

REFERENCE: B-5156

PROJECT: 42331

SEE SHEET 3 FOR PLAN SHEET LAYOUT
AT TIME OF INVESTIGATION

CONTENTS

LINE	STATION	PLAN
-L-	12+00 TO 32+82	4-5

CROSS SECTIONS

LINE	STATION	SHEETS
-L-	12+50 TO 21+50	6-9
-L-	24+00 TO 32+00	10-14

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

**ROADWAY
SUBSURFACE INVESTIGATION**

COUNTY PENDER
PROJECT DESCRIPTION BRIDGE NO. 28 ON -L- (NC 210)
OVER LONG CREEK

INVENTORY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5156	1	14

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:
1. 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.
 2. 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

D.N. ARGENBRIGHT

S.N. ZIMARINO

R.E. SMITH

J.P. PEHRSON

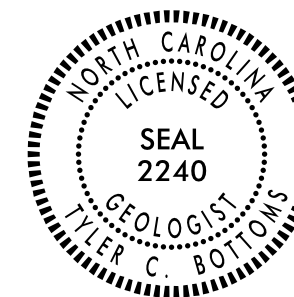
INVESTIGATED BY T.C. BOTTOMS

DRAWN BY T.C. BOTTOMS

CHECKED BY D.N. ARGENBRIGHT

SUBMITTED BY D.N. ARGENBRIGHT

DATE JUNE 2019



DocuSigned by:

Tyler C. Bottoms

8/22/2019

48A2D3BD088E SIGNATURE

DATE

**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

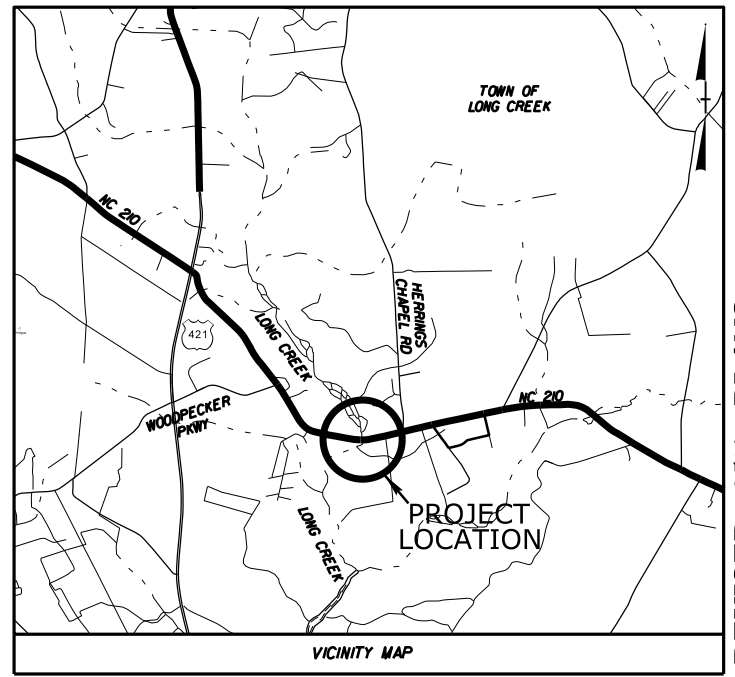
SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

Table with 4 main columns: SOIL DESCRIPTION, GRADATION, ROCK DESCRIPTION, and TERMS AND DEFINITIONS. It contains detailed technical specifications, legends, and definitions for geotechnical engineering.

09/08/19

TIP PROJECT: B-5156

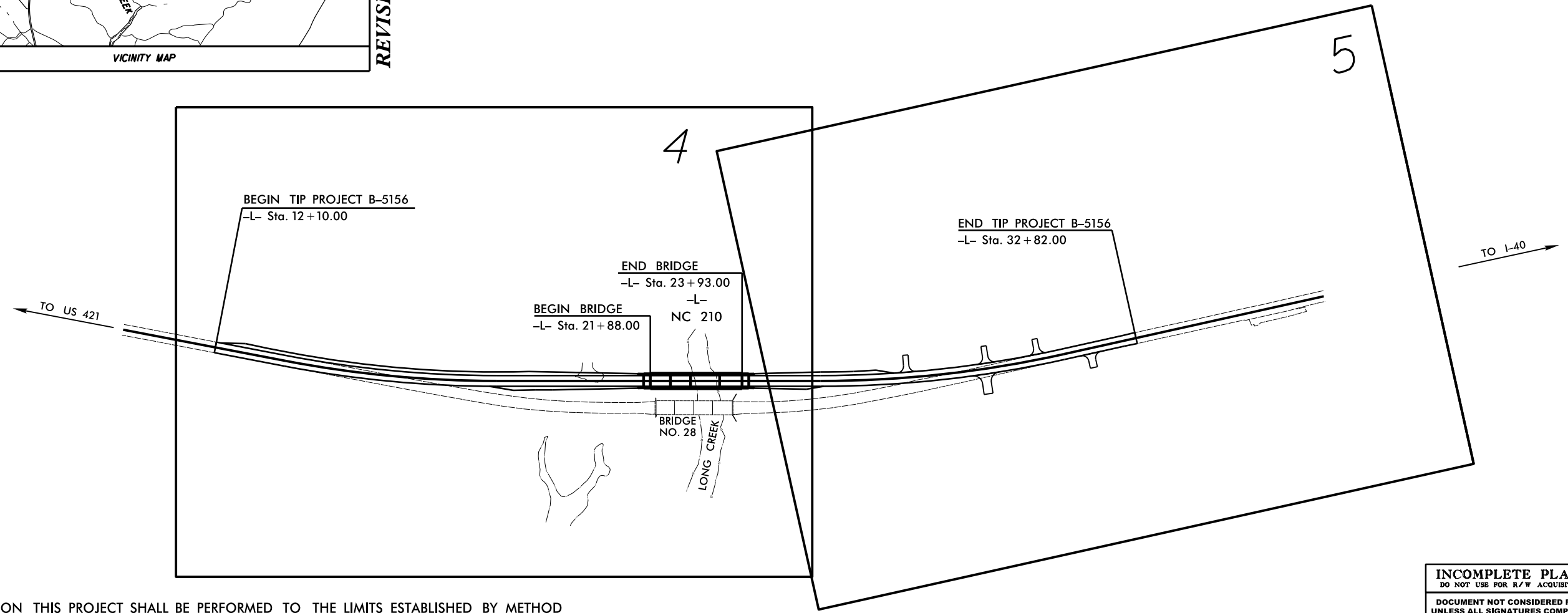


REVISED 25% PLANS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
PENDER COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5156	3	14
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
42331.1.2	N/A	P.E.	

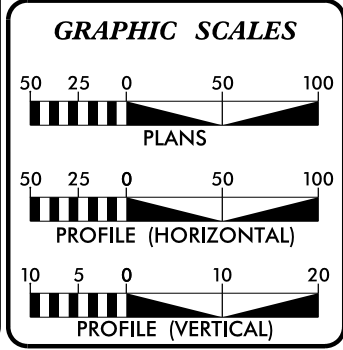
LOCATION: BRIDGE 28 OVER LONG CREEK ON NC 210
TYPE OF WORK: GRADING, DRAINAGE, PAVING, SIGNING, AND STRUCTURES



INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD ____
A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF THE TOWN OF LONG CREEK

CONTRACT:



DESIGN DATA

AADT 2020 =	3,000
AADT 2040 =	3,600
K =	10%
D =	55%
T =	12%*
V =	60 MPH
* (TTST 4% + DUAL 8%)	
FUNCTIONAL CLASSIFICATION:	RURAL MAJOR COLLECTOR
REGIONAL TIER	

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-5156	=	0.353 MILES
LENGTH STRUCTURES TIP PROJECT B-5156	=	0.039 MILES
LENGTH ROADWAY TIP PROJECT B-5156	=	0.392 MILES

PLANS PREPARED FOR THE NCDOT BY:

Kimley»Horn

2019 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: MAY 21, 2019

LETTING DATE: SEPTEMBER 15, 2020

JEFFREY W. MOORE, P.E.
PROJECT ENGINEER

SETH DENNEY, P.E.
PROJECT DESIGN ENGINEER

KRISTY ALFORD, P.E.
STRUCTURES MANAGEMENT UNIT
PROJECT ENGINEER-
FIELD OPERATIONS DIVISIONS 1-7

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: _____ P.E.



\$DATE\$



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

JAMES H. TROGDON, III
SECRETARY

June 4, 2019

State Project: 42331.1.2 (B-5156)
F.A. Project: N/A
County: Pender
Description: Bridge No. 28 on -L- (NC 210) over Long Creek
Subject: Geotechnical Inventory Report

Project Description

This project begins approximately 1000 feet west of Bridge Number 28 over Long Creek in Pender County and extends east along NC 210 for approximately 0.4 miles. This project primarily consists of realigning NC 210 to accommodate the bridge replacement. This geotechnical investigation was confined to the areas of proposed construction.

Fieldwork was conducted in May of 2009 and between May and June of 2019. SPT, push probe and hand auger borings were completed at various offsets along the project corridor. Representative soil samples were collected for visual classification in the field.

The following alignment was investigated. Selected cross sections of this alignment are included in this report.

<u>Line</u>	<u>Station(±)</u>
-L-	12+10 to 32+82

Areas of Special Geotechnical Interest

1) The following section was found to exhibit seasonal high ground water:

<u>Line</u>	<u>Station(±)</u>
-L-	12+10 to 28+00

2) The following sections contain cohesive soils which have the potential to cause embankment/subgrade and or slope stability problems during construction:

<u>Line</u>	<u>Station(±)</u>
-L-	18+75 to 19+25
-L-	27+75 to 32+25

3) The following section contains organic material which has the potential to cause embankment/subgrade and or slope stability problems during construction:

<u>Line</u>	<u>Station(±)</u>
-L-	20+75 to 24+25

Physiography and Geology

This project corridor is located within the Coastal Plain Physiographic Province. Topography along the project is nearly flat to gently sloping. Natural ground elevations ranged from 0± to 18± feet above sea level.

Surficial soils in this area are generally classified as undivided coastal plain sediments and are underlain by formational soils belonging to the Pee Dee Formation.

Ground Water

Ground water data was collected in May of 2009 and between May and June of 2019. Ground water elevations ranged from 1± to 10± feet above sea level.

Soils

Soils encountered within this project area have been divided into three categories: Roadway Embankment, alluvial sediments, and formational soils.

Roadway embankment soils were found along the existing NC 210 corridor. Where encountered it was composed of 1± to 16± feet of very loose to medium dense sand (A-2-4, A-3, A-1-b).

Soils identified as alluvial sediments are composed of 5± to 9± feet of very loose muck and moderately organic sand, 4± to 10± feet of very loose to medium dense sand, (A-2-4, A-3), and 1± to 3± or feet of soft sandy and silty clay (A-6, A-7-6).

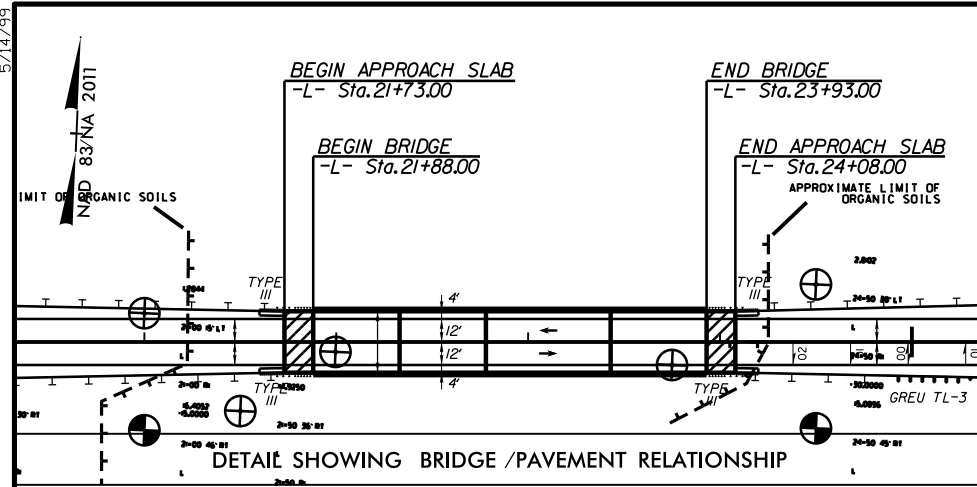
Formational soils belonging to the Pee Dee Formation were encountered beneath the alluvial sediments and consist of 25 or more feet of very loose to dense sand (A-2-4).

5/14/99

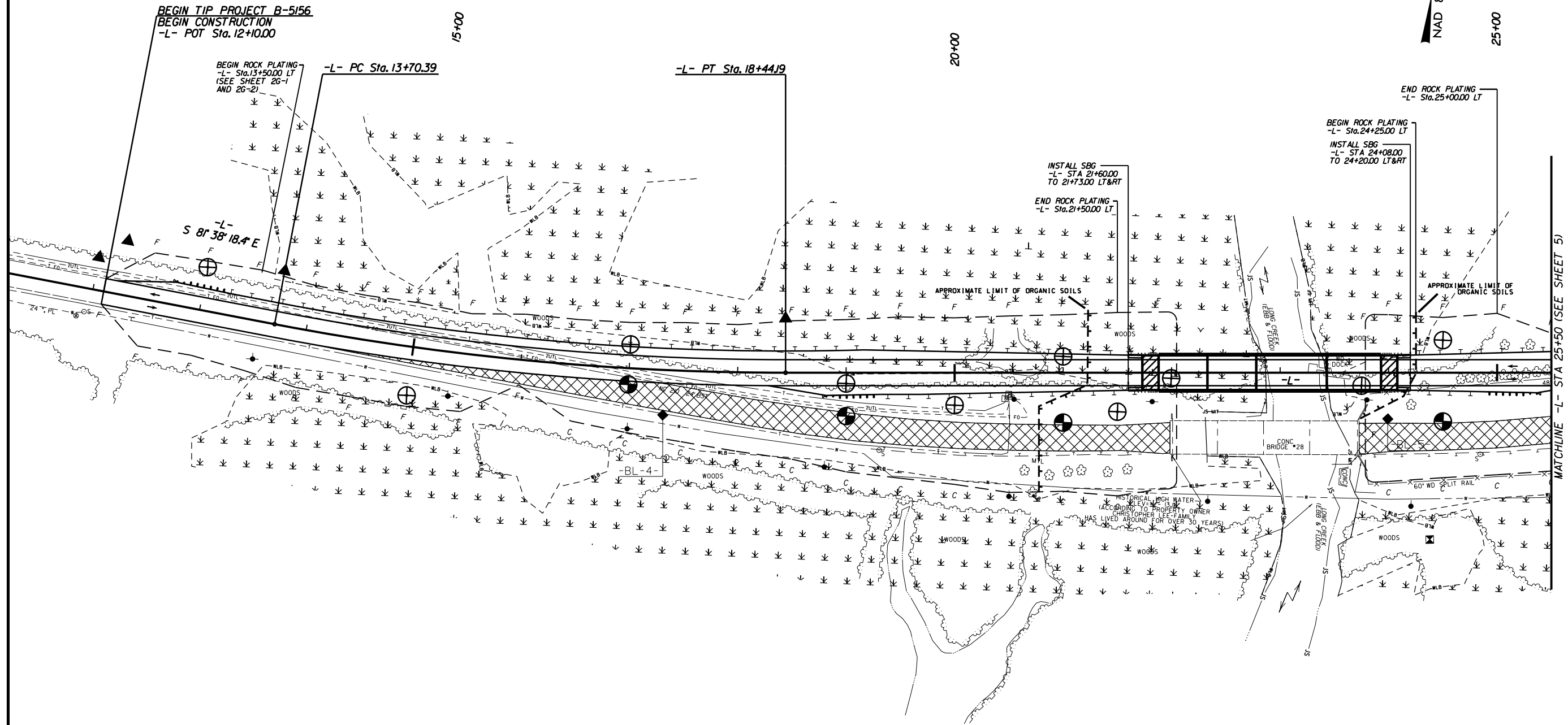
\$DATE\$

Kimley Horn
P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

PROJECT REFERENCE NO. B-5156	SHEET NO. 4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



-L-
 PI Sta 16+08.01
 $\Delta = 10^{\circ} 51' 31.3''$ (LT)
 $D = 217' 30.6''$
 $L = 473.80'$
 $T = 237.61'$
 $R = 2,500.00'$
 $SE = 0.035$
 $RO = 105'$



MATCHLINE -L- STA 25+50 (SEE SHEET 5)

5/14/99

-L-
 PI Sta 28+42.77
 $\Delta = 12^\circ 32' 32.8" (LT)$
 $D = 217' 30.6"$
 $L = 547.27'$
 $T = 274.73'$
 $R = 2500.00'$
 $SE = 0.035$
 $RO = 105'$

Kimley»Horn
 P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

PROJECT REFERENCE NO. B-5156	SHEET NO. 5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

REVISIONS

-L- PT Sta. 31+15.31

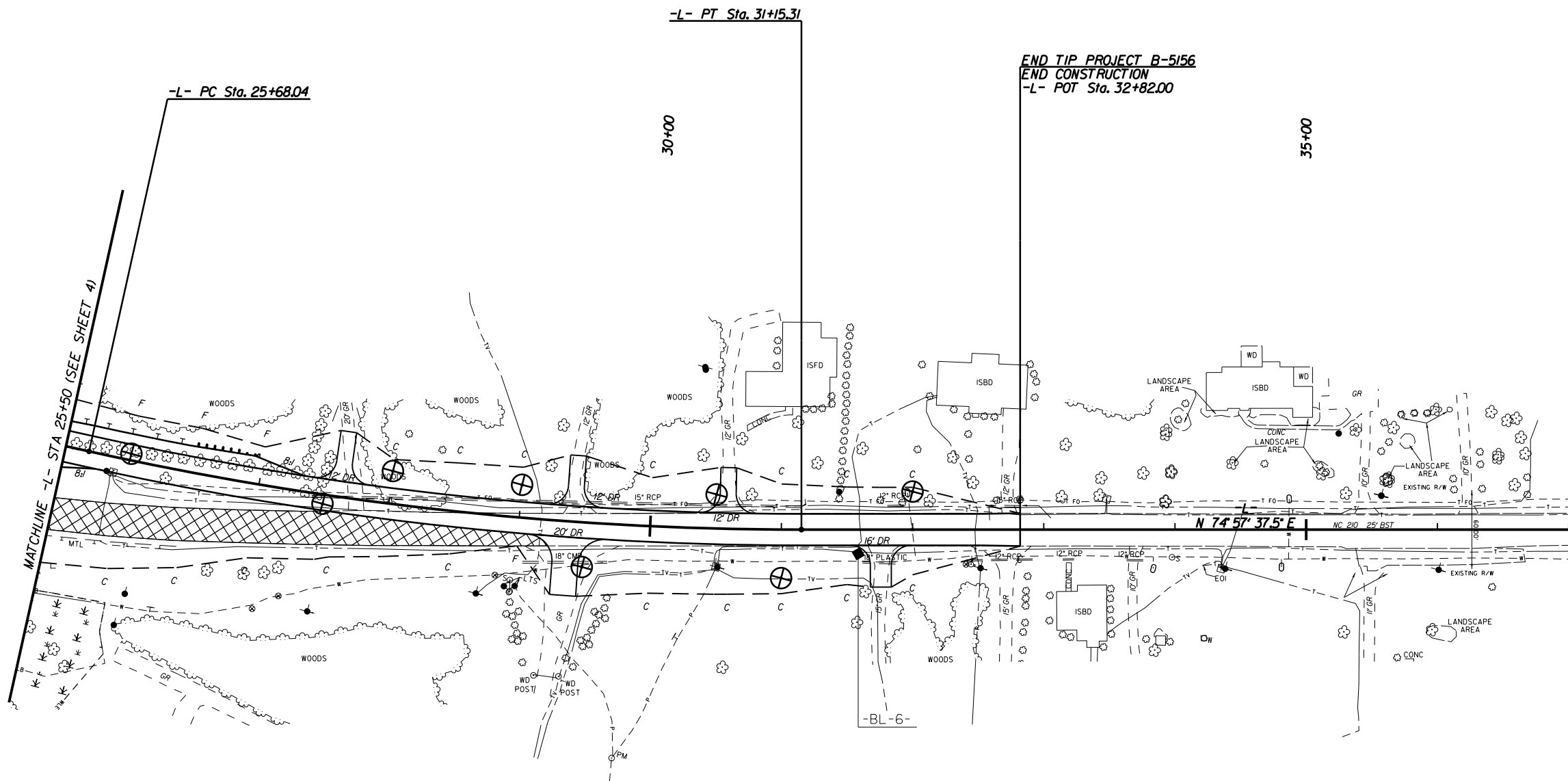
END TIP PROJECT B-5156
 END CONSTRUCTION
 -L- POT Sta. 32+82.00

-L- PC Sta. 25+68.04

30+00

35+00

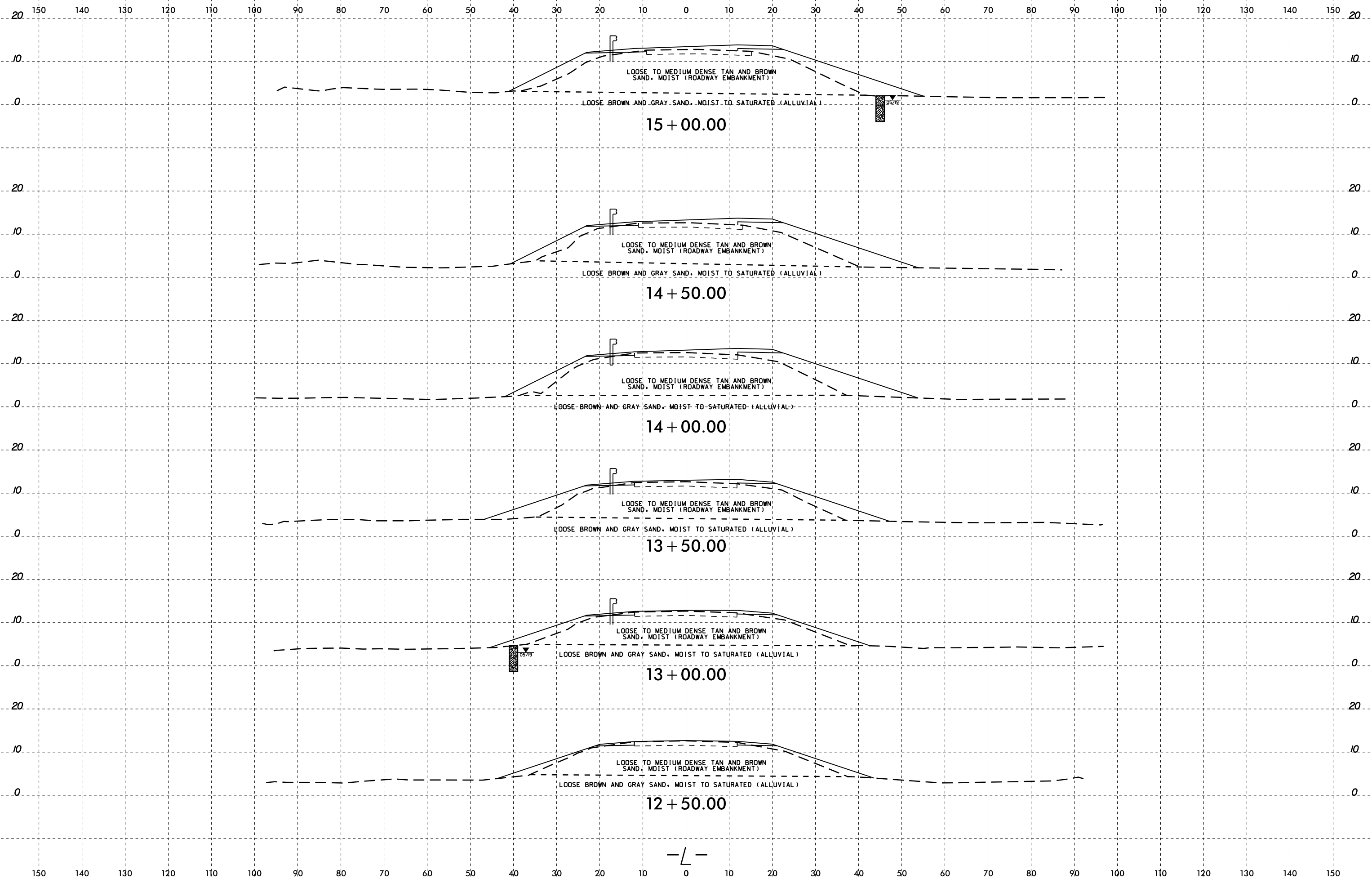
-L- POT Sta. 37+12.00

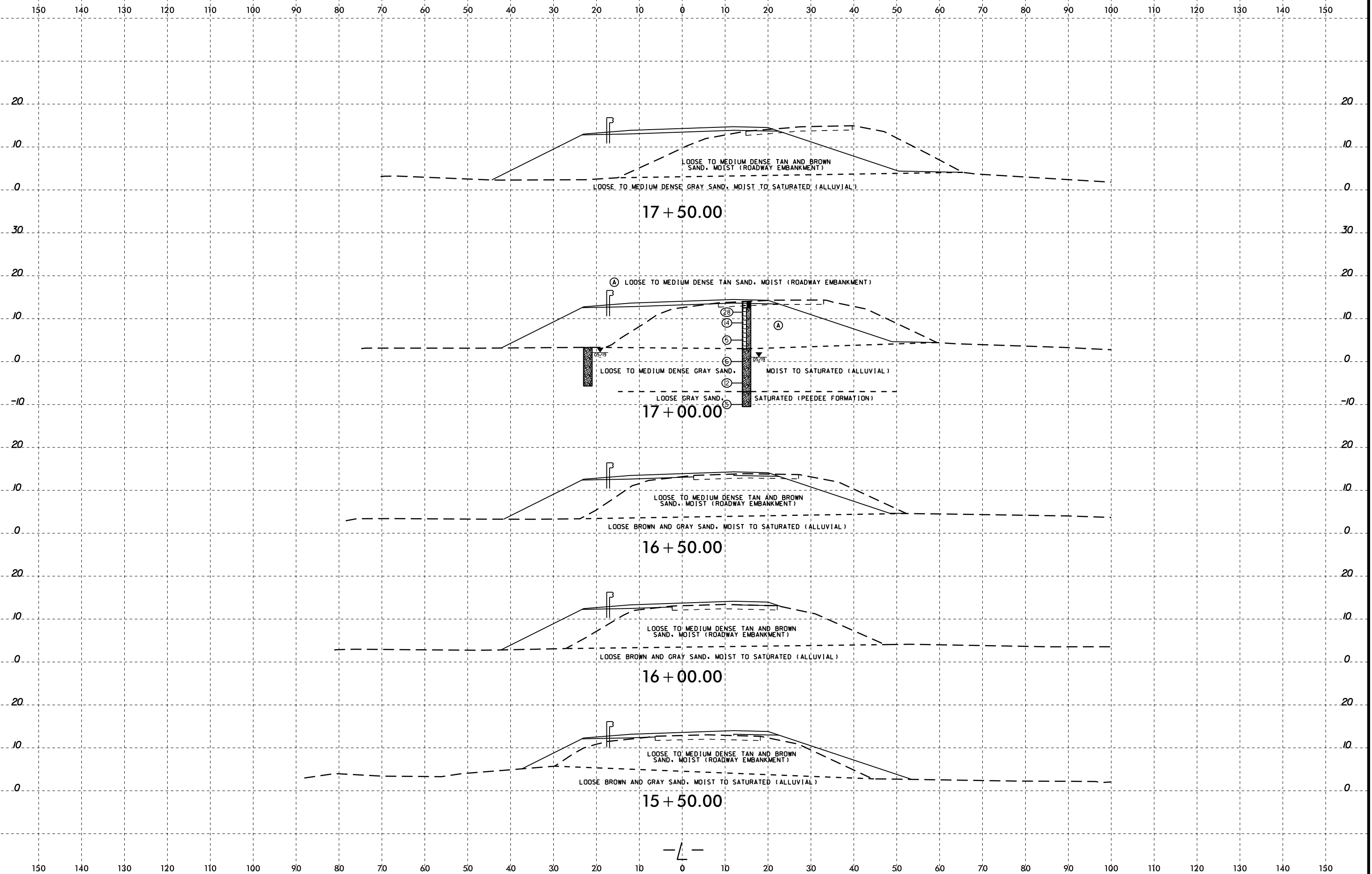


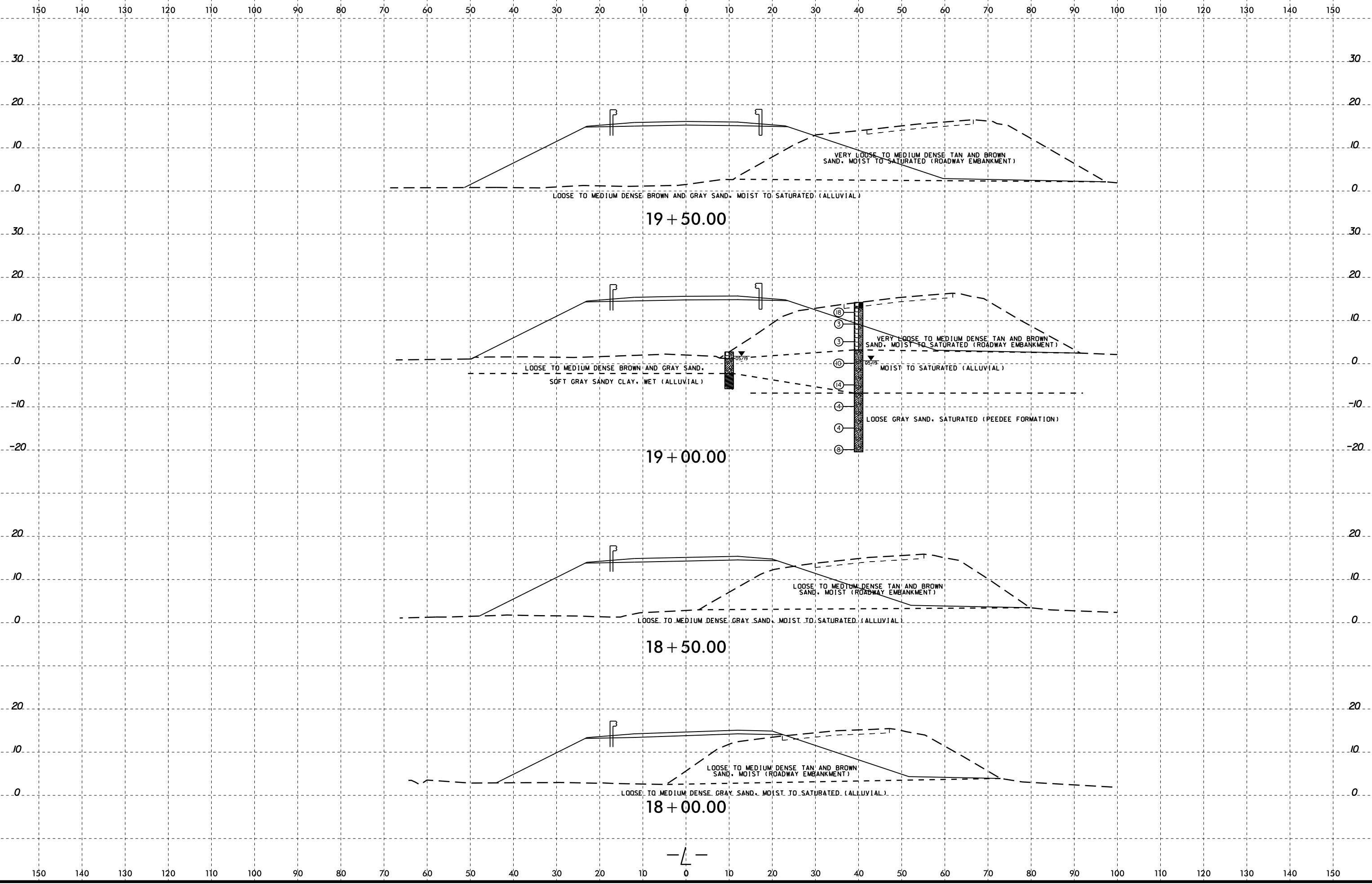
BM2 ELEVATION= 23.72'
 L STA 37+12.00
 N 53°07'23.5" DIST 217.96'
 TIE SPIKE SET IN 24" OAK

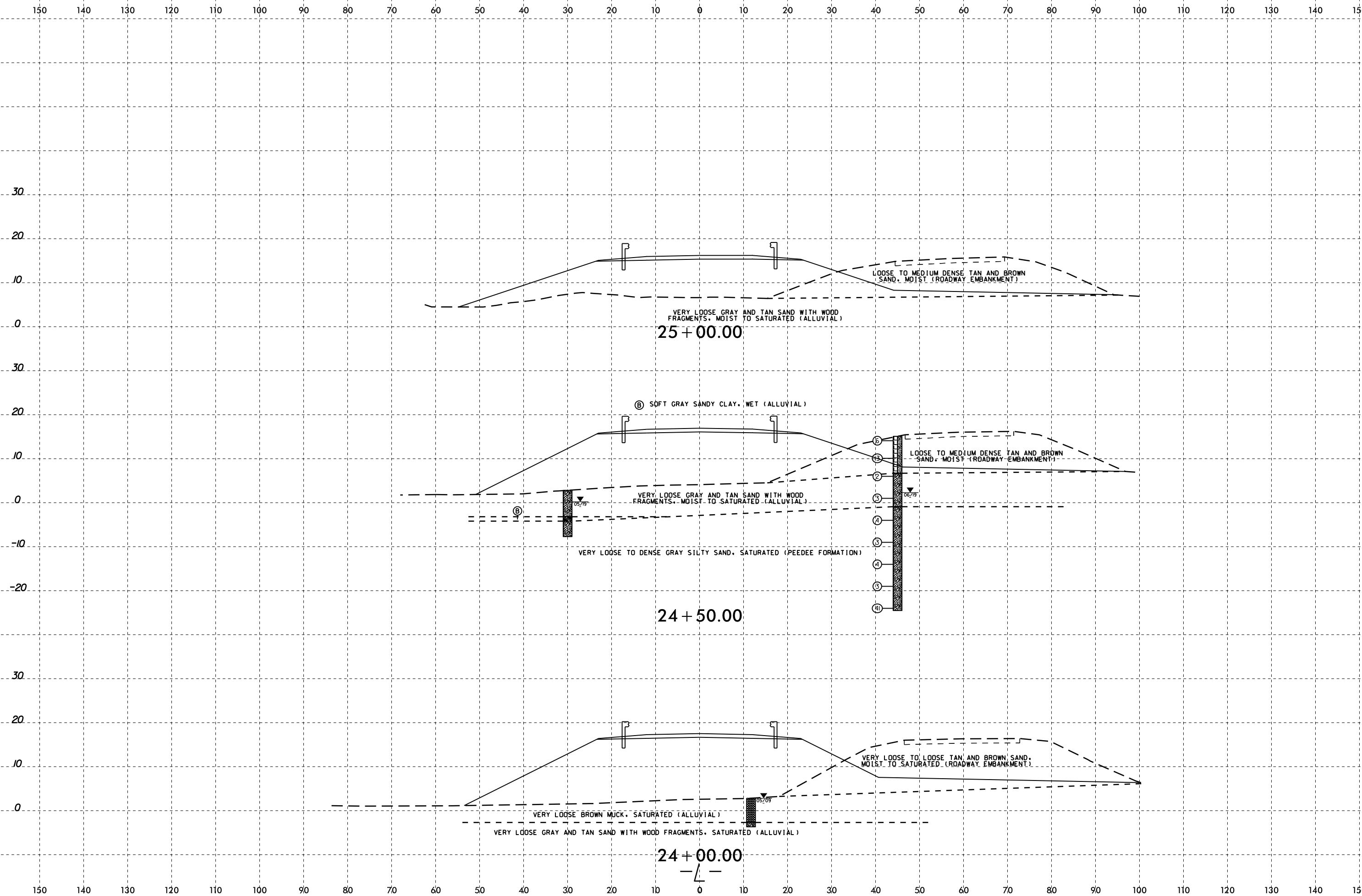
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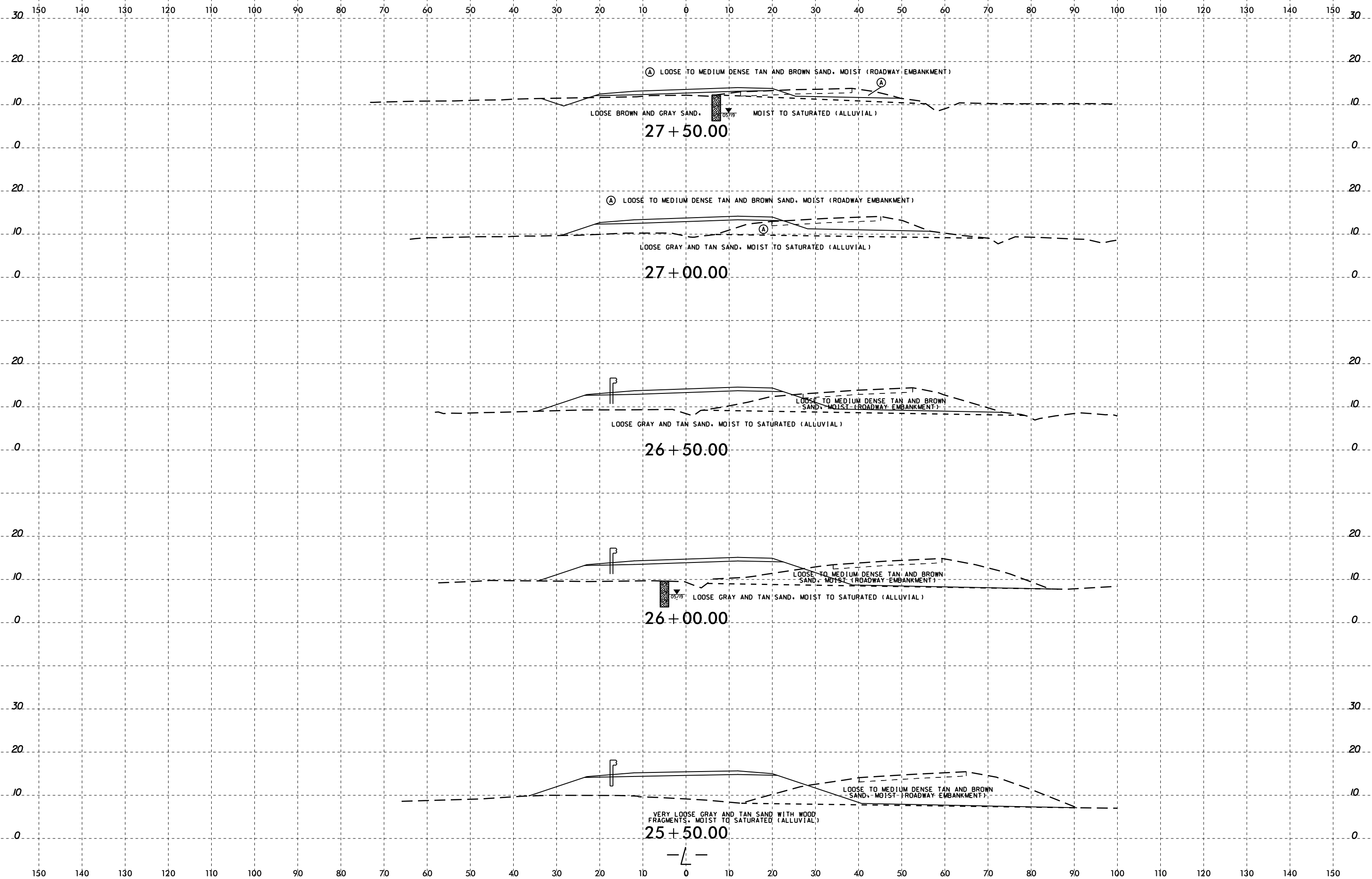
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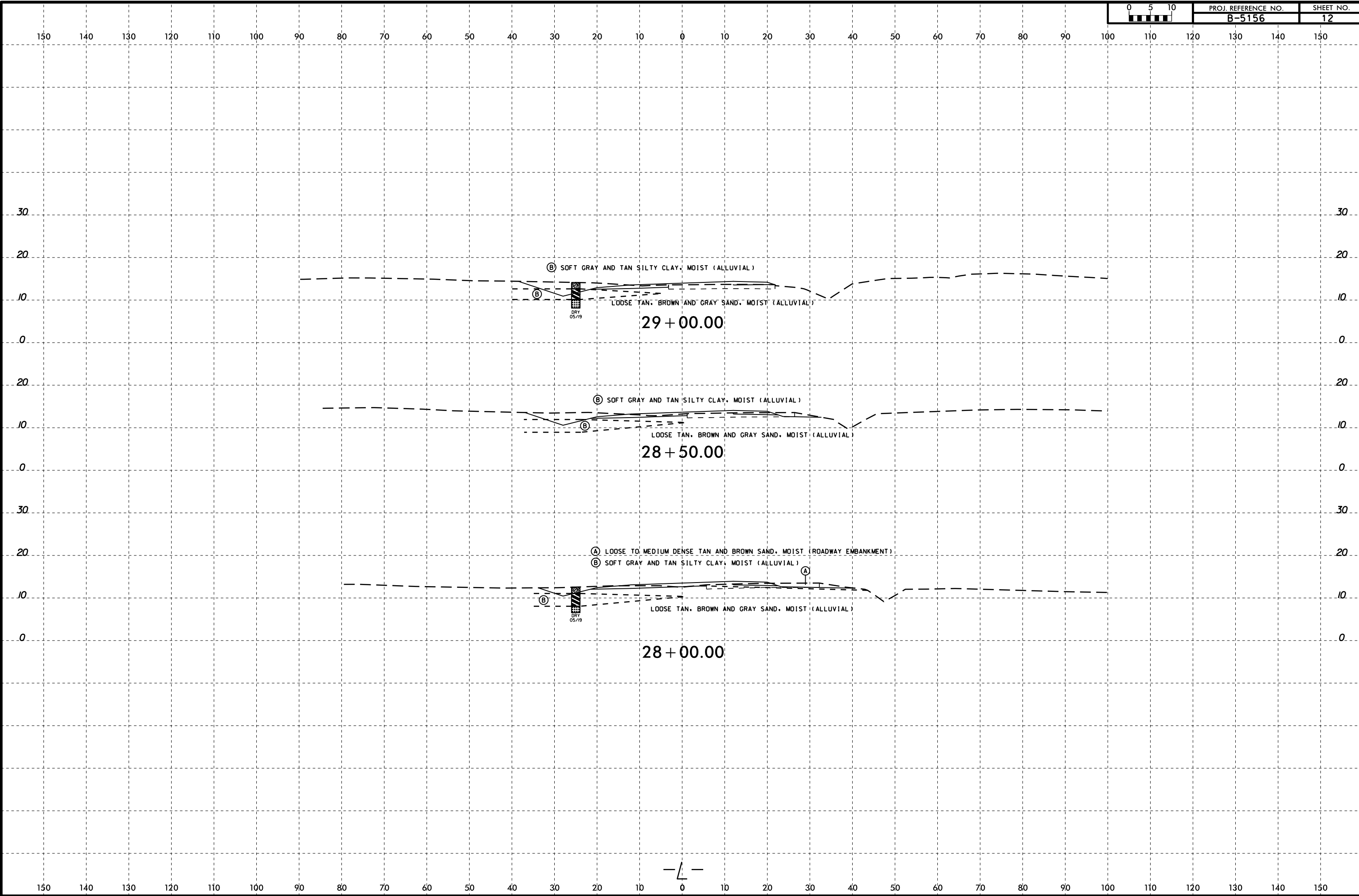












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ⓑ SOFT GRAY AND TAN SILTY CLAY, MOIST (ALLUVIAL)

ⓑ
DRY
05/19

LOOSE TAN AND GRAY SAND, MOIST (ALLUVIAL)

30 + 50.00

ⓑ SOFT GRAY AND TAN SILTY CLAY, MOIST (ALLUVIAL)

ⓑ

LOOSE TAN AND GRAY SAND, MOIST (ALLUVIAL)

30 + 00.00

ⓑ SOFT GRAY AND TAN SILTY CLAY, MOIST (ALLUVIAL)

ⓑ

LOOSE TAN AND GRAY SAND, MOIST (ALLUVIAL)

DRY
05/19

29 + 50.00

