

REFERENCE: SF-590165

PROJECT: BP10.R013.1

SEE SHEET 3 FOR PLAN SHEET LAYOUT
AT TIME OF INVESTIGATION

CONTENTS

<u>LINE</u>	<u>STATION</u>	<u>PLAN</u>	<u>X-SECTION</u>
-L-	13+81.76 - 30+32.27	4-7	8-14
SAMPLE RESULTS		15	

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

ROADWAY
SUBSURFACE INVESTIGATION

COUNTY MECKLENBURG
PROJECT DESCRIPTION BRIDGE NO.165 ON SR 5469
(SHOPTON RD.) OVER COFFEY CREEK

INVENTORY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	SF-590165	1	15

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 (919) 707-6850. THE SUBSURFACE PLANS AND REPORTS, FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA ARE NOT 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 THE 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.

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

PERSONNEL

J.K. STICKNEY

C.L. SMITH

B.E. FOSTER

INVESTIGATED BY J.E. BEVERLY
J.E. BEVERLY
8BF22D1890734D0...

DRAWN BY C.R. LAVENDER, III

CHECKED BY K.B. MILLER

SUBMITTED BY

DATE FEBRUARY 2021



DocuSigned by:

 2/2/2021

SIGNATURE DATE

UNLESS ALL SIGNATURES COMPLETED

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

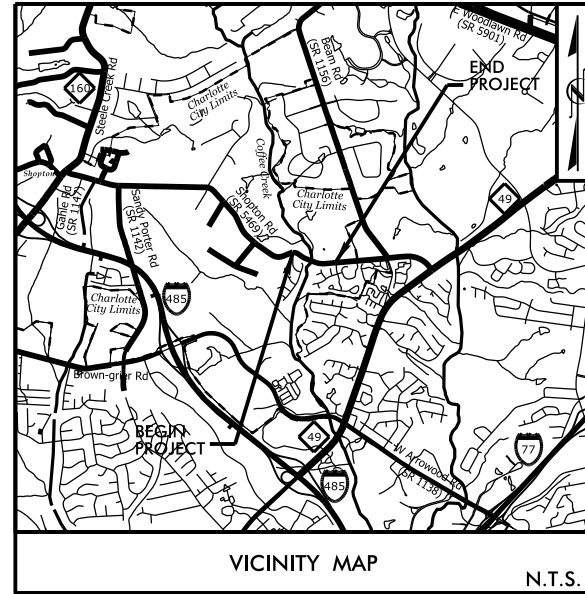
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CONTRACT:

PROJECT WBS: 17BP.10.R.138

See Sheet 1A For Index of Sheets
See Sheet 1B For Standard Symbology Sheet



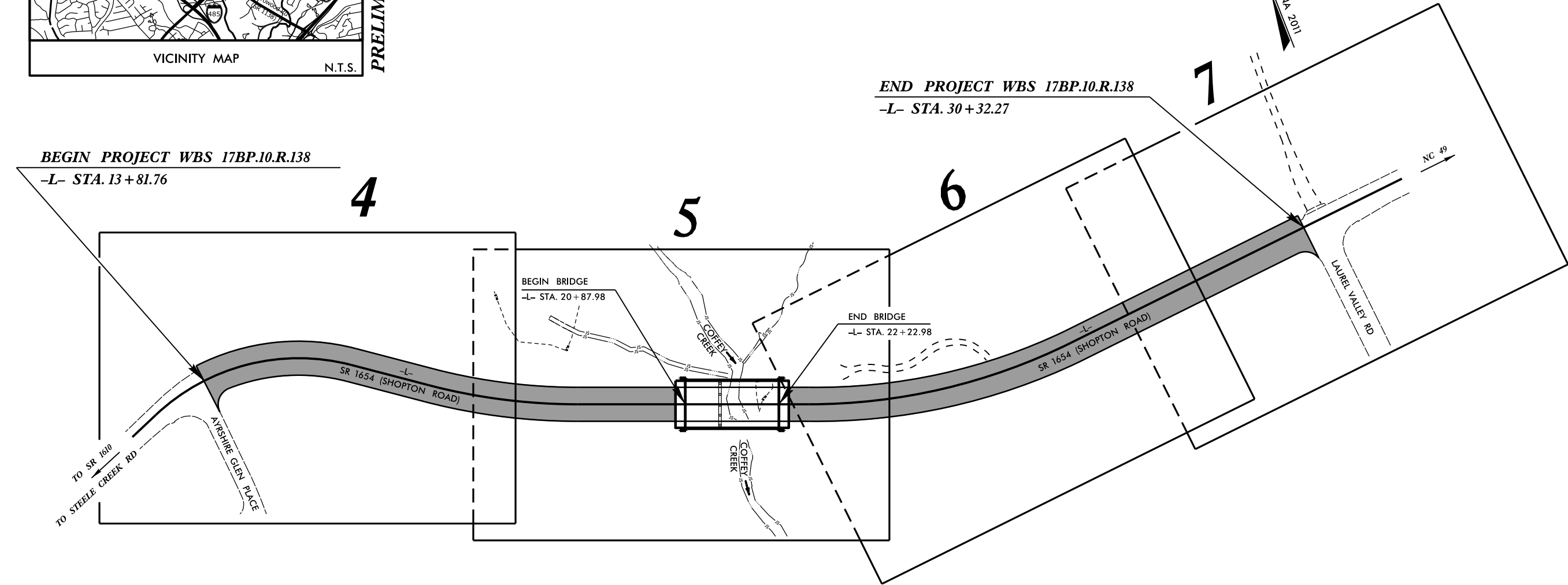
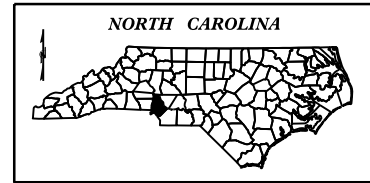
PRELIMINARY PLANS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

MECKLENBURG COUNTY

LOCATION: BRIDGE #590165 COFFEY CREEK ON SR 5469 (SHOPTON RD)
TYPE OF WORK: GRADING, PAVING, DRAINAGE, & STRUCTURE

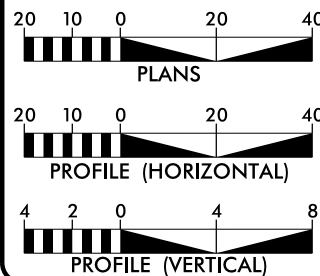
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.10.R.138	3	15
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
17BP.10.R.138		P.E.	



THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF THE CITY OF CHARLOTTE.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES



DESIGN DATA

ADT 2014 = 6,100
ADT 2025 = 12,200
DHV = N/A
D = N/A
T = 7%
V = 45 MPH
FUNC. CLASSIFICATION:
SUB REGIONAL TIER
COLLECTOR

PROJECT LENGTH

LENGTH OF ROADWAY PROJECT WBS 17BP.10.R.138 = .288 MILES
LENGTH OF STRUCTURE PROJECT WBS 17BP.10.R.138 = .025 MILES
TOTAL LENGTH OF PROJECT WBS 17BP.10.R.138 = .313 MILES

NCDOT CONTACT: GARLAND HAYWOOD, PE
Division Bridge Manager

PLANS PREPARED FOR THE NCDOT BY:



STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
MAY 20, 2020

LETTING DATE:
APRIL 21, 2021

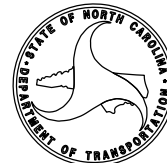
NIKKI T. HONEYCUTT, PE
PROJECT ENGINEER

CLARK E. GROVES
PROJECT DESIGNER

HYDRAULICS
ENGINEER

SIGNATURE: _____
ROADWAY
DESIGN
ENGINEER

SIGNATURE: _____
P.E.





STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

J. ERIC BOYETTE
SECRETARY

February 2, 2021

SHEET 3A

WBS NO: BP10.R013.1
TIP NO: SF-590165
COUNTY: Mecklenburg

DESCRIPTION: Bridge No. 165 on SR 5469 (Shopton Rd.) over Coffey Creek

SUBJECT: Geotechnical Inventory Report

Project Description

This report presents our findings for proposed roadway revisions due to relocation of Bridge No. 165 to the North of the existing structure. The roadway project trends west to east along SR 5469 (Old Shopton Rd.) and lies in the southwest corner of Mecklenburg County. Beginning and ending station limits along -L- are between 13+81.76 – 30+32.27. Total traversed distance is 0.31 miles.

The geotechnical field investigation was conducted during the month of May 2020. An ATV mounted CME 550X drill machine equipped with automatic drop hammer was utilized to perform test borings along the proposed corridor. The following survey lines are addressed in this report.

<u>Line</u>	<u>Station</u>
-L-	13+81.76 – 30+32.27

Physiography and Geography

The project area lies within the city limits of Charlotte. Topography along Shopton Rd. slopes toward Coffey Creek with areas north of the corridor being wooded and to the south residential. Elevation ranges from approximately 585 to 642 feet.

Geologically, the project area falls within the Charlotte Belt and is underlain by Paleozoic age rock types of the (DOg) and (PzZm) formations. Rock types encountered during the bridge foundation investigation indicate Metagranite and Metagranodiorite.

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. Residual soils at this site may contain some mica.

Predominant residual soils encountered at this site were clayey sandy silt (A-4, A-5), silty sandy clay (A-7-6), and clayey silty sand. Generally residual soils seem to contain a fair amount of sand with good to excellent consistency and denseness.

2. **Alluvial Soils:**

Alluvial soils originate from water transportation and deposition in a floodplain environment. Alluvial deposits along the project corridor are confined to the floodplain of Coffey Creek. Alluvial soils were noted to extend to depths up to 11.0 feet. Soils are moist to wet and are comprised of soft to stiff silty sandy clay and sandy silty clay (A-6, A-7-6).

3. **Roadway Embankment:**

Roadway embankment fill soils are present beneath existing Shopton Road. Roadway embankment soils will be close in composition to the local residual soil it was sourced from.

Rock Properties

Crystalline rock and weathered crystalline rock were encountered during this investigation. Rock core data collected during the bridge investigation associated with the project was determined to be very hard metagranodiorite and metagranite. Average recovery values were in the 87 to 97 percentile, and RQD values in the 78 to 92 percentile.

Areas of Special Geotechnical Interest

1. **Groundwater:**

Predominantly, groundwater was present in borings adjacent to Coffee Creek and its floodplain. Groundwater will be 6 or more feet below proposed grade in known locations.

2. Crystalline Rock:

Rock was encountered in multiple boring locations along the project corridor. Rock does not appear within 6 feet of proposed grade.

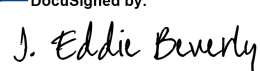
3. Alluvial Soils:

The creek and floodplain areas adjacent to Coffee Creek contain alluvial deposits that range up to 11.0 feet in thickness. The extent of alluvial soils is from approximate -L- station 18+50 to 23+50. Expect alluvial soils to be soft and wet with a high water table and comprised of silty sandy clay, and sandy silty clay.

Bridge

There is a proposed 2 span bridge replacement between -L- stations 20+88 and 22+23. The bridge will be relocated to the north of the existing structure. The bridge investigation has already been addressed under a separate report.

Respectfully Submitted,

DocuSigned by:

8BF22D1890734D0...
Eddie Beverly
Project Geologic Engineer

8/17/99

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B5789-1" WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF NORTHING: 519855.487(±) EASTING: 1423266.095(±) ELEVATION: 610.177(±)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: .9998480764

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B5789-1" TO -L- STATION 13+81.76 IS N 64°31'46.23" W 986.02'

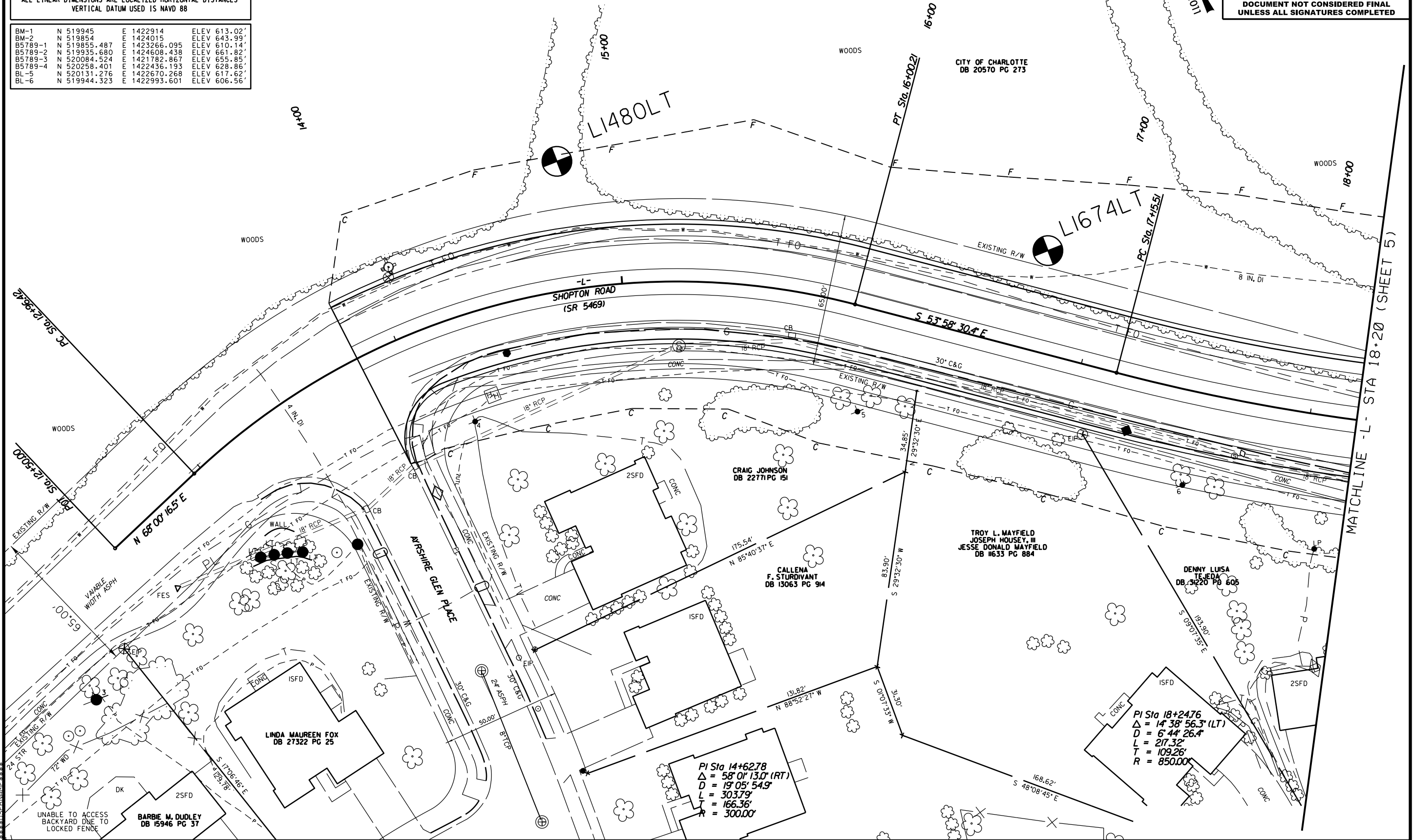
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

BM-1	N 519945	E 1422914	ELEV 613.02'
BM-2	N 519854	E 1424015	ELEV 643.99'
B5789-1	N 519855.487	E 1423266.095	ELEV 610.14'
B5789-2	N 519935.680	E 1424608.438	ELEV 661.82'
B5789-3	N 520084.524	E 1421782.867	ELEV 655.85'
B5789-4	N 520258.401	E 1422436.193	ELEV 628.86'
BL-5	N 520131.276	E 1422670.268	ELEV 617.62'
BL-6	N 519944.323	E 1422993.601	ELEV 606.56'

STV 100 Years
STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

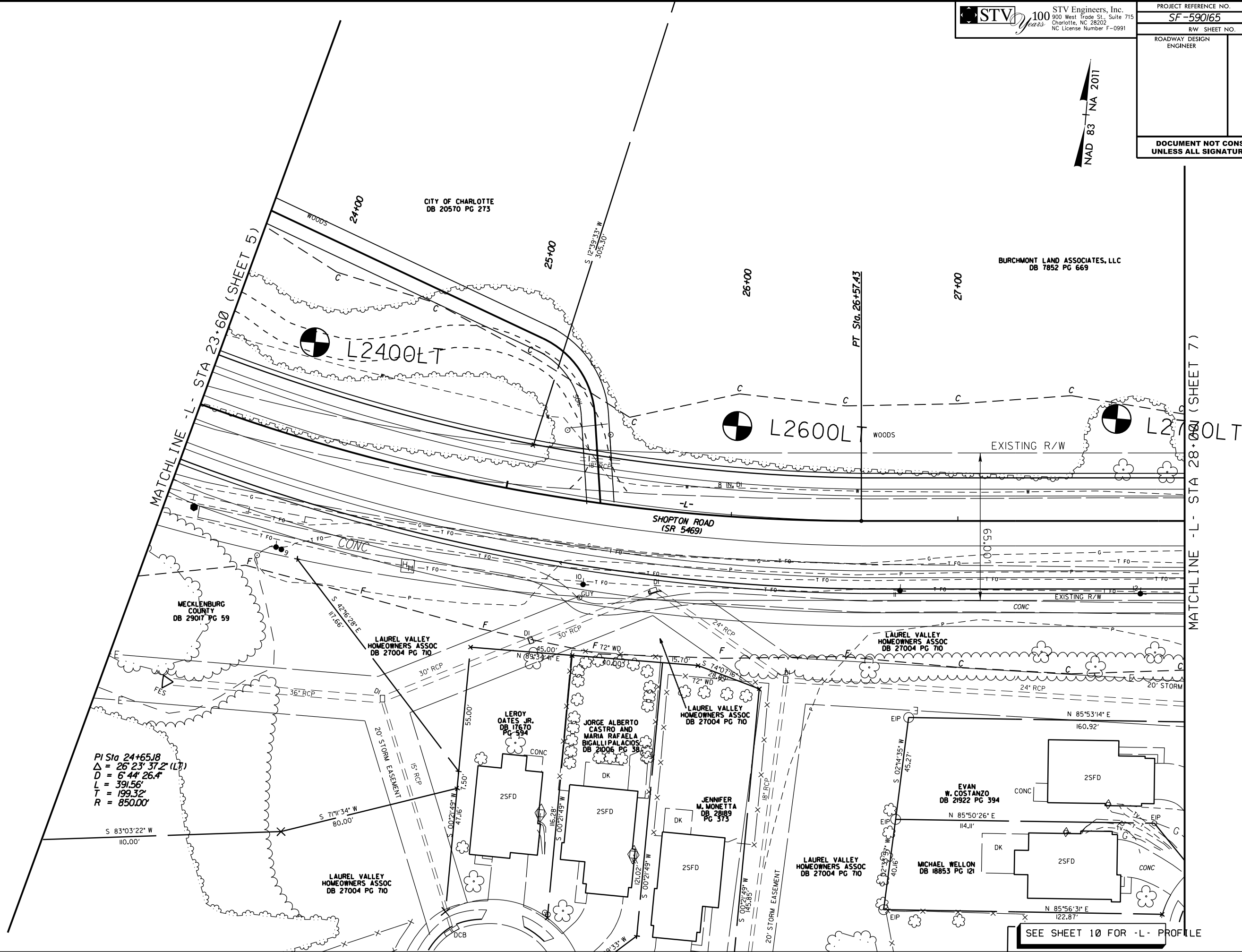
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SF-590165		4
R/W SHEET NO.		
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		

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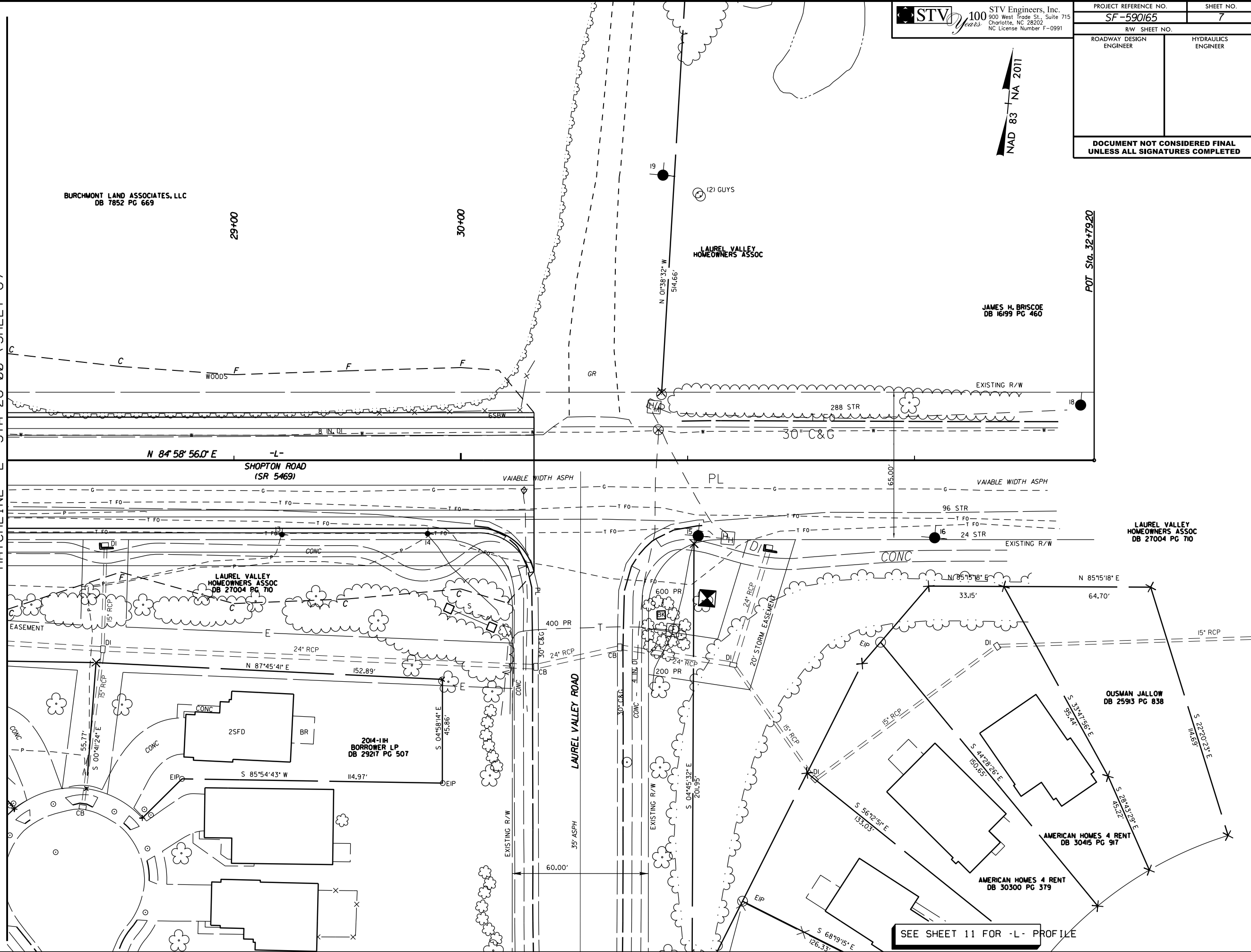


PROJECT REFERENCE NO.		SHEET NO.
SF-590165		6
RW SHEET NO.		
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		



SEE SHEET 10 FOR -L- PROFILE

MATCHLINE -L- STA 28+00 (SHEET 6)



STV 100 years
STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

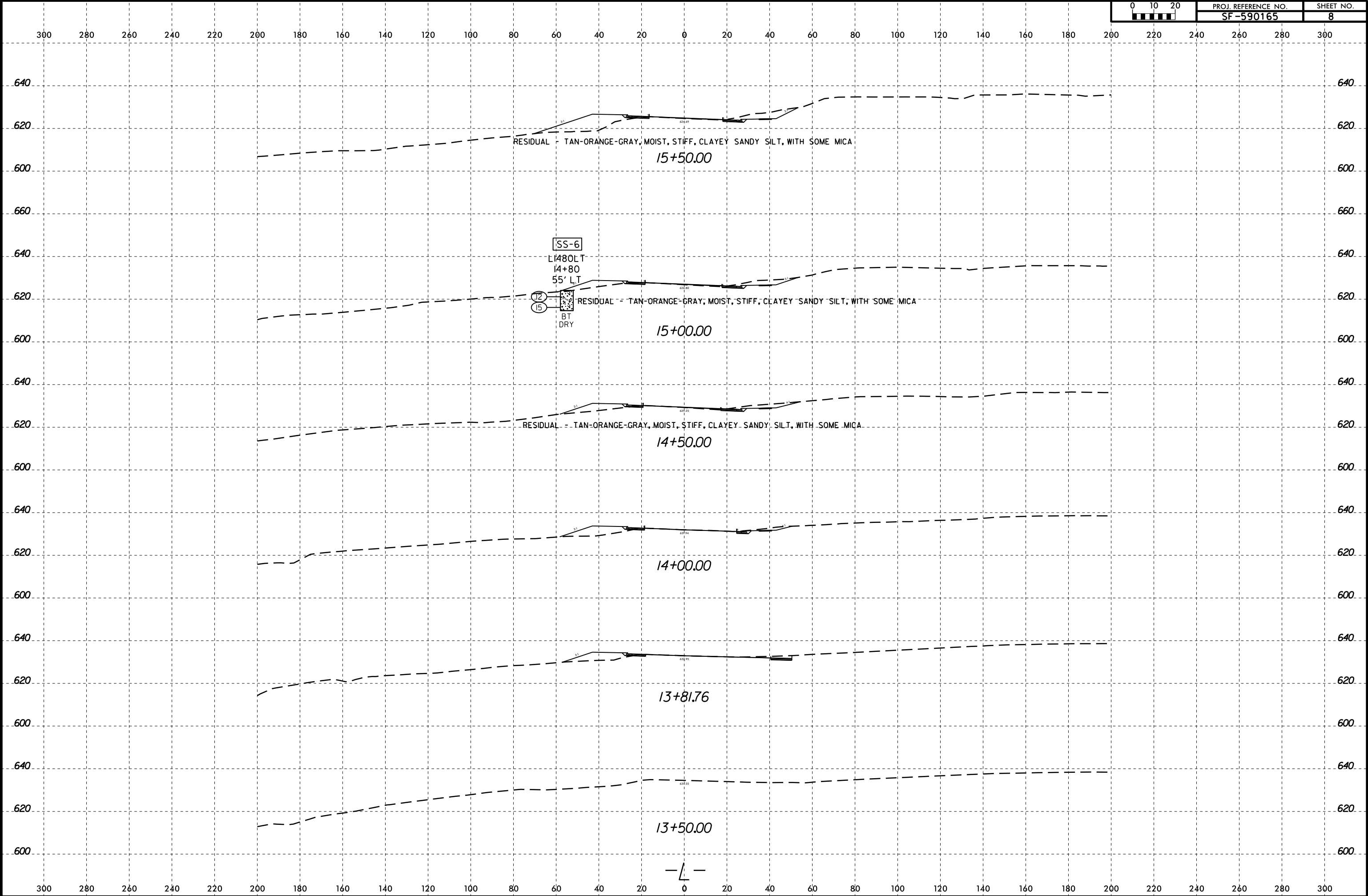
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R/W SHEET NO.			
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SEE SHEET 11 FOR -L- PROFILE

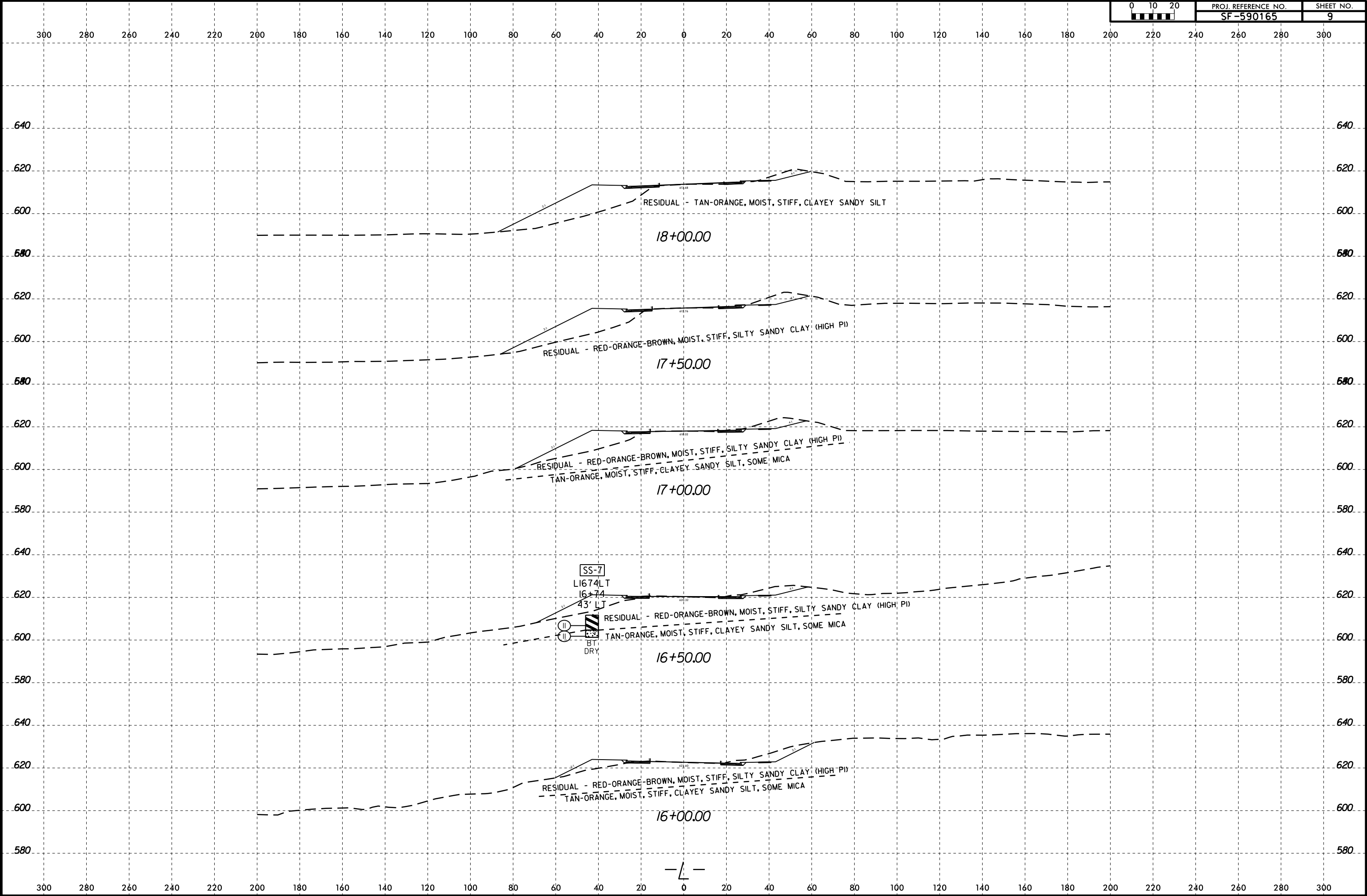
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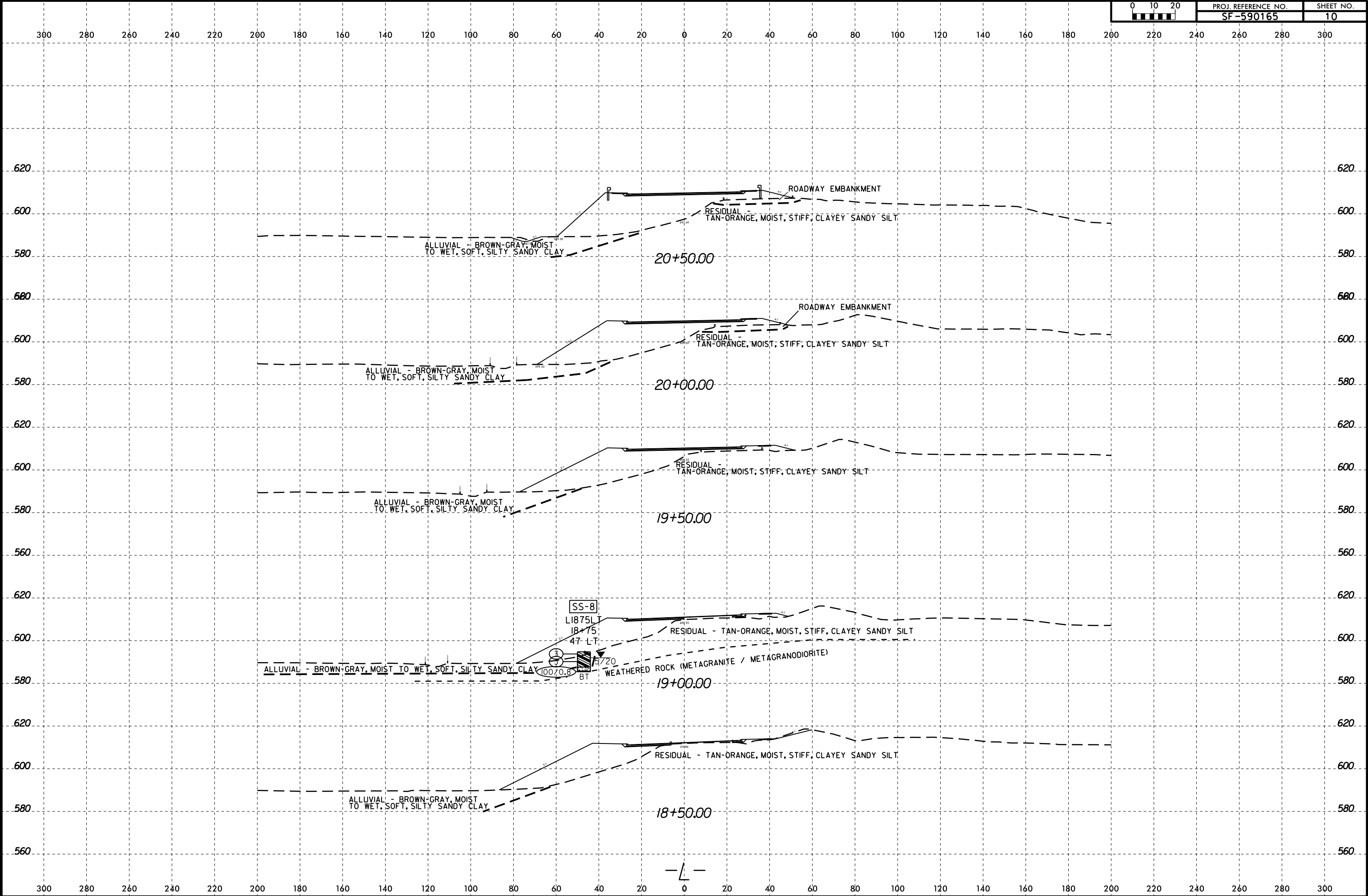
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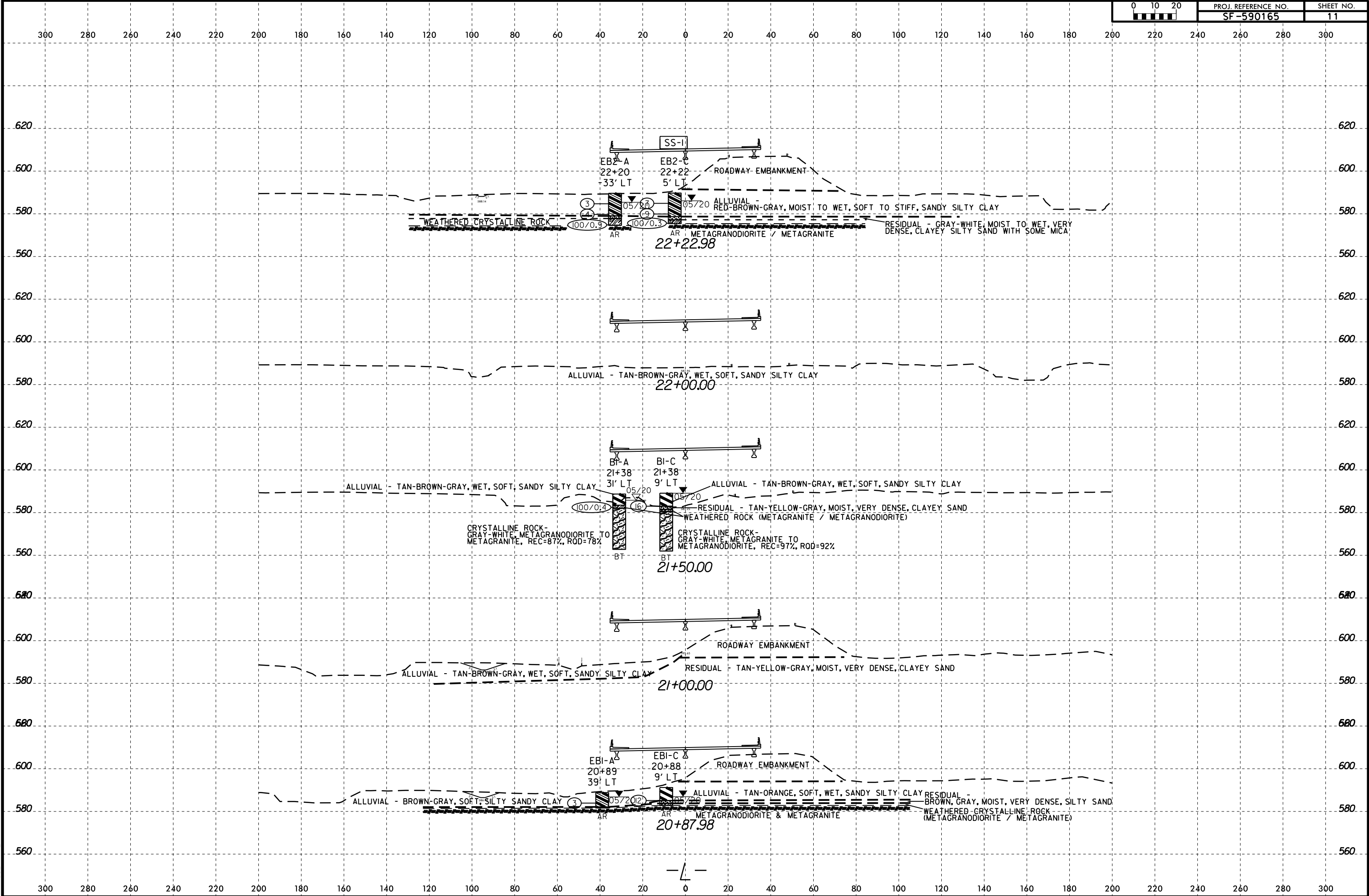
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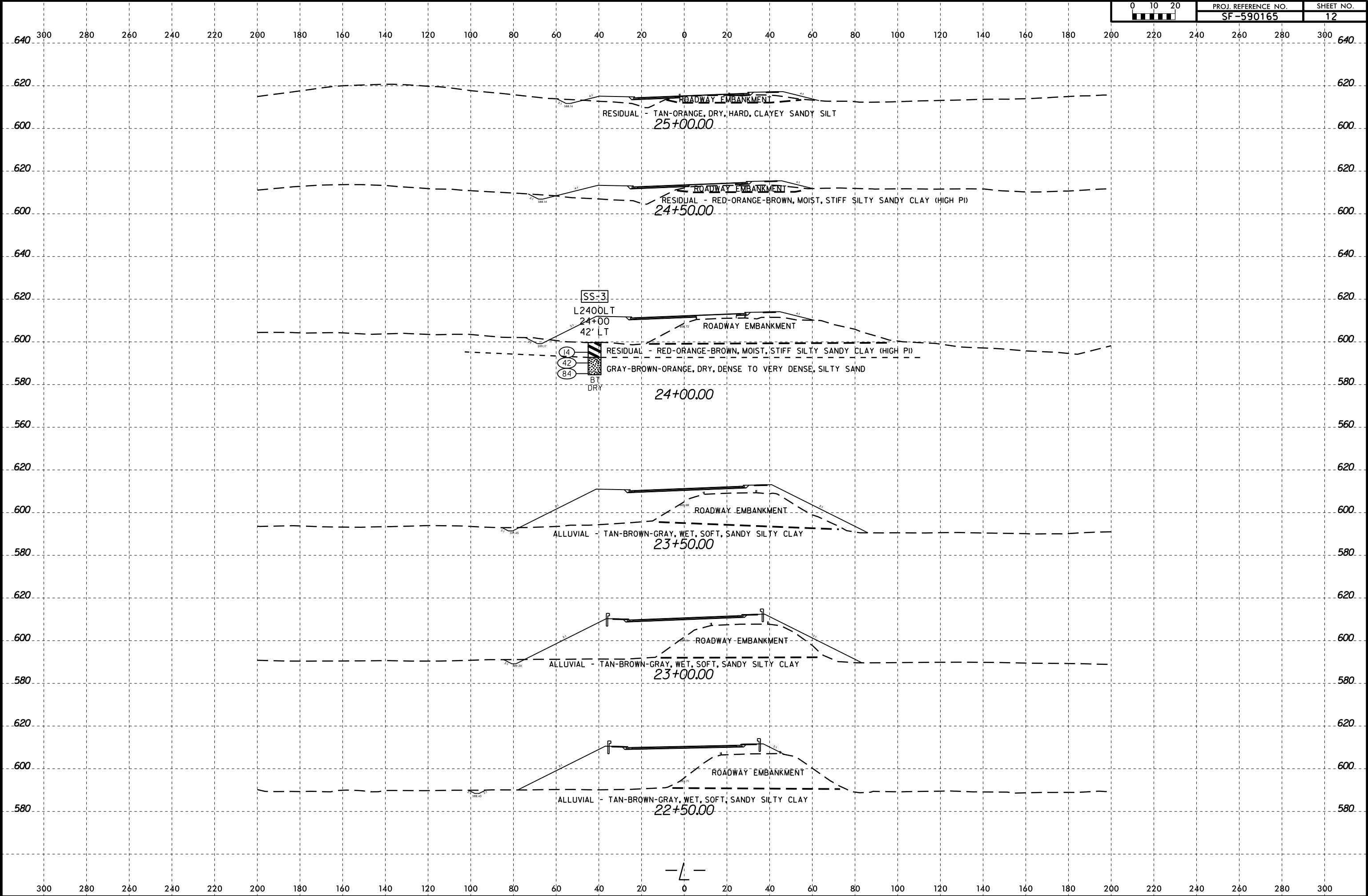
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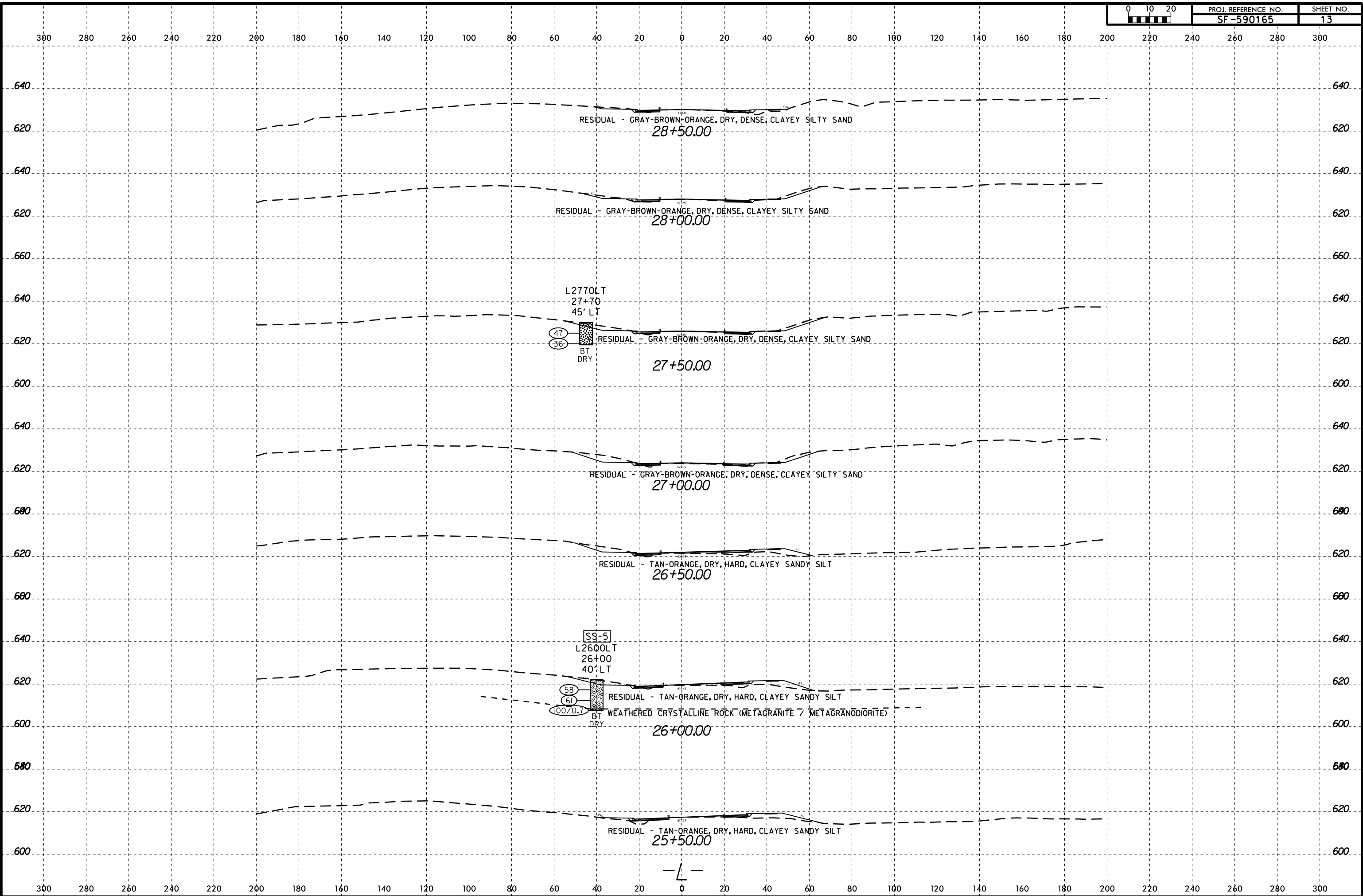
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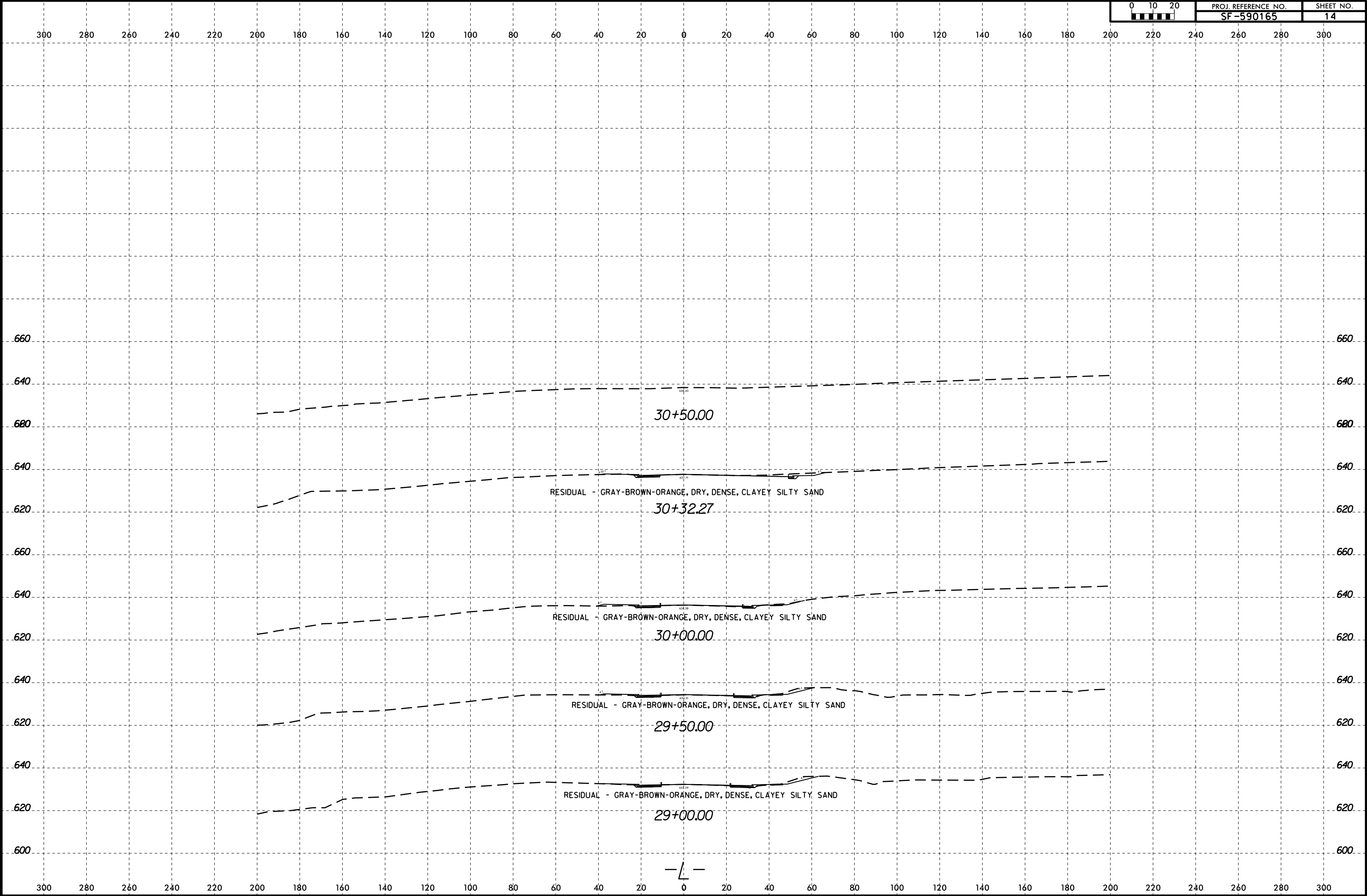


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NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAY
MATERIALS & TESTS UNIT
SOILS LABORATORY

T. I. P. No. SF-590165

REPORT ON SAMPLES OF		SOILS FOR QUALITY	
Project	BP10.R013.1	County	MECKLENBURG
Date: Sampled	5/8/20	Received	6/3/20
Reported	6/5/20	Owner	
Sampled from	BRIDGE	By	K B MILLER
Submitted by	J L PILIPCHUK	2012	Standard Specifications

812936 TO 812941
1/11/21

TEST RESULTS

Proj. Sample No.		SS-1	SS-3	SS-5	SS-6	SS-7	SS-8
Lab. Sample No.		812936	812937	812938	812939	812940	812941
Retained #4 Sieve	%	-	-	-	-	-	1
Passing #10 Sieve	%	100	100	100	100	100	94
Passing #40 Sieve	%	96	96	95	96	96	83
Passing #200 Sieve	%	71	75	44	54	72	51

MINUS NO. 10 FRACTION

SOIL MORTAR - 100%						
Coarse Sand Ret - #60	%	9.6	9.0	16.3	10.4	10.2
Fine Sand Ret - #270	%	26.1	19.7	48.2	42.6	22.5
Silt 0.05 - 0.005 mm	%	30.1	19.1	25.5	22.9	17.1
Clay < 0.005 mm	%	34.1	52.2	10.0	24.1	50.2
Passing #40 Sieve	%	-	-	-	-	-
Passing #200 Sieve	%	-	-	-	-	-

L. L.	39	53		45	50	34
P. I.	14	31	NP	8	28	12
AASHTO Classification	A-6(9)	A-7-6(23)	A-4(0)	A-5(3)	A-7-6(20)	A-6(3)
Station	22+22	24+00	26+00	14+80	16+74	18+75
Offset	5.0 LT	42' LT	40' LT		43' LT	47' LT
Alignment	-L-	-L-	-L-	-L-	-L-	-L-
Location	EB2-C					
Depth (Ft)	3.80	3.60	3.70	3.00	3.90	0.00
to	5.30	5.10	5.20	4.50	5.40	1.50
% Moisture						34.4

cc: K B MILLER

Soils Engineer