Agreement Log #: KIF-10-051

Time-Critical Concurrence

Area:
Emory River, Segment Above Above 5, Area 5, Emory River mile 4.2 to 4.1

Agreement:

Ash removal activities have been completed in Segment Above Above 5, Area 5, Emory River mile 4.2 to 4.1.

The area was initially identified by vibecore drilling for the dredge plan addendum, Figure 2, dated 3/15/10 and then localized using pre-spill and post-spill bathymetric surfaces in addition to the vibecore sediment data. The Ash Remaining to Pre-Spill Surface in Segment Above Above 5, dated 4/20/10 figure shows the three dimensional model of the pre-spill surface developed using bathymetry and vibecore data. A portion of the area was hydraulically excavated and the area beyond the dredge pipeline length was mechanically excavated using a barge mounted Komatsu 800 excavator. Both the hydraulic and mechanical equipment were equipped with a GPS positioning system and software capable of controlling excavation to the modeled pre-spill surface. The operators of the mechanical excavation equipment were instructed to minimize dredging of native sediments and authorized to stop short of the targeted surface in areas where full buckets of native sediments had been recovered.
Documentation for completion of Area 5 was performed by comparing the river bed elevation in Sevenson's post dredging bathymetric survey, and the elevation of native sediments as indicated by vibecore sampling, shown in Figure 4, Vibecore Concurrence Sampling results – Above Above Segment 5. Vibecore sampling of the area was performed prior to mechanical dredging.
These results indicate that there is no remaining recoverable ash in Segment "Above Above 5", Area 5, Emory River mile 4.2 to 4.1.
Attachments:
Figure 2, Ash Remaining to Pre-Spill Surface in Segment Above Above 5, dated 3/15/10
Figure 2, Ash Remaining to Pre-Spill Surface in Segment Above Above 5, dated 4/20/10
SES Bathymetric Survey through 05-20 Area 5, dated 5/24/10
Figure 2, Bathymetry Removal Areas –Segment AA5, dated 5/20/10
Figure 4, Vibecore Concurrence Sampling Results – Above Above Segment 5, dated 5/24/10
Vibecores: Site E, AS5-19, AS5-20, AS5-21, AS5-22,AS5-21B, AA 5-12, 131 C, ST-14, ST-13, ST-12, ST-11, ST-15, ST-16 Logs and Photos

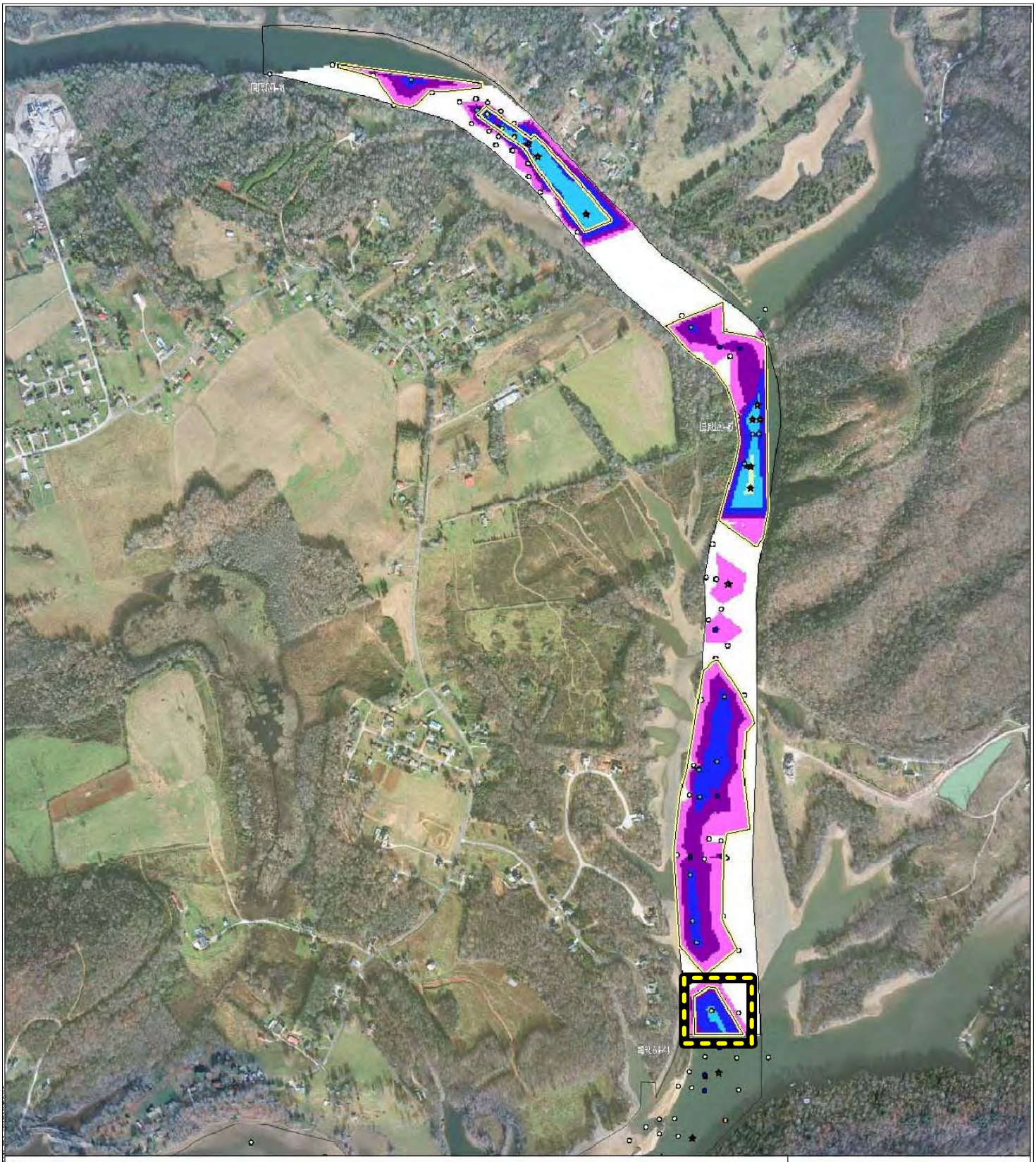
Concurrence Comments:

Julie L Pfeiff — 5/25/10
Jacobs Project Manager — Date

Kathryn Nash — 5/25/10
Tennessee Valley Authority — Date

[illegible] — 5/25/10
U. S. Environmental Protection Agency — Date

consulted w/ TDEC



Legend

Ash Remaining: ~67,803 cy

- 0 - 1 inch; ~335 cy
- 1 - 6 inches; ~9,370 cy
- 6 inches - 1 ft; ~19,692 cy
- 1 - 2 ft; ~ 26,766 cy
- 2 - 4 ft; ~8,838 cy
- 4 - 6 ft; ~2,902 cy

Proposed Dredge Area

Vibecores Collected as of 02/25/2010; Thickness of Ash (ft)

- 0.00 - 0.50
- 0.51 - 1.00
- 1.01 - 2.00
- 2.01 - 3.00
- 3.01 - 4.00
- 4.01 - 5.00
- 5.01 - 6.00

Vibecores Collected as of 02/25/2010; Minimum Thickness of Ash (ft). (Bottom of Ash is unknown.)

- 0.40 - 0.50
- 0.51 - 1.00
- 1.01 - 2.00
- 2.01 - 3.00
- 3.01 - 4.00
- 4.01 - 5.00
- 5.01 - 6.00

Area of Interest

DRAFT

0 500 1,000 Feet

1:3,000

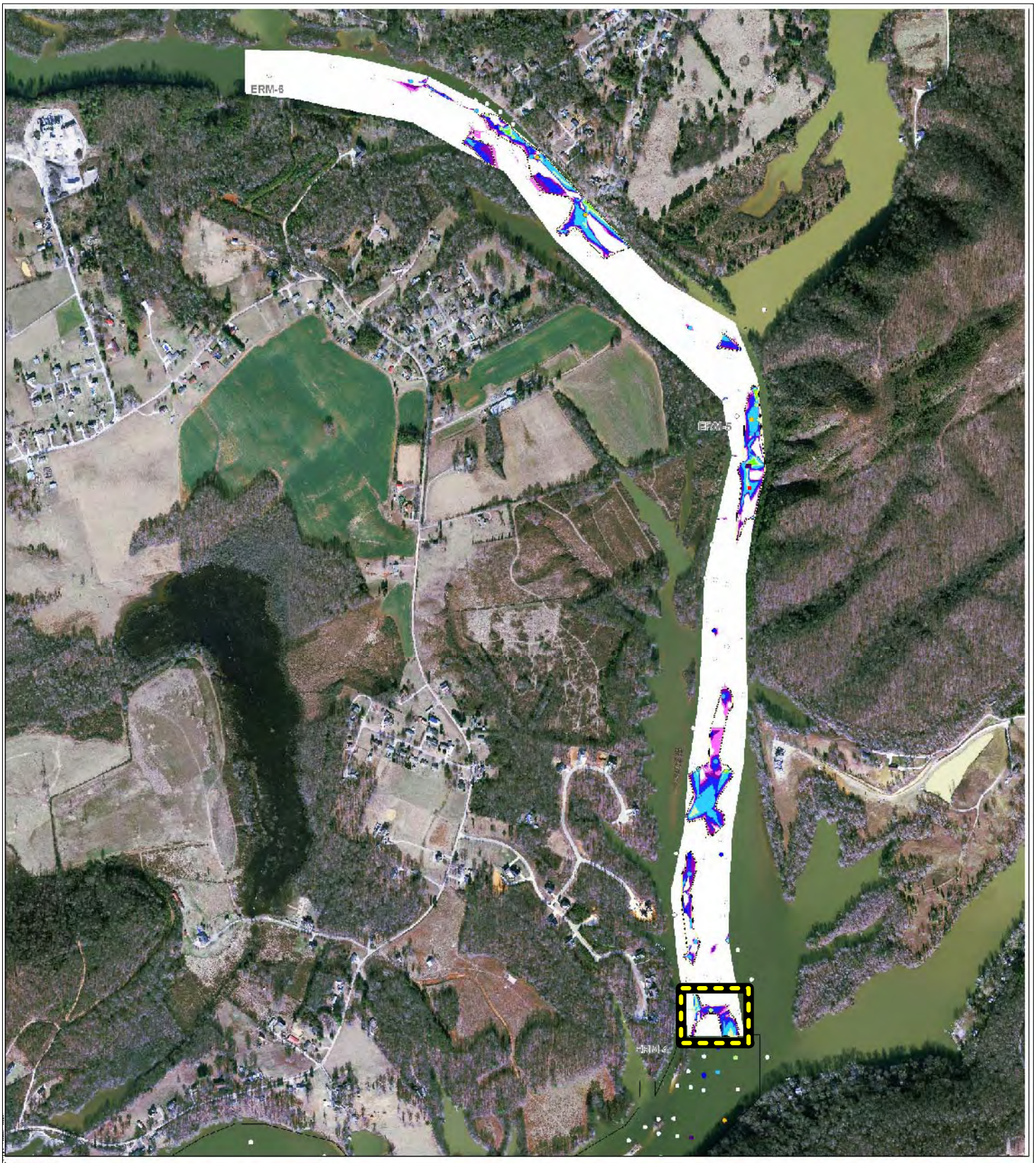
N

JACOBS

Ash Remaining to Pre-Spill Surface Above Above Segment 5

NAME: croberts DATE: 03/15/2010

Figure 2



Legend

Ash Remaining: 37,700 cy

- 0 - 1 inch: 78 cy
- 1 - 6 inches: 347 cy
- 6 inches - 1 ft: 3,580 cy
- 1 - 2 ft: 8,848 cy
- 2 - 4 ft: 15,766 cy
- 4 - 6 ft: 5,645 cy
- 6 - 8 ft: 1,750 cy
- 8 - 10 ft: 455 cy
- 10 - 15 ft: [illegible] cy

Vibecores Collected as of 04/01/2010;
Thickness of Ash (ft)

- 0.00 - 0.50
- 0.51 - 1.00
- 1.01 - 2.00
- 2.01 - 3.00
- 3.01 - 4.00
- 4.01 - 5.00
- 5.01 - 8.00

Proposed Dredge Area

Area of Interest

DRAFT

0 500 1,000 Feet

N

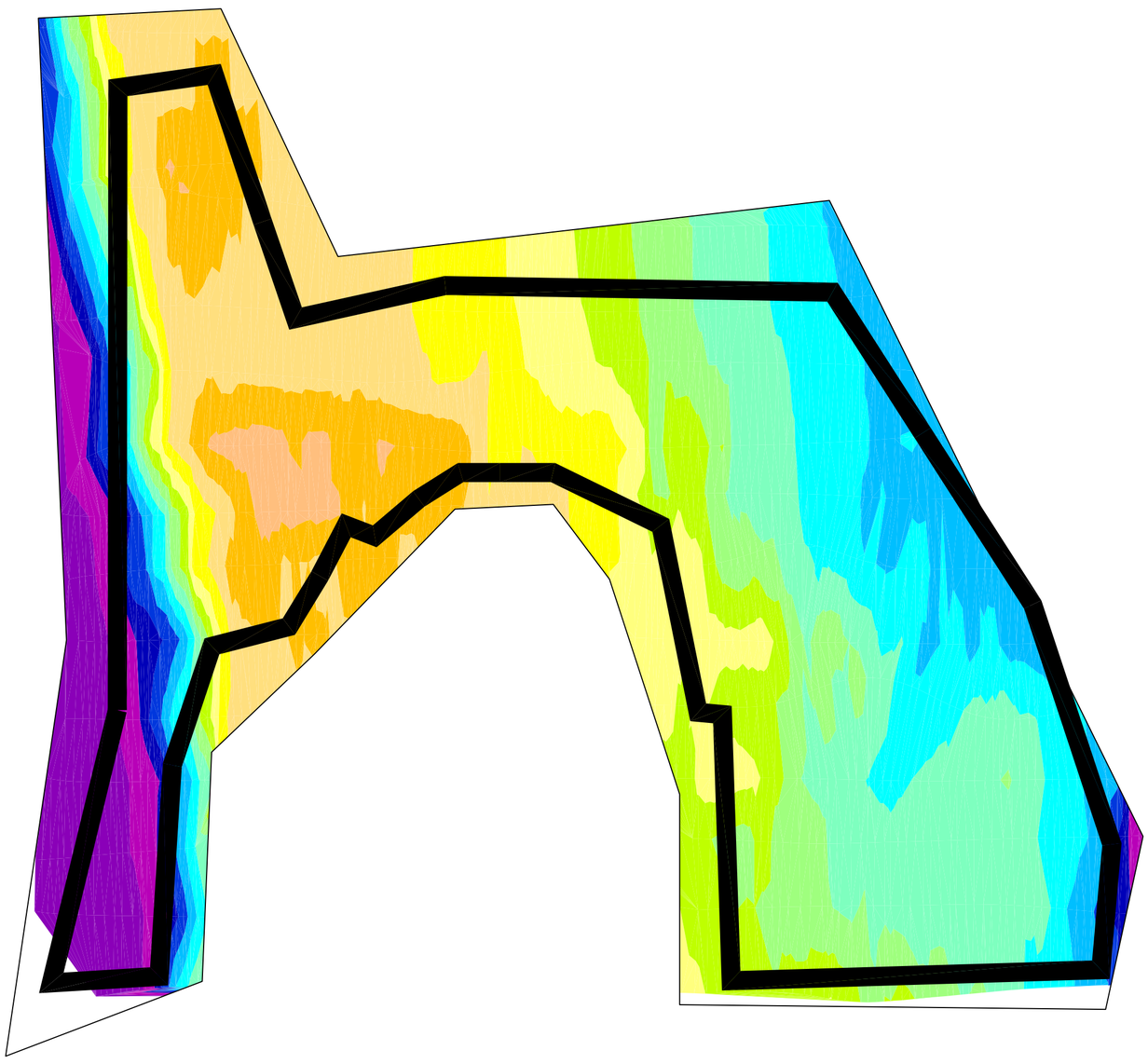
1:3,000

JACOBS

Ash Remaining to Pre-Spill Surface Above Above Segment 5

NAME: croberts DATE: 04/20/2010

Figure 2



Legend

Proposed Dredge Areas

SURVEY COMPLETED ON 5-20

Elevations Table			
Number	Minimum Elevation	Maximum Elevation	Color
1	692.00	694.00	
2	694.00	696.00	
3	696.00	698.00	
4	698.00	700.00	
5	700.00	702.00	
6	702.00	704.00	
7	704.00	706.00	
8	706.00	708.00	
9	708.00	710.00	
10	710.00	712.00	
11	712.00	714.00	
12	714.00	716.00	
13	716.00	718.00	
14	718.00	720.00	
15	720.00	722.00	
16	722.00	724.00	
17	724.00	726.00	
18	726.00	730.00	
19	730.00	737.07	

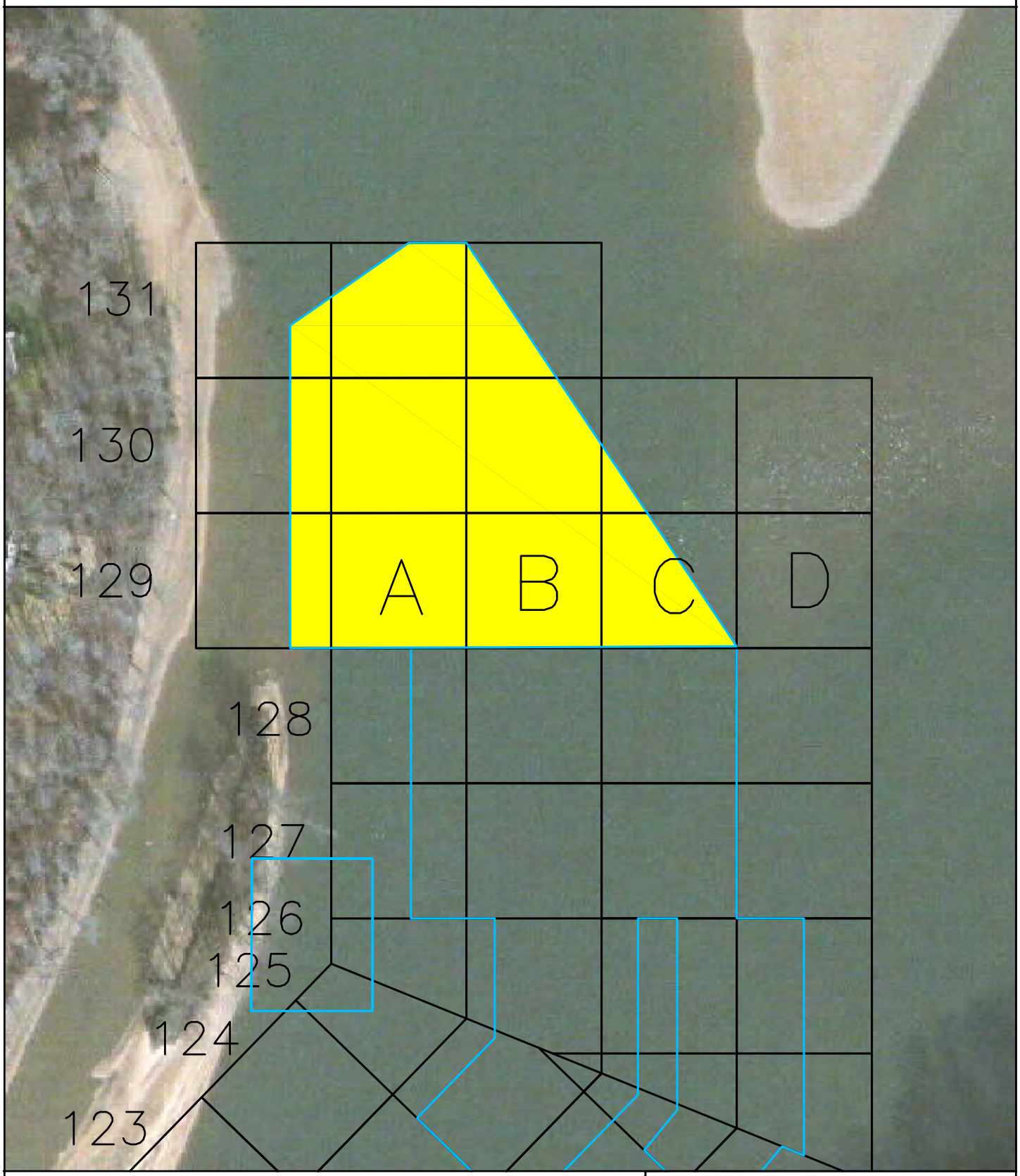
BATHYMETRIC SURVEY
THROUGH 5/20 AREA 5

TVA
DREDGING OF THE EMORY RIVER
AND ASH PROCESSING
HARRIMAN, TN

SEVENSON
ENVIRONMENTAL
SERVICES, INC.

DRAWING		
	DATE:	May24, 2010
	DRAWN BY:	DAB
	CHECKED BY:	KD
	CAD FILE:	Target 7C
	SCALE:	1"=40'

Bathymetry Removal Areas - Above Above Segment 5



Removed From Plan

Phase 2 Dredging Path

0 80 160 320
SCALE IN FEET

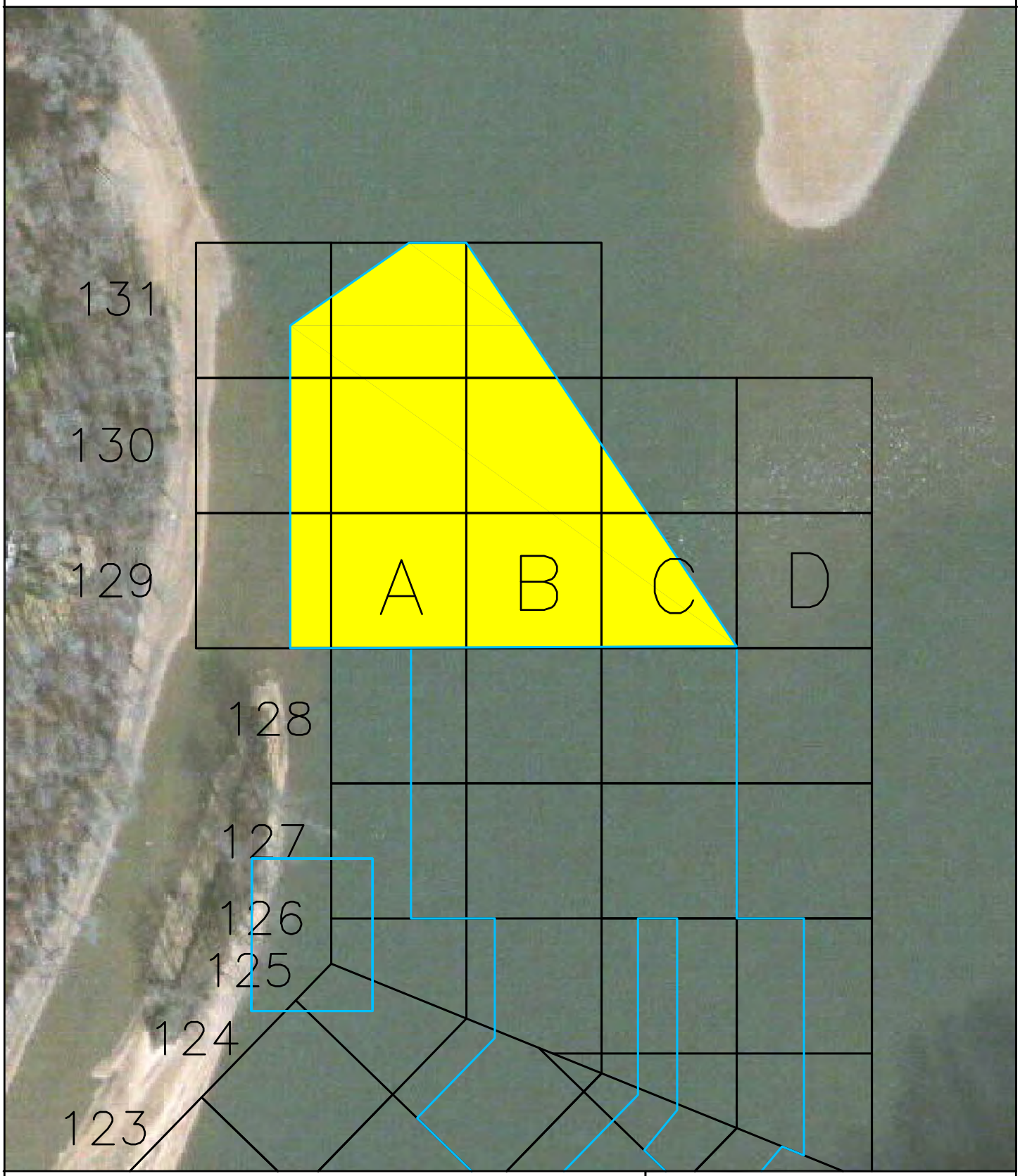
N

JACOBS™

05/21/10

Figure 2

Bathymetry Removal Areas - Above Above Segment 5



Removed From Plan

Phase 2 Dredging Path

0 80 160 320
SCALE IN FEET

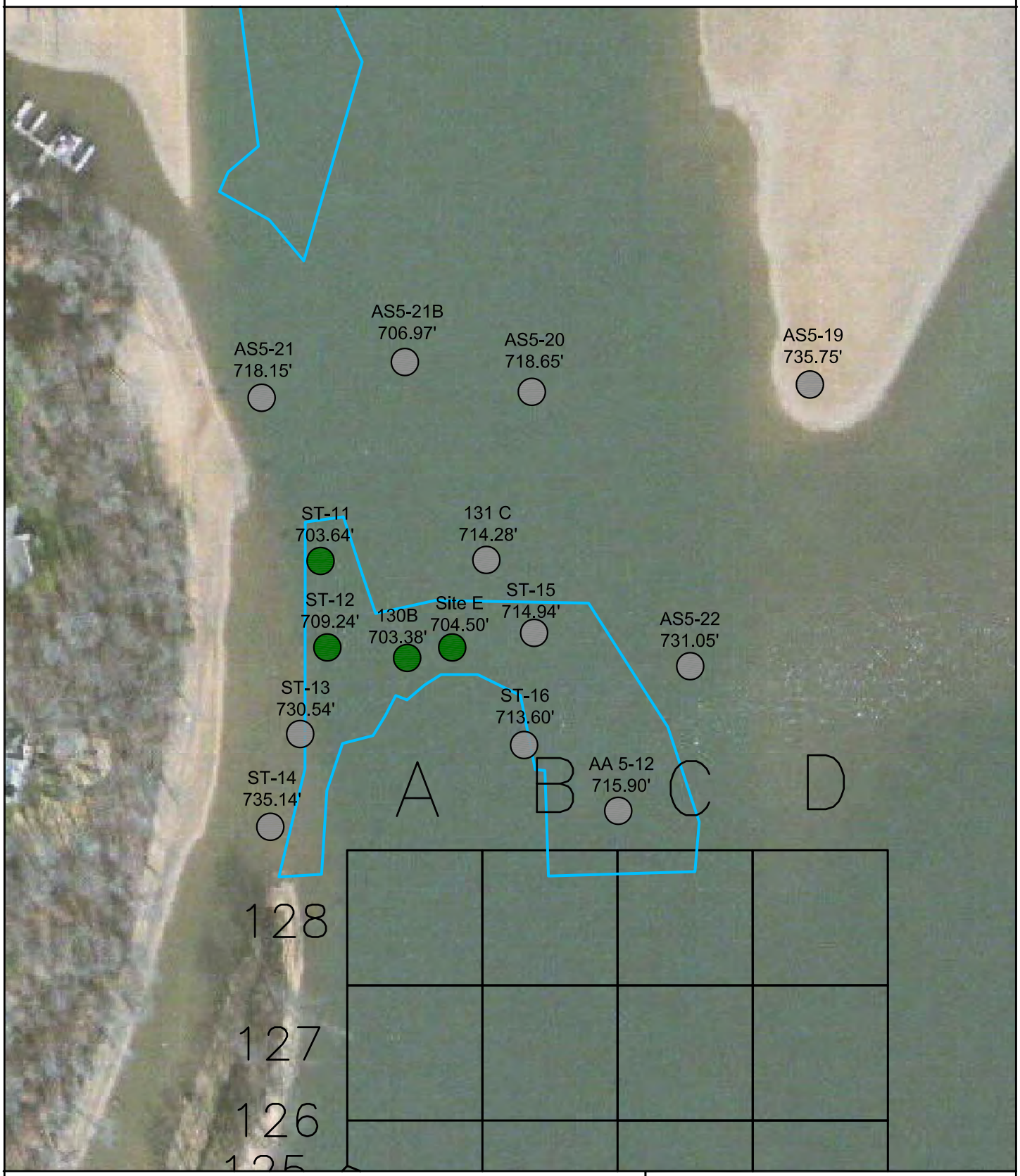
N

JACOBS™

05/21/10

Figure 2

VibeCore Concurrence Sampling Results - Above Above Segment 5



Ash Recovered

No Ash Present

Removed From Plan

E-trac Dredging Path

VibeCore Label Format:
Core Number
Sediment Elevation in feet

0 80 160 320
SCALE IN FEET

N

JACOBS™

05/24/10

Figure 4

Vibecore Documentation

Date: 01/04/2010 Weather: PC, light snow flurries, ~ 20-25 degrees F, wind <5 mph Location: Above -Above Segment 5
River Flow/Level: Flow <2,000 cfs, elevation = 736.10'
Crew: Curtis Long, Joel Ross, Kevin Shaw

Core #	Photo #	Tube Type	Core Coordinates	River Depth	Time	Core Description	Interval
Site E	R0010057	Lexane	N: 561366.40 E: 2448915.13	29.2'	12:33	Ash	0-2.4'
Deviations encountered:						Fine sand with thin layers of detritus	2.4'-4.1'
						Total Depth	4.1'

Date: 01/20/2010 Weather: Rain, ~ 50 F, wind variable Location: Above Above Segment 5
River Flow/Level: Elevation: 737.05 Flow: <2000 cfs
Crew: Joel Ross, Walter Burns, Curtis Long, Kevin Shaw

Core #	Photo #	Tube Type	Core Coordinates	River Depth	Time	Core Description	Interval
AS5-19	R0010210	Lexane	N: 561632.98 E: 2449295.00	1.3	14:20	silty sand with detritus	0.0-0.7
Deviations encountered: Photo R0010211 also taken. No ash recovered						sand	0.7-1.6
						silt	1.6-3.6
						clay	3.6-5.4
						Total Depth	5.4

Core #	Photo #	Tube Type	Core Coordinates	River Depth	Time	Core Description	Interval
AS5-20	R0010212	Lexane	N: 561626.20 E: 2449037.60	18.4	14:30	Detritus with mixed sand	0.0-0.7
Deviations encountered: No refusal and no ash recovered						silt with sand	0.7-1.7
						sand	1.7-2.8
						clay	2.8-3.2
						Total Depth	3.2

Core #	Photo #	Tube Type	Core Coordinates	River Depth	Time	Core Description	Interval
AS5-21	R0010213	Lexane	N: 561620.28 E: 2448787.80	18.9	14:50	Red clay	0.0-1.9
Deviations encountered: Reached refusal, no ash present. Photo R0010214 also taken							
						Total Depth	1.9

Core #	Photo #	Tube Type	Core Coordinates	River Depth	Time	Core Description	Interval
AS5-22	R0010215	Lexane	N: 561372.14 E: 2449183.98	6.0	15:40	silt	0.0-1.0
Deviations encountered: Photo R0010216 also taken, refusal at clay layer.						organic detritus	1.0-1.5
						silty clay	1.5-2.5
						Total Depth	2.5

Date: 02/02/2010 Weather: Overcast, light rain;~38-40 F; wind calm Location: Above Above Segment 5
River Flow: <2,000 cfs River Elevation: 738.67'
Crew: Joel Ross, Walter Burns, Kevin Shaw

Core #	Photo #	Tube Type	Core Coordinates	River Depth	Time	Core Description	Interval (ft)
AS5-21B	R0010211	5' Acrylic	N: 561652.32' E: 2448920.32'	31.7'	12:10	Sand	0.0-3.4
Deviations encountered: HDOP = 1.04; Photos R0010211-0212. NO ASH							
						Total Depth	3.4'

Date: 04/13/2010 Weather: Sunny, 79 F Location: Above Above Segment 5 Emory River
River Flow: 687 cfs River Elevation: 738.8' at 189 Lakeshore Dr.
Crew: Greg Schwartz (RSI), Stacy Goss (RSI), Chad Fairless (RSI)

Core #	Photo #	Tube Type	Core Coordinates	River Depth	Time	Core Description	Interval (ft)
AA 5-12	R0010141	Acrylic	N: 561238.56' E: 2449120.67'	22.9'	14:24	Brown native fines w/ organic material	0.0 - 1.3
Deviations encountered: Core met refusal						Silty Sand	1.3 - 1.7
						Total Depth	1.7'

Date: 04/20/2010 Weather: Rainy Location: Above Segment 5
River Flow: 377cfs River Elevation: 739.08'
Crew: E. Arnold, K. Gassaway, J. Mullins

Core #	Photo #	Tube Type	Core Coordinates	River Depth	Time	Core Description	Interval (ft)
131 C	R0010506	Acrylic	N: 561471.14' E: 2448999.78'	24.8'	9:11	Coarse sand with ash (<50%) & coal slag	0.0-0.6
Deviations encountered: Refusal not met.						Coarse orange sand	0.6-1.3
						Coarse brown sand	1.3-1.9
						Total Depth	1.9'

Vibecore Documentation

Date: 04/29/2010 Weather: Sunny, mid 70's, SW winds 10 mph or less. Location: Lower AA5 Targets
River Flow: 1290 cfs River Elevation: 739.64'
Crew: David, Mathis, Tom Touzeau, Stacy Goss

Core #	Photo #	Tube Type	Core Coordinates	River Depth	Time	Core Description	Interval (ft)
ST-14	R0010529	6' Acrylic	N: 561223.17' E: 2448799.48'	4.5'	9:45	Orange sand with clay. No ash.	0-1.7
Deviations encountered:						Orange sandy clay. No ash.	1.7-2.8
						Orange sandy clay. Refusal met. No ash.	2.8-3.2
						Total Depth	3.2'

Core #	Photo #	Tube Type	Core Coordinates	River Depth	Time	Core Description	Interval (ft)
ST-13	R0010530	6' Acrylic	N: 561310.07' E: 2448825.67'	9.1'	10:01	Orange sandy clay. No ash.	0-1.3
Deviations encountered:						Orange sand with clay. Refusal met. No ash.	1.3-1.9
						Total Depth	1.9'

Core #	Photo #	Tube Type	Core Coordinates	River Depth	Time	Core Description	Interval (ft)
ST-12	R0010531	6' Acrylic	N: 561.389.47 E: 2448852.18'	29.4'	10:26	Ash >50%.	0-1.0
Deviations encountered: Description of core layers will not coincide with layer breaks in photo.						Mixed brown sands with <10% organics.	1.0-2.4
						ed with 50% organics. Refusal met at organic	2.4-3.1
						Total Depth	3.1'

Core #	Photo #	Tube Type	Core Coordinates	River Depth	Time	Core Description	Interval (ft)
ST-11	R0010532	6' Acrylic	N: 561467.65' E: 2448846.66'	32.7'	11:07	Ash >50%.	0-3.3
Deviations encountered:						d with fine brown sands. Medium rocks at bot	3.3-4.0
						Total Depth	4.'

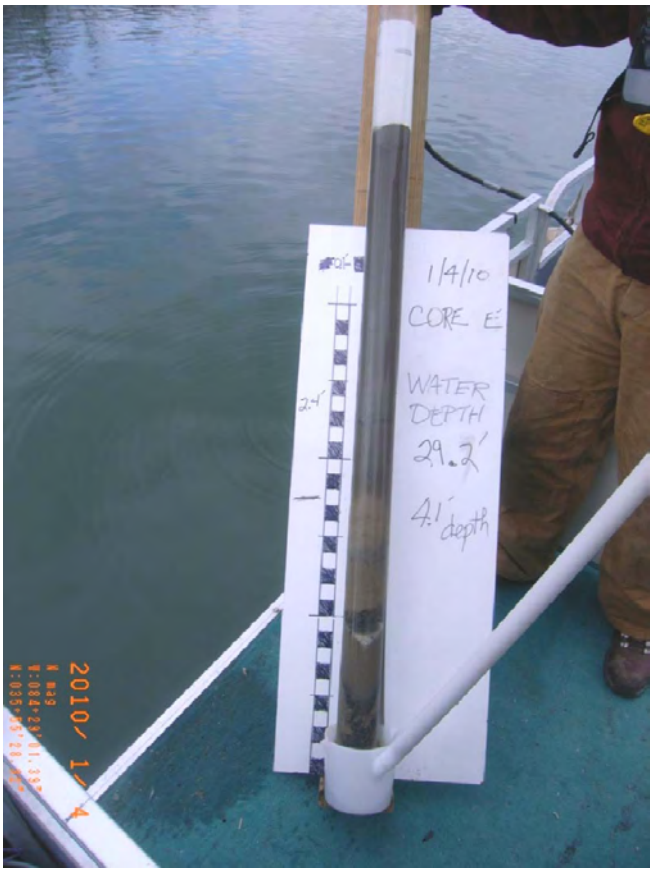
Core #	Photo #	Tube Type	Core Coordinates	River Depth	Time	Core Description	Interval (ft)
ST-15	NA	6' Acrylic	N: 561401.94' E: 2449040.86'	24.7'	13:20	NA	NA
Deviations encountered: Multiple attempts to recover a core at ST-15 were unsuccessful. One attempt recovered about 0.4' of an organic mat mixed with sand. Core is likely hitting this mat layer and falling over. No ash was visible in the mixture.							
						Total Depth	NA

Date: 04/30/2010 Weather: Sunny, Highs - lower 80's. Southwest winds 5-15mph Location: Lower AA5 Targets
River Flow: 1100 cfs River Elevation: 739.6'
Crew: David, Mathis, Steve Bunkley, Stacy Goss

Core #	Photo #	Tube Type	Core Coordinates	River Depth	Time	Core Description	Interval (ft)
ST-16	R0010533	6' Acrylic	N: 561299.72' E: 2449032.9'	26.'	9:13	anic layer mixed with light brown medium grai	0-0.6
Deviations encountered:							
						Total Depth	.6'

Vibecore Sampling Photos

Above Above Segment 5, Dredge Area 5, ERM 4.1 to 4.2

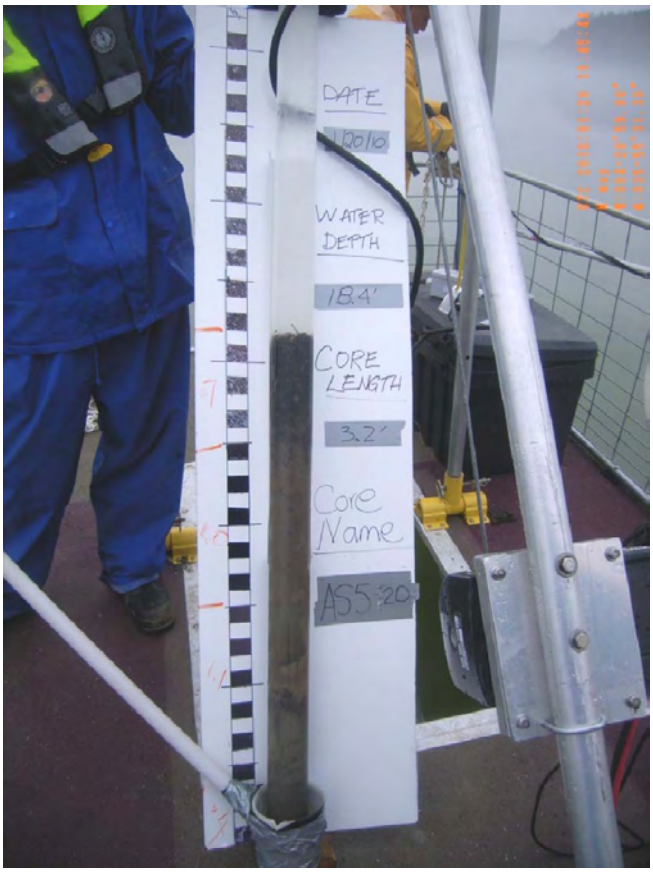


Core Site E
Total core depth = 4.1'
Ash thickness = 2.4'
Water depth = 29.2'

Core AS5-19
Total core depth = 5.4'
Ash thickness = 0.0'
Water depth = 1.3'

Vibecore Sampling Photos

Above Above Segment 5, Dredge Area 5, ERM 4.1 to 4.2

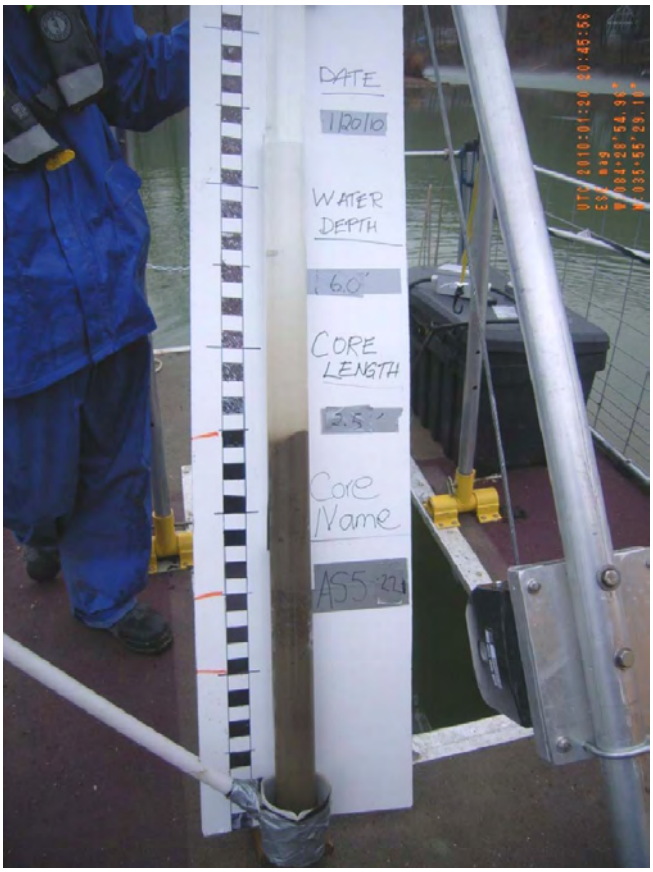


Core AS5-20
Total core depth = 3.2’
Ash thickness = 0.0’
Water depth = 18.4’

Core AS5-21
Total core depth = 1.9’
Ash thickness = 0.0’
Water depth = 18.9’

Vibecore Sampling Photos

Above Above Segment 5, Dredge Area 5, ERM 4.1 to 4.2

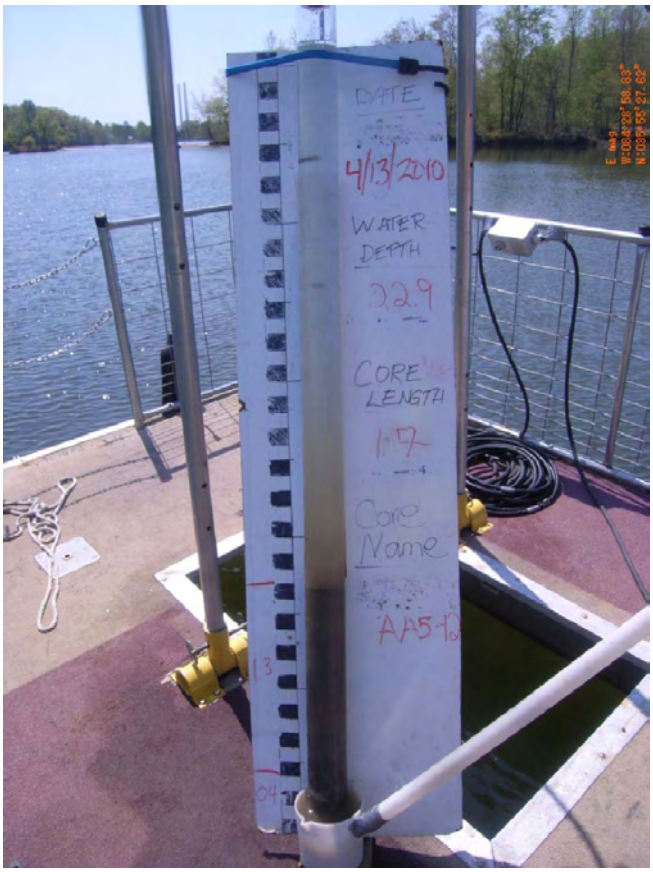


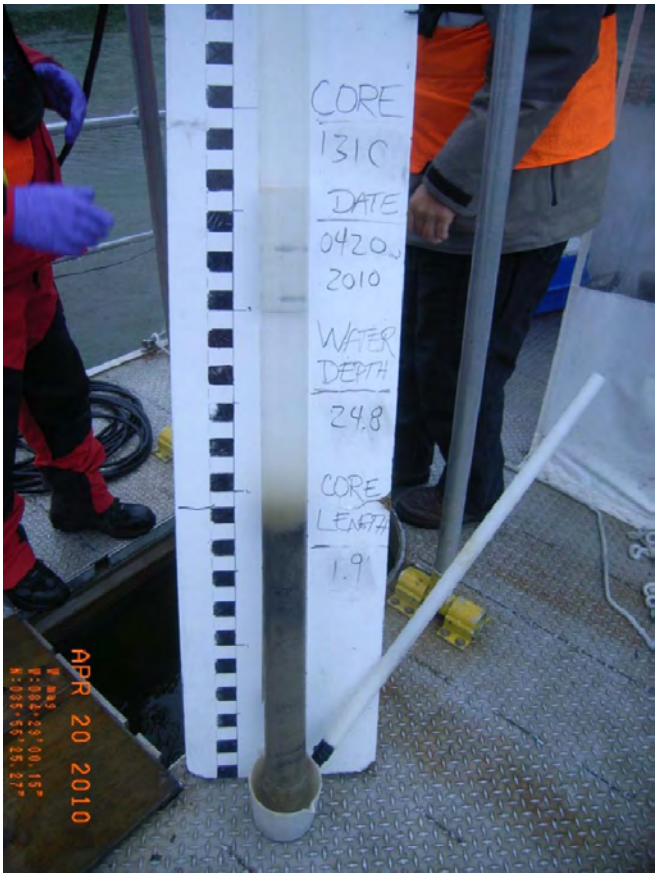
Core AS5-22
Total core depth = 2.5’
Ash thickness = 0.0’
Water depth = 6.0’

Core AS5-21B
Total core depth = 3.4’
Ash thickness = 0.0’
Water depth = 31.7’

Vibecore Sampling Photos

Above Above Segment 5, Dredge Area 5, ERM 4.1 to 4.2





Core AA5-12
Total core depth = 1.7’
Ash thickness = 0.0’
Water depth = 22.9’

Core 131-C
Total core depth = 1.9’
Ash thickness = 0.0’
Water depth = 24.8’

Vibecore Sampling Photos

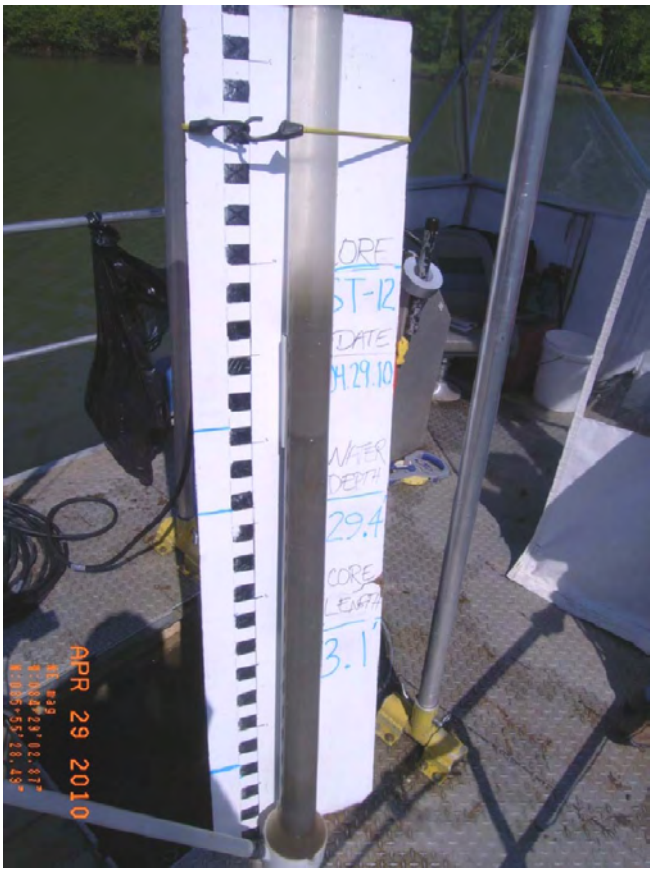
Above Above Segment 5, Dredge Area 5, ERM 4.1 to 4.2

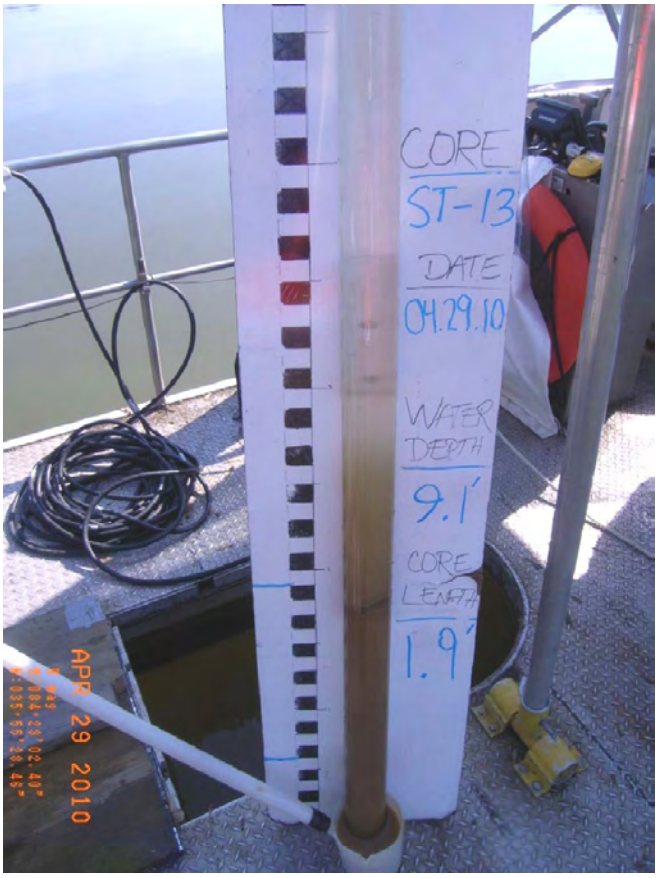
Core 131-B
Total core depth = 1.9’
Ash thickness = 1.2’
Water depth = 31.5’

Core ST-11
Total core depth =4.0’
Ash thickness = 3.3’
Water depth = 32.7’

Vibecore Sampling Photos

Above Above Segment 5, Dredge Area 5, ERM 4.1 to 4.2



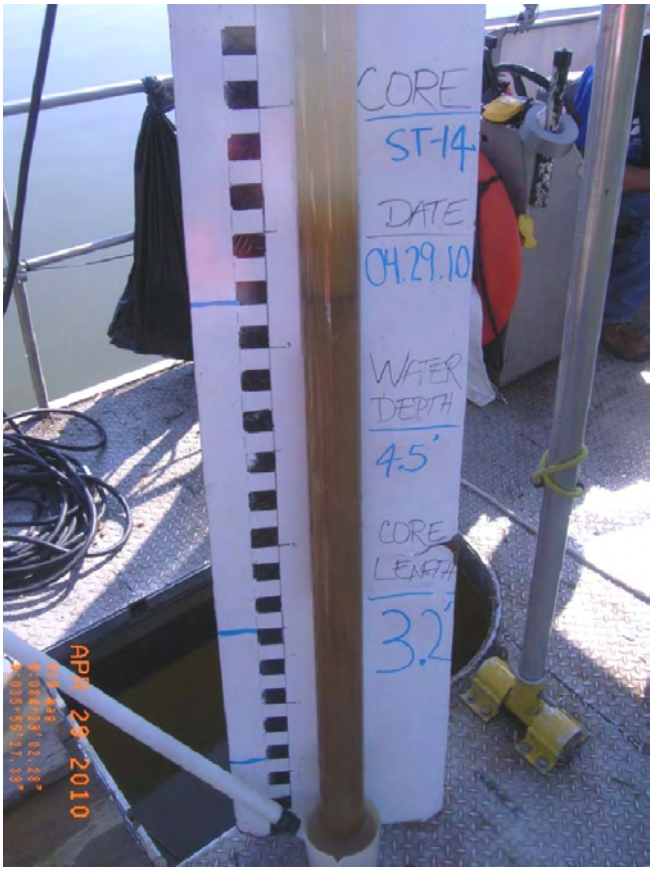


Core St-12
Total core depth = 3.1’
Ash thickness = 1.0’
Water depth = 29.4’

Core ST-13
Total core depth = 1.9’
Ash thickness = 0.0’
Water depth = 9.1’

Vibecore Sampling Photos

Above Above Segment 5, Dredge Area 5, ERM 4.1 to 4.2



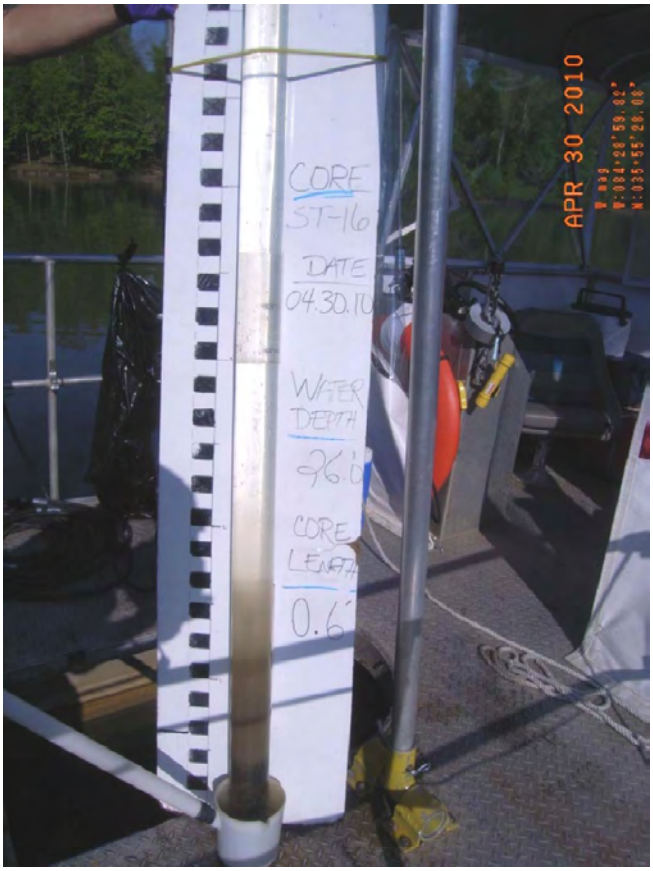
No Photo

Core St-14
Total core depth = 3.2’
Ash thickness = 0.0’
Water depth = 4.5’

Core ST-15
Total core depth = 0.4’
Ash thickness = 0.0’
Water depth = 24.7’

Vibecore Sampling Photos

Above Above Segment 5, Dredge Area 5, ERM 4.1 to 4.2



Core St-16
Total core depth = 0.6’
Ash thickness = 0.0’
Water depth = 26.0’