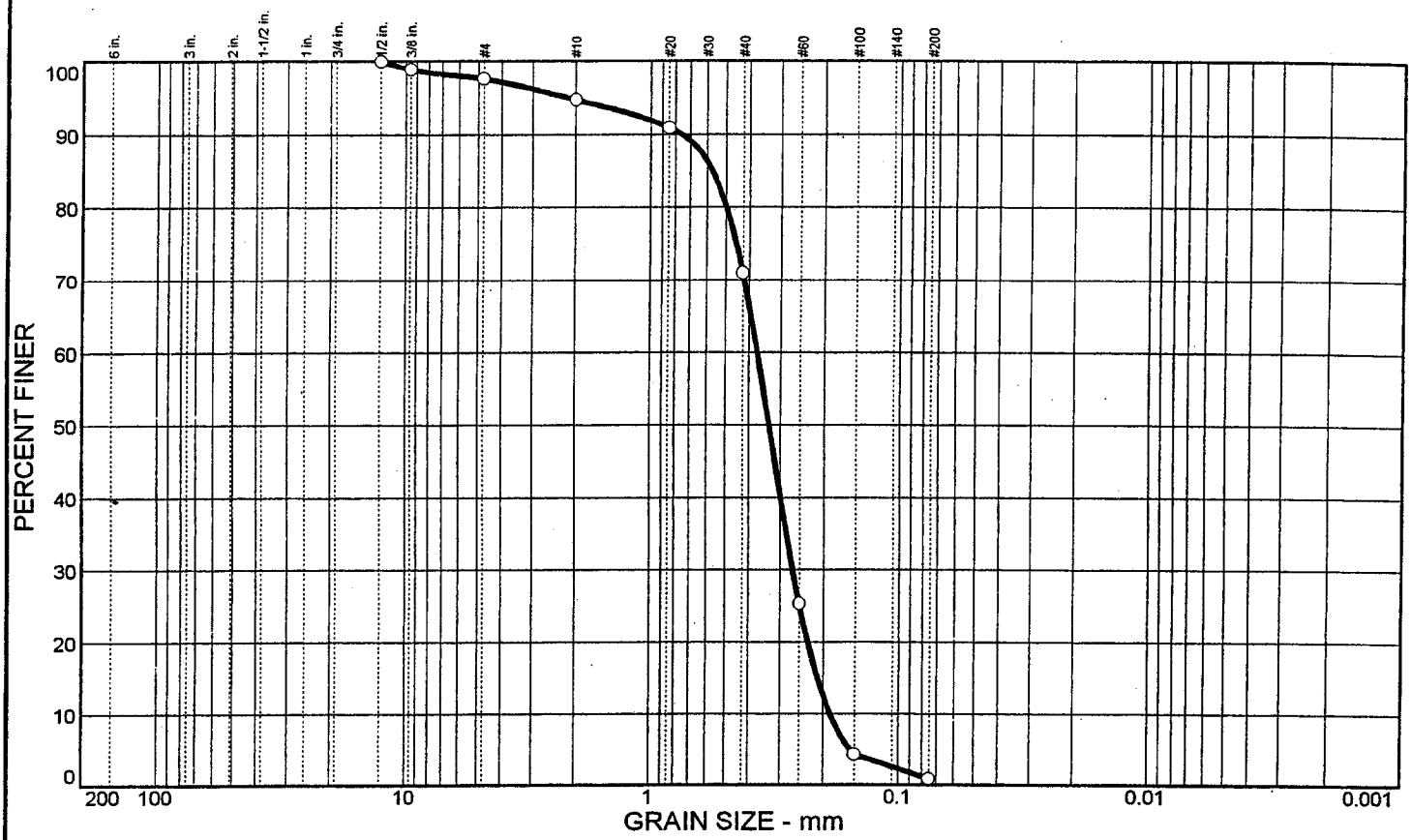
Grain Size Distribution Report



	% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY	USCS	AASHTO	PL	LL
○		2.4	96.7	0.9		SP	A-3		

SIEVE inches size	PERCENT FINER ○		
1/2	100.0		
.375	98.9		
	GRAIN SIZE		
D_{60}	0.370		
D_{30}	0.266		
D_{10}	0.187		
	COEFFICIENTS		
C_c	1.02		
C_u	1.98		

SIEVE number size	PERCENT FINER ○		
#4	97.6		
#10	94.7		
#20	90.9		
#40	71.0		
#60	25.3		
#100	4.3		
#200	0.9		

SOIL DESCRIPTION

○ SAND, fine to medium quartz, trace sand sized shell fragments, tan

REMARKS:

○

○ Source: CB-JI00-3 Sample No.: 2 Elev./Depth: 1.5'-2.7'

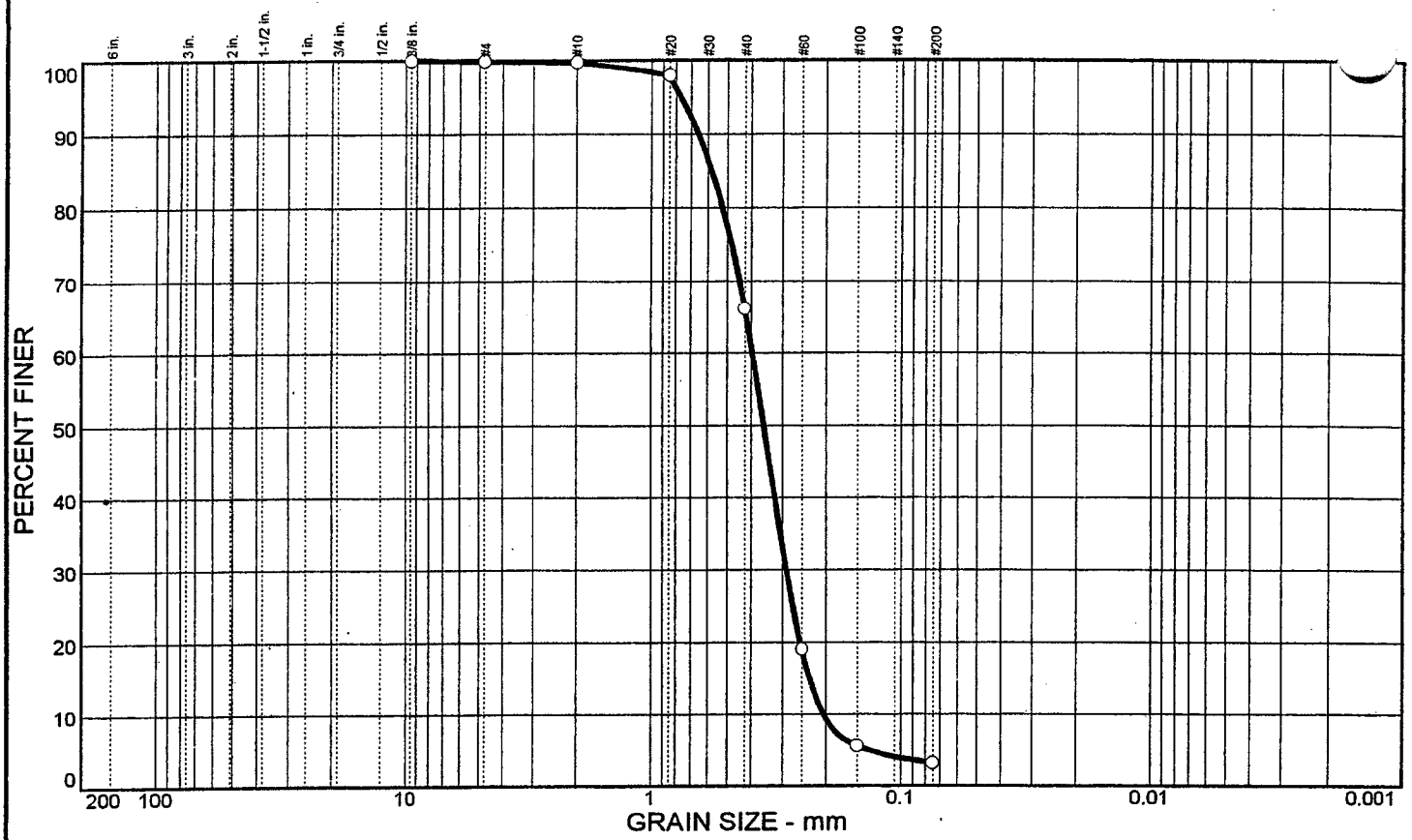
Law Engineering and Environmental Services, Inc.

Client: US Army Corp of Engineers

Project: Johns Island at West Palm Beach

Project No.: 50160-8-0025-JO11

Grain Size Distribution Report



	% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY	USCS	AASHTO	PL	LL
○		0.1	96.7	3.2		SP	A-3		

SIEVE inches size	PERCENT FINER ○		
.375	100.0		
	GRAIN SIZE		
D_{60}	0.395		
D_{30}	0.288		
D_{10}	0.204		
	COEFFICIENTS		
C_c	1.03		
C_u	1.94		

SIEVE number size	PERCENT FINER ○		
#4	99.9		
#10	99.7		
#20	98.0		
#40	66.2		
#60	19.1		
#100	5.6		
#200	3.2		

SOIL DESCRIPTION

○ SAND, fine quartz, dark brown

REMARKS:

○

○ Source: CB-JI00-3 Sample No.: 5 Elev./Depth: 6.0'-7.5'

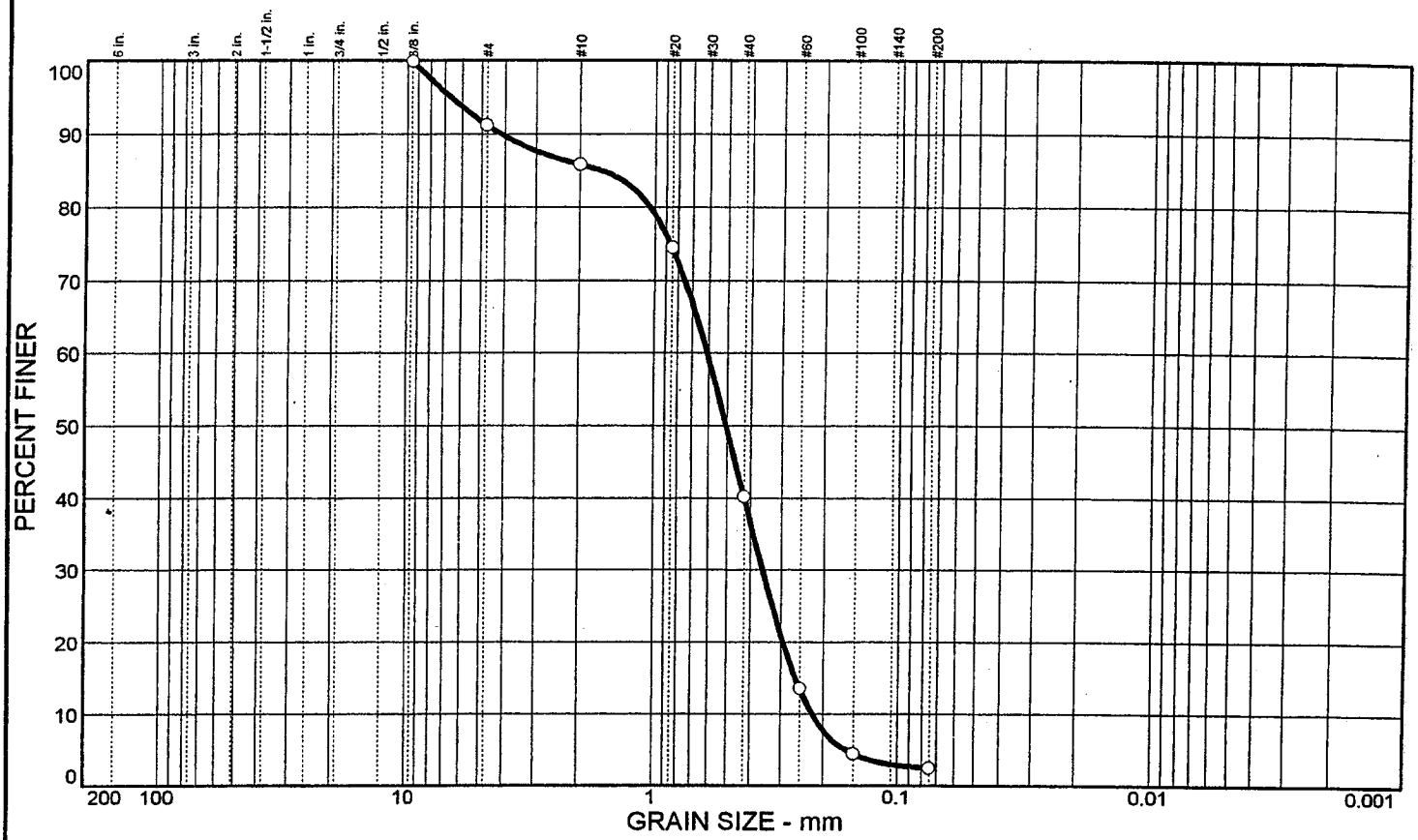
Law Engineering and Environmental Services, Inc.

Client: US Army Corp of Engineers

Project: Johns Island at West Palm Beach

Project No.: 50160-8-0025-JO11

Grain Size Distribution Report



	% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY	USCS	AASHTO	PL	LL
○		8.8	88.7	2.5		SP	A-1-b		

SIEVE inches size	PERCENT FINER ○		
3/8	100.0		
	GRAIN SIZE		
D_{60}	0.607		
D_{30}	0.356		
D_{10}	0.222		
	COEFFICIENTS		
C_c	0.94		
C_u	2.73		

SIEVE number size	PERCENT FINER ○		
#4	91.2		
#10	85.8		
#20	74.5		
#40	40.2		
#60	13.5		
#100	4.5		
#200	2.5		

SOIL DESCRIPTION

○ SAND, medium to fine quartz, some fine gravel to sand sized shell fragments, brown

REMARKS:

○

○ Source: CB-JI00-4 Sample No.: 2 Elev./Depth: 1.5'-2.5'

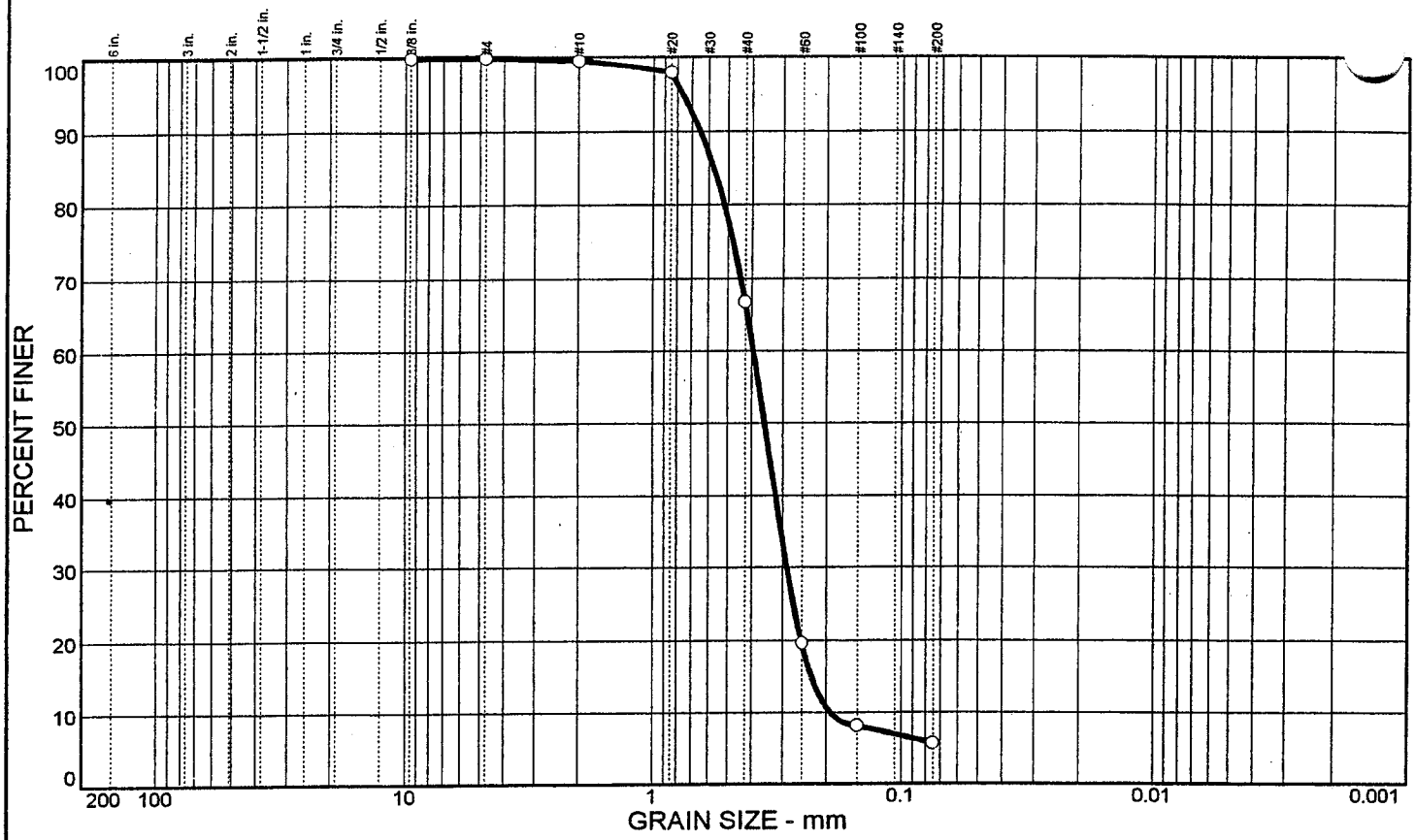
Law Engineering and Environmental Services, Inc.

Client: US Army Corp of Engineers

Project: Johns Island at West Palm Beach

Project No.: 50160-8-0025-JO11

Grain Size Distribution Report



	% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY	USCS	AASHTO	PL	LL
○			94.3	5.7		SP-SM	A-3		

SIEVE inches size	PERCENT FINER ○		
.375	100.0		
	GRAIN SIZE		
D_{60}	0.393		
D_{30}	0.287		
D_{10}	0.192		
	COEFFICIENTS		
C_c	1.09		
C_u	2.04		

SIEVE number size	PERCENT FINER ○		
#4	100.0		
#10	99.6		
#20	98.0		
#40	66.7		
#60	19.6		
#100	8.1		
#200	5.7		

SOIL DESCRIPTION

○ SAND, fine quartz, trace silt, dark brown

REMARKS:

○

○ Source: CB-JI00-4 Sample No.: 4 Elev./Depth: 4.5'-5.5'

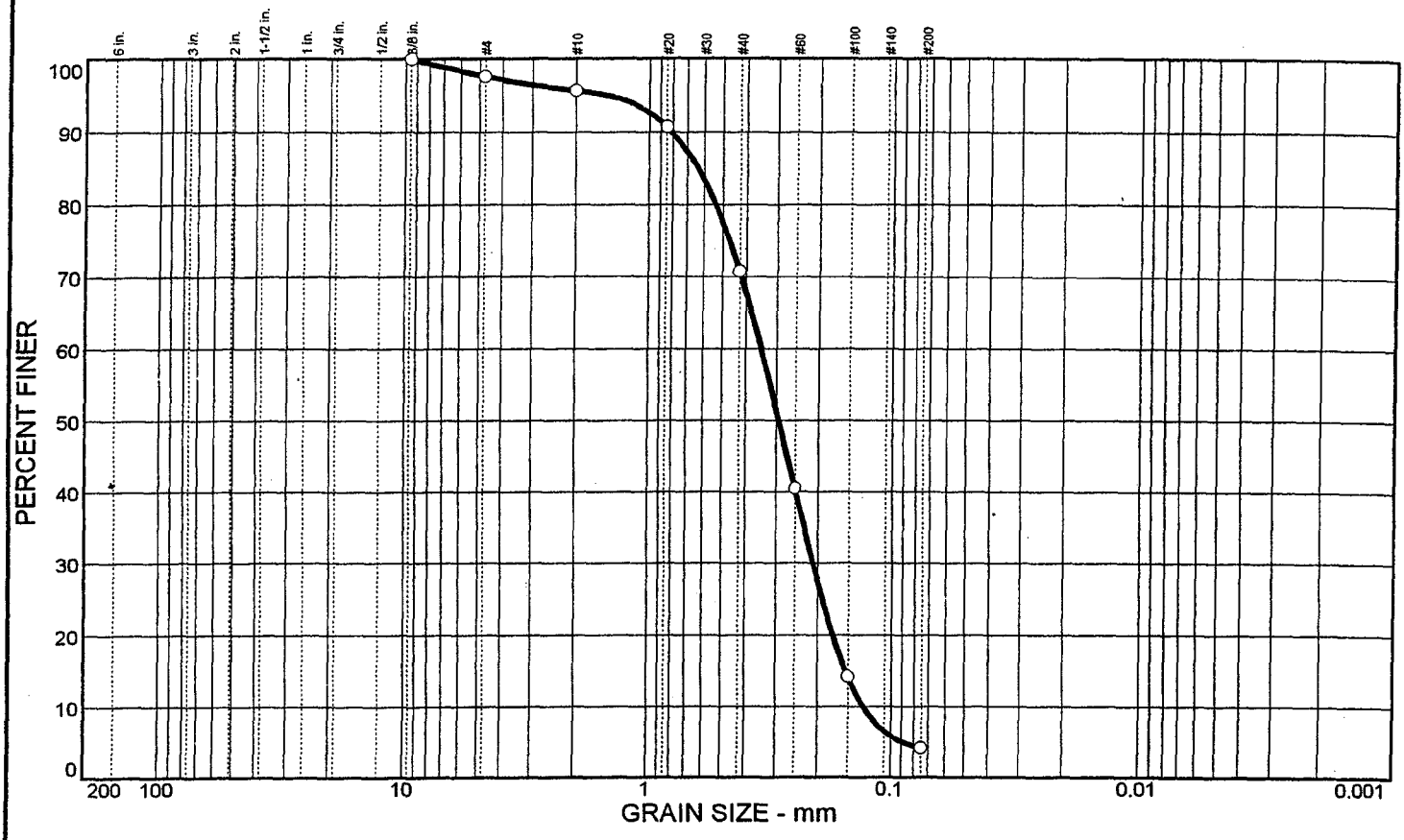
Law Engineering and Environmental Services, Inc.

Client: US Army Corp of Engineers

Project: Johns Island at West Palm Beach

Project No.: 50160-8-0025-JO11

Grain Size Distribution Report



	% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY	USCS	AASHTO	PL	LL
○		2.3	93.6	4.1		SP	A-3		

SIEVE inches size	PERCENT FINER ○		
.375	100.0		
	GRAIN SIZE		
D_{60}	0.346		
D_{30}	0.209		
D_{10}	0.130		
	COEFFICIENTS		
C_c	0.97		
C_u	2.66		

SIEVE number size	PERCENT FINER ○		
#4	97.7		
#10	95.7		
#20	90.7		
#40	70.8		
#60	40.5		
#100	14.2		
#200	4.1		

SOIL DESCRIPTION

○ SAND, fine quartz, light brown

REMARKS:

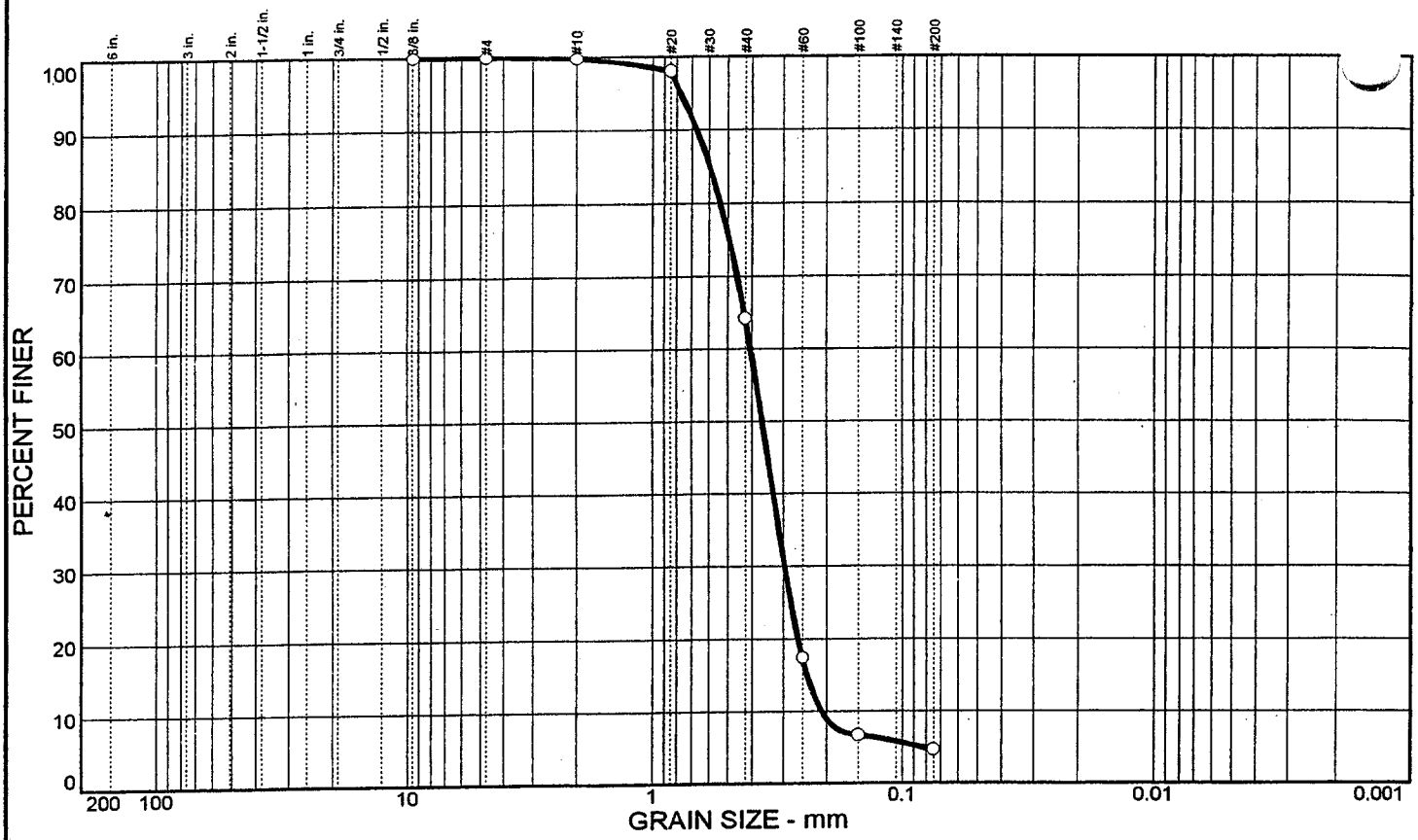
○

○ Source: CB-JI00-5 Sample No.: 1 Elev./Depth: 0.0'-1.2'

Law Engineering and Environmental Services, Inc.

Client: US Army Corp of Engineers
Project: Johns Island at West Palm Beach
Project No.: 50160-8-0025-JO11

Grain Size Distribution Report



	% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY	USCS	AASHTO	PL
○			95.4	4.6		SP	A-3	

SIEVE inches size	PERCENT FINER ○		
.375	100.0		
	GRAIN SIZE		
D_{60}	0.405		
D_{30}	0.295		
D_{10}	0.210		
	COEFFICIENTS		
C_c	1.03		
C_u	1.93		

SIEVE number size	PERCENT FINER ○		
#4	100.0		
#10	99.8		
#20	98.0		
#40	64.2		
#60	17.4		
#100	6.7		
#200	4.6		

SOIL DESCRIPTION

○ SAND, fine quartz, dark brown

REMARKS:

○

○ Source: CB-JI00-5 Sample No.: 5 Elev./Depth: 6.0'-6.9'

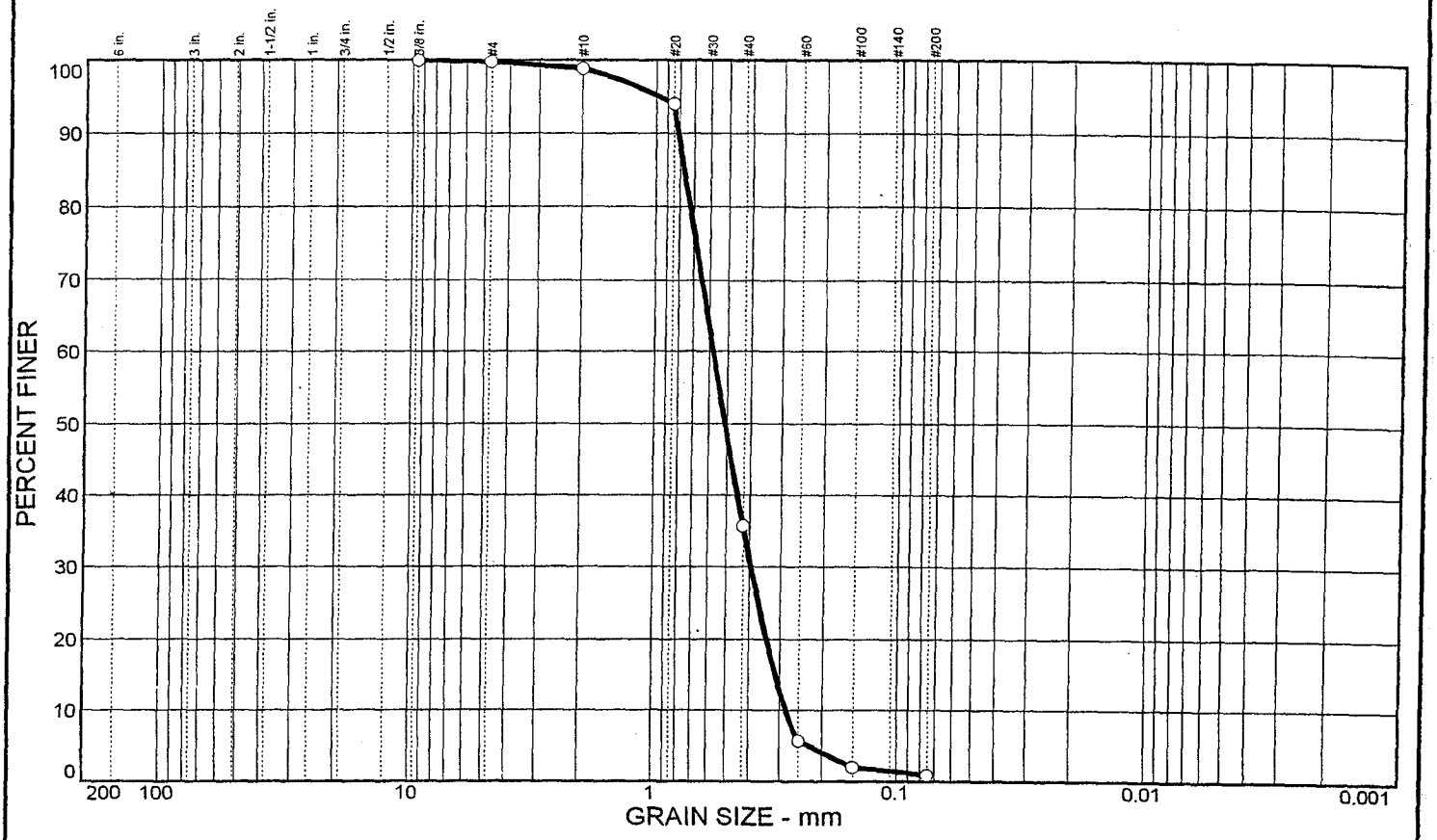
Law Engineering and Environmental Services, Inc.

Client: US Army Corp of Engineers

Project: Johns Island at West Palm Beach

Project No.: 50160-8-0025-JO11

Grain Size Distribution Report



	% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY	USCS	AASHTO	PL	LL
○		0.2	98.9	0.9		SP	A-1-b		

SIEVE inches size	PERCENT FINER ○		
.375	100.0		
	GRAIN SIZE		
D_{60}	0.575		
D_{30}	0.393		
D_{10}	0.281		
	COEFFICIENTS		
C_c	0.96		
C_u	2.04		

SIEVE number size	PERCENT FINER ○		
#4	99.8		
#10	98.9		
#20	94.0		
#40	35.7		
#60	5.7		
#100	2.0		
#200	0.9		

SOIL DESCRIPTION

○ SAND, fine to medium quartz, dark gray

REMARKS:

○

○ Source: CB-JI00-6 Sample No.: 1 Elev./Depth: 0.0'-1.0'

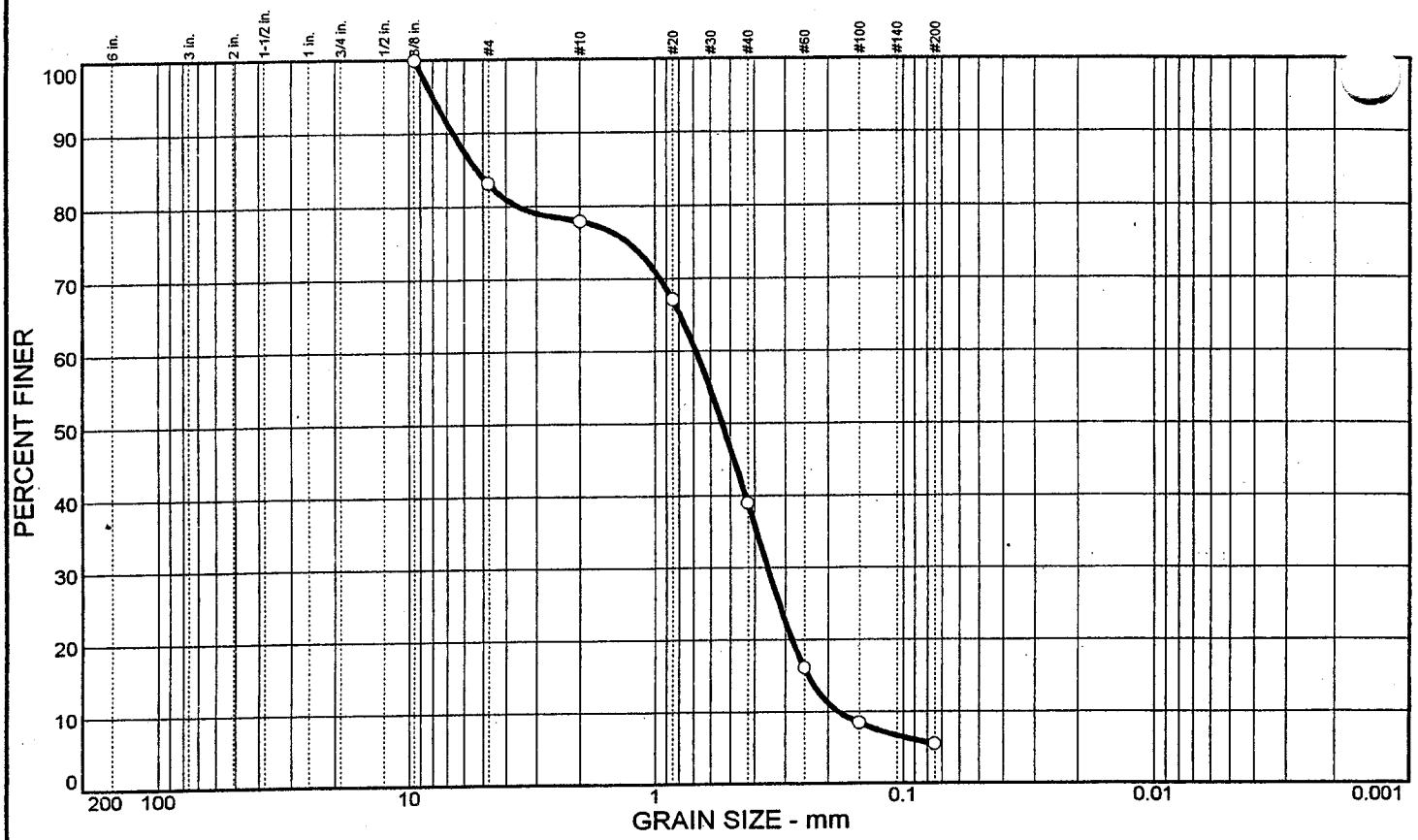
Law Engineering and Environmental Services, Inc.

Client: US Army Corp of Engineers

Project: Johns Island at West Palm Beach

Project No.: 50160-8-0025-JO11

Grain Size Distribution Report



	% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY	USCS	AASHTO	PL
○		16.9	77.7	5.4		SP-SC	A-1-b	

SIEVE inches size	PERCENT FINER ○		
3/8	100.0		
	GRAIN SIZE		
D_{60}	0.685		
D_{30}	0.353		
D_{10}	0.182		
	COEFFICIENTS		
C_c	1.00		
C_u	3.77		

SIEVE number size	PERCENT FINER ○		
#4	83.1		
#10	77.9		
#20	67.1		
#40	39.0		
#60	16.1		
#100	8.4		
#200	5.4		

SOIL DESCRIPTION

○ SAND, fine to medium quartz, some gravel sized rock fragments, trace clay, gray

REMARKS:

○

○ Source: CB-JI00-6 Sample No.: 4 Elev./Depth: 4.5'-5.2'

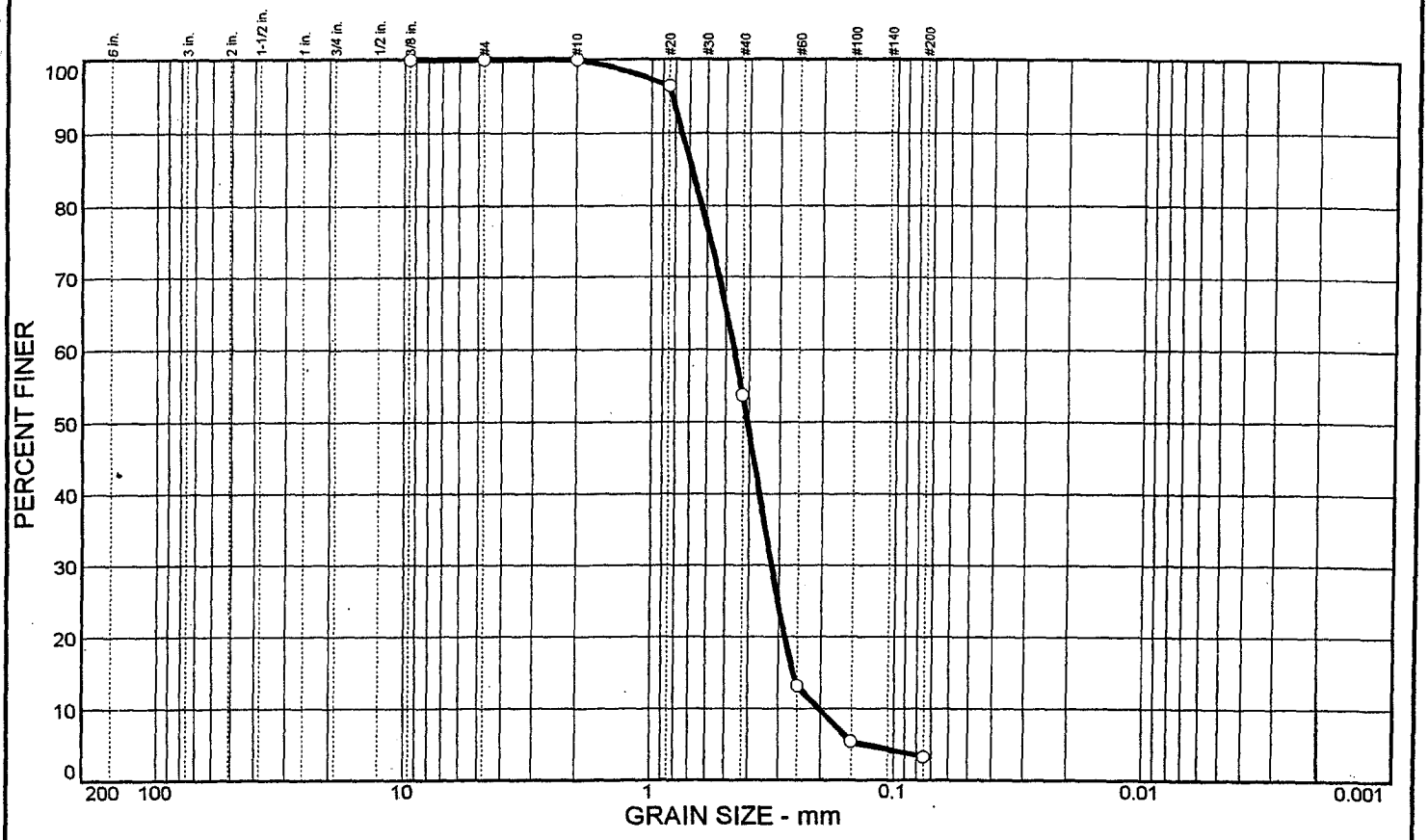
Law Engineering and Environmental Services, Inc.

Client: US Army Corp of Engineers

Project: Johns Island at West Palm Beach

Project No.: 50160-8-0025-JO11

Grain Size Distribution Report



	% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY	USCS	AASHTO	PL	LL
○			96.7	3.3		SP	A-3		

SIEVE inches size	PERCENT FINER ○		
.375	100.0		
	GRAIN SIZE		
D_{60}	0.461		
D_{30}	0.321		
D_{10}	0.204		
	COEFFICIENTS		
C_c	1.10		
C_u	2.27		

SIEVE number size	PERCENT FINER ○		
#4	100.0		
#10	100.0		
#20	96.4		
#40	53.7		
#60	13.1		
#100	5.4		
#200	3.3		

SOIL DESCRIPTION

○ SAND, fine quartz, dark brown

REMARKS:

○

○ Source: CB-JI00-6 Sample No.: 6 Elev./Depth: 7.5'-8.6'

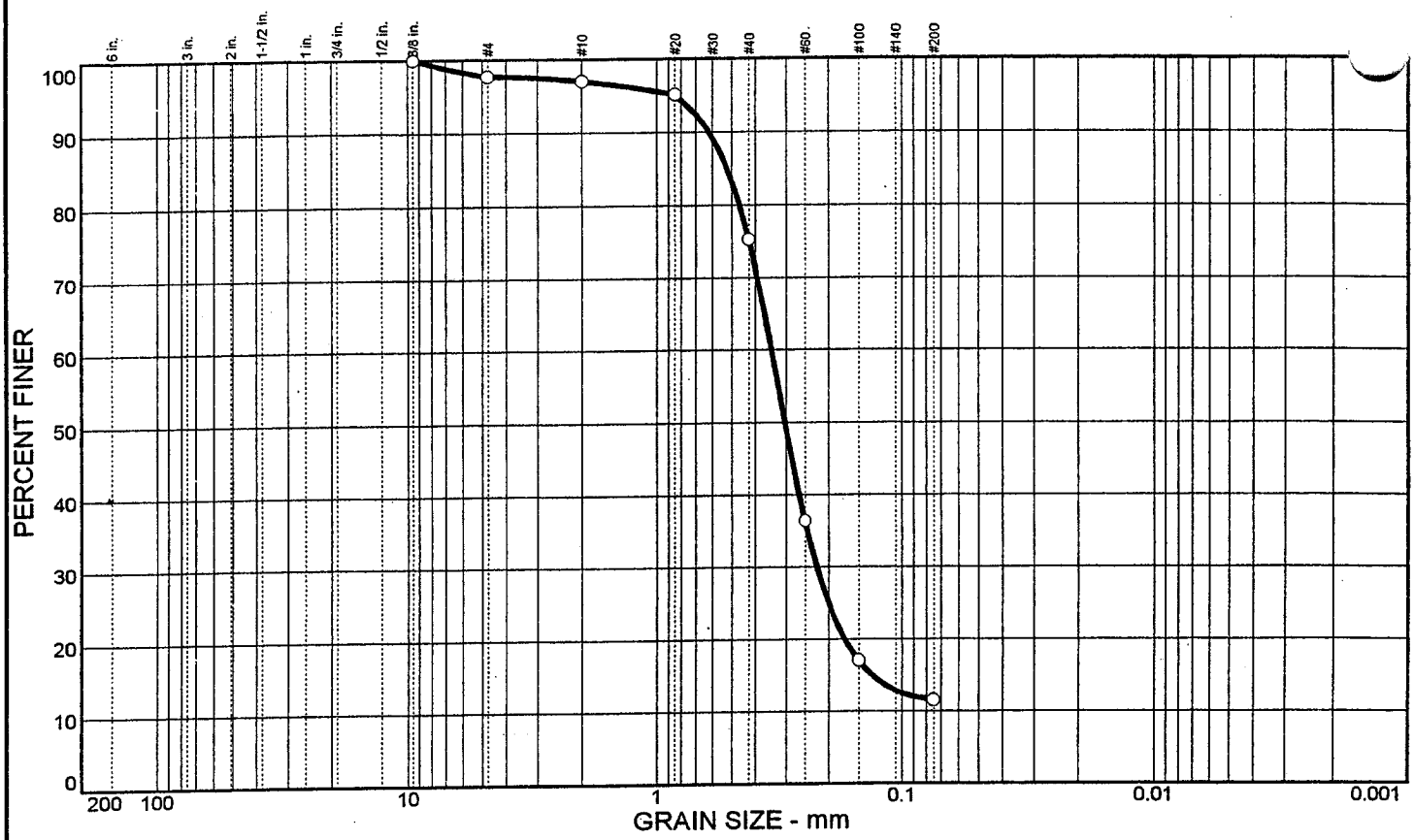
Law Engineering and Environmental Services, Inc.

Client: US Army Corp of Engineers

Project: Johns Island at West Palm Beach

Project No.: 50160-8-0025-JO11

Grain Size Distribution Report



	% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY	USCS	AASHTO	PL	LL
○		2.3	86.2	11.5		SP-SM	A-2-4(0)		

SIEVE inches size	PERCENT FINER ○		
.375	100.0		
	GRAIN SIZE		
D_{60}	0.343		
D_{30}	0.223		
D_{10}			
	COEFFICIENTS		
C_c			
C_u			

SIEVE number size	PERCENT FINER ○		
#4	97.7		
#10	97.0		
#20	95.1		
#40	75.2		
#60	36.4		
#100	17.0		
#200	11.5		

SOIL DESCRIPTION

○ SAND, fine quartz, trace silt, trace shell fragments, dark brown

REMARKS:

○

○ Source: CB-JI00-7 Sample No.: 2 Elev./Depth: 1.5'-2.0'

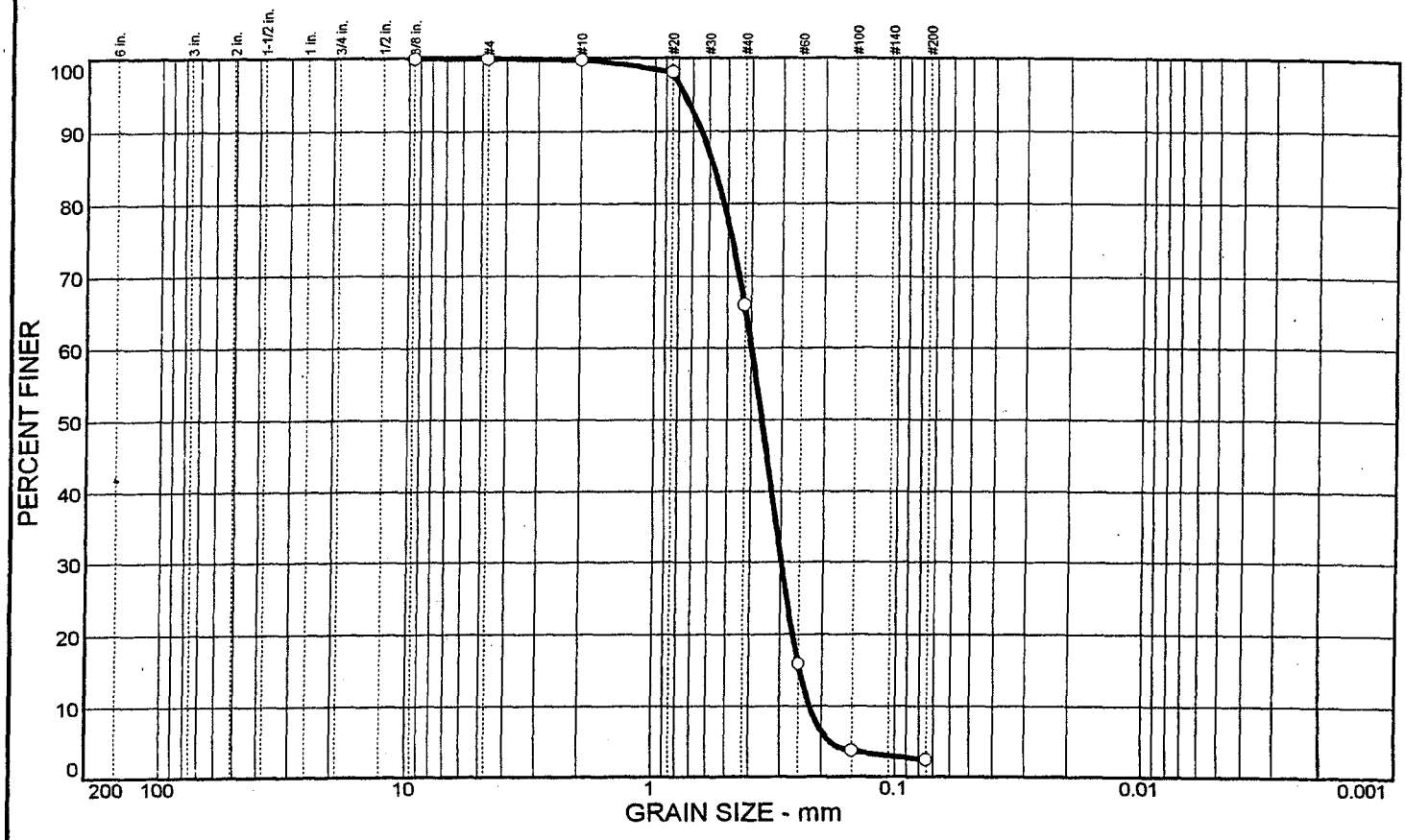
Law Engineering and Environmental Services, Inc.

Client: US Army Corp of Engineers

Project: Johns Island at West Palm Beach

Project No.: 50160-8-0025-JO11

Grain Size Distribution Report



	% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY	USCS	AASHTO	PL	LL
○			97.6	2.4		SP	A-3		

SIEVE inches size	PERCENT FINER ○		
.375	100.0		
	GRAIN SIZE		
D_{60}	0.398		
D_{30}	0.296		
D_{10}	0.224		
	COEFFICIENTS		
C_c	0.99		
C_u	1.78		

SIEVE number size	PERCENT FINER ○		
#4	100.0		
#10	99.8		
#20	98.1		
#40	65.9		
#60	15.9		
#100	3.7		
#200	2.4		

SOIL DESCRIPTION

○ SAND, fine quartz, dark brown

REMARKS:

○

○ Source: CB-JI00-7 Sample No.: 7 Elev./Depth: 6.0'-7.0'

Law Engineering and Environmental Services, Inc.

Client: US Army Corp of Engineers

Project: Johns Island at West Palm Beach

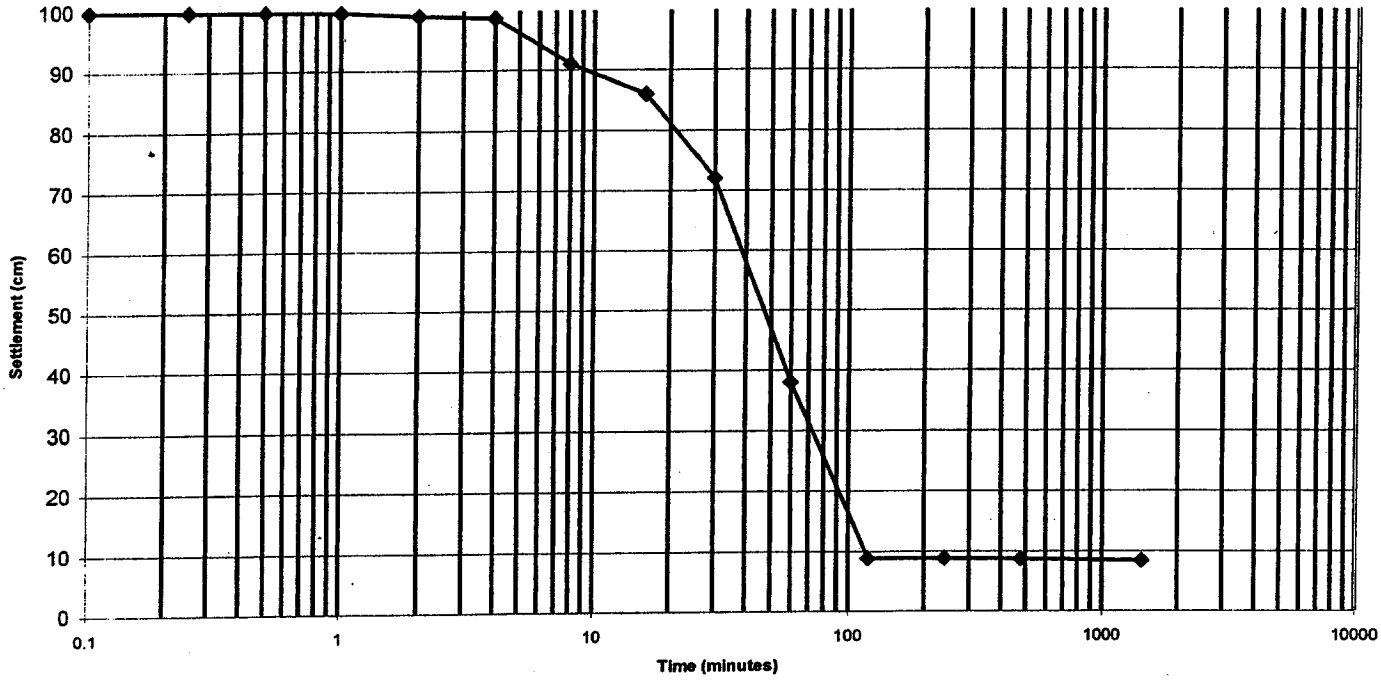
Project No.: 50160-8-0025-JO11

LAW
ENGINEERING AND ENVIRONMENTAL SERVICES
3901 CARMICHAEL AVENUE
JACKSONVILLE, FLORIDA 32207
(904)396-5173

REPORT OF SETTLING RATE TESTING

LAW PROJECT NO: 50160-8-0025
PROJECT: Johns Island
CLIENT: USACE, Jacksonville District

SAMPLE : CBJI00-1-D2
STATION :
CONCENTRATION: 100g/L



TIME	INTERFACE (cm)	TIME	INTERFACE (cm)
0.1	99.9	16	86
0.25	99.8	30	72
0.5	99.7	60	38
1	99.6	120	8.8
2	99	240	8.8
4	98.6	480	8.7
8	91	1440	8.4

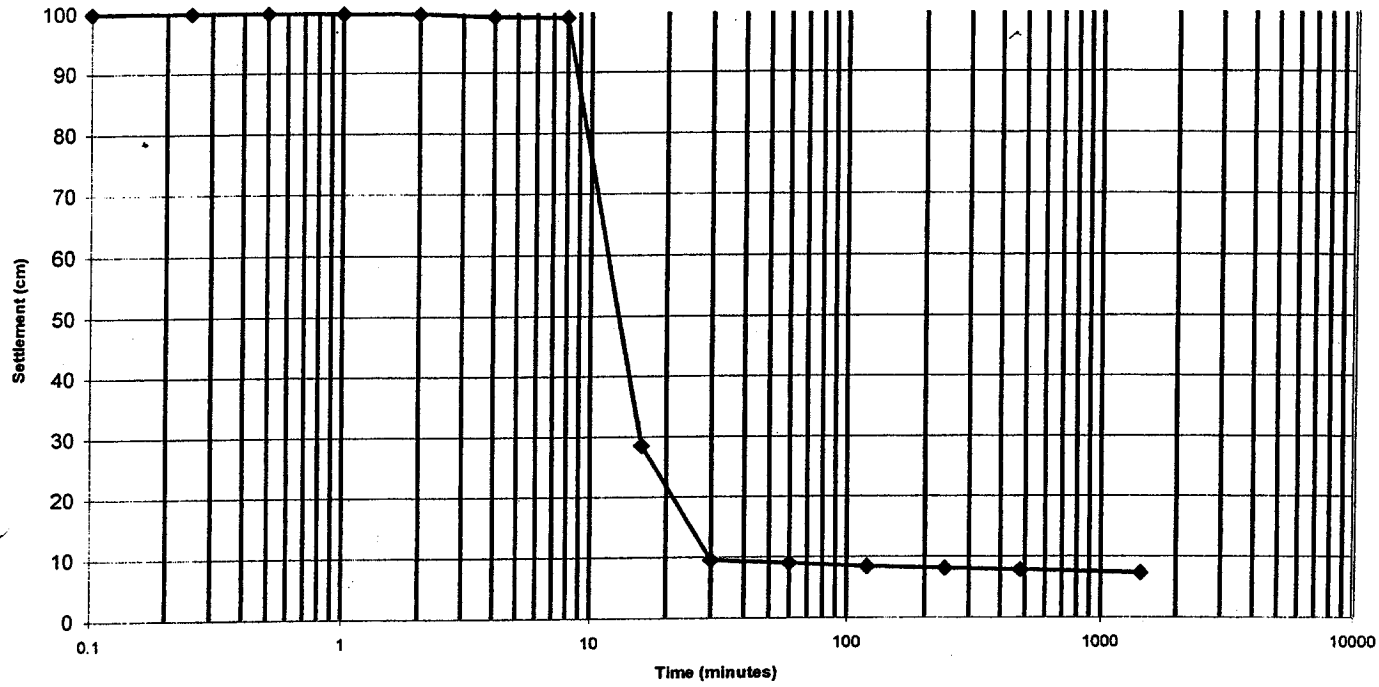
Final concentration: 1190.5 g/L

LAW
ENGINEERING AND ENVIRONMENTAL SERVICES
3901 CARMICHAEL AVENUE
JACKSONVILLE, FLORIDA 32207
(904)396-5173

REPORT OF SETTLING RATE TESTING

LAW PROJECT NO: 50160-8-0025
PROJECT: Johns Island
CLIENT: USACE, Jacksonville District

SAMPLE : CBJI00-2-D7
STATION :
CONCENTRATION: 100g/L



TIME	INTERFACE (cm)	TIME	INTERFACE (cm)
0.1	99.9	16	28.5
0.25	99.9	30	9.5
0.5	99.9	60	9
1	99.8	120	8.4
2	99.7	240	8.1
4	99.2	480	7.8
8	99	1440	7.3

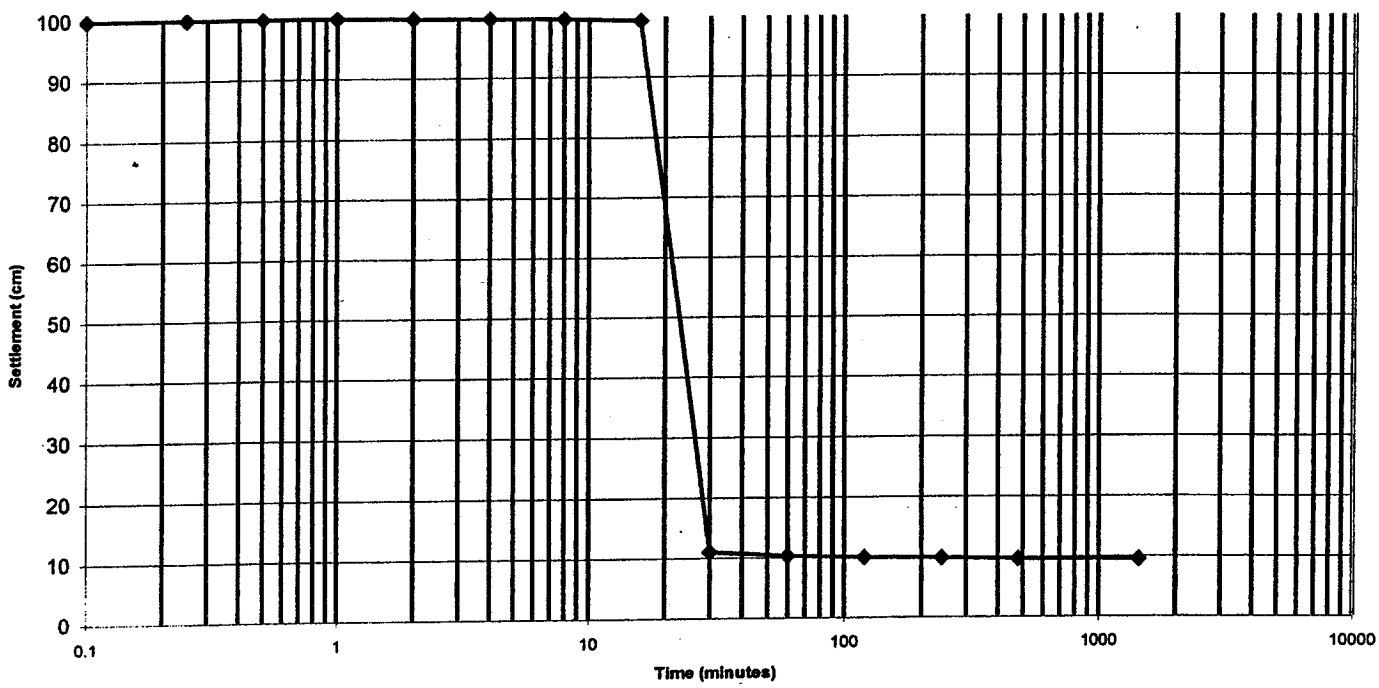
Final concentration: 1369.9 g/L

LAW
ENGINEERING AND ENVIRONMENTAL SERVICES
3901 CARMICHAEL AVENUE
JACKSONVILLE, FLORIDA 32207
(904)396-5173

REPORT OF SETTLING RATE TESTING

LAW PROJECT NO: 50160-8-0025
PROJECT: Johns Island
CLIENT: USACE, Jacksonville District

SAMPLE : CBJI00-4-D4
STATION :
CONCENTRATION: 100g/L



TIME	INTERFACE (cm)	TIME	INTERFACE (cm)
0.1	99.9	16	99.2
0.25	99.9	30	11
0.5	99.9	60	10.3
1	99.9	120	10
2	99.8	240	9.8
4	99.7	480	9.6
8	99.6	1440	9.5

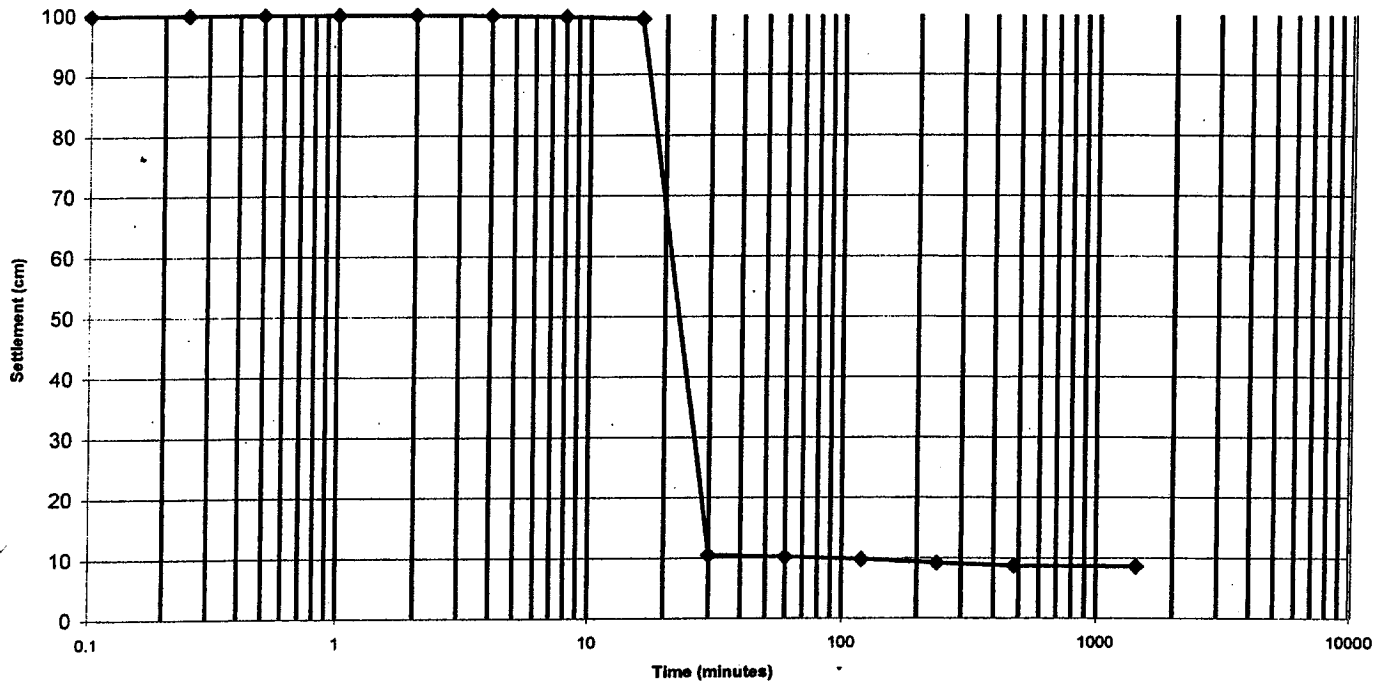
Final concentration: 1052.6 g/L

LAW
ENGINEERING AND ENVIRONMENTAL SERVICES
3901 CARMICHAEL AVENUE
JACKSONVILLE, FLORIDA 32207
(904)396-5173

REPORT OF SETTLING RATE TESTING

LAW PROJECT NO: 50160-8-0025
PROJECT: Johns Island
CLIENT: USACE, Jacksonville District

SAMPLE : CBJI00-5-D5
STATION :
CONCENTRATION: 100g/L



TIME	INTERFACE (cm)	TIME	INTERFACE (cm)
0.1	99.9	16	99.2
0.25	99.9	30	10.5
0.5	99.9	60	10.2
1	99.9	120	9.8
2	99.9	240	9.2
4	99.8	480	8.7
8	99.6	1440	8.6

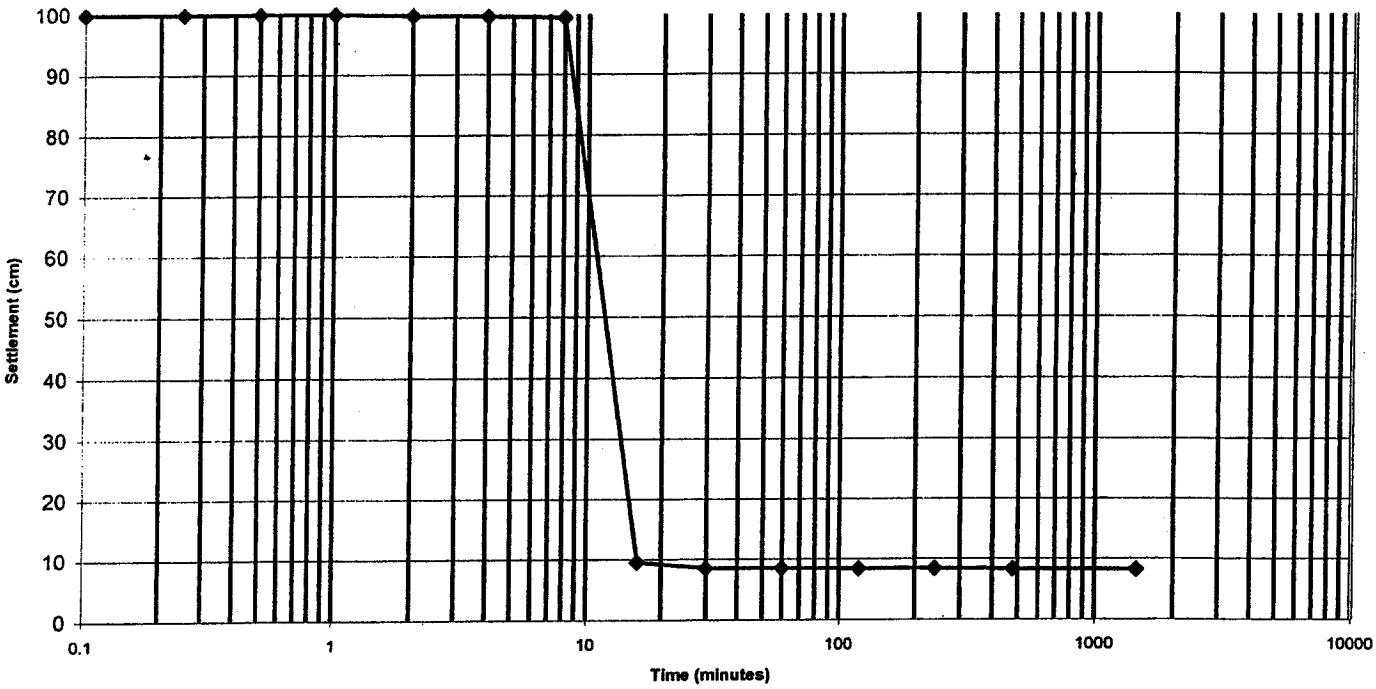
Final concentration: 1162.8 g/L

LAW
ENGINEERING AND ENVIRONMENTAL SERVICES
3901 CARMICHAEL AVENUE
JACKSONVILLE, FLORIDA 32207
(904)396-5173

REPORT OF SETTLING RATE TESTING

LAW PROJECT NO: 50160-8-0025
PROJECT: Johns Island
CLIENT: USACE, Jacksonville District

SAMPLE : CBJI00-6-D6
STATION :
CONCENTRATION: 100g/L



TIME	INTERFACE (cm)	TIME	INTERFACE (cm)
0.1	99.9	16	9.5
0.25	99.9	30	8.5
0.5	99.9	60	8.5
1	99.9	120	8.4
2	99.7	240	8.4
4	99.6	480	8.3
8	99.3	1440	8.2

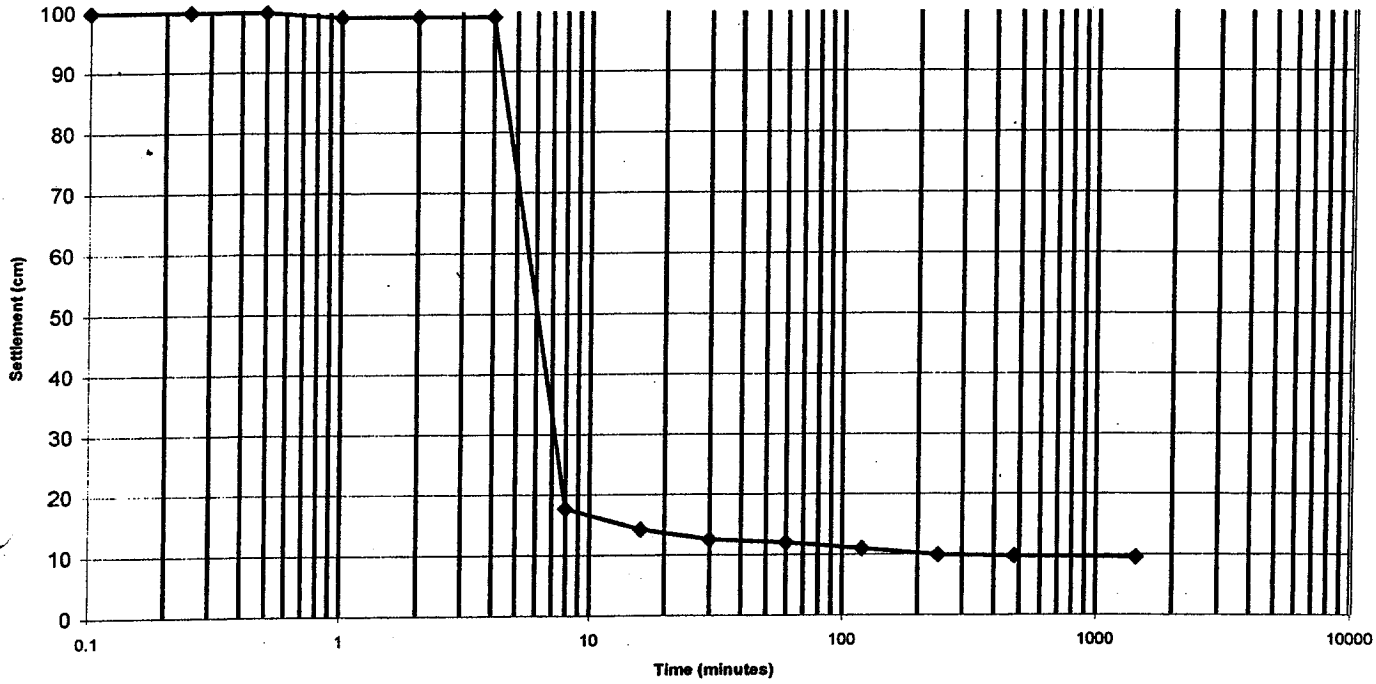
Final concentration: 1219.5 g/L

LAW
ENGINEERING AND ENVIRONMENTAL SERVICES
3901 CARMICHAEL AVENUE
JACKSONVILLE, FLORIDA 32207
(904)396-5173

REPORT OF SETTLING RATE TESTING

LAW PROJECT NO: 50160-8-0025
PROJECT: Johns Island
CLIENT: USACE, Jacksonville District

SAMPLE : CBJI00-7-D2
STATION :
CONCENTRATION: 100g/L



TIME	INTERFACE (cm)	TIME	INTERFACE (cm)
0.1	99.9	16	14.2
0.25	99.9	30	12.5
0.5	99.9	60	12
1	99	120	11
2	99	240	9.9
4	99	480	9.7
8	17.7	1440	9.5

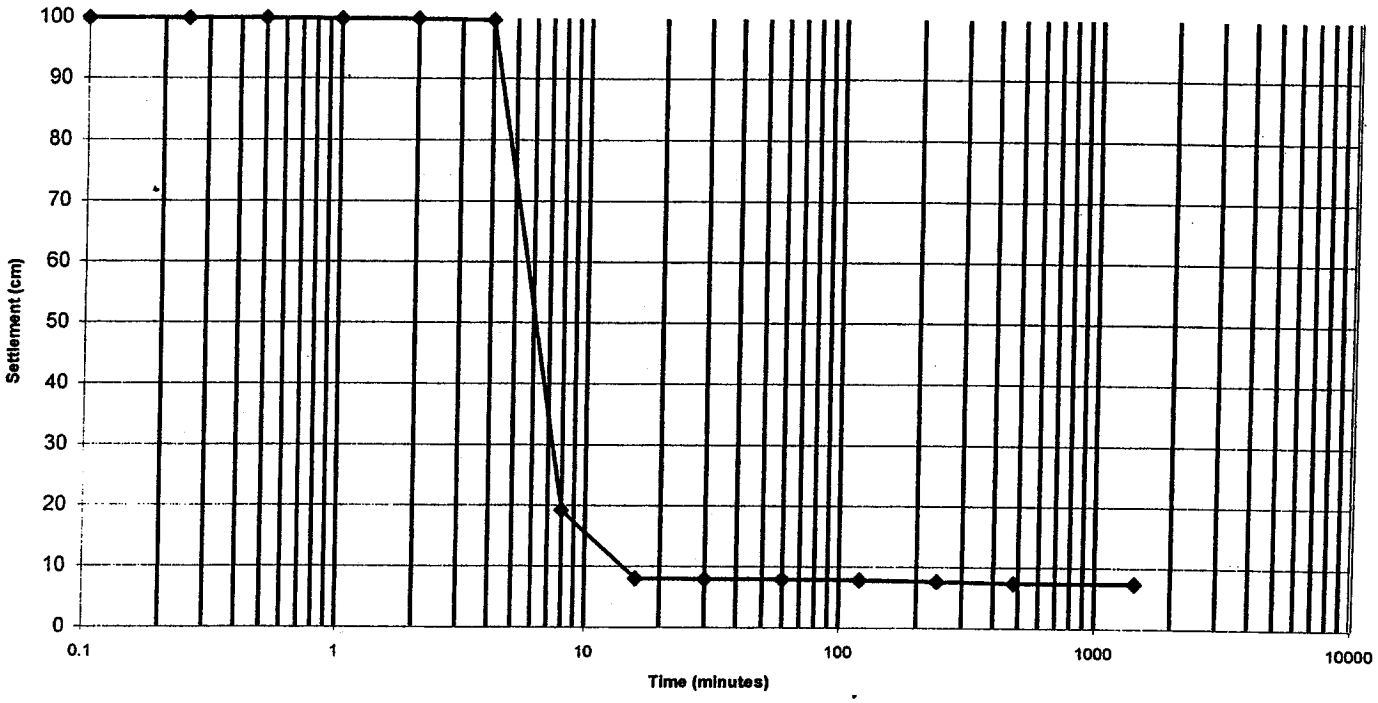
Final concentration: 1052.6 g/L

LAW
ENGINEERING AND ENVIRONMENTAL SERVICES
3901 CARMICHAEL AVENUE
JACKSONVILLE, FLORIDA 32207
(904)396-5173

REPORT OF SETTLING RATE TESTING

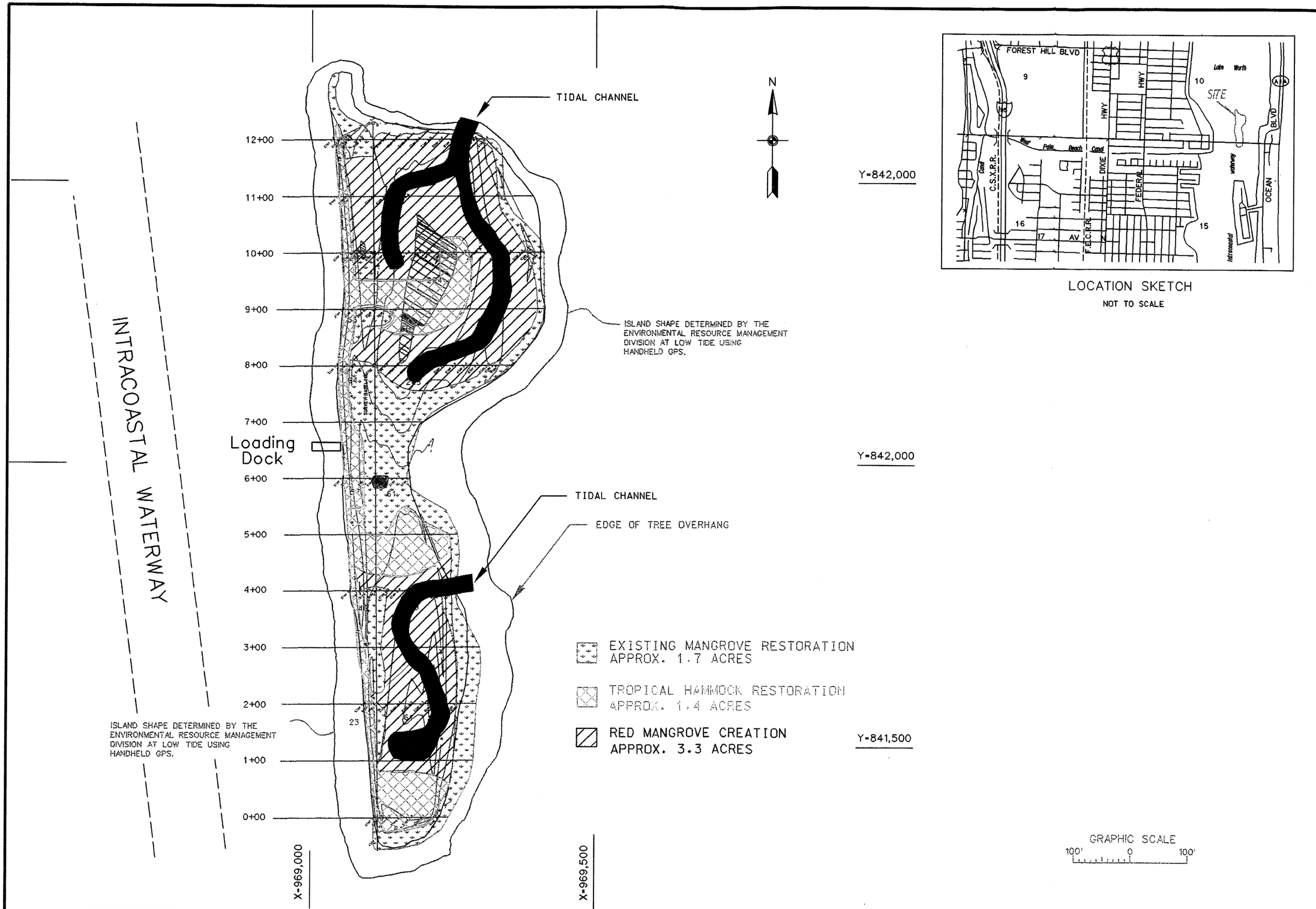
LAW PROJECT NO: 50160-8-0025
PROJECT: Johns Island
CLIENT: USACE, Jacksonville District

SAMPLE : CBJI00-7-D7
STATION :
CONCENTRATION: 100g/L



TIME	INTERFACE (cm)	TIME	INTERFACE (cm)
0.1	99.9	16	8
0.25	99.9	30	7.9
0.5	99.9	60	7.9
1	99.8	120	7.8
2	99.8	240	7.6
4	99.6	480	7.4
8	19.2	1440	7.4

Final concentration: 1351.4 g/L



US Army Corps of Engineers
Jacksonville District

DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT, CORPS OF ENGINEERS
JACKSONVILLE, FLORIDA

Designed by: R.E.H.
Dwn by: R.E.H.
Ckd by:
Dated:
Scale: AS SHOWN
Plot date: XX_XX XXXX
Plot scale: 22:2
File name:
Reference files:

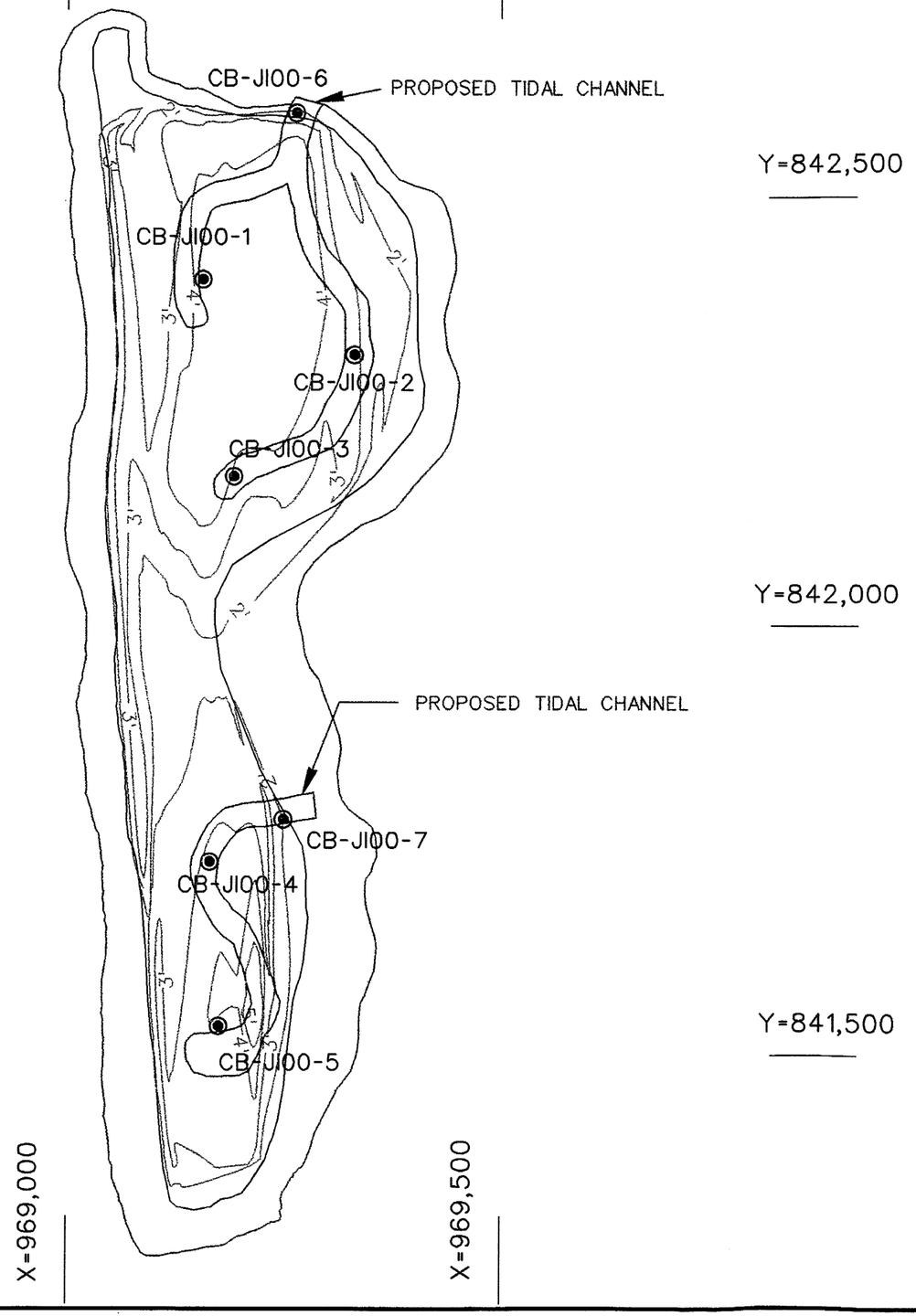
ENGINEERING APPENDIX

JOHN'S ISLAND - PALM BEACH COUNTY, FLORIDA
SECTION 1135 - ENVIRONMENTAL RESTORATION

PROPOSED RESTORATION PLAN AND LOCATION MAP

OCTOBER 2000

PLATE
A-1



CORE BORING LOCATIONS

CB-JI00-1	X=969156	Y=842404
CB-JI00-2	X=969331	Y=842316
CB-JI00-3	X=969192	Y=842175
CB-JI00-4	X=969165	Y=841725
CB-JI00-5	X=969175	Y=841535
CB-JI00-6	X=969264	Y=842595
CB-JI00-7	X=969250	Y=841775

NOTE: CORE BORING LOCATIONS WERE ESTABLISHED BY MEASURING FROM THE SURVEY BASELINE USING A TAPE. ACCURACY IS ESTIMATED TO BE WITHIN +/-5 FEET.

GRAPHIC SCALE
100' 0 100'

US Army Corps of Engineers
Jacksonville District

DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT, CORPS OF ENGINEERS
JACKSONVILLE, FLORIDA

Designed by: C.V.K.
Dwn by: R.E.H.
Ckd by:
Scale: AS SHOWN
Plot date: XX-XX-XXXX
Plot scale: 22/2
Dated:
D.O.FILE NO.
File name: BoringLoc...dgn
Reference files: ???????.DGN ???????.DGN ???????.DGN

JOHN'S ISLAND - PALM BEACH COUNTY, FLORIDA
SECTION 1135 - ENVIRONMENTAL RESTORATION

CORE BORING LOCATIONS

OCTOBER 2000

PLATE
A-2