STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT L. MCCRORY
GOVERNOR

ANTHONY J. TATA
SECRETARY

August 26, 2014

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

ATTN: Mr. John Thomas
NCDOT Coordinator

Subject: **Application for Section 404 Nationwide Permit 33** for the Replacement of Bridge No. 27 on NC 8 (Winston Rd.) over US 29-64-70/I-85 Business Loop in Davidson County, North Carolina. TIP No. B-3159. Federal Aid Project No. STPNHS-0052(31). WBS no. 38331.1.1

Please find enclosed the Pre-Construction Notification (PCN) form, stormwater management plan, permit drawings, and design plans for the subject project. A Categorical Exclusion (CE) was completed for this project on June 13, 2014.

The proposed let date for this project is June 16, 2015 with a let review date of April 28, 2015. However, the let date may advance as additional funds become available.

A copy of this permit application will be posted on the NCDOT Website at https://connect.ncdot.gov/resources/Environmental/Pages/default.aspx, under *Quick Links > Permit Applications*. A copy of the CE is also available at the above website address under *Quick Links > Environmental Documents*. Thank you for your assistance with this project. If you have any questions or need additional information, please contact Amy James at aejames2@ncdot.gov or (919) 707-6129.

Sincerely,

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

cc: NCDOT Permit Application Standard Distribution List

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS
1598 MAIL SERVICE CENTER
RALEIGH NC 27699-1548

TELEPHONE: 919-707-6100
FAX: 919-212-5785
WEBSITE: WWW.NCDOT.ORG

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

Office Use Only:
Corps action ID no. _____
DWQ project no. _____
Form Version 1.4 January 2009

Pre-Construction Notification (PCN) Form

A. Applicant Information

1. Processing

1a. Type(s) of approval sought from the Corps:	☒ Section 404 Permit	☐ Section 10 Permit
1b. Specify Nationwide Permit (NWP) number: 33	or General Permit (GP) number:	
1c. Has the NWP or GP number been verified by the Corps?	☐ Yes	☒ No

1d. Type(s) of approval sought from the DWQ (check all that apply):

☒ 401 Water Quality Certification – Regular ☐ Non-404 Jurisdictional General Permit

☐ 401 Water Quality Certification – Express ☐ Riparian Buffer Authorization

1e. Is this notification solely for the record because written approval is not required?	For the record only for DWQ 401 Certification: ☒ Yes ☐ No	For the record only for Corps Permit: ☐ Yes ☒ No
1f. Is payment into a mitigation bank or in-lieu fee program proposed for mitigation of impacts? If so, attach the acceptance letter from mitigation bank or in-lieu fee program.		☐ Yes ☒ No
1g. Is the project located in any of NC's twenty coastal counties. If yes, answer 1h below.		☐ Yes ☒ No
1h. Is the project located within a NC DCM Area of Environmental Concern (AEC)?		☐ Yes ☒ No

2. Project Information

2a. Name of project:	Replacement of Bridge no. 27 over US 29-64-70/I-85 Business Loop on NC 8 (Winston Rd.)
2b. County:	Davidson
2c. Nearest municipality / town:	Lexington
2d. Subdivision name:	*not applicable*
2e. NCDOT only, T.I.P. or state project no:	B-3159

3. Owner Information

3a. Name(s) on Recorded Deed:	North Carolina Department of Transportation
3b. Deed Book and Page No.	*not applicable*
3c. Responsible Party (for LLC if applicable):	*not applicable*
3d. Street address:	1598 Mail Service Center
3e. City, state, zip:	Raleigh, NC 27699-1598
3f. Telephone no.:	(919) 707-6129
3g. Fax no.:	(919) 212-5785
3h. Email address:	aejames2@ncdot.gov

4. Applicant Information (if different from owner)	
4a. Applicant is:	☐ Agent ☐ Other, specify:
4b. Name:	*not applicable*
4c. Business name (if applicable):	
4d. Street address:	
4e. City, state, zip:	
4f. Telephone no.:	
4g. Fax no.:	
4h. Email address:	
5. Agent/Consultant Information (if applicable)	
5a. Name:	*not applicable*
5b. Business name (if applicable):	
5c. Street address:	
5d. City, state, zip:	
5e. Telephone no.:	
5f. Fax no.:	
5g. Email address:	

B. Project Information and Prior Project History		
1. Property Identification		
1a. Property identification no. (tax PIN or parcel ID):	*not applicable*	
1b. Site coordinates (in decimal degrees):	Latitude: 35.780468 (DD.DDDDDD)	Longitude: - 80.259998 (-DD.DDDDDD)
1c. Property size:	7.0 acres	
2. Surface Waters		
2a. Name of nearest body of water (stream, river, etc.) to proposed project:	Michael Branch	
2b. Water Quality Classification of nearest receiving water:	C	
2c. River basin:	Yadkin-Pee Dee	
3. Project Description		
3a. Describe the existing conditions on the site and the general land use in the vicinity of the project at the time of this application: Land use in the project vicinity consists primarily of commercial development and industry, with some residential development and thin forested areas along stream channels.		
3b. List the total estimated acreage of all existing wetlands on the property: 0.0		
3c. List the total estimated linear feet of all existing streams (intermittent and perennial) on the property: 607		
3d. Explain the purpose of the proposed project: To replace a structurally deficient and functionally obsolete bridge.		
3e. Describe the overall project in detail, including the type of equipment to be used: The project involves replacing a 176-foot bridge with a 150-foot, 2-span bridge on the existing alignment with traffic maintained on-site by phased construction. The project will also involve the replacement of a pipe carrying a perennial stream away from the bridge itself. Standard road building equipment, such as trucks, dozers, and cranes will be used.		
4. Jurisdictional Determinations		
4a. Have jurisdictional wetland or stream determinations by the Corps or State been requested or obtained for this property / project (including all prior phases) in the past? Comments: Perennial stream only water resource in project area; therefore, no JD was requested.	☐ Yes	☒ No ☐ Unknown
4b. If the Corps made the jurisdictional determination, what type of determination was made?	☐ Preliminary	☐ Final
4c. If yes, who delineated the jurisdictional areas? Name (if known):	Agency/Consultant Company: Other:	
4d. If yes, list the dates of the Corps jurisdictional determinations or State determinations and attach documentation.		
5. Project History		
5a. Have permits or certifications been requested or obtained for this project (including all prior phases) in the past?	☐ Yes	☒ No ☐ Unknown
5b. If yes, explain in detail according to “help file” instructions.		
6. Future Project Plans		
6a. Is this a phased project?	☐ Yes	☒ No
6b. If yes, explain.		

C. Proposed Impacts Inventory

1. Impacts Summary

1a. Which sections were completed below for your project (check all that apply):

☐ Wetlands ☒ Streams - tributaries ☐ Buffers

☐ Open Waters ☐ Pond Construction

2. Wetland Impacts

If there are wetland impacts proposed on the site, then complete this question for each wetland area impacted.

2a. Wetland impact number – Permanent (P) or Temporary (T)	2b. Type of impact	2c. Type of wetland (if known)	2d. Forested	2e. Type of jurisdiction	2f. Area of impact (acres)
Site 1 ☐ P ☐ T		Choose One	☐ Yes ☐ No	☐ Corps ☐ DWQ	
Site 2 ☐ P ☐ T		Choose One	☐ Yes ☐ No	☐ Corps ☐ DWQ	
Site 3 ☐ P ☐ T		Choose One	☐ Yes ☐ No	☐ Corps ☐ DWQ	
Site 4 ☐ P ☐ T		Choose One	☐ Yes ☐ No	☐ Corps ☐ DWQ	
Site 5 ☐ P ☐ T		Choose One	☐ Yes ☐ No	☐ Corps ☐ DWQ	
Site 6 ☐ P ☐ T		Choose One	☐ Yes ☐ No	☐ Corps ☐ DWQ	
				2g. **Total wetland impacts**	X Permanent X Temporary

2h. Comments:

3. Stream Impacts

If there are perennial or intermittent stream impacts (including temporary impacts) proposed on the site, then complete this question for all stream sites impacted.

3a. Stream impact number - Permanent (P) or Temporary (T)	3b. Type of impact	3c. Stream name	3d. Perennial (PER) or intermittent (INT)?	3e. Type of jurisdiction (Corps - 404, 10 DWQ – non-404, other)	3f. Average stream width (feet)	3g. Impact length (linear feet)
Site 1 ☐ P ☒ T	Fill	UT to Michael Branch	☒ PER ☐ INT	☒ Corps ☐ DWQ	10	18
Site 2 ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
Site 3 ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
Site 4 ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
Site 5 ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
Site 6 ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
					3h. **Total stream and tributary impacts**	0 Perm 18 Temp

3i. Comments:

4. Open Water Impacts

If there are proposed impacts to lakes, ponds, estuaries, tributaries, sounds, the Atlantic Ocean, or any other open water of the U.S. then individually list all open water impacts below.

4a. Open water impact number – Permanent (P) or Temporary (T)	4b. Name of waterbody (if applicable)	4c. Type of impact	4d. Waterbody type	4e. Area of impact (acres)
O1 ☐ P ☐ T				
O2 ☐ P ☐ T				
O3 ☐ P ☐ T				
O4 ☐ P ☐ T				
		4f. Total open water impacts		X Permanent X Temporary

4g. Comments:

5. Pond or Lake Construction

If pond or lake construction proposed, then complete the chart below.

5a. Pond ID number	5b. Proposed use or purpose of pond	5c. Wetland Impacts (acres)			5d. Stream Impacts (feet)			5e. Upland (acres)
		Flooded	Filled	Excavated	Flooded	Filled	Excavated	Flooded
P1								
P2								
	5f. Total							

5g. Comments:

5h. Is a dam high hazard permit required?	☐ Yes ☐ No If yes, permit ID no:
5i. Expected pond surface area (acres):	
5j. Size of pond watershed (acres):	
5k. Method of construction:	

6. Buffer Impacts (for DWQ)

If project will impact a protected riparian buffer, then complete the chart below. If yes, then individually list all buffer impacts below. If any impacts require mitigation, then you **MUST** fill out Section D of this form.

6a. Project is in which protected basin?			☐ Neuse ☐ Catawba	☐ Tar-Pamlico ☐ Randleman	☐ Other:
6b. Buffer impact number – Permanent (P) or Temporary (T)	6c. Reason for impact	6d. Stream name	6e. Buffer mitigation required?	6f. Zone 1 impact (square feet)	6g. Zone 2 impact (square feet)
B1 ☐ P ☐ T			☐ Yes ☐ No		
B2 ☐ P ☐ T			☐ Yes ☐ No		
B3 ☐ P ☐ T			☐ Yes ☐ No		
			6h. **Total buffer impacts**		
6i. Comments:					

D. Impact Justification and Mitigation

1. Avoidance and Minimization

1a. Specifically describe measures taken to avoid or minimize the proposed impacts in designing project.

Proposed pipe end wall will be placed at the same location as the existing pipe, thereby avoiding permanent impacts; no deck drains on proposed bridge.

1b. Specifically describe measures taken to avoid or minimize the proposed impacts through construction techniques.

NCDOT Best Management Practices for Bridge Demolition, Removal and Construction will be followed, as well as those for Sedimentation and Erosion Control.

2. Compensatory Mitigation for Impacts to Waters of the U.S. or Waters of the State

2a. Does the project require Compensatory Mitigation for impacts to Waters of the U.S. or Waters of the State?	☐ Yes ☒ No If no, explain: Impacts are temporary
2b. If yes, mitigation is required by (check all that apply):	☐ DWQ ☐ Corps
2c. If yes, which mitigation option will be used for this project?	☐ Mitigation bank ☐ Payment to in-lieu fee program ☐ Permittee Responsible Mitigation

3. Complete if Using a Mitigation Bank

3a. Name of Mitigation Bank: not applicable

3b. Credits Purchased (attach receipt and letter)	Type	Quantity

3c. Comments:

4. Complete if Making a Payment to In-lieu Fee Program

4a. Approval letter from in-lieu fee program is attached.	☐ Yes
4b. Stream mitigation requested:	linear feet
4c. If using stream mitigation, stream temperature:	☐ warm ☐ cool ☐ cold
4d. Buffer mitigation requested (DWQ only):	square feet
4e. Riparian wetland mitigation requested:	acres
4f. Non-riparian wetland mitigation requested:	acres
4g. Coastal (tidal) wetland mitigation requested:	acres

4h. Comments:

5. Complete if Using a Permittee Responsible Mitigation Plan

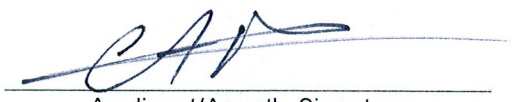
5a. If using a permittee responsible mitigation plan, provide a description of the proposed mitigation plan.

6. Buffer Mitigation (State Regulated Riparian Buffer Rules) – required by DWQ				
6a. Will the project result in an impact within a protected riparian buffer that requires buffer mitigation?			☐ Yes	☒ No
6b. If yes, then identify the square feet of impact to each zone of the riparian buffer that requires mitigation. Calculate the amount of mitigation required.				
Zone	6c. Reason for impact	6d. Total impact (square feet)	Multiplier	6e. Required mitigation (square feet)
Zone 1			3 (2 for Catawba)	
Zone 2			1.5	
	6f. **Total buffer mitigation required:**			
6g. If buffer mitigation is required, discuss what type of mitigation is proposed (e.g., payment to private mitigation bank, permittee responsible riparian buffer restoration, payment into an approved in-lieu fee fund).				
6h. Comments:				

E. Stormwater Management and Diffuse Flow Plan (required by DWQ)	
1. Diffuse Flow Plan	
1a. Does the project include or is it adjacent to protected riparian buffers identified within one of the NC Riparian Buffer Protection Rules?	☐ Yes ☒ No
1b. If yes, then is a diffuse flow plan included? If not, explain why. Comments:	☐ Yes ☐ No
2. Stormwater Management Plan	
2a. What is the overall percent imperviousness of this project?	N/A
2b. Does this project require a Stormwater Management Plan?	☒ Yes ☐ No
2c. If this project DOES NOT require a Stormwater Management Plan, explain why:	
2d. If this project DOES require a Stormwater Management Plan, then provide a brief, narrative description of the plan: See attached permit drawings.	
2e. Who will be responsible for the review of the Stormwater Management Plan?	☐ Certified Local Government ☐ DWQ Stormwater Program ☒ DWQ 401 Unit
3. Certified Local Government Stormwater Review	
3a. In which local government's jurisdiction is this project?	not applicable
3b. Which of the following locally-implemented stormwater management programs apply (check all that apply):	☐ Phase II ☐ NSW ☐ USMP ☐ Water Supply Watershed ☐ Other:
3c. Has the approved Stormwater Management Plan with proof of approval been attached?	☐ Yes ☐ No
4. DWQ Stormwater Program Review	
4a. Which of the following state-implemented stormwater management programs apply (check all that apply):	☐ Coastal counties ☐ HQW ☐ ORW ☐ Session Law 2006-246 ☐ Other:
4b. Has the approved Stormwater Management Plan with proof of approval been attached?	☐ Yes ☐ No n/a
5. DWQ 401 Unit Stormwater Review	
5a. Does the Stormwater Management Plan meet the appropriate requirements?	☒ Yes ☐ No
5b. Have all of the 401 Unit submittal requirements been met?	☒ Yes ☐ No

F. Supplementary Information		
1. Environmental Documentation (DWQ Requirement)		
1a. Does the project involve an expenditure of public (federal/state/local) funds or the use of public (federal/state) land?	☒ Yes	☐ No
1b. If you answered "yes" to the above, does the project require preparation of an environmental document pursuant to the requirements of the National or State (North Carolina) Environmental Policy Act (NEPA/SEPA)?	☒ Yes	☐ No
1c. If you answered "yes" to the above, has the document review been finalized by the State Clearing House? (If so, attach a copy of the NEPA or SEPA final approval letter.) Comments:	☒ Yes	☐ No
2. Violations (DWQ Requirement)		
2a. Is the site in violation of DWQ Wetland Rules (15A NCAC 2H .0500), Isolated Wetland Rules (15A NCAC 2H .1300), DWQ Surface Water or Wetland Standards, or Riparian Buffer Rules (15A NCAC 2B .0200)?	☐ Yes	☒ No
2b. Is this an after-the-fact permit application?	☐ Yes	☒ No
2c. If you answered "yes" to one or both of the above questions, provide an explanation of the violation(s):		
3. Cumulative Impacts (DWQ Requirement)		
3a. Will this project (based on past and reasonably anticipated future impacts) result in additional development, which could impact nearby downstream water quality?	☐ Yes ☐ No	
3b. If you answered "yes" to the above, submit a qualitative or quantitative cumulative impact analysis in accordance with the most recent DWQ policy. If you answered "no," provide a short narrative description. Due to the minimal transportation impact resulting from this bridge replacement, this project will neither influence nearby land uses nor stimulate growth. Therefore, a detailed indirect or cumulative effects study will not be necessary.		
4. Sewage Disposal (DWQ Requirement)		
4a. Clearly detail the ultimate treatment methods and disposition (non-discharge or discharge) of wastewater generated from the proposed project, or available capacity of the subject facility. not applicable		

5. Endangered Species and Designated Critical Habitat (Corps Requirement)		
5a. Will this project occur in or near an area with federally protected species or habitat?	☐ Yes	☒ No
5b. Have you checked with the USFWS concerning Endangered Species Act impacts?	☐ Yes	☒ No
5c. If yes, indicate the USFWS Field Office you have contacted.	☐ Raleigh ☐ Asheville	
5d. What data sources did you use to determine whether your site would impact Endangered Species or Designated Critical Habitat? USFWS county list; field surveys in 2009, 2011, and 2014.		
6. Essential Fish Habitat (Corps Requirement)		
6a. Will this project occur in or near an area designated as essential fish habitat?	☐ Yes	☒ No
6b. What data sources did you use to determine whether your site would impact Essential Fish Habitat? NMFS County Index		
7. Historic or Prehistoric Cultural Resources (Corps Requirement)		
7a. Will this project occur in or near an area that the state, federal or tribal governments have designated as having historic or cultural preservation status (e.g., National Historic Trust designation or properties significant in North Carolina history and archaeology)?	☐ Yes	☒ No
7b. What data sources did you use to determine whether your site would impact historic or archeological resources? NEPA Documentation		
8. Flood Zone Designation (Corps Requirement)		
8a. Will this project occur in a FEMA-designated 100-year floodplain?	☐ Yes	☒ No
8b. If yes, explain how project meets FEMA requirements: NCDOT Hydraulics Unit coordination with FEMA		
8c. What source(s) did you use to make the floodplain determination? FEMA Maps		

for Richard W. Hancock, P.E. Applicant/Agent's Printed Name	 Applicant/Agent's Signature (Agent's signature is valid only if an authorization letter from the applicant is provided.)	8-26-14 Date

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR LINEAR ROADWAY PROJECTS

(Version 1.2; Released July 2012)

Project/TIP No.: B-3159 **County(ies):** Davidson

General Project Information

Project No.:	B-3159	**Project Type:**	Bridge Replacement	**Date:**	7/24/2014
NCDOT Contact:	Zerman Bill, PE	**Contractor / Designer:**	STV/Ralph Whitehead Associates		
Address:	Hydraulics Unit 1020 Birch Ridge Rd Raleigh, NC 27610	**Address:**	900 West Trade St. Ste. 715 Charlotte, NC 28202		
Phone:	1-919-707-6755	**Phone:**	704-372-1885		
Email:	bzerman@ncdot.gov	**Email:**	edward.vance@stvinc.com		
City/Town:	Lexington, NC	**County(ies):**	Davidson		
River Basin(s):	Yadkin-Pee Dee	**CAMA County?**	No		
Primary Receiving Water:	Michael Branch	**NCDWQ Stream Index No.:**	12-113-3		
NCDWQ Surface Water Classification for Primary Receiving Water	**Primary:**	Class C			
	Supplemental:				
Other Stream Classification:	None				
303(d) Impairments:	None				
Buffer Rules in Effect	N/A				

Project Description

Project Length (lin. Miles or feet):	0.29 miles	**Surrounding Land Use:**	Commercial Development, Industrial, some Residential Development

	Proposed Project	**Existing Site**
Project Built-Upon Area (ac.)	4.00 ac.	4.00 ac.
Typical Cross Section Description:	Local Urban highway with 2-12' travel lanes, 2'-6" curb and gutter with 10' berm	Local Urban highway with 2-12' travel lanes and roadside ditches.
Average Daily Traffic (veh/hr/day):	Design/Future: 28,600 (2035)	Existing: 23900 (2009)

General Project Narrative:

ROADWAY DESCRIPTION

The North Carolian Department of Transportation (NCDOT) proposes to replace bridge number 27 on NC 8/US 52 over US 29-64-70/I-85 Business loop (TIP B-3159) in Davidson County. The total project length is 0.29 miles. The project creates temporary impacts to an Upper Tributary of Michael Branch which is located in the Yadkin-Pee Dee River Basin. The project drainage system consists of drop inlets and pipes that drain to the existing Jurisdictional Stream

ENVIRONMENTAL DESCRIPTION

The project is located in Davidson County in the Yadkin-Pee Dee River Basin. The project creates less than 0.01 acres of temporary impacts to Michael Branch which is classified as a 'C' water. The roadway work is minimized as much as possible to reduce the proposed imprint. The temporary impacts are caused by the pipe outfall into the existing Jurisdictional Stream. The proposed pipe end wall will be placed at the same location as the existing pipe which outfalls into a concrete lined channel. Because the existing channel is concrete lined, no riprap apron is proposed.

This project outfall is located within an existing residential and commercially developed area with very little open space. Therefore, no permanent BMPs are proposed for this project.

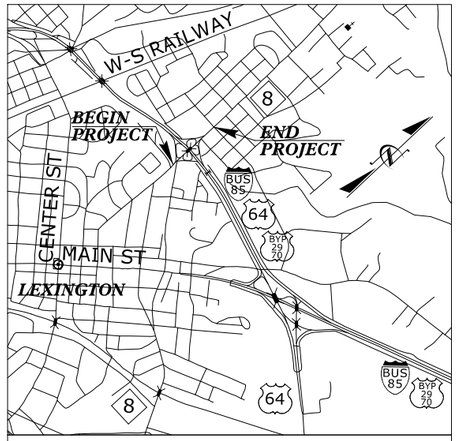
References

09/08/99

TIP PROJECT: B–3159

CONTRACT:

See Sheet 1-A For Index of Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

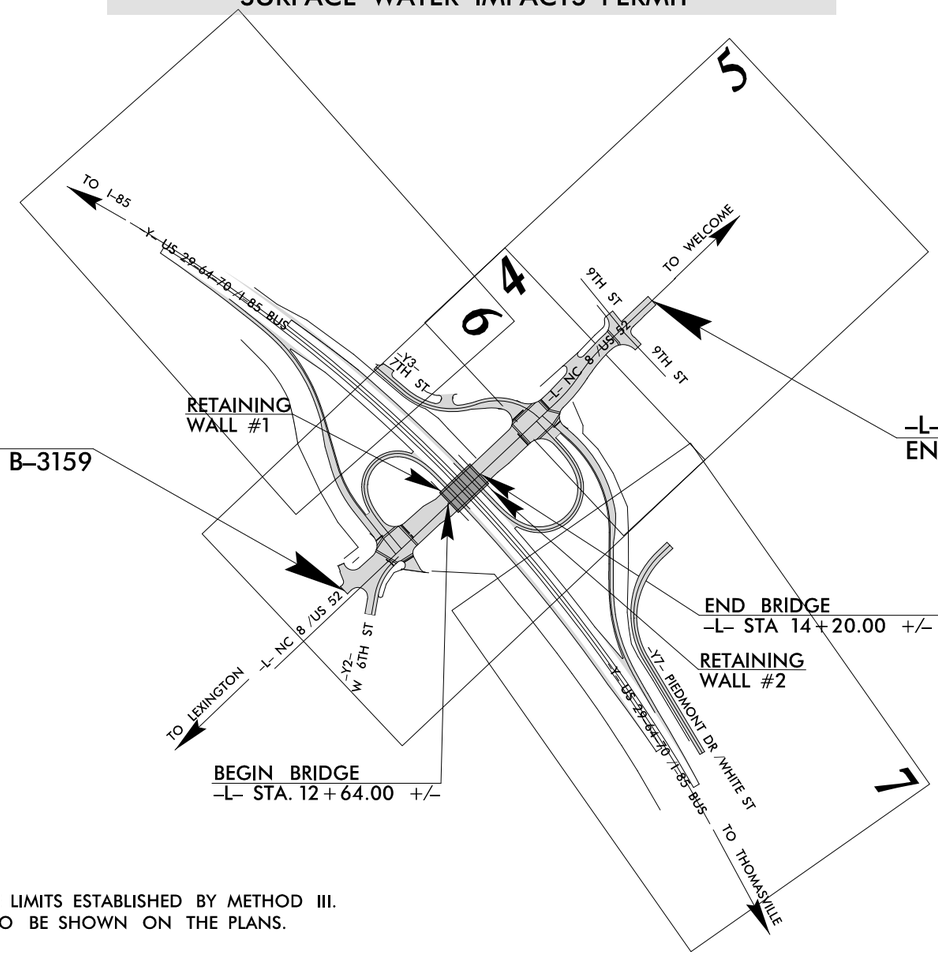
DAVIDSON COUNTY

LOCATION: BRIDGE NO. 27 OVER US 29–64–70 /I–85 BUS ON NC 8 /US 52
TYPE OF WORK: GRADING, DRAINAGE, PAVING, RETAINING WALL, SIGNALS & STRUCTURE

SURFACE WATER IMPACTS PERMIT

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B–3159	1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
38331.1.1	STPNHS–0052(31)	PE	

PERMIT DRAWING
SHEET 1 OF 5

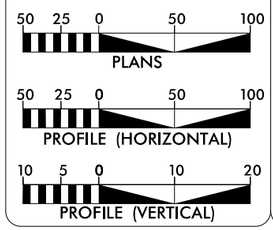


CLEARING ON THIS PROJECT SHOULD BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.
THIS IS A FULL CONTROL OF ACCESS PROJECT WITH ACCESS TO BE SHOWN ON THE PLANS.
THIS PROJECT IS WITHIN THE CITY LIMITS OF LEXINGTON.

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES



DESIGN DATA

ADT 2009 = 23,900
ADT 2035 = 28,600
DHV = 10 %
D = 60 %
T = 5 % *
V = 40 MPH
* TTST = 2 DUAL 3

FUNC CLASS = ARTERIAL
STATEWIDE TIER

PROJECT LENGTH

LENGTH ROADWAY OF TIP PROJECT B–3159 = 0.259 MILES

LENGTH STRUCTURE OF TIP PROJECT B–3159 = 0.030 MILES

TOTAL LENGTH OF TIP PROJECT B–3159 = 0.289 MILES

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JUNE 20, 2014

LETTING DATE:
JUNE 16, 2015

TONY HOUSER, PE
PROJECT ENGINEER

BRUCE PAYNE, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE:

ROADWAY DESIGN ENGINEER

SIGNATURE:

7/14/2014
R:\Hydraulics\PERMITS_Enviornmental\Drawings\B3159_hyd_prm_tsh.dgn
chitkmb

8/17/99

LEGEND

JS JS JS JS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER

100′ 0′ 100′
GRAPHIC SCALE

PROJECT REFERENCE NO.	SHEET NO.
B-3159	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 2 OF 5

NAD 83/NSRS 2007

–RPC–

Pls Sta 11+97.82	Pl Sta 13+50.37	Pls Sta 15+01.75
Θs = 8° 58′ 47.7″	Δ = 17° 41′ 38.5″ (RT)	Θs = 8° 58′ 47.7″
Ls = 184.00′	D = 9° 45′ 38.8″	Ls = 184.00′
LT = 122.82′	L = 181.28′	LT = 122.82′
ST = 61.48′	T = 91.37′	ST = 61.48′
	R = 587.00′	
	SE = .08	

–Y–

Pl Sta 25+58.78
Δ = 30° 35′ 22.0″ (RT)
D = 1° 00′ 18.7″
L = 3,043.15′
T = 1,558.78′
R = 5,700.00′
SE = EXIST

SITE 1

TEMPORARY IMPACTS IN SURFACE WATERS

CROSS SECTION FOR DITCH

BOBBY R. CALLICUT AND WIFE BETTY B. CALLICUT

RICHARD PURVIS AND WIFE LINDA PURVIS

VERL A. RUMFELT
DAVID R. RUMFELT, JR.
CECIL MAX RUMFELT
TERRY F. RUMFELT

EDWIN KRISENLALL AND WIFE HIMWANTI KRISENLALL

TONY G. CRAVER AND WIFE HOPE N. CRAVER

TERRY F. RUMFELT

JACK C. CHILDERS

US 29 / 70 BUS 85

N 76° 11′ 22.3″ E

BM#1
N=761273
E=1627487
ELEV=753.48′

REMOVE AND REPLACE DI

REMOVE DI

PLUG & FILL

RETAIN

TRENCHLESS INSTALLATION 54" WELDED STEEL

18" CSP W2 ELBOWS

BERM DITCH SEE DETAIL "B"

MATCHLINE SHEET 4 –RPC– STA. 10+98.00 –Y3– STA. 10+98.00

MATCHLINE SHEET 4 –RPC– STA. 16+60.00 –Y3– STA. 21+00.00

PAVEMENT REMOVAL

PAVED SHOULDER

NOTES:
SEE SHEET 10 FOR –RPC– PROFILE
SEE SHEET 11 FOR –Y3– PROFILE

7/24/2014
R:\Hydraulics\PERMITS_Environmental\Drawings\B3159_hyd_prm_psh_06.dgn
chitkmb

8/17/99

LEGEND

TS TS TS TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER

100′ 0′ 100′
GRAPHIC SCALE

NAD 83/NSRS 2007

PROJECT REFERENCE NO.	SHEET NO.
B-3159	6a
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 3 OF 5

–RPC–

PIs Sta 11+97.82	PI Sta 13+50.37	PIs Sta 15+01.75
Θs = 8° 58′ 47.7″	Δ = 17° 41′ 38.5″ (RT)	Θs = 8° 58′ 47.7″
Ls = 184.00′	D = 9° 45′ 38.8″	Ls = 184.00′
LT = 122.82′	L = 181.28′	LT = 122.82′
ST = 61.48′	T = 91.37′	ST = 61.48′
	R = 587.00′	
	SE = .08	

–Y–

PI Sta 25+58.78
Δ = 30° 35′ 22.0″ (RT)
D = 1° 00′ 18.7″
L = 3,043.15′
T = 1,558.78′
R = 5,700.00′
SE = EXIST

SITE 1

CROSS SECTION FOR DITCH

TEMPORARY IMPACTS IN SURFACE WATERS

MATCHLINE SHEET 4 –Y3– STA. 10+98.00

MATCHLINE SHEET 4 –Y3– STA. 21+00.00

MATCHLINE SHEET 4 –RPC– STA. 16+60.00

BOBBY R. CALLICUT AND WIFE BETTY B. CALLICUT

RICHARD PURVIS AND WIFE LINDA PURVIS

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TONY G. CRAVER AND WIFE HOPE N. CRAVER

TERRY F. RUMFELT

JACK C. CHILDERS

US 29 / 70 BUS 85

N 76° 11′ 22.3″ E

REMOVE AND REPLACE DI

REMOVE DI

PLUG & FILL

RETAIN

TRENCHLESS INSTALLATION 54″ WELDED STEEL

TB JB w/MH

BERM DITCH SEE DETAIL "B"

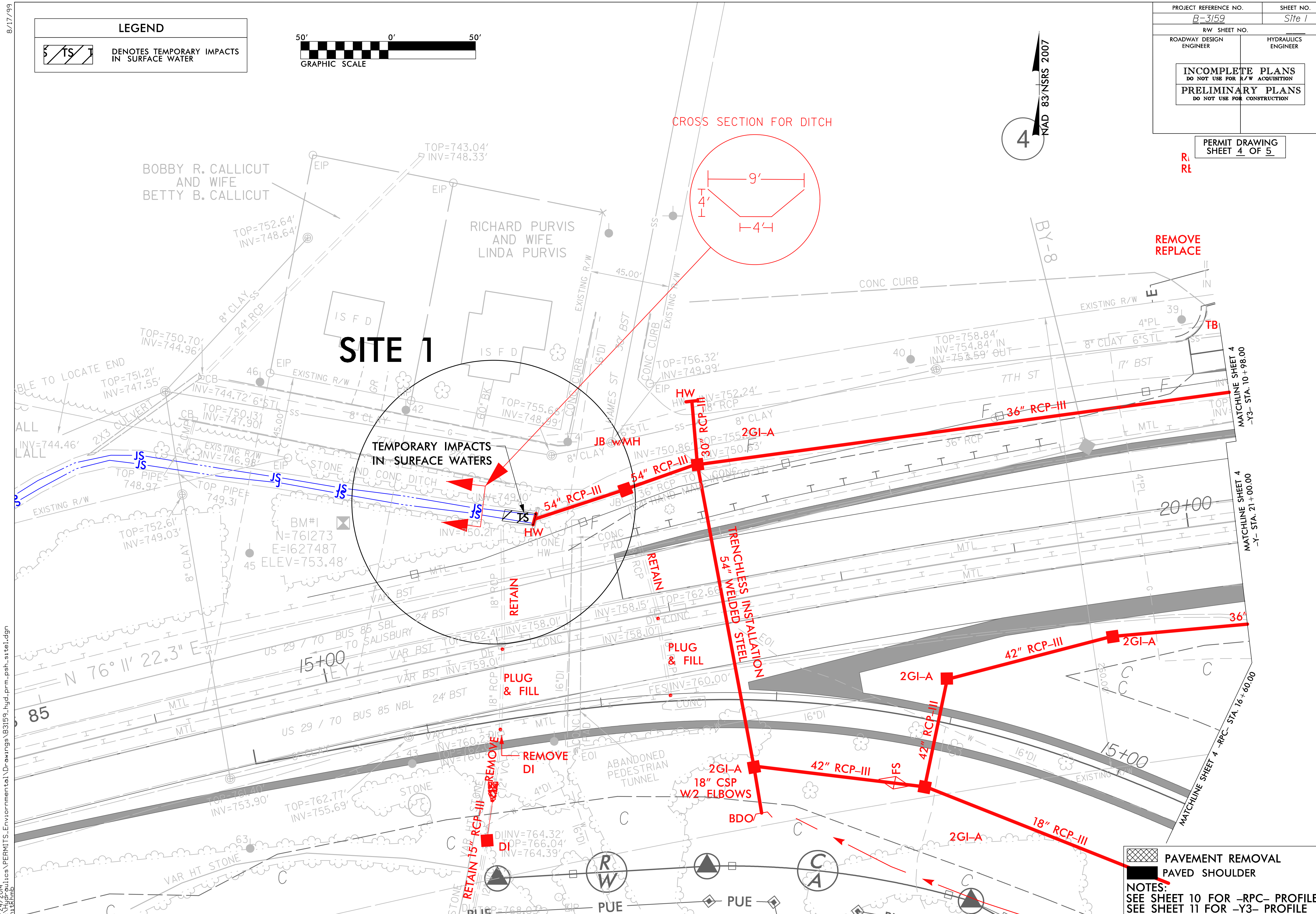
PAVEMENT REMOVAL

PAVED SHOULDER

NOTES:
SEE SHEET 10 FOR –RPC– PROFILE
SEE SHEET 11 FOR –Y3– PROFILE

7/24/2014
R:\Hydraulics\PERMITS_Environmental\Drawings\B3159_hyd_prm_psh_06a.dgn
chitkmb

8/17/99



7/24/2014
R:\Hydraulics\PERMITS_Enviornmental\Drawings\B3159_hyd_prm_psh_site1.dgn
chitkhmb

WETLAND PERMIT IMPACT SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	-Y- 16+17 to 16+35	54" RCP							<0.01		18	
TOTALS:									<0.01		18	

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

DAVIDSON COUNTY
TIP B-3159
Bridge No. 27

Sheet 5 of 5

7/24/2014

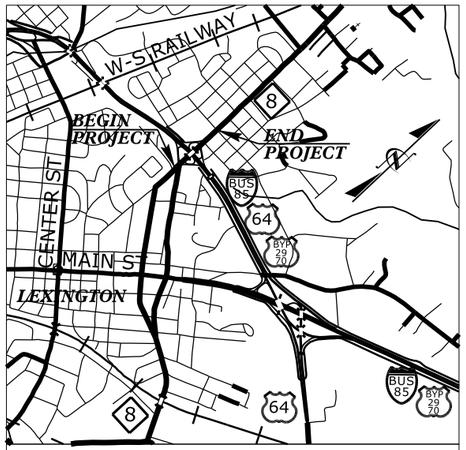
ATN Revised 3/31/05

09/08/99

TIP PROJECT: B-3159

CONTRACT: C203587

See Sheet 1-A For Index of Sheets



VICINITY MAP

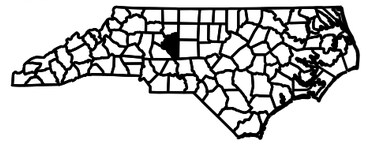
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

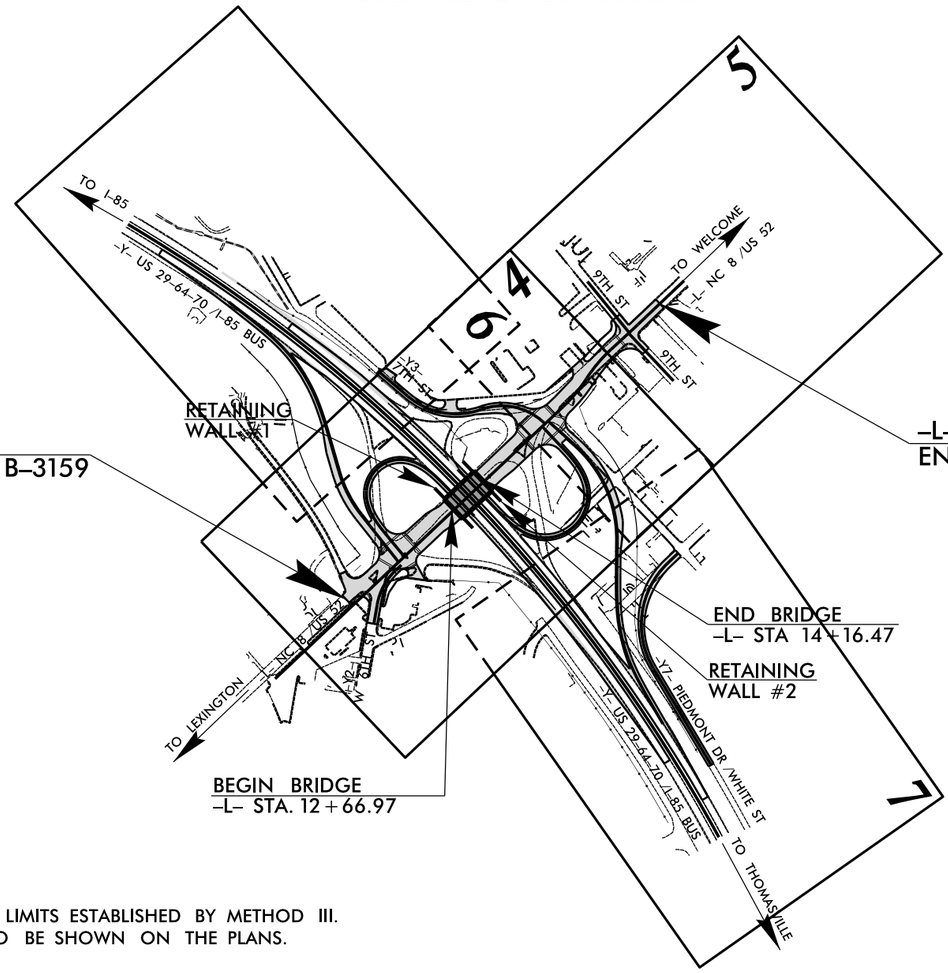
DAVIDSON COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B–3159	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
38331.1.1	STPNHS–0052(31)	PE
38331.2.FRU1	STPNHS–0052(31)	R/W, UTL

LOCATION: BRIDGE NO. 27 OVER US 29–64–70 /I–85 BUS LOOP ON NC 8 /US 52
TYPE OF WORK: GRADING, DRAINAGE, PAVING, RETAINING WALL, SIGNALS & STRUCTURE





CLEARING ON THIS PROJECT SHOULD BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.
THIS IS A FULL CONTROL OF ACCESS PROJECT WITH ACCESS TO BE SHOWN ON THE PLANS.
THIS PROJECT IS WITHIN THE CITY LIMITS OF LEXINGTON.

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 2009 = 23,900
ADT 2035 = 28,600
DHV = 10 %
D = 60 %
T = 5 % *
V = 40 MPH
* TTST = 2 DUAL 3
FUNC CLASS = ARTERIAL
STATEWIDE TIER

PROJECT LENGTH

LENGTH ROADWAY OF TIP PROJECT B–3159 = 0.261 MILES
LENGTH STRUCTURE OF TIP PROJECT B–3159 = 0.028 MILES
TOTAL LENGTH OF TIP PROJECT B–3159 = 0.289 MILES

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JUNE 30, 2014
LETTING DATE: JUNE 16, 2015

TONY HOUSER, PE
PROJECT ENGINEER

BRUCE PAYNE, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE:

ROADWAY DESIGN ENGINEER

SIGNATURE:

30-JUN-2014 13:57
R:\Roadway\Proj\B3159_Rdy_tsh.dgn
$$$$USERNAME$$$$

12/05/11

PROJECT REFERENCE NO.	SHEET NO.
B-3159	1B

Note: Not to Scale

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

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

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

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

RIGHT OF WAY:

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

ROADS AND RELATED FEATURES:

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

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line

- Orchard
- Vineyard — Vineyard

EXISTING STRUCTURES:

MAJOR:

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

MINOR:

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

UTILITIES:

POWER:

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

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

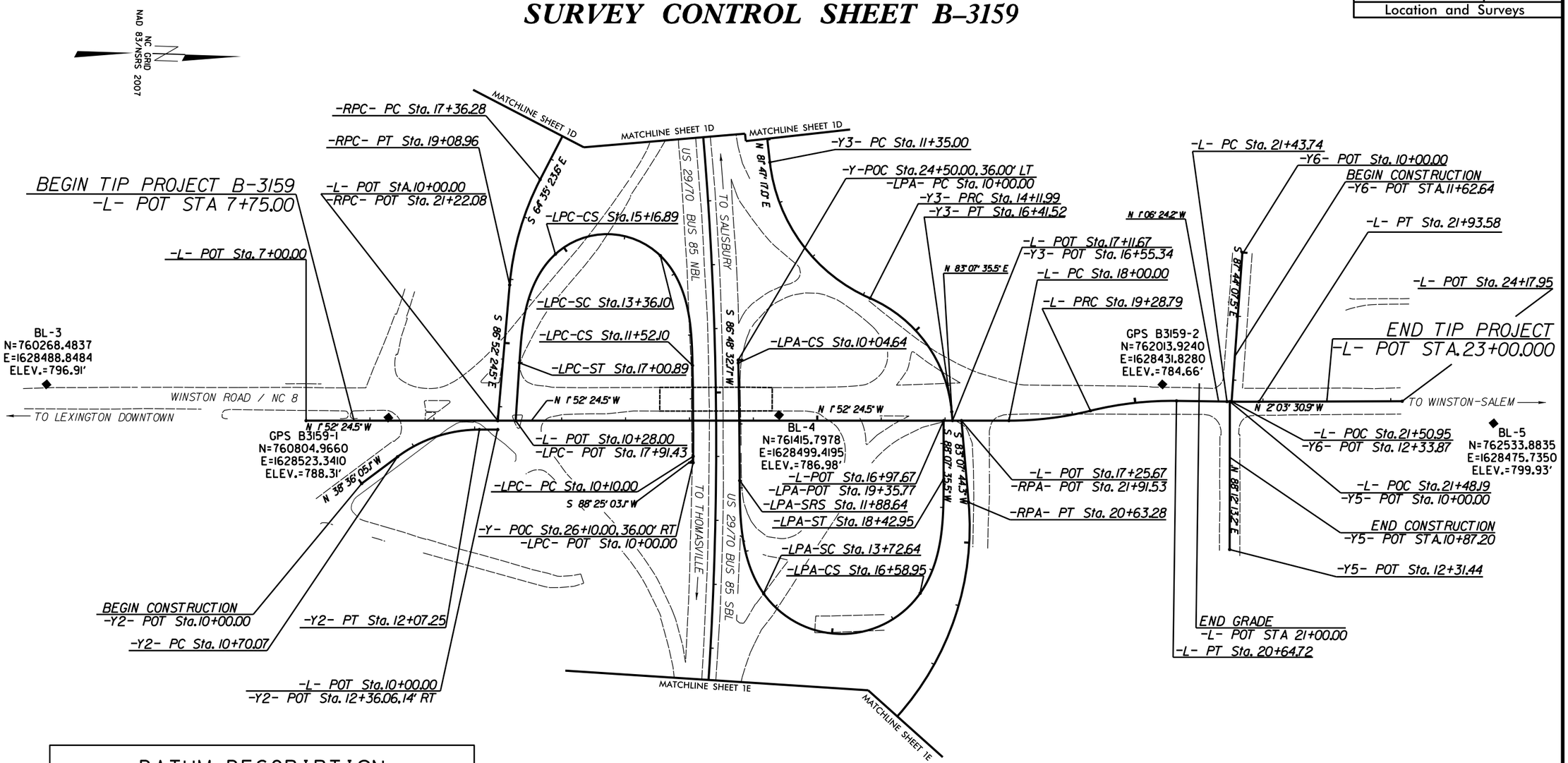
- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line — SS
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- Recorded SS Forced Main Line — FSS
- Designated SS Forced Main Line (S.U.E.*) — FSS

MISCELLANEOUS:

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

PROJECT REFERENCE NO.	SHEET NO.
B-3159	1C
Location and Surveys	

SURVEY CONTROL SHEET B-3159



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B-3159-1" WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 760804.9660(ft) EASTING: 1628523.3410(ft) ELEVATION: 788.31(ft)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9998914

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B-3159-1" TO -L- STATION 7+75.00 IS S 6° 55' 25.3" E 54.10'

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES

VERTICAL DATUM USED IS NAVD 88

NOTES:

1. *THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT: HTTPS://CONNECT.NCDOT.GOV/RESOURCES/LOCATION/*

   THE FILES TO BE FOUND ARE AS FOLLOWS: B3159_LS_CONTROL.TXT

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

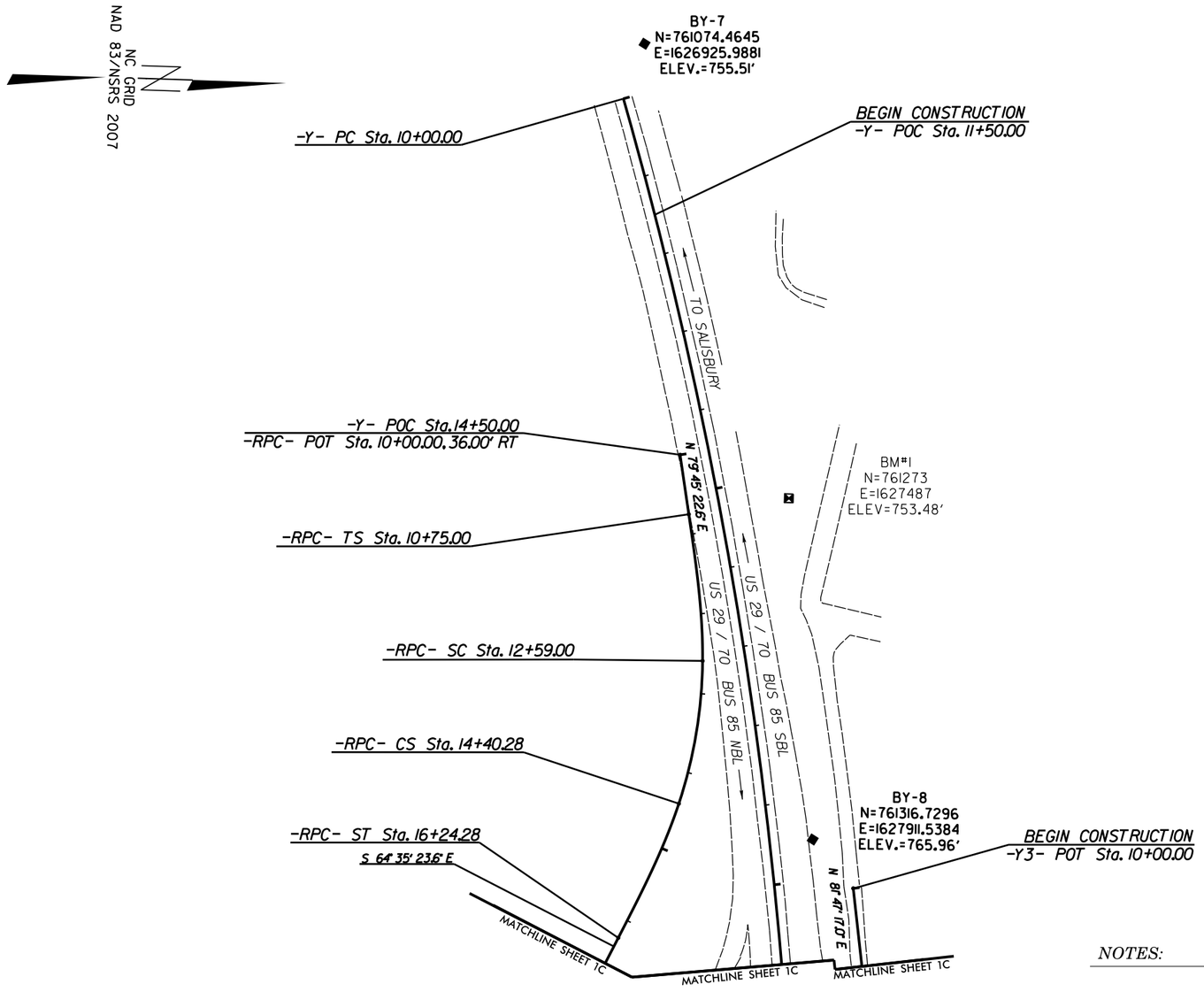
INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.

PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.

NOTE: DRAWING NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
B-3159	1D
Location and Surveys	

SURVEY CONTROL SHEET B-3159



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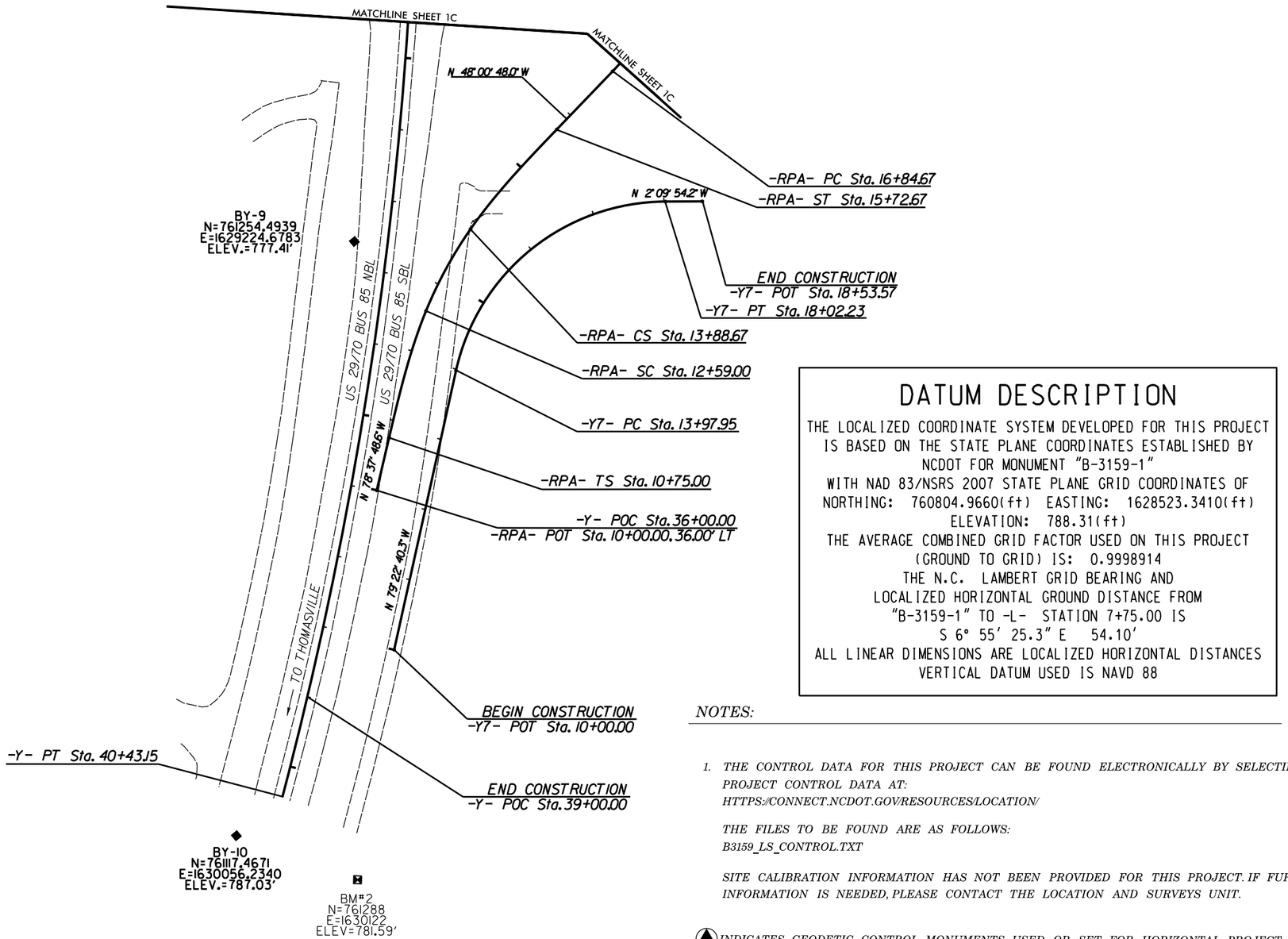
NOTE: DRAWING NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
B-3159	1E
Location and Surveys	

SURVEY CONTROL SHEET B-3159

NC GRID
NAD 83/NSRS 2007



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△ *INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.*
PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.

NOTE: DRAWING NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
B-3159	1F
Location and Surveys	

SURVEY CONTROL SHEET B-3159

BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
3		760268.4837	1628488.8484	796.91	OUTSIDE PROJECT LIMITS	
1		760804.9660	1628523.3410	788.31	8+28.89	4.76 LT
4		761415.7978	1628499.4195	786.98	14+40.18	8.70 LT
2		762013.9240	1628431.8280	784.66	20+43.38	25.93 LT
5		762533.8835	1628475.7350	799.93	OUTSIDE PROJECT LIMITS	

BY

POINT	DESC.	NORTH	EAST	ELEVATION	Y STATION	OFFSET
7		761074.4645	1626925.9881	755.51	OUTSIDE PROJECT LIMITS	
8		761316.7296	1627911.5384	765.96	19+49.16	53.83 LT
4		761415.7978	1628499.4195	786.98	25+36.07	98.52 LT
9		761254.4939	1629224.6783	777.41	32+62.04	46.25 RT
10		761117.4671	1630056.2340	787.03	OUTSIDE PROJECT LIMITS	

****

BM1 ELEVATION = 753.48'
N 761273 E 1627487
Y STATION 15+29.00 87' LEFT
R/R SPIKE SET IN ROOT OF FORKED WILLOW OAK BETWEEN 7TH ST. AND US 29/70 S. BOUND

****

****

BM2 ELEVATION = 781.59'
N 761288 E 1630112
Y STATION 40+43.00
N 46°02'38.06" E DIST 155.86'
R/R SPIKE SET IN ROOT OF 36"3 FORKED OAK ON N. SIDE OF PIEDMONT DR. (SR 1890) SOUTH OF STATE EMPLOYEE'S CREDIT UNION

****

****

BM3 ELEVATION = 796.91'
N 760268 E 1628489
L STATION 7+00.00
S 06°03'20.10" W DIST 410.59'
BL-3

****

****

BM4 ELEVATION = 799.93'
N 762534 E 1628476
L STATION 7+00.00
N 01°44'10.83" W DIST 1858.55'
BL-5

****

****

BM5 ELEVATION = 755.51'
N 761075 E 1626926
Y STATION 40+43.00
S 88°02'49.28" W DIST 3075.58'
BY-7

****

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PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.

NOTE: DRAWING NOT TO SCALE

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
B-3159	2
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

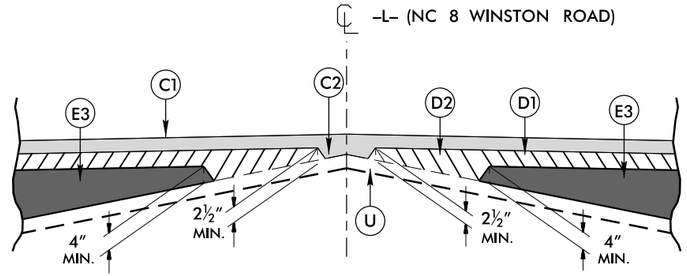
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PAVEMENT SCHEDULE

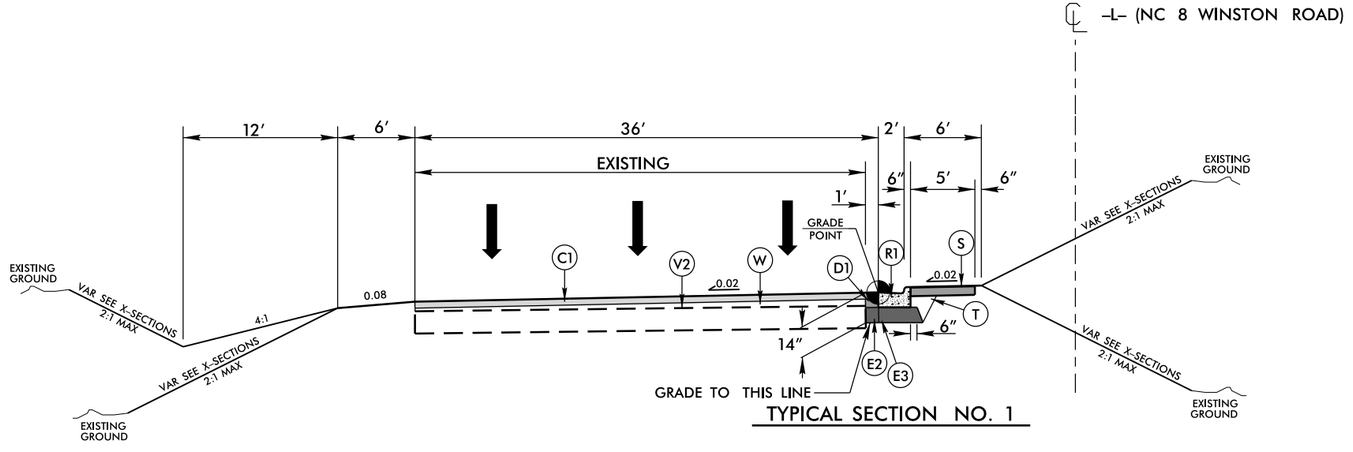
(FINAL PAVEMENT DESIGN JANUARY 31, 2014)
(REVISED MAY 22, 2014)

C1	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.	E5	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 GREATER THAN 5½" IN DEPTH OR LESS THAN 4" IN DEPTH.
C2	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.	J	PROP. 10" AGGREGATE BASE COURSE
C3	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.	P	PRIME COAT
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	R1	2'-6" CONCRETE CURB AND GUTTER
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 2½" OR GREATER THAN 4" IN DEPTH.	R2	1'-6" CONCRETE CURB AND GUTTER
D3	PROP. APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.	S	4" CONCRETE SIDEWALK
D4	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 2½" OR GREATER THAN 4" IN DEPTH.	T	EARTH MATERIAL
E1	PROP. APPROX. 4.5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD.	U	EXISTING PAVEMENT
E2	PROP. APPROX. 7" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	V1	3" MILLING
E3	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT GREATER THAN 5½" IN DEPTH OR LESS THAN 4" IN DEPTH.	V2	VARIABLE DEPTH MILLING
E4	PROP. APPROX. 10.5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 598.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL).

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



Detail Showing Method of Wedging



TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1

–L– STA. 7+75.00 TO 8+00.00

NOTES:
FLOAT CROWN POINT AND WARP SUPERELEVATIONS TO TIE TO EXISTING AT 7+75.00.
MILL AS NEEDED.

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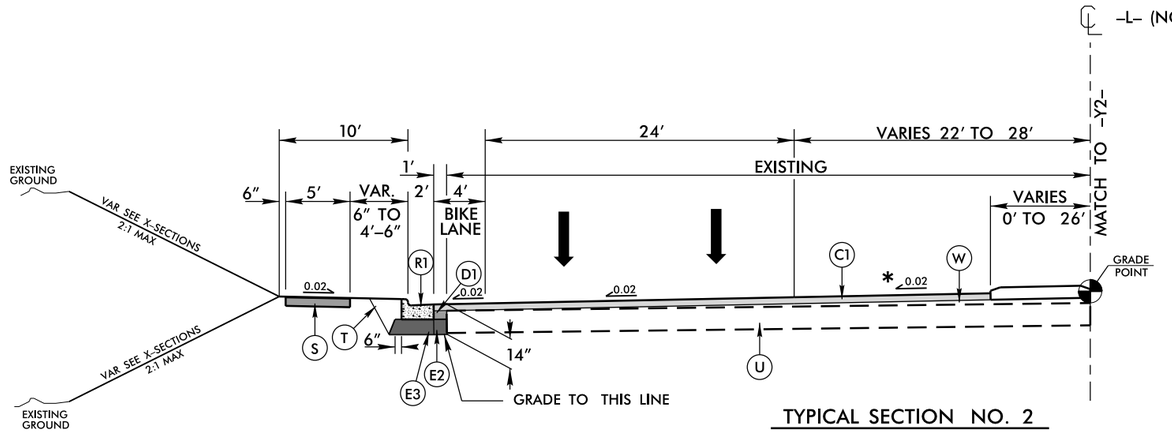
8/17/99

PROJECT REFERENCE NO.	SHEET NO.
B-3159	2-A
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

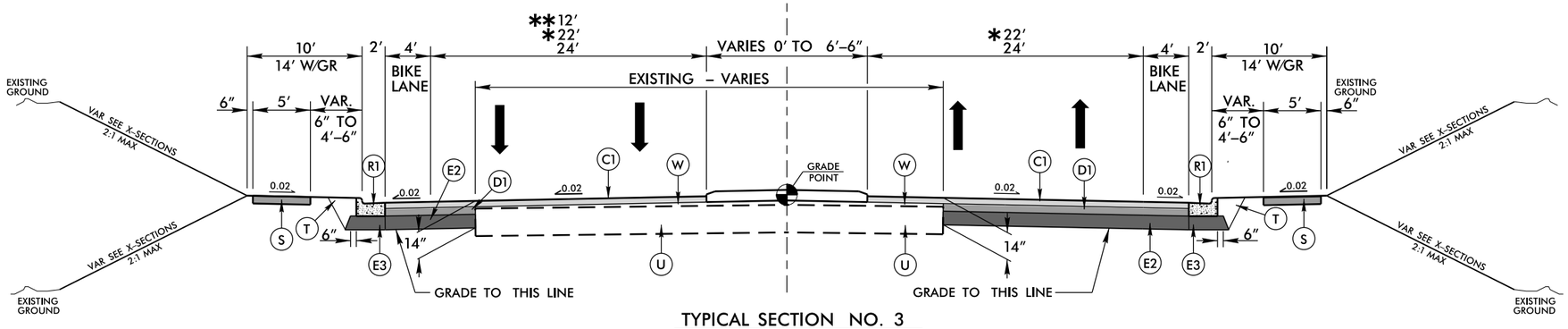


TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2
–L– STA. 8+00.00 TO 10+00.00

NOTES:
SEE PLANS FOR TURN LANES AND TAPERS.
* MAY NEED TO WARP FOR PROPER TIE TO –Y2–.

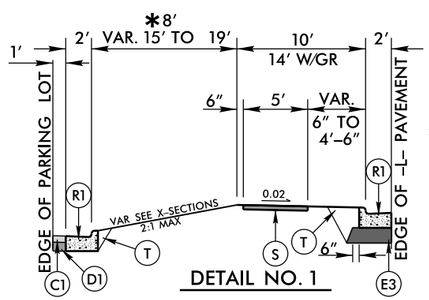
C1	3″ S9.5B	E5	VAR. B25.0C
C2	VAR. S9.5B	J	10″ ABC
C3	3″ S9.5C	P	PRIME COAT
D1	4″ I19.0B	R1	2′-6″ C & G
D2	VAR. I19.0B	R2	1′-6″ C & G
D3	3″ I19.0C	S	4″ SIDEWALK
D4	VAR. I19.0C	T	EARTH MATERIAL
E1	4.5″ B25.0B	U	EXISTING PVMNT
E2	7″ B25.0B	V1	3″ MILLING
E3	VAR. B25.0B	V2	VAR. DEPTH MILLING
E4	10.5″ B25.0C	W	WEDGING



TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3
–L– STA. 10+00.00 TO 11+50.00
–L– STA. 18+50.00 TO 21+00.00

NOTES:
SEE PLANS FOR TURN LANES AND TAPERS.
* –L– STA. 19+64.72 TO 20+64.72
REDUCE 12′ LANES TO 11′ LANES LEFT AND RIGHT.
** –L– STA. 20+10.00 TO 21+00.00



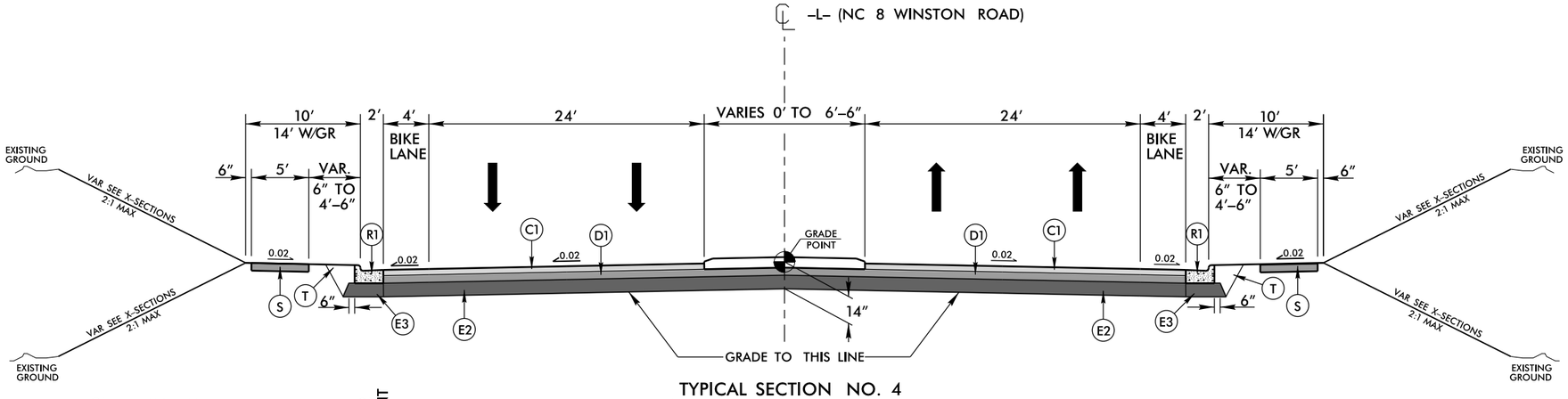
DETAIL NO. 1

USE DETAIL NO. 1 WITH TYPICAL SECTION NO. 3
LT: –L– STA. 18+50.00 TO STA. 19+20.00
*LT: –L– STA. 19+78.00 TO STA. 21+00.00

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
B-3159	2-B
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

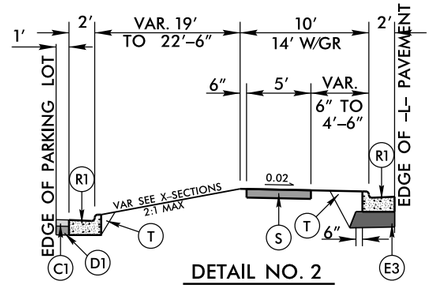
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



TYPICAL SECTION NO. 4

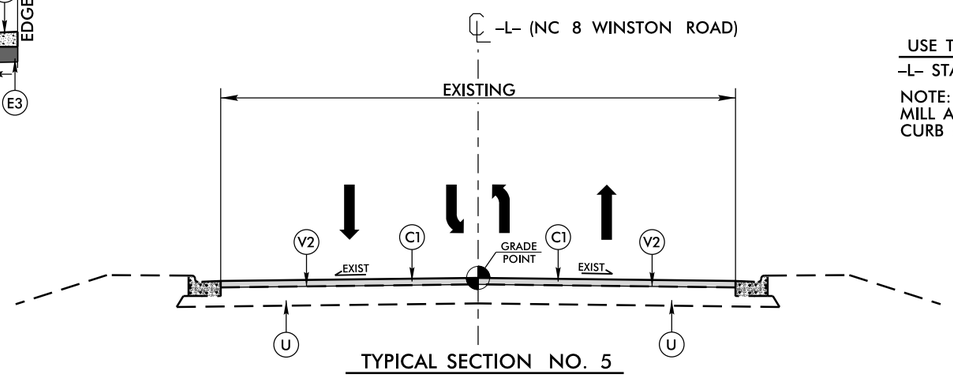
USE TYPICAL SECTION NO. 4
–L– STA. 11+50.00 TO 12+66.97 (BEGIN BRIDGE)
–L– STA. 14+16.47 (END BRIDGE) TO 18+50.00

NOTES:
SEE PLANS FOR TURN LANES AND TAPERS.



DETAIL NO. 2

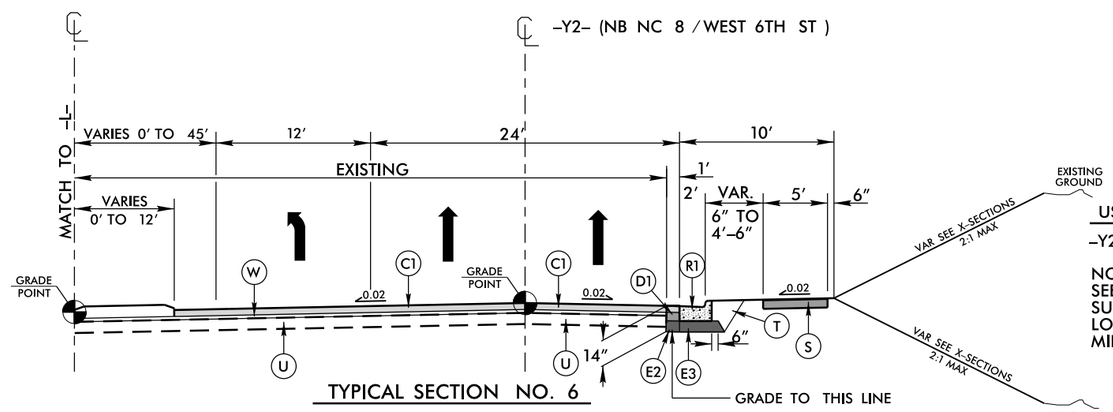
USE DETAIL NO. 2 WITH TYPICAL SECTION NO. 4
LT: –L– STA. 18+00.00 TO 18+50.00



TYPICAL SECTION NO. 5

USE TYPICAL SECTION NO. 5
–L– STA. 21+00.00 TO 23+00.00

NOTE:
MILL AND OVERLAY AS NEEDED TO ACHIEVE PROPER TIE IN WITH EXISTING CURB & GUTTER AND EXISTING LANE CONFIGURATION.



TYPICAL SECTION NO. 6

USE TYPICAL SECTION NO. 6
–Y2– STA. 10+53.13 TO 12+36.14

NOTES:
SEE PLANS FOR TURN LANES AND TAPERS.
SUPERELEVATIONS FLOAT IN VARIABLE WIDTH LOCATIONS TO TIE –Y2– GRADE TO –L– GRADE. MILL AS NEEDED.

C1	3″ S9.5B	E5	VAR. B25.0C
C2	VAR. S9.5B	J	10″ ABC
C3	3″ S9.5C	P	PRIME COAT
D1	4″ I19.0B	R1	2′-6″ C & G
D2	VAR. I19.0B	R2	1′-6″ C & G
D3	3″ I19.0C	S	4″ SIDEWALK
D4	VAR. I19.0C	T	EARTH MATERIAL
E1	4.5″ B25.0B	U	EXISTING PVMNT
E2	7″ B25.0B	V1	3″ MILLING
E3	VAR. B25.0B	V2	VAR. DEPTH MILLING
E4	10.5″ B25.0C	W	WEDGING

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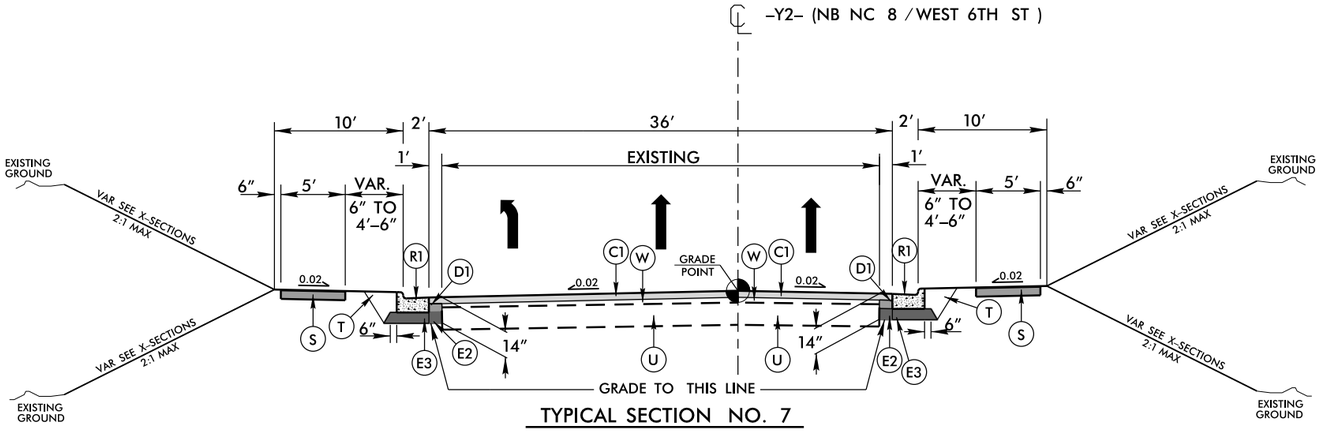
8/17/99

PROJECT REFERENCE NO.	SHEET NO.
B-3159	2-C
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



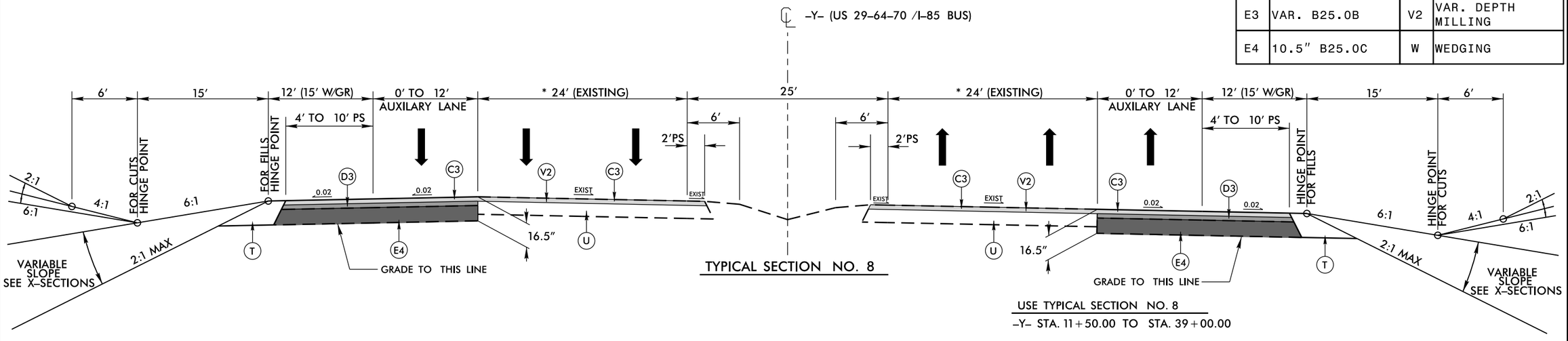
TYPICAL SECTION NO. 7

USE TYPICAL SECTION NO. 7

–Y2– STA. 10+00.00 TO 10+53.13

NOTES:
MILL AS NEEDED.

C1	3″ S9.5B	E5	VAR. B25.0C
C2	VAR. S9.5B	J	10″ ABC
C3	3″ S9.5C	P	PRIME COAT
D1	4″ I19.0B	R1	2′-6″ C & G
D2	VAR. I19.0B	R2	1′-6″ C & G
D3	3″ I19.0C	S	4″ SIDEWALK
D4	VAR. I19.0C	T	EARTH MATERIAL
E1	4.5″ B25.0B	U	EXISTING PVMNT
E2	7″ B25.0B	V1	3″ MILLING
E3	VAR. B25.0B	V2	VAR. DEPTH MILLING
E4	10.5″ B25.0C	W	WEDGING

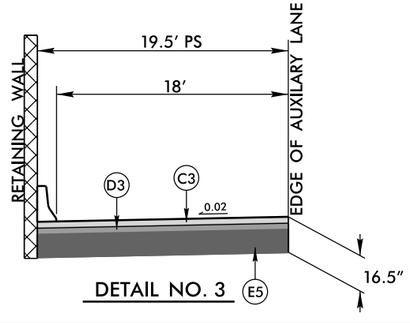


TYPICAL SECTION NO. 8

USE TYPICAL SECTION NO. 8

–Y– STA. 11+50.00 TO STA. 39+00.00

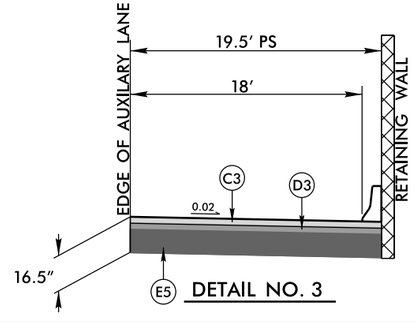
*MILL AND REPLACE AT SAME DEPTH –3″
NOTES:
FROM –Y– STA. 34+20.00 TO 37+20.00 RT
TAPER IN SHOULDER AND DITCH WIDTH TO TIE TO EXISTING (SEE X–SECTIONS).



DETAIL NO. 3

USE DETAIL NO. 3 WITH TYPICAL SECTION NO. 8

LT: –Y– STA. 24+87.00 TO 26+35.67
RT: –Y– STA. 24+39.00 TO 26+37.38



DETAIL NO. 3

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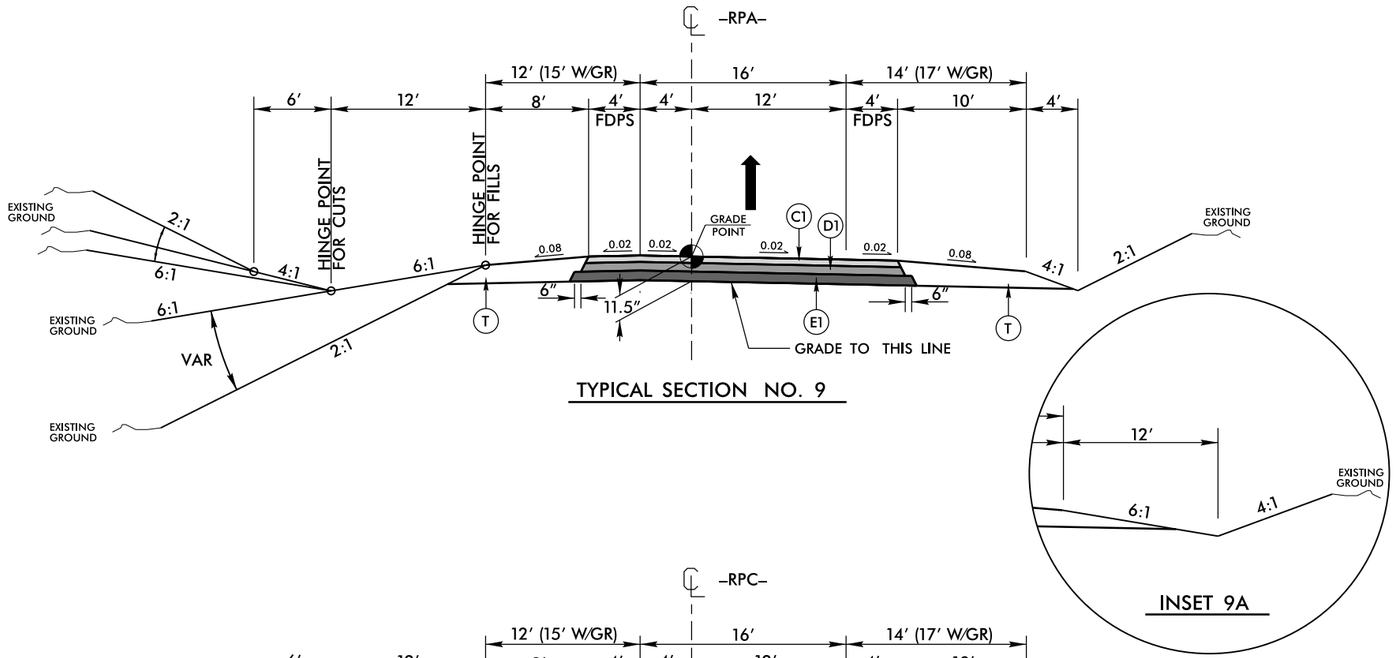
8/17/99

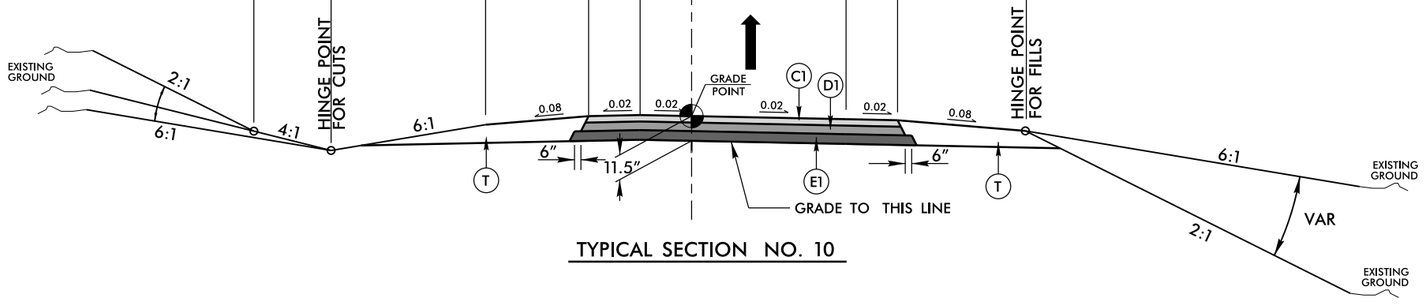
PROJECT REFERENCE NO.	SHEET NO.
B-3159	2-D
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

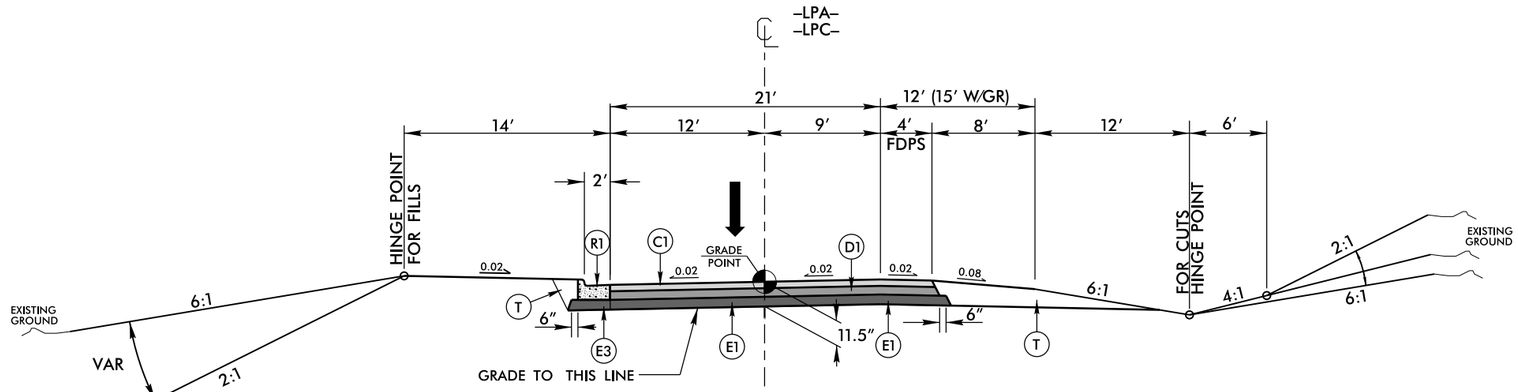


TYPICAL SECTION NO. 9

INSET 9A



TYPICAL SECTION NO. 10



TYPICAL SECTION NO. 11

USE TYPICAL SECTION NO. 9

–RPA– STA. 15+72.67 TO STA. 21+61.41

USE INSET 9A

–RPA– STA. 10+00.00 TO STA. 15+72.67 RIGHT OF CENTERLINE

USE TYPICAL SECTION NO. 10

–RPC– STA. 10+00.00 TO STA. 20+71.61

USE TYPICAL SECTION NO. 11

–LPA– STA. 10+00.00 TO STA. 19+05.77
–LPC– STA. 10+00.00 TO STA. 17+41.46

C1	3″ S9.5B
C2	VAR. S9.5B
C3	3″ S9.5C
D1	4″ I19.0B
D2	VAR. I19.0B
D3	3″ I19.0C
D4	VAR. I19.0C
E1	4.5″ B25.0B
E2	7″ B25.0B
E3	VAR. B25.0B
E4	10.5″ B25.0C
E5	VAR. B25.0C
J	10″ ABC
P	PRIME COAT
R1	2′-6″ C & G
R2	1′-6″ C & G
S	4″ SIDEWALK
T	EARTH MATERIAL
U	EXISTING PVMNT
V1	3″ MILLING
V2	VAR. DEPTH MILLING
W	WEDGING

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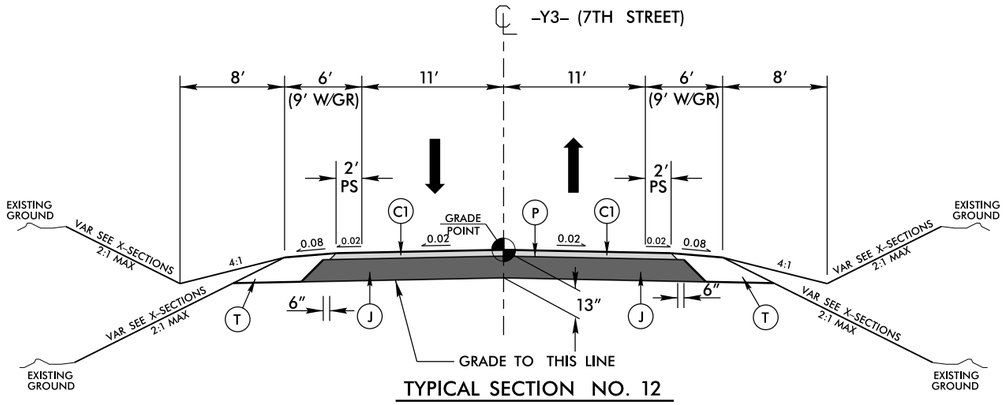
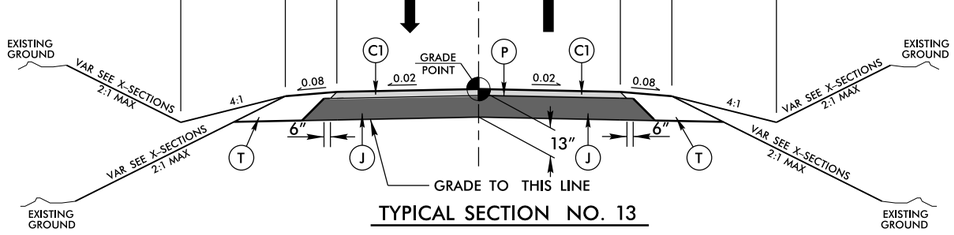
PROJECT REFERENCE NO.	SHEET NO.
B-3159	2-E
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



TYPICAL SECTION NO. 12

USE TYPICAL SECTION NO. 12
–Y3– STA. 10+00.00 TO STA. 16+09.98



TYPICAL SECTION NO. 13

USE TYPICAL SECTION NO. 13
–Y7– STA. 10+00.00 TO STA. 18+53.57

C1	3″ S9.5B
C2	VAR. S9.5B
C3	3″ S9.5C
D1	4″ I19.0B
D2	VAR. I19.0B
D3	3″ I19.0C
D4	VAR. I19.0C
E1	4.5″ B25.0B
E2	7″ B25.0B
E3	VAR. B25.0B
E4	10.5″ B25.0C
E5	VAR. B25.0C
J	10″ ABC
P	PRIME COAT
R1	2′-6″ C & G
R2	1′-6″ C & G
S	4″ SIDEWALK
T	EARTH MATERIAL
U	EXISTING PVMNT
V1	3″ MILLING
V2	VAR. DEPTH MILLING
W	WEDGING

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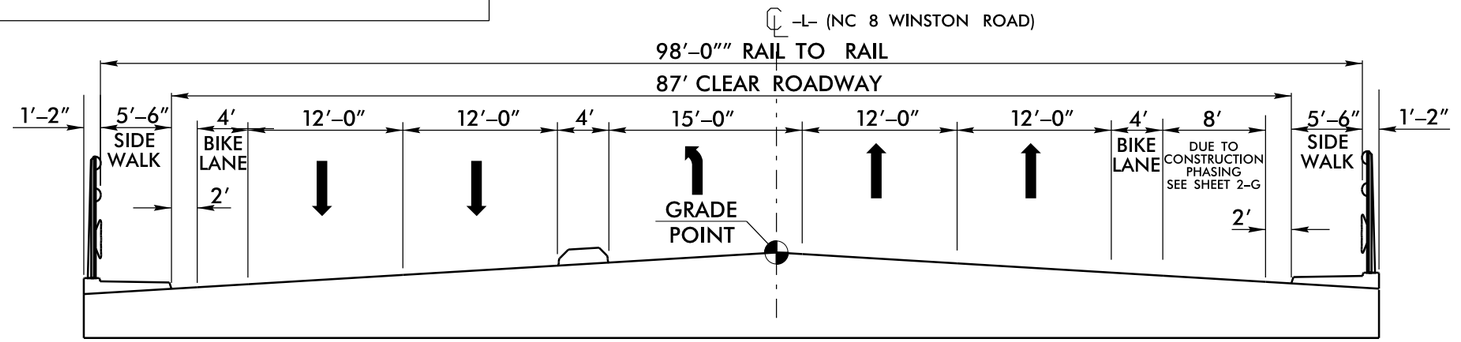
PROJECT REFERENCE NO.	SHEET NO.
B-3159	2-F
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

STRUCTURE RECOMMENDATIONS

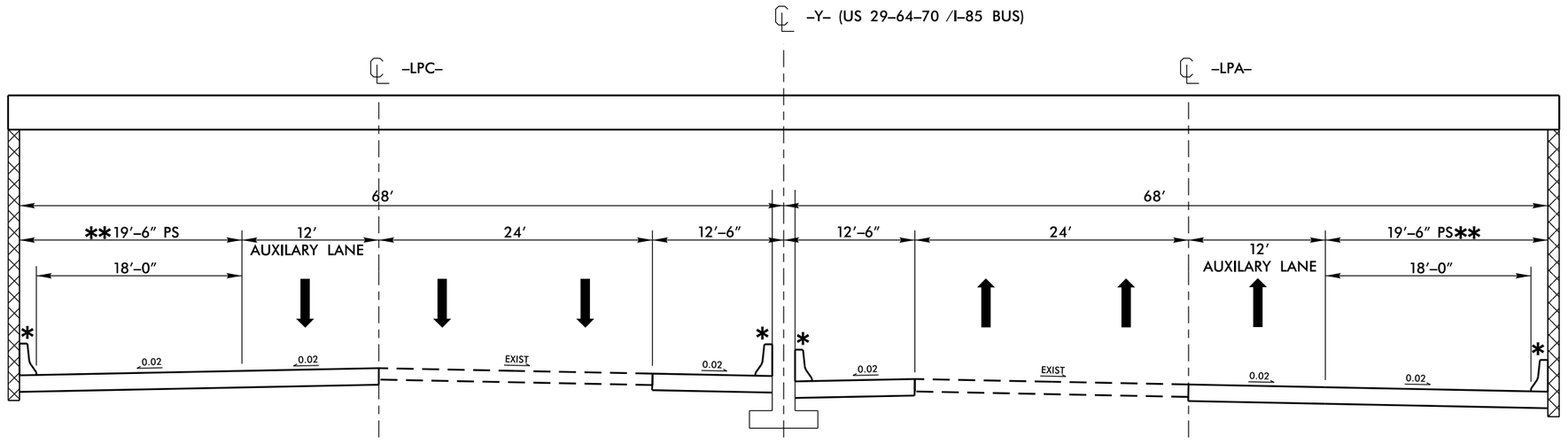
DESIGN DATA	–L–	–Y–
2009 ADT	23,900	24,200
2035 ADT	28,600	36,400
DHV (%)	10	10
D (%)	60	60
DUAL (%)	3	6
TTST (%)	2	7
V (MPH)	40	60
FUNC CLASS	ARTERIAL	FREEWAY

MINIMUM VERTICAL CLEARANCE = 16′–6″
SKEW ANGLE = 89° 37′ 49.98″
✱ SINGLE FACED PRECAST CONCRETE BARRIER (SEE STD. 857.01)
✱✱ TO ACCOMMODATE FUTURE LANE
RETAINING WALL DETERMINED BY GEOTECHNICAL ENGINEERING UNIT



–L– (NC 8) STRUCTURE OVER –Y– (US 29–64–70 /I–85 BUS)

–L– STA. 12+66.97 TO –L– STA. 14+16.47



DETAIL OF ROADWAY UNDER PROPOSED STRUCTURE

NOTES:
SEE SHEET 4 FOR PLAN VIEW
SEE SHEET 2–B FOR –L– TYPICAL SECTION
SEE SHEET 2–C FOR –Y– TYPICAL SECTION

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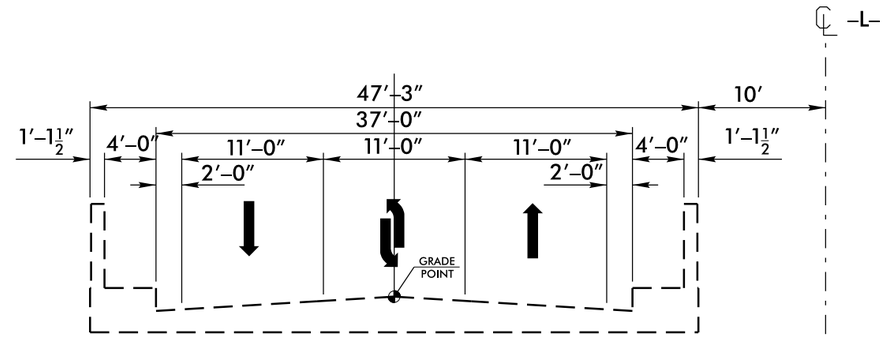
8/17/99

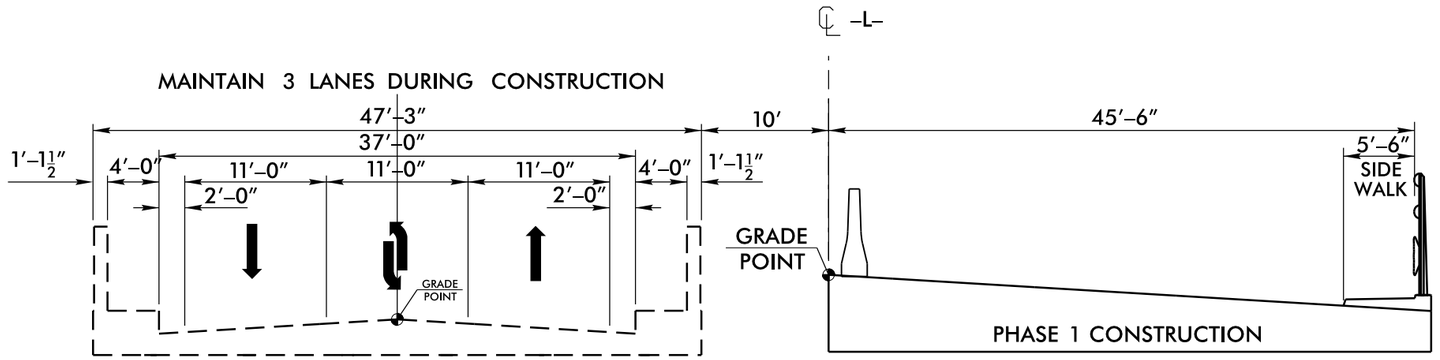
PROJECT REFERENCE NO.	SHEET NO.
B-3159	2-G
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

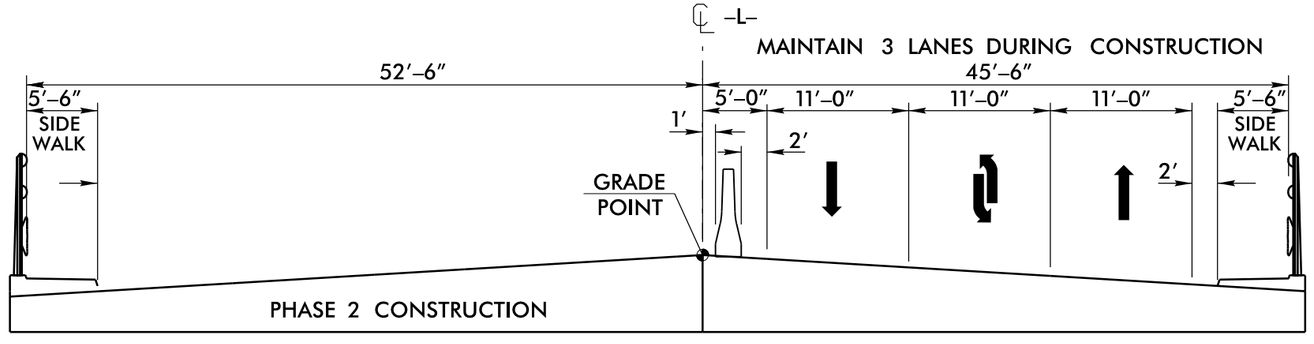
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

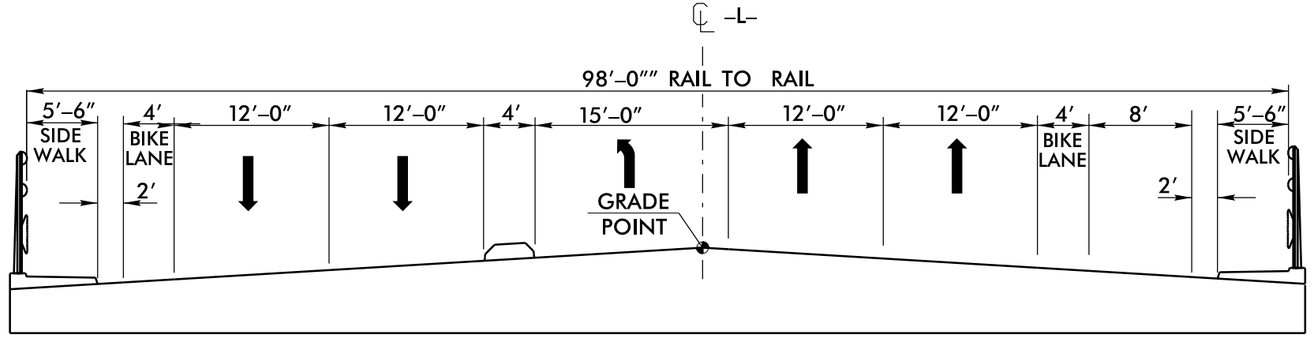
PHASE CONSTRUCTION FOR BRIDGE



MAINTAIN 3 LANES DURING CONSTRUCTION







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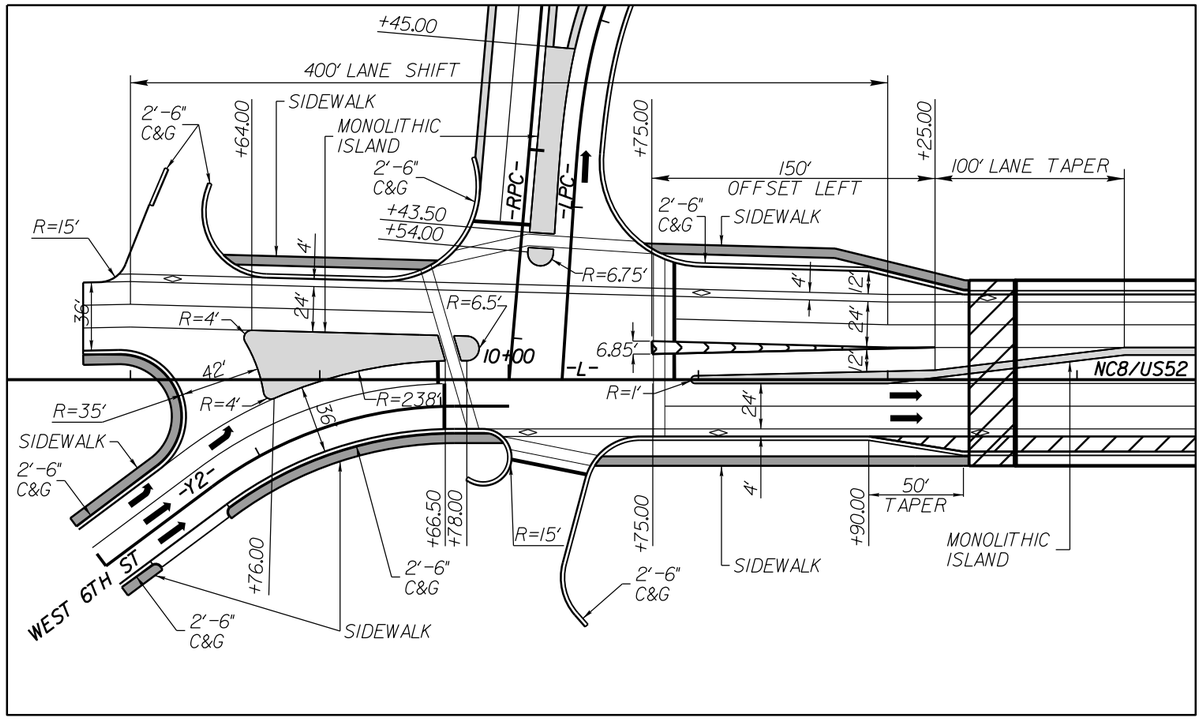
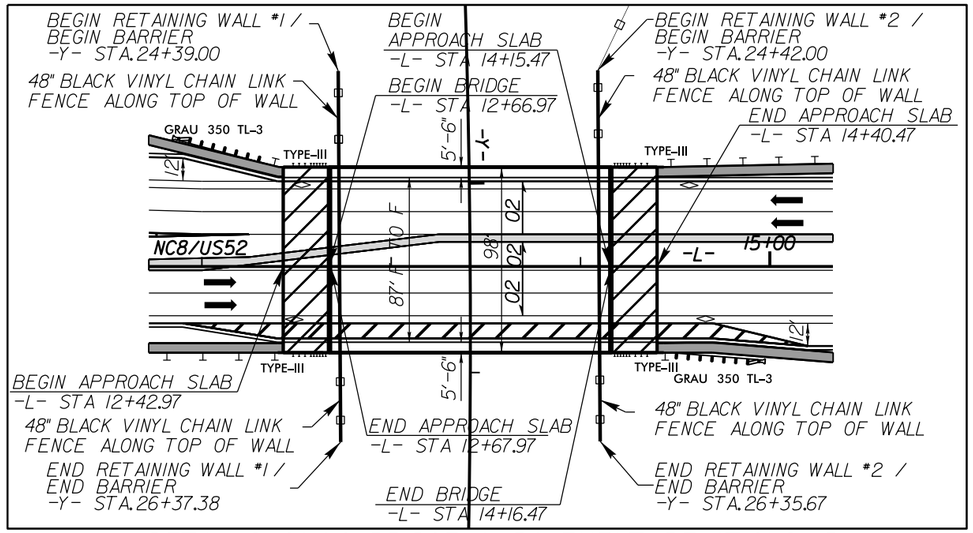
PROJECT REFERENCE NO.	SHEET NO.
B-3159	2-H
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

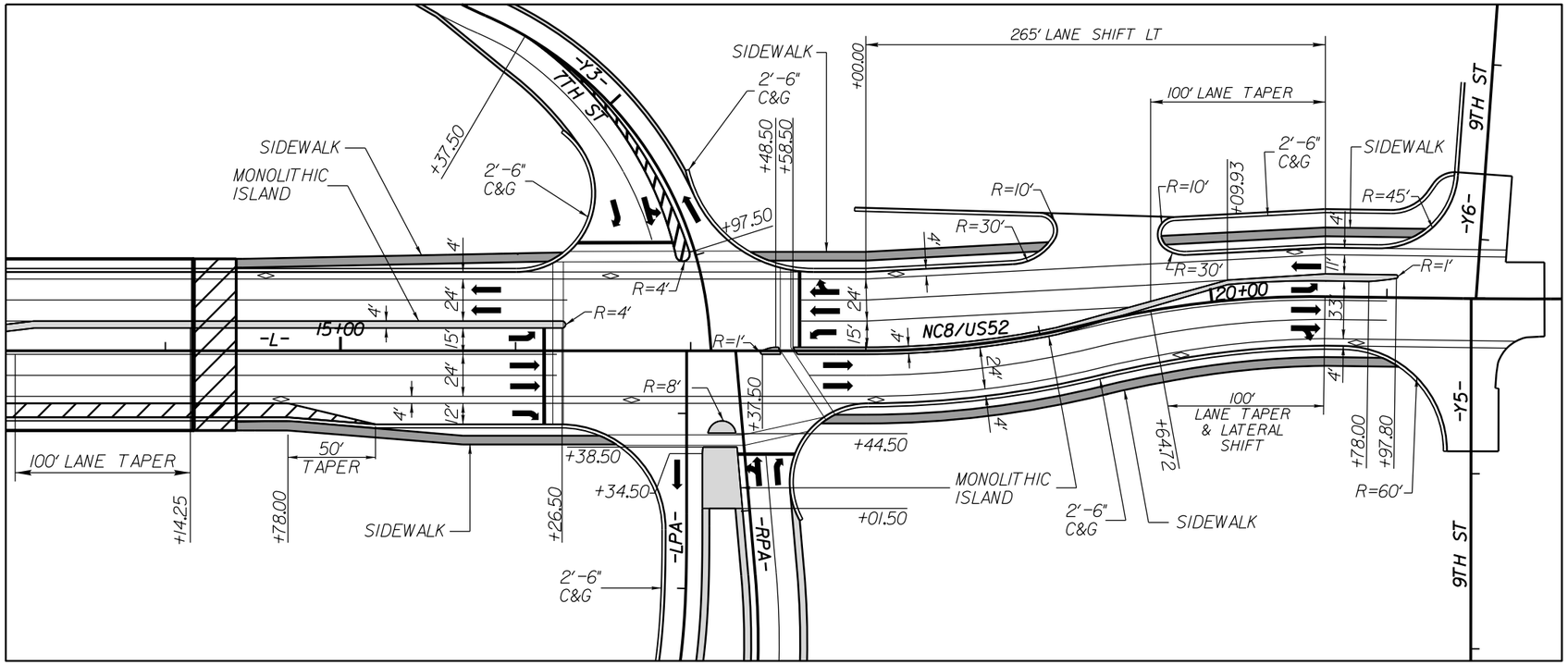
NOTE: DRAWINGS NOT TO SCALE



INTERSECTION DETAIL (SEE PLAN SHEET 4)



DETAIL SHOWING BRIDGE & PAVEMENT RELATIONSHIP (SEE PLAN SHEET 4)



INTERSECTION DETAIL (SEE PLAN SHEET 4)

48" BLACK VINYL CHAIN LINK FENCE
PAVED SHOULDERS /ISLANDS
SIDEWALK

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8/17/99

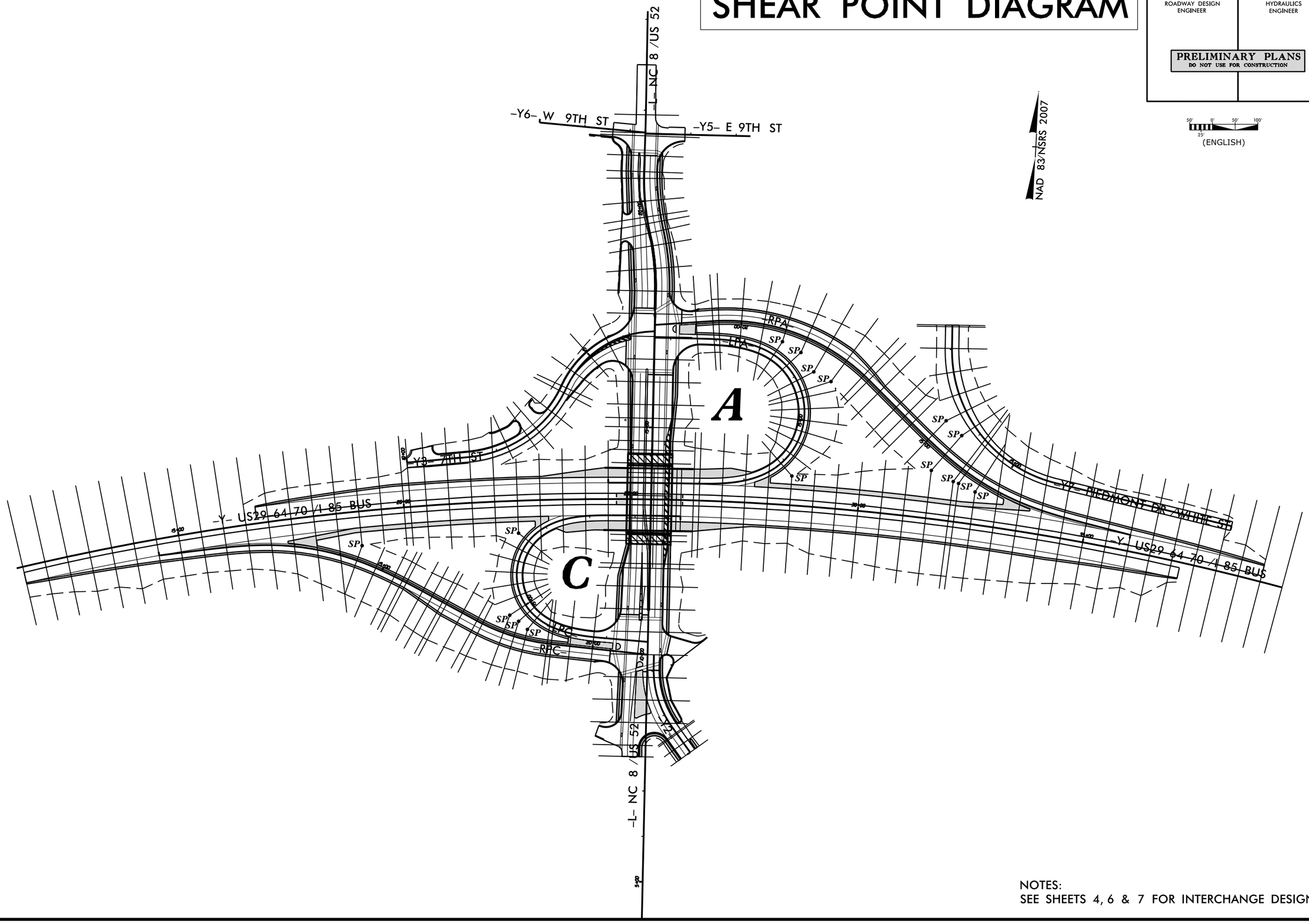
SHEAR POINT DIAGRAM

PROJECT REFERENCE NO.	SHEET NO.
B-3159	2-1
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

50' 0' 50' 100'
25'
(ENGLISH)

NAD 83/NSRS 2007



NOTES:
SEE SHEETS 4, 6 & 7 FOR INTERCHANGE DESIGN

30-JUN-2014 13:58
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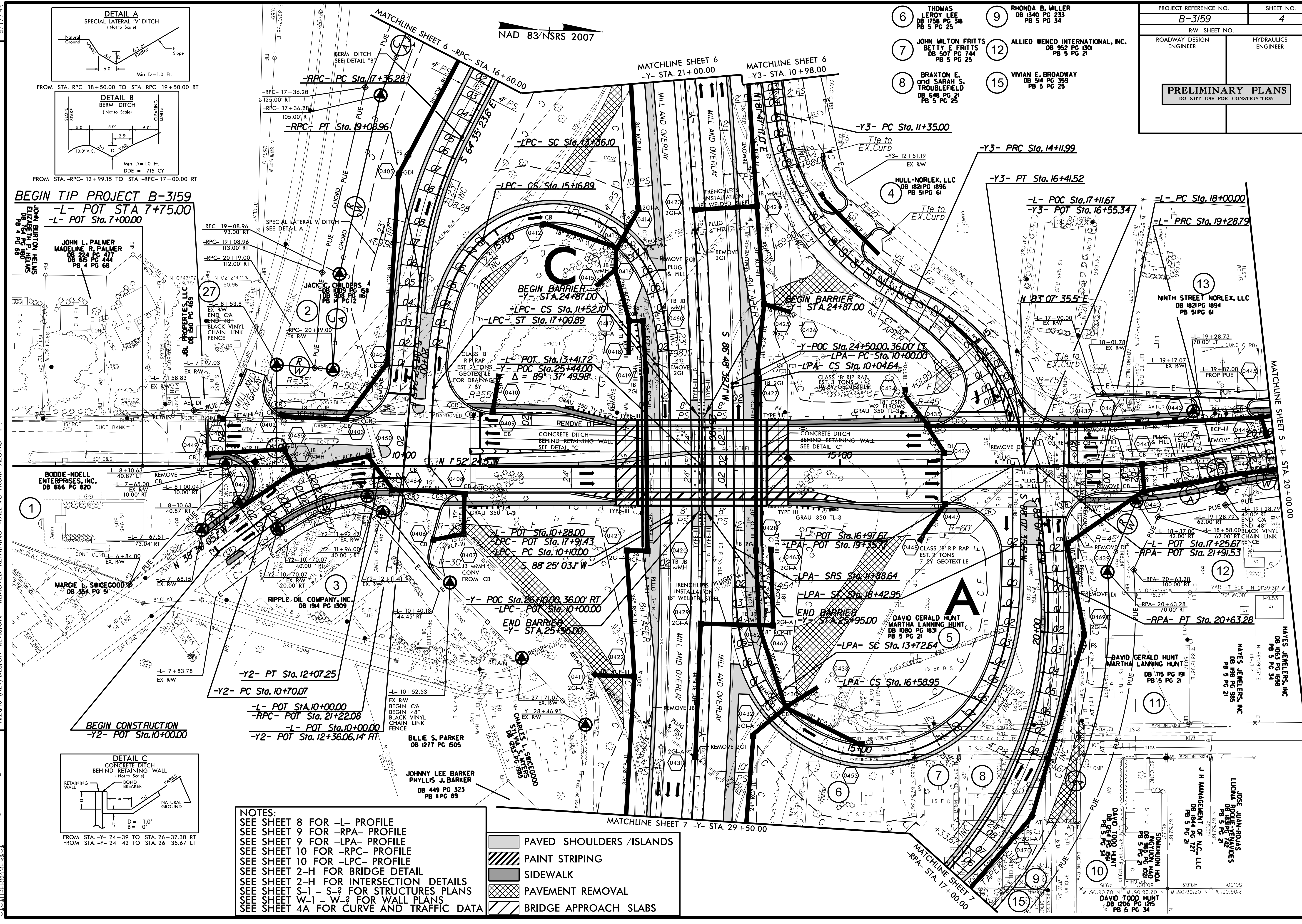
REVISIONS

6/3/14 (RLC) DESIGN REVISION – EXTENDED THE LENGTH OF RETAINING WALLS #1 & #2 ALONG US 29-64-70I-85 (-Y-). REVISED THE DITCH ALONG -RPA- FROM STA 15+72.67 TO 21+00.00 RIGHT OF CENTERLINE.
5/20/14 (ESM) DESIGN REVISION – CHANGED TYPICAL 12' STANDARD ARTERIAL DITCH TO EXPRESSWAY GUTTER ON -RPA- FROM STA 15+72.67 TO 20+50.00 RT.
11/20/13 (AEV) DESIGN REVISION – REMOVED RETAINING WALL #3 FROM ALONG -Y-.

PROJECT REFERENCE NO.	SHEET NO.
B-3159	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



6	THOMAS LEROY LEE DB 1758 PG 318 PB 5 PG 25
7	JOHN MILTON FRITTS BETTY E FRITTS DB 507 PG 744 PB 5 PG 25
8	BRAXTON E. and SARAH S. TROUBLEFIELD DB 648 PG 21 PB 5 PG 25
9	RHONDA B. MILLER DB 1340 PG 233 PB 5 PG 34
12	ALLIED WENCO INTERNATIONAL, INC. DB 952 PG 1301 PB 5 PG 21
15	VIVIAN E. BROADWAY DB 514 PG 359 PB 5 PG 25

NOTES:
SEE SHEET 8 FOR -L- PROFILE
SEE SHEET 9 FOR -RPA- PROFILE
SEE SHEET 9 FOR -LPA- PROFILE
SEE SHEET 10 FOR -RPC- PROFILE
SEE SHEET 10 FOR -LPC- PROFILE
SEE SHEET 2-H FOR BRIDGE DETAIL
SEE SHEET 2-H FOR INTERSECTION DETAILS
SEE SHEET S-1 – S-? FOR STRUCTURES PLANS
SEE SHEET W-1 – W-? FOR WALL PLANS
SEE SHEET 4A FOR CURVE AND TRAFFIC DATA

PAVED SHOULDERS /ISLANDS
PAINT STRIPING
SIDEWALK
PAVEMENT REMOVAL
BRIDGE APPROACH SLABS

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PROJECT REFERENCE NO.	SHEET NO.
B-3159	4A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L-

PI Sta 18+64.71
Δ = 13° 50' 42.1" (LT)
D = 10° 44' 58.8"
L = 128.79'
T = 64.71'
R = 533.00'
SE = SEE PLANS

PI Sta 19+97.13
Δ = 14° 36' 42.4" (RT)
D = 10° 44' 58.8"
L = 135.93'
T = 68.33'
R = 533.00'
SE = SEE PLANS

-Y-

PI Sta 25+58.78
Δ = 30° 35' 22.0" (RT)
D = 1° 00' 18.7"
L = 3,043.15'
T = 1,558.78'
R = 5,700.00'
SE = EXIST

-RPA-

PI Sta 18+86.35
Δ = 48° 51' 27.7" (LT)
D = 12° 54' 16.0"
L = 378.61'
T = 201.68'
R = 444.00'
SE = .08

-RPC-

PI Sta 18+23.72
Δ = 22° 17' 00.9" (LT)
D = 12° 54' 16.0"
L = 172.68'
T = 87.45'
R = 444.00'
SE = .08

-LPA-

PI Sta 10+02.32
Δ = 0° 02' 46.5" (RT)
D = 0° 59' 48.8"
L = 4.64'
T = 2.32'
R = 5,747.48'
SE = .02

Pis Sta 10+65.97
θs = 0° 55' 01.7"
Ls = 184.00'
LT = 122.67'
ST = 61.33'

Pis Sta 13+13.81
θs = 35° 08' 29.1"
Ls = 184.00'
LT = 125.17'
ST = 63.62'

PI Sta 15+84.35
Δ = 109° 21' 47.2" (LT)
D = 38° 11' 49.9"
L = 286.31'
T = 211.71'
R = 150.00'
SE = .08

Pis Sta 17+22.57
θs = 35° 08' 29.1"
Ls = 184.00'
LT = 125.17'
ST = 63.62'

-LPC-

PI Sta 10+81.05
Δ = 1° 26' 15.2" (LT)
D = 1° 00' 42.0"
L = 142.10'
T = 71.05'
R = 5,663.48'
SE = .08

Pis Sta 12+77.76
θs = 0° 50' 41.6"
θs = 44° 00' 40.8"
Ls = 184.00'
LT = 125.66'
ST = 66.51'

PI Sta 14+48.63
Δ = 86° 19' 20.1" (LT)
D = 47° 44' 47.3"
L = 180.79'
T = 112.53'
R = 120.00'
SE = .08

Pis Sta 15+81.88
θs = 43° 55' 36.4"
Ls = 184.00'
LT = 126.67'
ST = 64.99'

-Y2-

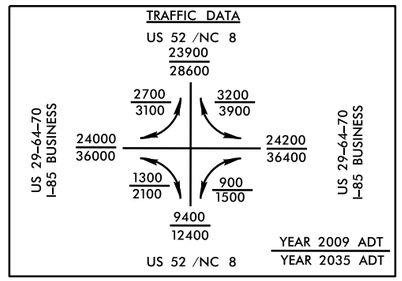
PI Sta 11+41.31
Δ = 36° 43' 40.6" (RT)
D = 26° 46' 25.4"
L = 137.18'
T = 71.04'
R = 214.00'
SE = SEE PLANS

-Y3-

PI Sta 12+87.78
Δ = 60° 06' 55.5" (LT)
D = 21° 42' 10.6"
L = 276.99'
T = 152.78'
R = 264.00'
SE = .08

PI Sta 15+39.19
Δ = 61° 27' 14.0" (RT)
D = 26° 46' 25.4"
L = 229.53'
T = 127.20'
R = 214.00'
SE = SEE PLANS

TRAFFIC DATA



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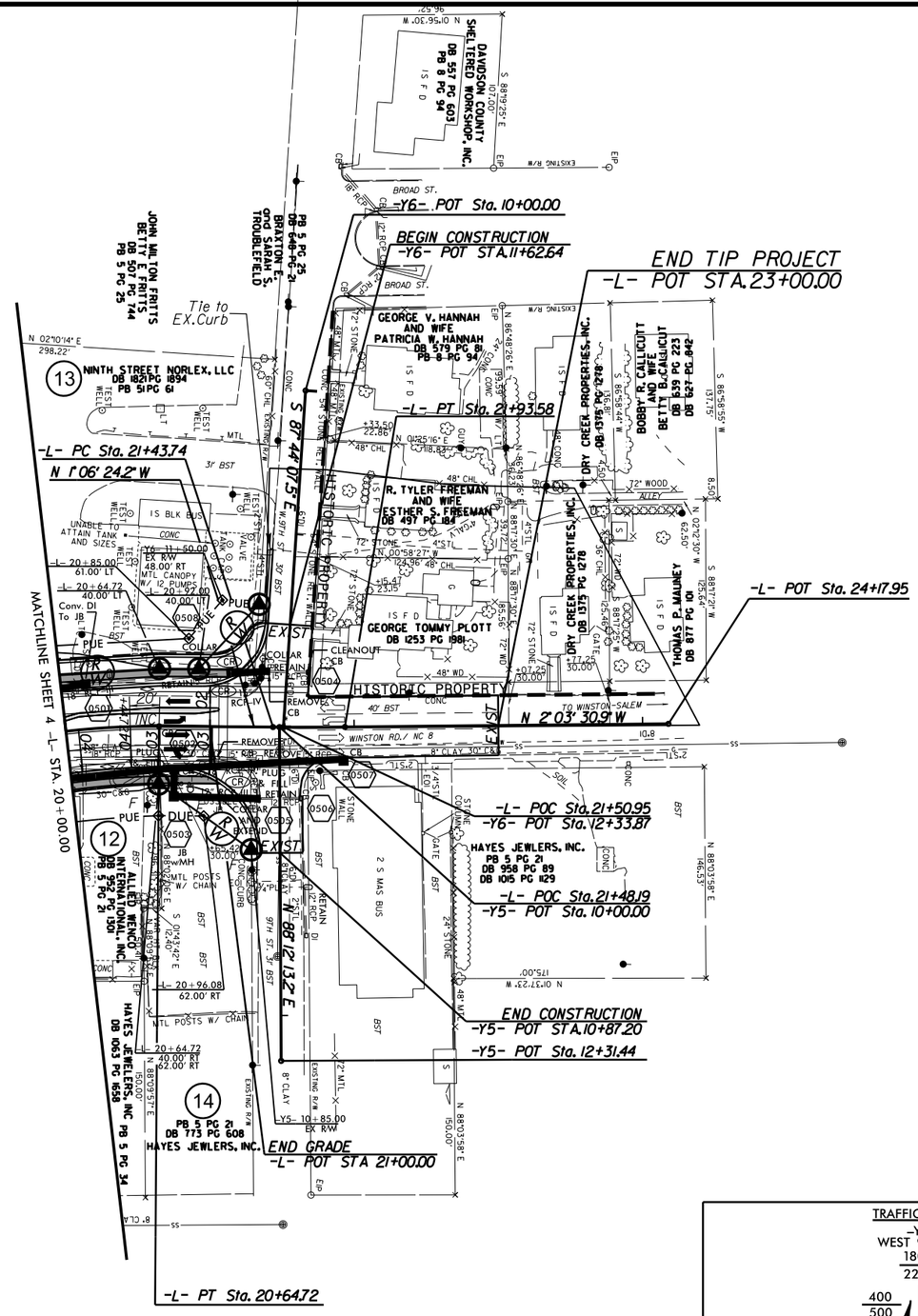
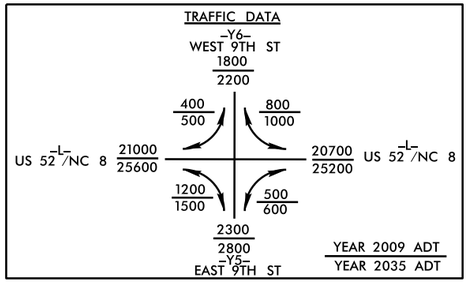
PROJECT REFERENCE NO.	SHEET NO.
B-3159	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83/NSRS 2007



TRAFFIC DATA



ISLANDS
SIDEWALK

NOTES:
SEE SHEET 8 FOR -L- PROFILE
SEE SHEET 2-H FOR INTERSECTION DETAIL

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PROJECT REFERENCE NO.	SHEET NO.
B-3159	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83/NSRS 2007

-RPC-

PIs Sta 11+97.82
Θs = 8° 58' 47.7"
Ls = 184.00'
LT = 122.82'
ST = 61.48'

PI Sta 13+50.37
Δ = 17° 41' 38.5" (RT)
D = 9° 45' 38.8"
L = 181.28'
T = 91.37'
R = 587.00'
SE = .08

PIs Sta 15+01.75
Θs = 8° 58' 47.7"
Ls = 184.00'
LT = 122.82'
ST = 61.48'

-Y-

PI Sta 25+58.78
Δ = 30° 35' 22.0" (RT)
D = 1° 00' 18.7"
L = 3,043.15'
T = 1,558.78'
R = 5,700.00'
SE = EXIST

BEGIN CONSTRUCTION
-Y- POC Sta. 11+50.00

BEGIN CONSTRUCTION
-Y3- POT Sta. 10+00.00

VERL A. RUMFELT
DAVID R. RUMFELT, JR.
CECIL MAX RUMFELT
TERRY F. RUMFELT
DB 615 PG 241

EDWIN KRISENLALL
AND WIFE
HIMWANTI KRISENLALL
DB 1205 PG 902

BOBBY R. CALLICUT
AND WIFE
BETTY B. CALLICUT
DB 629 PG 87
PB 8 PG 95

RICHARD PURVIS
AND WIFE
LINDA PURVIS
DB 647 PG 564
PB 8 PG 95

HULL-NORFLEX, LLC
DB 1821 PG 1896
PB 51 PG 61

TONY G. CRAVER
AND WIFE
HOPE N. CRAVER
DB 1056 PG 102

TERRY F. RUMFELT
DB 1702 PG 181

JACK C. CHILDERS
DB 1009 PG 158
DB 908 PG 161
PB 14 PG 2

TIE PROPOSED GUARDRAIL
TO EXISTING
-Y- STA 16+75.00

BEGIN 48" BLACK VINYL CHAIN LINK FENCE
-Y- STA. 16+50.00

BK #1
-Y- STA 15+29.00
87' LEFT
R/R SPIKE SET IN ROOT OF FORKED WILLOW OAK BETWEEN 7TH ST. AND US 29/70 S. BOUND

-Y- POC Sta. 14+50.00
-RPC- POT Sta. 10+00.00, 36.00' RT

-Y- PC Sta. 10+00.00

-RPC- TS Sta. 10+75.00

-RPC- SC Sta. 12+59.00

-RPC- CS Sta. 14+40.28

-RPC- ST Sta. 16+24.28
S 64° 35' 23.6" E

MATCHLINE SHEET 4
-Y- STA. 10+98.00

MATCHLINE SHEET 4 -RPC- STA. 16+60.00
-Y- STA. 21+00.00

300' TRANSITION

MILL AND OVERLAY

REMOVE AND REPLACE DI

REMOVE DI

PLUG & FILL

PLUG & FILL WITH FLOWABLE FILL

ABANDONED PEDESTRIAN TUNNEL

CLASS 'B' RIP RAP
EST. 2 TONS
7 SY GEOTEXTILE
FOR DRAINAGE

100' LANE TAPER

DIR. ONLY
UNABLE TO LOCATE END

DETAIL B
BERM DITCH
(Not to Scale)

Min. D=1.0 Ft.
DDE = .715 CY

FROM STA. -RPC- 12+99.15 TO STA. -RPC- 17+00.00 RT

PAVEMENT REMOVAL
PAVED SHOULDER

NOTES:
SEE SHEET 10 FOR -RPC- PROFILE
SEE SHEET 11 FOR -Y3- PROFILE

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PROJECT REFERENCE NO.	SHEET NO.
B-3159	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-RPA-

PIs Sta 11+97.82	PI Sta 13+24.10	PIs Sta 14+50.15
Θs = 8° 58' 47.7"	Δ = 12° 39' 25.3" (RT)	Θs = 8° 58' 47.7"
Ls = 184.00'	D = 9° 45' 38.8"	Ls = 184.00'
LT = 122.82'	L = 129.67'	LT = 122.82'
ST = 61.48'	T = 65.10'	ST = 61.48'
	R = 587.00'	
	SE = .08	

PI Sta 18+86.35
Δ = 48° 51' 27.7" (LT)
D = 12° 54' 16.0"
L = 378.61'
T = 201.68'
R = 444.00'
SE = .08

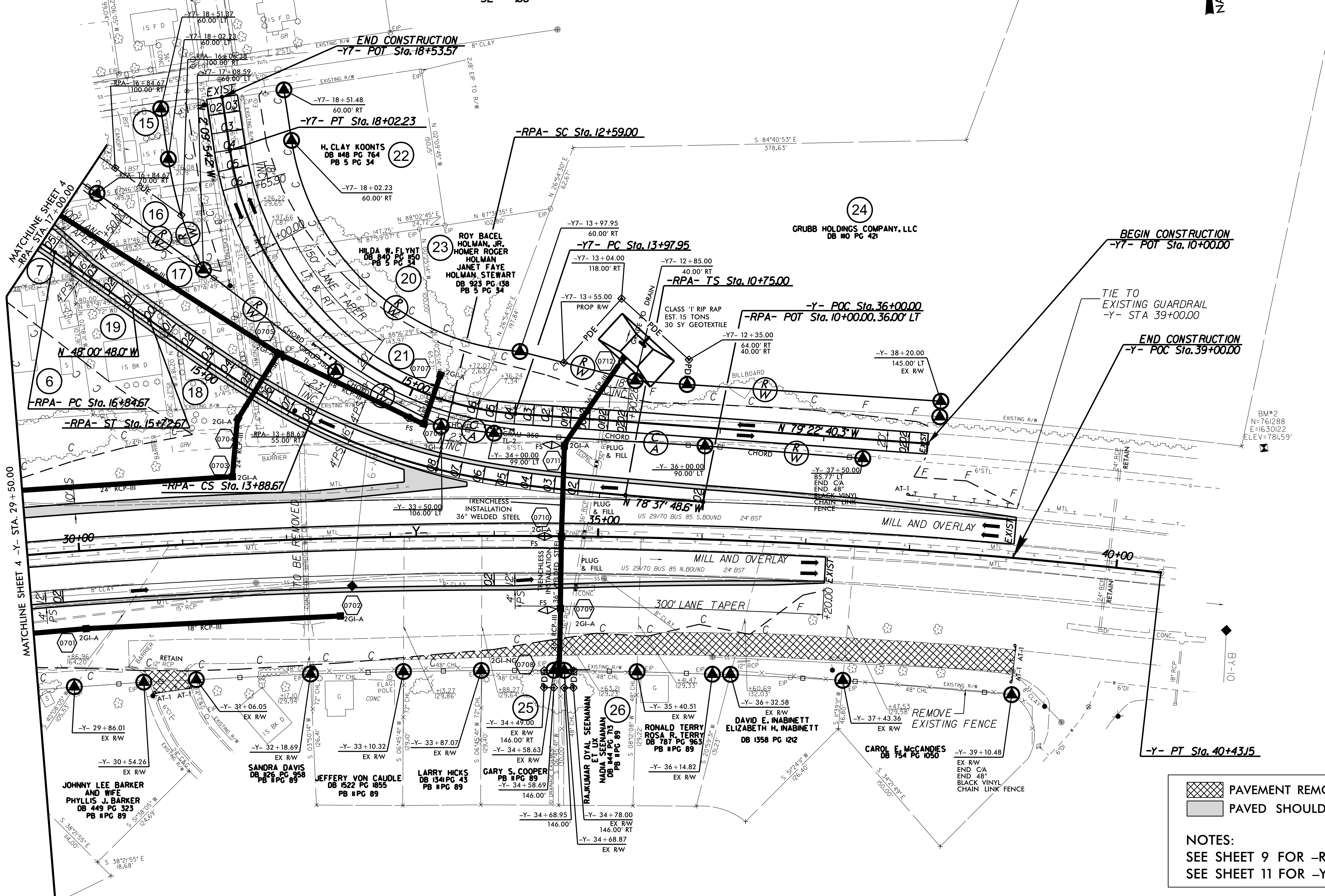
-Y7-

PI Sta 16+37.49
Δ = 77° 12' 46.1" (RT)
D = 19° 05' 54.9"
L = 404.29'
T = 239.54'
R = 300.00'
SE = .06

-Y-

PI Sta 25+58.78
Δ = 30° 35' 22.0" (RT)
D = 1° 00' 18.7"
L = 3,043.15'
T = 1,558.78'
R = 5,700.00'
SE = EXIST

NAD 83/NSRS 2007



6	THOMAS LEROY LEE DB 1758 PG 318 PB 5 PG 25
7	JOHN MILTON FRITTS BETTY E FRITTS DB 507 PG 744 PB 5 PG 25
15	VIVIAN E. BROADWAY DB 514 PG 359 PB 5 PG 25
16	LAKETA S. PETERSON DB 1393 PG 1195 PB 5 PG 34
17	TODD. J. SURRATT DB 2012 PG 2079 PB 5 PG 34
18	JAMES EARL LANIER DEBRA LANIER DB 1805 PG 1273 PB 5 PG 34
19	HEIH, TAM YIM CHAU WU TAM DB 1235 PG 948 PB 5 PG 34
21	ROBERT L. EVERHART, III

PAVEMENT REMOVAL
PAVED SHOULDER

NOTES:
SEE SHEET 9 FOR -RPA- PROFILE.
SEE SHEET 11 FOR -Y7- PROFILE.

REVISIONS
6/3/14 (RLC) DESIGN REVISION – EXTENDED THE LENGTH OF RETAINING WALLS #1 & #2 ALONG US 29-64-701-85 (-Y-). REVISED THE DITCH ALONG -RPA- FROM STA 15+72.67 TO 21+00.00 RIGHT OF CENTERLINE.
5/20/14 (ESM) DESIGN REVISION – CHANGED TYPICAL 12' STANDARD ARTERIAL DITCH TO EXPRESSWAY GUTTER ON -RPA- FROM STA 15+72.67 TO 20+50.00 RT.
11/20/13 (AEV) DESIGN REVISION – REMOVED RETAINING WALL #3 FROM ALONG -Y-.

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PROJECT REFERENCE NO.	SHEET NO.
B-3159	X-1
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CROSS SECTION INDEX

–L–	X–2 THRU X–10
–Y2–	X–11
–Y–	X–12 THRU X–22
–RPA–	X–23 THRU X–27
–LPA–	X–28 THRU X–30
–RPC–	X–31 THRU X–35
–LPC–	X–36 THRU X–37
–Y3–	X–38 THRU X–39
–Y7–	X–40 THRU X–41

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-3159	X-2

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

9+00.00

786.71
A:1
0.020
787.16
0.011
0.010
787.90
4.53:1

8+50.00

0.020
787.64
0.023
0.008
789.74
5.62:1

8+00.00

0.020
4:1
789.49

7+75.00

789.85
0.020
4:1
789.55

7+50.00

790.17

7+00.00

790.11

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0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-3159	X-3

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

800
790
780
770

787.63 0.020 0.020 788.21
2:1 3:1
785.77
11+50.00

800
790
780

787.23 0.020 0.020
3:1
785.18
11+00.00

800
790
780

0.020 0.020
785.08
10+50.00

800
790
780

0.020 0.020
784.82
10+00.00

800
790
780

786.82 0.020 0.019 0.019
4.05:1
785.03
9+50.00

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

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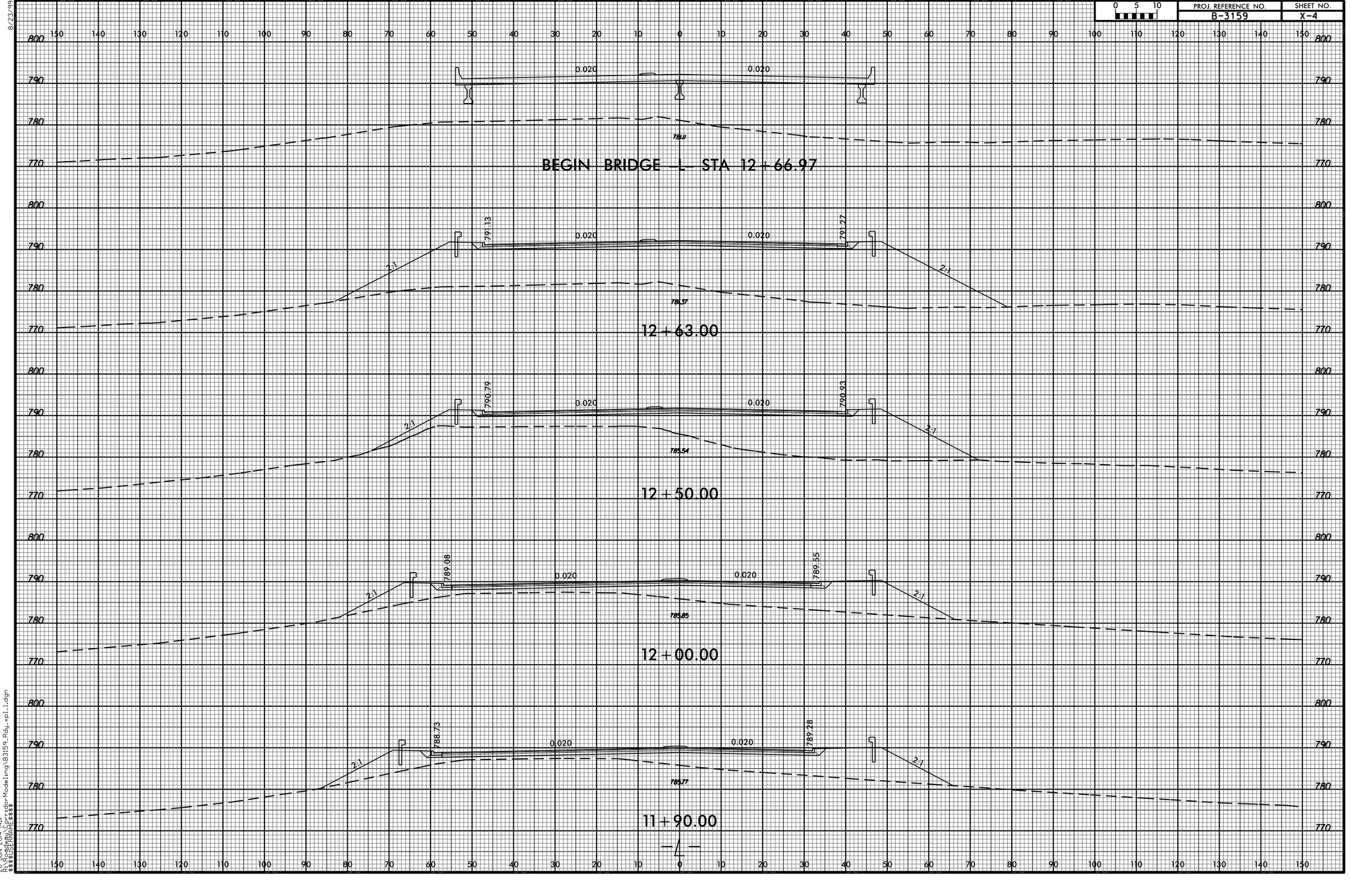
	B-3159	X-4



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0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-3159	X-5

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

800
790
780
770
760

0.020 0.020

780.46

END BRIDGE -L- STA 14+16.47

0.020 0.020

14+00.00

0.020 0.020

13+50.00

0.020 0.020

13+00.00

-L-

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

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0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-3159	X-6

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

800 790 780 770

791.90 0.020 0.020 792.04 2:1 2:1 785.86

14 + 50.00

800 790 780 770

792.01 0.020 0.020 792.15 2:1 2:1 786.43

14 + 43.24

800 790 780 770

792.01 0.020 0.020 792.15 2:1 2:1 786.43

14 + 43.22

800 790 780 770

792.30 0.020 0.020 792.44 2:1 2:1 786.79

14 + 21.00

760

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

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8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-3159	X-7

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

800 790 780 770

789.09 0.020 0.020 789.15

2:1 3:1

784.50

15+50.00

790.16 0.020 0.020 790.22

2:1 3:1

785.10

15+20.00

790.77 0.020 0.020 790.86

2:1 2:1

785.50

15+00.00

791.52 0.020 0.020 791.66

2:1 2:1

785.68

14+70.00

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-3159	X-8

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

800 790 780 770

6.5:1 782.50 0.020 0.020 784.09 4:1

78.88

18+50.00

7:1 782.67 0.020 0.001

78.51

18+00.00

0.020 0.020

78.70

17+50.00

0.020 0.020

78.95

17+00.00

0.020 0.020

78.20

16+50.00

3:1 787.23 0.020 0.020 787.29 3:1

78.68

16+00.00

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0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-3159	X-9

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

800 790 780 770

1:1 785.74 0.020 0.037 785.20 4:1

785.88

20+50.00

5:1 0.020 0.036 784.15 2:1

785.74

20+00.00

0.020 0.018 783.97 2:1

783.90

19+64.72

0.020 0.011 783.95 4:1

783.80

19+50.00

0.020 0.000 783.98 4:1

783.04

19+28.79

6:1 782.81 0.020 0.014 784.13 4:1

782.26

19+00.00

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0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-3159	X-10

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

800 790 780

23+00.00 790.75

22+50.00 790.84

22+00.00 790.03

21+93.58 788.81

21+50.00 788.38

21+43.74 788.21

21+00.00 788.08 — 0.020 — 0.030

20+64.72 786.23 — 5:1 — 786.04 — 0.020 — 0.030 — 786.74 — 4:1

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

8/23/99

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
B-3159	X-11

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

800 790 780

4:1 790.41 0.023 0.048 790.32 4:1

79.01

10+53.13

800 790 780

4:1 790.49 0.025 0.050 790.44 4:1

79.45

10+50.00

800 790 780

4:1 791.60 0.025 0.050 791.55 4:1

79.29

10+25.00

800 790 780

4:1 792.72 0.025 0.050 792.67

79.40

10+00.00

-Y2-

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

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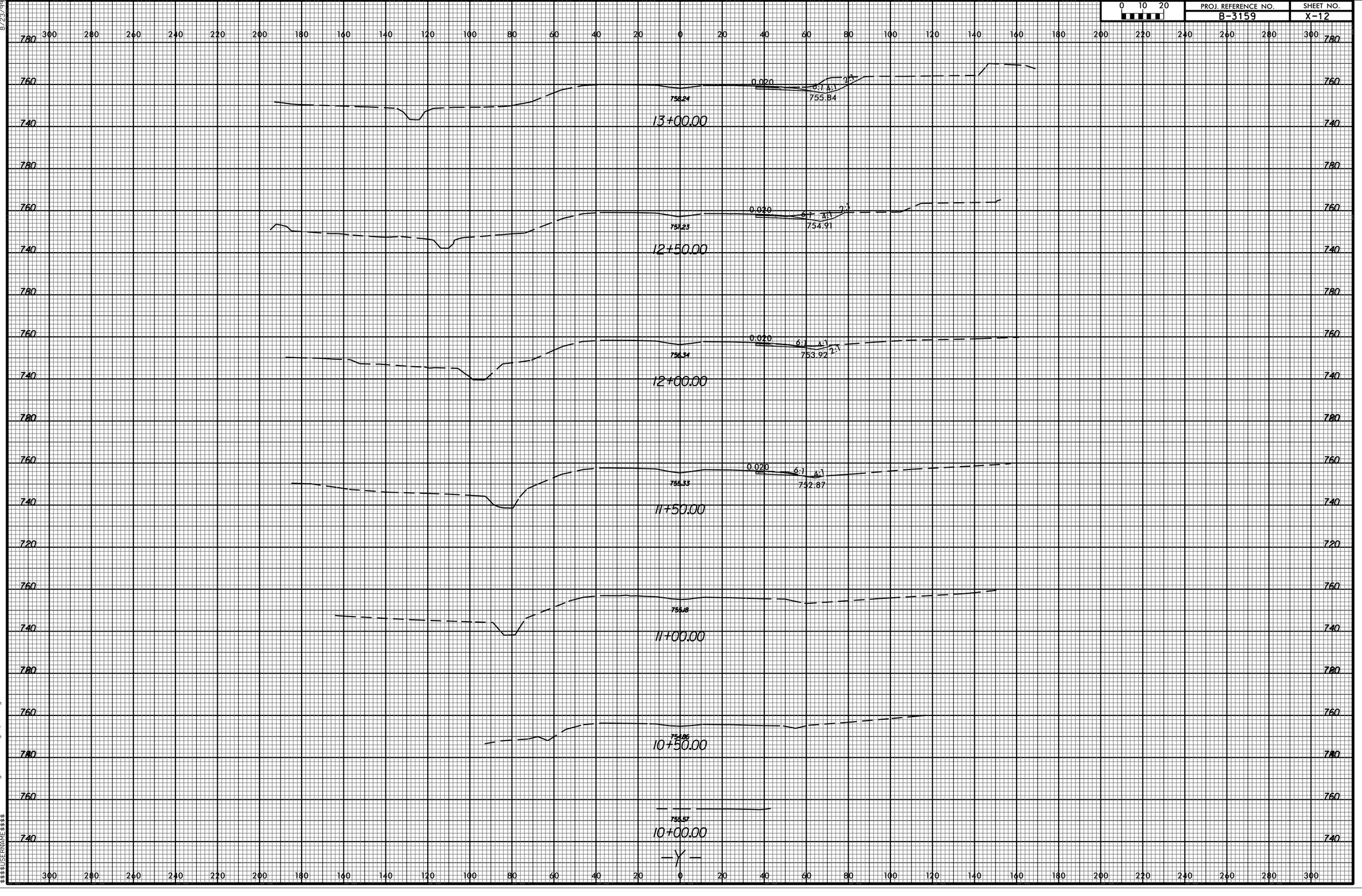
0 10 20	PROJ. REFERENCE NO.	SHEET NO.
	B-3159	X-12



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$$$$USERNAME$$$$

8/23/99

0 10 20	PROJ. REFERENCE NO.	SHEET NO.
	B-3159	X-13

300 280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300

800 780 760 740

–RPC–
11+49.11
0.032
6:1 4:1 2:1
760.17
762.93
16+00.00

–RPC–
10+99.42
0.020
6:1 4:1 2:1
759.91
762.27
15+50.00

–RPC–
10+49.73
0.020
6:1 4:1 2:1
759.28
762.78
15+00.00

–RPC–
10+00.00
0.020
6:1 4:1 2:1
758.64
760.50
14+50.00

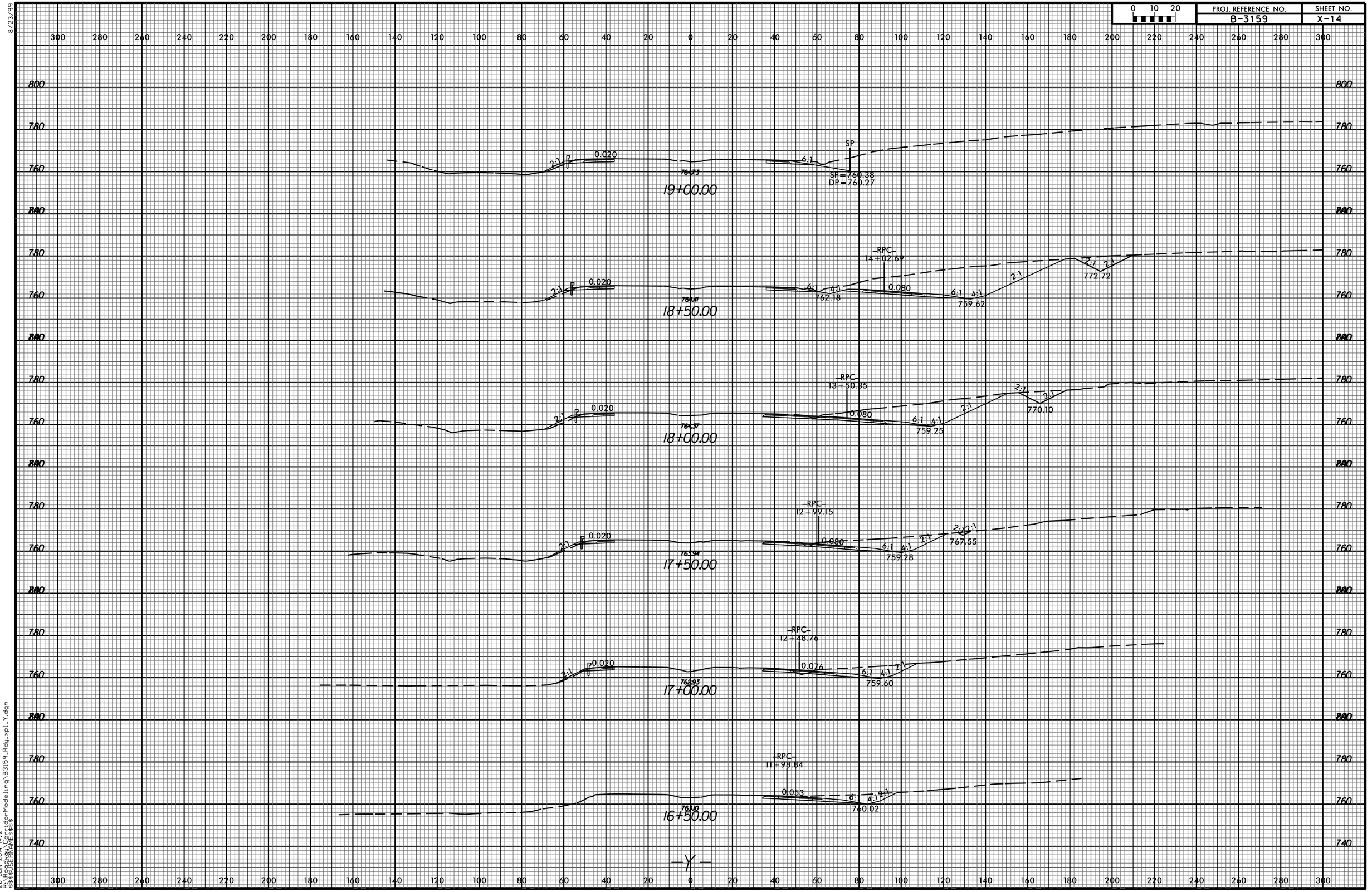
0.020
6:1 4:1 2:1
757.58
759.72
14+00.00

0.020
6:1 4:1 2:1
756.75
759.18
13+50.00

–Y–

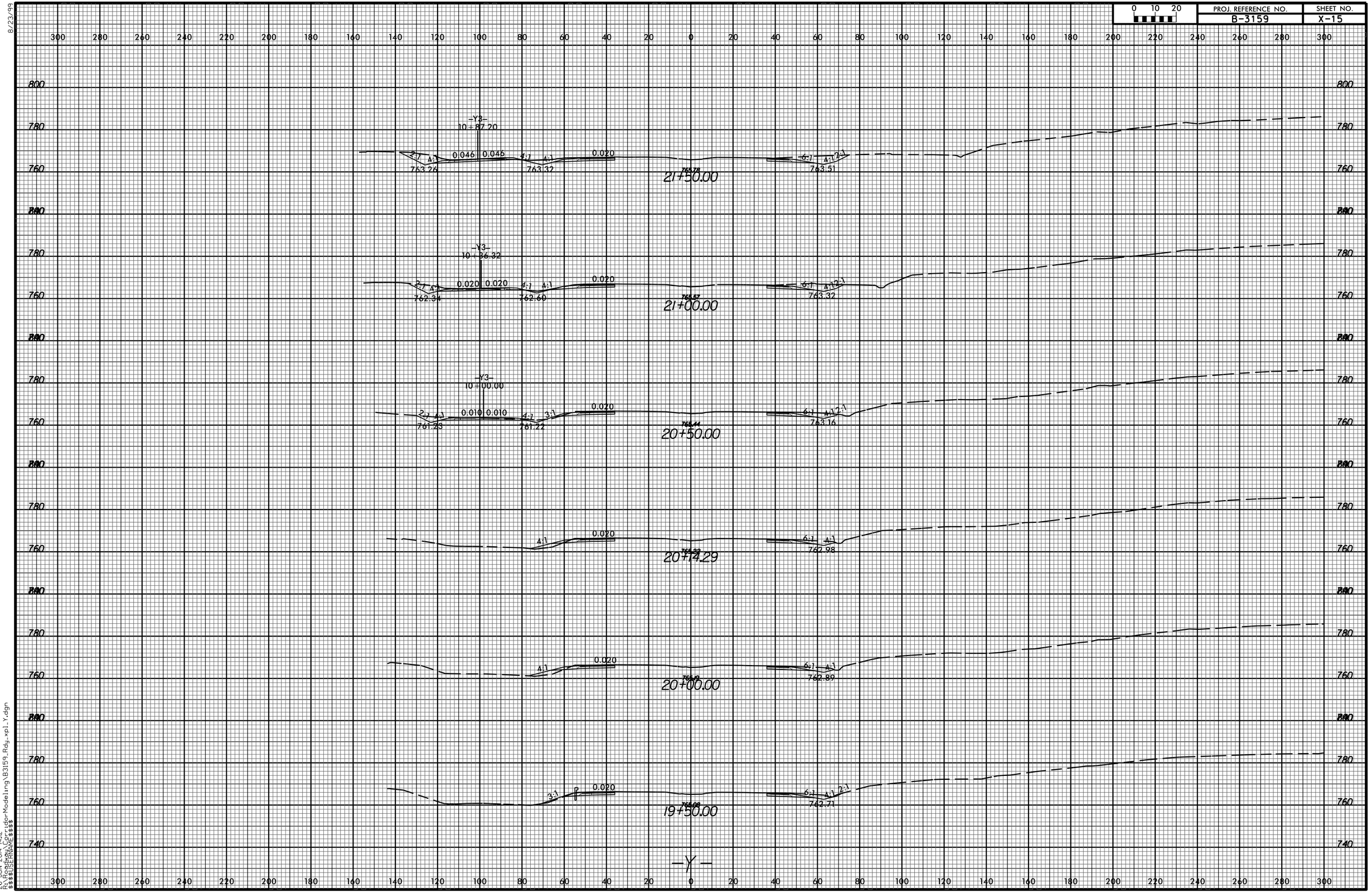
8/23/99

0 10 20	PROJ. REFERENCE NO.	SHEET NO.
	B-3159	X-14



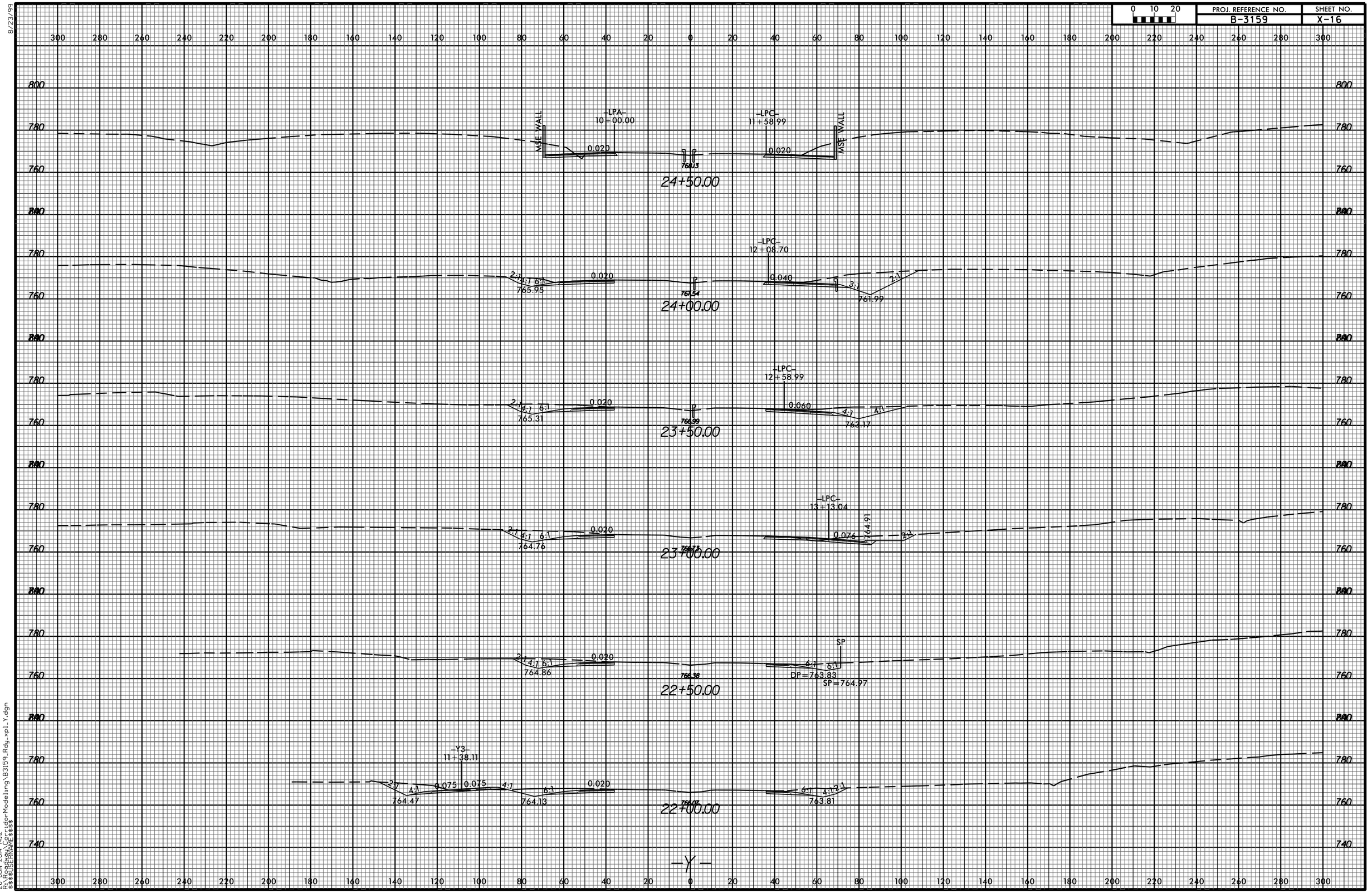
8/23/99

0 10 20	PROJ. REFERENCE NO.	SHEET NO.
	B-3159	X-15



8/23/99

0 10 20	PROJ. REFERENCE NO.	SHEET NO.
	B-3159	X-16



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$$$$USERNAME$$$$

8/23/99

0 10 20	PROJ. REFERENCE NO.	SHEET NO.
	B-3159	X-17

300 280 260 240 220 200 180 160 140 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300

800 780 760

—PA—
12+01.28
0.020
0.020
2:1
2:1
6:1
4:1
2:1
764.23
770.56
767.27
26+50.00

LPA
11+88.64
0.020
0.020
2:1
2:1
6:1
4:1
2:1
764.08
770.44
767.07
26+37.44

—LPA—
11+61.02
—LPC—
10+00.00
MSE WALL
MSE WALL
0.020
0.020
26+10.00

—LPA—
11+50.95
—LPC—
10+09.94
MSE WALL
MSE WALL
0.020
0.020
26+00.00

—LPA—
11+00.63
—LPC—
10+59.62
MSE WALL
MSE WALL
0.020
0.020
25+50.00

—LPA—
10+50.32
—LPC—
11+09.31
MSE WALL
MSE WALL
0.020
0.020
25+00.00

—Y—

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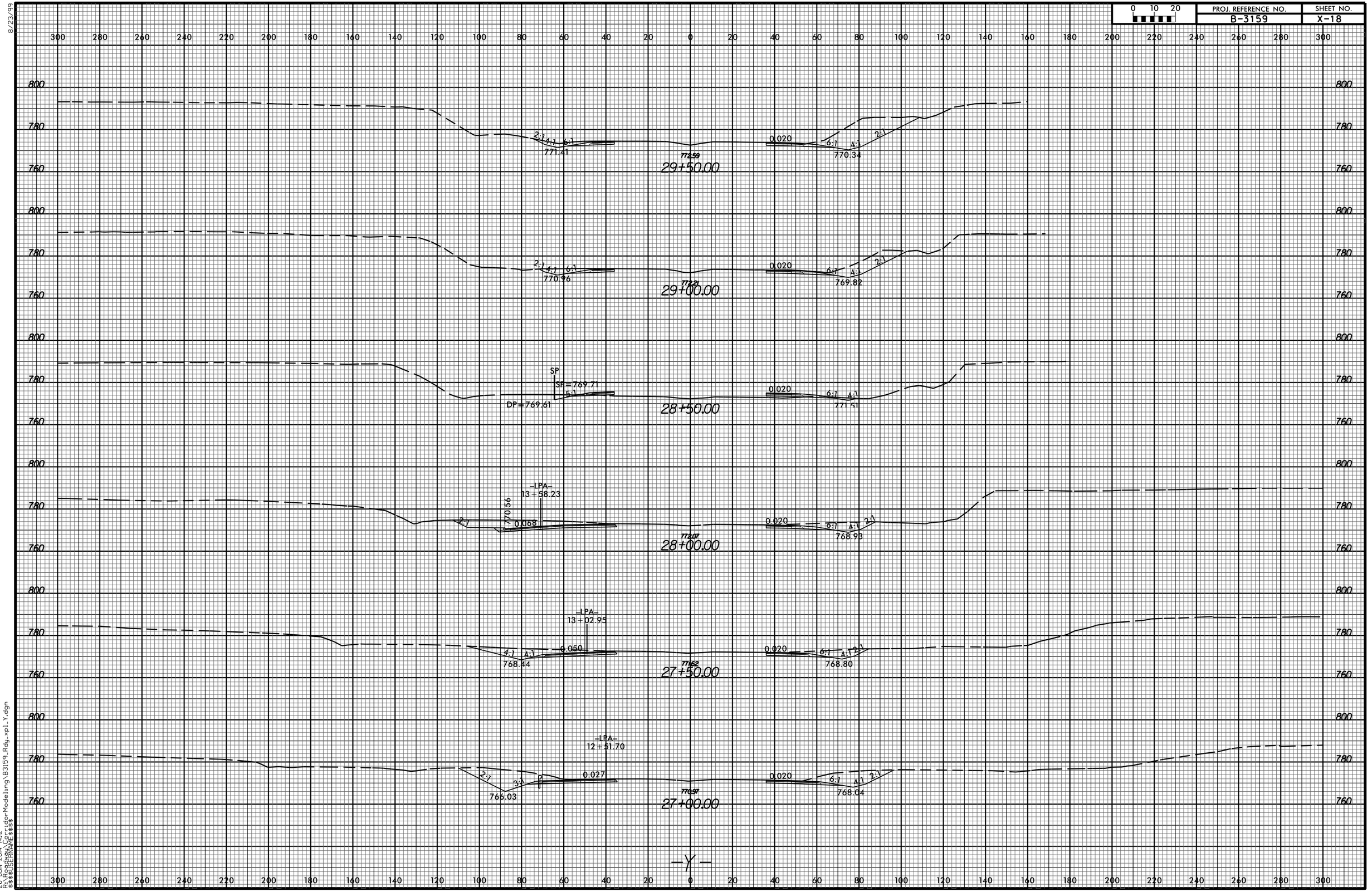
8/23/99

0 10 20	PROJ. REFERENCE NO.	SHEET NO.
	B-3159	X-18



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$$$$USERNAME$$$$

8/23/99

0 10 20	PROJ. REFERENCE NO.	SHEET NO.
	B-3159	X-19

32+00.00

SP
SP=775.35
4:1 4:1 6:1
DP=774.58
775
0.020
6:1 4:1 2:1
773.47

31+50.00

SP
SP=779.99
3:1 3:1
4:1 6:1
DP=773.86
775
0.020
6:1 4:1 2:1
772.81

31+00.00

2:1
4:1 6:1
773.26
775
0.020
6:1 4:1 2:1
772.1

30+50.00

2:1
4:1 6:1
772.64
775
0.020
6:1 4:1 2:1
771.47

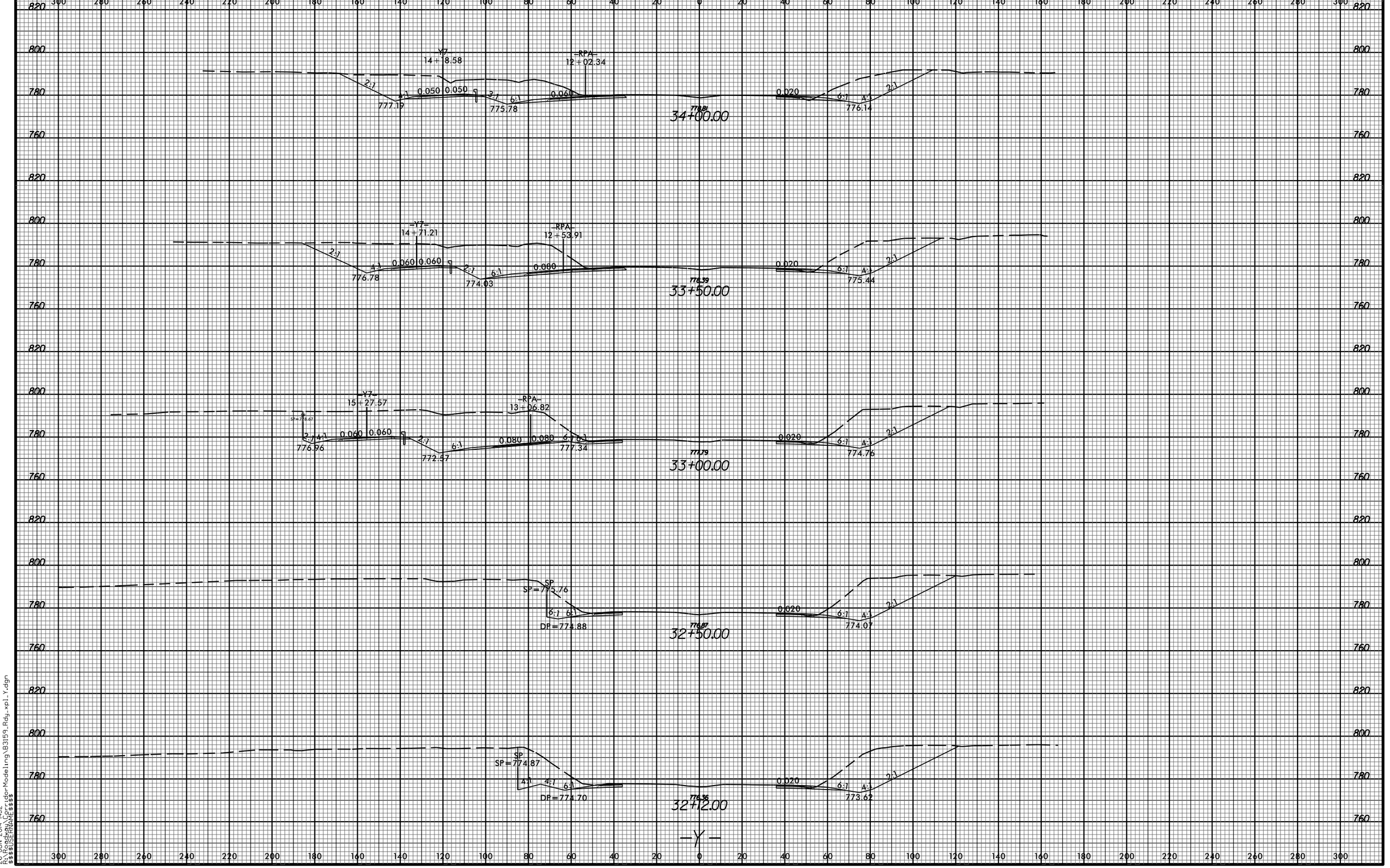
30+00.00

2:1
4:1 6:1
771.98
775
0.020
6:1 4:1 2:1
770.85

—Y—

8/23/99

0 10 20	PROJ. REFERENCE NO.	SHEET NO.
	B-3159	X-20



8/23/99

0 10 20	PROJ. REFERENCE NO.	SHEET NO.
	B-3159	X-21

300 280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300

820 800 780 760

–Y7–
11+12.30

2:1 4:1 0.020 0.020 4:1 4:1 0.020 0.020 3:1

777.56 776.94 782.69

37+00.00

–Y7–
11+63.24

3:1 4:1 0.020 0.020 4:1 6:1 0.020 0.020 4:1 4:1

778.49 778.21 782.04 780.70

36+50.00

–Y7–
12+14.21

–RPA–
10+00.00

2:1 4:1 0.020 0.020 4:1 6:1 0.020 0.020 6:1 4:1 3:1

778.73 777.98 781.37 780.30

36+00.00

–Y7–
12+65.21

–RPA–
10+50.41

2:1 0.020 0.020 4:1 6:1 0.020 0.020 6:1 4:1 3:1

777.54 781.15 779.29

35+50.00

–Y7–
13+16.26

–RPA–
11+00.87

2:1 4:1 0.020 0.010 4:1 6:1 0.020 0.020 6:1 4:1 2:1

778.15 777.13 781.45 778.27

35+00.00

Y7
13+67.36

–RPA–
11+51.46

2:1 4:1 0.023 0.023 4:1 6:1 0.040 0.020 6:1 4:1 2:1

777.80 776.62 781.45 777.29

34+50.00

–Y–

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8/23/99

0 10 20	PROJ. REFERENCE NO.	SHEET NO.
	B-3159	X-22

300 280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300

800
780
760

786.26
40+00.00

785.68
39+50.00

VAR 0.020
795.12
39+00.00

0.020
2:1
785.55
38+50.00

-Y7-
10+10.47
VAR 0.020 0.020
4:1
774.95
0.020
2:1
783.96
38+00.00

-Y7-
10+61.38
VAR 0.020 0.020
4:1
775.41
3:1
0.020
783.28
37+50.00

-Y-

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-3159	X-23

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

800 790 780 770 760

SP
SP=779.99

794.38

SP
SP=775.72

2:1 4:1 6:1 0.053 0.053 6:1 6:1

DP=773.89

DP=771.53

14+50.00

800 790 780 770 760

-Y7-
15+84.00

794.08

SP
SP=775.35

0.075 0.075 6:1 4:1 VAR. 0.060 0.060 4:1 2:1

4:1 6:1

DP=774.42

772.17

777.67

14+00.00

800 790 780 770 760

-Y7-
15+78.97

793.84

SP
SP=775.83

0.080 0.080 6:1 4:1 VAR. 0.060 0.060 4:1 2:1

4:1 6:1

DP=774.68

772.17

777.47

13+88.67

800 790 780 770 760

-Y7-
15+39.79

792.95

SP
SP=775.76

0.080 0.080 6:1 4:1 2:1 0.060 0.060 4:1 2:1

6:1

DP=774.88

772.55

776.98

13+50.00

-RPA-

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

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$$$$USERNAME$$$$

8/23/99

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
B-3159	X-24

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

800 790 780 770

7902

2:1 4:1 6:1 0.012 0.012 4:1 2:1

774.52

16+00.00

7945

2:1 4:1 6:1 0.000 0.000 4:1 2:1

774.37

15+72.67

7959

2:1 4:1 6:1 0.010 0.010 6:1 4:1 2:1

774.26 773.72

15+50.00

7953

SP

2:1 4:1 6:1 0.032 0.032 6:1 4:1

774.17 SP=775.62 DP=772.10

15+00.00

760

–RPA–

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$$$$USERNAME$$$$

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-3159	X-25

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

800 790 780 770

SP
792.62
SP = 783.95
DP = 775.38
3:1
4:1
6:1
0.077
0.077
4:1
2:1
17 + 50.00

800 790 780 770

793.65
775.32
2:1
4:1
6:1
0.055
0.055
4:1
2:1
17 + 00.00

800 790 780 770

793.09
775.19
2:1
4:1
6:1
0.049
0.049
4:1
2:1
16 + 84.67

800 790 780 770

793.98
774.88
2:1
4:1
6:1
0.034
0.034
4:1
2:1
16 + 50.00

-RPA-

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

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$$$$USERNAME$$$$

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-3159	X-26

8/23/99

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

810
800
790
780
770

–LPA–
17+02.02

2:1 0.050 0.050 6:1 6:1 0.042 0.042 4:1 2:1

779.22

19+50.00

SP
SP=777.86

2:1 0.063 0.063 4:1 2:1

DP=777.39

19+00.00

SP
SP=776.52

8:1 0.080 0.080 4:1 2:1

DP=775.67

18+50.00

SP

3:1 3:1 4:1 6:1 0.080 0.080 4:1 2:1

DP=774.82 SP=777.25 DP=775.44

18+00.00

–RPA–

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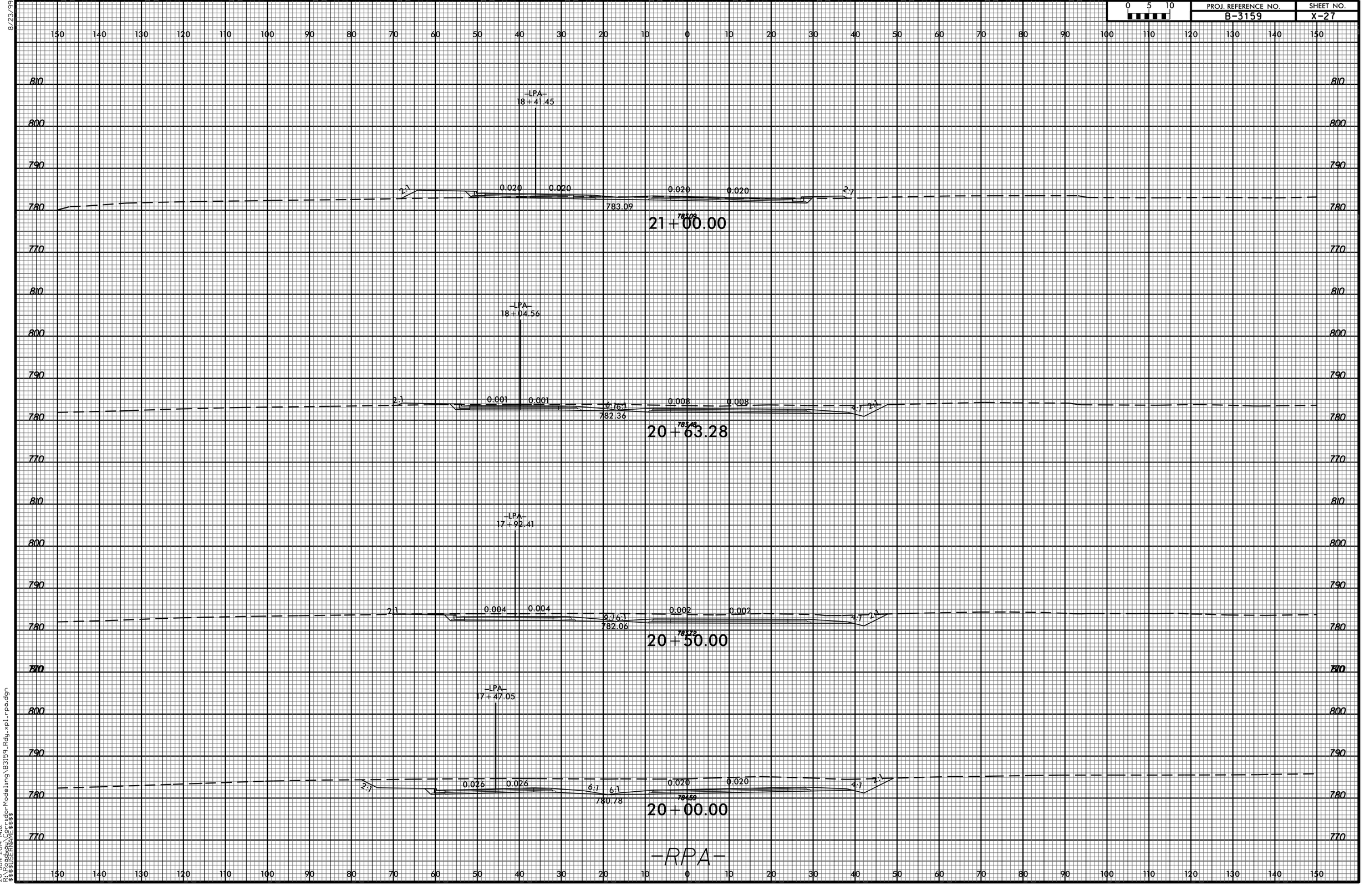
8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-3159	X-27



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8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-3159	X-28

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

800 790 780 770 760

789.44
771.93
0.080
0.080
6:1
4:1
771.61
2:1
2:1
15+00.00

788.56
771.33
0.080
0.080
6:1
4:1
771.01
2:1
2:1
14+75.00

788.0
770.89
0.080
0.080
6:1
4:1
770.57
2:1
2:1
14+50.00

770.56
0.080
0.080
6:1
4:1
770.24
2:1
14+20.00

SP
SP=769.71
770.46
0.080
0.080
6:1
DP=769.61
2:1
13+90.00

–LPA–

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

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0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-3159	X-29

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

800 790 780 770

785.37
775.14
2:1
0.080
0.080
6:1
4:1
2:1
SP
SP=777.25
DP=774.82
15+90.00

785.42
774.18
2:1
0.080
0.080
6:1
3:1
3:1
SP
SP=783.93
DP=773.86
15+65.00

785.36
773.60
2:1
0.080
0.080
6:1
4:1
2:1
773.28
15+50.00

785.32
772.69
2:1
0.080
0.080
6:1
4:1
2:1
772.37
15+25.00

-LPA-

760

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8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-3159	X-30

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

800
790
780
770

SP
SP=777.81
785.35
778.48
2:1
0.057
0.057
6:1
DP=777.39

16+67.00

SP
SP=776.52
785.64
776.78
2:1
0.073
0.073
6:1
8:1
DP=775.67

16+30.00

-LPA-

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$$$$USERNAME$$$$

8/23/99

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
B-3159	X-31

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

790 780 770 760

2:1 4:1 6:1 6:1 4:1 2:1 2:1 2:1

764.13 762.78 780.06

0.032 0.032

15+50.00

2:1 4:1 6:1 6:1 4:1 2:1 2:1 2:1

763.76 762.13 779.07

0.041 0.041

15+30.00

2:1 4:1 6:1 6:1 4:1 2:1 2:1 2:1

763.12 760.87 776.82

0.061 0.061

14+85.00

SP
SP=760.38

2:1 4:1 6:1 6:1 4:1 2:1 2:1 2:1

DP=760.27 759.86 774.59

0.080 0.080

14+40.28

-RPC-

750

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

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8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-3159	X-32

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

790 780 770 760

780.59
2:1 4:1 6:1 0.01 0.011 6:1 4:1 2:1
766.72 767.19 784.18
16+50.00

790 780 770 760

776.71
2:1 4:1 6:1 0.000 0.000 6:1 4:1 2:1
765.93 765.81 783.77
16+24.28

790 780 770 760

776.96
2:1 4:1 6:1 0.011 0.011 6:1 4:1 2:1
765.27 764.65 782.56
16+00.00

790 780 770 760

774.60
2:1 4:1 6:1 0.028 0.028 6:1 4:1 2:1
764.33 763.12 780.56
15+60.00

-RPC-

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

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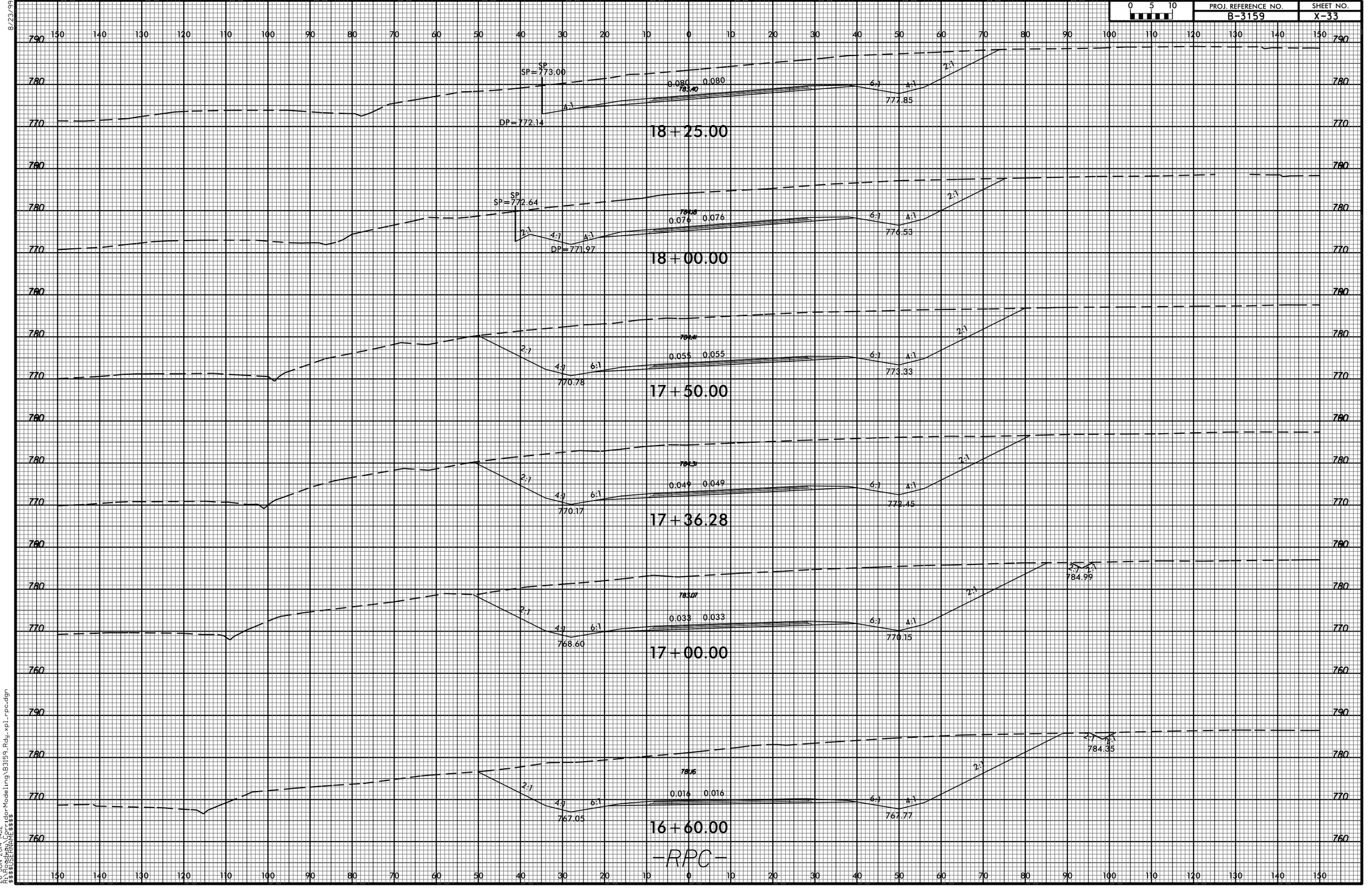
8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-3159	X-33



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$$$$USERNAME$$$$

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-3159	X-34

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

810 800 790 780 770

–LPC–
16+21.66

2:1 0.035 0.035 0.035 0.035 6:1 4:1 2:1

779.58

77.79

19+50.00

–LPC–
15+79.65

2:1 0.053 0.053 0.053 0.053 6:1 4:1 6:1 4:1 2:1

778.77 779.33

78.02

19+08.96

–LPC–
15+71.00

2:1 0.056 0.056 6:1 4:1 0.057 0.057 6:1 4:1 2:1

777.71 779.28

78.29

19+00.00

SP
SP=775.08

4:1 0.079 0.079 6:1 4:1 2:1

778.98

78.64

DP=773.74

18+50.00

–RPC–

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

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R:\Roadway\Corridor Modeling\B3159_Rdy_xpl_rpc.dgn
$$$$USERNAME$$$$

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-3159	X-35

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

810
800
790
780
770

–LPC–
16+71.76

0.020 0.020 0.013 0.013

7.1

6:1

7865

20+00.00

–RPC–

26-JUN-2014 14:13
R:\Roadway\Corridor Modeling\B3159_Rdy_xpl_rpc.dgn
$$$$USERNAME$$$$

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0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-3159	X-36

14+75.00

768.42 (772.62)

2:1 0.080 0.080 6:1 4:1 2:1

768.10

14+50.00

766.91 (772.60)

2:1 0.080 0.080 6:1 4:1 2:1

766.59

14+25.00

765.78 (771.59)

2:1 0.080 0.080 6:1 4:1 2:1

765.46

14+00.00

764.99 (769.89)

2:1 0.080 0.080 6:1 4:1 2:1

764.67

13+75.00

764.58 (768.90)

2:1 0.080 0.080 6:1 4:1 2:1

764.26

13+50.00

764.51 (768.03)

2:1 0.080 0.080 6:1

SP
SP=764.97

DP=763.83

-LPC-

26-JUN-2014 14:13
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$$$$USERNAME$$$$

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-3159	X-37

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

800 790 780 770 760

SP
SP=775.08

2:1 773.76 0.071 0.071 6:1 4:1
DP=773.12
15+38.00

SP
SP=773.00

2:1 771.72 0.081 0.081 6:1 4:1
DP=772.14
15+16.89

SP
SP=772.64

2:1 770.27 0.080 0.080 6:1 4:1 2:1
DP=769.66
15+00.00

-LPC-

26-JUN-2014 14:13
R:\Roadway\Corridor Modeling\B3159_Rdy_xpl_lpc.dgn
$$$$USERNAME$$$$

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-3159	X-38

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

790 780 770

2:1 0.021 0.021 4:1 2:1
775.02
774.92
14+50.00

780 770

2:1 4:1 0.000 0.000 4:1 2:1
774.01
774.45
774.01
14+11.99

780 770

2:1 4:1 0.007 0.007 4:1 2:1
773.42
774.33
773.66
14+00.00

780 770

2:1 4:1 0.034 0.034 4:1 2:1
771.00
773.19
772.12
13+50.00

780 770

0.062 0.062 4:1 2:1
770.59
771.61
13+00.00

780 770

2:1 4:1 0.076 0.076 4:1 2:1
767.46
770.59
769.82
12+75.00

780 770 760

2:1 4:1 0.080 0.080 4:1 2:1
765.44
766.37
767.92
12+25.00

-Y3-

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

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0 5 10

PROJ. REFERENCE NO.	SHEET NO.
B-3159	X-39

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

790
780
770

781.73
781.53
0.003
0.003
3:1
2:1
776.36
15+50.00

790
780
770

0.030
0.030
2:1
4:1
2:1
776.26
776.54
15+00.00

-Y3-

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8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-3159	X-40

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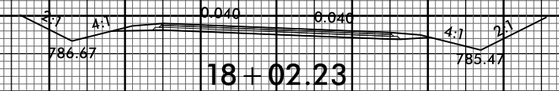
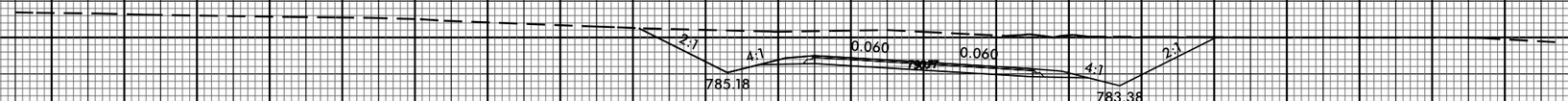
800 790 780 770 810



18+02.23



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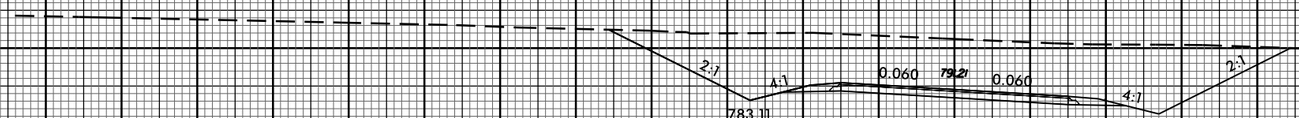

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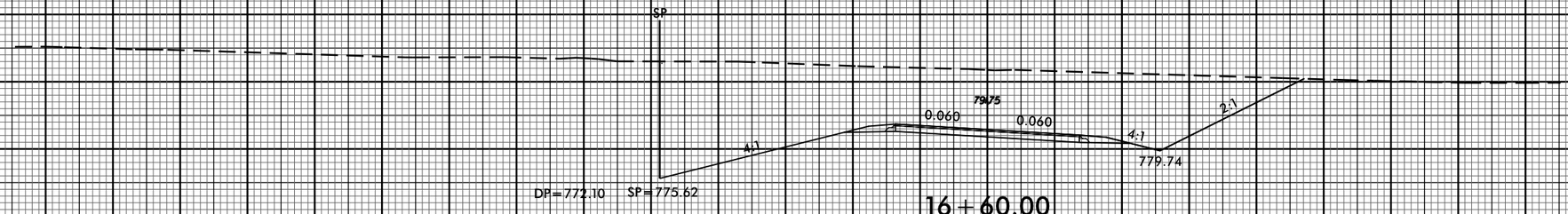

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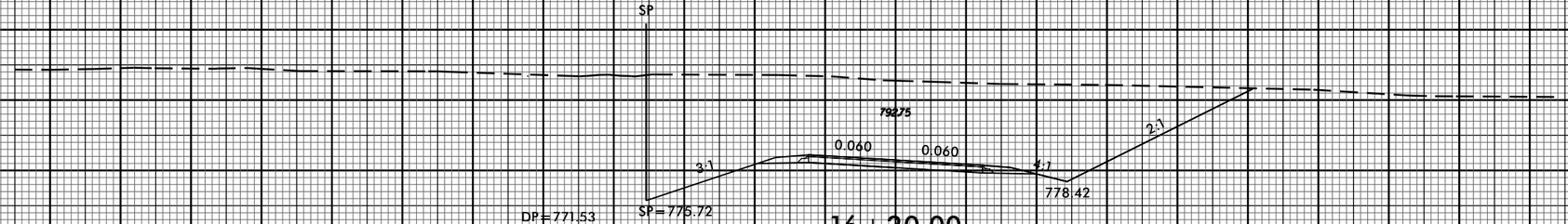

16+20.00

–Y7–

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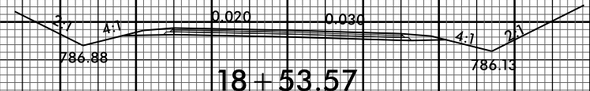
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-3159	X-41

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

800
790
780



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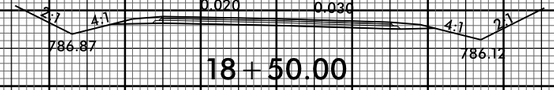

18+50.00

—Y7—

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