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CONTRACT: ID: B-5142

NOTE: SEE SHEET 2A FOR PLAN SHEET LAYOUT AT TIME OF INVESTIGATION

CONTENTS

LINE	STATION	PLAN	PROFILE	XSECT
-L-	10+00.00-33+38.79	4-5	6	
-Y1-	11+00.00-11+75.59	4		
-Y2-	10+00.00-11+00.00	4		
-Y3-	10+00.00-11+45.00	5		

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 GEOTECHNICAL ENGINEERING UNIT

ROADWAY
SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. 42303.1.1 (B-5142) F.A. PROJ. BRZ-1302(41)
 COUNTY IREDELL
 PROJECT DESCRIPTION BRIDGE NO. 57 OVER CORNELIUS CREEK
ON SR 1302

INVENTORY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	42303.1.1 (B-5142)	1	6
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
42303.1.1	BRZ-1302(41)	P.E.	
		RW & UTIL.	

CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF STUDY, PLANNING, AND DESIGN AND NOT FOR CONSTRUCTION OR PAY PURPOSES. THE VARIOUS FIELD BORING LOGS, ROCK CORES, AND SOIL TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N. C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT 1919 250-4088. NEITHER THE SUBSURFACE PLANS AND REPORTS, NOR THE FIELD BORING LOGS, ROCK CORES, OR SOIL TEST DATA ARE PART OF THE CONTRACT.

GENERAL SOIL AND ROCK STRATA DESCRIPTIONS AND INDICATED BOUNDARIES ARE BASED ON A GEOTECHNICAL INTERPRETATION OF ALL AVAILABLE SUBSURFACE DATA AND MAY NOT NECESSARILY REFLECT THE ACTUAL SUBSURFACE CONDITIONS BETWEEN BORINGS OR BETWEEN SAMPLED STRATA WITHIN THE BOREHOLE. THE LABORATORY SAMPLE DATA AND THE IN SITU (IN-PLACE) TEST DATA CAN BE RELIED ON ONLY TO THE DEGREE OF RELIABILITY INHERENT IN THE STANDARD TEST METHOD. THE OBSERVED WATER LEVELS OR SOIL MOISTURE CONDITIONS INDICATED IN THE SUBSURFACE INVESTIGATIONS ARE AS RECORDED AT THE TIME OF THE INVESTIGATION. THESE WATER LEVELS OR SOIL MOISTURE CONDITIONS MAY VARY CONSIDERABLY WITH TIME ACCORDING TO CLIMATIC CONDITIONS INCLUDING TEMPERATURES, PRECIPITATION, AND WIND, AS WELL AS OTHER NON-CLIMATIC FACTORS.

THE BIDDER OR CONTRACTOR IS CAUTIONED THAT DETAILS SHOWN ON THE SUBSURFACE PLANS ARE PRELIMINARY ONLY AND IN MANY CASES THE FINAL DESIGN DETAILS ARE DIFFERENT. FOR BIDDING AND CONSTRUCTION PURPOSES, REFER TO THE CONSTRUCTION PLANS AND DOCUMENTS FOR FINAL DESIGN INFORMATION ON THIS PROJECT. THE DEPARTMENT DOES NOT WARRANT OR GUARANTEE THE SUFFICIENCY OR ACCURACY OF THE INVESTIGATION MADE, NOR THE INTERPRETATIONS MADE, OR OPINION OF THE DEPARTMENT AS TO THE TYPE OF MATERIALS AND CONDITIONS TO BE ENCOUNTERED. THE BIDDER OR CONTRACTOR IS CAUTIONED TO MAKE SUCH INDEPENDENT SUBSURFACE INVESTIGATIONS AS HE DEEMS NECESSARY TO SATISFY HIMSELF AS TO CONDITIONS TO BE ENCOUNTERED ON THIS PROJECT. THE CONTRACTOR SHALL HAVE NO CLAIM FOR ADDITIONAL COMPENSATION OR FOR AN EXTENSION OF TIME FOR ANY REASON RESULTING FROM THE ACTUAL CONDITIONS ENCOUNTERED AT THE SITE DIFFERING FROM THOSE INDICATED IN THE SUBSURFACE INFORMATION.

PERSONNEL

C. L. SMITH
J. K. STICKNEY

INVESTIGATED BY J. E. BEVERLY

CHECKED BY C. B. LITTLE

SUBMITTED BY C. B. LITTLE

DATE JUNE 2014

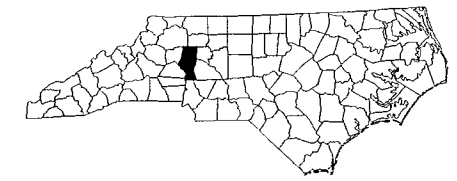
10/30/2014

DRAWN BY: C. E. BURRIS

NOTE - THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N. C. DEPARTMENT OF TRANSPORTATION AS BEING ACCURATE NOR IS IT CONSIDERED TO BE PART OF THE PLANS, SPECIFICATIONS, OR CONTRACT FOR THE PROJECT.

NOTE - BY HAVING REQUESTED THIS INFORMATION THE CONTRACTOR SPECIFICALLY WAIVES ANY CLAIMS FOR INCREASED COMPENSATION OR EXTENSION OF TIME BASED ON DIFFERENCES BETWEEN THE CONDITIONS INDICATED HEREIN AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5142	2A	6
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
42303.1.1	BRZ-1302(41)	PE	
		RW, UTIL	

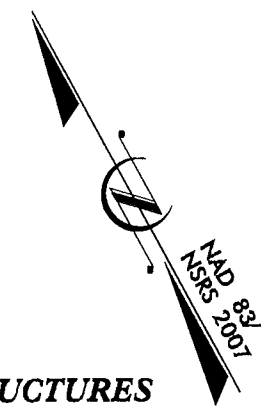


STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

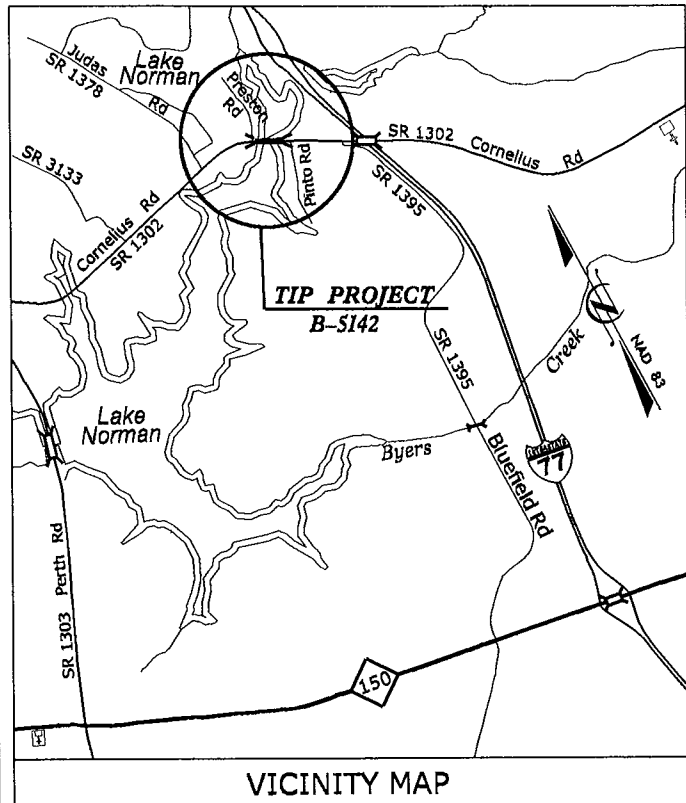
IREDELL COUNTY

LOCATION: REPLACE BRIDGE NO. 57 ON SR 1302
OVER CORNELIUS CREEK

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURES

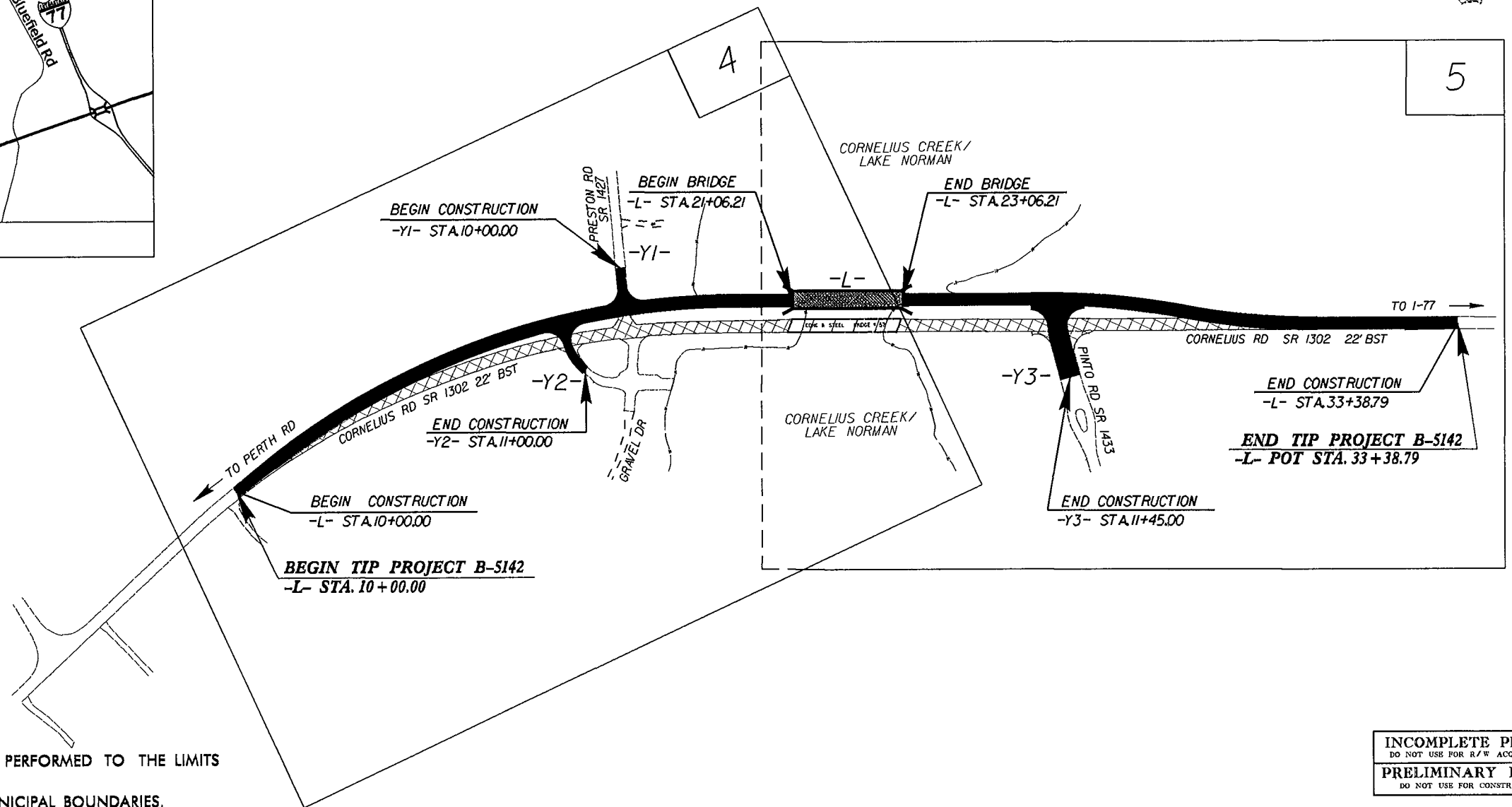


See Sheet 1-A For Index of Sheets



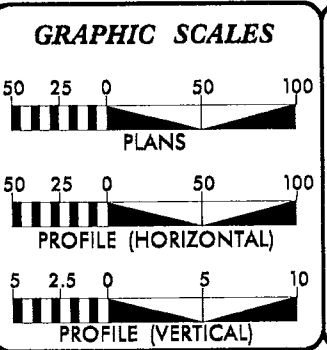
TIP PROJECT: B-5142

VICINITY MAP



CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD _____.
THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.

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



DESIGN DATA

ADT 2016 =	10,884
ADT 2035 =	17,800
K =	12 %
D =	70 %
T =	4 % *
V =	60 MPH
* TTST =	3 DUAL 1
FUNC CLASS =	Collector
SUB-REGIONAL TIER	

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT B-5142 =	0.405
LENGTH OF STRUCTURE TIP PROJECT B-5142 =	0.038
LENGTH OF STATE PROJECT B-5142 =	0.443

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JANUARY 22, 2015

LETTING DATE: JANUARY 19, 2016

JASON MOORE, P.E.
PROJECT ENGINEER

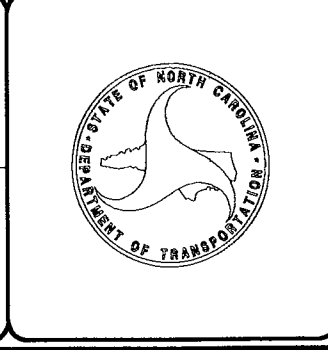
BRYAN KEY, P.E.
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

ROADWAY DESIGN ENGINEER

SIGNATURE: _____ P.E.

SIGNATURE: _____ P.E.



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cburris AT GHEH266092

CONTRACT:



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT MCCRORY
GOVERNOR

ANTHONY J. TATA
SECRETARY

August 6, 2014

STATE PROJECT: 42303.1.1 (B-5142)
F.A. PROJECT: BRZ-1302(41)
COUNTY: Iredell
DESCRIPTION: Bridge No. 57 over Cornelius Creek on SR 1302 (Cornelius Rd.)
SUBJECT: Geotechnical Report – Inventory

This report presents the findings for the proposed relocation of bridge No. 57 in Iredell County. The new bridge and associated roadway approaches will be located approximately 50 feet north of the existing structure and alignment. The site area is located along Cornelius Rd. in the northern Lake Norman area and is approximately 0.5 miles west of the Cornelius Rd. and I-77 overpass.

The geotechnical field investigation was conducted in the month of May 2014. An ATV mounted CME 550X drill machine equipped with automatic drop hammer was utilized to perform 5 test borings along roadway approaches of the main alignment -L-.

Areas of Special Geotechnical Interest:

1. Groundwater:

Groundwater was not encountered during drilling operations. Borings were filled immediately after drilling so no long term ground water measurements were determined.

2. Crystalline Rock:

Rock was not encountered during the course of this investigation.

3. High PI Soils: (PI's 26 and greater)

An A-7-5 clay soil with a PI of 26 was noted between approximate stations 18+00 and 30+00.

4. Alluvial Soils:

Alluvial soils were not encountered in any of our roadway borings, however alluvial soils are certain to exist adjacent to the shore line and beneath the existing causeway.

Physiography / Geology:

The project area is located in southern Iredell County just north of the city of Mooresville. Topography at the site is predominantly flat with the area surrounded by open fields, wooded areas and water from Lake Norman.

Geologically the site lies in the Charlotte Belt with residual soil types likely originating from biotite gneiss rock types of Cenozoic age (CZbf).

Soil Properties:

1. Residual Soils:

These soils are derived from in place weathering of parent materials. They occur in a variety of consistencies, classifications, and stratigraphic sequences. Residual soils are further subdivided into clays, silts, and sands. In most instances residual soils in this area are micaceous with mica amounts ranging from 10% - 20%.

Clay type soils are common for this area. They exist as both surface soils and sub-soils. They consist of medium stiff to stiff, little mica, silty sandy clay in the AASHTO classification of A-7-5. Clay soils appear well drained with a plasticity index range from 11 to 26. Corresponding liquid limit ranges were between 44 and 57.

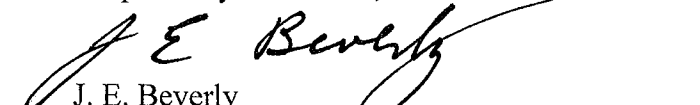
Silts are also common and consist of medium stiff to stiff, little mica, clayey sandy silt. AASHTO classification is A-5. Silts were only noted as sub-soils.

Sands, by AASHTO definition, were not encountered at boring locations but would likely be present in alluvial soils associated with and adjacent to Lake Norman.

2. Fill Soils:

Roadway embankment fill soils would be present beneath existing Cornelius Road. No borings were performed through the existing roadway embankment; however we would anticipate roadway fill soil types to closely resemble local residual soils.

Respectfully Submitted,


J. E. Beverly
Project Engineering Geologist

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
DIRECTOR OF PRECONSTRUCTION
1538 MAIL SERVICE CENTER
RALEIGH NC 27699-1538

TELEPHONE: 919-707-2540
FAX: 919-715-5361
WEBSITE: WWW.NCDOT.GOV

LOCATION:
TRANSPORTATION BUILDING
1 SOUTH WILMINGTON STREET
RALEIGH NC

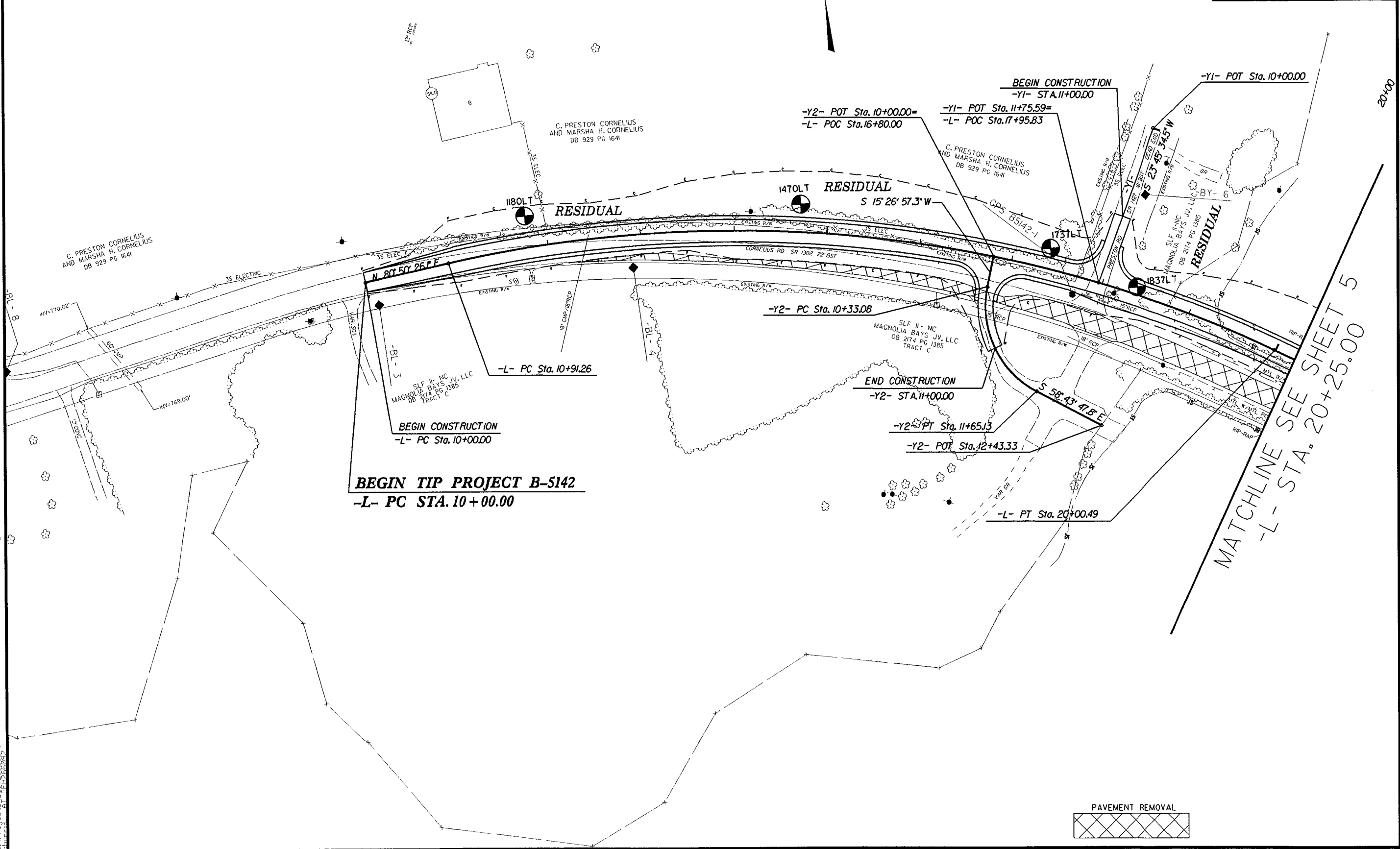
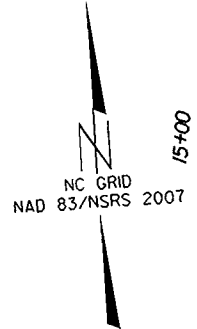
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PROJECT REFERENCE NO. B-5142	SHEET NO. 4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR S/W ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

-L-
 PI Sta 15+63.06
 $\Delta = 37^\circ 44' 59.7''$ (RT)
 $D = 4^\circ 09' 06.7''$
 $L = 909.23'$
 $T = 471.81'$
 $R = 1,380.00'$
 $SE = .06$
 $V_d = 60$ mph

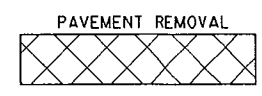
-Y2-
 PI Sta 11+10.19
 $\Delta = 74^\circ 10' 45.1''$ (LT)
 $D = 56^\circ 10' 20.4''$
 $L = 132.06'$
 $T = 77.11'$
 $R = 102.00'$



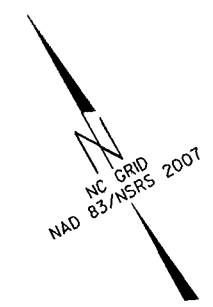
BEGIN TIP PROJECT B-5142
-L- PC STA. 10+00.00

END CONSTRUCTION
-Y2- STA. 11+00.00

MATCHLINE SEE SHEET 5
-L- STA. 20+25.00

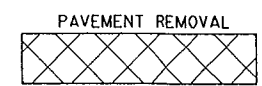
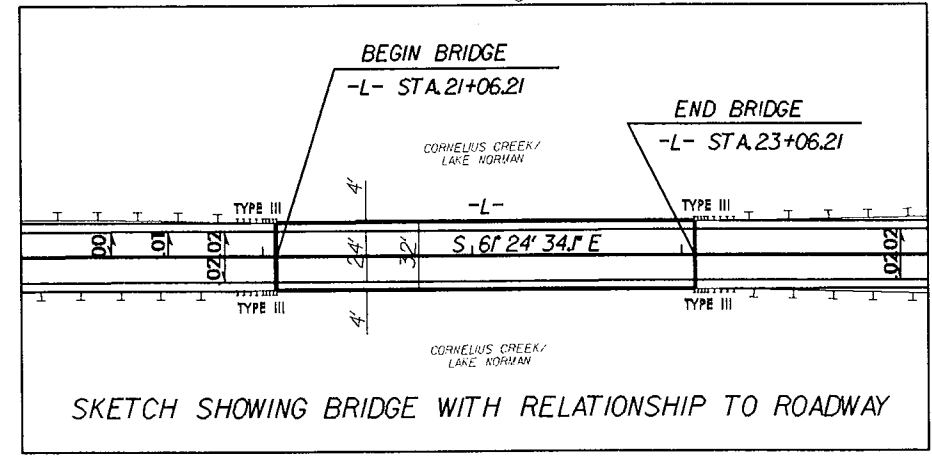
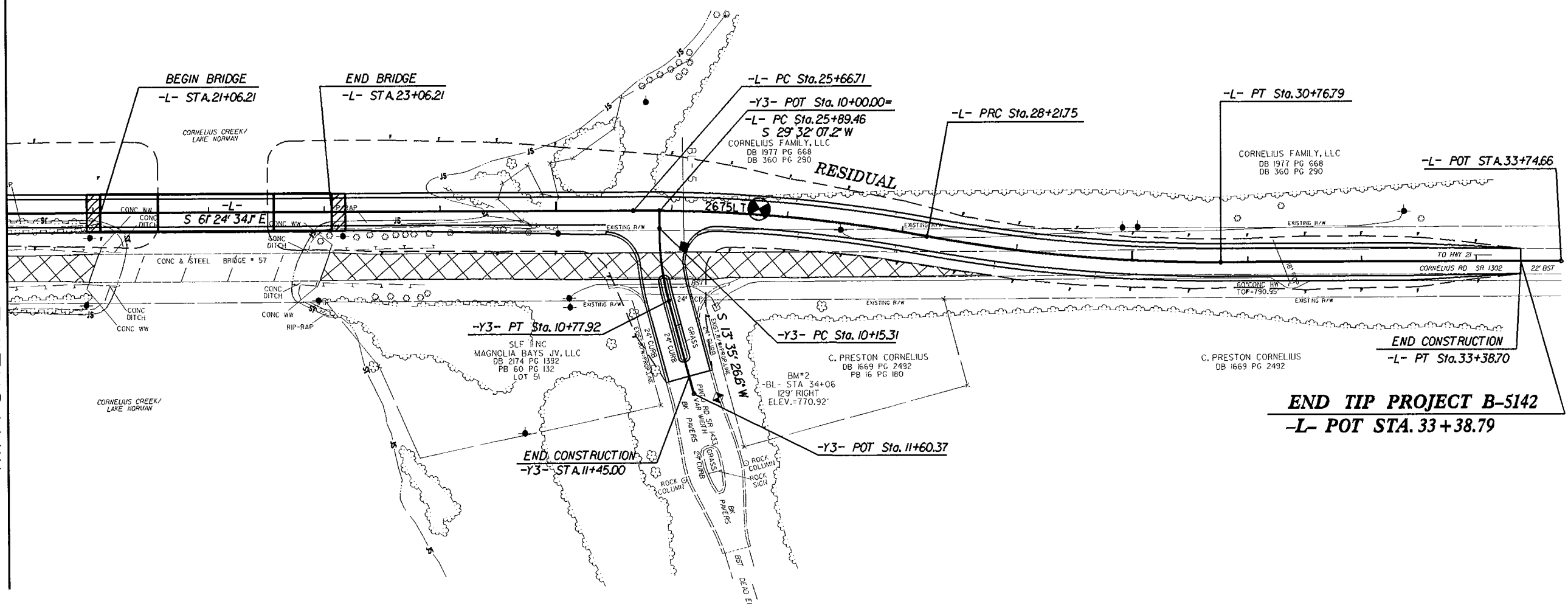


PROJECT REFERENCE NO. B-5142	SHEET NO. 5
RAW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR S/W ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



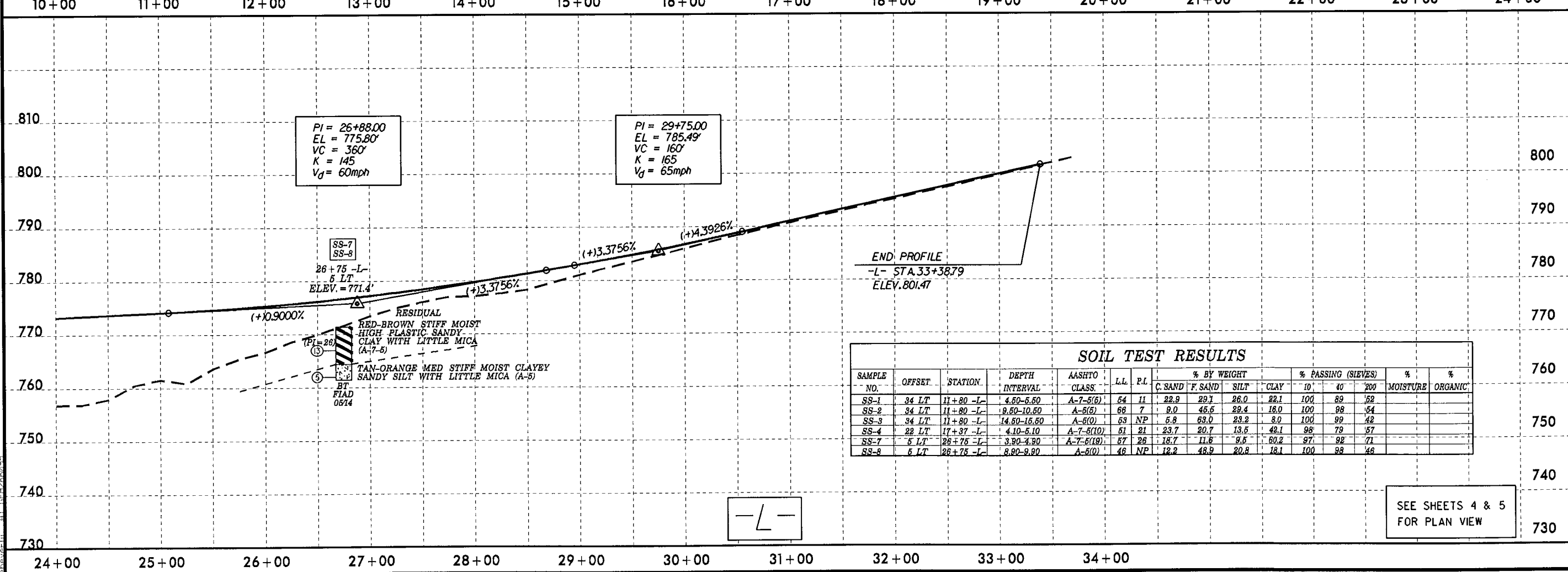
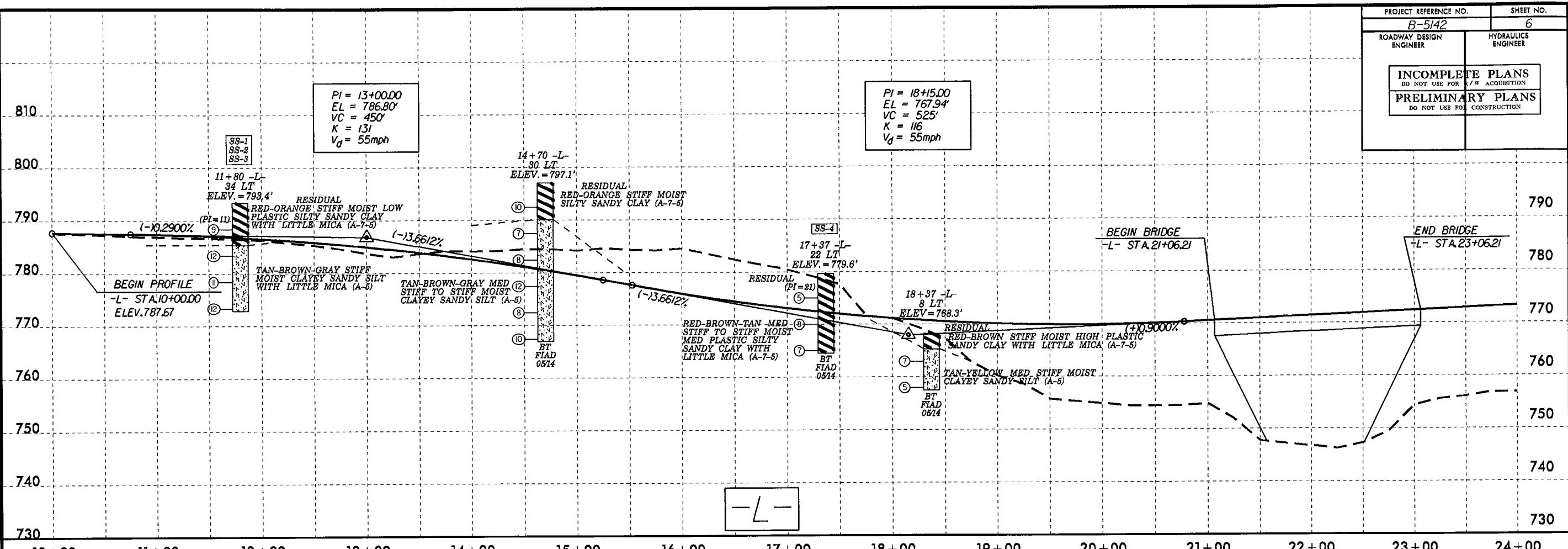
-L-	-Y3-
PI Sta 26+94.59	PI Sta 10+46.82
$\Delta = 10' 35' 19.98''$ (RT)	$\Delta = 15' 56' 40.577''$ (LT)
$D = 4' 09' 06.73''$	$D = 25' 27' 53.2''$
$L = 255.04'$	$L = 62.61'$
$T = 127.88'$	$T = 31.51'$
$R = 1,380.00'$	$R = 225.00'$
$SE = 06$	
$V_d = 60$ mph	

-L- STA. 20+25.00
 MATCHLINE SEE SHEET 4



8/17/99

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SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-1	34 LT	11+80 -L-	4.50-6.50	A-7-6(6)	64	11	22.9	29.7	26.0	22.1	100	89	52		
SS-2	34 LT	11+80 -L-	9.50-10.50	A-6(5)	68	7	8.0	46.5	29.4	16.0	100	98	54		
SS-3	34 LT	11+80 -L-	14.50-15.50	A-6(0)	59	NP	5.8	63.0	23.2	8.0	100	99	42		
SS-4	22 LT	17+37 -L-	4.10-6.10	A-7-6(10)	51	21	23.7	20.7	13.5	42.1	98	79	57		
SS-7	5 LT	26+75 -L-	3.90-4.90	A-7-6(19)	57	28	18.7	11.6	9.5	60.2	97	92	71		
SS-8	5 LT	26+75 -L-	8.80-9.80	A-6(0)	46	NP	12.2	48.9	20.8	18.1	100	98	48		

SEE SHEETS 4 & 5 FOR PLAN VIEW

5/28/99
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