beds. No activity, including structures and work in navigable waters of the US or discharges of dredged or fill material, may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWP 4.

18. Suitable Material. No activity, including structures and work in navigable waters of the US or discharges of dredged or fill material, may consist of unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.) and material used for construction or discharged must be free

from toxic pollutants in toxic amounts (see section 307 of the CWA).

19. Mitigation. The District Engineer will consider the factors discussed below when determining the acceptability of appropriate and practicable mitigation necessary to offset adverse effects on the aquatic environment that are more than minimal.

a. The project must be designed and constructed to avoid and minimize adverse effects to waters of the US to the maximum extent practicable at the project site (i.e., on site).

b. Mitigation in all its forms (avoiding, minimizing, rectifying, reducing or compensating) will be required to the extent necessary to ensure that the adverse effects to the aquatic environment are minimal.

c. Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland impacts requiring a PCN, unless the District Engineer determines in writing that some other form of mitigation would be more environmentally appropriate and provides a project-specific waiver of this requirement. Consistent with National policy, the District Engineer will establish a preference for restoration of wetlands as compensatory mitigation, with preservation used only in exceptional circumstances.

d. Compensatory mitigation (i.e., replacement or substitution of aquatic resources for those impacted) will not be used to increase the acreage losses allowed by the acreage limits of some of the NWPs. For example, \1/4\-acre of wetlands cannot be created to change a,\3/4\acre loss of wetlands to a \1/2\-acre loss associated with NWP 39 verification. However, \1/2\-acre of created wetlands can be used to reduce the impacts of a \1/2\-acre loss of wetlands to the minimum impact level in order to meet the minimal impact requirement associated with NWPs.

e. To be practicable, the mitigation must be available and capable of being done considering costs, existing technology, and logistics in light of the overall project purposes. Examples of mitigation that may be appropriate and practicable include, but are not limited to: reducing the size of the project; establishing and maintaining wetland or upland vegetated buffers to protect open waters such as streams; and replacing losses of aquatic resource functions and values by creating, restoring, enhancing, or preserving similar functions and values, preferably in the same watershed.

f. Compensatory mitigation plans for projects in or near streams or other open waters will normally include a requirement for the establishment, maintenance, and legal protection (e.g., easements, deed restrictions) of vegetated buffers to open waters. In many cases, vegetated buffers will be the only compensatory mitigation required. Vegetated buffers should consist of native species. The width of the vegetated buffers required will address documented water quality or aquatic habitat loss concerns. Normally, the vegetated buffer .will be 25 to 50 feet wide on each side of the stream, but the District Engineers may require slightly wider vegetated buffers to address documented water quality or habitat loss concerns. Where both wetlands and open waters exist on the project site, the Corps will determine the appropriate compensatory mitigation (e.g., stream buffers or wetlands compensation) based on what is best for the aquatic

environment or, a watershed basis. In cases where vegetated buffers are determined to be the most appropriate form of compensatory mitigation, the District Engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland impacts.

g. Compensatory mitigation proposals submitted with the " notification" may be either conceptual or detailed. If conceptual plans are approved under the verification, then the Corps will condition the verification to require detailed plans be submitted and approved by the Corps prior to construction of the authorized activity in waters of the US.

h. Permittees may propose the use of mitigation banks, in-lieu fee arrangements or separate activity-specific compensatory mitigation. In all cases that require compensatory mitigation, the mitigation provisions will specify the party responsible for accomplishing and/or complying with the mitigation plan.

20. Spawning Areas. Activities, including structures and work in navigable waters of the US or discharges of dredged or fill material, in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., excavate, fill, or smother downstream by substantial turbidity) of an important spawning area are not authorized.

21. Management of Water Flows. To the maximum extent practicable, the activity must be designed to maintain preconstruction downstream flow conditions (e.g., location, capacity, and flow rates). Furthermore, the activity must not permanently restrict or impede the passage of normal or expected high flows (unless the primary purpose of the fill is to impound waters) and the structure or discharge of dredged or fill material must withstand expected high flows. The activity must, to the maximum extent practicable, provide for retaining excess flows from the site, provide for maintaining surface flow rates from the site similar to preconstruction conditions, and provide for not increasing water flows from the project site, relocating water, or redirecting water flow beyond preconstruction conditions. Stream channelizing will be reduced to the minimal amount necessary, and the activity must, to the maximum extent practicable, reduce adverse effects such as flooding or erosion downstream and upstream of the project site, unless the activity is part of a larger system designed to manage water flows. In most cases, it will not be a requirement to conduct detailed studies and monitoring of water flow.

This condition is only applicable to projects that have the potential to affect waterflows. While appropriate measures must be taken, it is not necessary to conduct detailed studies to identify such measures or require monitoring to ensure their effectiveness. Normally, the Corps will defer to state and local authorities regarding management of water flow.

22. Adverse Effects From Impoundments. If the activity creates an impoundment of water, adverse effects to the aquatic system due to the acceleration of the passage of water, and/or the restricting its flow shall be minimized to the maximum extent practicable. This includes structures and work in navigable waters of the US, or discharges of dredged or fill material.

23. Waterfowl Breeding Areas. Activities, including structures and work in navigable

waters of the US or discharges of dredged or fill material, into breeding areas for migratory waterfowl must be avoided to the maximum extent practicable.

24. Removal of Temporary Fills. Any temporary fills must be removed in their entirety and the affected areas returned to their preexisting elevation.

25. Designated Critical Resource Waters. Critical resource waters include, NOAA-designated marine sanctuaries, National Estuarine Research Reserves, National Wild and Scenic Rivers, critical habitat for Federally listed threatened and endangered species, coral reefs, state natural heritage sites, and outstanding national resource waters or other waters officially designated by a state as having particular environmental or ecological significance and identified by the District Engineer after notice and opportunity for public comment. The District Engineer may also designate additional critical resource waters after notice and opportunity for comment.

a. Except as noted below, discharges of dredged or fill material into waters of the US are not authorized by NWPs 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, and 44 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters. Discharges of dredged or fill materials into waters of the US may be authorized by the above NWPs in National Wild and Scenic Rivers if the activity complies with General Condition 7. Further, such discharges may be authorized in designated critical habitat for Federally listed threatened or endangered species if the activity complies with General Condition 11 and the USFWS or the NMFS has concurred in a determination of compliance with this condition.

b. For NWPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, and 38, notification is required in accordance with General Condition 13, for any activity proposed in the designated critical resource waters including wetlands adjacent to those waters. The District Engineer may authorize activities under these NWPs only after it is determined that the impacts to the critical resource waters will be no more than minimal.

26. Fills Within 100-Year Floodplains. For purposes of this General Condition, 100-year floodplains will be identified through the existing Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Maps or FEMA-approved local floodplain maps.

a. Discharges in Floodplain; Below Headwaters. Discharges of dredged or fill material into waters of the US within the mapped 100year floodplain, below headwaters (i.e. five cfs), resulting in permanent above-grade fills, are not authorized by NWPs 39, 40, 42, 43, and 44.

b. Discharges in Floodway; Above Headwaters. Discharges of dredged or fill material into waters of the US within the FEMA or locally mapped floodway, resulting in permanent above-grade fills, are not authorized by NWPs 39, 40, 42, and 44.

c. The permittee must comply with any applicable FEMA-approved state or local floodplain management requirements.

27. Construction Period. For activities that have not been verified by the Corps and the

project was commenced or under contract to commence by the expiration date of the NWP (or modification or revocation date), the work must be completed within 12-months after such date (including any modification that affects the project).

For activities that have been verified and the project was commenced or under contract to commence within the verification period, the work must be completed by the date determined by the Corps.

For projects that have been verified by the Corps, an extension of a Corps approved completion date maybe requested. This request must be submitted at least one month before the previously approved completion date.

FURTHER INFORMATION

1. District Engineers have authority to determine if an activity complies with the terms and conditions of a NWP.

2. NWPs do not obviate the need to obtain other Federal, State, or local permits, approvals, or authorizations required by law.

3. NWPs do not grant any property rights or exclusive privileges.

4. NWPs do not authorize any injury to the property or rights of others.

5. NWPs do not authorize interference with any existing or proposed Federal project.

DEFINITIONS

Best Management Practices (BMPs): BMPs are policies, practices, procedures, or structures implemented to mitigate the adverse environmental effects on surface water quality resulting from development. BMPs are categorized as structural or nonstructural. A BMP policy may affect the limits on a development.

Compensatory Mitigation: For purposes of Section 10/404, compensatory mitigation is the restoration, creation, enhancement, or in exceptional circumstances, preservation of wetlands and/or other aquatic resources for the purpose of compensating for unavoidable adverse impacts, which remain, after all appropriate and practicable avoidance and minimization has been achieved.

Creation: The establishment of a wetland or other aquatic resource where one did not formerly exist.

Enhancement: Activities conducted in existing wetlands or other aquatic resources that increase

one or more aquatic functions.

Ephemeral Stream: An ephemeral stream has *flowing* water only during and for a short duration after, precipitation events in a typical year. Ephemeral stream beds are located above the water table year-round. Groundwater is not a source of water for the stream. Runnoff from rainfall is the primary source of water for stream flow.

Farm Tract: A unit of contiguous land under one ownership that is operated as a farm or part of a farm.

Flood Fringe: That portion of the 100-year floodplain outside of the floodway (often referred to as "floodway fringe").

Floodway: The area regulated by Federal, state, or local requirements to provide for the discharge of the base flood so the cumulative increase in water surface elevation is no more than a designated amount (not to exceed one foot as set by the National Flood Insurance Program) within the 100-year floodplain.

Independent Utility: A test to determine what constitutes a single and complete project in the Corps regulatory program. A project is considered to have independent utility if it would be constructed absent the construction of other projects in the project area. Portions of a multi-phase project that depend upon other phases of the project do not have independent utility. Phases of a project that would be constructed even if the other phases were not built can be considered as separate single and complete projects with independent utility.

Intermittent Stream: An intermittent stream has flowing water during certain times of the year, when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow.

Loss of waters of the US: Waters of the US that include the filled area and other waters that are permanently adversely affected by flooding, excavation, or drainage because of the regulated activity. Permanent adverse effects include permanent above-grade, at-grade, or below-grade fills that change an aquatic area to dry land, increase the bottom elevation of a waterbody, or change the use of a waterbody. The acreage of loss of waters of the US is the threshold measurement of the impact to existing waters for determining whether a project may qualify for a NWP; it is not a net threshold that is calculated after considering compensatory mitigation that may be used to offset losses of aquatic functions and values. The loss of stream bed includes the linear feet of stream bed that is filled or excavated. Waters of the US temporarily filled, flooded, excavated, or drained, but restored to preconstruction contours and elevations after construction, are not included in the measurement of loss of waters of the US. Impacts to ephemeral waters are only not included in the acreage or linear foot measurements of loss of waters of the US or loss of stream bed, for the purpose of determining compliance with the threshold limits of the NWPs.

Non-tidal Wetland: An area that, during a year with normal patterns of precipitation has

standing or flowing water for sufficient duration to establish an ordinary high water mark. Aquatic vegetation within the area of standing or flowing water is either non-emergent, sparse, or absent. Vegetated shallows are considered to be open waters. The term "open water" includes rivers, streams, lakes, and ponds. For the purposes of the NWPs, this term does not include ephemeral waters.

Perennial Stream: A perennial stream has flowing water year-round during a typical year. The water table is located above the stream bed for the most of the year. Groundwater is the primary source of water for stream flow. Runoff from rainfall is a supplemental source of water for stream flow.

Permanent Above-grade Fill: A discharge of dredged or fill material into waters of the US, including wetlands, that results in a substantial increase in ground elevation and permanently converts part or all of the waterbody to dry land. Structural fills authorized by NWPs 3, 25, 36, etc. are not included.

Preservation: The protection of ecologically important wetlands or other aquatic resources in perpetuity through the implementation of appropriate legal and physical mechanisms. Preservation may include protection of upland areas adjacent to wetlands as necessary to ensure protection and/or enhancement of the overall aquatic ecosystem.

Restoration: Re-establishment of wetland and/or other aquatic resource characteristics and function(s) at a site where they have ceased to exist, or exist in a substantially degraded state.

Riffle and Pool Complex: Riffle and pool complexes are special aquatic sites under the 404(b)(1) Guidelines. Riffle and pool complexes sometimes characterize steep gradient sections of streams. Such stream sections are recognizable by their hydraulic characteristics. The rapid movement of water over a course substrate in riffles results in a rough flow, a turbulent surface and high dissolved oxygen levels in the water. Pools are deeper areas associated with riffles. A slower stream velocity, a streaming flow, a smooth surface, and a finer substrate characterize pools.

Single and Complete Project: The term "single and complete project" is defined at 33 CFR 330.2(i) as the total project proposed or accomplished by one owner/developer or partnership or other association of owners/developers (see definition of independent utility). For linear projects, the "single and complete project" (i.e., a single and complete crossing) will apply to each crossing of a separate water of the US (i.e., a single waterbody) at that location. An exception is for linear projects crossing a single waterbody several times at separate and distant locations; each crossing is considered a single and complete project. However, individual channels in a braided stream or river, or individual arms of a large, irregularly shaped wetland or lake, etc., are not separate waterbodies.

Stormwater Management: Stormwater management is the mechanism for controlling stormwater runoff for the purposes of reducing downstream erosion, water quality degradation, and flooding and mitigating the adverse effects of changes in land use on the aquatic environment.

Stormwater Management Facilities: Stormwater management facilities are those facilities, including but not limited to, stormwater retention and detention ponds and BMPs, which retain water for a period of time to control runoff and/or improve the quality (i.e., by reducing the concentration of nutrients, sediments, hazardous substances and other pollutants) of stormwater runoff.

Stream Channelization: The manipulation of a stream channel to increase the rate of water flow through the stream channel. Manipulation may include deepening, widening, straightening, armoring, or other activities that change the stream cross-section or other aspects of stream channel geometry to increase the rate of water flow through the stream channel. A channelized stream remains a water of the US, despite the modifications to increase the rate of water flow.

Tidal Wetland: A tidal wetland is a wetland (i.e., water of the US) that is inundated by tidal waters. The definitions of a wetland and tidal waters can be found at 33 CFR 328.3(b) and 33 CFR 328.3(f), respectively. Tidal waters rise and fall in a predictable and measurable rhythm or cycle due to the gravitational pulls of the moon and sun. Tidal waters end where the rise and fall of the water surface can no longer be practically measured in a predictable rhythm due to masking by other waters, wind, or other effects. Tidal wetlands are located channelward of the high tide line (i.e., spring high tide line) and are inundated by tidal waters two times per lunar month, during spring high tides.

Vegetated Buffer: A vegetated upland or wetland area next to rivers, streams, lakes, or other open waters, which separates the open water from developed areas, including agricultural land. Vegetated buffers provide a variety of aquatic habitat functions and values (e.g., aquatic habitat for fish and other aquatic organisms, moderation of water temperature changes, and detritus for aquatic food webs) and help improve or maintain local water quality. A vegetated buffer can be established by maintaining an existing vegetated area or planting native trees, shrubs, and herbaceous plants on land next to openwaters. Mowed lawns are not considered vegetated buffers because they provide little or no aquatic habitat functions and values. The establishment and maintenance of vegetated buffers I a method of compensatory mitigation that can be used in conjunction with the restoration, creation, enhancement or preservation of aquatic habitats to ensure that activities authorized by NWPs result in minimal adverse effects to the aquatic environment. (See General Condition 19.)

Vegetated Shallows: Vegetated shallows are special aquatic sites under the 404(b)(1) Guidelines. They are areas that are permanently inundated and under normal circumstances have rooted aquatic vegetation, such as seagrasses in marine and estuarine systems and a variety of vascular rooted plants in freshwater systems.

Waterbody: A waterbody is any area that in a normal year has water flowing or standing above ground to the extent that evidence of an ordinary high water mark is established. Wetlands contiguous to the waterbody are considered part of the waterbody.

FINAL REGIONAL CONDITIONS FOR NATIONWIDE PERMITS IN THE WILMINGTON DISTRICT

1. Waters Excluded from NWP or Subject to Additional Notification Requirements:

a. The Corps identified waters that will be excluded from use of this NWP. These waters are:

1. Discharges into Waters of the United States designated by either the North Carolina Division of Marine Fisheries (NCDMF) or the North Carolina Wildlife Resources Commission (NCWRC) as anadromous fish spawning area are prohibited during the period between February 15 and June 30, without prior written approval from NCDMF or NCWRC and the Corps.

2. Discharges into Waters of the United States designated as sturgeon spawning areas are prohibited during the period between February 1 and June 30, without prior written approval from the National Marine Fisheries Service (NMFS).

* b. The Corps identified waters that will be subject to additional notification requirements for activities authorized by this NWP. These waters are:

1. Prior to the use of any NWP in any of the following North Carolina *designated waters*, applicants must comply with Nationwide Permit General Condition 13. In addition, the applicant must furnish a written statement of compliance with all of the conditions of the applicable Nationwide Permit. The North Carolina *designated waters* that require additional notification requirements are "Outstanding Resource Waters" (ORW) and "High Quality Waters" (HQW) (as defined by the North Carolina Division of Water Quality), or "Inland Primary Nursery Areas" (IPNA) (as defined by the North Carolina Wildlife Resources Commission), or contiguous wetlands (as defined by the North Carolina Division of Water Quality), or "Primary Nursery Areas" (PNA) (as defined by the North Carolina Division of Marine Fisheries).

2. Applicants for any NWP in a designated "Area of Environmental Concern" (AEC) in the twenty (20) coastal counties of Eastern North Carolina covered by the North Carolina Coastal Area Management Act (CAMA), must also obtain the required CAMA permit. Construction activities may not commence until a copy of the approved CAMA permit is furnished to the appropriate Wilmington District Regulatory Field Office (Wilmington Field Office – P.O. Box 1890, Wilmington, NC 28402 or Washington Field Office – P.O. Box 1000, Washington, NC 27889) for authorization to begin work.

3. Prior to the use of any NWP on a Barrier Island of North Carolina, applicants must comply with Nationwide Permit General Condition 13. In addition, the applicant shall furnish a written statement of compliance with all of the conditions listed of the applicable Nationwide Permit.

4. Prior to the use of any NWP in a "Mountain or Piedmont Bog" of North Carolina, applicants shall comply with Nationwide Permit General Condition 13. In addition, the applicant shall furnish a written statement of compliance with all of the conditions listed of the applicable NWP.

Note: The following wetland community types identified in the N.C. Natural Heritage Program document, "Classification of Natural communities of North Carolina (Michael P. Schafale and Alan S. Weakley, 1990), are subject to this regional condition.

Mountain Bogs	Piedmont Bogs
Swamp Forest-Bog Complex	Upland Depression Swamp Forest
Swamp Forest-Bog Complex (Spruce Subtype)	
Southern Appalachian Bog (Northern Subtype)	
Southern Appalachian Bog (Southern Subtype)	
Southern Appalachian Fen	

5. Prior to the use of any NWP in Mountain Trout Waters within twenty-five (25) designated counties of North Carolina, applicants shall comply with Nationwide General Condition 13. In addition, the applicant shall furnish a written statement of compliance with all of the conditions listed of the applicable NWP. Notification will include a letter of comments and recommendations from the North Carolina Wildlife Resources Commission (NCWRC), the location of work, a delineation of wetlands, a discussion of alternatives to working in the Mountain Trout Waters, why other alternatives were not selected, and a plan to provide compensatory mitigation for all unavoidable adverse impacts to the Mountain Trout Waters. To facilitate coordination with the NCWRC, the proponent may provide a copy of the notification to the NCWRC concurrent with the notification to the District Engineer. The NCWRC will respond both to the proponent and directly to the Corps of Engineers.

The twenty-five (25) designated counties are:

Alleghany	Ashe	Avery	Yancey
Buncombe	Burke	Caldwell	Wilkes
Cherokee	Clay	Graham	Swain
Haywood	Henderson	Jackson	Surry
Macon	Madison	McDowell	Stokes
Mitchell	Polk	Rutherford	
Transylvania	Watauga		

6. Applicants shall notify the NCDENR Shellfish Sanitation Section prior to dredging in or removing sediment from an area closed to shell fishing where the effluent may be released to an area open for shell fishing or swimming in order to avoid contamination of the disposal area and allow a temporary shellfish closure to be made. Any disposal of sand to the beach should occur between November 1 and April 30 when recreational usage is low. Only clean sand should be used and no dredged sand from closed shell fishing areas. If beach disposal was to occur at times other than stated above or if sand from a closed shell fishing area is to be used, a

swim advisory shall be posted and a press release shall be made. NCDENR Shellfish Sanitation Section must be notified before commencing this activity.

2. List of Final Corps Regional Modifications and Conditions for All Nationwide Permits

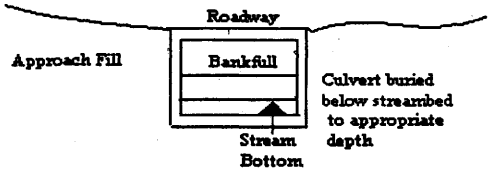
a. Individual or multiple NWPs may not be used for activities that result in the cumulative loss or degradation of greater than 300 total linear feet of perennial streambed or intermittent streambed that exhibits important aquatic function(s).

b. Prior to the use of any NWP (except 13, 27, and 39) for any activity that has more than a total of 150 total linear feet of perennial streambed impacts or intermittent streambed impacts (if the intermittent stream has important aquatic function), the applicant must comply with Nationwide Permit General Condition 13. In addition, the applicant shall furnish a written statement of compliance with all of the conditions listed of the applicable NWP. Compensatory mitigation is typically required for any impact that requires such notification. [Note: The Corps uses the Intermittent Channel Evaluation Form, located with Permit Information on the Regulatory Program Web Site, to aid in the determination of the intermittent channel stream status. Also, NWPs 13, 27 and 39 have specific reporting requirements.]

c. For all Nationwide Permits which allow the use of concrete as a building material, measures will be taken to prevent live or fresh concrete, including bags of uncured concrete, from coming into contact with waters of the state until the concrete has hardened.

d. For all Nationwide Permits that allow for the use of riprap material for bank stabilization, filter cloth must be placed underneath the riprap as an additional requirement of its use in North Carolina waters.

e. For all NWPs that involve the construction of culverts, measures will be included in the construction that will promote the safe passage of fish and other aquatic organisms. All culverts in the 20 CAMA coastal counties must be buried to a depth of one foot below the



bed of the stream or wetland. For all culvert construction activities, 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. Culvert inverts will be buried at least one foot below the bed of the stream for culverts greater than 48 inches in diameter. For culverts 48 inches in diameter or smaller, culverts must be buried below the bed of the stream to a depth equal to or greater than 20 percent of the diameter of the culvert. Bottomless arch culverts will satisfy this condition. A waiver from the depth specifications in this Regional Condition may be requested in writing. The waiver will only be issued if it can be demonstrated that the impacts of complying with this Regional Condition would result in more adverse impacts to the aquatic

environment.

3. Additional Regional Conditions Applicable to this Specific Nationwide Permit.

The required restoration plan must include a timetable for restoration activities.

NORTH CAROLINA DIVISION OF WATER QUALITY
GENERAL CERTIFICATION CONDITIONS
GC3366

1. These activities do not require written concurrence from the Division of Water Quality as long as they comply with all conditions of this General Certification. If any condition in this Certification cannot be met, application to and written concurrence from DWQ are required. Also, Condition No. 2 is applicable to all streams in basins with riparian area protection rules;

* 2. Impacts to any stream length in the Neuse, Tar-Pamlico and Randleman River Basins (or any other major river basins with Riparian Area Protection Rules [Buffer Rules] in effect at the time of application) requires written concurrence from DWQ in accordance with 15A NCAC 2B.0200. Activities listed as "exempt" from these rules do not need to apply for written concurrence under this Certification. New development activities located in the protected 50-foot wide riparian areas (whether jurisdictional wetlands or not) within the Neuse, Tar-Pamlico, Randleman and Catawba River Basins shall be limited to "uses" identified within and constructed in accordance with 15A NCAC 2B .0200. All new development shall be located, designed, constructed, and maintained to have minimal disturbance to protect water quality to the maximum extent practicable through the use of best management practices;

3. Appropriate sediment and erosion control practices which equal or exceed those outlined in the most recent version of the "North Carolina Sediment and Erosion Control Planning and Design Manual" or the "North Carolina Surface Mining Manual" whichever is more appropriate (available from the Division of Land Resources (DLR) in the DENR Regional or Central Offices) shall be in full compliance with all specifications governing the proper design, installation and operation and maintenance of such Best Management Practices in order to assure compliance with the appropriate turbidity water quality standard;

4. All sediment and erosion control measures placed in wetlands or waters shall be removed and the original grade restored within two months after the Division of Land Resources has released the project;

* 5. If an environmental document is required, this Certification is not valid until a Finding of No Significant Impact (FONSI) or Record of Decision (ROD) is issued by the State Clearinghouse;

6. Placement of culverts and other structures in waters, streams, and wetlands must be placed below the elevation of the streambed to allow low flow passage of water and aquatic life unless it can be shown to DWQ that providing passage would be impractical. Design and placement of

culverts including open bottom or bottomless arch culverts and other structures including temporary erosion control measures shall not be conducted in a manner that may result in aggradation, degradation or significant changes in hydrology of wetlands or stream beds or banks, adjacent to or upstream and down stream of the above structures. The applicant is required to provide evidence that the equilibrium shall be maintained if requested in writing by DWQ. Additionally, when roadways, causeways or other fill projects are constructed across FEMA-designated floodways or wetlands, openings such as culverts or bridges must be provided to maintain the natural hydrology of the system as well as prevent constriction of the floodway that may result in aggradation, degradation or significant changes in hydrology of streams or wetlands;

7. Measures shall be taken to prevent live or fresh concrete from coming into contact with waters of the state until the concrete has hardened;

8. All temporary fill shall be removed to the original grade after construction is complete and the site shall be stabilized to prevent erosion;

9. Pipes shall be installed under the road or causeway in all streams to carry at least the 25 year storm event as outlined in the most recent edition of the "North Carolina Sediment and Erosion Control Planning and Design Manual" or the "North Carolina Surface Mining Manual" so as not to restrict stream flow during use of this Certification;

* 10. In accordance with North Carolina General Statute Section 143-215.3D(e), any request for written concurrence for a 401 Water Quality Certification must include the appropriate fee. If a project also requires a CAMA Permit, one payment to both agencies shall be submitted and will be the higher of the two fees;

11. Additional site-specific conditions may be added to projects for which written concurrence is required or requested under this Certification in order to ensure compliance with all applicable water quality and effluent standards;

12. Concurrence from DWQ that this Certification applies to an individual project shall expire three years from the date of the cover letter from DWQ or on the same day as the expiration date of these corresponding Nationwide and Regional General Permits, whichever is sooner;

13. When written concurrence is required, the applicant is required to use the most recent version of the Certification of Completion form to notify DWQ when all work included in the 401 Certification has been completed.

NORTH CAROLINA DIVISION OF COASTAL MANAGEMENT
STATE CONSISTENCY

Consistent.

Citations:
2002 Nationwide Permits - Federal Register Notice 15 Jan 2002
2002 Nationwide Permits Corrections - Federal Register Notice 13 Feb 2002
2002 Regional Conditions – Authorized 17 May 2002

WQC #3366

GENERAL CERTIFICATION FOR PROJECTS ELIGIBLE FOR CORPS OF ENGINEERS NATIONWIDE PERMIT NUMBER 33 (TEMPORARYCONSTRUCTION, ACCESS AND DEWATERING) AND RIPARIAN AREA PROTECTION RULES (BUFFER RULES)

This General 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 Regulations in 15A NCAC 2H, Section .0500 and 15A NCAC 2B .0200 for the discharge of fill material to waters and wetland areas as described in 33 CFR 330 Appendix A (B) (33) of the Corps of Engineers regulations (i.e., Nationwide Permit No. 33) and for the Riparian Area Protection Rules (Buffer Rules) in 15A NCAC 2B .0200. The category of activities shall include any fill activity for temporary construction, access and de-watering. This Certification replaces Water Quality Certification Number 2727 issued on May 1, 1992 and Certification Number 3114 issued on February 11, 1997. This WQC is rescinded when the Corps of Engineers reauthorize Nationwide Permit 33 or when deemed appropriate by the Director of the DWQ.

The State of North Carolina certifies that the specified category of activity will not violate appropriate portions of Sections 301, 302, 303, 306 and 307 of the Public Laws 92-500 and 95-217 if conducted in accordance with the conditions hereinafter set forth.

Conditions of Certification:

1. These activities do not require written concurrence from the Division of Water Quality as long as they comply with all conditions of this General Certification. If any condition in this Certification cannot be met, application to and written concurrence from DWQ are required. Also, Condition No. 2 is applicable to all streams in basins with riparian area protection rules;

2. Impacts to any stream length in the Neuse, Tar-Pamlico and Randleman River Basins (or any other major river basins with Riparian Area Protection Rules [Buffer Rules] in effect at the time of application) requires written concurrence from DWQ in accordance with 15A NCAC 2B.0200. Activities listed as "exempt" from these rules do not need to apply for written concurrence under this Certification. New development activities located in the protected 50-foot wide riparian areas (whether jurisdictional wetlands or not) within the Neuse, Tar-Pamlico, Randleman and Catawba River Basins shall be limited to "uses" identified within and constructed in accordance with 15A NCAC 2B .0200. All new development shall be located, designed, constructed, and maintained to have minimal disturbance to protect water quality to the maximum extent practicable through the use of best management practices;

3. Appropriate sediment and erosion control practices which equal or exceed those outlined in the most recent version of the "North Carolina Sediment and Erosion Control Planning and Design Manual" or the "North Carolina Surface Mining Manual" whichever is more appropriate (available from the Division of Land Resources (DLR) in the DENR Regional or Central Offices) shall be in full compliance with all specifications governing the proper design, installation and operation and maintenance of such Best Management Practices in order to assure compliance with the appropriate turbidity water quality standard;

4. All sediment and erosion control measures placed in wetlands or waters shall be removed and the original grade restored within two months after the Division of Land Resources has released the project;

* 5. If an environmental document is required, this Certification is not valid until a Finding of No Significant Impact (FONSI) or Record of Decision (ROD) is issued by the State Clearinghouse;

6. Placement of culverts and other structures in waters, streams, and wetlands must be placed below the elevation of the streambed to allow low flow passage of water and aquatic life unless it can be shown to DWQ that providing passage would be impractical. Design and placement of culverts including open bottom or bottomless arch culverts and other structures including temporary erosion control measures shall not be conducted in a manner that may result in aggradation, degradation or significant changes in hydrology of wetlands or stream beds or banks, adjacent to or upstream and down stream of the above structures. The applicant is required to provide evidence that the equilibrium shall be maintained if requested in writing by DWQ. Additionally, when roadways, causeways or other fill projects are constructed across FEMA-designated floodways or wetlands, openings such as culverts or bridges must be provided to maintain the natural hydrology of the system as well as prevent constriction of the floodway that may result in aggradation, degradation or significant changes in hydrology of streams or wetlands;

7. Measures shall be taken to prevent live or fresh concrete from coming into contact with waters of the state until the concrete has hardened;

8. All temporary fill shall be removed to the original grade after construction is complete and the site shall be stabilized to prevent erosion;

9. Pipes shall be installed under the road or causeway in all streams to carry at least the 25 year storm event as outlined in the most recent edition of the "North Carolina Sediment and Erosion Control Planning and Design Manual" or the "North Carolina Surface Mining Manual" so as not to restrict stream flow during use of this Certification;

* 10. In accordance with North Carolina General Statute Section 143-215.3D(e), any request for written concurrence for a 401 Water Quality Certification must include the appropriate fee. If a project also requires a CAMA Permit, one payment to both agencies shall be submitted and will be the higher of the two fees;

11. Additional site-specific conditions may be added to projects for which written concurrence is required or requested under this Certification in order to ensure compliance with all applicable water quality and effluent standards;

12. Concurrence from DWQ that this Certification applies to an individual project shall expire three years from the date of the cover letter from DWQ or on the same day as the expiration date of these corresponding Nationwide and Regional General Permits, whichever is sooner;

13. When written concurrence is required, the applicant is required to use the most recent version of the Certification of Completion form to notify DWQ when all work included in the 401 Certification has been completed.

Non-compliance with or violation of the conditions herein set forth by a specific fill project shall result in revocation of this Certification for the project and may result in criminal and/or civil penalties.

The Director of the North Carolina Division of Water Quality may require submission of a formal application for individual certification for any project in this category of activity that requires written concurrence under this certification, if it is determined that the project is likely to have a significant adverse effect upon water quality or degrade the waters so that existing uses of the wetland, stream or downstream waters are precluded.

Public hearings may be held for specific applications or group of applications prior to a Certification decision if deemed in the public's best interest by the Director of the North Carolina Division of Water Quality.

Effective date: 18 March 2002

DIVISION OF WATER QUALITY

By

Gregory J. Thorpe, Ph.D.

Acting Director

WQC # 3366

I 262

DEPARTMENT OF THE ARMY
WILMINGTON DISTRICT, CORPS OF ENGINEERS
P. O. BOX 1890
WILMINGTON, NORTH CAROLINA 28402-1890

IN REPLY REFER TO

May 18, 2006

Regulatory Division

Action ID. 200120448; NCOT Tip No. U-4026

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

Dear Mr. Thorpe

In accordance with the written request of October 25, 2005, and the ensuing administrative record, enclosed is a permit to authorize the discharge of dredged and fill material into waters of the United States, for construction of improvements to improvements to Davis Drive (SR1613/SR 1999; T.I.P. No. U-4026), crossing unnamed tributaries to Kit Creek and Burdens Creek, and adjacent wetlands, from Morrisville Carpenter Road (SR 3014) in Wake County, to NC 54 in Durham County, North Carolina.

If any change in the authorized work is required because of unforeseen or altered conditions or for any other reason, the plans revised to show the change must be sent promptly to this office. Such action is necessary, as revised plans must be reviewed and the permit modified.

Carefully read your permit. The general and special conditions are important. Your failure to comply with these conditions could result in a violation of Federal law. Certain significant general conditions require that:

a. You must complete construction before December 31, 2011.

b. You must notify this office in advance as to when you intend to commence and complete work.

c. You must allow representatives from this office to make periodic visits to your worksite as deemed necessary to assure compliance with permit plans and conditions.

You should address all questions regarding this authorization to Mr. Eric Alsmeyer of my Raleigh Regulatory Field Office at (919-876-8441), extension 23.

Sincerely,

for John E. Pulliam, Jr.
Colonel, U.S. Army
District Engineer

Enclosures

Copy furnished with enclosures:

Chief, Source Data Unit
NOAA/National Ocean Service
ATTN: Sharon Tear N/CS261
1315 East-West Hwy., Rm 7316
Silver Spring, MD 20910-3282

Copies furnished with special conditions and plans:

Mr. Pete Benjamin, Field Supervisor
U.S. Fish and Wildlife Service
Fish and Wildlife Enhancement
Post Office Box 33726
Raleigh, North Carolina 27636-3726

Mr. Ron Sechler
National Marine Fisheries
Service, NOAA
Pivers Island
Beaufort, North Carolina 28516

Mr. David Rackley
National Marine Fisheries
Service, NOAA
219 Fort Johnson Road
Charleston, South Carolina 29412-9110

Mr. Ronald Mikulak, Chief
Wetlands Section - Region IV
Water Management Division
U.S. Environmental Protection Agency
Atlanta Federal Center
61 Forsyth Street, SW
Atlanta, Georgia 30303

Mr. Doug Huggett
NC Division of Coastal Management
Division of Coastal Management
400 Commerce Avenue
Morehead City, NC 28557-3421

I 265

DEPARTMENT OF THE ARMY PERMIT

Permittee: NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
GREGORY J. THORPE, PH.D.

Permit No: 200120448

Issuing Office: USAED, WILMINGTON

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

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

Project Description: Place fill material impacting 2,125 linear feet of stream, 0.20 acre of surface water and0.28 are of wetlands, including 0.06 acre of isolated wetlands not subject Section 404 of the Clean Water Act, for construction of improvements to Davis Drive (SR 1613/SR 1999; T.I.P. No. U-4026), crossing unnamed tributaries to Kit Creek and Burdens Creek, and adjacent wetlands.

Project Location: Davis Drive (SR 1613/SR 1999), from Morrisville-Carpenter Road (SR 3014) in Wake County (35.820° N Latitude, 78.848° W Longitude), NC 54 in Durham County (35.890° N Latitude, 78.862° W Longitude), North Carolina.

Permit Conditions:

General Conditions:

1. The time Limit for completing the work authorized ends on December 31, 2011. 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 Conditions 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 eligible for listing in the National Register of Historic Places.

4. If you sell the property associate 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 mad 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 33CFR 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 measure 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.

Ralph S. Thorpe III — 5/12/06

(PERMITTEE) NCDOT, GREGORY J. THORPE, PH.D. *(DATE)*

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

for S. Kenneth Jolly — 5/19/06

(DISTRICT Engineer) JOHN E. PULLIAM, JR., COLONEL *(DATE)*

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

(Transferee) *(Date)*

SPECIAL CONDITIONS (Action ID. 200120448; NCDOT/TIP U-4026)

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) 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.

c) 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

d) 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

e) 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.

f) 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.

g) 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

h) 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 nonerodable 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.

i) 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

j) 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.

CONSTRUCTION PLANS

k) 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, Raleigh Regulatory Field Office prior to any active construction in waters or wetlands.

l) 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, Raleigh Regulatory Field Office NCDOT Regulatory Project Manager. Half-size drawings will be acceptable.

COMPLIANCE WITH SPECIAL CONDITIONS

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

WET CONCRETE

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

CULVERTS

o) All authorized culverts will be installed to allow the passage of low stream flows and the continued movement of fish and other aquatic life as well as to prevent headcutting of the streambed. For all box culverts and for pipes greater than 48 inches in diameter, the bottom of the pipe will be buried at least one foot below the bed of the stream unless burial would be impractical and the Corps of Engineers has waived this requirement. For culverts 48 inches in diameter or smaller, the bottom of the pipe must be buried below the bed of the stream to a depth equal to or greater than 20 percent of the diameter of the culvert. Design and placement of culverts and other structures including temporary erosion control measures shall not be conducted in a manner that may result in disequilibrium of wetlands or streambeds or banks, adjacent to, upstream or downstream of the structures. In order to allow for the continued movement of bed load and aquatic organisms, existing stream channel widths and depths will be maintained at the inlet and outlet ends of culverts. Riprap armoring of streams at culvert inlets and outlets shall be minimized above the ordinary high water elevation in favor of bioengineering techniques such as bank sloping, erosion control matting and revegetation with deep-rooted, woody plants.

PRECONSTRUCTION MEETING

p) The permittee shall schedule a preconstruction meeting between its representatives, the contractor's representatives, and the Corps of Engineers, Raleigh 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, Raleigh 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.

BORROW AND WASTE

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

Special Condition b) of this permit, and shall require and maintain documentation of the location and characteristics of all borrow and disposal sites associated with this project. This information will include data regarding soils, vegetation and hydrology sufficient to clearly demonstrate compliance with the Special Condition b). All information will be available to the USACE upon request. NCDOT shall require its contractors to complete and execute reclamation plans for each waste and borrow site and provide written documentation that the reclamation plans have been implemented and all work is completed. This documentation will be provided to the Corps of Engineers within 30 days of the completion of the reclamation work.

STREAM RELOCATION

r) IMPLEMENTATION: The permittee shall mitigate for 261 linear feet of unavoidable impact to streams with important aquatic function, associated with this project, by completing 261 linear feet of onsite stream relocation, as described in the permit application (Site 9). The stream relocation shall be constructed in accordance with the North Carolina Wildlife Resources Commission's (NCWRC) "Stream Relocation Guidelines." NCDOT shall consult with NCWRC on the stream relocation/restoration and implement all practicable recommendations in the design of specific site requirements for re-establishment of bank vegetation, and placement of meanders and habitat structures. Vegetation shall be used to the maximum extent practicable to stabilize banks, and riprap and other man-made structural measures shall be minimized. The permittee shall construct all channel relocations/restoration in a dry work area, and stabilize the new channel before stream flows are diverted. Whenever possible, the permittee shall allow new channels to stabilize for an entire growing season. The Corps of Engineers, Raleigh Regulatory Field Office will be notified in advance by facsimile transmission or electronic mail of the intended diversion of water into the new channel and approval must be obtained from the USACE prior to the diversion taking place. The banks and buffer area of the relocated channel will be planted with appropriate species of deep-rooted, woody vegetation. A final inspection of the channel relocation by a representative of the Corps of Engineers, Ashville Regulatory Field Office will be conducted prior to completion of the road project. No clearing and grubbing of the existing channel shall take place until the stream has been diverted into the new channel.

s) AS-BUILT SURVEY: The permittee shall complete an as-built channel survey within sixty days of completion of the stream relocation construction. The permittee shall document changes in the dimension, pattern, profile, vegetation plantings, and structures installed, of the relocated channel from the proposed design. The permittee shall also include in the as-built survey: photo documentation at representative segments and structures; and a plan view diagram.

* t) MONITORING SCHEDULE: The permittee shall perform the following components of Level I monitoring each year for the 5-year monitoring period: Reference photos; plant survival (i.e., identify specific problem areas (missing, stressed, damaged or dead plantings), estimated causes, and proposed/required remedial action); visual inspection of channel stability. Physical measurements of channel stability/morphology will not be required. The permittee shall submit the monitoring reports to the USACE, Raleigh Regulatory Field Office Project Manager, within sixty days after completing the monitoring. If less than two bankfull events occur during the first 5 years, the permittee shall continue monitoring until the second bankfull event is documented. The bankfull events must occur during separate monitoring years. In the event that the required bankfull events do not occur during the five-year monitoring period, the USACE, in consultation with the resource agencies, may determine that further monitoring is not required. It is suggested that all bankfull occurrences be monitored and reported through the required monitoring period.

The permittee shall perform and submit photo documentation twice each year (summer and winter) for the 5-year monitoring period, and for any subsequently required monitoring period.

u) MONITORING DATA/REPORT: The permittee shall include the following information in the Level I monitoring report for the site: reference photos; plant survival notes and recommendations, as appropriate; and a report on the visual inspection of channel stability. Physical measurements of channel stability/morphology will not be required. The permittee shall complete the Monitoring Data Record, Sections 1, 2 and 3 (pages 1, 2 and 3, attached), for each representative segment of the channel, and for each year of monitoring (twice each year, summer and winter, for reference photos). The permittee shall include in the monitoring reports a discussion of any deviations from as-built and an evaluation of the significance of these deviations and whether they are indicative of a stabilizing or destabilizing situation.

v) STREAM MITIGATION SUCCESS CRITERIA: The mitigation success criteria, and required remediation actions, will be generally based on the attached Appendix II, and the Photo Documentation, Ecological Function, and Channel Stability criteria in the "Stream Mitigation Guidelines", dated April, 2003 (available on the internet at http://www.saw.usace.army.mil/wetlands/Mitigation/stream_mitigation.html), pages 24 and 25, under "Success Criteria: ".

PROTECTION OF STREAM RELOCATION MITIGATION PROPERTY

w) The stream relocation mitigation property shall be maintained by the permittee in its natural condition, as altered by the mitigation plan, in perpetuity. Prohibited activities within the mitigation area specifically include, but are not limited to, the construction or placement of buildings, signs, or any other structures; the discharge of dredged or fill material, any debris, waste, or garbage; excavation; grading; dredging; leveling or any other earth moving activity; cutting, removal or damage of any vegetation; any activity which would impact the drainage or water quality on the site; except as required by implementation of the mitigation plan. This condition runs with the land. The permittee shall not sell, lease, or otherwise convey any interest in the property making up the mitigation property without first providing 60 days written notice to the Corps of the proposed conveyance. The instrument effecting such conveyance shall include legally binding restrictions on the use of the mitigation property as described in this condition to be enforceable by the permittee as well as the U.S. Army Corps of Engineers, Wilmington District. The instrument establishing such restrictions shall be subject to the approval of the U.S. Army Corps of Engineers. The permittee shall enforce the terms of the required restrictions.

EEP MITIGATION

x) Compensatory mitigation for the unavoidable impacts to 1,008 linear feet of warm water stream, and 0.22 acre of riparian, emergent marsh, and bottomland hardwood forest wetlands associated with the proposed project, shall be provided by the Ecosystem Enhancement Program (EEP), as outlined in the letter dated October 3, 2005 from William D. Gilmore, EEP Director. Pursuant to the EEP Memorandum of Agreement (MOA) between the State of North Carolina and the US Army Corps of Engineers signed on July 22, 2003, the EEP will provide 0.44 acre of restoration equivalent riparian wetlands, and 1,995 linear feet of restoration equivalent warm water stream channel in the Cape Fear River basin (Hydrologic Cataloging Unit 03030002) by one year of the date of this permit. For wetlands, a minimum of 1:1 (impact to mitigation) must be in the form of wetland restoration. The NCDOT shall, within 30 days of the issue date of this

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: NCDOT/TIP U-4026	File Number: 200120448	Date: March 13, 2006
Attached is:		See Section below
X	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
	PROFFERED PERMIT (Standard Permit or Letter of permission)	B
	PERMIT DENIAL	C
	APPROVED JURISDICTIONAL DETERMINATION	D
	PRELIMINARY JURISDICTIONAL DETERMINATION	E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at http://www.usace.army.mil/inet/functions/cw/cecwo/reg or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.

- OBJECT: If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.

- APPEAL: If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- ACCEPT: You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.

- APPEAL: If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

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SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact: Mr. Eric C. Alsmeyer, Regulatory Project Manager U.S. Army Corps of Engineers, Wilmington District Raleigh Regulatory Field Office 6508 Falls of Neuse Road, Suite 120 Raleigh, North Carolina 27615-6814	If you only have questions regarding the appeal process you may also contact: Mr. Michael Bell, Administrative Appeal Review Officer CESAD-ET-CO-R U.S. Army Corps of Engineers, South Atlantic Division 60 Forsyth Street, Room 9M15 Atlanta, Georgia 30303-8801

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.

_____ Signature of appellant or agent.	Date:	Telephone number:

DIVISION ENGINEER:
Commander
U.S. Army Engineer Division, South Atlantic
60 Forsyth Street, Room 9M15
Atlanta, Georgia 30303-3490

Michael F. Easley, Governor
William G. Ross Jr., Secretary
North Carolina Department of Environment and Natural Resources
Alan W. Klimek, P.E. Director
Division of Water Quality

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January 26, 2006

RECEIVED
JAN 31 2006
RALEIGH REGULATORY FIELD OFFICE

Dr. Gregory J. Thorpe, PhD., Manager
Planning and Environmental Branch
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, North Carolina, 27699-1548

Dear Dr. Thorpe:

Re: 401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water Act and Isolated Wetlands Permit Pursuant to IWGP100000 for Proposed Widening of Davis Drive (SR 1613/SR 1999) from Morrisville-Carpenter Road to NC 54, Wake and Durham Counties, TIP No. U-4026, State Project No. 9.8051713, USACOE Action ID No. 200120448.
DWQ Project No. 051972

Attached hereto is a copy of Certification No. 3557 issued to The North Carolina Department of Transportation dated January 26, 2006.

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

Sincerely,

Alan W. Klimek, P.E.
Director

Attachments

cc: Wilmington District Corps of Engineers
Mr. Eric Alsmeyer, Corps of Engineers Raleigh Field Office
Mr. Christopher Militscher, US EPA, Region IV
Mr. Travis Wilson, NC WRC
Mr. Gary Jordan, US FWS
Mr. Jon G. Nance, PE, Division 5 Engineer, 2612 N. Duke St., Durham, NC 27704
Mr. Chris Murray, Division 5 Environmental Officer, 2612 N. Duke St., Durham, NC 27704
Mr. Bret Feulner, NEU, 2728-168 Capital Blvd., Parker Lincoln Bldg., Raleigh, NC 27604
Mr. William Gilmore, Ecosystem Enhancement Program
NCDWQ Raleigh Regional Office
Central Files
File Copy

APPROVAL OF 401 Water Quality Certification and ISOLATED WETLANDS PERMIT and 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 (DWQ) Regulations in 15 NCAC 2H, Section .0500 The project shall be constructed pursuant to the application dated received October 28, 2005, to construct the widening of Davis Drive (SR 1613/SR 1999) from Morrisville-Carpenter Road to NC 54, Wake and Durham Counties. The approved design is that submitted in your application dated October 24, 2005 (dated received October 28, 2005). This certification authorizes the NCDOT to impact 0.22 acres of jurisdictional wetlands, 0.056 acres of isolated wetlands, 2,125 linear feet of stream, and 0.533 acres of surface water (0.412 acres of permanent impact and 0.121 acres of temporary impact) in Wake and Durham Counties. The authorized impacts are as described below:

Section B Wetland Impacts in the Cape Fear River Basin

Site	Fill (ac)	Fill (temporary) (ac)	Excavation (ac)	Mechanized Clearing (ac)	Hand Clearing (ac)	Area under the Bridge (ac)
6	0.023			0.012		
11	0.014					
12	0.012			0.001		
13	0.020			0.001		
14	0.009			0.002		
18	0.027			0.007		
19	0.013		0.077			
Total	**0.118**		**0.077**	**0.023**		

Section B Isolated Wetland Impacts in the Cape Fear River Basin

Site	Fill (ac)	Fill (temporary) (ac)	Excavation (ac)	Mechanized Clearing (ac)	Hand Clearing (ac)
15	0.013				
16	0.036			0.007	
Total	**0.049**			**0.007**	

Section B Surface Water and Stream Impacts in the Cape Fear River Basin

Site	Permanent Fill in Surface Water (ac)	Temporary Fill in Surface Water (ac)	Permanent Stream Impacts (ft)	Temporary Stream Impacts (ft)	Stream Impacts Requiring Mitigation (ft)
1	0.017	0.012	216		
2	0.009	0.008	106		
3	0.046	0.024	186		186
4	0.056	0.014	215		215
5	0.079 (pond)	0.037			
6	0.016	0.002	423		
7	0.081		307		307
8	0.003	0.002	21		21
9	0.054	0.008	394		394
10	0.047	0.014	244		244
17	0.003 (pond)				
18	0.001		13		
Total	**0.412**	**0.121**	**2,125**		**1,367**

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

This approval is only valid for the purpose and design that you submitted in your application dated October 24, 2005 (dated received October 28, 2005), as described in the Public Notice. Should your project change, you are required to notify the DWQ and submit a new application. If the property is sold, the new owner must be given a copy of this Certification and approval letter, and is thereby responsible for complying with all the conditions. If any additional wetland impacts, or stream impacts, for this project (now or in the future) exceed one acre or 150 linear feet, respectively, additional compensatory mitigation may be required as described in 15A NCAC 2H .0506 (h) (6) and (7). For this approval to remain valid, you are required to comply with all the conditions listed below. In addition, you should obtain all other federal, state or local permits before proceeding with your project including (but not limited to) Sediment and Erosion control, Coastal Stormwater, Non-discharge and Water Supply watershed regulations. This Certification shall expire on the same day as the expiration date of the corresponding Corps of Engineers Permit.

Condition(s) of Certification:

1. Construction will be conducted in such a manner as to prevent a significant increase in turbidity outside the area of construction or construction-related discharge. Erosion and sediment control practices must be in full compliance with all specifications governing the proper design, installation and operation and maintenance of such Best Management Practices in order to assure compliance with the appropriate turbidity water quality standard.
   a. The erosion and sediment control measures for the project must equal or exceed the proper design, installation, operation and maintenance outlined in the most recent version of the North Carolina Sediment and Erosion Control Planning and Design Manual. These 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.

b. For borrow pit sites, the erosion and sediment control measures must equal or exceed the proper design, installation, operation and maintenance outlined in the most recent version of the North Carolina Surface Mining Manual. The reclamation measures and implementation must comply with the reclamation in accordance with the requirements of the Sedimentation Pollution Control Act.

2. All sediment and erosion control measures shall not be placed in wetlands or waters to the maximum extent practicable. If placement of sediment and erosion control devices in wetlands and waters is unavoidable, they shall be removed and the natural grade restored after the Division of Land Resources has released the project.

3. If an environmental document is required, this Certification is not valid until a FONSI or ROD is issued by the State Clearinghouse. All water quality-related conditions of the FONSI or ROD shall become conditions of this Certification.

4. No live or fresh concrete shall come into contact with waters of the state until the concrete has hardened.

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

6. All channel relocations will be constructed in a dry work area, and stabilized before stream flows are diverted. Channel relocations will be completed and stabilized prior to diverting water into the new channel. Whenever possible, channel relocations shall be allowed to stabilize for an entire growing season. Vegetation used for bank stabilization shall be limited to native woody species, and should include establishment of a 30 foot wide wooded and an adjacent 20 foot wide vegetated buffer on both sides of the relocated channel to the maximum extent practical. A transitional phase incorporating coir fiber and seedling establishment is allowable. Also, rip-rap may be allowed if it is necessary to maintain the physical integrity of the stream, but the applicant must provide written justification and any calculations used to determine the extent of rip-rap coverage requested.

7. Upon completion of the project, the NCDOT shall complete and return the enclosed "Certification of Completion Form" to notify DWQ when all work included in the 401 Certification has been completed. The responsible party shall complete the attached form and return it to the 401/Wetlands Unit of the Division of Water Quality upon completion of the project.

8. Placement of culverts and other structures in waters, streams, and wetlands must be placed below the elevation of the streambed, unless otherwise authorized by this certification, to allow low flow passage of water and aquatic life unless it can be shown to DWQ that providing passage would be impractical. Design and placement of culverts and other structures including temporary erosion control measures shall not be conducted in a manner that may result in dis-equilibrium of wetlands or streambeds or banks, adjacent to or upstream and down stream of the above structures. The applicant is required to provide evidence that the equilibrium shall be maintained if requested in writing by DWQ.

9. Compensatory mitigation for impacts to 0.22 acres of jurisdictional wetlands shall be done. Total mitigation shall be provided as described below:

Offsite Compensatory Mitigation
Compensatory mitigation for the unavoidable impacts to 0.22 acres of riverine wetlands in the Cape Fear River Basin in the Hydrologic Cataloging Unit 03030002, associated with the proposed project shall be provided by the Ecosystem Enhancement Program (EEP), as outlined in the letter dated October 3, 2005, and in accordance with the Memorandum of Agreement (MOA) between the State of North Carolina and the US Army Corps of Engineers signed on July 22, 2003.

10. Compensatory mitigation for impacts to 1,367 linear feet of streams shall be done as follows:

Onsite Compensatory Mitigation
Compensatory mitigation for impacts to streams shall be done for 261 linear feet of stream impact at a replacement ratio of 1:1. Compensatory mitigation for impacts to jurisdictional streams shall be provided by onsite stream relocations of 261 linear feet of a tributary to Burdens Creek. The onsite stream relocation shall be constructed in accordance with the design submitted in your October 24, 2005 application (dated received October 28, 2005). All stream relocations shall have 50-foot wooded buffers planted on both sides of the stream. As-Builts for the completed streams shall be submitted to the North Carolina Division of Water Quality 401 Wetlands Unit within 30 days of the completion of the construction of the relocations. If the parameters of this condition are not met, then the NCDOT shall supply additional stream mitigation for the 261 linear feet of impacts.

Offsite Compensatory Mitigation
Compensatory mitigation for impacts to 98 linear feet of stream has previously been mitigated for during the permitting of Site 4 of R-2000 Section AB. Compensatory mitigation for impacts to 987 linear feet of streams, applying a replacement ratio of 2:1, total mitigation for 1,974 linear feet of streams shall be provided in the Cape Fear River Basin, Hydrologic Cataloging Unit 03030002 and for 21 linear feet of streams, applying a replacement ration of 1:1, total mitigation for 21 linear feet of streams shall be provided in the Cape Fear River Basin, Hydrologic Cataloging Unit 03030002 by the Ecosystem Enhancement Program (EEP), as outlined in the letter dated October 3, 2005, and in accordance with the Memorandum of Agreement (MOA) between the State of North Carolina and the US Army Corps of Engineers signed on July 22, 2003.

11. 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.

12. All fill slopes located in jurisdictional wetlands shall be placed at slopes no flatter than 3:1.

13. All temporary fills in wetlands and surface waters shall be removed upon completion of the project. In addition, the post-construction removal of any temporary bridge structures or fill will need to return the project site to its preconstruction contours and elevations. The revegetation of the impacted areas with appropriate native species will be required.

14. The dimension, pattern and profile of the stream above and below the crossing should not be modified by widening the stream channel or reducing the depth of the stream. Disturbed floodplains and streams should be restored to natural geomorphic conditions.

15. Any riprap used must not interfere with thalweg performance and aquatic life passage during low flow conditions.

16. 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.

17. Discharging hydroseed mixtures and washing out hydroseeders and other equipment in or adjacent to surface waters is prohibited.

18. All work shall be performed during low or normal flow conditions.

19. Two copies of the final construction drawings shall be furnished to NCDWQ prior to the pre-construction meeting. Written verification shall be provided to the NC Division of Water Quality that the final construction drawings comply with the attached permit drawings contained in your application dated October 24, 2005 (dated received October 28, 2005).

20. 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.

21. NCDOT, 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 law and Federal law. If DWQ 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, DWQ may reevaluate and modify this certification to include conditions appropriate to assure compliance with such standards and requirements in accordance with 15A NCAC 2H.0507(d).

22. A copy of this Water Quality Certification shall be posted 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.

23. DOT shall schedule a preconstruction meeting for this project prior to incurring any impacts in jurisdictional waters including wetlands. The Division of Water Quality shall be notified a minimum of 30 days prior to the preconstruction conference.

24. Culverts that are less than 48-inch in diameter should be buried to a depth equal to or greater than 20% of their size to allow for aquatic life passage, unless otherwise authorized by this certification. Culverts that are 48-inch in diameter or larger should be buried at least 12 inches below the stream bottom to allow natural stream bottom material to become established in the culvert following installation and to provide aquatic life passage during periods of low flow. These measurements must be based on natural thalweg depths.

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

26. Any violations, during the construction of the approved project, of this 401 Water Quality Certification or the North Carolina State Water Quality Standards as defined in 15A NCAC 2B .0200 Rules, shall be reported immediately to the North Carolina Division of Water Quality.

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

If this Certification is unacceptable to you have the right to an adjudicatory hearing upon written request within sixty (60) days following receipt of this Certification. This request must be in the form of a written petition conforming to Chapter 150B of the North Carolina General Statutes and filed with the Office of Administrative Hearings, P.O. Box 27447, Raleigh, N.C. 27611-7447. If modifications are made to an original Certification, you have the right to an adjudicatory hearing on the modifications upon written request within sixty (60) days following receipt of the Certification. Unless such demands are made, this Certification shall be final and binding.

This the 26th day of January 2006

DIVISION OF WATER QUALITY

John E. Hennessy

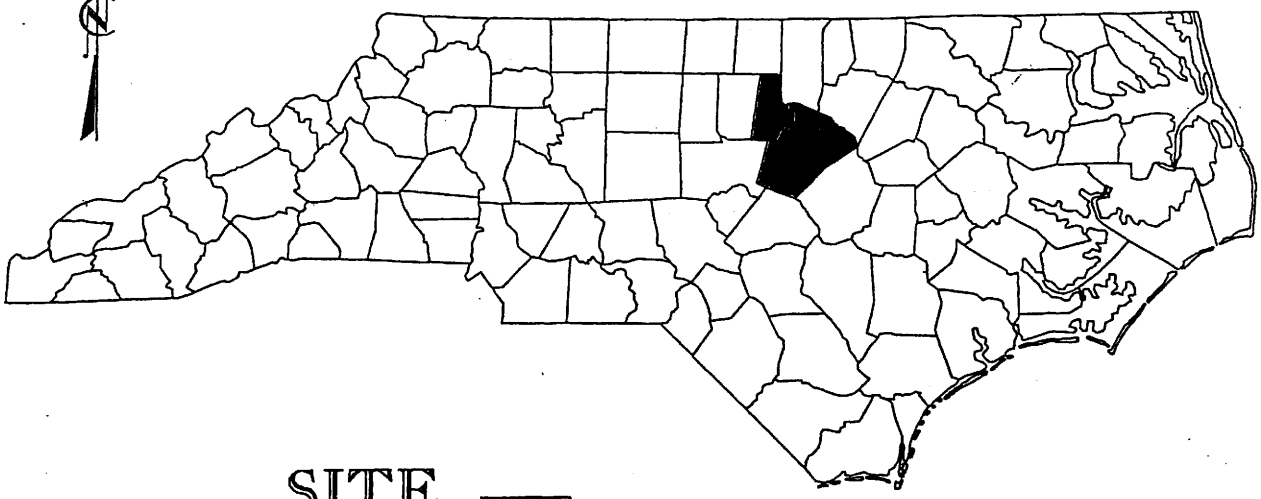
Alan W. Klimek, P.E.
Director

WQC No. 3557

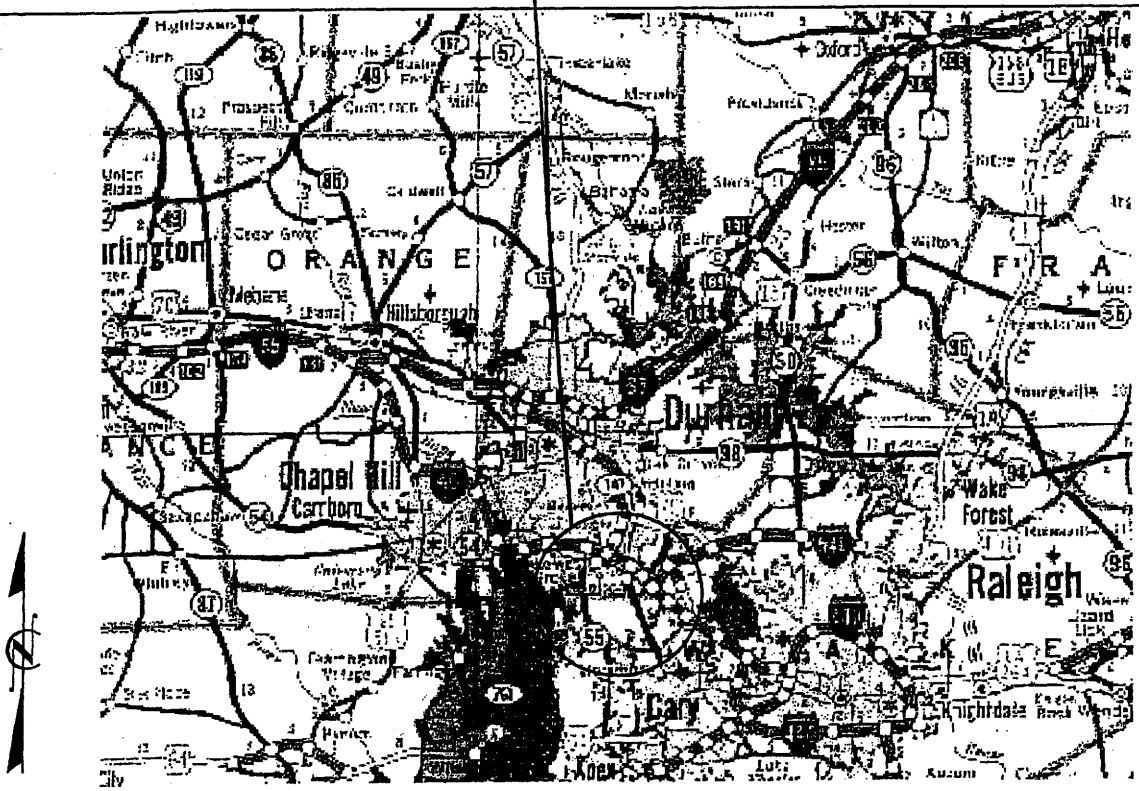
Rcvd 10/28/05

I 282

NORTH CAROLINA



SITE



VICINITY MAP

NORTH CAROLINA
DEPARTMENT OF HIGHWAYS

WAKE - DURHAM COUNTIES
35018.1.1 (U-4026)

DAVIS DRIVE (SR 1613/1999) FROM 390' NORTH OF MORRISVILLE-CARPENTER RD (SR 3016) TO NC HWY 54

NOT TO SCALE

DATE: 02-04-05

SHEET 1 OF 65

p:\TIP\u4026_koNhydro\Dgn\Permits\u4026_permit_1sh.dgn
2/2/2005 4:18:57 PM

WETLAND LEGEND

WLB — WETLAND BOUNDARY

WLB / WLB — WETLAND

F F — DENOTES FILL IN WETLAND

S S — DENOTES FILL IN SURFACE WATER

P P — DENOTES FILL IN SURFACE WATER (POND)

T T — DENOTES TEMPORARY FILL IN WETLAND

E E — DENOTES EXCAVATION IN WETLAND

TS TS — DENOTES TEMPORARY FILL IN SURFACE WATER

DENOTES MECHANIZED CLEARING

FLOW DIRECTION

TB — TOP OF BANK

WE — EDGE OF WATER

C — PROP. LIMIT OF CUT

F — PROP. LIMIT OF FILL

PROP. RIGHT OF WAY

NG — NATURAL GROUND

PL — PROPERTY LINE

TDE — TEMP. DRAINAGE EASEMENT

PDE — PERMANENT DRAINAGE EASEMENT

EAB — EXIST. ENDANGERED ANIMAL BOUNDARY

EPB — EXIST. ENDANGERED PLANT BOUNDARY

WATER SURFACE

LIVE STAKES

BOULDER

CORE FIBER ROLLS

PROPOSED BRIDGE

PROPOSED BOX CULVERT

PROPOSED PIPE CULVERT
12"-48" PIPES
54" PIPES & ABOVE

(DASHED LINES DENOTE EXISTNG STRUCTURES)

SINGLE TREE

WOODS LINE

DRAINAGE INLET

ROOTWAD

RIP RAP

5 — ADJACENT PROPERTY OWNER OR PARCEL NUMBER (IF AVAILABLE)

PREFORMED SCOUR HOLE

LEVEL SPREADER (LS)

DITCH / GRASS SWALE

NORTH CAROLINA
DEPARTMENT OF HIGHWAYS

WAKE - DURHAM COUNTIES
35018.1.1 (U-4026)

DAVIS DRIVE (SR 1613/1999) FROM 390' NORTH OF MORRISVILLE-CARPENTER RD (SR 3016) TO NC HWY 54

NOT TO SCALE

DATE: 02-04-05

SHEET 2 OF 65

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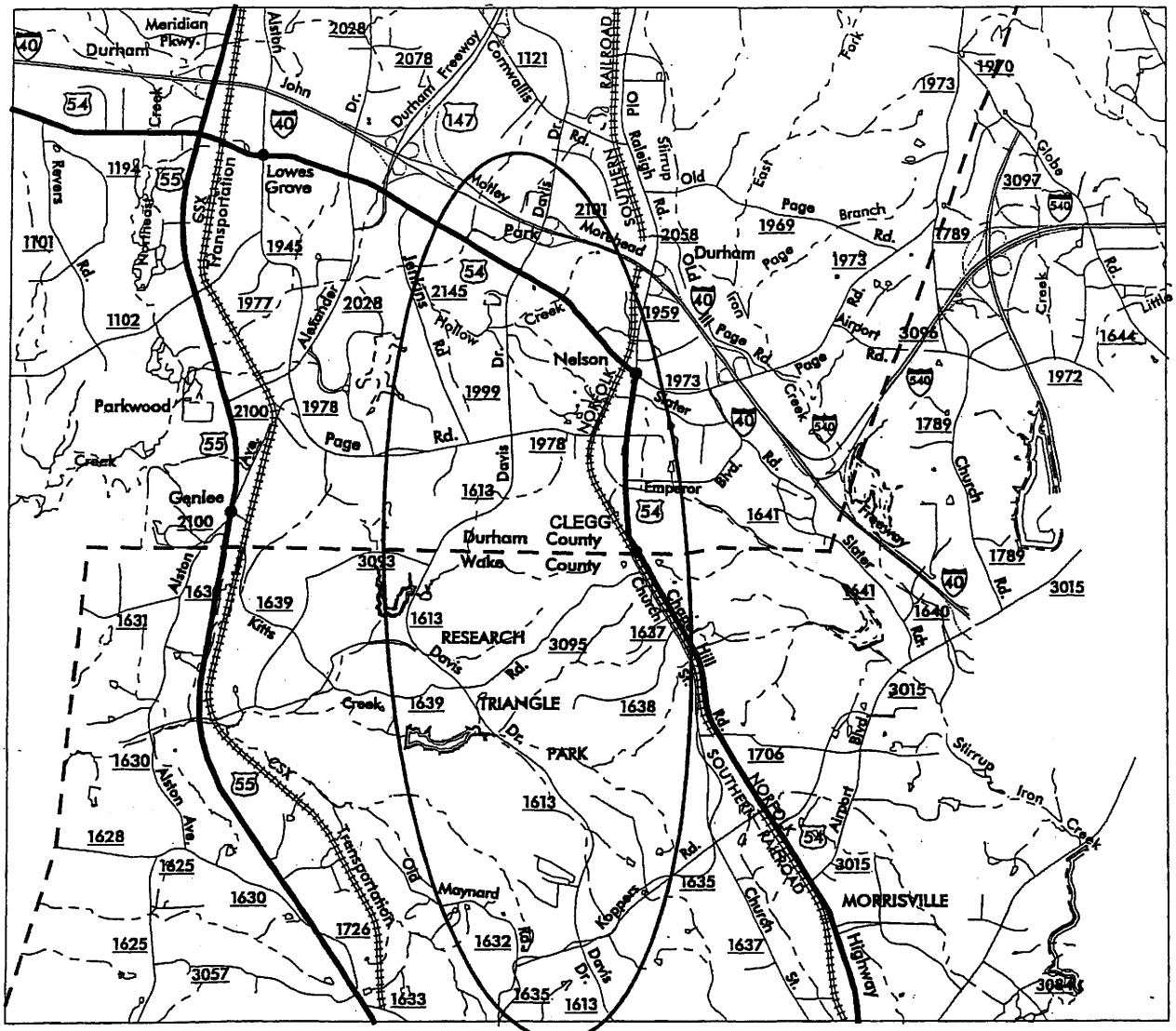
I 284

SITE MAP



NORTH CAROLINA
DEPARTMENT OF HIGHWAYS

WAKE - DURHAM COUNTIES
35018.1.1 (U-4026)

DAVIS DRIVE (SR 1613/1999) FROM 390' NORTH OF MORRISVILLE-CARPENTER RD (SR 3016) TO NC HWY 54

NOT TO SCALE

DATE: 02-04-05

SHEET 3 OF 65

p:\TIP\u4026_ko\Hydro\Dgn\Permits\u4026_permit_tsh.dgn
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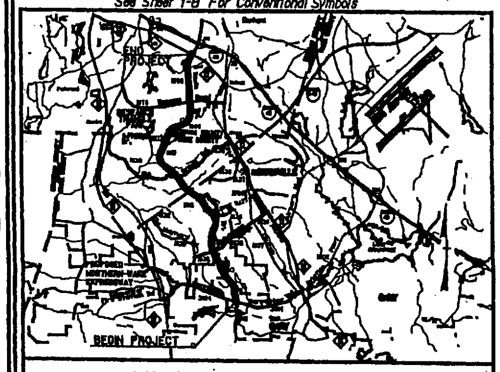
See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-4026	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
35018.1.1		P.E.
35018.2.1		R/W
35018.3.1		CONST

WAKE-DURHAM COUNTIES

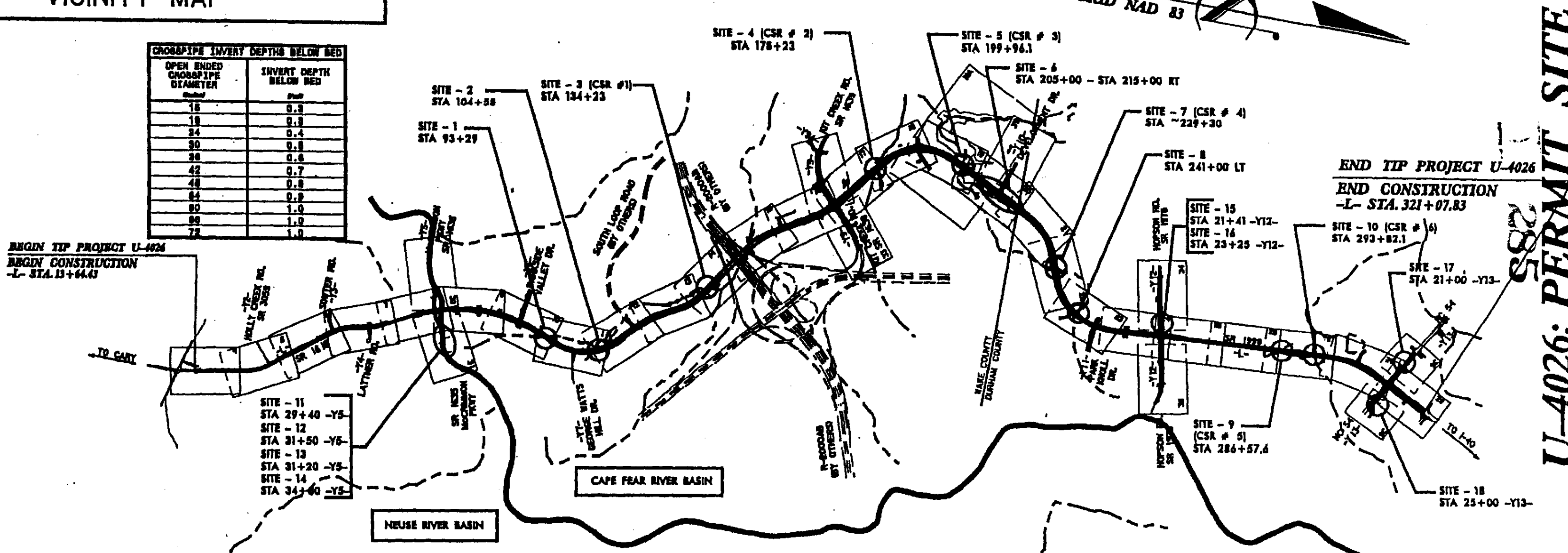
LOCATION: DAVIS DRIVE (SR 1613/1999) FROM 390' NORTH OF MORRISVILLE-CARPENTER ROAD (SR 3014) TO NORTH OF NC 54

TYPE OF WORK: GRADING, DRAINAGE, PAVING, CULVERTS AND SIGNALS.

U-4026: PERMIT SITE MAP

NC GRID NAD 83

CROSSPIPE INVERT DEPTHS BELOW BED	
OPEN ENDED CROSSPIPE DIAMETER (inches)	INVERT DEPTH BELOW BED (Feet)
15	0.3
18	0.3
24	0.4
30	0.5
36	0.6
42	0.7
48	0.8
54	0.9
60	1.0
66	1.0
72	1.0



285

NCDOT CONTACT: TERESA BRUTON, P.E.
PROJECT SERVICES - ENGINEERING COORDINATION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

U-4026: PERMIT SITE MAP

PREPARED BY: KO & ASSOCIATES, PC; RALEIGH, NC

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT (2004) = 24155
ADT (2024) = 45055
DHV = 12 %
D = 65 %
T = 4 % *
V = 55 MPH (SHLD)
= 50 MPH (C&G)
* TTST 1 % DUAL 3 %

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT U-4026 = 5.587 MI.
TOTAL LENGTH OF TIP PROJECT U-4026 = 5.587 MI.

Prepared in the Office of:
KO & ASSOCIATES, P.C.
1011 Schaub Dr. Suite 202, Raleigh, NC 27606 919-851-6066
for
North Carolina Department of Transportation

2002 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
U-4026A - APRIL 29, 2003
U-4026B - JUNE 30, 2003

LETTING DATE:

Warren F. Lamb, P.E.
PROJECT ENGINEER

Stephen R. Whitley, P.E.
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

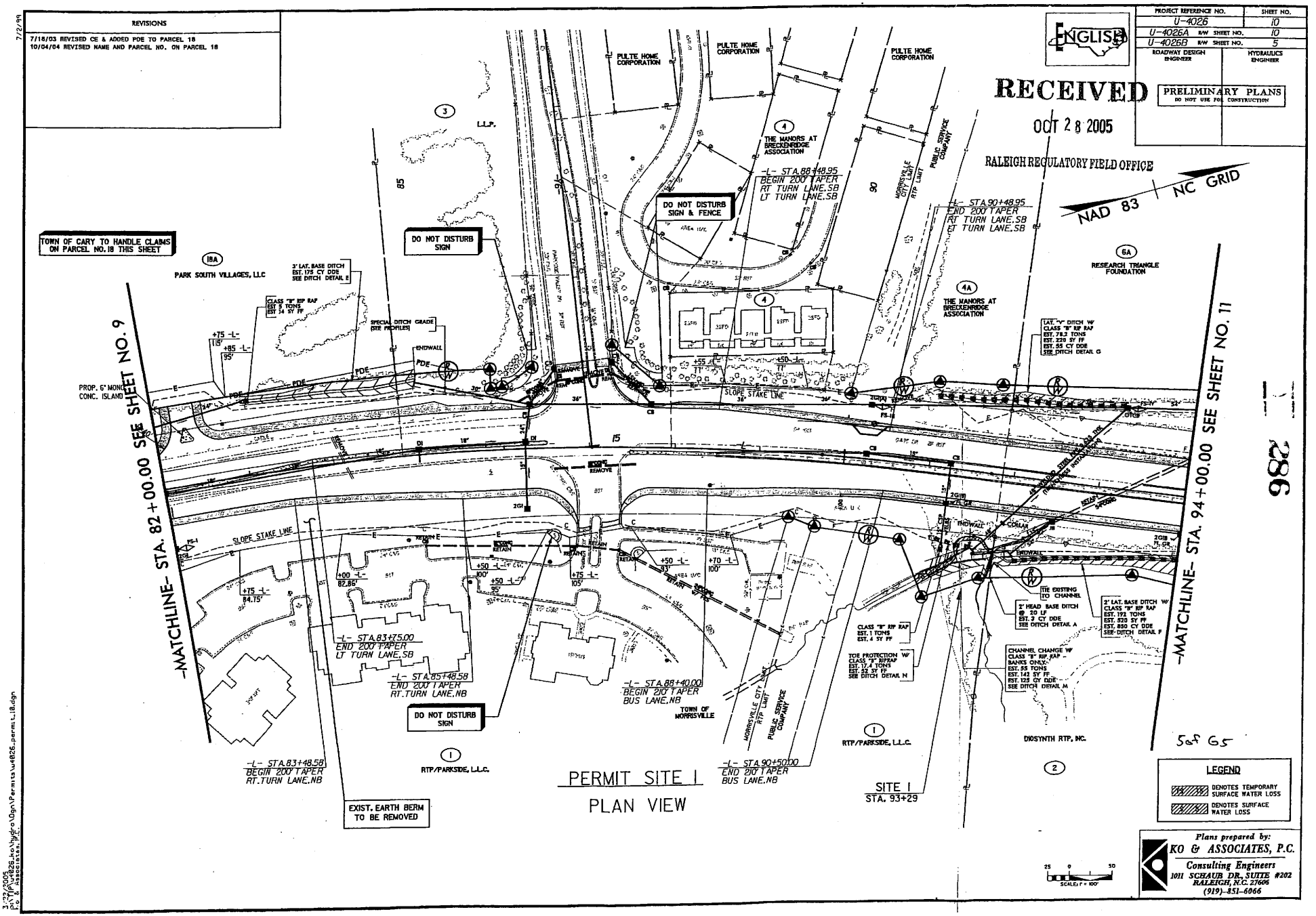
STATE DESIGN ENGINEER P.E.

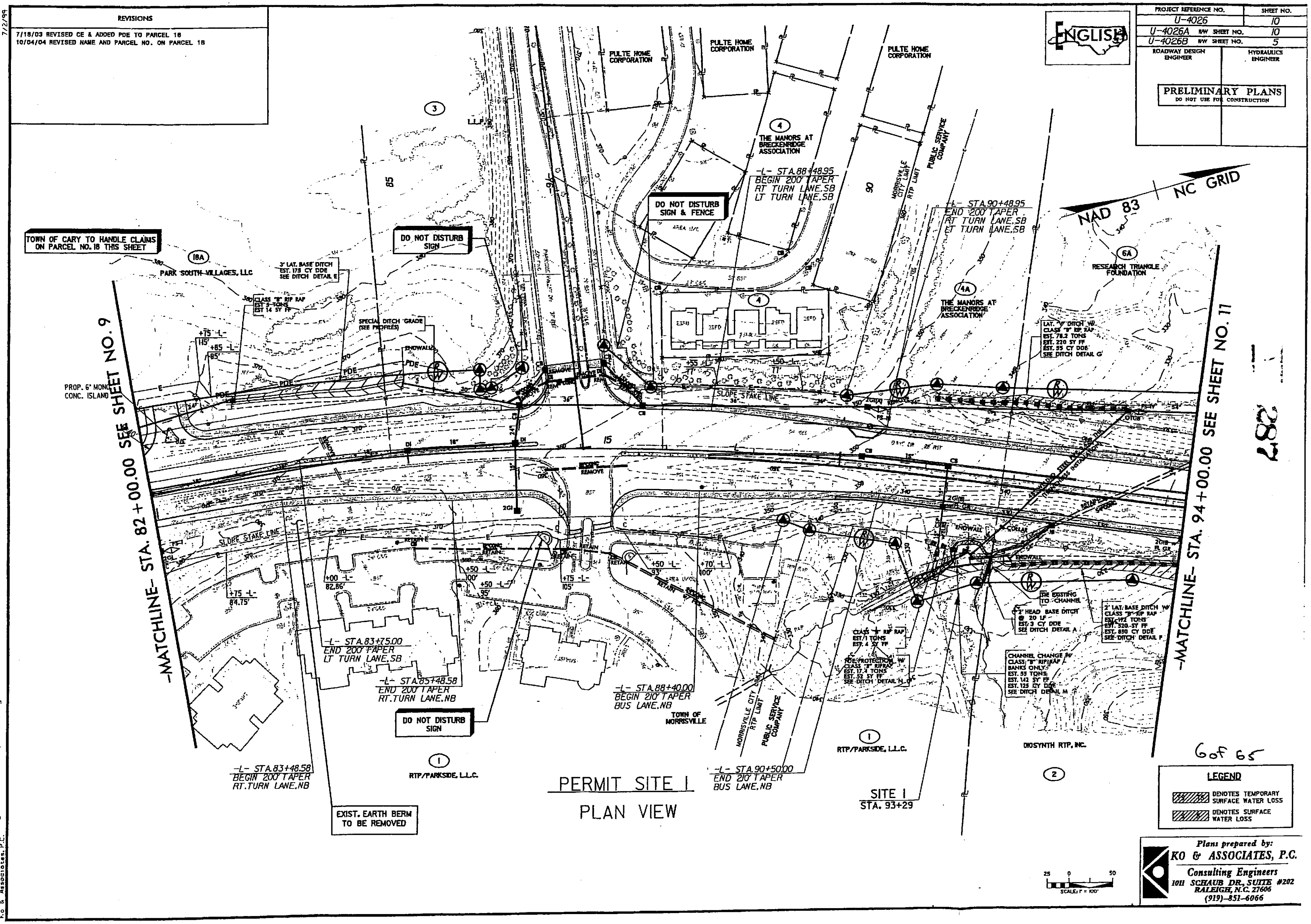
DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED
DIVISION ADMINISTRATOR DATE

CONTRACT: C200840 TIP PROJECT: U-4026

4 of 65


REVISIONS
7/18/03 REVISED CE & ADDED POE TO PARCEL 18
10/04/04 REVISED NAME AND PARCEL NO. ON PARCEL 18
PROJECT REFERENCE NO. U-4026
SHEET NO. 10
U-4026A R/W SHEET NO. 10
U-4026B R/W SHEET NO. 5
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
RECEIVED
OCT 28 2005
RALEIGH REGULATORY FIELD OFFICE
NAD 83 / NC GRID
TOWN OF CARY TO HANDLE CLAIMS ON PARCEL NO. 18 THIS SHEET
PARK SOUTH VILLAGES, LLC
PULTE HOME CORPORATION
THE MANORS AT BRECKENRIDGE ASSOCIATION
RESEARCH TRIANGLE FOUNDATION
DO NOT DISTURB SIGN & FENCE
DO NOT DISTURB SIGN
-L- STA 88+48.95 BEGIN 200' TAPER RT TURN LANE,SB LT TURN LANE,SB
-L- STA 90+48.95 END 200' TAPER RT TURN LANE,SB LT TURN LANE,SB
-L- STA 83+75.00 END 200' TAPER LT TURN LANE,SB
-L- STA 85+48.58 END 200' TAPER RT.TURN LANE,NB
-L- STA 88+40.00 BEGIN 210' TAPER BUS LANE,NB
-L- STA 83+48.58 BEGIN 200' TAPER RT.TURN LANE,NB
-L- STA 90+50.00 END 210' TAPER BUS LANE,NB
-MATCHLINE- STA. 82+00.00 SEE SHEET NO. 9
-MATCHLINE- STA. 94+00.00 SEE SHEET NO. 11
PROP. 6' MONO CONC. ISLAND
SLOPE STAKE LINE
EXIST. EARTH BERM TO BE REMOVED
RTP/PARKSIDE, L.L.C.
TOWN OF MORRISVILLE
MORRISVILLE CITY LIMIT
PUBLIC SERVICE COMPANY
RTP LIMIT
DIOSYNTH RTP, INC.
TIE EXISTING TO CHANNEL
2' HEAD BASE DITCH @ 20 LF EST. 2 CY DDE SEE DITCH DETAIL A
2' LAT. BASE DITCH W/ CLASS "B" RIP RAP EST. 192 TONS EST. 320 SY FF EST. 880 CY DDE SEE DITCH DETAIL F
CHANNEL CHANGE W/ CLASS "B" RIP RAP - BANKS ONLY - EST. 55 TONS EST. 142 SY FF EST. 125 CY DDE SEE DITCH DETAIL M
TOE PROTECTION W/ CLASS "B" RIPRAP EST. 12.4 TONS EST. 32 SY FF SEE DITCH DETAIL N
LAT. "V" DITCH W/ CLASS "B" RIP RAP EST. 78.2 TONS EST. 220 SY FF EST. 55 CY DDE SEE DITCH DETAIL G
PERMIT SITE 1
PLAN VIEW
SITE 1
STA. 93+29
LEGEND
DENOTES TEMPORARY SURFACE WATER LOSS
DENOTES SURFACE WATER LOSS
SCALE: 1" = 100'
Plans prepared by:
KO & ASSOCIATES, P.C.
Consulting Engineers
1011 SCHAUB DR., SUITE #202
RALEIGH, N.C. 27606
(919)-851-6066
982
5 of 65
7/2/99
3:22/2005
P:\TIP\U-4026\ko\hydro\Dgn\Permits\u4026_permit_18.dgn

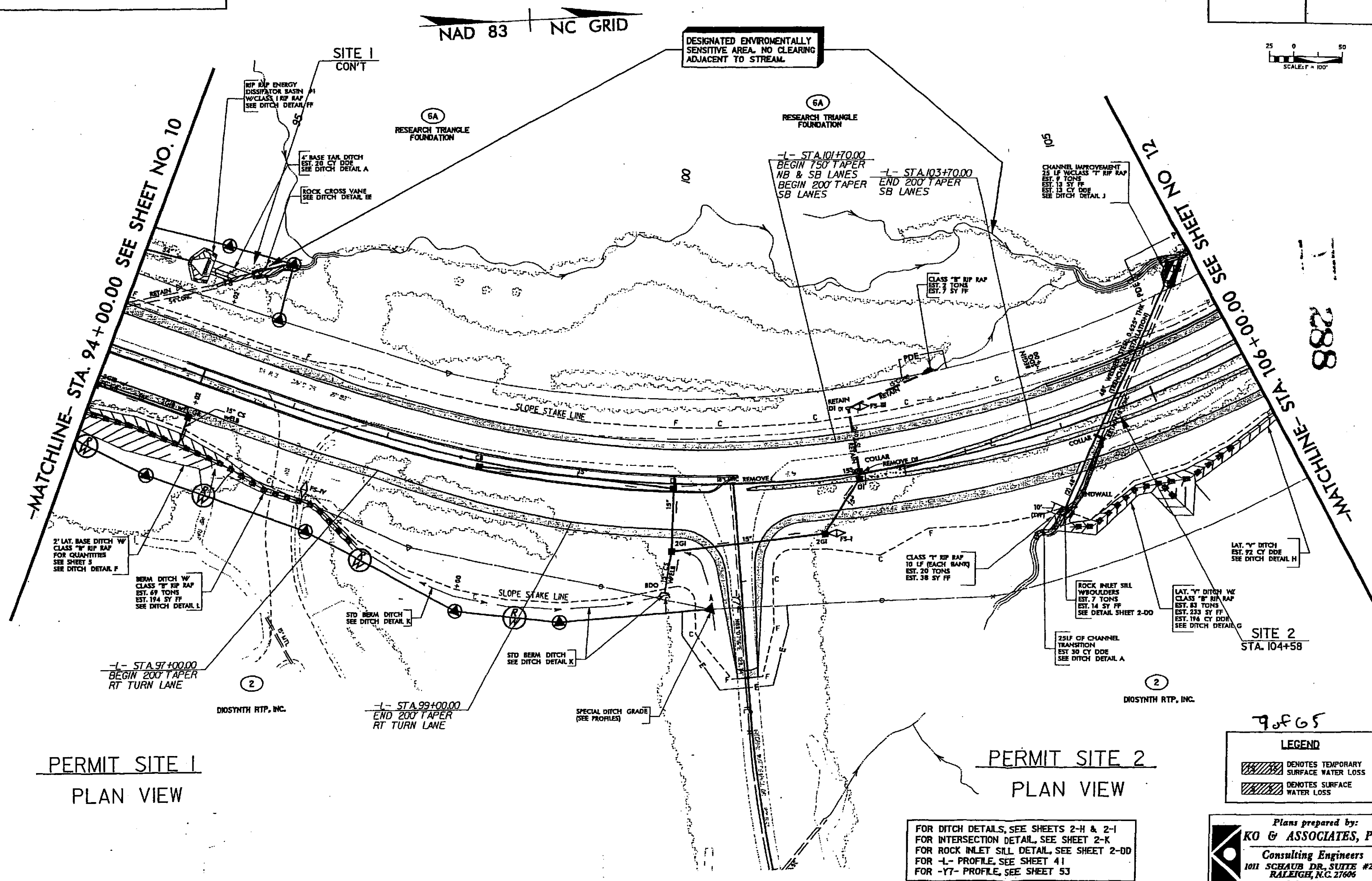

REVISIONS
7/18/03 REVISED CE & ADDED PDE TO PARCEL 18
10/04/04 REVISED NAME AND PARCEL NO. ON PARCEL 18
PROJECT REFERENCE NO. U-4026 SHEET NO. 10
U-4026A R/W SHEET NO. 10
U-4026B R/W SHEET NO. 5
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
ENGLISH
NAD 83
NC GRID
PULTE HOME CORPORATION
THE MANORS AT BRECKENRIDGE ASSOCIATION
-L- STA.88+48.95
BEGIN 200' TAPER
RT TURN LANE,SB
LT TURN LANE,SB
DO NOT DISTURB SIGN & FENCE
DO NOT DISTURB SIGN
TOWN OF CARY TO HANDLE CLAIMS ON PARCEL NO. 18 THIS SHEET
PARK SOUTH VILLAGES, LLC
3' LAT. BASE DITCH
EST. 175 CY DDE
SEE DITCH DETAIL E
SPECIAL DITCH GRADE (SEE PROFILES)
MORRISVILLE CITY LIMIT
RTP LIMIT
PUBLIC SERVICE COMPANY
-L- STA.90+48.95
END 200' TAPER
RT TURN LANE,SB
LT TURN LANE,SB
RESEARCH TRIANGLE FOUNDATION
THE MANORS AT BRECKENRIDGE ASSOCIATION
SLOPE STAKE LINE
PROP. 6' MONO. CONC. ISLAND
-MATCHLINE- STA. 82+00.00 SEE SHEET NO. 9
-MATCHLINE- STA. 94+00.00 SEE SHEET NO. 11
-L- STA.83+75.00
END 200' TAPER
LT TURN LANE,SB
-L- STA.85+48.58
END 200' TAPER
RT.TURN LANE,NB
-L- STA.88+40.00
BEGIN 210' TAPER
BUS LANE,NB
TOWN OF MORRISVILLE
-L- STA.83+48.58
BEGIN 200' TAPER
RT.TURN LANE,NB
RTP/PARKSIDE, L.L.C.
EXIST. EARTH BERM TO BE REMOVED
PERMIT SITE 1
PLAN VIEW
-L- STA.90+50.00
END 210' TAPER
BUS LANE,NB
SITE 1
STA. 93+29
DIOSYNTH RTP, INC.
6 of 65
LEGEND
DENOTES TEMPORARY SURFACE WATER LOSS
DENOTES SURFACE WATER LOSS
Plans prepared by:
KO & ASSOCIATES, P.C.
Consulting Engineers
1011 SCHAUB DR. SUITE #202
RALEIGH, N.C. 27606
(919)-851-6066
287
7/2/99
3/22/2005
ko & Associates, P.C.

PROJECT REFERENCE NO.	SHEET NO.
U-4026	11
U-4026B R/W SHEET NO.	6
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

3/16/04 REVISED PARCEL NO. 6 TO PARCEL NO. 6A & 6B
3/25/04 NAME CHANGE PARCEL NO. 2
6/24/04 REVISED R/W & CE PARCEL NO. 2 & REVISED CE ON PARCEL NO. 6B
7/9/04 REVISED PARCEL NO. AND OWNER PARCEL 6B
9/9/04 REVISED PARCEL NO. 2A TO PARCEL NO. 2
2/16/05 REVISED ACCESS TO LEFT OVER CONDITION AT-Y7-
2/18/05 REVISED R/W AND TCE ON PARCEL NO. 2



ENGLISH
NAD 83 NC GRID
25 0 50
SCALE: 1" = 100'
DESIGNATED ENVIROMENTALLY SENSITIVE AREA. NO CLEARING ADJACENT TO STREAM.
SITE 1 CON'T
RIP RAP ENERGY DISSIPATOR BASIN #1 W/CLASS I RIP RAP SEE DITCH DETAIL FF
4' BASE TAR DITCH EST. 20 CY DDE SEE DITCH DETAIL A
ROCK CROSS VANE SEE DITCH DETAIL EE
6A RESEARCH TRIANGLE FOUNDATION
-MATCHLINE- STA. 94+00.00 SEE SHEET NO. 10
-MATCHLINE- STA. 106+00.00 SEE SHEET NO 12
-L- STA.101+70.00 BEGIN 750' TAPER NB & SB LANES BEGIN 200' TAPER SB LANES
-L- STA.103+70.00 END 200' TAPER SB LANES
CLASS "B" RIP RAP EST. 7 TONS EST. 7 SY FF
CHANNEL IMPROVEMENT 25 LF W/CLASS "I" RIP RAP EST. 9 TONS EST. 13 SY FF EST. 13 CY DDE SEE DITCH DETAIL J
SLOPE STAKE LINE
2' LAT. BASE DITCH W/ CLASS "B" RIP RAP FOR QUANTITIES SEE SHEET 5 SEE DITCH DETAIL F
BERM DITCH W/ CLASS "B" RIP RAP EST. 69 TONS EST. 194 SY FF SEE DITCH DETAIL L
STD BERM DITCH SEE DITCH DETAIL K
-L- STA.97+00.00 BEGIN 200' TAPER RT TURN LANE
-L- STA.99+00.00 END 200' TAPER RT TURN LANE
2 DIOSYNTH RTP, INC.
SPECIAL DITCH GRADE (SEE PROFILES)
CLASS "I" RIP RAP 10 LF (EACH BANK) EST. 20 TONS EST. 38 SY FF
ROCK INLET SILL W/BOULDERS EST. 7 TONS EST. 14 SY FF SEE DETAIL SHEET 2-DD
25LF OF CHANNEL TRANSITION EST 30 CY DDE SEE DITCH DETAIL A
LAT. "V" DITCH W/ CLASS "B" RIP RAP EST. 83 TONS EST. 233 SY FF EST. 196 CY DDE SEE DITCH DETAIL G
LAT. "V" DITCH EST. 92 CY DDE SEE DITCH DETAIL H
SITE 2 STA. 104+58
288

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LEGEND

DENOTES TEMPORARY SURFACE WATER LOSS

DENOTES SURFACE WATER LOSS

PERMIT SITE 1
PLAN VIEW

PERMIT SITE 2
PLAN VIEW

FOR DITCH DETAILS, SEE SHEETS 2-H & 2-I
FOR INTERSECTION DETAIL, SEE SHEET 2-K
FOR ROCK INLET SILL DETAIL, SEE SHEET 2-DD
FOR -L- PROFILE, SEE SHEET 41
FOR -Y7- PROFILE, SEE SHEET 53

Plans prepared by:
KO & ASSOCIATES, P.C.
Consulting Engineers
1011 SCHAUB DR., SUITE #202
RALEIGH, N.C. 27606
(919)-851-6066

7/2/99

7/2/99

REVISIONS
3/18/04 REVISED PARCEL NO. 6 TO PARCEL NO. 6A & 6B
3/25/04 NAME CHANGE PARCEL NO. 2
6/24/04 REVISED R/W & CE PARCEL NO. 2 & REVISED CE ON PARCEL NO. 6B
7/9/04 REVISED PARCEL NO. AND OWNER PARCEL 6B
9/9/04 REVISED PARCEL NO. 2A TO PARCEL NO. 2
2/16/05 REVISED ACCESS TO LEFT OVER CONDITION AT -Y7-
2/16/05 REVISED R/W AND TCE ON PARCEL NO. 2

PROJECT REFERENCE NO.	SHEET NO.
U-4026	11
U-4026B MW SHEET NO.	6
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

ENGLISH

NAD 83 | NC GRID

SCALE: 1" = 100'

DESIGNATED ENVIROMENTALLY SENSITIVE AREA. NO CLEARING ADJACENT TO STREAM.

SITE 1 CON'T

-MATCHLINE- STA. 94+00.00 SEE SHEET NO. 10

-MATCHLINE- STA. 106+00.00 SEE SHEET NO 12

RESEARCH TRIANGLE FOUNDATION (6A)

-L- STA. 101+70.00 BEGIN 150' TAPER NB & SB LANES BEGIN 200' TAPER SB LANES

-L- STA. 103+70.00 END 200' TAPER SB LANES

SLOPE STAKE LINE

-L- STA. 97+00.00 BEGIN 200' TAPER RT TURN LANE

-L- STA. 99+00.00 END 200' TAPER RT TURN LANE

DIOSYNTH RTP, INC. (2)

SITE 2 STA. 104+58

PERMIT SITE 1
PLAN VIEW

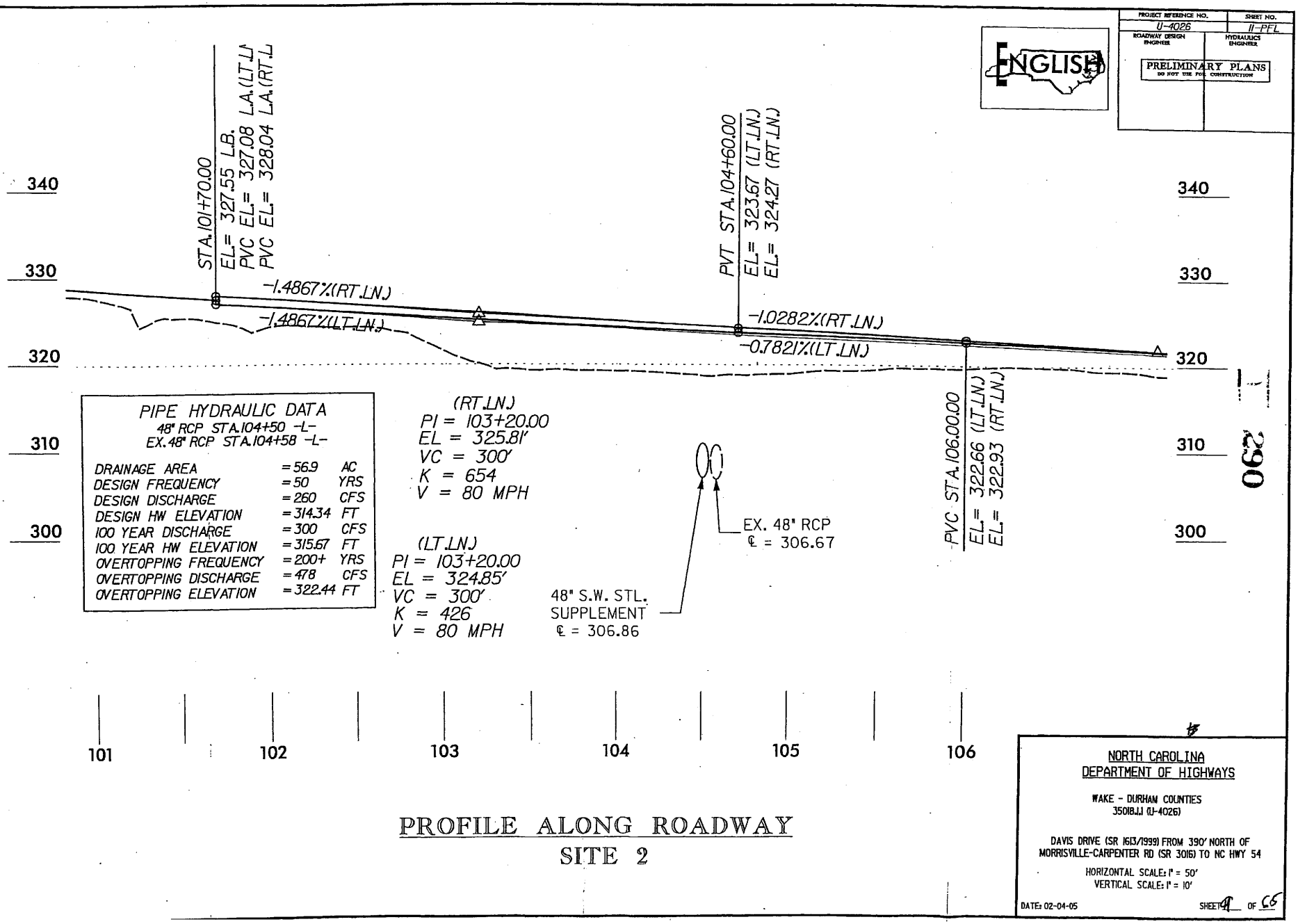
PERMIT SITE 2
PLAN VIEW

FOR DITCH DETAILS, SEE SHEETS 2-H & 2-I
FOR INTERSECTION DETAIL, SEE SHEET 2-K
FOR ROCK INLET SILL DETAIL, SEE SHEET 2-DD
FOR -L- PROFILE, SEE SHEET 41
FOR -Y7- PROFILE, SEE SHEET 53

8 of 65

LEGEND
- DENOTES TEMPORARY SURFACE WATER LOSS
- DENOTES SURFACE WATER LOSS

Plans prepared by:
KO & ASSOCIATES, P.C.
Consulting Engineers
1011 SCHAUB DR., SUITE #202
RALEIGH, N.C. 27606
(919)-851-6066



PROFILE ALONG ROADWAY
SITE 2

NORTH CAROLINA
DEPARTMENT OF HIGHWAYS

WAKE - DURHAM COUNTIES
35018.1.1 (U-4026)

DAVIS DRIVE (SR 1613/1999) FROM 390' NORTH OF MORRISVILLE-CARPENTER RD (SR 3016) TO NC HWY 54

HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 10'

DATE: 02-04-05

SHEET 41 OF 66

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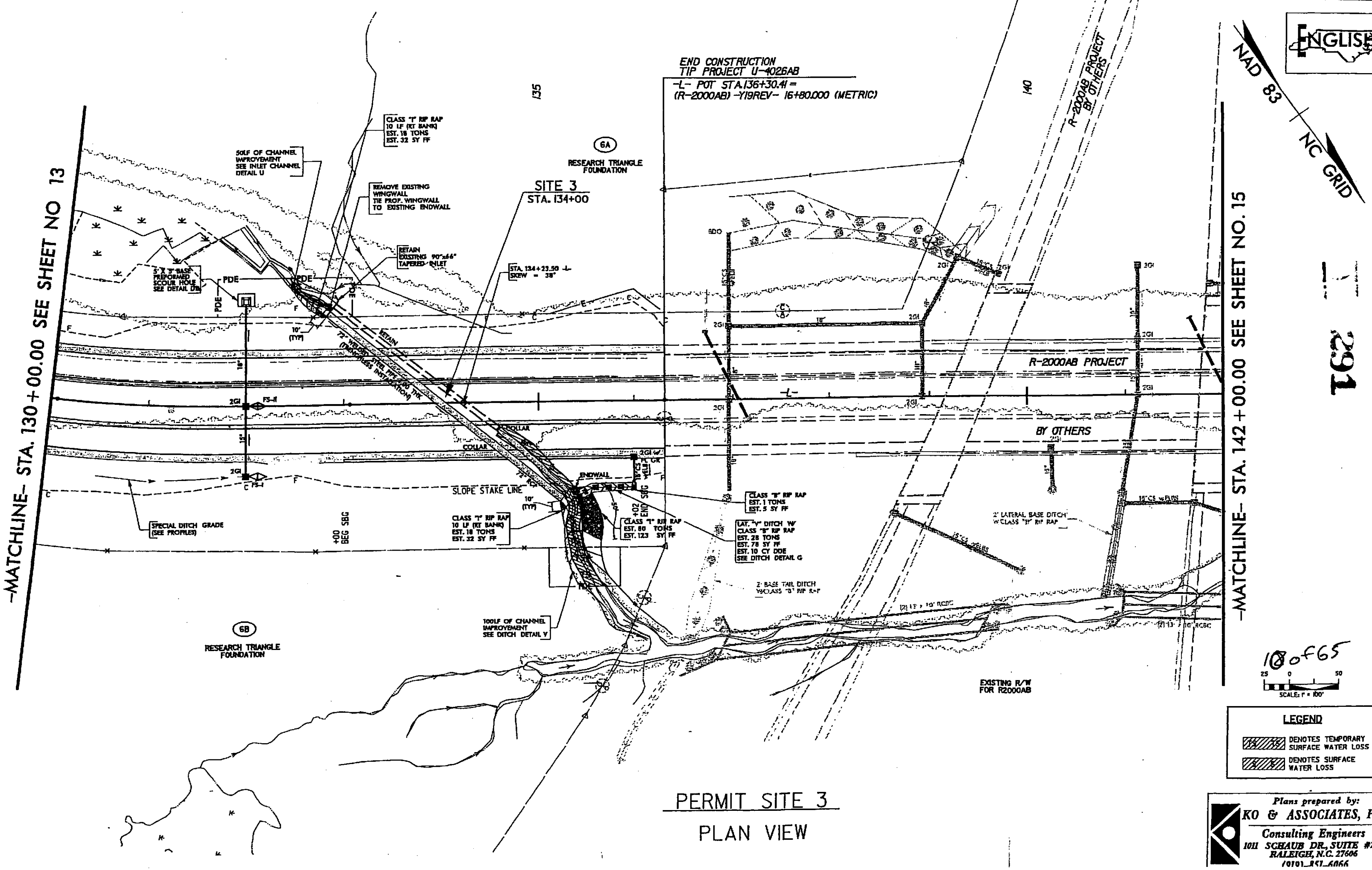
PROJECT REFERENCE NO.	SHEET NO.
U-4026	14
U-4026B R/W SHEET NO.	9
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

7/2/99



291

10 of 65

SCALE: 1" = 100'

LEGEND

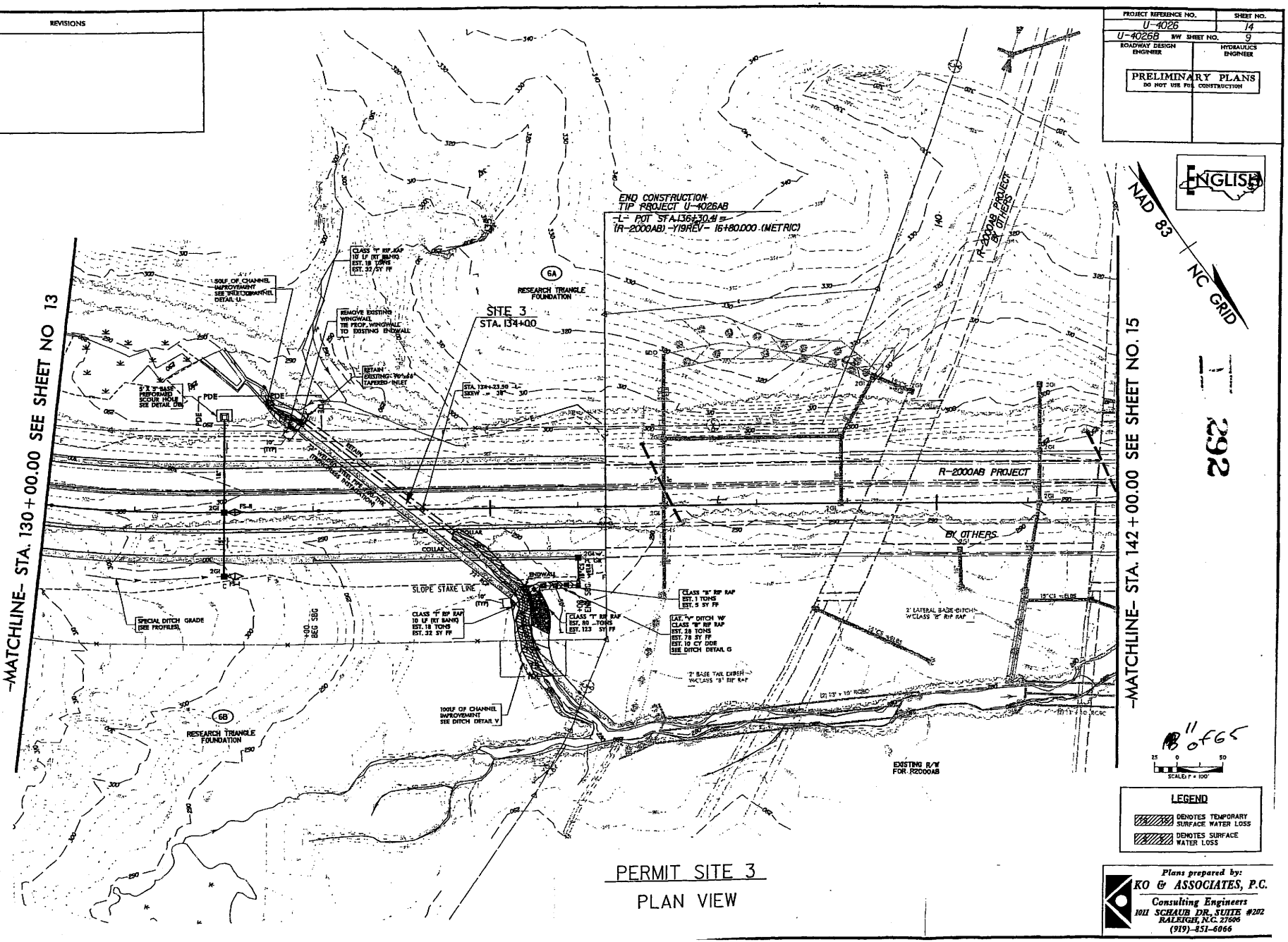
- DENOTES TEMPORARY SURFACE WATER LOSS
- DENOTES SURFACE WATER LOSS

PERMIT SITE 3

PLAN VIEW

Plans prepared by:
KO & ASSOCIATES, P.C.
Consulting Engineers
1011 SCHAUB DR., SUITE #202
RALEIGH, N.C. 27606

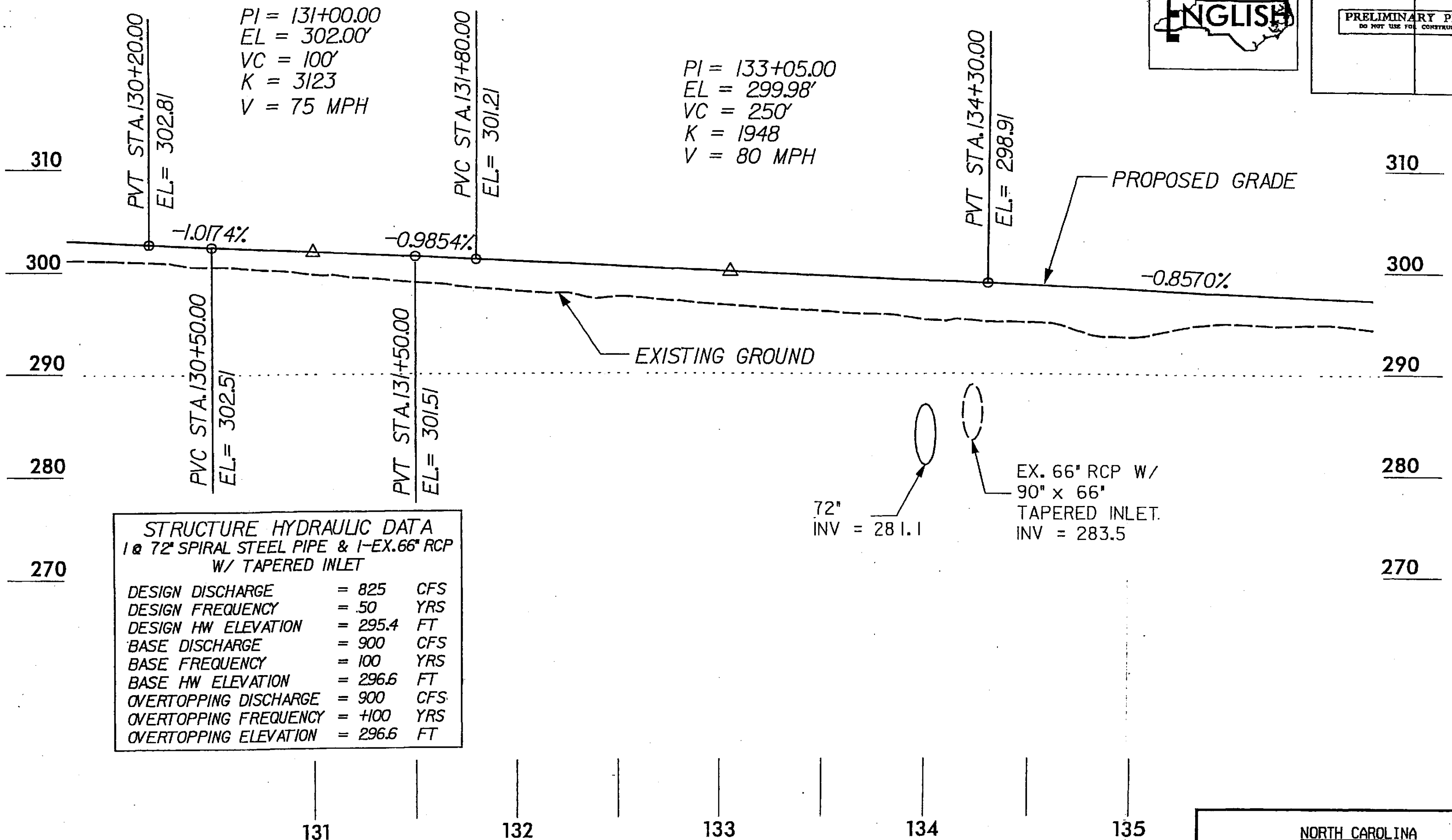
12/2005
r:\u4026.ko\hydro\Dgn\Permits\u4026_permit_14.dgn
& Associates, P.C.


REVISIONS
PROJECT REFERENCE NO. U-4026
SHEET NO. 14
U-4026B RW SHEET NO. 9
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
ENGLISH
NAD 83 / NC GRID
-MATCHLINE- STA. 130+00.00 SEE SHEET NO 13
-MATCHLINE- STA. 142+00.00 SEE SHEET NO. 15
END CONSTRUCTION TIP PROJECT U-4026AB
-L- POT STA.136+30.41 =
(R-2000AB) -Y19REV- 16+80.000 (METRIC)
R-2000B PROJECT BY OTHERS
SITE 3
STA. 134+00
RESEARCH TRIANGLE FOUNDATION
R-2000AB PROJECT
BY OTHERS
SLOPE STAKE LINE
EXISTING R/W FOR R2000AB
SCALE: 1" = 100'
LEGEND
DENOTES TEMPORARY SURFACE WATER LOSS
DENOTES SURFACE WATER LOSS
PERMIT SITE 3
PLAN VIEW
Plans prepared by:
KO & ASSOCIATES, P.C.
Consulting Engineers
1011 SCHAUB DR., SUITE #202
RALEIGH, N.C. 27606
(919)-851-6066

PROJECT REFERENCE NO. U-4026 | SHEET NO. 14-PFL
ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION

ENGLISH

293



STRUCTURE HYDRAULIC DATA
1 @ 72" SPIRAL STEEL PIPE & 1-EX.66" RCP W/ TAPERED INLET

DESIGN DISCHARGE	= 825	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 295.4	FT
BASE DISCHARGE	= 900	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 296.6	FT
OVERTOPPING DISCHARGE	= 900	CFS
OVERTOPPING FREQUENCY	= +100	YRS
OVERTOPPING ELEVATION	= 296.6	FT

PROFILE ALONG ROADWAY
SITE 3

NORTH CAROLINA
DEPARTMENT OF HIGHWAYS

WAKE - DURHAM COUNTIES
35018.1.1 (U-4026)

DAVIS DRIVE (SR 1613/1999) FROM 390' NORTH OF MORRISVILLE-CARPENTER RD (SR 3016) TO NC HWY 54

HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 10'

DATE: 02-04-05 SHEET 12 OF 65

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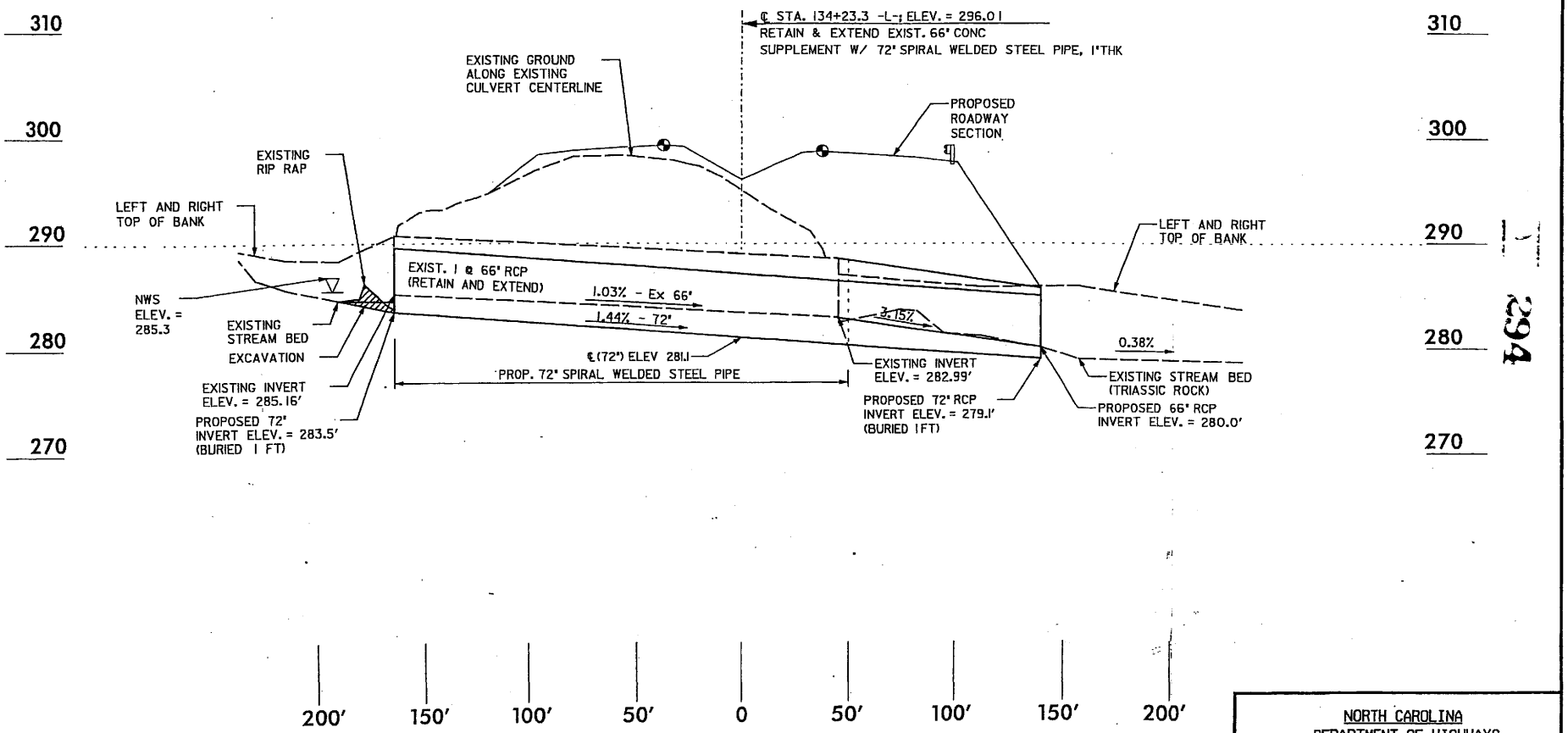
PROJECT REFERENCE NO.	SHEET NO.
U-4026	14-PAS
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



PROFILE ALONG STRUCTURE
SITE 3

NORTH CAROLINA
DEPARTMENT OF HIGHWAYS

WAKE - DURHAM COUNTIES
35018.1.1 (U-4026)

DAVIS DRIVE (SR 1613/1999) FROM 390' NORTH OF MORRISVILLE-CARPENTER RD (SR 3016) TO NC HWY 54

HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 10'

DATE: 02-04-05

SHEET 13 OF 65

294

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REVISIONS
2/4/04 REVISED CE PARCEL 8
3/16/04 REVISED PARCEL NO. 6 TO PARCEL NO. 60
3/25/04 REVISED PARCEL NO. 7 TO PARCEL NO. 10 & NAME CHANGE NAME CHANGE PARCEL NO. 9 & CHANGED PARCEL NO. 10 TO 108

PROJECT REFERENCE NO.	SHEET NO.
U-4026	17
U-4026B NW SHEET NO.	12
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83 / NC GRID

-MATCHLINE- STA. 23+00.00
SEE SHEET NO. 32

-MATCHLINE- STA. 166+00.00 SEE SHEET 16

-MATCHLINE- STA. 178+00.00 SEE SHEET NO. 18

-MATCHLINE- STA. 29+00.00
SEE SHEET NO. 33

10 CISCO SYSTEMS, INC.
DB 9390 PG 1902
MB 1994 PG 950

9 APF - 7030
KIT CREEK, LLC

108 CISCO SYSTEMS, INC.

60 RESEARCH TRIANGLE FOUNDATION
DB 1670 PG 239

8 BIOGEN REALTY LLC

SPECIAL DITCH GRADE (SEE PROFILES)

SPECIAL LAY "Y" DITCH
SEE DITCH DETAIL D

SLOPE STAKE LINE

TIE PIPE TO EXISTING DITCH

ENDWALL

RIP-RAP ENERGY DISSIPATOR BASIN # 2
SEE DITCH DETAIL FF

SPEC. LAY "Y" DITCH W/ CLASS "B" RIP RAP
EST. 69 TONS
EST. 114 SY FF
SEE DITCH DETAIL G

SITE 4
STA. 178+23

PERMIT SITE 4
PLAN VIEW

LEGEND
DENOTES TEMPORARY SURFACE WATER LOSS
DENOTES SURFACE WATER LOSS

SCALE: 1" = 100'

14 OF 65

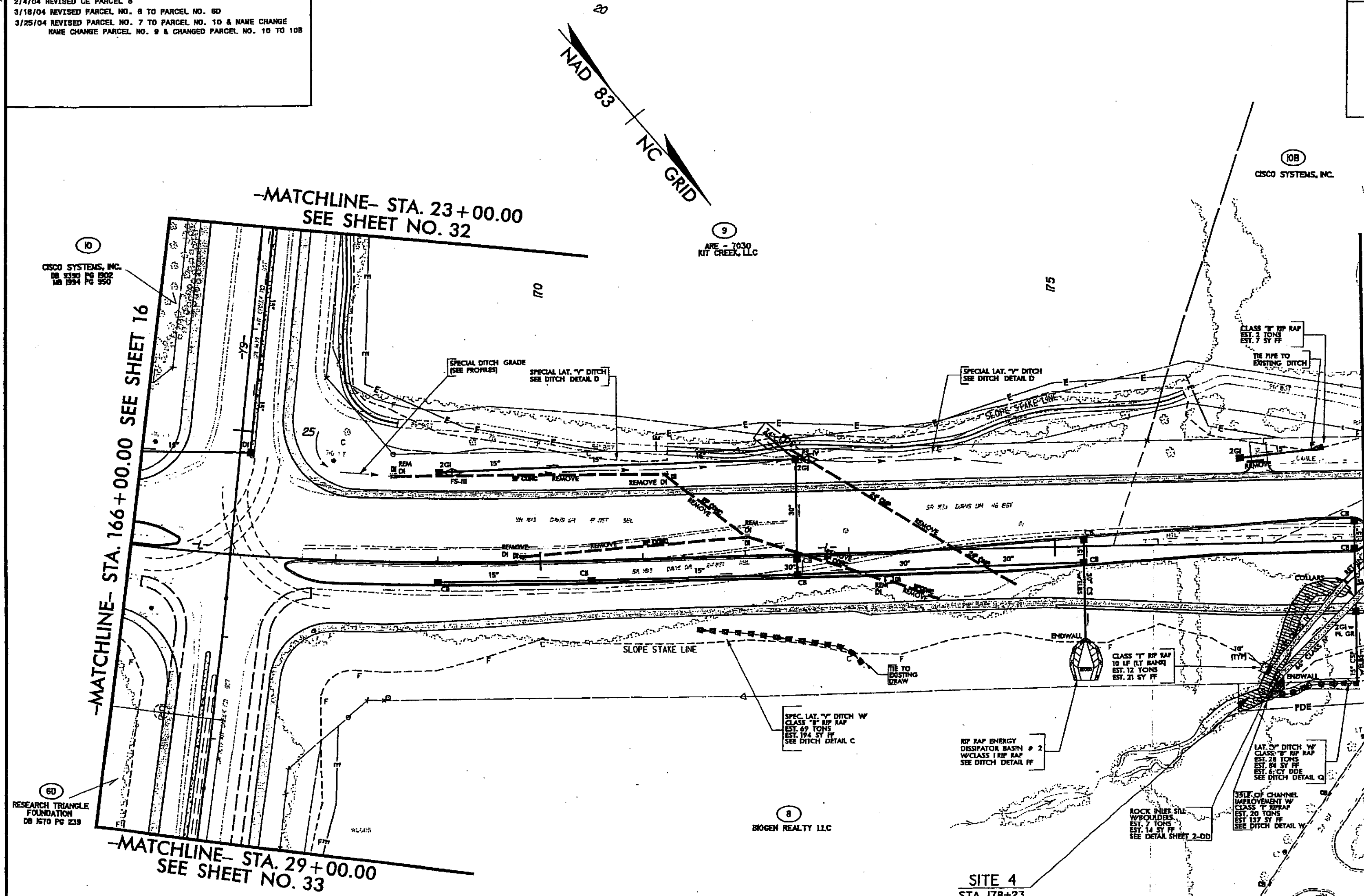
Plans prepared by:
KO & ASSOCIATES, P.C.
Consulting Engineers
1011 SCHAUB DR., SUITE #202
RALEIGH, N.C. 27606
(919)-851-6066

REVISIONS
2/4/04 REVISED CE PARCEL 8
3/18/04 REVISED PARCEL NO. 6 TO PARCEL NO. 6D
3/25/04 REVISED PARCEL NO. 7 TO PARCEL NO. 10 & NAME CHANGE NAME CHANGE PARCEL NO. 9 & CHANGED PARCEL NO. 10 TO 10B

PROJECT REFERENCE NO.	SHEET NO.
U-4026	17
U-4026B R/W SHEET NO.	12
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

ENGLISH



PERMIT SITE 4

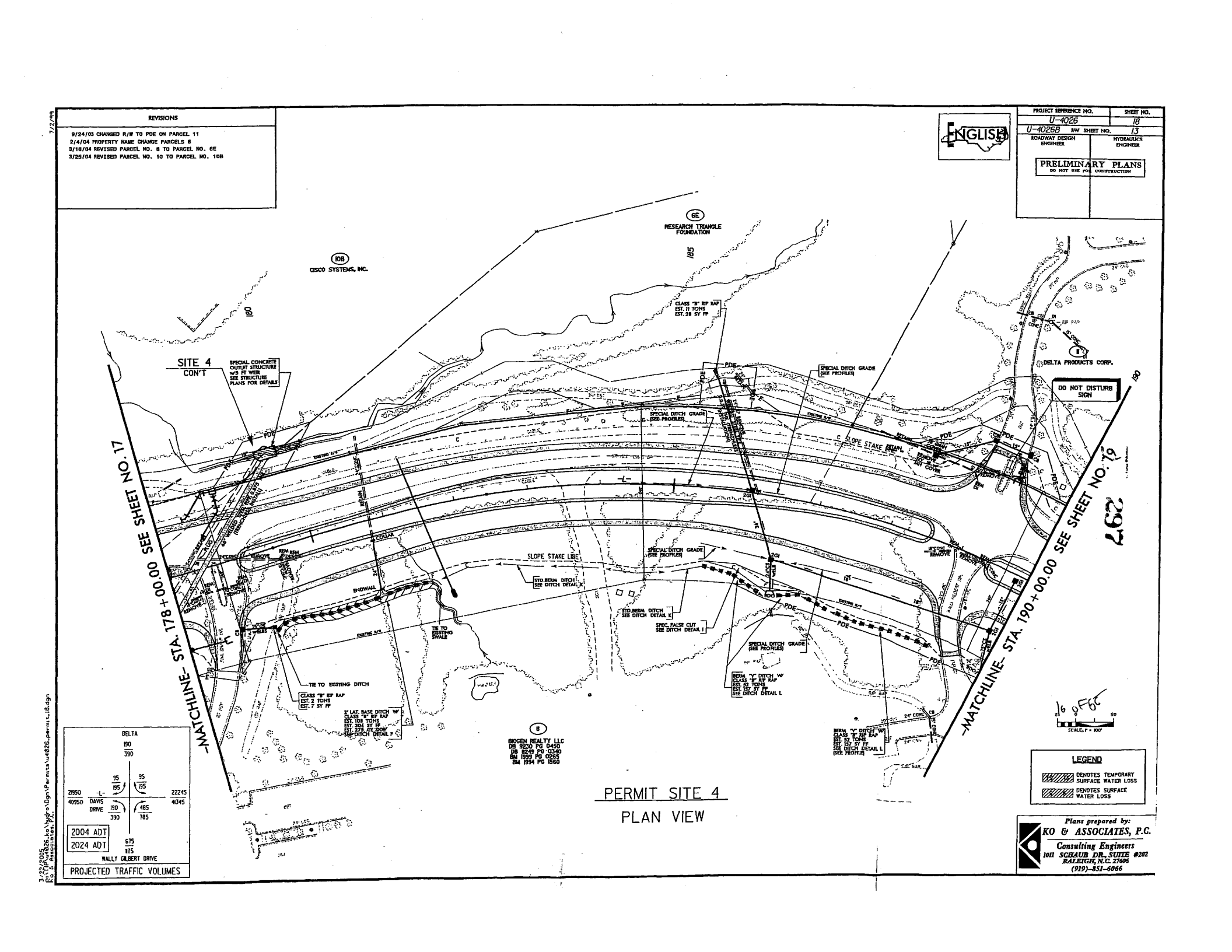
PLAN VIEW

296

LEGEND
DENOTES TEMPORARY SURFACE WATER LOSS
DENOTES SURFACE WATER LOSS

Plans prepared by:
KO & ASSOCIATES, P.C.
Consulting Engineers
1011 SCHAUB DR., SUITE #202
RALEIGH, N.C. 27606
(919)-851-6066

7/2/99


REVISIONS
9/24/03 CHANGED R/W TO PDE ON PARCEL 11
2/4/04 PROPERTY NAME CHANGE PARCELS 8
3/18/04 REVISED PARCEL NO. 8 TO PARCEL NO. 8E
3/25/04 REVISED PARCEL NO. 10 TO PARCEL NO. 10B
PROJECT REFERENCE NO. U-4026
SHEET NO. 18
U-4026B R/W SHEET NO. 13
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
ENGLISH
6E RESEARCH TRIANGLE FOUNDATION
10B CISCO SYSTEMS, INC.
SITE 4 CON'T
SPECIAL CONCRETE OUTLET STRUCTURE w/3 FT WEIR SEE STRUCTURE PLANS FOR DETAILS
-MATCHLINE- STA. 178+00.00 SEE SHEET NO. 17
-MATCHLINE- STA. 190+00.00 SEE SHEET NO. 19
SLOPE STAKE LINE
SPECIAL DITCH GRADE (SEE PROFILES)
STD BERM DITCH SEE DITCH DETAIL K
SPEC. FALSE CUT SEE DITCH DETAIL I
ENDWALL
TIE TO EXISTING SWALE
TIE TO EXISTING DITCH
CLASS "B" RIP RAP EST. 2 TONS EST. 7 SY FF
CLASS "B" RIP RAP EST. 71 TONS EST. 28 SY FF
DELTA PRODUCTS CORP.
DO NOT DISTURB SIGN
BERM "Y" DITCH W CLASS "B" RIP RAP EST. 52 TONS EST. 157 SY FF SEE DITCH DETAIL L
BERM "Y" DITCH W CLASS "B" RIP RAP EST. 57 TONS EST. 157 SY FF SEE DITCH DETAIL L (SEE PROFILE)
8 BIOGEN REALTY LLC DB 9230 PG 0450 DB 8249 PG 0340 BM 1999 PG 0265 BM 1994 PG 1560
DELTA
DAVIS DRIVE
WALLY GILBERT DRIVE
2004 ADT
2024 ADT
PROJECTED TRAFFIC VOLUMES
PERMIT SITE 4
PLAN VIEW
SCALE: 1" = 100'
LEGEND
DENOTES TEMPORARY SURFACE WATER LOSS
DENOTES SURFACE WATER LOSS
Plans prepared by:
KO & ASSOCIATES, P.C.
Consulting Engineers
1011 SCHAUB DR., SUITE #202
RALEIGH, N.C. 27606
(919)-851-6066
16 OF 66
297
7/2/99
3/22/2005
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K O & Associates, P.C.

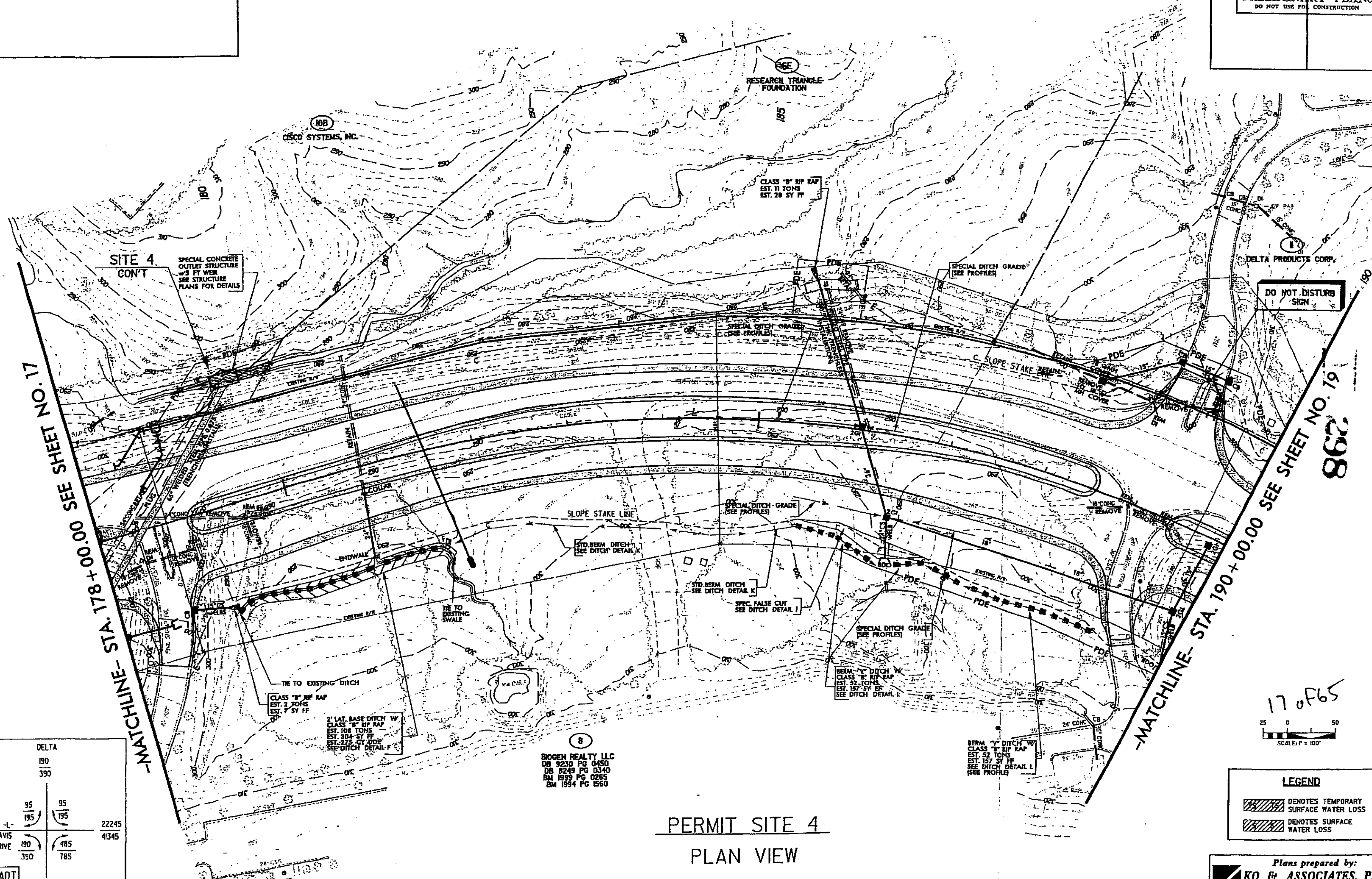
REVISIONS
9/24/03 CHANGED R/W TO PDE ON PARCEL 11
2/4/04 PROPERTY NAME CHANGE PARCELS 8
3/18/04 REVISED PARCEL NO. 8 TO PARCEL NO. 8E
3/25/04 REVISED PARCEL NO. 10 TO PARCEL NO. 10B

PROJECT REFERENCE NO.	SHEET NO.
U-4026	18
U-4026B R/W SHEET NO.	13
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

ENGLISH

298



17 of 65

SCALE: 1" = 100'

PERMIT SITE 4

PLAN VIEW

LEGEND

- DENOTES TEMPORARY SURFACE WATER LOSS
- DENOTES SURFACE WATER LOSS

PROJECTED TRAFFIC VOLUMES

DELTA: 190 / 390
-L-: 21950 / 40950 — 22245 / 41345
95 / 195; 95 / 195
DAVIS DRIVE: 190 / 390
485 / 785
675 / 1175
WALLY GILBERT DRIVE
2004 ADT
2024 ADT

Plans prepared by:
KO & ASSOCIATES, P.C.
Consulting Engineers
1011 SCHAUB DR., SUITE #202
RALEIGH, N.C. 27606
(919)-851-6066

7/2/99
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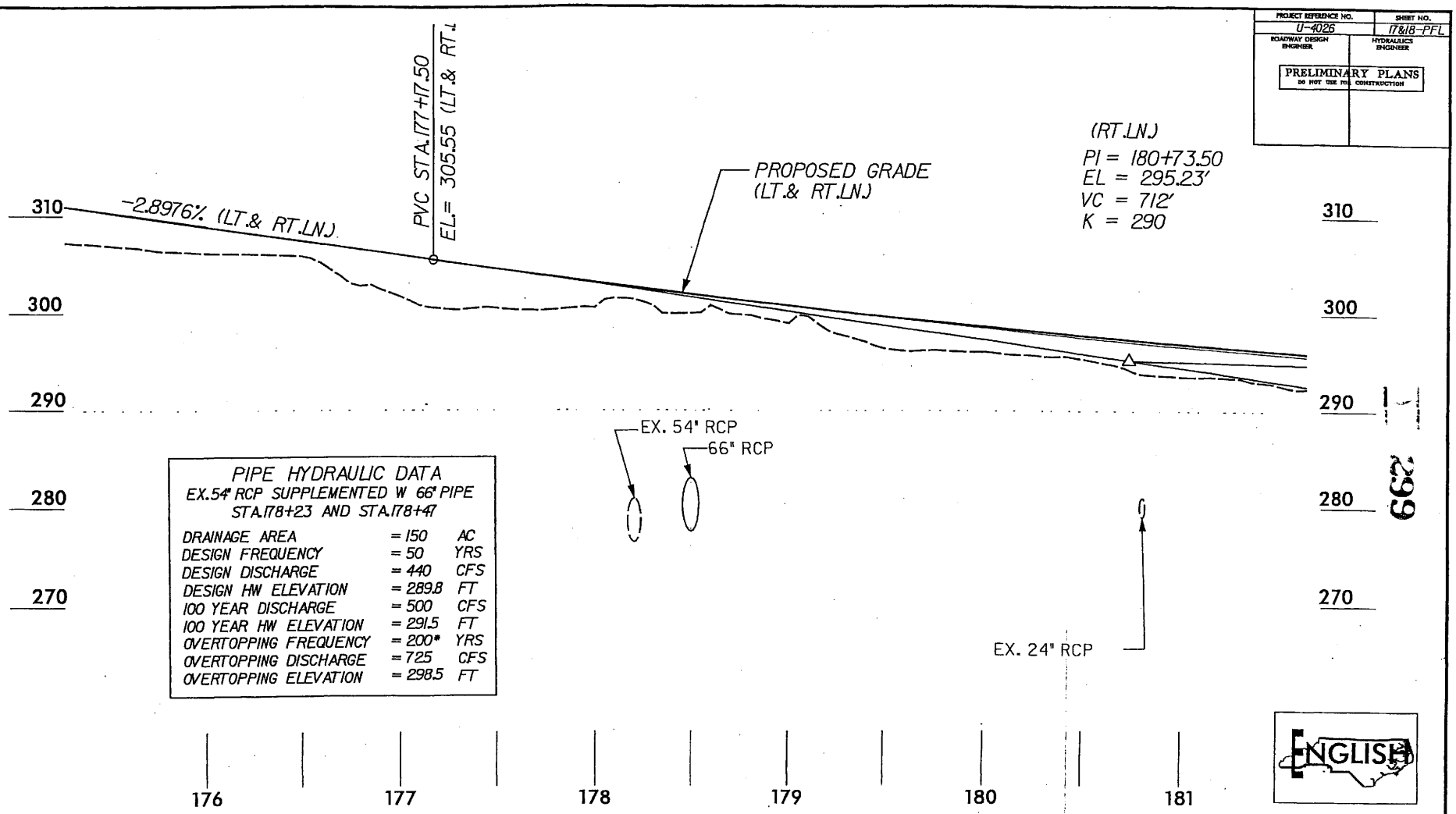
Associates, P.C.



PROFILE ALONG ROADWAY
SITE 4

NORTH CAROLINA
DEPARTMENT OF HIGHWAYS

WAKE - DURHAM COUNTIES
35018.1.1 (U-4026)

DAVIS DRIVE (SR 1613/1999) FROM 390' NORTH OF MORRISVILLE-CARPENTER RD (SR 3016) TO NC HWY 54

HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 10'

DATE: 02-04-05

SHEET 18 OF 65

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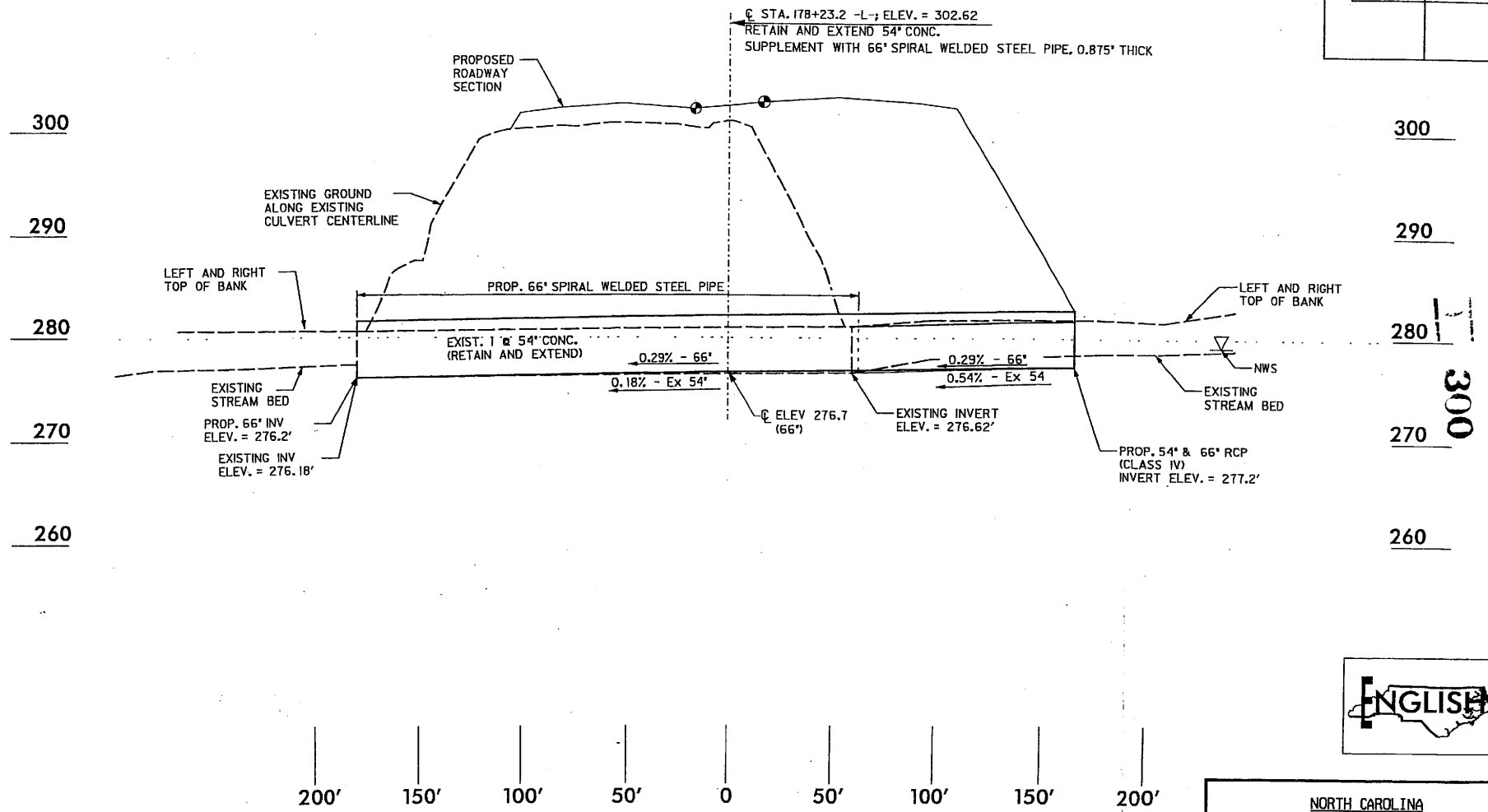
PROJECT REFERENCE NO.	SHEET NO.
U-4026	17&18-PAS
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



PROFILE ALONG STRUCTURE
SITE 4

NORTH CAROLINA
DEPARTMENT OF HIGHWAYS

WAKE - DURHAM COUNTIES
35018.1.1 (U-4026)

DAVIS DRIVE (SR 1613/1999) FROM 390' NORTH OF MORRISVILLE-CARPENTER RD (SR 3016) TO NC HWY 54

HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 10'

DATE: 02-04-05

SHEET 19 OF 65

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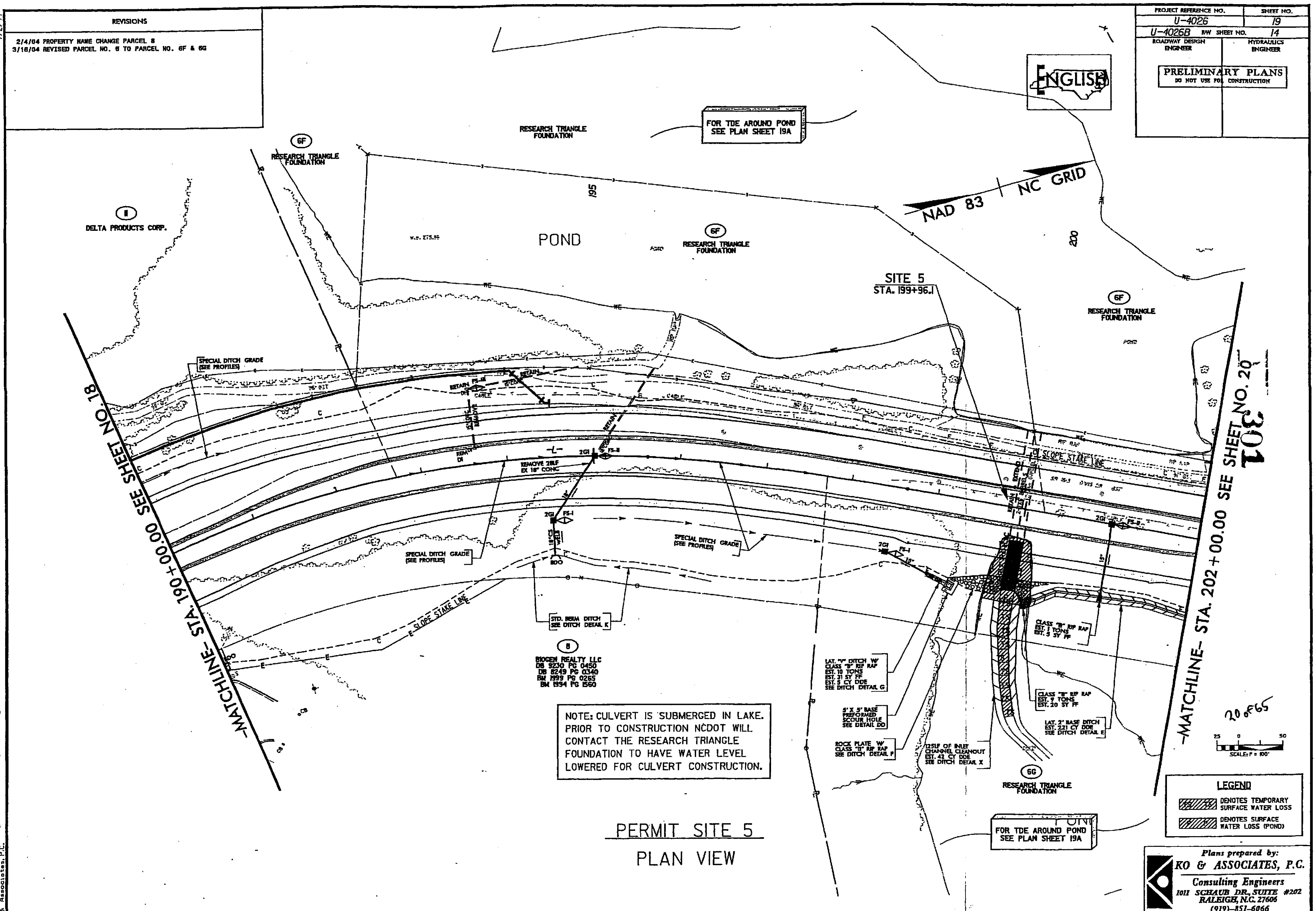

REVISIONS
2/4/04 PROPERTY NAME CHANGE PARCEL 8
3/18/04 REVISED PARCEL NO. 6 TO PARCEL NO. 6F & 6G
PROJECT REFERENCE NO. U-4026
SHEET NO. 19
U-4026B R/W SHEET NO. 14
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
ENGLISH
FOR TDE AROUND POND SEE PLAN SHEET 19A
RESEARCH TRIANGLE FOUNDATION
DELTA PRODUCTS CORP.
POND
NAD 83
NC GRID
SITE 5
STA. 199+96.1
-MATCHLINE- STA. 190+00.00 SEE SHEET NO. 18
-MATCHLINE- STA. 202+00.00 SEE SHEET NO. 20
301
SPECIAL DITCH GRADE (SEE PROFILES)
REMOVE 28LF EX 18" CONC
SLOPE STAKE LINE
STD. BERM DITCH SEE DITCH DETAIL K
BIOGEN REALTY LLC
DB 9230 PG 0450
DB 8249 PG 0340
BM 1999 PG 0265
BM 1994 PG 1560
LAT. "V" DITCH W/ CLASS "B" RIP RAP EST. 10 TONS EST. 31 SY FF EST. 5 CY DDE SEE DITCH DETAIL G
5' X 5' BASE PREFORMED SCOUR HOLE SEE DETAIL DD
ROCK PLATE W/ CLASS "II" RIP RAP SEE DITCH DETAIL P
125LF OF INLET CHANNEL CLEANOUT EST. 42 CY DDE SEE DITCH DETAIL X
CLASS "B" RIP RAP EST. 1 TONS EST. 3 SY FF
CLASS "B" RIP RAP EST. 7 TONS EST. 20 SY FF
LAT. 2' BASE DITCH EST. 221 CY DDE SEE DITCH DETAIL E
20 of 65
SCALE: 1" = 100'
LEGEND
DENOTES TEMPORARY SURFACE WATER LOSS
DENOTES SURFACE WATER LOSS (POND)
Plans prepared by:
KO & ASSOCIATES, P.C.
Consulting Engineers
1011 SCHAUB DR., SUITE #202
RALEIGH, N.C. 27606
(919)-851-6066

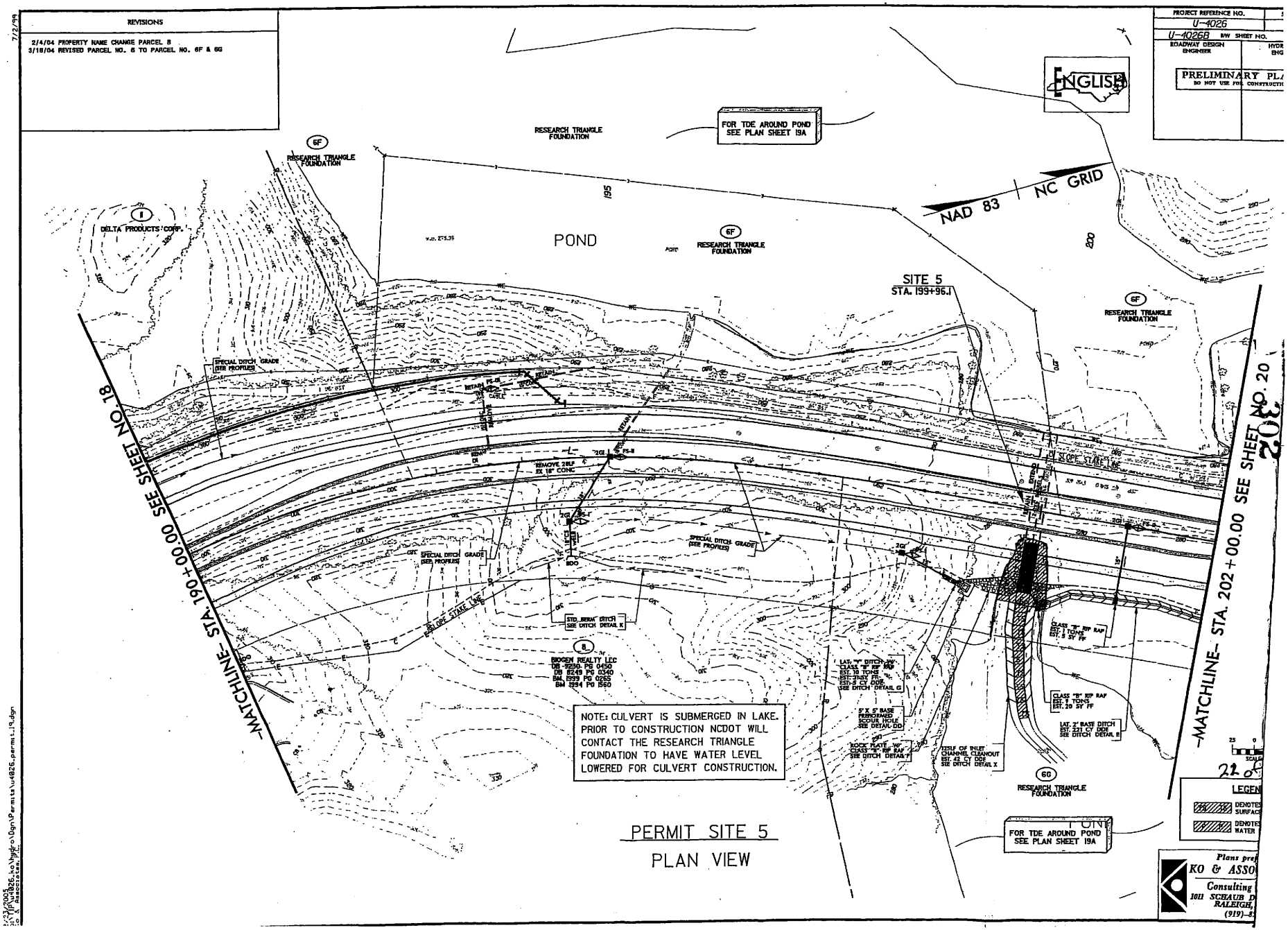
NOTE: CULVERT IS SUBMERGED IN LAKE. PRIOR TO CONSTRUCTION NCDOT WILL CONTACT THE RESEARCH TRIANGLE FOUNDATION TO HAVE WATER LEVEL LOWERED FOR CULVERT CONSTRUCTION.

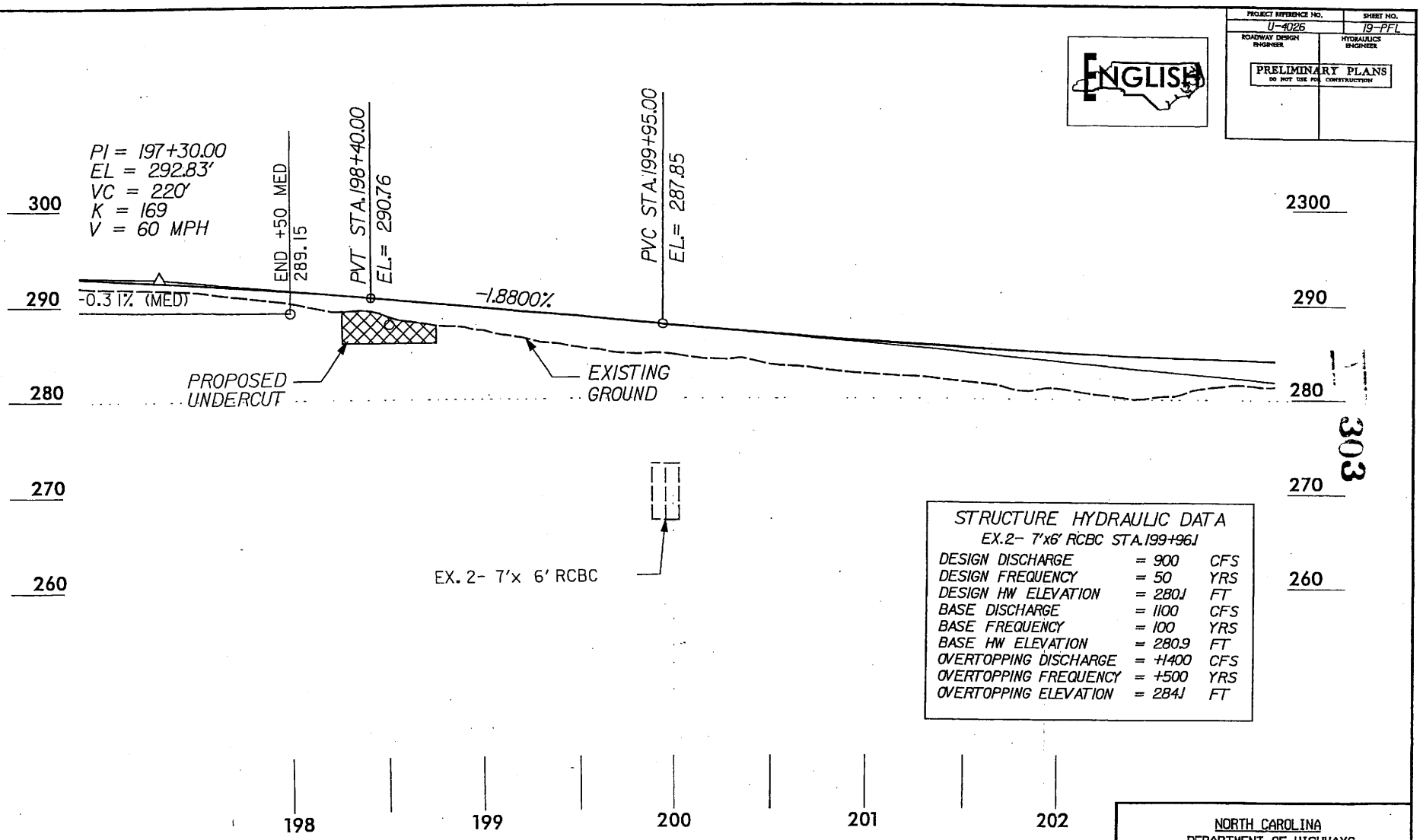
PERMIT SITE 5

PLAN VIEW

7/2/99

2/23/2005 r:\TIP\u4026_ko\hydro\Dgn\Permits\u4026_permit_19.dgn Ko & Associates, P.C.


REVISIONS
2/4/04 PROPERTY NAME CHANGE PARCEL 8
3/18/04 REVISED PARCEL NO. 6 TO PARCEL NO. 6F & 6G
PROJECT REFERENCE NO.
U-4026
U-4026B R/W SHEET NO.
ROADWAY DESIGN ENGINEER
PRELIMINARY PL
DO NOT USE FOR CONSTRUCTIO
ENGLISH
NAD 83 NC GRID
RESEARCH TRIANGLE FOUNDATION
FOR TDE AROUND POND SEE PLAN SHEET 19A
POND
DELTA PRODUCTS CORP.
SITE 5
STA. 199+96.J
-MATCHLINE- STA. 190+00.00 SEE SHEET NO. 18
-MATCHLINE- STA. 202+00.00 SEE SHEET NO. 20
SPECIAL DITCH GRADE (SEE PROFILES)
REMOVE 28LF EX 18" CONC
STD. BERM DITCH SEE DITCH DETAIL K
BIOGEN REALTY LLC
DB 9259, PG 0450
DB 8249 PG 0340
BM 1999 PG 0265
BM 1994 PG 1560
NOTE: CULVERT IS SUBMERGED IN LAKE. PRIOR TO CONSTRUCTION NCDOT WILL CONTACT THE RESEARCH TRIANGLE FOUNDATION TO HAVE WATER LEVEL LOWERED FOR CULVERT CONSTRUCTION.
CLASS "B" RIP RAP EST. 9 TONS EST. 5 SY FF
CLASS "B" RIP RAP EST. 20 SY FF
LAT. 2' BASE DITCH EST. 221 CY DDE SEE DITCH DETAIL B
123LF OF INLET CHANNEL CLEANOUT EST. 42 CY DDE SEE DITCH DETAIL X
RESEARCH TRIANGLE FOUNDATION
LEGEN
DENOTES SURFACE
DENOTES WATER
Plans prep
KO & ASSO
Consulting
1011 SCEAUB D
RALEIGH,
(919)-8
PERMIT SITE 5
PLAN VIEW



STRUCTURE HYDRAULIC DATA EX.2- 7'x6' RCBC STA.199+96J		
DESIGN DISCHARGE	= 900	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 280J	FT
BASE DISCHARGE	= 1100	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 280.9	FT
OVERTOPPING DISCHARGE	= +1400	CFS
OVERTOPPING FREQUENCY	= +500	YRS
OVERTOPPING ELEVATION	= 284J	FT

303

PROFILE ALONG ROADWAY
SITE 5

NORTH CAROLINA
DEPARTMENT OF HIGHWAYS

WAKE - DURHAM COUNTIES
3501BJJ (U-4026)

DAVIS DRIVE (SR 1613/1999) FROM 390' NORTH OF MORRISVILLE-CARPENTER RD (SR 3016) TO NC HWY 54

HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 10'

DATE: 02-04-05

SHEET 19 OF 65

PROJECT REFERENCE NO. U-4026 | SHEET NO. 19-PFL
ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

ENGLISH

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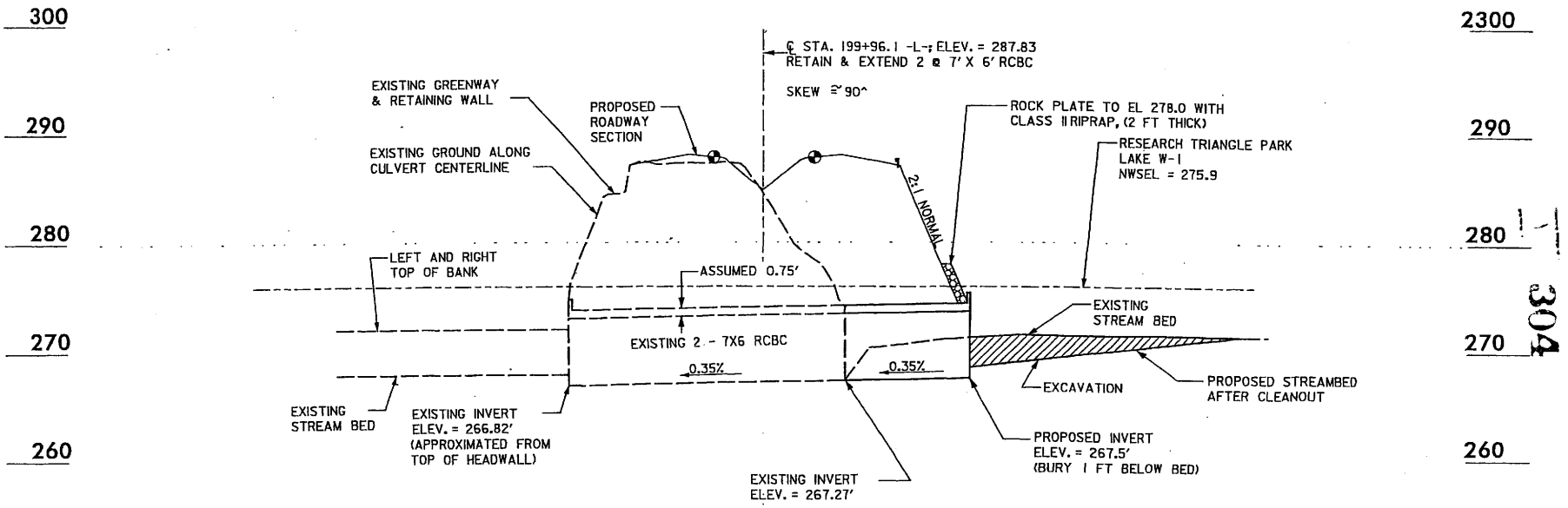
PROJECT REFERENCE NO.	SHEET NO.
U-4026	19-PAS
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



PROFILE ALONG STRUCTURE

SITE 5

NORTH CAROLINA
DEPARTMENT OF HIGHWAYS

WAKE - DURHAM COUNTIES
35018.1.1 (U-4026)

DAVIS DRIVE (SR 1613/1999) FROM 390' NORTH OF MORRISVILLE-CARPENTER RD (SR 3016) TO NC HWY 54

HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 10'

DATE: 02-04-05

SHEET 23 OF 65

304

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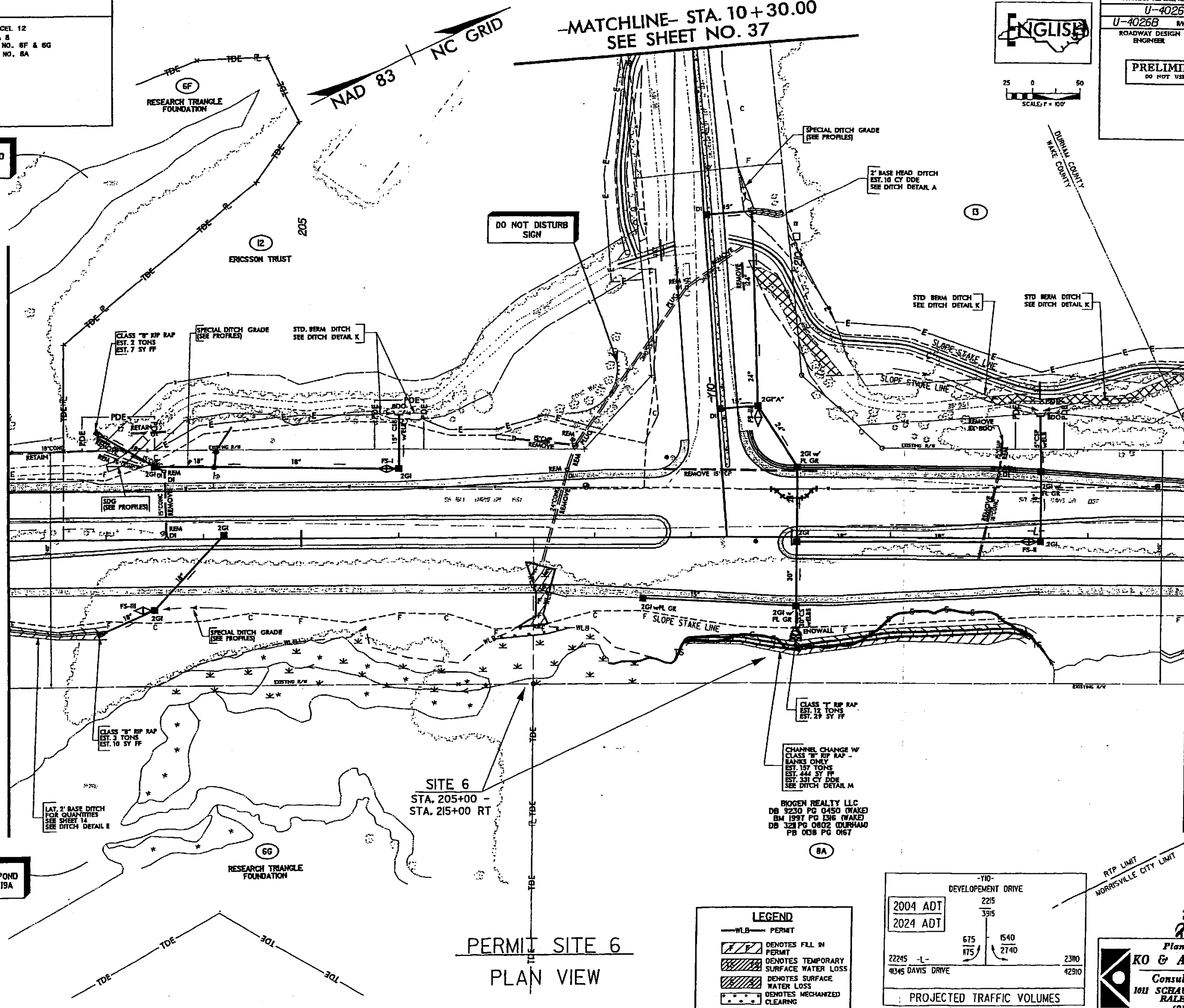
7/2/99

REVISIONS
12/29/03 REVISED R/W, CE AND PDE ON PARCEL 12
2/4/04 PROPERTY NAME CHANGE PARCELS 6 & 8
3/16/04 REVISED PARCEL NO. 6 TO PARCEL NO. 6F & 6G
3/29/04 REVISED PARCEL NO. 8 TO PARCEL NO. 8A

PROJECT REFERENCE NO.	SHEET NO.
U-4026	20
U-4026B R/W SHEET NO.	15
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



-MATCHLINE- STA. 10+30.00 SEE SHEET NO. 37
-MATCHLINE- STA. 202+00.00 SEE SHEET NO. 19
-MATCHLINE- STA. 214+00.00 SEE SHEET NO. 21
NAD 83 NC GRID
ENGLISH
SCALE: 1" = 100'
FOR TDE AROUND POND SEE PLAN SHEET 19A
FOR TDE AROUND POND SEE PLAN SHEET 19A
DO NOT DISTURB SIGN
6F RESEARCH TRIANGLE FOUNDATION
12 ERICSSON TRUST
205
13
DURHAM COUNTY
WAKE COUNTY
SPECIAL DITCH GRADE (SEE PROFILES)
2' BASE HEAD DITCH EST. 10 CY DDE SEE DITCH DETAIL A
STD BERM DITCH SEE DITCH DETAIL K
STD BERM DITCH SEE DITCH DETAIL K
CLASS "B" RIP RAP EST. 2 TONS EST. 7 SY FF
SPECIAL DITCH GRADE (SEE PROFILES)
STD. BERM DITCH SEE DITCH DETAIL K
SDG (SEE PROFILES)
SLOPE STAKE LINE
SLOPE STAKE LINE
SLOPE STAKE LINE
-Y10-
-L-
SPECIAL DITCH GRADE (SEE PROFILES)
CLASS "B" RIP RAP EST. 3 TONS EST. 10 SY FF
LAT. 2' BASE DITCH FOR QUANTITIES SEE SHEET 14 SEE DITCH DETAIL E
CLASS "I" RIP RAP EST. 12 TONS EST. 29 SY FF
CHANNEL CHANGE W/ CLASS "B" RIP RAP - BANKS ONLY EST. 157 TONS EST. 444 SY FF EST. 331 CY DDE SEE DITCH DETAIL M
ENDWALL
SITE 6
STA. 205+00 - STA. 215+00 RT
BIOGEN REALTY LLC
DB 9230 PG 0450 (WAKE)
BM 1997 PG 1316 (WAKE)
DB 323 PG 0602 (DURHAM)
PB 0038 PG 0167
8A
6G
RESEARCH TRIANGLE FOUNDATION
RTP LIMIT
MORRISVILLE CITY LIMIT

PERMIT SITE 6
PLAN VIEW

LEGEND

- —WLB— PERMIT
- DENOTES FILL IN PERMIT
- DENOTES TEMPORARY SURFACE WATER LOSS
- DENOTES SURFACE WATER LOSS
- DENOTES MECHANIZED CLEARING

2004 ADT	-Y10- DEVELOPEMENT DRIVE
2024 ADT	2215 / 3915
	675 / 1175; 1540 / 2740
22245 -L- / 4345 DAVIS DRIVE	23110 / 42910

PROJECTED TRAFFIC VOLUMES

305

24 of 65

Plans prepared by:
KO & ASSOCIATES, P.C.
Consulting Engineers
1011 SCHAUB DR., SUITE #202
RALEIGH, N.C. 27606
(919)-851-6066

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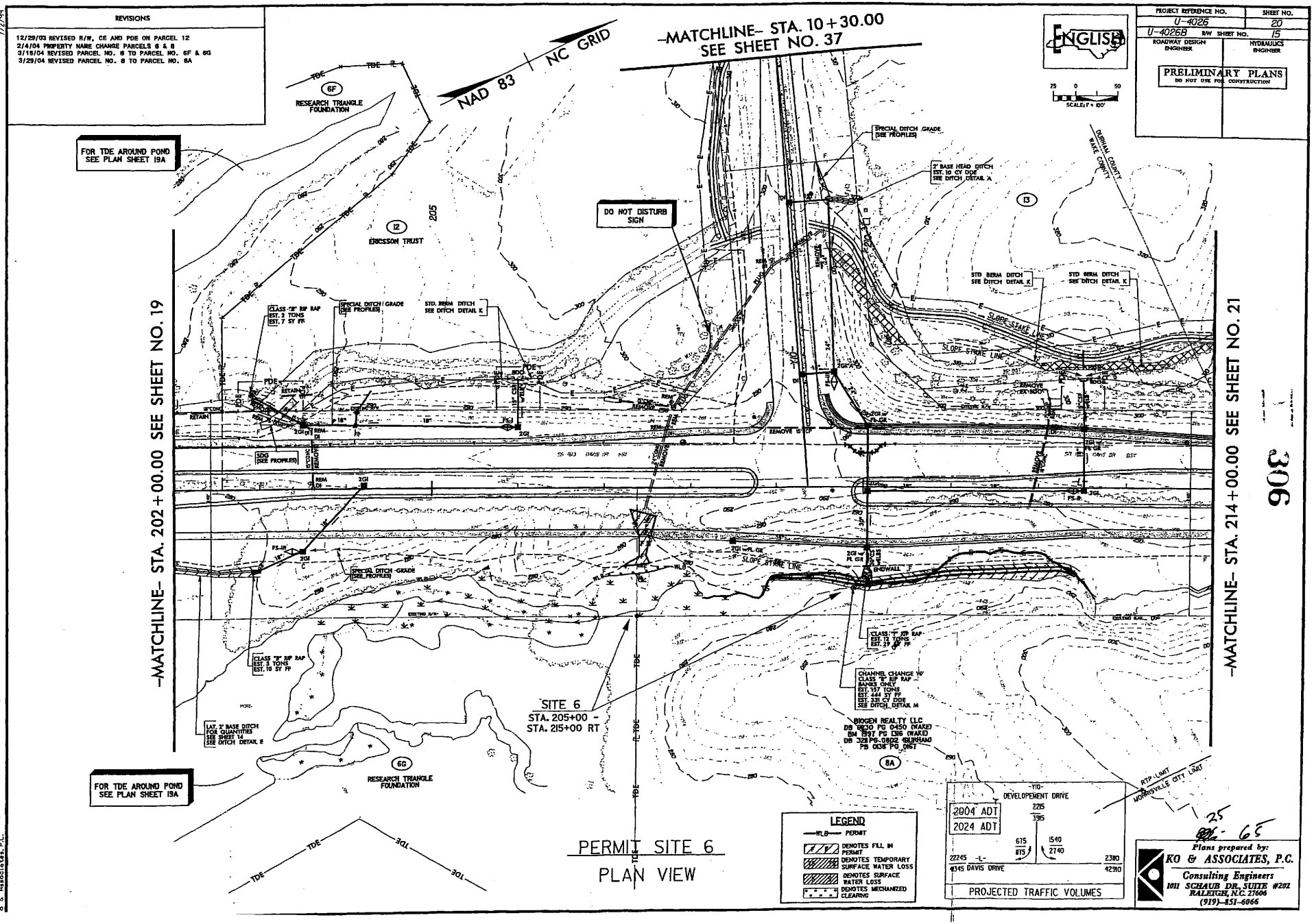
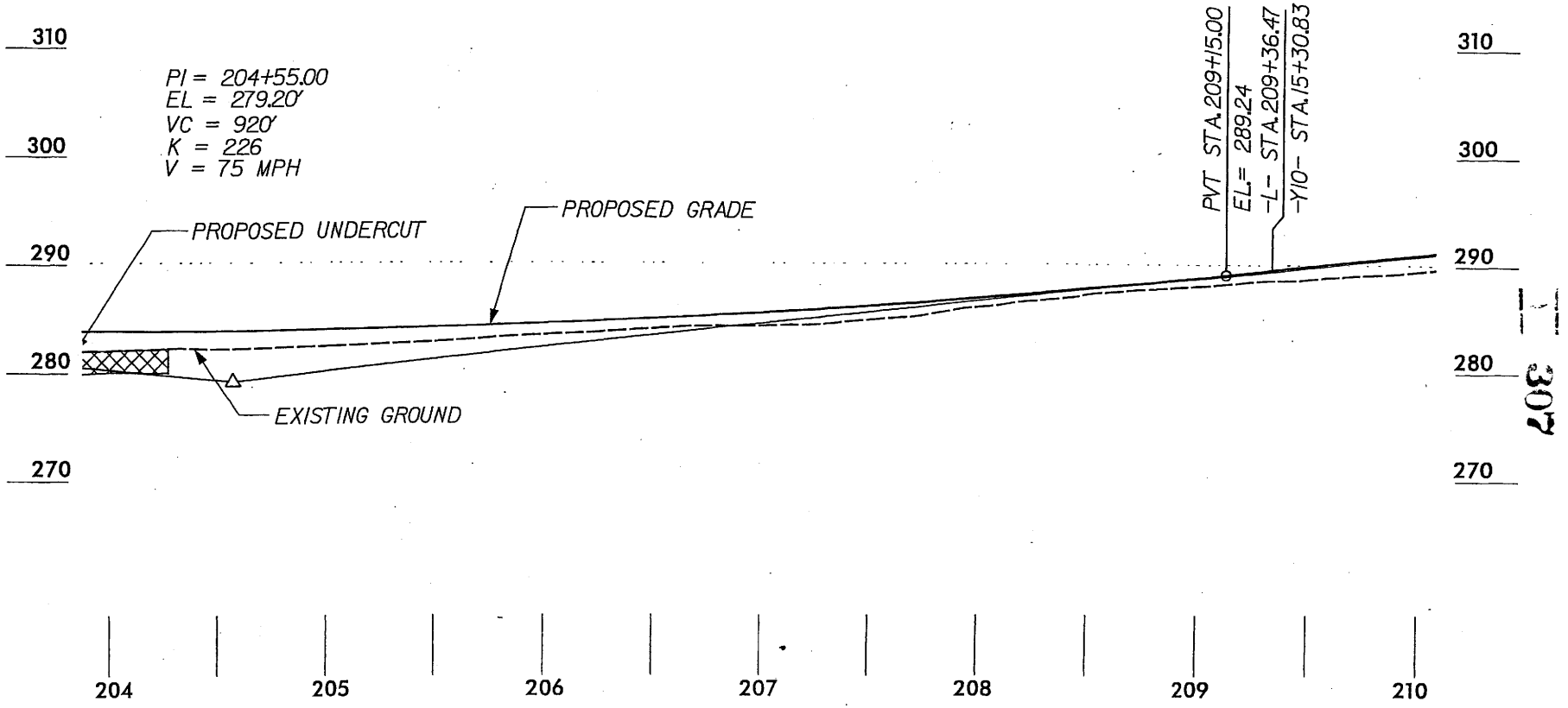
Ko & Associates, P.C.


REVISIONS
12/29/03 REVISED R/W, CE AND PDE ON PARCEL 12
2/4/04 PROPERTY NAME CHANGE PARCELS 6 & 8
3/18/04 REVISED PARCEL NO. 6 TO PARCEL NO. 6F & 6G
3/29/04 REVISED PARCEL NO. 8 TO PARCEL NO. 8A
PROJECT REFERENCE NO. U-4026
SHEET NO. 20
U-4026B RW SHEET NO. 15
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
ENGLISH
NAD 83 / NC GRID
-MATCHLINE- STA. 10+30.00 SEE SHEET NO. 37
-MATCHLINE- STA. 202+00.00 SEE SHEET NO. 19
-MATCHLINE- STA. 214+00.00 SEE SHEET NO. 21
FOR TDE AROUND POND SEE PLAN SHEET 19A
FOR TDE AROUND POND SEE PLAN SHEET 19A
DO NOT DISTURB SIGN
6F RESEARCH TRIANGLE FOUNDATION
12 ERICSSON TRUST
13
6G RESEARCH TRIANGLE FOUNDATION
8A BIOGEN REALTY LLC
DB 10230 PG 0450 (WAKE)
BM 1997 PG 1316 (WAKE)
DB 3228 PG 0802 (DURHAM)
PB 0036 PG 0057
DURHAM COUNTY
WAKE COUNTY
SITE 6
STA. 205+00 -
STA. 215+00 RT
SPECIAL DITCH GRADE (SEE PROFILES)
2' BASE HEAD DITCH EST. 10 CY DSE SEE DITCH DETAIL A
STD BERM DITCH SEE DITCH DETAIL K
SLOPE STAKE LINE
CLASS "B" RIP RAP EST. 3 TONS EST. 7 SY FF
CLASS "B" RIP RAP EST. 3 TONS EST. 10 SY FF
CLASS "I" RIP RAP EST. 73 TONS EST. 29 SY FF
CHANNEL CHANGE W CLASS "B" RIP RAP - BANKS ONLY EST. 157 TONS EST. 444 SY FF EST. 331 CY DSE SEE DITCH DETAIL M
LAT. 2' BASE DITCH FOR QUANTITIES SEE SHEET 14 SEE DITCH DETAIL E
SDG (SEE PROFILES)
ENDWALL
REMOVE 15" CP
REMOVE 18" CP
RTP LIMIT
MORRISVILLE CITY LIMIT
-Y10- DEVELOPEMENT DRIVE
2004 ADT
2024 ADT
2215
3915
675
815
1540
2740
22245 -L-
2380
4345 DAVIS DRIVE
42910
PROJECTED TRAFFIC VOLUMES
LEGEND
WLB PERMIT
DENOTES FILL IN PERMIT
DENOTES TEMPORARY SURFACE WATER LOSS
DENOTES SURFACE WATER LOSS
DENOTES MECHANIZED CLEARING
PERMIT SITE 6
PLAN VIEW
Plans prepared by:
KO & ASSOCIATES, P.C.
Consulting Engineers
1011 SCHAUB DR. SUITE #202
RALEIGH, N.C. 27606
(919)-851-6066
306

PROJECT REFERENCE NO.	SHEET NO.
U-4026	20-PFL
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

ENGLISH



307

PROFILE ALONG ROADWAY
SITE 6

NORTH CAROLINA
DEPARTMENT OF HIGHWAYS

WAKE - DURHAM COUNTIES
35018.1.1 (U-4026)

DAVIS DRIVE (SR 1613/1999) FROM 390' NORTH OF MORRISVILLE-CARPENTER RD (SR 3016) TO NC HWY 54

HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 10'

DATE: 02-04-05

SHEET 26 OF 65

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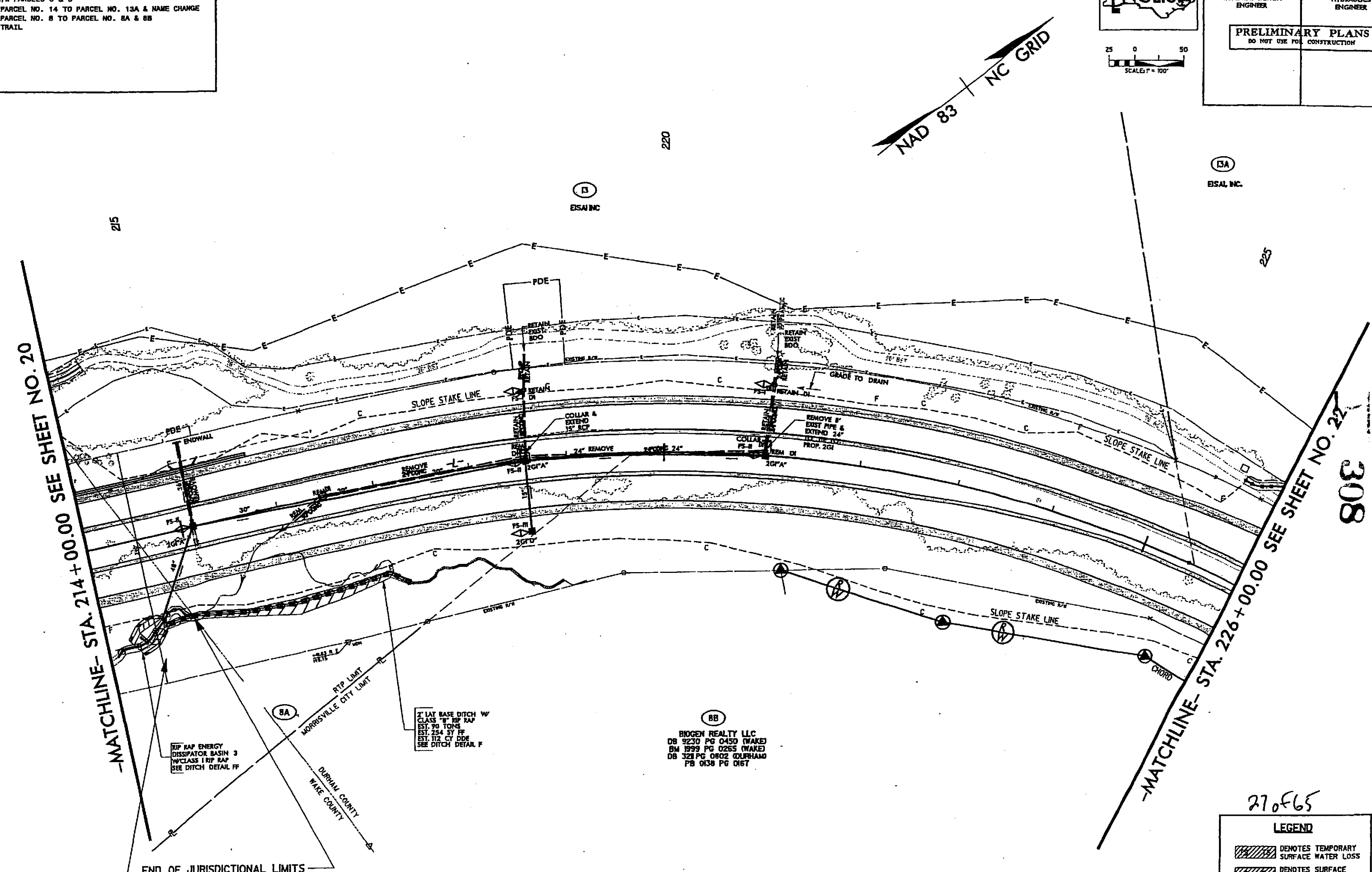
REVISIONS
2/4/04 PROPERTY NAME CHANGE PARCELS 6 & 8
2/4/04 REVISED R/W PARCELS 6 & 8
3/25/04 REVISED PARCEL NO. 14 TO PARCEL NO. 13A & NAME CHANGE
3/29/04 REVISED PARCEL NO. 8 TO PARCEL NO. 8A & 8B
2/23/05 REVISED TRAIL

7/2/99

PROJECT REFERENCE NO.		SHEET NO.
U-4026		21
U-4026B	R/W SHEET NO.	16
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

ENGLISH



PERMIT SITE 6

PLAN VIEW

27 of 65

LEGEND

DENOTES TEMPORARY SURFACE WATER LOSS

DENOTES SURFACE WATER LOSS

Plans prepared by:
KO & ASSOCIATES, P.C.
Consulting Engineers
1011 SCHAUB DR., SUITE #202
RALEIGH, N.C. 27606
(919)-851-6066

3/22/2005
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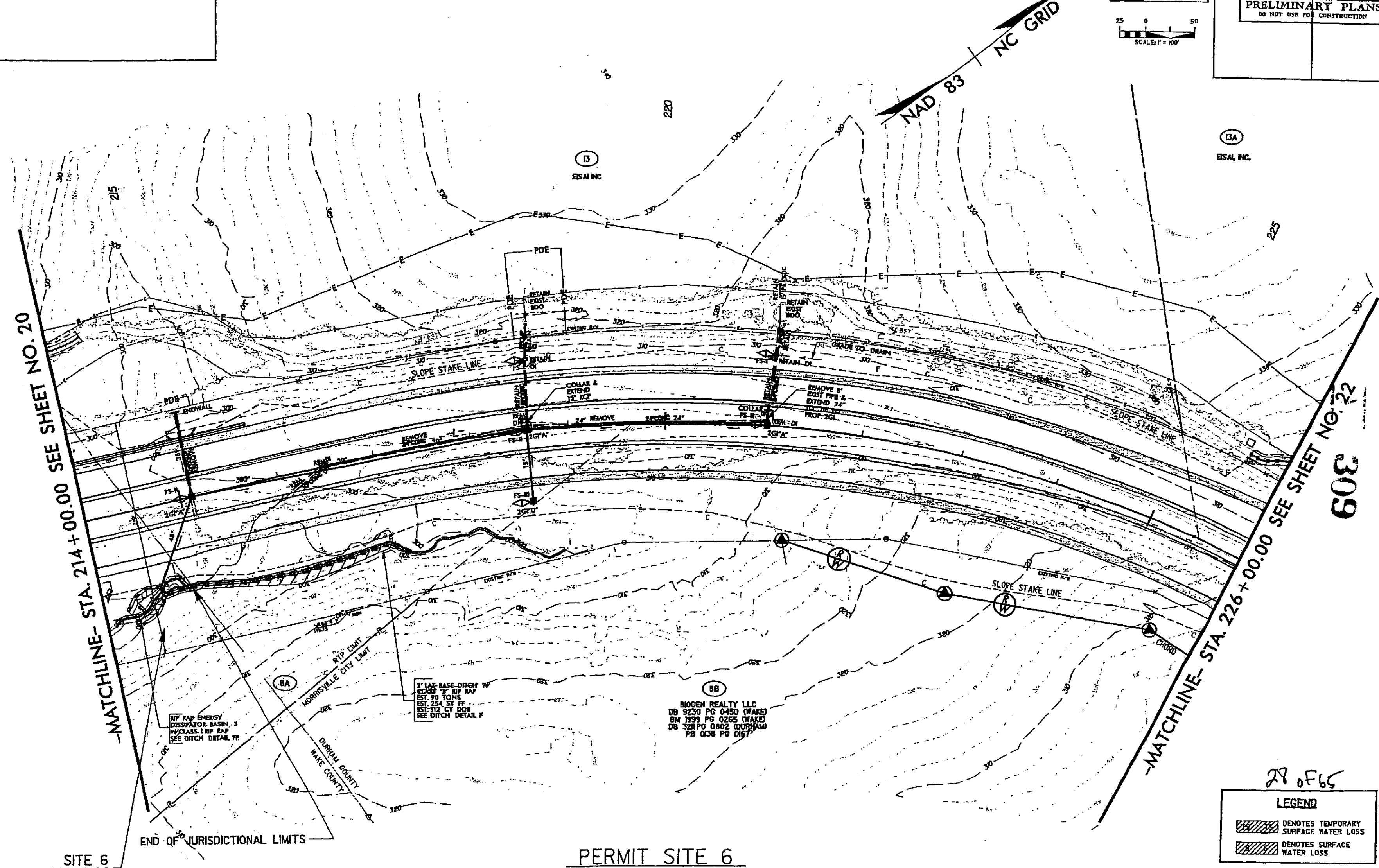
KO & Associates, P.C.

REVISIONS
2/4/04 PROPERTY NAME CHANGE PARCELS 6 & 8
2/4/04 REVISED R/W PARCELS 6 & 8
3/25/04 REVISED PARCEL NO. 14 TO PARCEL NO. 13A & NAME CHANGE
3/29/04 REVISED PARCEL NO. 8 TO PARCEL NO. 8A & 8B
2/23/05 REVISED TRAIL

PROJECT REFERENCE NO.	SHEET NO.
U-4026	21
U-4026B R/W SHEET NO.	16
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



309

28 of 65

LEGEND

- DENOTES TEMPORARY SURFACE WATER LOSS
- DENOTES SURFACE WATER LOSS

PERMIT SITE 6

PLAN VIEW

Plans prepared by:
KO & ASSOCIATES, P.C.
Consulting Engineers
1011 SCHAUB DR., SUITE #202
RALEIGH, N.C. 27606
(919)-851-6066

7/2/99

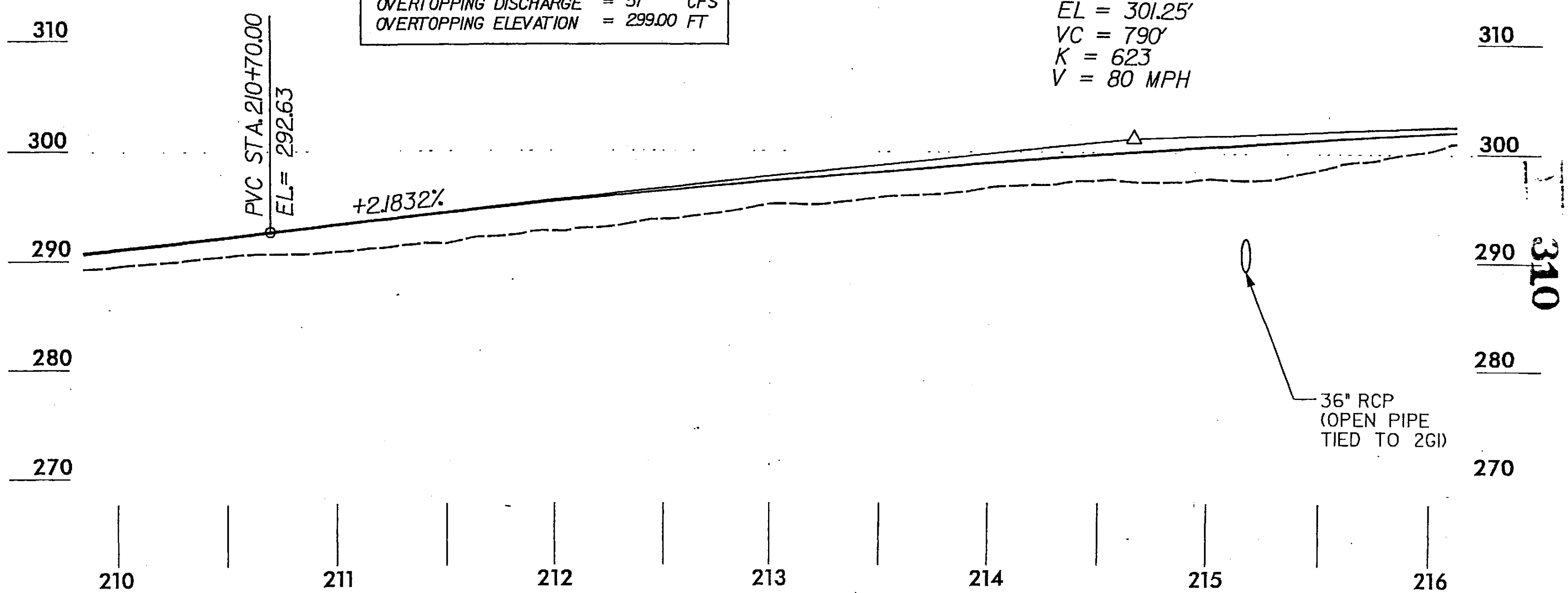
PROJECT REFERENCE NO.	SHEET NO.
U-4026	21-PFL
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

ENGLISH

PIPE HYDRAULIC DATA
36" RCP STA. 215+17 -L-

DRAINAGE AREA	=	17.0	AC
DESIGN FREQUENCY	=	50	YRS
DESIGN DISCHARGE	=	49	CFS
DESIGN HW ELEVATION	=	298.50	FT
100 YEAR DISCHARGE	=	60	CFS
100 YEAR HW ELEVATION	=	299.45	FT
OVERTOPPING FREQUENCY	=	100-	YRS
OVERTOPPING DISCHARGE	=	57	CFS
OVERTOPPING ELEVATION	=	299.00	FT



PROFILE ALONG ROADWAY
SITE 6

NORTH CAROLINA
DEPARTMENT OF HIGHWAYS

WAKE - DURHAM COUNTIES
35018.1.1 (U-4026)

DAVIS DRIVE (SR 1613/1999) FROM 390' NORTH OF MORRISVILLE-CARPENTER RD (SR 3016) TO NC HWY 54

HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 10'

DATE: 02-04-05 SHEET 25 OF 65

REVISIONS
2/4/04 PROPERTY NAME CHANGE PARCELS 6 & 8
2/4/04 REVISED R/W & TDE PARCELS 6 & 8
3/8/04 REVISED R/W & CE TO PDE PARCEL 14
3/16/04 REVISED PARCEL NO 6 TO PARCEL NO. 6H & 6I
3/25/04 REVISED PARCEL NO 14 TO PARCEL NO. 13A & NAME CHANGE
3/29/04 REVISED PARCEL NO 8 TO PARCEL NO. 8B
7/2/04 NAME CHANGE PARCEL NO. 15
2/23/05 REVISED TRAIL

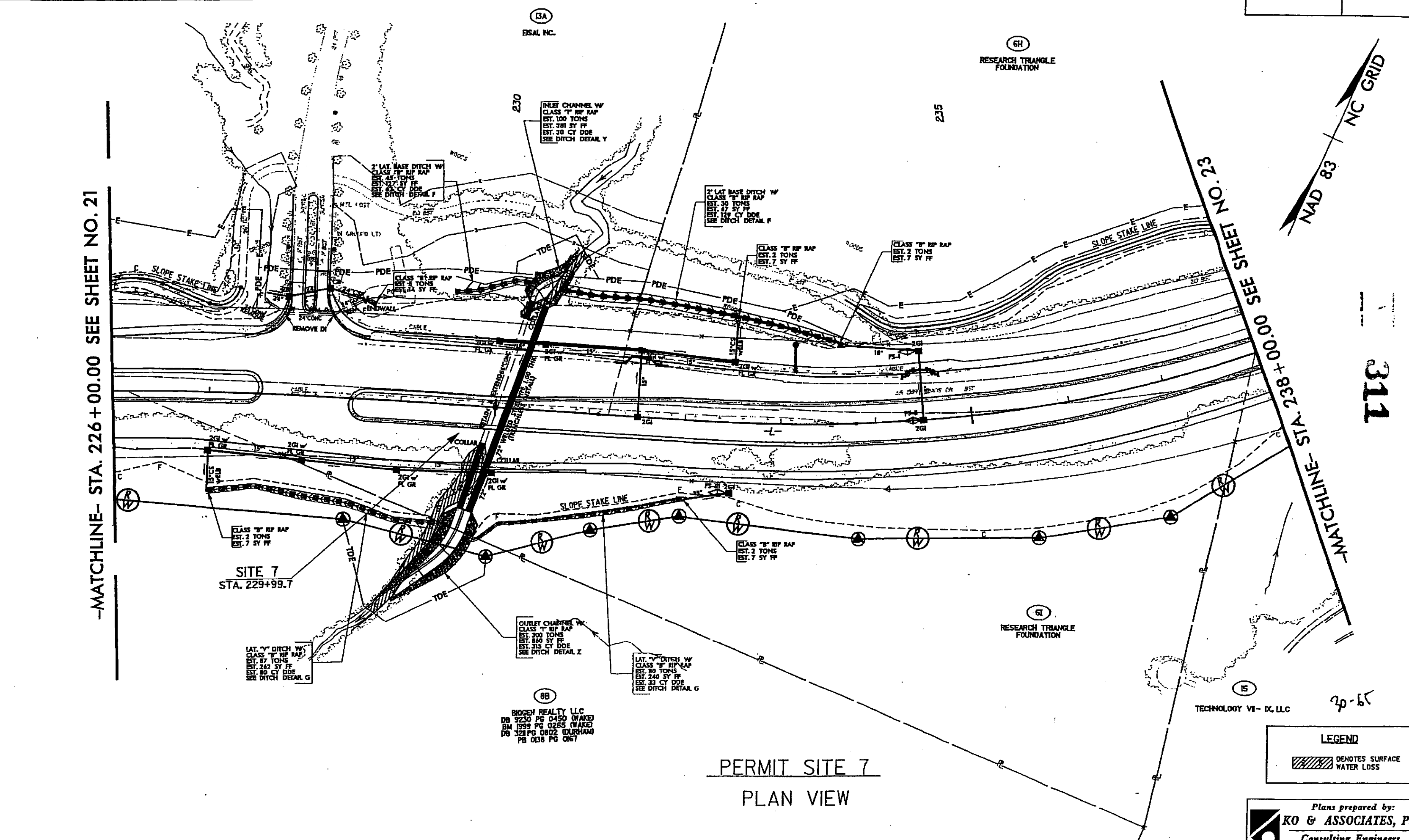
PROJECT REFERENCE NO.	SHEET NO.
U-4026	22
U-4026B R/W SHEET NO.	17
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

ENGLISH

SCALE: 1" = 100'

311



-MATCHLINE- STA. 226+00.00 SEE SHEET NO. 21
-MATCHLINE- STA. 238+00.00 SEE SHEET NO. 23
NAD 83 / NC GRID
13A ESAL INC.
6H RESEARCH TRIANGLE FOUNDATION
6I RESEARCH TRIANGLE FOUNDATION
8B BIOGEN REALTY LLC DB 9230 PG 0450 (WAKE) BM 1999 PG 0265 (WAKE) DB 328 PG 0802 (DURHAM) PB 0138 PG 0167
15 TECHNOLOGY VII - IX, LLC
230
235
SLOPE STAKE LINE
SITE 7
STA. 229+99.7
INLET CHANNEL W/ CLASS "I" RIP RAP EST. 100 TONS EST. 381 SY FF EST. 30 CY DDE SEE DITCH DETAIL Y
OUTLET CHANNEL W/ CLASS "I" RIP RAP EST. 300 TONS EST. 866 SY FF EST. 315 CY DDE SEE DITCH DETAIL Z
CLASS "B" RIP RAP EST. 2 TONS EST. 7 SY FF
REMOVE DI
ENDWALL
COLLAR
-L-

PERMIT SITE 7

PLAN VIEW

20-65

LEGEND
DENOTES SURFACE WATER LOSS

Plans prepared by:
KO & ASSOCIATES, P.C.
Consulting Engineers
1011 SCHAUB DR., SUITE #202
RALEIGH, N.C. 27606
(919)-851-6066

7/2/99

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o & Associates, P.C.

REVISIONS
2/4/04 PROPERTY NAME CHANGE PARCELS 6 & 8
2/4/04 REVISED R/W & TDE PARCELS 6 & 8
3/8/04 REVISED R/W & CE TO PDE PARCEL 14
3/16/04 REVISED PARCEL NO 6 TO PARCEL NO. 6H & 6I
3/25/04 REVISED PARCEL NO 14 TO PARCEL NO. 13A & NAME CHANGE
3/29/04 REVISED PARCEL NO 8 TO PARCEL NO. 8B
7/2/04 NAME CHANGE PARCEL NO. 15
2/23/05 REVISED TRAIL

7/2/99

PROJECT REFERENCE NO.	SHEET NO.
U-4026	22
U-4026B RW SHEET NO.	17
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

ENGLISH

25 0 50
SCALE: 1" = 100'

NAD 83 / NC GRID

-MATCHLINE- STA. 226+00.00 SEE SHEET NO. 21

-MATCHLINE- STA. 238+00.00 SEE SHEET NO. 23

SITE 7
STA. 229+99.7

SLOPE STAKE LINE

TDE

PDE

6A
EISAL INC.

6H
RESEARCH TRIANGLE FOUNDATION

6I
RESEARCH TRIANGLE FOUNDATION

8B
BIOGEN REALTY LLC
DB 9230 PG 0450 (WAKE)
BM 1999 PG 0265 (WAKE)
DB 328 PG 0802 (DURHAM)
PB 0038 PG 0167

15
TECHNOLOGY VII - DK, LLC

312

PERMIT SITE 7

PLAN VIEW

LEGEND

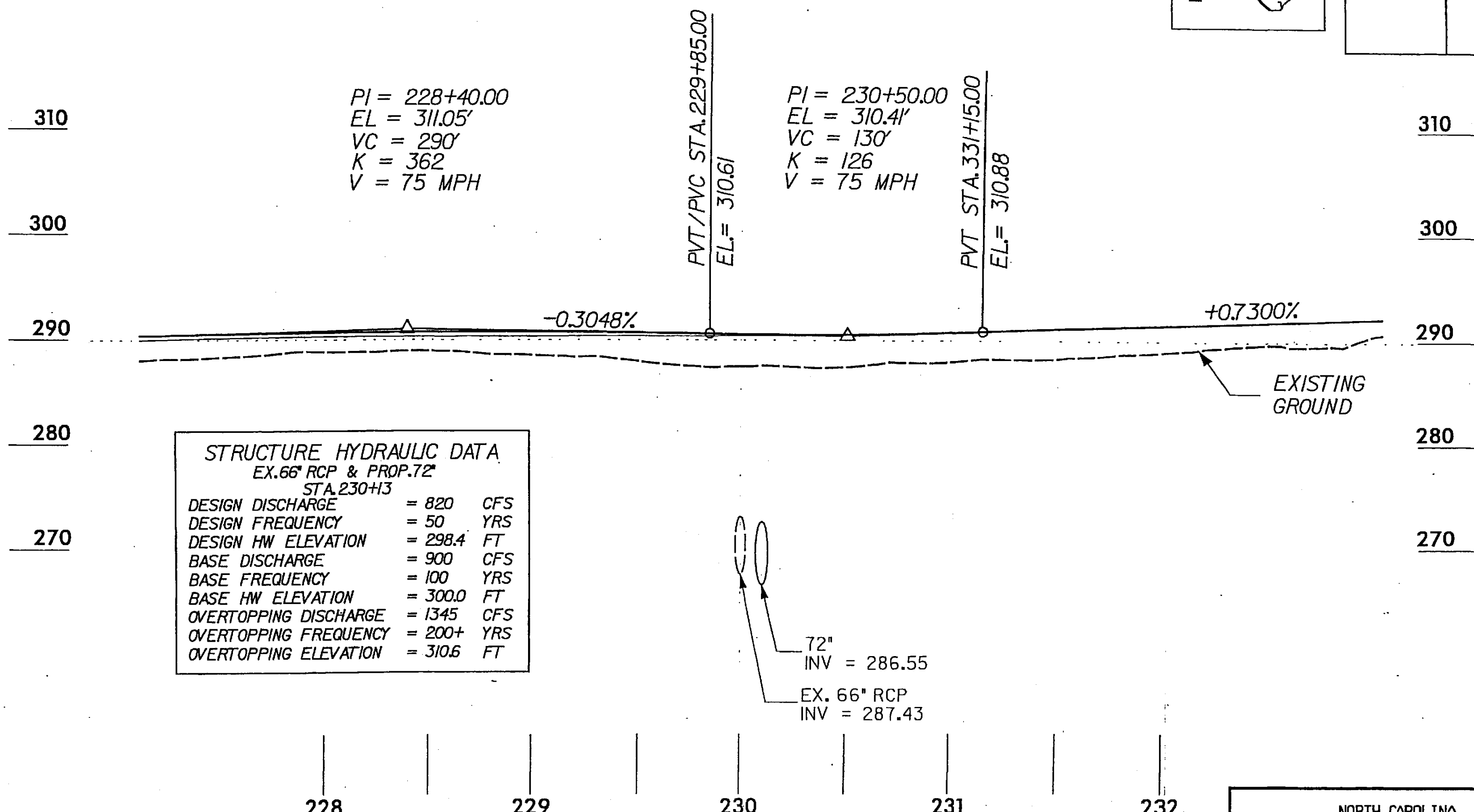
DENOTES SURFACE WATER LOSS

Plans prepared by:
KO & ASSOCIATES, P.C.
Consulting Engineers
1011 SCEAUB DR., SUITE #202
RALEIGH, N.C. 27606
(919)-851-6066

PROJECT REFERENCE NO.	SHEET NO.
U-4026	22-PFL
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

ENGLISH



STRUCTURE HYDRAULIC DATA
EX.66" RCP & PROP.72"
STA.230+13

DESIGN DISCHARGE	= 820	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 298.4	FT
BASE DISCHARGE	= 900	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 300.0	FT
OVERTOPPING DISCHARGE	= 1345	CFS
OVERTOPPING FREQUENCY	= 200+	YRS
OVERTOPPING ELEVATION	= 310.6	FT

PROFILE ALONG ROADWAY
SITE 7

313

NORTH CAROLINA
DEPARTMENT OF HIGHWAYS

WAKE - DURHAM COUNTIES
35018.1.1 (U-4026)

DAVIS DRIVE (SR 1613/1999) FROM 390' NORTH OF MORRISVILLE-CARPENTER RD (SR 3016) TO NC HWY 54

HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 10'

DATE: 07-06-04

SHEET 32 OF 65

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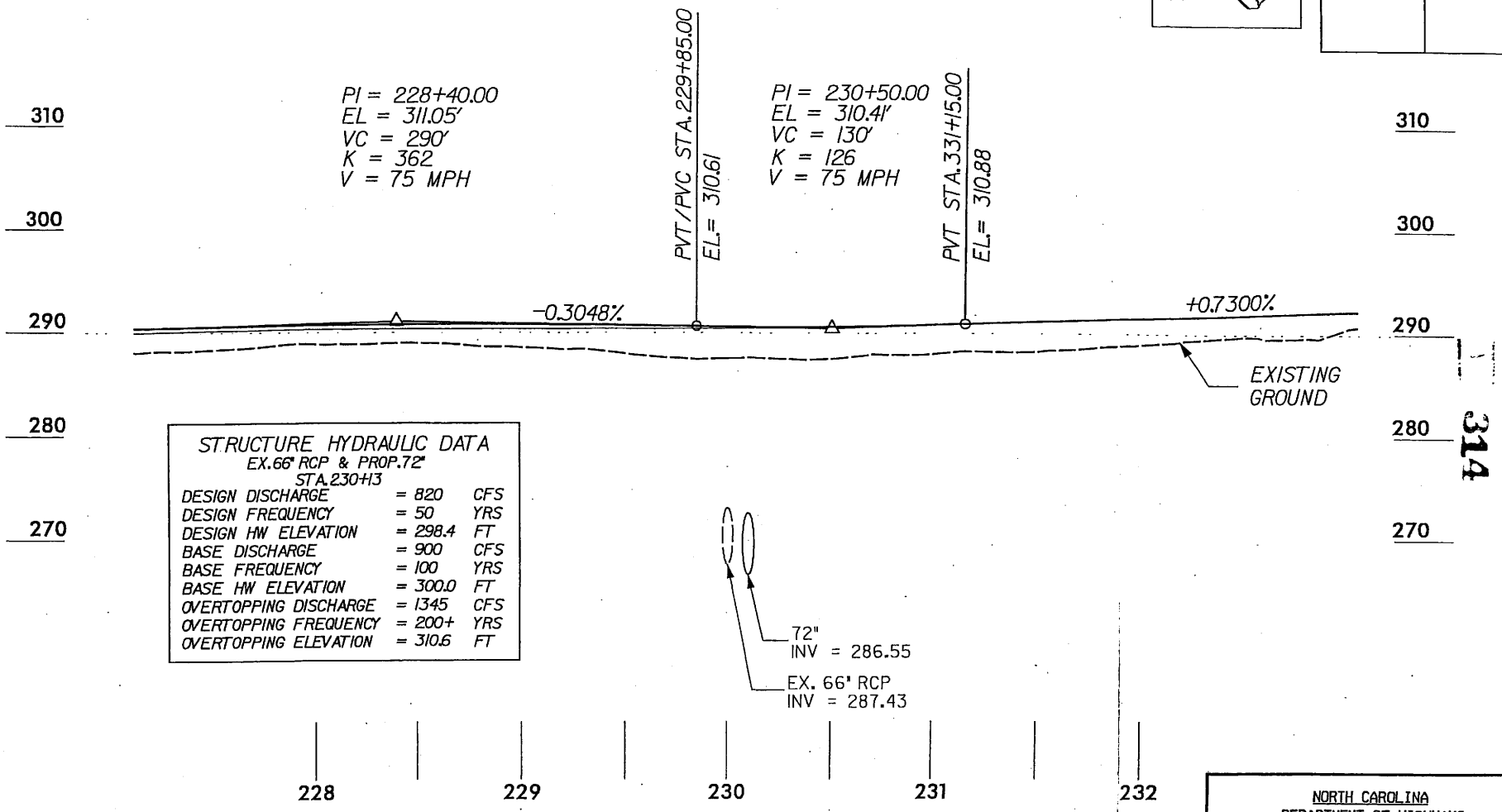
PROJECT REFERENCE NO.	SHEET NO.
U-4026	22-PFL
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

ENGLISH



STRUCTURE HYDRAULIC DATA
EX. 66" RCP & PROP. 72"
STA. 230+13

DESIGN DISCHARGE	= 820	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 298.4	FT
BASE DISCHARGE	= 900	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 300.0	FT
OVERTOPPING DISCHARGE	= 1345	CFS
OVERTOPPING FREQUENCY	= 200+	YRS
OVERTOPPING ELEVATION	= 310.6	FT

PROFILE ALONG ROADWAY
SITE 7

NORTH CAROLINA
DEPARTMENT OF HIGHWAYS

WAKE - DURHAM COUNTIES
3501B.1.1 (U-4026)

DAVIS DRIVE (SR 1613/1999) FROM 390' NORTH OF MORRISVILLE-CARPENTER RD (SR 3016) TO NC HWY 54

HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 10'

DATE: 02-04-05

SHEET 33 OF 65

314

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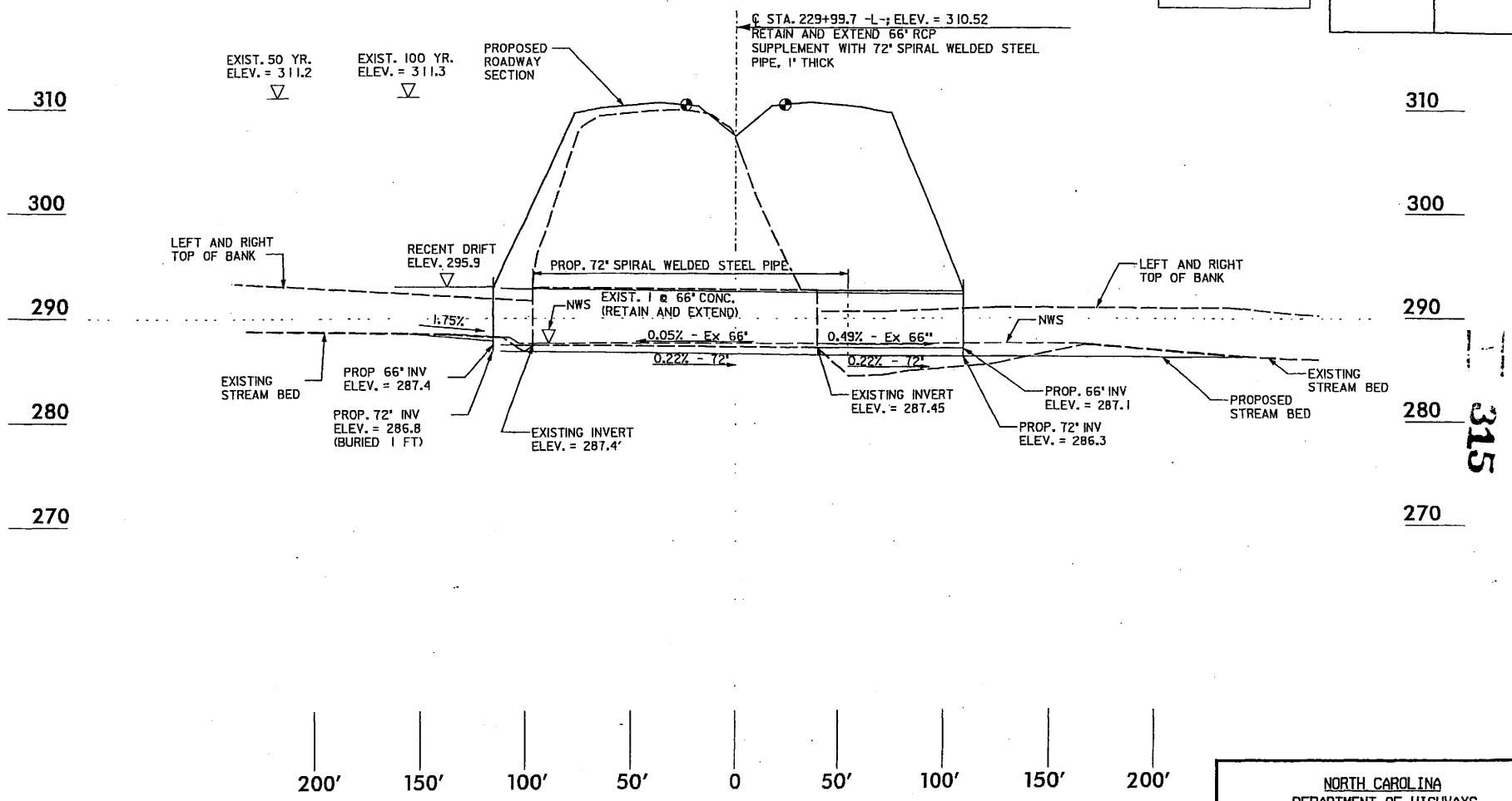

PROFILE ALONG STRUCTURE
SITE 7

PROJECT REFERENCE NO.	SHEET NO.
U-4026	22-PAS
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NORTH CAROLINA
DEPARTMENT OF HIGHWAYS

WAKE - DURHAM COUNTIES
35018.1.1 (U-4026)

DAVIS DRIVE (SR 1613/1999) FROM 390' NORTH OF MORRISVILLE-CARPENTER RD (SR 3016) TO NC HWY 54

HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 10'

DATE: 02-04-05

SHEET 34 OF 65

315

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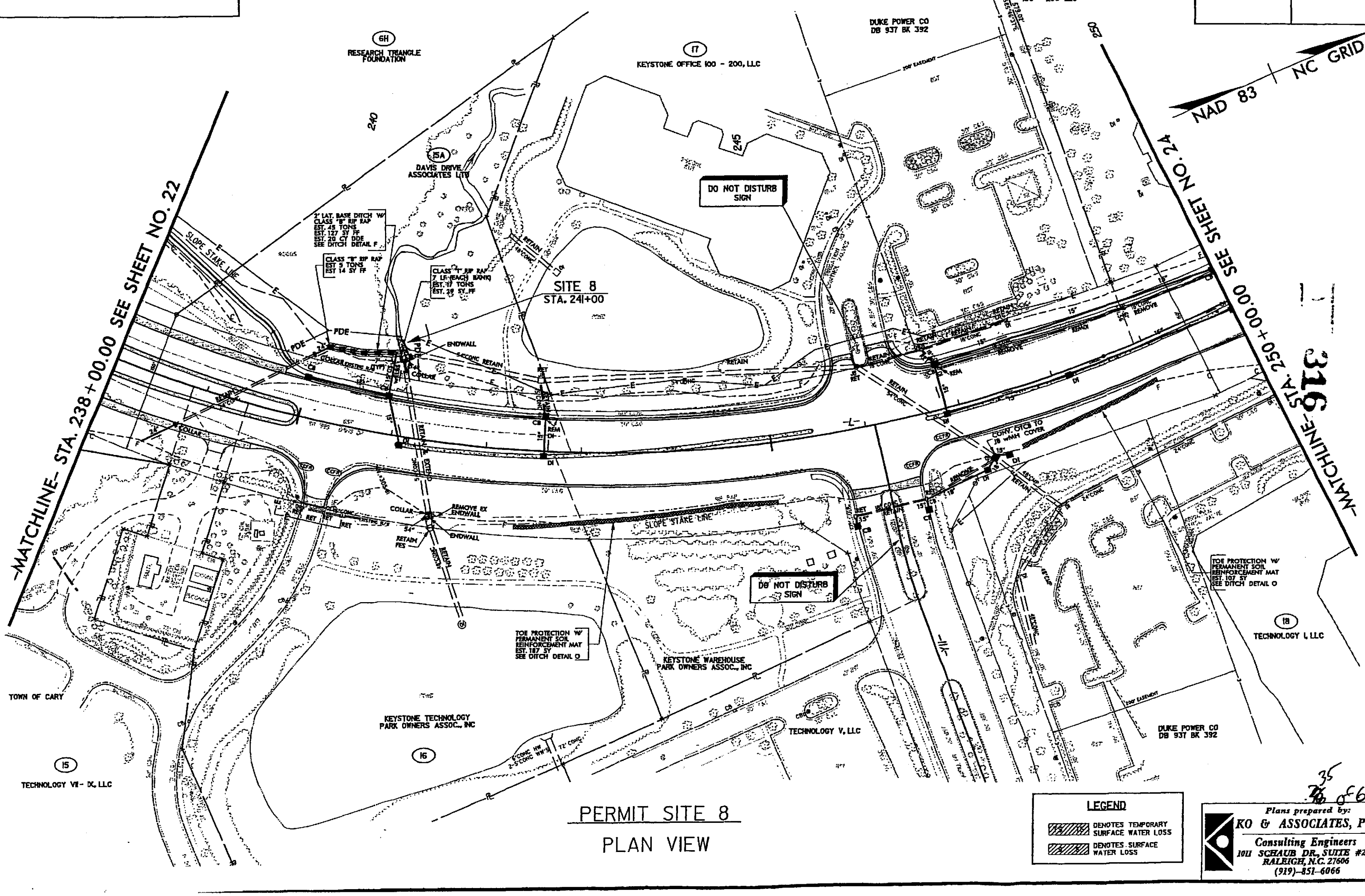
PROJECT REFERENCE NO.	SHEET NO.
U-4026	23
U-4026B R/W SHEET NO.	18
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

3/16/04 REVISED PARCEL NO. 6 TO PARCEL NO. 6H
3/25/04 REVISED PARCEL NO. 15 TO PARCEL NO. 15A & REVISED PARCEL NO. 15 TO PARCEL NO. 17A & NAME CHANGE
7/2/04 NAME CHANGE PARCELS 15, 17 & 17A


ENGLISH
SCALE: 1" = 100'
NAD 83
NC GRID
-MATCHLINE- STA. 238+00.00 SEE SHEET NO. 22
-MATCHLINE- STA. 250+00.00 SEE SHEET NO. 24
316
6H RESEARCH TRIANGLE FOUNDATION
17 KEYSTONE OFFICE 100 - 200, LLC
17A KEYSTONE OFFICE 100 - 200 LLC
DUKE POWER CO DB 937 BK 392
15A DAVIS DRIVE ASSOCIATES LTD
DO NOT DISTURB SIGN
SITE 8
STA. 241+00
SLOPE STAKE LINE
ENDWALL
COLLAR
REMOVE EX ENDWALL
RETAIN
PDE
CONV. DTCH TO 18 w/MH COVER
TOE PROTECTION W/ PERMANENT SOIL REINFORCEMENT MAT EST. 187 SY SEE DITCH DETAIL O
TOE PROTECTION W/ PERMANENT SOIL REINFORCEMENT MAT EST. 107 SY SEE DITCH DETAIL O
KEYSTONE WAREHOUSE PARK OWNERS ASSOC., INC
KEYSTONE TECHNOLOGY PARK OWNERS ASSOC., INC
16
18 TECHNOLOGY I, LLC
TECHNOLOGY V, LLC
TOWN OF CARY
15 TECHNOLOGY VII - IX, LLC
-L-
-Y-

PERMIT SITE 8

PLAN VIEW

LEGEND
DENOTES TEMPORARY SURFACE WATER LOSS
DENOTES SURFACE WATER LOSS

35 of 65

Plans prepared by:
KO & ASSOCIATES, P.C.
Consulting Engineers
1011 SCHAUB DR., SUITE #202
RALEIGH, N.C. 27606
(919)-851-6066

7/2/99

3/22/2005
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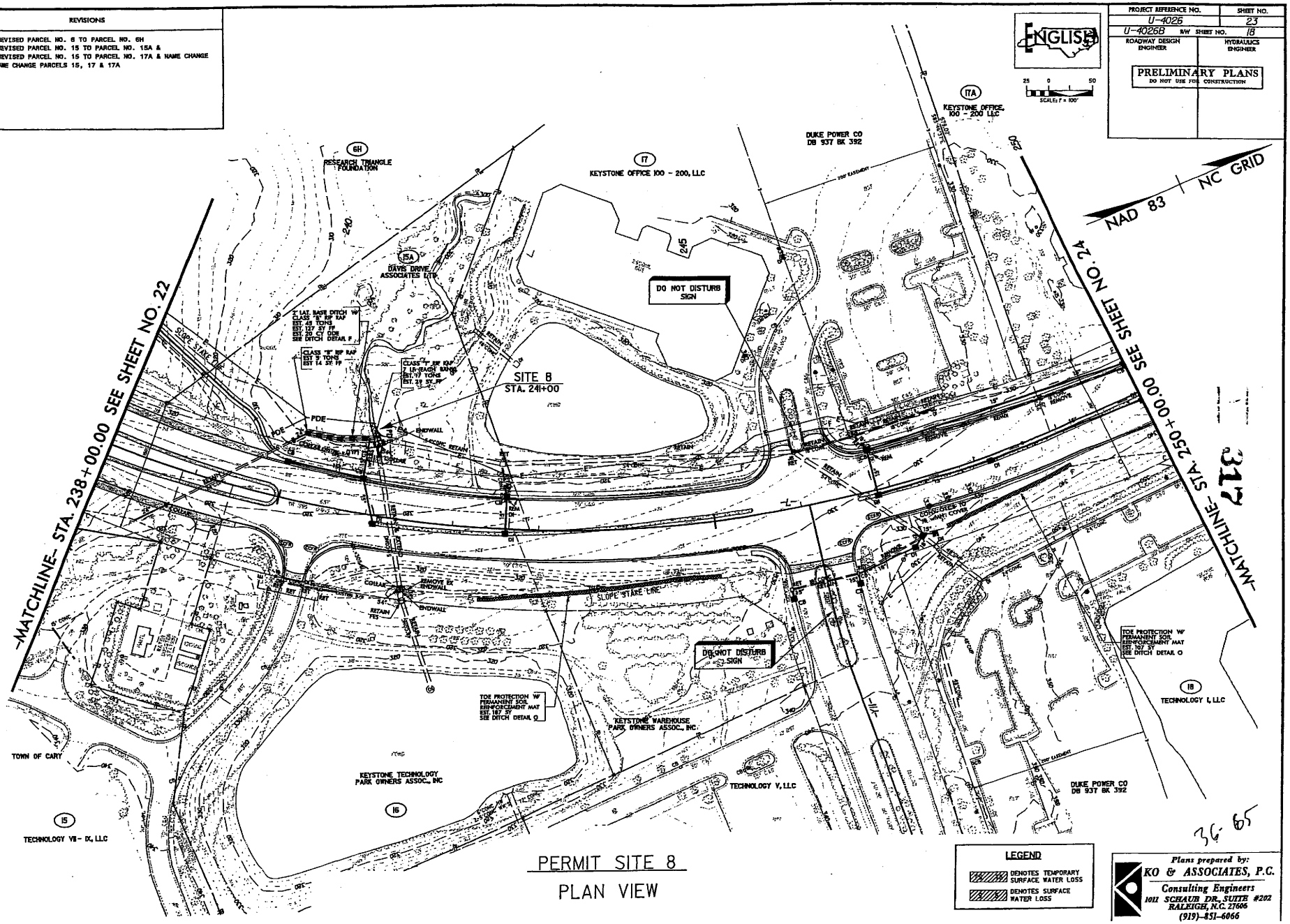
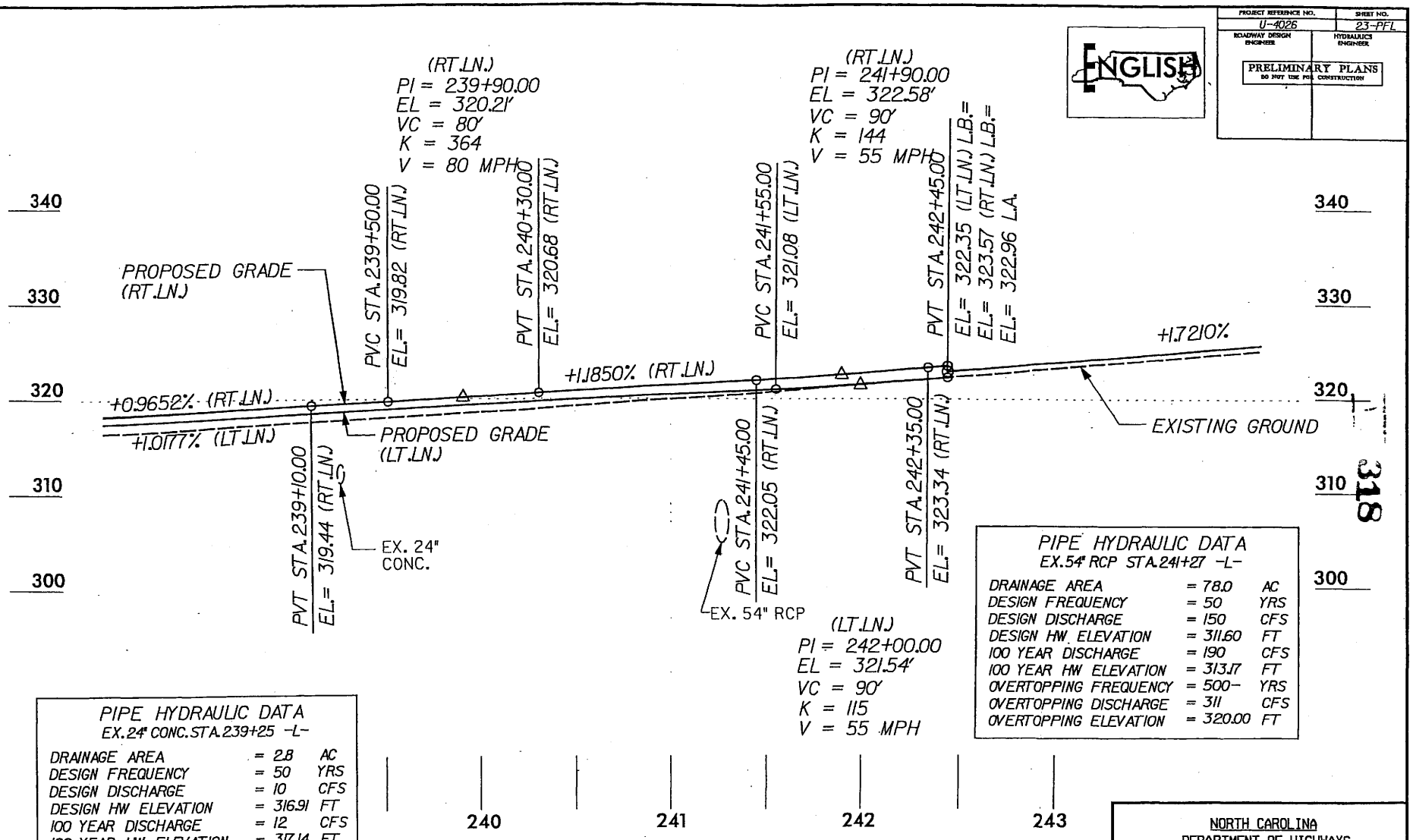
Ko & Associates, P.C.


REVISIONS
3/16/04 REVISED PARCEL NO. 6 TO PARCEL NO. 6H
3/25/04 REVISED PARCEL NO. 15 TO PARCEL NO. 15A &
REVISED PARCEL NO. 15 TO PARCEL NO. 17A & NAME CHANGE
7/2/04 NAME CHANGE PARCELS 15, 17 & 17A
PROJECT REFERENCE NO.
U-4025
U-4026B
SHEET NO.
23
R/W SHEET NO.
18
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
ENGLISH
SCALE: 1" = 100'
NAD 83 | NC GRID
-MATCHLINE- STA. 238+00.00 SEE SHEET NO. 22
-MATCHLINE- STA. 250+00.00 SEE SHEET NO. 24
6H RESEARCH TRIANGLE FOUNDATION
17 KEYSTONE OFFICE 100 - 200, LLC
17A KEYSTONE OFFICE 100 - 200 LLC
15A DAVIS DRIVE ASSOCIATES LTD
DUKE POWER CO DB 937 BK 392
DO NOT DISTURB SIGN
SITE 8
STA. 241+00
SLOPE STAKE B
FDE
ENDWALL
RETAIN
COLLAR
REMOVE EX ENDWALL
SLOPE STAKE LINE
TOE PROTECTION W/ PERMANENT SOIL REINFORCEMENT MAT EST. 197 SY SEE DITCH DETAIL Q
KEYSTONE WAREHOUSE PARK OWNERS ASSOC., INC.
TOWN OF CARY
KEYSTONE TECHNOLOGY PARK OWNERS ASSOC., INC
TECHNOLOGY V, LLC
15 TECHNOLOGY VII - IX, LLC
16
18 TECHNOLOGY I, LLC
PERMIT SITE 8
PLAN VIEW
LEGEND
DENOTES TEMPORARY SURFACE WATER LOSS
DENOTES SURFACE WATER LOSS
Plans prepared by:
KO & ASSOCIATES, P.C.
Consulting Engineers
1011 SCHAUB DR., SUITE #202
RALEIGH, N.C. 27606
(919)-851-6066
317
36 65



318

PIPE HYDRAULIC DATA
EX.24" CONC. STA.239+25 -L-

DRAINAGE AREA	= 2.8	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 10	CFS
DESIGN HW ELEVATION	= 316.91	FT
100 YEAR DISCHARGE	= 12	CFS
100 YEAR HW ELEVATION	= 317.14	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 21	CFS
OVERTOPPING ELEVATION	= 317.90	FT

PIPE HYDRAULIC DATA
EX.54" RCP STA.241+27 -L-

DRAINAGE AREA	= 78.0	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 150	CFS
DESIGN HW ELEVATION	= 311.60	FT
100 YEAR DISCHARGE	= 190	CFS
100 YEAR HW ELEVATION	= 313.17	FT
OVERTOPPING FREQUENCY	= 500-	YRS
OVERTOPPING DISCHARGE	= 311	CFS
OVERTOPPING ELEVATION	= 320.00	FT

PROFILE ALONG ROADWAY
SITE 8

NORTH CAROLINA
DEPARTMENT OF HIGHWAYS

WAKE - DURHAM COUNTIES
35018.1.1 (U-4026)

DAVIS DRIVE (SR 1613/1999) FROM 390' NORTH OF MORRISVILLE-CARPENTER RD (SR 3016) TO NC HWY 54

HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 10'

DATE: 02-04-05

SHEET 37 OF 65

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REVISIONS
3/16/04 REVISED PARCEL NO. 6 TO PARCEL NO. 6J
4/19/04 NAME CHANGE PARCEL NO. 22

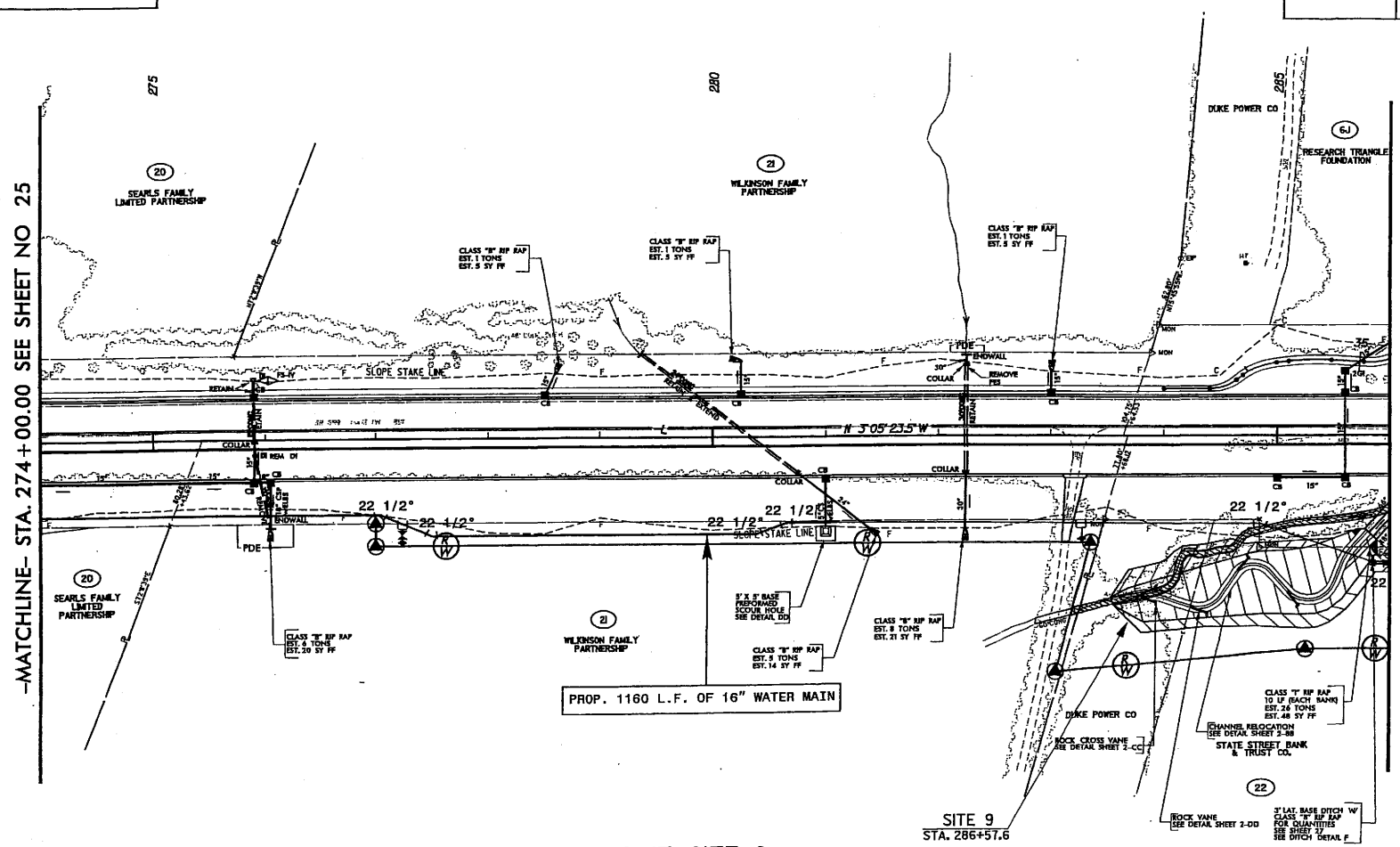
PROJECT REFERENCE NO.	SHEET NO.
U-4026	25
U-4026B RW SHEET NO.	21
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

ENGLISH

NAD 83 / NC GRID

SCALE: 1" = 100'



PERMIT SITE 9

PLAN VIEW

319

37 OF 65

LEGEND

DENOTES TEMPORARY SURFACE WATER LOSS

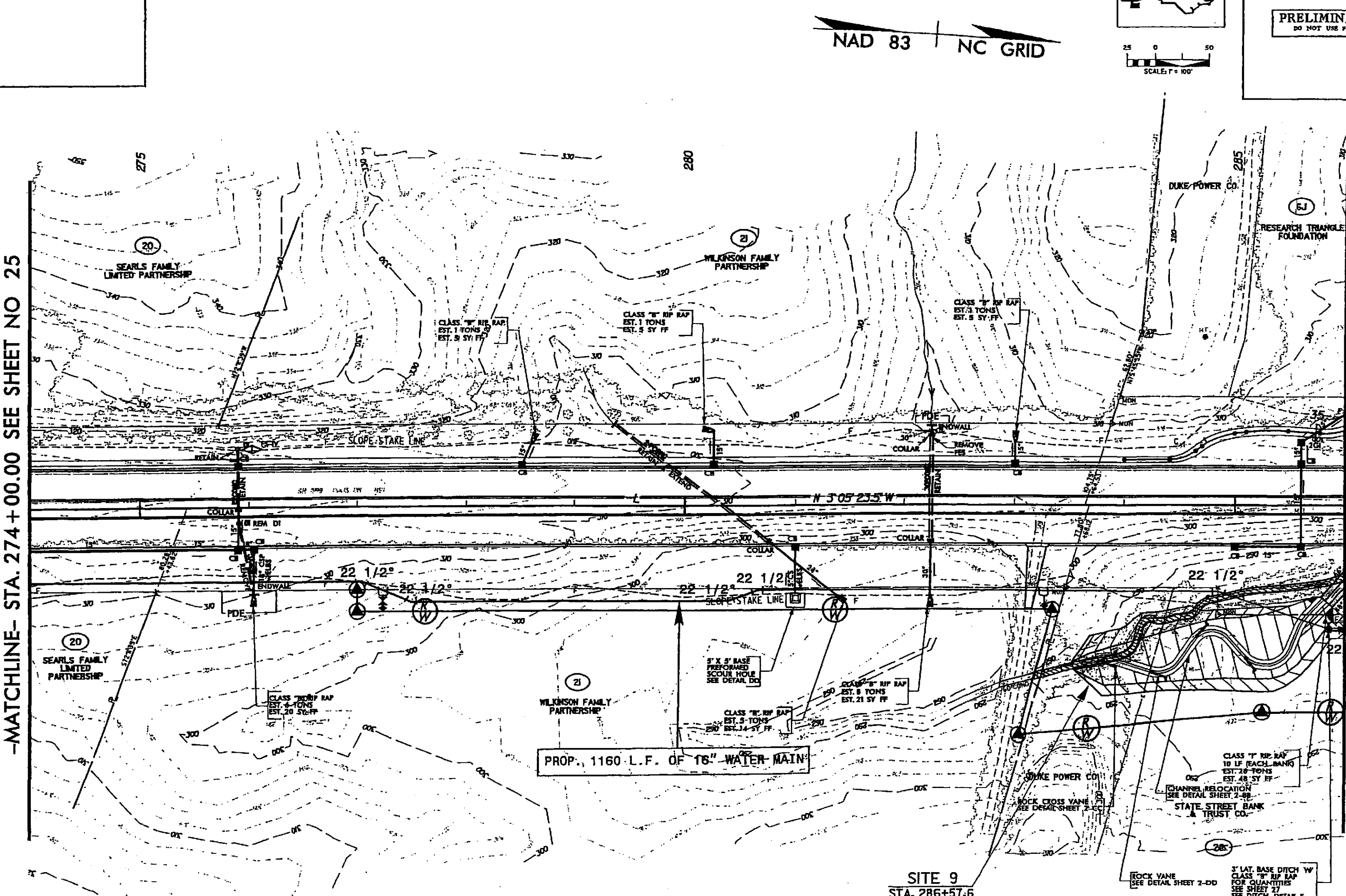
DENOTES SURFACE WATER LOSS

Plans prepared by:
KO & ASSOCIATES, P.C.
Consulting Engineers
1011 SCHAUB DR., SUITE #202
RALEIGH, N.C. 27606
(919)-851-6066

REVISIONS
3/16/04 REVISED PARCEL NO. 6 TO PARCEL NO. 6J
4/19/04 NAME CHANGE PARCEL NO. 22

PROJECT REFERENCE NO.	SHEET NO.
U-4026	26
U-4026B R/W SHEET NO.	21
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



PERMIT SITE 9

PLAN VIEW

39 of 65

LEGEND
DENOTES TEMPORARY SURFACE WATER LOSS
DENOTES SURFACE WATER LOSS

Plans prepared by:
KO & ASSOCIATES, P.C.
Consulting Engineers
1011 SCHAUB DR., SUITE #202
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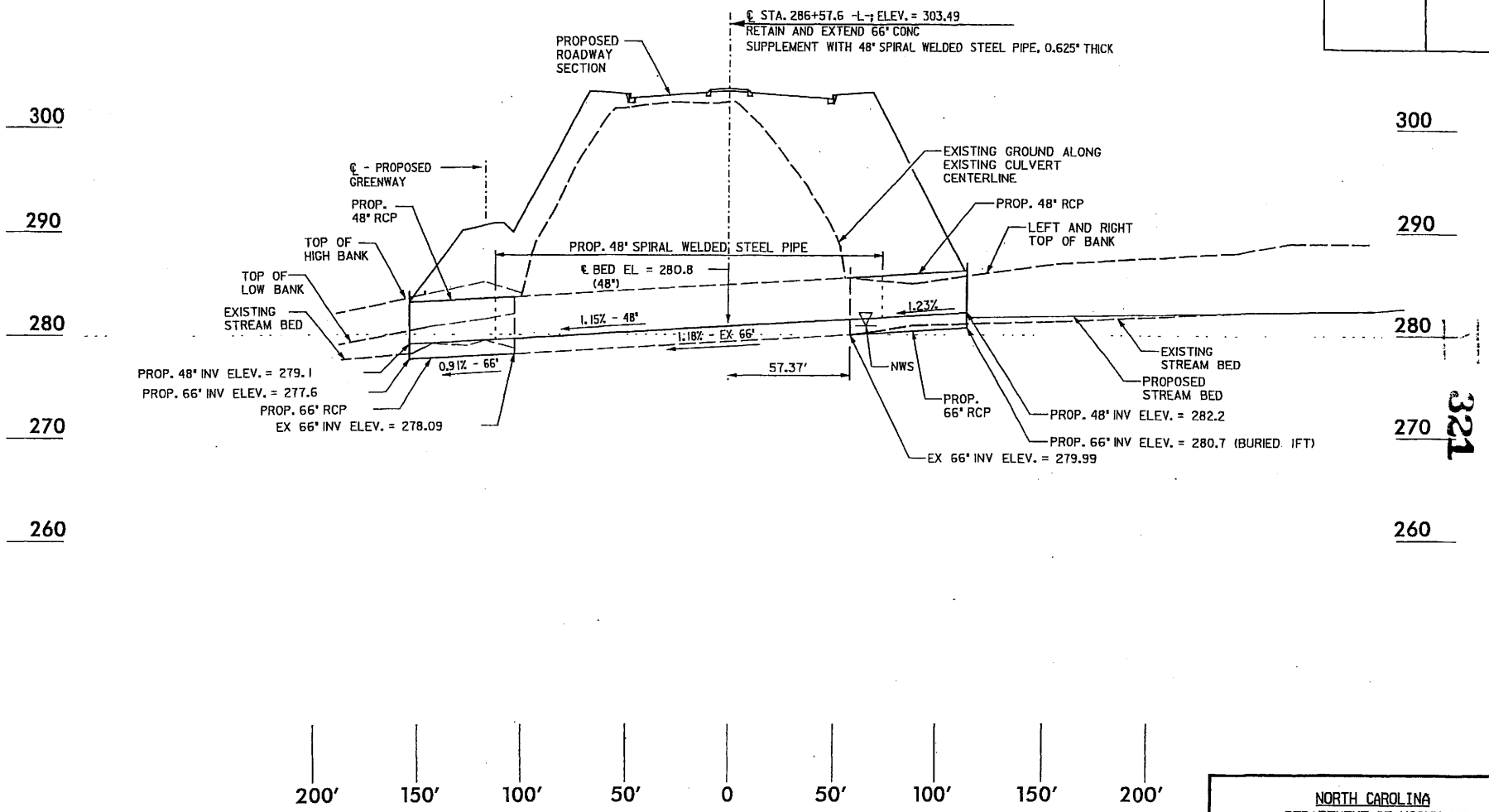
(919)-851-6066

7/2/99

PROJECT REFERENCE NO.	SHEET NO.
U-4026	26&27-PAS19
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



321

PROFILE ALONG STRUCTURE
SITE 9

NORTH CAROLINA
DEPARTMENT OF HIGHWAYS

WAKE - DURHAM COUNTIES
35018.1.1 (U-4026)

DAVIS DRIVE (SR 1613/1999) FROM 390' NORTH OF MORRISVILLE-CARPENTER RD (SR 3016) TO NC HWY 54

HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 10'

DATE: 02-04-05 SHEET 40 OF 65

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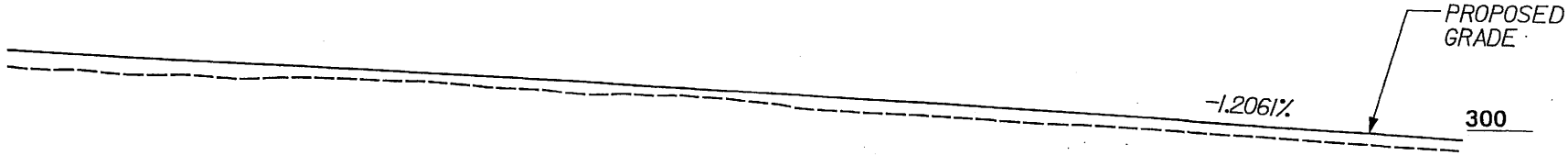
PROJECT REFERENCE NO.	SHEET NO.
U-4026	26&27-PFLG
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

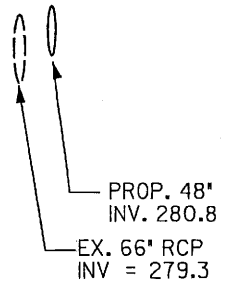
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

ENGLISH



300 290 280 270 260

STRUCTURE HYDRAULIC DATA EX.66" RCP & PROP.48" STA.286+70		
DESIGN DISCHARGE	= 460	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 289.9	FT
BASE DISCHARGE	= 510	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 291.3	FT
OVERTOPPING DISCHARGE	= 675	CFS
OVERTOPPING FREQUENCY	= 200-	YRS
OVERTOPPING ELEVATION	= 297.4	FT



322

285 286 287 288 289

PROFILE ALONG ROADWAY
SITE 9

NORTH CAROLINA
DEPARTMENT OF HIGHWAYS

WAKE - DURHAM COUNTIES
35018.1.1 (U-4026)

DAVIS DRIVE (SR 1613/1999) FROM 390' NORTH OF MORRISVILLE-CARPENTER RD (SR 3016) TO NC HWY 54

HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 10'

DATE: 02-04-05

SHEET 41 OF 65

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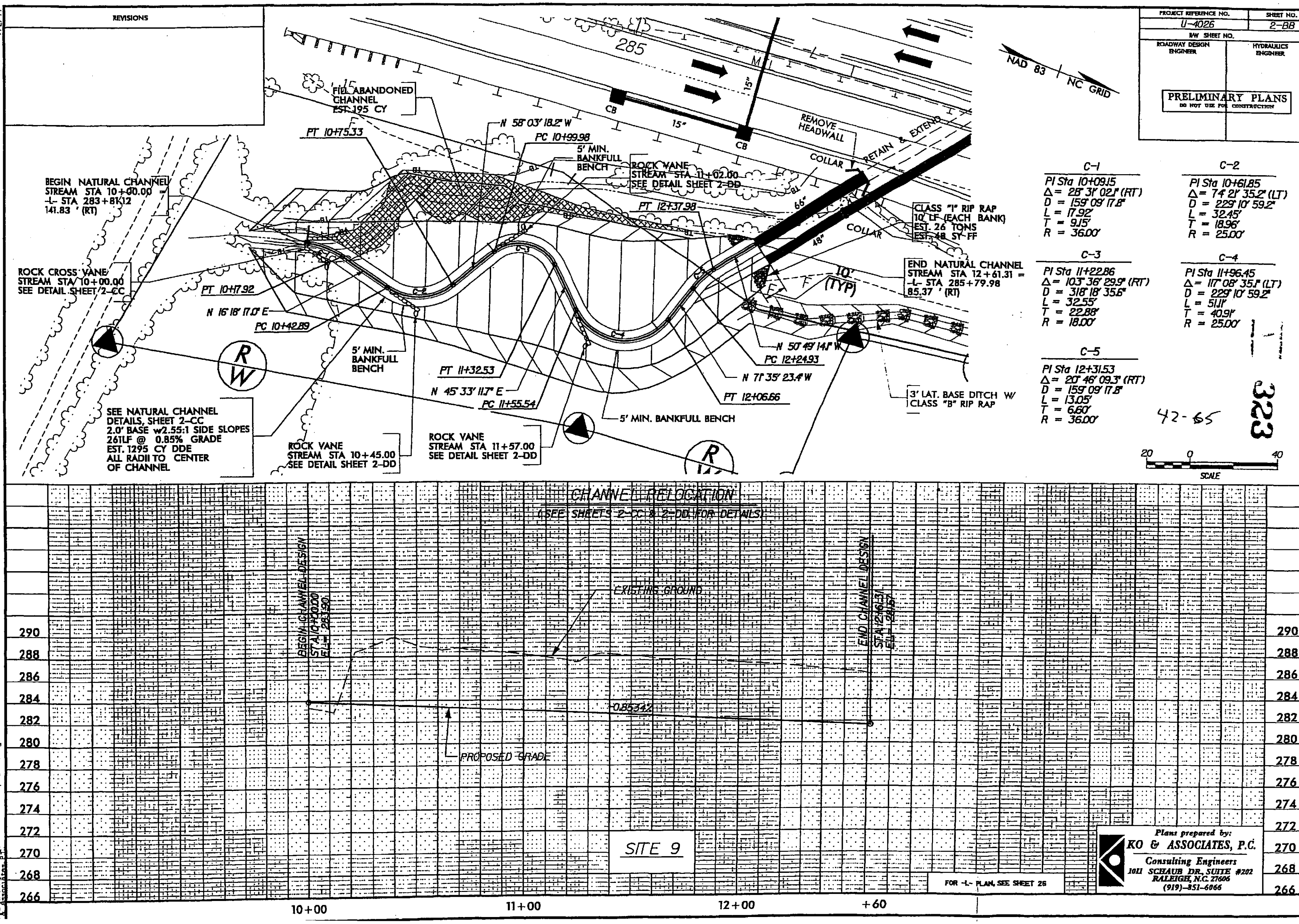
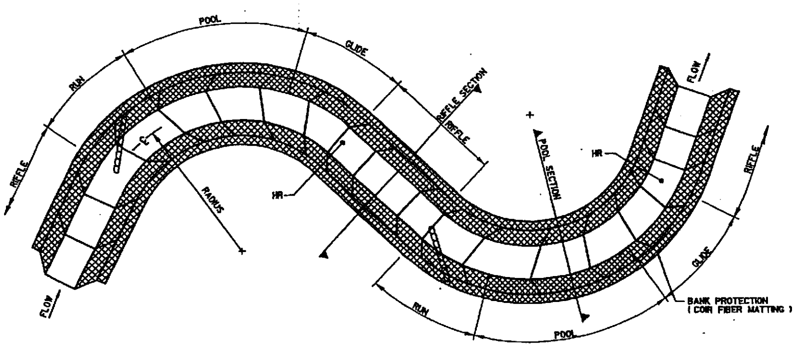

PROJECT REFERENCE NO. U-4026
SHEET NO. 2-BB
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
REVISIONS
NAD 83 / NC GRID
285
FILL ABANDONED CHANNEL EST. 195 CY
REMOVE HEADWALL
RETAIN & EXTEND
COLLAR
CB
15"
PT 10+75.33
N 58° 03' 18.2" W
PC 10+99.98
5' MIN. BANKFULL BENCH
ROCK VANE STREAM STA 11+02.00 SEE DETAIL SHEET 2-DD
PT 12+37.98
BEGIN NATURAL CHANNEL STREAM STA 10+00.00 = -L- STA 283+81.12 141.83 ' (RT)
ROCK CROSS VANE STREAM STA 10+00.00 SEE DETAIL SHEET 2-CC
PT 10+17.92
N 16° 18' 17.0" E
PC 10+42.89
5' MIN. BANKFULL BENCH
PT 11+32.53
N 45° 33' 11.7" E
PC 11+55.54
CLASS "I" RIP RAP 10' LF (EACH BANK) EST. 26 TONS EST. 48 SY FF
END NATURAL CHANNEL STREAM STA 12+61.31 = -L- STA 285+79.98 85.37 ' (RT)
10' (TYP)
N 50° 49' 14.1" W
PC 12+24.93
N 71° 35' 23.4" W
PT 12+06.66
3' LAT. BASE DITCH W/ CLASS "B" RIP RAP
5' MIN. BANKFULL BENCH
SEE NATURAL CHANNEL DETAILS, SHEET 2-CC 2.0' BASE w/2.55:1 SIDE SLOPES 261LF @ 0.85% GRADE EST. 1295 CY DDE ALL RADII TO CENTER OF CHANNEL
ROCK VANE STREAM STA 10+45.00 SEE DETAIL SHEET 2-DD
ROCK VANE STREAM STA 11+57.00 SEE DETAIL SHEET 2-DD
C-1
PI Sta 10+09.15
Δ = 28° 31' 02.1" (RT)
D = 159° 09' 17.8"
L = 17.92'
T = 9.15'
R = 36.00'
C-2
PI Sta 10+61.85
Δ = 74° 21' 35.2" (LT)
D = 229° 10' 59.2"
L = 32.45'
T = 18.96'
R = 25.00'
C-3
PI Sta 11+22.86
Δ = 103° 36' 29.9" (RT)
D = 318° 18' 35.6"
L = 32.55'
T = 22.88'
R = 18.00'
C-4
PI Sta 11+96.45
Δ = 117° 08' 35.1" (LT)
D = 229° 10' 59.2"
L = 51.11'
T = 40.91'
R = 25.00'
C-5
PI Sta 12+31.53
Δ = 20° 46' 09.3" (RT)
D = 159° 09' 17.8"
L = 13.05'
T = 6.60'
R = 36.00'
42-65
323
20 0 40
SCALE
CHANNEL RELOCATION
(SEE SHEETS 2-CC & 2-DD FOR DETAILS)
BEGIN CHANNEL DESIGN STA 10+00.00 EL = 283.90
END CHANNEL DESIGN STA 12+61.31 EL = 281.67
EXISTING GROUND
-0.85342
PROPOSED GRADE
SITE 9
290
288
286
284
282
280
278
276
274
272
270
268
266
10+00
11+00
12+00
+60
FOR -L- PLAN, SEE SHEET 26
Plans prepared by:
KO & ASSOCIATES, P.C.
Consulting Engineers
1011 SCHAUB DR. SUITE #202
RALEIGH, N.C. 27606
(919)-851-6066
7/2/99

PROJECT REFERENCE NO.	SHEET NO.
U-4026	2-CC
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

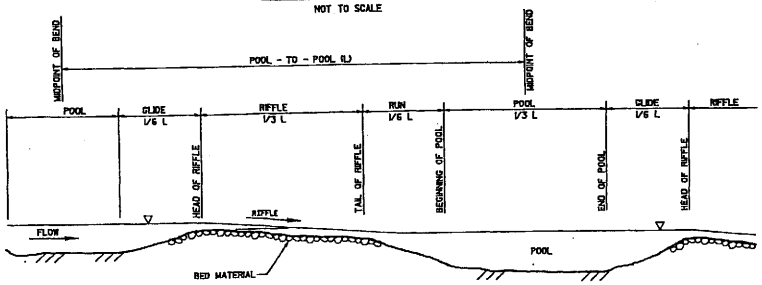
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NATURAL CHANNEL DETAILS

NOTES:
1. THE CONTRACTOR SHALL LAYOUT THE CHANNEL ALIGNMENT WHICH SHALL CONSIST OF STAKING OUT THE CENTER OF EACH RADIUS, SCRIBING THE CENTER LINE OF THE CHANNEL FOR EACH BEND USING THE INDICATED RADIUS, AND SCRIBING CENTERLINE OF THE TANGENT SECTIONS BY CONNECTING SUCCESSIVE BENDS WITH A STRAIGHT LINE.
2. FIELD ADJUSTMENTS OF THE ALIGNMENT MAY BE REQUIRED TO AVOID CERTAIN OBSTACLES. APPROVAL BY THE ENGINEER OF THE STAKE-OUT ALIGNMENT SHALL BE REQUIRED PRIOR TO INITIATION OF THE CONSTRUCTION OF THE CHANNEL.
3. LOCATE ROCK VANES ACCORDING TO PLAN SHEET.
4. BEGIN AND END STREAM ELEVATIONS SHOULD BE CHECKED PRIOR TO CONSTRUCTION TO ENSURE PROPOSED STREAM GRADE (AND ELEVATIONS) ARE ACCURATE. ELEVATIONS MAY VARY FROM PRIOR SURVEYS.



TYPICAL PLAN
NOT TO SCALE



NOTES:
1. THE POOL TO POOL SPACING (L) SHALL BE MEASURED AS THE DISTANCE FROM THE MIDPOINT OF THE UPSTREAM BEND TO THE MIDPOINT OF THE DOWNSTREAM BEND.
2. REFER TO MORPHOLOGICAL MEASUREMENT TABLE AND PLAN SHEET FOR DIMENSIONS. NOTE THAT POOL TO POOL SPACING VARIES.

TYPICAL PROFILE
NOT TO SCALE

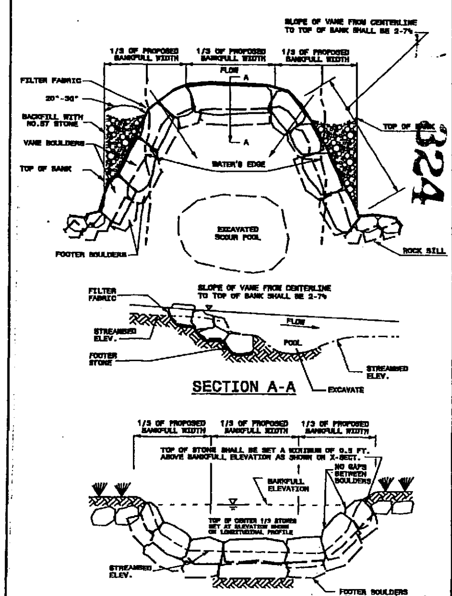
MORPHOLOGICAL MEASUREMENT TABLE

VARIABLES	EXISTING CHANNEL	PROPOSED REACH I	REFERENCE REACH
LOCATION	UT TO HOLLOW CREEK	UT TO HOLLOW CREEK	SOUTH UNNAMED TRIB TO MARKS CREEK
1) STREAM TYPE	G3/4	C4	C5
2) DRAINAGE AREA	140Ac	140Ac	65Ac
3) BANKFULL WIDTH	6.1ft	9.0ft	11ft
4) BANKFULL MEAN DEPTH	0.7ft	0.9ft	0.7ft
5) WIDTH/DEPTH RATIO	8	10	15.4
6) BANKFULL CROSS-SECTIONAL AREA	4.5sq.ft	8.1sq.ft	8.0sq.ft
7) BANKFULL MEAN VELOCITY	5.1fps	3.0fps	2.1fps
8) BANKFULL DISCHARGE, cfs	23cfs	23cfs	17cfs
9) BANKFULL MAX. DEPTH	1.2ft	1.6ft	1.8ft
10) WIDTH OF FLOODPRONE AREA	7ft	28ft	59ft
11) ENTRENCHMENT RATIO	1.1	3.1	5.3
12) MEANDER LENGTH	13 - 34ft	63 - 108ft	20 - 42ft
13) RATIO OF MEANDER LENGTH TO BANKFULL WIDTH	2.1 - 5.6	7.0 - 12.0	1.8 - 3.8
14) RADIUS OF CURVATURE	5 - 17ft	18 - 36ft	6.6 - 16ft
15) RATIO OF RADIUS OF CURVATURE TO BANKFULL WIDTH	0.8 - 2.8	2.0 - 4.0	0.6 - 1.0
16) BELT WIDTH	23ft	27 - 54ft	38ft
17) MEANDER WIDTH RATIO	3.8	3.0 - 6.0	3.4
18) SINUOSITY (STREAM LENGTH/VALLEY LENGTH	1.17	1.25	1.23
19) VALLEY SLOPE	0.0172 ft/ft	0.0105 ft/ft	0.018 ft/ft
20) AVERAGE SLOPE	0.0174 ft/ft	0.0084 ft/ft	0.0164 ft/ft
21) POOL SLOPE	0.0000 ft/ft	0.0000 ft/ft	0.0000 ft/ft-0.0011 ft/ft
22) RATIO OF POOL SLOPE TO AVERAGE SLOPE	0.0 - 0.1	0.00	0.00 - 0.07
23) MAXUMUM POOL DEPTH	1.5ft	2.3ft	2.78ft
24) RATIO OF POOL DEPTH TO AVERAGE BANKFULL DEPTH	2.0	2.5	3.86
25) POOL WIDTH	8.7ft	13.5ft	11.47ft
26) RATIO OF POOL WIDTH TO BANKFULL WIDTH	1.4	1.5	1.03
27) POOL TO POOL SPACING	42 - 53ft	54ft	5 - 47ft
28) RATIO OF POOL TO POOL SPACING TO BANKFULL WIDTH	6.9 - 8.7	6.0	0.4 - 4.3
29) RATIO OF LOWEST BANK HEIGHT TO BANKFULL HEIGHT(or max bankful depth)	1.1 - 5	1.0	-

ROCK CROSS VANE
SCALE: NTS

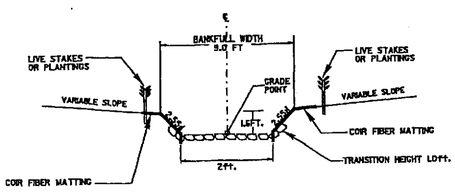
NOTES:
1. ALL STONES ARE TO BE STRUCTURE STONE.
2. GAPS BETWEEN BOULDERS SHALL BE MINIMIZED BY FITTING BOULDERS TOGETHER, PLUGGING WITH STRUCTURE STONE CLASS A AND NO. 57 AND LINING WITH FILTER FABRIC.
3. DIMENSIONS AND SLOPES MAY BE ADJUSTED TO FIT BY THE DESIGNER.
4. A DOUBLE FOOTER BOULDER SHALL BE UTILIZED IN SAND BED MATERIAL.
5. FOOTER BOULDERS AND VANE BOULDERS SHALL BE NATIVE STONE OR SHOT ROCK, CUBICAL OR RECTANGULAR IN NATURE.

FILTER FABRIC SHALL BE PLACED ON THE UPSTREAM SIDE OF THE STRUCTURE TO PREVENT WASHOUT OF SEDIMENT THROUGH BOULDER GAPS. FILTER FABRIC SHALL EXTEND FROM THE BOTTOM OF THE FOOTER BOULDER TO THE FINISHED GRADE ELEVATION AND SHALL BE PLACED THE ENTIRE LENGTH OF STRUCTURE.

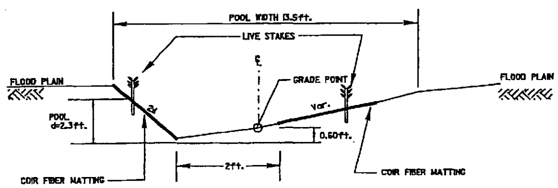


CROSS SECTION

FOOTER BOULDERS WILL BE PLACED INTO THE EXISTING SUBSTRATE A MINIMUM OF THE ROCK DIAMETER

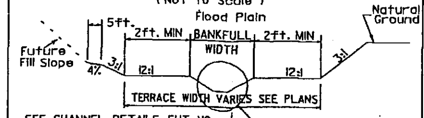


TYPICAL RIFFLE SECTION
NOT TO SCALE



TYPICAL POOL SECTION
NOT TO SCALE

TYPICAL FLOOD PLAIN SECTION
(Not to Scale)



SEE CHANNEL DETAILS, SHT. NO.

43-65
SITE 9

Plans prepared by:
KO & ASSOCIATES, P.C.
Consulting Engineers
1011 SCHAUB DR., SUITE #202
RALEIGH, N.C. 27606
(919)-851-6066

8/3/2005
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PROJECT REFERENCE NO.	SHEET NO.
U-4026	2-DD
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

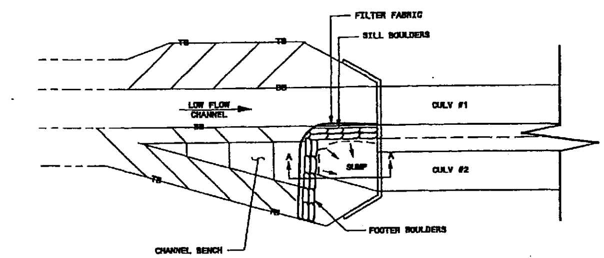
325

ROCK INLET SILL

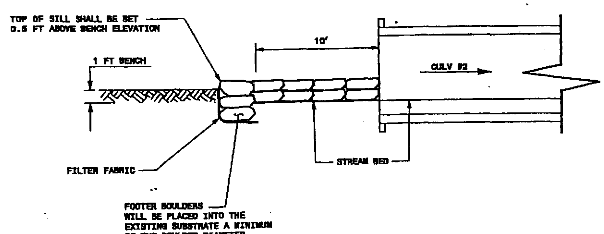
SCALE: NTS

NOTES:
1. ALL STONES ARE TO BE STRUCTURE STONE.
2. GAPS BETWEEN BOULDERS SHALL BE MINIMIZED BY FITTING BOULDERS TOGETHER, PLUGGING WITH STRUCTURE STONE CLASS A AND NO.57 AND LINING WITH FILTER FABRIC.
3. DIMENSIONS AND SLOPES MAY BE ADJUSTED TO FIT BY THE ENGINEER.
4. A DOUBLE FOOTER BOULDER SHALL BE UTILIZED IN SAND BED MATERIAL.
5. FOOTER BOULDERS AND SILL BOULDERS SHALL BE NATIVE STONE OR SHOT ROCK, CUBICAL OR RECTANGULAR IN NATURE.
6. ACCEPTABLE BOULDERS SHALL HAVE THE FOLLOWING MINIMUM DIMENSIONS; 3' x 2' x 1'.

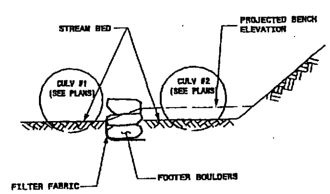
FILTER FABRIC SHALL BE PLACED ON THE UPSTREAM SIDE OF THE STRUCTURE TO PREVENT WASHOUT OF SEDIMENT THROUGH BOULDER GAPS. FILTER FABRIC SHALL EXTEND FROM THE BOTTOM OF THE FOOTER BOULDER TO THE FINISHED GRADE ELEVATION AND SHALL BE PLACED THE ENTIRE LENGTH OF STRUCTURE.



PLAN VIEW



SECTION A-A



CROSS-SECTION

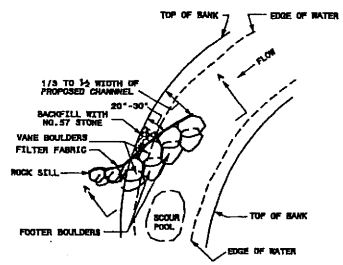
ROCK VANE

SCALE: NTS

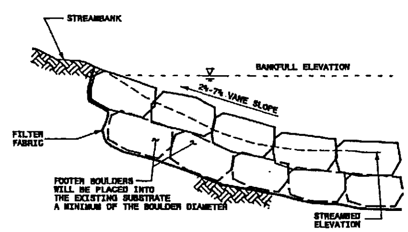
NOTES:
1. ALL STONES ARE TO BE STRUCTURE STONE.
2. GAPS BETWEEN BOULDERS SHALL BE MINIMIZED BY FITTING BOULDERS TOGETHER, PLUGGING WITH STRUCTURE STONE CLASS A AND NO.57 AND LINING WITH FILTER FABRIC.
3. DIMENSIONS AND SLOPES MAY BE ADJUSTED TO FIT BY THE ENGINEER.
4. A DOUBLE FOOTER BOULDER SHALL BE UTILIZED IN SAND BED MATERIAL.
5. FOOTER BOULDERS AND VANE BOULDERS SHALL BE NATIVE STONE OR SHOT ROCK, CUBICAL OR RECTANGULAR IN NATURE.

FILTER FABRIC SHALL BE PLACED ON THE UPSTREAM SIDE OF THE STRUCTURE TO PREVENT WASHOUT OF SEDIMENT THROUGH BOULDER GAPS. FILTER FABRIC SHALL EXTEND FROM THE BOTTOM OF THE FOOTER BOULDER TO THE FINISHED GRADE ELEVATION AND SHALL BE PLACED THE ENTIRE LENGTH OF STRUCTURE.

SLOPE OF VANE FROM CENTERLINE TO TOP OF BANK SHALL BE 2-7%



PLAN VIEW



SECTION A-A

44-65

Plans prepared by:
KO & ASSOCIATES, P.C.
Consulting Engineers
1011 SCHAUB DR., SUITE #202
RALEIGH, N.C. 27606
(919)-851-6066

2/3/2005
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PROJECT REFERENCE NO.	SHEET NO.
U-4026	26-TXT(9)
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NATURAL CHANNEL DESIGN

UNNAMED TRIBUTARY TO HOLLOW CREEK

Right f P j t St tion 283 81 t Right f St ti 285 80
P it Sit 9

Th wid ni g of D i D i f o a xi ting two l f ility t pr p ed
di id d f ur l r dway, in D rham C u ty, will q i th t porti n f
Un am d Trib t y to H llow C ek b l cated The rel atio of th e isting
cha nel will u f o Right of P oj ct Station 283 81 L t Right of Statio
285 80 L , pp xim tely 261 f et in l ngth Th p op s d h l elo ti
i d ig d cc di g t t l h l" d ig prin ipl p p d by D
R g

Th T ibuta y d i g a is tly u al a d w d d in ture Th st am
f d to b p ni l i t h i g flow th gh th iffl d p l

Th i n hyd li g g d ta a ail ble this t am n by st
Cur t di ha g we e e tim t d ing th NCDOT p d f ru al
ate h d

EXISTING CHANNEL

A p nt ti p rti of the isting chan l wa urv y d i d t il f th
p pos f han l cl sificati The e isti g ch n l was s d t have
a e t h e t tio of 1 07, a width/depth ati f 8 27, inu sity of 1 17 and
v r g lope of 0 0174 ft/ft A p bble co nt was p ef rm d a d the han l
d t rmi d t b cl sified a G4 acc ding t the R g n l s ific tion
y t . Th wa bbl id tified withi th h rv y d, but it is t
pr s t l g th ti e le gth f th e h su y d It appe that th bbl
is p t f ow b nd of g ology d i ti g a armor lay r in the p em t
It d e t app ar th t th c bble i bei g d by th b kf ll t i th
down t am dire ti

REFERENCE REACH

Th r f r r h d t tili d in th design f thi cha el i f o a
p e io ly rv yed f ence e ch f a NCDOT t eam itig ti pr j t Th
r fer c h ch nnel utiliz d h d a t a l ifi ati n typ C5 a c ding
t th R sge l ssific tio yst m. Th f e e h had an nt h t
ati of 5.3, width/d pth ati of 15 4, a in osity f 1.23 d v ag l p
f 0 018 ft/ft A p bble c unt p f m d d th ch l f d t ha
l ifi ati of d b tt

PROPOSED CHANNEL

B d p th e i ti g ll y type d th flo d pro width d si d, the
pr p ed ch el de ign ha C4 strea type l ifi ti D ig dat is
gi e in th tt h d tabl al ng with isting e h d f nce h d t . A
p p s d o v e ill trol the h nn l gradi nt p tr am, whil a lv rt
c ssi g de D vis D iv ill nt ol th gradient d wn t m M "b kf ll
d pth wa et at 0.9 f et Abov b kfull depth it is p p d t t
pp im t ly 35 55 f t id fl d plain (incl ding the h l)

It i b lie d that by f rmi g a flood plai ab b kf ll d pth ha el st bility
will b hanc d by redu ing v l iti for tho di ha g bo e th bankf ll
di h rg Thi hould l d t m t ble h n l. It i a ti ip t d that th
p p d h l ill ha e sand/g a l bott Maxim p l d pth f 2 3
f t p p d t t id b ds f d

Th ff t d se ti n has b en las ifi d a G type t e m; it is tr n hed d
ha a low width t depth ti Whe o ti g ch n l fr typ G t C,
th d ign pp a h is t du th t am powe to mi imize degradati n Th
pr p d d ig h s redu d th st eam powe f m 25 to 12 (lb /ft s) d th
sh a t s f m 1 67 t 0.43 (lb / q ft). Th la g st i e p rti le e d d f
the pa m t duri g th pebbl c nt wa 80 U ing R gen' sion f
Shi ld Curve the shear str t initiat mov t of 80mm particle an be as
low 0 30 (lb / q ft) Th p po ed h t e f 0 43 (lbs/ q ft) ill i iti t
mo t of the larg t siz p ticle o d d fro th pa e e t Th
p p d typ C stream will be t ble h nn l becau th he tr s has
b n d ed, whi h ill minimiz er io , the dditi n f fl d pl i , whi h ill
pr id lief al f highe than bankf ll st rm flows and g ad nt l
st t t th p d d wn t am limit f th p po d h n l

P op s d h nn l tabili atio is shown o the tta h d d tail h t It i
nti ip ted th t ha el b k will b pl t d with ativ t e d h ub
b b nkfull d pth Cr s V St tu e will b tiliz d to t l th
bank h t i th d l g th p p d dw y

326

SITE 9

NORTH CAROLINA
DEPARTMENT OF HIGHWAYS

WAKE DURHAM COUNTIES
35018.1.1 (U-4026)

DAVIS DRIVE (SR 1613/1999) FROM 390 NORTH OF MORRISVILLE-CARPENTER RD (SR 3016) TO NC HWY 54

HORIZONTAL SCALE 1 50
VERTICAL SCALE 1 10

TE: 02

SHEET 45 OF 65

p:\TIP\u4026_ko\hydroDgn\Permits\u4026p_flblk.dgn
2/2/2005 4:24:18 PM

REVISIONS
9/23/03 REVISED TDE & PDE ON PARCEL 23
3/16/04 REVISED PARCEL NO. 6 TO PARCEL NO. 6J & 6K
4/19/04 NAME CHANGE PARCEL NO. 22
6/25/04 REVISED CE & PDE ON PARCEL NO. 6K

PROJECT REFERENCE NO.	SHEET NO.
U-4026	27
U-4026B R/W SHEET NO.	22
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

ENGLISH

NAD 83 / NC GRID

SITE 9 CON'T

-MATCHLINE- STA. 286+00.00 SEE SHEET NO. 26

-MATCHLINE- STA. 298+00.00 SEE SHEET NO. 28

6J RESEARCH TRIANGLE FOUNDATION

6K RESEARCH TRIANGLE FOUNDATION

23 BASF CORPORATION

22 STATE STREET BANK & TRUST CO.

PROP. 1230 L.F. OF 16" WATER MAIN

SITE 10 STA. 293+82.1

REMOVE EXISTING BRIDGE

SLOPE STAKE LINE

PERMIT SITE 9
PLAN VIEW

PERMIT SITE 10
PLAN VIEW

SCALE: 1" = 100'

LEGEND
- DENOTES TEMPORARY SURFACE WATER LOSS
- DENOTES SURFACE WATER LOSS

Plans prepared by:
KO & ASSOCIATES, P.C.
Consulting Engineers
1011 SCHAUB DR., SUITE #202
RALEIGH, N.C. 27606
(919)-851-6066

127

7/2/03

(2005 Updates)\Hydro\Dgn\Permits\u4026_permit_27.dgn

REVISIONS
9/23/03 REVISED TDE & PDE ON PARCEL 23
3/16/04 REVISED PARCEL NO. 8 TO PARCEL NO. 6J & 6K
4/19/04 NAME CHANGE PARCEL NO. 22
6/25/04 REVISED CE & PDE ON PARCEL NO. 6K

PROJECT REFERENCE NO.	SHEET NO.
U-4026	27
U-4026B RW SHEET NO.	22
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83 | NC GRID

SITE 9
CON'T

-MATCHLINE- STA. 286+00.00 SEE SHEET NO. 26

-MATCHLINE- STA. 298+00.00 SEE SHEET NO. 28

328

RESEARCH TRIANGLE FOUNDATION

STATE STREET BANK & TRUST CO.

CORPORATION

SLOPE STAKE LINE

REMOVE EXISTING BRIDGE

PROP. 1230 L.F. OF 16" WATER MAIN

SITE 10
STA. 293+82.1

SCALE: 1" = 100'

LEGEND

DENOTES TEMPORARY SURFACE WATER LOSS

DENOTES SURFACE WATER LOSS

PERMIT SITE 9
PLAN VIEW

PERMIT SITE 10
PLAN VIEW

Plans prepared by:
KO & ASSOCIATES, P.C.
Consulting Engineers
1011 SCHAUB DR. SUITE #202
RALEIGH, N.C. 27606
(919)-851-6066

PROJECT REFERENCE NO.	SHEET NO.
U-4025	27-PF(110)
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS

STRUCTURE HYDRAULIC DATA EX. 8'x6' RCBC W/ 60° STA. 293+82 & STA. 293+67		
DESIGN DISCHARGE	= 900	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 284.2	FT
BASE DISCHARGE	= 1000	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 285.7	FT
OVERTOPPING DISCHARGE	= 1460	CFS
OVERTOPPING FREQUENCY	= 200-	YRS
OVERTOPPING ELEVATION	= 295.3	FT

PVC STA. 292+35.00
EL = 296.58

PI = 295+65.00
EL = 292.60'
VC = 660'
K = 227
V = 75 MPH

+1.7009%

EXISTING GROUND

PROP. 60"
INV = 275.6

EX. 8'x 6' RCBC
INV = 274.9

300
290
280
270
260

293 294 295 296 297

329

PROFILE ALONG ROADWAY
SITE 10

NORTH CAROLINA
DEPARTMENT OF HIGHWAYS

WAKE - DURHAM COUNTIES
35018.1.1 (U-4026)

DAVIS DRIVE (SR 1613/1999) FROM 390' NORTH OF MORRISVILLE-CARPENTER RD (SR 3016) TO NC HWY 54

HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 10'

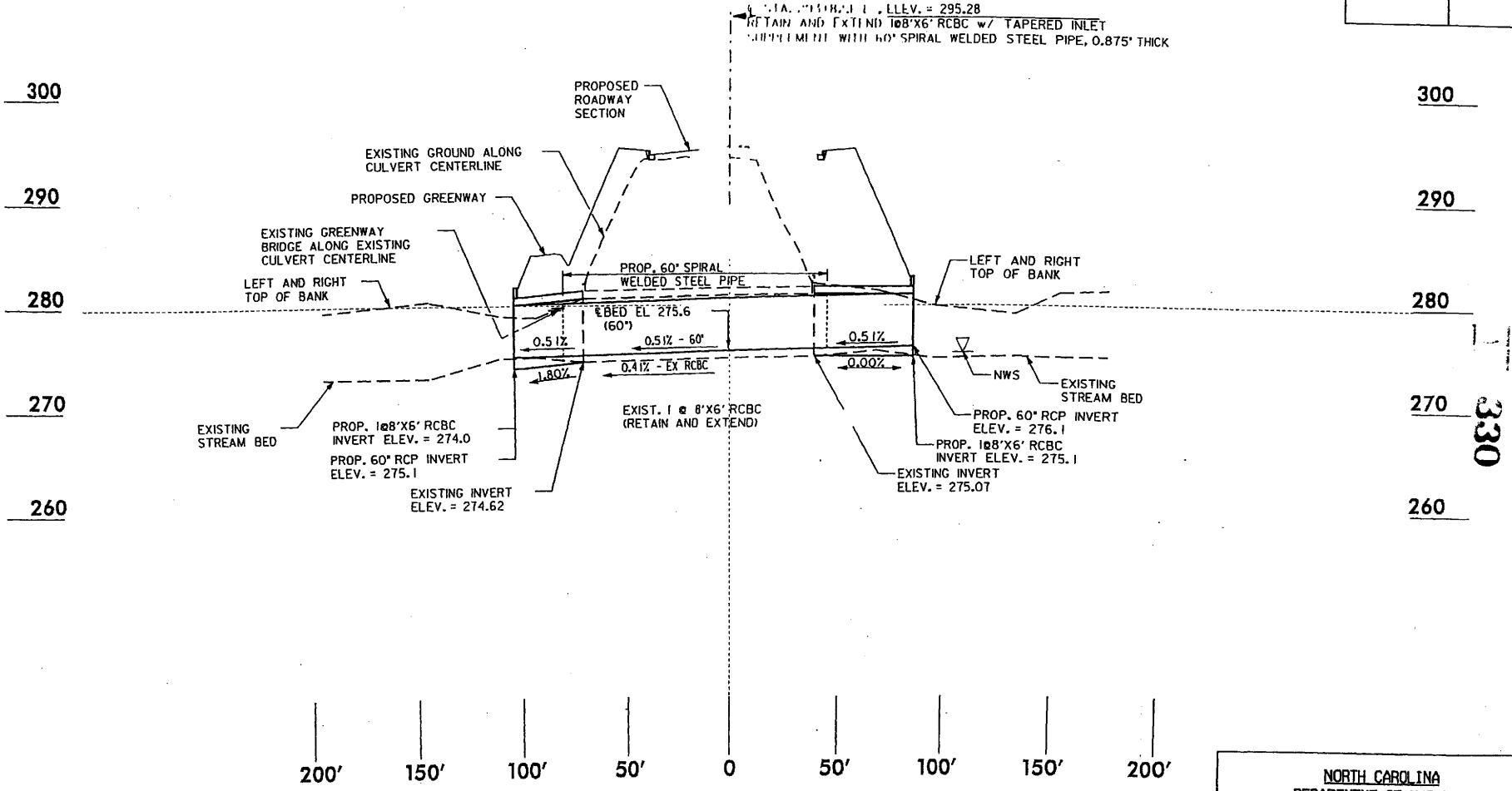
DATE: 02-04-05

SHEET 18 OF 62

LES STIMES

PROJECT REFERENCE NO.	SHEET NO.
U-4026	27-PAS(10)
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
NOT FOR CONSTRUCTION



PROFILE ALONG STRUCTURE
SITE 10

NORTH CAROLINA
DEPARTMENT OF HIGHWAYS

WAKE - DURHAM COUNTIES
35018.1.1 (U-4026)

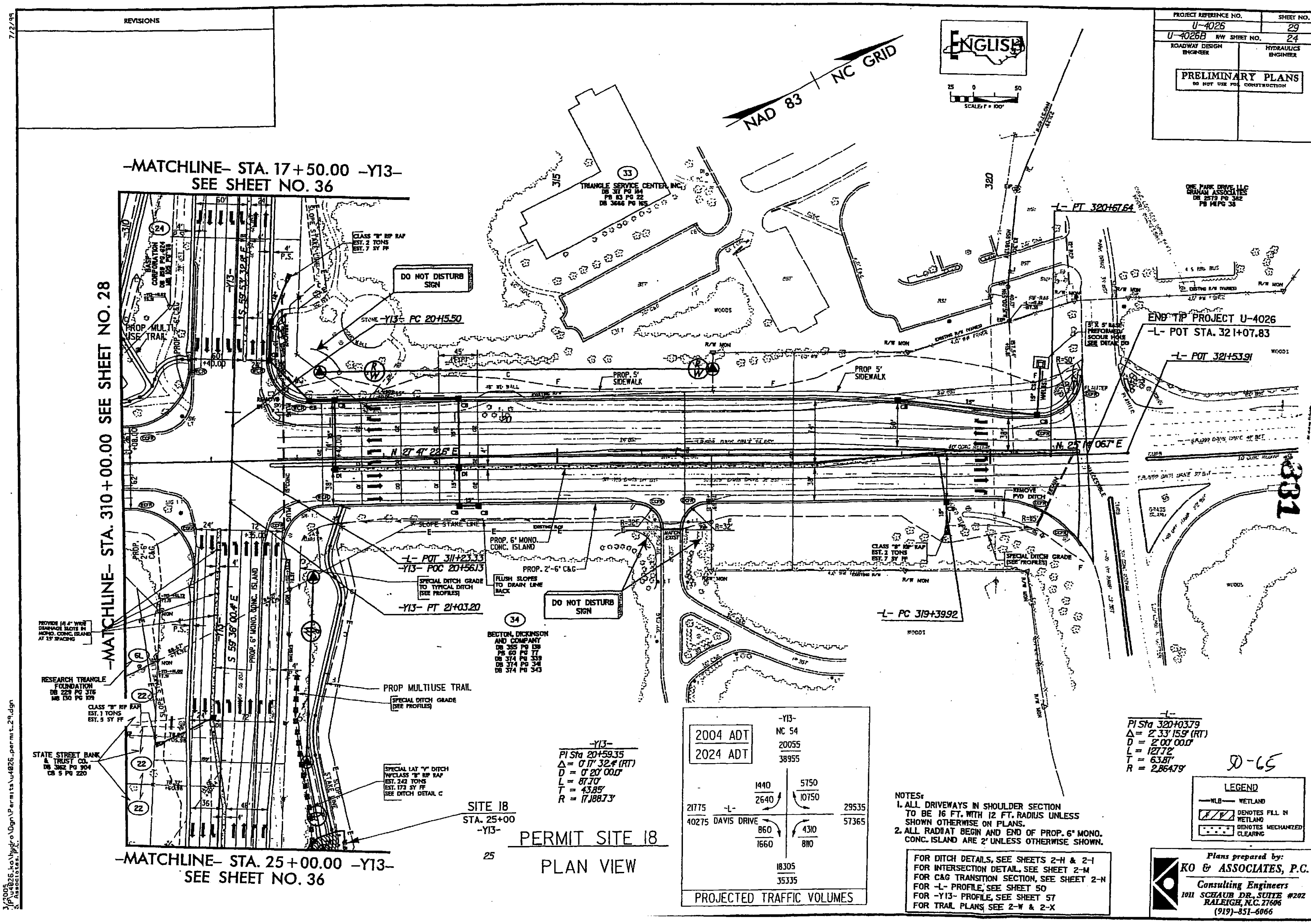
DAVIS DRIVE (SR 1613/1999) FROM 390' NORTH OF MORRISVILLE-CARPENTER RD (SR 3016) TO NC HWY 54

HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 10'

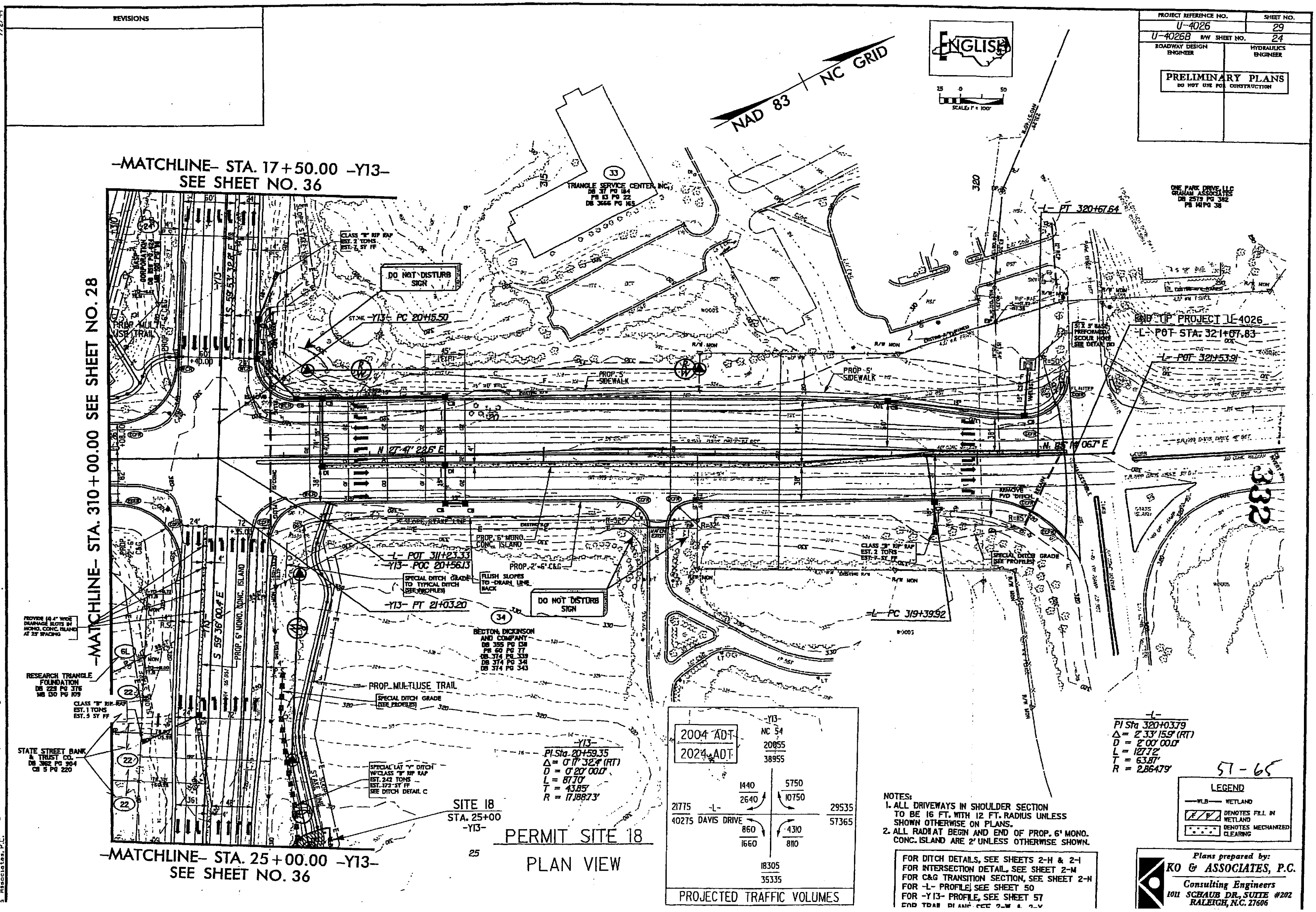
DATE: 02-04-05

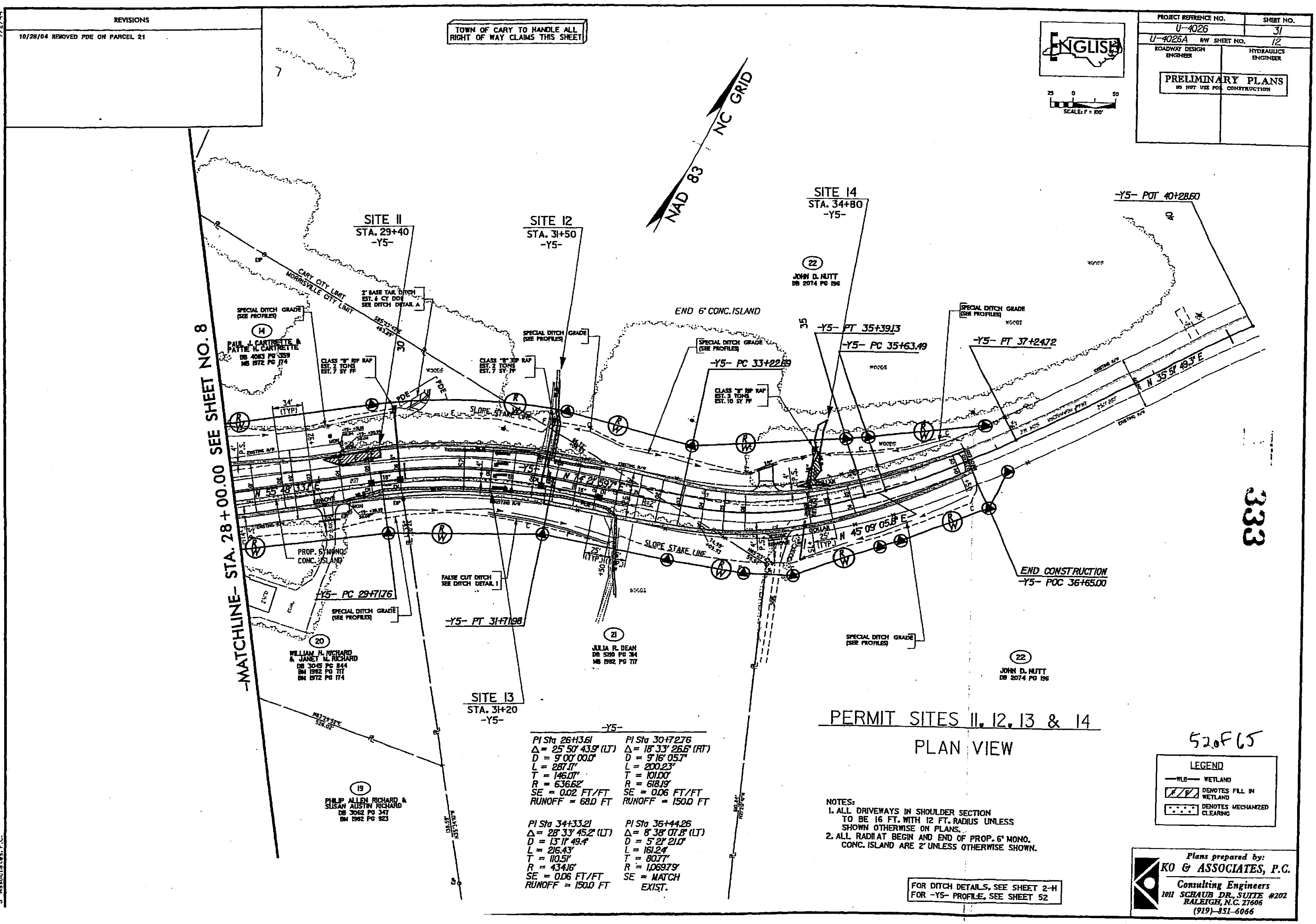
SHEET 49 OF 65

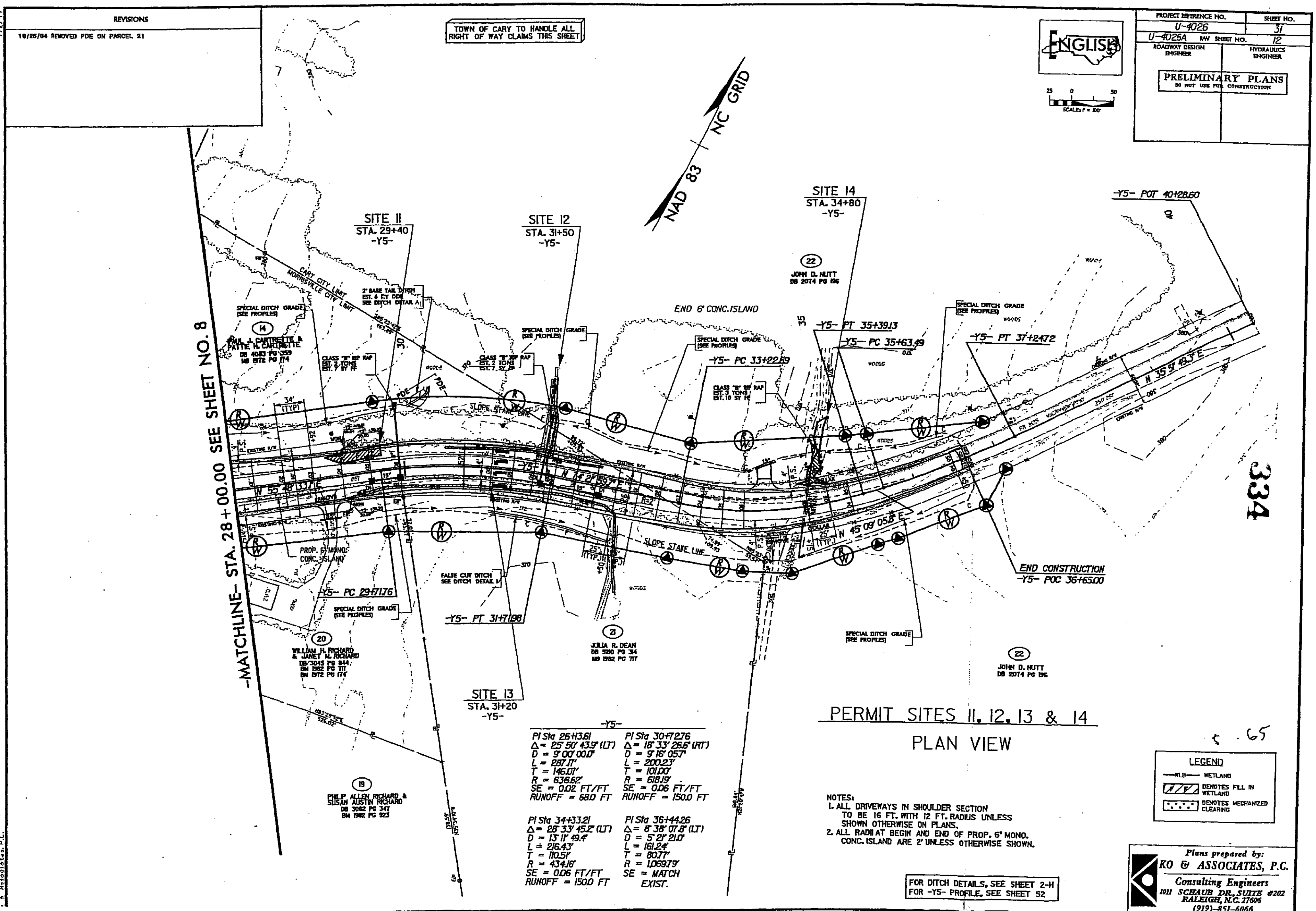
E$ TES $TIME$

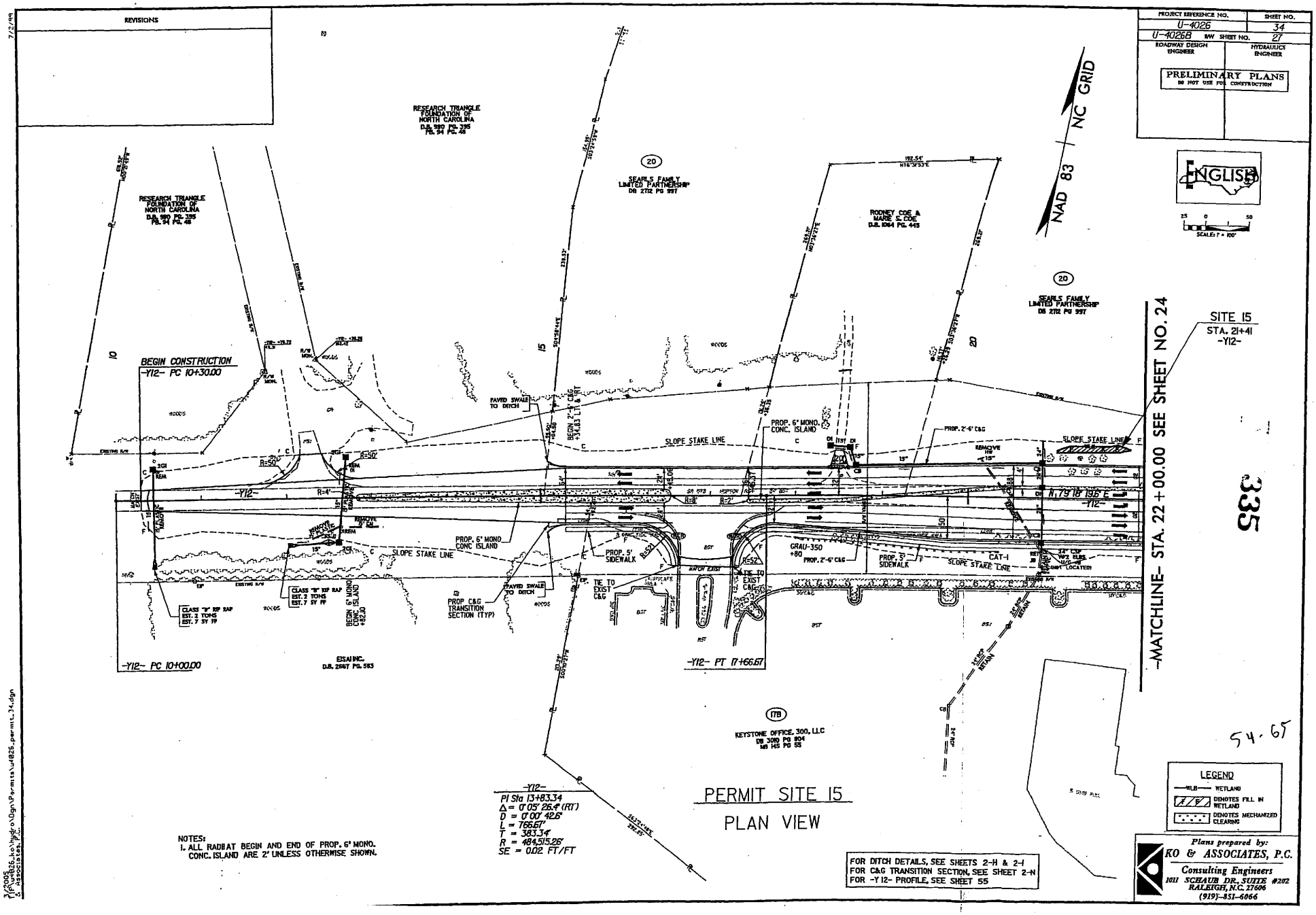


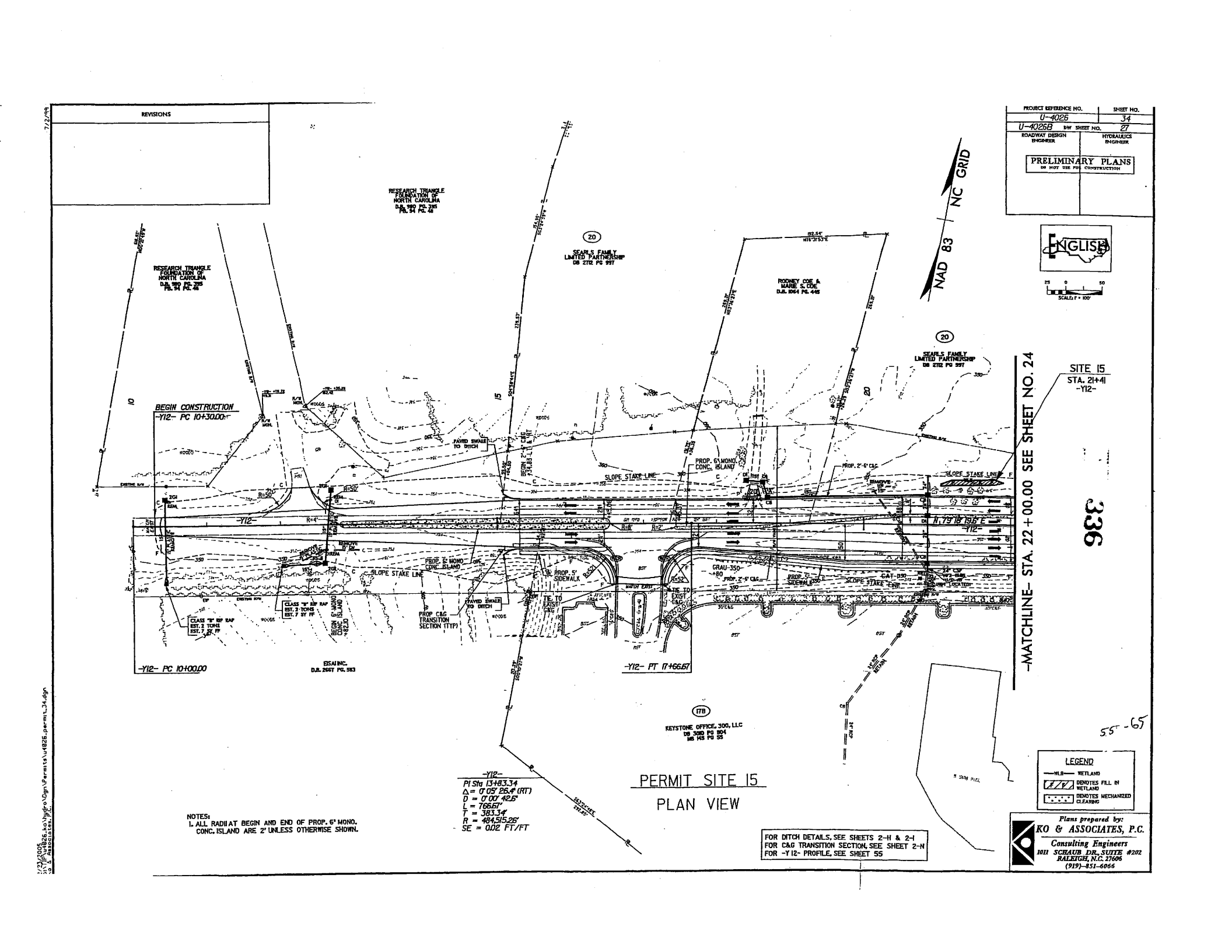
REVISIONS
PROJECT REFERENCE NO. U-4026
SHEET NO. 29
U-4026B R/W SHEET NO. 24
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
ENGLISH
NAD 83 NC GRID
-MATCHLINE- STA. 17+50.00 -Y13-
SEE SHEET NO. 36
-MATCHLINE- STA. 310+00.00 SEE SHEET NO. 28
-MATCHLINE- STA. 25+00.00 -Y13-
SEE SHEET NO. 36
TRIANGLE SERVICE CENTER, INC.
DO NOT DISTURB SIGN
-Y13- PC 20+15.50
PROP. 5' SIDEWALK
-L- PT 320+67.64
END TIP PROJECT U-4026
-L- POT STA. 321+07.83
-L- POT 321+53.91
N 27° 47' 22.6" E
N 25° 16' 06.7" E
S 59° 36' 00.4" E
-L- POT 311+23.33
-Y13- POC 20+56.13
-Y13- PT 21+03.20
PROP. 6" MONO. CONC. ISLAND
PROP. 2'-6" C&G
FLUSH SLOPES TO DRAIN LINE BACK
SPECIAL DITCH GRADE TO TYPICAL DITCH (SEE PROFILES)
BECTON, DICKINSON AND COMPANY
-L- PC 319+39.92
CLASS "B" RIP RAP EST. 2 TONS EST. 7 SY FF
SPECIAL DITCH GRADE (SEE PROFILES)
REMOVE PVD DITCH
PROP MULTIUSE TRAIL
SPECIAL LAT "V" DITCH W/CLASS "B" RIP RAP EST. 242 TONS EST. 173 SY FF SEE DITCH DETAIL C
RESEARCH TRIANGLE FOUNDATION
STATE STREET BANK & TRUST CO.
SITE 18
STA. 25+00
-Y13-
PERMIT SITE 18
PLAN VIEW
-Y13-
PI Sta 20+59.35
Δ = 0° 17' 32.4" (RT)
D = 0° 20' 00.0"
L = 87.70'
T = 43.85'
R = 17,188.73'
-L-
PI Sta 320+03.79
Δ = 2° 33' 15.9" (RT)
D = 2° 00' 00.0"
L = 127.72'
T = 63.87'
R = 2,864.79'
2004 ADT
2024 ADT
-Y13- NC 54
20055
38955
1440
2640
5750
10750
21775
40275
-L- DAVIS DRIVE
29535
57365
860
1660
4310
8110
18305
35335
PROJECTED TRAFFIC VOLUMES
NOTES:
1. ALL DRIVEWAYS IN SHOULDER SECTION TO BE 16 FT. WITH 12 FT. RADIUS UNLESS SHOWN OTHERWISE ON PLANS.
2. ALL RADII AT BEGIN AND END OF PROP. 6" MONO. CONC. ISLAND ARE 2' UNLESS OTHERWISE SHOWN.
FOR DITCH DETAILS, SEE SHEETS 2-H & 2-I
FOR INTERSECTION DETAIL, SEE SHEET 2-M
FOR C&G TRANSITION SECTION, SEE SHEET 2-N
FOR -L- PROFILE, SEE SHEET 50
FOR -Y13- PROFILE, SEE SHEET 57
FOR TRAIL PLANS SEE 2-W & 2-X
LEGEND
WLB — WETLAND
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
Plans prepared by:
KO & ASSOCIATES, P.C.
Consulting Engineers
1011 SCHAUB DR., SUITE #202
RALEIGH, N.C. 27606
(919)-851-6066
331

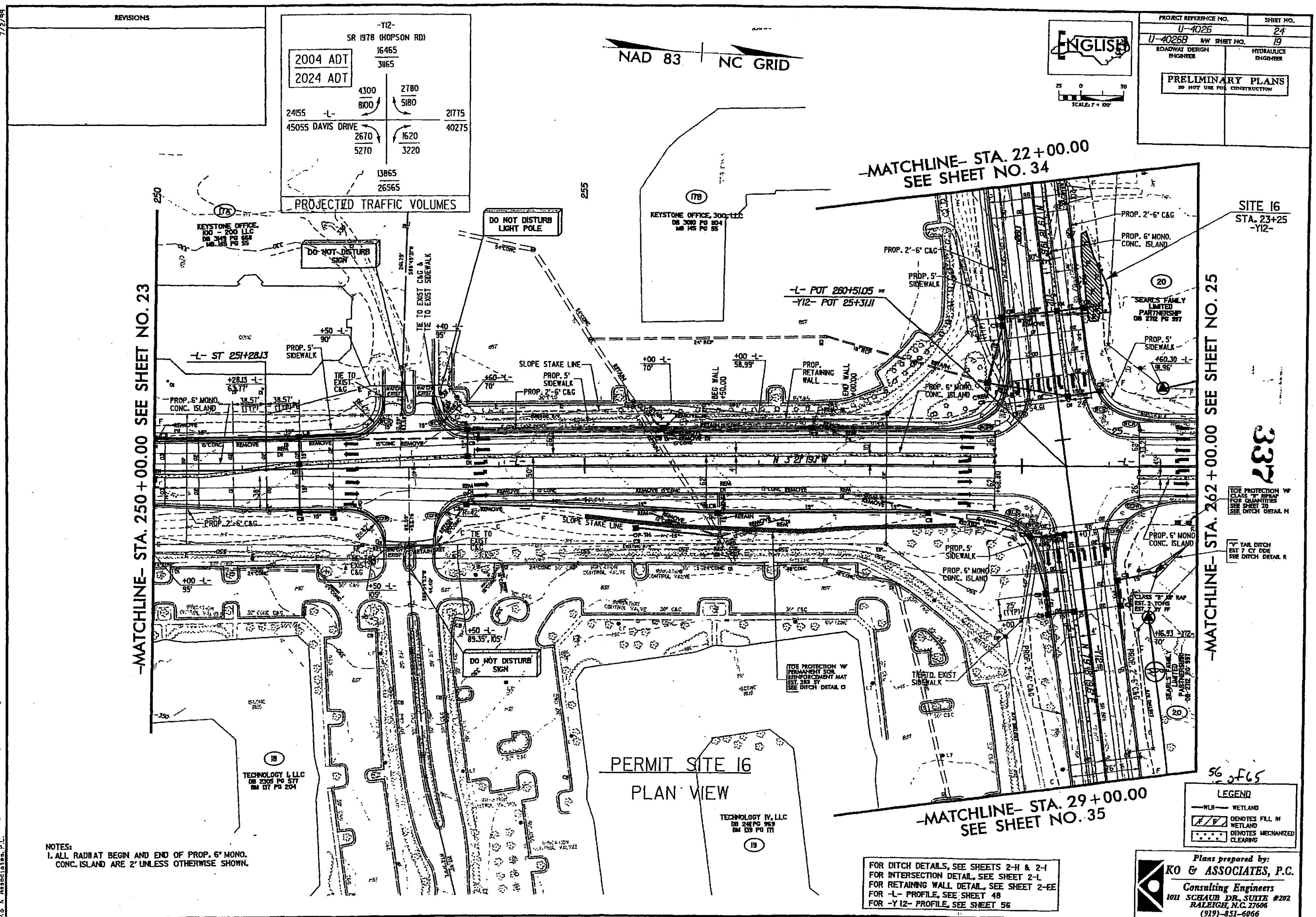

REVISIONS
PROJECT REFERENCE NO. U-4026
SHEET NO. 29
U-4026B R/W SHEET NO. 24
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
ENGLISH
NAD 83 NC GRID
-MATCHLINE- STA. 17+50.00 -Y13-
SEE SHEET NO. 36
-MATCHLINE- STA. 310+00.00 SEE SHEET NO. 28
-MATCHLINE- STA. 25+00.00 -Y13-
SEE SHEET NO. 36
TRIANGLE SERVICE CENTER, INC.
ONE PARK DRIVE, LLC
GRAHAM ASSOCIATES
BECTON, DICKINSON AND COMPANY
RESEARCH TRIANGLE FOUNDATION
STATE STREET BANK & TRUST CO.
DO NOT DISTURB SIGN
DO NOT DISTURB SIGN
END TIP PROJECT U-4026
-L- POT STA. 321+07.83
-L- POT 321+53.91
-L- PT 320+67.64
-L- POT 311+23.33
-Y13- POC 20+56.13
-Y13- PT 21+03.20
-Y13- PC 20+15.50
-L- PC 319+39.92
PROP. 5' SIDEWALK
PROP. 6' MONO. CONC. ISLAND
PROP. 2'-6" C&G
PROP. MULTI-USE TRAIL
SPECIAL DITCH GRADE (SEE PROFILES)
N 27°47' 22.6" E
S 59°36' 00.4" E
-Y13-
PI Sta. 20+59.35
Δ = 0°17' 32.4" (RT)
D = 0°20' 00.0"
L = 87.70'
T = 43.85'
R = 17,188.73'
-L-
PI Sta. 320+03.79
Δ = 2°33' 15.9" (RT)
D = 2°00' 00.0"
L = 127.72'
T = 63.87'
R = 2,864.79'
SITE 18
STA. 25+00
-Y13-
PERMIT SITE 18
PLAN VIEW
2004 ADT
2024 ADT
-Y13-
NC 54
20855
38955
1440
2640
5750
10750
21775
40275
-L-
DAVIS DRIVE
29535
57365
860
1660
4310
8110
18305
35335
PROJECTED TRAFFIC VOLUMES
57-65
LEGEND
WLB — WETLAND
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
NOTES:
1. ALL DRIVEWAYS IN SHOULDER SECTION TO BE 16 FT. WITH 12 FT. RADIUS UNLESS SHOWN OTHERWISE ON PLANS.
2. ALL RADII AT BEGIN AND END OF PROP. 6' MONO. CONC. ISLAND ARE 2' UNLESS OTHERWISE SHOWN.
FOR DITCH DETAILS, SEE SHEETS 2-H & 2-I
FOR INTERSECTION DETAIL, SEE SHEET 2-M
FOR C&G TRANSITION SECTION, SEE SHEET 2-N
FOR -L- PROFILE, SEE SHEET 50
FOR -Y13- PROFILE, SEE SHEET 57
Plans prepared by:
KO & ASSOCIATES, P.C.
Consulting Engineers
1011 SCHAUB DR., SUITE #202
RALEIGH, N.C. 27606


333
REVISIONS
10/28/04 REMOVED PDE ON PARCEL 21
TOWN OF CARY TO HANDLE ALL RIGHT OF WAY CLAIMS THIS SHEET
PROJECT REFERENCE NO. U-4026 SHEET NO. 31
U-4026A R/W SHEET NO. 12
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
NAD 83 NC GRID
SITE 11 STA. 29+40 -Y5-
SITE 12 STA. 31+50 -Y5-
SITE 13 STA. 31+20 -Y5-
SITE 14 STA. 34+80 -Y5-
-MATCHLINE- STA. 28+00.00 SEE SHEET NO. 8
-Y5- POT 40+28.60
-Y5- PT 35+39.13
-Y5- PC 35+63.49
-Y5- PT 37+24.72
-Y5- PC 33+22.89
-Y5- PC 29+71.76
-Y5- PT 31+71.98
END CONSTRUCTION -Y5- POC 36+65.00
END 6" CONC. ISLAND
PROP. 6" MONO. CONC. ISLAND
SLOPE STAKE LINE
N 55°48'33.7" E
N 45°09'05.8" E
N 35°51'49.3" E
CARY CITY LIMIT
MORRISVILLE CITY LIMIT
SPECIAL DITCH GRADE (SEE PROFILES)
FALSE CUT DITCH SEE DITCH DETAIL 1
JOHN D. NUTT DB 2074 PG 196
JULIA R. DEAN DB 5210 PG 314 MB 1982 PG 717
WILLIAM H. RICHARD & JANET M. RICHARD DB 3045 PG 844 BM 1982 PG 717 BM 1972 PG 174
PHILIP ALLEN RICHARD & SUSAN AUSTIN RICHARD DB 3062 PG 347 BM 1982 PG 923
PAUL J. CARTRETTE & PATTIE H. CARTRETTE DB 4083 PG 359 MB 1972 PG 174
-Y5-
PI Sta 26+13.61
Δ = 25°50'43.9" (LT)
D = 9°00'00.0"
L = 287.17'
T = 146.07'
R = 636.62'
SE = 0.02 FT/FT
RUNOFF = 68.0 FT
PI Sta 30+72.76
Δ = 18°33'26.6" (RT)
D = 9°16'05.7"
L = 200.23'
T = 101.00'
R = 618.19'
SE = 0.06 FT/FT
RUNOFF = 150.0 FT
PI Sta 34+33.21
Δ = 28°33'45.2" (LT)
D = 13°11'49.4"
L = 216.43'
T = 110.51'
R = 434.16'
SE = 0.06 FT/FT
RUNOFF = 150.0 FT
PI Sta 36+44.26
Δ = 8°38'07.8" (LT)
D = 5°21'21.0"
L = 161.24'
T = 80.77'
R = 1,069.79'
SE = MATCH EXIST.
PERMIT SITES 11, 12, 13 & 14
PLAN VIEW
52 OF 65
LEGEND
WLB — WETLAND
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
NOTES:
1. ALL DRIVEWAYS IN SHOULDER SECTION TO BE 16 FT. WITH 12 FT. RADIUS UNLESS SHOWN OTHERWISE ON PLANS.
2. ALL RADII AT BEGIN AND END OF PROP. 6" MONO. CONC. ISLAND ARE 2' UNLESS OTHERWISE SHOWN.
FOR DITCH DETAILS, SEE SHEET 2-H
FOR -Y5- PROFILE, SEE SHEET 52
Plans prepared by:
KO & ASSOCIATES, P.C.
Consulting Engineers
1011 SCHAUB DR., SUITE #202
RALEIGH, N.C. 27606
(919)-851-6066


REVISIONS
10/26/04 REMOVED PDE ON PARCEL 21
TOWN OF CARY TO HANDLE ALL RIGHT OF WAY CLAIMS THIS SHEET
PROJECT REFERENCE NO.
SHEET NO.
U-4026
31
U-4026A
R/W SHEET NO.
12
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
ENGLISH
NAD 83 / NC GRID
334
SITE 11
STA. 29+40
-Y5-
SITE 12
STA. 31+50
-Y5-
SITE 13
STA. 31+20
-Y5-
SITE 14
STA. 34+80
-Y5-
-Y5- POT 40+28.60
-Y5- PT 35+39.13
-Y5- PC 35+63.49
-Y5- PT 37+24.72
-Y5- PC 33+22.69
-Y5- PC 29+71.76
-Y5- PT 31+71.98
END 6' CONC. ISLAND
END CONSTRUCTION
-Y5- POC 36+65.00
CARY CITY LIMIT
MORRISVILLE CITY LIMIT
SLOPE STAKE LINE
SPECIAL DITCH GRADE (SEE PROFILES)
FALSE CUT DITCH SEE DITCH DETAIL
PROP. 6' MONO. CONC. ISLAND
JOHN D. NUTT
DB 2074 PG 196
JULIA R. DEAN
DB 5210 PG 314
MB 1982 PG 717
WILLIAM H. RICHARD & JANET M. RICHARD
PHILIP ALLEN RICHARD & SUSAN AUSTIN RICHARD
DB 3062 PG 347
BM 1982 PG 923
-MATCHLINE- STA. 28+00.00 SEE SHEET NO. 8
N 55°48'03.7" E
N 45°09'05.8" E
N 35°51'49.3" E
-Y5-
PI Sta 26+13.61
Δ = 25° 50' 43.9" (LT)
D = 9° 00' 00.0"
L = 287.11'
T = 146.07'
R = 636.62'
SE = 0.02 FT/FT
RUNOFF = 68.0 FT
PI Sta 30+72.76
Δ = 18° 33' 26.6" (RT)
D = 9° 16' 05.7"
L = 200.23'
T = 101.00'
R = 618.19'
SE = 0.06 FT/FT
RUNOFF = 150.0 FT
PI Sta 34+33.21
Δ = 28° 33' 45.2" (LT)
D = 13° 11' 49.4"
L = 216.43'
T = 110.51'
R = 434.16'
SE = 0.06 FT/FT
RUNOFF = 150.0 FT
PI Sta 36+44.26
Δ = 8° 38' 07.8" (LT)
D = 5° 21' 21.0"
L = 161.24'
T = 80.77'
R = 1,069.79'
SE = MATCH EXIST.
PERMIT SITES 11, 12, 13 & 14
PLAN VIEW
NOTES:
1. ALL DRIVEWAYS IN SHOULDER SECTION TO BE 16 FT. WITH 12 FT. RADIUS UNLESS SHOWN OTHERWISE ON PLANS.
2. ALL RADII AT BEGIN AND END OF PROP. 6' MONO. CONC. ISLAND ARE 2' UNLESS OTHERWISE SHOWN.
LEGEND
WETLAND
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
FOR DITCH DETAILS, SEE SHEET 2-H
FOR -Y5- PROFILE, SEE SHEET 52
Plans prepared by:
KO & ASSOCIATES, P.C.
Consulting Engineers
1011 SCHAUB DR., SUITE #202
RALEIGH, N.C. 27606
(919)-851-6066


REVISIONS
PROJECT REFERENCE NO. U-4026
SHEET NO. 34
U-4026B RW SHEET NO. 27
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
ENGLISH
SCALE: 1" = 100'
NAD 83 NC GRID
RESEARCH TRIANGLE FOUNDATION OF NORTH CAROLINA D.B. 980 PG. 395 PB. 94 PG. 48
SEARLS FAMILY LIMITED PARTNERSHIP DB 2712 PG 997
RODNEY COE & MARIE S. COE D.B. 1064 PG. 445
BEGIN CONSTRUCTION -Y12- PC 10+30.00
-Y12- PC 10+00.00
-Y12- PT 17+66.67
SITE 15 STA. 21+41 -Y12-
-MATCHLINE- STA. 22+00.00 SEE SHEET NO. 24
SLOPE STAKE LINE
PROP. 6' MONO. CONC. ISLAND
PROP. 5' SIDEWALK
PROP. 2'-6" C&G
PAVED SWALE TO DITCH
PROP C&G TRANSITION SECTION (TYP)
TIE TO EXIST C&G
CLASS "B" RIP RAP EST. 2 TONS EST. 2 SY FF
CLASS "B" RIP RAP EST. 2 TONS EST. 7 SY FF
EISAI INC. D.B. 2667 PG. 583
KEYSTONE OFFICE 300, LLC DB 3090 PG 804 MB 145 PG 55
-Y12- PI Sta 13+83.34
Δ = 0°05'26.4" (RT)
D = 0°00'42.6"
L = 766.67'
T = 383.34'
R = 484,515.26'
SE = 0.02 FT/FT
PERMIT SITE 15
PLAN VIEW
NOTES:
1. ALL RADIAT BEGIN AND END OF PROP. 6' MONO. CONC. ISLAND ARE 2' UNLESS OTHERMISE SHOWN.
FOR DITCH DETAILS, SEE SHEETS 2-H & 2-I
FOR C&G TRANSITION SECTION, SEE SHEET 2-N
FOR -Y12- PROFILE, SEE SHEET 55
LEGEND
WETLAND
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
335
54.65
Plans prepared by:
KO & ASSOCIATES, P.C.
Consulting Engineers
1011 SCHAUB DR., SUITE #202
RALEIGH, N.C. 27606
(919)-851-6066
7/2/99
3/2005
I:\U4026_ko\Hydro\Dgn\Permits\u4026_permits_34.dgn
KO & Associates, P.C.


REVISIONS
PROJECT REFERENCE NO. U-4026
SHEET NO. 34
U-4026B R/W SHEET NO. 27
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
ENGLISH
SCALE: 1" = 100'
NAD 83 / NC GRID
SITE 15
STA. 21+41
-Y12-
-MATCHLINE- STA. 22+00.00 SEE SHEET NO. 24
336
BEGIN CONSTRUCTION
-Y12- PC 10+30.00
-Y12- PC 10+00.00
-Y12- PT 17+66.67
RESEARCH TRIANGLE FOUNDATION OF NORTH CAROLINA D.B. 980 PG. 335 PG. 54 PG. 48
SEARLS FAMILY LIMITED PARTNERSHIP DB 2712 PG 997
RODNEY COE & MARIE S. COE D.B. 8964 PG. 445
EISAI INC. D.B. 2667 PG. 583
KEYSTONE OFFICE 300, LLC DB 3083 PG 804 MB 145 PG 55
PAVED SWALE TO DITCH
SLOPE STAKE LINE
PROP. 6' MONO CONC. ISLAND
PROP. 2'-6" C&G
PROP. 5' SIDEWALK
PROP C&G TRANSITION SECTION (TYP)
TIE TO EXIST. C&G
REMOVE 6' SW
CLASS "B" RIP RAP EST. 2 TONS EST. 7 SY FF
-Y12-
PI Sta 13+83.34
Δ = 0°05'26.4" (RT)
D = 0°00'42.5"
L = 766.67'
T = 383.34'
R = 484,515.26'
SE = 0.02 FT/FT
PERMIT SITE 15
PLAN VIEW
55 - 65
LEGEND
WETLAND
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
NOTES:
1. ALL RADII AT BEGIN AND END OF PROP. 6' MONO. CONC. ISLAND ARE 2' UNLESS OTHERWISE SHOWN.
FOR DITCH DETAILS, SEE SHEETS 2-H & 2-I
FOR C&G TRANSITION SECTION, SEE SHEET 2-N
FOR -Y12- PROFILE, SEE SHEET 55
Plans prepared by:
KO & ASSOCIATES, P.C.
Consulting Engineers
1011 SCHAUB DR., SUITE #202
RALEIGH, N.C. 27606
(919)-851-6066
7/2/99
1/23/2005
S:\TP\u4026_ko\hydro\Dgn\Permits\u4026_permit_34.dgn
S. Associates, PC


REVISIONS
PROJECT REFERENCE NO. U-4026
SHEET NO. 24
U-4026B R/W SHEET NO. 19
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
ENGLISH
NAD 83
NC GRID
-Y12-
SR 1978 (HOPSON RD)
2004 ADT
2024 ADT
16465
3165
4300
8100
2780
5180
24155
45055
-L-
DAVIS DRIVE
21775
40275
2670
5270
1620
3220
13865
26565
PROJECTED TRAFFIC VOLUMES
DO NOT DISTURB LIGHT POLE
DO NOT DISTURB SIGN
KEYSTONE OFFICE 300 LLC
KEYSTONE OFFICE 100 - 200 LLC
-MATCHLINE- STA. 22+00.00 SEE SHEET NO. 34
SITE 16
STA. 23+25
-Y12-
PROP. 2'-6" C&G
PROP. 6' MONO. CONC. ISLAND
PROP. 5' SIDEWALK
SEARLS FAMILY LIMITED PARTNERSHIP
-L- POT 260+51.05 =
-Y12- POT 25+31.11
-L- ST 251+28.13
TIE TO EXIST C&G & TIE TO EXIST SIDEWALK
SLOPE STAKE LINE
PROP. RETAINING WALL
BEG WALL
END WALL
N 3°27'19.1" W
-MATCHLINE- STA. 250+00.00 SEE SHEET NO. 23
-MATCHLINE- STA. 262+00.00 SEE SHEET NO. 25
337
TOE PROTECTION W/ CLASS "B" RIPRAP FOR QUANTITIES SEE SHEET 20 SEE DITCH DETAIL N
"V" TAIL DITCH EST 7 CY DDE SEE DITCH DETAIL R
CLASS "B" RIP RAP EST. 2 TONS
TOE PROTECTION W/ PERMANENT SOIL REINFORCEMENT MAT EST. 283 SY SEE DITCH DETAIL O
TIE TO EXIST SIDEWALK
PERMIT SITE 16
PLAN VIEW
TECHNOLOGY I, LLC
TECHNOLOGY IV, LLC
-MATCHLINE- STA. 29+00.00 SEE SHEET NO. 35
56 of 65
LEGEND
WETLAND
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
NOTES:
1. ALL RADII AT BEGIN AND END OF PROP. 6" MONO. CONC. ISLAND ARE 2' UNLESS OTHERWISE SHOWN.
FOR DITCH DETAILS, SEE SHEETS 2-H & 2-I
FOR INTERSECTION DETAIL, SEE SHEET 2-L
FOR RETAINING WALL DETAIL, SEE SHEET 2-EE
FOR -L- PROFILE, SEE SHEET 48
FOR -Y12- PROFILE, SEE SHEET 56
Plans prepared by:
KO & ASSOCIATES, P.C.
Consulting Engineers
1011 SCHAUB DR., SUITE #202
RALEIGH, N.C. 27606
(919)-851-6066
7/2/99

PROJECT REFERENCE NO.	SHEET NO.
U-4026	24
U-4026B R/W SHEET NO.	19
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

7/2/99

NAD 83 | NC GRID

SCALE: 1" = 100'

PROJECTED TRAFFIC VOLUMES

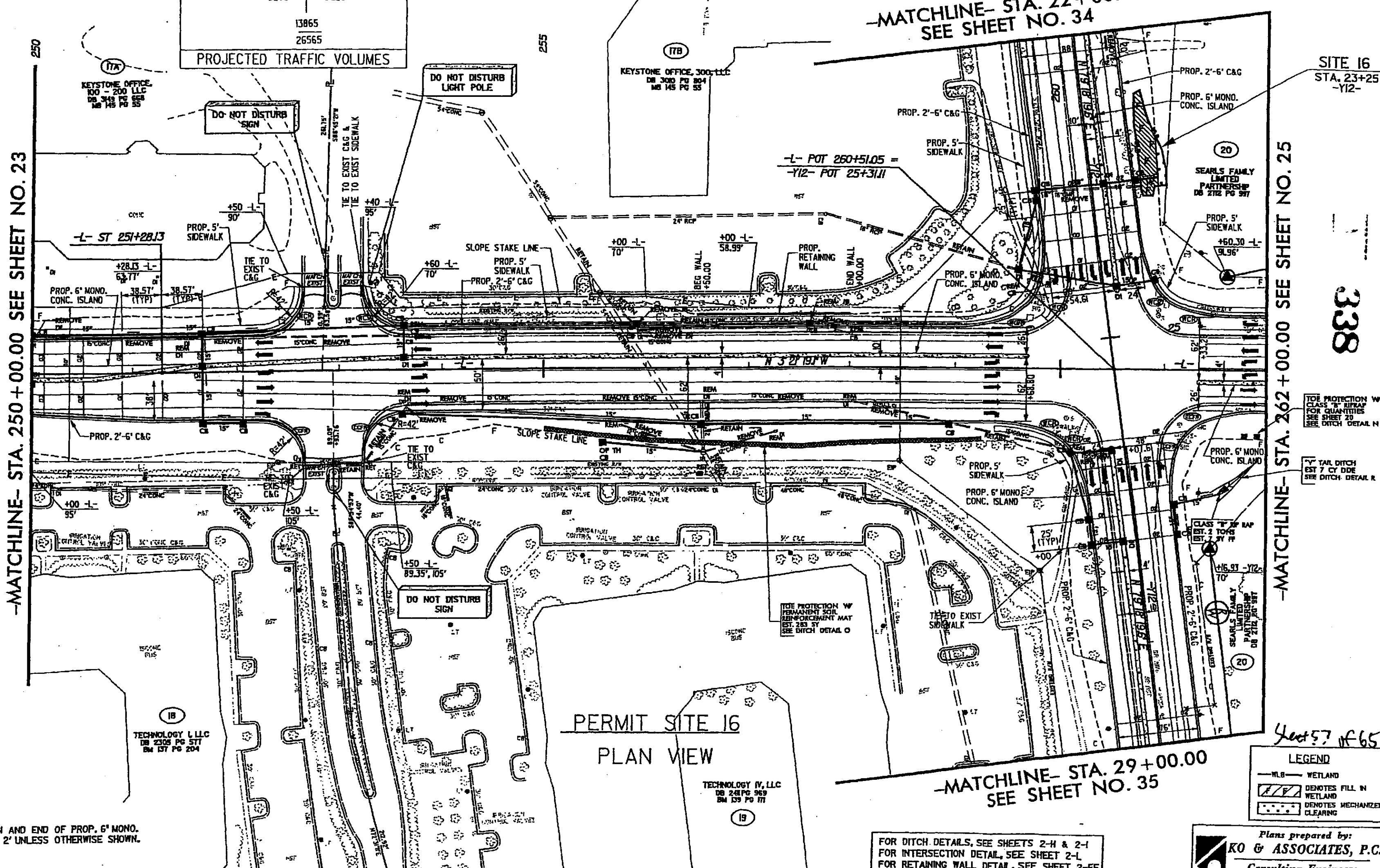
-Y12-
SR 1978 (HOPSON RD)
16465 / 3165

2004 ADT
2024 ADT

24155	-L-	4300 / 8100	2780 / 5180
45055	DAVIS DRIVE	2670 / 5270	1620 / 3220

21775 / 40275

13865 / 26565



-MATCHLINE- STA. 250+00.00 SEE SHEET NO. 23
-MATCHLINE- STA. 22+00.00 SEE SHEET NO. 34
-MATCHLINE- STA. 262+00.00 SEE SHEET NO. 25
-MATCHLINE- STA. 29+00.00 SEE SHEET NO. 35
SITE 16
STA. 23+25
-Y12-
-L- POT 260+51.05 =
-Y12- POT 25+31.11
-L- ST 251+28.13
DO NOT DISTURB SIGN
DO NOT DISTURB LIGHT POLE
KEYSTONE OFFICE, 100 - 200 LLC
KEYSTONE OFFICE, 300, LLC
SEARLS FAMILY LIMITED PARTNERSHIP
TECHNOLOGY I, LLC
TECHNOLOGY IV, LLC
PROP. 5' SIDEWALK
PROP. 2'-6" C&G
PROP. 6" MONO. CONC. ISLAND
PROP. RETAINING WALL
SLOPE STAKE LINE
TIE TO EXIST C&G
TIE TO EXIST SIDEWALK
N 3°21'19" W
PERMIT SITE 16
PLAN VIEW

LEGEND
—WLB— WETLAND
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING

Sheet 57 of 65

338

FOR DITCH DETAILS, SEE SHEETS 2-H & 2-I
FOR INTERSECTION DETAIL, SEE SHEET 2-L
FOR RETAINING WALL DETAIL, SEE SHEET 2-EE
FOR -L- PROFILE, SEE SHEET 48
FOR -Y12- PROFILE, SEE SHEET 56

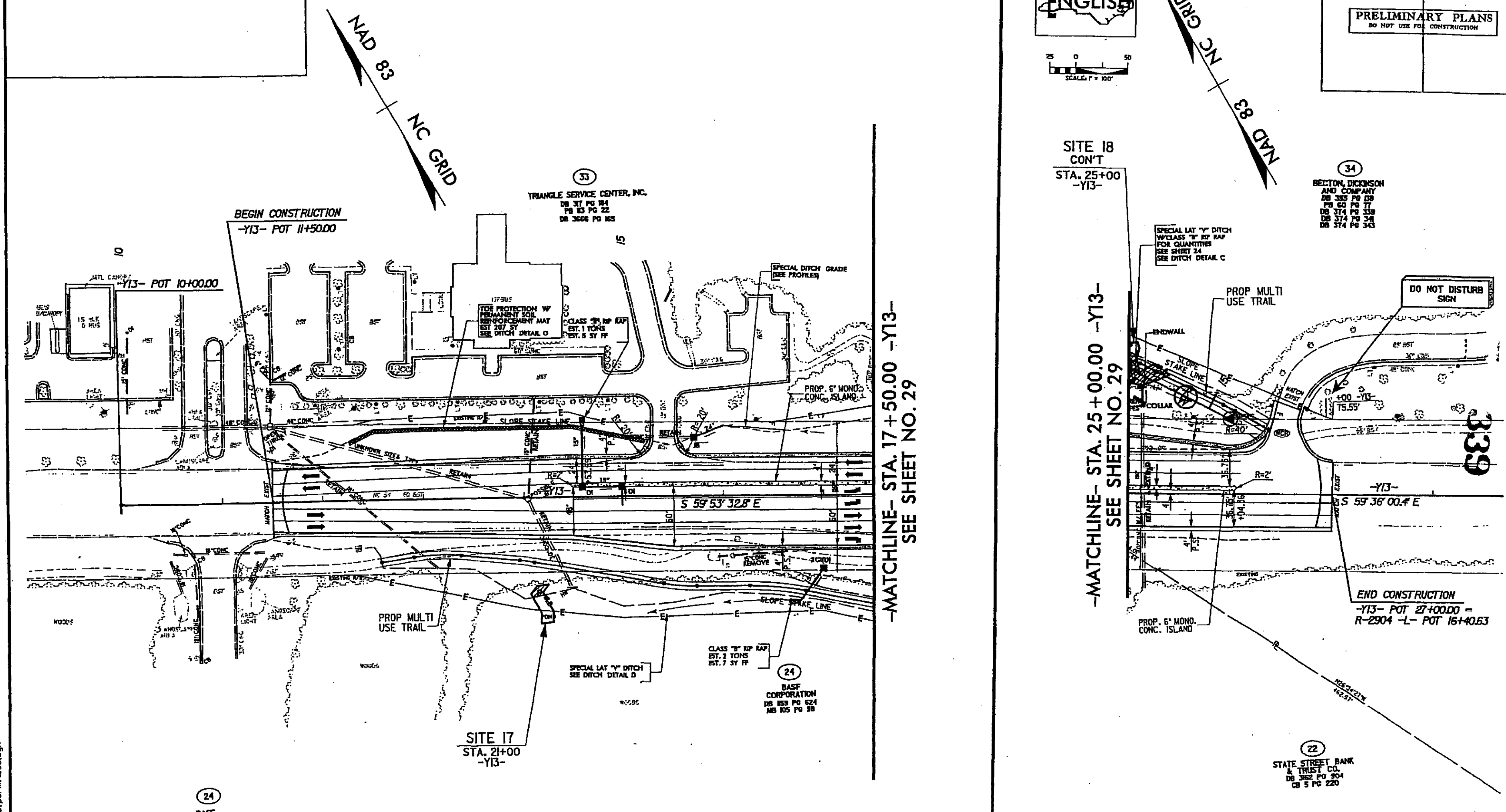
NOTES:
1. ALL RADII AT BEGIN AND END OF PROP. 6" MONO. CONC. ISLAND ARE 2' UNLESS OTHERWISE SHOWN.

Plans prepared by:
KO & ASSOCIATES, P.C.
Consulting Engineers
1011 SCHAUB DR., SUITE #202
RALEIGH, N.C. 27606
(919)-851-6066

PROJECT REFERENCE NO.	SHEET NO.
U-4026	36
U-4026B R/W SHEET NO.	29
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS



ENGLISH
SCALE: 1" = 100'
NAD 83
NC GRID
BEGIN CONSTRUCTION
-Y13- POT 11+50.00
-Y13- POT 10+00.00
TRIANGLE SERVICE CENTER, INC.
TOE PROTECTION W/ PERMANENT SOIL REINFORCEMENT MAT EST. 207 SY SEE DITCH DETAIL O
CLASS "B" RIP RAP EST. 1 TONS EST. 8 SY FF
SPECIAL DITCH GRADE (SEE PROFILES)
PROP. 6" MONO. CONC. ISLAND
SLOPE STAKE LINE
S 59°53'32.8" E
PROP MULTI USE TRAIL
SPECIAL LAT "V" DITCH SEE DITCH DETAIL D
CLASS "B" RIP RAP EST. 2 TONS EST. 7 SY FF
BASF CORPORATION
SITE 17
STA. 21+00
-Y13-
-MATCHLINE- STA. 17+50.00 -Y13-
SEE SHEET NO. 29
SITE 18
CON'T
STA. 25+00
-Y13-
SPECIAL LAT "V" DITCH W/CLASS "B" RIP RAP FOR QUANTITIES SEE SHEET 24 SEE DITCH DETAIL C
PROP MULTI USE TRAIL
ENDWALL
COLLAR
DO NOT DISTURB SIGN
BECTON, DICKINSON AND COMPANY
R=40'
R=2'
-Y13-
S 59°36'00.4" E
-MATCHLINE- STA. 25+00.00 -Y13-
SEE SHEET NO. 29
PROP. 6" MONO. CONC. ISLAND
END CONSTRUCTION
-Y13- POT 27+00.00 =
R-2904 -L- POT 16+40.63
STATE STREET BANK & TRUST CO.
339

PERMIT SITES 17 & 18
PLAN VIEW

FOR DITCH DETAILS, SEE SHEETS 2-H & 2-I
FOR C&G TRANSITION, SEE SHEET 2-N
FOR TRAIL PLANS, SEE SHEETS 2-W & 2-X
FOR -Y13- PROFILE, SEE SHEET 57

LEGEND
—WLB— WETLAND
DENOTES FILL IN WETLAND
DENOTES FILL IN POND
DENOTES SURFACE WATER LOSS
DENOTES MECHANIZED CLEARING

58-60

Plans prepared by:
KO & ASSOCIATES, P.C.
Consulting Engineers
1011 SCHAUB DR., SUITE #202
RALEIGH, N.C. 27606
(919)-851-6066

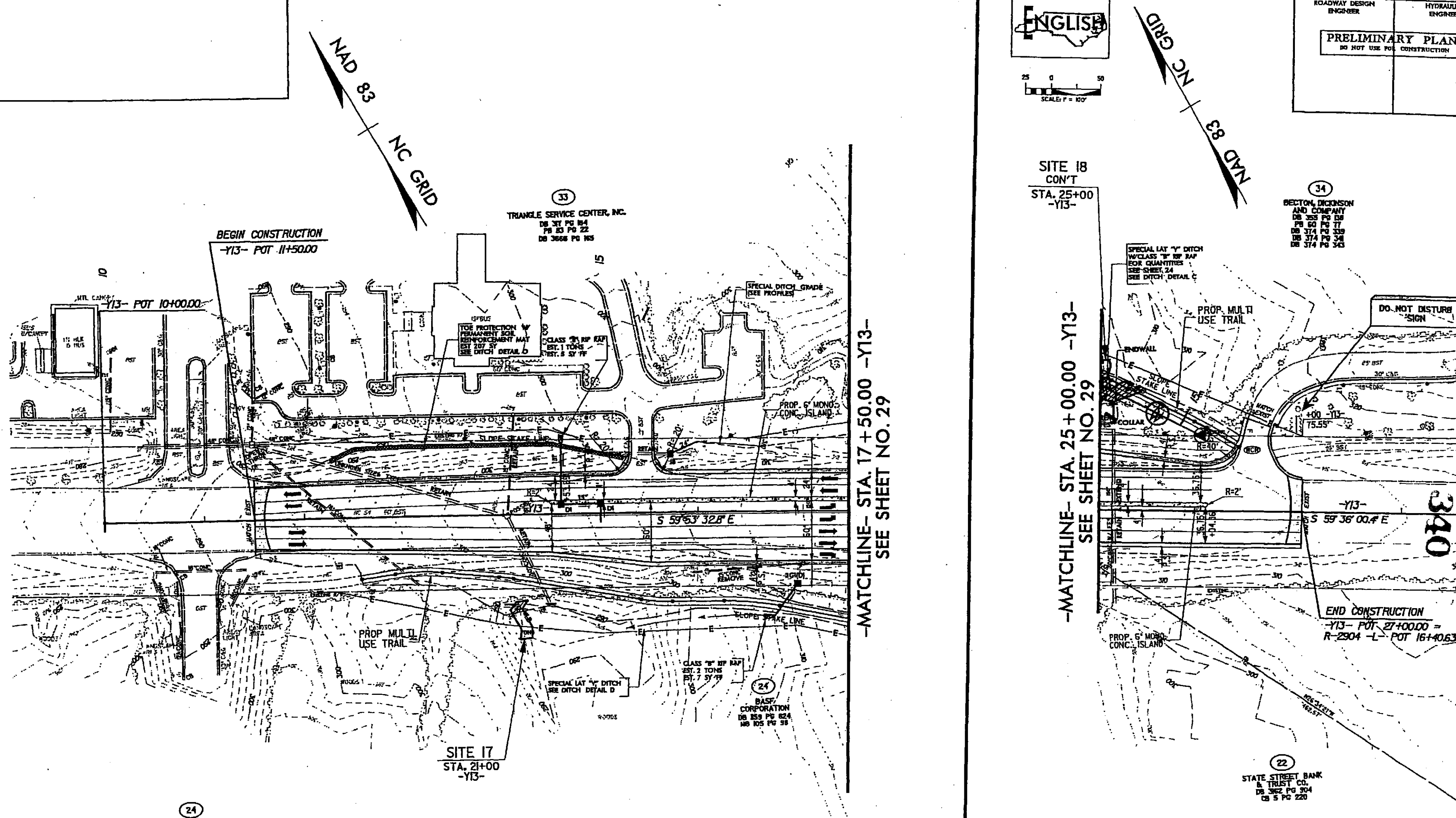
7/2/99

PROJECT REFERENCE NO.	SHEET NO.
U-4026	36
U-4026B R/W SHEET NO.	29
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

7/2/99



PERMIT SITES 17 & 18

PLAN VIEW

FOR DITCH DETAILS, SEE SHEETS 2-H & 2-I
FOR C&G TRANSITION, SEE SHEET 2-N
FOR TRAIL PLANS, SEE SHEETS 2-W & 2-X
FOR -Y13- PROFILE, SEE SHEET 57

LEGEND

- —WLB— WETLAND
- DENOTES FILL IN WETLAND
- DENOTES FILL IN POND
- DENOTES SURFACE WATER LOSS
- DENOTES MECHANIZED CLEARING

59-65

Plans prepared by:
KO & ASSOCIATES, P.C.
Consulting Engineers
1011 SCHAUB DR., SUITE #202
RALEIGH, N.C. 27606
(919)-851-6066

/2005
P:\u4026_ko\hydro\Dgn\Permits\u4026_permit_36.dgn
Associates, P.C.

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
U-4026	25
U-4026B RW SHEET NO.	20
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83 | NC GRID

-MATCHLINE- STA. 262+00.00 SEE SHEET NO. 24

-MATCHLINE- STA. 274+00.00 SEE SHEET NO. 26

-L-
PI Sta 270+12.65
Δ = 2°18' 20.7" (LT)
D = 0°30' 00.0"
L = 461.15'
T = 230.68'
R = 11,459.16'
SE = 0.02 FT/FT

-L- STA 263+10.00
BEGIN 200' TAPER
SB LANES

-L- STA 265+10.00
END 200' TAPER
SB LANES

-L- STA 265+60.00
BEGIN 200' TAPER
SB LANES

-L- STA 267+60.00
END 200' TAPER
SB LANES

-L- PT 272+43.19

-L- PC 262+67.80

-L- STA 263+60.00
BEGIN 200' TAPER
NB LANES

-L- STA 265+60.00
END 200' TAPER
NB LANES

-L- PRC 267+82.04

SEARLS FAMILY
LIMITED PARTNERSHIP

SLOPE STAKE LINE

N 3°21'19.1"W

N 3°05'23.5"W

-L-
PI Sta 265+24.97
Δ = 2°34'16.3" (RT)
D = 0°30' 00.0"
L = 514.24'
T = 257.16'
R = 11,459.16'
SE = 0.02 FT/FT

PERMIT SITE 19
PLAN VIEW

ADDITIONAL IMPACT DUE TO DRAWDOWN
SITE 19 0.009 AC

NOTES:
1. ALL RADII AT BEGIN AND END OF PROP. 6" MONO. CONC. ISLAND ARE 2' UNLESS OTHERWISE SHOWN.

LEGEND
WLB WETLAND
DENOTES FILL IN WETLAND
DENOTES EXCAVATION IN WETLAND
DENOTES MECHANIZED CLEARING

LEGEND
PAVED SHOULDER

FOR DITCH DETAILS, SEE SHEETS 2-H & 2-I
FOR -L- PROFILE, SEE SHEET 48

143

60-65

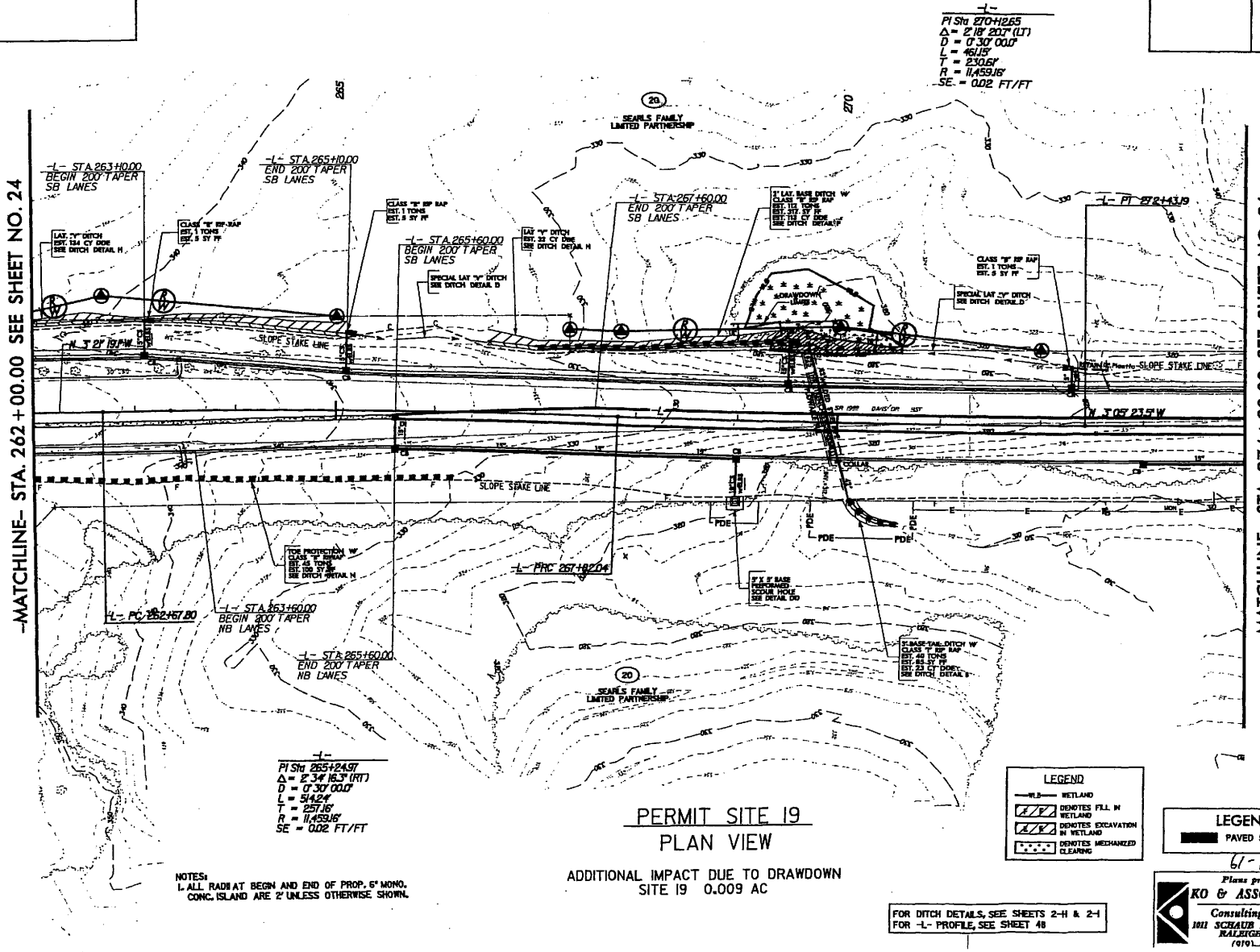
Plans prepared by:
KO & ASSOCIATES, P.C.
Consulting Engineers
1011 SCHAUB DR. SUITE #202
RALEIGH, N.C. 27606
(919)-851-6066

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
U-4026	25
U-4026B R/W SHEET NO.	20
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83 | NC GRID



NOTES:
1. ALL RADII AT BEGIN AND END OF PROP. 6" MONO. CONC. ISLAND ARE 2' UNLESS OTHERWISE SHOWN.

PERMIT SITE 19
PLAN VIEW

ADDITIONAL IMPACT DUE TO DRAWDOWN
SITE 19 0.009 AC

LEGEND
WLS WETLAND
DENOTES FILL IN WETLAND
DENOTES EXCAVATION IN WETLAND
DENOTES MECHANIZED CLEARING

LEGEND
PAVED SHOULDER

FOR DITCH DETAILS, SEE SHEETS 2-H & 2-I
FOR -L- PROFILE, SEE SHEET 48

61-65

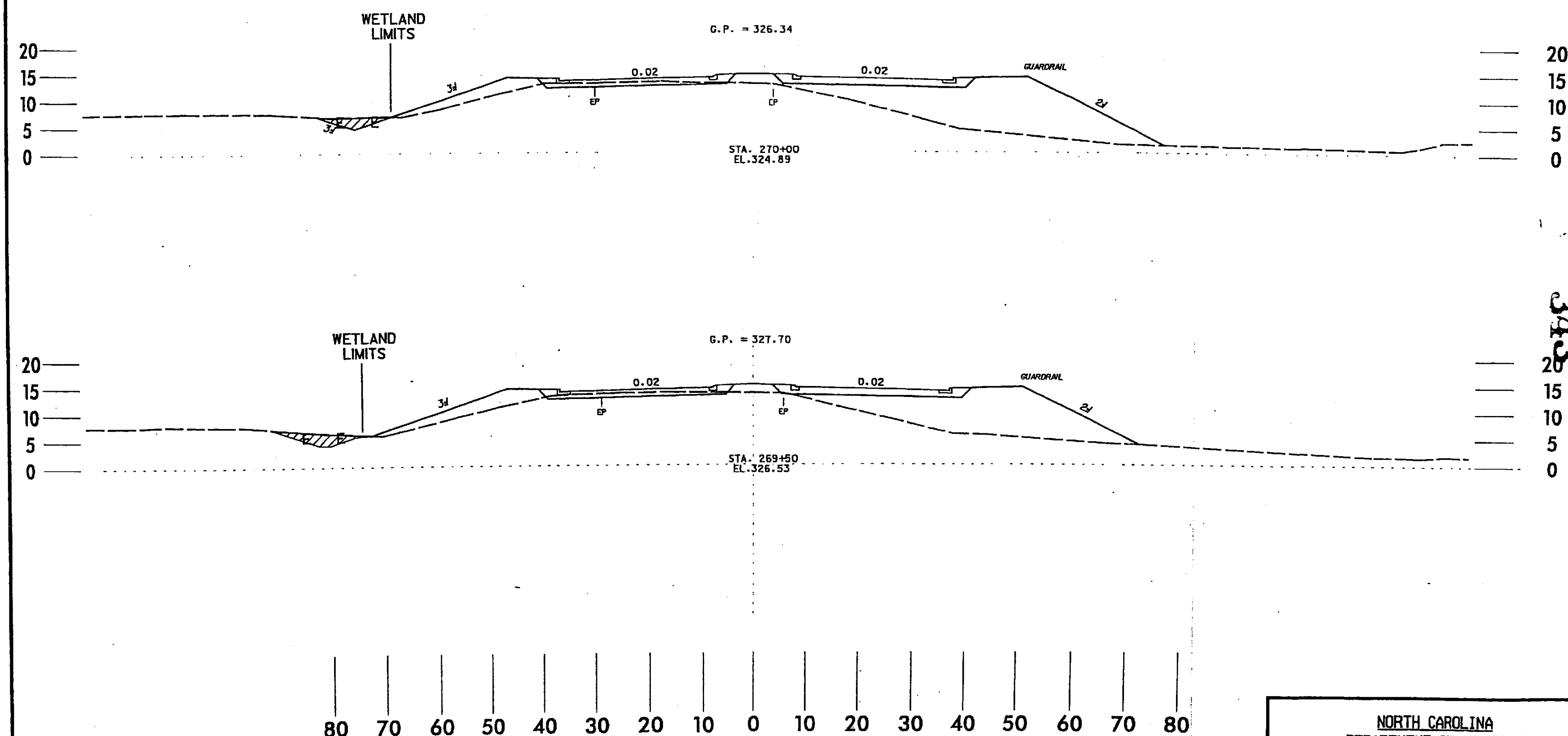
Plans prepared by:
KO & ASSOCIATES, P.C.
Consulting Engineers
1011 SCHAUB DR, SUITE #202
RALEIGH, N.C. 27606
(919)_851_4444

342

PROJECT REFERENCE NO.	SHEET NO.
U-4026	25-XSEC
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

343



LEGEND

—WLB— WETLAND

DENOTES EXCAVATION IN WETLAND

TYPICAL X-SECTIONS
SITE 19

NORTH CAROLINA
DEPARTMENT OF HIGHWAYS

WAKE - DURHAM COUNTIES
35018.1.1 (U-4026)

DAVIS DRIVE (SR 1613/1999) FROM 390' NORTH OF MORRISVILLE-CARPENTER RD (SR 3016) TO NC HWY 54

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 20'

DATE: 07-28-05

SHEET 62 OF 65

\TIP\u4026_ko\hydro\Dgn\Permits\u4026p_site25.xsc
/28/2005 10:47:10 AM

RALEIGH REGULATORY FIELD OFFICE

WETLAND PERMIT IMPACT SUMMARY

Site No.	Rdwy Sht No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS				SURFACE WATER IMPACTS				
				Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation In Wetlands (ac)	Mechanized Clearing (Method III) (ac)	Fill In SW (Natural) (ac)	Fill In SW (Pond) (ac)	Temp. Fill In SW (ac)	Existing Channel Impacted (ft)	Natural Stream Design (ft)
1	10-11	93+29 -L-	54" RCP / 48" SUPPL PIPE	---	---	---	---	0.0172	---	0.0115	216	---
2	11	104+58 -L-	(2) 48" PIPES	---	---	---	---	0.0089	---	0.0080	106	---
3	14	134+23 -L-	66" RCP / 72" SUPPL PIPE	---	---	---	---	0.0458	---	0.0235	186	---
4	17-18	178+23 -L-	54" RCP / 66" SUPPL PIPE	---	---	---	---	0.0557	---	0.0141	215	---
5	19	199+96 -L-	(2) 7' x 6' RCBC	---	---	---	---	---	0.0787	0.0365	---	---
6	20-21	205+00 - 215+00 -L-	Embankment / Lateral	0.0230	---	---	0.0120	0.0159	---	0.0024	423	---
7	22	229+99.7 -L-	66" RCP / 72" SUPPL PIPE	---	---	---	---	0.0807	---	---	307	---
8	23	241+00 -L-	54" RCP	---	---	---	---	0.0032	---	0.0019	21	---
9	26-27	286+57.6 -L-	66" RCP / 48" SUPPL PIPE	---	---	---	---	0.0537	---	0.0076	394	261
10	27	293+82.1 -L-	(1) 8' x 6' RCBC / 60" SUPPL PIPE	---	---	---	---	0.0465	---	0.0136	244	---
11	31	29+40 -Y5-	Embankment	0.0140	---	---	---	---	---	---	---	---
12	31	31+50 -Y5-	15" RCP / Embankment	0.0120	---	---	0.0010	---	---	---	---	---
13	31	31+20 -Y5-	Embankment	0.0198	---	---	0.0007	---	---	---	---	---
14	31	34+80 -Y5-	18" RCP / Embankment	0.0090	---	---	0.0023	---	---	---	---	---
15	34	21+41 -Y12-	Embankment	0.0125	---	---	---	---	---	---	---	---
16	24	23+25 -Y12-	18" RCP / Embankment	0.0361	---	---	0.0073	---	---	---	---	---
17	36	21+00 -Y13-	Embankment	---	---	---	---	---	0.0029	---	---	---
18	29&36	25+00 -Y13-	30" RCP w EW / Embankment / Trail	0.0267	---	---	0.0065	0.0006	---	---	13	---
19	25	269+05-270+67 -L- Lt	Proposed Ditches	0.0130		0.0770						
TOTALS:				0.1661	0.0000	0.0770	0.0298	0.3282	0.0816	0.1191	2125	261

** The 0.077 ac of Excavation in Wetlands Sta 269+05 -L- Lt consists of 0.042 Excavated and 0.035 Drained

Form Revised 3/22/01

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

WAKE COUNTY
PROJECT: 35018.1.1 (U-4026)

Sheet 63 of 65

8/25/2005

SHT ___ OF ___

344

SUMMARY OF AFFECTED PROPERTY OWNERS

345

TRACT NO.	PROPERTY OWNER	ADDRESS	SITE NO.
1	RTP / PARKSIDE, L.L.C.	448 VIKING DR STE 220 VIRGINIA BEACH, VA 23452-7331	1
2	DIOSYNTH RTP, INC	100 N COLLEGE ST CHARLOTTE, NC 28255-0001	1
6 A,B,G&K	RESEARCH TRIANGLE FOUNDATION	P.O. BOX 12255 RTP, NC 27709	1,2,3,5, 6,7,9 & 10
8 A&B	BIOGEN REALTY, LLC	P.O. BOX 12255 DURHAM, NC 27709-2255	4,6 & 7
10B	CISCO SYSTEMS, INC	550 W C ST STE 1300 SAN DIEGO, CA 92101-8582	4
13A	EISAI, INC	P.O. BOX 12255 DURHAM, NC 27709-2255	7
15A	DAVIS DRIVE ASSOCIATES LTD	1002 E CHATHAM ST CARY, NC 27511	8
20	SEARLS FAMILY LIMITED PARTNERSHIP	4623 HOPSON RD MORRISVILLE, NC 27560	15, 16 & 19
22	NORTHERN TELECOM, INC	DEPT 8413 200 ATHENS WAY NASHVILLE, TN 37228-1397	9 & 10
23	BASF CORPORATION	3000 CONTINENTAL DR NORTH MT. OLIVE, NJ 07828	10
24	BASF CORPORATION	3000 CONTINENTAL DR NORTH MT. OLIVE, NJ 07828	17
34	BECTON, DICKINSON & COMPANY	PO BOX 12016 RTP, NC 27709-2016	18

NORTH CAROLINA
DEPARTMENT OF HIGHWAYS

WAKE - DURHAM COUNTIES
35018.1.1 (U-4026)

DAVIS DRIVE (SR 1613/1999) FROM 390' NORTH OF MORRISVILLE-CARPENTER RD (SR 3016) TO NC HWY 54

NOT TO SCALE

DATE: 06-29-05

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6/29/2005 11:24:03 AM

SUMMARY OF AFFECTED PROPERTY OWNERS

346

TRACT NO.	PROPERTY OWNER	ADDRESS	SITE NO.
(14)	PAUL J. CARTRETTE & PATTIE H. CARTRETTE	6218 McCRIMMON PKWY MORRISVILLE, NC 27560-8684	11
(21)	JULIA R. DEAN	204 GRAYWICK WAY CARY, NC 27513-1611	13
(22)	WILLIAM H. RICHARD & JANET M. RICHARD	6221 McCRIMMON PKWY MORRISVILLE, NC 27560-8684	12 & 14

NORTH CAROLINA
DEPARTMENT OF HIGHWAYS

WAKE - DURHAM COUNTIES
35018.1.1 (U-4026)

DAVIS DRIVE (SR 1613/1999) FROM 390' NORTH OF MORRISVILLE-CARPENTER RD (SR 3016) TO NC HWY 54

NOT TO SCALE

Sheet 65 of 65

DATE: 02-04-05

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2/4/2005 8:47:34 AM

347

U.S. ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT

Action ID(s): **200220393 200421561** County: **Durham** USGS Quad: **Southeast Durham**

GENERAL PERMIT (REGIONAL AND NATIONWIDE) VERIFICATION

Property Owner: **NCDOT; Division of Highways; Gregory J. Thorpe, Ph.D., Dir., PDEA**
Mailing Address: **1598 Mail Service Center**
Raleigh, North Carolina 27699-1598
Telephone No.: **(919) 715-1461**

Authorized Agent:

Mailing Address:

Telephone No.:

Location of property (road name/number, town, etc.): **TIP#R-2904 On NC 54; southeast of Durham, North Carolina**

Site Coordinates: **35.8839°N 78.8527°W**

Waterway: **unnamed tributary to Burdens Creek** River Basin: **Cape Fear** HUC: **03030002**

Description of projects area and activity (see page 2 for a summary of authorized impacts): **TIP#R-2904; Discharge of fill material for road construction, riprap pipe protection, and site dewatering, related to construction of the widening of NC 54, in accordance with the drawings submitted on 6/25/2004, and revisions submitted on 12/30/2006.**

Applicable Law: ☒ Section 404 (Clean Water Act, 33 USC 1344)
☐ Section 10 (Rivers and Harbors Act, 33 USC 403)
Authorization: Nationwide General Permit Number(s): **23 33**
Regional General Permit Number:

Your work is authorized by the above referenced permit provided it is accomplished in strict accordance with the attached conditions and your submitted plans. Any violation of the attached conditions or deviation from your submitted plans may subject the permittee to a stop work order, a restoration order and/or appropriate legal action.

This verification will remain valid until the expiration date identified below unless the nationwide authorization is modified, suspended or revoked. If, prior to the expiration date identified below, the nationwide permit authorization is reissued and/or modified, this verification will remain valid until the expiration date identified below, provided it complies with all requirements of the modified nationwide permit. If the nationwide permit authorization expires or is suspended, revoked, or is modified, such that the activity would no longer comply with the terms and conditions of the nationwide permit, activities which have commenced (i.e., are under construction) or are under contract to commence in reliance upon the nationwide permit, will remain authorized provided the activity is completed within twelve months of the date of the nationwide permit's expiration, modification or revocation, unless discretionary authority has been exercised on a case-by-case basis to modify, suspend or revoke the authorization.

Activities subject to Section 404 (as indicated above) may also require an individual Section 401 Water Quality Certification. You should contact the NC Division of Water Quality (telephone (919) 733-1786) to determine Section 401 requirements.

This Department of the Army verification does not relieve the permittee of the responsibility to obtain any other required Federal, State or local approvals/permits.

If there are any questions regarding this verification, any of the conditions of the Permit, or the Corps of Engineers regulatory program, please contact **Eric Alsmeyer** at telephone **(919) 876-8441, ext 23**.

Corps Regulatory Official _____ Date: **4/12/2006** Verification Expiration Date: **03/18/2007**

Copy Furnished: **NCDOT-ONE (S. Thebert) by e-mail**

Determination of Jurisdiction:

A. ☐ Based on preliminary information, there appear to be waters of the US including wetlands within the above described project area. This preliminary determination is not an appealable action under the Regulatory Program Administrative Appeal Process (Reference 33 CFR Part 331).

B. ☐ There are Navigable Waters of the United States within the above described project area subject to the permit requirements of Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act. Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

C. ☐ There are waters of the US and/or wetlands within the above described project area subject to the permit requirements of Section 404 of the Clean Water Act (CWA)(33 USC § 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

D. ☒ The jurisdictional areas within the above described project area have been identified under a previous action. Please reference the jurisdictional determination issued on **9/10/2004 (AID 200220393)**____ .

Basis of Jurisdictional Determination: **The impact area contains stream channels of unnamed tributaries of Burdens Creek, a tributary of Jordan Lake and the Cape Fear River, with indicators of ordinary high water marks.**

Summary of Authorized Impacts and Required Mitigation

Action ID #	NWP / GP #	Open Water (ac)		Wetland (ac)		Unimportant Steam (lf)		Important Stream (lf)	
		Temporary	Permanent	Temporary	Permanent	Temporary	Permanent	Temporary	Permanent
200220393	23						**183**		**49**
200421561	33								
Impact Totals		**0**	**0**	**0**	**0**	**0**	**183**	**0**	**49**
Total Loss of Waters of the U.S. (ac)				**0**		Total Loss of Waters of the U.S. (lf)			**232**
Required Wetland Mitigation (ac)						Required Stream Mitigation (lf)		**98**	

Additional Remarks and/or Special Permit Conditions:

Compensatory mitigation for the unavoidable impacts to 49 linear feet of perennial warmwater stream associated with the proposed project shall be provided by the Ecosystem Enhancement Program (EEP), as outlined in the letter dated August 30, 2004 from William D. Gilmore, EEP Director. Pursuant to the EEP Memorandum of Agreement (MOA) between the State of North Carolina and the US Army Corps of Engineers signed on July 22, 2003, the EEP will provide a minimum of 98 linear feet of restoration equivalent warm water stream channel in the Cape Fear River basin (Hydrologic Cataloging Unit 03030002). For wetlands, a minimum of 1:1 (impact to mitigation) must be in the form of wetland restoration. The NCDOT shall, within 30 days of the issue date of this permit, certify that sufficient funds have been provided to EEP to complete the required mitigation, pursuant to Paragraph V. of the MOA.

Note 1: This EEP mitigation requirement was previously provided to EEP on 9/10/2004.

Note 2: This re-verifies the impacts for R-2904 verified under AID 200220393 and 200421561 on 9/10/2004, as well as an additional impact for a pipe exteansion, as requested by NCDOT on 12/30/2005.

WILMINGTON DISTRICT
POST-CONSTRUCTION COMPLIANCE FORM

Action ID Number: 200220393 200421561 **County: Durham**

Permittee: NCDOT; Division of Highways; Gregory J. Thorpe, Ph.D., Dir., PDEA TIP#R-2904 On NC 54; southeast of Durham, North Carolina

Date Permit Issued: 4/12/2006

Project Manager: Eric Alsmeyer

Upon completion of the activity authorized by this permit and any mitigation required by the permit, sign this certification and return it to the following address:

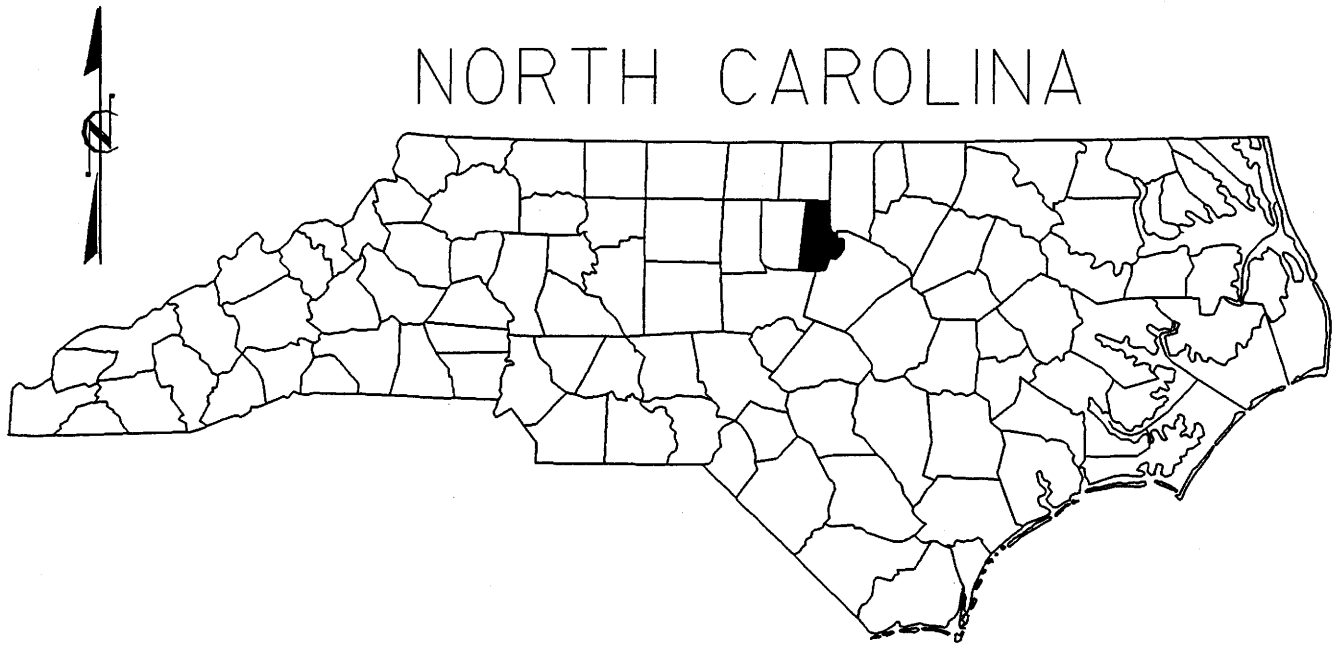
US Army Corps Of Engineers
Wilmington District
Raleigh Regulatory Field Office
6508 Falls Of The Neuse Road
Suite 120
Raleigh, North Carolina 27615

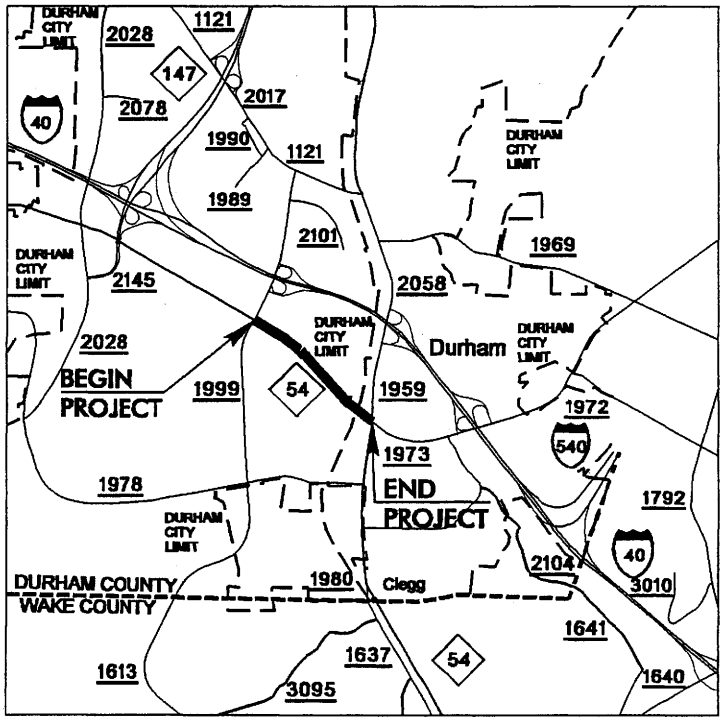
Please note that your permitted activity is subject to a compliance inspection by a U. S. Army Corps of Engineers representative. If you fail to comply with this permit you are subject to permit suspension, modification, or revocation.

I hereby certify that the work authorized by the above referenced permit has been completed in accordance with the terms and condition of the said permit, and required mitigation was completed in accordance with the permit conditions.

_____ _____

Signature of Permittee **Date**

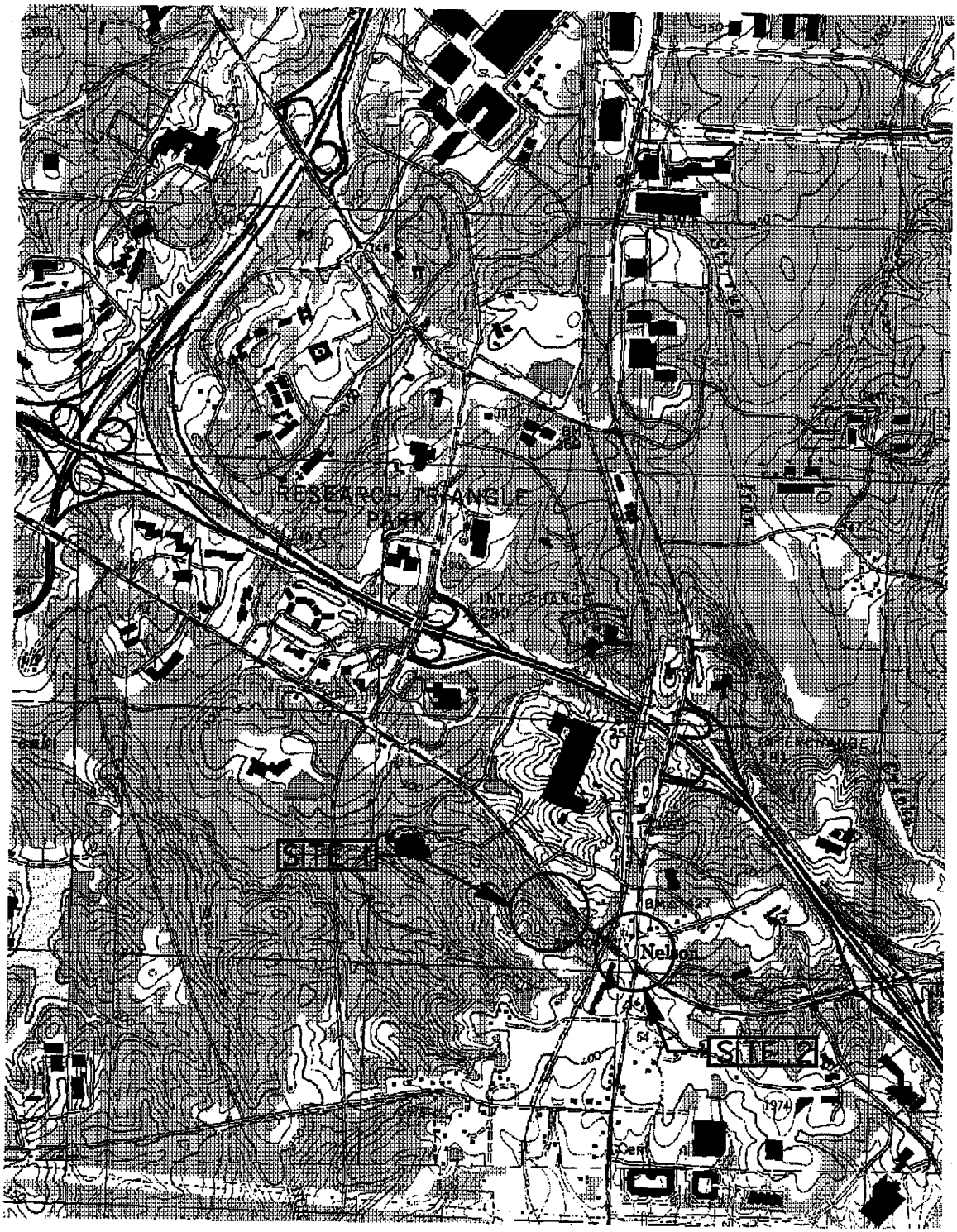




VICINITY MAPS

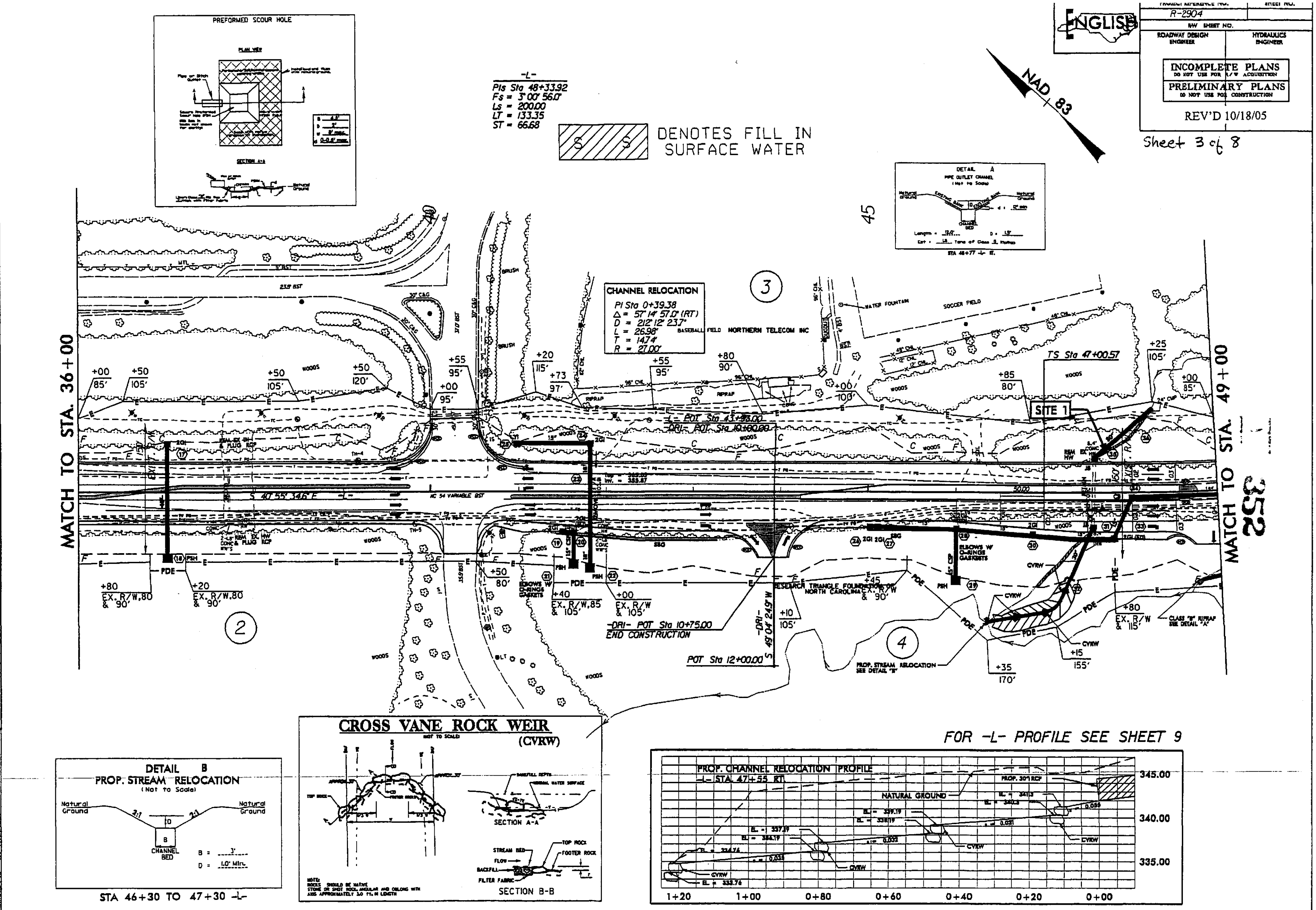
NCDOT

DIVISION OF HIGHWAYS
DURHAM COUNTY
PROJECT: 8.1352701 (R-2904)
NC 54 FROM SR 1999(DAVIS DR)TO SR 1959 MIAMI BLVD. AND SR 1973 (PAGE RD) FROM NC 54 TO I-40 IN DURHAM



SITE MAP

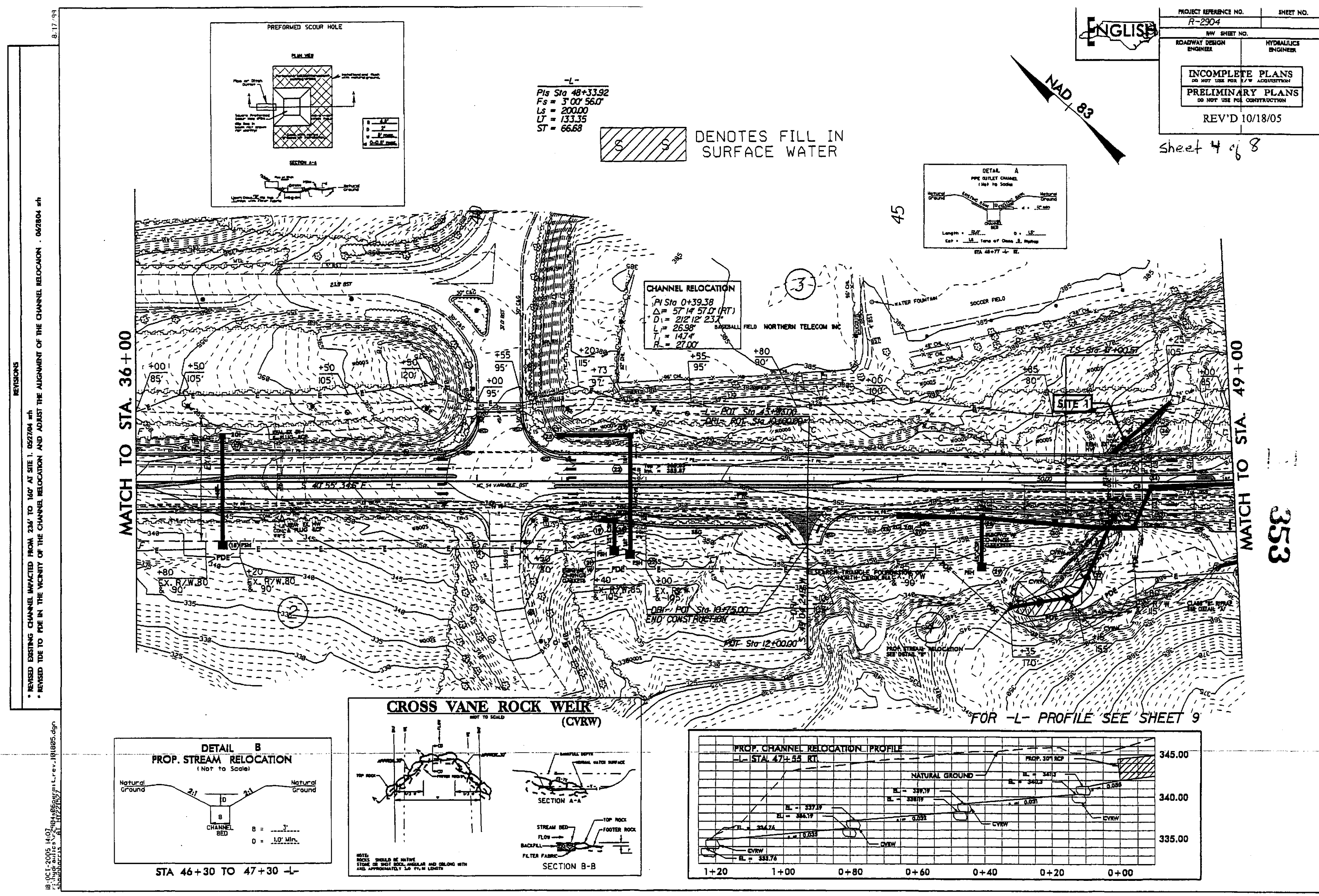
DIVISION OF HIGHWAYS
DURHAM COUNTY
PROJECT: 8.1352701 (R-2904)
NC 54 FROM SR 1999(DAVIS DR)TO SR 1959 MIAMI BLVD. AND SR 1973 (PAGE RD) FROM NC 54 TO I-40 IN DURHAM

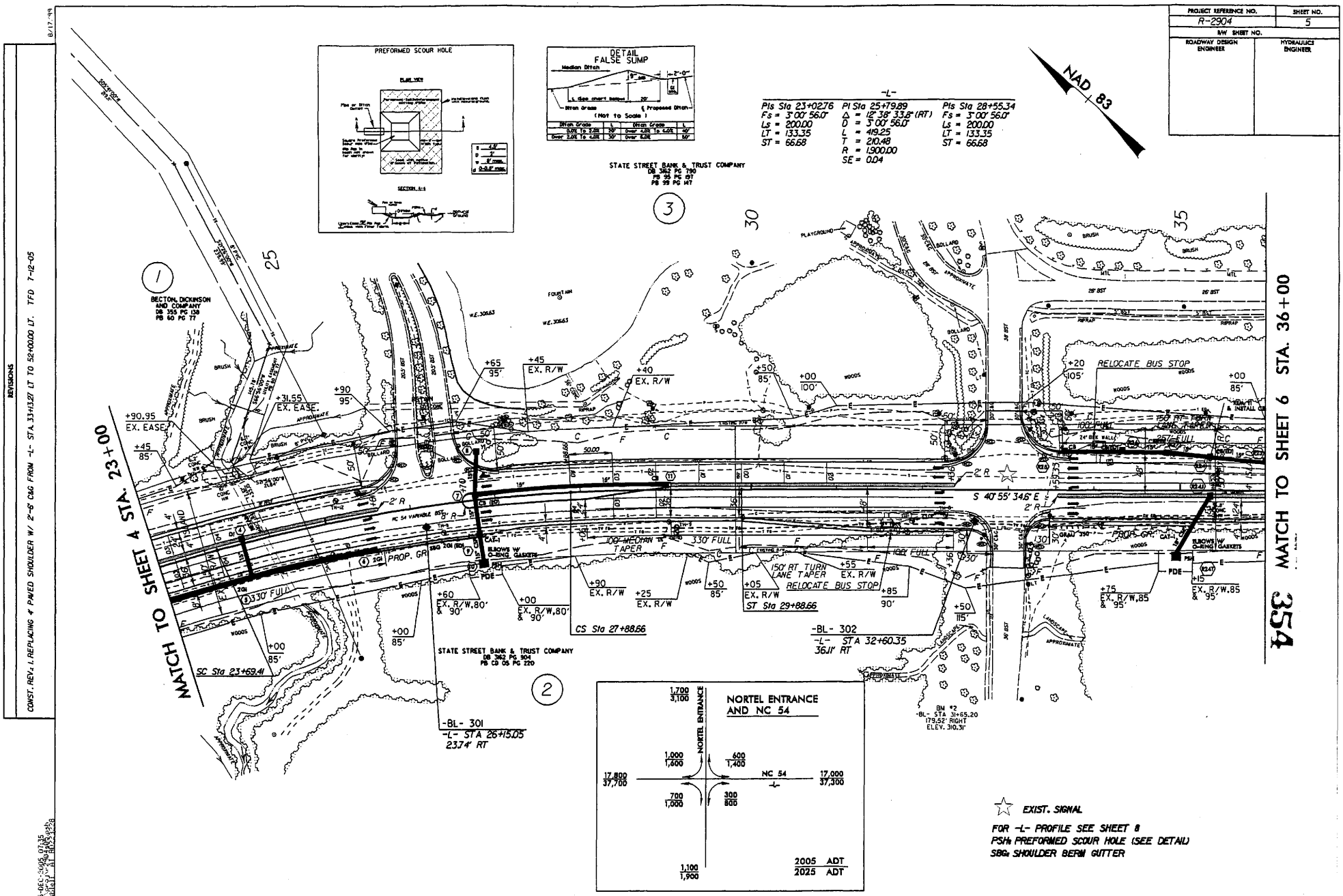


REVISIONS

- REVISED EXISTING CHANNEL IMPACTED FROM 236' TO 160' AT SITE 1. 05/27/04 sfh
- REVISED TDE TO PDE IN THE VICINITY OF THE CHANNEL RELOCATION AND ADJUST THE ALIGNMENT OF THE CHANNEL RELOCATION . 06/28/04 sfh

18-OCT-2005 14:15
r:\hydraulics\r2904s06permit-rev-101805.dgn


PROJECT REFERENCE NO. R-2904
SHEET NO.
RW SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
REV'D 10/18/05
Sheet 4 of 8
ENGLISH
NAD 83
353
45
DENOTES FILL IN SURFACE WATER
-L-
PIs Sta 48+33.92
Fs = 3°00' 56.0"
Ls = 200.00
LT = 133.35
ST = 66.68
CHANNEL RELOCATION
PI Sta 0+39.38
Δ = 57°14' 57.0" (RT)
D = 212°12' 23.7"
L = 26.98'
T = 14.74'
R = 27.00'
PREFORMED SCOUR HOLE
DETAIL A
PIPE OUTLET CHANNEL
(Not to Scale)
STA 48+77 -L- RT.
MATCH TO STA. 36+00
MATCH TO STA. 49+00
SITE 1
BASEBALL FIELD NORTHERN TELECOM INC
SOCCER FIELD
WATER FOUNTAIN
-L- POT Sta 43+80.00
END CONSTRUCTION
PROP. STREAM RELOCATION SEE DETAIL "B"
FOR -L- PROFILE SEE SHEET 9
CROSS VANE ROCK WEIR
(CVRW)
NOT TO SCALE
SECTION A-A
SECTION B-B
DETAIL B
PROP. STREAM RELOCATION
(Not to Scale)
Natural Ground
CHANNEL BED
B = 3'
D = 1.0' Min.
STA 46+30 TO 47+30 -L-
PROP. CHANNEL RELOCATION PROFILE
-L- STA 47+55 RT
NATURAL GROUND
345.00
340.00
335.00
1+20
1+00
0+80
0+60
0+40
0+20
0+00
REVISIONS
* REVISED EXISTING CHANNEL IMPACTED FROM 236' TO 160' AT SITE 1. 05/27/04 sh
* REVISED TDE TO PDE IN THE VICINITY OF THE CHANNEL RELOCATION AND ADJUST THE ALIGNMENT OF THE CHANNEL RELOCATION . 06/28/04 sh
8/17/99
18-OCT-2005 14:07



PROJECT REFERENCE NO.	SHEET NO.
R-2904	5
NW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

REVISIONS

CONST. REV.: 1. REPLACING 4' PAVED SHOULDER W/ 2'-6" C&G FROM -L- STA. 33+13.21 LT TO 52+00.00 LT. TFD 7-12-05

8/17/99

05-DEC-2005 07:35

PROJECT REFERENCE NO.	SHEET NO.
R-2904	6
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

REVISIONS

R/W REV. REVISING EASEMENT ALONG A PORTION OF PARCEL 3. TFD 7-12-05

8/17/99

05-DEC-2005 07:35
K:\Projects\2904\Design\Hydraulics\Plans\2904_Sht6.dgn
Default

PREFORMED SCOUR HOLE

PLAN VIEW

SECTION A-B

-L-
PIs Sta 48+33.92
Fs = 3° 00' 56.0"
Ls = 200.00
LT = 133.35
ST = 66.58

FOR -L- PROFILE SEE SHEET 9
PSH= PREFORMED SCOUR HOLE (SEE DETAIL)
SBG= SHOULDER BERM GUTTER

NAD 83

DETAIL A
PIPE OUTLET CHANNEL
(Not to Scale)

ETA 48+77 -L- RT.

MATCH TO SHEET 5 STA. 36+00

MATCH TO SHEET 7 STA. 49+00

STATE STREET BANK & TRUST COMPANY, TRUSTEE
DB 362 PG 790
PB 95 PG 197
PB 99 PG 147

STATE STREET BANK & TRUST COMPANY
DB 362 PG 790
PB 95 PG 197
PB 99 PG 147

STATE STREET BANK & TRUST COMPANY
DB 362 PG 904
PB CD 05 PG 220

RESEARCH TRIANGLE FOUNDATION OF NORTH CAROLINA
DB 980 PG 336
DB 982 PG 537
PB 52 PG 72
PB 142 PG 48

BASEBALL FIELD
SOCCER FIELD
WATER FOUNTAIN
RIPRAP
BRUSH
WOODS

-L- POT Sta 45+78.00
-DRI- POT Sta 10+00.00
330' FULL
180' MEDIAN TAPER
-DRI- POT Sta 10+75.00
END CONSTRUCTION
-DRI- S 49° 04' 24.5" W
POT Sta 12+00.00
100' MEDIAN TAPER
258' FULL
S 40° 55' 34.6" E -L-
NC 54 VARIABLE BST
2' R
50' R
100' FULL
150' RT TURN LANE TAPER
-BL- 303
-L- STA 40+63.80
31.25' RT
-BL- 304
-L- STA 47+63.99
14.17' RT
TS Sta 47+00.57
POT Sta 0+00.00
PC Sta 0+24.64
POT Sta 1+18.13
PT Sta 0+51.62
PROP. STREAM RELOCATION SEE DETAIL "B"
PROP. GR.
EX. R/W & 90'
EX. R/W & 105'
EX. R/W & 115'
PDE
PSH
CVRW
SBG

CHANNEL RELOCATION
PI Sta 0+39.38
Δ = 57° 14' 57.0" (RT)
D = 212° 12' 23.7"
L = 26.98'
T = 14.74'
R = 27.00'

DETAIL B
PROP. STREAM RELOCATION
(Not To Scale)

Natural Ground
2:1
2:1
Natural Ground
D
B
CHANNEL BED
B = 3'
D = 1.0' Min.

STA 46+30 TO 47+30 -L-

CROSS VANE ROCK WEIR
(CVRW)
NOT TO SCALE

SECTION A-A

SECTION B-B

NOTE: ROCKS SHOULD BE NATIVE STONE OR SHOT ROCK, ANGULAR AND OBLONG WITH A MIN. APPROXIMATELY 3.0 FT. IN LENGTH

PROP. CHANNEL RELOCATION PROFILE
-L- STA. 47+55 RT.

NATURAL GROUND
PROP. 30" RCP
CVRW
EL. = 337.39
EL. = 334.19
EL. = 334.76
EL. = 333.76
EL. = 339.19
EL. = 338.19
EL. = 341.3
EL. = 340.3
S = 0.033
S = 0.031
S = 0.035
S = 0.055

345.00
340.00
335.00

1+20 1+00 0+80 0+60 0+40 0+20 0+00

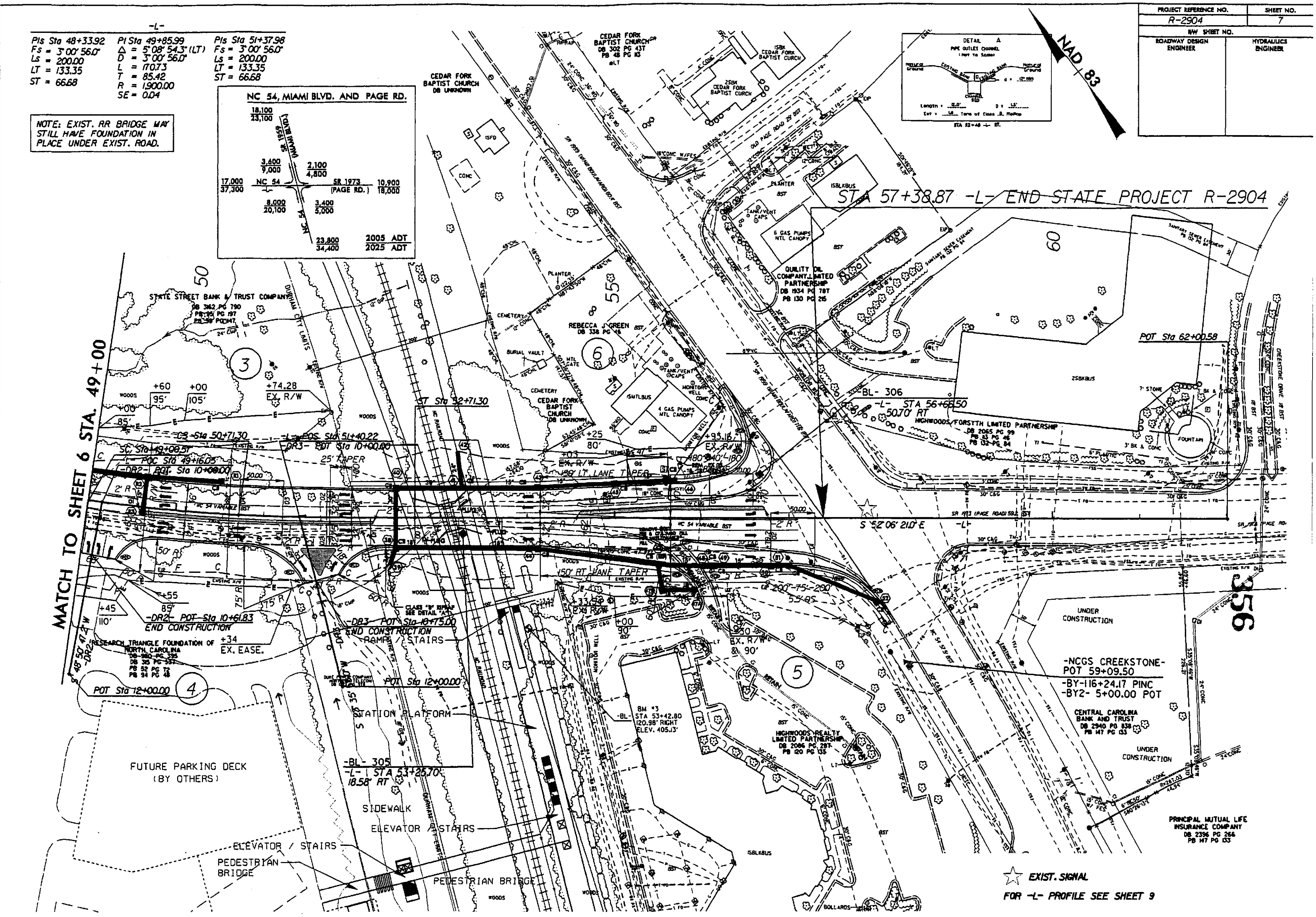
355

-L-

Pls Sta 48+33.92	PI Sta 49+85.99	Pls Sta 51+37.98
Fs = 3°00' 56.0"	Δ = 5°08' 54.3" (LT)	Fs = 3°00' 56.0"
Ls = 200.00	D = 3°00' 56.0"	Ls = 200.00
LT = 133.35	L = 170.73	LT = 133.35
ST = 66.68	T = 85.42	ST = 66.68
	R = 1,900.00	
	SE = 0.04	

NOTE: EXIST. RR BRIDGE MAY STILL HAVE FOUNDATION IN PLACE UNDER EXIST. ROAD.

NC 54, MIAMI BLVD. AND PAGE RD.



MATCH TO SHEET 6 STA. 49+00
STA 57+38.87 -L- END STATE PROJECT R-2904
NAD 83
DETAIL A
PIPE OUTLET CHANNEL
-NCGS CREEKSTONE-
POT 59+09.50
-BY-116+24.17 PINC
-BY2- 5+00.00 POT
FUTURE PARKING DECK
(BY OTHERS)
STATION PLATFORM
SIDEWALK
ELEVATOR / STAIRS
PEDESTRIAN BRIDGE
UNDER CONSTRUCTION
S 52°06' 21.0" E
POT Sta 62+00.58
POT Sta 12+00.00
-DR2- POT Sta 10+61.83
END CONSTRUCTION
-DR3- POT Sta 10+75.00
END CONSTRUCTION
-BL- 305
-L- STA 53+25.70
18.58' RT
-BL- 306
-L- STA 56+66.50
50.70' RT
150' RT LANE TAPER
180' LT LANE TAPER
CEDAR FORK BAPTIST CHURCH
STATE STREET BANK & TRUST COMPANY
REBECCA J. GREEN
QUALITY OIL COMPANY LIMITED PARTNERSHIP
HIGHWOODS/FORSYTH LIMITED PARTNERSHIP
HIGHWOODS REALTY LIMITED PARTNERSHIP
CENTRAL CAROLINA BANK AND TRUST
PRINCIPAL MUTUAL LIFE INSURANCE COMPANY
RESEARCH TRIANGLE FOUNDATION OF NORTH CAROLINA
BM #3
-BL- STA 53+42.80
120.98' RIGHT
ELEV. 405.13'
356

☆ EXIST. SIGNAL

FOR -L- PROFILE SEE SHEET 9

REVISIONS

CONST. REV. 1. REPLACING 4 PAVED SHOULDER W/ 2'-6" C&G FROM -L- STA. 33+13.27 LT TO 52+00.00 LT. TFD 7-12-05

WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation In Wetlands (ac)	Mechanized Clearing (Method III) (ac)	Fill In SW (Natural) (ac)	Fill In SW (Pond) (ac)	Temp. Fill In SW (ac)	Existing Channel Impacted (ft)	Natural Stream Design (ft)
1	-L- STA 47+58 Lt. & Rt.	30" RCP					0.012			183.00	
2	-L- STA 52+62 Rt.	36" RCP					0.003			49.000	
TOTALS:							0.015			232.00	

Note: Site 1- Added 23 feet (160+23=183)on the upstream (Lt.) end of the proposed 30" RCP. The Fill in SW changed from 0.011 to 0.012 ac.

NCDOT

DURHAM COUNTY
PROJECT 8.1352701 (R-2904)
NC 54 FROM SR 1999 (DAVIS DR) TO
SR 1959 (MIAMI BLVD) AND SR 1973
PAGE RD FROM NC 54 TO I-40 IN DURHAM

SHEET 8 OF 8

REV.'D 10/18/2005
6/28/2004