STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

April 14, 2010

Mr. Tom Steffens
U.S. Army Corps of Engineers
Regulatory Field Office
Post Office Box 1000
Washington, NC 27889-1000

Mr. Stephen Lane
N. C. Dept. of Env. and Natural Resources
Division of Coastal Management
400 Commerce Avenue
Morehead City, NC 28557

Dear Sirs:

Subject: **Request for Modification to Individual Section 404 and 401 permits, CAMA Major Development Permit, and Tar-Pamlico Riparian Buffer Authorization** for the proposed Washington Bypass. US 17 from North of SR 1509 (Springs Road) to North of SR 1418 (Roberson Road). TIP Number: R-2510C, Federal Aid Project MAF-75-3(26). Debit $570 from WBS Element No. 34440.1.1.

References: R-2510 Section 404 Individual Permit issued January 17, 2006 (USAID 199301143);
R-2510 Section 401 Water Quality Certification and Tar-Pamlico Riparian Buffer Authorization issued September 6, 2005 (DWQ No.050785);
R-2510 CAMA Major Development Permit issued March 6, 2007 (CAMA permit No. 29-07):
R-2510 EEP Mitigation Acceptance Letter dated October 27, 2006.

The purpose of this document is to submit the final design and revised impact calculations for modification of the Clean Water Act (CWA) Section 404 Individual Permit and Section 401 Water Quality Certification, Tar-Pam Riparian Buffer Authorization. Included in this application package are the following: revised permit drawings, buffer drawings, MP forms, revised roadway plans, and a revised EEP Acceptance Letter.

Permit History

The other sections that were part of the previous permit application, R-2510A and R-2510B, are currently under construction under one conventional letting (R-2510A) and one under design build (R-2510B). R-2510C was permitted with preliminary impacts. This modification application summarizes the final impacts.

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

TELEPHONE: 919-431-2000
FAX: 919-431-2002

WEBSITE: WWW.NCDOT.ORG

LOCATION:
4701 ATLANTIC AVENUE
SUITE 116
RALEIGH NC 27604

The revised design does not compromise NCDOT's compliance with the existing permit conditions. The revision has been evaluated for compliance with the avoidance/minimization criteria and is in compliance with all previous issues, including the following:

- Aquatic Life passage
- FEMA compliance
- Cultural Resources

Final impacts for R-2510C consist of 1.7 acres of permanent wetland impacts (0.56 riparian & 1.14 non-riparian) and 1,431 linear feet of permanent stream impacts. Total buffer impacts consist of 149,215 ft^2 of mitigable impacts and 3,499 ft^2 of allowable impacts. Specific changes are detailed for the sites below:

- Site 1A: new bridges and approaches resulting in fill and mechanized clearing in wetlands. Also there are temporary and permanent stream impacts associated with the new bridges.
- Site 1B: fill, excavation, and mechanized clearing in wetlands due to widening.
- Site 1C: excavation and mechanized clearing in wetlands due to the widening of Cherry Run Road.
- Site 2: permanent and temporary stream impacts due to the installation of 36" pipe.
- Site 3: fill, excavation, and mechanized clearing in wetlands due to widening, a lateral base ditch, and the outfall of a 15" pipe. The temporary and permanent stream impacts are due to two aluminum pipe arches.
- Site 4A: the temporary and permanent stream impacts are due to the installation of 15" plastic pipe and a median cut ditch.
- Site 4B: new bridges and approaches resulting in mechanized clearing in wetlands and temporary stream impacts.
- Site 4C: temporary stream impacts due to new abutment.
- Site 4D: fill, excavation, and mechanized clearing in wetlands due to widening of approach and new bridge.
- Site 5A: permanent and temporary stream impacts due to the installation of 36" pipe.
- Site 5B: permanent and temporary stream impacts due to the installation of an aluminum pipe arch & fill, excavation, and mechanized clearing in wetlands due to a lateral base ditch.
- Site 5C: permanent and temporary stream impacts due to the installation of an aluminum pipe arch on Roberson Road.
- Buffer Site 1A: mitigable bridge and roadway impacts.
- Buffer Site 3: mitigable roadway impacts.
- Buffer Site 4A: mitigable bridge and roadway impacts.
- Buffer Site 4B: mitigable bridge and roadway impacts.
- Buffer Site 4C: mitigable bridge and roadway impacts.
- Buffer Site 5A: mitigable roadway impacts.
- Buffer Site 5B: mitigable roadway impacts.
- Buffer Site 5C: allowable roadway impacts.

There will be no jurisdictional impacts due to utilities. The power lines, telephone lines and TV cables will be relocated jointly to the left side of US 17, using proposed poles, and utilizing the existing poles through the wetlands. Most of the water lines will be relocated along the length of the project. NCDOT proposes to use directional bore through the wetlands.

Impacts for R-2510

The following table provides a summary of final impacts for each section of Washington Bypass.

	Riparian Wetland (ac.)	Non-riparian (ac.)	Stream (ft.)	Buffers (ft^2)
R-2510A	1.54	2.8	478	90,253
R-2510B	5.34	1.88	2,426	271,151
R-2510C	0.56	1.14	1,431	152,714
Total	**7.44**	**5.82**	**4,335**	**514,118**

Compensatory Mitigation

Mitigation has been provided for the following impacts on the entire R-2510 project: 9.08 acres of riparian wetlands, 4.65 acres of non-riparian wetland, and 4,244 feet of stream. Mitigation needs for riparian wetland impacts in R-2510B were reduced by 0.7 acre due to the onsite mitigation of Osprey Seafood (0.6 acre) and Packing House Road (0.1 acre).

Buffer mitigation provided to date covers the following impacts on the entire R-2510 project : 240,440 ft^2 (Zone 1) and 151,662 ft^2 (Zone 2). In Section C, 6,965 ft^2 (Zone 1) and 5,195 ft^2 (Zone 2) of Tar-Pamlico buffers impacts are accounted for by the wetland impacts and 2,588 ft^2 (Zone 1) and 911 ft^2 (Zone 2) are allowable. Therefore, NCDOT proposes to mitigate for the remaining impacts to 92,399 ft^2 (Zone 1) and 44,656 ft^2 (Zone 2) through the EEP.

Site 3 R-2510A (113 ft) in the original application and Site 7 R-2510B (1,118 ft) in a modification request were to be mitigated at 1:1 according to the February 26, 2004 field review by Mike Bell (USACE) and Mike Thomas (NCDWQ). This was reflected in the original 401, however the 404 and CAMA Major Development Permit required mitigation at 2:1. NCDOT requests that the permit modifications for R-2510C show this correction so the EEP can revise the final amount of stream mitigation to be provided for the entire project.

The compensatory mitigation deficits for impacts to 1.17 acres of non-riparian wetlands, 91 feet of jurisdictional streams, and 137,055 square feet of riparian buffers (92,399 ft^2 in Zone 1 and 44,656 ft^2 in Zone 2) will be mitigated through the use of EEP. A revised EEP acceptance letter reflecting these changes is included with this modification request.

Protected Species

NCDOT will conduct surveys for sensitive-joint vetch and rough-leaved loosestrife during the 2010 flowering season. If any plants are found, we will coordinate with the US Fish and Wildlife Service to ensure compliance with the Endangered Species Act.

Regulatory Approvals

Section 404: We are, therefore, requesting the modification of the USACE Individual 404 Permit issued January 17, 2006 (USAID 199301143), for the above-described activities.

Section 401: We are hereby requesting a modification to the 401 Water Quality Certification from the NCDWQ issued September 6, 2005 (DWQ No.050785). In compliance with Section 143-215.3D(e) of the NCAC, we will provide $570.00 to act as payment for processing the Section 401 permit modification. We are providing five (5) copies of this modification request to the NCDWQ, for their approval.

Tar-Pamlico Riparian Buffer Authorization: We are hereby requesting a modification to the Tar-Pamlico Riparian Buffer Authorization from the NCDWQ issued September 6, 2005 (DWQ No.050785).

CAMA: The NCDOT respectfully requests that the referenced CAMA Major Development Permit be modified to reflect the changes in jurisdictional impacts as outlined in this letter and presented in the attached drawings.

A copy of this modification request will be posted on the NCDOT website at:
http://www.ncdot.org/doh/preconstruct/pe/neu/permit.html

If you have any questions or need additional information, please contact Chris Underwood at 919-431-6662 or csunderwood@ncdot.gov.

Sincerely,

E. L. Lusk

Gregory J. Thorpe, Ph.D.
Environmental Management Director, PDEA Branch

cc list:

w/attachments
Mr. Brian Wrenn, NCDWQ (5 copies)
Ms. Jennifer Derby, USEPA
Mr. Steve Sollod, NCDCM

w/o attachment (see website for attachments)
Dr. David Chang, P.E., Hydraulics
Mr. Greg Perfetti, P.E., Structure Design
Mr. Victor Barbour, P.E., Project Services
Mr. Mark Staley, REU
Mr. Neal Lassiter, P.E. Div. 2
Mr. Jay Johnson, Div. 2
Mr. Scott McLendon, USACE
Mr. Gary Jordan, USFWS
Mr. Travis Wilson, NCWRC
Mr. Ron Sechler, NMFS
Ms. Anne Deaton, NCDMF
Mr. Majed Alghandour, P.E., Programming & TIP
Mr. Jay Bennett, P.E., Roadway Design
Mr. Art McMillan, P.E., Highway Design
Ms. Brian Yamamoto, P.E., PDEA
Mr. Drew Joyner, P.E., HEU
Mr. Clarence W. Coleman, P.E., FHWA
Ms. Beth Harmon, EEP
Mr. Phillip Ayscue, NCDOT External Audit Branch

DCM MP-1

APPLICATION for Major Development Permit

(last revised 12/27/06)

North Carolina DIVISION OF COASTAL MANAGEMENT

1. Primary Applicant/ Landowner Information				
Business Name North Carolina Department Of Transportation			Project Name (if applicable) R-2510C	
Applicant 1: First Name Gregory	MI J.	Last Name Thorpe		
Applicant 2: First Name	MI	Last Name		
If additional applicants, please attach an additional page(s) with names listed.				
Mailing Address 1598 Mail Service Center		PO Box	City Raleigh	State NC
ZIP 27699	Country	Phone No. 919 - 433 - 6662 ext.		FAX No. 919 - 433 - 2002
Street Address *(if different from above)*		City	State	ZIP -
Email				

2. Agent/Contractor Information				
Business Name				
Agent/ Contractor 1: First Name	MI	Last Name		
Agent/ Contractor 2: First Name	MI	Last Name		
Mailing Address		PO Box	City	State
ZIP		Phone No. 1 - - ext.	Phone No. 2 - - ext.	
FAX No.		Contractor #		
Street Address *(if different from above)*		City	State	ZIP -
Email				

<Form continues on back>

3. *Project Location*

County (can be multiple)	Street Address	State Rd. #
Beaufort		US 17

Subdivision Name	City	State	Zip
	Washington	NC	-

Phone No.	Lot No.(s) *(if many, attach additional page with list)*
- - ext.	, , , ,
a. In which NC river basin is the project located? Tar-Pamlico River Basin	b. Name of body of water nearest to proposed project Old Ford Swamp
c. Is the water body identified in (b) above, natural or manmade? ☒Natural ☐Manmade ☐Unknown	d. Name the closest major water body to the proposed project site. Pamlico River
e. Is proposed work within city limits or planning jurisdiction? ☐Yes ☒No	f. If applicable, list the planning jurisdiction or city limit the proposed work falls within.

4. *Site Description*

a. Total length of shoreline on the tract (ft.) 145'	b. Size of entire tract (sq.ft.) NA
c. Size of individual lot(s) N/A, , , *(If many lot sizes, please attach additional page with a list)*	d. Approximate elevation of tract above NHW *(normal high water)* or NWL *(normal water level)* ☐NHW or ☒NWL
e. Vegetation on tract Wetland vegetation, roadside grasses	
f. Man-made features and uses now on tract Bridge, road causeway & guardrail	
g. Identify and describe the existing land uses <u>adjacent</u> to the proposed project site. Forested wetland	
h. How does local government zone the tract? Rural services	i. Is the proposed project consistent with the applicable zoning? (Attach zoning compliance certificate, if applicable) ☒Yes ☐No ☐NA
j. Is the proposed activity part of an urban waterfront redevelopment proposal?	☐Yes ☒No
k. Has a professional archaeological assessment been done for the tract? If yes, attach a copy. If yes, by whom?	☒Yes ☐No ☐NA SHPO
l. Is the proposed project located in a National Registered Historic District or does it involve a National Register listed or eligible property?	☐Yes ☒No ☐NA

<Form continues on next page>

m. (i) Are there wetlands on the site?	☒Yes ☐No
(ii) Are there coastal wetlands on the site?	☐Yes ☒No
(iii) If yes to either (i) or (ii) above, has a delineation been conducted? *(Attach documentation, if available)*	☒Yes ☐No

n. Describe existing wastewater treatment facilities. Surface runoff, point discharge	
o. Describe existing drinking water supply source. None	
p. Describe existing storm water management or treatment systems. None	

5. Activities and Impacts

a. Will the project be for commercial, public, or private use?	☐Commercial ☒Public/Government ☐Private/Community
b. Give a brief description of purpose, use, and daily operations of the project when complete. Replace existing bridge #50 over Old Ford Swamp with a new bridge	
c. Describe the proposed construction methodology, types of construction equipment to be used during construction, the number of each type of equipment and where it is to be stored. Replace existing bridge using road construction equipment.	
d. List all development activities you propose. Bridge replacement and widening of US17	
e. Are the proposed activities maintenance of an existing project, new work, or both?	both
f. What is the approximate total disturbed land area resulting from the proposed project?	☐Sq.Ft or ☐Acres
g. Will the proposed project encroach on any public easement, public accessway or other area that the public has established use of?	☒Yes ☐No ☐NA
h. Describe location and type of existing and proposed discharges to waters of the state. Existing bridge has deck drains; new bridge does not. Stormwater will discharge through wetlands or outside the stream.	
i. Will wastewater or stormwater be discharged into a wetland?	☒Yes ☐No ☐NA
If yes, will this discharged water be of the same salinity as the receiving water?	☒Yes ☐No ☐NA
j. Is there any mitigation proposed? If yes, attach a mitigation proposal.	☐Yes ☒No ☐NA

<Form continues on back>

6. Additional Information

In addition to this completed application form, (MP-1) the following items below, if applicable, must be submitted in order for the application package to be complete. Items (a) – (f) are always applicable to any major development application. Please consult the application instruction booklet on how to properly prepare the required items below.

a. A project narrative.

b. An accurate, dated work plat (including plan view and cross-sectional drawings) drawn to scale. Please give the present status of the proposed project. Is any portion already complete? If previously authorized work, clearly indicate on maps, plats, drawings to distinguish between work completed and proposed.

c. A site or location map that is sufficiently detailed to guide agency personnel unfamiliar with the area to the site.

d. A copy of the deed (with state application only) or other instrument under which the applicant claims title to the affected properties.
e. The appropriate application fee. Check or money order made payable to DENR.
f. A list of the names and complete addresses of the adjacent waterfront (riparian) landowners and signed return receipts as proof that such owners have received a copy of the application and plats by certified mail. Such landowners must be advised that they have 30 days in which to submit comments on the proposed project to the Division of Coastal Management. Name Phone No. Address Name Phone No. Address Name Phone No. Address
g. A list of previous state or federal permits issued for work on the project tract. Include permit numbers, permittee, and issuing dates. N/A
h. Signed consultant or agent authorization form, if applicable.
i. Wetland delineation, if necessary.
j. A signed AEC hazard notice for projects in oceanfront and inlet areas. *(Must be signed by property owner)*
k. A statement of compliance with the N.C. Environmental Policy Act (N.C.G.S. 113A 1-10), if necessary. If the project involves expenditure of public funds or use of public lands, attach a statement documenting compliance with the North Carolina Environmental Policy Act.

7. Certification and Permission to Enter on Land

I understand that any permit issued in response to this application will allow only the development described in the application. The project will be subject to the conditions and restrictions contained in the permit.

I certify that I am authorized to grant, and do in fact grant permission to representatives of state and federal review agencies to enter on the aforementioned lands in connection with evaluating information related to this permit application and follow-up monitoring of the project.

I further certify that the information provided in this application is truthful to the best of my knowledge.

Date ______________________ Print Name ______________________

Signature ______________________

Please indicate application attachments pertaining to your proposed project.

☐DCM MP-2 Excavation and Fill Information

☒DCM MP-5 Bridges and Culverts

☐DCM MP-3 Upland Development

☐DCM MP-4 Structures Information

Form DCM MP-2

EXCAVATION and FILL

(Except for bridges and culverts)

Attach this form to Joint Application for CAMA Major Permit, Form DCM MP-1. Be sure to complete all other sections of the Joint Application that relate to this proposed project. Please include all supplemental information.

Describe below the purpose of proposed excavation and/or fill activities. **All values should be given in feet.**

	Access Channel (NLW or NWL)	Canal	Boat Basin	Boat Ramp	Rock Groin	Rock Breakwater	Other (excluding shoreline stabilization)
Length	145'						
Width	30'-55'						
Avg. Existing Depth					NA	NA	
Final Project Depth					NA	NA	

1. EXCAVATION

☒ *This section not applicable*

a. Amount of material to be excavated from below NHW or NWL in cubic yards.
0

b. Type of material to be excavated.

c. (i) Does the area to be excavated include coastal wetlands/marsh (CW), submerged aquatic vegetation (SAV), shell bottom (SB), or other wetlands (WL)? If any boxes are checked, provide the number of square feet affected.
☐CW ____ ☐SAV ____ ☐SB ____
☒WL ____ ☐None
(ii) Describe the purpose of the excavation in these areas:

d. High-ground excavation in cubic yards.
910

2. DISPOSAL OF EXCAVATED MATERIAL

☒ *This section not applicable*

a. Location of disposal area.

b. Dimensions of disposal area.

c. (i) Do you claim title to disposal area?
☐Yes ☐No ☐NA
(ii) If no, attach a letter granting permission from the owner.

d. (i) Will a disposal area be available for future maintenance?
☐Yes ☐No ☐NA
(ii) If yes, where?

e. (i) Does the disposal area include any coastal wetlands/marsh (CW), submerged aquatic vegetation (SAV), shell bottom (SB), or other wetlands (WL)? If any boxes are checked, provide the number of square feet affected.
☐CW ____ ☐SAV ____ ☐SB ____
☐WL ____ ☐None
(ii) Describe the purpose of disposal in these areas:

f. (i) Does the disposal include any area in the water?
☐Yes ☐No ☐NA
(ii) If yes, how much water area is affected?

3. SHORELINE STABILIZATION

☐ *This section not applicable*

(If development is a wood groin, use MP-4 – Structures)

a. Type of shoreline stabilization:
☐Bulkhead ☒Riprap ☐Breakwater/Sill ☐Other: ____

b. Length: 145'
Width: ____

c. Average distance waterward of NHW or NWL:

d. Maximum distance waterward of NHW or NWL:

e. Type of stabilization material:
class II riprap

f. (i) Has there been shoreline erosion during preceding 12 months?
☐Yes ☒No ☐NA
(ii) If yes, state amount of erosion and source of erosion amount information.

g. Number of square feet of fill to be placed below water level.
Bulkhead backfill N/A Riprap N/A
Breakwater/Sill N/A Other ____

h. Type of fill material.
N/A

i. Source of fill material.
N/A

4. OTHER FILL ACTIVITIES
(Excluding Shoreline Stabilization)

☐*This section not applicable*

a. (i) Will fill material be brought to the site? ☒Yes ☐No ☐NA
If yes,
(ii) Amount of material to be placed in the water None
(iii) Dimensions of fill area 140'x20' (app)
(iv) Purpose of fill
Stabilize slopes

b. (i) Will fill material be placed in coastal wetlands/marsh (CW), submerged aquatic vegetation (SAV), shell bottom (SB), or other wetlands (WL)? If any boxes are checked, provide the number of square feet affected.
☐CW ____ ☐SAV ____ ☐SB ____
☐WL ____ ☒None
(ii) Describe the purpose of the fill in these areas:

5. GENERAL

a. How will excavated or fill material be kept on site and erosion controlled?
Silt fence, NCDOT Type B silt basin, diversion ditches, and inlet protection.

b. What type of construction equipment will be used (e.g., dragline, backhoe, or hydraulic dredge)?
Bulldozer, backhoe, & crane.

c. (i) Will navigational aids be required as a result of the project?
☐Yes ☐No ☒NA
(ii) If yes, explain what type and how they will be implemented.

d. (i) Will wetlands be crossed in transporting equipment to project site? ☒Yes ☐No ☐NA
(ii) If yes, explain steps that will be taken to avoid or minimize environmental impacts.
Best Management Practices.

Date

Applicant Signature

Project Name

Applicant Name

Form DCM MP-5

BRIDGES and CULVERTS

Attach this form to Joint Application for CAMA Major Permit, Form DCM MP-1. Be sure to complete all other sections of the Joint Application that relate to this proposed project. Please include all supplemental information.

1. BRIDGES

☐This section not applicable

a. Is the proposed bridge:
☐Commercial ☒Public/Government ☐Private/Community

b. Water body to be crossed by bridge:
Old Ford Swamp

c. Type of bridge (construction material):
Concrete Girder Bridge

d. Water depth at the proposed crossing at NLW or NWL:
~14'

e. (i) Will proposed bridge replace an existing bridge? ☒Yes ☐No
If yes,
(ii) Length of existing bridge: 115'
(iii) Width of existing bridge: 28'
(iv) Navigation clearance underneath existing bridge: ~5.9'
(v) Will all, or a part of, the existing bridge be removed?
(Explain) All (new bridge will be longer)

f. (i) Will proposed bridge replace an existing culvert? ☐Yes ☒No
If yes,
(ii) Length of existing culvert: ______
(iii) Width of existing culvert: ______
(iv) Height of the top of the existing culvert above the NHW or NWL: ______
(v) Will all, or a part of, the existing culvert be removed?
(Explain)

g. Length of proposed bridge: 149'

h. Width of proposed bridge: 36' each bridge (dual bridges)

i. Will the proposed bridge affect existing water flow? ☐Yes ☒No
If yes, explain:

j. Will the proposed bridge affect navigation by reducing or increasing the existing navigable opening? ☐Yes ☒No
If yes, explain:

k. Navigation clearance underneath proposed bridge: ~5.3'

l. Have you contacted the U.S. Coast Guard concerning their approval? ☐Yes ☒No
If yes, explain:

m. Will the proposed bridge cross wetlands containing no navigable waters? ☒Yes ☐No
If yes, explain: existing bridge has low clearance, proposed bridge maintains low clearance also.

n. Height of proposed bridge above wetlands: ~6'

2. CULVERTS

☒This section not applicable

a. Number of culverts proposed: ______

b. Water body in which the culvert is to be placed:

< Form continues on back>

c. Type of culvert (construction material):

d. (i) Will proposed culvert replace an existing bridge? ☐Yes ☐No

If yes,

(ii) Length of existing bridge: ______

(iii) Width of existing bridge: ______

(iv) Navigation clearance underneath existing bridge: ______

(v) Will all, or a part of, the existing bridge be removed? (Explain)

e. (i) Will proposed culvert replace an existing culvert? ☐Yes ☐No

If yes,

(ii) Length of existing culvert(s): ______

(iii) Width of existing culvert(s): ______

(iv) Height of the top of the existing culvert above the NHW or NWL: ______

(v) Will all, or a part of, the existing culvert be removed? (Explain)

f. Length of proposed culvert: ______

g. Width of proposed culvert: ______

h. Height of the top of the proposed culvert above the NHW or NWL. ______

i. Depth of culvert to be buried below existing bottom contour. ______

j. Will the proposed culvert affect navigation by reducing or increasing the existing navigable opening? ☐Yes ☐No

If yes, explain:

k. Will the proposed culvert affect existing water flow? ☐Yes ☐No

If yes, explain:

3. EXCAVATION and FILL

☐ *This section not applicable*

a. (i) Will the placement of the proposed bridge or culvert require any excavation below the NHW or NWL? ☐Yes ☒No

If yes,

(ii) Avg. length of area to be excavated: ______

(iii) Avg. width of area to be excavated: ______

(iv) Avg. depth of area to be excavated: ______

(v) Amount of material to be excavated in cubic yards: ______

b. (i) Will the placement of the proposed bridge or culvert require any excavation within coastal wetlands/marsh (CW), submerged aquatic vegetation (SAV), shell bottom (SB), or other wetlands (WL)? If any boxes are checked, provide the number of square feet affected.

☐CW ______ ☐SAV ______ ☐SB ______

☐WL ______ ☒None

(ii) Describe the purpose of the excavation in these areas:

c. (i) Will the placement of the proposed bridge or culvert require any high-ground excavation? ☒Yes ☐No

If yes,

(ii) Avg. length of area to be excavated: 145'

(iii) Avg. width of area to be excavated: 33'

(iv) Avg. depth of area to be excavated: ~5'

(v) Amount of material to be excavated in cubic yards: 910 cy

d. If the placement of the bridge or culvert involves any excavation, please complete the following:

(i) Location of the spoil disposal area: To be determined by the contractor

(ii) Dimensions of the spoil disposal area: To be determined by the contractor

(iii) Do you claim title to the disposal area? ☐Yes ☒No *(If no, attach a letter granting permission from the owner.)*

(iv) Will the disposal area be available for future maintenance? ☐Yes ☒No

(v) Does the disposal area include any coastal wetlands/marsh (CW), submerged aquatic vegetation (SAVs), other wetlands (WL), or shell bottom (SB)?

☐CW ☐SAV ☐WL ☐SB ☒None

If any boxes are checked, give dimensions if different from (ii) above.

(vi) Does the disposal area include any area below the NHW or NWL? ? ☐Yes ☒No

If yes, give dimensions if different from (ii) above.

e. (i) Will the placement of the proposed bridge or culvert result in any fill (other than excavated material described in Item **d** above) to be placed below NHW or NWL? ☐Yes ☒No

If yes,

(ii) Avg. length of area to be filled: ______

(iii) Avg. width of area to be filled: ______

(iv) Purpose of fill:

f. (i) Will the placement of the proposed bridge or culvert result in any fill (other than excavated material described in Item **d** above) to be placed within coastal wetlands/marsh (CW), submerged aquatic vegetation (SAV), shell bottom (SB), or other wetlands (WL)? If any boxes are checked, provide the number of square feet affected.

☐CW _____ ☐SAV _____ ☐SB _____

☒WL _____ ☐None

(ii) Describe the purpose of the excavation in these areas:

Fill for bridge approaches.

g. (i) Will the placement of the proposed bridge or culvert result in any fill (other than excavated material described in Item **d** above) to be placed on high-ground? ☒Yes ☐No

If yes,

(ii) Avg. length of area to be filled: ______

(iii) Avg. width of area to be filled: ______

(iv) Purpose of fill: Roadway widening

4. GENERAL

a. Will the proposed project require the relocation of any existing utility lines? ☒Yes ☐No

If yes, explain:

If this portion of the proposed project has already received approval from local authorities, please attach a copy of the approval or certification.

b. Will the proposed project require the construction of any temporary detour structures? ☐Yes ☒No

If yes, explain:

< Form continues on back>

c. Will the proposed project require any work channels? ☐Yes ☒No

If yes, complete Form DCM-MP-2.

d. How will excavated or fill material be kept on site and erosion controlled?

Silt fence, NCDOT Type B silt basin, diversion ditches, and inlet protection.

e. What type of construction equipment will be used (for example, dragline, backhoe, or hydraulic dredge)?

Bulldozer, backhoe, & crane.

f. Will wetlands be crossed in transporting equipment to project site? ☐Yes ☒No

If yes, explain steps that will be taken to avoid or minimize environmental impacts.

g. Will the placement of the proposed bridge or culvert require any shoreline stabilization? ☒Yes ☐No

If yes, complete form MP-2, Section 3 for Shoreline Stabilization only.

Apr 13, 2010

Date

R-2510 C

Project Name

NCDOT

Applicant Name

E. L. Lusk

Applicant Signature

APPLICATION for Major Development Permit

(last revised 12/27/06)

North Carolina DIVISION OF COASTAL MANAGEMENT

1. Primary Applicant/ Landowner Information

Business Name North Carolina Department Of Transportation		Project Name (if applicable) R-2510C		
Applicant 1: First Name Gregory	MI J.	Last Name Thorpe		
Applicant 2: First Name	MI	Last Name		
If additional applicants, please attach an additional page(s) with names listed.				
Mailing Address 1598 Mail Service Center		PO Box	City Raleigh	State NC
ZIP 27699	Country	Phone No. 919 - 433 - 6662 ext.		FAX No. 919 - 433 - 2002
Street Address *(if different from above)*		City	State	ZIP -
Email				

2. Agent/Contractor Information

Business Name				
Agent/ Contractor 1: First Name	MI	Last Name		
Agent/ Contractor 2: First Name	MI	Last Name		
Mailing Address		PO Box	City	State
ZIP		Phone No. 1 - - ext.		Phone No. 2 - - ext.
FAX No.		Contractor #		
Street Address *(if different from above)*		City	State	ZIP -
Email				

<Form continues on back>

3. *Project Location*

County (can be multiple)	Street Address	State Rd. #
Beaufort		US 17

Subdivision Name	City	State	Zip
	Washington	NC	-

Phone No.	Lot No.(s) *(if many, attach additional page with list)*
- - ext.	, , , ,
a. In which NC river basin is the project located? Tar-Pamlico River Basin	b. Name of body of water nearest to proposed project Cherry Run
c. Is the water body identified in (b) above, natural or manmade? ☒Natural ☐Manmade ☐Unknown	d. Name the closest major water body to the proposed project site. Pamlico River
e. Is proposed work within city limits or planning jurisdiction? ☐Yes ☒No	f. If applicable, list the planning jurisdiction or city limit the proposed work falls within.

4. *Site Description*

a. Total length of shoreline on the tract (ft.)	b. Size of entire tract (sq.ft.) NA
c. Size of individual lot(s) N/A, , , *(If many lot sizes, please attach additional page with a list)*	d. Approximate elevation of tract above NHW *(normal high water)* or NWL *(normal water level)* Approx 10.9' ☐NHW or ☒NWL

e. Vegetation on tract

Wetland vegetation, roadside grasses

f. Man-made features and uses now on tract

Bridge, causeway and guardrail

g. Identify and describe the existing land uses adjacent to the proposed project site.

Forested wetland

h. How does local government zone the tract? Rural services	i. Is the proposed project consistent with the applicable zoning? (Attach zoning compliance certificate, if applicable) ☒Yes ☐No ☐NA

j. Is the proposed activity part of an urban waterfront redevelopment proposal?	☐Yes ☒No
k. Has a professional archaeological assessment been done for the tract? If yes, attach a copy. If yes, by whom?	☒Yes ☐No ☐NA SHPO
l. Is the proposed project located in a National Registered Historic District or does it involve a National Register listed or eligible property?	☐Yes ☒No ☐NA

<Form continues on next page>

m. (i) Are there wetlands on the site?	☒Yes ☐No
(ii) Are there coastal wetlands on the site?	☐Yes ☒No
(iii) If yes to either (i) or (ii) above, has a delineation been conducted? *(Attach documentation, if available)*	☒Yes ☐No

n. Describe existing wastewater treatment facilities. Surface runoff, point discharge	
o. Describe existing drinking water supply source. None	
p. Describe existing storm water management or treatment systems. None	

5. Activities and Impacts

a. Will the project be for commercial, public, or private use?	☐Commercial ☒Public/Government ☐Private/Community
b. Give a brief description of purpose, use, and daily operations of the project when complete. Replacement of the existing bridge #41 over Cherry Run with a new bridge	
c. Describe the proposed construction methodology, types of construction equipment to be used during construction, the number of each type of equipment and where it is to be stored. Replace existing bridge using road construction equipment.	
d. List all development activities you propose. Bridge replacement and widening of US17	
e. Are the proposed activities maintenance of an existing project, new work, or both?	both
f. What is the approximate total disturbed land area resulting from the proposed project?	☐Sq.Ft or ☐Acres
g. Will the proposed project encroach on any public easement, public accessway or other area that the public has established use of?	☒Yes ☐No ☐NA
h. Describe location and type of existing and proposed discharges to waters of the state. Existing bridge has deck drains; new bridge does not. Stormwater will discharge through wetlands or outside the stream.	
i. Will wastewater or stormwater be discharged into a wetland?	☒Yes ☐No ☐NA
If yes, will this discharged water be of the same salinity as the receiving water?	☒Yes ☐No ☐NA
j. Is there any mitigation proposed? If yes, attach a mitigation proposal.	☐Yes ☒No ☐NA

<Form continues on back>

6. Additional Information

In addition to this completed application form, (MP-1) the following items below, if applicable, must be submitted in order for the application package to be complete. Items (a) – (f) are always applicable to any major development application. Please consult the application instruction booklet on how to properly prepare the required items below.

a. A project narrative.

b. An accurate, dated work plat (including plan view and cross-sectional drawings) drawn to scale. Please give the present status of the proposed project. Is any portion already complete? If previously authorized work, clearly indicate on maps, plats, drawings to distinguish between work completed and proposed.

c. A site or location map that is sufficiently detailed to guide agency personnel unfamiliar with the area to the site.

d. A copy of the deed (with state application only) or other instrument under which the applicant claims title to the affected properties.
e. The appropriate application fee. Check or money order made payable to DENR.
f. A list of the names and complete addresses of the adjacent waterfront (riparian) landowners and signed return receipts as proof that such owners have received a copy of the application and plats by certified mail. Such landowners must be advised that they have 30 days in which to submit comments on the proposed project to the Division of Coastal Management. Name Phone No. Address Name Phone No. Address Name Phone No. Address
g. A list of previous state or federal permits issued for work on the project tract. Include permit numbers, permittee, and issuing dates. N/A
h. Signed consultant or agent authorization form, if applicable.
i. Wetland delineation, if necessary.
j. A signed AEC hazard notice for projects in oceanfront and inlet areas. *(Must be signed by property owner)*
k. A statement of compliance with the N.C. Environmental Policy Act (N.C.G.S. 113A 1-10), if necessary. If the project involves expenditure of public funds or use of public lands, attach a statement documenting compliance with the North Carolina Environmental Policy Act.

7. Certification and Permission to Enter on Land

I understand that any permit issued in response to this application will allow only the development described in the application. The project will be subject to the conditions and restrictions contained in the permit.

I certify that I am authorized to grant, and do in fact grant permission to representatives of state and federal review agencies to enter on the aforementioned lands in connection with evaluating information related to this permit application and follow-up monitoring of the project.

I further certify that the information provided in this application is truthful to the best of my knowledge.

Date ______________________ Print Name ______________________

Signature ______________________

Please indicate application attachments pertaining to your proposed project.

☐DCM MP-2 Excavation and Fill Information ☒DCM MP-5 Bridges and Culverts

☐DCM MP-3 Upland Development

☐DCM MP-4 Structures Information

Form DCM MP-2

EXCAVATION and FILL

(Except for bridges and culverts)

Attach this form to Joint Application for CAMA Major Permit, Form DCM MP-1. Be sure to complete all other sections of the Joint Application that relate to this proposed project. Please include all supplemental information.

Describe below the purpose of proposed excavation and/or fill activities. **All values should be given in feet.**

	Access Channel (NLW or NWL)	Canal	Boat Basin	Boat Ramp	Rock Groin	Rock Breakwater	Other (excluding shoreline stabilization)
Length	145						
Width	12'-45'						
Avg. Existing Depth					NA	NA	
Final Project Depth					NA	NA	

1. EXCAVATION ☒This section not applicable

a. Amount of material to be excavated from below NHW or NWL in cubic yards.
0

b. Type of material to be excavated.
Dirt / Regular Soil

c. (i) Does the area to be excavated include coastal wetlands/marsh (CW), submerged aquatic vegetation (SAV), shell bottom (SB), or other wetlands (WL)? If any boxes are checked, provide the number of square feet affected.
☐CW ____ ☐SAV ____ ☐SB ____
☒WL 62 cy ☐None
(ii) Describe the purpose of the excavation in these areas:

d. High-ground excavation in cubic yards.
1908 cy

2. DISPOSAL OF EXCAVATED MATERIAL ☒This section not applicable

a. Location of disposal area.

b. Dimensions of disposal area.

c. (i) Do you claim title to disposal area?
☐Yes ☐No ☐NA
(ii) If no, attach a letter granting permission from the owner.

d. (i) Will a disposal area be available for future maintenance?
☐Yes ☐No ☐NA
(ii) If yes, where?

e. (i) Does the disposal area include any coastal wetlands/marsh (CW), submerged aquatic vegetation (SAV), shell bottom (SB), or other wetlands (WL)? If any boxes are checked, provide the number of square feet affected.
☐CW ____ ☐SAV ____ ☐SB ____
☐WL ____ ☐None
(ii) Describe the purpose of disposal in these areas:

f. (i) Does the disposal include any area in the water?
☐Yes ☐No ☐NA
(ii) If yes, how much water area is affected?

3. SHORELINE STABILIZATION ☐This section not applicable

(If development is a wood groin, use MP-4 – Structures)

a. Type of shoreline stabilization:
☐Bulkhead ☒Riprap ☐Breakwater/Sill ☐Other: _____

b. Length: 145'
Width: ____

c. Average distance waterward of NHW or NWL:

d. Maximum distance waterward of NHW or NWL:

e. Type of stabilization material:
class II riprap

f. (i) Has there been shoreline erosion during preceding 12 months?
☐Yes ☒No ☐NA
(ii) If yes, state amount of erosion and source of erosion amount information.

g. Number of square feet of fill to be placed below water level.
Bulkhead backfill N/A Riprap N/A
Breakwater/Sill N/A Other _____

h. Type of fill material.
N/A

i. Source of fill material.
N/A

4. OTHER FILL ACTIVITIES

(Excluding Shoreline Stabilization)

☐*This section not applicable*

a. (i) Will fill material be brought to the site? ☒Yes ☐No ☐NA
If yes,
(ii) Amount of material to be placed in the water None
(iii) Dimensions of fill area along road corridor, not bridge, roadway slope
(iv) Purpose of fill
Stabilize slopes

b. (i) Will fill material be placed in coastal wetlands/marsh (CW), submerged aquatic vegetation (SAV), shell bottom (SB), or other wetlands (WL)? If any boxes are checked, provide the number of square feet affected.
☐CW _____ ☐SAV _____ ☐SB _____
☒WL _____ ☐None
(ii) Describe the purpose of the fill in these areas:
stabilization

5. GENERAL

a. How will excavated or fill material be kept on site and erosion controlled?
Silt fence, NCDOT Type B silt basin, diversion ditches, and inlet protection.

b. What type of construction equipment will be used (e.g., dragline, backhoe, or hydraulic dredge)?
Bulldozer, backhoe, & crane.

c. (i) Will navigational aids be required as a result of the project?
☐Yes ☐No ☒NA
(ii) If yes, explain what type and how they will be implemented.

d. (i) Will wetlands be crossed in transporting equipment to project site? ☒Yes ☐No ☐NA
(ii) If yes, explain steps that will be taken to avoid or minimize environmental impacts.
Best Management Practices.

Date

Applicant Signature

Project Name

Applicant Name

Form DCM MP-5

BRIDGES and CULVERTS

Attach this form to Joint Application for CAMA Major Permit, Form DCM MP-1. Be sure to complete all other sections of the Joint Application that relate to this proposed project. Please include all supplemental information.

1. BRIDGES

☐ *This section not applicable*

a. Is the proposed bridge:
☐Commercial ☒Public/Government ☐Private/Community

b. Water body to be crossed by bridge:
Cherry Run

c. Type of bridge (construction material):
Concrete Girder Bridge

d. Water depth at the proposed crossing at NLW or NWL:
~13'

e. (i) Will proposed bridge replace an existing bridge? ☒Yes ☐No
If yes,
(ii) Length of existing bridge: 70
(iii) Width of existing bridge: 26'
(iv) Navigation clearance underneath existing bridge: ~6
(v) Will all, or a part of, the existing bridge be removed?
(Explain) All (new bridge will be longer)

f. (i) Will proposed bridge replace an existing culvert? ☐Yes ☒No
If yes,
(ii) Length of existing culvert: ______
(iii) Width of existing culvert: ______
(iv) Height of the top of the existing culvert above the NHW or NWL: ______
(v) Will all, or a part of, the existing culvert be removed?
(Explain)

g. Length of proposed bridge: 202

h. Width of proposed bridge: 36' and 52' (turn lane on one bridge)

i. Will the proposed bridge affect existing water flow? ☐Yes ☒No
If yes, explain:

j. Will the proposed bridge affect navigation by reducing or increasing the existing navigable opening? ☐Yes ☒No
If yes, explain:

k. Navigation clearance underneath proposed bridge: ~5.9

l. Have you contacted the U.S. Coast Guard concerning their approval? ☐Yes ☒No
If yes, explain:

m. Will the proposed bridge cross wetlands containing no navigable waters? ☒Yes ☐No
If yes, explain: existing bridge has low clearance, proposed bridge maintains low clearance also.

n. Height of proposed bridge above wetlands: ~5.9

2. CULVERTS

☒ *This section not applicable*

a. Number of culverts proposed: ______

b. Water body in which the culvert is to be placed:

< Form continues on back>

c. Type of culvert (construction material):

d. (i) Will proposed culvert replace an existing bridge? ☐Yes ☒No

If yes,

(ii) Length of existing bridge: ______

(iii) Width of existing bridge: ______

(iv) Navigation clearance underneath existing bridge: ______

(v) Will all, or a part of, the existing bridge be removed? (Explain)

______

e. (i) Will proposed culvert replace an existing culvert? ☐Yes ☒No

If yes,

(ii) Length of existing culvert(s): ______

(iii) Width of existing culvert(s): ______

(iv) Height of the top of the existing culvert above the NHW or NWL: ______

(v) Will all, or a part of, the existing culvert be removed? (Explain)

______

f. Length of proposed culvert: ______

g. Width of proposed culvert: ______

h. Height of the top of the proposed culvert above the NHW or NWL. ______

i. Depth of culvert to be buried below existing bottom contour. ______

j. Will the proposed culvert affect navigation by reducing or increasing the existing navigable opening? ☐Yes ☐No

If yes, explain:

______

k. Will the proposed culvert affect existing water flow? ☐Yes ☐No

If yes, explain:

______

3. *EXCAVATION and FILL*

☐*This section not applicable*

a. (i) Will the placement of the proposed bridge or culvert require any excavation below the NHW or NWL? ☒Yes ☐No

If yes,

(ii) Avg. length of area to be excavated: 145

(iii) Avg. width of area to be excavated: 11

(iv) Avg. depth of area to be excavated: 1

(v) Amount of material to be excavated in cubic yards: 62

b. (i) Will the placement of the proposed bridge or culvert require any excavation within coastal wetlands/marsh (CW), submerged aquatic vegetation (SAV), shell bottom (SB), or other wetlands (WL)? If any boxes are checked, provide the number of square feet affected.

☐CW _____ ☐SAV _____ ☐SB _____
☐WL _____ ☒None

(ii) Describe the purpose of the excavation in these areas:

______

c. (i) Will the placement of the proposed bridge or culvert require any high-ground excavation? ☒Yes ☐No

If yes,

(ii) Avg. length of area to be excavated: 145'

(iii) Avg. width of area to be excavated: 135'

(iv) Avg. depth of area to be excavated: ~2.5'

(v) Amount of material to be excavated in cubic yards: 1908 cy

d. If the placement of the bridge or culvert involves any excavation, please complete the following:

(i) Location of the spoil disposal area: To be determined by the contractor

(ii) Dimensions of the spoil disposal area: To be determined by the contractor

(iii) Do you claim title to the disposal area? ☐Yes ☒No (*If no, attach a letter granting permission from the owner.*)

(iv) Will the disposal area be available for future maintenance? ☐Yes ☒No

(v) Does the disposal area include any coastal wetlands/marsh (CW), submerged aquatic vegetation (SAVs), other wetlands (WL), or shell bottom (SB)?

☐CW ☐SAV ☐WL ☐SB ☒None

If any boxes are checked, give dimensions if different from (ii) above.

(vi) Does the disposal area include any area below the NHW or NWL? ? ☐Yes ☒No

If yes, give dimensions if different from (ii) above.

e. (i) Will the placement of the proposed bridge or culvert result in any fill (other than excavated material described in Item **d** above) to be placed below NHW or NWL? ☐Yes ☒No

If yes,

(ii) Avg. length of area to be filled: ______

(iii) Avg. width of area to be filled: ______

(iv) Purpose of fill:

f. (i) Will the placement of the proposed bridge or culvert result in any fill (other than excavated material described in Item **d** above) to be placed within coastal wetlands/marsh (CW), submerged aquatic vegetation (SAV), shell bottom (SB), or other wetlands (WL)? If any boxes are checked, provide the number of square feet affected.

☐CW _____ ☐SAV _____ ☐SB _____

☒WL _____ ☐None

(ii) Describe the purpose of the excavation in these areas:

Fill for bridge approaches.

g. (i) Will the placement of the proposed bridge or culvert result in any fill (other than excavated material described in Item **d** above) to be placed on high-ground? ☒Yes ☐No

If yes,

(ii) Avg. length of area to be filled: ______

(iii) Avg. width of area to be filled: ______

(iv) Purpose of fill: Roadway widening

4. GENERAL

a. Will the proposed project require the relocation of any existing utility lines? ☐Yes ☐No

If yes, explain:

If this portion of the proposed project has already received approval from local authorities, please attach a copy of the approval or certification.

b. Will the proposed project require the construction of any temporary detour structures? ☐Yes ☒No

If yes, explain:

< Form continues on back>

c. Will the proposed project require any work channels? ☐Yes ☒No

If yes, complete Form DCM-MP-2.

d. How will excavated or fill material be kept on site and erosion controlled?

Silt fence, NCDOT Type B silt basin, diversion ditches, and inlet protection.

e. What type of construction equipment will be used (for example, dragline, backhoe, or hydraulic dredge)?
Bulldozer, backhoe, & crane.

f. Will wetlands be crossed in transporting equipment to project site? ☐Yes ☒No
If yes, explain steps that will be taken to avoid or minimize environmental impacts.

g. Will the placement of the proposed bridge or culvert require any shoreline stabilization? ☒Yes ☐No
If yes, complete form MP-2, Section 3 for Shoreline Stabilization only.

Date: Apr 13, 2010

Project Name: R-2510C

Applicant Name: NCDOT

Applicant Signature: E. L. Lusk

Ecosystem Enhancement PROGRAM

April 12, 2010

Mr. Tom Steffens
U. S. Army Corps of Engineers
Washington Regulatory Field Office
Post Office Box 1000
Washington, North Carolina 27889-1000

Dear Mr. Steffens:

Subject: EEP Mitigation Acceptance Letter:

R-2510, US 17 – Washington Bypass, Beaufort County

References: USACE 404 Individual Permit issued January 17, 2006 (USACE Action ID 1993-01143)

NCDWQ 401 Water Quality Certification issued September 6, 2005 (NCDWQ Project ID 2005-0785)

The purpose of this letter is to notify you that the Ecosystem Enhancement Program (EEP) will provide the additional stream, non-riparian wetland and buffer mitigation for the unavoidable impacts associated with the above referenced project. Based on the information supplied by the NCDOT on February 10, 2010 and April 12, 2010, the additional impacts are located in CU 03020104 of the Tar-Pamlico River Basin in the Northern Outer Coastal Plain (NOCP) Eco-Region, and the anticipated mitigation credits needed to offset the impacts are as follows:

Tar-Pamlico 03020104 NOCP	Stream			Wetlands			Buffer (Sq. Ft.)	
	Cold	Cool	Warm	Riparian	Non-Riparian	Coastal Marsh	Zone 1 (3:1)	Zone 2 (1.5:1)
Impacts (feet/acres)	0	0	91	0	1.29	0	78,935	30,814
Mitigation Units (Credits-up to 2:1)	0	0	182	0	2.58	0	236,805	46,221

EEP is currently providing stream, wetland (riparian and non-riparian) and buffer mitigation for the impacts associated with this project located in Tar-Pamlico 03020104 as required by the 404 and 401 permits that were issued January 17, 2006 and September 6, 2005, respectively, and subsequent permit modifications as shown in the table on the next page. During the project development and permitting phases of this project, several stream impact sites were determined that a 1:1 mitigation ratio would be appropriate. The total amount of stream impact for the 1:1 mitigation ratio is 1,231 feet and is reflected in the Revised Total Anticipated Mitigation Credit in Table 2. Also, appropriate payment into the Riparian Buffer Restoration Fund has occurred for the current permitted buffer mitigation requirements.

Mr. Steffens
TIP R-2510 Additional
April 12, 2010
Page Two

Impact Type	Current Permitted Impacts	Mitigation Required (Credits)	[redacted]	Revised Total Impacts	Revised Total Anticipated Mitigation (Credits)
Stream	4,244.0	8,488.0	[redacted]	4,335.0	7,439.0*
Riparian	8.98	17.06	[redacted]	7.44	14.88
Non-riparian	4.53	9.06	[redacted]	5.82	11.64
Buffer-Zone 1	240,440.0	721,320.0	[redacted]	319,375.0	958,125.0
Buffer-Zone 2	151,662.0	227,493.0	[redacted]	182,476.0	273,714.0
Buffer-Total	392,102.0	948,813.0	[redacted]	501,851.0	1,231,839.0

*Note: The total amount of stream impact for the 1:1 mitigation ratio is 1,231 feet and was part of the original permits issued for this project under the MOU. EEP will adjust the appropriate amount of stream mitigation required if approved. The additional stream mitigation for the 91 feet of impacts will be provided under the MOA.

If the impacts or the amount of mitigation required from EEP increases for this project, then this mitigation acceptance letter will no longer be valid and a new mitigation acceptance letter will be required. All buffer mitigation requests and approvals are administrated through the Riparian Restoration Buffer Fund (Fund 2982). The NCDOT will be responsible to ensure that the appropriate compensation for the additional buffer mitigation will be provided in the agreed upon method of fund transfer. Upon receipt of the NCDWQ's Buffer Authorization Certification, EEP will transfer funds from Fund 2984 (Tri-Party MOA Account) into Fund 2982 and commit to provide the appropriate buffer mitigation to offset the impacts associated with this project. EEP proposes to provide the additional buffer mitigation in either Tar-Pamlico 03020103, 03020104, or 03020105.

EEP will continue to provide the mitigation required for the impacts associated with the originally permitted stream, riparian and non-riparian impacts (4,244 feet stream, 7.44 acres riparian, and 3.88 acres non-riparian) in the MOU program. Mitigation associated with the additional stream and non-riparian wetland impacts will be provided in accordance with Section X of Amendment No. 2 to the Memorandum of Agreement between the N. C. Department of Environment and Natural Resources, the N. C. Department of Transportation, and the U. S. Army Corps of Engineers fully executed on March 8, 2007 (Tri-Party MOA). EEP commits to implement sufficient mitigation in the appropriate cataloging unit in the amount listed in the above table to offset the impacts associated with this project by the end of the MOA year in which this project is permitted. If the above referenced impact amounts are revised, then this mitigation acceptance letter will no longer be valid and a new mitigation acceptance letter will be required from EEP.

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

Sincerely,

James B. Stanfill for

William D. Gilmore, P.E.
EEP Director

Cc: Mr. Gregory J. Thorpe, Ph.D., NCDOT – PDEA
Mr. Brian Wrenn, NC Division of Water Quality
File: R-2510 Additional

Ecosystem Enhancement PROGRAM

April 12, 2010

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

Dear Dr. Thorpe:

Subject: EEP Mitigation Acceptance Letter:

R-2510, US 17 – Washington Bypass, Beaufort County

References: USACE 404 Individual Permit issued January 17, 2006
(USACE Action ID 1993-01143)

NCDWQ 401 Water Quality Certification issued September 6, 2005
(NCDWQ Project ID 2005-0785)

The purpose of this letter is to notify you that the Ecosystem Enhancement Program (EEP) will provide the additional stream, non-riparian wetland and buffer mitigation for the subject project. Based on the information supplied by you on February 10, 2010 and April 12, 2010, the changes in impacts are located in CU 03020104 of the Tar-Pamlico River Basin in the Northern Outer Coastal Plain (NOCP) Eco-Region, and are as follows:

Table 1 – Additional Impacts Associated with TIP R-2510

Tar-Pamlico 03020104 NOCP	Stream			Wetlands			Buffer (Sq. Ft.)	
	Cold	Cool	Warm	Riparian	Non-Riparian	Coastal Marsh	Zone 1 (3:1)	Zone 2 (1.5:1)
Impacts (feet/acres)	0	0	91	0	1.29	0	78,935	30,814
Anticipated Mitigation Credits (up to 2:1)	0	0	182	0	2.58	0	236,805	46,221

EEP is currently providing stream, wetland (riparian and nonriparian) and buffer mitigation for the impacts associated with this project located in Tar-Pamlico 03020104 as required by the 404 and 401 permits that were issued January 17, 2006 and September 6, 2005, respectively, and subsequent permit modifications as shown in the table on the next page. During the project development and permitting phases of this project, several stream impact sites were determined that a 1:1 mitigation ratio would be appropriate. The total amount of stream impact for the 1:1 mitigation ratio is 1,231 feet and is reflected in the Revised Total Anticipated Mitigation Credit in Table 2. Also, appropriate payment into the Riparian Buffer Restoration Fund has occurred for current permitted buffer mitigation requirements.

Table 2 – Total Project Impacts and Anticipated Mitigation Credits

Impact Type	Current Permitted Impacts	Current Mitigation Required (Credits)	Impact Changes (for approval)	Anticipated Additional Mitigation (Credits)	Revised Total Impacts	Revised Total Anticipated Mitigation (Credits)
Stream	4,244.0	8,488.0	+ 91.0	182.0	4,335.0	7,439.0*
Riparian	8.98	17.96	- 1.54	- 3.08	7.44	14.88
Non-riparian	4.53	9.06	+ 1.29	2.58	5.82	11.64
Buffer-Zone 1	240,440.0	721,320.0	78,935.0	236,805.0	319,375.0	958,125.0
Buffer-Zone 2	151,662.0	227,493.0	30,814.0	46,221.0	182,476.0	273,714.0
Buffer-TOTAL	392,102.0	948,813.0	109,749.0	283,026.0	501,851.0	1,231,839.0

*Note: The total amount of stream impact for the 1:1 mitigation ratio is 1,231 feet and was part of the original permits issued for this project under the MOU. EEP will adjust the appropriate amount of stream mitigation required if approved. The additional stream mitigation for the 91 feet of impacts will be provided under the MOA.

Riparian wetland impacts and associated mitigation needs have decreased based on the final design of this project. Once the final permits are issued, the EEP will make appropriate adjustments to the riparian wetland mitigation required for this project.

All buffer mitigation requests and approvals are administrated through the Riparian Restoration Buffer Fund. The NCDOT will be responsible to ensure that appropriate compensation for the additional buffer mitigation will be provided in the agreed upon method of fund transfer. Upon receipt of the NCDWQ's Buffer Authorization Certification, EEP will transfer funds from Tri-Party MOA Fund into the Riparian Restoration Buffer Fund. Upon completion of transfer payment, NCDOT will have completed its additional riparian buffer mitigation responsibility for R-2510. EEP proposes to provide the additional buffer mitigation in either Tar-Pamlico 03020103, 03020104, or 03020105.

EEP will continue to provide the mitigation required for the impacts associated with the originally permitted stream, riparian and the non-riparian impacts (4,244 feet stream, 7.44 acres riparian, and 3.88 acres non-riparian) in the MOU program. EEP commits to providing the additional stream and non-riparian mitigation credits to offset the additional impacts associated with this project by the end of the MOA Year in which the additional impact is permitted, in accordance with Section X of the Amendment No. 2 to the Memorandum of Agreement between the North Carolina Department of Environment and Natural Resources, the North Carolina Department of Transportation, and the U. S. Army Corps of Engineers, fully executed on March 8, 2007. If the above referenced impact amounts are revised, then this mitigation acceptance letter will no longer be valid and a new mitigation acceptance letter will be required from EEP.

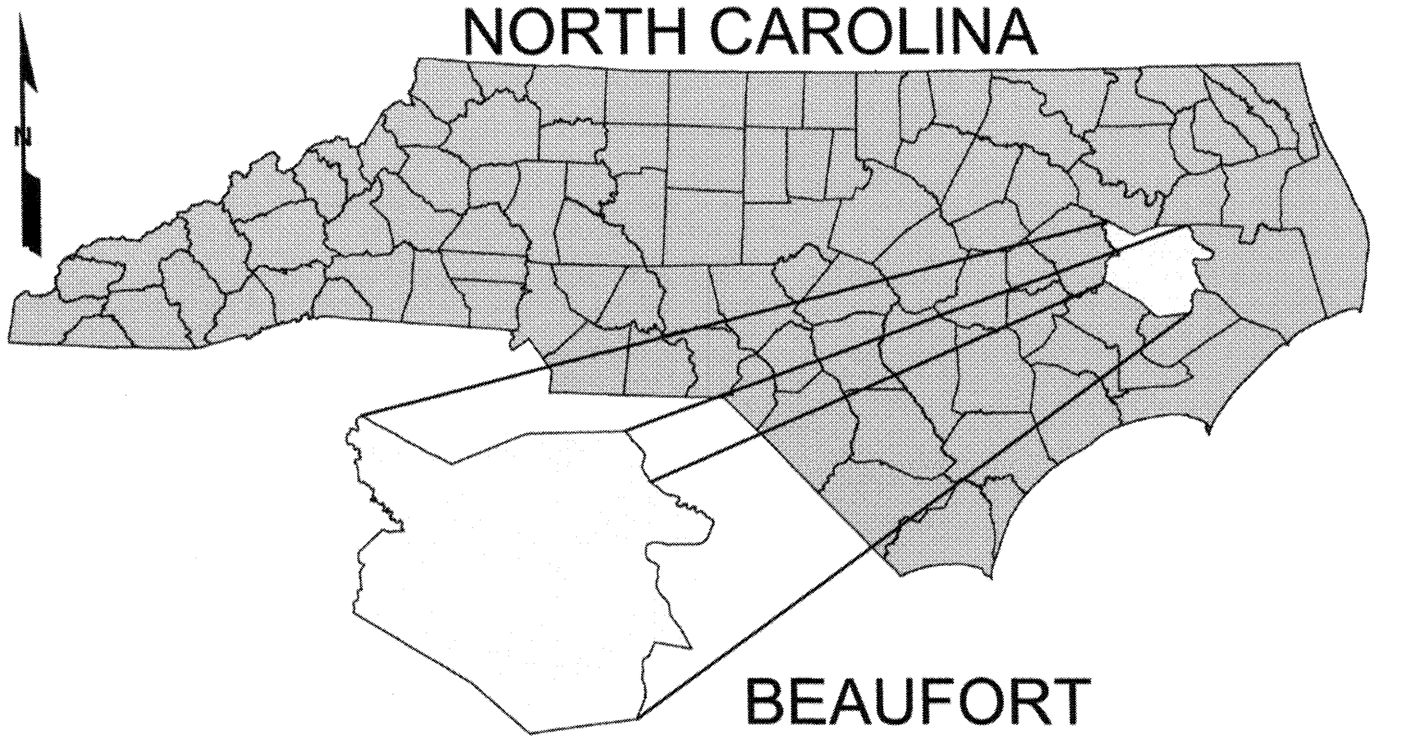
If you have any questions or need additional information, please contact Ms. Beth Harmon at 919-715-1929.

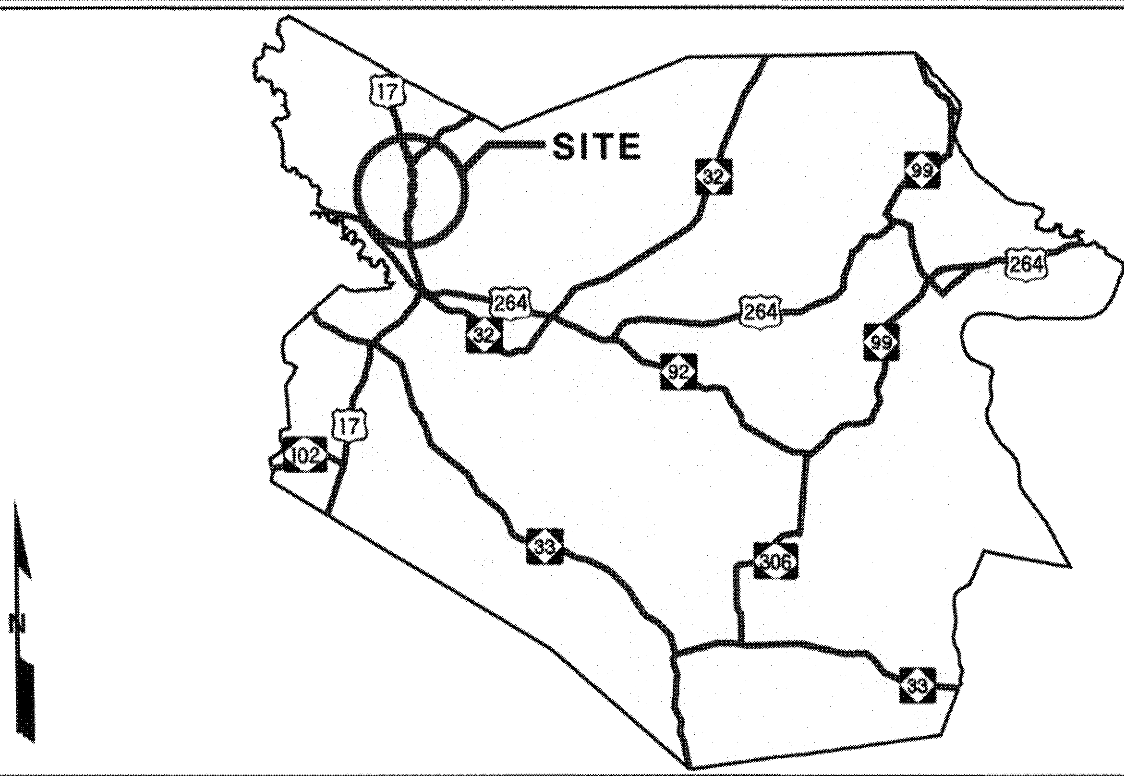
Sincerely,

James B. Stanfill for

William D. Gilmore, P.E.
EEP Director

Cc: Mr. Tom Steffen, USACE – Washington Regulatory Field Office
Mr. Brian Wrenn, NC Division of Water Quality
File: R-2510 Additional





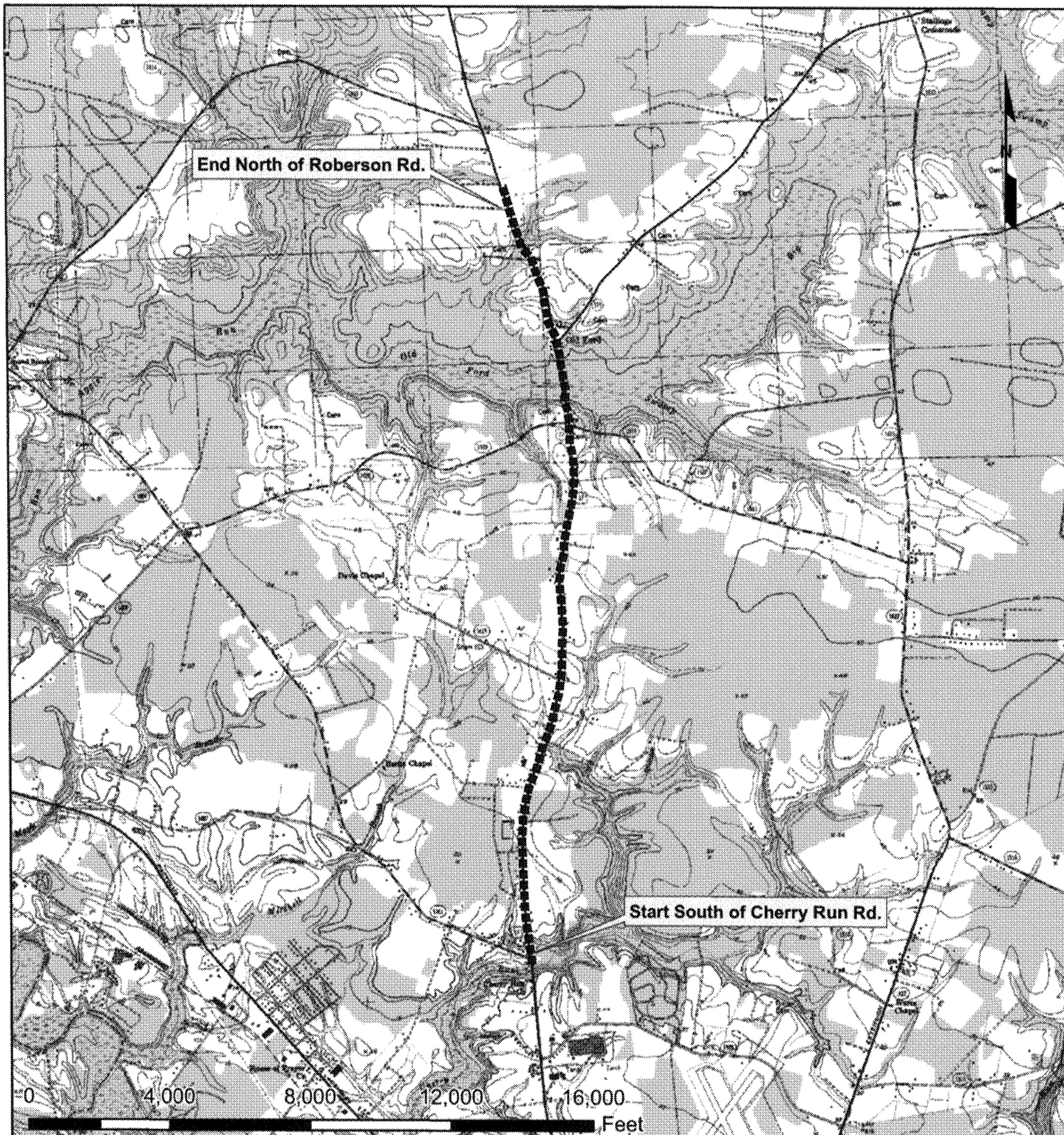
VICINITY MAPS

NCDOT

DIVISION OF HIGHWAYS
BEAUFORT COUNTY
PROJECT: 34440.1.1 (R-2510C)
US 17 BYPASS

AUGUST 2009

Permit Drawing
Sheet 1 of 41



1 inch = 4,000 feet

LOCATION

NCDOT

DIVISION OF HIGHWAYS
BEAUFORT COUNTY
PROJECT: 34440.1.1 (R-2510C)
US 17 BYPASS

AUGUST 2009

Source: USGS 7.5 Minute Quadrangle, Washington and Old Ford, NC

Permit Drawing
Sheet 2 of 41

PROP. NO.	PROPERTY OWNER NAME	PROP. OWNER ADDRESS
1	JACK CHERRY, JR.	707 Oakwood Ave. South, Brandon, FL. 33511
2	SMITHWICK PARTNERS, LLC	1589 West 5th St., Washington, NC 27889
38	DONALD W. MANNING, ET UX	3502 US HWY 17 N, Washington, NC 27889
40	EAST CAROLINA FARMS, LLC	1905 Charlestowne Dr. Greenville, NC 27834
45	MARY L. BROWN HOPKINS	952 Wharton Station Rd., Washington, NC 27889
46	REUBEN H. FERRELL	3805 US HWY 17 N, Washington, NC 27889
94	MINNIE LEE BRANTLEY	5595 HWY 17 N, Washington, NC 27889
97	MILTON E. HODGES, JR. (Land)	5584 US HWY 17 N, Washington, NC 27889
	DAVID ALLEN KEEL (Buildings on parcel 97)	5584 US HWY 17 N, Washington, NC 27889
100	HAROLD W. ROBINSON, ET UX	244 N Roberson Rd., Washington, NC 27889
108	ARAH BELL GAUTIER CARRAWAY	5124 Congressional Dr., College Station, TX 77845
111	MCDONALD GAUTIER, 111, ET AL	6344 US HWY 17 N, Washington, NC 27889
114	MAXWELL P. CHESNUTT FAMILY TRUST	PO BOX 607, Blowing Rock, NC 28605
115	JOSEPH E PERRY, JR.	6498 US HWY 17 N, Washington, NC 27889
116	DOROTHY ROBERSON ROBINSON, et al	6555 US HWY 17 N, Washington, NC 27889
117	DOROTHY ROBERSON ROBINSON, et al	244 N Roberson Rd., Washington, NC 27889
118	MELVIN R. WILKINS, ET UX	6555 US HWY 17 N, Washington, NC 27889

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

BEAUFORT COUNTY
PROJECT: 34440.1.1 (R-2510C)

8/13/2009

R:/z-misc/Hydro/Permit Drawings/WetProp.xls

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)
1A	-L- 54+00 +/-	Roadway / Bridge	0.01			0.04	0.07	<0.01	0.17	34	262	
1B	-L- 62+00 +/-	Roadway	0.03		0.03	0.01						
1C	-Y3- 12+00 +/-	Roadway			0.02	0.02						
2	-L- 104+70 +/-	Roadway						0.02	<0.01	201	10	
3	-L- 119+00 +/-	Roadway	0.06		0.18	0.05		0.01	0.01	122	116	
4A	-L- 220+00+/-	Roadway					0.01	0.07	0.01	779	27	
4B	-L- 223+00+/-	Roadway / Bridge				0.01	0.06		0.12		270	
4C	-L- 223+00+/-	Roadway / Bridge							<0.01		116	
4D	-L- 227+00+/-	Roadway	1.10			0.04						
5A	-L- 256+75 +/-	Roadway						0.01	0.00	120	20	
5B	-L- 263+25+/-	Roadway	<0.01		0.07	0.03		0.02	<0.01	154	20	
5C	-Y9- 10+80 +/-	Roadway						<0.01	<0.01	21	27	
TOTALS:			1.20		0.30	0.20	0.14	0.13	0.31	1431	868	

Site 1A Permanent Surface Impacts due to piers = <0.01 acre
Site 4B Permanent Surface Impacts due to piers = <0.01 acre

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

BEAUFORT COUNTY
PROJECT: 34440.1.1 (R-2510C)

8/13/2009

Permit Drawing
Sheet 4 **of** 41

TIP PROJECT: R-2510C

CONTRACT:

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

BEAUFORT COUNTY

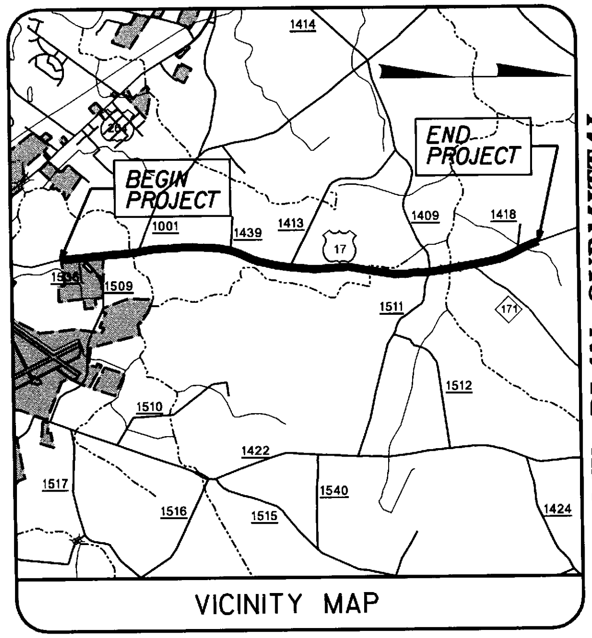
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2510C	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
34440.1.1	MAF-75-3 (26)	P.E.	
34440.2.5	MAF-75-3 (26)	RW & UTIL	

Permit Drawing Sheet 5 of 41

LOCATION: US 17 FROM US 17 SOUTH OF SR 1001 (CHERRY RUN ROAD) TO NORTH OF NC 171.

TYPE OF WORK: GRADING, DRAINAGE, PAVING, RESURFACING, CULVERT AND STRUCTURES

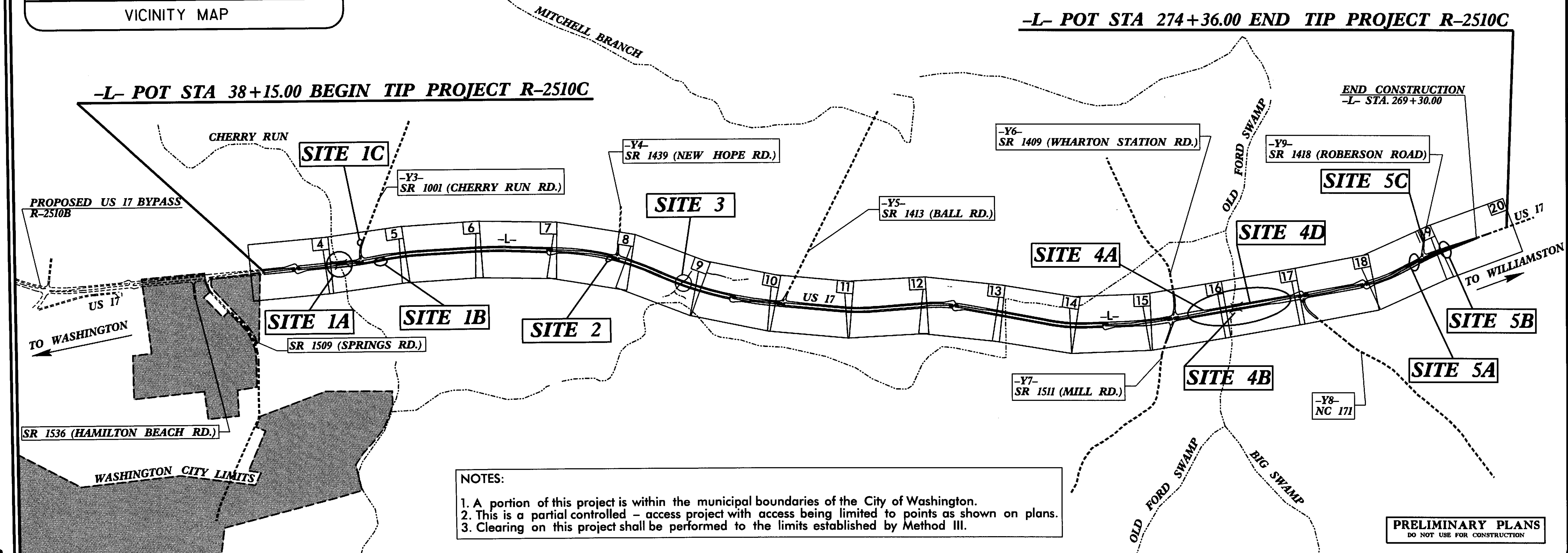
See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols



VICINITY MAP

RW PLAN SUBMITTAL

NAD 83/95



NOTES:

1. A portion of this project is within the municipal boundaries of the City of Washington.
2. This is a partial controlled - access project with access being limited to points as shown on plans.
3. 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 = 12,710
ADT 2034 = 19,830
DHV = 10 %
D = 55 %
T = 11 % *
V = 60 MPH
CLASS = RURAL ARTERIAL
* (TTST 7% + DUAL 4%)

PROJECT LENGTH

Length Roadway
TIP Project R-2510C .... 4.474 Mi.

Length Structure*
TIP Project R-2510C .... 0.066 Mi.

TOTAL LENGTH TIP
Project R-2510C .... 4.540 Mi.

*Length Based on NBL Structures

PLANS PREPARED BY:
RUMMEL, KLEPPER & KAHL, LLP
consulting engineers
900 RIDGEFIELD DRIVE, SUITE 350
RALEIGH, NORTH CAROLINA 27609
(919) 878-9560
FOR
DIVISION OF HIGHWAYS

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
11/2006 (PROD.)

LETTING DATE:
October 21, 2014

B. Keith Skinner, P.E.
PROJECT ENGINEER

Michael T. Merritt, P.E.
PROJECT DESIGN ENGINEER

NCDOT CONTACT: CATHY S. HOUSER, PE

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

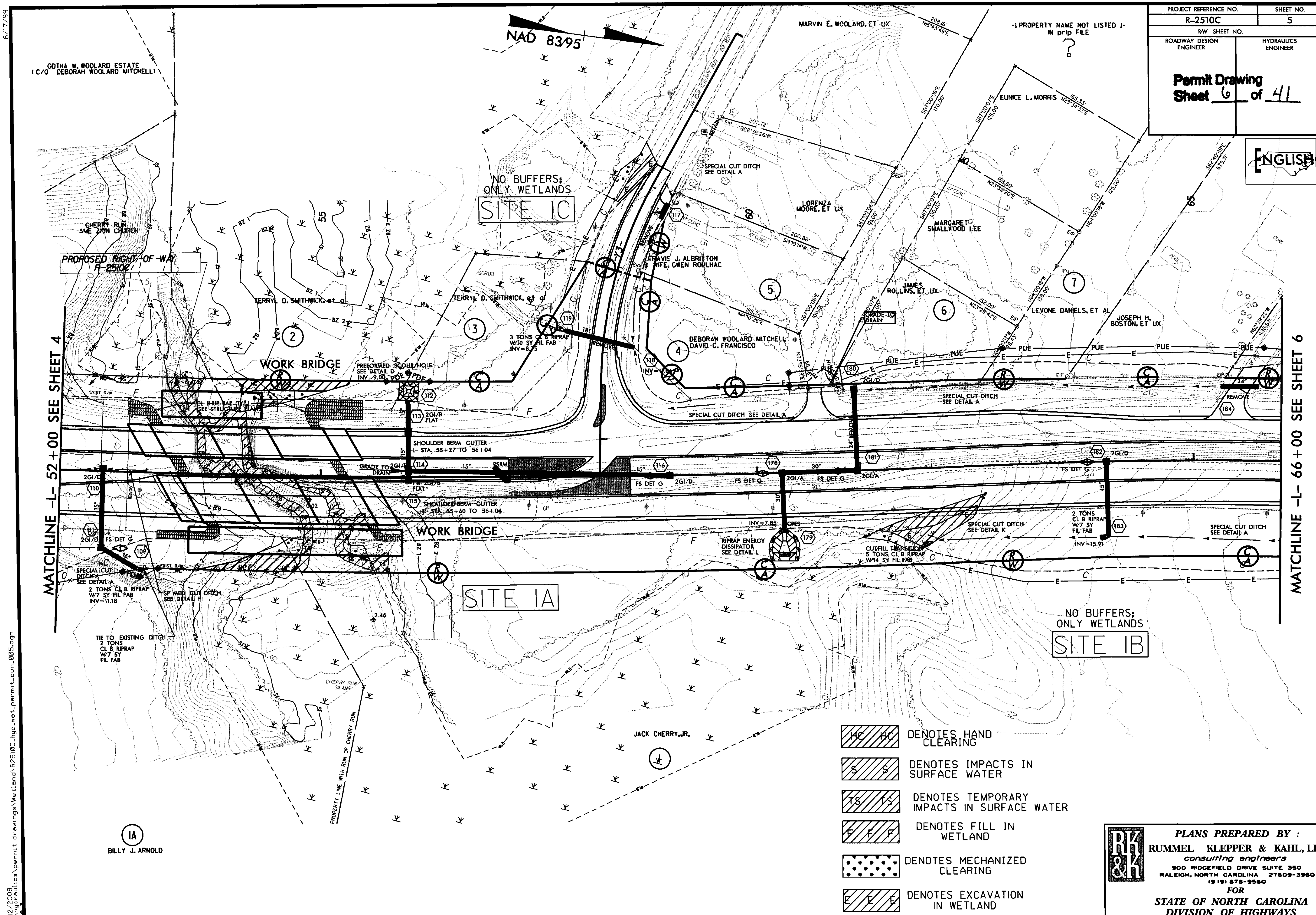
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

P.E.
STATE HIGHWAY DESIGN ENGINEER

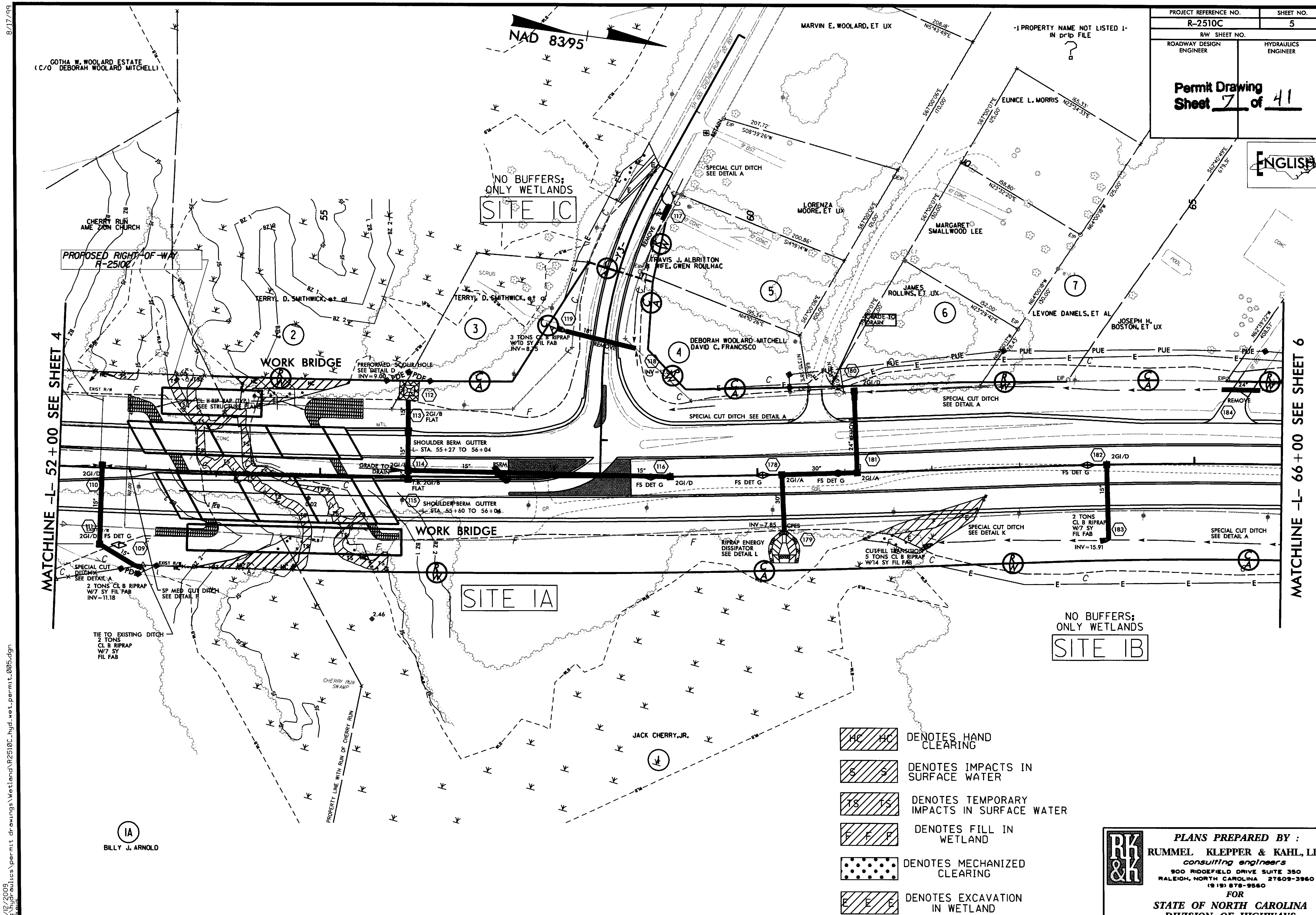
09/08/99

8/12/2009
R:\Hydraulics\Permit Drawings\Wetland\r2510c_hyd_wet_Permits_tsh.dgn
Fkeys

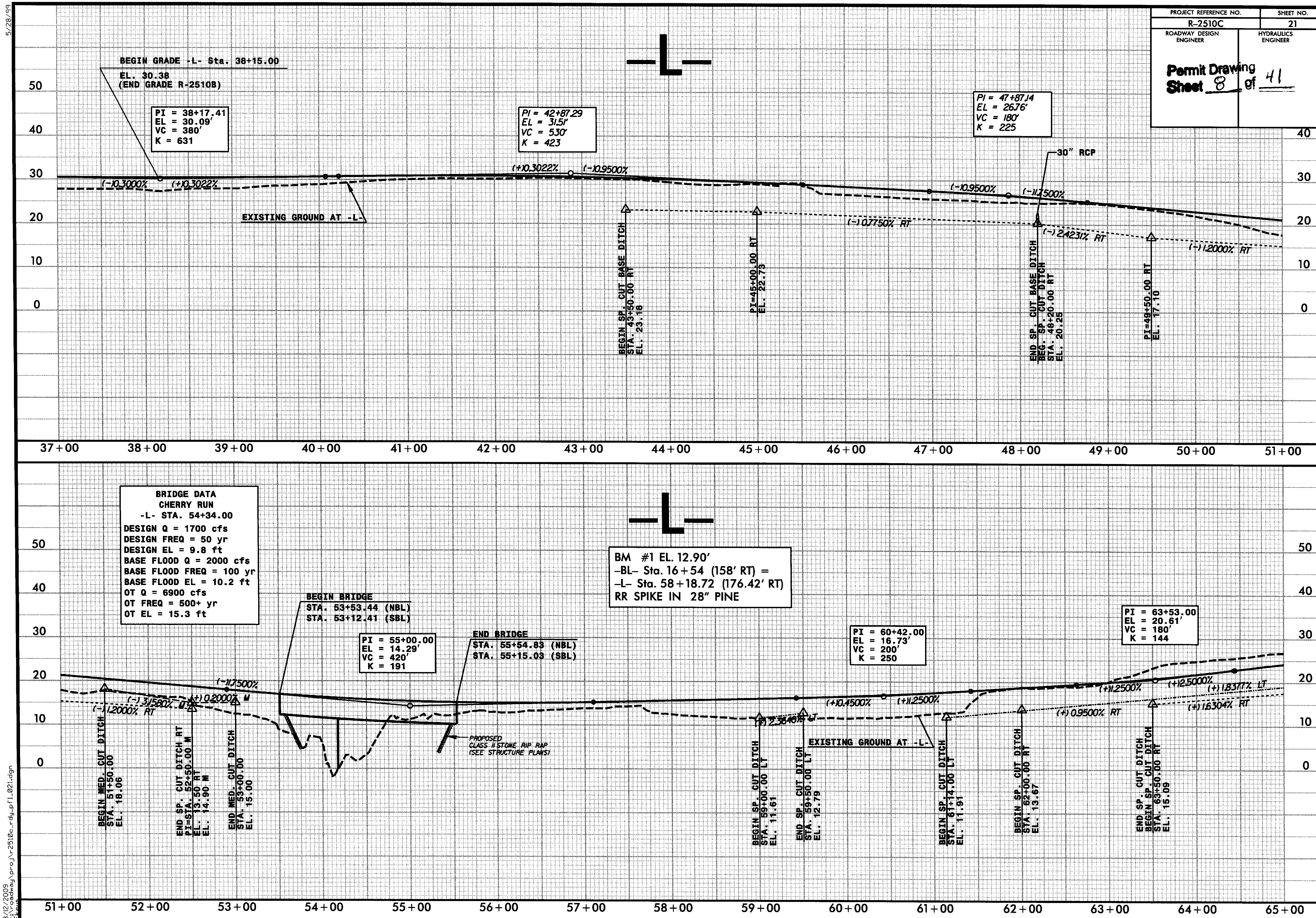


8/17/99
8/12/2009
r:\hydraulics\permit drawings\Wetland\R2510C_hyd_wet_permit_con_005.dgn

8/17/99



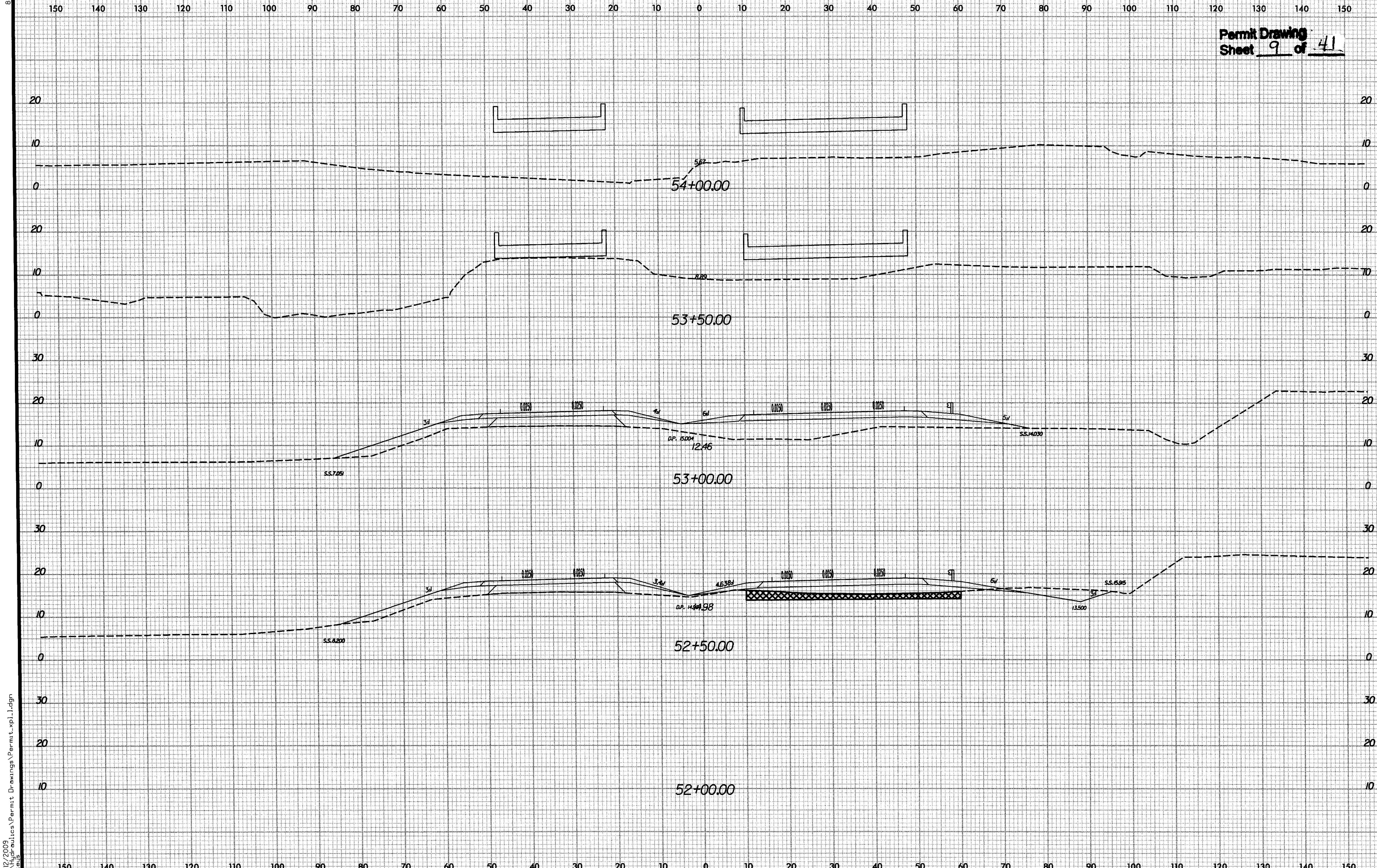
8/12/2009
...\hydraulics\permit drawings\Wetland\R2510C_hyd_wet_permit_005.dgn


PROJECT REFERENCE NO. R-2510C
SHEET NO. 21
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
Permit Drawing Sheet 8 of 41
5/28/99
-L-
BEGIN GRADE -L- Sta. 38+15.00
EL. 30.38
(END GRADE R-2510B)
PI = 38+17.41
EL = 30.09'
VC = 380'
K = 631
PI = 42+87.29
EL = 31.51'
VC = 530'
K = 423
PI = 47+87.14
EL = 26.76'
VC = 180'
K = 225
30" RCP
(-)0.3000%
(+)0.3022%
(+)0.3022%
(-)0.9500%
(-)0.9500%
(-)1.7500%
(-)0.7750% RT
(-)2.4231% RT
(-)1.2000% RT
EXISTING GROUND AT -L-
BEGIN SP. CUT BASE DITCH STA. 43+50.00 RT EL. 23.18
PI=45+00.00 RT EL. 22.73
END SP. CUT BASE DITCH BEG. SP. CUT DITCH STA. 48+20.00 RT EL. 20.25
PI=49+50.00 RT EL. 17.10
37+00
38+00
39+00
40+00
41+00
42+00
43+00
44+00
45+00
46+00
47+00
48+00
49+00
50+00
51+00
BRIDGE DATA
CHERRY RUN
-L- STA. 54+34.00
DESIGN Q = 1700 cfs
DESIGN FREQ = 50 yr
DESIGN EL = 9.8 ft
BASE FLOOD Q = 2000 cfs
BASE FLOOD FREQ = 100 yr
BASE FLOOD EL = 10.2 ft
OT Q = 6900 cfs
OT FREQ = 500+ yr
OT EL = 15.3 ft
-L-
BM #1 EL. 12.90'
-BL- Sta. 16+54 (158' RT) =
-L- Sta. 58+18.72 (176.42' RT)
RR SPIKE IN 28" PINE
BEGIN BRIDGE
STA. 53+53.44 (NBL)
STA. 53+12.41 (SBL)
END BRIDGE
STA. 55+54.83 (NBL)
STA. 55+15.03 (SBL)
PI = 55+00.00
EL = 14.29'
VC = 420'
K = 191
PI = 60+42.00
EL = 16.73'
VC = 200'
K = 250
PI = 63+53.00
EL = 20.61'
VC = 180'
K = 144
(-)1.7500%
(-)3.1580% LT
(+)0.2000% M
(-)1.2000% RT
(+)0.4500%
(+)1.2500%
(+)1.2500%
(+)2.5000%
(+)1.8377% LT
(+)1.6304% RT
(+)0.9500% RT
(+)2.3840% LT
PROPOSED CLASS II STONE RIP RAP (SEE STRUCTURE PLANS)
EXISTING GROUND AT -L-
BEGIN MED. CUT DITCH STA. 51+50.00 EL. 18.06
END SP. CUT DITCH RT PI=STA. 52+50.00 M EL. 13.50 RT EL. 14.90 M
END MED. CUT DITCH STA. 53+00.00 EL. 15.00
BEGIN SP. CUT DITCH STA. 59+00.00 LT EL. 11.61
END SP. CUT DITCH STA. 59+50.00 LT EL. 12.79
BEGIN SP. CUT DITCH STA. 61+14.00 LT EL. 11.91
BEGIN SP. CUT DITCH STA. 62+00.00 RT EL. 13.67
END SP. CUT DITCH BEGIN SP. CUT DITCH STA. 63+50.00 RT EL. 15.09
51+00
52+00
53+00
54+00
55+00
56+00
57+00
58+00
59+00
60+00
61+00
62+00
63+00
64+00
65+00
8/12/2009
F:\roadway\proj\r2510c_rdy_pfl_021.dgn

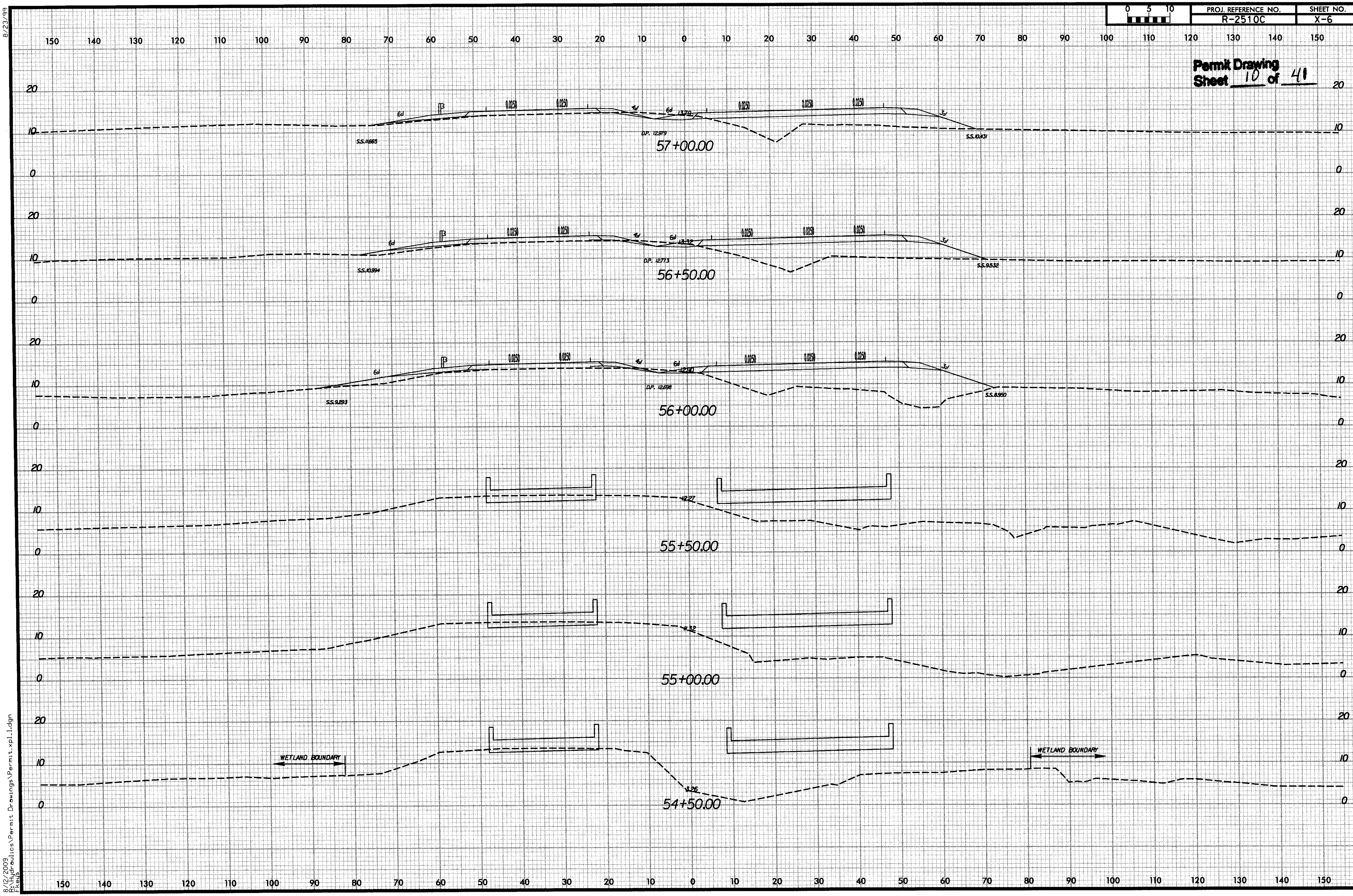
8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-2510C	X-5

Permit Drawing
Sheet 9 of 41



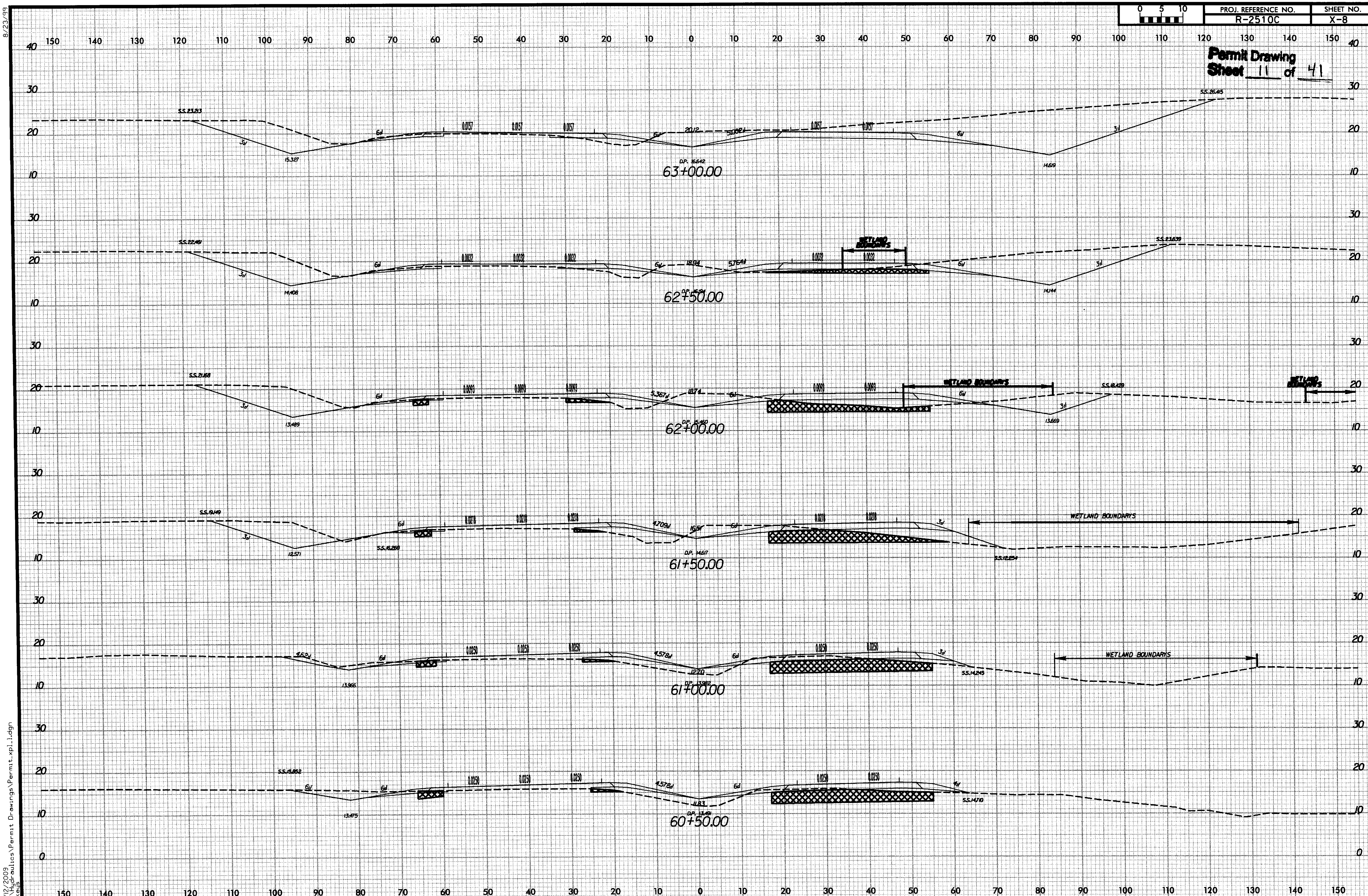
8/12/2009
R:\Hydraulics\Permit Drawings\Permit_xpl_1.dgn
Fkeys



PROJ. REFERENCE NO.
R-2510C
SHEET NO.
X-6
Permit Drawing
Sheet 10 of 41
57+00.00
56+50.00
56+00.00
55+50.00
55+00.00
54+50.00
WETLAND BOUNDARY
WETLAND BOUNDARY
8/23/99
8/12/2009
R:\Hydraulics\Permit Drawings\Permit_xpl1.dgn

PROJ. REFERENCE NO.	SHEET NO.
R-2510C	X-8

Permit Drawing
Sheet 11 of 41



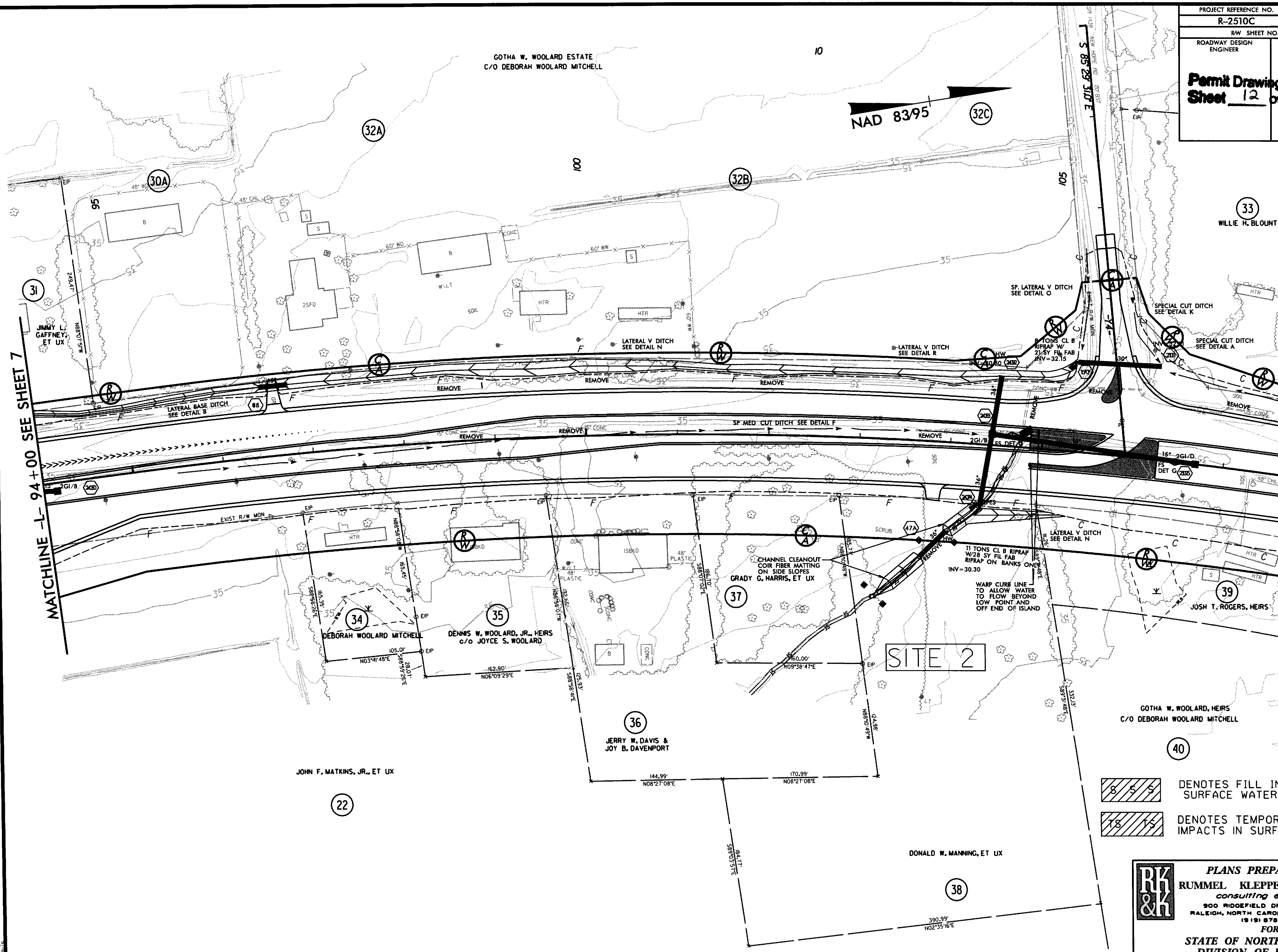
8/23/99

8/12/2009
R:\Hydraulics\Permit Drawings\Permit_xpl1.dgn

PROJECT REFERENCE NO.	SHEET NO.
R-2510C	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

Permit Drawing Sheet 12 of 41

ENGLISH

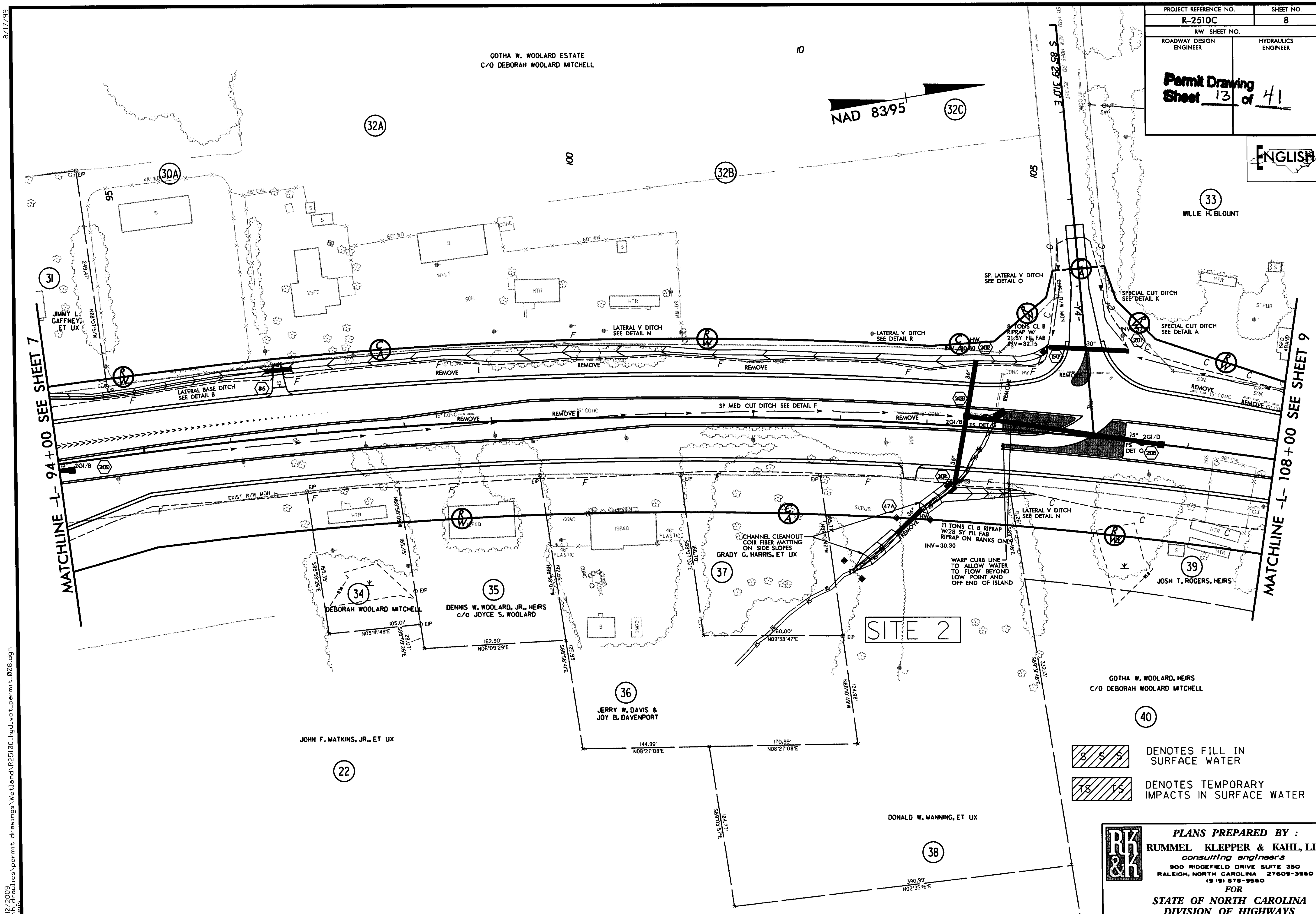


DENOTES FILL IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PLANS PREPARED BY :
RUMMEL KLEPPER & KAHL, LLP
consulting engineers
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
(919) 878-9560
FOR
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

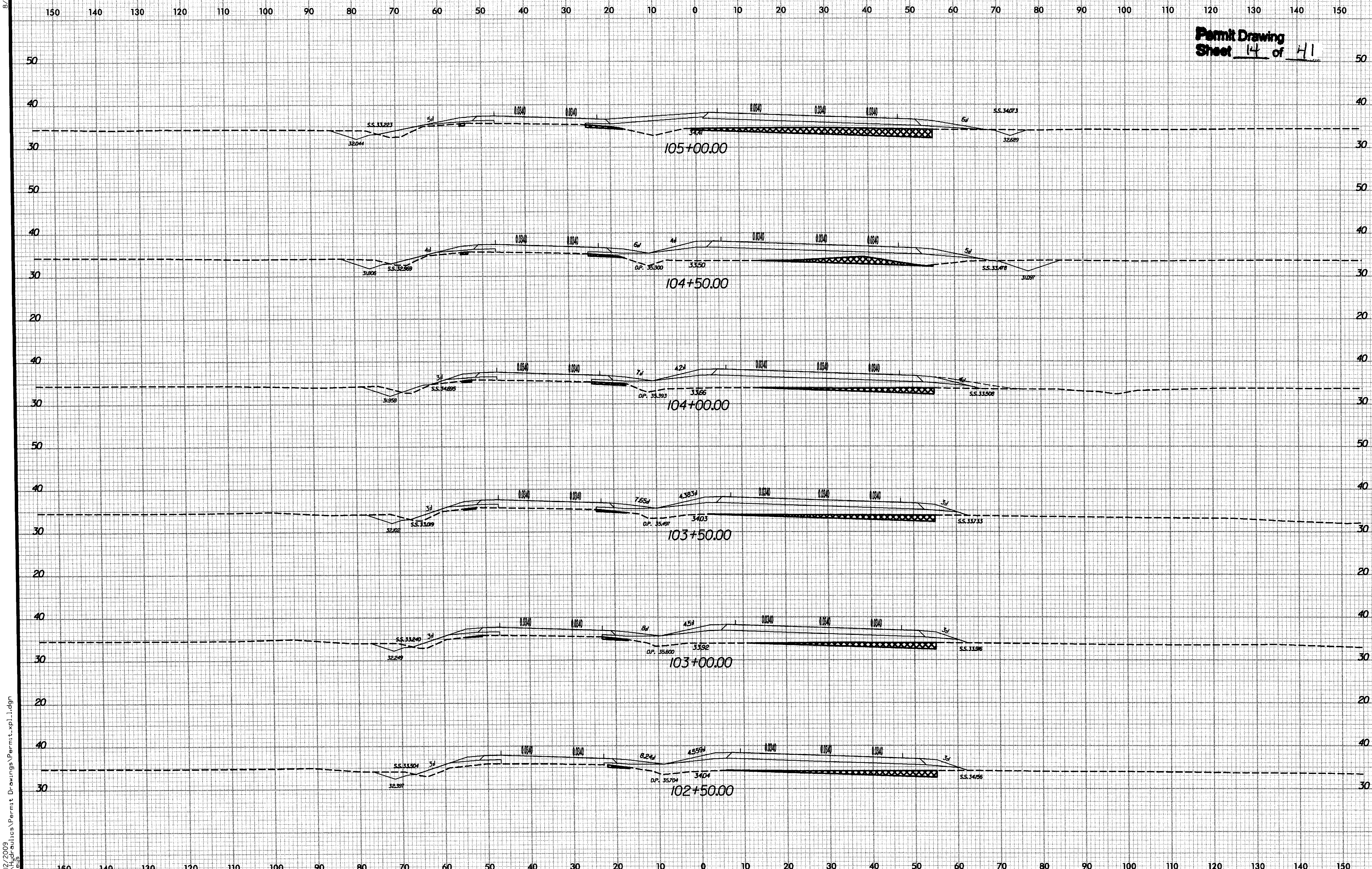
8/12/2009
F:\hydraulics\permit drawings\Wetland\R2510C_hyd_wet_permit_con_008.dgn


PROJECT REFERENCE NO. R-2510C
SHEET NO. 8
RW SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
Permit Drawing Sheet 13 of 41
ENGLISH
NAD 83/95
GOTHA W. WOOLARD ESTATE
C/O DEBORAH WOOLARD MITCHELL
32A
32B
32C
30A
31
JIMMY L. GAFFNEY, ET UX
33
WILLIE H. BLOUNT
SP. LATERAL V DITCH SEE DETAIL O
SPECIAL CUT DITCH SEE DETAIL K
SPECIAL CUT DITCH SEE DETAIL A
LATERAL V DITCH SEE DETAIL N
LATERAL V DITCH SEE DETAIL R
8 TONS CL B RIPRAP W/ 21 SY FIL FAB INV=32.15
LATERAL BASE DITCH SEE DETAIL B
SP MED CUT DITCH SEE DETAIL F
REMOVE
MATCHLINE -L- 94+00 SEE SHEET 7
MATCHLINE -L- 108+00 SEE SHEET 9
CHANNEL CLEANOUT COIR FIBER MATTING ON SIDE SLOPES
11 TONS CL B RIPRAP W/28 SY FIL FAB RIPRAP ON BANKS ONLY
INV=30.30
WARP CURB LINE TO ALLOW WATER TO FLOW BEYOND LOW POINT AND OFF END OF ISLAND
LATERAL V DITCH SEE DETAIL N
34
DEBORAH WOOLARD MITCHELL
35
DENNIS W. WOOLARD, JR., HEIRS c/o JOYCE S. WOOLARD
36
JERRY W. DAVIS & JOY B. DAVENPORT
37
GRADY G. HARRIS, ET UX
39
JOSH T. ROGERS, HEIRS
SITE 2
GOTHA W. WOOLARD, HEIRS
C/O DEBORAH WOOLARD MITCHELL
40
JOHN F. MATKINS, JR., ET UX
22
DONALD W. MANNING, ET UX
38
DENOTES FILL IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
PLANS PREPARED BY :
RUMMEL KLEPPER & KAHL, LLP
consulting engineers
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
(919) 878-9560
FOR
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

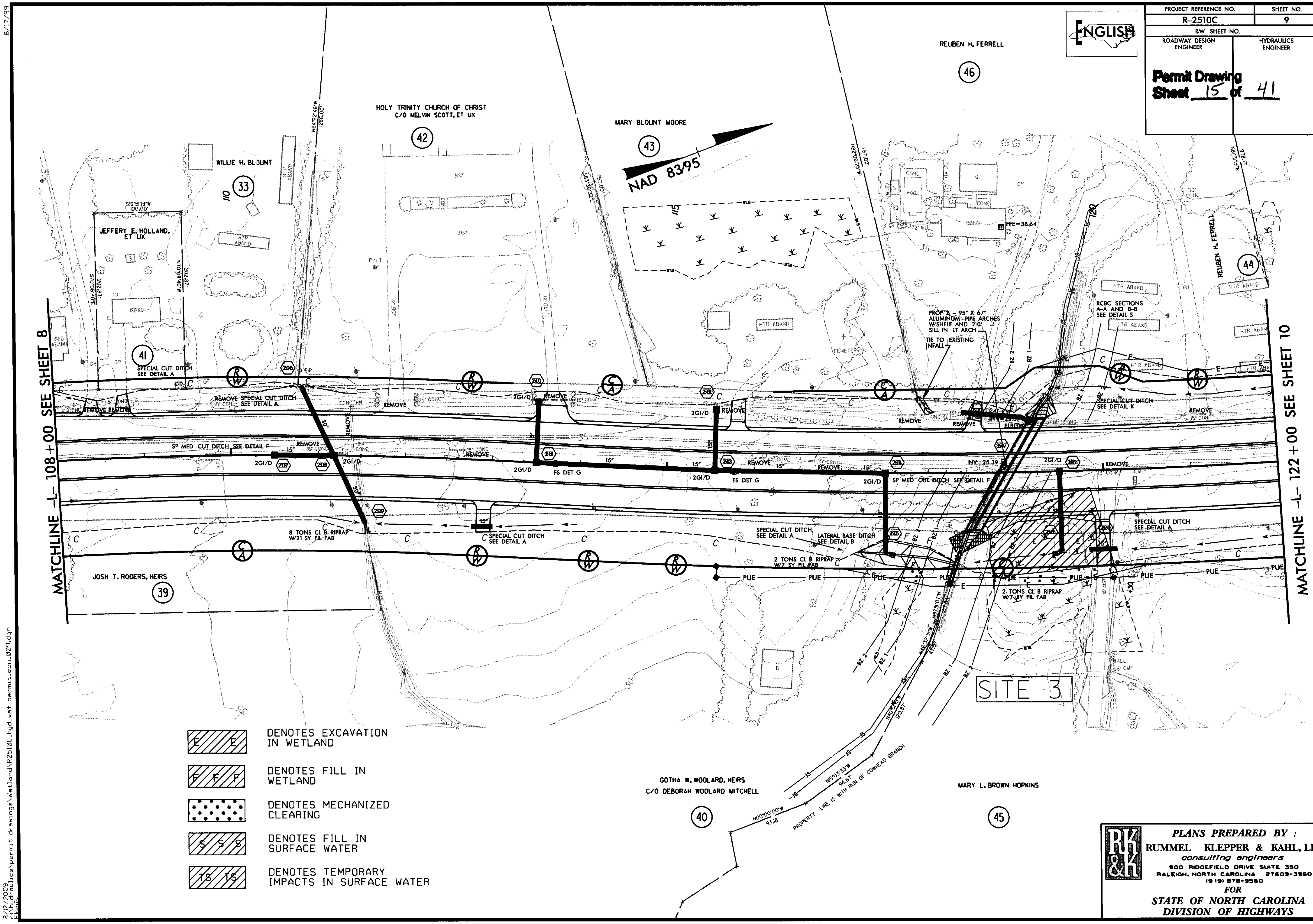
PROJ. REFERENCE NO.	SHEET NO.
R-2510C	X-22

8/23/99

Permit Drawing
Sheet 14 of 41



8/12/2009
R:\Hydraulics\Permit Drawings\Permit_xpl.dgn

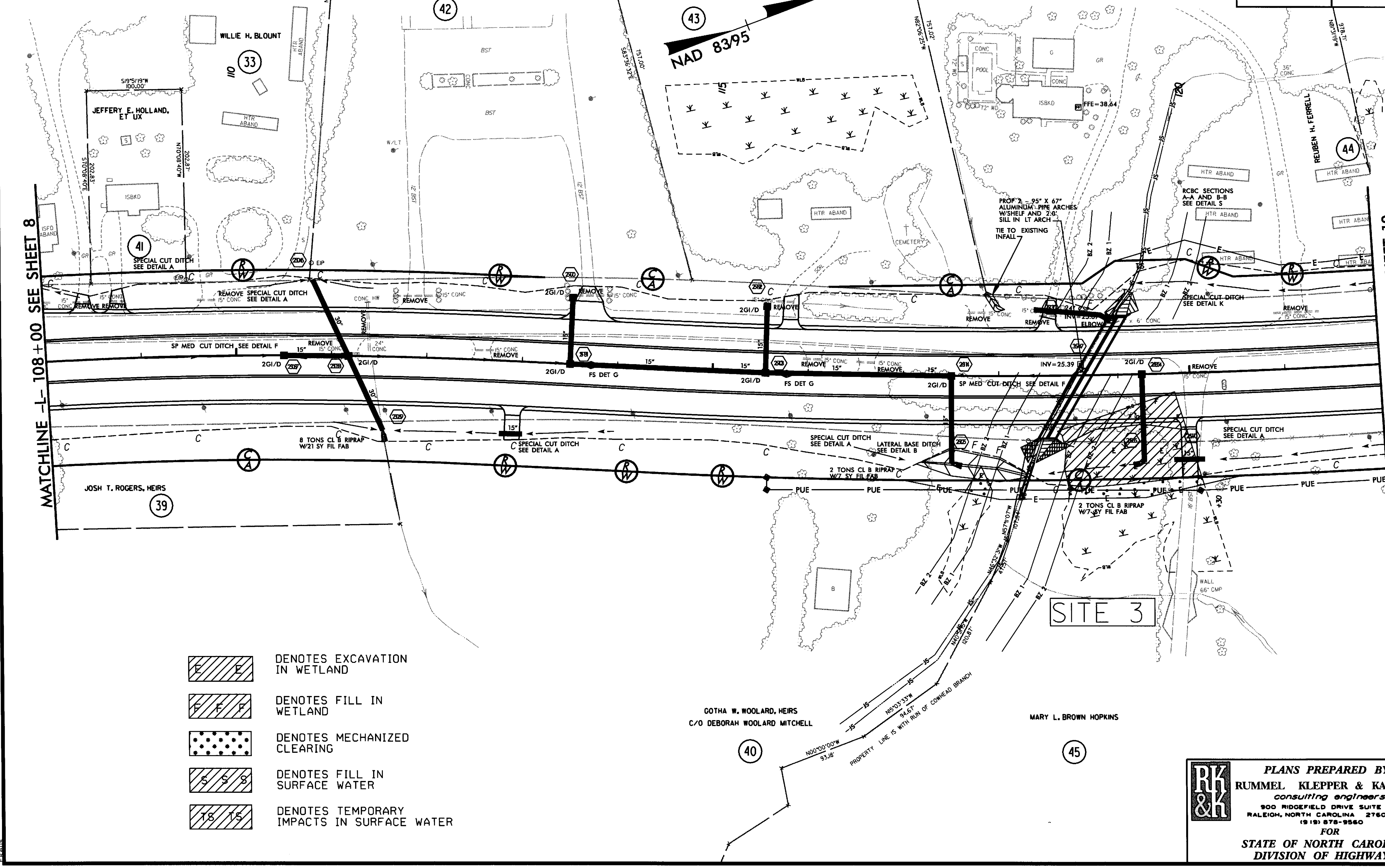


PROJECT REFERENCE NO.
R-2510C
SHEET NO.
9
RW SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
Permit Drawing
Sheet 15 of 41
ENGLISH
REUBEN H. FERRELL
46
HOLY TRINITY CHURCH OF CHRIST
C/O MELVIN SCOTT, ET UX
42
MARY BLOUNT MOORE
43
NAD 83/95
WILLIE H. BLOUNT
33
JEFFERY E. HOLLAND, ET UX
41
REUBEN H. FERRELL
44
HTR ABAND
CEMETERY
POOL
FFE=38.64
RCBC SECTIONS A-A AND B-B SEE DETAIL S
PROP 2 - 95" X 67" ALUMINUM PIPE ARCHES W/SHELF AND 2.0' SILL IN LT ARCH
TIE TO EXISTING INFALL
SPECIAL CUT DITCH SEE DETAIL A
SPECIAL CUT DITCH SEE DETAIL K
SP MED CUT DITCH SEE DETAIL F
FS DET G
REMOVE
2GI/D
INV=25.39
8 TONS CL B RIPRAP W/21 SY FIL FAB
LATERAL BASE DITCH SEE DETAIL B
2 TONS CL B RIPRAP W/7 SY FIL FAB
MATCHLINE -L- 108+00 SEE SHEET 8
MATCHLINE -L- 122+00 SEE SHEET 10
JOSH T. ROGERS, HEIRS
39
SITE 3
GOTHA W. WOOLARD, HEIRS
C/O DEBORAH WOOLARD MITCHELL
40
MARY L. BROWN HOPKINS
45
PROPERTY LINE IS WITH RUN OF COWHEAD BRANCH
DENOTES EXCAVATION IN WETLAND
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
DENOTES FILL IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
PLANS PREPARED BY :
RUMMEL KLEPPER & KAHL, LLP
consulting engineers
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
(919) 878-9560
FOR
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
8/17/99
8/12/2009

PROJECT REFERENCE NO.	SHEET NO.
R-2510C	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ENGLISH

Permit Drawing
Sheet 16 of 41



DENOTES EXCAVATION IN WETLAND

DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

DENOTES FILL IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

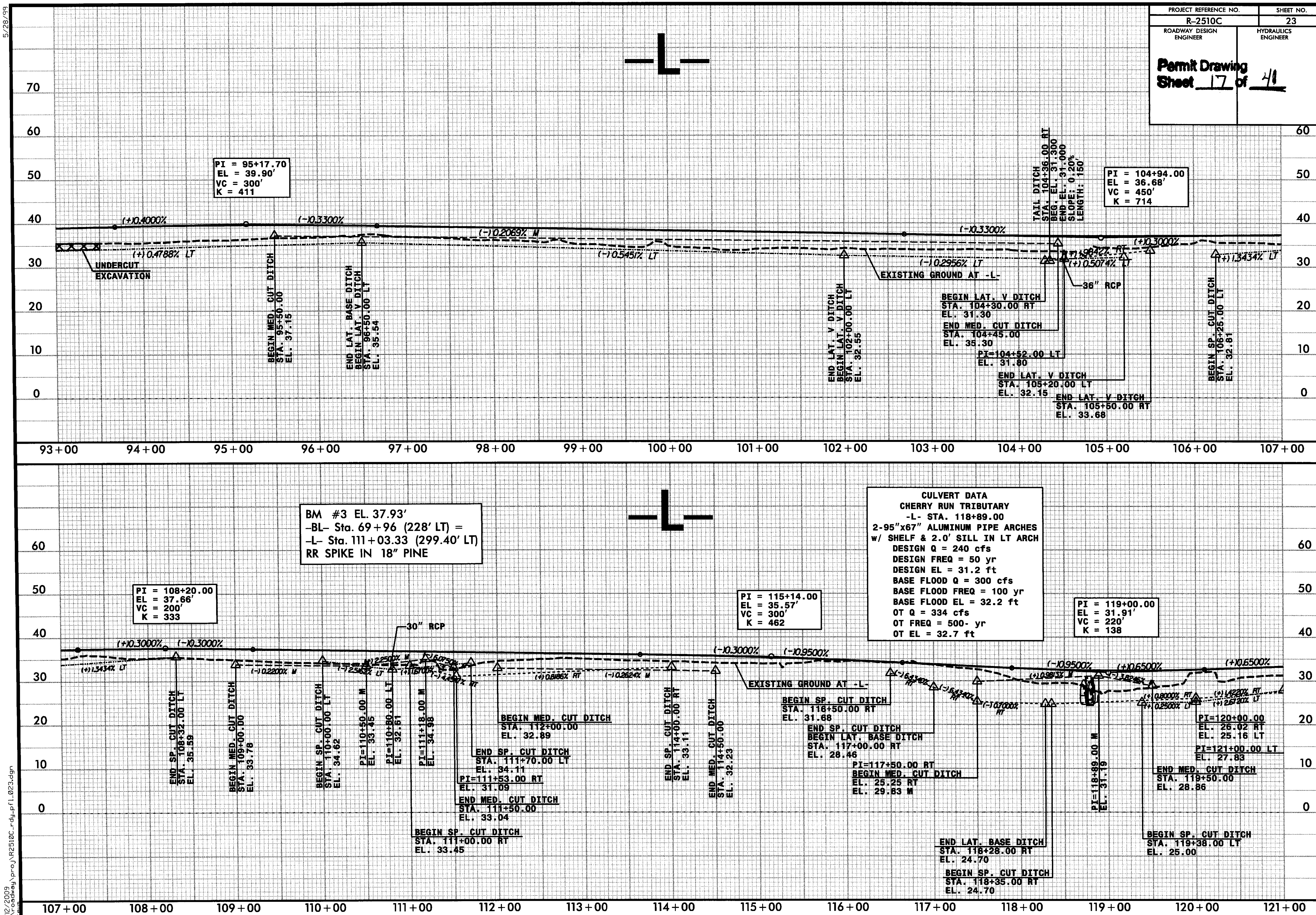
PLANS PREPARED BY :
RUMMEL KLEPPER & KAHL, LLP
consulting engineers
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
(919) 878-9560
FOR
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

8/17/99

8/12/2009
F:\hydraulics\permit drawings\Wetland\R2510C_hyd_wet_permit_009.dgn

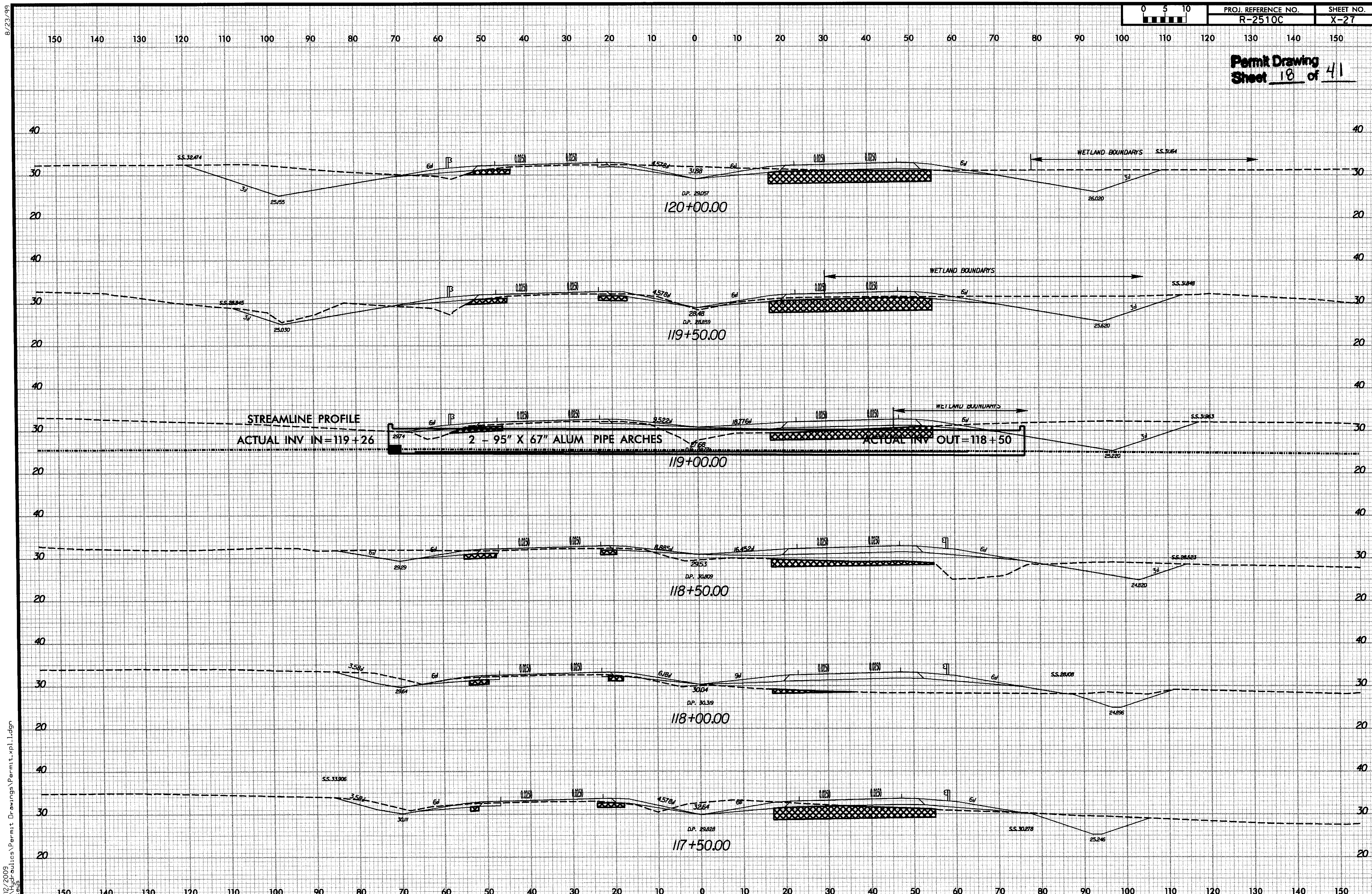
PROJECT REFERENCE NO.	SHEET NO.
R-2510C	23
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

Permit Drawing
Sheet 17 of 41



PROJ. REFERENCE NO.	SHEET NO.
R-2510C	X-27

Permit Drawing
Sheet 18 of 41

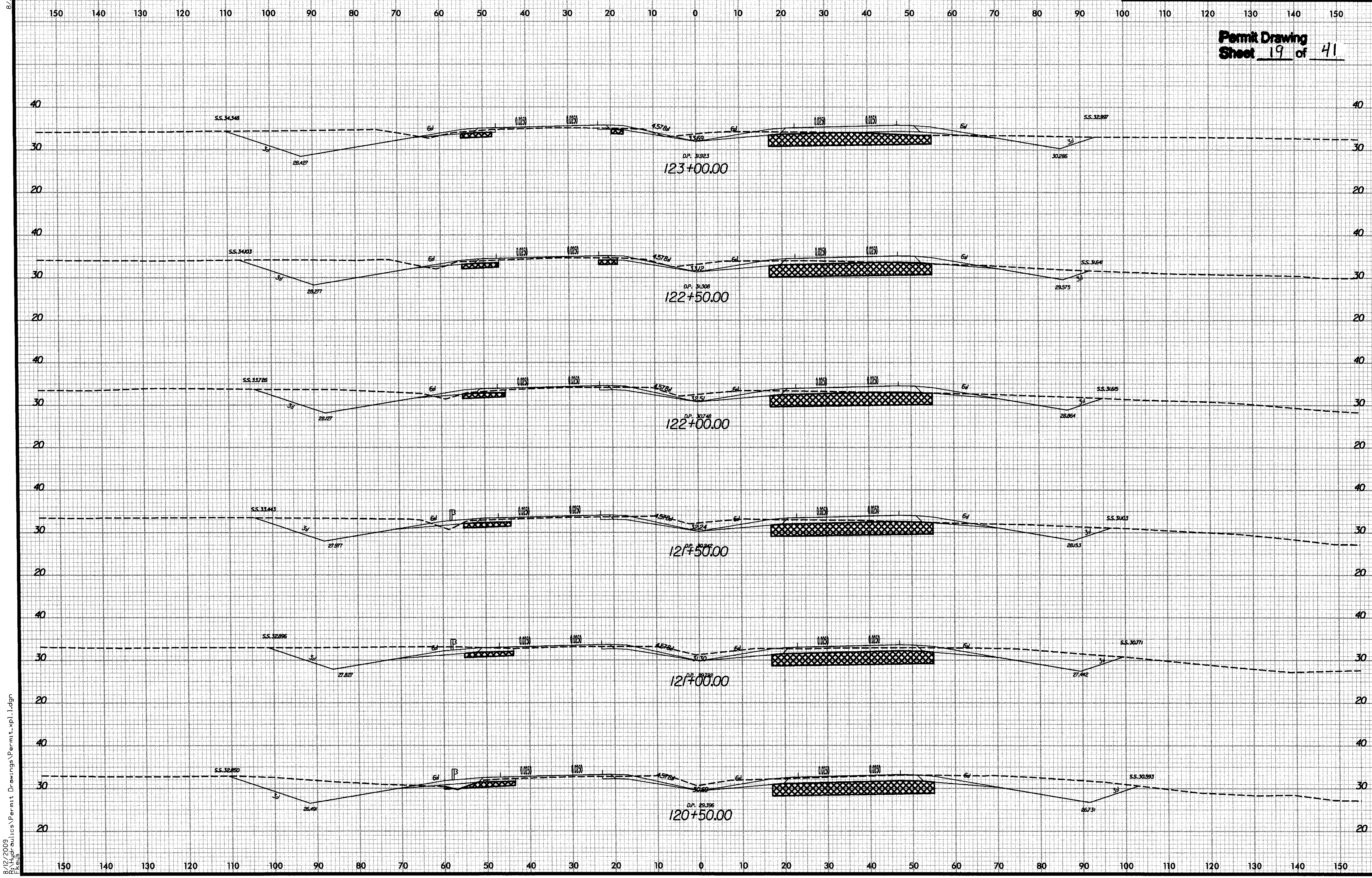


8/23/99

8/12/2009
R:\Hydraulics\Permit Drawings\Permit_xpl1.dgn
Fkeys

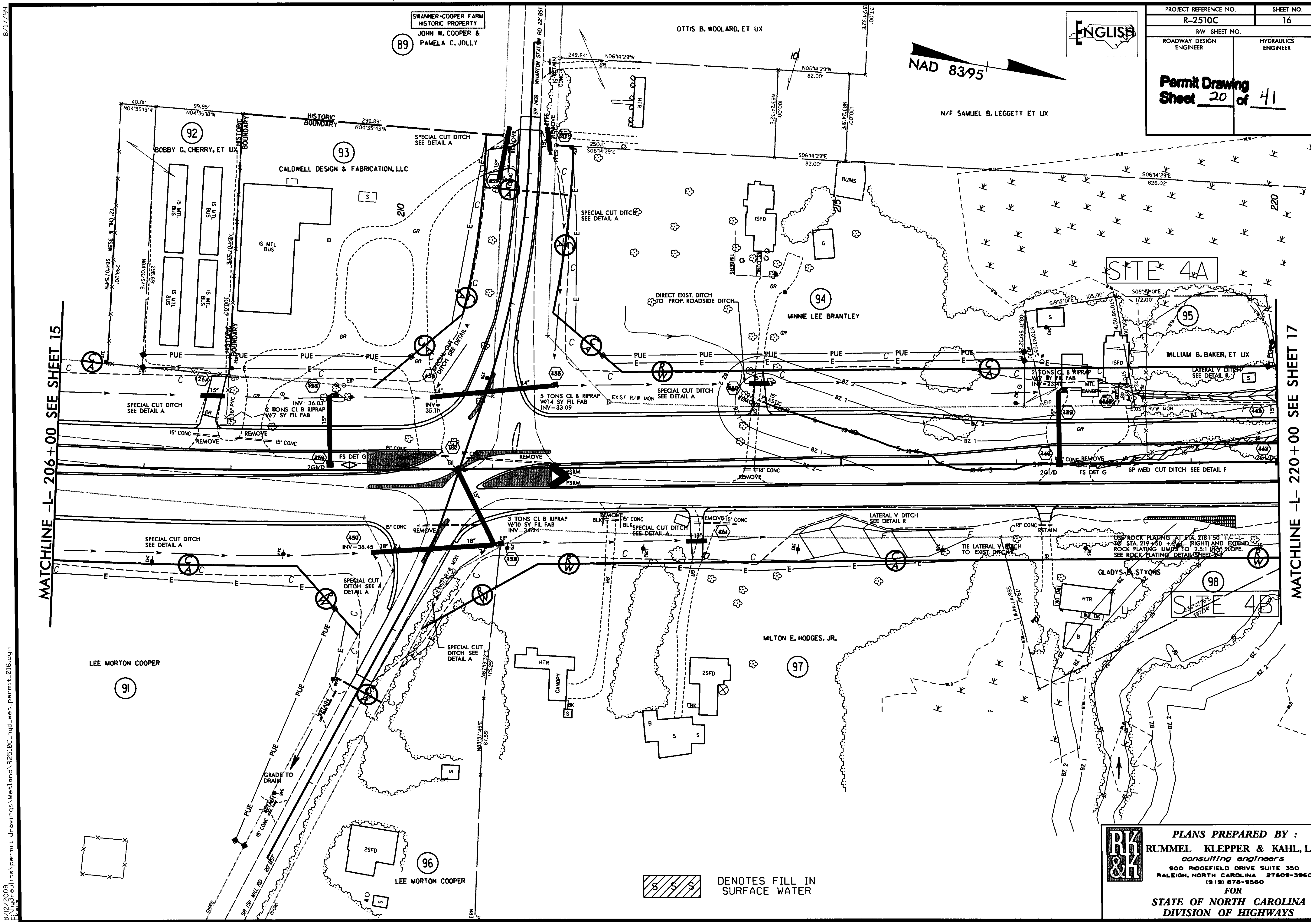
PROJ. REFERENCE NO.	SHEET NO.
R-2510C	X-28

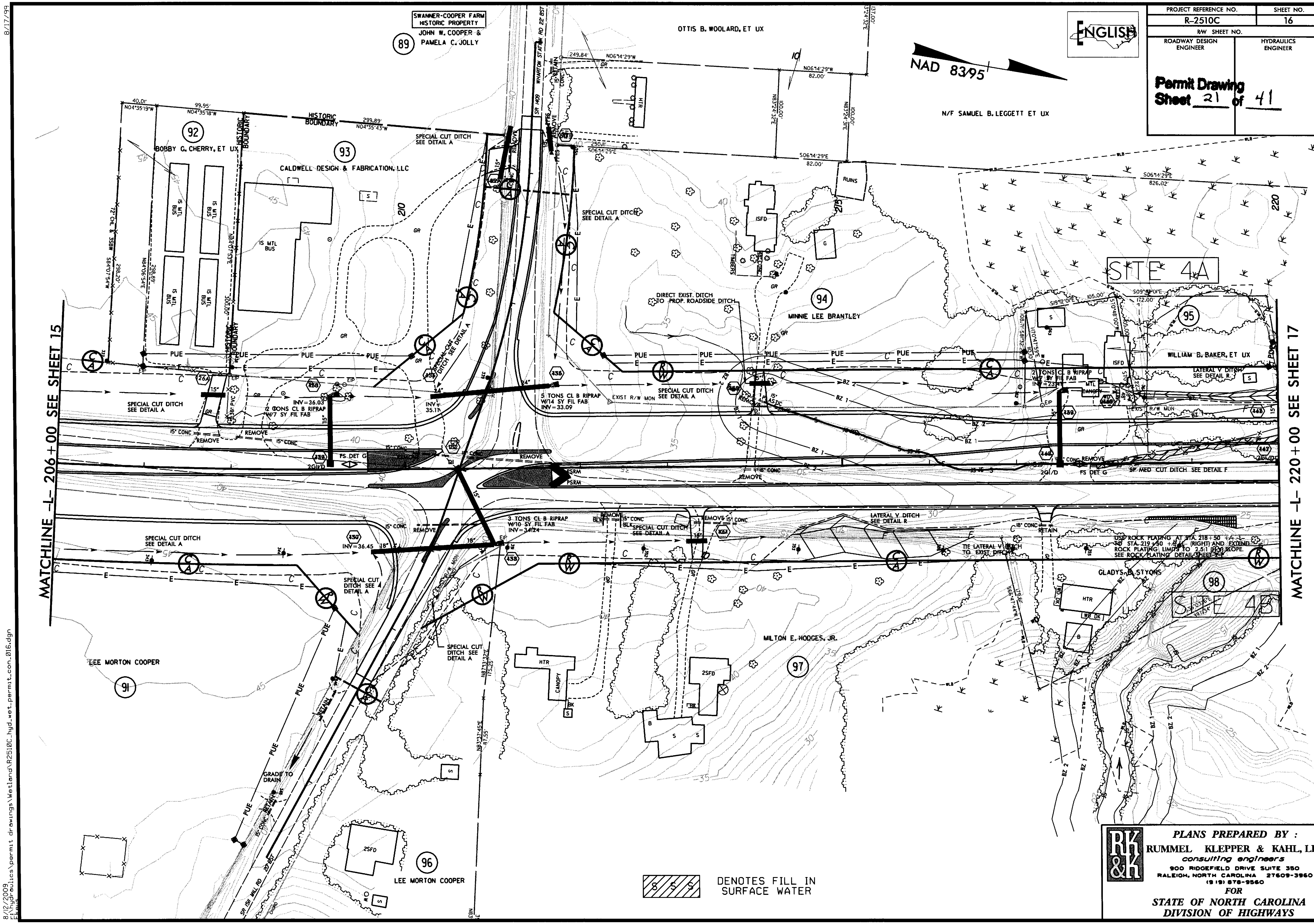
Permit Drawing
Sheet 19 **of** 41



8/23/99

8/12/2009
R:\Hydraulics\Permit Drawings\Permit_xpl1.dgn


PROJECT REFERENCE NO.
R-2510C
SHEET NO.
16
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
Permit Drawing Sheet 20 of 41
ENGLISH
NAD 83/95
SWANNER-COOPER FARM HISTORIC PROPERTY
JOHN W. COOPER & PAMELA C. JOLLY
OTTIS B. WOOLARD, ET UX
N/F SAMUEL B. LEGGETT ET UX
BOBBY G. CHERRY, ET UX
CALDWELL DESIGN & FABRICATION, LLC
HISTORIC BOUNDARY
MINNIE LEE BRANTLEY
WILLIAM B. BAKER, ET UX
SITE 4A
SITE 4B
GLADYS B. STYONS
MILTON E. HODGES, JR.
LEE MORTON COOPER
MATCHLINE -L- 206+00 SEE SHEET 15
MATCHLINE -L- 220+00 SEE SHEET 17
SPECIAL CUT DITCH SEE DETAIL A
LATERAL V DITCH SEE DETAIL R
SP MED CUT DITCH SEE DETAIL F
5 TONS CL B RIPRAP W/14 SY FIL FAB INV=33.09
3 TONS CL B RIPRAP W/10 SY FIL FAB INV=34.24
2 TONS CL B RIPRAP W/7 SY FIL FAB
DIRECT EXIST. DITCH TO PROP. ROADSIDE DITCH
USE ROCK PLATING AT STA. 218+50 +/- -L- TO STA. 219+50 +/- -L- (RIGHT) AND EXTEND ROCK PLATING LIMITS TO 2.5:1 (FILL) SLOPE. SEE ROCK PLATING DETAIL SHEET 2-1
TIE LATERAL V DITCH TO EXIST DITCH
GRADE TO DRAIN
DENOTES FILL IN SURFACE WATER
PLANS PREPARED BY :
RUMMEL KLEPPER & KAHL, LLP
consulting engineers
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
(919) 878-9560
FOR
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

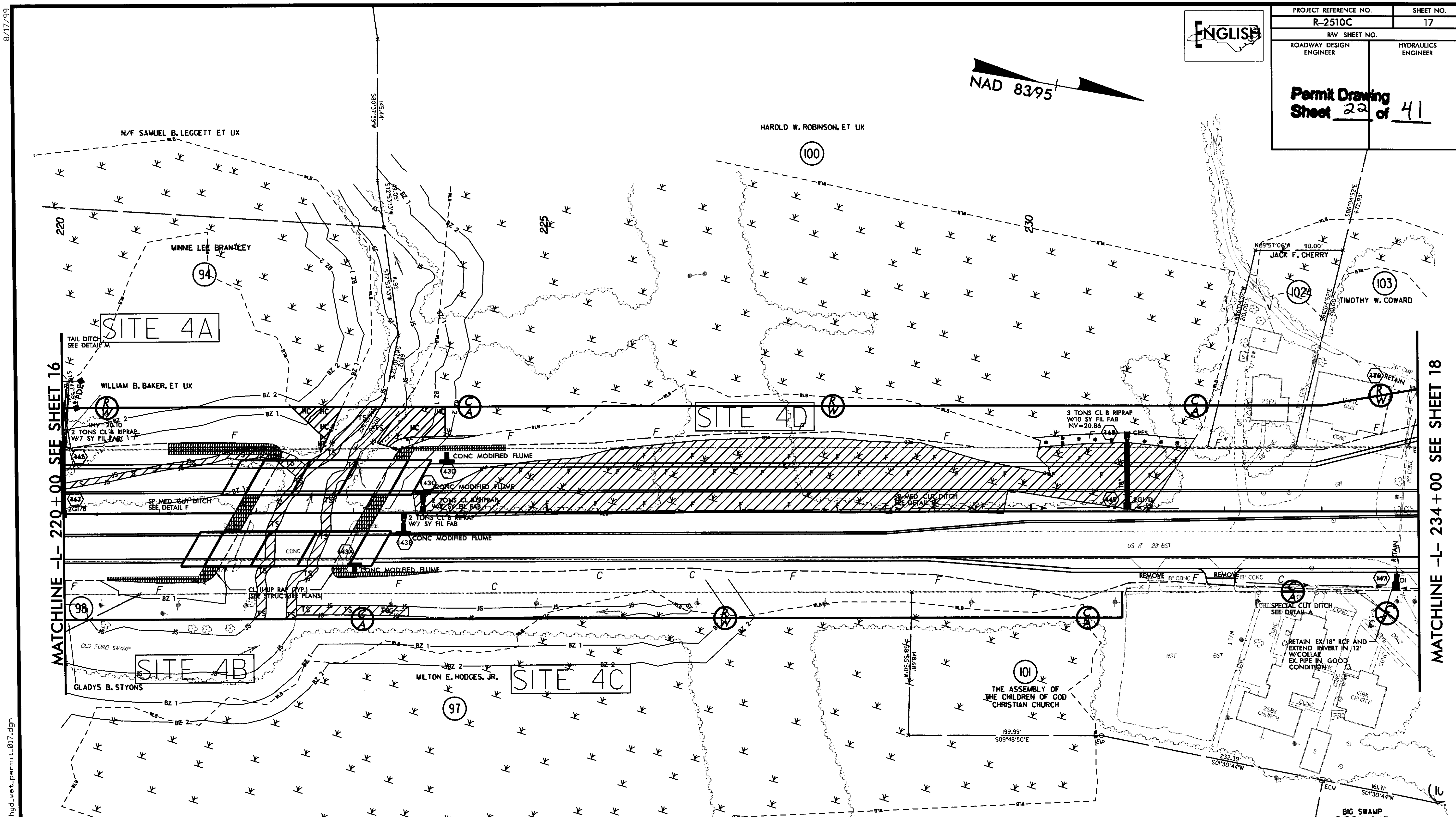


PROJECT REFERENCE NO.
R-2510C
SHEET NO.
16
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
ENGLISH
Permit Drawing Sheet 21 of 41
NAD 83/95
SWANNER-COOPER FARM HISTORIC PROPERTY
JOHN W. COOPER & PAMELA C. JOLLY
89
OTTIS B. WOOLARD, ET UX
N/F SAMUEL B. LEGGETT ET UX
92
BOBBY G. CHERRY, ET UX
93
CALDWELL DESIGN & FABRICATION, LLC
HISTORIC BOUNDARY
SPECIAL CUT DITCH SEE DETAIL A
94
MINNIE LEE BRANTLEY
DIRECT EXIST. DITCH TO PROP. ROADSIDE DITCH
SITE 4A
95
WILLIAM B. BAKER, ET UX
LATERAL V DITCH SEE DETAIL R
MATCHLINE -L- 206+00 SEE SHEET 15
MATCHLINE -L- 220+00 SEE SHEET 17
2 TONS CL B RIPRAP W/7 SY FIL FAB
INV=36.03
5 TONS CL B RIPRAP W/14 SY FIL FAB INV=33.09
2 TONS CL B RIPRAP W/7 SY FIL FAB
3 TONS CL B RIPRAP W/10 SY FIL FAB INV=34.24
INV=36.45
SF MED CUT DITCH SEE DETAIL F
USE ROCK PLATING AT STA. 218+50 +/- -L- TO STA. 219+50 +/- (RIGHT) AND EXTEND ROCK PLATING LIMITS TO 2.5:1 FILL SLOPE. SEE ROCK PLATING DETAIL SHEET
TIE LATERAL V DITCH TO EXIST DITCH
GLADYS B. STYONS
98
SITE 4B
MILTON E. HODGES, JR.
97
LEE MORTON COOPER
91
96
LEE MORTON COOPER
GRADE TO DRAIN
DENOTES FILL IN SURFACE WATER
PLANS PREPARED BY :
RK&K
RUMMEL KLEPPER & KAHL, LLP
consulting engineers
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
(919) 878-9560
FOR
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
8/17/99
8/12/2009
r:\hydraulics\permit drawings\Wetland\R2510C_hyd_wet_permit_con_016.dgn

PROJECT REFERENCE NO.	SHEET NO.
R-2510C	17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ENGLISH

Permit Drawing Sheet 22 of 41



HC HC DENOTES HAND CLEARING

F F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

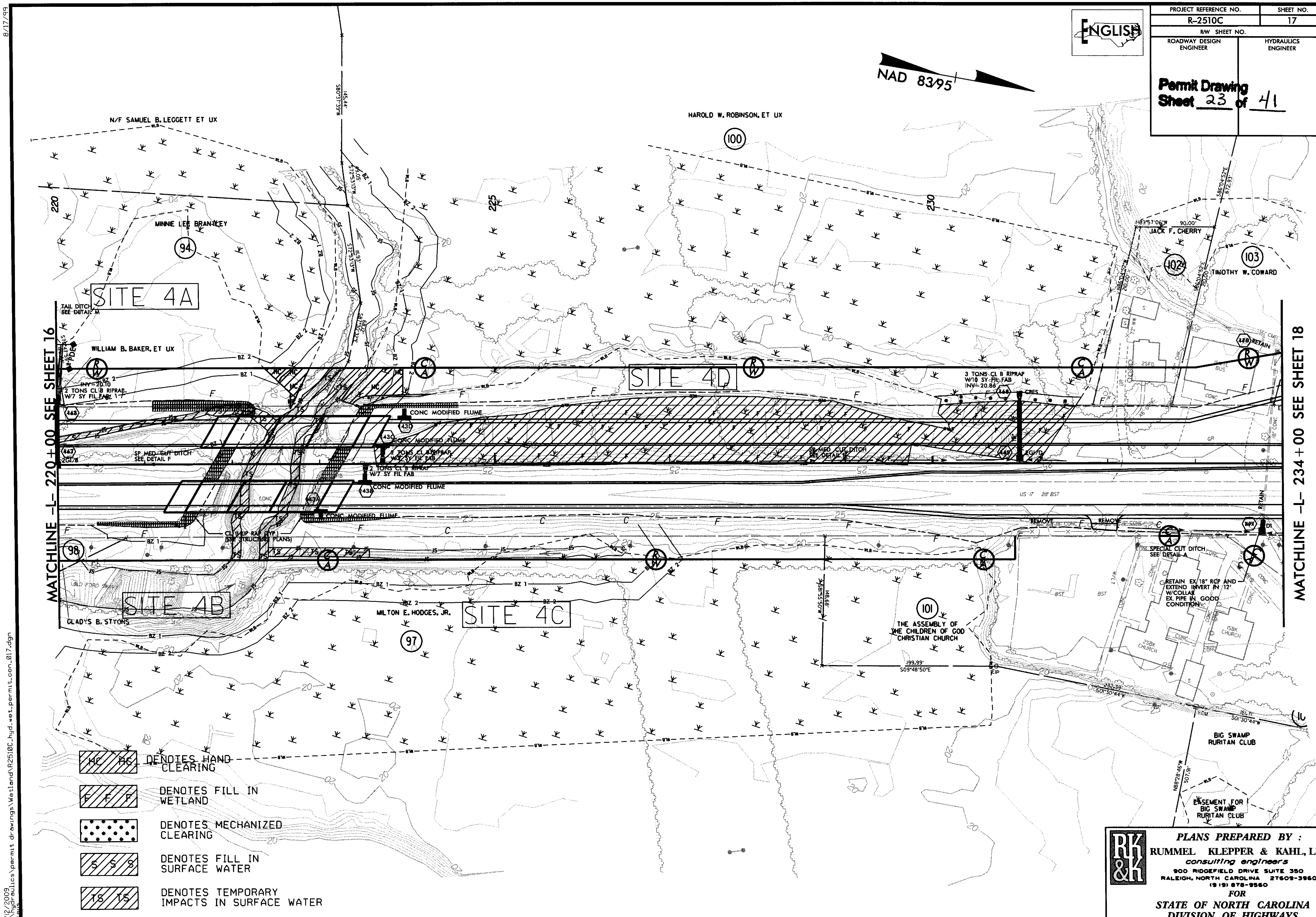
S S S DENOTES FILL IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PLANS PREPARED BY :
RUMMEL KLEPPER & KAHL, LLP
consulting engineers
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
(919) 878-9560
FOR
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

8/17/99

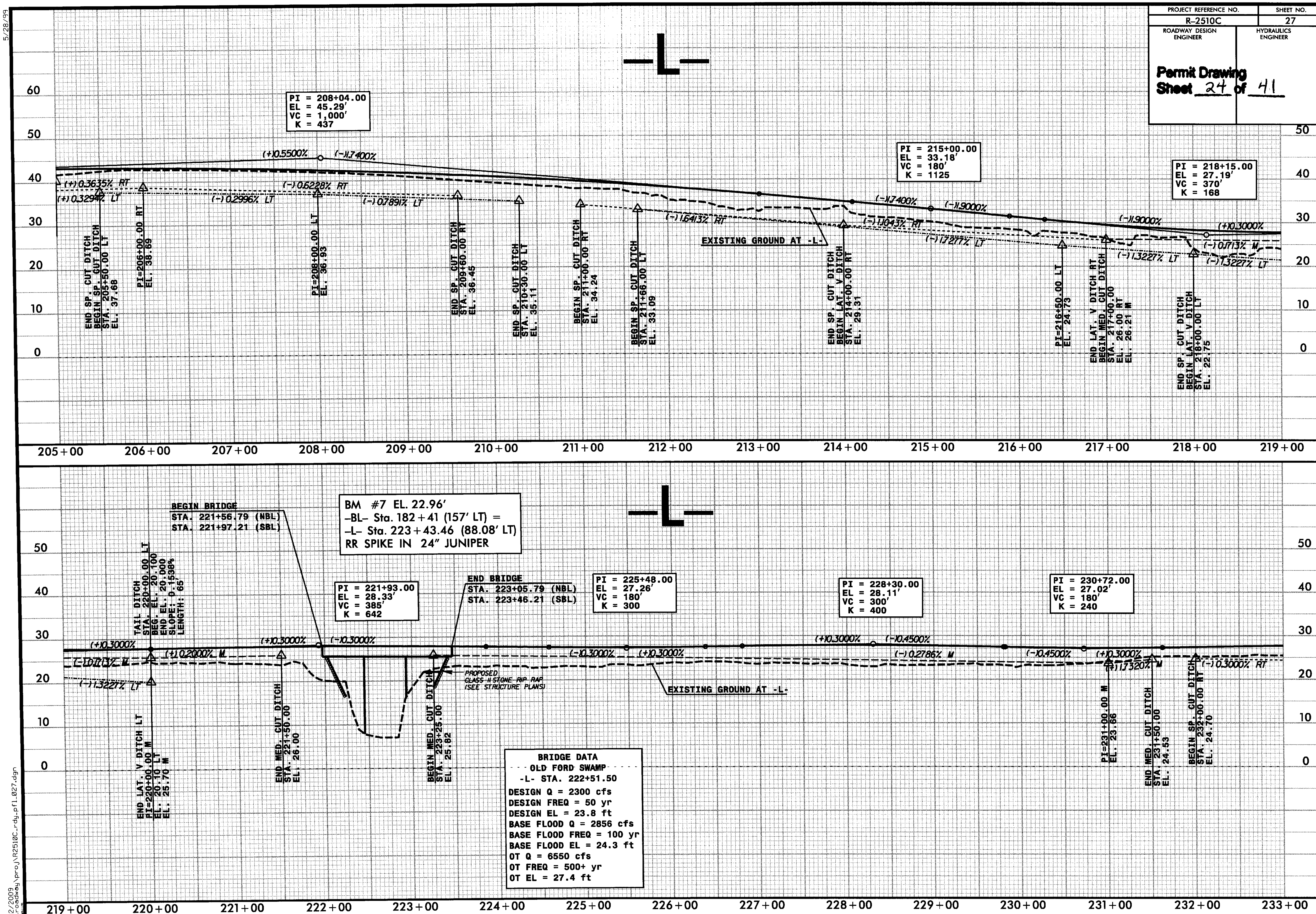
8/12/2009
r:\hydraulics\permit drawings\Wetland\R2510C_hyd_wet_permit_017.dgn



PROJECT REFERENCE NO. R-2510C
SHEET NO. 17
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
Permit Drawing Sheet 23 of 41
ENGLISH
NAD 83/95
N/F SAMUEL B. LEGGETT ET UX
HAROLD W. ROBINSON, ET UX
MINNIE LEE BRANTLEY
JACK F. CHERRY
TIMOTHY W. COWARD
SITE 4A
SITE 4B
SITE 4C
SITE 4D
WILLIAM B. BAKER, ET UX
TAIL DITCH SEE DETAIL M
2 TONS CL B RIPRAP W/7 SY FIL FAB
CONC MODIFIED FLUME
SP MED CUT DITCH SEE DETAIL F
3 TONS CL B RIPRAP W/10 SY FIL FAB
GLADYS B. STYONS
MILTON E. HODGES, JR.
THE ASSEMBLY OF THE CHILDREN OF GOD CHRISTIAN CHURCH
SPECIAL CUT DITCH SEE DETAIL A
RETAIN EX 18" RCP AND EXTEND INVERT IN 12' W/COLLAR EX. PIPE IN GOOD CONDITION
BIG SWAMP RURITAN CLUB
EASEMENT FOR BIG SWAMP RURITAN CLUB
MATCHLINE -L- 220+00 SEE SHEET 16
MATCHLINE -L- 234+00 SEE SHEET 18
DENOTES HAND CLEARING
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
DENOTES FILL IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
PLANS PREPARED BY :
RUMMEL KLEPPER & KAHL, LLP
consulting engineers
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
(919) 878-9560
FOR
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
8/17/99
8/12/2009

PROJECT REFERENCE NO.	SHEET NO.
R-2510C	27
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

Permit Drawing
Sheet 24 of 41

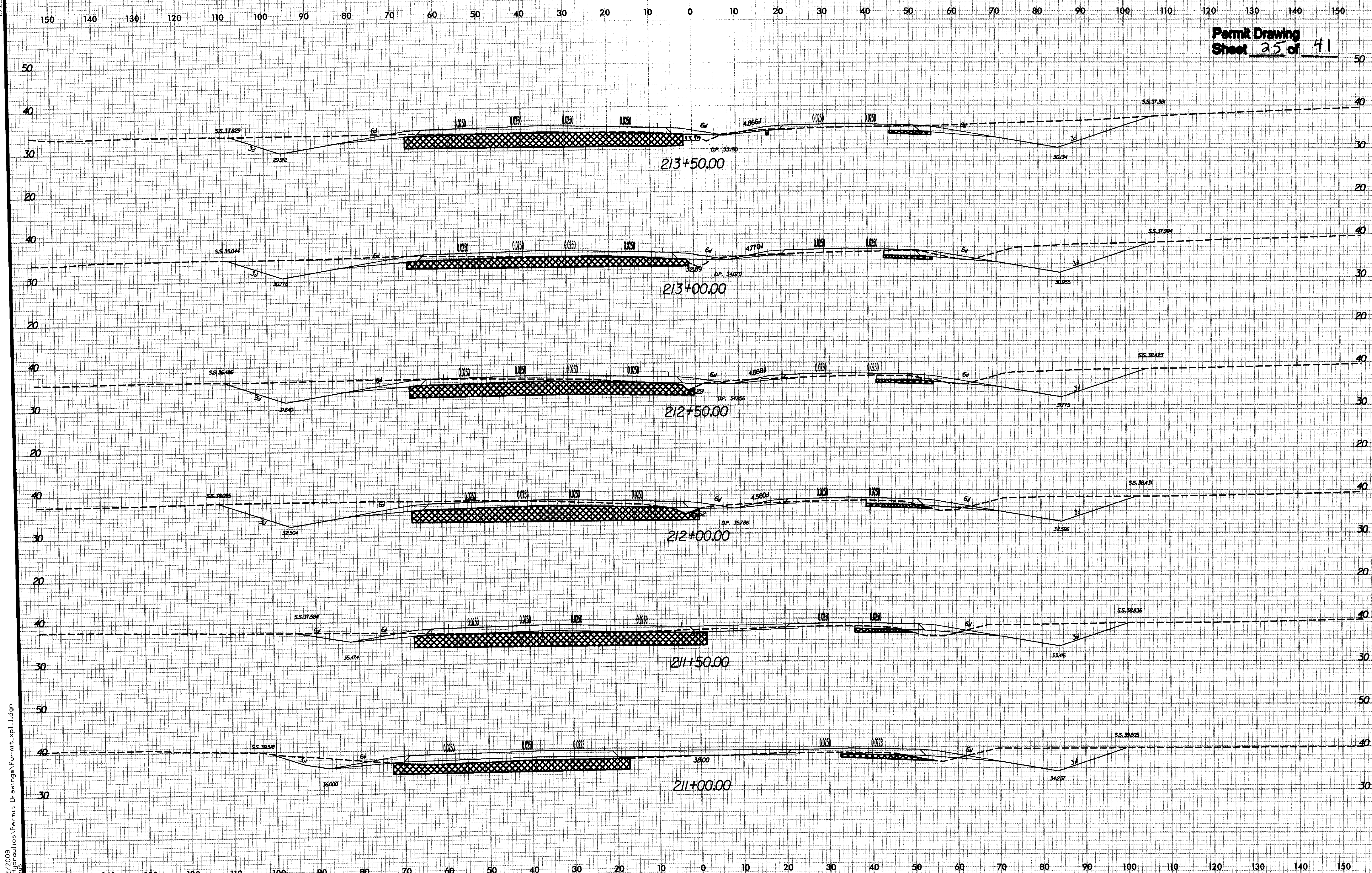


BRIDGE DATA
OLD FORD SWAMP
-L- STA. 222+51.50
DESIGN Q = 2300 cfs
DESIGN FREQ = 50 yr
DESIGN EL = 23.8 ft
BASE FLOOD Q = 2856 cfs
BASE FLOOD FREQ = 100 yr
BASE FLOOD EL = 24.3 ft
OT Q = 6550 cfs
OT FREQ = 500+ yr
OT EL = 27.4 ft

5/28/99
8/12/2009
r:\roadway\proj\R2510C_rdy_pfl_027.dgn

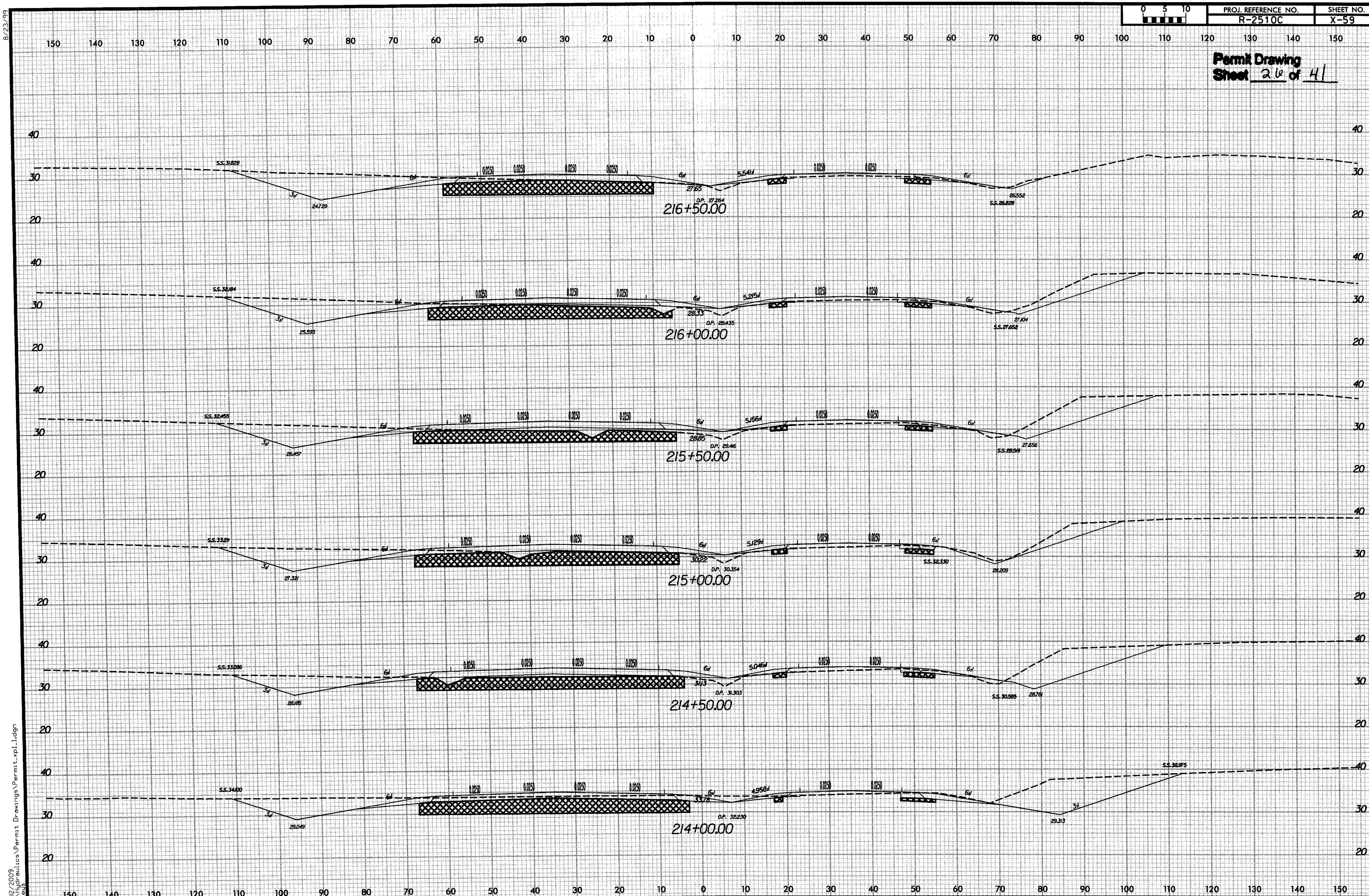
PROJ. REFERENCE NO.	SHEET NO.
R-2510C	X-58

Permit Drawing
Sheet 25 of 41



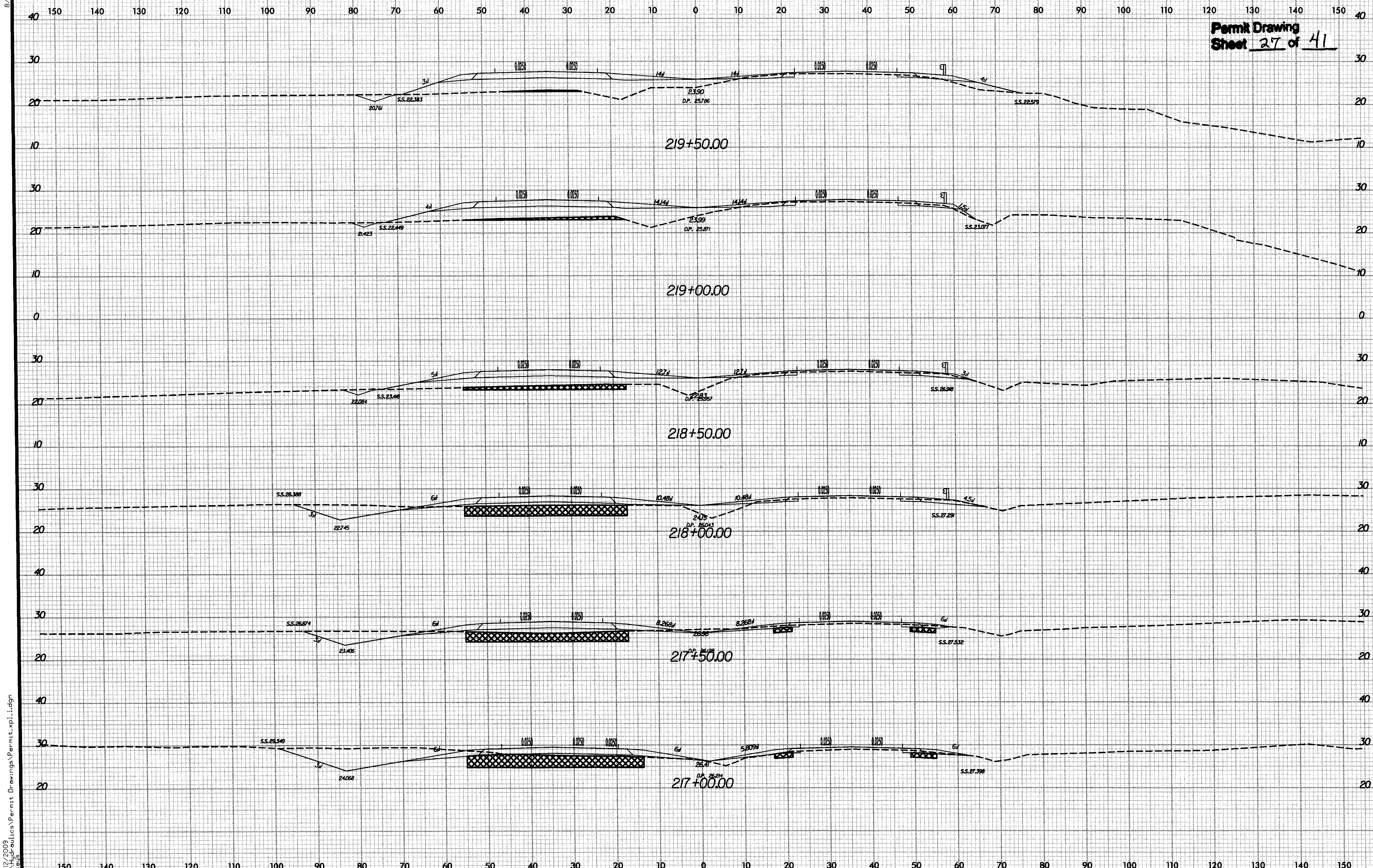
PROJ. REFERENCE NO.	SHEET NO.
R-2510C	X-59

Permit Drawing
Sheet 26 of 41



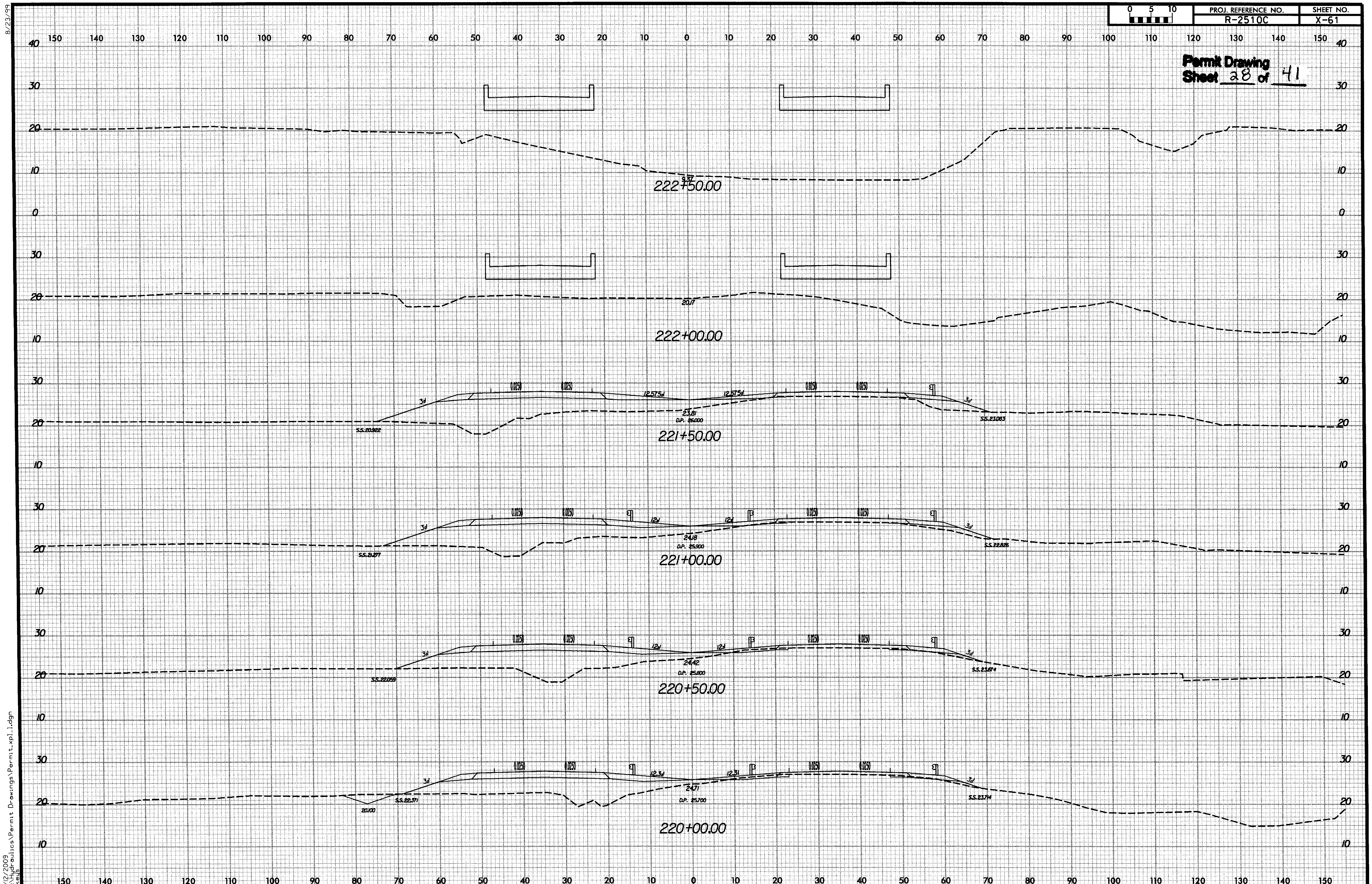
PROJ. REFERENCE NO.	SHEET NO.
R-2510C	X-60

Permit Drawing
Sheet 27 of 41



8/23/99

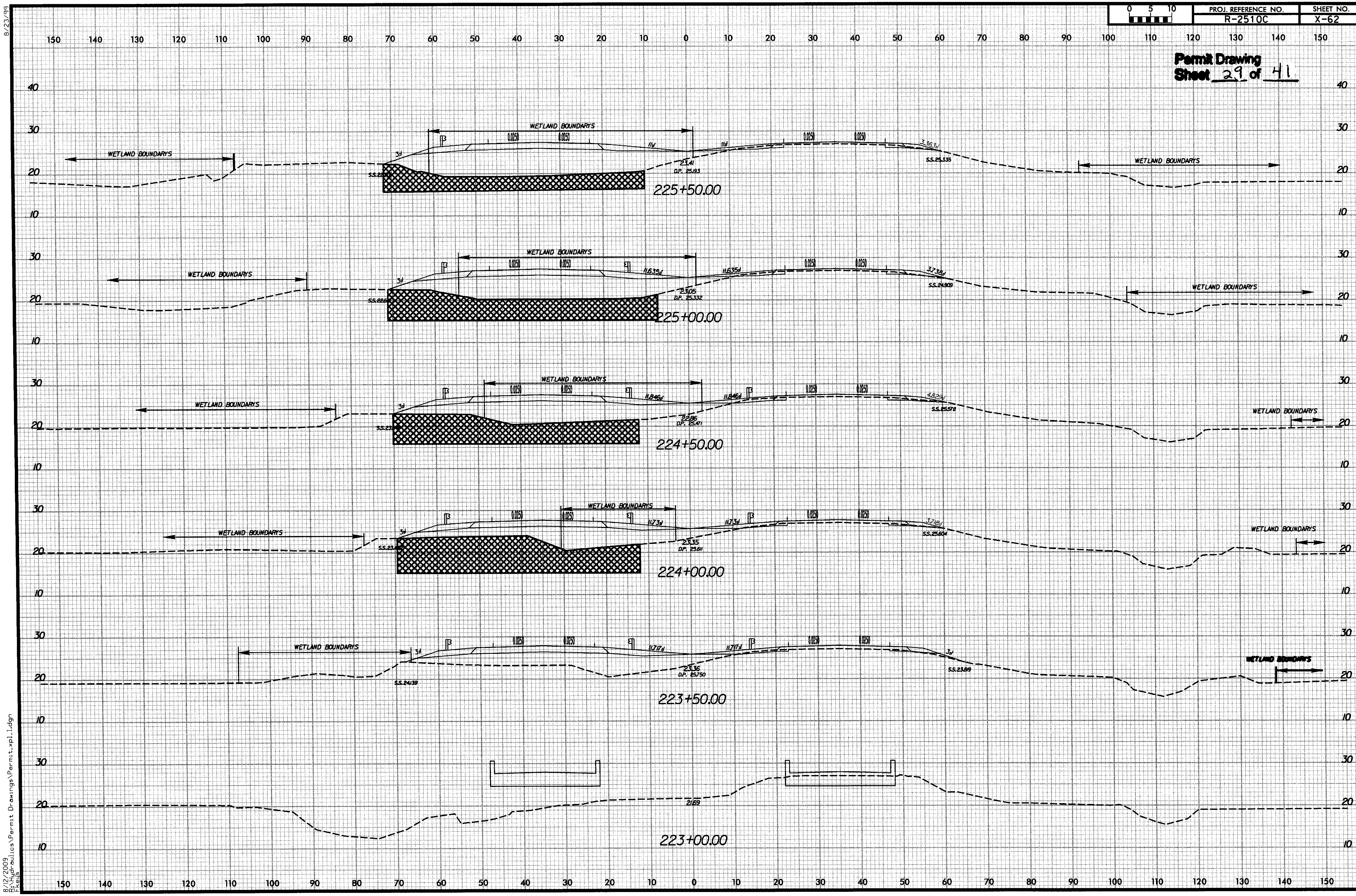
8/12/2009
F:\Hydraulics\Permit Drawings\Permit_xpl_1.dgn



PROJ. REFERENCE NO.
R-2510C
SHEET NO.
X-61
0 5 10
Permit Drawing
Sheet 28 of 41
222+50.00
222+00.00
221+50.00
S.S. 20.922
D.P. 26.000
S.S. 23.083
221+00.00
S.S. 21.277
D.P. 25.900
S.S. 22.826
220+50.00
S.S. 22.059
D.P. 25.800
S.S. 23.874
220+00.00
S.S. 22.371
D.P. 25.700
S.S. 23.774
8/23/99
8/12/2009
F:\Hydraulics\Permit Drawings\Permit_xpl_1.dgn

PROJ. REFERENCE NO.	SHEET NO.
R-2510C	X-62

Permit Drawing
Sheet 29 of 41

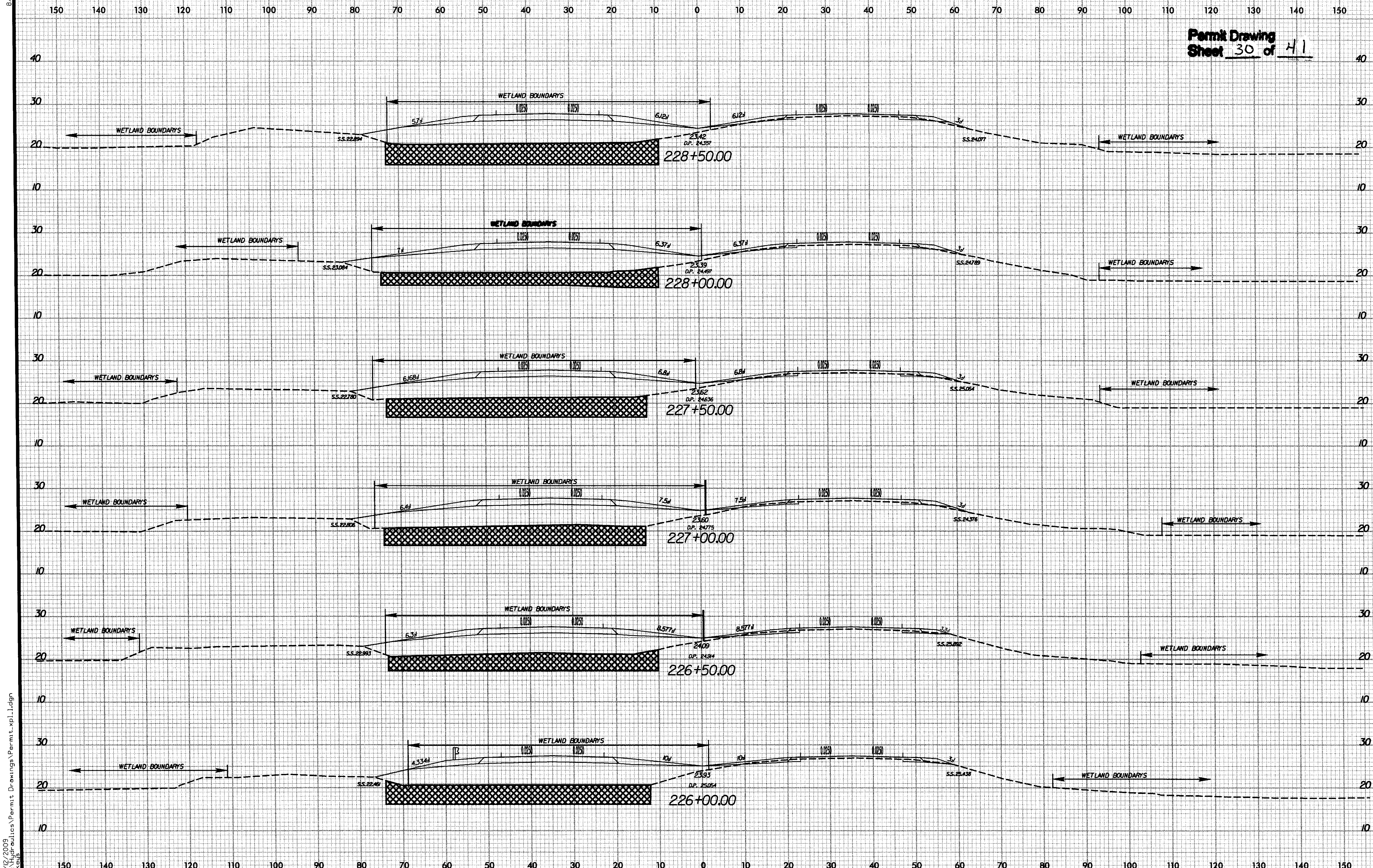


8/23/99

8/12/2009
...Hydraulics\Permit Drawings\Permit_xpl1.dgn

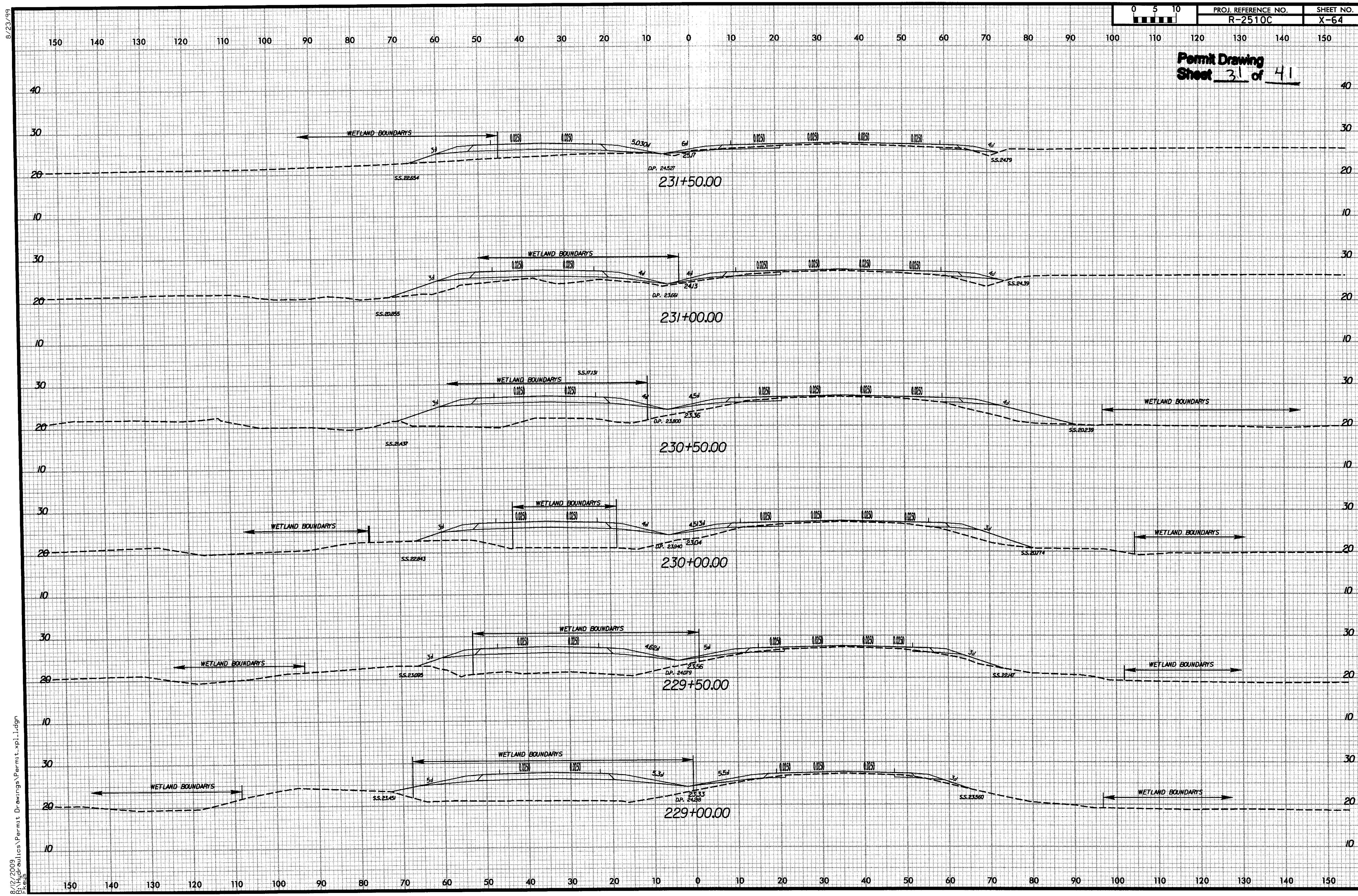
PROJ. REFERENCE NO.	SHEET NO.
R-2510C	X-63

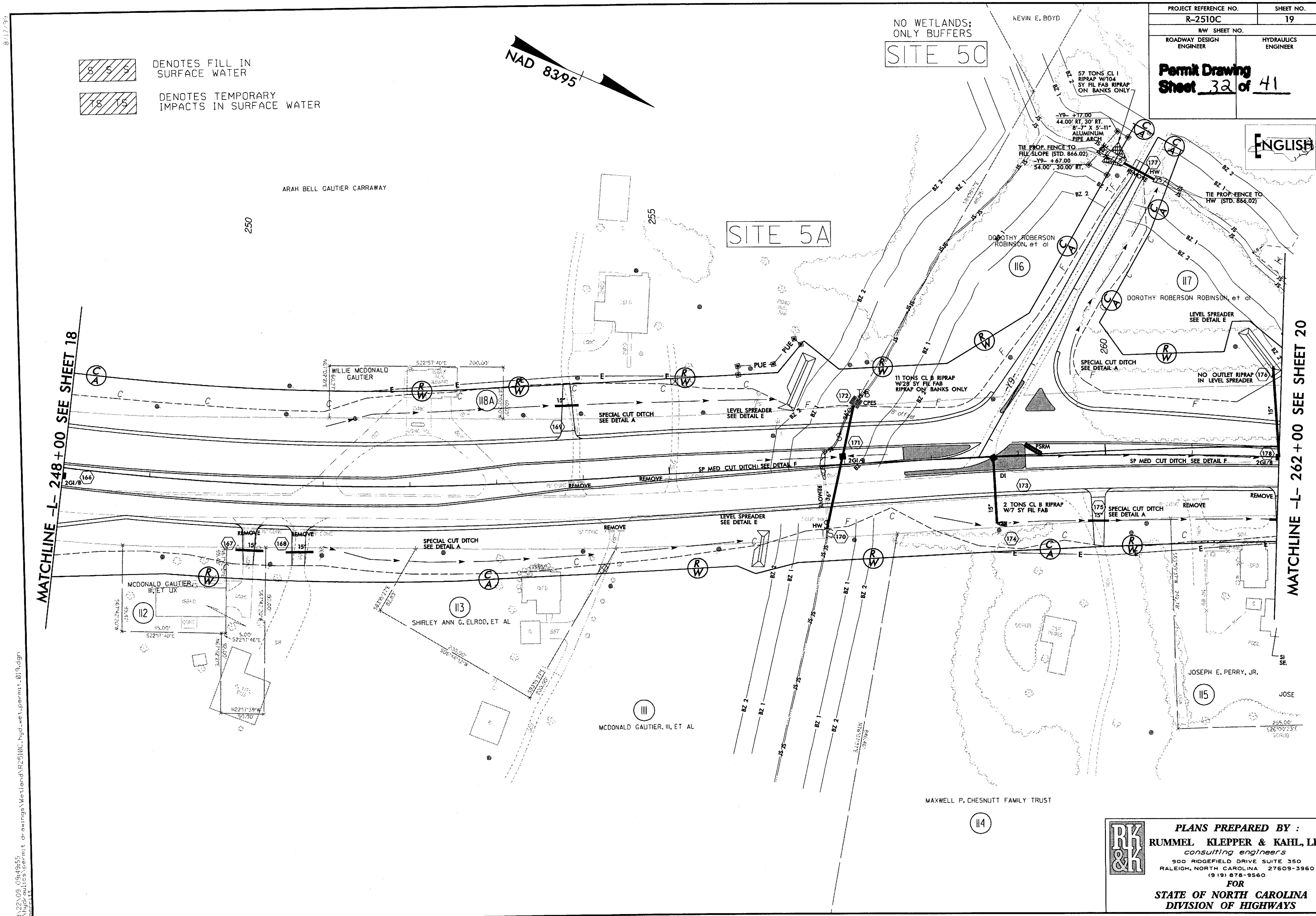
Permit Drawing
Sheet 30 of 41



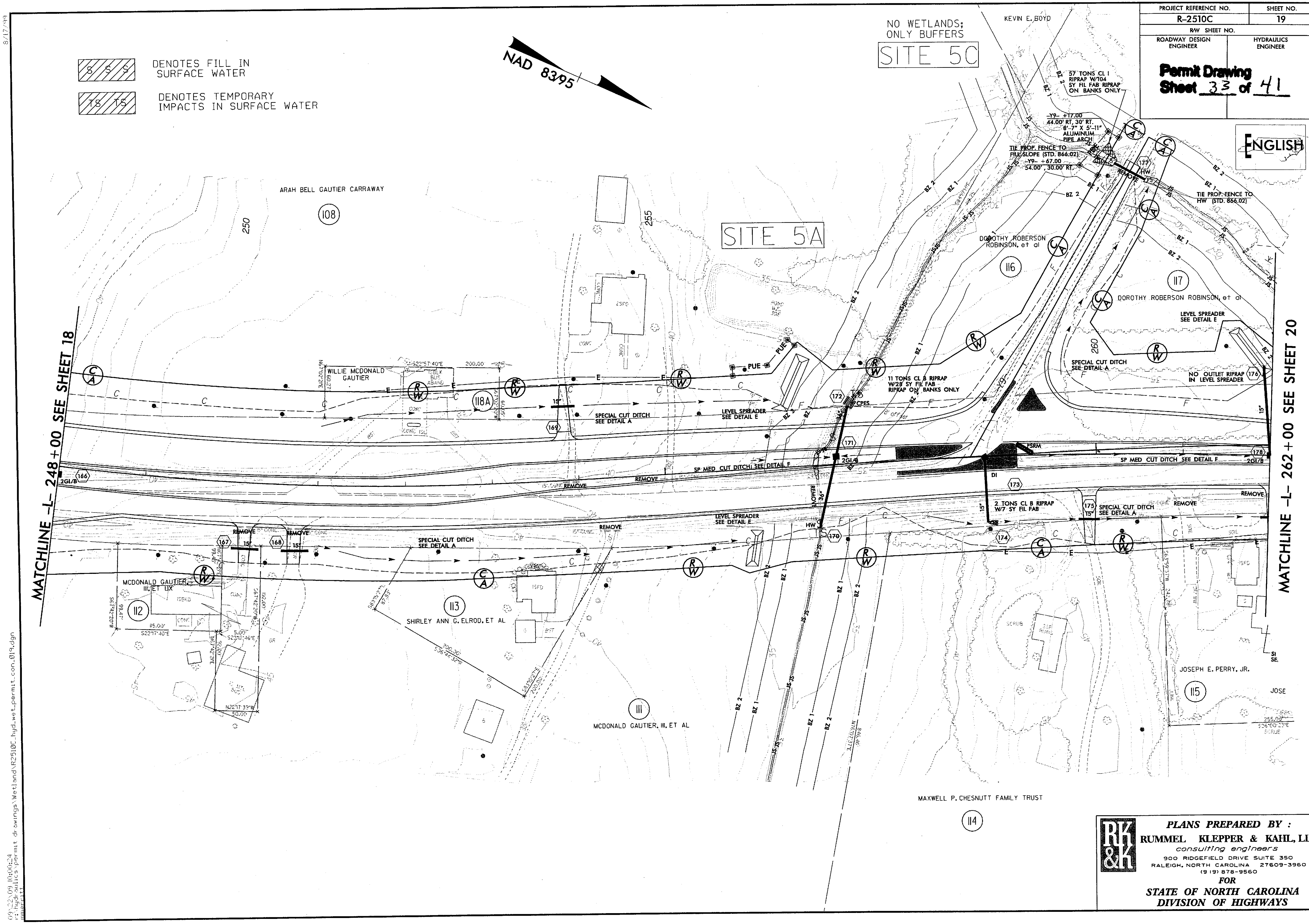
8/23/99

8/12/2009
R:\Hydraulics\Permit Drawings\Permit_xpl_1.dgn


PROJ. REFERENCE NO.
R-2510C
SHEET NO.
X-64
Permit Drawing
Sheet 31 of 41
WETLAND BOUNDARYS
231+50.00
231+00.00
230+50.00
230+00.00
229+50.00
229+00.00
8/23/99
8/12/2009
R:\Hydraulics\Permit Drawings\Permit_xpl1.dgn
Fkeys



PROJECT REFERENCE NO.
R-2510C
SHEET NO.
19
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
Permit Drawing Sheet 32 of 41
ENGLISH
DENOTES FILL IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
NAD 83/95
NO WETLANDS: ONLY BUFFERS
SITE 5C
SITE 5A
KEVIN E. BOYD
ARAH BELL GAUTIER CARRAWAY
DOROTHY ROBERSON ROBINSON, et al
DOROTHY ROBERSON ROBINSON, et al
WILLIE MCDONALD GAUTIER
MCDONALD GAUTIER, III, ET UX
SHIRLEY ANN G. ELROD, ET AL
MCDONALD GAUTIER, III, ET AL
JOSEPH E. PERRY, JR.
MAXWELL P. CHESNUTT FAMILY TRUST
57 TONS CL I RIPRAP W/104 SY FIL FAB RIPRAP ON BANKS ONLY
-Y9- +17.00 44.00' RT, 30' RT. 8'-7" X 5'-11" ALUMINUM PIPE ARCH
TIE PROP. FENCE TO FILL SLOPE (STD. 866.02) -Y9- +67.00 54.00', 30.00' RT.
TIE PROP. FENCE TO HW (STD. 866.02)
11 TONS CL B RIPRAP W/28 SY FIL FAB RIPRAP ON BANKS ONLY
LEVEL SPREADER SEE DETAIL E
SPECIAL CUT DITCH SEE DETAIL A
NO OUTLET RIPRAP IN LEVEL SPREADER
SP MED CUT DITCH SEE DETAIL F
2 TONS CL B RIPRAP W/7 SY FIL FAB
REMOVE
MATCHLINE -L- 248+00 SEE SHEET 18
MATCHLINE -L- 262+00 SEE SHEET 20
PLANS PREPARED BY :
RUMMEL KLEPPER & KAHL, LLP
consulting engineers
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
(919) 878-9560
FOR
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

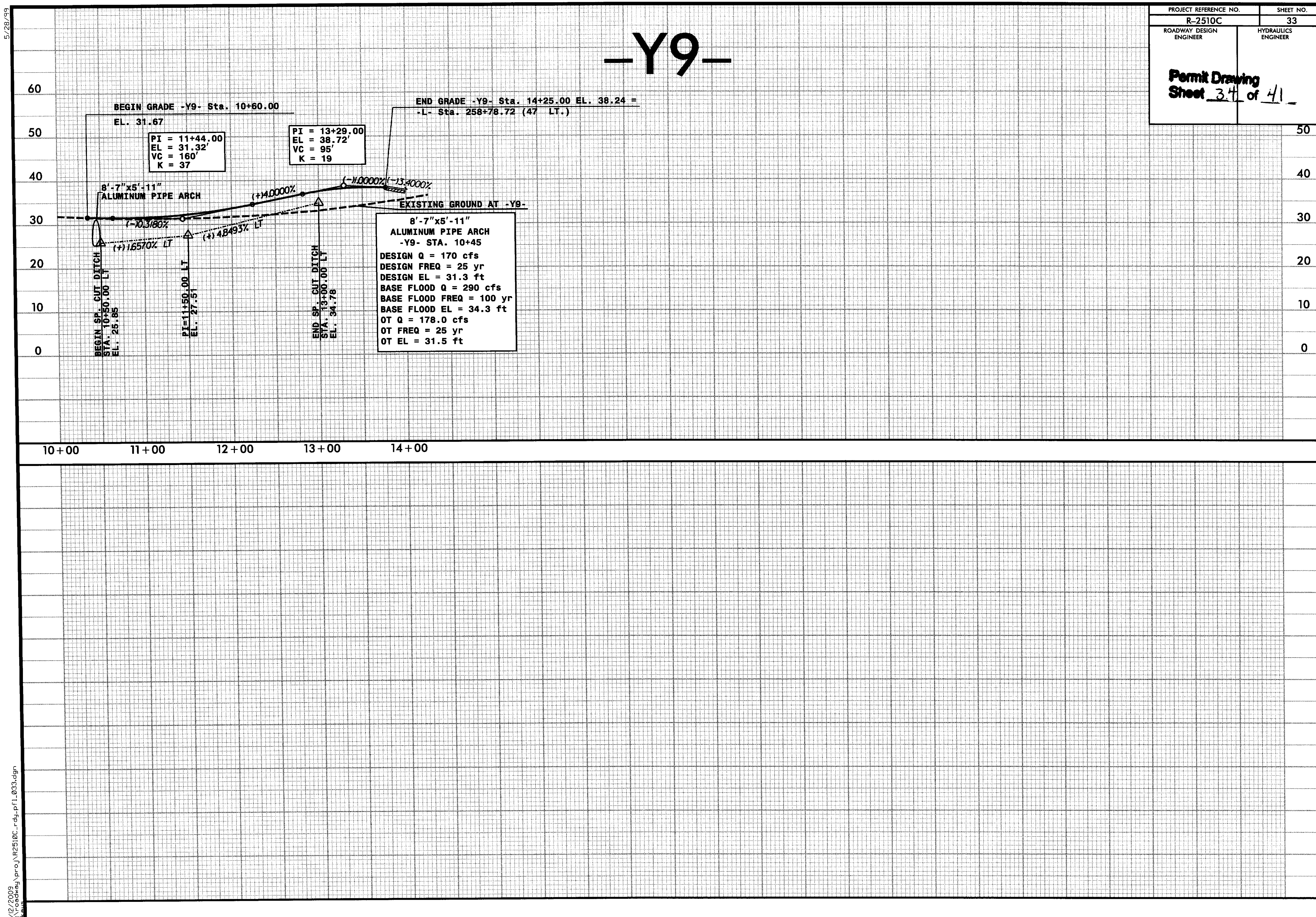


PROJECT REFERENCE NO.
R-2510C
SHEET NO.
19
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
Permit Drawing
Sheet 33 of 41
ENGLISH
DENOTES FILL IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
NAD 83/95
NO WETLANDS; ONLY BUFFERS
SITE 5C
SITE 5A
KEVIN E. BOYD
ARAH BELL GAUTIER CARRAWAY
108
DOROTHY ROBERSON ROBINSON, et al
116
117
WILLIE MCDONALD GAUTIER
118A
MCDONALD GAUTIER, III, ET UX
112
113
SHIRLEY ANN G. ELROD, ET AL
111
MCDONALD GAUTIER, III, ET AL
MAXWELL P. CHESNUTT FAMILY TRUST
114
JOSEPH E. PERRY, JR.
115
MATCHLINE -L- 248+00 SEE SHEET 18
MATCHLINE -L- 262+00 SEE SHEET 20
57 TONS CL I RIPRAP W/104 SY FIL FAB RIPRAP ON BANKS ONLY
-Y9- +17.00 44.00' RT, 30' RT. 8'-7" X 5'-11" ALUMINUM PIPE ARCH
TIE PROP. FENCE TO FILL SLOPE (STD. 866.02) -Y9- +67.00 54.00', 30.00' RT.
TIE PROP. FENCE TO HW (STD. 866.02)
LEVEL SPREADER SEE DETAIL E
SPECIAL CUT DITCH SEE DETAIL A
NO OUTLET RIPRAP IN LEVEL SPREADER
11 TONS CL B RIPRAP W/28 SY FIL FAB RIPRAP ON BANKS ONLY
SP MED CUT DITCH SEE DETAIL F
2 TONS CL B RIPRAP W/7 SY FIL FAB
REMOVE
PLANS PREPARED BY :
RUMMEL KLEPPER & KAHL, LLP
consulting engineers
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
(919) 878-9560
FOR
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
R-2510C	33
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

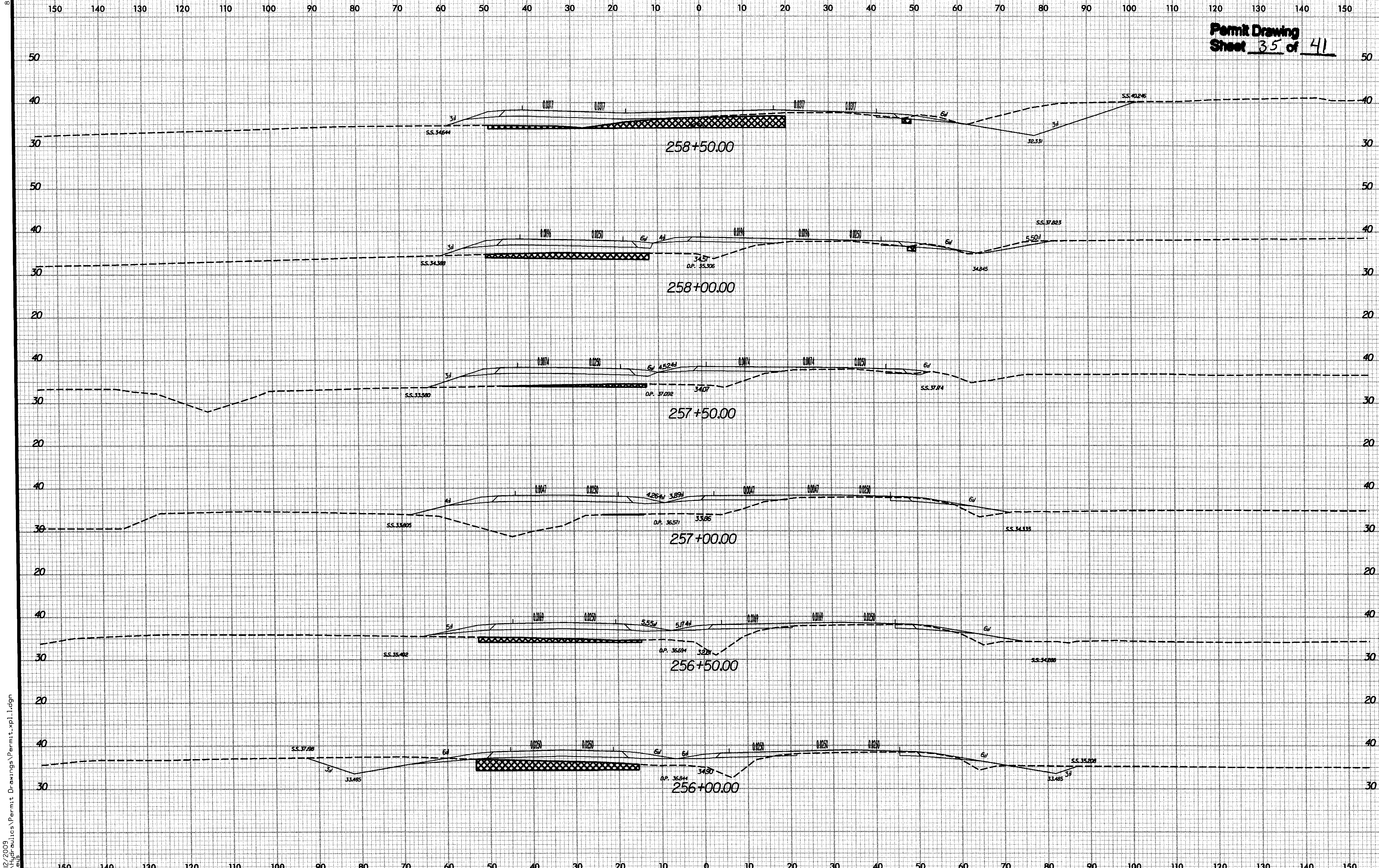
Permit Drawing
Sheet 34 of 41

-Y9-



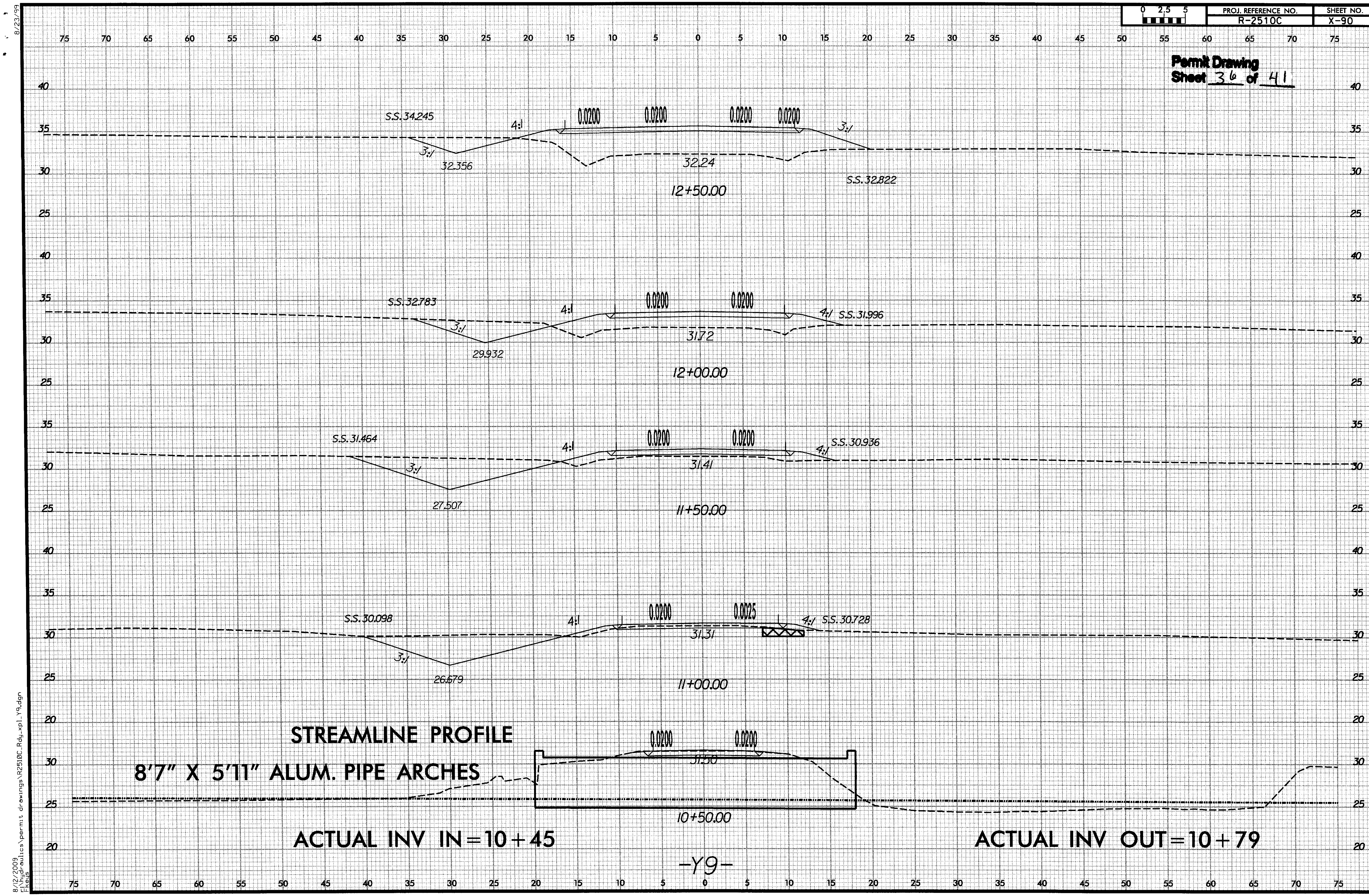
PROJ. REFERENCE NO.	SHEET NO.
R-2510C	X-73

Permit Drawing
Sheet 35 of 41



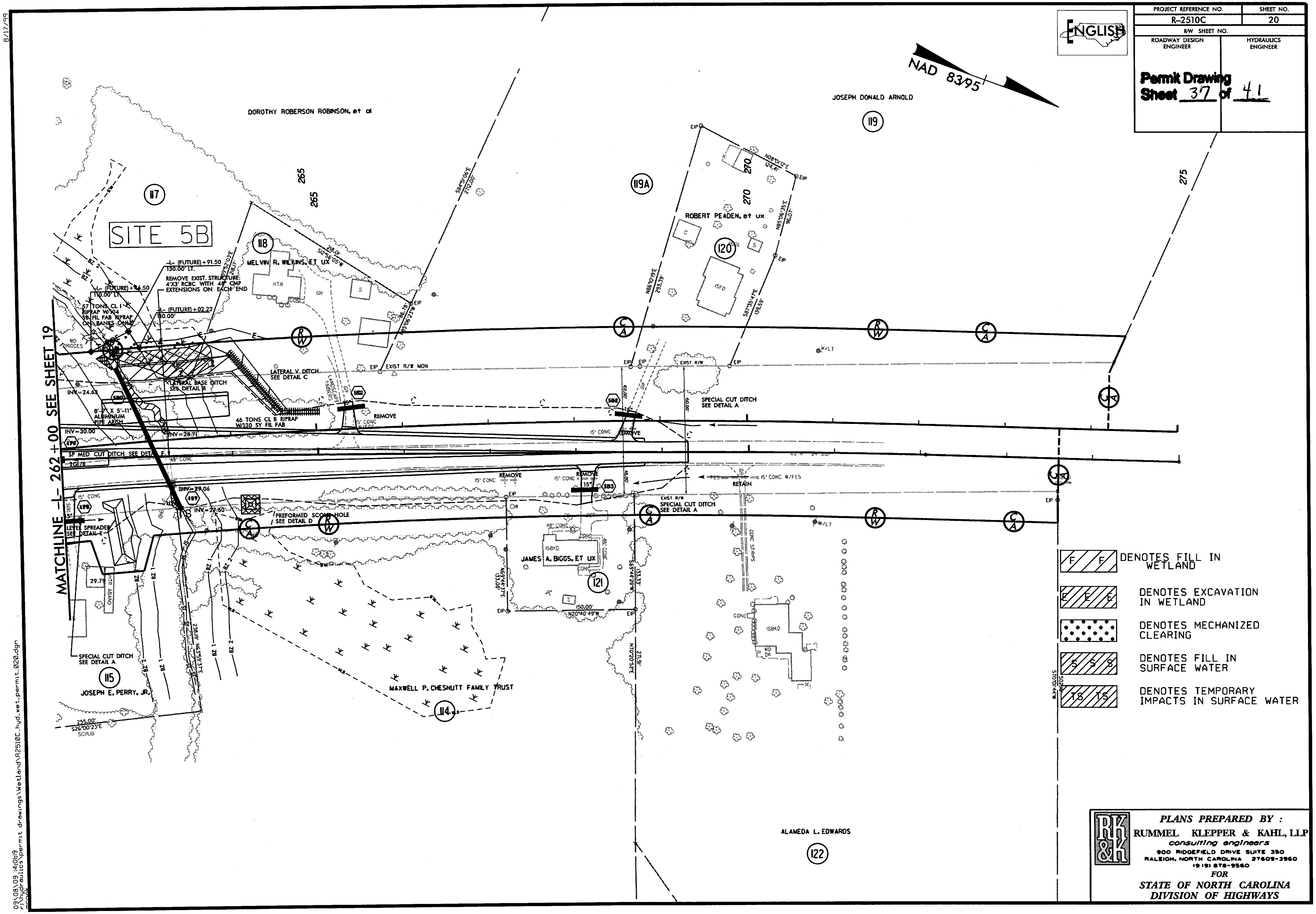
8/23/99

8/12/2009
R:\Hydraulics\Permit Drawings\Permit_xpl1.dgn
FKelly



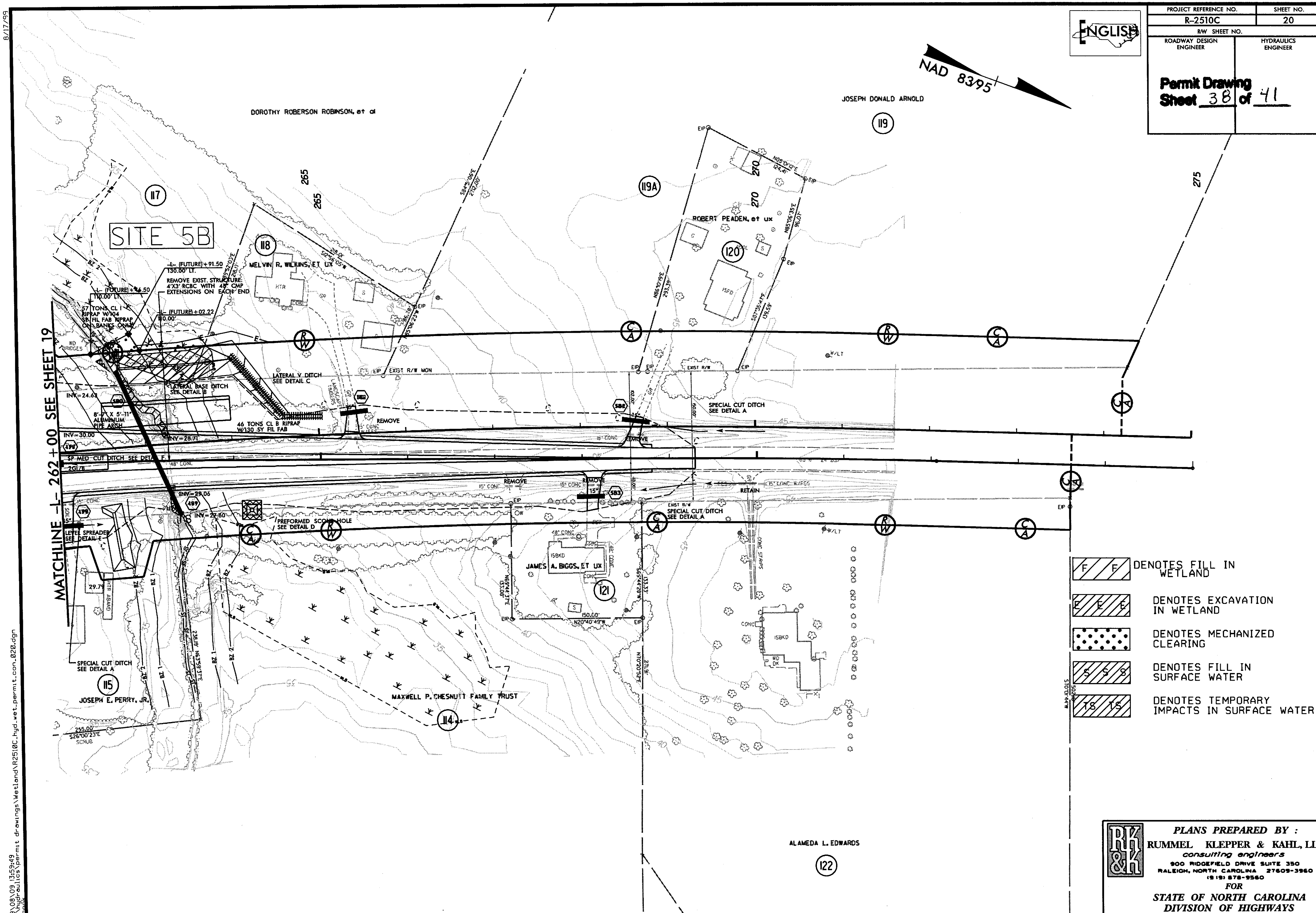
PROJ. REFERENCE NO.
R-2510C
SHEET NO.
X-90
0 2.5 5
Permit Drawing
Sheet 36 of 41
S.S. 34.245
32.356
32.24
S.S. 32.822
12+50.00
S.S. 32.783
29.932
31.72
S.S. 31.996
12+00.00
S.S. 31.464
27.507
31.41
S.S. 30.936
11+50.00
S.S. 30.098
26.679
31.31
S.S. 30.728
11+00.00
STREAMLINE PROFILE
8'7" X 5'11" ALUM. PIPE ARCHES
31.50
10+50.00
ACTUAL INV IN = 10 + 45
ACTUAL INV OUT = 10 + 79
-Y9-
8/23/99
8/12/2009
f:\hydraulics\permit drawings\R2510C_Rdy_xpl_Y9.dgn

8/17/99



09/08/09 14:06:19
r:\hydraulics\permit drawings\Wetland\R2510C_hyd_wet_permit_020.dgn

8/17/99

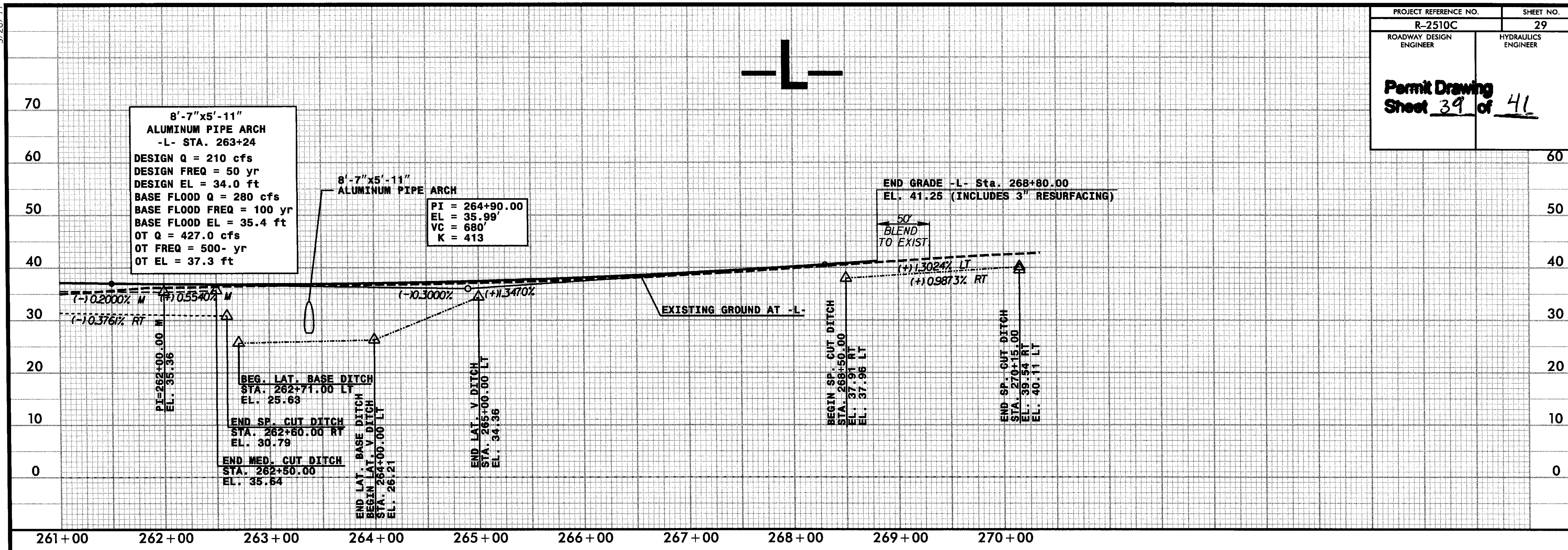


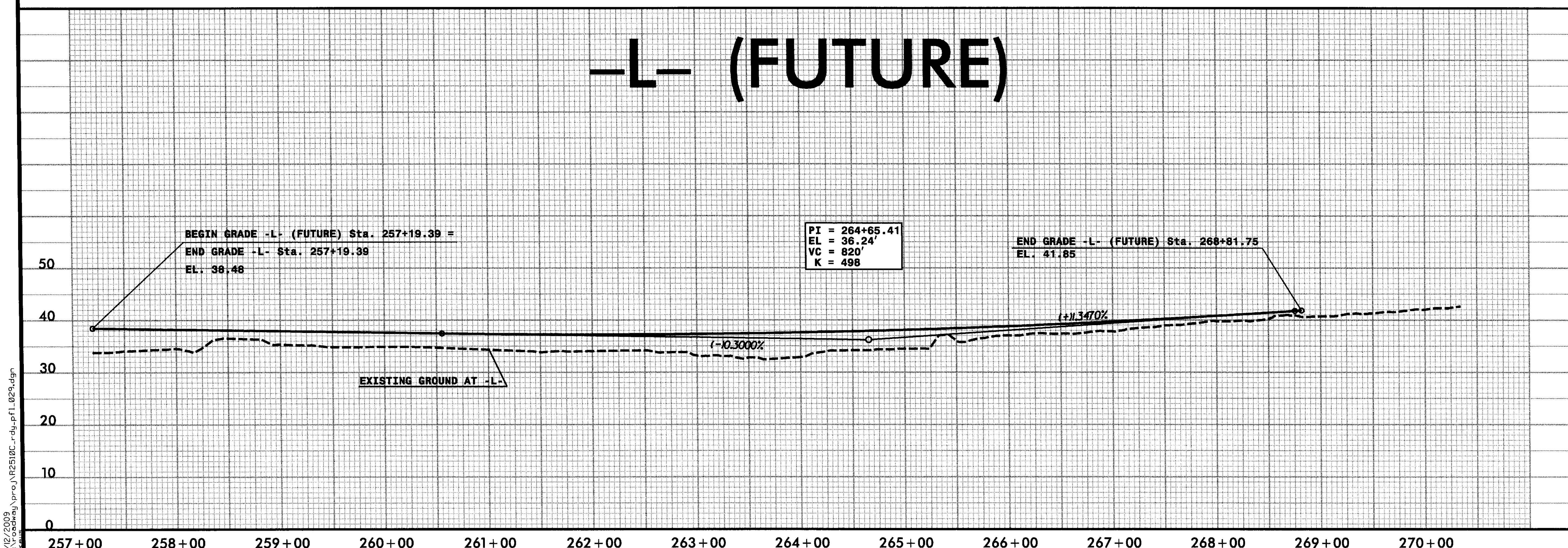
09/08/09 13:59:49
r:\hydraulics\permit drawings\Wetland\R2510C_hyd_wet_permit_con_020.dgn

PROJECT REFERENCE NO.	SHEET NO.
R-2510C	29
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

Permit Drawing
Sheet 39 of 41

5/28/99

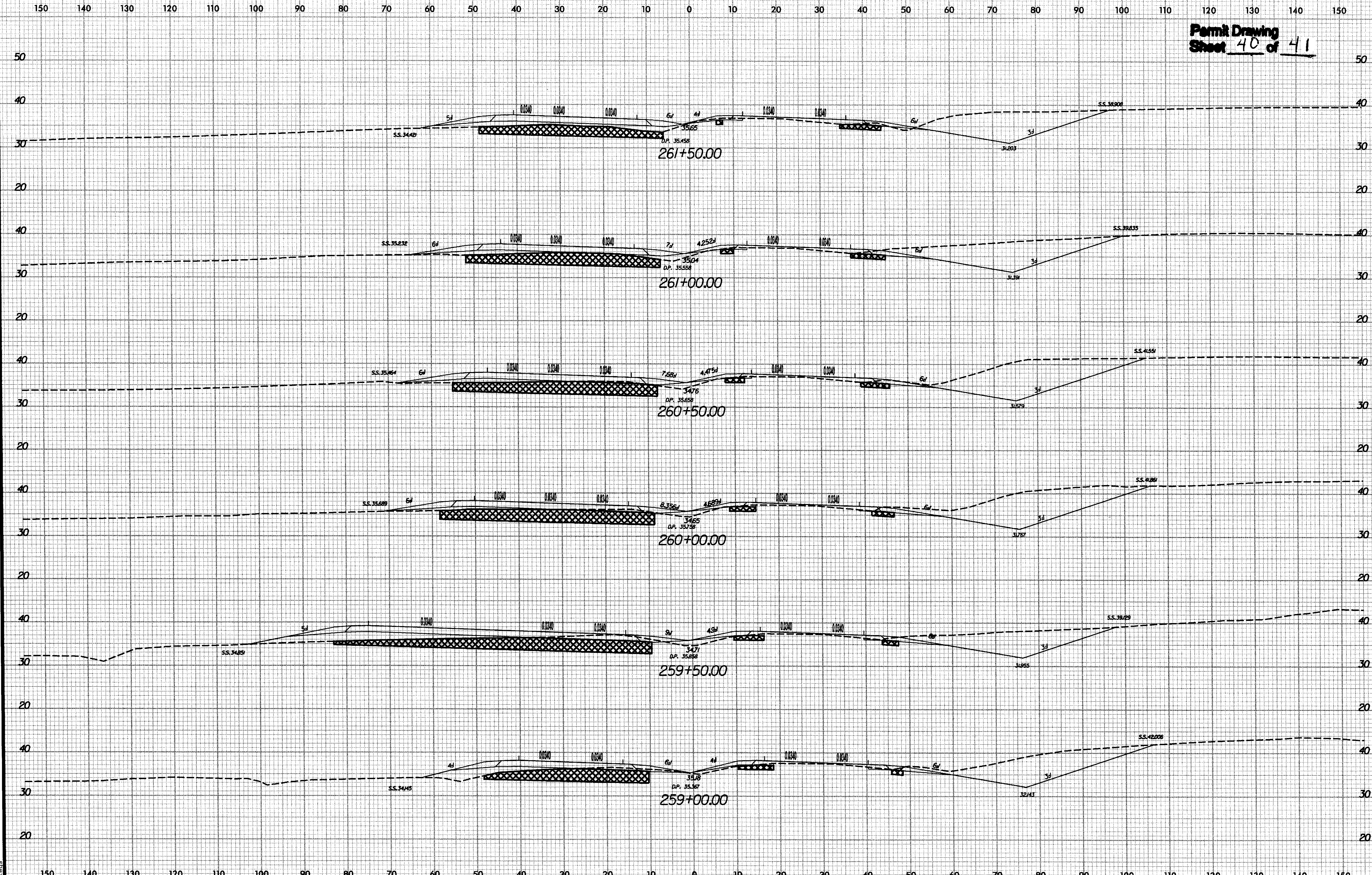




8/12/2009
F:\roadway\proj\R2510C_rdy_pfl_029.dgn

PROJ. REFERENCE NO.	SHEET NO.
R-2510C	X-74

Permit Drawing
Sheet 40 of 41

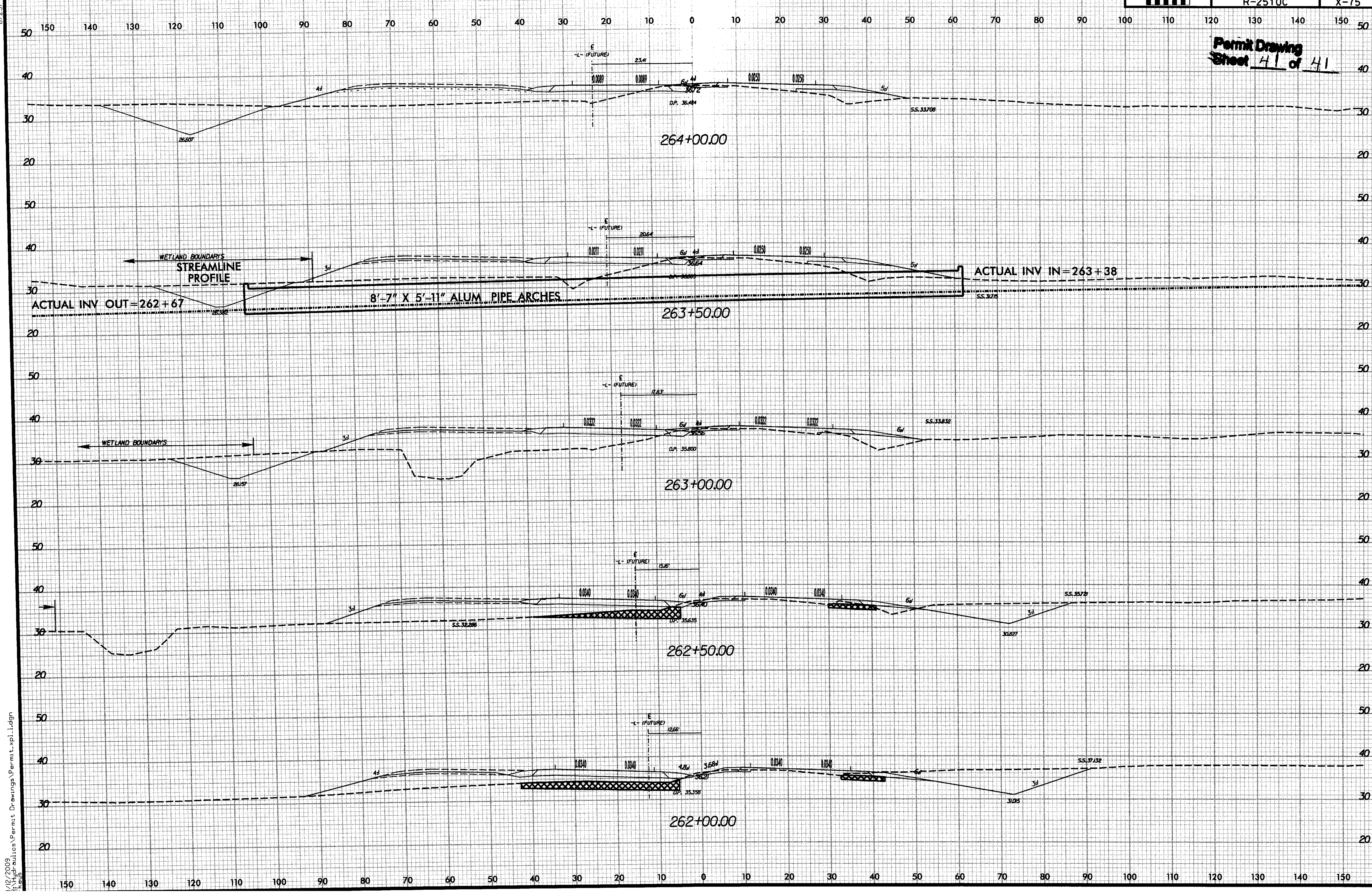


8/23/99

8/12/2009
R:\Hydraulics\Permit Drawings\Permit_xpl_1.dgn

PROJ. REFERENCE NO.	SHEET NO.
R-2510C	X-75

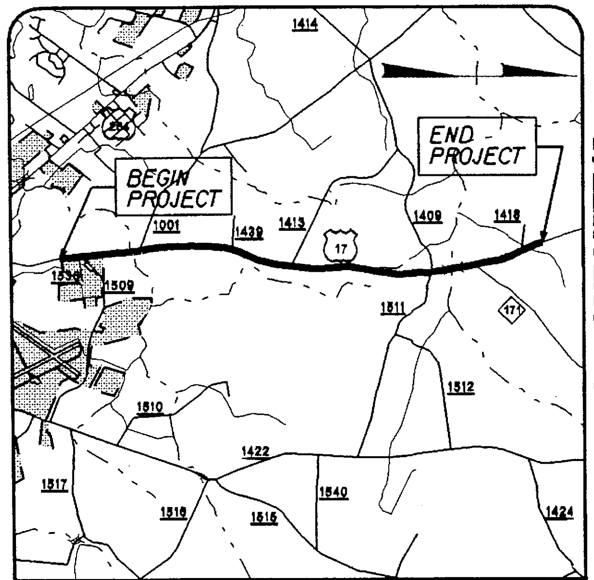
Permit Drawing
Sheet 41 of 41



09/08/99

TIP PROJECT: R-2510C

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



VICINITY MAP

PFI PLAN SUBMITTAL

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2510C	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
34440.1.1	MAF-75-3 (26)	P.E.
34440.	MAF-75-5 ( )	R/W & UTIL

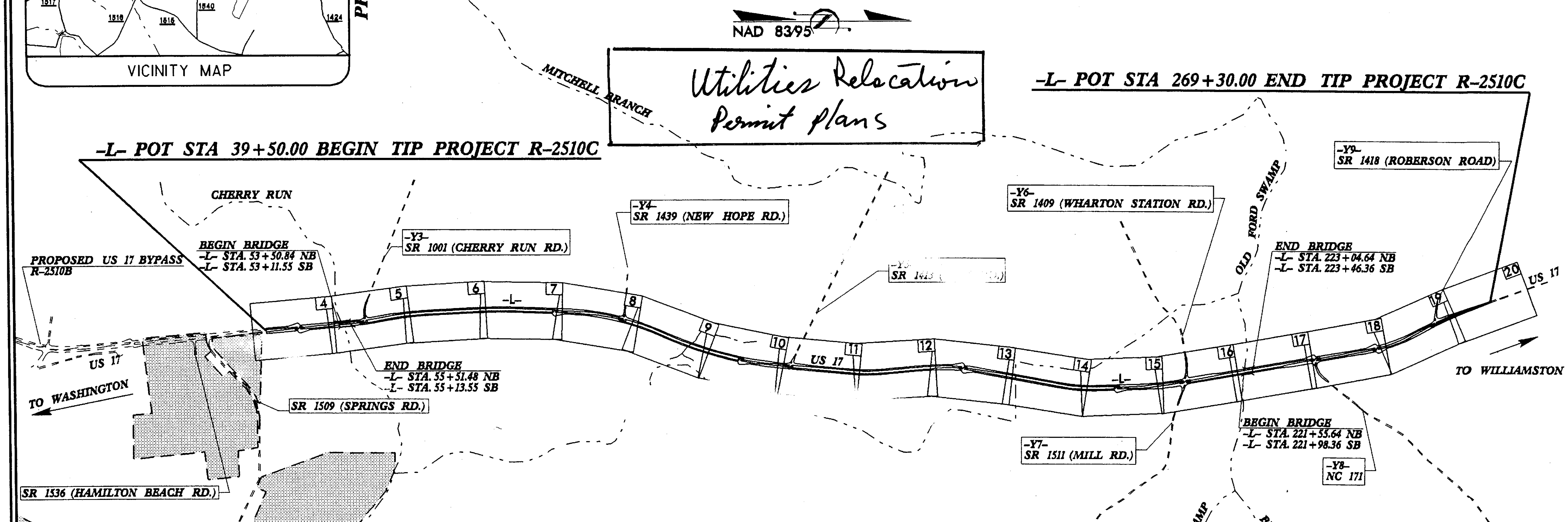
BEAUFORT COUNTY

LOCATION: US 17 FROM US 17 SOUTH OF SR 1001 (CHERRY RUN ROAD) TO NORTH OF NC 171.

UTILITY
Permit Drawing
Sheet 1 of 30

TYPE OF WORK: GRADING, DRAINAGE, PAVING, RESURFACING, CULVERT AND STRUCTURES

Utilities Relocation
Permit plans



NOTES:

1. A portion of this project is within the municipal boundaries of the City of Washington.
2. This is a partial controlled – access project with access being limited to points as shown on plans.
3. 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

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 2010 = 11,280
ADT 2030 = 18,400
DHV = 10 %
D = 55 %
T = 11 % *
V = 60 MPH
CLASS=RURAL ARTERIAL
* (TTST 7% + DUAL 4%)

PROJECT LENGTH

Length Roadway
TIP Project R-2510C .... 4.285 Mi.

*Length Structure**
TIP Project R-2510C .... 0.067 Mi.

TOTAL LENGTH TIP
Project R-2510C .... 4.352 Mi.

**Length Based on SBL Structures*

RKK

PLANS PREPARED BY:
RUMMEL, KLEPPER & KAHL, LLP
consulting engineers
900 RIDGEFIELD DRIVE, SUITE 350
RALEIGH, NORTH CAROLINA 27609
(919) 878-9560
FOR
DIVISION OF HIGHWAYS

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
11/2006 (PROD.)

LETTING DATE:
10/2014

B. Keith Skinner, P.E.
PROJECT ENGINEER

Michael T. Merritt, P.E.
PROJECT DESIGN ENGINEER

NCDOT CONTACT: CATHY S. HOUSER, PE

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

STATE HIGHWAY DESIGN ENGINEER P.E.

CONTRACT:

27-AUG-2008 11:41
r:\utilities\rdy_ut\proj\r2510c_rdy_tsh.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
R-2510C	4

DESIGNED BY:
DRAWN BY:
CHECKED BY:
APPROVED BY:
REVISED:

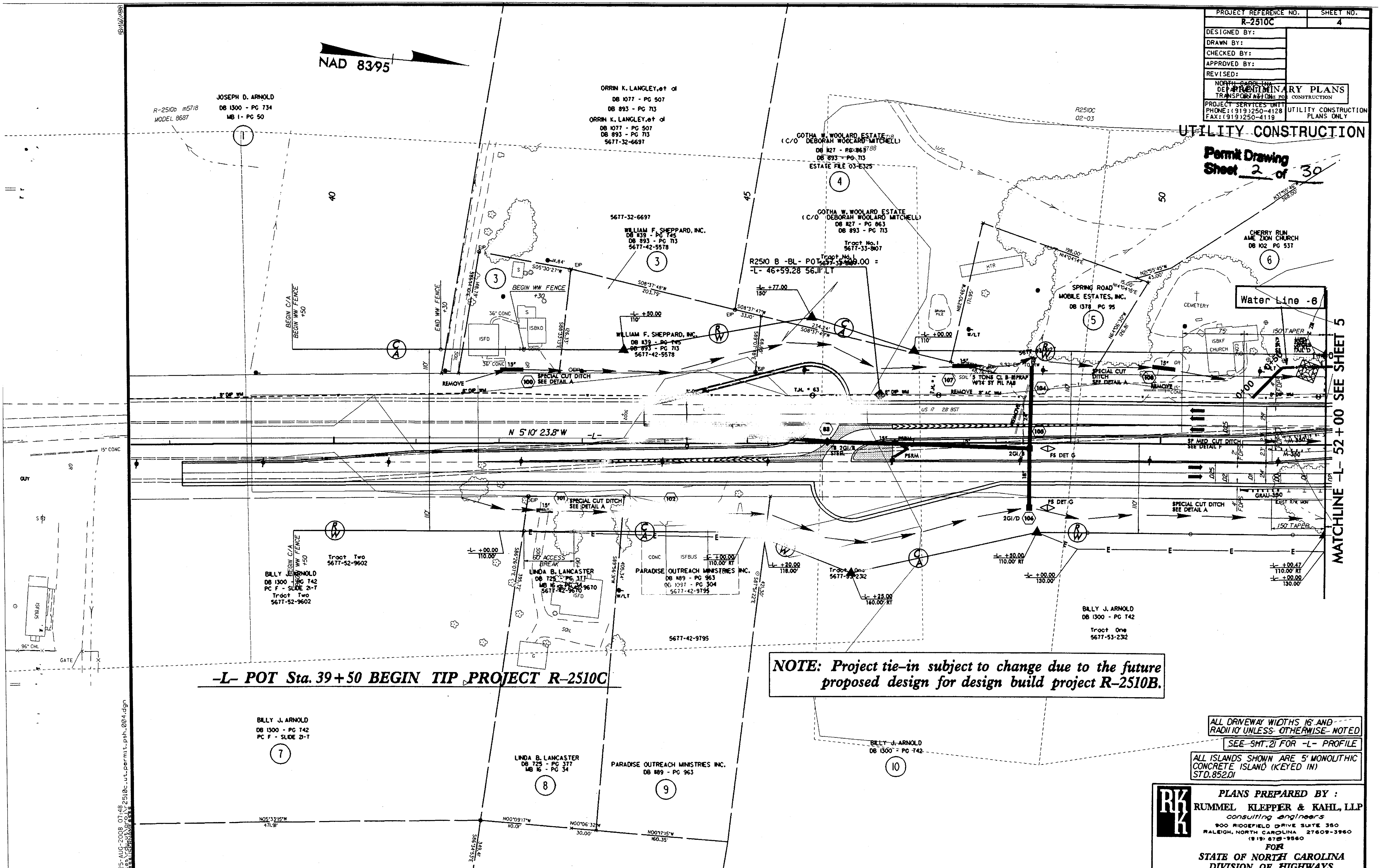
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
PROJECT SERVICES UNIT
PHONE: (919)250-4128
FAX: (919)250-4119

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

Permit Drawing
Sheet 2 of 30



-L- POT Sta. 39+50 BEGIN TIP PROJECT R-2510C

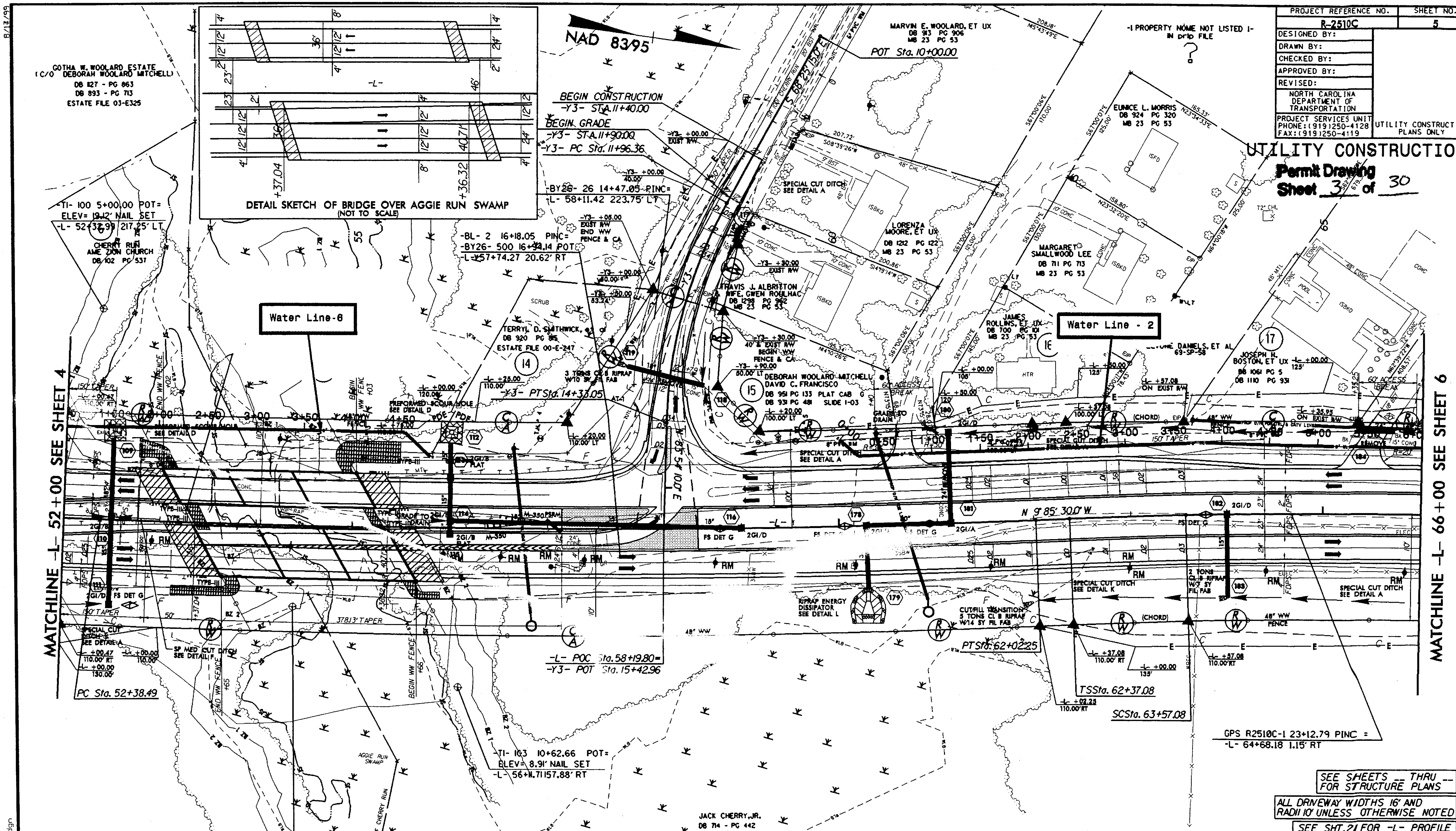
NOTE: *Project tie-in subject to change due to the future proposed design for design build project R-2510B.*

ALL DRIVEWAY WIDTHS 16' AND RADII 10' UNLESS OTHERWISE NOTED

SEE SHT. 21 FOR -L- PROFILE

ALL ISLANDS SHOWN ARE 5' MONOLITHIC CONCRETE ISLAND (KEYED IN) STD. 852.01

PLANS PREPARED BY:
RUMMEL KLEPPER & KAHL, LLP
consulting engineers
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
(919) 878-9560
FOR
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS



PROJECT REFERENCE NO.	SHEET NO.
R-2510C	5

DESIGNED BY:
DRAWN BY:
CHECKED BY:
APPROVED BY:
REVISED:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
PROJECT SERVICES UNIT
PHONE:(919)250-4128
FAX:(919)250-4119

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION
Permit Drawing
Sheet 3 of 30

SEE SHEETS __ THRU __ FOR STRUCTURE PLANS

ALL DRIVEWAY WIDTHS 16' AND RADII 10' UNLESS OTHERWISE NOTED

SEE SHT.21 FOR -L- PROFILE

ALL ISLANDS SHOWN ARE 5' MONOLITHIC CONCRETE ISLAND (KEYED IN) STD.852.01

SEE SHT.2-E FOR INTERSECTION DETAIL

SEE SHT.2-H FOR DRAINAGE DITCH DETAILS

-Y3-

PI Sta 13+17.06
Δ = 27° 40' 35.0" (LT)
D = 11° 41' 34.9"
L = 236.69'
T = 120.70'
R = 490.00'

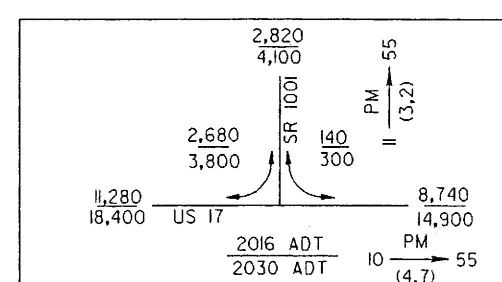
-L-

PI Sta 57+20.65
Δ = 4° 48' 06.2" (LT)
D = 0° 29' 53.6"
L = 963.76'
T = 482.16'
R = 11,500.00'

PIs Sta 63+17.11
θs = 0° 38' 03.4"
Ls = 120.00'
LT = 80.00'
ST = 40.00'

PI Sta 66+24.82
Δ = 5° 39' 21.3" (RT)
D = 1° 03' 25.6"
L = 535.03'
T = 267.73'
R = 5,420.00'
SE = 0.030
INC = 40.00'

BEGIN APPROACH SLAB -L- STA. 52+77.11 (SB)
BEGIN APPROACH SLAB -L- STA. 53+13.21 (NB)
BEGIN BRIDGE -L- STA. 53+11.55 (SB)
BEGIN BRIDGE -L- STA. 53+50.84 (NB)
END BRIDGE -L- STA. 55+13.55 (SB)
END BRIDGE -L- STA. 55+51.48 (NB)
END APPROACH SLAB -L- STA. 55+47.89 (SB)
END APPROACH SLAB -L- STA. 55+90.31 (NB)



PROJECTED TRAFFIC VOLUMES

PLANS PREPARED BY :
RUMMEL KLEPPER & KAHL, LLP
consulting engineers
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
(919) 878-9560
FOR
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

REVISIONS

8/13/99

25-AUG-2008 11:35
r2510c_ut_permit_psh_005.dgn

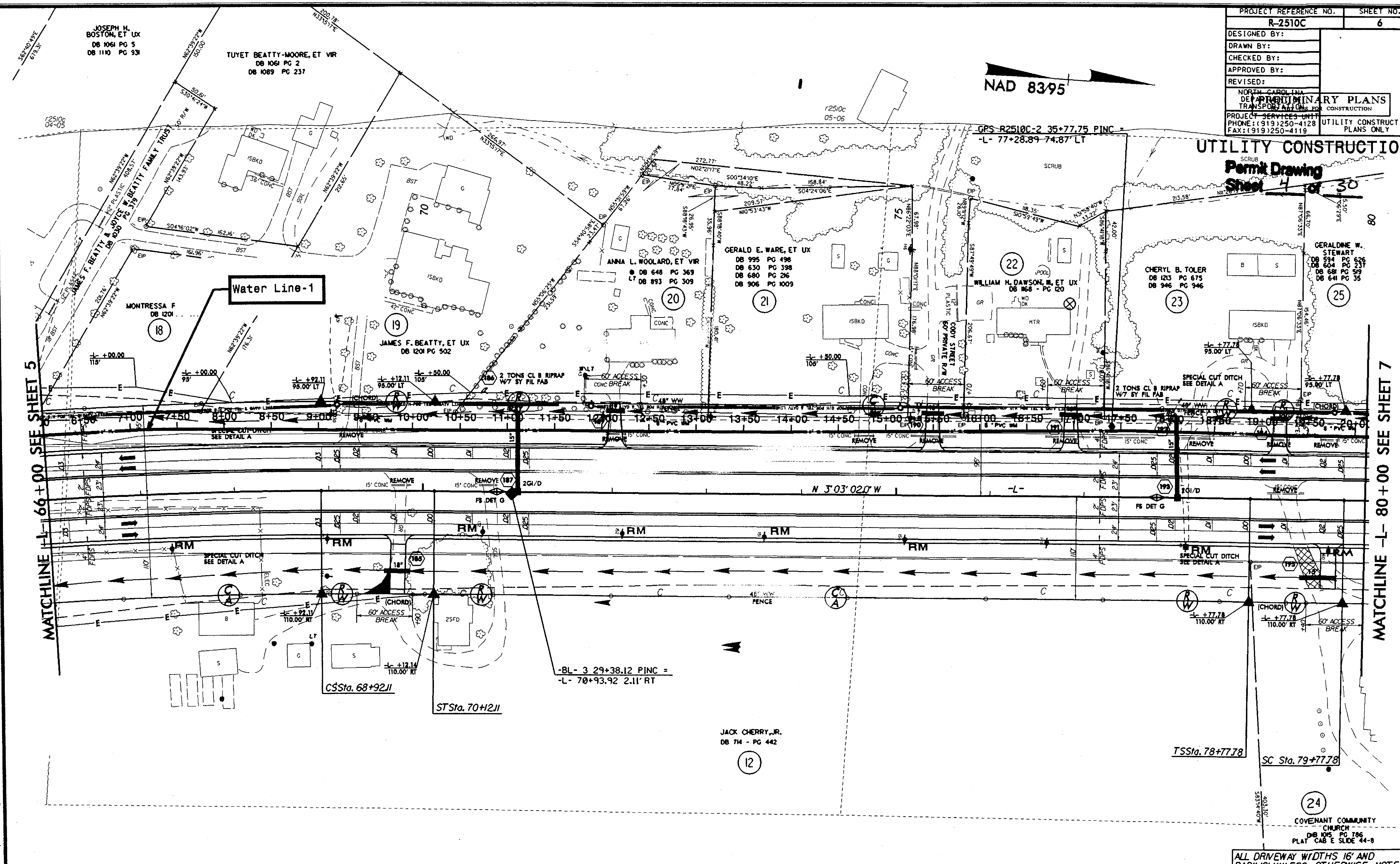
PROJECT REFERENCE NO.	SHEET NO.
R-2510C	6

DESIGNED BY:
DRAWN BY:
CHECKED BY:
APPROVED BY:
REVISED:

PRELIMINARY PLANS
UTILITY CONSTRUCTION PLANS ONLY

PROJECT SERVICES UNIT
PHONE: (919) 250-4128
FAX: (919) 250-4119

UTILITY CONSTRUCTION
Permit Drawing
Sheet 4 of 30



-L-

PI Sta 66+24.82	PIs Sta 69+32.11	PIs Sta 79+44.45	PI Sta 82+63.79
Δ = 5° 39' 21.3" (RT)	θs = 0° 38' 03.4"	θs = 0° 22' 33.4"	Δ = 4° 17' 55.1" (RT)
D = 1° 03' 25.6"	Ls = 120.00'	Ls = 100.00'	D = 0° 45' 06.9"
L = 535.03'	LT = 80.00'	LT = 66.67'	L = 571.69'
T = 267.73'	ST = 40.00'	ST = 33.33'	T = 285.98'
R = 5,420.00'			R = 7,620.00'
SE = 0.030			SE = 0.025
INC = 40.00'			INC = 40.00'

ALL DRIVEWAY WIDTHS 16' AND RADII 10' UNLESS OTHERWISE NOTED

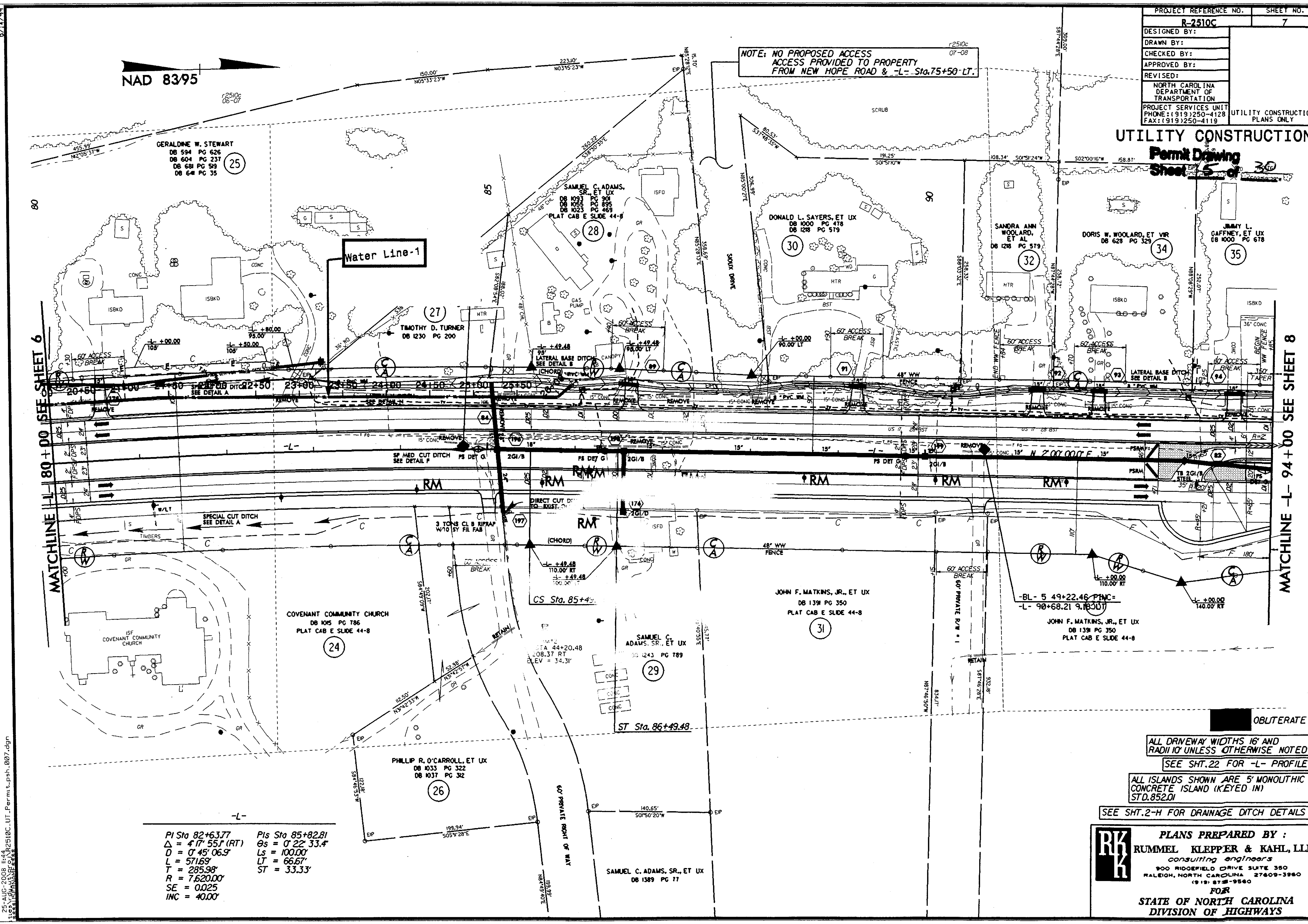
SEE SHT. 22 FOR -L- PROFILE

OBLITERATE

SEE SHT. 2-H FOR DRAINAGE DITCH DETAILS

PLANS PREPARED BY:
RUMMEL KLEPPER & KAHL, LLP
consulting engineers
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
(919) 878-9560
FOR
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

25-AUG-2008 07:51
R2510C_UT_Permit_psh_006.dgn



PROJECT REFERENCE NO.
R-2510C
SHEET NO.
7
DESIGNED BY:
DRAWN BY:
CHECKED BY:
APPROVED BY:
REVISED:
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
PROJECT SERVICES UNIT PHONE:(919)250-4128 FAX:(919)250-4119
UTILITY CONSTRUCTION PLANS ONLY
UTILITY CONSTRUCTION
Permit Drawing Sheet 5 of 30
NAD 83/95
NOTE: NO PROPOSED ACCESS ACCESS PROVIDED TO PROPERTY FROM NEW HOPE ROAD & -L- Sta.75+50 LT.
Water Line-1
GERALDINE W. STEWART DB 594 PG 626 DB 604 PG 237 DB 681 PG 519 DB 641 PG 35
SAMUEL C. ADAMS, SR., ET UX DB 1033 PG 901 DB 1055 PG 495 DB 1023 PG 469 PLAT CAB E SLIDE 44-8
DONALD L. SAYERS, ET UX DB 1000 PG 478 DB 1218 PG 579
SANDRA ANN WOOLARD, ET AL DB 1218 PG 579
DORIS W. WOOLARD, ET VIR DB 628 PG 329
JIMMY L. GAFFNEY, ET UX DB 1000 PG 678
TIMOTHY D. TURNER DB 1230 PG 200
SIOUX DRIVE
MATCHLINE -L- 80+00 SEE SHEET 6
MATCHLINE -L- 94+00 SEE SHEET 8
COVENANT COMMUNITY CHURCH DB 1015 PG 786 PLAT CAB E SLIDE 44-8
JOHN F. MATKINS, JR., ET UX DB 1391 PG 350 PLAT CAB E SLIDE 44-8
SAMUEL C. ADAMS, SR., ET UX DB 1243 PG 789
PHILLIP R. O'CARROLL, ET UX DB 1033 PG 322 DB 1037 PG 312
SAMUEL C. ADAMS, SR., ET UX DB 1389 PG 77
60' PRIVATE RIGHT OF WAY
CS Sta. 85+49.48
ST Sta. 86+49.48
-BL- 5 49+22.46 PINC= -L- 90+68.21 9.13 LT
N 2°00'00.0" E
-L-
PI Sta 82+63.77
Δ = 4°17' 55.1" (RT)
D = 0° 45' 06.9"
L = 571.69'
T = 285.98'
R = 7,620.00'
SE = 0.025
INC = 40.00'
PIs Sta 85+82.81
θs = 0° 22' 33.4"
Ls = 100.00'
LT = 66.67'
ST = 33.33'
OBLITERATE
ALL DRIVEWAY WIDTHS 16' AND RADII 10' UNLESS OTHERWISE NOTED
SEE SHT.22 FOR -L- PROFILE
ALL ISLANDS SHOWN ARE 5' MONOLITHIC CONCRETE ISLAND (KEYED IN) STD.852.01
SEE SHT.2-H FOR DRAINAGE DITCH DETAILS
PLANS PREPARED BY :
RUMMEL KLEPPER & KAHL, LLP
consulting engineers
900 RIDGEFIELD DRIVE SUITE 350 RALEIGH, NORTH CAROLINA 27609-3960 (919) 878-9560
FOR
STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS
25-AUG-2008 11:44 R2510C_UT_Permit_psh_007.dgn
8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-2510C	8

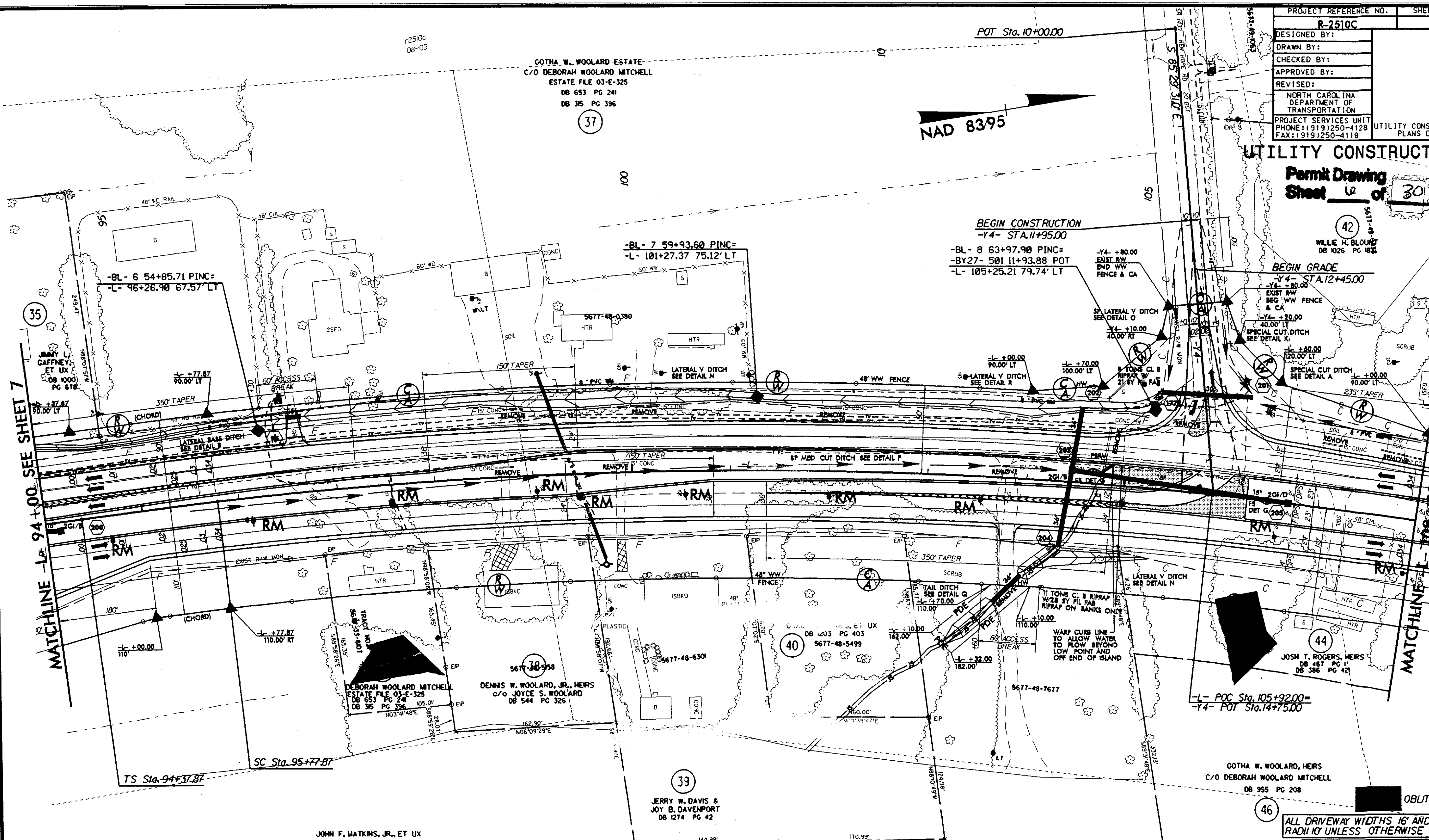
DESIGNED BY:
DRAWN BY:
CHECKED BY:
APPROVED BY:
REVISED:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
PROJECT SERVICES UNIT
PHONE:(919)250-4128
FAX:(919)250-4119

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

Permit Drawing Sheet 6 of 30



OBLITERATE

ALL DRIVEWAY WIDTHS 16' AND RADII 10' UNLESS OTHERWISE NOTED

SEE SHT.23 FOR -L- PROFILE

ALL ISLANDS SHOWN ARE 5' MONOLITHIC CONCRETE ISLAND (KEYED IN) STD.852.01

SEE SHT.2-E FOR INTERSECTION DETAIL

SEE SHT.2-H FOR DRAINAGE DITCH DETAILS

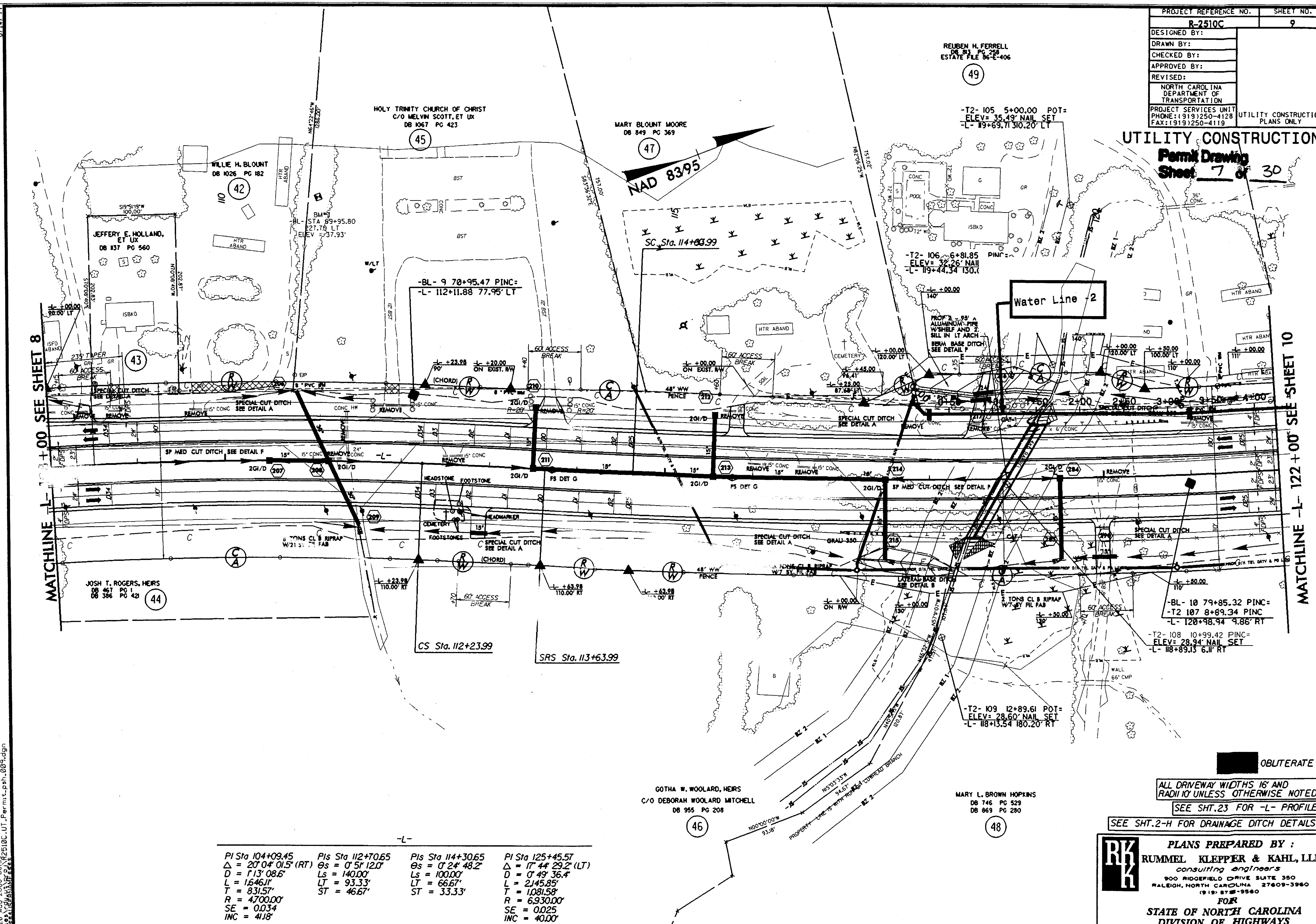
PROJECTED TRAFFIC VOLUMES

120/200
5677-57-7843
SR 1431
PM 15 → 80 (2,1)
100/100
20/100
8,740 / 14,900 — US 17 — 8,660 / 14,900
2016 ADT / 2030 ADT
PM 12 → 60 (4,9)

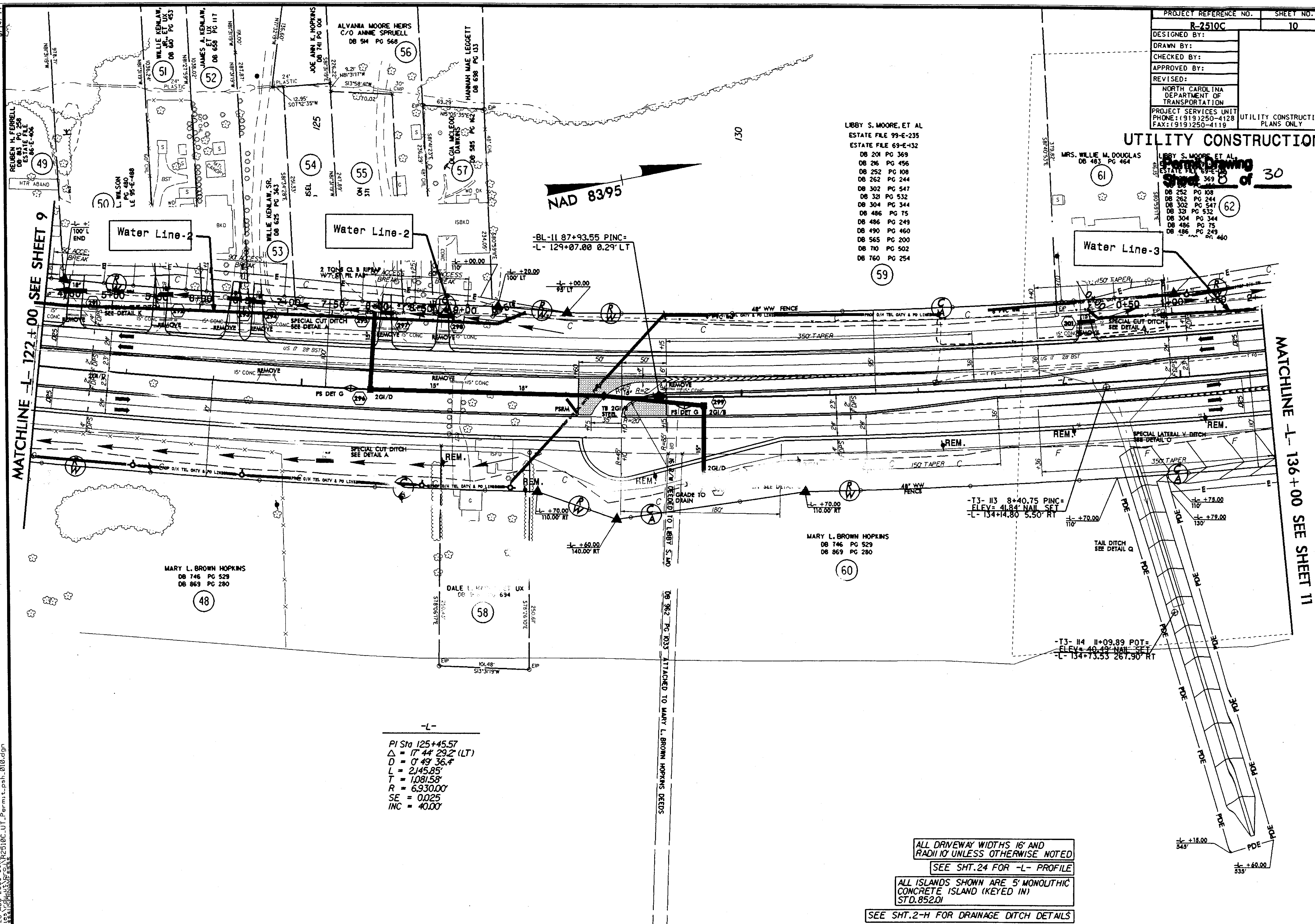
-L-

PI Sta 95+31.21	PI Sta 104+09.45
θs = 0° 51' 12.0"	Δ = 20° 04' 01.5" (RT)
Ls = 140.00'	D = 1° 13' 08.6"
LT = 93.33'	L = 1,646.11'
ST = 46.67'	T = 831.57'
	R = 4,700.00'
	SE = 0.034
	INC = 41.18'

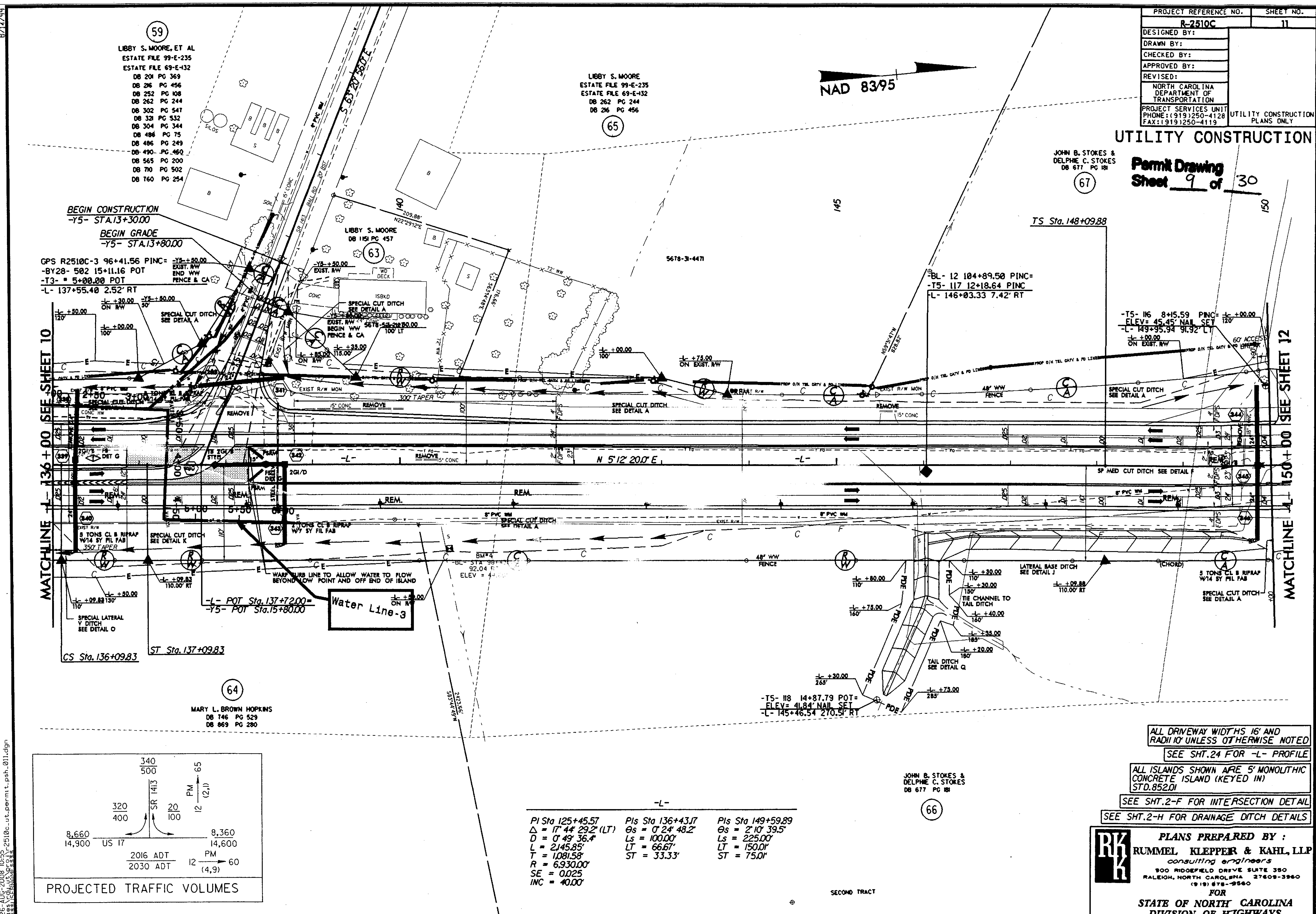
PLANS PREPARED BY :
RUMMEL KLEPPER & KAHL, LLP
consulting engineers
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
(919) 878-9560
FOR
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS



PROJECT REFERENCE NO. R-2510C
SHEET NO. 9
DESIGNED BY:
DRAWN BY:
CHECKED BY:
APPROVED BY:
REVISED:
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
PROJECT SERVICES UNIT PHONE:(919)250-4128 FAX:(919)250-4119
UTILITY CONSTRUCTION PLANS ONLY
UTILITY CONSTRUCTION
Permit Drawing Sheet 7 of 30
Water Line -2
NAD 83/95
REVISIONS
MATCHLINE -L- SEE SHEET 8
MATCHLINE -L- 122+00 SEE SHEET 10
HOLY TRINITY CHURCH OF CHRIST C/O MELVIN SCOTT, ET UX DB 1067 PG 423
45
WILLIE H. BLOUNT DB 1026 PG 182
42
JEFFERY E. HOLLAND, ET UX DB 837 PG 560
43
MARY BLOUNT MOORE DB 849 PG 369
47
REUBEN H. FERRELL DB 813 PG 258 ESTATE FILE 86-E-406
49
JOSH T. ROGERS, HEIRS DB 467 PG 1 DB 386 PG 421
44
GOTHA W. WOOLARD, HEIRS C/O DEBORAH WOOLARD MITCHELL DB 955 PG 208
46
MARY L. BROWN HOPKINS DB 746 PG 529 DB 869 PG 280
48
BM#3 -BL- STA 89+95.80 227.79 LT ELEV = 37.93'
-BL- 9 70+95.47 PINC= -L- 112+11.88 77.95' LT
SC Sta. 114+63.99
CS Sta. 112+23.99
SRS Sta. 113+63.99
-T2- 105 5+00.00 POT= ELEV= 35.49' NAIL SET -L- 119+69.71 310.20' LT
-T2- 106 6+81.85 PINC= ELEV= 32.26' NAIL -L- 119+44.34 130.
-BL- 10 79+85.32 PINC= -T2 107 8+89.34 PINC -L- 120+98.94 9.86' RT
-T2- 108 10+99.42 PINC= ELEV= 28.94' NAIL SET -L- 118+89.13 6.11' RT
-T2- 109 12+89.61 POT= ELEV= 28.60' NAIL SET -L- 118+13.54 180.20' RT
SPECIAL CUT DITCH SEE DETAIL A
SP MED CUT DITCH SEE DETAIL F
LATERAL BASE DITCH SEE DETAIL B
FS DET G
60' ACCESS BREAK
48" WW FENCE
OBLITERATE
ALL DRIVEWAY WIDTHS 16' AND RADII 10' UNLESS OTHERWISE NOTED
SEE SHT.23 FOR -L- PROFILE
SEE SHT.2-H FOR DRAINAGE DITCH DETAILS
-L-
PI Sta 104+09.45
Δ = 20° 04' 01.5" (RT)
D = 1° 13' 08.6"
L = 1,646.11'
T = 831.57'
R = 4,700.00'
SE = 0.034
INC = 41.18'
PIs Sta 112+70.65
θs = 0° 51' 12.0"
Ls = 140.00'
LT = 93.33'
ST = 46.67'
PIs Sta 114+30.65
θs = 0° 24' 48.2"
Ls = 100.00'
LT = 66.67'
ST = 33.33'
PI Sta 125+45.57
Δ = 17° 44' 29.2" (LT)
D = 0° 49' 36.4"
L = 2,145.85'
T = 1,081.58'
R = 6,930.00'
SE = 0.025
INC = 40.00'
PLANS PREPARED BY :
RUMMEL KLEPPER & KAHL, LLP
consulting engineers
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
(919) 878-9560
FOR
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
26-AUG-2008 08:59
R2510C_UT_Permit_psh_009.dgn
6/17/99



PROJECT REFERENCE NO.
SHEET NO.
R-2510C
10
DESIGNED BY:
DRAWN BY:
CHECKED BY:
APPROVED BY:
REVISED:
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
PROJECT SERVICES UNIT PHONE:(919)250-4128 FAX:(919)250-4119
UTILITY CONSTRUCTION PLANS ONLY
UTILITY CONSTRUCTION
Permit Drawing Sheet 8 of 30
MATCHLINE -L- 122+00 SEE SHEET 9
MATCHLINE -L- 136+00 SEE SHEET 11
NAD 83/95
Water Line-2
Water Line-2
Water Line-3
-BL-11 87+93.55 PINC= -L- 129+07.00 0.29' LT
-T3- 113 8+40.75 PINC= ELEV= 41.84' NAIL SET -L- 134+14.80 5.50' RT
-T3- 114 11+09.89 POT= ELEV= 40.49' NAIL SET -L- 134+73.53 267.90' RT
LIBBY S. MOORE, ET AL ESTATE FILE 99-E-235 ESTATE FILE 69-E-132
MARY L. BROWN HOPKINS DB 746 PG 529 DB 869 PG 280
ALVANIA MOORE HEIRS C/O ANNIE SPRUELL DB 514 PG 568
MRS. WILLIE M. DOUGLAS DB 483 PG 464
HANNAH MAE LEGGETT DB 698 PG 133
JOE ANN K. HOPKINS DB 741 PG 004
REUBEN H. FERRELL
DEEDED TO LIBBY S. MO DB 962 PG 1033 ATTACHED TO MARY L. BROWN HOPKINS DEEDS
-L-
PI Sta 125+45.57
Δ = 17° 44' 29.2" (LT)
D = 0° 49' 36.4"
L = 2,145.85'
T = 1,081.58'
R = 6,930.00'
SE = 0.025
INC = 40.00'
ALL DRIVEWAY WIDTHS 16' AND RADII 10' UNLESS OTHERWISE NOTED
SEE SHT.24 FOR -L- PROFILE
ALL ISLANDS SHOWN ARE 5' MONOLITHIC CONCRETE ISLAND (KEYED IN) STD.852.01
SEE SHT.2-H FOR DRAINAGE DITCH DETAILS
REVISIONS
26-AUG-2008 09:10
R2510C_UT_Permit_psh_010.dgn



PROJECT REFERENCE NO. R-2510C
SHEET NO. 11
DESIGNED BY:
DRAWN BY:
CHECKED BY:
APPROVED BY:
REVISED:
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
PROJECT SERVICES UNIT PHONE:(919)250-4128 FAX:(919)250-4119
UTILITY CONSTRUCTION PLANS ONLY
UTILITY CONSTRUCTION
Permit Drawing Sheet 9 of 30
NAD 83/95
LIBBY S. MOORE, ET AL
ESTATE FILE 99-E-235
ESTATE FILE 69-E-432
LIBBY S. MOORE
ESTATE FILE 99-E-235
ESTATE FILE 69-E-432
DB 262 PG 244
DB 216 PG 456
LIBBY S. MOORE
DB 1151 PG 457
JOHN B. STOKES & DELPHIE C. STOKES
DB 677 PG 181
MARY L. BROWN HOPKINS
DB 746 PG 529
DB 869 PG 280
BEGIN CONSTRUCTION -Y5- STA.13+30.00
BEGIN GRADE -Y5- STA.13+80.00
GPS R2510C-3 96+41.56 PINC=
-BY28- 502 15+11.16 POT
-T3- = 5+00.00 POT
-L- 137+55.40 2.52' RT
TS Sta. 148+09.88
-BL- 12 104+89.50 PINC=
-T5- 117 12+18.64 PINC
-L- 146+03.33 7.42' RT
-T5- 116 8+15.59 PINC=
ELEV= 45.45' NAIL SET
-L- 149+95.94 91.92' LT
N 5°12' 20.0" E
-L- POT Sta. 137+72.00= -Y5- POT Sta.15+80.00
Water Line-3
WARP CURB LINE TO ALLOW WATER TO FLOW BEYOND LOW POINT AND OFF END OF ISLAND
CS Sta. 136+09.83
ST Sta. 137+09.83
-T5- 118 14+87.79 POT=
ELEV= 41.84' NAIL SET
-L- 145+46.54 270.51' RT
MATCHLINE -L- 136+00 SEE SHEET 10
MATCHLINE -L- 150+00 SEE SHEET 12
ALL DRIVEWAY WIDTHS 16' AND RADII 10' UNLESS OTHERWISE NOTED
SEE SHT.24 FOR -L- PROFILE
ALL ISLANDS SHOWN ARE 5' MONOLITHIC CONCRETE ISLAND (KEYED IN) STD.852.01
SEE SHT.2-F FOR INTERSECTION DETAIL
SEE SHT.2-H FOR DRAINAGE DITCH DETAILS
-L-
PI Sta 125+45.57
Δ = 17° 44' 29.2" (LT)
D = 0° 49' 36.4"
L = 2,145.85'
T = 1,081.58'
R = 6,930.00'
SE = 0.025
INC = 40.00'
PIs Sta 136+43.17
θs = 0° 24' 48.2"
Ls = 100.00'
LT = 66.67'
ST = 33.33'
PIs Sta 149+59.89
θs = 2° 10' 39.5"
Ls = 225.00'
LT = 150.01'
ST = 75.01'
PROJECTED TRAFFIC VOLUMES
340 / 500
320 / 400
20 / 100
SR 1413
PM 12 (2,1) 65
8,660 / 14,900 US 17
8,360 / 14,600
2016 ADT
2030 ADT
PM 12 (4,9) 60
PLANS PREPARED BY :
RUMMEL KLEPPER & KAHL, LLP
consulting engineers
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
(919) 878-9560
FOR
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
SECOND TRACT
REVISIONS
26-AUG-2008 10:55

PROJECT REFERENCE NO.	SHEET NO.
R-2510C	12

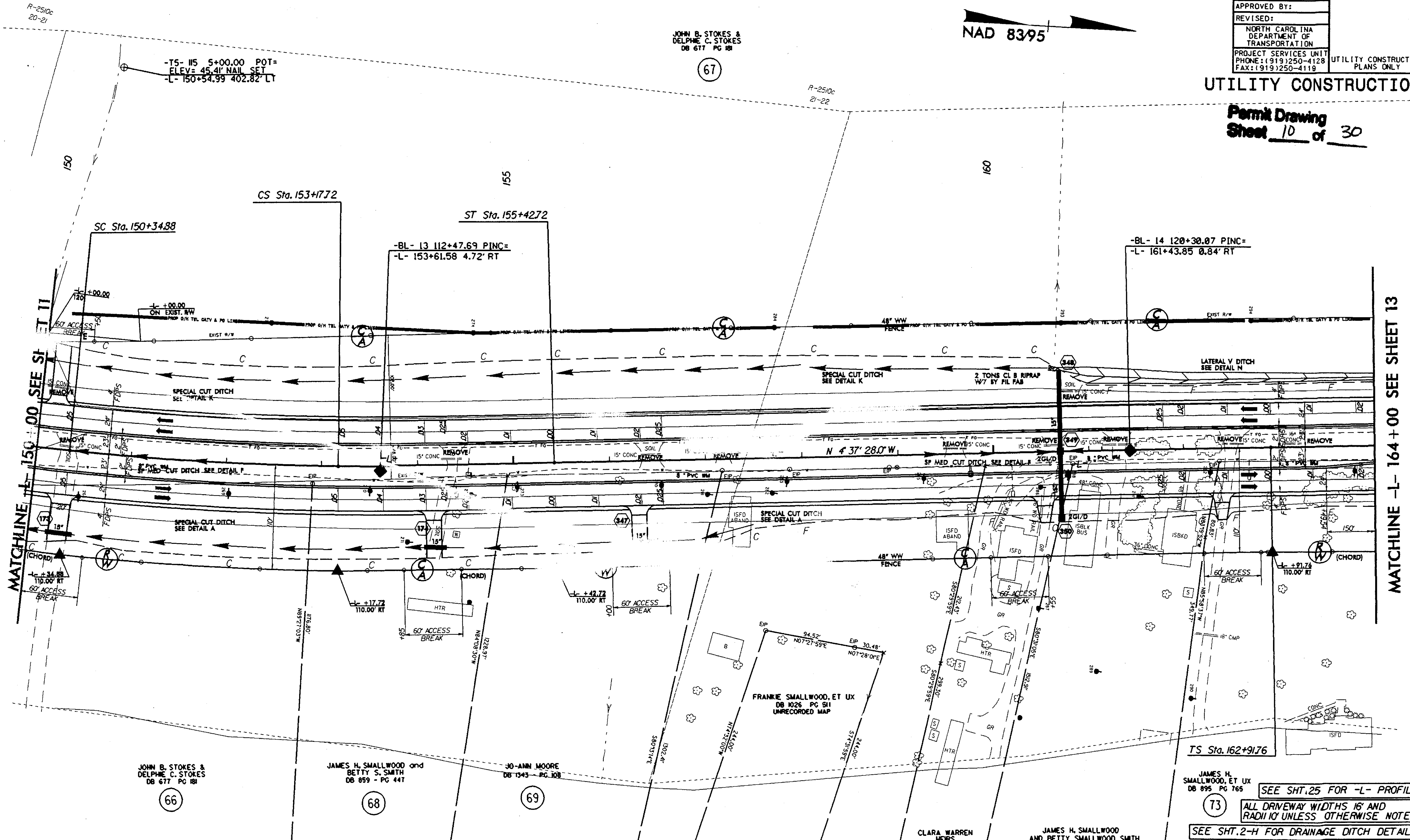
DESIGNED BY:
DRAWN BY:
CHECKED BY:
APPROVED BY:
REVISED:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
PROJECT SERVICES UNIT PHONE:(919)250-4128 FAX:(919)250-4119

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

Permit Drawing Sheet 10 of 30



SEE SHT.25 FOR -L- PROFILE

ALL DRIVEWAY WIDTHS 16' AND RADII 10' UNLESS OTHERWISE NOTED

SEE SHT.2-H FOR DRAINAGE DITCH DETAILS

-L-

PIs Sta 149+59.89	PI Sta 151+76.41	PIs Sta 153+92.73	PIs Sta 164+41.77
Θs = 2°10' 39.5"	Δ = 5° 28' 29.1" (LT)	Θs = 2°10' 39.5"	Θs = 2°10' 39.5"
Ls = 225.00'	D = 1° 56' 08.4"	Ls = 225.00'	Ls = 225.00'
LT = 150.01'	L = 282.83'	LT = 150.01'	LT = 150.01'
ST = 75.01'	T = 141.53'	ST = 75.01'	ST = 75.01'
	R = 2,960.00'		
	SE = 0.05		
	INC = 45.00'		

PLANS PREPARED BY :
RUMMEL KLEPPER & KAHL, LLP
consulting engineers
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
(919) 878-9560
FOR
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

8/17/99

26-AUG-2008 09:53 r2510c_ut_permit_psh_012.dgn

PROJECT REFERENCE NO.	SHEET NO.
R-2510C	13

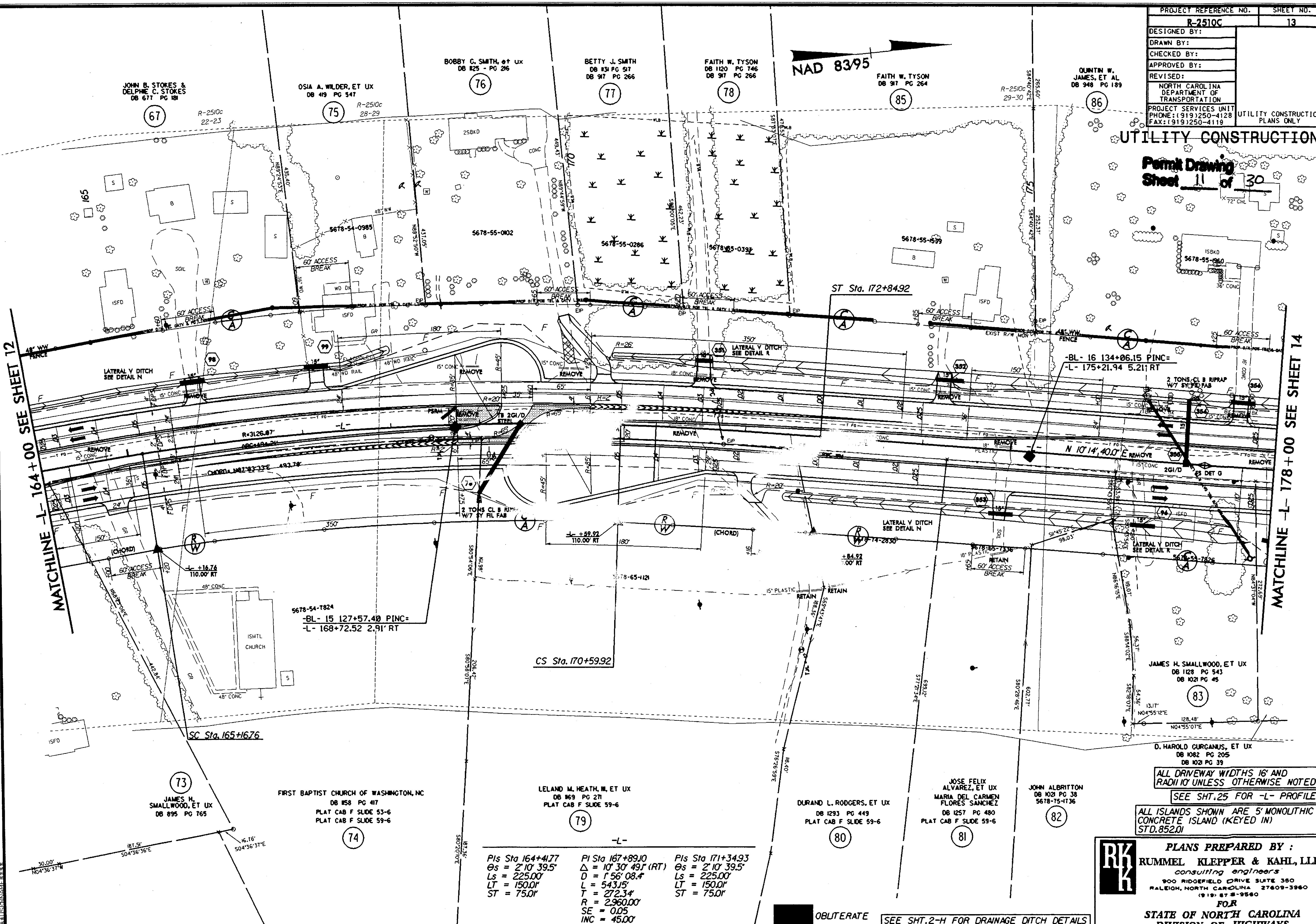
DESIGNED BY:
DRAWN BY:
CHECKED BY:
APPROVED BY:
REVISED:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
PROJECT SERVICES UNIT
PHONE: (919) 250-4128
FAX: (919) 250-4119

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

Permit Drawing Sheet 11 of 30



ALL DRIVEWAY WIDTHS 16' AND RADII 10' UNLESS OTHERWISE NOTED

SEE SHT. 25 FOR -L- PROFILE

ALL ISLANDS SHOWN ARE 5' MONOLITHIC CONCRETE ISLAND (KEYED IN) STD. 852.01

-L-

PIs Sta 164+41.77	PI Sta 167+89.10	PIs Sta 171+34.93
θs = 2° 10' 39.5"	Δ = 10° 30' 49.1" (RT)	θs = 2° 10' 39.5"
Ls = 225.00'	D = 1° 56' 08.4"	Ls = 225.00'
LT = 150.01'	L = 543.15'	LT = 150.01'
ST = 75.01'	T = 272.34'	ST = 75.01'
	R = 2,960.00'	
	SE = 0.05	
	INC = 45.00'	

OBLITERATE

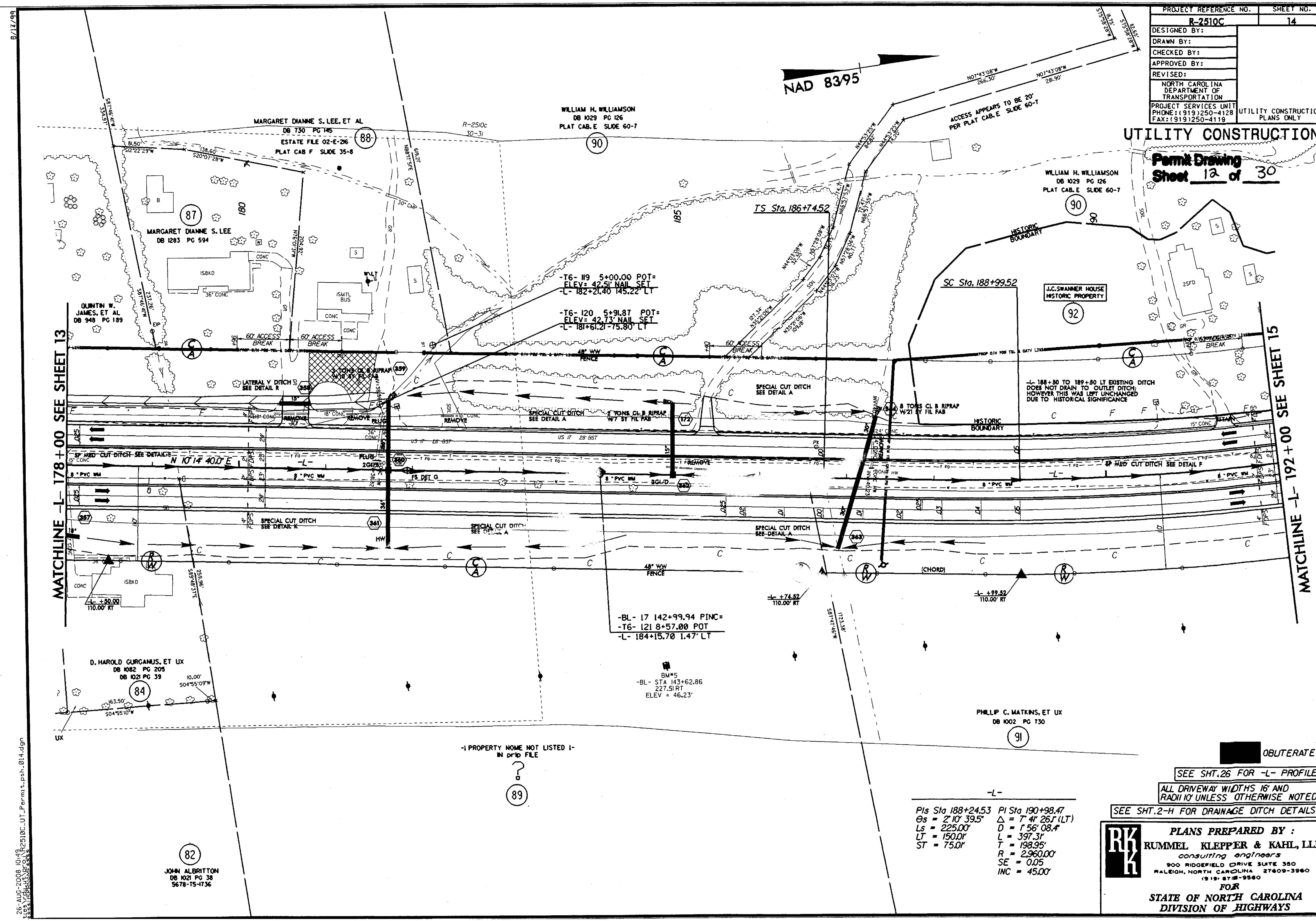
SEE SHT. 2-H FOR DRAINAGE DITCH DETAILS

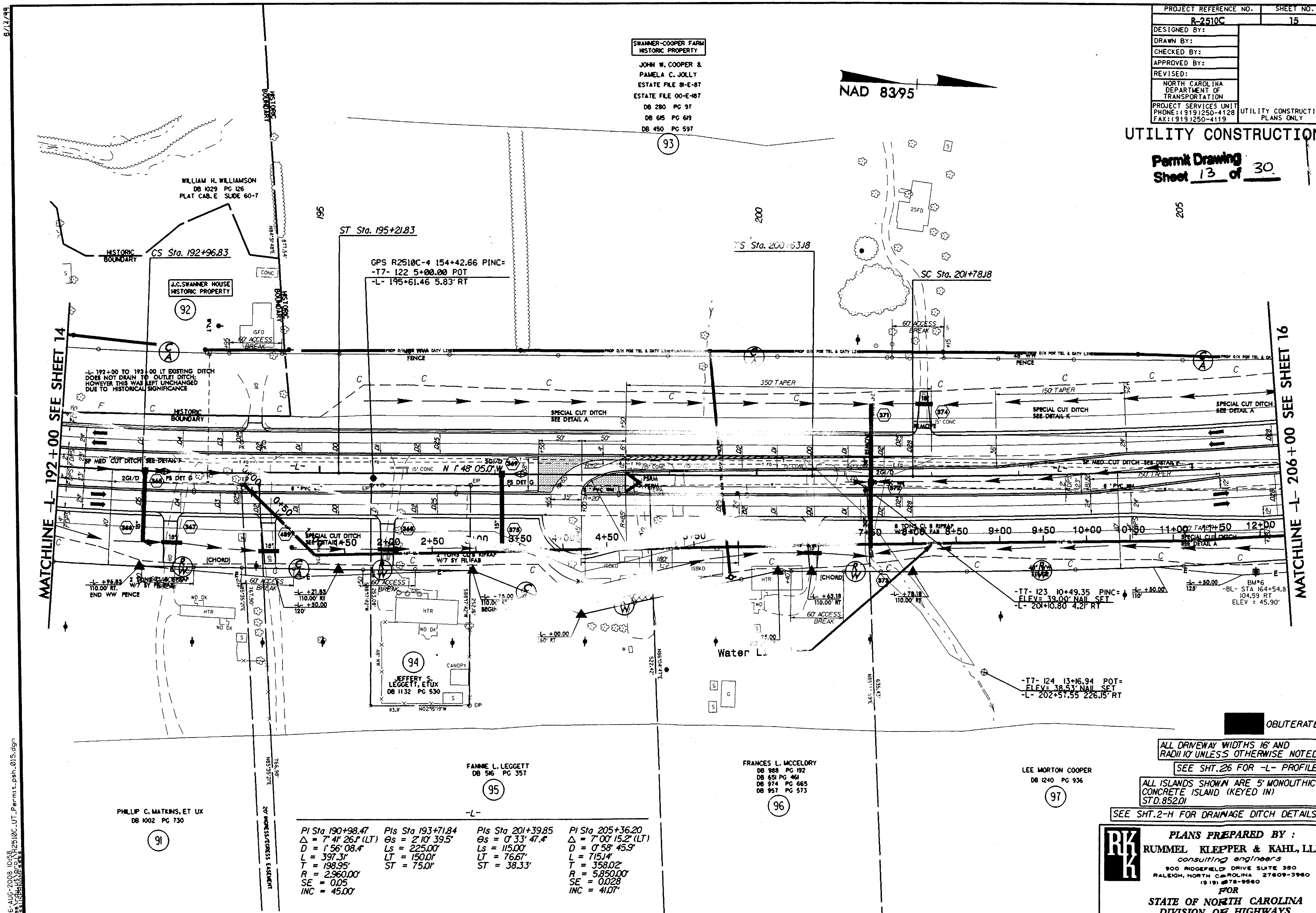
PLANS PREPARED BY:
RUMMEL KLEPPER & KAHL, LLP
consulting engineers
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
(919) 878-9560
FOR
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

REVISIONS

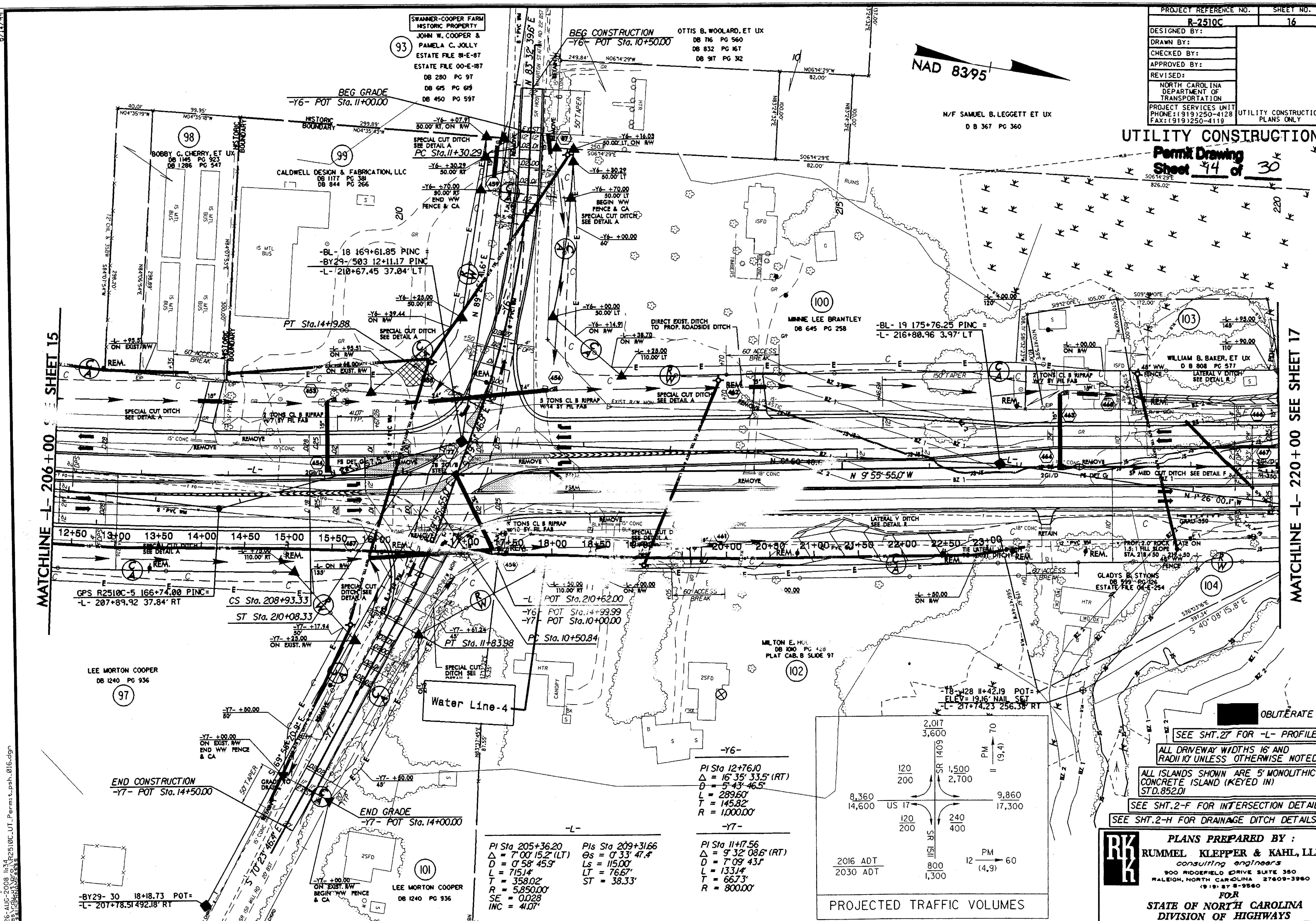
8/17/99

26-AUG-2008 10:02 R2510C_UT_Permit_psh_013.dgn

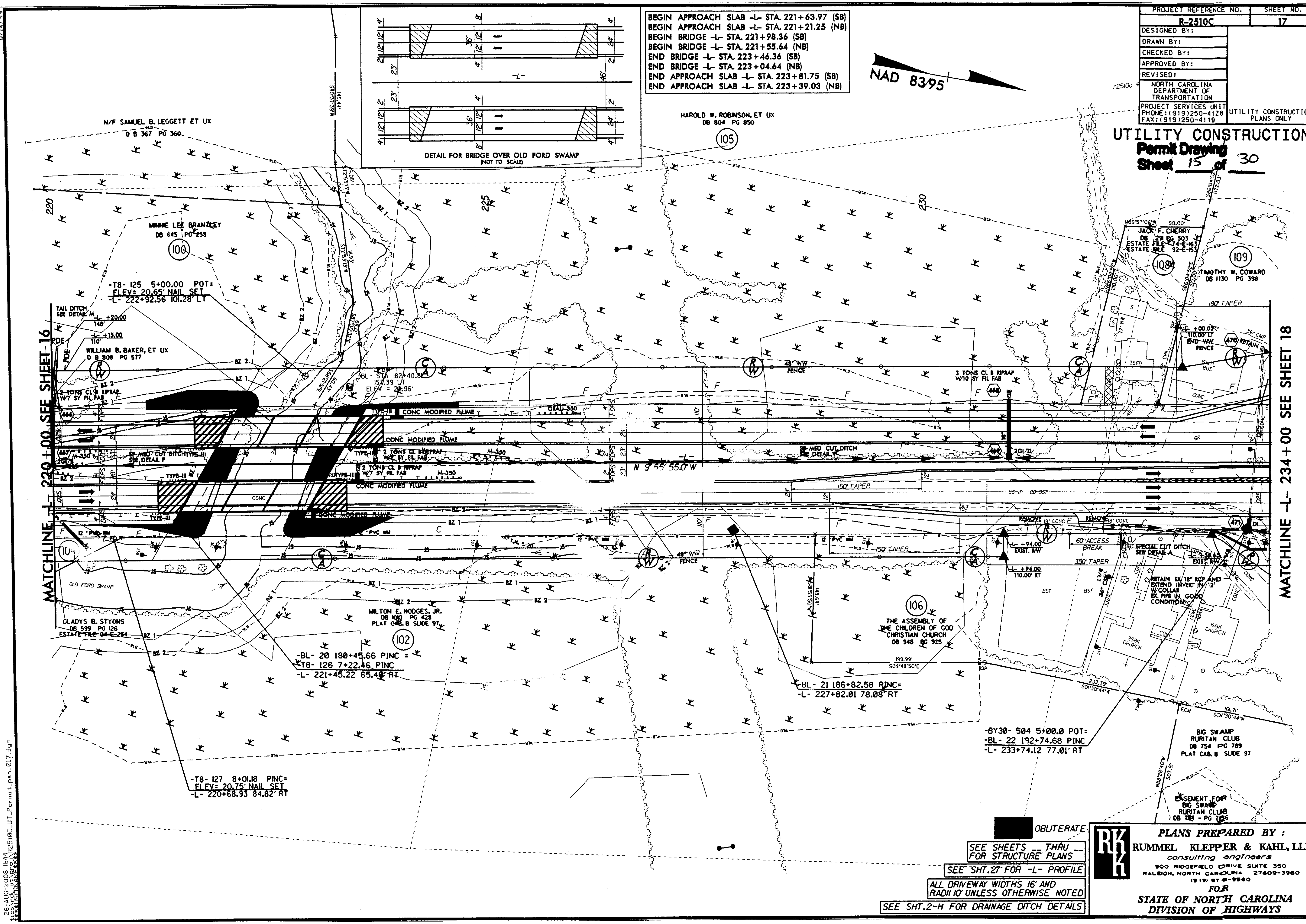

PROJECT REFERENCE NO.
SHEET NO.
R-2510C
14
DESIGNED BY:
DRAWN BY:
CHECKED BY:
APPROVED BY:
REVISED:
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
PROJECT SERVICES UNIT PHONE:(919)250-4128 FAX:(919)250-4119
UTILITY CONSTRUCTION PLANS ONLY
UTILITY CONSTRUCTION
Permit Drawing Sheet 12 of 30
NAD 83/95
MARGARET DIANNE S. LEE, ET AL DB 730 PG 145 ESTATE FILE 02-E-296 PLAT CAB F SLIDE 35-8
88
WILLIAM H. WILLIAMSON DB 1029 PG 126 PLAT CAB. E SLIDE 60-7
90
R-2510c 30-31
ACCESS APPEARS TO BE 20' PER PLAT CAB. E SLIDE 60-7
87
MARGARET DIANNE S. LEE DB 1283 PG 594
QUINTIN W. JAMES, ET AL DB 948 PG 189
TS Sta. 186+74.52
SC Sta. 188+99.52
J.C. SWANNER HOUSE HISTORIC PROPERTY
92
HISTORIC BOUNDARY
-T6- 119 5+00.00 POT= ELEV= 42.51' NAIL SET -L- 182+21.40 145.22' LT
-T6- 120 5+91.87 POT= ELEV= 42.73' NAIL SET -L- 181+61.21 -75.80' LT
60' ACCESS BREAK
48" WW FENCE
LATERAL V DITCH SEE DETAIL R
SPECIAL CUT DITCH SEE DETAIL A
SPECIAL CUT DITCH SEE DETAIL K
2 TONS CL B RIPRAP W/7 SY FIL FAB
8 TONS CL B RIPRAP W/21 SY FIL FAB
-L- 188+50 TO 189+50 LT EXISTING DITCH DOES NOT DRAIN TO OUTLET DITCH; HOWEVER THIS WAS LEFT UNCHANGED DUE TO HISTORICAL SIGNIFICANCE
MED CUT DITCH SEE DETAIL F
N 10°14' 40.0" E
US 17 28' BST
8" PVC WM
MATCHLINE -L- 178+00 SEE SHEET 13
MATCHLINE -L- 192+00 SEE SHEET 15
-L- +50.00 110.00' RT
-L- +74.52 110.00' RT
-L- +99.52 110.00' RT
(CHORD)
-BL- 17 142+99.94 PINC= -T6- 121 8+57.00 POT -L- 184+15.70 1.47' LT
BM#5 -BL- STA 143+62.86 227.51 RT ELEV = 46.23'
D. HAROLD GURGANUS, ET UX DB 1082 PG 205 DB 1021 PG 39
84
PHILLIP C. MATKINS, ET UX DB 1002 PG 730
91
-I PROPERTY NOME NOT LISTED I- IN prlp FILE
89
82
JOHN ALBRITTON DB 1021 PG 38 5678-75-1736
OBLITERATE
SEE SHT.26 FOR -L- PROFILE
ALL DRIVEWAY WIDTHS 16' AND RADII 10' UNLESS OTHERWISE NOTED
SEE SHT.2-H FOR DRAINAGE DITCH DETAILS
-L-
PIs Sta 188+24.53 θs = 2°10' 39.5" Ls = 225.00' LT = 150.01' ST = 75.01'
PI Sta 190+98.47 Δ = 7°41' 26.1" (LT) D = 1°56' 08.4" L = 397.31' T = 198.95' R = 2,960.00' SE = 0.05 INC = 45.00'
PLANS PREPARED BY : RUMMEL KLEPPER & KAHL, LLP consulting engineers 900 RIDGEFIELD DRIVE SUITE 350 RALEIGH, NORTH CAROLINA 27609-3960 (919) 878-9560
FOR STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS
REVISIONS
8/17/99
26-AUG-2008 10:49 R2510C_UT_Permit_psh_014.dgn



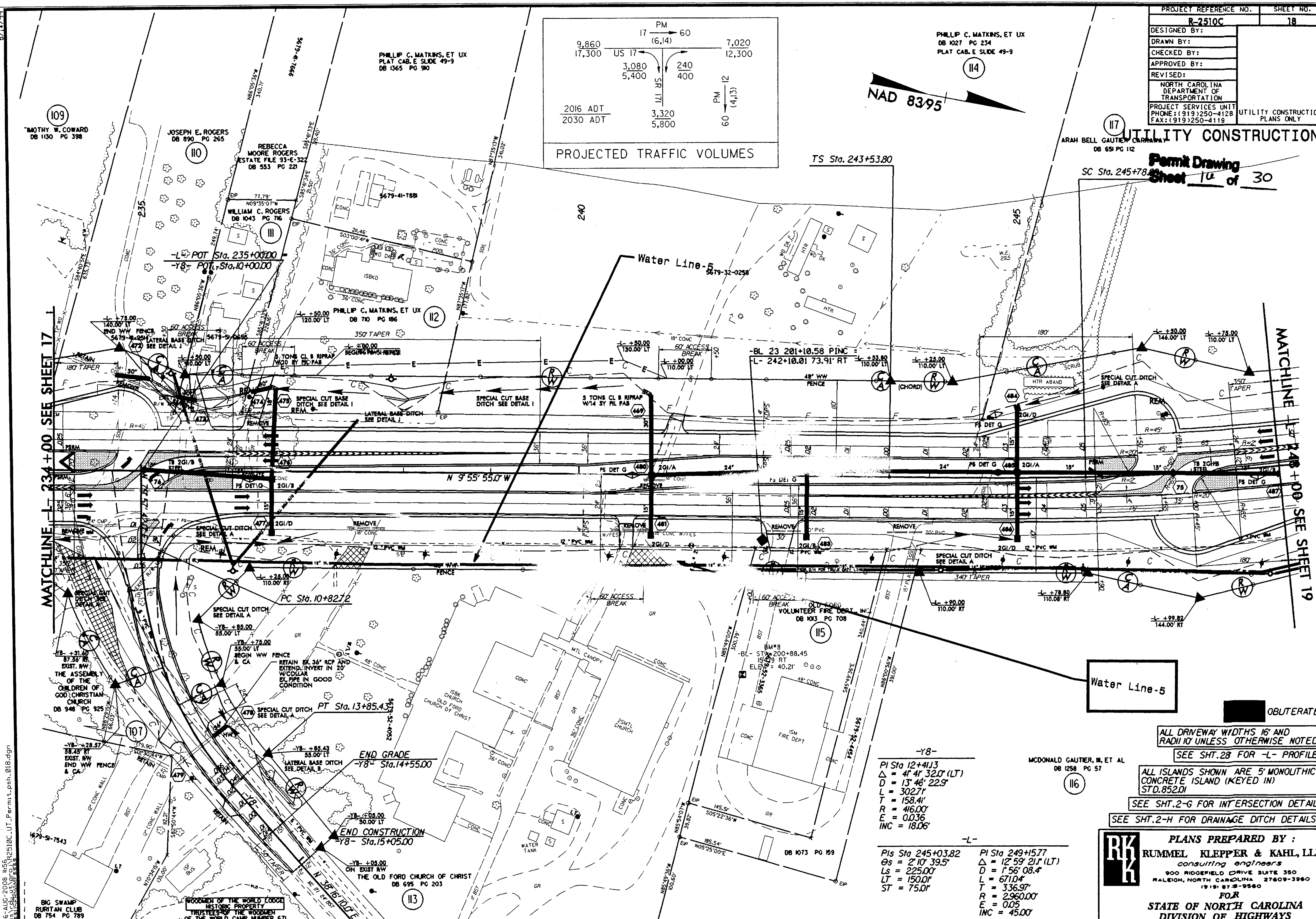
PROJECT REFERENCE NO. R-2510C
SHEET NO. 15
DESIGNED BY:
DRAWN BY:
CHECKED BY:
APPROVED BY:
REVISED:
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
PROJECT SERVICES UNIT PHONE:(919)250-4128 FAX:(919)250-4119
UTILITY CONSTRUCTION PLANS ONLY
UTILITY CONSTRUCTION
Permit Drawing Sheet 13 of 30
NAD 83/95
SWANNER-COOPER FARM HISTORIC PROPERTY
JOHN W. COOPER & PAMELA C. JOLLY
ESTATE FILE 81-E-87
ESTATE FILE 00-E-187
DB 280 PG 97
DB 615 PG 619
DB 450 PG 597
93
WILLIAM H. WILLIAMSON
DB 1029 PG 126
PLAT CAB. E SLIDE 60-7
J.C.SWANNER HOUSE HISTORIC PROPERTY
92
HISTORIC BOUNDARY
CS Sta. 192+96.83
ST Sta. 195+21.83
TS Sta. 200+63.18
SC Sta. 201+78.18
GPS R2510C-4 154+42.66 PINC=
-T7- 122 5+00.00 POT
-L- 195+61.46 5.83' RT
-L- 192+00 TO 193+00 LT EXISTING DITCH DOES NOT DRAIN TO OUTLET DITCH; HOWEVER THIS WAS LEFT UNCHANGED DUE TO HISTORICAL SIGNIFICANCE
MATCHLINE -L- 192+00 SEE SHEET 14
MATCHLINE -L- 206+00 SEE SHEET 16
SPECIAL CUT DITCH SEE DETAIL A
SPECIAL CUT DITCH SEE DETAIL K
350' TAPER
150' TAPER
N 1° 48' 05.0" W
60' ACCESS BREAK
-T7- 123 10+49.35 PINC=
ELEV= 39.00' NAIL SET
-L- 201+10.80 4.21' RT
-T7- 124 13+16.94 POT=
ELEV= 38.53' NAIL SET
-L- 202+57.55 226.15' RT
BM#6
-BL- STA 164+54.8
104.59 RT
ELEV = 45.90'
Water Li
JEFFERY S. LEGGETT, ETUX
DB 1132 PG 530
94
FANNIE L. LEGGETT
DB 516 PG 357
95
FRANCES L. MCCELDRY
DB 988 PG 192
DB 651 PG 461
DB 974 PG 665
DB 957 PG 573
96
LEE MORTON COOPER
DB 1240 PG 936
97
PHILLIP C. MATKINS, ET UX
DB 1002 PG 730
91
20' INGRESS/EGRESS EASEMENT
OBUTERATE
ALL DRIVEWAY WIDTHS 16' AND RADII 10' UNLESS OTHERWISE NOTED
SEE SHT.26 FOR -L- PROFILE
ALL ISLANDS SHOWN ARE 5' MONOLITHIC CONCRETE ISLAND (KEYED IN) STD.852.01
SEE SHT.2-H FOR DRAINAGE DITCH DETAILS
-L-
PI Sta 190+98.47
Δ = 7° 41' 26.1" (LT)
D = 1° 56' 08.4"
L = 397.31'
T = 198.95'
R = 2,960.00'
SE = 0.05
INC = 45.00'
PIs Sta 193+71.84
θs = 2° 10' 39.5"
Ls = 225.00'
LT = 150.01'
ST = 75.01'
PIs Sta 201+39.85
θs = 0° 33' 47.4"
Ls = 115.00'
LT = 76.67'
ST = 38.33'
PI Sta 205+36.20
Δ = 7° 00' 15.2" (LT)
D = 0° 58' 45.9"
L = 715.14'
T = 358.02'
R = 5,850.00'
SE = 0.028
INC = 41.07'
PLANS PREPARED BY :
RUMMEL KLEPPER & KAHL, LLP
consulting engineers
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
(919) 878-9560
FOR
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
26-AUG-2008 10:58
R2510C_UT_Permit_psh_015.dgn



PROJECT REFERENCE NO. R-2510C
SHEET NO. 16
DESIGNED BY:
DRAWN BY:
CHECKED BY:
APPROVED BY:
REVISED:
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
PROJECT SERVICES UNIT PHONE:(919)250-4128 FAX:(919)250-4119
UTILITY CONSTRUCTION PLANS ONLY
UTILITY CONSTRUCTION
Permit Drawing Sheet 14 of 30
NAD 83/95
SWANNER-COOPER FARM HISTORIC PROPERTY
JOHN W. COOPER & PAMELA C. JOLLY
ESTATE FILE 91-E-87
ESTATE FILE 00-E-187
DB 280 PG 97
DB 615 PG 619
DB 450 PG 597
BEG CONSTRUCTION -Y6- POT Sta. 10+50.00
OTTIS B. WOOLARD, ET UX
DB 716 PG 560
DB 832 PG 167
DB 917 PG 312
BEG GRADE -Y6- POT Sta. 11+00.00
BOBBY G. CHERRY, ET UX DB 1145 PG 923 DB 1286 PG 547
CALDWELL DESIGN & FABRICATION, LLC DB 1177 PG 381 DB 844 PG 266
N/F SAMUEL B. LEGGETT ET UX D B 367 PG 360
MINNIE LEE BRANTLEY DB 645 PG 258
WILLIAM B. BAKER, ET UX D B 808 PG 577
GLADYS B. STYONS DB 999 PG 126 ESTATE FILE 02-E-254
MILTON E. HO... DB 1010 PG 428 PLAT CAB. B SLIDE 97
LEE MORTON COOPER DB 1240 PG 936
-BL- 18 169+61.85 PINC = -BY29-/503 12+11.17 PINC -L- 210+67.45 37.04' LT
-BL- 19 175+76.25 PINC = -L- 216+80.96 3.97' LT
GPS R2510C-5 166+74.00 PINC= -L- 207+89.92 37.84' RT
CS Sta. 208+93.33
ST Sta. 210+08.33
PT Sta. 14+19.88
PC Sta. 11+30.29
-L- POT Sta. 210+62.00
-Y6- POT Sta. 14+99.99
-Y7- POT Sta. 10+00.00
PC Sta. 10+50.84
PT Sta. 11+83.98
-18-y128 11+42.19 POT= ELEV= 19.16' NAIL SET -L- 217+74.23 256.38' RT
-BY29- 30 18+18.73 POT= -L- 207+78.51 492.18' RT
END CONSTRUCTION -Y7- POT Sta. 14+50.00
END GRADE -Y7- POT Sta. 14+00.00
Water Line-4
MATCHLINE -L- 206+00 SEE SHEET 15
MATCHLINE -L- 220+00 SEE SHEET 17
N 9°55'55.0"W
N 1°26'00.1"W
S 40°08'15.8"E
S 70°23'46.5"E
OBLITERATE
SEE SHT.2? FOR -L- PROFILE
ALL DRIVEWAY WIDTHS 16' AND RADII 10' UNLESS OTHERWISE NOTED
ALL ISLANDS SHOWN ARE 5' MONOLITHIC CONCRETE ISLAND (KEYED IN) STD.852.01
SEE SHT.2-F FOR INTERSECTION DETAIL
SEE SHT.2-H FOR DRAINAGE DITCH DETAILS
-L-
PI Sta 205+36.20
Δ = 7°00'15.2" (LT)
D = 0°58'45.9"
L = 715.14'
T = 358.02'
R = 5,850.00'
SE = 0.028
INC = 41.07'
PIs Sta 209+31.66
Θs = 0°33'47.4"
Ls = 115.00'
LT = 76.67'
ST = 38.33'
-Y6-
PI Sta 12+76.10
Δ = 16°35'33.5" (RT)
D = 5°43'46.5"
L = 289.60'
T = 145.82'
R = 1,000.00'
-Y7-
PI Sta 11+17.56
Δ = 9°32'08.6" (RT)
D = 7°09'43.1"
L = 133.14'
T = 66.73'
R = 800.00'
PROJECTED TRAFFIC VOLUMES
2016 ADT
2030 ADT
US 17
SR 1409
SR 1511
PLANS PREPARED BY :
RUMMEL KLEPPER & KAHL, LLP
consulting engineers
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
FOR
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
REVISIONS
26-AUG-2008 11:34



PROJECT REFERENCE NO. R-2510C
SHEET NO. 17
DESIGNED BY:
DRAWN BY:
CHECKED BY:
APPROVED BY:
REVISED:
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
PROJECT SERVICES UNIT PHONE:(919)250-4128 FAX:(919)250-4119
UTILITY CONSTRUCTION PLANS ONLY
UTILITY CONSTRUCTION
Permit Drawing
Sheet 15 of 30
BEGIN APPROACH SLAB -L- STA. 221+63.97 (SB)
BEGIN APPROACH SLAB -L- STA. 221+21.25 (NB)
BEGIN BRIDGE -L- STA. 221+98.36 (SB)
BEGIN BRIDGE -L- STA. 221+55.64 (NB)
END BRIDGE -L- STA. 223+46.36 (SB)
END BRIDGE -L- STA. 223+04.64 (NB)
END APPROACH SLAB -L- STA. 223+81.75 (SB)
END APPROACH SLAB -L- STA. 223+39.03 (NB)
DETAIL FOR BRIDGE OVER OLD FORD SWAMP (NOT TO SCALE)
NAD 83/95
N/F SAMUEL B. LEGGETT ET UX D B 367 PG 360
HAROLD W. ROBINSON, ET UX DB 804 PG 850
MINNIE LEE BRANTLEY DB 645 PG 258
WILLIAM B. BAKER, ET UX D B 808 PG 577
JACK F. CHERRY DB 291 PG 503
TIMOTHY W. COWARD DB 1130 PG 398
GLADYS B. STYONS DB 599 PG 126 ESTATE FILE 04-E-254
MILTON E. HODGES, JR. DB 1010 PG 428 PLAT CAB. B SLIDE 97
THE ASSEMBLY OF THE CHILDREN OF GOD CHRISTIAN CHURCH DB 948 PG 925
BIG SWAMP RURITAN CLUB DB 754 PG 789 PLAT CAB. B SLIDE 97
EASEMENT FOR BIG SWAMP RURITAN CLUB
-T8- 125 5+00.00 POT= ELEV= 20.65' NAIL SET -L- 222+92.56 101.28' LT
-BL- 20 180+45.66 PINC = T8- 126 7+22.46 PINC -L- 221+45.22 65.40' RT
-T8- 127 8+01.18 PINC= ELEV= 20.75' NAIL SET -L- 220+68.93 84.82' RT
-BL- 21 186+82.58 PINC= -L- 227+82.01 78.08' RT
-BY30- 504 5+00.0 POT= -BL- 22 192+74.68 PINC -L- 233+74.12 77.01' RT
N 9°55'55.0" W
OLD FORD SWAMP
MATCHLINE -L- 220+00 SEE SHEET 16
MATCHLINE -L- 234+00 SEE SHEET 18
CONC MODIFIED FLUME
150' TAPER
350' TAPER
180' TAPER
60' ACCESS BREAK
RETAIN EX 18" RCP AND EXTEND INVERT IN 12' W/COLLAR EX PIPE IN GOOD CONDITION
SPECIAL CUT DITCH SEE DETAIL A
3 TONS CL B RIPRAP W/10 SY FIL FAB
2 TONS CL B RIPRAP W/7 SY FIL FAB
OBLITERATE
SEE SHEETS __ THRU __ FOR STRUCTURE PLANS
SEE SHT. 27 FOR -L- PROFILE
ALL DRIVEWAY WIDTHS 16' AND RADII 10' UNLESS OTHERWISE NOTED
SEE SHT. 2-H FOR DRAINAGE DITCH DETAILS
PLANS PREPARED BY :
RUMMEL KLEPPER & KAHL, LLP
consulting engineers
900 RIDGEFIELD DRIVE SUITE 350 RALEIGH, NORTH CAROLINA 27609-3960
FOR
STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS
26-AUG-2008 11:44


PROJECT REFERENCE NO. R-2510C
SHEET NO. 18
DESIGNED BY:
DRAWN BY:
CHECKED BY:
APPROVED BY:
REVISED:
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
PROJECT SERVICES UNIT PHONE:(919)250-4128 FAX:(919)250-4119
UTILITY CONSTRUCTION PLANS ONLY
UTILITY CONSTRUCTION
Permit Drawing Sheet 14 of 30
NAD 83/95
PROJECTED TRAFFIC VOLUMES
2016 ADT
2030 ADT
US 17
SR 171
PM
9,860
17,300
7,020
12,300
3,080
5,400
240
400
3,320
5,800
Water Line-5
MATCHLINE -L- 234+00 SEE SHEET 17
MATCHLINE -L- 248+00 SEE SHEET 19
-L- POT Sta. 235+00.00 = -Y8- POT Sta. 10+00.00
TS Sta. 243+53.80
SC Sta. 245+78.80
-BL 23 201+10.58 PINC = -L- 242+10.01 73.91' RT
N 9°55'55.0" W
PC Sta. 10+82.72
PT Sta. 13+85.43
END GRADE -Y8- Sta.14+55.00
END CONSTRUCTION -Y8- Sta.15+05.00
PHILLIP C. MATKINS, ET UX
JOSEPH E. ROGERS
REBECCA MOORE ROGERS
WILLIAM C. ROGERS
TIMOTHY W. COWARD
ARAH BELL GAUTIER CARRAWAY
OLD FORD VOLUNTEER FIRE DEPT. INC
THE ASSEMBLY OF THE CHILDREN OF GOD CHRISTIAN CHURCH
BIG SWAMP RURITAN CLUB
WOODMEN OF THE WORLD LODGE HISTORIC PROPERTY
THE OLD FORD CHURCH OF CHRIST
MCDONALD GAUTIER, III, ET AL
-Y8-
PI Sta 12+41.13
Δ = 41°41' 32.0" (LT)
D = 13°46' 22.9"
L = 302.71'
T = 158.41'
R = 416.00'
E = 0.036
INC = 18.06'
-L-
PIs Sta 245+03.82
θs = 2°10' 39.5"
Ls = 225.00'
LT = 150.01'
ST = 75.01'
PI Sta 249+15.77
Δ = 12°59' 21.1" (LT)
D = 1°56' 08.4"
L = 671.04'
T = 336.97'
R = 2,960.00'
E = 0.05
INC = 45.00'
OBLITERATE
ALL DRIVEWAY WIDTHS 16' AND RADII 10' UNLESS OTHERWISE NOTED
SEE SHT.2B FOR -L- PROFILE
ALL ISLANDS SHOWN ARE 5' MONOLITHIC CONCRETE ISLAND (KEYED IN) STD.852.01
SEE SHT.2-G FOR INTERSECTION DETAIL
SEE SHT.2-H FOR DRAINAGE DITCH DETAILS
PLANS PREPARED BY:
RUMMEL KLEPPER & KAHL, LLP
consulting engineers
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
FOR
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
26-AUG-2008

PROJECT REFERENCE NO.	SHEET NO.
R-2510C	19

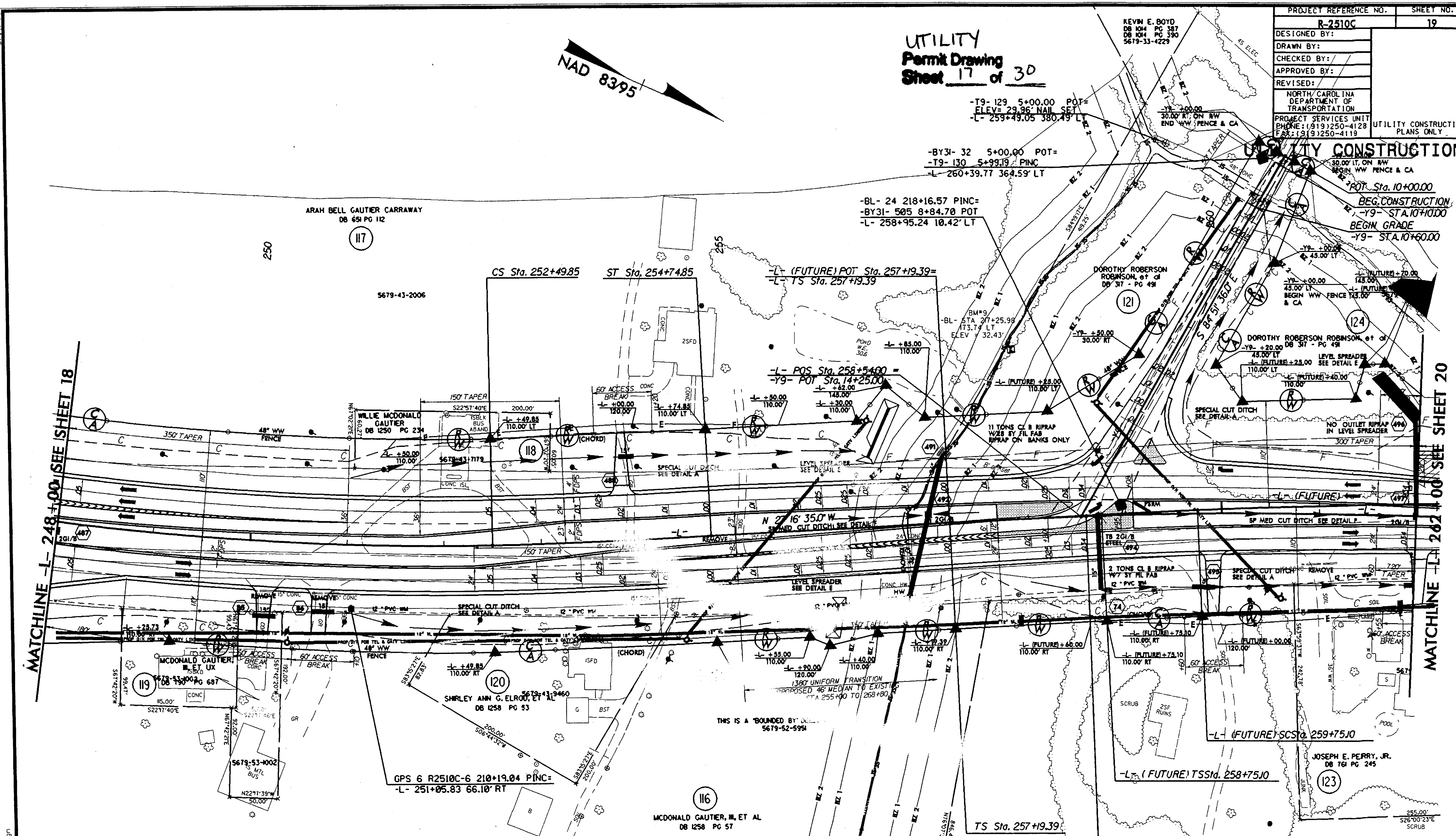
DESIGNED BY:
DRAWN BY:
CHECKED BY:
APPROVED BY:
REVISED:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
PROJECT SERVICES UNIT PHONE: (919)250-4128 FAX: (919)250-4119

UTILITY CONSTRUCTION PLANS ONLY

UTILITY
Permit Drawing
Sheet 17 of 30

UTILITY CONSTRUCTION

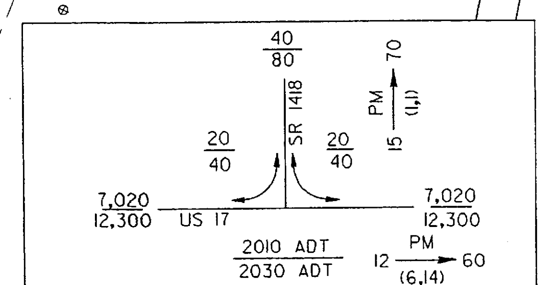


-L- (FUTURE)

PIs Sta 259+41.77	PI Sta 263+55.37	PIs Sta 267+68.23
θs = 0° 24' 33.3"	Δ = 6° 13' 08.4" (RT)	θs = 0° 24' 33.3"
Ls = 100.00'	D = 0° 49' 06.6"	Ls = 100.00'
LT = 66.67'	L = 759.79'	LT = 66.67'
ST = 33.33'	T = 380.27'	ST = 33.33'
	R = 7,000.00'	
	SE = 0.025	
	INC = 38.40'	

-L-

PI Sta 249+15.77	PIs Sta 253+24.86	PIs Sta 258+12.73	PI Sta 260+78.19
Δ = 12° 59' 21.1" (LT)	θs = 2° 10' 39.5"	θs = 0° 51' 12.0"	Δ = 5° 19' 50.9" (RT)
D = 1° 56' 08.4"	Ls = 225.00'	Ls = 140.00'	D = 1° 13' 08.6"
L = 671.04'	LT = 150.01'	LT = 93.33'	L = 437.29'
T = 336.97'	ST = 75.01'	ST = 46.67'	T = 218.80'
R = 2,960.00'			R = 4,700.00'
SE = 0.05			SE = 0.034
INC = 45.00'			INC = 40.18'



PROJECTED TRAFFIC VOLUMES

ALL DRIVEWAY WIDTHS 16' AND RADII 10' UNLESS OTHERWISE NOTED

SEE SHT. 2B FOR -L- PROFILE

SEE SHT. 2-G FOR INTERSECTION DETAIL

ALL ISLANDS SHOWN ARE 5' MONOLITHIC CONCRETE ISLAND (KEYED IN) STD. 852.01

SEE SHT. 2-H FOR DRAINAGE DITCH DETAILS

PLANS PREPARED BY :
RUMMEL KLEPPER & KAHL, LLP
consulting engineers
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
(919) 878-9560
FOR
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

REVISIONS

8/17/98

26-AUG-2008 12:02
r2510c_ut_Permit_psh_019.dgn

Note: For permitting purposes, construct subgrade, fill slope and required drainage for future project. (-L- Sta 262+50 to 264+00 LT.)

PROJECT REFERENCE NO.	SHEET NO.
R-2510C	20

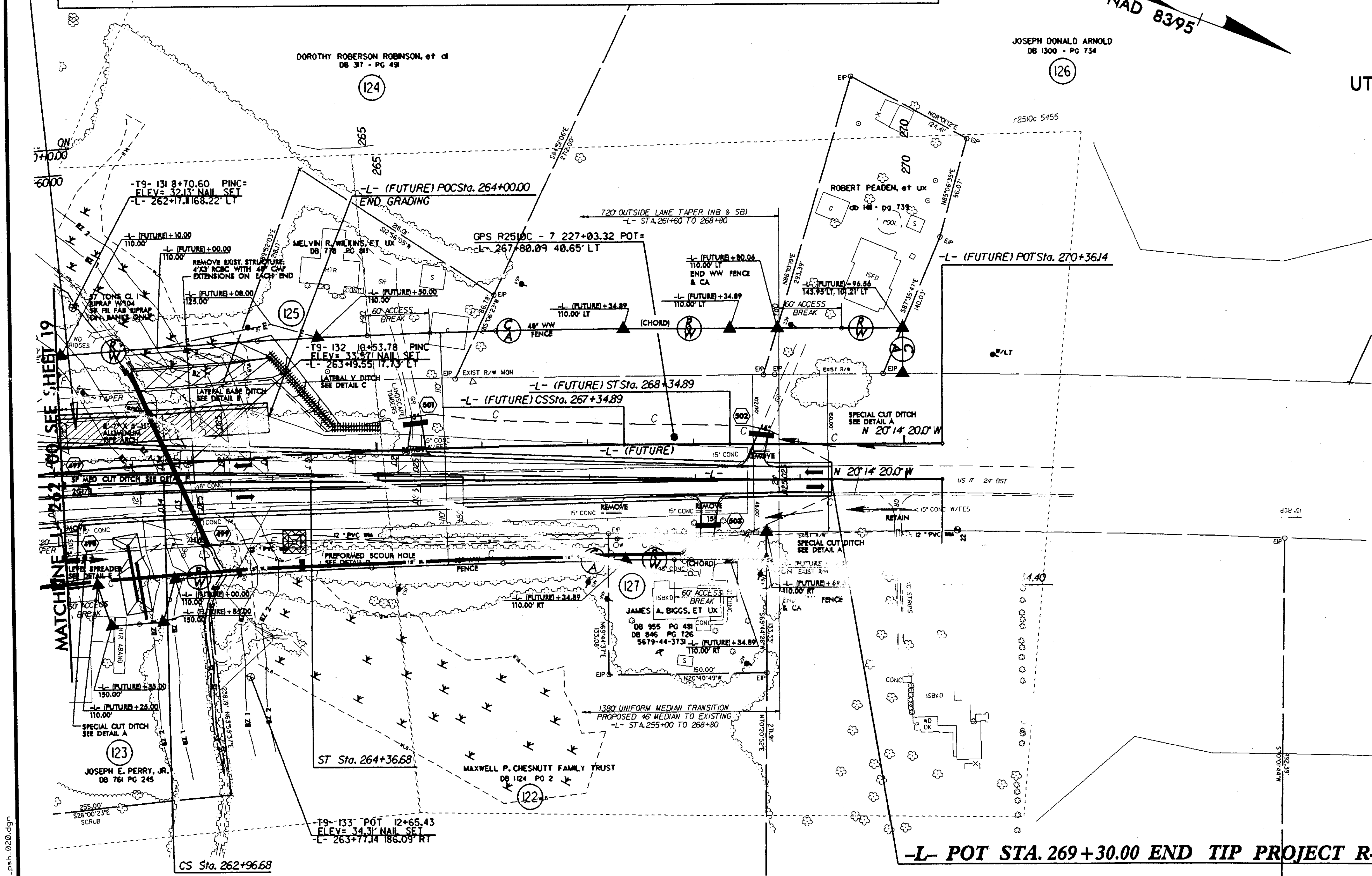
DESIGNED BY:
DRAWN BY:
CHECKED BY:
APPROVED BY:
REVISED:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
PROJECT SERVICES UNIT
PHONE: (919) 250-4128
FAX: (919) 250-4119

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

Permit Drawing
Sheet 18 of 30



-L- POT STA. 269+30.00 END TIP PROJECT R-2510C

ALL DRIVEWAY WIDTHS 16' AND RADII 10' UNLESS OTHERWISE NOTED

SEE SHT. 29 FOR -L- & -L- (FUTURE) PROFILES

-L-

PI Sta 260+78.19	Pls Sta 263+43.35
Δ = 5° 19' 50.9" (RT)	θs = 0° 5' 12.0"
D = 1° 13' 08.6"	Ls = 140.00'
L = 437.29'	LT = 93.33'
T = 218.80'	ST = 46.67'
R = 4,700.00'	
E = 0.034	
INC = 40.18'	

-L- (FUTURE)

Pls Sta 259+41.77	PI Sta 263+55.37	Pls Sta 267+68.23
θs = 0° 24' 33.3"	Δ = 6° 13' 08.4" (RT)	θs = 0° 24' 33.3"
Ls = 100.00'	D = 0° 49' 06.6"	Ls = 100.00'
LT = 66.67'	L = 759.79'	LT = 66.67'
ST = 33.33'	T = 380.27'	ST = 33.33'
	R = 7,000.00'	
	SE = 0.025	
	INC = 38.40'	

SEE SHT. 2-H FOR DRAINAGE DITCH DETAILS

PLANS PREPARED BY :
RUMMEL KLEPPER & KAHL, LLP
consulting engineers
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
(919) 878-9560
FOR
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

26-AUG-2008 12:18
utilities\r2510C_UT_Permit_psh_020.dgn

PROJECT REFERENCE NO.	SHEET NO.
R2510c	21

DESIGNED BY:
DRAWN BY:
CHECKED BY:
APPROVED BY:
REVISED:

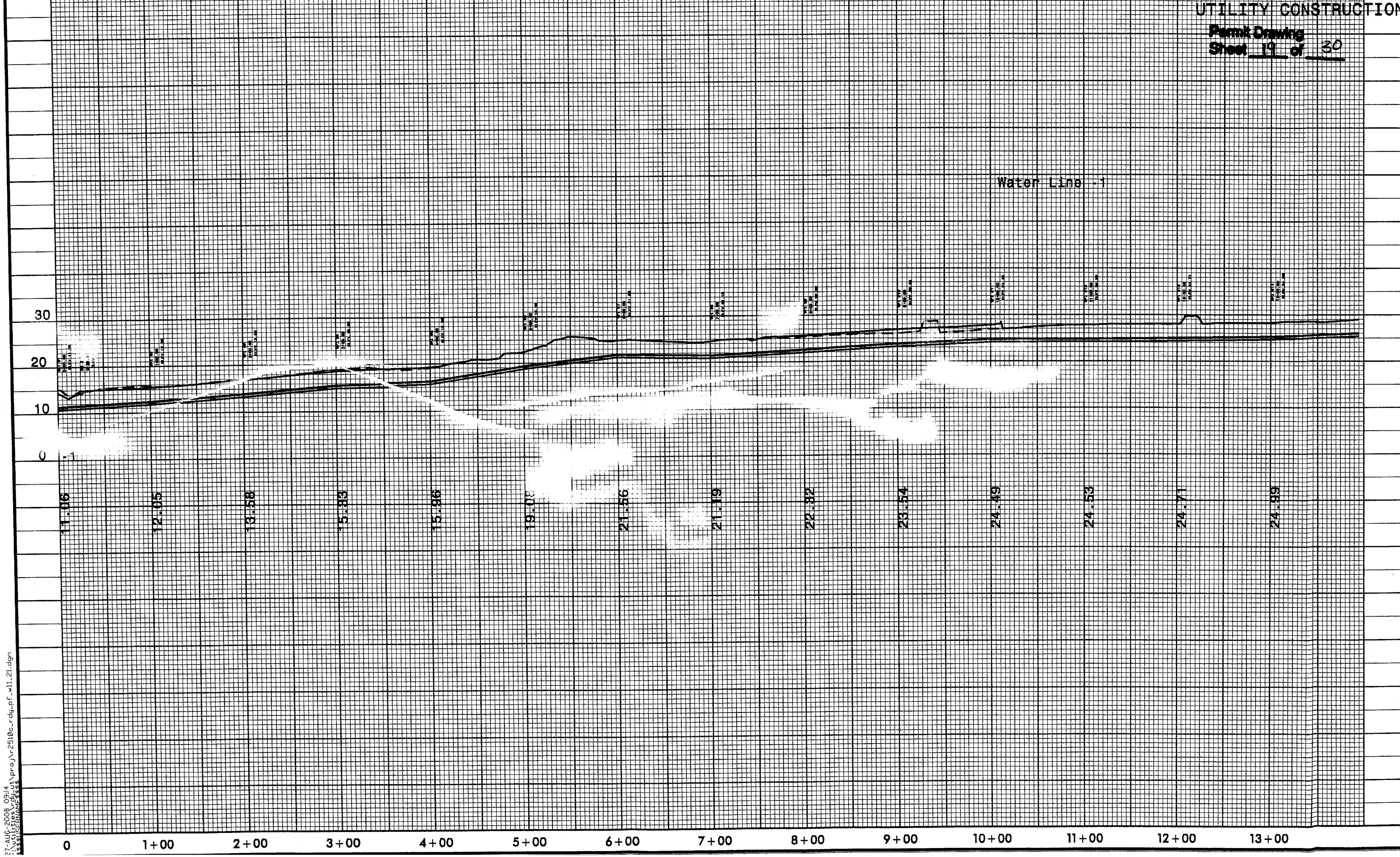
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

PROJECT SERVICES UNIT
PHONE:(919)250-4128
FAX:(919)250-4119

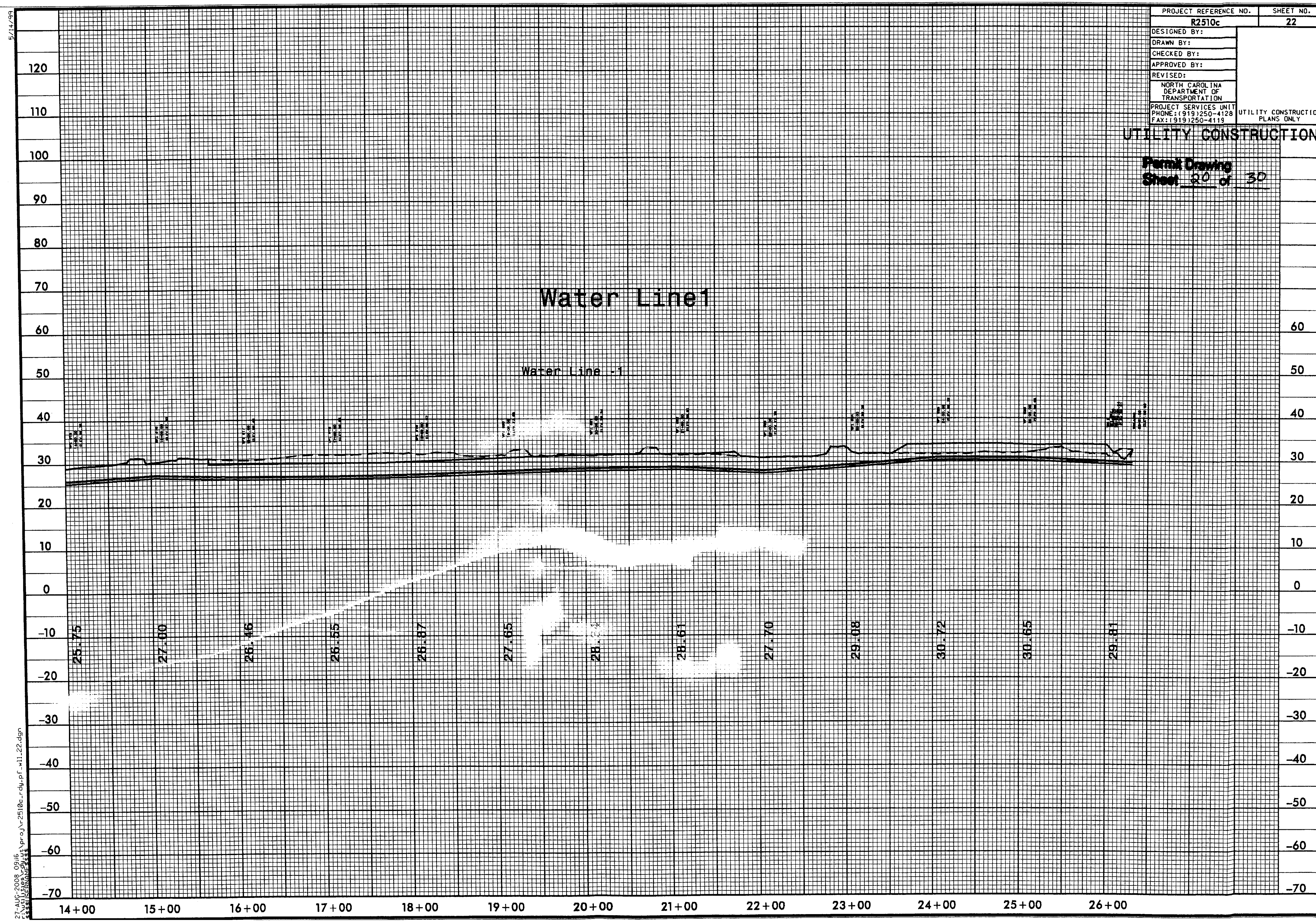
UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

Permit Drawing
Sheet 19 of 30



5/14/99


PROJECT REFERENCE NO.
R2510c
SHEET NO.
22
DESIGNED BY:
DRAWN BY:
CHECKED BY:
APPROVED BY:
REVISED:
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
PROJECT SERVICES UNIT
PHONE:(919)250-4128
FAX:(919)250-4119
UTILITY CONSTRUCTION PLANS ONLY
UTILITY CONSTRUCTION
Permit Drawing
Sheet 20 of 30
5/14/99
Water Line1
Water Line -1
120
110
100
90
80
70
60
50
40
30
20
10
0
-10
-20
-30
-40
-50
-60
-70
25.75
27.00
26.46
26.55
26.87
27.65
28.61
27.70
29.08
30.72
30.65
29.81
14+00
15+00
16+00
17+00
18+00
19+00
20+00
21+00
22+00
23+00
24+00
25+00
26+00
27-AUG-2008 09:16
r:\utilities\dv_ut\proj\r2510c_rdy_pf_wl1_22.dgn

PROJECT REFERENCE NO.	SHEET NO.
R2510c	23

DESIGNED BY:
DRAWN BY:
CHECKED BY:
APPROVED BY:
REVISED:

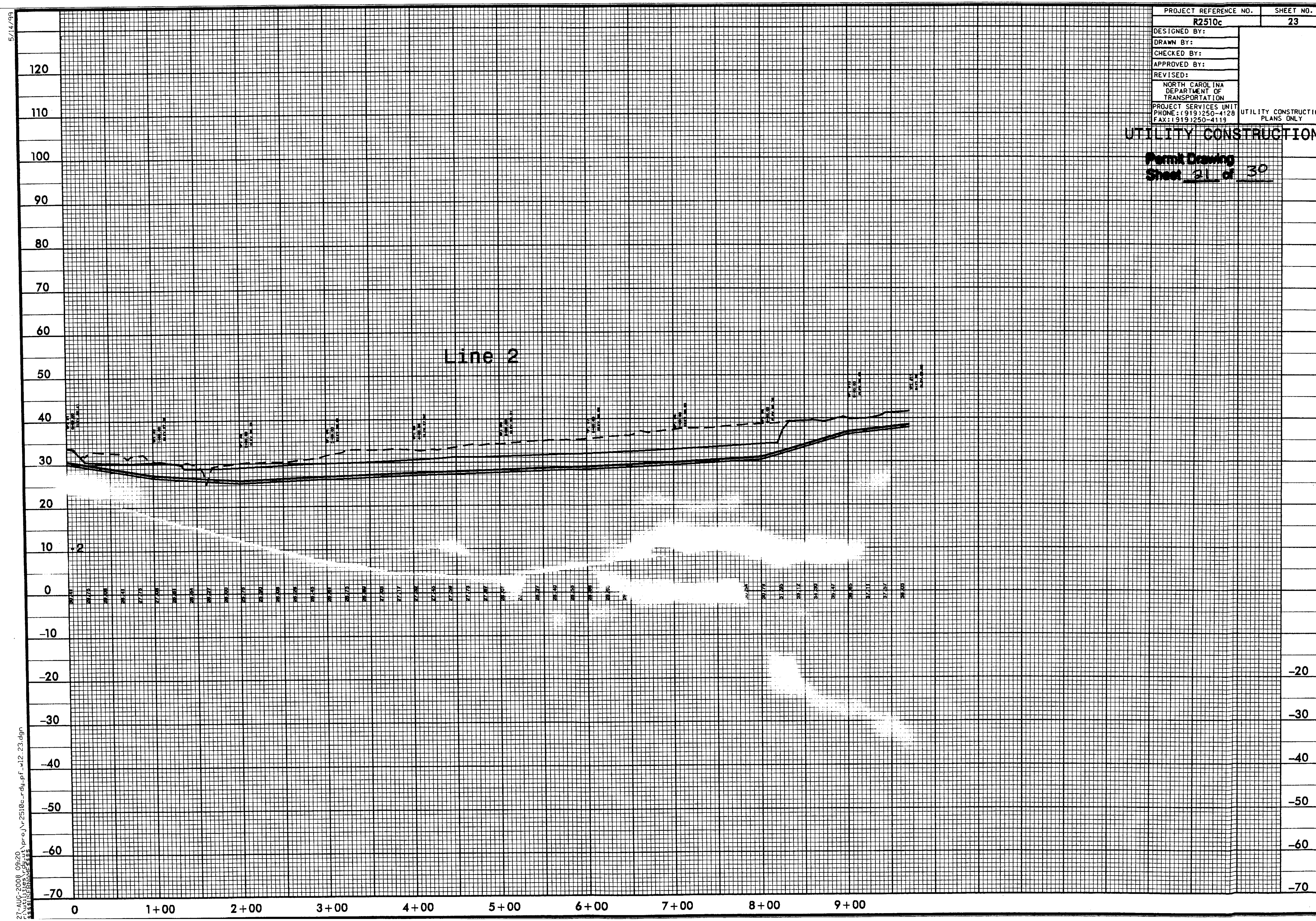
NORTH CAROLINA
DEPARTMENT OF
TRANSPORTATION

PROJECT SERVICES UNIT
PHONE:(919)250-4128
FAX:(919)250-4119

UTILITY CONSTRUCTION
PLANS ONLY

UTILITY CONSTRUCTION

Permit Drawing
Sheet 21 of 30



PROJECT REFERENCE NO.	SHEET NO.
R2510c	24

DESIGNED BY:
DRAWN BY:
CHECKED BY:
APPROVED BY:
REVISED:

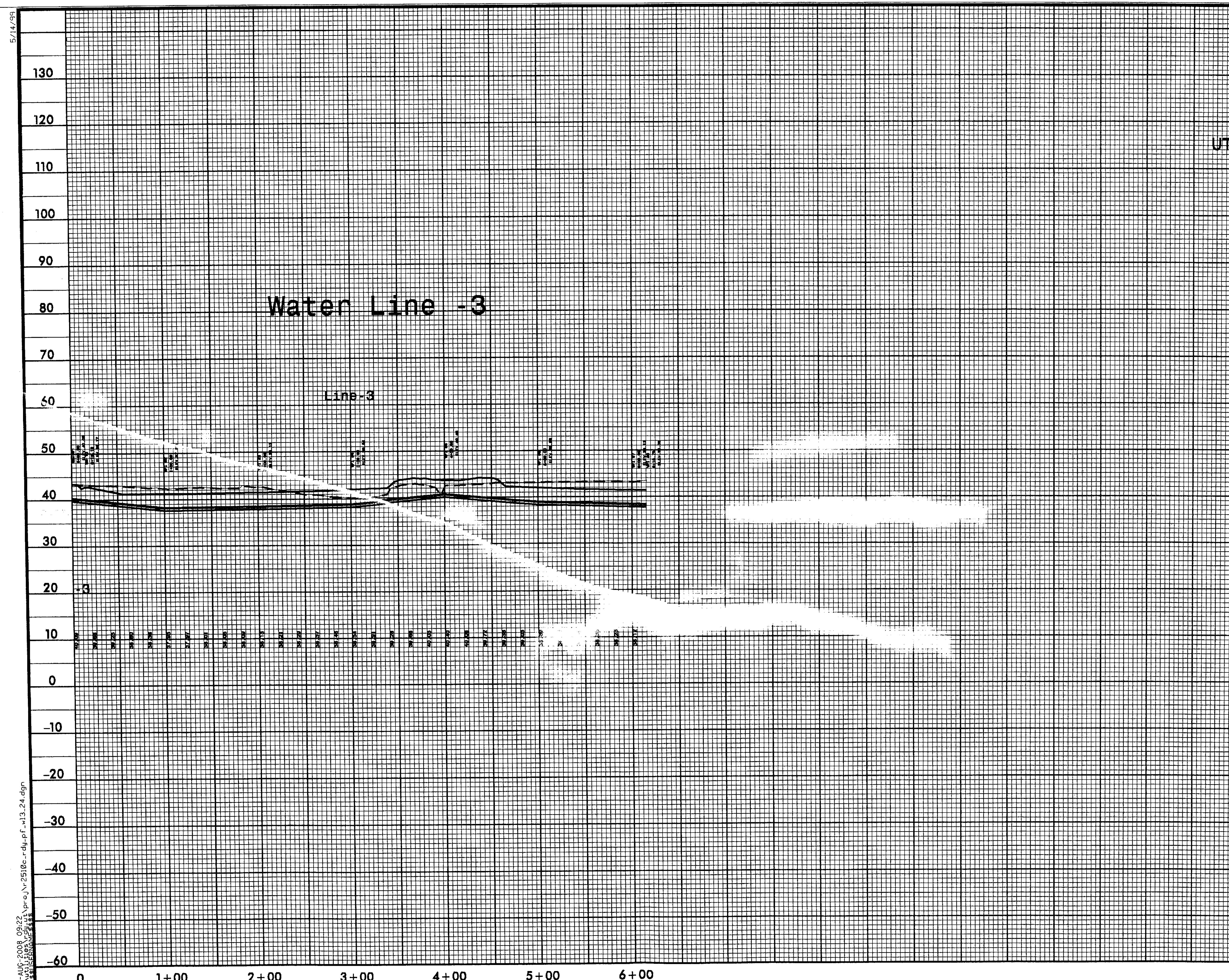
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

PROJECT SERVICES UNIT
PHONE:(919)250-4128
FAX:(919)250-4119

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

Permit Drawing
Sheet 22 of 30



PROJECT REFERENCE NO.	SHEET NO.
R2510c	25

DESIGNED BY:
DRAWN BY:
CHECKED BY:
APPROVED BY:
REVISED:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

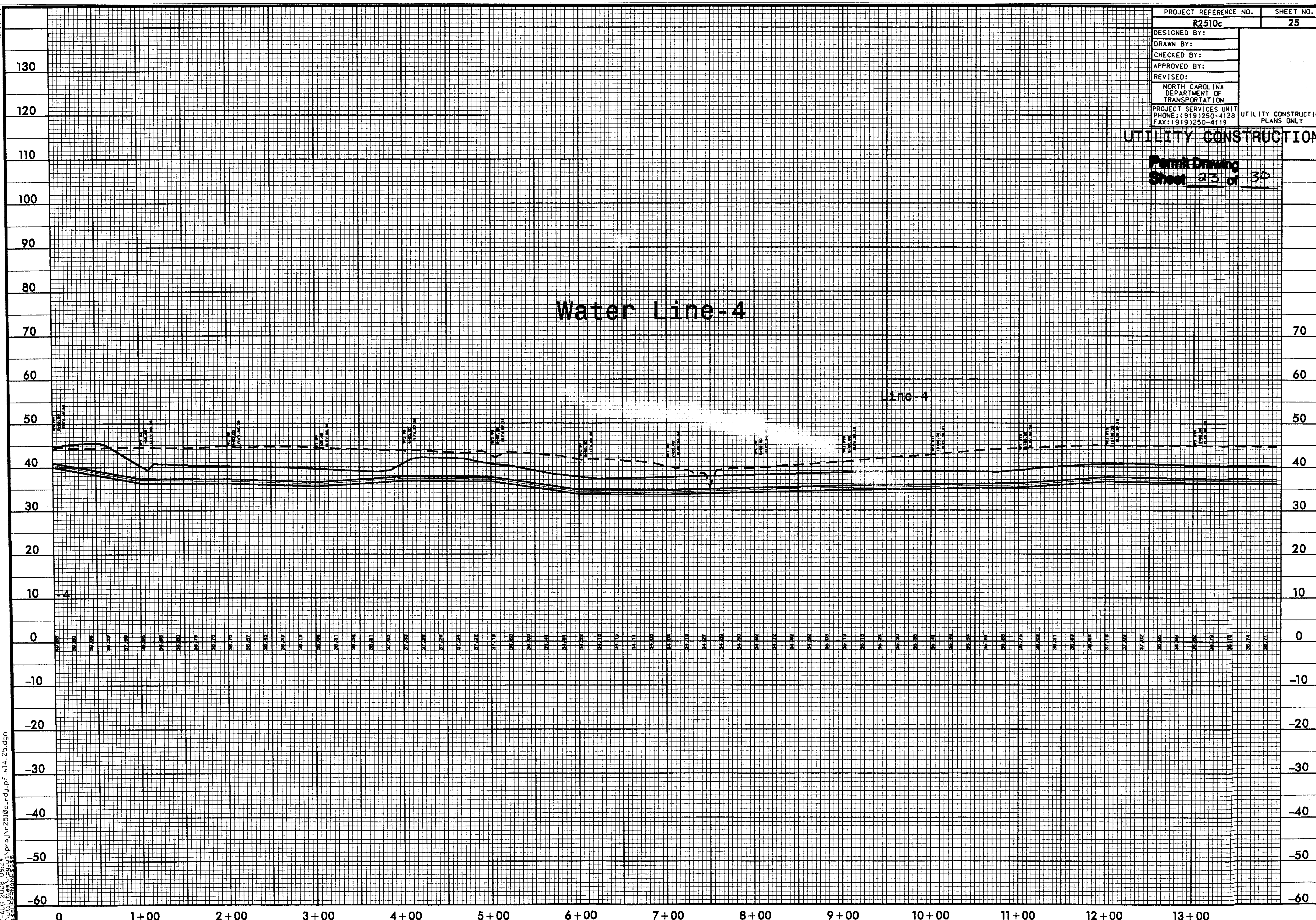
PROJECT SERVICES UNIT
PHONE:(919)250-4128
FAX:(919)250-4119

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

Permit Drawing
Sheet 23 of 30

Water Line-4



5/14/99

27-AUG-2008 09:24
r:\utilities\rdy_ut\proj\r2510c_rdy-pf_wl4_25.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
R2510c	26

DESIGNED BY:
DRAWN BY:
CHECKED BY:
APPROVED BY:
REVISED:

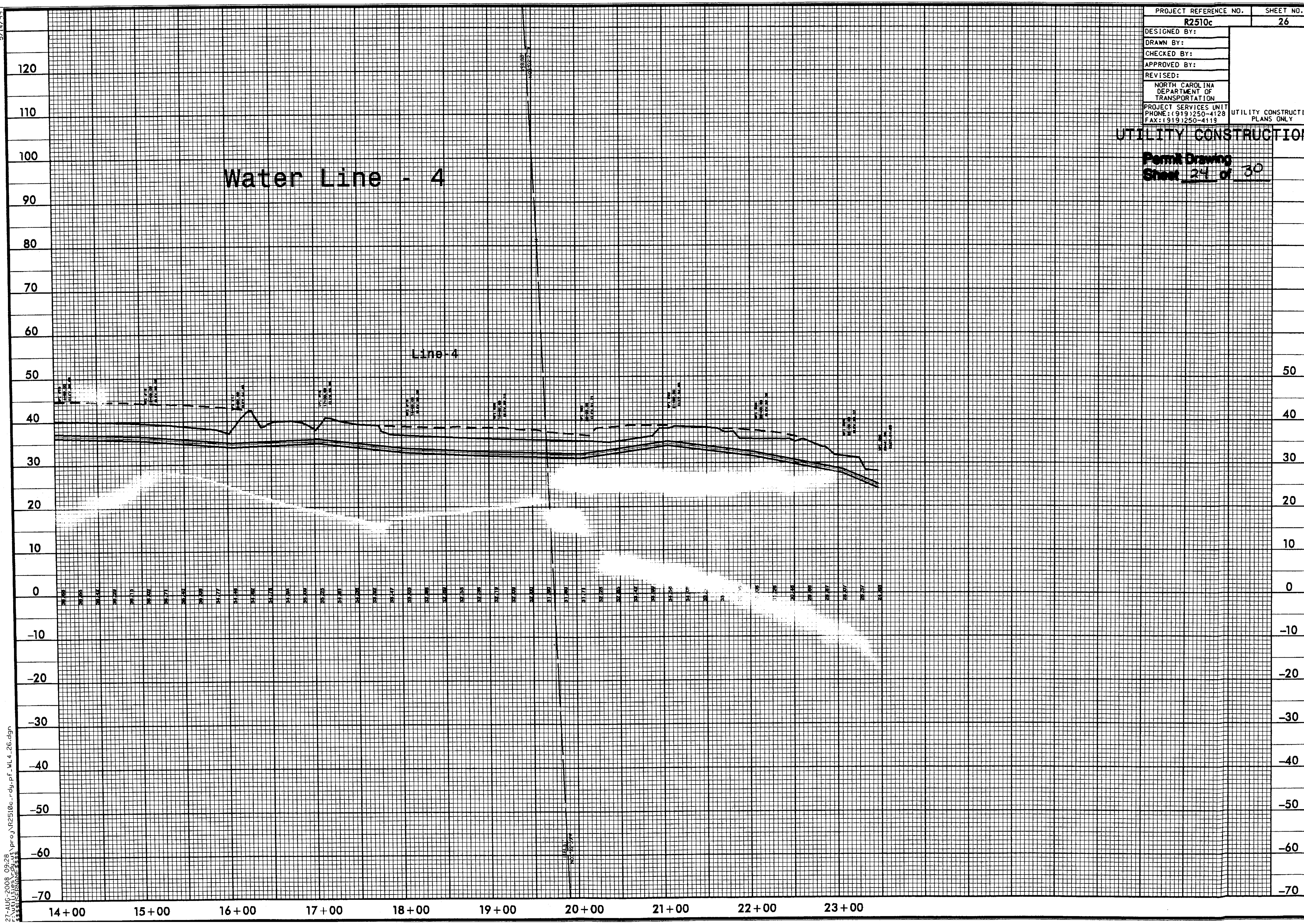
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

PROJECT SERVICES UNIT
PHONE:(919)250-4128
FAX:(919)250-4119

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

Permit Drawing
Sheet 24 of 30



5/14/99

27-AUG-2008 09:28
r:\utilities\rdy_ut\proj\R2510c_rdy_pf_WL4_26.dgn

PROJECT REFERENCE NO.	SHEET NO.
R2510c	27

DESIGNED BY:
DRAWN BY:
CHECKED BY:
APPROVED BY:
REVISED:

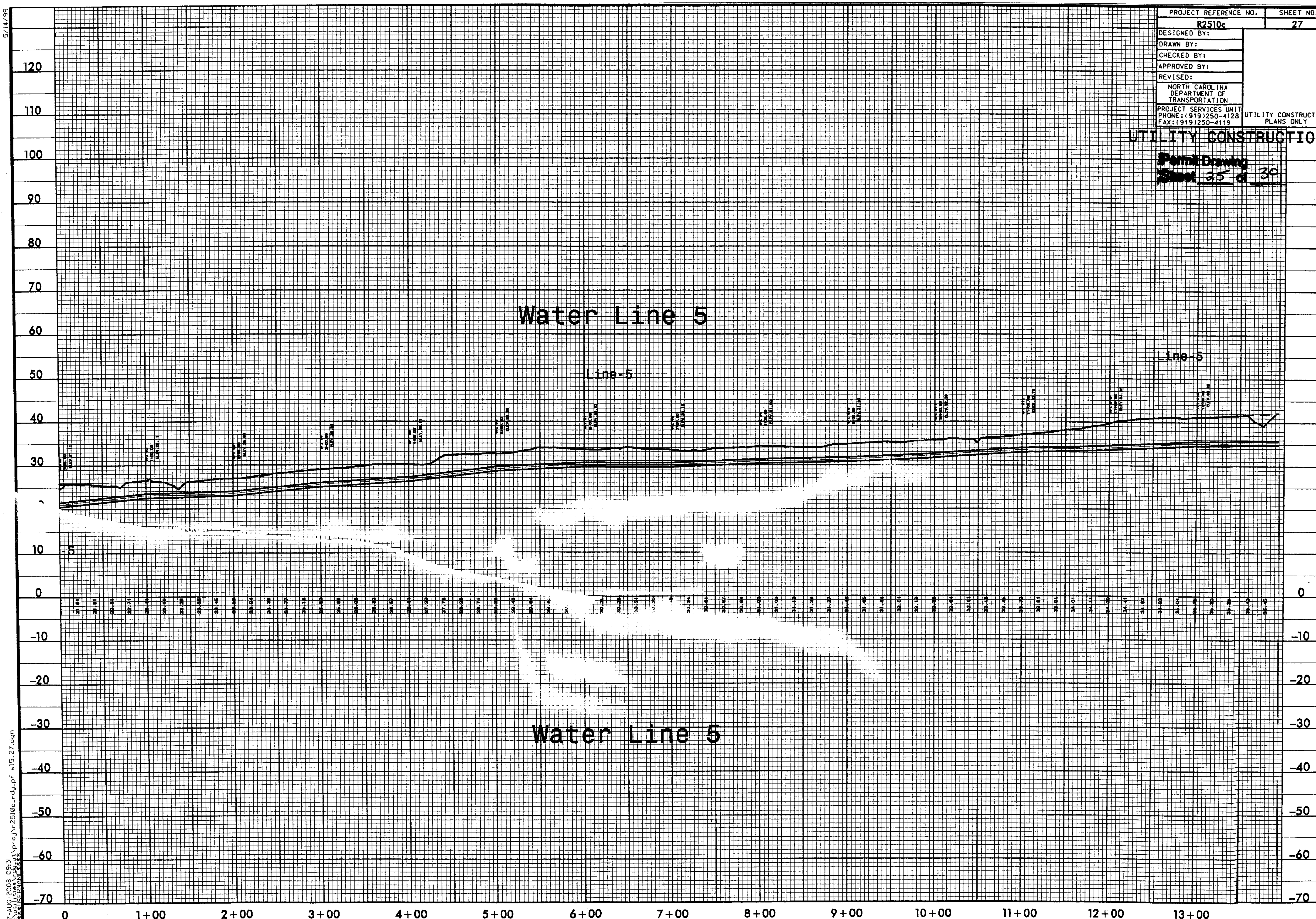
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

PROJECT SERVICES UNIT
PHONE:(919)250-4128
FAX:(919)250-4119

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

Permit Drawing
Sheet 25 of 30



5/14/99

27-AUG-2008 09:31
r:\utilities\rdy_ut\proj\r2510c_rdy_pf_wl5_27.dgn

PROJECT REFERENCE NO.	SHEET NO.
R2510c	28

DESIGNED BY:
DRAWN BY:
CHECKED BY:
APPROVED BY:
REVISED:

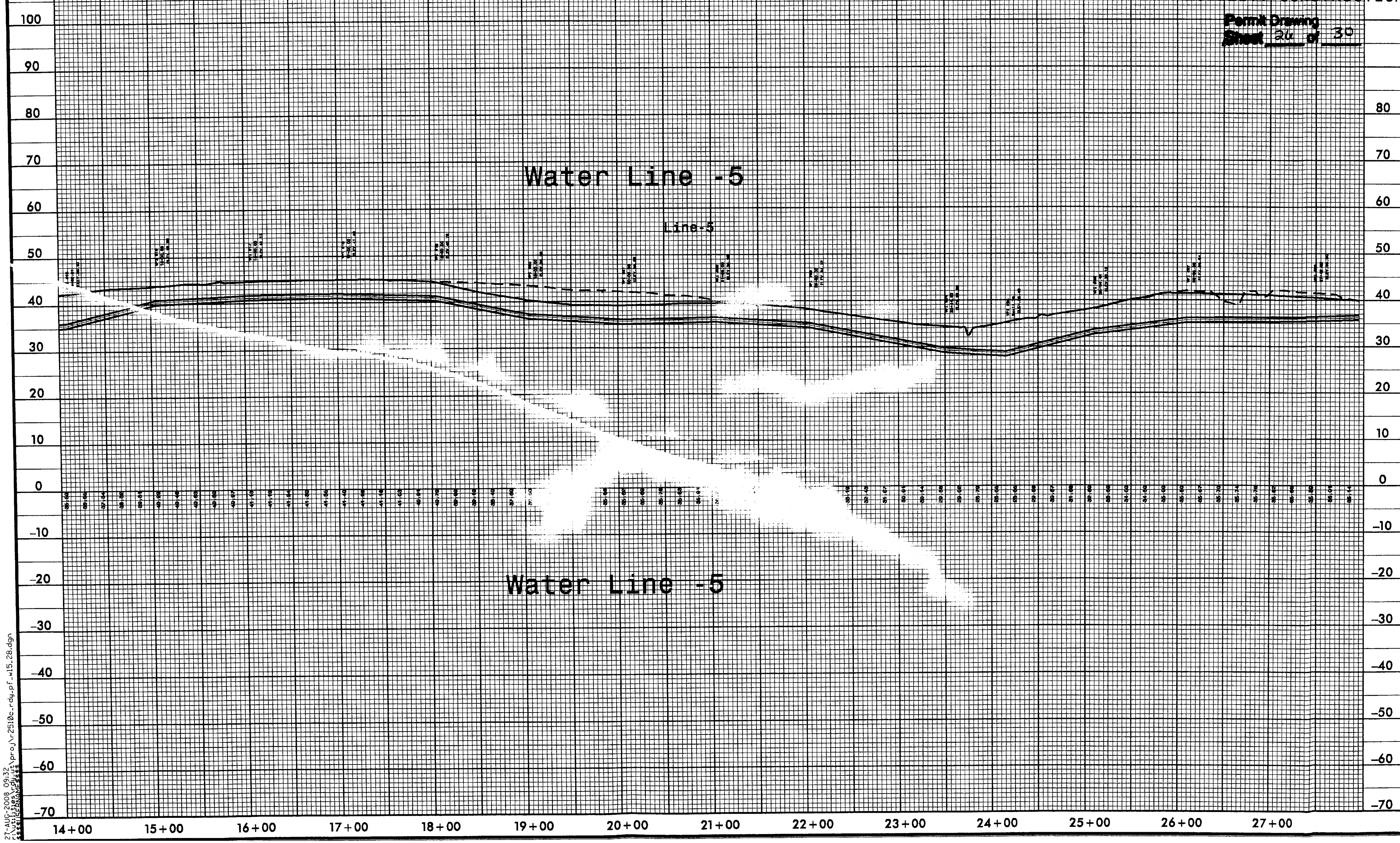
NORTH CAROLINA
DEPARTMENT OF
TRANSPORTATION

PROJECT SERVICES UNIT
PHONE:(919)250-4128
FAX:(919)250-4119

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

Permit Drawing
Sheet 26 of 30



5/14/99

27-AUG-2008 09:32
r:\utilities\...\proj\r2510c_rdy_pf_wl5_28.dgn

PROJECT REFERENCE NO.	SHEET NO.
R2510c	29

DESIGNED BY:
DRAWN BY:
CHECKED BY:
APPROVED BY:
REVISED:

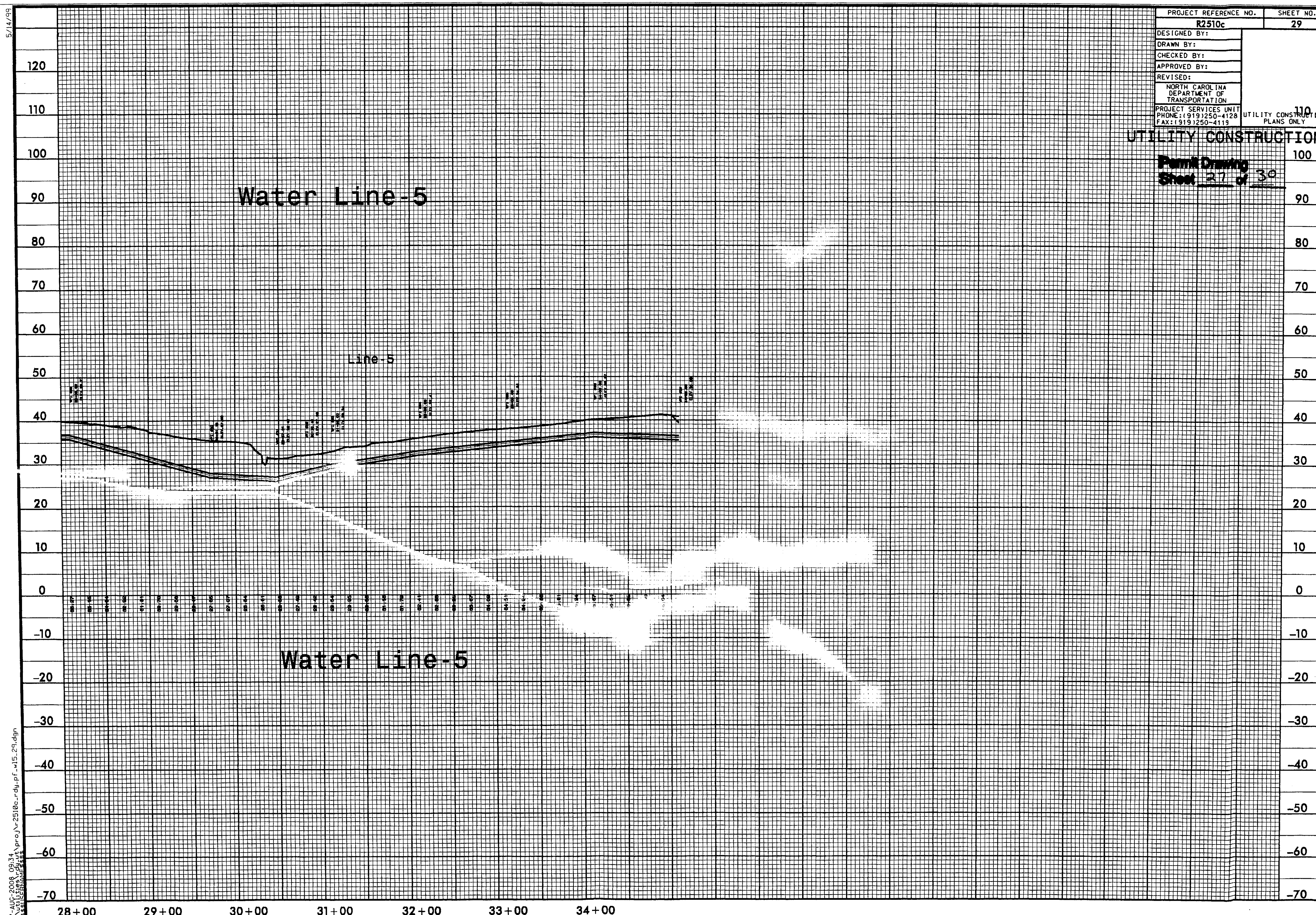
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

PROJECT SERVICES UNIT
PHONE:(919)250-4128
FAX:(919)250-4119

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

Permit Drawing
Sheet 27 of 30



PROJECT REFERENCE NO.	SHEET NO.
R2510c	30

DESIGNED BY:
DRAWN BY:
CHECKED BY:
APPROVED BY:
REVISED:

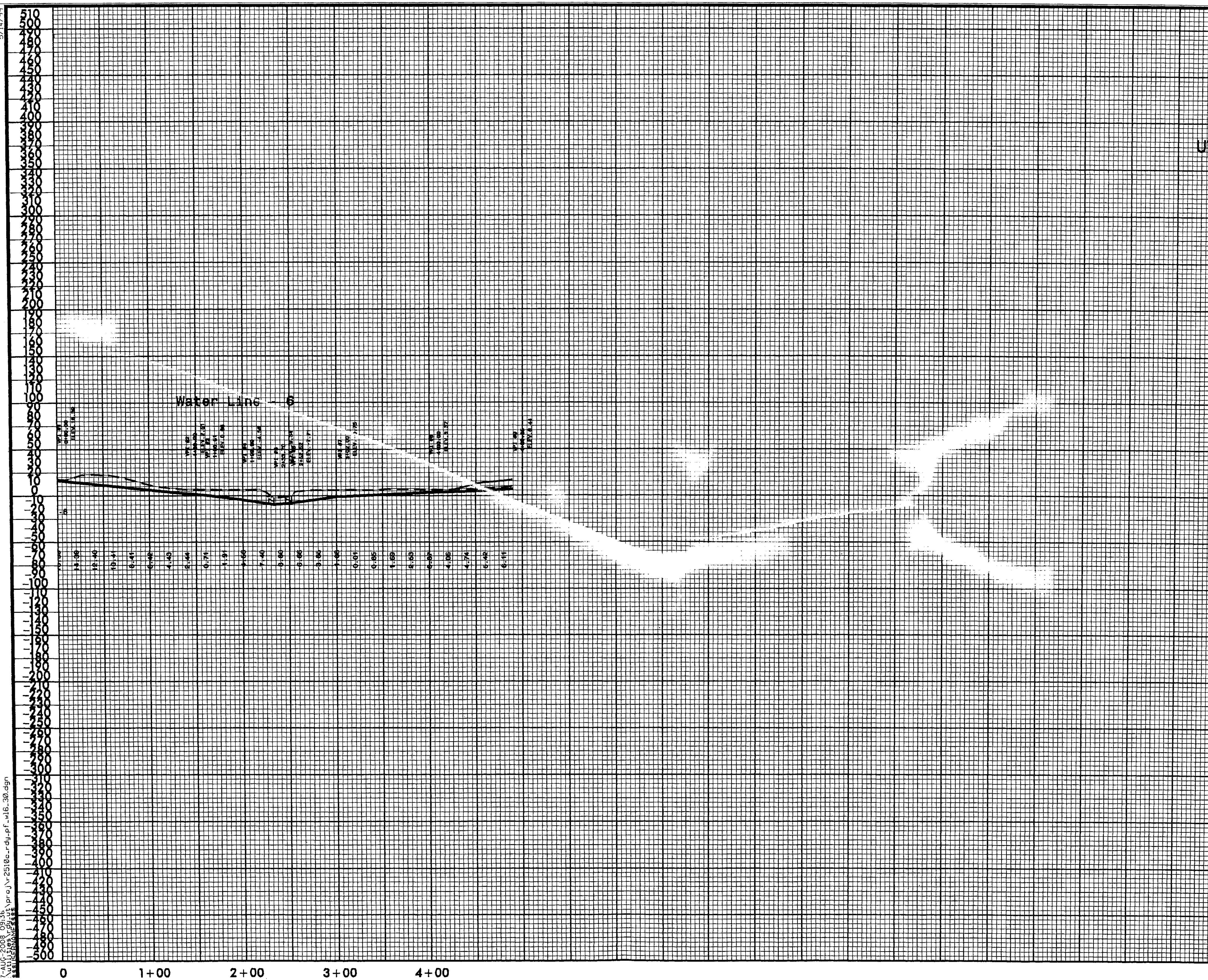
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

PROJECT SERVICES UNIT
PHONE: (919)250-4128
FAX: (919)250-4119

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

Permit Drawing
Sheet 28 of 30



5/14/99

7-AUG-2008 09:36
\utilities\rdy\utyproj\r2510c-rdy-pf_wl6_30.dgn

PROJECT REFERENCE NO.	SHEET NO.
R2510c	

DESIGNED BY:
DRAWN BY:
CHECKED BY:
APPROVED BY:
REVISED:

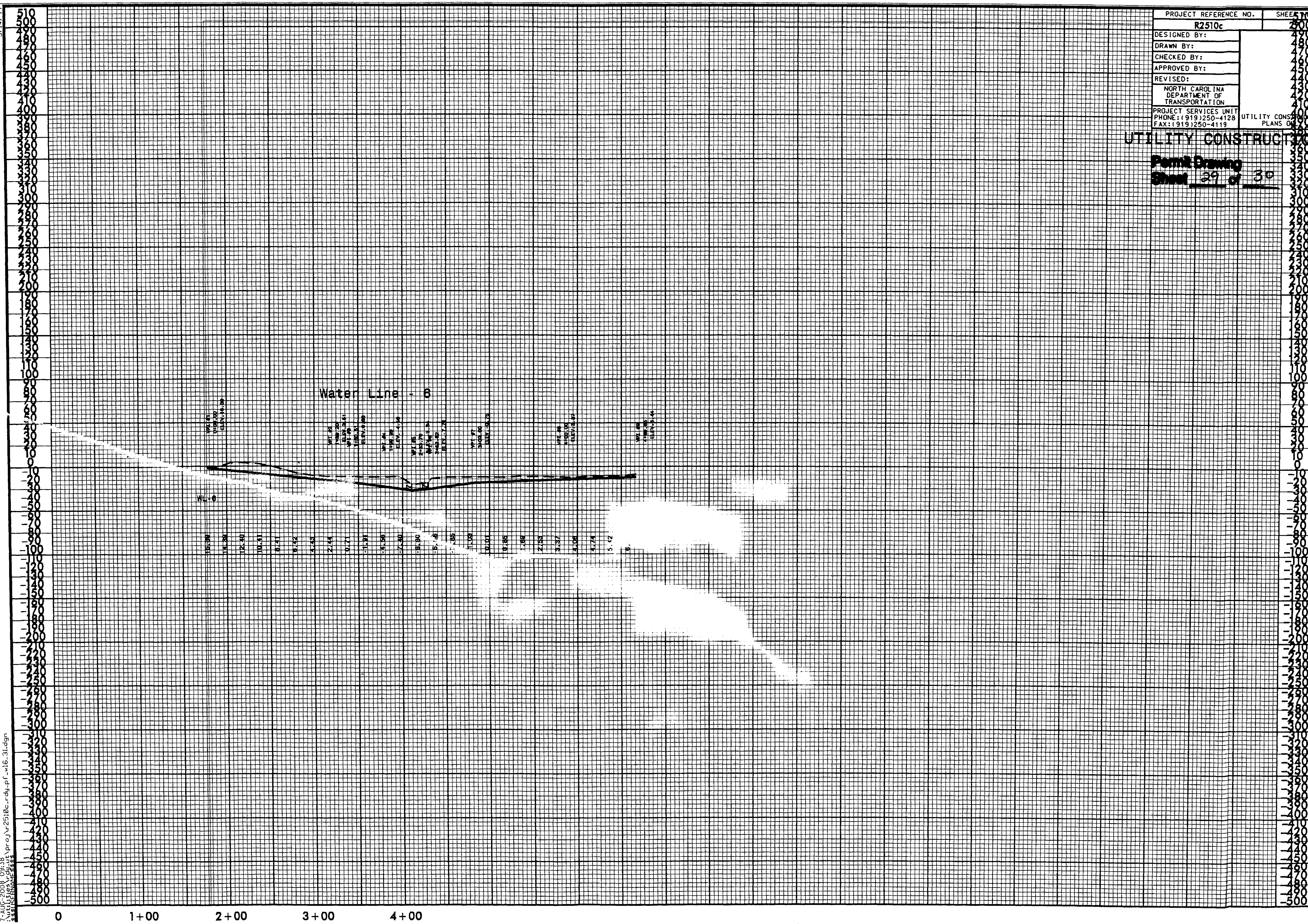
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

PROJECT SERVICES UNIT
PHONE:(919)250-4128
FAX:(919)250-4119

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

Permit Drawing
Sheet 29 **of** 30



5/14/99

7-AUG-2008 09:38
r2510c-rdy-pf_wl6_31.dgn

PROJECT REFERENCE NO.	SHEET NO.
R2510c	31

DESIGNED BY:

DRAWN BY:

CHECKED BY:

APPROVED BY:

REVISED:

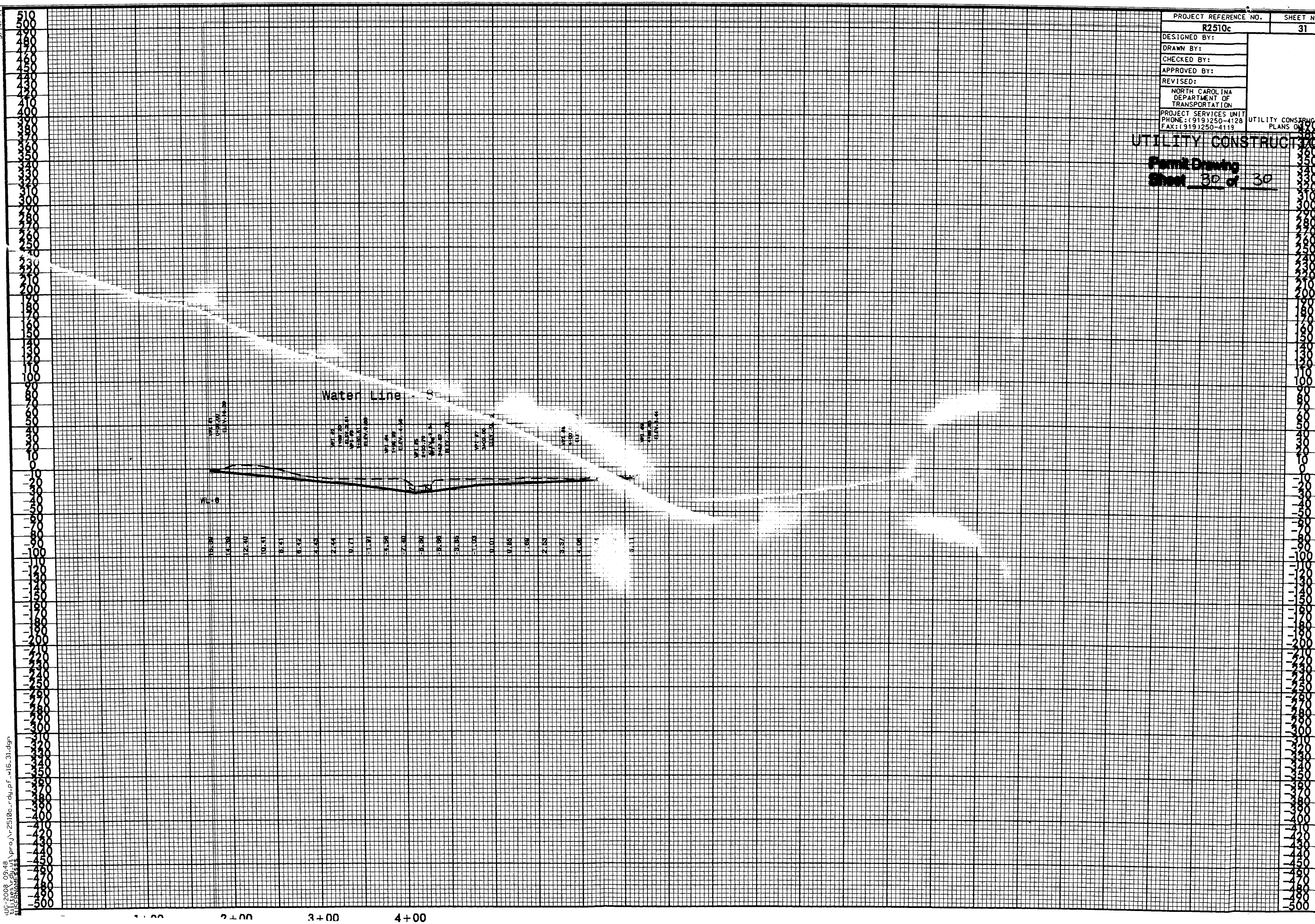
NORTH CAROLINA
DEPARTMENT OF
TRANSPORTATION

PROJECT SERVICES UNIT
PHONE:(919)250-4128
FAX:(919)250-4119

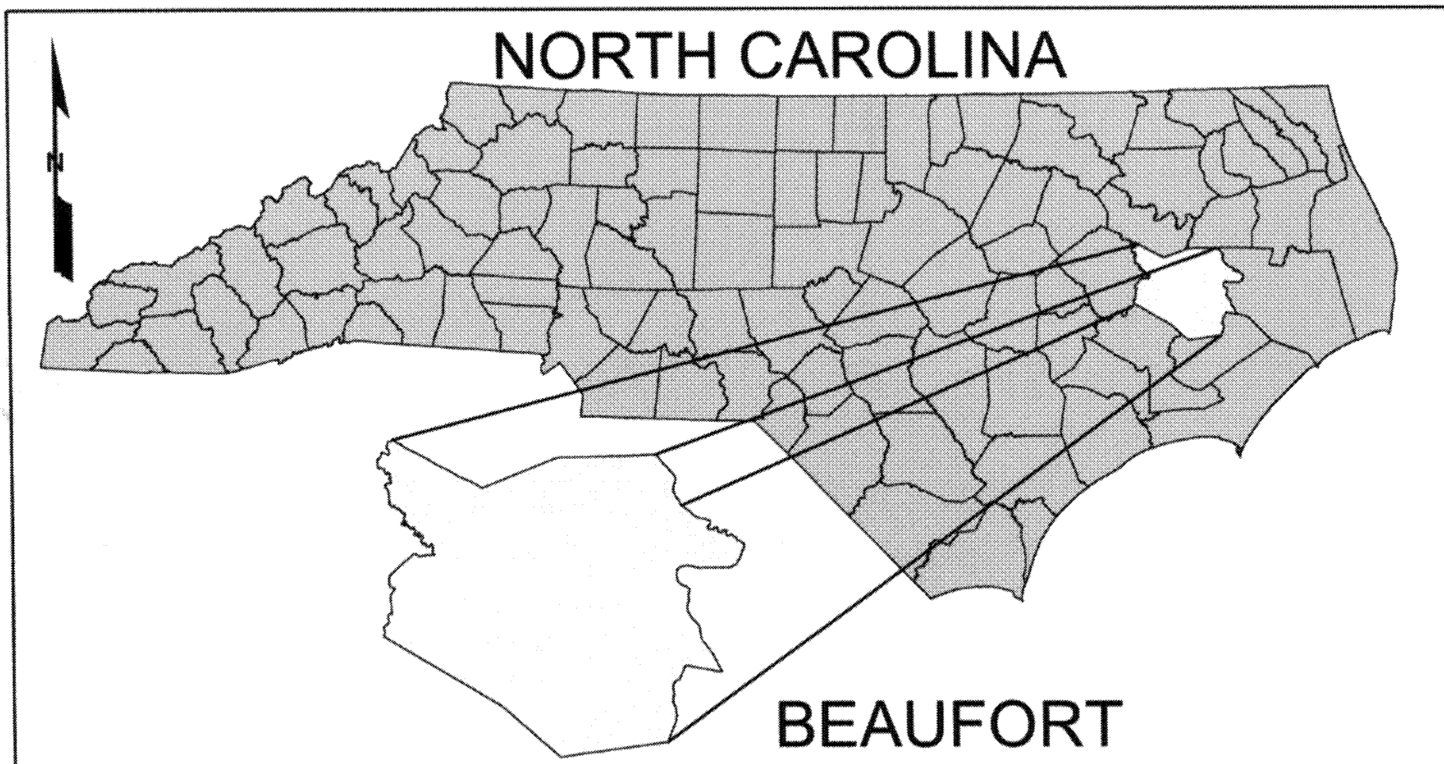
UTILITY CONSTRUCTION PLANS ONLY

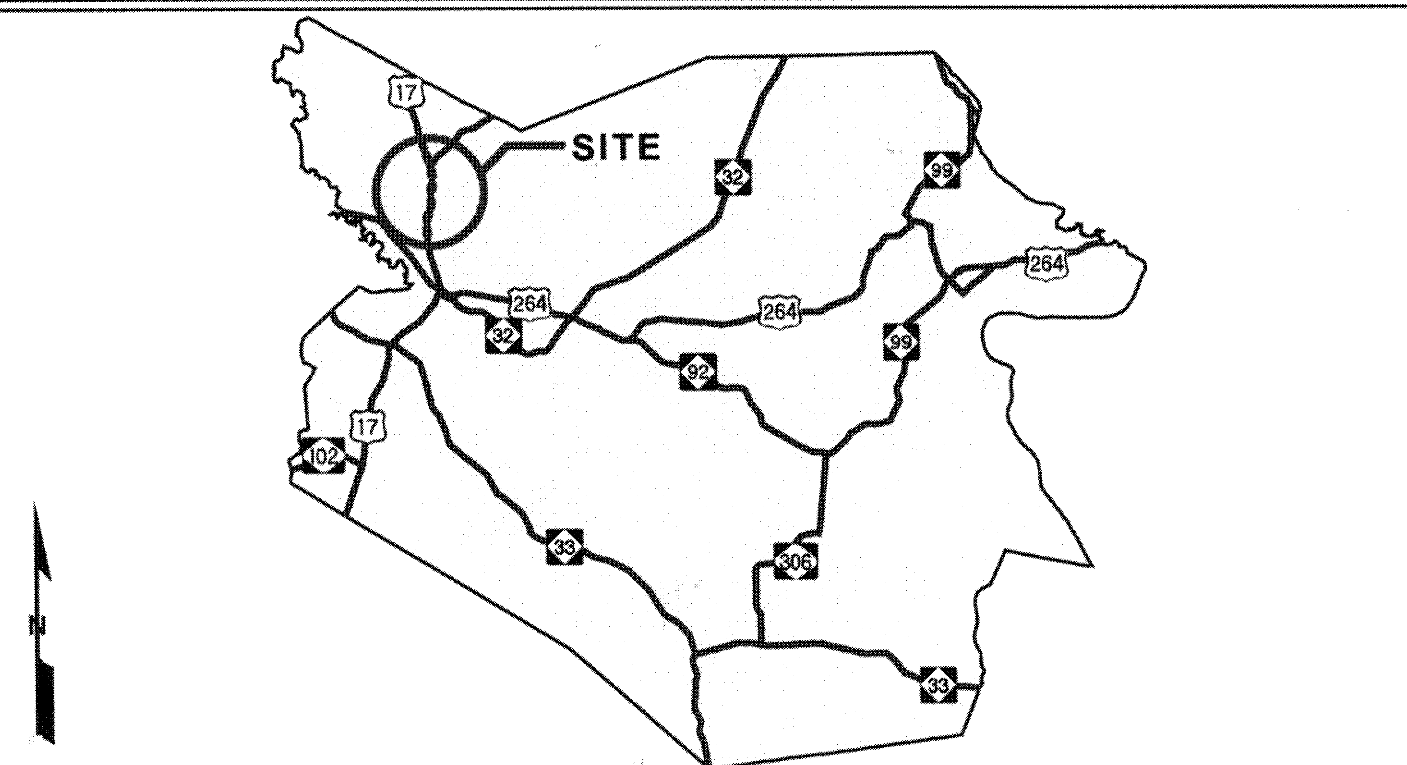
UTILITY CONSTRUCTION

Permit Drawing
Sheet 30 of 30



5/14/99





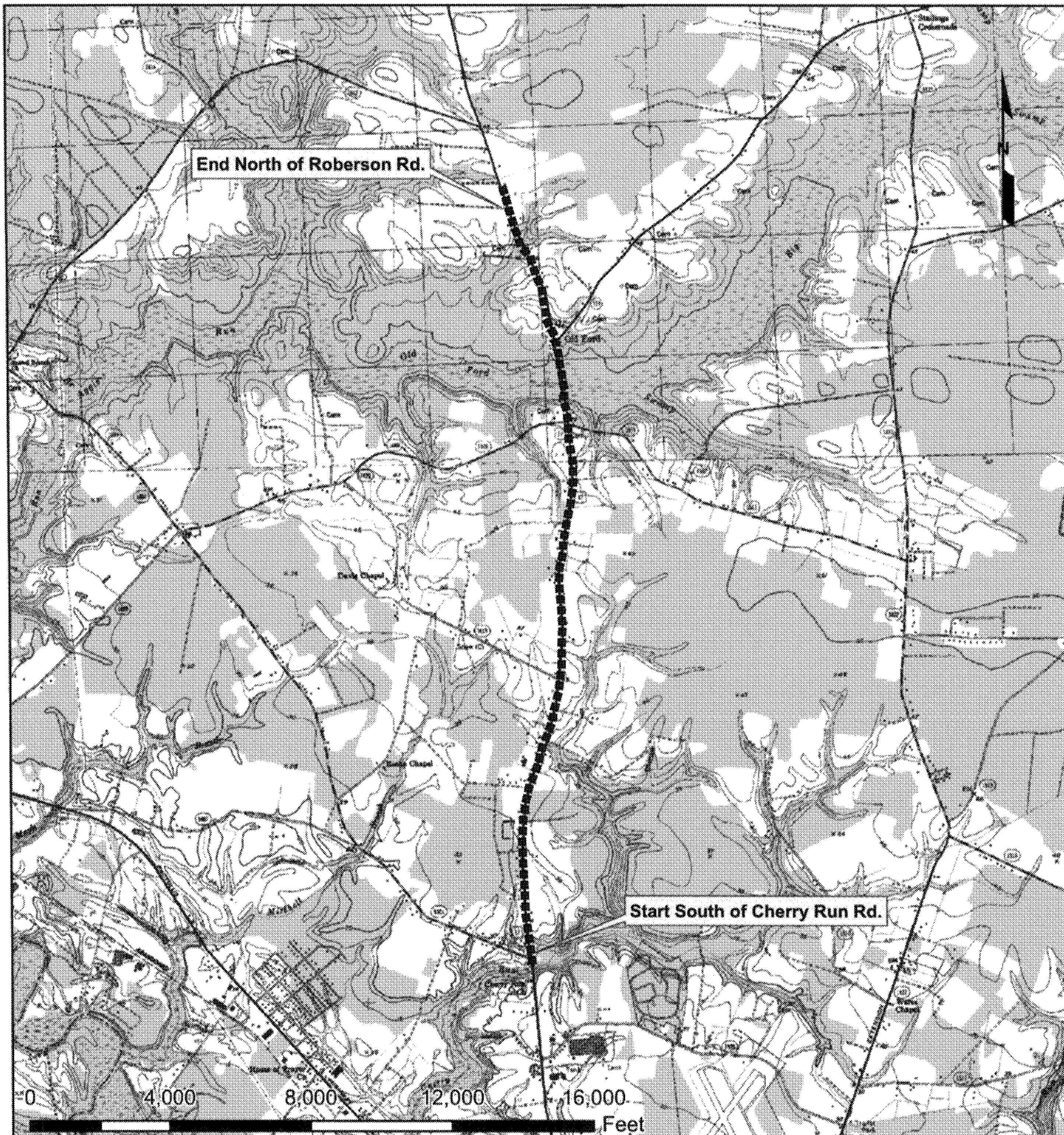
VICINITY MAPS

NCDOT

DIVISION OF HIGHWAYS
BEAUFORT COUNTY
PROJECT: 34440.1.1 (R-2510C)
US 17 BYPASS

AUGUST 2009

Buffer Drawing
Sheet 1 of 36



1 inch = 4,000 feet

LOCATION

NCDOT

DIVISION OF HIGHWAYS
BEAUFORT COUNTY
PROJECT: 34440.1.1 (R-2510C)
US 17 BYPASS

AUGUST 2009

Source: USGS 7.5 Minute Quadrangle, Washington and Old Ford, NC

Buffer Drawing
Sheet 2 **of** 36

PROP. NO.	PROPERTY OWNER NAME	PROP. OWNER ADDRESS
1	JACK CHERRY, JR.	707 Oakwood Ave. South, Brandon, FL. 33511
2	SMITHWICK PARTNERS, LLC	1589 West 5th St., Washington, NC 27889
40	EAST CAROLINA FARMS, LLC	1905 Charlestowne Dr. Greenville, NC 27834
45	MARY L. BROWN HOPKINS	952 Wharton Station Rd., Washington, NC 27889
46	REUBEN H. FERRELL	3805 US HWY 17 N, Washington, NC 27889
94	MINNIE LEE BRANTLEY	5595 HWY 17 N, Washington, NC 27889
95	WILLIAM B. BAKER, ET UX	5595 HWY 17 N, Washington, NC 27889
97	MILTON E. HODGES, JR. (Land)	5584 US HWY 17 N, Washington, NC 27889
	DAVID ALLEN KEEL (Buildings on parcel 97)	5584 US HWY 17 N, Washington, NC 27889
98	GLADYS B. STYONS	5666 HWY 17 N, Washington, NC 27889
100	HAROLD W. ROBINSON, ET UX	244 N Roberson Rd., Washington, NC 27889
108	ARAH BELL GAUTIER CARRAWAY	5124 Congressional Dr., College Station, TX 77845
111	MCDONALD GAUTIER, 111, ET AL	6344 US HWY 17 N, Washington, NC 27889
114	MAXWELL P. CHESNUTT FAMILY TRUST	PO BOX 607, Blowing Rock, NC 28605
115	JOSEPH E PERRY, JR.	6498 US HWY 17 N, Washington, NC 27889
116	DOROTHY ROBERSON ROBINSON, et al	6555 US HWY 17 N, Washington, NC 27889
117	DOROTHY ROBERSON ROBINSON, et al	244 N Roberson Rd., Washington, NC 27889
118	MELVIN R. WILKINS, ET UX	6555 US HWY 17 N, Washington, NC 27889

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

BEAUFORT COUNTY
PROJECT: 34440.1.1 (R-2510C)

8/13/2009

R:/z-misc/Hydro/Permit Drawings/BuffProp.xls

BUFFER IN WETLAND IMPACTS SUMMARY

		WETLANDS IN BUFFER	
Site	Station	ZONE 1 (ft^2)	ZONE 2 (ft^2)
1A	-L- 54+00 +/-	3038	950
3	-L- 119+00 +/-	469	2028
4A	-L- 220+00 +/-	56	231
4B	-L- 223+50 +/-	2284	772
5B	-L- 263+25 +/-	1118	1214
		6965	5195

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

BEAUFORT COUNTY
PROJECT: 34440.1.1 (R-2510C)

8/13/2009

R:/z-misc/Hydro/Permit Drawings/wetlandinbuffer.xls

BUFFER IMPACTS SUMMARY

			IMPACT									BUFFER REPLACEMENT	
			TYPE			ALLOWABLE			MITIGABLE				
SITE NO.	STRUCTURE SIZE / TYPE	STATION (FROM/TO)	ROAD CROSSING	BRIDGE	PARALLEL IMPACT	ZONE 1 (ft^2)	ZONE 2 (ft^2)	TOTAL (ft^2)	ZONE 1 (ft^2)	ZONE 2 (ft^2)	TOTAL (ft^2)	ZONE 1 (ft^2)	ZONE 2 (ft^2)
1A	Bridge	-L- 54+00 +/-		X					10434	4174	14608		
	Roadway	-L- 54+00 +/-	X						6414	3880	10294		
3	Roadway	-L- 119+00 +/-	X						13360	8411	21771		
4A	Roadway	-L- 222+00 +/-			X				34588	16797	51385		
	Bridge	-L- 222+00 +/-	X						3427	690	4117		
4B	Roadway	-L- 220+00 +/-	X						1335	1814	3149		
	Roadway	-L- 220+00 +/-			X				2793	2266	5059		
	Bridge	-L- 222+00 +/-		X					6536	1190	7726		
4C	Roadway	-L- 223+00 +/-			X				1547	0	1547		
	Bridge	-L- 223+00 +/-		X					1682	6	1688		
5A	Roadway	-L- 256+75 +/-	X						7518	4528	12046		
5B	Roadway	-L- 263+25 +/-	X						9730	6095	15825		
5C	Roadway	-Y9- 10+80 +/-	X			2588	911	3499					
TOTAL:						2588	911	3499	99364	49851	149215		

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

BEAUFORT COUNTY
PROJECT: 34440.1.1 (R-2510C)

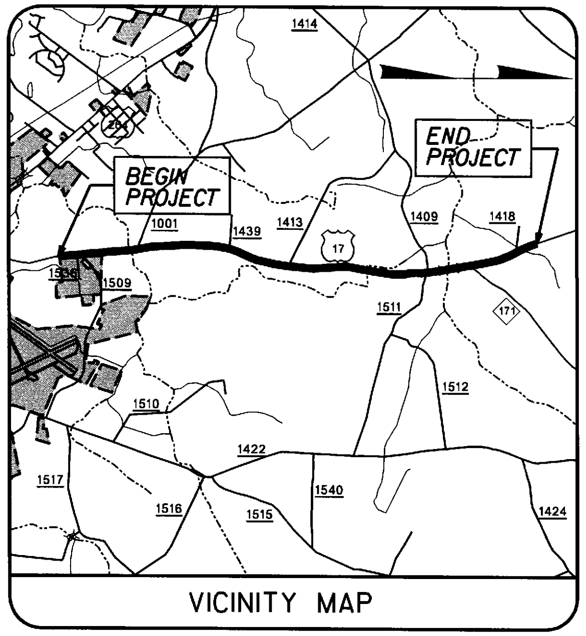
9/22/2009

R:/z-misc/Hydro/Permit Drawings/BUFFER IMPACT SUMMARY Rev.xls

Rev. May 2006

09/08/99

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



VICINITY MAP

RW PLAN SUBMITTAL

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

BEAUFORT COUNTY

LOCATION: US 17 FROM US 17 SOUTH OF SR 1001 (CHERRY RUN ROAD) TO NORTH OF NC 171.

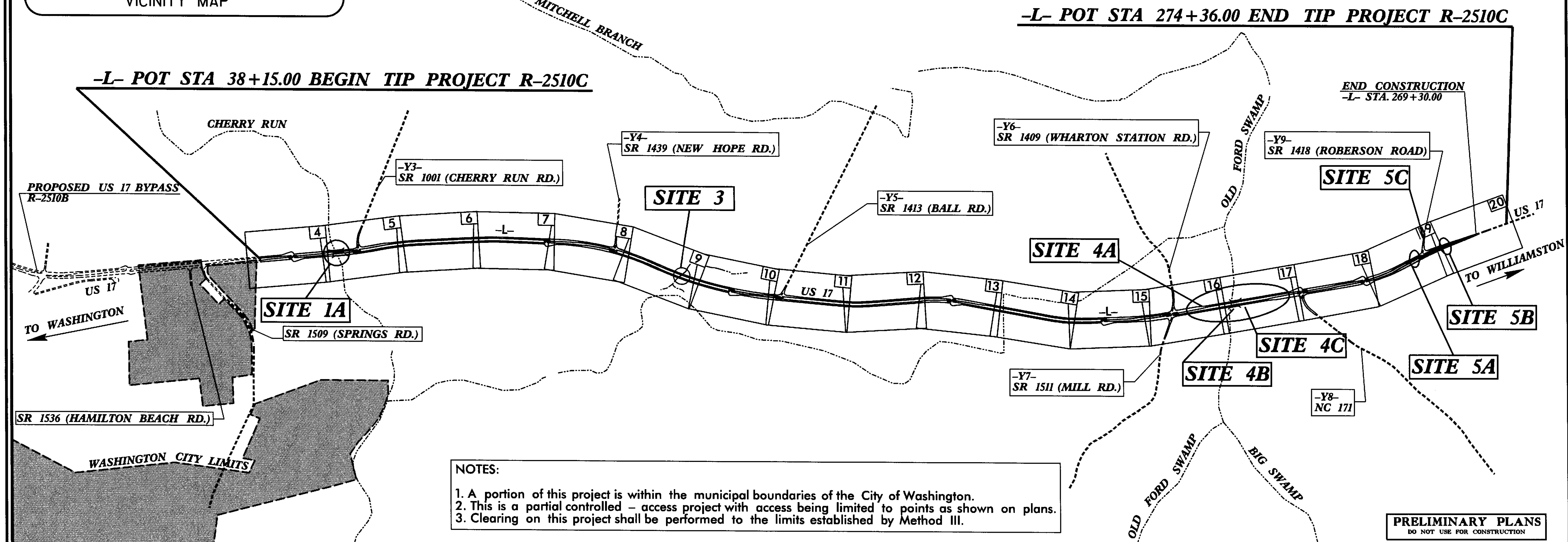
TYPE OF WORK: GRADING, DRAINAGE, PAVING, RESURFACING, CULVERT AND STRUCTURES

NAD 83/95

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2510C	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
34440.1.1	MAF-75-3 (26)	P.E.
34440.2.5	MAF-75-3 (26)	R/W & UTIL

Buffer Drawing Sheet 6 of 35



NOTES:

1. A portion of this project is within the municipal boundaries of the City of Washington.
2. This is a partial controlled – access project with access being limited to points as shown on plans.
3. Clearing on this project shall be performed to the limits established by Method III.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

TIP PROJECT: R-2510C

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 = 12,710
ADT 2034 = 19,830
DHV = 10%
D = 55%
T = 11% *
V = 60 MPH
CLASS=RURAL ARTERIAL
* (TTST 7% + DUAL 4%)

PROJECT LENGTH

Length Roadway
TIP Project R-2510C .... 4.474 Mi.

Length Structure*
TIP Project R-2510C .... 0.066 Mi.

TOTAL LENGTH TIP
Project R-2510C .... 4.540 Mi.

*Length Based on NBL Structures

RK&K

PLANS PREPARED BY:
RUMMEL, KLEPPER & KAHL, LLP
consulting engineers
900 RIDGEFIELD DRIVE, SUITE 350
RALEIGH, NORTH CAROLINA 27609
(919) 878-9560
FOR
DIVISION OF HIGHWAYS

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
11/2006 (PROD.)

LETTING DATE:
October 21, 2014

B. Keith Skinner, P.E.
PROJECT ENGINEER

Michael T. Merritt, P.E.
PROJECT DESIGN ENGINEER

NCDOT CONTACT: CATHY S. HOUSER, PE

HYDRAULICS ENGINEER

P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

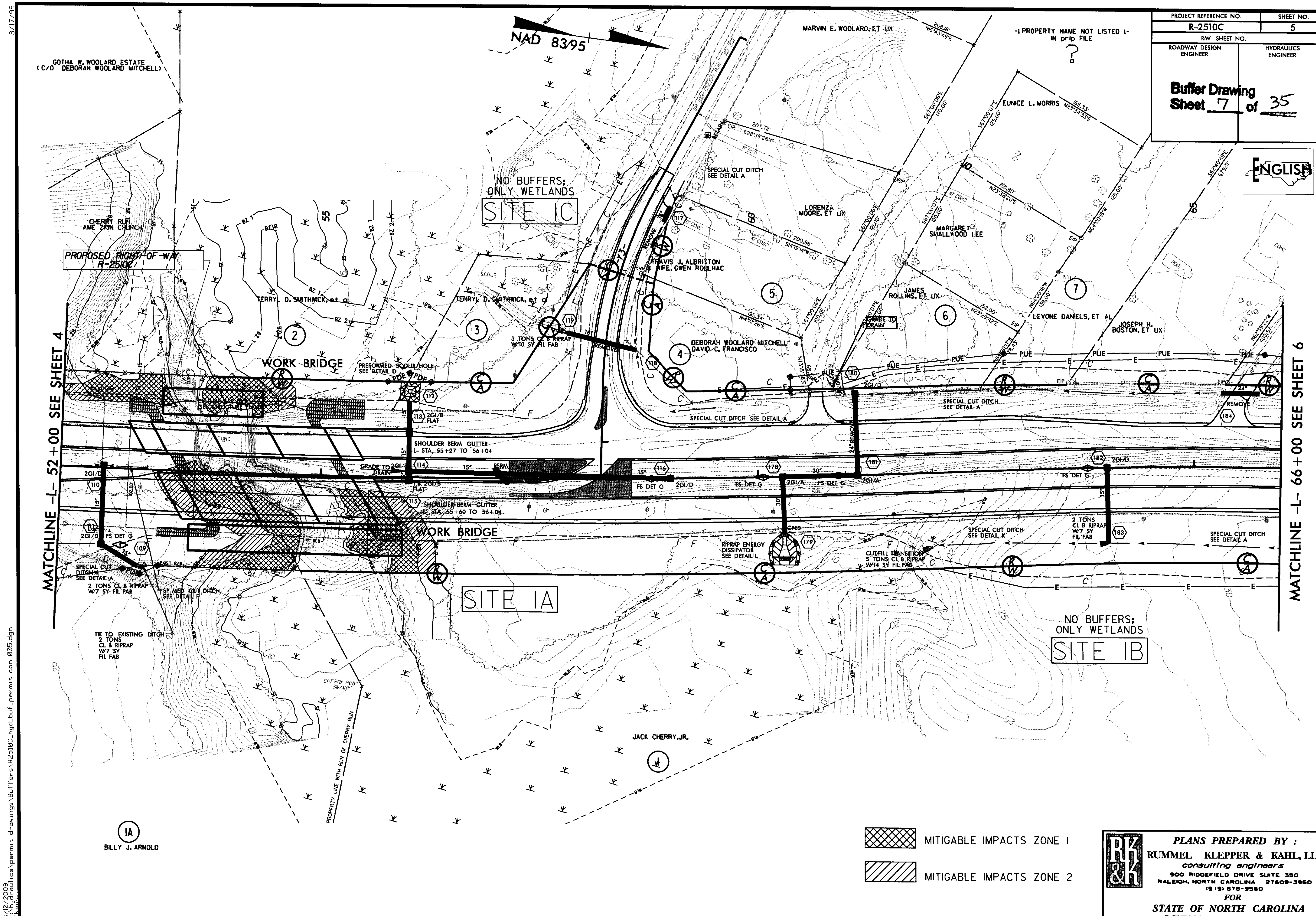
P.E.
SIGNATURE:

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

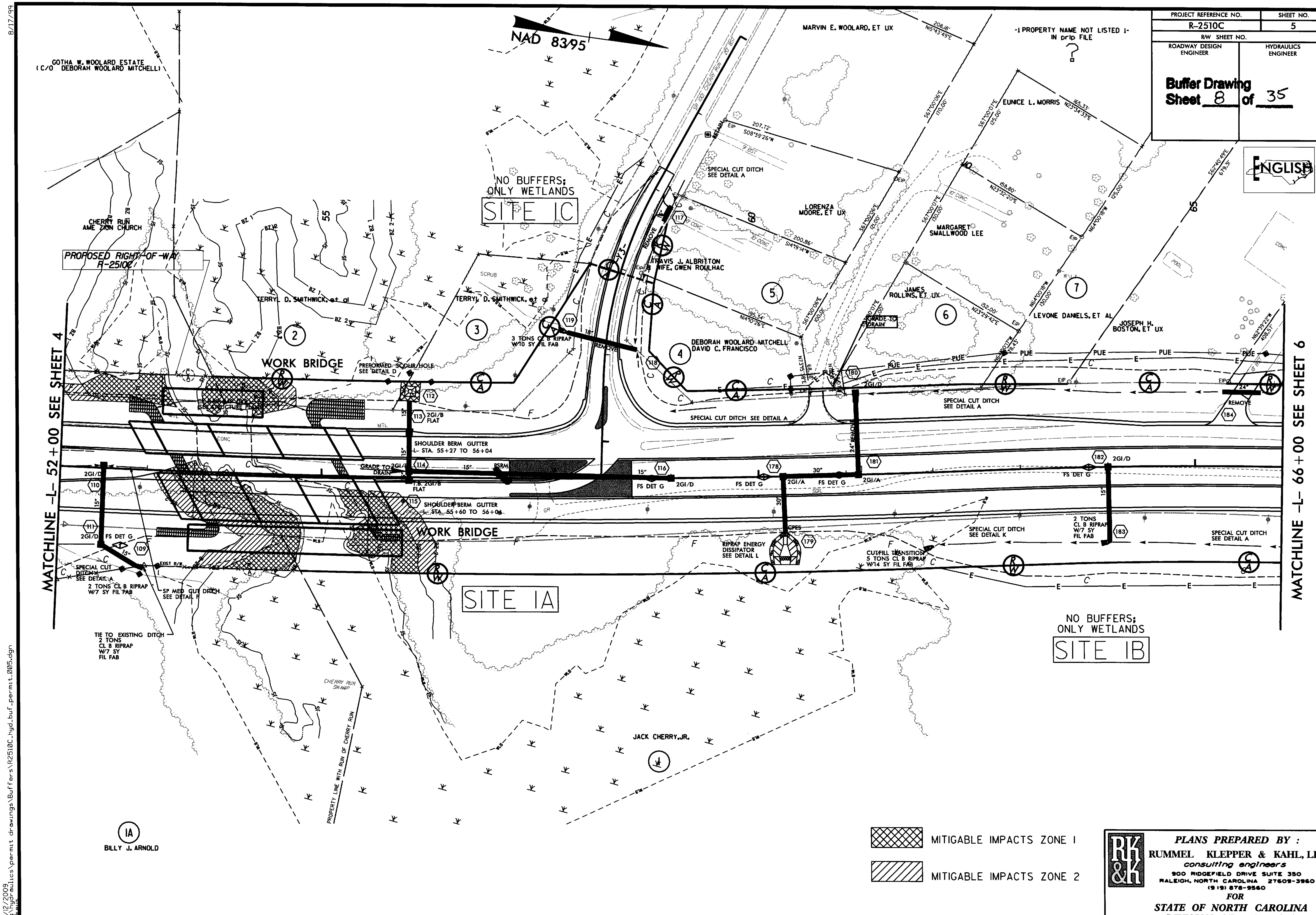
P.E.
STATE HIGHWAY DESIGN ENGINEER

8/12/2009
r:\hydraulics\permit drawings\buffers\r2510c_hyd_buf_Permits_tsh.dgn
Fkeys

8/17/99



8/12/2009
F:\hydraulics\permit drawings\Buffers\R2510C_hyd_buf_permit_con_005.dgn

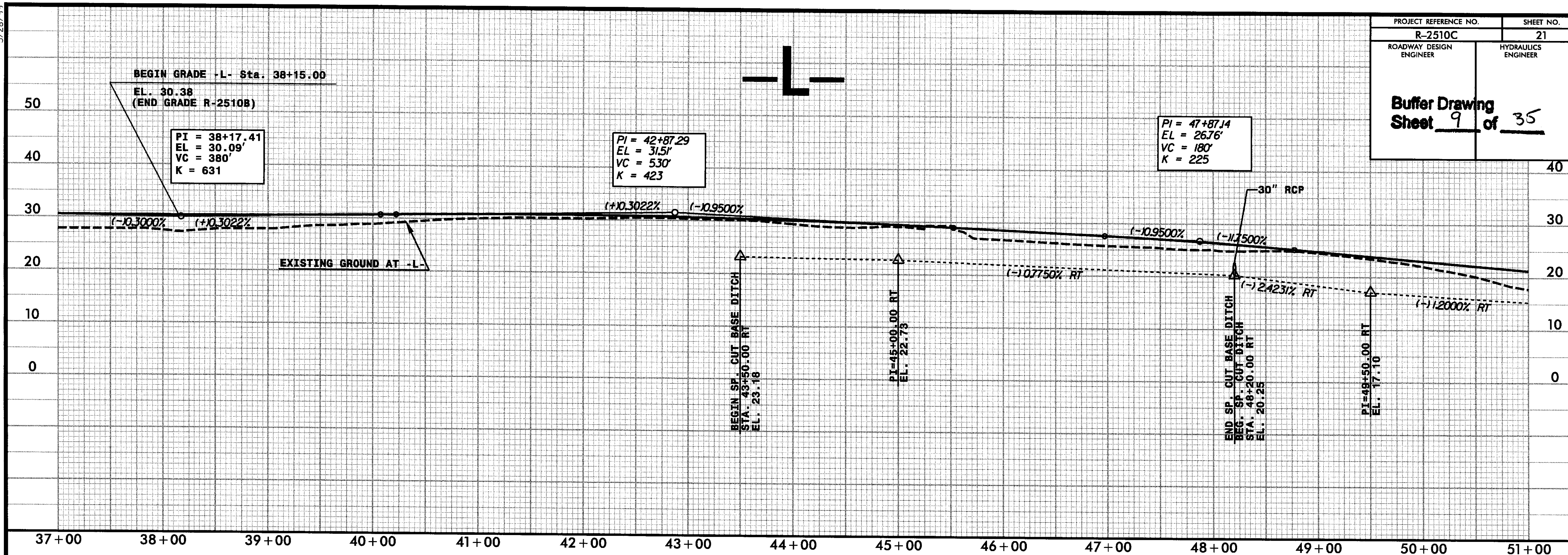


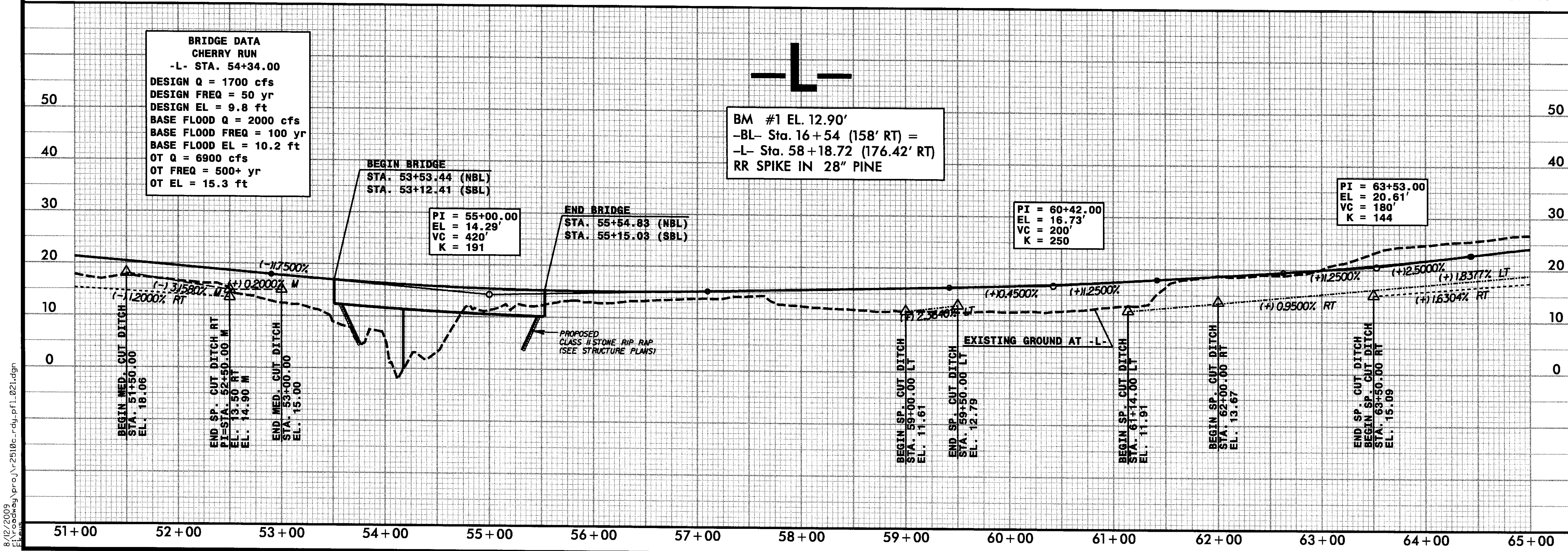
PLANS PREPARED BY :
RUMMEL KLEPPER & KAHL, LLP
consulting engineers
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
(919) 878-9560
FOR
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

8/17/99
8/12/2009
F:\Hydraulics\permit drawings\Buffers\R2510C_hyd_buf_permit_005.dgn

PROJECT REFERENCE NO.	SHEET NO.
R-2510C	21
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

Buffer Drawing
Sheet 9 of 35

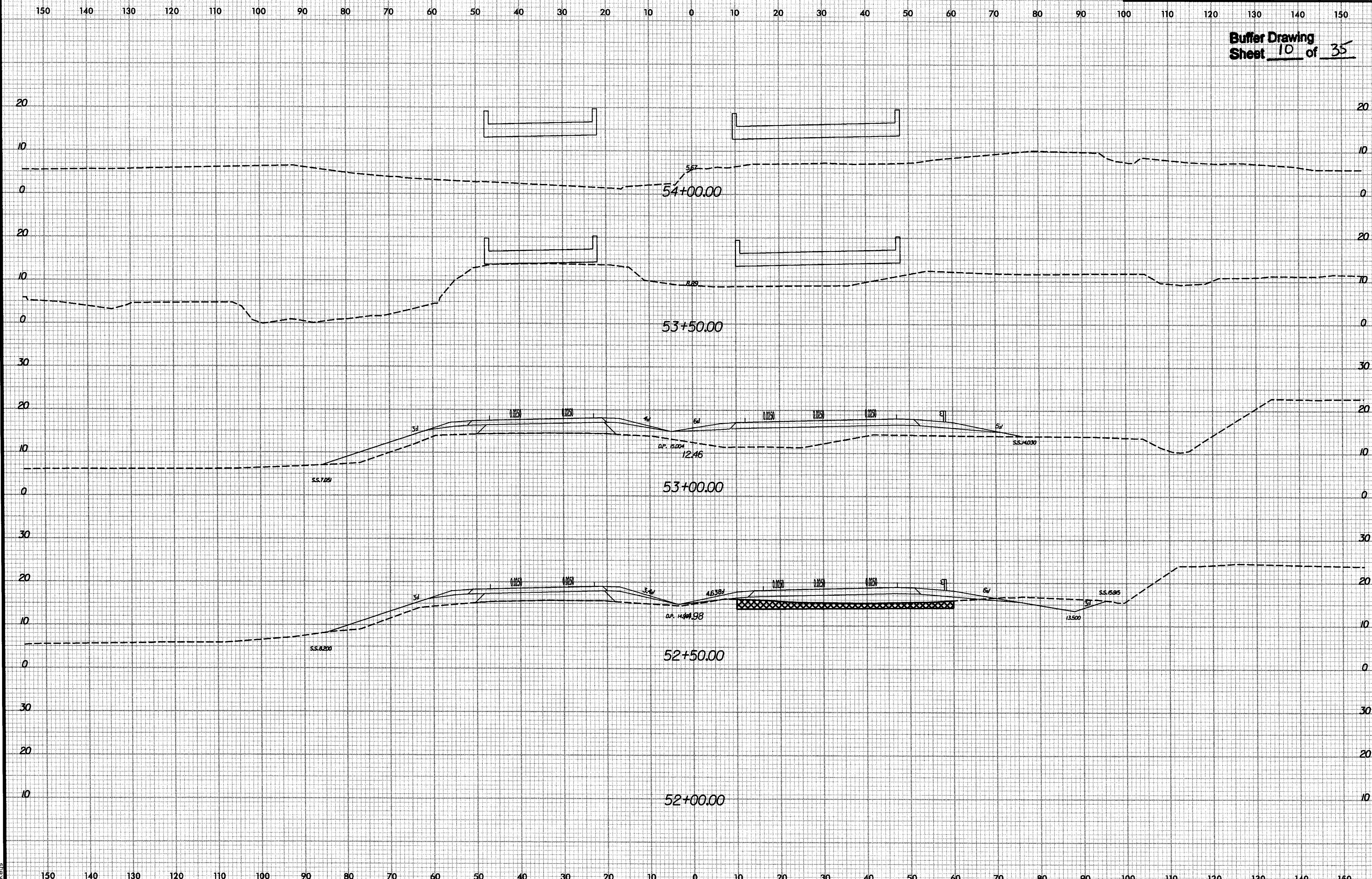




5/28/99
8/12/2009
F:\roadway\proj\r2510c_rdy_pfl_021.dgn

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2510C	X-5

Buffer Drawing
Sheet 10 **of** 35



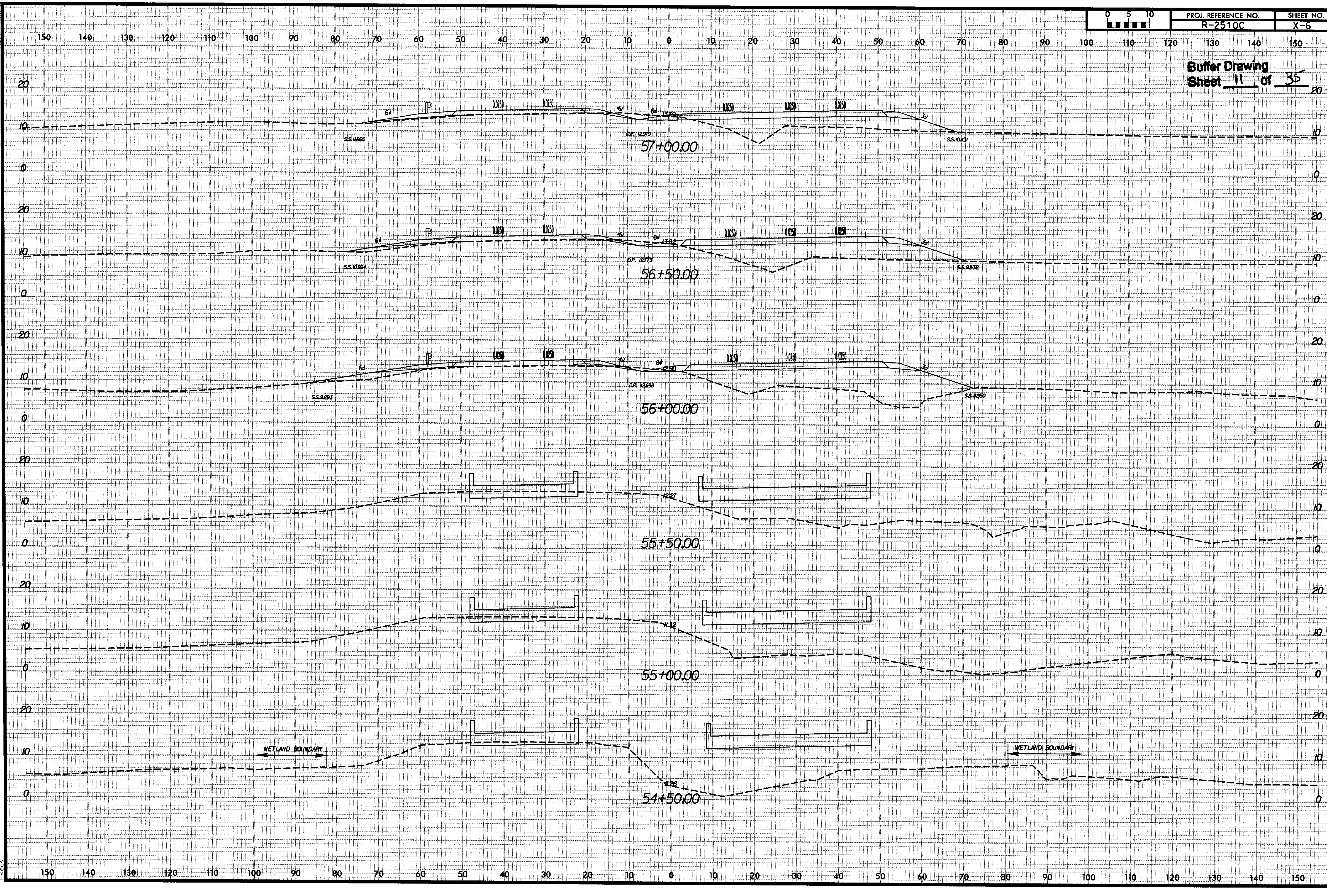
8/23/99

8/12/2009
R:\Hydraulics\Permit Drawings\Permit_xpl_1.dgn
Fkeys

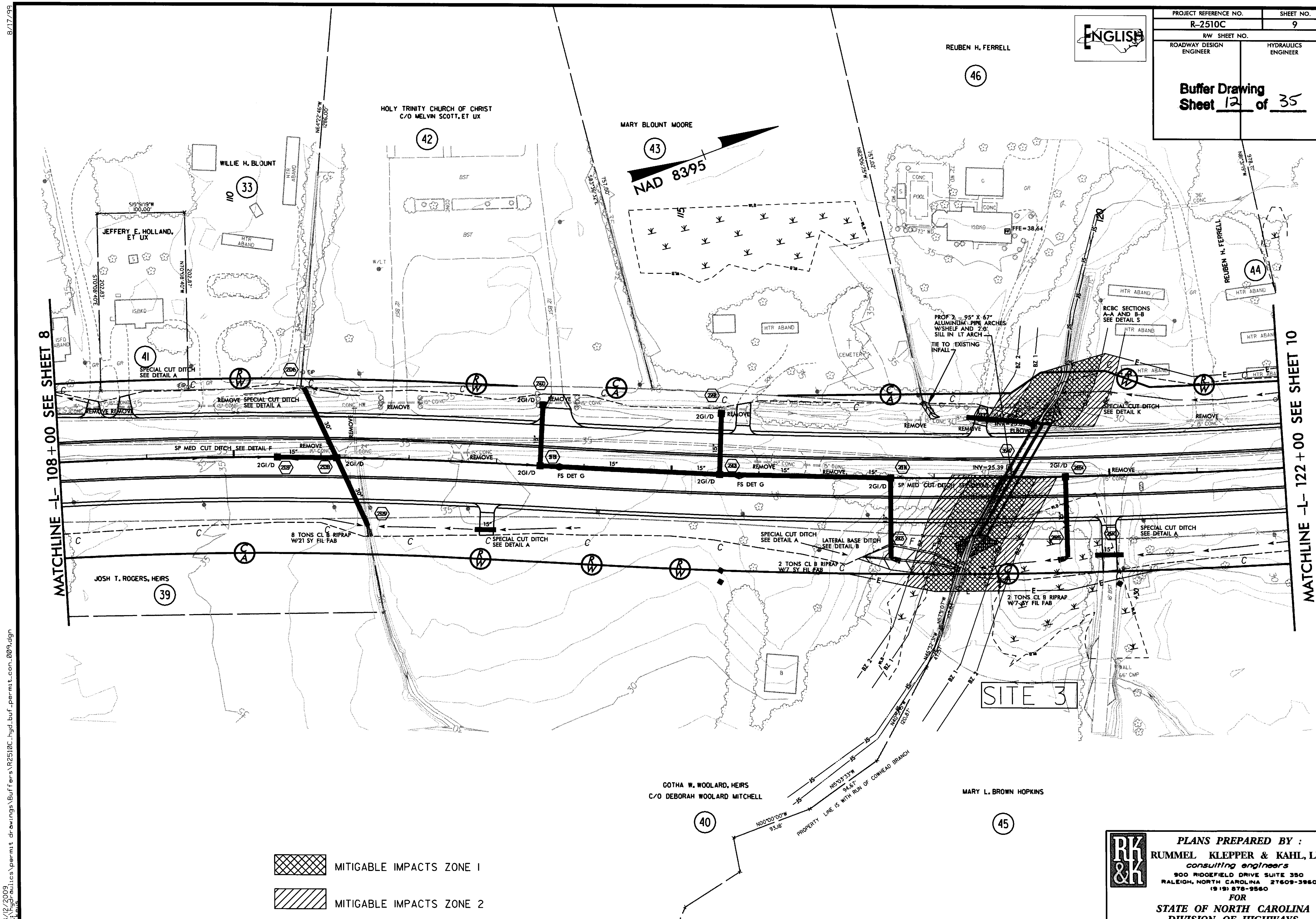
8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-2510C	X-6

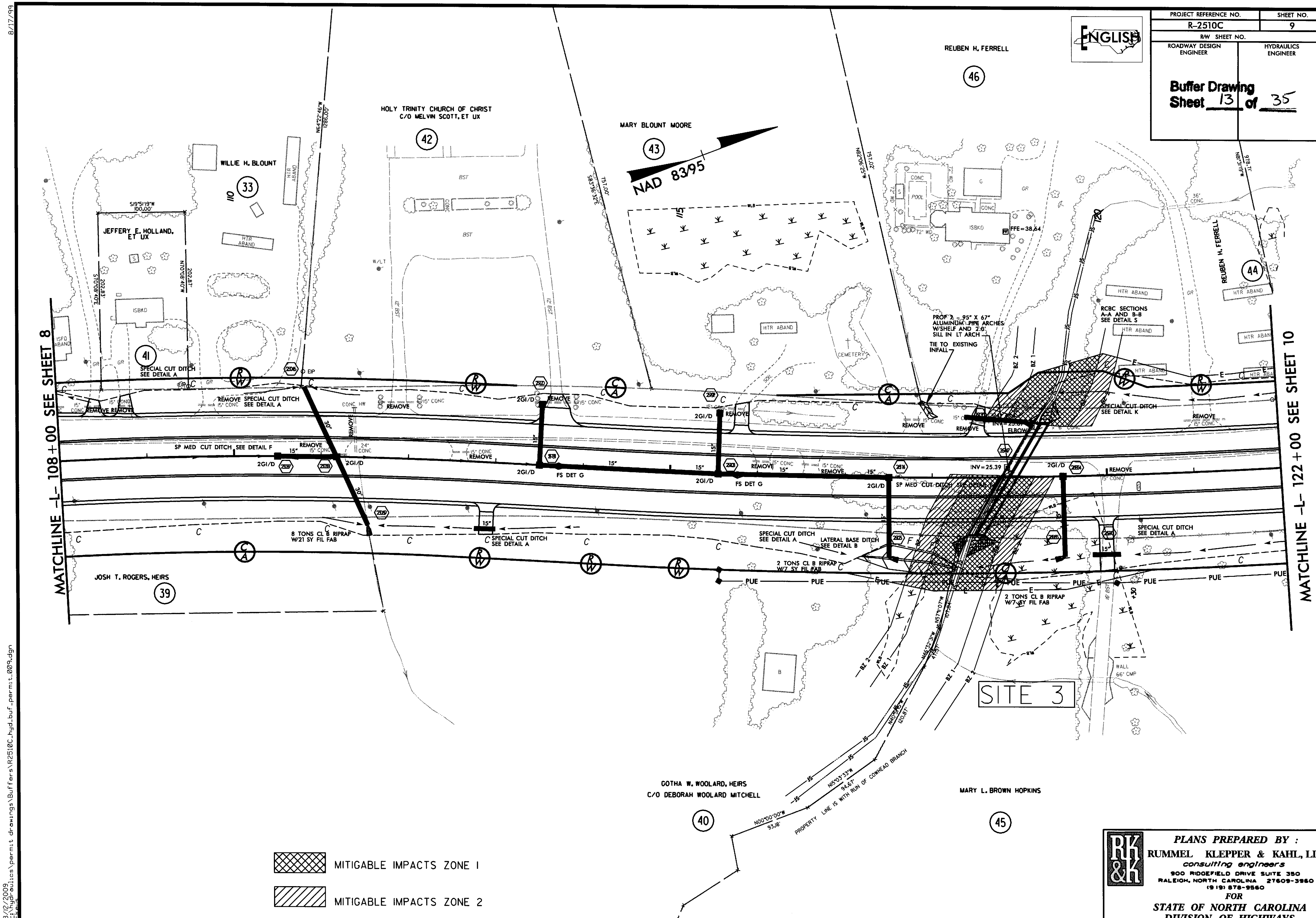
Buffer Drawing
Sheet 11 of 35



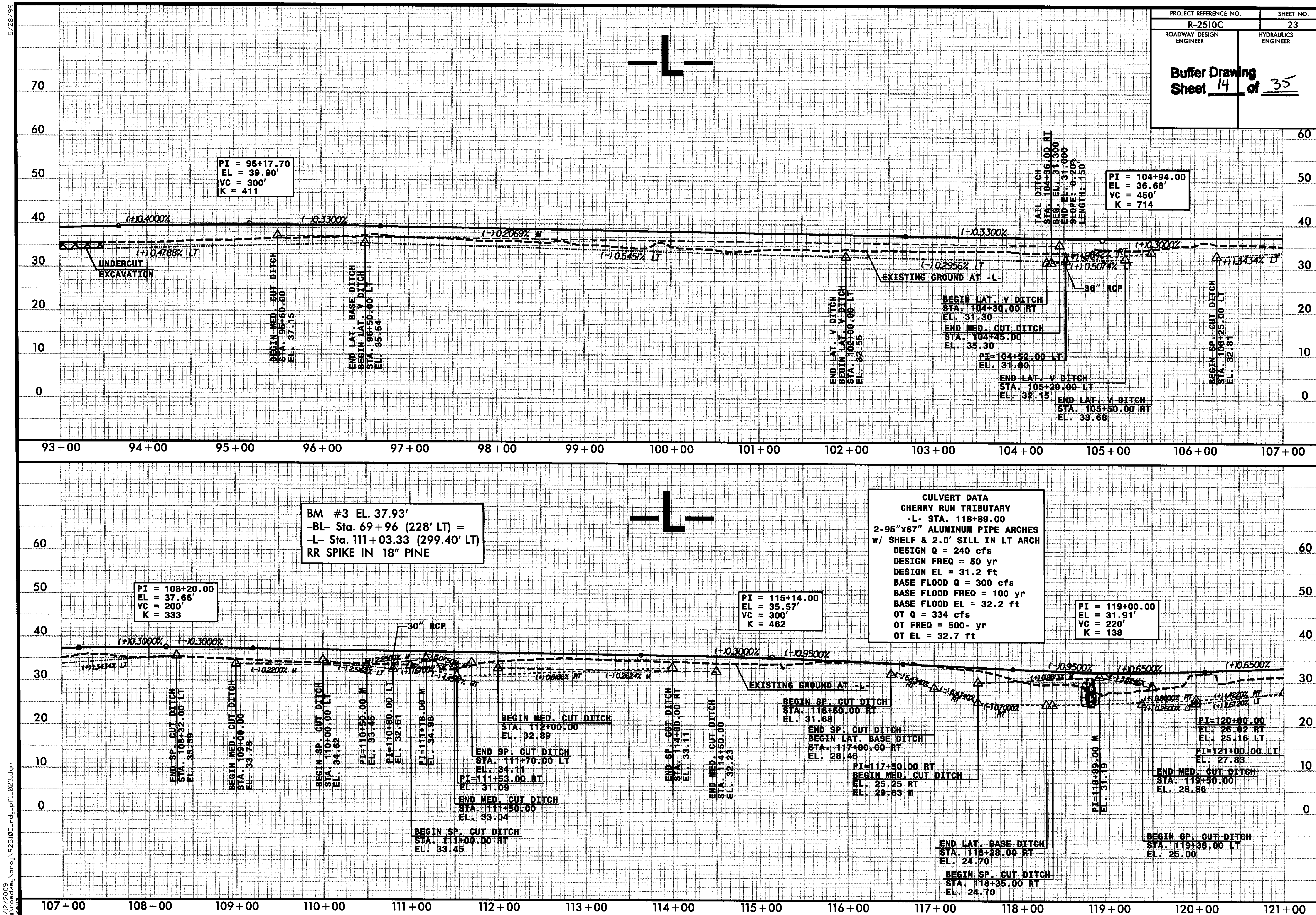
8/12/2009
R:\Hydraulics\Permit Drawings\Permit_xpl1.dgn
Fkeus



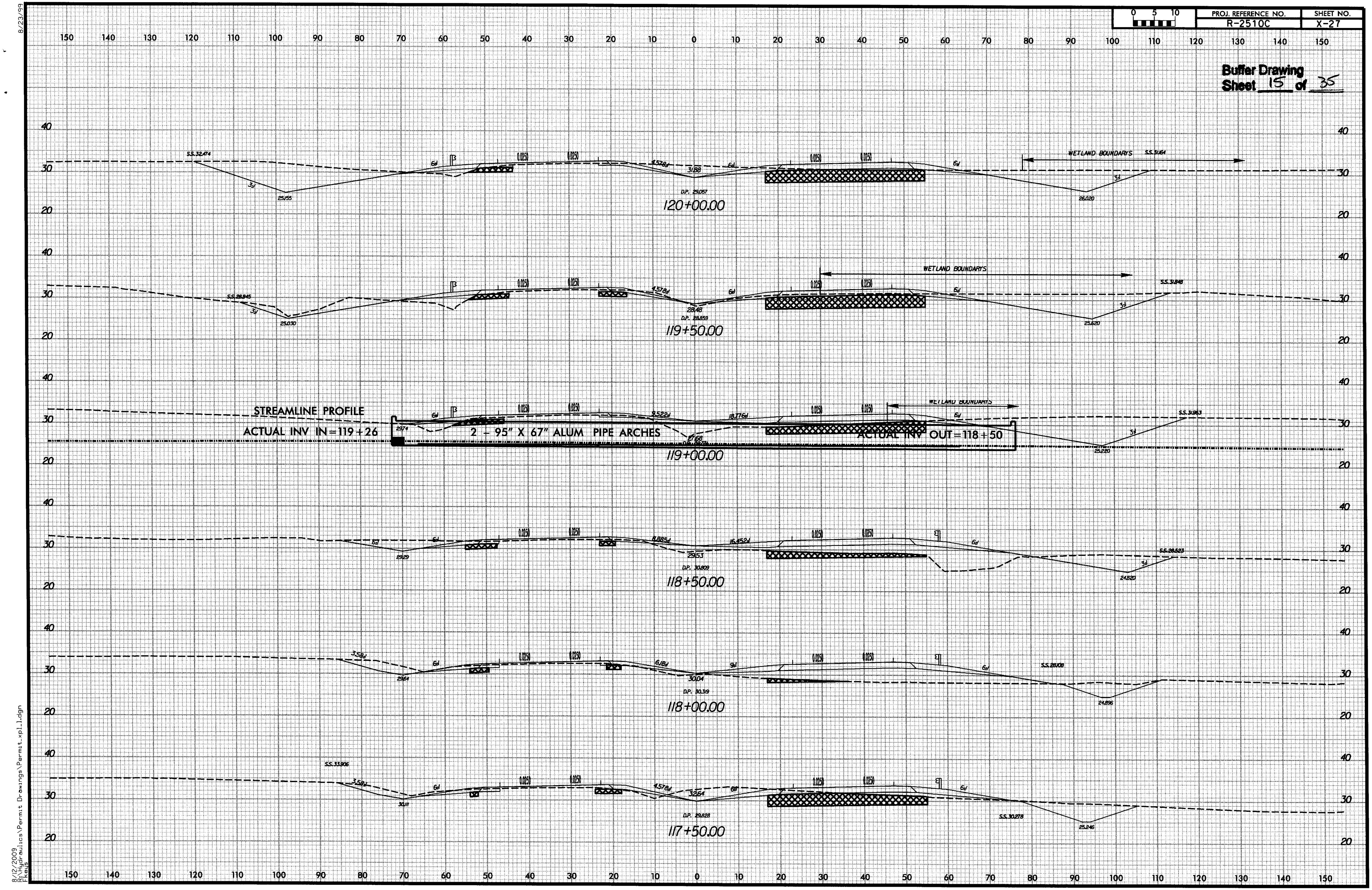
PROJECT REFERENCE NO. R-2510C
SHEET NO. 9
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
Buffer Drawing Sheet 12 of 35
ENGLISH
REUBEN H. FERRELL
HOLY TRINITY CHURCH OF CHRIST C/O MELVIN SCOTT, ET UX
MARY BLOUNT MOORE
NAD 83/95
WILLIE H. BLOUNT
JEFFERY E. HOLLAND, ET UX
MATCHLINE -L- 108+00 SEE SHEET 8
MATCHLINE -L- 122+00 SEE SHEET 10
PROP 2 - 95" X 67" ALUMINUM PIPE ARCHES W/SHELF AND 2.0' SILL IN LT ARCH
TIE TO EXISTING INFALL
RCBC SECTIONS A-A AND B-B SEE DETAIL S
SPECIAL CUT DITCH SEE DETAIL A
SPECIAL CUT DITCH SEE DETAIL K
SP MED CUT DITCH SEE DETAIL F
FS DET G
8 TONS CL B RIPRAP W/21 SY FIL FAB
2 TONS CL B RIPRAP W/7 SY FIL FAB
LATERAL BASE DITCH SEE DETAIL B
JOSH T. ROGERS, HEIRS
SITE 3
GOTHA W. WOOLARD, HEIRS C/O DEBORAH WOOLARD MITCHELL
MARY L. BROWN HOPKINS
PROPERTY LINE IS WITH RUN OF COWHEAD BRANCH
MITIGABLE IMPACTS ZONE 1
MITIGABLE IMPACTS ZONE 2
PLANS PREPARED BY :
RUMMEL KLEPPER & KAHL, LLP
consulting engineers
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
(919) 878-9560
FOR
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

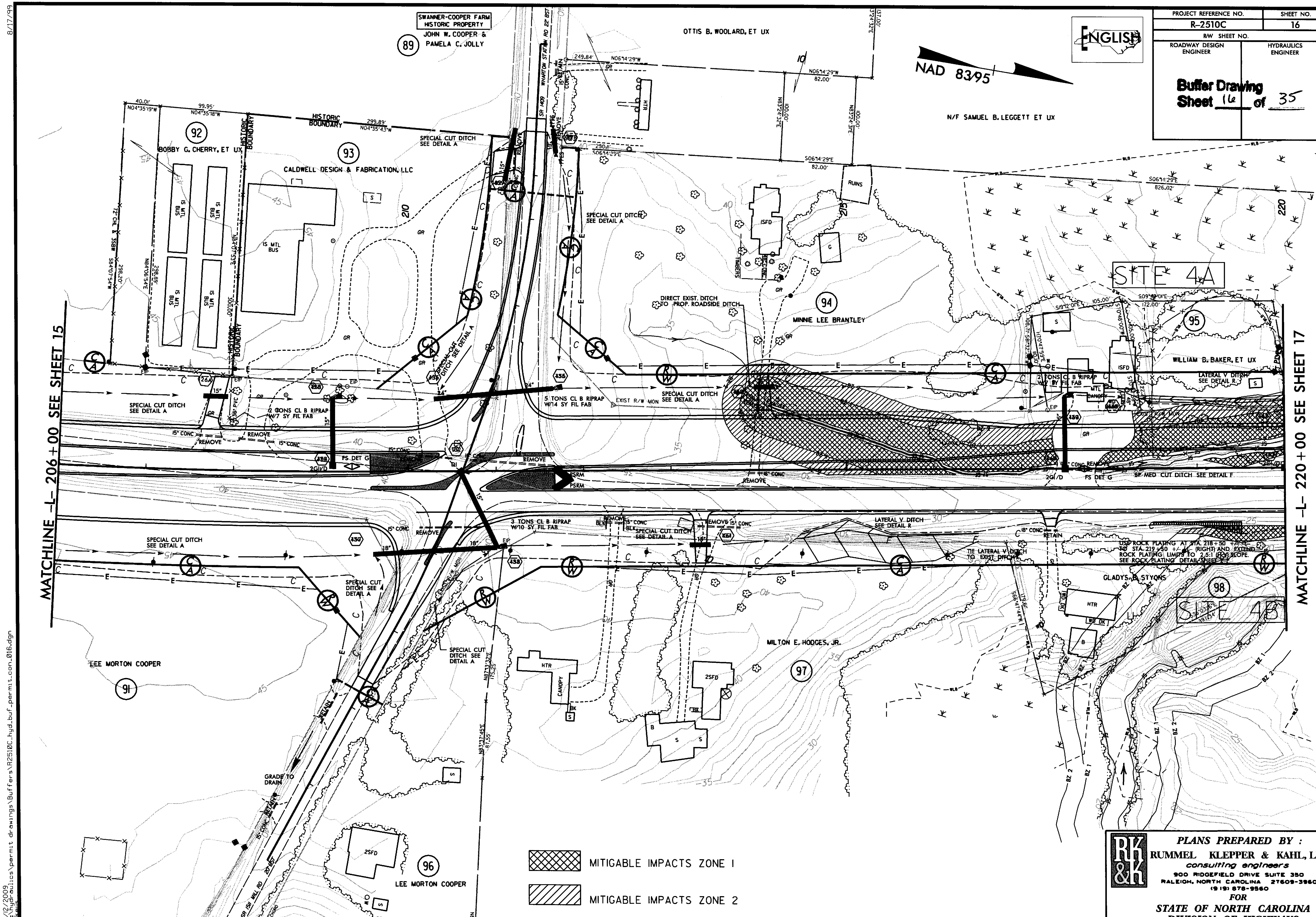


PROJECT REFERENCE NO.
R-2510C
SHEET NO.
9
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
Buffer Drawing
Sheet 13 of 35
ENGLISH
REUBEN H. FERRELL
46
HOLY TRINITY CHURCH OF CHRIST
C/O MELVIN SCOTT, ET UX
42
MARY BLOUNT MOORE
43
NAD 83/95
WILLIE H. BLOUNT
33
JEFFERY E. HOLLAND, ET UX
41
REUBEN H. FERRELL
44
MATCHLINE -L- 108+00 SEE SHEET 8
MATCHLINE -L- 122+00 SEE SHEET 10
SPECIAL CUT DITCH SEE DETAIL A
SP MED CUT DITCH SEE DETAIL F
FS DET G
PROP 2 - 95" X 67" ALUMINUM PIPE ARCHES W/SHELF AND 2.0' SILL IN LT ARCH
TIE TO EXISTING INFALL
RCBC SECTIONS A-A AND B-B SEE DETAIL S
SPECIAL CUT DITCH SEE DETAIL K
8 TONS CL B RIPRAP W/21 SY FIL FAB
LATERAL BASE DITCH SEE DETAIL B
2 TONS CL B RIPRAP W/7 SY FIL FAB
JOSH T. ROGERS, HEIRS
39
CEMETERY
SITE 3
GOTHA W. WOOLARD, HEIRS
C/O DEBORAH WOOLARD MITCHELL
40
MARY L. BROWN HOPKINS
45
PROPERTY LINE IS WITH RUN OF COWHEAD BRANCH
MITIGABLE IMPACTS ZONE 1
MITIGABLE IMPACTS ZONE 2
PLANS PREPARED BY :
RUMMEL KLEPPER & KAHL, LLP
consulting engineers
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
(919) 878-9560
FOR
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
8/17/99
8/12/2009
r:\hydraulics\permit drawings\Buffers\R2510C_hyd_buf_permit_009.dgn



PROJECT REFERENCE NO. R-2510C
SHEET NO. 23
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
Buffer Drawing Sheet 14 of 35
5/28/99
-L-
PI = 95+17.70
EL = 39.90'
VC = 300'
K = 411
(+)0.4000%
(-)0.3300%
(-)0.2069% M
(+) 0.4788% LT
(-) 0.5451% LT
(-)0.2956% LT
(-)0.3300%
(+)0.3000%
(+) 0.5074% LT
(+) 1.3434% LT
UNDERCUT EXCAVATION
BEGIN MED. CUT DITCH STA. 95+50.00 EL. 37.15
END LAT. BASE DITCH BEGIN LAT. V DITCH STA. 96+50.00 LT EL. 35.54
EXISTING GROUND AT -L-
END LAT. V DITCH BEGIN LAT. V DITCH STA. 102+00.00 LT EL. 32.55
TAIL DITCH STA. 104+36.00 RT BEG. EL. 31.300 END EL. 31.000 SLOPE: 0.20% LENGTH: 150'
PI = 104+94.00
EL = 36.68'
VC = 450'
K = 714
36" RCP
BEGIN LAT. V DITCH STA. 104+30.00 RT EL. 31.30
END MED. CUT DITCH STA. 104+45.00 EL. 35.30
PI=104+52.00 LT EL. 31.80
END LAT. V DITCH STA. 105+20.00 LT EL. 32.15
END LAT. V DITCH STA. 105+50.00 RT EL. 33.68
BEGIN SP. CUT DITCH STA. 106+25.00 LT EL. 32.81
93+00 94+00 95+00 96+00 97+00 98+00 99+00 100+00 101+00 102+00 103+00 104+00 105+00 106+00 107+00
BM #3 EL. 37.93'
-BL- Sta. 69+96 (228' LT) =
-L- Sta. 111+03.33 (299.40' LT)
RR SPIKE IN 18" PINE
CULVERT DATA
CHERRY RUN TRIBUTARY
-L- STA. 118+89.00
2-95"x67" ALUMINUM PIPE ARCHES
w/ SHELF & 2.0' SILL IN LT ARCH
DESIGN Q = 240 cfs
DESIGN FREQ = 50 yr
DESIGN EL = 31.2 ft
BASE FLOOD Q = 300 cfs
BASE FLOOD FREQ = 100 yr
BASE FLOOD EL = 32.2 ft
OT Q = 334 cfs
OT FREQ = 500- yr
OT EL = 32.7 ft
PI = 108+20.00
EL = 37.66'
VC = 200'
K = 333
30" RCP
PI = 115+14.00
EL = 35.57'
VC = 300'
K = 462
PI = 119+00.00
EL = 31.91'
VC = 220'
K = 138
(+)0.3000%
(-)0.3000%
(+) 1.3434% LT
(-)0.2200% M
(+)0.8186% RT
(-)0.2624% M
(-)0.3000%
(-)0.9500%
(+)0.6500%
END SP. CUT DITCH STA. 108+32.00 LT EL. 35.59
BEGIN MED. CUT DITCH STA. 109+00.00 EL. 33.78
BEGIN SP. CUT DITCH STA. 110+00.00 LT EL. 34.62
PI=110+50.00 M EL. 33.45
PI=110+80.00 LT EL. 32.61
PI=111+18.00 M EL. 34.98
BEGIN MED. CUT DITCH STA. 112+00.00 EL. 32.89
END SP. CUT DITCH STA. 111+70.00 LT EL. 34.11
PI=111+53.00 RT EL. 31.09
END MED. CUT DITCH STA. 111+50.00 EL. 33.04
BEGIN SP. CUT DITCH STA. 111+00.00 RT EL. 33.45
END SP. CUT DITCH STA. 114+00.00 RT EL. 33.11
END MED. CUT DITCH STA. 114+50.00 EL. 32.23
EXISTING GROUND AT -L-
BEGIN SP. CUT DITCH STA. 116+50.00 RT EL. 31.68
END SP. CUT DITCH BEGIN LAT. BASE DITCH STA. 117+00.00 RT EL. 28.46
PI=117+50.00 RT BEGIN MED. CUT DITCH EL. 25.25 RT EL. 29.83 M
END LAT. BASE DITCH STA. 118+28.00 RT EL. 24.70
BEGIN SP. CUT DITCH STA. 118+35.00 RT EL. 24.70
PI=118+89.00 M EL. 31.19
PI=120+00.00 EL. 26.02 RT EL. 25.16 LT
PI=121+00.00 LT EL. 27.83
END MED. CUT DITCH STA. 119+50.00 EL. 28.86
BEGIN SP. CUT DITCH STA. 119+38.00 LT EL. 25.00
107+00 108+00 109+00 110+00 111+00 112+00 113+00 114+00 115+00 116+00 117+00 118+00 119+00 120+00 121+00
8/12/2009


PROJ. REFERENCE NO.
R-2510C
SHEET NO.
X-27
Buffer Drawing
Sheet 15 of 35
WETLAND BOUNDARYS
120+00.00
119+50.00
STREAMLINE PROFILE
ACTUAL INV IN=119+26
2 - 95" X 67" ALUM PIPE ARCHES
ACTUAL INV OUT=118+50
119+00.00
118+50.00
118+00.00
117+50.00
8/23/99
8/12/2009
R:\Hydraulics\Permit Drawings\Permit_xpl.dgn



MITIGABLE IMPACTS ZONE 1

MITIGABLE IMPACTS ZONE 2

PROJECT REFERENCE NO.	SHEET NO.
R-2510C	16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

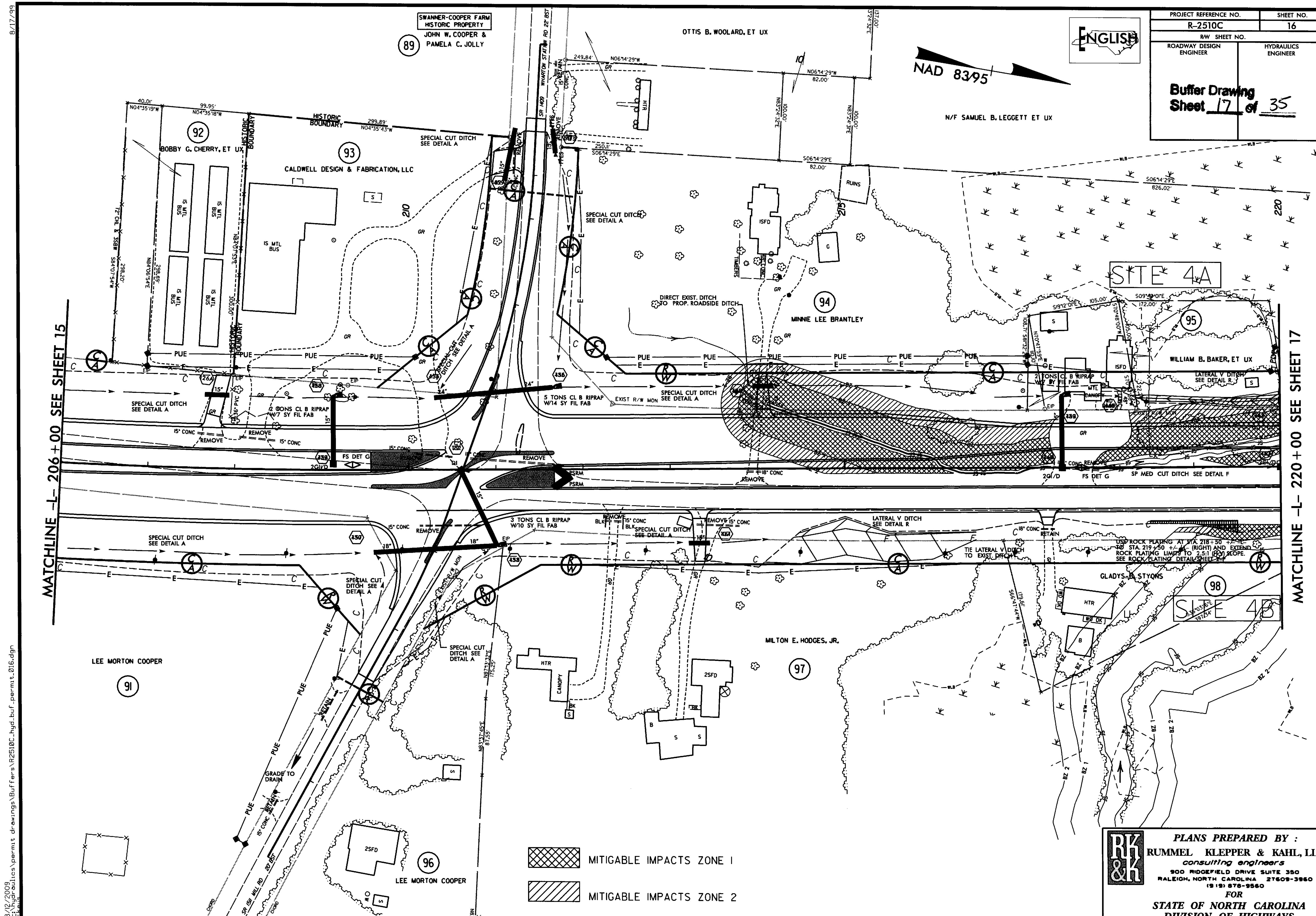
Buffer Drawing Sheet 16 of 35

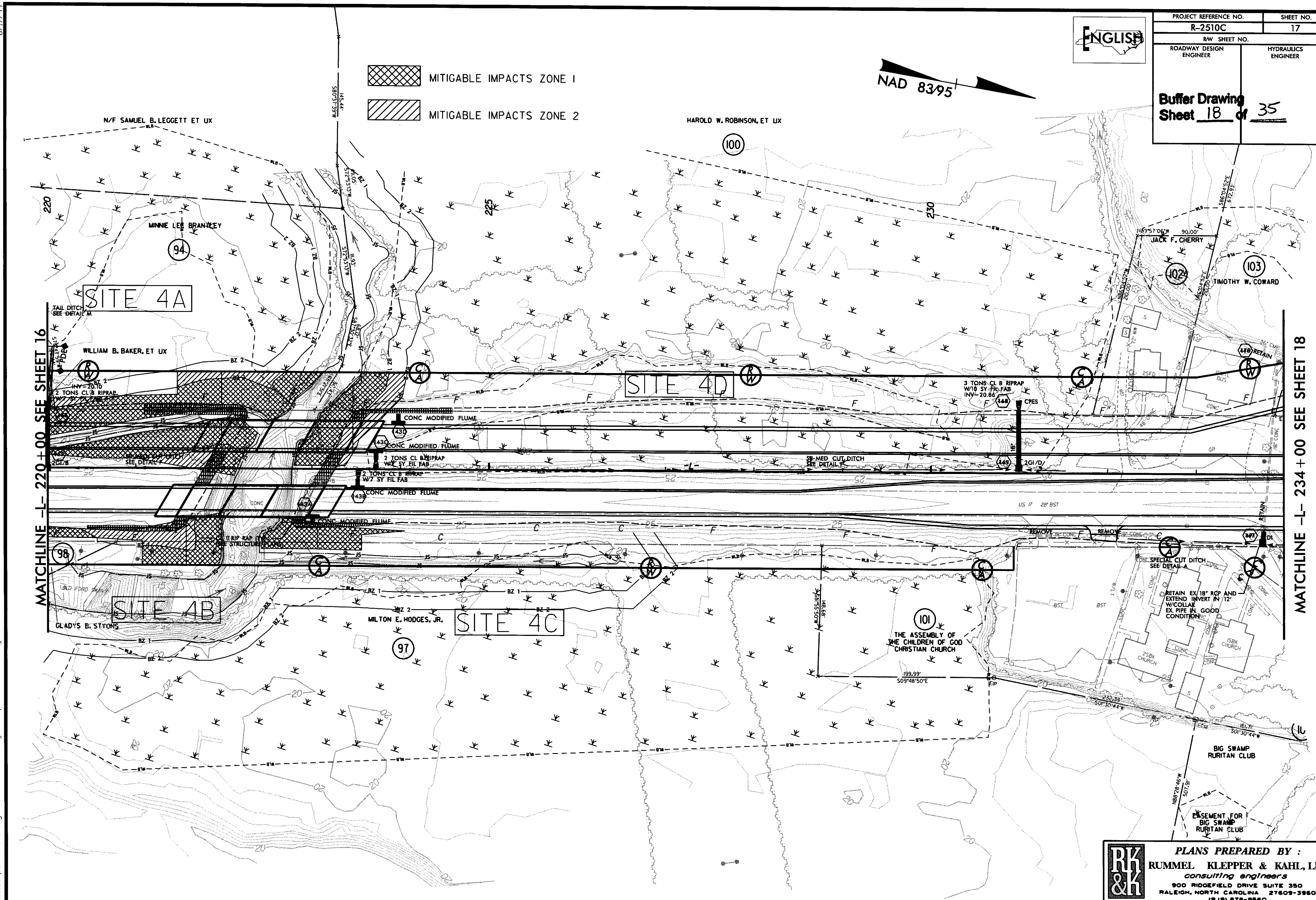
ENGLISH

PLANS PREPARED BY :
RUMMEL KLEPPER & KAHL, LLP
consulting engineers
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
(919) 878-9560
FOR
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

8/17/99

8/12/2009
R:\Hydraulics\permit drawings\Buffers\R2510C_hyd_buf_permit_con_016.dgn

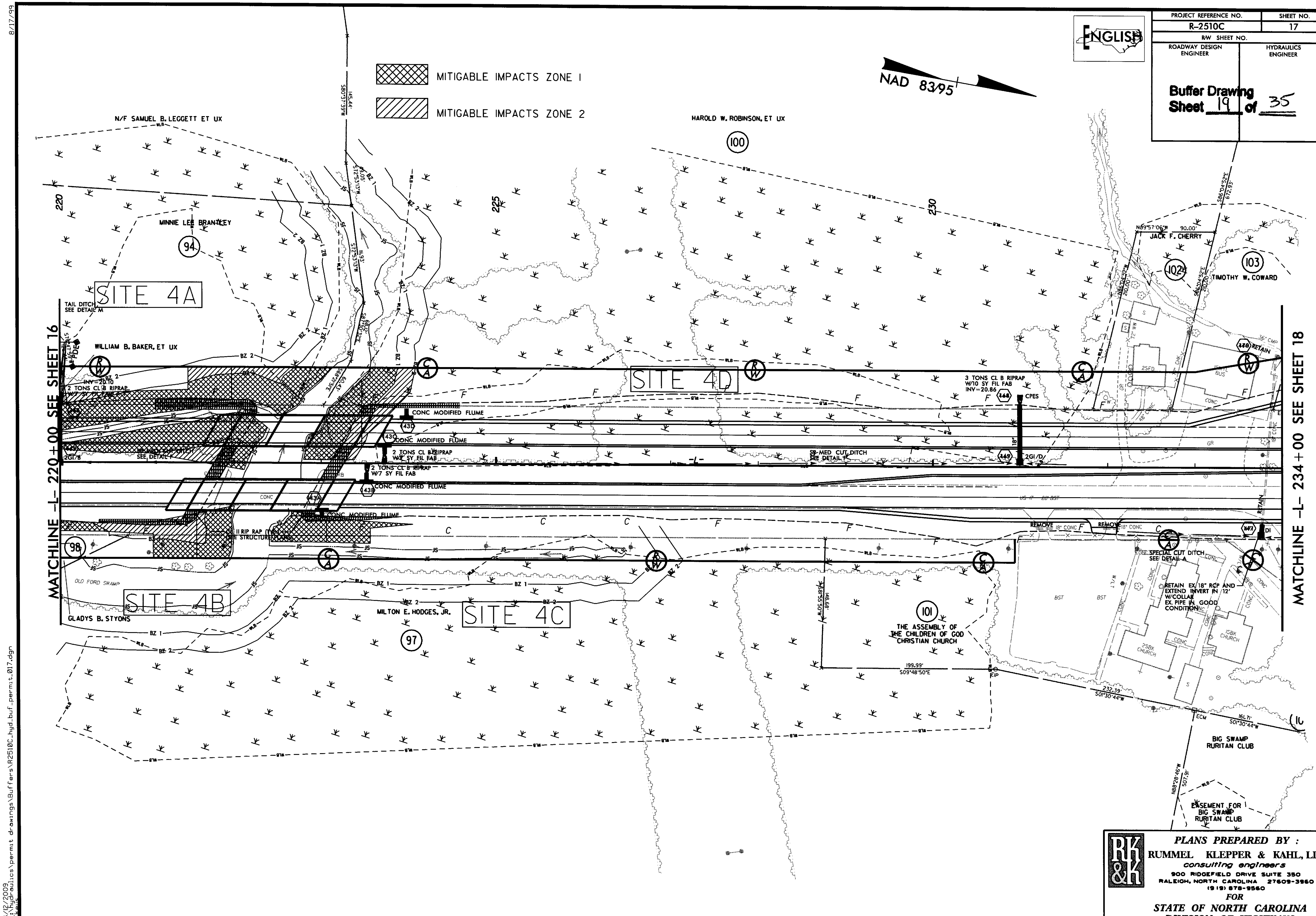

PROJECT REFERENCE NO. R-2510C
SHEET NO. 16
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
Buffer Drawing Sheet 17 of 35
ENGLISH
NAD 83/95
SWANNER-COOPER FARM HISTORIC PROPERTY
JOHN W. COOPER & PAMELA C. JOLLY
OTTIS B. WOOLARD, ET UX
N/F SAMUEL B. LEGGETT ET UX
BOBBY G. CHERRY, ET UX
CALDWELL DESIGN & FABRICATION, LLC
HISTORIC BOUNDARY
SPECIAL CUT DITCH SEE DETAIL A
DIRECT EXIST. DITCH TO PROP. ROADSIDE DITCH
MINNIE LEE BRANTLEY
SITE 4A
WILLIAM B. BAKER, ET UX
MATCHLINE -L- 206+00 SEE SHEET 15
MATCHLINE -L- 220+00 SEE SHEET 17
2 TONS CL B RIPRAP W/7 SY FIL FAB
5 TONS CL B RIPRAP W/14 SY FIL FAB
3 TONS CL B RIPRAP W/10 SY FIL FAB
2 TONS CL B RIPRAP W/7 SY FIL FAB
LATERAL V DITCH SEE DETAIL R
SP MED CUT DITCH SEE DETAIL F
TIE LATERAL V DITCH TO EXIST DITCH
USE ROCK PLATING AT STA. 218+50 +/- -L- TO STA. 219+50 +/- -L- (RIGHT) AND EXTEND ROCK PLATING LIMITS TO 2.5:1 (R/W) SLOPE. SEE ROCK PLATING DETAIL SHEET 2-I
GLADYS B. STYONS
SITE 4B
MILTON E. HODGES, JR.
LEE MORTON COOPER
GRADE TO DRAIN
MITIGABLE IMPACTS ZONE 1
MITIGABLE IMPACTS ZONE 2
PLANS PREPARED BY :
RUMMEL KLEPPER & KAHL, LLP
consulting engineers
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
(919) 878-9560
FOR
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
8/17/99
8/12/2009
r:\hydraulics\permit drawings\Buffers\R2510C_hyd_buf_permit_016.dgn

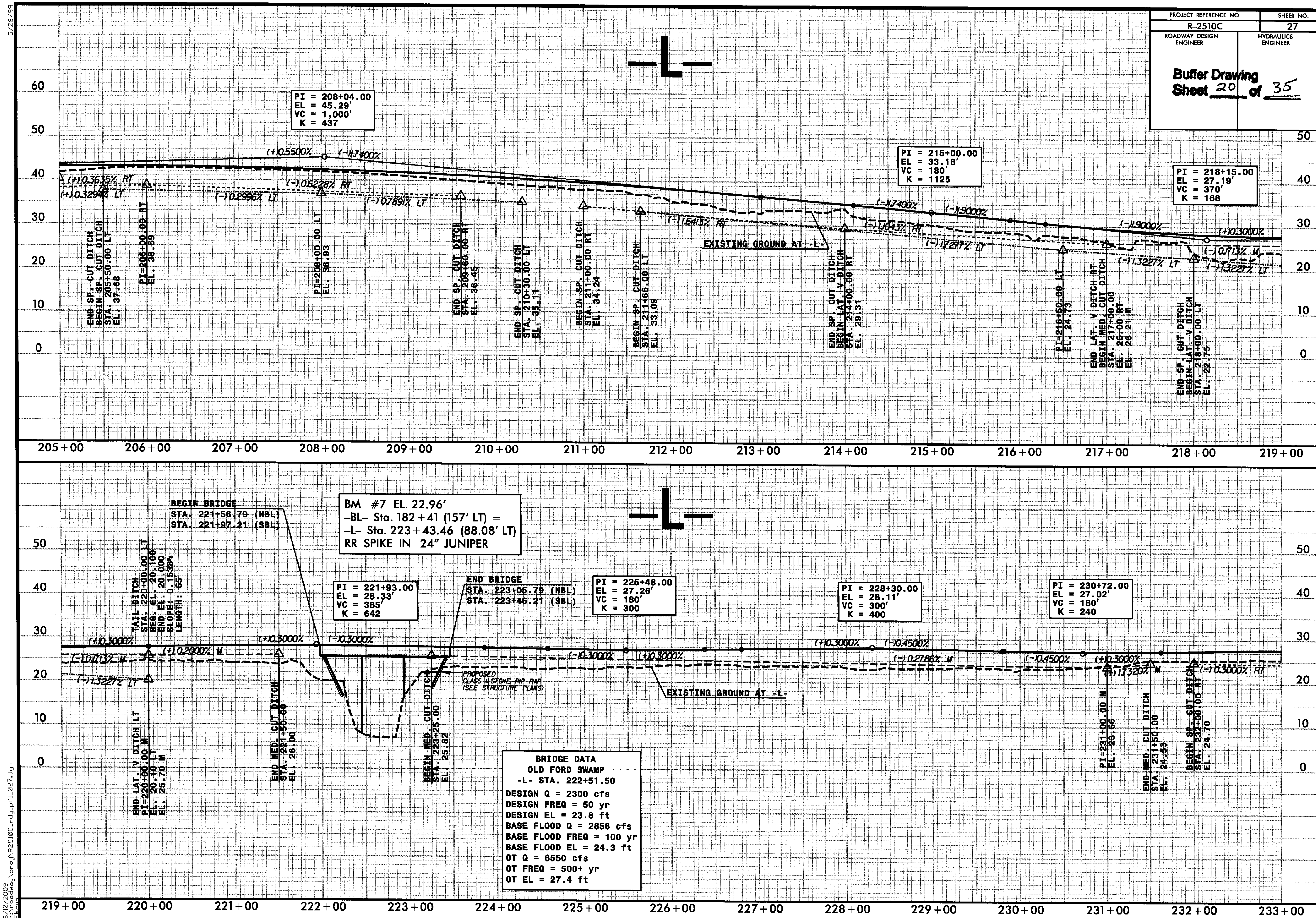


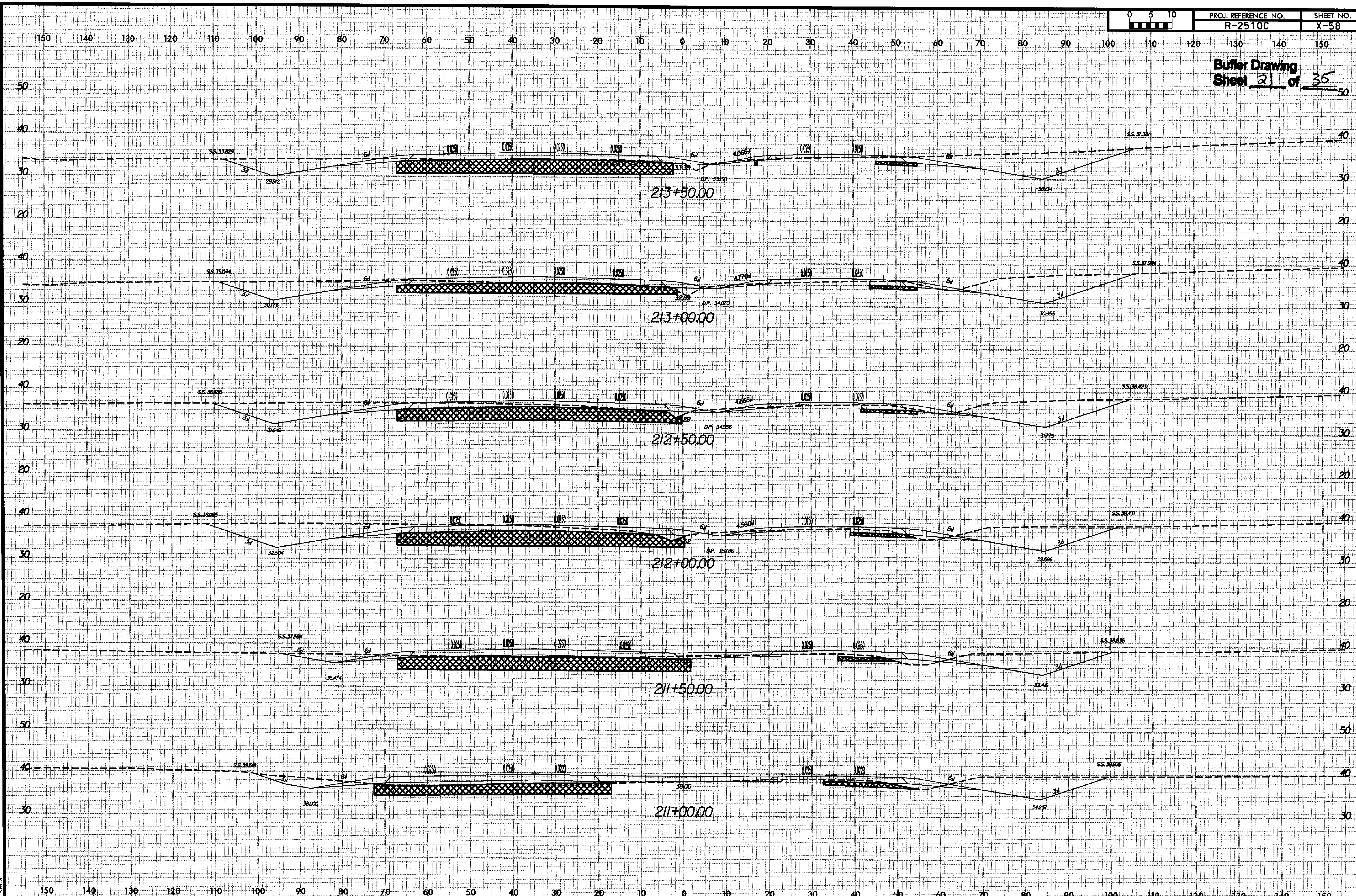
PLANS PREPARED BY :
RUMMEL KLEPPER & KAHL, LLP
consulting engineers
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
(919) 878-9560
FOR
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

8/17/99

8/12/2009
r:\hydraulics\permit drawings\Buffers\R2510C_hyd_buf_permit_con_017.dgn


PROJECT REFERENCE NO.
R-2510C
SHEET NO.
17
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
Buffer Drawing
Sheet 19 of 35
ENGLISH
NAD 83/95
MITIGABLE IMPACTS ZONE 1
MITIGABLE IMPACTS ZONE 2
N/F SAMUEL B. LEGGETT ET UX
HAROLD W. ROBINSON, ET UX
MINNIE LEE BRANTLEY
SITE 4A
SITE 4B
SITE 4C
SITE 4D
WILLIAM B. BAKER, ET UX
TAIL DITCH SEE DETAIL M
2 TONS CL B RIPRAP
CONC MODIFIED FLUME
2 TONS CL B RIPRAP W/7 SY FIL FAB
3 TONS CL B RIPRAP W/10 SY FIL FAB INV=20.86
SPECIAL CUT DITCH SEE DETAIL A
RETAIN EX 18" RCP AND EXTEND INVERT IN 12' W/COLLAR EX. PIPE IN GOOD CONDITION
JACK F. CHERRY
TIMOTHY W. COWARD
OLD FORD SWAMP
GLADYS B. STYONS
MILTON E. HODGES, JR.
THE ASSEMBLY OF THE CHILDREN OF GOD CHRISTIAN CHURCH
BIG SWAMP RURITAN CLUB
EASEMENT FOR BIG SWAMP RURITAN CLUB
MATCHLINE -L- 220+00 SEE SHEET 16
MATCHLINE -L- 234+00 SEE SHEET 18
PLANS PREPARED BY :
RUMMEL KLEPPER & KAHL, LLP
consulting engineers
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
(919) 878-9560
FOR
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
8/17/99
8/12/2009


PROJECT REFERENCE NO. R-2510C
SHEET NO. 27
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
Buffer Drawing Sheet 20 of 35
-L-
PI = 208+04.00
EL = 45.29'
VC = 1,000'
K = 437
PI = 215+00.00
EL = 33.18'
VC = 180'
K = 1125
PI = 218+15.00
EL = 27.19'
VC = 370'
K = 168
(+)0.5500%
(-)1.7400%
(+) 0.3635% RT
(+) 0.3294% LT
(-) 0.6228% RT
(-) 0.2996% LT
(-) 0.7891% LT
(-) 1.6413% RT
EXISTING GROUND AT -L-
(-)1.7400%
(-)1.9000%
(-) 1.1043% RT
(-) 1.7277% LT
(-)1.9000%
(+)0.3000%
(-) 0.1713% M
(-)1.3227% LT
(-) 1.3227% LT
END SP. CUT DITCH
BEGIN SP. CUT DITCH
STA. 205+50.00 LT
EL. 37.68
PI=206+00.00 RT
EL. 38.69
PI=208+00.00 LT
EL. 36.93
END SP. CUT DITCH
STA. 209+60.00 RT
EL. 36.45
END SP. CUT DITCH
STA. 210+30.00 LT
EL. 35.11
BEGIN SP. CUT DITCH
STA. 211+00.00 RT
EL. 34.24
BEGIN SP. CUT DITCH
STA. 211+66.00 LT
EL. 33.09
END SP. CUT DITCH
BEGIN LAT. V DITCH
STA. 214+00.00 RT
EL. 29.31
PI=216+50.00 LT
EL. 24.73
END LAT. V DITCH RT
BEGIN MED. CUT DITCH
STA. 217+00.00
EL. 26.00 RT
EL. 26.21 M
END SP. CUT DITCH
BEGIN LAT. V DITCH
STA. 218+00.00 LT
EL. 22.75
205+00 206+00 207+00 208+00 209+00 210+00 211+00 212+00 213+00 214+00 215+00 216+00 217+00 218+00 219+00
BEGIN BRIDGE
STA. 221+56.79 (NBL)
STA. 221+97.21 (SBL)
BM #7 EL. 22.96'
-BL- Sta. 182+41 (157' LT) =
-L- Sta. 223+43.46 (88.08' LT)
RR SPIKE IN 24" JUNIPER
-L-
PI = 221+93.00
EL = 28.33'
VC = 385'
K = 642
END BRIDGE
STA. 223+05.79 (NBL)
STA. 223+46.21 (SBL)
PI = 225+48.00
EL = 27.26'
VC = 180'
K = 300
PI = 228+30.00
EL = 28.11'
VC = 300'
K = 400
PI = 230+72.00
EL = 27.02'
VC = 180'
K = 240
TAIL DITCH
STA. 220+00.00 LT
BEG. EL. 20.100
END EL. 20.000
SLOPE: 0.1538%
LENGTH: 65'
(+)0.3000%
(-)0.1713% M
(-)1.3227% LT
(+)0.2000% M
(+)0.3000%
(-)0.3000%
PROPOSED CLASS II STONE RIP RAP (SEE STRUCTURE PLANS)
(-)0.3000%
(+)0.3000%
EXISTING GROUND AT -L-
(+)0.3000%
(-)0.4500%
(-) 0.2786% M
(-)0.4500%
(+)0.3000%
(+)1.7320% M
(-) 0.3000% RT
END LAT. V DITCH LT
PI=220+00.00 M
EL. 20.10 LT
EL. 25.70 M
END MED. CUT DITCH
STA. 221+50.00
EL. 26.00
BEGIN MED. CUT DITCH
STA. 223+25.00
EL. 25.82
PI=231+00.00 M
EL. 23.66
END MED. CUT DITCH
STA. 231+50.00
EL. 24.53
BEGIN SP. CUT DITCH
STA. 232+00.00 RT
EL. 24.70
BRIDGE DATA
OLD FORD SWAMP
-L- STA. 222+51.50
DESIGN Q = 2300 cfs
DESIGN FREQ = 50 yr
DESIGN EL = 23.8 ft
BASE FLOOD Q = 2856 cfs
BASE FLOOD FREQ = 100 yr
BASE FLOOD EL = 24.3 ft
OT Q = 6550 cfs
OT FREQ = 500+ yr
OT EL = 27.4 ft
219+00 220+00 221+00 222+00 223+00 224+00 225+00 226+00 227+00 228+00 229+00 230+00 231+00 232+00 233+00
5/28/99
8/12/2009
F:\roadway\proj\R2510C_rdy_pfl_027.dgn

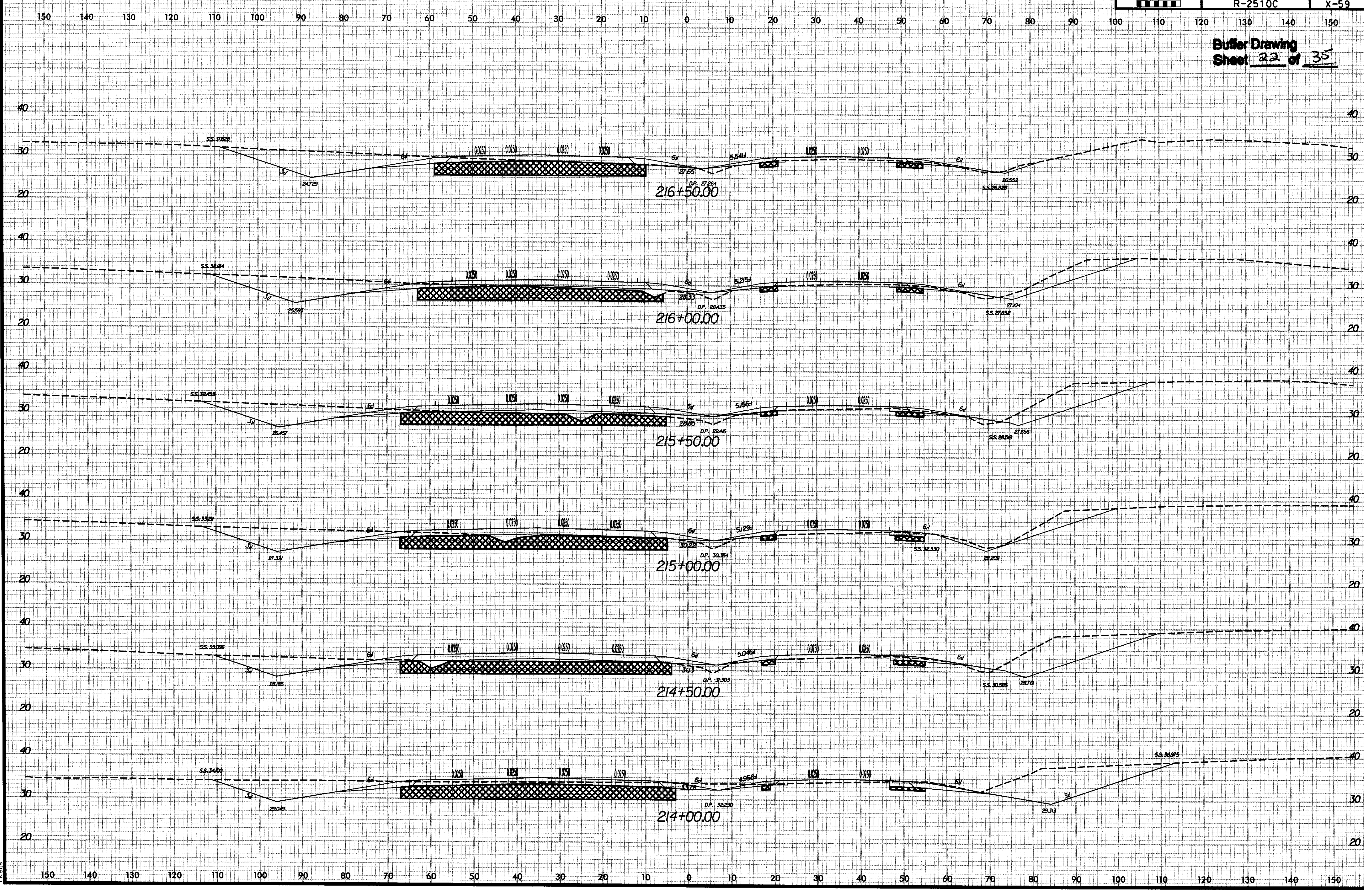


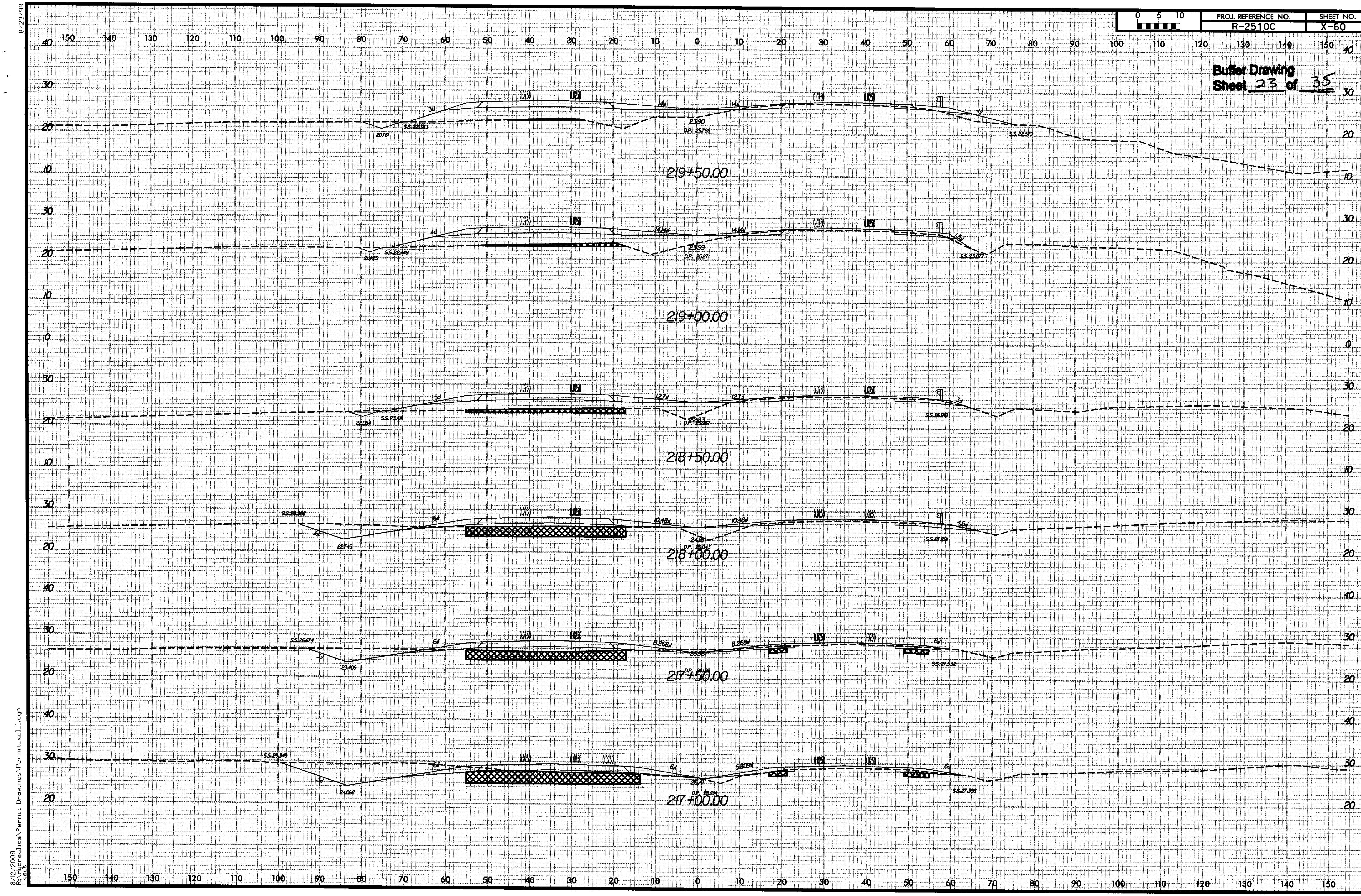
8/23/99

8/12/2009
R:\Hydraulics\Permit Drawings\Permit_xpl1.dgn
Fkeys

PROJ. REFERENCE NO.	SHEET NO.
R-2510C	X-59

Buffer Drawing
Sheet 22 of 35

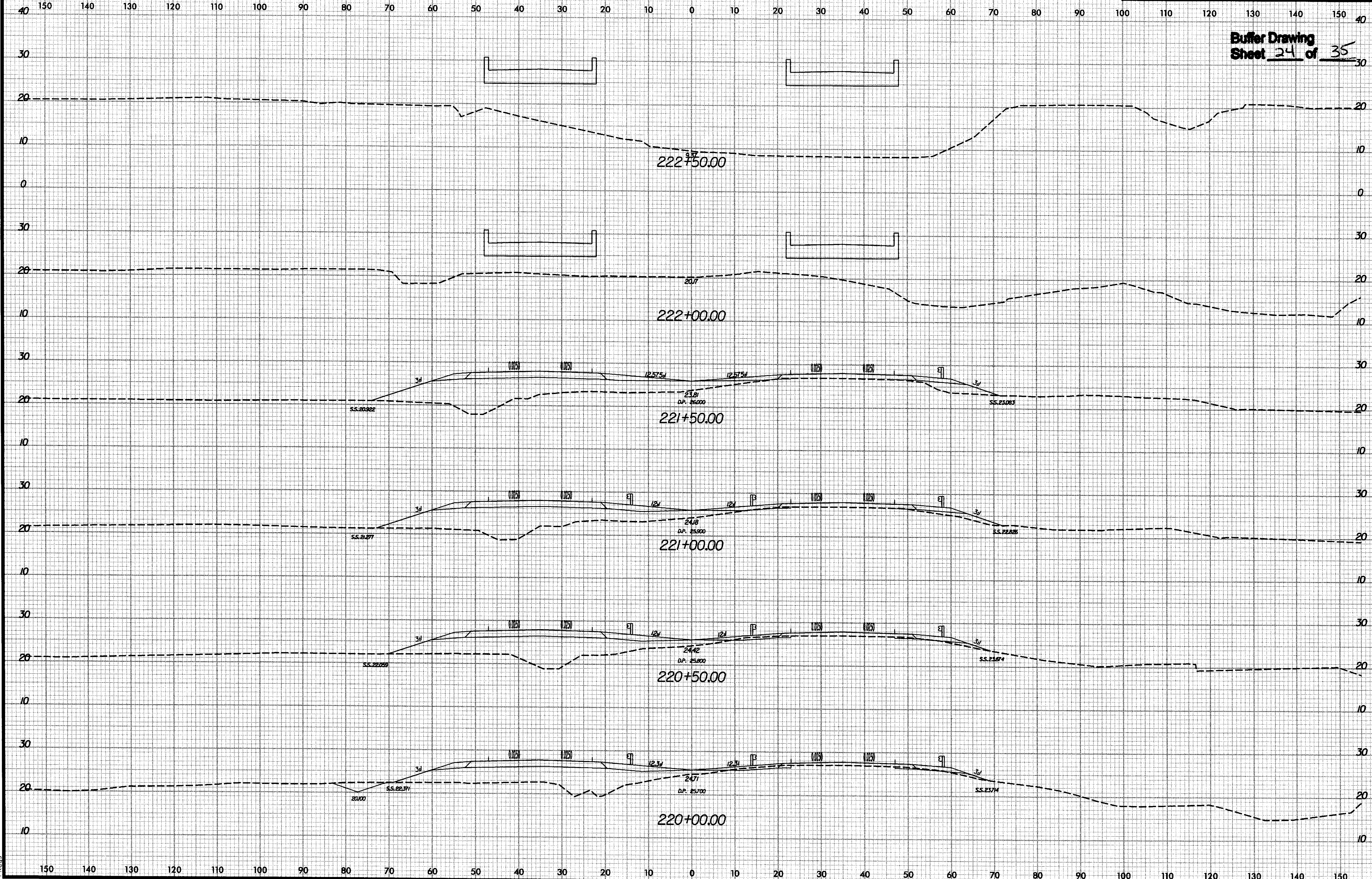




PROJ. REFERENCE NO.
R-2510C
SHEET NO.
X-60
Buffer Drawing
Sheet 23 of 35
219+50.00
219+00.00
218+50.00
218+00.00
217+50.00
217+00.00
S.S. 22.383
D.P. 25.786
S.S. 22.579
S.S. 22.449
D.P. 25.871
S.S. 23.077
S.S. 23.416
S.S. 26.918
S.S. 26.388
S.S. 27.291
S.S. 26.674
S.S. 27.532
S.S. 29.349
S.S. 27.398
8/23/99
8/12/2009
R:\Hydraulics\Permit Drawings\Permit_xpl_1.dgn

PROJ. REFERENCE NO.	SHEET NO.
R-2510C	X-61

Buffer Drawing
Sheet 24 of 35

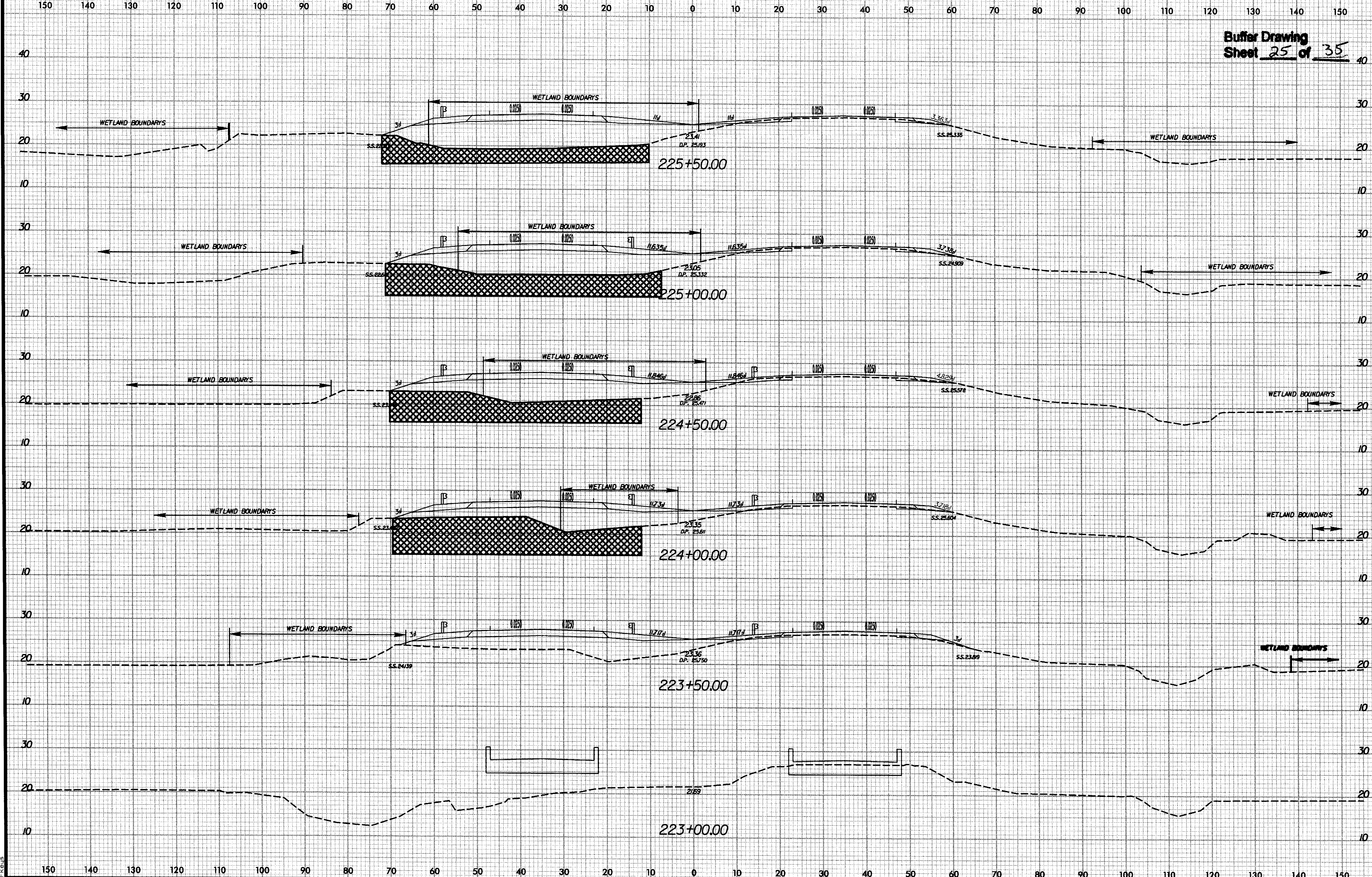


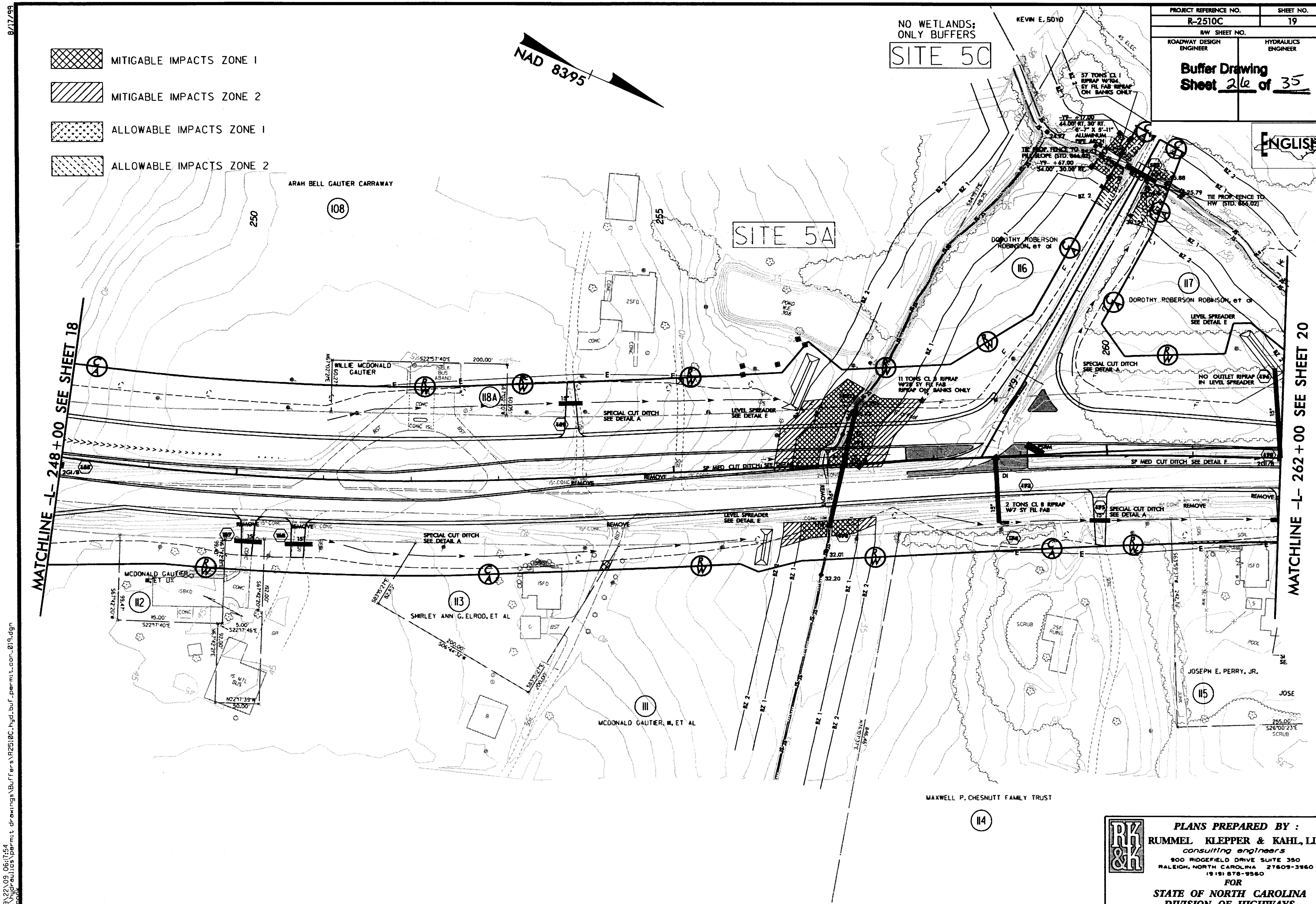
8/23/99

8/12/2009
R:\Hydraulics\Permit Drawings\Permit_xpl_1.dgn
F:keys

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2510C	X-62

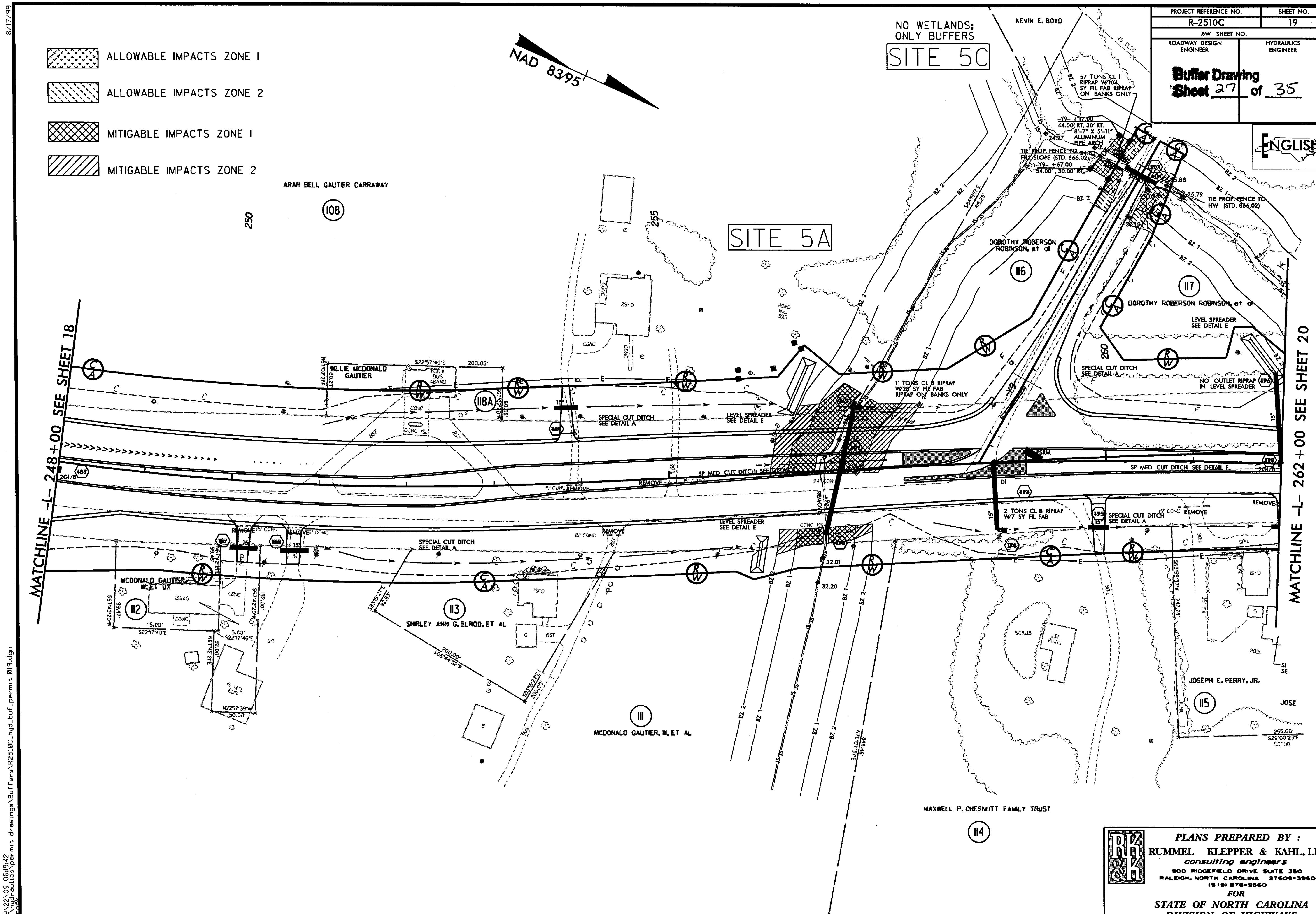
Buffer Drawing
Sheet 25 of 35





8/17/99

09/22/09 06:17:54
r:\hydraulics\permit drawings\Buffers\R2510C_hyd_buf_permit_con_019.dgn

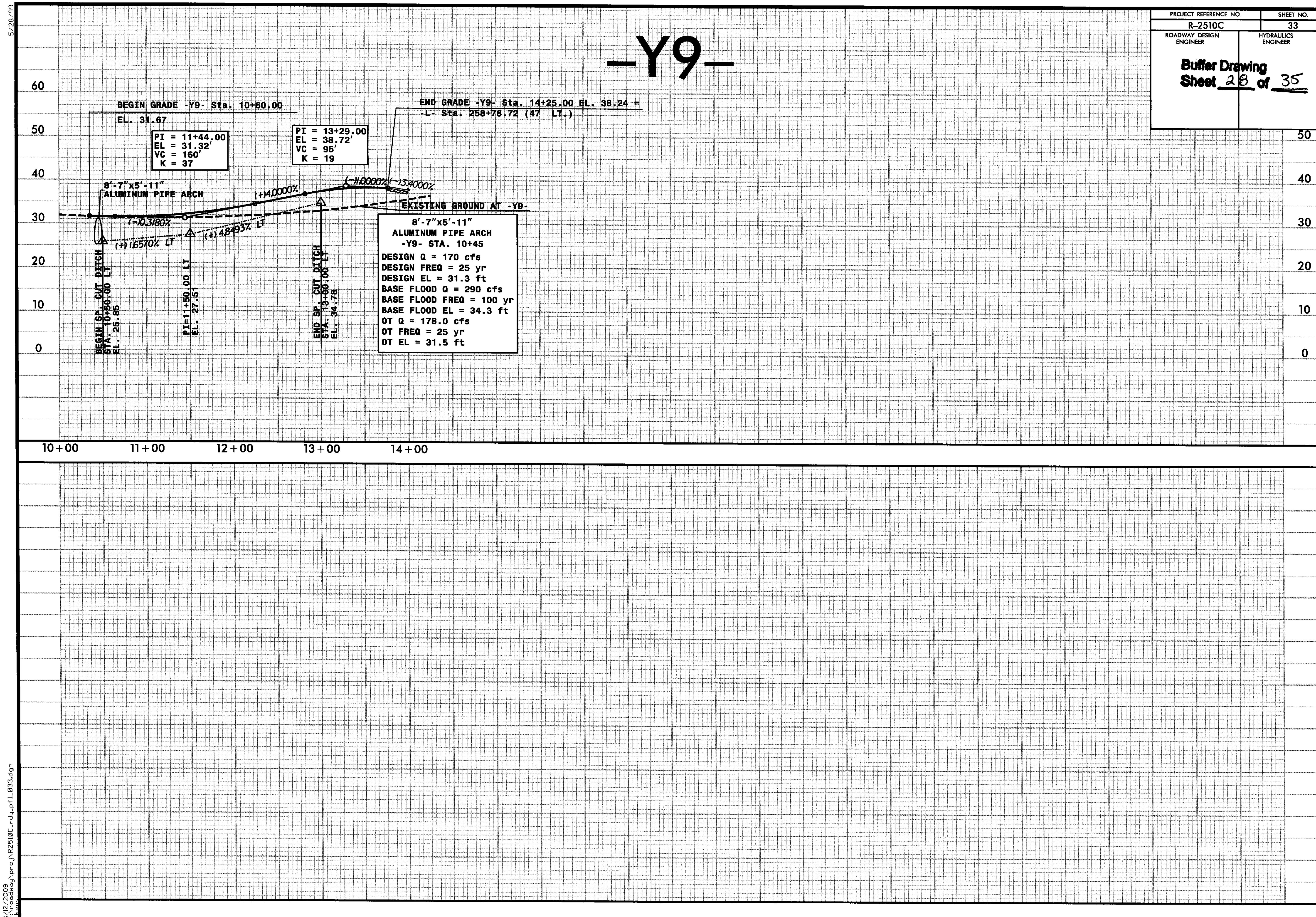


8/17/99
09/22/09 06:19:42
r:\hydraulics\permit drawings\Buffers\R2510C_hyd_buf_permit_019.dgn

PROJECT REFERENCE NO.	SHEET NO.
R-2510C	33
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

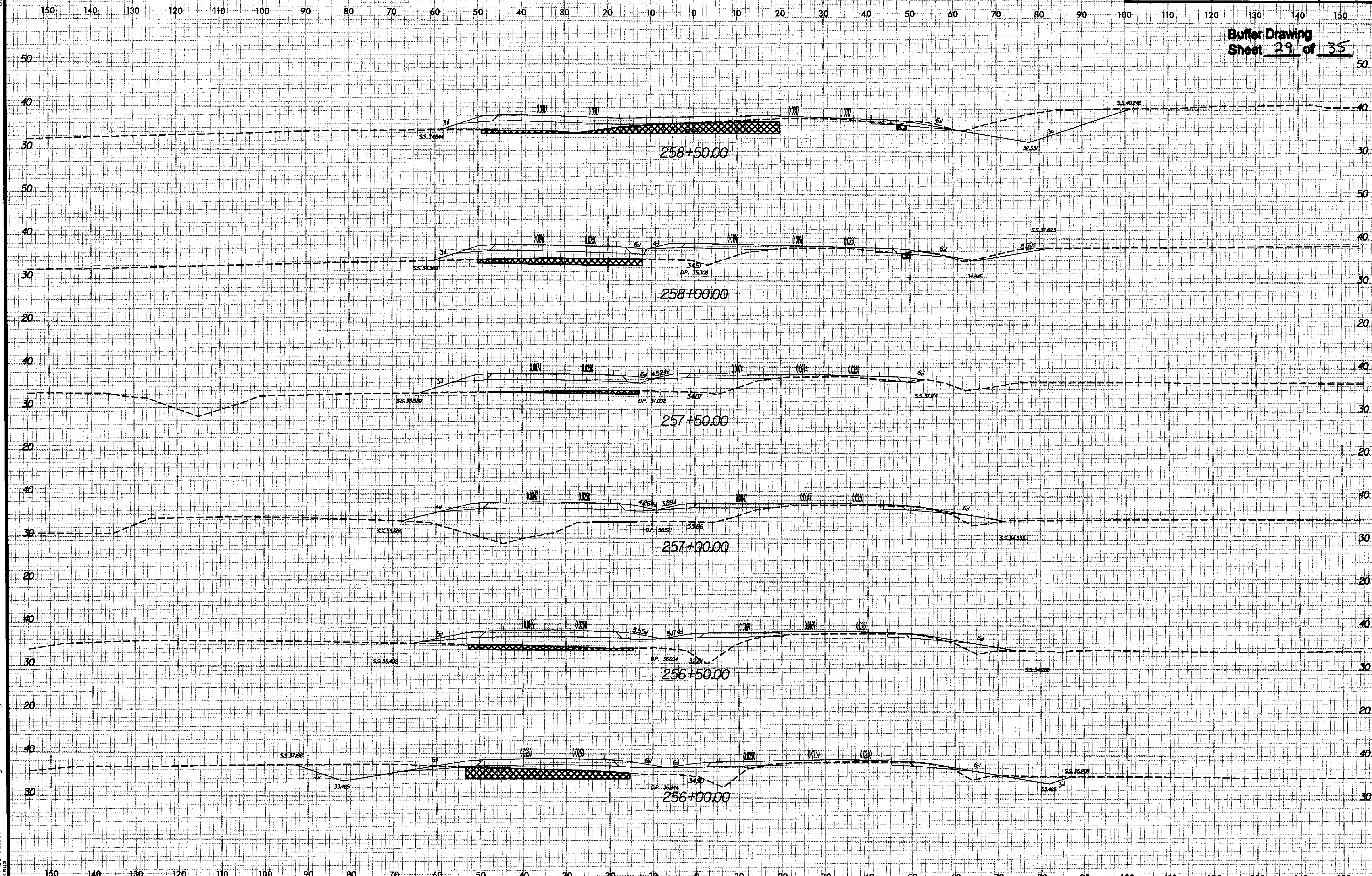
Buffer Drawing
Sheet 28 of 35

-Y9-



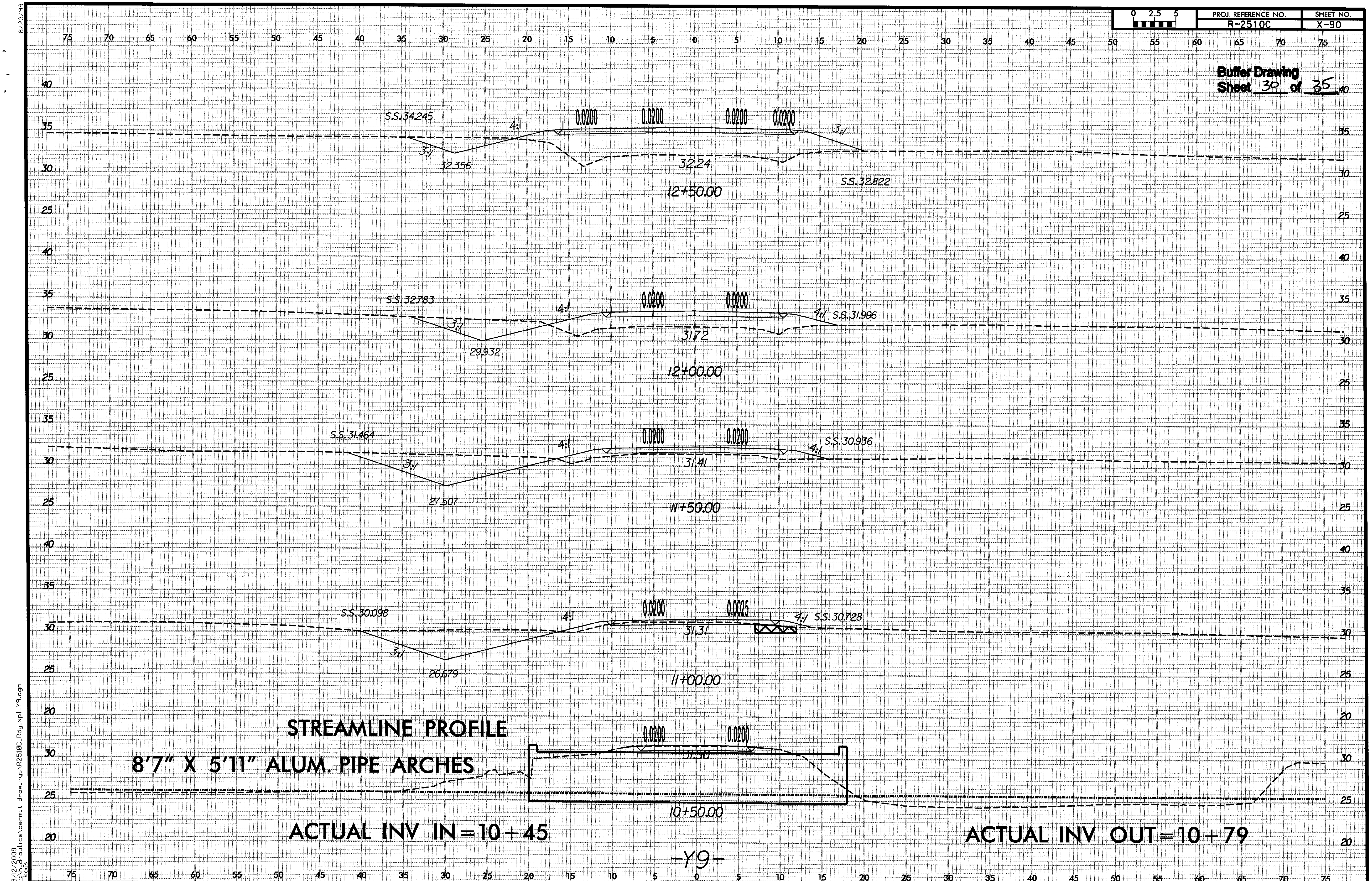
PROJ. REFERENCE NO.	SHEET NO.
R-2510C	X-73

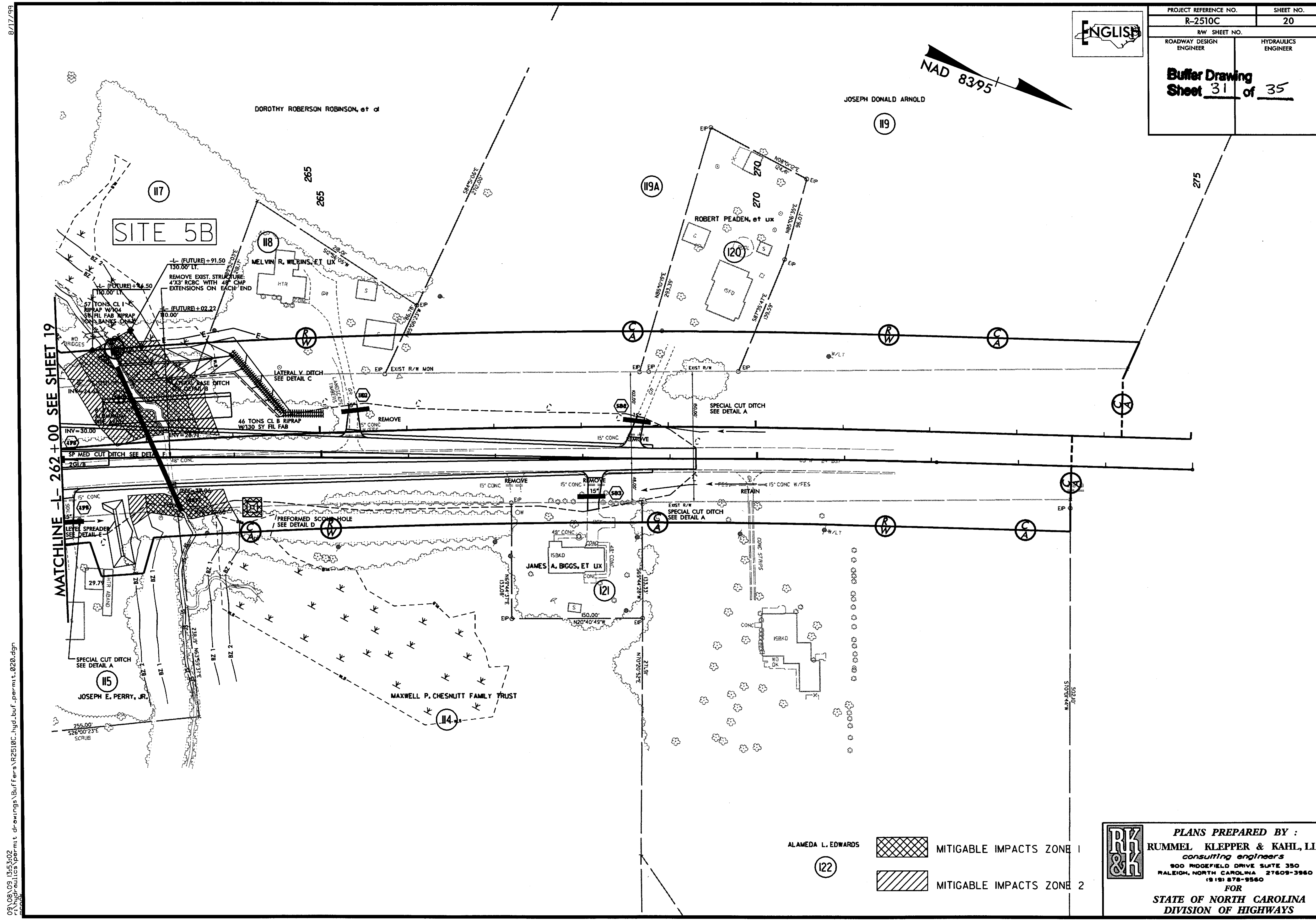
Buffer Drawing
Sheet 29 of 35



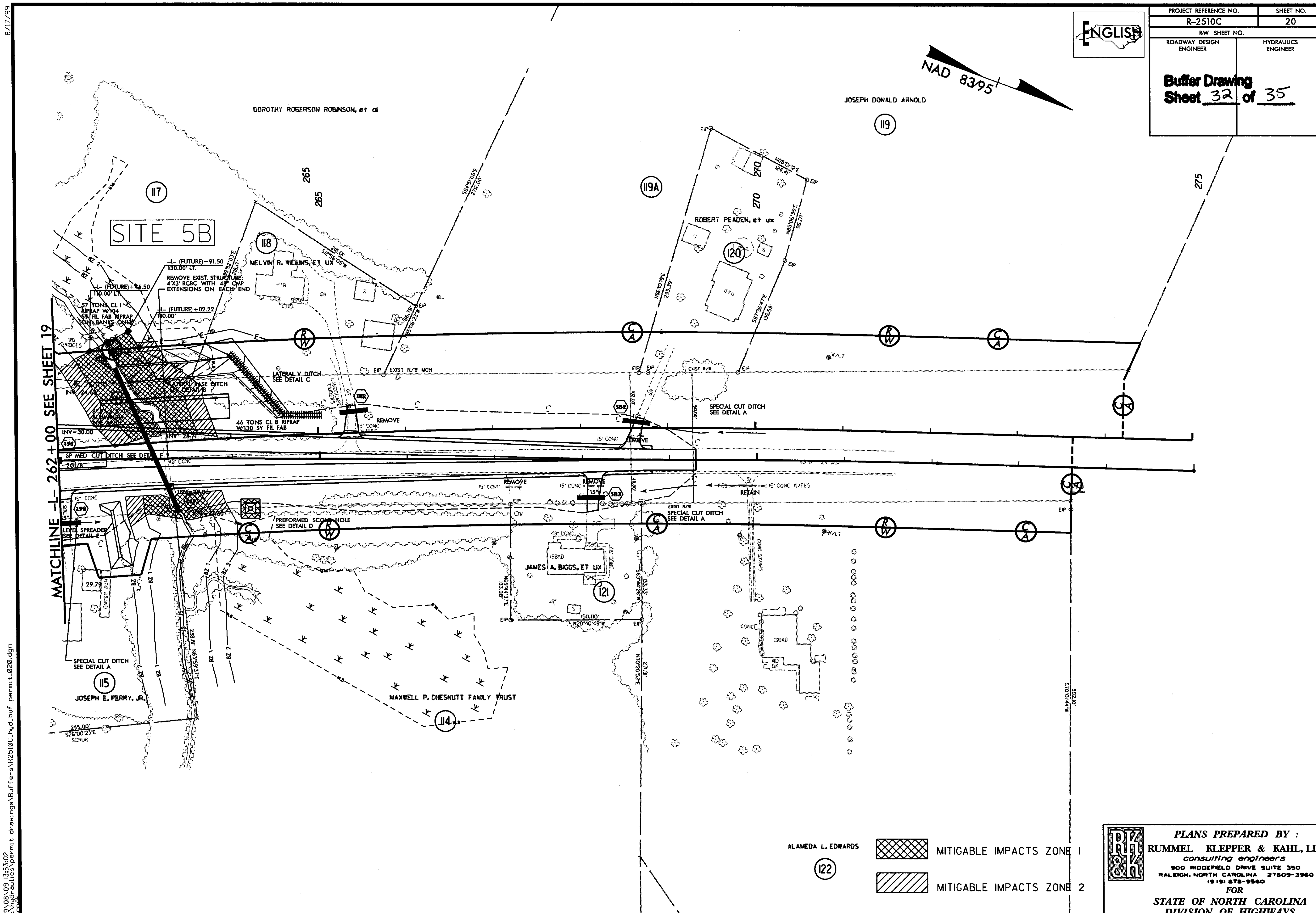
8/23/99

8/12/2009
R:\Hydraulics\Permit Drawings\Permit_xpl1.dgn
Fkeys


PROJ. REFERENCE NO.
R-2510C
SHEET NO.
X-90
0 2.5 5
Buffer Drawing
Sheet 30 of 35
S.S. 34.245
4:1
0.0200
0.0200
0.0200
0.0200
3:1
3:1
32.356
32.24
S.S. 32.822
12+50.00
S.S. 32.783
4:1
0.0200
0.0200
4:1 S.S. 31.996
3:1
29.932
31.72
12+00.00
S.S. 31.464
4:1
0.0200
0.0200
4:1 S.S. 30.936
3:1
31.41
27.507
11+50.00
S.S. 30.098
4:1
0.0200
0.0025
4:1 S.S. 30.728
31.31
3:1
26.679
11+00.00
STREAMLINE PROFILE
8'7" X 5'11" ALUM. PIPE ARCHES
0.0200
0.0200
31.50
10+50.00
ACTUAL INV IN = 10 + 45
ACTUAL INV OUT = 10 + 79
-Y9-
8/23/99
8/12/2009
c:\hydraulics\permit drawings\R2510C_Rdy_xpl_Y9.dgn
Fleus



PROJECT REFERENCE NO.
R-2510C
SHEET NO.
20
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
Buffer Drawing
Sheet 31 of 35
ENGLISH
NAD 83/95
DOROTHY ROBERSON ROBINSON, et al
JOSEPH DONALD ARNOLD
SITE 5B
MELVIN R. WILKINS, ET UX
ROBERT PEADEN, et ux
JAMES A. BIGGS, ET UX
JOSEPH E. PERRY, JR.
MAXWELL P. CHESNUTT FAMILY TRUST
ALAMEDA L. EDWARDS
MATCHLINE -L- 262+00 SEE SHEET 19
-L- (FUTURE)+91.50 130.00' LT.
REMOVE EXIST. STRUCTURE: 4'X3' RCBC WITH 48" CMP EXTENSIONS ON EACH END
-L- (FUTURE)+96.50 110.00' LT.
-L- (FUTURE)+02.22 110.00'
57 TONS CL I RIPRAP W/104 SY FIL FAB RIPRAP ON BANKS ONLY
LATERAL V DITCH SEE DETAIL C
46 TONS CL B RIPRAP W/130 SY FIL FAB
SPECIAL CUT DITCH SEE DETAIL A
PREFORMED SCOUR HOLE SEE DETAIL D
LEVEL SPREADER SEE DETAIL E
REMOVE
RETAIN
EXIST R/W MON
MITIGABLE IMPACTS ZONE 1
MITIGABLE IMPACTS ZONE 2
PLANS PREPARED BY :
RUMMEL KLEPPER & KAHL, LLP
consulting engineers
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
(919) 878-9560
FOR
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
8/17/99
09/08/09 13:53:02
r:\hydraulics\permit drawings\Buffers\R2510C_hyd_buf_permit_020.dgn

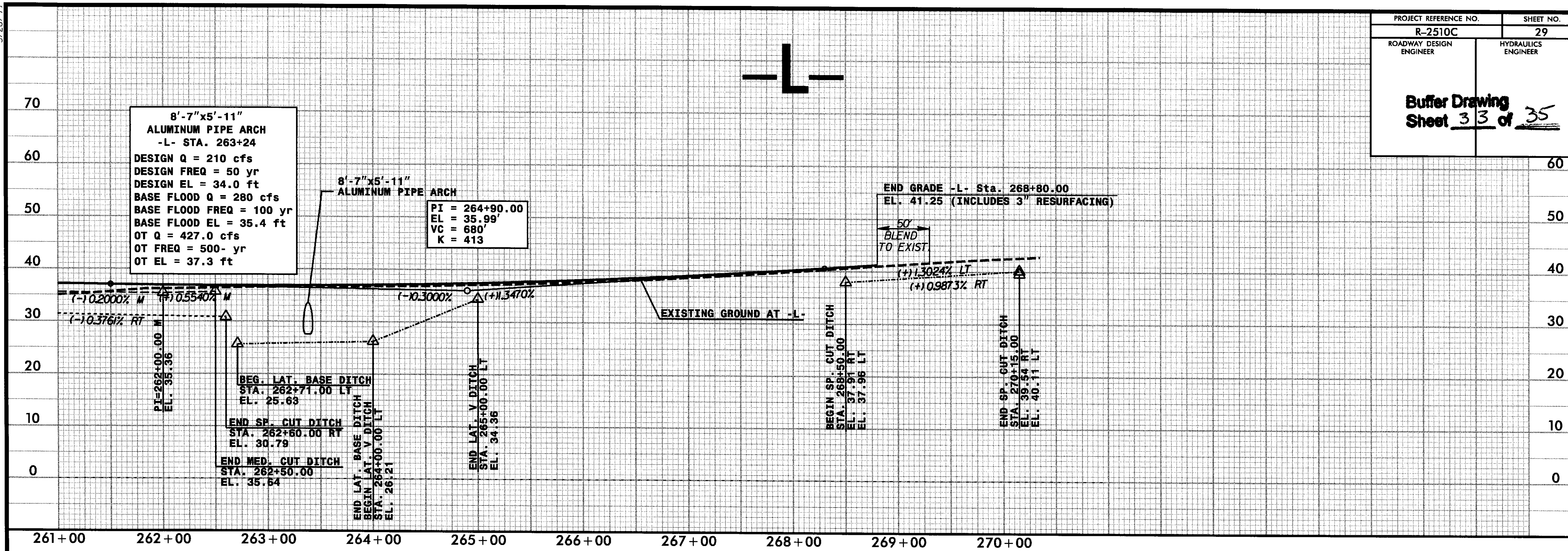


PROJECT REFERENCE NO.
R-2510C
SHEET NO.
20
RW SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
Buffer Drawing Sheet 32 of 35
ENGLISH
NAD 83/95
DOROTHY ROBERSON ROBINSON, et al
JOSEPH DONALD ARNOLD
SITE 5B
MELVIN R. WILKINS, ET UX
ROBERT PEADEN, et ux
JAMES A. BIGGS, ET UX
MAXWELL P. CHESNUTT FAMILY TRUST
JOSEPH E. PERRY, JR.
ALAMEDA L. EDWARDS
MATCHLINE -L- 262+00 SEE SHEET 19
REMOVE EXIST. STRUCTURE: 4'X3' RCBC WITH 48" CMP EXTENSIONS ON EACH END
57 TONS CL I RIPRAP W/104 SY FIL FAB RIPRAP ON BANKS ONLY
46 TONS CL B RIPRAP W/130 SY FIL FAB
LATERAL V DITCH SEE DETAIL C
LATERAL BASE DITCH SEE DETAIL B
SPECIAL CUT DITCH SEE DETAIL A
PREFORMED SCOUR HOLE SEE DETAIL D
LEVEL SPREADER SEE DETAIL E
SP MED CUT DITCH SEE DETAIL F
MITIGABLE IMPACTS ZONE 1
MITIGABLE IMPACTS ZONE 2
PLANS PREPARED BY :
RUMMEL KLEPPER & KAHL, LLP
consulting engineers
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
(919) 878-9560
FOR
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
8/17/99

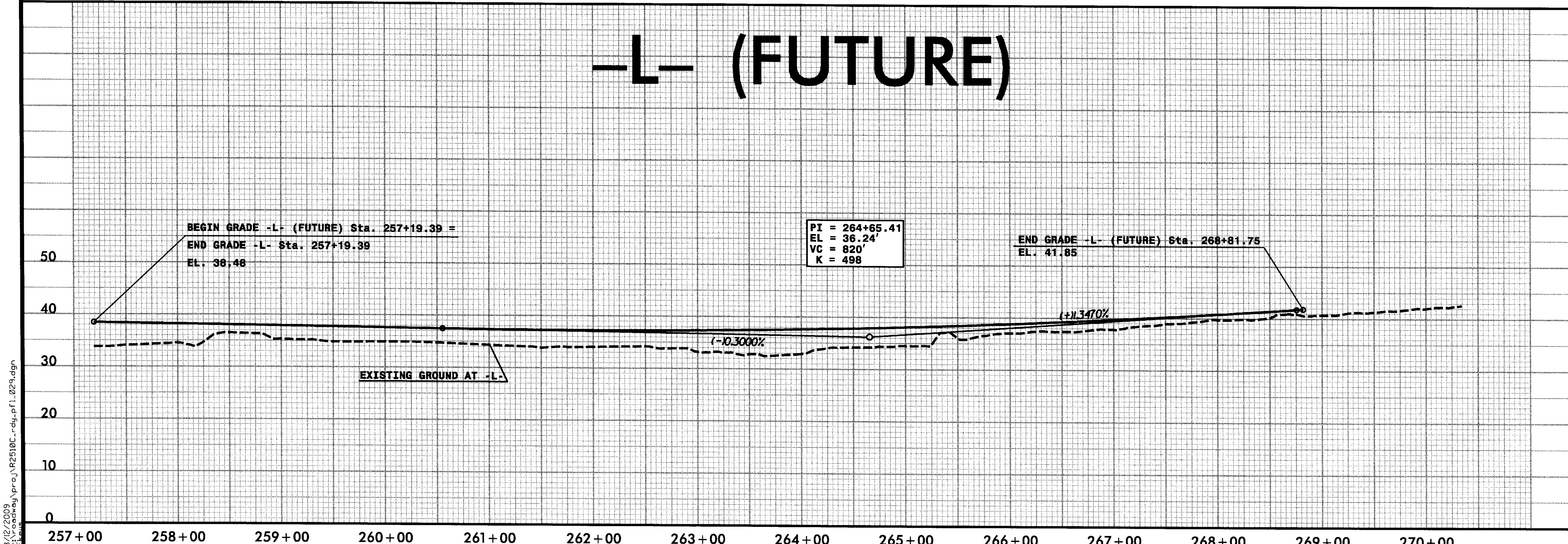
PROJECT REFERENCE NO.	SHEET NO.
R-2510C	29
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

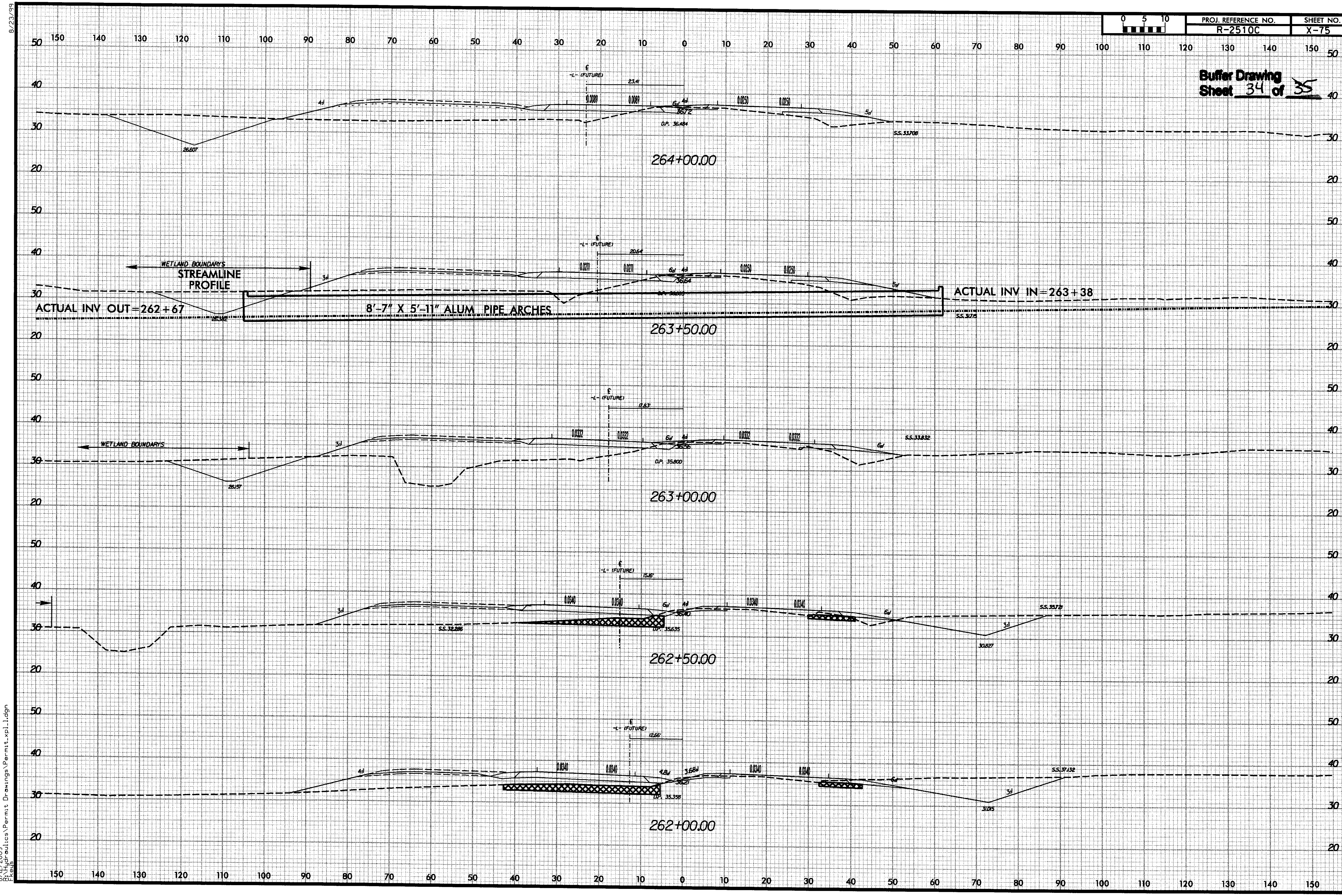
Buffer Drawing Sheet 33 of 35

-L-



-L- (FUTURE)

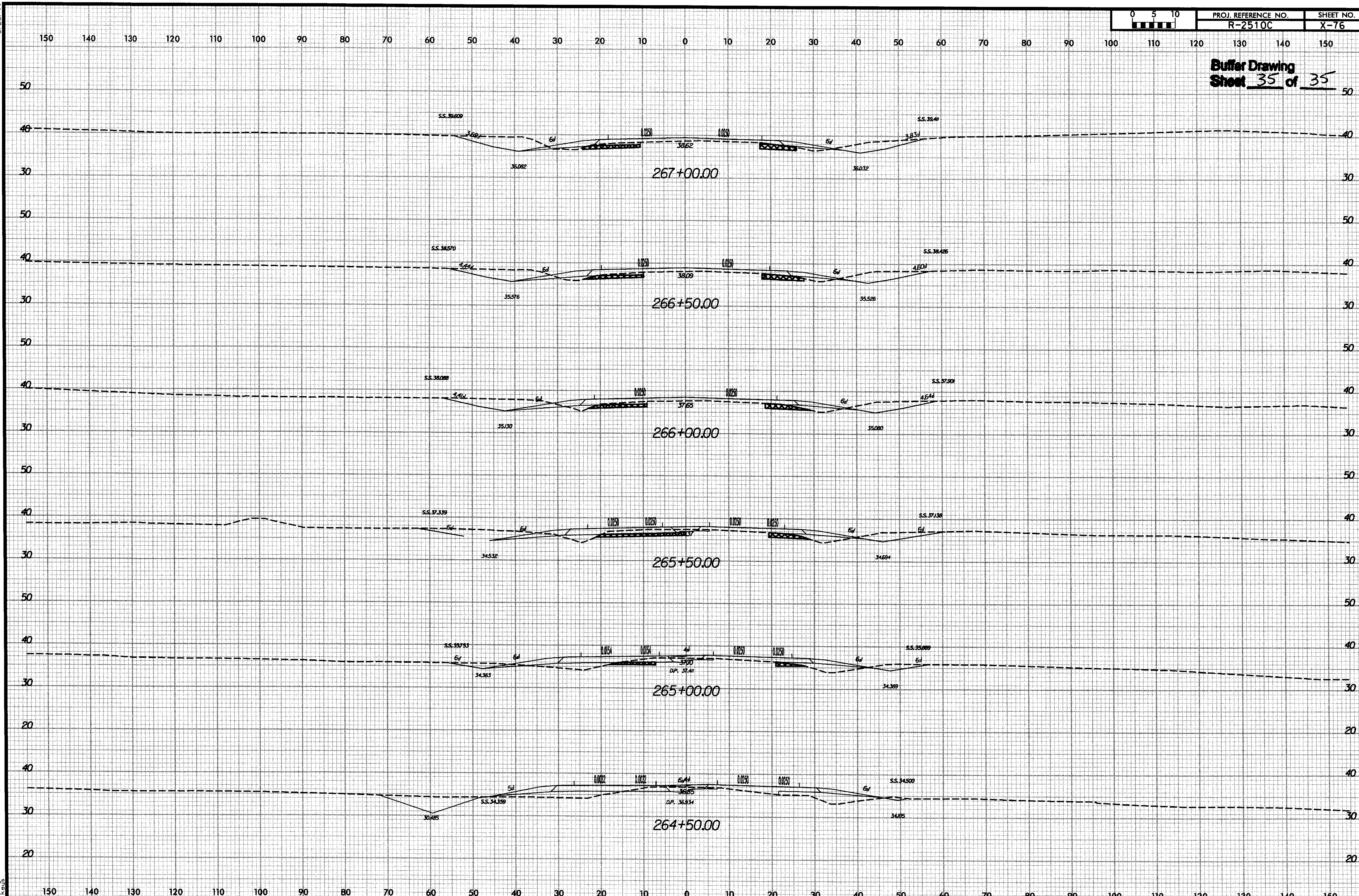




PROJ. REFERENCE NO.
R-2510C
SHEET NO.
X-75
Buffer Drawing
Sheet 34 of 35
-L- (FUTURE)
264+00.00
WETLAND BOUNDARYS
STREAMLINE PROFILE
ACTUAL INV OUT=262+67
8'-7" X 5'-11" ALUM PIPE ARCHES
ACTUAL INV IN=263+38
263+50.00
WETLAND BOUNDARYS
263+00.00
262+50.00
262+00.00

PROJ. REFERENCE NO. R-2510C
SHEET NO. X-76

Buffer Drawing
Sheet 35 of 35



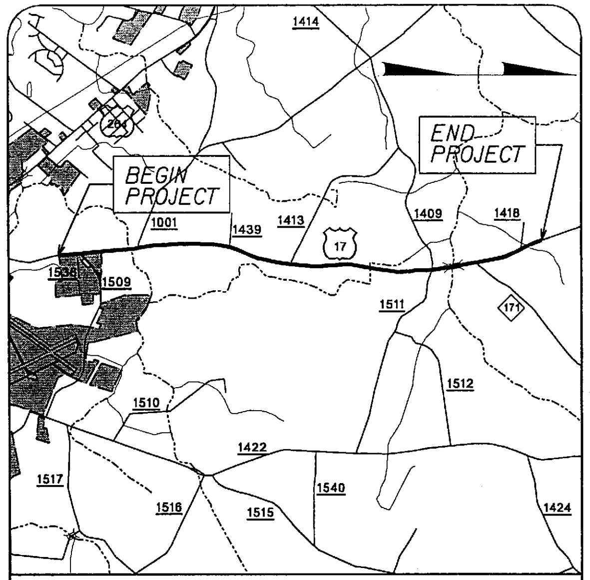
8/23/99

8/12/2009
R:\Hydraulics\Permit Drawings\Permit_xpl1.dgn
Fkeys

TIP PROJECT: R-2510C

CONTRACT:

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



VICINITY MAP

RW PLAN SUBMITTAL

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

BEAUFORT COUNTY

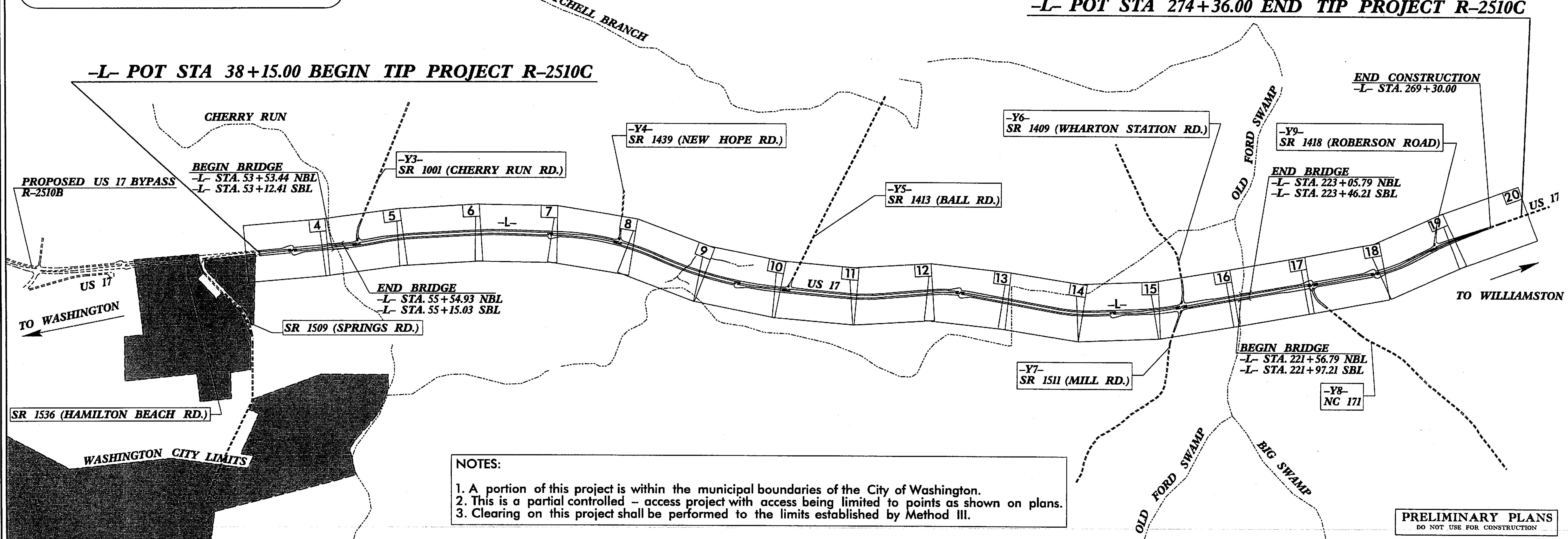
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2510C	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
34440.1.1	MAF-75-3 (26)	P.E.
34440.2.5	MAF-75-3 (26)	R/W & UTIL

LOCATION: US 17 FROM US 17 SOUTH OF SR 1001 (CHERRY RUN ROAD) TO NORTH OF NC 171.

TYPE OF WORK: GRADING, DRAINAGE, PAVING, RESURFACING, CULVERT AND STRUCTURES

NAD 83/95



NOTES:

1. A portion of this project is within the municipal boundaries of the City of Washington.
2. This is a partial controlled – access project with access being limited to points as shown on plans.
3. 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 = 12,710
ADT 2034 = 19,830
DHV = 10%
D = 55%
T = 11% *
V = 60 MPH
CLASS=RURAL ARTERIAL
* (TTST 7% + DUAL 4%)

PROJECT LENGTH

Length Roadway TIP Project R-2510C .... 4.474 Mi.

*Length Structure** TIP Project R-2510C .... 0.066 Mi.

TOTAL LENGTH TIP Project R-2510C .... 4.540 Mi.

*Length Based on NBL Structures

RK&K

PLANS PREPARED BY:
RUMMEL, KLEPPER & KAHL, LLP
consulting engineers
900 RIDGEFIELD DRIVE, SUITE 350
RALEIGH, NORTH CAROLINA 27609
(919) 878-9560
FOR
DIVISION OF HIGHWAYS

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
11/2006 (PROD.)

LETTING DATE:
October 21, 2014

B. Keith Skinner, P.E.
PROJECT ENGINEER

Michael T. Merritt, P.E.
PROJECT DESIGN ENGINEER

NCDOT CONTACT: CATHY S. HOUSER, PE

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

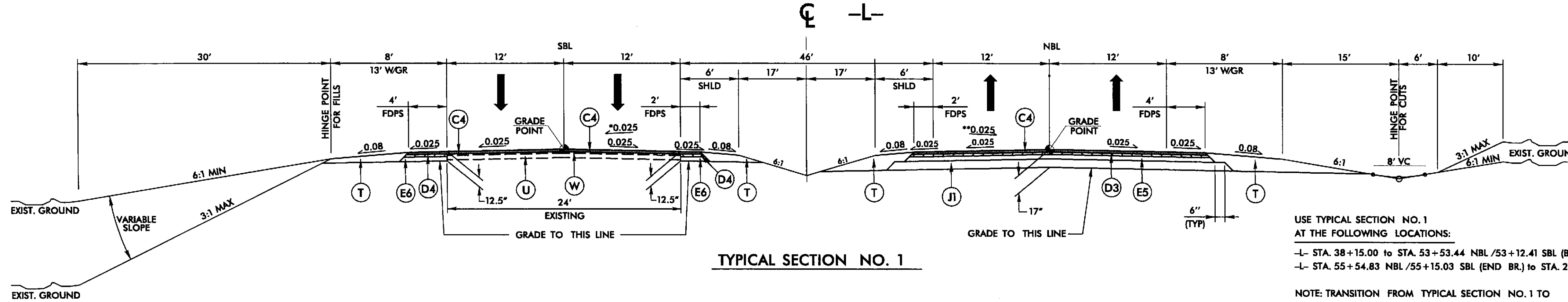
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

STATE HIGHWAY DESIGN ENGINEER P.E.

09/30/08 08:10:38
r:\roadway\Proj\R2510C_Rdy_tsh.dgn
kitchings

PROJECT REFERENCE NO.	SHEET NO.
R-2510C	2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



TYPICAL SECTION NO. 1

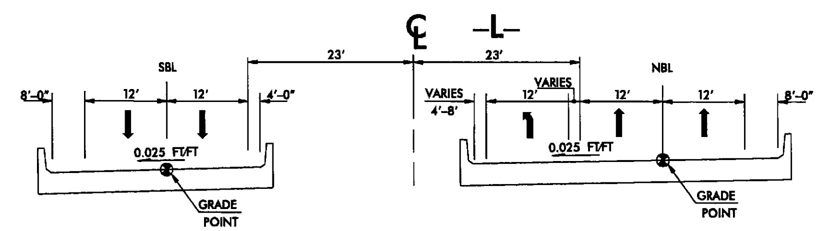
USE TYPICAL SECTION NO. 1
AT THE FOLLOWING LOCATIONS:

-L- STA. 38+15.00 to STA. 53+53.44 NBL /53+12.41 SBL (BEG. BR.)
-L- STA. 55+54.83 NBL /55+15.03 SBL (END BR.) to STA. 203+50.00

NOTE: TRANSITION FROM TYPICAL SECTION NO. 1 TO
TYPICAL SECTION NO. 2:
-L- STA. 203+50.00 to STA. 215+00.00

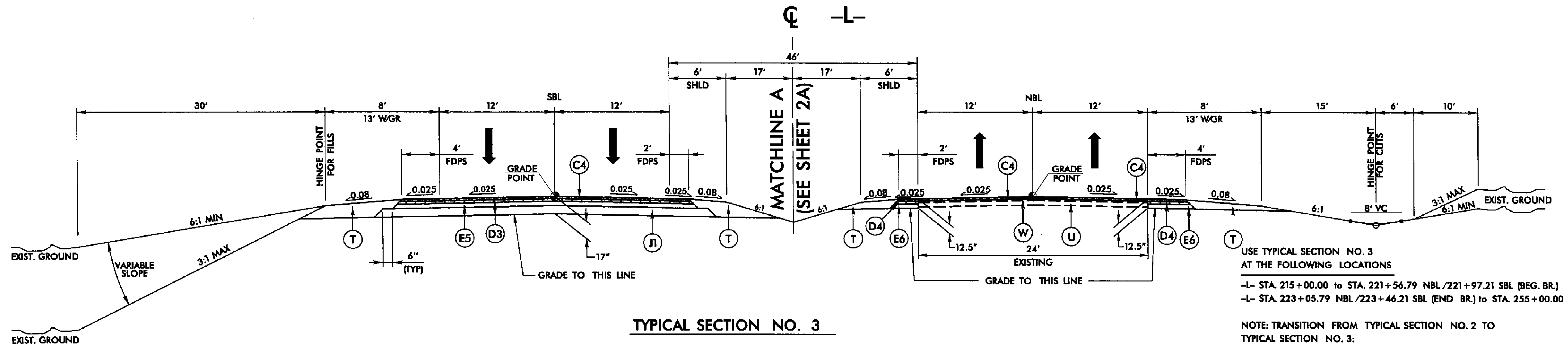
*-L- STA. 43+00.00 to STA. 53+50.99 SBL
**-L- STA. 38+15 to STA. 50+66.80 NBL

SEE DETAIL NO. 1 FOR WEDGING DETAIL



USE ON STRUCURE TYPICAL SECTION NO.2

-L- STA. 53+53.44 NBL to STA. 55+54.83 NBL
-L- STA. 53+12.41 SBL to STA. 55+15.03 SBL



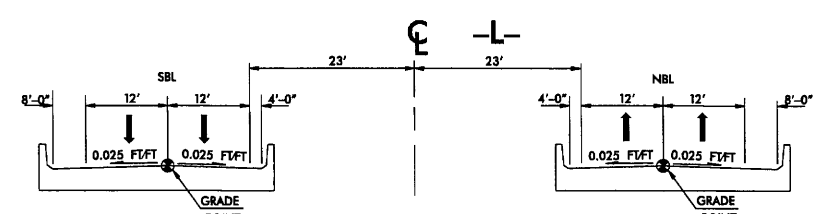
TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3
AT THE FOLLOWING LOCATIONS

-L- STA. 215+00.00 to STA. 221+56.79 NBL /221+97.21 SBL (BEG. BR.)
-L- STA. 223+05.79 NBL /223+46.21 SBL (END BR.) to STA. 255+00.00

NOTE: TRANSITION FROM TYPICAL SECTION NO. 2 TO
TYPICAL SECTION NO. 3:
-L- 255+00.00 to STA. 268+80.00

SEE DETAIL NO. 1 FOR WEDGING DETAIL



ON STRUCTURE TYPICAL SECTION NO.4
AT THE FOLLOWING LOCATIONS:

-L- STA. 221+56.79 NBL to STA. 223+05.79 NBL
-L- STA. 221+97.21 SBL to STA. 223+46.21 SBL

PAVEMENT SCHEDULE

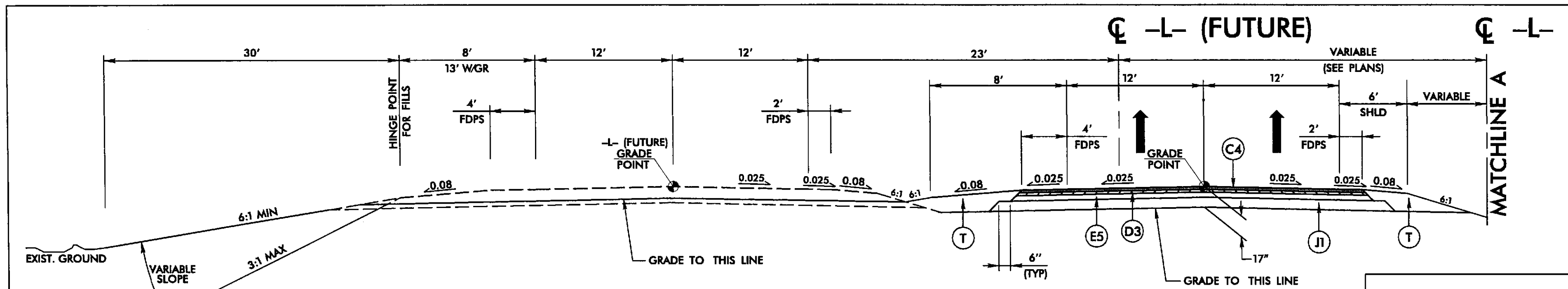
C1	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2 " IN DEPTH.
C4	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C5	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, 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. 2 1/2" 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 2 1/2" IN DEPTH OR GREATER THAN 4" IN DEPTH.
D3	PROP. APPROX. 2 1/2" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
D4	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D5	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2 1/2" 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. 4 1/2" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD.
E3	PROP. APPROX. 5 1/2" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
E4	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
E5	PROP. APPROX. 3 1/2" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YD.
E6	PROP. APPROX. 5 1/2" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
E7	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
J1	PROP. 8" AGGREGATE BASE COURSE.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	WEDGING

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

PLANS PREPARED BY :
RUMMEL • KLEPPER & KAHL, LLP
consulting engineers
900 RIDGEFIELD DR., SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
(919) 878-9560
FOR
DIVISION OF HIGHWAYS

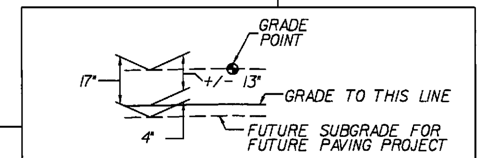
PROJECT REFERENCE NO.	SHEET NO.
R-2510C	2-A
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

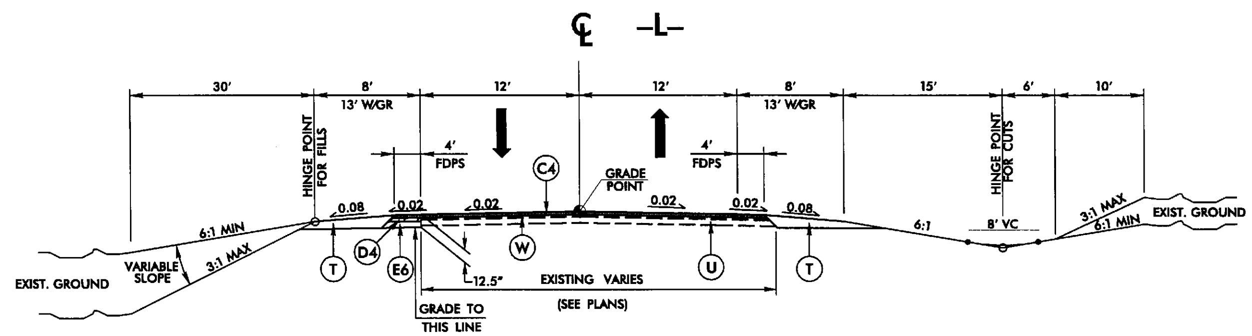


PARTIAL TYPICAL SECTION NO. 3A

USE TYPICAL SECTION NO. 2A
IN CONJUNCTION WITH TYPICAL 2 AND TYPICAL 3
-L- STA. 262+50.00 to STA. 264+00.00



DETAIL SHOWING FUTURE SUBGRADE

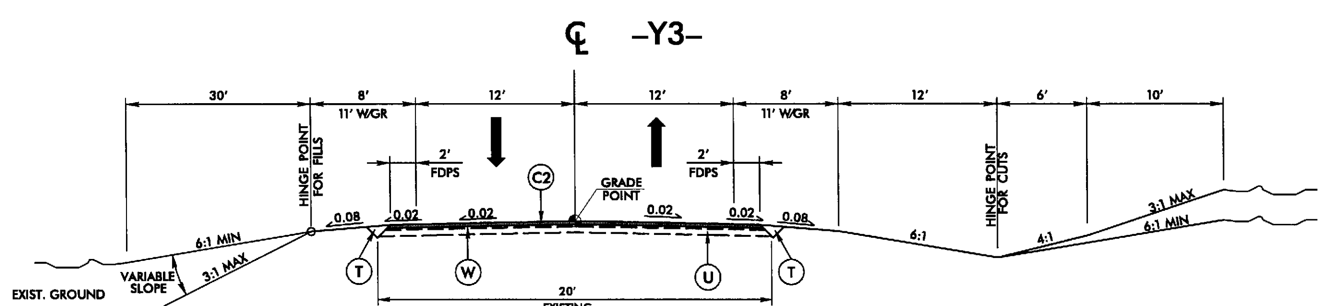


TYPICAL SECTION NO. 5

USE TYPICAL SECTION NO. 5
AT THE FOLLOWING LOCATIONS

-L- STA. 268+80.00 to STA. 269+30.00

SEE DETAIL NO. 1 FOR WEDGING DETAIL



TYPICAL SECTION NO. 6

NOTE: TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 4
-Y3- STA. 11+40 TO 11+90

USE TYPICAL SECTION NO. 6
AT THE FOLLOWING LOCATIONS

-Y3- STA. 11+90.00 to STA. 12+73.54

SEE DETAIL NO. 2 FOR WEDGING DETAIL

PAVEMENT SCHEDULE

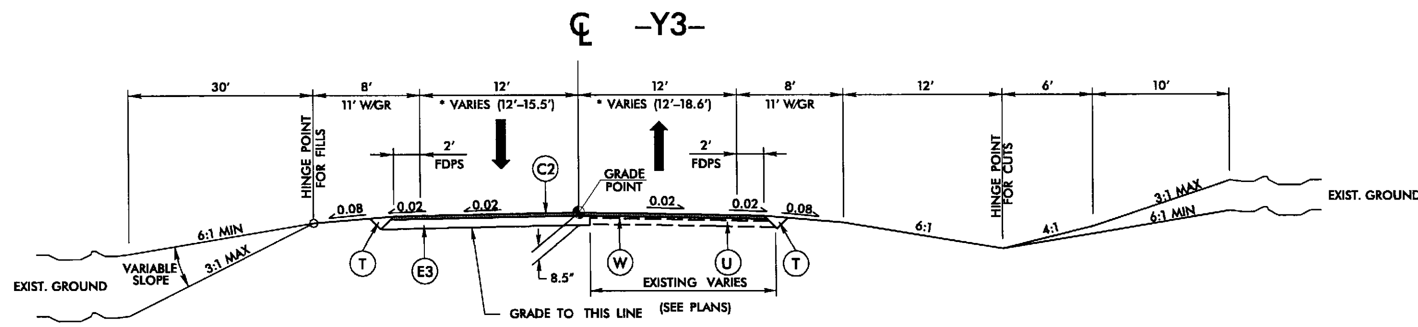
C1	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2 " IN DEPTH.
C4	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C5	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, 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. 2 1/2" 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 2 1/2" IN DEPTH OR GREATER THAN 4" IN DEPTH.
D3	PROP. APPROX. 2 1/2" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
D4	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D5	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2 1/2" 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. 4 1/2" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD.
E3	PROP. APPROX. 5 1/2" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
E4	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
E5	PROP. APPROX. 3 1/2" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YD.
E6	PROP. APPROX. 5 1/2" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
E7	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
J1	PROP. 8" AGGREGATE BASE COURSE.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	WEDGING

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

PLANS PREPARED BY :
RK&K
RUMMEL • KLEPPER & KAHL, LLP
consulting engineers
900 RIDGEFIELD DR., SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
(919) 878-9560
FOR
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
R-2510C	2-B
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

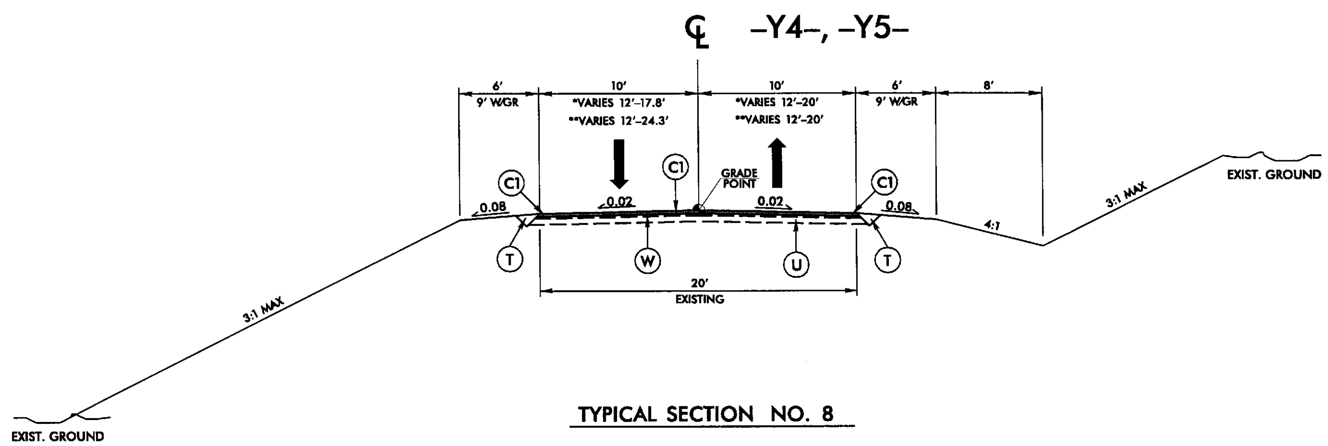
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



TYPICAL SECTION NO. 7

USE TYPICAL SECTION NO. 7
AT THE FOLLOWING LOCATIONS

-Y3- STA. 12+73.54 to STA. 13+79.00
*-Y3- STA. 13+79.00 to STA. 14+95.93
SEE DETAIL NO. 2 FOR WEDGING DETAIL

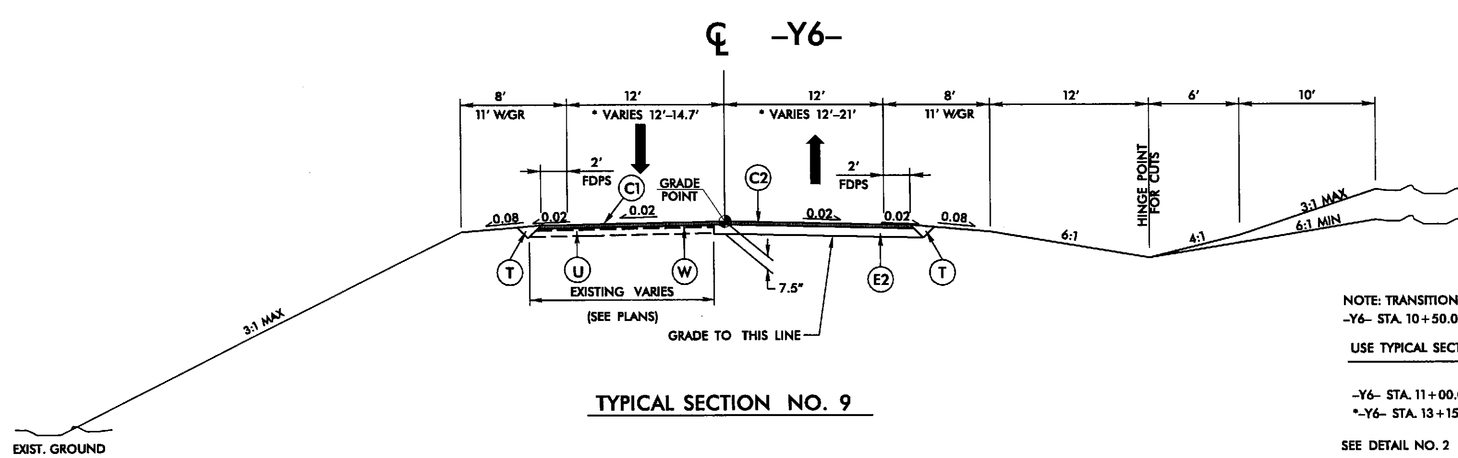


TYPICAL SECTION NO. 8

NOTE: TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 6
-Y4- STA. 11+95 TO 12+45
-Y5- STA. 13+30 TO 13+80

USE TYPICAL SECTION NO. 8
AT THE FOLLOWING LOCATIONS

-Y4- STA. 12+45.00 to STA. 13+04.00
* -Y4- STA. 13+04.00 to STA. 14+27.18
** -Y5- STA. 13+04.00 to STA. 15+29.50
SEE DETAIL NO. 3 FOR WEDGING DETAIL



TYPICAL SECTION NO. 9

NOTE: TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 7
-Y6- STA. 10+50.00 TO 11+00.00

USE TYPICAL SECTION NO. 9

-Y6- STA. 11+00.00 TO 13+15.00
*-Y6- STA. 13+15 TO 14+49.96

SEE DETAIL NO. 2 FOR WEDGING DETAIL

PAVEMENT SCHEDULE

C1	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2 " IN DEPTH.
C4	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C5	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, 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. 2 1/2" 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 2 1/2" IN DEPTH OR GREATER THAN 4" IN DEPTH.
D3	PROP. APPROX. 2 1/2" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
D4	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D5	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2 1/2" 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. 4 1/2" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD.
E3	PROP. APPROX. 5 1/2" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
E4	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
E5	PROP. APPROX. 3 1/2" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YD.
E6	PROP. APPROX. 5 1/2" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
E7	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
J1	PROP. 8" AGGREGATE BASE COURSE.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	WEDGING

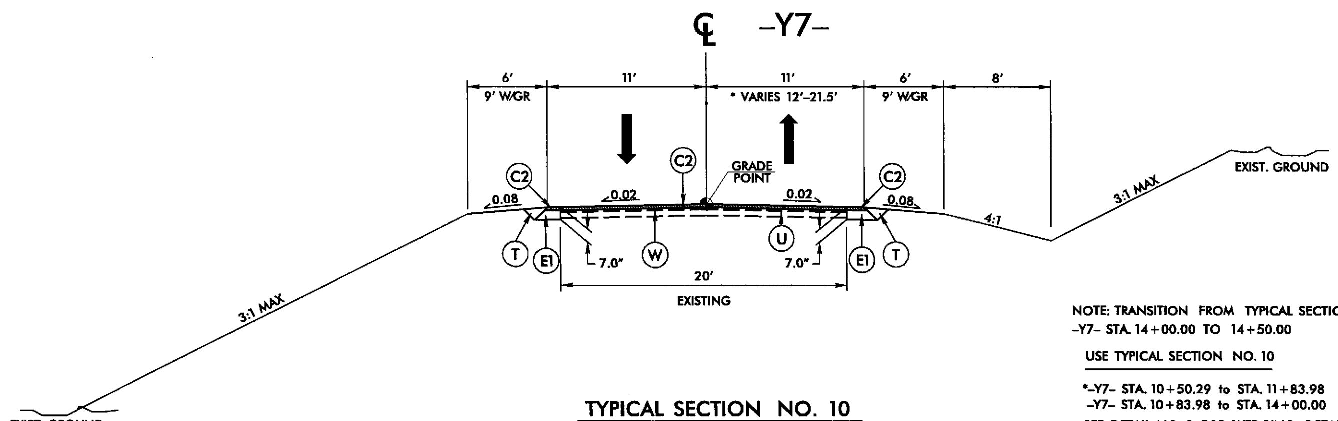
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.

PLANS PREPARED BY :
RUMMEL • KLEPPER & KAHL, LLP
consulting engineers
900 RIDGEFIELD DR., SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
(919) 878-9560
FOR
DIVISION OF HIGHWAYS

6/2/99
09/30/08 08:11:32
r:\roadway\proj\R2510C_Rdy_typ.dgn

PROJECT REFERENCE NO.	SHEET NO.
R-2510C	2-C
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

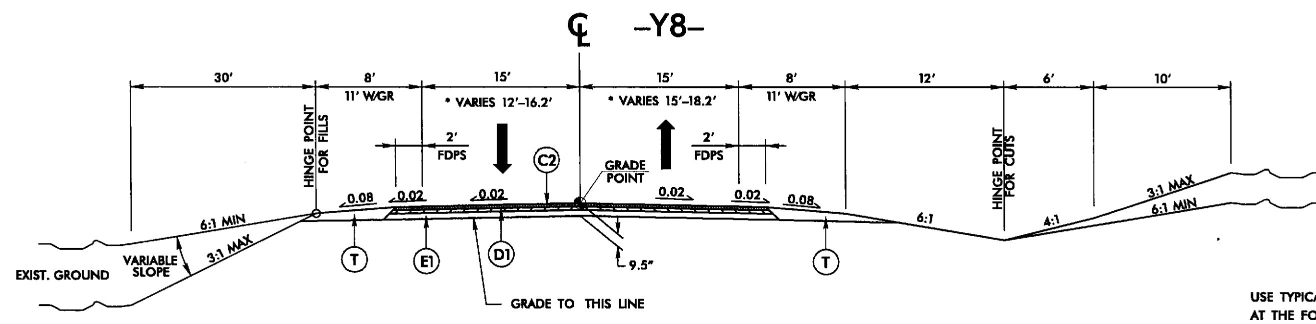


TYPICAL SECTION NO. 10

NOTE: TRANSITION FROM TYPICAL SECTION NO. 8 TO EXISTING
-Y7- STA. 14+00.00 TO 14+50.00

USE TYPICAL SECTION NO. 10

*-Y7- STA. 10+50.29 to STA. 11+83.98
-Y7- STA. 10+83.98 to STA. 14+00.00
SEE DETAIL NO. 2 FOR WEDGING DETAIL



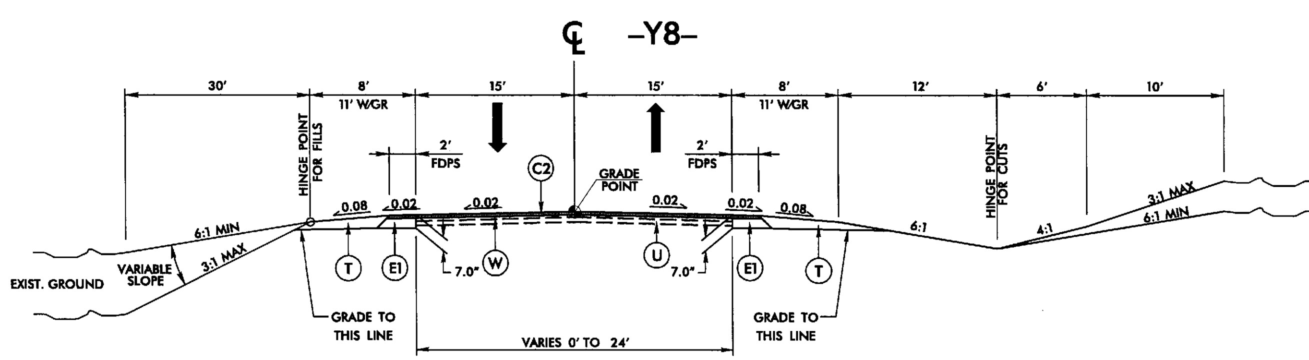
TYPICAL SECTION NO. 11

USE TYPICAL SECTION NO. 11
AT THE FOLLOWING LOCATIONS

*-Y8- STA. 10+47.00 to STA. 11+37.00

-Y8- STA. 11+37.00 to STA. 12+30.44

SEE WEDGING DETAIL NO. 2 FOR WEDGING DETAILS



TYPICAL SECTION NO. 12

NOTE: TRANSITION FROM TYPICAL SECTION NO. 10 TO EXISTING
-Y8- STA. 14+55.00 TO 15+05.00

USE TYPICAL SECTION NO. 12
AT THE FOLLOWING LOCATIONS

-Y8- STA. 12+30.44 to STA. 14+55.00

SEE WEDGING DETAIL NO. 2 FOR WEDGING DETAILS

PAVEMENT SCHEDULE

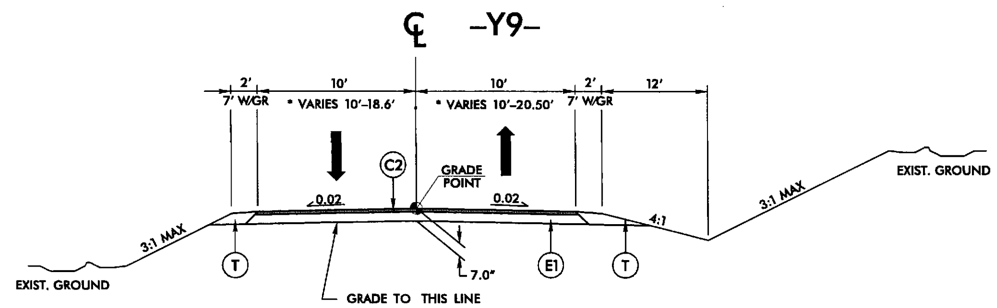
C1	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2 " IN DEPTH.
C4	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C5	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, 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. 2 1/2" 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 2 1/2" IN DEPTH OR GREATER THAN 4" IN DEPTH.
D3	PROP. APPROX. 2 1/2" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
D4	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D5	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2 1/2" 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. 4 1/2" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD.
E3	PROP. APPROX. 5 1/2" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
E4	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
E5	PROP. APPROX. 3 1/2" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YD.
E6	PROP. APPROX. 5 1/2" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
E7	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
J1	PROP. 8" AGGREGATE BASE COURSE.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	WEDGING

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

PLANS PREPARED BY :
RUMMEL • KLEPPER & KAHL, LLP
consulting engineers
900 RIDGEFIELD DR., SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
(919) 878-9560
FOR
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
R-2510C	2-D
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

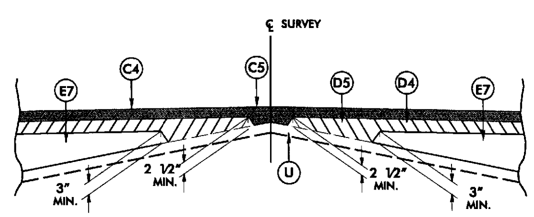


TYPICAL SECTION NO. 13

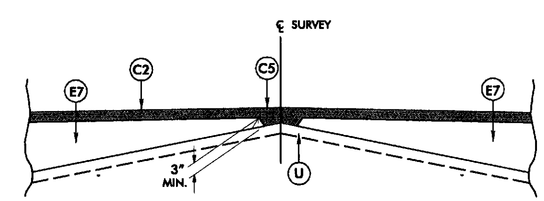
NOTE: TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 11
-Y9- STA. 10+10.00 TO 10+60.00

USE TYPICAL SECTION NO. 13
AT THE FOLLOWING LOCATIONS

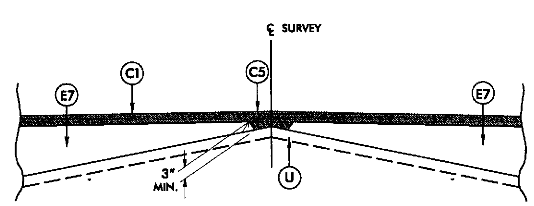
-Y9- STA. 10+60.00 to STA. 12+04.60
*-Y9- STA. 12+04.60 to STA. 13+77.46



Detail Showing Method of Wedging No. 1



Detail Showing Method of Wedging No. 2



Detail Showing Method of Wedging No. 3

PAVEMENT SCHEDULE

C1	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2 " IN DEPTH.
C4	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C5	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, 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. 2 1/2" 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 2 1/2" IN DEPTH OR GREATER THAN 4" IN DEPTH.
D3	PROP. APPROX. 2 1/2" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
D4	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D5	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2 1/2" 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. 4 1/2" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD.
E3	PROP. APPROX. 5 1/2" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
E4	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
E5	PROP. APPROX. 3 1/2" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YD.
E6	PROP. APPROX. 5 1/2" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
E7	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
J1	PROP. 8" AGGREGATE BASE COURSE.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	WEDGING

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

PLANS PREPARED BY :
RUMMEL • KLEPPER & KAHL, LLP
consulting engineers
900 RIDGEFIELD DR., SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
(919) 878-9560
FOR
DIVISION OF HIGHWAYS

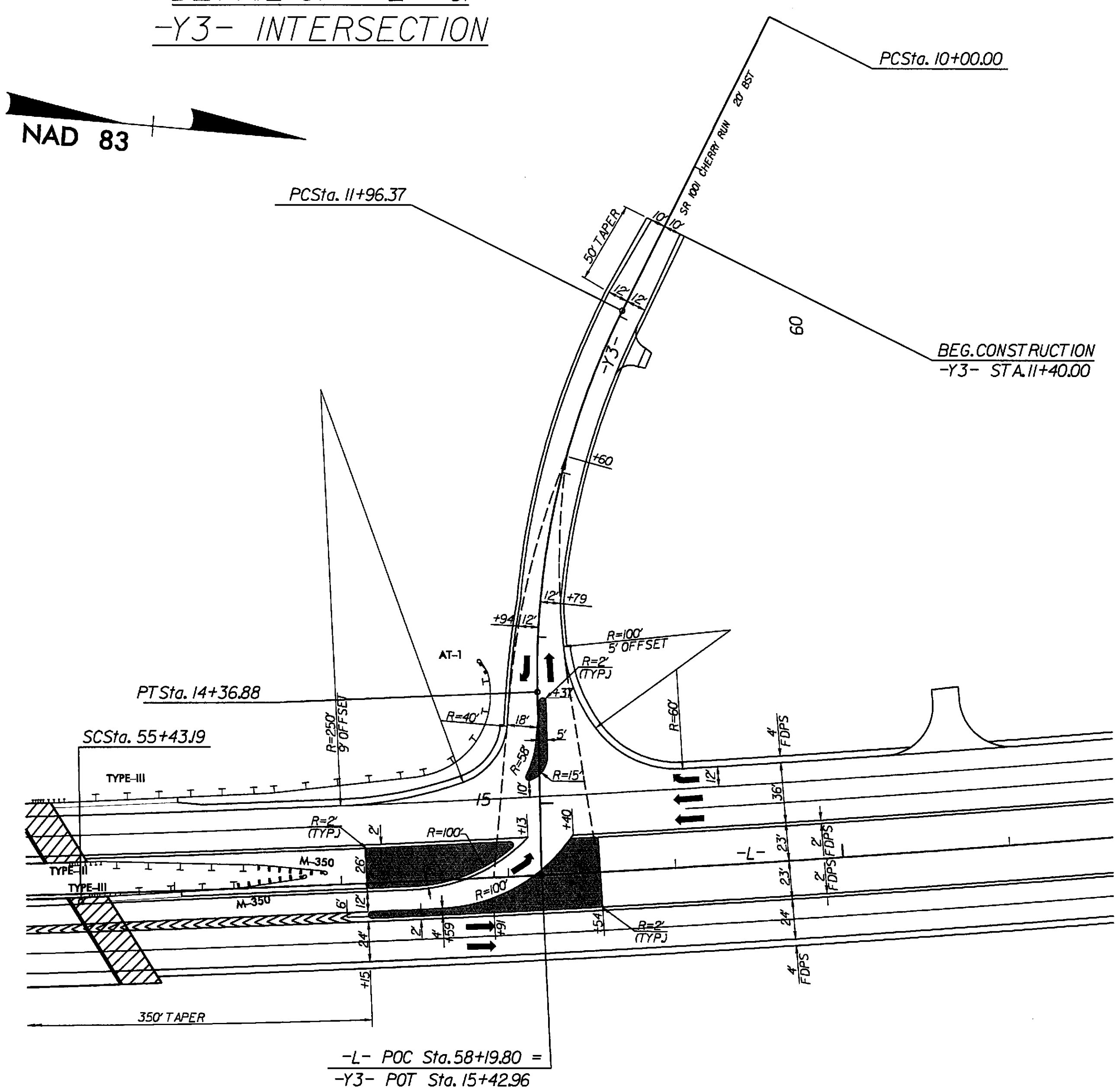
6/2/99
09/30/08 08:11:55

PROJECT REFERENCE NO.	SHEET NO.
R-2510C	2-E
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

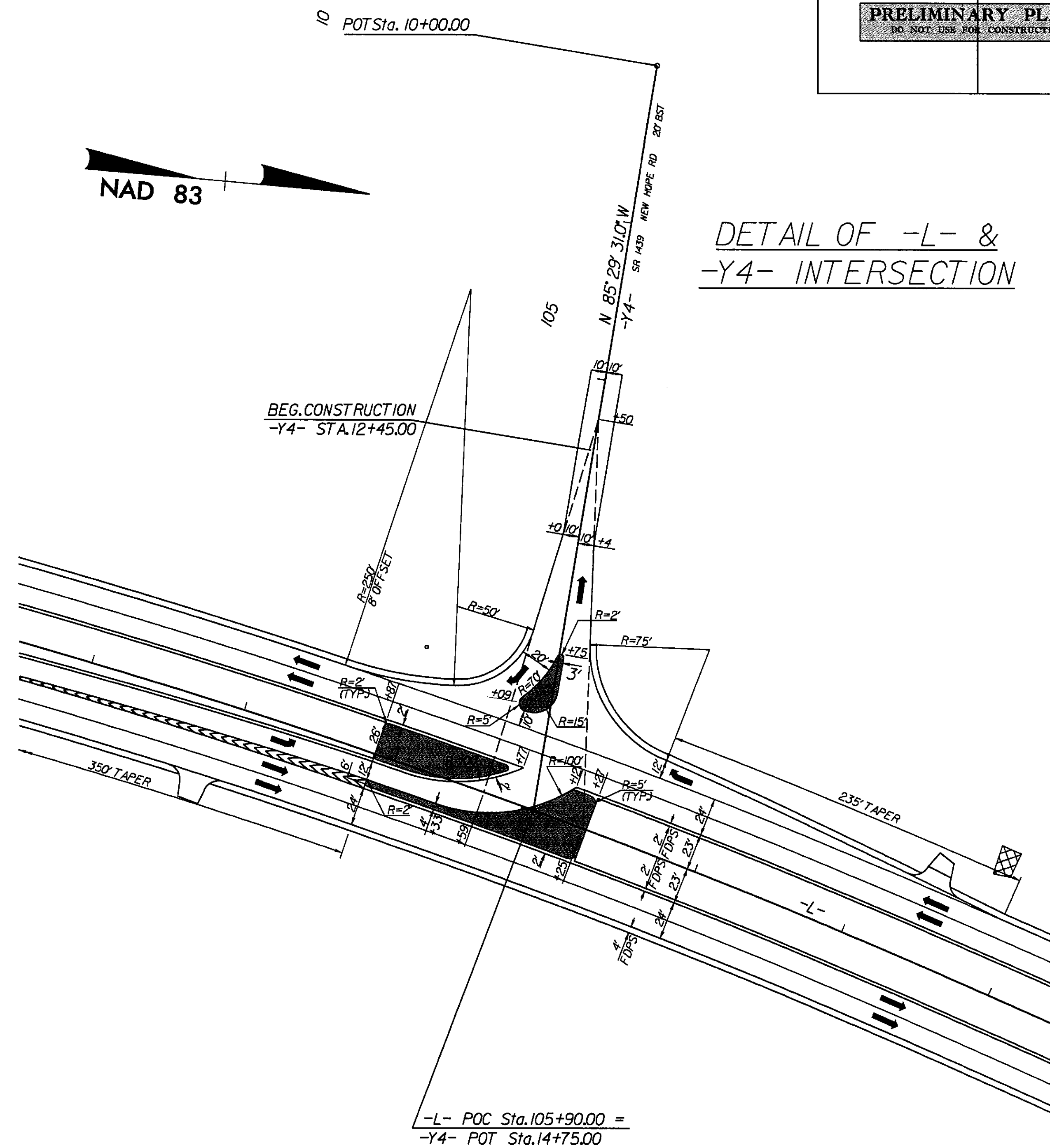
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

DETAIL OF -L- & -Y3- INTERSECTION



DETAIL OF -L- & -Y4- INTERSECTION



-L-

PIs Sta 55+04.86	PI Sta 57+88.48	PIs Sta 60+71.80	PIs Sta 62+28.47
Θs = 0° 33' 47.4"	Δ = 4° 48' 06.6" (LT)	Θs = 0° 33' 47.4"	Θs = 0° 38' 03.4"
Ls = 115.00'	D = 0° 58' 45.9"	Ls = 115.00'	Ls = 120.00'
LT = 76.67'	L = 490.28'	LT = 76.67'	LT = 80.00'
ST = 38.33'	T = 245.28'	ST = 38.33'	ST = 40.00'
	R = 5,850.00'		

-Y3-

PI Sta 12+36.32
Δ = 28° 00' 21.0" (RT)
D = 11° 41' 34.9"
L = 239.51'
T = 122.20'
R = 490.00'

-L-

PIs Sta 112+70.65	PIs Sta 114+30.65
Θs = 0° 51' 12.0"	Θs = 0° 24' 48.2"
Ls = 140.00'	Ls = 100.00'
LT = 93.33'	LT = 66.67'
ST = 46.67'	ST = 33.33'

PLANS PREPARED BY :
RK&K
RUMMEL • KLEPPER & KAHL, LLP
consulting engineers
900 RIDGEFIELD DR., SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
(919) 878-9560
FOR
DIVISION OF HIGHWAYS

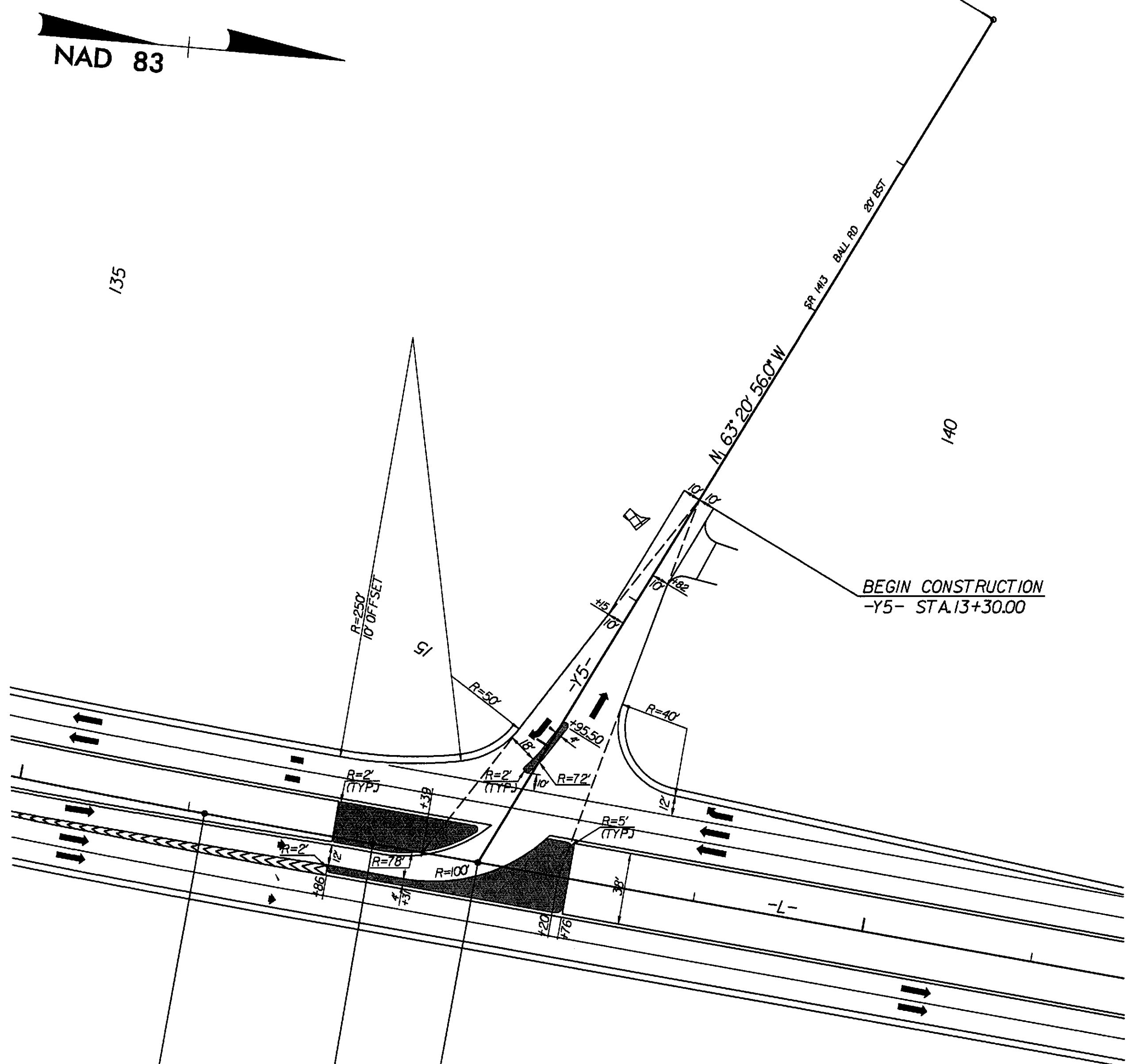
09\30\08 08:12:11
r:\roadway\proj\R2510C_Rdy_psh_02E.dgn

PROJECT REFERENCE NO.	SHEET NO.
R-2510C	2-F
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

DETAIL OF -L- & -Y5- INTERSECTION



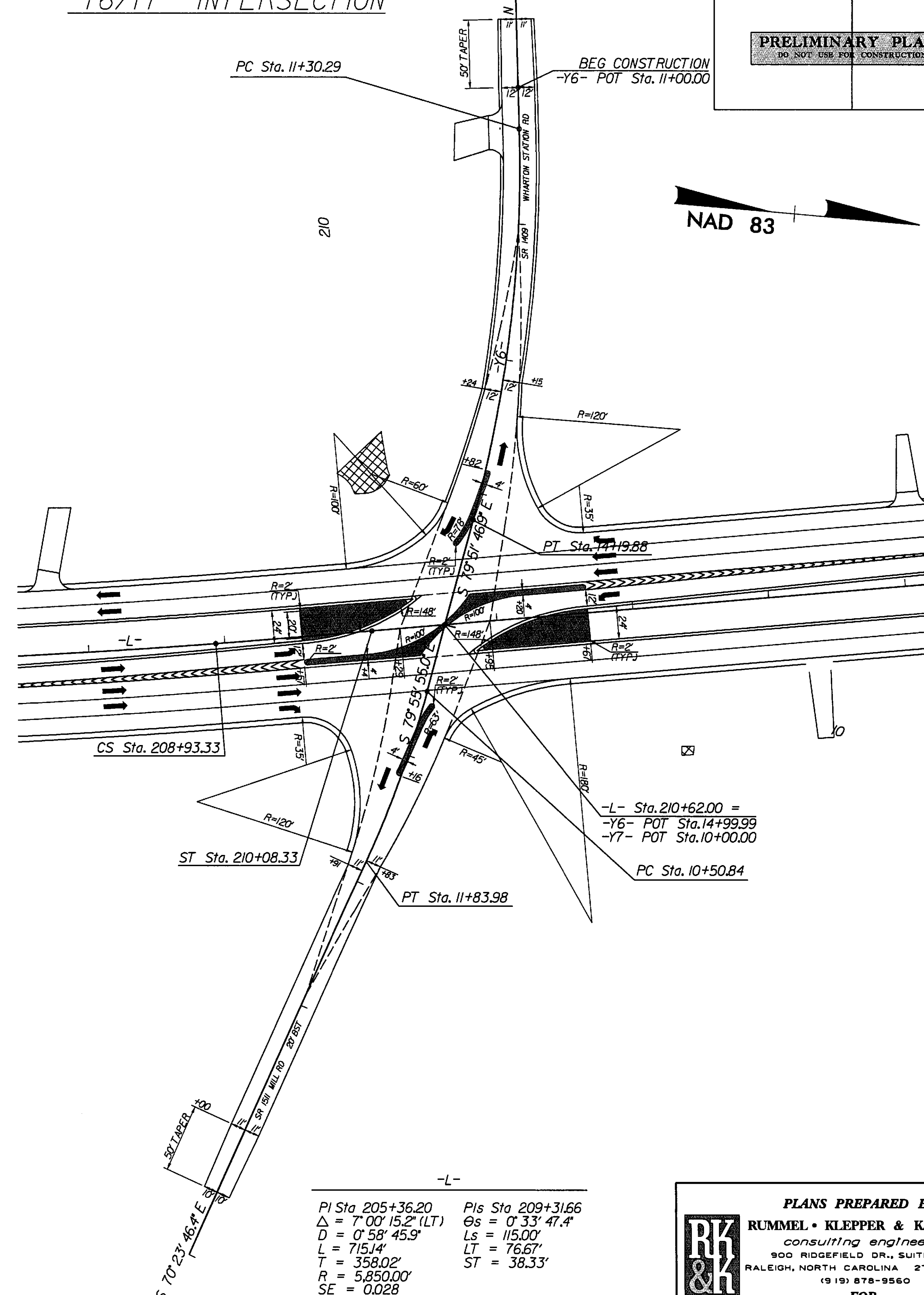
-L-

PI Sta 125+45.57
Δ = 17° 44' 29.2" (LT)
D = 0° 49' 36.4"
L = 2,145.85'
T = 1,081.58'
R = 6,930.00'

PIs Sta 136+43.17
θs = 0° 24' 48.2"
Ls = 100.00'
LT = 66.67'
ST = 33.33'

PIs Sta 149+59.89
θs = 2° 10' 39.5"
Ls = 225.00'
LT = 150.01'
ST = 75.01'

DETAIL OF -L- & -Y6/Y7- INTERSECTION



-L-

PI Sta 205+36.20
Δ = 7° 00' 15.2" (LT)
D = 0° 58' 45.9"
L = 715.14'
T = 358.02'
R = 5,850.00'
SE = 0.028
INC = 41.07'

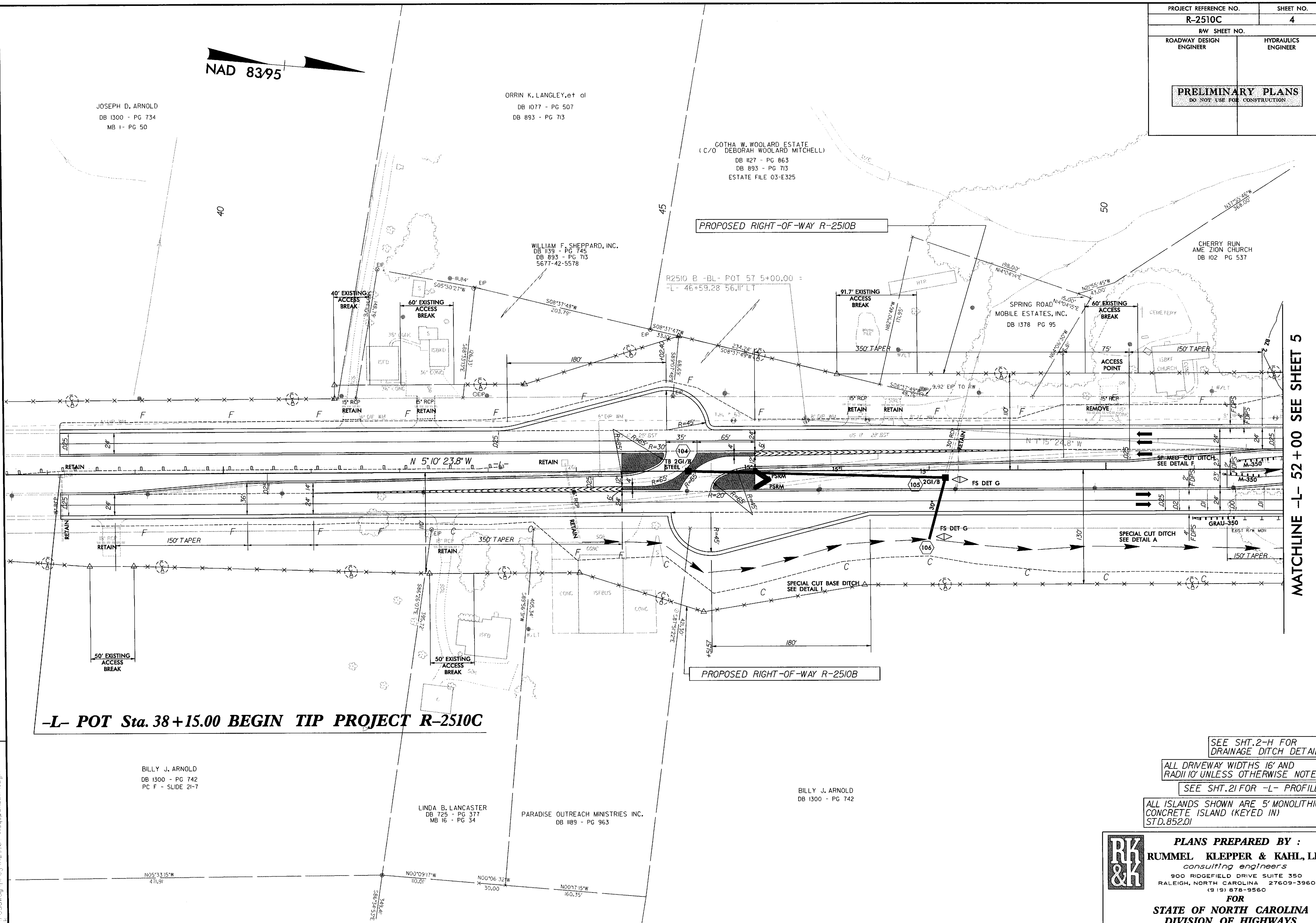
PIs Sta 209+31.66
θs = 0° 33' 47.4"
Ls = 115.00'
LT = 76.67'
ST = 38.33'

PLANS PREPARED BY :
RUMMEL • KLEPPER & KAHL, LLP
consulting engineers
900 RIDGEFIELD DR., SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
(919) 878-9560
FOR
DIVISION OF HIGHWAYS

09/30/08 08:12:27
r:\roadway\proj\R2510C_Rdy_psh_02F.dgn

PROJECT REFERENCE NO.	SHEET NO.
R-2510C	4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



SEE SHT.2-H FOR DRAINAGE DITCH DETAILS

ALL DRIVEWAY WIDTHS 16' AND RADII 10' UNLESS OTHERWISE NOTED

SEE SHT.21 FOR -L- PROFILE

ALL ISLANDS SHOWN ARE 5' MONOLITHIC CONCRETE ISLAND (KEYED IN) STD.852.01

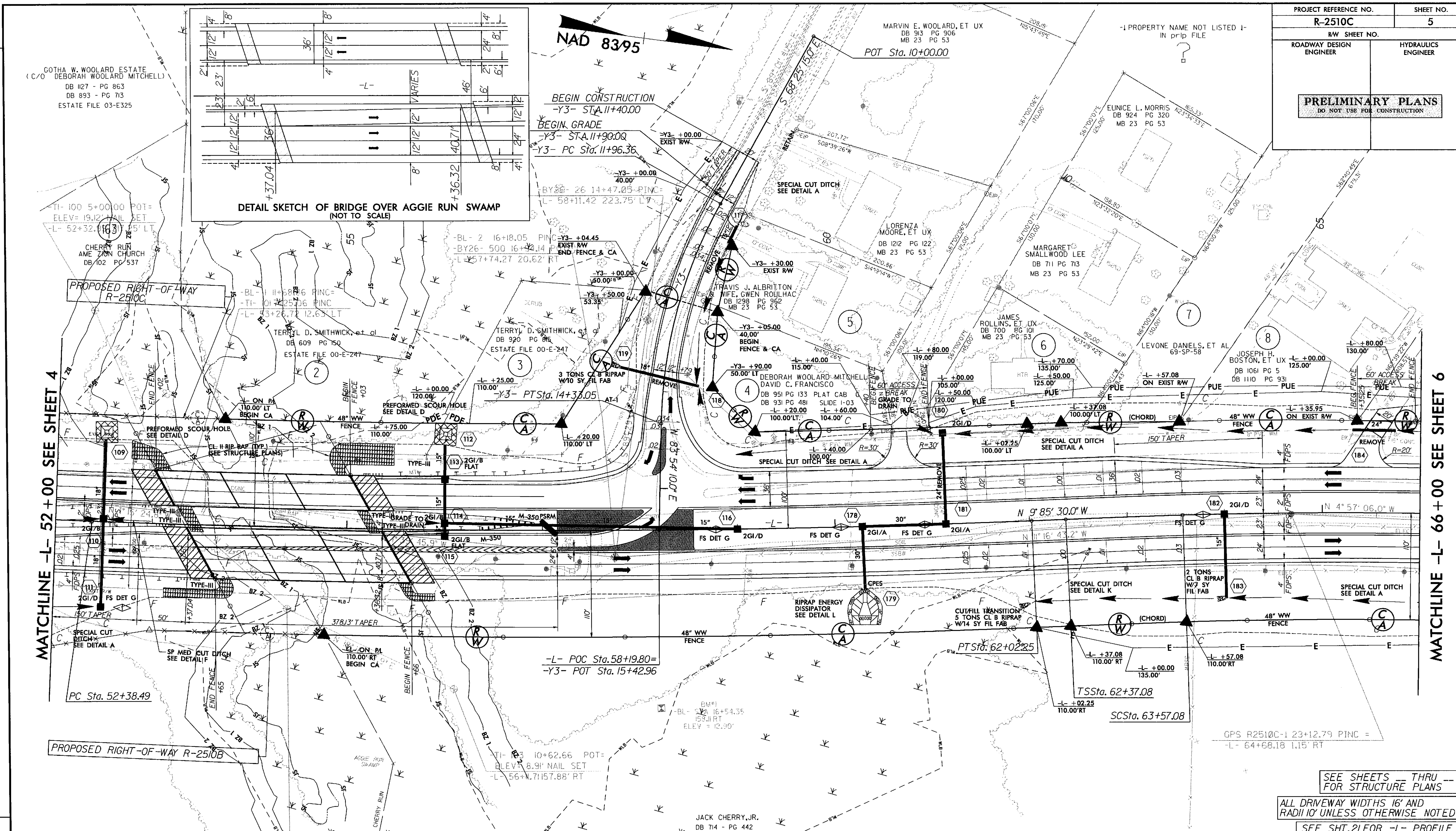
PLANS PREPARED BY :
RUMMEL KLEPPER & KAHL, LLP
consulting engineers
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
(919) 878-9560
FOR
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
R-2510C	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

Date: - Parcels 4,6,7,8,9 ; added PUE



SEE SHEETS __ THRU __ FOR STRUCTURE PLANS

ALL DRIVEWAY WIDTHS 16' AND RADII 10' UNLESS OTHERWISE NOTED

SEE SHT. 21 FOR -L- PROFILE

ALL ISLANDS SHOWN ARE 5' MONOLITHIC CONCRETE ISLAND (KEYED IN) STD. 852.01

SEE SHT. 2-E FOR INTERSECTION DETAIL

SEE SHT. 2-H FOR DRAINAGE DITCH DETAILS

-Y3-

PI Sta 13+17.06
Δ = 27° 40' 35.0" (LT)
D = 11° 41' 34.9"
L = 236.69'
T = 120.70'
R = 490.00'

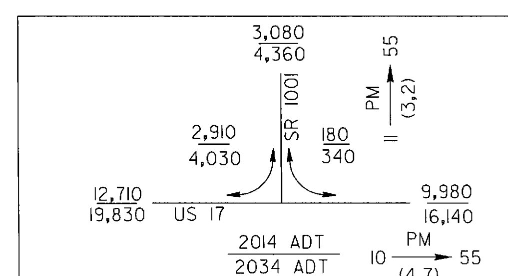
-L-

PI Sta 57+20.65
Δ = 4° 48' 06.2" (LT)
D = 0° 29' 53.6"
L = 963.76'
T = 482.16'
R = 11,500.00'

PIs Sta 63+17.11
Θs = 0° 38' 03.4"
Ls = 120.00'
LT = 80.00'
ST = 40.00'

PI Sta 66+24.82
Δ = 5° 39' 21.3" (RT)
D = 1° 03' 25.6"
L = 535.03'
T = 267.73'
R = 5,420.00'
SE = 0.030
INC = 40.00'

BEGIN APPROACH SLAB -L- STA. 52+88.50 (SB)	
BEGIN APPROACH SLAB -L- STA. 53+29.67 (NB)	
BEGIN BRIDGE -L- STA. 53+12.41 (SB)	
BEGIN BRIDGE -L- STA. 53+53.44 (NB)	
END BRIDGE -L- STA. 55+15.03 (SB)	
END BRIDGE -L- STA. 55+54.83 (NB)	
END APPROACH SLAB -L- STA. 55+38.95 (SB)	
END APPROACH SLAB -L- STA. 55+78.61 (NB)	



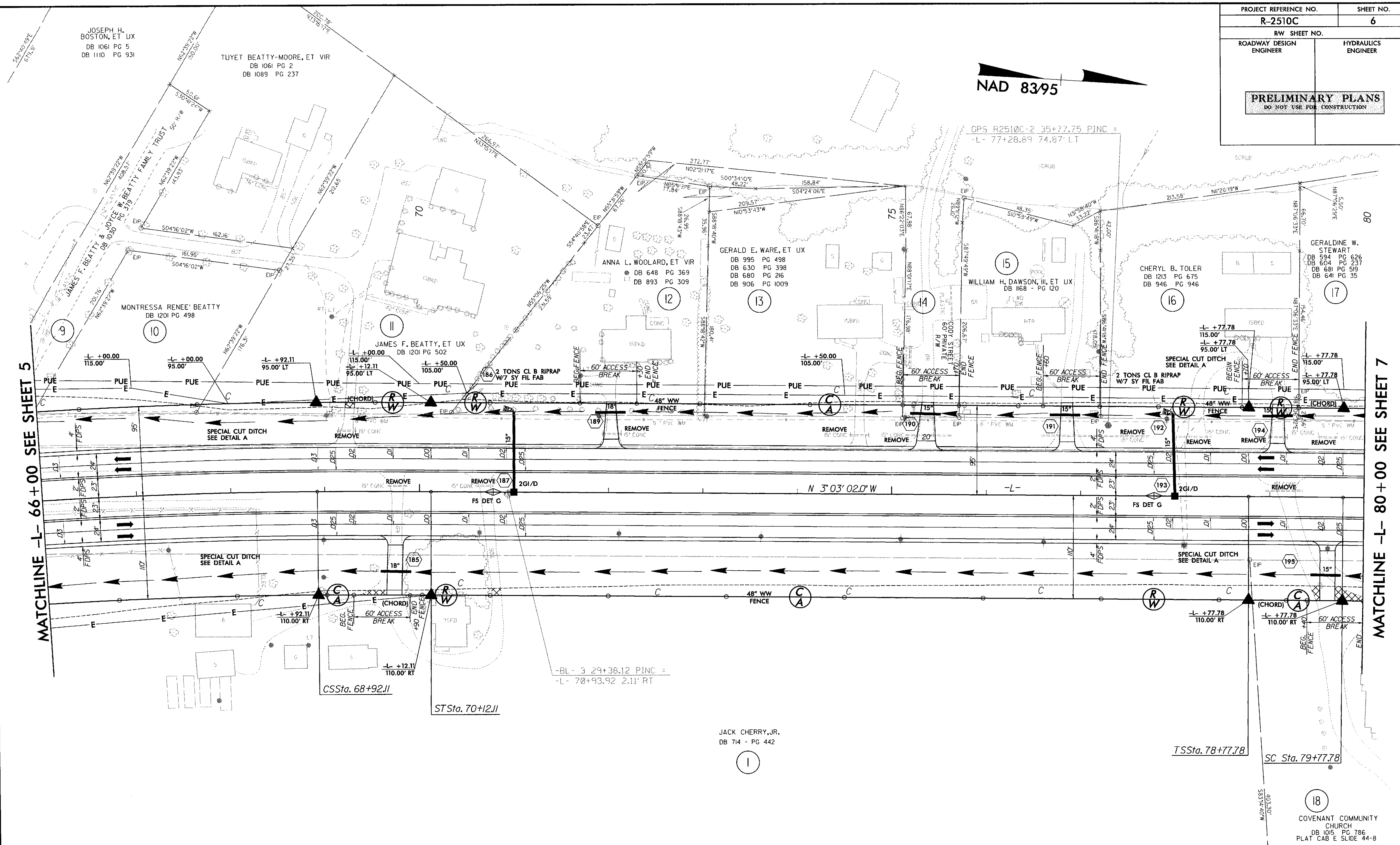
PROJECTED TRAFFIC VOLUMES

RK&K

PLANS PREPARED BY :
RUMMEL KLEPPER & KAHL, LLP
consulting engineers
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
(919) 878-9560
FOR
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
R-2510C	6
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



ALL DRIVEWAY WIDTHS 16' AND RADII 10' UNLESS OTHERWISE NOTED

SEE SHT.22 FOR -L- PROFILE

-L-

PI Sta 66+24.82	PIs Sta 69+32.11	PIs Sta 79+44.45	PI Sta 82+63.79
Δ = 5° 39' 21.3" (RT)	Θs = 0° 38' 03.4"	Θs = 0° 22' 33.4"	Δ = 4° 17' 55.1" (RT)
D = 1° 03' 25.6"	Ls = 120.00'	Ls = 100.00'	D = 0° 45' 06.9"
L = 535.03'	LT = 80.00'	LT = 66.67'	L = 571.69'
T = 267.73'	ST = 40.00'	ST = 33.33'	T = 285.98'
R = 5,420.00'			R = 7,620.00'
SE = 0.030			SE = 0.025
INC = 40.00'			INC = 40.00'

OBLITERATE

SEE SHT.2-H FOR DRAINAGE DITCH DETAILS

PLANS PREPARED BY :
RUMMEL KLEPPER & KAHL, LLP
consulting engineers
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
(919) 878-9560
FOR
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

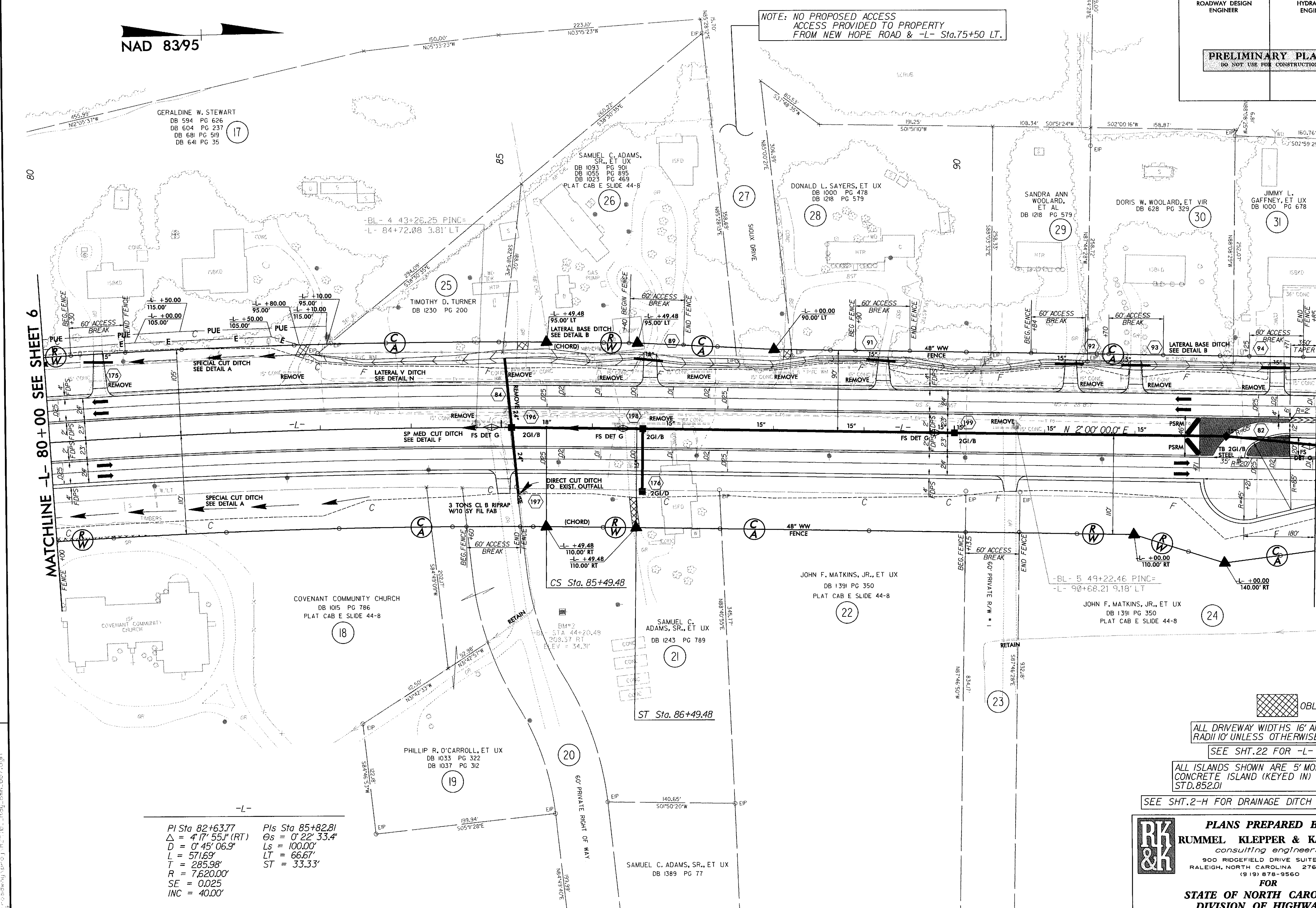
REVISIONS

Date: - Parcels 9,10,11,12,13,14,15,16,17 : added PUE

PROJECT REFERENCE NO.	SHEET NO.
R-2510C	7
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NOTE: NO PROPOSED ACCESS
ACCESS PROVIDED TO PROPERTY
FROM NEW HOPE ROAD & -L- Sta.75+50 LT.



-L-

PI Sta 82+63.77	PIs Sta 85+82.81
Δ = 4° 17' 55.1" (RT)	Θs = 0° 22' 33.4"
D = 0° 45' 06.9"	Ls = 100.00'
L = 571.69'	LT = 66.67'
T = 285.98'	ST = 33.33'
R = 7,620.00'	
SE = 0.025	
INC = 40.00'	

OBLITERATE

ALL DRIVEWAY WIDTHS 16' AND RADII 10' UNLESS OTHERWISE NOTED

SEE SHT.22 FOR -L- PROFILE

ALL ISLANDS SHOWN ARE 5' MONOLITHIC CONCRETE ISLAND (KEYED IN) STD.852.01

SEE SHT.2-H FOR DRAINAGE DITCH DETAILS

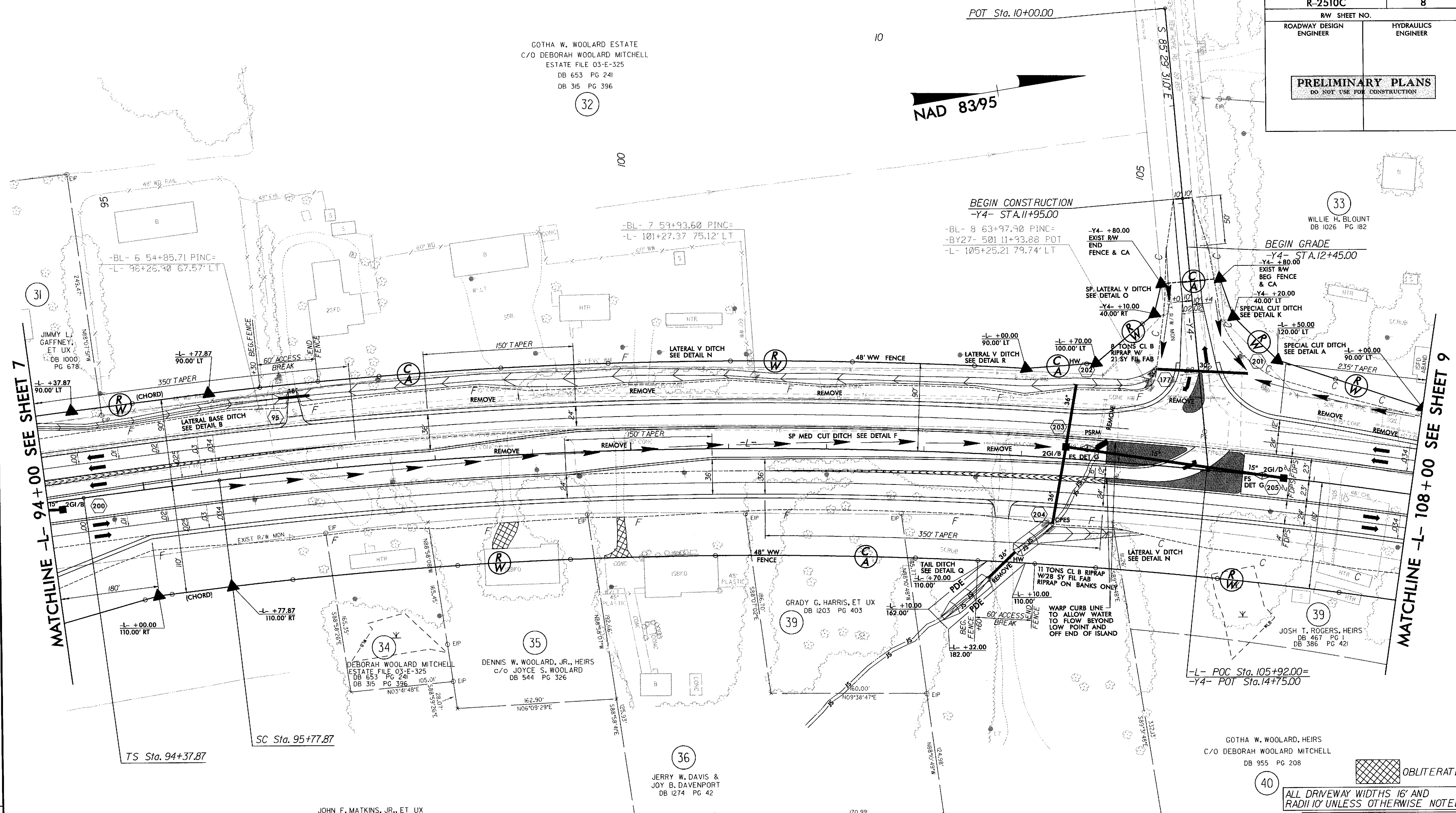
PLANS PREPARED BY :
RK&K
RUMMEL KLEPPER & KAHL, LLP
consulting engineers
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
(919) 878-9560
FOR
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

REVISIONS
Date: - Parcel 17 : added PUE

PROJECT REFERENCE NO.	SHEET NO.
R-2510C	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS



GOTHA W. WOOLARD, HEIRS
C/O DEBORAH WOOLARD MITCHELL
DB 955 PG 208
40

JOHN F. MATKINS, JR., ET UX
DB 1391 PG 350
PLAT CAB E SLIDE 44-8
24

DONALD W. MANNING, ET UX
DB 1150 PG 314
PLAT CAB F SLIDE 47-10
38

OBLITERATE

ALL DRIVEWAY WIDTHS 16' AND RADII 10' UNLESS OTHERWISE NOTED

SEE SHT.23 FOR -L- PROFILE

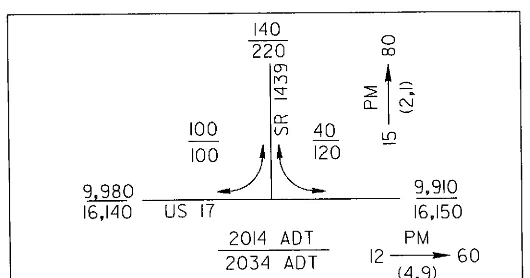
ALL ISLANDS SHOWN ARE 5' MONOLITHIC CONCRETE ISLAND (KEYED IN) STD.852.01

SEE SHT.2-E FOR INTERSECTION DETAIL

SEE SHT.2-H FOR DRAINAGE DITCH DETAILS

-L-

PIs Sta 95+31.21	PI Sta 104+09.45
Θs = 0°51' 12.0"	Δ = 20°04' 01.5" (RT)
Ls = 140.00'	D = 1°13' 08.6"
LT = 93.33'	L = 1,646.11'
ST = 46.67'	T = 831.57'
	R = 4,700.00'
	SE = 0.034
	INC = 41.18'



PROJECTED TRAFFIC VOLUMES

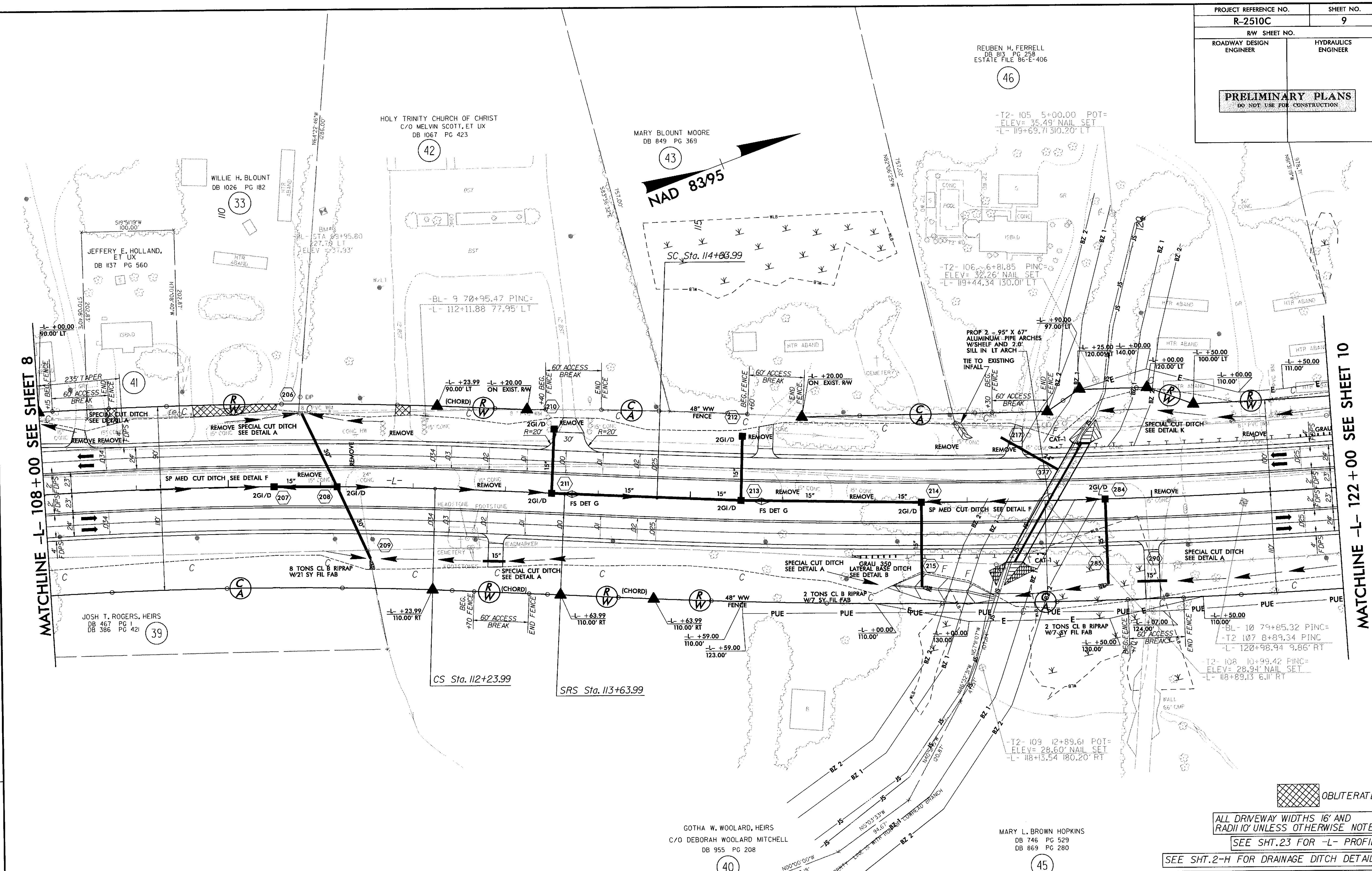
PLANS PREPARED BY :
RUMMEL KLEPPER & KAHL, LLP
consulting engineers
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
(919) 878-9560
FOR
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
R-2510C	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

Date: - Parcels 40,45 ; added PUE



OBLITERATE

ALL DRIVEWAY WIDTHS 16' AND RADII 10' UNLESS OTHERWISE NOTED

SEE SHT.23 FOR -L- PROFILE

SEE SHT.2-H FOR DRAINAGE DITCH DETAILS

-L-

PI Sta 104+09.45	PIs Sta 112+70.65	PIs Sta 114+30.65	PI Sta 125+45.57
Δ = 20° 04' 01.5" (RT)	Θs = 0° 51' 12.0"	Θs = 0° 24' 48.2"	Δ = 17° 44' 29.2" (LT)
D = 1° 13' 08.6"	Ls = 140.00'	Ls = 100.00'	D = 0° 49' 36.4"
L = 1,646.11'	LT = 93.33'	LT = 66.67'	L = 2,145.85'
T = 831.57'	ST = 46.67'	ST = 33.33'	T = 1,081.58'
R = 4,700.00'			R = 6,930.00'
SE = 0.034			SE = 0.025
INC = 41.18'			INC = 40.00'

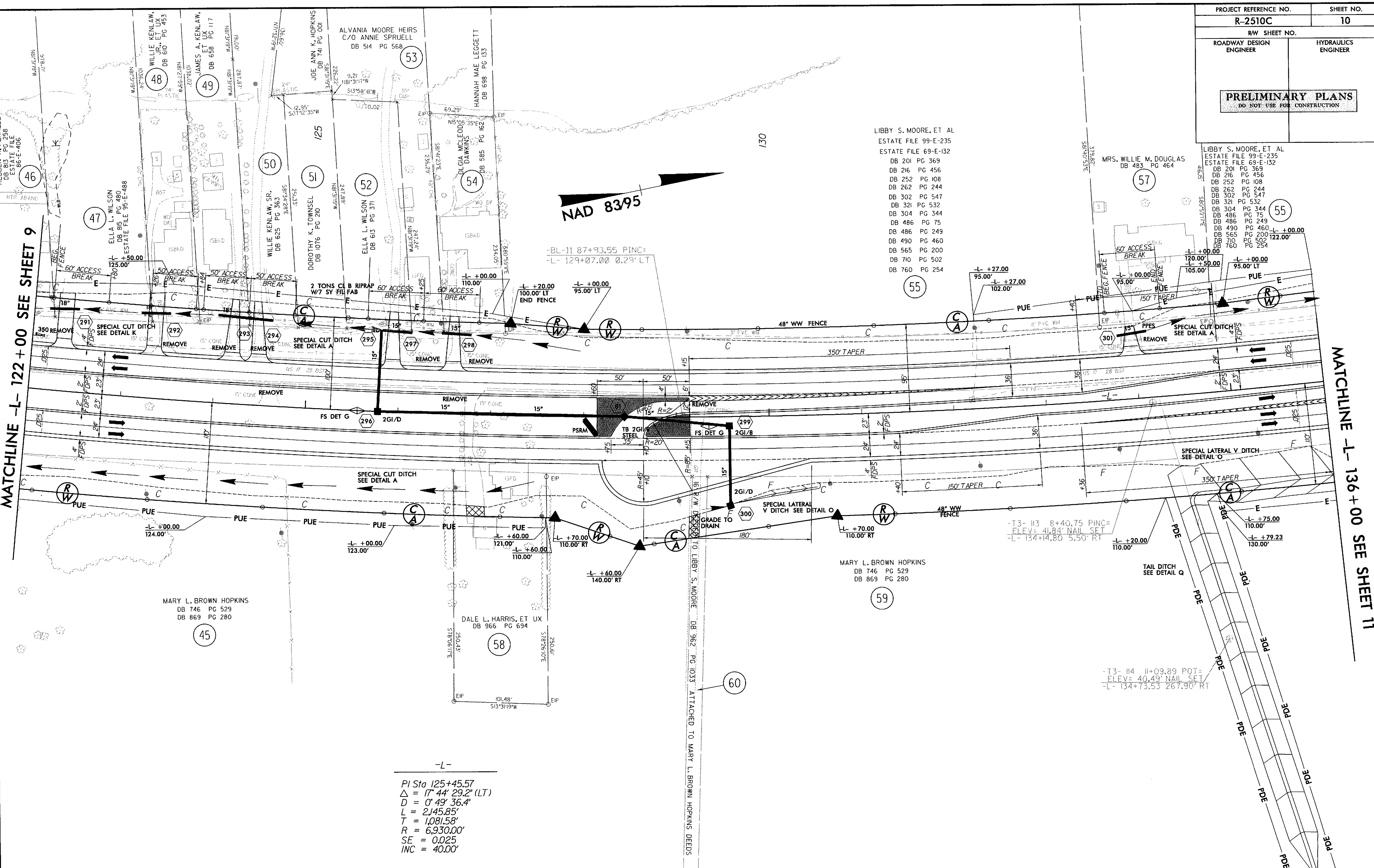
PLANS PREPARED BY :
RUMMEL KLEPPER & KAHL, LLP
consulting engineers
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
(919) 878-9560
FOR
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
R-2510C	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

Date: - Parcels 45,55,57,58 ; added PUE
Date: - Parcel 55 ; Revised parcel number



-L-

PI Sta 125+45.57
Δ = 17° 44' 29.2" (LT)
D = 0° 49' 36.4"
L = 2,145.85'
T = 1,081.58'
R = 6,930.00'
SE = 0.025
INC = 40.00'

ALL DRIVEWAY WIDTHS 16' AND RADII 10' UNLESS OTHERWISE NOTED

SEE SHT.24 FOR -L- PROFILE

ALL ISLANDS SHOWN ARE 5' MONOLITHIC CONCRETE ISLAND (KEYED IN) STD.852.01

SEE SHT.2-H FOR DRAINAGE DITCH DETAILS

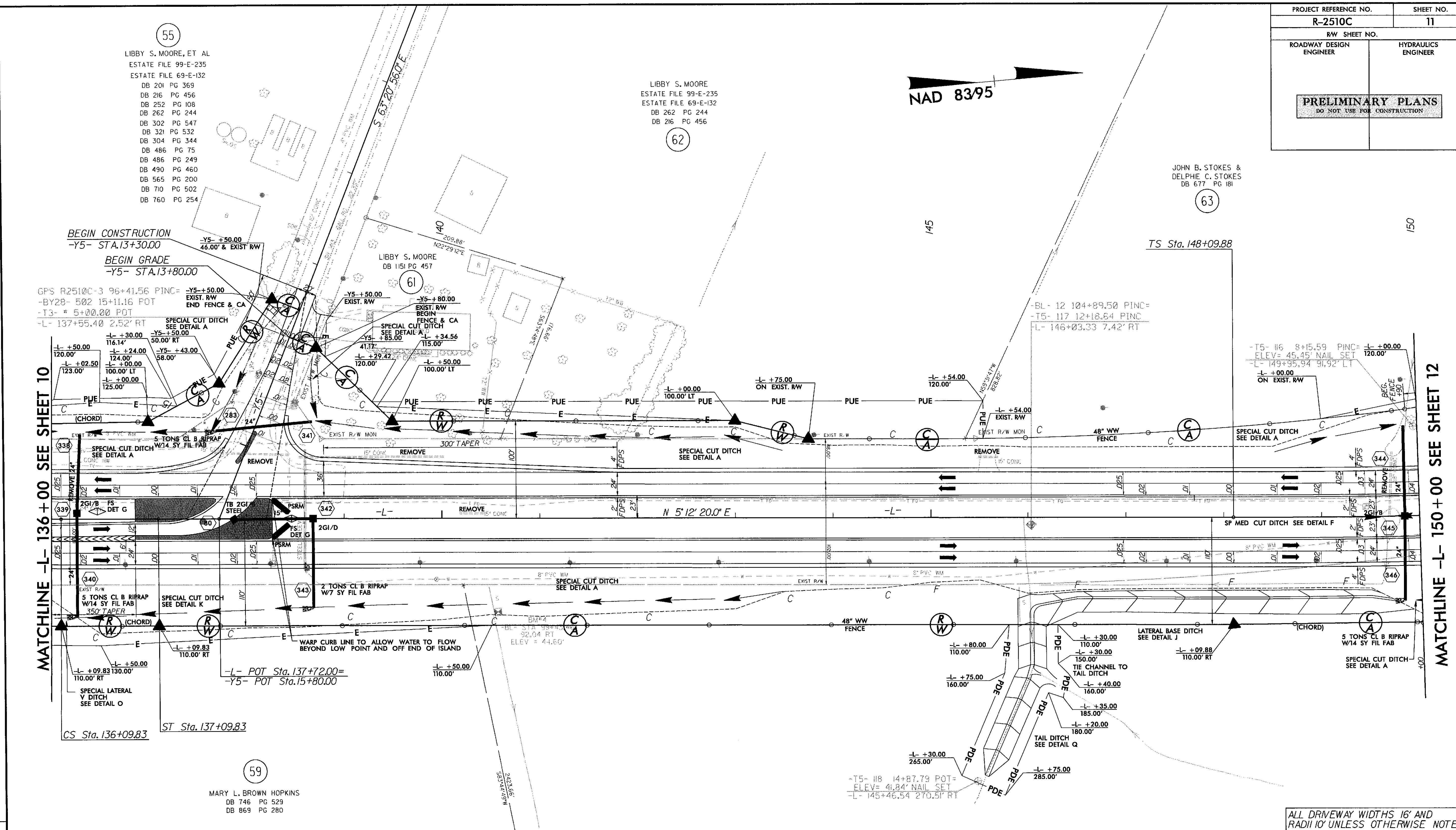
OBLITERATE

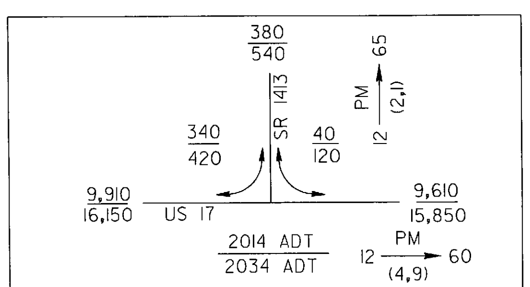
RK&K

PLANS PREPARED BY :
RUMMEL KLEPPER & KAHL, LLP
consulting engineers
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
(919) 878-9560
FOR
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
R-2510C	11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





PROJECTED TRAFFIC VOLUMES

-L-

PI Sta 125+45.57	PIs Sta 136+43.17	PIs Sta 149+59.89
Δ = 17° 44' 29.2" (LT)	Θs = 0° 24' 48.2"	Θs = 2° 10' 39.5"
D = 0° 49' 36.4"	Ls = 100.00'	Ls = 225.00'
L = 2,145.85'	LT = 66.67'	LT = 150.01'
T = 1,081.58'	ST = 33.33'	ST = 75.01'
R = 6,930.00'		
SE = 0.025		
INC = 40.00'		

ALL DRIVEWAY WIDTHS 16' AND RADII 10' UNLESS OTHERWISE NOTED

SEE SHT. 24 FOR -L- PROFILE

ALL ISLANDS SHOWN ARE 5' MONOLITHIC CONCRETE ISLAND (KEYED IN) STD. 852.01

SEE SHT. 2-F FOR INTERSECTION DETAIL

SEE SHT. 2-H FOR DRAINAGE DITCH DETAILS

OBLITERATE

PLANS PREPARED BY :
RK&K
RUMMEL KLEPPER & KAHL, LLP
consulting engineers
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
(919) 878-9560
FOR
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

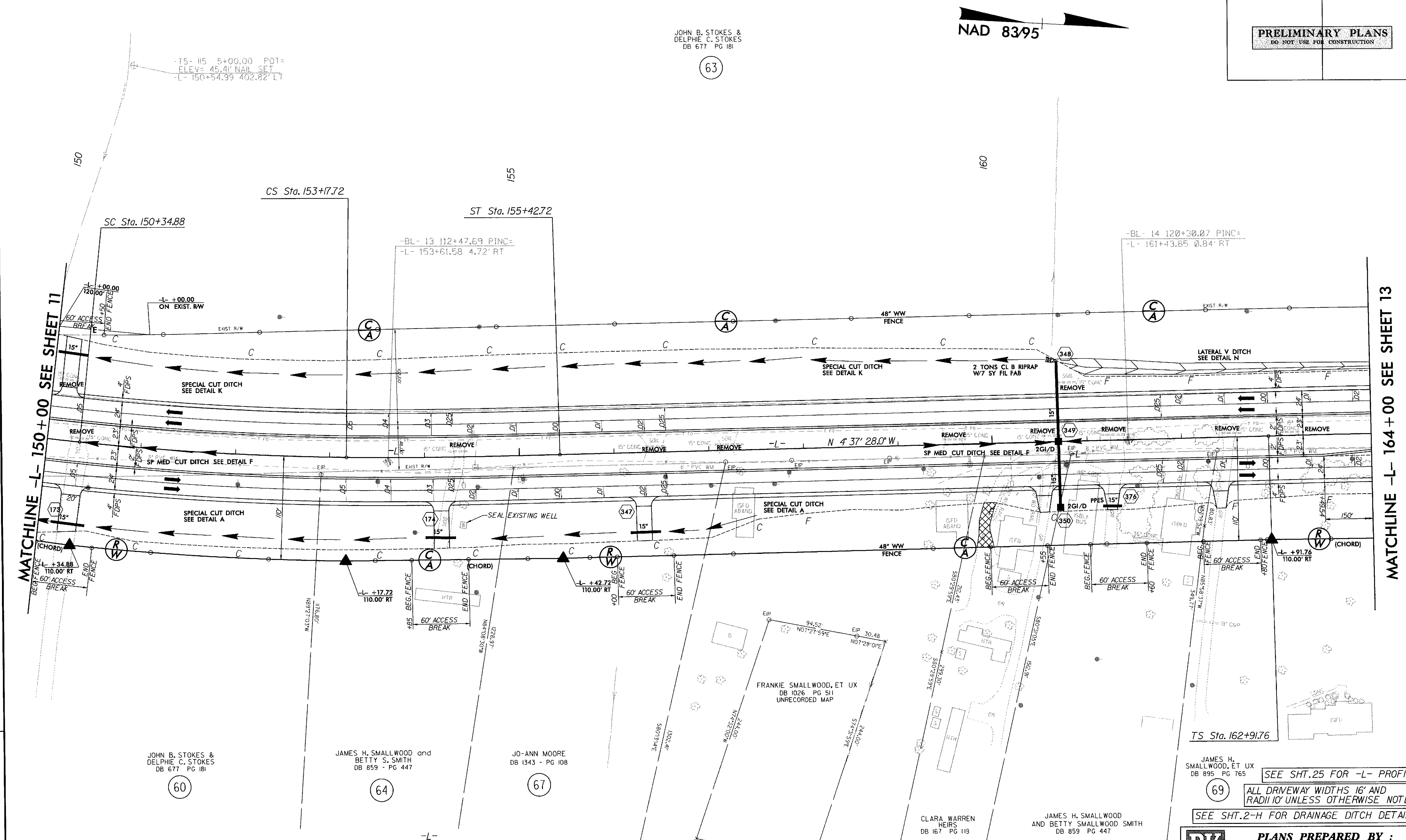
REVISIONS

Date: - Parcels 55,61,62,63 ; added PUE
Date: - Parcel 55 ; Revised parcel number

PROJECT REFERENCE NO.	SHEET NO.
R-2510C	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS



-L-

PIs Sta 149+59.89	PI Sta 151+76.41	PIs Sta 153+92.73	PIs Sta 164+41.77
Θs = 2° 10' 39.5"	Δ = 5° 28' 29.1" (LT)	Θs = 2° 10' 39.5"	Θs = 2° 10' 39.5"
Ls = 225.00'	D = 1° 56' 08.4"	Ls = 225.00'	Ls = 225.00'
LT = 150.01'	L = 282.83'	LT = 150.01'	LT = 150.01'
ST = 75.01'	T = 141.53'	ST = 75.01'	ST = 75.01'
	R = 2,960.00'		
	SE = 0.05		
	INC = 45.00'		

SEE SHT.25 FOR -L- PROFILE

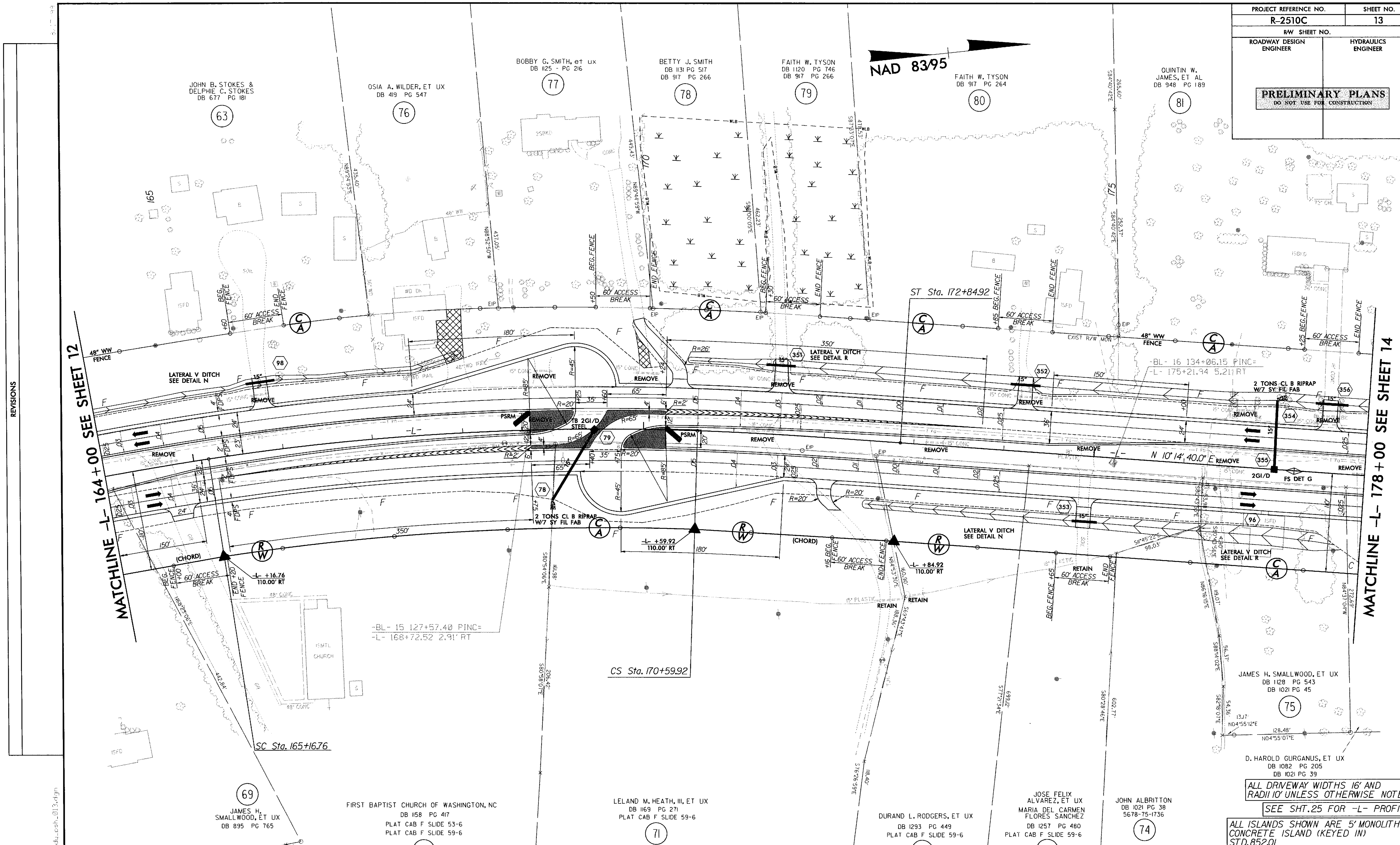
ALL DRIVEWAY WIDTHS 16' AND RADII 10' OTHERWISE NOTED

SEE SHT.2-H FOR DRAINAGE DITCH DETAILS

PLANS PREPARED BY :
RUMMEL KLEPPER & KAHL, LLP
consulting engineers
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
(919) 878-9560
FOR
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
R-2510C	13
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



ALL DRIVEWAY WIDTHS 16' AND RADII 10' UNLESS OTHERWISE NOTED

SEE SHT.25 FOR -L- PROFILE

ALL ISLANDS SHOWN ARE 5' MONOLITHIC CONCRETE ISLAND (KEYED IN) STD.852.01

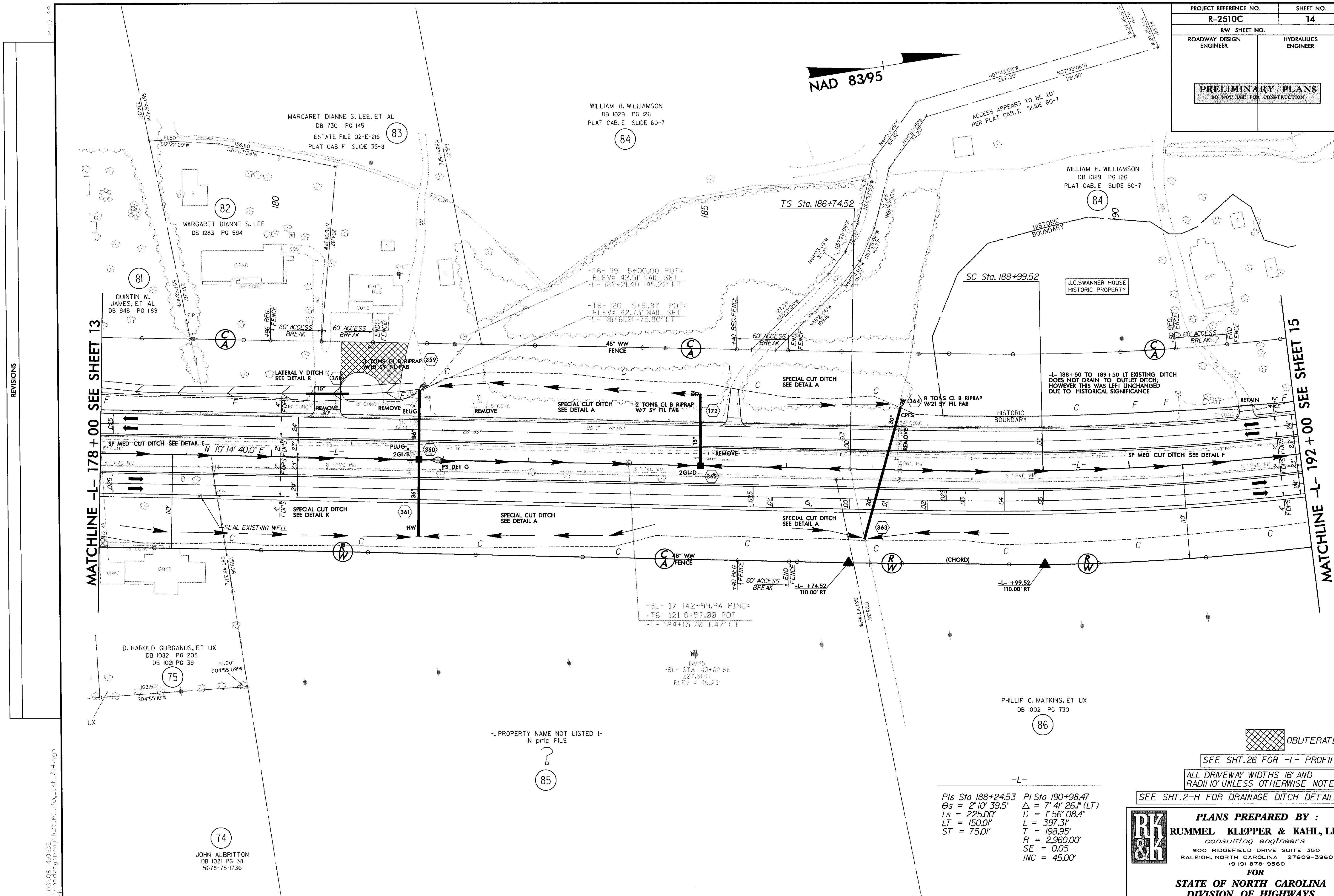
-L-

PIs Sta 164+41.77	PI Sta 167+89.10	PIs Sta 171+34.93
Θs = 2° 10' 39.5"	Δ = 10° 30' 49.1" (RT)	Θs = 2° 10' 39.5"
Ls = 225.00'	D = 1° 56' 08.4"	Ls = 225.00'
LT = 150.01'	L = 543.15'	LT = 150.01'
ST = 75.01'	T = 272.34'	ST = 75.01'
	R = 2,960.00'	
	SE = 0.05	
	INC = 45.00'	

OBLITERATE

SEE SHT.2-H FOR DRAINAGE DITCH DETAILS

PLANS PREPARED BY :
RUMMEL KLEPPER & KAHL, LLP
consulting engineers
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
(919) 878-9560
FOR
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS


PROJECT REFERENCE NO. R-2510C
SHEET NO. 14
RW SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
NAD 83/95
MATCHLINE -L- 178+00 SEE SHEET 13
MATCHLINE -L- 192+00 SEE SHEET 15
MARGARET DIANNE S. LEE, ET AL
DB 730 PG 145
ESTATE FILE 02-E-216
PLAT CAB F SLIDE 35-8
83
WILLIAM H. WILLIAMSON
DB 1029 PG 126
PLAT CAB. E SLIDE 60-7
84
MARGARET DIANNE S. LEE
DB 1283 PG 594
82
QUINTIN W. JAMES, ET AL
DB 948 PG 189
81
ACCESS APPEARS TO BE 20' PER PLAT CAB. E SLIDE 60-7
TS Sta. 186+74.52
SC Sta. 188+99.52
HISTORIC BOUNDARY
J.C.SWANNER HOUSE HISTORIC PROPERTY
-T6- 119 5+00.00 POT= ELEV= 42.51' NAIL SET -L- 182+21.40 145.22' LT
-T6- 120 5+91.87 POT= ELEV= 42.73' NAIL SET -L- 181+61.21 75.80' LT
60' ACCESS BREAK
48" WW FENCE
3 TONS CL B RIPRAP W/18 SY FIL FAB
LATERAL V DITCH SEE DETAIL R
SPECIAL CUT DITCH SEE DETAIL A
2 TONS CL B RIPRAP W/7 SY FIL FAB
8 TONS CL B RIPRAP W/21 SY FIL FAB
-L- 188+50 TO 189+50 LT EXISTING DITCH DOES NOT DRAIN TO OUTLET DITCH; HOWEVER THIS WAS LEFT UNCHANGED DUE TO HISTORICAL SIGNIFICANCE
SP MED CUT DITCH SEE DETAIL F
N 10° 14' 40.0" E
FS DET G
SPECIAL CUT DITCH SEE DETAIL K
SEAL EXISTING WELL
(CHORD)
-L- +74.52 110.00' RT
-L- +99.52 110.00' RT
-BL- 17 142+99.94 PINC= -T6- 121 8+57.00 POT -L- 184+15.70 1.47' LT
D. HAROLD GURGANUS, ET UX
DB 1082 PG 205
DB 1021 PG 39
75
-(PROPERTY NAME NOT LISTED)- IN prlp FILE
85
PHILLIP C. MATKINS, ET UX
DB 1002 PG 730
86
JOHN ALBRITTON
DB 1021 PG 38
5678-75-1736
74
OBLITERATE
SEE SHT.26 FOR -L- PROFILE
ALL DRIVEWAY WIDTHS 16' AND RADII 10' UNLESS OTHERWISE NOTED
SEE SHT.2-H FOR DRAINAGE DITCH DETAILS
-L-
PIs Sta 188+24.53
Θs = 2° 10' 39.5"
Ls = 225.00'
LT = 150.01'
ST = 75.01'
PI Sta 190+98.47
Δ = 7° 41' 26.1" (LT)
D = 1° 56' 08.4"
L = 397.31'
T = 198.95'
R = 2,960.00'
SE = 0.05
INC = 45.00'
PLANS PREPARED BY :
RUMMEL KLEPPER & KAHL, LLP
consulting engineers
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
(919) 878-9560
FOR
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
REVISIONS

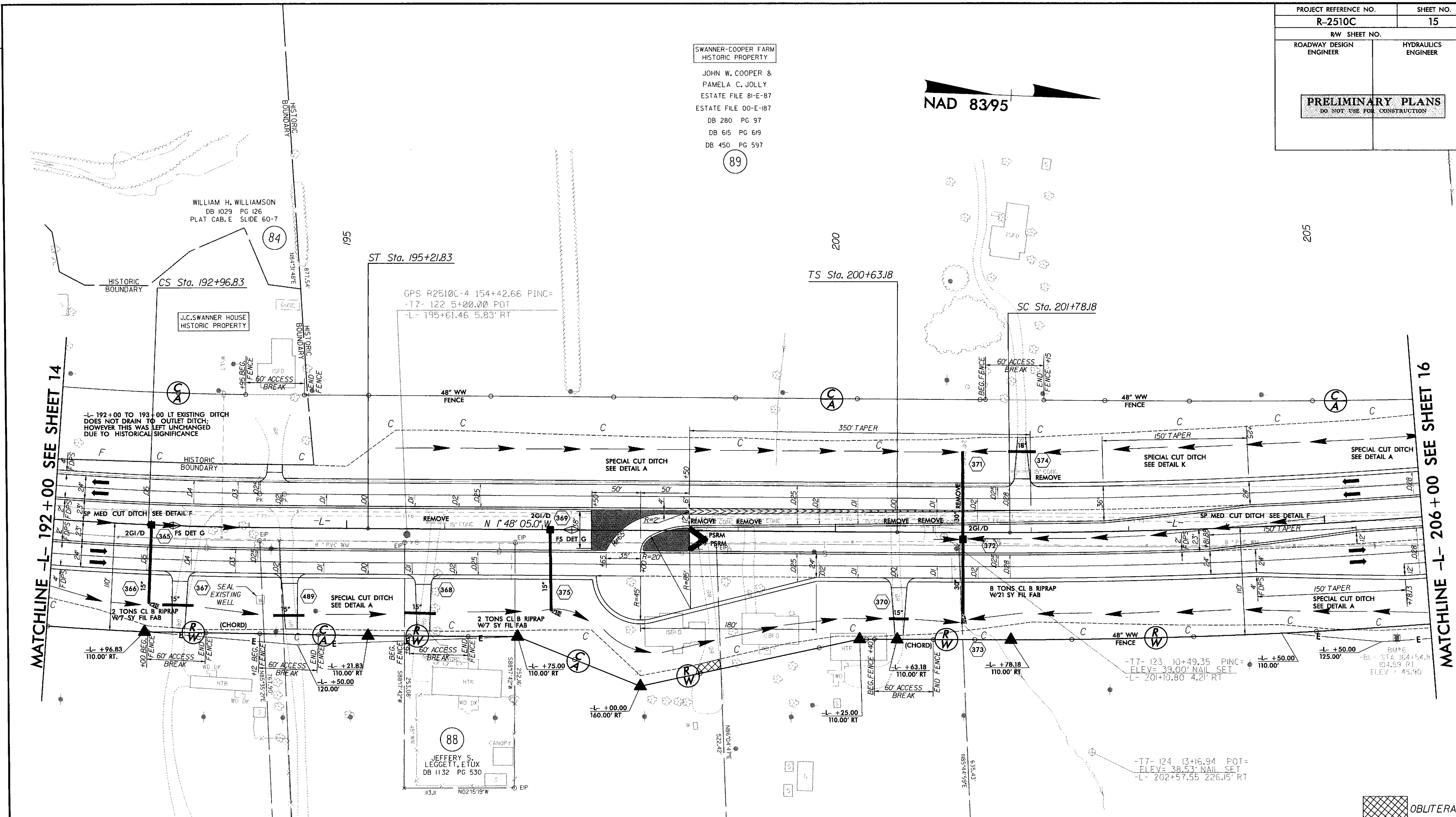
PROJECT REFERENCE NO.	SHEET NO.
R-2510C	15

RW SHEET NO.

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS



OBLITERATE

ALL DRIVEWAY WIDTHS 16' AND RADII 10' UNLESS OTHERWISE NOTED

SEE SHT.26 FOR -L- PROFILE

ALL ISLANDS SHOWN ARE 5' MONOLITHIC CONCRETE ISLAND (KEYED IN) STD.852.01

SEE SHT.2-H FOR DRAINAGE DITCH DETAILS

-L-

PI Sta 190+98.47	PIs Sta 193+71.84	PIs Sta 201+39.85	PI Sta 205+36.20
Δ = 7° 41' 26.1" (LT)	Θs = 2° 10' 39.5"	Θs = 0° 33' 47.4"	Δ = 7° 00' 15.2" (LT)
D = 1° 56' 08.4"	Ls = 225.00'	Ls = 115.00'	D = 0° 58' 45.9"
L = 397.31'	LT = 150.01'	LT = 76.67'	L = 715.14'
T = 198.95'	ST = 75.01'	ST = 38.33'	T = 358.02'
R = 2,960.00'			R = 5,850.00'
SE = 0.05			SE = 0.028
INC = 45.00'			INC = 41.07'

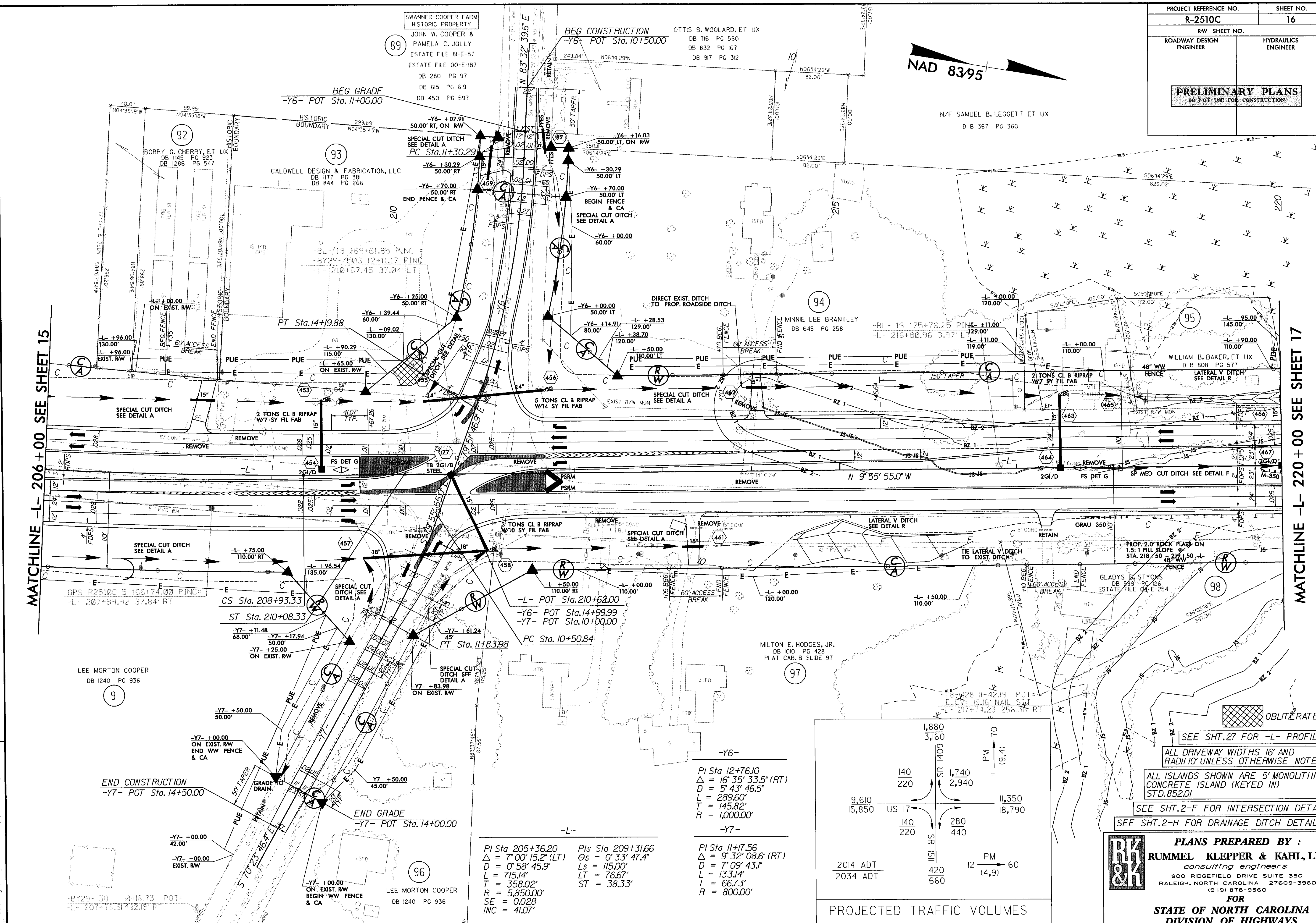
PLANS PREPARED BY :
RUMMEL KLEPPER & KAHL, LLP
consulting engineers
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
(919) 878-9560
FOR
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
R-2510C	16

RW SHEET NO.

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



-L-

PI Sta 205+36.20
Δ = 7° 00' 15.2" (LT)
D = 0° 58' 45.9"
L = 715.14'
T = 358.02'
R = 5,850.00'
SE = 0.028
INC = 41.07'

PIs Sta 209+31.66
θs = 0° 33' 47.4"
Ls = 115.00'
LT = 76.67'
ST = 38.33'

-Y6-

PI Sta 12+76.10
Δ = 16° 35' 33.5" (RT)
D = 5° 43' 46.5"
L = 289.60'
T = 145.82'
R = 1,000.00'

-Y7-

PI Sta 11+17.56
Δ = 9° 32' 08.6" (RT)
D = 7° 09' 43.1"
L = 133.14'
T = 66.73'
R = 800.00'

1,880
3,160
SR 1409
PM
70
(9,4)
11
140
220
1,740
2,940
9,610
15,850
US 17
11,350
18,790
140
220
280
440
SR 1511
420
660
12
PM
(4,9)
60
2014 ADT
2034 ADT

PROJECTED TRAFFIC VOLUMES

OBLITERATE

SEE SHT.27 FOR -L- PROFILE

ALL DRIVEWAY WIDTHS 16' AND RADII 10' UNLESS OTHERWISE NOTED

ALL ISLANDS SHOWN ARE 5' MONOLITHIC CONCRETE ISLAND (KEYED IN) STD.852.01

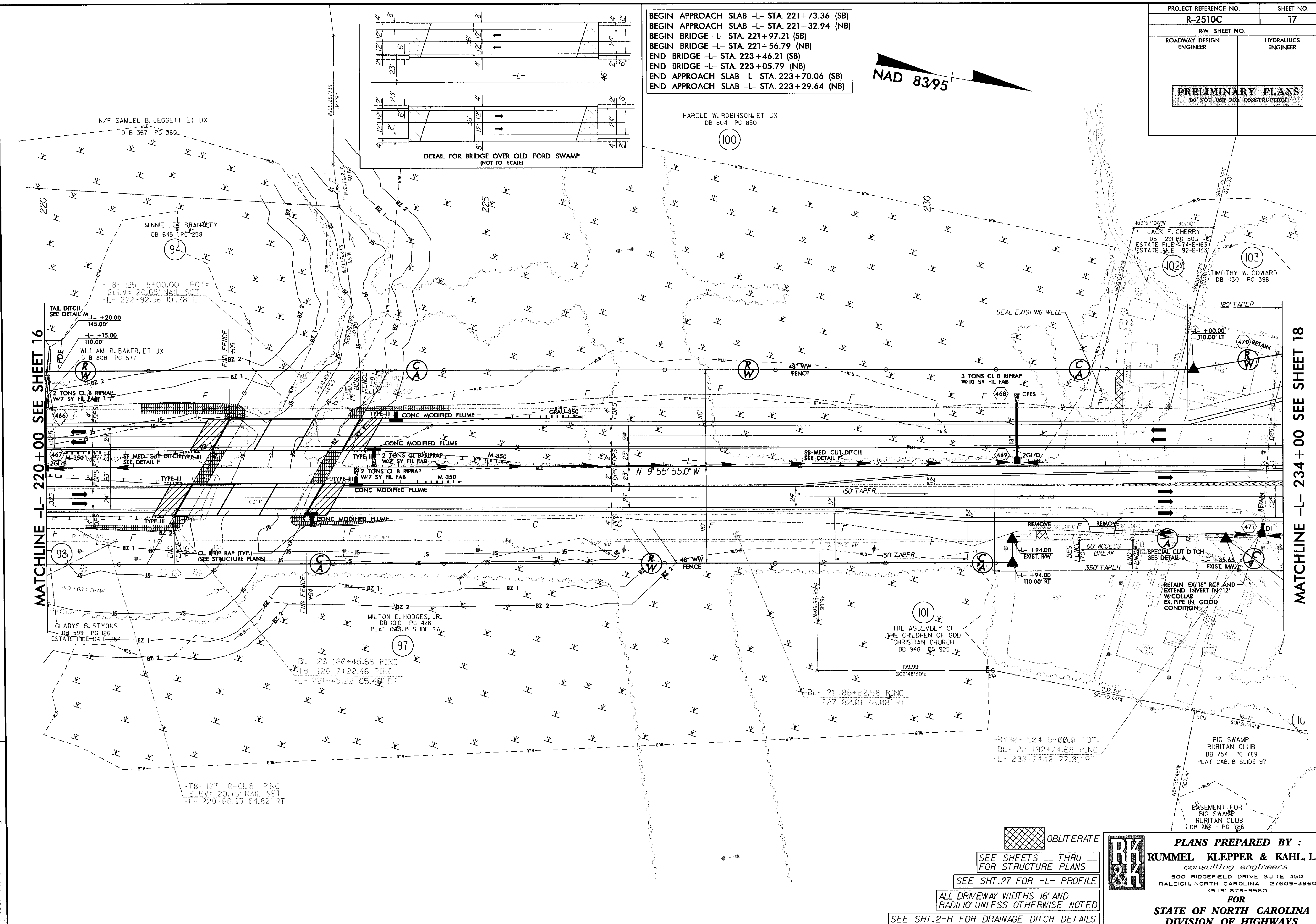
SEE SHT.2-F FOR INTERSECTION DETAIL

SEE SHT.2-H FOR DRAINAGE DITCH DETAILS

PLANS PREPARED BY :
RUMMEL KLEPPER & KAHL, LLP
consulting engineers
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
(919) 878-9560
FOR
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

REVISIONS

Date: - Parcels 91,92,93,94 ; added PUE



BEGIN APPROACH SLAB -L- STA. 221+73.36 (SB)
BEGIN APPROACH SLAB -L- STA. 221+32.94 (NB)
BEGIN BRIDGE -L- STA. 221+97.21 (SB)
BEGIN BRIDGE -L- STA. 221+56.79 (NB)
END BRIDGE -L- STA. 223+46.21 (SB)
END BRIDGE -L- STA. 223+05.79 (NB)
END APPROACH SLAB -L- STA. 223+70.06 (SB)
END APPROACH SLAB -L- STA. 223+29.64 (NB)

PROJECT REFERENCE NO.	SHEET NO.
R-2510C	17
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

OBLITERATE

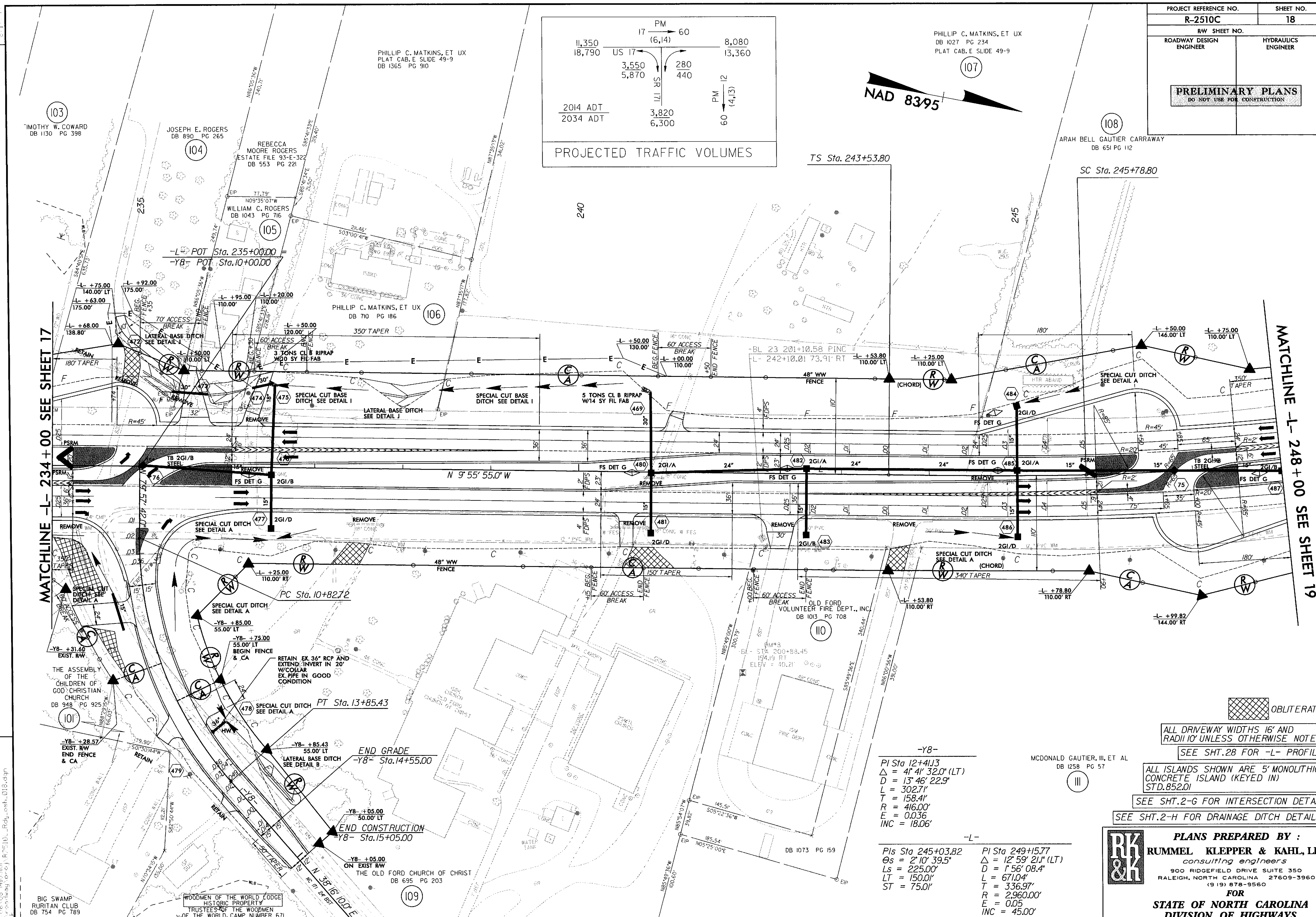
SEE SHEETS __ THRU __ FOR STRUCTURE PLANS

SEE SHT.27 FOR -L- PROFILE

ALL DRIVEWAY WIDTHS 16' AND RADII 10' UNLESS OTHERWISE NOTED

SEE SHT.2-H FOR DRAINAGE DITCH DETAILS

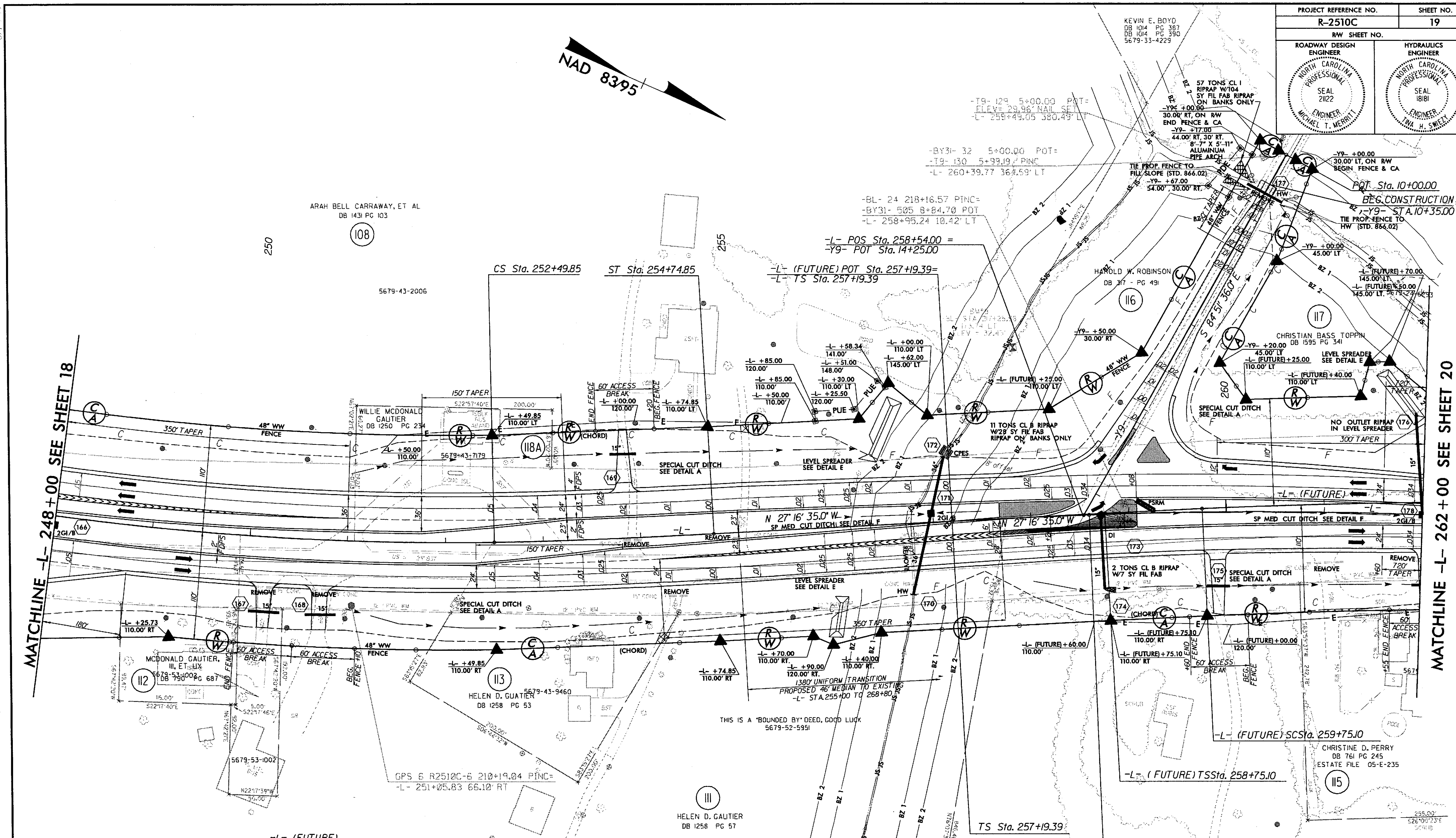
PLANS PREPARED BY :
RUMMEL KLEPPER & KAHL, LLP
consulting engineers
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
(919) 878-9560
FOR
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS


PROJECT REFERENCE NO. R-2510C
SHEET NO. 18
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
REVISIONS
PROJECTED TRAFFIC VOLUMES
2014 ADT
2034 ADT
PM 17 60 (6,14)
US 17
11,350
18,790
8,080
13,360
3,550
5,870
280
440
SR 171
3,820
6,300
PM 12 (4,13) 60
NAD 83/95
MATCHLINE -L- 234+00 SEE SHEET 17
MATCHLINE -L- 248+00 SEE SHEET 19
PHILLIP C. MATKINS, ET UX
PLAT CAB. E SLIDE 49-9
DB 1365 PG 910
PHILLIP C. MATKINS, ET UX
DB 1027 PG 234
PLAT CAB. E SLIDE 49-9
TIMOTHY W. COWARD
DB 1130 PG 398
JOSEPH E. ROGERS
DB 890 PG 265
REBECCA MOORE ROGERS
ESTATE FILE 93-E-322
DB 553 PG 221
WILLIAM C. ROGERS
DB 1043 PG 716
PHILLIP C. MATKINS, ET UX
DB 710 PG 186
SARAH BELL GAUTIER CARRAWAY
DB 651 PG 112
-L- POT Sta. 235+00.00 =
-Y8- POT Sta.10+00.00
TS Sta. 243+53.80
SC Sta. 245+78.80
N 9° 55' 55.0" W
PC Sta. 10+82.72
PT Sta. 13+85.43
END GRADE
-Y8- Sta.14+55.00
END CONSTRUCTION
-Y8- Sta.15+05.00
THE ASSEMBLY OF THE CHILDREN OF GOD CHRISTIAN CHURCH
DB 948 PG 925
OLD FORD VOLUNTEER FIRE DEPT., INC.
DB 1013 PG 708
THE OLD FORD CHURCH OF CHRIST
DB 695 PG 203
BIG SWAMP RURITAN CLUB
DB 754 PG 789
PLAT CAB. B SLIDE 97
WOODMEN OF THE WORLD LODGE HISTORIC PROPERTY
TRUSTEES OF THE WOODMEN OF THE WORLD, CAMP NUMBER 671
DB 808 PG 740
MCDONALD GAUTIER, III, ET AL
DB 1258 PG 57
DB 1073 PG 159
OBLITERATE
ALL DRIVEWAY WIDTHS 16' AND RADII 10' UNLESS OTHERWISE NOTED
SEE SHT.28 FOR -L- PROFILE
ALL ISLANDS SHOWN ARE 5' MONOLITHIC CONCRETE ISLAND (KEYED IN) STD.852.01
SEE SHT.2-G FOR INTERSECTION DETAIL
SEE SHT.2-H FOR DRAINAGE DITCH DETAILS
-Y8-
PI Sta 12+41.13
Δ = 41° 41' 32.0" (LT)
D = 13° 46' 22.9"
L = 302.71'
T = 158.41'
R = 416.00'
E = 0.036
INC = 18.06'
-L-
PIs Sta 245+03.82
θs = 2° 10' 39.5"
Ls = 225.00'
LT = 150.01'
ST = 75.01'
PI Sta 249+15.77
Δ = 12° 59' 21.1" (LT)
D = 1° 56' 08.4"
L = 671.04'
T = 336.97'
R = 2,960.00'
E = 0.05
INC = 45.00'
PLANS PREPARED BY :
RUMMEL KLEPPER & KAHL, LLP
consulting engineers
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
(919) 878-9560
FOR
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
R-2510C	19
RW SHEET NO.	

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 21122 ENGINEER MICHAEL T. MERRITT

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 18181 ENGINEER TINA H. SWIEZY



ALL DRIVEWAY WIDTHS 16' AND RADII 10' UNLESS OTHERWISE NOTED

SEE SHT.28 & 29 FOR -L- PROFILE
SEE SHT.33 FOR -Y9- PROFILE

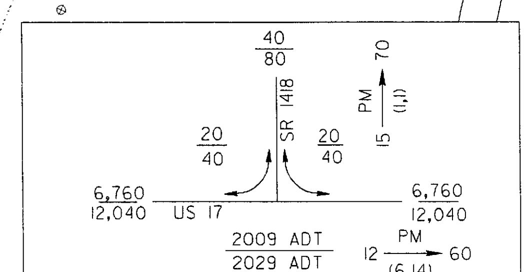
SEE SHT.2-G FOR INTERSECTION DETAIL

-L- (FUTURE)

PIs Sta 259+41.77	PI Sta 263+55.37	PIs Sta 267+68.23
Θs = 0° 24' 33.3"	Δ = 6° 13' 08.4" (RT)	Θs = 0° 24' 33.3"
Ls = 100.00'	D = 0° 49' 06.6"	Ls = 100.00'
LT = 66.67'	L = 759.79'	LT = 66.67'
ST = 33.33'	T = 380.27'	ST = 33.33'
	R = 7,000.00'	
	SE = 0.025	
	INC = 38.40'	

-L-

PI Sta 249+15.77	PIs Sta 253+24.86	PIs Sta 258+12.73	PI Sta 260+78.19
Δ = 12° 59' 21.1" (LT)	Θs = 2° 10' 39.5"	Θs = 0° 51' 12.0"	Δ = 5° 19' 50.9" (RT)
D = 1° 56' 08.4"	Ls = 225.00'	Ls = 140.00'	D = 1° 13' 08.6"
L = 671.04'	LT = 150.01'	LT = 93.33'	L = 437.29'
T = 336.97'	ST = 75.01'	ST = 46.67'	T = 218.80'
R = 2,960.00'			R = 4,700.00'
SE = 0.05			SE = 0.034
INC = 45.00'			INC = 40.18'



PROJECTED TRAFFIC VOLUMES

OBLITERATE

ALL ISLANDS SHOWN ARE 5" MONOLITHIC CONCRETE ISLAND (KEYED IN) STD.852.01

SEE SHT.2-J FOR DRAINAGE DITCH DETAILS

PLANS PREPARED BY :
RUMMEL KLEPPER & KAHL, LLP
consulting engineers
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
(919) 878-9560
FOR
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

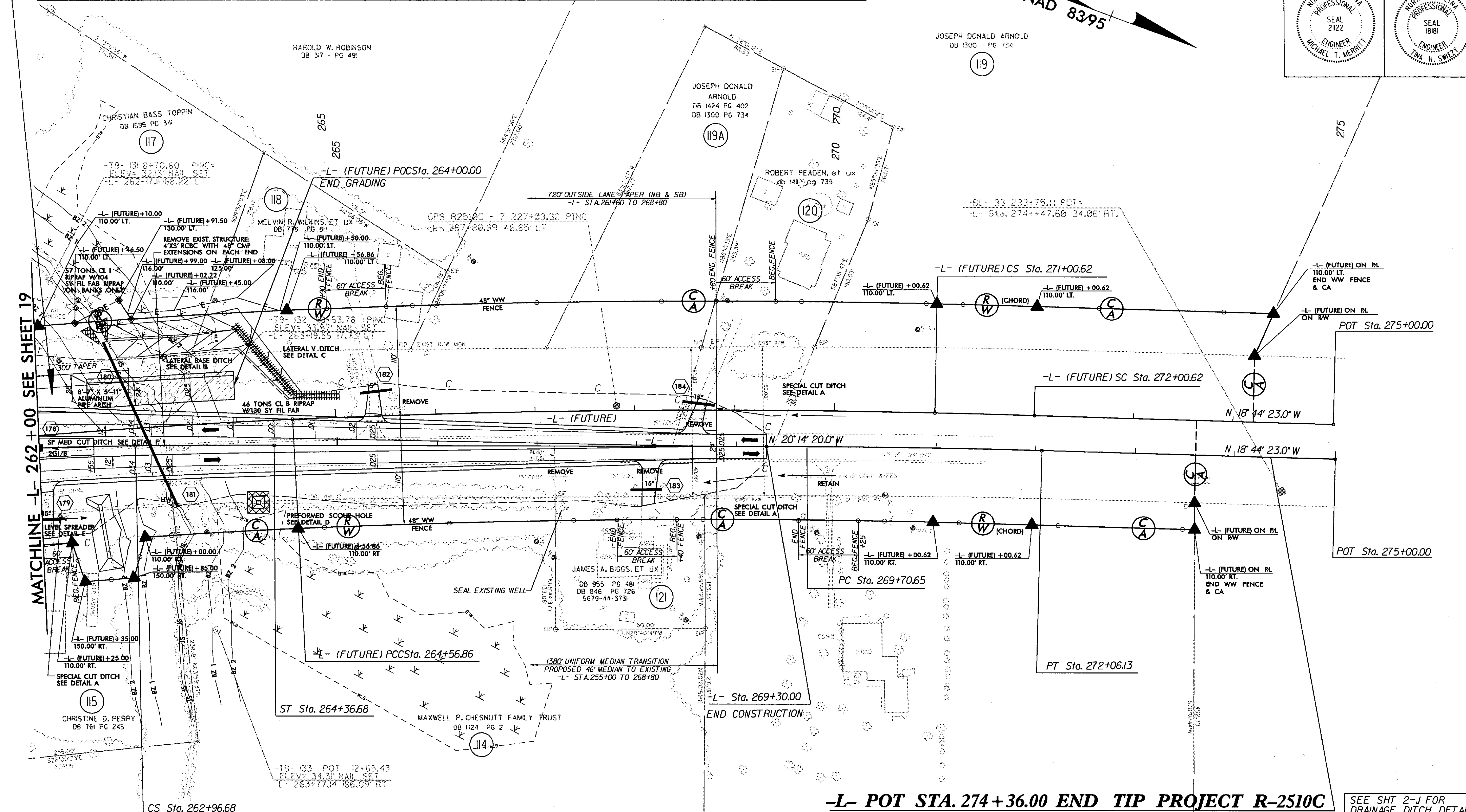
09/24/09 09:58:39
r:\roadway\proj\R2510C_Rdy_psh_019.dgn

PROJECT REFERENCE NO.	SHEET NO.
R-2510C	20
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 21122 ENGINEER MICHAEL T. MERRITT

NORTH CAROLINA PROFESSIONAL SEAL 18181 ENGINEER TINA H. SWEZY

Note: For permitting purposes, construct subgrade, fill slope and required drainage for future project. (-L- Sta 262+50 to 264+00 LT.)



-L- POT STA. 274+36.00 END TIP PROJECT R-2510C

SEE SHT 2-J FOR DRAINAGE DITCH DETAILS

ALL DRIVEWAY WIDTHS 16' AND RADII 10' UNLESS OTHERWISE NOTED

SEE SHT.29 FOR -L- & -L- (FUTURE) PROFILES

-L-

:60+78.19	PIs Sta 263+43.35	PI Sta 270+88.40
19' 50.9" (RT)	θs = 0° 51' 12.0"	Δ = 1° 29' 57.0" (RT)
13' 08.6"	Ls = 140.00'	D = 0° 38' 11.8"
37.29'	LT = 93.33'	L = 235.49'
:18.80'	ST = 46.67'	T = 117.75'
4,700.00'		R = 9,000.00'
0.034		
: 40.18'		

-L- (FUTURE)

PIs Sta 259+41.77	PI Sta 262+16.07	PI Sta 267+78.86	PIs Sta 271+33.95
θs = 0° 24' 33.3"	Δ = 3° 56' 35.7" (RT)	Δ = 3° 52' 57.4" (RT)	θs = 0° 18' 05.6"
Ls = 100.00'	D = 0° 49' 06.6"	D = 0° 36' 11.2"	Ls = 100.00'
LT = 66.67'	L = 481.76'	L = 643.76'	LT = 66.67'
ST = 33.33'	T = 240.97'	T = 322.00'	ST = 33.33'
	R = 7,000.00'	R = 9,500.00'	

PLANS PREPARED BY :

RUMMEL KLEPPER & KAHL, LLP

consulting engineers

900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
(919) 878-9560

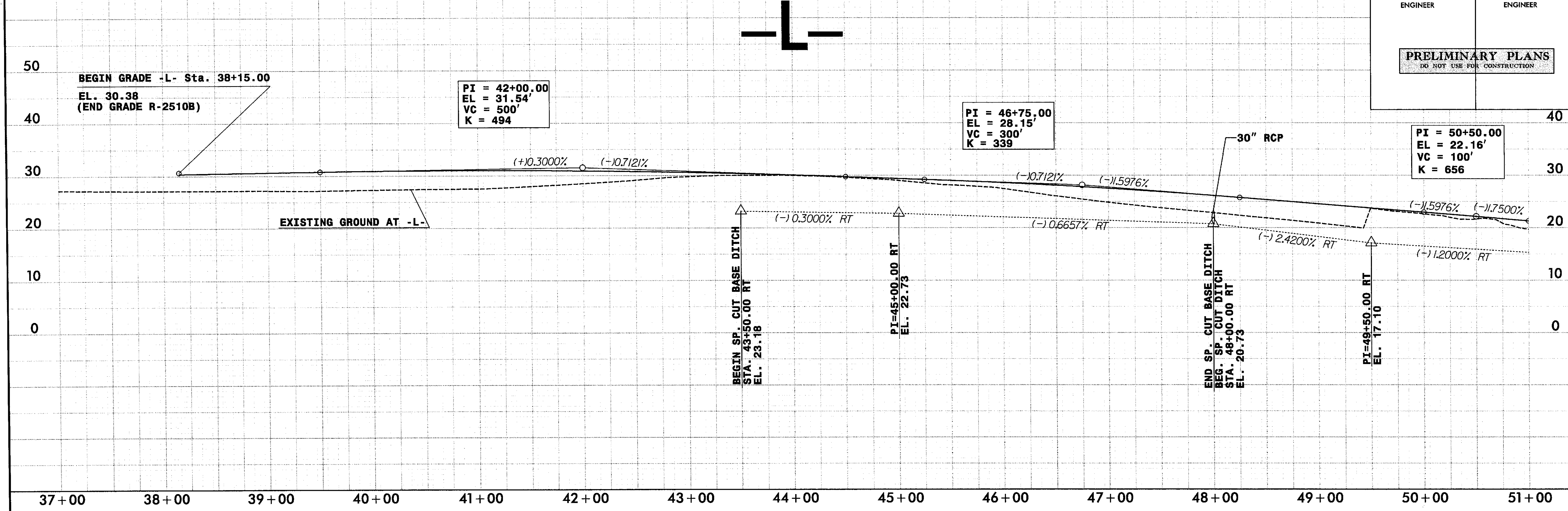
FOR

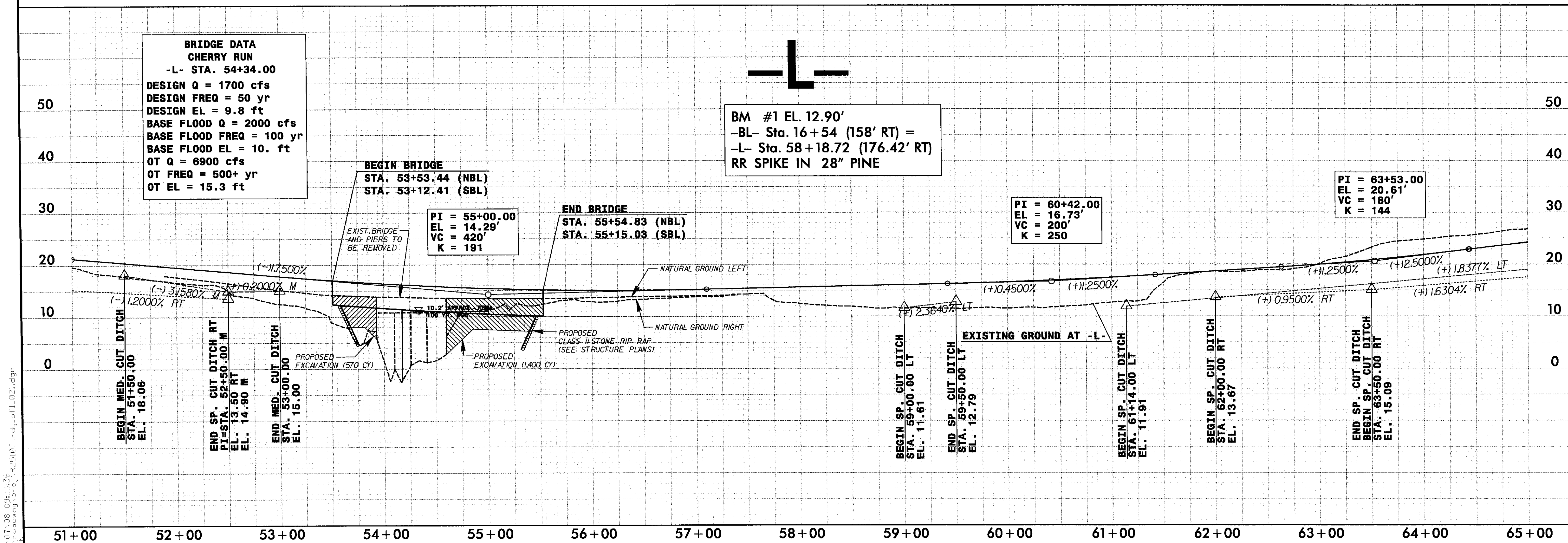
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

09\24\09 09:59:22
r:\roadway\proj\r2510c_rdy_psh_020.dgn
mmerritt

PROJECT REFERENCE NO.	SHEET NO.
R-2510C	21
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

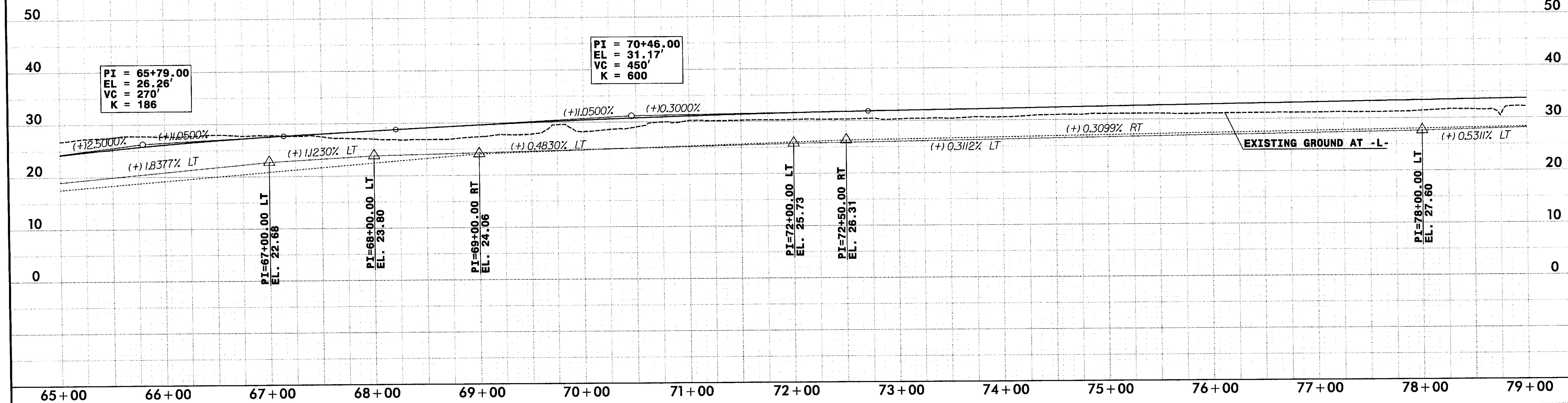
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

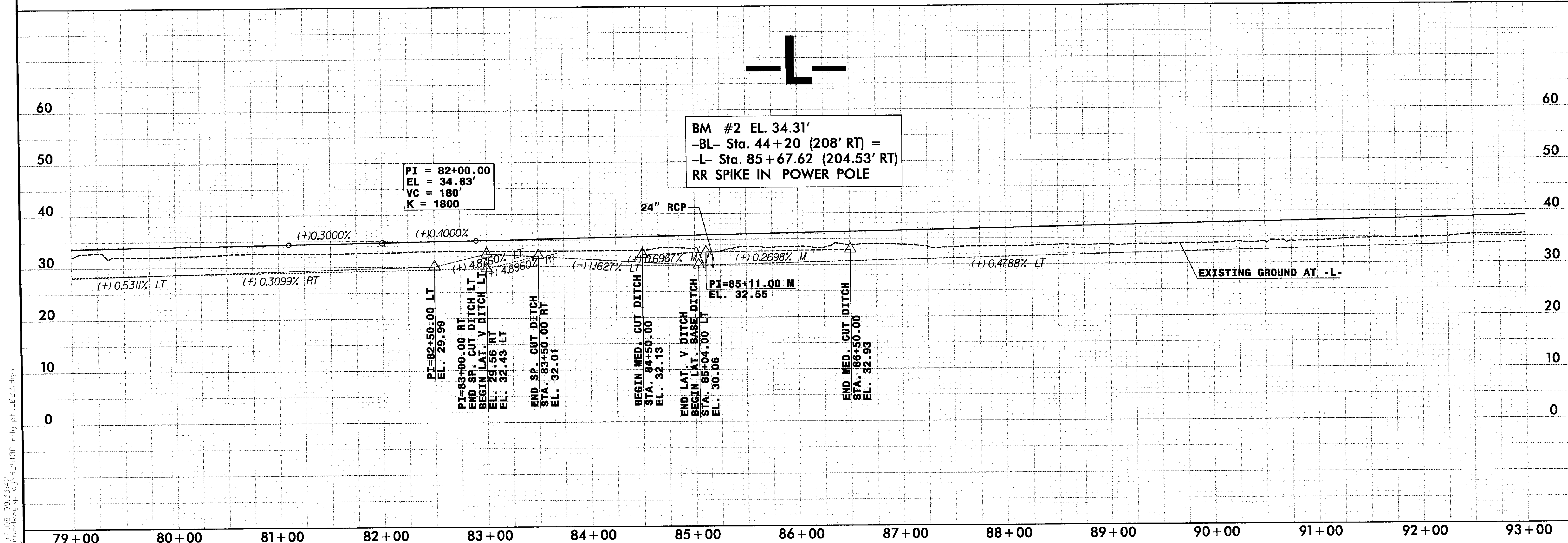




PROJECT REFERENCE NO.	SHEET NO.
R-2510C	22
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

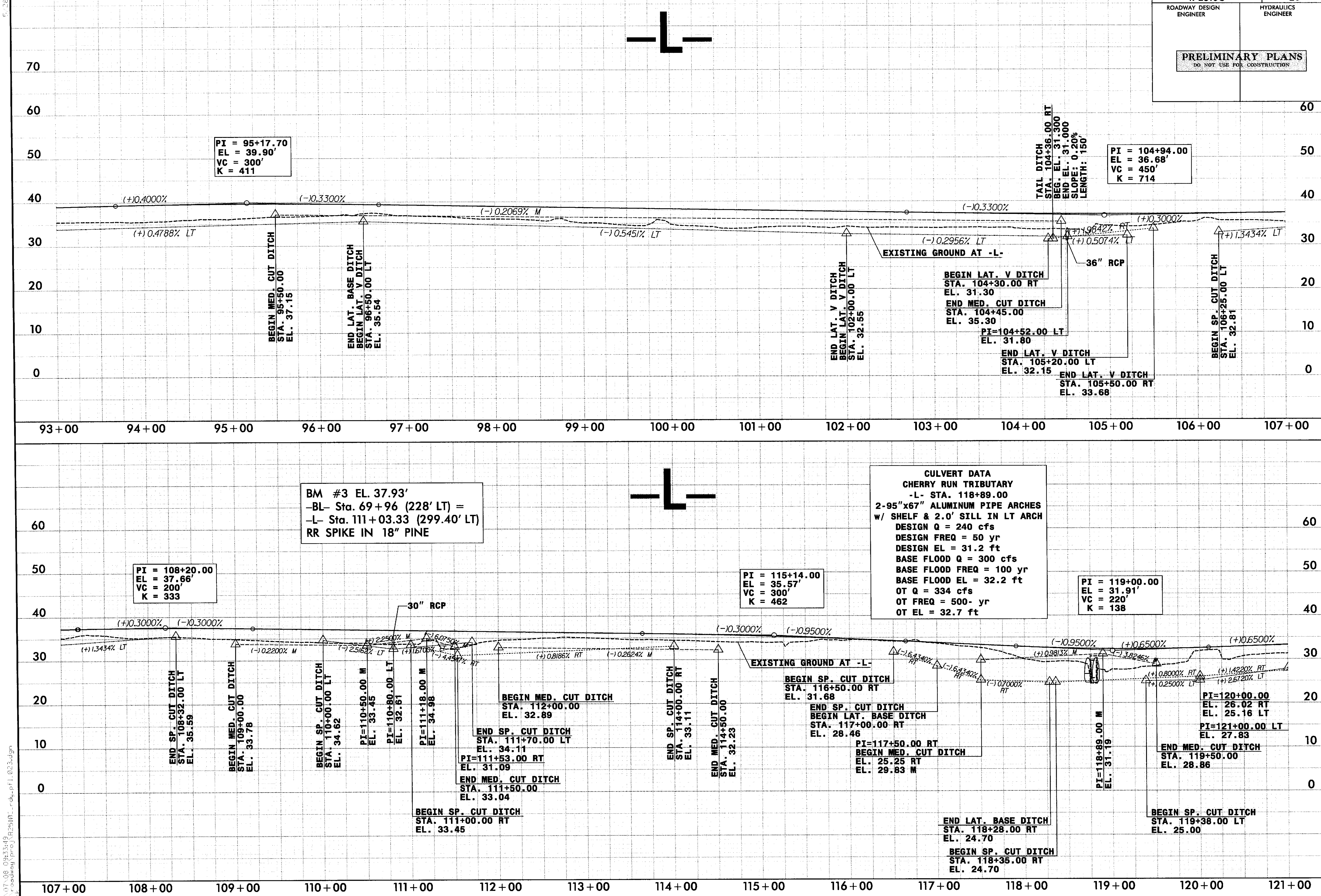
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





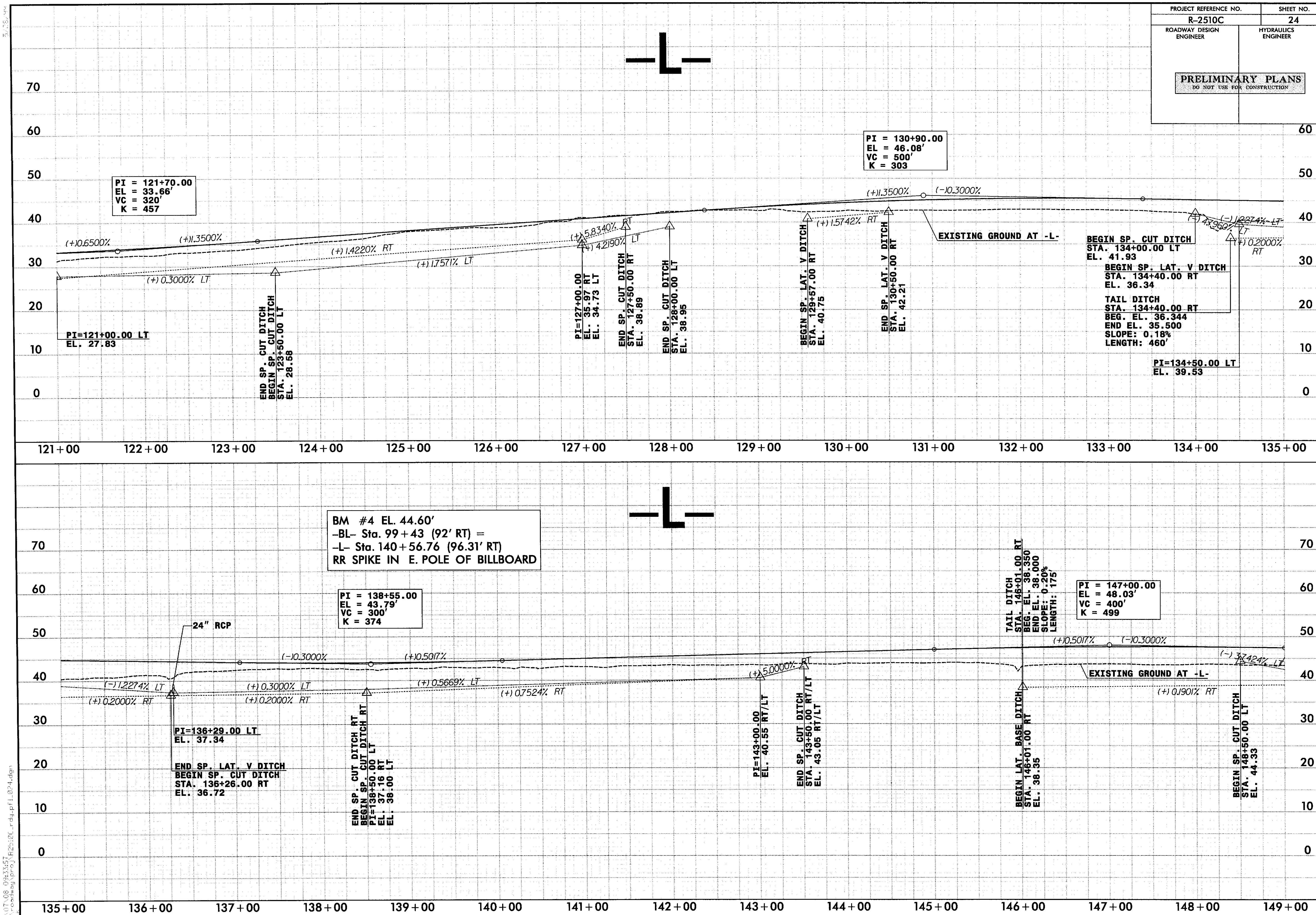
PROJECT REFERENCE NO.	SHEET NO.
R-2510C	23
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



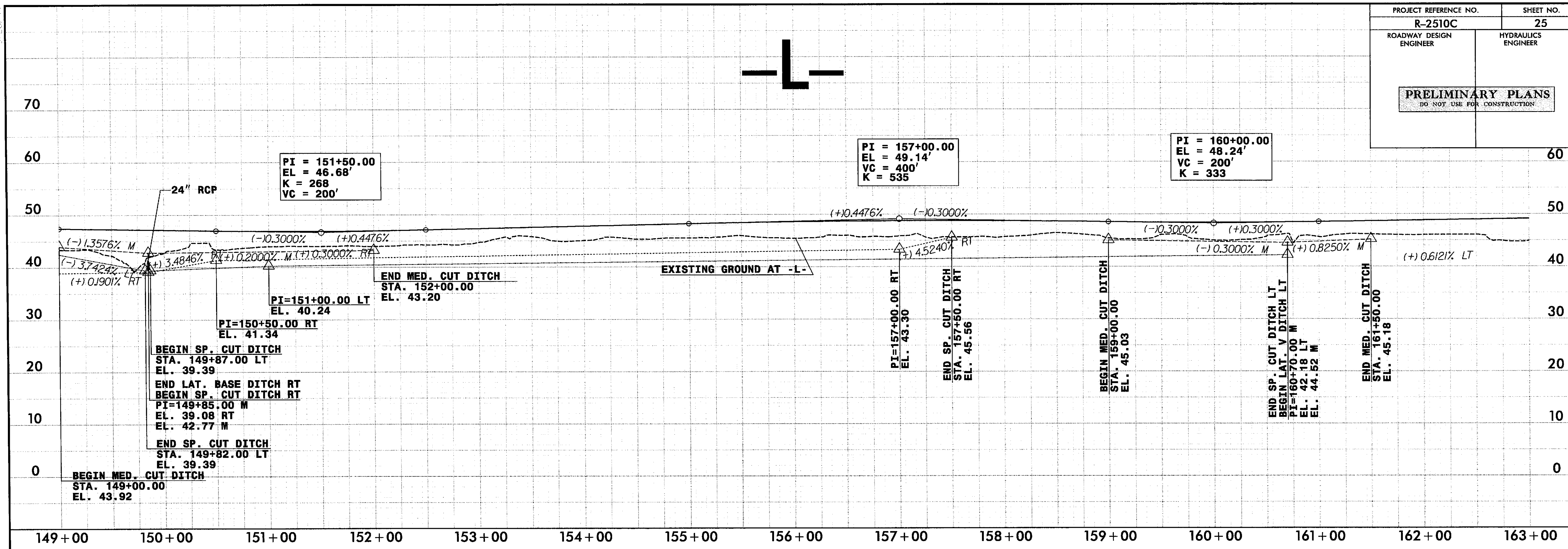
PROJECT REFERENCE NO.	SHEET NO.
R-2510C	24
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

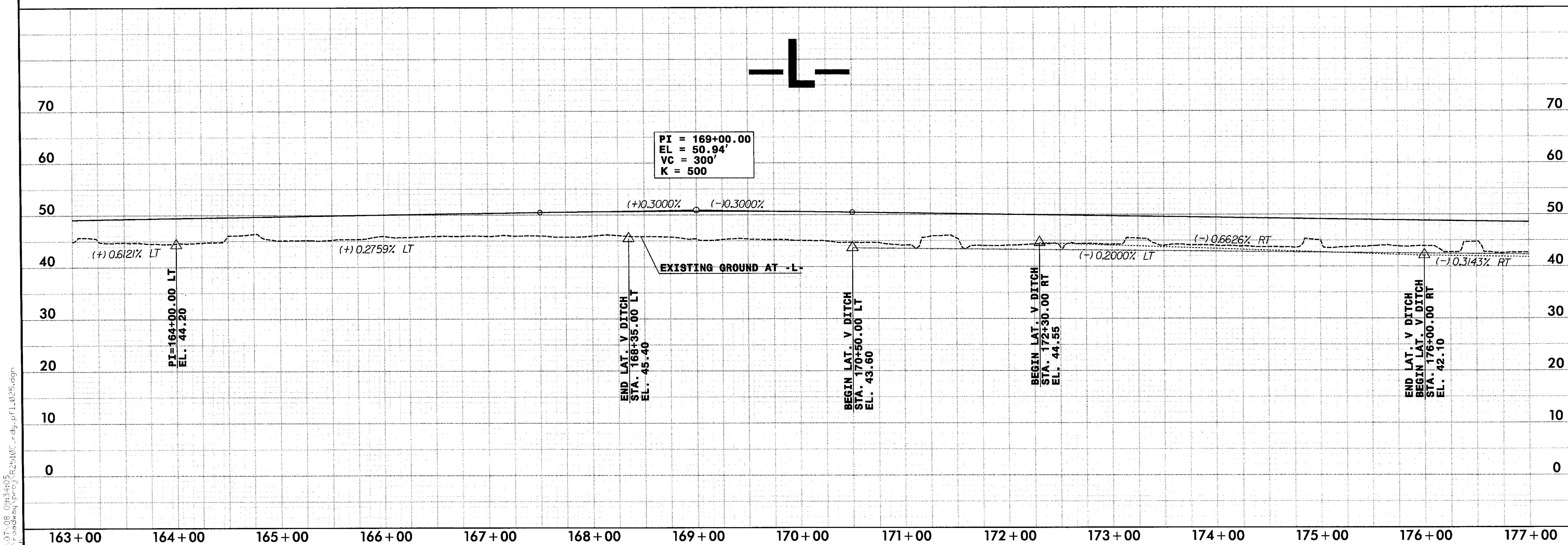
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

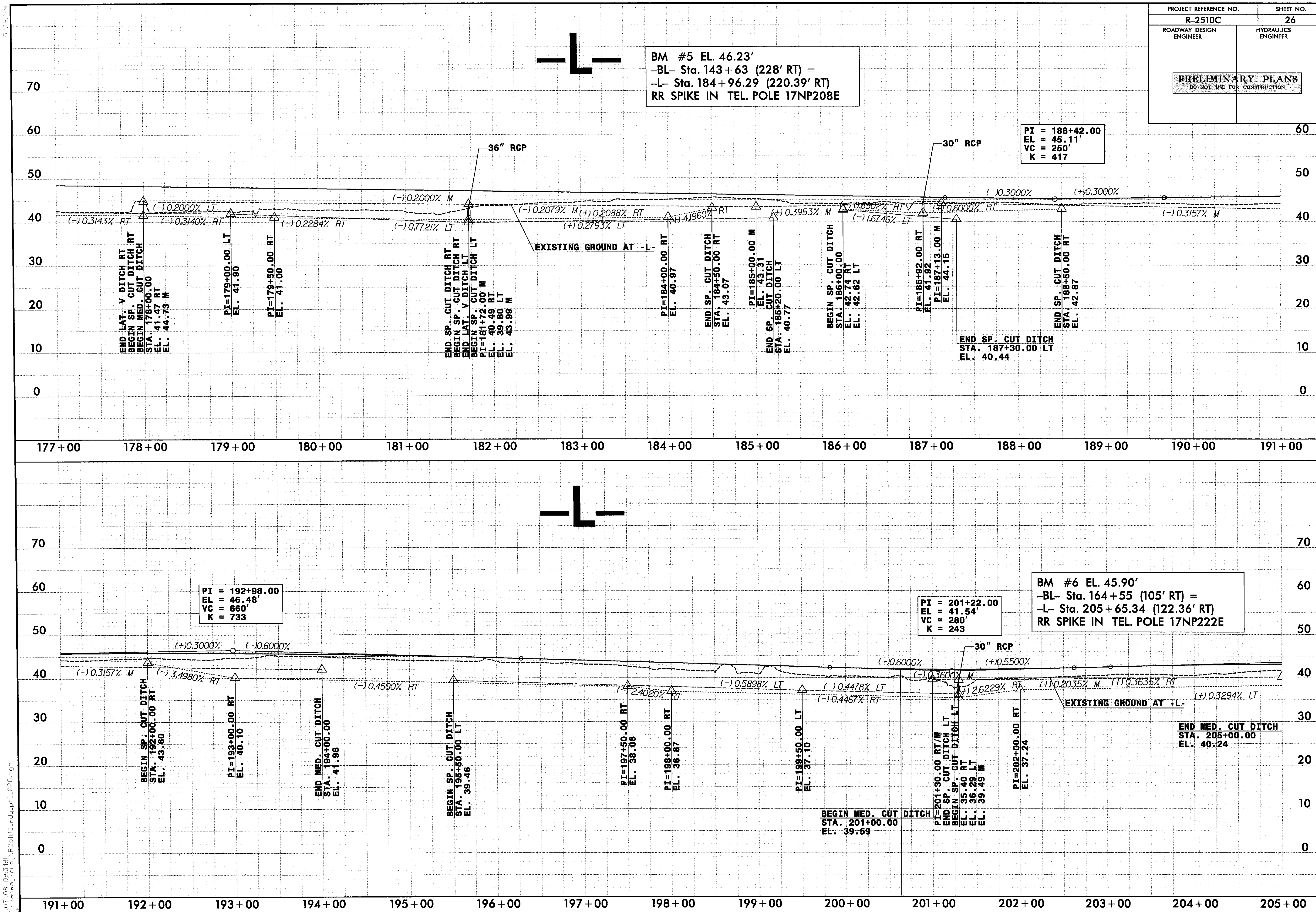


PROJECT REFERENCE NO.	SHEET NO.
R-2510C	25
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

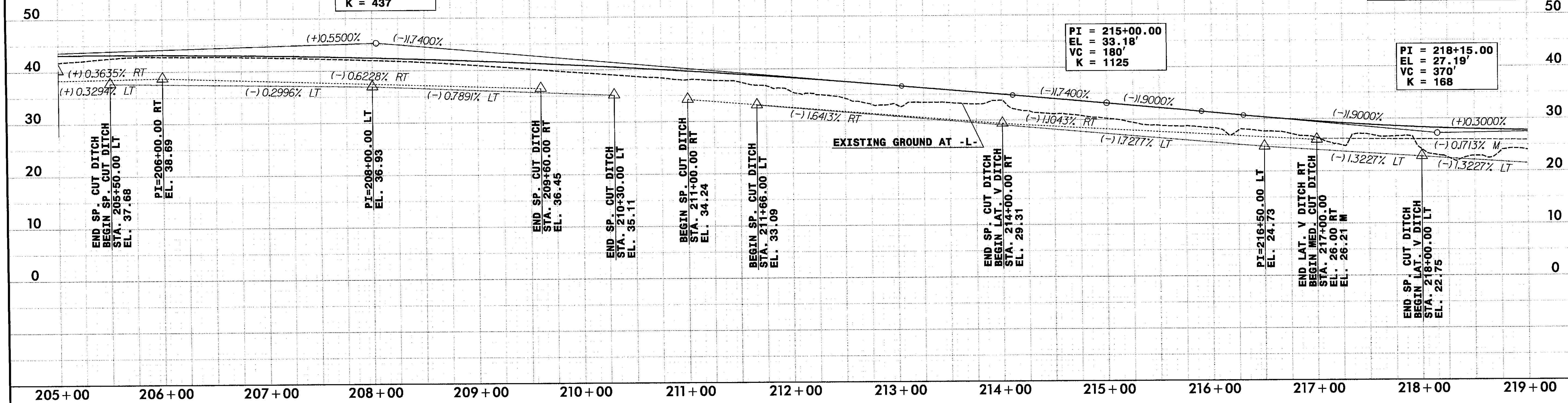


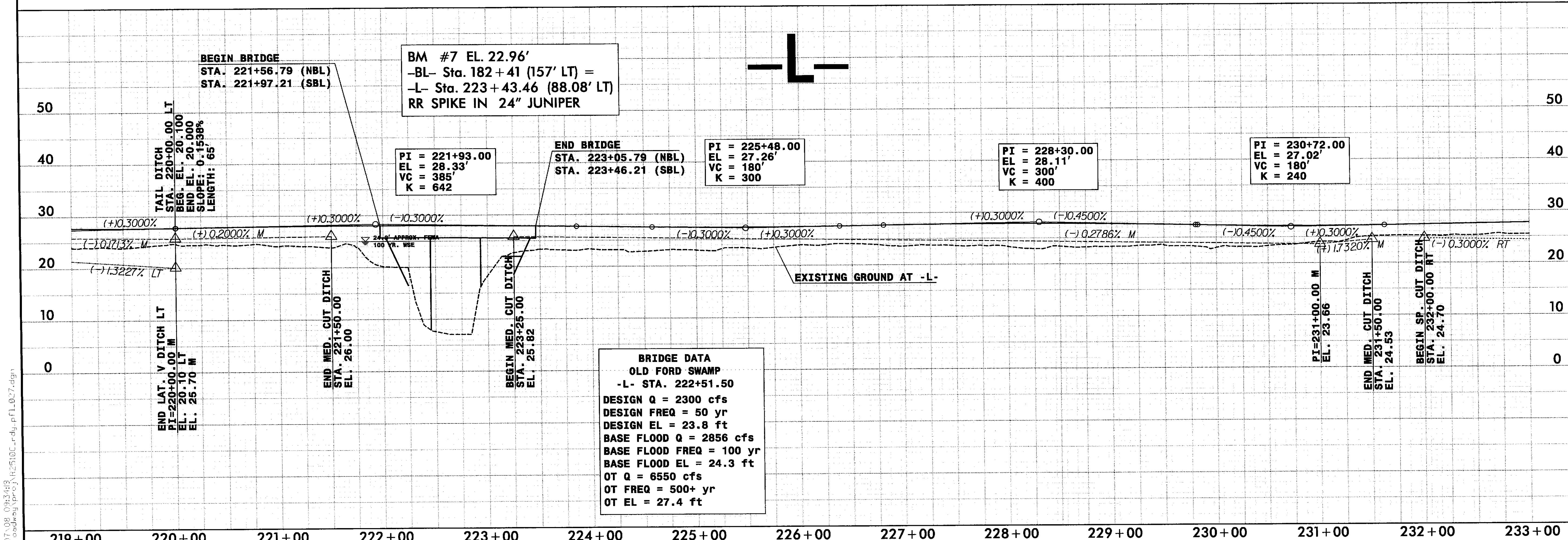



PROJECT REFERENCE NO. R-2510C
SHEET NO. 26
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
-L-
BM #5 EL. 46.23'
-BL- Sta. 143+63 (228' RT) =
-L- Sta. 184+96.29 (220.39' RT)
RR SPIKE IN TEL. POLE 17NP208E
PI = 188+42.00
EL = 45.11'
VC = 250'
K = 417
36" RCP
30" RCP
EXISTING GROUND AT -L-
END LAT. V DITCH RT
BEGIN SP. CUT DITCH RT
BEGIN MED. CUT DITCH
STA. 178+00.00
EL. 41.47 RT
EL. 44.73 M
PI=179+00.00 LT
EL. 41.90
PI=179+50.00 RT
EL. 41.00
END SP. CUT DITCH RT
BEGIN SP. CUT DITCH RT
END LAT. V DITCH LT
BEGIN SP. CUT DITCH LT
PI=181+72.00 M
EL. 40.49 RT
EL. 39.80 LT
EL. 43.99 M
PI=184+00.00 RT
EL. 40.97
END SP. CUT DITCH
STA. 184+50.00 RT
EL. 43.07
PI=185+00.00 M
EL. 43.31
END SP. CUT DITCH
STA. 185+20.00 LT
EL. 40.77
BEGIN SP. CUT DITCH
STA. 186+00.00
EL. 42.74 RT
EL. 42.62 LT
PI=186+92.00 RT
EL. 41.92
PI=187+13.00 M
EL. 44.15
END SP. CUT DITCH
STA. 187+30.00 LT
EL. 40.44
END SP. CUT DITCH
STA. 188+50.00 RT
EL. 42.87
(−) 0.3143% RT
(−) 0.2000% LT
(−) 0.3140% RT
(−) 0.2284% RT
(−) 0.2000% M
(−) 0.7721% LT
(−) 0.2079% M
(+) 0.2088% RT
(+) 0.2793% LT
(+) 1.1960% RT
(+) 0.3953% M
(−) 0.8902% RT
(−) 1.6746% LT
(+) 0.6000% RT
(−) 0.3000%
(+) 0.3000%
(−) 0.3157% M
177+00
178+00
179+00
180+00
181+00
182+00
183+00
184+00
185+00
186+00
187+00
188+00
189+00
190+00
191+00
-L-
PI = 192+98.00
EL = 46.48'
VC = 660'
K = 733
PI = 201+22.00
EL = 41.54'
VC = 280'
K = 243
BM #6 EL. 45.90'
-BL- Sta. 164+55 (105' RT) =
-L- Sta. 205+65.34 (122.36' RT)
RR SPIKE IN TEL. POLE 17NP222E
30" RCP
(+) 0.3000%
(−) 0.6000%
(−) 0.3157% M
(−) 3.4980% RT
(−) 0.4500% RT
(−) 2.4020% RT
(−) 0.5898% LT
(−) 0.4478% LT
(−) 0.4467% RT
(−) 0.6000%
(+) 0.5500%
(−) 0.3600% M
(+) 2.6229% RT
(+) 0.2035% M
(+) 0.3635% RT
(+) 0.3294% LT
EXISTING GROUND AT -L-
BEGIN SP. CUT DITCH RT
STA. 192+00.00
EL. 43.60
PI=193+00.00 RT
EL. 40.10
END MED. CUT DITCH
STA. 194+00.00
EL. 41.98
BEGIN SP. CUT DITCH
STA. 195+50.00 LT
EL. 39.46
PI=197+50.00 RT
EL. 38.08
PI=198+00.00 RT
EL. 36.87
PI=199+50.00 LT
EL. 37.10
BEGIN MED. CUT DITCH
STA. 201+00.00
EL. 39.59
PI=201+30.00 RT/M
END SP. CUT DITCH LT
BEGIN SP. CUT DITCH LT
EL. 35.40 RT
EL. 36.29 LT
EL. 39.49 M
PI=202+00.00 RT
EL. 37.24
END MED. CUT DITCH
STA. 205+00.00
EL. 40.24
191+00
192+00
193+00
194+00
195+00
196+00
197+00
198+00
199+00
200+00
201+00
202+00
203+00
204+00
205+00
70
60
50
40
30
20
10
0

PROJECT REFERENCE NO.	SHEET NO.
R-2510C	27
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

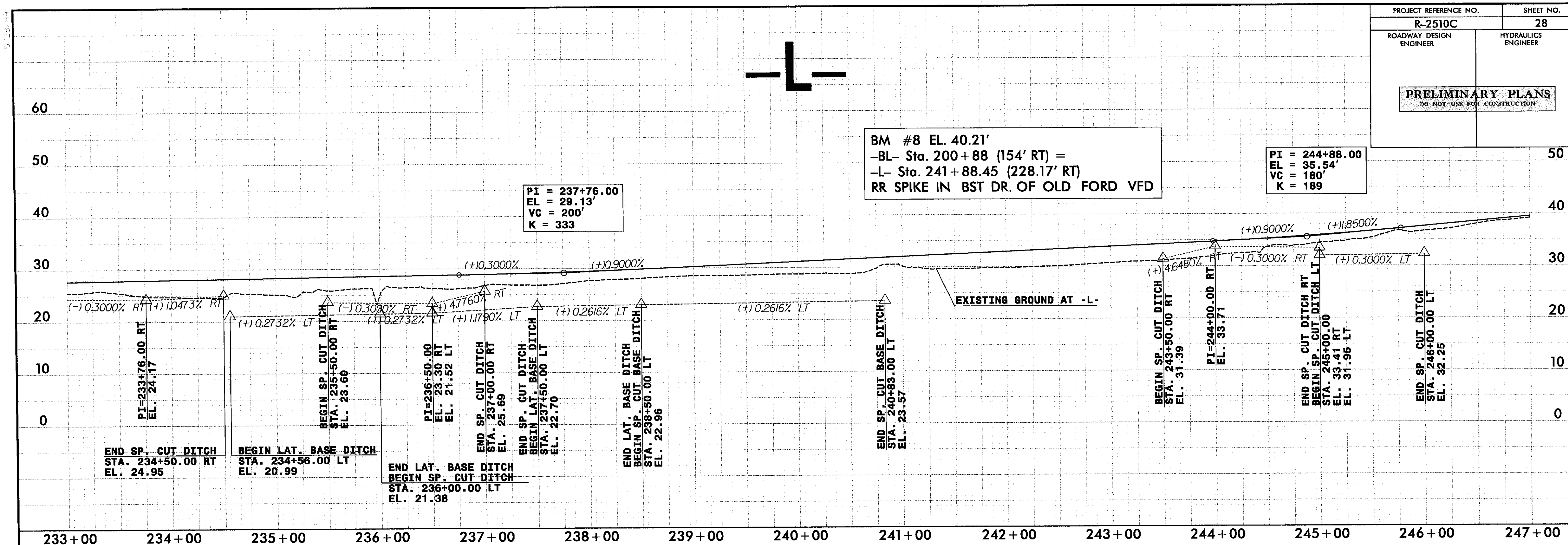
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

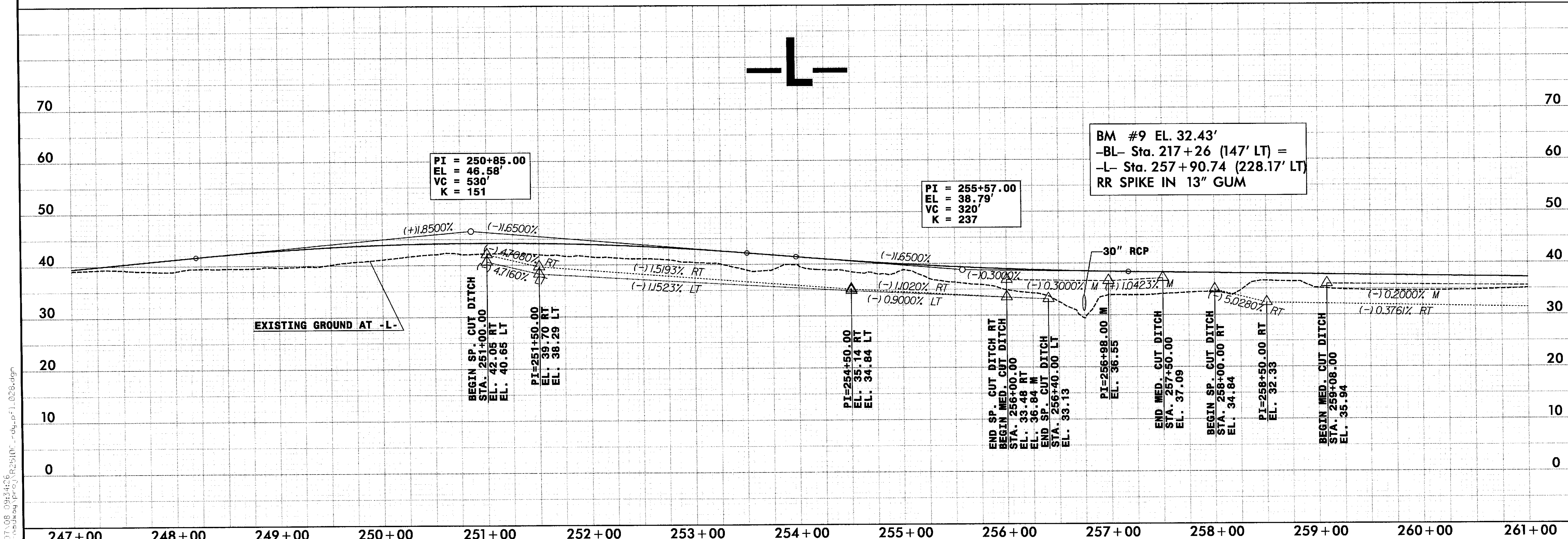




PROJECT REFERENCE NO.	SHEET NO.
R-2510C	28
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

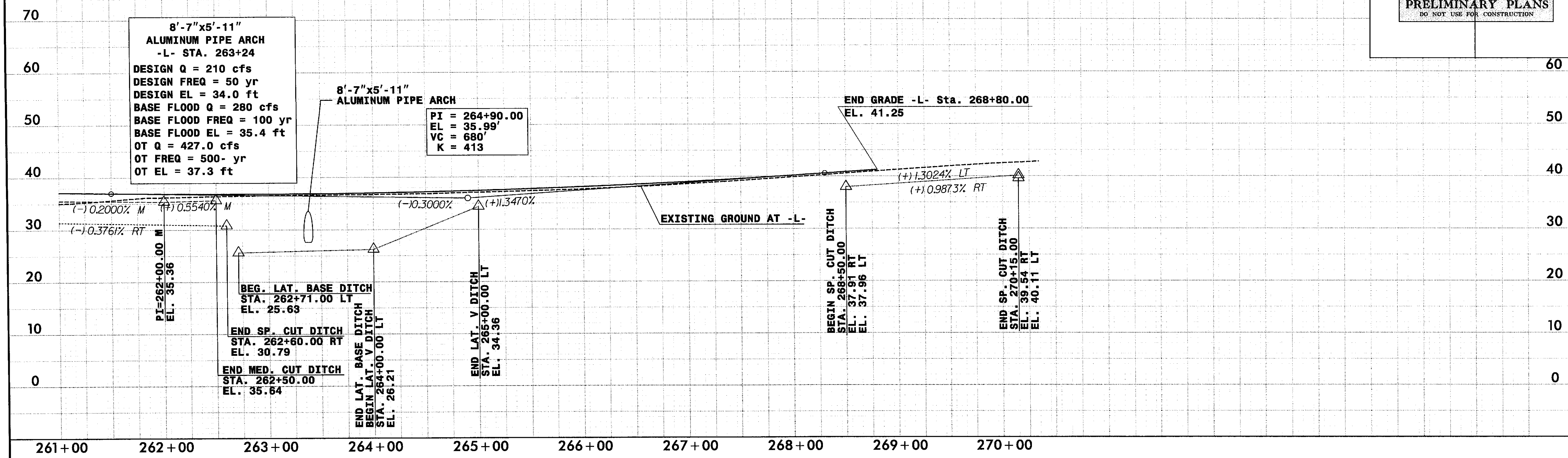




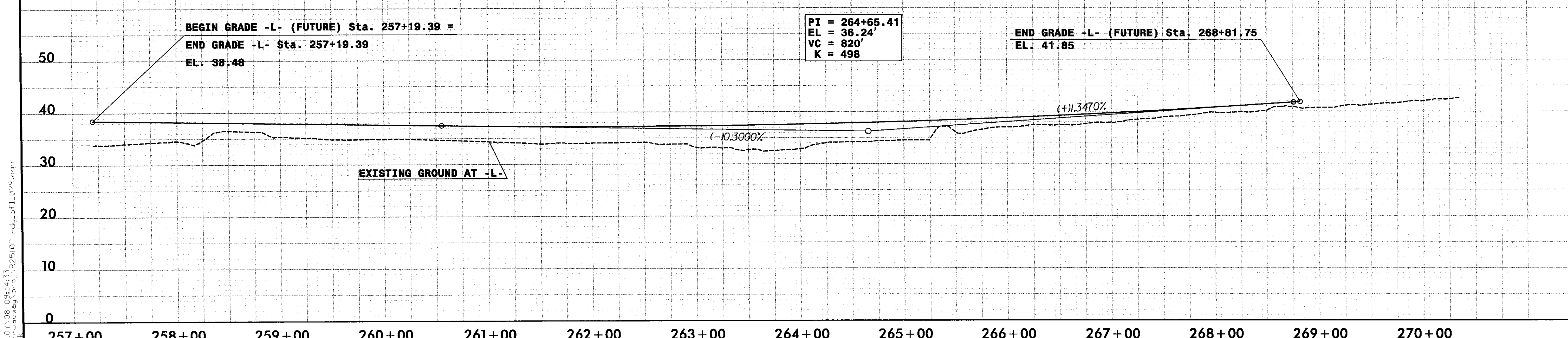
PROJECT REFERENCE NO.	SHEET NO.
R-2510C	29
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

–L–

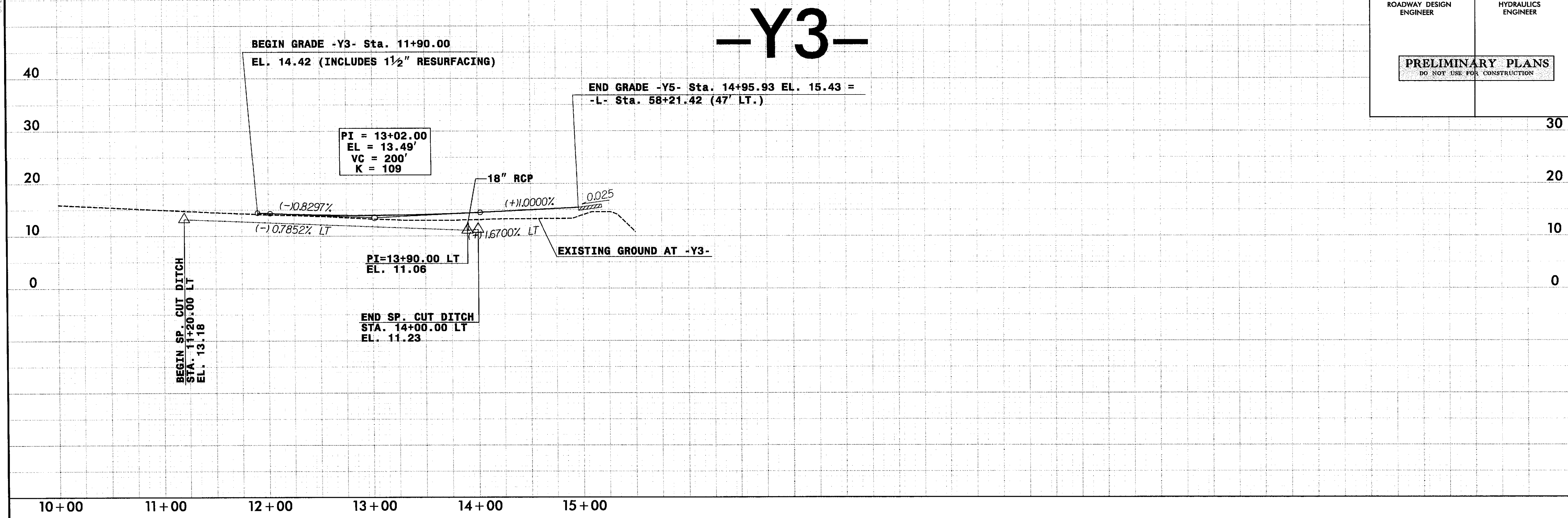


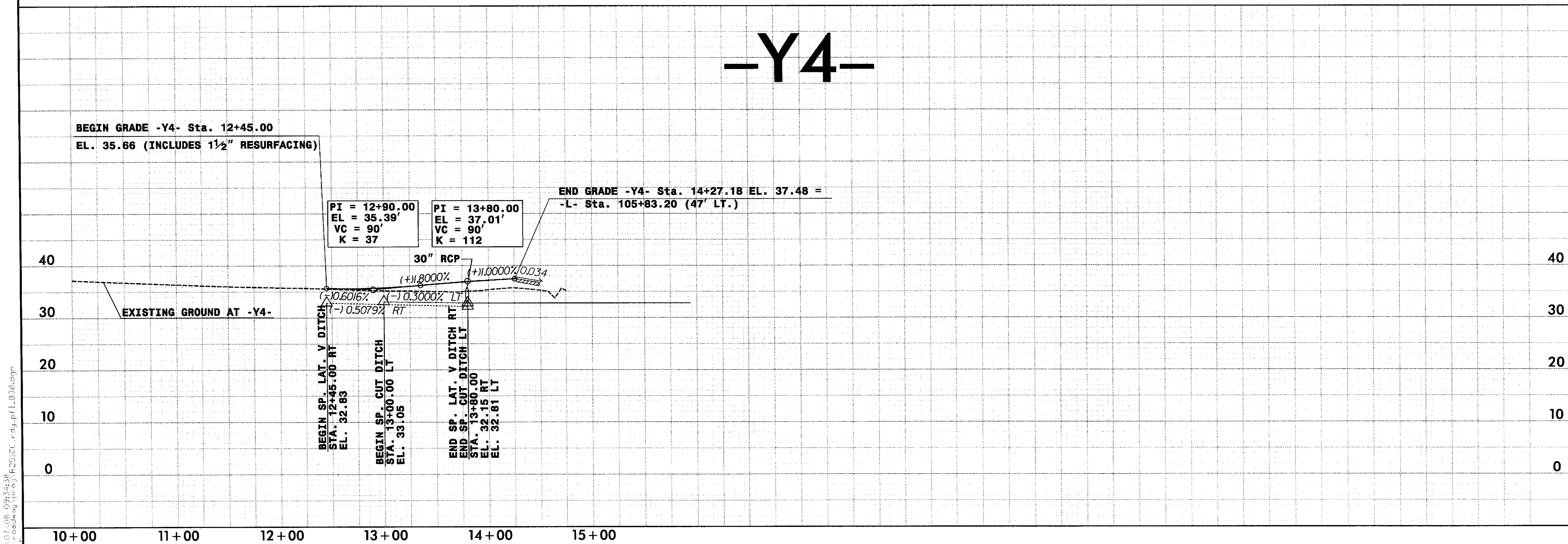
–L– (FUTURE)



PROJECT REFERENCE NO.	SHEET NO.
R-2510C	30
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

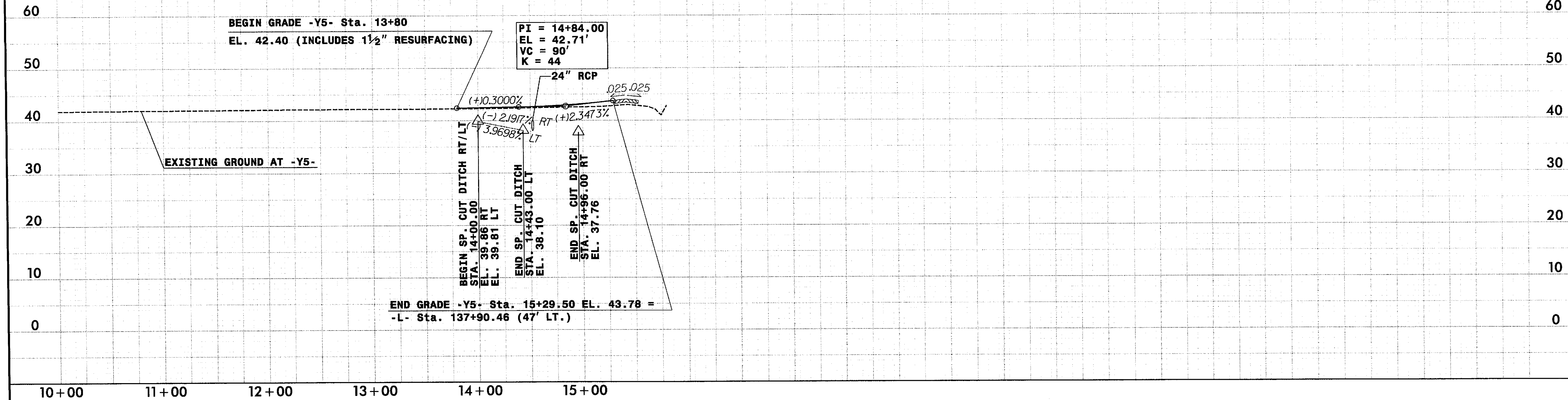




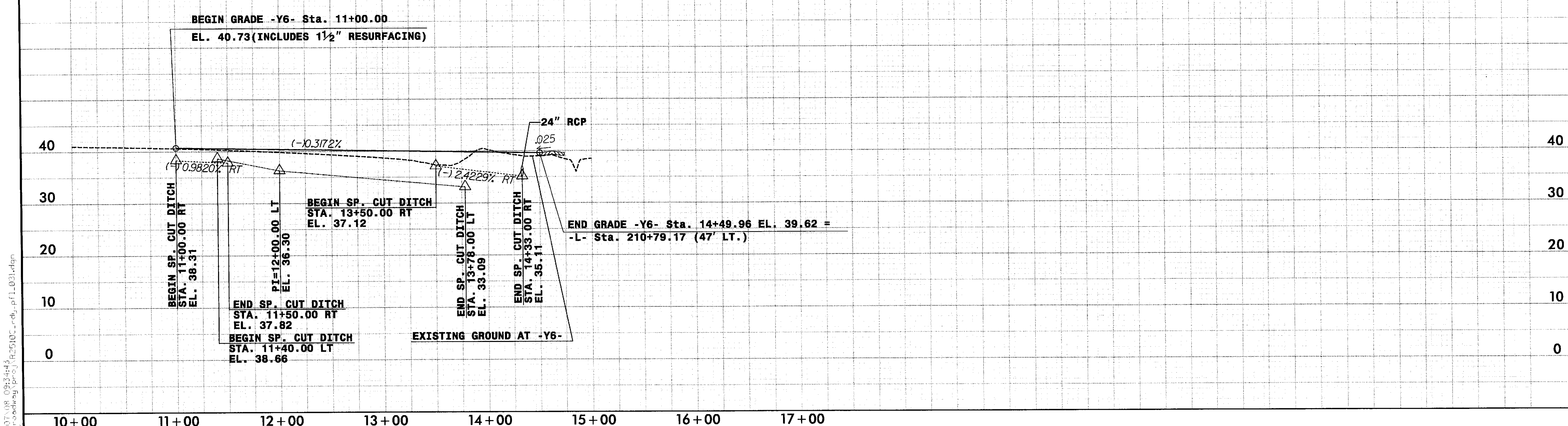
PROJECT REFERENCE NO.	SHEET NO.
R-2510C	31
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y5-

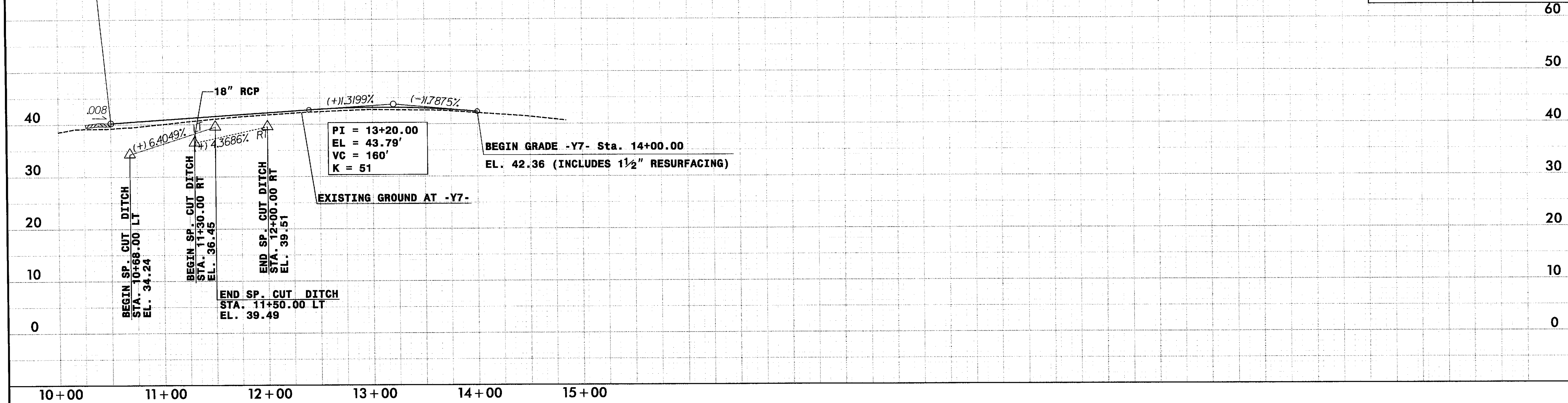


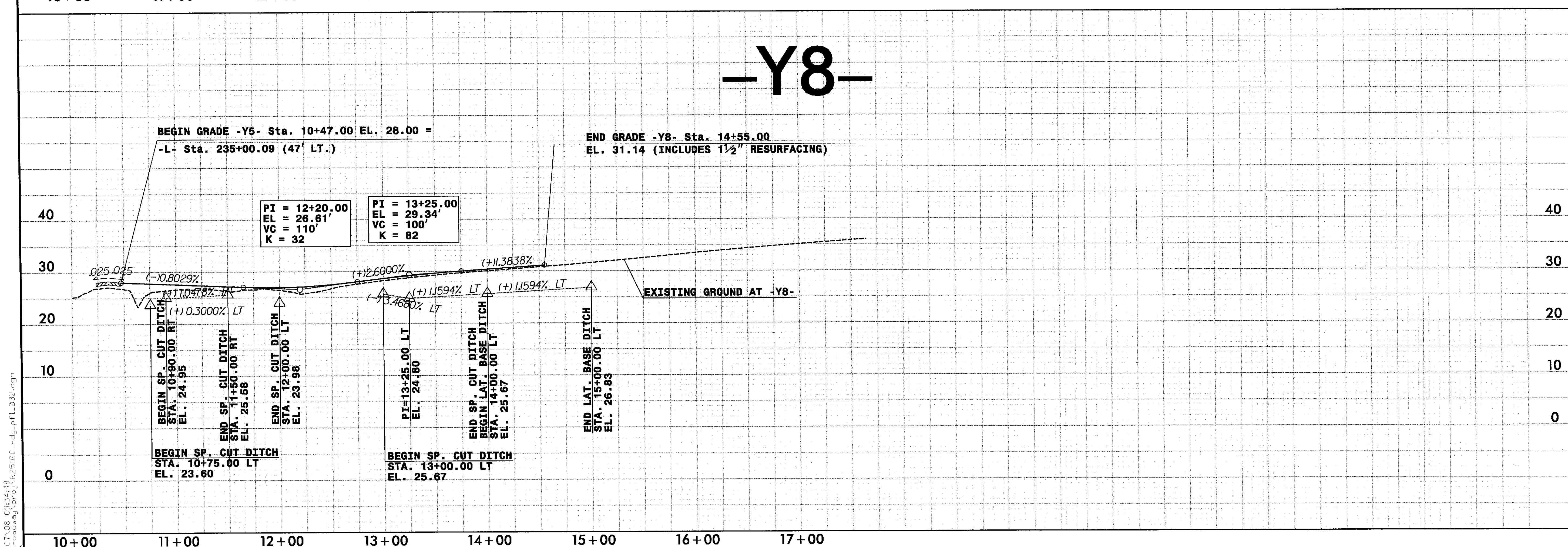
-Y6-



PROJECT REFERENCE NO.	SHEET NO.
R-2510C	32
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





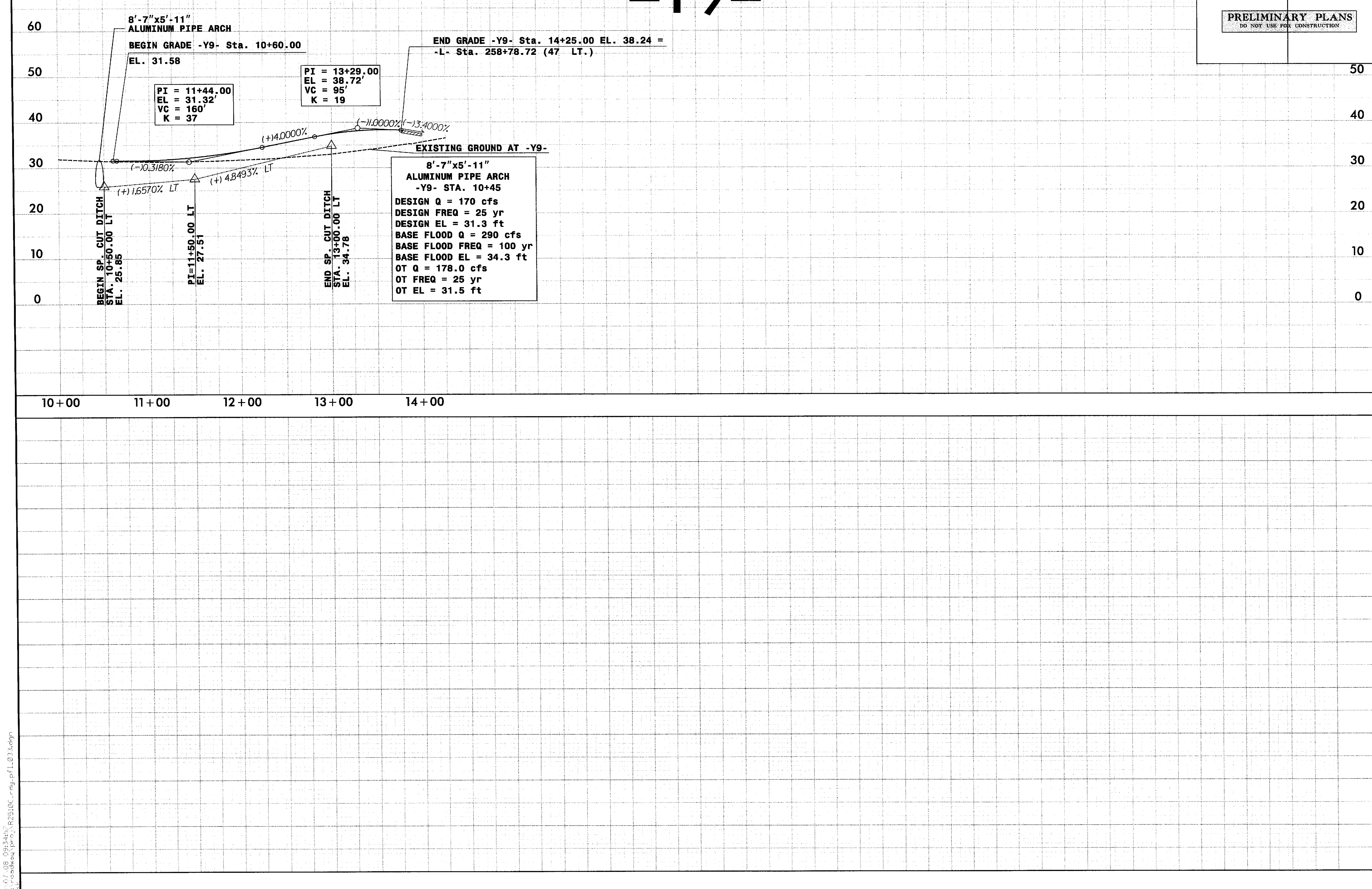
PROJECT REFERENCE NO.	SHEET NO.
R-2510C	33

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y9-



PROJ. REFERENCE NO.	SHEET NO.
R-2510C	X-0

PRE FIELD INSPECTION REVIEW PLANS MAY 1, 2006

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

US 17 IMPROVEMENTS

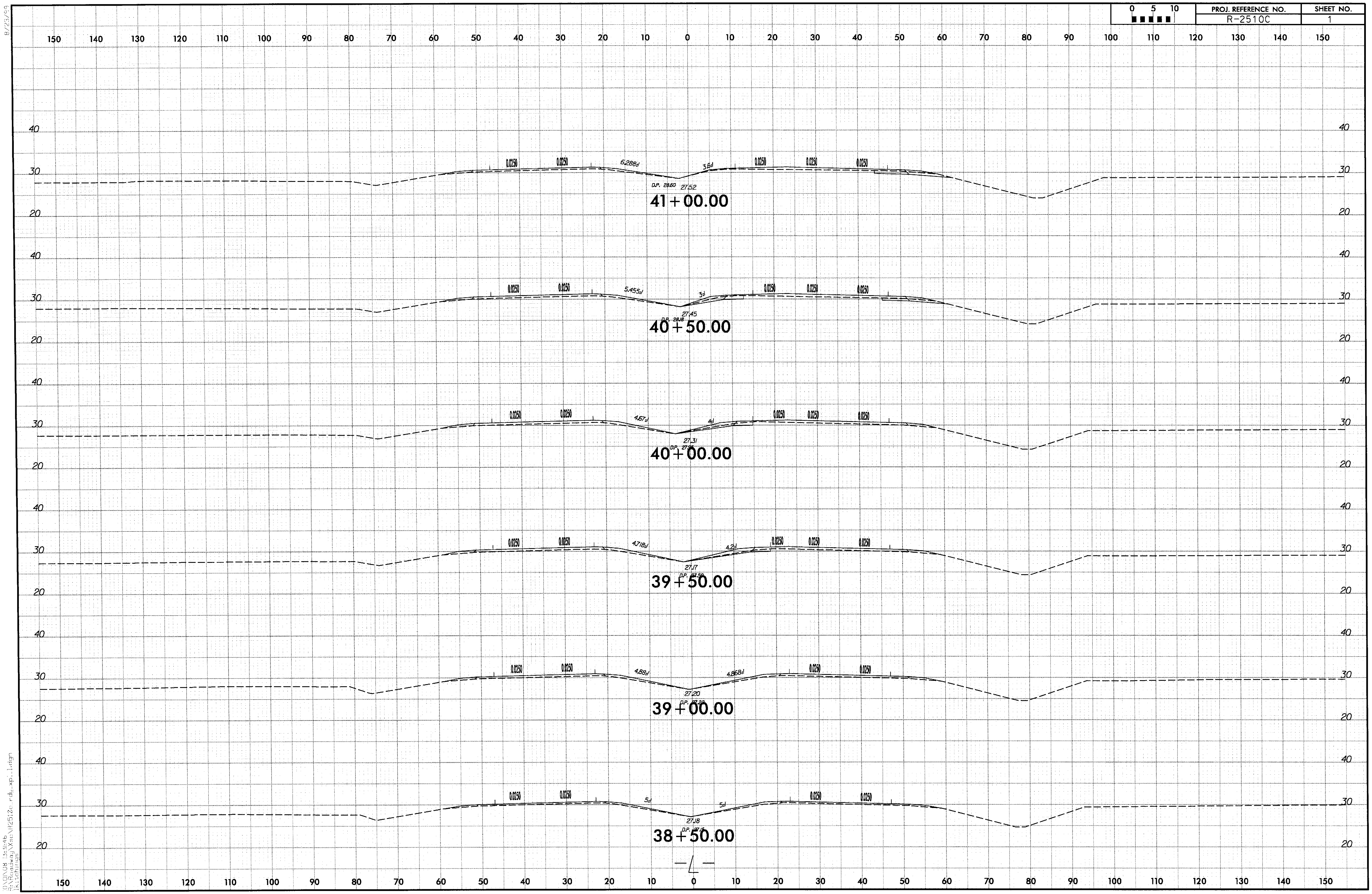
US 17 SOUTH OF SR 1001 (CHERRY RUN RD.) TO NORTH OF NC 171

STATE PROJECT # 34440.1.1
F.A. PROJECT # MAF-75-3 (26)
TIP # R-2510C

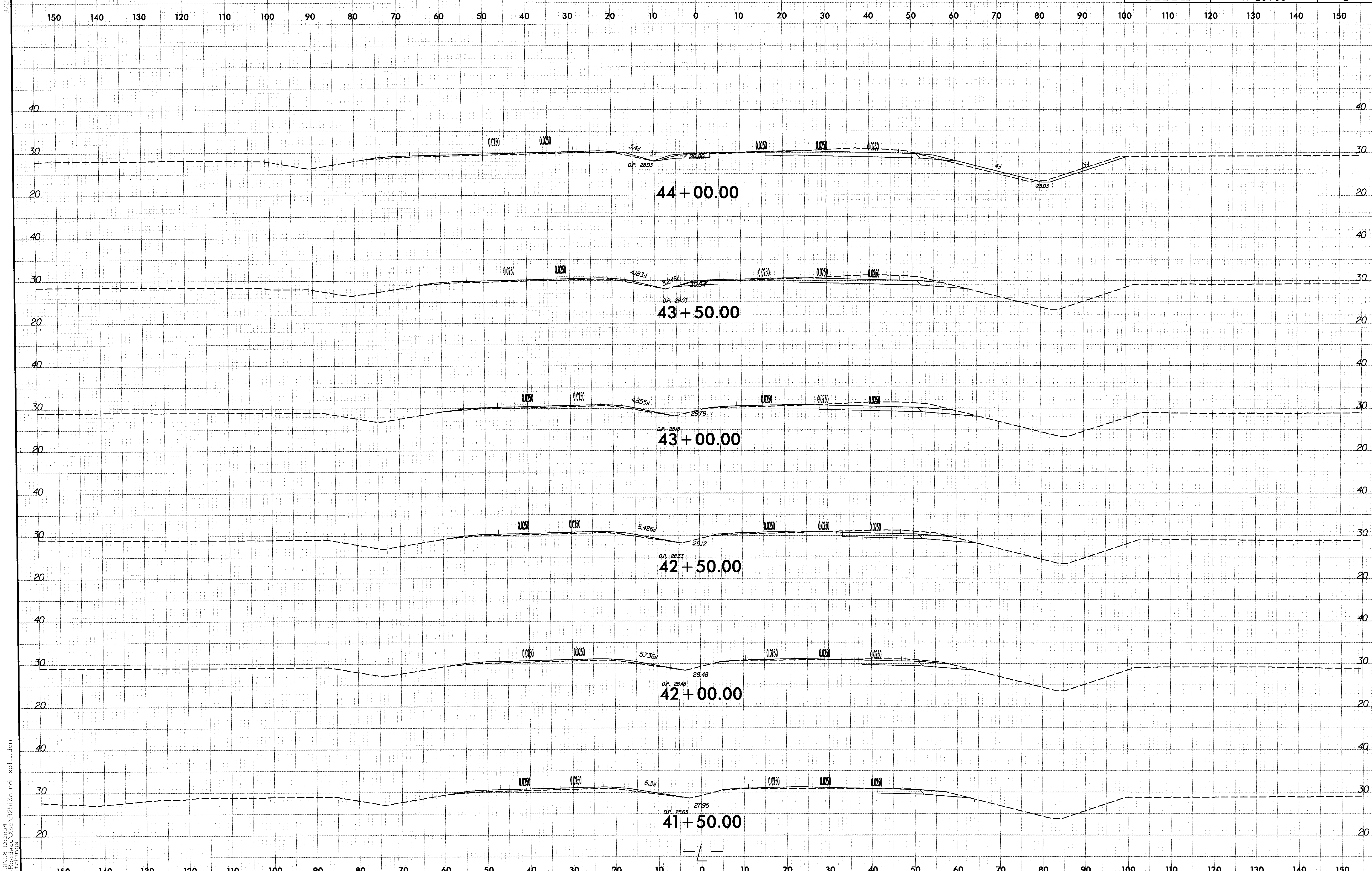
SUMMARY OF CROSS SECTIONS

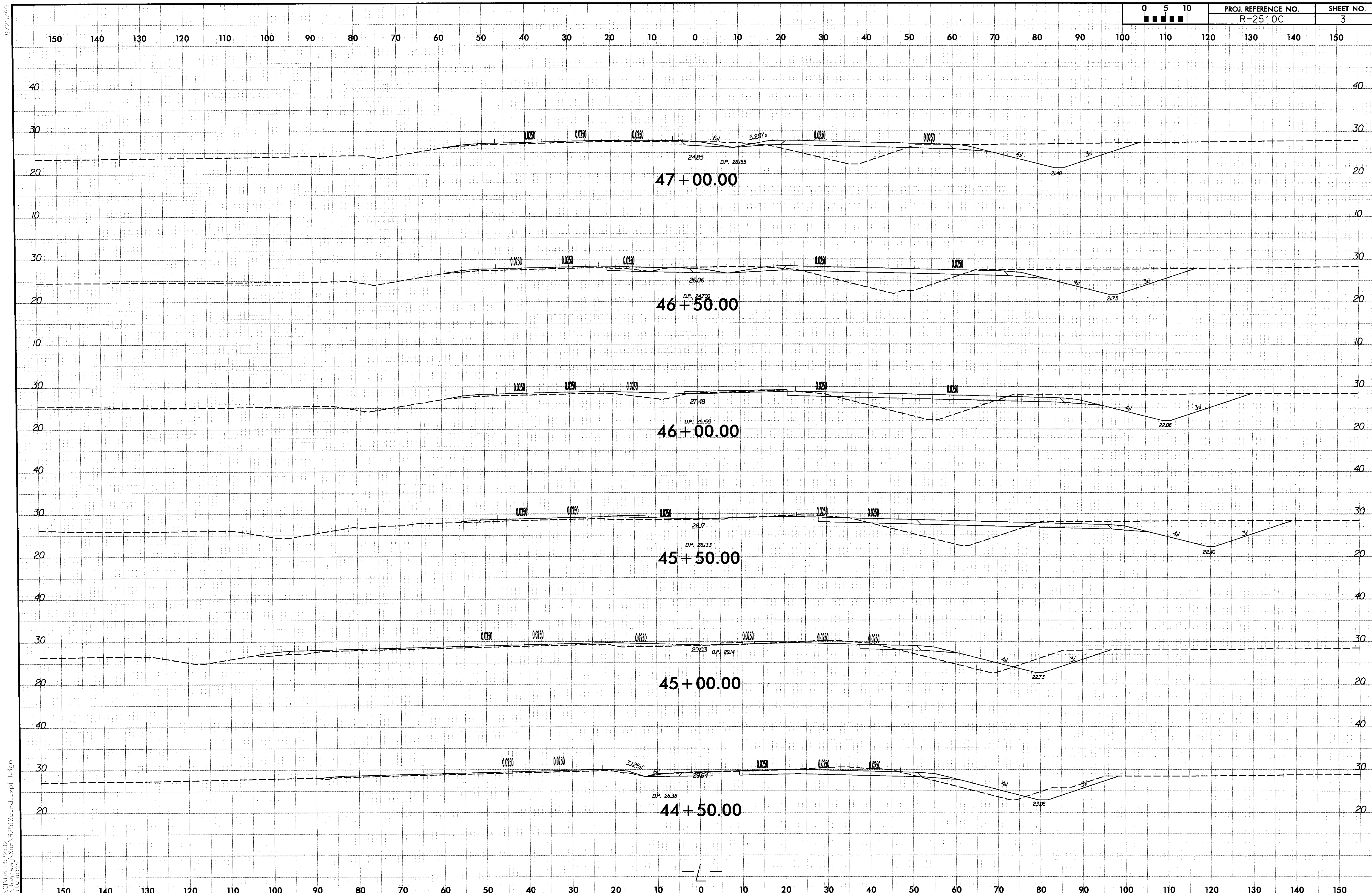
LINE	SHEET NO.
-L-	X-1 THRU X-77
-Y3-	X-78 THRU X-79
-Y4-	X-80 THRU X-81
-Y5-	X-82
-Y6-	X-83 THRU X-84
-Y7-	X-85 THRU X-86
-Y8-	X-87 THRU X-89
-Y9-	X-90 THRU X-91

"QUANTITIES ARE APPROXIMATE ONLY. THE RESIDENT ENGINEER WILL RECROSS-SECTION THE WORK ACCURATELY WHEN THE PROJECT IS STAKED OUT. THESE CROSS-SECTION NOTES WILL BE USED IN COMPUTING THE FINAL QUANTITIES FOR WHICH THE CONTRACTOR WILL BE PAID."


PROJ. REFERENCE NO.
R-2510C
SHEET NO.
1
41+00.00
40+50.00
40+00.00
39+50.00
39+00.00
38+50.00

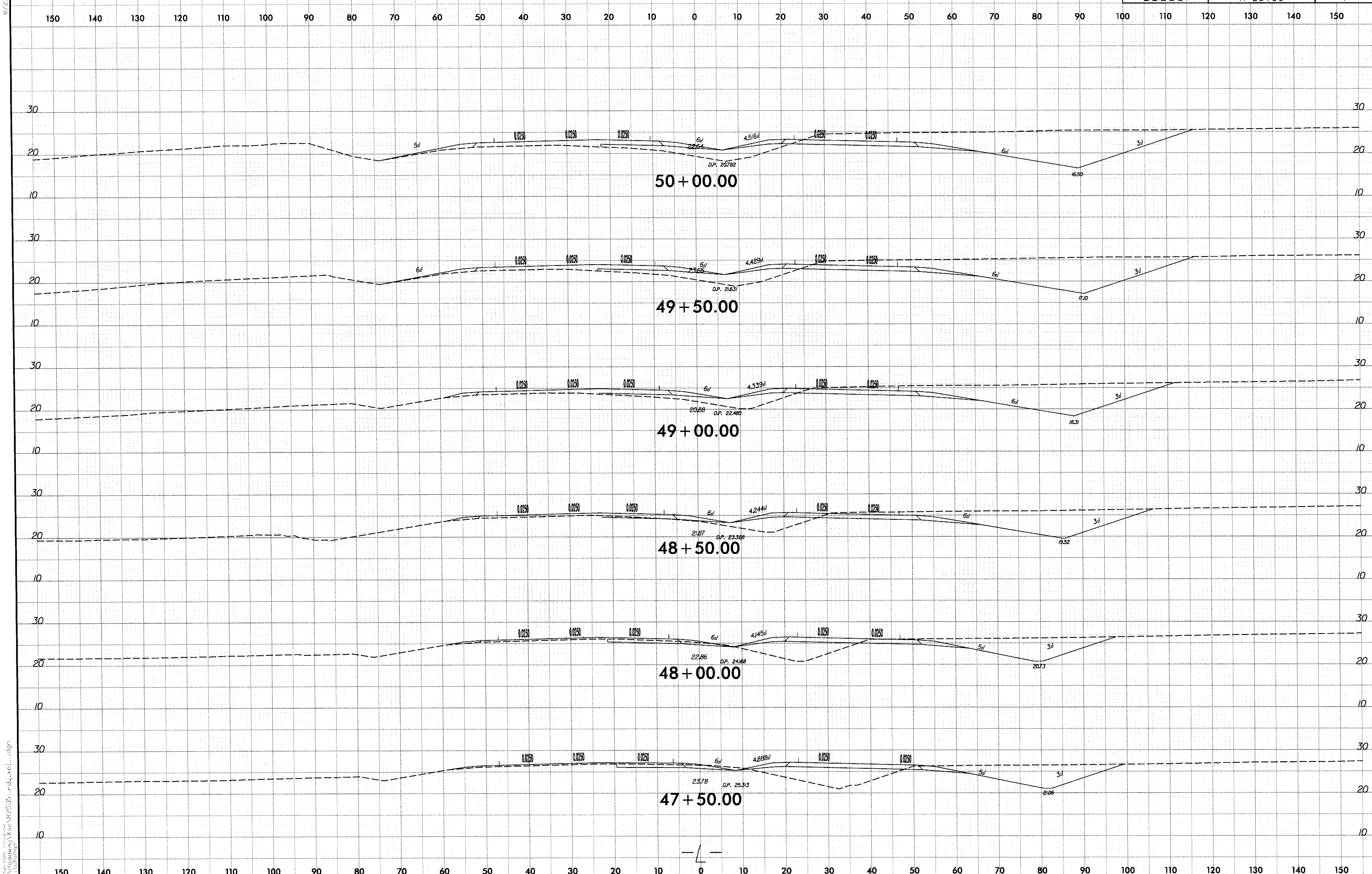
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2510C	2



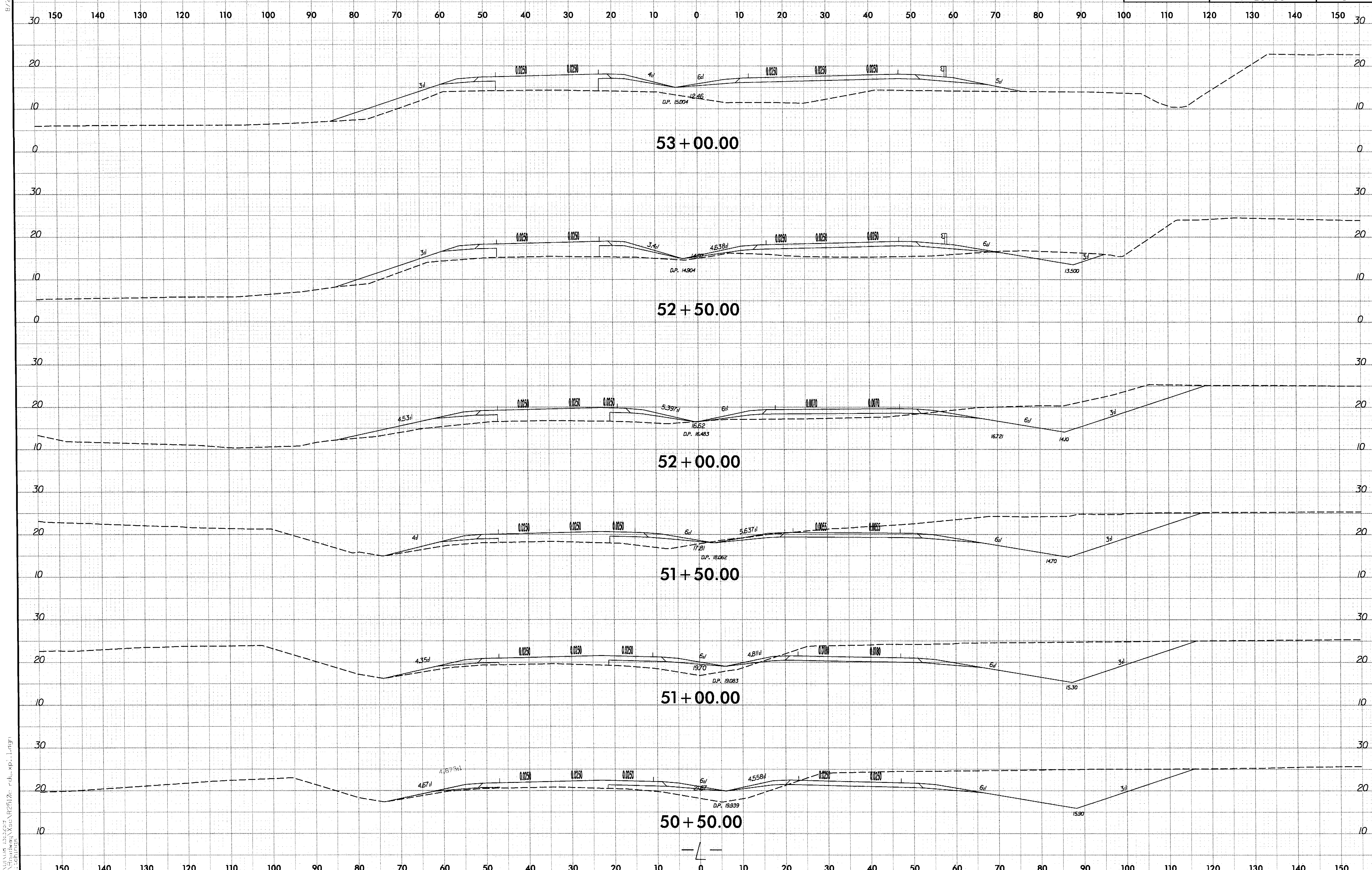


PROJ. REFERENCE NO.
R-2510C
SHEET NO.
3
0 5 10
47+00.00
D.P. 26.55
24.85
21.40
46+50.00
D.P. 24.700
26.06
21.73
46+00.00
D.P. 25.55
27.48
22.06
45+50.00
D.P. 26.33
28.17
22.40
45+00.00
29.03
D.P. 29.14
22.73
44+50.00
D.P. 28.38
29.64
23.06
-L-

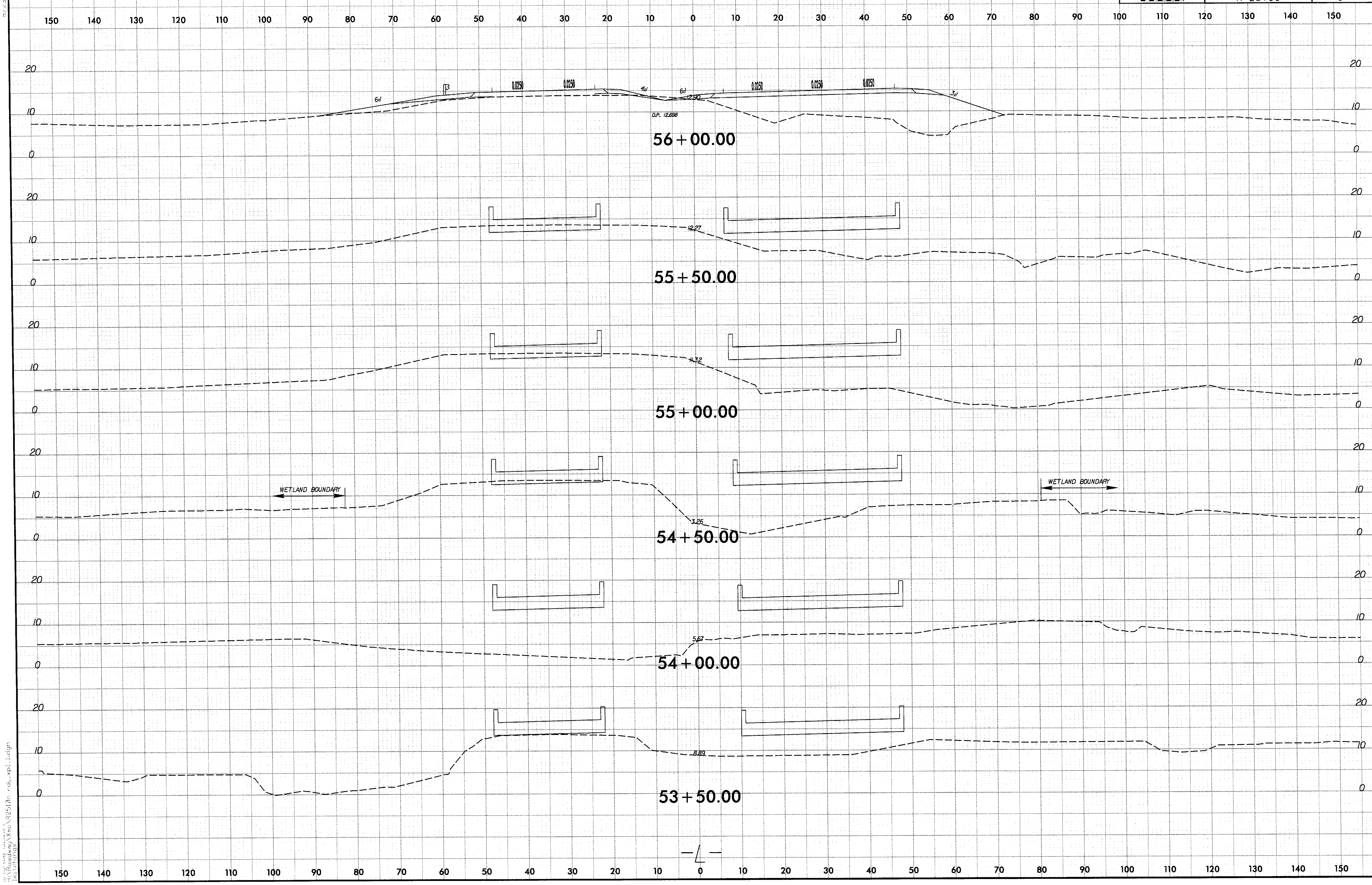
PROJ. REFERENCE NO.	SHEET NO.
R-2510C	4

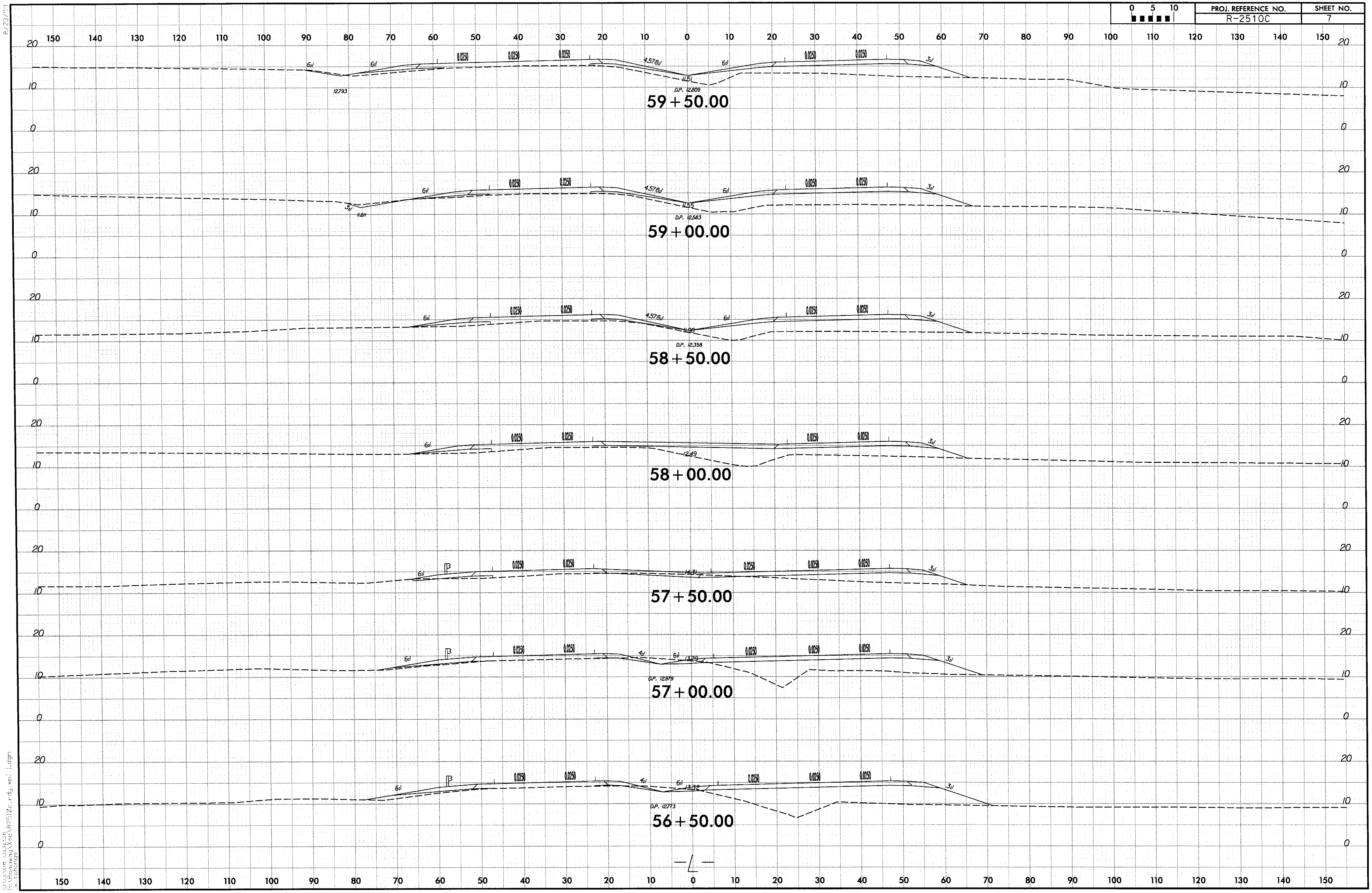


PROJ. REFERENCE NO.	SHEET NO.
R-2510C	5

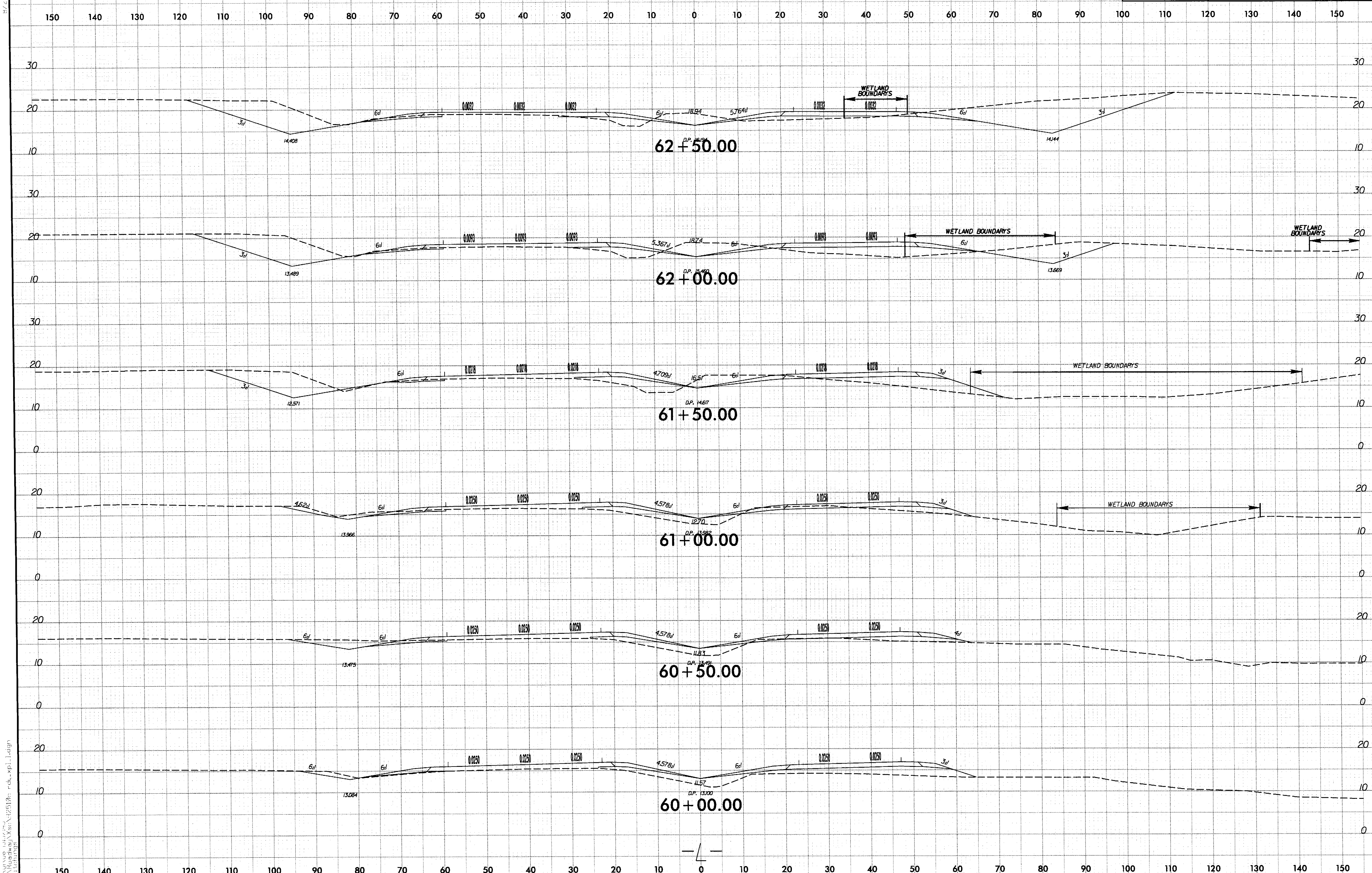


PROJ. REFERENCE NO.	SHEET NO.
R-2510C	6

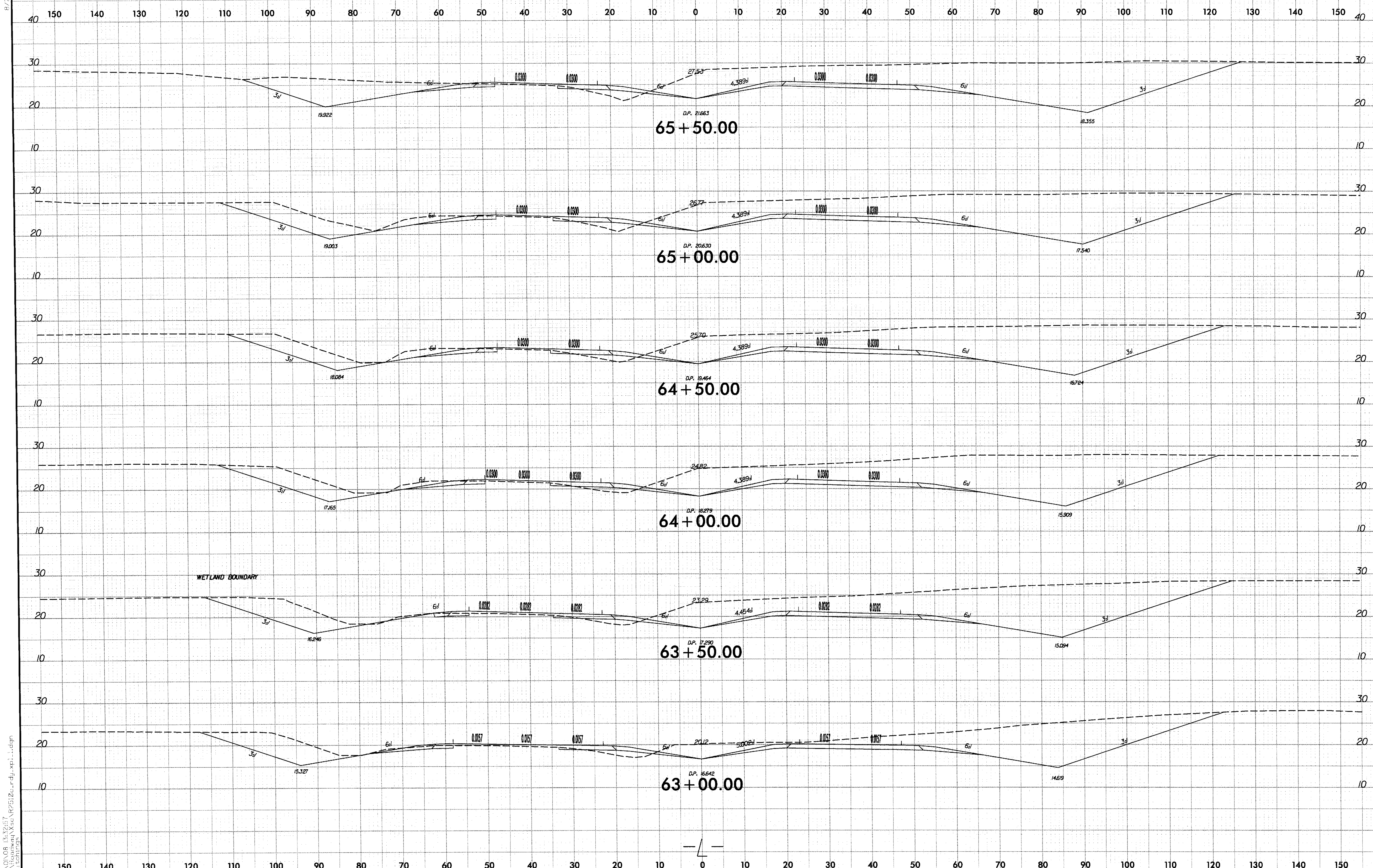



0 5 10
PROJ. REFERENCE NO.
R-2510C
SHEET NO.
7
59+50.00
D.P. 12.809
12.793
59+00.00
D.P. 12.583
58+50.00
D.P. 12.358
58+00.00
57+50.00
57+00.00
D.P. 12.979
56+50.00
D.P. 12.773
-L-

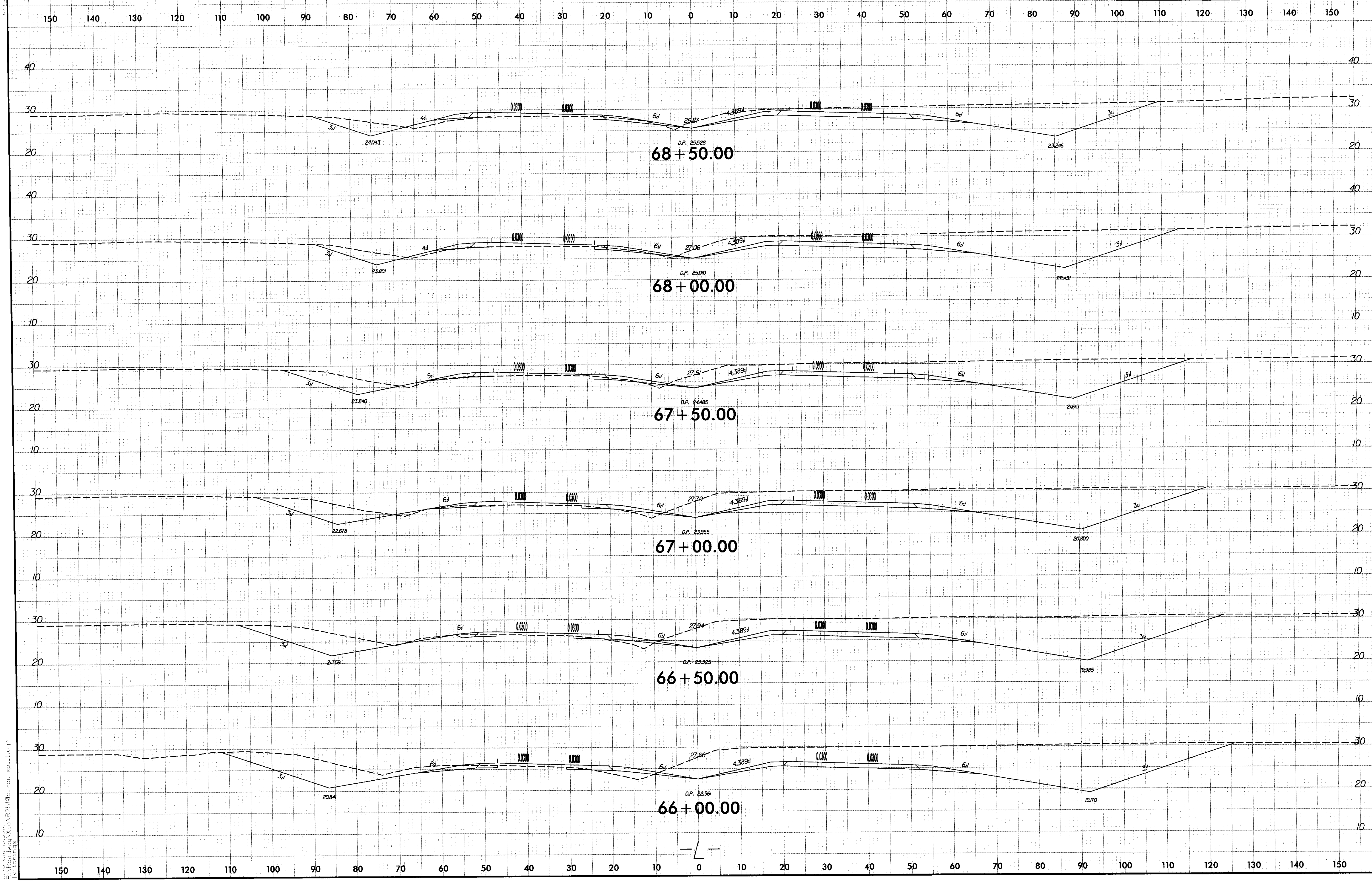
PROJ. REFERENCE NO.	SHEET NO.
R-2510C	8



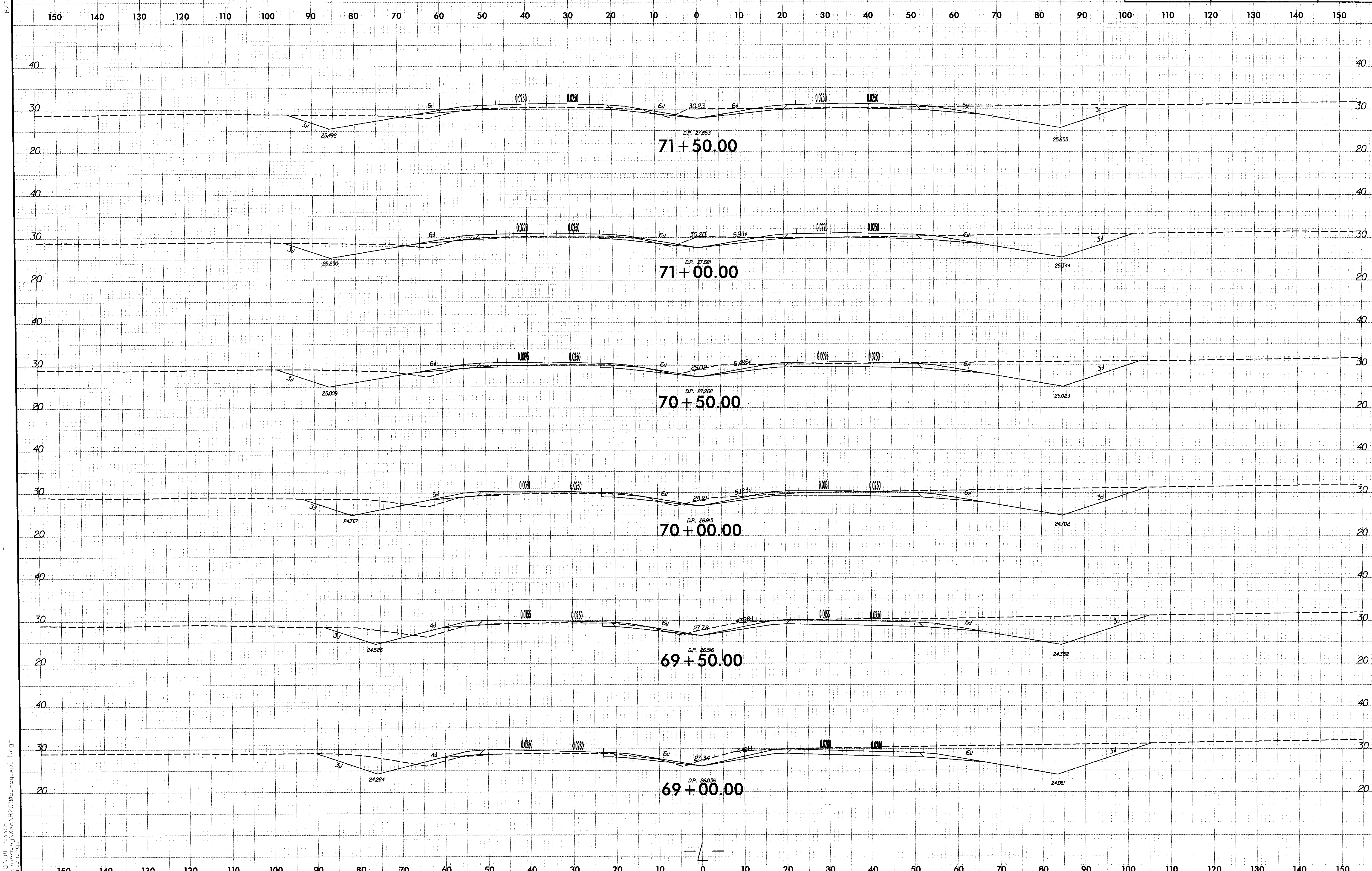
PROJ. REFERENCE NO.	SHEET NO.
R-2510C	9



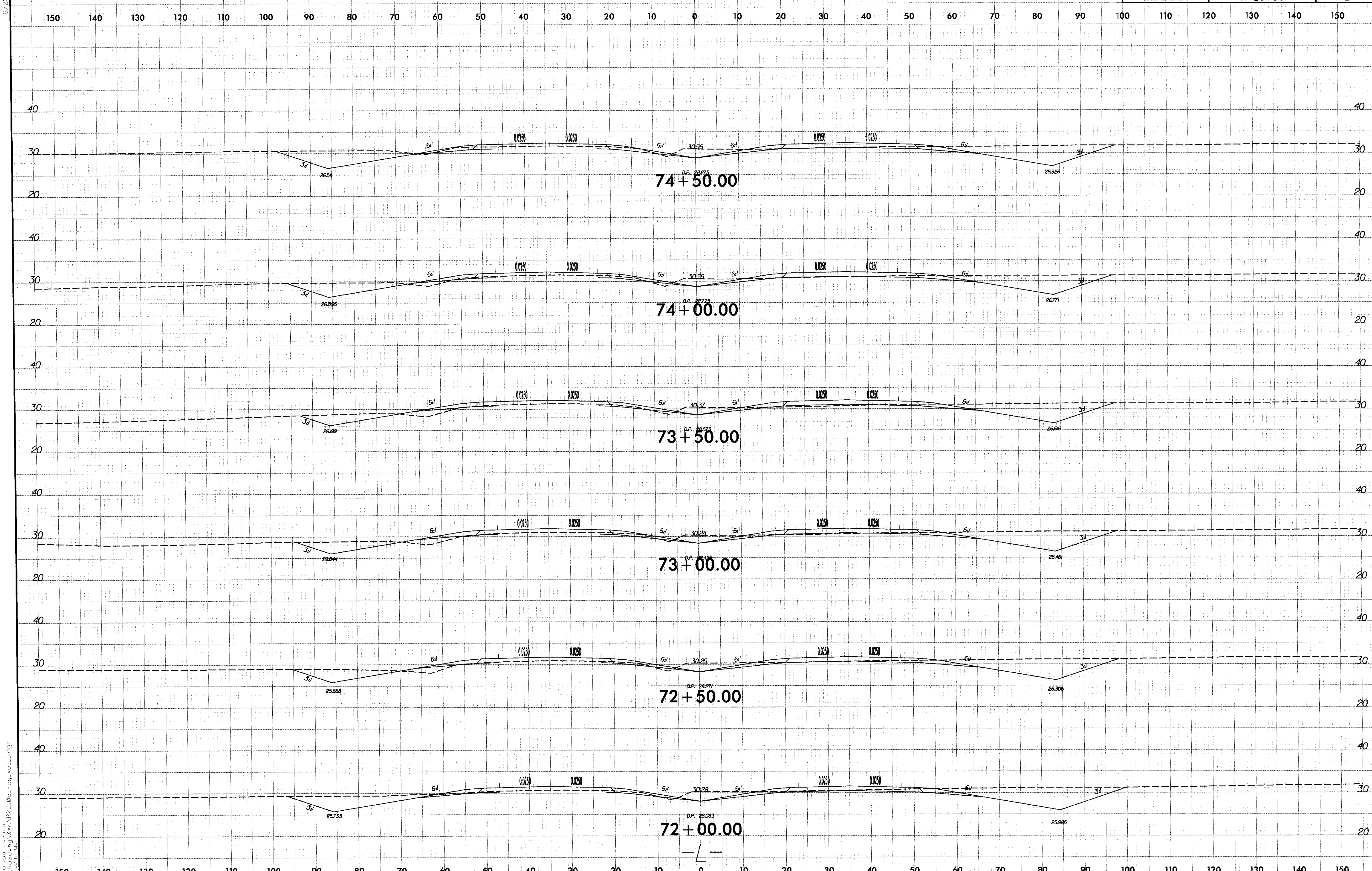
PROJ. REFERENCE NO.	SHEET NO.
R-2510C	10



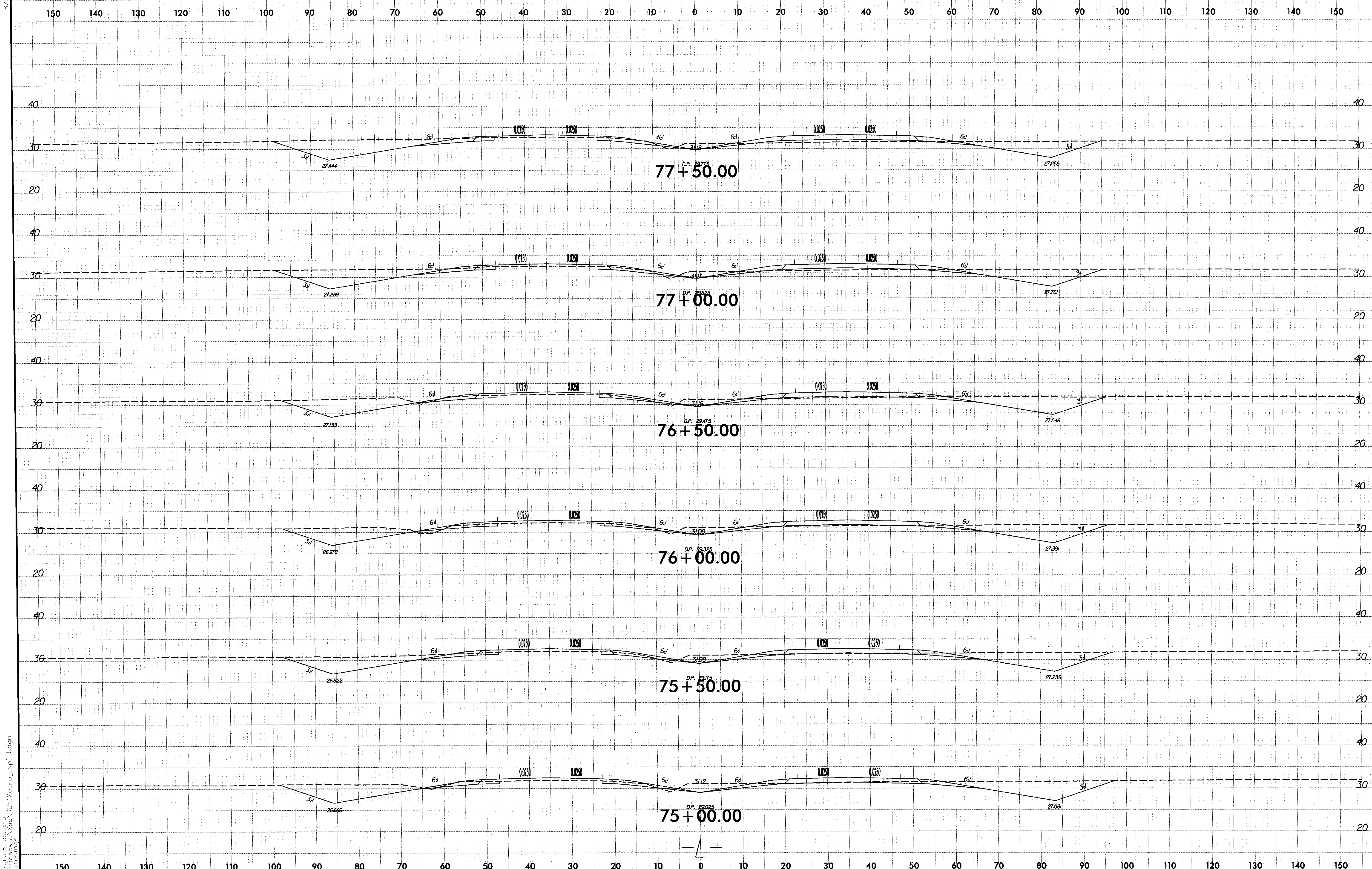
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2510C	11



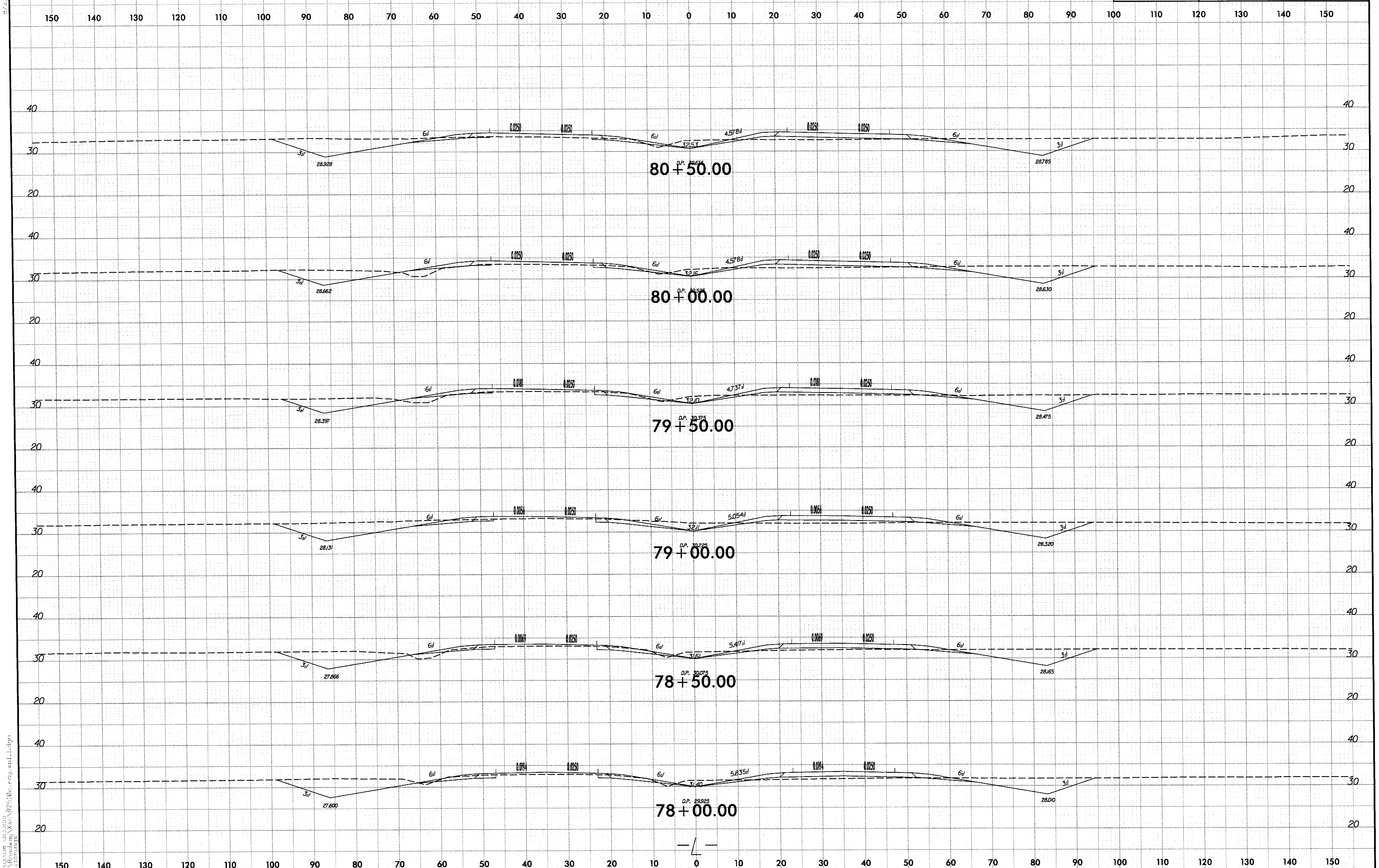
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2510C	12

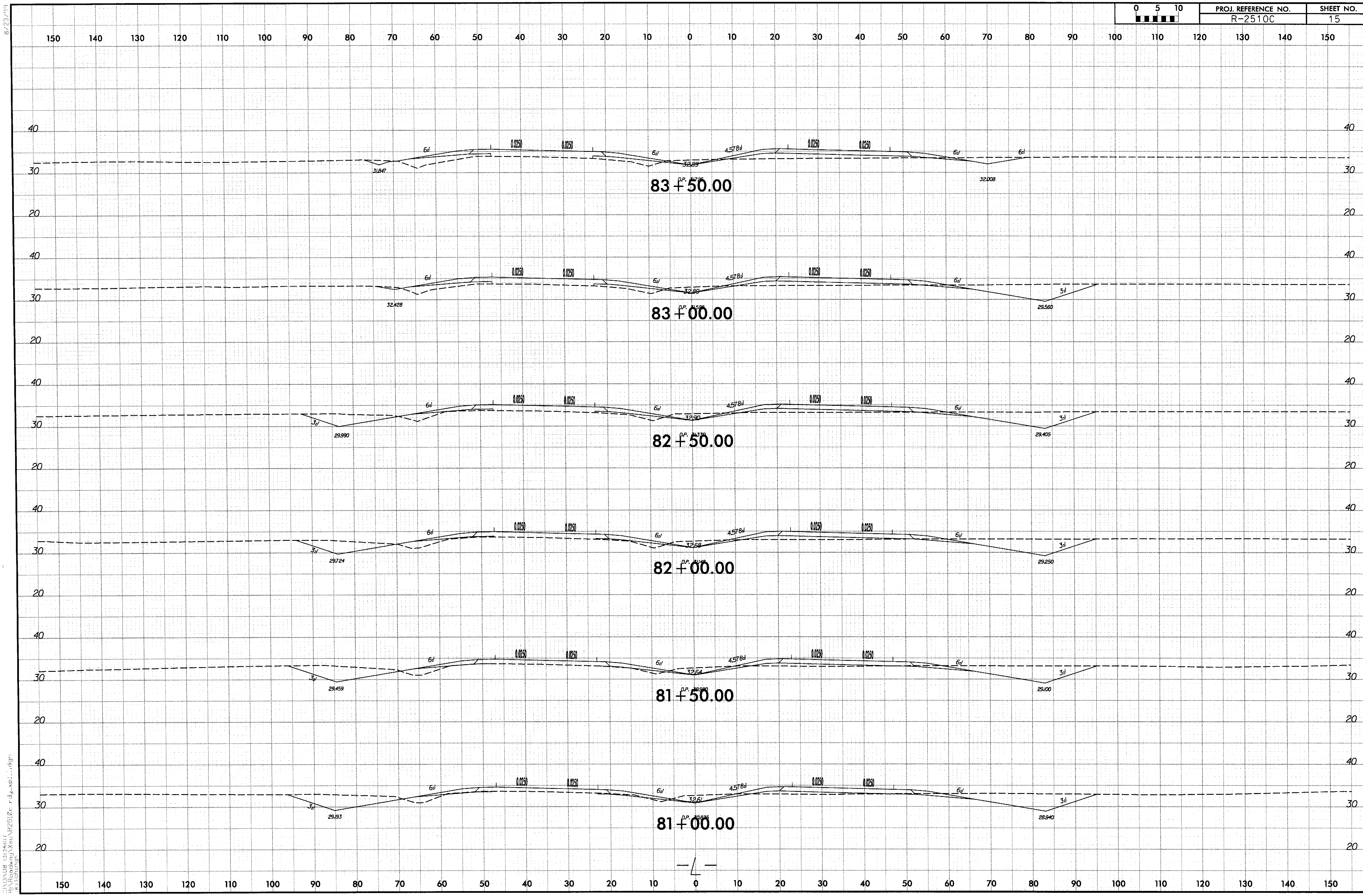


0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2510C	13

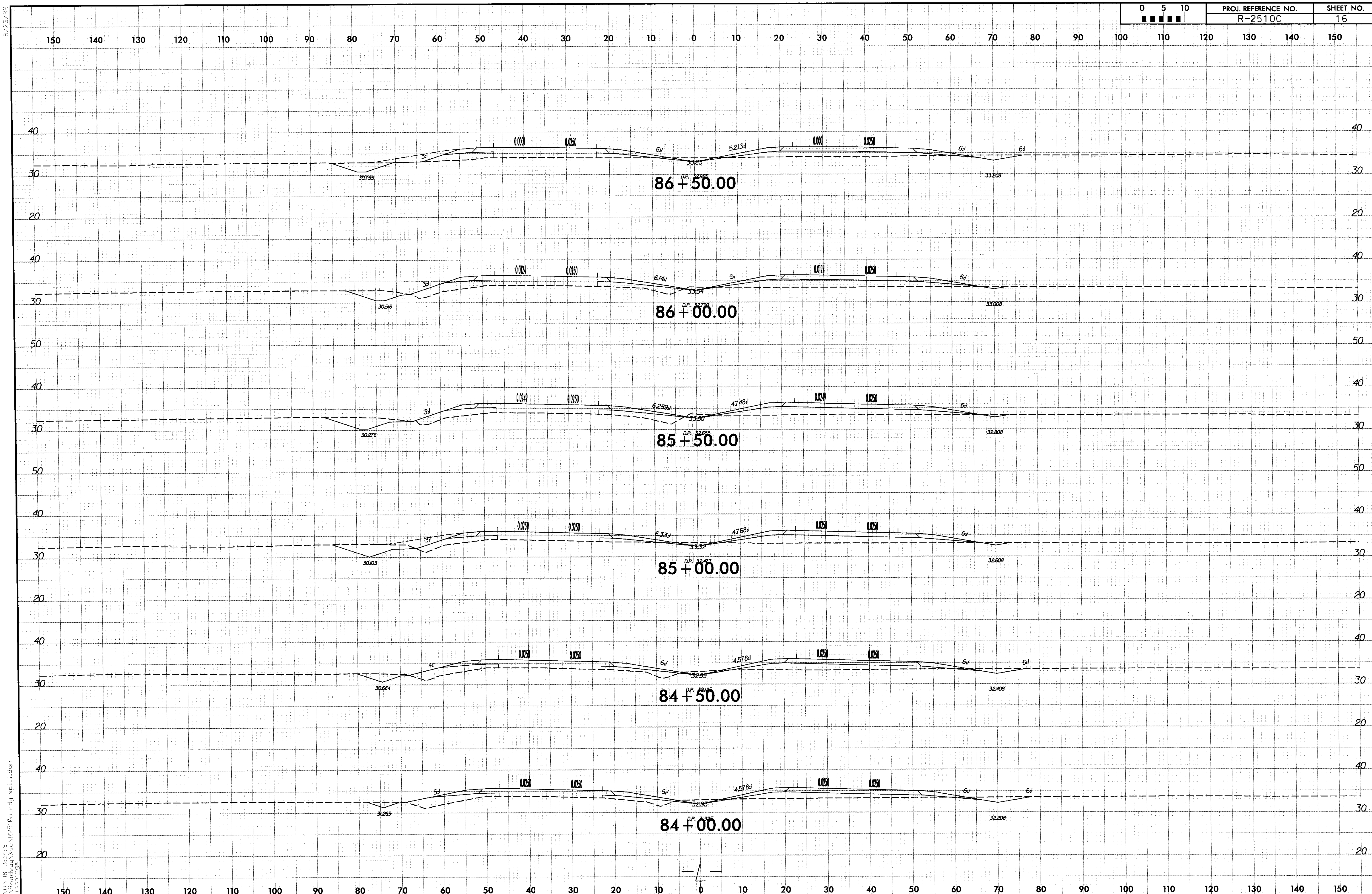


0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2510C	14

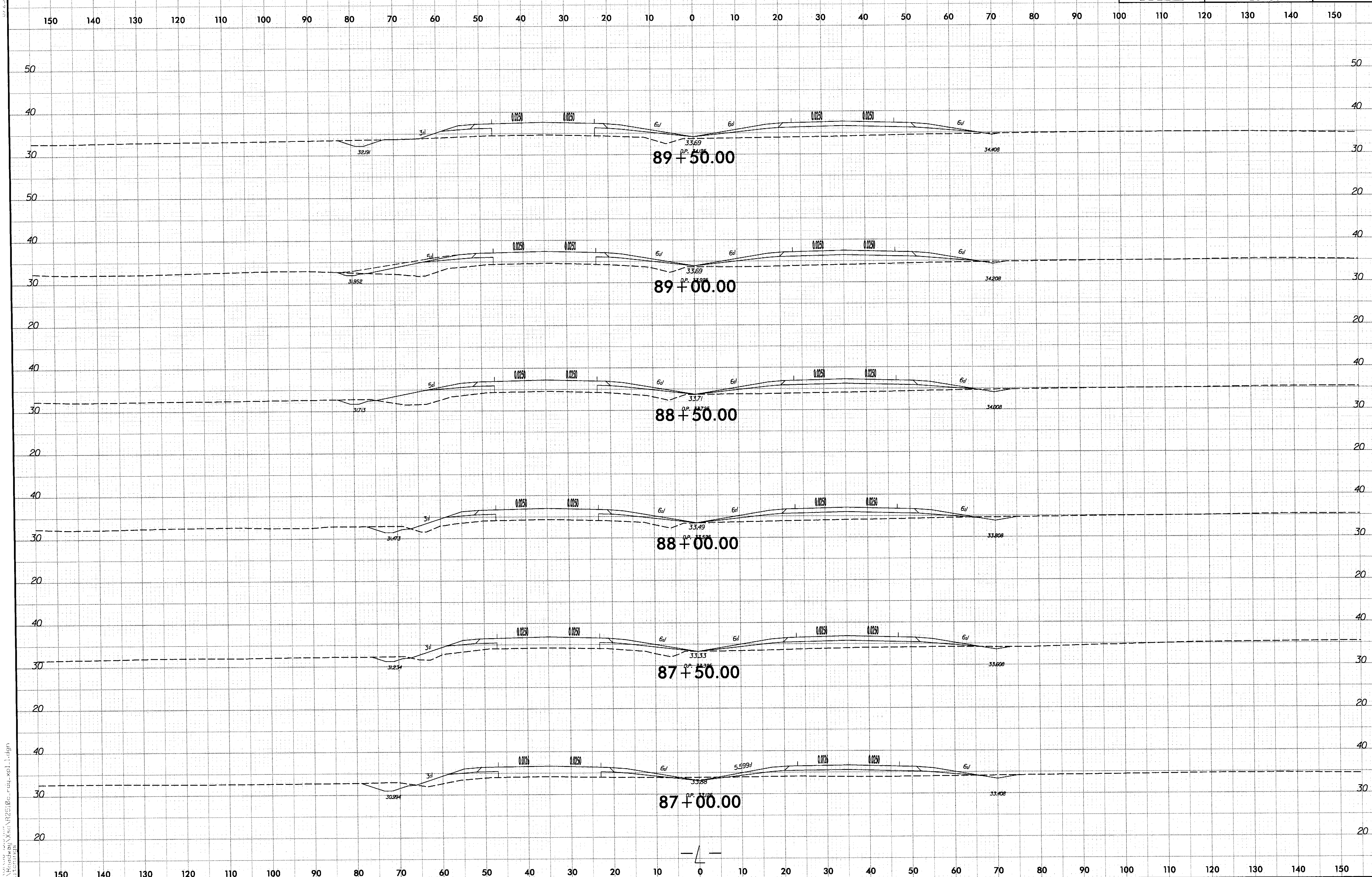




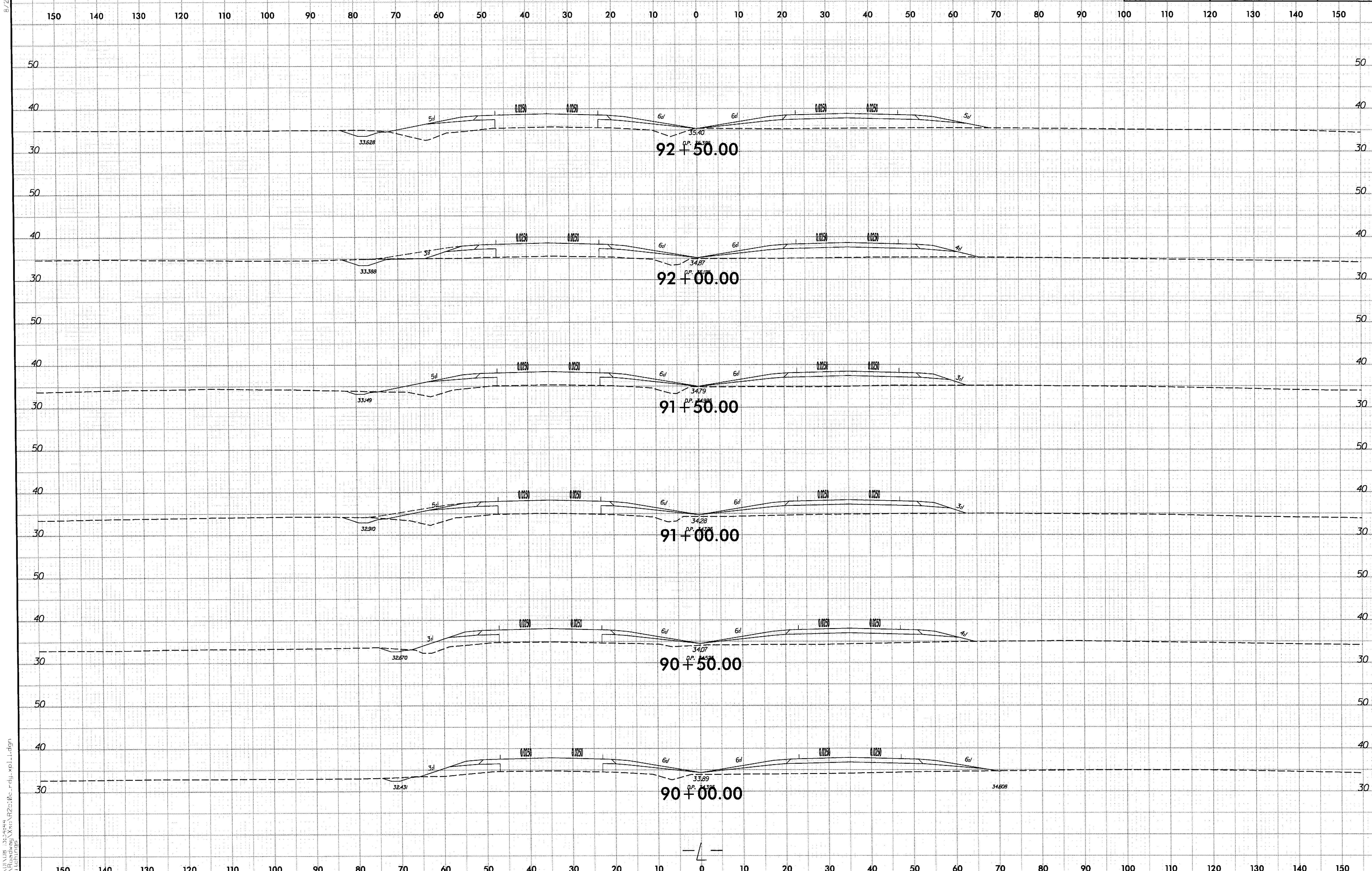
0 5 10
PROJ. REFERENCE NO.
R-2510C
SHEET NO.
15
83+50.00
83+00.00
82+50.00
82+00.00
81+50.00
81+00.00
-L-


PROJ. REFERENCE NO.
R-2510C
SHEET NO.
16
0 5 10
86+50.00
86+00.00
85+50.00
85+00.00
84+50.00
84+00.00

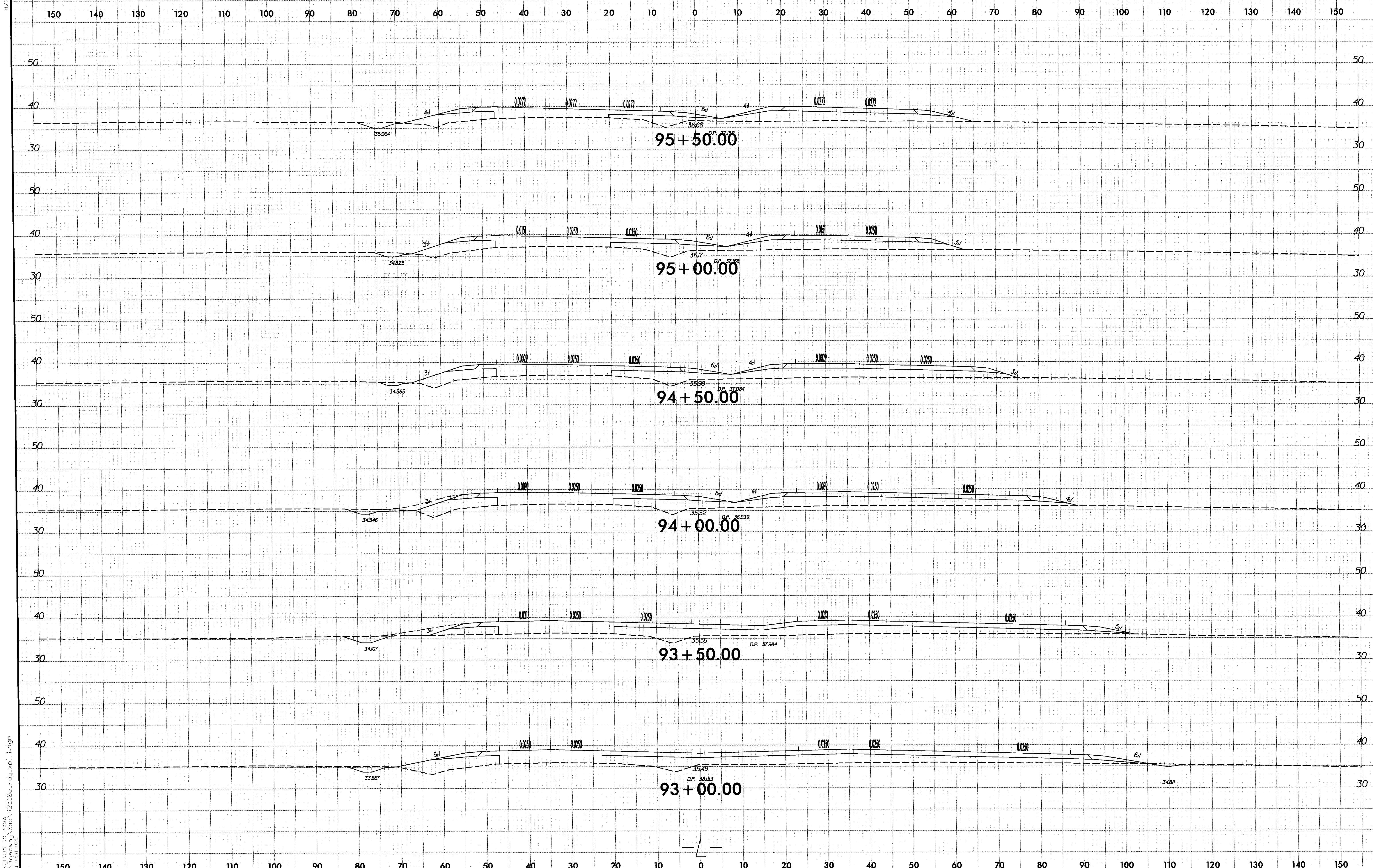
PROJ. REFERENCE NO.	SHEET NO.
R-2510C	17



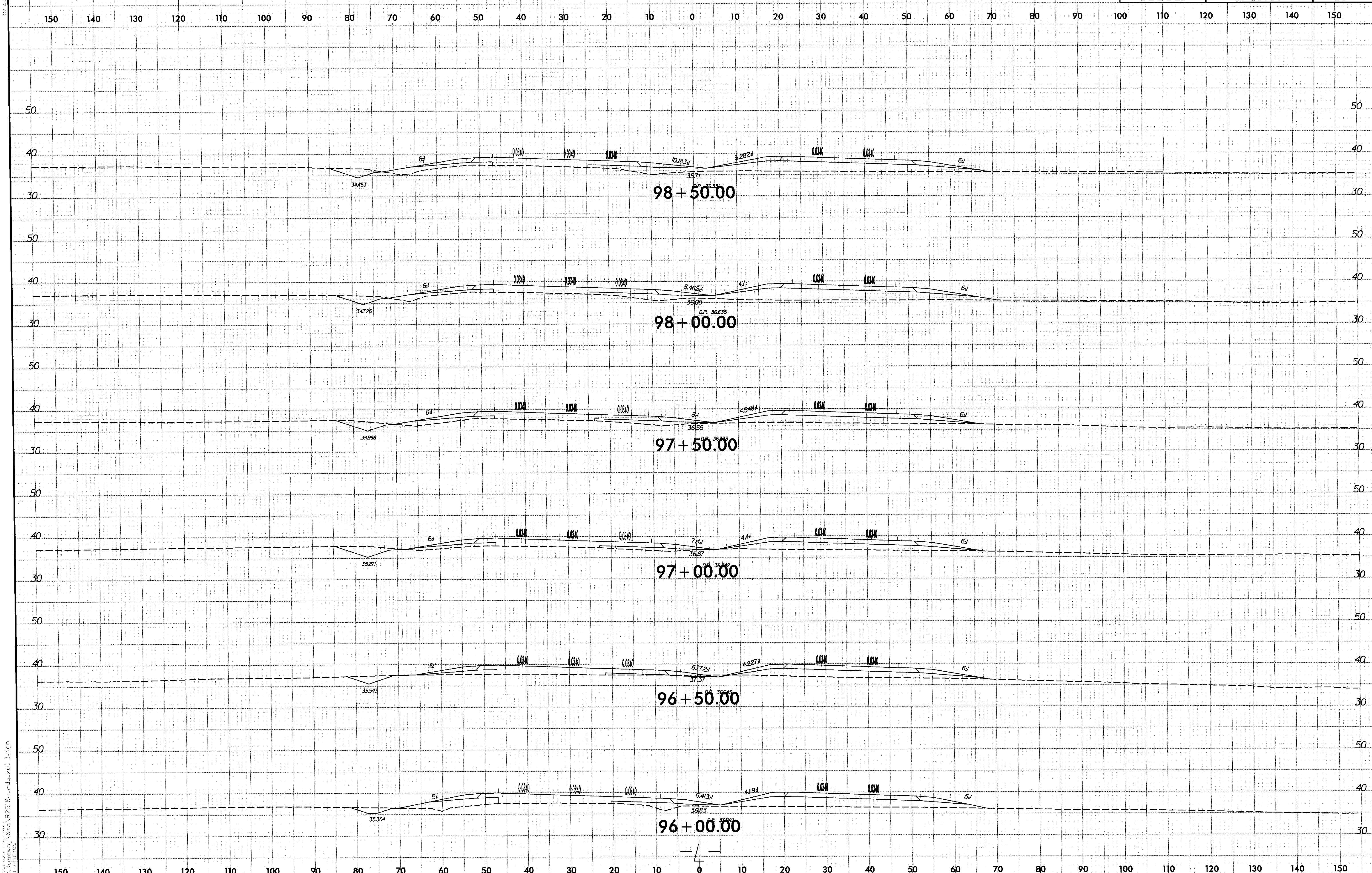
PROJ. REFERENCE NO.	SHEET NO.
R-2510C	18



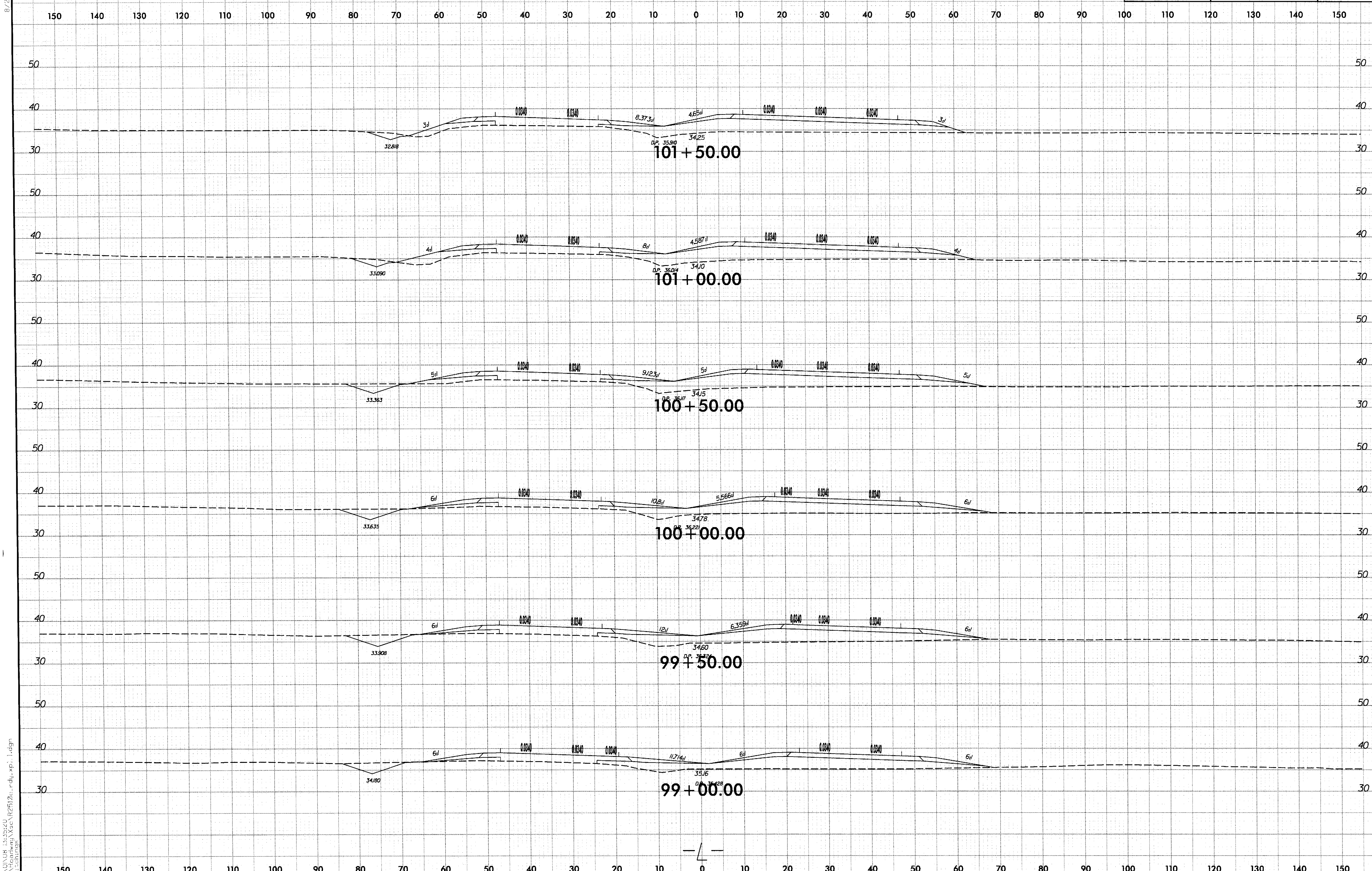
PROJ. REFERENCE NO.	SHEET NO.
R-2510C	19



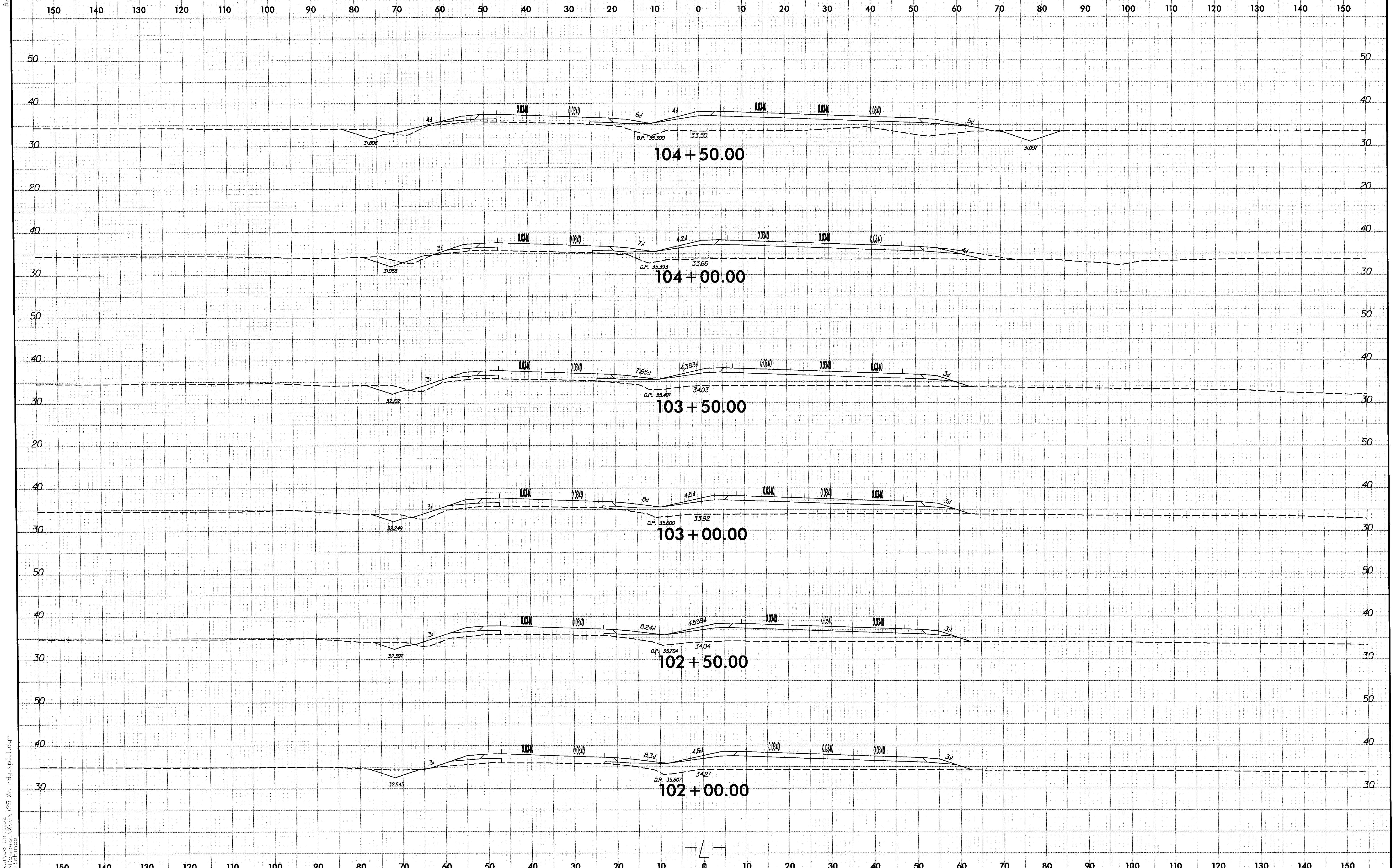
PROJ. REFERENCE NO.	SHEET NO.
R-2510C	20



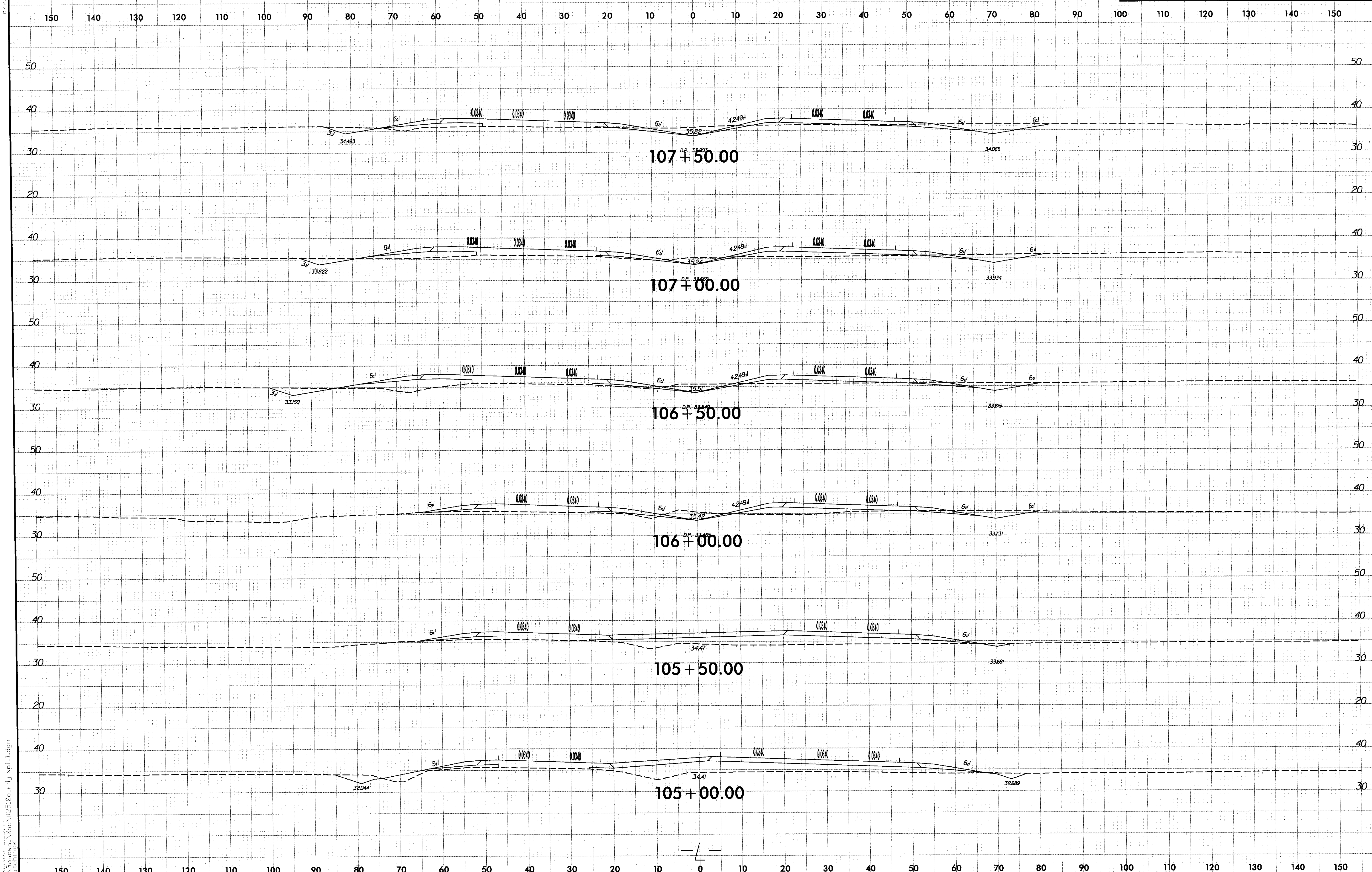
PROJ. REFERENCE NO.	SHEET NO.
R-2510C	21



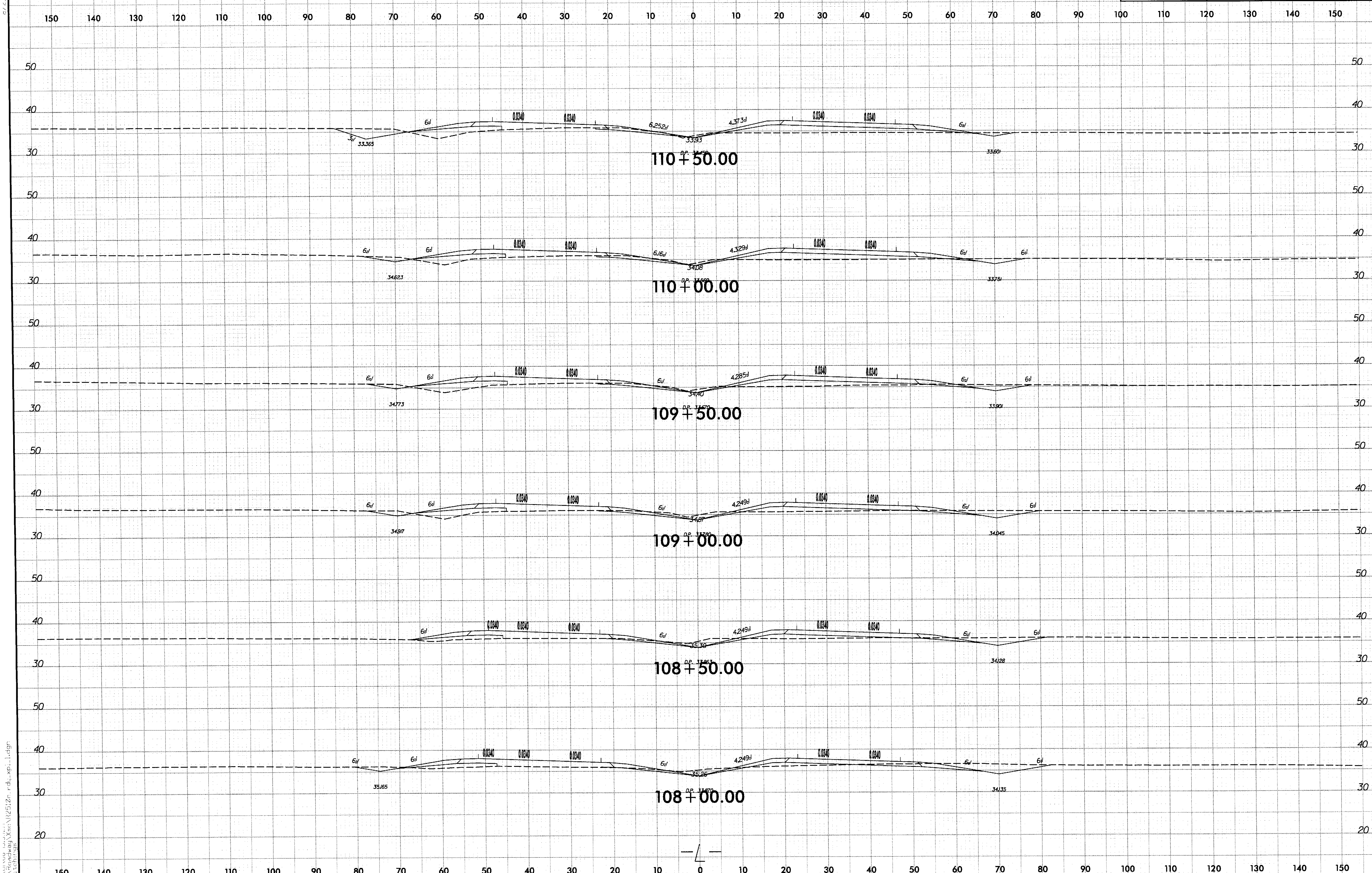
PROJ. REFERENCE NO.	SHEET NO.
R-2510C	22



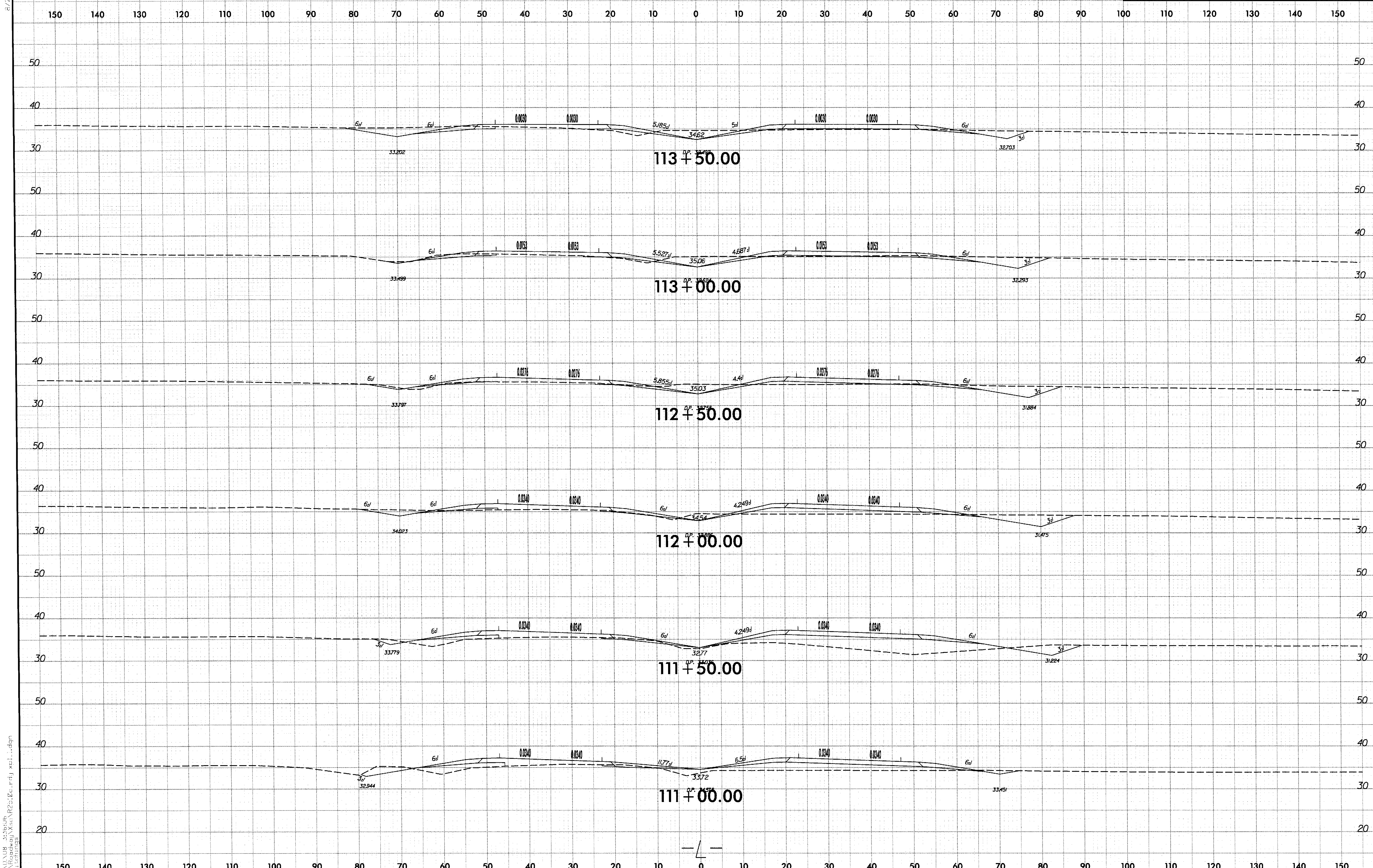
PROJ. REFERENCE NO.	SHEET NO.
R-2510C	23



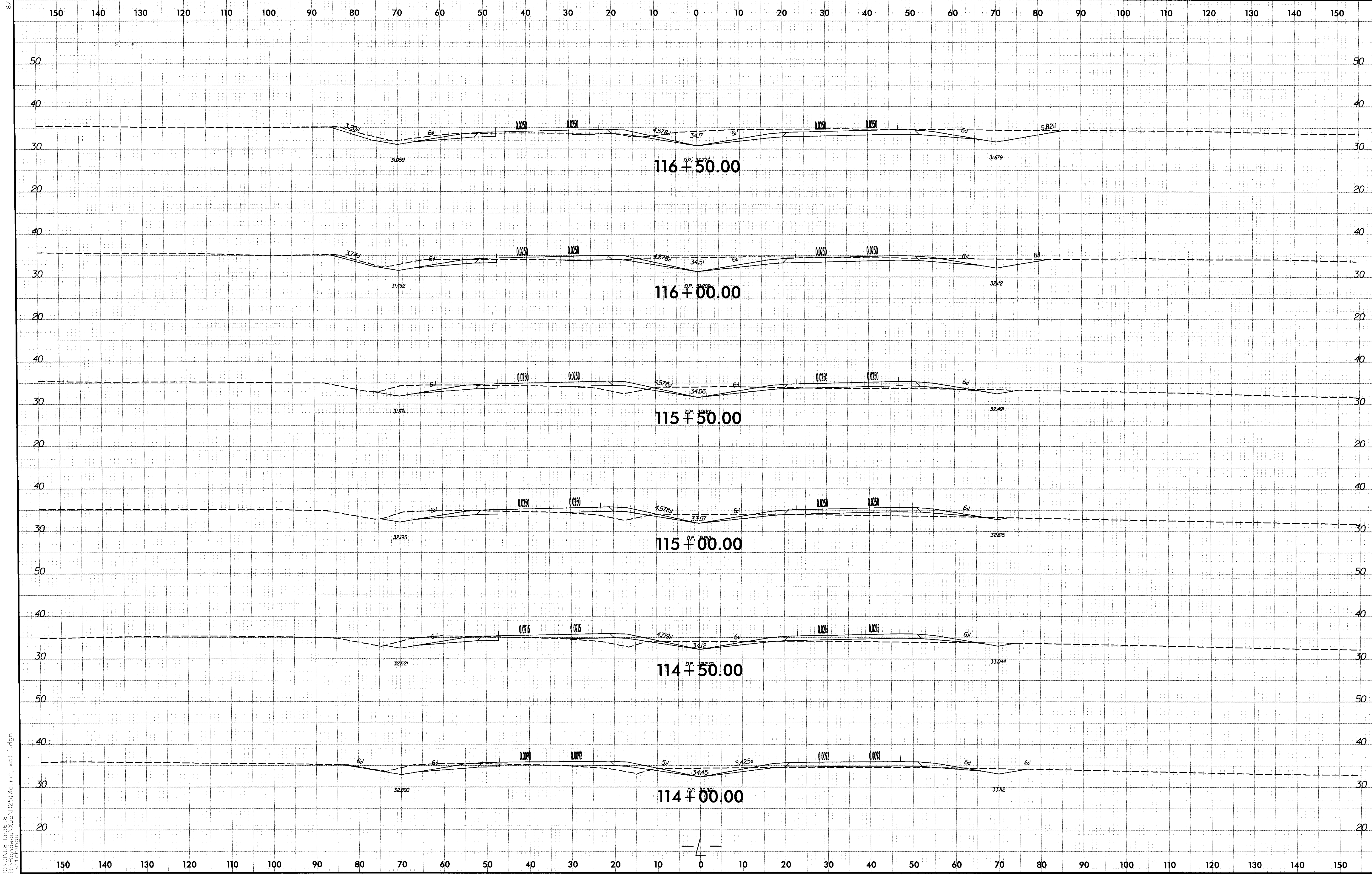
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2510C	24



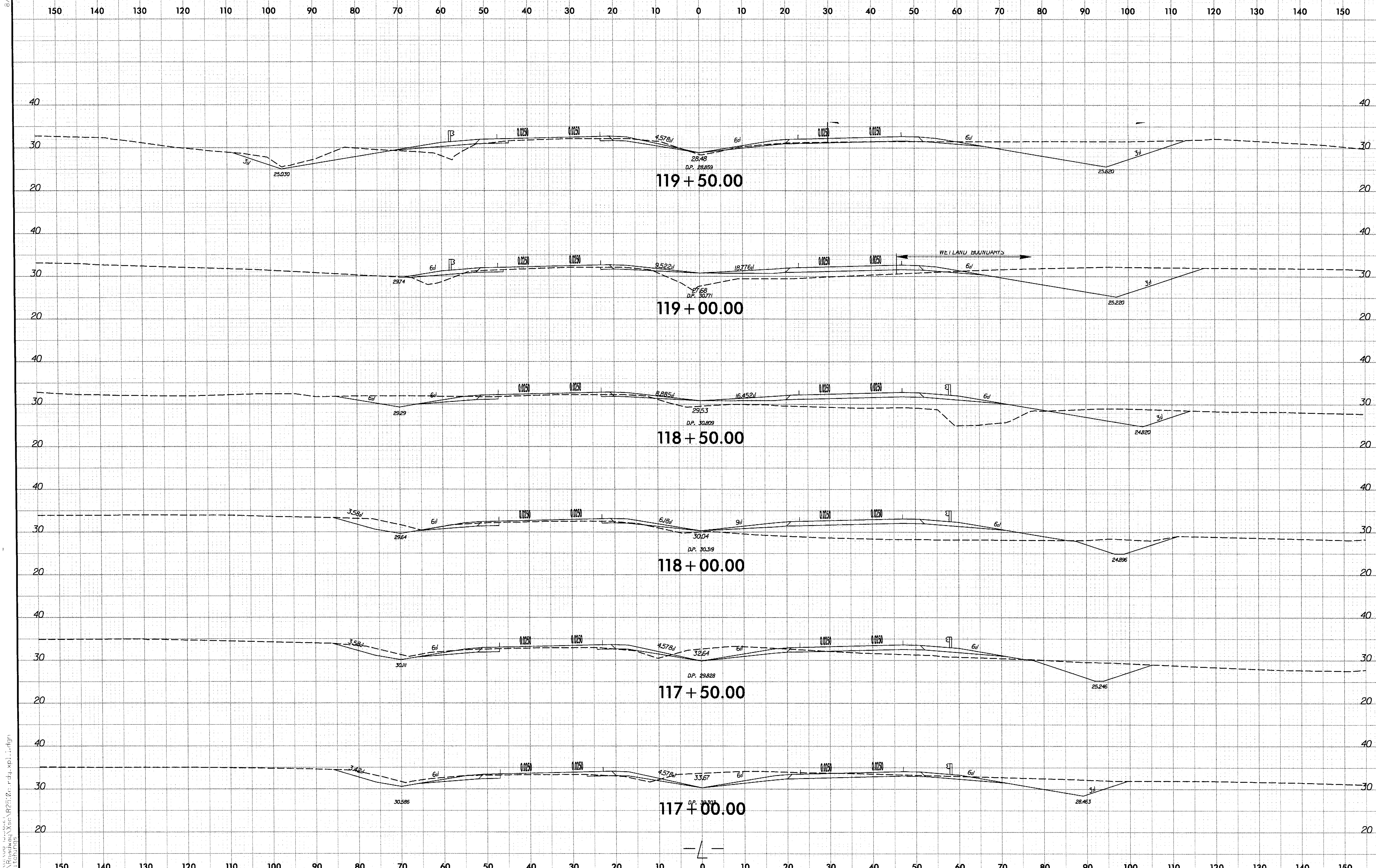
PROJ. REFERENCE NO.	SHEET NO.
R-2510C	25



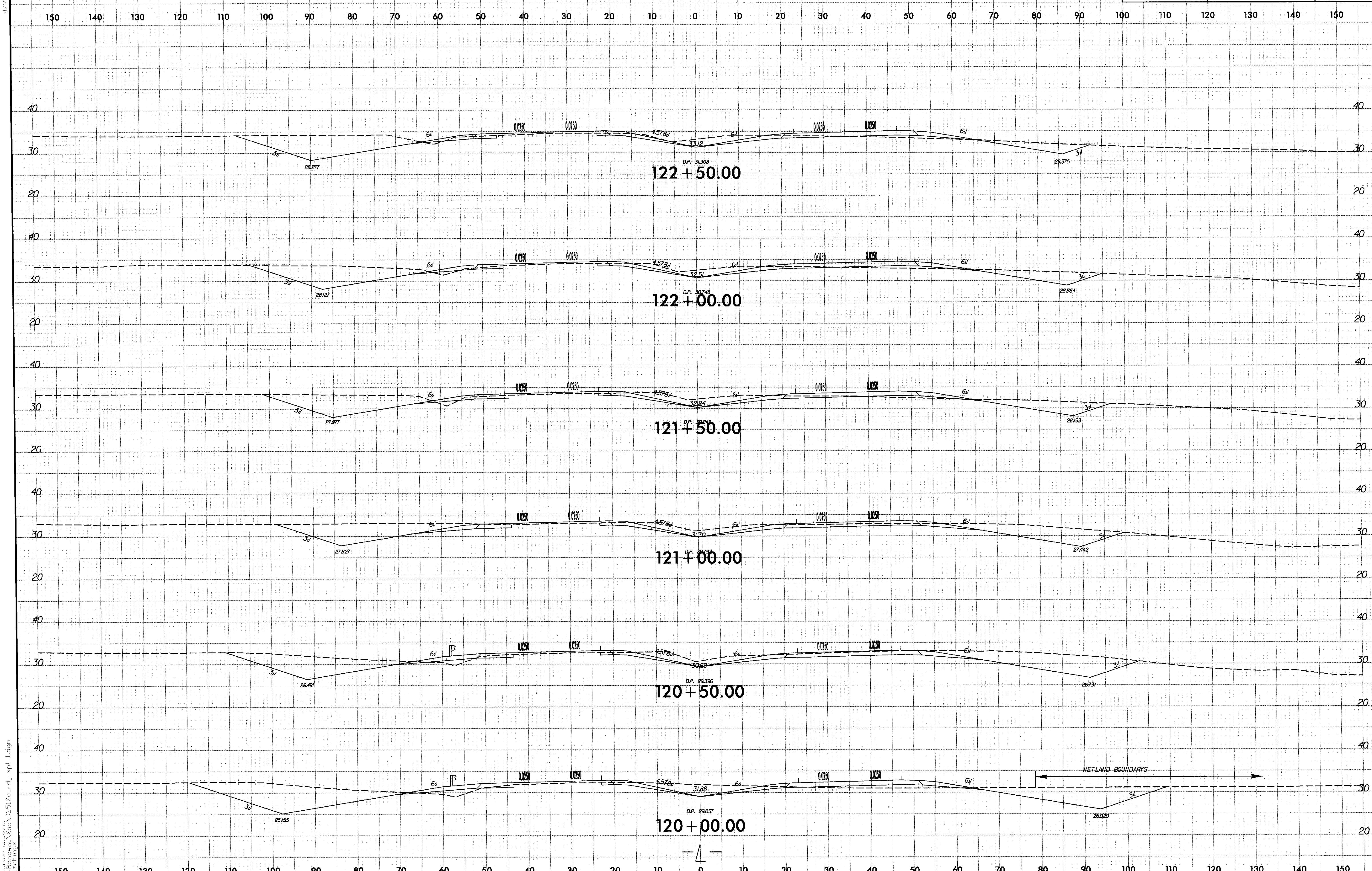
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2510C	26



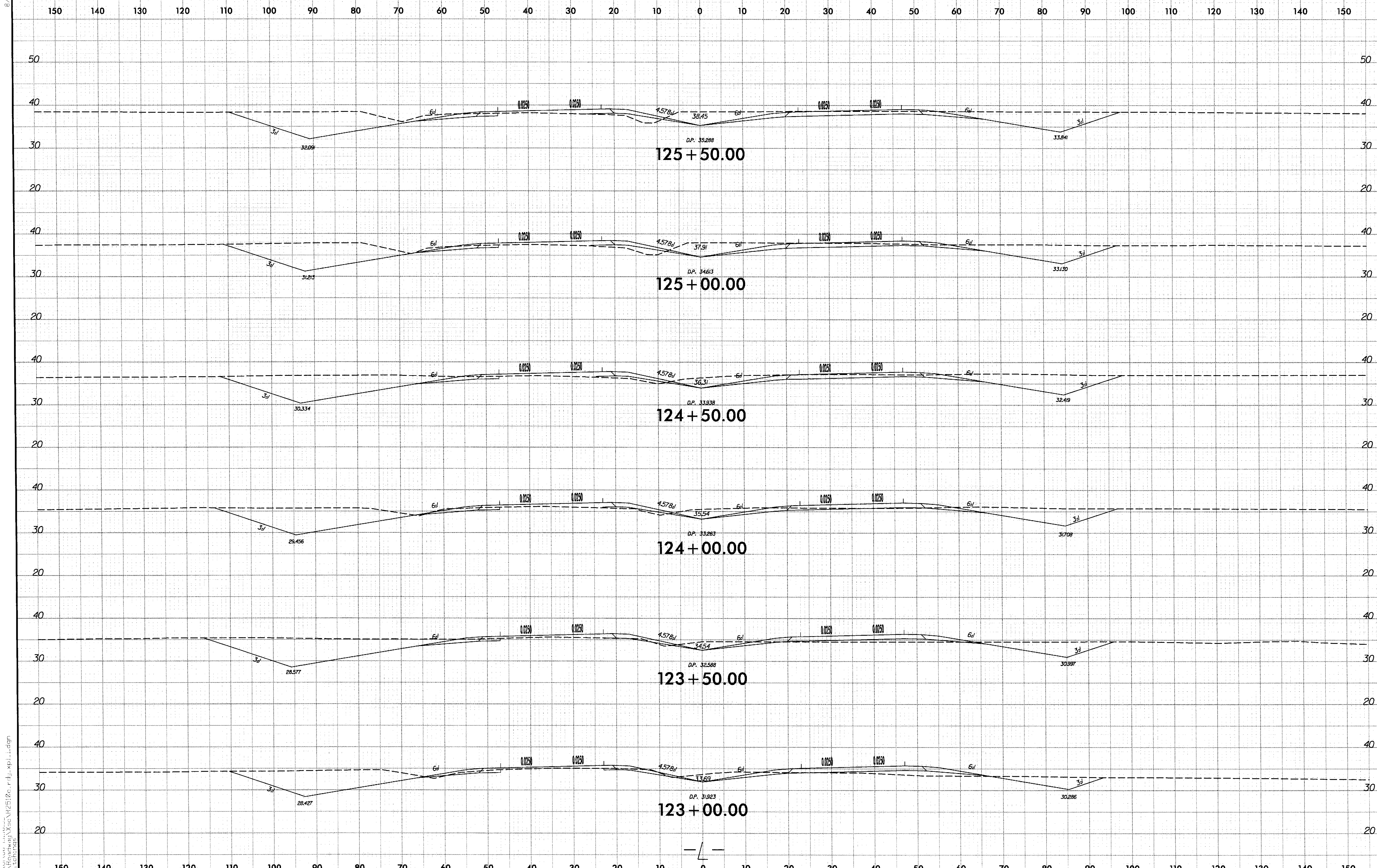
PROJ. REFERENCE NO.	SHEET NO.
R-2510C	27



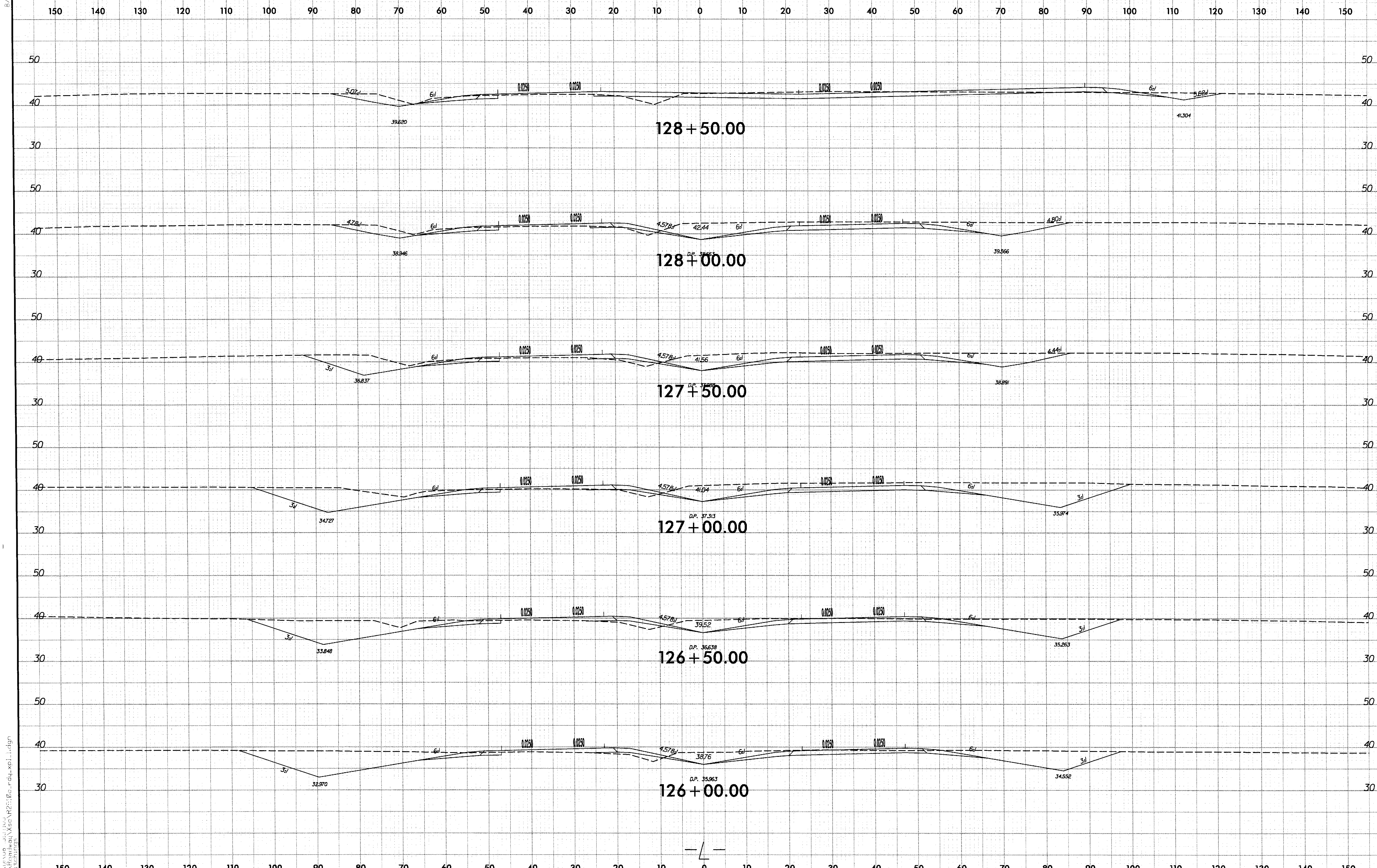
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2510C	28



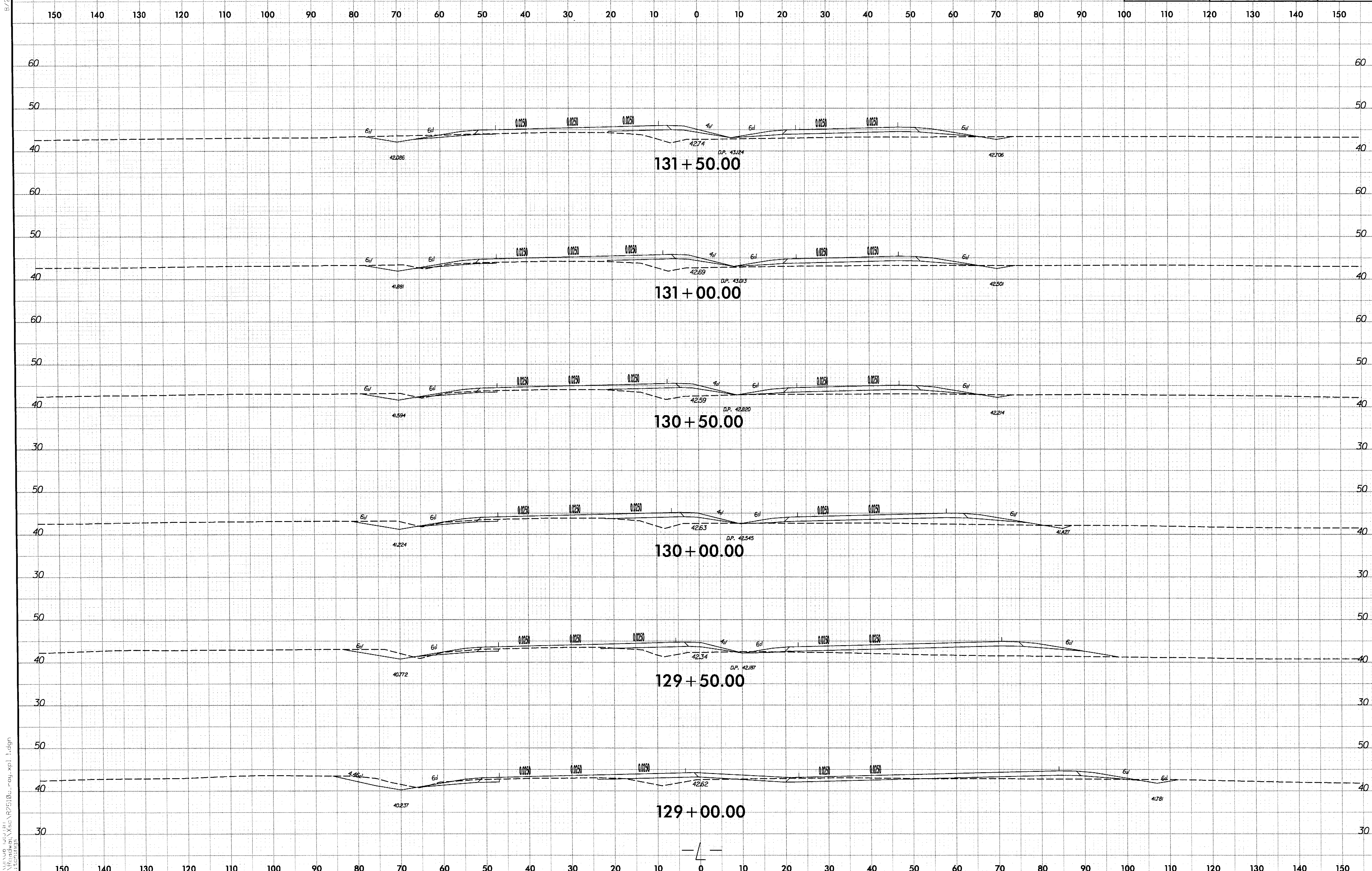
PROJ. REFERENCE NO.	SHEET NO.
R-2510C	29



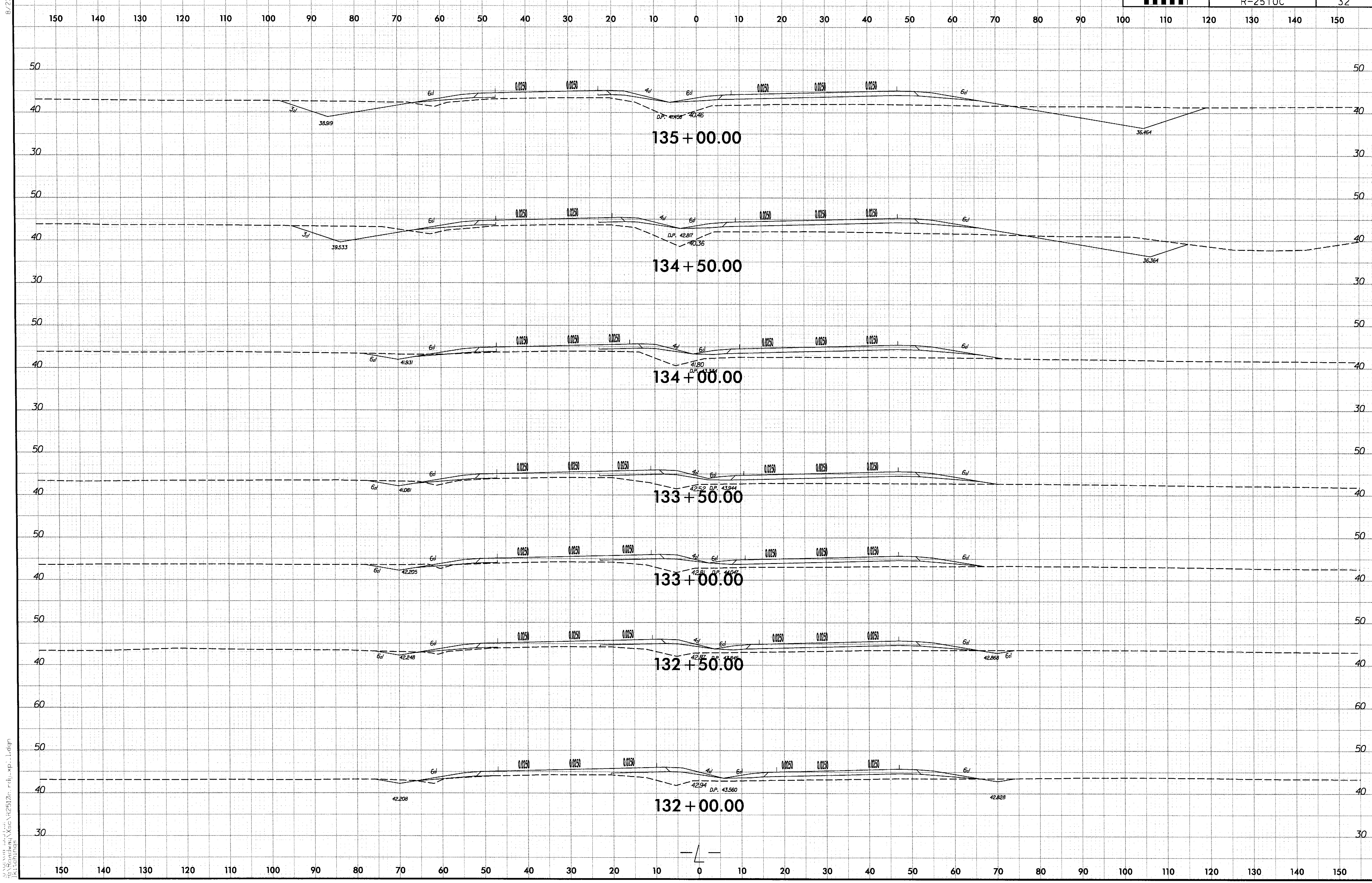
PROJ. REFERENCE NO.	SHEET NO.
R-2510C	30



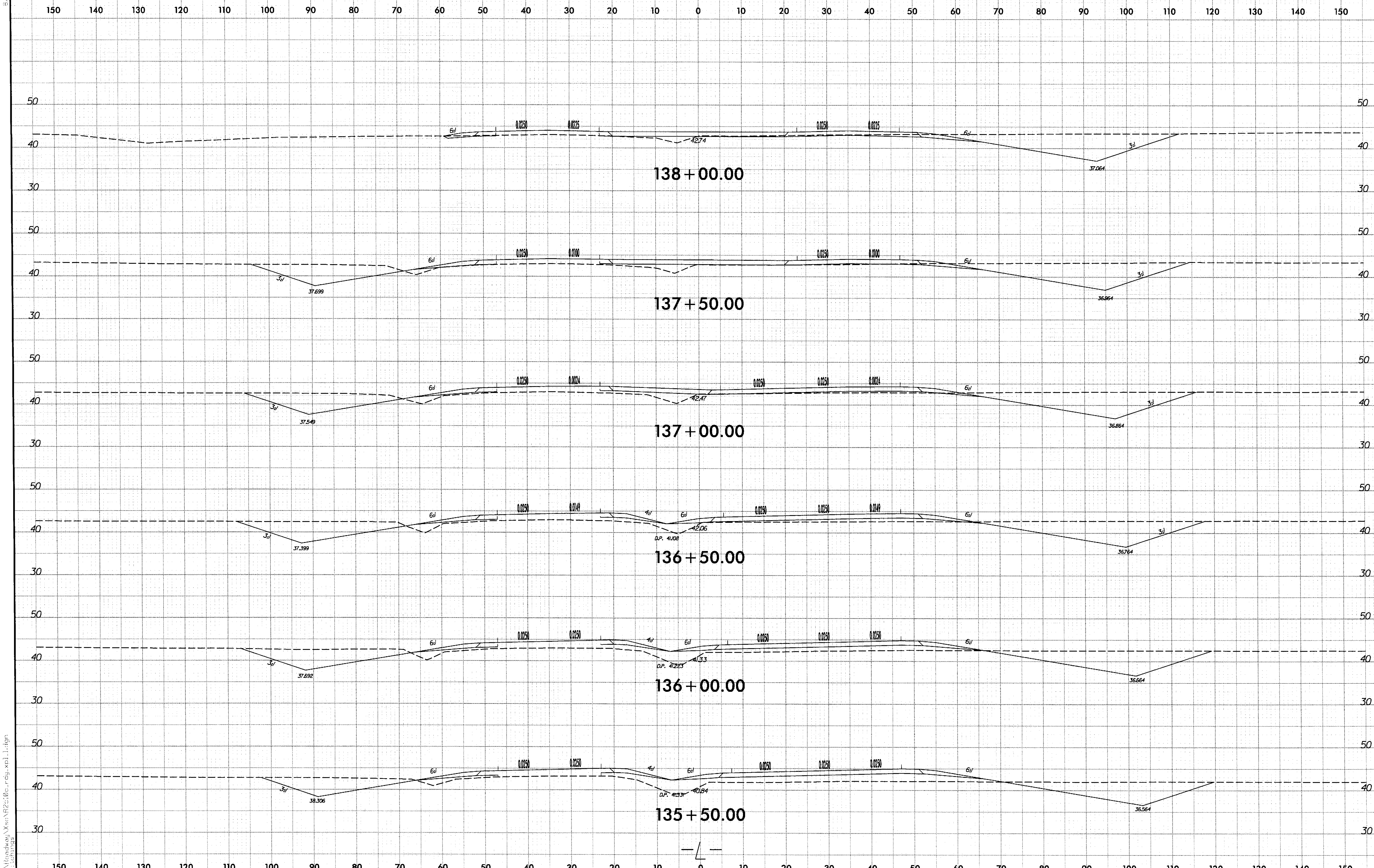
PROJ. REFERENCE NO.	SHEET NO.
R-2510C	31

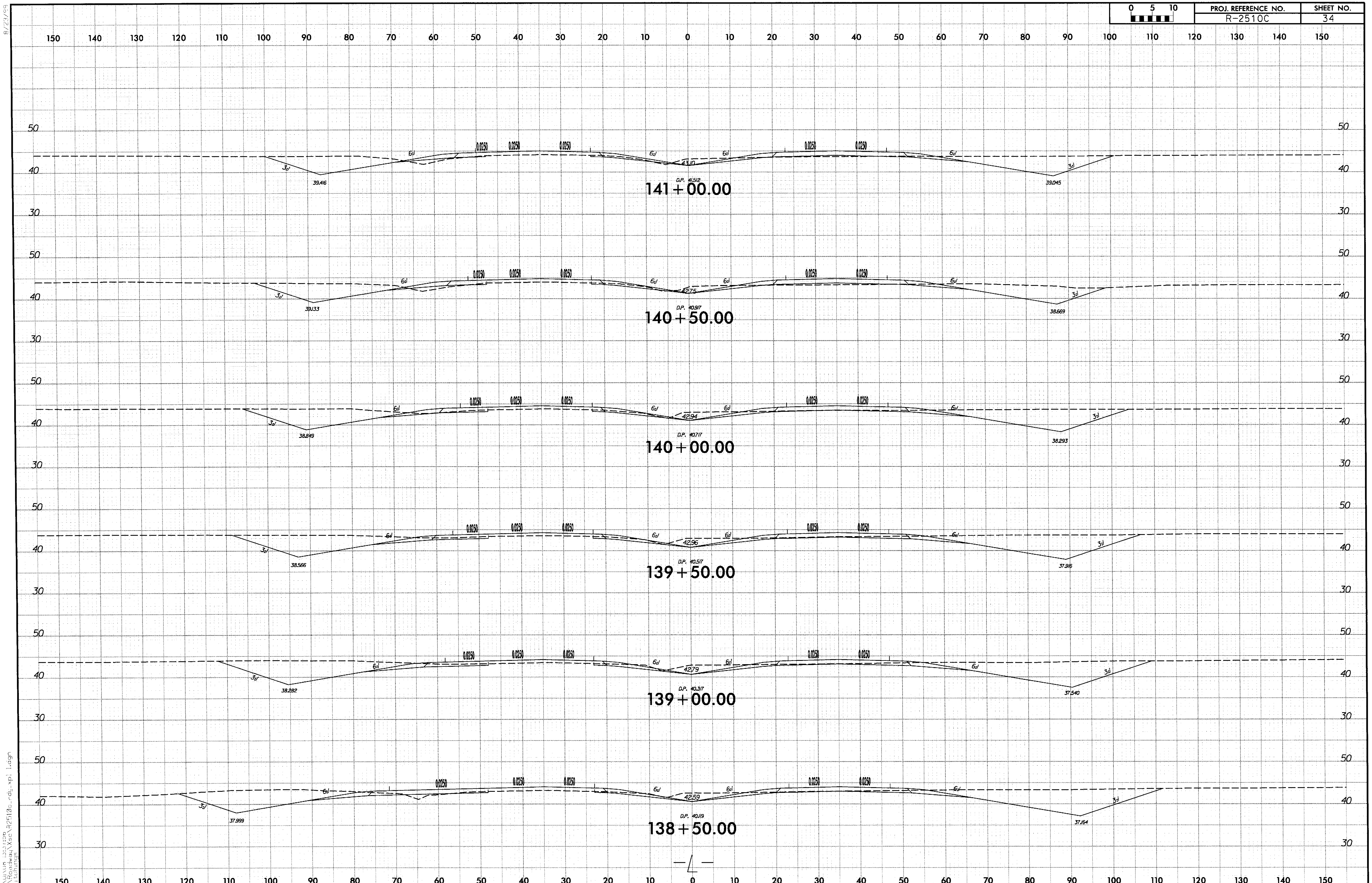


PROJ. REFERENCE NO.	SHEET NO.
R-2510C	32



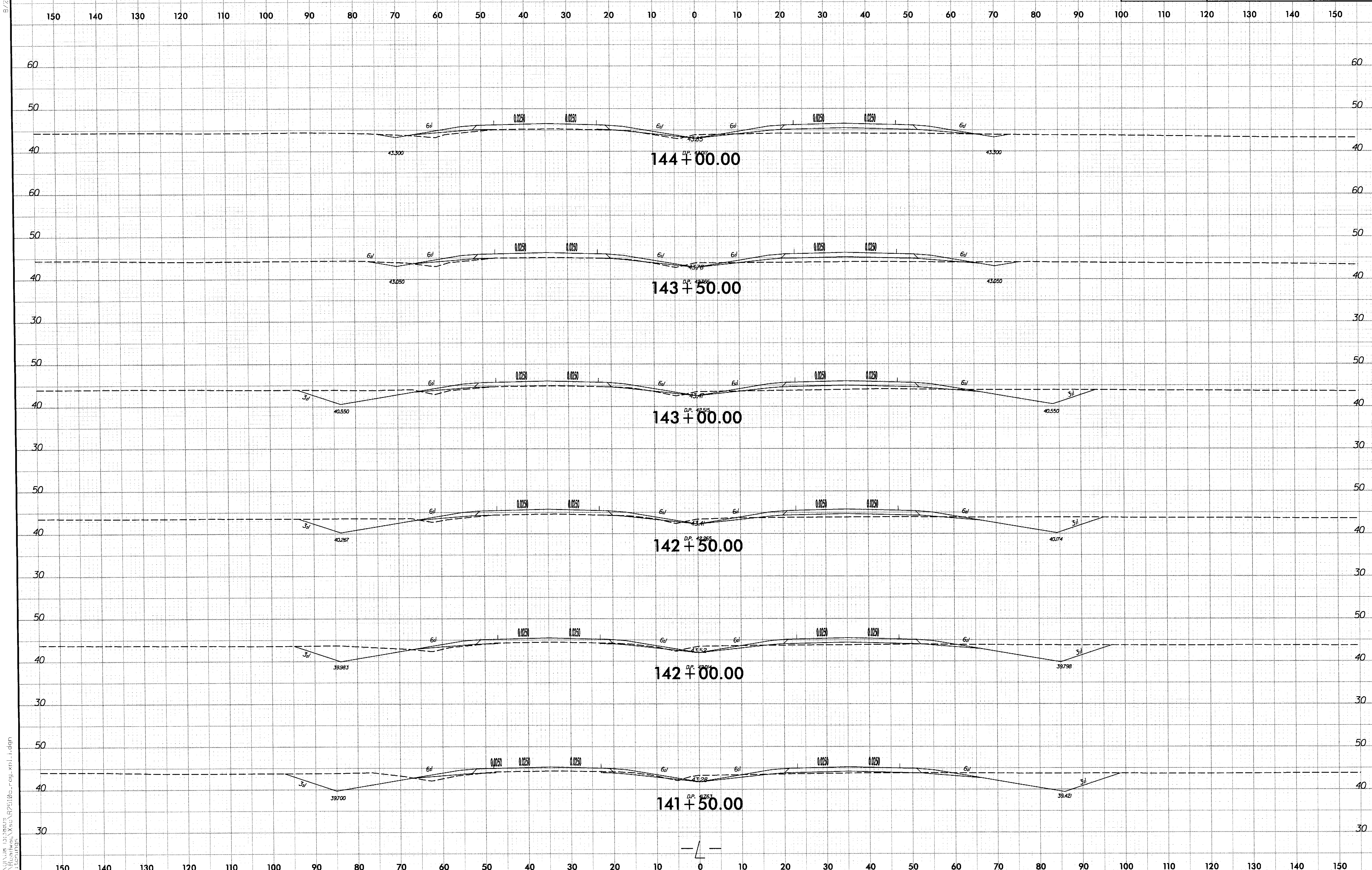
PROJ. REFERENCE NO.	SHEET NO.
R-2510C	33



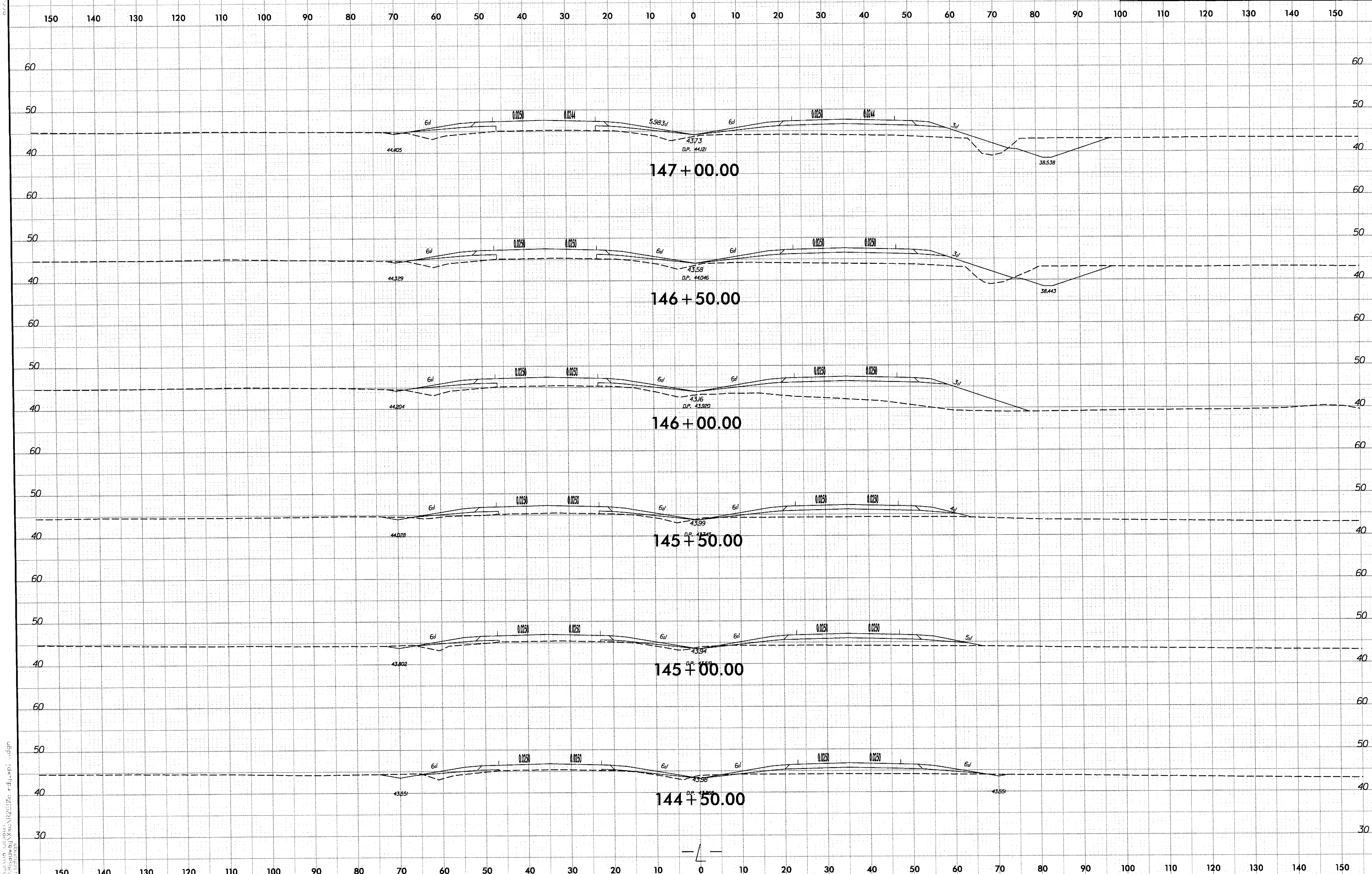


PROJ. REFERENCE NO.
R-2510C
SHEET NO.
34
0 5 10
141 + 00.00
D.P. 41.512
43.10
39.416
39.045
140 + 50.00
D.P. 40.917
42.75
39.133
38.669
140 + 00.00
D.P. 40.717
42.94
38.849
38.293
139 + 50.00
D.P. 40.517
42.96
38.566
37.916
139 + 00.00
D.P. 40.317
42.79
38.282
37.540
138 + 50.00
D.P. 40.119
42.59
37.999
37.164
0.0250
6:1
3:1

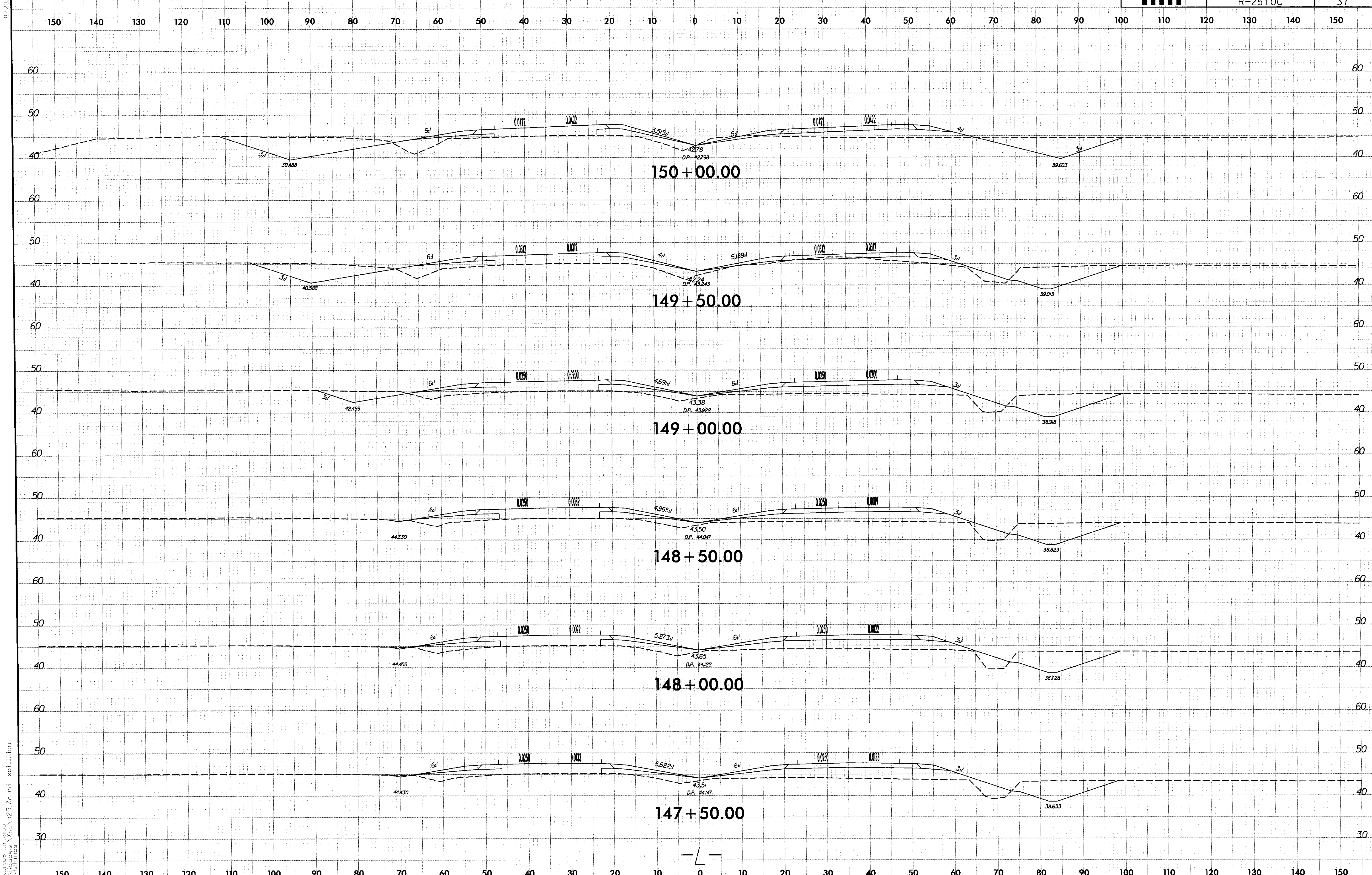
PROJ. REFERENCE NO.	SHEET NO.
R-2510C	35



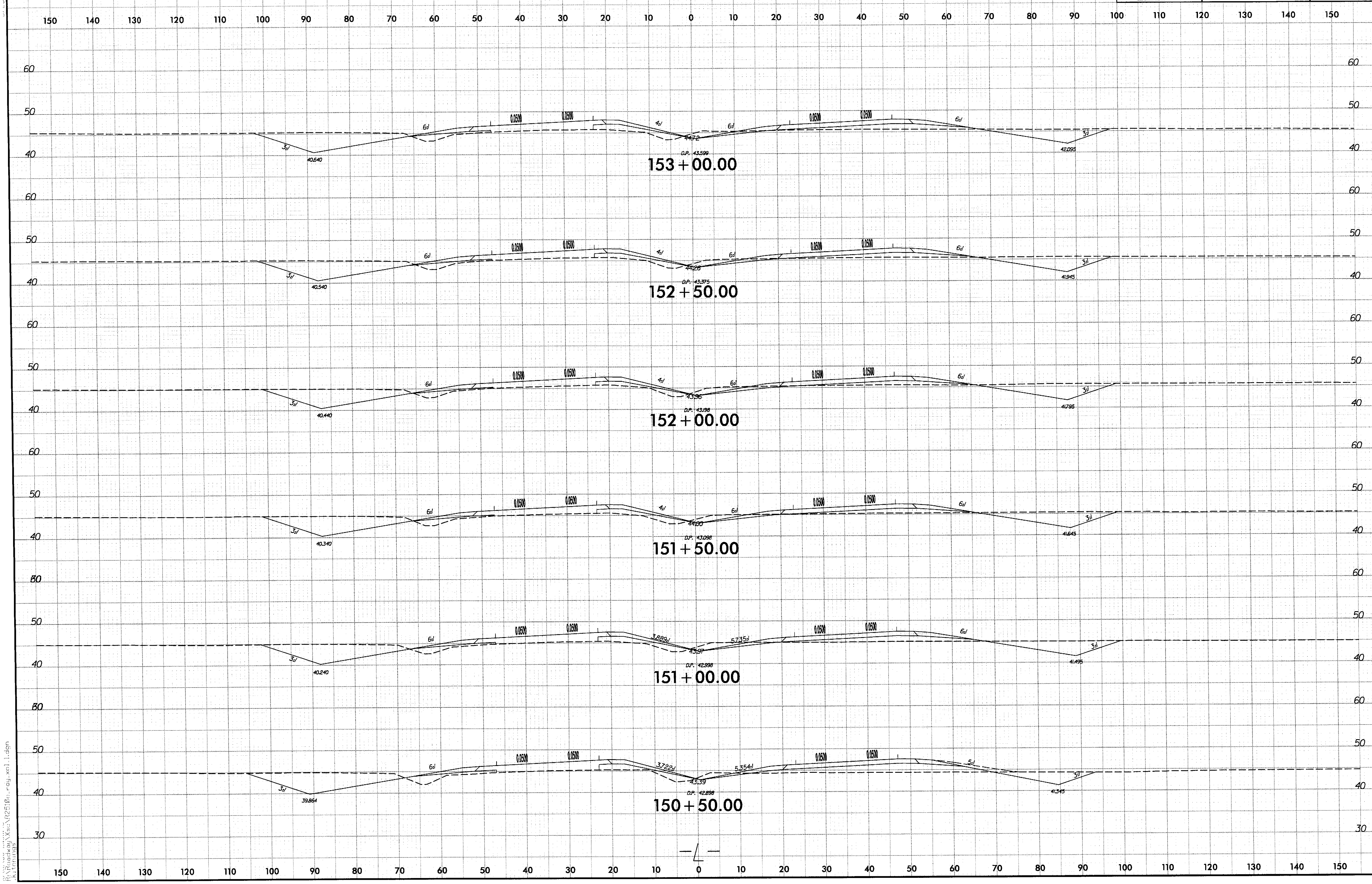
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2510C	36



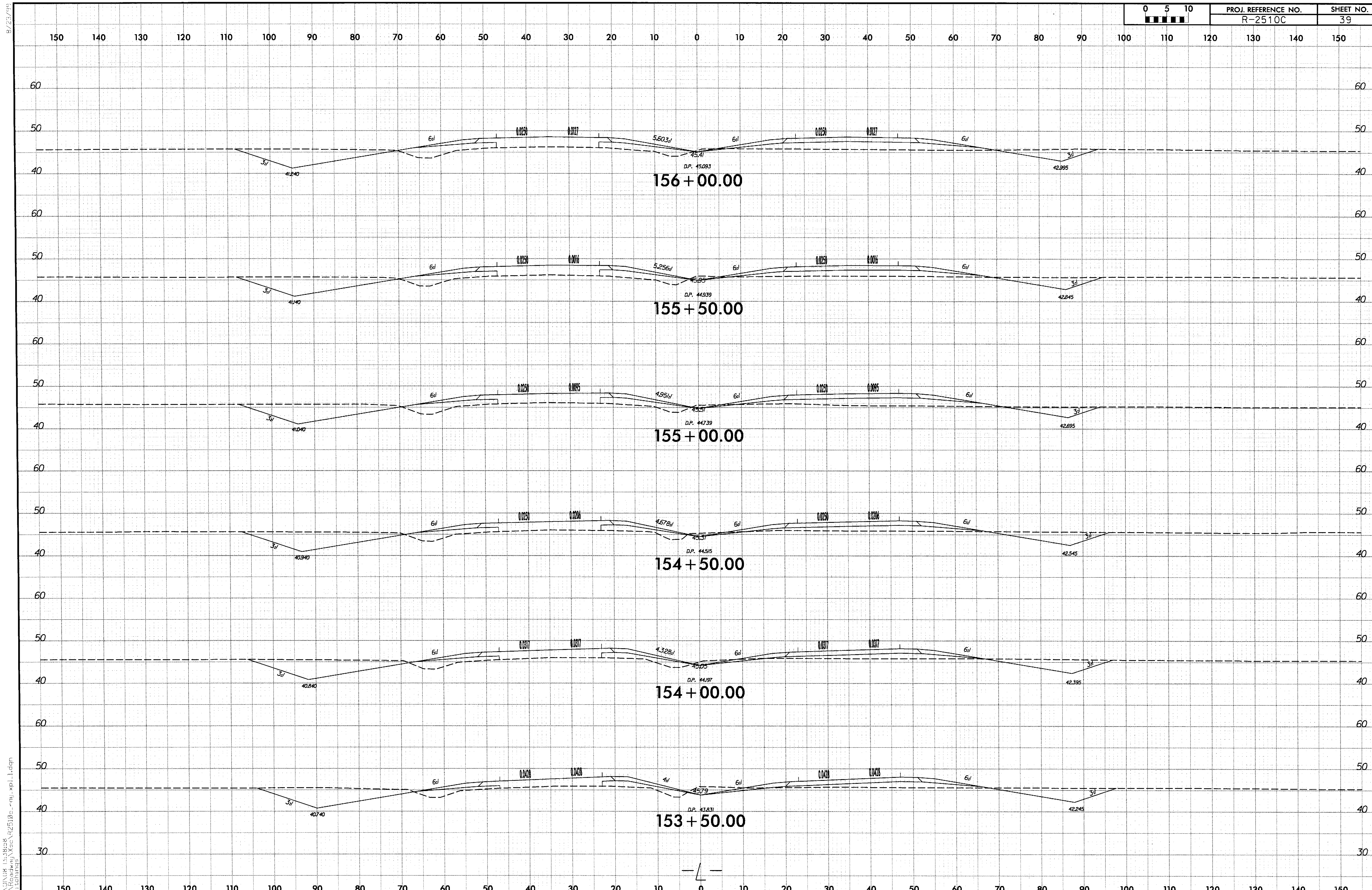
PROJ. REFERENCE NO.	SHEET NO.
R-2510C	37



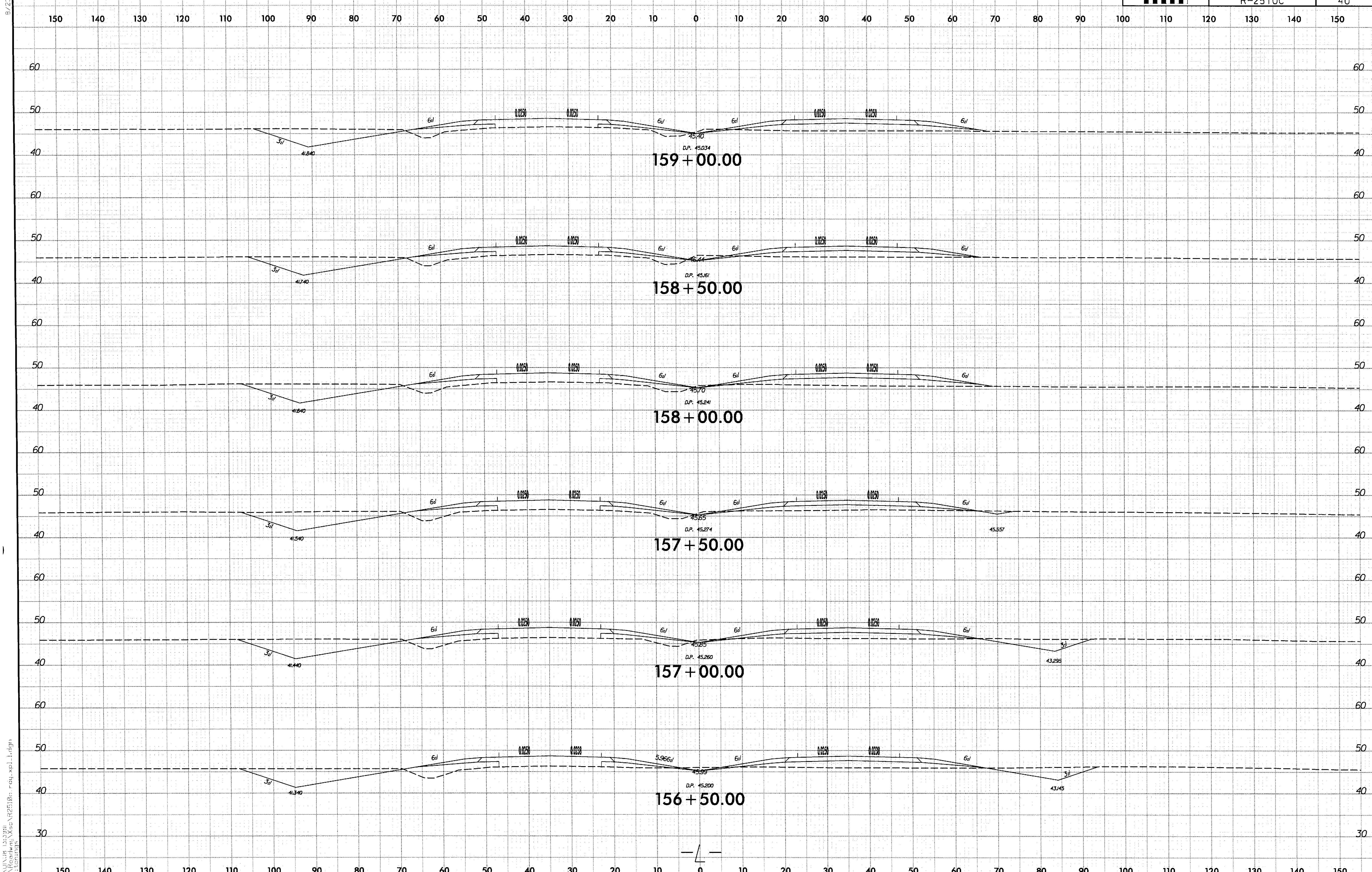
PROJ. REFERENCE NO.	SHEET NO.
R-2510C	38



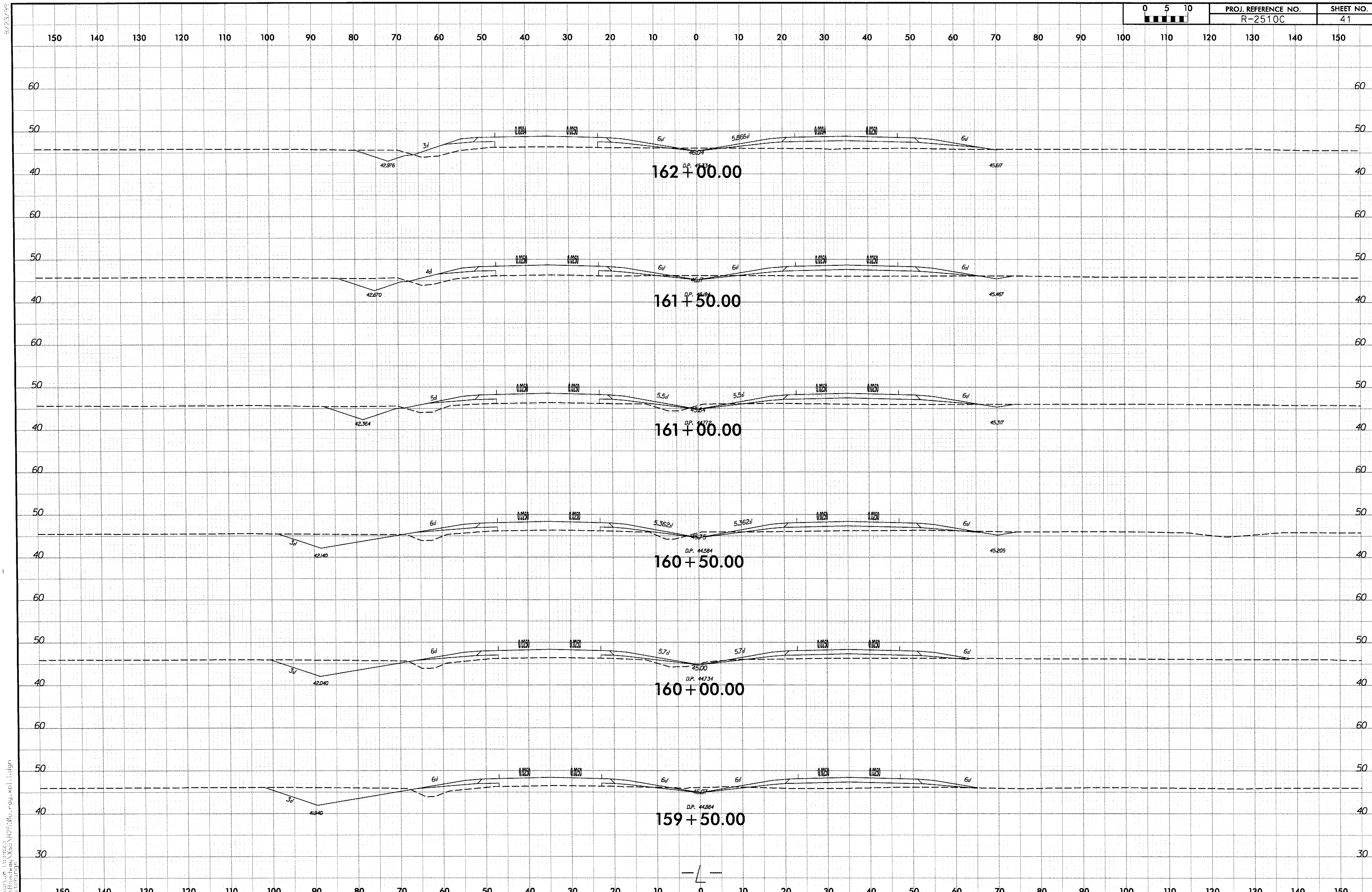
PROJ. REFERENCE NO.	SHEET NO.
R-2510C	39



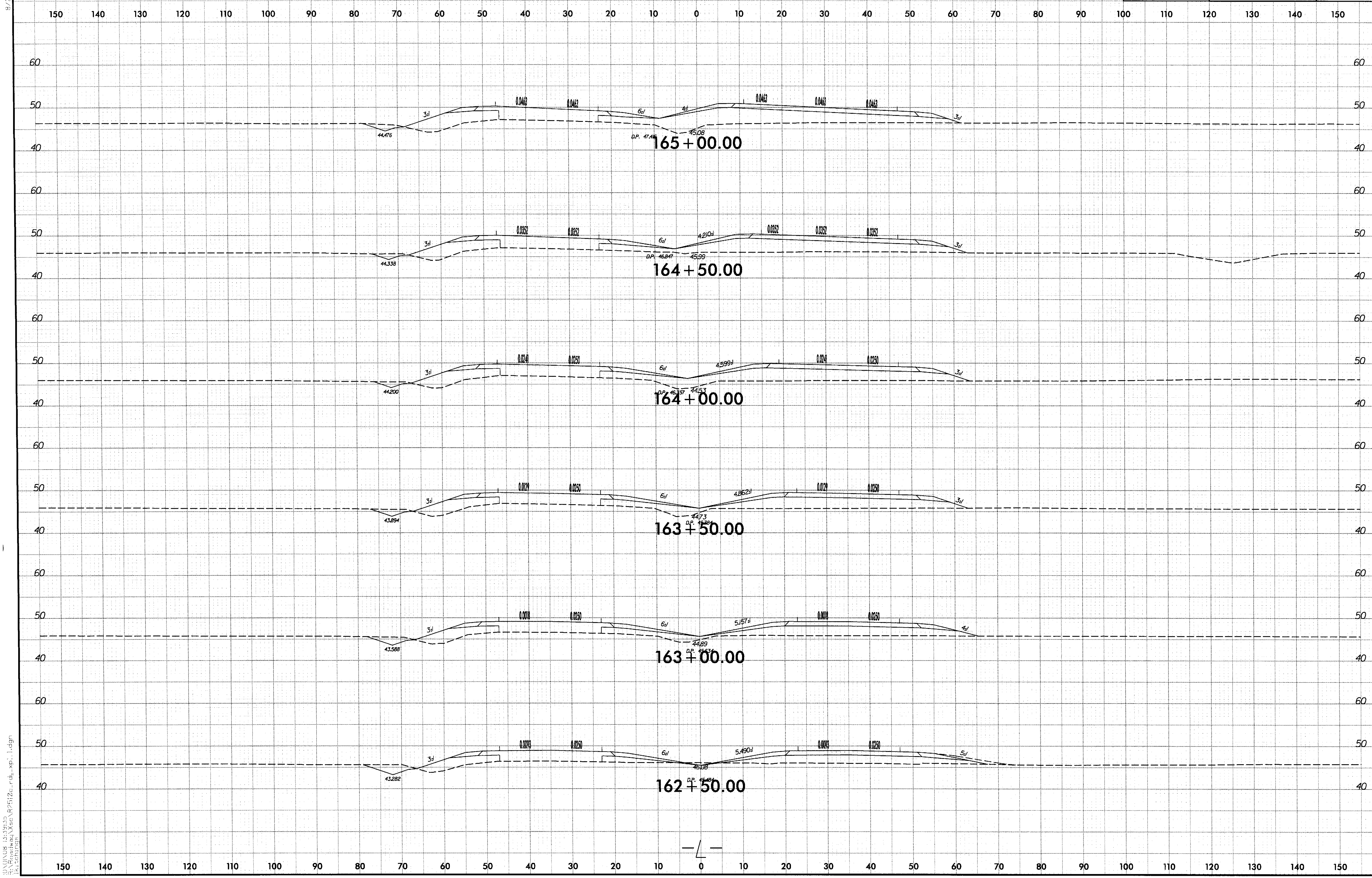
PROJ. REFERENCE NO.	SHEET NO.
R-2510C	40



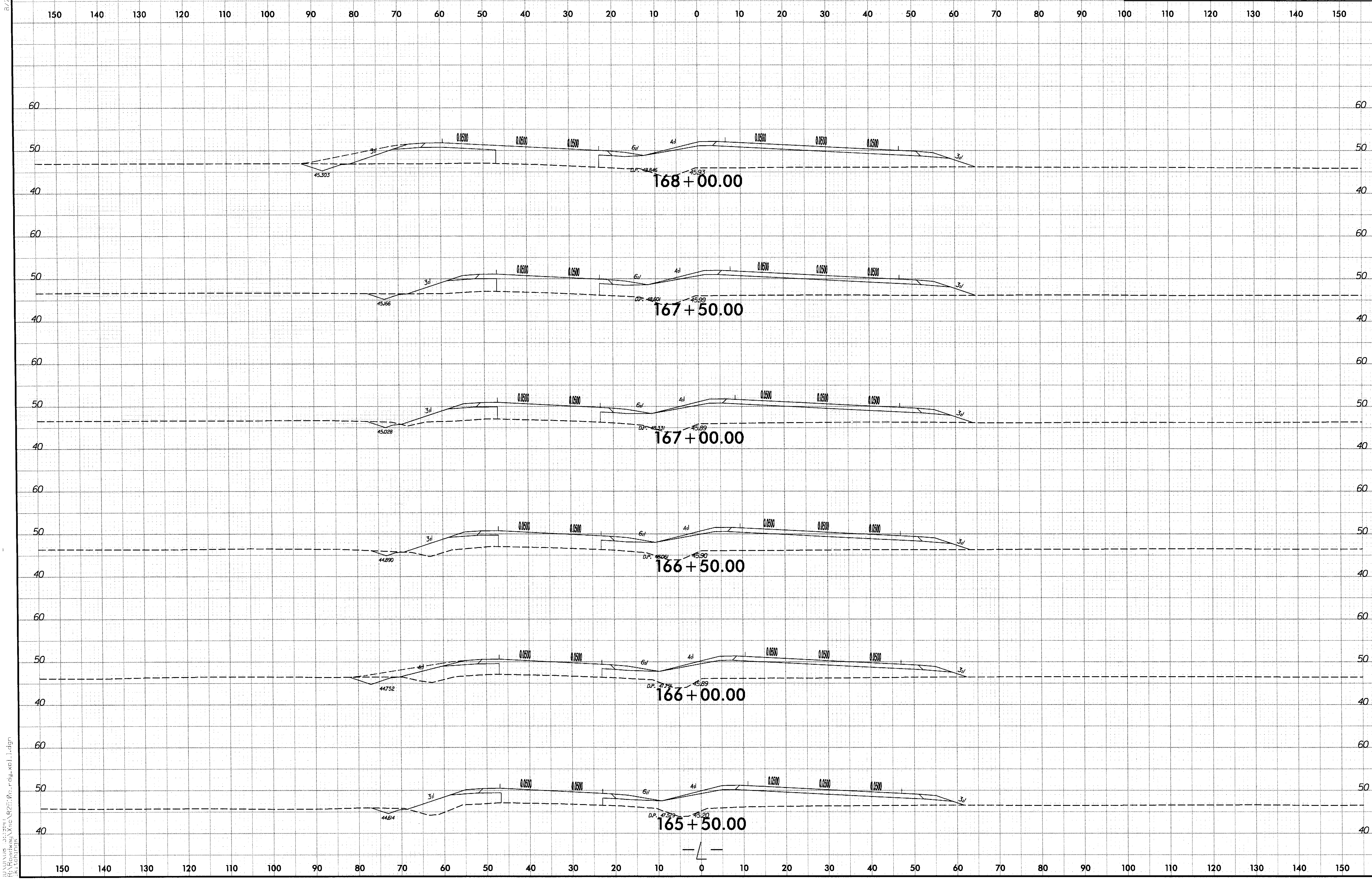
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2510C	41



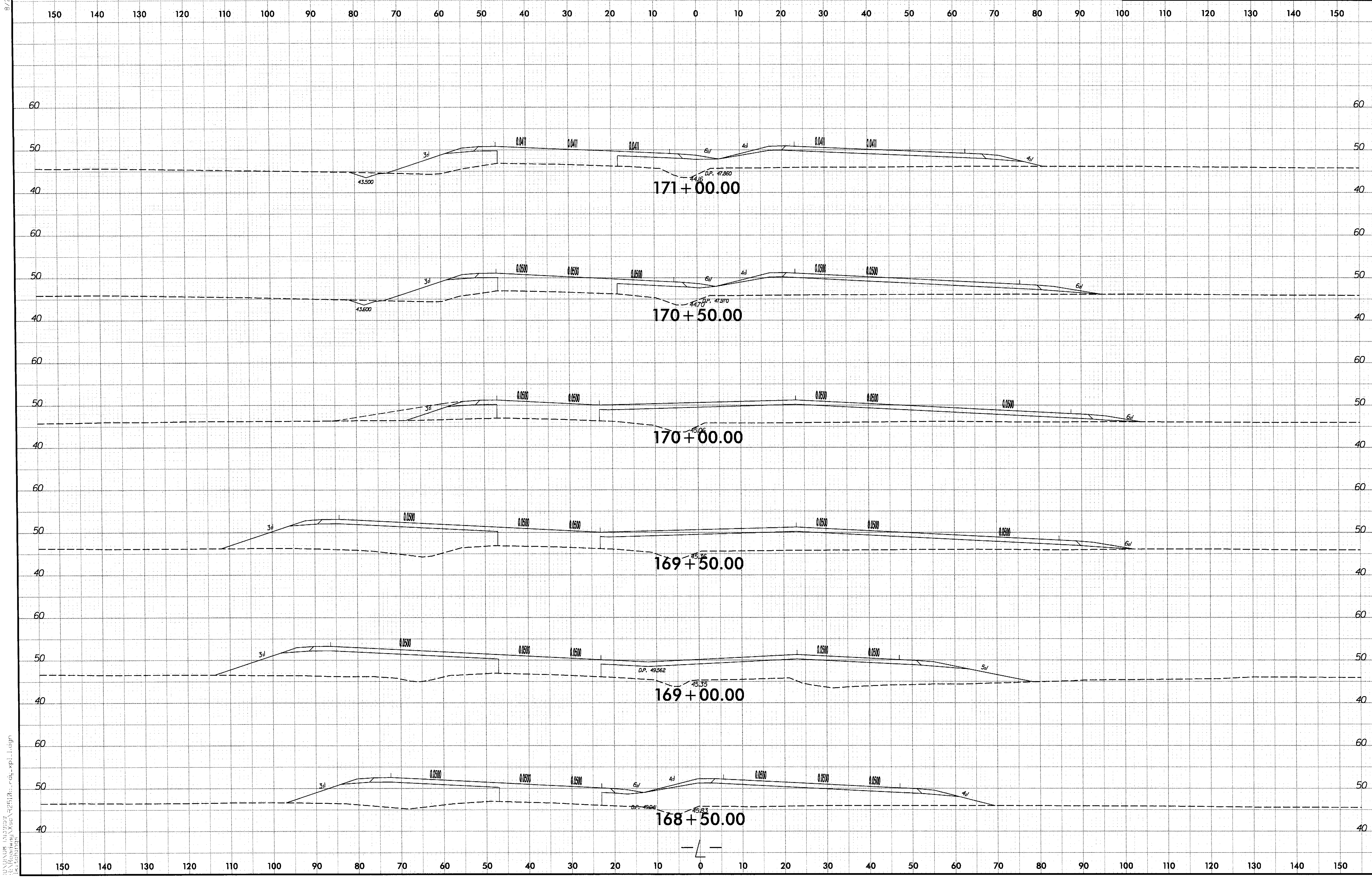
PROJ. REFERENCE NO.	SHEET NO.
R-2510C	42



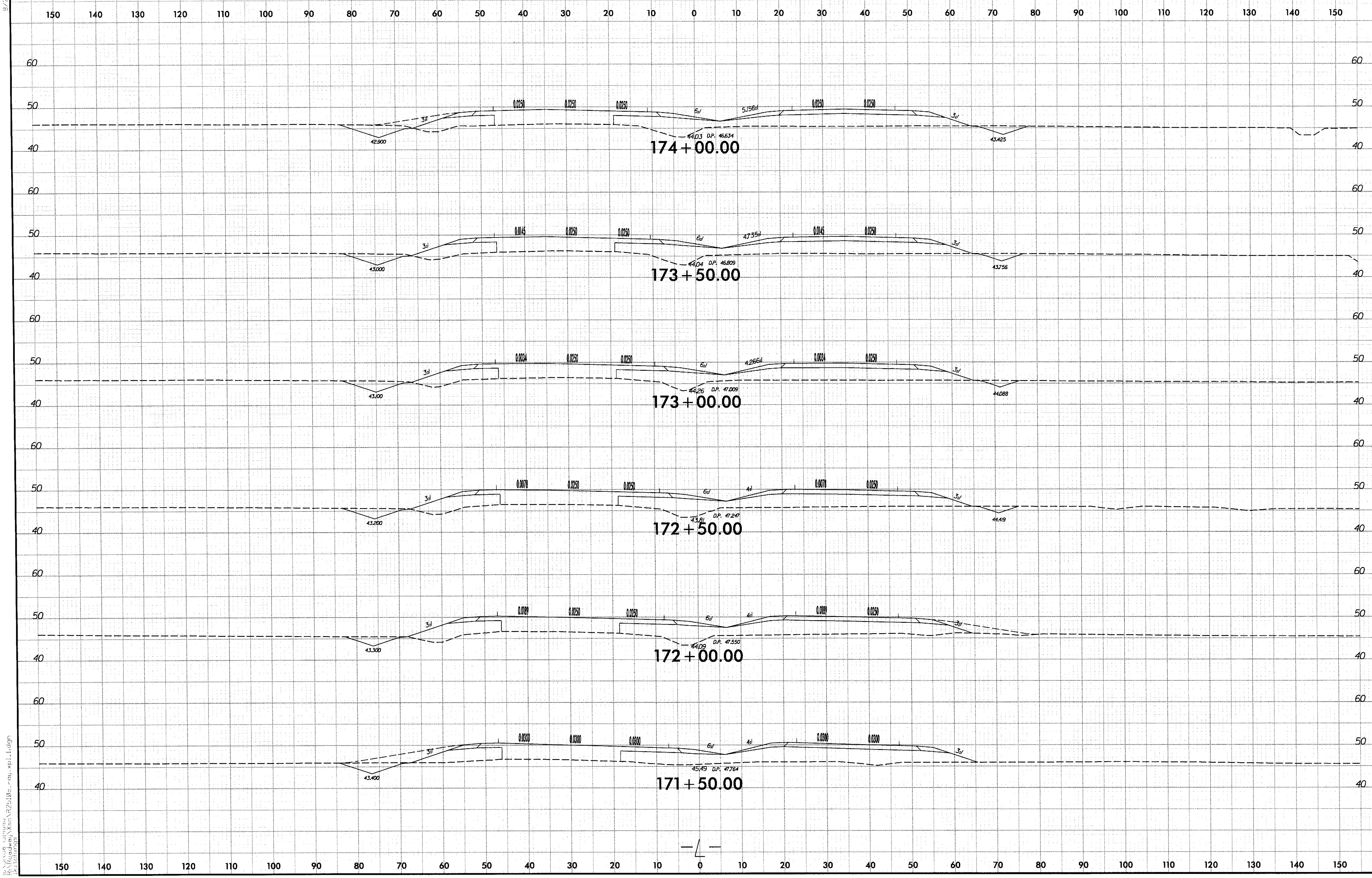
PROJ. REFERENCE NO.	SHEET NO.
R-2510C	43



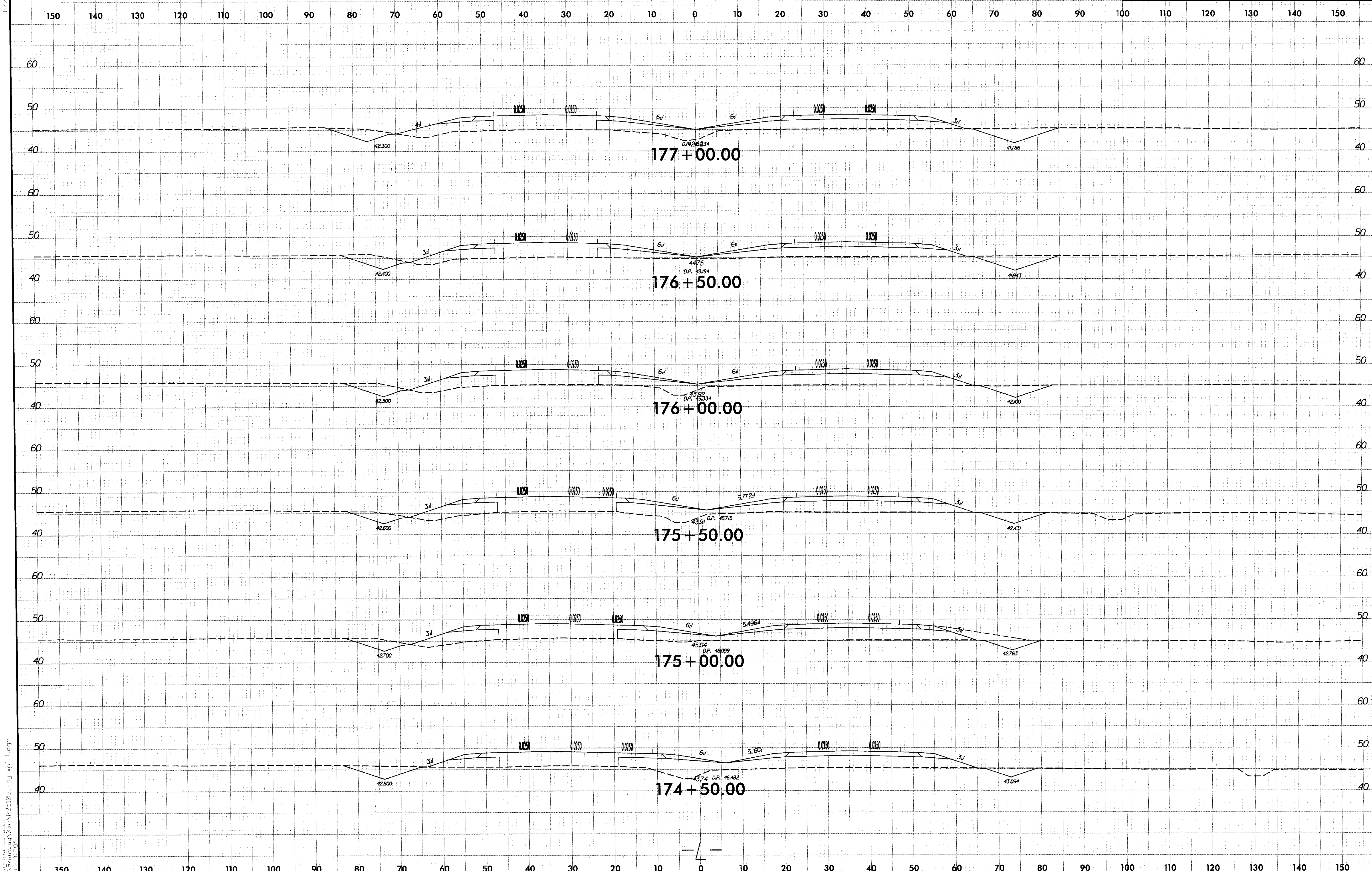
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2510C	44



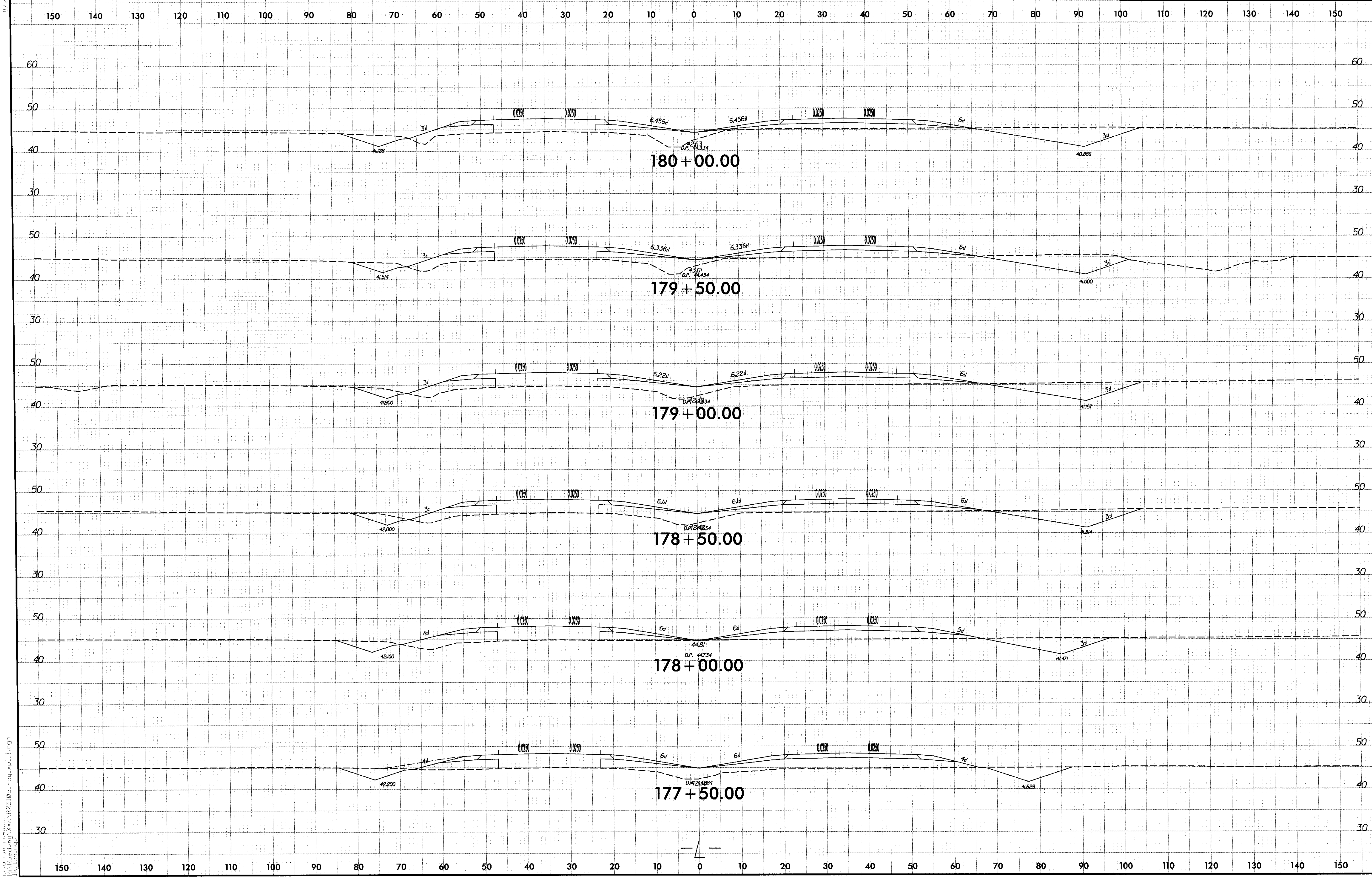
PROJ. REFERENCE NO.	SHEET NO.
R-2510C	45

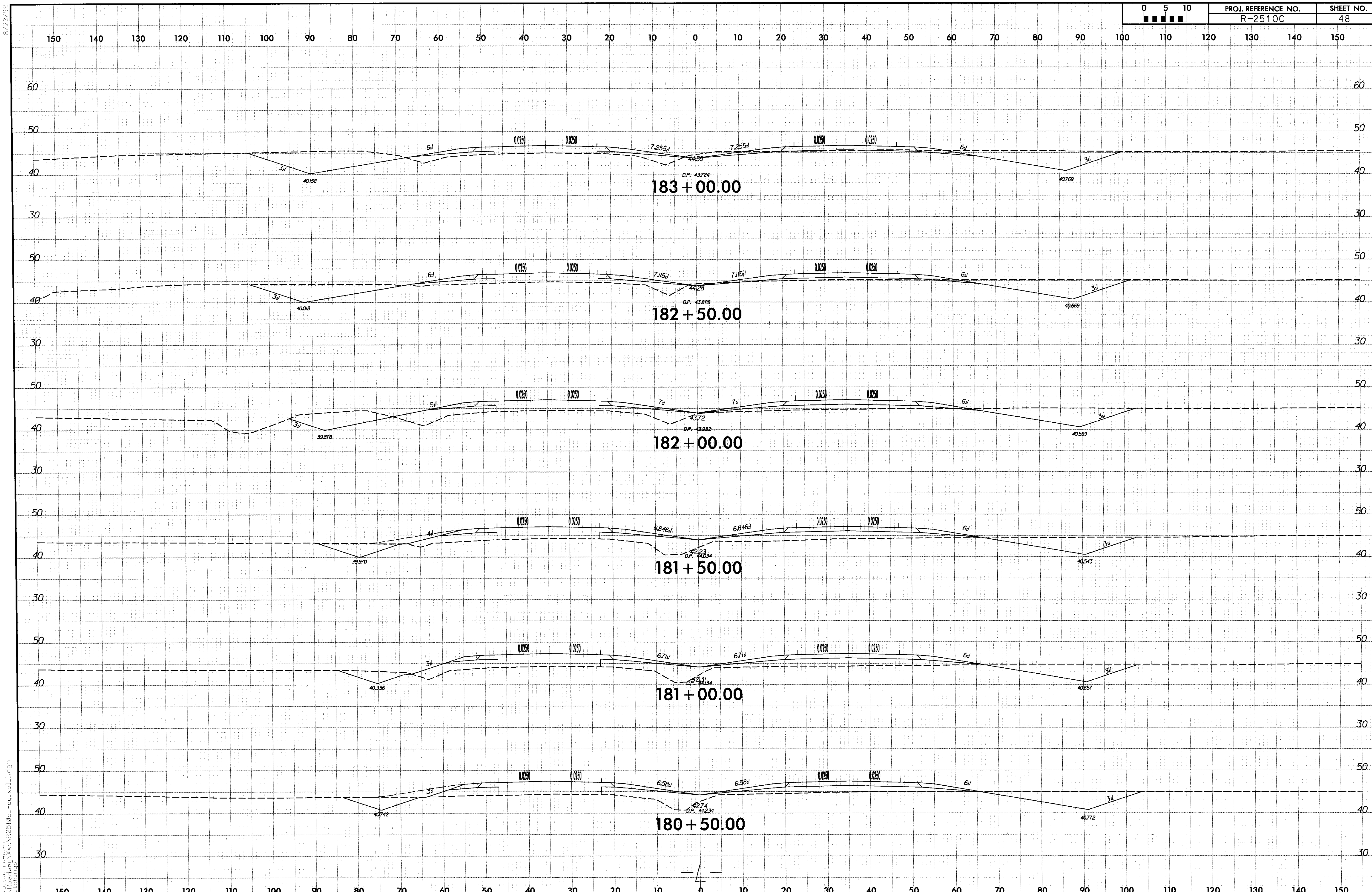


PROJ. REFERENCE NO.	SHEET NO.
R-2510C	46

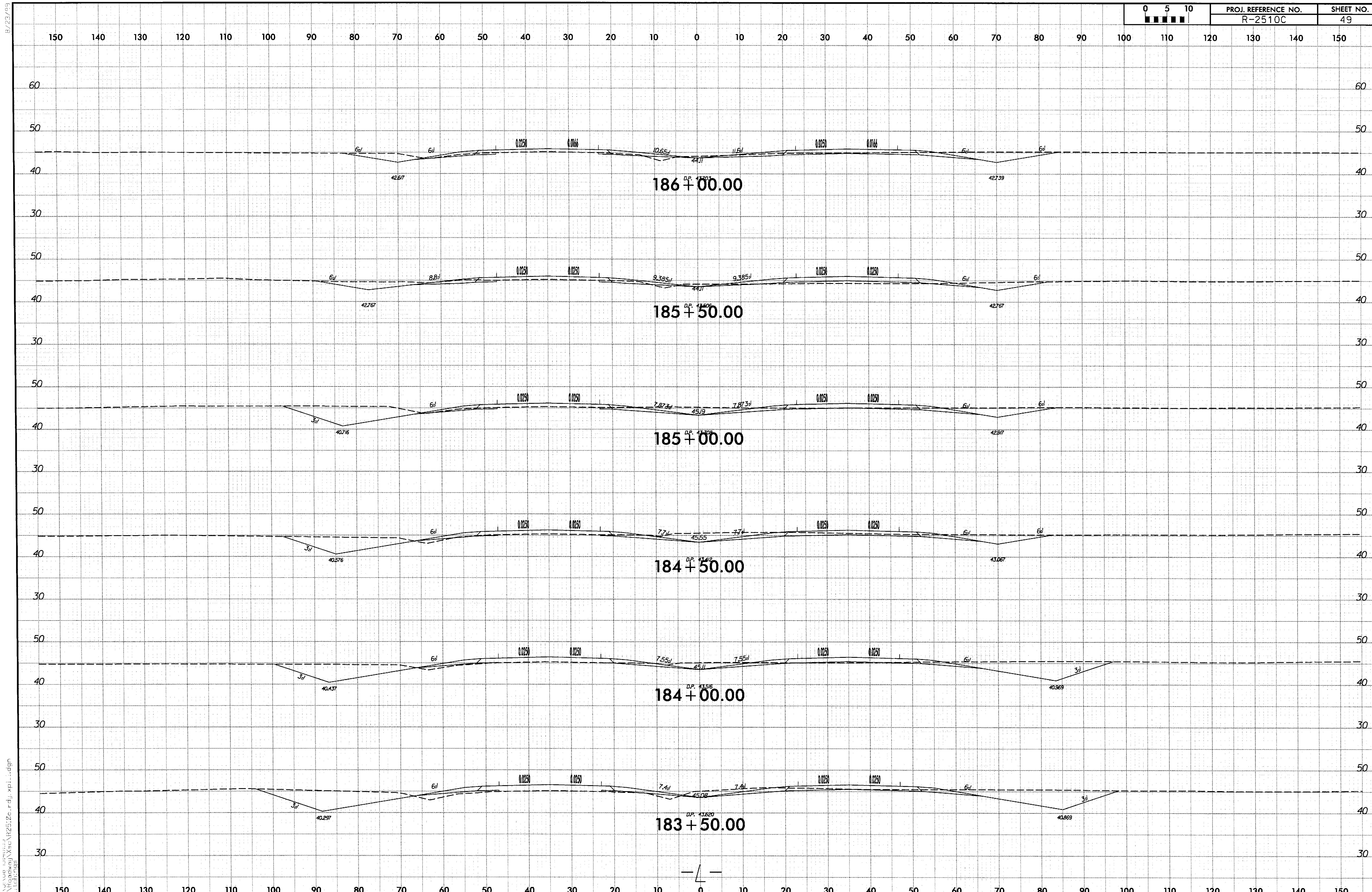


PROJ. REFERENCE NO.	SHEET NO.
R-2510C	47

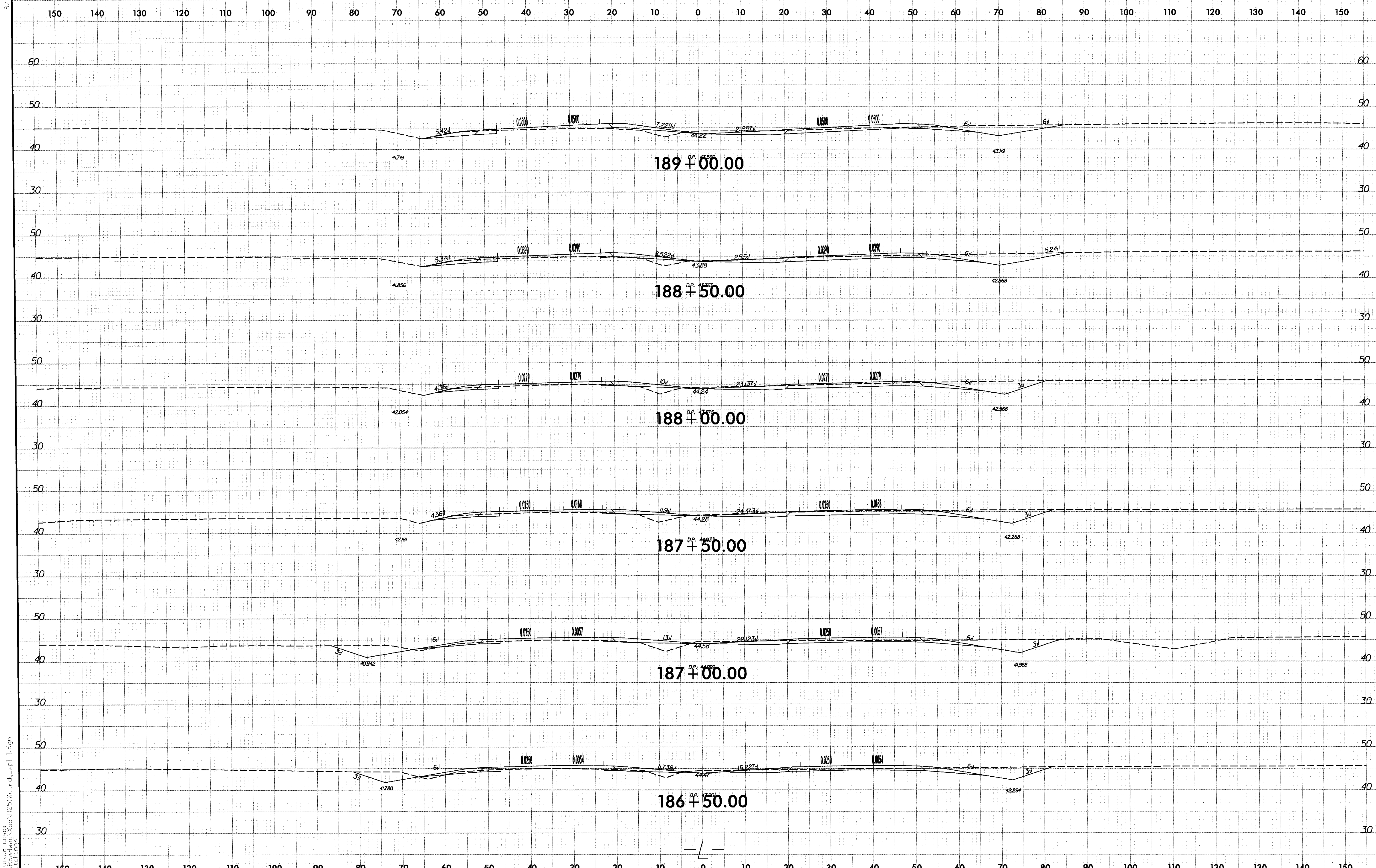



0 5 10
PROJ. REFERENCE NO.
R-2510C
SHEET NO.
48
183 + 00.00
182 + 50.00
182 + 00.00
181 + 50.00
181 + 00.00
180 + 50.00
0.0250
6:1
3:1
7.255:1
7.115:1
7:1
6.846:1
6.71:1
6.58:1
4:1
5:1
40.158
40.769
44.59
40.018
40.669
44.28
39.878
40.569
43.72
39.970
40.543
40.356
40.657
40.742
40.772
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0

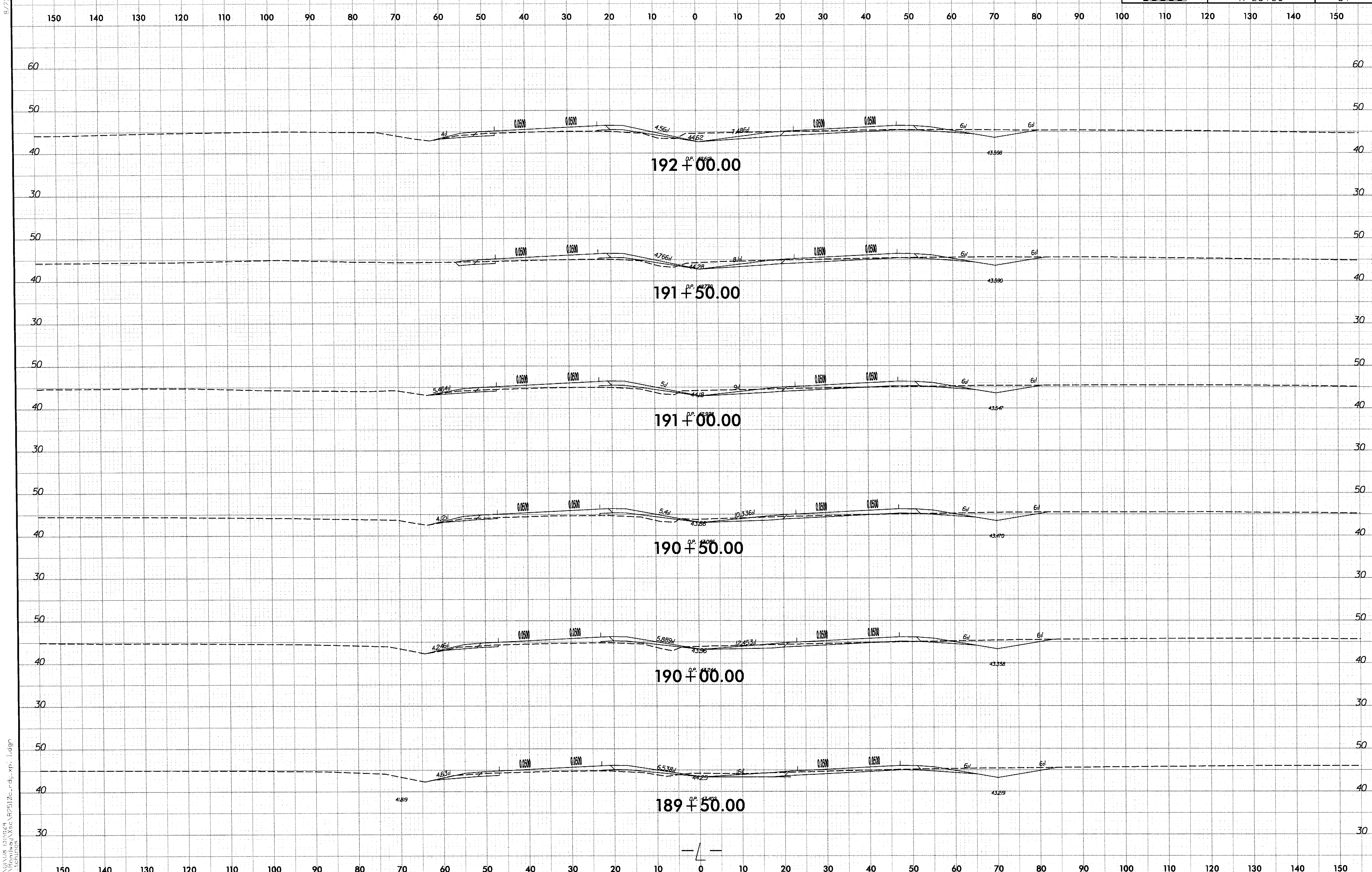
PROJ. REFERENCE NO.	SHEET NO.
R-2510C	49



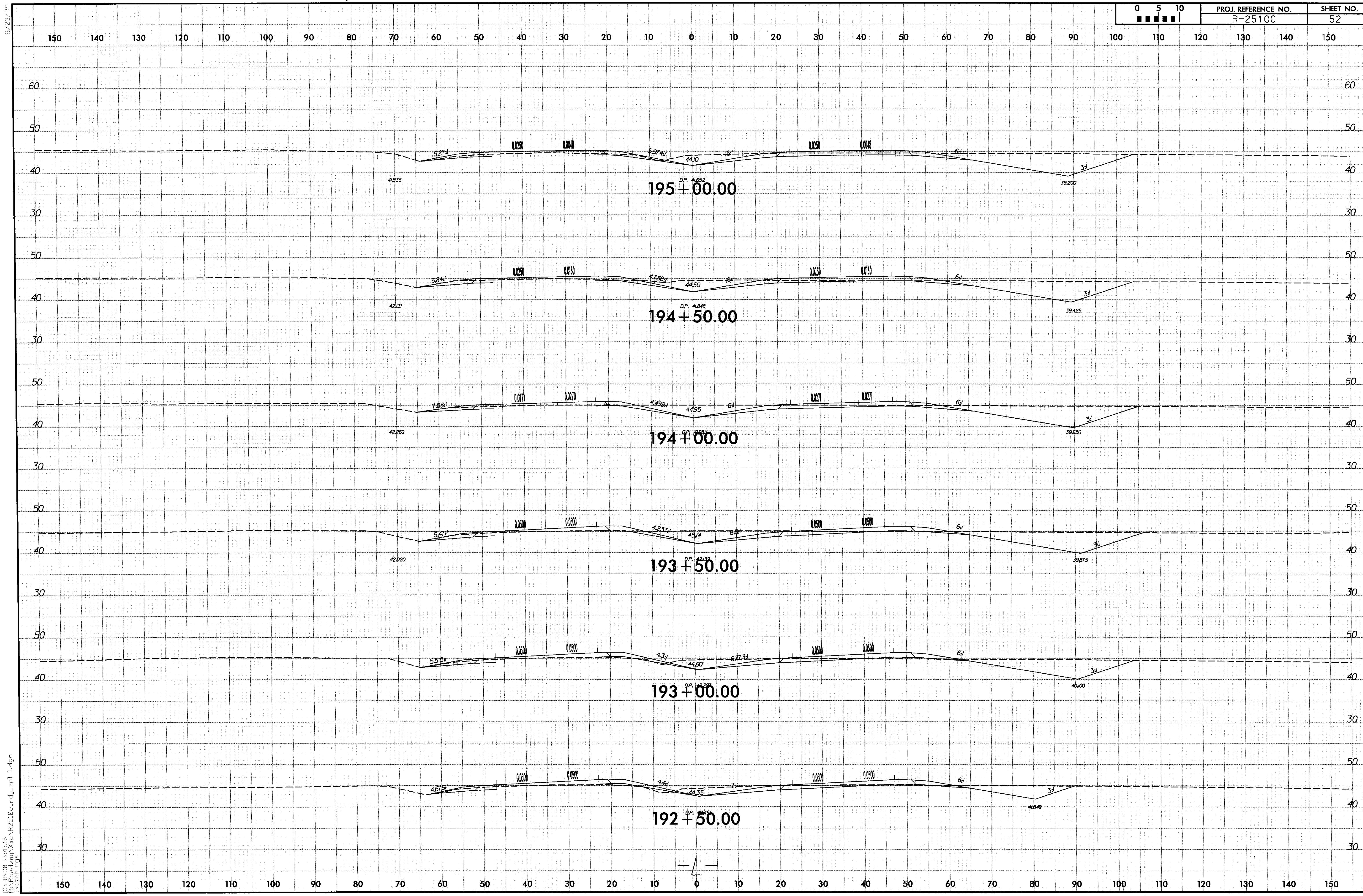
PROJ. REFERENCE NO.	SHEET NO.
R-2510C	50



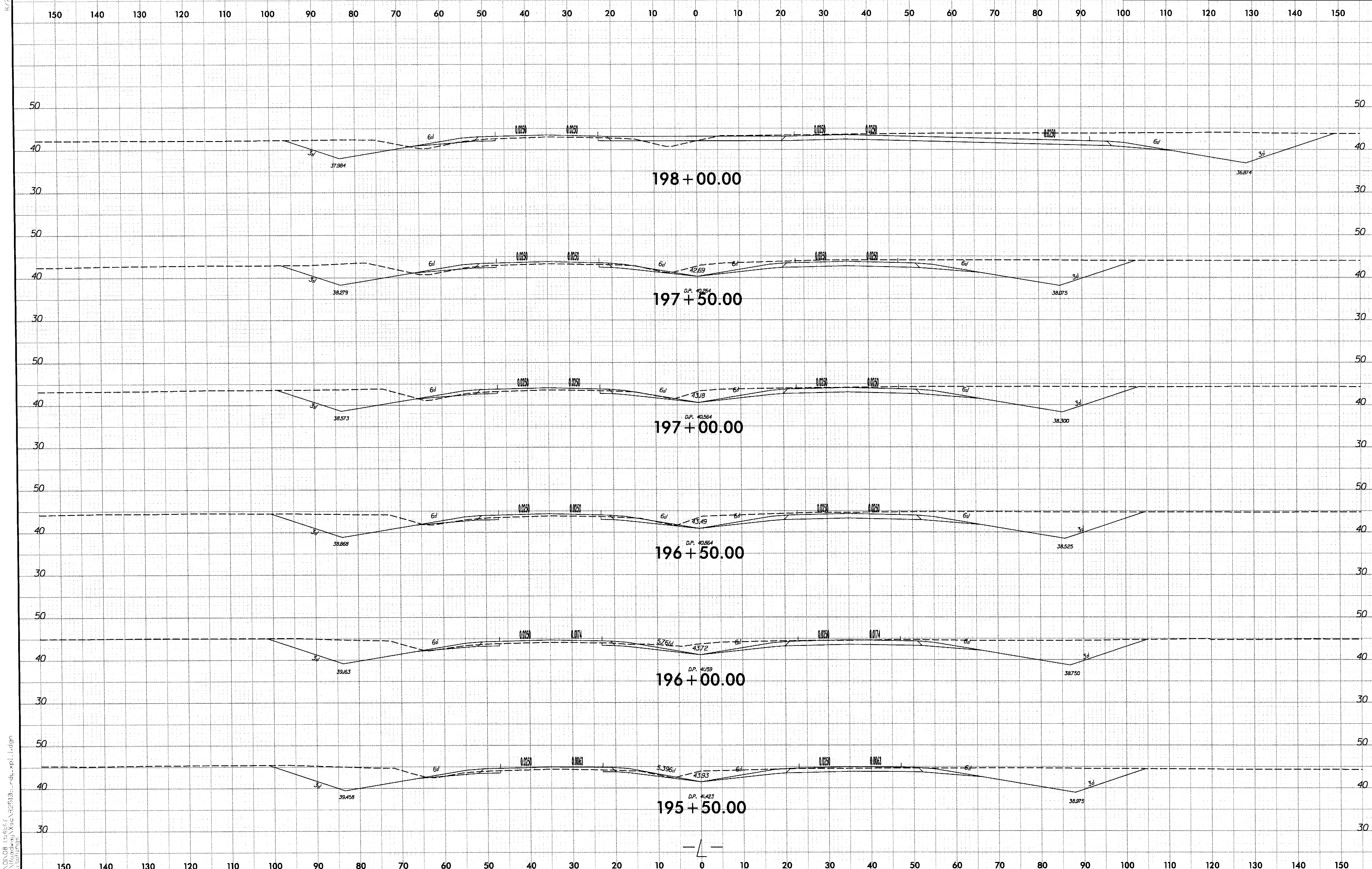
PROJ. REFERENCE NO.	SHEET NO.
R-2510C	51



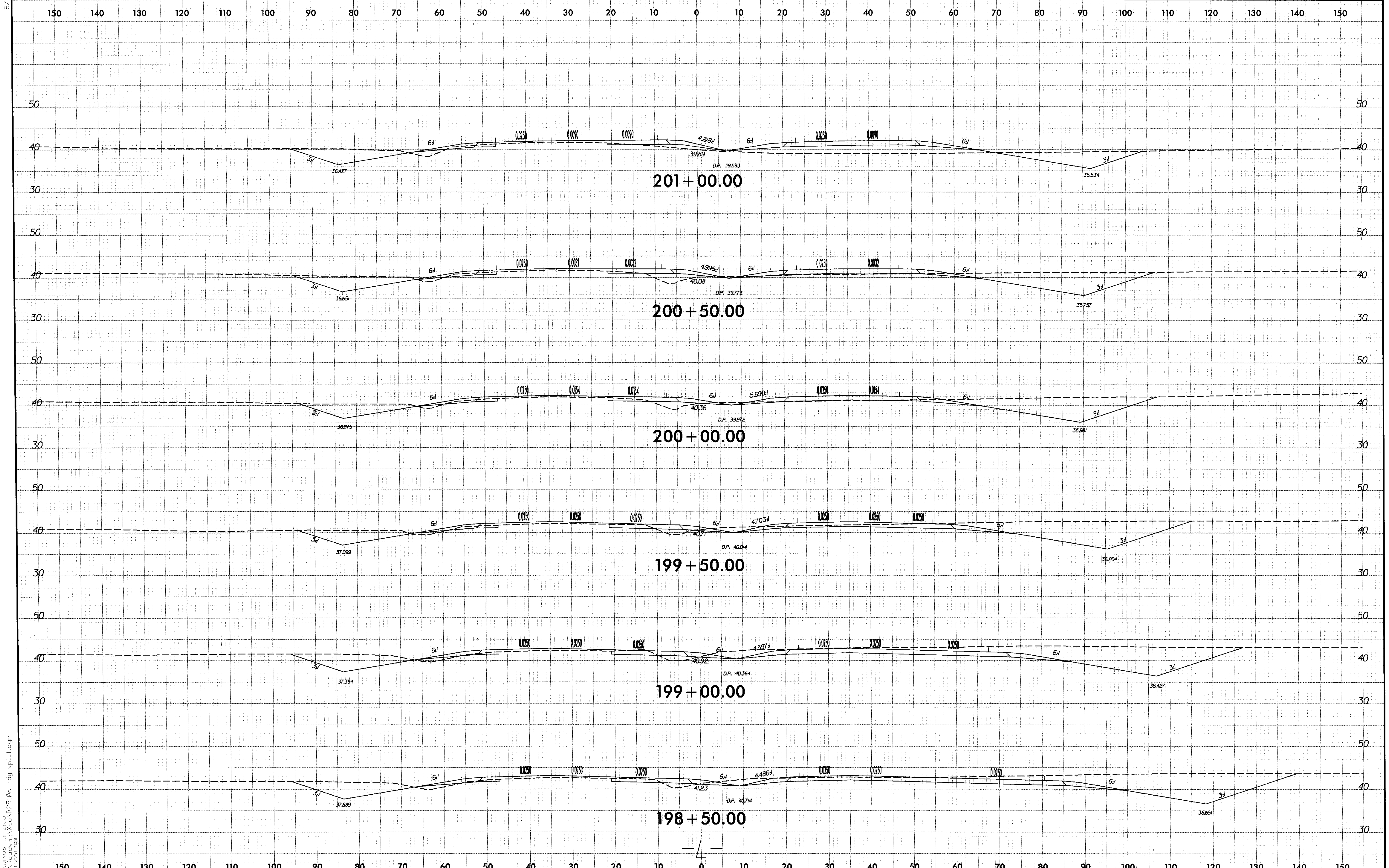
PROJ. REFERENCE NO.	SHEET NO.
R-2510C	52



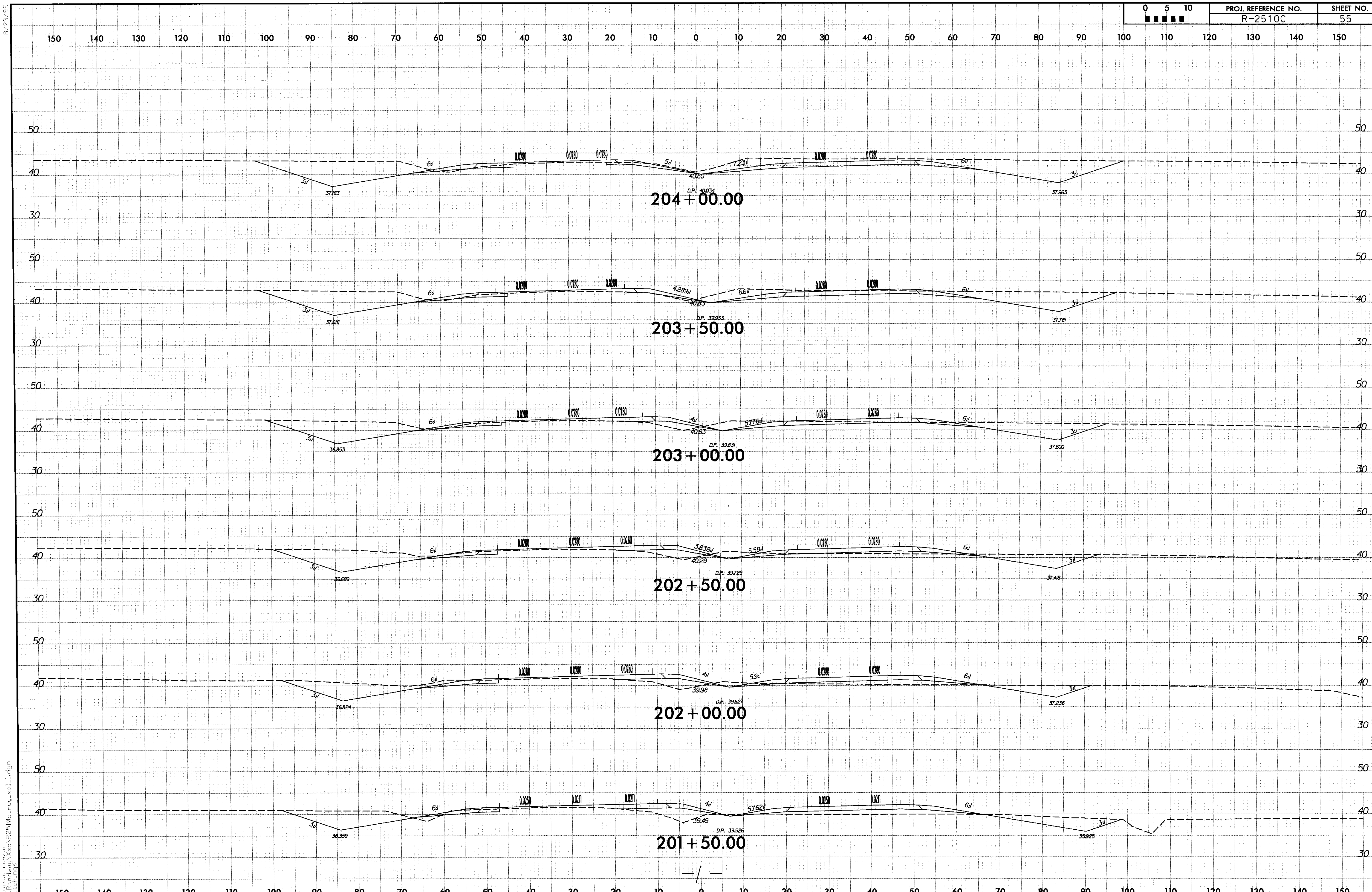
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2510C	53



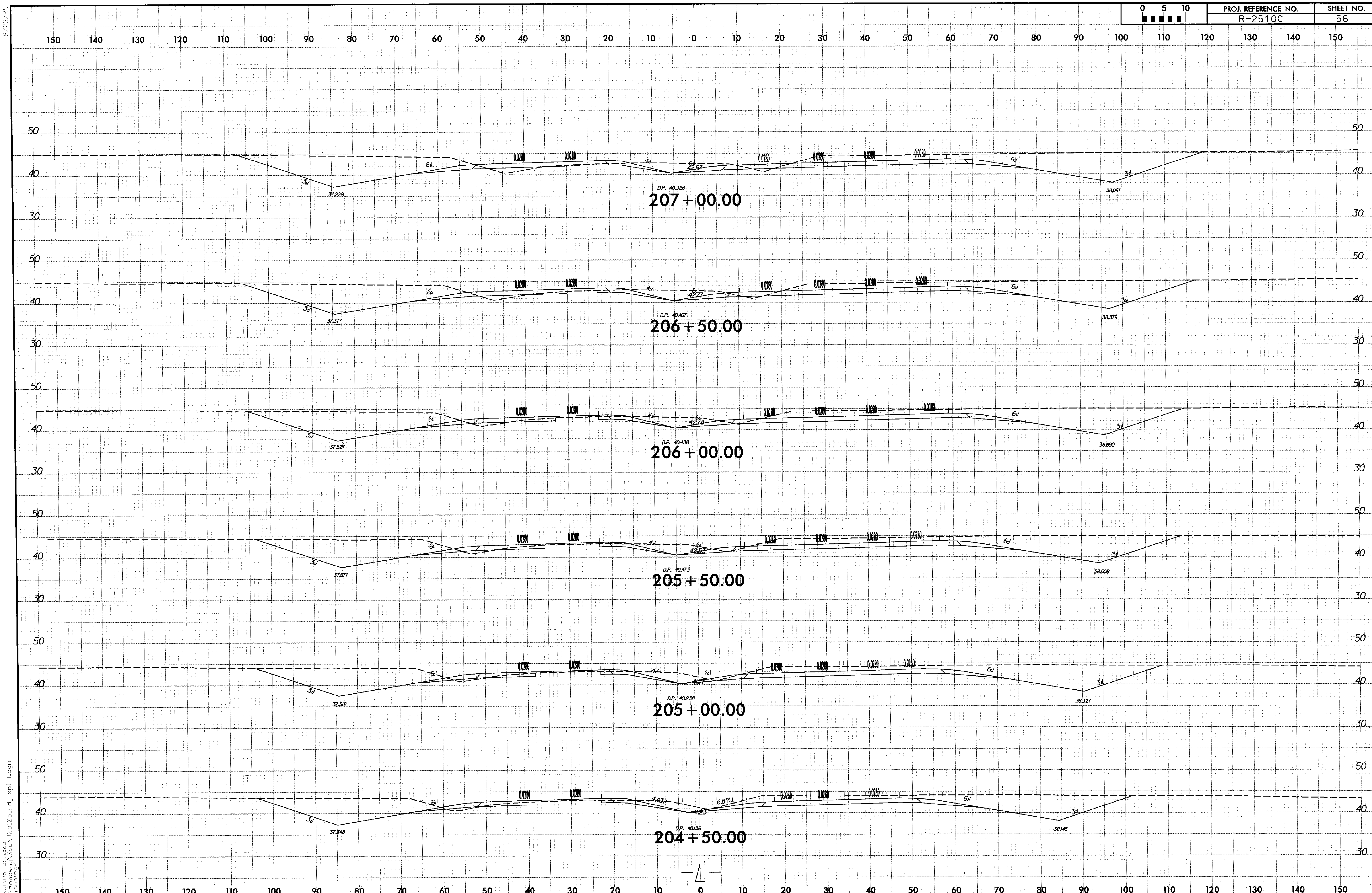
PROJ. REFERENCE NO.	SHEET NO.
R-2510C	54



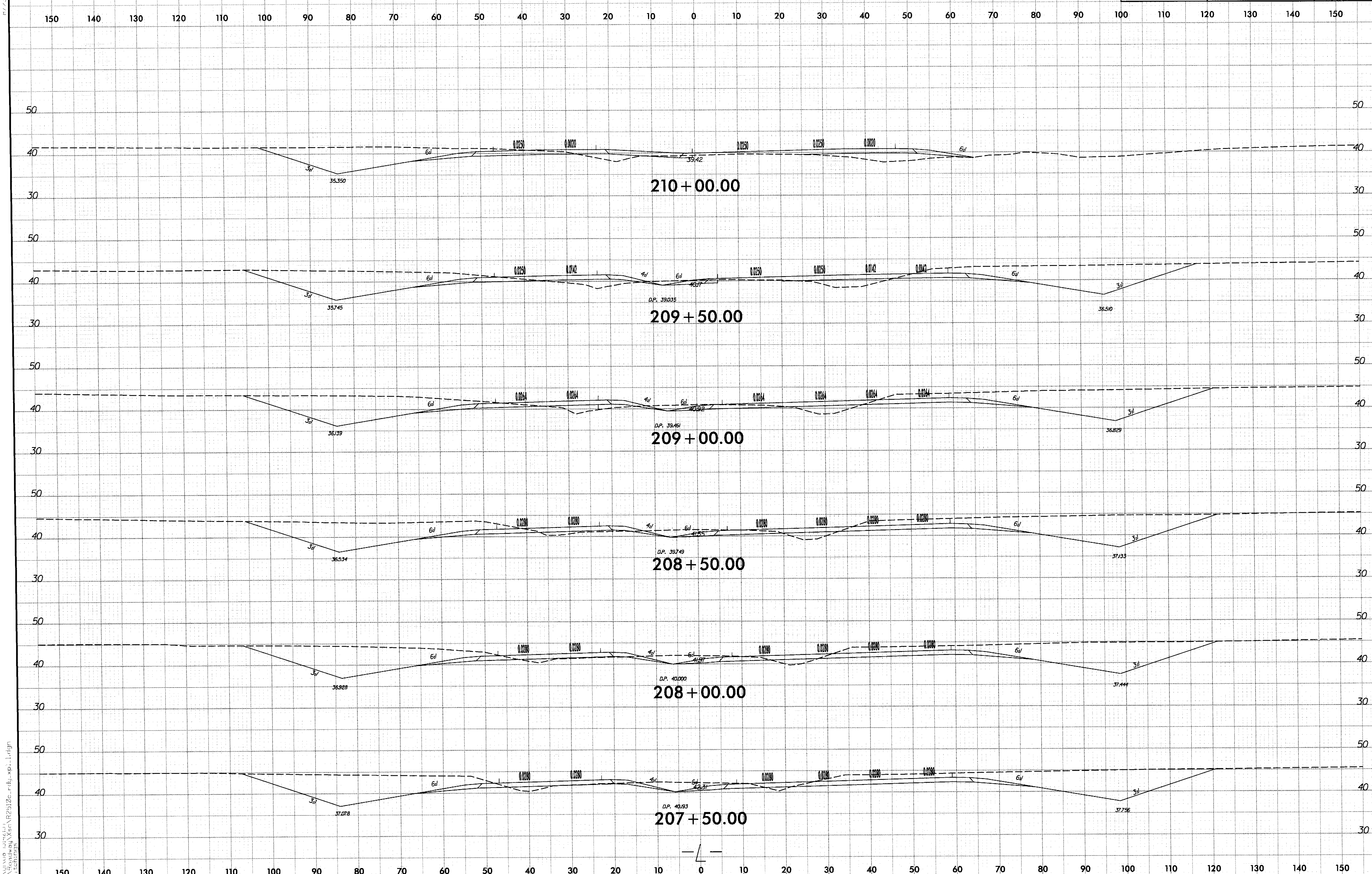
PROJ. REFERENCE NO.	SHEET NO.
R-2510C	55

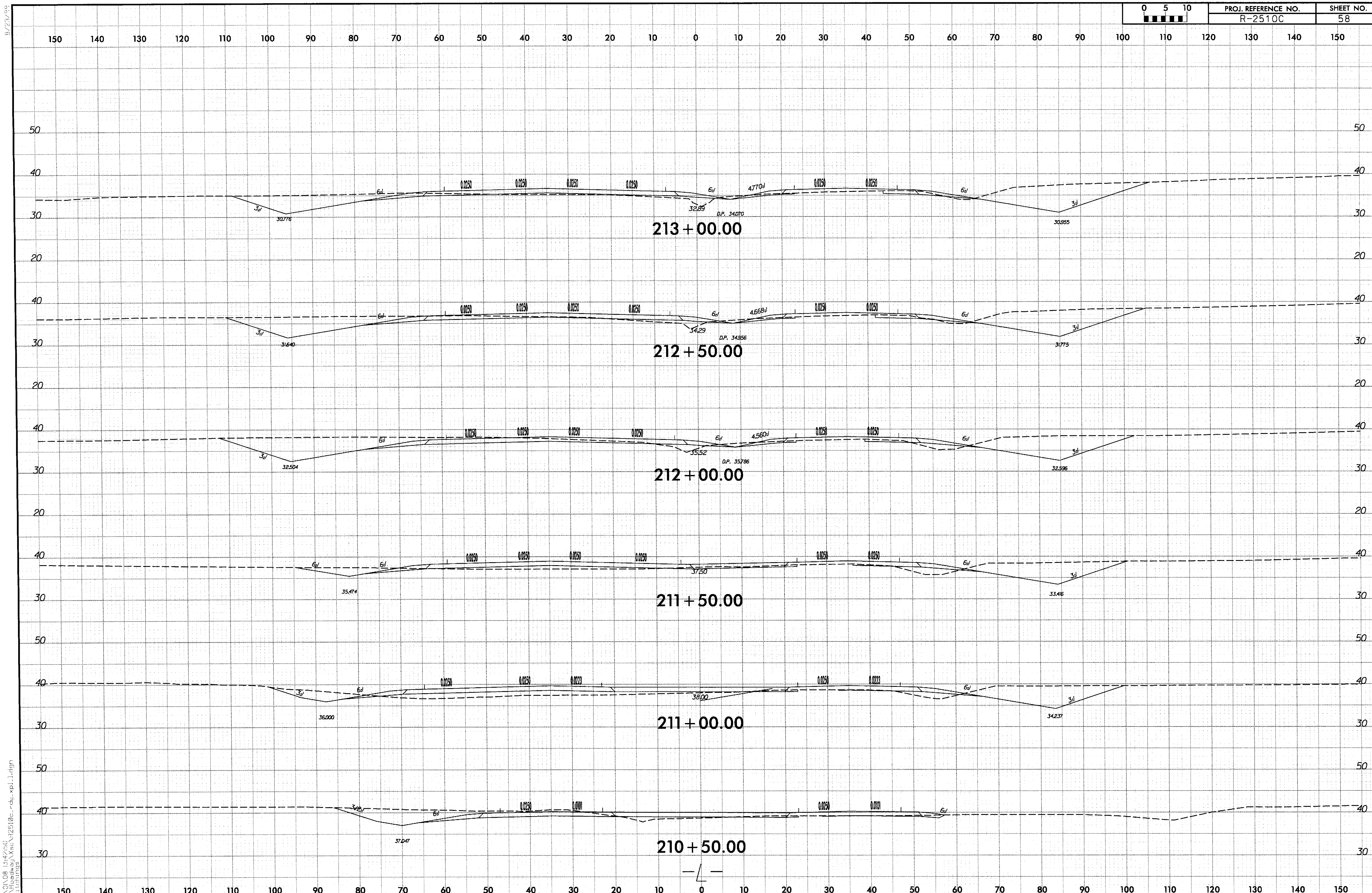


PROJ. REFERENCE NO.	SHEET NO.
R-2510C	56

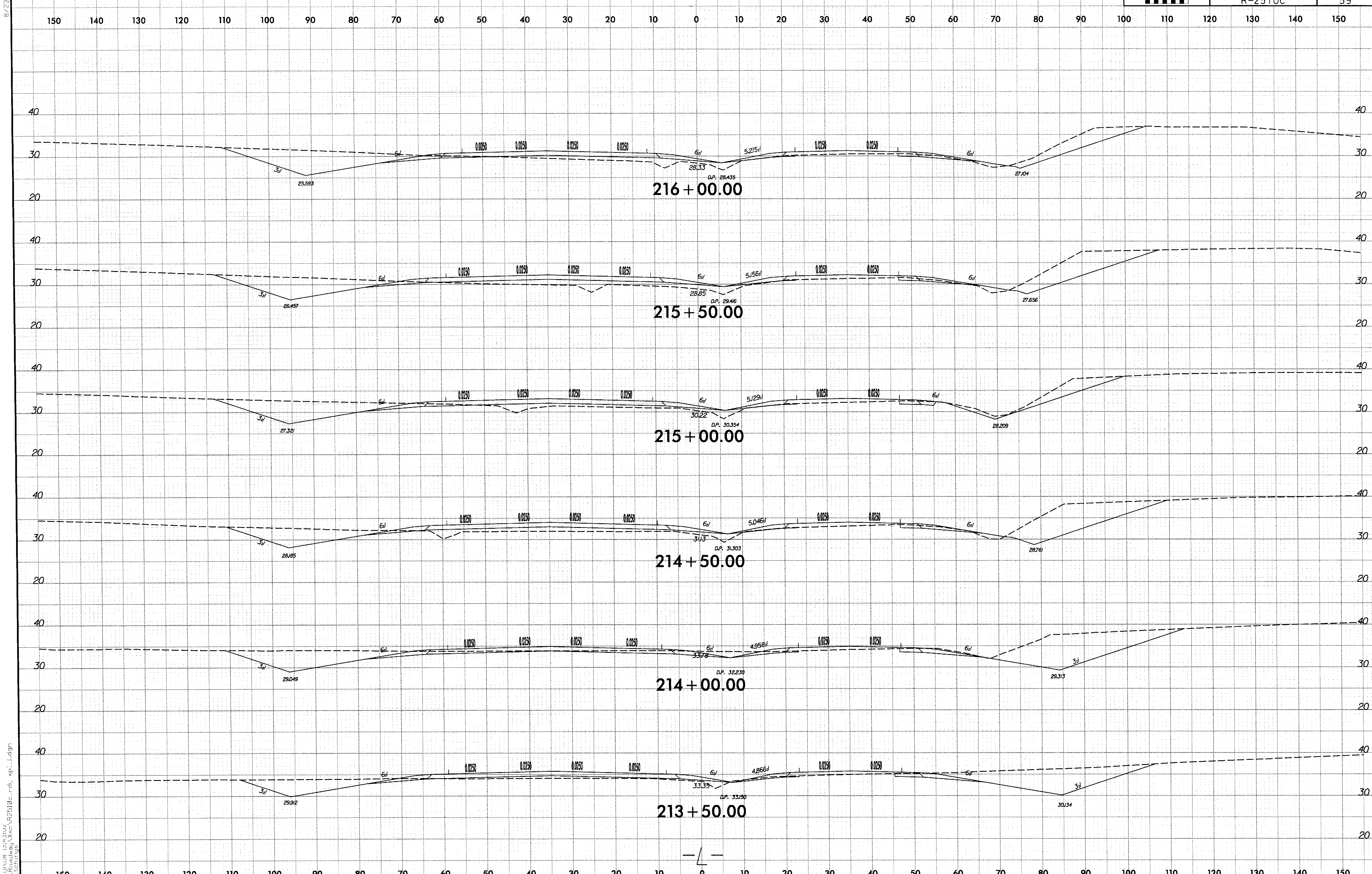


0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2510C	57

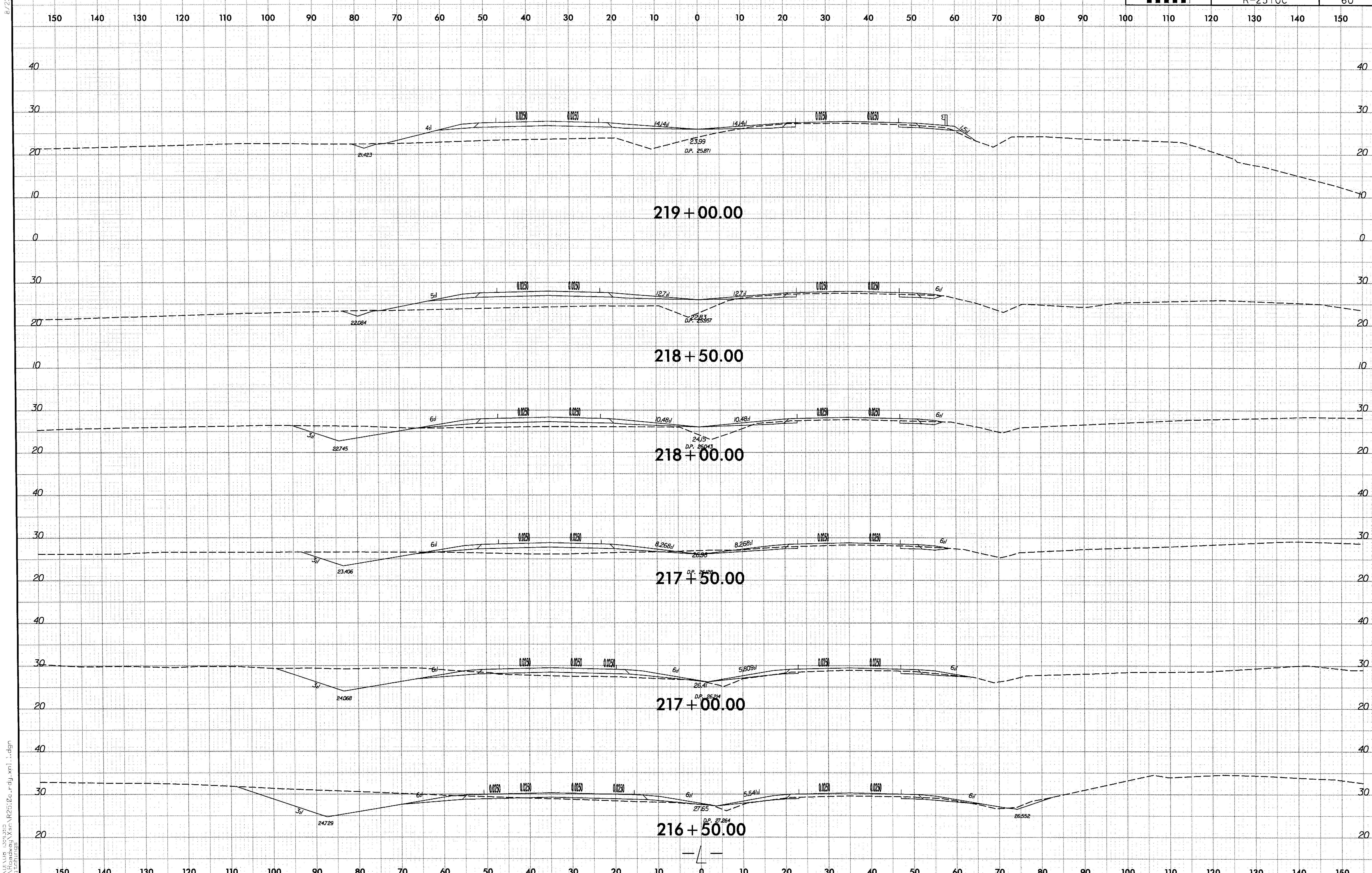



PROJ. REFERENCE NO.
R-2510C
SHEET NO.
58
0 5 10
213+00.00
212+50.00
212+00.00
211+50.00
211+00.00
210+50.00
-L-
D.P. 34.070
D.P. 34.956
D.P. 35.786

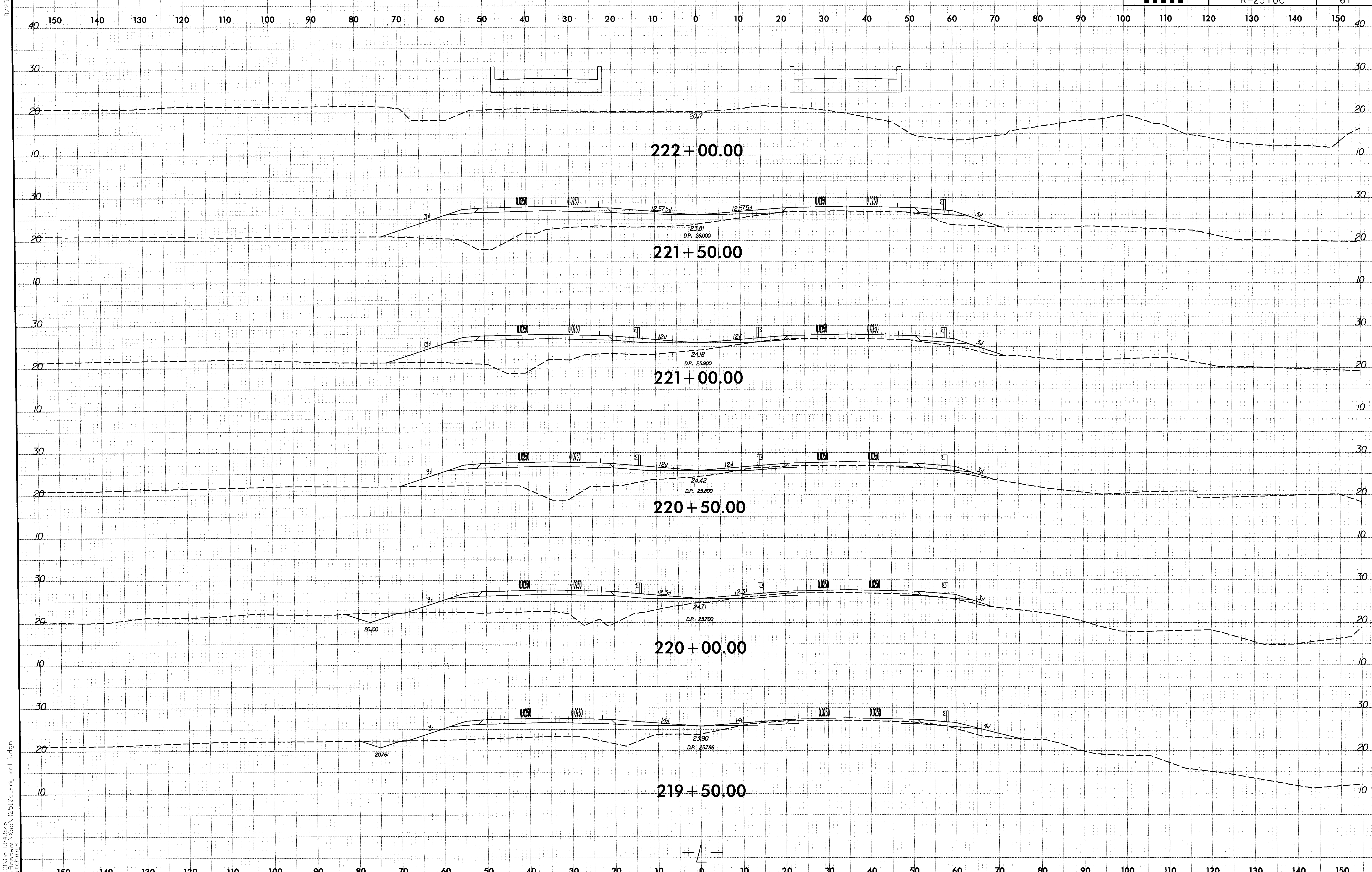
PROJ. REFERENCE NO.	SHEET NO.
R-2510C	59



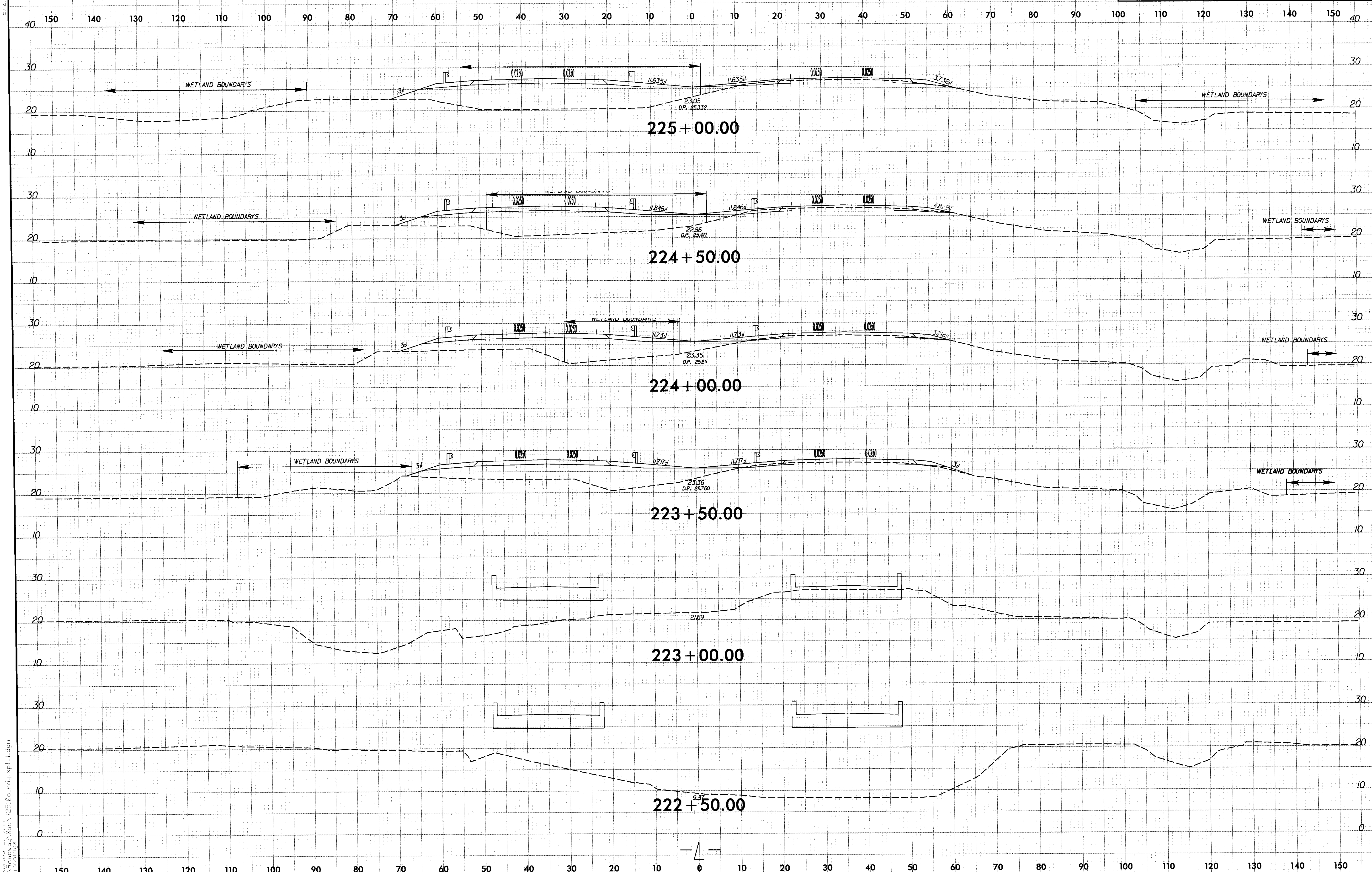
PROJ. REFERENCE NO.	SHEET NO.
R-2510C	60



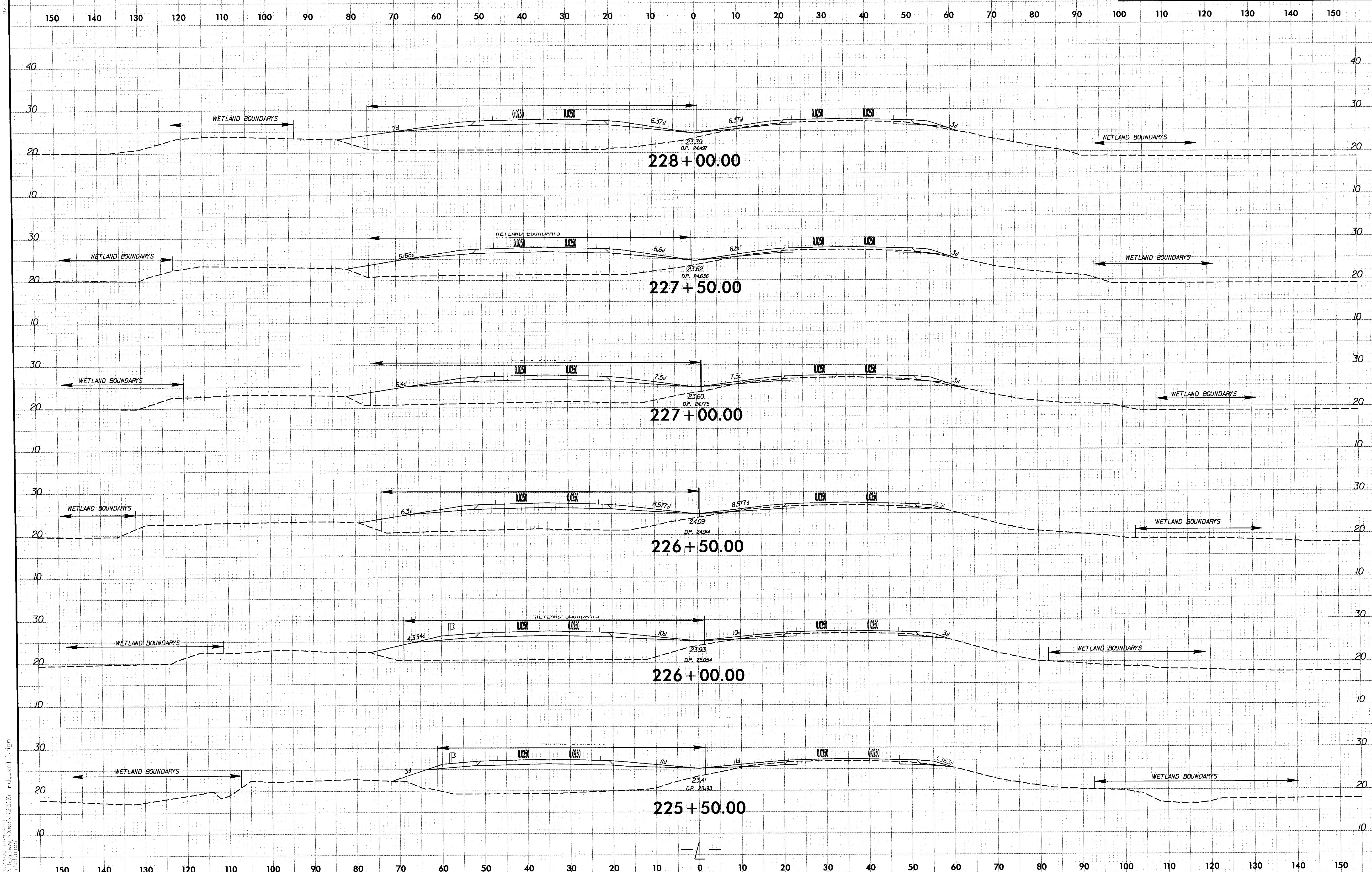
PROJ. REFERENCE NO.	SHEET NO.
R-2510C	61



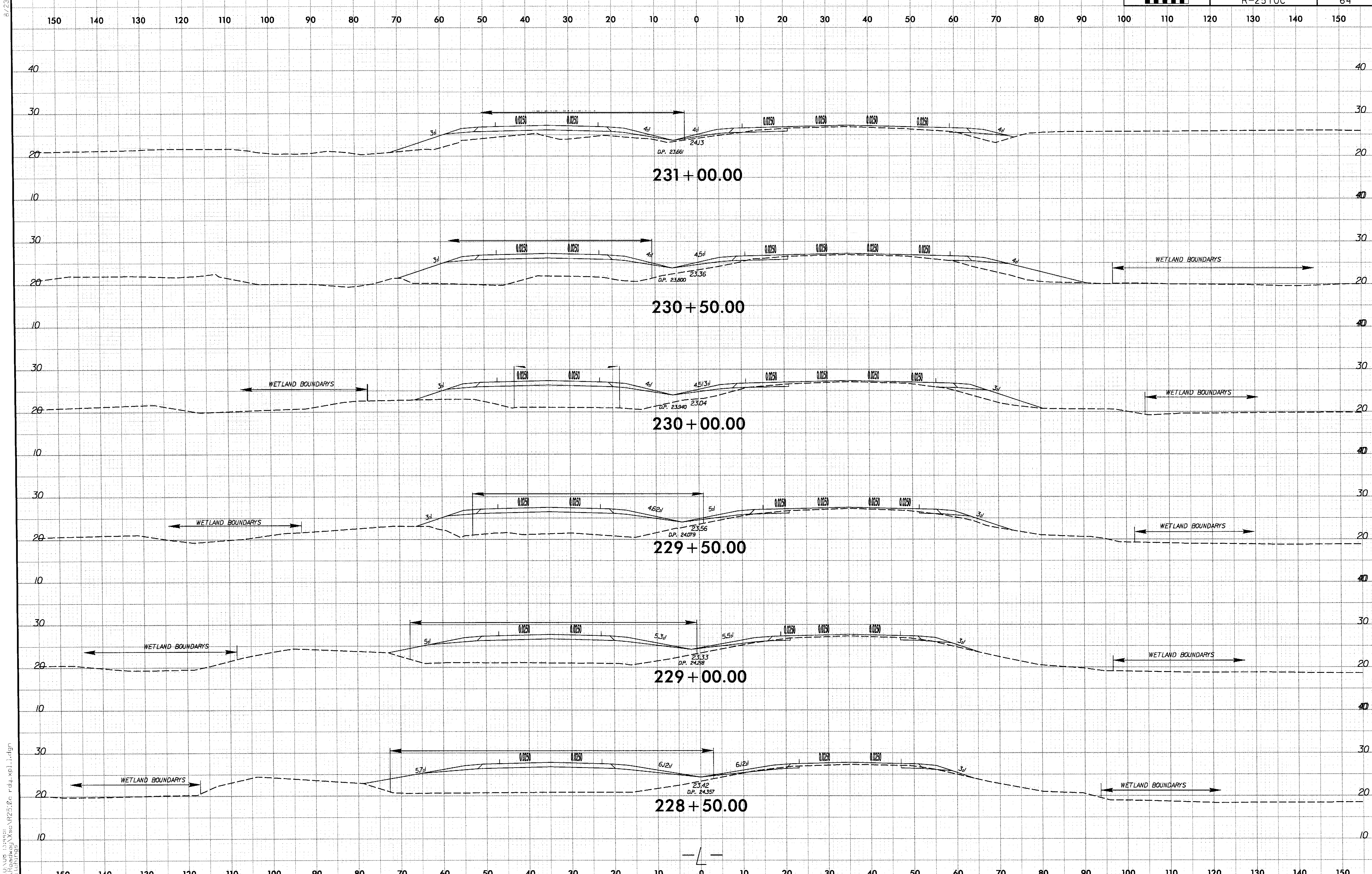
PROJ. REFERENCE NO.	SHEET NO.
R-2510C	62



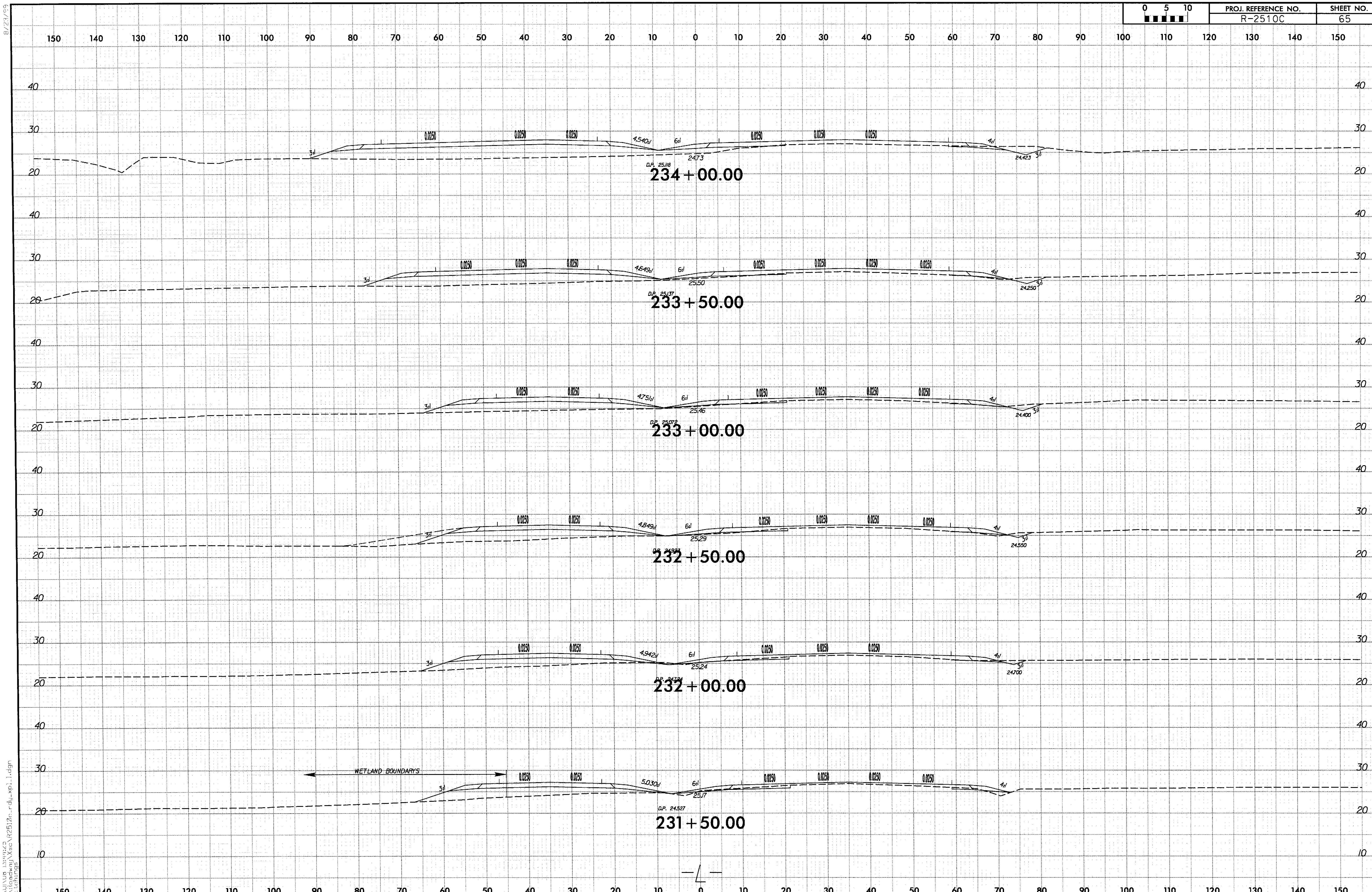
PROJ. REFERENCE NO.	SHEET NO.
R-2510C	63



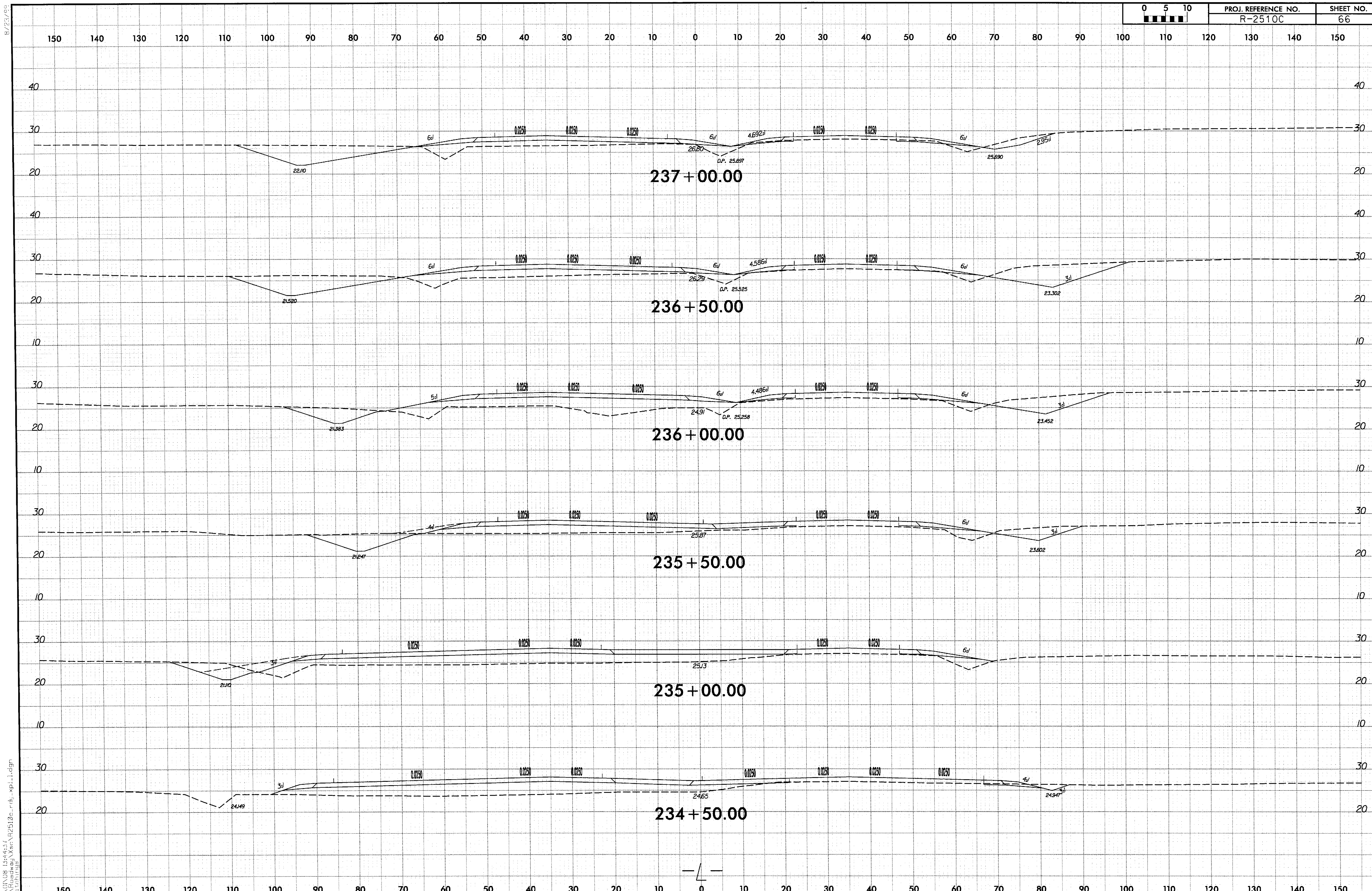
PROJ. REFERENCE NO.	SHEET NO.
R-2510C	64



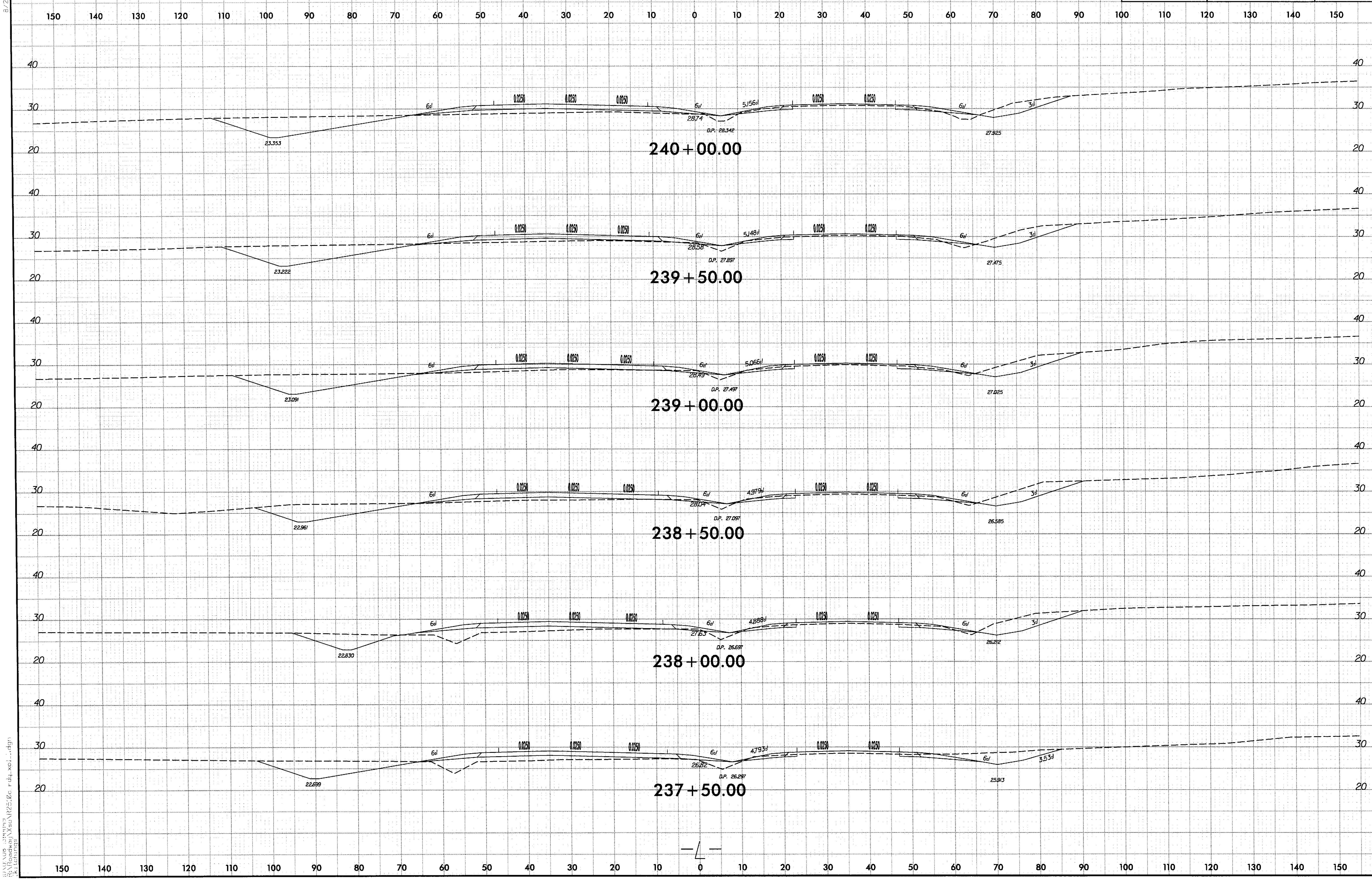
PROJ. REFERENCE NO.	SHEET NO.
R-2510C	65



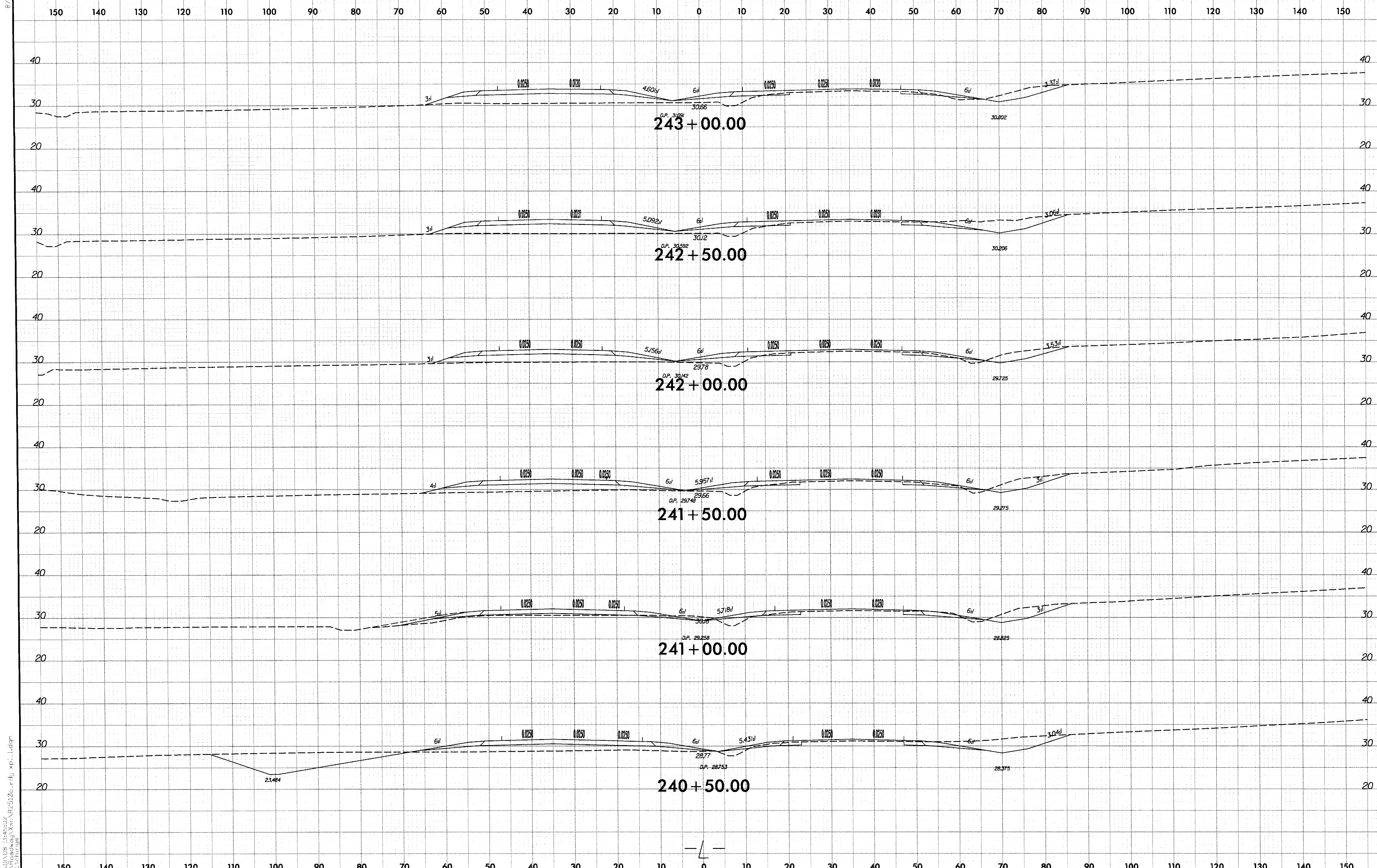
PROJ. REFERENCE NO.	SHEET NO.
R-2510C	66



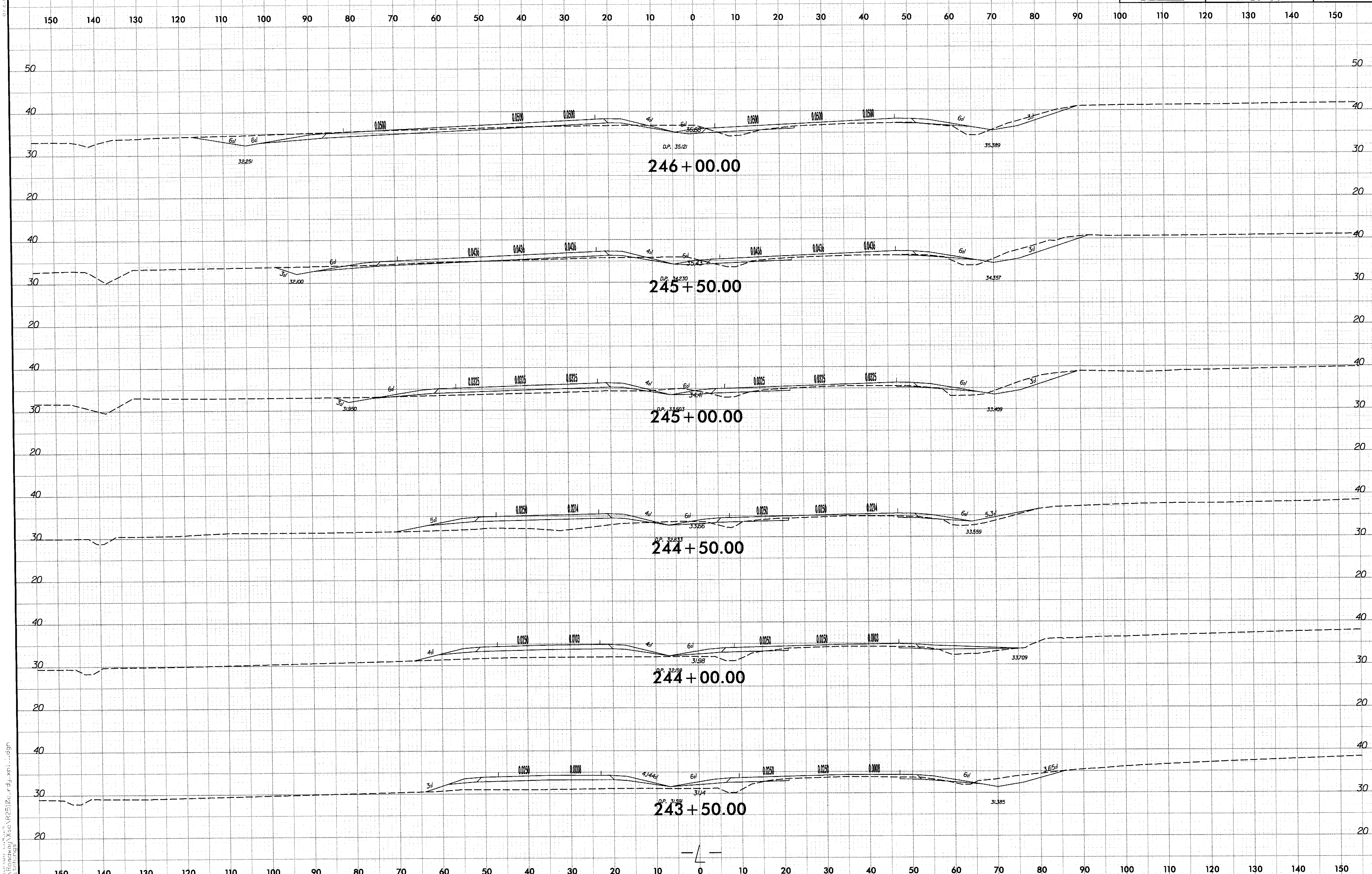
PROJ. REFERENCE NO.	SHEET NO.
R-2510C	67



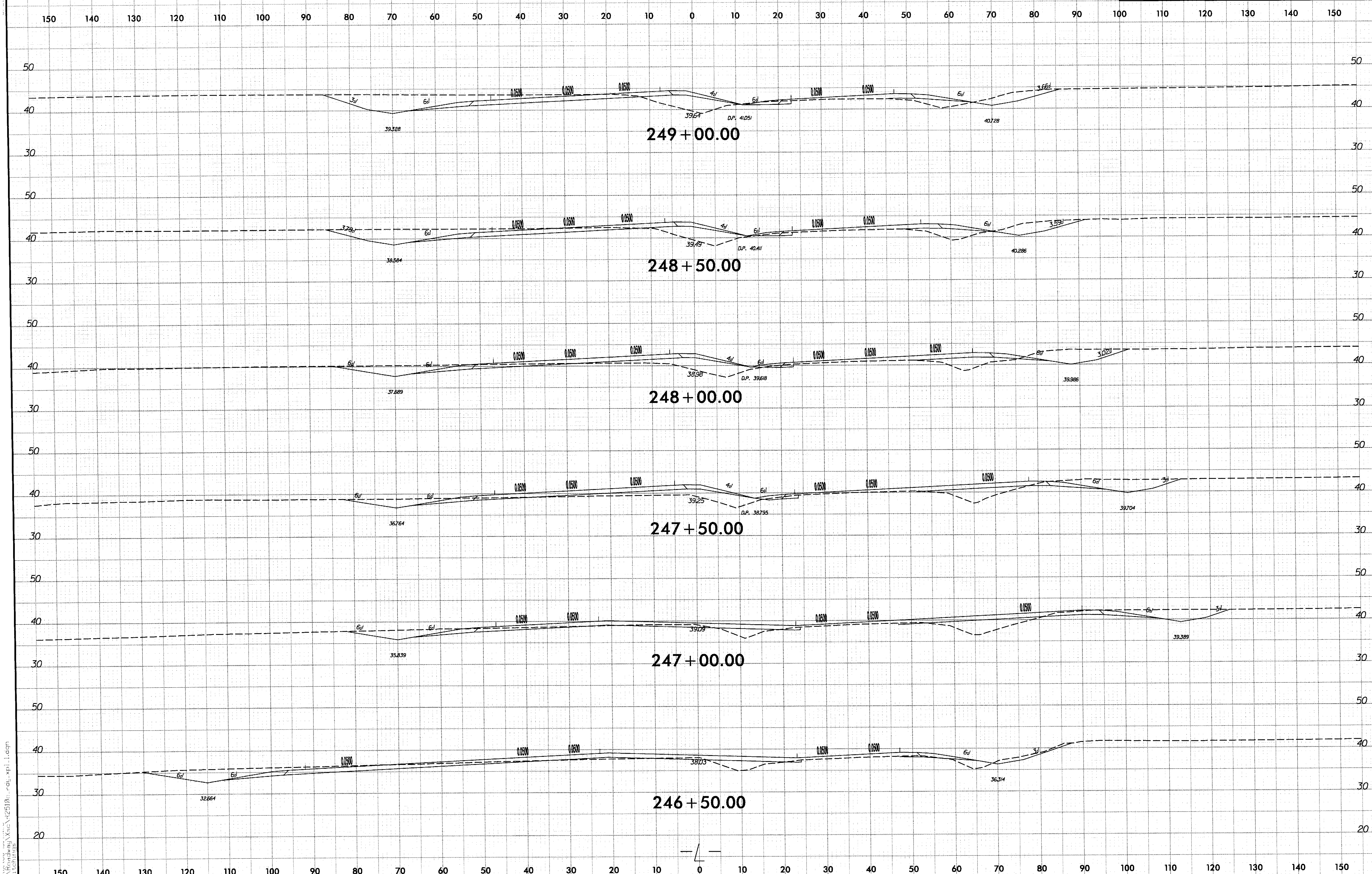
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2510C	68



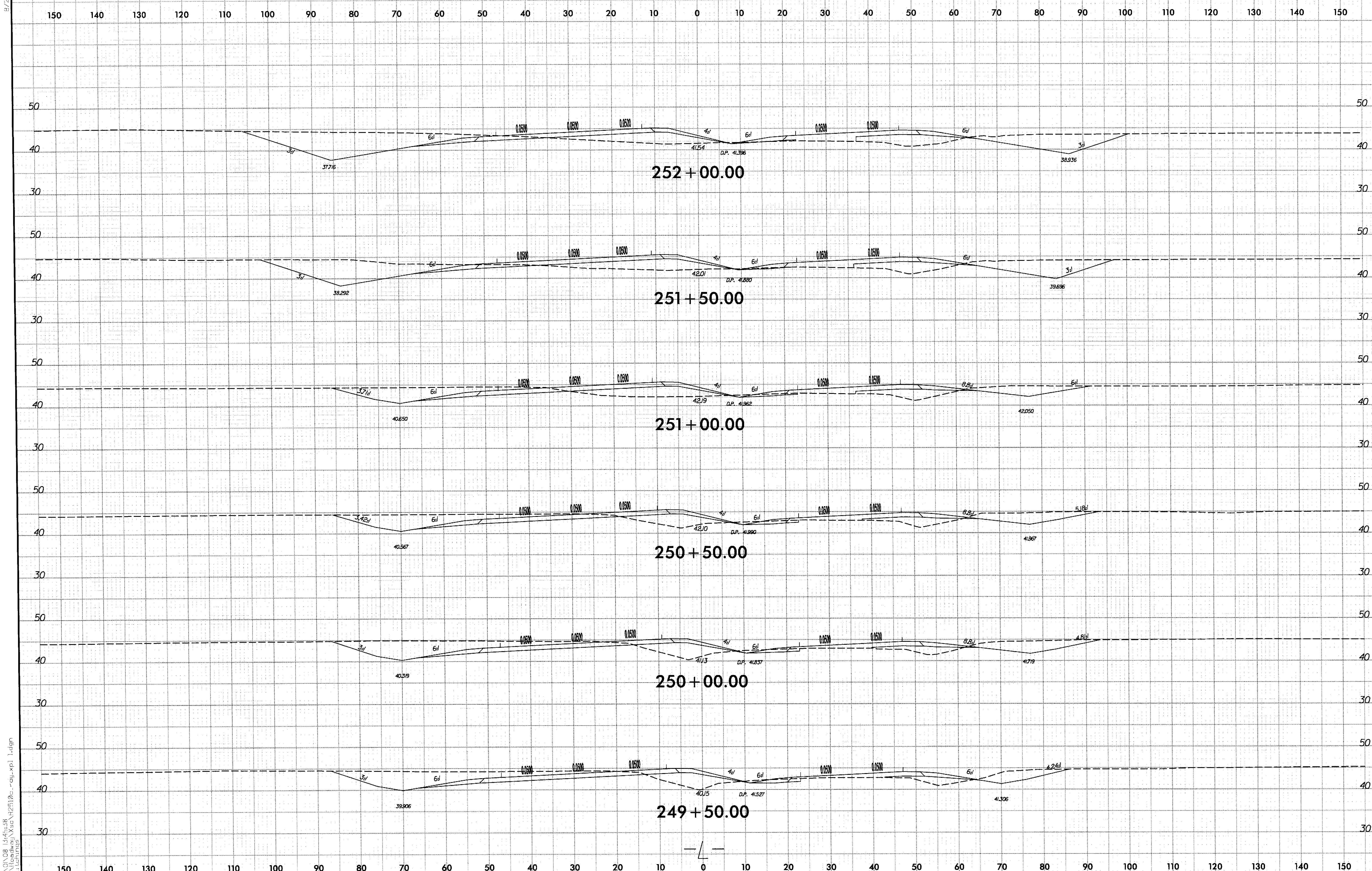
PROJ. REFERENCE NO.	SHEET NO.
R-2510C	69



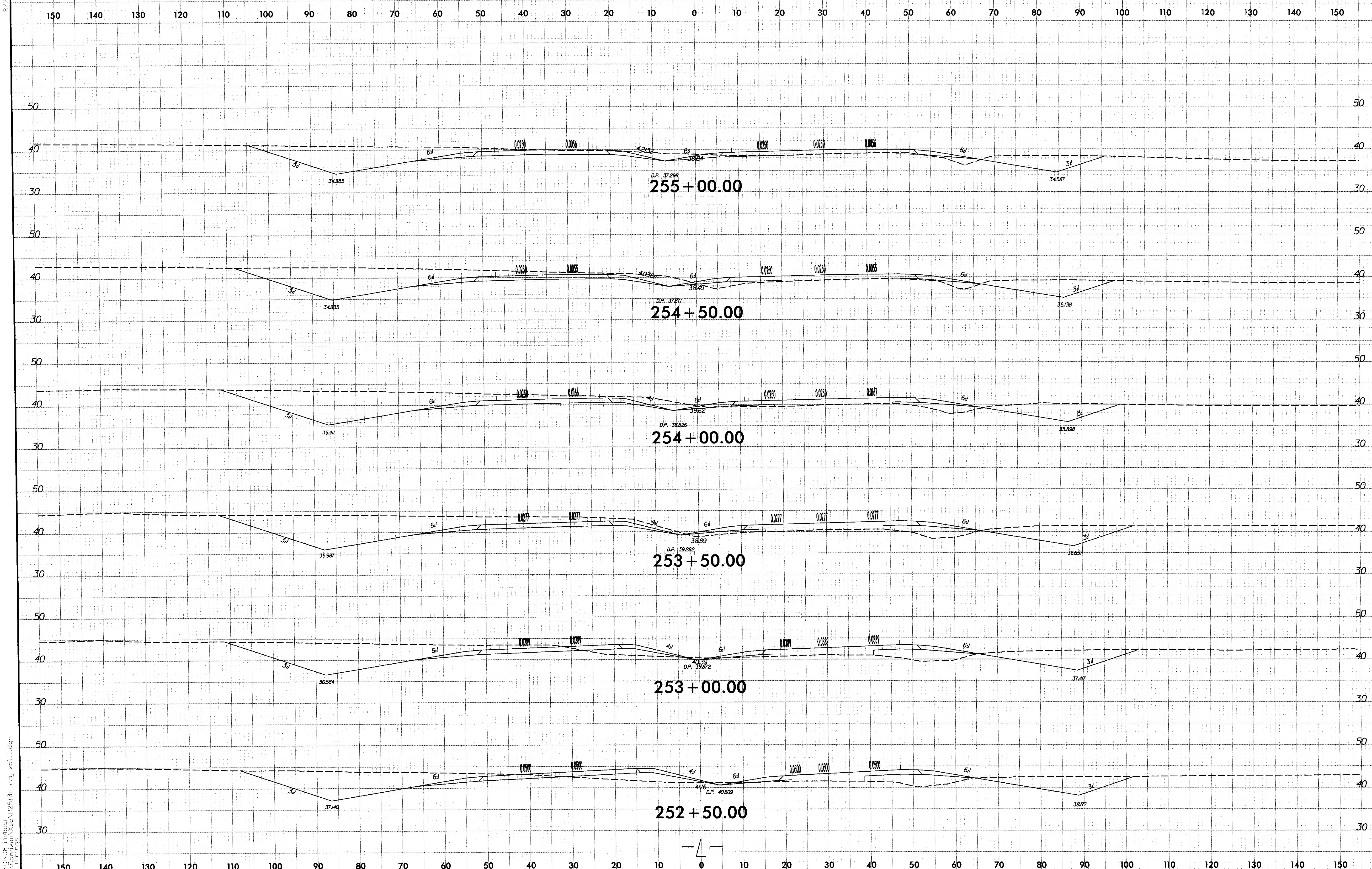
PROJ. REFERENCE NO.	SHEET NO.
R-2510C	70

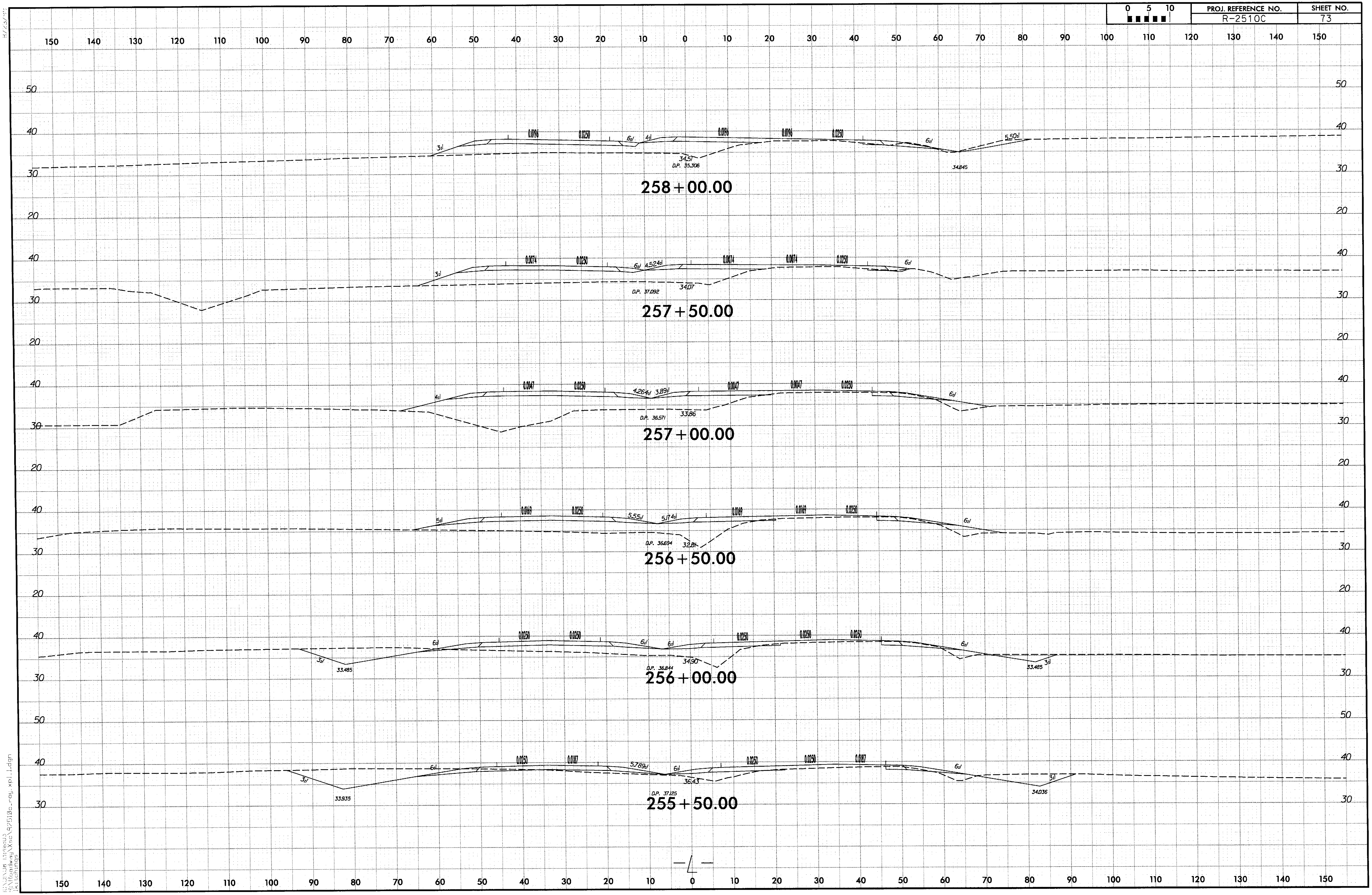


PROJ. REFERENCE NO.	SHEET NO.
R-2510C	71

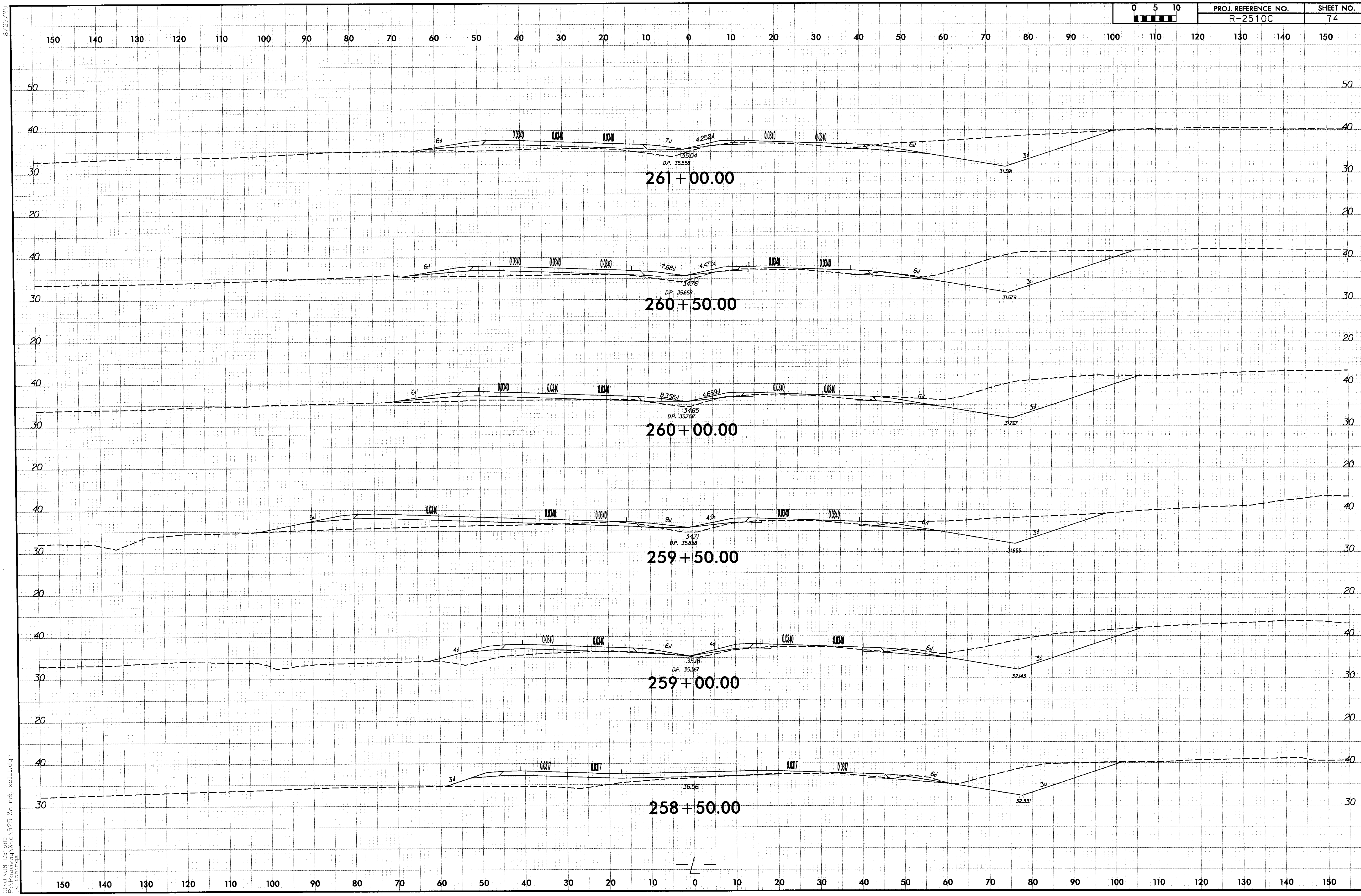


PROJ. REFERENCE NO.	SHEET NO.
R-2510C	72



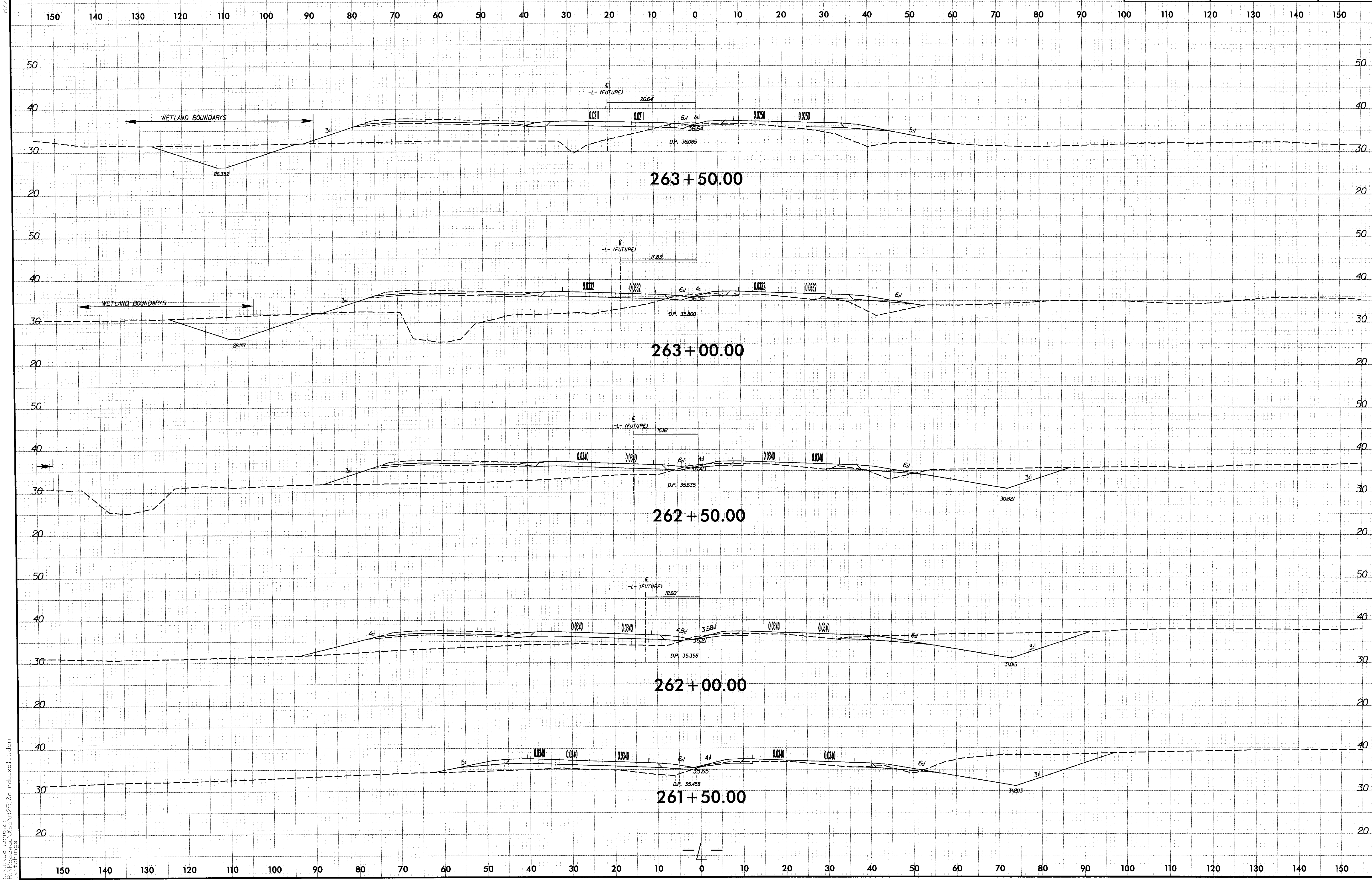


0 5 10
PROJ. REFERENCE NO.
R-2510C
SHEET NO.
73
258+00.00
257+50.00
257+00.00
256+50.00
256+00.00
255+50.00

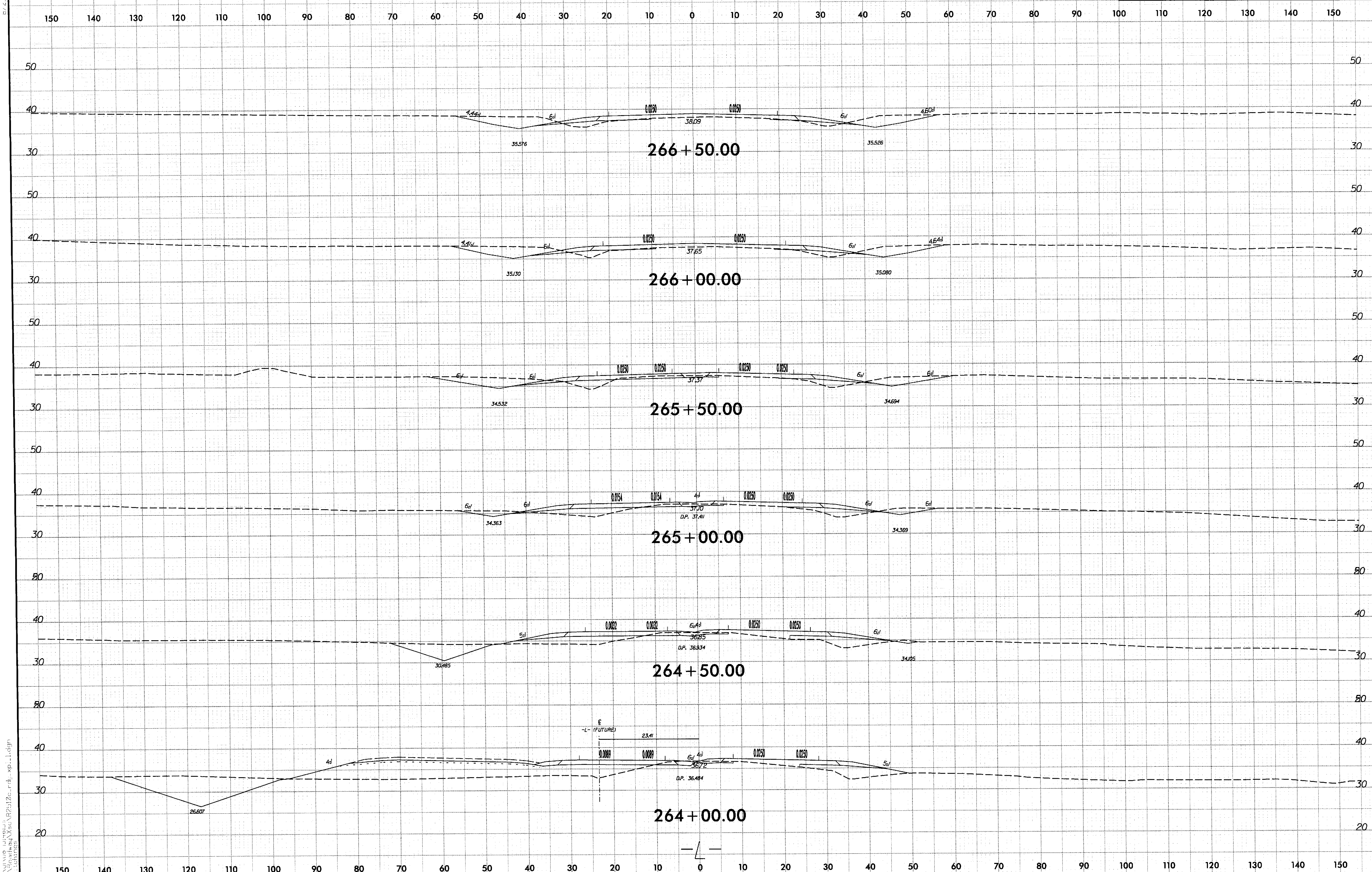


0 5 10
PROJ. REFERENCE NO.
R-2510C
SHEET NO.
74
261+00.00
D.P. 35.558
35.04
31.391
260+50.00
D.P. 35.658
34.76
31.579
260+00.00
D.P. 35.758
34.65
31.767
259+50.00
D.P. 35.858
34.71
31.955
259+00.00
D.P. 35.367
35.18
32.143
258+50.00
36.56
32.331
-L-

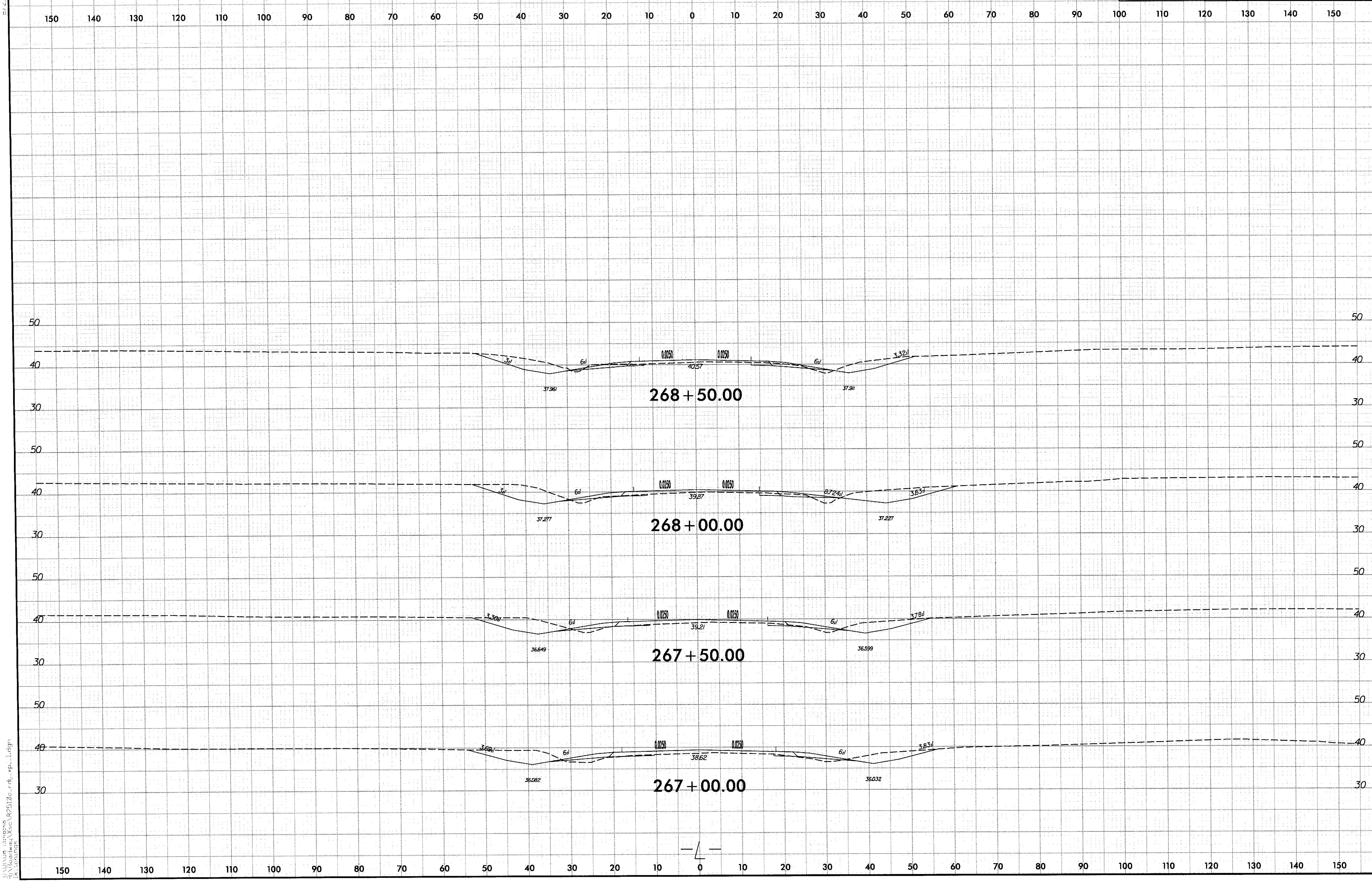
PROJ. REFERENCE NO.	SHEET NO.
R-2510C	75



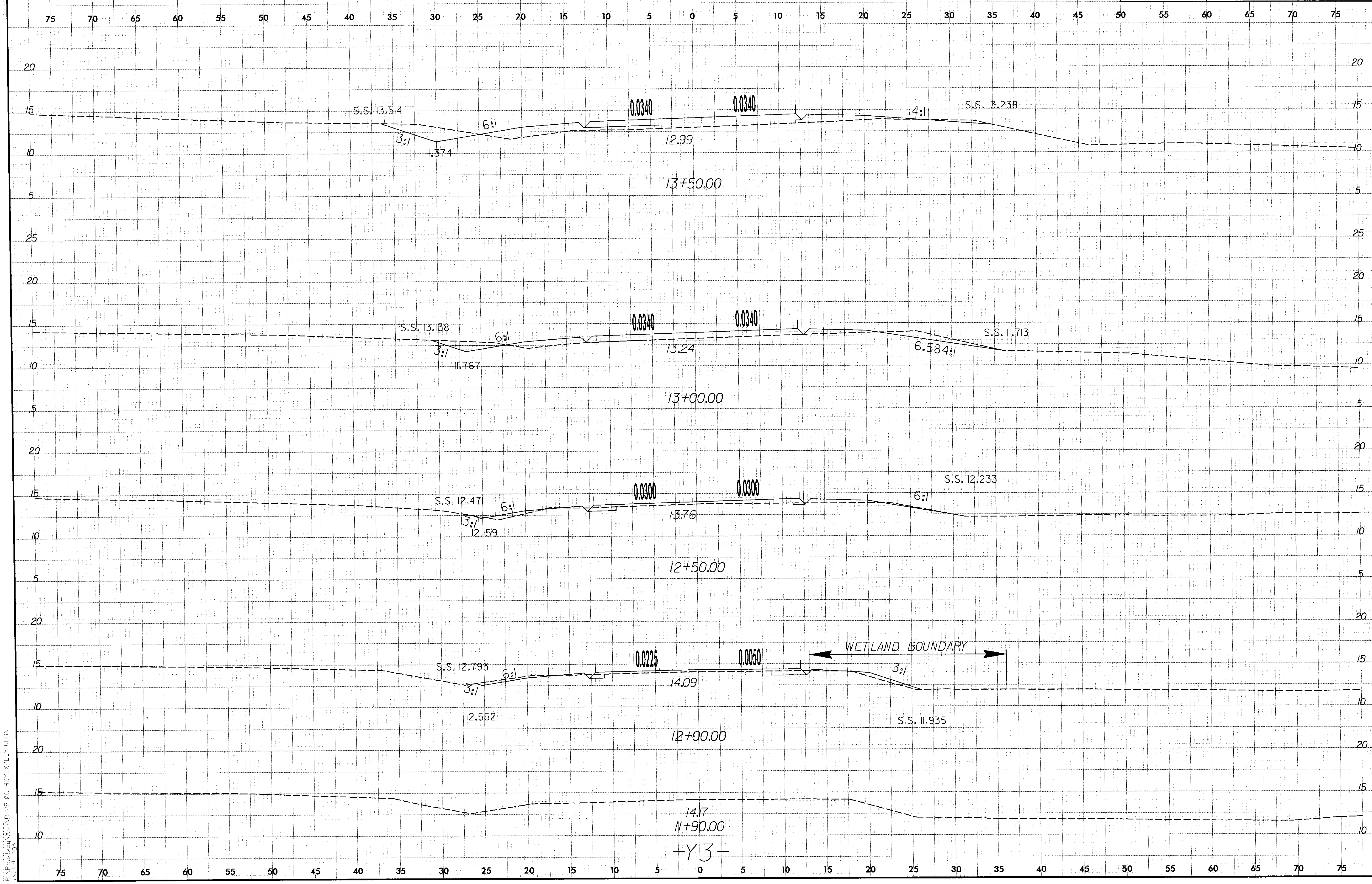
PROJ. REFERENCE NO.	SHEET NO.
R-2510C	76



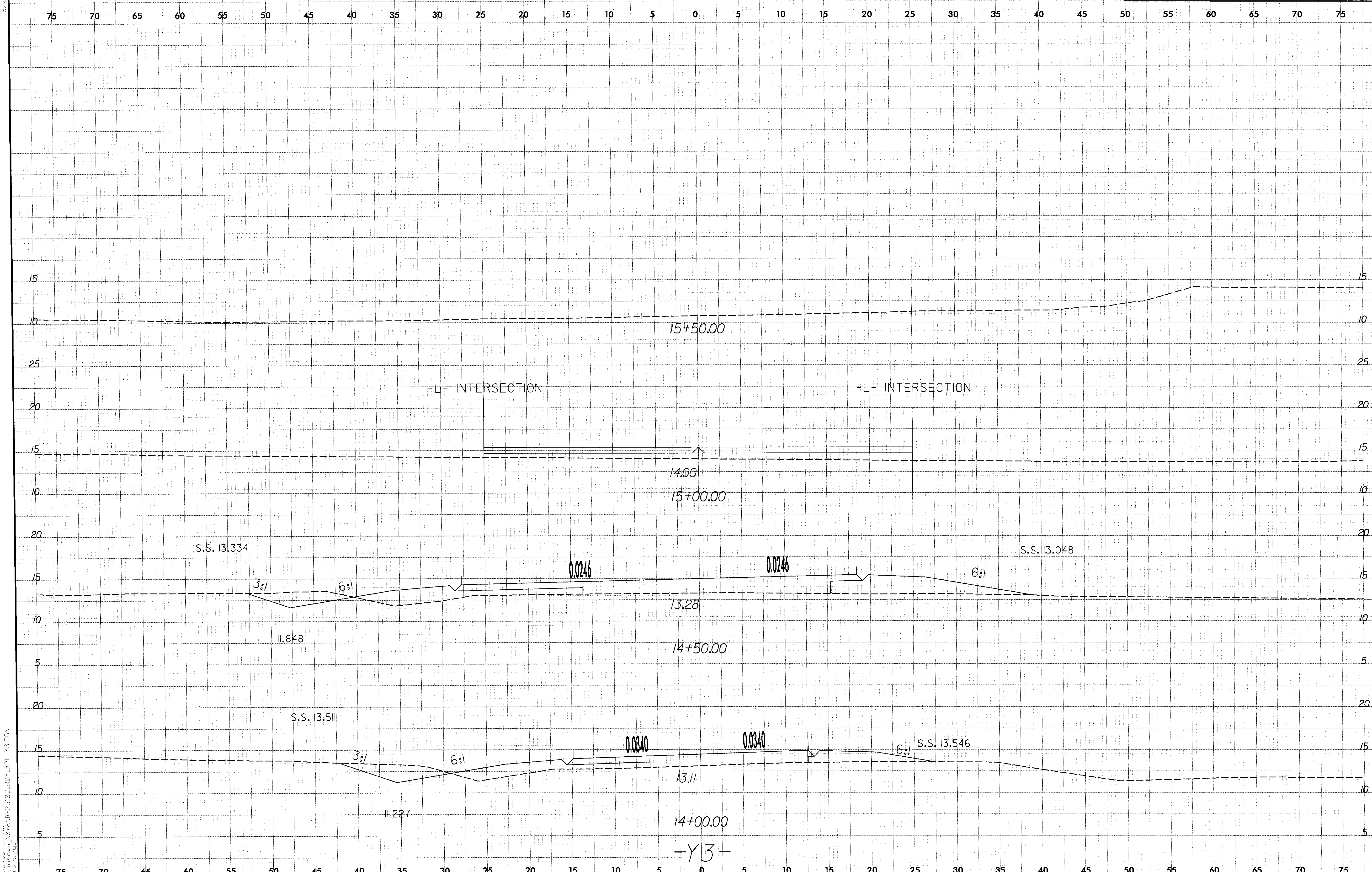
PROJ. REFERENCE NO.	SHEET NO.
R-2510C	77



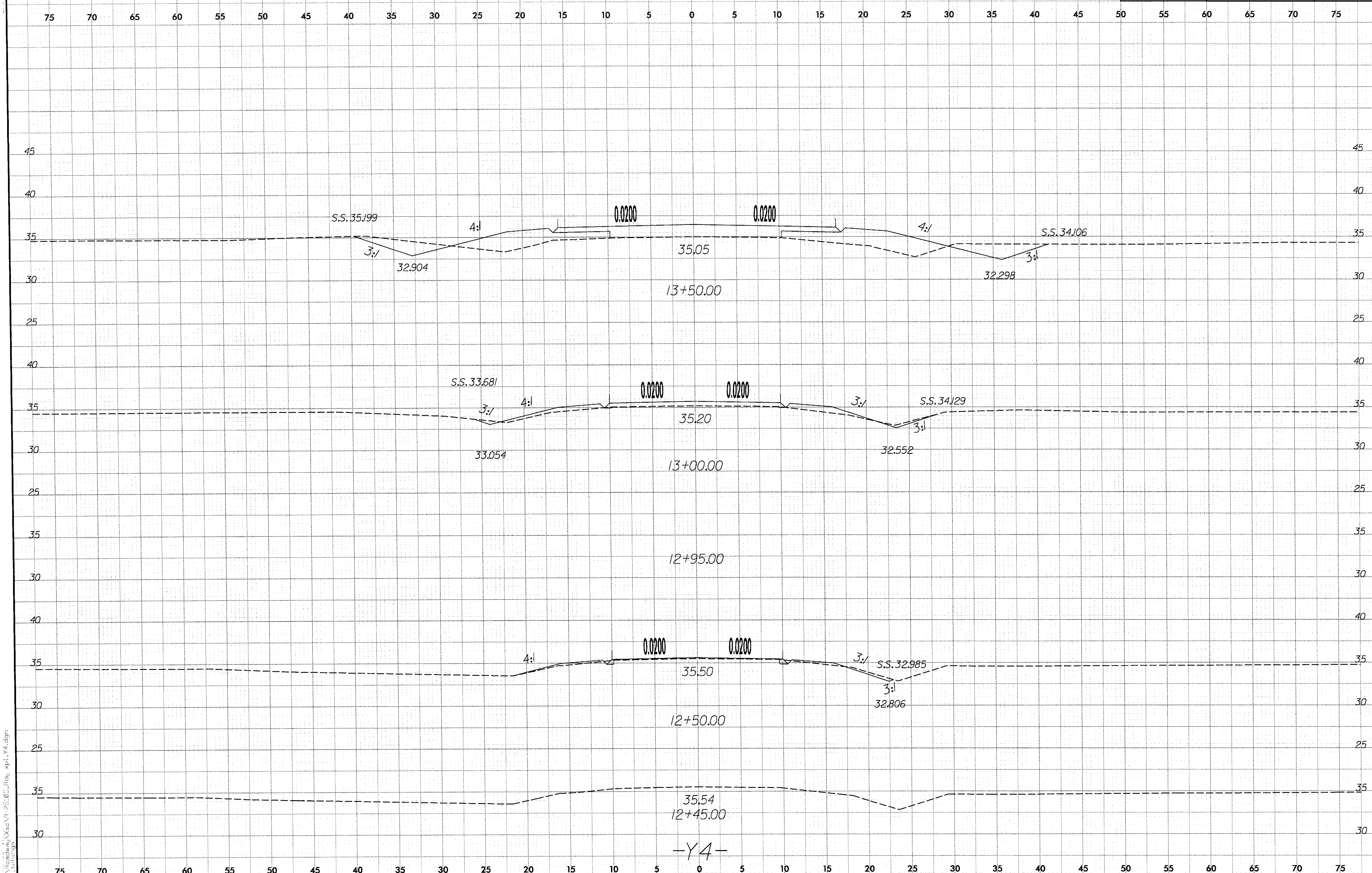
PROJ. REFERENCE NO.	SHEET NO.
R-2510C	X-78



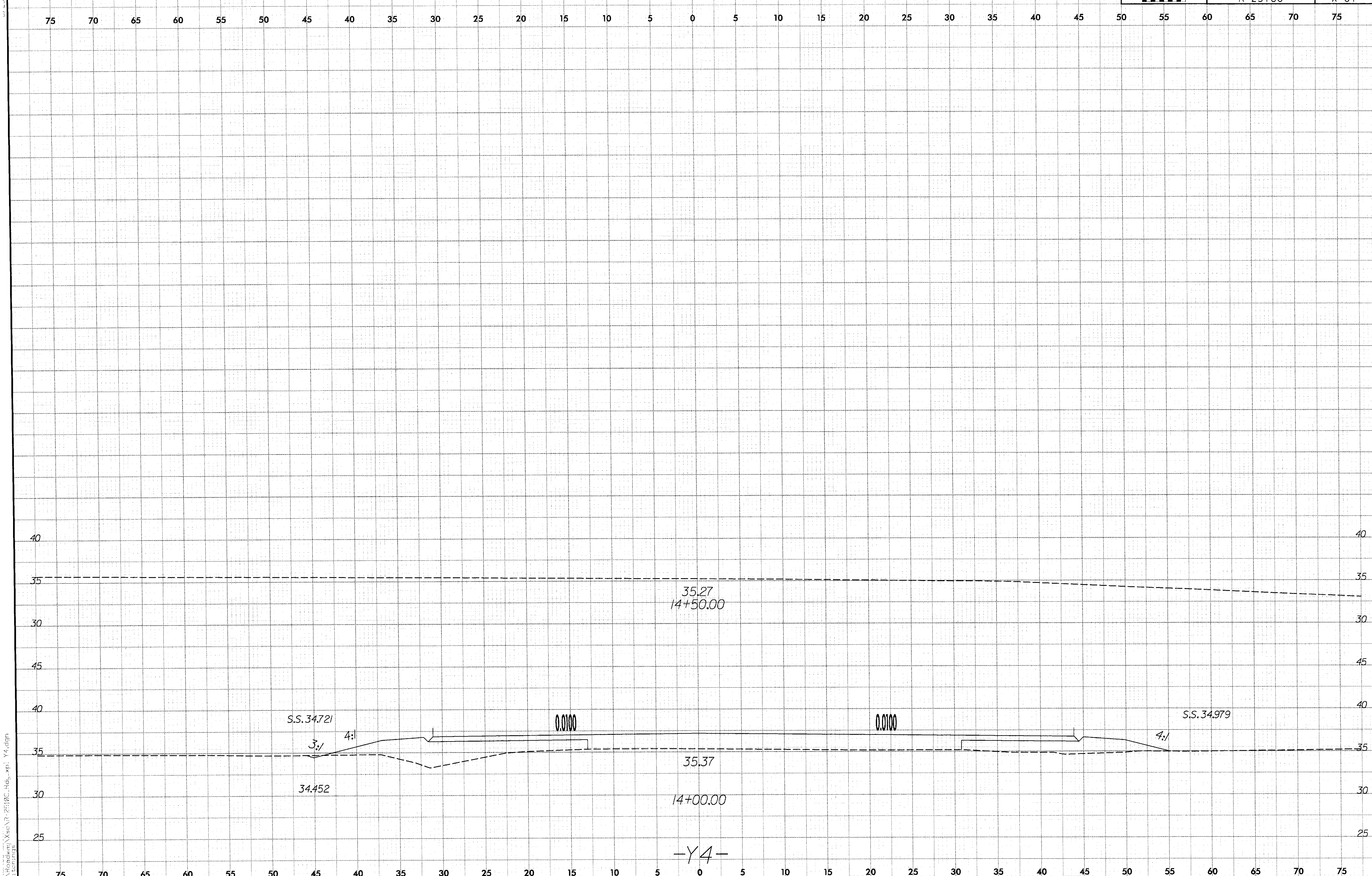
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	R-2510C	X-79



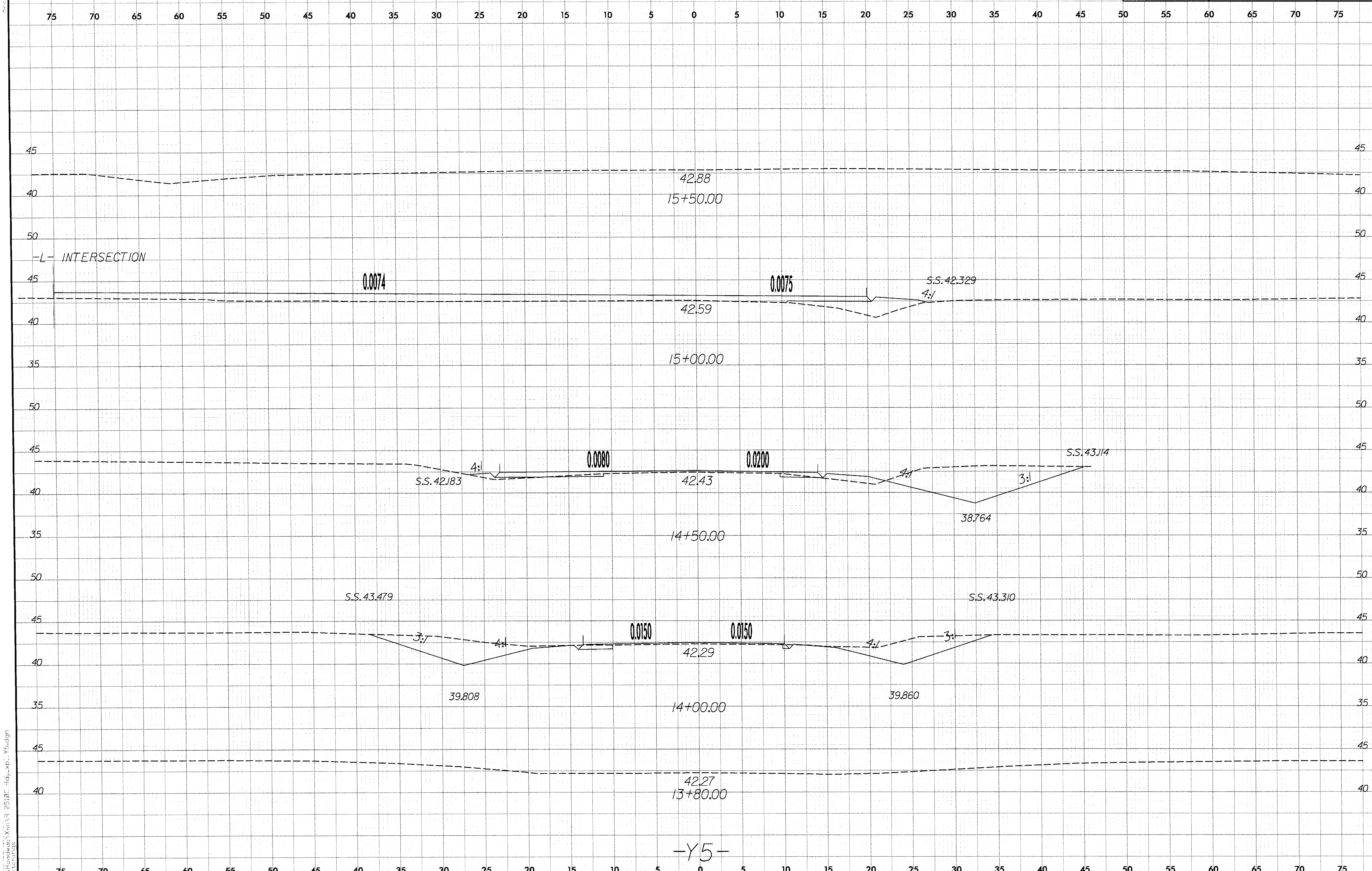
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	R-2510C	X-80

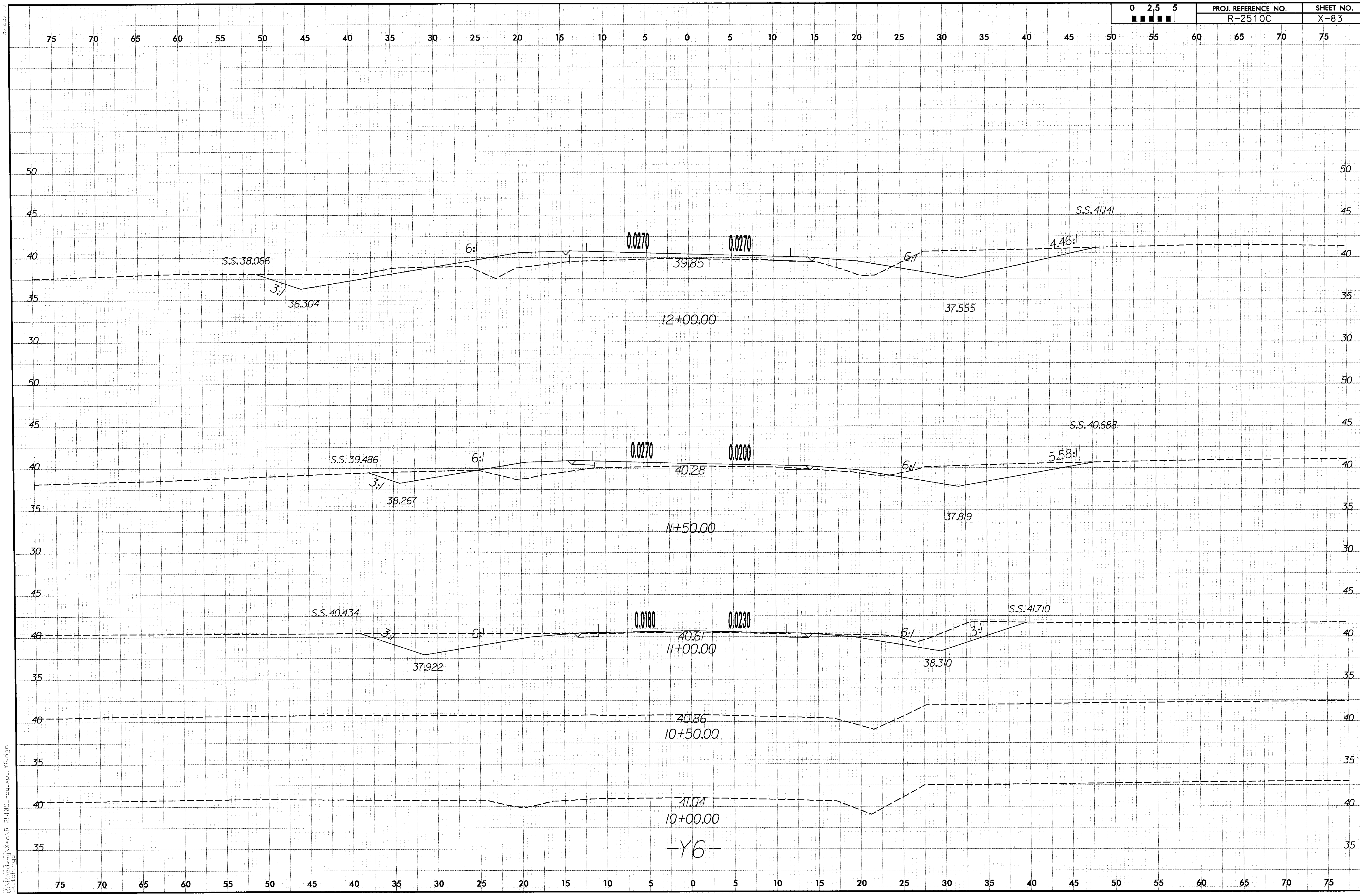


PROJ. REFERENCE NO.	SHEET NO.
R-2510C	X-81



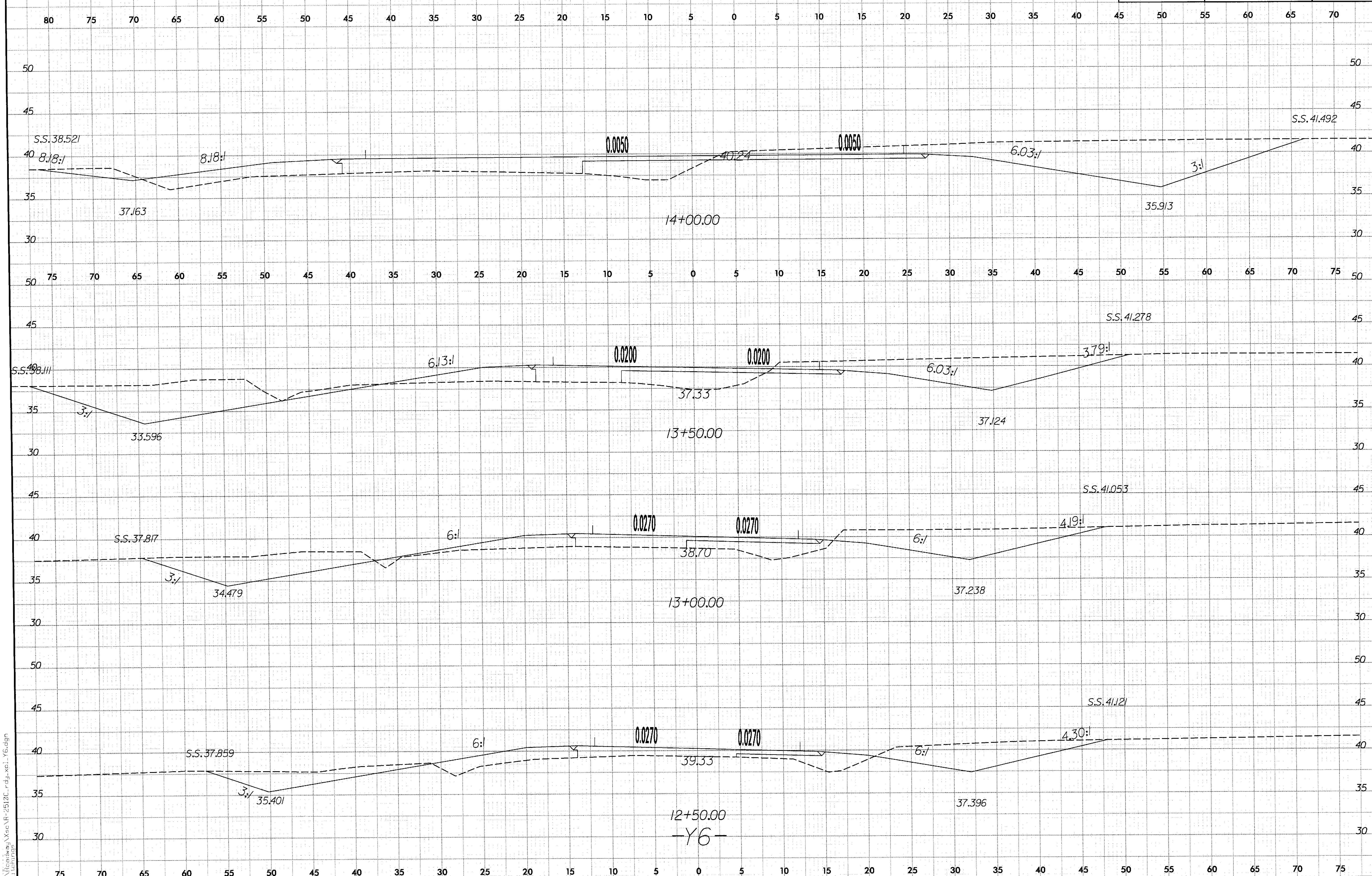
PROJ. REFERENCE NO.	SHEET NO.
R-2510C	X-82



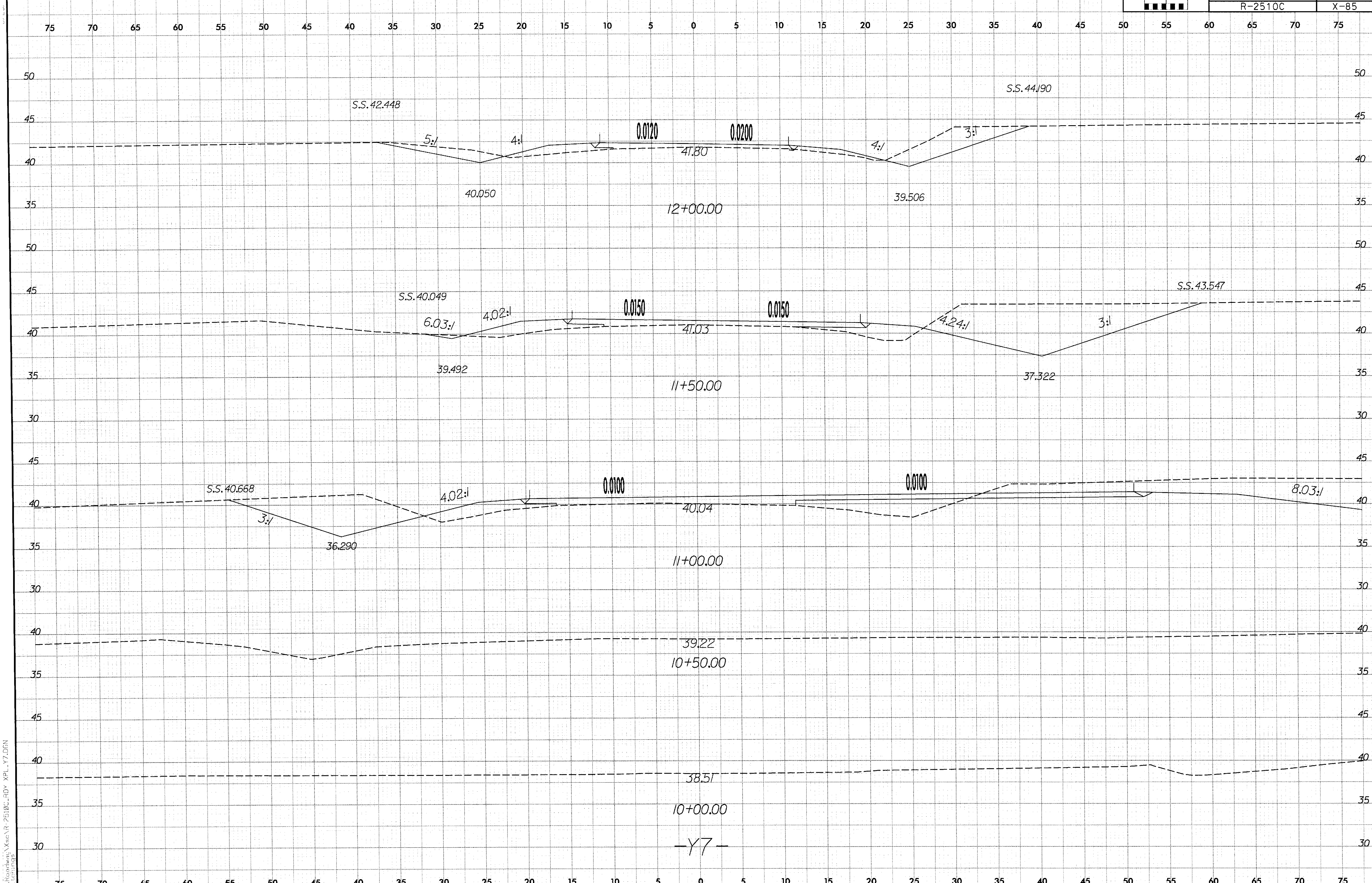


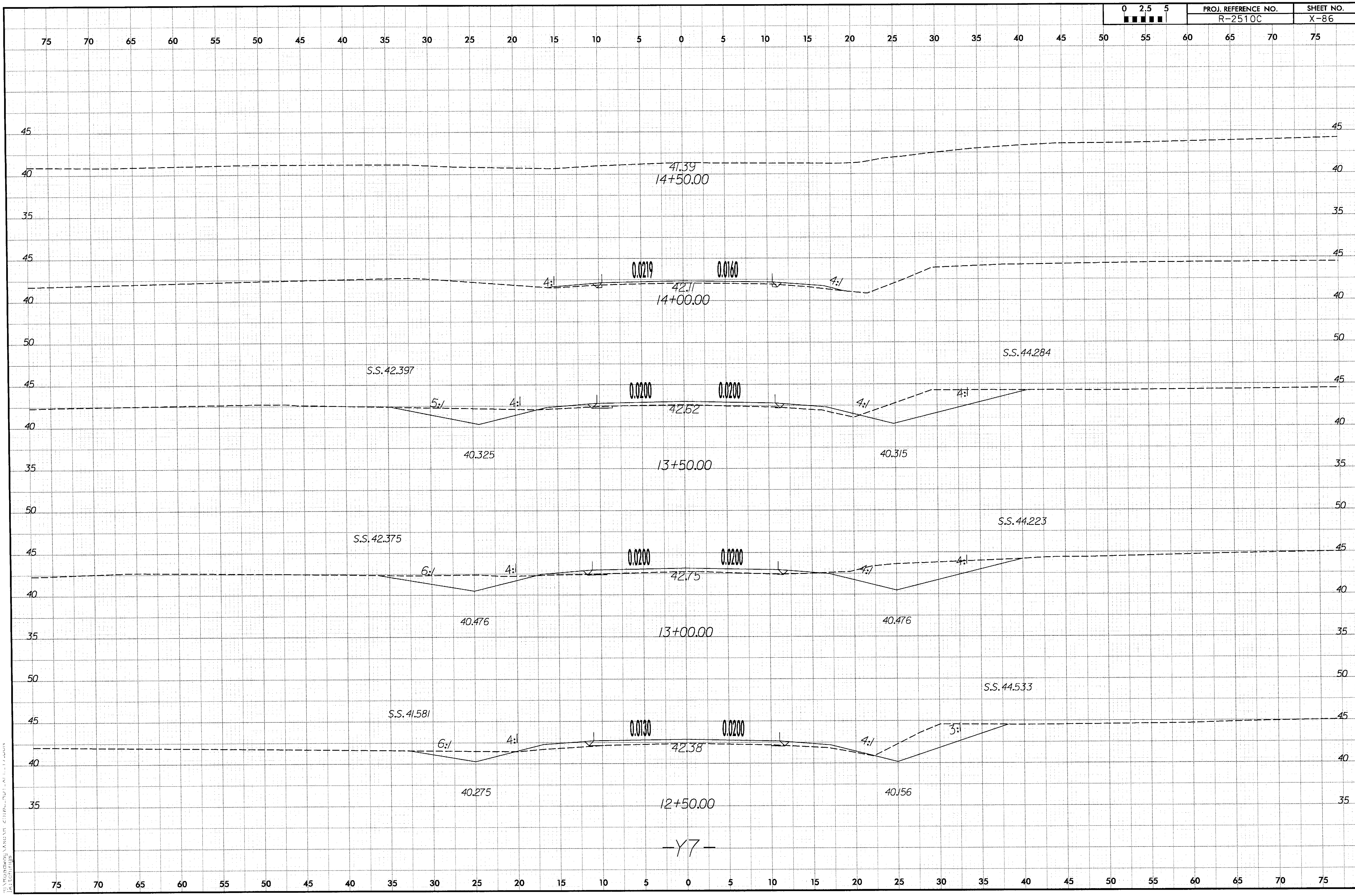
0 2.5 5
PROJ. REFERENCE NO.
R-2510C
SHEET NO.
X-83
S.S. 41.141
4.46:1
0.0270
0.0270
6:1
6:1
S.S. 38.066
3:1
39.85
36.304
37.555
12+00.00
S.S. 40.688
S.S. 39.486
6:1
0.0270
0.0200
5.58:1
6:1
3:1
40.28
38.267
37.819
11+50.00
S.S. 41.710
S.S. 40.434
0.0180
0.0230
3:1
6:1
6:1
3:1
40.61
11+00.00
37.922
38.310
40.86
10+50.00
41.04
10+00.00
-Y6-

PROJ. REFERENCE NO.	SHEET NO.
R-2510C	X-84

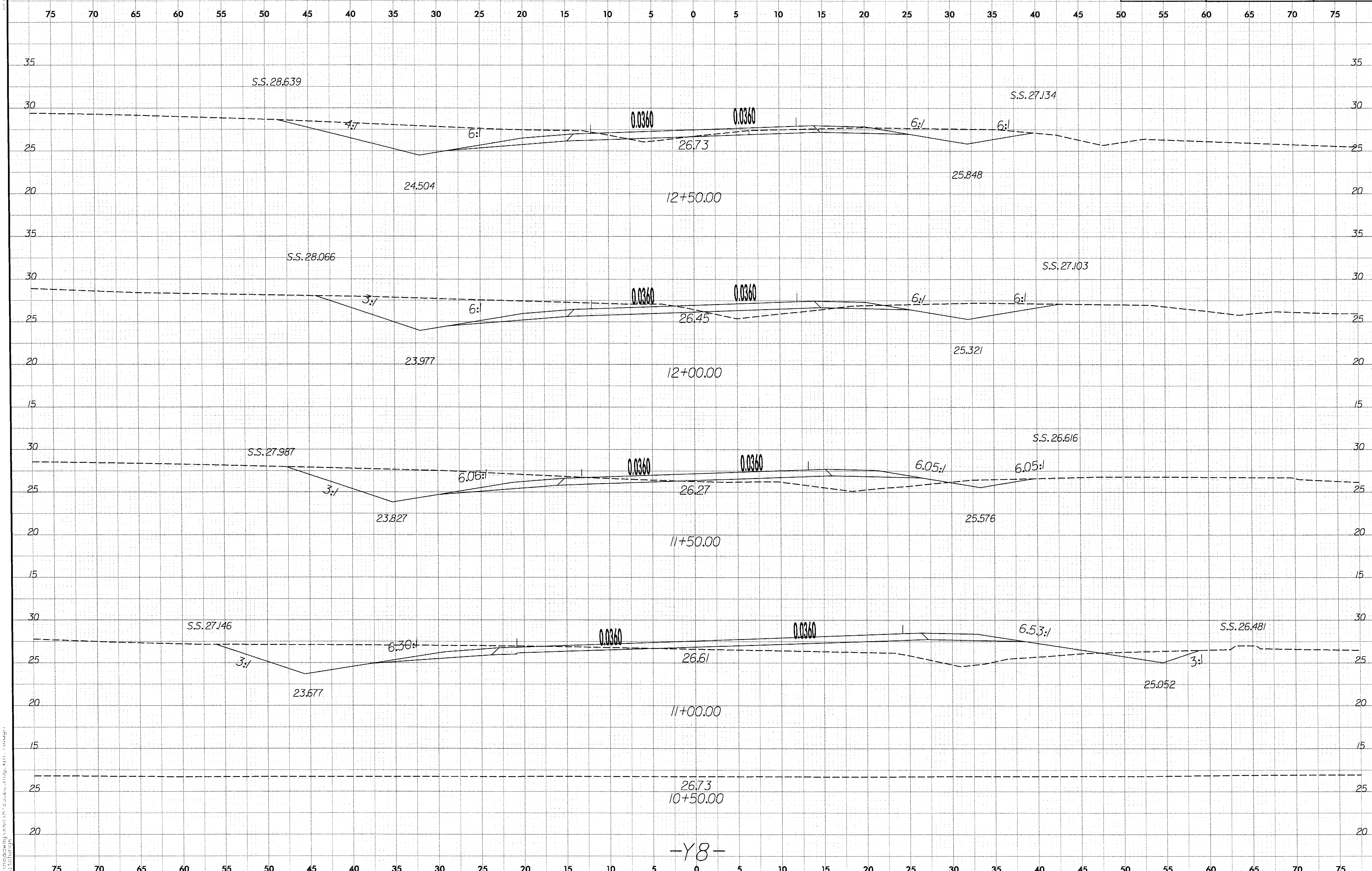


PROJ. REFERENCE NO.	SHEET NO.
R-2510C	X-85

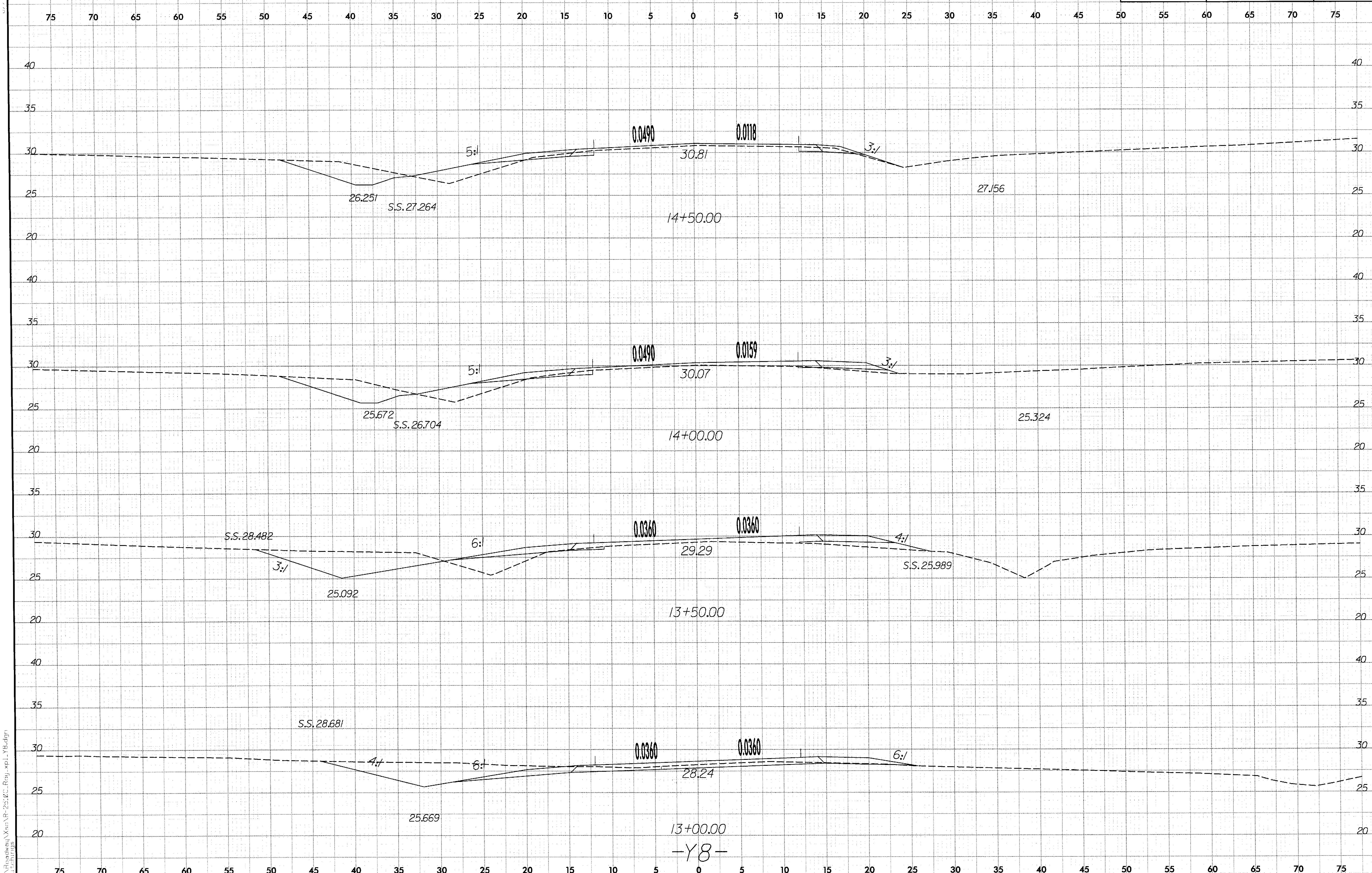



PROJ. REFERENCE NO.
R-2510C
SHEET NO.
X-86
0 2.5 5
41.39
14+50.00
0.0219
0.0160
4:1
4:1
42.11
14+00.00
S.S.42.397
S.S.44.284
0.0200
0.0200
5:1
4:1
4:1
4:1
42.62
40.325
40.315
13+50.00
S.S.42.375
S.S.44.223
0.0200
0.0200
6:1
4:1
4:1
4:1
42.75
40.476
40.476
13+00.00
S.S.41.581
S.S.44.533
0.0130
0.0200
6:1
4:1
4:1
3:1
42.38
40.275
40.156
12+50.00
-Y7-

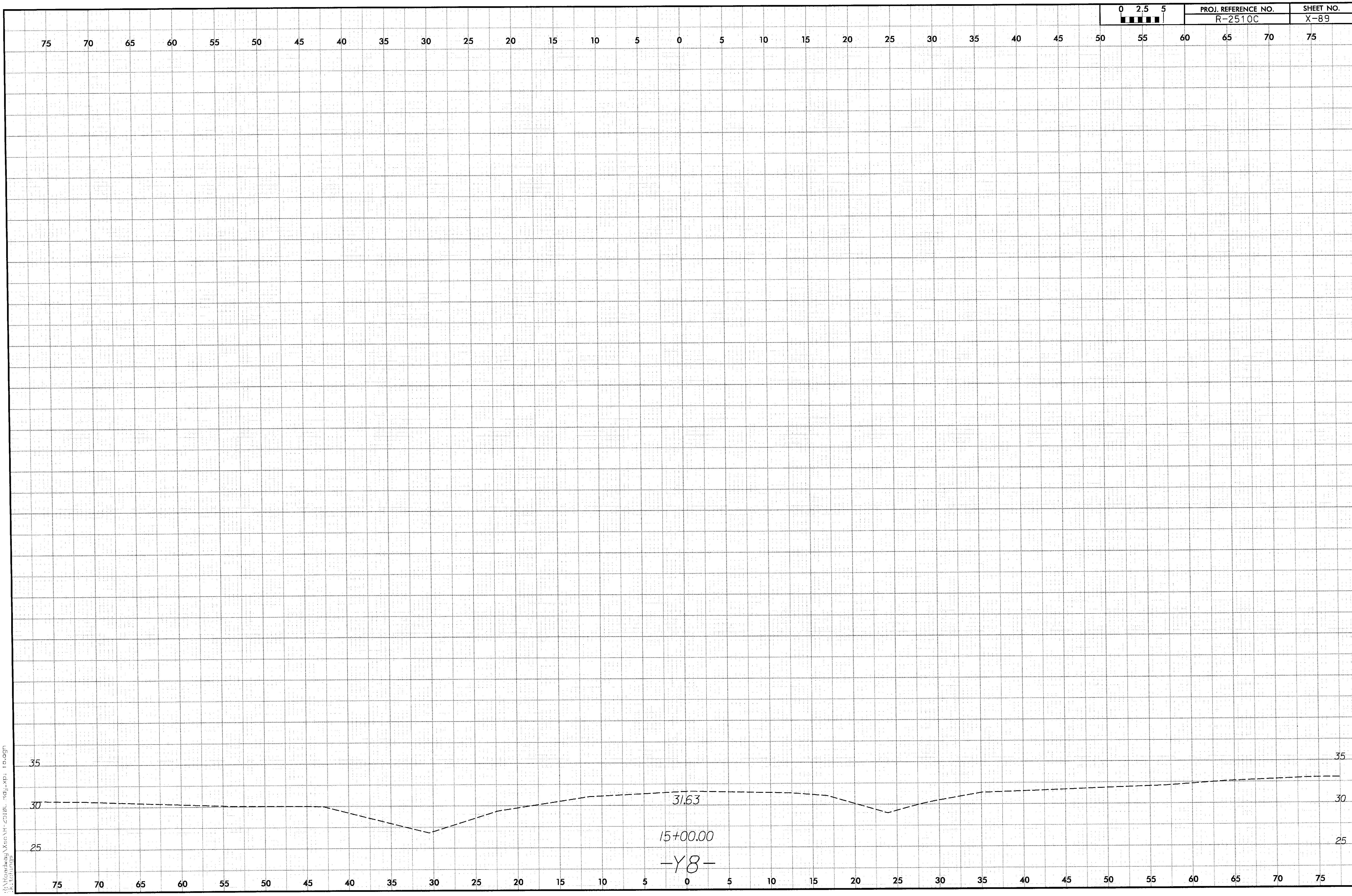
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	R-2510C	X-87



0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	R-2510C	X-88

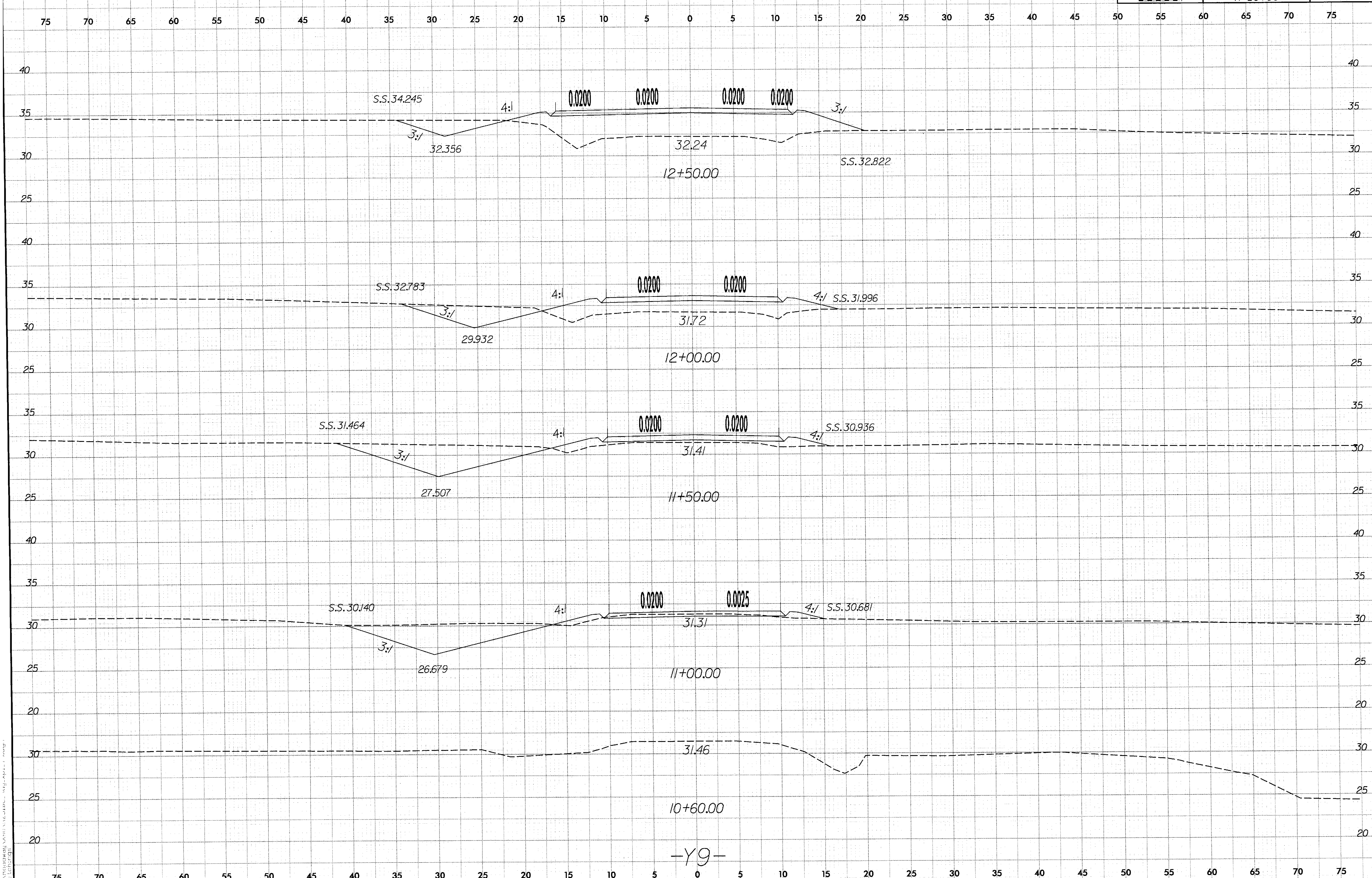


PROJ. REFERENCE NO.	SHEET NO.
R-2510C	X-89



0 2.5 5

PROJ. REFERENCE NO.	SHEET NO.
R-2510C	X-90



0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	R-2510C	X-91