



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE  
GOVERNOR

EUGENE A. CONTI, JR.  
SECRETARY

December 16, 2011

U. S. Army Corps of Engineers  
Regulatory Field Office  
151 Patton Avenue, Room 208  
Asheville, NC 28801-5006

ATTN: Ms. Sarah Elizabeth Hair  
NCDOT Coordinator

Dear Madam:

**Subject: Application for an Individual Section 404 Permit, Section 401 Water Quality Certification, and Isolated/ Non 404 Wetlands Permit** for the upgrade of existing Mallard Creek Road (SR 2467) from H.T. Harris Boulevard (SR 2665) to the intersection of Hubbard Road (SR 2494) and continuing southeast on new location to Sugar Creek Road (SR 2480) with an additional extension from Rumble Road (SR 2501) to Neal Road (SR 2498) in Mecklenburg County. Federal Aid Project No. STPDA-5238 (4) & (5), Division 10, TIP U-2507 A. Debit \$570 from WBS 34811.2.3.

The North Carolina Department of Transportation (NCDOT) proposes to widen the existing Mallard Creek Road (SR 2467) from H.T. Harris Boulevard (SR 2665) to the intersection of Hubbard Road (SR 2494) and continuing southeast on new location to Sugar Creek Road (RD 2480) with an additional extension from Rumble Road (SR 2501) to Neal Road (SR 2498).

Please see the enclosed ENG 4345, Ecosystem Enhancement Program (EEP) mitigation acceptance letter, permit drawing review minutes (CP 4B and 4C), State Stormwater Management Plan (SMP), Indirect and Cumulative Effects Screening, Concurrence Form for Assessment of Effects, permit drawings, and design plans, for the above referenced project.

Purpose and Need:

The purpose of this project is to improve local access to development along the route, improve the levels of services for current and future traffic demands, reduce both travel time and accident potential and provide a savings of operating cost.

### Summary of Jurisdictional Impacts:

The project will permanently impact 0.15 acre of wetlands (0.11 acre of this is Isolated/ Non 404) and 1,121 linear feet of streams (147 of which will be from bank stabilization). The project will temporarily impact 0.02 acre of streams.

*Note that the EA & FONSI were approved prior to the requirement of accounting for stream impacts. Therefore, the 1,121 feet of impacts are not "new" impacts; they are newly accounted.*

### Summary of Utility Impacts:

There will be no temporary or permanent impacts to jurisdictional resources due to utility relocations on U-2507A.

### Summary of Mitigation:

The project has been designed to avoid and minimize impacts to jurisdictional areas throughout the National Environmental Policy Act (NEPA) and design processes. However, project impacts will necessitate compensatory mitigation for the unavoidable impacts. Detailed descriptions of these actions are presented in the mitigation portion of this application. The EEP will provide compensatory mitigation for 0.04 acre of wetland impacts and 974 linear feet of stream impacts.

## **PROJECT SCHEDULE**

TIP U-2507 consists of sections A and B. Construction of section B is complete. Section A has a let date of July 17, 2012 and a review date of May 29, 2012. However, the date could be advanced if funding becomes available.

## **NEPA DOCUMENT STATUS**

The Administrative Action/ Environmental Assessment and Programmatic Section 4(f) Evaluation and Approval was completed and signed on March 4, 1992.

A FONSI was completed and signed on May 13, 1992.

A re-evaluation of the EA and FONSI was completed and signed on March 27, 2009. This document indicated that, *"Since there have not been any significant changes, it is unlikely the impacts associated with the recommended alternative will be any greater than what has already anticipated. Therefore, it has been determined that the anticipated social, economic, and environmental impacts were accurately described in the previously referenced EA and FONSI and, the original Administrative Action remains valid."*

Additional copies of these documents will be provided upon request.

In compliance with the NEPA/404 Merger Process, Concurrence Points 4B and 4C were reached for U-2507 A on September 24, 2008 and February 9, 2011, respectively.

## INDEPENDENT UTILITY

The subject project is in compliance with 23 CFR Part 771.111(f) which lists the Federal Highway Administration (FHWA) characteristics of independent utility of a project:

- (1) The project connects logical termini and is of sufficient length to address environmental matters on a broad scope,
- (2) The project is usable and a reasonable expenditure, even if no additional transportation improvements are made in the area;
- (3) The project does not restrict consideration of alternatives for other reasonably foreseeable transportation improvements.

## RESOURCE STATUS

Project U-2507 A is located within sub-basin (03-07-11) of the Yadkin Pee Dee River Watershed, Rocky River Basin (HUC 03040105). There are no named streams within the project. All streams in the project footprint are UT's to Mallard Creek or Doby Creek. All streams in the project area are classified as DWQ Class C waters. No designated Outstanding Resource Waters (ORW), High Quality Waters (HQW), or Water Supply (WS-I, or WS-II) occur within the project area.

### 303(d) Impaired Waters:

Doby Creek is listed on the North Carolina Department of Environment and Natural Resources (NCDENR's) 2010 Final 303(d) List. Doby Creek is listed as having impaired biologic integrity from its source to Mallard Creek due to ecological/ biological integrity for benthos.

Wetland and stream determinations within U-2507A were conducted using the field delineation method outlined in the 1987 Corps of Engineers Wetland Delineation Manual. Mr. Steven W. Lund of the U.S. Army Corps of Engineers verified the wetlands and surface waters on August 25, 2008.

## IMPACTS TO WATERS OF THE U.S.

Tables 1, 2, and 3 summarize the impacts to jurisdictional water resources. Site numbers correspond with the permit (hydraulic) drawings included in this application. A brief description of each impact site will follow the tables.

**Table 1. Impacts to jurisdictional wetlands in Yadkin-Pee Dee River Basin (HUC 03040105)**

Permit Site No.	2008 Wetland JD Reference	Wetland Size (acre)	Impact Type	Impact Area (acres)	Temporary Impacts (acre)	Mitigation Requirement
1	W4 (Isolated/ Non-404)	0.24	Perm. fill	0.07	--	--
			Mechanized Clearing	0.04	--	--
			Temp. fill	--	--	--
3	W3	0.01	Perm. fill	0.01	--	USACE
			Mechanized Clearing	--	--	--
			Temp. fill	--	--	--
4	W2	0.06	Perm. fill	0.01	--	USACE
			Mechanized Clearing	0.01	--	USACE
			Temp. fill	--	--	--
6	W1	0.06	Perm. fill	--	--	--
			Mechanized Clearing	0.01	--	USACE & DWQ
			Temp. fill	--	--	--
<b>Total Permanent Impacts (Perm. Fill + Mechanized Clearing):</b>				0.15	--	--
<b>Permanent Impacts Requiring DWQ Mitigation:</b>				0.00	--	--
<b>Permanent Impacts Requiring USACE Mitigation:</b>				0.04	--	--
<b>Total Impacts Requiring Mitigation (2:1):</b>				0.04	--	<b>0.08</b>

**Table 2. Impacts to jurisdictional streams in Yadkin-Pee Dee Basin (HUC 03040105)**

Site No.	Stream Name	Stream JD Reference	Impact Type	Impact Length (linear feet)	Temporary Impacts (acre)	Mitigation Requirement <sup>a/</sup>
1	UT to Doby Creek	S7A	Perm. fill	704	--	USACE & DWQ
			Bank Stabilization	22	--	DWQ
			Temp. fill	--	<0.01	--
2	UT to Doby Creek	S6	Perm. fill	214	--	USACE & DWQ
			Bank Stabilization	72	--	DWQ
			Temp. fill	--	0.01	--
3	UT to Doby Creek	S5	Perm. fill	--	--	--
			Bank Stabilization	19	--	-- <sup>c/</sup>
			Temp. fill	--	<0.01	--
4	UT to Doby Creek	S4b	Perm. fill	44	--	USACE
			Bank stabilization	34	--	-- <sup>c/</sup>
			Temp. fill	--	<0.01	--
6	UT to Mallard Creek	S3	Permanent fill	12	--	USACE
			Bank Stabilization	--	--	--
			Temporary fill	--	--	--
<b>Total Temporary Impacts:</b>				--	0.02 <sup>b/</sup>	--
<b>Total Permanent Impacts (Perm. Fill + Bank Stabilization):</b>				1,121	--	--
<b>Permanent Impacts Requiring DWQ Mitigation (1:1):</b>				1,012	--	--
<b>Permanent Impacts Requiring USACE Mitigation (2:1):</b>				974	--	--
<b>Total Impacts Requiring Mitigation (2:1):</b>				974	--	<b>1,948<sup>+</sup></b>

<sup>a/</sup> Mitigation for bank stabilization impact required by DWQ – not required by USACE.

<sup>b/</sup> Value based on rounding, due to some of the individual impacts being <0.01 acre.

<sup>c/</sup> Permanent impact <150' therefore mitigation for bank stabilization impact not required by DWQ.

<sup>+</sup> Mitigation proposed by NCDOT (based on mitigation required by the USACE exceeding the amount required by DWQ).

**Table 3. Impacts to ponds in Yadkin-Pee Dee River Basin (HUC 03040105)**

Site No.	Wetland JD Reference	Permanent Impact Area (acres)	Temporary Impacts (acre)
3	P2	1.08	--
5	P1	0.01	0.02
<b>Total Impacts:</b>		1.09	0.02

**Permit Site 1:** Stream S7A is a perennial stream that will be impacted as a result of the construction of the new location section of the project. There are two main impact locations of S7A. Starting at the upstream end, the stream will be placed into a 24" RCP and will discharge into a lateral base ditch as shown on Detail A of the permit drawings. This will result in 152 linear feet of permanent stream impact, and <0.01 acre of temporary stream impact.

The next impact at Site 1 is the relocation of stream S7A into a lateral base ditch (see Detail "A") with check dams at various intervals throughout. (See Detail "L" for check dams.)

This relocation will result in 574 linear feet of permanent stream impact (22 linear feet will be bank stabilization), and <0.01 acre of temporary stream impact.

Wetland 4 will also be impacted at Site 1, resulting 0.11 acre of permanent impact (0.07 acre of fill), and 0.04 acre of mechanized clearing). Steve Lund of the USACE considered W4 to be isolated and therefore under the jurisdiction of NCDWQ only.

**Permit Site 2:** Stream S6 is a perennial stream that will be placed into a single barrel 7' x 8' Reinforced Concrete Box Culvert (RCBC). This will result in 286 feet of permanent stream impact (72 of which is bank stabilization), and 0.01 acre of temporary fill. Temporarily relocating the stream so the culvert can be built in dry conditions will result in 76 feet of temporary bank stabilization. (Temporary bank stabilization is defined as temporary work impacting the banks, but not resulting in the permanent placement of material (rip-rap) at or below mean high water. It is typically used to "feather" the banks to match upstream and or downstream elevations to the natural grade.)

**Permit Site 3:** Pond P2 will be drained during construction and left to the landowners to determine if they would like to reclaim the area as a pond. The pond currently has an overflow which was determined to be ephemeral for approximately 100 feet before developing into wetland W3. The ephemeral stream then enters an existing 72"RCP, and exits as stream S5. The pond overflow, wetland, and ephemeral stream will be placed into a 72" RCP. There will be 1.08 acres of open water (pond) impact if the landowner does not choose to reclaim the pond. Due to the uncertainty at this time, the NCDOT is assuming that the pond will not be reclaimed. If the pond is reclaimed, 0.26 acre of pond will be impacted permanently, and 0.82 acre will be impacted temporarily due to dewatering. There will be a total take of wetland W3, resulting in 0.01 acre of permanent fill in wetland. Impacts to Stream S5 will result in 19 feet of permanent impacts due to bank stabilization. Any streams that appear in the drained pond will need to be stabilized as they appear.

**Permit Site 4:** Stream S4b currently flows in a 45" CSP under Norris Estate Drive. Wetland W2 is located adjacent to the existing road, on the upstream end of the pipe. This road will be widened and realigned to intersect with the new route of Mallard Creek Road. This activity will result in the extension of the upstream and downstream ends of this pipe, resulting in 0.02 acre of wetland impact (0.01 from permanent fill, and 0.01 from mechanized clearing), as well as permanently impact 78 feet of stream (44 feet from fill, and 34 feet from bank stabilization). There will also be <0.01 acre of temporary impacts to streams.

**Permit Site 5:** An existing 30" RCP will be removed and replaced with a longer 30" RCP. This replacement will result in 0.01 acre of permanent open water (pond) impact, and 0.02 acre of temporary surface water impact to a basin/ pond on the outlet side.

**Permit Site 6:** Intermittent stream S3 is currently conveyed under W.T. Harris Blvd via a 24" concrete pipe. W1 is a riparian wetland located adjacent to W.T. Harris and S3. Due to the widening of W.T. Harris Blvd at this location, there will be 12 feet of permanent stream impact resulting from the extension of the 24" pipe, and 0.01 acre of permanent wetland impacts due to mechanized clearing of W1.

## MORATORIUM

No moratoriums are required by the U.S. Fish and Wildlife Service (USFWS) or were proposed by the North Carolina Wildlife Resources Commission (NCWRC).

## FEDERALLY PROTECTED SPECIES

Plants and animals with Federal classification of Endangered (E) or Threatened (T) are protected under provisions of Section 7 and Section 9 of the Endangered Species Act of 1973, as amended. As of September 22, 2010 the USFWS lists four federally protected species for Mecklenburg County (Table 3).

**Table 3 – Federally protected species listed for Mecklenburg County.**

Scientific Name	Common Name	Federal Status	Habitat Present	Biological Conclusion	Last Survey
<i>Helianthus schweinitzii</i>	Schweinitz's sunflower	E	Yes	No Effect	10/14/2010
<i>Rhus michauxii</i>	Michaux's sumac	E	Yes	No Effect	10/14/2010
<i>Echinacea laevigata</i>	Smooth coneflower	E	Yes	No Effect	10/14/2010
<i>Lasmigona decorata</i>	Carolina heelsplitter	E	No	No Effect	8/9/2008

E - Endangered

## INDIRECT CUMULATIVE IMPACT ANALYSIS

A Community Impact Assessment was prepared by URS Corporation for Project U-2507A in April 2005. The document included a detailed project and location description, described community characteristics and features, provided a detailed analysis of the impacts, an identification of solutions, and the development of key findings. The document also included an indirect and cumulative effects table taken from the 2001 NCDOT/NCDENR ICI Guidance that assessed encroachment-alteration effects and indirect and cumulative effects.

Attached to this application is an update to the 2005 analysis that addresses the current potential for induced development and change in land use as a result of the proposed new location and widening of Mallard Creek Road by taking updated local input and data into account and by employing the Indirect and Cumulative Effects screening tool that is currently used in ICE analyses.

## **CULTURAL RESOURCES**

### Historical Structures:

This project is subject to compliance with Section 106 of the National Historic Preservation Act of 1966, as amended, and implemented by the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106, codified at 36 CFR Part 800. Section 106 requires Federal agencies to take into account the effect of their undertakings (federally-funded, licensed, or permitted) on properties included in or eligible for inclusion in the National Register of Historic Places (NRHP) and to afford the Advisory Council a reasonable opportunity to comment on such undertakings.

On January 7, 2008, it was determined and concurred by NCDOT, FHWA, and SHPO that there are no effects on the National Register-eligible property/ properties located within the project's area of potential effect, as indicated on the Concurrence Form for Assessments of Effects (see attached).

Those properties included:

The Hunter Avenue Historic District

McConnell House (within the Hunter Avenue Historic District)

### Archaeology:

Per a memo sent from the North Carolina Department of Cultural Resources (dated June 13, 1990), it was determined that, "it is unlikely that any archaeological sites which may be eligible for inclusion in the National Register of Historic Places will be affected by the proposed construction." Due to the date of this document, consultation was made with the NCDOT Archeology Unit who verified this information remains valid.

In the course of construction, all construction inspectors will have the responsibility to monitor the project area for potential archaeological remains throughout the construction process. If potential archaeological remains (such as foundations, fireplaces, bones, stone tools, pottery, etc.) are identified, the inspector will immediately notify the Construction Supervisor (CS) who will immediately halt work in the vicinity of the potential find. At this point, the CS will notify the NCDOT and the North Carolina Office of State Archaeology (NCOSA) to determine the appropriate course of action, as per the requirements of Section 106 of the National Historic Preservation Act.

## **FEMA COMPLIANCE**

The project has been coordinated with appropriate state and local officials and the Federal Emergency Management Agency (FEMA) to assure compliance with FEMA, state, and local floodway regulations.

## **WILD AND SCENIC RIVER SYSTEM**

The project will not impact any designated Wild and Scenic Rivers or any rivers included in the list of study rivers (Public Law 90-542, as amended).

## MITIGATION OPTIONS

The NCDOT is committed to incorporating all reasonable and practicable design features to avoid and minimize jurisdictional impacts, and to provide full compensatory mitigation of all remaining, unavoidable jurisdictional impacts. Avoidance measures were taken during the planning and NEPA compliance stages; minimization measures were incorporated as part of the project design.

### Avoidance and Minimization:

NCDOT has avoided impacting many wetlands and streams and reduced impacts to wetlands and streams to the greatest extent practicable.

Examples of this include:

- The proposed alignment was selected to avoid impacting a  $\frac{3}{4}$  acre pond near the end of Hunter Avenue. This shift also results in reduced impacts to the upland fringes of the pond on private property.
- 2:1 slopes will be used at jurisdictional resource sites to minimize impacts.
- Rip rap energy dissipater basins will be used at 3 locations to reduce storm water velocities (See Detail K on Permit Drawing Sheet 4 of 23).
- Permanent soil reinforcement matting (PSRM) will be used as appropriate to stabilize relocated streams.
- Grass swales will be used to allow for storm water treatment as much as practicable. (See Detail L on Permit Drawing Sheet 4 of 23.)
- Preformed scour holes will be used to reduce erosion at pipe outlets, as much as practicable. (See Detail on Permit Drawing Sheet 4 of 23.)
- NCDOT will employ “Best Management Practices for the Protection of Surface Waters” to minimize impacts from stormwater runoff. Roadway runoff will be collected in a closed drainage system and every attempt will be made to maintain existing drainage patterns, where practicable.

### Compensation:

The NCDOT has avoided and minimized impacts to jurisdictional resources to the greatest extent practicable as described above. This project will permanently impact 0.15 acre of wetlands, 1,121 linear feet of streams, and temporarily impact 0.02 acre of streams in the Yadkin River Basin.

Although there will be 1,121 linear feet of stream impacts, 147 linear feet are impacts from bank stabilization and not considered loss of waters. The NCDWQ requires mitigation for bank stabilization impacts if the total permanent impact to the stream is over 150 linear feet. However, the total impacts requiring mitigation from the USCACE at 2:1 are 974 (1121-147). This amount will exceed mitigation requirements from DWQ.

Therefore, the total mitigation will be 0.08 acre of wetland and 1,948 linear feet of stream. Mitigation for these impacts will be provided by EEP (see attached mitigation acceptance letter).

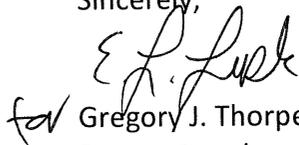
### REGULATORY APPROVALS

Section 404: Application is hereby made for a USACE Individual 404 Permit as required for the above-described activities.

Section 401: We are hereby requesting a 401 Water Quality Certification from the N. C. Division of Water Quality. We are providing five (5) copies of this application to the NCDWQ for their review and approval.

Thank you for your assistance with this project. If you have any questions or need additional information, please contact Michael Turchy at [maturchy@ncdot.gov](mailto:maturchy@ncdot.gov) or (919) 707-6157. A copy of this permit application and its distribution list will be posted on the NCDOT website at <http://www.ncdot.org/doh/preconstruct/pe/neu/permit.html>.

Sincerely,



for Gregory J. Thorpe, Ph.D., Manager

Project Development and Environmental Analysis

cc:

NCDOT Permit Application Standard Distribution List

**U.S. ARMY CORPS OF ENGINEERS  
APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT  
(33 CFR 325)**

OMB APPROVAL NO. 0710-0003  
EXPIRES: 31 AUGUST 2012

Public reporting for this collection of information is estimated to average 11 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of the collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters, Executive Services and Communications Directorate, Information Management Division and to the Office of Management and Budget, Paperwork Reduction Project (0710-0003). Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. Please DO NOT RETURN your form to either of those addresses. Completed applications must be submitted to the District Engineer having jurisdiction over the location of the proposed activity.

**PRIVACY ACT STATEMENT**

Authorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Programs of the Corps of Engineers; Final Rule 33 CFR 320-332. Principal Purpose: Information provided on this form will be used in evaluating the application for a permit. Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public and may be made available as part of a public notice as required by Federal law. Submission of requested information is voluntary, however, if information is not provided the permit application cannot be evaluated nor can a permit be issued. One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and/or instructions) and be submitted to the District Engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned.

**(ITEMS 1 THRU 4 TO BE FILLED BY THE CORPS)**

1. APPLICATION NO.	2. FIELD OFFICE CODE	3. DATE RECEIVED	4. DATE APPLICATION COMPLETE
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**(ITEMS BELOW TO BE FILLED BY APPLICANT)**

5. APPLICANT'S NAME First - Middle - Last - Company - North Carolina Department of Transportation E-mail Address - <u>maturchy@ncdot.gov</u>	8. AUTHORIZED AGENT'S NAME AND TITLE (agent is not required) First - Middle - Last - Company - E-mail Address -
6. APPLICANT'S ADDRESS: Address- 1548 Mail Service Center City - Raleigh State - NC Zip - 27699 Country - US	9. AGENT'S ADDRESS: Address- City - State - Zip - Country -
7. APPLICANT'S PHONE NOs. w/AREA CODE a. Residence b. Business c. Fax 919-707-6157	10. AGENTS PHONE NOs. w/AREA CODE a. Residence b. Business c. Fax

**STATEMENT OF AUTHORIZATION**

11. I hereby authorize, \_\_\_\_\_ to act in my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application.

\_\_\_\_\_  
SIGNATURE OF APPLICANT                      DATE

**NAME, LOCATION, AND DESCRIPTION OF PROJECT OR ACTIVITY**

12. PROJECT NAME OR TITLE (see instructions) U-2507A The upgrade of existing Mallard Creek Road.	
13. NAME OF WATERBODY, IF KNOWN (if applicable) UT to Doby Creek	14. PROJECT STREET ADDRESS (if applicable) Address City - State- Zip-
15. LOCATION OF PROJECT Latitude: +N 35.29586 Longitude: +W -80.79329	
16. OTHER LOCATION DESCRIPTIONS, IF KNOWN (see instructions) State Tax Parcel ID Municipality Section - Township - Range -	

24. Is Any Portion of the Work Already Complete?  Yes  No IF YES, DESCRIBE THE COMPLETED WORK

U-2507 B, was the improvements to Mallard Creek Road from Mallard Creek Church Road to W.T. Harris Blvd. The project was completed in November 1994.

25. Addresses of Adjoining Property Owners, Lessees, Etc., Whose Property Adjoins the Waterbody (if more than can be entered here, please attach a supplemental list).

a. Address- Please see attached landowner list in permit application.

City - State - Zip -

b. Address-

City - State - Zip -

c. Address-

City - State - Zip -

d. Address-

City - State - Zip -

e. Address-

City - State - Zip -

26. List of Other Certificates or Approvals/Denials received from other Federal, State, or Local Agencies for Work Described in This Application.

AGENCY	TYPE APPROVAL*	IDENTIFICATION NUMBER	DATE APPLIED	DATE APPROVED	DATE DENIED

\* Would include but is not restricted to zoning, building, and flood plain permits

27. Application is hereby made for permit or permits to authorize the work described in this application. I certify that this information in this application is complete and accurate. I further certify that I possess the authority to undertake the work described herein or am acting as the duly authorized agent of the applicant.

E. J. Lusk for Gregory J. Thorne, PhD Dec 16, 2011  
SIGNATURE OF APPLICANT DATE SIGNATURE OF AGENT DATE

The Application must be signed by the person who desires to undertake the proposed activity (applicant) or it may be signed by a duly authorized agent if the statement in block 11 has been filled out and signed.

18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry, shall be fined not more than \$10,000 or imprisoned not more than five years or both.



December 14, 2011

Mr. Gregory J. Thorpe, Ph.D.  
Manager, Project Development and Environmental Analysis Branch  
North Carolina Department of Transportation  
1548 Mail Service Center  
Raleigh, North Carolina 27699-1548

Dear Dr. Thorpe:

Subject: EEP Mitigation Acceptance Letter:

U-2507A, Widening of SR 2467 (Mallard Creek Road) from Sugar Creek Road to SR 2665 (Harris Boulevard), Mecklenburg County

The purpose of this letter is to notify you that the Ecosystem Enhancement Program (EEP) will provide the compensatory stream and riparian wetland mitigation for the subject project. Based on the information supplied by you on December 14, 2011, the impacts are located in CU 03040105 of the Yadkin River basin in the Southern Piedmont (SP) Eco-Region, and are as follows:

Yadkin 03040105 SP	Stream			Wetlands			Buffer (Sq. Ft.)	
	Cold	Cool	Warm	Riparian	Non-Riparian	Coastal Marsh	Zone 1	Zone 2
Impacts (feet/acres)	0	0	974	0.04	0	0	0	0

EEP commits to implementing sufficient compensatory stream and riparian wetland mitigation credits to offset the impacts associated with this project as determined by the regulatory agencies in accordance with the N.C. Department of Environment and Natural Resources' Ecosystem Enhancement Program In-Lieu Fee Instrument dated July 28, 2010. If the above referenced impact amounts are revised, then this mitigation acceptance letter will no longer be valid and a new mitigation acceptance letter will be required from EEP.

If you have any questions or need additional information, please contact Ms. Beth Harmon at 919-715-1929.

Sincerely,

Michael Ellison  
EEP Deputy Director

cc: Ms. Liz Hair, USACE – Asheville Regulatory Field Office  
Mr. Brian Wrenn, Division of Water Quality, Wetlands/401 Unit  
File: U-2507A

*Restoring... Enhancing... Protecting Our State*



**Subject:** Draft Minutes from Interagency Hydraulic Design Review Meeting on September 24, 2008 for U-2507A in Mecklenburg County

**Team Members:**

Steve Lund- USACE	(absent)
Dave Baker- USACE	(present)
Marella Buncick- USFWS	(present)
Marla Chambers-NCWRC	(present)
Polly Lespinasse- NCDWQ	(present)
Kathy Matthews-EPA	(present)
Donnie Brew-FHWA	(present)
Carla Dagnino-NCDOT-NEU	(present)
Kris Dramby-NCDOT-NEU	(present)
Tawana Brooks- NCDOT-DIV 10	(absent)

**Participants:**

Galen Cail, NCDOT Hydraulics  
Bill Elam, NCDOT Hydraulics  
Jason Talley, NCDOT Roadway

**GENERAL NOTES:**

Proposed ditches will have 3:1 or flatter side slopes and meet grass swale criteria where practical.

**Station 54+00 to 58+00 –L-:**

The request was made to use rock check dams. The channel is too short to use meanders, but the proposed channel will be realigned to improve the transition into the main stream at the culvert.

We do not anticipate the pond being drained. This will be discussed further at the construction field inspection.

There is a small wetland on the right side. Impacts will include fill in wetland and either hand or mechanized clearing.

**Station 64+00 to 67+00 –L-:**

The pond will have to be drained during construction. The 72”RCP will be placed in the low spot of the existing pond.

There is a small wetland that will be a total take.

**Station 84+50 -L-:**

There will be surface water impacts to the small storm water ponds in the apartment complex.

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**Station 28+00 -Y6-:**

There will be stream impacts at this site. We are extending the existing 48" RCP.

**Station 17+50 -Y13-:**

There will be stream impacts and wetland impacts at this site. We are extending the existing 24" RCP.

Meeting adjourned

**Subject:** Draft Minutes from Interagency Hydraulic Design Review Meeting on February 10, 2011 for U-2507A in Mecklenburg County

**Team Members:**

Liz Hair- USACE	(present)
Marella Buncick- USFWS	(present)
Marla Chambers-NCWRC	(present)
Polly Lespinasse- NCDWQ	(present)
Christopher Militscher-EPA	(present)
Donnie Brew-FHWA	(present)
Carla Dagnino-NCDOT-NEU	(present)
Kris Dramby-NCDOT-NEU	(present)
Tawana Brooks- NCDOT-DIV 10	(absent)
Larry Thompson- NCDOT-DIV 10	(present)

**Participants:**

Galen Cail, NCDOT Hydraulics  
Bill Elam, NCDOT Hydraulics  
Jason Talley, NCDOT Roadway  
Tony Houser, NCDOT Roadway  
Vipul Patel, NCDOT Structures  
Trace Howell, NCDOT REU  
Mark Staley, NCDOT REU

**GENERAL NOTES:**

The Let Date for this project is July 17, 2012.

The 4B review was held on September 24, 2008.

A new FONSI has not been done. The 2008 NRTR confirmed the findings of the original FONSI.

In final permit will provide larger scaled plan views of stream impacts.

**Site 1 Station 54+00 to 57+00 -L-:**

Per request, we will call for Class I Rip Rap instead of Class B Rip Rap in the Rock Check Dams.

The total size of the wetland on the right is 0.24 Ac.

Per NRTR, there are additional jurisdictional streams around pond LT. Will locate and account for potential impacts in final permit. Classified as non-mitigable.

**Site 2 Station 58+00 –L-:**

Per request, we shifted the outlet location of the proposed 36” pipe that is draining the subdivision to align better with the receiving channel. Additional rip rap was added to stabilize stream bank.

---

**Site 3 Station 64+00 to 67+00 –L-:**

There is a Jurisdictional Stream on the downstream end of 72” pipe per the NRTR. The impacts for bank stabilization have been added.

**Site 4 Station 28+00 –Y6-:**

We will extend the bank stabilization through the ditches tying into the outfall. The impacts shown are correct.

**Site 5 Station 84+50 –L-:**

There will be surface water impacts to the small storm water ponds in the apartment complex. These impacts are non-mitigable. Note the impact as non-mitigable on Impact Summary.

**Site 6 Station 17+50 –Y13-:**

Recommendation was made to steepen side slopes to eliminate mechanized clearing impact in wetland. Proposed side slopes are 2:1. To steepen would require rock plating. Considering the amount of rip rap required (20’ deep fill) versus the small amount of impact anticipated it was recommended to keep plans as proposed.

Meeting adjourned

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## STORMWATER MANAGEMENT PLAN

Project: U-2507A 34811.1)  
County: Mecklenburg  
Hydraulics Project Manager: Galen Cail, PE

June 7, 2011

### ***ROADWAY DESCRIPTION***

The Project will improve Mallard Creek Road (SR 2467) from the intersection of Graham Street (SR 2540) and Sugar Creek Road (SR 2480) to W.T. Harris Boulevard (SR 2665) in northeast Mecklenburg County. From the Graham Street/ Sugar Creek Road intersection to south of Garrison Avenue, the improvements will be along a new alignment east of existing Mallard Creek Road. Just south of Garrison Avenue, the project will tie into existing Mallard Creek Road. From this point to W.T. Harris Boulevard, existing Mallard Creek Road will be widened.

The improvements will consist of constructing a four-lane divided roadway with curb and gutter and a 20-foot raised median along the entire length of the project. The roadway width will be 76 feet from face of curb to face of curb and will consist of 12-foot inside travel lanes and 14-foot outside travel lanes (includes 2 feet of extra pavement width to accommodate bicycles) divided by a 20-foot raised median. Five-foot sidewalks will also be constructed along both sides of the roadway.

### ***ENVIRONMENTAL DESCRIPTION***

The project is located in the Catawba River Basin. The watershed for the project flows into Unnamed Tributaries for Doby Creek. All jurisdictional waters are perennial. The best usage classification Doby Creek is C.

There are several 404 wetland areas that will be impacted.

### ***BEST MANAGEMENT PRACTICES***

Best Management Practices (BMPs) and measures used on the project to reduce stormwater impacts are listed below.

There is a ditch from Sta. 54+00 to 57+35 -L- Lt that handles a drainage area of 30 acres. The maximum slope is 1.8%. The ditch has been lined with PSRM and has check dams composed of Class I rip rap to slow down the velocities.

### ***GRASSED SWALES***

The grassed swales have been listed on an attached page.

### ***MISCELLANEOUS***

Energy dissipators were used at Stations 112+75 -L- right and 125+15 -L- left to reduce the velocities coming from the storm drain systems.





STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE  
GOVERNOR

EUGENE A. CONTI, JR.  
SECRETARY

**MEMORANDUM**

To: Michael Turchy, NEU

From: Tristram Ford, Herman Huang, Ph.D., and Lee Ann Billington, AICP, HEU, Community Studies

Date: November 7, 2011

Re: U-2507A –Final Indirect and Cumulative Effects Screening

CC: Stephen Gurganus, AICP, MPA, HEU

**OVERVIEW**

STIP Project U-2507A is a proposed new location realignment of a portion of Mallard Creek Road. The project proposes to construct a one-mile, four-lane divided roadway with curb and gutter, from the Graham Street/Sugar Creek Road intersection to Garrison Drive in Mecklenburg County. At Garrison Avenue, the project will tie into existing Mallard Creek Road. According to the 2009 FONSI re-evaluation, the purpose of the project is to improve local access to development along the route, improve the levels of services for current and future traffic demands, reduce both travel time and accident potential, and provide future operating and maintenance cost savings.

A Community Impact Assessment was prepared by URS Corporation for STIP Project U-2507A in April 2005. The document included a detailed project and location description, described community characteristics and features, provided a detailed analysis of the impacts, an identification of solutions, and the development of key findings. The document also included an indirect and cumulative effects table taken from the 2001 NCDOT/NCDENR ICI Guidance that assessed encroachment-alteration effects and indirect and cumulative effects.

**MAILING ADDRESS:**  
NC DEPARTMENT OF TRANSPORTATION  
PDEA - HUMAN ENVIRONMENT UNIT  
1598 MAIL SERVICE CENTER  
RALEIGH, NC 27699-1598

**TELEPHONE:** 919-707-6000  
**FAX:** 919-212-5785  
**WEBSITE:** [WWW.NCDOT.ORG](http://WWW.NCDOT.ORG)

**LOCATION:**  
PDEA - HUMAN ENVIRONMENT UNIT  
CENTURY CENTER, BLDG B  
1020 Birch Ridge Drive  
Raleigh, NC 27610

This memorandum is an update to the 2005 analysis that addresses the current potential for induced development and change in land use as a result of the proposed new location and widening of Mallard Creek Road by taking updated local input and data into account and by employing the Indirect and Cumulative Effects screening tool that is currently used in ICE analyses. This screening tool uses data to provide a numerical and therefore quantifiable output.

## **LOCAL PLANS**

Transportation and land use decisions within the Future Land Use Study Area are guided by the following land use plans:

### *Charlotte-Mecklenburg Planning Department*

- Mecklenburg-Union Metropolitan Planning Organization 2030 Long Range Transportation Plan
- 2015 Plan – Planning Our Future
- Centers, Corridors and Wedges Growth Framework
- General Development Policies
- Northeast District Adopted Future Land Use Map
- Northeast Area Plan

### *Charlotte-Mecklenburg Storm Water Services*

- Mecklenburg County Phase II Stormwater Management Program Plan
- City of Charlotte Phase I Stormwater Management Program Plan

### *Charlotte Area Transit System*

- 2030 Transit Corridor System Plan
- North Transit Corridor Proposed Station Locations
- Transit Station Area Principles
- Eastfield Station Area Plan\*
- Charlotte Region – Transit Station Area Joint Development Principles and Policy Guidelines

### *Mecklenburg County Parks & Recreation Department*

- Comprehensive Parks and Recreation Master Plan

### *Ordinances/Regulations*

The City of Charlotte has several regulations/ordinances that affect development within the Future Land Use Study Area. A listing of these regulations/ordinances is included below:

- Floodplain Ordinance
- Post-Construction Storm Water Ordinance
- Surface Water Improvement & Management (SWIM) Ordinance
- City of Charlotte Storm Water Pollution Ordinance
- City of Charlotte Zoning Ordinance
- City of Charlotte Water Supply Watershed Restrictions
- City of Charlotte Sediment & Soil Erosion Control Ordinance
- City of Charlotte Land Development Standards Manual

- Mecklenburg County Surface Water Pollution Ordinance
- Mecklenburg County Sediment & Soil Erosion Control Ordinance
- North Carolina Division of Water Quality Water Supply Watershed Regulations
- North Carolina Division of Land Resources – Sediment and Erosion Control Act

### *Federal Regulations*

In 1972, the National Pollutant Discharge Elimination System (NPDES) was established under the authority of the Clean Water Act. Phase I of the NPDES stormwater program was established in 1990. It requires NPDES permit coverage for large or medium municipalities with populations of 100,000 or more. In North Carolina, there are six Phase I communities, including the City of Charlotte. The Phase II program extends permit coverage to smaller (< 100,000 population) communities and public entities that own or operate a municipal separate storm sewer system (MS4) by requiring them to apply for and obtain a NPDES permit for stormwater discharge. Federal law requires communities and public entities that own or operate a MS4, and that meet either of the following two conditions, to obtain a NPDES Phase II stormwater permit:

- 1) The MS4 is located in an urbanized area as determined by the latest Decennial Census of the Bureau of the Census. If the MS4 is not located entirely within an urbanized area, only the portion that is within the urbanized area is regulated.
- 2) The community or public entity is designated by the NPDES permitting authority. In the state of North Carolina, the NPDES permitting authority is the Environmental Management Commission (EMC).

The City of Charlotte has developed a Draft Phase I Stormwater Management Plan.

### **Current Land Use and Zoning**

From south to north, the U-2507A corridor is currently zoned as R-17MF, R-3, R-5, RE-3, and R-3. Of these, R-3 and R-5 are single-family residential, R-17MF is multi-family residential, and RE-3 is a conditional research district. Zoning maps covering the project area are included in Appendix B.

### **Future Land Use**

Charlotte's Northeast District Adopted Future Land Use Plan map shows a designated Neighborhood Center east of Sugar Creek Road and south of Mallard Creek Road (Appendix B). The Neighborhood Center designation indicates that the City will encourage and permit concentrated mixed-use development in the area, including commercial development based upon an allowed square footage of up to 100,000 sq. ft. of retail with a maximum of 50,000 sq. ft. for a single retail use. Other adopted land uses along the proposed U-2507 corridor are mostly single- and multi-family residential, with a couple of instances of office and office/business park/light industrial.

## **INDIRECT EFFECTS SCREENING**

### **Time Horizon**

The time horizon for this assessment is 2035. This corresponds to the design year of the project and to the 2035 Long Range Transportation Plan for MUMPO which was approved May 3<sup>rd</sup>, 2010. This plan includes the proposed project and shows it as a Committed and Funded Project. The time horizon is also based upon the Charlotte Mecklenburg Planning Department's Centers, Corridors and Wedges Growth Framework document which was adopted by the Charlotte City Council on August 23<sup>rd</sup>, 2010. This document was an update to the original concept introduced in the early 1990's with the adoption of the 2025 Integrated Transit/Land Use Plan.

### **Future Land Use Study Area**

The Future Land Use Study Area (FLUSA) is the area surrounding a construction project that could possibly be indirectly affected by the actions of others as a result of the completion of the project and combined projects. The U-2507 project is located in the northeast section of Charlotte. The study area is urban in nature, with higher-density residential development interspersed with commercial and industrial uses. This area is within the corporate limits of Charlotte and served by city water and sewer. The Maps in Appendix B show the boundaries of the FLUSA and the City's Future Land Use Map for the project area. The study area is bounded at the southern terminus by Mineral Springs Road. Most of the area south of that terminus is built-out or close to build-out.

### **Indirect Screening Matrix Methodology**

An Indirect and Cumulative Effects (ICE) Screening Matrix was utilized to assess factors that influence land development decisions and present an assessment in a quantitative matrix based upon existing conditions and trends. It rates the impact of each category from higher potential for indirect effects to lower potential for indirect effects. The measures used are supported by documentation. Each category is assessed individually and the results of the table are looked at comprehensively to determine the indirect and cumulative effects potential of the proposed project. The Scope of Project, Change in Accessibility, Public Policy, and Notable Environmental Features categories are given extra weight to determine if future growth in the area is related to project modifications.

Indirect and Cumulative Land Use Effects Screening Tool - TIP Project U-2507A Mecklenburg County											Total	
Rating	Scope of Project	Change in Accessibility	Forecasted Population Growth	Forecasted Employment Growth	Available Land	Water/Sewer Availability	Market for Development	Public Policy	Notable Environmental Features	Result	Total	
More Concern	Major New Location	> 10 minute travel time savings	> 3% annual population growth	Substantial # of New Jobs Expected	5000+ Acres of Land	All services existing / available	Development activity abundant	Less stringent; no growth management	Targeted or Threatened Resource			
↑						X					-	32+
↑↑											-	24-32
	X		X	X			X				-	16-24
↓		X							X	Indirect Scenario Assessment Not Likely	X	8-16
↓					X			X			-	8-
Less Concern	Very Limited Scope	No travel time savings	No population growth or decline	No new Jobs or Job Losses	Limited Land Available	No service available now or in future	Development activity lacking	More stringent; growth management	Features incorporated in local protection			

### Screening Matrix Results

Based on analysis of demographic and employment trend data for the project area and GIS analysis, the results of the screening matrix indicate an **Indirect Scenario Assessment is not likely**.

### Scope of Project

The scope of project was conservatively rated as a medium due to its one-mile new location alignment.

### Change in Accessibility

This category was rated as a medium-low as it is estimated that there will be 0-3 minutes of travel time savings due to the proposed new location alignment. This proposed alignment represents a more direct route by eliminating the need for two turns at existing signals.

### Forecasted Population Growth

The overall Demographic Study Area grew by 82% between 2000 and 2010, an annualized rate of 6.17%. The overall growth increase in the State of North Carolina during this time period was 18%, or an annualized growth rate of 1.78%. (See Appendix C for tables comparing 2010 Census Tracts to 2000 Census Tracts and a map showing the Demographic Study Area.). According to the North Carolina Office of State Management and Budget population projections, Mecklenburg County is projected to grow by 19.3% between April 2010 and July 2020, or an annualized rate of 1.78%. Thus, this category was rated as medium.

### Forecasted Employment Growth

In Charlotte/Mecklenburg County, several industry sectors lost jobs, with the predominant number of job losses in the manufacturing sector, and in particular, beverage and tobacco manufacturing. The biggest job gains have been in administrative and support services. However, these two industry sectors have the lowest average annual wages.

According to the Employment Security Commission, the Charlotte /Mecklenburg WDB has a projected annualized growth rate of 1.8% from 2006 – 2016. Thus, this category was rated as medium.

### **Available Land/Market for Development**

Of the 700 acres of land in the FLUSA, only 110 are vacant for residential, commercial, and industrial development. Eighty-five percent of the land in the FLUSA is currently developed. Two large tracts are in the eastern part of the FLUSA in an existing industrial park. The largest of these is owned by IBM. Thus, this category as rated as low.

### **Water and Sewer Availability**

All of the FLUSA currently has water and sewer service through the Charlotte Utilities Department. Thus, this category was rated as high.

### **Market for Development**

According to the Charlotte-Mecklenburg Planning Department there have been two recent rezoning cases located right outside the FLUSA in the vicinity of the southern terminus. In the first case, parcels located immediately south of the Graham St. /Sugar Creek Rd. intersection were rezoned from B-2 to MUD-Optional. In the second instance, a parcel in the southeast quadrant of that intersection was rezoned to NS, or Neighborhood Services.

It was further stated that the overall market for development within the vicinity of the project has been slow, which was attributed to the current economy. Retail development has occurred at the existing Sugar Creek/Mallard Creek Rd. intersection in the recent past; however there are is no pending development of any kind that has been approved or that is currently under construction. It was further stated that the presence of floodplain in the area along the unnamed tributaries would further constrain construction.

### **Public Policy**

This category was rated as low, because the City of Charlotte has several ordinances that regulate development within the Future Land Use Study Area. Charlotte is also governed by NPDES Phase I regulations.

### **Notable Environmental Features**

According to environmental sensitivity mapping from NCDENR and GIS research, there are no threatened or endangered resources contained within the FLUSA. However, there are a number of unnamed tributaries within the FLUSA. In addition, Doby Creek, which is located immediately outside of the FLUSA to the southeast, is listed on the final 2010 303(d) list of impaired waters for impaired ecological/biological integrity from its source to Mallard Creek.

This category was rated as medium-low due to the fact that there are no impaired resources within the FLUSA, but a number of unnamed tributaries and a 303(d) listed stream are in relatively close proximity.

### **Indirect Community Impacts**

The project is located in a relatively dense suburban area of Charlotte that is nearly fully developed; therefore, the construction of a road is not likely to result in a change in land use that would not otherwise occur. While access to local development is included in the stated purpose and need on the 2009 FONSI re-evaluation, the FLUSA has been substantially built out with a mixture of land uses. Land uses are primarily low to mid density residential, along with

some commercial and industrial development. There are some vacant parcels (of unknown soils conditions) near the southern terminus, and throughout the FLUSA, but these parcels currently have access to the existing road network.

A goal of the proposed project is to ease congestion in the area.

The plans for U-2507A propose that the project have no control of access. Charlotte also recommends this project not have any access control. Designing this facility with any level of controlled access does not fit with the City's Smart Growth policies that are intended to improve connectivity within the suburban fringe. Further, the city intends to encourage pedestrian access to the sidewalk and bus stops along this road.

Pedestrian and bicycle access to the project corridor could be limited if the facility is designed for controlled access. This could hinder access to bus stops, sidewalks, and bike routes. In addition, it could impede mobility between neighborhoods and community facilities. Overall compatibility with community goals can be met by maintaining the connectivity and pedestrian mobility that currently exists within the study area.

### **Cumulative Effects**

STIP Project U-2507A proposes to realign a portion of Mallard Creek Road. The project will consist of a one mile, four-lane divided roadway with curb and gutter on new location from the Graham Street/Sugar Creek Road intersection to Garrison Drive.

The area is relatively built-out, which has increased impervious surface in the area. Impervious surfaces usually increase stormwater runoff, as well as contaminants within that runoff. Large areas of impervious surface can also result in increased temperature in the receiving waters, which can affect stream health. There is an impaired stream just outside the study area.

Indirect effects in the form of change in land use attributed to the project, as noted above, will be limited. Cumulative effects will primarily be direct impacts, which are being programmatically addressed by avoidance, minimization, or mitigation measures during the Merger and permitting processes. While the project will travel along some undeveloped parcels, these parcels already have access to the existing road network. Development pressures will likely result in these parcels being developed with or without the project. This project should not notably directly nor indirectly contribute to cumulative impacts to environmental resources within the FLUSA that would not otherwise occur.

Notable past public and private actions with the FLUSA are primarily the suburban build out of this fast growing area in north Charlotte.

The *2009-2015 State Transportation Improvement Program* (STIP) includes several other projects that would be located in the general vicinity of the Future Land Use Study Area. A summary of these projects is included below:

- STIP Project I-3803 is the widening of I-85 from the US 29-49 Connector in Mecklenburg County to NC 73 in Cabarrus County. The project is approximately 12.8 miles in length. Section A is complete. Right-of-way acquisition for Section B is scheduled to begin in 2010 and construction is scheduled to begin in 2011.

- STIP Project I-3311 is the widening of I-77 from 5<sup>th</sup> Street in Charlotte to NC 73 (Sam Furr Road). The project is approximately 14.4 miles in length. Sections A, AA, and D are complete. Construction of Sections B and C are unfunded. Right of way acquisition for Section E is programmed for 2012.
- STIP Project U-3415 is the widening of SR 1394 (Poplar Tent Road) from SR 1443 (Derita Road) to US 29-601 Bypass in Concord. The project is approximately 6.1 miles in length. Right-of-way acquisition for Section A is scheduled to begin in 2015. Construction is unfunded in the 2009-2015 STIP.
- STIP Project U-4910 is the widening of SR 1445 (Derita Road) from SR 1394 (Poplar Tent Road) to SR 2894 (Concord Mills Boulevard). The project is approximately 2.6 miles in length. The project is being administered by the City of Concord and construction is scheduled to begin in 2012.
- STIP Project R-2123CE is the reconstruction of the interchange at I-485 (Charlotte Eastern Outer Loop) and I-85. Right-of-way acquisition is scheduled to commence in 2012. Construction is not completely funded in the STIP.
- STIP Project R-2420 is the extension of City Boulevard and the relocation of SR 2467 (Mallard Creek Road) to US 29-49. The total project length is approximately 2.1 miles. Sections B and BA are complete. Section C is under construction by the City of Charlotte. Section A is unfunded in the 2009-2015 STIP.
- STIP Project R-2248E is a proposed new location freeway (I-485) between NC 115 and I-85 in Mecklenburg County. The proposed project is approximately 5.4 miles in length and is the final new location segment for the planned I-485 urban loop around the City of Charlotte.

The *Mecklenburg-Union Metropolitan Planning Organization (MUMPO) 2030 Long Range Transportation Plan (LRTP)* includes several planned transportation projects in the general vicinity of the Future Land Use Study Area. A listing of these planned projects, as well as their planning horizon, is included below:

#### 2010 Horizon

- Index 305: Widening of I-77 northbound by one lane between I-485 and Gilead Road (approximately 3.0 miles). Also known as STIP Project I-3311D.
- Index 207: Six-lane new location freeway (I-485) between Oakdale Road and NC 115 (Old Statesville Road). Approximately 6.8 miles in length. Also known as STIP Project R-2248D.

#### 2020 Horizon

- Index 242: New location eight-lane freeway (I-485) between NC 115 and I-85 North (approximately 5.4 miles). Also identified as STIP Project R-2248E.
- Index 206: Revise I-485/I-85 interchange.
- Index 57: Widen NC 115 to a four-lane median divided facility between Harris Boulevard and I-485 (approximately 2.56 miles).
- Index 130: Widen I-77 between I-485 and NC 73 (approximately 5.76 miles) to accommodate six general purpose travel lanes and High Occupancy Vehicle (HOV) lanes.
- Index 143: Widen Mallard Creek Road to four-lane median divided facility with bicycle lanes between Prosperity Church Road and I-485 (approximately 1.82 miles).
- Index 262: New location four-lane median divided facility with bicycle lanes (Alexanderana Road) between NC 115 and Eastfield Road (approximately 0.91 miles).

- Index 196: Widen Alexanderana Road to a four-lane median divided facility with bicycle lanes between Mt. Holly-Huntersville Road and NC 115 (approximately 1.70 miles).
- Index 110: Widen US 21 (Statesville Road) to a four-lane median divided facility with wide outside lanes between Harris Boulevard and Gilead Road (approximately 4.48 miles).
- Index 165: Widen Hambright Road to a four-lane median divided facility with bicycle lanes between Mt. Holly-Huntersville Road and NC 115 (approximately 1.17 miles).
- Index 455: Widen NC 115 (Old Statesville Road) to a four-lane median divided facility with bicycle lanes between I-485 and Verhoeff Drive (approximately 2.25 miles).
- Index 183: New location two-lane facility with bicycle lanes (Prosperity Ridge Road) from south of Panthersville Drive to Prosperity Church Road (approximately 1.39 miles).
- Index 187: New location four-lane median divided facility with bicycle lanes (Ridge Road Extension) between Eastfield Road and Prosperity Church Road (approximately 0.95 miles).
- Index 186: Widen Ridge Road to a four-lane median divided facility with bicycle lanes between Prosperity Church Road and Beard Road (approximately 2.36 miles).
- Index 184: Widen Prosperity Ridge Road to a four-lane median divided facility with bicycle lanes between Prosperity Church Road and Eastfield Road (approximately 1.52 miles).

#### 2030 Horizon

- Index 166: New location four-lane median divided facility (Hambright Road Extension) between NC 115 and Eastfield Road (approximately 1.93 miles).
- Index 453: Widen Hucks Road Extension between Sugar Creek Road and NC 115 (Old Statesville Road). Part on new location. Approximately 1.61 miles in length.
- Index 233: Widen Eastfield Road to a four-lane median divided facility with bicycle lanes between Alexanderana Road and Prosperity Village Road (approximately 2.31 miles).
- Index 52: Widen Odell School Road to a six-lane median divided facility with bicycle lanes between I-485 and the Cabarrus County line (approximately 1.13 miles).
- Index 99: Widen Johnston-Oehler Road to a two-lane median divided facility with bicycle lanes between Prosperity Ridge Road and Mallard Creek Road (approximately 1.93 miles).
- Index 265: Widen Huntersville-Concord Road to a two-lane median divided facility with bicycle lanes between NC 115 and Trails End Extension (approximately 1.65 miles).
- Index 261: New location two-lane facility with bicycle lanes (Verhoeff Drive West) between US 21 and Mt. Holly-Huntersville Road.
- Index 260: Widen Verhoeff Drive East to a two-lane facility with bicycle lanes between US 21 and NC 115. Part on new location. Approximately 0.66 miles length.
- Index 234: Widen Eastfield Road to a four-lane median divided facility with bicycle lanes between Prosperity Village Road and the Cabarrus County line (approximately 1.68 miles).
- Index 33: New location four-lane median divided facility with bicycle lanes (Hucks Road Extension) between Prosperity Church Road and Sugar Creek Road (approximately 0.81 miles).

- Index 454: Widen Hucks Road Extension to a four-lane median divided facility with bicycle lanes between NC 115 (Old Statesville Road) and US 21 (Statesville Road). Part on new location. Approximately 1.04 miles in length.
- Index 182: Widen Prosperity Church Road to a two-lane facility with bicycle lanes between I-485 and Prosperity Ridge Road. Part on new location. Approximately 0.64 miles in length.

There are no impaired water bodies within the FLUSA, although there are a number of unnamed tributaries within the FLUSA. In addition, Doby Creek, which is located immediately outside of the FLUSA to the southeast, is listed on the final 2010 303(d) list of impaired waters for impaired ecological/biological integrity from its source to Mallard Creek.

Private developments will be required to follow local, state and federal guidelines and permitting regulations.

Because indirect impacts are anticipated to be relatively minor, the cumulative effect of this project, when considered in the context of other past, present and future actions, and the resulting impact on the notable human and natural features, should be minimal.

## Appendix A

### Sources

Charlotte-Mecklenburg Planning Department: City of Charlotte Zoning Ordinance, Chapters 9 and 11, accessed November 2011.

<http://charmeck.org/city/charlotte/planning/Rezoning/Pages/ZoningOrdinance.aspx>

Charlotte-Mecklenburg Planning Department; Northeast District Future Land Use Map, accessed October 2011.

<http://charmeck.org/Planning/Land%20Use%20Planning/District%20Plan%20Maps/northeast.pdf>

Charlotte-Mecklenburg Planning Department, Mr. Solomon Fortune, Planner, interviewed via phone November 2<sup>nd</sup>, 2011.

Charlotte-Mecklenburg Planning Department, Ms. Kathy Cornet, Long Range Planner, interviewed via phone November 3<sup>rd</sup>, 2011.

North Carolina Department of Natural Resources; Environmental Sensitivity Mapping, Mecklenburg County, accessed October 2011.

[http://h2o.enr.state.nc.us/csu/maps/2010\\_ESmaps/Mecklenburg\\_EnvSenMap.pdf](http://h2o.enr.state.nc.us/csu/maps/2010_ESmaps/Mecklenburg_EnvSenMap.pdf)

North Carolina Employment Security Commission, accessed October 2011.

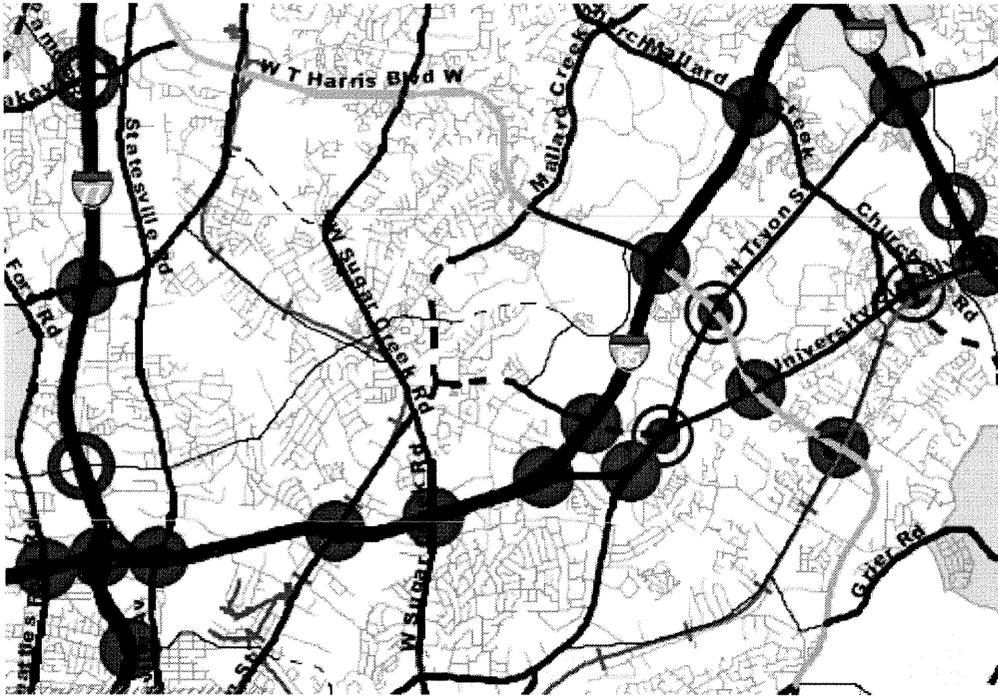
<http://eslmi23.esc.state.nc.us/projections/EmpByMajIndGrp.asp?areatype=17&area=000013&PeriodID=08&version=&OccGroup=&whichMethod=&socCode=>

North Carolina Office of State Budget and Management, accessed October 2011.

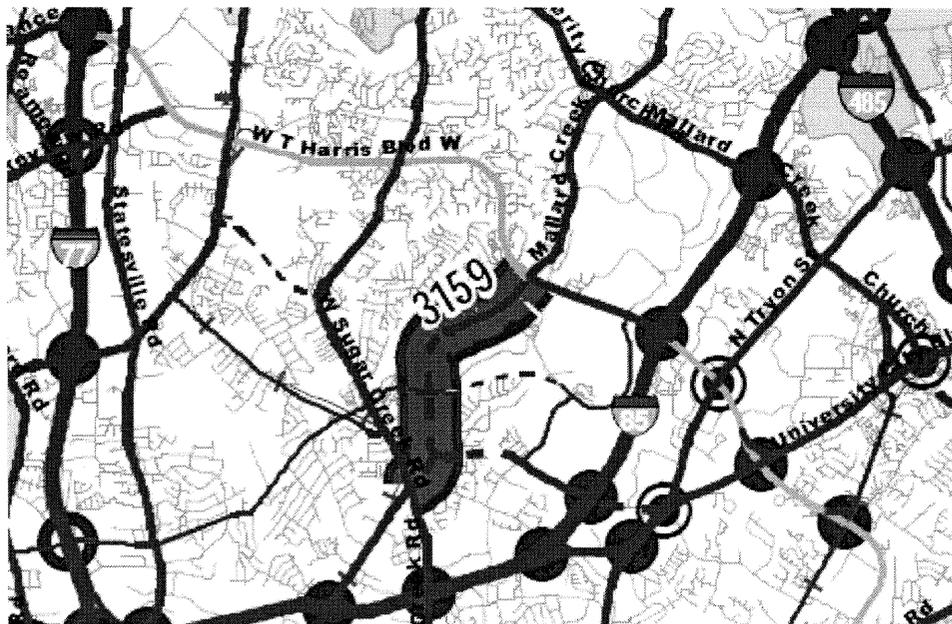
[http://www.osbm.state.nc.us/ncosbm/facts\\_and\\_figures/socioeconomic\\_data/population\\_estimates/demog/countygrowth\\_2020.html](http://www.osbm.state.nc.us/ncosbm/facts_and_figures/socioeconomic_data/population_estimates/demog/countygrowth_2020.html)

Appendix B

MUMPO LRTP section map:



MUMPO Committed and Funded Project – New Location and Widening of Mallard Creek Road:





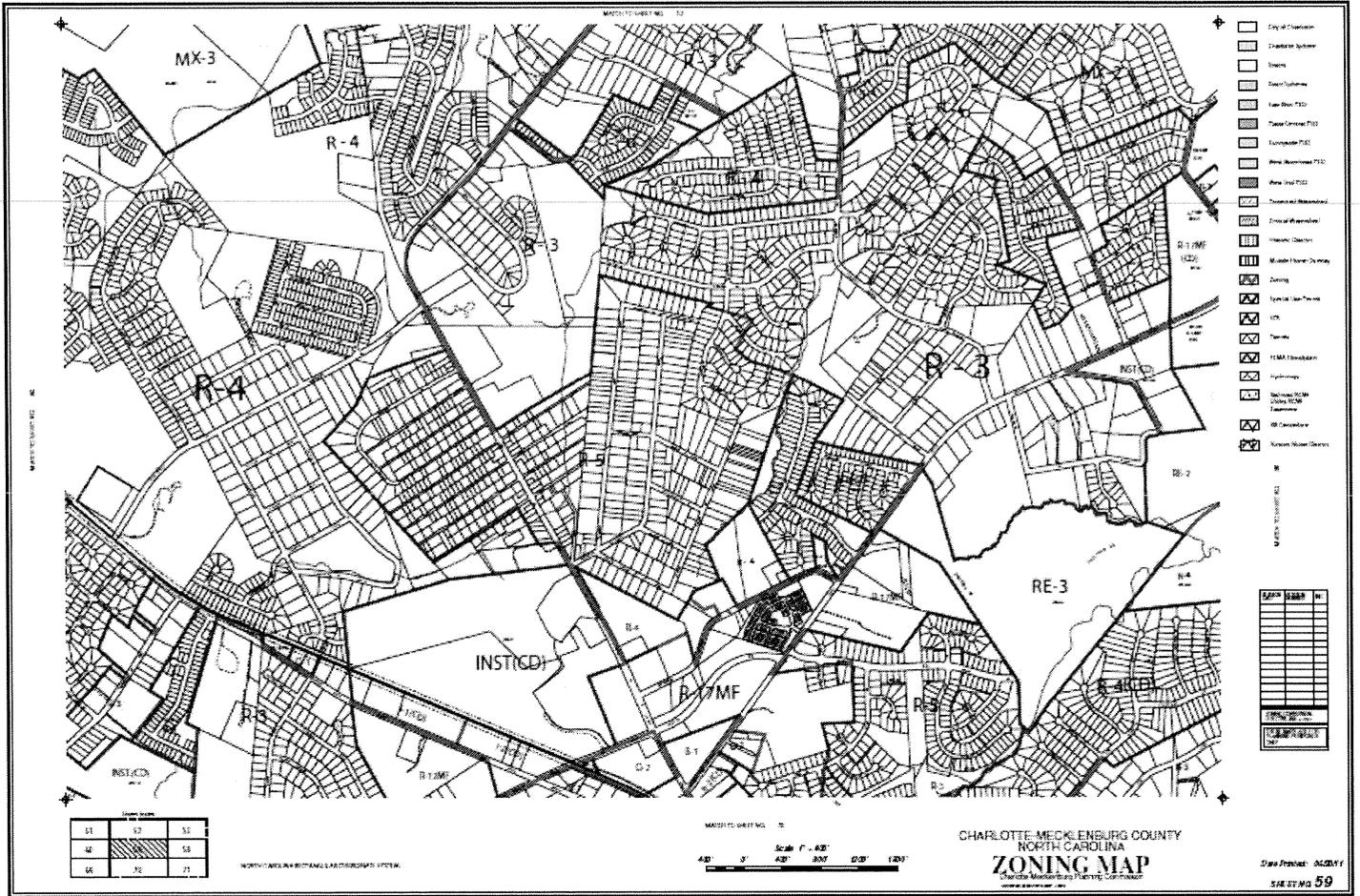
**U-2507A FLUSA**

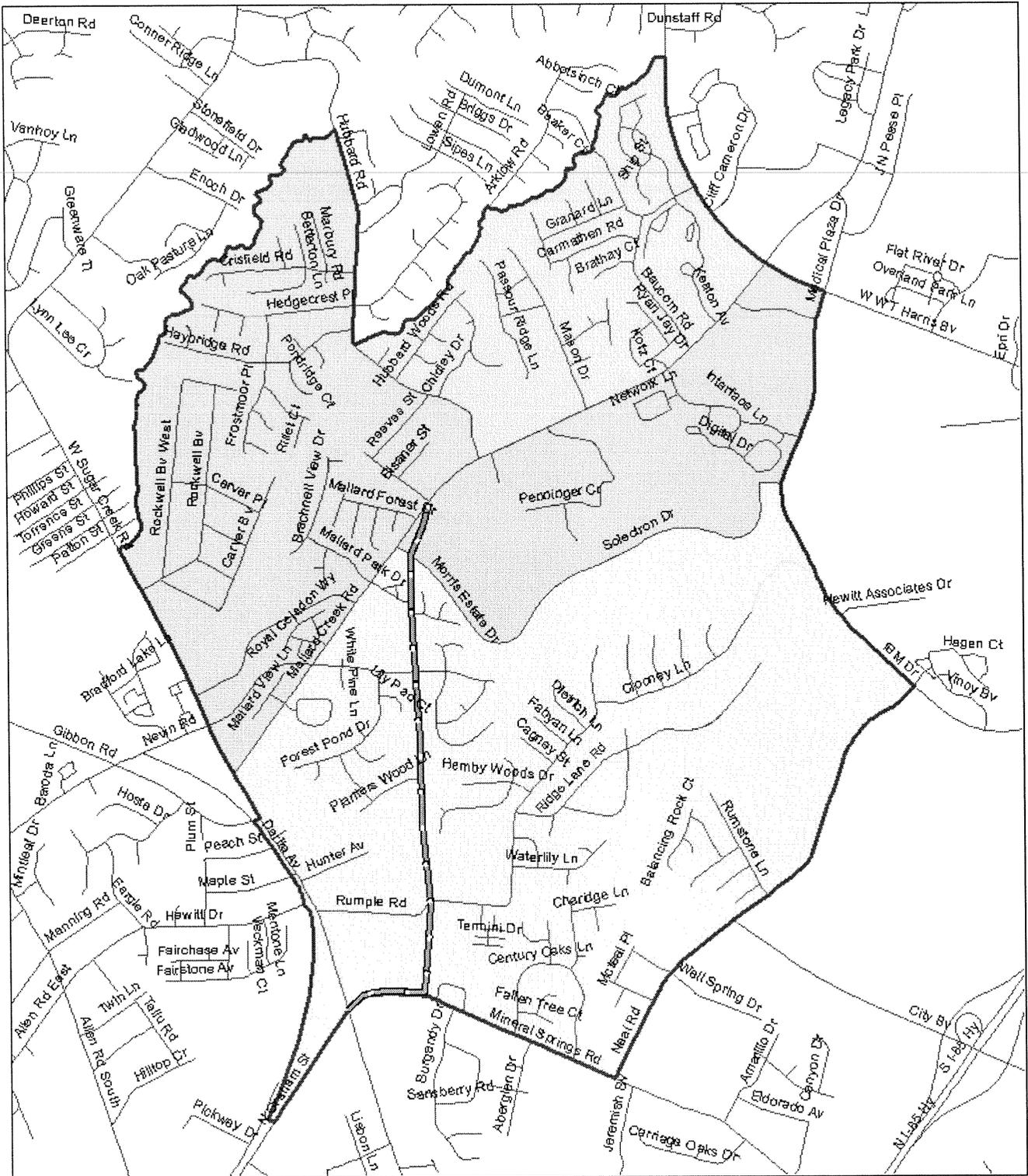
- U-2507A New Location, portion of Mallard Creek Rd
- FLUSA - Future Land Use Study Area
- Vacant\_land in FLUSA 110 acres
- Parcels\_in\_FLUSA 700 acres
- hydrolines
- area\_streets



Appendix B

Zoning map, northern terminus of U-2507A





**U-2507A DSA**

-  U-2507A New Location
-  Demographic\_Study\_Area
-  area\_streets

**2010 Tracts and Block Groups:**

-  55.12.3
-  55.22.2
-  55.24.2
-  55.24.3
-  55.24.4

1,900 950 0 1,900 Feet



Appendix C

Table 1. U-2507A Population Growth Rates, 2000 - 2010

Place	2010 Population	2000 Population	Difference	Growth Rate
CT 55.12 BG 3	2,530	1,721	809	47.0%
CT 55.22 BG 2	2,543	1,609	934	58.0%
CT 55.24 BG 2	1,259	n/a	n/a	n/a
CT 55.24 BG 3	2,431	1,408	1,023	72.7%
CT 55.24 BG 4	1,899	1,120	779	69.6%
DSA Aggregate	10,662	5,858	3,545	60.5%
Charlotte	731,424	540,825	190,599	35.2%
County	919,628	694,454	225,174	32.4%

Table 2. U-2507A Mecklenburg County, Race and Ethnicity

2010 Census Data for Selected Block Groups and Places	Block Group 3 Census Tract 55.12	Percent	Block Group 2 Census Tract 55.22	Percent	Block Group 2, Census Tract 55.24	Percent	Block Group 3, Census Tract 55.24	Percent	Block Group 4, Census Tract 55.24	Percent	Charlotte	Percent	Mecklenburg County	Percent
Total Population:	2,530	100.0%	2,543	100.0%	1,259	100%	2,431	100%	1,895	100%	731,424	100.0%	919,628	100.0%
White alone	608	24.0%	800	31.5%	215	17.1%	520	21.4%	375	19.8%	365,384	50.0%	508,946	55.3%
Black or African American alone	1,558	61.6%	1,028	40.4%	385	30.6%	1,529	62.9%	1,317	69.5%	256,241	35.0%	282,804	30.8%
American Indian and Alaska Native	8	0.3%	9	0.4%	18	1.4%	5	0.2%	4	0.2%	3,483	0.5%	4,261	0.5%
Asian alone	151	6.0%	543	21.4%	564	44.8%	124	5.1%	68	3.6%	36,403	5.0%	42,352	4.6%
Hawaiian and Other Pacific Islander alone	5	0.2%	0	0.0%	0	0.0%	3	0.1%	0	0.0%	581	0.1%	668	0.1%
Some Other Race alone	142	5.6%	65	2.6%	19	1.5%	171	7.0%	88	4.6%	49,928	6.8%	57,113	6.2%
Two or More Races:	48	1.9%	87	3.4%	58	4.6%	79	3.2%	43	2.3%	19,404	2.7%	23,484	2.6%
Non-white	1,922	76.0%	1,743	68.5%	1,044	82.9%	1,911	78.6%	1,520	80.2%	366,040	50.0%	410,682	44.7%
Hispanic or Latino	139	5.5%	308	12.1%	89	7.1%	300	12.3%	150	7.9%	79,707	10.9%	111,944	12.2%

Source: U.S. Census Bureau, 2010 Census. P1: Race - Universe: Total Population P4: Hispanic or

CONCURRENCE FORM FOR ASSESSMENT OF EFFECTS

Project Description: Mallard Creek Road Improvements

On January 7, 2008, representatives of the

- North Carolina Department of Transportation (NCDOT)
- Federal Highway Administration (FHWA)
- North Carolina State Historic Preservation Office (SHPO)

reviewed the subject project and agreed

there are no effects on the National Register-listed property/properties located within the project's area of potential effect and listed on the reverse.

there are no effects on the National Register-eligible property/properties located within the project's area of potential effect and listed on the reverse.

there is an effect on the National Register-listed property/properties located within the project's area of potential effect. The property/properties and the effect(s) are listed on the reverse.

there is an effect on the National Register-eligible property/properties located within the project's area of potential effect. The property/properties and effect(s) are listed on the reverse.

Signed:

Sarah Woodard Darr Jan. 7, 2008  
Representative, NCDOT Date

Donald W. Hunt 1-7-08  
FHWA, for the Division Administrator, or other Federal Agency Date

Renee Gledhill-Easley 1-7-08  
Representative, SHPO Date

Jo Peter Sandbeck 1-7-08  
State Historic Preservation Officer Date

Federal Aid # STP-5238(2)

TIP # U-2507

County: Mecklenburg

Properties within the area of potential effect for which there is no effect. Indicate if property is National Register-listed (NR) or determined eligible (DE).

Hunter Ave. Historic District (DE)

McCannell House (DE; within Hunter Ave Historic District)

Properties within the area of potential effect for which there is an effect. Indicate property status (NR or DE) and describe the effect.

Reason(s) why the effect is not adverse (if applicable).

Initialed:

NCDOT SWD

FHWA DB

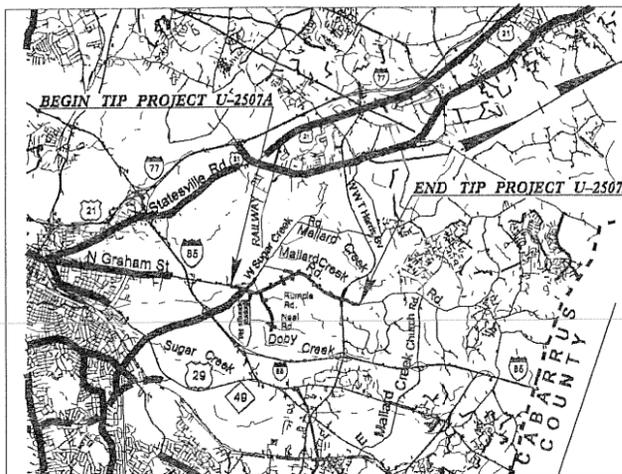
SHPO RSE

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

Permit Drawing  
Sheet 1 of 23

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-2507A	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
34811.1.1	STP-5238(2)	PE	

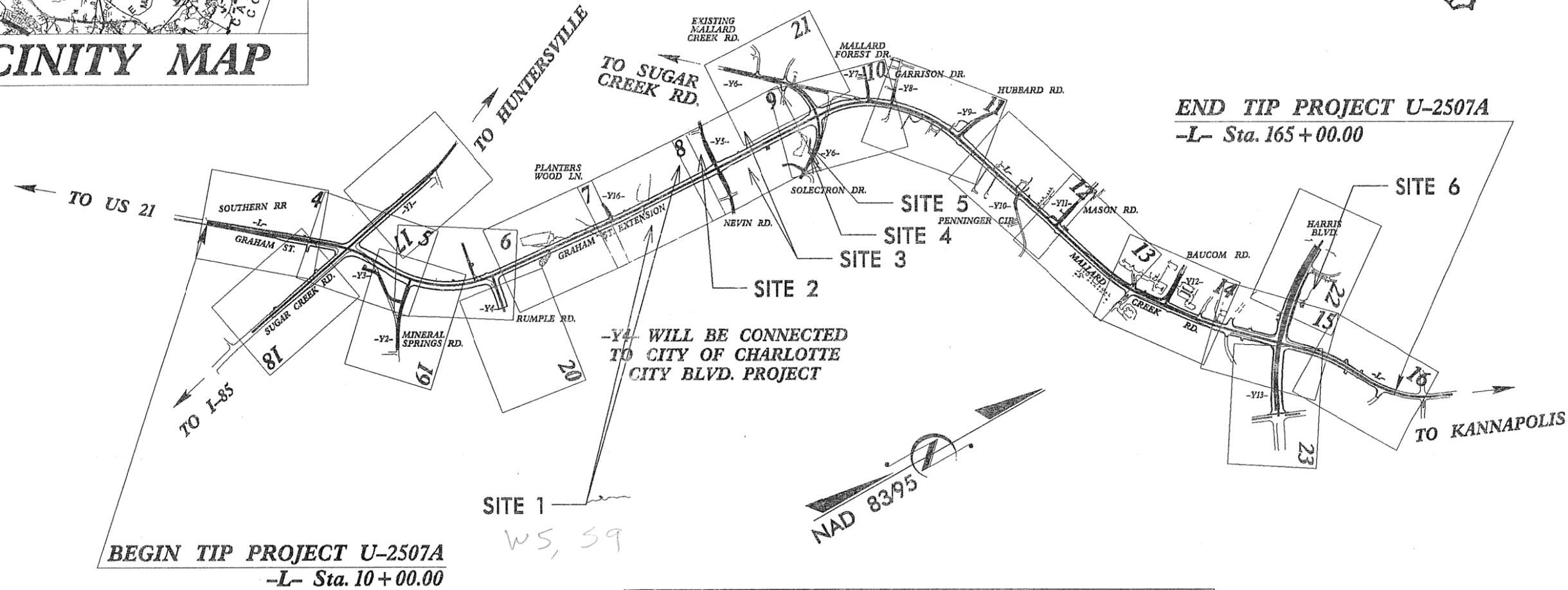
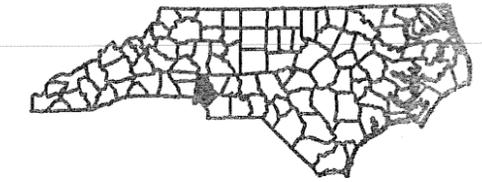
CONTRACT: TIP PROJECT: U-2507A



**VICINITY MAP**

**MECKLENBURG COUNTY**

LOCATION: CHARLOTTE - SR 2467 (MALLARD CREEK ROAD)  
FROM GRAHAM STREET EXTENSION TO SR 2665  
(HARRIS BOULEVARD)  
TYPE OF WORK: GRADING, DRAINAGE, AND PAVING

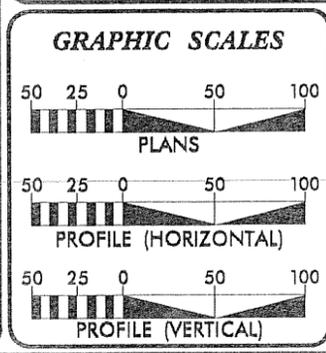


**WETLAND IMPACTS**

THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF CHARLOTTE.  
THERE IS NO CONTROL OF ACCESS ON THIS PROJECT.  
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD \_\_\_\_.

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

CONTRACT: TIP PROJECT: U-2507A



**DESIGN DATA**

ADT 2010 =	32850
ADT 2030 =	45600
DHV =	10 %
D =	55 %
T =	8 % *
V =	50 MPH
* TTST 2.	DUAL 6

**PROJECT LENGTH**

LENGTH OF ROADWAY TIP PROJECT U-2507A =	2.94 MILES
LENGTH OF STRUCTURE TIP PROJECT U-2507A =	0.00 MILES
TOTAL LENGTH OF TIP PROJECT U-2507A =	2.94 MILES

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

2006 STANDARD SPECIFICATIONS	
RIGHT OF WAY DATE:	TONY HOUSER, PE PROJECT ENGINEER
JUNE 19, 2009	
LETTING DATE:	JASON TALLEY, PE PROJECT DESIGN ENGINEER
JUNE 21, 2011	

HYDRAULICS ENGINEER

ROADWAY DESIGN ENGINEER

SIGNATURE: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_

DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA

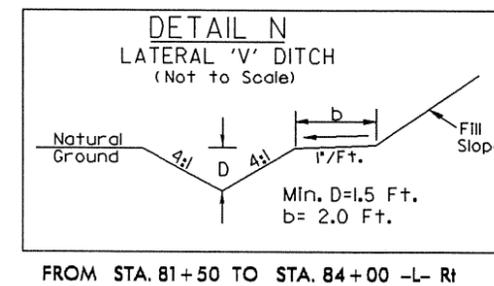
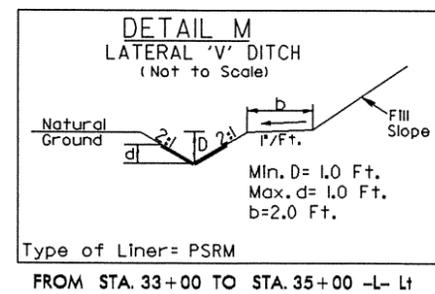
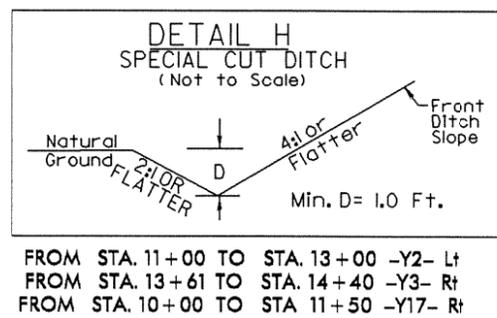
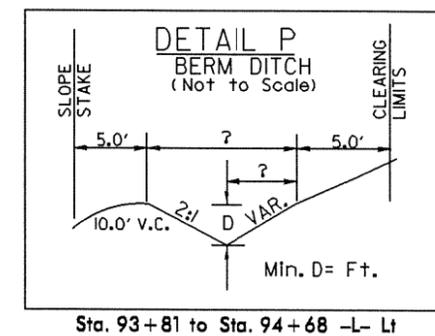
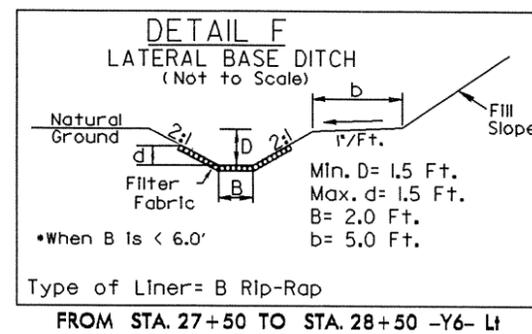
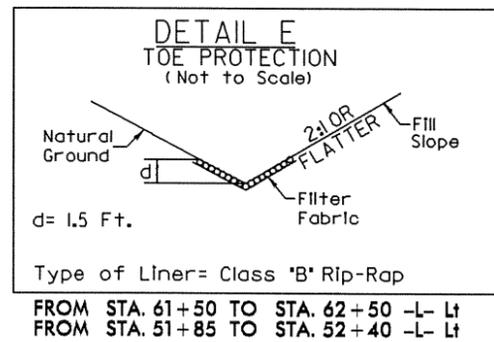
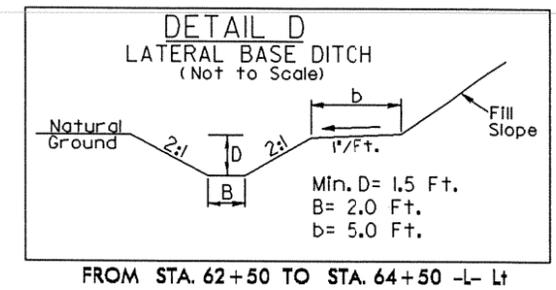
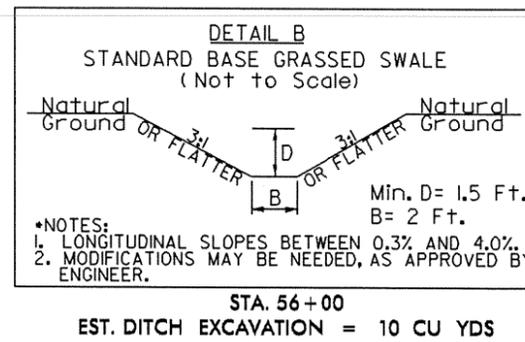
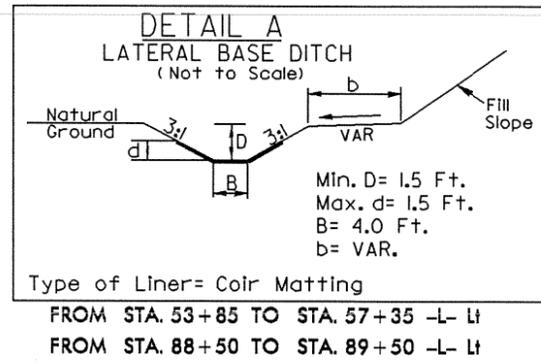
STATE HIGHWAY DESIGN ENGINEER

\$\$\$\$\$SYTIME\$\$\$\$\$  
\$\$\$\$\$DGN\$\$\$\$\$  
\$\$\$\$\$SERNAME\$\$\$\$\$

PROJECT REFERENCE NO. U-2507A	SHEET NO. 2-K
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

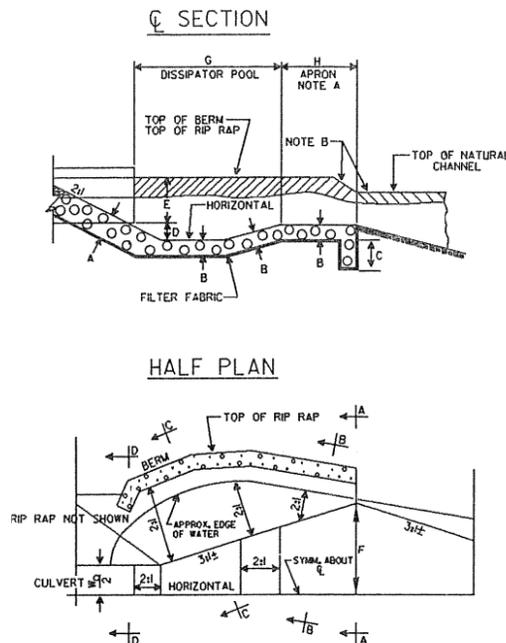
# DRAINAGE DITCH DETAILS

Permit Drawing  
Sheet 2 of 23



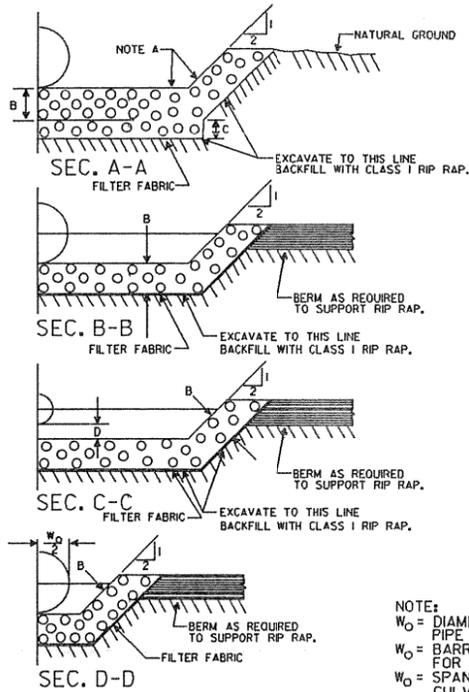
# DRAINAGE DITCH DETAILS

## DETAIL K RIP-RAPPED ENERGY DISSIPATOR BASIN



NOTE A: IF EXIT VELOCITY OF BASIN IS SPECIFIED, EXTEND BASIN AS REQUIRED TO OBTAIN SUFFICIENT CROSS SECTIONAL AREA AT SECTION A-A SUCH THAT  $Q_{DES} / (CROSS SECTION AREA AT SEC. A-A) = SPECIFIED EXIT VELOCITY$ .

NOTE B: WARP BASIN TO CONFORM TO NATURAL STREAM CHANNEL. TOP OF RIPRAP IN FLOOR OF BASIN SHOULD BE AT SAME ELEVATION OR LOWER THAN NATURAL CHANNEL BOTTOM AT SEC. A-A. PROVIDE SMOOTH TRANSITION FROM END OF APRON TO NATURAL CHANNEL WIDTH.



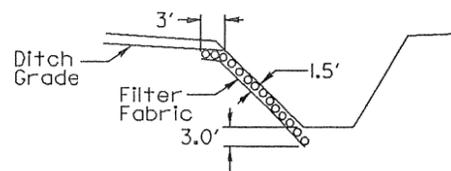
DIM.	RIP RAP BASIN *							
	1	2	3	4	5	6	7	8
A	1.5	1.5	1.5					
B	1.5	1.5	1.5					
C	2.0	2.0	2.0					
D	2.0	2.0	2.0					
E	1.2	1.3	1.0					
F	11	10	4					
G	32	33	10					
H	10	10	3					

BASIN #	LOCATION (AT OUTLET)
1	112+71 -L- Rt
2	125+21 -L- Lt
3	16+67 -Y1- Rt
4	
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7	
8	

\*ALL DIMENSIONS APPROXIMATE IN ?

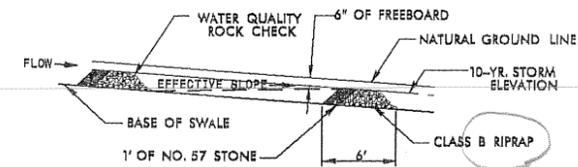
Sta 112+71 -L- Rt Est 175 cu yds excavation Est 80 tons Class "1" Rip Rap  
 Sta 125+21 -L- Lt Est 150 cu yds excavation Est 70 tons Class "1" Rip Rap  
 Sta 16+67 -Y1- Rt Est 15 cu yds excavation Est 25 tons Class "1" Rip Rap

## DETAIL O RIP RAP AT EMBANKMENT (Not to Scale)

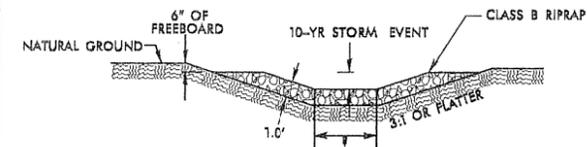


Type of Liner = 5 tons CL B Rip-Rap  
 Filter Fabric = 15 sy  
 FROM STA. 84+50 -L- Rt

## DETAIL L TRAPEZOIDAL GRASSED SWALE w/ROCK CHECK DAM (Not to Scale)



## PROFILE



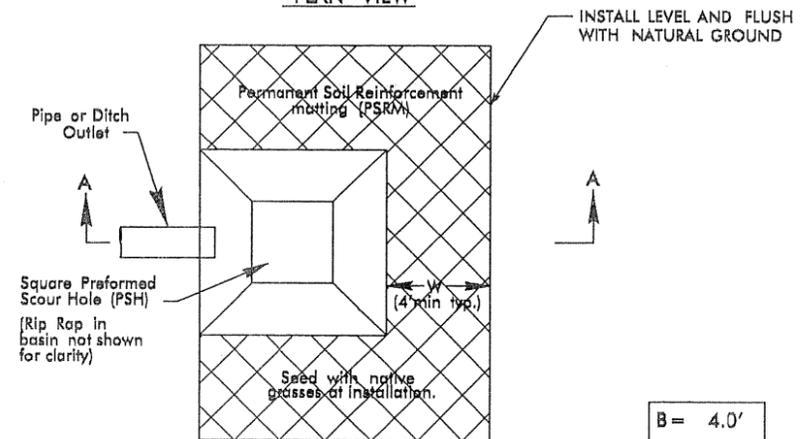
## TYPICAL SECTION

- NOTES:
- DO NOT USE INSIDE CLEAR RECOVERY AREA.
  - NOT PRACTICAL TO USE ON SLOPES > 5%.
  - FOR PERMANENT STRUCTURES IN GRASS SWALE.
  - CHECK DAMS SHOULD BE SPACED SUCH THAT THE BASE OF THE UPSTREAM CHECK IS AT THE SAME ELEVATION AS THE TOP OF THE DOWNSTREAM CHECK.

FROM STA. 54+00 TO STA. 57+35 -L- Lt  
 2 Tons of Class "1" Rip Rap per Check Dam  
 0.5 Tons of 57 Stone per Check Dam  
 Min of 4 Check Dams Required

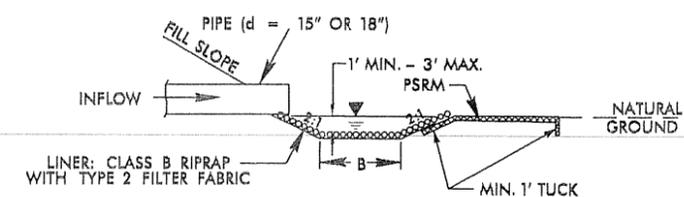
## PREFORMED SCOUR HOLE \*NOT TO SCALE

### PLAN VIEW



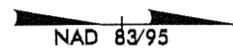
B = 4.0'  
 D = 1.0'  
 W = 4.0'

### SECTION A-A



STA. 97+92 -L- Rt

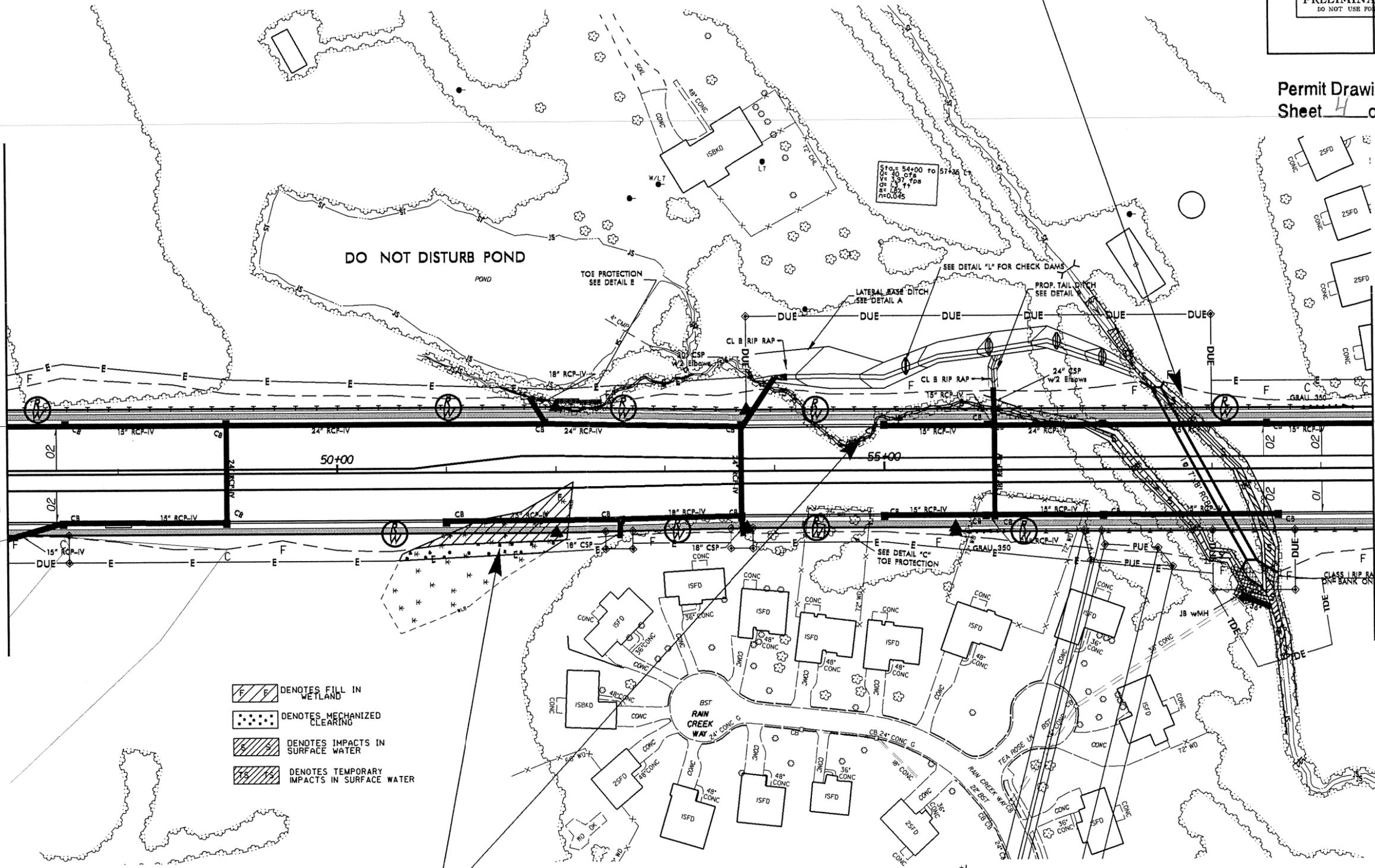
# SITE 2



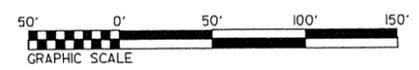
Permit Drawing  
Sheet 4 of 23

MATCH TO SHEET 6  
-L- STA. 47+00

MATCH TO SHEET 8  
-L- STA. 59+50



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



REVISIONS  
 RW REVISION: THE PROPERTY OWNER AND DEED BOOK INFORMATION FOR PARCEL 43. UPDATED THE PROPERTY OWNER AND DEED BOOK INFORMATION FOR PARCEL 45. MODIFIED PROPERTY LINES BETWEEN PARCELS 44 AND 46. ADDED PUE ON PARCEL 42 FROM -L- STA 56+82 RT TO -L- STA 463.14 RT. JMT 8/22/2011

8/17/99

\*\*\*\*\*  
 SYSTEM TIME \*\*\*\*\*  
 \*\*\*\*\*  
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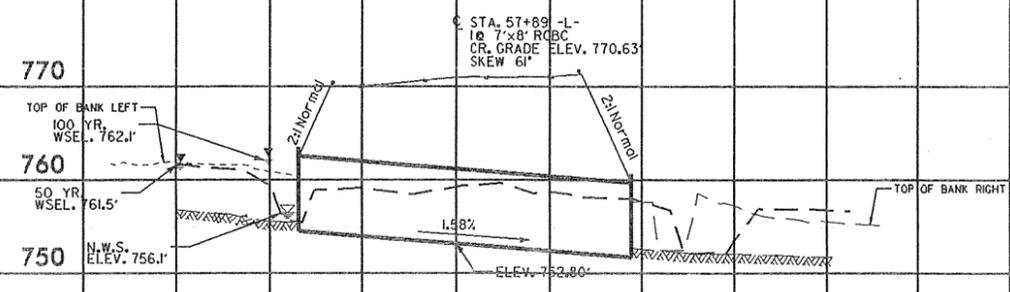


INCOMPLETE PLANS  
DO NOT USE FOR A/W ACQUISITION  
PRELIMINARY PLANS  
DO NOT USE FOR CONSTRUCTION

Permit Drawing  
Sheet 8 of 23

150' 100' 50' 0' 50' 100' 150'

SITE 2  
UT-DOBY CREEK

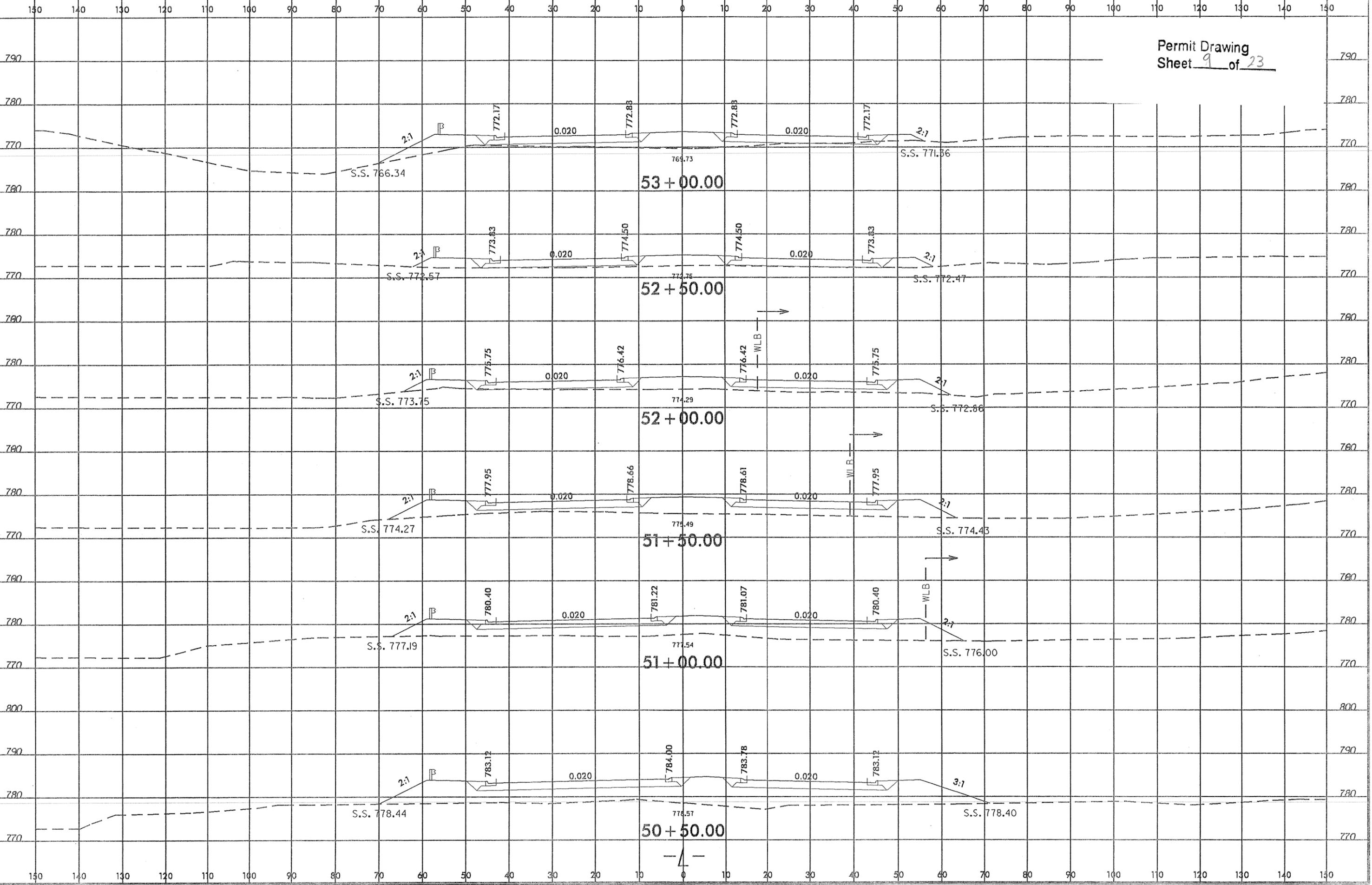


5/14/99

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8/23/99

Permit Drawing  
Sheet 9 of 23

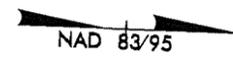


\*\*\*\*\*SYTIME\*\*\*\*\*  
\*\*\*\*\*CON\*\*\*\*\*



# SITE 3

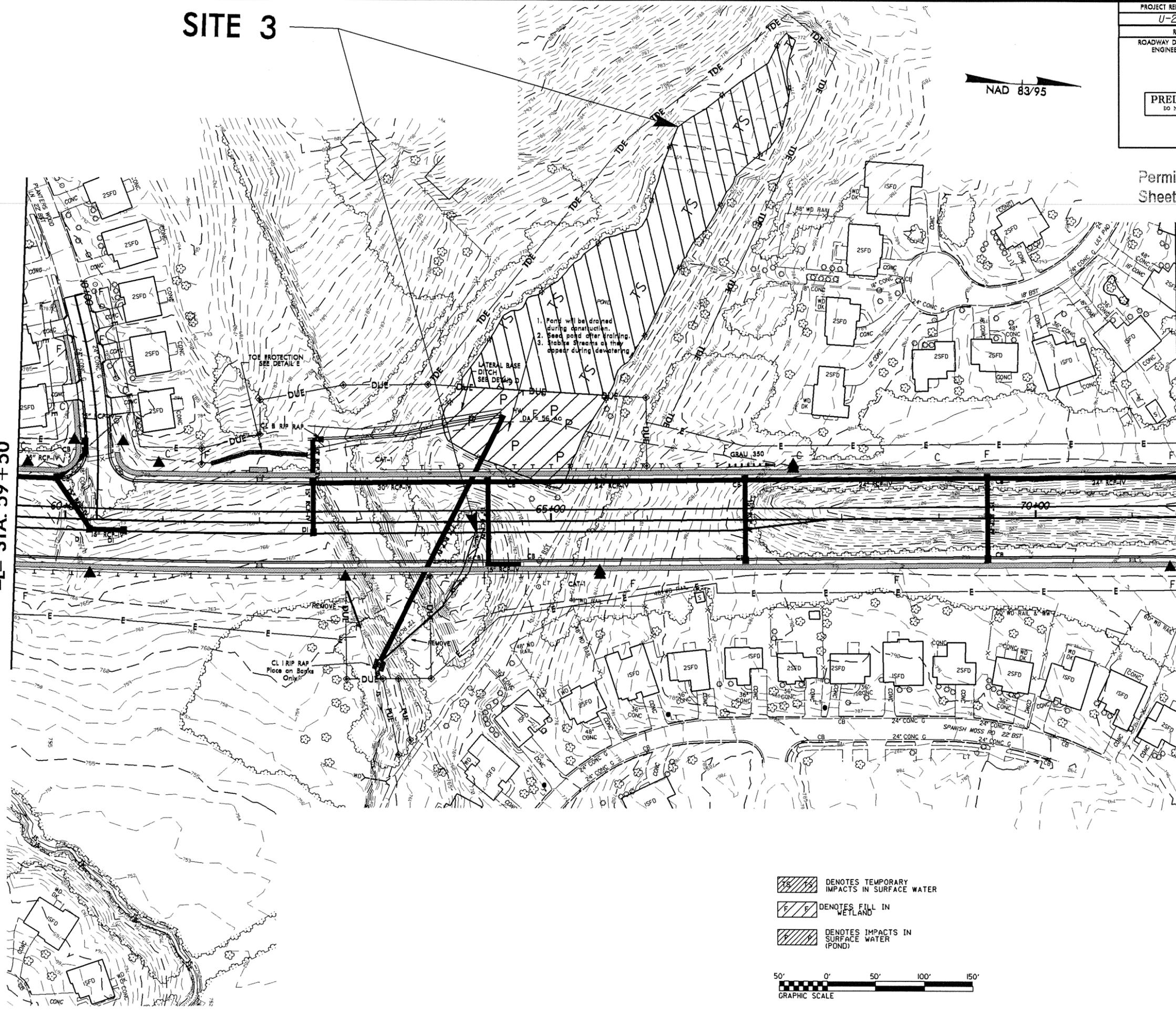
PROJECT REFERENCE NO. U-2507A	SHEET NO. 8
RAW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	



Permit Drawing Sheet 11 of 23

MATCH TO SHEET 7  
-L- STA. 59+50

MATCH TO SHEET 9  
-L- STA. 71+50



- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER (POND)

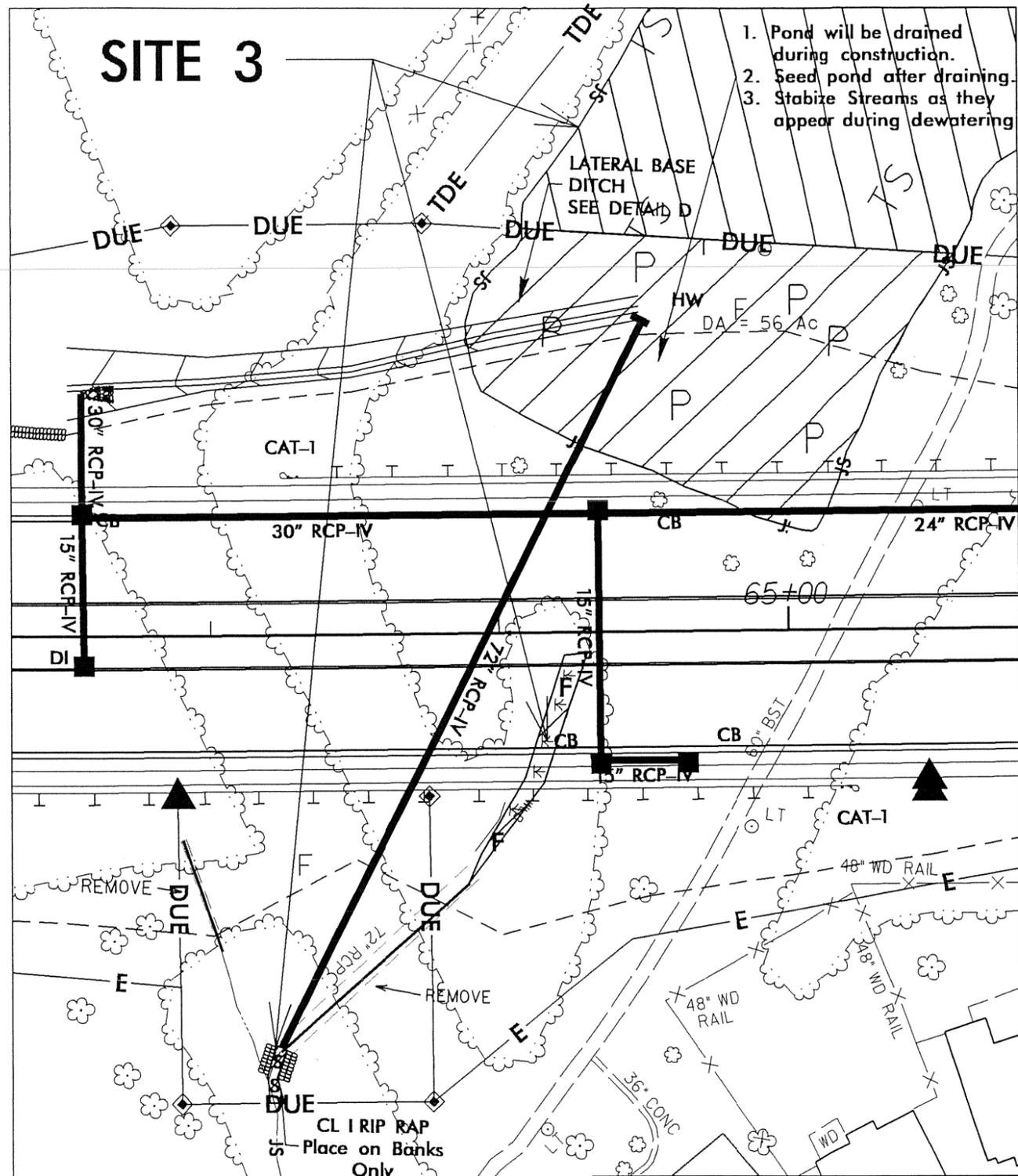


REVISIONS  
 RAW REVISION  
 UPDATED THE PROPERTY OWNER AND DEED BOOK INFORMATION FOR PARCEL 45.  
 MODIFIED PROPERTY LINES BETWEEN PARCELS 45 AND 46 STA 63+40 RT.  
 ADDED PUE ON PARCEL 46 FROM L- STA 63+25 RT TO L- STA 63+40 RT.  
 JMT 8/22/2011

8/17/99

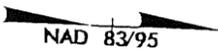
# SITE 3

1. Pond will be drained during construction.
2. Seed pond after draining.
3. Stabilize Streams as they appear during dewatering



## PLAN VIEW

- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER (POND)



**NCDOT**  
 DIVISION OF HIGHWAYS  
 MECKLENBURG COUNTY  
 PROJECT: 34811.1 (U-2507A)

CHARLOTTE  
 SR 2467 TO SR 2665

SHEET 12 OF 23

10/17/11

5/14/99

ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER

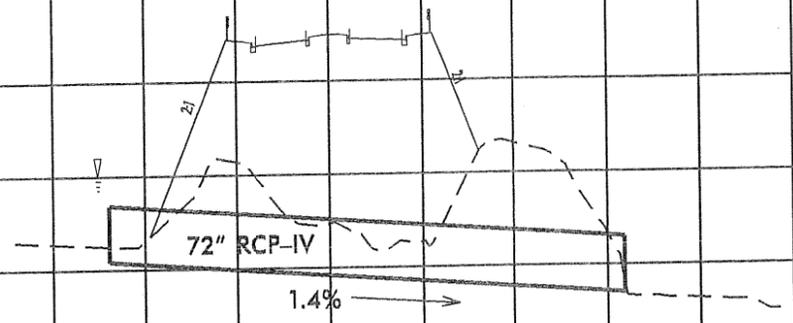
INCOMPLETE PLANS  
DO NOT USE FOR ACQUISITION  
PRELIMINARY PLANS  
DO NOT USE FOR CONSTRUCTION

200 100 0 100 200

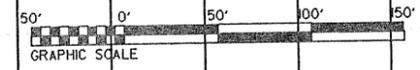
☉ STA. 64+00  
ELEV. = 784.6'  
SKEW = 118°  
72" RCP-IV

Permit Drawing  
Sheet 13 of 23

770  
760  
750  
740



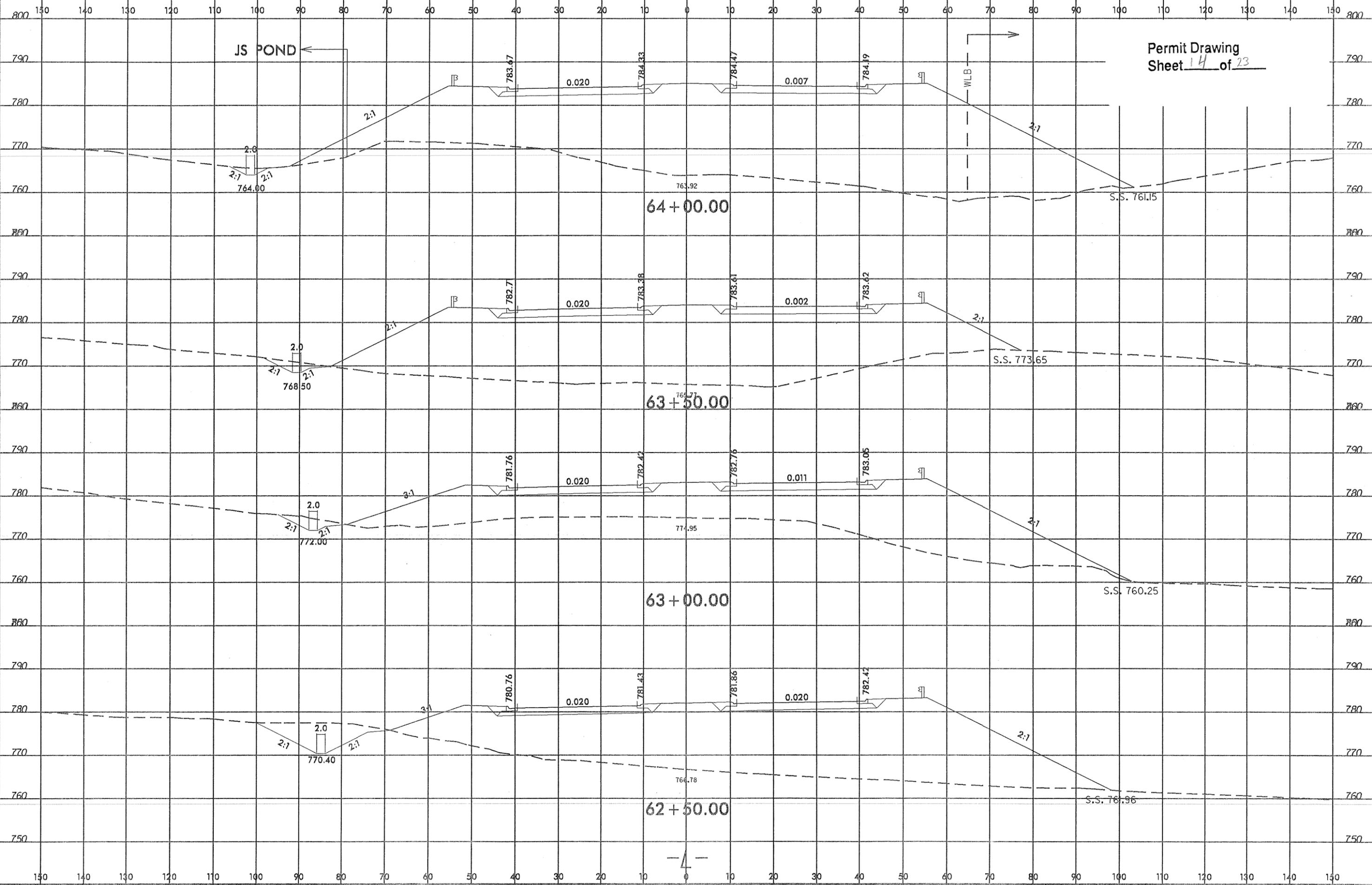
SITE 3



64+00  
64+05  
64+10  
64+15  
64+20  
64+25  
64+30  
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64+40  
64+45  
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64+75  
64+80  
64+85  
64+90  
64+95

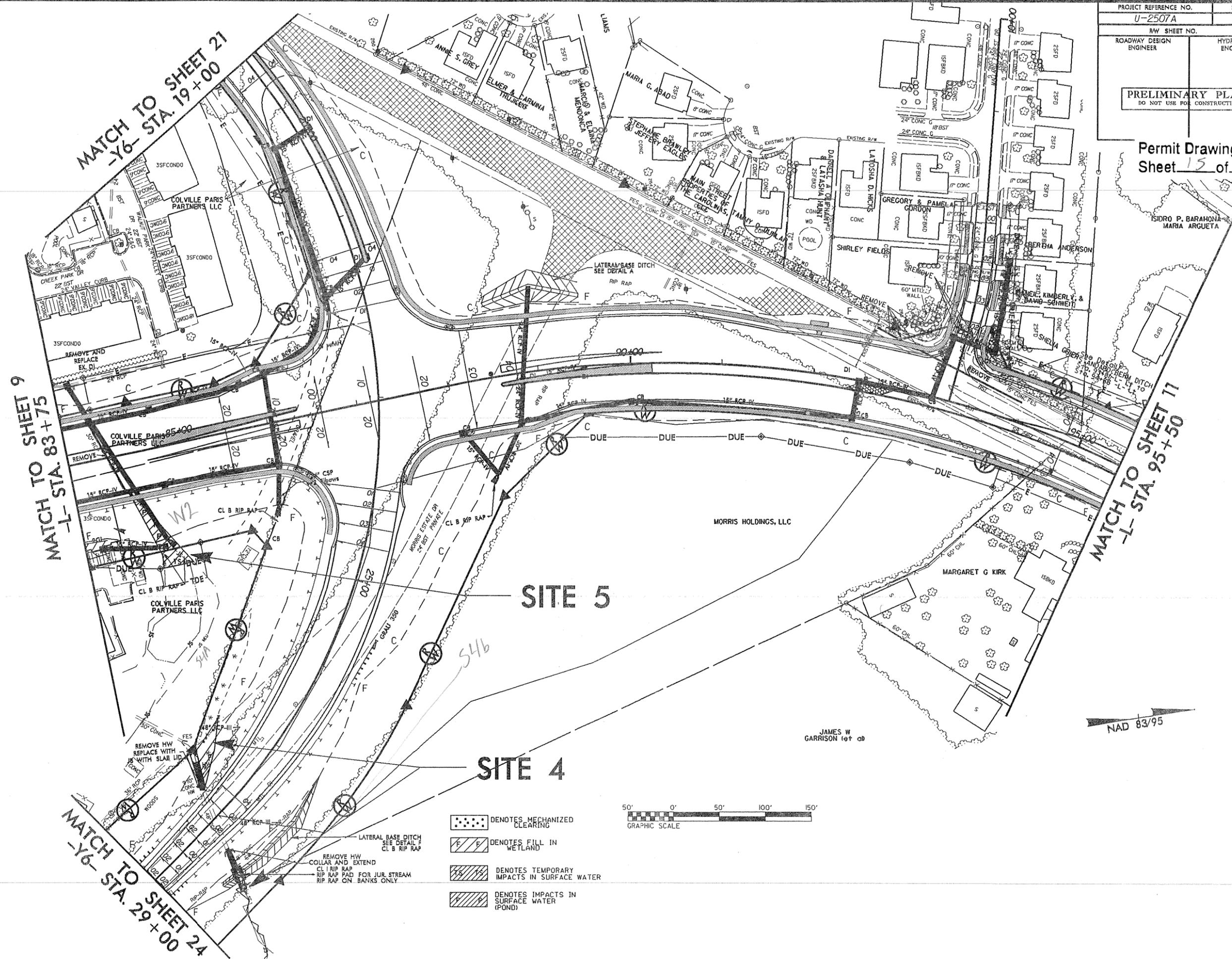
8/23/98

Permit Drawing  
Sheet 14 of 23



Vertical text on the left margin, likely a project or drawing identifier.

Permit Drawing Sheet **15** of **23**



MATCH TO SHEET 9  
-L- STA. 83+75

MATCH TO SHEET 21  
-Y6- STA. 19+00

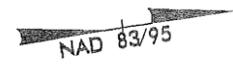
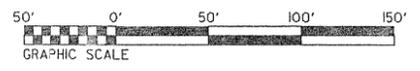
MATCH TO SHEET 11  
-L- STA. 95+50

MATCH TO SHEET 24  
-Y6- STA. 29+00

**SITE 5**

**SITE 4**

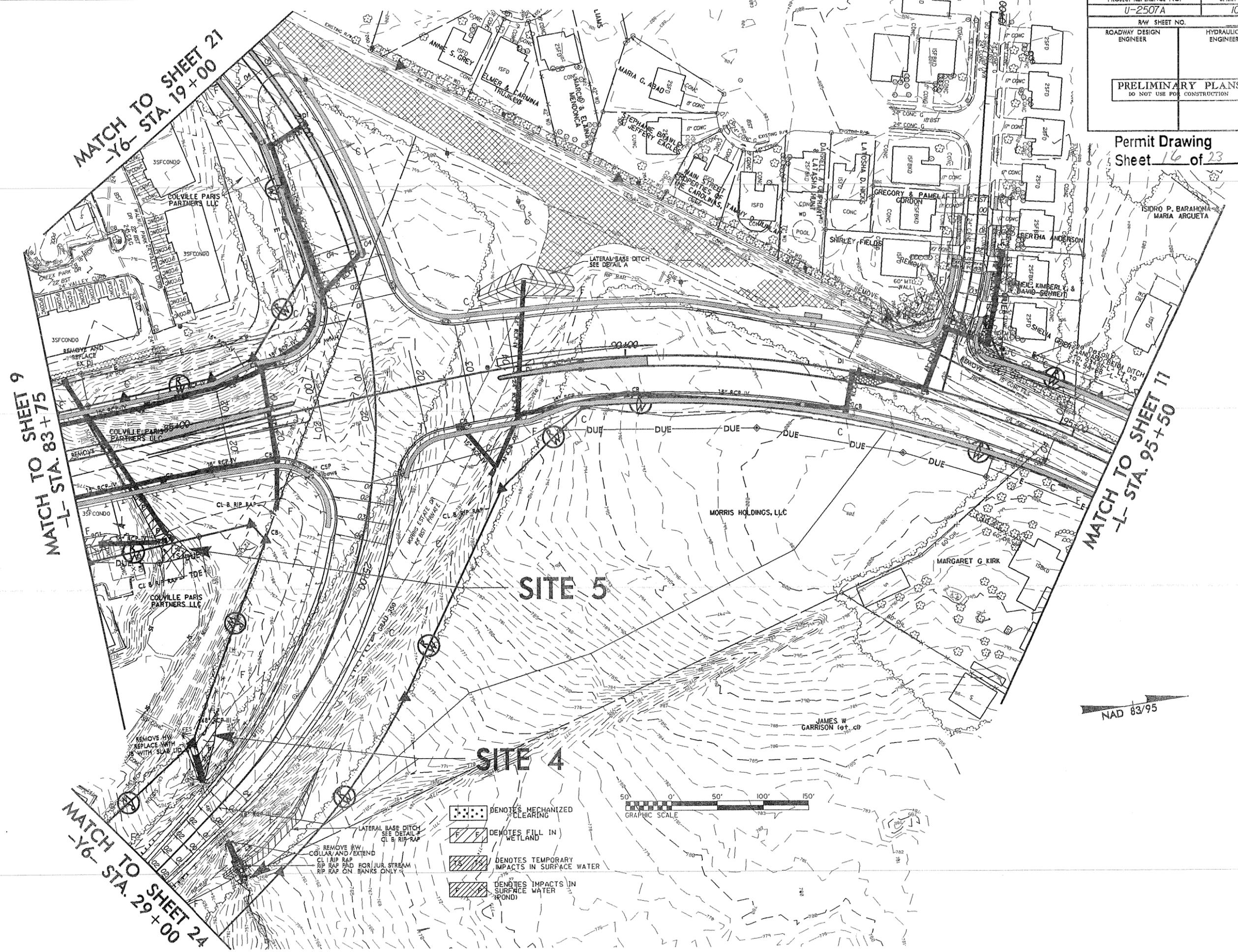
- DENOTES MECHANIZED CLEARING
- DENOTES FILL IN WETLAND
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES IMPACTS IN SURFACE WATER (POND)



8/17/99

PROJECT REFERENCE NO. U-2507A	SHEET NO. 10
RAW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

Permit Drawing  
Sheet 16 of 23

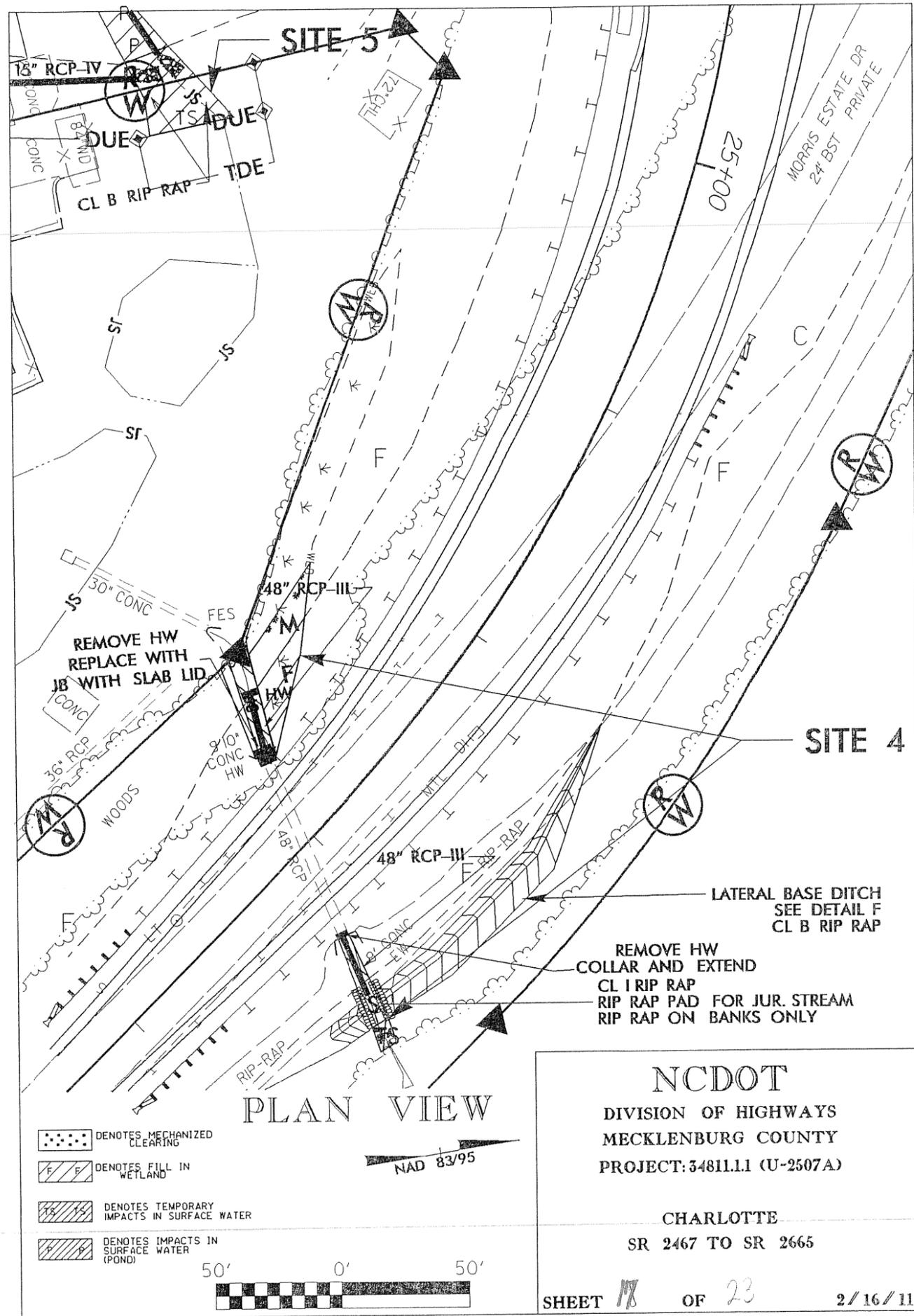


- DENOTES MECHANIZED CLEARING
- DENOTES FILL IN WETLAND
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES IMPACTS IN SURFACE WATER (POND)

LATERAL BASE DITCH  
SEE DETAIL A  
CL B RIP RAP

REMOVE HW  
COLLAR AND EXTEND  
CL RIP RAP  
RIP RAP PAD FOR JUR. STREAM  
RIP RAP ON BANKS ONLY

8/17/99

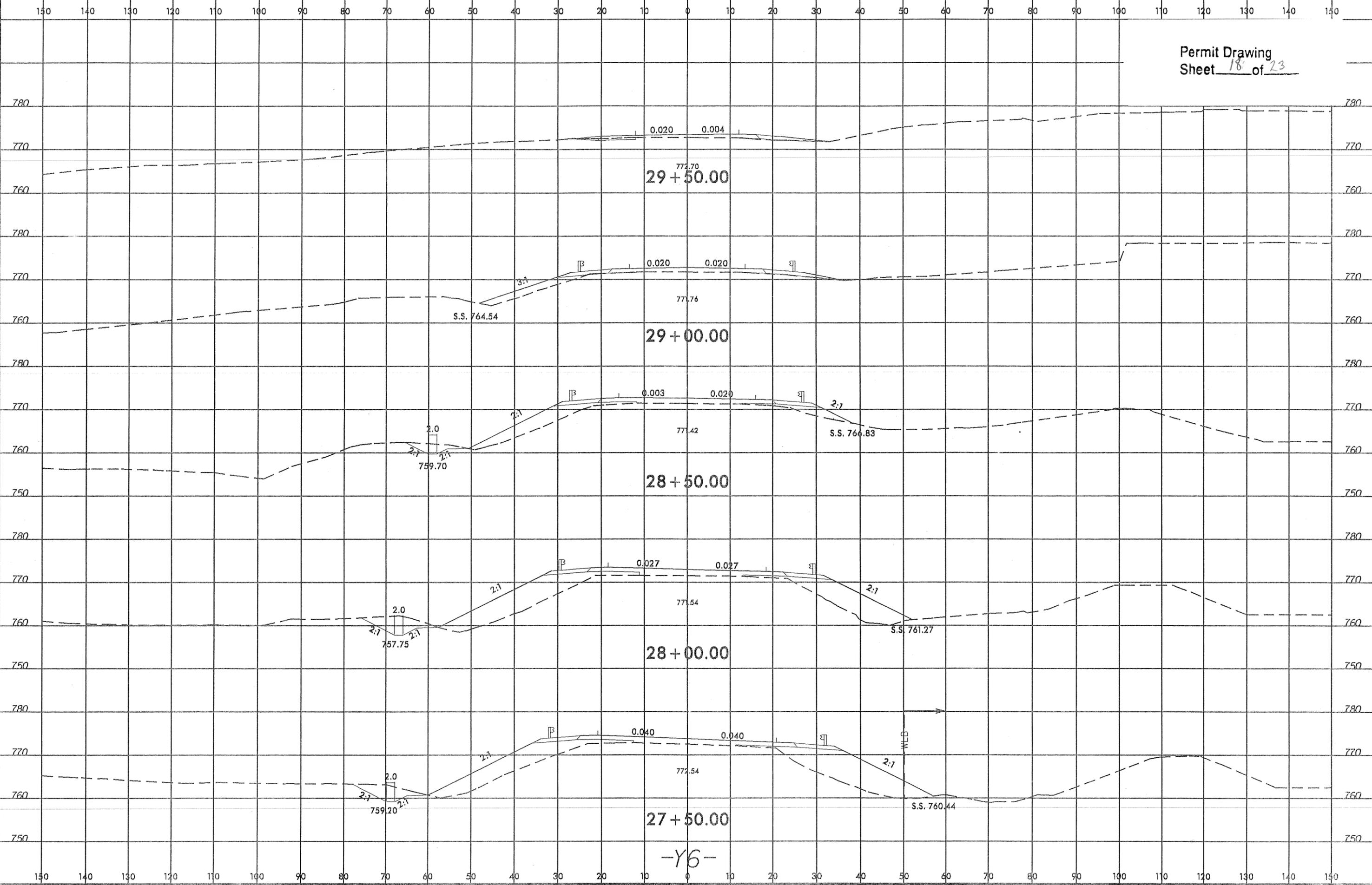


-  DENOTES MECHANIZED CLEARING
-  DENOTES FILL IN WETLAND
-  DENOTES TEMPORARY IMPACTS IN SURFACE WATER
-  DENOTES IMPACTS IN SURFACE WATER (POND)

**NCDOT**  
 DIVISION OF HIGHWAYS  
 MECKLENBURG COUNTY  
 PROJECT: 34811.1 (U-2507A)  
  
 CHARLOTTE  
 SR 2467 TO SR 2665  
  
 SHEET **17** OF **23** 2/16/11

8/23/99

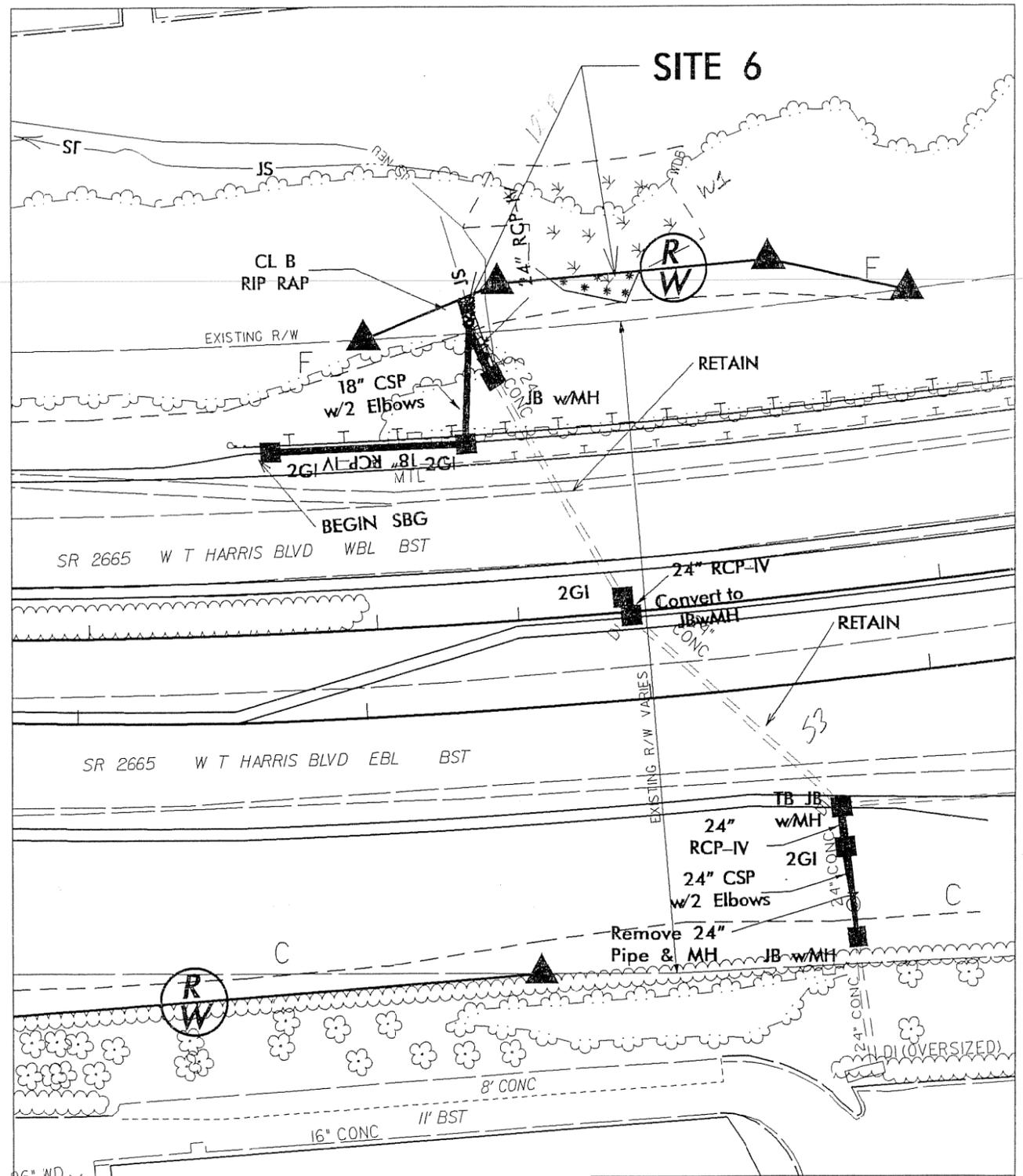
Permit Drawing  
Sheet 18 of 23



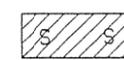
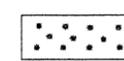
-Y6-

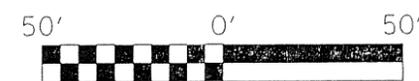






PLAN VIEW

-  DENOTES IMPACTS IN SURFACE WATER
-  DENOTES MECHANIZED CLEARING



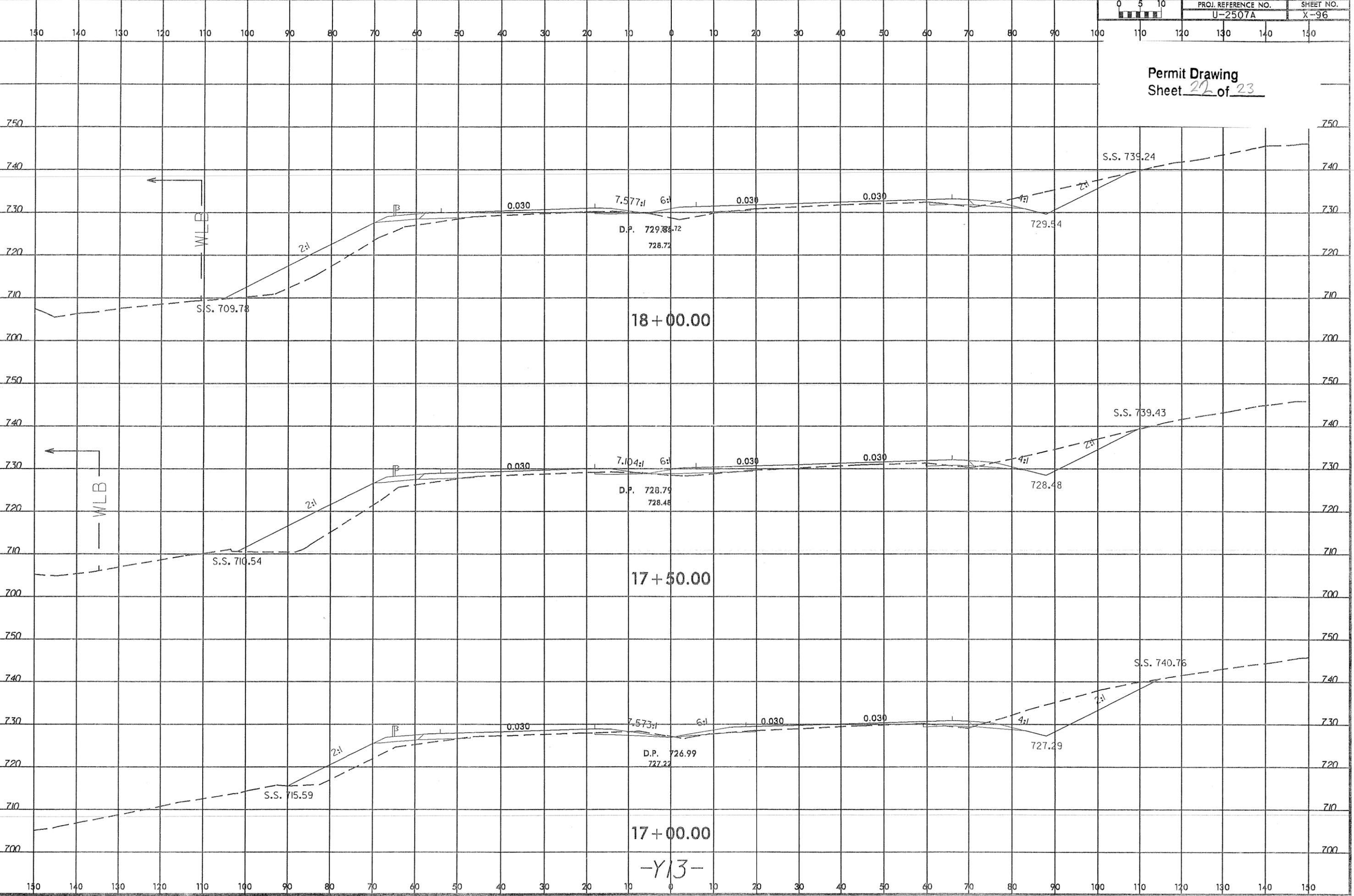
**NCDOT**  
 DIVISION OF HIGHWAYS  
 MECKLENBURG COUNTY  
 PROJECT: 34811.11 (U-2507A)

CHARLOTTE  
 SR 2467 TO SR 2665

SHEET **21** OF **23**      2/16/11

9/22/96

Permit Drawing  
Sheet 22 of 23



-Y13-

WETLAND PERMIT IMPACT SUMMARY												
Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS					SURFACE WATER IMPACTS				
			Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	50+59 to 52+15-L- RT	Fill	0.07			0.04						
	51+50 to 53+23-L-LT	Fill					<0.01	<0.01	152	10		
	53+75 to 58+49 -L-	Fill					0.04	<0.01	552	10		
	53+75 to 53+90-L-LT	Bank Stablization					<0.01		22			
2	57+19 to 57+58-L-	Bank Stablization					0.01	0.01	72	76		
	57+44 to 58+30-L-	7' x 8" RCBC					0.03		214			
3 *	63+89 to 67+58-L- LT	Fill					0.26	0.82				
	63+88 to 64+23-L- RT	Fill	0.01									
	63+20 to 63+21-L-RT	Bank Stablization					<0.01	<0.01	19			
4	27+14 to 27+83-Y6-RT	Pipe Extension	0.01			0.01			44			
		Bank Stabilization					<0.01	<0.01	34	10		
5 *	84+64-L- RT	Fill					0.01	0.02				
6	17+66 to	Fill				0.01			12			
	17+98-Y13- LT						<0.01					
TOTALS:			0.09			0.06			0.35	0.85	1121	106

\* Pond/Basin

Permit Drawing  
Sheet 23 of 23

NC DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
  
COUNTY  
WBS - 34811.1.1 (U-2507A)  
  
SHEET #####

09/08/09

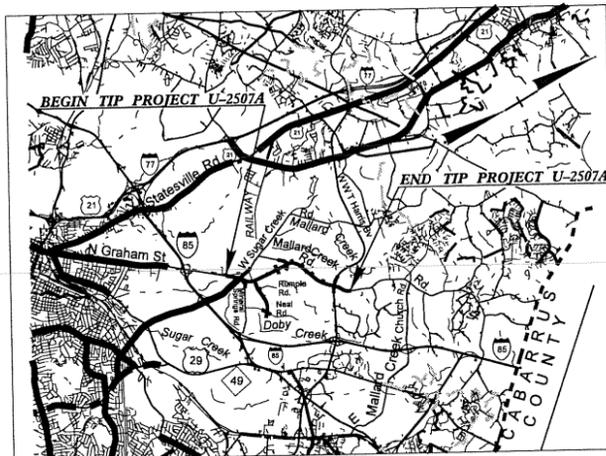
See Sheet 1-A For Index of Sheets

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**MECKLENBURG COUNTY**

LOCATION: CHARLOTTE - SR 2467 (MALLARD CREEK ROAD)  
FROM SR 2480 (SUGAR CREEK ROAD) TO  
SR 2665 (HARRIS BOULEVARD)  
TYPE OF WORK: GRADING, DRAINAGE, PAVING AND SIGNALS

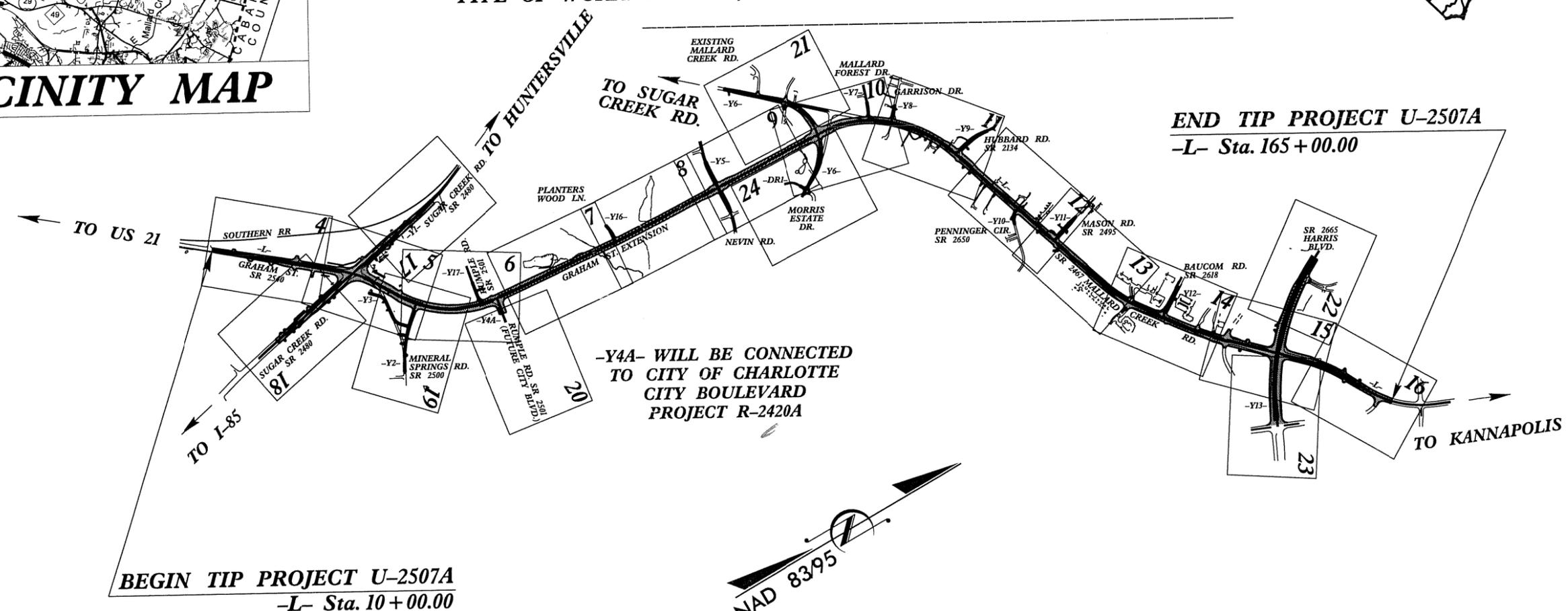
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-2507A	1	
STATE PROJ. NO.	S.A. PROJ. NO.	DESCRIPTION	
34811.1.1	STP-5238(2)	PE	
34811.2.3	STPDA-5238(4)	R/W, UTIL	



**VICINITY MAP**



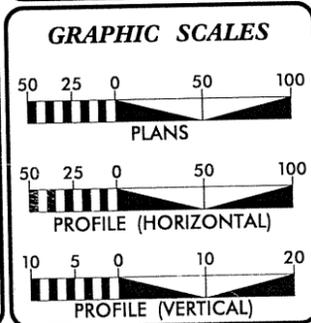
**TIP PROJECT: U-2507A**



THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF CHARLOTTE.  
THERE IS NO CONTROL OF ACCESS ON THIS PROJECT.  
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

**PRELIMINARY PLANS**  
DO NOT USE FOR CONSTRUCTION

**CONTRACT:**



**DESIGN DATA**

ADT 2012 =	34,150
ADT 2030 =	45,600
DHV =	10 %
D =	55 %
T =	7 % *
V =	50 MPH
* TTST 2%	DUAL 5%

**PROJECT LENGTH**

LENGTH OF ROADWAY TIP PROJECT U-2507A =	2.94 MILES
LENGTH OF STRUCTURE TIP PROJECT U-2507A =	0.00 MILES
TOTAL LENGTH OF TIP PROJECT U-2507A =	2.94 MILES

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

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: MAY 6, 2010

LETTING DATE: JULY 17, 2012

TONY HOUSER, PE  
PROJECT ENGINEER

JASON TALLEY, PE  
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

ROADWAY DESIGN ENGINEER

SIGNATURE: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_

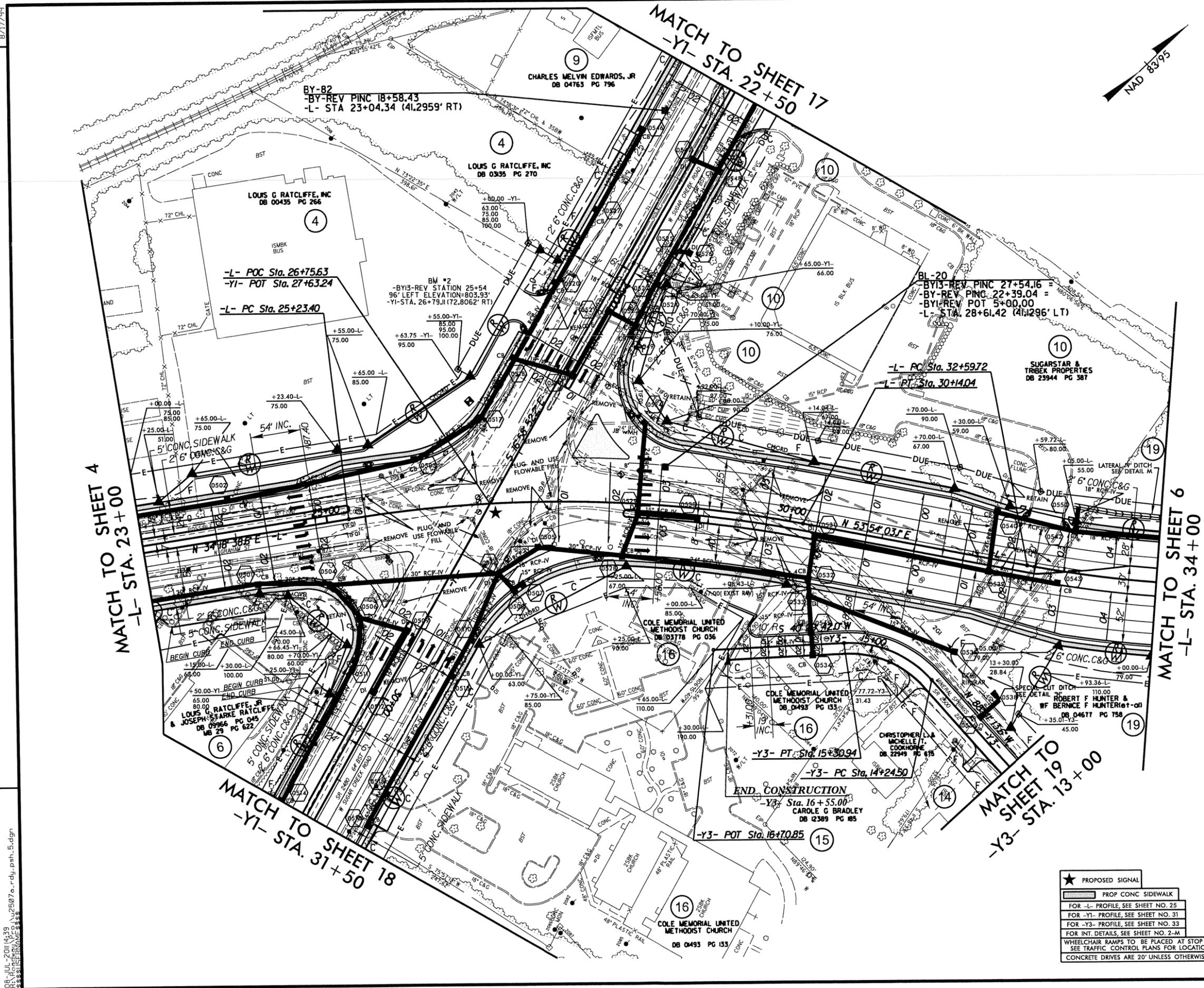
DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA

STATE HIGHWAY DESIGN ENGINEER

08-JUL-2011 14:37  
S:\PROJECTS\U2507A\U2507A.rdy\_tsh.dgn  
\$\$\$\$\$SERVNAME\$\$\$\$\$



PROJECT REFERENCE NO.	SHEET NO.
U-2507A	5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b>	
DO NOT USE FOR CONSTRUCTION	



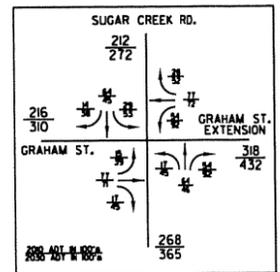
MATCH TO SHEET 4  
-L- STA. 23+00

MATCH TO SHEET 6  
-L- STA. 34+00

MATCH TO SHEET 18  
-Y1- STA. 31+50

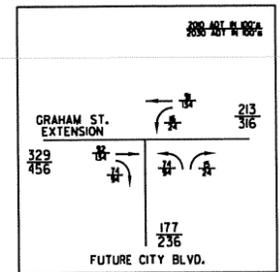
MATCH TO SHEET 19  
-Y3- STA. 13+00

- ★ PROPOSED SIGNAL
- ▬ PROP CONC SIDEWALK
- FOR -L- PROFILE, SEE SHEET NO. 25
- FOR -Y1- PROFILE, SEE SHEET NO. 31
- FOR -Y3- PROFILE, SEE SHEET NO. 33
- FOR INT. DETAILS, SEE SHEET NO. 2-M
- WHEELCHAIR RAMPS TO BE PLACED AT STOP BAR. SEE TRAFFIC CONTROL PLANS FOR LOCATION.
- CONCRETE DRIVES ARE 20' UNLESS OTHERWISE NOTED

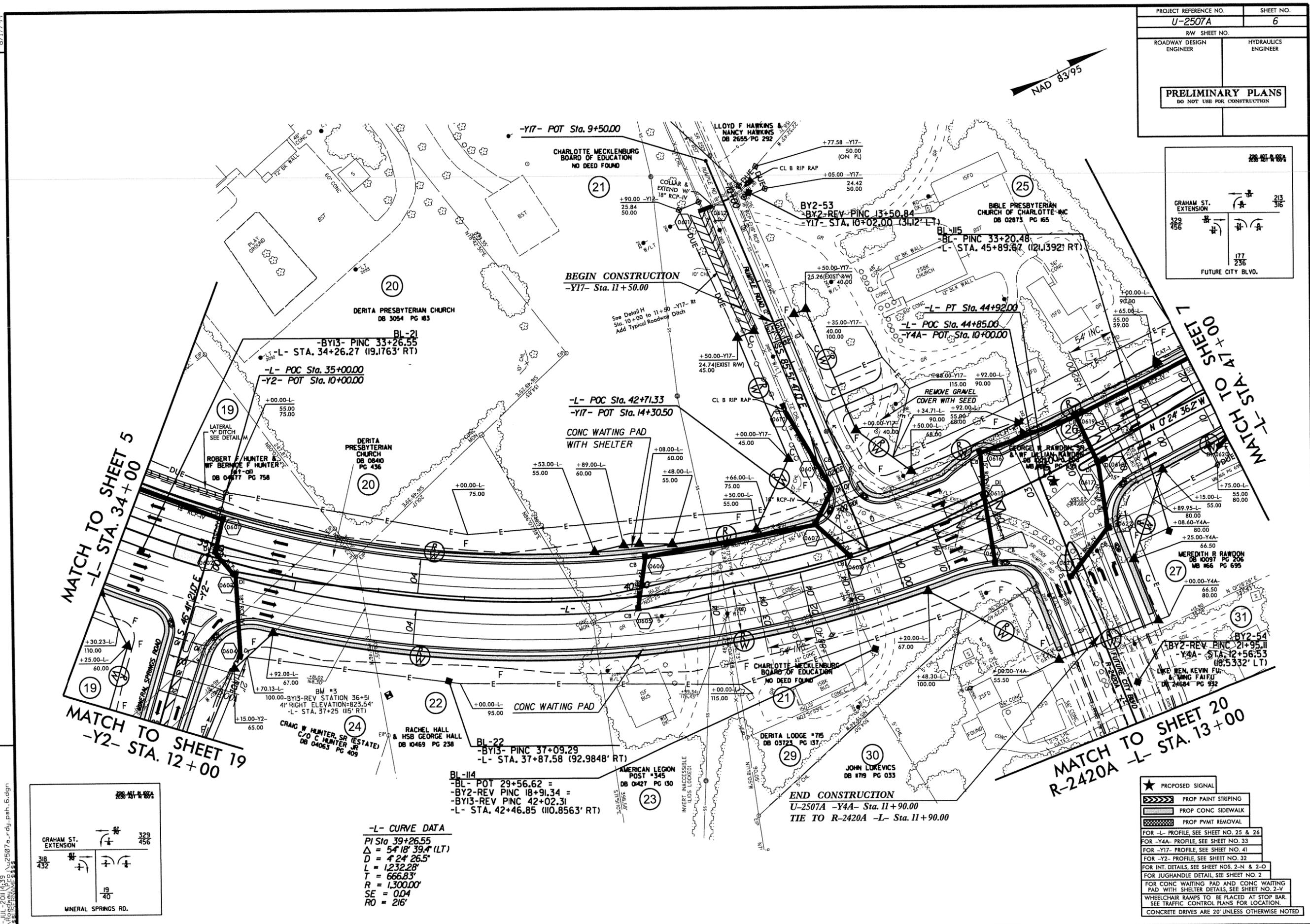


REVISIONS  
 ROW Revision: Added ROW monuments at -L- Sta. 32+30 Lt. and -L- Sta. 33+05 Lt. and removed monument at -L- Sta. 32+59.72 due to interference with driveway. JMT 07/08/2011

8/17/99  
 05 JUL 2011 4:39 PM U:\2507A\rdy\_pah\_5.dgn  
 \$\$\$\$SYTIME\$\$\$\$



REVISIONS  
 DSN REVISION: Revised DUE on -Y17- Lt. to eliminate claim on Lloyd Hawkins property. DUE now runs on the property line for Parcel 25. JMT 07/08/2011

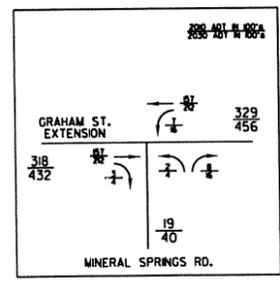


MATCH TO SHEET 5  
 -L- STA. 34+00

MATCH TO SHEET 19  
 -Y2- STA. 12+00

MATCH TO SHEET 7  
 -L- STA. 47+00

MATCH TO SHEET 20  
 R-2420A -L- STA. 13+00

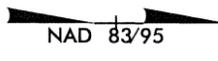


**-L- CURVE DATA**  
 PI Sta 39+26.55  
 $\Delta = 54^{\circ} 18' 39.4''$  (LT)  
 $D = 4^{\circ} 24' 26.5''$   
 $L = 1232.28'$   
 $T = 666.83'$   
 $R = 1,300.00'$   
 $SE = 0.04$   
 $RO = 216'$

- ★ PROPOSED SIGNAL
- ▨▨▨▨▨ PROP PAINT STRIPING
- ▬▬▬▬▬ PROP CONC SIDEWALK
- ▨▨▨▨▨ PROP PVMT REMOVAL
- FOR -L- PROFILE, SEE SHEET NO. 25 & 26
- FOR -Y4A- PROFILE, SEE SHEET NO. 33
- FOR -Y17- PROFILE, SEE SHEET NO. 41
- FOR -Y2- PROFILE, SEE SHEET NO. 32
- FOR INT. DETAILS, SEE SHEET NOS. 2-N & 2-O
- FOR JUGHANDLE DETAIL, SEE SHEET NO. 2
- FOR CONC WAITING PAD AND CONC WAITING PAD WITH SHELTER DETAILS, SEE SHEET NO. 2-V
- WHEELCHAIR RAMPS TO BE PLACED AT STOP BAR. SEE TRAFFIC CONTROL PLANS FOR LOCATION.
- CONCRETE DRIVES ARE 20' UNLESS OTHERWISE NOTED

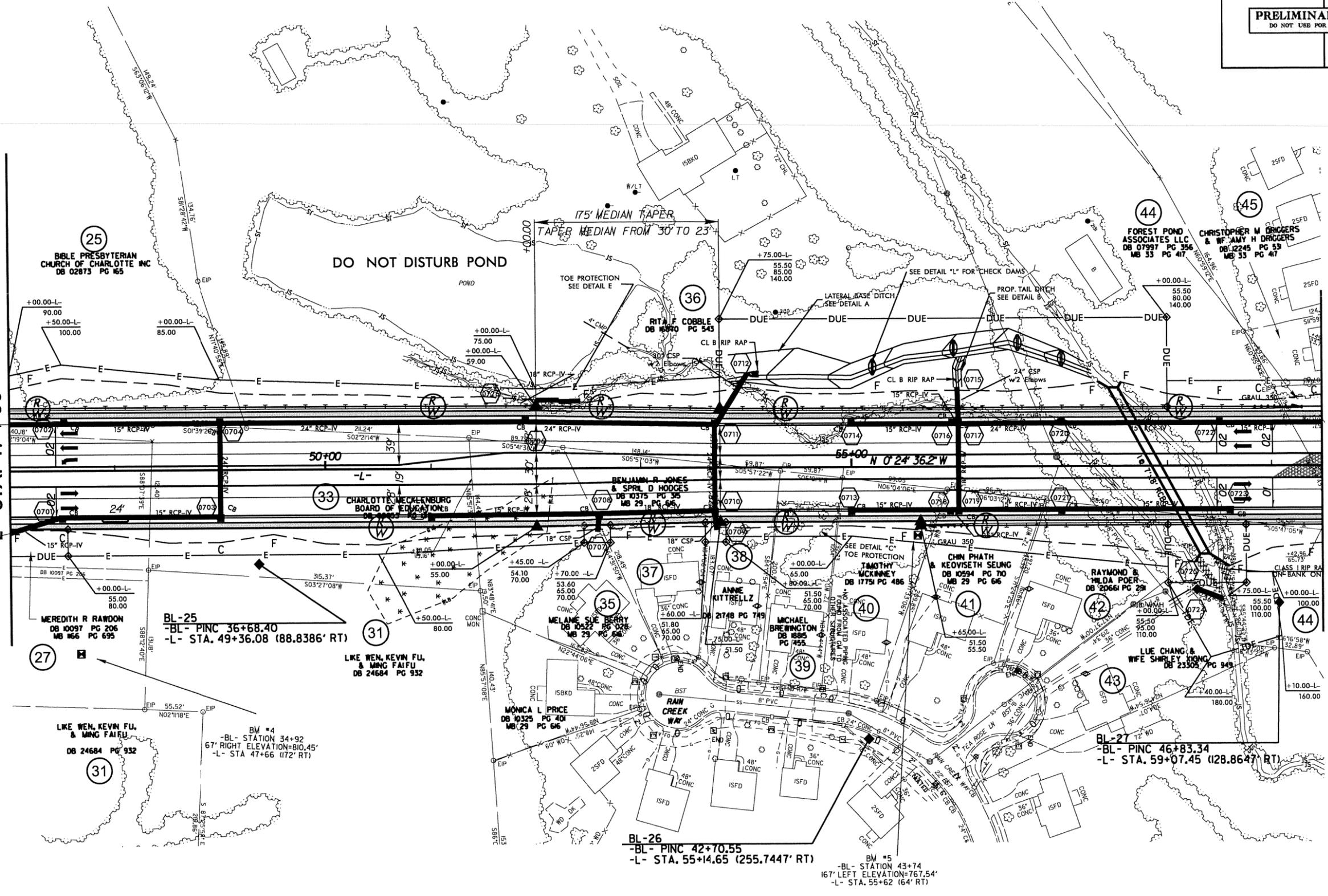
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 3:05:15 PM

PROJECT REFERENCE NO. <b>U-2507A</b>	SHEET NO. <b>7</b>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	



MATCH TO SHEET 6  
-L- STA. 47+00

MATCH TO SHEET 8  
-L- STA. 59+50



	EMERGENCY VEHICLE MEDIAN CROSSOVER
	PROP CONC SIDEWALK
FOR -L- PROFILE, SEE SHEET NO. 26	

DSN REVISION: ADDED 24" CONCRETE DRIVEWAY FOR PARCEL 27, -L- STA. 48+00 RT. JMT 07/07/2011

8/17/99

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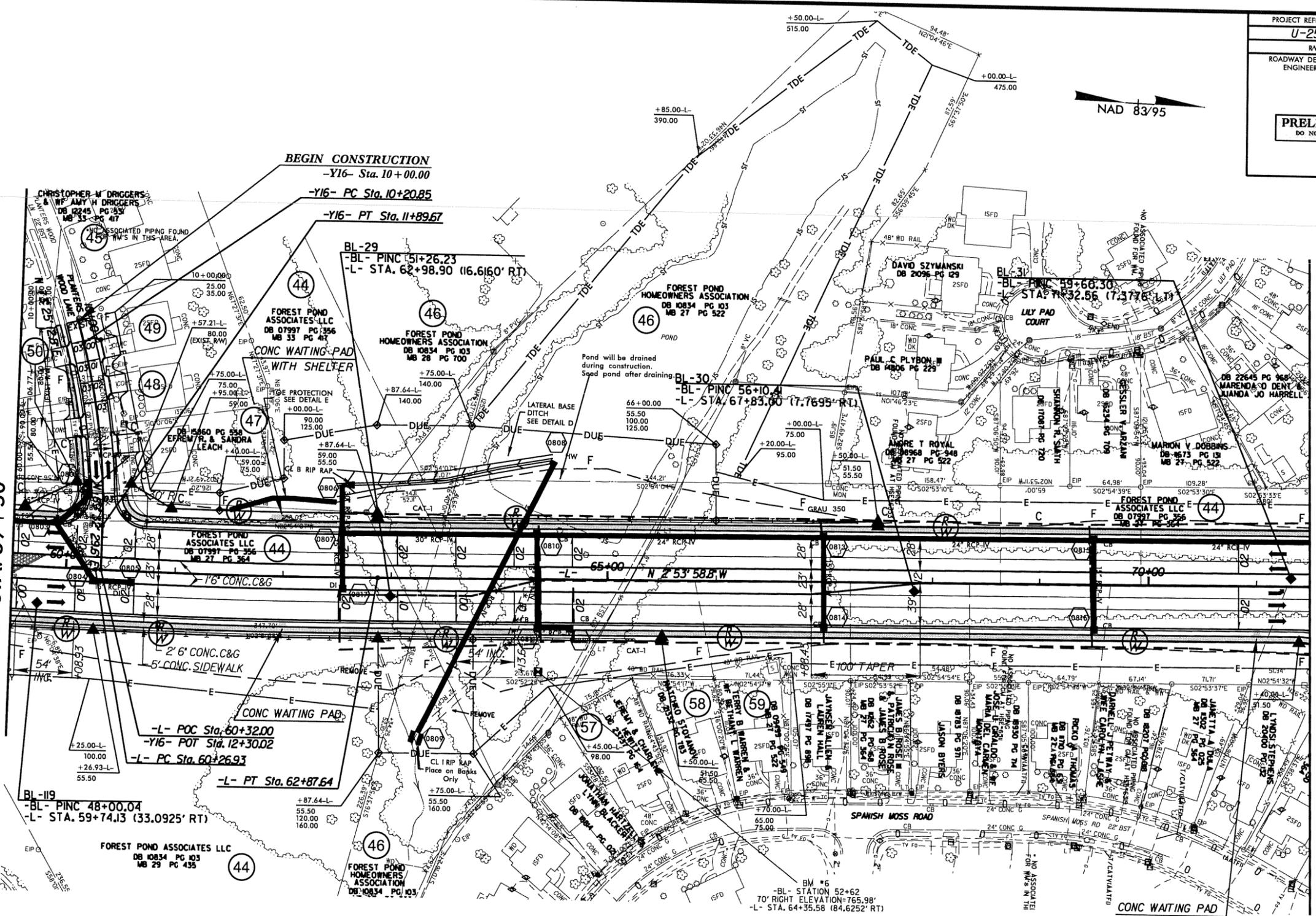
PROJECT REFERENCE NO. <b>U-2507A</b>	SHEET NO. <b>8</b>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	

REVISIONS  
ROW Revision: Revised the TCE, -L- Sta. 64+45 Rt. to -L- Sta. 66+25 Rt. to eliminate claims to Parcels 57, 58, and 59. JMT 07/08/2011

8/17/99

MATCH TO SHEET 7  
-L- STA. 59+50

MATCH TO SHEET 9  
-L- STA. 71+50



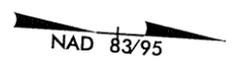
<b>-Y16- CURVE DATA</b>	<b>-L- CURVE DATA</b>
PI Sta 11+05.82	PI Sta 61+57.31
Δ = 16° 07' 16.7" (RT)	Δ = 2° 29' 22.5" (LT)
D = 9' 32' 57.5"	D = 0' 57' 17.7"
L = 168.82'	L = 260.71'
T = 84.97'	T = 130.38'
R = 600.00'	R = 6,000.00'
SE = SEE PLANS	SE = 0.02
RO = SEE PLANS	RO = 108'

	EMERGENCY VEHICLE MEDIAN CROSSOVER
	PROP CONC SIDEWALK
FOR -L- PROFILE, SEE SHEET NO. 26 & 27	
FOR -Y16- PROFILE, SEE SHEET NO. 41	
FOR CONC WAITING PAD AND CONC WAITING PAD WITH SHELTER DETAILS, SEE SHEET NO. 2-V	

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8/17/99

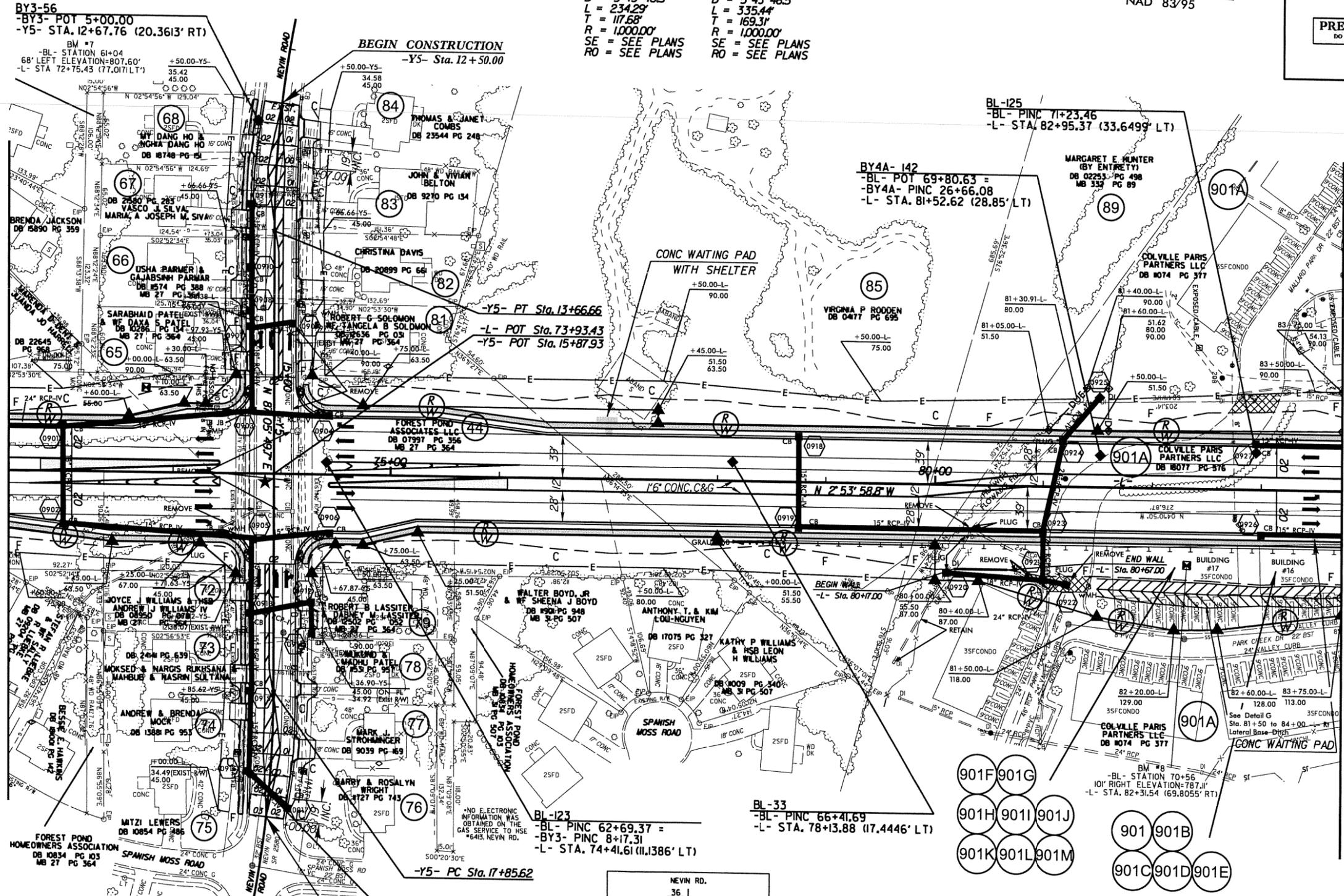
**-Y5- CURVE DATA**

PI Sta 12+50.06 Δ = 13° 25' 25.1" (LT) D = 5' 43' 46.5" L = 234.29' T = 117.68' R = 1,000.00' SE = SEE PLANS RO = SEE PLANS	PI Sta 19+54.93 Δ = 19° 13' 09.9" (RT) D = 5' 43' 46.5" L = 335.44' T = 169.31' R = 1,000.00' SE = SEE PLANS RO = SEE PLANS
--	--



MATCH TO SHEET 8  
-L- STA. 71+50

MATCH TO SHEET 10  
-L- STA. 83+75



**BY3-56**  
-BY3- POT 5+00.00  
-Y5- STA. 12+67.76 (20.3613' RT)

BM #7  
-BL- STATION 61+04  
68' LEFT ELEVATION=807.60'  
-L- STA 72+75.43 (77.0171' LT)

**BEGIN CONSTRUCTION**  
-Y5- Sta. 12+50.00

-Y5- PT Sta. 13+66.66  
-L- POT Sta. 73+93.43  
-Y5- POT Sta. 15+87.93

**BL-125**  
-BL- PINC 71+23.46  
-L- STA. 82+95.37 (33.6499' LT)

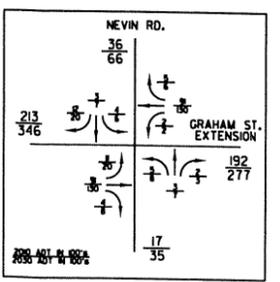
**BY4A-142**  
-BL- POT 69+80.63 =  
-BY4A- PINC 26+66.08  
-L- STA. 81+52.62 (28.85' LT)

**BL-123**  
-BL- PINC 62+69.37 =  
-BY3- PINC 8+17.31  
-L- STA. 74+41.61 (11.1386' LT)

**BL-33**  
-BL- PINC 66+41.69  
-L- STA. 78+13.88 (17.4446' LT)

**BY3-57**  
-BY3- POT 11+08.89  
-Y5- STA. 186.24 (19.7089' RT)

**END CONSTRUCTION**  
-Y5- Sta. 19+00.00



BUILDING #17	
901F	BARBARA PINSON
901G	ANGELA BARNES
901H	ALEXANDRA THEIL
901I	CHRIS SEQUEIRA & JOHN SEQUEIRA
901J	NEPHERTERRA ESTRADA
901K	LEON SAUNDERS & ETHAN SAUNDERS
901L	ASHLEY HUFFMAN
901M	RUTH WILLIAMS

BUILDING #16	
901	COLVILLE PARIS PARTNERS LLC
901B	JASON C DOCKERY & MATTHEW MCRAE
901C	KENNETH HALEY
901D	SHAYLON C. MCALISTER
901E	THOMAS & ALMETA POOLE

- ★ PROPOSED SIGNAL
- ▬▬▬▬▬▬ PROP PAINT STRIPING
- ▬▬▬▬▬▬ PROP CONC SIDEWALK
- ▬▬▬▬▬▬ PROP PVMT REMOVAL
- FOR -L- PROFILE, SEE SHEET NO. 27
- FOR -Y5- PROFILE, SEE SHEET NO. 34
- FOR INT. DETAILS, SEE SHEET NO. 2-P
- MATCH CONCRETE DRIVES TO EXISTING
- FOR CONC WAITING PAD AND CONC WAITING PAD WITH SHELTER DETAILS, SEE SHEET NO. 2-V
- WHEELCHAIR RAMPS TO BE PLACED AT STOP BAR. SEE TRAFFIC CONTROL PLANS FOR LOCATION.

REVISIONS  
ROW Revision: Reduced the TCE on Y5-LI. to eliminate claims to Parcels 76, 77, and 78. JMT 07/08/2011

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8/17/99



**-L- CURVE DATA**  
 PI Sta 100+06.44  
 $\Delta = 33^{\circ} 29' 05.2''$  (RT)  
 $D = 3' 29' 37.1''$   
 $L = 958.45'$   
 $T = 493.35'$   
 $R = 1640.00'$   
 $SE = 0.04$   
 $RO = 216'$

**-Y9- CURVE DATA**  
 PI Sta 12+30.71  
 $\Delta = 20^{\circ} 00' 47.0''$  (LT)  
 $D = 8' 11' 06.4''$   
 $L = 244.51'$   
 $T = 123.51'$   
 $R = 700.00'$   
 $SE = 0.04$   
 $RO = 104'$



BY7-62  
 -BY7- POT 5+00.00  
 -Y8- STA. 10+00.00 (11,8365' RT)

175' MEDIAN TAPER  
 TAPER MEDIAN FROM 23' TO 30'

BL-38  
 -BL- PINC 85+64.88 =  
 -BY7- POT 8+08.72  
 -L- STA. 96+64.35 (7,6892' LT)

BY8-65  
 -BY8-REV POT 5+00.00  
 -Y9- STA. 11+27.32 (17,5058' RT)  
 -Y9- PT Sta. 13+51.70

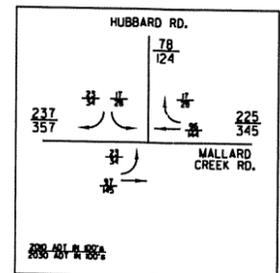
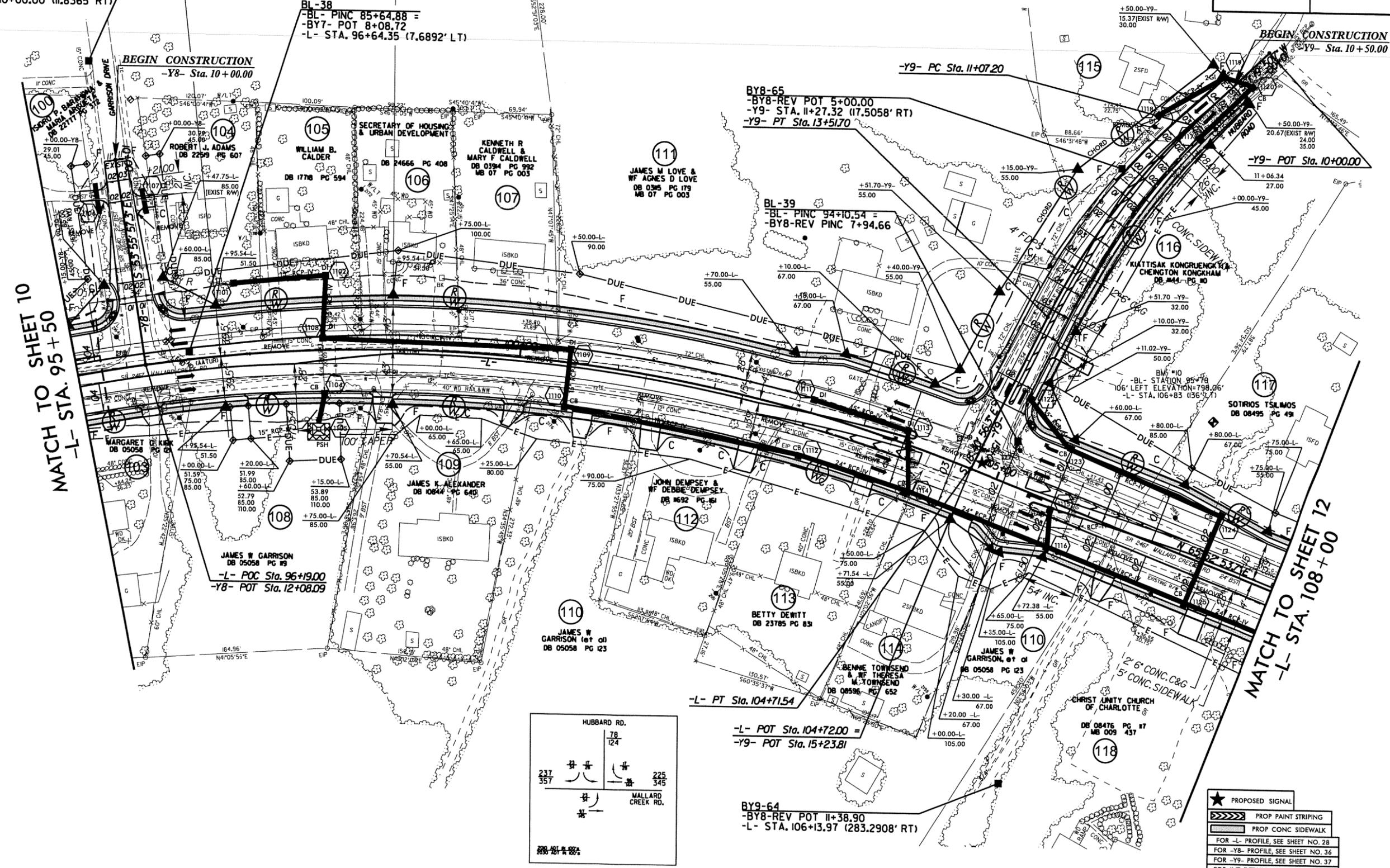
BEGIN CONSTRUCTION  
 -Y9- Sta. 10+50.00

-Y9- POT Sta. 10+00.00

MATCH TO SHEET 10  
 -L- STA. 95+50

MATCH TO SHEET 12  
 -L- STA. 108+00

8/17/99  
 REVISIONS  
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 11-2507A.dwg  
 11-2507A.dwg



- ★ PROPOSED SIGNAL
- ▬▬▬▬▬ PROP PAINT STRIPING
- ▬▬▬▬▬ PROP CONC SIDEWALK
- FOR -L- PROFILE, SEE SHEET NO. 28
- FOR -Y8- PROFILE, SEE SHEET NO. 36
- FOR -Y9- PROFILE, SEE SHEET NO. 37
- FOR INT. DETAILS, SEE SHEET NO. 2-R
- WHEELCHAIR RAMPS TO BE PLACED AT STOP BAR. SEE TRAFFIC CONTROL PLANS FOR LOCATION.
- CONCRETE DRIVES ARE 20' UNLESS OTHERWISE NOTED







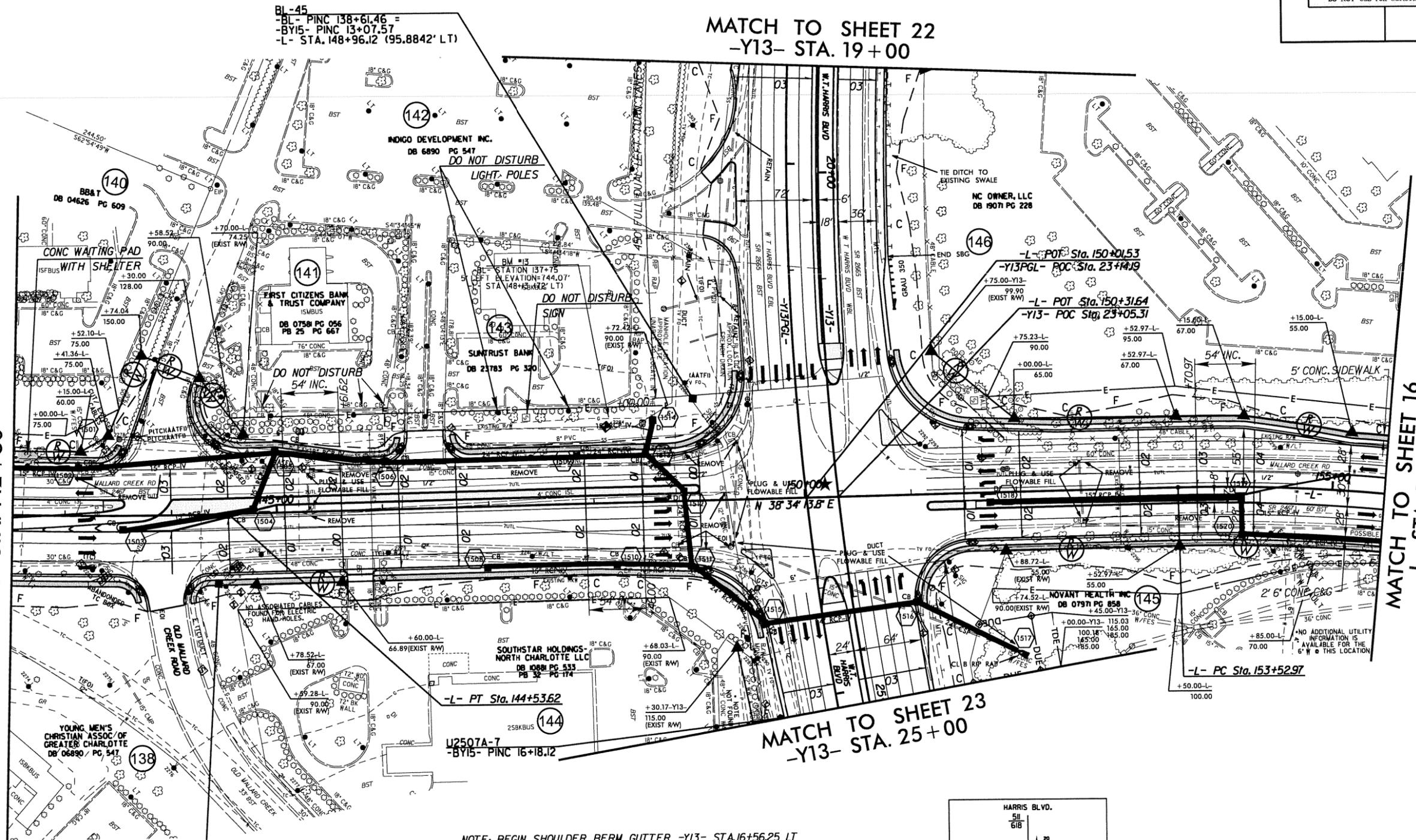


MATCH TO SHEET 22  
-Y13- STA. 19+00

MATCH TO SHEET 14  
-L- STA. 142+50

MATCH TO SHEET 16  
-L- STA. 155+50

MATCH TO SHEET 23  
-Y13- STA. 25+00



REVISIONS  
DSN REVISION: ADDED DO NOT DISTURB LABELS TO THE TWO LIGHT POLES AND SIGN POST ON PARCEL 143. INT. 07/07/2011

NOTE: BEGIN SHOULDER BERM GUTTER -Y13- STA.16+56.25 LT  
END SHOULDER BERM GUTTER -Y13- STA.20+81.25 LT

**BL-44**  
-BL- PINC 133+80.16 =  
-BY14- POT 5+00.00  
-L- STA. 144+42.67 (64.9621' RT)

**-L- CURVE DATA**

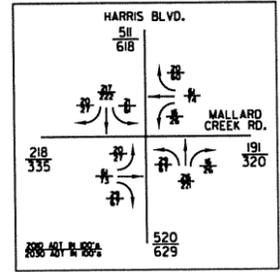
PI Sta 141+25.89 Δ = 9° 39' 08.4" (LT) D = 1° 28' 08.8" L = 657.01' T = 329.29' R = 3,900.00' SE = 0.03 RO = 162'	PI Sta 156+10.21 Δ = 17° 06' 36.6" (RT) D = 3° 21' 02.3" L = 510.65' T = 257.24' R = 1,710.00' SE = 0.04 RO = 216'
--	---

**-Y13- CURVE DATA**

PI Sta 20+67.04 Δ = 36° 20' 31.6" (LT) D = 2° 00' 27.3" L = 1,810.24' T = 936.74' R = 2,853.97' SE = 0.03 RO = 108'
--

**-Y13PGL- CURVE DATA**

PI Sta 23+17.97 Δ = 25° 54' 31.7" (LT) D = 1° 59' 12.5" L = 1,304.11' T = 663.40' R = 2,883.97'
--



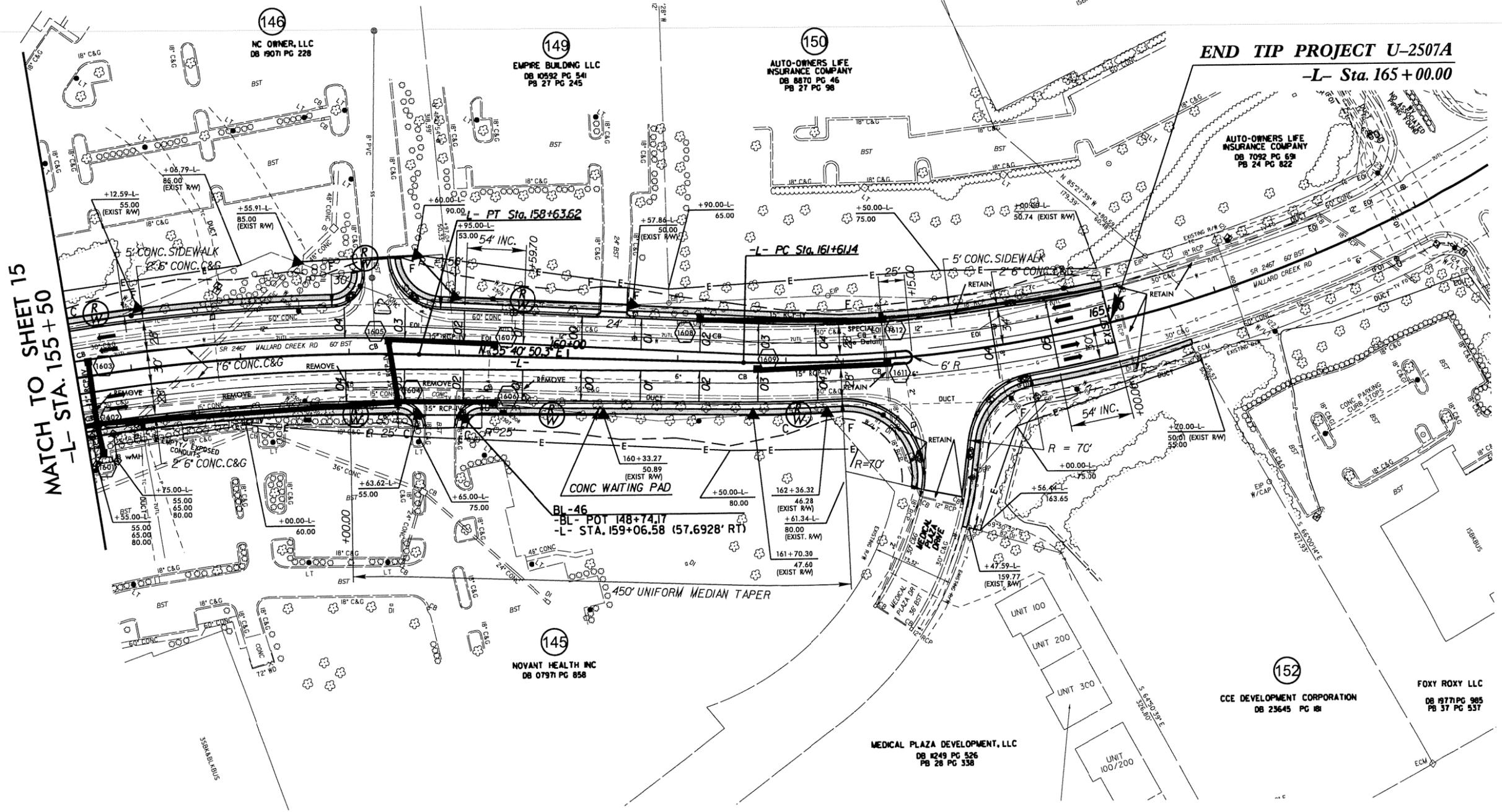
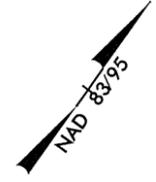
★ PROPOSED SIGNAL  
 ▬ PROP CONC SIDEWALK  
 FOR -L- PROFILE, SEE SHEET NO. 29, 30  
 FOR -Y13- PROFILE, SEE SHEET NO. 39  
 FOR INT. DETAILS, SEE SHEET NO. 2-L  
 FOR CONC WAITING PAD AND CONC WAITING PAD WITH SHELTER DETAILS, SEE SHEET NO. 2-Y  
 WHEELCHAIR RAMPS TO BE PLACED AT STOP BAR. SEE TRAFFIC CONTROL PLANS FOR LOCATION.

8/17/99  
08-JUL-2011 14:41  
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PROJECT REFERENCE NO. <b>U-2507A</b>	SHEET NO. <b>16</b>
RAW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	

**-L- CURVE DATA**

PI Sta 156+10.21	PI Sta 166+05.31
$\Delta = 17^{\circ} 06' 36.6"$ (RT)	$\Delta = 38^{\circ} 33' 14.3"$ (LT)
D = 3' 21' 02.3"	D = 4' 30' 41.3"
L = 510.65'	L = 854.57'
T = 257.24'	T = 444.17'
R = 1,710.00'	R = 1,270.00'
SE = 0.04	SE = 0.04
RO = 216'	RO = 216'



MATCH TO SHEET 15  
 -L- STA. 155+50

**END TIP PROJECT U-2507A**  
 -L- Sta. 165+00.00

REVISIONS

[Symbol] PROP CONC SIDEWALK  
 FOR -L- PROFILE, SEE SHEET NO. 30  
 FOR CONC WAITING PAD AND CONC WAITING PAD WITH SHELTER DETAILS, SEE SHEET NO. 2-V  
 WHEELCHAIR RAMPS TO BE PLACED AT STOP BAR. SEE TRAFFIC CONTROL PLANS FOR LOCATION.

8/17/99

QR JUL 2011 10:41 AM  
 N:\2507a\_r.dwg, path, 16.dgn  
 5535152507A.MXD

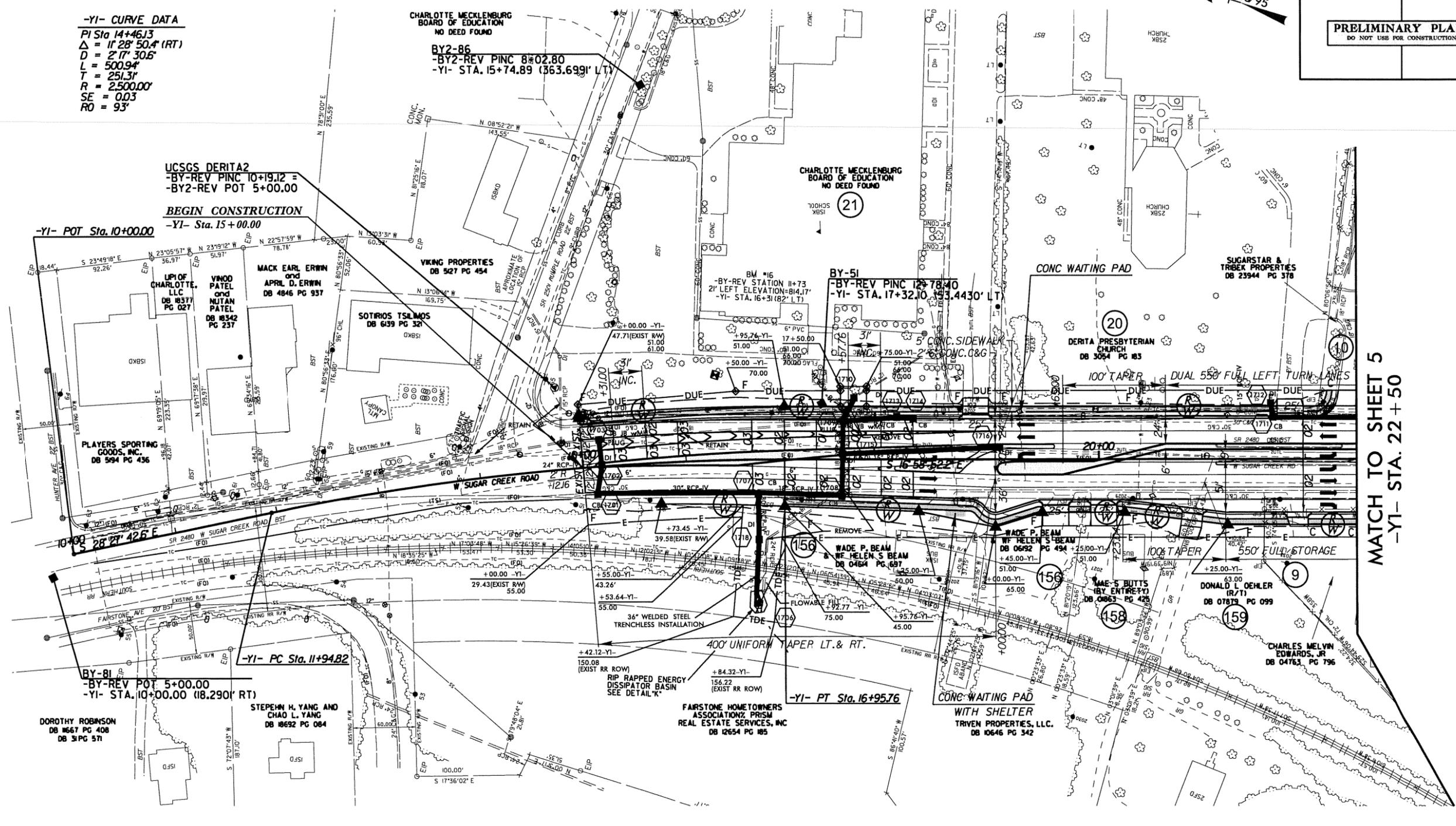
PROJECT REFERENCE NO.	SHEET NO.
U-2507A	17
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b>	
DO NOT USE FOR CONSTRUCTION	

NAD, 83/95

**-YI- CURVE DATA**  
 PI Sta 14+46.13  
 $\Delta = 1^\circ 28' 50.4" (RT)$   
 $D = 2^\circ 17' 30.6"$   
 $L = 500.94'$   
 $T = 251.31'$   
 $R = 2,500.00'$   
 $SE = 0.03$   
 $RO = 93'$

UCSGS DERITA2  
 -BY-REV PINC 10+19.12 =  
 -BY2-REV POT 5+00.00  
**BEGIN CONSTRUCTION**  
 -YI- Sta. 15+00.00

-YI- POT Sta. 10+00.00



MATCH TO SHEET 5  
-YI- STA. 22+50

REVISIONS  
 ROW Revision: : Increased the size of the TDE located at Y1- Sta. 16+70 RT. to include the modified drainage system and Rip Rapped Energy Dissipator Basin. JMT 07/08/2011

	PROP PAINT STRIPING
	PROP CONC SIDEWALK
	FOR -YI- PROFILE, SEE SHEET NO. 31
	FOR CONC WAITING PAD AND CONC WAITING PAD WITH SHELTER DETAILS, SEE SHEET NO. 2-V
	WHEELCHAIR RAMPS TO BE PLACED AT STOP BAR. SEE TRAFFIC CONTROL PLANS FOR LOCATION.
	CONCRETE DRIVES ARE 20' UNLESS OTHERWISE NOTED.

8/17/99

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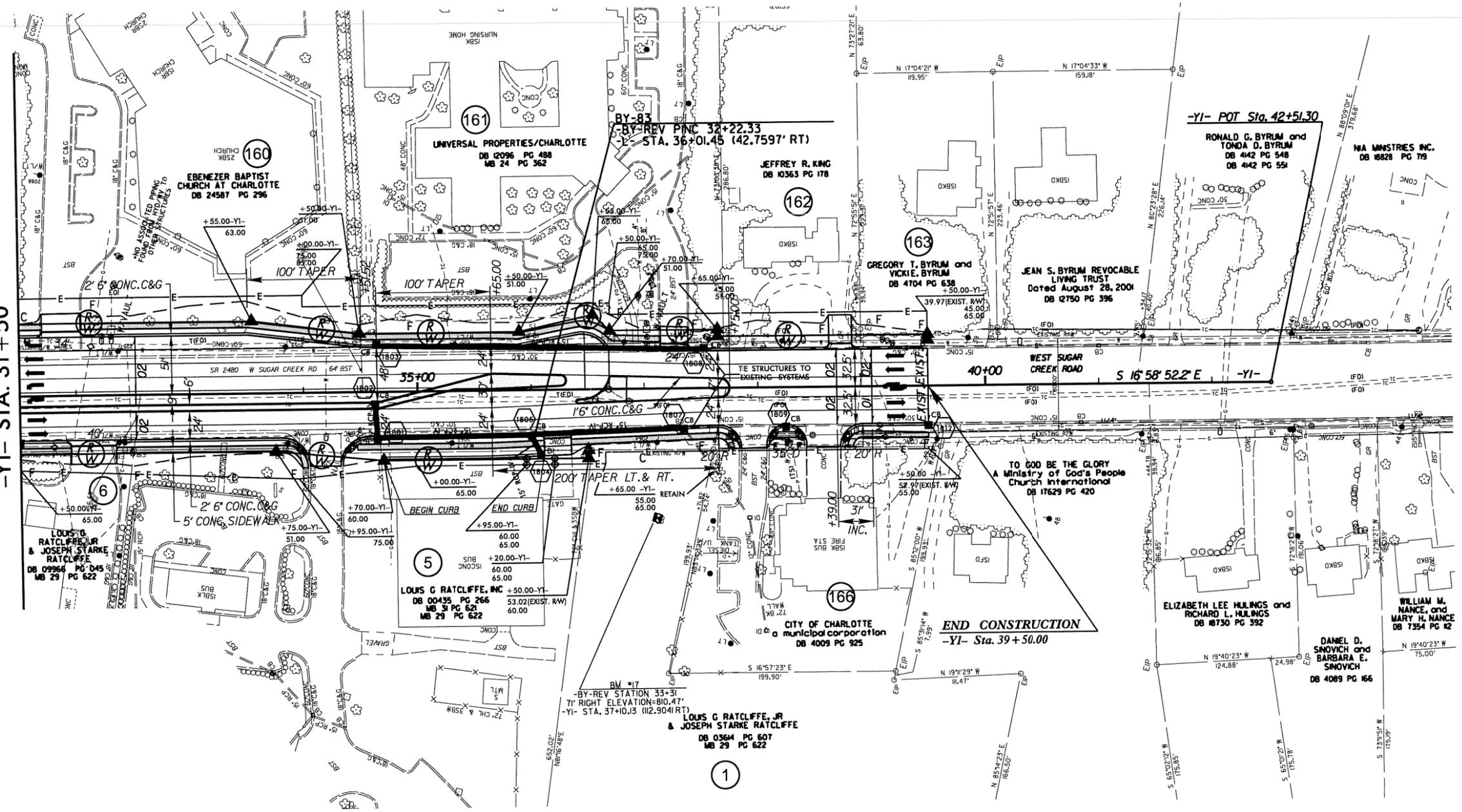
PROJECT REFERENCE NO. <b>U-2507A</b>	SHEET NO. <b>18</b>
RAW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	



**MATCH TO SHEET 5**  
**-Y1- STA. 31 + 50**

REVISIONS  
 ROW Revision: Added ROW monument at -Y1- Sta. 36+55 LI and -Y1- Sta. 36+70 LI to include the U-turn bulb. JMT 07/08/2011

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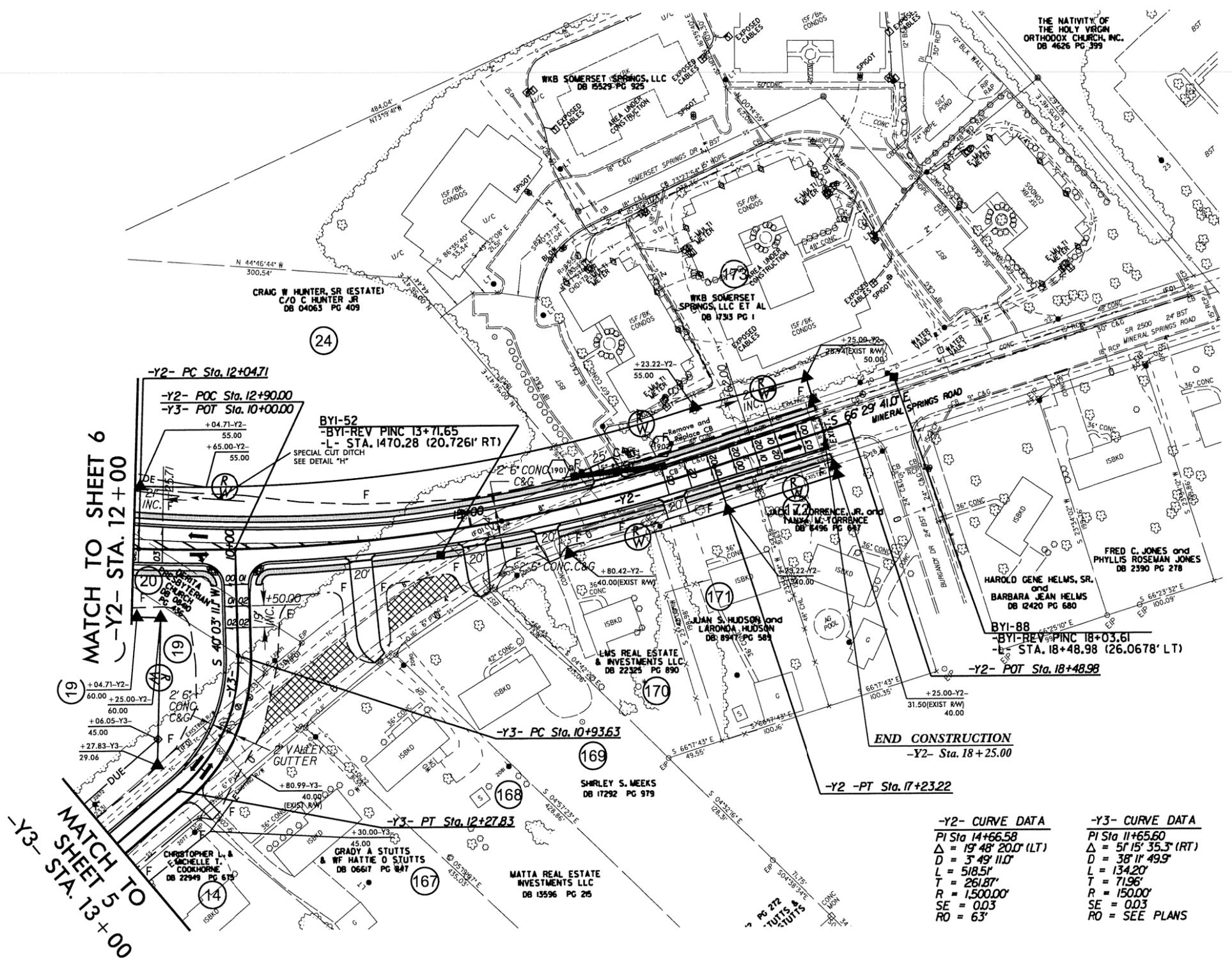
[Symbol] PROP CONC SIDEWALK  
 FOR -Y1- PROFILE, SEE SHEET NO. 31, 32  
 WHEELCHAIR RAMPS TO BE PLACED AT STOP BAR.  
 SEE TRAFFIC CONTROL PLANS FOR LOCATION.  
 CONCRETE DRIVES ARE 20' UNLESS OTHERWISE NOTED

PROJECT REFERENCE NO. <b>U-2507A</b>	SHEET NO. <b>19</b>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	



8/17/99

REVISIONS



**-Y2- PC Sta. 12+04.71**  
**-Y2- POC Sta. 12+90.00**  
**-Y3- POT Sta. 10+00.00**

**BYI-52**  
**-BYI-REV PINC 13+71.65**  
**-L- STA. 1470.28 (20.7261' RT)**  
 SPECIAL CUT DITCH  
 SEE DETAIL "H"

**-Y2- CURVE DATA**  
 PI Sta 14+66.58  
 $\Delta = 19^\circ 48' 20.0''$  (LT)  
 $D = 3^\circ 49' 11.0''$   
 $L = 518.51'$   
 $T = 261.87'$   
 $R = 1,500.00'$   
 $SE = 0.03$   
 $RO = 63'$

**-Y3- CURVE DATA**  
 PI Sta 11+65.60  
 $\Delta = 51^\circ 15' 35.3''$  (RT)  
 $D = 38^\circ 11' 49.9''$   
 $L = 134.20'$   
 $T = 71.96'$   
 $R = 150.00'$   
 $SE = 0.03$   
 $RO = \text{SEE PLANS}$

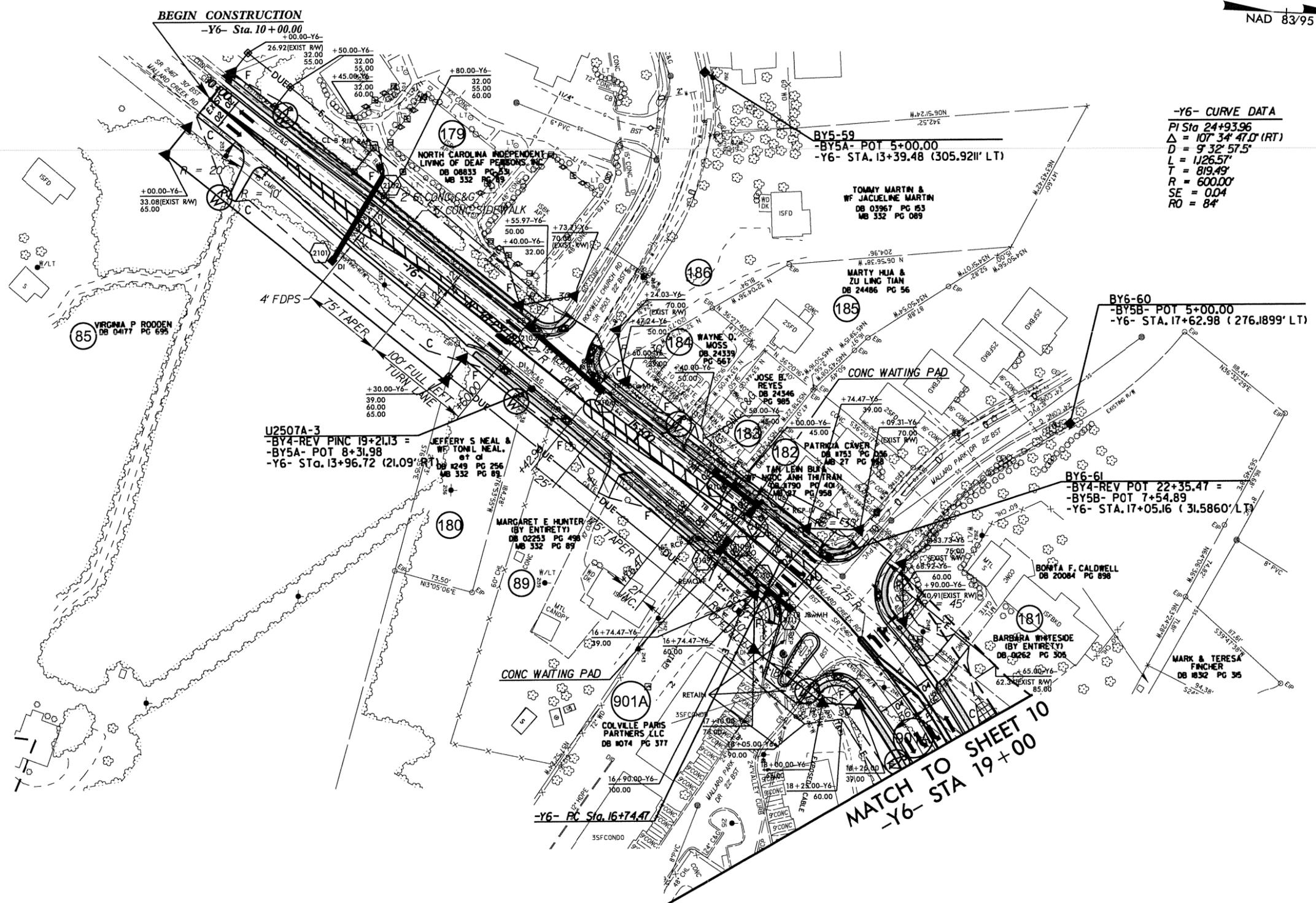
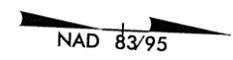
	PROP PAINT STRIPING
	PROP CONC SIDEWALK
	PROP PAVMT REMOVAL
FOR -Y2- PROFILE, SEE SHEET NO. 32	
FOR -Y3- PROFILE, SEE SHEET NO. 33	
CONCRETE DRIVES ARE 20' UNLESS OTHERWISE NOTED	

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**MATCH TO SHEET 6**  
**-Y2- STA. 12+00**  
  
**MATCH TO SHEET 5 TO**  
**-Y3- STA. 13+00**



PROJECT REFERENCE NO.	SHEET NO.
U-2507A	21
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b>	
DO NOT USE FOR CONSTRUCTION	



**-Y6- CURVE DATA**  
 PI Sta 24+93.96  
 $\Delta = 107^{\circ} 34' 47.0''$  (RT)  
 $D = 9^{\circ} 32' 57.5''$   
 $L = 1126.57'$   
 $T = 819.49'$   
 $R = 600.00'$   
 $SE = 0.04$   
 $RO = 84'$

**BY6-60**  
 -BY5B- POT 5+00.00  
 -Y6- STA. 17+62.98 ( 276,1899' LT)

**BY6-61**  
 -BY4-REV POT 22+35.47 =  
 -BY5B- POT 7+54.89  
 -Y6- STA. 17+05.16 ( 31,5860' LT)

**MATCH TO SHEET 10**  
 -Y6- STA 19+00

**U2507A-3**  
 -BY4-REV PINC 19+21.13 =  
 -BY5A- POT 8+31.98  
 -Y6- STA. 13+96.72 ( 21,09' RT)

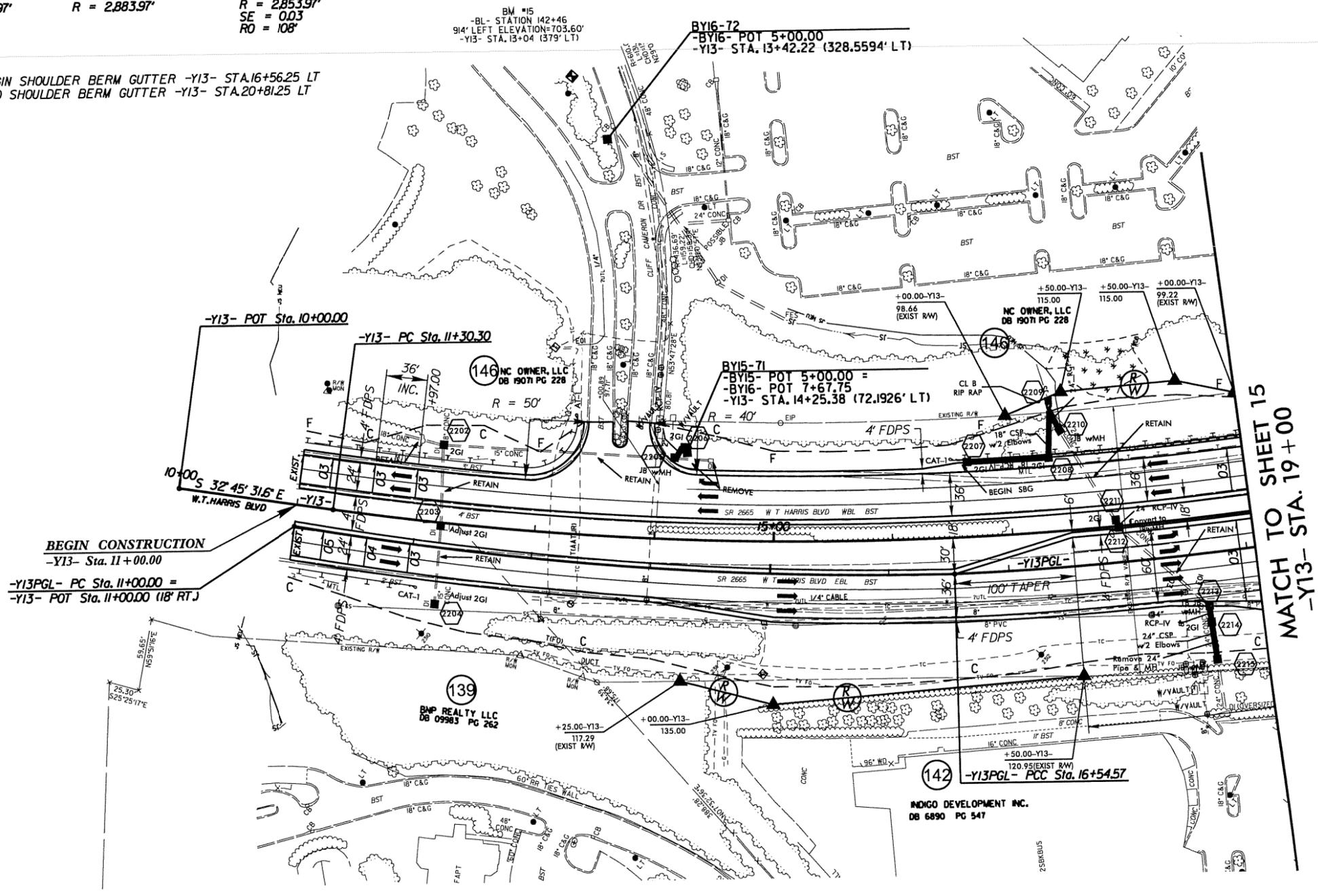
	PROP PAINT STRIPING
	PROP CONC SIDEWALK
FOR -Y6- PROFILE, SEE SHEET NO. 35	
FOR CONC WAITING PAD AND CONC WAITING PAD WITH SHELTER DETAILS, SEE SHEET NO. 2-Y	
CONCRETE DRIVES ARE 20' UNLESS OTHERWISE NOTED	

8/17/99  
 REVISIONS  
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-Y13PGL- CURVE DATA		-Y13- CURVE DATA
PI Sta 13+78.14	PI Sta 23+17.97	PI Sta 20+67.04
$\Delta = 11^{\circ} 03' 51.5"$ (LT)	$\Delta = 25^{\circ} 54' 31.7"$ (LT)	$\Delta = 36^{\circ} 20' 31.5"$ (LT)
D = 159' 12.7"	D = 159' 12.7"	D = 200' 27.3"
L = 554.57'	L = 1304.11'	L = 1810.24'
T = 278.14'	T = 663.40'	T = 936.74'
R = 2,883.97'	R = 2,883.97'	R = 2,853.97'
		SE = 0.03
		RO = 108'

NOTE: BEGIN SHOULDER BERM GUTTER -Y13- STA.16+56.25 LT  
 END SHOULDER BERM GUTTER -Y13- STA.20+81.25 LT

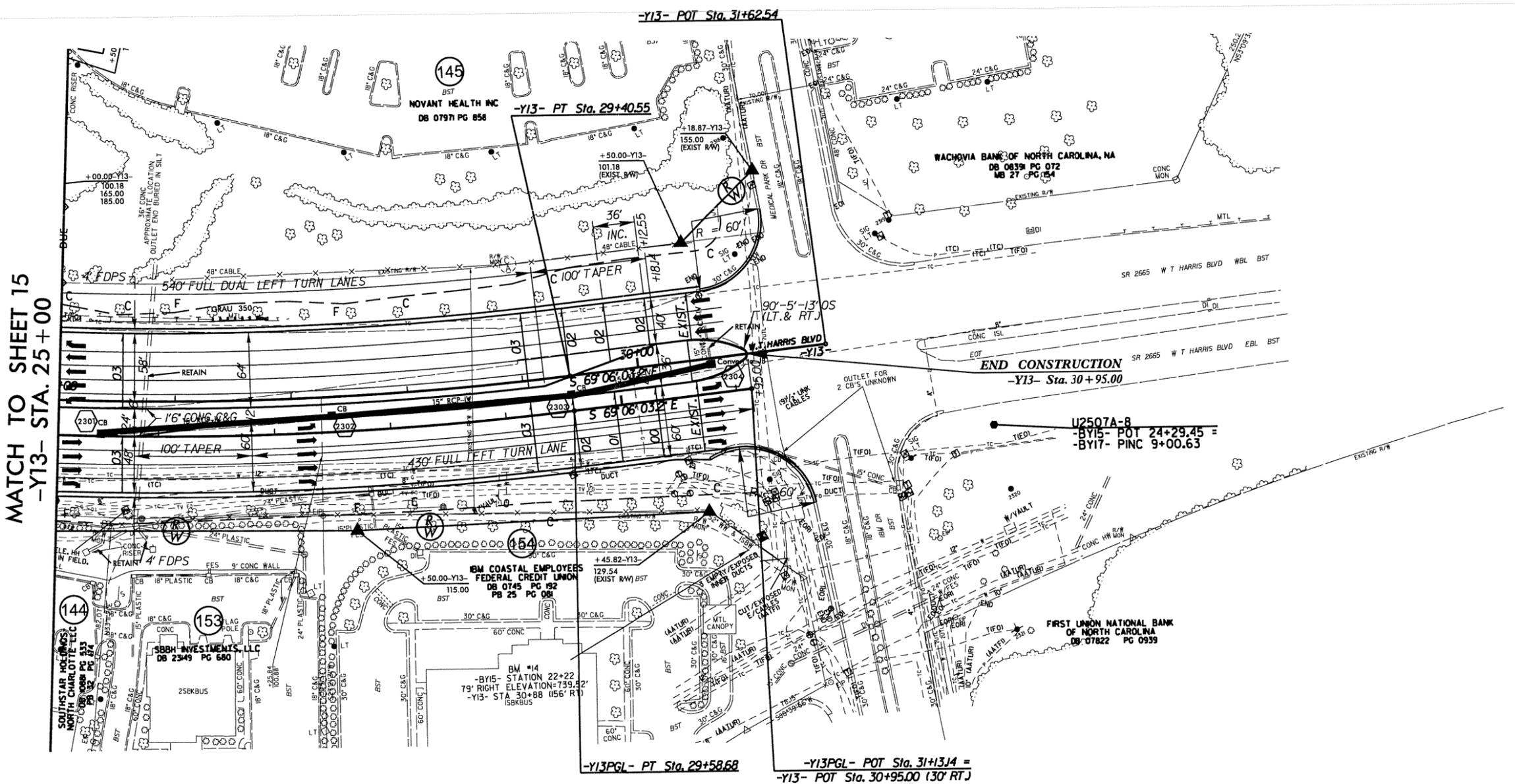


MATCH TO SHEET 15  
-Y13- STA. 19+00

REVISIONS  
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 8/17/99

FOR -Y13- PROFILE, SEE SHEET NO. 39

PROJECT REFERENCE NO. <b>U-2507A</b>	SHEET NO. <b>23</b>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	



MATCH TO SHEET 15  
-Y13- STA. 25+00

REVISIONS

<b>-Y13- CURVE DATA</b>	<b>-Y13PGL- CURVE DATA</b>
PI Sta 20+67.04	PI Sta 23+17.97
$\Delta = 36^{\circ} 20' 31.6"$ (LT)	$\Delta = 25^{\circ} 54' 31.7"$ (LT)
D = 2' 00" 27.3"	D = 1' 59" 12.1"
L = 1810.24'	L = 1304.11'
T = 936.74'	T = 663.40'
R = 2,853.97'	R = 2,883.97'
SE = 0.03	
RO = 108'	

FOR -Y13- PROFILE, SEE SHEET NO. 39

8/17/99

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