

Ann B. Shortelle, Ph.D., Executive Director

525 Community College Parkway S.E. • Palm Bay, FL 32909 • 321-984-4940 On the internet at www.sjrwmd.com.

DATE: August 10, 2020

TO: Prospective Respondents

FROM: Amy Lucey, Contracts Administrator

SUBJECT: Addendum #1 to Invitation for Bids # 35891, S96D Rehabilitation

As a result of inquiries, the following clarifications/changes are provided for your information. Please make all appropriate changes to your bid documents. Note: changes are reflected with original language shown with strike-through and new language is underlined.

- Q1. Will there be a geotechnical report made available for the project?
- A1: Yes, Core Boring Logs and Lab Test Data report is attached.

#### Corrections:

Page, 55, Statement of Work, Attachments, 14-6320 Water Control Structure Drawings-Core boring logs and Lab Test Data

Attachments:

#### Core boring logs and Lab Test Data

NOTE: The Bid Opening remains 2:00 p.m., Tuesday, September 8, 2020

Please acknowledge receipt of this Addendum on the **BID** FORM provided in the bid package.

If you have any questions, please e-mail me at <u>alucey@sjrwmd.com</u>.

any delays encountered, as determined by the District. All amounts under the "Daily Impact Fee" will be authorized in writing by the District's Project Manager through issuance of a District Supplemental Instruction (DSI) form. Contractor is not entitled to receive any unspent or remaining funds in the Daily Impact Fee item. The number of days included in the cost schedule is an estimate and will be adjusted according to the actual number of days of overflow incurred.

43. Supplemental Work Allowance

If necessary, this item will be used for increases in the Contract Price within the amount set forth on the Cost Schedule or negotiated price if the item is not included in the cost schedule, due to District approved changes in the unit price quantities, unforeseen site conditions, or minor changes to the work.

### V. TIMEFRAMES & DELIVERABLES

- 1. Contractor shall begin work within 15 days of the Effective Date. The Effective Date is the date upon which the last party to this Agreement has dated and executed the same.
- 2. The rehabilitated roller gate and cable drum hoist system shall be reinstalled and fully operational, and the cofferdams shall be removed on or before June 1, 2021.
- 3. All work shall be complete and the site demobilized in accordance with the plans and scope of work before June 30, 2021.

### VI. BUDGET

Contractor shall submit monthly itemized invoices based on a percentage of completion for each lump sum item and unit cost for each unit cost item identified in the Cost Schedule. Quantities may vary for those items requiring a "per unit cost" and the total quantities of these items will be determined during construction. The District reserves the right to increase, decrease, or delete any class, item, or part of the Work at the stated unit prices in determining the value of a change order. Contractor shall submit monthly invoices by one of the following two methods: (1) by mail to the St. Johns River Water Management District, Director, Division of Financial Management, 4049 Reid Street, Palatka, Florida 32177, or (2) by e-mail to <a href="mailto.acctpay@sjrwmd.com">acctpay@sjrwmd.com</a>. Each invoice shall be submitted in detail sufficient for proper pre-audit and post-audit review. If necessary for audit purposes, the District may require, and Contractor shall provide, additional supporting information to document invoices.

Attachments: S96D As Built Drawings– separate cover S96D Rehab Drawings – separate cover 14-6320 Water Control Structure <del>Drawings</del>– separate cover **Core boring logs and Lab Test Data**  Upper St. Johns Structures 96C & 96D Contract No. 4a Invitation Number DACW17-89-B-0035

# CORE BORING LOGS AND LABORATORY TEST DATA

#### APPENDIX A

#### TO

SPECIFICATIONS FOR CONSTRUCTION OF STRUCTURE 96C AND STRUCTURE 96D UPPER ST. JOHNS RIVER BASIN CENTRAL AND SOUTHERN FLORIDA PROJECT Upper St. Johns Structures 96C & 96D Contract No. 4a

Invitation Number DACW17-89-B-0035

#### CORE BORING LOGS AND LABORATORY TEST DATA APPENDIX A TO SPECIFICATIONS FOR CONSTRUCTION OF STRUCTURE 96C AND STRUCTURE 96D UPPER ST. JOHNS RIVER RIVER BASIN CENTRAL AND SOUTHERN FLORIDA PROJECT

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CORE BORING LOGS AND LABORATORY TEST DATA APPENDIX A TO SPECIFICATIONS FOR CONSTRUCTION OF STRUCTURES 96C AND STRUCTURE 96D UPPER ST. JOHNS RIVER BASIN CENTRAL AND SOUTHERN FLORIDA PROJECT

#### 1. CORE BORING DESIGNATIONS:

WP-Washed Probing CB-Core Boring TP-Test Pit

#### 2. CORE BORING NOTES:

A. Boring Locations are shown on Sheet 1/4, 1/5, 2/2 and 10/1.

B. <u>General</u>. Standard Penetration tests were performed during drilling to determine the consistency, relative density, and approximate strength of the materials samples. The tests consist of dropping a hammer weighing 140 pounds onto the drill rods from a height of 30 inches. The number of blows (N) necessary to produce a penetration of 1 foot is regarded as the standard penetration resistance. To avoid seating errors, the blows for the first 6 inches of penetration are not taken into account; those required to increase the penetration from 6 to 18 inches constitute the N-value. The relation between the number of blows (N) and the consistency of the fined-grained soils and the relative density of the granular materials (from Terzaghi and Peck, 1948) are as follows:

(1) For Fined-Grained Soils:

Penetration Resistance N	
(blows/foot)	Consistency
2	very soft
2-4	soft
4-8	medium
	stiff
8-15	
15-30	very stiff
30	very dense
(2) For Granular Materials:	
Desistance N	Relative
Penetration Resistance N	
(blows/foot	Density
0-4	very loose
4-10	loose
10-30	medium
30-50	dense
	very dense
50	tery dense

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C. Rock hardness is defined by the following:

Soft - Can be scratched with fingernail.

<u>Medium Hard</u> - Can be scratched easily with knife; cannot be scratched with fingernail.

Hard - Difficult to scratch with knife.

Very Hard - Cannot be scratched with knife.

D. (SP) and (SM) Etc., refers to the Corps of Engineers unified soils classification system. Classification of materials is based on visual examination.

E. Core samples taken during the boring operations are available for inspection at the Corps of Engineers Jacksonville District Warehouse.

F. Original boring notes are available for inspection at the Jacksonville District Office.

G. Ground water elevations were observed on the completion dates of the borings and are subject to fluctuations. Where ground water elevations were not observed or not recorded, it does not necessarily indicate that ground water will not be encountered at the location and throughout the depth of the hole. Refer to notes at the ends of the borings logs.

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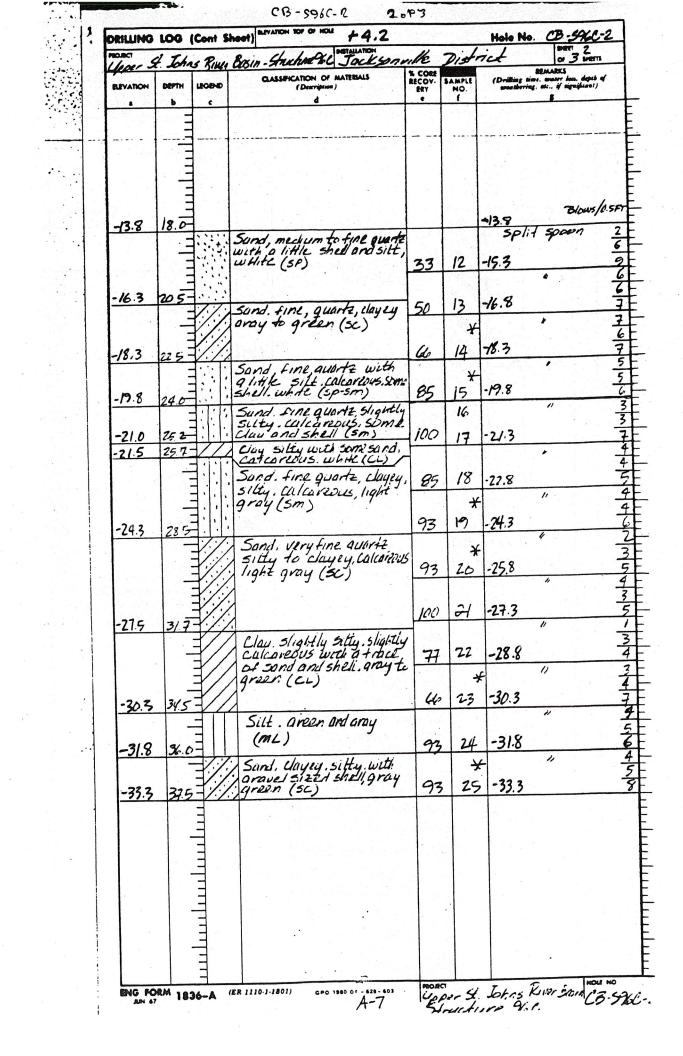
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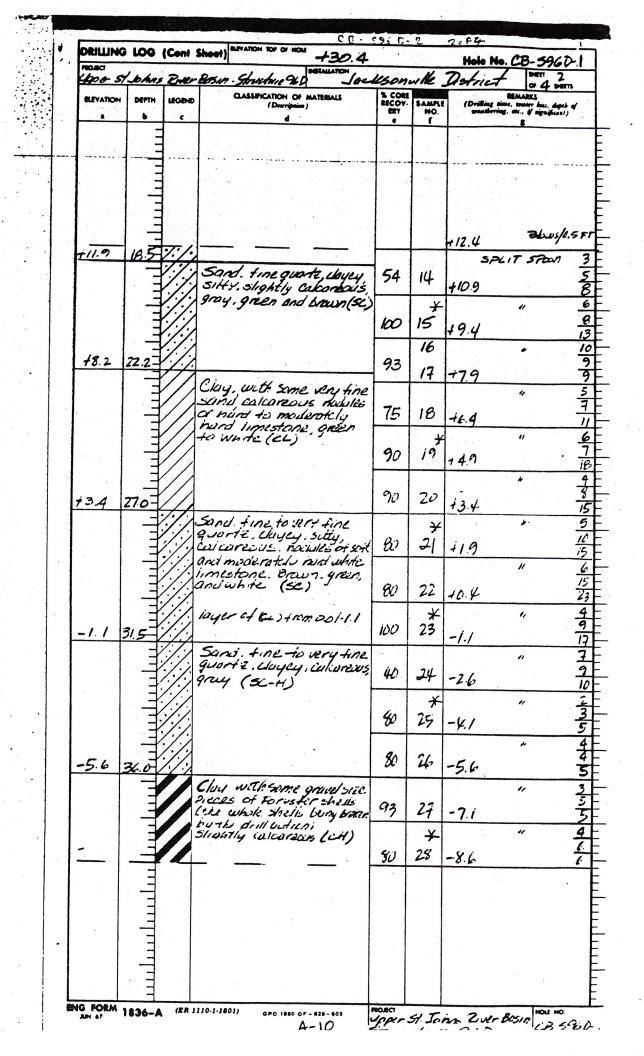
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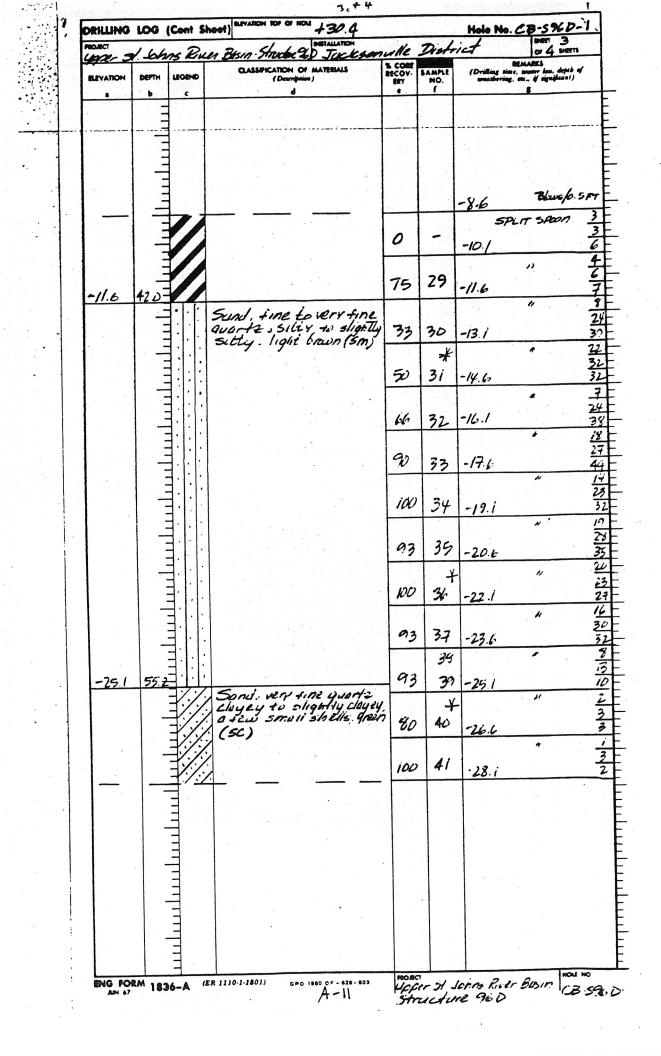
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			Clay, areen (CH) lower of (CL), etvation -34.2/-37.2	100	*	Sector States	0001
		//	-34.2/-37.2	100	26	-34.8	
				72	27	-36.3	
				100	* 28	-37.8	
-38.3	42.5		Sund, clayer, calibreous			J110 H	
			Sund, clayey, caliareous Some shall and nodules and layers of soft and moderately hard band	10	- *	-393	
			store, gray (sc)	85	29	-40.8	
				43	30	" -42.3	
					~ *	-42.3	
		///		93	31	- 43.8	
-45.3	49.5			93	32	-45.3	
						140 # hamme drop used	ONIDE
			Notes:			Spid Sfoor. [13/8"1.D.	SUME LI X 2 * 0. D
		り	on 23 June 87 water level in canal at+22:	8			
			Water depth 18.0' On 29 June 87				
		10	Water level in casing +18.3 Bottom casing -17.7				
		1	Bottom hile -32.7				
			On 30 June 87. water level in canulat +22.	9			
		1	water level in casing -17: Softom of hole -44.7				
		4)	Hole Grouted with samete			-	•
		5)-	+ Indicates sample has been laboratory				
••	111	+	ested. Core log			- 1	
	111		eflects the				
	1836-A		classification.				

		DIVISION	1 All 1.	THE TALL	NOITA	. 11		to No. CB .54	7
DRILL	ING LOC	500	th Atlantic				Datric	7 04	MEETS
have st	1 Labor	Duer	Basin - Stuchere 96	DIL BATL	AND TYPE		ENOVE (TEE		
LOCATION	( Conta haros	a haten	1207 207	100 C	45L				
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1.00	AL DINCL			the second s	ATION TO	and the second se		+ 30.4	19
	OF OVERBI						FOR BORIN	6 B/	3
	ILLED INTO			19. SIGN			GEOLO	6151	
TOTAL DE	PTH OF HOL	1 4	66 0 FT.		J. H.			REMARKS	
LEVATION	DEPTH LE	GEND	CLASSIFICATION OF MATE (Description)	RIALS	S CORE RECOV- ERY	BAMPLE NO.	(Delling ti weatheri	na, water loss, day ng, etc., it significa	ath of and
		and the	전에 있는 영상에서						
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	Fac						+30.4	Bio:NS/	271
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	7.;	1.150	ond. Lluyey with lorgunic sill an	Cal allis	100	2	+289		
	T.	. And	orgunic sitt an	d test			and the second se	plit spann	2
9 - N.	Ŧ,	1.1710	ces of imbone.	ond	1			T	4
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	7.	1.1							ز
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			the mest Placed		80.	4	1259		2
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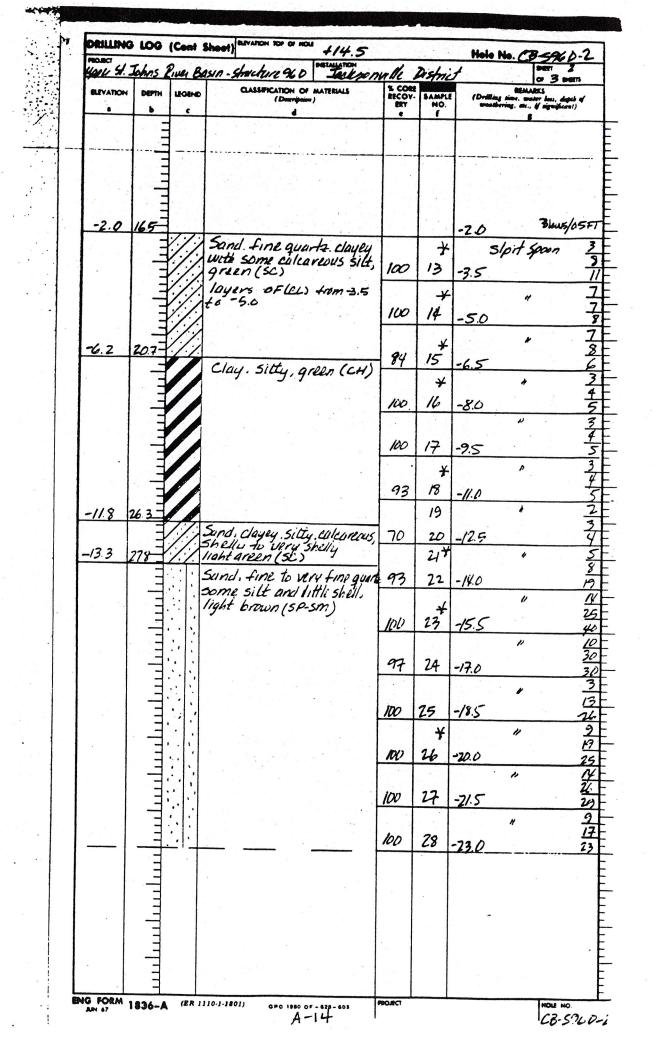


81 <sup>14</sup>

а 1

CB-5960-2 4. PE DRILLING LOG (Cent Sheet) MAYANON TOP OF HOL +30.4 Hole No. CB-S9607 PROJEC Upar St. Inters Einer Besin - Structure 960 Jacksonville District 4 04 CLASSIFICATION OF MATERIALS % CORE RECOV-BRY BEMARKS REVATION DEPTH LEGEND SAMPLE (Dnill loss, depth of significant) NO. đ Blours fc. SA -28.1 SPLIT SPOON 1 3 42 100 29.6 Ž 2 ¥ 23 43 100 -31.6 2 4 373 44 100 -321 45 joo -34.6 . 2 40 -35.1 6.0 4b -35 1 140 # hummer with 30" drof Used on 2.054 Solid Sour Shareler (19/8"ID x2"00) Notes: D Water Levels token 17 Nov 87 at drill have latter standing open at of the hole (after standing Oth sisce 12-14: 127 a) to Pe bottom - 9.6. Water level + 22.7 b) at 21 G Zag canal (Approx b) west of duilhok) + 25.1 c) at adjacant canal to the South + 25.4 d) at adjacent canel to the with +18.4 DHole Growted with SAMacte 3 \* inclicates sample has been laboratory tested. Core log reflects the laboratory classification. ENG FORM 1836-A (ER 1110-1-1801) GPO 1980 08-628-603 A-12 Upper St. Ichrs Einer Bosin, CB Str.D-HOLE NO.

CEATION	4.08	too or but	TE 1,242,808	THE MANUP	ACTURE	L'S DERIÓ			
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DE DE	Ad also an	en dremin	CB-596D-2	13. TOTAL		and the second			
AME OF		11.6		HA ELEVA			ILA SEL NO	des	
DIRECTION	Jec	IOT		M. DATE		IST AS	TED	7 3 DEL	87
VERTIC		CLINED .	DES. PROM VERT.	17. ELEV					
THICKNES				18. TOTAL	CORE R	ECOVERY	FOR BORING	82	
TOTAL DE		and the second second	49.5 ft.	N. SIGHA	J. I	fond			
EVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERI (Description)	ALS	S CORE	BALIPLE NO.	(Drilling the	REMARKS na, unter loss, d. etc., if signi	depth of License
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+14.5	0.0=	A. Car					+14.5	Bla dit spæn	15/0.5 FT.
	-	///	Sand, clayey with E and organic sile and I ragments of limits	alearensis			54	dit span	Settled
). ST		//	And orgunic silt on	a Hill	60.	1	+13.0		3
1.12		1.1	brown to array (SC)	,					2
		/./.	DIKE fill		40	2	+ 11.5		4
					70	4	7 11.2	0	2
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	=				W_	3	+10.0		4
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18.5	60=	//			33	4	18.5		<del></del>
		$\overline{//}$	Clay with some sun	and and					6
	Ξ		derately huri and s		33	5	+7.0		Ī
	-	V/	limestone (CL)			¥		11	4
	=	V//	이 아이는 것 같아요?		6	6	+5.5		15
						14	12.2	*	6
		V/			7-	7	:		10
14.0	10.5	V/			75	++-	14.0	"	woste
		1//	Sand, clauey, sitte Calcarcous, nodule moderately havd lin	'al white		¥			B
· · · ·	-	$\mathcal{V}/$	materately hard lin	restore	50	8	+2.5		
	-	$\mathbf{V}$	light green (sc)		1.1.1.1				
+1.0	135	1//	1		84	9	41.0		7
	1-	V/	Clay. sandy. silty.	culeareous		¥			1
		1//	Clay. sandy. silty.	e.green	77	10	-0.5		
-1.0	15.5	1//	to white (ci)			11			
	1 2 2		Sand time to med	ium	93		-2 0		7
-2.0	16.5	<u>-</u>	quartz with some silt, green (sm	LUILAREN	1-		-2.0		
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		Ξ		•					
		=							
1 <sup>1</sup>	RM 183	7	· ·		PROJE				NOLE NO.



DRILLING LOG (Cent Sheet) Hole No. CB-5960-2 Jacksonville Theoris & Johns River Basin - Stature 960 Distric 03 % CORE BOX OR RECOV-BAMPLE BAY NO. e f BRAADY C CLASSIFICATION OF MATERIALS loss, depth af significant) (Dri ELEVATION DEPTH LEGEND LDe A Blowsfo.S.FT 230 solit spoon 8 8 93 29 10 -24.5 -24.5 39.0 Sand Jery fine quirtz with some silt and shell, gray (sm) 15 4 21 30 27 93 -26.0 99 31 32 7 42.4 93 27.5 -27.9 6 Sand. clayey sitty. with a little shell.green (sc) ¥ 54 33 -29.0 100 33 43 34 100 -30.5 4 84 4 35 -32.0 nosh 11 12/11 -33.5 -33.5 48.0 67 36 Clay. Sondy very time guartz, a trace of shell, green (CL) 2 1 ¥ 25 37 100 49.5--35.0 35.0 140# hammer with 30, drof used on 2.0ft. solit 5000n sompler (13/5"I.D. x 20"0.D.) Notes: DELEV. Waterin Canal +20.0 (water level was vaised to float barge) mhunhunhun + Indicates sample 2 has been laboratory tested. Core log reflects the laboratory Classification. upper St. June Piner Busin How no Stouchurg god (ER 1110-1-1801) ENG FORM 1836-A A-15 CB-5960-

TP-S96B-11 Location: 20,500 ft. Ea on centerline Spoil Bank	ist of S-96 of C-54 North		Date Excavated: Equipment Used: (Case 880) Geologist: Joe	Hydraulic Bac	khoe
Surface Eleva	ation: +43.2 ft.	•			
				Dept (ft)	h
SAND, fine to	medium, quartz,	little clay	, brown, (SC)		ľ
					1.
SAND, fine to tan, shelly. (	SP)	trace clay,	scattered clay lu	mps,	-
					$\vdash$
					-
					5'
		•	-		
-		-			
			· · · ·		-
		л . <sup></sup> .			
				÷.	
-	en de la composition de la composition En la composition de l				
					10'
					<u>10'</u> 11'
NOTES: 1. 0 2. H	Fround water not r	reached. 11.0 ft.			
NOTES: 1. 0 2. F	Fround water not r fole caved in at 1	reached. 11.0 ft.			
NOTES: 1. 0 2. F	bround water not m hole caved in at 1	reached. 11.0 ft.			
NOTES: 1. 0 2. F	Ground water not m Hole caved in at i	reached. 11.0 ft.			
NOTES: 1. 6 2. F	Fround water not r Nole caved in at 1	reached. 11.0 ft.			
NOTES: 1. 0 2. F	bround water not m hole caved in at 1	reached. 11.0 ft.			
NOTES: 1. 0 2. F	Ground water not m Hole caved in at 1	reached. 11.0 ft.			
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NOTES: 1. C 2. F	Fround water not r hole caved in at i	reached. 11.0 ft.			
NOTES: 1. 6 2. F	around water not m hole caved in at 1	reached. 11.0 ft.			
NOTES: 1. 0 2. F	bround water not m hole caved in at 1	reached. 11.0 ft.			
NOTES: 1. C 2. F	Fround water not r Nole caved in at 1	reached. 11.0 ft.			
NOTES: 1. C 2. H	around water not r Nole caved in at 1	reached. 11.0 ft.			
NOTES: 1. C 2. F	Fround water not r Nole caved in at 1	reached. 11.0 ft.		Ξ -	
NOTES: 1. 6 2. F	Fround water not r Nole caved in at 1	reached. 11.0 ft.		Ξ _	
NOTES: 1. 6 2. H	Fround water not r hole caved in at i	reached. 11.0 ft.			

P-S96B-12 Date: July 19 Equipment Used Hydraulic Surface Elevation: +43.1 ft. Date: July 19 Equipment Used Hydraulic Comment Used Hydraulic	Backhoe
	Depth (ft.)
SAND, fine to medium, quartz, clayey, scattered clay lumps, tan	
SARD, The competent, question	
· 동안 문양 것 같은 것 같	
SAND, fine to medium, quartz, trace of clay, shelly, tan, isolat clay lumps (SP)	ed
clay lumps (SP)	
a a ser a ser a seconda da ser a ser a Ser a ser	
사람이 말하게 많은 것은 것은 것은 것이 가지 않는 것이다. 같은 것은 것이 같은 것은 것은 것은 것은 것은 것은 것은 것은 것을 가지 않는	
NOTES: 1. Ground water not reached. 2. Hole caved in at 10.0 ft.	
NOTES: 1. Ground water not reached. 2. Hole caved in at 10.0 ft.	_
NOTES: 1. Ground water not reached. 2. Hole caved in at 10.0 ft.	
NOTES: 1. Ground water not reached. 2. Hole caved in at 10.0 ft.	-
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NOTES: 1. Ground water not reached. 2. Hole caved in at 10.0 ft.	
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NOTES: 1. Ground water not reached. 2. Hole caved in at 10.0 ft.	
NOTES: 1. Ground water not reached. 2. Hole caved in at 10.0 ft.	

22,500 ft. East of S-96	Equipment Used: (Case 880)	
on centerline of North Spoil Bank	Geologist: Joe G	entile
Surface Elevation: +41.6 ft.		-
		Depth
		(ft) 0'
SAND, fine to medium, quartz, some trace of gravel (SC)	clay, some clay lumps,	
SAND, fine to medium, quartz, trac tan, some shell (SP)	e clay, trace of stiff brown	clay lumps,
		5.5
SEAM of clayey sand (SC), with sti	f clay lumps from 5.5' to 7=	5'
		7.5
SAND, gray to tan, some shell, cle	in (SP) from 7.5' to 12'	/.5
		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
		10'
		· · · · ·
		12'
NOTES: 1. Ground water not reach		
<ol><li>Hole caved in at 12.0'</li></ol>		
2. Hole caved in at 12.0		
		9 D
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-		
-		
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TP-S96B-14 Location: 23,500 ft. East of S-96 on€ of C-54 North Spoil Bank	Date Excavated: 7/31/86 Equipment Used: Hydraulic Backhoe (حجة عجم) Geologist: Joe Gentile
Surface Elevation: +40.6 ft.	이 그는 날아 물로 가 있었어?
	Depth
	(ft.)
SAND, fine to medium, quartz, little to shelly (SP) sand, scattered fat clay lu	umps (SC)
	21 영화 - <mark>7</mark> 2 및 성격이 있는 것이 <mark>없</mark> 습니다.
	· · · · · · · · · · · · · · · · · · ·
	10'
NOTES: 1. Ground water not reached.	
2. Hole caved in at 10.0 ft.	

North Spoil			÷., *			а. С		
Surface Ele		1.5 ft.						
· · ·	· · ·		- -				•	
							De	pth
				· · · ·			(1	t) 0'
SAND, fine	to medium, o	quartz, 1	little cl	ay, tan.	(SC)			·
	2000 1							8.5
				- 19 A				
			-					
-						gigan the second		5'
SAND, clayey	, gray-blue	, some l	lumps and	seams of	f stiff b	lue cla	y.(SC)	
· · · ·					-			
•				• .	·			
			. •			_		10'
				-				
						ina N		
* 	-							
-								
								14'
NOTES: 1. 2.	Groundwater Hole caved	not rea	ached. 4.0 ft.			-		
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DRILL	ING LO		BIOH Gouth Atlantic	Jack		le Dist	rict	OF SHEETS		
PROJECT	OUTH ATTENTIC	W. HZE	AND TYP	TIG TO T	see rema	rks				
Upper St. Johns River - L74W LOCATION (Coordinates of Station)					TT. BAYON FOR ELEVATION SHOWN (TEN - MEL)					
LOCATION	(Coardine	tos ar Stat	ien)	MS	FACTURE	ER'S DESIG	INATION OF DRIL	L		
DRILLING	AGENCY			N/A				UNDISTURBED		
US Army HOLE NO.	(As also	en dereta	g thelo	13. TOT	DEN SAMP	OVER-	N			
			WP-L74W-1			R CORE D				
NAME OF	orsley			15. ELE	ATION GI	NOUND WA		1		
DIRECTION OF HOLE					AT. SE DATE HOLE STARTED COMPLETED 18 JULY 88 18 JULY 88 17. ELEVATION TOP OF HOLE +22.7'					
B. DEPTH DRILLED INTO ROCK TO AREKANNOR MARKANNER AND TO A DEPTH OF HOLE 20.0' GEOLOGIST - J. Gentile										
D. TOTAL DEPTH OF HOLE 20.0' CLASSIFICATION OF MATE				1. S. S. S. S. S. S.	MARKS					
LEVATION		LEGEND	(Description)		ERY	BOX OR SAMPLE NO.	weathering, e	neter loss, depth of tc., if significant		
10 ( <b>1</b> ) (1) (1) (1) (1) (1) (1) (1) (1) (1) (	•	•								
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					and the second	( instant)				
	Ξ					1000				
+22.7	0.0 =					1.6	+22.7	<u>.</u>		
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+9.7	13.0-	esee				1	+9.7	Y Hacks		
+9.2	13.5	1/1	CLAY, gray (CL)				+9.2	Washe		
+8.7	14.0	177	+9:2 to +8.7 Possible Sand (SP) la	ver			+8.7	Washe Washe		
	1	Y//	TUSSINIC Sand (SF) 10,	,				#G211C		
	1 -	Y//	전화가 관계 지하는 것이 같아요.				Pairain			
	E	1//		۳.						
+6.2	16.5	1//			$ \cdot _{\mathbb{R}}$		+6.2	1		
	1	11.	+6.2 to +4.2 contains			1		Washe		
	1	19%	shell							
	10.57	1/1								
+4.2	18.5	1/10					+4.2	1		
	-	V/						Washe		
		1//				l an c				
+2.7	20.0-	1.					+2.7	I		
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THORNY YA SERACO THEORY 2 8 2 2 8 \$ 3 2 8 000 8 UPPER ST. JOHN'S RIVER BASIN 2 SAMPLE RM-CW-88-0039 STRUCTURE 96C A 96D 0.005 LAB NO. 73/2594 SAT OR CLAY HYDROMETER 5468 Boring No. CB .. 5966-1 0.01 02/24/88 Req. No. Project Area Dete 0.05 300 53 140 ā -/ 7 0.1 8 ž 2 51 ۲ U.S. STANDARD SIEVE NUMBERS ; I ł GRAIN SIZE IN MILIMETERS SAND ! 40 50 DEPARTMENT OF THE ARMY, SOUTH ATLANTIC DIVISION LABORATORY CORPS OF ENGINEERS, 611 SOUTH COBB DRIVE, MARIETTA, GA. 30060 1 į 69 L 00 8 10 14 16 20 Not w % MEDHUM 31.4 -• • • • FAT CLAY (CH) TAN. SANDY, W/SOME ...TLT.TONE **GRADATION CURVES** : • -COARSE ÷ Classification N A TRACE OF MICA U.S. STANDARD SIEVE OPENING IN INCHES \* ! 2 1 . . . . 1 \* GRAVE ! i 2 14 COARSE į i i 00 Eles of Kard 8 • 1.9/0.8 ; j COBBLES i 1 Semple No. : 8 ğ 8 ő 2 00 30 9 30 2 0 0 PERCENT FINER BY WEIGHT

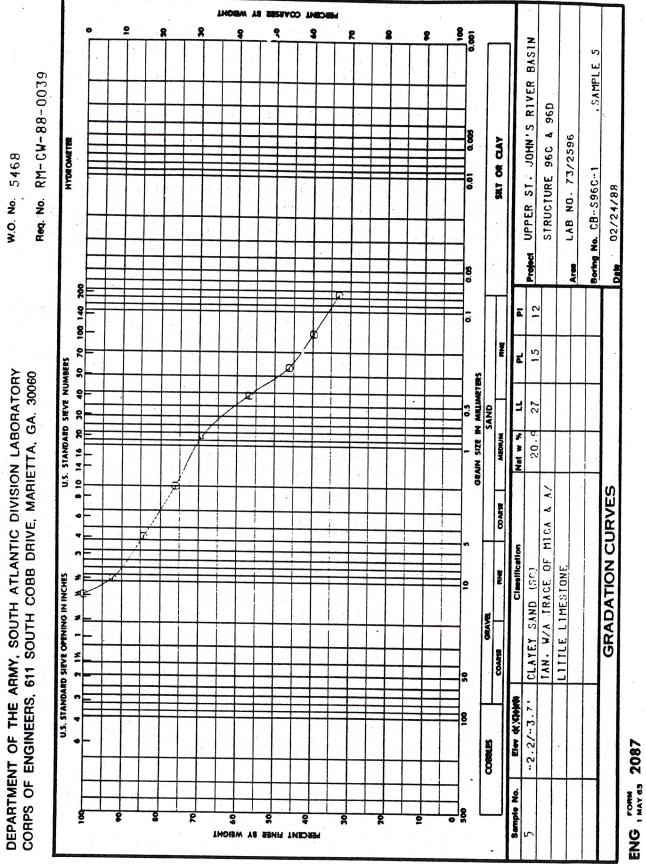
A-22

W.O. No.

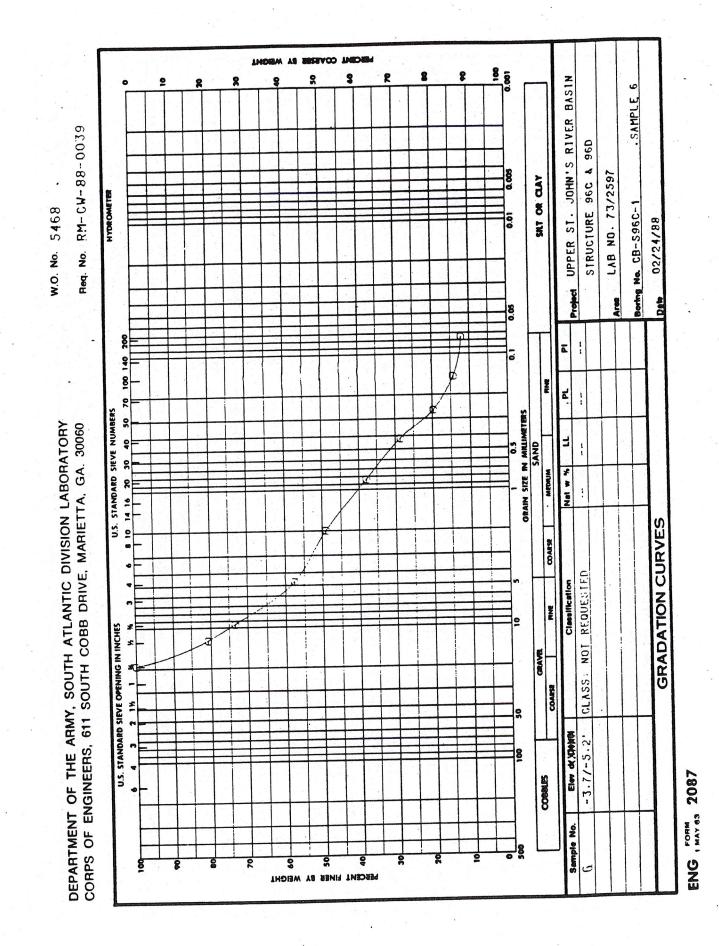
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PERCENT COARSER BY WEIGHT 0.00 8 8 8 9 2 2 8 Project UPPER ST. JOHN'S RIVER BASIN 8 ę 0 SAMPLE 3 Req. No. RM-CW-88-0039 96D STRUCTURE 96C A LAB NO. 73/2595 0.00 SILT OR CLAY HYDROMETER Boring No. CB--S96C--1 W.O. No. 5468 0.01 02/24/88 Date Area 0.03 200 S ā 5 100 140 6 Ĭ 15 d ¢ 50 70 1 U.S. STANDARD SIEVE NUMBERS ORAIN SIZE IN MILLIMETERS DEPARTMENT OF THE ARMY, SOUTH ATLANTIC DIVISION LABORATORY CORPS OF ENGINEERS, 611 SOUTH COBB DRIVE, MARIETTA, GA. 30060 li i 1 02 **8 10 14 16 20 30 40** 1 F 1 1 SAND 0 Net w % 29.1 MEDNM TAN. W/SOME SAND & A/LITTLE. **GRADATION CURVES** Ĭ COARSE ¢ Clessification 1 NE 0 U.S. STANDARD SIEVE OPENING IN INCHES \* \* FAT CLAY (CH) ¢ CEANE \* CHERI ¢ COMISE 2 14 8 • 8 .8/-0.7. SUBSCO Sample No. പ്ട് 8 8 2 8 ğ INDEM AS SING INDUM

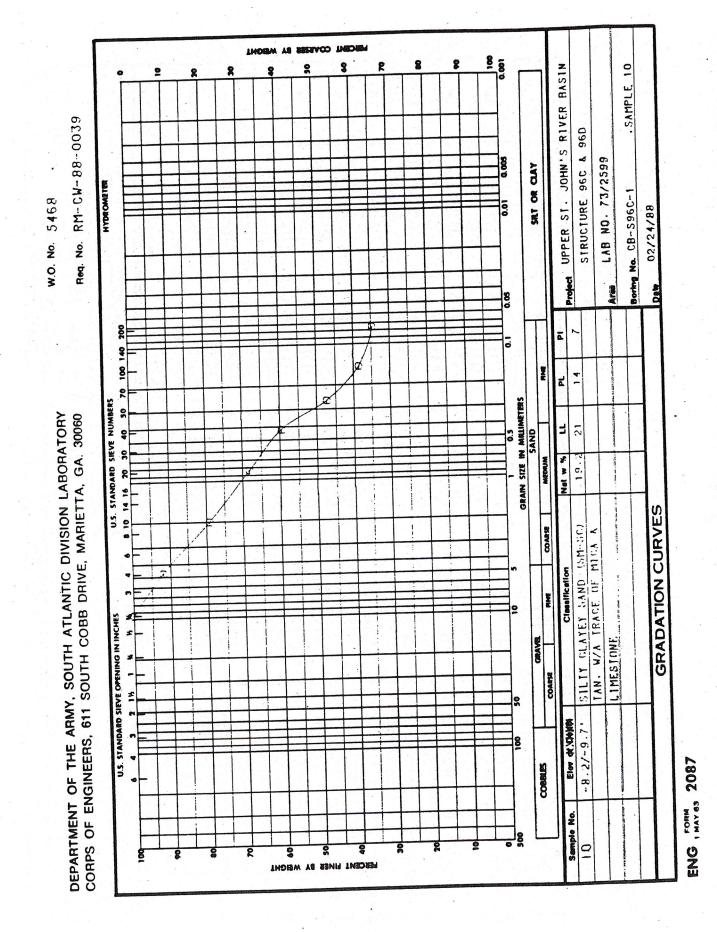
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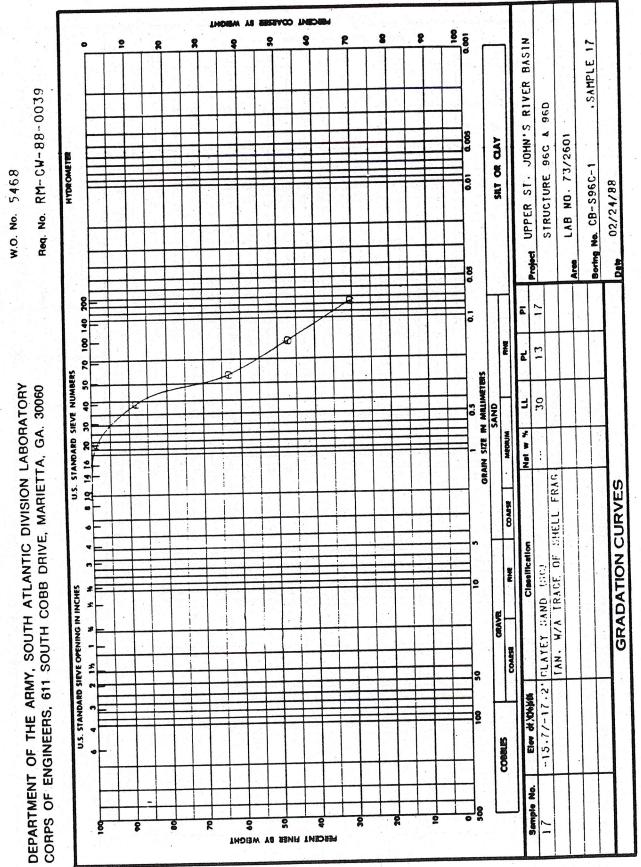
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MICENL COVIERS BA MAIOHA 5 5 5 5 2 8 18 8 2 3 8 8 UPPER ST. JOHN'S RIVER BASIN 6 . SAMPLE Req. Nd. RM-CW-88-0039 STRUCTURE 96C & 96D 0000 LAB NO. 73/2598 SAT OR CLAY **HYDROMETER** W.O. No. 5468 Boring No. CB-S96C-1 0.01 02/24/88 . Project Dete Area . 800 ğ 28 100 140 ā 0.1 ¢ Z 2 + ಕ U.S. STANDARD SIEVE NUMBERS ø 8 10 14 16 20 30 40 50 1 1 1 1 1 1 1 1 1 1 DEPARTMENT OF THE ARMY, SOUTH ATLANTIC DIVISION LABORATORY CORPS OF ENGINEERS, 611 SOUTH COBB DRIVE, MARIETTA, GA. 30060 GRAIN SIZE IN MILLIMETERS 22 3 SAND MEDIUM Nat w % 17.8 **GRADATION CURVES** COARSE SOME CEMENTED CRAVEL SIZE TAN. W/A TRACE OF MICA A • Classification ž CLAYEY SAND (SC) U.S. STANDARD SIEVE OPENING IN INCHES \* \* 2 T ORAVE # -4 SHELL COARSE 2 14 30 • -6.7/-8.2' 8 COBBLES ENG 1 MAY 53 2087 Semple No. 9 **–**]8 g 8 ğ 2 00 30 Ş 2 2 LHOBM AS BENEL INSUE



LHOEM AS SESTION INCOME 8 8 2 8 8 8 8 2 8 8 UPPER ST. JOHN'S RIVER BASIN SAMPLE 15 Req. No. RM-CW-88-0039 STRUCTURE SEC & SED 0000 LAB ND. 73/2600 SAT OR CLAY HYDROMETER W.O. No. 5468 Borting No. CB-S96C-1 0.0 02/24/88 Project Area Dete 80.0 20 8 10 14 16 20 30 40 50 70 100 140 ā 1 5 Ĩ z U.S. STANDARD SIEVE NUMBERS : DEPARTMENT OF THE ARMY, SOUTH ATLANTIC DIVISION LABORATORY CORPS OF ENGINEERS, 611 SOUTH COBB DRIVE, MARIETTA, GA. 30060 GRAIN SIZE IN MILIMETERS R 2 0.5 ! % M JEN MEDRUM ļ **GRADATION CURVES** COARSE ; Z -14.2/-15.2' CLASS. NOT REQUESTED Classification -Ĩ U.S. STANDARD SIEVE OPENING IN INCHES \* \* 2 t CRAVE -2 14 COARSE 30 Elev dt XDAJAD 8 -COBRLES ENG THAT BY 2087 Semple No. ျမ္မ ĝ 2 2 00 8 2 00 2 ġ 5 THORA YE SENT THERE BY WEIGHT



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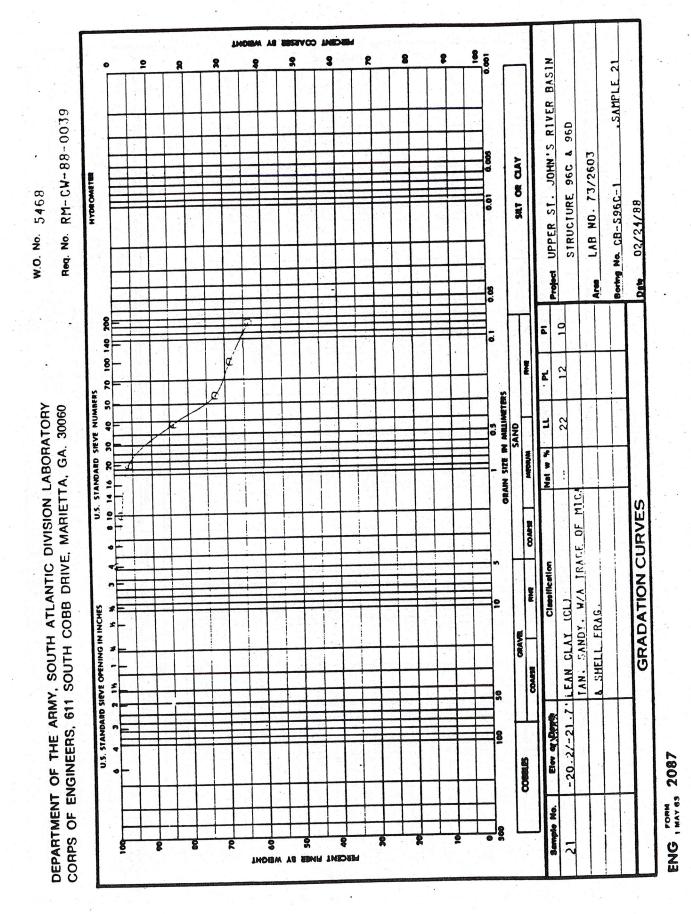
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HINGINA ODVICES BA MENONA 2 8 2 8 C 8 9 3 2 8 8 50 Project UPPER ST. JOHN'S RIVER BASIN . SAMPLE 18 Req. No. RM-CW-88-0039 STRUCTURE 96C & 96D 0.000 LAB NO: 73/2602 SRT OR CLAY **HYDROMETER** W.O. No. 5468 Borting No. CB-S96C-1 0.0 02/24/88 Dete and the second s 80 100 140 200 : ā 0.7 Z 2 Ч 1 U.S. STANDARD SIEVE NUMBERS 8 0 10 14 16 20 30 40 50 DEPARTMENT OF THE ARMY, SOUTH ATLANTIC DIVISION LABORATORY CORPS OF ENGINEERS, 611 SOUTH COBB DRIVE, MARIETTA, GA. 30060 GRAIN SIZE IN MILIMETERS x 3 SAND 5 1 MEDNUM Nat w % ; **GRADATION CURVES** COARSE -17.2/-18.7 CLASS. NOT REQUESTED Classification 11.4 U.S. STANDARD SIEVE OPENING IN INCHES 2 GRAVE \* -3 14 COARSE 30 Elev of Clexes 8 COBRES ENG , MAY 63 2087 Sample No. ႕ရွ ģ 2 2 \$0 30 Q 0 2 2 81 RECENT FINES BY WEIGHT

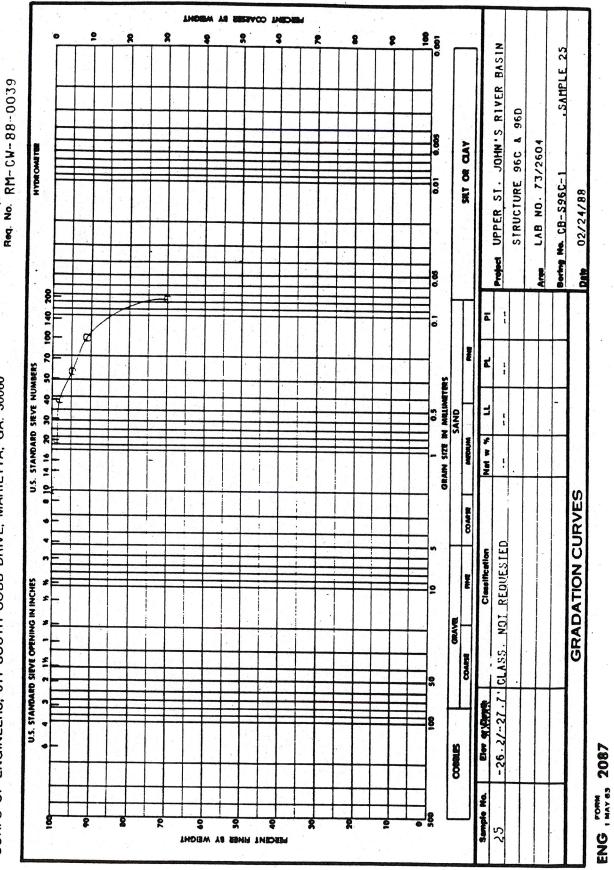
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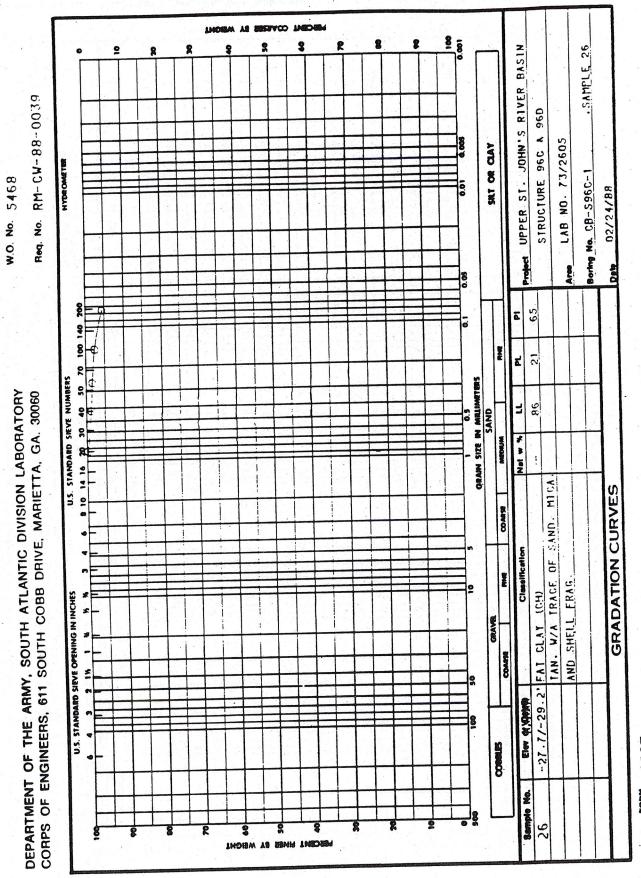


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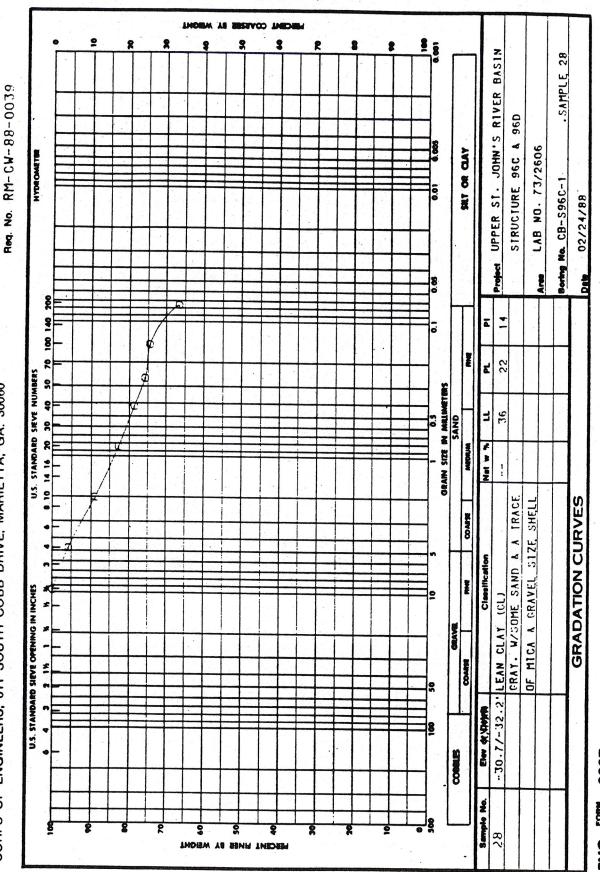
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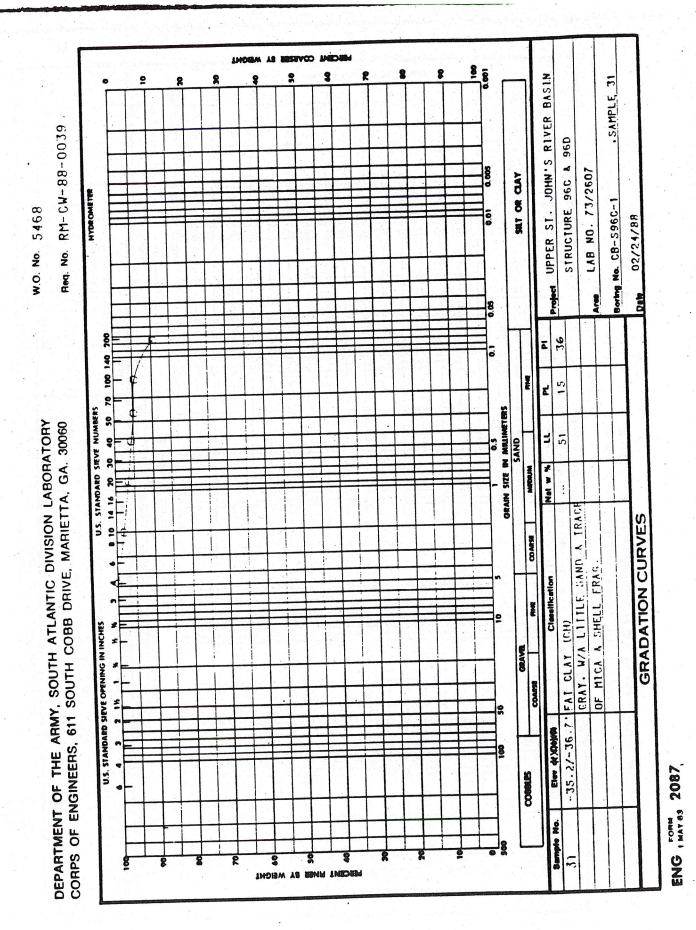
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LHORM AS SEEVED INCOME 2 8 2 g 2 3 8 R 8 100 2 Project UPPER ST. JOHN'S RIVER BASIN SAMPLE 34 Reg. No. RM-CW-88-0039 STRUCTURE 96C & 96D **000** LAB NO. 73/2608 SAT OR CLAY HYDROMETER W.O. No. 5468 Borting No. CB-S96C-1 0.01 02/24/88 Are Dete 0.03 8 100 140 29 ā 0 Q 8 10 14 16 20 30 40 50 70 Z 91 ۲ ¢ U.S. STANDARD SIEVE NUMBERS DEPARTMENT OF THE ARMY, SOUTH ATLANTIC DIVISION LABORATORY CORPS OF ENGINEERS, 611 SOUTH COBB DRIVE, MARIETTA, GA. 30060 GRAM SIZE IN MILIMETERS ¥ 3 45 1 0.9 Net a 1 MUNDER -: **GRADATION CURVES** COARSE CRAY. SANDY. W/A TRACE OF MICA & LIMESTONE & CRAVEL i CleanMcation ž U.S. STANDARD SIEVE OPENING IN INCHES \* \* 2 -41.2/-42.7 | FAN CLAT (CL) SIZE SHELL . CRAVE 2 14 COMPLE 8 Elev dr.XDojinga COMMEN ENG TOTH 2087 Sample No. ģ \_<u>]8</u> 2 2 8 g \*\* LINDIAM AS BENIL LINEDEM .

A-36

LHOGHA AS ESSIVICO LHEORIA ğ 8 100 8 \$ 2 UPPER ST. JOHN'S RIVER BASIN 2 2 8 8 · SAMPLE 3 Req. No. RM-CW-88-0039 STRUCTURE 96C & 960 LAB NO. 73/2609 0,005 SAT OR CLAY **HYDROMETER** Boring No. CB-S96C-2 W.O. No. 5468 0.01 02/25/88 Project Dete L 800 • 200 61 ā 0 100 140 \$ Ĩ 16 z U.S. STANDARD SIEVE NUMBERS 0 10 14 16 20 30 40 50 70 a. ORAN SIZE IN MILIMETERS DEPARTMENT OF THE ARMY, SOUTH ATLANTIC DIVISION LABORATORY CORPS OF ENGINEERS, 611 SOUTH COBB DRIVE, MARIETTA, GA. 30060 22 3 0.5 \* m len MUNOTAN .3.3 TAN. W/A LITTLE SAND A LIME-**GRADATION CURVES** COARSE 1 STONE. CRAVEL SIZE SHELL ·F i 5 Classification ž 0 FAT CLAY ICH) U.S. STANDARD SIEVE OPENING IN INCHES -\* i CRAVE 1 \* COARSE 41 E 8 Elev of Dryph +1.3/-0.2' 8 -COMMENT Semple No. 1§ 8 2 9 8 g 8 3 PERCENT PINER BY WEICHT

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W.O. No. 5468

LINDERA AS BEEFYCO LANDREN 2 8 8 8 8 8 2 9 2 8 8 UPPER ST. JOHN'S RIVER BASIN SAMPLE 4 Req. No. RM-CW-88-0039 STRUCTURE 96C & 96D LAB NO. 73/2610 0000 SAT OR CLAY HYDROMETER Borting No. CB-S96C-2 0.0 02/25/88 Project Dete 2 80 20 3.3 ā 100 140 0.1 ¢ Z ... 0 10 14 16 20 30 40 50 70 z ¢ U.S. STANDARD SIEVE NUMBERS ORAIN SIZE IN MILIMETERS 3 46 SAND 0.5 Not w 2 MEDRUM 25.5 TAN. W/A TRACE OF SAND. MICA **GRADATION CURVES** COARSE i i ; Classification ž U.S. STANDARD SIEVE OPENING IN INCHES 9 LEAN CLAY (CL) \* A SILTSTONE CRAVE # COARSE 2 14 8 -0.2/-1.7. Eler of Drong 8 Semple No. ġ 8 2 9 50 Ş 4 LINDIAM AN BENH INBOUL

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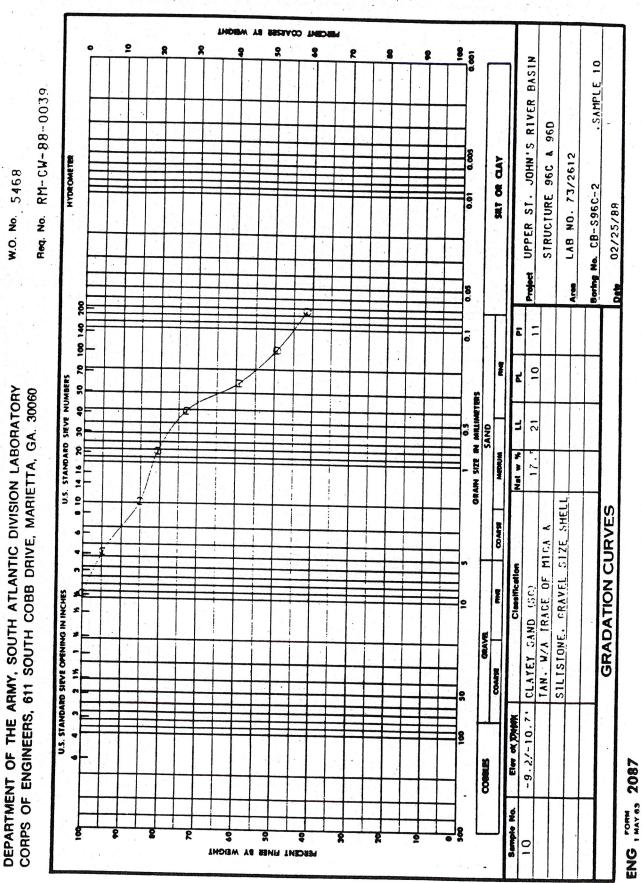
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Req. No. RM-CW-88-0039

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MICHAL COVIEES IL MEDINL 8 100 8 8 UPPER ST. JOHN'S RIVER BASIN 8 2 2 8 9 2 8 SAMPLE 8 960 STRUCTURE 96C & 0.00 LAB NO. 73/2611 SAT OR CLAY HYDROMETER Borting No. CB-S96C-2 0.01 02/25/88 Project Date Am 80 8 +ā -0 140 8 15 I ۲ 20 a GRAIN SIZE IN MILIMETERS U.S. STANDARD SIEVE NUMBERS 20 29 3 SAND T 0.5 MERDAUM Not w % 20.0 1 1 TAN. SANDY. W/A LITTLE LIME. **GRADATION CURVES** COMPE ł 1 -1 ; 1 Ż • 1 7 Classification ž LEAN CLAY (CL) 2 \* \* U.S. STANDARD SIEVE OPENING IN INCHES 7 GRAVE STONE COARSE 41 E 8 Elek XX Depth -6.2/-7.7 8 . SUMO Sample No. 8 8 8 2 8 ĝ α INDEM AS SENH INSDEM

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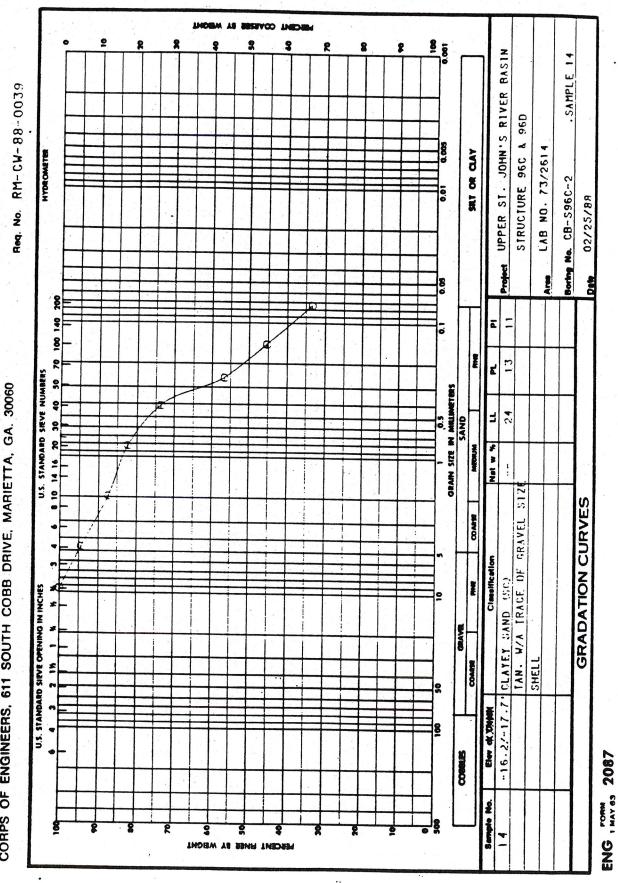
HINGINA AN RESEVOD LINEDHIL 8 60 8 8 UPPER ST. JOHN'S RIVER BASIN 2 8 2 2 SAMPLE 11 8 9 2 RM-CW-88-0039 STRUCTURE 96C & 96D LAB NO. 73/2613 0,005 SAT OR CLAY HYDROMETER Borting No. CB-S96C-2 5468 0.01 02/25/88 Req. No. W.O. No. Project Dete Area 800 8 1 ā 0 100 140 ď z 1 2 Ø U.S. STANDARD SIEVE NUMBERS GRAIN SIZE IN MILLIMETERS 8 DEPARTMENT OF THE ARMY, SOUTH ATLANTIC DIVISION LABORATORY CORPS OF ENGINEERS, 611 SOUTH COBB DRIVE, MARIETTA, GA. 30060 . 3 ę 1 0.5 0 14 14 20 30 Net w % : F SOME SILISIONE. CRAVEL SIZ FDR AII **GRADATION CURVES** COMPA TAN. W/A TRACE OF MICA A INSUEE ICLENT MALT Cleelfication -11.7/-13.2' CLAYEY SAND 15C) E 0 U.S. STANDARD SIEVE OPENING IN INCHES J \* DRAVE SHELL VISUAL COARSE 2 14 8 Elev of Dirbit e 8 ENG TAY NO 2087 COUNTES Semple No. 2 8 8 -LINDERA AN BENNE INSDEEL

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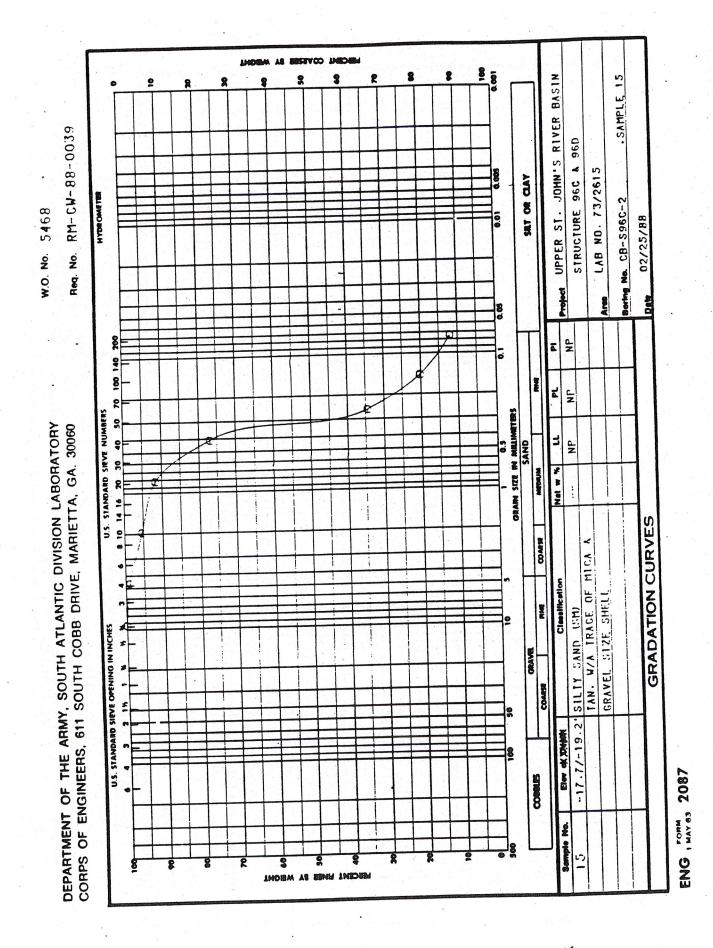
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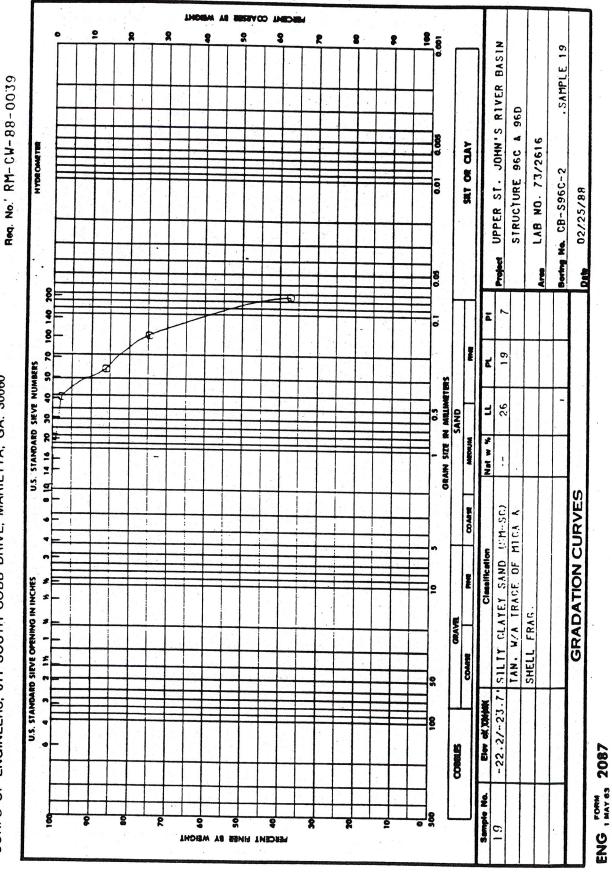
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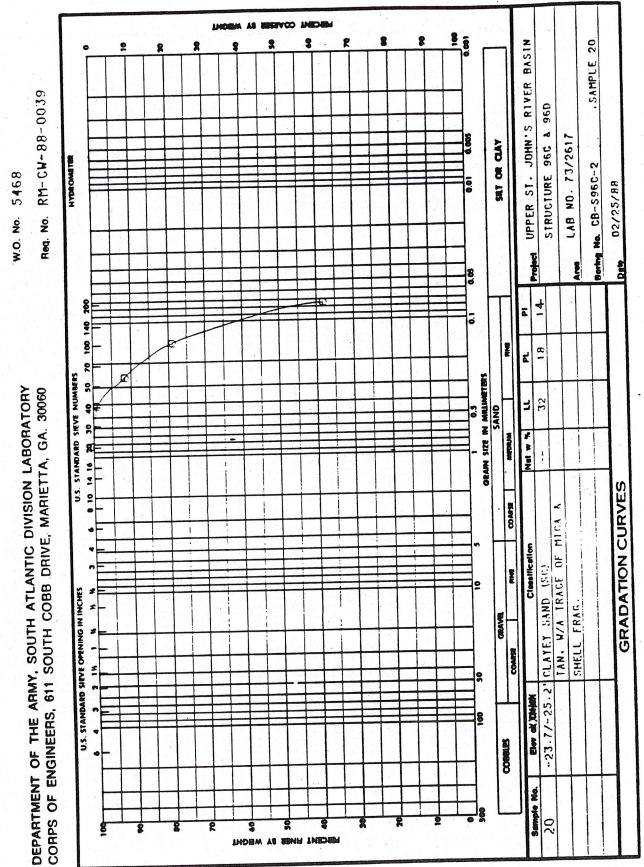
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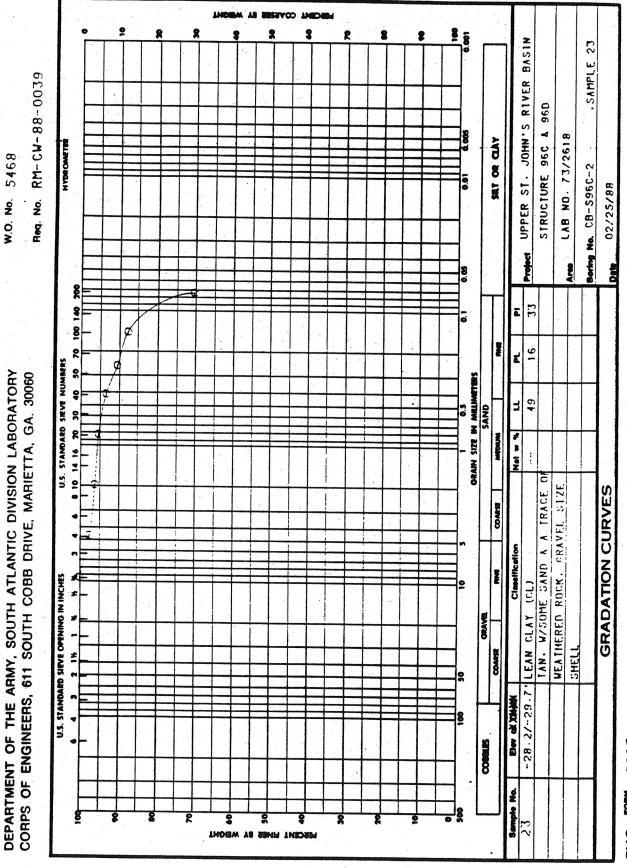


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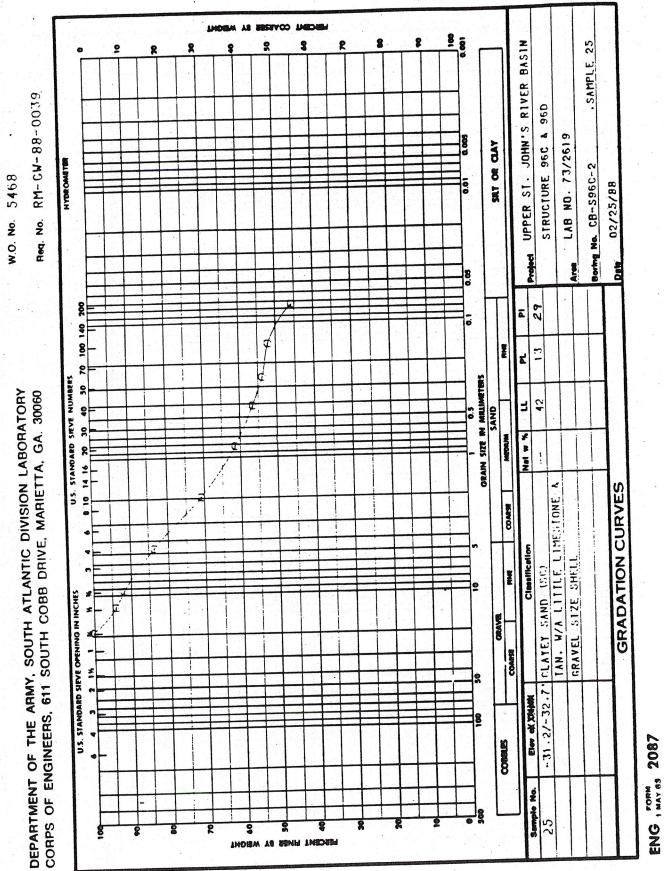


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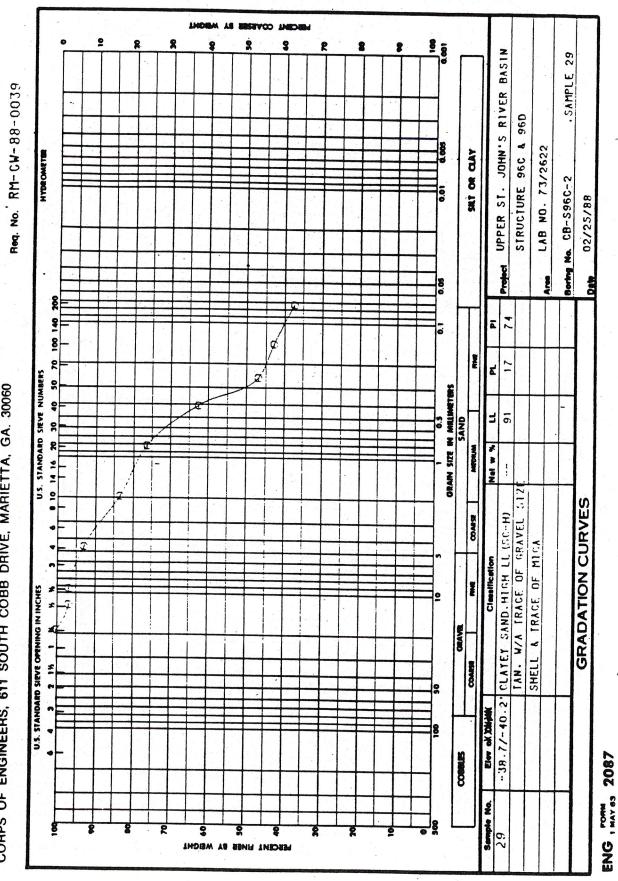
THORAW YA SERAADO THEOREM 2 8 2 8 800 0 2 3 8 Ş 2 8 JOHN'S RIVER BASIN SAMPLE 26 RM-CW-88-0030 090 STRUCTURE 96C & 0.005 LAB NO. 73/2620 SAT OR CLAY HYDROMETER Boring No. CB--S96C--2 UPPER ST. 0.01 02/25/48 Req. No. Project Det Ares 8 8 U.S. STANDARD SREVE NUMBERS 39 ۵ 0.1 N -PL GRAIN SIZE IN MILLIMETERS 1 2.3 0.5 Nat w % MEDRUM ; **GRADATION CURVES** COMPSE • ; İ i Classification ž U.S. STANDARD SIEVE OPENING IN INCHES \* 2 & SHELL FRAG. 2 14 1 14 CRAVE COARSE 2 Elev of Child 8 COBBLES ENG , MAY 55 2087 Sample No. പ്ട് ġ 2 8 g 3 ğ 8 2 2 9 56 THORN TA BUNK THEOREM

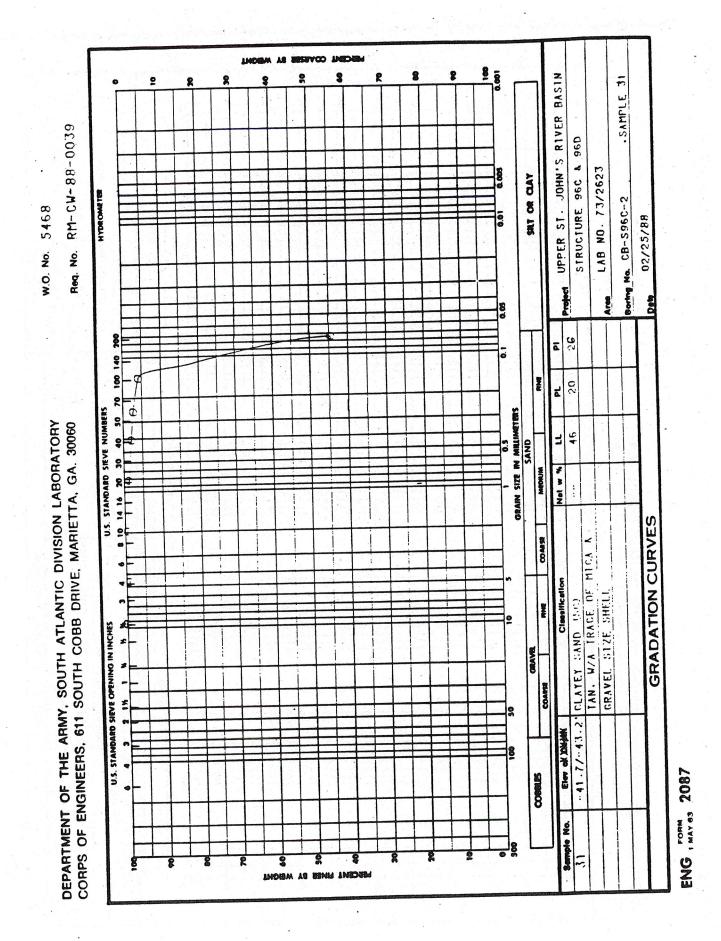
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LNDRM AS BESEVOD LNEDEM 8 19 8 UPPER ST. JOHN'S RIVER BASIN SAMPLE 28 8 20 8 2 2 2 9 2 RM-CW-88-0039 096 STRUCTURE 96C A 0.005 LAB NO. 73/2621 SAT OR CLAY HYDROMETER Boring No. CB-- 596C-- 2 W.O. No. 5468 10.0 N2/25/8H Req. No. Project Det Area 80.0 35 ā 20 0 50 70 100 140 -Ъ 1 GRAIN SIZE IN MILLIMETERS U.S. STANDARD SIEVE NUMBERS DEPARTMENT OF THE ARMY, SOUTH ATLANTIC DIVISION LABORATORY CORPS OF ENGINEERS, 611 SOUTH COBB DRIVE, MARIETTA, GA. 30060 ÷ 1 .... = 1 SAND 9 0.5 8 Not w % MUNDAM e 10 14 16 20 1 -35.77-37.2 LEAN CLAY (11.) TAN. W/A TRACE OF SAND. MICA 1 **GRADATION CURVES** i COARSE -1 ; į 1 Classification A SHELL FRAG 2 U.S. STANDARD SIEVE OPENING IN INCHES # i \$ CRAVE ; i # COARSE 2 14 8 Riev of Children 8 ENG , MAY 53 2087 COBBILIS 1 Semple No. \_lg 1 58 8 2 00 ğ HEIGENL HNEE BA MEICHL

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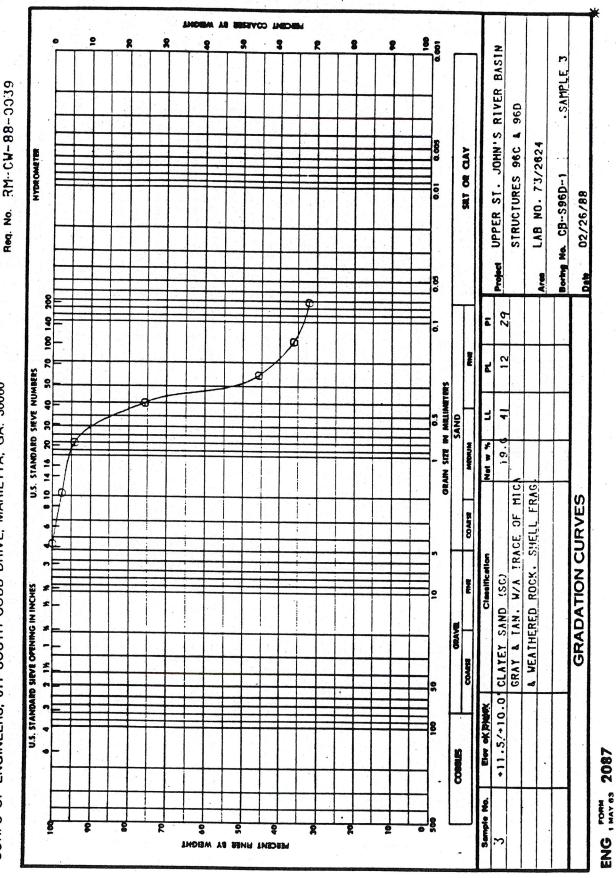




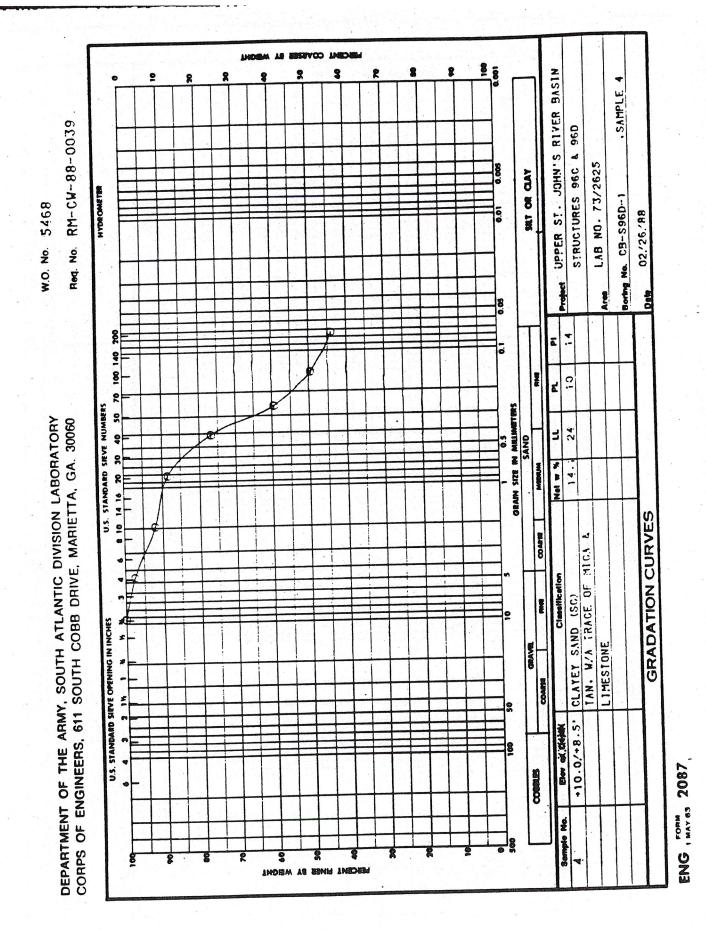
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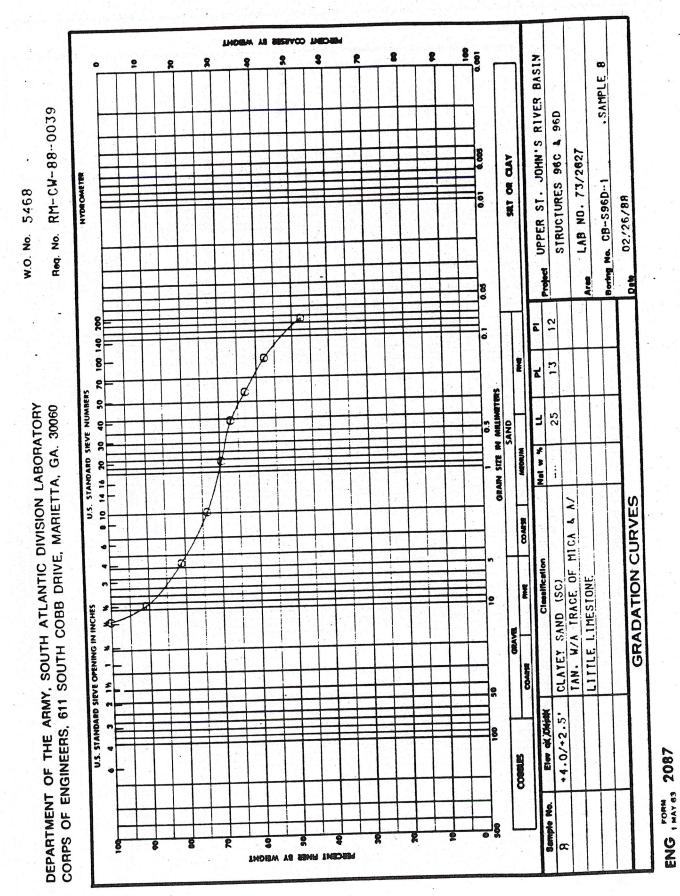


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LHOBA AS BESTYCO MON 2 100 8 2 3 3 e R 8 8 UPPER ST. JOHN'S RIVER BASIN SAMPLE 6 Req. No. RM--CW--88--0039 STRUCTURES 96C & 96D 0.000 LAB NO. 73/2626 SAT OF CLAY HYDROMETER W.O. No. 5468 Borting Na. CB-S96D-1 0.0 02/26/88 Project ATA A Dete 800 8 13 100 140 ā 0 Ø .... 50 70 z US. STANDARD SIEVE NUMBERS 4 6 8 10 14 16 20 30 40 90 7 DEPARTMENT OF THE ARMY, SOUTH ATLANTIC DIVISION LABORATORY CORPS OF ENGINEERS, 611 SOUTH COBB DRIVE, MARIETTA, GA. 30060 ORAN SIZE IN MILIMETERS L 26 0.5 Nat w % WINDOWN :: MIC. **GRADATION CURVES** 1 COARTE TAN. SANDY. W/A TRACE OF İ i Classification • ž U.S. STANDARD SIEVE OPENING IN INCHES 4 0 LEAN CLAY (CL) \* & LIMESTONE 2 14 1 4 ORAVE 8 8 -Eler of Didat +7.0/+5.5 8 COMMEN Semple No. 2 3 8 8 0 THOREM TE BUNK THEORY

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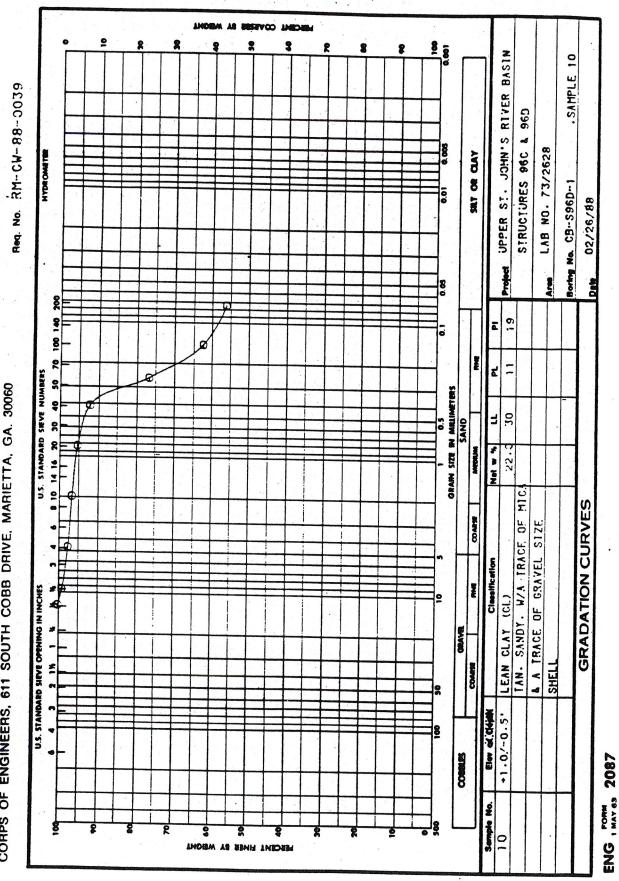
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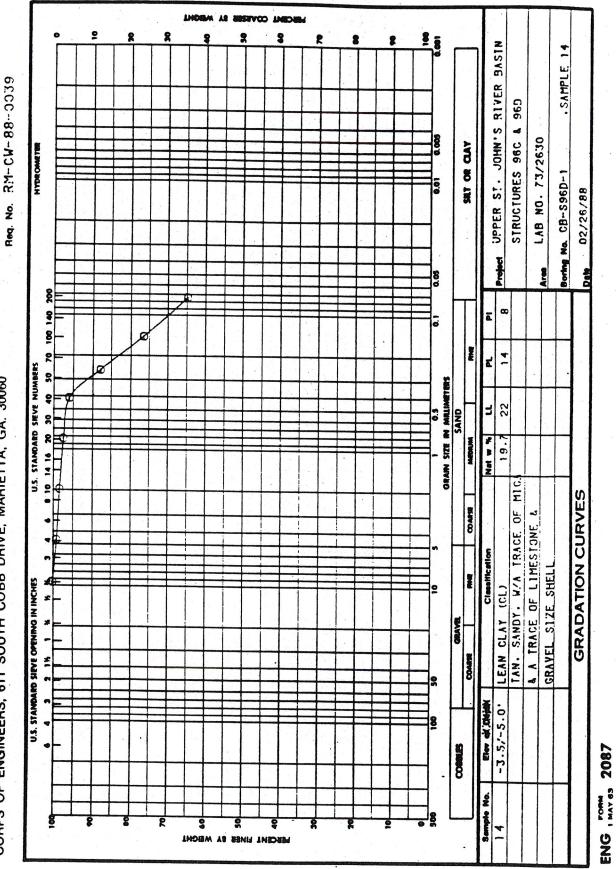
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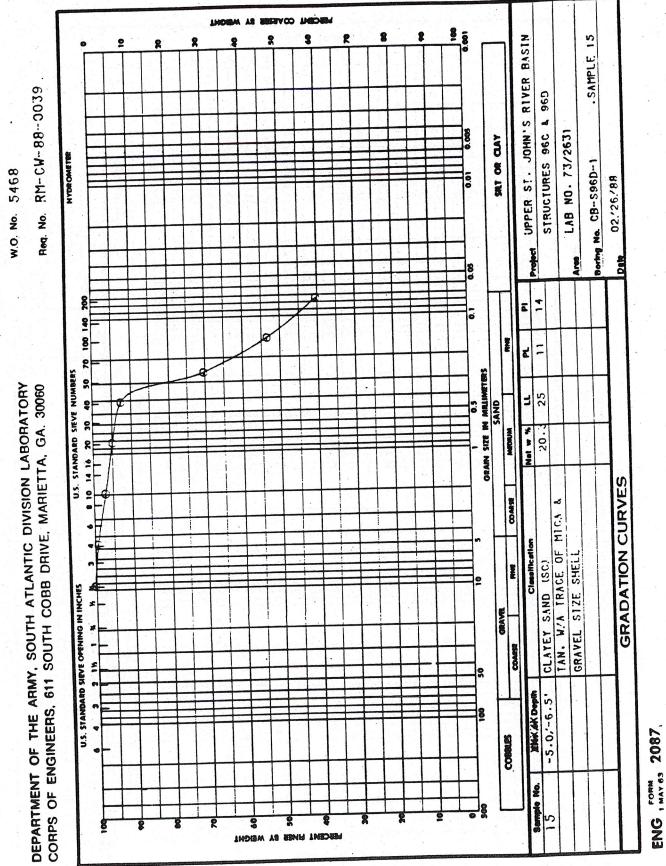


LHORM AS BESTYCO LHEORM 8 8 8 8 2 3 2 UPPER ST. JOHN'S RIVER BASIN SAMPLE 13 2 2 2 2 Req. No. RM--CW-- 88-- 3039 960 STRUCTURES 96C & LAB NO. 73/2629 0.000 SUT OF CLAY HYDROMETER Boring Ne. C3--S96D--1 W.O. No. 5468 0.01 02/26/88 Project Det -0.00 13 200 đ 0 100 140 2 = ۲ 40 50 70 U.S. STANDARD SIEVE NUMBERS GRAIN SIZE IN MILLIMETERS DEPARTMENT OF THE ARMY, SOUTH ATLANTIC DIVISION LABORATORY CORPS OF ENGINEERS, 611 SOUTH COBB DRIVE, MARIETTA, GA. 30060 24 3 0.5 8 MUNDEW \* · · 0 14 16 20 : i **GRADATION CURVES** 4 COMPA TAN. W/A TRACE OF MICA & ÷ i Clearlication TRACE OF LIMESTONE CLAYEY SAND (SC) 0 \* U.S. STANDARD SIEVE OPENING IN INCHES CRAVE COARTE 2 14 2 unden Xy, Xyy -2.0.-3.5. 8 -- Sample No. **\_**]§ 3 ę 8 2 00 8 g THORN TO BINH THEORY

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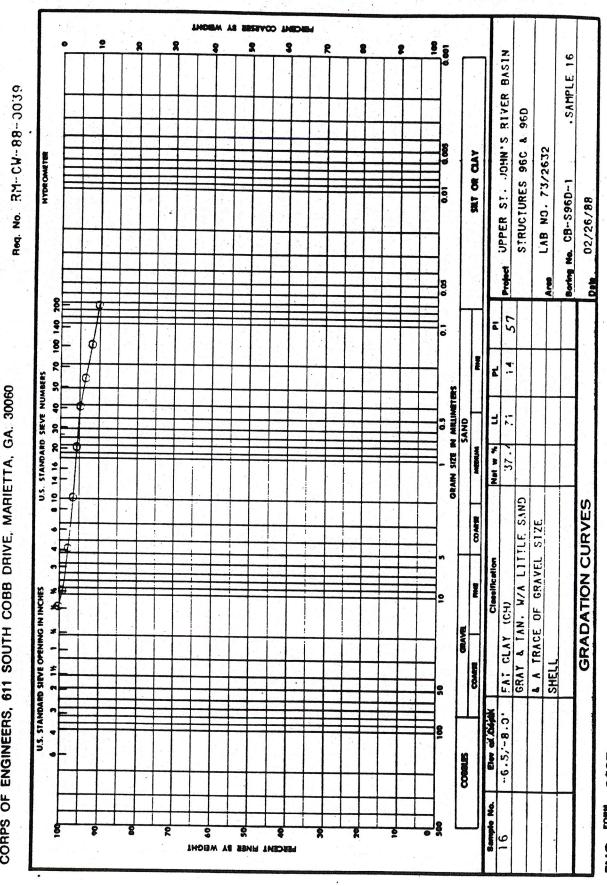
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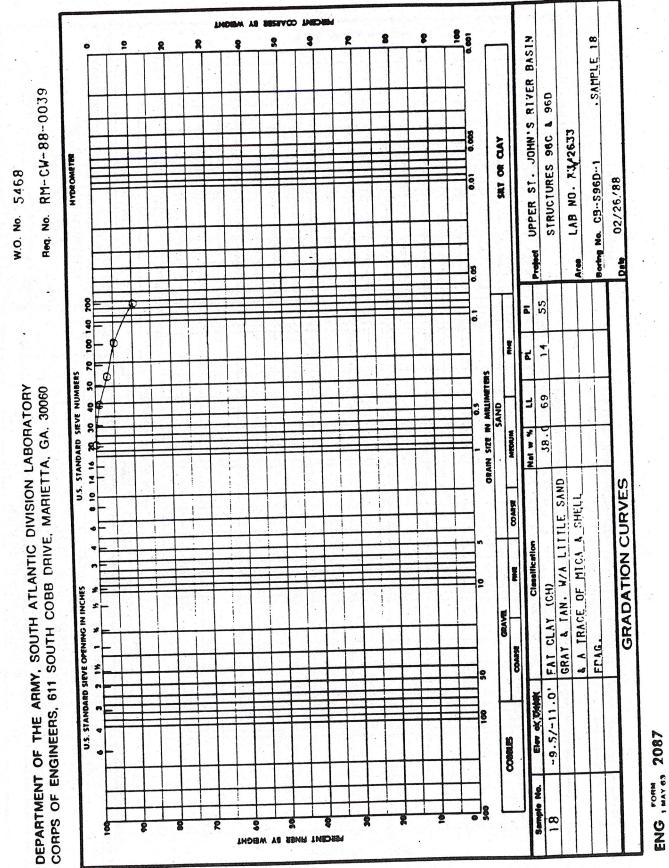


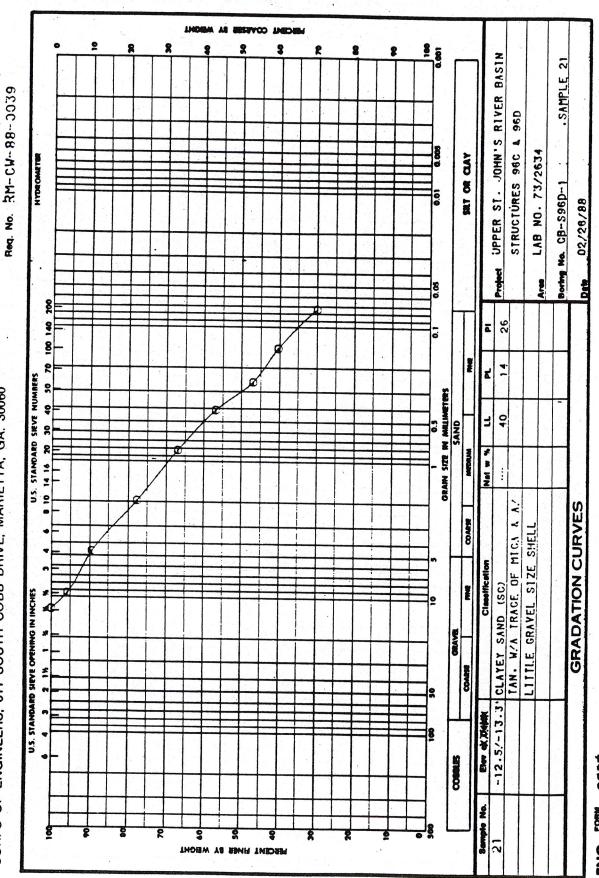
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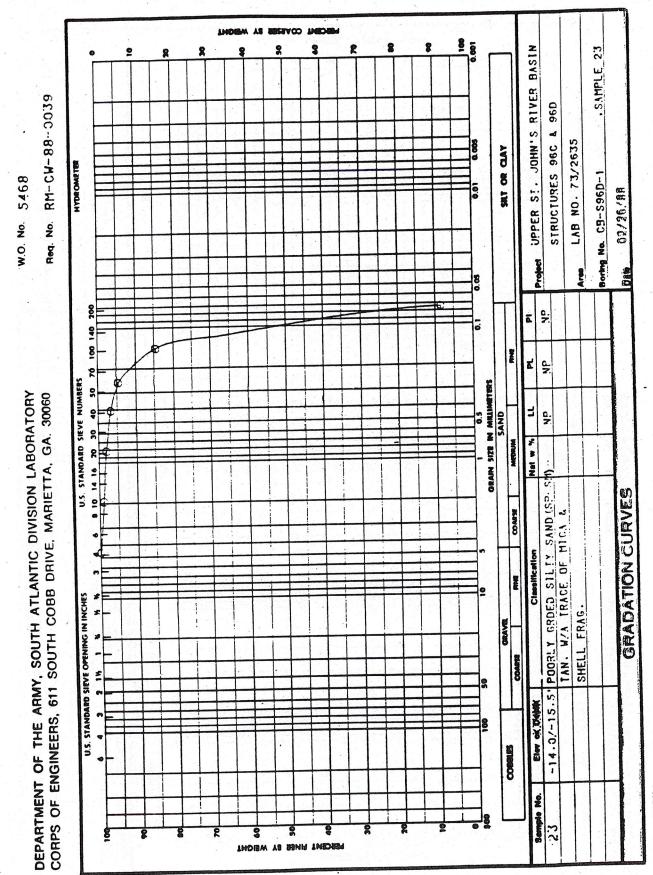


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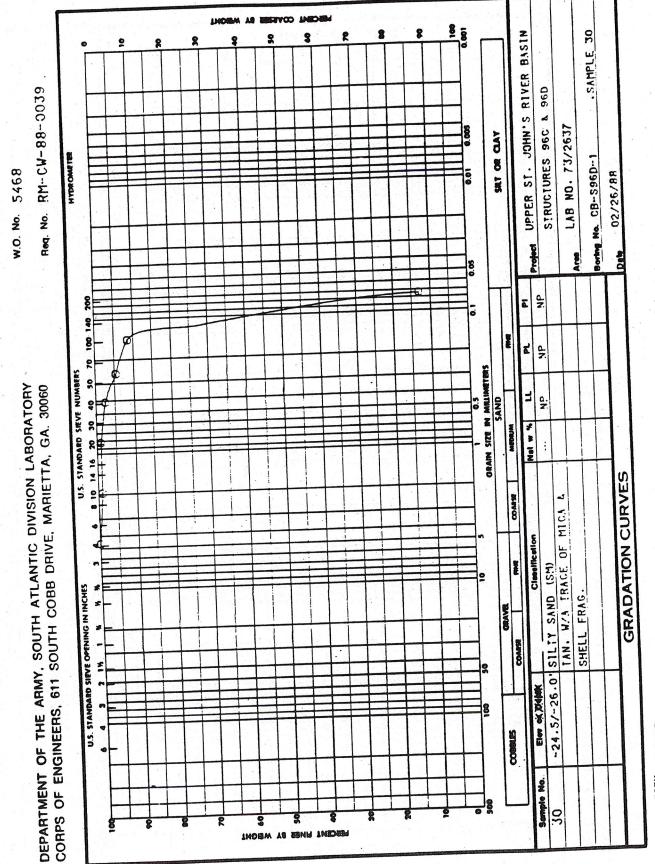
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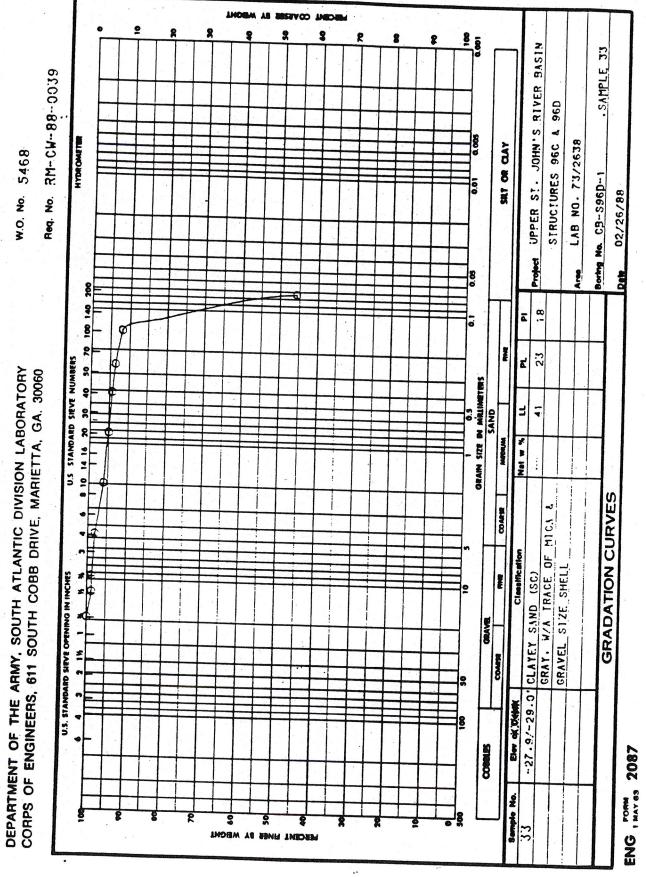
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MUCHAL COVIERS &A MEDIAL 2 2 3 2 2 2 000 9 R 8 8 UPPER ST. JOHN'S RIVER BASIN SAMPLE 26 Req. No. RM--CW--88--0039 STRUCTURES 96C & 96D LAB NO. 73/2636 SAT OR CLAY HYDROMETER W.O. No. 5468 Boring Na. CB-S96D-1 0.01 02/26/88 Project Are Dete 0.00 ğ a.N 100 140 ā 0 R Z Ľ NP U.S. STANDARD SIEVE NUMBERS DEPARTMENT OF THE ARMY, SOUTH ATLANTIC DIVISION LABORATORY CORPS OF ENGINEERS, 611 SOUTH COBB DRIVE, MARIETTA, GA. 30060 ORAM SIZE IN MILIMETERS 1 0.5 NP Nat w \$ MEDIUM : -18.5/-20.0' PORLY GRDED SILIY SAND (SP.SM) TAN. W/A TRACE OF MICA & **GRADATION CURVES** COARSE T. Classification CRAVEL SIZE SHELL U.S. STANDARD SIEVE OPENING IN INCHES 2 GRAVE COMPS 2 Elev of District 8 CORNES ENG TOT 2087 Semple No. 26 l ğ 8 2 9 8 Ş LHOBM AS BENIL INSDEM

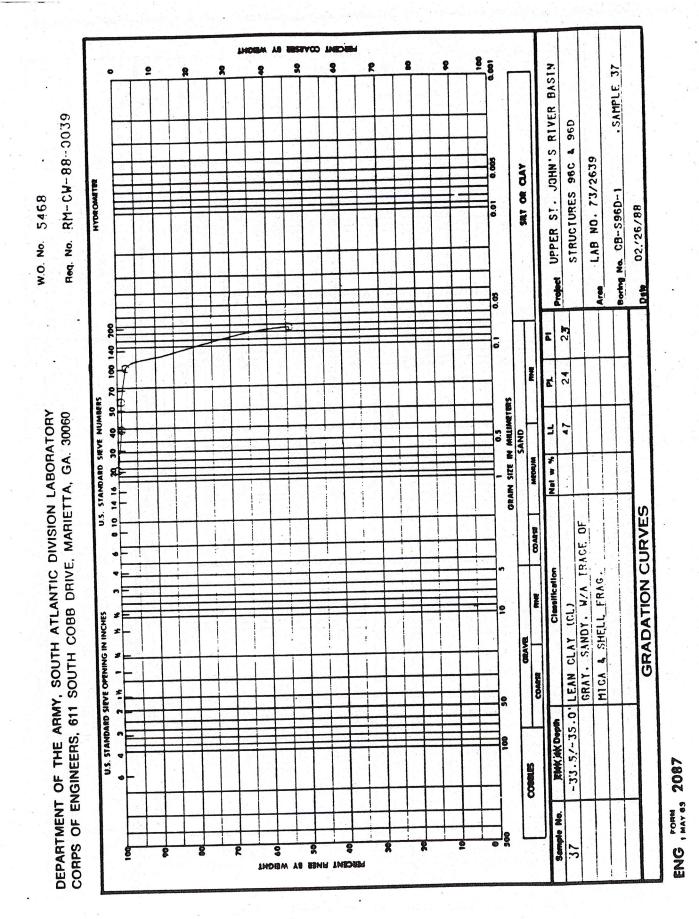
A-64



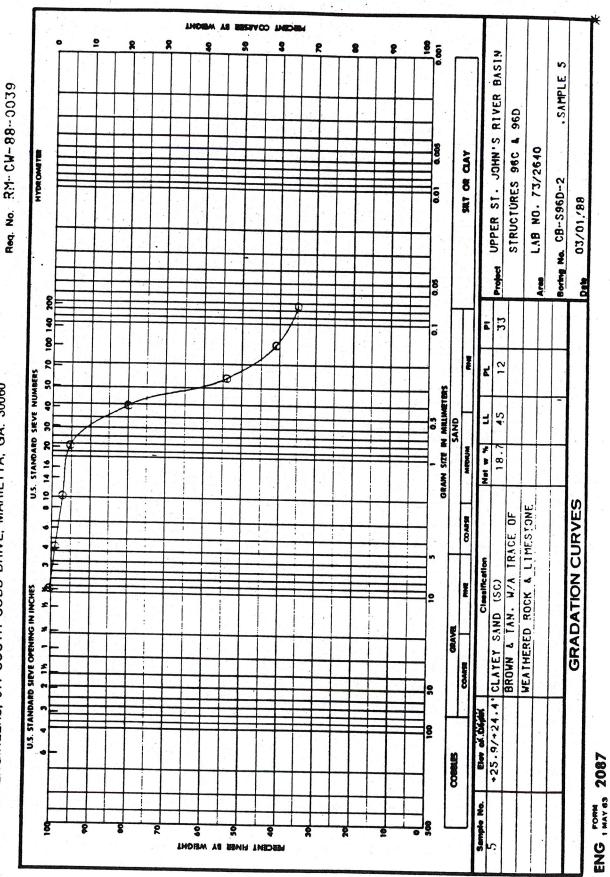
ENG , MAY 53 2087

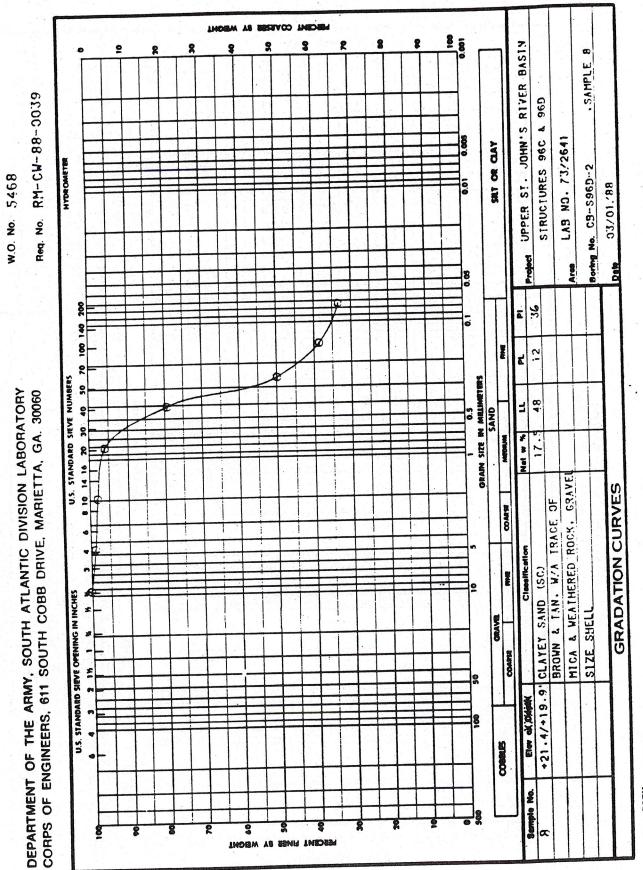


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HYDROMETER 5468 W.O. No. Req. No. 8 100 140 40 50 70 U.S. STANDARD SIEVE NUMBERS DEPARTMENT OF THE ARMY, SOUTH ATLANTIC DIVISION LABORATORY CORPS OF ENGINEERS, 611 SOUTH COBB DRIVE, MARIETTA, GA. 30060 0 10 14 16 20 30 U.S. STANDARD SIEVE OPENING IN INCHES \* \* 2 14



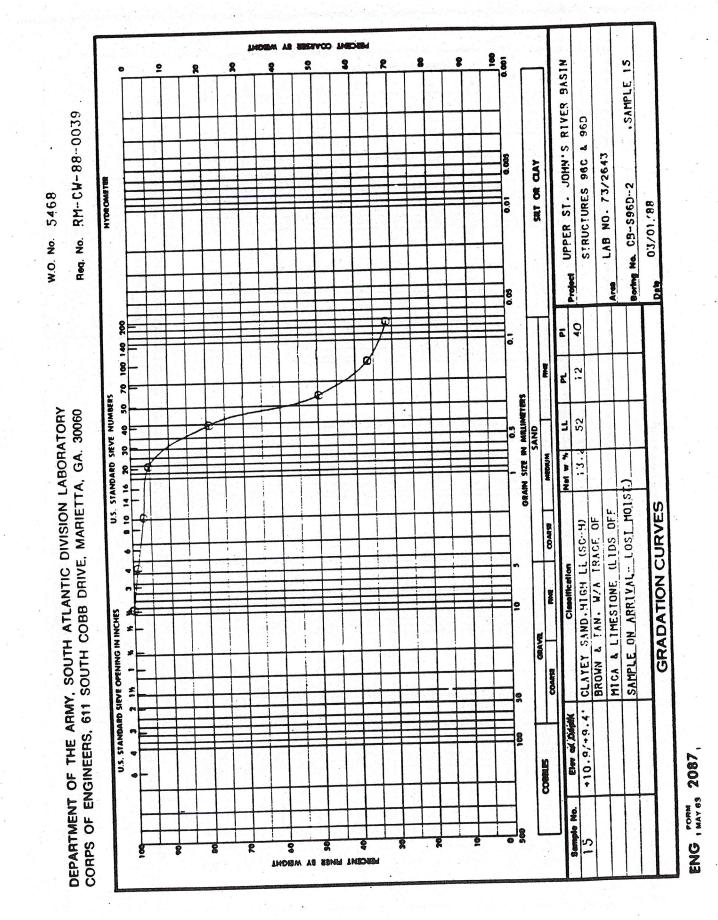


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HINGINA AS BEETVOD LINEDIEL 2 8 8 8 2 3 5 2 8 8 80 UPPER SI . JOHN'S RIVER BASIN SAMPLE 11 RM-CW-88-0039 STRUCTURES 96C & 96D LAB NO. 73/2642 SHT OR CLAY HYDR OMETER W.O. No. 5468 Borting No. CB--S96D--2 ē 03/01/88 Req. No. Project Z Dete 8 ğ 32 100 140 ā 0 Ø Į 2 z ?:-U.S. STANDARD SIEVE NUMBERS 8 10 14 16 20 30 40 50 7 40 11 11 1 1 DEPARTMENT OF THE ARMY, SOUTH ATLANTIC DIVISION LABORATORY CORPS OF ENGINEERS, 611 SOUTH COBB DRIVE, MARIETTA, GA. 30060 ORAIN SIZE IN MALIMETERS 45 2 SAND 0.3 Not w % MURDIM 1.61 ORGANIC MAT'L & GRAVEL SIZE **GRADATION CURVES** COMPS BROWN. W/A TRACE OF MICA. 1 ; SHELL & LIMESTONE Clemethcat ž +16.9/+15.4' CLATET SAND (SC) U.S. STANDARD SIEVE OPENING IN INCHES \* \* 0 GRAVE 2 1% 1 % COALFE 2 ENG TOTH 2087 Semple No. 8 2 2 \$ ğ 8 -MERCENT FINES BY WEIGHT

A-70

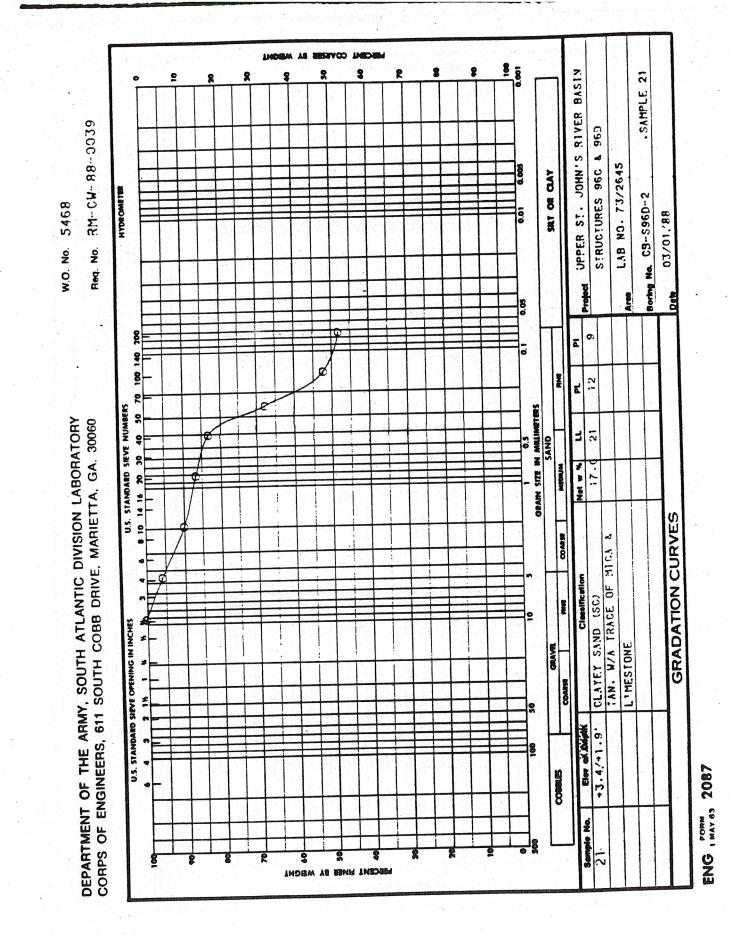
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HINGING COVERED BA MEICHL 2 2 8 3 8 ğ R 8 100 8 UPPER ST. JOHN'S RIVER BASIN SAMPLE 19 RM--CW-88--0039 STRUCTURES 96C & 96D 0,005 LAB NO. 73/2644 SAT OR CLAY HYDROMETER W.O. No. 5468 Boring Ne. CB-S96D-2 0 03/01,'88 Req. No. Project Area Dete 8 8 51 100 140 ā 0 ø Z 0 10 14 16 20 30 40 50 70 12 ದ ø U.S. STANDARD SIEVE NUMBERS DEPARTMENT OF THE ARMY, SOUTH ATLANTIC DIVISION LABORATORY CORPS OF ENGINEERS, 611 SOUTH COBB DRIVE, MARIETTA, GA. 30060 ORAN SIZE IN MILIMETERS 3 56 SAND 0.0 Net w % MUNDAM i 1.C **GRADATION CURVES** LEAN CLAY (CL) TAN. W/SOME SAND & TRACF. COMPIE Classification MICA & LIMESTONE. ł U.S. STANDARD SIEVE OPENING IN INCHES \* 2 \* GRAVE 2 1% COARTIE 2 +6.4/+4.9. Eler of Didget 8 COMMEN ENG , MAY 65 2087 Sample No. 8 8 2 g \$ 8 ŝ 2 19 MUSCINI HINES BA MEICHI

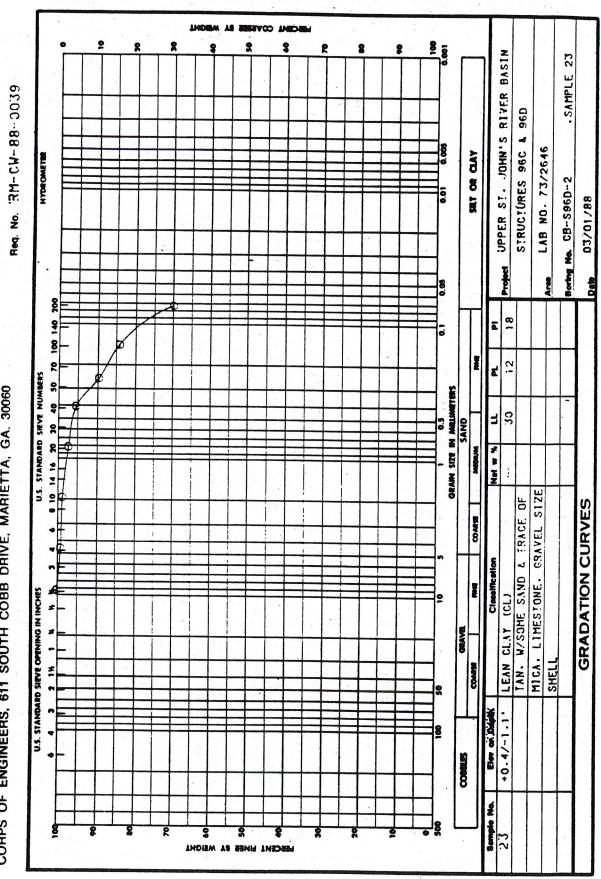
A-72

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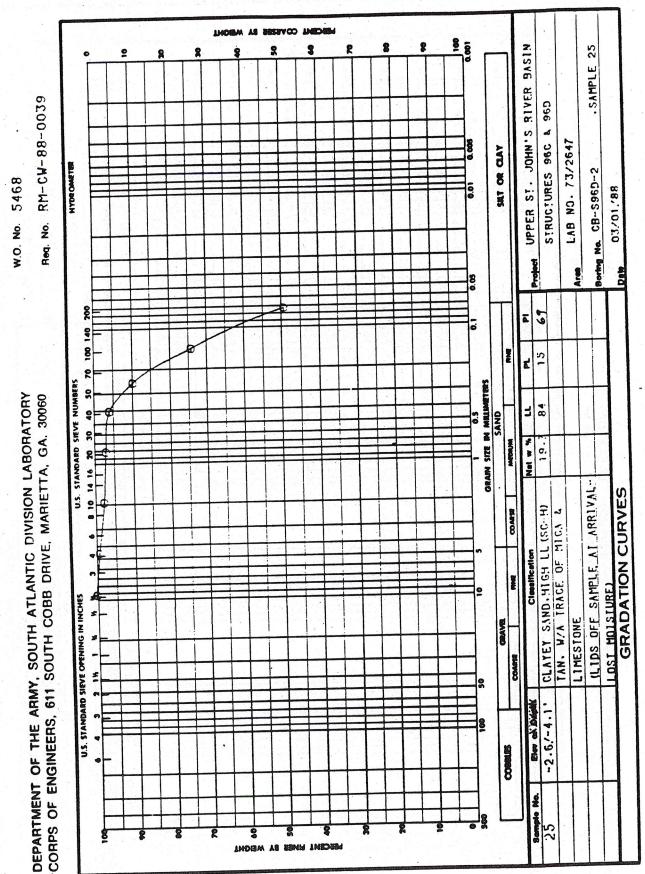
DEPARTMENT OF THE ARMY, SOUTH ATLANTIC DIVISION LABORATORY CORPS OF ENGINEERS, 611 SOUTH COBB DRIVE, MARIETTA, GA. 30060

W.O. No. 5468



A-74

ENG TOT 2087

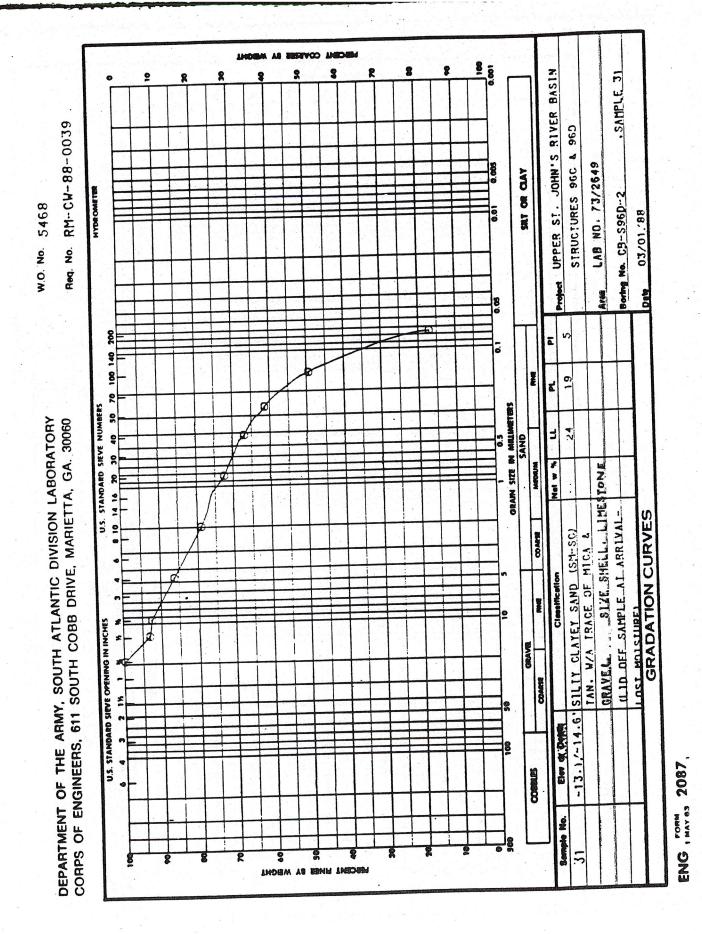


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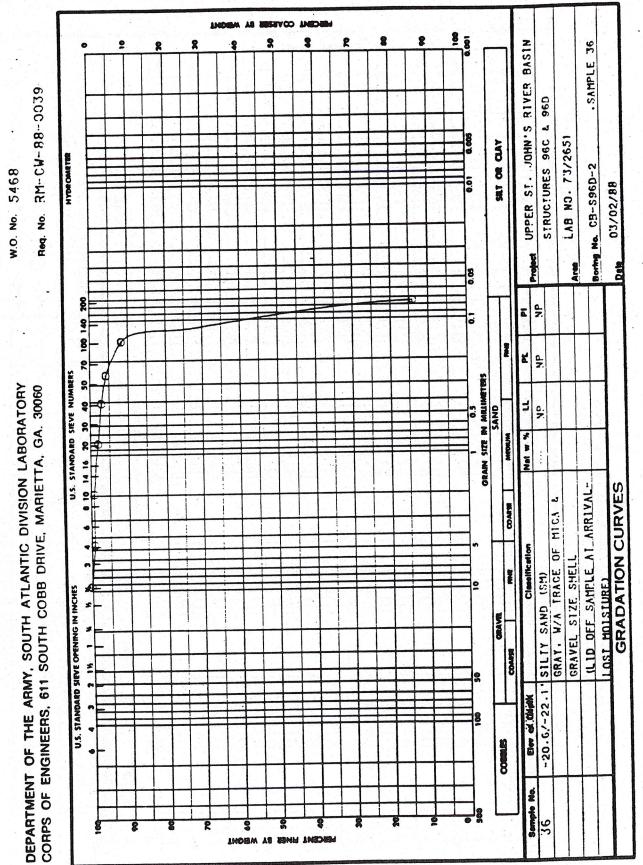
LHORM 1. ESSIVOD MOM 2 8 2 2 8 8 8 8 8 8 UPPER SI . JOHN'S RIVER BASIN .SAMPLE 28 Req. No. RM--CW--88--2039 SERUCTURES 96C & 96D 0,005 LAB NO. 73/2648 SAT OR CLAY **MYDROMETER** W.O. No. 5468 Borting No. CB--S96D--2 0.0 03/01/88 Project Are Dette 80 100 140 200 79 ā 5 9! z U.S. STANDARD SIEVE NUMBERS ¢ DEPARTMENT OF THE ARMY, SOUTH ATLANTIC DIVISION LABORATORY CORPS OF ENGINEERS, 611 SOUTH COBB DRIVE, MARIETTA, GA. 30060 GRAIN SIZE IN MILLIMETERS Se, 3 0.5 WEDNW 22. Net w 14 TAN. W/A LITTLE SAND & TRACF. I LIDS OFF SAMPLE AT ARRIVAL **GRADATION CURVES** COMPE OF MICA & VEATHERED ROCK Clealitication Ĩ U.S. STANDARD SIEVE OPENIMO IN INCHES \* LOST MOISTURED 2 (CH) # ORAVE FAT CLAY 2 14 1 COARSE 2 Elev of Diddh -7.1,-8.6. 4 8 COBBILITY ENG THAT BY 2087 Sample No. 2 3 8 87 MERCENT RIVER BY WEIGHT



MINCIPAL COVEREN BA MEIOHLA 8 2 8 8 2 3 8 2 8 UPPER ST. JOHN'S RIVER BASIN SAMPLE 33 RM-CW-88-0039 STRUCTURES 96C & 96D 000 LAB NO. 73/2650 SAT OF CLAY HYDROMETER W.O. No. 5468 Borting No. C3--S96D--2 0.01 03/02/88 Req. No. Project Are Dete 8.0 100 140 200 AN ā 5 Į 50 70 a. Z z U.S. STANDARD SIEVE NUMBERS 0 10 14 16 20 30 40 30 7 0 10 14 16 20 30 40 30 7 ø DEPARTMENT OF THE ARMY, SOUTH ATLANTIC DIVISION LABORATORY CORPS OF ENGINEERS, 611 SOUTH COBB DRIVE, MARIETTA, GA. 30060 GRAIN SIZE IN MALIMETERS 3 N. 2.0 MUNORM Nel w % i -16.1.7.6' PORLY GRDED SILTY SAND (SP..SM **GRADATION CURVES** COARTE GRAY . W/A TRACE OF MICA & i 1 1 Classification I U.S. STANDARD SIEVE OFENING IN INCHES \* 2 SHELL FRAG. 2 14 1 14 **CRAVE** COARSE 2 -Elev ex October -8 ENG , HAY 85 2087 Sample No. 8 2 9 ŝ 0 \$ 3.3 LINDIBAN AN BENHI INSDUEN .

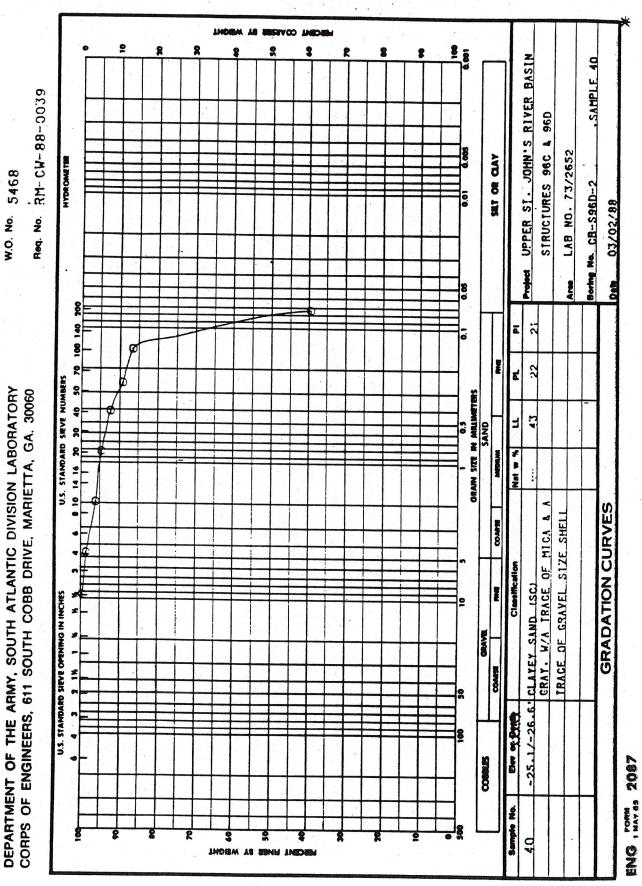
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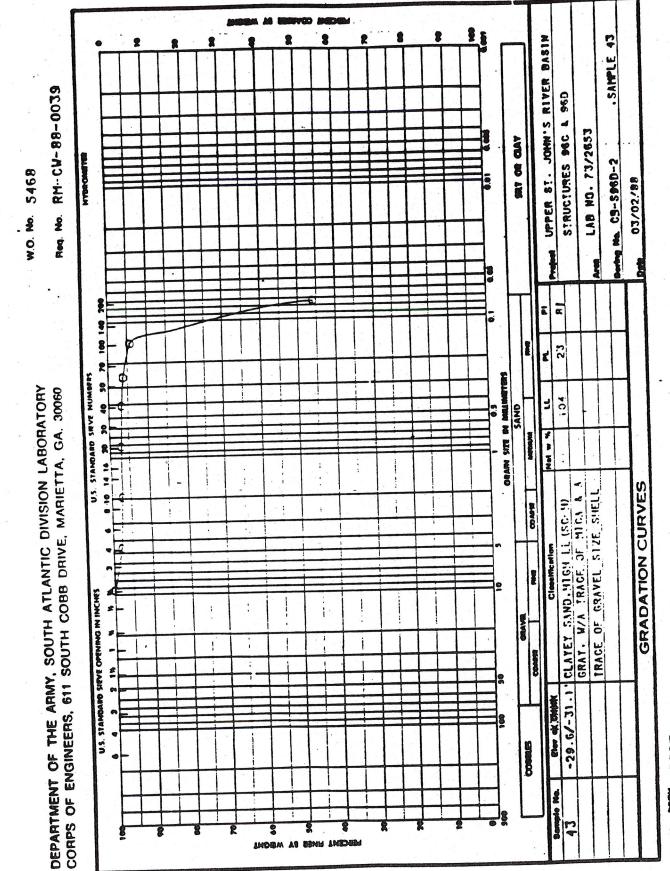


ENG TOT 2087

DEPARTMENT OF THE ARMY, SOUTH ATLANTIC DIVISION LABORATORY CORPS OF ENGINEERS, 611 SOUTH COBB DRIVE, MARIETTA, GA. 30060



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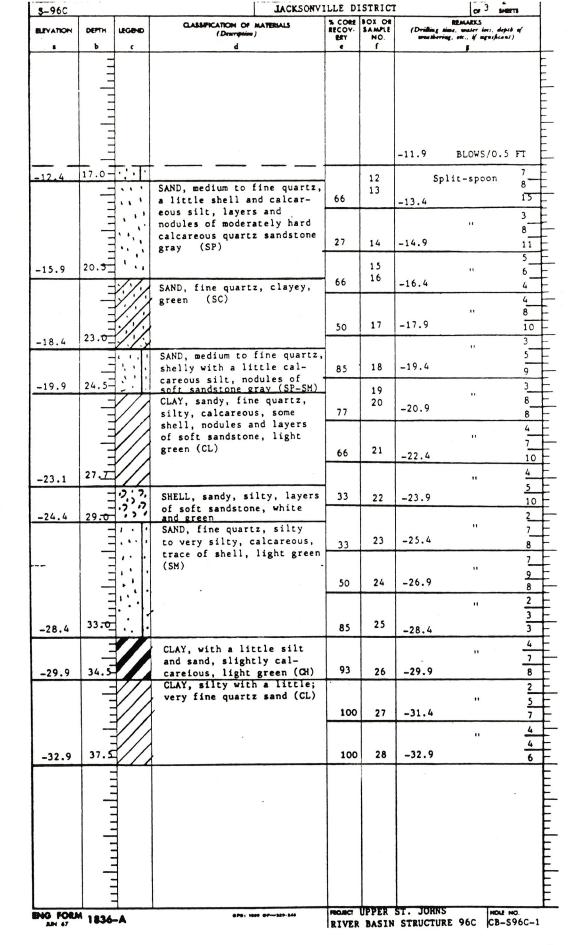


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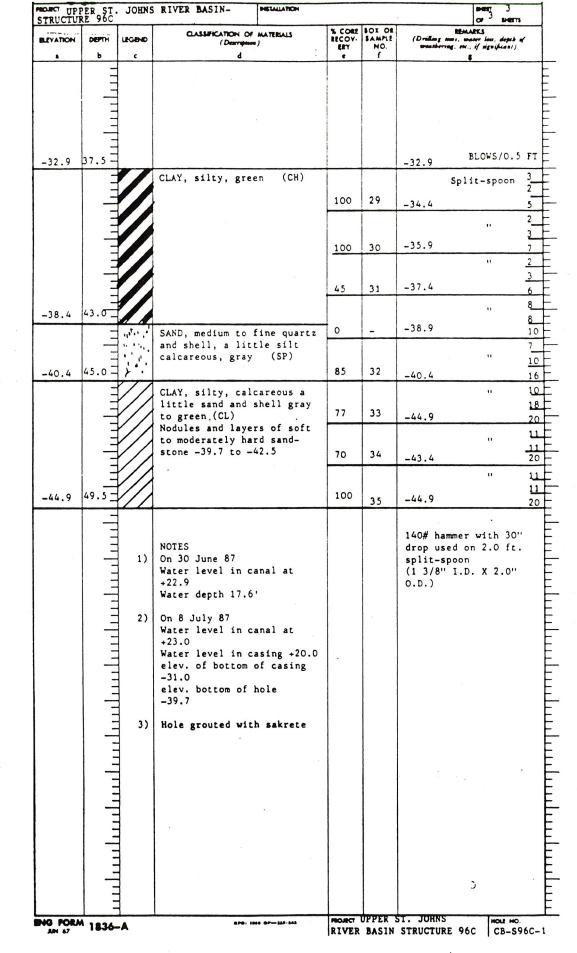
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ENG , MAY 85 2087

PROJECT	UPPPP	ST. 10	OHNS RIVER BASTN	IN NEE AND TYPE OF BIT							
STRUCTU	UPPER ST. JOHNS RIVER BASIN- UR\$E 96C				1. NZE AND TYPE OF BIT 11. DAYUH FOR ELEVATION SHOWN (TEM of MEL)						
L LOCATION (Coordination of Station) X=583,068 Y=1,267,665 3. DRILLING AGENCY				MSL							
							GHATION OF	MILL			
U.S. AR	MY COI	RPS OF	ENGINEERS		PRAGUE						
A HOLE NO. (As shown as drawing this CB-S96C-1				13. TOT	AL NO. OF	LES TAK	DISTURBE		BED		
L NAME OF DRILLER				14 101	AL NUMBE	R CORE	NOXES 1				
J. DETL				_	VATION GI						
DIRECTIO		LE				1	RTED	COMPLETED			
X VERTI			DES. FROM VERT.	16. DAT	E HOLE		Jun 87	8 July 8			
THICKNES			L	17. ELE	VATION TO		LE +4.6 ft				
DEPTH DR				18. TOT	AL CORE	RECOVER	Y FOR BORING	78	1		
				1	ATURE OF	MARIE	GEOI	LOGIST			
TOTAL DE	PTH OF	HOLE	49.5 ft		HAND						
LEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIA (Description)	LS .	S CORE RECOV- ERY	BOX OR	(Drilling the	REMARKS	h =/		
•	۰.	c	4		ERY	NO.	weatherin	e, maier loss, dept d, etc., il significat	w)		
	-										
	=	1									
		1									
	-	}									
	=	}									
		1				1					
	-	1									
4.6		{					. 1. 4	BLOUG O C			
0	0.0 -						+4.6	BLOWS 0.5/			
	=	acer	PEAT, brown (PT)				C	SET it-spoon	TLED		
	_	erer					Spi	IL-spoon	T		
		0000									
	=	0.00				1					
	_										
		ere			100						
1.2	3.4 =	100		10					1		
									1		
			CLAY, with some silt an						5		
	_		layers and nodules of s			2	+0.10		10		
	-		and moderately hard whi	te •					15		
			limestone, brown (CH)		15		×				
	_ =				5				16		
1.4	6.0 -				-77	3	-1.4		15		
		1.1.	SAND, with some silt an						7		
	-	. / ./.	clay, caleaverous, nodu						8		
		(4)	and layers of soft whit		85	4	-2.9		7		
		///	limestone, light green								
	_	11.1	nodules and layers of m						4		
	1	1.1.	erately hard quartz sar	id-		5	-4.4		5		
	-	1.1.	stone and little shell $-2.2$ to $-2$	~	33	2	-4.4		5		
1.9	9.5 -	1/1/	-2.2 66 -2						5		
		T.T.	SANDSTONE, moderately h						7		
	-	++	quartz, calcareous, fos	sil-	40	6	-5.9		6		
	=	·I·I·	iferous slightly permea	ble					5		
5.7	11.3 -		light gray some soft, a			7					
	-	Y.7.	semi-consolidated mater		77				6		
	-		SAND, clayey, some silt			8	-7.4		7		
	_	1.4.1	calcareous nodules of m						3		
	1	<i></i>	ately hard limestone	(SC)					5		
3.9	13.5 -	1.1.7			77	9	-8.9		6		
	_		SAND FI								
	1	2.1.	SAND, fine quartz, silt with a little clay, lay	У					2		
			of calcareous, nodules		66	10	-10.4		8		
		•	layers of soft and medi			10	-10.4		10		
		1. 1	hard sandstone and lime						5		
		1.1	stone, light green (SC-						5		
				,	50	11	-11.9		7		
	1										
	-										
	-										
	=										
	_										
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1											
IG FORM	-						ST. JOHNS				



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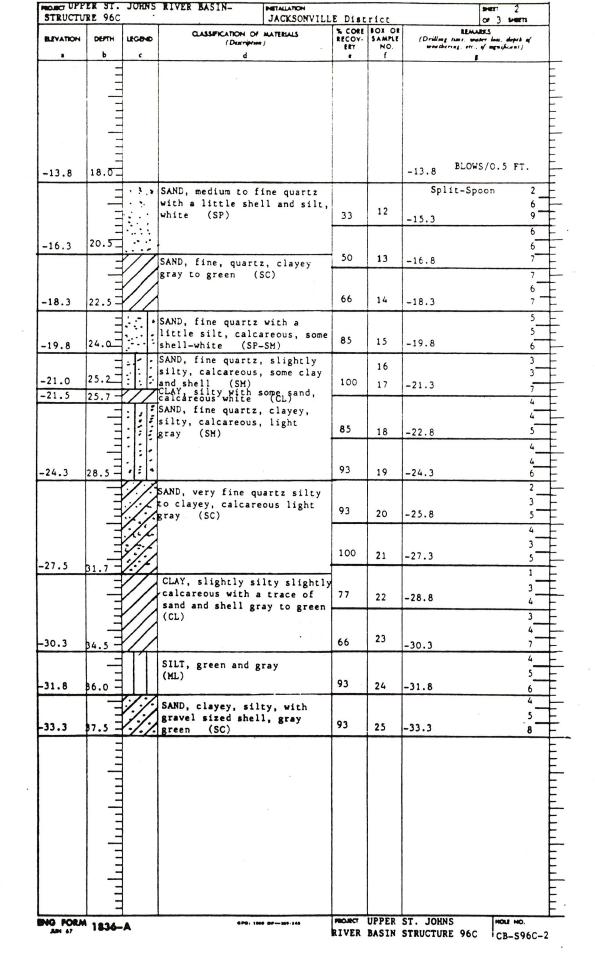
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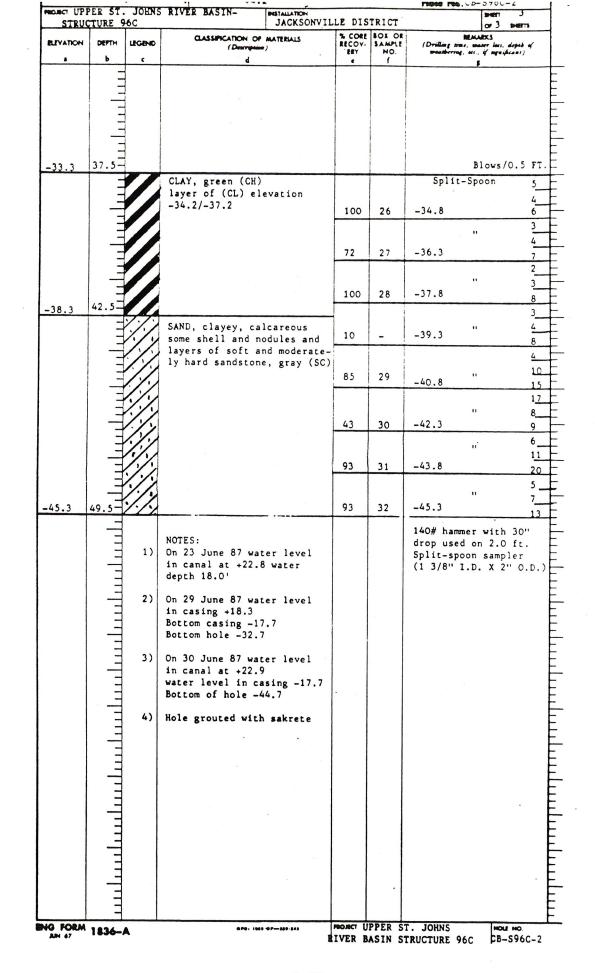
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	ING LO	GS	SOUTH ATLANTIC	JACK	SONVIL	LE DIS	TRICT		OF 3 SHEETS	
			DHNS RIVER BASIN -		E AND TYPE OF BIT TUE FOR ELEVATION SHOWN (TELL & MEL)					
STRUCTU LOCATION X=583,0	RE 960	mes or bu	stien)	11. DATI		SL	SHOWN (			
X=583,0			,637		SPRACU					
U.S. AR	HY COF	PS OF	ENGINEERS		AL NO. OF				UNDISTURBED	
			CB-S96C-2		AL NUMBE			1		
WHITSON		LOFF			VATION OF					
DIRECTIO			DES. FROM VERT.	18. DATI	HOLE		JUN 87		JUN 87	
THICKNES				17. ELE	ATION TO	OP OF HO	LE +	4.2		
DEPTH DR					AL CORE I					
TOTAL DE	PTH OF	HOLE	49.5 FT		HAND			EOLOGIST		
LEVATION	DEРТН 6	LEGEND	CLASSIFICATION OF MATERIA (Description)	4	S CORE RECOV- ERY	BOX OR SANPLE NO.	(Dellis	REMAR	K3 Jooo, depth of Laignificand	
	-									
	=									
	-									
	_		5							
4.2	0.0						+4.2	В	lows/0.5 F	
4.2	0.0 -		PEAT, brown (PT)				Sr		on SETTLE	
	=	100								
	_	eee				1				
2.1	2.1 =	ee							j	
		//	CLAY, silty, caleaverous nodules and layers of so						1	
	F		and moderately hard lime		40	2	+0.7		7	
		//	stone, green to white				+0.7		5	
	11	//	(CL) Layers of green and brow	m					7	
	11	//	(CH) clay from +1.3/+0.1		93	3	-0.8		1	
		//				1			7	
2.3	6.9 <del>-</del>		4						1	
		44			100	4	-2.3		14	
3.1	7.3 =		SAND, clayey, silty, cal ous nodules of soft lime and sandstone,brown (SC) SANDSTONE, quartz, silty calcareous, soft light g	care- stone					5_	
3.8	8.0	II:	SANDSTONE, quartz, silty		93	5	-3.8		7	
	-	77	CLAY silty, slightly sar	ndy,		-	-3.0		3	
	_	/ / /	calcareous, nodules of m						2	
			erately hard white limes layers and nodules of ca		0	-	-5.3		3.	
			careous; fosiliferous; g	ray				.,	3	
	11	///	sandstone, light gray	(CL)	10	7			6	
		//			10		-6.8		3	
	11	//							5	
	II.	//			33	8	-8.3		7 4	
	13.5									
9.3						-	-9.3		WASHED	
		Ţ.Ţ.	SANDSTONE, soft to moder hard, quartz, calcareous	ately					4	
10.8	15.0		nard, quartz, calcareous green	•	42	9	-10.8	-	5	
	-		SAND, fine quartz calcar	eous.		ŕ		· · · ·		
	-	1.	nodules of moderately ha	rd				н	9	
			white limestone, brown t	0	33	10	-12.3		16	
		1/1	green (SC)					"	. 7_	
13.8	18.0	1.			45	I., I			9	
		173			4.5	11	-13.8		14	
	-									
	=									
				·						
	-					1				
	=									

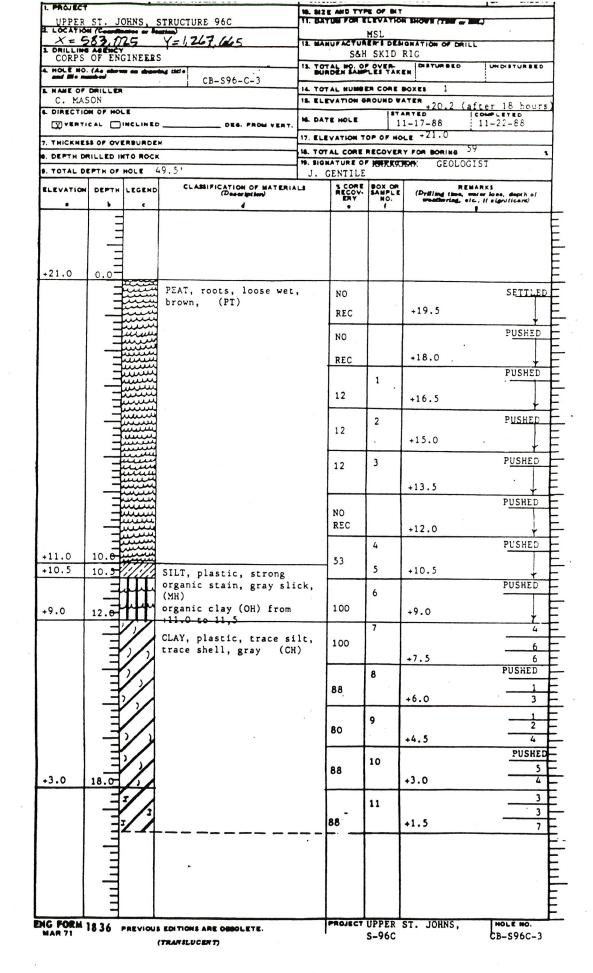
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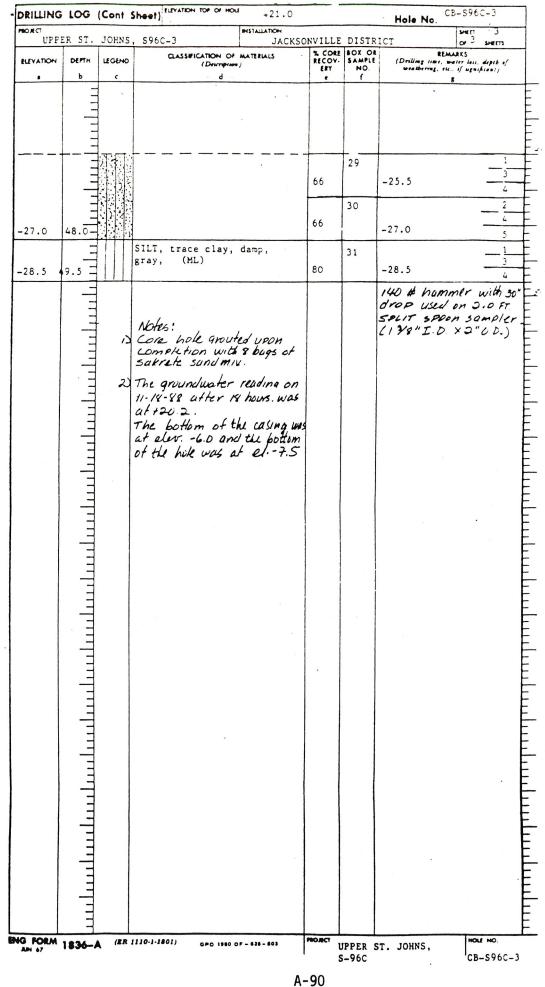




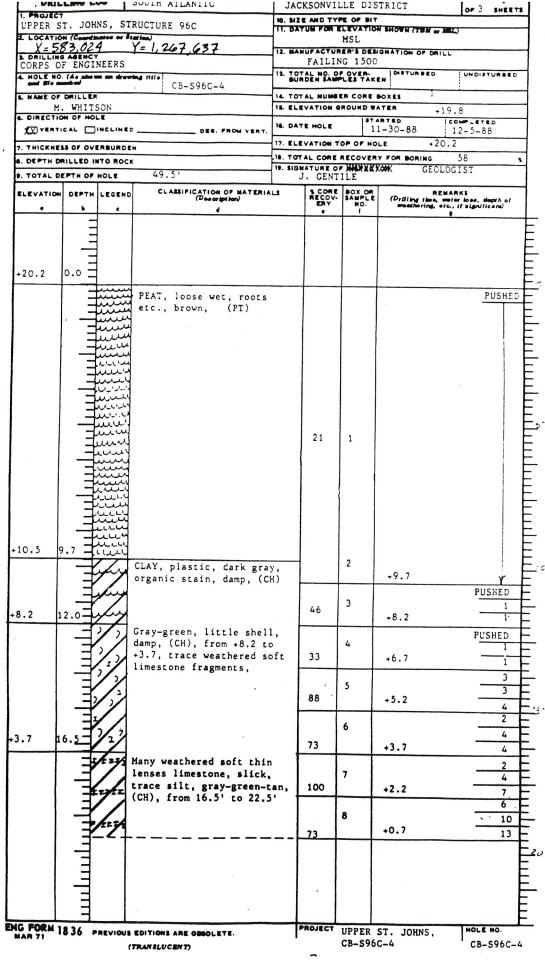




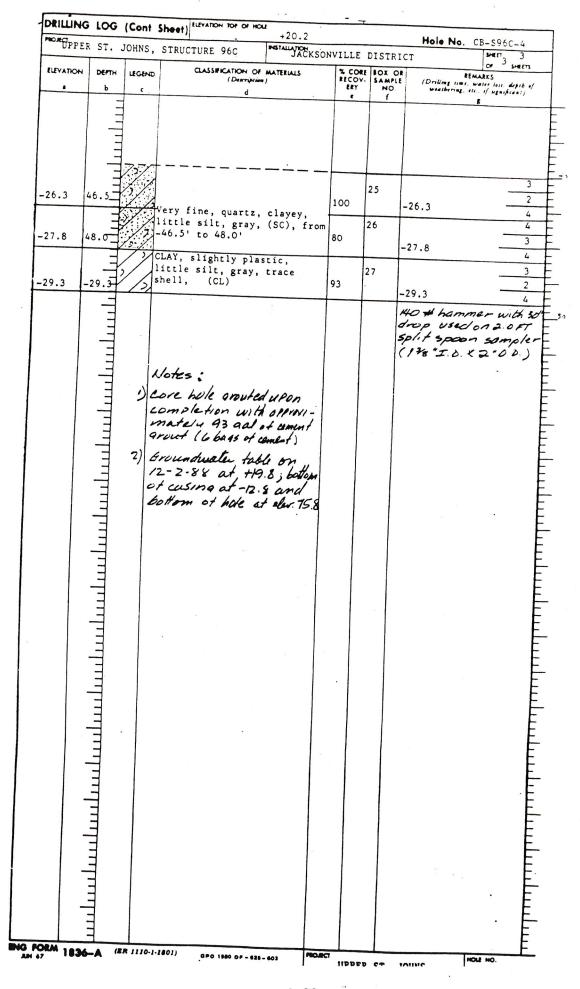
DRILLING LOG (Cont Sheet) ELEVATION TOP OF HOLE +21.0 HOACT UPPER ST. JOHNS, S96C-3 HISTALIATION JACKSONVI							Hole No. CB-S96C-3		
					LLE DI	STRICT		SHEET 2	
			CLASSIFICATION OF			BOX OR		EMARKS	
ELEVATION	DEPTH	LEGEND	(Deuropies		RECOY.		(Drilling lime.	water loss. deptb of	
	ь	c	Ь		ERT	f	weatbiring.	B ugnificant)	
	-				1	+		8	
	1								
	7								
					1				
		7=7	CLAY, slightly pl	astic					
		//	trace to little s		1	12		-7-7-	
	-	14	fragment weathere				0.0		
	コ	11			80		0.0	9	
		1/:	limestone; tan, b					6	
	· ]	1 /	gray, (CL), from	18.0" to		13			
1.5	22.5	1/1/	22.5		88				
		11			00		-1.5	14	
		1. 2 3	Many thin lenses			14		16	
1	1		stone, & trace sa					16	
		125/3	from 22.5' to 25.	.7	73		-3.0	12	
	1	11				15		and the second se	
	-	12/1 1	CLAY (CH), very t	hin lenses					
	-1	11	hard limestone		72		, -	11	
4.3	25.7	This			73		-4.5	10	
		$\neq \neq \uparrow$	LIMESTONE, medium	hard.	1	16		9	
		エ エ	porous, permeable			16		6	
		TTI	fossiliferous gra		66		-6.0		
	-	<u>+</u> +	seams loose silty				-		
		T	(CH) limy clay	54 6605		17		8	
			(on) ring cray	•		- 1		5	
7.7	28.7	min	(CH) limy clay		60	а С	-7.5	6	
			(CL) clay, silty,	limestone				7	
8.2	29.2-	1/1	fragments from -7			18			
		T	with many seams 1					8	
		$\perp \perp \mid$			66		-9.0	5	
		+++	sand, from $-8.2$ t					8	
10.0	J. 1.		clay, (CL), limy,			19		5	
	31.0-	7.7	sandy, from -10.0	to -10.5	93		10.5		
10.5	31,5	-/ -1			95		-10.5		
	_ <b>₽</b>	21/17	SAND, fine quartz			20		10	
	-	1.1	limy, gray to tan					9	
12.0	33.0-4	2/2 2/	medium hard calca	reous sand-	.60		-12.0		
		111-1	<u>stone</u> , (SC) SAND, fine to med	auarta				18	
			little to some si			21		6	
		포문고						8	
	±.		clay, limy, tan, calcareous sandst		56		-13.5	11	
		거프기	calcareous sandst	one (Sh)		22		9	
14.5	35.5-F				33	22	-15.0		
			I INESTONE	hand				12	
			LIMESTONE, mediur porous, permeable	e, lenses.				18	
		1	porous, permeable hard limestone, s composition lt gr	andy in		23		6	
	1		sanustone, seams	10036				26	
16.5	37.57-		silty, shelly san	na	07		-16.5	21	
	_	137	SAND, fine to med	lium		+			
	-K,	1/2:2	quartz, clayey, 1			24		39	
		1/3					100 m	36	
-18.0	39.0	1. 7	shell,		6.6		-18.0	50	
	-	/	Gray-green, (SC			25		20	
	井	XFIZ	Lt gray, fine qua					15	
		/	isolated sandston		40		-19.5		
1	75	£ 5.3A	little shell, lit				-17.5	8	
	1:	1	little to some cl			26		5	
	-5	443/2	from 39.0' to 42.					8	
-21.0	42.0	1.11			66		-21.0	6	
	1	1112	CAND					3	
		135.1	SAND, very fine,			27			
	コ		silty, trace clay					2	
	ゴ		shell, gray to ta	in, (SM)	88		-22.5	4	
	-	211		I		28		4	
	;							3	
l'	_	1.1.72			88	·	-24.0	<u></u>	
+		1-1-1						د	
	-					1			
	1								
	1								
	7								
G FORM									
		the second second second second second second second second second second second second second second second se	(110-1-1801) GPO 1980 0			DDED C	. JOHNS,	HOLE NO.	

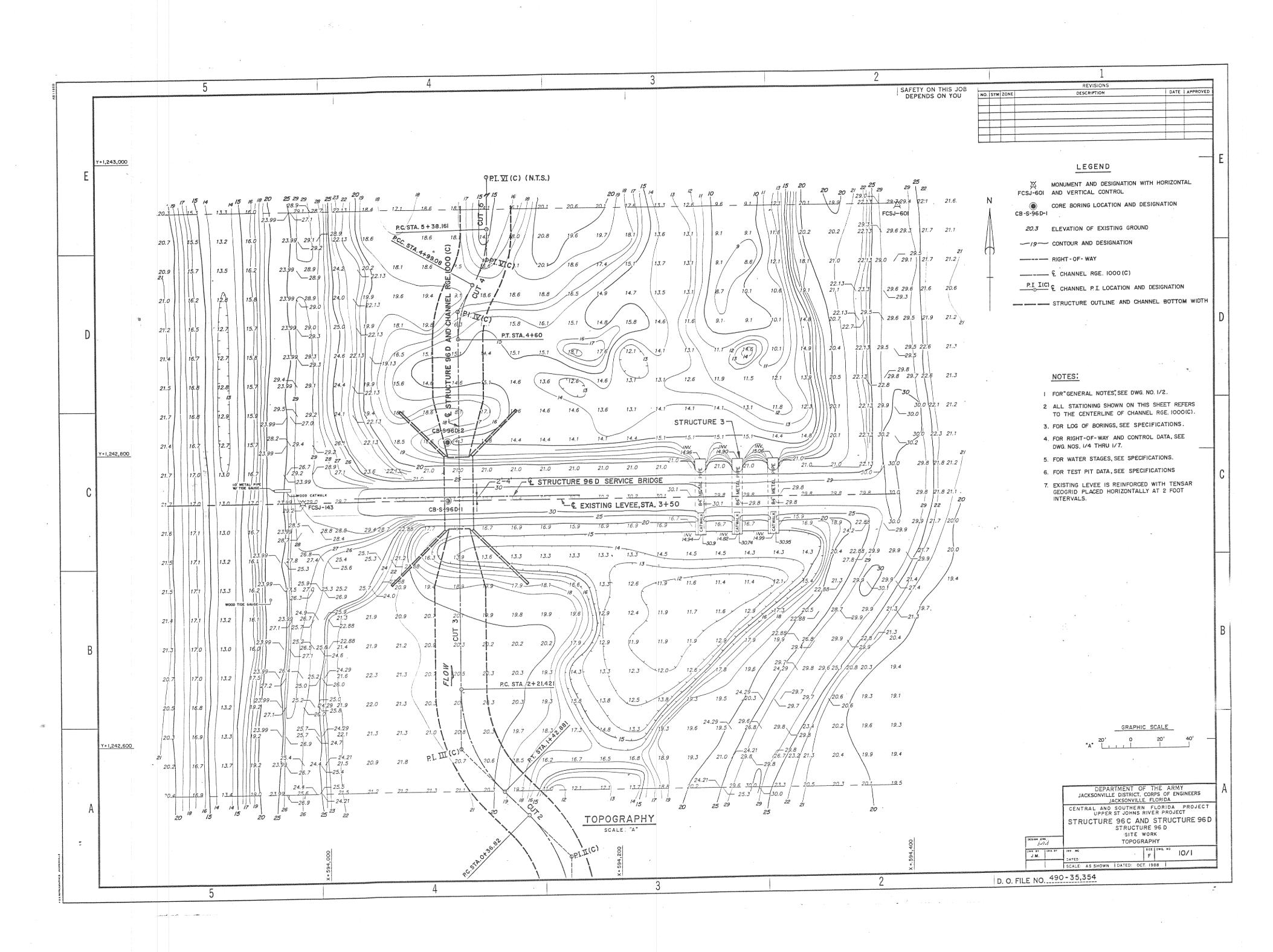


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PROJECT			Sheet) ELEVATION TOP OF HOU	INSTALLATION			Hole No.	540		
UPPE	R ST.	JOHNS,	STRUCTURE 96C	JACKS	ONVILL				3 SHEETS	
ELEVATION	<b>сер</b> тн	LEGEND	CLASSIFICATION OF (Description d		% CORE RECOV- ERY e	BOX OR SAMPLE NO.	(Drilling tim weathering.	REMARKS	ion, depit of	
•	-		0		- C			<u> </u>		
	=									
		12								
	=	77				9			8	
		1/1/	1			9			11	1
					80		-0.8		9	
	_	17/1							8	
÷.	-	//				10			7	
-2.3	22.5	14/17	1		93		-2.3		11	1
	_	22/227	CLAY, slightly p.	lastic,		11			5	
	-	//	silty limy, limest	tone lenses,		••			5	
-3.8	24.0	2 2/1 2 7	sandy, (CL)		93		-3.8		7	
	-	TT	SANDSTONE, calcare						4	
	-		cemented quartz sa fragments, very po	and & shell		12			2	-
	_	TT	fragments, very po permeable, many se sand, 1t gray, fos very thin bedded,	eams loose	60		-5.3		4	
			very'thin bedded,	material		13			5	-
	_		comes up as gravel little silt (GP-GN	4)					5	
-6.8 '	27.0	1.7			60		-6.8		6	-
		<u></u>	LIMESTONE, porous,	thin ·		• /			7	-
			bedded, poorly cor			14			. 5	-
	° 1	414	riddled with seams		13	•	-8.3		5	-
	_	17.71	clay is sandy with	limestone					9	-
	1	IΙ	fragment.			15			7	-
-9.8	30.0	2,2,2			40		-9.8		6	-
		<del>77</del>	SAND, fine to medi	um, quartz,			-710		5	-
	1	777	gravelly (limestor	ne & sand-		16			3	-{
	_	1	stone fragments) t		66	8-15	-11.3		3	-{
	-		stone & sandstone						12	-
	E		broken up by spoon gravel; clayey, li			17				-
-12.8	33.0	12	limy, tan, 45% roc		60		-12.8		15	-
		1 1	SAND, fine to medi						15	-+
	7	1=1-1	few calcerous sand			18			10	-
	-		lenses, trace silt		56	10	-14.3		10	-+
		LITT	(SP), little shell	, clean, lt			-14.5		10	4
			gray, fine to medi	um, quartz		19			9	_
	コ		from 36.0' to -17.		66				13	_
		12237	sandstone lenses -	17.3 to			-15.8		18	ł
			-17.8			20			9	
	37.5-	ELEES				20			17	
-17.3		1			100	·	-17.3		16	ł
-17.8	38.0	4,54	SAND, fine to medi						25	T
	1	-/->	little clay, compa shell, gray-green	(SC)		21			35	T
-18.8	39.0	5.15	limy, many lenses	calcareous	66	•	-18.8		50	-
	-	hin	sandstone, trace t silt, little clay,	o little		22			8	T
	_ <b>_</b> _	1.	from 39.0' to 40.5			22			8	T
-20.3	40.5-	1			53		-20.3		6	F
1	-	1224	CLAY, limy, sandst		NO				7	T
	7	1	trace to little si							+
-21.8	42.07	TERST	sand, SL plastic	(CL)	REC		-21.8		. 6	+
		1.7.1	SAND, fine to medi	um, quartz			Y		3	1
		1	some clay to claye	y, trace		23				+
		1.1	shell, gray, trace	to little	93		-23.3			+
	1	1.31	silt, (SC)	+					3	+
	-	1				24			2	f
	-	13:1			93	·	24 8			-
	-7	-/2					-24.8		3	+
	7				1					F
	1				1					F
										F
	-									F





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