

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

PAT L. MCCRORY  
GOVERNOR

ANTHONY J. TATA  
SECRETARY

December 23, 2013

MEMORANDUM TO: Mr. Wally Bowman, PE  
Division 5 Engineer

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

SUBJECT: Wake County, Construction of Maintenance of Traffic (MOT)  
Lanes from west of SR 1319 (Jones Franklin Rd) to north of US  
264 (Knightdale Bypass),  
**TIP I-5311**, Federal Aid Project No. IMS-0440(13); WBS  
Element 46265.1.1;  
**TIP I-5338**, Federal Aid Project No. IMS-040-4(147)298; WBS  
Element 46157.1.1

Please find attached the NCDWR Neuse Buffer Authorization and Isolated Wetlands Permit for the above-referenced project. All environmental permits have been received for construction of the MOT lanes for the upcoming reconstruction of I-40 and I-440.

A copy of this permit package has been posted on the NCDOT website at:  
<https://connect.ncdot.gov/resources/Environmental/Pages/default.aspx>  
under Quick Links>Permit Documents> Issued Permits.

Cc: w/o attachment (see website for attachments):

Mr. Rodger Rochelle, P.E., Transportation Program Management  
Mr. Chris Murray, Division Environmental Officer  
Mr. Majed Alghandour, P. E., Programming and TIP  
Mr. Jay Bennett, P.E., Roadway Design Unit  
Mr. Dewayne Sykes, P.E. Utilities Unit  
Mr. Art McMillan, P.E., Hydraulics Unit  
Mr. Tom Koch, P.E., Structure Design Unit  
Mr. Mark Staley, Roadside Environmental Unit  
Mr. Ron Hancock, P.E., State Roadway Construction Engineer  
Mr. Mike Robinson, P.E., State Bridge Construction Engineer  
Mr. Eric Midkiff, P.E., PDEA Eastern Region Section Head  
Mr. Lonnie Brooks, P.E., Design Build  
Ms. Beth Harmon, EEP  
Mr. Phillip Ayscue, Office of Inspector General

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

TELEPHONE: 919-707-6100  
FAX: 919-212-5785  
WEBSITE: [WWW.NCDOT.ORG](http://WWW.NCDOT.ORG)

LOCATION:  
1020 BIRCH RIDGE DRIVE  
RALEIGH NC 27610-4328

# PROJECT COMMITMENTS

T.I.P. Project No. I-5311  
I-440 Raleigh Beltline, from I-40/440 split to just north of US 264 (Knightdale Bypass)  
Wake County  
Federal Aid Project No. IMS-0440 (13)  
WBS Element 46265.1.1

## COMMITMENTS FROM PROJECT DEVELOPMENT AND DESIGN

### **PDEA Branch, Design-Build Unit, Division 5**

#### Oak View Property (WA 1502) (Wake County PIN#: 1723658449)

This property is located on the northeast corner of the interchange with I-440 & Poole Road, abutting the right-of-way for the Poole Road Interchange, on the north side of Poole Road.

No construction activities, including storage of materials and equipment, should occur outside the existing right-of-way adjoining the National Register-listed **Oak View** property (Wake County PIN: 1723658449).

#### Samaria Baptist Church (Wake County PIN: 1723563197)

This property is located on the northwest corner of the Poole Road interchange, at #3621 Poole Road, abutting the right-of-way for the Poole Road Interchange, on the north side of Poole Road. Samaria Baptist Church is considered eligible for the National Register of Historic Places.

The same restriction shall apply to this property. No construction activities, including storage of materials and equipment, should occur outside the existing right-of-way adjoining the Samaria Baptist Church.

Should the design of project I-5311 change, please notify NCDOT Historic Architecture as additional review may be necessary on the opposite side of I-440 from the Oak View Property.

## COMMITMENTS FROM PERMITTING

No additional special commitments were added during permitting.



# PROJECT COMMITMENTS

T.I.P. Project No. I-5338  
I-40/US 64 Pavement Rehabilitation and Widening for Maintenance of Traffic  
from west of SR 1319 (Jones Franklin Road) to east of Exit 301 (I-40/I-440/US 64 interchange)  
Wake County  
Federal Aid Project No. IMS-040-4(147)298  
WBS Element 46157.1.1

## COMMITMENTS FROM PROJECT DEVELOPMENT AND DESIGN

### Communications Office

Public outreach prior to and throughout the construction phase of this project is critical to minimize secondary impacts on communities in Raleigh, Cary, and Garner. This should include the development and implementation of an outreach program to provide timely information to local governments, media outlets, businesses, visitor bureaus, transit operators, the traveling public, and others on travel conditions and construction activities. Develop and implement a public outreach program for the proposed project prior to and during construction.

### Transportation Program Management/ Work Zone Traffic Control/ Communications Office/ ITS and Signals/ Division 5 Construction/ Division 4 Construction

Develop and implement a Final Transportation Management Plan (TMP) for the proposed project prior to and during construction.

### Transportation Program Management/ Division 5 Construction

Utility conflicts, including any/all relocations, within the project limits will be identified during the design phase and resolved prior to or concurrent to construction.

### Transportation Program Management/ Work Zone Traffic Control/ Division 5 Construction

Final Work Zone, Traffic Control, and Construction Phasing will be developed during final design and implemented prior to and during construction

**Project Development & Environmental Analysis (PDEA)/ Hydraulics/ Transportation Program Management/ Division 5 Construction**

Based on input from the NC Department of Natural Resources - Division of Water Quality, no net increase in discharge of stormwater is the desired goal of the project. It is preferred that this be accomplished by on-site detention. This will be addressed during the design phase prior to permitting.

**Project Development & Environmental Analysis (PDEA)/ Hydraulics/ Transportation Program Management/ Division 5 Construction**

Anticipated impacts to streams and wetlands were developed utilizing preliminary hydraulic review of the existing facility and the proposed improvements on aerial mapping (functional design). A more exacting quantity of streams and wetlands impacts will be compiled during final design of the project. Avoidance and minimization measures will be employed in the development of the construction plans with regards to impacts to streams and wetlands.

**Transportation Program Management/ Communications Office/ Division 5 Construction**

Prior to and during construction, a minimum of four (4) week advanced notice of construction activities, including anticipated construction phasing, in each direction of I-40/US 64 will be provided to the following entities:

- Wake County Public School System's Transportation Department in order to re-route buses;
- City of Raleigh Police, Fire, and EMS Departments;
- Town of Garner Police, Fire, and EMS Departments;
- Wake County Sheriff's Department;
- Wake County EMS;
- NCDOT-IMAP, and;
- State Highway Patrol.

**COMMITMENTS FROM PERMITTING**

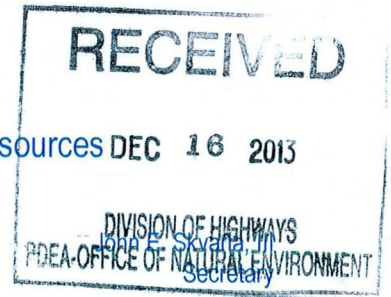
No additional special commitments were added during permitting.



North Carolina Department of Environment and Natural Resources DEC 16 2013

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

Pat McCrory  
Governor



December 6, 2013  
Wake County  
DWR Project No. 20131248 ver.1  
I-40 & I-440 Reconstruction  
TIP No. I-5338 & I-5311

**APPROVAL of NEUSE BUFFER AUTHORIZATION and ISOLATED WETLANDS PERMIT Pursuant to IWGP100000 with ADDITIONAL CONDITIONS**

Mr. Richard W. Hancock, P.E., Manager  
NCDOT Project Development & Environmental Analysis  
1598 Mail Service Center  
Raleigh, NC 27699-1598

Dear Mr. Hancock:

You have our approval, in accordance with the conditions listed below, for the following impacts for the purpose of maintaining travel lanes for the upcoming reconstruction of I-40 and I-440 in Wake County:

**Neuse Riparian Buffer Impacts**

Site	Zone 1 Impact (sq ft)	Zone 1 Buffer Mitigation Required (using 3:1 ratio)		Zone 2 Impact (sq ft)	Zone 2 Buffer Mitigation Required (using 1.5:1 ratio)
1101	649	N/A		1936	N/A
1102	302	N/A		4266	N/A
1501	0	0		1503	N/A
2001	172	N/A		1127	N/A
2201	900	N/A		2914	N/A
2301	1564	4692		51	77
2302	3140	N/A		1036	N/A
2303	3889	11667		4474	6711
2304	1191	N/A		927	N/A
2305	148	444		1649	2473
2601	5506	N/A		6895	N/A
2801	2528	N/A		1363	N/A
3001	6	N/A		788	N/A
3201	0	0		1019	N/A
<b>Totals</b>	<b>19995</b>	<b>16803</b>		<b>29948</b>	<b>9261</b>

\* n/a = Site Impact "Allowable", no mitigation required  
**Total Buffer Impact for Project: 49943 square feet.**

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

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**Isolated Wetland Impacts in the Neuse River Basin**

Site	Permanent Fill (ac)	Total Wetland Impact (ac)
2501	0.27	0.27
<b>Total</b>	<b>0.27</b>	<b>0.27</b>

**Total Isolated Wetland Impact for Project: 0.27 acres.**

The project shall be constructed in accordance with your application received December 2, 2013. After reviewing your application, we have decided that these impacts are covered by Isolated Wetland General Permit IWGP100000. This approval is also valid for the Neuse Riparian Buffer Rules (15A NCAC 2B.0233). In addition, you should acquire any other federal, state or local permits before you proceed with your project including (but not limited to) Sediment and Erosion Control, Non-Discharge and Water Supply Watershed regulations.

This approval is valid solely for the purpose and design described in your application (unless modified below). Should your project change, you must notify the NCDWR and submit a new application. If the property is sold, the new owner must be given a copy of this Certification and approval letter, and is thereby responsible for complying with all the conditions. If total wetland fills for this project (now or in the future) exceed one acre, or of total impacts to streams (now or in the future) exceed 150 linear feet, compensatory mitigation may be required as described in 15A NCAC 2H .0506 (h) (6) and (7). Additional buffer impacts may require compensatory mitigation as described in 15A NCAC **2B.0242(9)**. For this approval to remain valid, you must adhere to the conditions listed in the attached certification and any additional conditions listed below.

**Conditions of Certification:**

1. Compensatory mitigation for impacts to 5601 square feet of protected riparian buffers in Zone 1 and 6174 square feet of protected riparian buffers in Zone 2 shall be required. We understand that you have chosen to perform compensatory mitigation for impacts to protected buffers through use of the North Carolina Ecosystem Enhancement Program (EEP). Mitigation for unavoidable impacts to Neuse Riparian Buffers shall be provided in the Neuse River Basin and done in accordance with 15A NCAC 2B.0242(9). EEP has indicated in a letter dated October 14, 2013 that they will assume responsibility for satisfying the compensatory mitigation requirements for the above-referenced project, in accordance with EEP's Mitigation Banking Instrument signed July 28, 2010.
2. Pursuant to 15A NCAC 2B.0233(6), sediment and erosion control devices shall not be placed in Zone 1 of any Neuse Buffer without prior approval by the NCDWR. At this time, the NCDWR has approved no sediment and erosion control devices in Zone 1, outside of the approved project impacts, anywhere on this project. Moreover, sediment and erosion control devices shall be allowed in Zone 2 of the buffers provided that Zone 1 is not compromised and that discharge is released as diffuse flow.
3. All stormwater runoff shall be directed as sheetflow through stream buffers at non-erosive velocities, unless otherwise approved by this certification.
4. All riparian buffers impacted by the placement of temporary fill or clearing activities shall be restored to the preconstruction contours and revegetated. Maintained buffers shall be permanently revegetated with non-woody species by the end of the growing season following completion of construction. For the purpose of this condition, maintained buffer areas are defined as areas within the transportation corridor that will be subject to regular NCDOT maintenance activities including mowing. The area with non-maintained buffers shall be permanently revegetated with native woody species before the next growing season following completion of construction.
5. If concrete is used during construction, a dry work area shall be maintained to prevent direct contact between curing concrete and stream water. Water that inadvertently contacts uncured concrete shall not be discharged to surface waters due to the potential for elevated pH and possible aquatic life and fish kills.
6. 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.
7. The Permittee shall ensure that the final design drawings adhere to the permit and to the permit drawings submitted for approval.



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

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

10. 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.

11. No rock, sand or other materials shall be dredged from the stream channel except where authorized by this certification.

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

13. The permittee and its authorized agents shall conduct its activities in a manner consistent with State water quality standards (including any requirements resulting from compliance with §303(d) of the Clean Water Act) and any other appropriate requirements of State and Federal law. If the NCDWR 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, the NCDWR may reevaluate and modify this certification.

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

15. 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.

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

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

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

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

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

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

- a. The erosion and sediment control measures for the project must be designed, installed, operated, and maintained in accordance with the most recent version of the *North Carolina Sediment and Erosion Control Planning and Design Manual*.

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

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

If you wish to contest any statement in the attached Certification you must file a petition for an administrative hearing. You may obtain the petition form from the office of Administrative hearings. You must file the petition with the office of Administrative Hearings within sixty (60) days of receipt of this notice. A petition is considered filed when it is received in the office of Administrative Hearings during normal office hours. The Office of Administrative Hearings accepts filings Monday through Friday between the hours of 8:00am and 5:00pm, except for official state holidays. The original and one (1) copy of the petition must be filed with the Office of Administrative Hearings.

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

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

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

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

This letter completes the review of the Division of Water Resources under Section 401 of the Clean Water Act. If you have any questions, please contact Rob Ridings at 919-707-8786

Sincerely,



Thomas A. Reeder

cc: Chris Murray, Division 5 Environmental Officer  
Eric Alsmeyer, US Army Corps of Engineers, Raleigh Field Office  
Beth Harmon, Ecosystem Enhancement Program  
Jim Mason, NCDOT NEU  
File Copy





## North Carolina Department of Environment and Natural Resources

Division of Water Resources

Water Quality Programs

Thomas A. Reeder

Director

Pat McCrory  
Governor

John E. Skvarla, III  
Secretary

NCDWR Project No.: \_\_\_\_\_

County: \_\_\_\_\_

Applicant: \_\_\_\_\_

Project Name: \_\_\_\_\_

Date of Issuance of 401 Water Quality Certification: \_\_\_\_\_

### Certificate of Completion

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

### Applicant's Certification

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

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

### Agent's Certification

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

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

### Engineer's Certification

\_\_\_\_\_ Partial \_\_\_\_\_ Final

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

Signature \_\_\_\_\_ Registration No. \_\_\_\_\_

Date \_\_\_\_\_

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

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**STATE OF NORTH CAROLINA DEPARTMENT OF  
ENVIRONMENT AND NATURAL RESOURCES  
DIVISION OF WATER QUALITY**

**STATE GENERAL PERMIT FOR IMPACTS TO ISOLATED AND  
OTHER NON-404 JURISDICTIONAL WETLANDS AND WATERS  
PERMIT NUMBER: IWGP100000**


**FOR PROJECTS IMPACTING LESS THAN OR EQUAL TO ONE (1) ACRE OF  
ISOLATED AND OTHER NON-404 WETLANDS, LESS THAN OR EQUAL TO THREE  
HUNDRED FEET (300) OF ISOLATED STREAMS AND/OR LESS THAN ONE-THIRD  
ACRE (1/3) OF ISOLATED SURFACE WATERS**

In accordance with the provision of Article 21 of Chapter 143, General Statutes of North Carolina as amended and other lawful standards and regulations, including 15A NCAC 02H .1300 and 15A NCAC 02B .0200, promulgated and adopted by the North Carolina Environmental Management Commission.

Permission is hereby granted to all owners or operators of activities which impact isolated and other non-404 wetlands, isolated streams or other isolated waters in accordance with the conditions set forth in this General Permit.

This General Permit shall become effective on March 19, 2012.

This General Permit shall expire at midnight on March 18, 2017 or unless otherwise rescinded or until deemed appropriate by the Director of the NC Division of Water Quality (DWQ).

  
\_\_\_\_\_  
**Charles Wakild, P.E., Director**  
**Division of Water Quality**  
**By the Authority of the**  
**NC Environmental Management Commission**



## State General Permit No. IWGP100000

This General Permit is issued in conformity with the requirements of North Carolina Division of Water Quality (DWQ) Regulations in 15A NCAC 02H .1300 for the discharge of fill material to isolated and other non-404 wetlands and isolated waters of the State of North Carolina. This Permit may be rescinded when deemed appropriate by the Director of DWQ after appropriate public notice.

Public Notice requirement – A separate Public Notice and Individual Permit will be required for all projects which propose to impact greater than 300 linear feet of isolated streams, greater than one (1) acre of isolated and other non-404 wetlands, or greater than one-third (1/3) acre of other isolated waters in accordance with 15A NCAC 02H .1303. For impacts equal to or below these thresholds, this General Permit is applicable without additional Public Notice.

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.

**Activities meeting any one (1) of the following thresholds or circumstances require written approval from the Division of Water Quality (the "Division"):**

- a) Any impacts to isolated streams involving excavation or dredging; or
- b) Any stream relocation; or
- c) Any impacts to isolated streams and/or buffers in the Neuse, Tar-Pamlico, or Catawba River Basins or in the Randleman, Jordan or Goose Creek Watersheds (or any other basin or watershed with Riparian Area Protection Rules [Buffer Rules] in effect at the time of application) *unless* the activities are listed as "EXEMPT" from these rules or a Buffer Authorization Certificate is issued through N.C. Division of Coastal Management (DCM) delegation for "ALLOWABLE" activities; or
- d) Total isolated stream impacts within the project boundaries equal to or greater than 150 linear feet of intermittent and/or perennial stream, including temporary and/or permanent impacts; or
- e) Temporary or permanent impacts equal to or greater than one-tenth (1/10) acre of isolated and other non-404 wetlands or isolated lakes and ponds; or
- f) Any impacts to isolated and other non-404 wetlands adjacent to waters designated as: ORW, SA, WS-I, WS-II, or Trout, or isolated and other non-404 wetlands contiguous to waters designated as a North Carolina or National Wild and Scenic River; or
- g) Any impacts to isolated and other non-404 wetlands classified in accordance with 15A NCAC 02B .0101(e)(7) as Unique Wetlands (UWL); or  
Any impact associated with a high density project (as defined in Item (A)(iv) of the **401 Stormwater Requirements**) that is not subject to either a state stormwater program (such as, but not limited to, Coastal Counties, HQW, ORW or state-implemented Phase II NPDES) or a certified community's stormwater program; or
- h) Any impact associated with a Notice of Violation or an enforcement action for violation(s) of DWQ Wetland Rules (15A NCAC 02H .0500), Isolated Wetland Rules (15A NCAC 02H .1300), DWQ Surface Water or Wetland Standards, or Riparian Buffer Rules (15A NCAC 02B .0200).

In accordance with North Carolina General Statute 143-215.3D(e), any application for an Isolated Wetland General or Individual Permit must include the appropriate fee. If a project also requires a CAMA Permit, one payment to both agencies shall be submitted. This payment shall be the higher of the two fees.

**Activities included in this General Permit that do not meet one of the thresholds listed above do not require written approval from the Division of Water Quality as long as they comply with the Conditions of Permit listed below. If any of these Conditions cannot be met, then written approval from the Division is required.**



# State General Permit No. IWGP100000

## Conditions of Permit:

### 1. Totaling and Reporting of Impacts

Isolated Streams - Impacts to isolated streams as determined by the Division of Water Quality shall be measured as the length of the centerline of the normal flow channel. Permanent and/or temporary stream impacts shall be enumerated on the entire project for all impacts regardless of which 404 Nationwide Permits are used (if any). Stream relocations and streambed and/or bank hardening are considered to be permanent stream impacts. Any activity that results in a loss of use of stream functions including but not limited to filling, relocating, flooding, excavation, dredging and complete shading shall be considered stream impacts.

Impacts to streams shall include streams enclosed by bottomless culverts, bottomless arches or other spanning structures unless the entire structure (including construction impacts) spans the entire bed and both banks of the stream, is only used for a road, driveway or path crossing, and is not mitered to follow the stream pattern. Impacts for dam footprints and flooding will count toward the threshold for stream impacts, but flooding upstream of the dam will not count towards mitigation requirements as long as no filling, excavation, relocation or other modification of the existing stream dimension, pattern or profile occurs. Any filling, excavation, relocation or other modification of the existing stream (other than flooding) must re-establish the same dimensions, patterns and profiles of the existing channel (or those of a stable reference reach if the existing channel is unstable)

Isolated Lakes and Ponds – Impacts to isolated waters other than streams and wetlands as determined by the Division of Water Quality shall be measured as area. Permanent and/or temporary water impacts shall be enumerated on the entire project for all impacts proposed regardless of which 404 Nationwide Permits are used (if any). Any activity that results in a loss of use of aquatic functions including but not limited to filling, draining, and dredging shall be considered waters impacts.

Isolated and Other Non-404 Wetlands - Impacts to isolated and other non-404 wetlands as determined by the Division of Water Quality shall be measured as area. Permanent and/or temporary wetland impacts shall be enumerated on the entire project for all impacts. Any activity that results in a loss of use of wetland functions including but not limited to filling, excavating, draining, and flooding shall be considered wetland impacts. Impacts to wetlands shall include activities that change the hydrology of a wetland.

### 2. No Impacts Beyond those Authorized in the Written Approval or Beyond the Threshold of Use of this Permit

No waste, spoil, solids, or fill of any kind shall occur in isolated and other non-404 wetlands, isolated waters, or isolated riparian areas beyond the footprint of the impacts depicted in the Pre-Construction Notification, as authorized in the written approval from the Division, or beyond the thresholds established for use of this Permit without written authorization, including incidental impacts. All construction activities, including the design, installation, operation, and maintenance of sediment and erosion control Best Management Practices, shall be performed so that no violations of state water quality standards, statutes, or rules occur. Approved plans and specifications for this project are incorporated by reference and are enforceable parts of this permit.



## State General Permit No. IWGP100000

### 3. Standard Erosion and Sediment Control Practices

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 and if applicable, comply with the specific conditions and requirements of the NPDES Construction Stormwater Permit issued to the site:

- a. Design, installation, operation, and maintenance of the sediment and erosion control measures must be such that they equal or exceed the requirements specified in the most recent version of the *North Carolina Sediment and Erosion Control Manual*. The devices shall be maintained on all construction sites, borrow sites, and waste pile (spoil) projects, including contractor-owned or leased borrow pits associated with the project.
- b. For borrow pit sites, the erosion and sediment control measures must be designed, installed, operated, and maintained in accordance with the most recent version of the *North Carolina Surface Mining Manual*.
- c. Reclamation measures and implementation must comply with the reclamation in accordance with the requirements of the Sedimentation Pollution Control Act and the Mining Act of 1971.
- d. Sufficient materials required for stabilization and/or repair of erosion control measures and stormwater routing and treatment shall be on site at all times.
- e. If the project occurs in waters or watersheds classified as Primary Nursery Areas (PNAs), SA, WS-I, WS-II, High Quality (HQW), or Outstanding Resource (ORW) waters, then the sedimentation and erosion control designs must comply with the requirements set forth in 15A NCAC 04B .0124, *Design Standards in Sensitive Watersheds*.

### 4. No Sediment and Erosion Control Measures in Wetlands or Waters

Sediment and erosion control measures shall not be placed in wetlands or waters. Exceptions to this condition require application submittal to and written approval by the Division. If placement of sediment and erosion control devices in wetlands and waters is unavoidable, then design and placement of temporary erosion control measures shall not be conducted in a manner that may result in dis-equilibrium of wetlands, stream beds, or banks, adjacent to or upstream and downstream of the above structures. All sediment and erosion control devices shall be removed and the natural grade restored within two (2) months of the date that the Division of Land Resources (DLR) or locally delegated program has released the specific area within the project.

### 5. Construction Stormwater Permit NCG010000

An NPDES Construction Stormwater Permit is required for construction projects that disturb one (1) or more acres of land. This Permit allows stormwater to be discharged during land disturbing construction activities as stipulated in the conditions of the permit. If your project is covered by this permit, full compliance with permit conditions including the erosion & sedimentation control plan, inspections and maintenance, self-monitoring, record keeping and reporting requirements is required. A copy of the general permit (NCG010000), inspection log sheets, and other information may be found at <http://portal.ncdenr.org/web/wq/ws/su/npdessw#tab-w>.

The North Carolina Department of Transportation (NCDOT) shall be required to be in full compliance with the conditions related to construction activities within the most recent version of their individual NPDES (NCS000250) stormwater permit.



## State General Permit No. IWGP100000

### 6. Construction Moratoriums and Coordination

If activities must occur during periods of high biological activity (i.e. sea turtle nesting, fish spawning, or bird nesting), then biological monitoring may be required at the request of other state or federal agencies and coordinated with these activities.

All moratoriums on construction activities established by the NC Wildlife Resources Commission (WRC), US Fish and Wildlife Service (USFWS), NC Division of Marine Fisheries (DMF), or National Marine Fisheries Service (NMFS) to lessen impacts on trout, anadromous fish, larval/post-larval fishes and crustaceans, or other aquatic species of concern shall be implemented. Exceptions to this condition require written approval by the resource agency responsible for the given moratorium.

Work within the twenty-five (25) designated trout counties or identified state or federal endangered or threatened species habitat shall be coordinated with the appropriate WRC, USFWS, NMFS, and/or DMF personnel.

### 7. Work in the Dry

All work in or adjacent to stream waters shall be conducted so that the flowing stream does not come in contact with the disturbed area. Approved best management practices from the most current version of the NC Sediment and Erosion Control Manual, or the NC DOT Construction and Maintenance Activities Manual, such as sandbags, rock berms, cofferdams, and other diversion structures shall be used to minimize excavation in flowing water. Exceptions to this condition require application submittal to and written approval by the Division.

### 8. Riparian Area Protection (Buffer) Rules

Activities located in the protected riparian areas (whether jurisdictional wetlands or not), within the Neuse, Tar-Pamlico, or Catawba River Basins or in the Randleman, Jordan, or Goose Creek Watersheds (or any other basin or watershed with buffer rules) shall be limited to "uses" identified within and constructed in accordance with 15A NCAC 02B .0233, .0259, .0243, .0250, .0267 and .0605, and 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. All buffer rule requirements, including diffuse flow requirements, must be met.

9. If concrete is used during the construction, then all necessary measures shall be taken to prevent direct contact between uncured or curing concrete and waters of the state. Water that inadvertently contacts uncured concrete shall not be discharged to waters of the state due to the potential for elevated pH and possible aquatic life/ fish kills.

### 10. Compensatory Mitigation

In accordance with 15A NCAC 02H .1305 (c) & (d), compensatory mitigation may be required for losses of equal to or greater than 150 linear feet of streams (intermittent and perennial) and/or equal to or greater than one (1) acre of total wetland impacts, including all impacts to 404 and non-404 wetlands (see examples in "**Attachment B**" at the end of this Permit). If collective wetland impacts, including 404 and non-404 wetlands, are equal to or greater than one (1) acre, compensatory mitigation is required. If the project requires a mitigation plan, but is otherwise below the written approval thresholds described above, the applicant may provide a courtesy copy of the Pre-Construction Notification along with a copy of the mitigation plan. For linear, public transportation projects, impacts equal to or exceeding 150 linear feet per stream shall require mitigation.



## State General Permit No. IWGP100000

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 General Permit. Design and monitoring protocols shall follow the US Army Corps of Engineers Wilmington District *Stream Mitigation Guidelines* (April 2003), or its subsequent updates. Compensatory mitigation plans shall be submitted for written Division approval as required in those protocols. The mitigation plan must be implemented and/or constructed before any impacts occur on site. Alternatively, the Division will accept payment into an in-lieu fee program or a mitigation bank. In these cases, proof of payment shall be provided to the Division before any impacts occur on site.

11. Relocated stream designs should include the same dimensions, patterns, and profiles as the existing channel (or a stable reference reach if the existing channel is unstable), to the maximum extent practical. The new channel should be constructed in the dry and water shall not be turned into the new channel until the banks are stabilized. 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 appropriate erosion control matting materials and seedling establishment is allowable, however matting that incorporates plastic mesh and/or plastic twine shall not be used in wetlands, riparian buffers or floodplains as recommended by the North Carolina Sediment and Erosion Control Manual. Rip-rap, A-Jacks, concrete, gabions or other hard structures may be allowed if it is necessary to maintain the physical integrity of the stream; however, the applicant must provide written justification and any calculations used to determine the extent of rip-rap coverage. Please note that if the stream relocation is conducted as a stream restoration as defined in the US Army Corps of Engineers Wilmington District, April 2003 *Stream Mitigation Guidelines* (or its subsequent updates), the restored length may be used as compensatory mitigation for the impacts resulting from the relocation.

### 12. Stormwater Management Plan Requirements

All applications shall address stormwater management throughout the entire project area per the 401 Stormwater Requirements, referenced herein as "**Attachment A**" at the end of this Permit.

13. Bridge deck drains shall not discharge directly into the stream. Stormwater shall be directed across the bridge and pre-treated through site-appropriate means (grassed swales, pre-formed scour holes, vegetated buffers, etc.) before entering the stream. Please refer to the most current version of *Stormwater Best Management Practices*. Exceptions to this condition require written approval by the Division.

### 14. Placement of Culverts and Other Structures in Waters and Wetlands

Culverts required for this project shall be designed and installed in such a manner that the original stream profiles are not altered and allow for aquatic life movement during low flows. Existing stream dimensions (including the cross section dimensions, pattern, and longitudinal profile) must be maintained above and below locations of each culvert.

Placement of culverts and other structures in waters and streams must be below the elevation of the streambed by one foot for all culverts with a diameter greater than 48 inches, and 20 percent of the culvert diameter for culverts having a diameter less than or equal to 48 inches, to allow low flow passage of water and aquatic life.



## State General Permit No. IWGP100000

When topographic constraints indicate culvert slopes of greater than 5%, culvert burial is not required, provided that all alternative options for flattening the slope have been investigated and aquatic life movement/ connectivity has been provided when possible (rock ladders, crossvanes, etc). Notification to the Division including supporting documentation to include a location map of the culvert, culvert profile drawings, and slope calculations shall be provided to the Division 60 days prior to the installation of the culvert.

When bedrock is present in culvert locations, culvert burial is not required provided that there is sufficient documentation of the presence of bedrock. Notification to the Division including supporting documentation such as, but not limited to, a location map of the culvert, geotechnical reports, photographs, etc shall be provided to the Division a minimum of 60 days prior to the installation of the culvert. If bedrock is discovered during construction, then the Division shall be notified by phone or email within 24 hours of discovery.

If other site-specific topographic constraints preclude the ability to bury the culverts as described above and/or it can be demonstrated that burying the culvert would result in destabilization of the channel, then exceptions to this condition require application submittal to, and written approval by, the Division of Water Quality, regardless of the total impacts to streams or wetlands from the project.

Installation of culverts in wetlands must ensure continuity of water movement and be designed to adequately accommodate high water or flood conditions. 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 destabilization of streams or wetlands.

The establishment of native, woody vegetation and other soft stream bank stabilization techniques must be used where practicable instead of riprap or other bank hardening methods.

15. If this General Permit is used to access building sites, then all lots owned by the applicant must be buildable without additional impacts to streams or wetlands. The applicant is required to provide evidence that the lots are buildable without requiring additional impacts to wetlands, waters, or buffers if required to do so in writing by the Division. For road construction purposes, this Permit shall only be utilized from natural high ground to natural high ground.
16. Deed notifications or similar mechanisms shall be placed on all retained jurisdictional wetlands, waters, and protective buffers within the project boundaries in order to assure compliance for future wetland, water, and buffer impact. These mechanisms shall be put in place at the time of recording of the property or of individual lots, whichever is appropriate. A sample deed notification can be downloaded from the Division's web site at <http://portal.ncdenr.org/web/wq/swp/ws/401/certsandpermits/apply/forms>. The text of the sample deed notification may be modified as appropriate to suit to a specific project. Documentation of deed notifications shall be provided to the Division upon request.
17. If an environmental document is required under the National or State Environmental Policy Act (NEPA or SEPA), then this General Certification is not valid until a Finding of No Significant Impact (FONSI) or Record of Decision (ROD) is issued by the State Clearinghouse.
18. In the twenty (20) coastal counties, the appropriate DWQ Regional Office must be contacted to determine if Coastal Stormwater Regulations will be required.



## State General Permit No. IWGP100000

19. This General Certification does not relieve the applicant of the responsibility to obtain all other required Federal, State, or Local approvals.
20. The applicant/permittee and their authorized agents shall conduct all activities in a manner consistent with State water quality standards (including any requirements resulting from compliance with §303(d) of the Clean Water Act), and any other appropriate requirements of State and Federal Law. If the Division determines that such standards or laws are not being met, including 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, then the Division may reevaluate and modify this General Water Quality Certification.
21. When written authorization is required for use of this certification, upon completion of all permitted impacts included within the approval and any subsequent modifications, the applicant shall be required to return the certificate of completion attached to the approval. One copy of the certificate shall be sent to the DWQ Central Office in Raleigh at 1650 Mail Service Center, Raleigh, NC, 27699-1650.
22. Additional site-specific conditions, including monitoring and/or modeling requirements, may be added to the written approval letter for projects proposed under this Water Quality Certification in order to ensure compliance with all applicable water quality and effluent standards.
23. This certification grants permission to the director, an authorized representative of the Director, or DENR staff, upon the presentation of proper credentials, to enter the property during normal business hours.

This General Permit shall expire five (5) years from the date of issuance of the written letter from the Division. The conditions in effect on the date of issuance of Certification for a specific project shall remain in effect for the life of the project, regardless of the expiration date of this Permit.

Non-compliance with or violation of the conditions herein set forth by a specific project may result in revocation of this General Certification for the project and may also 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 Permit for any project in this category of activity if it is determined that the project is likely to have a significant adverse effect upon water quality, including state or federally listed endangered or threatened aquatic species, or degrade the waters so that existing uses of the wetland 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.

*History Note:* This Isolated Wetlands General Permit replaces the Isolated Wetlands General Permit (IWGP100000) issued on October 31, 2008 and October 3, 2003. This General Permit is rescinded five (5) years from the effective date or unless otherwise rescinded or until deemed appropriate by the Director of the Division of Water Quality.

# State General Permit No. IWGP100000

## Attachment A: 401 Stormwater Requirements

The requirements listed below shall be implemented in order to comply with Condition 12 of this General Permit. For the North Carolina Department of Transportation, compliance with NCDOT's Individual NPDES permit NCS000250 shall serve to satisfy the 401 and Isolated Wetland Stormwater Requirements.<sup>1</sup>

- A. **Design and Implementation Requirements.** All projects, regardless of project area, amount of built-upon area or amount of jurisdictional impact, shall meet the following stormwater design requirements:
- i. **Non-Erosive Discharge to Streams and Wetlands.** Stormwater conveyances that discharge to streams and wetlands must discharge at a non-erosive velocity prior to entering the stream or wetland during the peak flow from the ten-year storm.<sup>2</sup>
  - ii. **Vegetated Setbacks.** A 30-foot wide vegetated setback must be maintained adjacent to streams, rivers and tidal waters in areas that are not subject to a state Riparian Area Protection Rule or other more stringent vegetated setback requirements. The width of the setback shall be measured horizontally from the normal pool elevation of impounded structures, the top-of-bank of streams and rivers, and the mean high waterline of tidal waters, perpendicular to shoreline. Vegetated setback and filters required by state rules or local governments may be met concurrently with this requirement and may contain coastal, isolated or 404 jurisdictional wetlands. Non-jurisdictional portions of the vegetated setback may be cleared and graded, but must be planted with and maintained in grass or other vegetative or plant material.<sup>3</sup>
  - iii. **Construction and Operation.** The stormwater management plan must be constructed and operational before any permanent building or other structure is occupied or utilized at the site. The stormwater management plan, including drainage patterns, must be maintained in perpetuity.<sup>4</sup>
  - iv. **Coordination with Other Stormwater Programs.** Projects that are subject to another Division of Water Quality (DWQ) stormwater program, including (but not limited to) the 20 Coastal Counties, HQW, ORW or state-implemented Phase II NPDES, or a Certified Community's stormwater management program, must be constructed and maintained in compliance with the approved stormwater management plan.<sup>5</sup>
  - v. **Stormwater Design Requirements for Projects Not Covered Under Item (iv).** Projects that are not subject to another DWQ stormwater program or a Certified Community's stormwater program shall meet all of the following requirements:
    - a. **Low Density.** A site is low density if all the following requirements are met:
      1. The development has a built upon area of twenty-four percent (24%) or less, considering both current and future development. When determining the amount of built upon area, coastal wetlands shall be included; however, ponds, lakes and rivers as specified in North Carolina's Schedule of Classifications shall be excluded. If a portion of project has a density greater than 24%, the higher density area must be located in an upland area and away from surface waters and drainageways to the maximum extent practicable.<sup>6</sup>
      2. All stormwater runoff from the built upon areas is transported primarily via vegetated conveyances designed in accordance with the most recent version of the *NC DWQ Stormwater Best Management Practices Manual*. Alternative designs may be approved if the applicant can show that the design provides



## State General Permit No. IWGP100000

equal or better water quality protection than the practices specified in the manual. The project must not include a stormwater collection system (such as piped conveyances) as defined in 15A NCAC 02B .0202(60).<sup>7</sup>

- b. **High Density.** Projects that do not meet the Low Density requirements shall meet the following requirements:
  - 1. Stormwater runoff from the entire site must be treated by structural stormwater controls (BMPs) that are designed to remove eighty-five percent (85%) of the average annual amount of Total Suspended Solids (TSS). Stormwater runoff that drains directly to Nutrient Sensitive Waters (NSW) must also be treated to remove thirty percent (30%) of Total Nitrogen (TN) and Total Phosphorus (TP).<sup>8</sup>
  - 2. All BMPs must be designed in accordance with the version of the *NC DWQ Stormwater Best Management Practices Manual* that is in place on the date of stormwater management plan submittal. Alternative designs may be approved if the applicant can show that the design provides equal or better water quality protection than the practices specified in the manual.<sup>9</sup>
  - 3. DWQ may add specific stormwater management requirements on a case-by-case basis in order to ensure that a proposed activity will not violate water quality standards.<sup>10</sup>
  - 4. DWQ may approve Low Impact Developments (LIDs) that meet the guidance set forth in the *Low Impact Development: A Guidebook for North Carolina*.<sup>11</sup>
  - 5. Proposed new development undertaken by a local government solely as a public road project shall follow the requirements of the NC DOT BMP Toolbox rather than Items (1)-(4) above.<sup>12</sup>

B. **Submittal Requirements.** The submittal requirements listed below apply only to projects that require written authorization as indicated in the applicable General Certification as well as projects that require an Isolated Wetlands Permit. **Any required documentation shall be sent to the Wetlands, Buffers and Stormwater Compliance and Permitting Unit at 1650 Mail Service Center, Raleigh, NC 27699-1650.**

- i. **Projects that are Subject to Another DWQ Stormwater Program:** If the project is subject to another DWQ stormwater program, such as the 20 Coastal Counties, HQW, ORW or state-implemented Phase II NPDES, then the applicant shall submit a copy of the stormwater approval letter before any impacts occur on site.<sup>13</sup>
- ii. **Projects that are Subject to a Certified Community's Stormwater Program.** If the project is subject to a certified local government's stormwater program, then the applicant shall submit one set of approved stormwater management plan details and calculations with documentation of the local government's approval before any impacts occur on site.<sup>5</sup>
- iii. **Projects Not Covered Under Items (i) or (ii).** If the project is not subject to another DWQ Stormwater Program or a Certified Community's stormwater program, then it shall be reviewed and approved by the DWQ through the Water Quality Certification authorization process.
  - a. **Low Density.** For low density projects, the applicant shall submit two copies of the DWQ Low Density Supplement Form with all required items.<sup>13</sup>

## State General Permit No. IWGP100000

- b. **High Density.** For high density projects, the applicant shall submit two copies of a DWQ BMP Supplement Form and all required items at the specified scales for each BMP that is proposed.<sup>13</sup>
- iv. **Phasing.** Stormwater management plans may be phased on a case-by-case basis, with the submittal of a final stormwater management plan per Items (i)-(iii) above required for the current phase and a conceptual stormwater management plan for the future phase(s). The stormwater management plan for each future phase must be approved by the appropriate entity before construction of that phase is commenced. The approved stormwater management plan for each future phase must be constructed and operational before any permanent building or other structure associated with that phase is occupied.<sup>14</sup>
- v. **Stormwater Management Plan Modifications.** The stormwater management plan may not be modified without prior written authorization from the entity that approved the plan. If the project is within a Certified Community, then the applicant shall submit one set of approved stormwater management plan details and calculations with documentation of the local government's approval for record-keeping purposes. If the project is subject to DWQ review, then the applicant shall submit two copies of the appropriate Supplement Forms per Item (iii) above for any BMPs that have been modified for DWQ's review and approval.<sup>15</sup>

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<sup>1</sup> The stormwater requirement for 401 applications is codified in 15A NCAC 02H .0506(b)(5) and (c)(5).

<sup>2</sup> Non erosive discharge rates are required in SL 2008-211§2(b)(1). The 10-year design storm standard is codified in 15A NCAC 02H .1008(f)(2) and .1008(g)(1).

<sup>3</sup> 30-foot vegetated setbacks are required in SL 2006-246§9(d), SL 2008-211§2(b), 15A NCAC 02H .1006(2)(c) and .1007(1)(a).

<sup>4</sup> Construction and maintenance of the stormwater plan is necessary to satisfy 15A NCAC 02H .0506(b)(5).

<sup>5</sup> Conveys application procedure to streamline the permitting process and reduce any unnecessary duplication in the review of stormwater management plans.

<sup>6</sup> Low density built upon area thresholds are set in SL 2006-246§9(c) and SL 2008-211§2(b).

<sup>7</sup> The requirement for low density development to use vegetated conveyances is codified in SL 2006-246§9(c), SL 2008-211§2(b), 15A NCAC 02H .1006(2)(b) and .1007(1)(a). The Stormwater BMP Manual is also referenced in 15A NCAC 02B .0265(3)(a) and .0277(4)(e).

<sup>8</sup> 85% TSS removal is required in SL 2006-246§9(d), SL 2008-211§2(b), 15A NCAC 02H .1006(2)(c), 15A NCAC 02H .1007(1)(a). The 30% TN and TP removal requirements for NSW waters are set forth in 15A NCAC 02B .0232, 15A NCAC 02B .0257(a)(1), 15A NCAC 02B .0265(3)(a) and 15A NCAC 02B .0277(4).

<sup>9</sup> The Stormwater BMP Manual is also referenced in 15A NCAC 02B .0265(3)(a) and .0277(4)(e).

<sup>10</sup> The requirement for DWQ to ensure that water quality standards are protected before issuing a 401 certification is codified in 15A NCAC 02H .0506.

<sup>11</sup> The LID Toolbox is also referenced in 15A NCAC 02B .0277(4)(g).

<sup>12</sup> The term "public road project" is defined in 15A NCAC 02B .0265(3)(a).

<sup>13</sup> Conveys application procedure to streamline the permitting process.

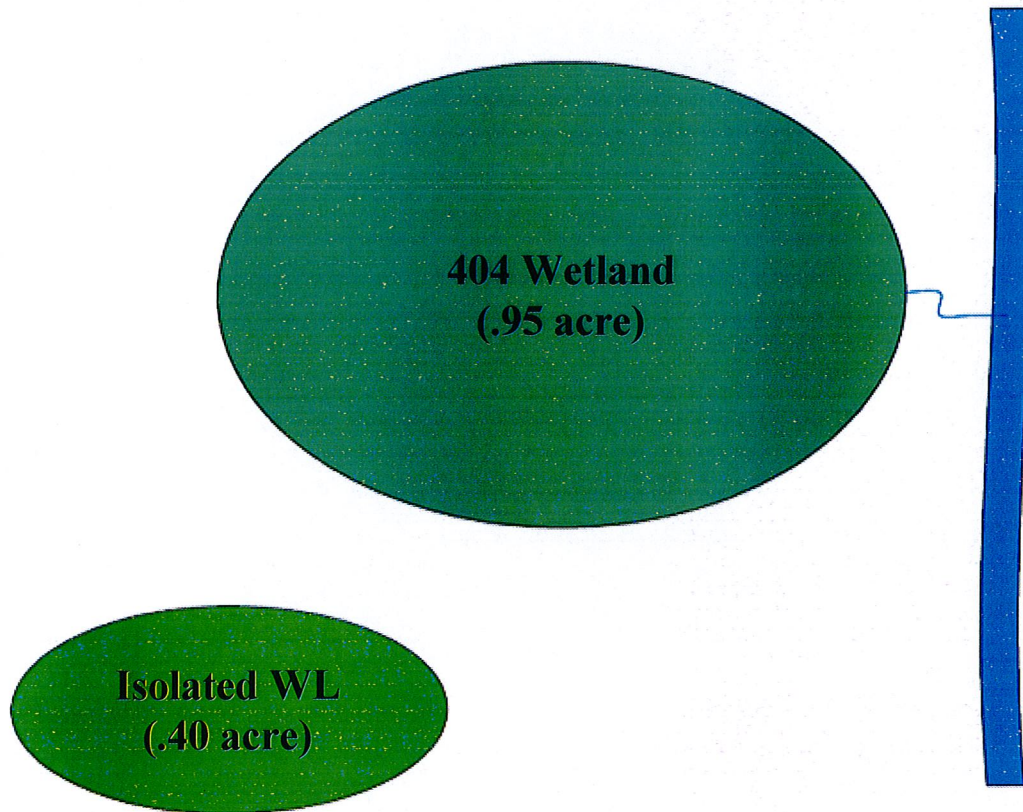
<sup>14</sup> Phased development is addressed as a "common plan of development" in 15A NCAC 02H .1003(3).

<sup>15</sup> Procedures for modifying stormwater plans are set forth in 15A NCAC 02H .1011.



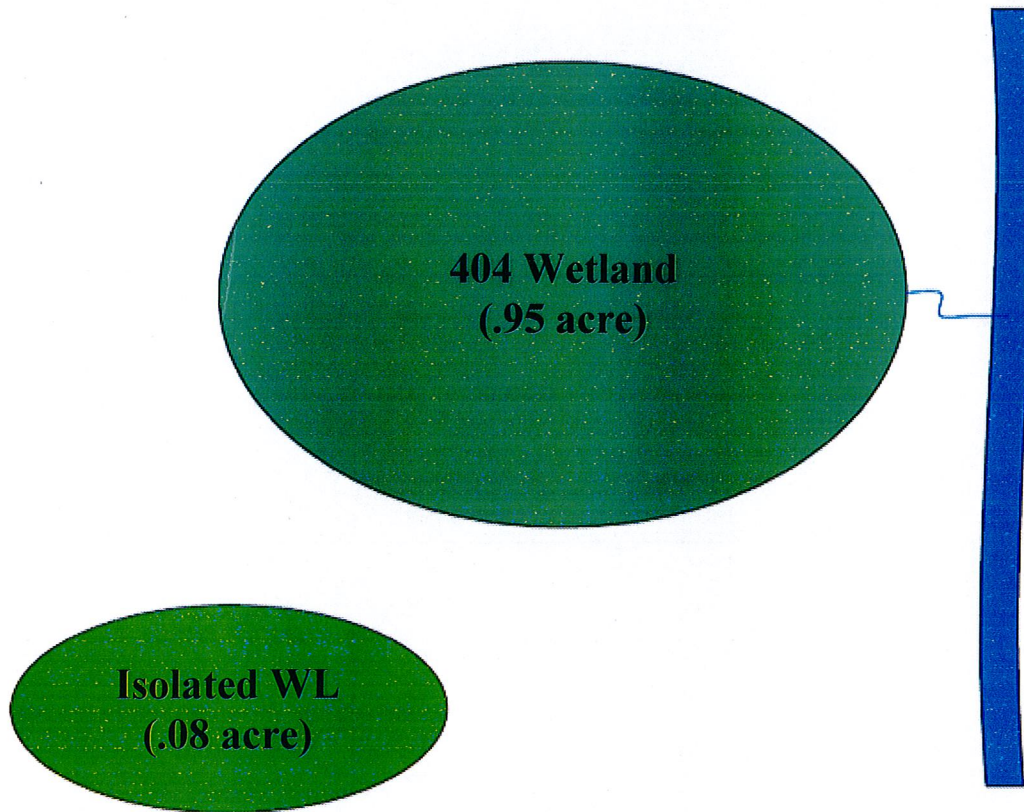
Attachment B

Example 1: Wetland Impacts and Compensatory Mitigation



In this example, the applicant proposes to fill 0.95 acre of 404 wetlands and 0.40 acre of Isolated wetlands. Since the Isolated impact is over the IWGP10000 threshold, written concurrence is required for the Isolated fill, in addition to the 404 fill. The applicant should note both impacts on the PCN and seek the Isolated General Permit AND the appropriate General Certification. Compensatory mitigation is required since total wetland impacts exceed one (1) acre.

**Example 2: Wetland Impacts and Compensatory Mitigation**



In this example, the applicant proposes to fill 0.95 acre of 404 wetlands and 0.08 acre of Isolated wetlands. Since the Isolated impact is under the IWGP100000 threshold, written concurrence is not required for the Isolated fill. However, this impact should be noted on the PCN submitted for written concurrence on the 404 wetland fill. Compensatory mitigation is required since total wetland impacts exceed one (1) acre.

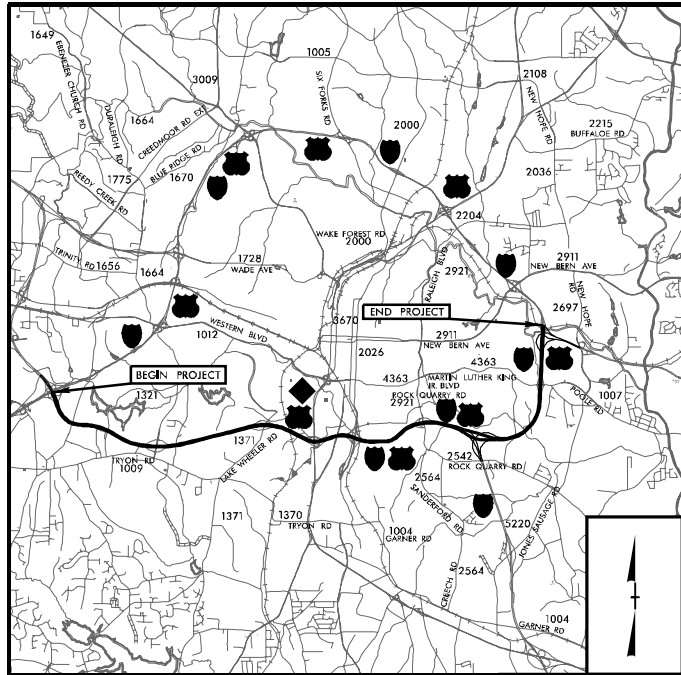


09/28/2013

TIP PROJECT: I-5338, I-5311

CONTRACT: C203166

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



VICINITY MAP

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

WAKE COUNTY

LOCATION: I-40 / US 64 FROM WEST OF SR 1319 (JONES FRANKLIN RD)  
CONTINUING ALONG I-440 / US 64 TO NORTH OF US 64 / US 264

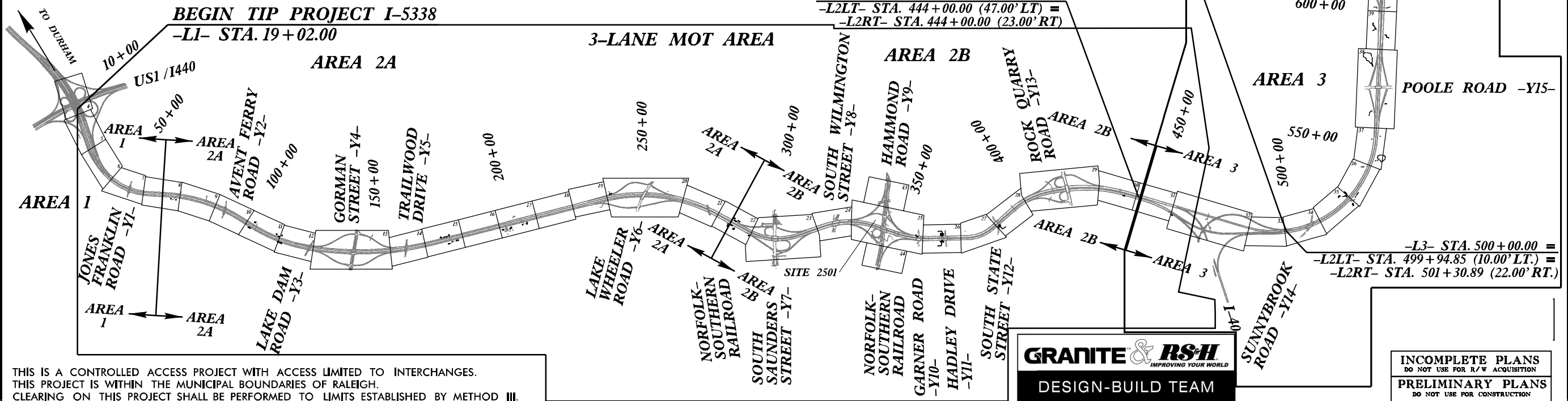
TYPE OF WORK: PAVING, GRADING, DRAINAGE, STRUCTURE REHABILITATION,  
STRUCTURE WIDENING, GUARDRAIL, CABLE GUIDERAIL,  
SIGNING, LIGHTING, AND ITS

3-LANE MOT (MAINTENANCE OF TRAFFIC)  
STREAM AND WETLAND IMPACTS PACKAGE

NOTE: AREA 1: -L1- STA. 19+02.00 TO -L1- STA. 68+12.63  
AREA 2A: -L1- STA. 68+12.63 TO -L1- STA. 285+50.00  
AREA 2B: -L1- STA. 285+50.00 TO -L2LT- AND -L2RT- STA. 444+00.00  
AREA 3: -L2LT- AND -L2RT- STA. 444+00.00 TO -L3- STA. 628+60.00

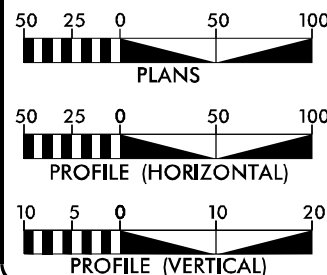
END TIP PROJECT I-5311  
-L3- STA. 628+60.00

END TIP PROJECT I-5338  
BEGIN TIP PROJECT I-5311  
-L3- STA. 500+00.00



THIS IS A CONTROLLED ACCESS PROJECT WITH ACCESS LIMITED TO INTERCHANGES.  
THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF RALEIGH.  
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO LIMITS ESTABLISHED BY METHOD III.

GRAPHIC SCALES



DESIGN DATA

ADT 2013 = 126,025  
ADT 2035 = 184,600  
DHV = 9 %  
D = 55 %  
T = 8 % \*  
V = 70 MPH  
\* (TTST = 4% + DUAL = 4%)  
FUNC CLASS = INTERSTATE

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT I-5338 / I-5311 = 11.503 MILES  
LENGTH STRUCTURE TIP PROJECT I-5338 / I-5311 = 0.042 MILES  
TOTAL LENGTH TIP PROJECT I-5338 / I-5311 = 11.545 MILES

\*NOTE: EASTBOUND LANES USED TO CALCULATE LENGTH OF PROJECT.

K. ZAK HAMIDI, PE  
NCDOT CONTACT

Prepared In the Office of:  
RS&H  
ARCHITECTS-ENGINEERS-PLANNERS, INC.  
8601 SIX FORKS ROAD, SUITE 260  
RALEIGH, NC 27615

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:  
MAY 13, 2013

LETTING DATE:  
MAY 13, 2013

CHAD ROGERS, PE  
PROJECT ENGINEER

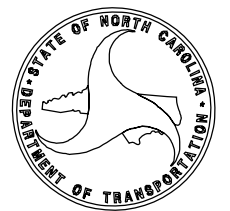
JASON TALLEY, PE  
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

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

ROADWAY DESIGN  
ENGINEER

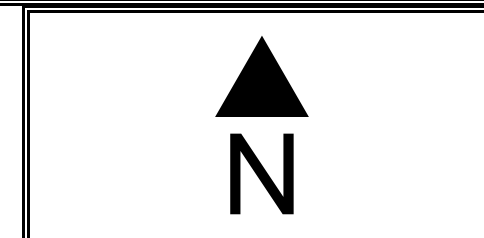
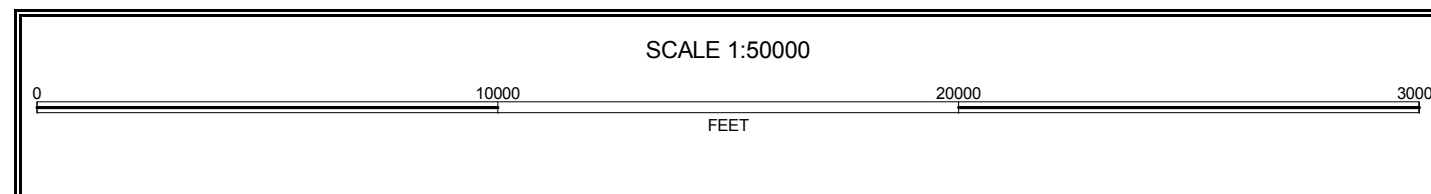
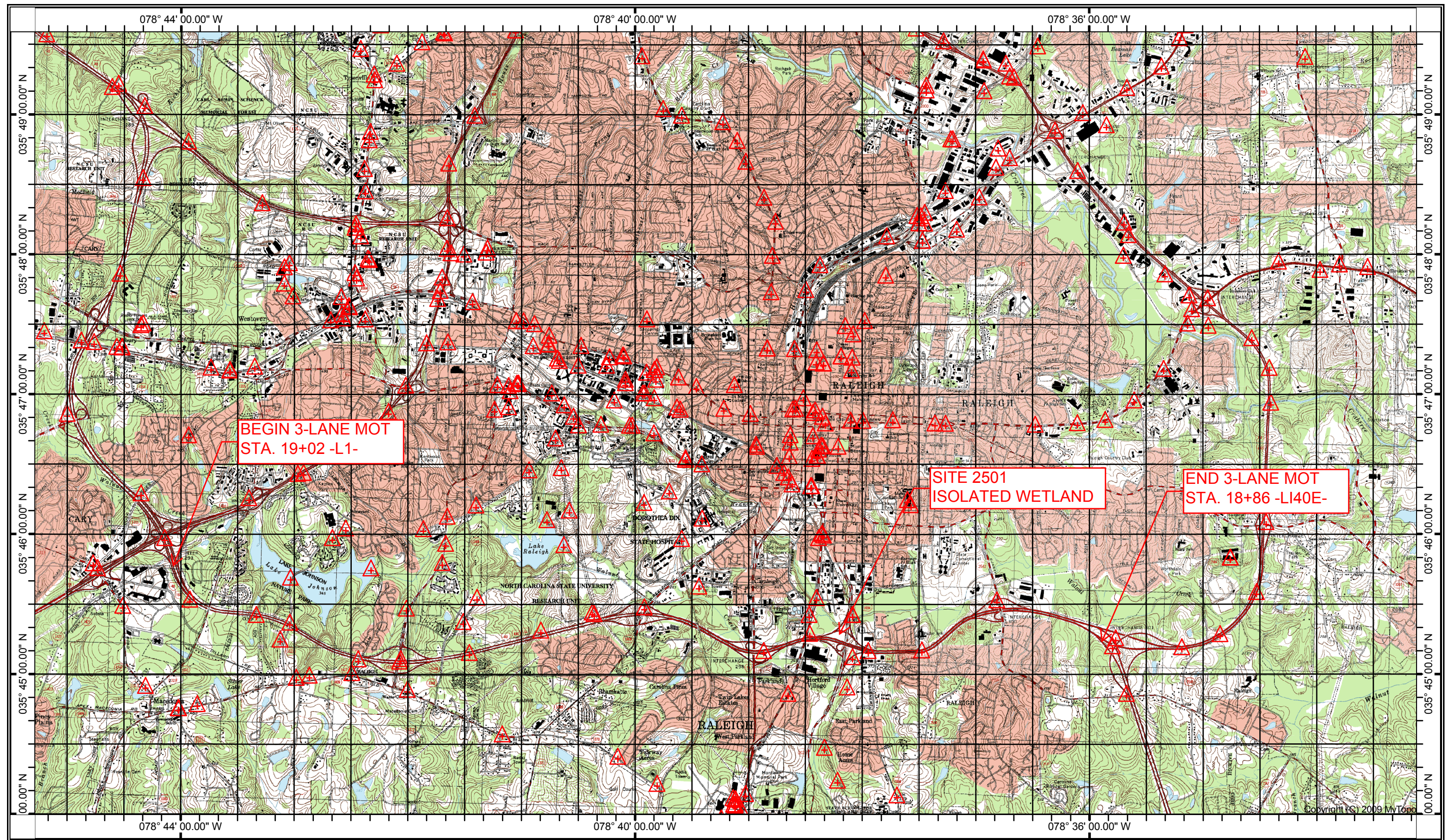
SIGNATURE: \_\_\_\_\_ P.E.



3-LANE MOT (MAINTENANCE OF TRAFFIC)  
PERMIT PLANS  
SUBMITTAL D-062R2  
NOVEMBER 27, 2013

NAD 83/NSRS 2007







**WETLAND PERMIT IMPACT SUMMARY**

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
2501	339+21/340+83 -L1-	FILL	0.27*									
TOTALS:			0.27									

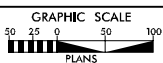
\*Wetland (WO) is an isolated wetland

NC DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS

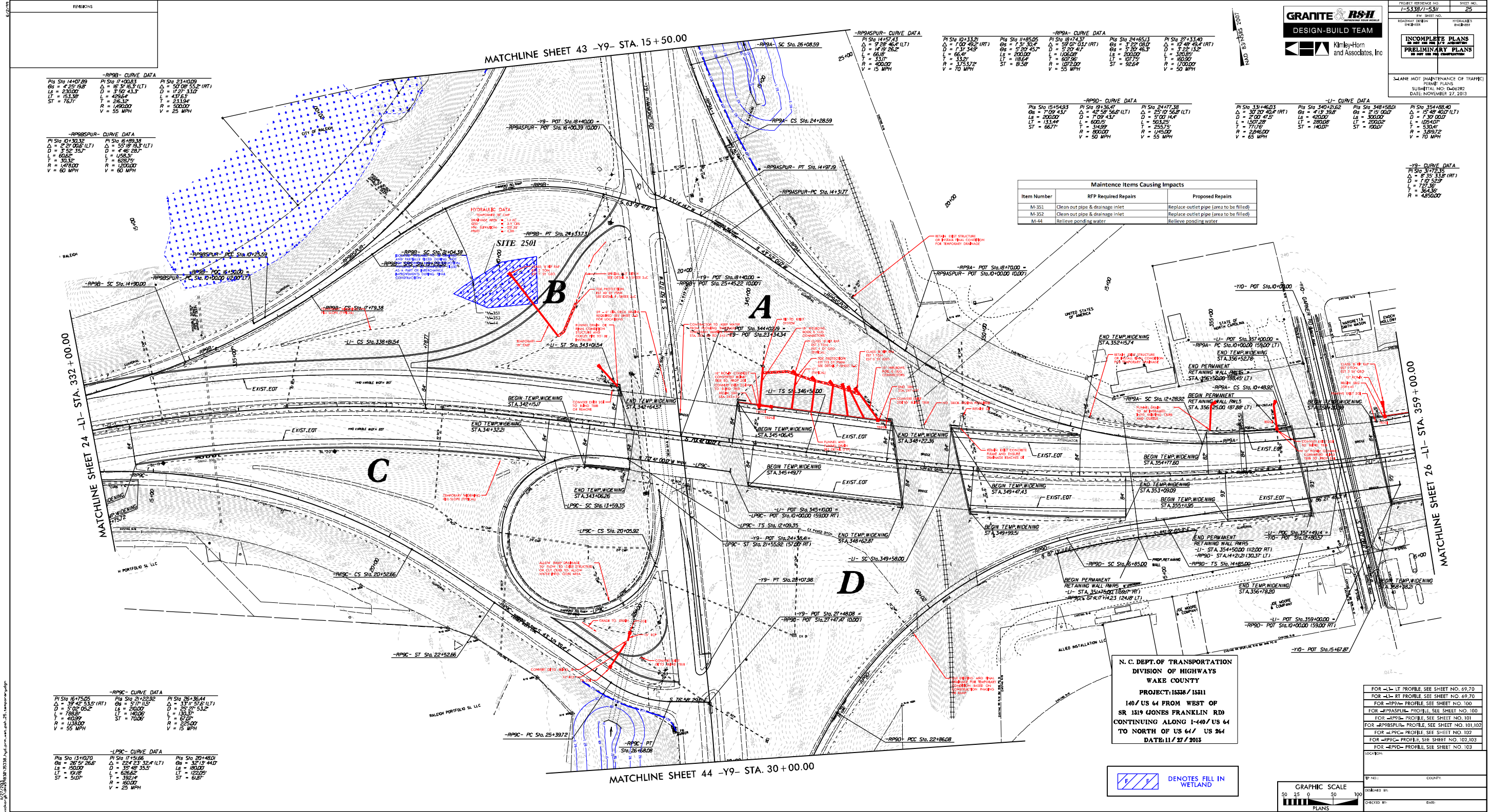
WAKE COUNTY  
WBS - 46265.3.1 (I-5338/I-5311)

-Y9- CURVE DATA  
 PI Sta 31+72.35  
 $\Delta = 8^{\circ} 35' 33.8''$  (RT)  
 $D = 110^{\circ} 52.9'$   
 $L = 727.36'$   
 $T = 364.36'$   
 $R = 4850.00'$

FOR -L- LT PROFILE, SEE SHEET NO. 69,70
FOR -L- RT PROFILE, SEE SHEET NO. 69,70
FOR -RP9A- PROFILE, SEE SHEET NO. 100
FOR -RP9ASPUR- PROFILE, SEE SHEET NO. 100
FOR -RP9B- PROFILE, SEE SHEET NO. 101
FOR -RP9BSPUR- PROFILE, SEE SHEET NO. 101,102
FOR -LP9C- PROFILE, SEE SHEET NO. 102
FOR -RP9C- PROFILE, SEE SHEET NO. 102,103
FOR -RP9D- PROFILE, SEE SHEET NO. 103







**-RP98- CURVE DATA**

Sta 14+07.89	Sta 14+08.83	Sta 21+00.00
Δ = 4°25'58"	Δ = 16°31'03" (LT)	Δ = 50°08'55.2" (RT)
LS = 230.00'	D = 5°50'43.3"	D = 1°27'33.0"
L = 60.50'	L = 436.61'	L = 436.61'
T = 26.32'	T = 213.94'	T = 213.94'
R = 1490.00'	R = 500.00'	R = 500.00'
V = 55 MPH	V = 55 MPH	V = 55 MPH

**-RP98SPUR- CURVE DATA**

Sta 10+30.32	Sta 6+89.30	Sta 21+00.00
Δ = 2°50'02" (LT)	Δ = 3°18'53" (LT)	Δ = 50°08'55.2" (RT)
D = 5°52'35.7"	D = 4°45'28.7"	D = 1°27'33.0"
L = 60.50'	L = 436.61'	L = 436.61'
T = 26.32'	T = 213.94'	T = 213.94'
R = 1490.00'	R = 500.00'	R = 500.00'
V = 55 MPH	V = 55 MPH	V = 55 MPH

**-RP9A- CURVE DATA**

Sta 10+13.21	Sta 11+05.05	Sta 18+74.31	Sta 24+65.13	Sta 27+13.40
Δ = 1°00'42.2" (RT)	Δ = 1°54'30.4"	Δ = 50°07'03.1" (RT)	Δ = 3°22'08.0"	Δ = 10°48'43.4" (RT)
D = 1°31'34.9"	D = 5°20'45.7"	D = 5°20'45.7"	D = 5°20'45.7"	D = 5°22'13.2"
L = 66.41'	L = 200.00'	L = 100.00'	L = 200.00'	L = 300.00'
T = 33.21'	T = 100.00'	T = 100.00'	T = 100.00'	T = 100.00'
R = 3753.72'	R = 100.00'	R = 100.00'	R = 100.00'	R = 100.00'
V = 70 MPH	V = 55 MPH	V = 55 MPH	V = 55 MPH	V = 55 MPH

**-RP9D- CURVE DATA**

Sta 15+54.93	Sta 19+36.47	Sta 24+77.38	Sta 34+02.62	Sta 34+02.62
Δ = 7°09'43.7"	Δ = 42°38'56.8" (LT)	Δ = 2°07'40.4" (LT)	Δ = 3°07'40.4" (LT)	Δ = 3°07'40.4" (LT)
D = 2°00.00'	D = 7°09'43.7"	D = 7°09'43.7"	D = 7°09'43.7"	D = 7°09'43.7"
L = 131.44'	L = 60.50'	L = 60.50'	L = 60.50'	L = 60.50'
T = 66.72'	T = 31.49'	T = 31.49'	T = 31.49'	T = 31.49'
R = 800.00'	R = 800.00'	R = 800.00'	R = 800.00'	R = 800.00'
V = 50 MPH	V = 55 MPH	V = 55 MPH	V = 55 MPH	V = 55 MPH

**-LI- CURVE DATA**

Sta 33+14.63	Sta 34+02.62	Sta 34+02.62	Sta 34+02.62	Sta 34+02.62
Δ = 3°07'40.4" (LT)	Δ = 3°07'40.4" (LT)	Δ = 3°07'40.4" (LT)	Δ = 3°07'40.4" (LT)	Δ = 3°07'40.4" (LT)
D = 2°00.00'	D = 2°00.00'	D = 2°00.00'	D = 2°00.00'	D = 2°00.00'
L = 60.50'	L = 60.50'	L = 60.50'	L = 60.50'	L = 60.50'
T = 31.49'	T = 31.49'	T = 31.49'	T = 31.49'	T = 31.49'
R = 800.00'	R = 800.00'	R = 800.00'	R = 800.00'	R = 800.00'
V = 55 MPH	V = 55 MPH	V = 55 MPH	V = 55 MPH	V = 55 MPH

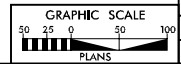
**-Y9- CURVE DATA**

Sta 3+17.35	Sta 8+35.33 (RT)	Sta 34+02.62
Δ = 8°35'33.8" (RT)	Δ = 8°35'33.8" (RT)	Δ = 3°07'40.4" (LT)
D = 1°02.35'	D = 1°02.35'	D = 1°02.35'
L = 70.76'	L = 70.76'	L = 70.76'
T = 36.43'	T = 36.43'	T = 36.43'
R = 4850.00'	R = 4850.00'	R = 4850.00'
V = 70 MPH	V = 70 MPH	V = 70 MPH

Maintenance Items Causing Impacts		
Item Number	RFP Required Repairs	Proposed Repairs
M-351	Clean out pipe & drainage inlet	Replace outlet pipe (area to be filled)
M-352	Clean out pipe & drainage inlet	Replace outlet pipe (area to be filled)
M-44	Relieve ponding water	Relieve ponding water

N. C. DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
WAKE COUNTY  
PROJECT 15338 / 15311  
140 / US 64 FROM WEST OF  
SR 1319 JONES FRANKLIN RD  
CONTINUING ALONG I-440 / US 64  
TO NORTH OF US 64 / US 264  
DATE: 11 / 27 / 2013

 DENOTES FILL IN WETLAND



FOR -LI- LT PROFILE SEE SHEET NO. 69.70  
FOR -LI- RT PROFILE SEE SHEET NO. 69.70  
FOR -RP9A- PROFILE SEE SHEET NO. 100  
FOR -RP9BSPUR- PROFILE SEE SHEET NO. 101  
FOR -RP9B- PROFILE SEE SHEET NO. 101, 102  
FOR -RP9C- PROFILE SEE SHEET NO. 102  
FOR -RP9D- PROFILE SEE SHEET NO. 102, 103  
FOR -RP9E- PROFILE SEE SHEET NO. 103

DESIGNED BY: \_\_\_\_\_  
CHECKED BY: \_\_\_\_\_  
DATE: \_\_\_\_\_

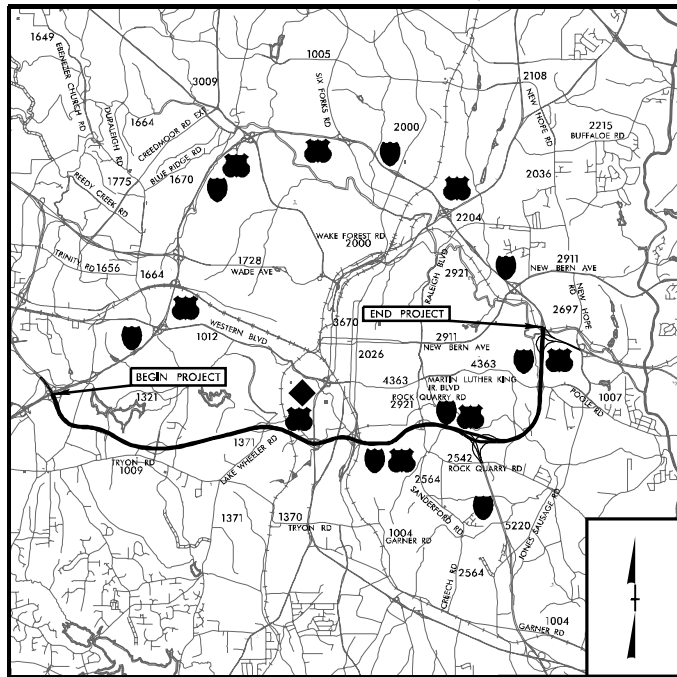


09/28/99

TIP PROJECT: I-5338, I-5311

CONTRACT: C203166

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



VICINITY MAP

# STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

## WAKE COUNTY

**LOCATION:** I-40 / US 64 FROM WEST OF SR 1319 (JONES FRANKLIN RD)  
CONTINUING ALONG I-440 / US 64 TO NORTH OF US 64 / US 264

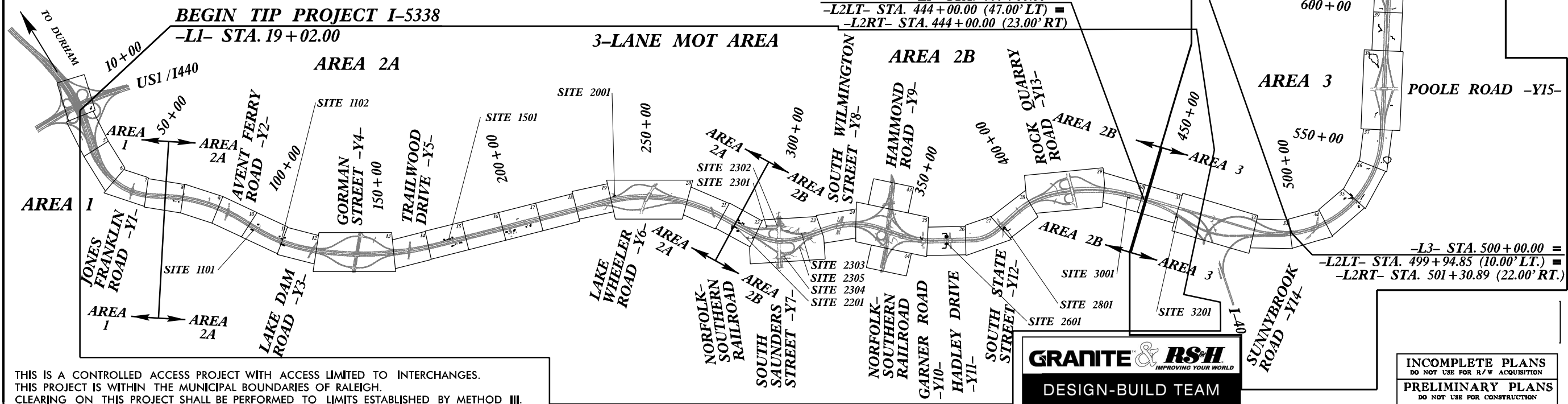
**TYPE OF WORK:** PAVING, GRADING, DRAINAGE, STRUCTURE REHABILITATION,  
STRUCTURE WIDENING, GUARDRAIL, CABLE GUIDERAIL,  
SIGNING, LIGHTING, AND ITS

**3-LANE MOT (MAINTENANCE OF TRAFFIC)  
BUFFER IMPACTS PACKAGE**

**NOTE:** AREA 1: -L1- STA. 19+02.00 TO -L1- STA. 68+12.63  
AREA 2A: -L1- STA. 68+12.63 TO -L1- STA. 285+50.00  
AREA 2B: -L1- STA. 285+50.00 TO -L2LT- AND -L2RT- STA. 444+00.00  
AREA 3: -L2LT- AND -L2RT- STA. 444+00.00 TO -L3- STA. 628+60.00

**END TIP PROJECT I-5311  
-L3- STA. 628+60.00**

**END TIP PROJECT I-5338  
BEGIN TIP PROJECT I-5311  
-L3- STA. 500+00.00**

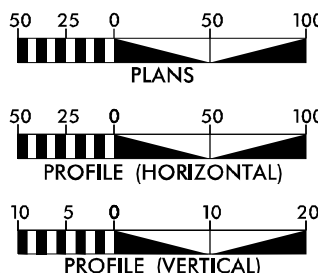


THIS IS A CONTROLLED ACCESS PROJECT WITH ACCESS LIMITED TO INTERCHANGES.  
THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF RALEIGH.  
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO LIMITS ESTABLISHED BY METHOD III.

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DESIGN-BUILD TEAM

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

### GRAPHIC SCALES



### DESIGN DATA

ADT 2013 = 126,025  
ADT 2035 = 184,600  
DHV = 9 %  
D = 55 %  
T = 8 % \*  
V = 70 MPH  
\* (TTST = 4% + DUAL = 4%)  
FUNC CLASS = INTERSTATE

### PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT I-5338 / I-5311 = 11.503 MILES  
LENGTH STRUCTURE TIP PROJECT I-5338 / I-5311 = 0.042 MILES  
TOTAL LENGTH TIP PROJECT I-5338 / I-5311 = 11.545 MILES

\*NOTE: EASTBOUND LANES USED TO CALCULATE LENGTH OF PROJECT.

K. ZAK HAMIDI, PE  
NCDOT CONTACT

Prepared In the Office of:  
**RS&H**  
**ARCHITECTS-ENGINEERS-PLANNERS, INC.**  
8601 SIX FORKS ROAD, SUITE 260  
RALEIGH, NC 27615

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:  
MAY 13, 2013

LETTING DATE:  
MAY 13, 2013

CHAD ROGERS, PE  
PROJECT ENGINEER

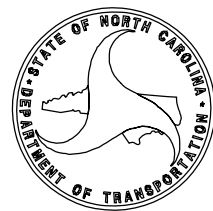
JASON TALLEY, PE  
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

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

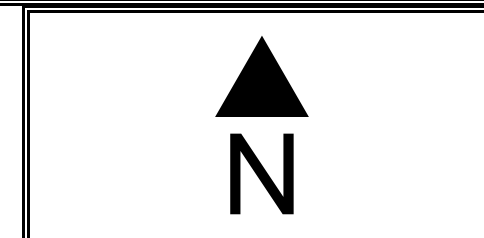
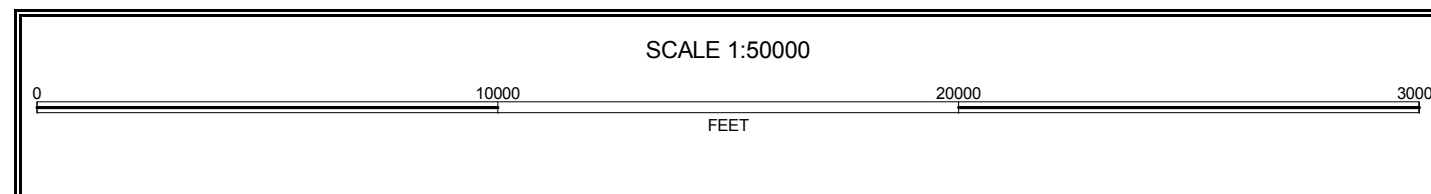
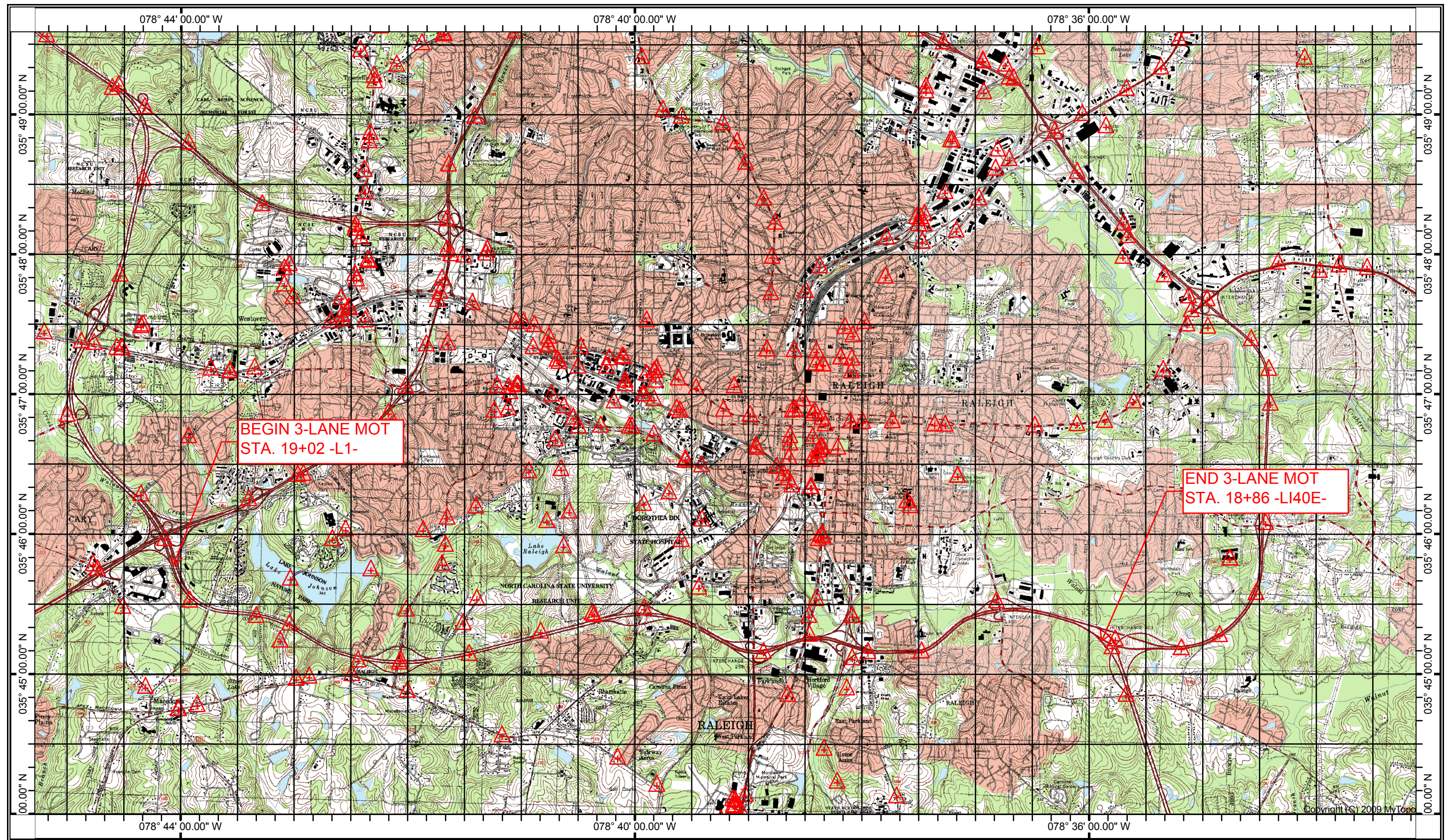
ROADWAY DESIGN  
ENGINEER

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



NAD 83/NSRS 2007







BUFFER IMPACTS SUMMARY													
			IMPACT									BUFFER REPLACEMENT	
SITE NO.	STRUCTURE SIZE / TYPE	STATION (FROM/TO)	TYPE			ALLOWABLE			MITIGABLE				
			ROAD CROSSING	BRIDGE	PARALLEL IMPACT	ZONE 1 (ft²)	ZONE 2 (ft²)	TOTAL (ft²)	ZONE 1 (ft²)	ZONE 2 (ft²)	TOTAL (ft²)	ZONE 1 (ft²)	ZONE 2 (ft²)
1101	ROADWAY	102+25 to 103+45 -L1-	X			649	1936	2585					
1102	ROADWAY	113+60 to 116+10 -L1-	X			302	4266	4568					
1501	ROADWAY	176+05 to 177+70 -L1-	X			0	1503	1503					
2001	ROADWAY	238+90 to 240+10 -L1-	X			172	1127	1299					
2201	ROADWAY	285+65 to 287+40 -L1-	X			900	2914	3814					
2301	ROADWAY	295+95 to 299+25 -L1-			X				1564	51	1615		
2302	ROADWAY	301+20 to 304+30 -L1-	X			3140	1036	4176					
2303	ROADWAY	305+10 to 316+30 -L1-			X				3889	4474	8363		
2304	ROADWAY	302+10 to 305+10 -L1-	X			1191	927	2118					
2305	ROADWAY	306+05 to 314+35 -L1-			X				148	1649	1797		
2601	ROADWAY	365+48 to 366+70 -L1-	X			5506	6895	12401					
2801	ROADWAY	387+63 to 388+41 -L1-	X			2528	1363	3891					
3001	ROADWAY	438+03 to 439+00 -L1-	X			6	788	794					
3201	ROADWAY	457+50 to 458+29 -L2RT-	X			0	1019	1019					
TOTAL:						14394	23774	38168	5601	6174	11775		

N.C. DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS

WAKE COUNTY  
PROJECT: 46265.3.1 (I5338/I5311)

11/14/2013  
SHEET 1 OF 1



8/17/99

REVISIONS

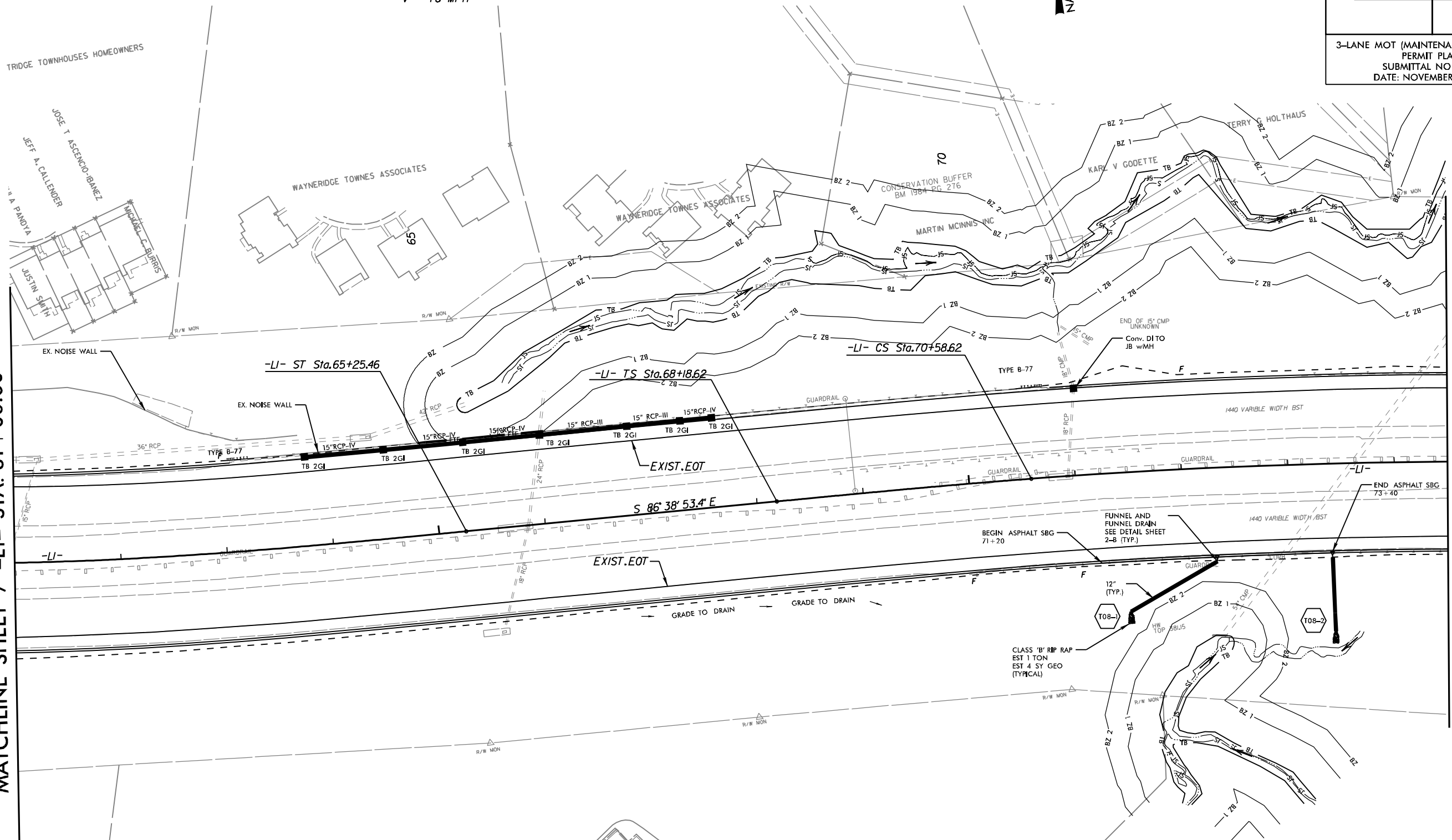
MATCHLINE SHEET 7 -LI- STA. 61+00.00

-LI- CURVE DATA		
Pls Sta 61+92.31	Pls Sta 69+78.63	Pls Sta 83+86.57
$\theta_s = 6'15''25.0''$	$\theta_s = 1'12''00.0''$	$\Delta = 26'05''53.4''$ (RT)
$L_s = 500.00'$	$L_s = 240.00'$	$D = 1'00''00.0''$
$LT = 333.54'$	$LT = 160.00'$	$L = 2609.82'$
$ST = 166.86'$	$ST = 80.00'$	$T = 1,327.95'$
		$R = 5,729.58'$
		$V = 70$ MPH

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DESIGN-BUILD TEAM

NAD 83 NRS 2007

PROJECT REFERENCE NO. <b>1-5338/1-5331</b>	SHEET NO. <b>8</b>
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR E/V ACQUISITION	
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	
3-LANE MOT (MAINTENANCE OF TRAFFIC) PERMIT PLANS SUBMITTAL NO: D-062 DATE: NOVEMBER 14, 2013	



MATCHLINE SHEET 9 -LI- STA. 74+50.00

	ALLOWABLE IMPACTS ZONE 1
	ALLOWABLE IMPACTS ZONE 2

N. C. DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
WAKE COUNTY  
PROJECT: 15338 / 15311  
140' US 64 FROM WEST OF  
SR 1219 JONES FRANKLIN RD  
CONTINUING ALONG I-440/US 64  
TO NORTH OF US 64/ US 264  
DATE: 11/14/2013

NOTE:  
NO IMPACT SITES ON SHEET. SHEET SHOWN  
FOR COMPLIANCE FIELD VERIFICATION.

FUNNEL DRAIN OUTLETS THAT REQUIRE STAKING		
OUTLET	NORTHING	EASTING
T08-1	730582.2992	2081950.4937
T08-2	730534.5945	2082137.9337

FOR -LI- LT PROFILE, SEE SHEET NO. 49  
FOR -LI- RT PROFILE, SEE SHEET NO. 49



NAD 83/NSRS 2007

WATCHLINE SHEET 7 -L1- STA. 61+00.00

**WATCHLINE SHEET 9 -L1- STA. 74+50.00**

-LI- CURVE DATA		
PIs Sta 61+92.31	PIs Sta 69+78.63	PI Sta 83+86.57
Θs = 6°15'25.0"	Θs = 1°12'00.0"	Δ = 26°05'53.4" (RT)
Ls = 500.00'	Ls = 240.00'	D = 1°00'00.0"
LT = 333.54'	LT = 160.00'	L = 2,609.82'
ST = 166.86'	ST = 80.00'	T = 1,327.95'
		R = 5,729.58'
		V = 70 MPH




FOR -L1- LT PROFILE, SEE SHEET NO. 49
FOR -L1- RT PROFILE, SEE SHEET NO. 49




FUNNEL DRAIN OUTLETS THAT REQUIRE STAKING		
OUTLET	NORTHING	EASTING
T08-1	730582.2992	2081950.4937
T08-2	730534.5945	2082137.9337

NOTE:  
NO IMPACT SITES ON SHEET. SHEET SHOWN  
FOR COMPLIANCE FIELD VERIFICATION.

N. C. DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
WAKE COUNTY  
PROJECT: 15338 / 15311  
140 / US 64 FROM WEST OF  
SR 1519 JONES FRANKLIN RD)  
CONTINUING ALONG I-440 / US 64  
TO NORTH OF US 64 / US 264  
DATE: 11/14/2013

 ALLOWABLE IMPACTS ZONE 1

 ALLOWABLE IMPACTS ZONE 2



8/17/99

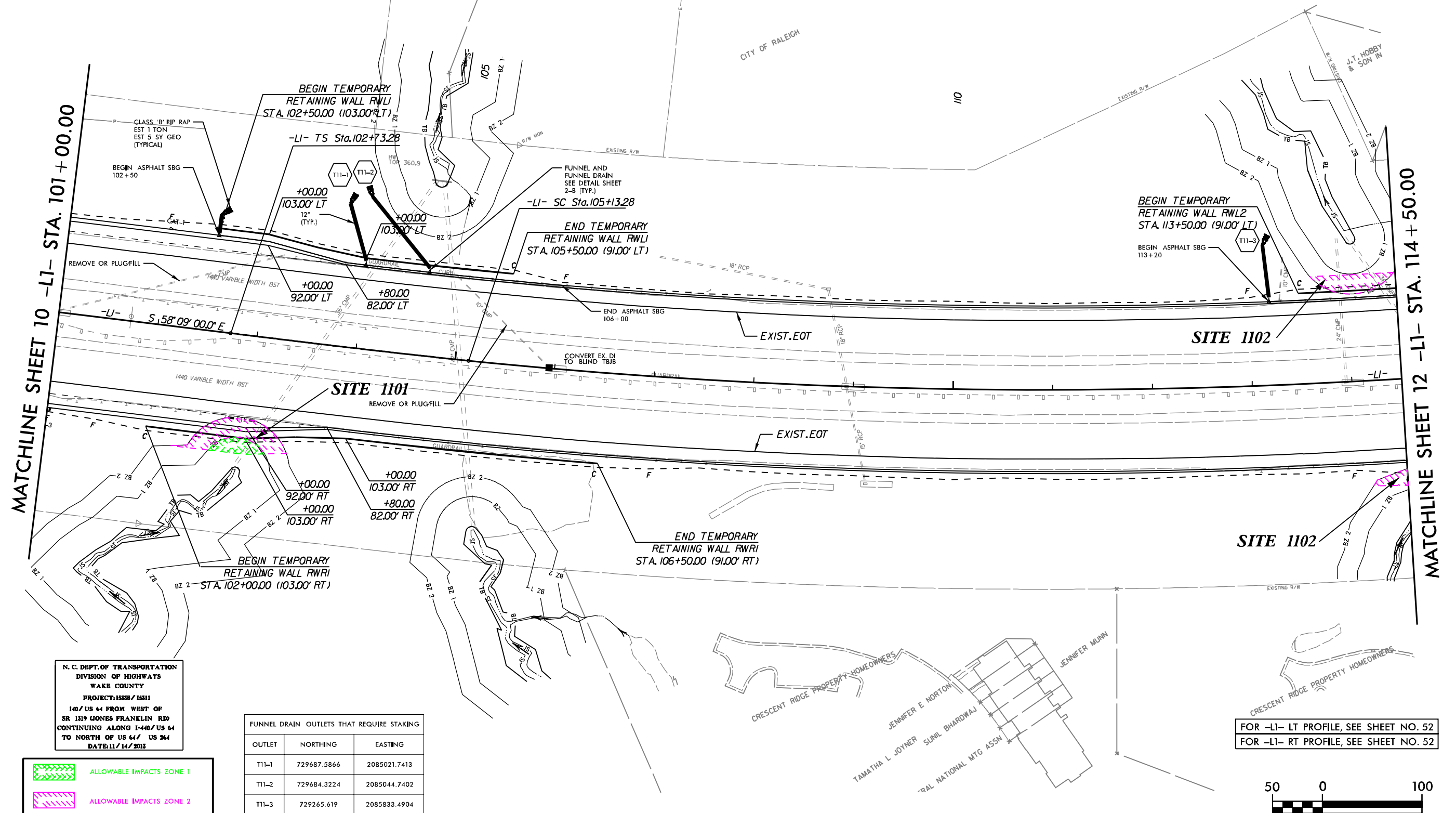
REVISIONS

-LI- CURVE DATA

PIs Sta 104+33.29 PI Sta 115+66.75  
θs = 112° 00.0' Δ = 20° 50' 11.9' (LT)  
Ls = 240.00' D = 1° 00' 00.0'  
LT = 160.00' L = 2,083.66'  
ST = 80.00' T = 1,053.47'  
R = 5,729.58'  
V = 70 MPH

**GRANITE & RSH**  
IMPROVING YOUR WORLD  
**DESIGN-BUILD TEAM**

PROJECT REFERENCE NO.	SHEET NO.
1-5338/1-5311	11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR E/W ACQUISITION	
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	
3-LANE MOT (MAINTENANCE OF TRAFFIC) PERMIT PLANS SUBMITTAL NO: D-062 DATE: NOVEMBER 14, 2013	

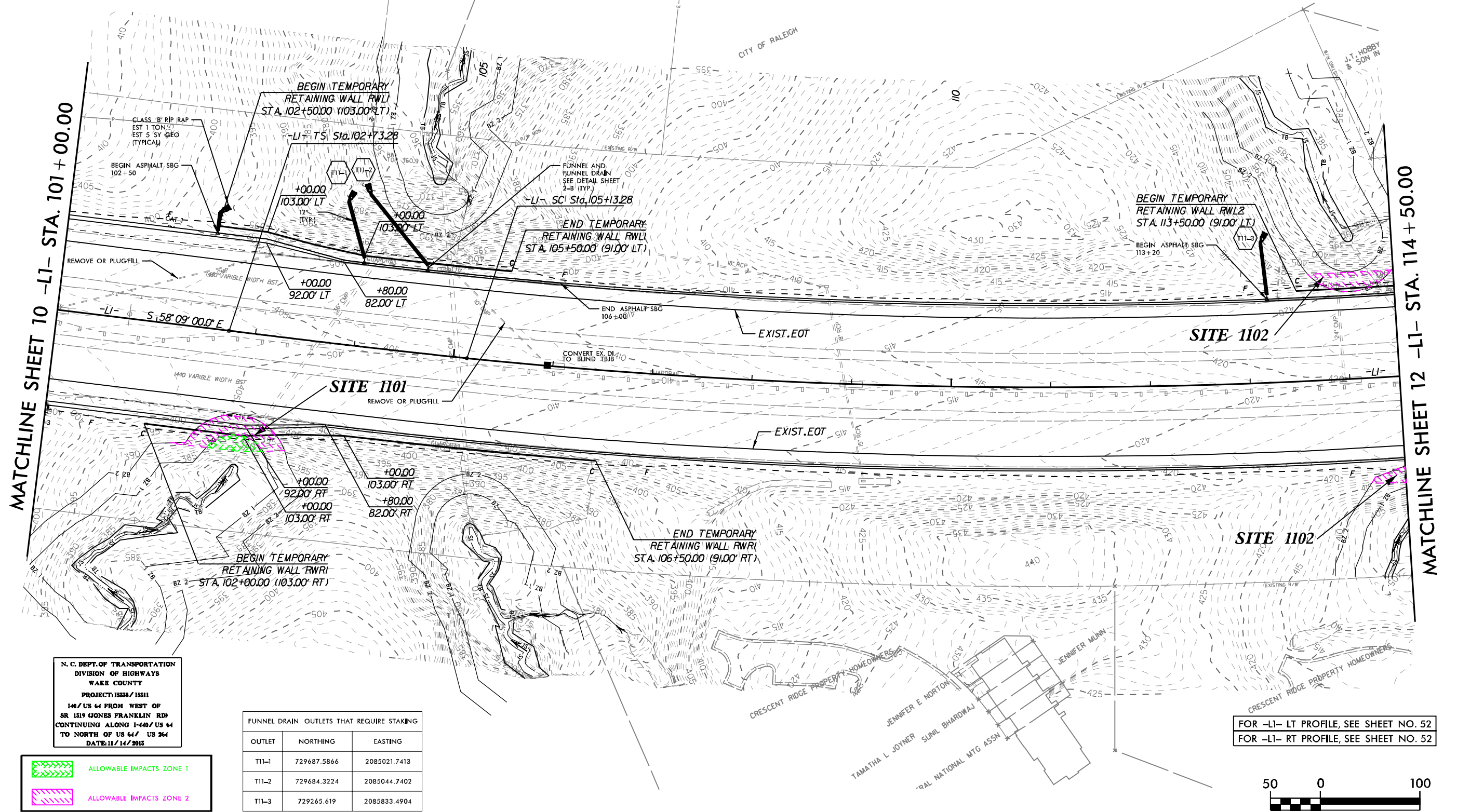


8/17/13

-LI- CURVE DATA  
PIs Sta 104+33.29 PI Sta 115+66.75  
Es = 1'12' 00.0" Δ = 20' 50' 11.9" (LT)  
Ls = 240.00' D = 1'00' 00.0"  
LT = 160.00' L = 2,083.66'  
ST = 80.00' T = 1,053.47'  
R = 5,729.58'  
V = 70 MPH

**GRANITE & RS&H**  
IMPROVING YOUR WORLD  
DESIGN-BUILD TEAM

PROJECT REFERENCE NO.	SHEET NO.
1-5338/1-5311	11
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR E/V ACQUISITION	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
3-LANE MOT (MAINTENANCE OF TRAFFIC) PERMIT PLANS SUBMITTAL NO: D-062 DATE: NOVEMBER 14, 2013	



N. C. DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
WAKE COUNTY  
PROJECT 15338 / 15311  
140' / US 64 FROM WEST OF  
SR 1519 JONES FRANKLIN RD  
CONTINUING ALONG I-440 / US 64  
TO NORTH OF US 64 / US 264  
DATE: 11/14/2013

FUNNEL DRAIN OUTLETS THAT REQUIRE STAKING		
OUTLET	NORTHING	EASTING
T11-1	729687.5866	2085021.7413
T11-2	729684.3224	2085044.7402
T11-3	729265.619	2085833.4904

ALLOWABLE IMPACTS ZONE 1  
ALLOWABLE IMPACTS ZONE 2

FOR -LI- LT PROFILE, SEE SHEET NO. 52  
FOR -LI- RT PROFILE, SEE SHEET NO. 52



8/17/99

REVISIONS

-LI- CURVE DATA

PI Sta 115+66.75	Pls Sta 127+03.62
$\Delta = 20^\circ 50' 11.9"$ (LT)	$\Theta_s = 0^\circ 36' 00.0"$
$D = 1^\circ 00' 00.0"$	$\Theta_s = 1^\circ 12' 00.0"$
$L = 2,083.66'$	$L_s = 240.00'$
$T = 1,053.47'$	$LT = 133.34'$
$R = 5,729.58'$	$ST = 106.68'$
$V = 70$ MPH	

-RP4B- CURVE DATA

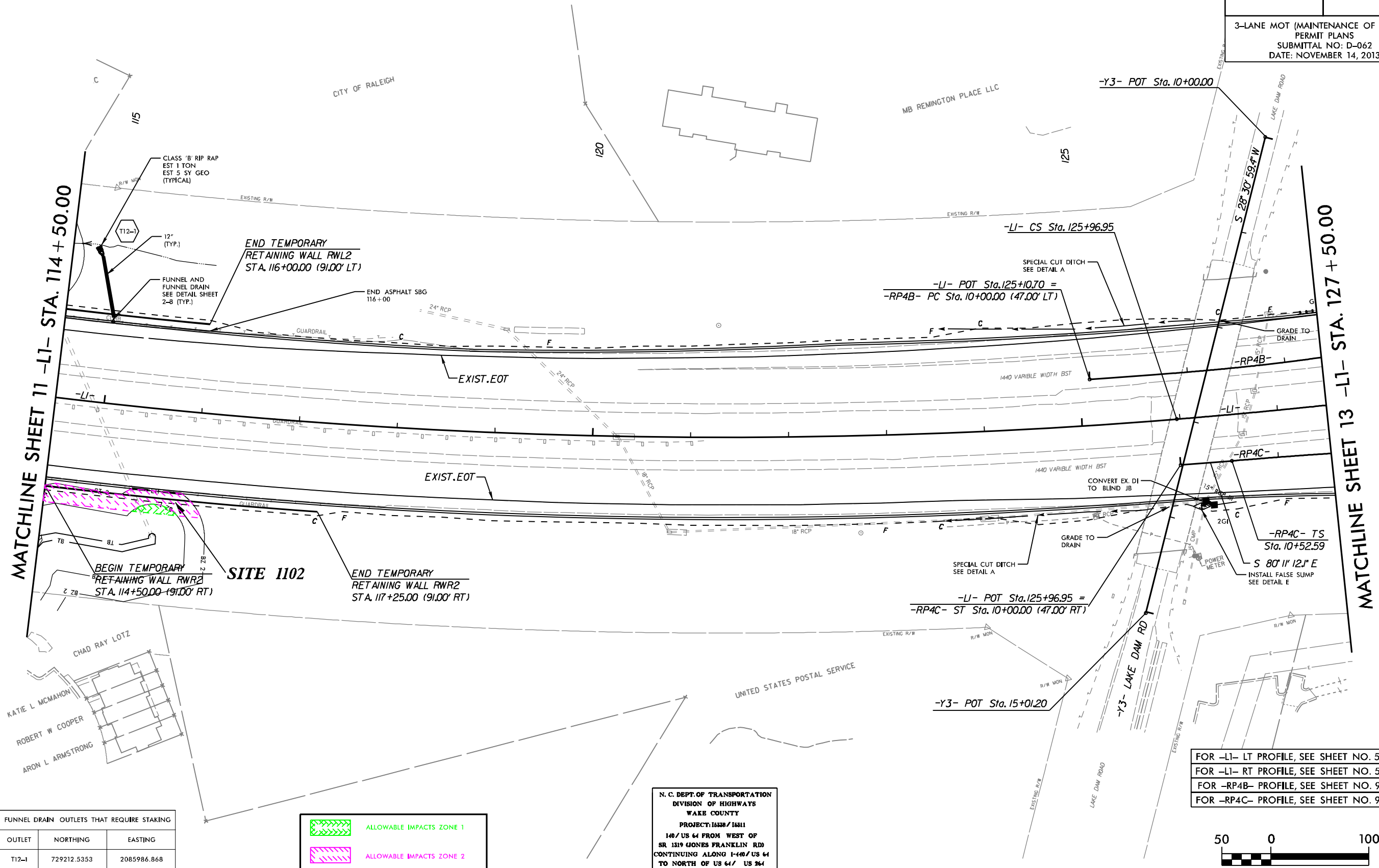
PI Sta 10+42.77	Pls Sta 12+10.19
$\Delta = 0^\circ 51' 45.0"$ (LT)	$\Theta_s = 1^\circ 01' 39.3"$
$D = 1^\circ 00' 29.8"$	$\Theta_s = 5^\circ 04' 57.9"$
$L = 85.54'$	$L_s = 204.00'$
$T = 42.77'$	$LT = 124.65'$
$R = 5,682.58'$	$ST = 79.53'$
$V = 70$ MPH	

-RP4C- CURVE DATA

Pls Sta 11+85.96
$\Theta_s = 4^\circ 00' 24.1"$
$L_s = 200.00'$
$LT = 133.37'$
$ST = 66.70'$



PROJECT REFERENCE NO. 1-5338/1-5311	SHEET NO. 12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR E/W ACQUISITION	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
3-LANE MOT (MAINTENANCE OF TRAFFIC) PERMIT PLANS SUBMITTAL NO: D-062 DATE: NOVEMBER 14, 2013	



FUNNEL DRAIN OUTLETS THAT REQUIRE STAKING

OUTLET	NORTHING	EASTING
T12-1	729212.5353	2085986.868

	ALLOWABLE IMPACTS ZONE 1
	ALLOWABLE IMPACTS ZONE 2

N. C. DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
WAKE COUNTY  
PROJECT 16338/16311  
140 / US 64 FROM WEST OF  
SR 1519 JONES FRANKLIN RD  
CONTINUING ALONG I-40 / US 64  
TO NORTH OF US 64 / US 264  
DATE: 11/14/2013

FOR -LI- LT PROFILE, SEE SHEET NO. 53  
FOR -LI- RT PROFILE, SEE SHEET NO. 53  
FOR -RP4B- PROFILE, SEE SHEET NO. 91  
FOR -RP4C- PROFILE, SEE SHEET NO. 92



8/17/19

REVISIONS

**-LI- CURVE DATA**

PI Sta 115+66.75	Pls Sta 127+03.62
$\Delta = 20^\circ 50' 11.9"$ (LT)	$\Theta s = 0^\circ 36' 00.0"$
$D = 1'00'00.0"$	$\Theta s = 1'12'00.0"$
$L = 2,083.66'$	$Ls = 240.00'$
$T = 1,053.47'$	$LT = 133.34'$
$R = 5,729.58'$	$ST = 106.68'$
$V = 70$ MPH	

**-RP4B- CURVE DATA**

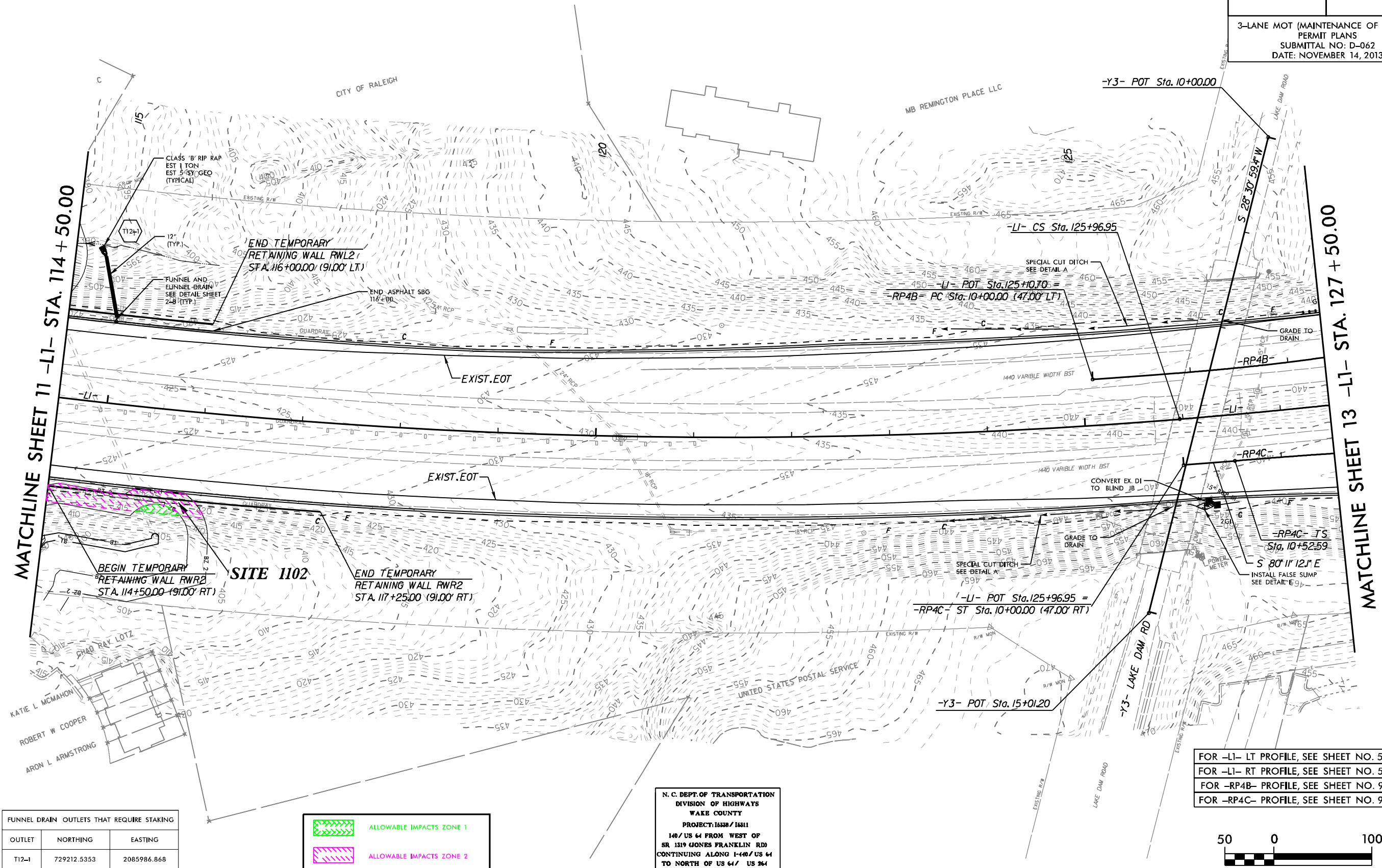
PI Sta 10+42.77	Pls Sta 12+10.19
$\Delta = 0^\circ 51' 45.0"$ (LT)	$\Theta s = 1^\circ 01' 39.3"$
$D = 1'00'29.8"$	$\Theta s = 5^\circ 04' 57.9"$
$L = 85.54'$	$Ls = 204.00'$
$T = 42.77'$	$LT = 124.65'$
$R = 5,682.58'$	$ST = 79.53'$
$V = 70$ MPH	

**-RP4C- CURVE DATA**

Pls Sta 11+85.96
$\Theta s = 4^\circ 00' 24.1"$
$Ls = 200.00'$
$LT = 133.37'$
$ST = 66.70'$

**GRANITE & RS&H**  
IMPROVING YOUR WORLD  
**DESIGN-BUILD TEAM**

PROJECT REFERENCE NO. 1-5338/1-5311	SHEET NO. 12
R/W SHEET NO. ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR E/W ACQUISITION	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
3-LANE MOT (MAINTENANCE OF TRAFFIC) PERMIT PLANS SUBMITTAL NO: D-062 DATE: NOVEMBER 14, 2013	



FUNNEL DRAIN OUTLETS THAT REQUIRE STAKING

OUTLET	NORTHING	EASTING
T12-1	729212.5353	2085986.868

	ALLOWABLE IMPACTS ZONE 1
	ALLOWABLE IMPACTS ZONE 2

N. C. DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
WAKE COUNTY  
PROJECT 16338/16311  
140/US 64 FROM WEST OF  
SR 1519 JONES FRANKLIN RD  
CONTINUING ALONG I-440/US 64  
TO NORTH OF US 64/ US 264  
DATE: 11/14/2013

FOR -LI- LT PROFILE, SEE SHEET NO. 53  
FOR -LI- RT PROFILE, SEE SHEET NO. 53  
FOR -RP4B- PROFILE, SEE SHEET NO. 91  
FOR -RP4C- PROFILE, SEE SHEET NO. 92





8/17/99

REVISIONS

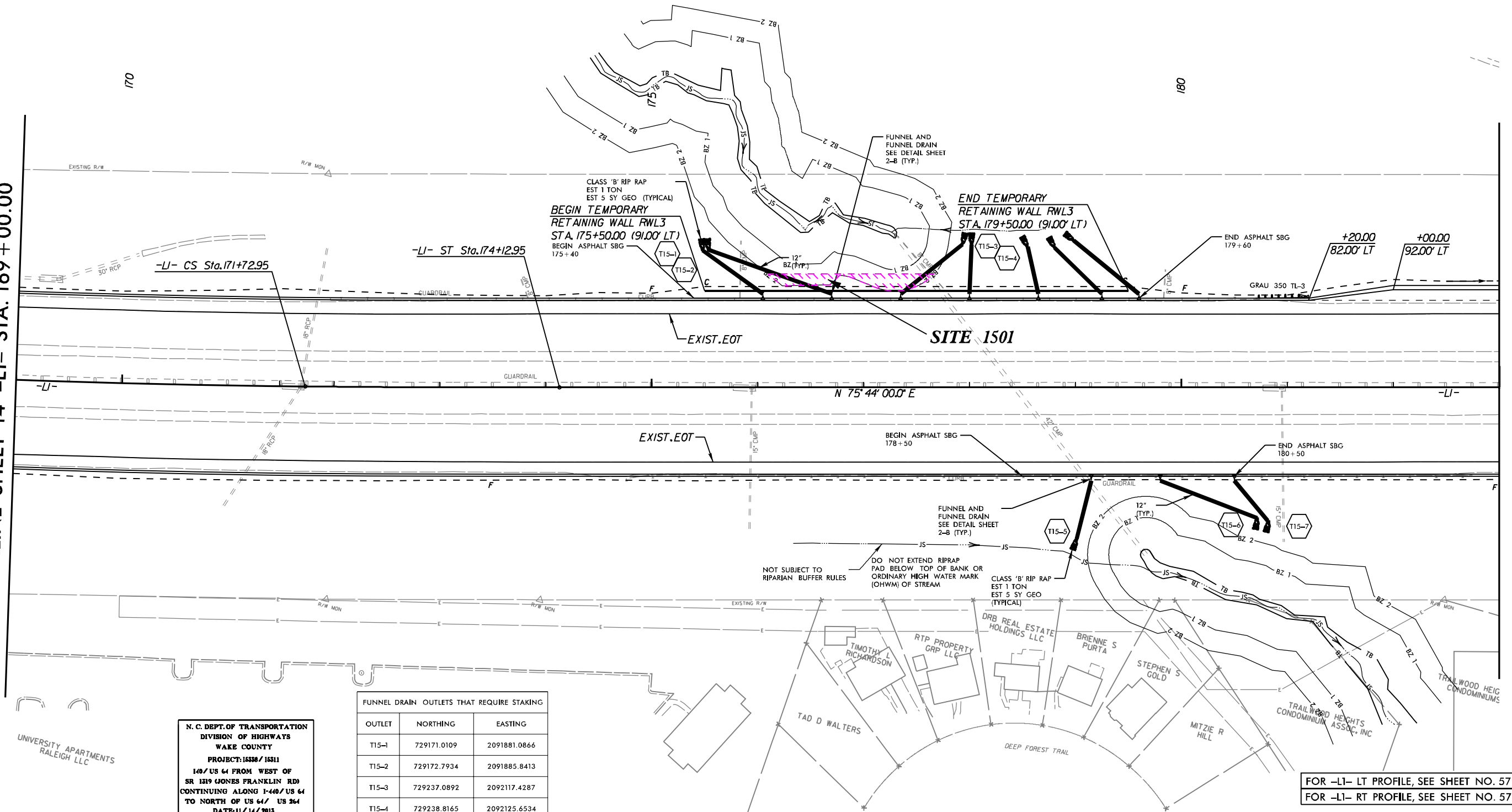
-LI- CURVE DATA	
PI Sta 150+31.19	PIs Sta 172+52.95
$\Delta = 21^{\circ} 40' 48.1''$ (LT)	$\Theta_s = 0^{\circ} 36' 00.0''$
$D = 0^{\circ} 30' 00.0''$	$L_s = 240.00'$
$L = 4,336.00'$	$LT = 160.00'$
$T = 2,194.25'$	$ST = 80.00'$
$R = 11,459.16'$	
$V = 70$ MPH	



PROJECT REFERENCE NO. <b>1-5338/1-5311</b>	SHEET NO. <b>15</b>
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR E/W ACQUISITION	
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	
3-LANE MOT (MAINTENANCE OF TRAFFIC) PERMIT PLANS SUBMITTAL NO: D-062 DATE: NOVEMBER 14, 2013	

MATCHLINE SHEET 14 -LI- STA. 169+00.00

MATCHLINE SHEET 16 -LI- STA. 183+00.00



N. C. DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
WAKE COUNTY  
PROJECT: 14338 / 15311  
140/US 64 FROM WEST OF  
SR 1319 JONES FRANKLIN RD  
CONTINUING ALONG I-440/US 64  
TO NORTH OF US 64 / US 264  
DATE: 11/14/2013

FUNNEL DRAIN OUTLETS THAT REQUIRE STAKING		
OUTLET	NORTHING	EASTING
T15-1	729171.0109	2091881.0866
T15-2	729172.7934	2091885.8413
T15-3	729237.0892	2092117.4287
T15-4	729238.8165	2092125.6534
T15-5	728994.1353	2092290.2633
T15-6	729055.2347	2092450.7272
T15-7	729055.0946	2092461.0115

- ALLOWABLE IMPACTS ZONE 1
- ALLOWABLE IMPACTS ZONE 2

FOR -LI- LT PROFILE, SEE SHEET NO. 57  
FOR -LI- RT PROFILE, SEE SHEET NO. 57



8/17/99

-LI- CURVE DATA  
PI Sta 150+31.19      PIs Sta 172+52.95  
Δ = 21° 40' 48.1" (LT)      θs = 0° 36' 00.0"  
D = 0° 30' 00.0"      Ls = 240.00'  
L = 4,336.00'      LT = 160.00'  
T = 2,194.25'      ST = 80.00'  
R = 11,459.16'  
V = 70 MPH

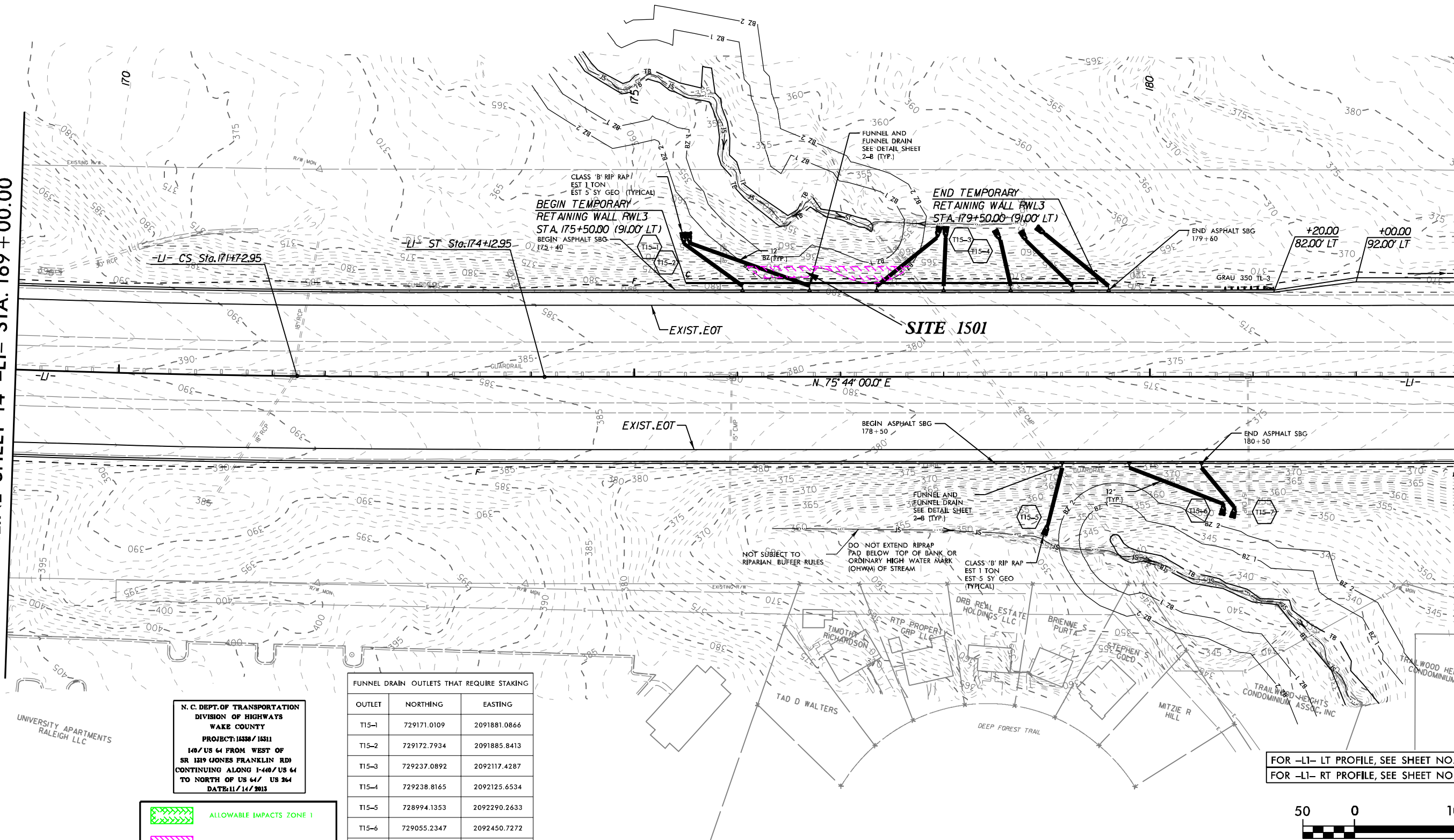
**GRANITE & RSH**  
IMPROVING YOUR WORLD  
**DESIGN-BUILD TEAM**

PROJECT REFERENCE NO.	SHEET NO.
1-5338/1-5311	15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR E/W ACQUISITION	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
3-LANE MOT (MAINTENANCE OF TRAFFIC) PERMIT PLANS SUBMITTAL NO: D-062 DATE: NOVEMBER 14, 2013	

NAD 83 NRS 2007

MATCHLINE SHEET 14 -LI- STA. 169+00.00

MATCHLINE SHEET 16 -LI- STA. 183+00.00



FUNNEL DRAIN OUTLETS THAT REQUIRE STAKING		
OUTLET	NORTHING	EASTING
T15-1	729171.0109	2091881.0866
T15-2	729172.7934	2091885.8413
T15-3	729237.0892	2092117.4287
T15-4	729238.8165	2092125.6534
T15-5	728994.1353	2092290.2633
T15-6	729055.2347	2092450.7272
T15-7	729055.0946	2092461.0115

N. C. DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
WAKE COUNTY  
PROJECT: 14338 / 14311  
140/US 64 FROM WEST OF  
SR 1319 JONES FRANKLIN RD  
CONTINUING ALONG I-440/US 64  
TO NORTH OF US 64 / US 264  
DATE: 11/14/2013

ALLOWABLE IMPACTS ZONE 1  
ALLOWABLE IMPACTS ZONE 2

FOR -LI- LT PROFILE, SEE SHEET NO. 57  
FOR -LI- RT PROFILE, SEE SHEET NO. 57





8/17/99

FUNNEL DRAIN OUTLETS THAT REQUIRE STAKING		
OUTLET	NORTHING	EASTING
T17-1	729442.5232	2094136.0700
T17-2	729445.6780	2094141.5888
T17-3	729511.1993	2094394.0128
T17-4	729513.0414	2094400.0945
T17-5	729515.8031	2094408.3888
T17-6	729656.9583	2094852.8329
T17-7	729703.0329	2094984.2408
T17-8	729703.8509	2094991.7282
T17-9	729704.5616	2094998.1998

NOTE:  
NO IMPACT SITES ON SHEET. SHEET SHOWN  
FOR COMPLIANCE FIELD VERIFICATION.

N. C. DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
WAKE COUNTY  
PROJECT: 15338 / 15311  
140 / US 64 FROM WEST OF  
SR 1319 JONES FRANKLIN RD  
CONTINUING ALONG I-40 / US 64  
TO NORTH OF US 64 / US 364  
DATE: 11 / 14 / 2013

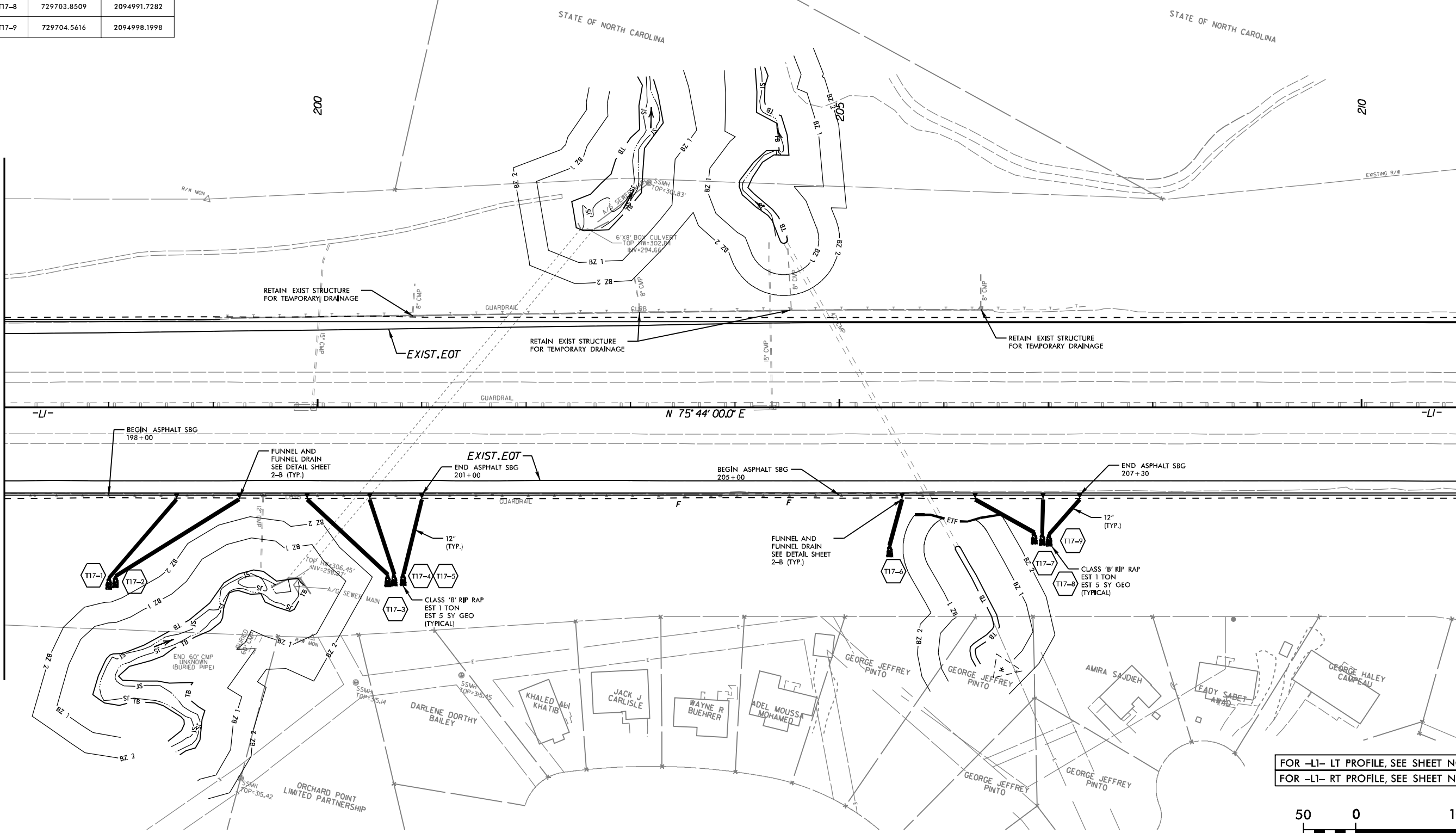


PROJECT REFERENCE NO.		SHEET NO.			
1-5338/1-5311		17			
RW SHEET NO.					
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER			
<table border="1"><tr><td><b>INCOMPLETE PLANS</b> DO NOT USE FOR A/W ACQUISITION</td></tr><tr><td><b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION</td></tr></table>				<b>INCOMPLETE PLANS</b> DO NOT USE FOR A/W ACQUISITION	<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION
<b>INCOMPLETE PLANS</b> DO NOT USE FOR A/W ACQUISITION					
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION					
3-LANE MOT (MAINTENANCE OF TRAFFIC) PERMIT PLANS SUBMITTAL NO: D-062 DATE: NOVEMBER 14, 2013					

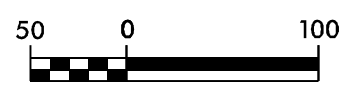
REVISIONS

MATCHLINE SHEET 16 -L1- STA. 197 + 00.00

MATCHLINE SHEET 18 -L1- STA. 211 + 00.00



FOR -L1- LT PROFILE, SEE SHEET NO. 59  
FOR -L1- RT PROFILE, SEE SHEET NO. 59

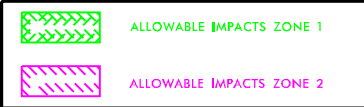


8/17/99

FUNNEL DRAIN OUTLETS THAT REQUIRE STAKING		
OUTLET	NORTHING	EASTING
T17-1	729442.5232	2094136.0700
T17-2	729445.6780	2094141.5888
T17-3	729511.1993	2094394.0128
T17-4	729513.0414	2094400.0945
T17-5	729515.8031	2094408.3888
T17-6	729656.9583	2094852.8329
T17-7	729703.0329	2094984.2408
T17-8	729703.8509	2094991.7282
T17-9	729704.5616	2094998.1998

NOTE:  
NO IMPACT SITES ON SHEET. SHEET SHOWN  
FOR COMPLIANCE FIELD VERIFICATION.

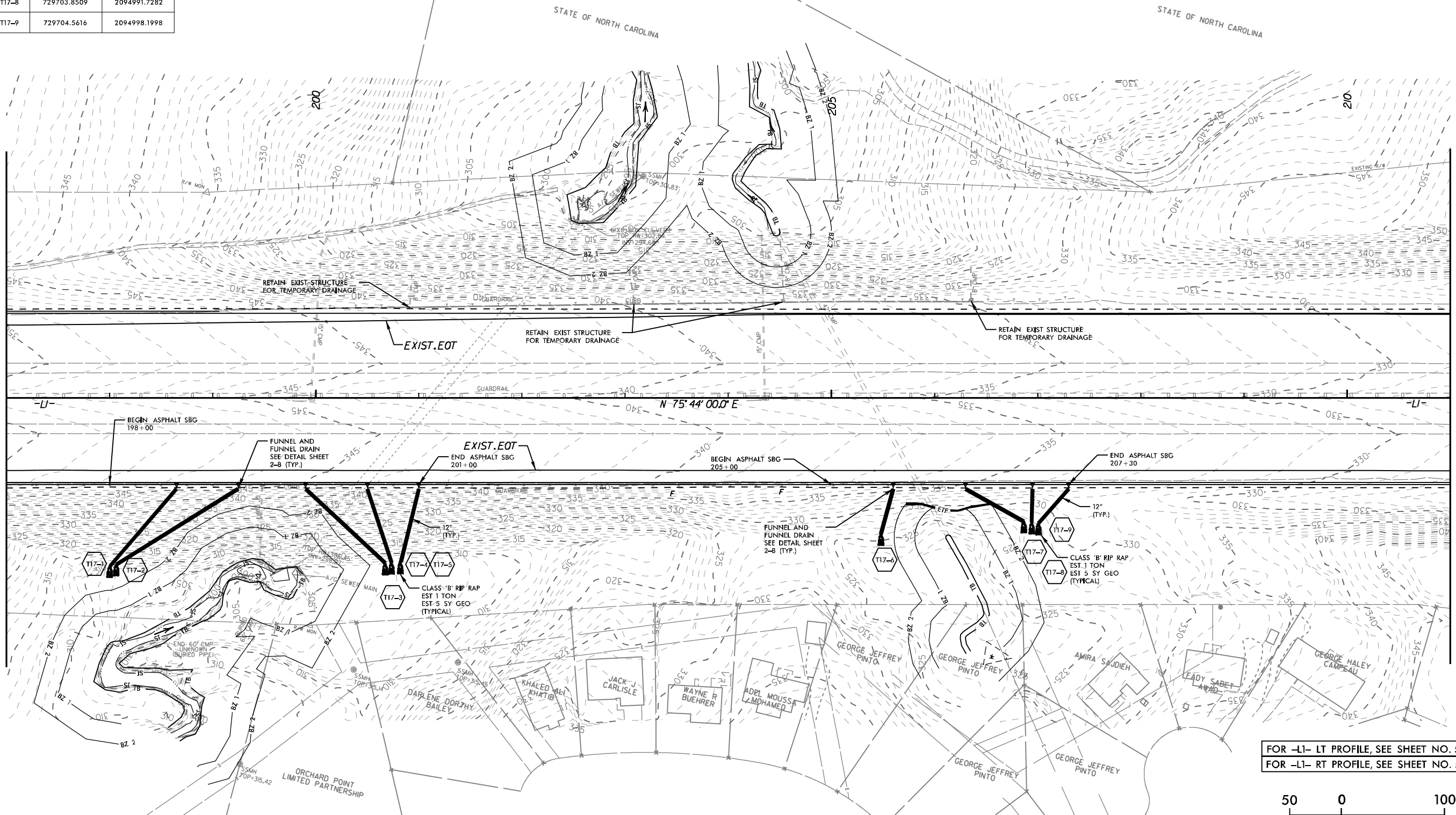
N. C. DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
WAKE COUNTY  
PROJECT: 15338 / 15311  
140' US 64 FROM WEST OF  
SR 1319 JONES FRANKLIN RD  
CONTINUING ALONG I-40 / US 64  
TO NORTH OF US 64 / US 364  
DATE: 11 / 14 / 2013



PROJECT REFERENCE NO.		SHEET NO.
1-5338/1-5311		17
R/W SHEET NO.		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
<div><div><b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION</div><div><b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION</div></div>		
3-LANE MOT (MAINTENANCE OF TRAFFIC) PERMIT PLANS SUBMITTAL NO: D-062 DATE: NOVEMBER 14, 2013		

REVISIONS

MATCHLINE SHEET 16 -L1- STA. 197 + 00.00

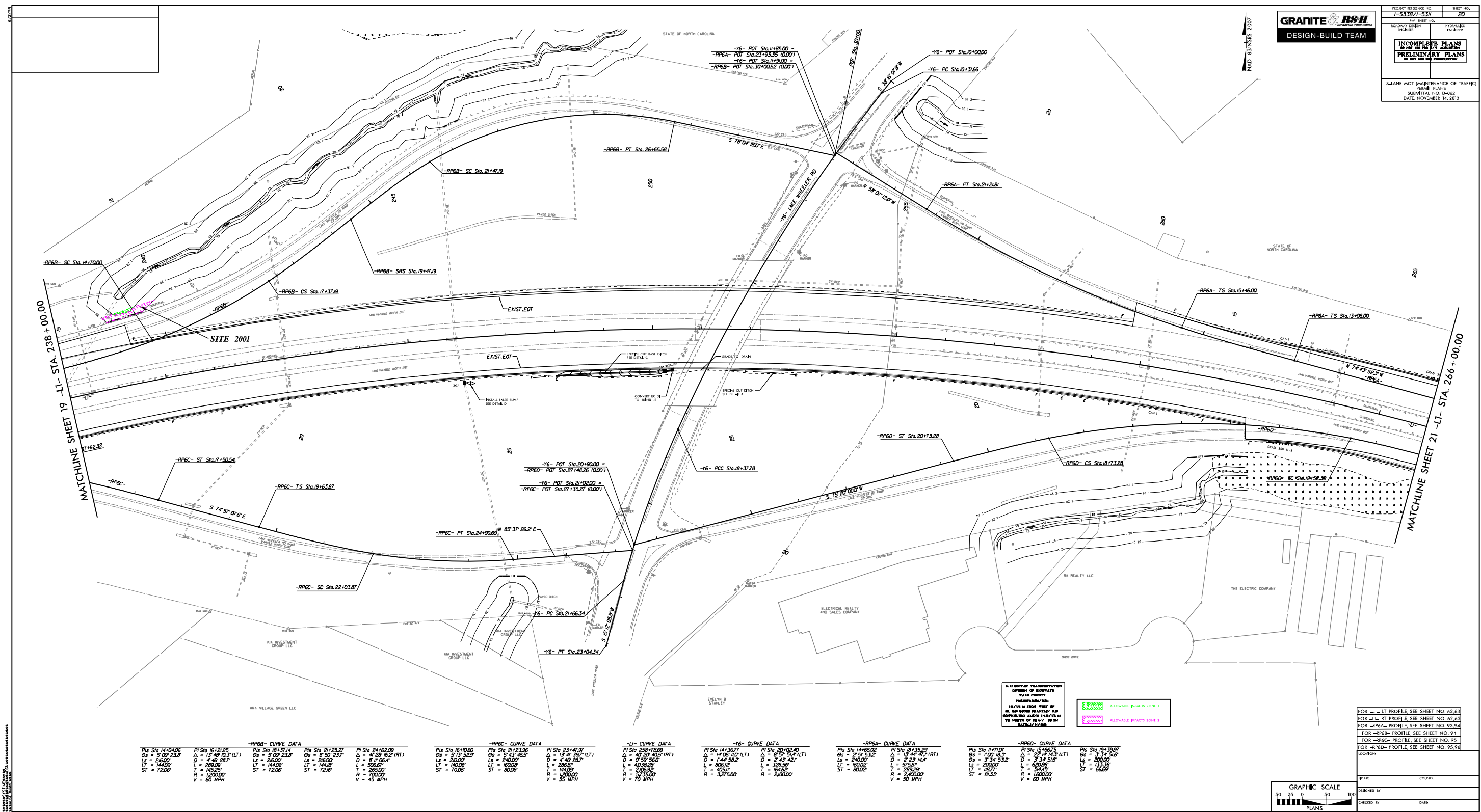


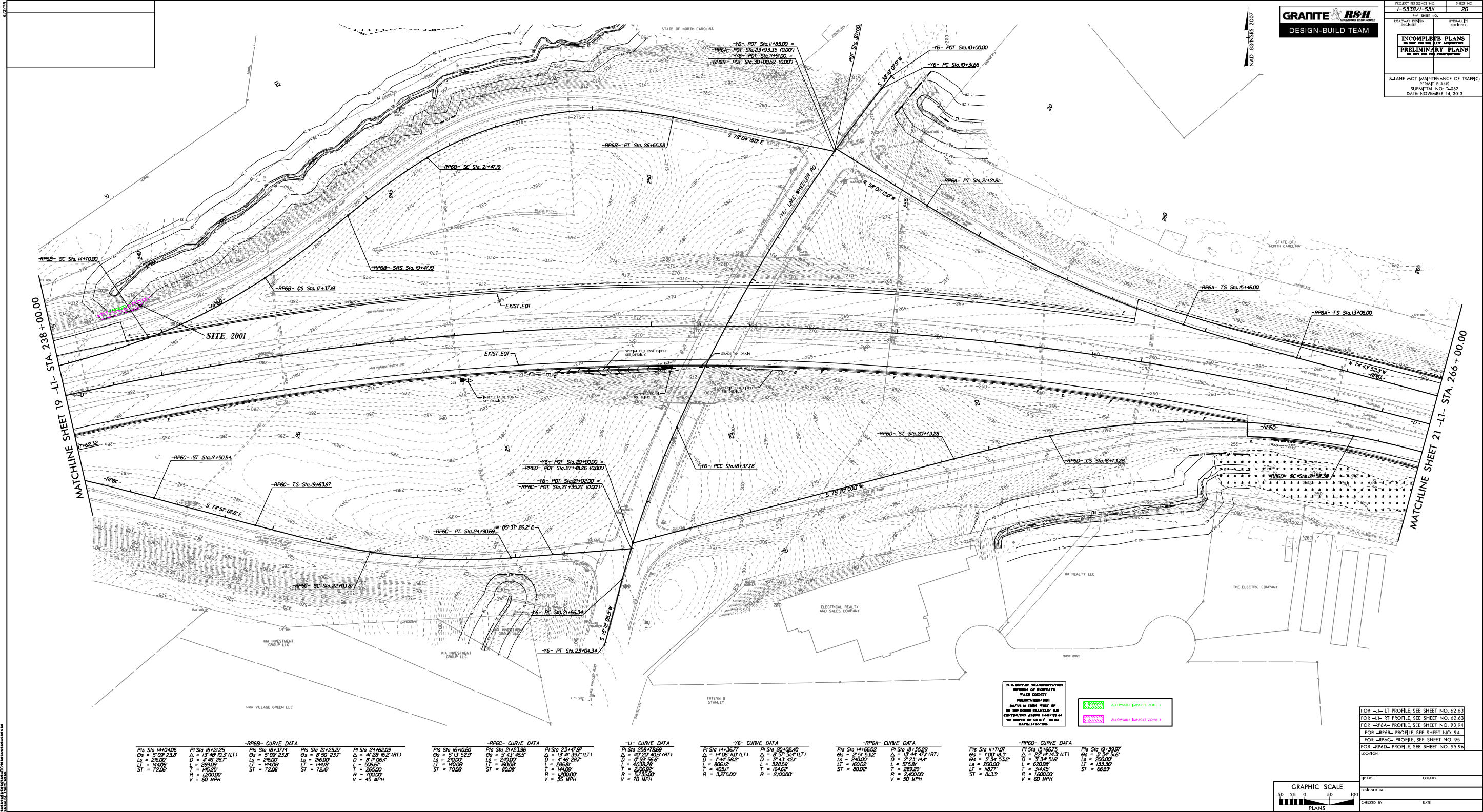
FOR -L1- LT PROFILE, SEE SHEET NO. 59  
FOR -L1- RT PROFILE, SEE SHEET NO. 59



MATCHLINE SHEET 18 -L1- STA. 211 + 00.00







PROJECT REFERENCE NO.  
7-5338/1-53/

SHEET NO.  
20

DESIGN-BUILD TEAM

GRANITE & RSH

INCOMPLETE PLANS  
DO NOT USE FOR CONSTRUCTION

PRELIMINARY PLANS  
DO NOT USE FOR CONSTRUCTION

PLANES NOT (MAINTENANCE OF TRAFFIC)  
PERMIT PLANS  
SUBMITTAL NO. D-662  
DATE: NOVEMBER 14, 2013

-RPA6- CURVE DATA										-RPEC- CURVE DATA										-U- CURVE DATA										-Y6- CURVE DATA										-RPA6- CURVE DATA										-RPEC- CURVE DATA									
PI Sta 14+04.06		PI Sta 18+29.26		PI Sta 21+25.27		PI Sta 24+62.09		PI Sta 16+06.80		PI Sta 21+23.96		PI Sta 23+47.97		PI Sta 25+78.69		PI Sta 14+36.77		PI Sta 20+02.40		PI Sta 14+66.02		PI Sta 18+16.29		PI Sta 14+71.07		PI Sta 15+66.75		PI Sta 19+39.97																															
ES = 5'09" 23.8"		ES = 5'09" 23.8"		ES = 5'09" 23.8"		ES = 4'28" 6.2" (RT)		ES = 5'13" 52.9"		ES = 5'41" 46.5"		ES = 13'41" 33.7" (LT)		ES = 40'20" 40.5" (RT)		ES = 14'06" 11.0" (LT)		ES = 8'57" 51.4" (LT)		ES = 2'51" 53.2"		ES = 13'44" 47.7" (RT)		ES = 1'00" 18.3"		ES = 62'14" 14.3" (LT)		ES = 3'34" 51.6"																															
LS = 260.00		LS = 260.00		LS = 260.00		LS = 260.00		LS = 260.00		LS = 260.00		LS = 260.00		LS = 260.00		LS = 260.00		LS = 260.00		LS = 260.00		LS = 260.00		LS = 260.00		LS = 260.00		LS = 260.00																															
LT = 144.00		LT = 144.00		LT = 144.00		LT = 144.00		LT = 144.00		LT = 144.00		LT = 144.00		LT = 144.00		LT = 144.00		LT = 144.00		LT = 144.00		LT = 144.00		LT = 144.00		LT = 144.00		LT = 144.00																															
T = 145.25		T = 145.25		T = 145.25		T = 145.25		T = 145.25		T = 145.25		T = 145.25		T = 145.25		T = 145.25		T = 145.25		T = 145.25		T = 145.25		T = 145.25		T = 145.25		T = 145.25																															
R = 1200.00		R = 1200.00		R = 1200.00		R = 1200.00		R = 1200.00		R = 1200.00		R = 1200.00		R = 1200.00		R = 1200.00		R = 1200.00		R = 1200.00		R = 1200.00		R = 1200.00		R = 1200.00		R = 1200.00																															
V = 60 MPH		V = 60 MPH		V = 60 MPH		V = 45 MPH		V = 60 MPH		V = 60 MPH		V = 35 MPH		V = 70 MPH		V = 32.75 MPH		V = 24.00 MPH		V = 50 MPH		V = 50 MPH		V = 60 MPH		V = 60 MPH		V = 60 MPH																															

GRAPHIC SCALE  
0 25 50 100  
PLANS

FOR -L- LT PROFILE SEE SHEET NO. 62.63  
FOR -L- RT PROFILE SEE SHEET NO. 62.63  
FOR -RPA6- PROFILE SEE SHEET NO. 93.94  
FOR -RPEC- PROFILE SEE SHEET NO. 94  
FOR -U- PROFILE SEE SHEET NO. 94  
FOR -Y6- PROFILE SEE SHEET NO. 95  
FOR -RPA6- PROFILE SEE SHEET NO. 95.94

DESIGNED BY: \_\_\_\_\_  
CHECKED BY: \_\_\_\_\_  
DATE: \_\_\_\_\_



8/17/99

REVISIONS

MATCHLINE SHEET 21 -L1- STA. 280+00.00

MATCHLINE SHEET 23 -L1- STA. 294+00.00

-L1- CURVE DATA  
Pls Sta 278+94.43  
θs = 11° 39.4'  
Ls = 240.00'  
LT = 160.00'  
ST = 80.00'

Pls Sta 293+66.36  
θs = 6° 03' 56.6"  
Ls = 480.00'  
LT = 320.19'  
ST = 160.17'

-RP7B- CURVE DATA  
Pls Sta 11+40.06  
θs = 5° 00' 48.2"  
Ls = 210.00'  
LT = 140.06'  
ST = 70.05'

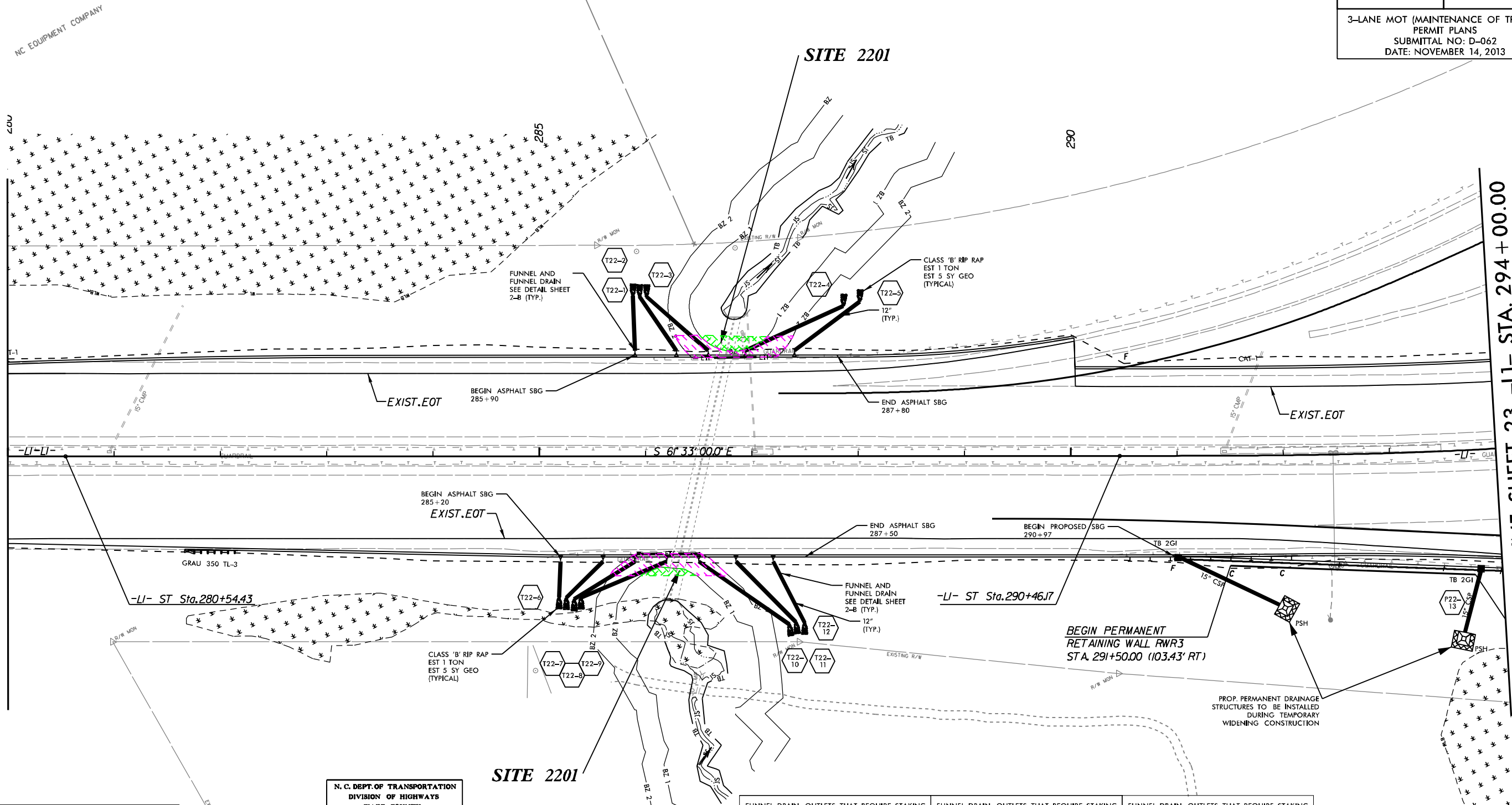
Pls Sta 14+19.34  
Δ = 19° 47' 27.5' (LT)  
D = 4° 46' 28.7"  
L = 414.50'  
T = 209.34'  
R = 1,200.00'  
V = 70 MPH

Pls Sta 17+39.37  
θs = 1° 13' 30.4"  
Ls = 7° 09' 52.6"  
L = 300.00'  
LT = 185.62'  
ST = 114.87'

-RP7C- CURVE DATA  
Pls Sta 12+58.17  
Δ = 3° 41' 48.0' (RT)  
D = 0° 42' 58.3"  
L = 516.15'  
T = 258.17'  
R = 8,000.00'

**GRANITE & RSH**  
IMPROVING YOUR WORLD  
DESIGN-BUILD TEAM

PROJECT REFERENCE NO. 1-5338/1-5311	SHEET NO. 22
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR E/W ACQUISITION	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
3-LANE MOT (MAINTENANCE OF TRAFFIC) PERMIT PLANS SUBMITTAL NO: D-062 DATE: NOVEMBER 14, 2013	



FOR -L1- LT PROFILE, SEE SHEET NO. 65  
FOR -L1- RT PROFILE, SEE SHEET NO. 65  
FOR -RP7B- PROFILE, SEE SHEET NO. 97  
FOR -RP7C- PROFILE, SEE SHEET NO. 98

N. C. DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
WAKE COUNTY  
PROJECT: 1538/1511  
140/US 64 FROM WEST OF  
SR 1319 GONES FRANKLIN RD  
CONTINUING ALONG I-440/US 64  
TO NORTH OF US 64/ US 964  
DATE: 11/14/2013

ALLOWABLE IMPACTS ZONE 1  
ALLOWABLE IMPACTS ZONE 2

FUNNEL DRAIN OUTLETS THAT REQUIRE STAKING			FUNNEL DRAIN OUTLETS THAT REQUIRE STAKING			FUNNEL DRAIN OUTLETS THAT REQUIRE STAKING		
OUTLET	NORTHING	EASTING	OUTLET	NORTHING	EASTING	OUTLET	NORTHING	EASTING
T22-1	729851.1188	2102627.5253	T22-7	729631.1554	2102436.9516	P22-13	729199.2826	2103164.7335
T22-2	729847.6518	2102632.6315	T22-8	729626.4239	2102442.7727			
T22-3	729844.2346	2102638.3378	T22-9	729624.6159	2102449.3024			
T22-4	729748.2492	2102796.9570	T22-10	729509.1747	2102609.3565			
T22-5	729744.5158	2102812.4179	T22-11	729508.0671	2102615.8410			
T22-6	729634.8612	2102431.1497	T22-12	729503.5667	2102622.9526			



8/17/99

NC EQUIPMENT COMPANY

-LI- CURVE DATA  
Pls Sta 278+94.43  
Θs = 11° 39.4'  
Ls = 240.00'  
LT = 160.00'  
ST = 80.00'

Pls Sta 293+66.36  
Θs = 6° 03' 56.6"  
Ls = 480.00'  
LT = 320.19'  
ST = 160.17'

-RP7B- CURVE DATA  
Pls Sta 11+40.06  
Θs = 5° 00' 48.2"  
Ls = 210.00'  
LT = 140.06'  
ST = 70.05'

Pls Sta 14+19.34  
Δ = 19° 47' 27.5' (LT)  
D = 4° 46' 28.7"  
L = 414.50'  
LT = 209.34'  
R = 1,200.00'  
V = 70 MPH

Pls Sta 17+39.37  
Θs = 1° 13' 30.4"  
Ls = 7° 09' 52.6"  
L = 300.00'  
LT = 185.62'  
ST = 114.87'

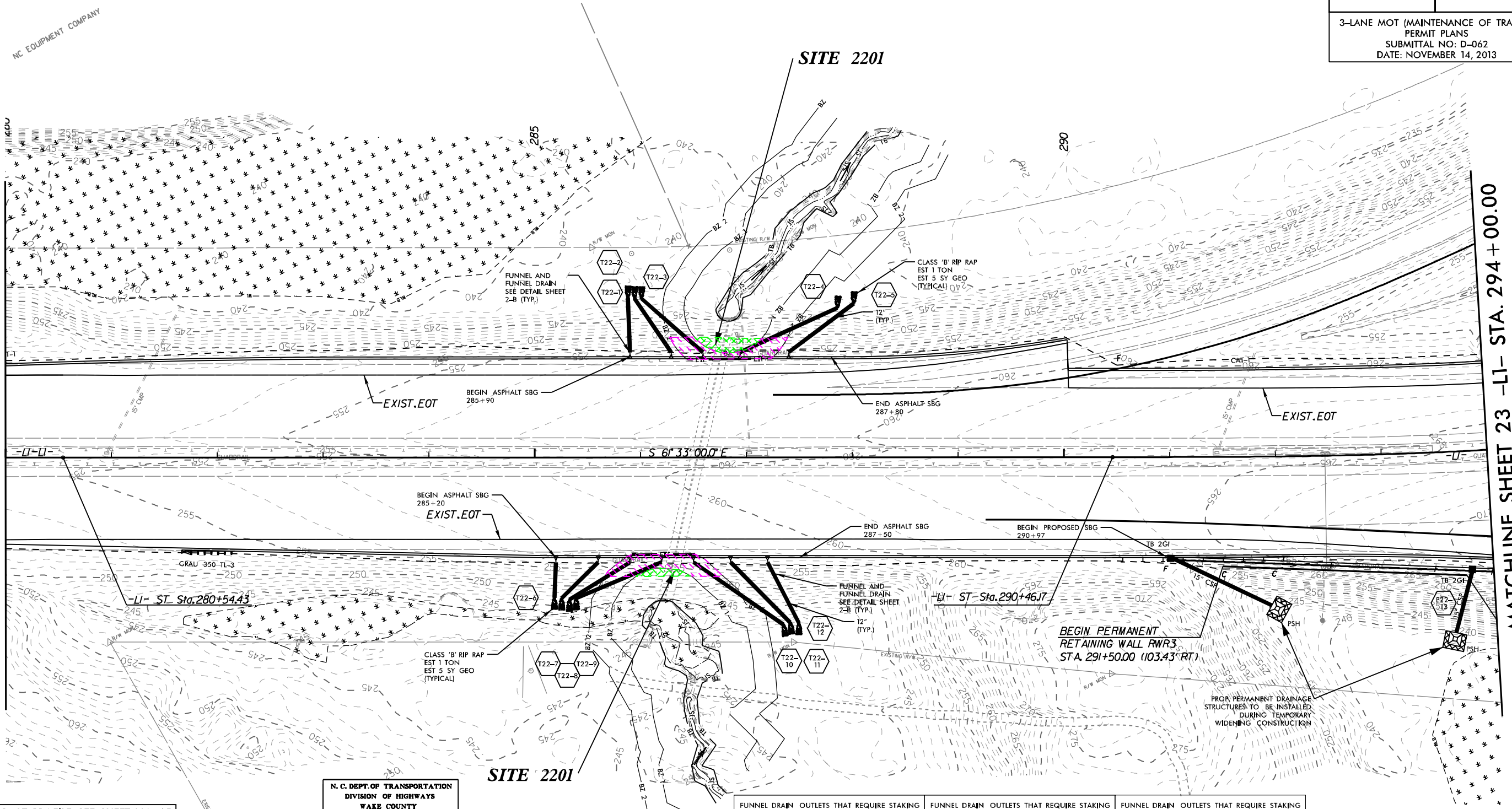
-RP7C- CURVE DATA  
Pls Sta 12+58.17  
Δ = 3° 41' 48.0' (RT)  
D = 0° 42' 58.3"  
L = 516.15'  
T = 258.17'  
R = 8,000.00'

**GRANITE & RSH**  
IMPROVING YOUR WORLD  
**DESIGN-BUILD TEAM**

PROJECT REFERENCE NO. 1-5338/1-5311	SHEET NO. 22
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR E/W ACQUISITION	
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	
3-LANE MOT (MAINTENANCE OF TRAFFIC) PERMIT PLANS SUBMITTAL NO: D-062 DATE: NOVEMBER 14, 2013	

MATCHLINE SHEET 21 -LI- STA. 280 + 00.00

MATCHLINE SHEET 23 -LI- STA. 294 + 00.00



FOR -LI- LT PROFILE, SEE SHEET NO. 65  
FOR -LI- RT PROFILE, SEE SHEET NO. 65  
FOR -RP7B- PROFILE, SEE SHEET NO. 97  
FOR -RP7C- PROFILE, SEE SHEET NO. 98

N. C. DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
WAKE COUNTY  
PROJECT: 1538/1511  
140/US 64 FROM WEST OF  
SR 1319 GONES FRANKLIN RD  
CONTINUING ALONG I-40/US 64  
TO NORTH OF US 64/ US 964  
DATE: 11/14/2013

ALLOWABLE IMPACTS ZONE 1  
 ALLOWABLE IMPACTS ZONE 2

FUNNEL DRAIN OUTLETS THAT REQUIRE STAKING			FUNNEL DRAIN OUTLETS THAT REQUIRE STAKING			FUNNEL DRAIN OUTLETS THAT REQUIRE STAKING		
OUTLET	NORTHING	EASTING	OUTLET	NORTHING	EASTING	OUTLET	NORTHING	EASTING
T22-1	729851.1188	2102627.5253	T22-7	729631.1554	2102436.9516	P22-13	729199.2826	2103164.7335
T22-2	729847.6518	2102632.6315	T22-8	729626.4239	2102442.7727			
T22-3	729844.2346	2102638.3378	T22-9	729624.6159	2102449.3024			
T22-4	729748.2492	2102796.9570	T22-10	729509.1747	2102609.3565			
T22-5	729744.5158	2102812.4179	T22-11	729508.0671	2102615.8410			
T22-6	729634.8612	2102431.1497	T22-12	729503.5667	2102622.9526			

NOTES:  
1. WETLANDS TO BE FLAGGED IN FIELD  
2. IMPACTS SHALL NOT OCCUR IN WETLANDS  
3. CONTRACTOR TO INSTALL ADDITIONAL ENERGY DISSIPATER DEVICES AS DIRECTED BY ENGINEER TO ENSURE NO INDIRECT SCOUR IMPACTS TO WETLANDS  
4. THE AVERAGE CFS FOR DRAINS T22-6, T22-7, T22-8, AND T22-9 IS 0.2 CFS.





**GRANITE & RS-H**  
INSPIRING YOUR IDEALS

**DESIGN-BUILD TEAM**

3-LANE MOT (MAINTENANCE OF TRAFFIC)  
PERMIT PLANS  
SUBMITTAL NO: D-062  
DATE: NOVEMBER 14, 2013

REVISION

-LP7B- CURVE DATA

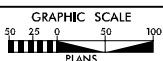
PI Slo 10+78.59	PI Slo 38+56.37
$\Delta = 4^{\circ}06'10.7''$ (RT)	$\Delta = 17^{\circ}07'51.1''$ (RT)
D = 2'36" 41.3'	D = 35'22" 04.0'
L = 157.11'	L = 489.52'
T = 78.59'	T = 2699.26'
R = 2,640.00'	R = 162.00'

-Y7- CURVE DATA  
PI Sta 16+39.89  
 $\Delta = 213.309^\circ$  (LT)  
 $D = 0^\circ 34' 22.6''$   
 $L = 388.36'$   
 $T = 194.21'$   
 $R = 10,000.00'$

N. C. DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
WAKE COUNTY  
PROJECT NO. 1001/1001  
1001/1001 FROM WEST OF  
1001/1001 FRANKLIN RD  
CONTINUING ALONG 1001/1001  
TO NORTH OF 1001/1001 1001/1001  
DATE 10/10/10

NOTE:  
NO IMPACT SITES ON SHEET. SHEET SHOWN  
FOR COMPLIANCE FIELD VERIFICATION

 ALLOWABLE IMPACTS ZONE  
 ALLOWABLE IMPACTS ZONE



FOR -L1- LT PROFILE, SEE SHEET NO. 66,67  
FOR -L1- RT PROFILE, SEE SHEET NO. 66,67  
FOR -RP7A- PROFILE, SEE SHEET NO. 96  
FOR -LP7B- PROFILE, SEE SHEET NO. 97  
FOR -RP7B- PROFILE, SEE SHEET NO. 97  
FOR -RP7C- PROFILE, SEE SHEET NO. 98  
FOR -LP7D- PROFILE, SEE SHEET NO. 98,99  
FOR -RP7D- PROFILE, SEE SHEET NO. 99

LOCATION: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

TIP NO.: \_\_\_\_\_ COUNTY: \_\_\_\_\_

DESIGNED BY: \_\_\_\_\_

CHECKED BY: \_\_\_\_\_ DATE: \_\_\_\_\_





NOTE: THIS SHEET DEPICTS BUFFER IMPACTS DURING TEMPORARY WIDENING PHASE ONLY.  
FOR BUFFER IMPACTS FROM PROPOSED SOUTH SAUNDERS DDI DESIGN SEE SHEET 23A.

-LP7B- CURVE DATA	
PI Sta 10+78.59	PI Sta 38+56.37
$\Delta = 4^{\circ}06'10.7''$ (RT)	$\Delta = 17^{\circ}37'51.1''$ (RT)
D = 2' 36" 41.3'	D = 35' 22" 04.0'
L = 157.11'	L = 489.52'
T = 78.59'	T = 269.26'
R = 2,940.0'	R = 162.00'

-Y7- CURVE DATA  
PI Sta 16+39.89  
 $\Delta = 2^\circ 13' 30.9''$  (LT)  
 $D = 0^\circ 34' 22.6''$   
 $L = 388.38'$   
 $T = 194.21'$   
 $R = 10,000.00'$

-U- CURVE DATA		
Pis Sta 293+66.36	Pi Sta 302+58.43	Pis Sta 311+02.90
Gs = 6' 0.3" 56.6'	Δ = 35' 48" 06.8' (LT)	Gs = 6' 0.3" 56.6'
Ls = 480.00'	D = 2' 3" 39.6'	Ls = 480.00'
LT = 320.9'	L = 1,416.56'	LT = 320.9'
ST = 160.11'	T = 732.26'	ST = 160.11'
	R = 2,267.00'	
	V = 65 MPH	

N. C. DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
WAKE COUNTY  
PROJECT NO. 1201  
141/142 FROM WEST OF  
IN NEW CORNER FRANKLIN SUB  
CONTINUING ALONG I-40/143 TO  
TO NORTH OF US 67/ US 301  
DATE 11/14/81

 ALLOWABLE IMPACTS ZONE 1  
 ALLOWABLE IMPACTS ZONE 2

NOTE:  
NO IMPACT SITES ON SHEET. SHEET SHOWN  
FOR COMPLIANCE FIELD VERIFICATION.

-RP7A- CURVE DATA

PIs Sta 11+40.06	PI Sta 16+41.77
Es = 5' 00" 48.2"	$\Delta = 39' 34" 41.8" (RT)$
Ls = 210.00'	D = 4' 46" 28.7"
LT = 140.06'	L = 828.93'
ST = 70.05'	T = 431.77'
	R = 1,200.00'

-LPTD- CURVE DATA			
PI Sta 10+12.52	PIs Sta 14+30.03	PI Sta 16+85.21	PI Sta 18+87.06
Δ = 0° 37' 00.7" (LT)	Θs = 42° 58' 18.6"	Δ = 96° 47' 13.0" (RT)	Δ = 40° 51' 19.2" (RT)
D = 2° 27' 47.8"	LS = 240.00'	D = 35° 48' 35.5"	D = 19° 05' 54.9"
L = 25.04'	LT = 164.98'	L = 270.28'	L = 112.92'
T = 12.52'	ST = 84.55'	T = 180.77'	T = 117.00'
R = 2336.00'		R = 1600.00'	R = 3000.00'

-RPTD- CURVE DATA				
Pis Slo 11+44.04	Pis Slo 14+01.52	Pis Slo 16+57.02	Pis Slo 21+54.97	Pis Slo 23+81.34
0s = 4'19.163"	Δ = 14'45.476" (LT)	0s = 4'19.163"	0s = 12'19.180"	Δ = 37'58.570" (RT)
Ls = 216.00'	D = 4'00.040"	Ls = 216.00'	Ls = 200.00'	D = 12'19.180"
LT = 144.04'	L = 368.98'	LT = 144.04'	LT = 133.66'	L = 308.26'
ST = 72.04'	T = 185.52'	ST = 72.04'	ST = 66.96'	T = 160.03'
	R = 1,432.00'			R = 465.00'

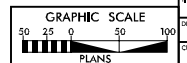
FOR -L1- LT PROFILE, SEE SHEET NO. 66, 67
FOR -L1- RT PROFILE, SEE SHEET NO. 66, 67
FOR -RP7A- PROFILE, SEE SHEET NO. 96
FOR -LP7B- PROFILE, SEE SHEET NO. 97
FOR -RP7B- PROFILE, SEE SHEET NO. 97
FOR -RP7C- PROFILE, SEE SHEET NO. 98
FOR -LP7D- PROFILE, SEE SHEET NO. 98, 99
FOR -RP7D- PROFILE, SEE SHEET NO. 99

LOCATION: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

TIP NO.: \_\_\_\_\_ COUNTY: \_\_\_\_\_

DESIGNED BY: \_\_\_\_\_

CHECKED BY: \_\_\_\_\_ DATE: \_\_\_\_\_





REVISIONS

NOTE: THIS SHEET DEPICTS BUFFER IMPACTS FROM PROPOSED SOUTH SAUNDERS DDI DESIGN.  
FOR BUFFER IMPACTS FROM TEMPORARY WIDENING PHASE SEE SHEET 23.

-RP7B- CURVE DATA	
PI Sta 17+39.37	PI Sta 21+363.37
Δ = 7°13'31.4"	Δ = 3°28'14.5" (RT)
Δs = 7°09'52.6"	Δ = 0°49'06.6"
LS = 300.00'	L = 404.12'
LT = 157.00'	L = 404.12'
ST = 114.80'	R = 7000.00'

-LP7B- CURVE DATA	
PI Sta 10+78.59	PI Sta 38+56.37
Δ = 4°36'07.1" (RT)	Δ = 1°37'51.0" (RT)
Δs = 2°36'4.3"	Δ = 35°22'04.0"
L = 157.00'	L = 404.12'
T = 78.59'	T = 269.26'
R = 224.00'	R = 621.00'

K.C. DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
TALLAHASSEE, FLORIDA  
PROJECT NO. 1000000000  
SHEET NO. 1000000000  
DATE: 11/14/2013

ALLOWABLE IMPACTS ZONE 1	REMOVABLE IMPACTS ZONE 1
ALLOWABLE IMPACTS ZONE 2	REMOVABLE IMPACTS ZONE 2

OUTLET	NORTHING	EASTING
P134	728894.829	210942.5842
P135	721994.873	210553.2944

-RPTC- CURVE DATA	
PI Sta 23+56.48	PI Sta 16+49.77
Δ = 1°19'58.9" (LT)	Δ = 3°34'48.8" (RT)
Δs = 0°34'52.6"	Δ = 4°45'28.7"
L = 308.29'	L = 828.83'
LT = 154.15'	LT = 413.77'
R = 10000.00'	R = 1200.00'

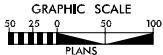
-Y7- CURVE DATA	
PI Sta 16+39.89	PI Sta 16+49.77
Δ = 2°13'30.9" (LT)	Δ = 3°34'48.8" (RT)
Δs = 0°34'52.6"	Δ = 4°45'28.7"
L = 308.29'	L = 828.83'
LT = 154.15'	LT = 413.77'
R = 10000.00'	R = 1200.00'

-U- CURVE DATA					
PIs Sta 293+66.36	PI Sta 302+58.43	PIs Sta 311+02.90			
Δs = 6°03'56.6"	Δ = 35°48'06.8" (LT)	Δs = 6°03'56.6"			
Ls = 480.00'	D = 2°33'38.6"	Ls = 480.00'			
LT = 320.9'	L = 146.56'	LT = 320.9'			
ST = 160.17'	T = 732.26'	ST = 160.17'			
	R = 2267.00'				

-RPTA- CURVE DATA	
PI Sta 11+40.06	PI Sta 16+49.77
Δs = 5°00'48.2"	Δ = 3°34'48.8" (RT)
LS = 240.00'	Δ = 4°45'28.7"
LT = 120.00'	L = 828.83'
ST = 70.00'	LT = 413.77'
	R = 1200.00'

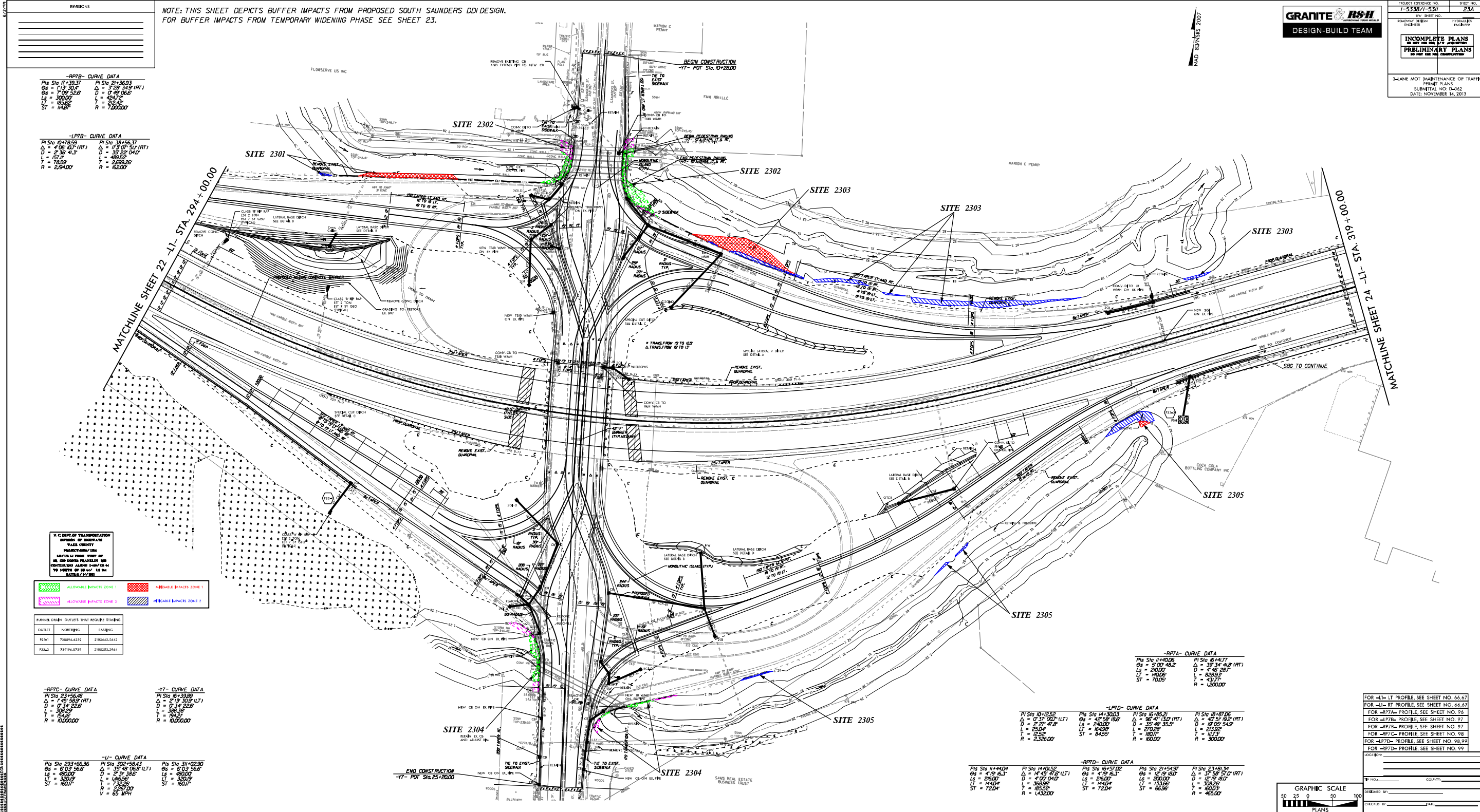
-LP7D- CURVE DATA			
PI Sta 10+12.52	PIs Sta 14+30.03	PI Sta 16+85.21	PI Sta 18+87.06
$\Delta = 0^{\circ}37'00.2" (LT)$	$\Theta s = 42^{\circ}58'16.6"$	$\Delta = 96^{\circ}47'13.0" (RT)$	$\Delta = 40^{\circ}54'19.2" (RT)$
$L = 2^{\circ}27'47.8"$	$Ls = 240.00'$	$L = 35^{\circ}49'35.5"$	$L = 19^{\circ}05'54.9"$
$LT = 250.4'$	$LT = 164.98'$	$L = 270.28'$	$L = 213.92'$
$T = 125.2'$	$ST = 84.55'$	$T = 180.01'$	$T = 117.3'$
$R = 2,326.00'$		$R = 160.00'$	$R = 300.00'$

-RPTD- CURVE DATA				
PI Sta 11+40.04	PI Sta 14+01.52	PI Sta 16+57.02	PI Sta 21+54.97	PI Sta 23+81.34
Δs = 4°19'16.3"	Δ = 1°45'47.8" (LT)	Δs = 4°19'16.3"	Δs = 12°19'18.0"	Δ = 37°58'57.0" (RT)
LS = 240.00'	Δs = 4°00'04.0"	LS = 240.00'	LS = 200.00'	L = 12°19'18.0"
LT = 144.04'	L = 368.98'	LT = 144.04'	LT = 133.66'	L = 308.26'
ST = 72.04'	T = 185.52'	ST = 72.04'	ST = 66.96'	T = 600.03'
	R = 1,432.00'			R = 465.00'



FOR -L- LT PROFILE, SEE SHEET NO. 66.67  
FOR -L- RT PROFILE, SEE SHEET NO. 66.67  
FOR -RPTA- PROFILE, SEE SHEET NO. 98  
FOR -LP7B- PROFILE, SEE SHEET NO. 97  
FOR -RPTB- PROFILE, SEE SHEET NO. 97  
FOR -RPTC- PROFILE, SEE SHEET NO. 98  
FOR -RPTD- PROFILE, SEE SHEET NO. 98  
FOR -RPTD- PROFILE, SEE SHEET NO. 99

DESIGNED BY: \_\_\_\_\_  
CHECKED BY: \_\_\_\_\_  
DATE: \_\_\_\_\_



PROJECT REFERENCE NO. 7-5338/1-53/

SHEET NO. 23A

ROADWAY DESIGN INCHES

HYDRAULICS INCHES

INCOMPLETE PLANS  
DO NOT USE FOR CONSTRUCTION

PLANE NOT (MAINTENANCE OF TRAFFIC)  
PERMIT PLANS  
SUBMITAL NO. D-662  
DATE: NOVEMBER 14, 2013



REVISIONS

NOTE: THIS SHEET DEPICTS BUFFER IMPACTS FROM PROPOSED SOUTH SAUNDERS DD DESIGN.  
FOR BUFFER IMPACTS FROM TEMPORARY WIDENING PHASE SEE SHEET 23.

-RP7B- CURVE DATA	
PI Sta 17+39.37	PI Sta 21+36.33
Δ = 7°09'52.6"	Δ = 3°08'14.5" (RT)
Δ = 7°09'52.6"	Δ = 0°49'06.6"
LS = 300.00'	L = 404.72'
LT = 157.00'	L = 222.42'
ST = 114.80'	R = 7000.00'

-LP7B- CURVE DATA	
PI Sta 10+78.59	PI Sta 38+56.37
Δ = 2°36'4.3"	Δ = 1°07'50.1" (RT)
Δ = 2°36'4.3"	Δ = 1°07'50.1" (RT)
LS = 157.00'	L = 404.72'
T = 78.59'	T = 269.26'
R = 2294.00'	R = 6210'

K.C. DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
TALLAHASSEE, FLORIDA  
PROJECT NO. 10-0000-0000  
SECTION 10-0000-0000  
SHEET 10-0000-0000

ALLOWABLE IMPACTS ZONE 1	REMOVABLE IMPACTS ZONE 1
ALLOWABLE IMPACTS ZONE 2	REMOVABLE IMPACTS ZONE 2

OUTLET	NORTHING	EASTING
P134	728894.829	210942.542
P135	721994.873	210553.294

-RP7C- CURVE DATA	
PI Sta 23+56.48	PI Sta 16+47.71
Δ = 1°03'56.9" (LT)	Δ = 3°34'48.8" (RT)
Δ = 1°03'56.9" (LT)	Δ = 3°34'48.8" (RT)
LS = 300.00'	L = 404.72'
LT = 157.00'	L = 222.42'
ST = 114.80'	R = 7000.00'

-U- CURVE DATA	
PI Sta 23+56.48	PI Sta 302+58.43
Δ = 1°03'56.9" (LT)	Δ = 1°03'56.9" (LT)
Δ = 1°03'56.9" (LT)	Δ = 1°03'56.9" (LT)
LS = 300.00'	L = 404.72'
LT = 157.00'	L = 222.42'
ST = 114.80'	R = 7000.00'

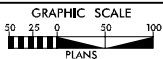
-Y7- CURVE DATA	
PI Sta 16+47.71	PI Sta 16+47.71
Δ = 1°03'56.9" (LT)	Δ = 1°03'56.9" (LT)
Δ = 1°03'56.9" (LT)	Δ = 1°03'56.9" (LT)
LS = 300.00'	L = 404.72'
LT = 157.00'	L = 222.42'
ST = 114.80'	R = 7000.00'

-RP7A- CURVE DATA	
PI Sta 16+47.71	PI Sta 16+47.71
Δ = 1°03'56.9" (LT)	Δ = 1°03'56.9" (LT)
Δ = 1°03'56.9" (LT)	Δ = 1°03'56.9" (LT)
LS = 300.00'	L = 404.72'
LT = 157.00'	L = 222.42'
ST = 114.80'	R = 7000.00'

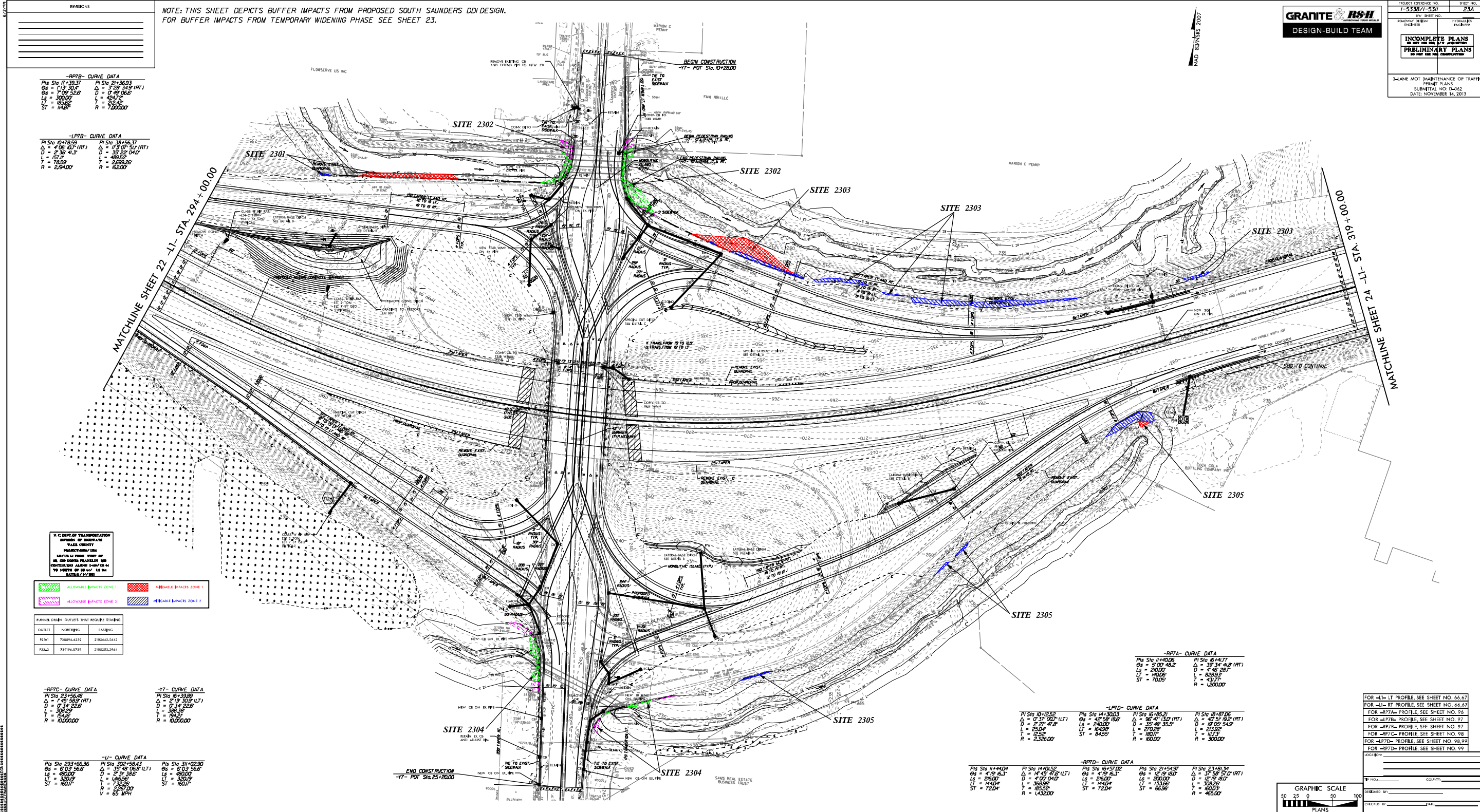
-LP7D- CURVE DATA	
PI Sta 16+47.71	PI Sta 16+47.71
Δ = 1°03'56.9" (LT)	Δ = 1°03'56.9" (LT)
Δ = 1°03'56.9" (LT)	Δ = 1°03'56.9" (LT)
LS = 300.00'	L = 404.72'
LT = 157.00'	L = 222.42'
ST = 114.80'	R = 7000.00'

-RP7D- CURVE DATA	
PI Sta 16+47.71	PI Sta 16+47.71
Δ = 1°03'56.9" (LT)	Δ = 1°03'56.9" (LT)
Δ = 1°03'56.9" (LT)	Δ = 1°03'56.9" (LT)
LS = 300.00'	L = 404.72'
LT = 157.00'	L = 222.42'
ST = 114.80'	R = 7000.00'

FOR -L- LT PROFILE, SEE SHEET NO. 66.67  
FOR -L- RT PROFILE, SEE SHEET NO. 66.67  
FOR -RP7A- PROFILE, SEE SHEET NO. 98  
FOR -LP7B- PROFILE, SEE SHEET NO. 97  
FOR -RP7C- PROFILE, SEE SHEET NO. 98  
FOR -RP7D- PROFILE, SEE SHEET NO. 99  
FOR -RP7E- PROFILE, SEE SHEET NO. 99



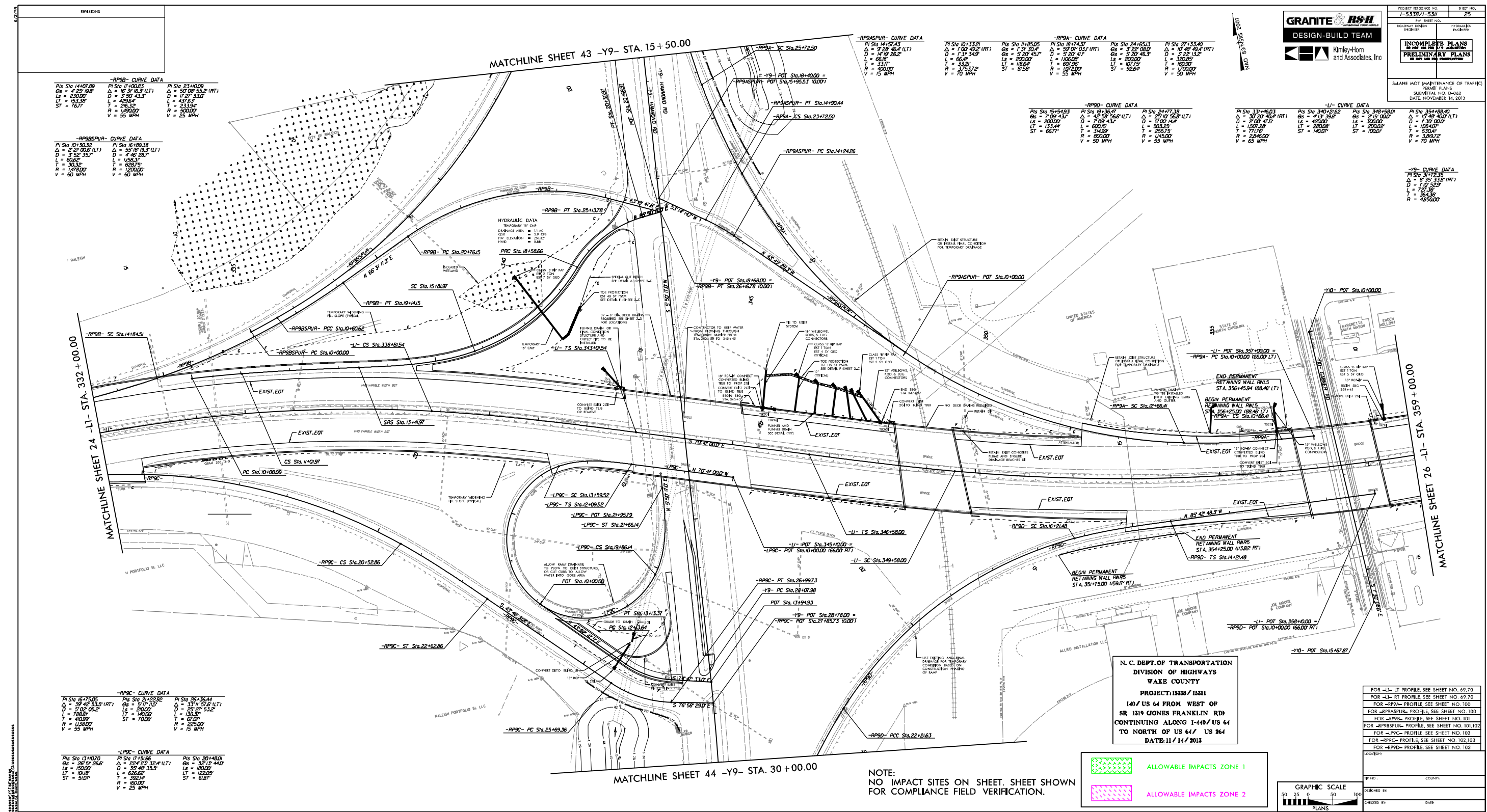
DESIGNED BY: \_\_\_\_\_  
CHECKED BY: \_\_\_\_\_  
DATE: \_\_\_\_\_



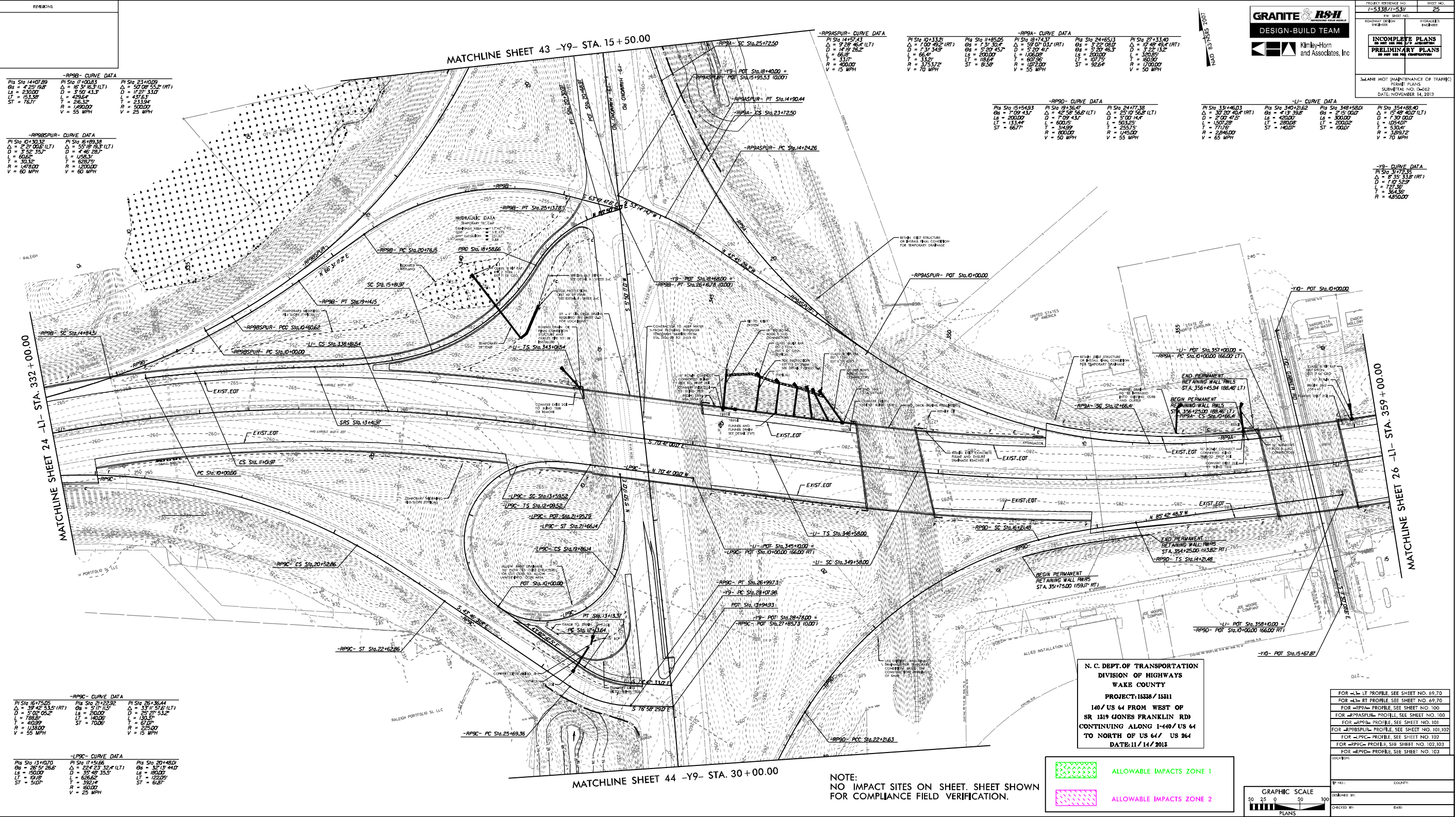
GRANITE & RSH  
DESIGN-BUILD TEAM

PROJECT REFERENCE NO. 7-5338/1-537	SHEET NO. 23A
ROADWAY DESIGN INCHES	STANDARD INCHES
INCOMPLETE PLANS DO NOT USE FOR CONSTRUCTION	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
LANE M/T (MAINTENANCE OF TRAFFIC) PERMIT PLANS SUBMITAL NO. 0-662 DATE: NOVEMBER 14, 2013	











8/17/99

REVISIONS

-LI- CURVE DATA		
PI Sta 354+88.40 $\Delta = 15^{\circ} 48' 40.0''$ (LT) $D = 1^{\circ} 30' 00.0''$ $L = 1054.07'$ $T = 530.41'$ $R = 381972'$ $V = 70$ MPH	PIs Sta 361+12.08 $\Theta_s = 2^{\circ} 15' 00.0''$ $L_s = 300.00'$ $LT = 200.02'$ $ST = 100.01'$	PIs Sta 375+82.24 $\Theta_s = 6^{\circ} 00' 00.0''$ $L_s = 300.00'$ $LT = 200.02'$ $ST = 100.01'$

GRANITE & RSH  
IMPROVING YOUR WORLD

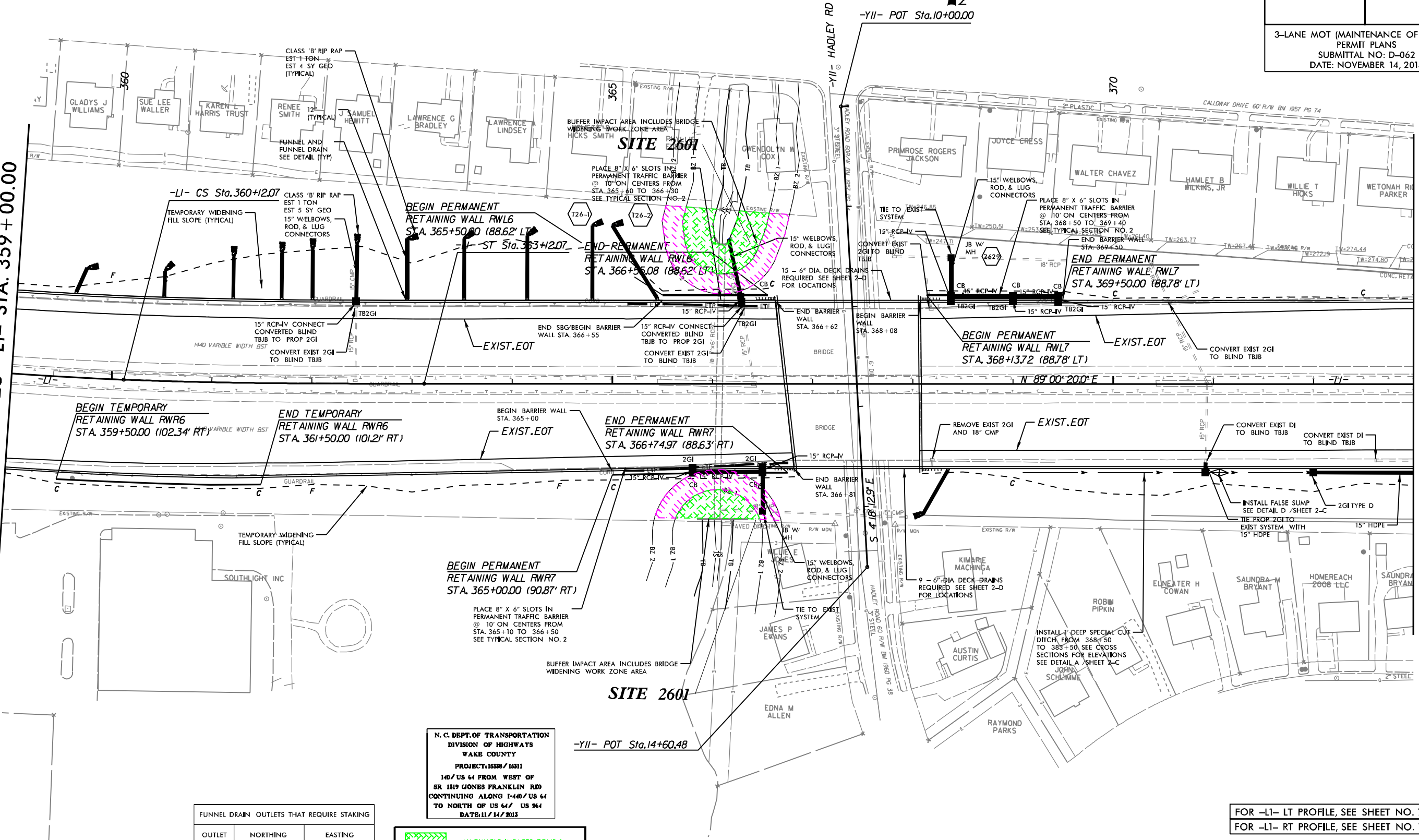
DESIGN-BUILD TEAM

Kimley-Horn  
and Associates, Inc.

PROJECT REFERENCE NO. 1-5338/1-5311	SHEET NO. 26
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR E/V ACQUISITION	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
3-LANE MOT (MAINTENANCE OF TRAFFIC) PERMIT PLANS SUBMITTAL NO: D-062 DATE: NOVEMBER 14, 2013	

MATCHLINE SHEET 25 -LI- STA. 359+00.00

MATCHLINE SHEET 27 -LI- STA. 373+00.00



FUNNEL DRAIN OUTLETS THAT REQUIRE STAKING		
OUTLET	NORTHING	EASTING
T26-1	729284.0602	2110167.6882
T26-2	729287.5804	2110197.6316

ALLOWABLE IMPACTS ZONE 1

ALLOWABLE IMPACTS ZONE 2

FOR -LI- LT PROFILE, SEE SHEET NO. 72  
FOR -LI- RT PROFILE, SEE SHEET NO. 72

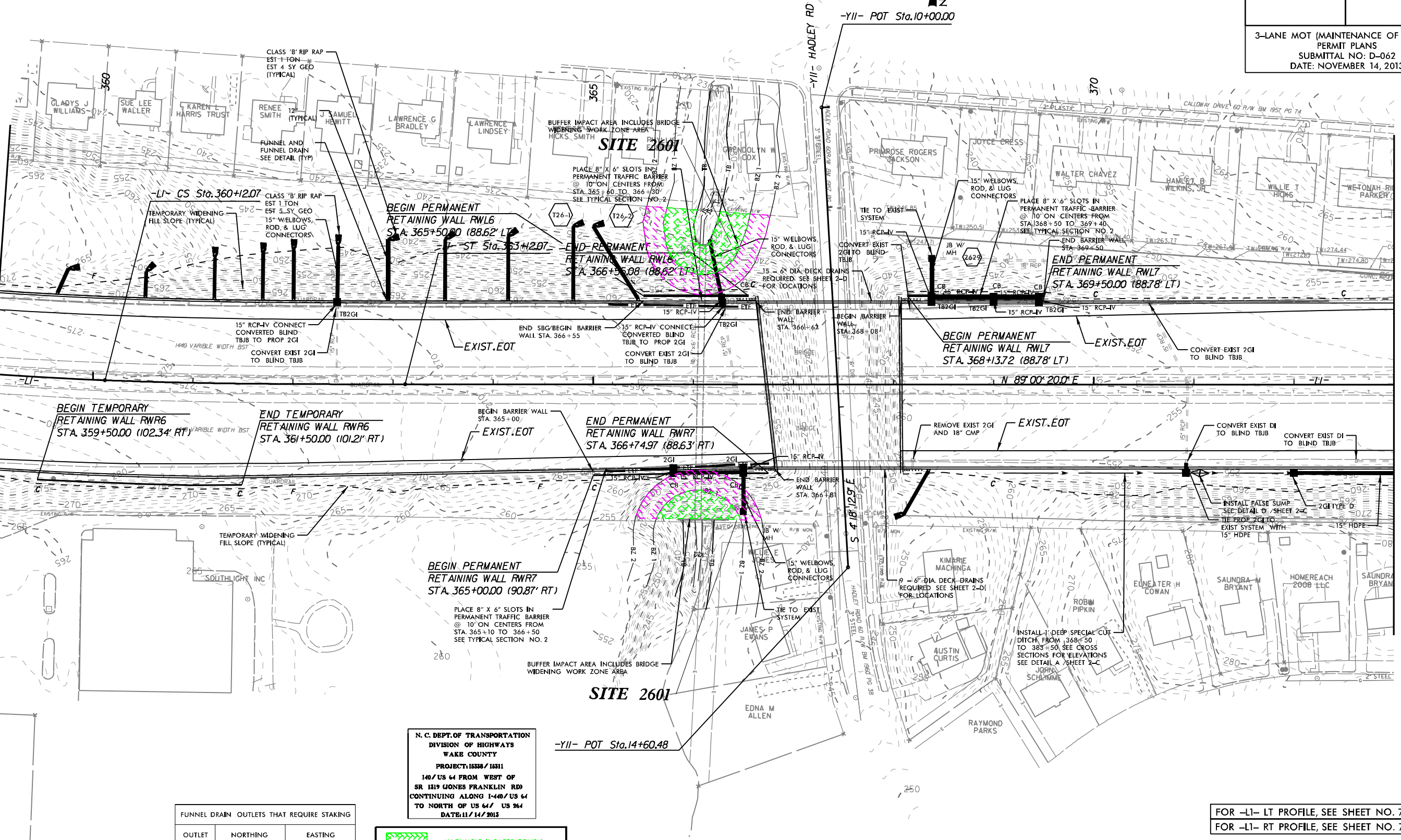


8/17/99

REVISIONS

-LI- CURVE DATA		
PI Sta 354+88.40 $\Delta = 15^{\circ}48'40.0"$ (LT) $D = 1^{\circ}30'00.0"$ $L = 1054.07'$ $T = 530.41'$ $R = 381972'$ $V = 70$ MPH	PIs Sta 361+12.08 $\Theta_s = 2^{\circ}15'00.0"$ $L_s = 300.00'$ $LT = 200.02'$ $ST = 100.01'$	PIs Sta 375+82.24 $\Theta_s = 6^{\circ}00'00.0"$ $L_s = 300.00'$ $LT = 200.02'$ $ST = 100.01'$

MATCHLINE SHEET 25 -LI- STA. 359+00.00



8/17/99

FUNNEL DRAIN OUTLETS THAT REQUIRE STAKING		
OUTLET	NORTHING	EASTING
T26-1	729284.0602	2110167.6882
T26-2	729287.5804	2110197.6316

	ALLOWABLE IMPACTS ZONE 1
	ALLOWABLE IMPACTS ZONE 2

N.C. DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
WAKE COUNTY  
PROJECT: 16338 / 16311  
140' US 64 FROM WEST OF  
SR 1319 GONES FRANKLIN RD  
CONTINUING ALONG I-440 / US 64  
TO NORTH OF US 64 / US 264  
DATE: 11/14/2013

FOR -LI- LT PROFILE, SEE SHEET NO. 72  
FOR -LI- RT PROFILE, SEE SHEET NO. 72



**GRANITE & RSH**  
IMPROVING YOUR WORLD  
**DESIGN-BUILD TEAM**

**Kimley-Horn and Associates, Inc.**

PROJECT REFERENCE NO.		SHEET NO.
1-5338/1-5311		26
RW SHEET NO.		
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR A/V ACQUISITION		
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION		
3-LANE MOT (MAINTENANCE OF TRAFFIC) PERMIT PLANS SUBMITTAL NO: D-062 DATE: NOVEMBER 14, 2013		

MATCHLINE SHEET 27 -LI- STA. 373+00.00



8/17/99

8/17/99

REVISIONS

**-Y12- CURVE DATA**  
PI Sta 14+55.70  
 $\Delta = 37^{\circ} 21' 50.3" (RT)$   
 $D = 11^{\circ} 27' 33.0"$   
 $L = 326.06'$   
 $T = 169.07'$   
 $R = 500.00'$

**-LI- CURVE DATA**  
PIs Sta 385+00.29    PI Sta 396+23.30    PI Sta 402+89.61  
 $\Theta_s = 6^{\circ} 00' 00.0"$      $\Theta_s = 4^{\circ} 48' 00.0"$      $\Delta = 20^{\circ} 02' 59.4" (RT)$   
 $L_s = 300.00'$      $L_s = 480.00'$      $D = 2^{\circ} 00' 00.0"$   
 $LT = 200.12'$      $LT = 320.12'$      $L = 1,002.49'$   
 $ST = 100.10'$      $ST = 160.11'$      $T = 506.42'$   
           $R = 2,864.79'$   
           $V = 70 \text{ MPH}$

ETHEL G. YOUNG  
HEIRS

NAD 83/NSRS 2007

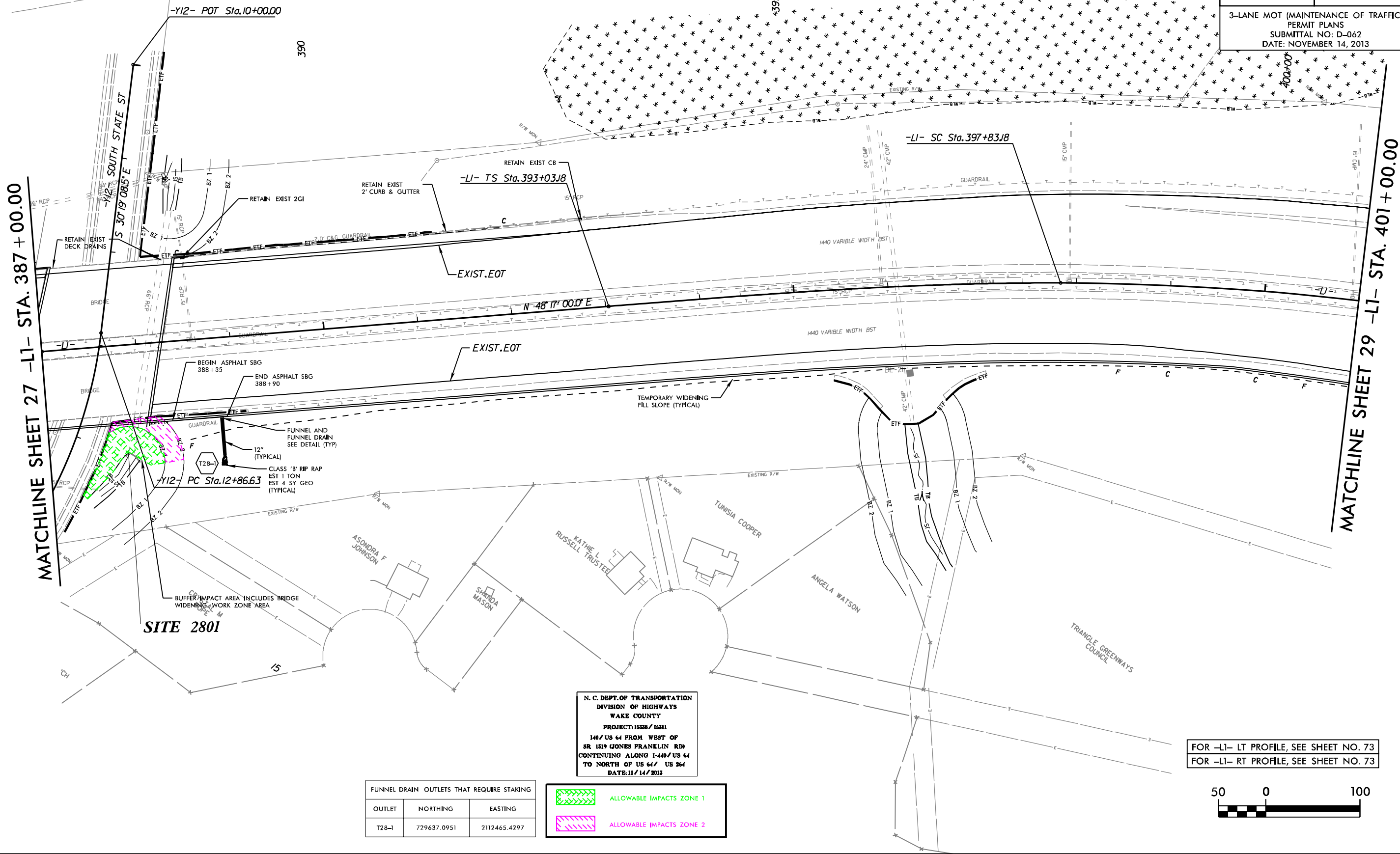
**GRANITE & RSH**  
IMPROVING YOUR WORLD  
**DESIGN-BUILD TEAM**

**Kimley-Horn  
and Associates, Inc.**

PROJECT REFERENCE NO. <b>1-5338/1-5311</b>	SHEET NO. <b>28</b>
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR E/W ACQUISITION	
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	
3-LANE MOT (MAINTENANCE OF TRAFFIC) PERMIT PLANS SUBMITTAL NO: D-062 DATE: NOVEMBER 14, 2013	

MATCHLINE SHEET 27 -L1- STA. 387 + 00.00

MATCHLINE SHEET 29 -L1- STA. 401 + 00.00



N. C. DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
WAKE COUNTY  
PROJECT: 16338 / 16311  
140 / US 64 FROM WEST OF  
SR 1519 JONES FRANKLIN RD  
CONTINUING ALONG I-40 / US 64  
TO NORTH OF US 64 / US 264  
DATE: 11 / 14 / 2013

FUNNEL DRAIN OUTLETS THAT REQUIRE STAKING		
OUTLET	NORTHING	EASTING
T28-1	729637.0951	2112465.4297

ALLOWABLE IMPACTS ZONE 1

ALLOWABLE IMPACTS ZONE 2

FOR -L1- LT PROFILE, SEE SHEET NO. 73  
FOR -L1- RT PROFILE, SEE SHEET NO. 73

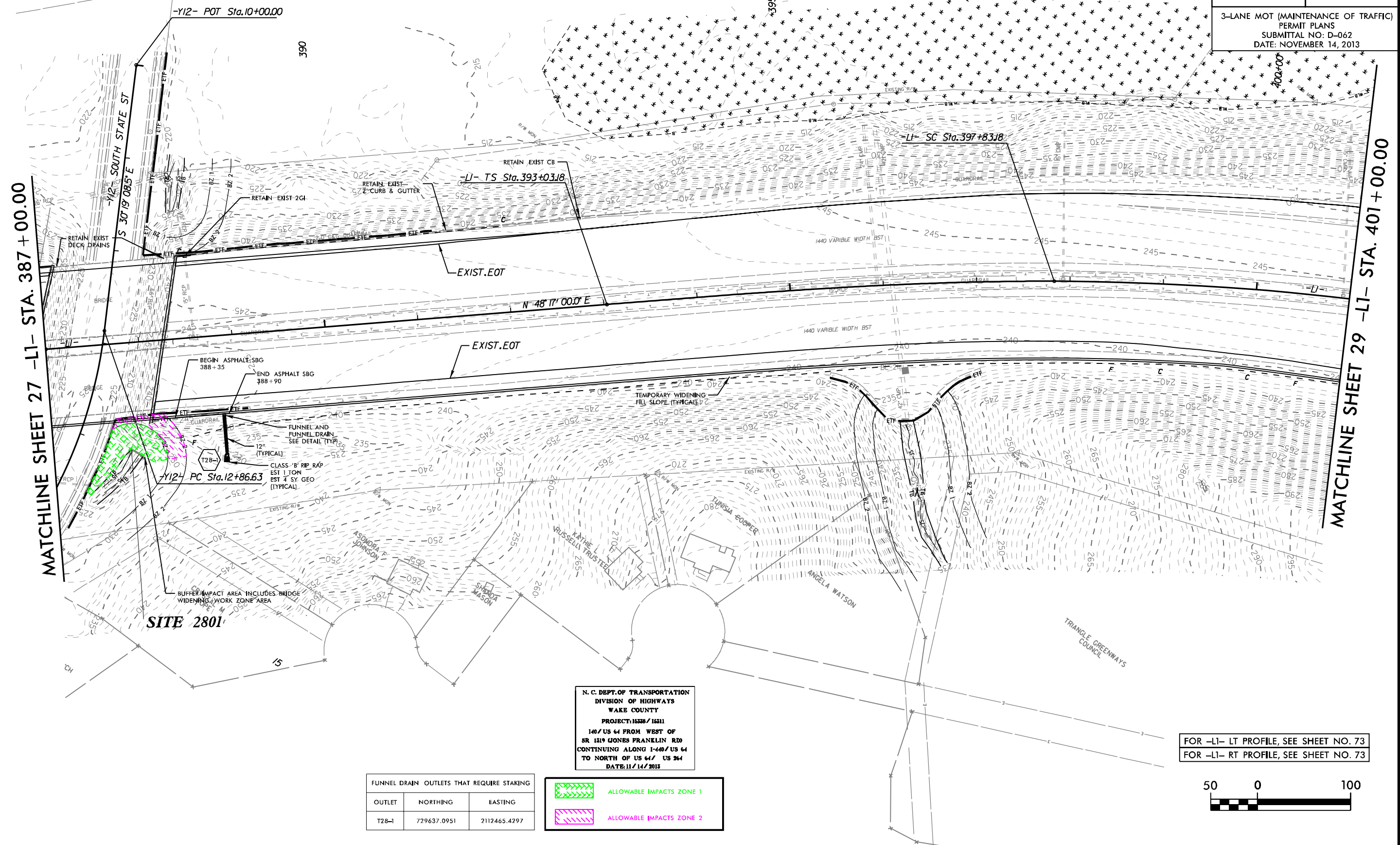


NAD 83/NSRS 2007

Pls Sta 385+00.29  
 $\theta_s = 6^\circ 00' 00.0''$   
 $L_s = 300.00'$   
 $LT = 200.12'$   
 $ST = 100.10'$

-LI- CURVE DATA  
Pls Sta 396+23.30  
Θs = 4° 48' 00.0"  
Ls = 480.00'  
LT = 320.12'  
ST = 160.11'

PI Sta 402+89.61  
 $\Delta = 20^\circ 02' 59.4''$  (RT)  
 $D = 2^\circ 00' 00.0''$   
 $L = 1,002.49'$   
 $T = 506.42'$   
 $R = 2,864.79'$   
 $V = 70$  MPH





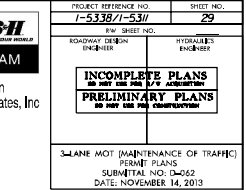
-RP-33- CURVE DATA			
PI Stn 13+50.07	PI Stn 15+25.38	PI Stn 16+70.06	PI Stn 21+61.61
Gr = 13' 3.8"	$\Delta = 74^{\circ} 56' 41"$ (LT)	Gr = 5' 31' 19.9"	$\Delta = 25^{\circ} 19' 09.6"$ (RT)
LS = 300.00'	D = 4' 49' 53.2"	LS = 200.00'	D = 8' 00' 48.2"
L = 200.00'	L = 200.00'	L = 140.00'	L = 140.00'
ST = 100.5'	L = 75.39'	ST = 70.05'	ST = 70.4'
	R = 100.00'		R = 70.00'
	V = 50 MPH		V = 35 MPH

-LP13B- CURVE DATA

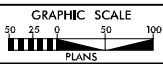
P1a S10 13+55.99 G1 = 34° 43' 23.0" L1 = 20000 I1 = 290.00 T1 = 135.00 R = 653.00 V = 25 MPH	P1 S10 15+04.78 Δ = 103° 45' 24.5" (RT) D = 34° 43' 23.0" L = 20000 I = 290.00 T = 135.00 R = 653.00 V = 25 MPH	P1 S10 17+47.89 G1 = 34° 43' 23.0" L1 = 20000 I1 = 290.00 T1 = 135.00 R = 653.00 V = 25 MPH	P1 S10 20+11.34 Δ = 88° 31' 02" (RT) D = 60° 18' 40.0" L = 20000 I = 328.58 T = 92.58 R = 153.00 V = 20 MPH
--	--	---	--

-Y13- POT S10.0+0000 =

-Y13- POT S10.1+53.00 =



FOR -L- LT PROFILE, SEE SHEET NO. 74,75
FOR -R- RT PROFILE, SEE SHEET NO. 74,75
FOR -RP13A- PROFILE, SEE SHEET NO. 104
FOR -LP13B- PROFILE, SEE SHEET NO. 104
FOR -RP13B- PROFILE, SEE SHEET NO. 105
FOR -LP13C- PROFILE, SEE SHEET NO. 105
FOR -RP13C- PROFILE, SEE SHEET NO. 106





5/27/14

REVISIONS

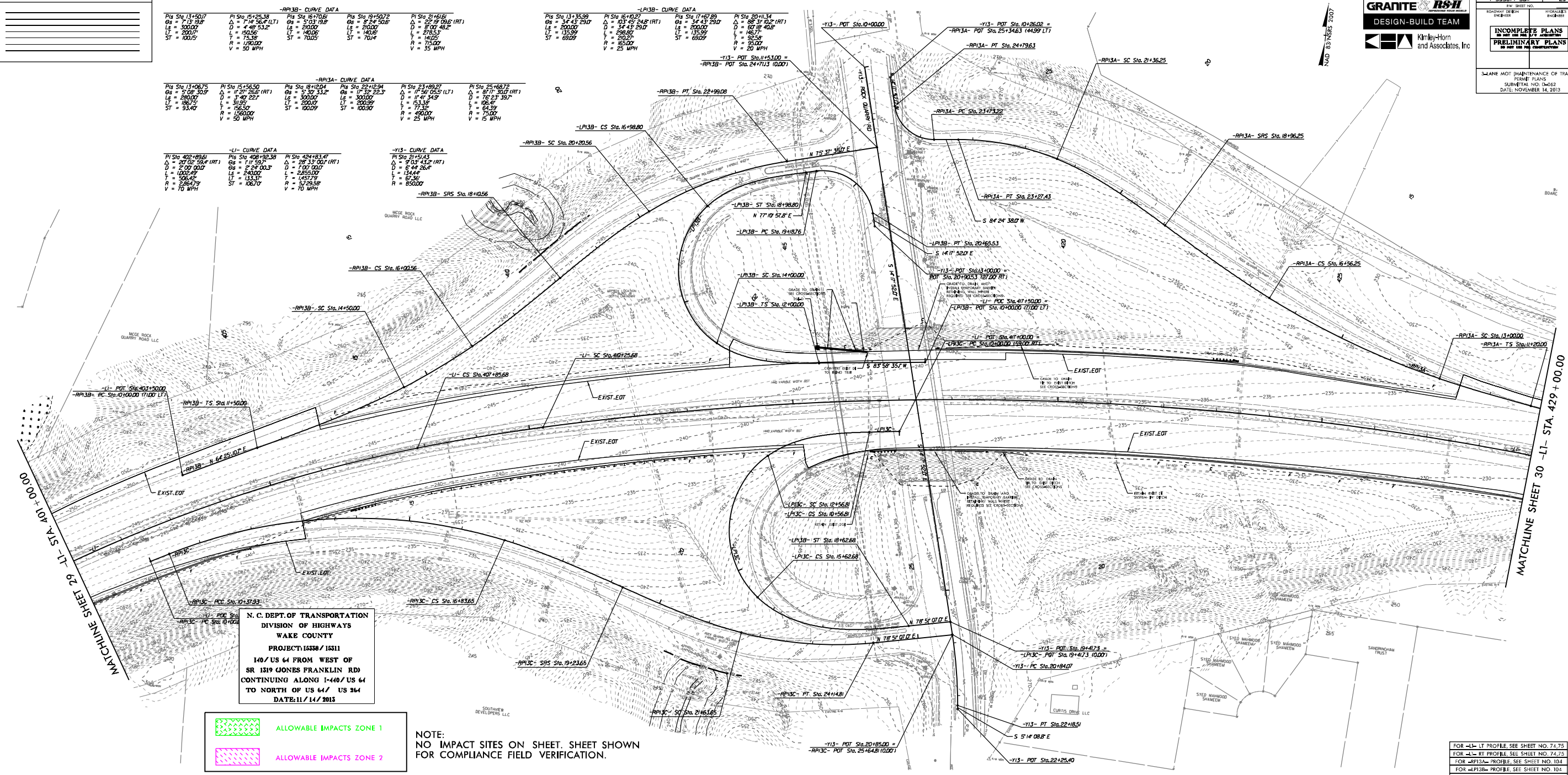

-RP13B- CURVE DATA			
Sta 13+50.7 Δ = 7°13'19.8" L = 300.00 LT = 200.00 ST = 100.00 R = 150.00 V = 50 MPH	Sta 15+25.38 Δ = 7°14'56.4" (LT) L = 300.00 LT = 200.00 ST = 100.00 R = 150.00 V = 50 MPH	Sta 16+70.61 Δ = 5°03'19.8" L = 300.00 LT = 200.00 ST = 100.00 R = 150.00 V = 50 MPH	Sta 19+50.72 Δ = 8°24'50.6" L = 300.00 LT = 200.00 ST = 100.00 R = 150.00 V = 50 MPH

-RP13A- CURVE DATA			
Sta 13+06.75 Δ = 5°00'30.8" L = 300.00 LT = 200.00 ST = 100.00 R = 150.00 V = 50 MPH	Sta 15+56.50 Δ = 7°14'56.4" (LT) L = 300.00 LT = 200.00 ST = 100.00 R = 150.00 V = 50 MPH	Sta 16+12.04 Δ = 5°03'19.8" L = 300.00 LT = 200.00 ST = 100.00 R = 150.00 V = 50 MPH	Sta 22+29.94 Δ = 8°24'50.6" L = 300.00 LT = 200.00 ST = 100.00 R = 150.00 V = 50 MPH

-LI- CURVE DATA		-Y13- CURVE DATA	
Sta 422+89.61 Δ = 20°02'59.4" (RT) L = 1000.00 LT = 1000.00 ST = 500.00 R = 250.00 V = 70 MPH	Sta 424+82.38 Δ = 1°11'59.7" L = 240.00 LT = 150.00 ST = 90.00 R = 120.00 V = 70 MPH	Sta 21+51.45 Δ = 8°01'10.0" (LT) L = 300.00 LT = 200.00 ST = 100.00 R = 150.00 V = 50 MPH	Sta 25+62.72 Δ = 8°01'10.0" (RT) L = 300.00 LT = 200.00 ST = 100.00 R = 150.00 V = 50 MPH

-LP13B- CURVE DATA			
Sta 13+35.99 Δ = 3°43'29.0" L = 200.00 LT = 133.99 ST = 66.00 R = 65.00 V = 25 MPH	Sta 16+02.27 Δ = 10°34'24.8" (RT) L = 200.00 LT = 133.99 ST = 66.00 R = 65.00 V = 25 MPH	Sta 17+67.89 Δ = 3°43'29.0" L = 200.00 LT = 133.99 ST = 66.00 R = 65.00 V = 25 MPH	Sta 20+11.34 Δ = 8°01'10.0" (RT) L = 300.00 LT = 200.00 ST = 100.00 R = 150.00 V = 50 MPH

-LP13B- CURVE DATA			
Sta 13+35.99 Δ = 3°43'29.0" L = 200.00 LT = 133.99 ST = 66.00 R = 65.00 V = 25 MPH	Sta 16+02.27 Δ = 10°34'24.8" (RT) L = 200.00 LT = 133.99 ST = 66.00 R = 65.00 V = 25 MPH	Sta 17+67.89 Δ = 3°43'29.0" L = 200.00 LT = 133.99 ST = 66.00 R = 65.00 V = 25 MPH	Sta 20+11.34 Δ = 8°01'10.0" (RT) L = 300.00 LT = 200.00 ST = 100.00 R = 150.00 V = 50 MPH



N. C. DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
WAKE COUNTY  
PROJECT: 15330 / 15311  
140 / US 64 FROM WEST OF  
SR 1319 JONES FRANKLIN RD  
CONTINUING ALONG I-440 / US 64  
TO NORTH OF US 64 / US 364  
DATE: 11/14/2013

ALLOWABLE IMPACTS ZONE 1  
ALLOWABLE IMPACTS ZONE 2

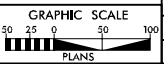
NOTE:  
NO IMPACT SITES ON SHEET. SHEET SHOWN  
FOR COMPLIANCE FIELD VERIFICATION.

-RP13C- CURVE DATA			
Sta 10+88.57 Δ = 0°46'28.7" (RT) L = 50.00 LT = 50.00 ST = 25.00 R = 25.00 V = 60 MPH	Sta 13+73.54 Δ = 38°32'11.6" (RT) L = 50.00 LT = 50.00 ST = 25.00 R = 25.00 V = 60 MPH	Sta 20+83.88 Δ = 7°22'43.7" L = 240.00 LT = 150.00 ST = 90.00 R = 120.00 V = 55 MPH	Sta 22+90.54 Δ = 20°07'35.2" (LT) L = 240.00 LT = 150.00 ST = 90.00 R = 120.00 V = 55 MPH

-LP13C- CURVE DATA			
Sta 10+28.41 Δ = 0°46'28.7" (RT) L = 50.00 LT = 50.00 ST = 25.00 R = 25.00 V = 70 MPH	Sta 11+90.77 Δ = 0°57'27.4" L = 50.00 LT = 50.00 ST = 25.00 R = 25.00 V = 70 MPH	Sta 14+66.84 Δ = 10°43'06.7" (LT) L = 300.00 LT = 200.00 ST = 100.00 R = 150.00 V = 25 MPH	Sta 16+70.34 Δ = 8°12'14.5" L = 300.00 LT = 200.00 ST = 100.00 R = 150.00 V = 25 MPH

GRANITE & RSH  
DESIGN-BUILD TEAM  
Kimley-Horn  
and Associates, Inc.

PROJECT REFERENCE NO. 15330/15311  
SHEET NO. 29  
INCOMPLETE PLANS  
PRELIMINARY PLANS  
DATE: NOVEMBER 14, 2013



FOR -LI- LT PROFILE, SEE SHEET NO. 74.75  
FOR -LI- RT PROFILE, SEE SHEET NO. 74.75  
FOR -RP13A- PROFILE, SEE SHEET NO. 104  
FOR -LP13B- PROFILE, SEE SHEET NO. 104  
FOR -RP13B- PROFILE, SEE SHEET NO. 105  
FOR -LP13C- PROFILE, SEE SHEET NO. 105  
FOR -RP13C- PROFILE, SEE SHEET NO. 106



8/17/99

**-RP13A- CURVE DATA**

PIs Sta 13+06.75  
θs = 5° 08' 30.9"  
Ls = 280.00'  
LT = 186.75'  
ST = 93.40'

**-LI- CURVE DATA**

PIs Sta 424+83.47  
Δ = 28° 33' 00.1" (RT)  
D = 1° 00' 00.0"  
Ls = 2,855.00'  
LT = 1,457.79'  
R = 5,729.58'  
V = 70 MPH

PIs Sta 439+60.68  
θs = 1° 12' 00.0"  
Ls = 240.00'  
LT = 160.00'  
ST = 80.00'

**GRANITE & RSH**  
IMPROVING YOUR WORLD

**DESIGN-BUILD TEAM**



**Kimley-Horn  
and Associates, Inc.**

PROJECT REFERENCE NO. SHEET NO.

1-5338/1-5311 30

R/W SHEET NO.

ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER

**INCOMPLETE PLANS**

DO NOT USE FOR E/V ACQUISITION

**PRELIMINARY PLANS**

DO NOT USE FOR CONSTRUCTION

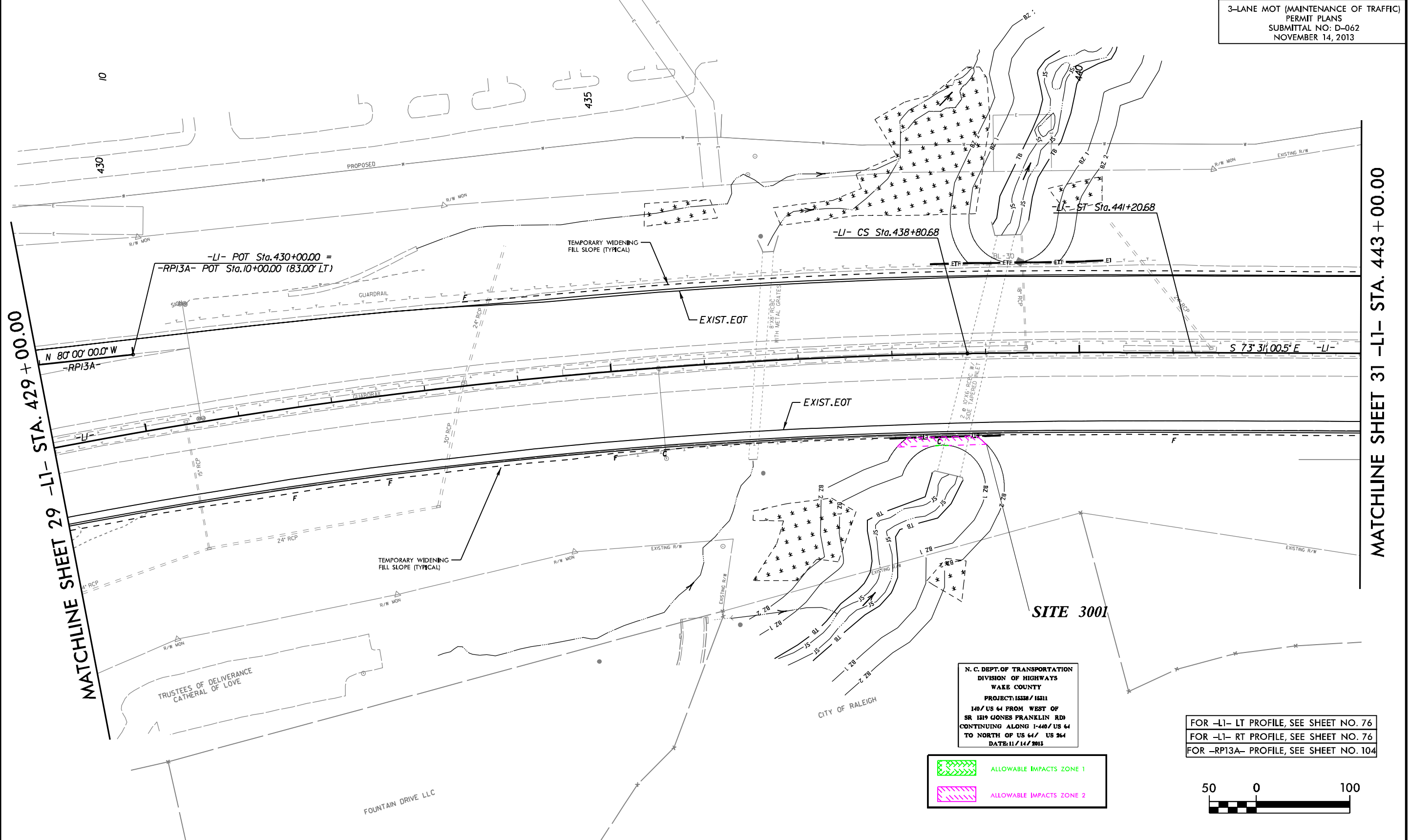
3-LANE MOT (MAINTENANCE OF TRAFFIC)

PERMIT PLANS

SUBMITTAL NO: D-062

NOVEMBER 14, 2013

2007  
NAD 83  
NSRS



MATCHLINE SHEET 29 -LI- STA. 429+00.00

MATCHLINE SHEET 31 -LI- STA. 443+00.00

N.C. DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
WAKE COUNTY  
PROJECT: 15338 / 15311  
140' US 64 FROM WEST OF  
SR 1519 GONES FRANKLIN RD  
CONTINUING ALONG I-440/US 64  
TO NORTH OF US 64/ US 264  
DATE: 11/14/2013

ALLOWABLE IMPACTS ZONE 1  
ALLOWABLE IMPACTS ZONE 2

FOR -LI- LT PROFILE, SEE SHEET NO. 76  
FOR -LI- RT PROFILE, SEE SHEET NO. 76  
FOR -RP13A- PROFILE, SEE SHEET NO. 104

50 0 100

8/17/99

**-RP13A- CURVE DATA**

PIs Sta 13+06.75  
θs = 5° 08' 30.9"  
Ls = 280.00'  
LT = 186.75'  
ST = 93.40'

**-LI- CURVE DATA**

PIs Sta 424+83.47  
Δ = 28° 33' 00.1" (RT)  
D = 1° 00' 00.0"  
Ls = 2,855.00'  
T = 1,457.79'  
R = 5,729.58'  
V = 70 MPH

PIs Sta 439+60.68  
θs = 1° 12' 00.0"  
Ls = 240.00'  
LT = 160.00'  
ST = 80.00'

**GRANITE & RSH**  
IMPROVING YOUR WORLD

**DESIGN-BUILD TEAM**



**Kimley-Horn  
and Associates, Inc.**

PROJECT REFERENCE NO.

1-5338/1-5311

SHEET NO.

30

R/W SHEET NO.

ROADWAY DESIGN  
ENGINEER

HYDRAULICS  
ENGINEER

**INCOMPLETE PLANS**  
DO NOT USE FOR E/W ACQUISITION

**PRELIMINARY PLANS**  
DO NOT USE FOR CONSTRUCTION

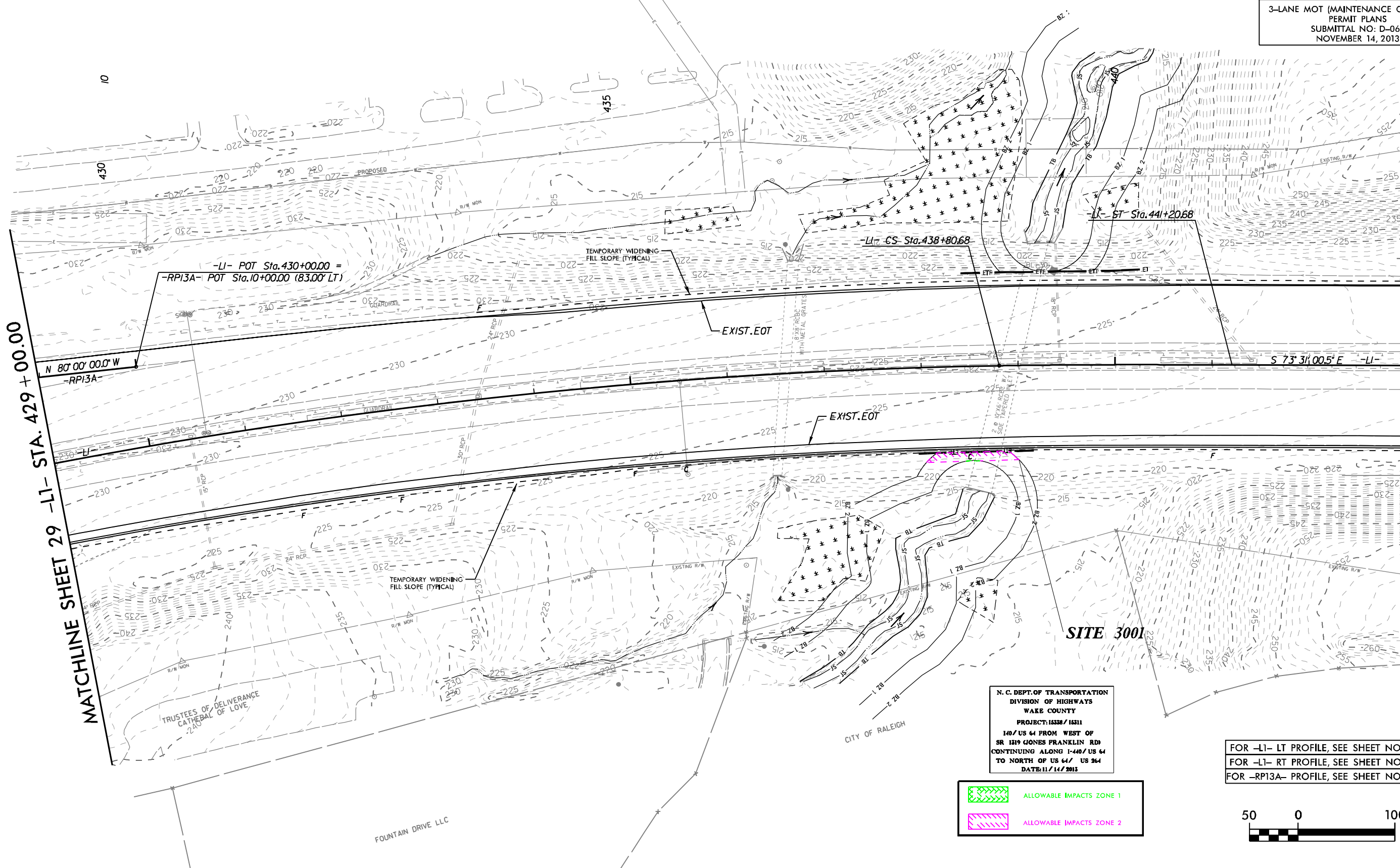
3-LANE MOT (MAINTENANCE OF TRAFFIC)

PERMIT PLANS

SUBMITTAL NO: D-062

NOVEMBER 14, 2013

83° NS 2007  
NAD



N.C. DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
WAKE COUNTY  
PROJECT: 15338 / 15311  
140' US 64 FROM WEST OF  
SR 1519 GONES FRANKLIN RD  
CONTINUING ALONG I-440/US 64  
TO NORTH OF US 64/ US 264  
DATE: 11/14/2013



ALLOWABLE IMPACTS ZONE 1



ALLOWABLE IMPACTS ZONE 2

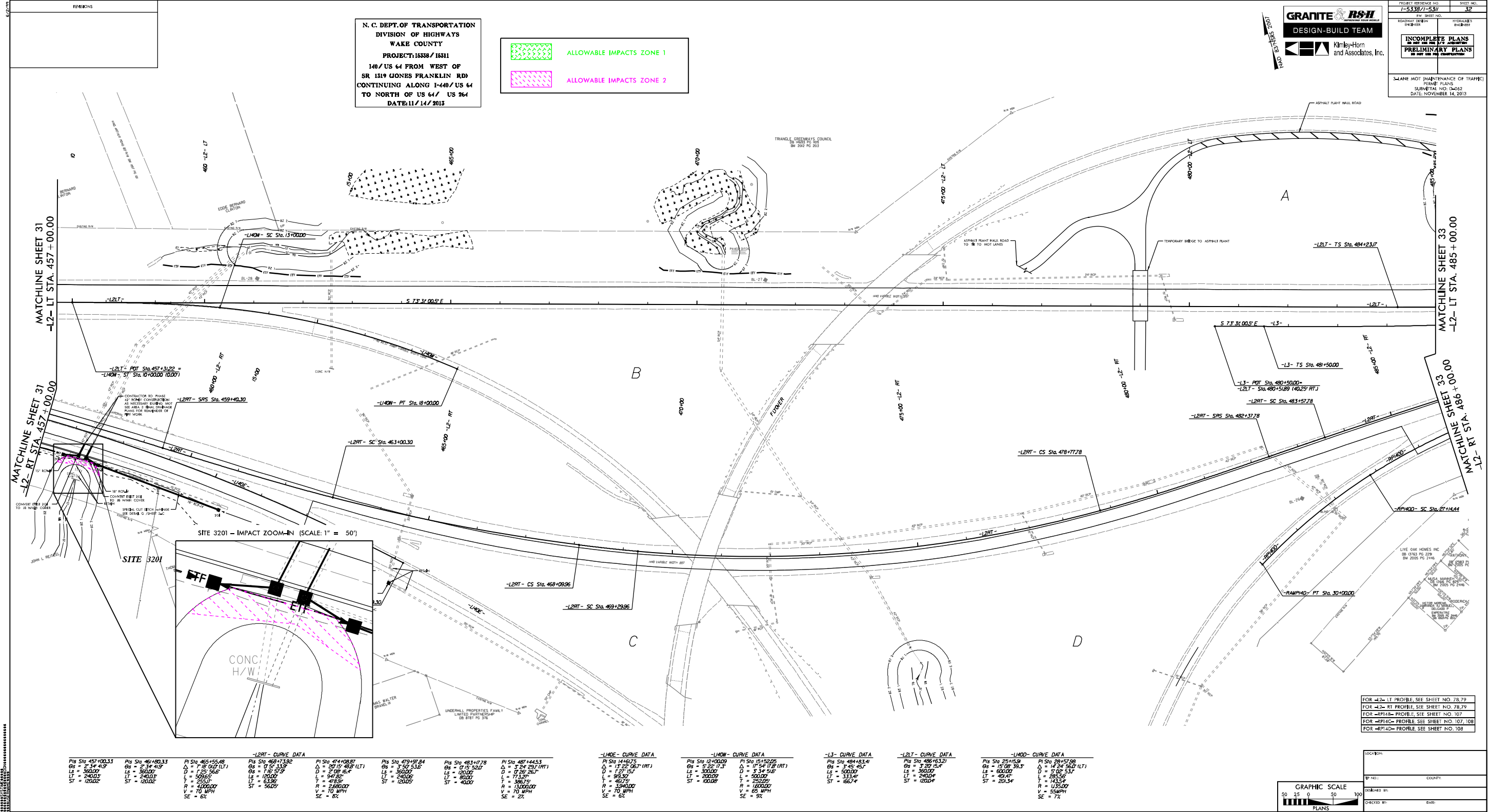
FOR -LI- LT PROFILE, SEE SHEET NO. 76

FOR -LI- RT PROFILE, SEE SHEET NO. 76

FOR -RP13A- PROFILE, SEE SHEET NO. 104







N. C. DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
WAKE COUNTY  
PROJECT: 18338 / 18311  
140 / US 64 FROM WEST OF  
SR 1519 GONES FRANKLIN RD  
CONTINUING ALONG I-440 / US 64  
TO NORTH OF US 64 / US 364  
DATE: 11/14/2013

ALLOWABLE IMPACTS ZONE 1

ALLOWABLE IMPACTS ZONE 2

GRANITE & RSH

DESIGN-BUILD TEAM

Kinley-Horn

and Associates, Inc.

PROJECT REFERENCE NO.  
1-5338/1-531

SHEET NO.  
32

INCOMPLETE PLANS  
DO NOT USE FOR CONSTRUCTION

PLANES NOT (MAINTENANCE OF TRAFFIC)  
PERMANENT PLANS  
SUBMITTAL NO. D-662  
DATE: NOVEMBER 14, 2013

-L2RT - CURVE DATA									
Sta 457+00.33	Sta 461+80.33	Sta 465+55.48	Sta 468+73.92	Sta 474+08.87	Sta 479+59.84	Sta 483+77.78	Sta 487+44.53	Sta 490+00.00	Sta 495+00.00
GS = 2' 34" 41.9'	GS = 2' 34" 41.9'	Δ = 7' 18" 01.0 (LT)	Δ = 7' 18" 01.0 (LT)	Δ = 20' 15" 40.8 (LT)	Δ = 3' 59" 53.5'	Δ = 0' 15" 52.0'	Δ = 3' 24" 23.0 (RT)	Δ = 17' 25" 08.7 (RT)	Δ = 17' 25" 08.7 (RT)
LS = 360.00'	LS = 360.00'	D = 125' 56.6'	D = 125' 56.6'	D = 125' 56.6'	D = 125' 56.6'	D = 125' 56.6'	D = 125' 56.6'	D = 125' 56.6'	D = 125' 56.6'
LT = 240.00'	LT = 240.00'	L = 569.65'	L = 569.65'	L = 569.65'	L = 569.65'	L = 569.65'	L = 569.65'	L = 569.65'	L = 569.65'
ST = 120.02'	ST = 120.02'	T = 25.01'	T = 25.01'	T = 25.01'	T = 25.01'	T = 25.01'	T = 25.01'	T = 25.01'	T = 25.01'
		R = 4000.00'	R = 4000.00'	R = 4000.00'	R = 4000.00'	R = 4000.00'	R = 4000.00'	R = 4000.00'	R = 4000.00'
		V = 70 MPH	V = 70 MPH	V = 70 MPH	V = 70 MPH	V = 70 MPH	V = 70 MPH	V = 70 MPH	V = 70 MPH
		SE = 6%	SE = 6%	SE = 6%	SE = 6%	SE = 6%	SE = 6%	SE = 6%	SE = 6%

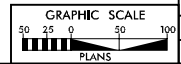
-L2LT - CURVE DATA									
Sta 457+00.33	Sta 461+80.33	Sta 465+55.48	Sta 468+73.92	Sta 474+08.87	Sta 479+59.84	Sta 483+77.78	Sta 487+44.53	Sta 490+00.00	Sta 495+00.00
GS = 2' 34" 41.9'	GS = 2' 34" 41.9'	Δ = 7' 18" 01.0 (LT)	Δ = 7' 18" 01.0 (LT)	Δ = 20' 15" 40.8 (LT)	Δ = 3' 59" 53.5'	Δ = 0' 15" 52.0'	Δ = 3' 24" 23.0 (RT)	Δ = 17' 25" 08.7 (RT)	Δ = 17' 25" 08.7 (RT)
LS = 360.00'	LS = 360.00'	D = 125' 56.6'	D = 125' 56.6'	D = 125' 56.6'	D = 125' 56.6'	D = 125' 56.6'	D = 125' 56.6'	D = 125' 56.6'	D = 125' 56.6'
LT = 240.00'	LT = 240.00'	L = 569.65'	L = 569.65'	L = 569.65'	L = 569.65'	L = 569.65'	L = 569.65'	L = 569.65'	L = 569.65'
ST = 120.02'	ST = 120.02'	T = 25.01'	T = 25.01'	T = 25.01'	T = 25.01'	T = 25.01'	T = 25.01'	T = 25.01'	T = 25.01'
		R = 4000.00'	R = 4000.00'	R = 4000.00'	R = 4000.00'	R = 4000.00'	R = 4000.00'	R = 4000.00'	R = 4000.00'
		V = 70 MPH	V = 70 MPH	V = 70 MPH	V = 70 MPH	V = 70 MPH	V = 70 MPH	V = 70 MPH	V = 70 MPH
		SE = 6%	SE = 6%	SE = 6%	SE = 6%	SE = 6%	SE = 6%	SE = 6%	SE = 6%

-L3 - CURVE DATA									
Sta 457+00.33	Sta 461+80.33	Sta 465+55.48	Sta 468+73.92	Sta 474+08.87	Sta 479+59.84	Sta 483+77.78	Sta 487+44.53	Sta 490+00.00	Sta 495+00.00
GS = 2' 34" 41.9'	GS = 2' 34" 41.9'	Δ = 7' 18" 01.0 (LT)	Δ = 7' 18" 01.0 (LT)	Δ = 20' 15" 40.8 (LT)	Δ = 3' 59" 53.5'	Δ = 0' 15" 52.0'	Δ = 3' 24" 23.0 (RT)	Δ = 17' 25" 08.7 (RT)	Δ = 17' 25" 08.7 (RT)
LS = 360.00'	LS = 360.00'	D = 125' 56.6'	D = 125' 56.6'	D = 125' 56.6'	D = 125' 56.6'	D = 125' 56.6'	D = 125' 56.6'	D = 125' 56.6'	D = 125' 56.6'
LT = 240.00'	LT = 240.00'	L = 569.65'	L = 569.65'	L = 569.65'	L = 569.65'	L = 569.65'	L = 569.65'	L = 569.65'	L = 569.65'
ST = 120.02'	ST = 120.02'	T = 25.01'	T = 25.01'	T = 25.01'	T = 25.01'	T = 25.01'	T = 25.01'	T = 25.01'	T = 25.01'
		R = 4000.00'	R = 4000.00'	R = 4000.00'	R = 4000.00'	R = 4000.00'	R = 4000.00'	R = 4000.00'	R = 4000.00'
		V = 70 MPH	V = 70 MPH	V = 70 MPH	V = 70 MPH	V = 70 MPH	V = 70 MPH	V = 70 MPH	V = 70 MPH
		SE = 6%	SE = 6%	SE = 6%	SE = 6%	SE = 6%	SE = 6%	SE = 6%	SE = 6%

-L2LT - CURVE DATA									
Sta 457+00.33	Sta 461+80.33	Sta 465+55.48	Sta 468+73.92	Sta 474+08.87	Sta 479+59.84	Sta 483+77.78	Sta 487+44.53	Sta 490+00.00	Sta 495+00.00
GS = 2' 34" 41.9'	GS = 2' 34" 41.9'	Δ = 7' 18" 01.0 (LT)	Δ = 7' 18" 01.0 (LT)	Δ = 20' 15" 40.8 (LT)	Δ = 3' 59" 53.5'	Δ = 0' 15" 52.0'	Δ = 3' 24" 23.0 (RT)	Δ = 17' 25" 08.7 (RT)	Δ = 17' 25" 08.7 (RT)
LS = 360.00'	LS = 360.00'	D = 125' 56.6'	D = 125' 56.6'	D = 125' 56.6'	D = 125' 56.6'	D = 125' 56.6'	D = 125' 56.6'	D = 125' 56.6'	D = 125' 56.6'
LT = 240.00'	LT = 240.00'	L = 569.65'	L = 569.65'	L = 569.65'	L = 569.65'	L = 569.65'	L = 569.65'	L = 569.65'	L = 569.65'
ST = 120.02'	ST = 120.02'	T = 25.01'	T = 25.01'	T = 25.01'	T = 25.01'	T = 25.01'	T = 25.01'	T = 25.01'	T = 25.01'
		R = 4000.00'	R = 4000.00'	R = 4000.00'	R = 4000.00'	R = 4000.00'	R = 4000.00'	R = 4000.00'	R = 4000.00'
		V = 70 MPH	V = 70 MPH	V = 70 MPH	V = 70 MPH	V = 70 MPH	V = 70 MPH	V = 70 MPH	V = 70 MPH
		SE = 6%	SE = 6%	SE = 6%	SE = 6%	SE = 6%	SE = 6%	SE = 6%	SE = 6%

-L400 - CURVE DATA									
Sta 457+00.33	Sta 461+80.33	Sta 465+55.48	Sta 468+73.92	Sta 474+08.87	Sta 479+59.84	Sta 483+77.78	Sta 487+44.53	Sta 490+00.00	Sta 495+00.00
GS = 2' 34" 41.9'	GS = 2' 34" 41.9'	Δ = 7' 18" 01.0 (LT)	Δ = 7' 18" 01.0 (LT)	Δ = 20' 15" 40.8 (LT)	Δ = 3' 59" 53.5'	Δ = 0' 15" 52.0'	Δ = 3' 24" 23.0 (RT)	Δ = 17' 25" 08.7 (RT)	Δ = 17' 25" 08.7 (RT)
LS = 360.00'	LS = 360.00'	D = 125' 56.6'	D = 125' 56.6'	D = 125' 56.6'	D = 125' 56.6'	D = 125' 56.6'	D = 125' 56.6'	D = 125' 56.6'	D = 125' 56.6'
LT = 240.00'	LT = 240.00'	L = 569.65'	L = 569.65'	L = 569.65'	L = 569.65'	L = 569.65'	L = 569.65'	L = 569.65'	L = 569.65'
ST = 120.02'	ST = 120.02'	T = 25.01'	T = 25.01'	T = 25.01'	T = 25.01'	T = 25.01'	T = 25.01'	T = 25.01'	T = 25.01'
		R = 4000.00'	R = 4000.00'	R = 4000.00'	R = 4000.00'	R = 4000.00'	R = 4000.00'	R = 4000.00'	R = 4000.00'
		V = 70 MPH	V = 70 MPH	V = 70 MPH	V = 70 MPH	V = 70 MPH	V = 70 MPH	V = 70 MPH	V = 70 MPH
		SE = 6%	SE = 6%	SE = 6%	SE = 6%	SE = 6%	SE = 6%	SE = 6%	SE = 6%

FOR -L2- LT PROFILE SEE SHEET NO. 78.79  
FOR -L2- RT PROFILE SEE SHEET NO. 78.79  
FOR -L3- PROFILE SEE SHEET NO. 107  
FOR -L400- PROFILE SEE SHEET NO. 107.108  
FOR -L400- PROFILE SEE SHEET NO. 108

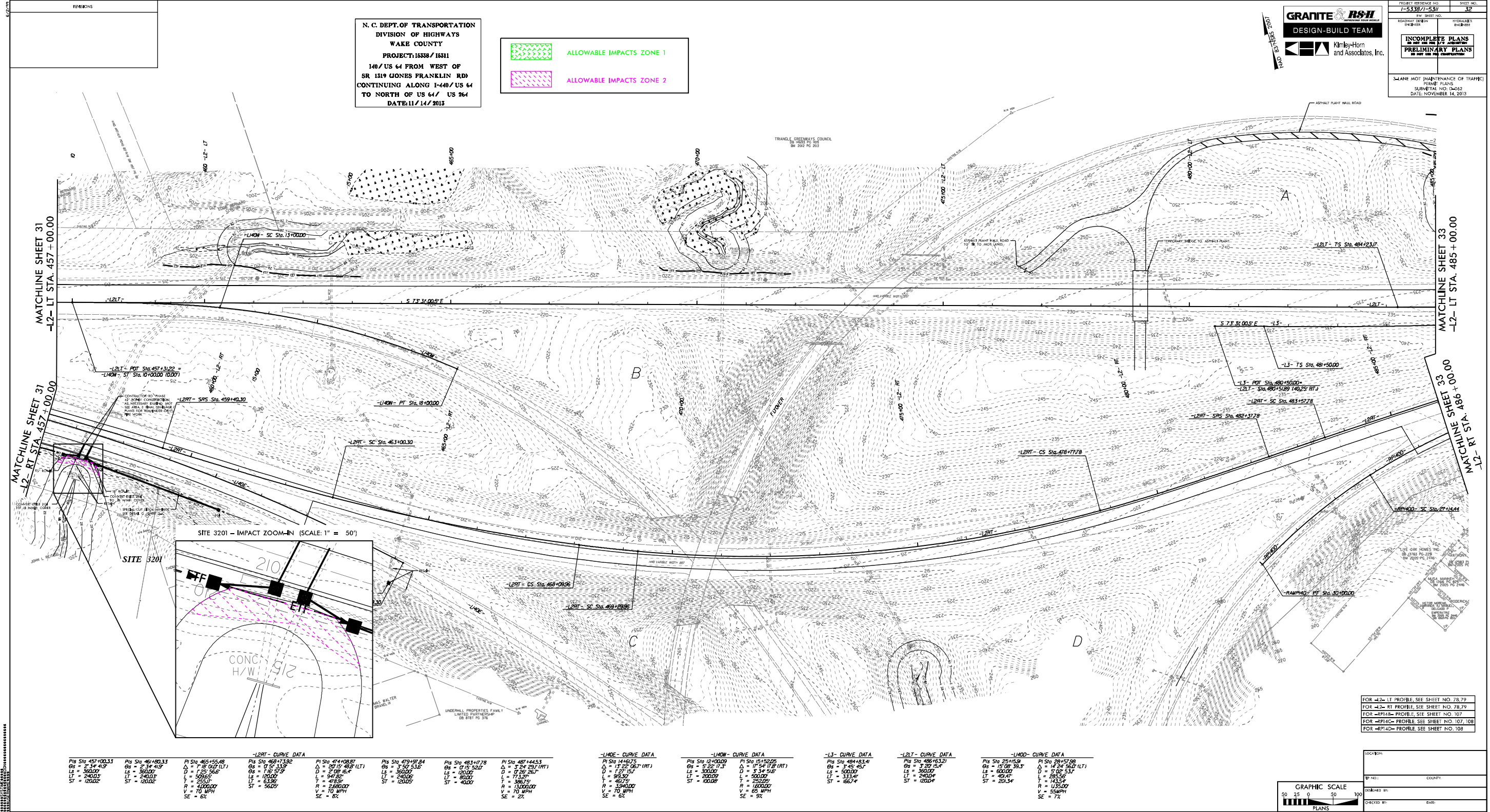


LOCATION:

PROJECT NO.: COUNTY:

DESIGNED BY: DATE:

CHECKED BY: DATE:



N. C. DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
WAKE COUNTY  
PROJECT: 15338 / 15311  
140 / US 64 FROM WEST OF  
SR 1519 GONES FRANKLIN RD  
CONTINUING ALONG I-440 / US 64  
TO NORTH OF US 64 / US 364  
DATE: 11/14/2013

ALLOWABLE IMPACTS ZONE 1  
ALLOWABLE IMPACTS ZONE 2

**GRANITE & RSH**  
DESIGN-BUILD TEAM  
Kinley-Horn  
and Associates, Inc.

PROJECT REFERENCE NO.  
1-5338/1-5311

SHEET NO.  
32

INCOMPLETE PLANS  
DO NOT USE FOR CONSTRUCTION

PRELIMINARY PLANS  
DO NOT USE FOR CONSTRUCTION

PROJECT REFERENCE NO.  
1-5338/1-5311

SHEET NO.  
32

INCOMPLETE PLANS  
DO NOT USE FOR CONSTRUCTION

PRELIMINARY PLANS  
DO NOT USE FOR CONSTRUCTION

PROJECT REFERENCE NO.  
1-5338/1-5311

SHEET NO.  
32

INCOMPLETE PLANS  
DO NOT USE FOR CONSTRUCTION

PRELIMINARY PLANS  
DO NOT USE FOR CONSTRUCTION

-L2RT- CURVE DATA		-L2LT- CURVE DATA		-L3- CURVE DATA		-L2LT- CURVE DATA		-L400- CURVE DATA	
Sta 457+00.33	Sta 457+00.33	Sta 457+00.33	Sta 457+00.33	Sta 457+00.33	Sta 457+00.33	Sta 457+00.33	Sta 457+00.33	Sta 457+00.33	Sta 457+00.33
LS = 360.00'	LS = 360.00'	LS = 360.00'	LS = 360.00'	LS = 360.00'	LS = 360.00'	LS = 360.00'	LS = 360.00'	LS = 360.00'	LS = 360.00'
LT = 240.00'	LT = 240.00'	LT = 240.00'	LT = 240.00'	LT = 240.00'	LT = 240.00'	LT = 240.00'	LT = 240.00'	LT = 240.00'	LT = 240.00'
ST = 120.00'	ST = 120.00'	ST = 120.00'	ST = 120.00'	ST = 120.00'	ST = 120.00'	ST = 120.00'	ST = 120.00'	ST = 120.00'	ST = 120.00'

GRAPHIC SCALE  
0 25 50 100  
PLANS

LOCATION:  
TYP NO.:  
COUNTY:  
DESIGNED BY:  
CHECKED BY:  
DATE: