STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT L. MCCRORY
GOVERNOR

ANTHONY J. TATA
SECRETARY

December 18, 2013

Washington Regulatory Field Office
US Army Corps of Engineers
2407 West 5th Street
Washington, North Carolina 27889

ATTN: Ms. Tracey Wheeler
NCDOT Coordinator

Dear Madam:

Subject: **Application for Section 404 Individual Permit, Section 401 Water Quality Certification, and Isolated Waters Permit** for the proposed new route from US 64 to NC 32, in Washington County. Federal Aid Project No. STP-000S(252), TIP No. R-3620. Debit $570.00 from WBS 34548.1.1.

The North Carolina Department of Transportation (NCDOT), Division of Highways, in consultation with the Federal Highway Administration (FHWA), proposes to construct a new route from US 64 to NC 32, in Washington County, for a total distance of 3.33 miles.

The purpose of this letter is to request approval for a Section 404 Individual Permit, Section 401 Water Quality Certification, and an Isolated Waters Permit. In addition to the cover letter and ENG Form 4345, this application package includes the following for R-3620: permit drawings, utility drawings, half size roadway plans, EEP Acceptance Letter, 4B/4C merger meeting minutes, and USFWS concurrence letter.

1.0 Purpose and Need

The purpose for this project, as identified in the Final Environmental Assessment (EA), is to improve connectivity in the study area.

2.0 Project Description

The proposed two-lane facility will have 12-foot lanes with 8-foot shoulders (2-foot paved). The total project length is 3.33 miles.

3.0 Summary of Impacts

Waters of the U.S.: Proposed permanent impacts to jurisdictional areas total 9.13 acres of permanent wetland impacts and 82 feet of permanent stream impacts.

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

TELEPHONE: 919-707-6100
FAX: 919-212-5785

WEBSITE: WWW.NCDOT.ORG

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

Isolated Waters: Proposed permanent impacts to isolated waters total 108 feet of permanent stream impacts. Bank stabilization totals 44 linear feet (32 feet to Waters of the U.S.; 12 feet to Isolated Waters).

4.0 Summary of Mitigation

The proposed construction of R-3620 will impact 1.81 acres of riparian wetlands and 7.32 acres of non-riparian wetlands that will require mitigation. In addition, the unavoidable impacts to 82 linear feet of jurisdictional stream will also require mitigation. See attached EEP acceptance letter for additional information.

5.0 Project Schedule

Currently, R-3620 has a review date of April 29, 2014 and is scheduled to let June 17, 2014; it will be available for construction shortly thereafter. The let date, however, may advance as additional funds become available.

6.0 NEPA Document Status

The FHWA and NCDOT completed the EA in March 2009 in compliance with the NEPA guidelines. The EA explains the purpose and need for the project, provides a description of the alternatives considered, and characterizes the social, economic, and environmental effects. The EA was approved and circulated to federal, state, and local agencies. Then following the EA, a Finding of No Significant Impact (FONSI) was completed April 29, 2010. On January 5, 2012 the Right of Way Consultation was completed. Copies of the project documents have been provided to regulatory review agencies involved in the approval process. Both documents are posted on the NCDOT website at https://connect.ncdot.gov/resources/Environmental/Pages/default.aspx, under *Quick Links > Environmental Documents*.

6.1 Independent Utility

R-3620 is in compliance with 23 CFR Part 771.111(f) which lists the FHWA characteristics of the independent utility of a project. The project meets the criteria for independent utility as discussed below:

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

7.0 Resource Status

The project is located in the Pasquotank River Basin and lies within Hydrologic Unit 03010205 (Subbasin 03-01-53). This is within the Northern Outer Coastal Plain eco-region. The project crosses two unnamed tributaries to the Albemarle Sound, as well as several tributaries to waters of

the U.S., and multiple wetlands. Wetland and stream delineations were completed between May and June 2007. Jurisdictional areas within the project study area were reviewed by the USACE (Bill Biddlecome) on July 20, 2007 and by the NCDWR (Garcy Ward) and NCDCM (Jim Hoadley) on July 25, 2007. NCDOT received the written Approved Jurisdictional Determination from the USACE on May 7, 2012.

7.1 Wetland Delineations

A wetland identification and preliminary assessment analysis for the study area was performed and summarized in the 2007 Natural Resources Technical Report (NRTR). The wetlands within the study area were delineated based on the 1987 U.S. Army Corps of Engineers (USACE) Wetland Delineation Manual and a preliminary design was prepared to avoid and minimize wetlands to the maximum extent possible.

7.2 Stream Delineations

The stream channels within the project study area were identified, evaluated, and classified using the NCDWQ stream identification form and the Cowardin classification system. Water quality information for the streams within the project study area was derived from available sources provided through the NCDENR.

7.3 R-3620: Characterization of Jurisdictional Sites

7.3.1 Wetlands

There are four wetland types found within the project study area based on the Cowardin classification: Palustrine Forested (PFO), Palustrine Emergent (PEM), Palustrine Unconsolidated Bottom (PUB), and Palustrine Scrub-shrub (PSS). More detailed information about these wetlands can be found in the EA and the NRTR which includes figures showing the wetlands within the project area.

7.3.2 Streams

The Best Usage Classification for the two streams on the project is “C SW”. Details for the jurisdictional streams within the project area are provided in the EA and NRTR.

There are no waters within the project vicinity classified as High Quality Waters (HQW). Neither Water Supplies (WS-I: undeveloped watersheds or WS-II: predominately undeveloped watersheds), nor Outstanding Resource Waters (ORW) occur within 1.0 mile of the project area. Streams within the R-3620 project area are not designated as North Carolina Natural or Scenic Rivers, or as National Wild and Scenic Rivers. Additionally, these waters are not listed on the Final 2012 303(d) list of impaired waters due to sedimentation or turbidity.

7.4 Impacts to Jurisdictional Resources

Impacts to jurisdictional wetlands and surface waters for R-3620 are summarized below in Tables 1 and 2 respectively.

Table 1. R-3620 Wetlands Impacts

Permit Drawing Site Number (2013)	Map Label in EA (2009)	Type	Permanent Impacts (ac.)	Temporary Impacts (ac.)	Mitigation Required* (2:1)
1	W3a, W3b, W4, W33a, W33b	Non-riparian	2.42	0	Yes
5	W35	Non-riparian	3.20	0	Yes
7	W36	Non-riparian	<0.01	0	Yes
9	W37a	Non-riparian	1.02	0	Yes
11	W37c	Non-riparian	0.08	0	Yes
12	W37c	Non-riparian	0.09	0	Yes
13	W41	Non-riparian	0.07	0	Yes
14	W31a, W31c	Riparian	1.81	0	Yes
15	W23	Non-riparian	0.39	0	Yes
16	W24a	Non-riparian	<0.01	0	Yes
19	W29	Non-riparian	0.04	0	Yes
		Total Riparian:	**1.81**	**0**	
		Total Non-riparian:	**7.31****	**0**	
		Grand Total:	**9.12****	**0**	

* For permanent jurisdictional wetland impacts
** Totals are based on actual impact amounts

Table 2. R-3620 Surface Water Impacts

Permit Drawing Site Number	Waterbody Labeled in EA	Permanent (ft)	Bank Stabilization (ft)	Temporary (ft)	Permanent (ac.)	Temporary (ac.)	USACE Mitigation Required (2:1)
1*	S1	108	12	0	0.02	<0.01	0
2	D5	0	0	0	0.03	0	0
3	D4	0	0	0	<0.01	0	0
4	D40	0	0	0	0.01	0	0
6	D39b	0	0	0	0.01	0	0
8	D39a	0	0	0	0.01	0	0
10	D36	0	0	0	0.01	0	0
14	S8b	82	32	44	0.02	0.01	82
15	P2	0	0	0	0.13	0	0
17	D23, D28	0	0	0	0.01	0	0
18	D22	0	0	0	0.02	0	0
20	D33	0	0	0	<0.01	0	0
	Total:	**190**	**44**	**44**	**0.27****	**0.01****	**82**

* Isolated Waters-only subject to NCDWR jurisdiction, not the USACE.
** Totals are based on actual impact amounts.

<u>Permanent Impacts:</u> Proposed permanent impacts for R-3620 include fill, excavation, and mechanized clearing in 1.81 acres of riparian wetlands, and 7.31 acres of non-riparian wetlands. Proposed permanent impacts to surface waters are 190 linear feet (82 feet to Waters of the U.S.; 108

feet to Isolated Waters). Bank stabilization totals 44 linear feet (32 feet to Waters of the U.S.; 12 feet to Isolated Waters).

Temporary Impacts: There will be 44 linear feet of temporary impacts to surface water due to culvert installations. Also, there will be 0.48 acre of temporary fill in wetlands in the hand clearing areas for the installation of erosion control measures, including temporary silt fence and/or special sediment control fence.

Hand-Clearing: There will be 2.45 acres of hand-clearing in jurisdictional wetlands due to project construction.

Utility Impacts: Utility impacts consist of 0.01 acre of permanent wetland impacts, 0.01 acre of temporary wetland impacts, and <0.01 acre of temporary surface water impacts. There will also be 0.63 acre of hand clearing due to utility relocation.

8.0 Protected Species

The United States Fish and Wildlife Service (USFWS) list 4 federally protected species for Washington County as of the February 15, 2012 listing (Table 3).

Table 3. Federally Protected Species in Washington County

Scientific Name	Common Name	Federal Status	Habitat	Biological Conclusion
Alligator mississippiensis	American alligator	T(S/A)	Yes	N/A
Acipenser oxyrinchus oxyrinchus	Atlantic sturgeon	E	No	No Effect
Canis rufus	Red wolf	EXP	Yes	MANLAA
Trichechus manatus	West Indian manatee	E	No	No Effect

Key: E = Endangered, T(S/A) = Threatened (Similarity of Appearance), EXP = Experimental population, MANLAA = May Affect, Not Likely to Adversely Affect

A concurrence request providing a Biological Conclusion for red wolf was submitted to the USFWS in February 10, 2010. The USFWS responded with concurrence on February 25, 2010. A copy of the USFWS concurrence letter is included with this permit application.

A review of the North Carolina Natural Heritage Program (NCNHP) database, updated October 2013, indicated no occurrences of protected species within one mile of the project study area.

8.1 Bald and Golden Eagle Protection Act (BGPA)

In the July 9, 2007 Federal Register (72:37346-37372), the bald eagle was declared recovered, and removed (de-listed) from the Federal List of Threatened and Endangered wildlife. This delisting took effect August 8, 2007. After delisting, the Bald and Golden Eagle Protection Act (Eagle Act) (16 U.S.C. 668-668d) became the primary law protecting bald eagles. Surveys were conducted during July 2007, no nests were found within 660 feet of the project limits.

8.2 Moratoria

There is no in-stream work moratorium required for R-3620 for anadromous fish species.

9.0 Cultural Resources

Cultural resources have not changed since the EA was completed in 2009. The selection of Alternative 1 allowed NCDOT to avoid the four historic properties on this project.

The NCDCR stated in letters on May 6, 2002 and September 22, 2006 that no archaeological investigation needed to be conducted.

10.0 FEMA Compliance

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

11.0 Mitigation Options

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

11.1 Avoidance and Minimization

All jurisdictional features were delineated, field verified and surveyed within the corridor for R-3620. Using these surveyed features, preliminary designs were adjusted to avoid and/or minimize impacts to jurisdictional areas. NCDOT employs many strategies to avoid and minimize impacts to jurisdictional areas in all of its designs. Many of these strategies have been incorporated into BMP documents that have been reviewed and approved by the resource agencies and which will be followed throughout construction. All wetland areas not affected by the project will be protected from unnecessary encroachment. Individual avoidance and minimization items are as follows:

- No staging of construction equipment or storage of construction supplies will be allowed in wetlands or near surface waters.
- The project was designed to avoid or minimize disturbance to aquatic life movements.
- NCDOT and its contractors will not excavate, fill, or perform land clearing activities within Waters of the U.S. or any areas under the jurisdiction of the USACE, except as authorized by the USACE. To ensure that all borrow and waste activities occur on high ground, except as authorized by permit, the NCDOT shall require its contractors to identify all areas to be used to borrow material, or to dispose of dredged, fill or waste material. Documentation of the location and characteristics of all borrow and disposal sites associated with the project will be available to the USACE on request.
- Grass Swale treatments have been incorporated in areas where flat slopes can be maintained.
- Proposed culverts will be buried 1 ft. to provide for fish passage.
- Cross pipes in jurisdictional streams will be buried 1ft. for all pipes.
- All wetlands will receive diffused flow.
- Special Sediment Control Fence will be used were applicable.
- The use of hand clearing rather than mechanized clearing where possible.
- Bank stabilization at outlets of culverts will not impact the stream bed.

- Considering environmental, hydraulic, and roadway perspectives, 3:1 and 4:1 slopes are proposed within the wetlands where most practical (see the 4B merger meeting minutes for additional detail).

11.2 Compensation

The NCDOT has avoided and minimized impacts to jurisdictional resources to the greatest extent possible as described above. The unavoidable impacts to Waters of the U.S. will be offset by compensatory mitigation provided by EEP. NCDOT proposes mitigation based on the requirements of the USACE rather than the DWR, because the stream impacts did not reach the 150 linear foot threshold requiring mitigation under DWR.

12.0 Indirect and Cumulative Effects

An Indirect Screening Assessment was completed for R-3620 in September, 2009. As part of this assessment, an Indirect Land Use Effects Screening Matrix was developed to qualitatively assess factors that influence land development decisions. Each factor received a rating from high concern for indirect effects to less concern for indirect effects. Based on the information gathered, the ratings in the screening matrix indicated a low concern for indirect and cumulative effects as a result of the project.

Despite the relatively large amount of available land and limited growth management policies most of the Matrix growth categories suggest that further evaluation of indirect and cumulative effects is not warranted. Population growth is declining, job growth is modest, sewer services are not available throughout most of the Future Land Use Study Area, several areas remain without water service, and the market for development is mostly lacking. The lack of approved site plans for any potential developments indicates that there is no clear funding source identified for their implementation. Additionally, because there are no existing plans to expand water and sewer services in the Future Land Use Study Area, it is anticipated that any potential growth will be constrained. Washington County is also subject to CAMA Rules and Policies governing development.

Cumulatively, STIP Project R-3620 could enhance mobility and could make the area more attractive for potential development. However, the new location portions of STIP Project R-3620 will have limited control of access (i.e., one access point per parcel). As a result, access for any new potential developments will be limited between the US 64/Beasley Road interchange and the intersection of NC 32/NC 94. The planned implementation of water and sewer service in the area of the US 64/Beasley Road interchange could make the area more attractive for commercial development. However, there is no clear funding source identified for implementation of this infrastructure and partial control of access is also proposed for the widening portion of the project.

Due to its proximity to Albemarle Sound and the availability water service, residential development is anticipated to continue in the area between Albemarle Sound and Pea Ridge Road. This growth would likely occur with or without the project. Consequently, STIP Project R-3620 will not markedly contribute further to the actions and potential effects cited above. Direct environmental will be evaluated and addressed by programmatic agreements with the permitting agencies. Additionally, based on the analysis contained within this report, STIP Project R-3620 will not likely result in cumulative effects on notable features of the human and/or natural environment.

13.0 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.).

14.0 Regulatory Approvals

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

Section 401: We are requesting a Section 401 Water Quality Certification from NCDWR. We are providing two (2) copies of this application to the NCDWR, for their approval. Authorization to debit the $570 Permit Application Fee from WBS Element 34548.1.1 is hereby given.

Isolated Waters: We are also requesting an Isolated Waters permit from NCDWR.

CAMA: A Consistency Certification has been submitted to the NC Division of Coastal Management under a separate cover.

A copy of this permit application and its distribution list will be posted on the NCDOT website at: https://connect.ncdot.gov/resources/Environmental/

If you have any questions or need additional information, please contact Chris Manley at 919-707-6135 or cdmanley@ncdot.gov.

Sincerely,

E. L. Lusk

for Richard W. Hancock, P.E., Manager
Project Development and Environmental Analysis Unit

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.

Form Approved - OMB No. 0710-0003 Expires: 31-AUGUST-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 - Richard Middle - W. Last - Hancock, P.E.	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 - USA	City - State - Zip - Country -
7. APPLICANT'S PHONE NOs. w/AREA CODE	10. AGENTS PHONE NOs. w/AREA CODE
a. Residence b. Business 919-707-6135 c. Fax	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-3620

13. NAME OF WATERBODY, IF KNOWN (if applicable)	14. PROJECT STREET ADDRESS (if applicable)
	Address US 64/SR 1139 to NC 32/NC 94 intersection
15. LOCATION OF PROJECT Latitude: °N 35.9196 Longitude: °W -76.5211	City - Roper State- NC Zip-

16. OTHER LOCATION DESCRIPTIONS, IF KNOWN (see instructions)

State Tax Parcel ID Municipality

Section - Township - Range -

17. DIRECTIONS TO THE SITE
See attached cover letter

18. Nature of Activity (Description of project, include all features)
See attached cover letter

19. Project Purpose (Describe the reason or purpose of the project, see instructions)
This project's purpose is to improve connectivity in the study area. See attached cover letter for more information.

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

20. Reason(s) for Discharge
Roadway fill due to road construction.

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

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

See attached cover letter & permit drawings

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

Acres See attached cover letter & permit drawings
or
Linear Feet

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 list previously provided.

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. Luck for Richard W. Hancock, PE Dec 18, 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.

Subject: Minutes from 4B Interagency Hydraulic Design Review Meeting on July 20, 2011 for R-3620 in Washington County

Team Members:

Bill Biddlecome- USACE	(present)
Gary Jordan- USFWS	(present)
Travis Wilson-NCWRC	(present)
David Wainwright- NCDWQ	(present)
Chris Militscher-EPA	(present)
Cathy Brittingham-DCM	(present)
Ron Lucas-FHWA	(present)
Elizabeth Lusk-NCDOT-NEU	(present)
Charles Cox-PDEA	(present)
Bob Capehart-Division 1	(absent)

Participants:
Galen Cail, NCDOT Hydraulics
Larry Clawson, NCDOT Hydraulics
Gary Lovering, NCDOT Roadway
Rick DeCola, NCDOT Roadway
Chris Rivenbark, NCDOT NEU
Chris Manley, NCDOT NEU
Mark Staley, NCDOT REU
Steve Kite, NCDOT WZTC
Nadia Aboulhosn, NCDOT PDEA
Thomas Stoddard, NCDOT STIP

GENERAL NOTES:

There was discussion on side slopes in wetlands throughout the project. Some areas thru wetlands are presently proposed with 4:1 without guardrail (versus 3:1 with guardrail). It is understood this is not a typical scenario and is unique to a 2 lane facility. However, we wanted to propose for evaluation pending all the other factors considered including fill height, safety, quality of wetlands, additional impacts, stormwater treatment, etc. Below are a few advantages based on Hydraulics and Roadway perspectives.

From a hydraulics perspective the 4:1 grassed slopes can provide better infiltration if the road superelevation requires shoulder berm gutter (SBG). The use of SBG is typically proposed where 2 or more lanes flow toward the low side of the road and particularly where fill heights are 5’ or greater. This is used to minimize potential erosion on slopes. With SBG stormwater will be concentrated and discharged at an outlet point whereas without SBG stormwater will be able to spread out over grassed shoulders.

From a roadway perspective guardrail can be an obstacle and potential safety hazard, especially on a 2 lane facility where shoulder widths are at a minimum. Guardrail is designed to deflect traffic, not stop it, and on narrow facilities has the potential to deflect vehicles into oncoming traffic. A 4:1 provides a wider area for recovery. The use of guardrail with minimum shoulders also limits the available area needed for broken down or abandoned vehicles. There is also the issue of guardrail cost and maintenance.

There are 3 significant wetland areas along the project where this would have the greatest effect. Below are locations of each and the associated additional impacts with 4:1 side slopes:

Sta 12+00 to 44+80 –L- -- 0.25 acre increase (avg 1.6' width per side over 3280')
Sta 90+00 to 119+00 –L- -- 0.26 acre increase (avg 2.0' width per side over 2900')
Sta 148+00 to 158+00 –L- -- 0.14 acre increase (eliminated, see note below)

Through these larger wetland areas the use of 4:1 side slopes results in approximately 0.51 acres of additional fill in wetlands over a stretch of 1.2 miles.

Note: Since the review meeting 3:1 slopes with guardrail is provided through entire wetland Sta 148+00 to 158+00. See below "**Sheets 13 & 14**".

Sheet 4:

-It was discussed whether ditches could be used in wetlands if there is an existing ditch, as long as bottom of ditch elevation is maintained or more shallow. Response was that need to avoid to extent practical and use only if necessary with specific site justification.

Sheet 11:

There was discussion on the validity of some of the straight, wetland boundaries.

Sheets 13 & 14:

Around the proposed 1 @ 12' X 7' box culvert 3:1 slopes with guardrail are proposed.

Note: Since the review meeting 3:1 slopes with guardrail is provided through entire wetland (from approx. Sta 148+00 to 158+00). This will require SBG but plan to tie into inlets at proposed 36" equalizer pipes. This will allow energy dissipation of stormwater in the inlet versus at an outlet. It was also stated that this may be one of the higher quality wetlands on the project.

Sheet 15 & 16:

-It was discussed that stormwater storage/treatment will be investigated in the areas where the existing road will be abandoned and removed.

Meeting adjourned

Subject: Minutes from 4C Interagency Permit Review Meeting on December 11, 2012 for R-3620 in Washington County

Team Members:

Bill Biddlecome- USACE	(present)
Gary Jordan- USFWS	(absent)
Travis Wilson-NCWRC	(present)
David Wainwright- NCDWQ	(present)
Chris Militscher-EPA	(absent)
Cathy Brittingham-DCM	(present)
Ron Lucas-FHWA	(present)
Kristine O'Connor-PDEA	(present)
Bob Capehart-Division 1	(present)

Participants:
Galen Cail, NCDOT Hydraulics
Larry Clawson, NCDOT Hydraulics
Gary Lovering, NCDOT Roadway
Kevin Moore, NCDOT Roadway
Chris Rivenbark, NCDOT NES
Chris Manley, NCDOT NES
Mark Staley, NCDOT REU
Steve Cummings, NCDOT Utilities

GENERAL NOTES:

-There was follow-up discussion from the 4B meeting concerning whether existing ditches should be shown as wetlands. The "NEU_WET" file and 4C permit presently show and account for these ditches as wetlands. It was determined these ditches need to be shown as Jurisdictional-Non-Mitigable. Account for impacts as stream impact, area only. NES will update "NEU_WET" file.

-It was noted that the wetland boundary around approx. Sta 17+00 –L- crosses the existing road. NES will update "NEU-WET" file.

-Site 11, may be a combination of Jurisdictional-Non-Mitigable and wetland impacts. Separate impacts as needed.

-Site 15, review pond boundary. Make sure surveyed boundary is used. Cut off level for GPS (NES) boundary.

-Site 19, review if excavation impacts are applicable.

Meeting adjourned

Ecosystem Enhancement PROGRAM

November 25, 2013

Mr. Richard W. Hancock, P.E.
Manager, Project Development and Environmental Analysis Unit
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, North Carolina 27699-1548

Dear Mr. Hancock:

Subject: EEP Mitigation Acceptance Letter:

R-3620, Proposed NC 32 Connector from US 64 to the Intersection of NC 32 and NC 94, Washington County

The purpose of this letter is to notify you that the Ecosystem Enhancement Program (EEP) will provide the compensatory stream and wetland mitigation for the subject project. Based on the information supplied by you on November 22, 2013, the impacts are located in CU 03010205 of the Pasquotank River basin in the Northern Outer Coastal Plain (NOCP) Eco-Region, and are as follows:

Pasquotank 03010205 NOCP	Stream			Wetlands			Buffer (Sq. Ft.)	
	Cold	Cool	Warm	Riparian	Non-Riparian	Coastal Marsh	Zone 1	Zone 2
Impacts (feet/acres)	0	0	82.0	1.81	7.32	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.

This mitigation acceptance letter replaces the mitigation acceptance letter issued on November 22, 2013. EEP commits to implementing sufficient compensatory stream and 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

James B. Stanfill
EEP Asset Management Supervisor

cc: Ms. Tracey Wheeler, USACE – Washington Regulatory Field Office
Ms. Amy Chapman, Division of Water Quality, Wetlands/401 Unit
File: R-3620

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR LINEAR ROADWAY PROJECTS

(Version 1.2; Released July 2012)

Project/TIP No.: 34548.1.1 **County(ies):** Washington

General Project Information

Project No.:	34548.1.1	**Project Type:**	New Location	**Date:**	7/16/2012
NCDOT Contact:	W.G. Cail	**Contractor / Designer:**			
Address:	1020 Birch Ridge Rd Raleigh, NC 27610	**Address:**			
Phone:	(919) 707-6711	**Phone:**			
Email:	gcail@ncdot.gov	**Email:**			
City/Town:	Skinnersville	**County(ies):**	Washington		
River Basin(s):	Pasquotank	**CAMA County?**	Yes		
Primary Receiving Water:	Chapel Swamp; Albemarle Sound	**NCDWQ Stream Index No.:**	30-11		
NCDWQ Surface Water Classification for Primary Receiving Water	**Primary:**	Class C			
	Supplemental:	Swamp Waters (Sw)			
Other Stream Classification:	None				
303(d) Impairments:	None				
Buffer Rules in Effect	N/A				

Project Description

Project Length (lin. Miles or feet):	3.33 miles	**Surrounding Land Use:**	Rural; Agricultural

	Proposed Project	**Existing Site**
Project Built-Upon Area (ac.)	14.33 ac.	6.89 ac.
Typical Cross Section Description:	12' lanes w/ 8' shoulders (2' paved; 6' grassed) Vary 3:1 to 6:1 side slopes (3:1 and 4:1 in wetlands)	10' lanes w/ 2' unpaved shoulders
Average Daily Traffic (veh/hr/day):	Design/Future: 5200	Existing: 3250

General Project Narrative:

The project consists of constructing a 2-lane shoulder section highway on both existing and new location, between the intersection of NC 32 and US 64 and the interchange. There is one major structure, a 1 @ 12'x7' RCBC on a unnamed trib to Albemarle Sound.

Best Mgmt. Practices:
Use of grassed shoulders and swales.
Minimize use of SBG allowing for flow over grassed shoulders.
Equalizer pipes in wetlands.
Grading out existing NC 94 and NC 32 intersection w/ grassed swales and flat side slopes.
Use of rip rap disipaters / grass swales at ditch tie-ins at wetlands to get non-erosive velocities.

References

09/08/99

TIP PROJECT: R-3620

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-3620	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
34548.1.1	STP-000S(252)	PE
34548.2.1	STP-000S(252)	R/W & UTIL

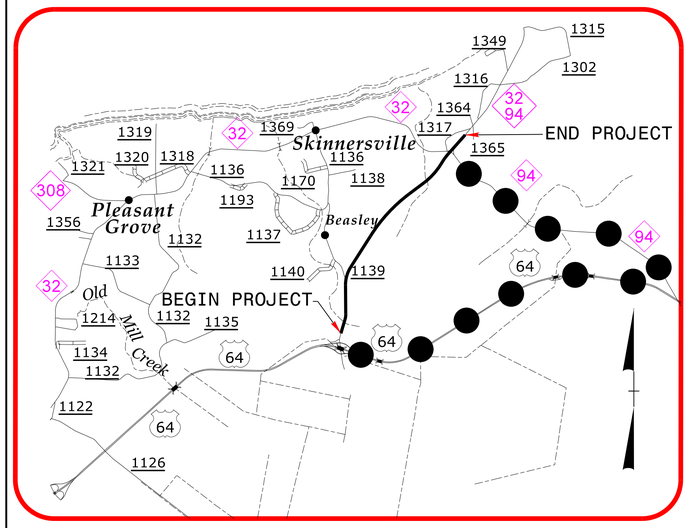
WASHINGTON COUNTY

LOCATION: NEW ROUTE FROM US 64 TO NC 32

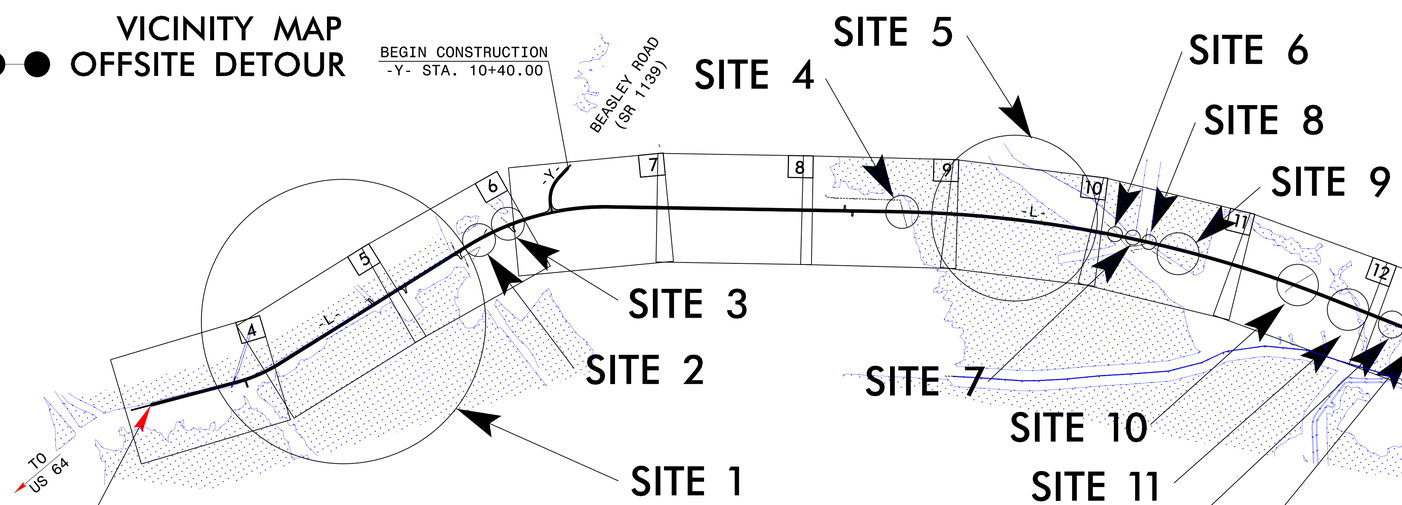
TYPE OF WORK: GRADING, PAVING, AND DRAINAGE

PERMIT DRAWING
SHEET 1 OF 35

WETLAND AND SURFACE WATER IMPACTS PERMIT

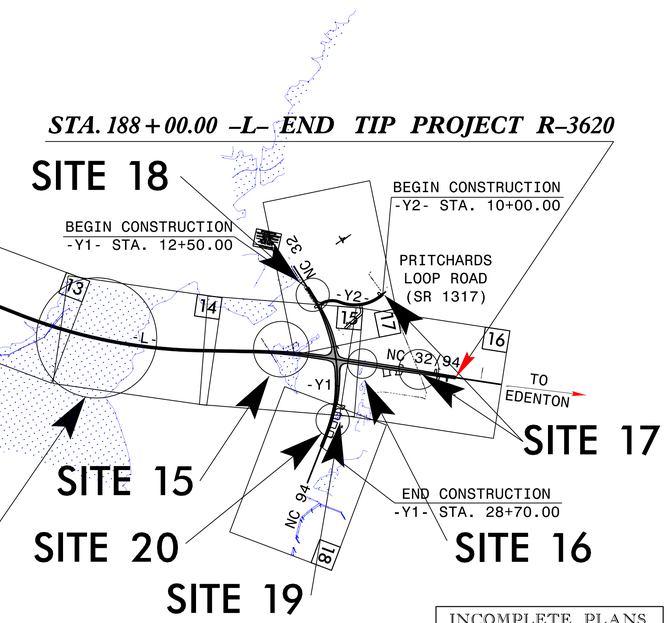


VICINITY MAP
OFFSITE DETOUR



STA. 12+00.00 -L- BEGIN TIP PROJECT R-3620

STA. 188+00.00 -L- END TIP PROJECT R-3620



THIS IS A LIMITED AND PARTIAL CONTROL OF ACCESS PROJECT WITH ACCESS BEING LIMITED TO POINTS AS SHOWN ON THE PLANS.

THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONTRACT:

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 = 3250
ADT 2035 = 5200
DHV = 10 %
D = 60 %
T = 7 % *
V = 60 MPH
* TTST = 3 DUAL 4
FUNC CLASS =
COLLECTOR
REGIONAL TIER

PROJECT LENGTH

TOTAL LENGTH TIP PROJECT R-3620 = 3.33 miles

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JUNE 16, 2012

LETTING DATE:
JUNE 17, 2014

GARY LOVERING, PE
PROJECT ENGINEER

KEVIN E. MOORE, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER
SIGNATURE: P.E.

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

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

PROJECT REFERENCE NO.	SHEET NO.
R-3620	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

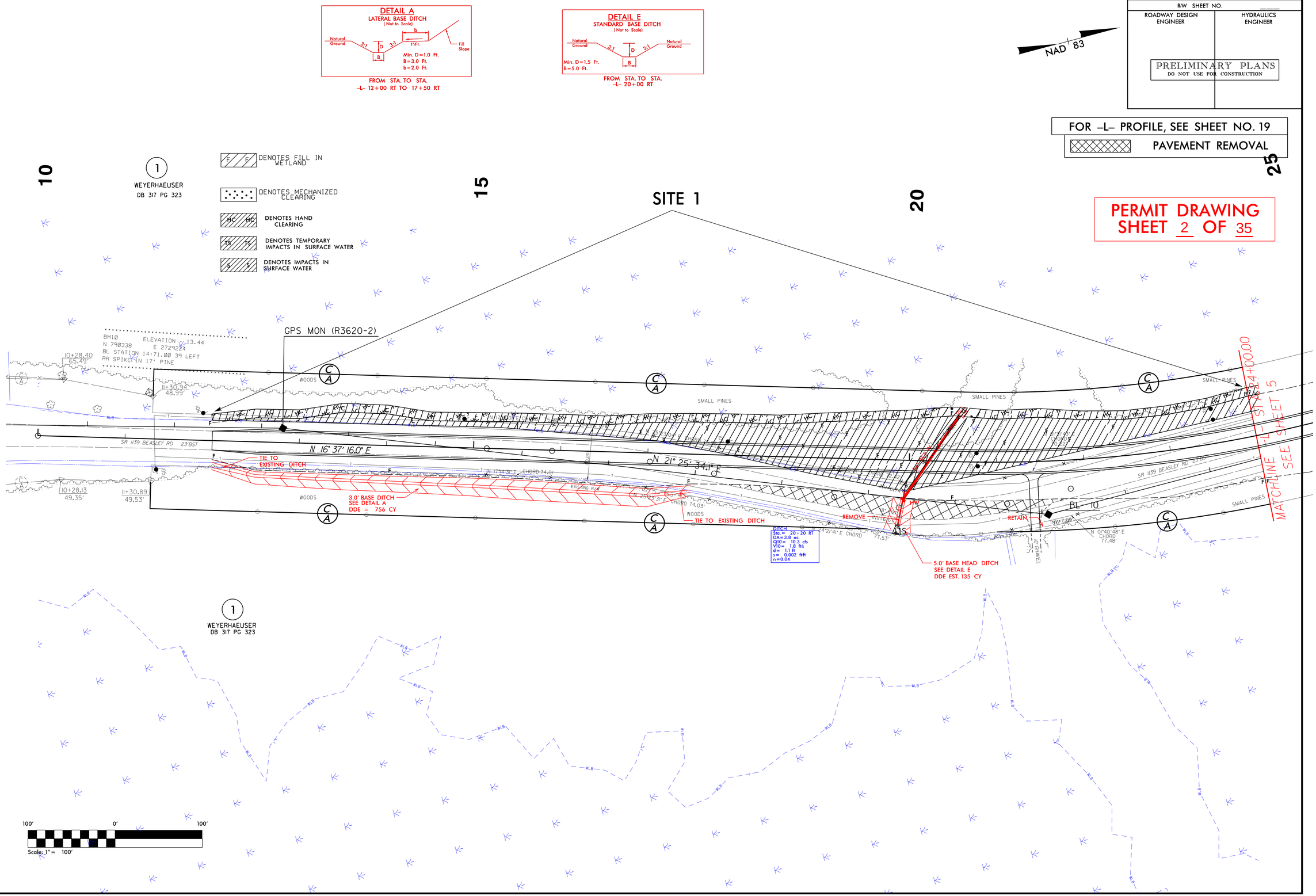
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83

FOR –L– PROFILE, SEE SHEET NO. 19

PAVEMENT REMOVAL

PERMIT DRAWING
SHEET 2 OF 35



REVISIONS

07/24/2012 R/W REVISION (KEM) - MODIFIED EXISTING R/W AND PROPOSED R/W ON PARCEL 001

8/17/99

11/26/2013
jhoate
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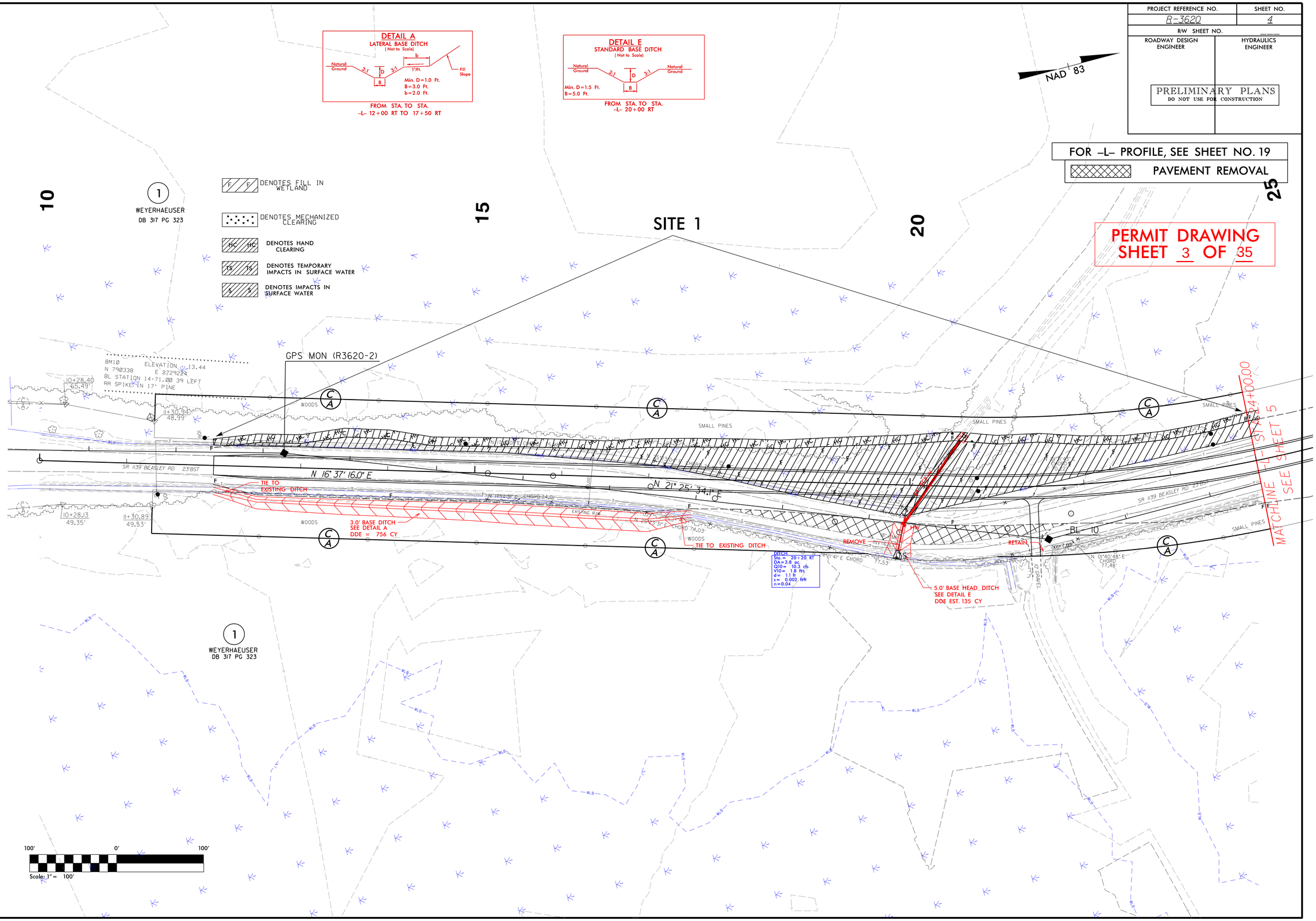
PROJECT REFERENCE NO.	SHEET NO.
R-3620	4
R/W SHEET NO.	___
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

FOR –L– PROFILE, SEE SHEET NO. 19

PAVEMENT REMOVAL

PERMIT DRAWING
SHEET 3 OF 35



REVISIONS

07/24/2012 R/W REVISION (KEM) - MODIFIED EXISTING R/W AND PROPOSED R/W ON PARCEL 001

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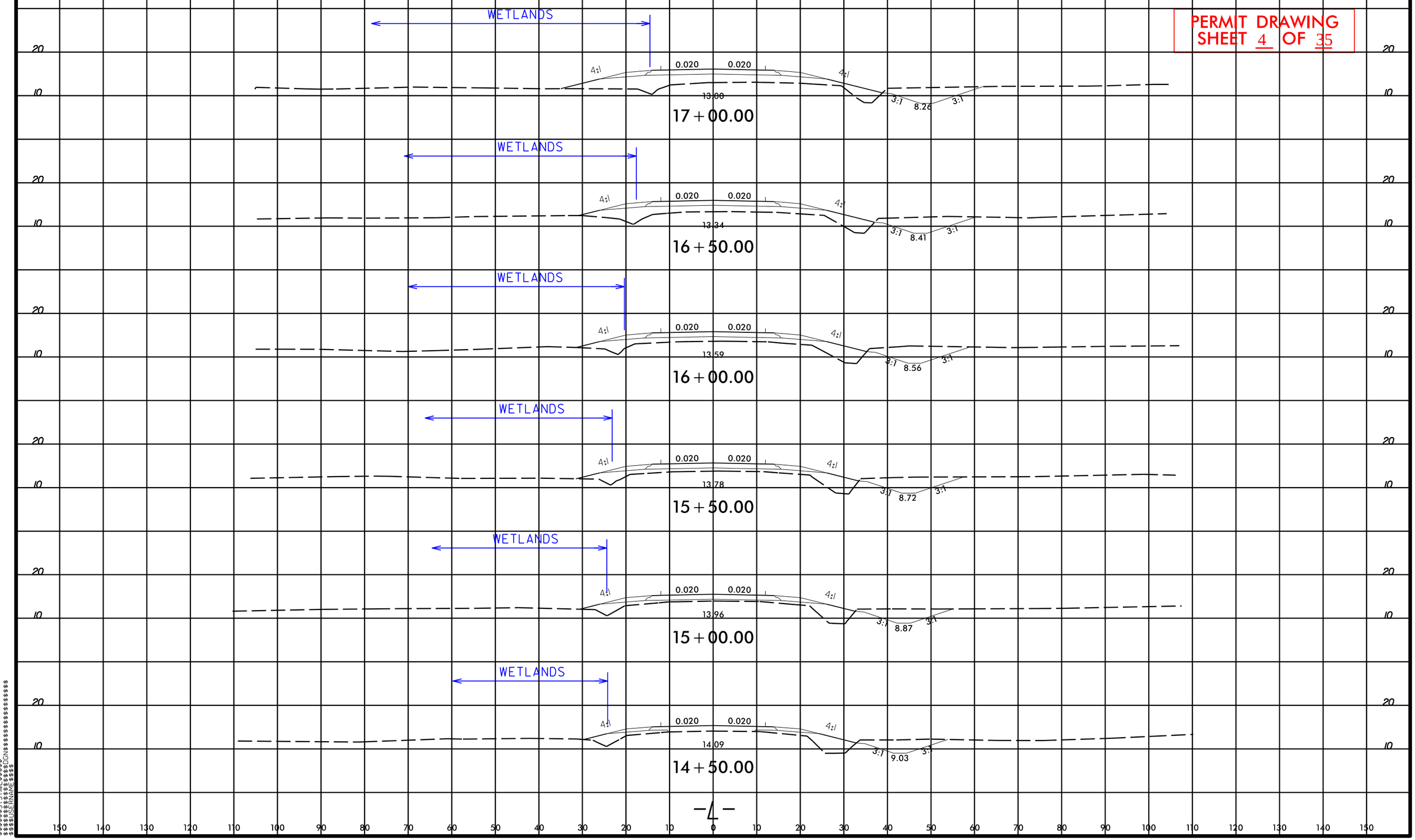
PROJ. REFERENCE NO.	SHEET NO.
R-3620	X-2

PERMIT DRAWING
SHEET 4 OF 35



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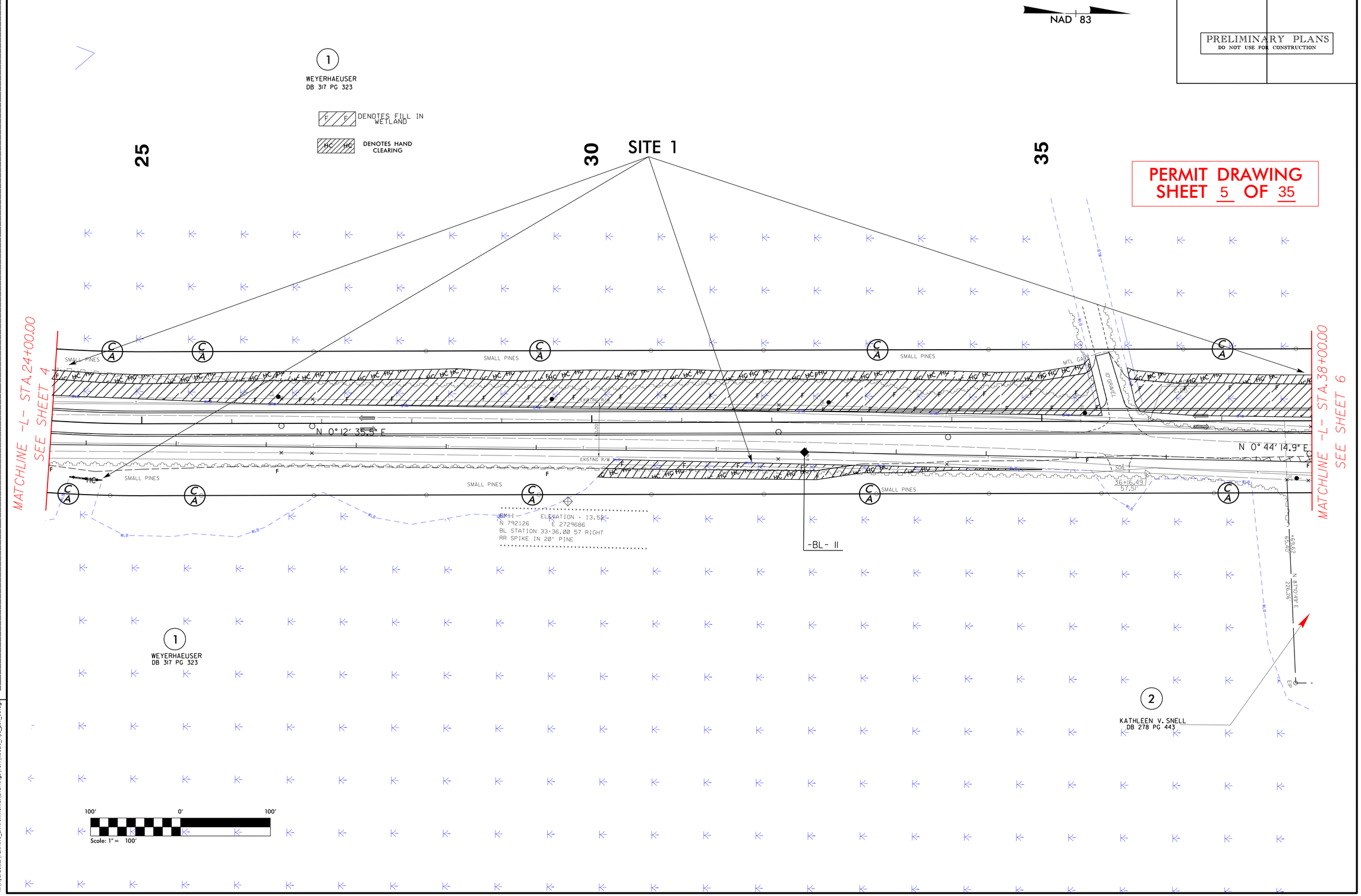
$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
R-3620	5
R/W SHEET NO.	___
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 5 OF 35



REVISIONS

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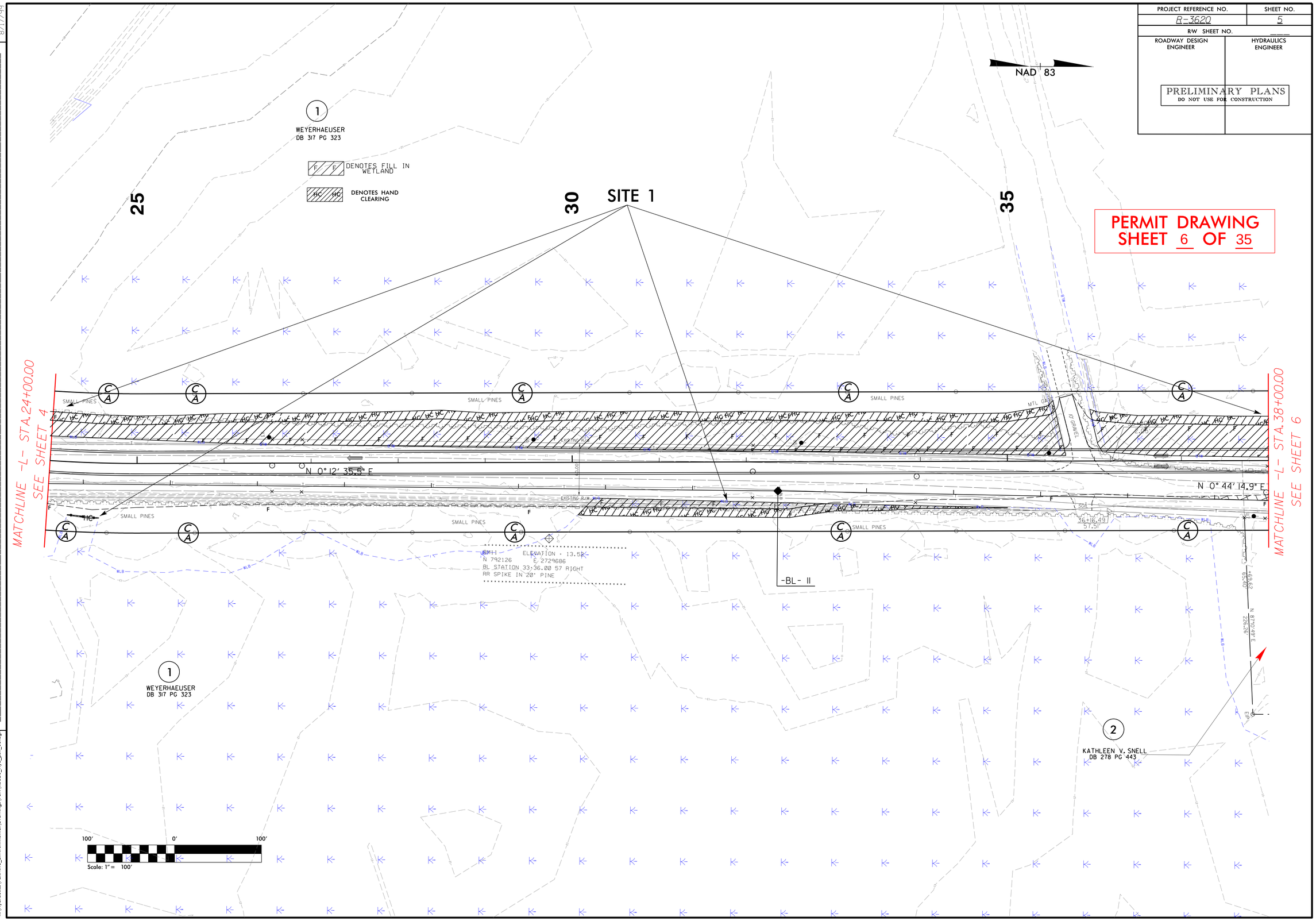
PROJECT REFERENCE NO.	SHEET NO.
R-3620	5
R/W SHEET NO.	___
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



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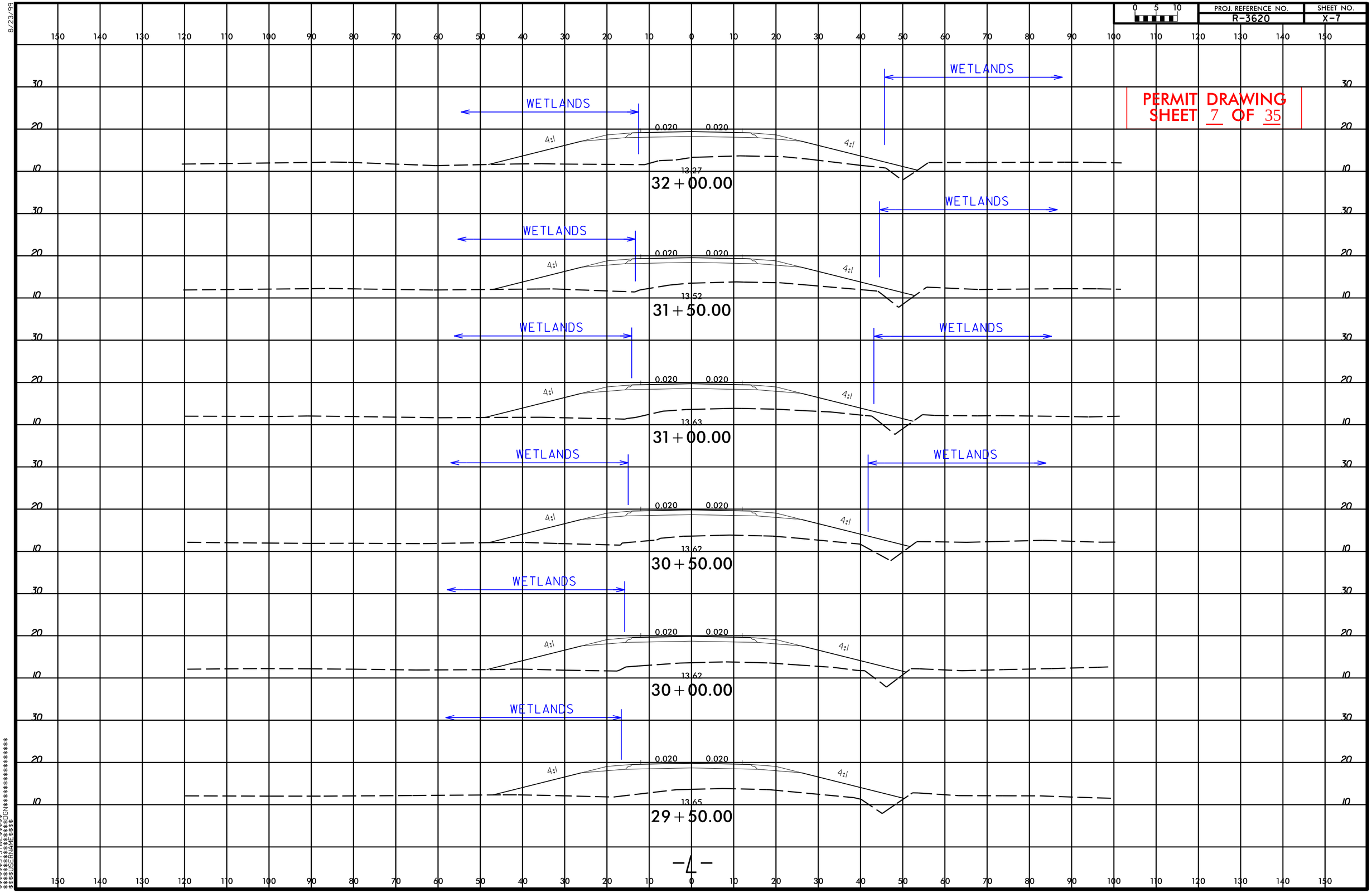
PROJ. REFERENCE NO.	SHEET NO.
R-3620	X-7

0 5 10

PERMIT DRAWING
SHEET 7 OF 35



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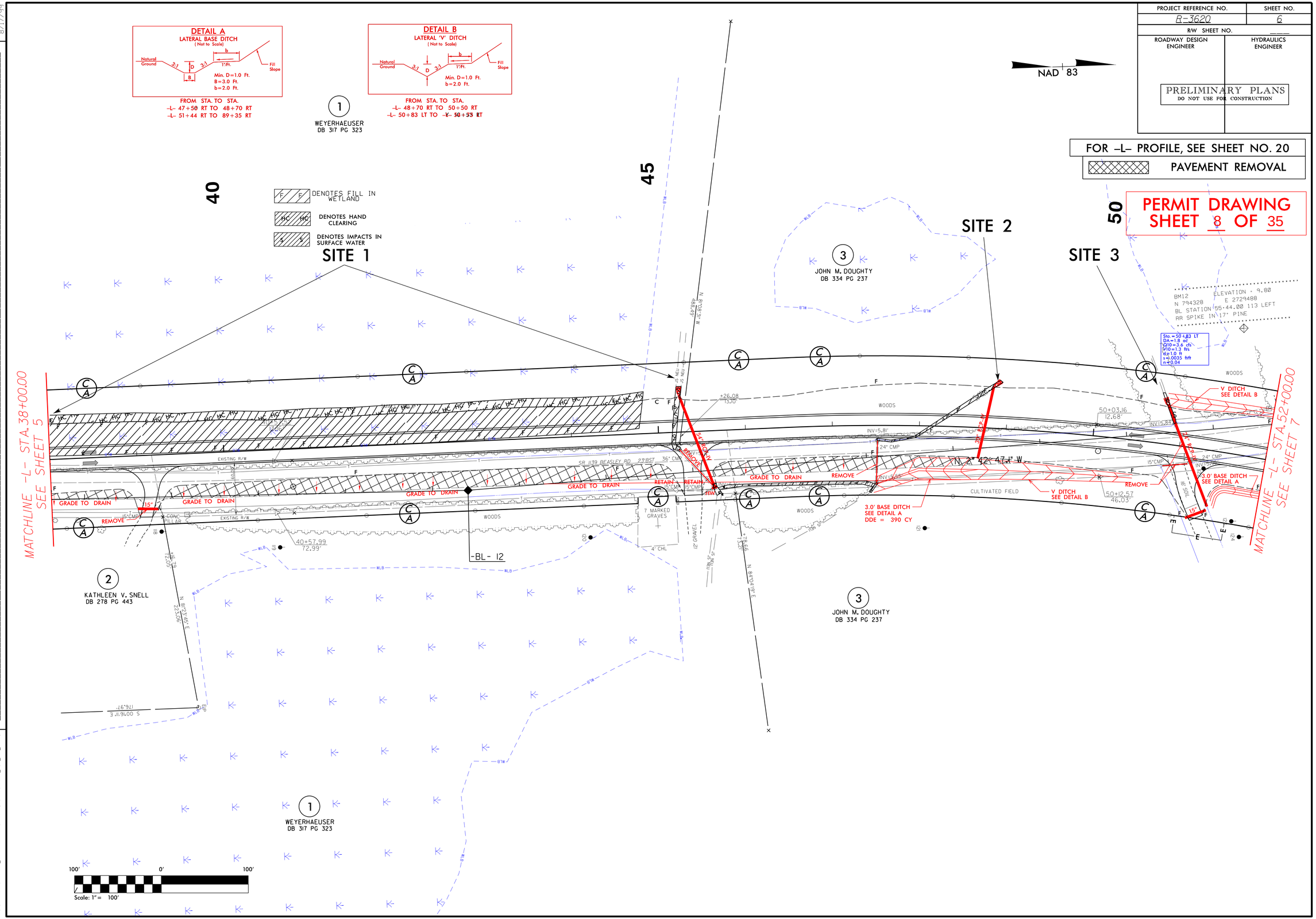
PROJECT REFERENCE NO.	SHEET NO.
R-3620	6
R/W SHEET NO.	___
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

FOR –L– PROFILE, SEE SHEET NO. 20

PAVEMENT REMOVAL

PERMIT DRAWING
SHEET 8 OF 35



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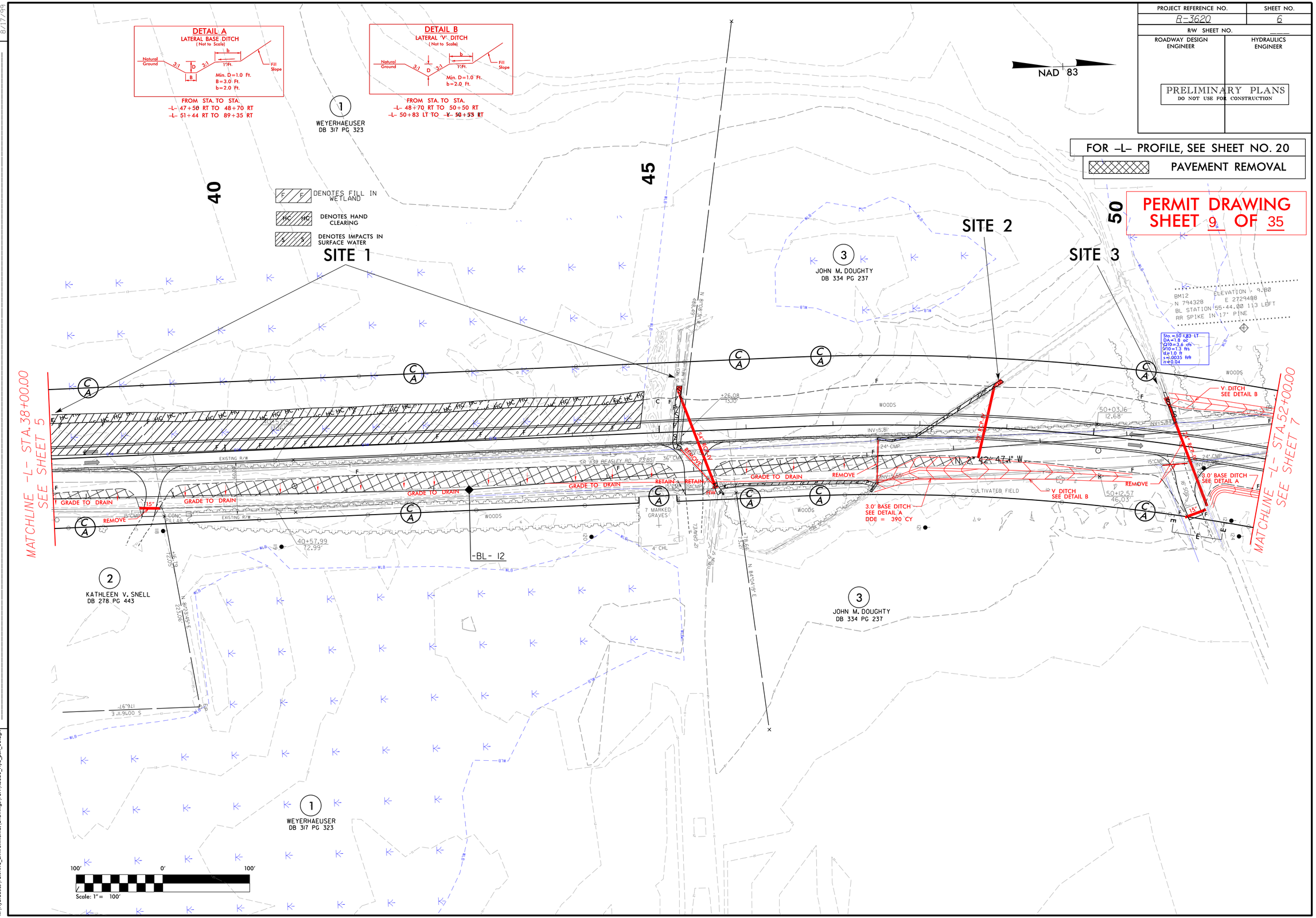
PROJECT REFERENCE NO.	SHEET NO.
R-3620	6
R/W SHEET NO.	___
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

FOR –L– PROFILE, SEE SHEET NO. 20

PAVEMENT REMOVAL

PERMIT DRAWING
SHEET 9 OF 35



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PROJECT REFERENCE NO.	SHEET NO.
R-3620	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

FOR -L- PROFILE, SEE SHEET NO. 21

PERMIT DRAWING
SHEET 10 OF 35

NAD 83

F F DENOTES FILL IN WETLAND
HC HC DENOTES HAND CLEARING
S S DENOTES IMPACTS IN SURFACE WATER

80
85
90

3 JOHN M. DOUGHTY DB 334 PG 237

4 WEYERHAEUSER DB 387 PG 637

N 73°37'30" W

100.00

NORTH CAROLINA POWER

BM13 ELEVATION = 13.78
N 797571 E 2731360
BL STATION 92+62.00 124 LEFT
RR SPIKE IN 12" GUM

16' DOUBLE GATES

8' 8'

N 33°08'23" E

JS NEU

WOVEN WIRE FENCE

3.0' BASE DITCH SEE DETAIL A

SITE 4

SITE 5

WOODS

MATCHLINE -L- STA.80+00.00 SEE SHEET 8

MATCHLINE -L- STA.94+00.00 SEE SHEET 10

N 32° 47' 38.5" E

N 32° 27' 15.0" E

N 34° 41' 28.4" E

HW

RCP-A

CULVERT END

CONCRETE DIKE

EXCAVATION LIMIT

-BL- 15

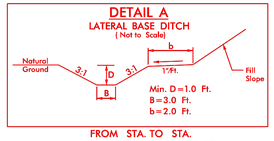
S 72°55'19" E

+51.54
406.53

BLB

L-BLB

DETAIL A
LATERAL BASE DITCH
(Not to Scale)



Min. D=1.0 Ft.
B=3.0 Ft.
b=2.0 Ft.

FROM STA. TO STA.
-L- 51+44 RT TO 89+35 RT
-L- 55+90 LT TO 89+10 LT

100' 0' 100'
Scale: 1"= 100'

REVISIONS

8/17/99

11/26/2013
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PROJECT REFERENCE NO.	SHEET NO.
R-3620	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

FOR -L- PROFILE, SEE SHEET NO. 21

PERMIT DRAWING
SHEET 11 OF 35

NAD 83

F F DENOTES FILL IN WETLAND
HC HC DENOTES HAND CLEARING
S S DENOTES IMPACTS IN SURFACE WATER

80
85
90

3 JOHN M. DOUGHTY DB 334 PG 237

4 WEYERHAEUSER DB 387 PG 637

N 73°57' 30" W
100.00
NORTH CAROLINA POWER
WLB
JS NEU
16' DOUBLE GATES
8' 8'
WOODS
N 33°08' 23" E
BM13 ELEVATION = 13.78
N 797571 E 2731360
BL STATION 92+62.00 124 LEFT
RR SPIKE IN 12" GUM

SITE 4
SITE 5

WOVEN WIRE FENCE
3.0' BASE DITCH SEE DETAIL A
N 32° 47' 38.5" E
N 32° 27' 15.0" E
12" RCP-A
HW
-BL- 15
S 72°51' 01" E
136.64
HAZELTON PIPE
LOWERED PIPE
EQUALIZER PIPE
MATCHLINE -L- STA. 80+00.00 SEE SHEET 8
MATCHLINE -L- STA. 94+00.00 SEE SHEET 10

DETAIL A
LATERAL BASE DITCH
(Not to Scale)
Natural Ground
3:1
D
B
b
1'/Ft.
Fill Slope
Min. D=1.0 Ft.
B=3.0 Ft.
b=2.0 Ft.

FROM STA. TO STA.
-L- 51+44 RT TO 89+35 RT
-L- 55+90 LT TO 89+10 LT

100' 0' 100'
Scale: 1" = 100'

REVISIONS
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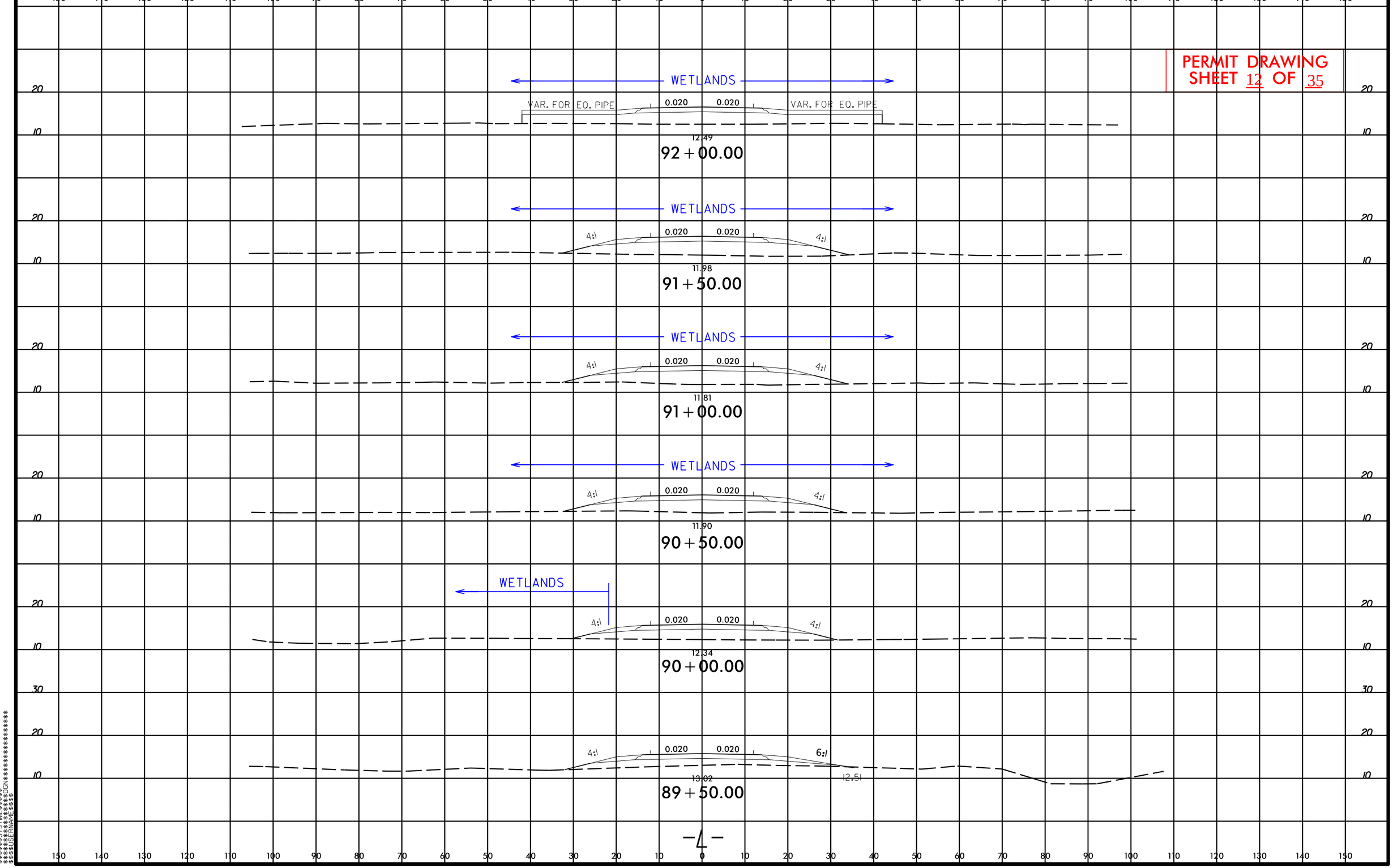
PROJ. REFERENCE NO.	SHEET NO.
R-3620	X-27

0 5 10

PERMIT DRAWING
SHEET 12 OF 35



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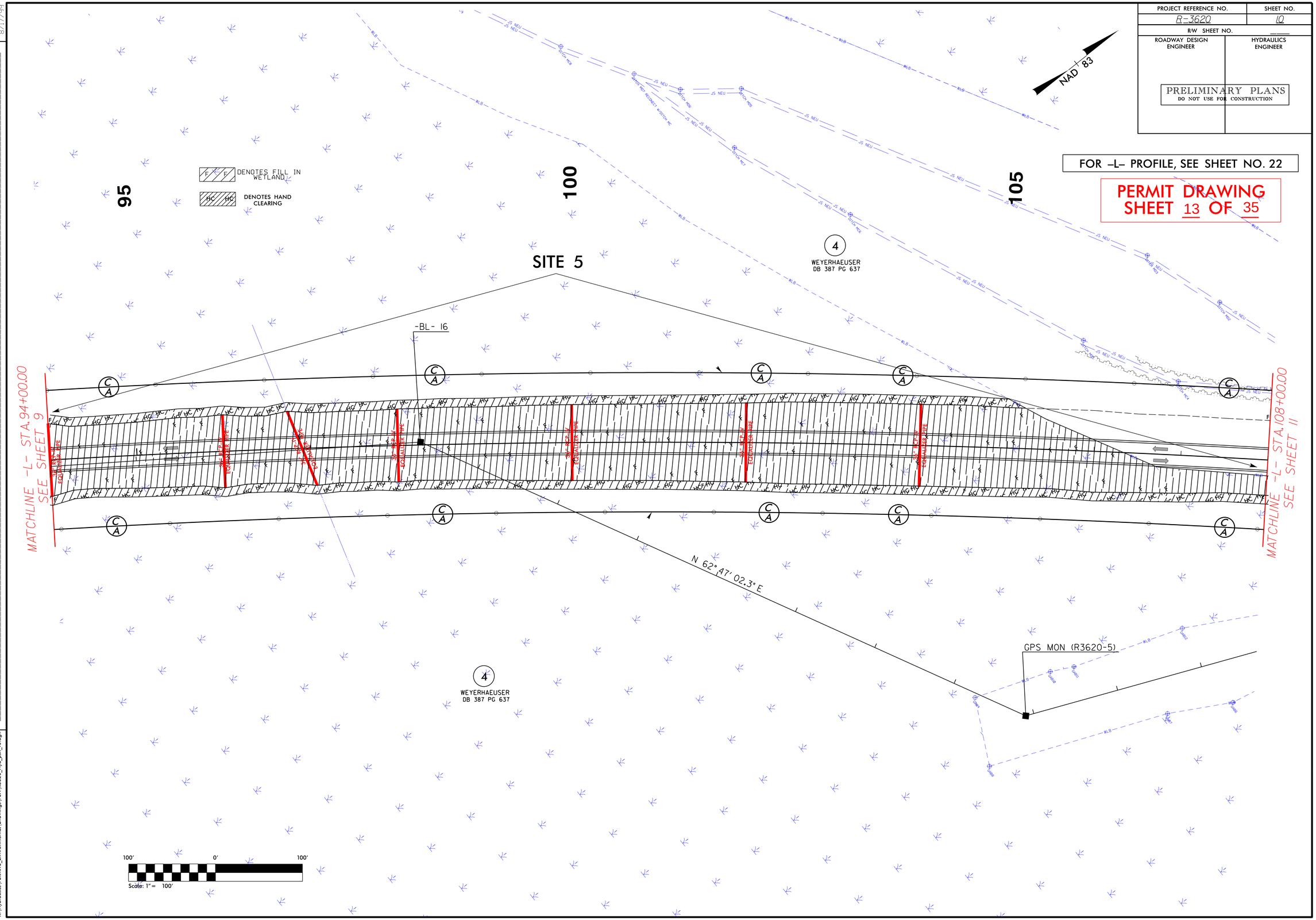
$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
R-3620	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



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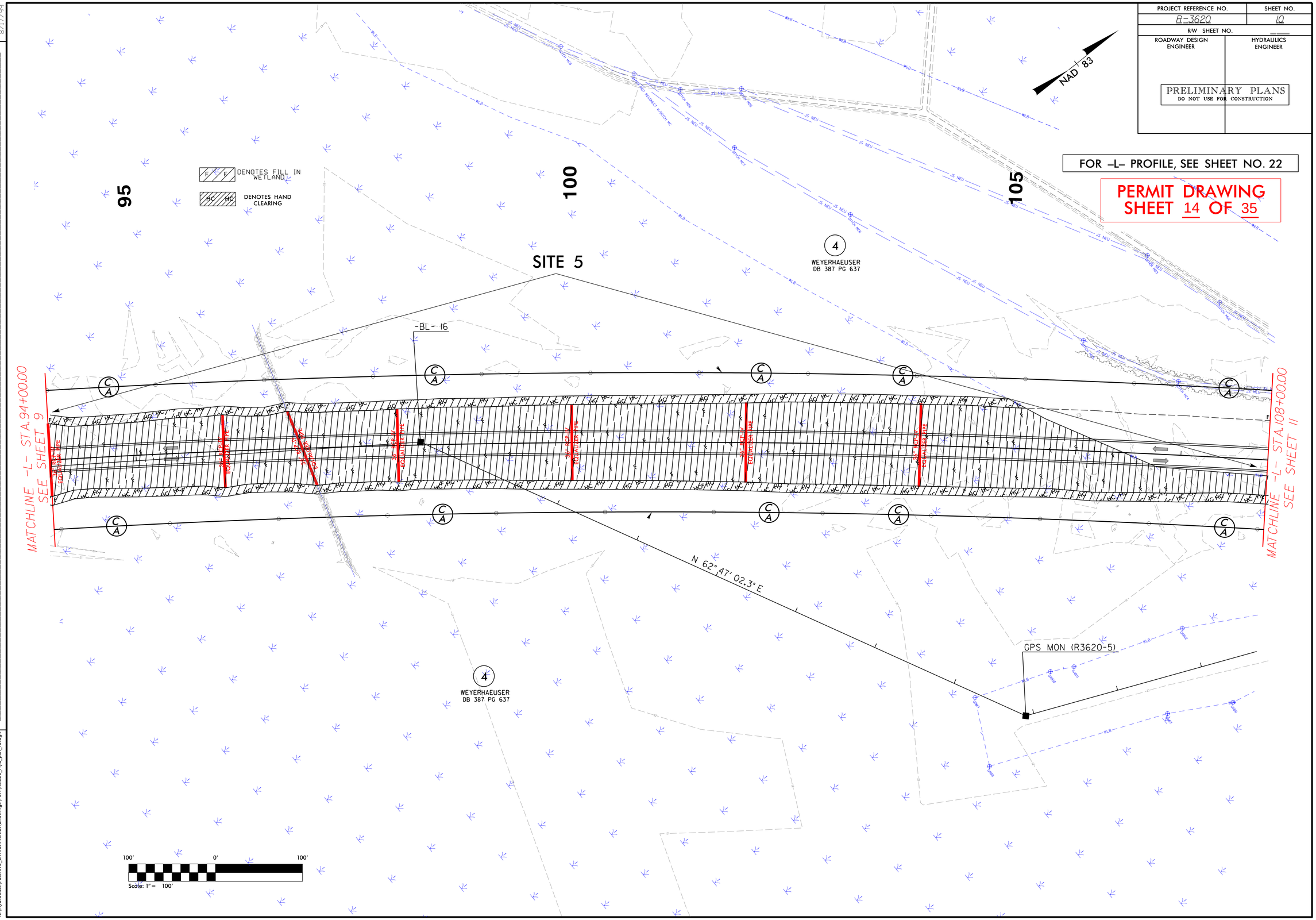
PROJECT REFERENCE NO.	SHEET NO.
R-3620	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



REVISIONS

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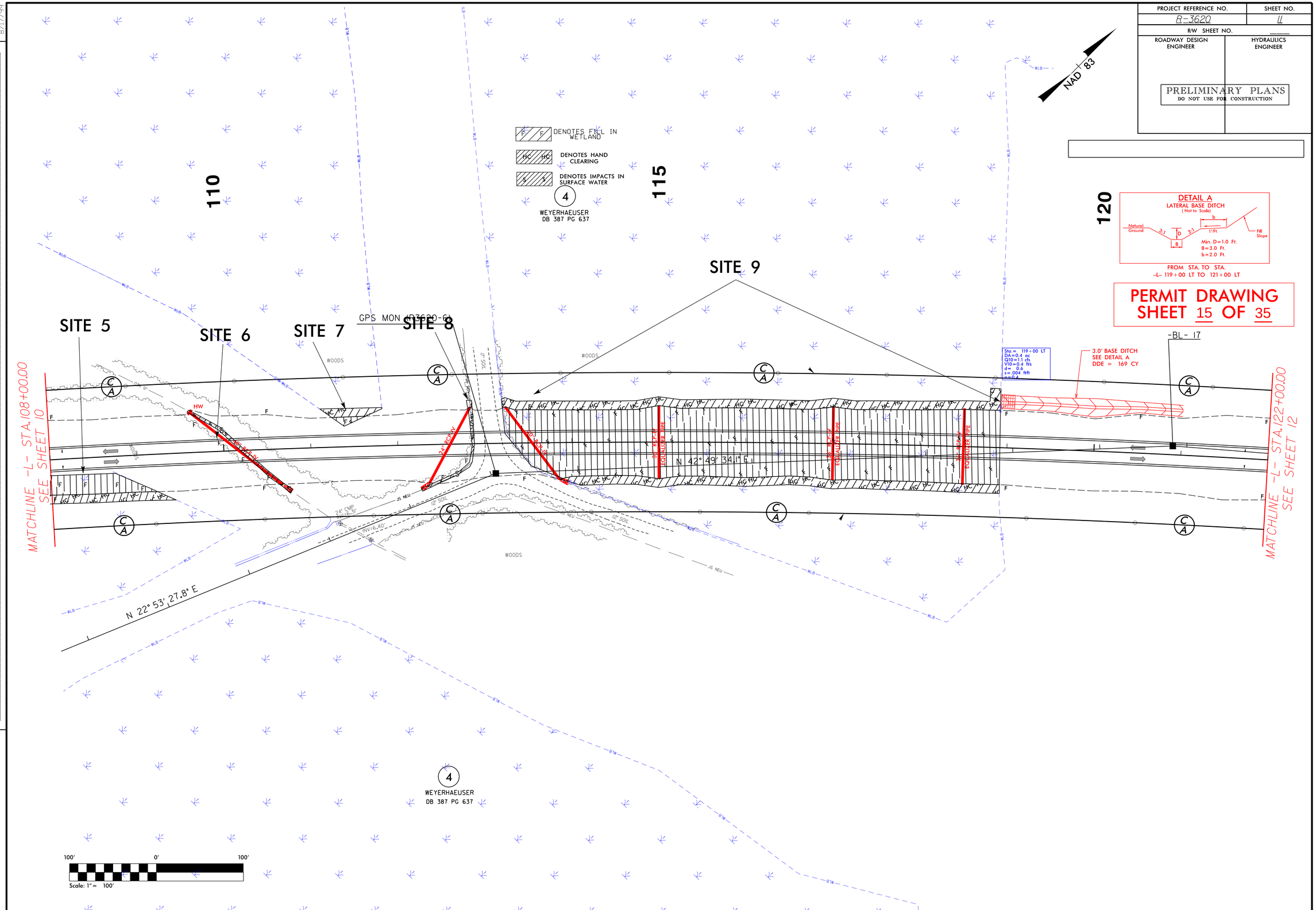
PROJECT REFERENCE NO.	SHEET NO.
R-3620	11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



REVISIONS

8/17/99

11/26/2013
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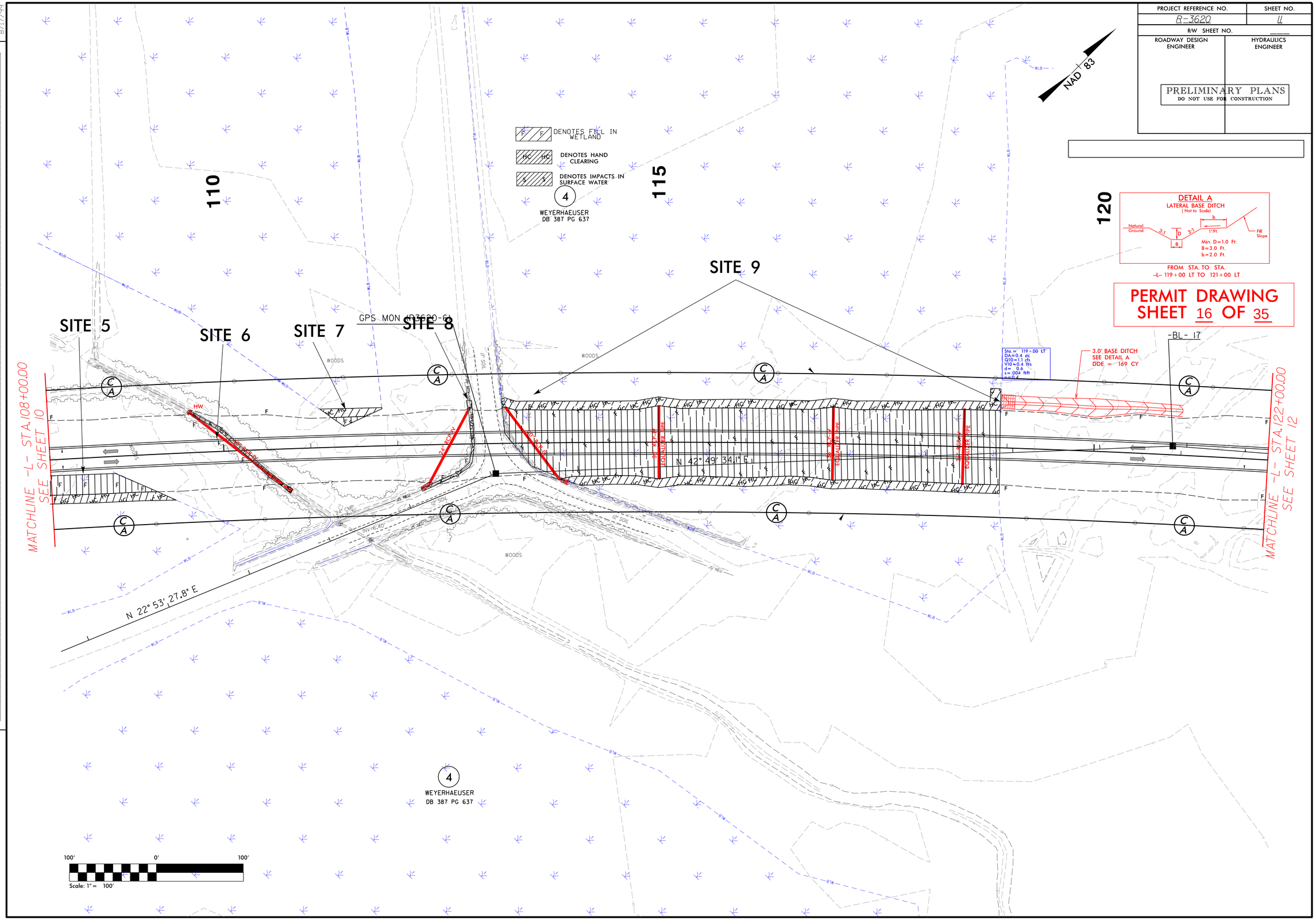
PROJECT REFERENCE NO.	SHEET NO.
R-3620	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



REVISIONS

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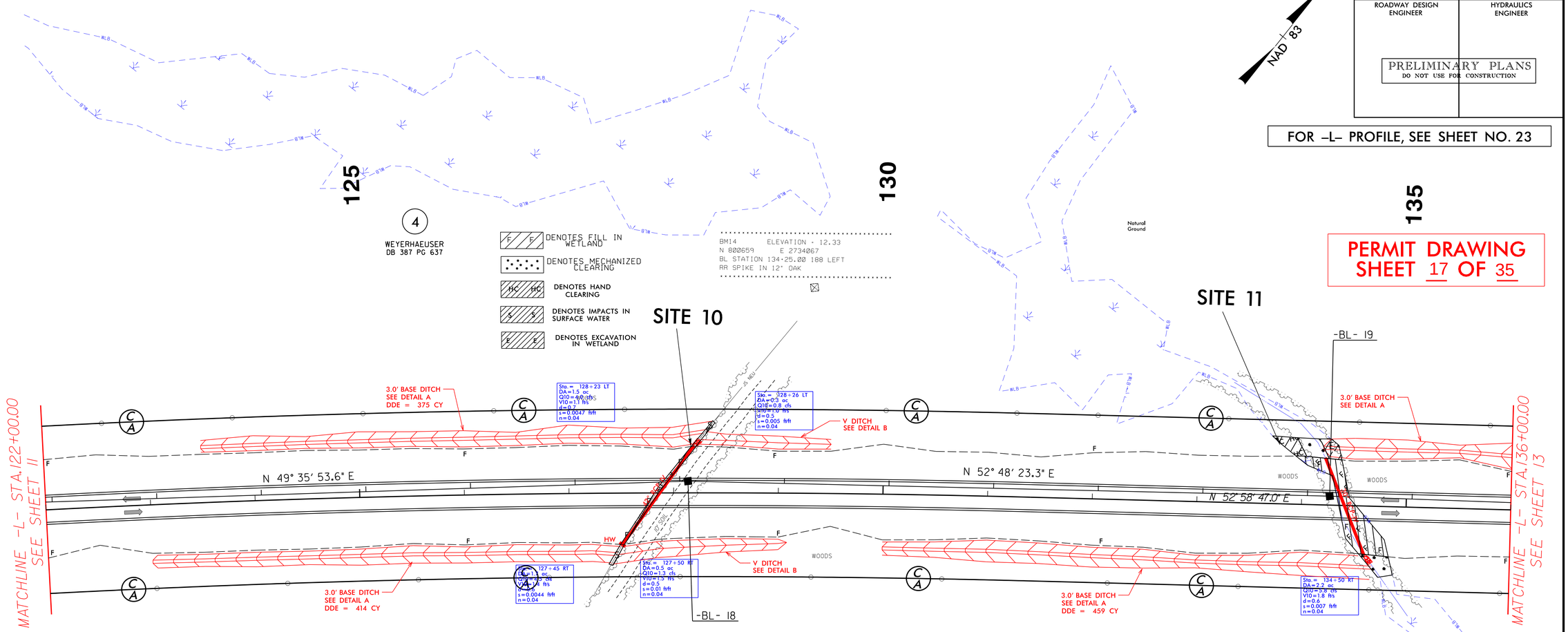
PROJECT REFERENCE NO.	SHEET NO.
R-3620	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

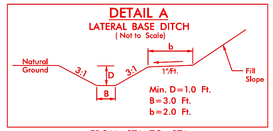
NAD 83

FOR -L- PROFILE, SEE SHEET NO. 23

PERMIT DRAWING
SHEET 17 OF 35

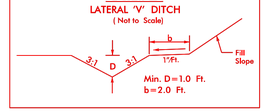


DETAIL A
LATERAL BASE DITCH
(Not to Scale)



FROM	STA.	TO	STA.
-L-	123+00 RT	TO	127+45 RT
-L-	123+50 LT	TO	128+23 LT
-L-	130+00 RT	TO	134+58 RT
-L-	134+20 LT	TO	143+30 LT

DETAIL B
LATERAL 'V' DITCH
(Not to Scale)



FROM	STA.	TO	STA.
-L-	127+50 RT	TO	129+00 RT
-L-	128+26 LT	TO	129+50 LT

100' 0' 100'
Scale: 1" = 100'

REVISIONS

8/17/99

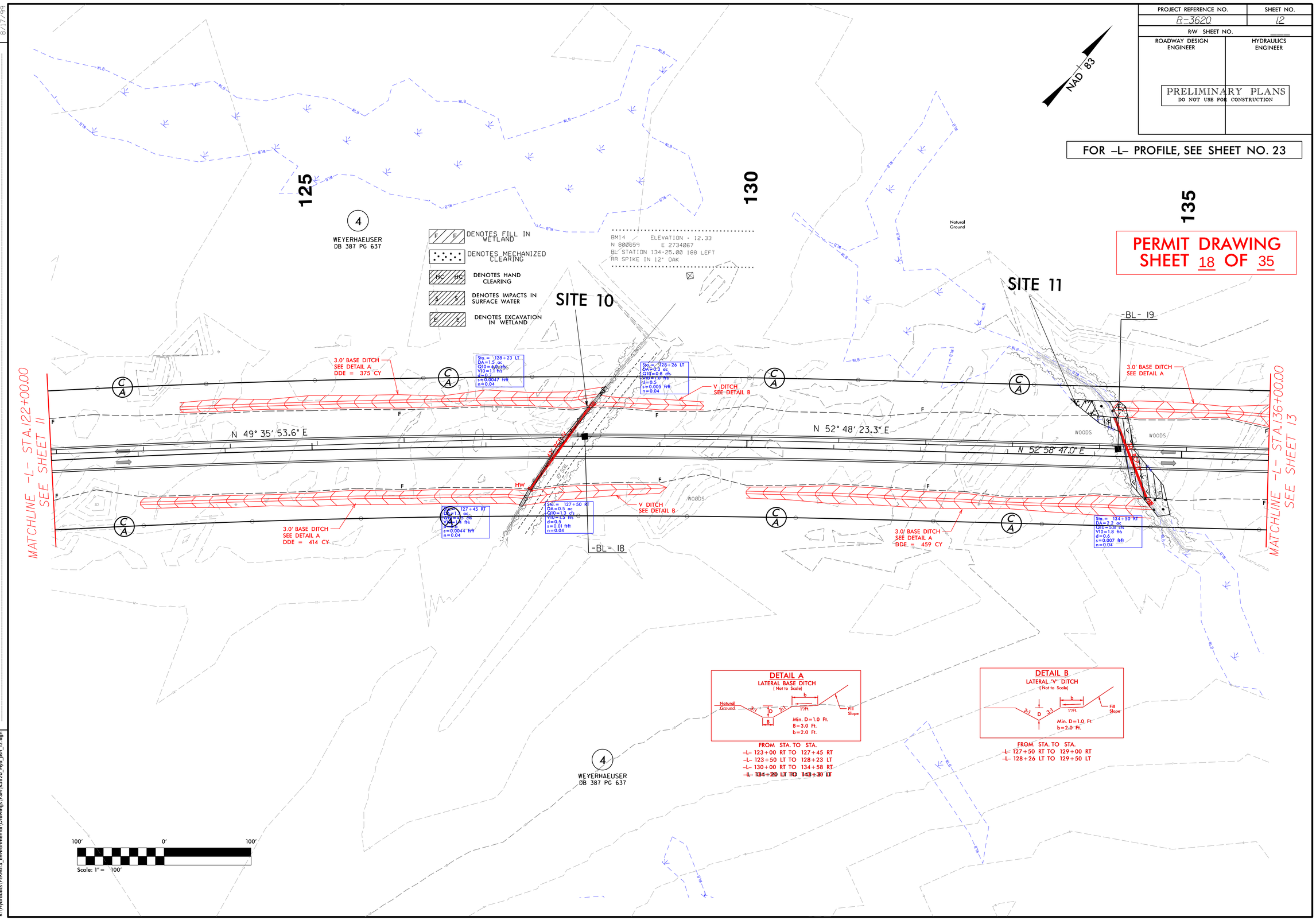
11/26/2013
jhopel
R:\Hydraulics\PERMITS_Environmental\Drawings\PSH\R3620_Hyd_psh_12.dgn

PROJECT REFERENCE NO.	SHEET NO.
R-3620	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

FOR -L- PROFILE, SEE SHEET NO. 23

PERMIT DRAWING
SHEET 18 OF 35



REVISIONS

8/17/99

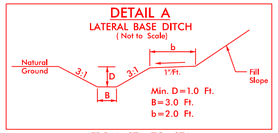
11/26/2013
jhgandl
R:\Hydraulics\PERMITS_Environmental\Drawings\PSH\R3620_Hyd_psh_12.dgn

PROJECT REFERENCE NO.	SHEET NO.
R-3620	13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

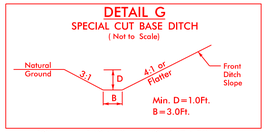
NAD 83

DETAIL A
LATERAL BASE DITCH
(Not to Scale)



FROM STA. TO STA.
-L- 134+20 LT TO 143+30 LT

DETAIL G
SPECIAL CUT BASE DITCH
(Not to Scale)



FROM -L- 143+50 LT TO 147+50 LT

DENOTES IMPACTS IN SURFACE WATER

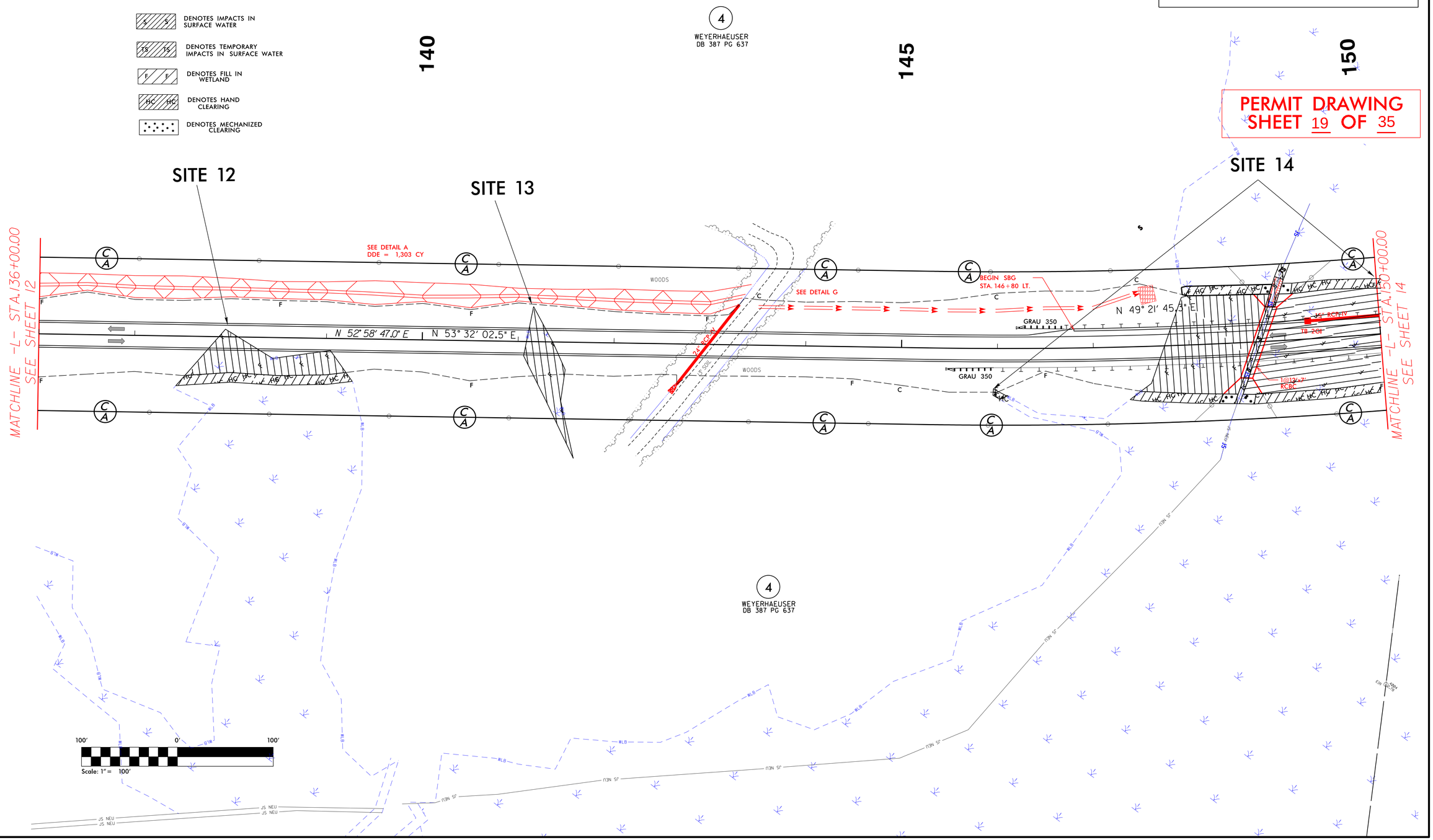
DENOTES TEMPORARY IMPACTS IN SURFACE WATER

DENOTES FILL IN WETLAND

DENOTES HAND CLEARING

DENOTES MECHANIZED CLEARING

PERMIT DRAWING
SHEET 19 OF 35



REVISIONS

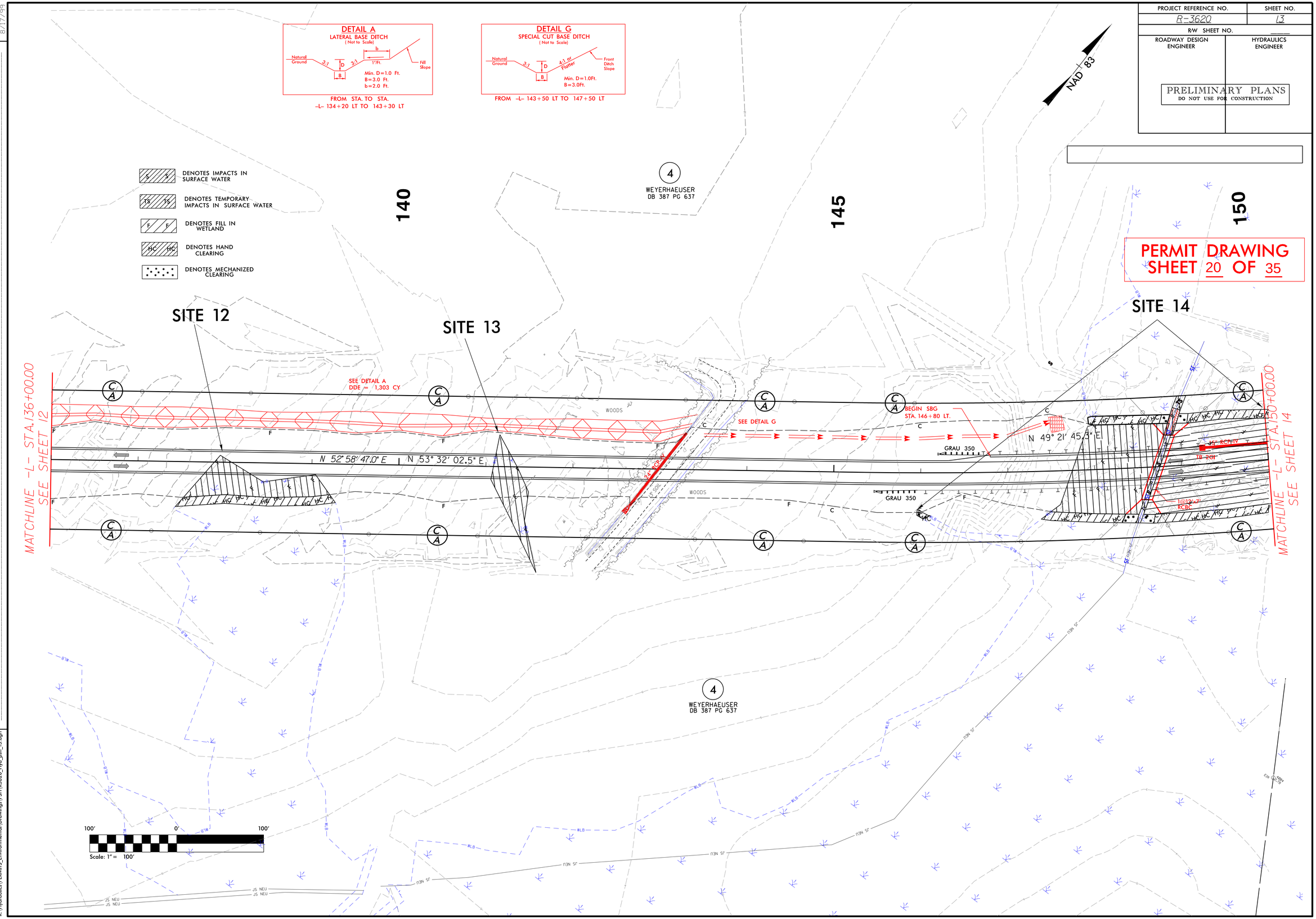
Design Revision 7-13-12 Revised ditch left of -L- according to Detail G

8/17/99

11/26/2013
gcoil
R:\Hydraulics\PERMITS_Environmental\Drawings\PSH\R3620_Hyd_psh_13.dgn

PROJECT REFERENCE NO.	SHEET NO.
R-3620	13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



REVISIONS

Design Revision 7-13-12 Revised ditch left of -L- according to Detail G

8/17/99

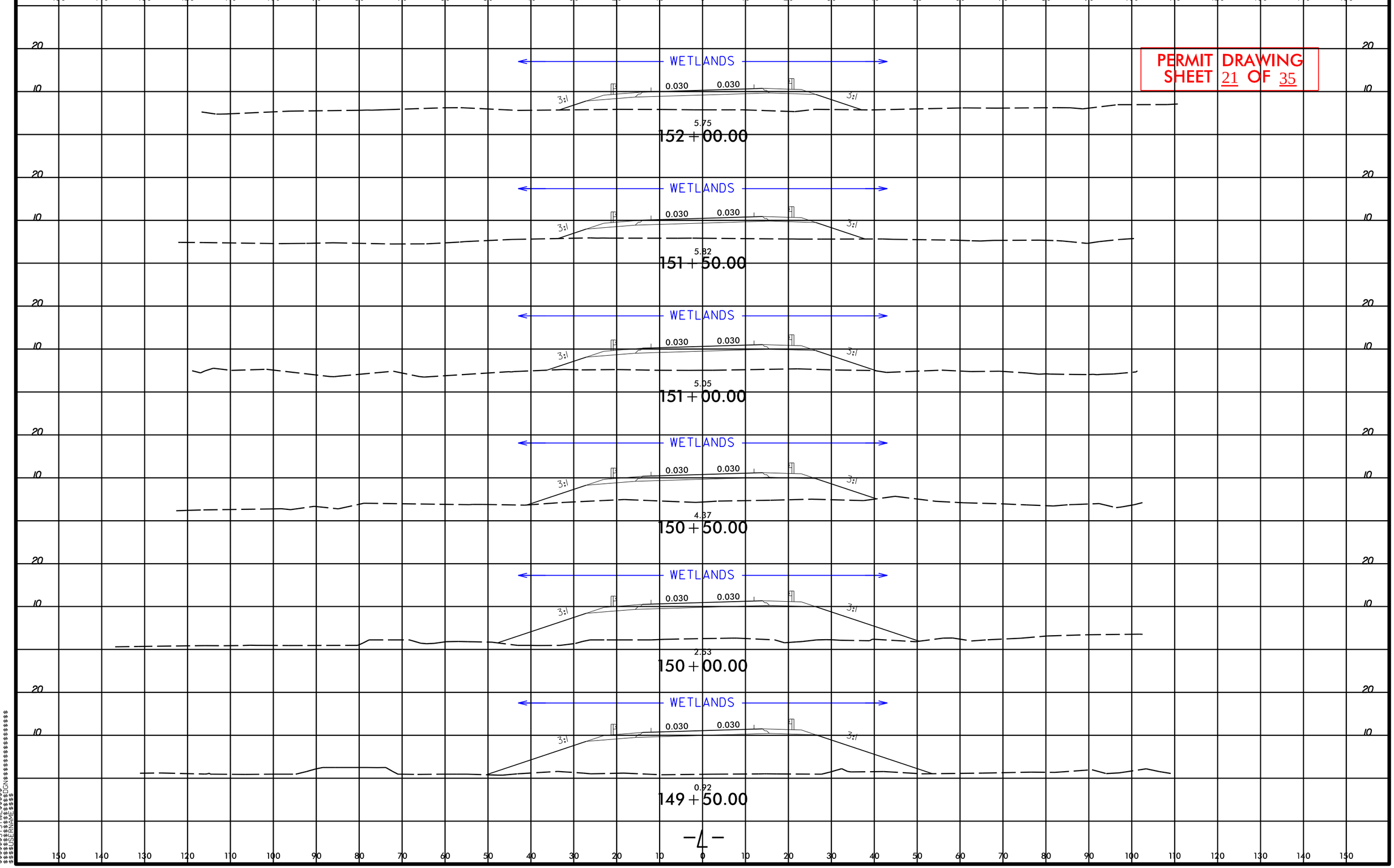
11/26/2013
gcail
R:\Hydraulics\PERMITS_Environmental\Drawings\PSH\R3620_Hyd_psh_13.dgn

8/23/99

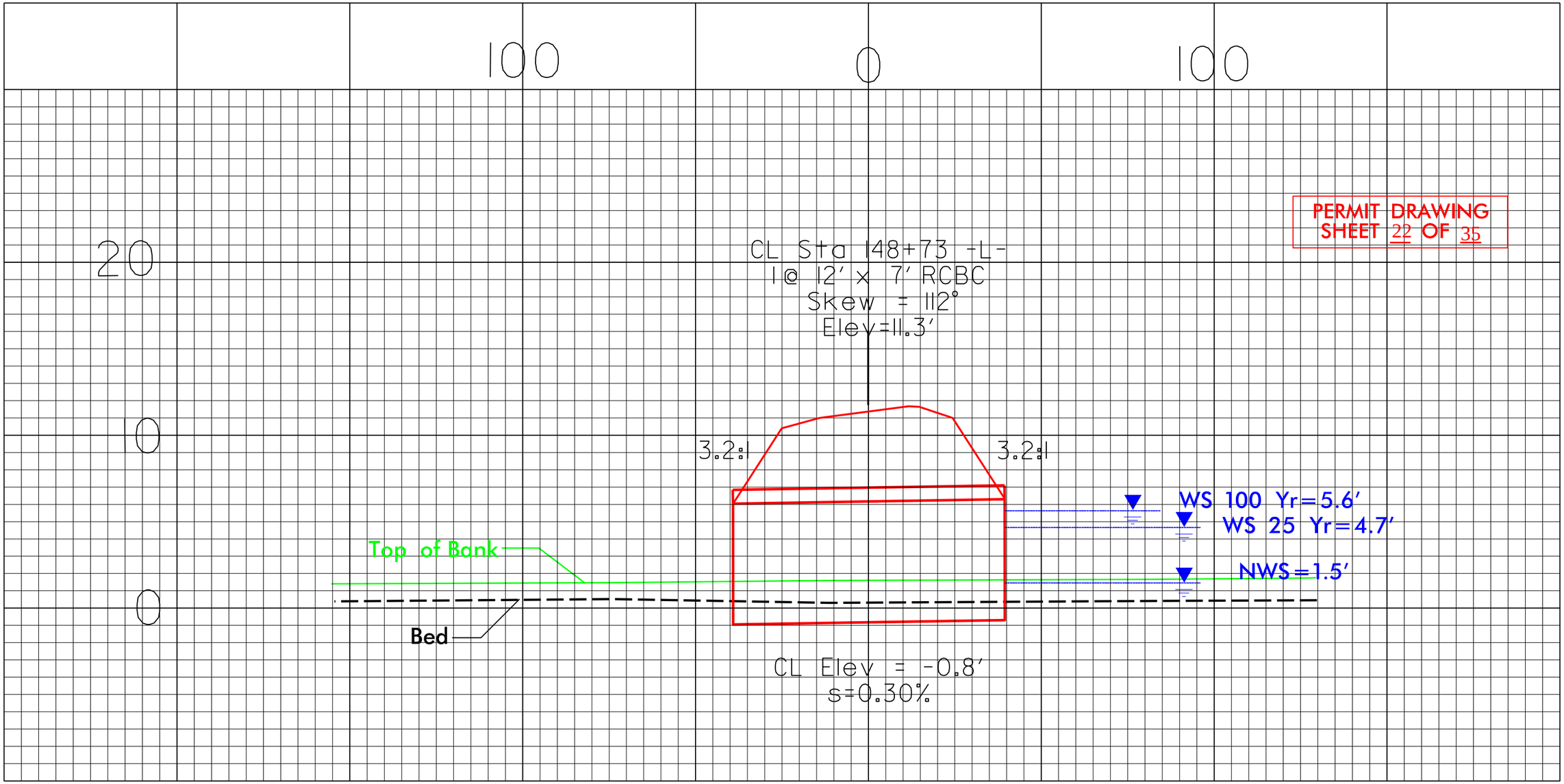
PROJ. REFERENCE NO.	SHEET NO.
R-3620	X-47

0 5 10

PERMIT DRAWING
SHEET 21 OF 35



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



PERMIT DRAWING
SHEET 22 OF 35

PROJECT REFERENCE NO.	SHEET NO.
R-3620	14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

FOR -L- PROFILE, SEE SHEET NO. 24

PERMIT DRAWING
SHEET 23 OF 35

NAD 83

F F DENOTES FILL IN WETLAND

HC HC DENOTES HAND CLEARING

4 WEYERHAEUSER
DB 387 PG 637

5 REBECCA PIERCE HEIRS
DB 371 PG 169
PC2 115B

6 ALBEMARLE BEACH FARMS,INC
DB 442 PG 935

155

160

SITE 14

MATCHLINE -L- STA. 150+00.00
SEE SHEET 13

MATCHLINE -L- STA. 164+00.00
SEE SHEET 15

16" RCP-IV
18" 2GI
(1403)
(1404)
(1405)
(1406)
(1407)
(1408)
(1409)
(1410)
CP-IV
18" 2GI
36" RCP-IV
18" 2GI
36" RCP-IV
18" 2GI
36" RCP-IV
18" 2GI
36" RCP-IV
18" 2GI

CLASS B RIP RAP
EST. 12.0 TONS
EST. GEOTEXTILE 6.0 S.Y.

END SBG
STA. 157+97 LT.

3.0' BASE DITCH
SEE DETAIL A
DDE = 633 CY

GRAU 350

GRAU 350

WOODS

CLASS B RIP RAP
EST. 16.0 TONS
EST. GEOTEXTILE 8.0 S.Y.

3.0' BASE DITCH
SEE DETAIL A
DDE = 748 CY

S 30°55'05" E
3976.8'

S 06°27'E
95.05'

+98.92
2,087.68'

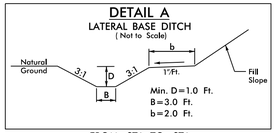
N 19°23'02"
S 02°40'50" S

W.L.B.

C A

100' 0' 100'
Scale: 1" = 100'

DETAIL A
LATERAL BASE DITCH
(Not to Scale)



Min. D=1.0 Ft.
B=3.0 Ft.
b=2.0 Ft.

FROM STA. TO STA.
-L- 157+50 LT TO 167+00 LT
-L- 158+00 RT TO 166+00 RT

REVISIONS

8/17/99

11/26/2013
gcail
R:\Hydraulics\PERMITS_Environmental\Drawings\PSH\R3620_Hyd_psh_14.dgn

PROJECT REFERENCE NO.	SHEET NO.
R-3620	14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

FOR -L- PROFILE, SEE SHEET NO. 24

PERMIT DRAWING
SHEET 24 OF 35

NAD 83

4
WEYERHAEUSER
DB 387 PG 637

F F DENOTES FILL IN WETLAND

HC HC DENOTES HAND CLEARING

5
REBECCA PIERCE HEIRS
DB 371 PG 169
PC2 115B

SITE 14

155

160

6
ALBEMARLE BEACH FARMS,INC
DB 442 PG 935

MATCHLINE -L- STA.150+00.00
SEE SHEET 13

MATCHLINE -L- STA.164+00.00
SEE SHEET 15

15" RCP-IV
18" ZGI
(1403)
(1404)
(1406)
(1407)
(1408)
(1409)
(1410)
30" RCP-IV
RIP RAP BOULDERS
CP-IV

CLASS B RIP RAP
EST. 12.0 TONS
EST. GEOTEXTILE 6.0 S.Y.

END SBG
STA. 157+97 LT.

3.0' BASE DITCH
SEE DETAIL A
DDE = 633 CY

GRAU 350

WOODS

CLASS B RIP RAP
EST. 16.0 TONS
EST. GEOTEXTILE 8.0 S.Y.

3.0' BASE DITCH
SEE DETAIL A
DDE = 748 CY

+98.92
2,087.68'

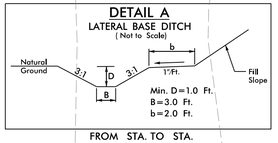
N 7°21'02"
S 02°60'50" S

S 30°55'05" E

N 06°27'
91.05'

100' 0' 100'
Scale: 1" = 100'

DETAIL A
LATERAL BASE DITCH
(Not to Scale)



Min. D=1.0 Ft.
B=3.0 Ft.
b=2.0 Ft.

FROM STA. TO STA.
-L- 157+50 LT TO 167+00 LT
-L- 158+00 RT TO 166+00 RT

REVISIONS

8/17/99

11/26/2013
gcail
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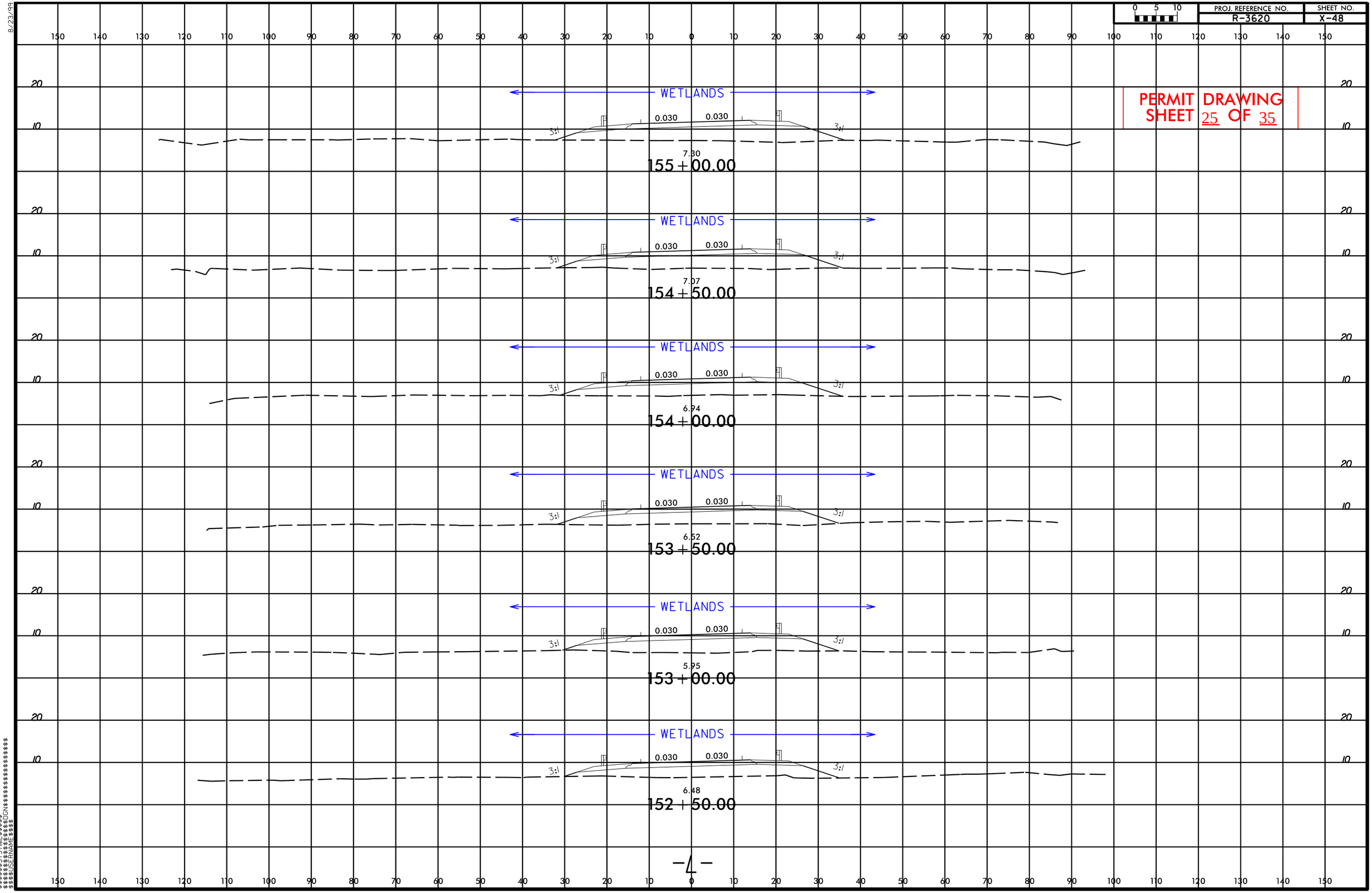
8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-3620	X-48

0 5 10

PERMIT DRAWING
SHEET 25 OF 35



-4-

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

PROJECT REFERENCE NO.	SHEET NO.
R-3620	15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

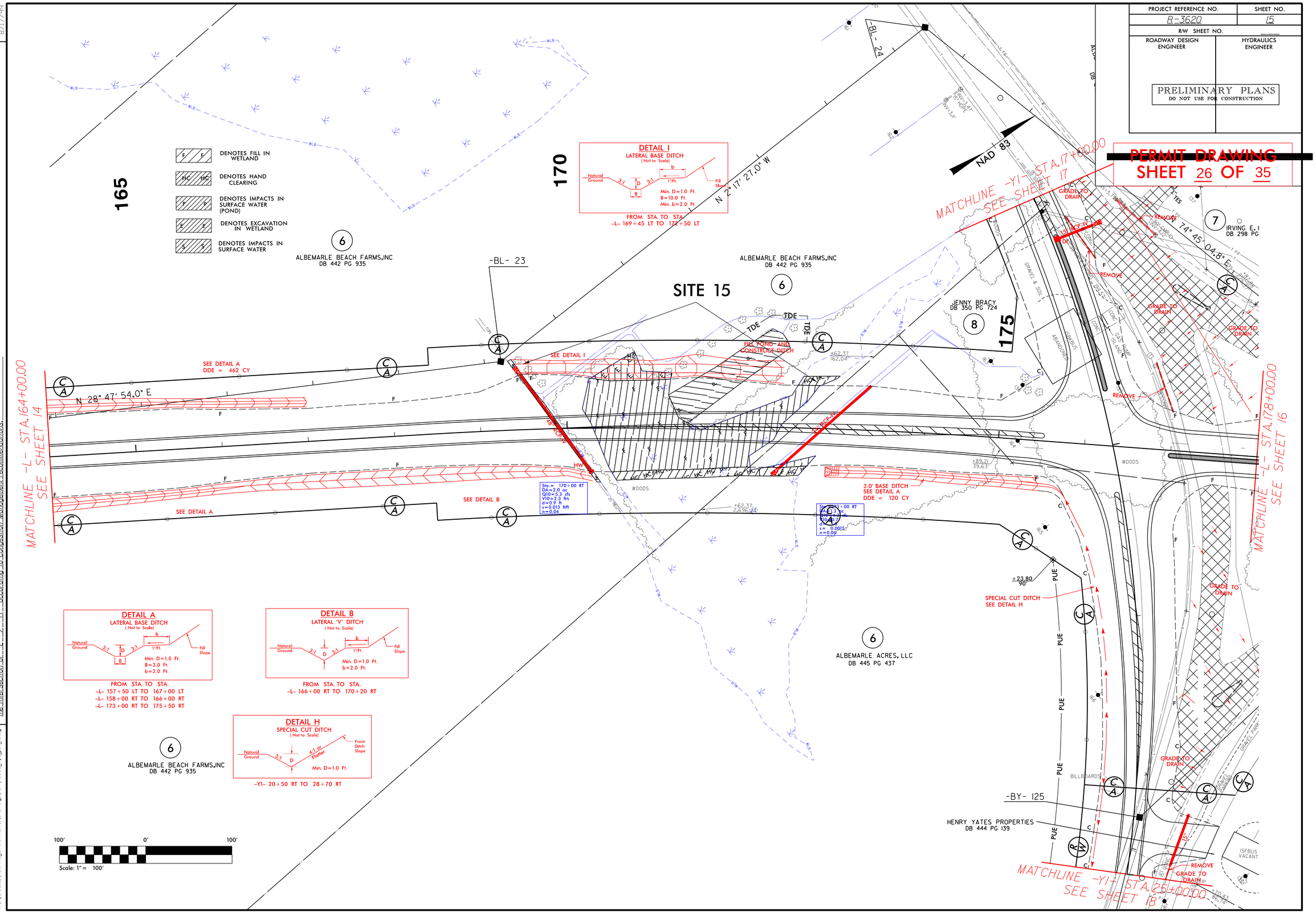
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 26 OF 35

REVISIONS

07/24/2012 R/W REVISION (KEM) - MODIFIED EXISTING R/W ON PARCELS 006,007, AND 008.
Design Revision 7-13-12 Revised ditches right of -Y1- according to Detail H. Revised the proposed EOP and lane geometry for the Intersection of -L- / -Y1- according to Congestion Management recommendations.

8/17/99



11/26/2013
jhpatel
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PROJECT REFERENCE NO.	SHEET NO.
R-3620	15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

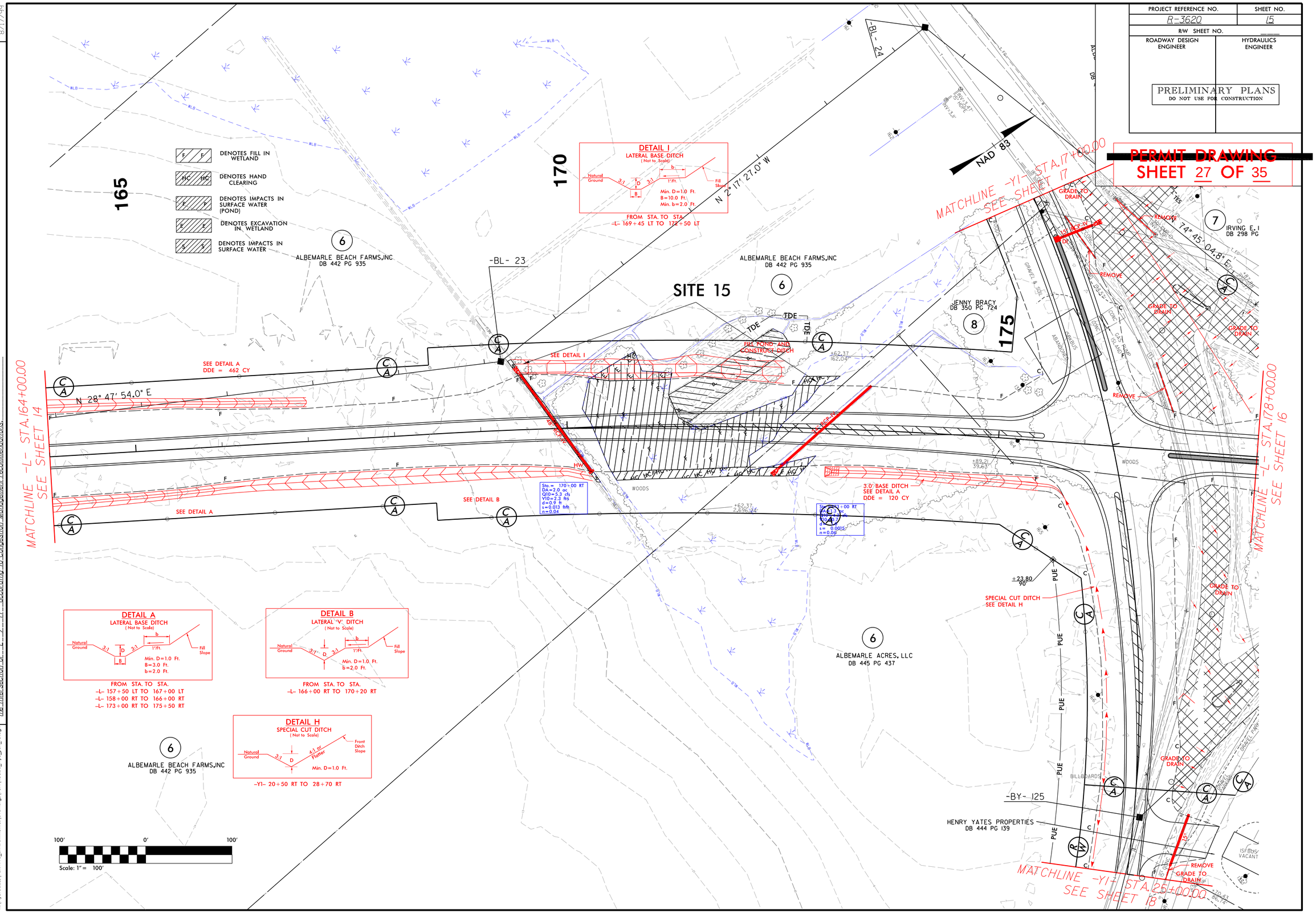
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 27 OF 35

REVISIONS

07/24/2012 R/W REVISION (KEM) - MODIFIED EXISTING R/W ON PARCELS 006,007, AND 008.
Design Revision 7-13-12 Revised ditches right of -Y1- according to Detail H. Revised the proposed EOP and lane geometry for the Intersection of -L- / -Y1- according to Congestion Management recommendations.

8/17/99

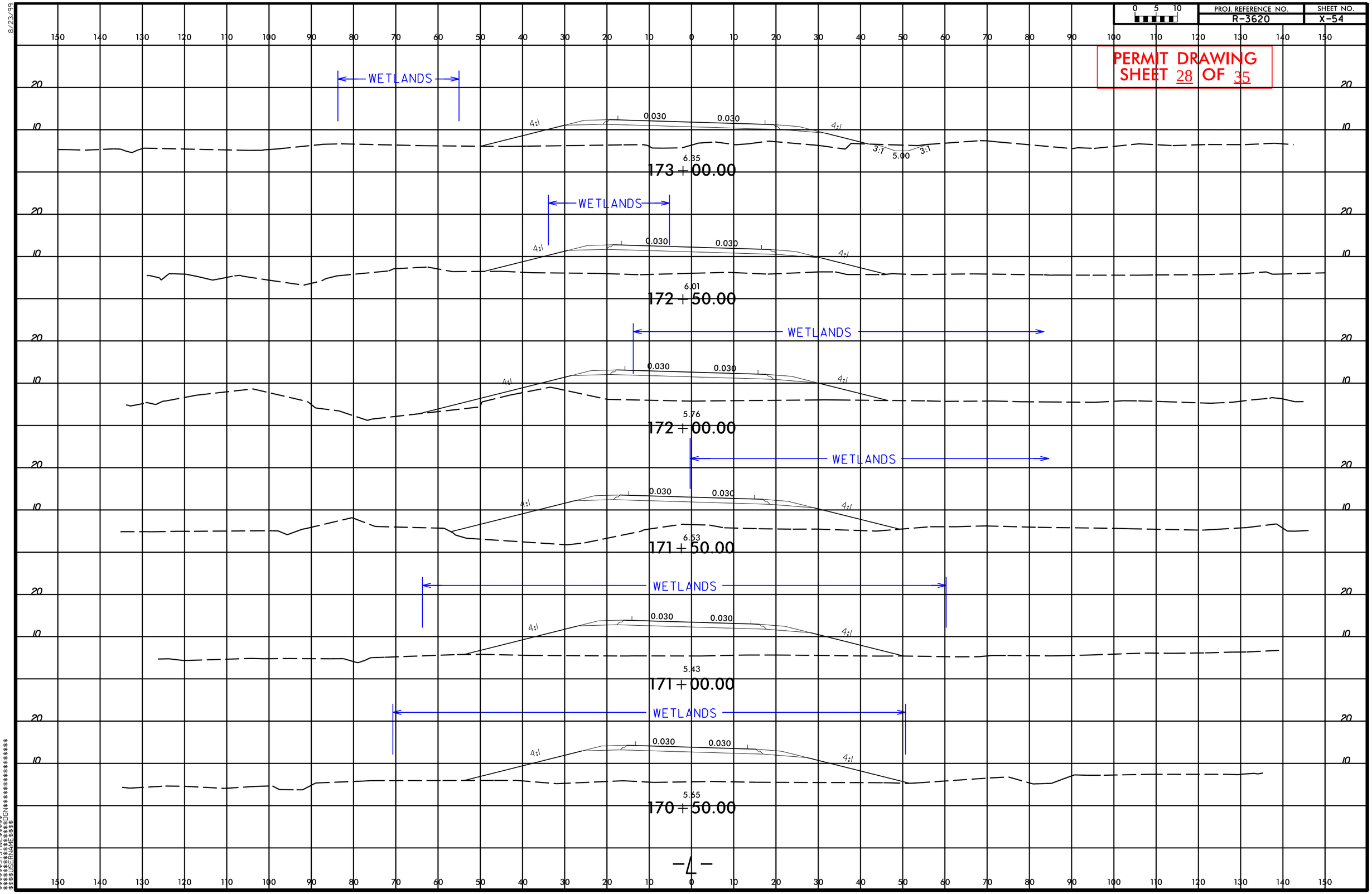


11/26/2013
jhpatel
R:\Hydraulics\PERMITS_Environmental\Drawings\PSH\R3620_Hyd_psh_15.dgn

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-3620	X-54

PERMIT DRAWING
SHEET 28 OF 35



-4-

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

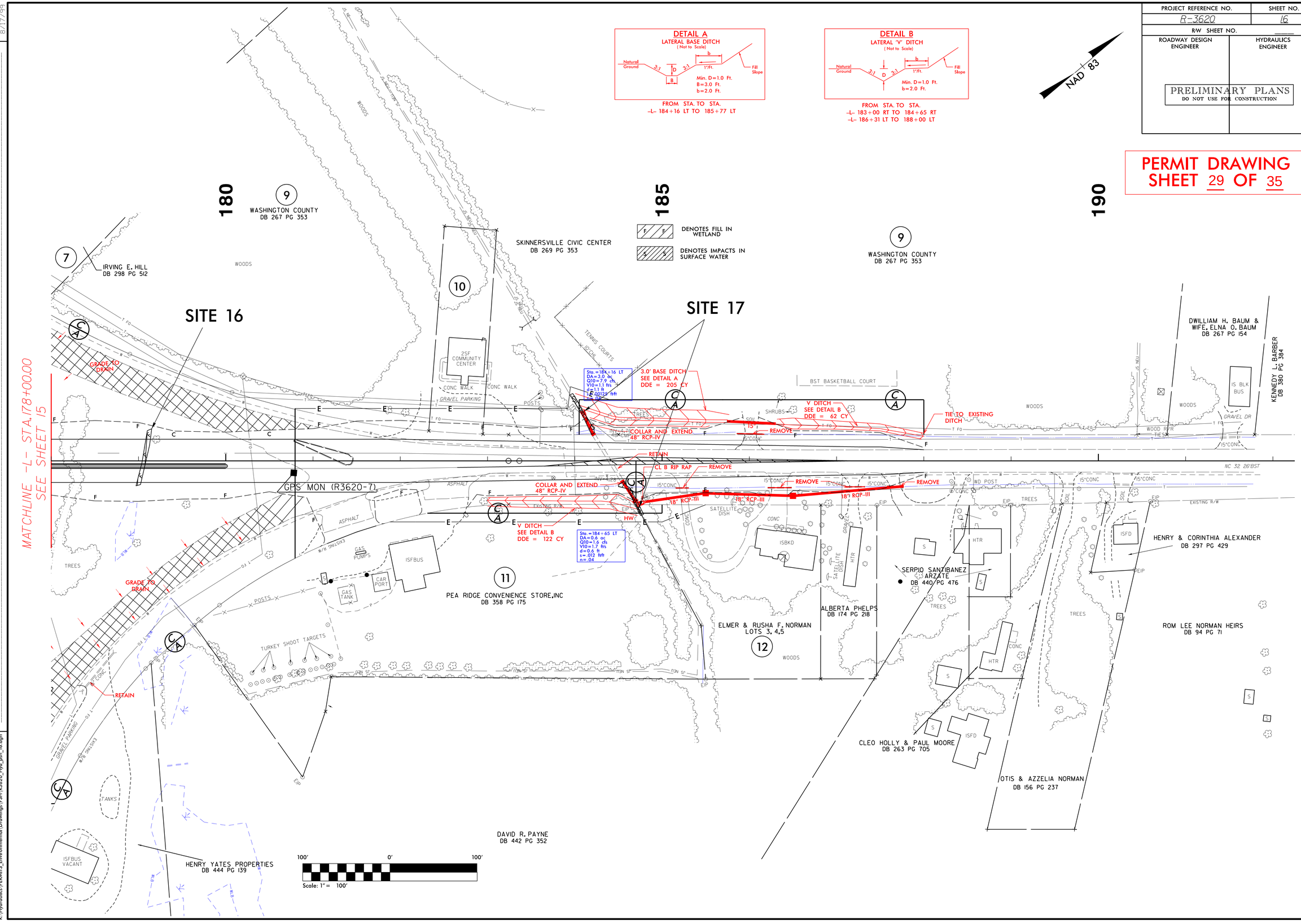
PROJECT REFERENCE NO.	SHEET NO.
R-3620	16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 29 OF 35

REVISIONS

8/17/99



11/26/2013
gcail
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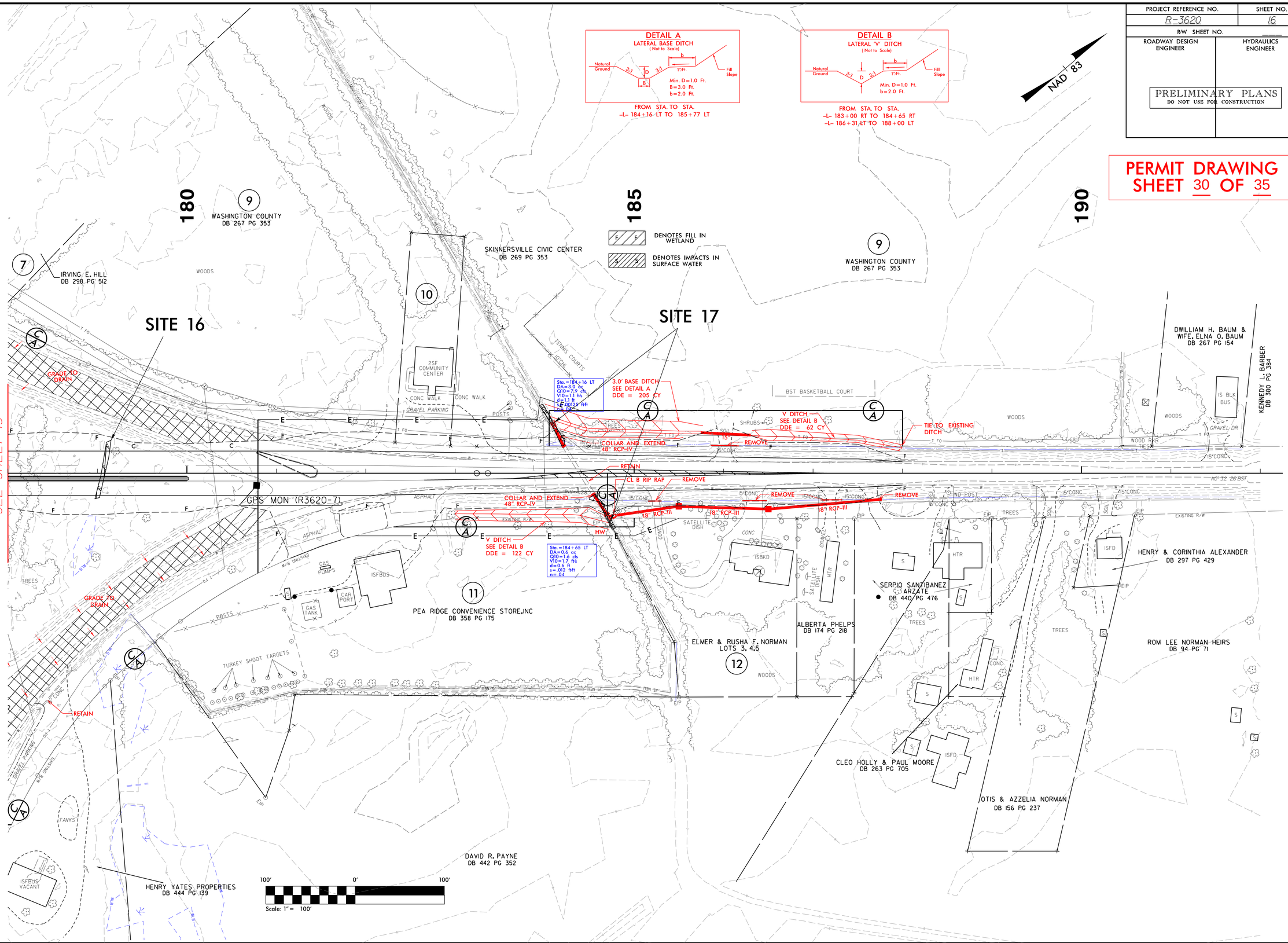
PROJECT REFERENCE NO.	SHEET NO.
R-3620	16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 30 OF 35



REVISIONS

8/17/99

11/26/2013
gcail
R:\Hydraulics\PERMITS_Environmental\Drawings\PSH\R3620_Hyd_psh_16.dgn

PROJECT REFERENCE NO.	SHEET NO.
R-3620	17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

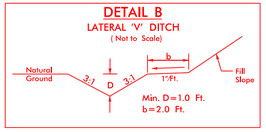
PERMIT DRAWING
SHEET 31 OF 35

REVISIONS

07/14/12 12:02 PM REVISION SKETCH ADDED TEMPORARY CONSTRUCTION EASEMENT TO PARCEL NOS. 6 & 7.
06/26/12 8:12 AM REVISION Detail H
06/26/12 8:12 AM REVISION Detail H
Design Revision 7-13-12 Revised ditches right of -Y1- and -Y2- according to Detail H.

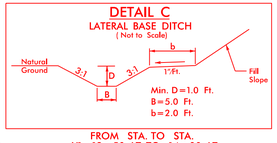
8/17/99

DETAIL B
LATERAL 'V' DITCH
(Not to Scale)



FROM STA. TO STA.
-Y2- 10+50 LT TO 16+00 LT
-Y2- 14+00 RT TO 16+00 RT

DETAIL C
LATERAL BASE DITCH
(Not to Scale)



FROM STA. TO STA.
-Y1- 12+50 LT TO 14+00 LT

DETAIL D
FALSE CUT
(Not to Scale)

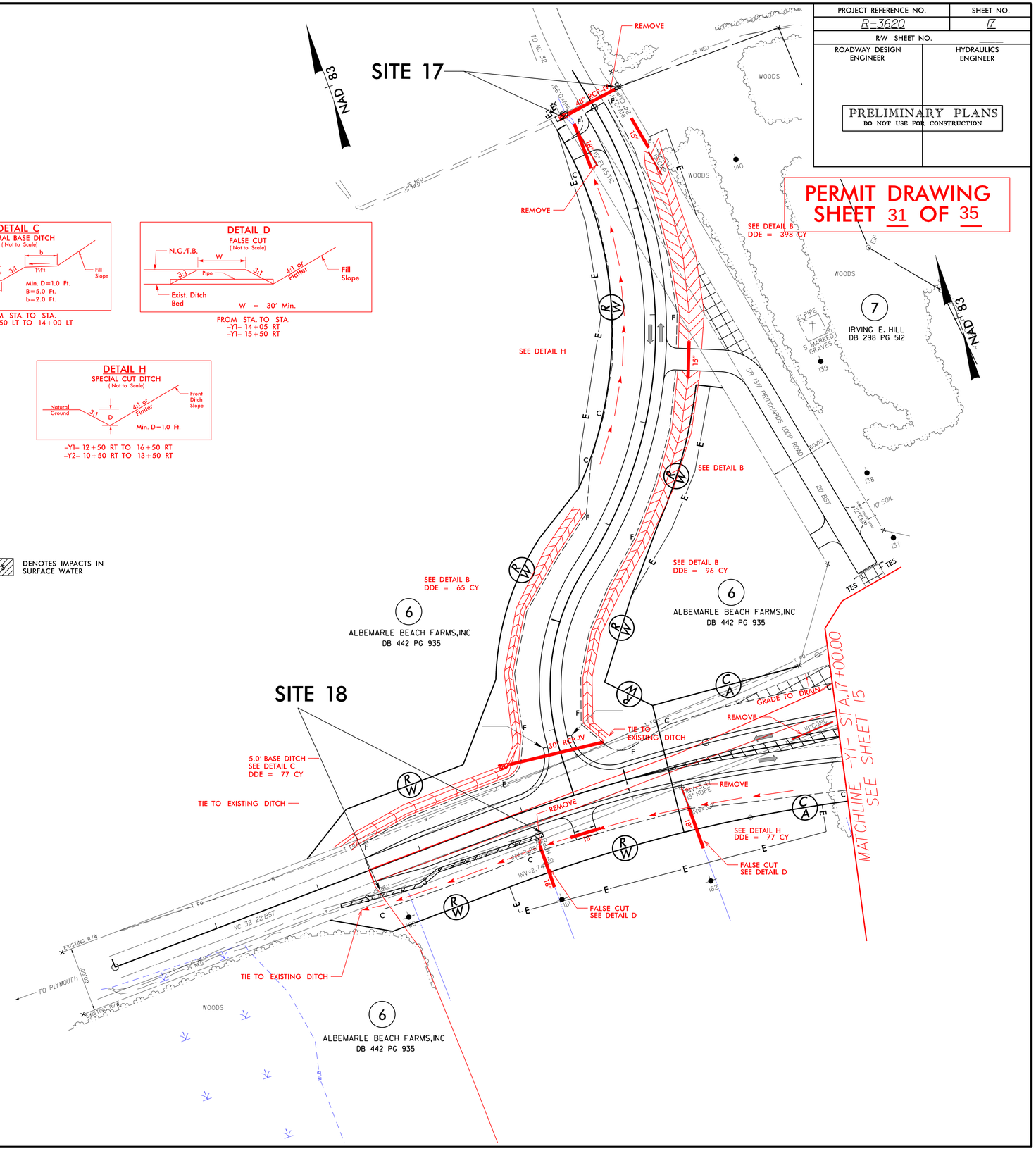
FROM STA. TO STA.
-Y1- 14+05 RT
-Y1- 15+50 RT

DETAIL H
SPECIAL CUT DITCH
(Not to Scale)

-Y1- 12+50 RT TO 16+50 RT
-Y2- 10+50 RT TO 13+50 RT

NC GRID
NAD 83/CORS96)

DENOTES IMPACTS IN SURFACE WATER



100' 0' 100'
Scale: 1" = 100'

PROJECT
'D BY
1"

11/26/2013
gcail
R:\Hydraulics\PERMITS_Environmental\Drawings\PSH\R3620_Hyd_psh_17.dgn

PROJECT REFERENCE NO.	SHEET NO.
R-3620	17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

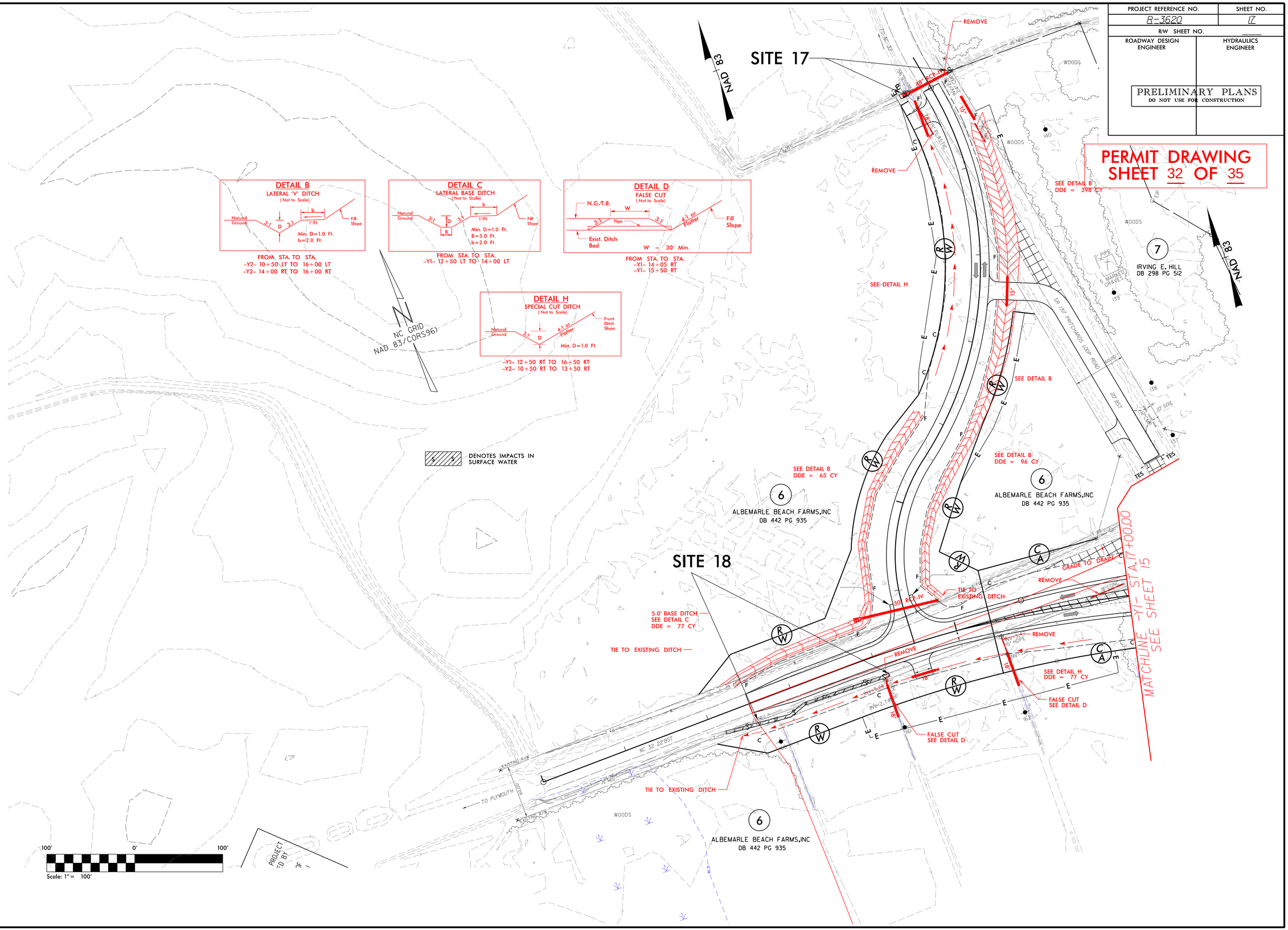
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 32 OF 35

REVISIONS

07/14/12 DRZ WP. REVISION SKETCH ADDED DETAIL D. REVISED DITCH VELOCITY STONE BARRIER, DIV. DIV. & ADDED TEMPORARY CONSTRUCTION EASEMENT TO PARCEL NOS. 6 & 7.
06/26/12 BRB-JR W. REVISION Revised Detail H.
Design Revision 7-13-12 Revised ditches right of -Y1- and -Y2- according to Detail H.

8/17/99



11/26/2013
gcail
R:\Hydraulics\PERMITS_Environmental\Drawings\PSH\R3620_Hyd_pth_17.dgn

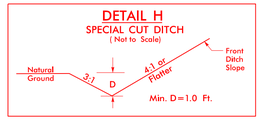
PROJECT REFERENCE NO.	SHEET NO.
R-3620	18
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 33 OF 35

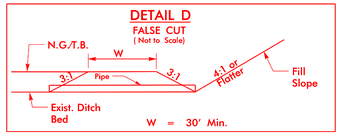
NAD 83

DETAIL H
SPECIAL CUT DITCH
(Not to Scale)

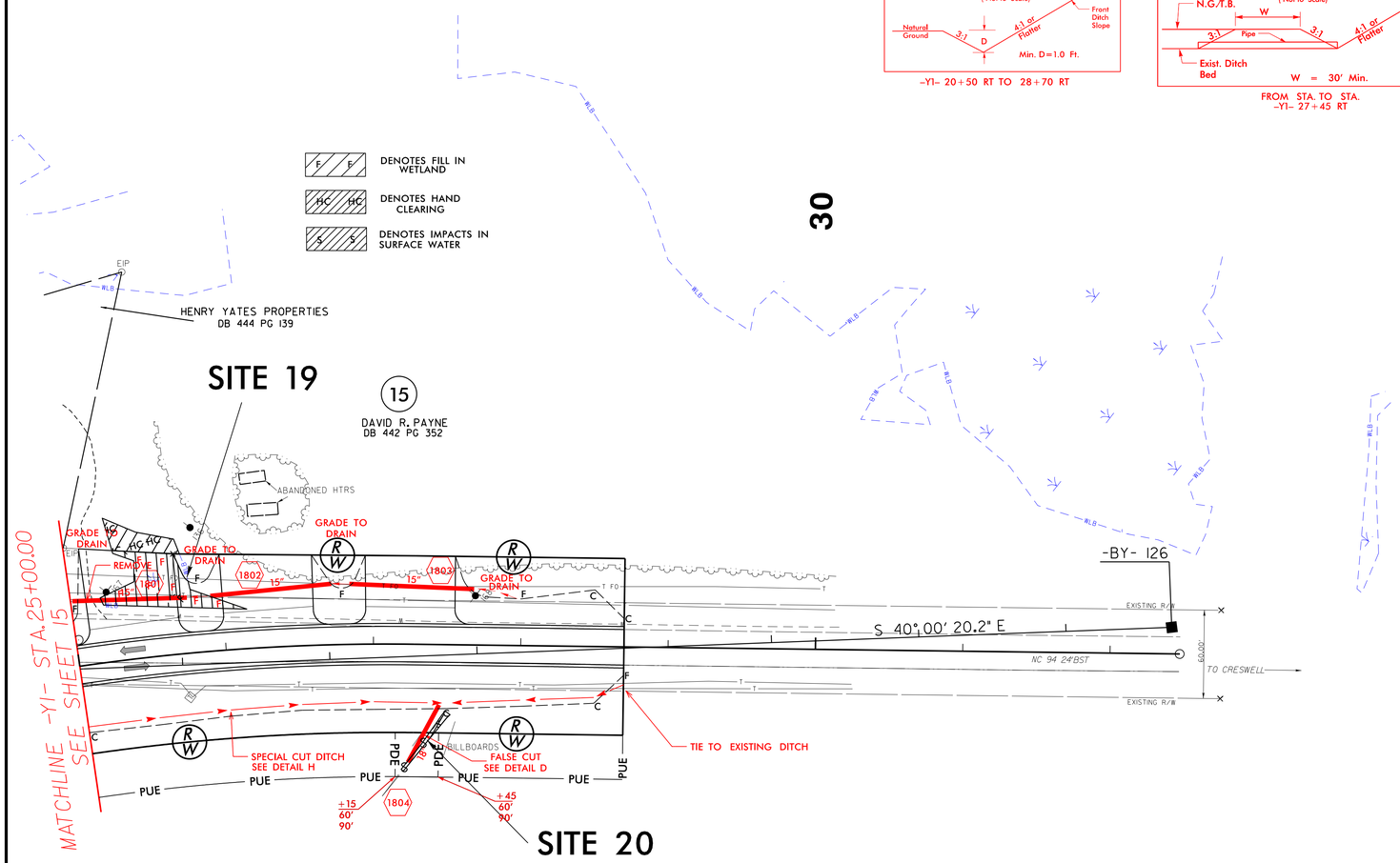


-Y1- 20+50 RT TO 28+70 RT

DETAIL D
FALSE CUT
(Not to Scale)



FROM STA. TO STA.
-Y1- 27+45 RT



6
ALBEMARLE ACRES, LLC
DB 445 PG 437

100' 0' 100'
Scale: 1" = 100'

REVISIONS

07/24/2012 R/W REVISION (KEM) - REVISED DITCH RIGHT OF -Y1-.NO R/W REVISION WAS MADE.
Design Revision 7-13-12 Revised ditch right of -Y1- according to Detail H.

8/17/99

11/26/2013
gcail
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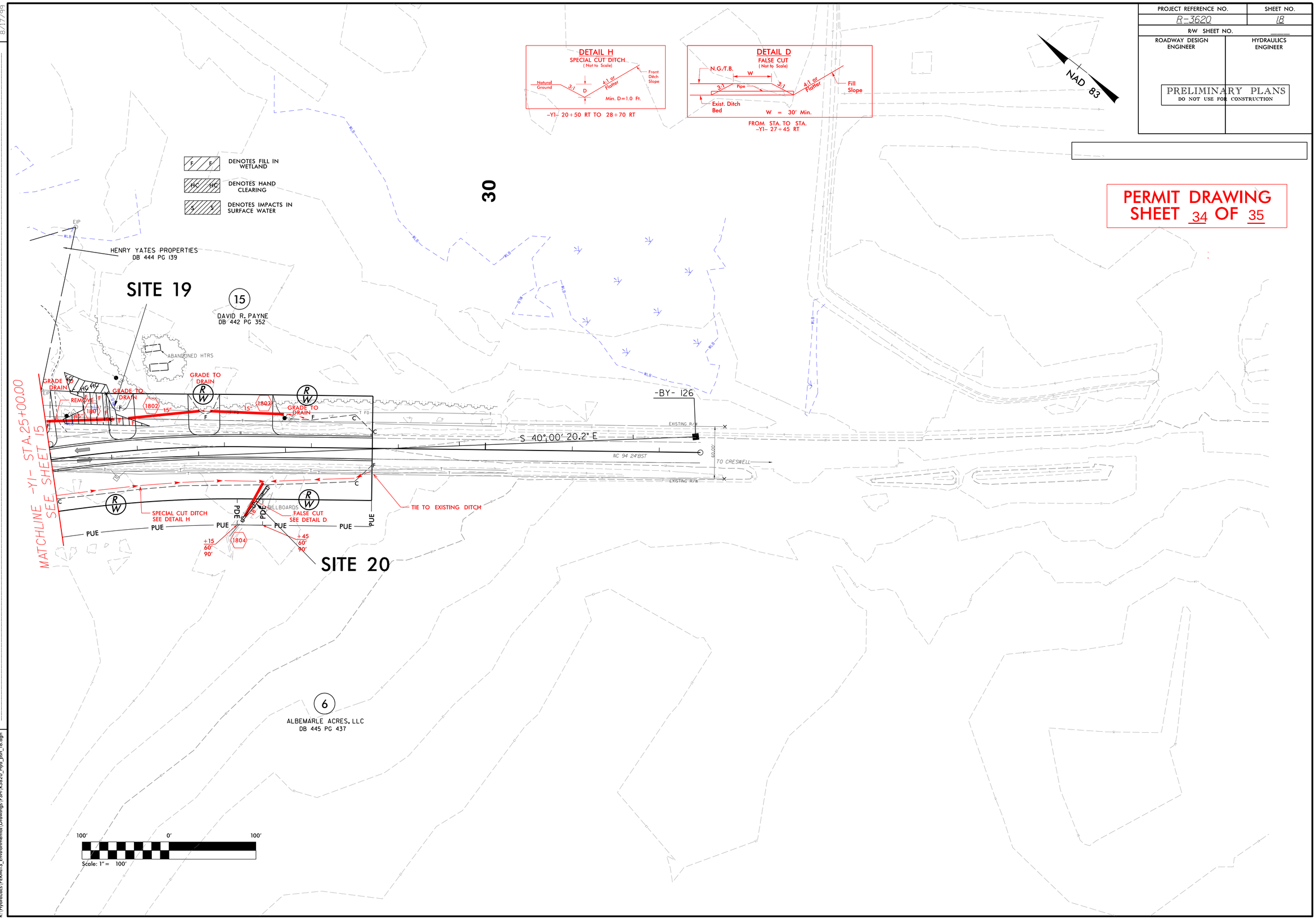
PROJECT REFERENCE NO.	SHEET NO.
R-3620	18
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 34 OF 35



REVISIONS

07/24/2012 R/W REVISION (KEM) - REVISED DITCH RIGHT OF -Y1-, NO R/W REVISION WAS MADE.
Design Revision 7-13-12 Revised ditch right of -Y1- according to Detail H.

8/17/99

11/26/2013
gcail
R:\Hydraulics\PERMITS_Environmental\Drawings\PSH\R3620_Hyd_psh_18.dgn

WETLAND PERMIT IMPACT SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	12+35 / 44+78 LT-L-	FILL	2.36			0.01	0.73					
1	20+22 -L-	54" RCP						0.01		108		
1	20+22 -L-	Bank Stabilization						<0.01		12		
1	19+95 -L-RT	54" RCP							<0.01			
1	24+22 / 24+57 RT-L-	FILL					<0.01					
1	30+15 / 32+90 RT-L-	FILL	0.05				0.09					
1	45+40 -L-	54" RCP						0.01				
2	47+60 -L-	30" RCP						0.03				
3	51+05 LT -L-	24" RCP						<0.01				
4	89+25 -L-	42" RCP						0.01				
5	90+10 / 109+22-L-	FILL	3.20				0.79					
6	110+18 -L-	48" RCP						0.01				
7	111+39 LT -L-	FILL	<0.01				0.01					
8	112+80 -L-	24" RCP						0.01				
9	113+25 / 118+90-L-	FILL	1.02				0.26					
10	127+75 -L-	42" RCP						0.01				
11	134+35 -L-	FILL	0.05		0.01	0.02	0.01					
12	137+70 RT -L-	FILL	0.09				0.04					
13	141+10 TOTAL TAKE	FILL	0.07									
14	146+00 RT	EXCAVATION			<0.01		<0.01					
14	147+73 / 157+50	FILL	1.80			0.01	0.44					
14	148+73 -L-	Box Culvert						0.01		82		
14	148+73 LT/RT-L-	Bank Stabilization						0.01	0.01	32	44	
15	169+92 -L-	48" RCP						0.02				
15	170+30 / 172+90-L-	FILL	0.39				0.06	0.11				
16	179+05-L-	FILL	<0.01									
17	184+35-L-	Extend 48" RCP						0.01				
17	9+93-Y2-	48" RCP						<0.01				
18	13+00 RT -Y1-	FILL						0.02				
19	25+60 LT-Y1-	FILL	0.04				0.02					
20	27+50 RT-Y1-	18" Pipe						<0.01				
TOTALS:			9.07		0.01	0.04	2.45	0.27	0.01	234	44	0

JS Non-Mitigable:

Site 1-Sta 19+95RT, Site 1-Sta 45+40, Site 2-Sta 47+60, Site 4-89+25, Site 6-Sta 110+18, Site 8-Sta 112+80, Site 10-Sta 127+75, Site 15-Sta 169+92, Site 17-Sta 184+35/9+93, Site 18-Sta 13+00; Site 20-Sta 27+50

Site 15 - Fill in Surface Water Pond=0.11ac
Sites 5,9, and 14 - Epualizer pipes placed @ natural ground and not to be buried.
Site 13- Total take
Site 19- Total take

Note: 0.48 ac of Temp Fill in Wetland In the Hand Clearing areas for erosion control.

ATN Revised 3/31/05

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

COUNTY

WBS - 34548.1.1 (R-3620)

SHEET 35 of 35 ########

R-3620 NEU Narrative

Utility Owners:

Power (Distribution): Dominion Power – contact: Clarence Wall
(252) 308-1021
clarence.wall@dom.com

Power (Transmission): Dominion Power – contact: Kyle A. Keno, P.E.
(804) 771-3548
Kyle.a.keno@dom.com

Telephone: Century Link – contact: Jeffrey Williamson
(252)-814-7244
Jeffrey.williamson@CenturyLink.com

CATV: Mediacom – contact: Nate Harris
(252) 482-8089
nharris@mediacomcc.com

Water: Washington County Water – contact: Jerry W. Rhodes
(252) 793-5823
jrhodes@washconc.org

General Utility Relocation:

All utility lines inside project limits currently within construction limits will be adjusted as necessary or relocated away from construction before project let.

Existing Utilities:

- **Power** (Distribution): existing power lines run overhead on poles along the left side and crosses to the right side of the project from NC 64 to -Y- line Beasley Rd (SR 1139) and crossing back to the left along the -Y- line (SR 1139). In addition, the existing power lines run overhead on poles along the left side at the north end of the project parallel to -Y1- NC 32 to NC 94.

- **Power** (transmission): existing transmission power lines are not in conflict with this project.

- **Telephone:** existing telephone lines run underground left and right of the existing section of the road for this project.

- **CATV:** existing CATV runs overhead right of NC 94 and crosses over to the left of NC 94 at the north end of the project.

- **Water:** existing water lines at the north end of the project parallel to -Y1- NC 32 and NC 94.

Proposed Utility Relocation:

- **Power**(distribution)**:** Overhead power lines and power poles will relocate to a position starting at the left side of the project and crossing to the right side of the project from NC 64 to -Y- line Beasley Rd (SR 1139) and on the left side at the north end of the project parallel to -Y1- NC 32 to NC 9.

- **Power**(transmission)**:** existing transmission power lines run over the proposed portion of the road for this project and are not in conflict.

- **Telephone:** proposed telephone line will attach to overhead (joint-use) poles with power from NC 64 to -Y- line Beasley Rd (SR 1139) and on the left side at the north end of the project parallel to -Y1- NC 32 to NC 94. In addition, proposed telephone will relocate underground by open cut parallel to the right side of existing NC 94 and by trenchless method to the right of NC 32/94 at the north end of the project.

- **CATV:** proposed CATV lines will also attach to the power pole line (joint-use) at the north end of the project.

- **Water:** Existing water lines are not in conflict, they will remain in place.

09/06/99

TIP PROJECT: R-3620

CONTRACT:

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WASHINGTON COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-3620	1	

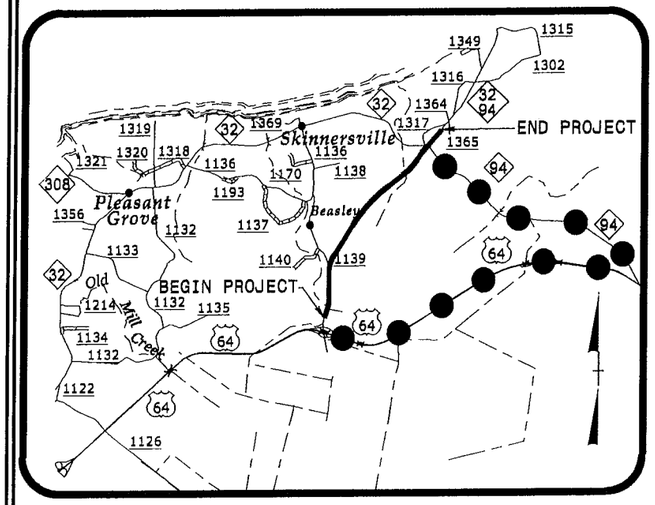
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
34548.1.1	STP-000S(252)	PE
34548.2.1	STP-000S(252)	R/W & UTIL

LOCATION: NEW ROUTE FROM US 64 TO NC 32

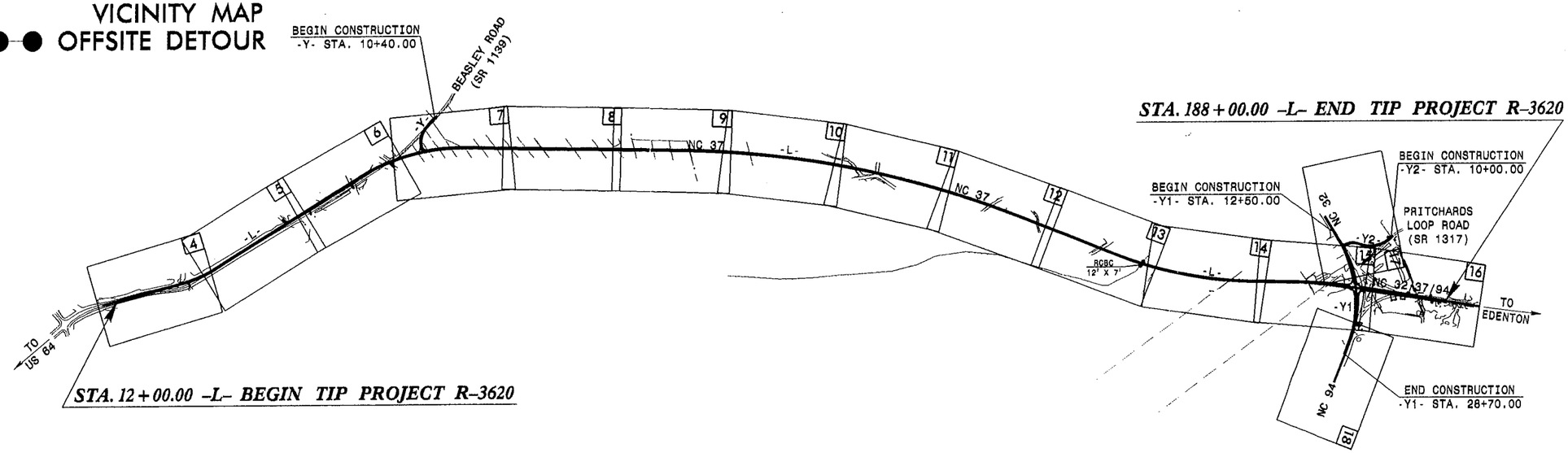
TYPE OF WORK: GRADING, PAVING, DRAINAGE, ITS (ON US 64), AND CULVERT

Utility Permit Drawing
Sheet 1 of 11

NEU PERMIT PLANS
(May 17, 2013)



VICINITY MAP
OFFSITE DETOUR



THIS IS A LIMITED AND PARTIAL CONTROL OF ACCESS PROJECT WITH ACCESS BEING LIMITED TO POINTS AS SHOWN ON THE PLANS.

THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

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 = 3250
ADT 2035 = 5200
DHV = 10 %
D = 60 %
T = 7 % *
V = 60 MPH
* TTST = 3 DUAL 4
FUNC CLASS =
COLLECTOR
REGIONAL TIER

PROJECT LENGTH

TOTAL LENGTH TIP PROJECT R-3620 = 3.33 miles

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JUNE 29, 2012

LETTING DATE:
JUNE 17, 2014

GARY LOVERING, PE
PROJECT ENGINEER

KEVIN E. MOORE, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

17-MAY-2013 16:38
R:\Utilities\Rdy_Ut\Proj\NEU\R3620_Rdy_tsh.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
R-3620	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

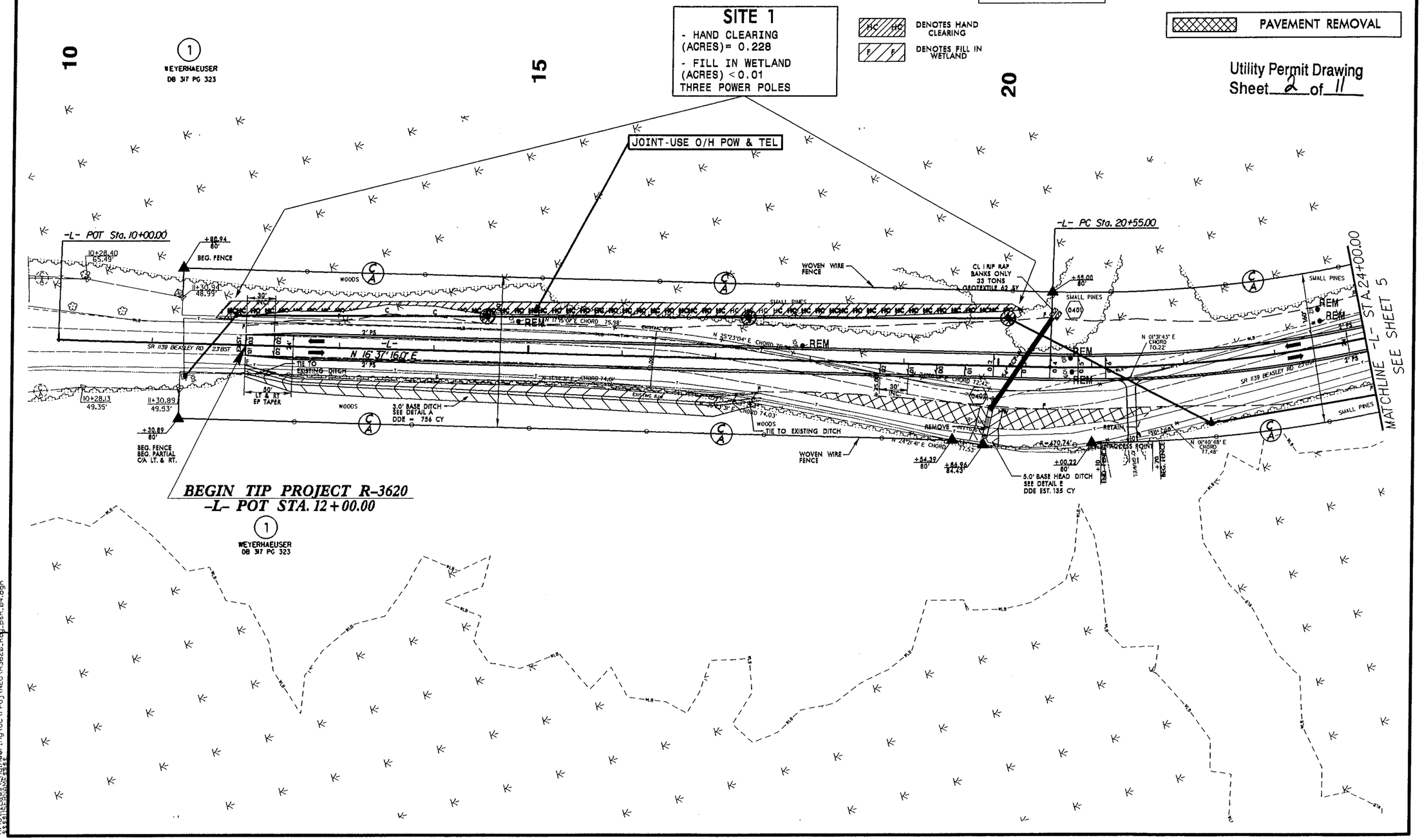
NEU PERMIT PLANS
(May 17, 2013)

NAD 83

PLAN SCALE:
1"=50' (FULL-SIZE)
1"=100' (HALF-SIZE)

PAVEMENT REMOVAL

Utility Permit Drawing
Sheet 2 of 11



REVISIONS
07/24/2012 R/W REVISION (KEM) - MODIFIED EXISTING R/W AND PROPOSED R/W ON PARCEL 001

8/17/99

25-NOV-2013 14:37
R:\Hydraulic\Engineering\UC\Proj\NEU\R3620_Rdwy_psh_04.dgn
$$$$USERNAME$$$$

NEU PERMIT PLANS
(May 17, 2013)

PROJECT REFERENCE NO.	SHEET NO.
R-3620	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83

PLAN SCALE:
1"=50' (FULL-SIZE)
1"=100' (HALF-SIZE)

PAVEMENT REMOVAL

Utility Permit Drawing
Sheet 3 of 11

-L- CURVE DATA
PI Sta 22+80.98
Δ = 17° 08' 04.7" (LT)
D = 3° 49' 11.0"
L = 448.58'
T = 225.98'
R = 1,500.00'

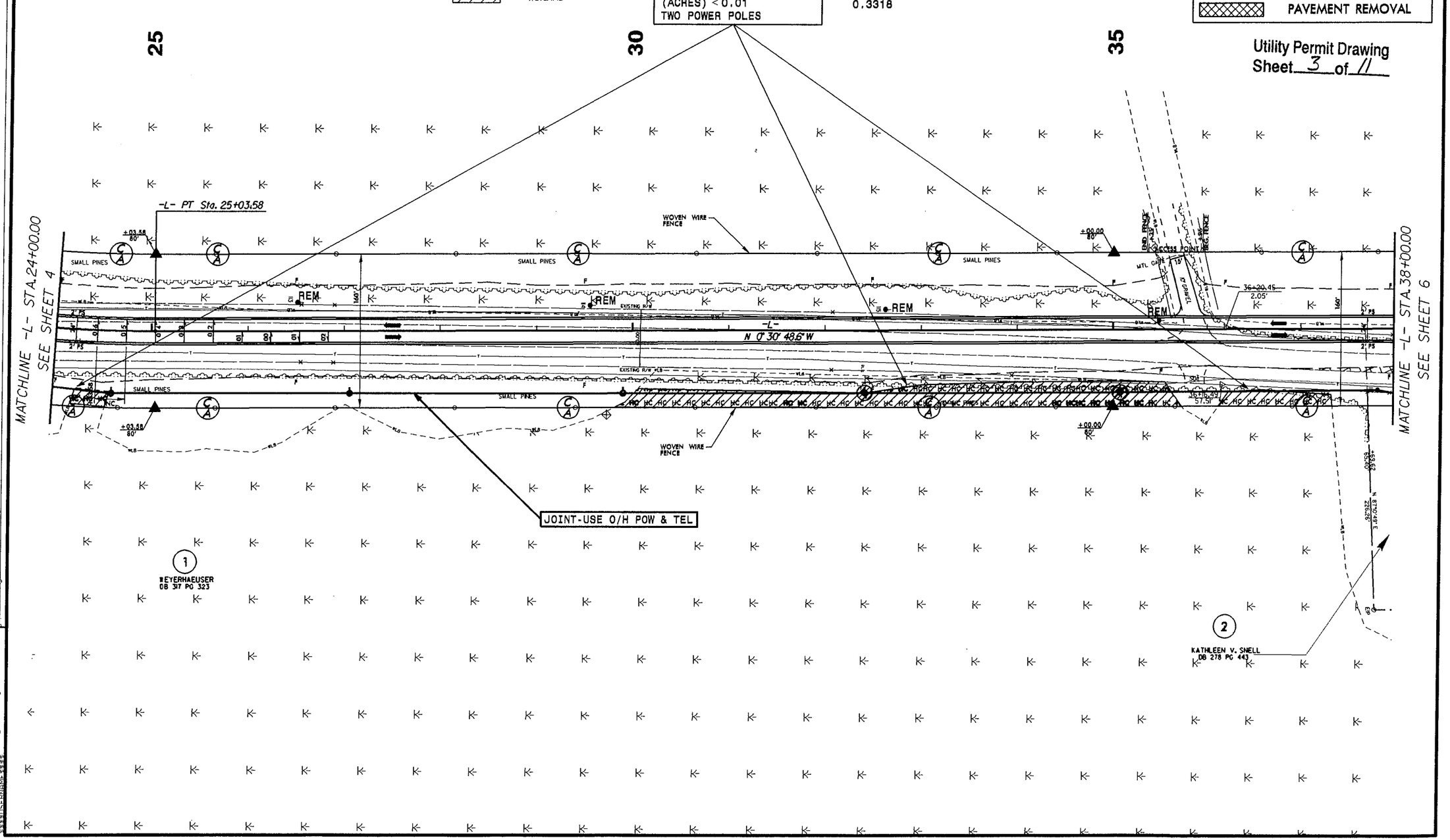
(1) WEYERHAEUSER DB 317 PG 323

HC DENOTES HAND CLEARING

F DENOTES FILL IN WETLAND

SITE 2
- HAND CLEARING (ACRES)= 0.3318
- FILL IN WETLAND (ACRES) < 0.01
TWO POWER POLES

- HAND CLEARING
0.0130
0.2793
0.0395
0.3318



REVISIONS
04/09/2013 R/W REVISION (KEW) - CHANGED NAME TO KATHLEEN V. SNELL ON PARCEL 02

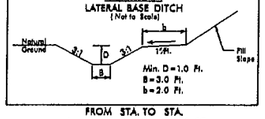
8/17/99

25-NOV-2013 15:21
R:\Utilities\Engineering\UC\Proj\NEU\R3620_Rd_path_05.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
R-3620	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

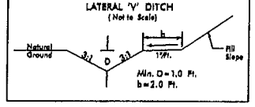
NEU PERMIT PLANS
Rev. (Nov. 26, 2013)

DETAIL A
LATERAL BASE DITCH
(Not to Scale)



FROM STA. TO STA.
-L- 47+55 RT TO 48+70 RT
-L- 51+44 RT TO 89+35 RT

DETAIL B
LATERAL 'V' DITCH
(Not to Scale)



FROM STA. TO STA.
-L- 48+70 RT TO 50+50 RT
-L- 50+83 LT TO -L- 54+75 LT

-L- CURVE DATA
PI Sta 53+87.35
Δ = 32° 58' 03.7" (RT)
D = 2° 17' 30.6"
L = 1,438.49'
T = 739.77'
R = 2,500.00'

NAD 83

Utility Permit Drawing
Sheet 4 of 11

PLAN SCALE:
1"=50' (FULL-SIZE)
1"=100' (HALF-SIZE)

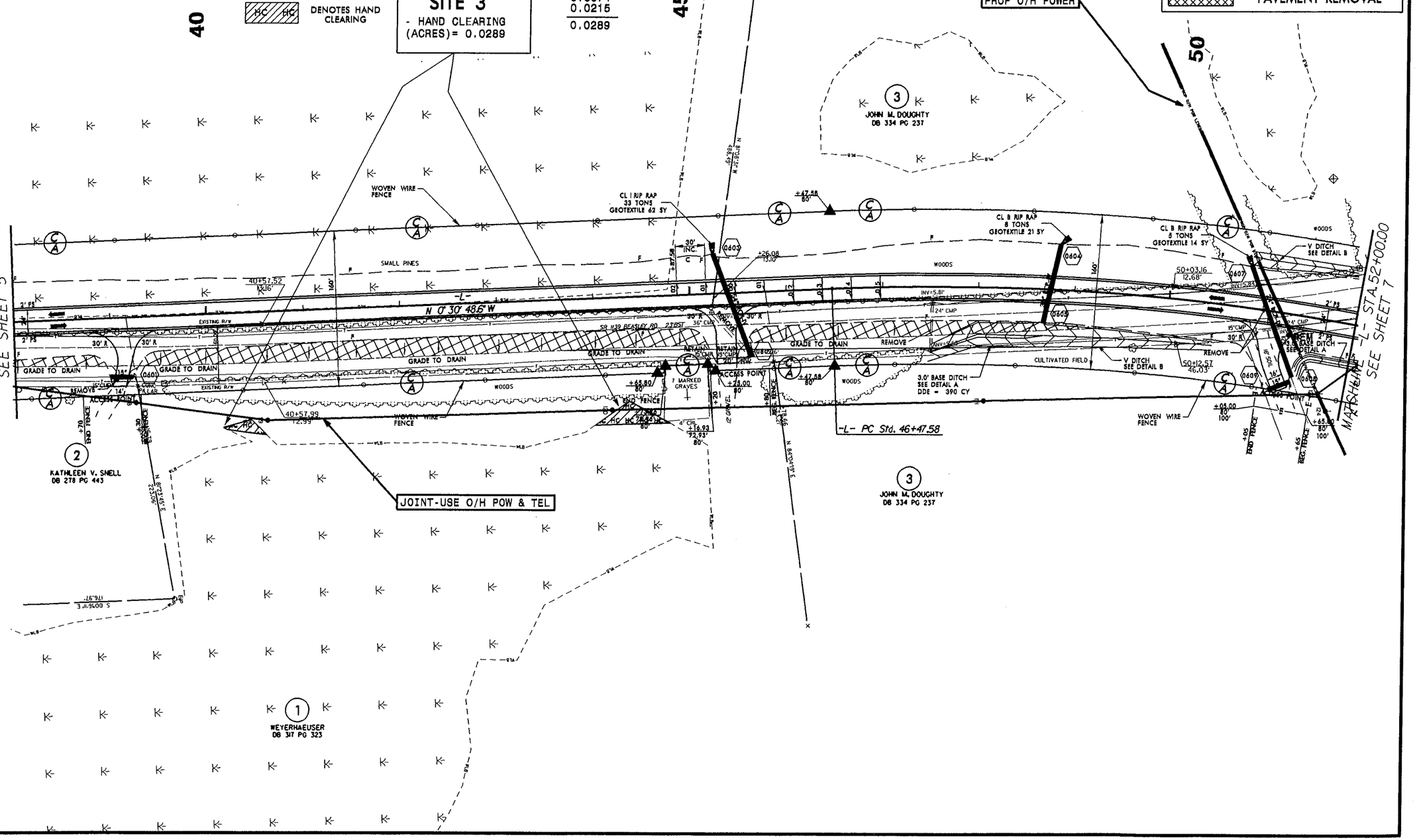
SITE 3
- HAND CLEARING (ACRES) = 0.0289

- HAND CLEARING
0.0074
0.0215
0.0289

HC DENOTES HAND CLEARING

PAVEMENT REMOVAL

PROP O/H POWER



REVISIONS
04/09/2013 R/W REVISION (KEW) - CHANGED NAME TO KATHLEEN V.SNELL ON PARCEL 02.

8/17/99

26-NOV-2013 14:06
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$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
R-3620	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

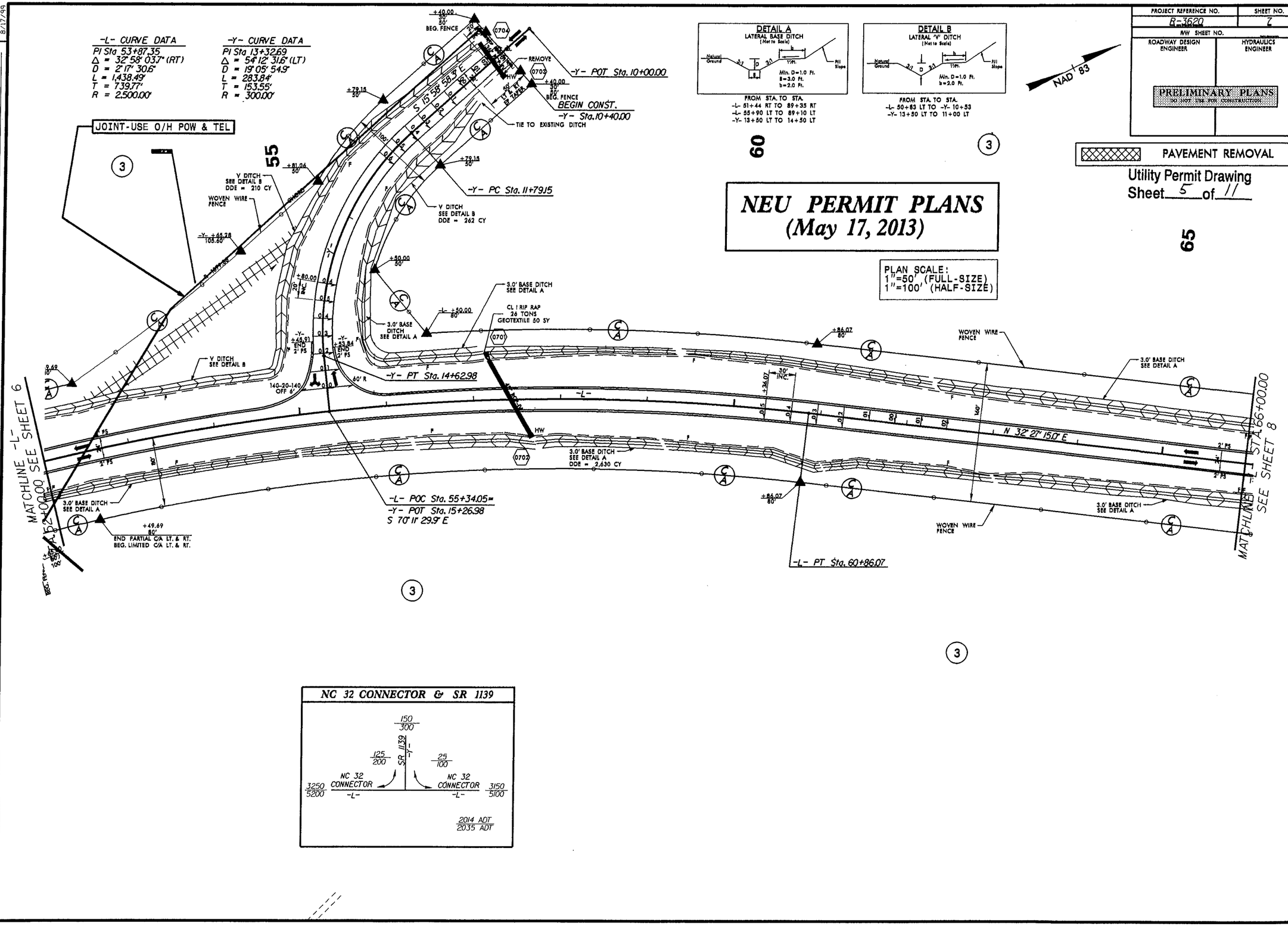
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PAVEMENT REMOVAL

Utility Permit Drawing
Sheet 5 of 11

NEU PERMIT PLANS
(May 17, 2013)

PLAN SCALE:
1"=50' (FULL-SIZE)
1"=100' (HALF-SIZE)



REVISIONS

8/17/99

25-NOV-2013 15:25
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NEU PERMIT PLANS
(May 17, 2013)

PROJECT REFERENCE NO.	SHEET NO.
R-3620	15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

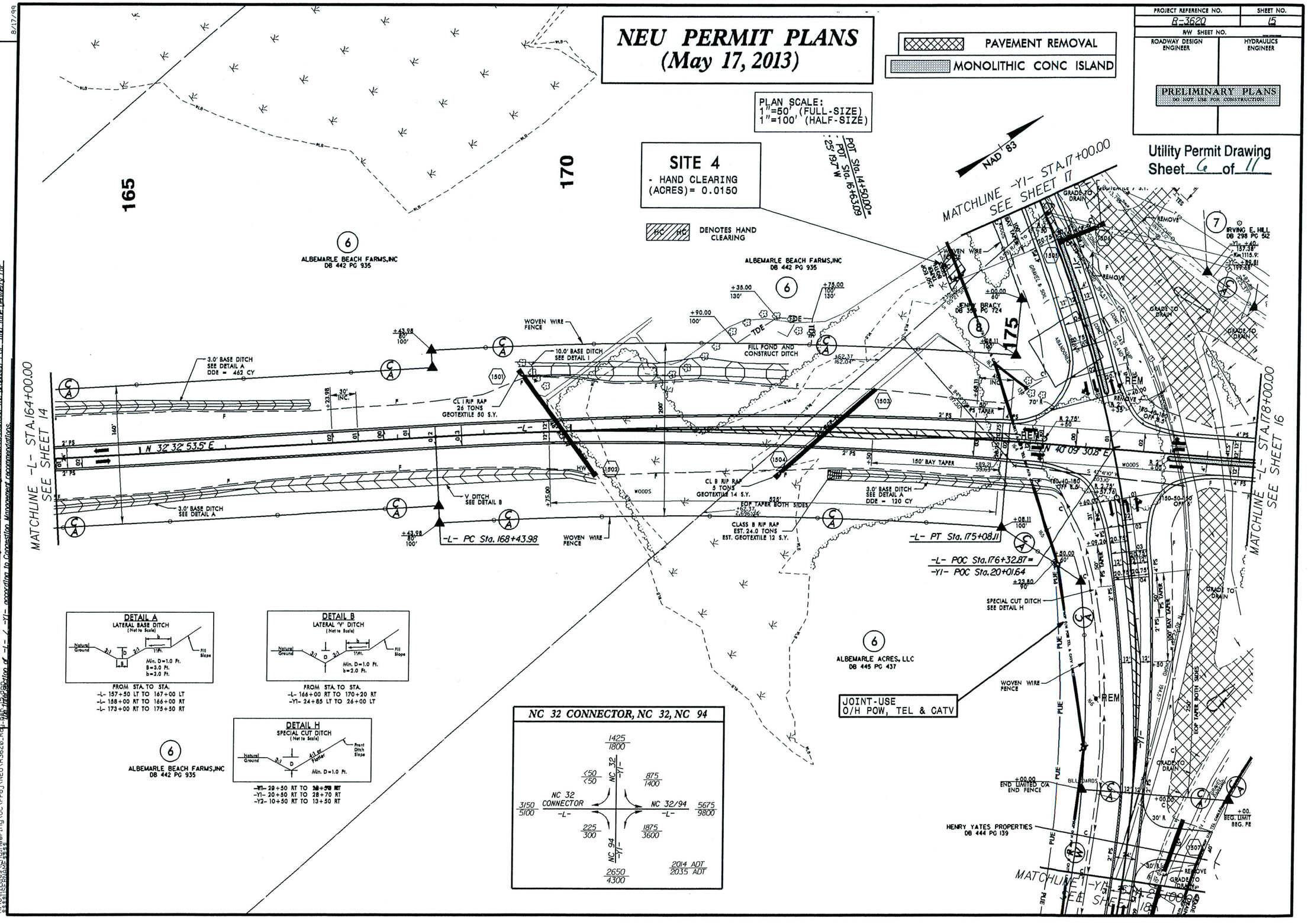
PAVEMENT REMOVAL
MONOLITHIC CONC ISLAND

PLAN SCALE:
1"=50' (FULL-SIZE)
1"=100' (HALF-SIZE)

SITE 4
- HAND CLEARING
(ACRES)= 0.0150

HC DENOTES HAND CLEARING

Utility Permit Drawing
Sheet 6 of 11



DETAIL A
LATERAL BASE DITCH
(Not to Scale)

FROM STA. TO STA.
-L- 157+50 LT TO 167+00 LT
-L- 158+00 RT TO 166+00 RT
-L- 173+00 RT TO 175+50 RT

DETAIL B
LATERAL 'V' DITCH
(Not to Scale)

FROM STA. TO STA.
-L- 166+00 RT TO 170+20 RT
-Y1- 24+85 LT TO 26+00 LT

DETAIL H
SPECIAL CUT DITCH
(Not to Scale)

-Y1- 19+50 RT TO 28+70 RT
-Y1- 20+50 RT TO 28+70 RT
-Y2- 10+50 RT TO 13+50 RT

NC 32 CONNECTOR, NC 32, NC 94

REVISIONS

04/09/2013 R/W REVISION (KEM) - COMBINED PARCEL 07 WITH PARCEL 06.
07/24/2012 R/W REVISION (KEM) - MODIFIED EXISTING R/W ON PARCELS 006,007, AND 008.
Design Revision 7-13-12 Reset ditches right of -Y1- according to Concession Management recommendations.
The intersection of -L- / -Y1- according to Concession Management recommendations.

8/17/99

25-NOV-2013 15:27
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essel\LEBRADE\essel

PROJECT REFERENCE NO.	SHEET NO.
R-3620	16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

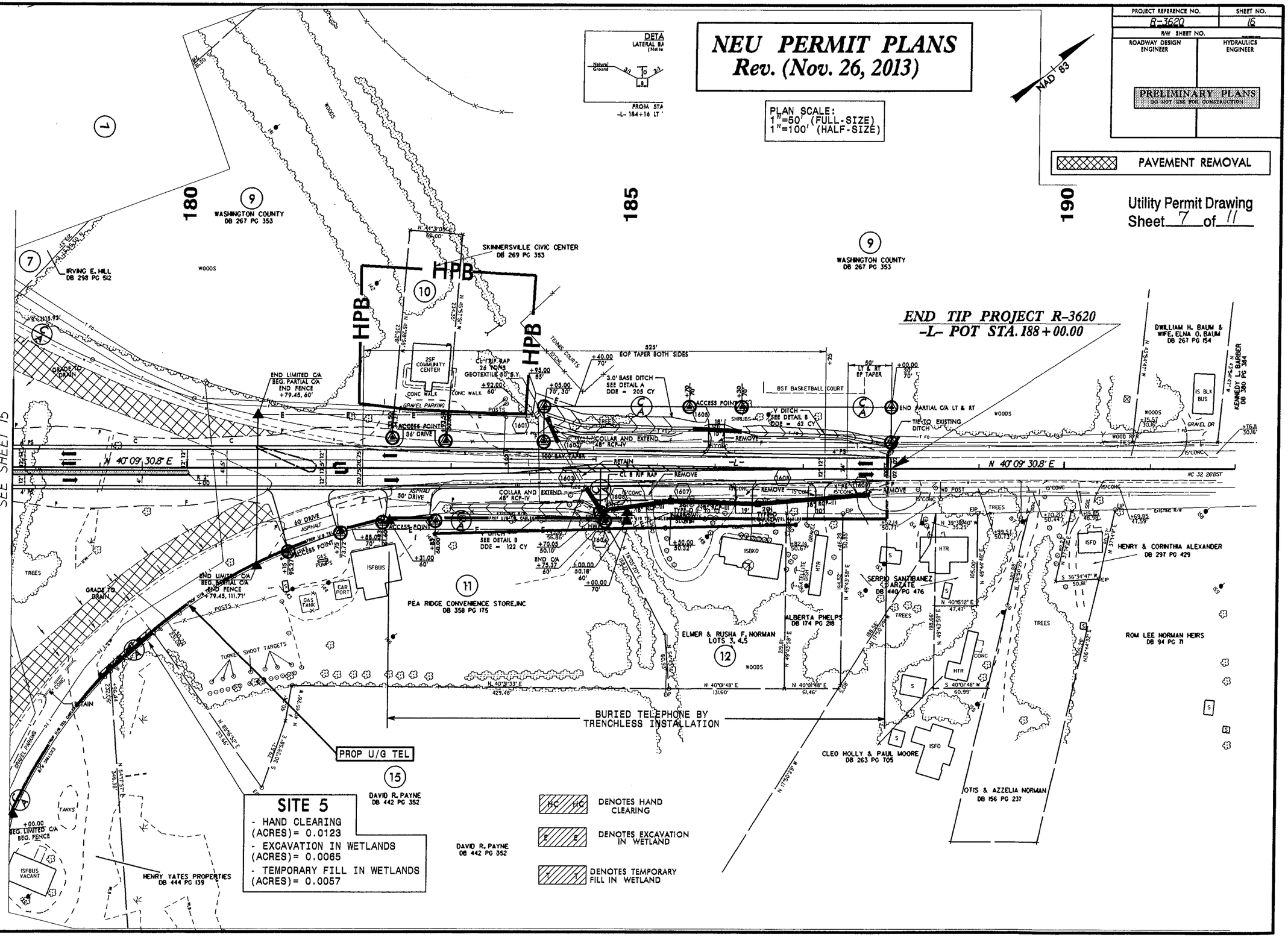
NEU PERMIT PLANS
Rev. (Nov. 26, 2013)

PLAN SCALE:
1"=50' (FULL-SIZE)
1"=100' (HALF-SIZE)

NAD 83

PAVEMENT REMOVAL

Utility Permit Drawing
Sheet 7 of 11



REVISIONS

02/14/13 R/W REVISION (KEM) - MOVED C/A TO PROPERTY LINE BETWEEN PARCEL NUMBERS 11 AND 12.
01/09/13 R/W REVISION (KEM) - SHIFTED DRIVE ACCESS NE TO AVOID BEING DIRECTLY IN FRONT OF THE BUILDING ON PARCEL 010.
MODIFIED RIGHT OF WAY AND TEMPORARY CONSTRUCTION EASEMENT ON PARCEL 012.
ADDED A 50' DRIVEWAY ON PARCEL 011.
DELETED PARCELS 013 AND 014 (REMOVED RIGHT OF WAY AND EASEMENT AND REPLACED DITCH WITH PIPE SYSTEM.

8/17/99

26-NOV-2013 14:08
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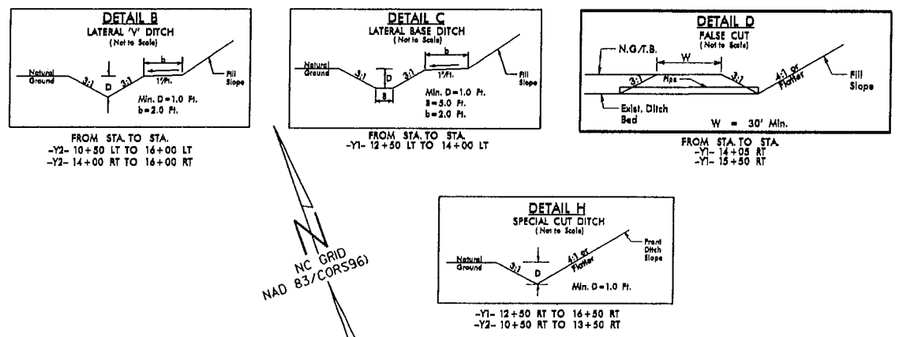
NEU PERMIT PLANS
Rev. (Nov. 26, 2013)

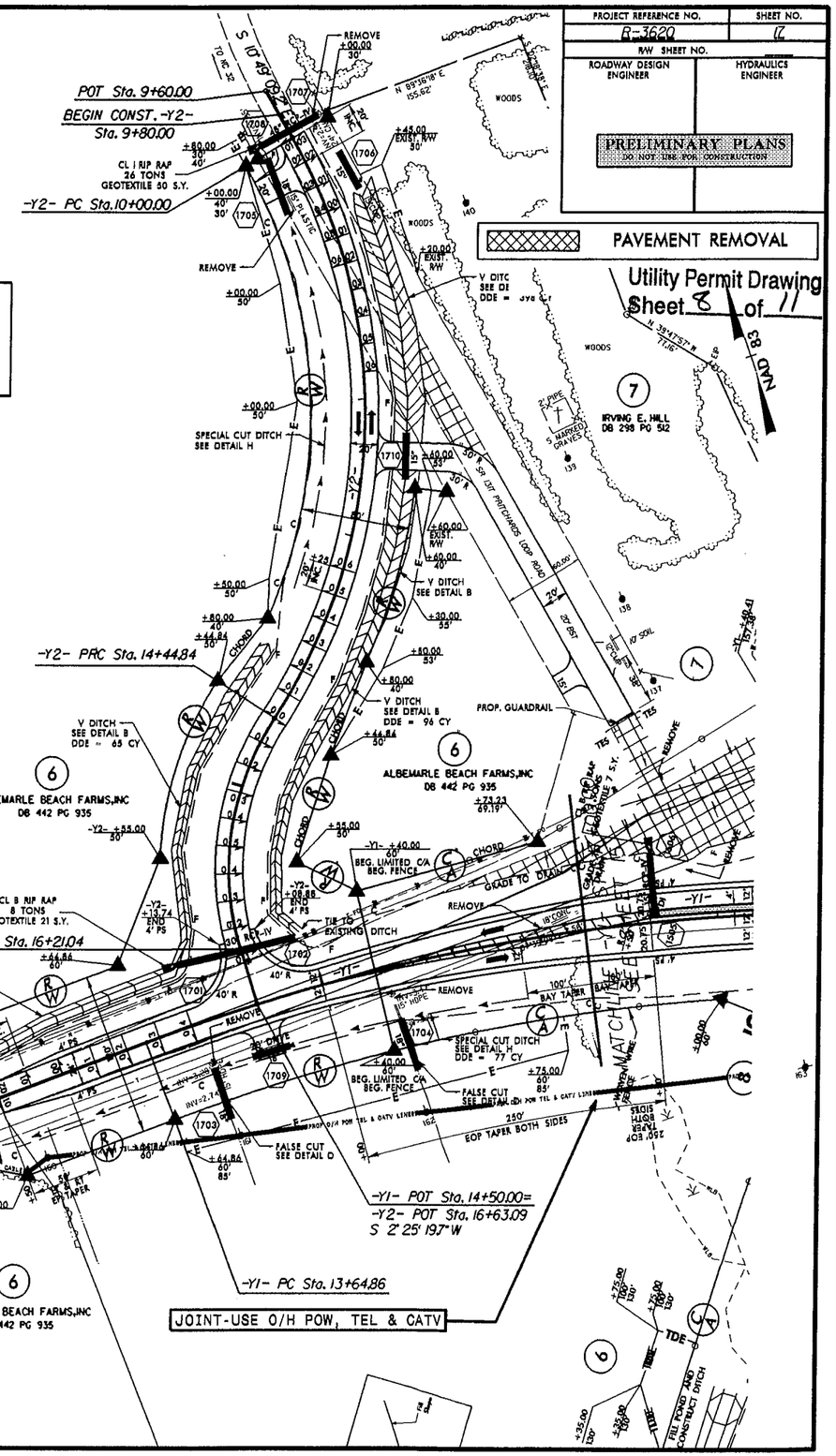
PROJECT REFERENCE NO.	SHEET NO.
R-3620	17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y1- CURVE DATA
PI Sta 21+01.40
Δ = 53° 51' 27.2" (RT)
D = 3° 57' 05.2"
L = 1,362.99'
T = 736.54'
R = 1,450.00'

PLAN SCALE:
1"=50' (FULL-SIZE)
1"=100' (HALF-SIZE)





SITE 6

- TEMPORARY IMPACTS IN SURFACE WATER (ACRES)= 0.0005

TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

REVISIONS

07/24/2012 R/W REVISION (NEW) - MODIFIED EXISTING R/W ON PARCEL 006.
Design Revision 7-13-12 Revised ditches right of -Y1- and -Y2- according to Detail H.

6/17/99

26-NOV-2013 14:08
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$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
R-3620	18
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NEU PERMIT PLANS
Rev. (Nov. 26, 2013)

Utility Permit Drawing
Sheet 9 of 11

PLAN SCALE:
1"=50' (FULL-SIZE)
1"=100' (HALF-SIZE)

NAD 83

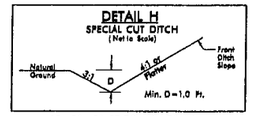
SITE 7
- HAND CLEARING (ACRES)= 0.0060
- EXCAVATION IN WETLANDS (ACRES)= 0.0029
- TEMPORARY FILL IN WETLANDS (ACRES)= 0.0031

HC HC DENOTES HAND CLEARING

E E DENOTES EXCAVATION IN WETLAND

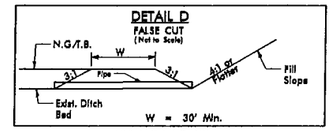
T T DENOTES TEMPORARY FILL IN WETLAND

DETAIL H
SPECIAL CUT DITCH
(Not to Scale)



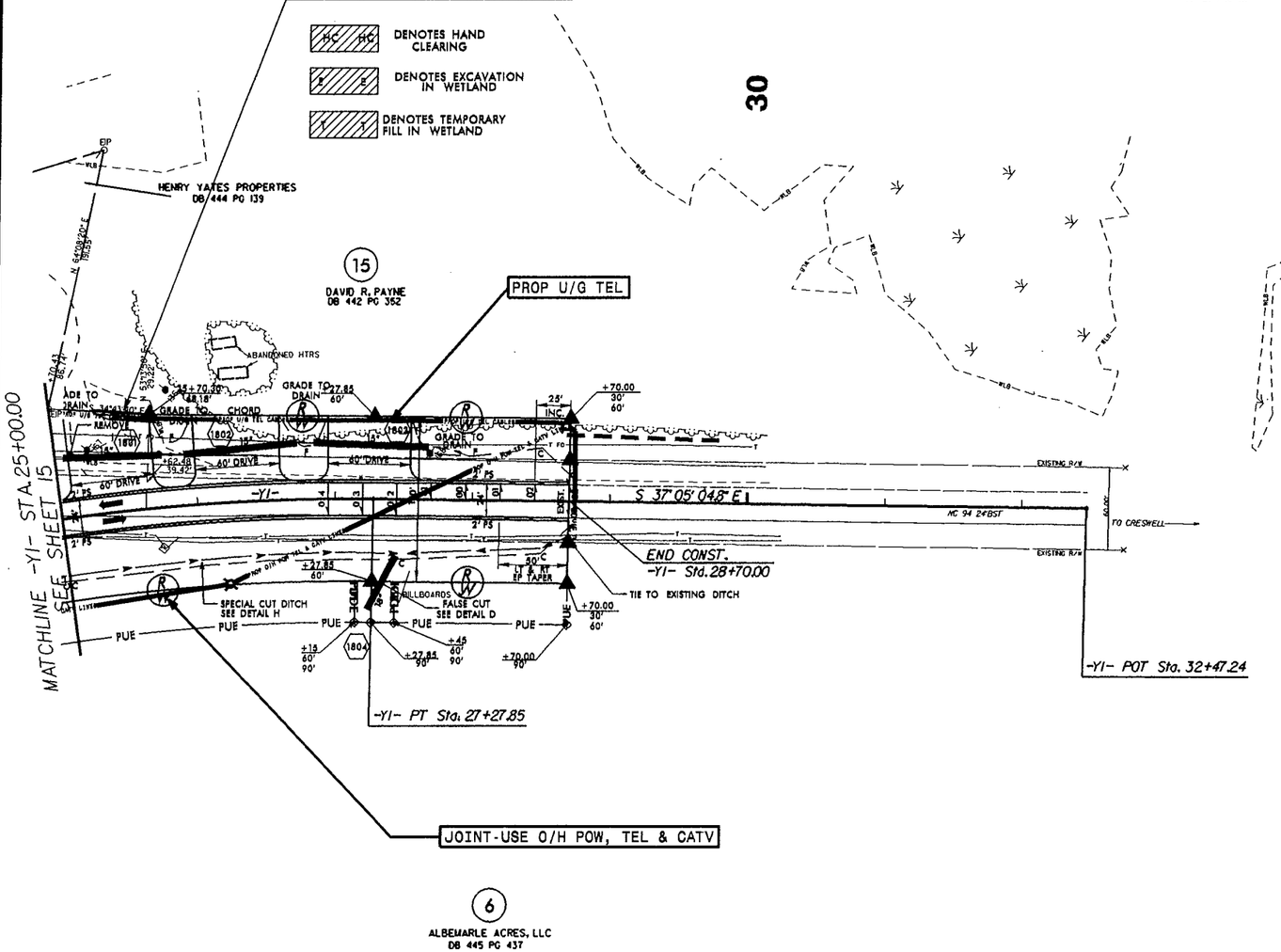
-Y1- 20+50 RT TO 28+70 RT

DETAIL D
FALSE CUT
(Not to Scale)



FROM STA. TO STA.
-Y1- 27+45 RT

-Y1-
PI Sta 21+01.40
Δ = 53° 51' 27.2" (RT)
D = 3° 57' 05.2"
L = 1,362.99'
T = 736.54'
R = 1,450.00'



REVISIONS

04/09/2013 R/W REVISION (KEW) - COMBINED PARCEL 07 WITH PARCEL 06.
07/24/2012 R/W REVISION (KEW) - REVISED DITCH RIGHT OF -Y1- NO R/W REVISION WAS MADE.
~~Design Revision 7-13-12 Revised ditch right of -Y1- according to Detail H.~~

8/17/99

26-NOV-2013 14:09
R:\Hydraulics\Engineering\UCVProj\NEU\R3620.Rdp
essellsbmacfarlane

PROPERTY OWNERS

NAMES AND ADDRESSES

PARCEL NO.	NAMES	ADDRESSES	SITE NO.
1	WEYERHAEUSER	DB 317 PG 323	1
1	WEYERHAEUSER	DB 317 PG 323	2
2	KATHLEEN V. SNELL	DB 278 PG 443	
1	WEYERHAEUSER	DB 317 PG 323	3
2	KATHLEEN V. SNELL	DB 278 PG 443	
3	JOHN M. DOUGHTY	DB 334 PG 237	
6	ALBEMARLE ACRES, LLC	DB 445 PG 437	4
15	DAVID R. PAYNE	DB 442 PG 352	5
11	PEA RIDGE CONVENIENCE STORE, INC	DB 358 PG 175	6
12	ELMER & RUSHA F. NORMAN	LOTS 3, 4,5	
6	ALBEMARLE ACRES, LLC	DB 445 PG 437	7
15	LAWRENCE PARKS	DB 442 PG 352	8

NORTH CAROLINA

DIVISION OF HIGHWAYS

WASHINGTON COUNTY

TIP PROJECT: (R-3620)

NEW ROUT FROM

US 64 TO NC 32

5 / 17 / 2013

WETLAND PERMIT IMPACT SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	-L-11+67 TO 20+25	Aerial Power & Tel	< 0.01				0.23					
2	-L-24+17 TO 37+33	Aerial Power & Tel	< 0.01				0.33					
3	-L-40+14 TO 50+65	Aerial Power & Tel					0.03					
4	-L-174+15 TO 174+43	Aerial Power, Tel & CATV					0.02					
5	-L-178+85 TO 179+45	U/G Tel lines by open cut		0.01	0.01		0.01					
6	-Y1-12+02 TO 12+08	U/G Tel lines by open cut							< 0.01			
7	-Y1-25+30 TO 25+78	U/G Tel lines by open cut		< 0.01	< 0.01		0.01					
TOTALS:			< 0.01	0.01	0.01	0.00	0.63	0.00	<0.01	0.00	0.00	0.00

Note :

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
WASHINGTON COUNTY
TIP PROJECT (R-3620)

Utility Permit Drawing
Sheet 11 of 11

Rev. 11/26/2013

ATN Revised 3/31/05

09/08/99

TIP PROJECT: R-3620

CONTRACT: C203413

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

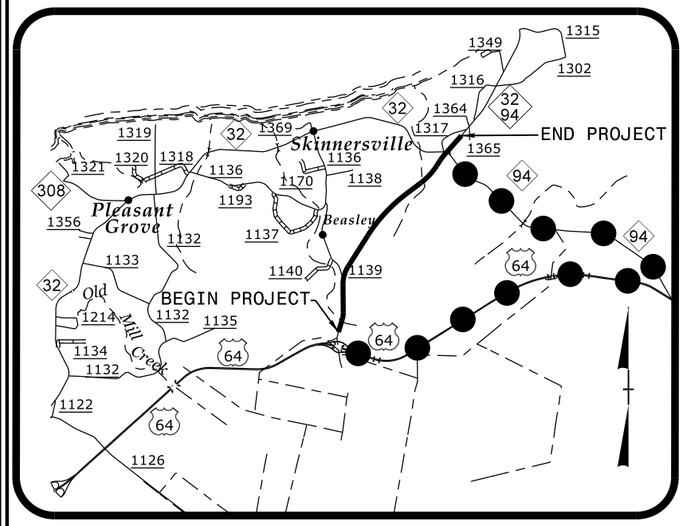
WASHINGTON COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-3620	1	

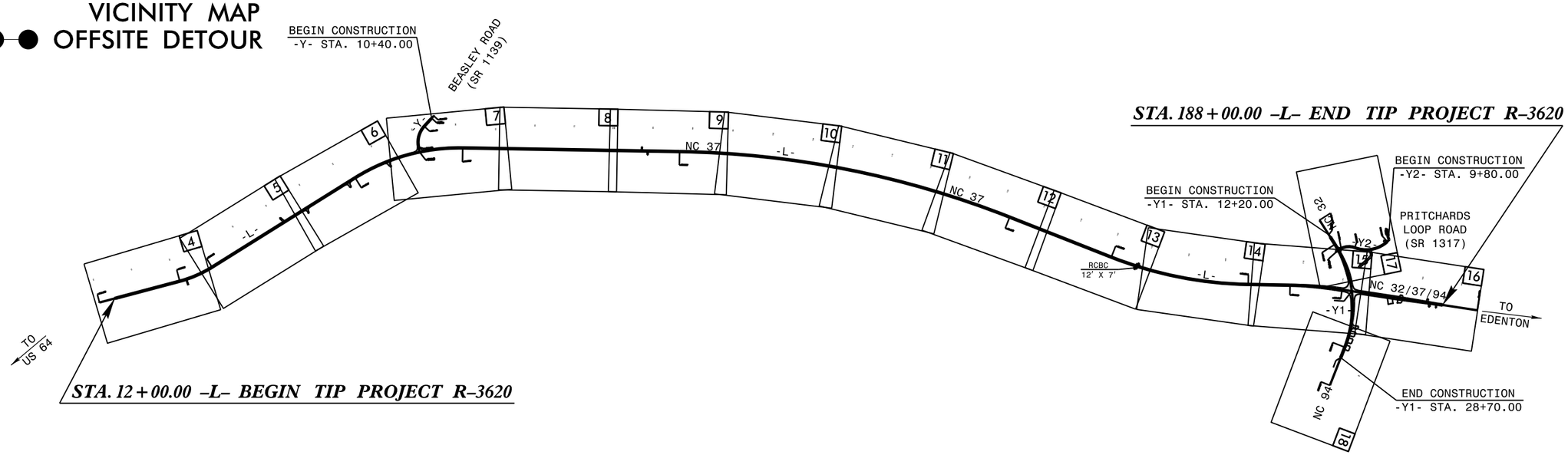
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
34548.1.1	STP-000S(252)	PE
34548.2.1	STP-000S(252)	R/W & UTIL
34548.3.FR1	STP-000S(252)	CONST.

LOCATION: NEW ROUTE FROM US 64 TO NC 32

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND CULVERT



VICINITY MAP
OFFSITE DETOUR



THIS IS A LIMITED AND PARTIAL CONTROL OF ACCESS PROJECT WITH ACCESS BEING LIMITED TO POINTS AS SHOWN ON THE PLANS.

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 = 3250
ADT 2034 = 5107
K = 10 %
D = 60 %
T = 7 % *
V = 60 MPH
* TTST = 3 DUAL 4
FUNC CLASS =
COLLECTOR
REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-3620 = 3.333 MILES
TOTAL LENGTH TIP PROJECT R-3620 = 3.333 MILES

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JUNE 29, 2012

LETTING DATE:
JUNE 17, 2014

GARY LOVERING, PE
PROJECT ENGINEER

CHRISTOPHER H. LEE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: *P.E.*

ROADWAY DESIGN ENGINEER

SIGNATURE: *P.E.*

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

03-DEC-2013 11:28
R:\Roadway\Proj\R3620_Rdy_tsh.dgn
$$$$USERNAME$$$$

12/05/11

PROJECT REFERENCE NO.	SHEET NO.
R-3620	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 — RW
- Proposed Right of Way Line with Iron Pin and Cap Marker — RW
- Proposed Right of Way Line with Concrete or Granite R/W Marker — RW
- Proposed Control of Access Line with Concrete C/A Marker — C/A
- Existing Control of Access — C/A
- Proposed Control of Access — C/A
- 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.

6/2/99

PROJECT REFERENCE NO.	SHEET NO.
R-3620	2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

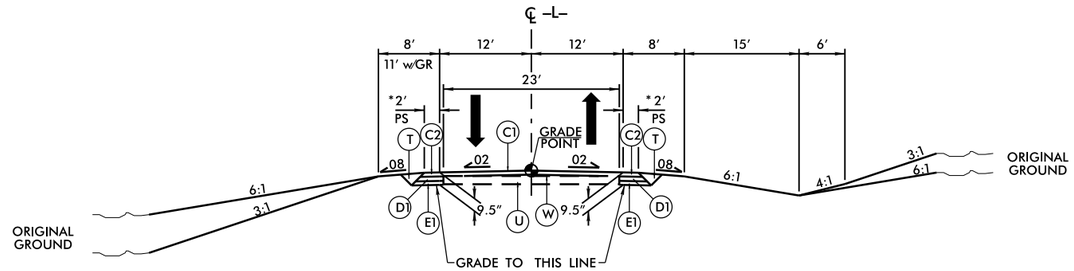
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PAVEMENT SCHEDULE

(FINAL PAVEMENT DESIGN 2/27/12)

C1	PROP. APPROX. 1½" 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.
D1	PROP. APPROX. 2½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
D2	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 2½" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. APPROX. 5½" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
E3	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 4" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
J1	PROP. 8" AGGREGATE BASE COURSE.
J2	VARIABLE DEPTH AGGREGATE BASE COURSE.
P	PRIME COAT.
R1	5" MONOLITHIC CONCRETE ISLAND.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL)

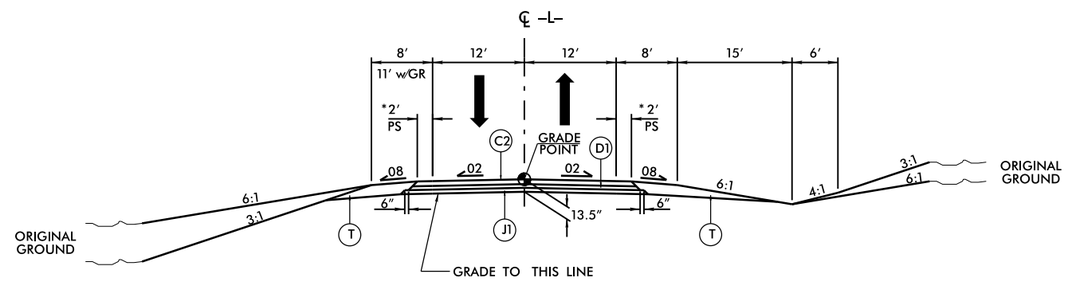
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



TYPICAL SECTION NO. 1

TYPICAL SECTION NO. 1

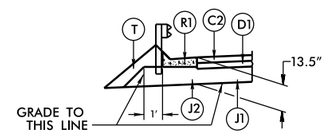
-L- STA. 12+00.00 TO -L- STA. 14+50.00
-L- STA. 181+00.00 TO -L- 188+00.00
*4' PAVED SHOULDER FOR BIKE LANES
(SEE PLANS FOR LOCATIONS)



TYPICAL SECTION NO. 2

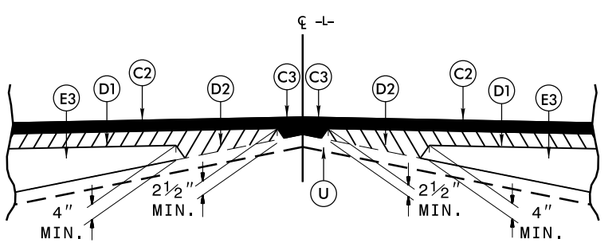
TYPICAL SECTION NO. 2

-L- STA. 14+50.00 TO -L- STA. 177+00.00
-L- STA. 180+00.00 TO -L- STA. 181+00.00
*4' PAVED SHOULDER FOR BIKE LANES
(SEE PLANS FOR LOCATIONS)

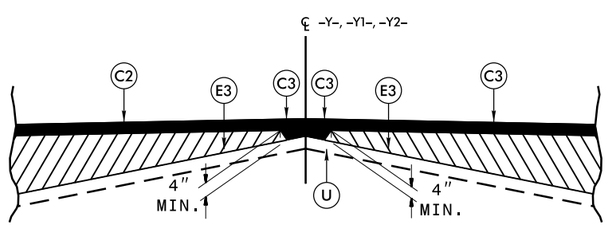


SHOULDER BERM GUTTER DETAIL

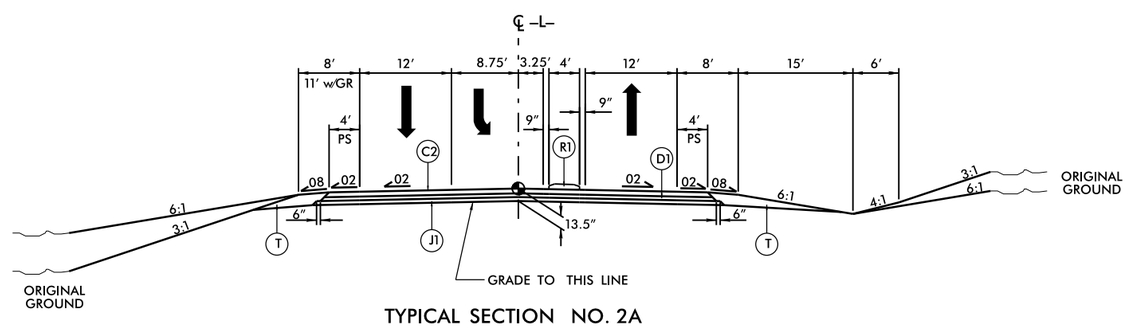
-L- STA. 146+80.00 TO -L- STA. 157+97.00 LT.



Detail Showing Method of Wedging



Detail Showing Method of Wedging



TYPICAL SECTION NO. 2A

TYPICAL SECTION NO. 2A

-L- STA. 177+00.00 TO -L- STA. 180+00.00

03-DEC-2013 11:28
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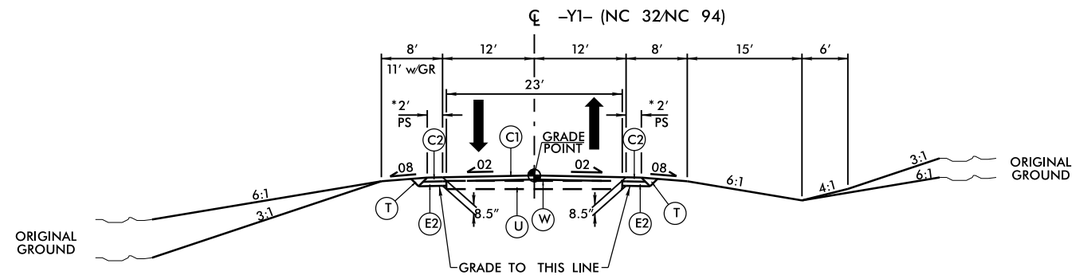
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
R-3620	2-A
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

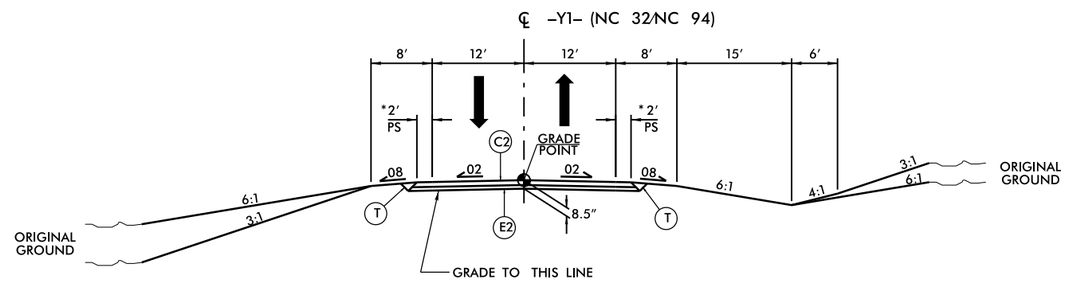
PAVEMENT SCHEDULE (FINAL PAVEMENT DESIGN 2/27/12)	
C1	1.5" S9.5B
C2	3.0" S9.5B
C3	VAR. S9.5B
D1	2.5" I19.0B
D2	VAR. I19.0B
E1	4.0" B25.0B
E2	5.5" B25.0B
E3	VAR. B25.0B
J1	8.0" ABC
J2	VAR. ABC
P	PRIME COAT.
R1	MONO. CONC. ISLAND.
T	EARTH MATERIAL
U	EXIST. PAVEMENT
W	WEDGING



TYPICAL SECTION NO. 3

TYPICAL SECTION NO. 3

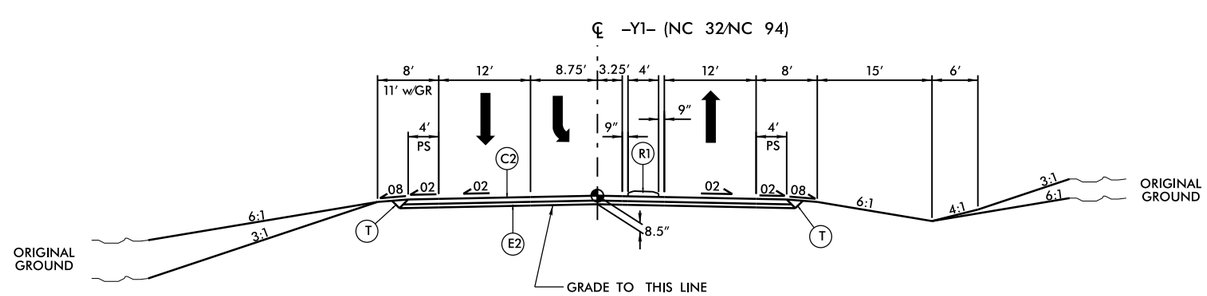
–Y1– STA. 12+50.00 TO –Y1– 16+00.00
–Y1– STA. 25+00.00 TO –Y1– 28+70.00
*4′ PAVED SHOULDER FOR BIKE LANES
(SEE PLANS FOR LOCATIONS)



TYPICAL SECTION NO. 4

TYPICAL SECTION NO. 4

–Y1– STA. 16+00.00 TO –Y1– 17+50.00
–Y1– STA. 19+50.00 TO –Y1– 19+80.01
–Y1– STA. 20+23.17 TO –Y1– 25+00.00
*4′ PAVED SHOULDER FOR BIKE LANES
(SEE PLANS FOR LOCATIONS)



TYPICAL SECTION NO. 4A

TYPICAL SECTION NO. 4A

–Y1– STA. 17+50.00 TO –Y1– 19+50.00

6/2/99

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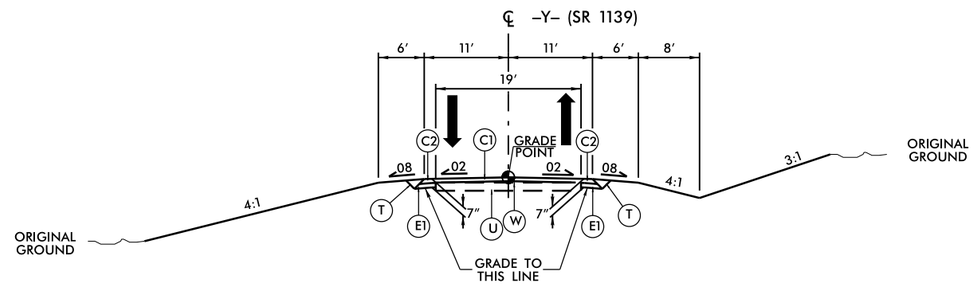
PROJECT REFERENCE NO.	SHEET NO.
R-3620	2-B
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

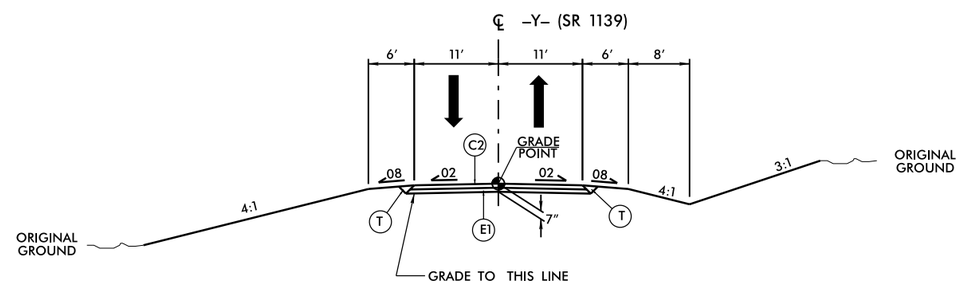
PAVEMENT SCHEDULE (FINAL PAVEMENT DESIGN 2/27/12)	
C1	1.5" S9.5B
C2	3.0" S9.5B
C3	VAR. S9.5B
D1	2.5" I19.0B
D2	VAR. I19.0B
E1	4.0" B25.0B
E2	5.5" B25.0B
E3	VAR. B25.0B
J1	8.0" ABC
J2	VAR. ABC
P	PRIME COAT.
R1	MONO. CONC. ISLAND.
T	EARTH MATERIAL
U	EXIST. PAVEMENT
W	WEDGING



TYPICAL SECTION NO. 5

TYPICAL SECTION NO. 5

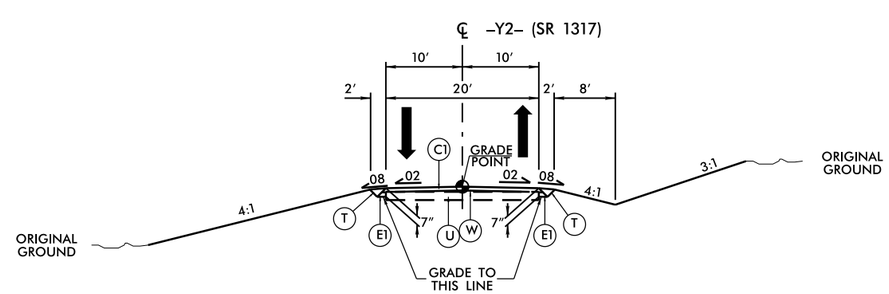
–Y– STA. 10+40.00 TO –Y– STA. 11+25.00



TYPICAL SECTION NO. 6

TYPICAL SECTION NO. 6

–Y– STA. 11+25.00 TO –Y– STA. 15+15.03



TYPICAL SECTION NO. 7

TYPICAL SECTION NO. 7

–Y2– STA. 10+00.00 TO –Y2– STA. 11+00.00

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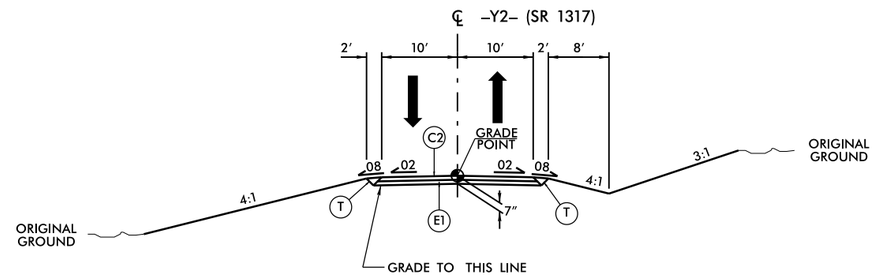
PAVEMENT SCHEDULE (FINAL PAVEMENT DESIGN 2/27/12)	
C1	1.5″ S9.5B
C2	3.0″ S9.5B
C3	VAR. S9.5B
D1	2.5″ I19.0B
D2	VAR. I19.0B
E1	4.0″ B25.0B
E2	5.5″ B25.0B
E3	VAR. B25.0B
J1	8.0″ ABC
J2	VAR. ABC
P	PRIME COAT.
R1	MONO. CONC. ISLAND.
T	EARTH MATERIAL
U	EXIST. PAVEMENT
W	WEDGING

PROJECT REFERENCE NO.	SHEET NO.
R-3620	2-C
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



TYPICAL SECTION NO. 8

TYPICAL SECTION NO. 8

–Y2– STA. 11+00.00 TO –Y2– STA. 16+51.09

6/2/99

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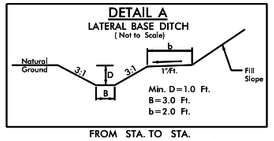
PROJECT REFERENCE NO.	SHEET NO.
R-3620	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

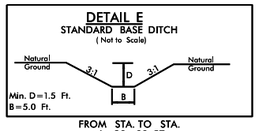
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DETAIL A
LATERAL BASE DITCH
(Not to Scale)



FROM STA. TO STA.
–L– 12+00 RT TO 17+50 RT

DETAIL E
STANDARD BASE DITCH
(Not to Scale)



FROM STA. TO STA.
–L– 20+00 RT

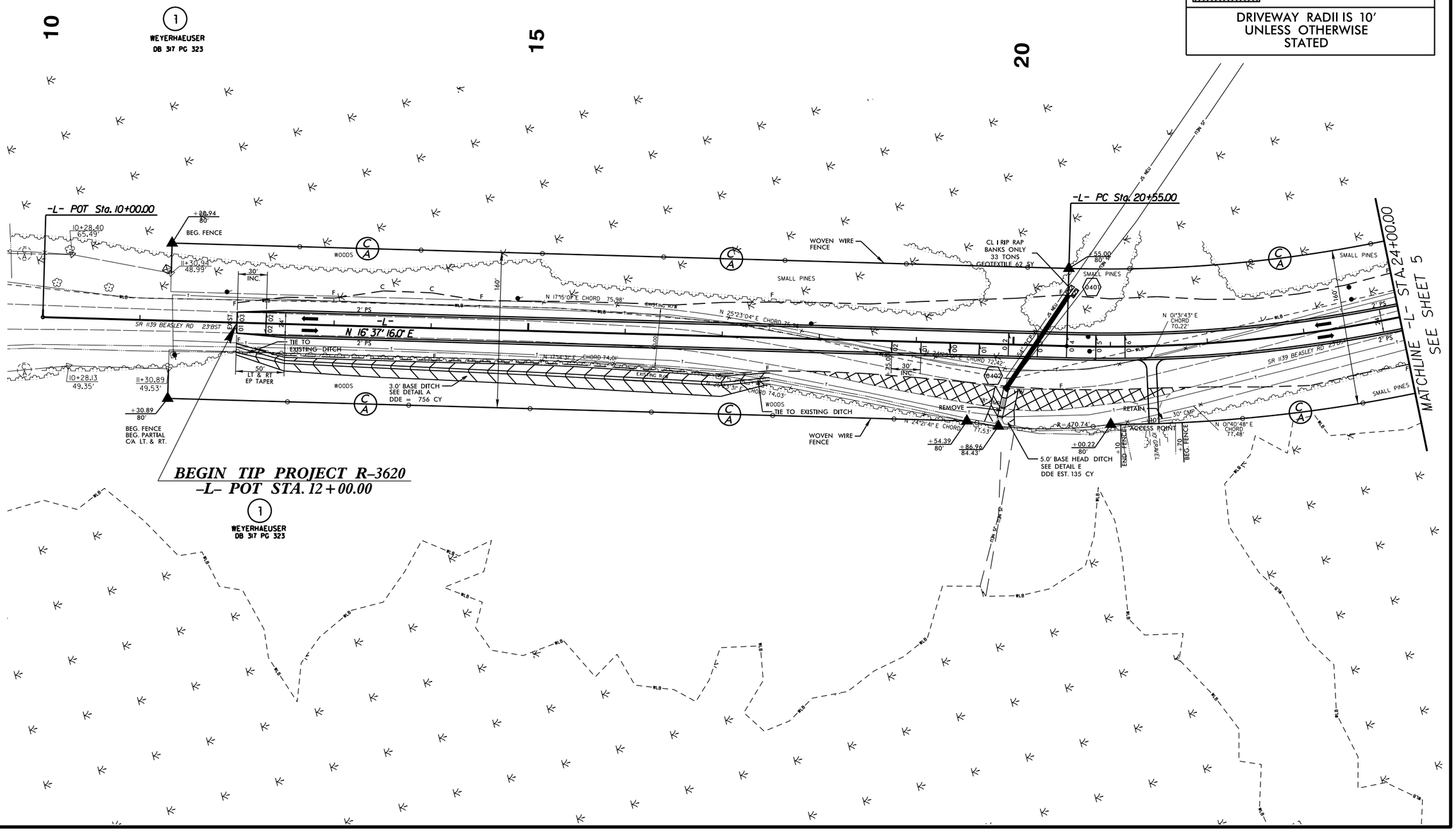
–L– CURVE DATA
PI Sta 22+80.98
Δ = 17° 08' 04.7" (LT)
D = 3° 49' 11.0"
L = 448.58'
T = 225.98'
R = 1,500.00'

NAD 83

FOR –L– PROFILE, SEE SHEET NO. 19

PAVEMENT REMOVAL

DRIVEWAY RADII IS 10' UNLESS OTHERWISE STATED



8/17/99

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PROJECT REFERENCE NO.	SHEET NO.
R-3620	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

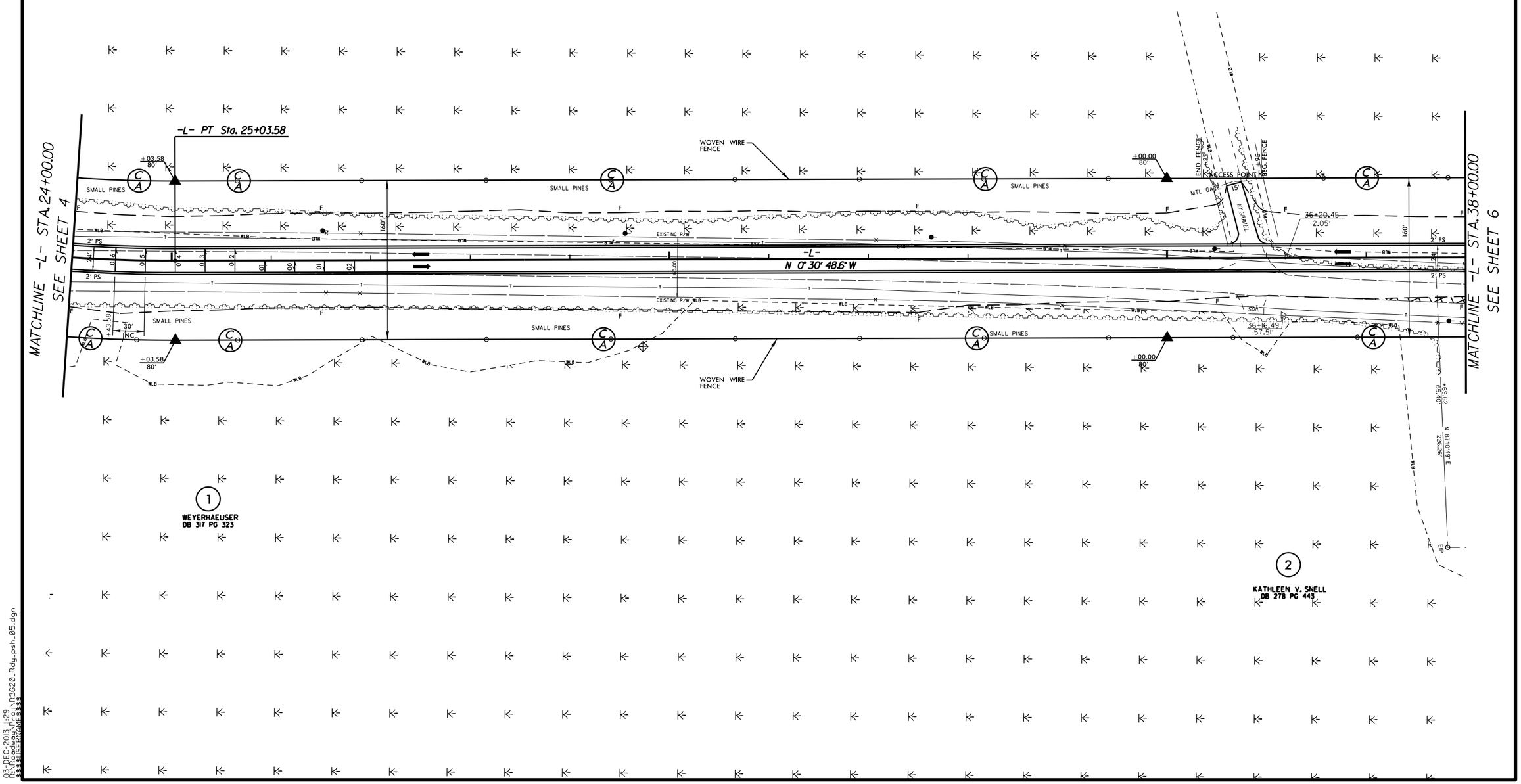
FOR -L- PROFILE, SEE SHEET NO. 19

PAVEMENT REMOVAL

DRIVEWAY RADII IS 10' UNLESS OTHERWISE STATED

NAD 83

-L- CURVE DATA
PI Sta 22+80.98
Δ = 17° 08' 04.7" (LT)
D = 3° 49' 11.0"
L = 448.58'
T = 225.98'
R = 1,500.00'



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PROJECT REFERENCE NO.	SHEET NO.
R-3620	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

FOR -L- PROFILE, SEE SHEET NO. 20

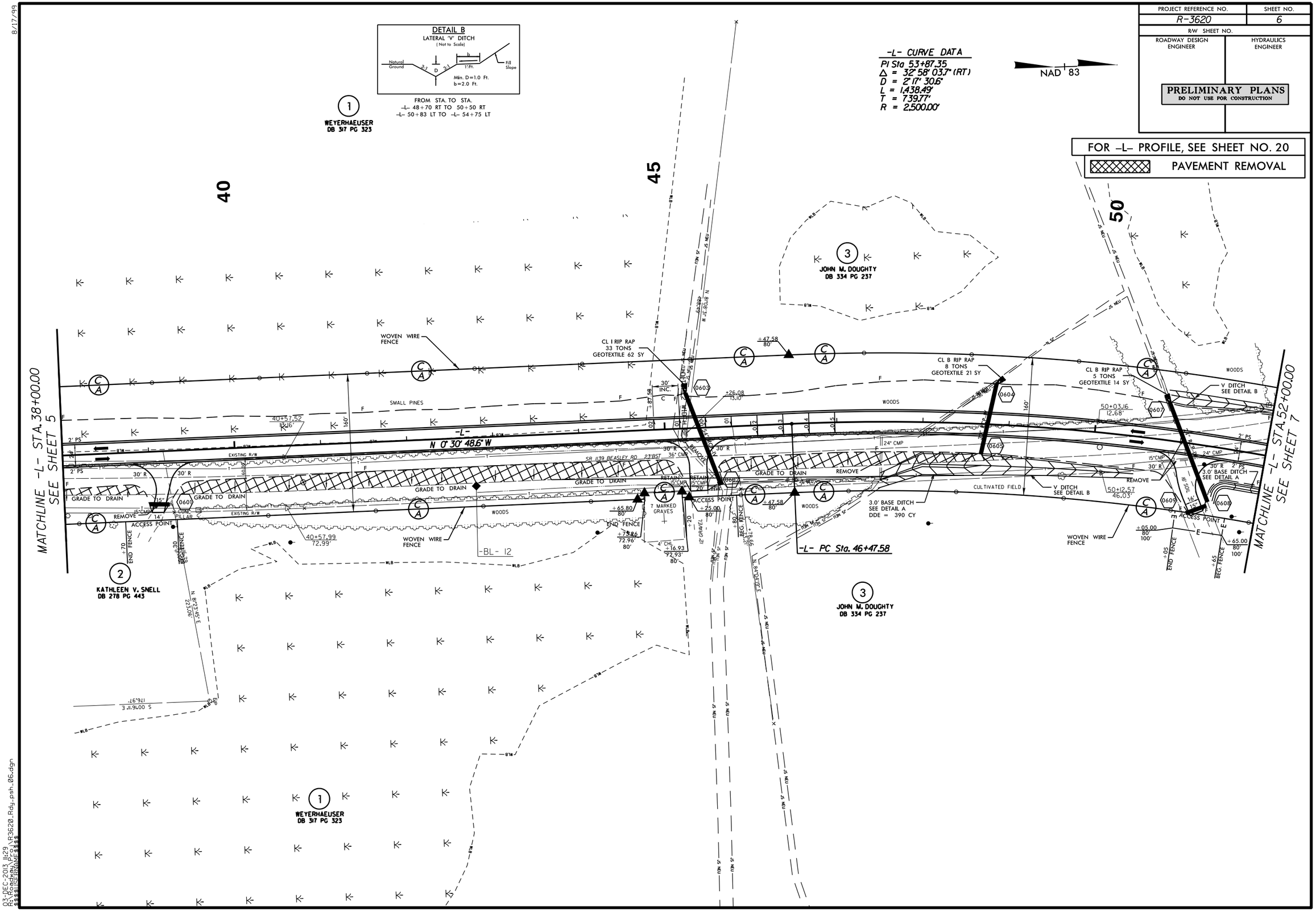
PAVEMENT REMOVAL

DETAIL B
LATERAL 'V' DITCH
(Not to Scale)

FROM STA. TO STA.
-L- 48+70 RT TO 50+50 RT
-L- 50+83 LT TO -L- 54+75 LT

-L- CURVE DATA
PI Sta 53+87.35
Δ = 32° 58' 03.7" (RT)
D = 2° 17' 30.6"
L = 1,438.49'
T = 739.77'
R = 2,500.00'

NAD 83



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PROJECT REFERENCE NO.	SHEET NO.
R-3620	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

FOR –L– PROFILE, SEE SHEET NO. 20
FOR –Y– PROFILE, SEE SHEET NO. 25
PAVEMENT REMOVAL

NAD 83

-L- CURVE DATA
PI Sta 53+87.35
Δ = 32° 58' 03.7" (RT)
D = 2° 17' 30.6"
L = 1,438.49'
T = 739.77'
R = 2,500.00'

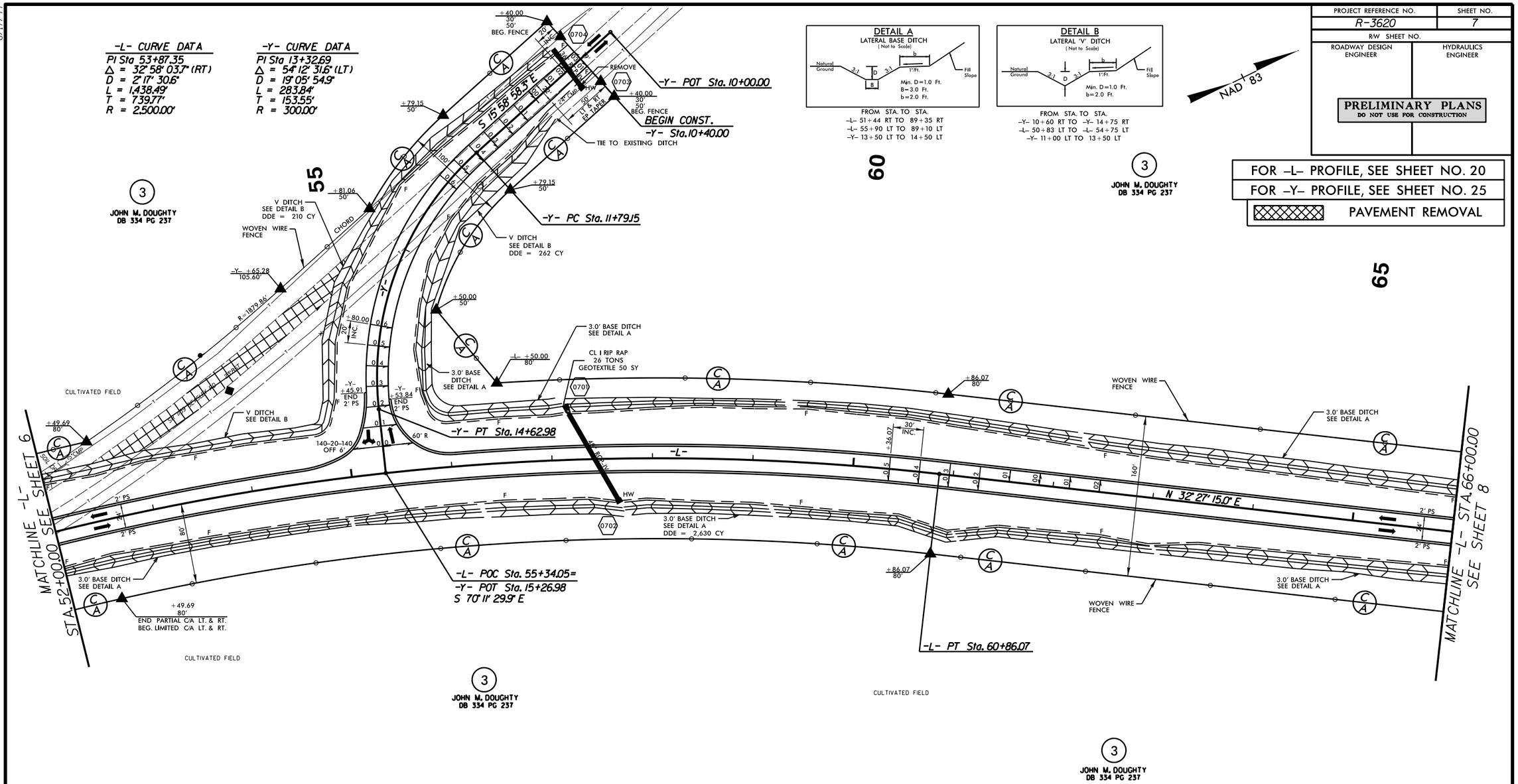
-Y- CURVE DATA
PI Sta 13+32.69
Δ = 54° 12' 31.6" (LT)
D = 19° 05' 54.9"
L = 283.84'
T = 153.55'
R = 300.00'

DETAIL A
LATERAL BASE DITCH
(Not to Scale)
Natural Ground, 3:1, D, 3:1, B, b, 1'/Ft., Fill Slope
Min. D=1.0 Ft.
B=3.0 Ft.
b=2.0 Ft.

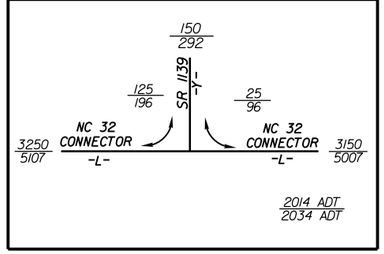
FROM STA. TO STA.
–L– 51+44 RT TO 89+35 RT
–L– 55+90 LT TO 89+10 LT
–Y– 13+50 LT TO 14+50 LT

DETAIL B
LATERAL 'V' DITCH
(Not to Scale)
Natural Ground, 3:1, D, 3:1, b, 1'/Ft., Fill Slope
Min. D=1.0 Ft.
b=2.0 Ft.

FROM STA. TO STA.
–Y– 10+60 RT TO –Y– 14+75 RT
–L– 50+83 LT TO –L– 54+75 LT
–Y– 11+00 LT TO 13+50 LT



NC 32 CONNECTOR & SR 1139



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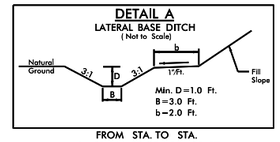
PROJECT REFERENCE NO.	SHEET NO.
R-3620	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

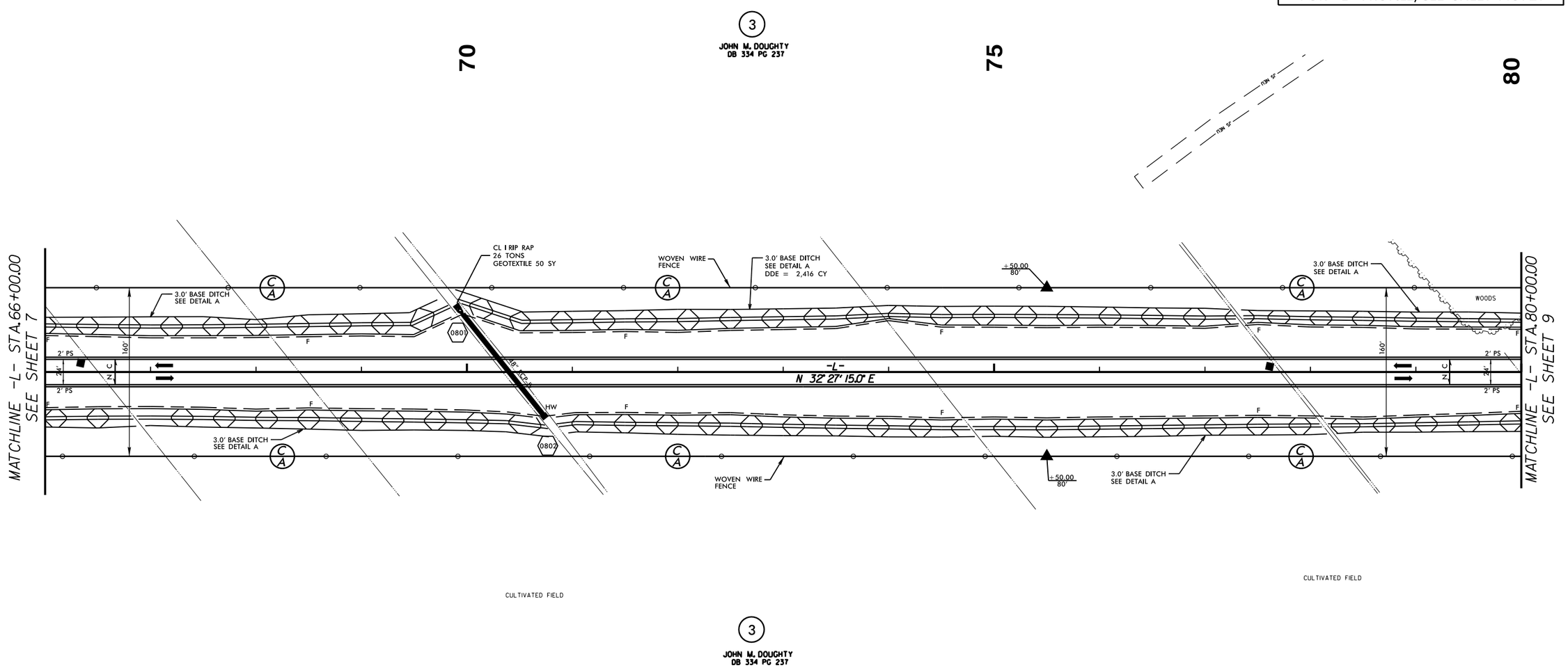
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



FROM STA. TO STA.
-L- 51+44 RT TO 89+35 RT
-L- 55+90 LT TO 89+10 LT

NAD 83

FOR -L- PROFILE, SEE SHEET NO. 21



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PROJECT REFERENCE NO.	SHEET NO.
R-3620	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

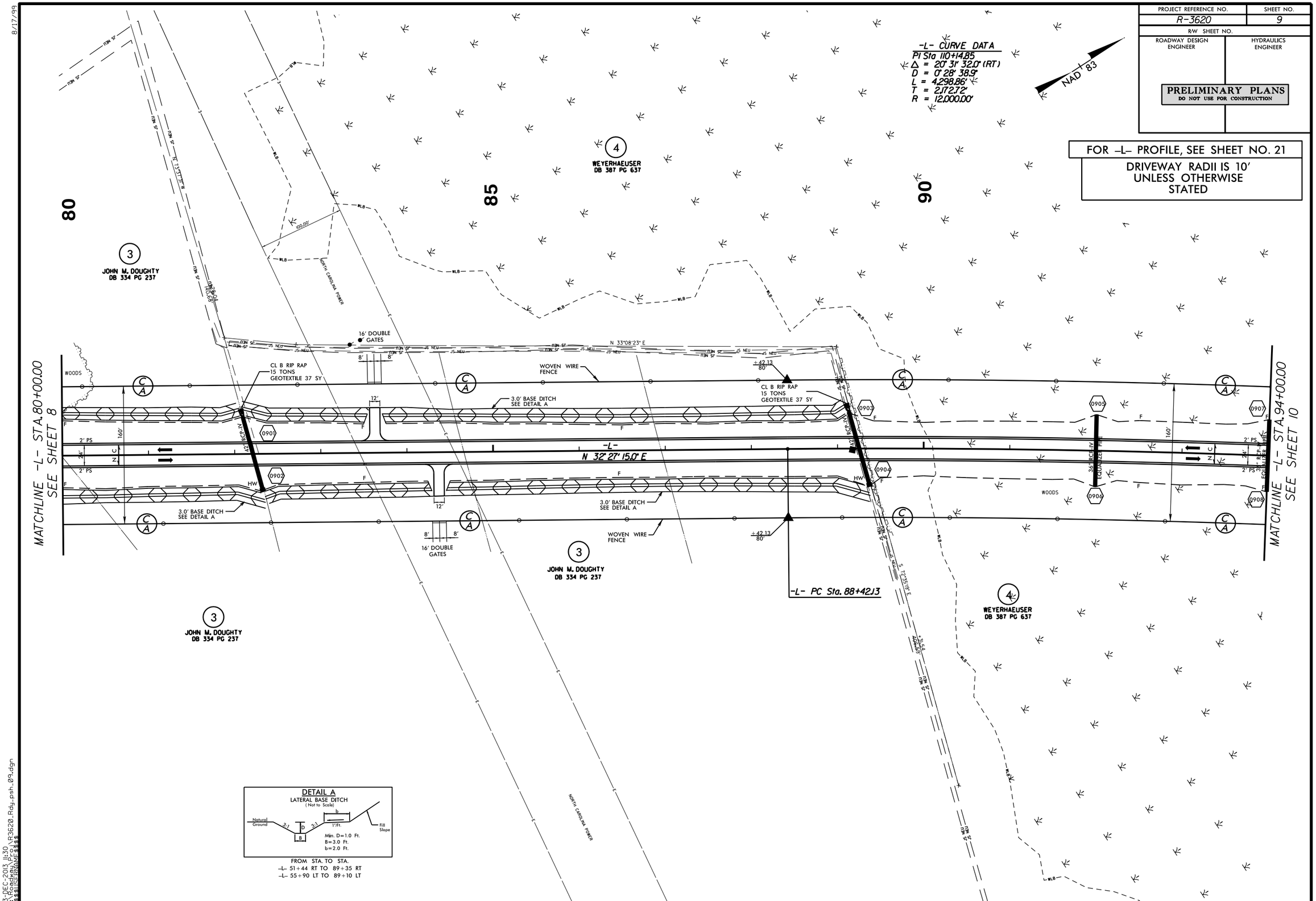
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

FOR -L- PROFILE, SEE SHEET NO. 21

DRIVEWAY RADII IS 10' UNLESS OTHERWISE STATED

-L- CURVE DATA
PI Sta 110+14.85
Δ = 20° 31' 32.0" (RT)
D = 0° 28' 38.9"
L = 4,298.86'
T = 2,172.72'
R = 12,000.00'

NAD 83



DETAIL A
LATERAL BASE DITCH
(Not to Scale)

Natural Ground
3:1
D
B
3:1
b
1'/Ft.
Fill Slope

Min. D=1.0 Ft.
B=3.0 Ft.
b=2.0 Ft.

FROM STA. TO STA.
-L- 51+44 RT TO 89+35 RT
-L- 55+90 LT TO 89+10 LT

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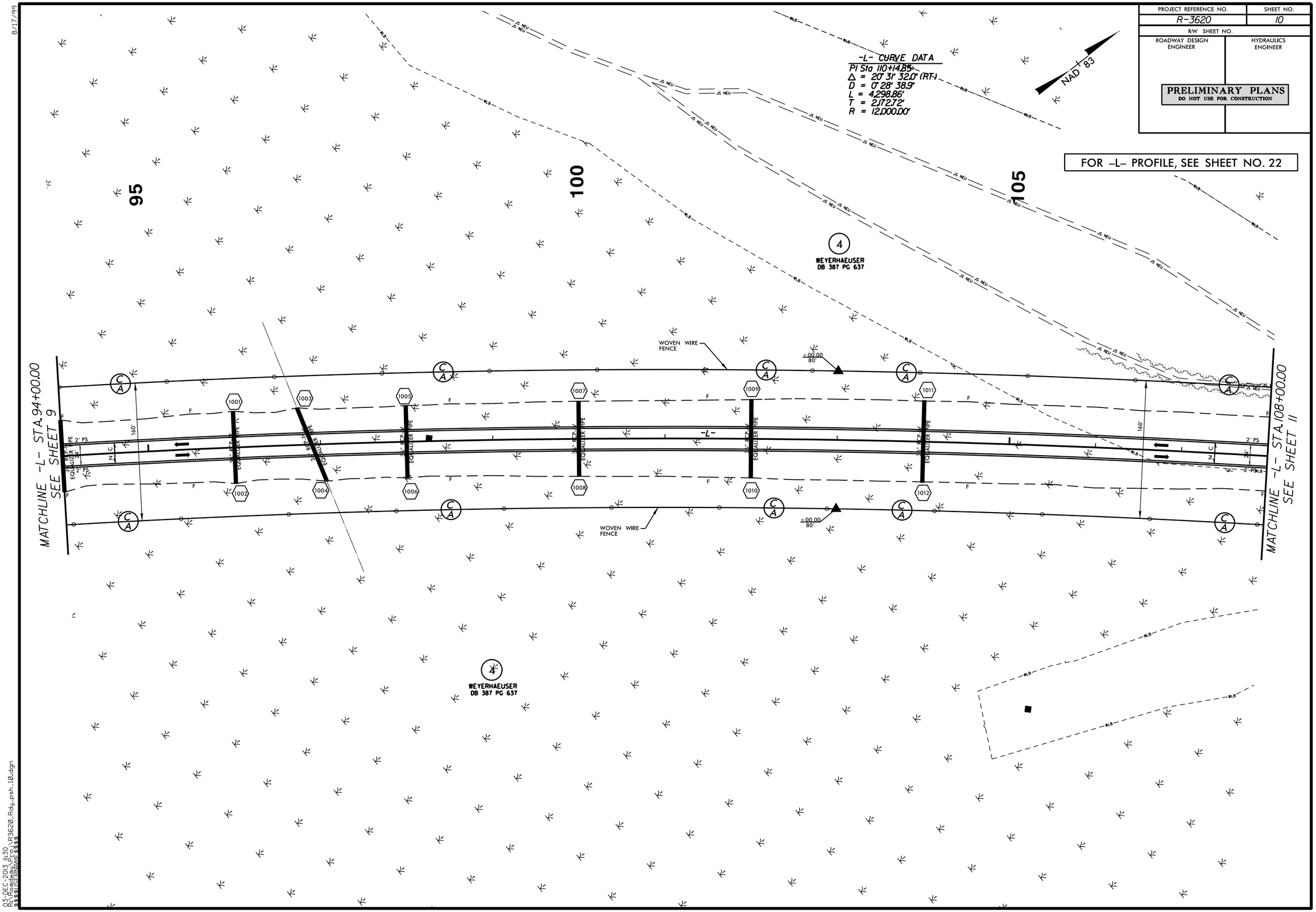
PROJECT REFERENCE NO.	SHEET NO.
R-3620	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



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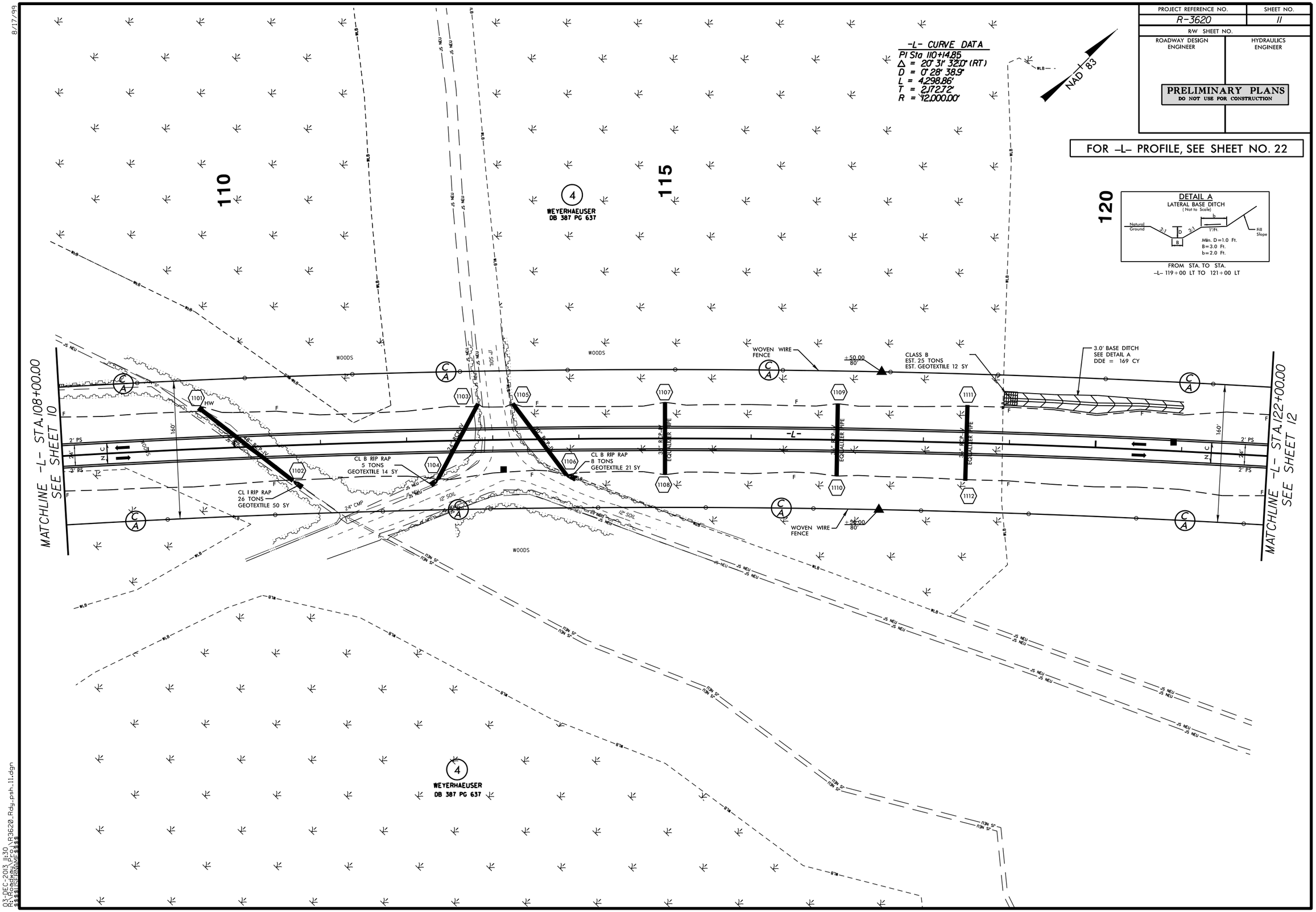
PROJECT REFERENCE NO.	SHEET NO.
R-3620	11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

FOR –L– PROFILE, SEE SHEET NO. 22



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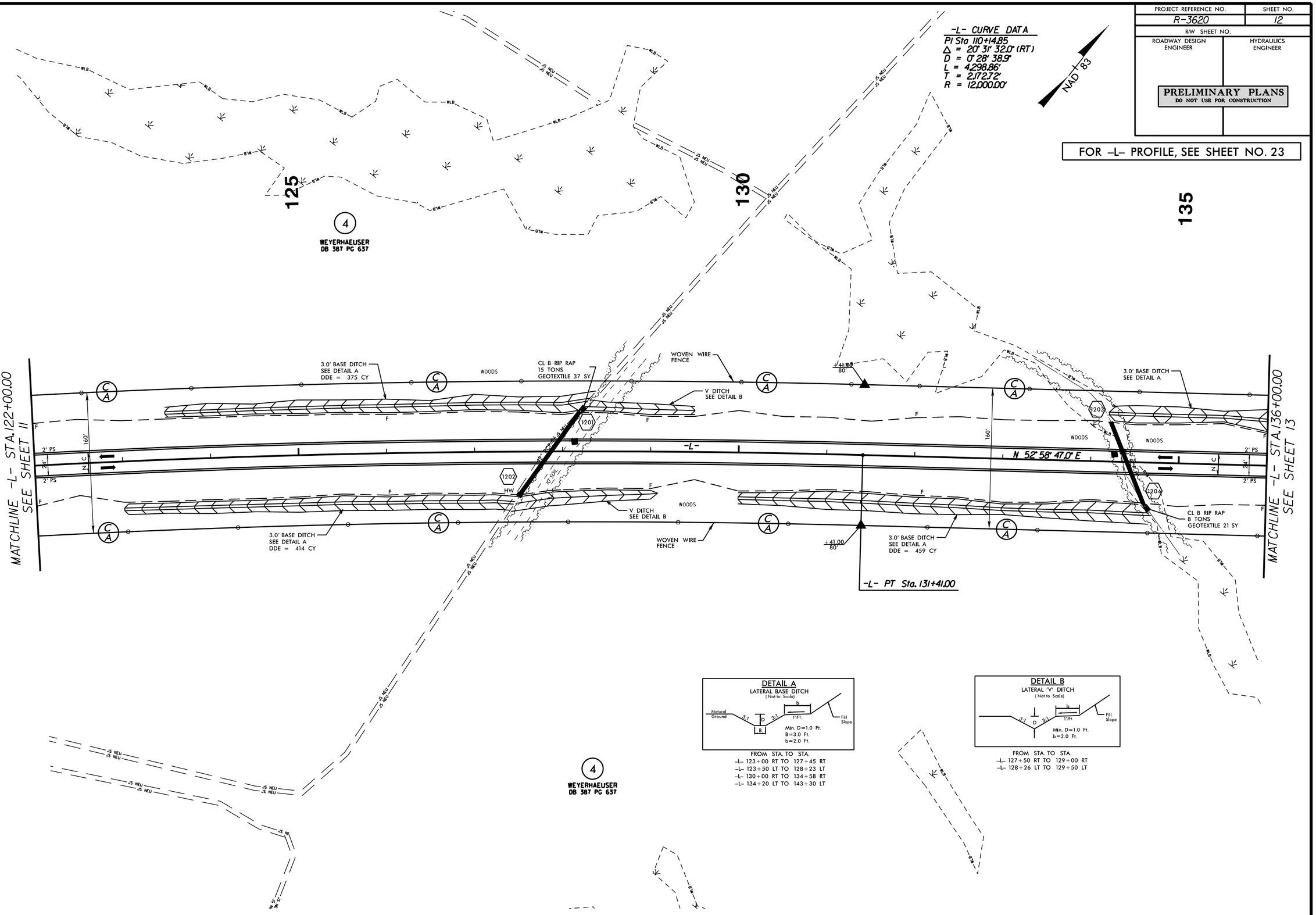
PROJECT REFERENCE NO.	SHEET NO.
R-3620	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

FOR -L- PROFILE, SEE SHEET NO. 23

-L- CURVE DATA
PI Sta 110+14.85
Δ = 20° 31' 32.0" (RT)
D = 0° 28' 38.9"
L = 4,298.86'
T = 2,172.72'
R = 12,000.00'

NAD 83



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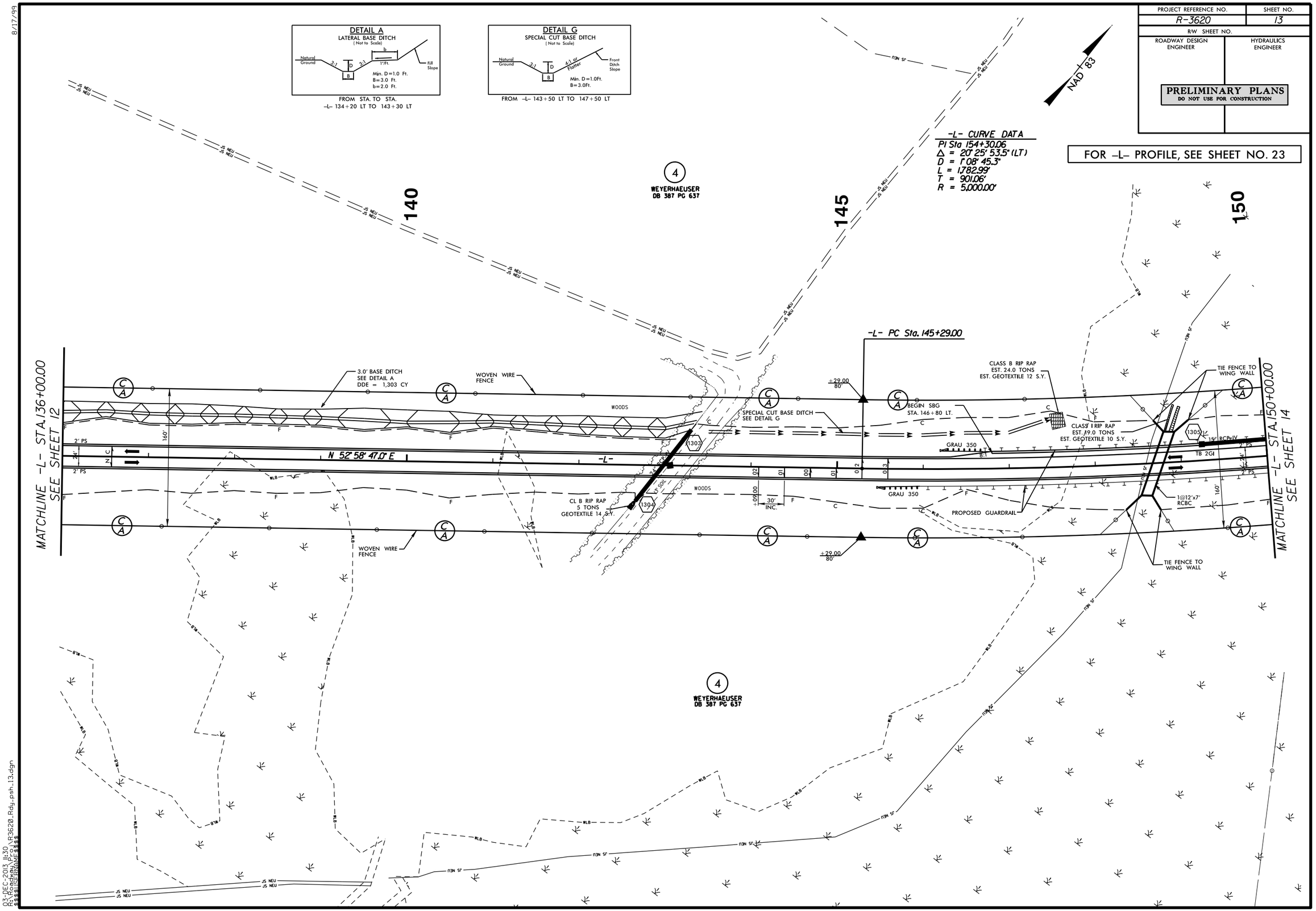
PROJECT REFERENCE NO.	SHEET NO.
R-3620	13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

FOR -L- PROFILE, SEE SHEET NO. 23



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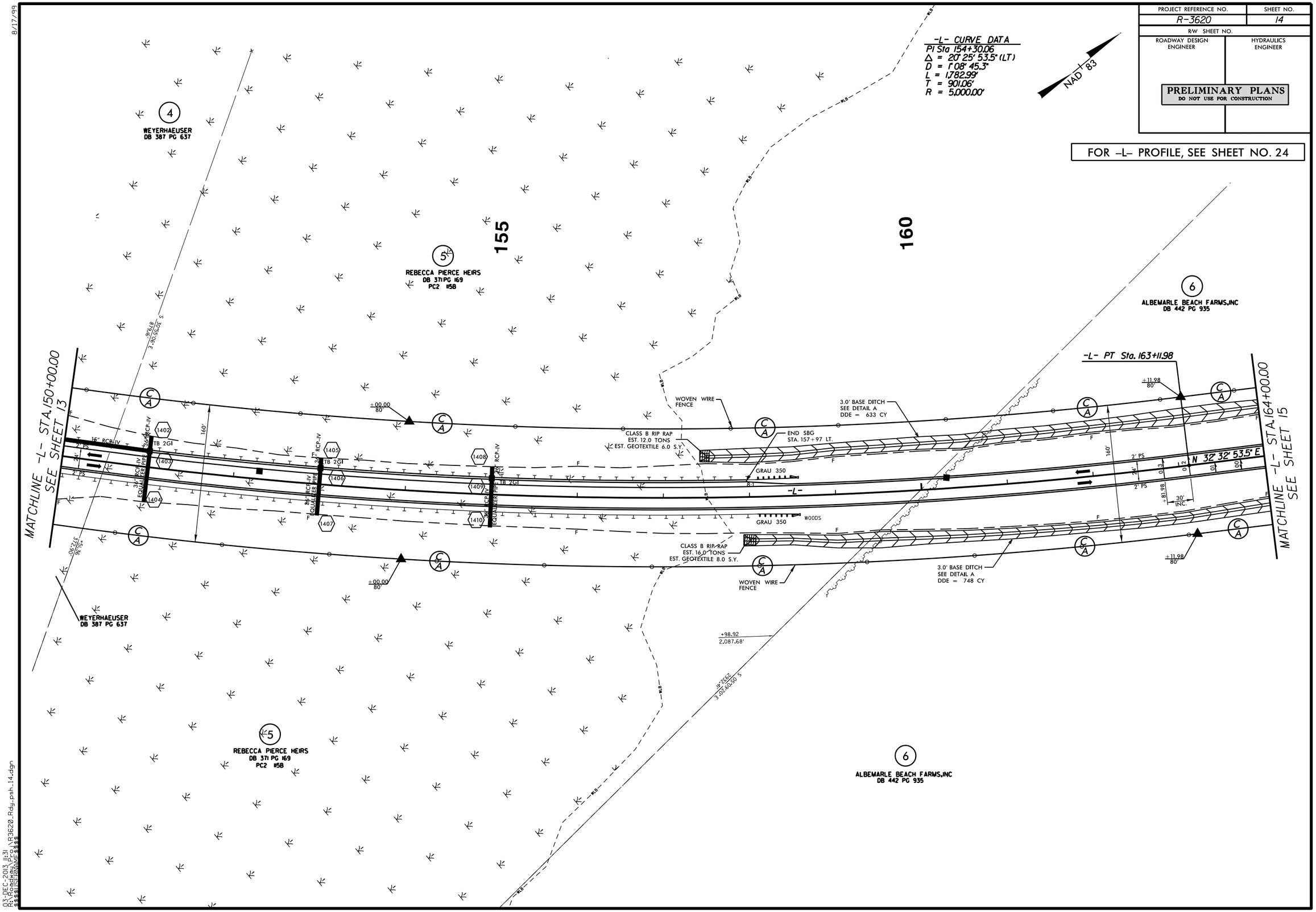
PROJECT REFERENCE NO.	SHEET NO.
R-3620	14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



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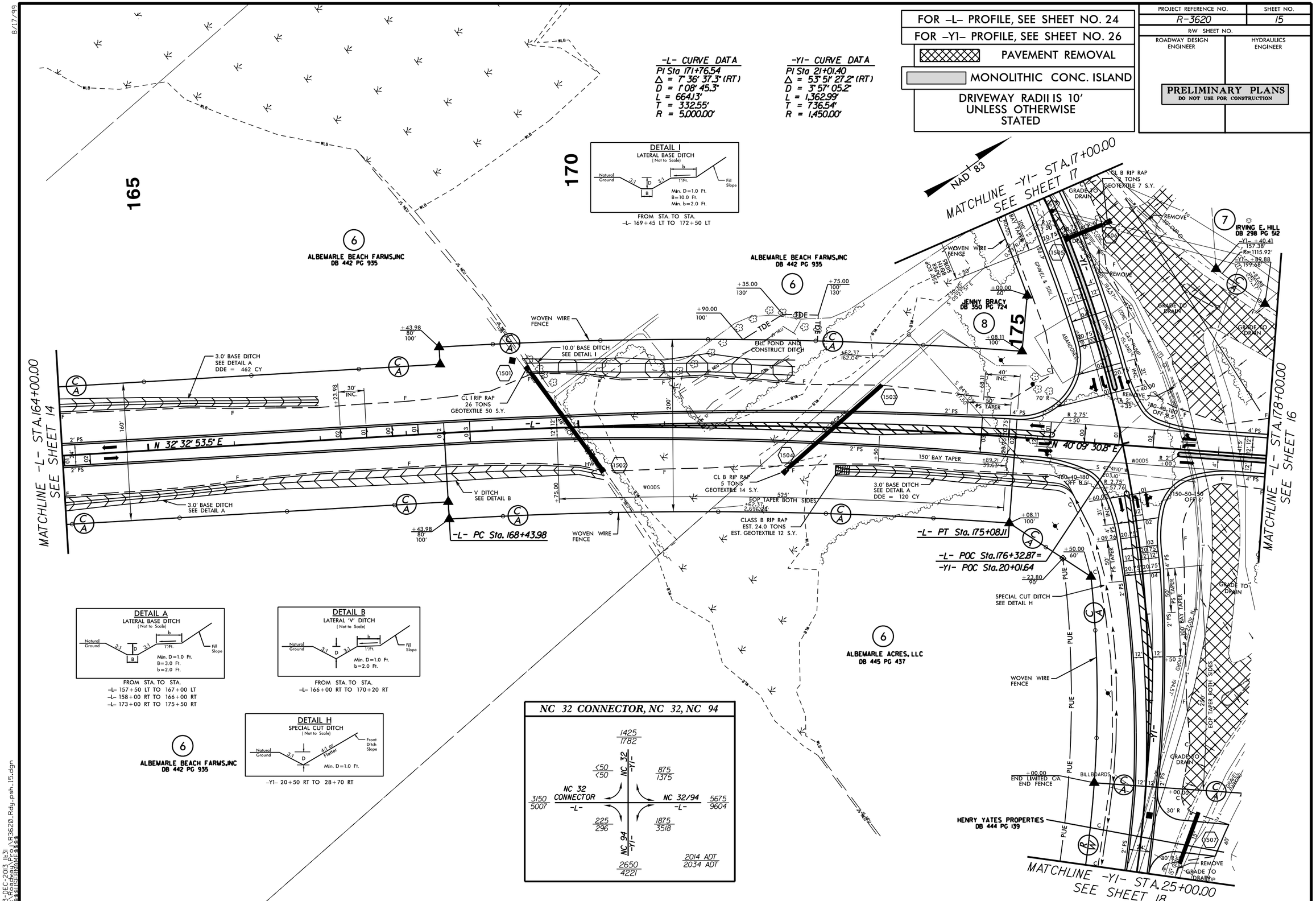
PROJECT REFERENCE NO.	SHEET NO.
R-3620	15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

FOR –L– PROFILE, SEE SHEET NO. 24
FOR –Y1– PROFILE, SEE SHEET NO. 26
PAVEMENT REMOVAL
MONOLITHIC CONC. ISLAND
DRIVEWAY RADII IS 10' UNLESS OTHERWISE STATED

-L- CURVE DATA
PI Sta 171+76.54
Δ = 7° 36' 37.3" (RT)
D = 1° 08' 45.3"
L = 664.13'
T = 332.55'
R = 5,000.00'

-Y1- CURVE DATA
PI Sta 21+01.40
Δ = 53° 51' 27.2" (RT)
D = 3° 57' 05.2"
L = 1,362.99'
T = 736.54'
R = 1,450.00'



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PROJECT REFERENCE NO.	SHEET NO.
R-3620	16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PAVEMENT REMOVAL

FOR –L– PROFILE, SEE SHEET NO. 25

DETAIL A
LATERAL BASE DITCH
(Not to Scale)

Natural Ground, 3:1, D, B, b, 1'/Ft., 3:1, Fill Slope

Min. D=1.0 Ft.
B=3.0 Ft.
b=2.0 Ft.

FROM STA. TO STA.
–L– 184+16 LT TO 185+77 LT

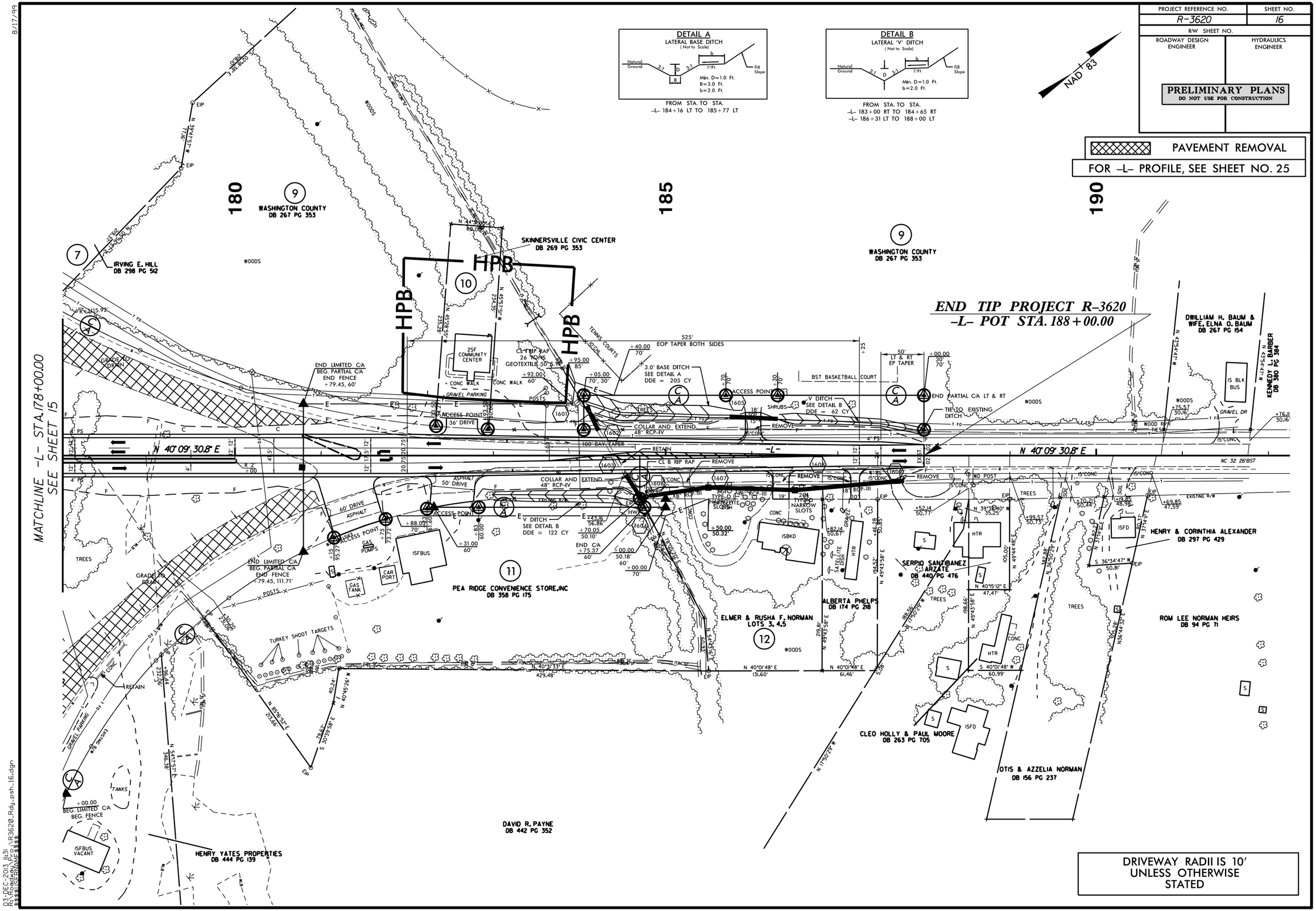
DETAIL B
LATERAL 'V' DITCH
(Not to Scale)

Natural Ground, 3:1, D, 3:1, b, 1'/Ft., Fill Slope

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

FROM STA. TO STA.
–L– 183+00 RT TO 184+65 RT
–L– 186+31 LT TO 188+00 LT

NAD 83



DRIVEWAY RADII IS 10'
UNLESS OTHERWISE
STATED

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PROJECT REFERENCE NO.	SHEET NO.
R-3620	17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

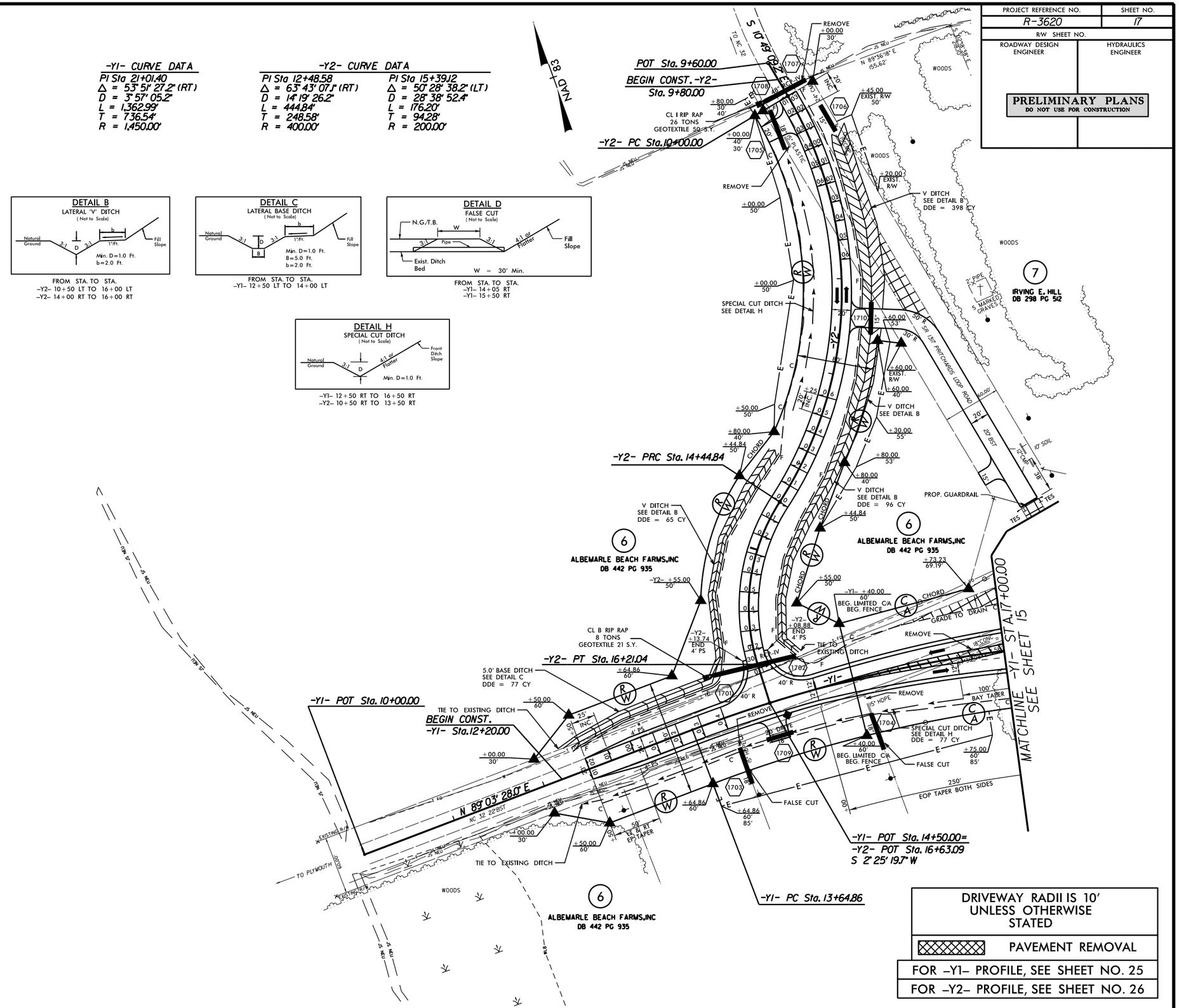
-Y1- CURVE DATA

PI Sta 21+01.40
Δ = 53° 51' 27.2" (RT)
D = 3° 57' 05.2"
L = 1,362.99'
T = 736.54'
R = 1,450.00'

-Y2- CURVE DATA

PI Sta 12+48.58
Δ = 63° 43' 07.1" (RT)
D = 14° 19' 26.2"
L = 444.84'
T = 248.58'
R = 400.00'

PI Sta 15+39.12
Δ = 50° 28' 38.2" (LT)
D = 28° 38' 52.4"
L = 176.20'
T = 94.28'
R = 200.00'


NAD 83
POT Sta. 9+60.00
BEGIN CONST. -Y2-
Sta. 9+80.00
-Y2- PC Sta. 10+00.00
CL I RIP RAP
26 TONS
GEOTEXTILE 50 S.Y.
REMOVE
V DITCH
SEE DETAIL B
DDE = 398 CY
SPECIAL CUT DITCH
SEE DETAIL H
-Y2- PRC Sta. 14+44.84
V DITCH
SEE DETAIL B
DDE = 65 CY
V DITCH
SEE DETAIL B
DDE = 96 CY
PROP. GUARDRAIL
IRVING E. HILL
DB 298 PG 52
ALBEMARLE BEACH FARMS,INC
DB 442 PG 935
CL B RIP RAP
8 TONS
GEOTEXTILE 21 S.Y.
-Y2- PT Sta. 16+21.04
5.0' BASE DITCH
SEE DETAIL C
DDE = 77 CY
-Y1- POT Sta. 10+00.00
TIE TO EXISTING DITCH
BEGIN CONST.
-Y1- Sta. 12+20.00
N 89°03' 28.07" E
NC 32 22'85"
TO PLYMOUTH
WOODS
-Y1- POT Sta. 14+50.00=
-Y2- POT Sta. 16+63.09
S 2° 25' 19.7" W
-Y1- PC Sta. 13+64.86
MATCHLINE -Y1- STA. 17+00.00
SEE SHEET 15
GRADE TO DRAIN
BEG. LIMITED C/A
BEG. FENCE
FALSE CUT
EOP TAPER BOTH SIDES
SPECIAL CUT DITCH
SEE DETAIL H
DDE = 77 CY
BAY TAPER
15" HDPE
2' PIPE
5 MARKED GRAVES
S 10° 49' 02.2" W
N 89°36'18" E
(55.62')
S 88°38'18" E
(118.00')
TO NC 32
EXIST. R/W
50'
EXIST. R/W
EXIST. R/W
EXIST. R/W

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3620	18
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

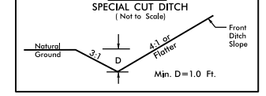
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

FOR –Y1– PROFILE, SEE SHEET NO. 26

DRIVEWAY RADII IS 10' UNLESS OTHERWISE STATED

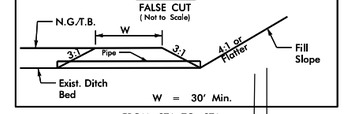
NAD 83

DETAIL H
SPECIAL CUT DITCH
(Not to Scale)



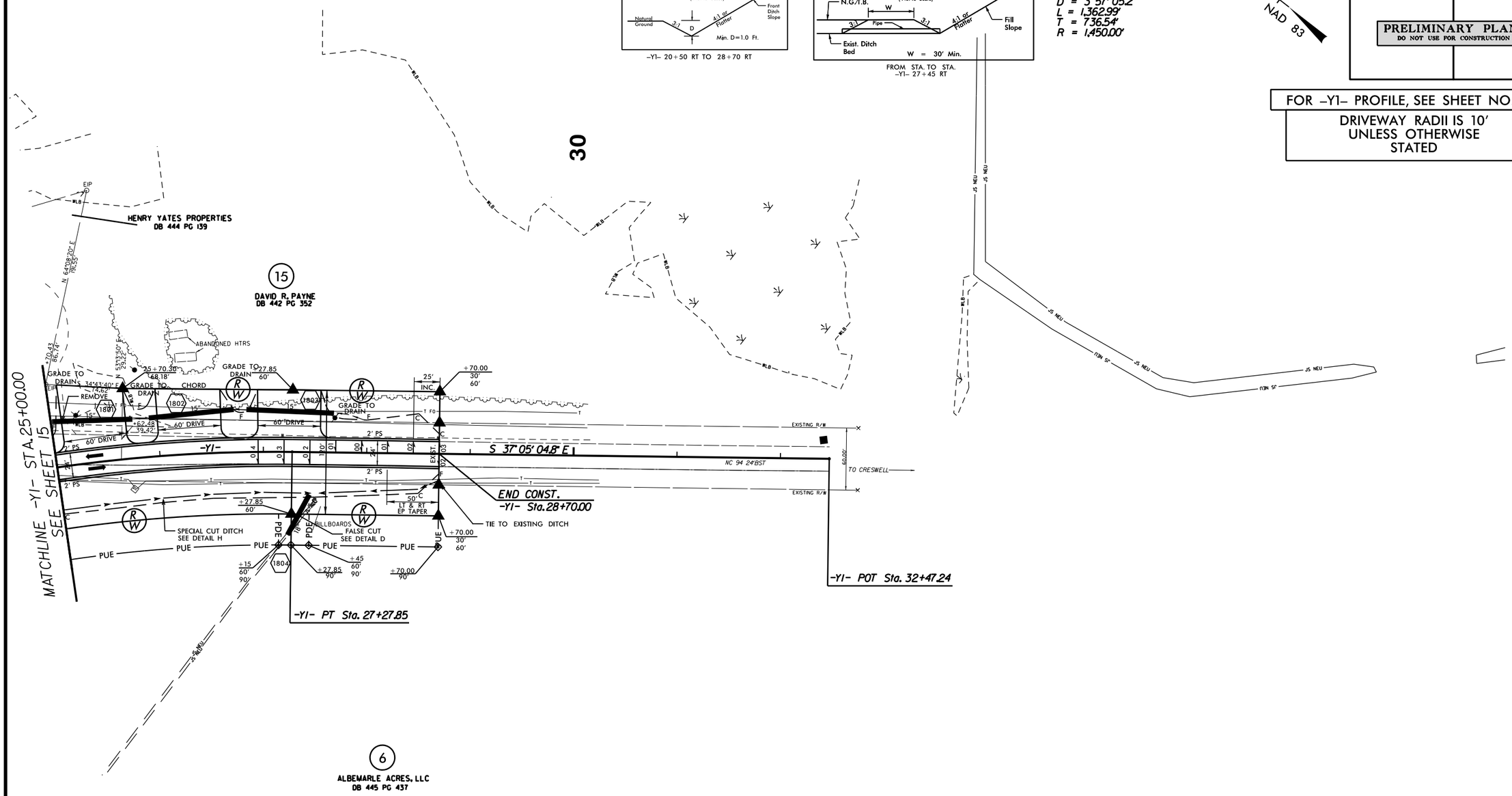
–Y1– 20+50 RT TO 28+70 RT

DETAIL D
FALSE CUT
(Not to Scale)



FROM STA. TO STA.
–Y1– 27+45 RT

–Y1–
PI Sta 21+01.40
Δ = 53° 51' 27.2" (RT)
D = 3° 57' 05.2"
L = 1,362.99'
T = 736.54'
R = 1,450.00'



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