

SEE SHEET 3 FOR PLAN SHEET LAYOUT  
AT TIME OF INVESTIGATION

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	46125 B-5410	1	9

CONTENTS

LINE	STATION	PLAN
-1-	11+35 - 17+50	4

**ROADWAY  
SUBSURFACE INVESTIGATION**

COUNTY Jackson  
PROJECT DESCRIPTION approaches to Bridge No. 221 on  
SR 1367 over Little Savannah Creek

**INVENTORY**

CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF PREPARING THE SCOPE OF WORK TO BE INCLUDED IN THE REQUEST FOR PROPOSAL. 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 TOT-6850. THE SUBSURFACE PLANS AND REPORTS, FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA ARE NOT PART OF THE CONTRACT.

SOIL AND ROCK BOUNDARIES WITHIN A BOREHOLE ARE BASED ON GEOTECHNICAL INTERPRETATION UNLESS ENCOUNTERED IN A SAMPLE. INTERPRETED BOUNDARIES MAY NOT NECESSARILY REFLECT ACTUAL SUBSURFACE CONDITIONS BETWEEN SAMPLED STRATA AND BOREHOLE INFORMATION MAY NOT NECESSARILY REFLECT ACTUAL SUBSURFACE CONDITIONS BETWEEN BORINGS. 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.

REFERENCE: B-5410

CROSS SECTIONS

LINE	STATION	SHEETS
-1-	13+00-15+75	5-9

PERSONNEL

DC Elliott

CJ Coffee

Do Cheek

INVESTIGATED BY PQ Lockamy

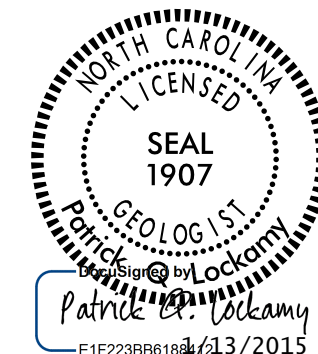
DRAWN BY PQ Lockamy

CHECKED BY JC Kuhne

SUBMITTED BY JC Kuhne

DATE 10-10-14

PROJECT: 46125



SIGNATURE

DATE

SIGNATURE

DATE

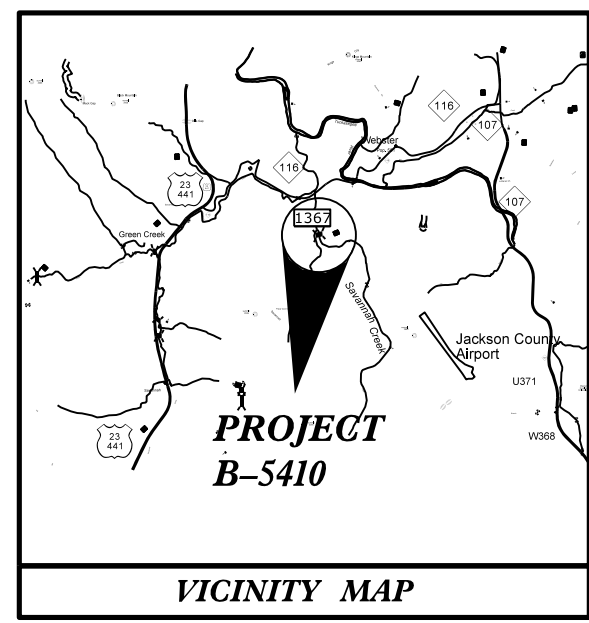
**NORTH CAROLINA DEPARTMENT OF TRANSPORTATION**  
**DIVISION OF HIGHWAYS**  
**GEOTECHNICAL ENGINEERING UNIT**  
**SUBSURFACE INVESTIGATION**  
**SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS**

SOIL DESCRIPTION										GRADATION										ROCK DESCRIPTION										TERMS AND DEFINITIONS									
SOIL IS CONSIDERED UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER AND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO THE STANDARD PENETRATION TEST (AASHTO T 208, ASTM D1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY INCLUDE THE FOLLOWING: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. FOR EXAMPLE, VERY STIFF, GRAY, SILTY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6										WELL GRADED - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE. UNIFORMLY GRADED - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLE SIZES OF TWO OR MORE SIZES.										HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT REFUSAL IF TESTED, AN INFERRED ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL. SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS IN NON-COASTAL PLAIN MATERIAL. THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN REPRESENTED BY A ZONE OF WEATHERED ROCK. ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS:										ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER. AQUIFER - A WATER BEARING FORMATION OR STRATA. ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND. ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, SUCH AS SHALE, SLATE, ETC. ARTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE. CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE. COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE. CORE RECOVERY (REC.) - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE. DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK. DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL. DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH. FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE. FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES. FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLOGGED FROM PARENT MATERIAL. FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM. FORMATION (FM) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD. JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED. LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT. LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS. MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE. PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM. RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK. ROCK QUALITY DESIGNATION (ROD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE. SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK. SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS. SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE. STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS (N OR BPF) OF A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS. STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE. STRATA ROCK QUALITY DESIGNATION (SROD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE. TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.									
<b>SOIL LEGEND AND AASHTO CLASSIFICATION</b>										<b>ANGULARITY OF GRAINS</b>										<b>WEATHERED ROCK (WR)</b>										<b>CRYSTALLINE ROCK (CR)</b>									
<b>MINERALOGICAL COMPOSITION</b>										<b>NON-CRYSTALLINE ROCK (NCR)</b>										<b>COASTAL PLAIN SEDIMENTARY ROCK (CP)</b>										<b>WEATHERING</b>									
<b>COMPRESSION</b>										<b>PERCENTAGE OF MATERIAL</b>										<b>GROUND WATER</b>										<b>MISCELLANEOUS SYMBOLS</b>									
<b>TEXTURE OR GRAIN SIZE</b>										<b>RECOMMENDATION SYMBOLS</b>										<b>ROCK HARDNESS</b>										<b>SOIL MOISTURE - CORRELATION OF TERMS</b>									
<b>CONSISTENCY OR DENSENESS</b>										<b>ABBREVIATIONS</b>										<b>FRACTURE SPACING</b>										<b>BEDDING</b>									
<b>PLASTICITY</b>										<b>EQUIPMENT USED ON SUBJECT PROJECT</b>										<b>INDURATION</b>										<b>BENCH MARK:</b>									
<b>COLOR</b>																														<b>NOTES:</b>									
																														<b>ELEVATION: FEET</b>									

09/08/99

See Sheet 1-A For Index of Sheets

**CONTRACT:** TIP PROJECT: B-5410

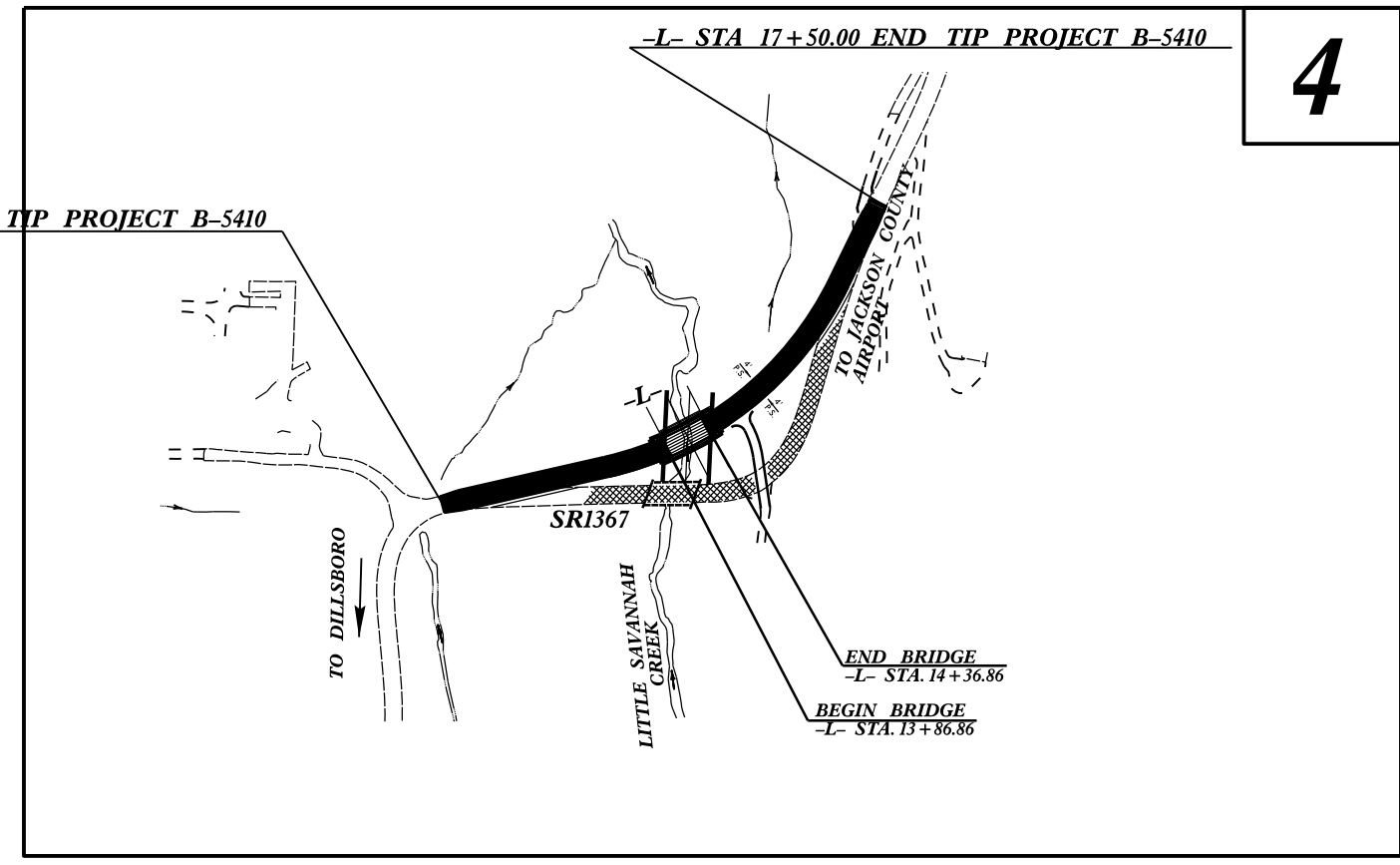
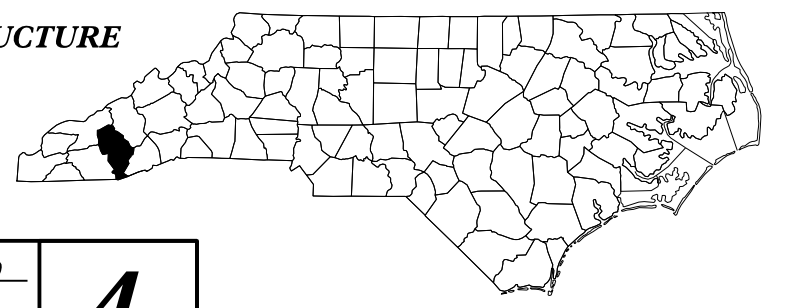


STATE OF NORTH CAROLINA  
 DIVISION OF HIGHWAYS  
**JACKSON COUNTY**

**LOCATION: BRIDGE NO. 221 ON SR 1367 OVER LITTLE SAVANNAH CREEK.**

**TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE**

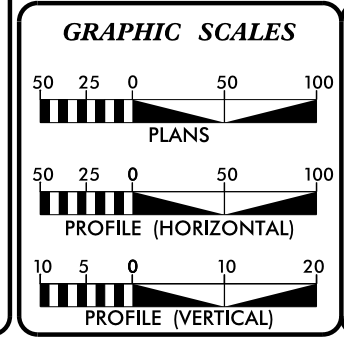
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N.C.	B-5410	3	9
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
46125.1.1	BRZ-1367(3)	PE	



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

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

10-OCT-2014 09:24  
 C:\Projects\B5410\_GEO\_RDWY\_INV\CADD\_ORIGINAL\B5410\_Rdy\_1.sh.dgn  
 plockamy AT GEAZ77216



**DESIGN DATA**

ADT 2014 =	1,123
ADT 2035 =	1,600
DHV =	10 %
D =	65 %
T =	11 % *
V =	35 MPH
* TTST =	1 DUAL 10
FUNC CLASS =	LOCAL
SUB-REGIONAL TIER	

**PROJECT LENGTH**

LENGTH ROADWAY TIP PROJECT B-5410 =	0.106 Mi.
LENGTH STRUCTURE TIP PROJECT B-5410 =	0.010 Mi.
TOTAL LENGTH TIP PROJECT B-5410 =	0.116 Mi.

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

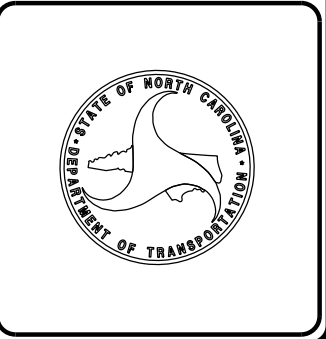
2012 STANDARD SPECIFICATIONS	
RIGHT OF WAY DATE:	July 17, 2015
LETTING DATE:	July 19, 2016
	KEVIN E. MOORE, PE PROJECT ENGINEER
	MARK HUSSEY PROJECT DESIGN ENGINEER

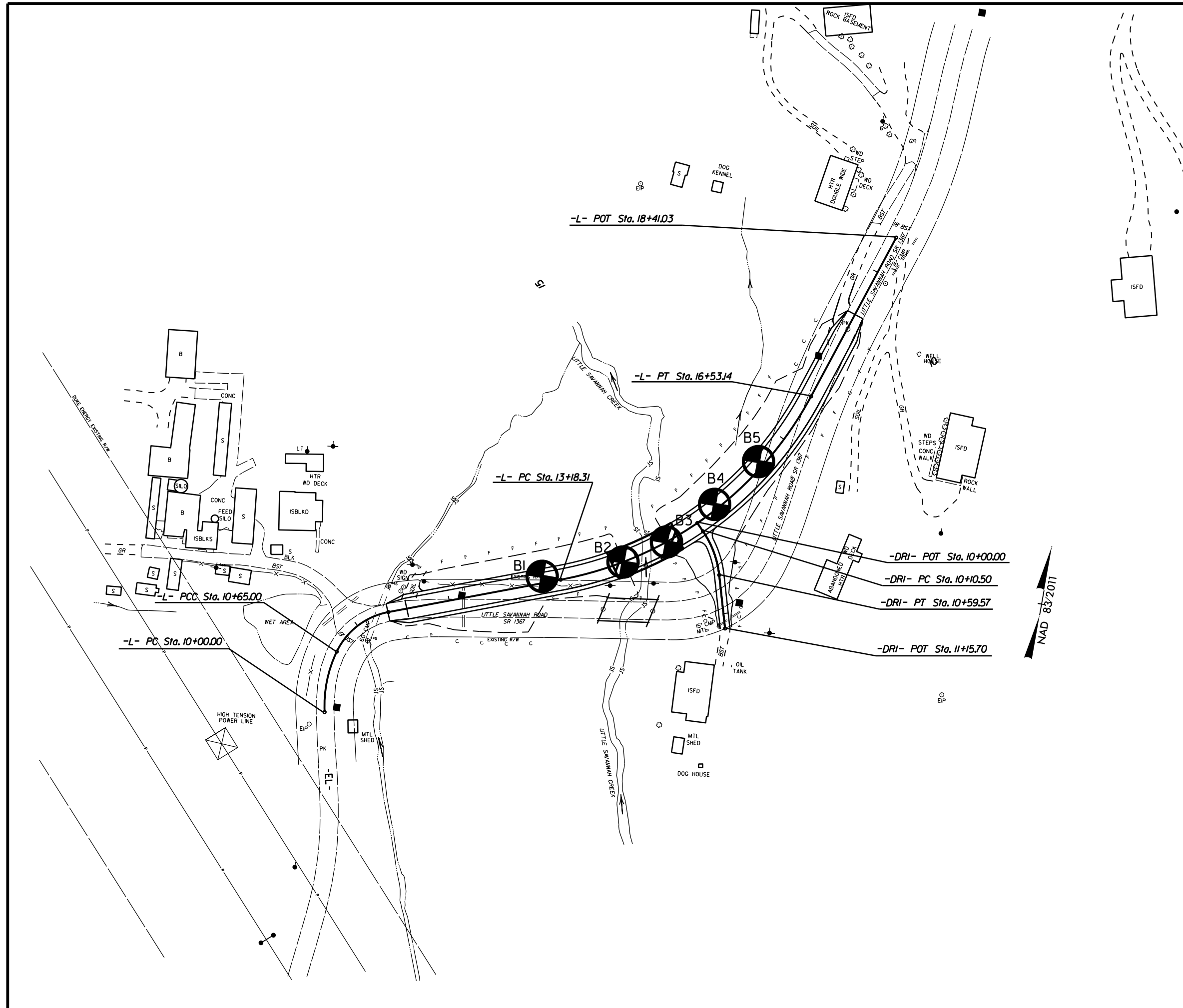
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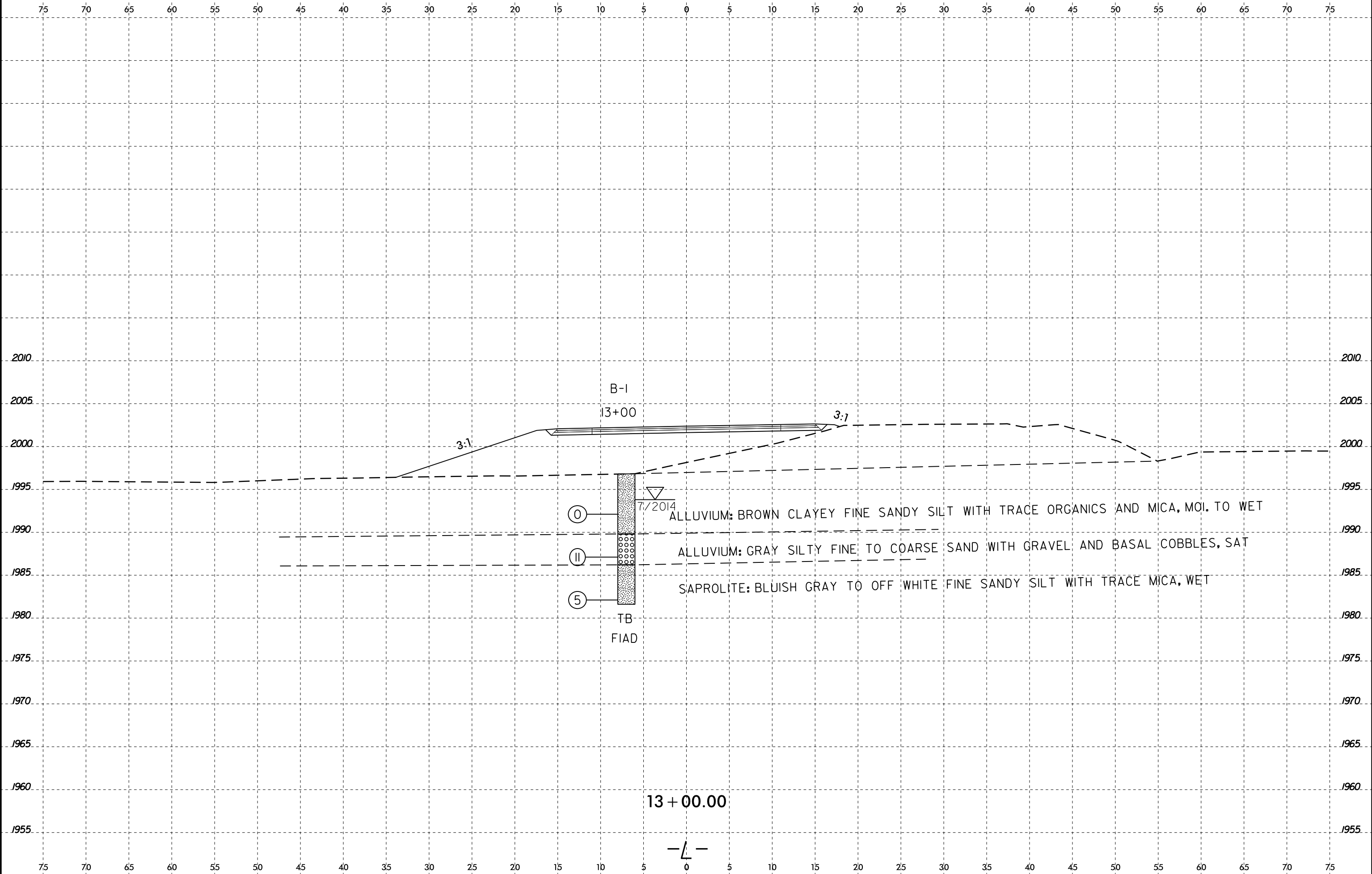
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NAD 83/2011



B-1

13+00

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7/2014

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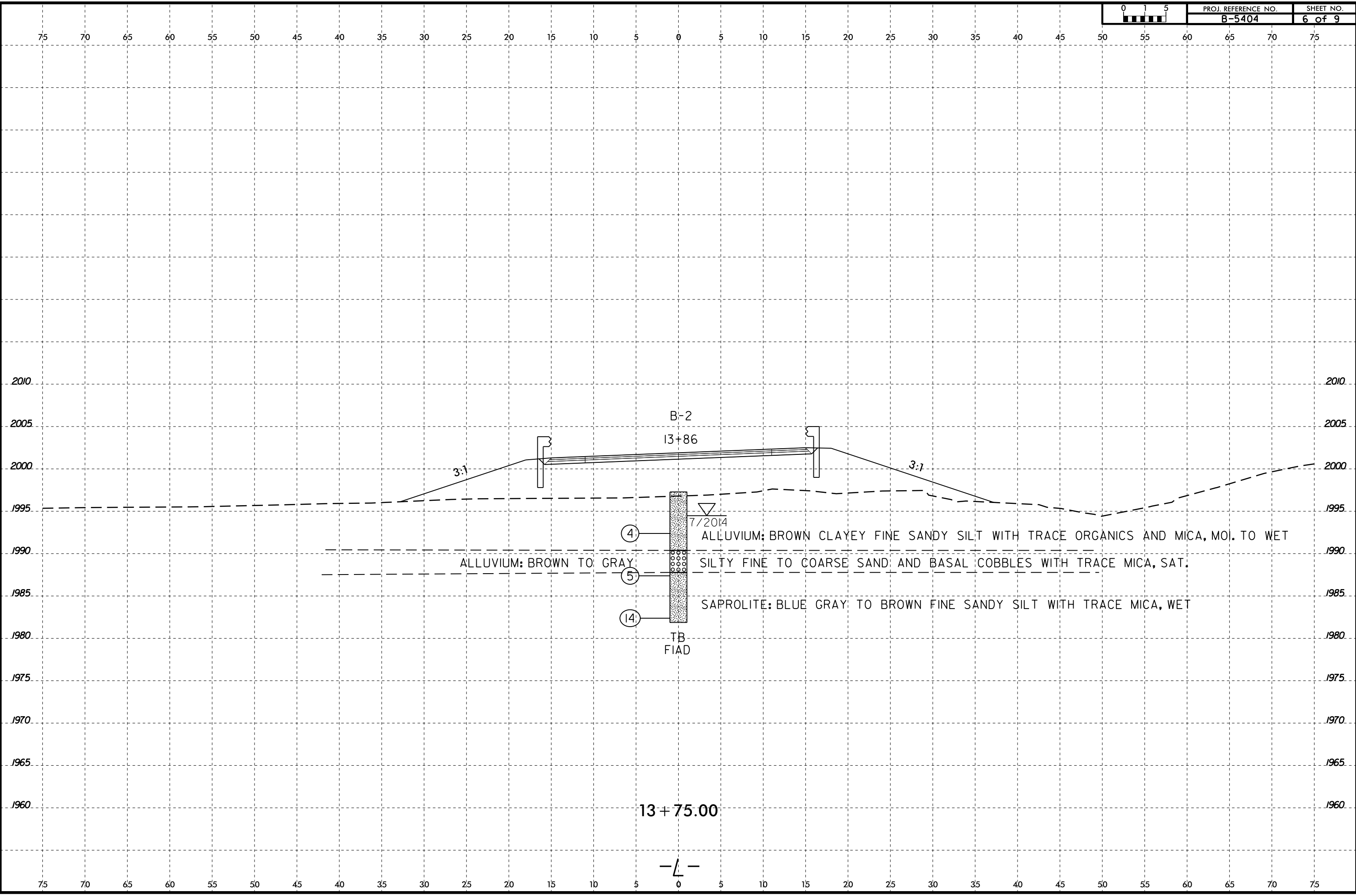
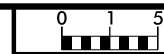
ALLUVIUM: BROWN CLAYEY FINE SANDY SILT WITH TRACE ORGANICS AND MICA, MOI. TO WET

ALLUVIUM: GRAY SILTY FINE TO COARSE SAND WITH GRAVEL AND BASAL COBBLES, SAT

SAPROLITE: BLuish GRAY TO OFF WHITE FINE SANDY SILT WITH TRACE MICA, WET

13 + 00.00

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75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

B-2

13+86

3:1

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7/2014

ALLUVIUM: BROWN CLAYEY FINE SANDY SILT WITH TRACE ORGANICS AND MICA, MOI. TO WET

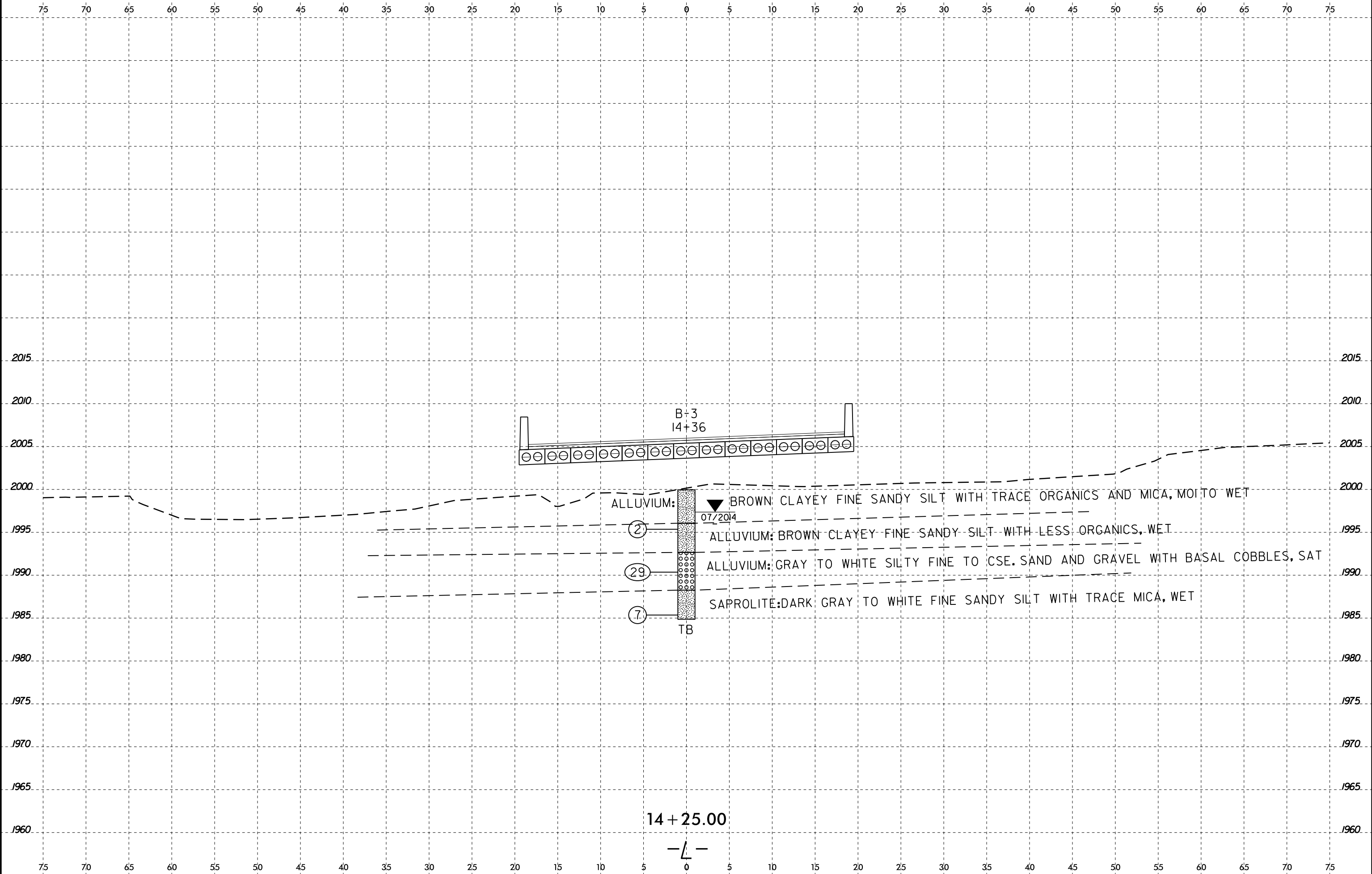
ALLUVIUM: BROWN TO GRAY SILTY FINE TO COARSE SAND AND BASAL COBBLES WITH TRACE MICA, SAT.

SAPROLITE: BLUE GRAY TO BROWN FINE SANDY SILT WITH TRACE MICA, WET

TB  
FIAD

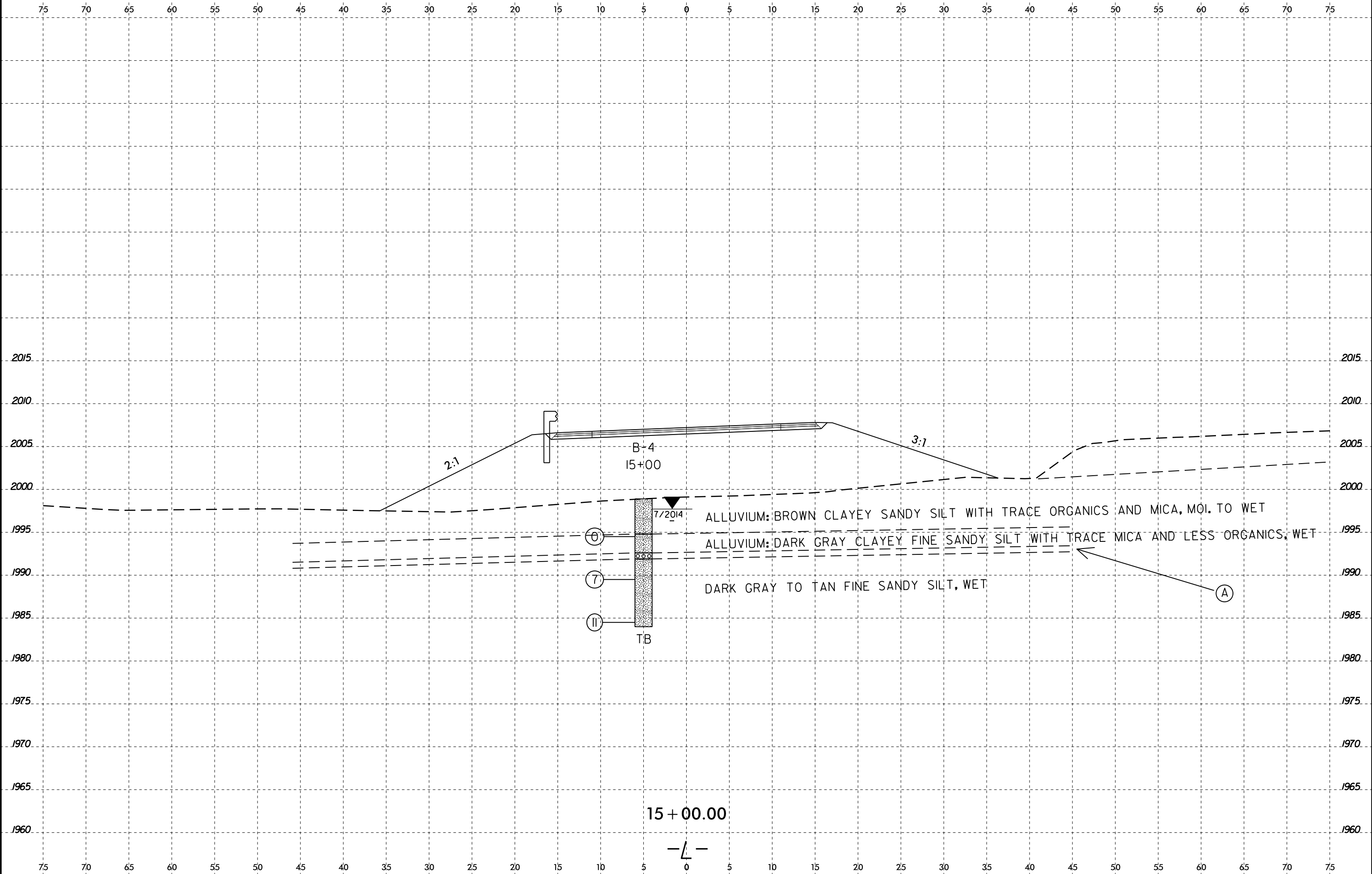
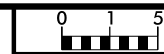
13+75.00

-L-



ALLUVIUM: BROWN CLAYEY FINE SANDY SILT WITH TRACE ORGANICS AND MICA, MOI TO WET  
 07/2014  
 ALLUVIUM: BROWN CLAYEY FINE SANDY SILT WITH LESS ORGANICS, WET  
 ALLUVIUM: GRAY TO WHITE SILTY FINE TO CSE. SAND AND GRAVEL WITH BASAL COBBLES, SAT  
 SAPROLITE: DARK GRAY TO WHITE FINE SANDY SILT WITH TRACE MICA, WET  
 TB

14 + 25.00  
 — L —



B-4  
15+00

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7/2014

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II

TB

ALLUVIUM: BROWN CLAYEY SANDY SILT WITH TRACE ORGANICS AND MICA, MOI. TO WET

ALLUVIUM: DARK GRAY CLAYEY FINE SANDY SILT WITH TRACE MICA AND LESS ORGANICS, WET

DARK GRAY TO TAN FINE SANDY SILT, WET

A

15 + 00.00

-L-



