## NORTH CAROLINA DIVISION OF HIGHWAYS GEOTECHNICAL UNIT

## SOIL AND ROCK CLASSIFICATION, LEGEND, AND ABBREVIATIONS

	SOIL LEGE	ND AND	AASHT	O CLAS	ヘンコト				LU	NSISTEN(	. I U	IR DENS	CINE 33
-	2000000	R MATERIALS		CLAY MATE	DIALC					COMPACTNESS OR			RANGE OF UNCONFINED
GENERAL CLASS.		SSING *200)	1	K PASSING		DRGANI	C MATE	ERIALS	PRIMARY SOIL TYPE	CONSISTENCY		TION RESISTANCE	
	A-1 A-3	~ <del>~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~</del>	A-4	A-5 A-6		A-LA-2	A-4,A-5				(RFOA:	S PER FOOTI	(TONS/FT <sup>2</sup> )
GROUP CLASS.	A-1-eiA-1-bi	A-2-44-2-54-2-6		1	2:12		A-6.A-7			VERY LOOSE		< 4	
SYMBOL	popopopolitica	PRODUCTION TO STATE	NOT THE	3.7		111111			GENERALLY GRANULAR	LOOSE MEDIUM DENSE		4 TO 10 0 TO 30	N/A
	8888888		200	4				***************************************	MATERIAL	DENSE	30	Ø TO 5Ø	
% PASSING		1 1 1 1				CRANULAR		MUCK.		VERY DENSE		> 50	
*10	38 HX 58 HX 51 HA		1 1			SOILS	SOILS	PEAT					
-200	15 HX 25 HX 18 HI	35 HX 35 HX 35 HX	35 HX 36 HN	36 HN 36 HA	35 HH					VERY SOFT SOFT		< 2 2 TO 4	< .25 .25 T0 .5
(PASSING .4	8)								GENERALLY SILT-CLAY	MEDIUM STIFF		4 TO 8	.5 TO 1 1 TO 2
	1 1	48 HX 41 HM 46 HX 18 HX 18 HX 11 MN	II MALIG MY	IR MY II MA	11 MN	SOILS	E OR	HIGHLY	MATERIAL	STIFF VERY STIFF		8 TO 15 5 TO 38	2 TO 4
			·	12 MX 16 M		MODER	RATE	DRGANIC		HARD		> 38	> 4
GROUP INDE				<del></del>		ORGAN	ITS OF	SOILS		600	LIAID	LIATED	<u> </u>
OF MAJOR	GRAVEL & SANC		EY SI		AYEY ILS	HATTE				GRU	<u>UND</u>	WATER	AFTER DRILLING ILA.D.
MATERIALS	S SANO	1				<u> </u>		<u> </u>	VATE	R LEVEL IN BORE	HOLE {	IMMEDIATEL	AFTER DRILLING ILALD
	• PI OF	A-7-5 & (LL-38)							▼ STAT	IC WATER LEVEL	(AFTER	24 HRSJ	
	TE)	XTURE OR	GRAI	N SIZE					I				
<b> </b>		T	ARSE	FINE		SILT	T	LAY	PERC	HED VATER (PV).	SATURA	TED ZONE. OR	WATER BEARING STRATA
BOULD	ER   COBBLE		AND MED.			otr!	"	LMI	OW- SPRII	NG OR SEEPAGE			
GRAIN (M	M) 305	75 2	0.6 0.4	25 0.2	8.075	ø.	002		MISCEL	ANFILIS S	YMROI	S AND 6	ABBREVIATIONS
SIZE (IN		3.							1	LHINEUUU U		SPT	CAMOL C
			RRELA	MOTT	OF 1	TERM	15		L ROADVA	Y EHBANKHENT VIT	н 🚱	TEST BOF	RING DESIGNATIONS
SO									114 1	ESCRIPTION	_		ING S-BULK SAMPLE
SOIL M	IOISTURE SCALE BERG LIMITS)	FIELD MOIS		DE FOR FIE	ELD MO	ISTURE	DESCR	RIPTION		YMBOL	æ	AUGER BOR	
MITER	DEVO FIMILEY	DESCRIFTI							ARTIFIC ROADWA	IAL FILL OTHER TH	نر. س	- CORE BORD	SS-SPLIT SPOOR NG SAMPLE
1		-SATURATI	ED- USU	IALLY LIQU	ID: VER	Y WET	. USUAL	LY	ROADVA	Y EMBANKHENTS	<b></b> ~	)- COME 50-11	ST-SHELBY TUB
LL	LIQUID LIMIT	(SAT.)	FR0	M BELOW	THE GF	NOUND	WAIEK	INBLE		m	RIES A	PLEZOMETE	R SAMPLE
PLASTIC	†		SE	MISOLID: RE	CHIBE	S DRYII	NG TO	ATTAIN	INFERR	ED SOIL BOUNDAR	41E2 -		
RANGE		-WET- (W	) OP	TIMUM MOI	STURE			.,, .,,,,,,	125' 270115	AND DIP OF BED	- C	SLOPE INOI	
OD PL	IPLASTIC LIMIT								- SINIKE	AND DIP OF BED		instruction.	1011
OM	OPTIMUM MOISTU	RE -MOIST- (	M) SO	LID: AT OR	NEAR	OPTIM	UM MOI	STURE	APPARE	אד סנף		D- SPT N-COU	NT
SL	SHRINKAGE LIN								- (NORMA	L TO)			
			. RE	QUIRES AD	OTTON	AL 1/A1	TER TO		ROD SO	UNDING		•	
	T				OT ! TO!	HL WHI							
1	Ţ	-DRY- (O		TAIN OPTI									
		•	D AT	TAIN OPTI						AB	BRE	VIATION	S
		•	D AT							AB	BRE	VIATION	S
D. D.C. 000	DAGGET MEANING HAD	ROCK [	" AT DESCRI	TAIN OPTI	MUM MI	OISTUR	Ε		ALLUV.	ALLUVIUM	BRE		S
	DADEST MEANING, HAR	ROCK D	DESCRI	TAIN OPTII IPTION THAT INOURATE	MUM MI	OISTUR	E AL: WHICH	CANNOT	1			MIC.	MICACEOUS MOTTLED
BE SAMPLE	D BY CONVENTIONAL	ROCK E TO ROCK IS CONSIDER SOIL SAMPLING TOO	DESCRI DESCRI RED TO BE T LS OR TECHN	TAIN OPTION  IPTION  THAT INDURATE  IOUES. THE B	MUM MI ED EARTH OUNDARY	MATERIA BETVEEN	e AL: WHICH SOIL AN	CANINOT IO ROCK	ALLUV. AR BLDR.	ALLUVIUM		MIC.	MICACEOUS
BE SAMPLES	D BY CONVENTIONAL ARY. TRANSITION BE	ROCK IS CONSIDER SOIL SAMPLING TOO TWEEN SOIL AND R	DESCRI DESCRI RED TO BE T LIS OR TECHN ROCK IS OFT	TAIN OPTII IPTION THAT INDURATE ILOUES. THE B EN REPRESEN	MUM MI ED EARTH OUNDARY ITED BY	OISTUR MATERIA BETVEEN A ZONE	e Al: Which Soil an Of "Wea"	Cannot 10 rock Thered	AR	ALLUVIUM AUGER REFU	SAL	MIC. MOT. NS NS ORG.	MICACEOUS MOTTLED NO SAMPLE TAKEN DRGANIC
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BE SAMPLEI IS ARBITM ROCK*. FOR TERM HARD ROCK (HR)  WEATHERED ROCK (WR)  1 SPT 1 2 AN IN THE 1 A DES	BY CONVENTIONAL ARY, TRANSITION BE THE PURPOSE OF SYME CORED ROCK  REFUSAL \$ 1 INCI WEERED ROCK LIN HARD ROCK SYMBOL SCRIPTION OF ROCI RECOVERY (REC.) -	ROCK E  ROCK IS CONSIDER  SOIL SAMPLING TOO  TWEEN SOIL AND R  THIS INVESTIGAT  HOFERRED  ROCK LINE  WEATHERED  ROCK (HWR)  SOFT  WEATHERED  ROCK (SWR)  H OF PENETRATIO  E INDICATES THE  IS SHOWN WHEN  K IS GIVEN, INCLUS  TOTAL LENGTH OF  BY THE TOTAL L  LENGTH	RED TO BE TO LS OR TECHNICAL THESE TO THE SE T	TAIN OPTII  IPTION  THAT INDURATE  IDUES. THE B  EN REPRESEN  MATERIALS A  THAT CANNE  THAT CANNE  THAT CAN E  Y USING POWE  THAT CAN E  TY USING POWE  BLOVS.  WHICH AUGER  ORED AND ON  COVERED IN THE  COVE	MUM MI  ED EARTH OUNDARY ITED BY NE DIVI  SCRIPT OT BE PENE RE AUGERS BE PENE WER AUGERS  S COULT ILY TO  THE COR UN TIMES CK SEGM TO 4*00	MATERIA BETVEEN A ZONE DED AS TON ENETRATED AND YIE TRATED ERS AND O NO LO THAT DE E BARRE 5 100%. ENTS RE	E  AL: WHICH  SOIL AN  OF "WEA"  FOLLOW:  FED BY F  REQUIRE A SAMPL  WITH GR  ELOS SPT  WITH SC  O YIELD:  EFUSAL  NGER PE  EPTH COR  EL DIVID	CANNOT 10 ROCK THERED S: POWER ES E REAT REFUSAL OME S RED THAT	AR BLDR. BPF CALC. CL. CLY. COB. CSE. DPT EST. F. FOSS. FRAC. FRAG(S). GR. GS GW MED.  BENCH MARK DESCLIP STATE PROJE TLP. NO. COUNTY D	ALLUVIUM AUGER REFU! BOULDER BLOWS PER CALCAREOUS CLAY CLAYEY COBBLE COARSE DYNAMC PENETRAT ESTIMATED FINE FOSSILIFEROI FRACTURED FRAGMENT(S) GRAVEL SPECIFIC GR. GROUND WAT MEDIUM  EBL — 4 @ S ———————————————————————————————————	SAL FOOT  NON TEST  JS  AVITY FER  2201 F-A	MIC. MOT. NS NO ORG. ORG. ORG. ST. SD. SDV. SED(S). SLI. SPT TS. VST V. W/	MICACEOUS MOTTLED NO SAMPLE TAKEN DRGANIC REFER TO RESIDUAL SOFT SATURATED SAND SEDIMENT(S) SILT, SILTY SILIGHTLY STANDARD PENETRATION TE TOPSOIL VANE SHEAR TEST WITH  4 CD 1107 (4) R 1107
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BE SAMPLEI IS ARBITM ROCK*. FOR TERM HARD ROCK (HR)  WEATHERED ROCK (WR)  1 SPT 1 2 AN IN THE 1 A DES	BY CONVENTIONAL ARY, TRANSITION BE THE PURPOSE OF SYME CORED ROCK  REFUSAL \$ 1 INCI WEERED ROCK LIN HARD ROCK SYMBOL SCRIPTION OF ROCI RECOVERY (REC.) -	ROCK E  ROCK IS CONSIDER  SOIL SAMPLING TOO  TVEEN SOIL AND R  THIS INVESTIGAT  INFERRED  ROCK LINE  HARD  WEATHERED  ROCK (HWR)  SOFT  WEATHERED  ROCK (SWR)  HOF PENETRATION  E INDICATES THE  IS SHOWN WHEN  K IS GIVEN, INCLUSE  TOTAL LENGTH OF  BY THE TOTAL  LENGTH	PESCRI  RED TO BE TO  LS OR TECHN  ROCK IS OFTI  TON, THESE  MATERIAL  DIFFICULT  MATERIAL  DIFFICULT  MATERIAL  DIFFICULT  MATERIAL  DIFFICULT  MATERIAL  DIFFICULT  MATERIAL  DIFFICULT  FOR YALU  NO PER 58 6  LEVEL AT 10  ROCK IS CO  DING:  FROCK REC  LENGTH OF  LENGTH OF  LENGTH OF THE	TAIN OPTII  IPTION  THAT INDURATE  IDUES. THE B  EN REPRESEN  MATERIALS A  THAT CANNE  THAT CANNE  THAT CAN E  Y USING POWE  THAT CAN E  TY USING POWE  BLOVS.  WHICH AUGER  ORED AND ON  COVERED IN THE  COVE	MUM MI  ED EARTH OUNDARY ITED BY NE DIVI  SCRIPT OT BE PENE RE AUGERS BE PENE WER AUGERS  S COULT ILY TO  THE COR UN TIMES CK SEGM TO 4*00	MATERIA BETVEEN A ZONE DED AS TON ENETRATED AND YIE TRATED ERS AND O NO LO THAT DE E BARRE 5 100%. ENTS RE	E  AL: WHICH  SOIL AN  OF "WEA"  FOLLOW:  FED BY F  REQUIRE A SAMPL  WITH GR  ELOS SPT  WITH SC  O YIELD:  EFUSAL  NGER PE  EPTH COR  EL DIVID	CANNOT 10 ROCK THERED S: POWER ES E REAT REFUSAL OME S RED THAT	AR BLDR. BPF CALC. CL. CLY. COB. CSE. DPT EST. F. FOSS. FRAC. FRAG(S). GR. GS GW MED.  BENCH MARK DESCLIP STATE PROJE TLP. NO. COUNTY D SITE DESCRI	ALLUVIUM AUGER REFU! BOULDER BLOWS PER CALCAREOUS CLAY CLAYEY COBBLE COARSE DYNAMC PENETRAT ESTIMATED FINE FOSSILIFEROL FRACTURED FRACTURED FRACTURED FRACTURED GRAVEL SPECIFIC GR. GROUND WAT MEDIUM  BL - 4 @ S = -1 - Elex CCT NO. 8, 2352 B - 2963 LUTHER	SAL FOOT  NON TEST  JS  AVITY FER  2201 F.A.	MIC. MOT. NS NO ORG. ORG. ORG. SET. S. SAT. SD. SED(S). SEL. SPT TS. VST V. W/	MICACEOUS MOTTLED NO SAMPLE TAKEN DRGANIC REFER TO RESIDUAL SOFT SATURATED SAND SEDIMENT(S) SILT. SILTY SLIGHTLY STANDARD PENETRATION TE TOPSOIL VANE SHEAR TEST VERY WITH 4 CD 1107 (4) R 1107
BE SAMPLEI IS ARBITM ROCK*. FOR TERM HARD ROCK (HR)  WEATHERED ROCK (WR)  1 SPT 1 2 AN IN THE 1 A DES	BY CONVENTIONAL ARY, TRANSITION BE THE PURPOSE OF SYME CORED ROCK  REFUSAL \$ 1 INCI WEERED ROCK LIN HARD ROCK SYMBOL SCRIPTION OF ROCI RECOVERY (REC.) -	ROCK E  ROCK IS CONSIDER  SOIL SAMPLING TOO  TVEEN SOIL AND R  THIS INVESTIGAT  INFERRED  ROCK LINE  HARD  WEATHERED  ROCK (HWR)  SOFT  WEATHERED  ROCK (SWR)  HOF PENETRATION  E INDICATES THE  IS SHOWN WHEN  K IS GIVEN, INCLUSE  TOTAL LENGTH OF  BY THE TOTAL  LENGTH	PESCRI RED TO BE T LS OR TECHN ROCK IS OFT ION, THESE  MATERIAL DIFFICULT SPT VALU  N PER 58 E LEVEL AT V ROCK IS CO DING: F ROCK REC ENGTH OF LENGTH OF LENGTH OF THE	THAT CANE THAT THAT THAT THAT THAT THAT THAT THA	MUM MI  ED EARTH OUNDARY ITED BY NRE DIVI DIT BE P IN LEDO FOR OBT BE PENE WER AUGERS BE PENE WER AUG IN TIMES CK SEGM TO 4.00 IMES 100	MATERIA BETVEEN A ZONE DED AS TION ENETRATED EAND YII TRATED CERS AND THAT DE E BARRES 5 1007 ENTS RE	E  AL: WHICH  SOIL AN  OF "WEA"  FOLLOW!  FED BY F  REQUIRE A SAMPL!  WITH GR  ELOS SPT  WITH SC  O YIELDS  EFUSAL  NGER PE  PTH COR  EL DIVID  ECOVEREI  BY THE	CANNOT 10 ROCK THERED S: POWER ES E REAT REFUSAL OME S RED THAT	AR BLOR. BPF CALC. CLY. COB. CSE. DPT EST. FOSS. FRAC. FRAG(S). GR. GS GW MED.  BENCH MARK DESCLIN	ALLUVIUM AUGER REFU! BOULDER BLOWS PER CALCAREOUS CLAY CLAYEY COBBLE COARSE DYNAMC PENETRAT ESTIMATED FINE FOSSILIFEROU FRACTURED FRAGMENT(S) GRAVEL SPECIFIC GR. GROUND WAT MEDIUM  EBL — 4 @ S E — I — ELEX CCT NO. 8 2352 B — 2963 UTHAM	SAL FOOT  TON TEST  JS  AVITY FER  27201 F.A. 2NO.	MIC. MOT. NS NO ORG. ORG. ORG. SET. S. SAT. SD. SED(S). SEL. SPT TS. VST V. W/	MICACEOUS MOTTLED NO SAMPLE TAKEN DRGANIC REFER TO RESIDUAL SOFT SATURATED SAND SEDIMENT(S) SILT. SILTY SLIGHTLY STANDARD PENETRATION TE TOPSOIL VANE SHEAR TEST VERY WITH 4 CD 1107 (4) R 1107
BE SAMPLEI IS ARBITM ROCK*. FOR TERM HARD ROCK (HR)  WEATHERED ROCK (WR)  1 SPT 1 2 AN IN THE 1 A DES	BY CONVENTIONAL ARY, TRANSITION BE THE PURPOSE OF SYME CORED ROCK  REFUSAL \$ 1 INCI WEERED ROCK LIN HARD ROCK SYMBOL SCRIPTION OF ROCI RECOVERY (REC.) -	ROCK E  ROCK IS CONSIDER  SOIL SAMPLING TOO  TVEEN SOIL AND R  THIS INVESTIGAT  INFERRED  ROCK LINE  HARD  WEATHERED  ROCK (HWR)  SOFT  WEATHERED  ROCK (SWR)  HOF PENETRATION  E INDICATES THE  IS SHOWN WHEN  K IS GIVEN, INCLUSE  TOTAL LENGTH OF  BY THE TOTAL  LENGTH	PESCRI RED TO BE T LS OR TECHN ROCK IS OFT ION, THESE  MATERIAL DIFFICULT SPT VALU  N PER 58 E LEVEL AT V ROCK IS CO DING: F ROCK REC ENGTH OF LENGTH OF LENGTH OF THE	THAT CANE THAT THAT THAT THAT THAT THAT THAT THA	MUM MI  ED EARTH OUNDARY ITED BY NRE DIVI DIT BE P IN LEDO FOR OBT BE PENE WER AUGERS BE PENE WER AUG IN TIMES CK SEGM TO 4.00 IMES 100	MATERIA BETVEEN A ZONE DED AS TION ENETRATED EAND YII TRATED CERS AND THAT DE E BARRES 5 1007 ENTS RE	E  AL: WHICH  SOIL AN  OF "WEA"  FOLLOW!  FED BY F  REQUIRE A SAMPL!  WITH GR  ELOS SPT  WITH SC  O YIELDS  EFUSAL  NGER PE  PTH COR  EL DIVID  ECOVEREI  BY THE	CANNOT 10 ROCK THERED S: POWER ES E REAT REFUSAL OME S RED THAT	AR BLOR. BPF CALC. CL. CLY. COB. CSE. DPT EST. FO. FRAC. FRAG(S). GR. GS GW MED.  BENCH MARK LDSSLID  STATE PROJE T.LP. NO. COUNTY D  SITE DESCRI OVET NE PROJECT GE PERSONNEL	ALLUVIUM AUGER REFU! BOULDER BLOWS PER CALCAREOUS CLAY COBBLE COARSE DYNUMC PENETRAT ESTIMATED FINS FOSSILIFEROU FRACTURED FRAGMENT(S) GRAVEL SPECIFIC GR. GROUND WAT MEDIUM  BL - 4 @ S ET NO. 8.2352 B - 2963 UTDERN FRICOE W HODE Cree COLOGIST D. I	SAL FOOT  TON TEST  JS  AVITY FER  201 F.A. 201 F.A. 201 P.A. 201	MIC. MOT. IN SINGLE STAT. SD. SAT. SD. SED(S). SLI. SPT TS. VST V. W/  7 + 02.8 2.08ft. SD. SD. SD. SED(S). SLI. SPT TS. SED(S).	MICACEOUS MOTTLED NO SAMPLE TAKEN DREANIC REFER TO RESIDUAL SOFT SATURATED SAND SEDIMENT(S) SILT, SILTY SILIGHTLY STANDARD PENETRATION TE TOPSOIL VANE SHEAR TEST WITH  4 CD 1107 (4) R 1107 ED BY CIL,
BE SAMPLEI IS ARBITM ROCK*. FOR TERM HARD ROCK (HR)  WEATHERED ROCK (WR)  1 SPT 1 2 AN IN THE 1 A DES	BY CONVENTIONAL ARY, TRANSITION BE THE PURPOSE OF SYME CORED ROCK  REFUSAL \$ 1 INCI WEERED ROCK LIN HARD ROCK SYMBOL SCRIPTION OF ROCI RECOVERY (REC.) -	ROCK E  ROCK IS CONSIDER  SOIL SAMPLING TOO  TWEEN SOIL AND R  THIS INVESTIGAT  HOFERRED  ROCK LINE  WEATHERED  ROCK (HWR)  SOFT  WEATHERED  ROCK (SWR)  H OF PENETRATIO  E INDICATES THE  IS SHOWN WHEN  K IS GIVEN, INCLUS  TOTAL LENGTH OF  BY THE TOTAL L  LENGTH	PESCRI RED TO BE T LS OR TECHN ROCK IS OFT ION, THESE  MATERIAL DIFFICULT SPT VALU  N PER 58 E LEVEL AT V ROCK IS CO DING: F ROCK REC ENGTH OF LENGTH OF LENGTH OF THE	TAIN OPTII IPTION THAT INDURATE ILLUES. THE B EN REPRESEN MATERIALS A  THAT CANNE INTO TOOLS F THAT CAN E THAT CAN THAT THAT THAT THAT THAT THAT THAT TH	MUM MI  ED EARTH OUNDARY ITED BY WRE DIVI DIT BE P IN LEDO FOR OBT BE PENE WER AUGERS BE PENE WER AUG IN TIMES CK SEGM TO 4.00 IMES 100	MATERIA BETVEEN A ZONE DED AS TION ENETRATED EAND YII TRATED CERS AND THAT DE E BARRES 5 1007 ENTS RE	E  AL: WHICH  SOIL AN  OF "WEA"  FOLLOW!  FED BY F  REQUIRE A SAMPL!  WITH GR  ELOS SPT  WITH SC  O YIELDS  EFUSAL  NGER PE  PTH COR  EL DIVID  ECOVEREI  BY THE	CANNOT 10 ROCK THERED S: POWER ES E REAT REFUSAL OME S RED THAT	AR BLOR. BPF CALC. CL. CLY. COB. CSE. DPT EST. FO. FRAC. FRAG(S). GR. GS GW MED.  BENCH MARK LDSSLID  STATE PROJE T.LP. NO. COUNTY D  SITE DESCRI OVET NE PROJECT GE PERSONNEL	ALLUVIUM AUGER REFU! BOULDER BLOWS PER CALCAREOUS CLAY COBBLE COARSE DYNAME PENETRAT ESTIMATED FINE FOSSILIFEROL FRACTURED FRAGMENT(S) GRAVEL SPECIFIC GR. GROUND WAT MEDIUM  EBL - 4 @ S ET NO. 8. 2352 B - 2963 LITHERM FRICHER W HODE CREE GOLOGIST D. I	SAL FOOT  TON TEST  JS  AVITY FER  201 F.A. 201 F.A. 201 P.A. 201	MIC. MOT. IN SINGLE STAT. SD. SAT. SD. SED(S). SLI. SPT TS. VST V. W/  7 + 02.8 2.08ft. SD. SD. SD. SED(S). SLI. SPT TS. SED(S).	MICACEOUS MOTTLED NO SAMPLE TAKEN DRGANIC REFER TO RESIDUAL SOFT SATURATED SAND SEDIMENT(S) SILT. SILTY SLIGHTLY STANDARD PENETRATION TE TOPSOIL VANE SHEAR TEST VERY WITH 4 CD 1107 (4) R 1107

## CAUTION NOTICE

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