

NOTE: SEE SHEET 1A FOR PLAN SHEET LAYOUT AT TIME OF INVESTIGATION

CONTENTS

LINE	STATION	SHEET NUMBERS		
		PLAN	PROFILE	XSECT
-L-	16+00 to 34+00	4-5	-	7-8
DET	13+07.25 to 26+48.56	4-5	6	-

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

ROADWAY  
SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. 33456.1.1 (B-4100) F.A. PROJ. BRSTP-1741(2)  
COUNTY DAVIDSON  
PROJECT DESCRIPTION BRIDGE NO. 142 OVER ABBOTT'S CREEK  
ON SR 1741 (WALBURG - HIGH POINT ROAD)

INVENTORY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4100	1	9
WBS NO.	F.A. PROJ. NO.	DESCRIPTION	
33456.1.1	BRSTP-1741(2)	P.E.	
33456.2.1	BRSTP-1741(2)	RW, UTIL.	
33456.3.1	BRSTP-1741(2)	CONST.	

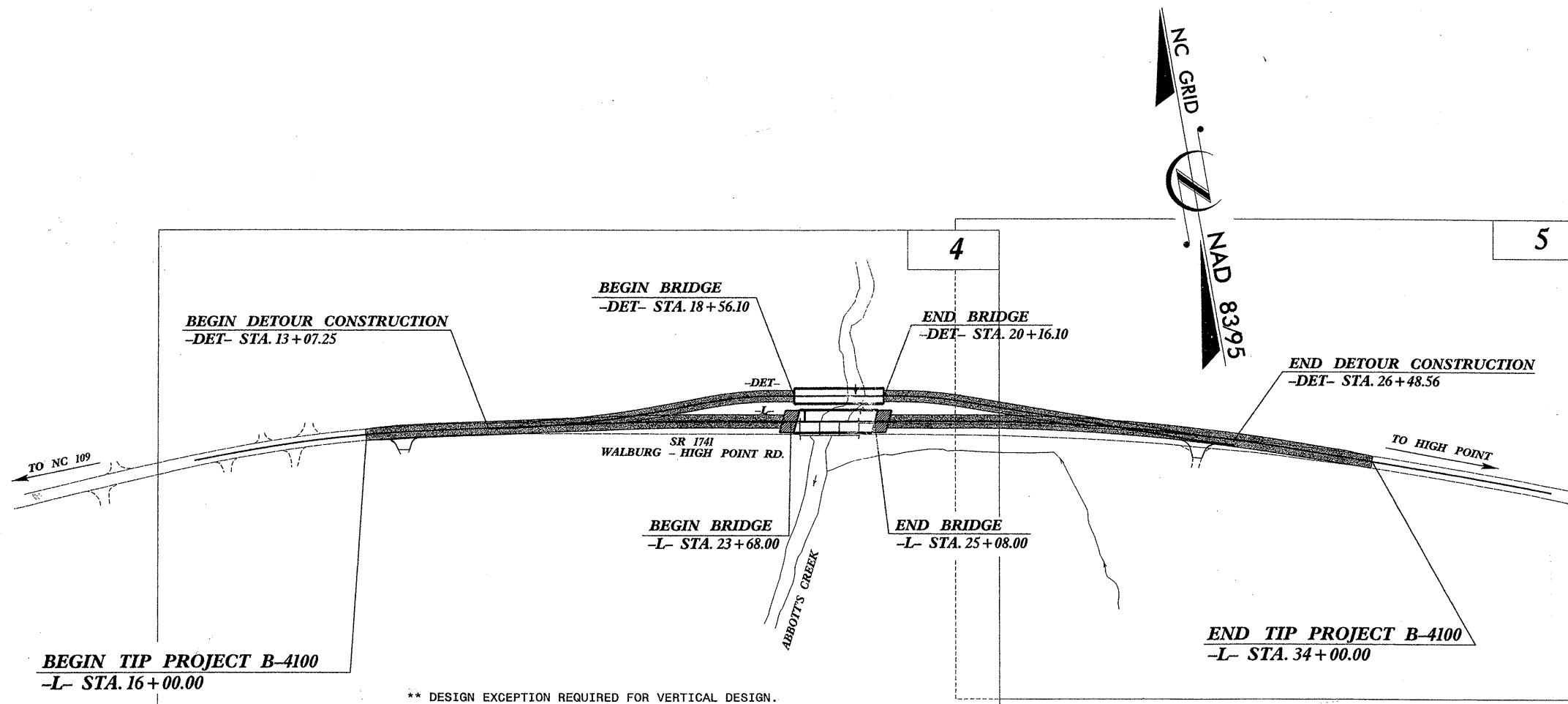
CAUTION NOTICE

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) 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.

CONTRACT: C201756 ID: B-4100



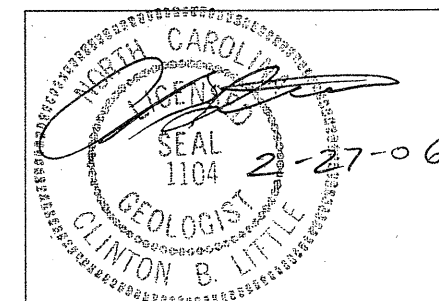
PERSONNEL  
MURRAY  
ESTEP  
HARPER

INVESTIGATED BY LITTLE

CHECKED BY \_\_\_\_\_

SUBMITTED BY LITTLE

DATE FEBRUARY 2006



DRAWN BY: LITTLE

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.

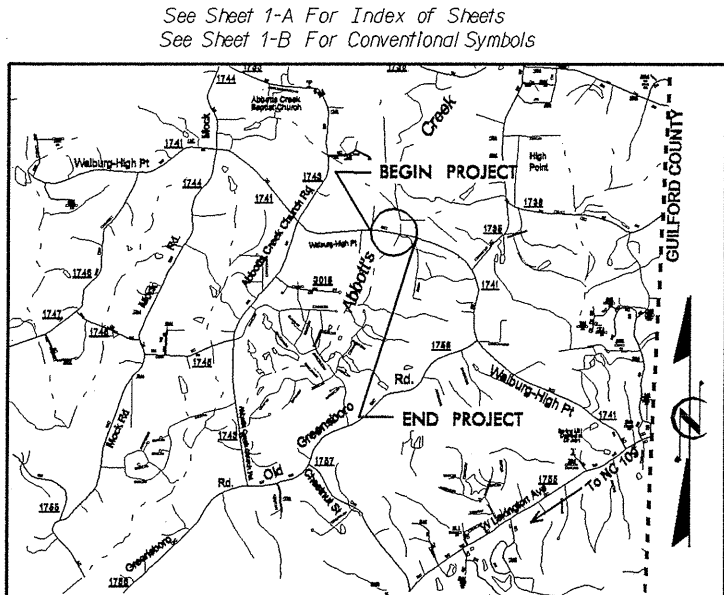
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4100	1	
WAS NO.	P.A. PROJ. NO.	DESCRIPTION	
33456.1.1	BRSTP-1741(2)	P.E.	

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**DAVIDSON COUNTY**

LOCATION: BRIDGE NO. 142 OVER ABBOTT'S CREEK  
ON SR 1741 (WALBURG - HIGH POINT RD.)

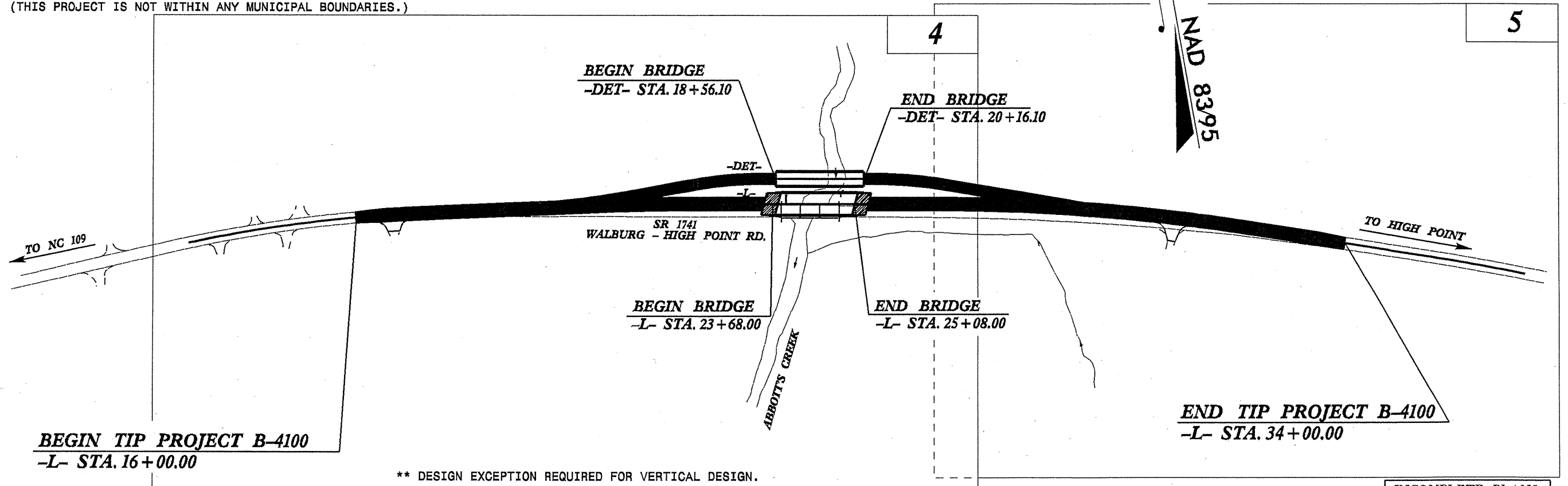
TYPE OF WORK: GRADING, DRAINAGE, PAVING  
& STRUCTURES



**VICINITY MAP**

(THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.)

CFI PLANS



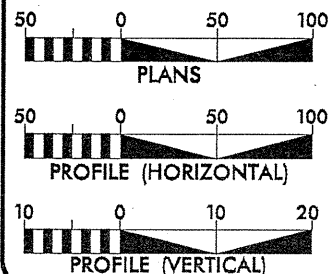
\*\* DESIGN EXCEPTION REQUIRED FOR VERTICAL DESIGN.

NCDOT CONTACT: CATHY HOUSER, P.E.  
ROADWAY DESIGN - ENGINEERING COORDINATION

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

**GRAPHIC SCALES**



**DESIGN DATA**

ADT 2007 = 4,440  
ADT 2027 = 6,840  
DHV = 10 %  
D = 55 %  
T = 4 % \*  
\*\* V = 60 MPH  
\* TTST 1% DUAL 3%

**PROJECT LENGTH**

LENGTH ROADWAY TIP PROJECT B-4100 = 0.314 MI.  
LENGTH STRUCTURES TIP PROJECT B-4100 = 0.027 MI.  
TOTAL LENGTH OF TIP PROJECT B-4100 = 0.341 MI.

Prepared in the Office of:  
**KO & ASSOCIATES, P.C.**  
Consulting Engineers  
1011 Schaub Dr., Suite 202, Raleigh, NC 27605  
(919) 851-6066

2002 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:  
APRIL 21, 2006

LETTING DATE:  
APRIL 17, 2007

DAVID C. WALLER, PE  
PROJECT ENGINEER

MICHAEL A. YOUNG, PE  
PROJECT DESIGN ENGINEER

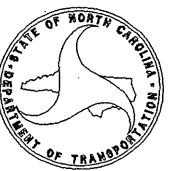
HYDRAULICS ENGINEER

SIGNATURE: \_\_\_\_\_ P.E.

ROADWAY DESIGN  
ENGINEER

SIGNATURE: \_\_\_\_\_ P.E.

DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA



STATE HIGHWAY DESIGN ENGINEER

CONTRACT: TIP PROJECT: B-4100

CONTRACT:

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09/08/99

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
GEOTECHNICAL ENGINEERING UNIT

PROJECT REFERENCE NO. B-4100	SHEET NO. 2
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## SUBSURFACE INVESTIGATION

### SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

SOIL DESCRIPTION	GRADATION	ROCK DESCRIPTION	TERMS AND DEFINITIONS
SOIL IS CONSIDERED TO BE THE 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 STANDARD PENETRATION TEST (AASHTO 1206, ASTM D-1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY SHALL INCLUDE: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. EXAMPLE: <i>VERY STIFF, GRAY, SILTY CLAY, MOST WITH INTERBEDDED FINE SAND LAYERS, HEAVY PLASTIC, A-7-6</i>	WELL GRADED - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE. UNIFORM - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. (ALSO POORLY GRADED) GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLES OF TWO OR MORE SIZES.  THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS: ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.	HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT IF TESTED, WOULD YIELD SPT REFUSAL, 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:  WEATHERED ROCK (WR)  NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES > 100 BLOWS PER FOOT IF TESTED.  CRYSTALLINE ROCK (CR)  FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE, GNEISS, GABBRO, SCHIST, ETC.  NON-CRYSTALLINE ROCK (NCR)  FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES PHYLLITE, SLATE, SANDSTONE, ETC.  COASTAL PLAIN SEDIMENTARY ROCK (CP)  COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED SHELL BEDS, ETC.	<b>ALLUVIUM (ALLUV.)</b> - SOILS THAT HAVE BEEN TRANSPORTED BY WATER. <b>AQUIFER</b> - A WATER BEARING FORMATION OR STRATA. <b>ARENACEOUS</b> - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND. <b>ARGILLACEOUS</b> - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, AS SHALE, SLATE, ETC. <b>ARTESIAN</b> - 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. <b>CALCAREOUS (CALC.)</b> - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE. <b>COLLUVIUM</b> - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE. <b>CORE RECOVERY (REC.)</b> - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE. <b>DIKE</b> - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK. <b>DIP</b> - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL. <b>DIP DIRECTION (DIP AZIMUTH)</b> - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH. <b>FAULT</b> - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE. <b>FISSILE</b> - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES. <b>FLOAT</b> - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM PARENT MATERIAL. <b>FLOOD PLAIN (FP)</b> - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM. <b>FORMATION (FM.)</b> - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD. <b>JOINT</b> - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED. <b>LEDGE</b> - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT. <b>LENS</b> - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS. <b>MOTTLED (MOT.)</b> - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE. <b>PERCHED WATER</b> - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM. <b>RESIDUAL (RES.) SOIL</b> - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK. <b>ROCK QUALITY DESIGNATION (RQD)</b> - 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. <b>SAPROLITE (SAP.)</b> - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK. <b>SILL</b> - 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. <b>SLICKENSIDE</b> - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE. <b>STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT)</b> - NUMBER OF BLOWS IN 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. <b>STRATA CORE RECOVERY (SREC.)</b> - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE. <b>STRATA ROCK QUALITY DESIGNATION (SRQD)</b> - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITH A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE. <b>TOPSOIL (TS.)</b> - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.
<b>SOIL LEGEND AND AASHTO CLASSIFICATION</b> GENERAL CLASS. GRANULAR MATERIALS (<= 35% PASSING #200) SILT-CLAY MATERIALS (> 35% PASSING #200) ORGANIC MATERIALS GROUP CLASS. A-1, A-3, A-2, A-4, A-5, A-6, A-7, A-1, A-2, A-3, A-4, A-5 SYMBOL % PASSING #10, #40, #200 LIQUID LIMIT PLASTIC INDEX GROUP INDEX USUAL TYPES OF MAJOR MATERIALS GENERAL RATING AS A SUBGRADE	<b>MINERALOGICAL COMPOSITION</b> MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHENEVER THEY ARE CONSIDERED OF SIGNIFICANCE.  <b>COMPRESSIBILITY</b> SLIGHTLY COMPRESSIBLE LIQUID LIMIT LESS THAN 31 MODERATELY COMPRESSIBLE LIQUID LIMIT EQUAL TO 31-50 HIGHLY COMPRESSIBLE LIQUID LIMIT GREATER THAN 50  <b>PERCENTAGE OF MATERIAL</b> ORGANIC MATERIAL GRANULAR SOILS SILT-CLAY SOILS OTHER MATERIAL TRACE OF ORGANIC MATTER 2-3% 3-5% TRACE 1-10% LITTLE ORGANIC MATTER 3-5% 5-12% LITTLE 10-20% MODERATELY ORGANIC 5-10% 12-20% SOME 20-35% HIGHLY ORGANIC >10% >20% HIGHLY 35% AND ABOVE	<b>WEATHERING</b> FRESH ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER HAMMER IF CRYSTALLINE. VERY SLIGHT (V SLI.) ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN. CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY. ROCK RINGS UNDER HAMMER BLOWS IF OF A CRYSTALLINE NATURE. SLIGHT (SLI.) ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO 1 INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR CRYSTALS ARE DULL AND DISCOLORED. CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS. MODERATE (MOD.) SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS. IN GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED. SOME SHOW CLAY. ROCK HAS DULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENGTH AS COMPARED WITH FRESH ROCK. MODERATELY SEVERE (MOD. SEV.) ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. IN GRANITOID ROCKS, ALL FELDSPARS DULL AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION. ROCK SHOWS SEVERE LOSS OF STRENGTH AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK. ROCK GIVES "CLUNK" SOUND WHEN STRUCK. IF TESTED, WOULD YIELD SPT REFUSAL. SEVERE (SEV.) ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC CLEAR AND EVIDENT BUT REDUCED IN STRENGTH TO STRONG SOIL. IN GRANITOID ROCKS ALL FELDSPARS ARE KAOLINIZED TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN. IF TESTED, YIELDS SPT N VALUES > 100 BPF. VERY SEVERE (V SEV.) ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT THE MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE SUCH THAT ONLY MINOR VESTIGES OF THE ORIGINAL ROCK FABRIC REMAIN. IF TESTED, YIELDS SPT N VALUES < 100 BPF. COMPLETE ROCK REDUCED TO SOIL. ROCK FABRIC NOT DISCERNIBLE, OR DISCERNIBLE ONLY IN SMALL AND SCATTERED CONCENTRATIONS. QUARTZ MAY BE PRESENT AS DIKES OR STRINGERS. SAPROLITE IS ALSO AN EXAMPLE.	<b>GROUND WATER</b> ▽ WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING ▽ STATIC WATER LEVEL AFTER 24 HOURS ▽ PW PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA ○ SPRING OR SEEP  <b>MISCELLANEOUS SYMBOLS</b> ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION SOIL SYMBOL ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT INFERRED SOIL BOUNDARY INFERRED ROCK LINE ALLUVIAL SOIL BOUNDARY DIP & DIP DIRECTION OF ROCK STRUCTURES SOUNDING ROD SPT TEST BORING AUGER BORING CORE BORING MONITORING WELL PIEZOMETER INSTALLATION SLOPE INDICATOR INSTALLATION SPT N-VALUE SPT REFUSAL S - BULK SAMPLE SS - SPLIT SPOON SAMPLE ST - SHELBY TUBE SAMPLE RS - ROCK SAMPLE RT - RECOMPACTED TRIAXIAL SAMPLE CBR - CALIFORNIA BEARING RATIO SAMPLE
<b>CONSISTENCY OR DENSENESS</b> PRIMARY SOIL TYPE COMPACTNESS OR CONSISTENCY RANGE OF STANDARD PENETRATION RESISTANCE (N-VALUE) RANGE OF UNCONFINED COMPRESSIVE STRENGTH (TONS/FT <sup>2</sup> ) GENERALLY GRANULAR MATERIAL (NON-COHESIVE) VERY LOOSE, LOOSE, MEDIUM DENSE, DENSE, VERY DENSE GENERALLY SILT-CLAY MATERIAL (COHESIVE) VERY SOFT, MEDIUM STIFF, STIFF, VERY STIFF, HARD	<b>TEXTURE OR GRAIN SIZE</b> U.S. STD. SIEVE SIZE OPENING (MM) 4, 10, 40, 60, 200, 270 BOULDER (BLDR.), COBBLE (COB.), GRAVEL (GR.), COARSE SAND (CSE. SD.), FINE SAND (F. SD.), SILT (SL.), CLAY (CL.) GRAIN SIZE MM, IN.	<b>ROCK HARDNESS</b> VERY HARD CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK. BREAKING OF HAND SPECIMENS REQUIRES SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK. HARD CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY. HARD HAMMER BLOWS REQUIRED TO DETACH HAND SPECIMEN. MODERATELY HARD CAN BE SCRATCHED BY KNIFE OR PICK, GOUGES OR GROOVES TO 0.25 INCHES DEEP CAN BE EXCAVATED BY HARD BLOW OF A GEOLOGIST'S PICK. HAND SPECIMENS CAN BE DETACHED BY MODERATE BLOWS. MEDIUM HARD CAN BE GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT. CAN BE EXCAVATED IN SMALL CHIPS TO PEICES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE POINT OF A GEOLOGIST'S PICK. SOFT CAN BE GROOVED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAVATED IN FRAGMENTS FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK POINT. SMALL, THIN PIECES CAN BE BROKEN BY FINGER PRESSURE. VERY SOFT CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PICK. PIECES 1 INCH OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY FINGERNAIL.	<b>CONCRETE</b> AR - AUGER REFUSAL BT - BORING TERMINATED CL - CLAY CPT - CONE PENETRATION TEST CSE. - COARSE DMT - DILATOMETER TEST DPT - DYNAMIC PENETRATION TEST e - VOID RATIO F - FINE FOSS. - FOSSILIFEROUS FRAC. - FRACTURED, FRACTURES FRAGS. - FRAGMENTS HI. - HIGHLY MED. - MEDIUM MICA. - MICACEOUS MOD. - MODERATELY NP - NON PLASTIC ORG. - ORGANIC PMT - PRESSUREMETER TEST SAP. - SAPROLITIC SD. - SAND, SANDY SL. - SILT, SILTY SLI. - SLIGHTLY TCR - TRICONE REFUSAL # - MOISTURE CONTENT V - VERY VST - VANE SHEAR TEST WEA. - WEATHERED % - UNIT WEIGHT % - DRY UNIT WEIGHT
<b>SOIL MOISTURE - CORRELATION OF TERMS</b> SOIL MOISTURE SCALE (ATTERBERG LIMITS) FIELD MOISTURE DESCRIPTION GUIDE FOR FIELD MOISTURE DESCRIPTION LL LIQUID LIMIT SATURATED - (SAT.) USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE PL PLASTIC LIMIT WET - (W) SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE OH OPTIMUM MOISTURE SHRINKAGE LIMIT MOIST - (M) SOLID; AT OR NEAR OPTIMUM MOISTURE SL DRY - (D) REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE	<b>ABBREVIATIONS</b> AR - AUGER REFUSAL BT - BORING TERMINATED CL - CLAY CPT - CONE PENETRATION TEST CSE. - COARSE DMT - DILATOMETER TEST DPT - DYNAMIC PENETRATION TEST e - VOID RATIO F - FINE FOSS. - FOSSILIFEROUS FRAC. - FRACTURED, FRACTURES FRAGS. - FRAGMENTS HI. - HIGHLY MED. - MEDIUM MICA. - MICACEOUS MOD. - MODERATELY NP - NON PLASTIC ORG. - ORGANIC PMT - PRESSUREMETER TEST SAP. - SAPROLITIC SD. - SAND, SANDY SL. - SILT, SILTY SLI. - SLIGHTLY TCR - TRICONE REFUSAL # - MOISTURE CONTENT V - VERY VST - VANE SHEAR TEST WEA. - WEATHERED % - UNIT WEIGHT % - DRY UNIT WEIGHT	<b>ROCK HARDNESS</b> VERY HARD CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK. BREAKING OF HAND SPECIMENS REQUIRES SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK. HARD CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY. HARD HAMMER BLOWS REQUIRED TO DETACH HAND SPECIMEN. MODERATELY HARD CAN BE SCRATCHED BY KNIFE OR PICK, GOUGES OR GROOVES TO 0.25 INCHES DEEP CAN BE EXCAVATED BY HARD BLOW OF A GEOLOGIST'S PICK. HAND SPECIMENS CAN BE DETACHED BY MODERATE BLOWS. MEDIUM HARD CAN BE GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT. CAN BE EXCAVATED IN SMALL CHIPS TO PEICES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE POINT OF A GEOLOGIST'S PICK. SOFT CAN BE GROOVED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAVATED IN FRAGMENTS FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK POINT. SMALL, THIN PIECES CAN BE BROKEN BY FINGER PRESSURE. VERY SOFT CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PICK. PIECES 1 INCH OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY FINGERNAIL.	<b>EQUIPMENT USED ON SUBJECT PROJECT</b> DRILL UNITS: MOBILE B-____, BK-51, CME-45C, CME-550, PORTABLE HOIST, OTHER, OTHER ADVANCING TOOLS: CLAY BITS, 6" CONTINUOUS FLIGHT AUGER, 8" HOLLOW AUGERS, HARD FACED FINGER BITS, TUNG-CARBIDE INSERTS, CASING w/ ADVANCER, TRICONE STEEL TEETH, TRICONE 2-7/8" TUNG-CARB., CORE BIT, OTHER HAMMER TYPE: AUTOMATIC, MANUAL CORE SIZE: B, N, H HAND TOOLS: POST HOLE DIGGER, HAND AUGER, SOUNDING ROD, VANE SHEAR TEST, OTHER
<b>PLASTICITY</b> NONPLASTIC, LOW PLASTICITY, MED. PLASTICITY, HIGH PLASTICITY PLASTICITY INDEX (PI) DRY STRENGTH VERY LOW, SLIGHT, MEDIUM, HIGH	<b>FRACTURE SPACING</b> TERM SPACING VERY WIDE MORE THAN 10 FEET WIDE 3 TO 10 FEET MODERATELY CLOSE 1 TO 3 FEET CLOSE 0.16 TO 1 FEET VERY CLOSE LESS THAN 0.16 FEET	<b>BEDDING</b> TERM THICKNESS VERY THICKLY BEDDED > 4 FEET THICKLY BEDDED 1.5 - 4 FEET THINLY BEDDED 0.16 - 1.5 FEET VERY THINLY BEDDED 0.03 - 0.16 FEET THICKLY LAMINATED 0.008 - 0.03 FEET THINLY LAMINATED < 0.008 FEET	<b>INDURATION</b> FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF THE MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC. FRIABLE RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE. MODERATELY INDURATED GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER. INDURATED GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER. EXTREMELY INDURATED SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.
<b>COLOR</b> DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-GRAY). MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.	<b>FRACTURE SPACING</b> TERM SPACING VERY WIDE MORE THAN 10 FEET WIDE 3 TO 10 FEET MODERATELY CLOSE 1 TO 3 FEET CLOSE 0.16 TO 1 FEET VERY CLOSE LESS THAN 0.16 FEET	<b>BEDDING</b> TERM THICKNESS VERY THICKLY BEDDED > 4 FEET THICKLY BEDDED 1.5 - 4 FEET THINLY BEDDED 0.16 - 1.5 FEET VERY THINLY BEDDED 0.03 - 0.16 FEET THICKLY LAMINATED 0.008 - 0.03 FEET THINLY LAMINATED < 0.008 FEET	<b>INDURATION</b> FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF THE MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC. FRIABLE RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE. MODERATELY INDURATED GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER. INDURATED GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER. EXTREMELY INDURATED SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY  
GOVERNOR

LYNDO TIPPETT  
SECRETARY

February 23, 2006

STATE PROJECT: 33456.1.1 (B-4100)  
FEDERAL PROJECT: BRSTP-1741(2)  
COUNTY: Davidson  
DESCRIPTION: Bridge No. 142 over Abbott's Creek  
On SR 1741 (Walburg – High Point Road)

SUBJECT: Geotechnical Report - Inventory

#### PROJECT DESCRIPTION

The project is located in northeastern Davidson County, west of High Point. The project consists of a bridge replacement with an on-site detour. This report addresses the roadway approaches for the replacement bridge plus the detour roadway. The alignment runs west to east from Station 16+00 to 34+00 –L- and 13+07.25 to 26+48.56 –DET-, for a total length of lines investigated of 3141.31' or 0.595 miles.

The Geotechnical investigation consisted of four Standard Penetration Test (SPT) borings along the Detour alignment, and four SPT borings on the proposed bridge. Borings were conducted with a CME 550 drill utilizing 8" hollow stem augers (along the detour) or NW casing plus roller cone bit (for the bridge borings). Borings were conducted in December 2005 and February 2006.

#### AREAS OF SPECIAL GEOTECHNICAL INTEREST

Alluvial Soils: The majority of the project falls within the floodplain of Abbott's Creek. Alluvial soils encountered consist of soft silty clays, four to six feet in depth, overlying sand and gravel. Total thickness of the alluvial deposit is ten to fifteen feet. Alluvial soils occur from approximate Station 19+18 to 28+53 –L- and 14+08 to 23+57 –Det-. The surface soils along the Detour alignment are soft and wet. In some areas, they would not support the drill rig. The existing roadway is on an embankment typically about ten feet high, founded on alluvial soils.

#### PHYSIOGRAPHY AND GEOLOGY

The project is located in the piedmont region of North Carolina, within the Charlotte Geologic Belt. The rock units in the area are mapped as metamorphosed mafic igneous rocks and meta-granite. No rock cores were obtained during the investigation. Samples of saprolite were consistent with the mapped units. Elevations on the project range from highs of about 815 feet at either end, about 775 across the floodplain, and 768 in the stream channel.

#### SOIL PROPERTIES

##### *Residual Soils*

The residual soils are predominately saprolitic in nature, with three distinct types noted:

- 1) dark green silt-clay soils exhibiting high angle foliation probably derived from mafic metavolcanics (altered basalts). (A-4, A-7)
- 2) Brown-white silty sands that appear granitic in nature. (A-1-b, A-2-4)
- 3) Pure white silts of unknown origin. (A-4)

##### *Artificial/Roadway Fill Soils*

Existing fill soils average ten feet in height across the floodplain. All of the samples submitted were reported as A-2-4 (AASHTO). They were described as green-tan loose silty sand. Thin seams of red clay were also noted.

##### *Alluvial Soils*

The alluvium is very soft and wet on the surface (A-4, A-7 silty clay) with coarse sand and gravel (A-2-4, A-1-b) at depth. See the section above under Areas of Special Interest.

#### GROUNDWATER

Static groundwater was measured in the boreholes at depths of two to four feet below the ground surface in the floodplain. Groundwater surface elevations were near 778 toward the edges of the floodplain and near 770 at the center of the floodplain, near the stream.

Respectfully submitted,

Clint Little  
Regional Geologist

# EARTHWORK BALANCE SHEET

Volumes in Cubic **YARDS**  
 PROJECT **B-4100** COUNTY **DAVIDSON** DATE **10/2/2007** COMPILED BY: **DCW** SHEET **3** OF **9** SHEETS

STATION	STATION	EXCAVATION					EMBANKMENT				BORROW	WASTE		
		TOTAL UNCLASS.	ROCK	UNDERCUT	UNSUIT. UNCLASS.	SUITABLE UNCLASS.	TOTAL	ROCK	EARTH	EMBANK. (+) 15 %		ROCK	SUITABLE	UNSUIT.
SUMMARY NO. 1														
-L- 16+00 TO 23+64 LEFT (DETOUR)		40				40	6054		6054	6963	6923			
TOTAL SUMMARY NO. 1		40				40	6054		6054	6963	6923			
SUMMARY NO. 2														
-L- 25+24 TO 34+00 LEFT (DETOUR)		401				401	9277		9277	10669	10268			
TOTAL SUMMARY NO. 2		401				401	9277		9277	10669	10268			
SUB-TOTAL (SUMMARY 1 THRU 2)		441				441	15331		15331	17632	17191			
ADDITIONAL UNDERCUT														
EST. BORROW FOR SHOULDER CONST.							221		221	254	254			
BORROW IN LIEU OF WASTE														
DETOUR TOTALS		441				441	15552		15552	17886	17445			
SUMMARY NO. 3														
-L- 16+00 TO 22+75 LEFT		1				1	213		213	246	245			
TOTAL SUMMARY NO. 3		1				1	213		213	246	245			
SUMMARY NO. 4														
-L- 16+00 TO 22+75 RIGHT		6				6	1463		1463	1682	1676			
TOTAL SUMMARY NO. 4		6				6	1463		1463	1682	1676			
SUMMARY NO. 5														
-L- 22+75 TO 23+58 (BRIDGE)		10				10	257		257	296	286			
TOTAL SUMMARY NO. 5		10				10	257		257	296	286			
SUMMARY NO. 6														
-L- 25+08 (BRIDGE) TO 26+00							322		322	370	370			
TOTAL SUMMARY NO. 6							322		322	370	370			
SUMMARY NO. 7														
-L- 26+00 TO 34+00 LEFT		2				2	322		322	371	369			
TOTAL SUMMARY NO. 7		2				2	322		322	371	369			
SUMMARY NO. 8														
-L- 26+00 TO 34+00 RIGHT		4				4	25		25	29	25			
TOTAL SUMMARY NO. 8		4				4	25		25	29	25			
SUB-TOTAL (SUMMARY 3 THRU 8)		23				23	2601		2601	2994	2971			
EST. BORROW FOR SHOULDER CONST.							655		655	754	754			
-L- TOTALS		23				23	3256		3256	3748	3725			
SUMMARY NO. 9														
DETOUR REMOVAL 20+50 TO 23+58		2692				2692							2692	
TOTAL SUMMARY NO. 9		2692				2692							2692	
SUMMARY NO. 10														
DETOUR REMOVAL 25+08 TO 28+50		3339				3339							3339	
TOTAL SUMMARY NO. 10		3339				3339							3339	
SUB-TOTAL (SUMMARY 9 THRU 10)		6031				6031							6031	
DETOUR REMOVAL TOTALS		6031				6031							6031	
SUB-TOTAL (ALL SUMMARIES)		6495				6495	18808		18808	21634	21170		6031	
EST. 5% FOR REPLACING TOPSOIL IN BORROW PITS											1058			
PROJECT TOTALS		6495				6495	18808		18808	21634	22228		6031	
SAY		6500									22230			

ADDITIONAL UNDERCUT = 450 CY  
 ESTIMATE DDE = 430 CY  
 SELECT GRANULAR MATERIAL = 5000 CY

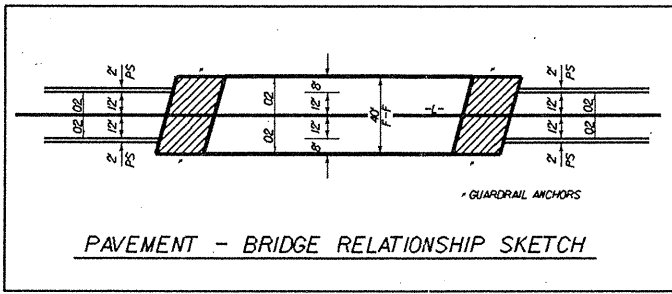
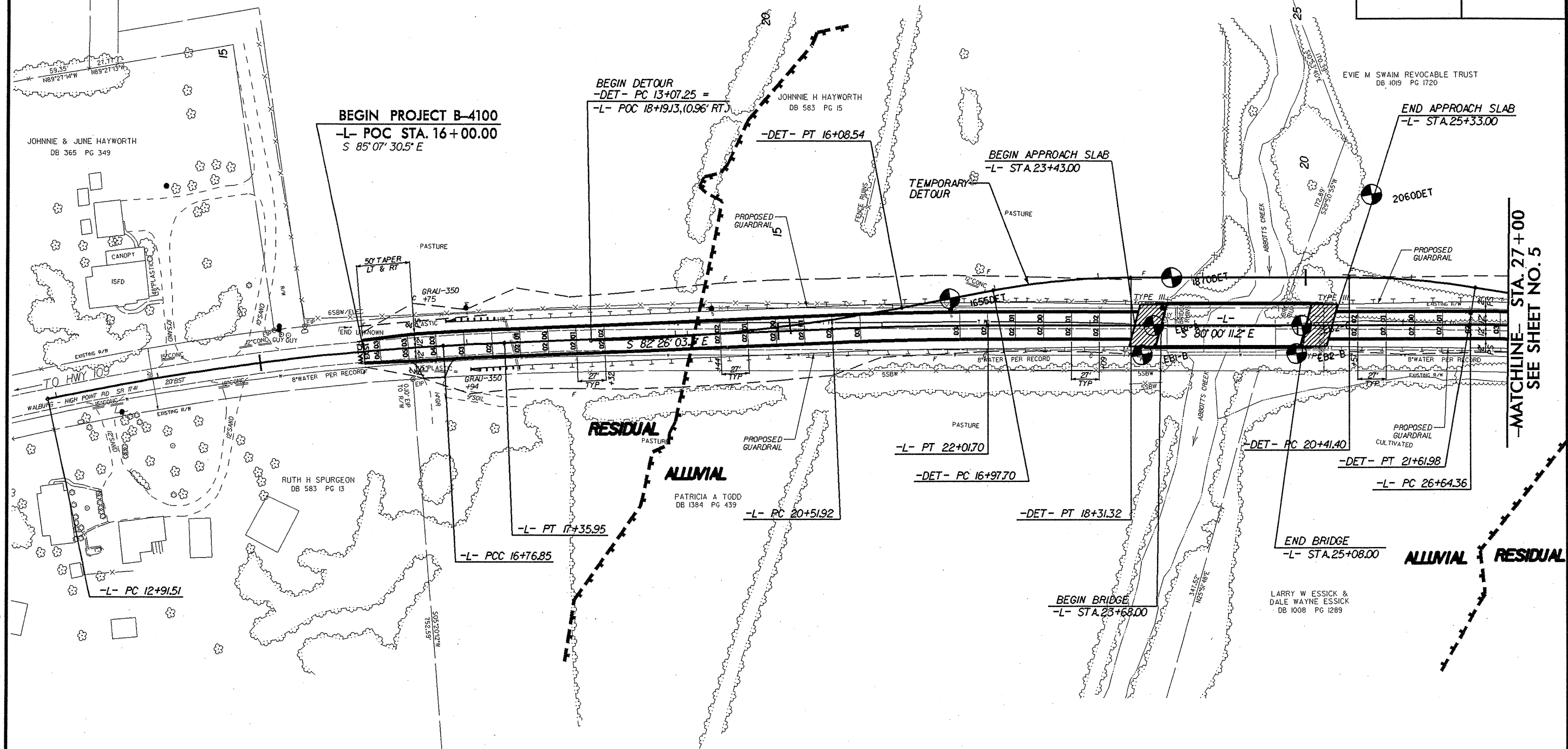
**NOTE:** Earthwork quantities are calculated by the Roadway Design Unit.  
 The earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineering Unit.



8/17/99

PROJECT REFERENCE NO. B-4100	SHEET NO. 4
RAW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION	

PI Sta 14+84.56 Δ = 8° 46' 33.4" (RT) D = 2' 16' 38.9" L = 385.34' T = 193.05' R = 2,515.76'	PI Sta 17+06.40 Δ = 0° 56' 26.5" (RT) D = 1' 35' 29.6" L = 59.11' T = 29.55' R = 3,600.00' SE = 0.030 DS = 60 MPH	PI Sta 21+26.82 Δ = 2° 25' 52.1" (RT) D = 1' 37' 23.2" L = 149.78' T = 74.90' R = 3,530.00' SE = 0.030 DS = 60 MPH	PI Sta 29+52.01 Δ = 9° 08' 12.4" (RT) D = 1' 35' 29.6" L = 574.08' T = 287.65' R = 3,600.00' SE = 0.030 DS = 60 MPH
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**LEGEND**

	PAVED SHOULDER
	APPROACH SLAB

FOR -L- PROFILE, SEE SHEET NO. 6

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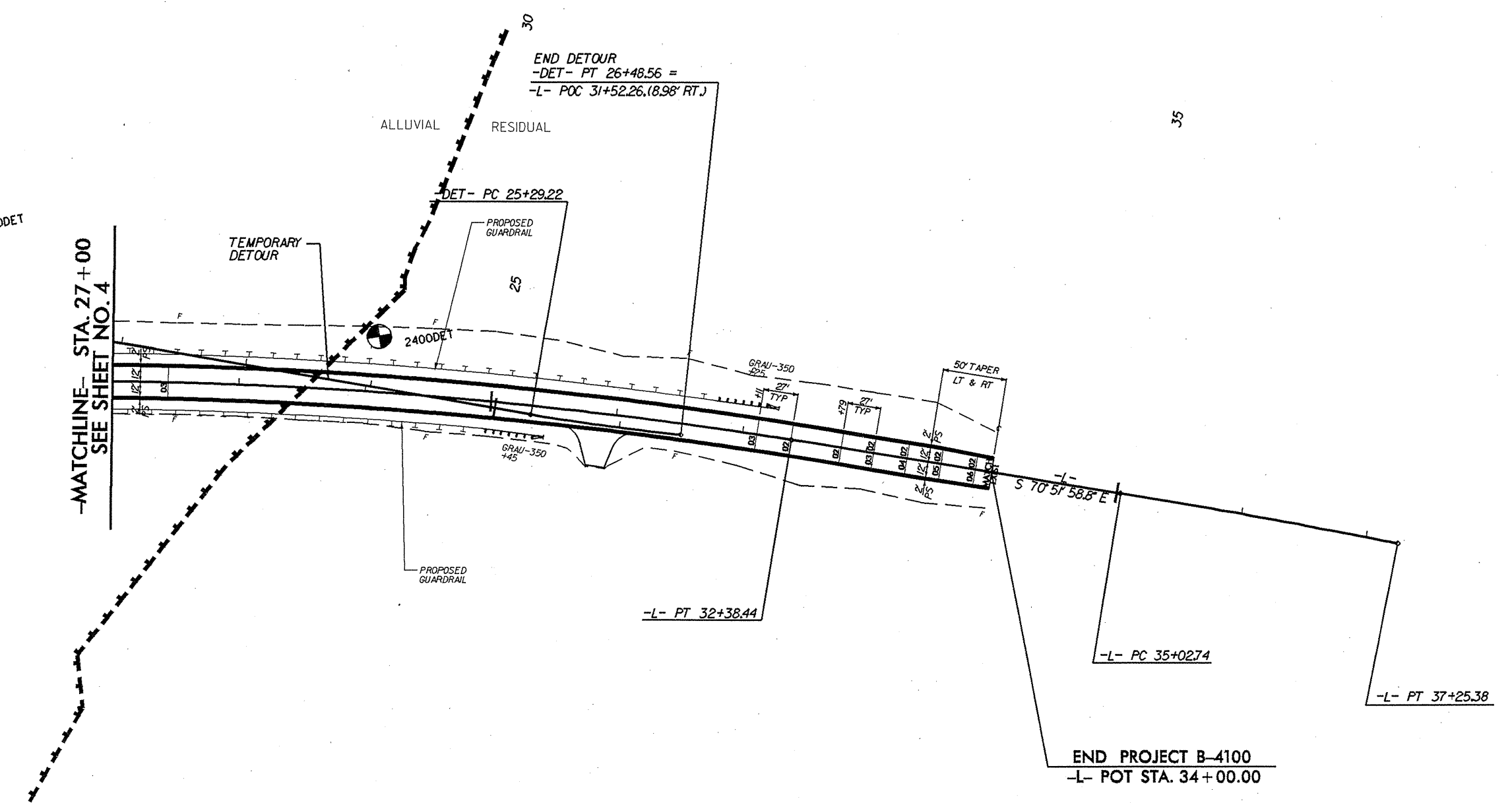
8/17/99

**KO & ASSOCIATES, P.C.**  
Consulting Engineers  
1011 BEAUCHAMPEL DR., SUITE 202 RALEIGH, N.C. 27606  
(919) 881-2666

PROJECT REFERENCE NO. B-4100	SHEET NO. 5
RWY SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION	

-L-

PI Sta 29+52.01	PI Sta 36+14.07
$\Delta = 9^{\circ}08'12.4" (RT)$	$\Delta = 2^{\circ}04'44.3" (RT)$
$D = 1^{\circ}35'29.6"$	$D = 0^{\circ}56'01.5"$
$L = 574.08'$	$L = 222.64'$
$T = 287.65'$	$T = 111.33'$
$R = 3,600.00'$	$R = 6,136.02'$
$SE = 0.030$	
$DS = 60 \text{ MPH}$	



-MATCHLINE- STA. 27+00  
SEE SHEET NO. 4

END PROJECT B-4100  
-L- POT STA. 34+00.00

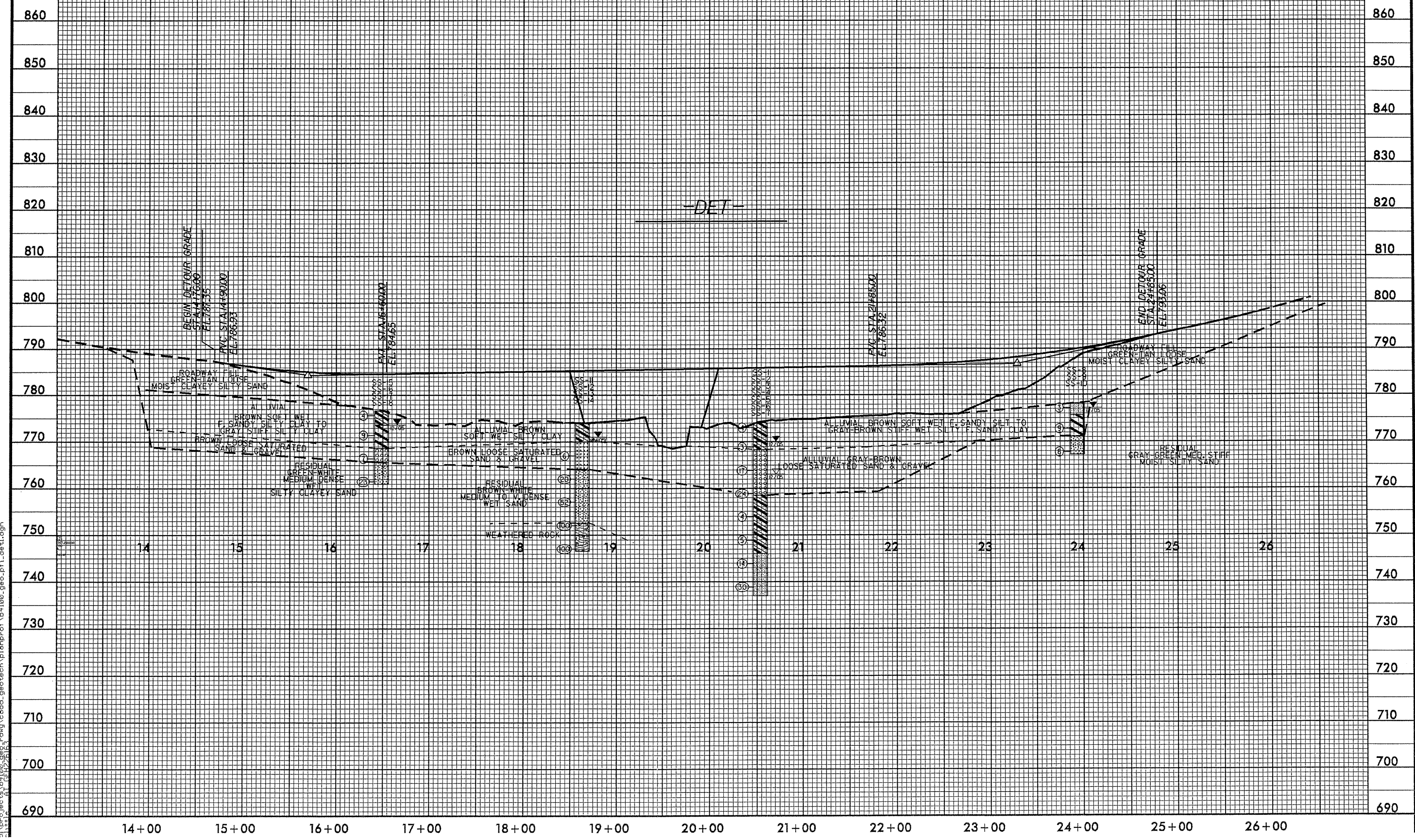
LEGEND	
	PAVED SHOULDER

FOR -L- PROFILE, SEE SHEET NO. 6

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5/14/99

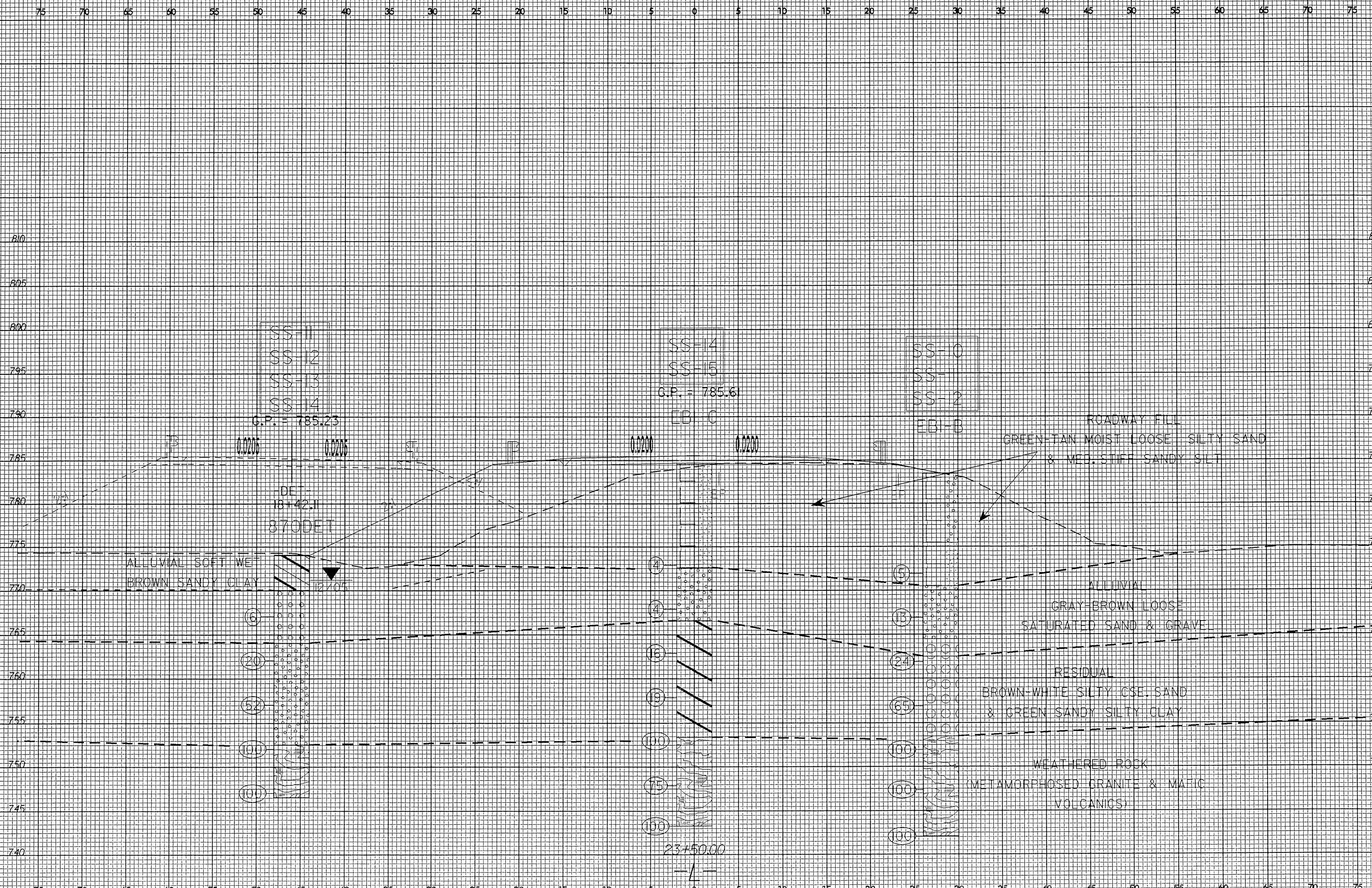
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B-4100		6
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	



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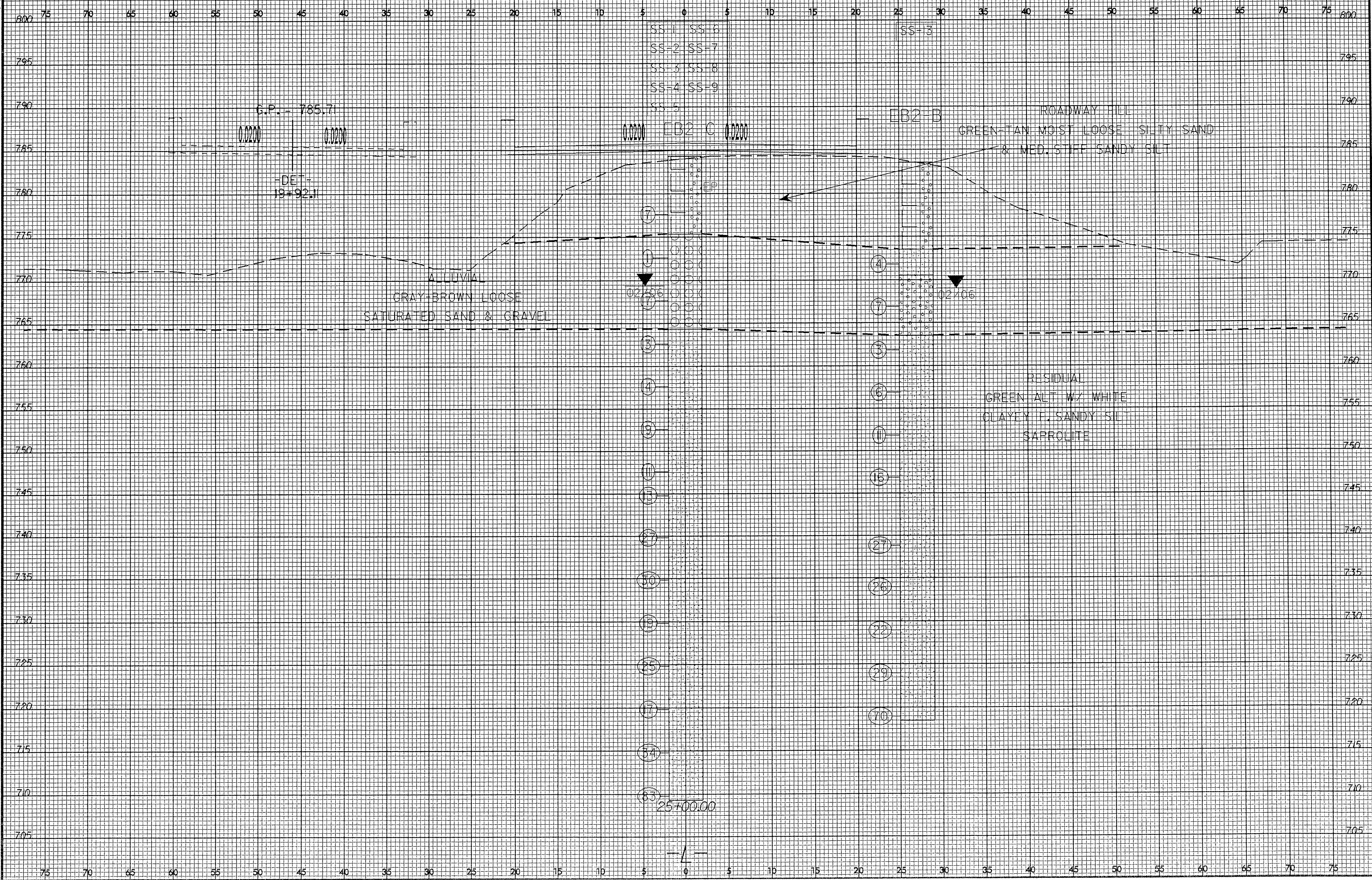


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8/23/99  
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Little AT 08/23/03



## SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	LINE	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	80 LT	20+60	DET	0.00-1.50	A-6(7)	34	11	4.7	31.2	37.9	26.3	100	98	72	-	-
SS-2	80 LT	20+60	DET	4.20-5.70	A-6(6)	33	12	4.0	39.5	28.1	28.3	100	99	66	-	-
SS-3	80 LT	20+60	DET	9.20-10.70	A-1-b(0)	23	NP	64.4	20.4	7.1	8.1	58	29	11	-	-
SS-4	80 LT	20+60	DET	14.20-15.70	A-1-b(0)	18	NP	58.4	21.8	14.8	5.1	62	34	15	-	-
SS-5	80 LT	20+60	DET	19.20-20.70	A-6(7)	33	11	10.9	24.5	40.3	24.3	98	91	72	-	-
SS-7	80 LT	20+60	DET	29.20-30.70	A-4(2)	32	5	14.8	30.4	36.6	18.2	100	90	64	-	-
SS-8	40 LT	24+00	DET	0.00-1.50	A-4(4)	27	8	15.0	18.0	42.7	24.3	96	86	69	-	-
SS-9	40 LT	24+00	DET	4.40-5.90	A-7-6(20)	51	31	12.3	16.8	22.3	48.6	93	86	69	-	-
SS-10	40 LT	24+00	DET	9.40-10.90	A-2-4(0)	33	NP	36.4	33.8	23.7	6.1	81	60	31	-	-
SS-11	0	18+70	DET	6.00-7.50	A-3(0)	26	NP	65.3	26.5	3.1	5.1	97	55	10	-	-
SS-12	0	18+70	DET	11.00-12.50	A-2-4(0)	28	NP	36.8	39.9	19.2	4.0	80	58	28	-	-
SS-13	0	18+70	DET	16.00-17.50	A-2-4(0)	29	NP	38.9	41.5	15.6	4.0	99	69	32	-	-
SS-14	0	18+70	DET	21.00-22.30	A-1-b(0)	25	NP	53.0	29.7	13.3	4.0	74	43	18	-	-
SS-15	0	16+55	DET	0.00-1.50	A-6(9)	34	16	9.3	27.1	31.2	32.4	97	92	68	-	-
SS-16	0	16+55	DET	4.20-5.70	A-7-6(29)	58	30	6.1	10.7	26.5	56.7	100	96	86	-	-
SS-17	0	16+55	DET	12.50-14.20	A-2-4(0)	25	8	46.4	22.9	12.6	18.2	71	47	25	-	-
SS-18	0	16+55	DET	14.20-15.70	A-2-4(0)	29	NP	38.4	39.6	17.0	5.1	88	62	28	-	-
SS-1	0	25+04	EB2-C	5.70-7.20	A-2-4(0)	31	10	38.7	25.5	25.6	10.1	78	54	33	-	-
SS-2	0	25+04	EB2-C	15.70-17.20	A-1-b(0)	23	NP	73.6	18.6	7.8	0.0	83	37	8	-	-
SS-3	0	25+04	EB2-C	20.70-22.20	A-4(1)	31	5	26.3	24.3	35.2	14.2	100	81	56	-	-
SS-4	0	25+04	EB2-C	25.70-27.20	A-4(3)	33	7	23.7	24.5	35.7	16.2	100	84	59	-	-
SS-5	0	25+04	EB2-C	30.70-32.20	A-4(0)	24	0	29.7	29.3	32.9	8.1	97	77	47	-	-
SS-6	0	25+04	EB2-C	35.70-37.20	A-4(1)	28	3	18.4	25.9	39.5	16.2	100	88	63	-	-
SS-7	0	25+04	EB2-C	43.50-45.00	A-4(0)	25	3	12.1	35.0	42.8	10.1	100	94	63	-	-
SS-8	0	25+04	EB2-C	58.50-60.00	A-4(0)	26	1	21.4	29.9	34.5	14.2	98	85	56	-	-
SS-9	0	25+04	EB2-C	0.00-0.00	A-4(0)	24	NP	23.1	30.7	38.1	8.1	88	75	47	-	-
SS-10	28' RT	23+50	EB1-B	10.60-12.10	A-4(0)	26	8	28.6	31.9	23.2	16.3	95	79	42	-	-
SS-11	28' RT	23+50	EB1-B	15.60-17.10	A-2-4(0)	23	NP	65.8	22.9	5.2	6.1	95	53	13	-	-
SS-12	28' RT	23+50	EB1-B	25.60-27.10	A-1-b(0)	29	NP	58.4	23.9	13.6	4.1	78	41	17	-	-
SS-13	27' RT	24+99	EB2-B	10.70-12.20	A-4(3)	30	9	10.6	35.1	33.8	20.4	99	95	61	-	-
SS-14	CL	23+61	EB1-C	10.70-12.20	A-4(2)	29	10	19.8	34.7	23.0	22.5	98	89	50	-	-
SS-15	CL	23+61	EB1-C	25.70-27.20	A-7-5(3)	47	12	30.2	28.0	33.6	8.2	94	77	44	-	-