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SHEET NO.

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#### STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION **DIVISION OF HIGHWAYS** GEOTECHNICAL ENGINEERING UNIT

### **STRUCTURE** SUBSURFACE INVESTIGATION

COUNTY NASH

PROJECT DESCRIPTION SR 1603 (OLD CARRIAGE RD) FROM GREEN HILLS ROAD TO SR 1770 (EASTERN AVE). ADD CENTER TURN LANE AND WIDEN US 64 BRIDGE OVER SR 1603

SITE DESCRIPTION BR. ON SR 1603 (OLD CARRIAGE RD) OVER US 64 AT STA. 55+37.34

STATE PROJECT REFERENCE NO. U-5996

#### **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 1999 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 METHOL. THE OBSERVED WATER LEVELS OR SOIL MOISTURE CONDITIONS NIDICATED IN THE SUBSURFACE OR 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 INTERRETATIONS 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 OF AN PREASON RESULTING FROM THE ACTUAL CONDITIONS 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.

  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.

A.N. KINTNER N.O. MOORE D.G. PINTER INVESTIGATED BY \_A.N. KINTNER DRAWN BY \_N.O. MOORE

DATE \_ DECEMBER 2019

CHECKED BY \_\_N.T. ROBERSON SUBMITTED BY N.T. ROBERSON



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

PROJECT REFERENCE NO. SHEET NO. 2

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

## SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

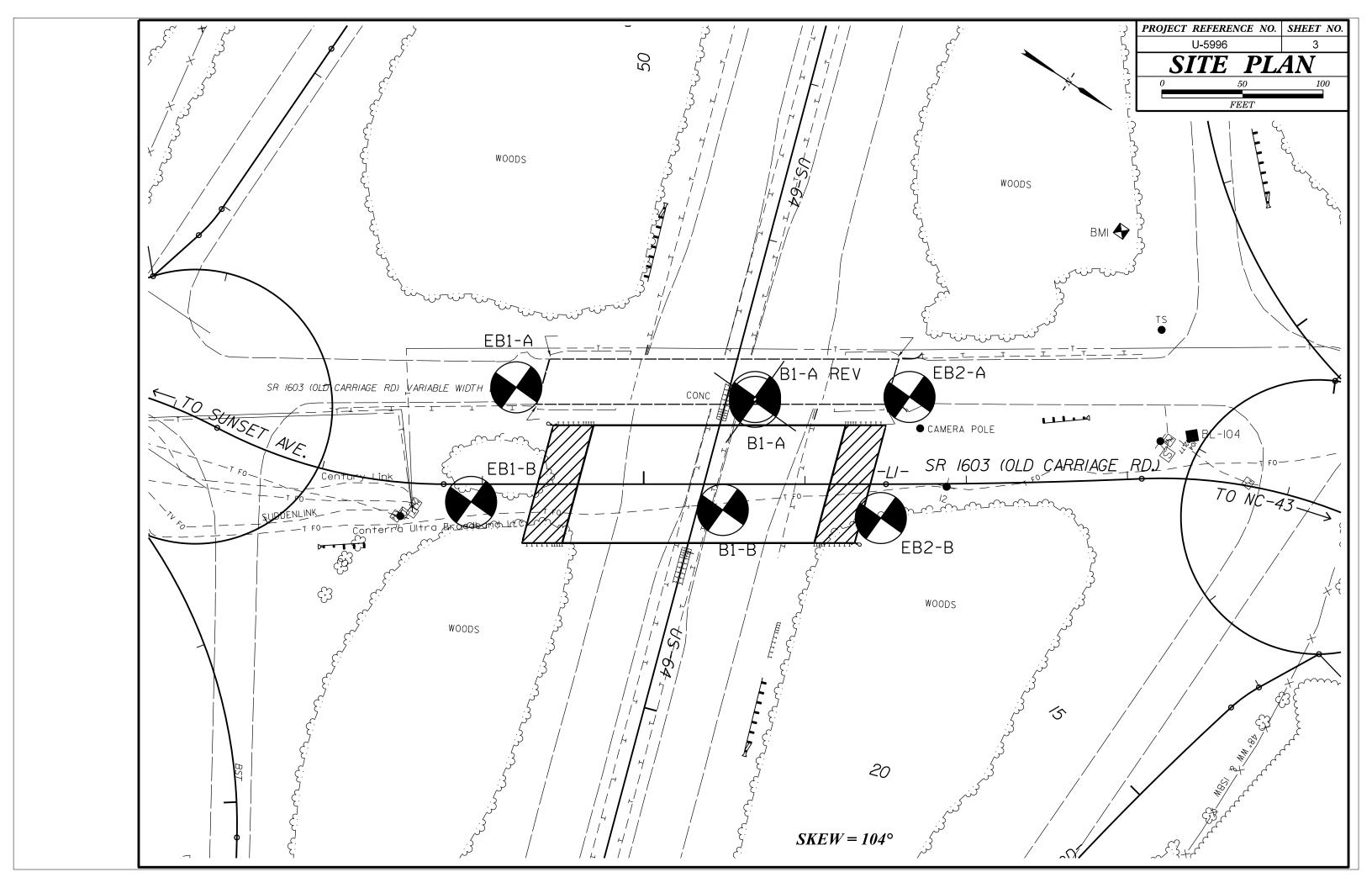
SOIL DESCRIPTION  SOIL IS CONSIDERED UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN	GRADATION	ROCK DESCRIPTION  HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT REFUSAL IF TESTED. AN INFERRED	TERMS AND DEFINITIONS
BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER AND YIELD LESS THAN 100 BLOWS PER FOOT	<u>WELL GRADED</u> - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE. <u>UNIFORMLY GRADED</u> - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE.	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	ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER.
ACCORDING TO THE STANDARD PENETRATION TEST (AASHTO T 206, ASTM D1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY INCLUDE THE FOLLOWING:	GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLE SIZES OF TWO OR MORE SIZES.	BLOWS IN NON-COASTAL PLAIN MATERIAL, THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN	ACUIFER - A WATER BEARING FORMATION OR STRATA.  ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND.
CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. FOR EXAMPLE,	ANGULARITY OF GRAINS	REPRESENTED BY A ZONE OF WEATHERED ROCK. ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS:	ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING
VERY STIFF, GRAY, SILTY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6	THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS:	WEATHERED NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES >	A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, SUCH AS SHALE, SLATE, ETC.
SOIL LEGEND AND AASHTO CLASSIFICATION	ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.	ROCK (WR) 100 BLOWS PER FOOT IF TESTED.	ARTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT
GENERAL GRANULAR MATERIALS SILT-CLAY MATERIALS ORGANIC MATERIALS CLASS. (≤ 35% PASSING *200) (> 35% PASSING *200) ORGANIC MATERIALS	MINERALOGICAL COMPOSITION  MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAQLIN, ETC.	CRYSTALLINE WOULD YIELD SPT REFUSAL IF TESTED, ROCK TYPE INCLUDES GRANITE,	WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE.
CLASS. (\$\leq 35% PASSING *200) (> 35% PASSING *200) (> 36% PASSING *200)  GROUP A-1 A-3 A-2 A-4 A-5 A-6 A-7 A-1, A-2 A-4, A-5	ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.	GNEISS, GABBRO, SCHIST, ETC.	CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.
CLASS. A-1-0 A-1-b A-2-4 A-2-5 A-2-6 A-2-7 A-7-5 A-3 A-6, A-7	COMPRESSIBILITY	NON-CRYSTALLINE FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YELLD SPT REFUSAL IF TESTED.	COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM
SYMBOL 000000000000000000000000000000000000	SLIGHTLY COMPRESSIBLE LL < 31	ROCK TYPE INCLUDES PHYLLITE, SLATE, SANDSTONE, ETC.	OF SLOPE.
7. PASSING	MODERATELY COMPRESSIBLE LL = 31 - 50 HIGHLY COMPRESSIBLE LL > 50	SEDIMENTARY ROCK SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED	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.
*10 50 MX GRANULAR SILI- MUCK,	PERCENTAGE OF MATERIAL	(CP) SHELL BEDS, ETC. WEATHERING	DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT
"40 30 MX   50 MX   51 MN   SOILS   SOILS   PEAT   PEAT	GRANULAR SILT - CLAY ORGANIC MATERIAL SOILS SOILS OTHER MATERIAL	FRESH ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING, ROCK RINGS UNDER	ROCKS OR CUTS MASSIVE ROCK.
MATERIAL	TRACE OF ORGANIC MATTER 2 - 3% 3 - 5% TRACE 1 - 10%	HAMMER IF CRYSTALLINE.	DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL.
PASSING #40 SOILS WITH	LITTLE ORGANIC MATTER 3 - 5% 5 - 12% LITTLE 10 - 20% MODERATELY ORGANIC 5 - 10% 12 - 20% SOME 20 - 35%	VERY SLIGHT ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN,	DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE
LL - 40 MX 41 MN LITTLE OR PI 6 MX NP 10 MX 10 MX 11 MN 11 MN 10 MX 10 MX 11 MN 11 MN MODERATE HIGHLY	HIGHLY ORGANIC > 10% > 20% HIGHLY 35% AND ABOVE	(V SLI.) CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY. ROCK RINGS UNDER HAMMER BLOWS IF OF A CRYSTALLINE NATURE.	LINE OF DIP, MEASURED CLOCKWISE FROM NORTH.
GROUP INDEX 0 0 0 4 MX 8 MX 12 MX 16 MX NO MX AMOUNTS OF SOILS	GROUND WATER	SLIGHT ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO	FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE
USUAL TYPES STONE FRAGS. FINE SILTY OR CLAVEY SILTY CLAVEY MATTER		(SLI.) 1 INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR CRYSTALS ARE DULL AND DISCOLORED. CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS.	SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE.  FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES.
OF MAJOR GRAVEL, AND SAND GRAVEL AND SAND SOILS SOILS	▼ STATIC WATER LEVEL AFTER 24 HOURS	MODERATE SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS. IN	FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM
CEN PATING FAIR TO		(MOD.) GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED, SOME SHOW CLAY. ROCK HAS	PARENT MATERIAL.
AS SUBGRADE EXCELLENT TO GOOD FAIR TO POOR POOR POOR UNSUITABLE	SPRING OR SEEP	DULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENGTH AS COMPARED WITH FRESH ROCK.	FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM.
PI OF A-7-5 SUBGROUP IS ≤ LL - 30 ; PI OF A-7-6 SUBGROUP IS > LL - 30		MODERATELY ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED, IN GRANITOID ROCKS, ALL FELDSPARS DULL	FORMATION (FM.) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD.
CONSISTENCY OR DENSENESS	MISCELLANEOUS SYMBOLS	SEVERE AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION. ROCK SHOWS SEVERE LOSS OF STRENGTH (MOD. SEV.) AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK. ROCK GIVES "CLUNK" SOUND WHEN STRUCK.	JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED.
PRIMARY SOIL TYPE COMPACTNESS OR RANGE OF STANDARD RANGE OF UNCONFINED PENETRATION RESISTENCE COMPRESSIVE STRENGTH	ROADWAY EMBANKMENT (RE) 25/025 DIP & DIP DIRECTION	IF TESTED, WOULD YIELD SPT REFUSAL	LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO
CONSISTENCY CONSISTENCY (N-VALUE) CONFIRENCE CONFIRENCE (TONS/FT <sup>2</sup> )	WITH SOIL DESCRIPTION OF ROCK STRUCTURES	SEVERE ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED, ROCK FABRIC CLEAR AND EVIDENT BUT	ITS LATERAL EXTENT.
GENERALLY VERY LOOSE 4 TO 10	SOIL SYMBOL  SOIL SYMBOL  SUPPLINT TEST BORING  SLOPE INDICATOR INSTALLATION	(SEV.) REDUCED IN STRENGTH TO STRONG SOIL. IN GRANITOID ROCKS ALL FELDSPARS ARE KAOLINIZED TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN.	LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS.
GRANULAR MEDIUM DENSE 10 TO 30 N/A	APTICION CILL (AC) OTHER	IF TESTED, WOULD YIELD SPT N VALUES > 100 BPF	MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS USUALLY INDICATES POOR AFRATION AND LACK OF GOOD DRAINAGE.
DENSE   30 TO 50	THAN ROADWAY EMBANKMENT AUGER BORING CONE TENETHORIETER	VERY ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE SEVERE BUT MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK	PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE
VERY SOFT	── INFERRED SOIL BOUNDARY	(V SEV.) REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE THAT ONLY MINOR	OF AN INTERVENING IMPERVIOUS STRATUM.
GENERALLY SOFT 2 TO 4 0.25 TO 0.5 SILT-CLAY MEDIUM STIFF 4 TO 8 0.5 TO 1.0	INFERRED ROCK LINE MN MONITORING WELL TEST BORING	VESTIGES OF ORIGINAL ROCK FABRIC REMAIN. <u>IF TESTED, WOULD YIELD SPT N VALUES &lt; 100 BPF</u> COMPLETE ROCK REDUCED TO SOIL. ROCK FABRIC NOT DISCERNIBLE, OR DISCERNIBLE ONLY IN SMALL AND	RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK.
MATERIAL STIFF 8 TO 15 1 TO 2	PIE 70METER	SCATTERED CONCENTRATIONS. QUARTZ MAY BE PRESENT AS DIKES OR STRINGERS. SAPROLITE IS	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
(COHESIVE) VERY STIFF 15 TO 30 2 TO 4 HARD > 30 > 4	TTTTT ALLUVIAL SOIL BOUNDARY ALLUVIAL SOIL BOUNDARY INSTALLATION SPT N-VALUE	ALSO AN EXAMPLE.	RUN AND EXPRESSED AS A PERCENTAGE.
TEXTURE OR GRAIN SIZE	RECOMMENDATION SYMBOLS	ROCK HARDNESS	SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK.
U.S. STD. SIEVE SIZE 4 10 40 60 200 270	UNDERCUT UNCLASSIFIED EXCAVATION -	VERY HARD CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK. BREAKING OF HAND SPECIMENS REQUIRES SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK.	SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND
OPENING (MM) 4.76 2.00 0.42 0.25 0.075 0.053	State of the state	HARD CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY. HARD HAMMER BLOWS REQUIRED	RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO
BOULDER COBBLE GRAVEL COARSE FINE SILT CLAY	SHALLOW UNDERCUT UNCLASSIFIED EXCAVATION - USED IN THE 10P 3 FEET OF EMBANKMENT OR BACKFILL	TO DETACH HAND SPECIMEN.	THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS.  SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT
(BLDR.) (COB.) (GR.) (CSE. SD.) (F SD.) (SL.) (CL.)	ABBREVIATIONS	MODERATELY CAN BE SCRATCHED BY KNIFE OR PICK. GOUGES OR GROOVES TO 0.25 INCHES DEEP CAN BE HARD EXCAVATED BY HARD BLOW OF A GEOLOGIST'S PICK. HAND SPECIMENS CAN BE DETACHED	OR SLIP PLANE.
GRAIN MM 305 75 2.0 0.25 0.05 0.005	AR - AUGER REFUSAL MED MEDIUM VST - VANE SHEAR TEST	BY MODERATE BLOWS.	STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS (N OR BPF) OF
SIZE IN. 12 3	BT - BORING TERMINATED MICA MICACEOUS WEA WEATHERED  CL CLAY MOD MODERATELY 7 - UNIT WEIGHT	MEDIUM CAN BE GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT.  HARD CAN BE EXCAVATED IN SMALL CHIPS TO PEICES I INCH MAXIMUM SIZE BY HARD BLOWS OF THE	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
SOIL MOISTURE - CORRELATION OF TERMS	CPT - CONE PENETRATION TEST NP - NON PLASTIC $\dot{\gamma}_{ m d}$ - DRY UNIT WEIGHT	POINT OF A GEOLOGIST'S PICK.	TO OR LESS THAN Ø.1 FOOT PER 60 BLOWS.
SOIL MOISTURE SCALE FIELD MOISTURE GUIDE FOR FIELD MOISTURE DESCRIPTION	CSE COARSE ORG ORGANIC  DMT - DILATOMETER TEST PMT - PRESSUREMETER TEST SAMPLE ABBREVIATIONS	SOFT CAN BE GROVED 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	STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE.
- SATURATED - USUALLY LIQUID; VERY WET, USUALLY	DPT - DYNAMIC PENETRATION TEST SAP SAPROLITIC S - BULK	PIECES CAN BE BROKEN BY FINGER PRESSURE.	STRATA ROCK QUALITY DESIGNATION (SRQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL
- SATURATED - USUALLY LIQUID; VERY WET, USUALLY (SAT.) FROM BELOW THE GROUND WATER TABLE	e - VOID RATIO         SD SAND, SANDY         SS - SPLIT SPOON           F - FINE         SL SILT, SILTY         ST - SHELBY TUBE	VERY CAN BE CARVED WITH KNIFE, CAN BE EXCAVATED READILY WITH POINT OF PICK, PIECES 1 INCH SOFT OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE, CAN BE SCRATCHED READILY BY	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.
LL _ LIOUID LIMIT	FOSS FOSSILIFEROUS SLI SLIGHTLY RS - ROCK FRAC FRACTURED, FRACTURES TCR - TRICONE REFUSAL RT - RECOMPACTED TRIAXIAL	SOFT OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE, CAN BE SCRATCHED READILY BY FINGERNAIL.	TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.
RANGE Z - WET - (W) SEMISOLID; REQUIRES DRYING TO	FRAC FRACTURED, FRACTURES TCR - TRICONE REFUSAL RT - RECOMPACTED TRIAXIAL FRAGS FRAGMENTS $w$ - MOISTURE CONTENT CBR - CALIFORNIA BEARING	FRACTURE SPACING BEDDING	BENCH MARK:
(PI) PL PLASTIC LIMIT ATTAIN OPTIMUM MOISTURE	HI HIGHLY V - VERY RATIO	TERM SPACING TERM THICKNESS	557077 77777
OM OPTIMUM MOISTURE - MOIST - (M) SOLID; AT OR NEAR OPTIMUM MOISTURE	EQUIPMENT USED ON SUBJECT PROJECT	VERY WIDE MORE THAN 10 FEET VERY THICKLY BEDDED 4 FEET WIDE 3 TO 10 FEET THICKLY BEDDED 1.5 - 4 FEET	ELEVATION: FEET
SL SHRINKAGE LIMIT	DRILL UNITS: ADVANCING TOOLS: HAMMER TYPE:  CME-45C CLAY BITS AUTOMATIC MANUAL	MODERATELY CLOSE	NOTES:
- DRY - (D) REQUIRES ADDITIONAL WATER TO	CL CONTINUOUS FLICHT AUGED	VERY CLOSE LESS THAN 0.16 FEET THICKLY LAMINATED 0.008 - 0.03 FEET	BRIDGE BORING ELEVATIONS TAKEN FROM TIN FILE U5026_Is_tin.tin DATED 10/23/2019
ATTAIN OPTIMUM MOISTURE	CMF-55   \( \sum \)	THINLY LAMINATED < 0.008 FEET	U5UZ6_IS_†IN.†IN DATED 10/23/2019
PLASTICITY	8° HOLLOW AUGERS	INDURATION  FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.	1
PLASTICITY INDEX (PI)  ORY STRENGTH	CME-550 HARD FACED FINGER BITS -N -N	PURRING WITH FINGER EREES NUMEROUS CRAINS.	
NON PLASTIC 0-5 VERY LOW SLIGHTLY PLASTIC 6-15 SLIGHT	VANE SHEAR TEST TUNGCARBIDE INSERTS HAND TOOLS:	FRIABLE GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE.	
MODERATELY PLASTIC 16-25 MEDIUM HIGHLY PLASTIC 26 OR MORE HIGH	CASING W/ ADVANCER POST HOLE DIGGER	MODERATELY INDURATED GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE;	
COLOR	PORTABLE HOIST TRICONE STEEL TEETH HAND AUGER	BREAKS EASILY WHEN HIT WITH HAMMER.	
	TRICONE TUNGCARB. SOUNDING ROD	INDURATED GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE:	
	I   Societies not	DIFFICULT TO BREAK WITH HAMMER.	
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.	CORE BIT SOUNDING ROD	DIFFICULT TO BREAK WITH HAMMER,  EXTREMELY INDURATED SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE;	

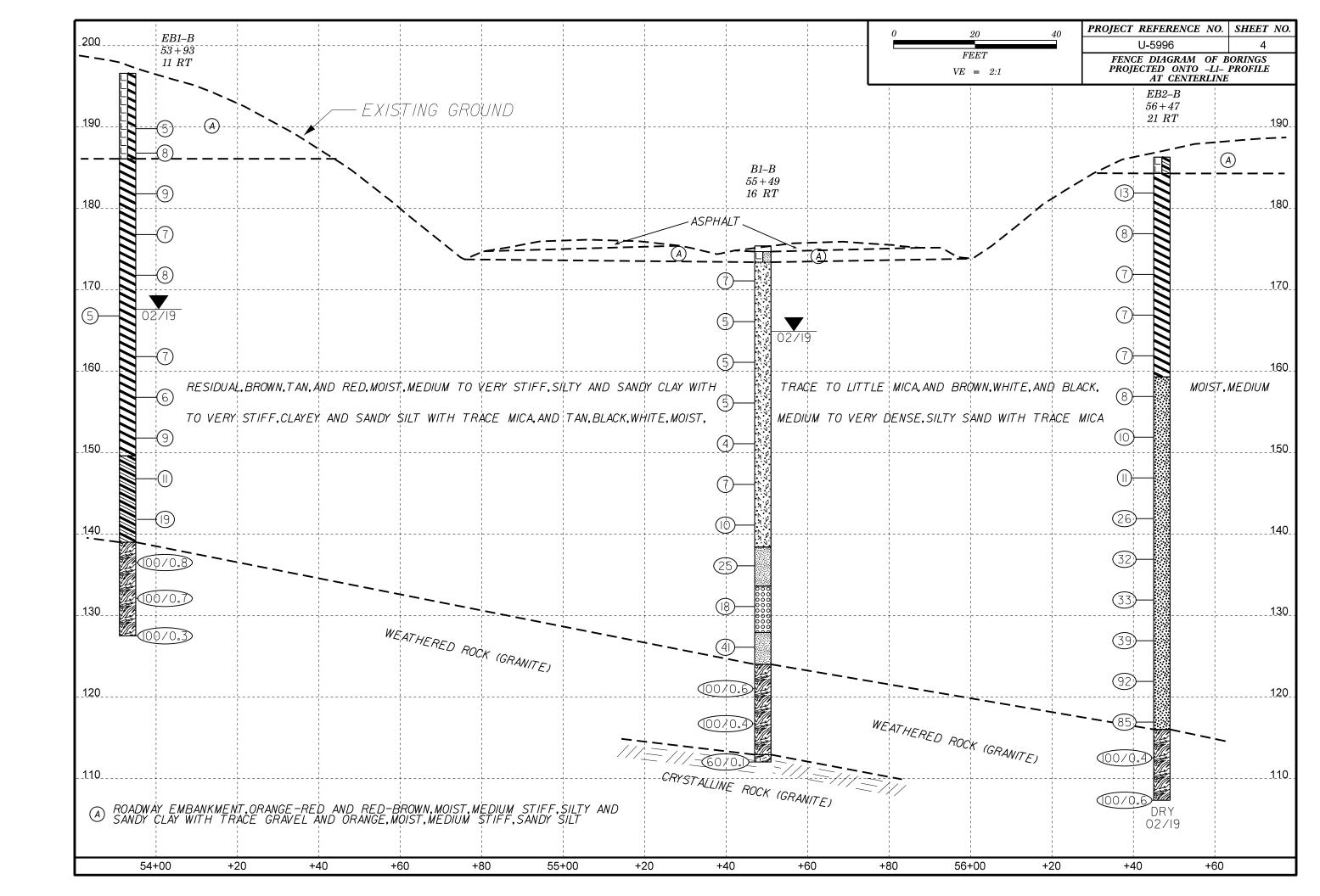
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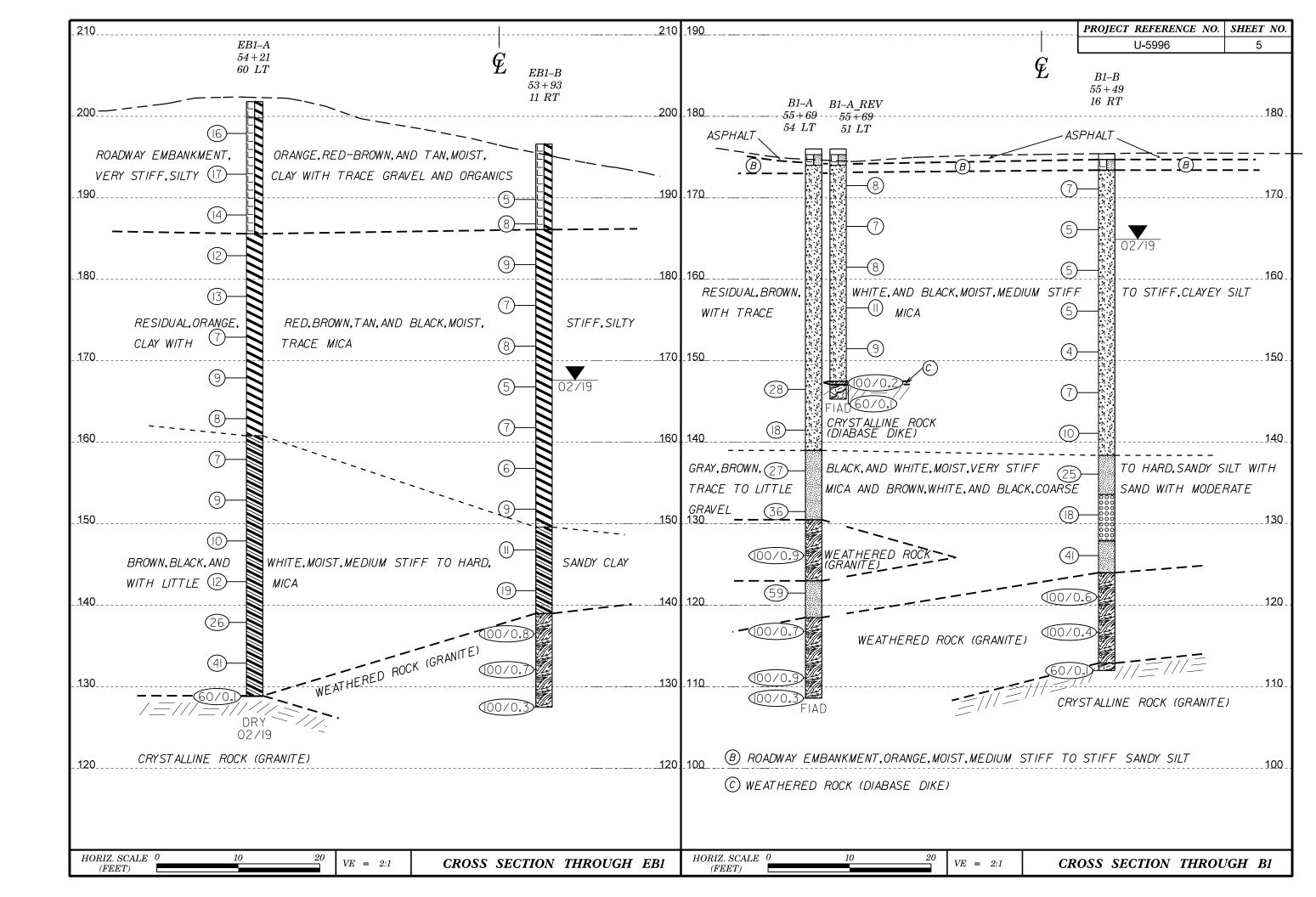
#### NORTH CAROLINA DEPARTMENT OF TRANSPORTATION **DIVISION OF HIGHWAYS** GEOTECHNICAL ENGINEERING UNIT

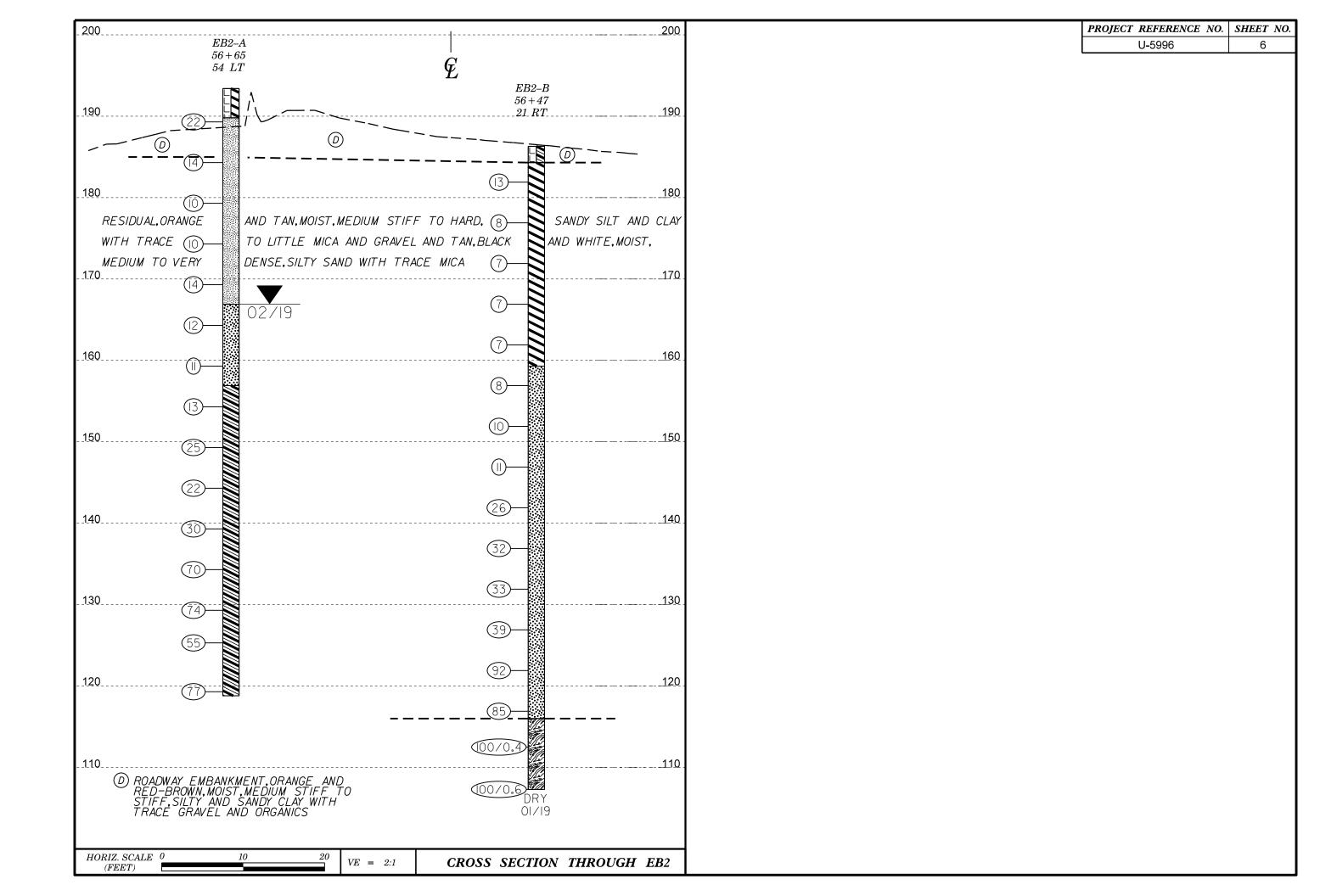
## SUBSURFACE INVESTIGATION

		SUPPLEME FRO	NTAL LI DM AAS	EGEND, GEO HTO LRFL	OLOGIC D BRID	AL STRENGTH INDEX (GSI) TABLES GE DESIGN SPECIFICATIONS
AASHTO LRFD Figure 10.4.6.4-1 — Determination of GSI for Join	ted Rock	Mass (Marinos and Hoek, 2	000)			AASHTO LRFD Figure 10.4.6.4-2 — Determination of GSI for Tectonically Deformed Heterogeneous Rock Masses (Marinos and Hoek, 2000)
GEOLOGICAL STRENGTH INDEX (GSI) FOR JOINTED ROCKS (Hoek and Marınos, 2000)		s o o o		8 0 O	s O	GSI FOR HETEROGENEOUS ROCK MASSES SUCH AS FLYSCH (Marinos.P and Hoek E., 2000)
From the lithology, structure and surface conditions of the discontinuities, estimate the average value of GSI. Do not try to be too precise. Quoting a range from 33 to 37 is more realistic than stating that GSI = 35. Note that the table does not apply to structurally controlled failures. Where weak planar structural planes are present in an unfavorable orientation with respect to the excavation face, these will dominate the rock mass behaviour. The shear strength of surfaces in rocks that are prone to deterioration as a result of changes in moisture content will be reduced if water is present. When working with rocks in the fair to very poor categories, a shift to the right may be made for wet conditions. Water pressure is dealt with by effective stress analysis.	SURFACE CONDITIONS	VERY GOOD  Very rough, fresh unweathered surface:  GOOD  Rough, slightly weathered, iron stained surfaces	<b>FAIR</b> Smooth, moderately weathered and altered surfaces	POOR Slickensided, highly weathered surfa with compact coatings or fillings or angular fragments	<b>VERY POOR</b> Slickensided, highly weathered surfa with soft clay coatings or fillings	Erom a description of the lithology, structure and surface conditions (barticularly of the pedding planes), choose a pox in the chart. Focate the bosition in the pox that corresponds to the condition of the discontinuities and estimate the average value of QSI from the contours. Do not attempt to be too breatese. Gnoting a range from 33 to 31 is more realistic than giving QSI = 32. Note that the Hoek-Brown criterion does not abbly to structurally controlled failures. Mere and this can be allowed for by a slight shift to the right in the columns for change and read of the poor and very poor to conditions. Water presence of groundwater and this can be allowed for by a slight washing to controlled by a slight shift to the right in the columns for change of the poor to change of the po
STRUCTURE		DECREASING SU		ALITY	>	COMPOSITION AND STRUCTURE
INTACT OR MASSIVE - intact rock specimens or massive in situ rock with few widely spaced discontinuities  BLOCKY - well interlocked un-	PIECES	90 80		N/A	N/A	A. Thick bedded, very blocky sandstone The effect of pelitic coatings on the bedding planes is minimized by the confinement of the rock mass. In shallow tunnels or slopes these bedding planes may cause structurally controlled instability.
disturbed rock mass consisting of cubical blocks formed by three intersecting discontinuity sets  VERY BLOCKY - interlocked, partially disturbed mass with	ICKING OF ROCK	70 60			<u> </u>	8. Sand- stone with thin inter- layers of siltstone amounts  C. Sand- stone and stone and siltstone or silty shale with sand- stone layers layers layers  Solution  Solution S
multi-faceted angular blocks formed by 4 or more joint sets	() 1/					
BLOCKY/DISTURBED/SEAMY - folded with angular blocks formed by many intersecting discontinuity sets. Persistence of bedding planes or schistosity	ASING INTERL		40	30		C.D. E. and G - may be more or less folded than illustrated but this does not change the strength. Tectonic deformation, faulting and loss of continuity moves these categories to F and H.  F. Tectonically deformed, intensively folded/faulted, sheared clayey shale or sultstone with broken and deformed sandstone layers forming an almost chaotic structure
DISINTEGRATED - poorly inter- locked, heavily broken rock mass with mixture of angular and rounded rock pieces	DECREA			20		G. Undisturbed silty or clayey shale with or clayey shale forming a or without a few very thin sandstone layers  H. Tectonically deformed silty or clayey shale forming a chaotic structure with pockets of clay. Thin layers of sandstone layers
LAMINATED/SHEARED - Lack of blockiness due to close spacing of weak schistosity or shear planes	♥	N/A N/A			10 /	sandstone are transformed into small rock pieces.   → Means deformation after tectonic disturbance  DATE: 8-19-





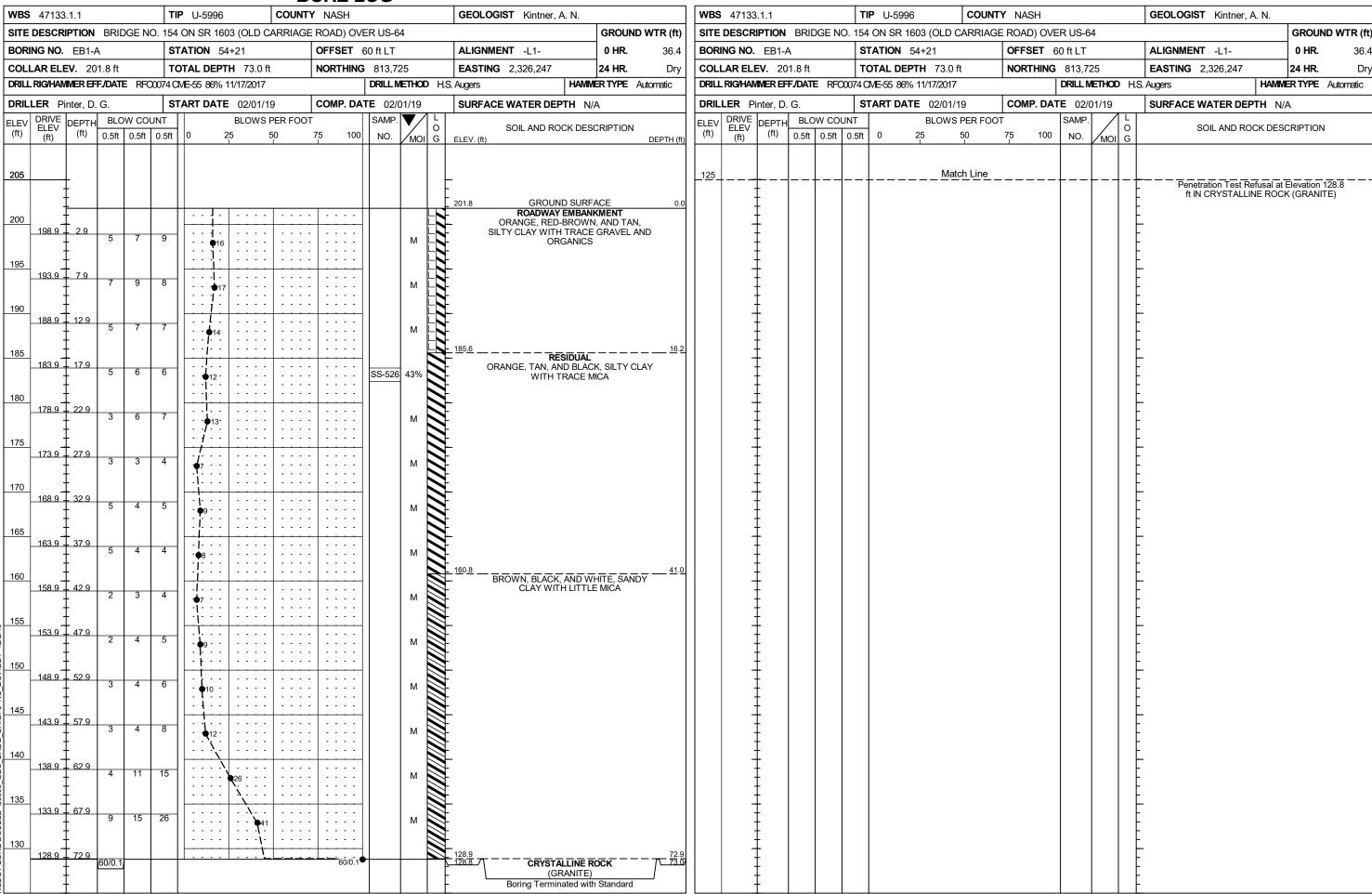




36.4

Dry

#### GEOTECHNICAL BORING REPORT **BORE LOG**



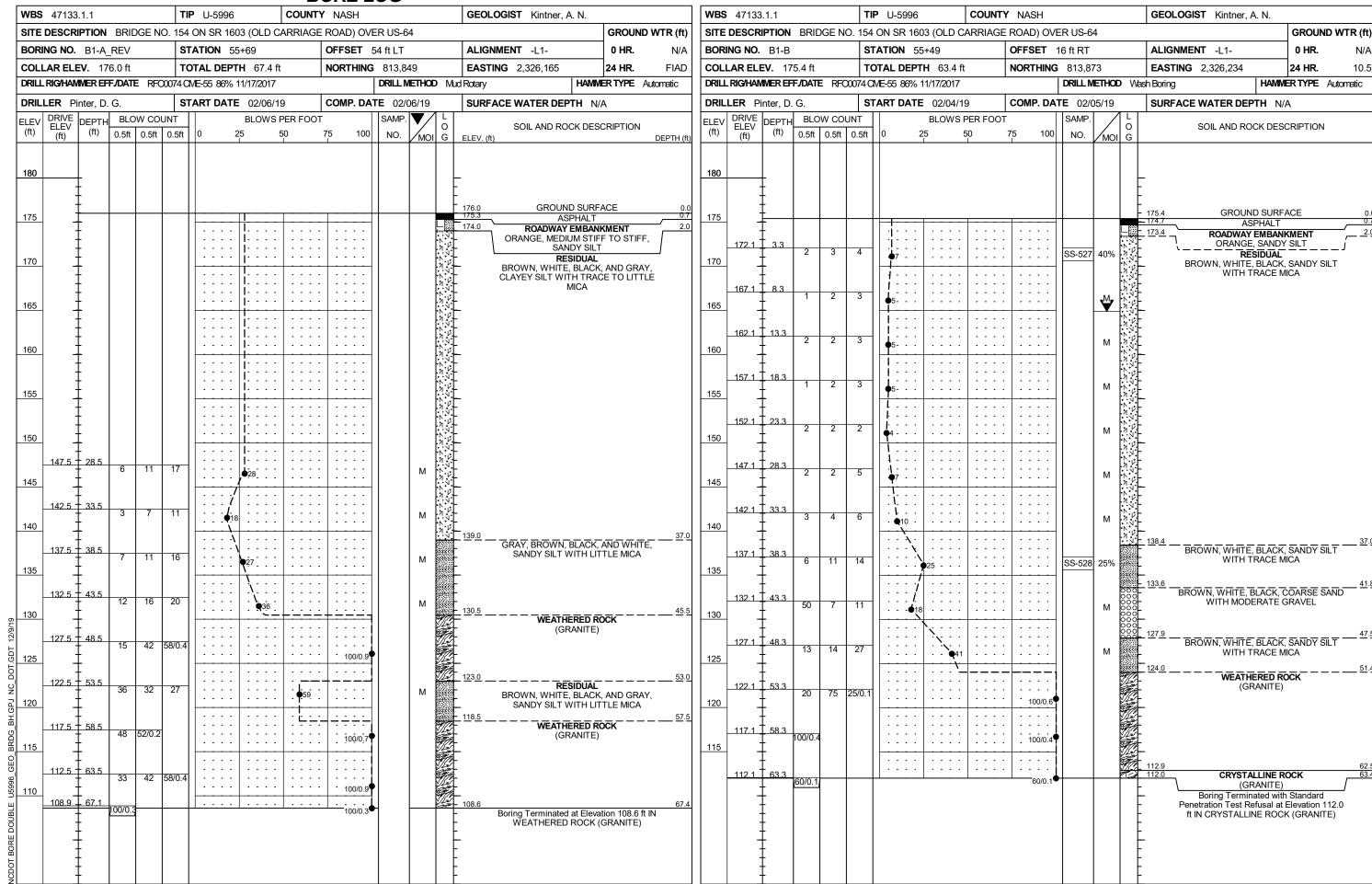
SHEET 8

												В	<u>O</u>	KE	<u>L</u> (	<u>OG</u>								
WBS	47133	.1.1				Pι								NASH					GEOLOGI	ST K	intner,	A. N.		
SITE	DESCR	PTION	BRI	DGE N	O. 15	4 ON	SR	160	3 (OL	D C	ARF	RIAG	_			ER US-6	64		_				GROUI	ND WTR (1
BORI	ING NO.	EB1-	В		S	TATI	ON	53+	-93				OF	FSET	1	1 ft RT			ALIGNME	NT -L	_1-		0 HR.	D
COLI	LAR ELE	<b>V</b> . 19	6.6 ft			OTAL							NC	RTHIN	<b>IG</b>	813,7	43		EASTING	2,326	6,321		24 HR.	29
DRILL	. RIG/HAIV	MER EF	F/DATI	E RF	O0067	CIVIE-	550X	81%	6 10/2	4/201	17					DRILL N	<b>IETHO</b>	<b>D</b> M	lud Rotary			HAMIN	MER TYPE	Automatic
DRIL	<b>LER</b> P	inter, D	. G.		S	TART	DA	TE	02/0	7/19	)		CC	MP. D	ΑT	<b>E</b> 02/0	07/19		SURFACE	WATE	ER DEF	PTH N	I/A	
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)		0.5ft	JNT 0.5ft	0		25	BLOV	VS P		-007	75 	10	00	SAMP. NO.	MO	L O II G	ELEV. (ft)	SOIL A	AND RO	OCK DES	CRIPTION	N DEPTH
200	-	- - -																	 - -					
	-					Н.		.		1			Π.		+				<b>-</b> 196.6			ID SURF	ACE IKMENT	
195	_	-				<del>                                   </del>		$\pm$					+		+				<u>-</u> -				TY CLAY	
190	190.8 - -	- - - 5.8 -	2	3	2		 	:			-	 					М		- - - -					
	187.8 -	- 8.8	3	4	4											SS-529	000/		-					
185	182.8 -	- - - - 13.8					₽8 :     	-				· · ·				33-329	26%		186.1BF	 ROWN,	TAN, A	SIDUAL ND RED RACE N	 ), SILTY C //ICA	<u>1</u> LAY
180		- - - -	3	4	5		•9 -  -  - 	-		 	-	 					М		- - - -					
	177.8 -	- 18.8 -	3	3	4		7 -	:								SS-530	46%		- -					
175	-	-						-				 ——	<u> </u>						- -					
	172.8 -	- - 23.8				:		:		: :	•								- -					
170	-	-	3	4	4	:	8	-		: :	-	 					M		<del>-</del> -					
170	167.8 - -	- - - 28.8 -	1	2	3		 				-	 					M		- - -					
165	_	-				<del>  i</del>	· ·	_					+		$\exists$				- -					
	162.8 -	- 33.8 -	2	3	4	<u>  i</u>		:		: :							М		- -					
160	-	-					" ——	:					։				"		- 					
	157.8 -	- - 38.8				-		:											- -					
155	-	-	3	3	3	•	6 .	:		• •							М		<del>-</del> -					
155		-				- 1							+	• • •					<del>-</del> -					
	152.8 - -	- 43.8 -	3	4	5	:,	<b>∳</b> 9 -	:		: :	•	· · ·					М		- -					
150	_	<del>-</del>				<u>  :</u>	1	:			-	· · ·	#		4				- <u> 149.6</u>					4
	147.8 -	- - 48.8	4	5	6	:	ļ:	:		: :									- BF -	ROWN, CL/	BLACK AY WIT	, AND W H LITTL	/HITE, SAI E MICA	VDY
145	-	<del>-</del> -	4	"	O	:	<b>1</b> 11	:		: :		 					M		<u>-</u>					
	140.0	- 50.0					• 1						+	• • •					<del>-</del> -					
	142.8 -	- 53.8 -	6	9	10	:	: .;	·		: :							М		- -					
140		-				<u>                                    </u>		Ϊ+			-		+		4				-  139.0					5
	137.8 -	- - 58.8	11	44	56/0.3	:		-					†:						- <del></del>		WEATH	ERED R	OCK	
135	-	-	''	"	JUI U.U	:	: :	:		: :	-			100/0	8				-		(0)	2 W. L.		
145	132.8 -	- - - 63.8				-		-					1						<del>-</del> -					
	- 132.0	- 03.0	65	35/0.2				-						100/0	7				<del>-</del> -					
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	127.8 -	- - 68.8	100/0.3			<u>                                     </u>	: :	:						100/0	3				- - 127.5	<del>.</del>			4: 407 7	6
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	-	-																	-					
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WBS	47133	.1.1			TIF	<b>P</b> U-599	6	(	COUNT	/ NASH					GEOL	OGIST	Kintne	er, A. N.			WB	<b>S</b> 47	7133.1.	1			TIP	U-59	96		co	YUNT	<b>Y</b> NA	SH	
SITE	DESCRI	IPTION	BRI	DGE N	NO. 154	ON SR	1603 (C	OLD CA	ARRIAGI	E ROAD) (	OVER	US-64							GROU	ND WTR (ft)	SITI	E DES	SCRIPT	ION	BRII	OGE NO	. 154 (	ON SR	1603	(OLD	CARI	RIAG	E ROA	AD) OVE	R US-64
BORI	NG NO.	B1-A			ST	ATION	55+69			OFFSET	51 f	t LT			ALIGN	IMENT	L1-		0 HR.	FIAD	BOF	RING I	NO.	31-A			STA	TION	55+6	9			OFF	<b>SET</b> 5	l ft LT
COLL	AR ELE	<b>EV</b> . 17	6.0 ft		TC	TAL DE	<b>PTH</b> 3	30.7 ft		NORTHIN	<b>IG</b> 8	313,850	)		EASTI	NG 2	2,326,16	8	24 HR.	FIAD	COL	LAR	ELEV.	176	6.0 ft		тот	AL DE	PTH	30.7	ft		NOR	THING	813,850
DRILL	.RIG/HAM	IMER EF	F./DATI	E RF	C0074 (	OME-55 86	5% 11/17	7/2017			DR	ILL ME	THOD	N	WCasing V	VSPT8	& Core	HAN	MER TYPE	Automatic	DRIL	⊥ RIG/	/HAMME	R EFF	/DATE	RFO	0074 CIV	/E-55 8	36% 11/	17/201	7				DRILL METHOD
DRIL	<b>LER</b> Pi	inter, D	. G.		ST	ART DA	<b>TE</b> 02	/05/19		COMP. D	ATE	02/05	/19		SURFA	ACE W	ATER D	EPTH	N/A		DRII	LLER	Pinte	er, D.	G.		STA	RT DA	ATE (	)2/05/	19		COM	IP. DAT	E 02/05/19
ELEV	DRIVE ELEV	DEPTH	BLO	W CO	UNT		BLC	DWS PE	ER FOOT		SA	AMP.	7/	L				DOCK D	CODIDTION		COF	RE SIZ	ZE N	KWL			тот	AL RU	JN 1.	7 ft					
(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0	25	50	)	<b>75</b> 10	1 00	۷O.	MOI		ELEV. (ft)		OIL AND	ROCK DI	ESCRIPTION	DEPTH (ft)	ELE\	/ RL	JN DE	PTH	RUN	DRILL	REC	UN	SAM	1P.	STRA	ATA	L		
																					(ft)	(f	EV (	(ft)	(ft)	RATE (Min/ft)	(ft) %	RQD (ft) %	NC	).	(ft) %	ATA RQD (ft) %	O G	ELEV. (ft	
180																					147														
	-	F												F	=							147 145	7.0   2 5.3 <del> </del> 3	9.0 0.7	1.7	1:04/1.0 0:37/0.7	(1.3)	(0.9)		(	1.3)	(0.9) 53%	<u> </u>	147.0 145.3	BLACK AND W HARD TO VER
	1	-												F	176.0		GRO	UND SUF	RFACE	0.0			Ŧ					1	1				F		
175	- 1									T	#		L	-8	175.3 174.0			ASPHAL	NKMENT	<u>0.7</u> 2.0			Ŧ										F		
	172.5	3.5				: : :	.						;	7,7			ANGE, ME	EDIUM ST	IFF TO STI				‡												Boring Termir
170		-	3	4	4	•8	-						М :	11	<u>'</u>			SANDY SI <b>RESIDU</b> A					‡												
170		ļ				<u> </u>							:	<u> </u>	-	BROV	VN, WHI		K, CLAYEY	SILT			‡												Core Term
	167.5	8.5	3	3	4	T	:   : :						м	11	-		****						‡										-		
165	1	<u> </u>				<b>T</b> '	-							15	_								‡												
	162.5	12.5				:i: :	:   : :	: :					Ŀ	11	_								<u> </u>												
	102.5	13.5	3	4	4	. .  •8	-						м:	11	_								1										L		
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.	1475	28.5				.   .		: :					:	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	- - 147.5					28.5			‡											į	
	147.5	28.9	100/0.2 60/0.1					1		- 100/0. - 60/0.	2		M M		147.1		WEA	THERED IABASE D	ROCK	$\frac{28.5}{28.9}$			<u> </u>										<u> </u>		
	-		00/0.1								-	-	a la		145.3		CRYS	STALLINE	ROCK	30.7			İ										L		
	1													-	- 1	BLAC		IABASE D VHITE, FI	NKE) RESH TO VI	ERY			$\pm$												
	Ŧ	F												F	-	SLIC	GHTLY W	/EATHER	ED, HARD FRACTUR	го			Ŧ										F		
	1	F												F	-	VE			ASE DIKE				Ŧ										F		
	1	ļ												ļ	-			REC=76	%				‡												
		-												ļ	_			RQD=53' GSI=90	%				‡												
		_												-	- '	Boring	g Termina	ated at Ele	evation 145.3 DIABASE D	ft IN			‡												
	1	_												ŀ	_					·			‡										<u> </u>		
	1	-												ŀ	_	Core	i erminate Fai	ed Due to Iure at 30	Core Equipa .7 Ft.	ment	/19		İ										Ŀ		
	+	-												-	-						12/2/		+										-		
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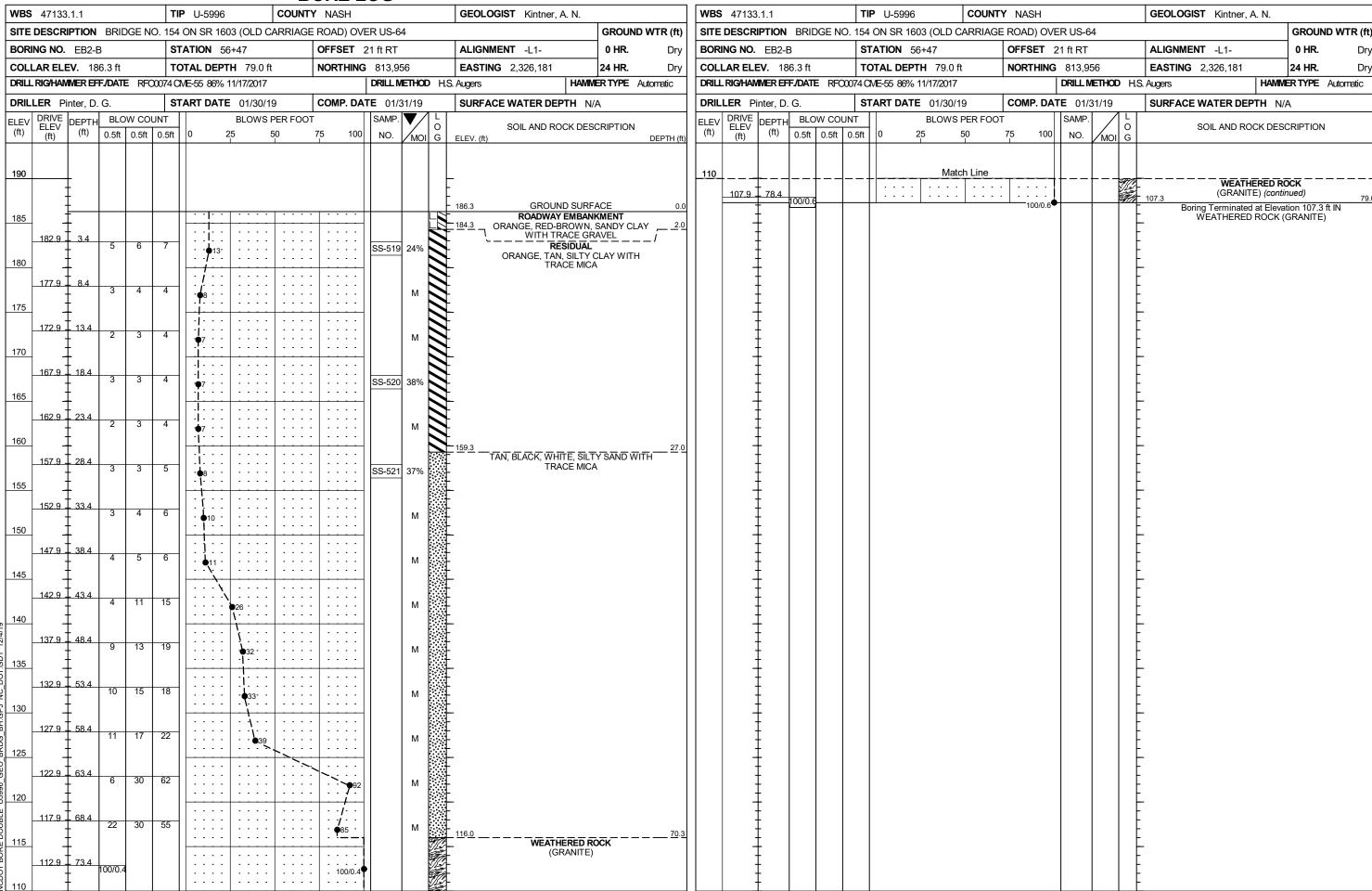
## GEOTECHNICAL BORING REPORT

/BS	47133	.1.1			TIP	U-599	6	С	OUNT	ΥN	IASH		GEOLOGIST Kintne	, A. N.		
ITE	DESCRI	PTION	BRI	DGE NO	. 154 C	N SR	1603 (OL	D CAF	RRIAG	E RC	DAD) OVER	R US-64	•		GROUN	ID WTR (f
ORII	NG NO.	B1-A	ı		STAT	ΓΙΟΝ	55+69			OF	FSET 51	ft LT	ALIGNMENT -L1-		0 HR.	FIA
OLL	AR ELE	<b>EV</b> . 17	6.0 ft		TOTA	AL DE	PTH 30.	.7 ft		NO	RTHING	813,850	<b>EASTING</b> 2,326,168		24 HR.	FIA
RILL	RIG/HAN	MER EF	F/DATI	E RFO	074 CM	E-55 86	5% 11/17/2	017			D	RILL METHOD NM	/Casing W/SPT & Core	HAMM	ER TYPE	Automatic
RILI	L <b>ER</b> Pi	inter, D	. G.		STAF	RT DA	<b>TE</b> 02/0	5/19		СО	MP. DATE	02/05/19	SURFACE WATER DI	EPTH N	/A	
ORE	SIZE	NXWL			TOTA	AL RUN	<b>1</b> .7 ft						1			
EV ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	REC. (ft) %	JN RQD (ft) %	SAMP. NO.	STR REC. (ft) %	RATA RQD (ft) %	L O G	ELEV. (ft)	D	ESCRIPTION AND REMA	RKS		DEPTH
47	147.0 145.3	29.0 - 30.7	1.7	1:04/1.0 0:37/0.7	(1.3) 76%	(0.9) 53%		(1.3) 76%	(0.9) 53%	SE	_ 147.0 _ 145.3		Begin Coring @ 29.0 f TE, FRESH TO VERY SLI HARD, CLOSE FRACTUR	GHTLY WI		
	- - -	- - -											REC=76% RQD=53% GSI=90			
	-	-									<del>-</del> -	Boring Terminate	ed at Elevation 145.3 ft IN ( (DIABASE DIKE)	CRYSTALL	INE ROC	<
												Core Terminat	(DIABASE DINE) ted Due to Core Equipmen	t Failure at	30.7 Ft.	
	-	- - - - -									 - - - -					
	- - - -	- - -									- - - - -					
	- - - -	- - - -									- - - -					
	-	- - -									- - -					



SHEET 11

								UKE L				
WBS	47133	3.1.1			1	<b>TIP</b> U-5996	COUNTY	/ NASH			<b>GEOLOGIST</b> Kintner, A. N.	
SITE	DESCR	IPTION	BRI	DGE N	IO. 1	154 ON SR 1603 (OLD	CARRIAG	E ROAD) OV	ER US-6	64		GROUND WTR (1
30RIN	NG NO.	EB2-	·A		,	STATION 56+65		OFFSET 5	4 ft LT		ALIGNMENT -L1-	<b>0 HR</b> . 30
OLL	AR ELE	<b>EV.</b> 19	93.4 ft		7	TOTAL DEPTH 74.61	t	NORTHING	813,92	27	<b>EASTING</b> 2,326,110	<b>24 HR</b> . 26
RILL	RIG/HAN	IMER EF	F./DATI	E RF	<b>C</b>	74 CME-55 86% 11/17/2017	7		DRILL M	<b>ETHOD</b> H	I.S. Augers HAM	MER TYPE Automatic
DRILL	<b>.ER</b> P	inter, D	. G.			START DATE 01/31/1	9	COMP. DAT	<b>E</b> 01/3	31/19	SURFACE WATER DEPTH	N/A
LEV	DRIVE ELEV	DEPTH	BLC	w col	JNT	BLOWS	PER FOOT		SAMP.	▼/ L O	SOIL AND ROCK DE	SCRIPTION
(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5f	ft 0 25	50	75 100	NO.	MOI G	ELEV. (ft)	DEPTH
195											_	
	-						T	1			- 193.4 GROUND SUR - ROADWAY EMBA	
	-										<ul> <li>ORANGE AND RED-BF</li> </ul>	ROWN, SILTY
190	189.8 -	3.6	6	10	12		+	+	SS-522	23%	CLAY WITH TRACE G	s <sub>I</sub>
	-	ŀ				722					RESIDUAI ORANGE AND TAN, SAN	
185	185.3	8.1									TRACE MICA AND	GRAVEL
	-	F	6	6	8	•14.				М	_ -	
	-	F					: : : :	: : : :			<del>-</del>	
180	180.3	13.1	3	4	6	→ 10 · · · · · ·				м	<del>-</del>	
	-	ļ									- -	
175	175.3	18.1									<del>-</del> -	
.,,	-	-	3	4	6	. •10		1	SS-523	27%	<del>-</del> -	
	-	‡				$ \cdot :: :: :: $					<del>-</del> -	
170	170.3	23.1	2	4	10	\				M	- <del>-</del>	
	-	<u> </u>	_	ı İ		1 14.				M	- -	
	-										<u> 166.9</u> TAN, BLACK, AND WHIT	E, SILTY SAND
65	165.3	28.1	3	5	7	12	<del> </del>	<del>   </del>	SS-524	14%	WITH MIC.	A
	-	Ł									<u>-</u>	
160	160.3	33.1				_  : }:: ::::					- -	
	-	F	3	5	6	. •11				М	-	
	-	F					: : : :	: : : :				VHITE SANDY S
155_	155.3	38.1	3	6	7	1				м	CLAY WITH LITT	
	-	ļ				10. 10.					- -	
150	150.3	43.1									<del>-</del> <del>-</del>	
100		-	6	12	13	•25		1		м	<del>-</del> -	
	-	ļ									<del>-</del> -	
145	145.3	48.1	6	10	12					м	<del>-</del>	
	-	‡			_					··· 📓	- -	
140	140.3	53.1				::::\::::					- -	
140	1 <del>1</del> 0.3_	- 33.1	10	13	17	30		<del>   </del>		м	<del>_</del> -	
	-	<u> </u>					] : : : :				- -	
135	135.3	58.1	10	26	44	_	\\		00.535	400′	<u>-</u>	
	-	‡	10	20	44		1	70	SS-525	18%	- -	
								: : : :			- -	
130	130.3	63.1	20	25	49			74.		м	_ -	
	-	Ł					/				<u>-</u>	
125	126.3	67.1	20	26	29	$\exists \lfloor \frac{1}{2} \cdot $	. / •55			м	<u>-</u>	
	-	F					· ,				_ -	
	-	F					: : ``.`;				- -	
120	120.3	73.1	18	28	49		· · · · <b>`</b>	77		м	-  - 118.8	-
t		<u> </u>					1	<b>●</b> 77			<ul> <li>Boring Terminated at Elev</li> </ul>	vation 118.8 ft IN
	-	Ť	1						1		- RESIDUAL (SAND	I CLAI)



### LABORATORY TESTING SUMMARY

PROJECT NUMBER:	47133.1.1	TIP:	U-5996	COUNTY:	Nash

DESCRIPTION: Bridge on SR 1603 (Old Carriage Rd.) over US 64

			0.55	Depth		% by Weight					%	%	Passing (sie	ves)		0/	
Sample No.	Alignment	Station	Offset (feet)	Interval (feet)	AASHTO Class.	L.L.	P.I.	Coarse Sand	Fine Sand	Silt	Clay	Retained #4 Sieve	#10	#40	#200	% Moisture	% Organic
SS-519	-L1-	56+47	21 RT	3.4 - 4.9	A-7-5 (25)	75	43	20.8	20.8	10.6	47.8	1	98	88	61	23.5	
SS-520	-L1-	56+47	21 RT	18.4 - 19.9	A-7-5 (8)	56	15	17.4	32.4	29.1	21.1	0	100	90	57	38.3	
SS-521	-L1-	56+47	21 RT	28.4 - 29.9	A-2-5 (0)	46	9	37.8	28.8	21.9	11.5	0	100	84	35	37.2	
SS-522	-L1-	56+65	54 LT	3.6 - 4.6	A-4 (1)	37	9	36.9	28.0	10.0	25.1	0	98	74	39	22.9	
SS-523	-L1-	56+65	54 LT	18.1 - 19.6	A-4 (0)	36	NP	21.9	41.5	22.4	14.2	0	100	91	44	26.8	1
SS-524	-L1-	56+65	54 LT	28.1 - 29.6	A-2-4 (0)	31	NP	30.7	41.7	19.8	7.8	0	99	85	35	24.1	
SS-525	-L1-	56+65	54 LT	58.1 - 59.6	A-6 (2)	38	8	12.9	47.3	26.5	13.3	0	100	95	51	18.4	
SS-526	-L1-	54+21	60 LT	17.9 - 19.4	A-7-5 (20)	68	19	1.6	32.1	37.9	28.4	0	100	100	78	42.9	
SS-527	-L1-	55+49	16 RT	3.3 - 4.8	A-5 (2)	45	6	19.2	40.4	26.5	13.9	0	100	94	48	40.2	
SS-528	-L1-	55+49	16 RT	38.3 - 39.8	A-4 (0)	16	NP	32.2	38.7	21.2	7.9	0	100	82	37	25.4	
SS-529	-L1-	53+93	11 RT	8.8 - 10.3	A-7-5 (16)	56	25	17.4	21.3	12.8	48.5	0	100	92	64	25.7	
SS-530	-L1-	53+93	11 RT	18.8 - 20.3	A-7-5 (7)	55	11	13.1	37.0	28.0	21.9	0	100	96	57	45.6	
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Stephanie H. Huffman

Certified Lab Technician Signature

114-01-1203 Certification Number