STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT L. MCCRORY
GOVERNOR

ANTHONY J. TATA
SECRETARY

August 19, 2013

U. S. Army Corps of Engineers
Regulatory Field Office
3331 Heritage Trade Drive, Suite 105
Wake Forest, NC 27587

ATTN: Mr. Andy Williams
NCDOT Coordinator

SUBJECT: **Application for Section 404 Individual Permit and Section 401 Individual Water Quality Certification** for the proposed interchange addition at US 421 and SR 3418 (Neelley Rd.), Guilford County; TIP No. R-2612B

Debit $570.00 from WBS Element No. 34483.1.1

Dear Sir:

The North Carolina Department of Transportation (NCDOT) proposes to construct one interchange at SR 3418 (Neelley Rd.) to replace an at-grade intersection along US 421 in Guilford County.

In addition to this cover letter, the application package consists of an ENG Form 4345, the North Carolina Ecosystem Enhancement Program (NCEEP) acceptance letter, NCDWQ intermittent stream mitigation policy memo, Interagency Hydraulic Design Review Concurrence Points 4B and 4C meeting minutes, stormwater management plan, permit drawings, and half-size roadway plan sheets.

PROJECT SCHEDULE

The review date for R-2612B is April 29, 2014 with a Let date of June 17, 2014. However, letting of the project may advance as funding becomes available.

PURPOSE AND NEED

The purpose of this project is to improve safety along a section of US 421 between the I-85 Bypass and the NC 62 interchange, which was left with several at-grade intersections when the

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS
1548 MAIL SERVICE CENTER
RALEIGH NC 27699-1548

TELEPHONE: 919-707-6000
FAX: 919-212-5785
WEBSITE: WWW.NCDOT.ORG

LOCATION:
CENTURY CENTER BUILDING B
1020 BIRCH RIDGE DR.
RALEIGH, NC 27610

road was realigned in 1972. In conjunction with R-2612A [completed], which constructed an interchange at Woody Mill Rd., this project will eliminate all temporary, at-grade intersections in this stretch of US 421.

NEPA DOCUMENT STATUS

An Environmental Assessment (EA) was approved October 30, 1998. A Finding of No Significant Impact (FONSI) was approved on July 14, 2008. The EA and FONSI have been provided to regulatory review agencies. Additional copies will be provided upon request.

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 due to both sections being constructed at the same time;
(3) The project does not restrict consideration of alternatives for other reasonably foreseeable transportation improvements.

RESOURCE STATUS

The project lies within the Piedmont Physiographic Province in the Cape Fear River Basin in Guilford County, HUC 03030002. Jurisdictional features that will be impacted by this project include Big Alamance Creek [(NCDWQ Classification WS-IV; NSW; NCDWQ Index No. 16-19-(1)] and six of its unnamed tributaries (UTs). There are two riparian wetlands located within the project area that will be impacted.

There are no designated Outstanding Resource Waters (ORW), High Quality Waters (HQW), Water Supply I (WS-I), or Water Supply II (WS-II) waters within 1.0 mile of the project area. No waters listed on the 2012 303(d) List of Impaired Waters of North Carolina occur within the project area or within one mile of the project area.

Wetland delineations for the R-2612B study area followed the field delineation method outlined in the *1987 Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory, 1987). Stream identification and classification followed the *Identification Methods for the Origins of Intermittent and Perennial Streams* (North Carolina Division of Water Quality [NCDWQ]).

Within the R-2612B project area seven streams and two riparian wetlands were identified. A request for jurisdictional determination of the B section of this project was sent to the United States Army Corp of Engineers (USACE) and the North Carolina Division of Water Quality (NCDWQ) on September 8, 2010. Rapanos forms for the B section were sent via email on September 7, 2010. Jurisdictional areas were field verified and assigned mitigation ratios by

USACE Regulatory Specialist Andrew Williams and NCDWQ Representative Amy Euliss in October and November 2010. An official jurisdictional determination from the USACE was never received for this project.

IMPACTS TO WATERS OF THE UNITED STATES

Surface Waters

Permanent impacts to surface waters on R-2612B total 1,927 linear feet across seven stream channels, with temporary impacts to surface waters totaling 0.02 acre (167 linear feet) across four stream channels. In the FONSI, the amount of stream impacts for this section is given as 1,255 linear feet—the increase results from additional surveys after the FONSI was completed. There will also be 1.0 acre of impact to a pond in the project area, which will be converted to a dry detention basin. The jurisdictional stream impacts are summarized below in Table 1.

Table 1. R-2612B Surface Water Impacts

Permit Site #	Stream Name/ID	Intermittent / Perennial	Impact Type	Permanent Impacts (ft)	Temp Impacts (ac)	Impacts Requiring USACE mitigation (ft)[1]	Impacts Requiring DWQ mitigation (ft)[1,2]
I	Stream 2B	Intermittent	Fill	251	20	251 (1:1)	0
IA	Stream 2A1	Intermittent	Fill	209	0	0	0
IB	Stream 2A2	Intermittent	Fill	186	16	0	0
IC	Stream 2C	Intermittent	Fill	60	0	60 (1:1)	0
III	Big Alamance Creek	Perennial	Fill	932	72	932 (2:1)	932 (1:1)
			BS[3]	0	35	0	0
IIIA	Stream 9	Perennial	Fill	265	0	265 (2:1)	265 (1:1)
V	Stream 2E	Perennial	Fill	24	24	24 (1:1)	0
Subtotals			Fill	1,927	132	1,532	1,197
			BS[3]	0	35	0	0
TOTALS				**1,927**	**167**	**1,532**	**1,197**

[1]Mitigation Ratios given in parentheses
[2]Intermittent streams are not subject to DWQ mitigation if the FONSI was completed before October 16, 2009, per a memo from DWQ dated August 14, 2009.
[3]Bank Stabilization

Wetlands

There will be a total of 4.78 acres of permanent riparian wetland impacts associated with this project. These impacts will result from 4.3 acres of permanent fill, 0.01 acre of excavation, and

0.47 acre of mechanized clearing. Permanent wetland impacts are summarized below in Table 2. There will also be 0.04 acre of temporary wetland fill at sites III and IV for culvert construction.

Table 2. R-2612B Permanent Wetland Impacts

Site	Wetland ID	Impact Type	Permanent Impacts (acres)
I	Wetland 11	Permanent Fill	1.38
		Excavation	<0.01
		Mechanized Clearing	0.16
III	Wetland 9	Permanent Fill	2.48
		Excavation	<0.01
		Mechanized Clearing	0.25
IV	Wetland 9	Permanent Fill	0.44
		Excavation	<0.01
		Mechanized Clearing	0.06
Total Impacts			**4.78***

*Rounded total is sum of actual impacts.

UTILITY IMPACTS

No impacts to Waters of the U.S. resulting from utilities are anticipated on this project.

MITIGATION OPTIONS

The USACE has adopted, through the Council on Environmental Quality (CEQ), a wetland mitigation policy that embraces the concept of "no net loss of wetlands" and sequencing. The purpose of this policy is to restore and maintain the chemical, biological, and physical integrity of the waters of the United States. CEQ has defined mitigation of wetland and surface water impacts to include: avoiding impacts, minimizing impacts, rectifying impacts, reducing impacts over time, and compensating for impacts (40 CFR 1508.20).

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 phase and minimization measures were incorporated as part of the project design. Minimization includes the examination of appropriate and practicable steps to reduce the adverse impacts.

Avoidance and Minimization

Avoidance and minimization has been employed in the project area to the maximum extent practicable. The following avoidance and minimization measures were implemented for this project:

- NCDOT's Best Management Practices (BMPs) for the Protection of Surface Waters will be enforced;
- Wetland impacts have been reduced from 5.87 acres in the FONSI to 4.78 acres;
- To maintain the existing flow width of Big Alamance Creek, the culverts at the crossing of Neelley Rd. with the loop and ramp have one low flow barrel with a 1 ft. sill (buried 1 ft.), and one high flow barrel with a 2 ft. sill;
- 2:1 side slopes in wetlands where 4:1 slopes are not needed for vehicular safety
- Use of the remaining portion of the impacted pond as a partially filled, dry detention basin with riser;
- Ditches have been designed to convey flow with non-erosive velocities and are grass-lined where appropriate; and
- Storm drain outfalls have been located outside of wetlands, where possible.

Compensatory Mitigation

Compensatory mitigation requirements for R-2612B are summarized below in Table 3. This project will permanently impact 1,927 linear feet of warm water streams. The USACE is requiring 2:1 mitigation for 1,197 feet and requiring 1:1 mitigation for 335 feet of stream impacts. NCDWQ is requiring mitigation for 1,197 feet at 1:1. Therefore, the total USACE mitigation requirement exceeds the NCDWQ requirement. Because the FONSI for this project was finalized before October 16, 2009, NCDWQ is not requiring mitigation for impacts to intermittent streams (memo from DWQ dated August 14, 2009). Mitigation will be provided by NCEEP (see attached acceptance letter).

NCEEP will also provide mitigation for the 4.78 acres (2:1 ratio) of permanent riparian wetland impacts resulting from roadway fill, excavation, and mechanized clearing.

Table 3. R-2612B Required Compensatory Mitigation Summary

	Stream Impacts in Length (ft.)	**Riparian Wetland Impacts (ac.)**
Impacts Requiring Mitigation	1,532	4.78
Required EEP Mitigation	1,197 @ 2:1 335 @ 1:1	4.78 @ 2:1
Total EEP Mitigation	**2,729**	**9.56**

FEDERALLY PROTECTED SPECIES

Plants and animals with a Federal classification of Endangered (E) or Threatened (T) are protected under provisions of Section 7 and Section 9 of the Endangered Species Act (ESA) of 1973, as amended. As of December 03, 2012, the U.S. Fish and Wildlife Service (USFWS) list one federally protected species for Guilford County: small whorled pogonia (*Isotria medeoloides).* A species description and biological conclusion for the small whorled pogonia

was not stated in either the EA or FONSI because the species was not added to the USFWS county list of protected species until after the documents were completed.

A small whorled pogonia survey was initially completed for R-2612 (both sections) on May 27, 2008 by NCDOT biologists. Marginal habitat was primarily found on slopes adjacent to streams and wetlands. The survey revealed no small whorled pogonia plants. A second survey for just the B section was completed on May 9, 2013. No small whorled pogonia plants were found. In addition, a search of the North Carolina Natural Heritage Database (updated April 1, 2013) revealed no known occurrences of any federally protected species within 1.0 mile of the limits. Therefore, a biological conclusion of "No Effect" is appropriate for small whorled pogonia on this project.

CULTURAL RESOURCES

Architectural Resources

The North Carolina Department of Cultural Resources State Historic Preservation Office, (SHPO) reviewed the project regarding the identification of historical sites. The SHPO concurred in January 2006 that all but 2 of 10 structures potentially over 50 years old in the Area(s) of Potential Effect(s) (APE) did not require further evaluation for listing in the National Register of Historic Places (NRHP). In a memorandum dated March 16, 2006 (see Appendix 4 in FONSI), the SHPO determined that the remaining two structures were not eligible for listing in the NRHP because they were either architecturally or historically undistinguished and/or had lost integrity. Therefore, this proposed project will have no effect on historic structures.

Archaeological Resources

In a memorandum dated May 9, 1996, the SHPO did not recommend a survey for archaeological resources in the proposed project area (see Appendix 4 in FONSI).

FEMA COMPLIANCE

There are streams within the project limits that are within Federal Emergency Management Agency (FEMA)-designated flood zones. Coordination between the NCDOT Hydraulics Unit and FEMA will occur prior to Let to ensure that NCDOT is in full compliance with applicable floodplain ordinances.

INDIRECT AND CUMULATIVE EFFECTS

The interchange proposed at Neelley Rd. will not serve specific development. Due to zoning and comprehensive planning guidelines and regulations enacted by Guilford County, the project will not likely stimulate complementary development where none is presently occurring. For these same reasons, the project is unlikely to influence intra-regional land development location decisions. Therefore, change in land use that is not already envisioned and planned for, or not already occurring as a result of the project, will likely be limited.

WILD AND SCENIC RIVERS

This 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) or North Carolina Natural and Scenic Rivers.

ESSENTIAL FISH HABITAT

The project will not impact any essential fish habitat afforded protection under the Magnuson-Stevens Act of 1996 (16 U.S.C 1801 *et seq.*).

REGULATORY APPROVALS

Application is hereby made for a Department of the Army Section 404 Individual Permit as required for the above-described activities for the proposed T.I.P. Project R-2612B.

We are also hereby requesting a Section 401 Individual Water Quality Certification from NCDWQ. In compliance with Section 143-215.3D (e) of the NCAC, we will provide $570.00 to act as payment for processing the Section 401 permit. We are providing two copies of this application to the North Carolina Department of Environment and Natural Resources (NCDENR), NCDWQ, for their review and approval.

Project R-2612B does fall within the Jordan Lake Water Supply Watershed. However, NCDOT is not requesting a Jordan Buffer Authorization because an approved FONSI was issued for this project in July 2008, which is prior to the adoption of the Jordan Lake Riparian Buffer Rules.

A copy of this permit application and its distribution list will be posted on the NCDOT website at https://connect.ncdot.gov/resources/Environmental/Pages/default.aspx. Thank you for your time and assistance with this project. Please contact Amy James at either aejames2@ncdot.gov or (919) 707-6129 if you have any questions or need additional information.

Sincerely,

for E. L. Lusk

Deborah M. Barbour, P.E.
Director of Preconstruction

Cc:
NCDOT Permit Application Standard Distribution List

U.S. ARMY CORPS OF ENGINEERS

APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT

33 CFR 325. The proponent agency is CECW-CO-R.

OMB APPROVAL NO. 0710-0003
EXPIRES: 28 FEBRUARY 2013

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

(ITEMS BELOW TO BE FILLED BY APPLICANT)

5. APPLICANT'S NAME	8. AUTHORIZED AGENT'S NAME AND TITLE (agent is not required)
First - Deborah Middle - M. Last - Barbour	First - Middle - Last -
Company - NCDOT-PDEA	Company -
E-mail Address -	E-mail Address -
6. APPLICANT'S ADDRESS:	**9. AGENT'S ADDRESS:**
Address- 1598 Mail Service Center	Address-
City - Raleigh State - NC Zip - 27699 Country -	City - State - Zip - Country -
7. APPLICANT'S PHONE NOs. w/AREA CODE	**10. AGENTS PHONE NOs. w/AREA CODE**
a. Residence b. Business 919-707-6219 c. Fax 919-212-5785	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)
R-2612B

13. NAME OF WATERBODY, IF KNOWN (if applicable)	14. PROJECT STREET ADDRESS (if applicable)
Big Alamance Creek and its unnamed tributaries	Address
15. LOCATION OF PROJECT Latitude: °N Longitude: °W	City - State- Zip-

16. OTHER LOCATION DESCRIPTIONS, IF KNOWN (see instructions)
State Tax Parcel ID Municipality
Section - Guilford County Township - Pleasant Garden Range -

17. DIRECTIONS TO THE SITE
Please see attached vicinity map and cover letter.

18. Nature of Activity (Description of project, include all features)
The North Carolina Department of Transportation (NCDOT) proposes to construct one interchange at SR 3418 (Neelley Rd.) to replace an at-grade intersection along US 421.

19. Project Purpose (Describe the reason or purpose of the project, see instructions)
Please see attached cover letter

USE BLOCKS 20-23 IF DREDGED AND/OR FILL MATERIAL IS TO BE DISCHARGED

20. Reason(s) for Discharge
Impacts will result from realigning Neelley Rd. and building on- and off-ramps on new location.

21. Type(s) of Material Being Discharged and the Amount of Each Type in Cubic Yards:

Type	Type	Type
Amount in Cubic Yards	Amount in Cubic Yards	Amount in Cubic Yards

See attached cover letter.

22. Surface Area in Acres of Wetlands or Other Waters Filled (see instructions)

Acres See attached cover letter.

or

Linear Feet See attached cover letter.

23. Description of Avoidance, Minimization, and Compensation (see instructions)
See attached cover letter.

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

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- See attached property owners in permit drawings packet.

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. L. Lusk for Deborah M. Barbour, PE — Aug 19, 2013

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.

Ecosystem

PROGRAM

August 13, 2013

Mr. Philip S. Harris, III, P.E., CPM
Project Development and Environmental Analysis Unit
North Carolina Department of Transportation
1598 Mail Service Center
Raleigh, North Carolina 27699-1598

Dear Mr. Harris:

Subject: EEP Mitigation Acceptance Letter:

R-2612B, US 421 Improvements at NC 22 (Neeley Road) South of Greensboro; Guilford 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 August 7, 2013, the impacts are located in CU 03030002 of the Cape Fear River basin in the Central Piedmont (CP) Eco-Region, and are as follows:

Cape Fear 03030002 CP	Stream			Wetlands			Buffer (Sq. Ft.)	
	Cold	Cool	Warm	Riparian	Non-Riparian	Coastal Marsh	Zone 1	Zone 2
Impacts* (feet/acres)	0	0	1,532.0	4.78	0	0	0	0

*Some of the stream and wetland impacts may be proposed to be mitigated at a 1:1 mitigation ratio. See permit application for details.

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 919-707-8420.

Sincerely,

James B. Stanfill *for*
EEP Asset Management Supervisor

cc: Mr. Andy Williams, USACE – Raleigh Regulatory Field Office
Ms. Amy Chapman, Division of Water Quality, 401/Wetlands Unit
Ms. Amy Euliss, Division of Water Quality, Winston-Salem Office
File: R-2612B

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PURDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

Minutes of the Interagency Hydraulic Design Review
"4B" Meeting November 9, 2011

R-2612B
State Project 34483.1.1
US 421 At SR 3418 (Neelley Rd.) South Of Greensboro
Guilford County

Team Members:	Andrew E. Williams	USACE (present)
	Gary Jordan	USFWS (not present)
	Travis Wilson	NCWRC (not present)
	David Wainwright	NCDWQ (present)
	Amy Euliss	NCDWQ (not present)
	Chris Militscher	EPA (not present)
	Felix Davila	FHWA (present)
	Mark Staley	Roadside Environmental Unit (present)
	David Harris	Roadside Environmental Unit (not present)
	Brenda Moore	Roadway Design Unit (present)
	Mack Bailey	Structures (present)
	Karen Reynolds	PDEA (present)
	Ted Walls	PDEA (not present)
	Rachelle L. Beauregard	NES (present)
	Patty Eason	Division 7 (not present)

Participants: (See attached list)

Plan Sheet 4: No comments.

Plan Sheet 5: No comments.

Plan Sheet 6: DWQ stated depending on how much wetlands remains in Loop D, that it could be a total take. USACE stated that the ratio of mitigation for Loop D is 2:1, but mitigation ratio could be reduced to 1:1. USACE stated that wetlands remnants in loops still function to some extent, but not as well as before. DWQ requested quantities for wetlands impacted.

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
HYDRAULICS UNIT
1590 MAIL SERVICE CENTER
RALEIGH NC 27699-1590

TELEPHONE: 919-707-6700
FAX: 919-250-4108
WEBSITE: WWW.DOH.DOT.STATE.NC.US

LOCATION:
CENTURY CENTER COMPLEX
BUILDING B
1020 BIRCH RIDGE DRIVE
RALEIGH NC

USACE asked whether 4:1 fill slopes on Loop D could be steepened to 2:1. Roadway requires 4:1 fill slopes for vehicular safety (vehicle can recover). PDEA asked about 2:1 side slopes with guard rail, but Roadway said 2:1 fill slopes with guard rail is not an option.

Hydraulics Unit asked whether equalizer pipes would be warranted in Loop D, but no request was made. NES stated that stream 9 will still feed the wetland in Loop D.

Hydraulics Unit presented Culvert Survey Reports for the box culverts that will be in Quadrant D. Preliminary design for each is a single-barrel, buried 1' at approximately the same slope as existing stream.

Fill slopes were noted as being 3:1 and 4:1 on Loop A. USACE requested the quantity of wetlands being filled. DWQ stated depending on how much wetlands remains in Loop A, that it could be a total take. USACE stated that the ratio of mitigation for Loop A is 2:1, but mitigation ratio could be reduced on what remains.

Hydraulics Unit noted that the pond in Quadrant A, -YLPA- Station 14+50 Rt., will be drained and will investigate utilizing the area as a potential detention basin.

DWQ asked if the cross pipe in Quadrant A, -YRPA- Station 25+58+/-, was an equalizer pipe. Hydraulics Unit replied that it is not an equalizer pipe, but a cross pipe to continue drainage from the –Y- line.

Rip Rap Toe Protection is required through the wetlands at approximately –Y- Station 34+00 Rt. and also approximately –Y- Station 43+00 Rt.

DWQ asked about pipe size for the cross pipe at –Y- Station 34+76+/-. The cross pipe has not been sized at this time, but is expected to be less than 72".

Rip Rap Toe Protection is required through the wetlands at approximately –L- Station 65+20 Rt. and also approximately –L- Station 66+40 Rt. Hydraulics Unit asked whether this would result in a total take at the wetland stations mentioned.

There will be wetland impacts at –L- Station 70+00+/- Rt. with the extension of the 24" pipe.

There was some discussion to reduce mitigation on stream 2E, -L1- Station 77+20+/- Rt., from 2:1 to 1:1 due to the concrete ditch. DWQ said that mitigation for this site should have already taken place (when originally built). There will be some impacts to stream 2E, -L- Station 78+20 +/- Rt., at the outlet of the existing cross pipe resulting from a degraded outlet channel.

Plan Sheet 7: No comments.

Plan Sheet 8: DWQ asked if the stream at –Y1- Station 32+00 Lt. and running past End of Construction –Y1- Station 35+00 Lt. is a JS stream. NES replied that this is not a JS stream.

Hydraulics Unit questioned whether wetlands at approximately –Y- Station 31+60 Lt. would be a total take. Hydraulics Unit's opinion is that it would not be, due to the drainage area still feeding the wetlands.

Plan Sheet 9: No comments.

Plan Sheet 10: No comments.

Plan Sheet 11: Hydraulics Unit noted that the driveway pipe at –Y1- Station 13+50 Lt. will be replaced and will have rip rap at the outlet. This will have an impact to the JS stream that begins at the pipe outlet.

Plan Sheets 12: No comments.

Note: This project is in the Cape Fear/Jordan Lake Basin and due to the age of the planning document, is grandfathered in as far as buffers.

No other comments were provided and the meeting was adjourned.

ACTION ITEMS

- USACE would like to review the project history of alternate selection and associated impacts. Roadway and NES will provide the requested documentation.
- The latest a 4C meeting can be scheduled is April 2013.

R-2612B
US 421 AT SR 3418 (NEELEY ROAD)
GUILFORD COUNTY
MERGER PROCESS 4B MEETING
WEDNESDAY NOVEMBER 9, 2011
Sign in Sheet

NAME	ORGANIZATION	PHONE NUMBER	EMAIL ADDRESS
Andy Williams	USACE	919-554-4884	andrew.e.williams2@usace.army.
David Wainwright (for Amy Euliss)	NCDWQ	919-807-6405	David.Wainwright@ncdenr.gov
KAREN REYNOLDS	NCDOT- PDEA	919.707-6038	kreynolds@ncdot.gov
Amy James	NCDOT- NES	919-707-6129	aejames@ncdot.gov
Elizabeth Lusk	NCDOT- NES	707-6133	elusk@ncdot.gov
Mark Staley	NCDOT-REU	733-2920	mstaley@ncdot.gov
Mack Bailey	NCDOT-Structure Design	919-707-6462	mbailey2@ncdot.gov
Tina FANG	SPV. Design	707-6046	tfang@NCDOT.gov.
Steve Sykes	NCDOT - Hydro	707-6753	sjsykes@NCDOT.gov
Paul Atkinson	NCDOT-Hydro	(919)707-6707	patkinson@ncdot.gov
Jay Twicdale	"	(919)707-6754	jtwicdale@ncdot.gov
Phil Harris	PDEA - NES	919 707 6123	pharris@ncdot-gov
Kyle Pleasant	NCDOT-Utilities	707-7179	kpleasant@ncdot.gov
Jamshid Hafshejani	NCDOT. Utilities	707-6980	Jhafshejani@ncdot.gov.
TANYA WHITE	NCDOT - ROADWAY	707-6342	tlwhite@ncdot.gov
Felix DAVila	FHWA-Raleigh	747-7021	felix.davila@dot.gov
Brenda Moore	NCDOT- Roadway	707-6285	blmoore@ncdot.gov
Rachelle Beauregard	DOT- NES	707-6105	rbeauregard@ncdot.gov

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

November 19, 2012

To: Felix Davila, Gary Jordan, Travis Wilson, Brenda Moore, Rachelle Beauregard, Ted Walls, Andrew Williams, Chris Militscher, Amy Euliss, Patty Eason, Mack Bailey, David Harris

From: Paul Atkinson, PE
Project Manager – TIP East

Subject: **Minutes of the Permit Drawing Review "4C" Meeting for R-2612B:** US 421 at SR 3418 (Neelley Rd.) South of Greensboro.

The "4C" Meeting for R-2612B was held on October 18, 2012 from 12:30 PM to 1:30 PM in the NCDOT Hyrdaulics Unit Conference Room at the Century Center Complex in Raleigh, NC. The following were in attendance:

Participants:

Team Members

Paul Atkinson, NCDOT Hydraulics (Present)
Felix Davila, FHWA (Present)
Andrew Williams, USACE (Present)
Gary Jordan, USFWS (Absent)
Chris Militscher, EPA (Present-Phone)
Travis Wilson, NCWRC (Absent)
Amy Euliss, DWQ (Present)

Other Attendees

Karen Reynolds, PDEA (Present)
Barney Blackburn, NCDOT-REU (Present)
Jennifer Parish, NCDOT-REU (Present)
Amy James, NES (Present)
Rachel Evans, NCDOT Hydraulics (Present)
Tatia White, Roadway Design (Present)
Cedrick Butler, Roadway Design (Present)
Stephanie Pratt, NCDOT Hydraulics (Present)

Support Staff

Brenda Moore, Roadway Design (Absent)
Patty Eason, Division 7 (Present)
Rachelle Beauregard, NES (Present)
Mack Bailey, Structures (Present)
Ted Walls, PDEA (Absent)
David Harris, Roadside (Absent)

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
HYDRAULICS UNIT
1590 MAIL SERVICE CENTER
RALEIGH NC 27699-1590

TELEPHONE: 919-707-6700
FAX: 919-250-4108

WEBSITE: WWW.NCDOT.ORG/DOH/

LOCATION:
CENTURY CENTER COMPLEX
BUILDING B
1020 BIRCH RIDGE DRIVE
RALEIGH NC

The 4C meeting began with Paul Atkinson (NCDOT) giving an overview of changes to the design since the 4B meeting. Significant changes were as follows:

- An outfall was added inside the wetland boundary at -Y- Sta. 42+27 that had not previously appeared in the 4B plans.
- Culverts were originally presented as single barrel culverts, but were revised during final design to be double barrel culverts with one low flow barrel each to meet the requirements for the FEMA Flood Study. Low flow barrels were each buried 1 ft. with 1 ft. sills at the inlet and outlet, and overflow barrels have 2 ft. sills at the inlet and outlet.

Site I

- All parties agreed that stream impacts needed to be broken out into sub-site impacts (i.e. IA, IB, IC, etc.) and noted on the impact summary as such.

Site II

- Hydraulics stated that the remaining pond would be used as a dry detention basin with riser for water treatment. There were no comments associated with these impacts.

Sites III & IV

- Hydraulics said that no determination had been made at 4B as to whether wetland remnants at these sites were to be total takes. USACE stated that even though the remainders of the wetlands inside Loop D are not affected by the alignment, they should be considered impacted to some degree. Wetlands that are directly impacted should be mitigated at a 2:1 ratio, while the remainders of the wetlands inside Loop D that are indirectly impacted will be mitigated at a ratio of 1:1.
- NES requested these indirect impacts to wetlands to be included under "Fill in Wetlands" and quantity noted in the Summary Sheet that "X-acres of fill in wetlands will result in 1:1 mitigation ratio."
- DWQ stated that there was concern for the integrity of the stream connecting Site III to Big Alamance Creek. Hydraulics will examine laying back the banks as was done downstream to better stabilize the remainder of the existing stream through the wetlands. DWQ stated that impacts could be shown as "Temporary Surface Water" impacts if the stream was not relocated.
- USACE asked that all impacts that result in 1:1 mitigation ratio be noted on the Wetland Impact Summary Sheet.
- DWQ requested that Hydraulics slightly realign the existing channel to smooth out the sharp bend just upstream of the -Y- culvert channel work. Hydraulics noted that the existing channel is eroded at this location and agreed to modify the design. Hydraulics indicated bank stabilization may be warranted and will evaluate. NES stated bank stabilization should be broken out separately on the Summary Sheet if it is used.
- NES and USACE stated that excavation due to temporary diversion channel should be quantified as "Temporary Fill in Wetlands".
- Hydraulics mentioned that impacts due to temporary diversion channels during culvert construction had been accounted for under "Temporary Surface Water".

- DWQ requested that due to issues with culverts on R-2612A, rip rap be backfilled in both culverts. *Update: Hydraulics has investigated the issue and found that the R-2612A culvert was on a much steeper slope. Due to the relatively flat slopes on the R-2612B culverts, and the addition of inlet/outlet sills, the low flow barrels will be allowed to silt up naturally, and rip rap will be added to the overflow barrels only.*

Site V

- Hydraulics stated work mainly consisted of repairing undermined sections of existing pipe with rip rap in the channel included in permanent impacts to JS. There were no comments about these impacts.

General Comments

- USACE stated that this project is old and asked that the LEDPA chart be updated as well as the EA and FONSI since they are over 5 years old. PDEA indicated they will provide the requested information.

PA/crl

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR LINEAR ROADWAY PROJECTS

(Version 1.2; Released July 2012)

Project/TIP No.: R-2612B **County(ies):** GUILFORD

General Project Information

Project No.:	R-2612B		**Project Type:**	Roadway Relocation		**Date:**	10/15/2012
NCDOT Contact:	PAUL ATKINSON		**Contractor / Designer:**				
Address:	1020 BIRCH RIDGE RD. RALEIGH, NC 27610		**Address:**				
Phone:	(919)707-6700		**Phone:**				
Email:	PATKINSON@NCDOT.GOV		**Email:**				
City/Town:	PLEASANT GARDEN		**County(ies):**	GUILFORD			
River Basin(s):	CAPE FEAR	JORDAN LAKE	**CAMA County?**	No			
Primary Receiving Water:	BIG ALAMANCE CREEK		**NCDWQ Stream Index No.:**	16-19-(1)			
NCDWQ Surface Water Classification for Primary Receiving Water	**Primary:**		Water Supply IV (WS-IV)				
	Supplemental:		Nutrient Sensitive Waters (NSW)				
Other Stream Classification:							
303(d) Impairments:							
Buffer Rules in Effect	N/A						

Project Description

Project Length (lin. Miles or feet):	0.71	**Surrounding Land Use:**	RESIDENTIAL/WOODS

	Proposed Project	**Existing Site**
Project Built-Upon Area (ac.)	ac.	ac.
Typical Cross Section Description:	Y Line: 2 12' travel lanes with 17.5' concrete island and 8' shoulders.	L and L1: Divided Highway with variable width median, 3 12' lanes in each direction and 12' shoulders.
Average Daily Traffic (veh/hr/day):	Design/Future: 51,733 (2034)	Existing: 34,067 (2014)
General Project Narrative:	R-2612B is the planned interchange with US 421 and the relocation of SR 3418 (Neelley Rd.) near Climax, NC. Two 2@12'X7' reinforced concrete box culverts are planned at the crossing of the Y line (Neelley Rd.), and the alignments of the proposed YLPD and YRPD (loop and ramp) over Big Alamance Creek. In order to maintain existing flow width, each box culvert has one low flow barrel with a 1 ft. sill (buried 1 ft.), and one high flow barrel with a 2 ft. sill. The high flow barrel in each culvert was required in order to satisfy the requirements of the FEMA Limited Detailed Flood Study which encompasses this portion of Big Alamance Creek. This project lies within the Jordan Lake watershed, however was grandfathered in and does not require a buffer permit. BMPs used on the project include utilizing the remaining portion of an existing pond being partially filled as a dry detention basin with riser. Grass-lined ditches are utilized throughout where possible. Storm drain outfalls have been located outside of wetlands where possible.	

References

old

WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND 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)	SURFACE WATER IMPACTS: Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
I	Y STA. 30+82 to 39+10	42" Pipe	1.38		<0.01	0.16		0.01	<0.01	251	20	
IA	Y STA. 33+36 to 34+56	42" Pipe						<0.01		209		
IB	Y STA. 32+61 to 34+56 LT.	30" Pipe						<0.01	<0.01	186	16	
IC	YLPA STA. 13+32 to 13+99 LT.	42" Pipe						<0.01		60		
III	L STA. 59+63 to 70+54 RT.	2@12'X7' RCBC	2.48	*0.01	<0.01	0.25		0.12	<0.01	932	72	
		Bank Stabilization							<0.01		35	
IIIA	YLPA STA. 13+16 LT.	42" Pipe						0.01		265		
IV	L STA. 60+09 to 67+07 RT.		0.44	*0.03	<0.01	0.06						
V	L STA. 77+71 LT. & RT.	36" Pipe						<0.01	<0.01	24	24	
TOTALS:			4.30	*0.04	0.01	0.47	0	0.17	0.02	1927	167	0

NOTES: * TEMPORARY FILL IN WETLANDS IS DUE TO TEMPORARY EXCAVATION FOR CULVERT CONSTRUCTION.
*EXISTING GROUND TO BE REESTABLISHED UPON COMPLETION OF CULVERTS.
*STOCKPILE MATERIAL REMOVED.
*ROUNDED TOTALS ARE SUM OF ACTUAL IMPACTS
*SITE II PERMANENT POND IMPACTS ARE 1.00 ACRE.

N.C.D.O.T.
DIVISION OF HIGHWAYS
GUILFORD COUNTY
PROJECT: 34483.1.1 (R-2612B)
US 421 AT SR 3418 (NEELLEY ROAD)
SOUTH OF GREENSBORO

ATN Revised 3/31/05

09/08/99

TIP PROJECT: R-2612B

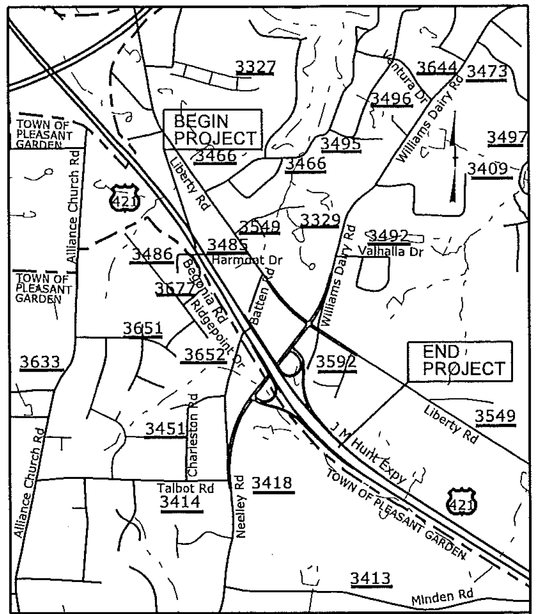
See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

GUILFORD COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2612B	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
34483.1.1	CMNHS-0421(41)	PE
34483.2.3	CMNHF-0421(41)	R/W & UTILITIES



VICINITY MAP

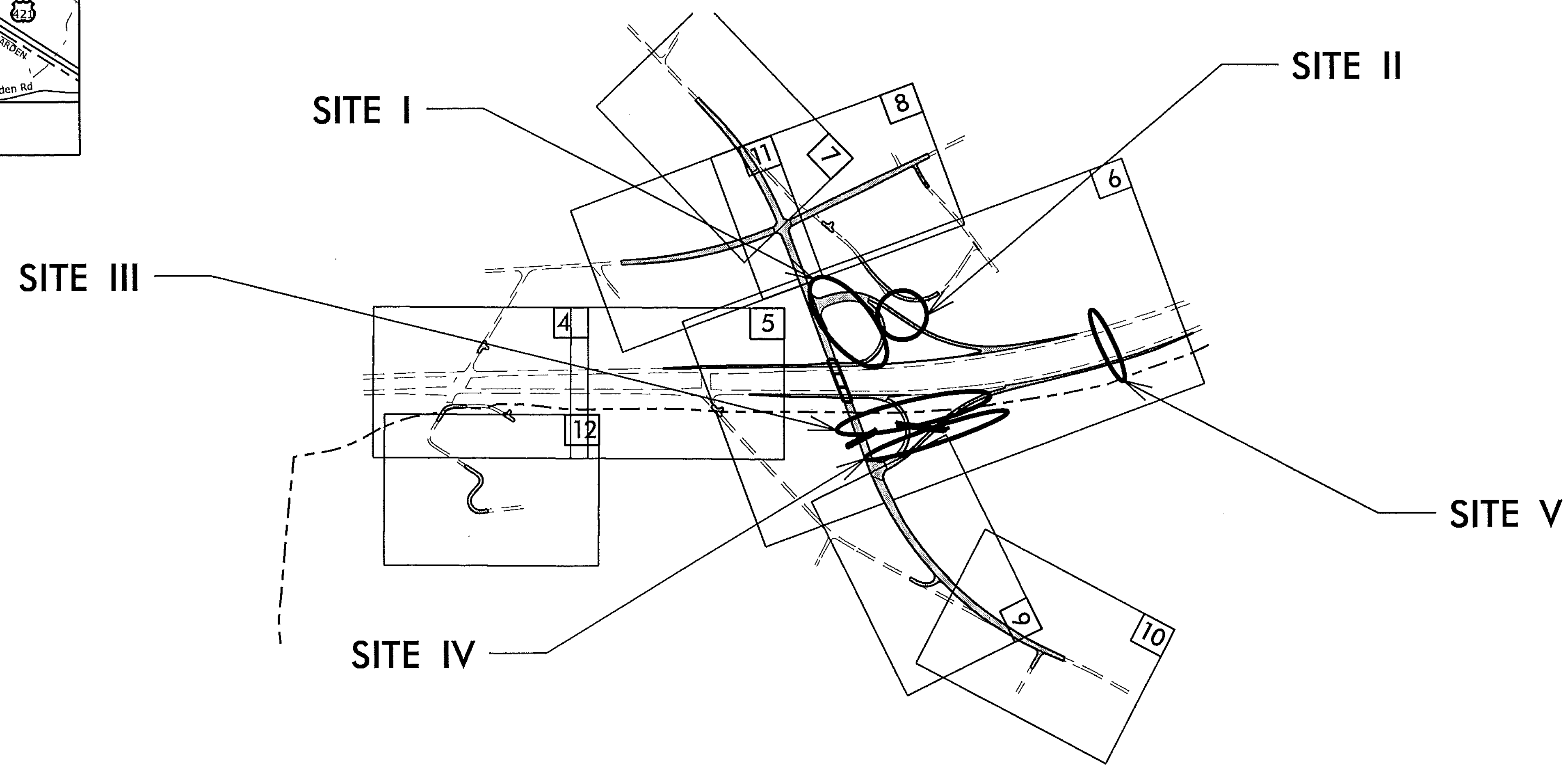
LOCATION: US 421 AT SR 3418 (NEELLEY RD.) SOUTH OF GREENSBORO

TYPE OF WORK: GRADING, DRAINAGE, PAVING, STRUCTURE, AND CULVERTS

WETLANDS AND STREAM IMPACTS

NAD 83/NSRS 2007

PERMIT DRAWING
SHEET 1 OF 23



PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2014 = 34,067
ADT 2034 = 51,733
DHV = 11 %
D = 70 %
T = 17 % *
V = 70 MPH
* (TTST 12 + DUAL 5)
FUNC CLASS = FREEWAY
STATEWIDE TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-2612B = 0.713 MI

TOTAL LENGTH TIP PROJECT R-2612B = 0.713 MI

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JULY 30, 2012

LETTING DATE:
JUNE 17, 2014

BRENDA MOORE, PE
PROJECT ENGINEER

TATIA L. WHITE, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

P.E.
SIGNATURE:

CONTRACT:

$$$$$$SYSTIME$$$$$
$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
R-2612B	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
NO RWP USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 2 OF 23

SITE I
SITE II
SITE III
SITE IV
SITE V

MATCH LINE SHEET 8 -Y- STA. 32+25.00

MATCH LINE SHEET 8 -Y4- STA. 15+15.00

MATCH LINE SHEET 5 -L- STA. 55+50.00

MATCH LINE SHEET 9 -Y- STA. 48+00.00

BLOW UP SHEET 1

BLOW UP SHEET 2

BLOW UP SHEET 3

BLOW UP SHEET 4

BLOW UP SHEET 5

BLOW UP SHEET 6

BLOW UP SHEET 7

NAD 83/NSRS 2007

E E	DENOTES EXCAVATION IN WETLAND
F F	DENOTES FILL IN WETLAND
S S	DENOTES IMPACTS IN SURFACE WATER
P P	DENOTES IMPACTS IN SURFACE WATER (POND)
	DENOTES MECHANIZED CLEARING
TS TS	DENOTES TEMPORARY IMPACTS IN SURFACE WATER

200' 0' 200' 400' 600'
1"=200'

NOTES
1) SEE SHEET 14 FOR -L- PROFILE
2) SEE SHEETS 16 THROUGH 17 FOR -L1- PROFILE
3) SEE SHEETS 18 THROUGH 19 FOR -7- PROFILE
4) SEE SHEET 20 FOR -Y9A- AND -Y3A- PROFILE
5) SEE SHEET 21 FOR -Y9FD- AND -Y3FD- PROFILE
6) SEE SHEET 22 FOR -Y4- PROFILE
7) SEE SHEETS S-1 THROUGH S-9 FOR STRUCTURE PLANS

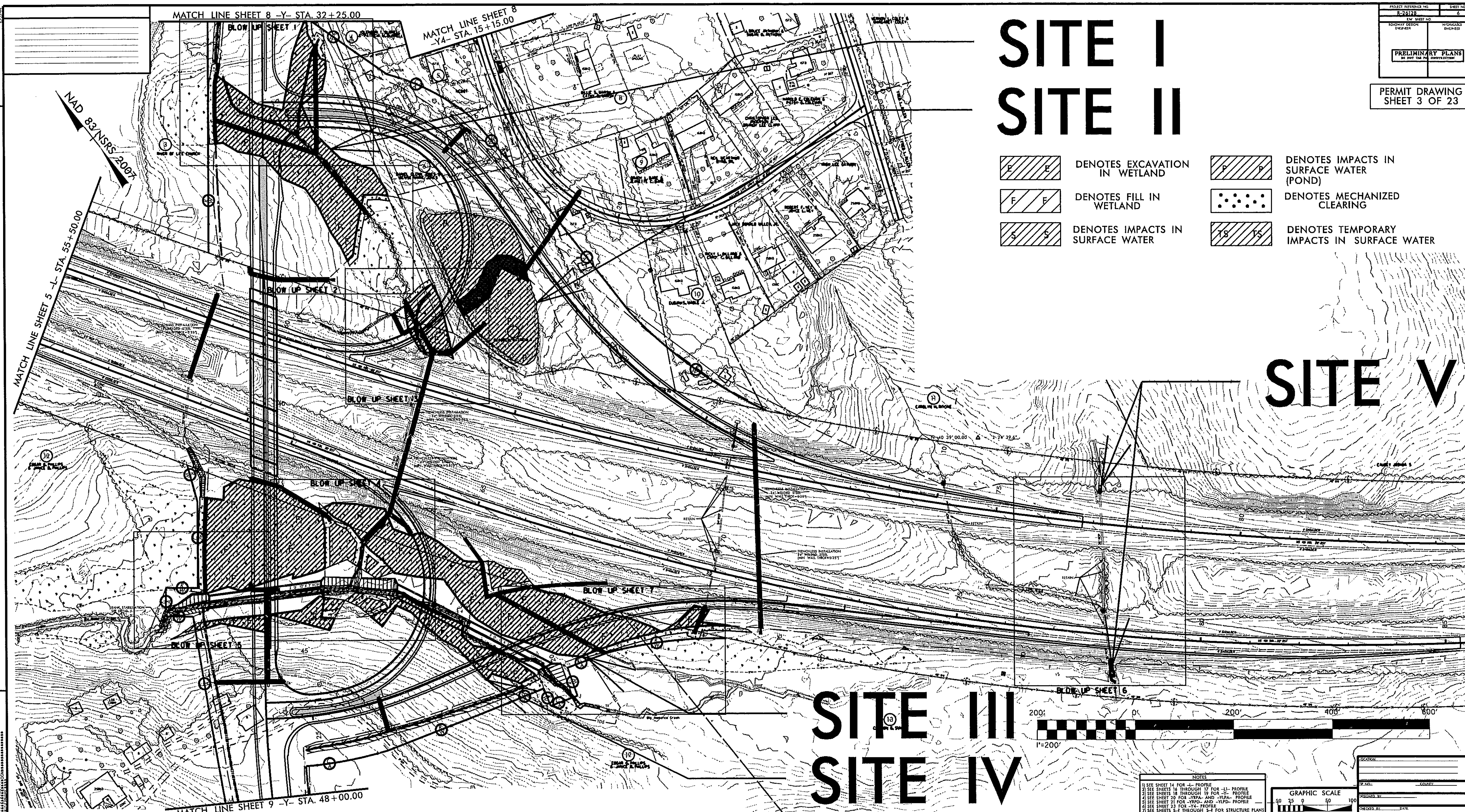
GRAPHIC SCALE
50 25 0 50 100
PLANS

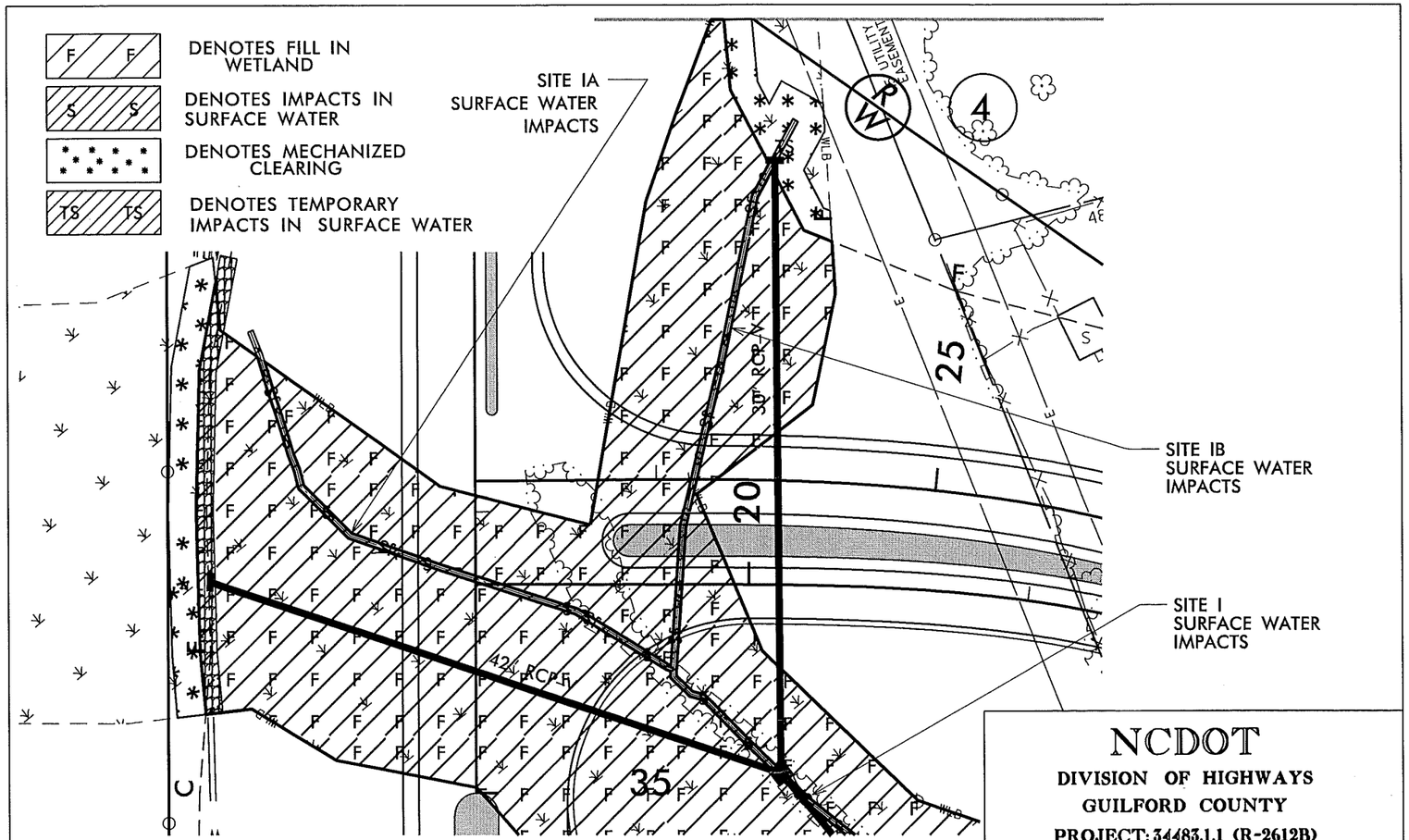
LOCATION:
TIP NO.: COUNTY:
DESIGNED BY:
CHECKED BY: DATE:

REVISIONS
05/15/13 - RW REVISION: UPDATED EXISTING RIGHT OF WAY AT -Y4- STA. 20+25 +/- ON PARCELS 7, 9 AND 10. JBW

REVISIONS

05/15/13 – R/W REVISION: UPDATED EXISTING RIGHT OF WAY AT –Y4– STA. 20+25 +/– ON PARCELS 7, 9 AND 10. JBW





PLAN VIEW

SITE I

NCDOT

DIVISION OF HIGHWAYS
GUILFORD COUNTY
PROJECT: 34483.1.1 (R-2612B)

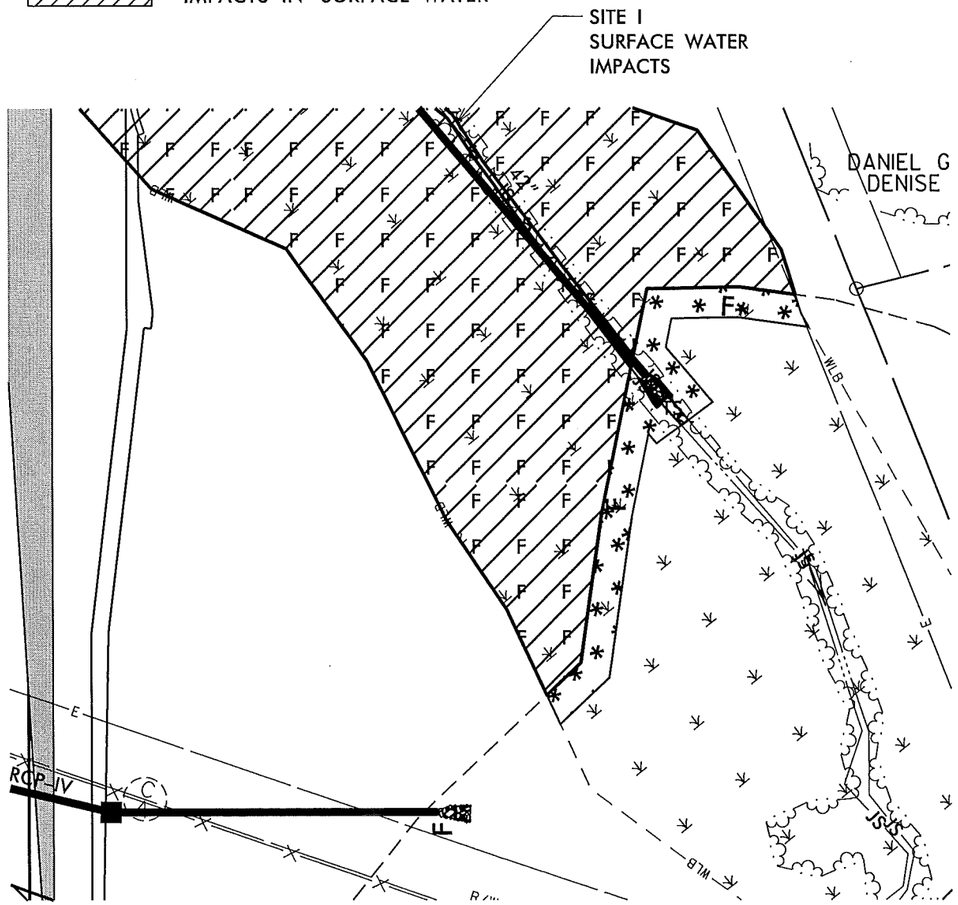
SOUTH OF GREENSBORO
US 421 AT SR 3418 (NEELLEY RD.)

F F DENOTES FILL IN WETLAND

S S DENOTES IMPACTS IN SURFACE WATER

DENOTES MECHANIZED CLEARING

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER



PLAN VIEW
SITE 1

50′ 0′ 50′

1"=50′

NCDOT

DIVISION OF HIGHWAYS

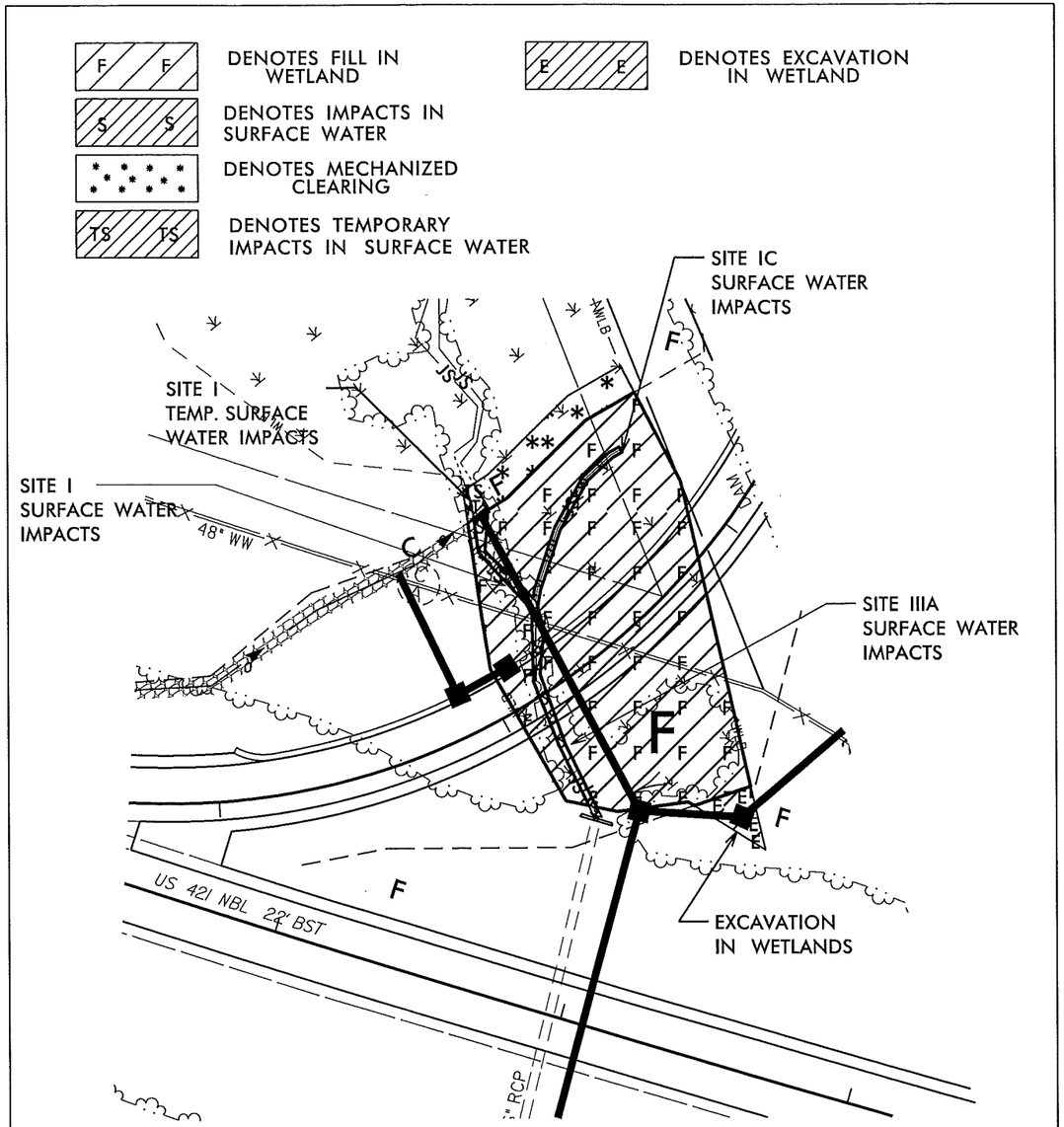
OGUILFORD COUNTY

PROJECT: 34483.1.1 (R-2612B)

SOUTH OF GREENSBORO

US 421 AT SR 3418 (NEELLEY RD.)

SHEET 5 OF 23 **05 / 01 / 13**



PLAN VIEW

SITE I & III

50′ 0′ 50′

1"=50′

NCDOT

DIVISION OF HIGHWAYS
GUILFORD COUNTY
PROJECT: 34483.1.1 (R-2612B)

SOUTH OF GREENSBORO
US 421 AT SR 3418 (NEELLEY RD.)

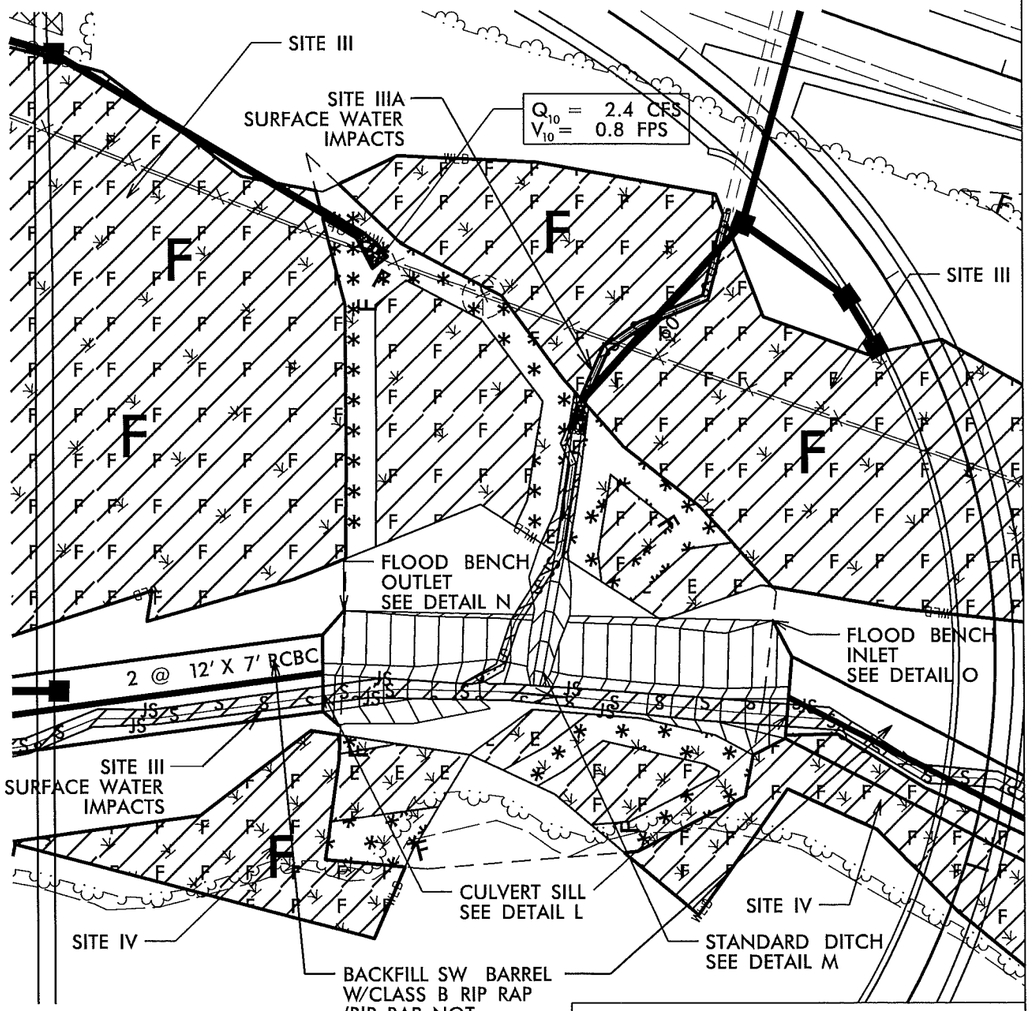
F F DENOTES FILL IN WETLAND

S S DENOTES IMPACTS IN SURFACE WATER

DENOTES MECHANIZED CLEARING

E E DENOTES EXCAVATION IN WETLAND

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER



PLAN VIEW

SITES III & IV

50' 0' 50'

1"=50'

NCDOT

DIVISION OF HIGHWAYS

GUILFORD COUNTY

PROJECT: 34483.1.1 (R-2612B)

SOUTH OF GREENSBORO

US 421 AT SR 3418 (NEELLEY RD.)

SHEET 7 OF 23 **06/13/13**

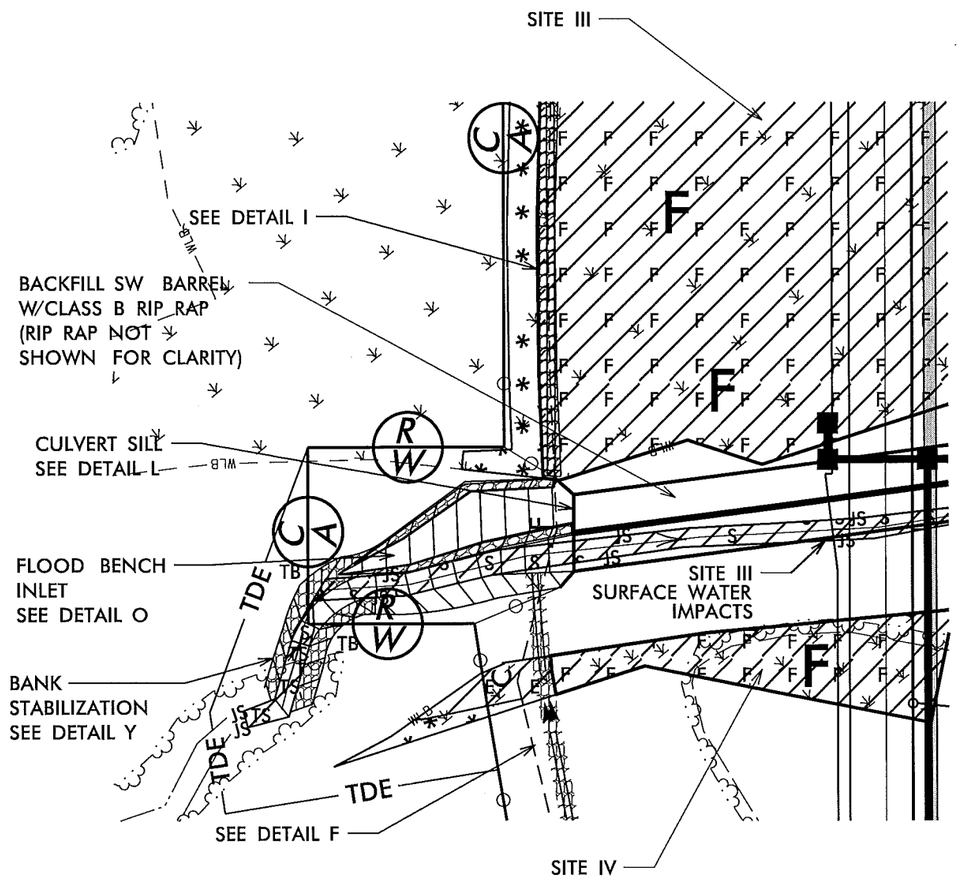
F F DENOTES FILL IN WETLAND

S S DENOTES IMPACTS IN SURFACE WATER

DENOTES MECHANIZED CLEARING

E E DENOTES EXCAVATION IN WETLAND

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER



PLAN VIEW
SITES III & IV

50′ 0′ 50′

1"=50′

NCDOT

DIVISION OF HIGHWAYS

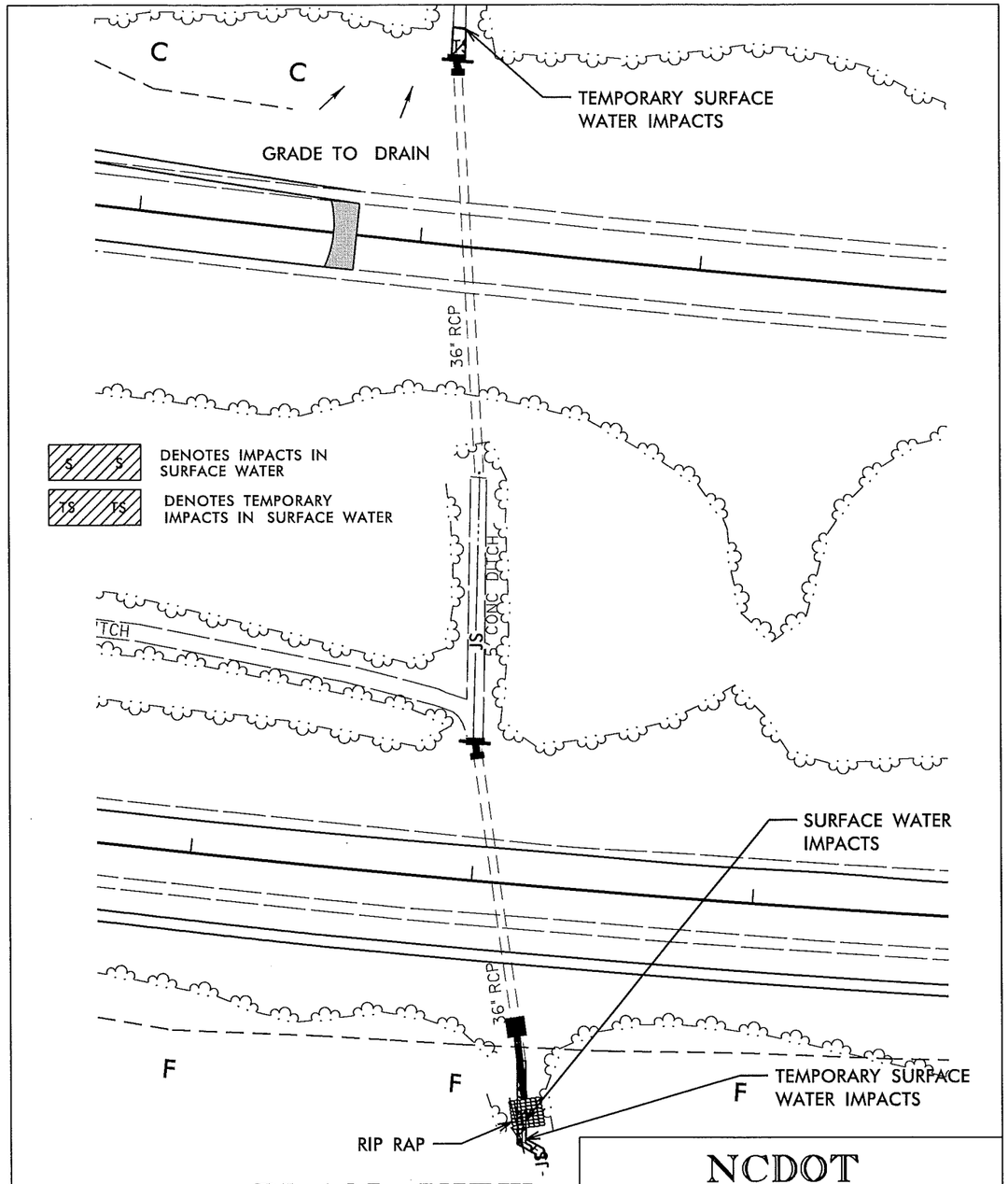
GUILFORD COUNTY

PROJECT: 34483.1.1 (R-2612B)

SOUTH OF GREENSBORO

US 421 AT SR 3418 (NEELLEY RD.)

SHEET 8 OF 23 **06/13/13**

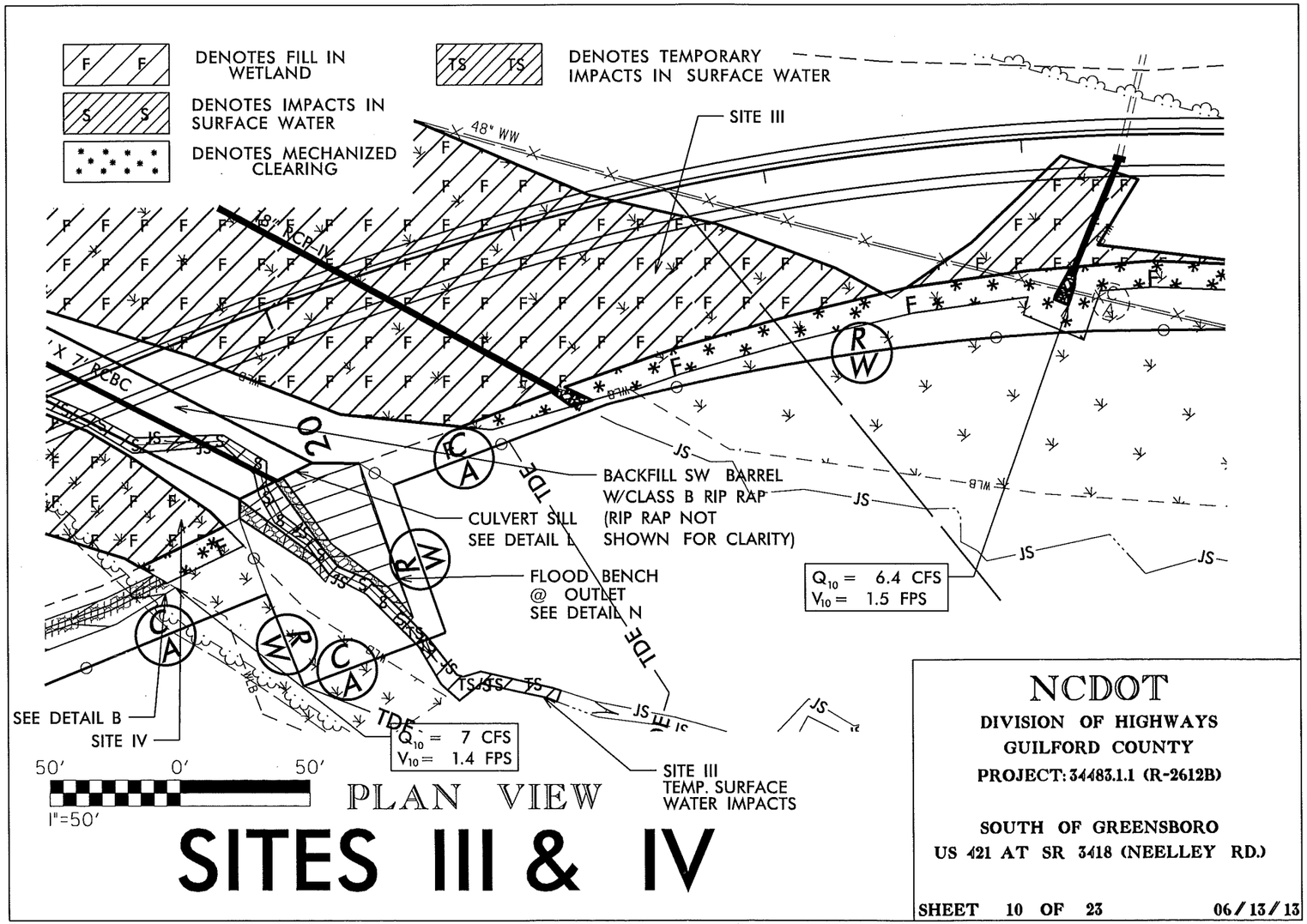


PLAN VIEW

SITE V

NCDOT
DIVISION OF HIGHWAYS
GUILFORD COUNTY
PROJECT: 34483.1.1 (R-2612B)

SOUTH OF GREENSBORO
US 421 AT SR 3418 (NEELLEY RD.)



SITES III & IV

NCDOT

DIVISION OF HIGHWAYS

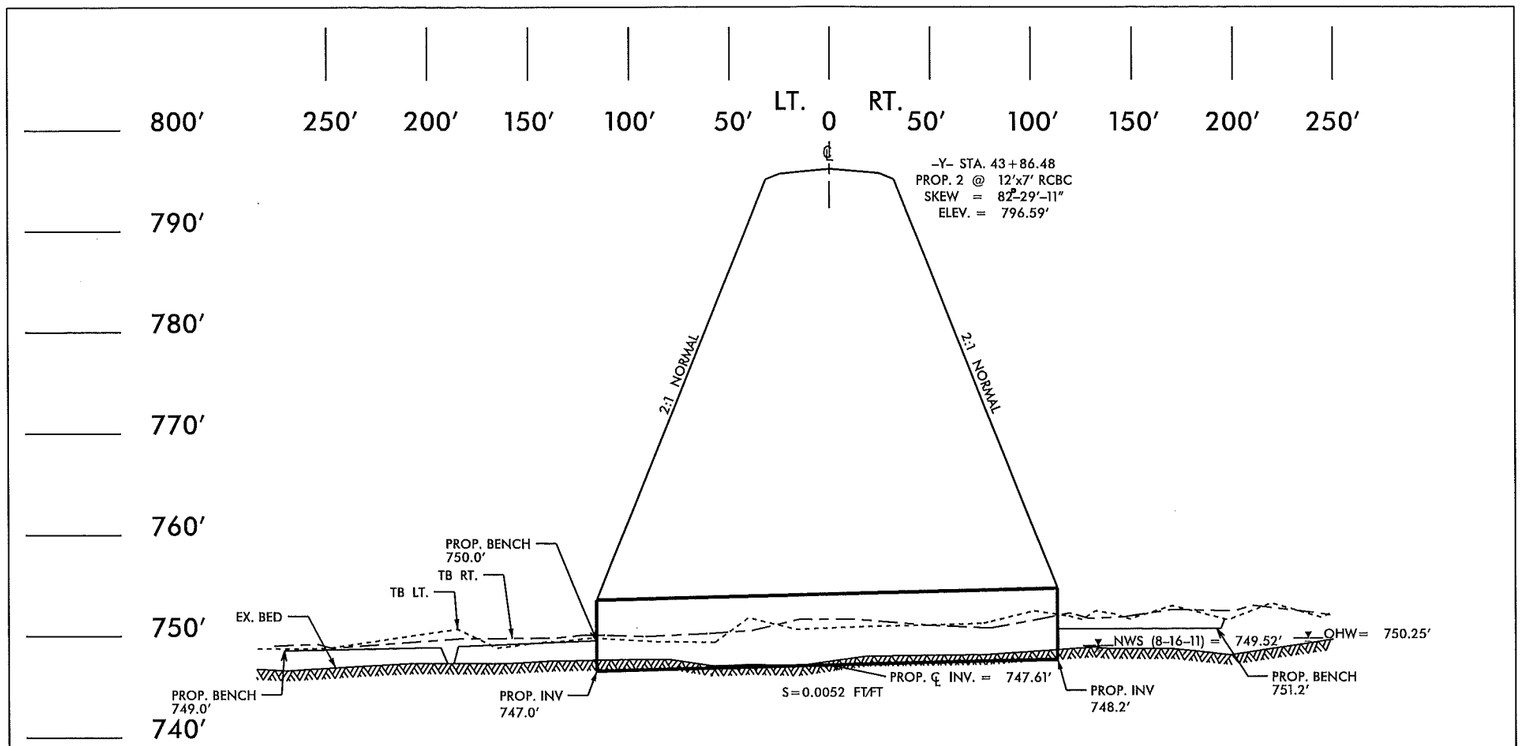
GUILFORD COUNTY

PROJECT: 34483.1.1 (R-2612B)

SOUTH OF GREENSBORO

US 421 AT SR 3418 (NEELLEY RD.)

SHEET 10 OF 23 06/13/13



PROFILE

–Y– CULVERT

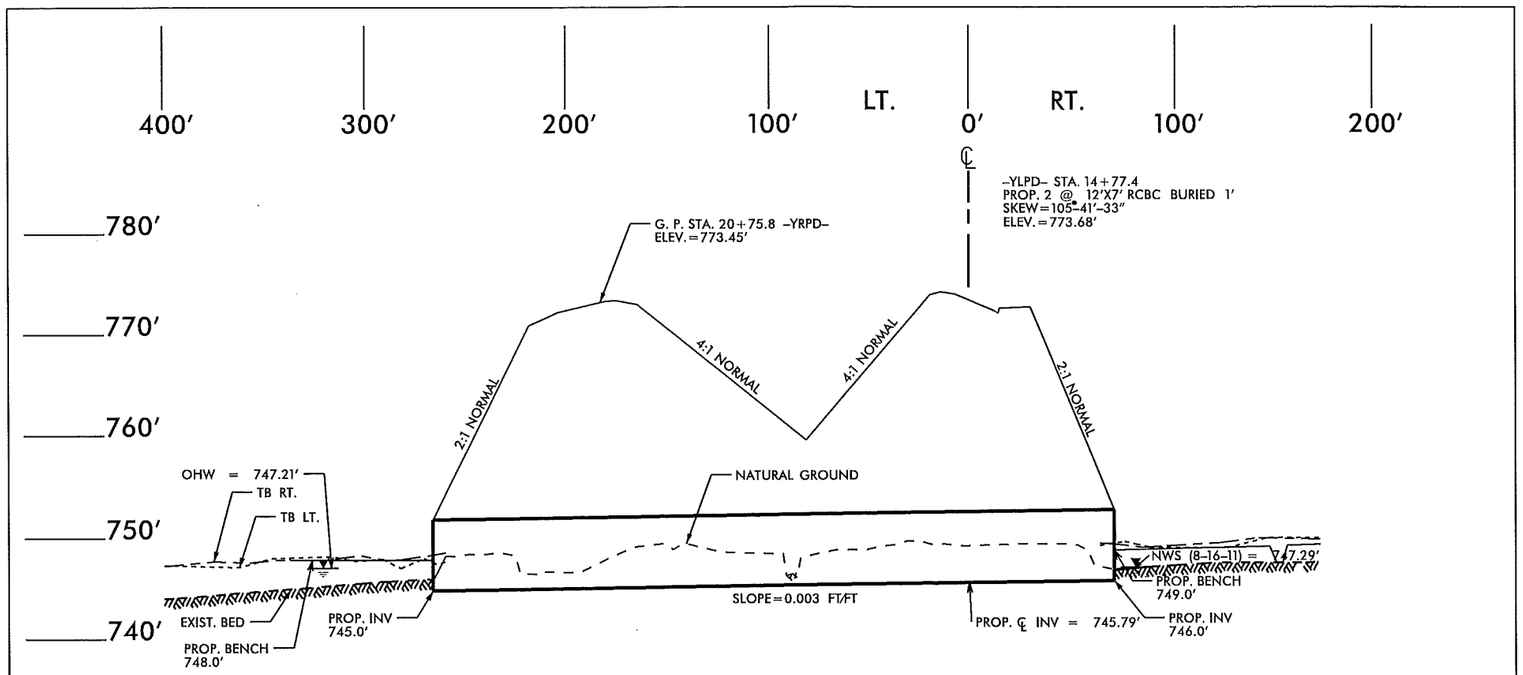
HORIZONTAL
75′ 0′ 75′
1"=75′

VERTICAL
15′ 0′ 15′
1"=15′

NCDOT

DIVISION OF HIGHWAYS
GUILFORD COUNTY
PROJECT: 34483.1.1 (R-2612B)

SOUTH OF GREENSBORO
US 421 AT SR 3418 (NEELLEY RD.)



PROFILE

–YLPD– CULVERT

HORIZONTAL

75′ 0′ 75′

1"=75′

VERTICAL

15′ 0′ 15′

1"=15′

NCDOT

DIVISION OF HIGHWAYS

GUILFORD COUNTY

PROJECT: 34483.1.1 (R-2612B)

SOUTH OF GREENSBORO

US 421 AT SR 3418 (NEELLEY RD.)

SHEET 12 OF 23 **04/29/13**

8/17/99

REVISIONS

02/22/13 - R/W REVISION: CHANGED TEMPORARY CONSTRUCTION EASEMENT TO PROPOSED RIGHT OF WAY ON PARCEL 32 - TEM.

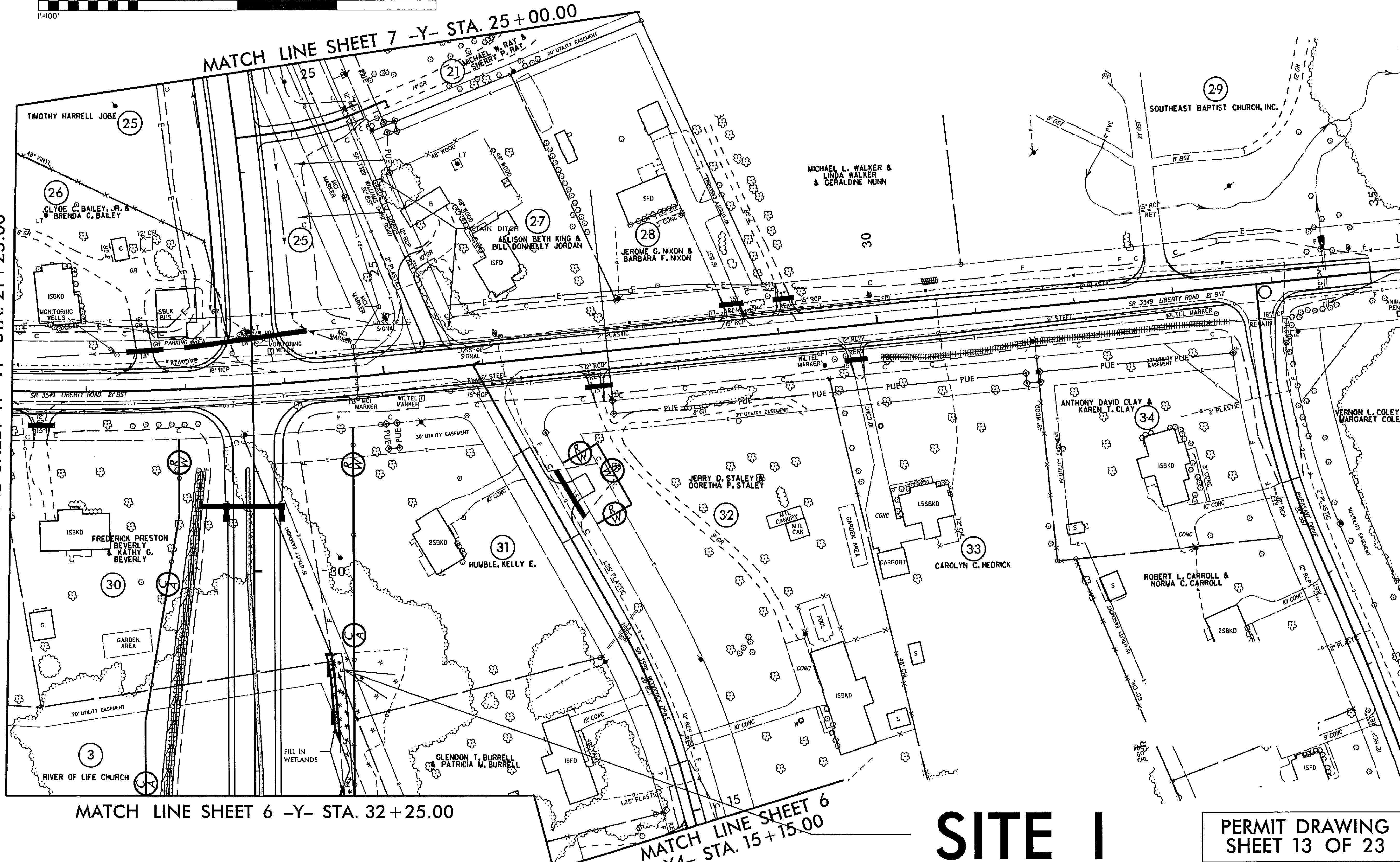
PROJECT REFERENCE NO.	SHEET NO.
R-2612B	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

100' 0' 100' 200' 300'
1"=100'



SITE I

PERMIT DRAWING
SHEET 13 OF 23

$$$$SYSTIME$$$$
$$$$$$$$DGN$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
R-2612B	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

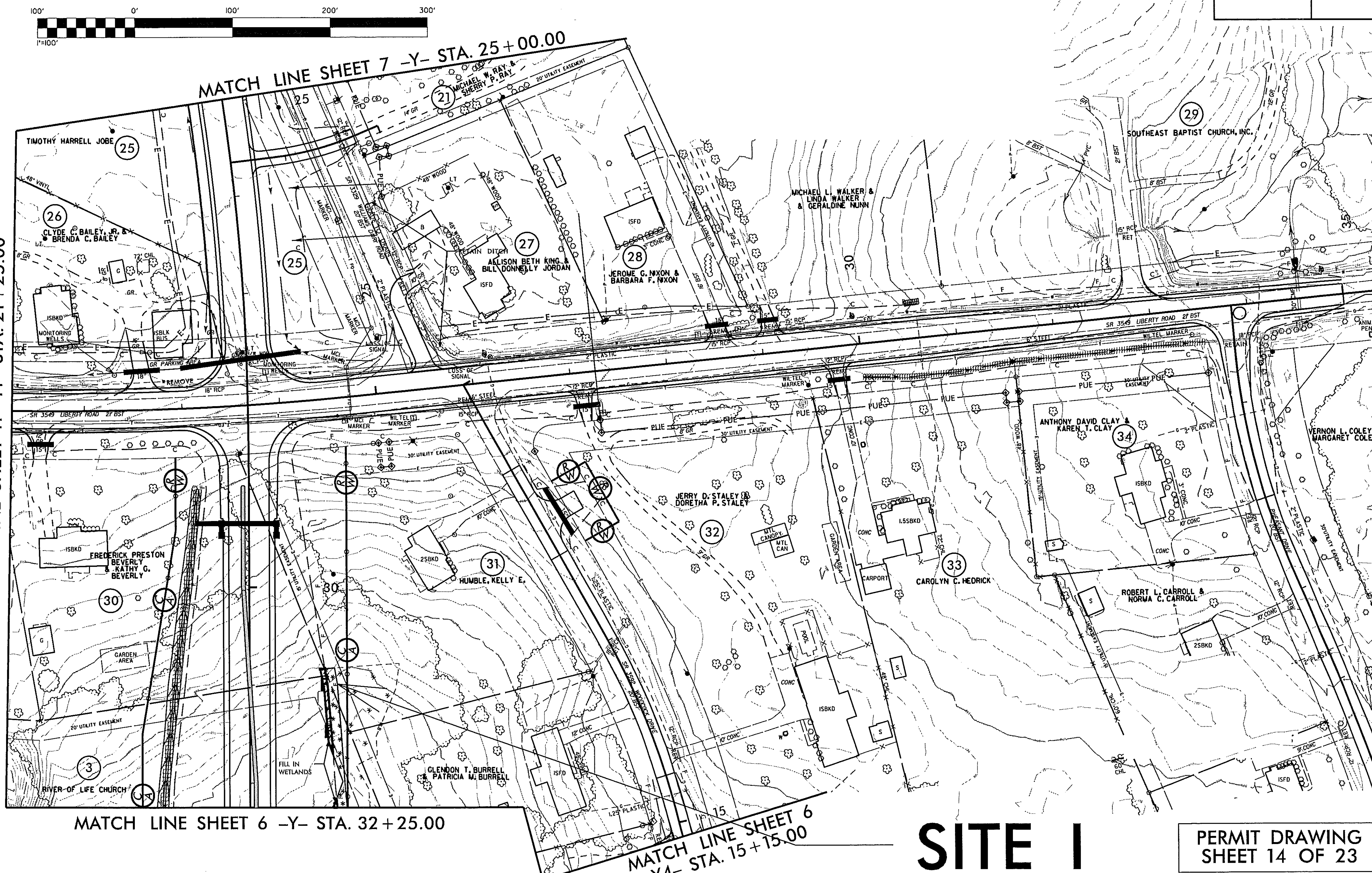
REVISIONS

02/22/13 - RW REVISION: CHANGED TEMPORARY CONSTRUCTION EASEMENT TO PROPOSED RIGHT OF WAY ON PARCEL 32 - TEM.

8/17/99

DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING



SITE 1

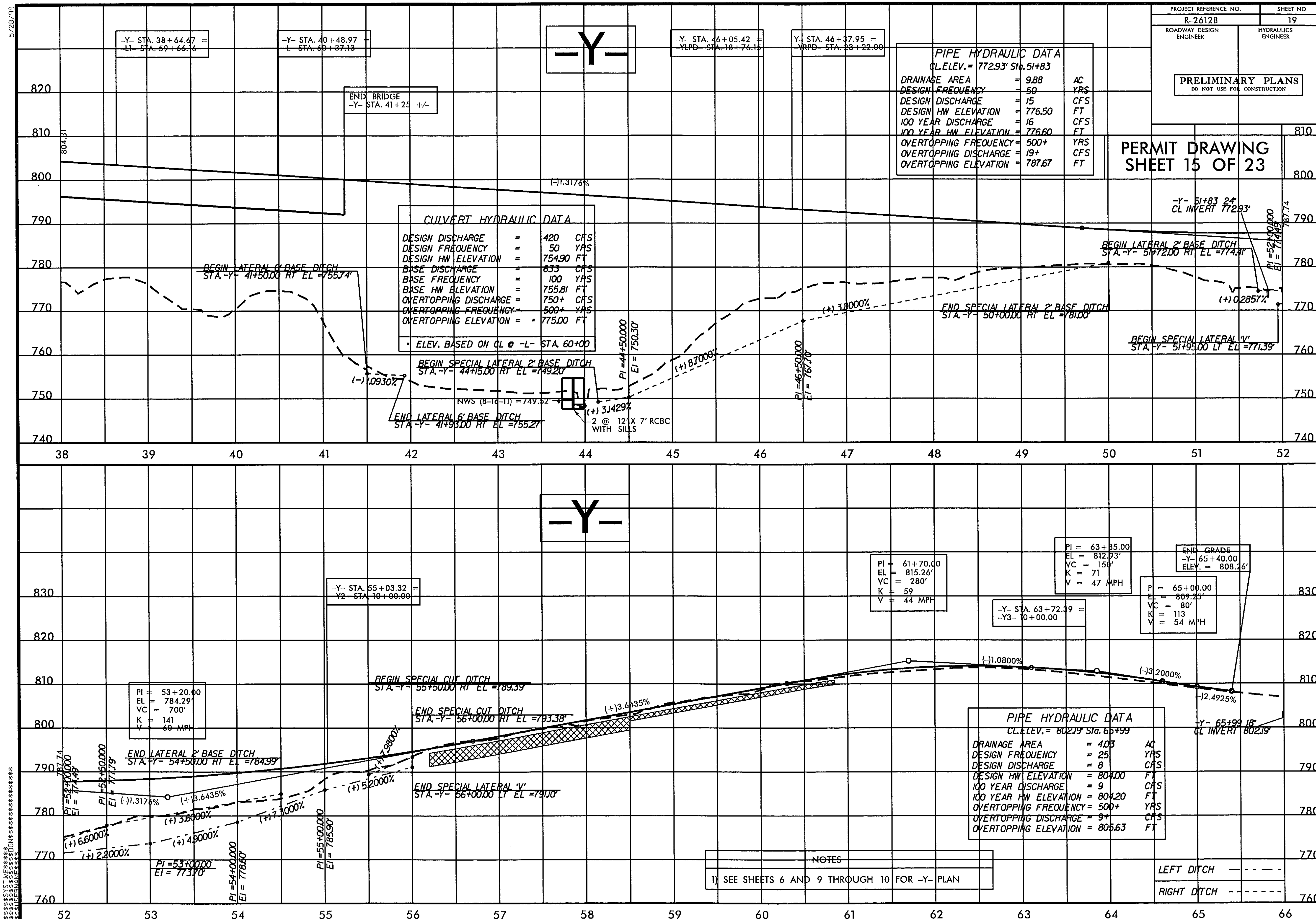
PERMIT DRAWING
SHEET 14 OF 23

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
R-2612B	19
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 15 OF 23



CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	=	420	CFS
DESIGN FREQUENCY	=	50	YRS
DESIGN HW ELEVATION	=	754.90	FT
BASE DISCHARGE	=	633	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	755.81	FT
OVERTOPPING DISCHARGE	=	750+	CFS
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING ELEVATION	=	* 775.00	FT

* ELEV. BASED ON CL @ -L- STA. 60+00

PIPE HYDRAULIC DATA
CL.ELEV.= 772.93' Sta.51+83

DRAINAGE AREA	=	9.88	AC
DESIGN FREQUENCY	=	50	YRS
DESIGN DISCHARGE	=	15	CFS
DESIGN HW ELEVATION	=	776.50	FT
100 YEAR DISCHARGE	=	16	CFS
100 YEAR HW ELEVATION	=	776.60	FT
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING DISCHARGE	=	19+	CFS
OVERTOPPING ELEVATION	=	787.67	FT

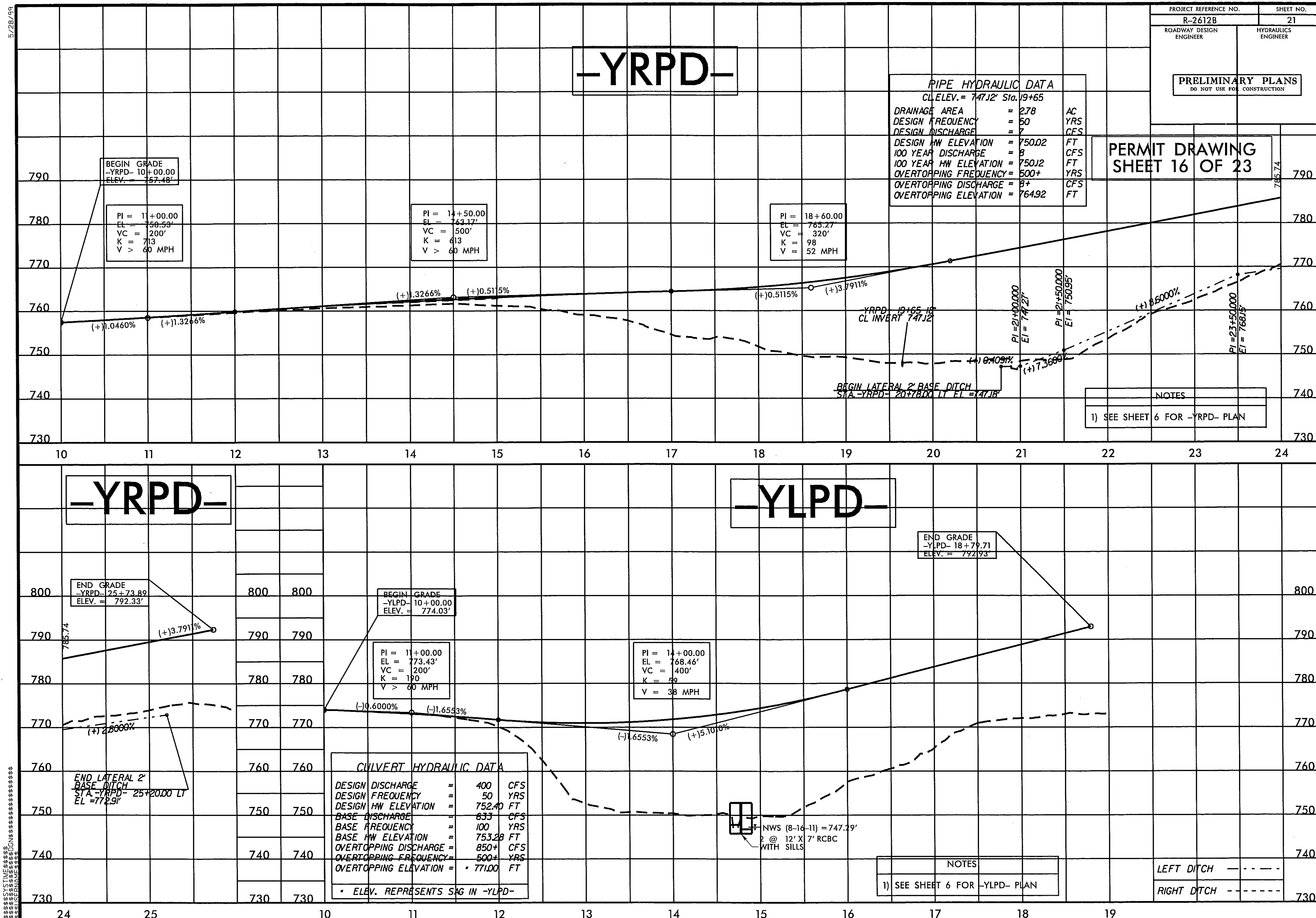
PIPE HYDRAULIC DATA
CL.ELEV.= 802.19' Sta. 65+99

DRAINAGE AREA	=	4.03	AC
DESIGN FREQUENCY	=	25	YRS
DESIGN DISCHARGE	=	8	CFS
DESIGN HW ELEVATION	=	804.00	FT
100 YEAR DISCHARGE	=	9	CFS
100 YEAR HW ELEVATION	=	804.20	FT
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING DISCHARGE	=	9+	CFS
OVERTOPPING ELEVATION	=	805.63	FT

NOTES

1) SEE SHEETS 6 AND 9 THROUGH 10 FOR -Y- PLAN

$$$$$$SYSTIME$$$$$ $$$$$$DGN$$$$$$$$$$$$$$$$$$ $$$$$$USERNAME$$$$$



PIPE HYDRAULIC DATA

CL ELEV.= 747.12' Sta. 19+65

DRAINAGE AREA	=	2.78	AC
DESIGN FREQUENCY	=	50	YRS
DESIGN DISCHARGE	=	7	CFS
DESIGN HW ELEVATION	=	750.02	FT
100 YEAR DISCHARGE	=	8	CFS
100 YEAR HW ELEVATION	=	750.12	FT
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING DISCHARGE	=	8+	CFS
OVERTOPPING ELEVATION	=	764.92	FT

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	=	400	CFS
DESIGN FREQUENCY	=	50	YRS
DESIGN HW ELEVATION	=	752.40	FT
BASE DISCHARGE	=	633	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	753.28	FT
OVERTOPPING DISCHARGE	=	850+	CFS
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING ELEVATION	=	* 771.00	FT

* ELEV. REPRESENTS SAG IN -YLPD-

8/17/99

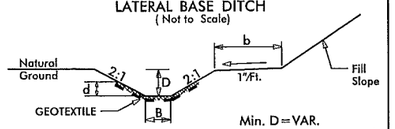
REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
R-2612B	2-E
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 17 OF 23

DETAIL B
LATERAL BASE DITCH
(Not to Scale)



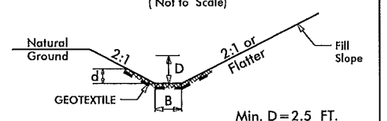
Min. D=VAR.
Max. d=1.5 FT.
B=2 FT.
b=5 FT.

*When B is < 6.0'

Type of Liner= CLASS B RIP RAP

–Y– STA 29+00 TO 33+10 RT.
–YRPD– STA 20+78 TO 25+20 LT.

DETAIL F
SPECIAL LATERAL BASE DITCH
(Not to Scale)

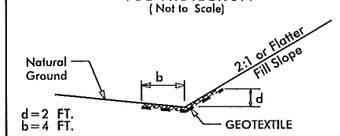


Min. D=2.5 FT.
Max. d=1 FT.
B=2 FT.

Type of Liner= CLASS I RIP RAP

–Y– STA. 44+15 TO 50+00 RT.

DETAIL I
TOE PROTECTION
(Not to Scale)

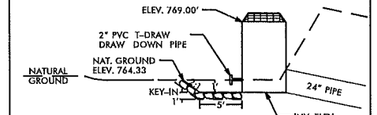


d=2 FT.
b=4 FT.

Type of Liner= CLASS I RIP RAP

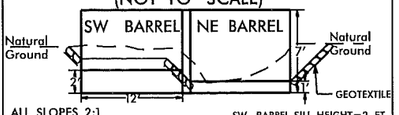
–Y– STA 33+10 TO 34+72 RT.
–Y– STA 41+90 TO 43+82 RT.
–YLPD– STA 13+62 TO 14+50 LT.
–YRPD– STA 18+49 TO 20+79 RT.

DETAIL K
OTCB W/TRASH RACK
(NOT TO SCALE)



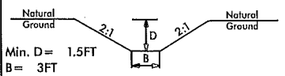
USE CLASS I RIP RAP
EST. 10 SY GEOTEXTILE
EST. 4 TONS RIP RAP

DETAIL L
CULVERT SILL @ INLET/OUTLET
(NOT TO SCALE)



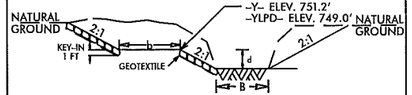
ALL SLOPES 2:1
CLASS I RIP RAP KEYED IN 1FT
BACKFILL SW BARREL W/CLASS B RIP RAP
SW BARREL SILL HEIGHT=2 FT.
NE BARREL SILL HEIGHT=1 FT.

DETAIL M
STANDARD BASE DITCH
(Not to Scale)



Min. D= 1.5FT
B= 3FT
DDE = APPROX. 28 CY

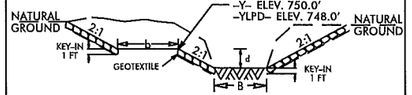
DETAIL O
FLOOD BENCH @ INLET
(NOT TO SCALE)



b = 0FT – 19FT VAR.
B = 7.5FT – 12FT VAR.
d = MIN. 2 FT.

EST. 77 TONS OF CLASS I RIP RAP
DDE = APPROX. 117 CY
FLOOD BENCH SLOPE=0.86%

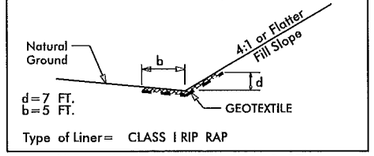
DETAIL N
FLOOD BENCH @ OUTLET
(NOT TO SCALE)



b = 0FT – 17.5FT VAR.
B = 5.5FT – 12FT VAR.
d = MIN. 2.00 FT.

EST. 47 TONS OF CLASS I RIP RAP
DDE = APPROX. 63 CY
FLOOD BENCH SLOPE=0.86%

DETAIL X
TOE PROTECTION
(Not to Scale)

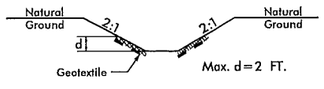


d=7 FT.
b=5 FT.

Type of Liner= CLASS I RIP RAP

–YLPA– STA 14+00 TO 15+00 RT.
–YRPA– STA 19+50 TO 20+00 LT.

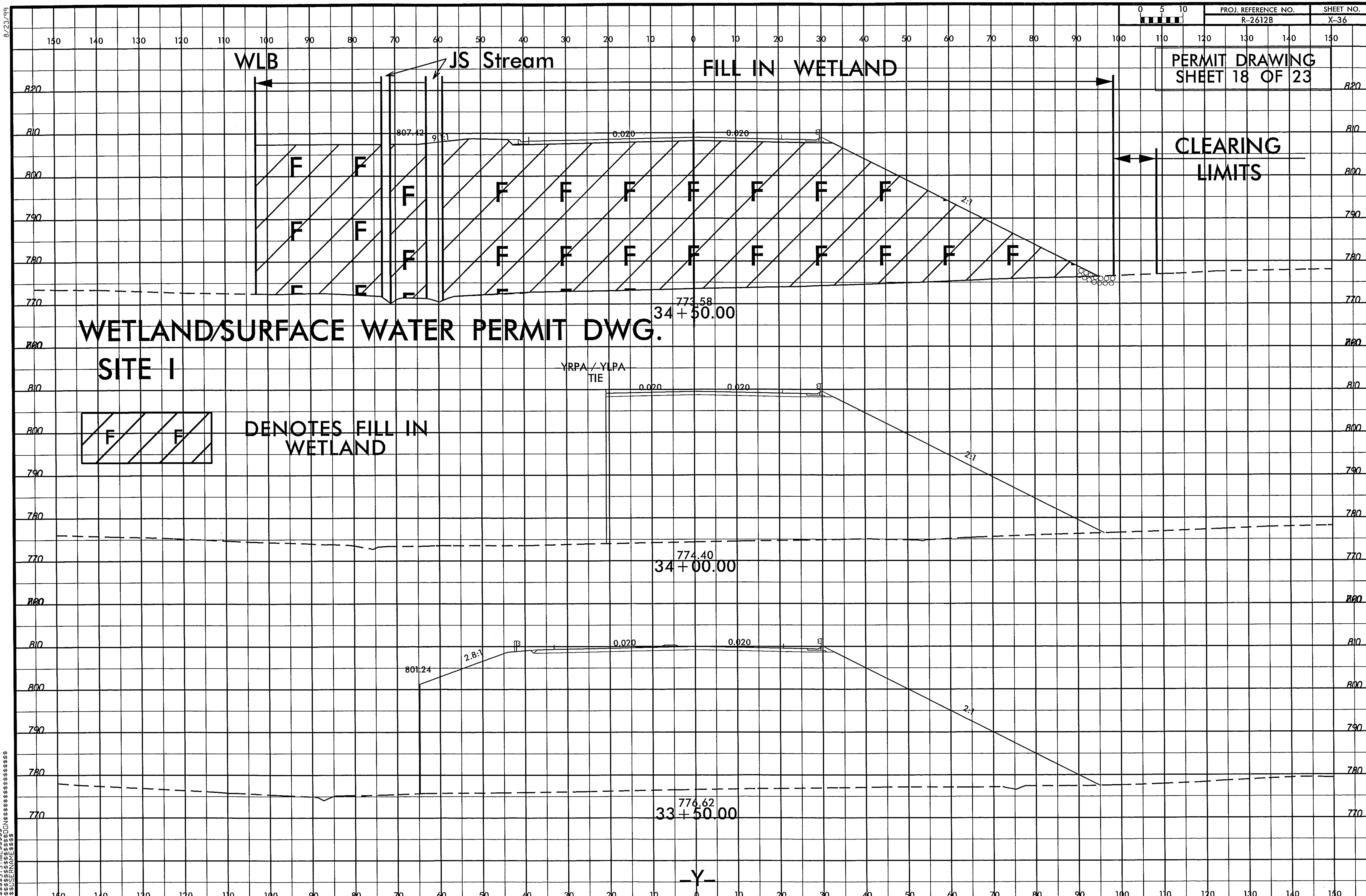
DETAIL Y
BANK STABILIZATION
(Not to Scale)

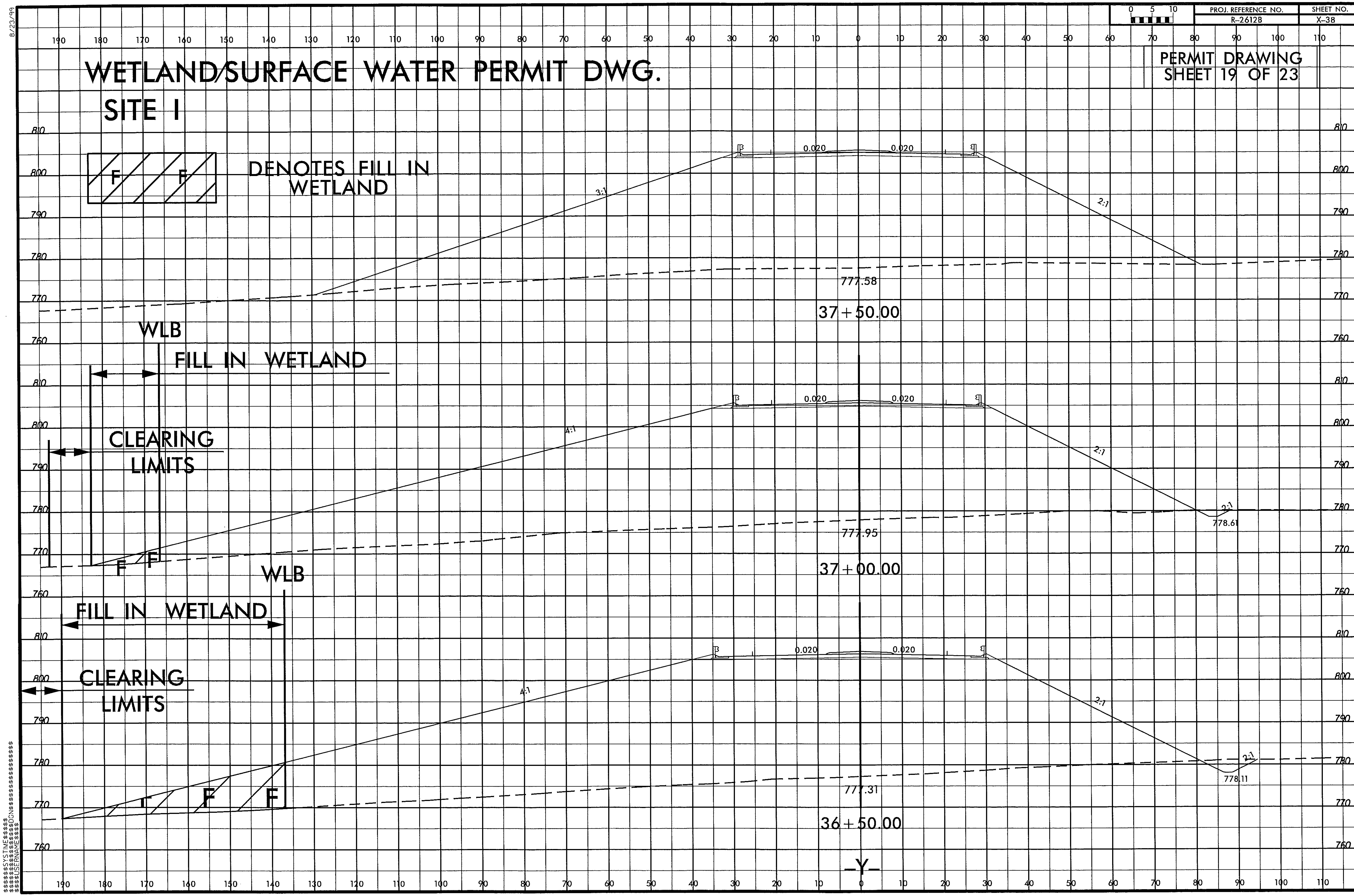


Max. d=2 FT.

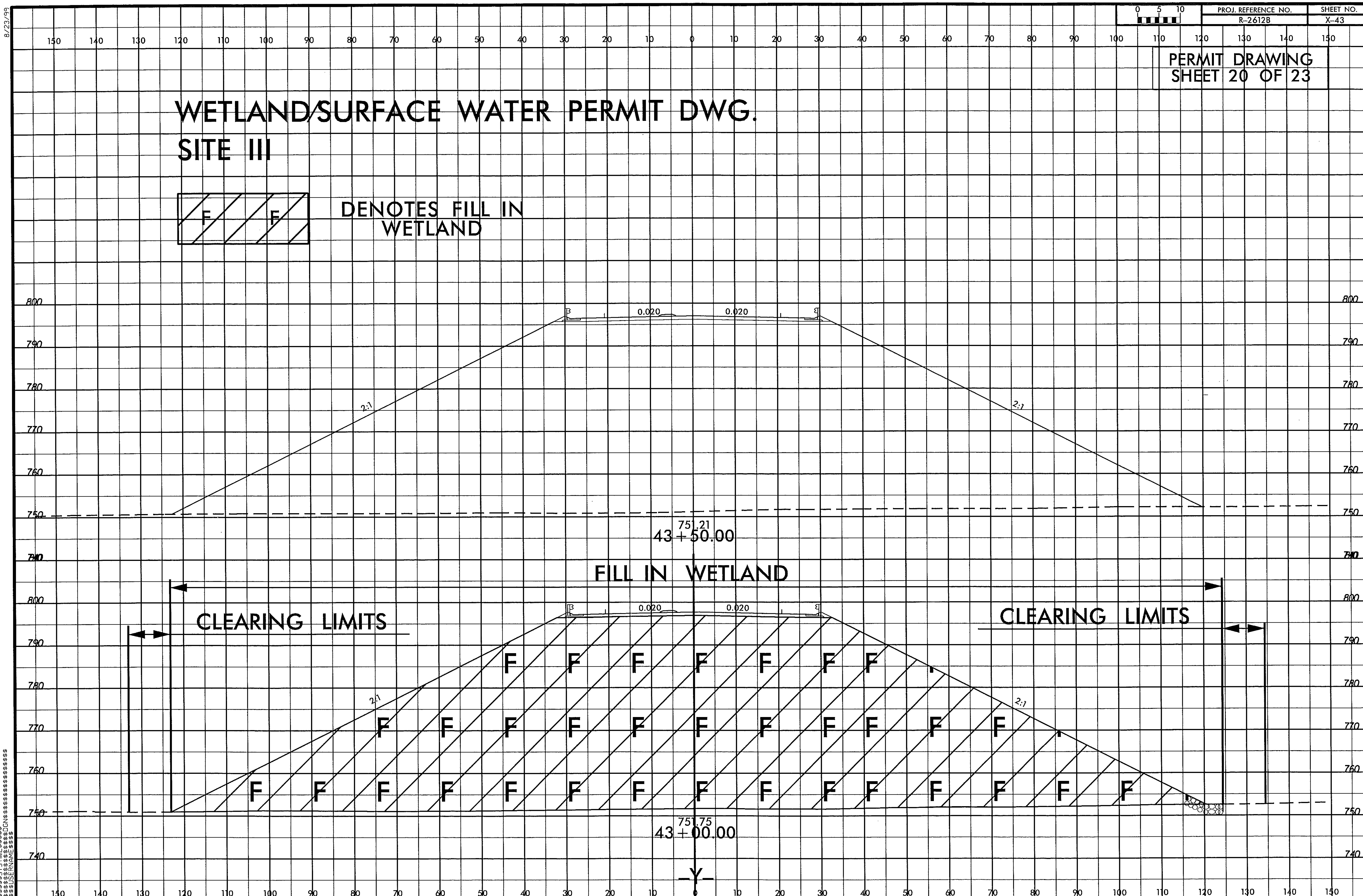
Type of Liner= CLASS I RIP RAP
EST. 20 TONS RIP RAP
EST. 30 SY GEOTEXTILE

$$$$SYSTIME$$$$
$$$$SYSTIME$$$$
$$$$USERNAME$$$$ $$$$DGN$$$$$$$$$$$$$$$$$$$$


8/23/99
PROJ. REFERENCE NO.
R-2612B
SHEET NO.
X-36
0 5 10
PERMIT DRAWING
SHEET 18 OF 23
WLB
JS Stream
FILL IN WETLAND
CLEARING
LIMITS
807.42
9:1
0.020
0.020
2:1
F
773.58
34+50.00
WETLAND/SURFACE WATER PERMIT DWG.
SITE I
DENOTES FILL IN
WETLAND
YRPA / YLPA
TIE
0.020
0.020
2:1
774.40
34+00.00
801.24
2.8:1
0.020
0.020
2:1
776.62
33+50.00
-Y-
$$$$$$SYSTIME$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$



8/23/99
PROJ. REFERENCE NO.
R-2612B
SHEET NO.
X-38
0 5 10
WETLAND/SURFACE WATER PERMIT DWG.
SITE I
PERMIT DRAWING
SHEET 19 OF 23
F
F
DENOTES FILL IN WETLAND
WLB
FILL IN WETLAND
CLEARING LIMITS
F
F
3:1
2:1
0.020
0.020
777.58
37+50.00
4:1
2:1
2:1
778.61
777.95
37+00.00
WLB
FILL IN WETLAND
CLEARING LIMITS
F
F
4:1
2:1
2:1
778.11
777.31
36+50.00
-Y-
190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110
810 800 790 780 770 760
$$$$$$SYSTIME$$$$$
$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$


8/23/99
0 5 10
PROJ. REFERENCE NO.
R-2612B
SHEET NO.
X-43
PERMIT DRAWING
SHEET 20 OF 23
WETLAND/SURFACE WATER PERMIT DWG.
SITE III
DENOTES FILL IN WETLAND
F
0.020
0.020
2:1
2:1
751.21
43+50.00
FILL IN WETLAND
CLEARING LIMITS
CLEARING LIMITS
751.75
43+00.00
-Y-
$$$$$$SYSTIME$$$$
$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

8/23/99

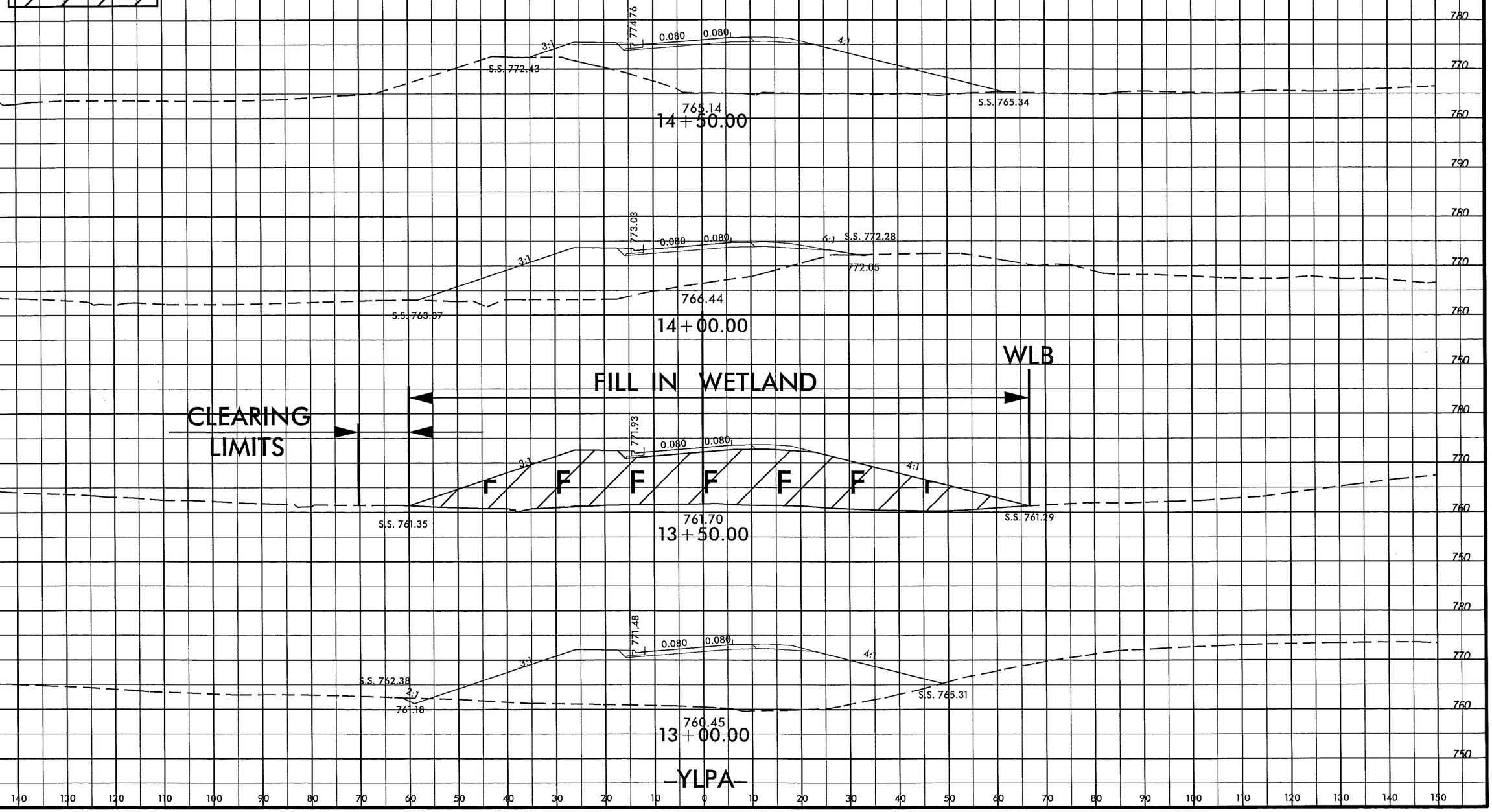
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2612B	X-63

WETLAND/SURFACE WATER PERMIT DWG.

PERMIT DRAWING
SHEET 21 OF 23

SITE 1

F F DENOTES FILL IN WETLAND



$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

-YLPA-

8/23/99

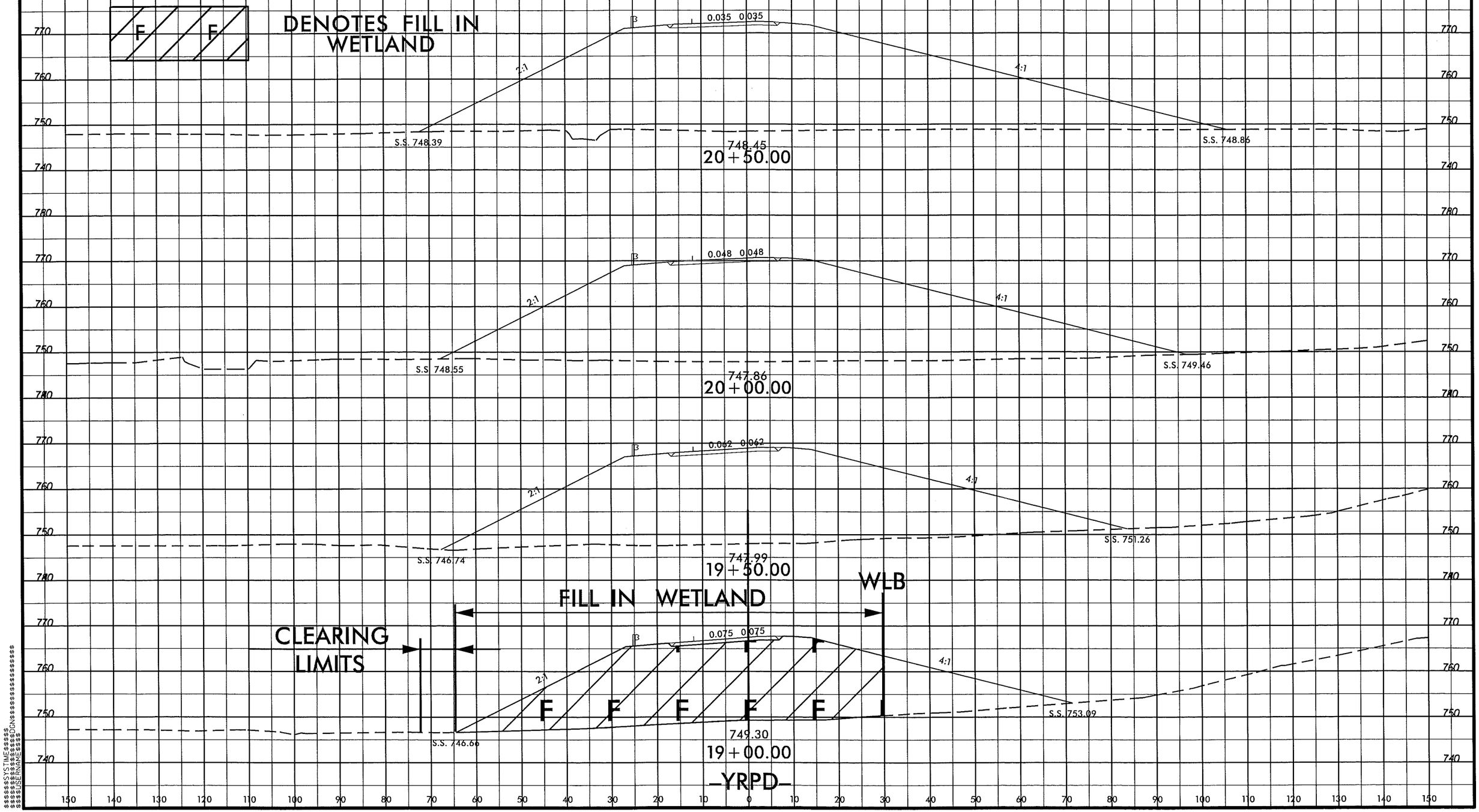
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2612B	X-70

WETLAND/SURFACE WATER PERMIT DWG.

SITE III

PERMIT DRAWING
SHEET 22 OF 23

F F DENOTES FILL IN WETLAND



$$$$$$$$SYSTIMES$$$$$$
$$$$$$$$$$$$$$$$$$$$DGNS$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND 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)	SURFACE WATER IMPACTS: Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
I	Y STA. 30+82 to 39+10	42" Pipe	1.38		<0.01	0.16		0.01	<0.01	251	20	
IA	Y STA. 33+36 to 34+56	42" Pipe						<0.01		209		
IB	Y STA. 32+61 to 34+56 LT.	30" Pipe						<0.01	<0.01	186	16	
IC	YLPA STA. 13+32 to 13+99 LT.	42" Pipe						<0.01		60		
II	YRPA STA. 18+25 to 21+90							1.00				
III	L STA. 59+63 to 70+54 RT.	2@12'X7' RCBC	2.48	*0.01	<0.01	0.25		0.12	<0.01	932	72	
		Bank Stabilization							<0.01		35	
IIIA	YLPA STA. 13+16 LT.	42" Pipe						0.01		265		
IV	L STA. 60+09 to 67+07 RT.		0.44	*0.03	<0.01	0.06						
V	L STA. 77+71 LT. & RT.	36" Pipe						<0.01	<0.01	24	24	
TOTALS:			4.30	*0.04	0.01	0.47	0	1.17	0.02	1927	167	0

NOTES: * TEMPORARY FILL IN WETLANDS IS DUE TO TEMPORARY EXCAVATION FOR CULVERT CONSTRUCTION.
EXISTING GROUND TO BE REESTABLISHED UPON COMPLETION OF CULVERTS.
STOCKPILE MATERIAL REMOVED.

N.C.D.O.T.
DIVISION OF HIGHWAYS
GUILFORD COUNTY
PROJECT: 34483.1.1 (R-2612B)
US 421 AT SR 3418 (NEELLEY ROAD)
SOUTH OF GREENSBORO

ATN Revised 3/31/05

09/06/99

TIP PROJECT: R-2612B

CONTRACT:

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2612B	1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
34483.1.1	CMNHS-0421(41)	PE	
34483.2.3	CMNHF-0421(41)	RW & UTILITIES	

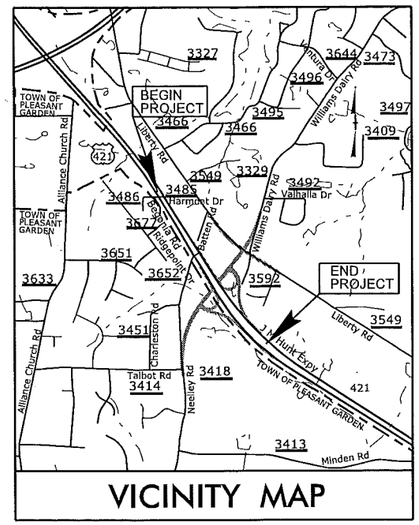
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

GUILFORD COUNTY

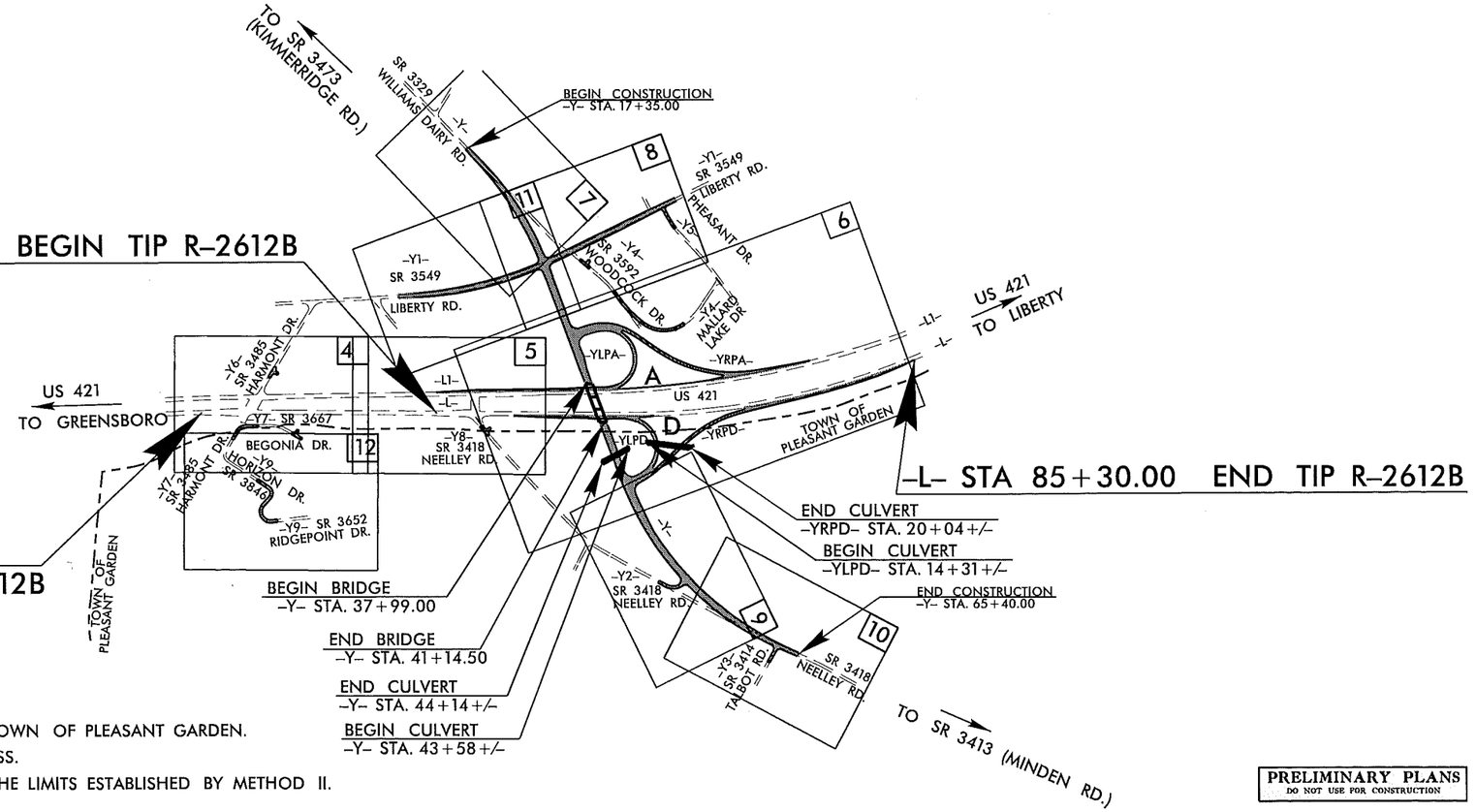
LOCATION: US 421 AT SR 3418 (NEELLEY RD.) SOUTH OF GREENSBORO

TYPE OF WORK: GRADING, DRAINAGE, PAVING, STRUCTURE, AND CULVERTS

NAD 83/NSRS 2007



VICINITY MAP



THIS PROJECT IS WITHIN THE MUNICIPAL LIMITS OF THE TOWN OF PLEASANT GARDEN.
THIS PROJECT HAS FULL AND PARTIAL CONTROLLED ACCESS.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

PLANS: 50 25 0 50 100
PROFILE (HORIZONTAL): 50 25 0 50 100
PROFILE (VERTICAL): 10 5 0 10 20

DESIGN DATA

ADT 2014 = 34,067
ADT 2034 = 51,733
DHV = 11 %
D = 70 %
T = 17 % *
V = 70 MPH
* (TTST 12 + DUAL 5)
FUNC CLASS = FREEWAY

STATEWIDE TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-2612B = 0.713 MI

TOTAL LENGTH TIP PROJECT R-2612B = 0.713 MI

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JULY 30, 2012

LETTING DATE: JUNE 17, 2014

BRENDA MOORE, PE
PROJECT ENGINEER

TATIA L. WHITE, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION ·

31-JUL-2012 09:32
R:\Roadway\Proj\R2612B_Rdy_tsh.dgn
$$$$USERNAME$$$$

04/16/11

PROJECT REFERENCE NO.	SHEET NO.
R-2612B	1-B

Note: Not to Scale

****S.U.E. = Subsurface Utility Engineering***

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — EIP
- Property Corner
- Property Monument — ECM
- Parcel/Sequence Number — 123
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary — WLB
- Proposed Wetland Boundary — WLB
- Existing Endangered Animal Boundary — EAB
- Existing Endangered Plant Boundary — EPB
- Known Soil Contamination: Area or Site
- Potential Soil Contamination: Area or Site

BUILDINGS AND OTHER CULTURE:

- Gas Pump Vent or U/G Tank Cap
- Sign — S
- Well — W
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:

- Stream or Body of Water
- Hydro, Pool or Reservoir
- Jurisdictional Stream — JS
- Buffer Zone 1 — BZ 1
- Buffer Zone 2 — BZ 2
- Flow Arrow
- Disappearing Stream
- Spring
- Wetland
- Proposed Lateral, Tail, Head Ditch — FLOW
- False Sump

RAILROADS:

- Standard Gauge — CSX TRANSPORTATION
- RR Signal Milepost — MILEPOST 35
- Switch — SWITCH
- RR Abandoned
- RR Dismantled

RIGHT OF WAY:

- Baseline Control Point
- Existing Right of Way Marker
- Existing Right of Way Line
- Proposed Right of Way Line
- Proposed Right of Way Line with Iron Pin and Cap Marker
- Proposed Right of Way Line with Concrete or Granite R/W Marker
- Proposed Control of Access Line with Concrete C/A Marker
- Existing Control of Access
- Proposed Control of Access
- Existing Easement Line — E
- Proposed Temporary Construction Easement — E
- Proposed Temporary Drainage Easement — TDE
- Proposed Permanent Drainage Easement — PDE
- Proposed Permanent Drainage / Utility Easement — DUE
- Proposed Permanent Utility Easement — PUE
- Proposed Temporary Utility Easement — TUE
- Proposed Aerial Utility Easement — AUE
- Proposed Permanent Easement with Iron Pin and Cap Marker

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Curb Ramp — CR
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line

- Orchard
- Vineyard — Vineyard

EXISTING STRUCTURES:

MAJOR:
- Bridge, Tunnel or Box Culvert — CONC
- Bridge Wing Wall, Head Wall and End Wall — CONC WW

MINOR:
- Head and End Wall — CONC HW
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB — CB
- Paved Ditch Gutter
- Storm Sewer Manhole — S
- Storm Sewer — S

UTILITIES:

POWER:
- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole — P
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole
- H-Frame Pole
- Recorded U/G Power Line — P
- Designated U/G Power Line (S.U.E.*) — P

TELEPHONE:
- Existing Telephone Pole
- Proposed Telephone Pole
- Telephone Manhole — T
- Telephone Booth
- Telephone Pedestal — T
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole — HH
- Recorded U/G Telephone Cable — T
- Designated U/G Telephone Cable (S.U.E.*) — T
- Recorded U/G Telephone Conduit — TC
- Designated U/G Telephone Conduit (S.U.E.*) — TC
- Recorded U/G Fiber Optics Cable — T FO
- Designated U/G Fiber Optics Cable (S.U.E.*) — T FO

WATER:
- Water Manhole — W
- Water Meter
- Water Valve
- Water Hydrant
- Recorded U/G Water Line — W
- Designated U/G Water Line (S.U.E.*) — W
- Above Ground Water Line — A/G Water

TV:
- TV Satellite Dish
- TV Pedestal — C
- TV Tower
- U/G TV Cable Hand Hole — HH
- Recorded U/G TV Cable — TV
- Designated U/G TV Cable (S.U.E.*) — TV
- Recorded U/G Fiber Optic Cable — TV FO
- Designated U/G Fiber Optic Cable (S.U.E.*) — TV FO

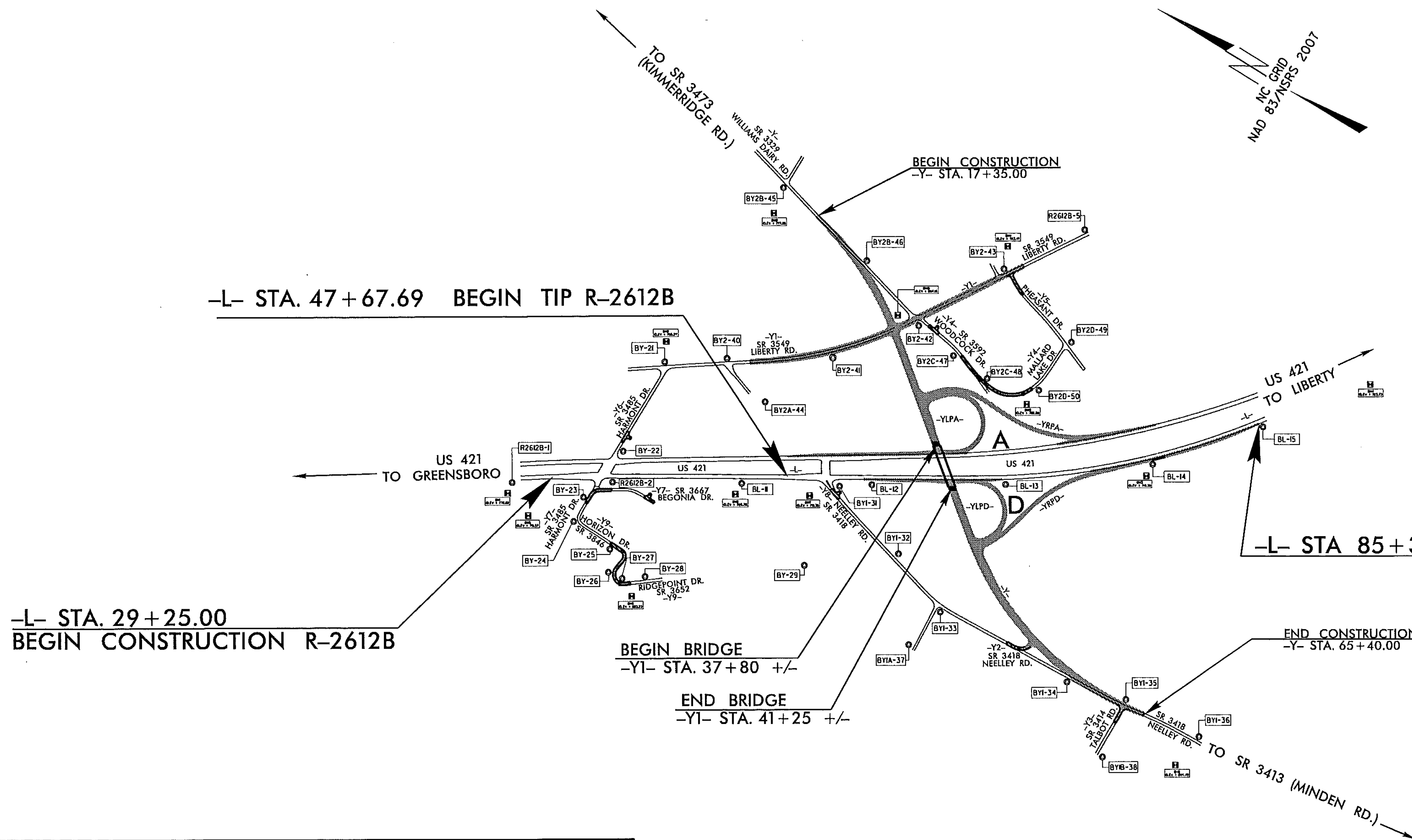
GAS:
- Gas Valve
- Gas Meter
- Recorded U/G Gas Line — G
- Designated U/G Gas Line (S.U.E.*) — G
- Above Ground Gas Line — A/G Gas

SANITARY SEWER:
- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line — SS
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- Recorded SS Forced Main Line — FSS
- Designated SS Forced Main Line (S.U.E.*) — FSS

MISCELLANEOUS:
- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line — ?UTL
- U/G Tank; Water, Gas, Oil
- Underground Storage Tank, Approx. Loc. — UST
- A/G Tank; Water, Gas, Oil
- Geoenvironmental Boring
- U/G Test Hole (S.U.E.*)
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

PROJECT REFERENCE NO.	SHEET NO.
R-2612B	1C
Location and Surveys	

R-2612B SURVEY CONTROL SHEET



NOTES

1. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:

   HTTP://WWW.DOH.DOT.STATE.NC.US/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/

   THE FILES TO BE FOUND ARE AS FOLLOWS:

   R26128_LS_CONTROL.TXT

2. SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

(symbol) INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.

PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM FROM EXISTING NCGS MONUMENTATION.

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "GARDEN RESET"
WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF
NORTHING: 814371.7640(ft) EASTING: 1782615.8080(ft)
ELEVATION: 807.16'(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9999206900
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "GARDEN RESET" TO -L- STATION 29+25.00 IS
N 55° 33' 59" W 2,942.52'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

NOTE: DRAWING NOT TO SCALE

12/01/2005

31-JUL-2012 09:32
R:\Roadway\Proj\r2612b_ls_1c.dgn

12/01/2005

PROJECT REFERENCE NO.	SHEET NO.
R-2612B	1D
Location and Surveys	

R-2612B SURVEY CONTROL SHEET

NOTES

1. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:

   HTTP://WWW.DOH.DOT.STATE.NC.US/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/

   THE FILES TO BE FOUND ARE AS FOLLOWS:

   R2612B_LS_CONTROL.TXT

2. SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

(symbol) INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.

PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM FROM EXISTING NCGS MONUMENTATION.

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "GARDEN RESET"
WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 814371.7640(ft) EASTING: 1782615.8080(ft)
ELEVATION: 807.16'(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9999206900
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "GARDEN RESET" TO -L- STATION 29+25.00 IS
N 55° 33' 59.3" W 2,942.52'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

BASELINE DATA

BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1	R2612B-1	816318.3980	1779965.5190	785.03	25+65.34	28.77 RT
2	R2612B-2	815611.2200	1780422.2540	790.43	34+09.04	24.66 RT
11	BL-11	814754.2536	1780941.4800	790.34	44+11.03	20.96 RT
12	BL-12	813877.9181	1781461.9268	780.27	54+30.24	26.20 RT
13	BL-13	812980.0077	1782012.4952	769.89	64+82.65	22.00 RT
14	BL-14	812082.1597	1782741.8245	756.76	76+36.96	21.62 RT
15	BL-15	811498.0129	1783417.8925	746.53	85+27.82	23.53 RT
3	R2612B-3	810992.0650	1784194.5650	734.38	94+53.37	21.68 RT
4	R2612B-4	810051.7900	1785678.6350	723.99	112+10.23	22.94 RT

BY

POINT	DESC.	NORTH	EAST	ELEVATION	STATION	OFFSET
21	BY-21	815732.0338	1781395.6300	770.31	OUTSIDE PROJECT LIMITS	
22	BY-22	815690.7698	1780638.7938	785.34	Y6 13+54.07	19.27 LT
A2	R2612B-2	815611.2200	1780422.2540	790.43	L 34+09.04	24.66 RT
23	BY-23	815720.8539	1780179.5270	797.21	Y7 11+30.67	15.59 LT
24	BY-24	815714.4236	1779990.1388	803.16	Y7 OUTSIDE PROJECT LIMITS	
25	BY-25	815357.1589	1779963.7754	808.21	Y9 11+24.27	15.99 RT
26	BY-26	815275.2512	1779779.0826	807.01	Y9 14+16.63	43.99 RT
27	BY-27	815152.8263	1779757.7476	805.21	Y9 15+17.98	4.88 LT
28	BY-28	814997.8691	1779882.2721	801.68	Y9 17+20.15	16.55 LT
29	BY-29	813987.4279	1780623.9931	785.52	Y8 14+14.72	549.29 RT

BY1

POINT	DESC.	NORTH	EAST	ELEVATION	STATION	OFFSET
A12	BL-12	813877.9181	1781461.9268	780.27	L 54+30.24	26.20 RT
31	BY1-31	814076.5938	1781263.0450	781.87	Y8 11+47.16	30.99 LT
32	BY1-32	813414.2675	1781052.1253	762.76	L 56+16.61	616.27 RT
33	BY1-33	812903.9571	1780895.3959	784.39	Y 49+08.77	449.10 RT
34	BY1-34	811752.1484	1780978.1689	804.50	Y 58+92.17	11.59 RT
35	BY1-35	811284.5145	1781012.3732	811.71	Y 63+61.65	20.91 LT
36	BY1-36	810640.8241	1781067.4625	804.27	Y OUTSIDE PROJECT LIMITS	

BY1A

POINT	DESC.	NORTH	EAST	ELEVATION	Y STATION	OFFSET
A33	BY1-33	812903.9571	1780895.3959	784.39	49+08.77	449.10 RT
37	BY1A-37	812915.6431	1780523.4726	787.05	50+39.28	782.76 RT

BY1B

POINT	DESC.	NORTH	EAST	ELEVATION	Y STATION	OFFSET
A35	BY1-35	811284.5145	1781012.3732	811.71	63+61.65	20.91 LT
38	BY1B-38	811250.1697	1780555.6332	832.89	63+50.29	436.96 RT

BY2

POINT	DESC.	NORTH	EAST	ELEVATION	Y1 STATION	OFFSET
A21	BY-21	815732.0338	1781395.6300	770.31	OUTSIDE PROJECT LIMITS	
40	BY2-40	815332.4092	1781669.8843	767.23	10+20.89	16.23 LT
41	BY2-41	814662.2868	1782151.7008	792.72	18+45.95	16.35 RT
42	BY2-42	814206.7160	1782717.1924	804.81	25+69.21	27.06 RT
43	BY2-43	813825.0632	1783396.9493	791.85	33+47.50	17.59 LT
5	R2612B-5	813455.8940	1783973.7690	788.59	OUTSIDE PROJECT LIMITS	
6	R2612B-6	813076.0050	1784566.3470	786.84	OUTSIDE PROJECT LIMITS	

BY2A

POINT	DESC.	NORTH	EAST	ELEVATION	Y1 STATION	OFFSET
A40	BY2-40	815332.4092	1781669.8843	767.23	10+20.89	16.23 LT
44	BY2A-44	814903.7372	1781511.5013	780.28	12+82.51	358.47 RT

BY2B

POINT	DESC.	NORTH	EAST	ELEVATION	Y STATION	OFFSET
45	BY2B-45	815656.2285	1783076.7043	783.16	13+85.69	24.62 RT
46	BY2B-46	814817.5628	1782862.9792	802.11	22+50.42	13.85 LT
A42	BY2-42	814206.7160	1782717.1924	804.81	28+25.64	203.45 LT

BY2C

POINT	DESC.	NORTH	EAST	ELEVATION	Y4 STATION	OFFSET
B42	BY2-42	814206.7160	1782717.1924	804.81	10+16.38	30.07 RT
47	BY2C-47	813821.2293	1782664.1784	796.58	14+07.97	14.00 RT
48	BY2C-48	813518.3372	1782573.6454	787.17	17+24.25	4.69 RT

BY2D

POINT	DESC.	NORTH	EAST	ELEVATION	STATION	OFFSET
A43	BY2-43	813825.0632	1783396.9493	791.85	Y1 33+47.50	17.59 LT
49	BY2D-49	813102.8718	1783171.1390	796.20	Y4 OUTSIDE PROJECT LIMITS	
50	BY2D-50	813142.4753	1782775.8865	788.73	Y4 21+85.59	14.32 RT

BENCHMARK DATA

BM1 ELEVATION = 778.62
N 816273 E 1779894
L STATION 25+62.38 113.18 RIGHT
RR SPIKE IN ROOT OF 18 INCH DOUBLE MAPLE

BM2 ELEVATION = 769.70
N 814722 E 1780858
L STATION 43+95.61 109.41 RIGHT
RR SPIKE IN ROOT OF 18 INCH MAPLE

BM3 ELEVATION = 741.39
N 812047 E 1782665
L STATION 76+08.37 100.51 RIGHT
RR SPIKE IN ROOT OF 14 INCH ELM

BM4 ELEVATION = 723.73
N 810918 E 1784142
L STATION 94+48.68 112.10 RIGHT
RR SPIKE IN ROOT OF 15 INCH SWEETGUM

BM5 ELEVATION = 791.97
N 816044 E 1779830
L STATION 27+17.74 295.08 RIGHT
RR SPIKE IN ROOT OF 16 INCH SWEETGUM

BM6 ELEVATION = 803.23
N 815021 E 1779714
BY STATION 27+05.00 117 RIGHT
RR SPIKE IN ROOT OF 15 INCH PINE

BM7 ELEVATION = 791.36
N 814232 E 1781109
BY1 STATION 7+81.00 219 RIGHT
RR SPIKE IN ROOT OF 15 INCH OAK

BM8 ELEVATION = 804.49
N 810688 E 1780808
BY1 STATION 42+11.00 255 RIGHT
RR SPIKE IN ROOT OF 12 INCH SWEETGUM

BM9 ELEVATION = 755.27
N 815818 E 1781554
L STATION 38+14.87 1051.86 LEFT
RR SPIKE IN ROOT OF 15 INCH RED OAK

BM10 ELEVATION = 807.16
N 814372 E 1782616
Y STATION 27+57.05 23.21 LEFT
GARDEN RESET - BRASS DISK IN CONC

BM11 ELEVATION = 783.47
N 813911 E 1783585
Y1 STATION 34+59.71 192 LEFT
RR SPIKE IN BASE OF 13 INCH PINE

BM12 ELEVATION = 777.86
N 815621 E 1782887
Y STATION 14+69.00 198.63 RIGHT
RR SPIKE IN ROOT OF 24 INCH SWEETGUM

BM13 ELEVATION = 782.68
N 813132 E 1782612
Y4 STATION 20+65.06 99.14 RIGHT
RR SPIKE IN ROOT OF 24 INCH WILLOW OAK

NOTE: DRAWING NOT TO SCALE

31-JUL-2012 09:33
R:\Roadway\Proj\r2612b_ls_1d.dgn
$$$$USERNAME$$$$

12/01/2005

PROJECT REFERENCE NO.	SHEET NO.
R-2612B	1E
Location and Surveys	

R-2612B SURVEY CONTROL SHEET

L

TYPE	STATION	NORTH	EAST
TS	9+33.09	817608.3498	1778970.4206
SC	12+33.09	817384.6506	1779170.3137
CS	31+39.76	815854.0605	1780303.5800
ST	34+39.76	815597.5889	1780459.2107
TS	61+02.98	813314.7614	1781830.8719
SC	64+02.98	813058.9771	1781987.6167
CS	87+71.32	811377.2141	1783631.1698
ST	90+71.32	811214.6333	1783883.2848
POT	165+96.92	807191.4601	1790243.2188

Y

TYPE	STATION	NORTH	EAST
POT	10+00.00	816022.5450	1783199.8823
TS	17+88.90	815260.2910	1782996.5961
SC	19+88.90	815067.8180	1782942.3044
CS	27+41.96	814397.6857	1782605.9823
ST	29+41.96	814239.1330	1782484.1033
TS	44+57.24	813051.1080	1781543.5302
SC	46+57.24	812892.5554	1781421.6511
CS	63+35.51	811308.3485	1780988.9950
ST	65+35.51	811109.8550	1781013.3627
POT	66+27.47	811018.7563	1781025.8716

Y1

TYPE	STATION	NORTH	EAST
POT	10+00.00	815340.3045	1781644.6370
PC	13+31.42	815068.1568	1781833.7785
PT	24+75.55	814279.9711	1782652.8688
POT	38+15.79	813557.9661	1783782.0080

Y2

TYPE	STATION	NORTH	EAST
POT	10+00.00	812133.1360	1781059.3073
PC	10+34.03	812142.3371	1781026.5427
PT	11+90.33	812256.8585	1780935.4740
POT	17+09.07	812775.0266	1780911.3082

Y3

TYPE	STATION	NORTH	EAST
POT	10+00.00	811271.6594	1780992.7120
POT	13+51.33	811265.8035	1780641.4264

Y4

TYPE	STATION	NORTH	EAST
POT	10+00.00	814218.2124	1782749.4530
PC	12+95.61	813926.2106	1782703.3788
PRC	14+96.32	813734.6047	1782645.7340
PCC	17+87.22	813455.1782	1782569.4934
PCC	21+27.66	813177.3371	1782726.4519
PT	23+11.03	813133.7505	1782903.3621
POT	25+70.18	813121.9538	1783162.2391

Y6

TYPE	STATION	NORTH	EAST
POT	10+00.00	815708.3328	1780992.9543
POT	14+65.22	815710.5784	1780527.7390

Y7

TYPE	STATION	NORTH	EAST
POT	10+00.00	815704.9524	1780048.8972
PC	11+75.73	815705.3668	1780224.6275
PT	12+51.20	815670.6456	1780288.0707
PC	14+36.28	815514.5194	1780387.4688
PT	15+94.27	815364.7807	1780430.6642
POT	17+10.00	815249.0526	1780430.0579

DR1

TYPE	STATION	NORTH	EAST
POT	10+00.00	814480.6246	1782845.5874
PC	10+27.00	814487.8144	1782819.5623
PT	11+11.38	814521.3504	1782742.4385
POT	11+56.21	814544.8162	1782704.2332

YRPA

TYPE	STATION	NORTH	EAST
TS	10+00.00	812409.8538	1782782.7757
SC	13+00.00	812646.7090	1782599.1463
CS	17+66.89	813084.9968	1782450.9625
SRS	20+66.89	813384.6886	1782453.1871
SC	22+66.89	813583.9588	1782446.9235
CS	24+29.28	813730.6995	1782380.3738
ST	26+29.28	813866.6939	1782234.5885
POT	26+64.84	813888.5456	1782206.5391

YRPD

TYPE	STATION	NORTH	EAST
POT	10+00.00	812080.1699	1782758.3589
TS	13+75.00	812345.4730	1782493.3319
SC	16+75.00	812546.1744	1782270.7924
CS	18+81.63	812649.0150	1782092.0271
SRS	21+81.63	812740.5038	1781806.6595
SC	23+73.63	812797.2537	1781623.3805
PT	25+64.79	812890.3669	1781457.0140
POT	25+94.64	812908.0973	1781433.0007

-L- PROPOSED NEW R/W MONUMENT

ALIGN	STATION	OFFSET	NORTH	EAST
L	37+45.01	185.01	815240.6558	1780457.8394

-Y- PROPOSED NEW R/W MONUMENTS

ALIGN	STATION	OFFSET	NORTH	EAST
Y	19+88.90	37.17	815078.9251	1782906.8294
Y	19+88.90	50.00	815082.7591	1782894.5890
Y	26+10.07	-75.00	814466.1577	1782743.4099
Y	27+41.96	-75.00	814353.6971	1782666.7278
Y	27+60.77	-75.00	814338.0444	1782655.2994
Y	27+41.96	50.00	814427.0114	1782565.4854
Y	27+64.73	50.00	814409.0039	1782552.3158
Y	28+56.88	-100.00	814244.5159	1782615.6265
Y	28+66.99	75.00	814344.2031	1782471.4382
Y	29+41.96	75.00	814285.6873	1782425.3011
Y	29+41.96	-100.00	814177.0605	1782562.5061
Y	31+50.00	110.00	814144.3053	1782268.7261
Y	32+25.00	-100.00	813955.1510	1782386.8177
Y	36+93.88	110.00	813717.8839	1781931.1233
Y	41+25.00	155.27	813407.9759	1781628.0287
Y	42+00.00	135.00	813336.5933	1781597.3645
Y	43+73.00	135.00	813200.9563	1781489.9792
Y	43+73.00	200.00	813241.3034	1781439.0173
Y	44+31.00	200.00	813195.8297	1781403.0153
Y	44+31.00	145.00	813161.6899	1781446.1369
Y	44+57.24	141.00	813138.6341	1781432.9852
Y	46+57.24	110.00	812957.0761	1781332.5608
Y	47+40.09	-75.00	812782.8075	1781436.5367
Y	51+75.00	100.00	812482.4060	1781074.9459
Y	54+18.02	75.00	812237.2482	1781011.3934
Y	53+40.00	-75.00	812264.6260	1781178.2168
Y	55+25.00	-45.00	812100.8571	1781097.3077
Y	59+00.00	-45.00	811739.0338	1781033.7636
Y	60+00.00	-40.00	811641.4783	1781021.7237
Y	63+35.51	-40.00	811312.0894	1781028.8197
Y	65+35.51	-30.00	811113.9360	1781043.0838

-Y4- PROPOSED NEW R/W MONUMENTS

ALIGN	STATION	OFFSET	NORTH	EAST
Y4	15+81.47	-30.00	813645.7653	1782642.4580
Y4	15+79.85	30.00	813666.9764	1782586.3091
Y4	17+87.22	30.00	813458.3149	1782539.6579
Y4	17+87.22	-30.00	813452.0415	1782599.3290
Y4	21+27.41	-30.00	813204.6059	1782738.9606
Y4	21+27.42	30.00	813150.2776	1782713.4962

-Y6- PROPOSED NEW R/W MONUMENTS

ALIGN	STATION	OFFSET	NORTH	EAST
Y6	13+21.67	27.99	815737.8784	1780671.4278
Y6	12+91.70	-30.00	815679.7411	1780701.1171
Y6	12+55.00	-30.00	815679.5640	1780737.8125
Y6	12+55.00	-65.00	815644.5644	1780737.6435
Y6	11+95.00	-65.00	815644.2748	1780797.6428
Y6	11+95.00	-30.00	815679.2744	1780797.8118

-YRPA- PROPOSED NEW R/W MONUMENTS

ALIGN	STATION	OFFSET	NORTH	EAST
YRPA	24+29.28	75.00	813775.6274	1782440.4279
YRPA	17+66.89	75.00	813091.9309	1782525.6413
YRPA	22+66.89	75.00	813599.5386	1782520.2875
YRPA	20+66.89	75.00	813380.3862	1782528.0636
YRPA	13+94.53	75.00	812762.7065	1782619.8713

-YRPD- PROPOSED NEW R/W MONUMENTS

ALIGN	STATION	OFFSET	NORTH	EAST
YRPD	16+17.79	-75.00	812453.0640	1782268.6984
YRPD	16+75.00	-75.00	812485.5577	1782226.6266
YRPD	18+81.63	-75.00	812580.3622	1782061.8312
YRPD	19+76.00	-80.00	812607.5248	1781978.0439
YRPD	19+76.00	-140.00	812550.7932	1781958.5113
YRPD	20+40.00	-140.00	812568.7237	1781902.7278
YRPD	20+40.00	-102.00	812605.1041	1781913.7032
YRPD	21+81.63	-100.00	812643.8169	1781781.1323
YRPD	23+73.63	-100.00	812704.5548	1781585.8718

-Y- PROPOSED PERMANENT UTILITY EASEMENTS

ALIGN	STATION	OFFSET	NORTH	EAST
Y	15+79.00	30.00	815470.8289	1783021.6961
Y	15+84.00	58.00	815473.2129	1782993.3532
Y	15+95.00	58.00	815462.5844	1782990.5187
Y	16+07.00	40.00	815446.3513	1783004.8186
Y	17+14.50	-30.00	815324.4458	1783044.7541
Y	18+05.00	-76.00	815225.1265	1783065.8728
Y	18+18.00	-76.00	815212.5211	1783062.5034
Y	18+18.00	-65.00	815215.3653	1783051.8775
Y	64+75.00	-33.83	811174.2880	1781038.7394
Y	65+70.00	-56.00	811083.3084	1781073.5333
Y	65+75.00	-30.00	811074.8180	1781048.4552
Y	63+26.00	71.00	811311.4807	1780917.4095

-Y1- PROPOSED PERMANENT UTILITY EASEMENTS

ALIGN	STATION	OFFSET	NORTH	EAST
Y1	14+18.00	90.00	814944.2623	1781811.9060
Y1	17+41.00	75.00	814698.3772	1782035.5132
Y1	17+41.00	86.00	814690.8905	1782027.4540
Y1	17+52.00	86.00	814682.6070	1782035.1785
Y1	17+52.00	75.00	814690.1242	1782043.2091
Y1	19+76.00	75.00	814528.5902	1782206.5658
Y1	19+76.00	86.00	814520.4757	1782199.1391
Y1	19+87.00	86.00	814512.8447	1782207.5087
Y1	19+87.00	75.00	814520.9873	1782214.9046
Y1	21+06.00	75.00	814440.7857	1782306.9293
Y1	21+06.00	86.00	814432.3466	1782299.8737
Y1	21+17.00	86.00	814425.0983	1782308.5769
Y1	21+17.00	75.00	814433.5641	1782315.6004
Y1	22+47.00	75.00	814350.7412	1782420.1127
Y1	22+47.00	86.00	814341.9691	1782413.4756
Y1	22+58.00	86.00	814335.1524	1782422.5208
Y1	22+58.00	75.00	814343.9495	1782429.1245
Y1	22+90.25	75.00	814324.2348	1782455.6941
Y1	24+61.18	75.00	814224.7566	1782600.0663
Y1	24+92.00	75.00	814207.9232	1782626.3234
Y1	24+92.00	86.00	814198.6559	1782620.3975
Y1	25+04.00	86.00	814192.1913	1782630.5074
Y1	25+04.00	75.00	814201.4587	1782636.4332
Y1	31+52.00	75.00	813852.3728	1783182.3664
Y1	33+53.82	70.00	813747.8618	1783355.0920
Y1	25+90.26	75.00	814154.9895	1782709.1061
Y1	26+56.03	75.00	814119.5590	1782764.5157

-Y2- PROPOSED PERMANENT UTILITY EASEMENTS

ALIGN	STATION	OFFSET	NORTH	EAST
Y2	16+57.00	-30.00	812721.6196	1780883.7664
Y2	16+57.00	-49.00	812720.7344	1780864.7870

-Y3- PROPOSED PERMANENT UTILITY EASEMENTS

ALIGN	STATION	OFFSET	NORTH	EAST
Y3	11+68.00	-30.00	811238.8634	1780825.2354
Y3	11+62.00	-52.00	811216.9665	1780831.6013
Y3	11+52.00	-52.00	811217.1331	1780841.5999
Y3	11+39.00	-30.00	811239.3468	1780854.2314
Y3	10+93.00	30.00	811300.1051	1780899.2249

-Y7- PROPOSED PERMANENT UTILITY EASEMENTS

ALIGN	STATION	OFFSET	NORTH	EAST
Y7	12+09.88	25.83	815674.5829	1780246.3218
Y7	12+72.00	60.00	815620.8746	1780248.6297
Y7	12+77.00	51.00	815621.4903	1780258.9069
Y7	12+77.00	32.45	815631.4542	1780274.5574

-DR1- PROPOSED PERMANENT UTILITY EASEMENTS

ALIGN	STATION	OFFSET	NORTH	EAST
DR1	10+03.00	-26.00	814456.3623	1782835.7722
DR1	10+24.28	-81.00	814409.0142	1782800.6168

-Y- PROPOSED PERMANENT DRAINAGE EASEMENTS

ALIGN	STATION	OFFSET	NORTH	EAST
Y	65+89.00	-30.00	811060.9481	1781050.3597
Y	65+89.00	-44.00	811062.8526	1781064.2295
Y	66+09.00	-44.00	811043.0385	1781066.9502
Y	66+09.00	-30.00	811041.1341	1781053.0804

-Y1- PROPOSED PERMANENT DRAINAGE EASEMENTS

ALIGN	STATION	OFFSET	NORTH	EAST
Y1	13+20.00	50.00	815048.9989	1781786.2035
Y1	13+99.00	64.00	814975.3774	1781821.3012
Y1	13+36.00	-50.02	815093.0100	1781877.4264
Y1	13+98.00	-68.00	815054.0040	1781927.3335
Y1	16+50.00	-67.00	814861.0928	1782080.0761
Y1	17+40.00	-50.70	814784.6465	1782126.9347

-Y- PROPOSED DRAINAGE UTILITY EASEMENTS

ALIGN	STATION	OFFSET	NORTH	EAST
Y	63+26.00	32.19	811314.9479	1780956.0654
Y	63+26.00	55.00	811312.9101	1780933.3456

-Y1- PROPOSED DRAINAGE UTILITY EASEMENTS

ALIGN	STATION	OFFSET	NORTH	EAST
Y1	14+04.00	49.81	814979.6381	1781835.7615
Y1	14+09.09	64.29	814966.8893	1781827.1644
Y1	14+74.00	67.00	814912.2281	1781864.9224
Y1	15+00.00	49.62	814901.9642	1781894.9276

-Y3- PROPOSED DRAINAGE UTILITY EASEMENTS

ALIGN	STATION	OFFSET	NORTH	EAST
Y3	10+58.00	30.00	811300.6885	1780934.2201

NOTES

1. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:

   HTTP://WWW.DOH.DOT.STATE.NC.US/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/

   THE FILES TO BE FOUND ARE AS FOLLOWS:

   R2612B_LS_CONTROL.TXT

2. SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

(symbol) INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.

PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM FROM EXISTING NCGS MONUMENTATION.

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "GARDEN RESET"
WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF
NORTHING: 814371.7640(ft) EASTING: 1782615.8080(ft)
ELEVATION: 807.16'(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9999206900
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "GARDEN RESET" TO -L- STATION 29+25.00 IS
N 55° 33' 59.3" W 2,942.52'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

NOTE: DRAWING NOT TO SCALE

31-JUL-2012 09:33
R:\Roadway\Proj\r2612b_ls_1e.dgn

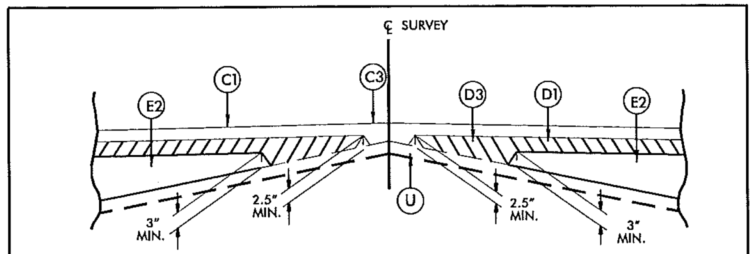
PROJECT REFERENCE NO.	SHEET NO.
R-2612B	2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

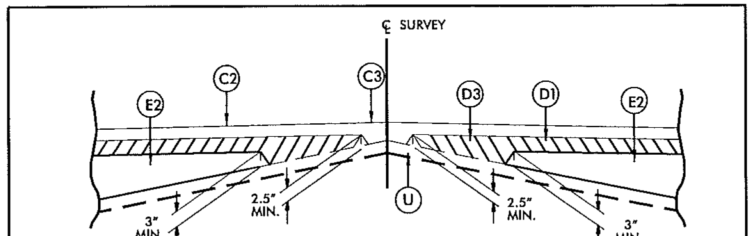
PRELIMINARY PAVEMENT SCHEDULE

C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.
C4	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
D1	PROP. APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
D2	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D3	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2.5" IN DEPTH OR GREATER THAN 4" IN DEPTH.
D4	PROP. APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5.5" IN DEPTH.
E3	PROP. APPROX. 9" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
K	BASE TO BE TREATED WITH LIME TO A DEPTH OF 8", AT A RATE OF 20 LBS PER SQ. YD. AS DIRECTED BY THE ENGINEER OR BASE TO BE TREATED WITH CEMENT TO A DEPTH OF 7", AT A RATE OF 55 LBS PER SQ. YD. AS DIRECTED BY THE ENGINEER
R1	2'-6" CONCRETE CURB AND GUTTER.
R2	5" MONOLITHIC CONCRETE ISLAND KEYED-IN.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W1	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL NO. 1)
W2	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL NO. 2)
W3	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL NO. 3)

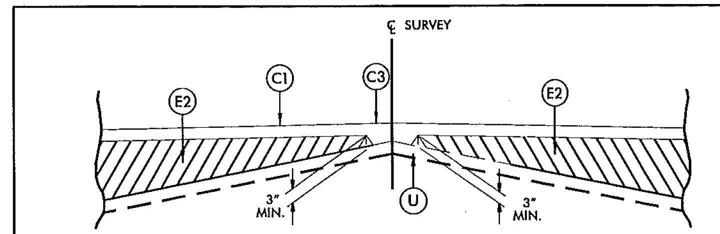
PAVEMENT EDGE SLOPES ARE 1:1 UNLESS OTHERWISE NOTED



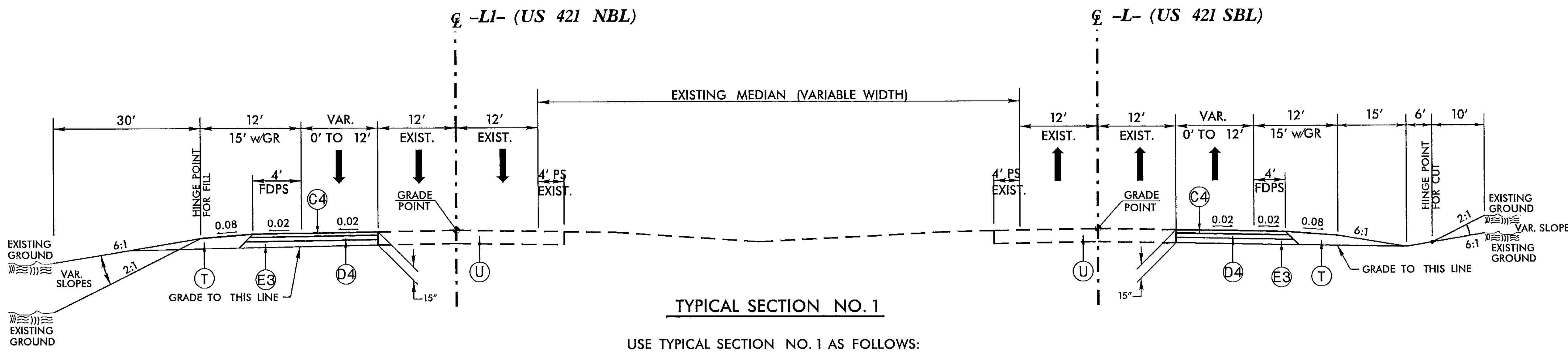
Detail No. 1 Showing Method of Wedging



Detail No. 2 Showing Method of Wedging



Detail No. 3 Showing Method of Wedging



TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1 AS FOLLOWS:

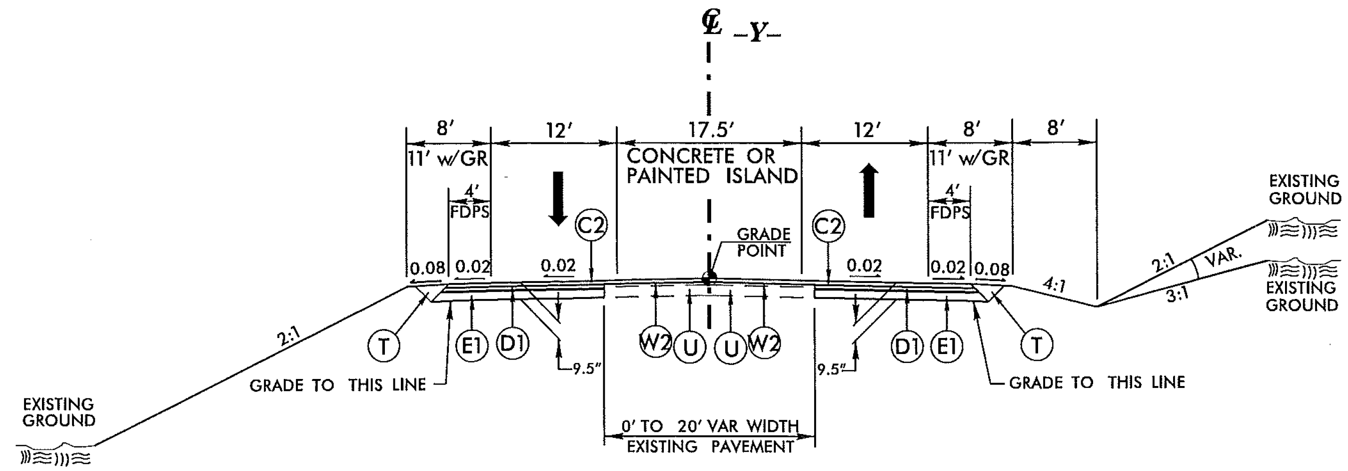
-L1- STA. 47+61.37 TO STA. 59+71.37 LT.
-L- STA. 53+60.02 TO STA. 61+00.00 RT.
-L1- STA. 61+45.60 TO STA. 70+37.68 LT.
-L- STA. 76+50.00 TO STA. 85+30.00 RT.

6/99
31-JUL-2012 09:33
R:\Roadway\Proj\R2612B_Rdy_typ.dgn
$$$$USERNAME$$$$

C1	1.5" S9.5B
C2	3" S9.5B
C3	VAR. S9.5B
C4	3" S9.5C
D1	2.5" I19.0B
D2	4" I19.0B
D3	VAR. I19.0B
D4	3" I19.0C
E1	4" B25.0B
E2	VAR. B25.0B
E3	9" B25.0C
K	SUBGRADE STABILIZATION
R1	2'-6" C & G
R2	5" MONO. ISLAND KEYED-IN
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W1	WEDGING DETAIL NO. 1
W2	WEDGING DETAIL NO. 2
W3	WEDGING DETAIL NO. 3

PROJECT REFERENCE NO.	SHEET NO.
R-2612B	2-A
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

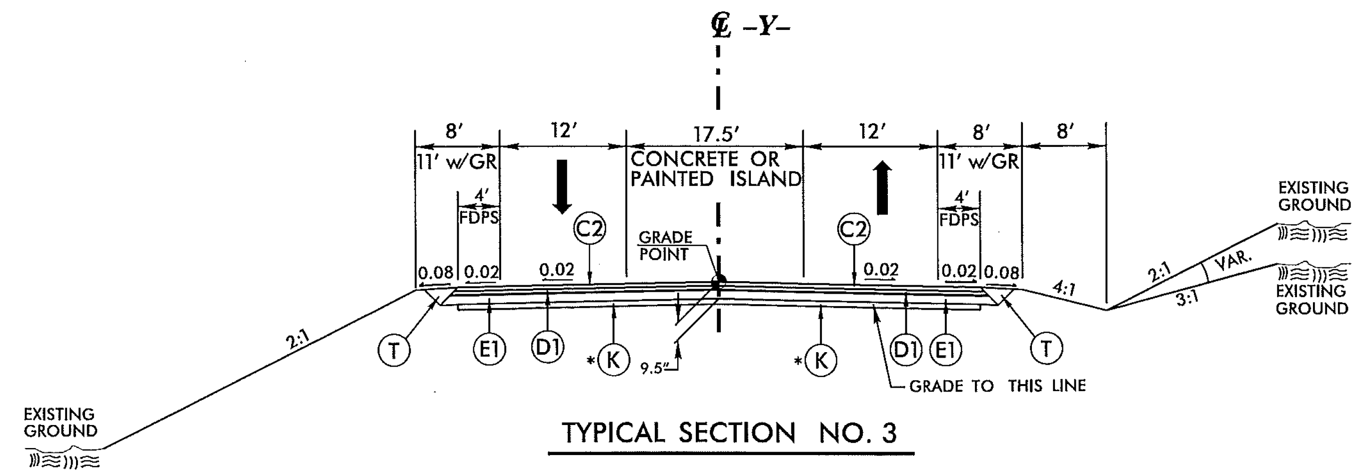


TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2 AS FOLLOWS:

TRANSITION FROM EXISTING AT -Y- STA. 17+35.00 TO TYPICAL NO. 2 AT -Y- STA. 21+03.53

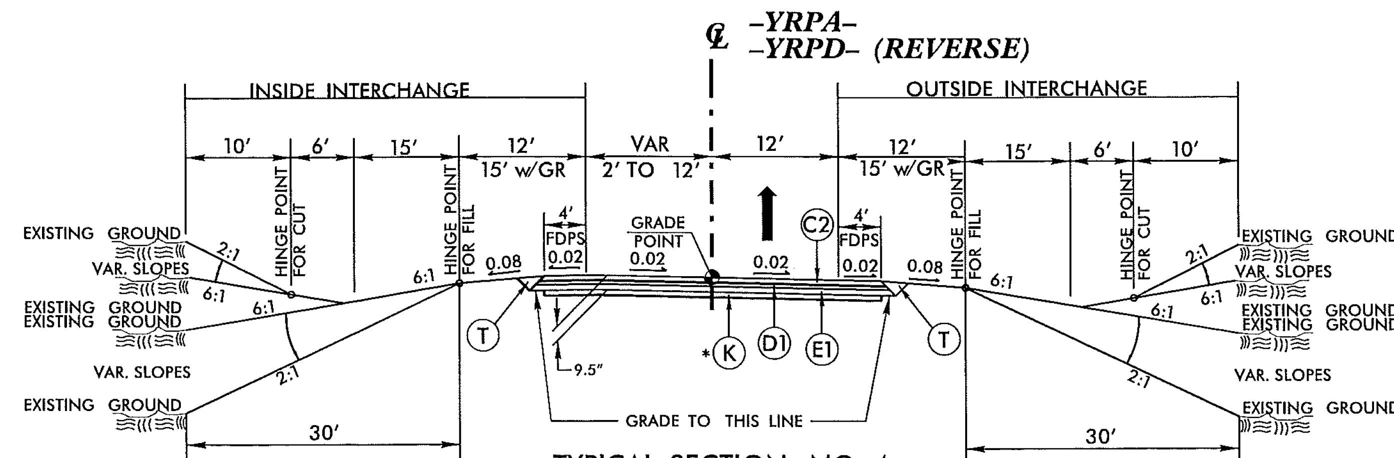
TRANSITION FROM TYPICAL NO. 2 AT -Y- STA. 60+85.01 TO EXISTING AT -Y- STA. 65+40.00



TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3 AS FOLLOWS:

-Y- STA. 21+03.53 TO STA. 29+00.00
* -Y- STA. 29+00.00 TO STA. 37+80 +/- (BEGIN BRIDGE)
* -Y- STA. 41+25 +/- (END BRIDGE) TO STA. 53+00.00
-Y- STA. 53+00.00 TO STA. 60+85.01



TYPICAL SECTION NO. 4

USE TYPICAL SECTION NO. 4 AS FOLLOWS:

-YRPA- STA. 10+00.00 TO STA. 20+00.00
* -YRPA- STA. 20+00.00 TO STA. 26+32.09
-YRPD- STA. 10+00.00 TO STA. 16+50.00 (REVERSE)
* -YRPD- STA. 16+50.00 TO STA. 25+73.89 (REVERSE)

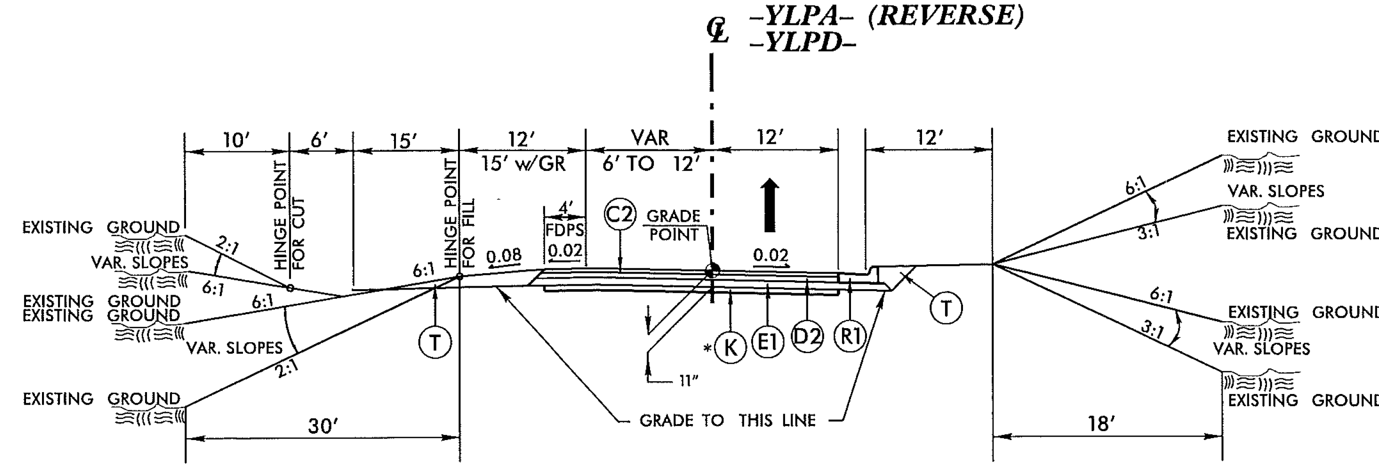
6299

31-JUL-2012 09:33
R:\Roadway\Proj\R2612B_Rdy_typ.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
R-2612B	2-B
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

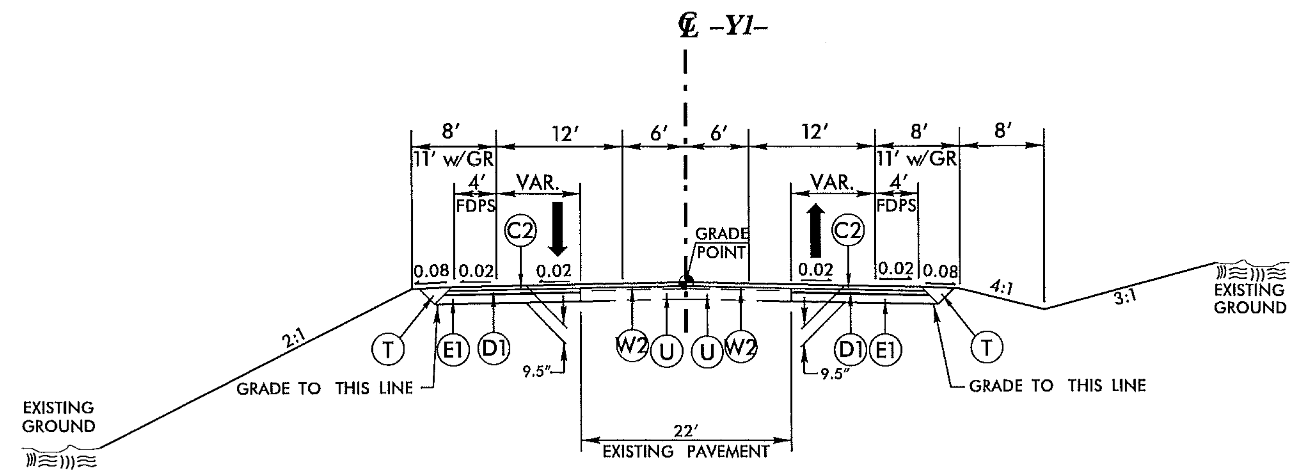
C1	1.5" S9.5B
C2	3" S9.5B
C3	VAR. S9.5B
C4	3" S9.5C
D1	2.5" I19.0B
D2	4" I19.0B
D3	VAR. I19.0B
D4	3" I19.0C
E1	4" B25.0B
E2	VAR. B25.0B
E3	9" B25.0C
K	SUBGRADE STABILIZATION
R1	2'-6" C & G
R2	5" MONO. ISLAND KEYED-IN
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W1	WEDGING DETAIL NO. 1
W2	WEDGING DETAIL NO. 2
W3	WEDGING DETAIL NO. 3



TYPICAL SECTION NO. 5

USE TYPICAL SECTION NO. 5 AS FOLLOWS:

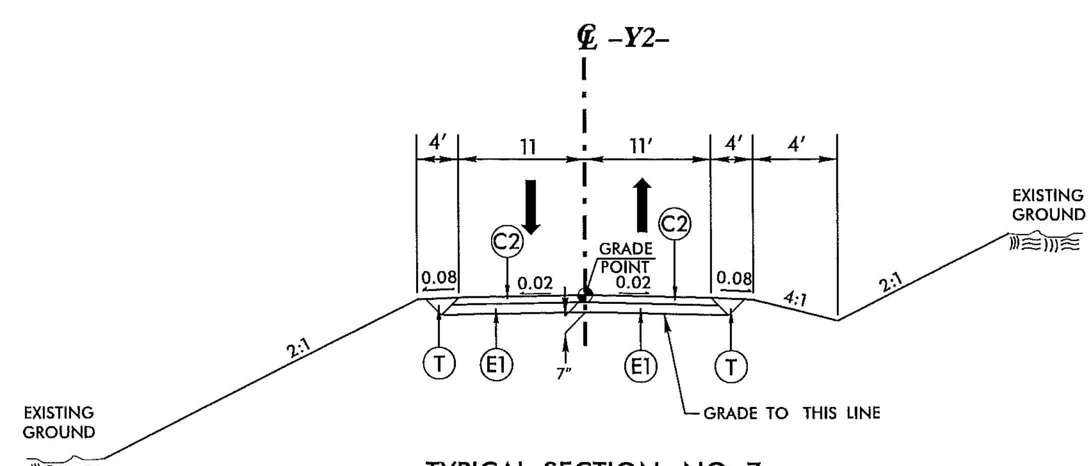
-YLPA- STA. 10+00.00 TO STA. 12+50.00 (REVERSE)
* -YLPD- STA. 12+50.00 TO STA. 20+65.01 (REVERSE)
-YLPD- STA. 10+00.00 TO STA. 12+25.00
* -YLPD- STA. 12+25.00 TO STA. 18+79.11



TYPICAL SECTION NO. 6

USE TYPICAL SECTION NO. 6 AS FOLLOWS:

TRANSITION FROM EXISTING AT -Y1- STA. 12+00.00
TO TYPICAL NO. 6 AT -Y1- STA. 16+35.00
-Y1- STA. 16+35.00 TO STA. 30+65.00
TRANSITION FROM TYPICAL NO. 6 AT -Y1- STA. 30+65.00
TO EXISTING AT -Y1- STA. 35+00.00



TYPICAL SECTION NO. 7

USE TYPICAL SECTION NO. 7 AS FOLLOWS:

-Y2- STA. 10+20.75 TO STA. 11+37.10

8/17/99
6/2/99

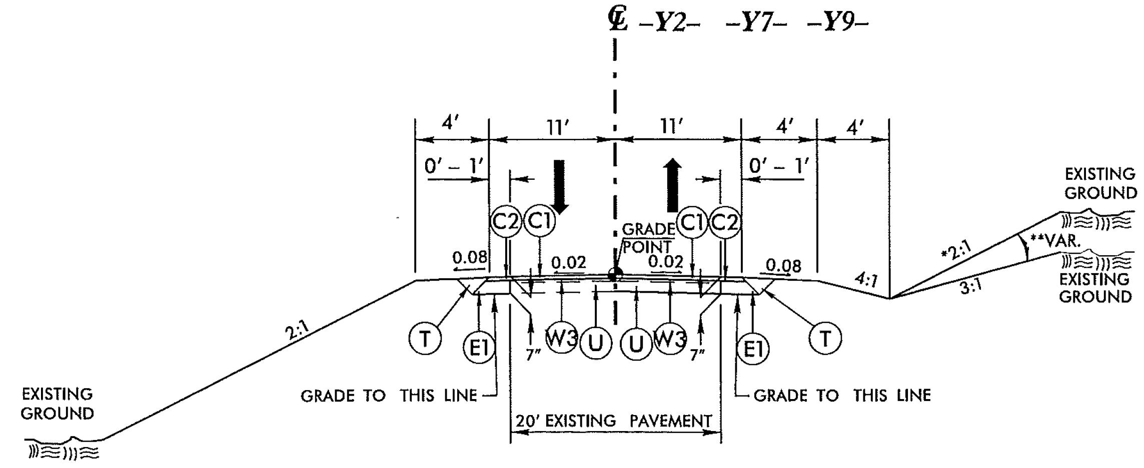
31-JUL-2012 09:33
R:\Roadway\Proj\R2612B_Rdy_typ.dgn
$$$$USERNAME$$$$

8/17/99
6/2/99

C1	1.5" S9.5B
C2	3" S9.5B
C3	VAR. S9.5B
C4	3" S9.5C
D1	2.5" I19.0B
D2	4" I19.0B
D3	VAR. I19.0B
D4	3" I19.0C
E1	4" B25.0B
E2	VAR. B25.0B
E3	9" B25.0C
K	SUBGRADE STABILIZATION
R1	2'-6" C & G
R2	5" MONO. ISLAND KEYED-IN
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W1	WEDGING DETAIL NO. 1
W2	WEDGING DETAIL NO. 2
W3	WEDGING DETAIL NO. 3

PROJECT REFERENCE NO.	SHEET NO.
R-2612B	2-C
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



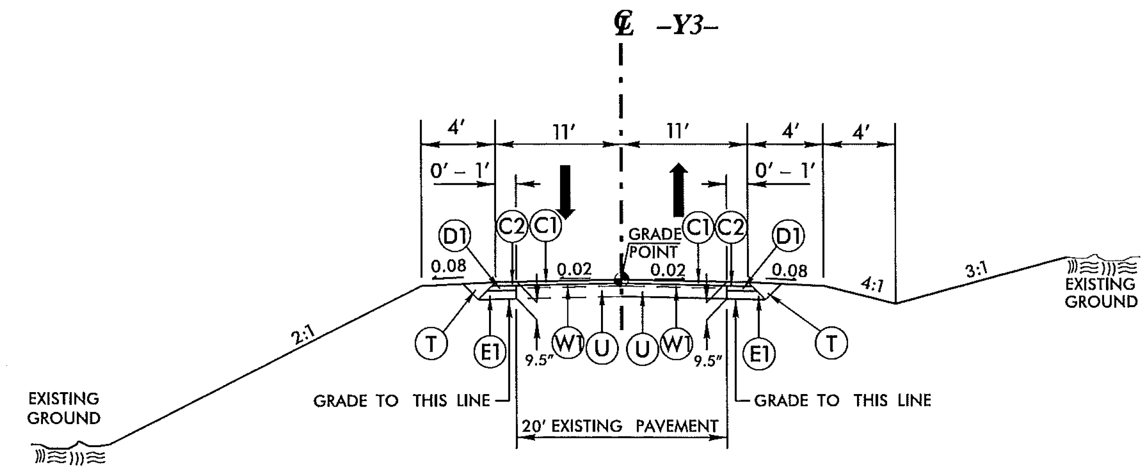
TYPICAL SECTION NO. 8

USE TYPICAL SECTION NO. 8 AS FOLLOWS:

*-Y2- STA. 11+37.10 TO STA. 12+00.00
TRANSITION FROM TYPICAL NO. 8 AT -Y2- STA. 12+00.00
TO EXISTING AT -Y2- STA. 12+50.00

TRANSITION FROM EXISTING AT -Y7- STA. 11+00.00
TO TYPICAL NO. 8 AT -Y7- STA. 11+50.00
**-Y7- STA. 11+50.00 TO STA. 13+00.00
TRANSITION FROM TYPICAL NO. 8 AT -Y7- STA. 13+00.00
TO EXISTING AT -Y7- STA. 13+50.00

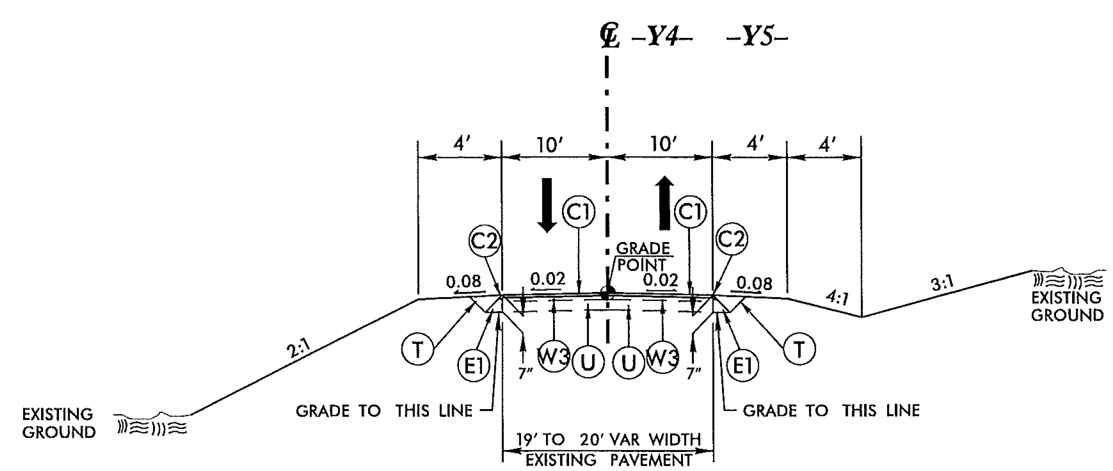
TRANSITION FROM EXISTING AT -Y9- STA. 11+00.00
TO TYPICAL NO. 8 AT -Y9- STA. 11+50.00
-Y9- STA. 11+50.00 TO STA. 15+50.00
TRANSITION FROM TYPICAL NO. 8 AT -Y9- STA. 15+50.00
TO EXISTING AT -Y9- STA. 16+00.00



TYPICAL SECTION NO. 9

USE TYPICAL SECTION NO. 9 AS FOLLOWS:

-Y3- STA. 10+13.09 TO STA. 11+00.00
TRANSITION FROM TYPICAL NO. 9 AT -Y3- STA. 11+00.00
TO EXISTING AT -Y3- STA. 11+50.00



TYPICAL SECTION NO. 10

USE TYPICAL SECTION NO. 10 AS FOLLOWS:

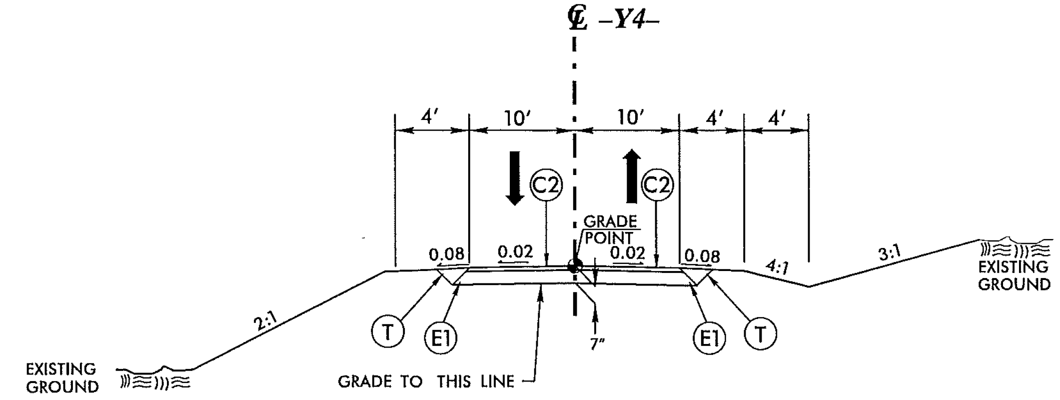
TRANSITION FROM EXISTING AT -Y4- STA. 14+50.00
TO TYPICAL NO. 10 AT -Y4- STA. 15+00.00
-Y4- STA. 15+00.00 TO STA. 16+06.83
-Y4- STA. 20+42.45 TO STA. 20+85.00
TRANSITION FROM TYPICAL NO. 10 AT -Y4- STA. 20+85.00
TO EXISTING AT -Y4- STA. 21+35.00

31-JUL-2012 09:33
R:\Roadway\Proj\R2612B_Rdy_typ.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
R-2612B	2-D
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

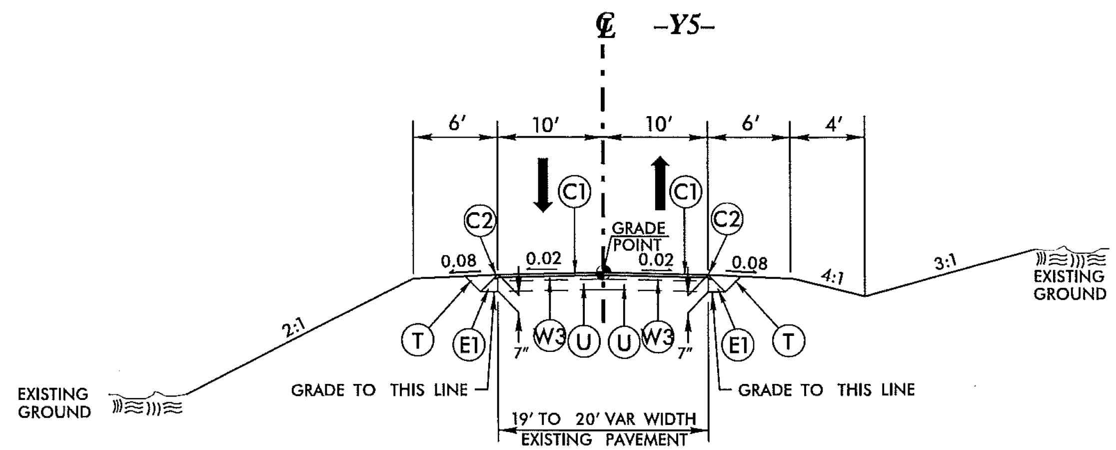
C1	1.5" S9.5B
C2	3" S9.5B
C3	VAR. S9.5B
C4	3" S9.5C
D1	2.5" I19.0B
D2	4" I19.0B
D3	VAR. I19.0B
D4	3" I19.0C
E1	4" B25.0B
E2	VAR. B25.0B
E3	9" B25.0C
K	SUBGRADE STABILIZATION
R1	2'-6" C & G
R2	5" MONO. ISLAND KEYED-IN
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W1	WEDGING DETAIL NO. 1
W2	WEDGING DETAIL NO. 2
W3	WEDGING DETAIL NO. 3



TYPICAL SECTION NO. 11

USE TYPICAL SECTION NO. 11 AS FOLLOWS:

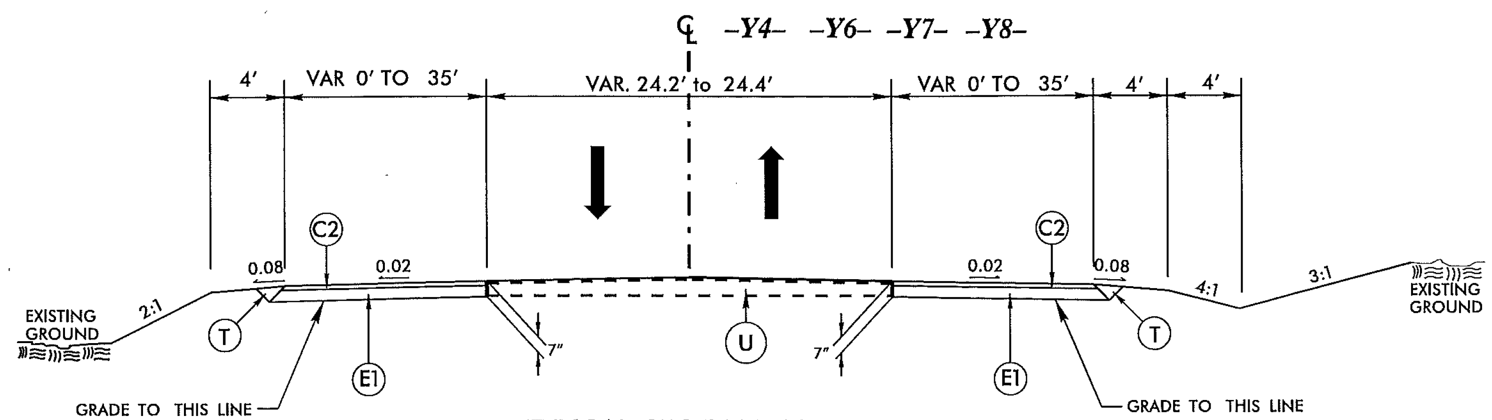
-Y4- STA. 16+06.83 TO STA. 20+42.45



TYPICAL SECTION NO. 12

USE TYPICAL SECTION NO. 12 AS FOLLOWS:

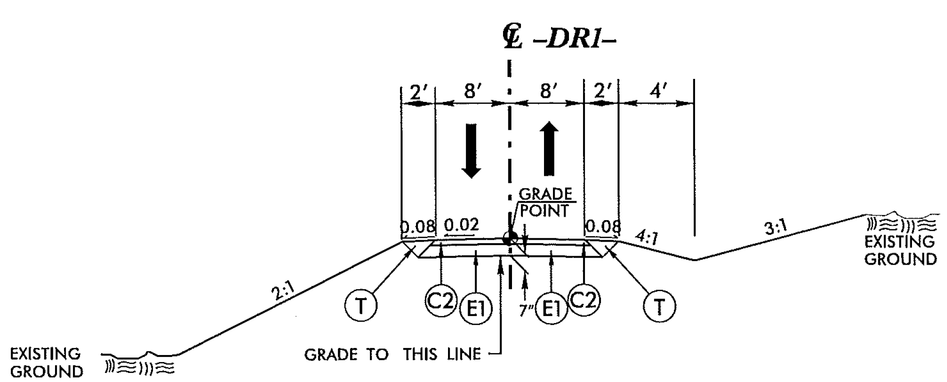
-Y5- STA. 10+12.69 TO 11+50.00
TRANSITION FROM TYPICAL NO. 12 AT -Y5- STA. 11+50.00 TO EXISTING AT -Y5- STA. 12+00.00



TYPICAL SECTION NO. 13

USE TYPICAL SECTION NO. 13 AS FOLLOWS:

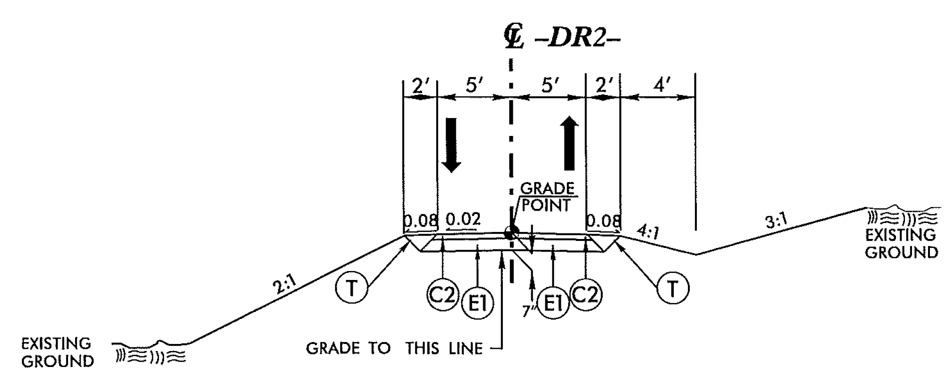
-Y4- STA. 11+00.00 TO STA. 12+00.00
-Y6- STA. 11+95.00 TO STA. 12+90.00
-Y7- STA. 16+00.00 TO STA. 16+92.51
-Y8- STA. 11+20.00 TO STA. 12+15.00



TYPICAL SECTION NO. 14

USE TYPICAL SECTION NO. 14 AS FOLLOWS:

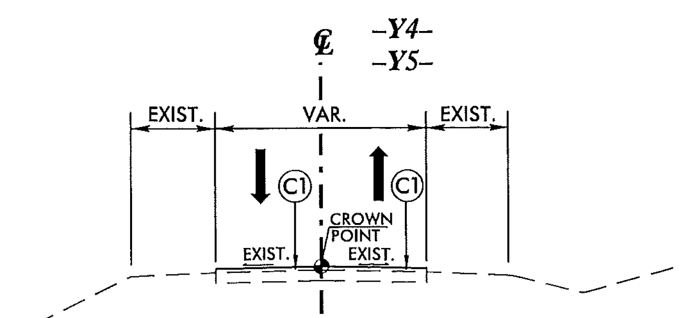
-DR1- STA. 10+27.00 TO STA. 11+35.46



TYPICAL SECTION NO. 15

USE TYPICAL SECTION NO. 15 AS FOLLOWS:

-DR2- STA. 10+11.00 TO STA. 11+64.54



TYPICAL SECTION NO. 16

USE TYPICAL SECTION NO. 16 AS FOLLOWS:

-Y4- STA. 12+00.00 TO STA. 14+50.00
-Y4- STA. 21+35.00 TO STA. 25+59.90
-Y5- STA. 12+00.00 TO STA. 19+60.94

31-JUL-2012 09:33
R:\Roadway\Proj\R2612B_Rdy_typ.dgn
$$$$USERNAME$$$$

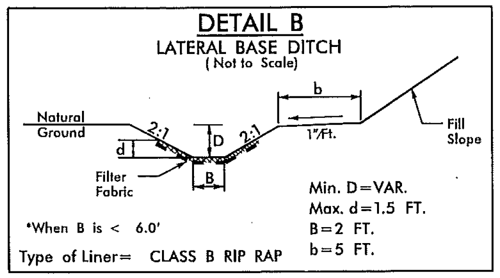
8/17/99
6/2/99

PROJECT REFERENCE NO.	SHEET NO.
R-2612B	2-E
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

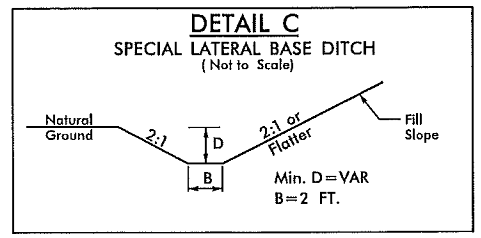
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

8/17/99

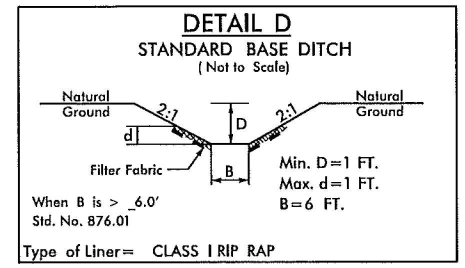
REVISIONS



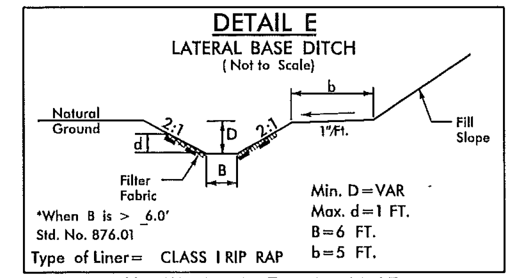
-Y- STA 29+00 TO 33+10 RT.
-YRPD- STA 20+78 TO 25+20 LT.



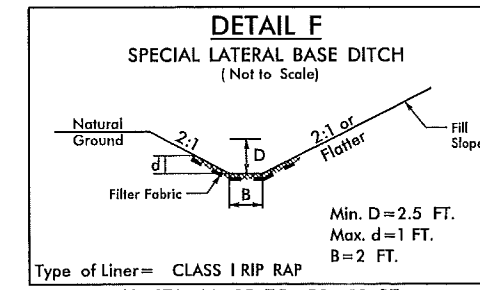
-Y- STA 34+73 TO 37+00 RT.



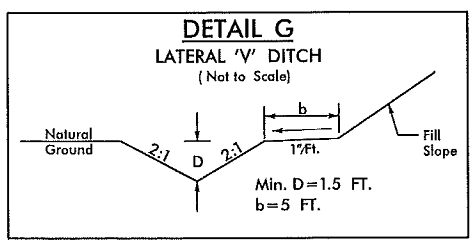
-Y- STA 40+89 TO 41+50 RT.



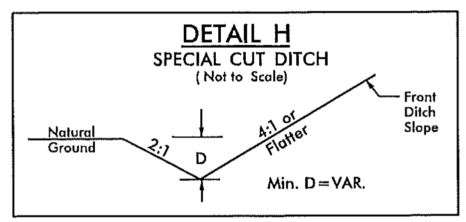
-Y- STA 41+50 TO 41+93 RT.



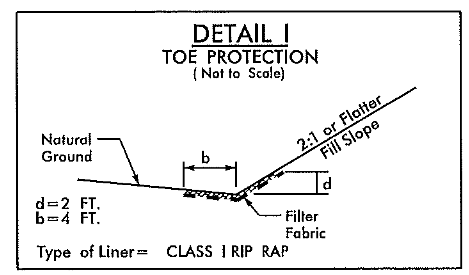
-Y- STA. 44+15 TO 50+00 RT.



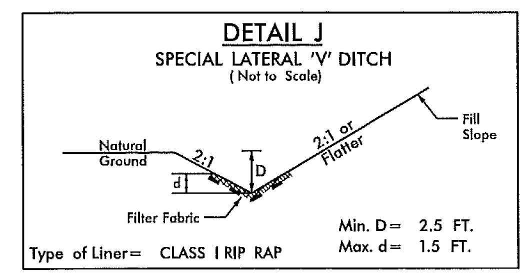
-YRPA- STA 20+00 TO 23+00 RT.



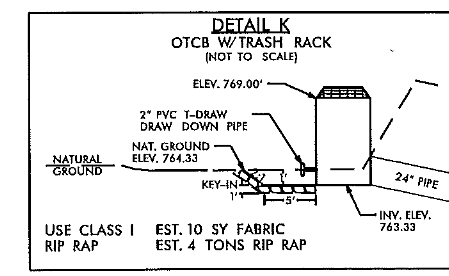
-Y4- STA 17+50 TO 18+50 LT.

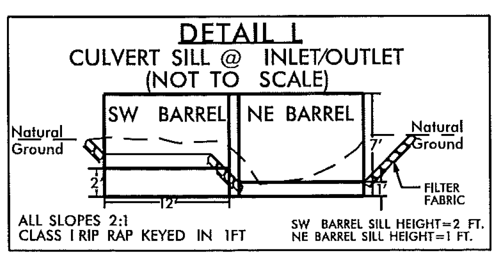


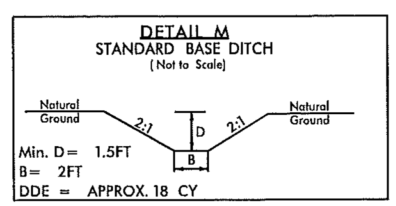
-Y- STA 33+10 TO 34+72 RT.
-Y- STA 41+90 TO 43+82 RT.
-YLPD- STA 13+62 TO 14+50 LT.
-YRPD- STA 18+49 TO 20+79 RT.

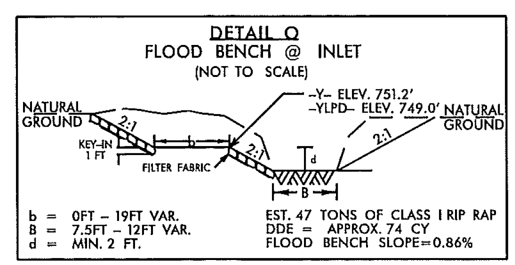


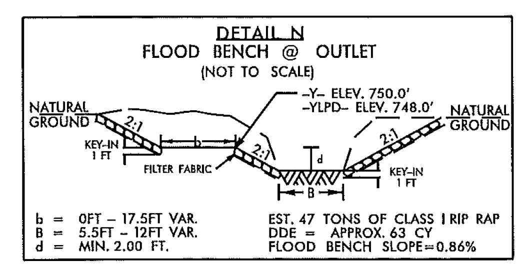
-YLPA- STA 10+50 TO 13+35 LT.

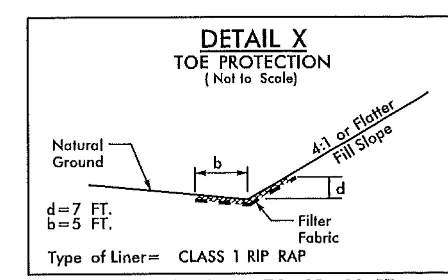






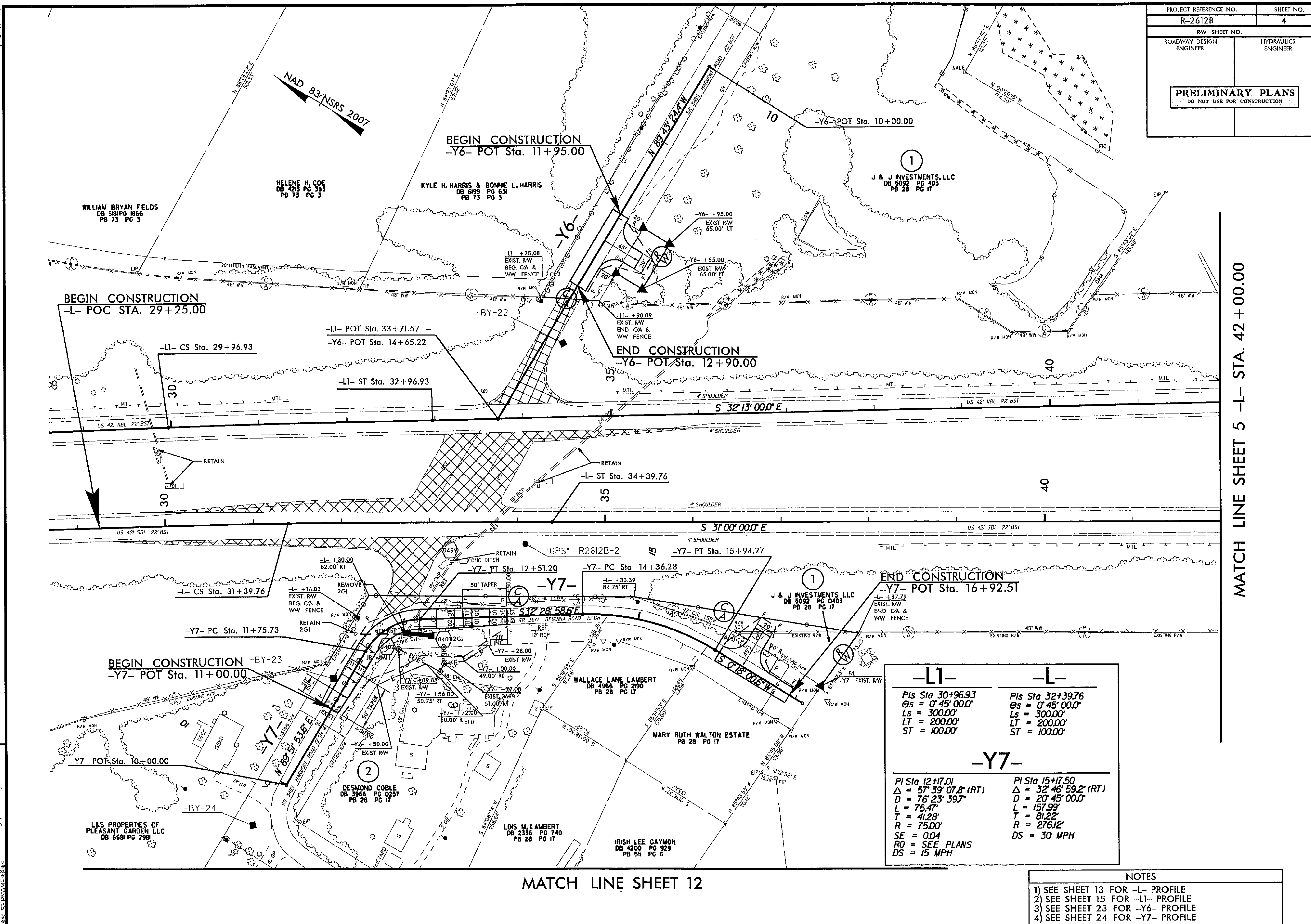



DETAIL N
FLOOD BENCH @ OUTLET
(NOT TO SCALE)
-Y- ELEV. 750.0'
-YLPD- ELEV. 748.0'
NATURAL GROUND
NATURAL GROUND
KEY-IN 1 FT
KEY-IN 1 FT
2:1
b
d
B
FILTER FABRIC
b = 0FT - 17.5FT VAR.
B = 5.5FT - 12FT VAR.
d = MIN. 2.00 FT.
EST. 47 TONS OF CLASS I RIP RAP
DDE = APPROX. 63 CY
FLOOD BENCH SLOPE=0.86%



-YLPA- STA 14+00 TO 15+00 RT.
-YRPA- STA 19+50 TO 20+00 LT.

31-JUL-2012 09:33
R:\Drainage\R2612B_Rdy_typ2E.dgn
$$$$USERNAME$$$$


PROJECT REFERENCE NO. R-2612B
SHEET NO. 4
RW SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
8/17/99
REVISIONS
NAD 83/NSRS 2007
BEGIN CONSTRUCTION
-Y6- POT Sta. 11+95.00
-Y6- POT Sta. 10+00.00
END CONSTRUCTION
-Y6- POT Sta. 12+90.00
BEGIN CONSTRUCTION
-L- POC STA. 29+25.00
-L1- CS Sta. 29+96.93
-L1- POT Sta. 33+71.57 =
-Y6- POT Sta. 14+65.22
-L1- ST Sta. 32+96.93
-L- ST Sta. 34+39.76
-L- CS Sta. 31+39.76
WILLIAM BRYAN FIELDS
DB 5181 PG 1866
PB 73 PG 3
HELENE H. COE
DB 4213 PG 383
PB 73 PG 3
KYLE H. HARRIS & BONNIE L. HARRIS
DB 6199 PG 631
PB 73 PG 3
J & J INVESTMENTS, LLC
DB 5092 PG 403
PB 28 PG 17
S 32°13' 00.0" E
S 31°00' 00.0" E
US 421 NBL 22' BST
US 421 SBL 22' BST
RETAIN
-BY-22
-BY-23
-BY-24
"GPS" R2612B-2
-Y7- PT Sta. 12+51.20
-Y7- PC Sta. 14+36.28
-Y7- PT Sta. 15+94.27
-Y7- PC Sta. 11+75.73
BEGIN CONSTRUCTION
-Y7- POT Sta. 11+00.00
END CONSTRUCTION
-Y7- POT Sta. 16+92.51
-Y7- POT Sta. 10+00.00
SR 3677 BEGONIA ROAD
WALLACE LANE LAMBERT
DB 4966 PG 2190
PB 28 PG 17
MARY RUTH WALTON ESTATE
PB 28 PG 17
DESMOND COBLE
DB 3966 PG 0257
PB 28 PG 17
L&S PROPERTIES OF PLEASANT GARDEN LLC
DB 6681 PG 2981
LOIS M. LAMBERT
DB 2336 PG 740
PB 28 PG 17
IRISH LEE GAYMON
DB 4200 PG 929
PB 55 PG 6
MATCH LINE SHEET 5 -L- STA. 42+00.00
MATCH LINE SHEET 12

-L1-

PIs Sta 30+96.93
Θs = 0°45' 00.0"
Ls = 300.00'
LT = 200.00'
ST = 100.00'

-L-

PIs Sta 32+39.76
Θs = 0°45' 00.0"
Ls = 300.00'
LT = 200.00'
ST = 100.00'

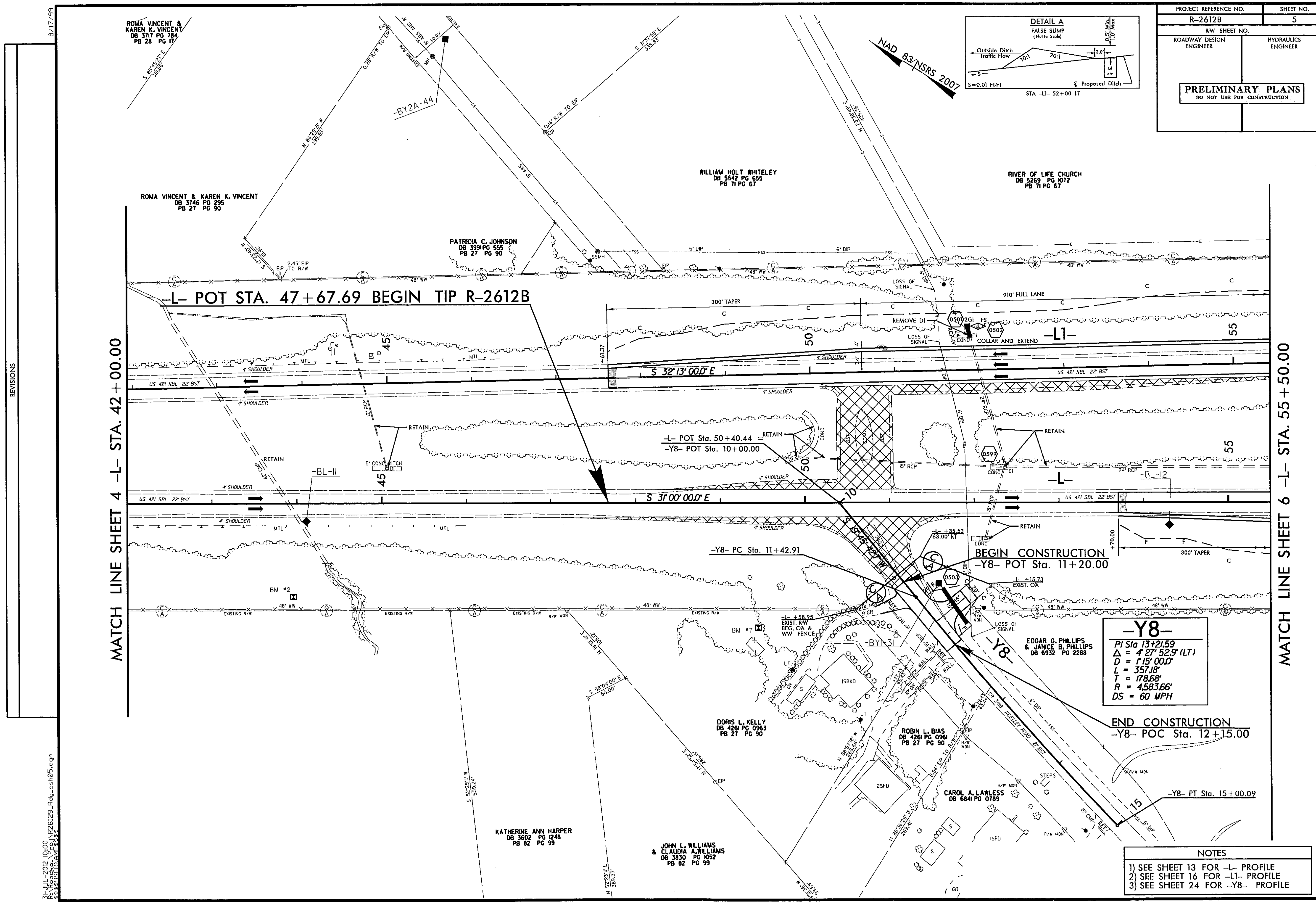
-Y7-

PI Sta 12+17.01
Δ = 57°39' 07.8" (RT)
D = 76°23' 39.7"
L = 75.47'
T = 41.28'
R = 75.00'
SE = 0.04
RO = SEE PLANS
DS = 15 MPH

PI Sta 15+17.50
Δ = 32°46' 59.2" (RT)
D = 20°45' 00.0"
L = 157.99'
T = 81.22'
R = 276.12'
DS = 30 MPH

NOTES

1) SEE SHEET 13 FOR -L- PROFILE
2) SEE SHEET 15 FOR -L1- PROFILE
3) SEE SHEET 23 FOR -Y6- PROFILE
4) SEE SHEET 24 FOR -Y7- PROFILE


PROJECT REFERENCE NO.
R-2612B
SHEET NO.
5
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
DETAIL A
FALSE SUMP
(Not to Scale)
Outside Ditch
Traffic Flow
10:1
20:1
S=0.01 FT/FT
℄ Proposed Ditch
STA -L1- 52+00 LT
NAD 83/NSRS 2007
MATCH LINE SHEET 4 -L- STA. 42+00.00
MATCH LINE SHEET 6 -L- STA. 55+50.00
ROMA VINCENT & KAREN K. VINCENT
DB 3717 PG 784
PB 28 PG 17
ROMA VINCENT & KAREN K. VINCENT
DB 3746 PG 295
PB 27 PG 90
PATRICIA C. JOHNSON
DB 3991 PG 555
PB 27 PG 90
WILLIAM HOLT WHITELEY
DB 5542 PG 655
PB 71 PG 67
RIVER OF LIFE CHURCH
DB 5269 PG 1072
PB 71 PG 67
-BY2A-44
-L- POT STA. 47+67.69 BEGIN TIP R-2612B
300' TAPER
910' FULL LANE
REMOVE DI
COLLAR AND EXTEND
LOSS OF SIGNAL
-L1-
S 32°13' 00.0" E
US 421 NBL 22' BST
4' SHOULDER
RETAIN
-L- POT Sta. 50+40.44
-Y8- POT Sta. 10+00.00
-BL-11
-BL-12
-L-
S 31°00' 00.0" E
US 421 SBL 22' BST
-Y8- PC Sta. 11+42.91
BEGIN CONSTRUCTION
-Y8- POT Sta. 11+20.00
END CONSTRUCTION
-Y8- POC Sta. 12+15.00
-Y8- PT Sta. 15+00.09
-Y8-
PI Sta 13+21.59
Δ = 4°27' 52.9" (LT)
D = 1°15' 00.0"
L = 357.18'
T = 178.68'
R = 4,583.66'
DS = 60 MPH
-BY1-31
BM #2
BM #7
EDGAR G. PHILLIPS & JANICE B. PHILLIPS
DB 6932 PG 2288
DORIS L. KELLY
DB 4261 PG 0963
PB 27 PG 90
ROBIN L. BIAS
DB 4261 PG 0961
PB 27 PG 90
CAROL A. LAWLESS
DB 6841 PG 0789
KATHERINE ANN HARPER
DB 3602 PG 1248
PB 82 PG 99
JOHN L. WILLIAMS & CLAUDIA A. WILLIAMS
DB 3830 PG 1052
PB 82 PG 99
SR 3418 NEELEY ROAD 21' BST
NOTES
1) SEE SHEET 13 FOR -L- PROFILE
2) SEE SHEET 16 FOR -L1- PROFILE
3) SEE SHEET 24 FOR -Y8- PROFILE
REVISIONS
8/17/99
31-JUL-2012 10:00
R:\Roadway\Proj\R2612B_Rdy_psh05.dgn

REVISIONS

05/15/13 – R/W REVISION: UPDATED EXISTING RIGHT OF WAY AT –Y4– STA. 20+25 +/– ON PARCELS 7, 9 AND 10. JBW

MATCH LINE SHEET 8 –Y– STA. 32+25.00

MATCH LINE SHEET 8 –Y4– STA. 15+15.00

MATCH LINE SHEET 5 –L– STA. 55+50.00

MATCH LINE SHEET 9 –Y– STA. 48+00.00

NAD 83/NSRS 2007

END CONSTRUCTION
BEGIN SURFACE OVERLAY
–Y4– BOC Sta. 21+35.00

END SURFACE OVERLAY
–Y5– POT Sta. 19+60.34

–YLPA–

–YRPA–

–YLPD–

–YRPD–

–Y–

–L1–

–L– POC STA. 85+30.00 END TIP R-2612B
END CONSTRUCTION

BEGIN APPROACH SLAB
–Y1– STA. 37+75.06

BEGIN BRIDGE
–Y1– STA. 37+99.00

END BRIDGE
–Y– STA. 41+14.50

END APPROACH SLAB
–Y– STA. 41+38.44

TYPE III

6'

40

20.75

53.5'

4' CONC ISLAND

12.75'

12'

SKETCH OF PAVEMENT IN RELATION TO PROPOSED BRIDGE
NOT TO SCALE

–L–

–L1–

–Y4–

–YRPA–

–YRPD–

–Y–

–YLPA–

–YLPD–

NOTES
1) SEE SHEET 14 FOR –L– PROFILE
2) SEE SHEETS 16 THROUGH 17 FOR –L1– PROFILE
3) SEE SHEETS 18 THROUGH 19 FOR –Y– PROFILE
4) SEE SHEET 20 FOR –YRPA– AND –YRPA– PROFILE
5) SEE SHEET 21 FOR –YRPD– AND –YLPD– PROFILE
6) SEE SHEET 22 FOR –Y4– PROFILE
7) SEE SHEETS 5–7 THROUGH 5–7 FOR STRUCTURE PLANS

GRAPHIC SCALE
50 25 0 50 100
PLANS

FED RECT REFERENCE NO. R-2612B
SHEET NO. 6
STATE SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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

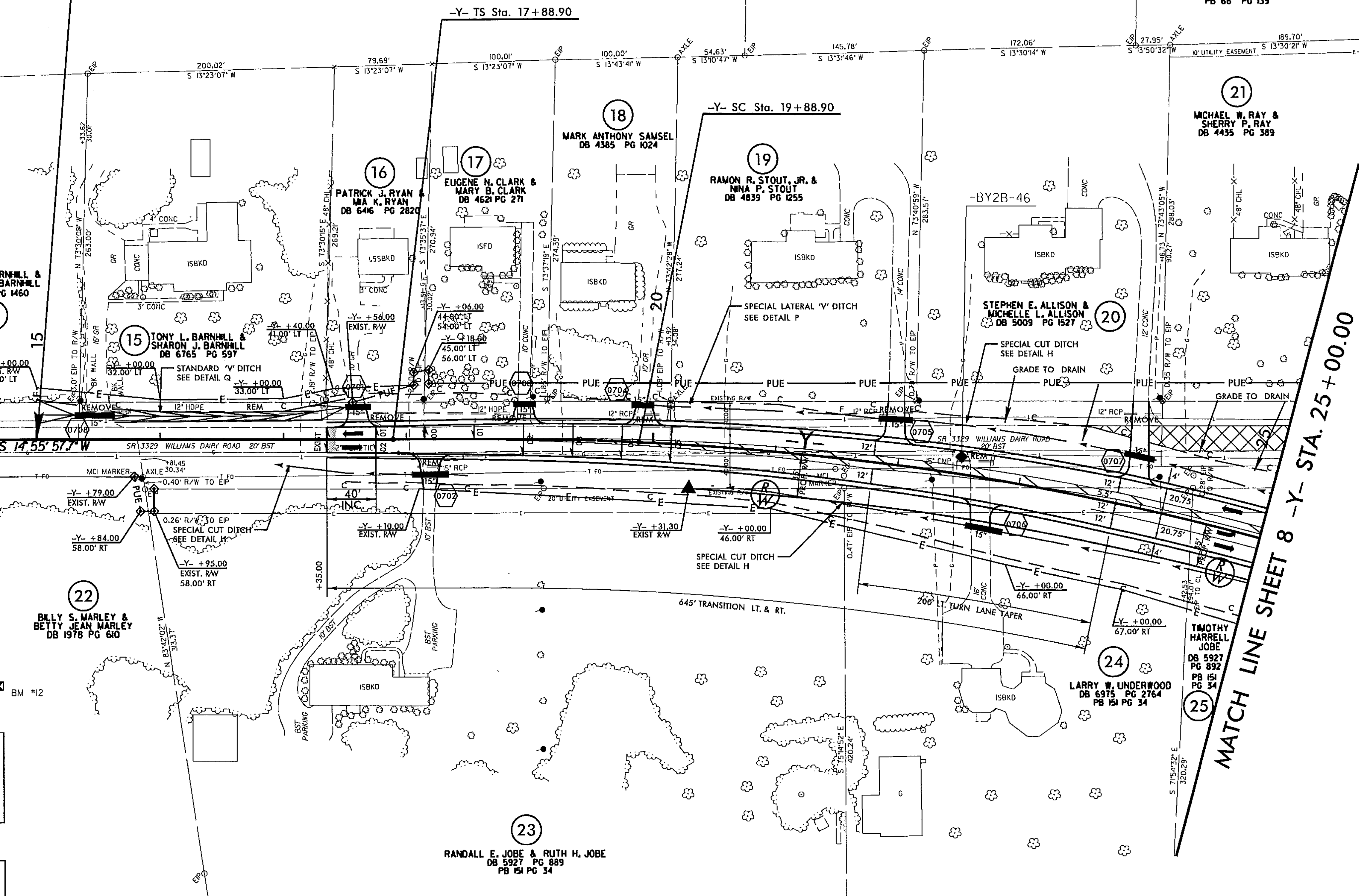
PROJECT REFERENCE NO.	SHEET NO.
R-2612B	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y-

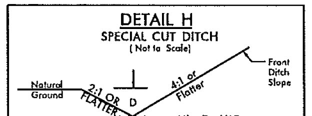
PIs Sta 19+22.24	PI Sta 23+68.74
Θs = 2° 27' 32.6"	Δ = 18° 31' 05.7" (RT)
Ls = 200.00'	D = 2° 27' 32.6"
LT = 133.35'	L = 753.07'
ST = 66.68'	T = 379.85'
	R = 2,330.00'
	SE = 0.05
	RO = SEE PLANS
	DS = 60 MPH

BEGIN CONSTRUCTION -Y- POT Sta. 15+00.00



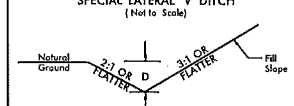
-Y- TS Sta. 17+88.90
-Y- SC Sta. 19+88.90
NAD 83/NSRS 2007
MATCH LINE SHEET 8 -Y- STA. 25+00.00
TONY L. BARNHILL & SHARON J. BARNHILL DB 6893 PG 1460
TONY L. BARNHILL & SHARON J. BARNHILL DB 6765 PG 597
PATRICK J. RYAN & MIA K. RYAN DB 646 PG 2820
EUGENE N. CLARK & MARY B. CLARK DB 4621 PG 271
MARK ANTHONY SAMSEL DB 4385 PG 1024
RAMON R. STOUT, JR. & NINA P. STOUT DB 4839 PG 1255
STEPHEN E. ALLISON & MICHELLE L. ALLISON DB 5009 PG 1527
MICHAEL W. RAY & SHERRY P. RAY DB 4435 PG 389
MICHAEL L. WALKER & LINDA WALKER & GERALDINE NUNN DB 5884 PG 3048 PB 66 PG 139
BILLY S. MARLEY & BETTY JEAN MARLEY DB 1978 PG 610
RANDALL E. JOBE & RUTH H. JOBE DB 5927 PG 889 PB 151 PG 34
LARRY W. UNDERWOOD DB 6975 PG 2764 PB 151 PG 34
TIMOTHY HARRELL JOBE DB 5927 PG 892 PB 151 PG 34
SR 3329 WILLIAMS DAIRY ROAD 20' BST
SR 3492 VALHALLA DRIVE
S 14°55'57.7" W
-BY2B-45
-BY2B-46
BM #12
645' TRANSITION LT. & RT.
200' LT TURN LANE TAPER
SPECIAL LATERAL 'V' DITCH SEE DETAIL P
SPECIAL CUT DITCH SEE DETAIL H
STANDARD 'V' DITCH SEE DETAIL Q
GRADE TO DRAIN

DETAIL H
SPECIAL CUT DITCH (Not to Scale)



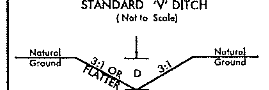
-Y- STA 17+00 TO 18+50 RT.
-Y- STA 21+00 TO 25+50 RT.
-Y- STA 21+50 TO 25+25 LT.

DETAIL P
SPECIAL LATERAL 'V' DITCH (Not to Scale)



-Y- STA 20+00 TO 21+50 LT.

DETAIL Q
STANDARD 'V' DITCH (Not to Scale)



-Y- STA 15+00 TO 17+50 LT.

NOTES
1) SEE SHEET 18 FOR -Y- PROFILE
2) DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED

REVISIONS

8/17/99

31-JUL-2012 10:01
R:\Roadway\Proj\R2612B_Rdy_psh07.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
R-2612B	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS
02/22/13 - R/W REVISION: CHANGED TEMPORARY CONSTRUCTION EASEMENT TO PROPOSED RIGHT OF WAY ON PARCEL 32 - TEM.

8/17/99

SR 3329 -Y- WILLIAMS DAIRY RD.
2014 ADT / 2034 ADT
2,667 / 3,833
-Y1- SR 3549 LIBERTY RD. 1,533 / 2,117
600 / 850 -Y1- SR 3549 LIBERTY RD.
5,967 / 8,883
1,000 / 1,250
1,800 / 2,550
5,833 / 8,917
3,333 / 4,667
SR 3329 -Y- WILLIAMS DAIRY RD.

-Y-

PI Sta 23+68.74
Δ = 18° 31' 05.7" (RT)
D = 2° 27' 32.6"
L = 753.07'
T = 379.85'
R = 2,330.00'
SE = 0.05
RO = SEE PLANS
DS = 60 MPH

PIs Sta 28+08.64
θs = 2° 27' 32.6"
Ls = 200.00'
LT = 133.35'
ST = 66.68'

-Y1-

PI Sta 19+11.02
Δ = 22° 36' 17.3" (LT)
D = 1° 58' 32.6"
L = 1,144.13'
T = 579.60'
R = 2,900.00'
SE = 0.05
RO = SEE PLANS
DS = 60 MPH

-DR1-

PI Sta 10+69.47
Δ = 16° 06' 53.6" (RT)
D = 19° 05' 54.9"
L = 84.38'
T = 42.47'
R = 300.00'

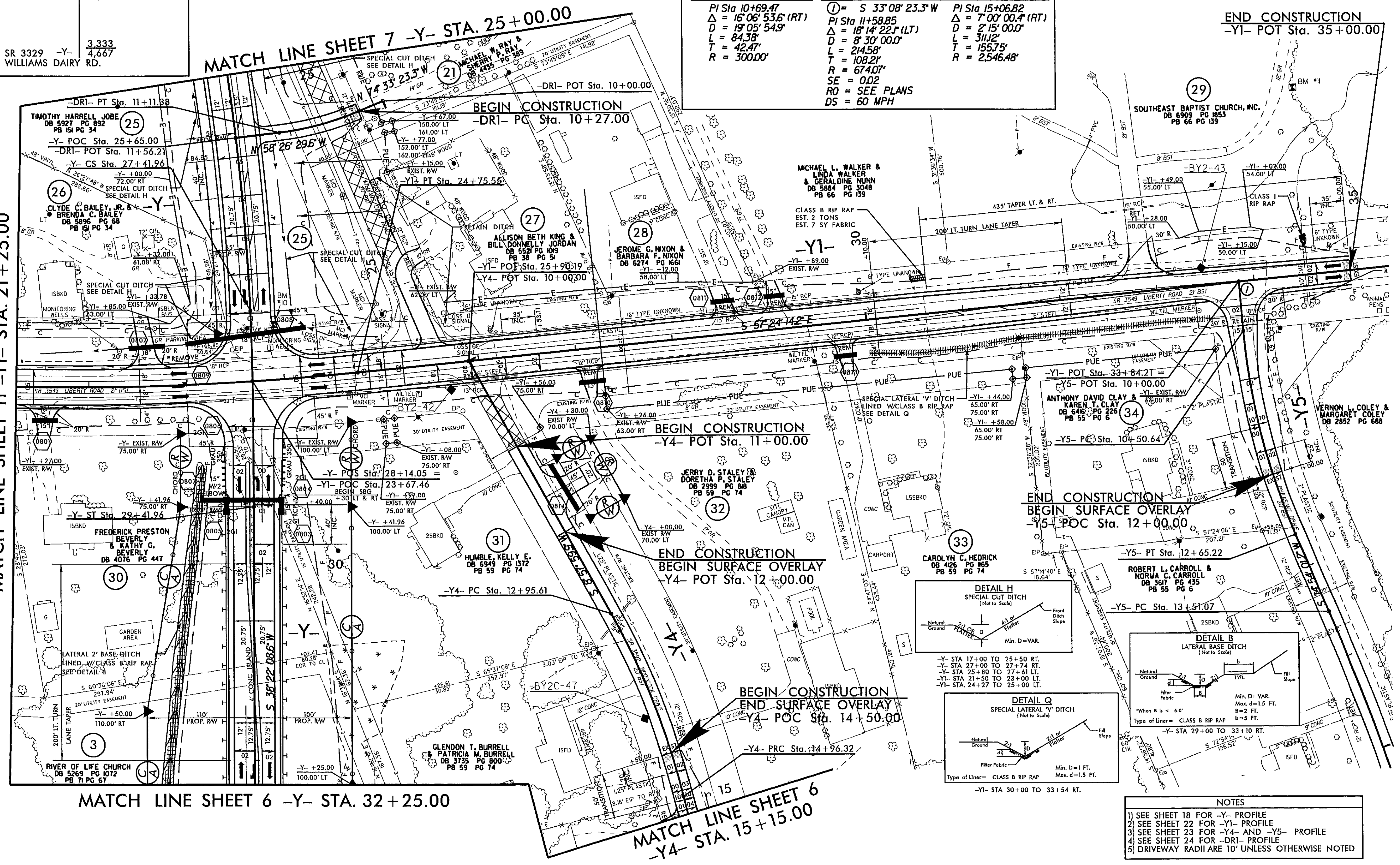
-Y5-

(1) = S 33° 08' 23.3" W

PI Sta 11+58.85
Δ = 18° 14' 22.1" (LT)
D = 8° 30' 00.0"
L = 214.58'
T = 108.21'
R = 674.07'
SE = 0.02
RO = SEE PLANS
DS = 60 MPH

PI Sta 15+06.82
Δ = 7° 00' 00.4" (RT)
D = 2° 15' 00.0"
L = 311.12'
T = 155.75'
R = 2,546.48'

NAD 83/NSRS 2007



MATCH LINE SHEET 7 -Y- STA. 25+00.00
MATCH LINE SHEET 11 -Y1- STA. 21+25.00
MATCH LINE SHEET 6 -Y- STA. 32+25.00
MATCH LINE SHEET 6 -Y4- STA. 15+15.00
END CONSTRUCTION -Y1- POT Sta. 35+00.00
BEGIN CONSTRUCTION -DR1- PC Sta. 10+27.00
-DR1- POT Sta. 10+00.00
-DR1- PT Sta. 11+11.38
-DR1- POT Sta. 11+56.21
-Y- POC Sta. 25+65.00
-Y- CS Sta. 27+41.96
-Y1- PT Sta. 24+75.55
-Y1- POT Sta. 25+90.19
-Y4- POT Sta. 10+00.00
BEGIN CONSTRUCTION -Y4- POT Sta. 11+00.00
END CONSTRUCTION BEGIN SURFACE OVERLAY -Y4- POT Sta. 12+00.00
BEGIN CONSTRUCTION END SURFACE OVERLAY -Y4- POC Sta. 14+50.00
-Y4- PC Sta. 12+95.61
-Y4- PRC Sta. 14+96.32
-Y- POS Sta. 28+14.05 = -Y1- POC Sta. 23+67.46
-Y- ST Sta. 29+41.96
-Y1- POT Sta. 33+84.21 = -Y5- POT Sta. 10+00.00
-Y5- PC Sta. 10+50.64
END CONSTRUCTION BEGIN SURFACE OVERLAY -Y5- POC Sta. 12+00.00
-Y5- PT Sta. 12+65.22
-Y5- PC Sta. 13+51.07
SR 3549 LIBERTY ROAD 2' BST
S 57°24'14.2" E
TIMOTHY HARRELL JOBE DB 5927 PG 892 PB 151 PG 34 (25)
CLYDE C. BAILEY, JR. & BRENDA C. BAILEY DB 5896 PG 68 PB 151 PG 34 (26)
MICHAEL W. RAY & SHERRY P. RAY DB 4435 PG 389 (21)
ALLISON BETH KING & BILL DONNELLY JORDAN DB 5521 PG 1019 PB 38 PG 51 (27)
JEROME G. NIXON & BARBARA F. NIXON DB 6274 PG 1661 (28)
MICHAEL L. WALKER & LINDA WALKER & GERALDINE NUNN DB 5884 PG 3048 PB 66 PG 139
SOUTHEAST BAPTIST CHURCH, INC. DB 6909 PG 1853 PB 66 PG 139 (29)
FREDERICK PRESTON BEVERLY & KATHY G. BEVERLY DB 4076 PG 447 (30)
HUMBLE, KELLY E. DB 6949 PG 1372 PB 59 PG 74 (31)
JERRY D. STALEY & DORETHA P. STALEY DB 2999 PG 818 PB 59 PG 74 (32)
CAROLYN C. HEDRICK DB 4126 PG 965 PB 59 PG 74 (33)
ANTHONY DAVID CLAY & KAREN T. CLAY DB 6416 PG 226 PB 55 PG 6 (34)
VERNON L. COLEY & MARGARET COLEY DB 2852 PG 688
ROBERT L. CARROLL & NORMA C. CARROLL DB 3617 PG 435 PB 55 PG 6
GLENDON T. BURRELL & PATRICIA M. BURRELL DB 3735 PG 800 PB 59 PG 74
RIVER OF LIFE CHURCH DB 5269 PG 1072 PB 71 PG 67 (3)
CLASS B RIP RAP EST. 2 TONS EST. 7 SY FABRIC
SPECIAL CUT DITCH SEE DETAIL H
SPECIAL LATERAL 'V' DITCH LINED W/CLASS B RIP RAP SEE DETAIL Q
LATERAL 2' BASE DITCH LINED W/CLASS B RIP RAP SEE DETAIL B
435' TAPER LT. & RT.
200' LT. TURN LANE TAPER

DETAIL H
SPECIAL CUT DITCH (Not to Scale)

-Y- STA 17+00 TO 25+50 RT.
-Y- STA 17+00 TO 27+74 RT.
-Y- STA 25+80 TO 27+61 LT.
-Y1- STA 21+50 TO 23+00 LT.
-Y1- STA. 24+27 TO 25+00 LT.

DETAIL Q
SPECIAL LATERAL 'V' DITCH (Not to Scale)

Type of Liner= CLASS B RIP RAP
Min. D=1 FT.
Max. d=1.5 FT.

-Y1- STA 30+00 TO 33+54 RT.

DETAIL B
LATERAL BASE DITCH (Not to Scale)

Min. D=VAR.
Max. d=1.5 FT.
B=2 FT.
b=5 FT.
Type of Liner= CLASS B RIP RAP

-Y- STA 29+00 TO 33+10 RT.

NOTES

1) SEE SHEET 18 FOR -Y- PROFILE
2) SEE SHEET 22 FOR -Y1- PROFILE
3) SEE SHEET 23 FOR -Y4- AND -Y5- PROFILE
4) SEE SHEET 24 FOR -DR1- PROFILE
5) DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED

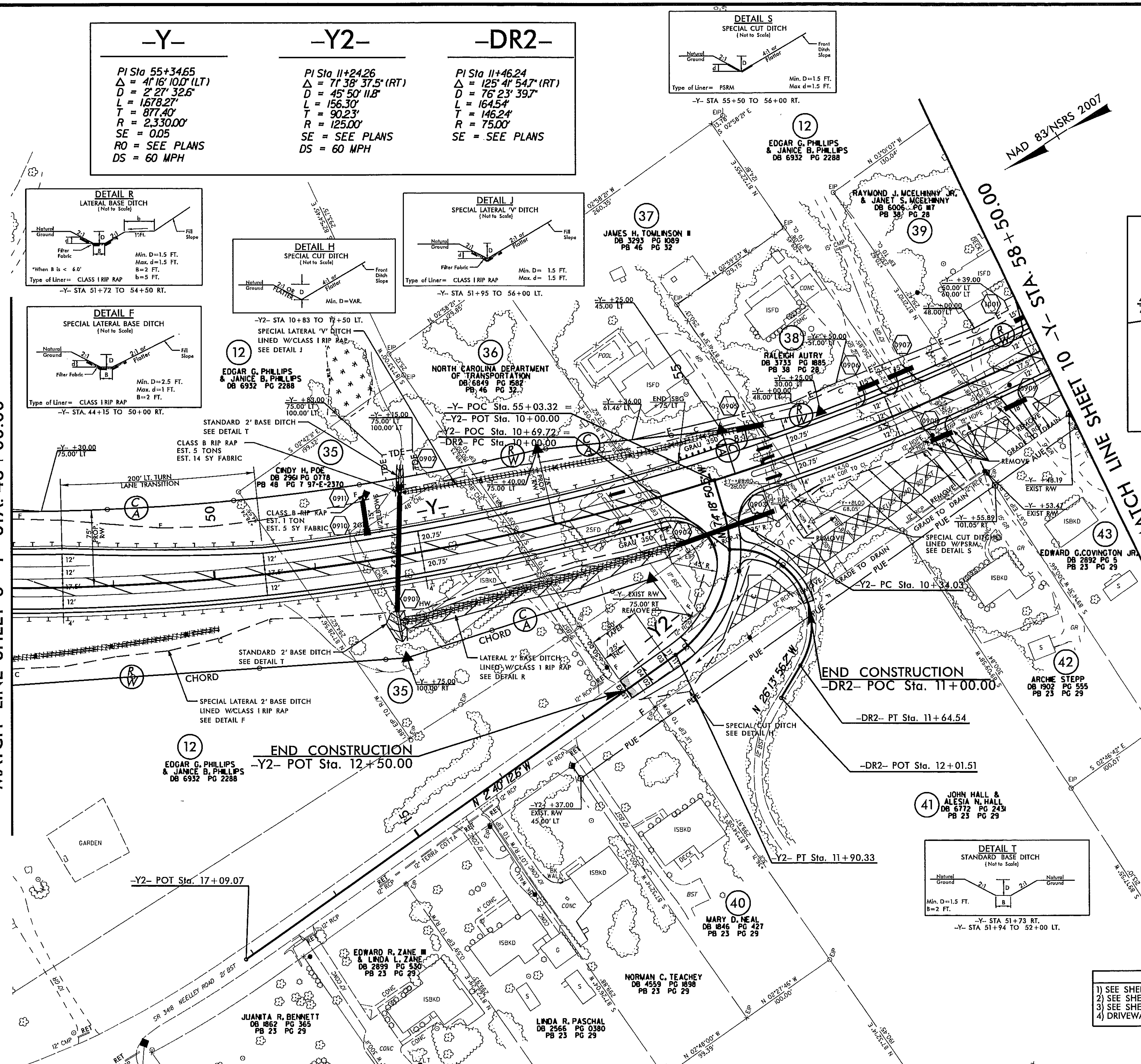
25-JUN-2013 08:44
R:\Roadway\Proj\R2612B_Rdy_psh08.dgn

PROJECT REFERENCE NO.	SHEET NO.
R-2612B	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y-	-Y2-	-DR2-
PI Sta 55+34.65	PI Sta 11+24.26	PI Sta 11+46.24
Δ = 41° 16' 10.0" (LT)	Δ = 71° 38' 37.5" (RT)	Δ = 125° 41' 54.7" (RT)
D = 2° 27' 32.6"	D = 45° 50' 11.8"	D = 76° 23' 39.7"
L = 1,678.27'	L = 156.30'	L = 164.54'
T = 877.40'	T = 90.23'	T = 146.24'
R = 2,330.00'	R = 125.00'	R = 75.00'
SE = 0.05	SE = SEE PLANS	SE = SEE PLANS
RO = SEE PLANS	DS = 60 MPH	
DS = 60 MPH		

2014 ADT / 2034 ADT		
-Y- SR 3418 NEELLEY RD.	4,333 / 7,667	4,333 / 7,667
<100 / <100	<100 / <100	<100 / <100
-Y2- SR 3418 NEELLEY RD.		



REVISIONS
05/15/13 - R/W REVISION: LOCATED EXISTING WELL ON PARCEL 39. JBW
07/03/13 - R/W REVISION: REVISED PUE TO AUE ON PARCEL 43. - JBW

NOTES
1) SEE SHEET 19 FOR -Y- PROFILE
2) SEE SHEET 23 FOR -Y2- PROFILE
3) SEE SHEET 24 FOR -DR2- PROFILE
4) DRIVEWAY RADII ARE 10' UNLESS OTERWISE NOTED

8/17/99
09-JUL-2013 13:43
R:\Roadway\Proj\R2612B_Rdy_psh09.dgn

PROJECT REFERENCE NO.	SHEET NO.
R-2612B	10

R/W SHEET NO.

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

8/17/99

REVISIONS

05/15/13 - RW REVISION: LOCATED EXISTING WELLS ON PARCELS 44, 45, 46, 53 AND 54. JBW

2014 ADT
2034 ADT

4,067 / 7,233 -Y- SR 3418 NEELLEY RD. 2,767 / 5,183

1,567 / 2,483 — 267 / 433

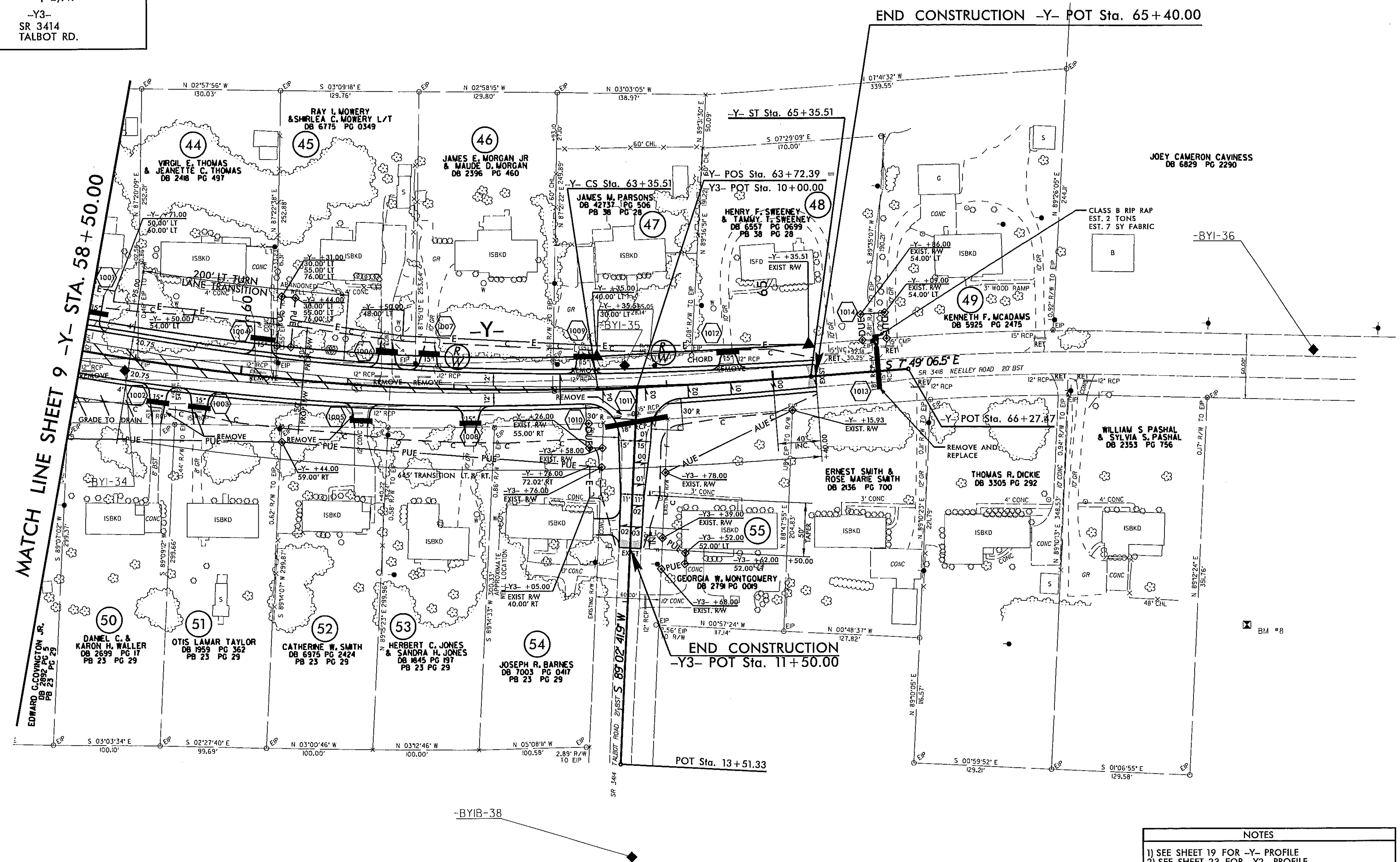
1,833 / 2,917

-Y3-
SR 3414
TALBOT RD.

-Y-

PI Sta 55+34.65	PIs Sta 64+02.19
Δ = 41° 16' 10.0" (LT)	Θs = 2° 27' 32.6"
D = 2° 27' 32.6"	Ls = 200.00'
L = 1,678.27'	LT = 133.35'
T = 877.40'	ST = 66.68'
R = 2,330.00'	
SE = 0.05	
RO = SEE PLANS	
DS = 60 MPH	

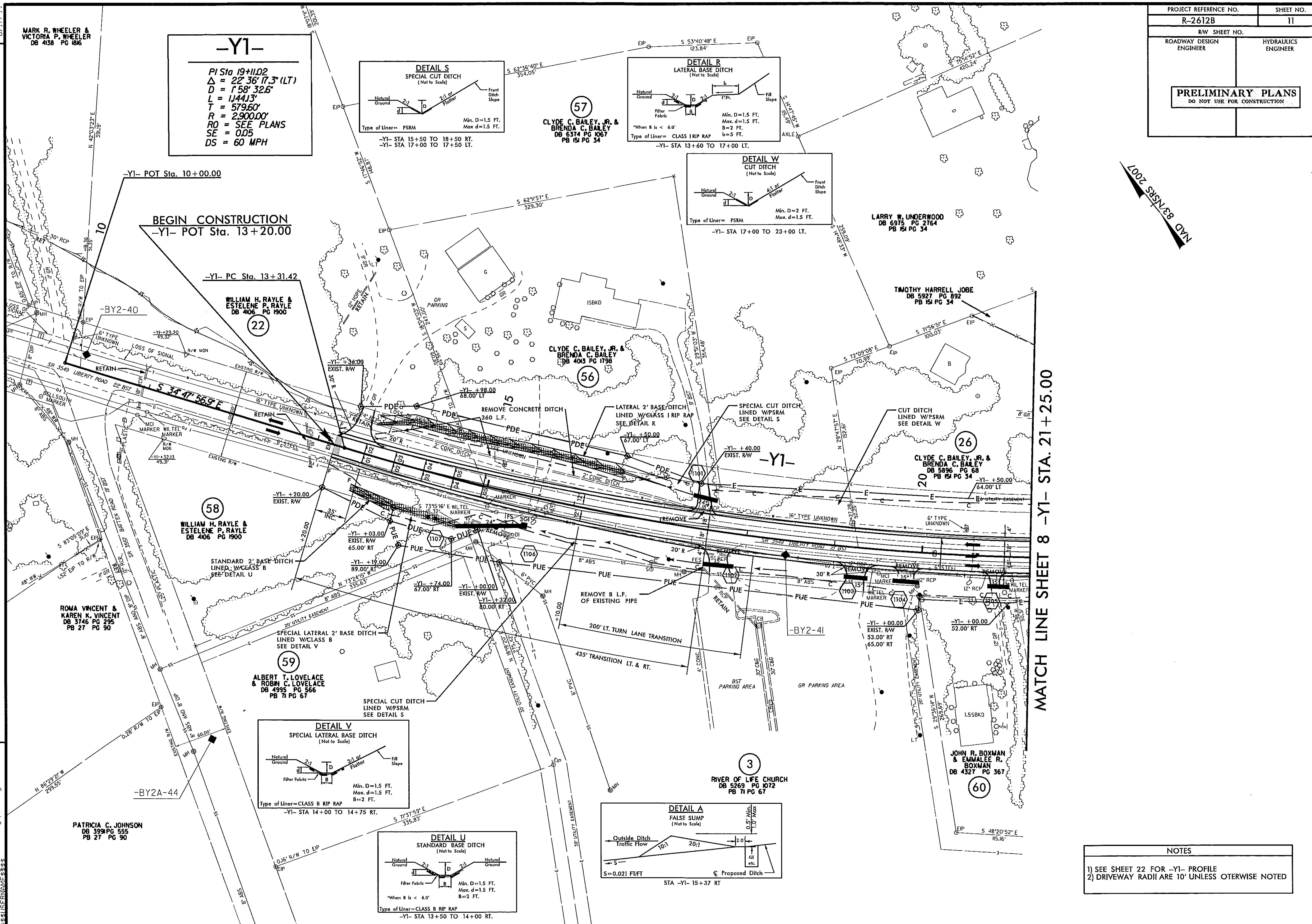
NAD 83/NSRS 2007



NOTES

1) SEE SHEET 19 FOR -Y- PROFILE
2) SEE SHEET 23 FOR -Y2- PROFILE
3) DRIVEWAY RADII ARE 10' UNLESS OTERWISE NOTED

16-MAY-2013 08:55
R:\Roadway\Proj\R2612B_Rdy_psh10.dgn
$$$$USERNAME$$$$



REVISIONS

8/17/99

31-JUL-2012 10:01
R:\Roadway\Proj\R2612B_Rdy_psh11.dgn

PROJECT REFERENCE NO.	SHEET NO.
R-2612B	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

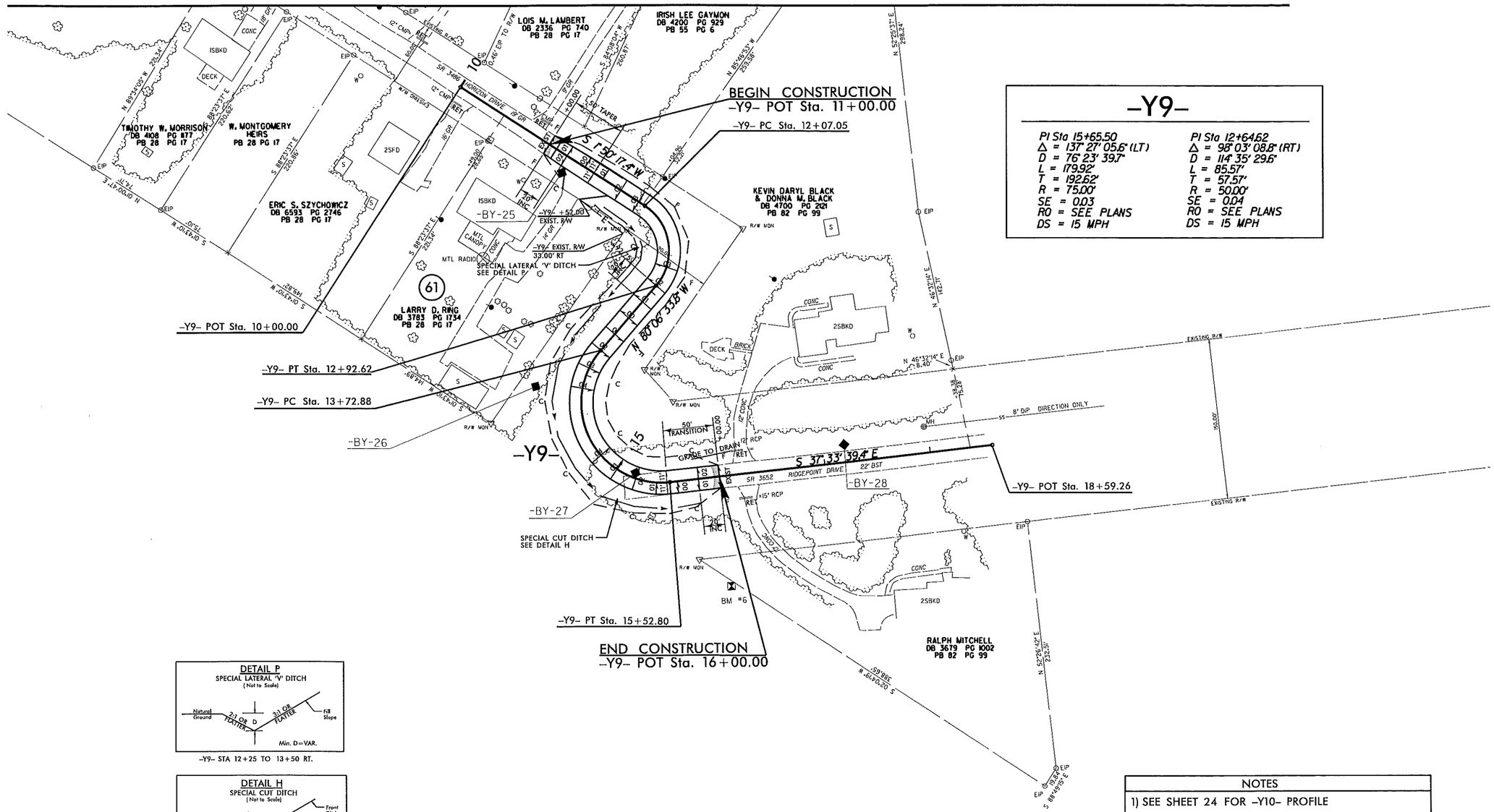
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

8/17/99

REVISIONS

NAD 83/NSRS 2007

MATCH LINE SHEET 4



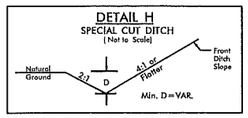
-Y9-

PI Sta 15+65.50	PI Sta 12+64.62
Δ = 137° 27' 05.6" (LT)	Δ = 98° 03' 08.8" (RT)
D = 76° 23' 39.7"	D = 114° 35' 29.6"
L = 179.92'	L = 85.57'
T = 192.62'	T = 57.57'
R = 75.00'	R = 50.00'
SE = 0.03	SE = 0.04
RO = SEE PLANS	RO = SEE PLANS
DS = 15 MPH	DS = 15 MPH

DETAIL P
SPECIAL LATERAL 'V' DITCH
(Not to Scale)

-Y9- STA 12+25 TO 13+50 RT.

DETAIL H
SPECIAL CUT DITCH
(Not to Scale)



-Y9- STA 13+50 TO 15+80 RT.

NOTES
1) SEE SHEET 24 FOR -Y10- PROFILE

31-JUL-2012 10:01
R:\Highway\Projects\R2612B_Rdy_psh12.dgn
$$$$USERNAME$$$$