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REFERENCE

DESCRIPTION TITLE SHEET LEGEND (SOIL & ROCK) SITE PLAN PROFILE BORE LOGS

STATE OF NORTH CAROLINA

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

STRUCTURE SUBSURFACE INVESTIGATION

COUNTY EDGECOMBE

PROJECT DESCRIPTION BRIDGE NO. 96 ON -L-(SR 1112) OVER BYNUM MILL RUN AT

STA. *12* + 57

SITE DESCRIPTION REPLACE BRIDGE WITH CULVERT

Ι	STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
	N.C.	SF-320096	1	7

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 REVEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N.C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT 1991 707-6800. 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 UN-FLACE) TEST DATA CAN BE RELIED ON ONLY TO THE DECREE OF RELIABILITY INHERENT IN THE STANDARD TEST METHOD. THE OBSERVED WATER LEVELS OR SOLI MOISTURE CONDITIONS INDICATED IN THE SUBSURFACE INVESTIGATIONS ARE AS RECORDED AT THE TIME OF THE INVESTIGATION. THESE WATER LEVELS OR SOLI MOISTURE CONDITIONS MAY YARY CONSIDERABLY WITH TIME ACCORDING TO CLIMATIC CONDITIONS INCLUDING TEMPERATURES, PRECIPITATION AND WIND, AS WELL AS OTHER NON-CLIMATIC FACTORS.

THE BIDDER OF CONTRACTOR IS CAUTONED 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 THINSELF 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 FOM THE ACUAL CONDITIONS ENCOUNTERED AT THE SITE DIFFERING FROM THOSE INDICATED IN THE SUBSURFACE INFORMATION.

NOTES:

- TES: 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 REDUESTED THIS INFORMATION, THE CONTRACTOR SPECIFICALLY WAVES ANY CLAIMS FOR INCREASED COMPENSATION OR STETNSION OF TIME BASED ON DIFFERENCES BETWEEN THE CONDITIONS INDICATED HEREIN AND THE ACTUAL CONDITIONS AT THE PROJECT SITE. 2.

PERSONNEL

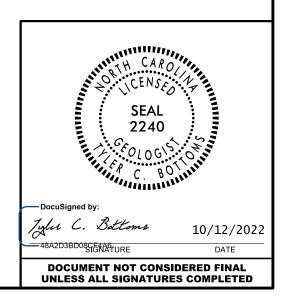
S.N. ZIMARINO

T.W. MILLER

R.E. SMITH

C.M. WALKER

INVESTIGATED BY _____. BOTTOMS DRAWN BY _S.N. ZIMARINO CHECKED BY ______. D.N. ARGENBRIGHT SUBMITTED BY ______. ARGENBRIGHT DATE _ SEPTEMBER, 2022

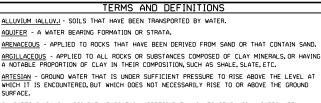


NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS GEOTECHNICAL ENGINEERING UNIT SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

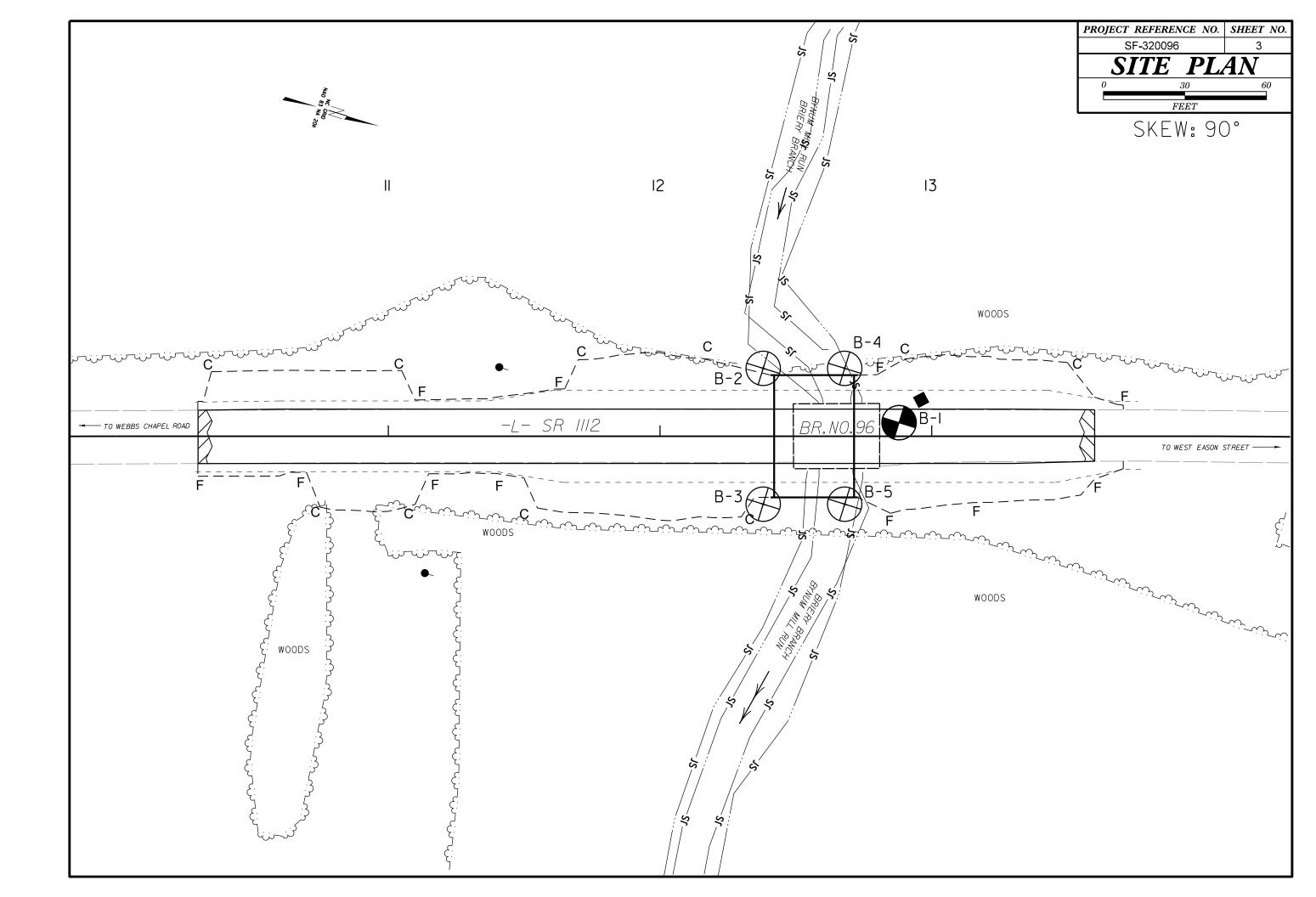
SOIL DESCRIPTION	GRADATION	ROCK DESCRIPTION
SOIL IS CONSIDERED UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLICHT POWER AUGER AND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO THE STANDARD PENETRATION TEST (AGSHTO T 206, ASTM DISB6). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM, BASIC DESCRIPTIONS GENERALLY INCLUDE THE FOLLOWING: CONSISTENCY, COLOR, TEXTURE, MONISTURE, AGSHTO L CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH	WELL GRADED - 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. <u>GAP-GRADED</u> - INDICATES A MIXTURE OF UNIFORM PARTICLE SIZES OF TWO OR MORE SIZES. ANGULARITY OF GRAINS	HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT REFUSAL IF TESTED. AN INFERRED ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL. SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN WI.FOOT PER 60 BLOWS IN NON-COASTAL PLAIN MATERIAL. THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN REPRESENTED BY A ZONE OF WEATHERED ROCK.
AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. FOR EXAMPLE,	THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS:	ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS:
VERY STIFF.GRAY.SILTY CLAY,MOIST WITH INTERBEDDED FINE SAND LAYERS,HIGHLY PLASTIC,A-7-6 SOIL LEGEND AND AASHTO CLASSIFICATION	ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.	WEATHERED NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES > ROCK (WR) 100 BLOWS PER FOOT IF TESTED.
GENERAL GRANULAR MATERIALS SILT-CLAY MATERIALS ORGANIC MATERIALS CLASS. (< 35%, PASSING *200)	MINERALOGICAL COMPOSITION MINERAL NAMES SUCH AS OUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC.	CRYSTALLINE FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT
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.	ROCK (CR) CONTROL THE CONTROL OF THE TOTAL THE ACCOUNT AND A CONTROL AND
CLASS. A-1-0 A-1-10 A-2-4 A-2-5 A-2-6 A-2-7 A-75 A-3 A-6, A-7	COMPRESSIBILITY SLIGHTLY COMPRESSIBLE LL < 31	NON-CRYSTALLINE SEDIMENTARY ROCK THAT WOULD YELD SPT REFUSAL IF TESTED.
SYMBOL 000000000000000000000000000000000000	MODERATELY COMPRESSIBLE LL = 31 - 50 HIGHLY COMPRESSIBLE LL > 50	COASTAL PLAIN COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD SEDIMENTARY ROCK SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED
*10 50 MX GRANULAR CLAY MUCK,	PERCENTAGE OF MATERIAL	
*40 38 MX 58 MX 51 MN *200 15 MX 25 MX 18 MX 35 MX 35 MX 35 MX 35 MX 36 MN 36 MN 36 MN 36 MN S0LLS SOLLS SOLLS	GRANULAR SILT - CLAY <u>ORGANIC MATERIAL</u> <u>SOILS</u> <u>OTHER MATERIAL</u>	FRESH ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING, ROCK RINGS UNDER
MATERIAL PASSING *40 LL – – 40 MX 41 MN 40 MX 41 MN 40 MX 41 MN 40 MX 41 MN 50ILS WITH LL – – 40 MX 11 MN 10 MX 11 MN 11 MN 10 MX 10 MX 11 MN 11 MN 11 MN PI 6 MX NP 18 MX 10 MX 11 MN 11 MN 18 MX 18 MX 11 MN 11 MN	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	HAMMER IF CRYSTALLINE. VERY SLIGHT ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN, (V SLI,) CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY. ROCK RINGS UNDER HAMMER BLOWS IF OF A CRYSTALLINE. NATURE.
GROUP INDEX 0 0 0 0 4 MX 8 MX 12 MX 16 MX NO MX AMOUNTS OF ORGANIC SOILS USUAL TYPES STONE FRAGS. FINE SILTY OR CLAYEY SILTY CLAYEY MATTER	GROUND WATER	SLIGHT ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO (SLI.) I NCK, DPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR CRYSTALS ARE DULL AND DISCOLORED. CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS.
Materials Sand Sand Gravel and sand Soils Soils Gen. Rating As Subgrade Excellent to good Fair to poor Fair to poor Poor Poor Unsuitability	▼ STATIC WATER LEVEL AFTER 24 HOURS ∑PW PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA	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
PI OF A-7-5 SUBGROUP IS ≤ LL - 30 ;PI OF A-7-6 SUBGROUP IS > LL - 30	- O-M- Spring or Seep	WITH FRESH ROCK. MODERATELY ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. IN GRANITOID ROCKS, ALL FELDSPARS DULL
CONSISTENCY OR DENSENESS PRIMARY SOIL TYPE COMPACTNESS OR PENETRATION RESISTENCE COMPRESSIVE STRENOTH		SEVERE AND DISCOLORED AND A MAJORITY SHOW KADLNIZATION, ROCK SHOWS SEVERE LOSS OF STRENGTH (MOD.SEV.) AND CAN BE EXCAVATED WITH A GEOLODIST'S PICK. ROCK GIVES 'CLUNK' SOUND WHEN STRUCK. [F TESTED, WOULD YELD SPT REFUSAL
CONSISTENCY CENENTIAL CONSISTENCY <thcenential consistency<="" th=""> CENENTIAL CONSISTENCY CENENT</thcenential>	↓ WITH SOIL DESCRIPTION ↓ OF ROCK STRUCTURES ↓ SOIL SYMBOL ● > > SLOPE INDICATOR ▶ > ● > > > > SLOPE INDICATOR ▶ >	SEVERE ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC CLEAR AND EVIDENT BUT (SEV.) 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, MOULD YELD SPT IN VALUES > 100 BPF
MATERIAL (NON-COHESIVE) DENSE 30 TO 50 VERY DENSE > 50 VERY SOFT < 2	ARTIFICIAL FILL (AF) DTHER 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 (V SEV.) REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE THAT ONLY MINOR
GENERALLY SOFT 2 TO 4 0.25 TO 0.5 SILT-CLAY MEDIUM STIFF 4 TO 8 0.5 TO 1.0 MATERIAL STIFF 8 TO 15 1 TO 2 (COHESIVE) VERP STIFF 15 TO 30 2 TO 4	TIEST BORING WO MONITORING WELL TEST BORING WITH CORE	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 SCATTERED CONCENTRATIONS. QUARTZ MAY BE PRESENT AS DIKES OR STRINGERS. SAPROLITE IS ALSO AN EXAMPLE.
HARD > 30 > 4		ROCK HARDNESS
TEXTURE OR GRAIN SIZE	RECOMMENDATION SYMBOLS	VERY HARD CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK. BREAKING OF HAND SPECIMENS REQUIRES
U.S. STD. SIEVE SIZE 4 10 40 60 200 270 OPENING (MM) 4.76 2.00 0.42 0.25 0.075 0.053	UNDERCUT UNCLASSIFIED EXCAVATION - UNSUITABLE WASTE UNCLASSIFIED EXCAVATION - UNSUITABLE WASTE	SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK. HARD CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY. HARD HAMMER BLOWS REQUIRED
BOULDER COBBLE GRAVEL COARSE FINE SILT CLAY	SHALLOW UNCLASSIFIED EXCAVATION - USED IN THE TOP 3 FEET OF ACCEPTABLE DEGRADABLE ROCK EMBANKMENT OR BACKFILL	TO DETACH HAND SPECIMEN.
(BLDR.) (COB.) (GR.) (GR.) (F SD.) (F SD.) (SL.) (CL.) GRAIN MM 305 75 2.0 0.25 0.05 0.005	ABBRE VIATIONS AR - AUGER REFUSAL MED MEDIUM VST - VANE SHEAR TEST	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 BY MODERATE BLOWS.
SIZE IN. 12 3 SOIL MOISTURE - CORRELATION OF TERMS	BT - BORING TERMINATED MICA MICACEOUS WEA WEATHERED CL CLAY MOD, - MODERATELY ∑ - UNIT WEIGHT CPT - CONE PENETRATION TEST NP - NON PLASTIC Z ₁ - DRY 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 POINT OF A GEOLOGIST'S PICK.
SOIL MOISTURE SCALE FIELD MOISTURE (ATTERBERG LIMITS) DESCRIPTION GUIDE FOR FIELD MOISTURE DESCRIPTION	CSE COARSE ORG ORGANIC DMT - DILATOMETER TEST PMT - PRESSURMETER TEST SAMPLE ABBREVIATIONS DPT - DVNAMIC PENETRATION TEST SAP SAPROLITIC S - BULK	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 PIECES CAN BE BROKEN BY FINCER PRESSURE.
- 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 FOSS FOSSILIFEROUS SL.GHTLY RS - ROCK	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 FINGERMAIL.
PLASTIC SEMISOLID: REQUIRES DRYING TO RANGE - WET - (W) ATTAIN OPTIMUM MOISTURE	FRAC FRACTURED, FRACTURES TCR - TRICONE REFUSAL RT - RECOMPACTED TRIAXIAL FRAGS FRAGMENTS ω - MOISTURE CONTENT CBR - CALIFORNIA BEARING	FRACTURE SPACING BEDDING
	HI HIGHLY V - VERY RATIO	TERM SPACING TERM THICKNESS
OM OPTIMUM MOISTURE - MOIST - (M) SOLID; AT OR NEAR OPTIMUM MOISTURE	EQUIPMENT USED ON SUBJECT PROJECT DRILL UNITS: ADVANCING TOOLS: HAMMER TYPE; HAMMER TYPE;	VERY WIDE MORE THAN 10 FEET VERY THICKLY BEDDED 4 FEET WIDE 3 TO 10 FEET THICKLY BEDDED 1.5 - 4 FEET MODERATELY CLOSE 1 TO 3 FEET THINLY BEDDED 0.16 - 1.5 FEET
- DRY - (D) REDUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE	X CME-45C CLAY BITS X AUTOMATIC MANUAL CME-65 6* CONTINUOUS FLIGHT AUGER CORE SIZE:	CLOSE 0.16 TO 1 FOOT VERY THINLY BEDDED 0.03 - 0.16 FEET VERY CLOSE LESS THAN 0.16 FEET THICKLY LAMINATED 0.008 - 0.03 FEET THINLY LAMINATED C 0.008 FEET THINLY CAMINATED C 0.008 FEET
PLASTICITY	CME-55 8' HOLLOW AUGERS COME SIZE:	INDURATION
PLASTICITY INDEX (PI) DRY STRENGTH	CME-550 HARD FACED FINGER BITS	FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, ET
NON PLASTIC 0-5 VERY LOW SLIGHTLY PLASTIC 6-15 SLIGHT		FRIABLE RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE.
MODERATELY PLASTIC 16-25 MEDIUM HIGHLY PLASTIC 26 OR MORE HIGH	X CASING W/ ADVANCER POST HOLE DIGGER PORTABLE HOIST X TRICONE 2 15/6* STEEL TEETH HAND AUGER	MODERATELY INDURATED GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE: BREAKS EASILY WHEN HIT WITH HAMMER.
COLOR		INDURATED GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; 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 SAMPLE BEFAKS ACROSS GRAINS.

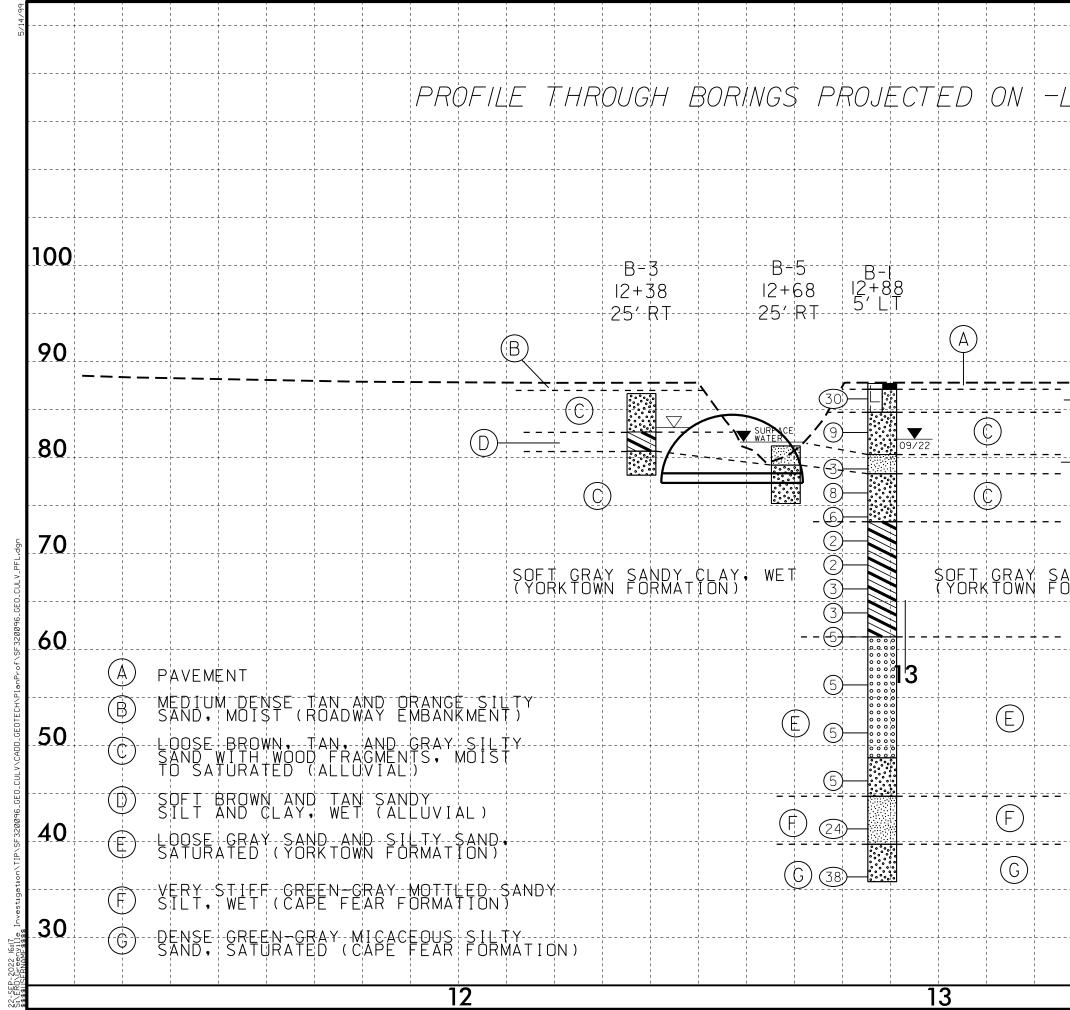
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IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND CK THAT SURFACE. CLUDES GRANITE, CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE. AL PLAIN IF TESTED. COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE. MAY NOT YIELD STONE, 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. $\underline{\text{DIKE}}$ - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK. RINGS UNDER DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL . NATINGS IF OPEN. DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH. AMMER BLOWS IF FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE ІСК ИР ТО SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE. FELDSPAR FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES. BLOWS. $\underline{\mathsf{FLOAT}}$ - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM PARENT MATERIAL. S. IN AY. ROCK HAS AS COMPARED FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM. FORMATION (FM.) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD. ELDSPARS DULL OSS OF STRENGTH WHEN STRUCK. JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED. LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT. VIDENT BUT ARE KAOLINIZED LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS. MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE. RE DISCERNIBLE PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE STRONG ROCK T ONLY MINOR VALUES < 100 BPF OF AN INTERVENING IMPERVIOUS STRATUM. RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK. ROCK OUALITY DESIGNATION (ROD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SECMENTS EQUAL TO OR CREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE IN SMALL AND SAPROLITE IS RUN AND EXPRESSED AS A PERCENTAGE. SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT S REQUIRES SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO LOWS REQUIRED THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS. $\underline{\text{SLICKENSIDE}}$ - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE. EEP CAN BE ETACHED 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 R PICK POINT WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL BLOWS OF THE TO OR LESS THAN 0.1 FOOT PER 60 BLOWS. $\underline{STRATA CORE RECOVERY (SREC.)}$ - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE. FRAGMENTS IT. SMALL. THIN STRATA ROCK QUALITY DESIGNATION (SROD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE. PIECES 1 INCH ED READILY BY TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER. BENCH MARK: BL-102 THICKNESS N: 727576.7460 4 FEET ELEVATION: 87.14 FEET E: 2392880.4570 16 - 1.5 FEET NOTES: 3 - Ø.16 FEET 08 - 0.03 FEET 0.008 FEET AT, PRESSURE, ETC.

DATE: 8-15-14





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GEOTECHNICAL BORING REPORT BORE LOG

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		R023.1				P SF-32				EDGECC				GEOLOGIST Miller, T. W.				BP4.F					P SF-32		COUN	
				VERT				2) OVE		JMS MILL F				1	-	ID WTR (ft)				CUL	VERT		,	SR 1112)	OVER BY	
BOR	ING NO). B-1			S	TATION	12+88			OFFSET	5 ft LT			ALIGNMENT -L-	0 HR.	N/A		ing no.					TATION			0
		.EV . 8				OTAL DE				NORTHING				EASTING 2,392,888	24 HR.	5.8		LAR EL)TAL DEF	PTH 8.5	ît 👘	N
DRILL	. RIG/HA	MIMER E	FF./DAT	EGF	C0075 C	ME-45C 8	7%11/23/	/2021			DRILL	METHOD	Mu	d Rotary HAM	MER TYPE	Automatic	DRILL	RIG/HAN	/IMER EF	F./DAT	ENA	۹				
DRIL		Walker,			S	FART DA	TE 09/	/14/22		COMP. DA	TE 09/	14/22		SURFACE WATER DEPTH	I/A		DRIL	LER V				ST	ART DA	TE 09/19	/22	C
ELEV	DRIVE		H BLC	ow co			BLC		R FOOT		SAMP.		L	SOIL AND ROCK DE	SCRIPTION		ELEV	DRIVE	DEPTH	BLC	w co	-			S PER FO	
(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0	25	50		75 100	NO.	Иог		ELEV. (ft)		DEPTH (ft)	(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0	25	50	75
90		\perp											Ļ	_			90		Ļ							
	07.4	t												87.7 GROUND SUR		0.0			ŧ							
0.5	87.1	0.6	13	14	16		. L.						-	ROADWAY EMBA					<u> </u>							<u>.</u>
85	83.6	+ 4.1					<u></u>							= ^{84.7} — <u>TAN AND ORANGE SILT</u>	Y SAND, M	<u>21ST3.0</u>	85	-	ŧ							<u> </u>
		1	4	3	6	∶ • 9 [•]	· · · ·							BROWN AND TAN SILT	Y SAND. MC	DIST			ł						:	
80	79.8	± 79				<u>'</u>								TO SATURA BROWN AND TAN SAN		<u>7.4</u>	80		ŧ							•
		<u>+</u>	WOH	2	1	4 3 · ·		•••						<u>78.3</u> <u> </u>		9.4			ł							•
		<u>† 10.4</u> 1	3	4	4									WOOD FRAGMENTS,					ł							
75	74.8	12.9	6	4	2													-	Ŧ							
	72.3	T 15.4				9 6°							Ś	<u></u>		<u>14.4</u>			Ŧ							
70	69.8	<u> </u>	WOH	1	1	\$ 2								GRAY SANDY CLAY, WE FORMATIO		OWN			Ŧ							
	09.0	+ 17.9	WOH	WO⊦	2	• <u>2</u> · ·									,			-	Ŧ							
	67.3	<u>† 20.4</u>	1	1	2														ŧ							
65	64.8	22.9		1										_					ŧ							
	62.3	+ 25.4	'	1	2		· · · ·		· · · ·										ŧ							
60		+	1	2	3	∮ 5 <u></u>								GRAY SAND AND S	LTY SAND.	26.4			‡							
00		‡												SATURATED (YORKTOW	/N FORMAT	TION)		-	‡							
	57.3	+ 30.4	2	3	2		· · · ·		· · · ·										‡							
55		‡	-		-	● ⁵								_				_	ŧ.							
	50.0	+ 35.4							· · · ·				 						ŧ							
	52.5	<u>30.4</u>	2	2	3														ŧ							
50		+											0 0 0 0 0 0 0 0 0 0 0 0	 . 48.7		39.0		-	ŧ							
	47.3	40.4	3	2	3		· · · ·												ł							
45		Ŧ				•5								_44.7		43.0			ł							
	40.0	±					$\cdot \cdot $							GREEN-GRAY MOTTLE WET (CAPE FEAR F		ILT,			t							
	42.3	<u> </u>	5	11	13		24						×.			,			t							
40		Ŧ		1	1											AND. 48.0		-	ŧ							
9122122	37.3	50.4	10	47			·		· · · · ·					SATURATED (CAPE FEA	R FORMAT	ION)			ŧ							
- 25		<u>+</u>	12	17	21			€38	<u></u>		Ц			Boring Terminated at Ele	vation 35.8	51.9 ft IN		.	Ł							
		Ŧ		1	1								F	DENSE SILTY	SAND			.	Ŧ							
		Ŧ		1	1								F						Ŧ							
		Ŧ		1	1								F	-				-	Ŧ							
CULV.GPJ		Ŧ											F						ŧ							
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SHEET 5 OF 7

EDGECON	ИВЕ			GEOLOGIST Zimarino, S.	N.		
IMS MILL RU	JN			·		GROUND WT	R (ft)
OFFSET 2				ALIGNMENT -L-		0 HR.	3.8
	727,5	18		EASTING 2,392,887		24 HR.	N/A
) Ha			RTYPE NA	
COMP. DAT							
	SAMP.	· · · · ·	L	JURFACE WATER DEPTH	IN/A		
75 100	NO.		0	SOIL AND ROCK I	DESC	RIPTION	
	110.	<u>/ MOI</u>	G				
			-	-			
			F			05	
· · · · ·				86.5 GROUND SI	IAL		0.0
				- LOOSE TAN SILTY S SATURA	SAND,	MOIST TO	
			\mathbf{i}			AY. WET	4.0
							<u>5.5</u>
				78.0			8.5
			F	Boring Terminated at I LOOSE SILT	Elevat Y SA	ion 78.0 ft IN ND	
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GEOTECHNICAL BORING REPORT BORE LOG

WBS	BP4	R023.1			Т	P SF-	32009	96	cc							6	GEOLOGIST Zimarino, S. N.			WBS	S BP4.	R023.1			ТІ	P SF-320	0096	COUN	TY F
		RIPTION		VERT													,,	GROUN	D WTR (ft)					VERT		6 ON -L- (8			
BOR	ING NO) . B-3			S		1 12+	+38			OFFS	ET 2	25 ft RT			/	ALIGNMENT -L-	0 HR.	3.6	BOR	RING NO	. В-4			S	ATION	12+68		OF
COL	LAR EL	.EV. 8	6.7 ft		т	OTAL D	DEPTH	i 8.5 f	ť		NORT		727,5				EASTING 2,392,934	24 HR.	N/A		LAR EL					DTAL DEP	7TH 6.01	ť	NC
DRIL	l Rig/Ha	MIMER E	FF./DAT	E N/A									DRILL	VIETHO	DH	Hand /	Auger HAMIN	IER TYPE	N/A	DRIL	l Rig/Ha	MIMER E	FF./DAT	TE N/A	۸ 				
DRIL		Walker,									COM	P. DAT	E 09/			<u>ا</u>	SURFACE WATER DEPTH N/	Ά		DRIL	LER V					ART DAT			CC
ELEV (ft)	DRIVE ELEV (ft)	DEPTI	H BLC 0.5ft	0.5ft		0	25	BLOW	S PER 50		75	100		МО	0	EL	SOIL AND ROCK DES .EV. (ft)	CRIPTION	DEPTH (ft)	ELEV (ft)	/ DRIVE ELEV (ft)	DEPTI (ft)	H BLO 0.5ft	OW CO	0.5ft	0	BLOW 25	S PER FOO 50	OT 75
90		+														_				85		+							
85		+ + 														86	5.7 GROUND SURF ALLUVIAL LOOSE TAN SILTY SAN		0.0 -O	80		+ 				<u> </u>			<u> </u>
		+						· · · · · · · · · · · ·	 	· · · ·	 	 				82		D DLAY, WET	<u>4.0</u>								. .	· · · · ·	· ·
80		+														78	LOOSE GRAY SILTY SAND		TED 8.5			+				1			I
		+															LOOSE SILTY S	AND											
		+ + +														-						+ + +							
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r Bore Double		+																				+							
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SHEET 6 OF 7

75 100 NO. O SOIL AND ROCK DESCRIPTION Image: Molecular control of the second se	L)	ſ	DG	ECO	ΟN	1BE			G	EOLOG	I ST Zi	marino,	S. N.		
NORTHING 727,546 EASTING 2,392,878 24 HR. N/A DRILL METHOD Hand Auger HAMMER TYPE NA COMP. DATE 09/19/22 SURFACE WATER DEPTH 0.1ft DT SAMP. L O SOIL AND ROCK DESCRIPTION 75 100 NO. MOI G SOIL AND ROCK DESCRIPTION T 81.3 WATER SURFACE (09/19/22) 0.0 ALLUVIAL 79.3 SOFT BROWN AND TAN SANDY SILT, 2.9 0.0 V 75.3 6.0 OOSE GRAY SILTY SAND, SATURATED	N	JMS	5 M	LLF	₹L	JN								GROUND	WTR (ft)
DRILL METHOD Hand Auger HAMMER TYPE NA COMP. DATE 09/19/22 SURFACE WATER DEPTH 0.1ft DT SAMP. 0 SOIL AND ROCK DESCRIPTION 75 100 NO. MOI G Image: Strain of the strain of th		OF	FS	ET	2	5 ft LT			AL	IGNME	NT -L			0 HR.	N/A
COMP. DATE 09/19/22 SURFACE WATER DEPTH 0.1ft DT SAMP. L O SOIL AND ROCK DESCRIPTION 75 100 NO. MOI G SOIL AND ROCK DESCRIPTION 		NC	RT	HING	G	727,54	16		EA	STING	2,392	2,878		24 HR.	N/A
T SAMP. L SOIL AND ROCK DESCRIPTION 75 100 NO. MOI G SOIL AND ROCK DESCRIPTION 75 100 NO. MOI 6 81.3 WATER SURFACE (09/19/22) 0.0 6 2.0 0.0 ALLUVIAL 7.9.3 SOFT BROWN AND TAN SANDY SILT, 2.0 WET VET VET 7.5.3 6.0 Boring Terminated at Elevation 75.3 ft IN						DRILL M	ethod) Ha	ind Au	ger			HAMM	ERTYPE N	Ά
MOI O SOIL AND ROCK DESCRIPTION 75 100 NO. MOI G SOIL AND ROCK DESCRIPTION 60 81.3 WATER SURFACE (09/19/22) 0.0 ALLUVIAL 79.3 SOFT BROWN AND TAN SANDY SILT, 2.0 V 75.3 6.0 Boring Terminated at Elevation 75.3 ft IN		СС	MP	. DA	١T	E 09/1	9/22		SL	IRFACE		R DEP	FH 0.1	ft	
75 100 NO. MOI G - - - - - 0.0 - - - - - 0.0 - - - - - 0.0 - - - - - 0.0 - - - - - 0.0 - - - - - 0.0 - - - - - 0.0 - - - - - 0.0 - - - - - 0.0 - - - - - 0.0 - - - - - 0.0 WET - - - - 0.0 - - - - - - 0.0 WET - - - - - 0.0 - - - - - - 0.0 0.0	DT	•				SAMP.					SOILA			RIPTION	
Image: Solution of the second state		75		100		NO.	моі				00.27				
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· · · · · · · · · · · SOFT BROWN AND TAN SANDY SILT,20 · · · · · · · · · · WET · · · · · · · · · · LOOSE GRAY SILTY SAND, SATURATED · · · · · · · · · · 6.0 Boring Terminated at Elevation 75.3 ft IN	-		-						81.3		WAT			9/19/22)	.0.0
. . LOOSE GRAY SILTY SAND, SATURATED' 		+							79.3	so		OWN AN	ID TAN	SANDY SILT	, <u>2.0</u>
Boring Terminated at Elevation 75.3 ft IN	•	-		· ·					-	LOC	DSE GR		YEI Y SAND		_/
borning retriminated at Elevation 75.3 it in LOOSE SILTY SAND	•	-	-						75.3				-4 51	tion 75 0 4 IN	6.0
									-	BC	ring i er L	-OOSE S	at Eleva SILTY SA	ation 75.3 π If AND	N
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GEOTECHNICAL BORING REPORT BORE LOG

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WBS	BP4.R0	23.1			Т	IP S	F-3200)96		COU	YTY	EDGE	ECO	MBE			GEOLOGIST Zimarino, S. N.	
SITE	DESCRIP	TION	CUL	VERT	NO. 9	6 ON	-L- (SI	R 111	2) O\	/ER B	YNUM	IS MIL	LR	UN				GROUND WTR (f
BOR	NG NO.	B-5			S	татю	DN 12	2+68			0	FFSE	T 2	25 ft RT			ALIGNMENT -L-	0 HR. N//
COL		/. 81	.2 ft		Т	OTAL	DEPT	H 6	.0 ft		N	ORTH	IING	727,5	61		EASTING 2,392,925	24 HR. N//
DRILL	. RIG/HAMIV	IER EF	F./DATI	E N/A										DRILL		D Han		ERTYPE NA
DRII	LER Wa	lker (с. М		s	TART	DATE	= 09	/19/22	<u> </u>	C	OMP		FE 09/	19/22		SURFACE WATER DEPTH 0.4	1ft
ELEV	DRIVE ELEV D			w co						- PER FC				SAMP.		1 L		
(ft)	ELEV (ft)	(ft)	0.5ft	-	1	0	2	25		60	75		100	NO.	мо	O G	SOIL AND ROCK DES	CRIPTION DEPTH
																		DEFIN
05																		
85																		
	<u>†</u>															Ŀ	B12 WATER SURFACE ()9/19/22)
80	l F					<u> ·</u>						· · ·					ALLUVIAL	
													-				79.2SOFT TAN SANDY S LOOSE GRAY SILTY SAND	ILT, WET2
	I Ŧ								•••							F		, 0, 1, 0, 0, 0, 1, 2, 2
	‡					<u>⊢</u> .			• •				•	-			75.2 Boring Terminated at Eleva	etion 75.2 ft IN
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