961 REFERENCE

STATE OF NORTH CAROLINA

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

CONTENTS

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STRUCTURE SUBSURFACE INVESTIGATION

COUNTY WAYNE

PROJECT DESCRIPTION DIVISION 4 - US 117 AND SR 1120 (O'BERRY ROAD) INTERCHANGE

SITE DESCRIPTION BRIDGE ON -Y8- (O'BERRY ROAD) AT STA. 26+20 OVER -L- (US 117) AT STA. 27+42

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-5796	1	8

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 1991 707-680. THE SUBSURFACE PLANS AND REPORTS, FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA ARE NOT PART OF THE CONTRACT.

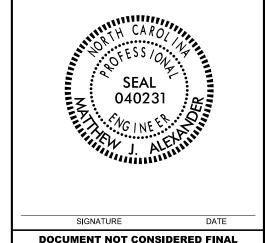
GENERAL SOIL AND ROCK STRATA DESCRIPTIONS AND INDICATED BOUNDARIES ARE BASED ON A GEOTECHNICAL INTERPRETATION OF ALL AVAILABLE SUBSURFACE DATA AND MAY NOT NECESSARILY REFLECT THE ACTUAL SUBSURFACE CONDITIONS BETWEEN BORINGS OR BETWEEN SAMPLED STRATA WITHIN THE BOREHOLE. THE LABORATORY SAMPLE DATA AND 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 INVESTIGATION. THESE WATER LEVELS OR SOIL MOISTURE CONDITIONS MAY VARY CONSIDERABLY WITH TIME ACCORDING TO CLIMATIC CONDITIONS MEDICATED DESCRIPTIONS AND ASSECTIONS OF THE INVESTIGATION. THE STATEM LEVELS OR SOIL MOISTURE CONDITIONS MAY VARY CONSIDERABLY WITH TIME ACCORDING TO CLIMATIC CONDITIONS MEDICATED DESCRIPTIONS AND ASSECTIONS AND ASSECTIONS OF THE INVESTIGATION. THE ACCORDING TO CLIMATIC CONDITIONS MEDICATED DESCRIPTIONS AND ASSECTIONS AND ASSECTIONS OF THE ACCORDING TO CLIMATIC CONDITIONS MEDICATED DESCRIPTIONS AND ASSECTIONS AND ASSECTIONS OF THE ACCORDING TO CLIMATIC CONDITIONS MEDICATED DESCRIPTIONS AND ASSECTIONS AND ASSECTIONS OF THE ACCORDING TO CLIMATIC CONDITIONS MEDICATED DESCRIPTIONS AS WELL AS A COURS NOW. 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.

- IES:
 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.

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	-
INVESTIGATED BY	TERRACON CONSULTANTS
DRAWN BY	W. D. FIELDS
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DATE	

PERSONNEL



UNLESS ALL SIGNATURES COMPLETED



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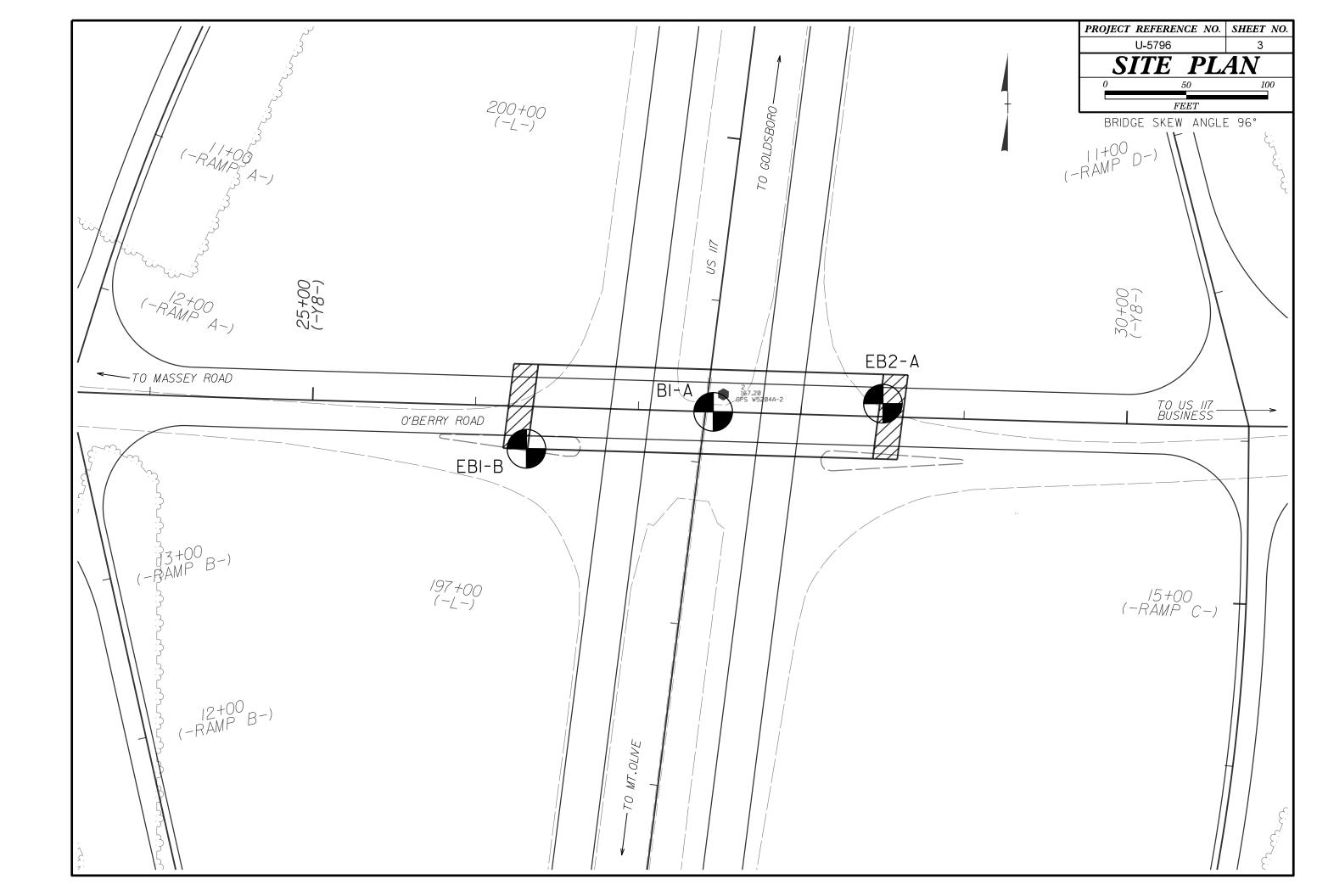
PROJECT REFERENCE NO. SHEET NO. 2

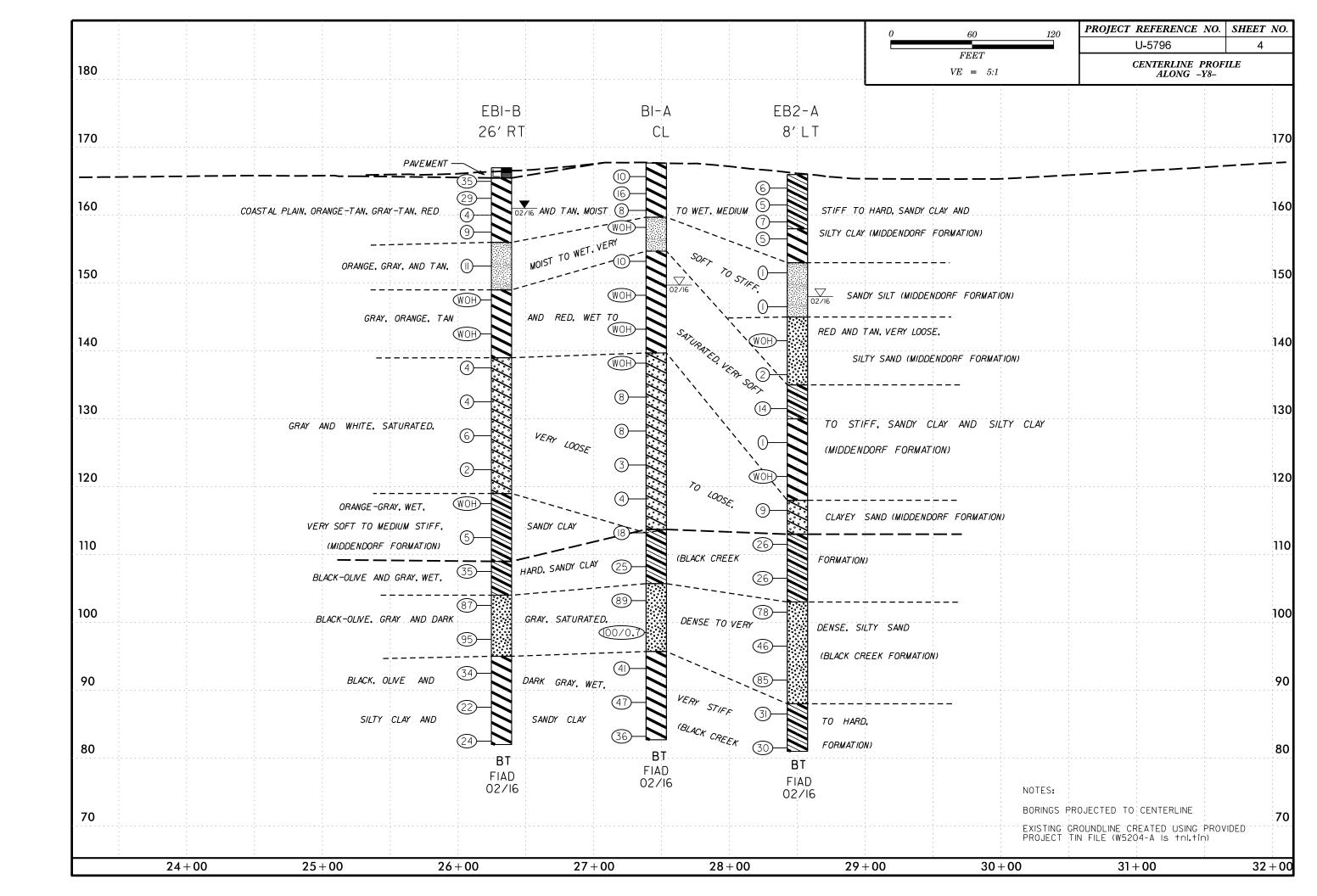
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

SOIL DESCRIPTION	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	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.	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.	ALLUYIUM (ALLUY.) - 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.	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	AQUIFER - A WATER BEARING FORMATION OR STRATA.
CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH	ANGULARITY OF GRAINS	REPRESENTED BY A ZONE OF WEATHERED ROCK. ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS:	ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND.
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	THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS:	WEATHERED NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES >	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.
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	MINERALOGICAL COMPOSITION	CRYSTALLINE FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT	WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE.
LLASS. (\$\(\sigma\) 53% PASSING *2001 (> 30% PASSING *2001	MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.	ROCK (CR) WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE, GNEISS, GABBRO, SCHIST, ETC.	CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.
GROUP A-1 A-3 A-2 A-4 A-5 A-6 A-7 A-1, A-2 A-4, A-5 CLASS. A-1-0 A-1-b A-2-4 A-2-5 A-2-6 A-2-7 B-2-6 A-2-7 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	COASTAL PLAIN SEDIMENTARY ROCK COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD 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 SIL1- MUCK,	PERCENTAGE OF MATERIAL	CCP) 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 PEAT SOILS S	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 HIGHLY 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 SOLIS	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 CLAYEY SILTY CLAYEY MATTER	▼ WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING	(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	∇PW PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA	(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 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 CONSISTENCY 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
(N-VALUE) (TUNS/FT-)	WITH SOIL DESCRIPTION OF ROCK STRUCTURES	SEVERE 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	ITS LATERAL EXTENT.
GENERALLY VERY LOOSE < 4 CONTROL LOOSE	SOIL SYMBOL SOIL SYMBOL SLOPE INDICATOR INSTALLATION	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 MATERIAL DENSE 30 TO 50	ARTIFICIAL FILL (AF) OTHER AUGER BORING COME PENETROMETER THAN ROADWAY EMBANKMENT TEST	IF TESTED, WOULD YIELD SPT N VALUES > 100 BPF	MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS, MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE.
(NON-COHESIVE) VERY DENSE > 50	THAN ROADWAY EMBANKMENT	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 < 2 < 0.25	— INFERRED SOIL BOUNDARY — CORE BORING ■ SOUNDING ROD	(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 < 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	A PIFTOMETER	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	TTT 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 VERY HARD CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK, BREAKING OF HAND SPECIMENS REQUIRES	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 - UNCLASSIF	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	SHALLOW STILLING ASSISTED EXCAVATION - USED IN THE TOP 3 FEET OF	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 THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS.
BOULDER COBBLE GRAVEL COARSE FINE SILT CLAY	UNDERCUT ACCEPTABLE DEGRADABLE ROCK EMBANKMENT OR BACKFILL	TO DETACH HAND SPECIMEN. MODERATELY CAN BE SCRATCHED BY KNIFE OR PICK, GOUGES OR GROOVES TO 0.25 INCHES DEEP CAN BE	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 BT - BORING TERMINATED MICA MICACEOUS WEA WEATHERED	BY MODERATE BLOWS.	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
SIZE IN. 12 3	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 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE	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 $\gamma_{ m d}$ - 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 GUIDE FOR FIELD MOISTURE DESCRIPTION	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 e - VOID RATIO SD SAND, SANDY SS - SPLIT SPOON	PIECES CAN BE BROKEN BY FINGER PRESSURE.	STRATA ROCK QUALITY DESIGNATION (SRQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY
(SAT.) FROM BELOW THE GROUND WATER TABLE	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	THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE.
PLASTIC LIQUID LIMIT	FOSS FOSSILIFEROUS SLI SLIGHTLY RS - ROCK FRAC FRACTURED, FRACTURES TCR - TRICONE REFUSAL RT - RECOMPACTED TRIAXIAL	FINGERNAIL.	TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.
RANGE - WET - (W) SEMISOLID; REGUIRES DRIVING TO	FRAGS FRAGMENTS W - MOISTURE CONTENT CBR - CALIFORNIA BEARING	FRACTURE SPACING BEDDING	BENCH MARK: GPS W5206A-2: 10.9' LEFT
(P) PL PLASTIC LIMIT ATTAIN OPTIMUM MOISTURE	HI HIGHLY V - VERY RATIO	IERM SPACING IERM THICKNESS VERY WIDE MORE THAN 10 FEET VERY THICKLY BEDDED 4 FEET	
OM OPTIMUM MOISTURE - MOIST - (M) SOLID; AT OR NEAR OPTIMUM MOISTURE	EQUIPMENT USED ON SUBJECT PROJECT DRILL UNITS: ADVANCING TOOLS: HAMMER TYPE:	WIDE 3 TO 10 FEET THICKLY BEDDED 1.5 - 4 FEET	ELEVATION: 167.20 FEET
SL _ SHRINKAGE LIMIT	CME-45C CLAY BITS X AUTOMATIC MANUAL	MODERATELY CLOSE 1 TO 3 FEET THINLY BEDDED 0.16 - 1.5 FEET CLOSE 0.16 TO 1 FOOT VERY THINLY BEDDED 0.03 - 0.16 FEET	NOTES:
- DRY - (D) REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE	6. CONTINUOUS ELICHT AUGER	VERY CLOSE LESS THAN 0.16 FEET THICKLY LAMINATED 0.008 - 0.03 FEET	FIAD - FILLED IN AFTER DRILLING
	CME-55 CONTINUOUS FLIGHT HOUSE CORE SIZE: B*HOLLOW AUGERS -B -H	THINLY LAMINATED < 0.008 FEET INDURATION	1
PLASTICITY		FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.	1
PLASTICITY INDEX (PI) DRY STRENGTH NON PLASTIC 0-5 VERY LOW	TING -CARRIDE INSERTS	RUBBING WITH FINGER FREES NUMEROUS GRAINS;	
SLIGHTLY PLASTIC 6-15 SLIGHT	VANE SHEAR TEST Y CASING WY ADVANCER HAND TOOLS:	GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE.	
MODERATELY PLASTIC 16-25 MEDIUM HIGHLY PLASTIC 26 OR MORE HIGH	POST HOLE DIGGER	MODERATELY INDURATED GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER.	
COLOR	TRICOUS TRICOUS ADD	CDAING ADE DIEFICH T TO SEPARATE WITH STEEL PROPE.	
	XD-50 (TER346)	INDURATED 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 VANE SHEAR TEST	EXTREMELY INDURATED SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE;	
	L [A] 2 7/6 UNAU DII	SAMPLE BREAKS ACROSS GRAINS.	DATE: 8-15-1







GEOTECHNICAL BORING REPORT BORE LOG

WB	S 5	4039.1.F	:D1		TI	P U-579	6			Y WAYN			GEOLO	GIST SMITH,	E. H.		WBS 540)39.1.FD	1		TIP	U-5796	COUN	TY WAYNE			G	SEOLOGIST SMITH, I	 Е. Н.	
SITE	E DE	SCRIPTI	ON DIV	VISION	4 - US	S 117 & S	R 1120	(O'BE	RRY R	OAD) INT	ERCHAN	GE				UND WTR (ft)	SITE DES	CRIPTIO	N DIVIS	SION 4	- US 1	117 & SR 1120	(O'BERRY	ROAD) INTE	RCHAN	IGE	'		GR	OUND WTR (ft)
BOF	RING	NO. El	B1-B		S	TATION	26+32			OFFSET	26 ft RT		ALIGNN	MENT -Y8-	0 HF	2. 18.0	BORING N	IO . EB1	I-B		STA	ATION 26+32		OFFSET	26 ft R	Γ	Α	ALIGNMENT -Y8-	0 H	HR. 18.0
COL	LAF	R ELEV.	167.0 ft	t	т	OTAL DE	PTH 85	.0 ft		NORTHI	IG 553,9	906	EASTIN	G 2,282,688	24 HF	2. 6.0	COLLAR	ELEV. 1	67.0 ft		тот	TAL DEPTH 85	.0 ft	NORTHIN	G 553,	906	E	EASTING 2,282,688	24 H	HR. 6.0
DRIL	L RIC	G/HAMME	R EFF./D/	ATE TE	R346	DIEDRICH I	D-50 93%	09/19	/2015		DRILL	METHOD	Mud Rotary		HAMMER TYP	E Automatic	DRILL RIG/	HAMMER I	EFF./DATI	E TER3	346 DIE	EDRICH D-50 93%	09/19/2015		DRILL	METHO	D Mud R	Rotary	HAMMER T	YPE Automatic
DRI	LLEF	R EKLU	JND, M.	A.	S	TART DA	ΓΕ 02/0	2/16		COMP. D	ATE 02	02/16	SURFA	CE WATER DEF	PTH N/A		DRILLER	EKLUN	D, M. A.		STA	ART DATE 02/0	2/16	COMP. DA	ATE 02	/02/16	s	SURFACE WATER DEP	TH N/A	
ELE\ (ft)	/ DF EL (RIVE LEV (ft) DEF	t) BL	OW COU		0	BLOV 25	VS PE 50	R FOOT	7 5 10			L O ELEV. (ft)	SOIL AND RO	OCK DESCRIPTION	DEPTH (ft	ELEV ELE (ft)		BLOV 0.5ft	0.5ft 0.		BLOV 0 25	VS PER FOC	T 75 100	SAMF NO.	. MOI	L O G	SOIL AND RO	CK DESCRIPT	ΓΙΟΝ
170																	90					N	latch Line							
170													167.0	GROUN	ID SURFACE	0.0		5 - 78.5	20	12 1	10				 			BLACK-OLIVE ANI CLAY (D DARK GRAY (continued)	Y, SILTY
165	_16	6.0 1.	0 7	11	24					T		D	- 165.5	CO	NCRETE	1.5	85	‡												
		33.5 + 3.	5					5 -					>	ORANGE-T	TAL PLAIN AN, SILTY CLAY			5 + 83.5	1 -	10										
	16	31.0 1 6.		20	9	:::	29						3	(MIDDENDO	RF FORMATION)		+	5	10 1	14	24			Ц	W	82.	0 Boring Terminated	at Elevation 8	85.0 32.0 ft IN
160		+	1	2	2	4					\parallel	М) -					Ŧ										COASTAL PL	AIN (SILTY CL	AY)
	15	58.5 + 8. +	5 4	4	5		.					м	3					Ŧ												
155		Ŧ					.						156.0	GRAY,	SANDY SILT	11.0		Ŧ												
	15	53.5 7 13	.5	5	6								F	,				Ŧ									F			
		Ŧ	2	3	0	11						W	E					Ŧ									[
150		.	_			 /:::				+	+		149.0			18.0		Ŧ									[-			
	14	18.5 † 18 I	WOF	H WOH	WOH	6 0						w	3	GRAY AND OR	RANGE, SILTY C	AY		Ŧ												
145		Ŧ											3					Ŧ									l E			
	14	13.5 7 23	.5 WOL	H WOH	WOH								\mathbf{F}					Ŧ									l E			
		Ŧ	VVOI	I WOII	VVOIT	•						l w	3					Ŧ									l E			
140		, , 	_			1				+	+		139.0			28.0		\pm									[-			
	13	38.5 <u>† 28</u> 1	1	1	3	4						Sat.	·	GRAY, C	CLAYEY SAND			Ŧ									E			
135		Ŧ										/. %.						Ī									l E			
	13	33.5 7 33	.5	2	2													Ŧ									l E			
		İ		_	-	1 9 4	.					Sat.						İ									<u> </u>			
130	7	<u>+</u> 28.5 + 38	_			 					+							+												
	12		1	2	4	6 . :	.					Sat.						‡												
125		<u> </u>				1												<u> </u>									<u> </u>			
	_12	23.5 + 43	.5	1	1	<u> j</u>						Sat.						‡									-			
400		‡				P ²	.					Sal.						‡									_			
120		+ 18.5 + 48	5			 	+			 	+		119.0		5547 5155 S	48.0		‡									-			
3/18/16		+ 70	WOF	WOH	WOH	0:::	: : : :	: :				w	3	ORANGE AND	GRAY, SANDY C	LAY		‡												
<u>الم</u>	4	‡				 		- :			\bot		\$					‡												
DOT.GDT	_11	13.5 + 53	.5 WOF	H WOH	5	F · · ·	: : : :	: :				w	\$					‡									-			
임 의 110		‡										"						‡												
Z		+ 08.5 + 58	.5							<u> </u>			109.0			58.0		‡									-			
G.GPJ		+	6	11	24			5 .				W) '	BLACK-OLIVE AN (BLACK CRE	EEK FORMATION			‡												
105 BBDG 105		‡							· · · · ·				104.0			62.0		‡												
GEO	_10)3.5 + 63	43	50	37							Sat.	104.0	BLACK-OLIVE AN	ND GRAY, SILTY	SAND 03.0		‡												
100		‡					.			\ .		J Gat.						‡												
ш		+ 8.5 + 68	.5							<u> \</u> .	1		-					‡									-			
DOUBL		‡	33	35	60		: : : :	: :		: \ 	95	Sat.						‡												
95 W	4	‡								1	\bot		95.0	BLACK-OLIVE AN		72.0		‡												
T B0	9:	3.5 7 3 	.5 8	15	19			-+				w	\$		CLAY	OIL1 I		‡									-			
90		‡											\$					‡												



GEOTECHNICAL BORING REPORT BORE LOG

WB	S 5	4039.1.	FD1			TIP	U-5796	;	СО		WAYN	E			GEOLOG	IST SMIT	 ГН, Е. Н.			WBS	54039.	1.FD1			TIP	P U-579	6	СС	UNTY	WAYNE				GEOL	DGIST S	MITH, E.	Н.		
-				DIVISIO							DAD) INT		IGE					GROU	ND WTR (ft)	-				SION 4						DAD) INTE		NGE				,		ROUND	WTR (ft)
BOF	RING	NO. E	31-A			STA	TION 2	7+46			OFFSET	CL			ALIGNME	ENT -Y8-		0 HR.	18.0	BORIN	G NO.	B1-A			ST	ATION	27+46			OFFSET	CL			ALIGN	MENT -Y	'8-		0 HR.	18.0
COL	LAF	R ELEV.	167.	7 ft		TOT	AL DEP	TH 85.	0 ft		NORTHI	IG 553,	929		EASTING	2,282,80	02	24 HR.	FIAD	COLLA	R ELE	V . 16	7.7 ft		то	TAL DEF	PTH 88	5.0 ft		NORTHIN	3 553,	,929		EASTI	NG 2,282	2,802	2	4 HR.	FIAD
DRIL	L RI	G/HAMME	R EFF.	/DATE	TER34	6 DIE	DRICH D	-50 93%	09/19/20)15		DRILL	METHO	D Mu	d Rotary		HAN	IMER TYPE	Automatic	DRILL F	IG/HAM	IMER EI	FF./DAT	E TEF	R346 D	DIEDRICH [D-50 93%	09/19/20)15		DRILL	METH	IOD I	Mud Rotary		I	HAMMER	TYPE A	utomatic
DRII	LLE	R EKL	JND, N	И. А.		STA	RT DAT	E 02/03	3/16		COMP. D	ATE 02	/03/16		SURFACI	E WATER	DEPTH	N/A		DRILLI), M. A.	-	ST	ART DAT	ΓE 02/	03/16		COMP. DA	TE 02	2/03/1	6	SURF	CE WATE	R DEPT	H N/A		
ELEV (ft)	/ DF E	RIVE LEV (ft)	PTH 0	.5ft 0.5)	BLOW 25	'S PER I		75 10		MOI	0	ELEV. (ft)	SOIL AND	ROCK DE	SCRIPTION	I DEPTH (ft	ELEV (ft)	RIVE ELEV (ft)	DEPTH (ft)	BLOV 0.5ft	W COU		0	BLO 25	WS PER 50		75 100	SAMF NO.	1 /	0 0 G		SOIL A	ND ROCK	K DESCR	IPTION	
170		_																		90	89.2	7 <u>8.</u> 5						//atch Lir	ne	Т	 			<u></u>	BLACK-OI	IVE AND I	DARK GI	RAY SII T	,
165		66.7 + 1	'	10 6	6 4								D		167.7	C(ORANG	OUND SUR DASTAL PI GE-TAN, SIL NDORF FO	LAIN	0.0	85	Ŧ		12	17	30							w				CLAY (co	ontinued)	,	
160	16	34.2	5.0	2 7	9		16			· · · ·			D M			(232.					84.2	83.5	7	13	23		: : ./ : •	7 36	 			W		82.7	Boring Tel	minated at	t Elevatio N (SILTY	n 82.7 ft IN CLAY)	85. I
	1;	59.2 + 8	3.5 W	OH WC	OH WC	DH (,) \' · · · ·						М		159.7	GRAY A	ND TAN, SA	ANDY SILT			+	-												-					
155	1	54.2 1	3.5	3 5	5 5		.\					-	w		154.7	GR	AY, SILTY	CLAY	13.0		Ŧ	- - -												-					
150		49.2 18	8.5 W	oн wc	OH WC	JH	/ · · · · / · · · · · · · · · · · · · ·			· · ·			∇								‡	-												-					
145		14.2 + 2:	3.5 W	OH WC	OH WC	DH L							w								‡ +	· -												-					
140	1;	39.2 2	8.5	OH WC) WC					 					139.7	GRAY AND	WHITE, C	LAYEY SAN	<u>28.0</u>		+																		
135	1:	34.2 3		OHIWC	JH WC		/ /· · · · 0 ·		: :	 			Sat.				ŕ				‡ ‡	· · ·												<u>-</u>					
130		Ī		4 4	4		. 6 8						Sat.	\\\\							<u> </u>	· ·																	
125		29.2 7 38	8.5	2 4	4		8						Sat.	/////////////////////////////////////							† ‡													- - -					
120		24.2 + 4; +	3.5	2 1	2		3						Sat.								†	• • •												<u>-</u> - -					
120		19.2	8.5	1 1	3		 					-	Sat.								Ŧ	-												<u>-</u>					
115 115		14.2 5		4 6	5 12	2		8		· · ·		\parallel	w		113.7OR	ANGE, RED		LIVE AND C	<u>54.0</u> GRAY,		‡	· - ·												<u> </u>					
00 NC DC		09.2 5	8.5	7 10	0 1	5	· · · · · ·	•25		· · · · · · · · · · · · · · · · · · ·			w				FORMATIC				‡ ‡	-												E					
0.00 BRDG.0		04.2 6	3.5	45 49	9 40				*:\ \ .\ .\ .\ .\ .\ .\ .\ .\ .\ .\ .\ .\			$\frac{1}{2}$	Sat		105.7 <u>B</u>	LACK-OLIVE	E AND DAR SAND	RK GRAY, SI	<u>62.0</u>		‡													<u> </u>					
100 GE	g	9.2 6	8.5							· · · · · · · · · · · · · · · · · · ·			Sat.								‡													<u> </u>					
SE DOUBLE		Ī	100	0/0.7							. 100/0.	7	Sat.		95.7	LACK-OLIVE	AND DAR	K GRAY. S			<u> </u>													<u> </u>					
NCDOT BOR	9	14.2 T 73	3.5	17 14	4 27	7)41 . 				W		_		CLAY	,			† †													<u>-</u>					



GEOTECHNICAL BORING REPORT BORE LOG

WB	S 5	4039).1.FD	1			TIP	U-579	6				WAYN					GEOLO	GIST	SMI	TH, E.	Н.				WBS	5403	9.1.FD	1		1	TIP L	J-5796		С	OUNT	Y WA	YNE					GEOL	OGIST	SMIT	H, E. H			
SIT	E DE	SCF	IPTIO	N DI	VISIO	N 4 -	JS 1	17 & S	R 112	20 (O'E	l		AD) IN		HANG	E							GROUI	ND W	TR (ft)	—				/ISION	N 4 - L	US 117	7 & SR	1120			ROAD) I		RCHAI	NGE								ROUND	WTR (ft)
ВОІ	RINC	NO 6	EB2	2-A			STA	ION	28+50)			OFFSET	8 ft	LT			ALIGNI	MENT	-Y8-			0 HR.		18.0	BORI	NG NC	. EB2	-A		5	STATI	ON 2	8+50			OFFS	ET 8	3 ft LT			1	ALIGN	IMENT	-Y8-		0	HR.	18.0
COI	LLAI	R EL	EV . 1	66.0 f	ft		TOT	AL DEF	PTH	85.0 ft	t	N	NORTHI	NG	553,93	4		EASTIN	IG 2,2	,282,9	07	2	24 HR.		FIAD	COLI	AR EL	EV . 1	66.0 ft		1	TOTAL	L DEP	TH 85	.0 ft		NORT	HING	553	,934		E	EASTI	NG 2	,282,90	7	24 1	HR.	FIAD
DRII	LL RI	G/HA	MMER	EFF./D	ATE	TER34	DIE	ORICH E)-50 9	3% 09/	19/201	5		D	RILL M	THO) Mu	Rotary			H	IAMME	R TYPE	Autor	matic	DRILL	. RIG/HA	MMER I	FF./DA	ATE T	ER346	6 DIEDF	RICH D-	50 93%	09/19/	2015			DRILL	MET	HOD	Mud F	Rotary			НА	MMER T	YPE A	ıtomatic
DRI	LLE	R E	KLUN	D, M.	A.		STAF	RT DAT	TE 0	2/01/1	6	C	OMP. I	DATE	02/0	2/16		SURFA	CE WA	ATER	DEPTI	H N/A				DRIL	LER E	KLUN	D, M. A	Α.	9	STAR	T DATE	02/0	1/16		COME	P. DA	TE 02	2/02/	′16		SURF	ACE W	ATER C	EPTH	N/A		
ELE\ (ft)		RIVE LEV (ft)	DEPTI (ft)	H BL 0.5f	_OW Co	DUNT t 0.5	t 0		BL 25	OWS F	PER FC	OOT 75	5 1	- 1 1	NO.	/	0	ELEV. (ft)	SO	DIL AND	O ROCK	DESCF	RIPTION		EPTH (ft)	ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	0.5ft	OW CO		ft 0	2	BLO	VS PEI 50		Γ 75 -	100	SAMI NO.		MOI	L O G		SC	OIL AND	ROCK D	ESCRIP	TION	
170																										90								N	latch I	ine													
			<u> </u>														-			0.5	0.11.0						87.5	78.5	8	11	20				· · · · · ·						W	88	<u> </u>	BLACK	K, OLIVE	AND GF (continue AND GR	RAY, SILT ed) RAY, SAN	TY SAND	<u>78.9</u>
165	1	65.0	1.0	4	3	3	+		T		 			\pm		D		166.0	GRAY-T	С	OASTA	SURFAC L PLAIN CLAY (M		OORF	0.0	85		‡						9 31			· · · 			`	"			22 (0.	, 02.72		, 0,	.5. 02.	
	_1	62.5	3.5	2	2	3	$+$ \parallel	5						-		М				, -	FORMA	ATION)					82.5	83.5	9	14	16	- :] . 30			.				v I	81	1.0						85.0
160			6.0	3	3	4	\dashv	7						-11		W		158.0							8.0	•		‡														-		Borinç C(g Termina DASTAL	ited at E PLAIN (S	levation 8 SANDY C	B1.0 ft IN CLAY)	
155		57.5	8.5	2	2	3	1	5						.		W			RED, C	ORANG	E, GRA		TAN, S	ILTY	0.0			‡														ŧ	!	Other S ST-2	<u>amples:</u> (10.0 - 12	2.4)			
133		- 52.5	13.5							: : :	::		: : :	-			"	153.0	— — —		WD-05		NDY SIL	-	13.0			‡														F							
150		·		WOI	H WOI	1	7	(W	Ė		ORA	ANGE /	AND GR	AY, SAI	NDY SIL	.1				‡														Ė							
	_1	47.5	18.5	1	1	0								-	-	∇	E											† †														Ė							
145		-	-	'	'			·	+			• •					-	145.0	—— -	RED AN	VD TAN	, SILTY	SAND		21.0			‡														F							
	_1	42.5	23.5	WOI	H WOI	H WO	H ∫							-		Sat.						•						Ŧ														F							
140		-	-						. .																			Ŧ														F							
135		37.5	28.5	1	1	1		 2						11		Sat.		125.0							21.0			‡														ŧ							
133		- 32 5 :	33.5					`` .			::			-				135.0	RED	D AND	ORANG	E, SAN	DY CLA	<u>Y</u> — –	31.0			‡														E							
130				3	6	8		• 14			::			- 1 1		W		130.0				. .			<u>36</u> .0			‡														Ė							
	_1	27.5	38.5	1	1		4	./: : : / : : :	. .					-			111		OR.	RANGE	AND TA	AN, SILT	TY CLAY	<i>(</i>				‡														Ė							
125		-	-	'	'			·	+			• •	• • •	11		W												‡														F							
	_1	22.5	43.5	WOI	H WOI	H WO	H J									W												Ŧ														F							
120		- -	Ī					· · · · · · · · · · · · · · · · · · ·	+									110 0							40.0			Ī														F							
3/18/16		17.5	48.5	2	3	6	+	. 9 .						·		Sat.		110.0		GRA	Y, CLA	YEY SA	ND -		40.0			‡														Ė							
GDT		- 12 5 :	53.5							· · ·	::						/ <u>////</u>	113.0							<u>53.0</u>		•	‡														E							
N 110		12.5	33.3	6	10	16			26							W						SRAY, S FORM	ANDY C ATION)	CLAY				<u> </u>														Ė							
GPJ	_1	07.5	58.5			17								-														<u> </u>														Ė							
105 105		-	-			"			26							W												+														F							
96_GEO	_1	02.5	63.5	15	30	48	+					· · ·	• · · · · · · · · · · · · · · · · · · ·	.		Sat.		103.0	BLACK	K, OLIV	E AND	GRAY, S	SILTY S	AND -	63.0			Ŧ														F							
100 100		- -	ļ									· : / /.																‡														F							
18 DOUBL 95		97.5	68.5	49	23	23	+			· · ·	46					Sat.												‡														ŧ							
T BORE		92.5	73.5								 	``\															•	‡														F							
NCDOJ 90			+ '''	22	43	42					: :) 85	:		Sat.												‡														+							