SECTION 4
2006 PHASE 1 SEDIMENT SAMPLING PROGRAM

4.1 MONITORING ACTIVITIES

Phase 1 sediment sampling activities were conducted as part of a two-phased program (Phase 2 anticipated for 2007) to: 1) evaluate the ability of vibracoring to develop accurate estimates of the depth of PCB-containing sediments (depth of contamination; DoC) and the volume of contaminated sediment in various reaches of the river; and 2) better understand the characteristics of the material that lies below the contaminated sediment layer. The Phase 1 effort was conducted from May 1-10, 2006 and focused on the collection of sediment vibracores from fine and coarse sediment areas in the main channel and side slopes between T8 and T15. The sampling plan was designed to build upon the observations made during the 2005 ROPS monitoring efforts and develop sufficient understanding of the capabilities of coring and the characteristics of the sediment in these areas.

A total of 61 locations were targeted during Phase 1 activities, including 45 locations in the main channel and 16 locations along the side slopes (**Figure 4-1**). Twenty five main channel cores were collected from "fine" (Type II) sediment areas, while the remaining 20 main channel cores were collected from "coarse" (Type I) sediment areas[3]. Coring locations were reached and documented using RTK survey techniques and the sediment was cored using vibracore techniques in accordance with the *2006 Sediment Sampling Program for the Lower Grasse River Work Plan* (Alcoa, April 2006b). At each coring location, water depth and sediment depth probed were recorded. Cores were then advanced through the sediment to refusal, and the sediment depth penetrated and subsequently recovered was measured and recorded.

[3] Based on side scan sonar information collected in 2003, OSI categorized river sediments into two types: "fine" (Type II) sediments; and "coarse" (Type I) sediments. "Fine" sediment areas are defined as having a relatively smooth and flat river bed that is primarily composed of clay, sand, and gravel sediment deposits. "Coarse" sediment areas typically have an irregular sediment bed, which may contain rock outcrops and/or assemblages of boulders/cobbles overlain by a thin veneer of sand and gravel sediment deposits.

There were a number of locations where probing indicated that little or no sediment was present above rock or hard bottom. Core collection was attempted at several of these locations; however, no sediment was recovered. The bottom was probed in a 5 to 20 ft. radius around these targeted core locations in an attempt to find potentially recoverable sediment. Typically, this effort was unsuccessful. Consequently, the sampling protocol was modified to expand the search for sediment to a distance of approximately 25 ft. around target locations lacking recoverable sediment; this revised approach was approved by USEPA on May 10, 2006 (per. com. with Mr. Lawrence McShea [Alcoa]). If no sediment was identified or recovered through vibracoring as a result of this search, the location was abandoned.

Vibracores were collected from 42 of the 61 targeted locations (69% success rate). All probing and core locations are shown on **Figure 4-1**. Each core was split longitudinally, photographed, and observed for physical characterization (i.e., color, texture). Sediments were classified by general soil type (sand, silt, clay and organic matter/other matter) and approximate grain size category (fine, medium, coarse), according to the USCS, and observations were recorded in a field log book. Observations recorded during the sampling effort are summarized in **Table 4-1**. The cores were segmented 0 to 3 in., 3 to 6 in., and every 6 in. thereafter down to approximately 12 in. below the contaminated layer/native sediment interface where possible. If the contaminated/native sediment interface was not readily apparent, 6-in. segmentation continued to the bottom of the core.

Core segments were homogenized, processed, and shipped to laboratories for analysis according to the protocol outlined in the *2006 Sediment Sampling Program for the Lower Grasse River Work Plan* (Alcoa, April 2006b). Samples were submitted to NEA for PCB (Aroclor), TOC, bulk density, percent moisture, and percent solids analyses. Samples for grain size analysis were submitted to CDM Soils Laboratory. QA/QC samples included one blind duplicate and one MS/MSD per 20 samples collected. Blind duplicates were analyzed for PCBs (Aroclor), TOC, and grain size; MS/MSD samples were analyzed for PCBs (Aroclor).

4.2 SUMMARY OF RESULTS

The data obtained from the 2006 Phase 1 sediment sampling activities can be found on the CD-ROM attached to this report (**Appendix A**) in data tables entitled sediment_aro, sediment_char, and sediment_field. Analytical results are summarized in **Table 4-2**. A complete data package consisting of a map of sampling locations, field notes and photographs of the sediment cores post-collection/pre-processing, analytical results for the sediment samples, and vertical distributions of physical and chemical parameters measured in each of the sediment cores is provided as **Appendix E**.

Main Channel/Side Slope Sampling Results

Cores were obtained from 84% (21 of 25) of the targeted main channel fine sediment locations (**Figure 4-1**). On average, 1.8 ft. (22 in.) of the fine sediments contained PCBs, although the true average depth of PCB-containing sediments is probably greater as only 7 (33%) of the cores penetrated into the clean underlying sediments. PCB concentrations at the surface (top 3 in.) of these locations averaged 8.7 ppm (range of non-detect to 62.6 ppm), while depth-weighted PCB levels averaged 88.9 ppm (range of 1.1 to 590 ppm). Depth-weighted TOC, percent solids and bulk density averaged 1.67%, 71.5%, and 1.2 g/cm^3, respectively.

Sediment was recovered at only 25% of the main channel coarse sediment locations (5 of 20) and the average depth of sediment recovered was only 0.7 ft. PCB concentrations at the surface of these locations averaged 15.3 ppm (range of 6.6 to 26.3 ppm), and remained relatively similar with depth (average of 12.4 ppm). Depth-weighted TOC, percent solids and bulk density averaged 3.19%, 59.4% and 0.97 g/cm^3, respectively. Only 1 of the 5 recovered cores penetrated into underlying sediment.

Cores were obtained from all 16 targeted side slope locations. Similar to the main channel fine sediment area cores, the side-slope cores contained, on average, 1.7 ft. (20 in.) of PCB-containing sediment. PCB concentrations at the surface of these locations averaged 10.8 ppm (range of non-detect to 95.5 ppm), while depth-weighted PCB levels averaged 36.6 ppm

(range of 2.9 to 322.1 ppm). Depth-weighted TOC, percent solids and bulk density averaged 1.58%, 65.2% and 1.1 g/cm^3, respectively. Only 6 (38%) side-slope cores penetrated into the underlying sediments.

Physical Characteristics of Underlying Sediments

The physical characteristics of the underlying sediments (i.e., the sediments below the PCB-containing sediments), where recoverable during the 2006 Phase 1 sediment sampling, vary by river area. The underlying sediments collected from the main channel exhibit uniform physical characteristics across cores, and generally contain greater than 90% solids, less than 0.3% TOC, bulk densities in excess of about 1.6 g/cm^3, and significant amounts of gravel and clay (**Figure 4-2**). These physical characteristics are similar to those observed in underlying material collected from the main channel during the ROPS (**Figure 4-3**). Underlying sediments collected from the side slopes, however, exhibit greater variability in physical characteristics, and are less dense, have lower solids contents, and have higher TOC levels than those found in the main channel and those measured in the side slope portions of the ROPS area in 2005.

Estimating Depth and Volume of PCB-Containing Sediments

Several metrics were compared to DoC to help understand their utility in estimating the depths and volume of PCB-containing sediments in the targeted deposits: sediment probing depth; core penetration depth; and sediment recovery depth. For these comparisons, cores that fully penetrated through the PCB-containing sediments were termed “complete” cores, and the PCB concentration profiles (i.e., the depth to which PCB levels dropped and remained below 1 ppm) were used to determine the DoC. Cores that did not fully penetrate through the PCB-containing sediments were termed “incomplete” cores. For the incomplete cores, the DoC was assumed to equal the total length of the recovered core. In total, 11 “complete” cores and 28 “incomplete” cores were used in this analysis. Note three cores (T10-SSN, T11-SSS and T12-SSN) had PCB levels that were below 1 ppm throughout the entire sediment core and, thus, were excluded from the DoC comparisons presented below.

The metrics described above are displayed together for each sampled cross-channel transect in **Figures 4-4a** through **4-4d**. There is some consistency at each transect. Transects 8, 9 and 10.5 have deep sediment deposits that cover most of the main channel. The other transects have much shallower deposits. Cross plots of the various metrics are presented in **Figures 4-5** and **4-6**. These comparisons indicate that the vibracore was generally able to penetrate deeper into the sediment than the probing rod, but that the depth of sediments recovered by coring was comparable to that determined through probing (**Figure 4-5**). In the main channel, an average of 75% (range of 47 to 100%) of penetrated material was recovered by the vibracore. Recoveries were slightly higher on the side slopes (average of 83%, range of 67 to 100%).

Comparisons of the probing depths and DoCs for the 11 locations where complete cores were obtained suggest that probing typically over-estimates the amount of contaminated sediment at a particular location (**Figure 4-6**). Note, however, that the limited number of locations where the actual DoC could be determined limits the conclusions that can be drawn from these comparisons. In the main channel, 88% (7 of 8) of the measured probing depths were equal to or exceeded the DoC at a particular location. For these locations, probing depths exceeded the DoC by about 6 inches (range of 2 to 14 inches). For the three complete cores collected from the side slopes, the measured probing depths equaled or exceeded the DoC by about 16 inches (range of 8 to 93 inches (excluding core T9-SSS results in an average difference of 16 inches and a range of 8 to 24 inches). The middle panels on **Figure 4-6** show the apparent relationship between the difference between probing depth and DoC as a function of probing depth. At probing depths less than about 1 foot, the DoC is generally greater than the probing depth, whereas the opposite is generally the case at probing depths greater than 1 foot. During the ROPS, probing provided reasonable estimates of DoC in shallow sediment deposits (i.e., those with about 4 ft. of sediment or less), but tended to underestimate the depth of contaminated sediments in areas containing greater than about 4 ft. of PCB-containing sediment. During 2006 sampling, however, only two of the 42 locations sampled (T8-SSN and T9-MCM) were identified as having greater than 4 ft. of PCB-containing sediment.

For the 28 incomplete cores, no conclusions can be drawn regarding the relationship between probing depth and vibracore penetration depth or recovery relative to the DoC because

the DoC could not be determined in these cores. The incomplete cores are included on **Figure 4-6** for completeness, however, with the assumption that the DoC was equal to the length of the recovered core.

The comparisons described above indicate that the DoC varies, both in terms of depth and elevation, considerably across any given transect and throughout the sampled fine sediment deposit. In addition, only a limited number of cores fully penetrated through the PCB-containing sediments (and into the clean underlying sediments), indicating that using the core data to estimate the volume of PCB-containing sediment for a given sediment deposit will result in an underestimate of the actual volume. For example, the core DoCs (for "complete" cores) and the depth of the last measured section in the recovered core (for "incomplete" cores) were used to estimate the volume of PCB-containing sediment in the fine sediment deposit between T8 and T11. Based on these data, this deposit contains an average of 1.8 ft. of sediment and about 45,800 cubic yards of PCB-containing sediments (**Table 4-3**). Given the correspondence between DoC and sediment probing depths for sediment thicknesses of less than about 4 ft., based on the limited number of "complete" cores, the sediment probing data provides an alternate means by which to estimate the volume of PCB-containing sediment in this deposit. Using the probing data yields an average sediment depth of 2.8 ft. and about 69,100 cubic yards of PCB-containing sediments for this deposit (**Table 4-3**). Since most of the sediment cores collected from this deposit indicated sediment thicknesses of less than about 4 ft., the sediment probing data are expected to provide a more representative estimate of the volume of PCB-containing sediment in this deposit. Note, however, that data collected during the ROPS indicated that sediment probing tends to underestimate the DoC in deposits that exceed about 4 ft. in depth (Alcoa, May 2006). Comparison of the two estimation methods described above illustrates the limitations that the existing vibracoring data (i.e., inability to penetrate completing through the PCB-containing sediment) have on the estimation of sediment volumes as well as in the estimation of DoC elevations to support of the analysis of dredging alternatives for the lower Grasse River.

Table 4-1
Summary of Phase 1 Vibracore Sediment Sampling

2006 Data Summary Report
Grasse River Study Area, Massena, New York

Transect	Core Location ID[1,2,3]	Probe Depth (ft)	Penetration Depth (ft)	Sediment Recovered (ft)	Sediment Core Recovered and Processed?
T8	SED-T08-SSN	7.3	7.5	5.5	yes
	SED-T08-MCN	2.8	8.0	5.8	yes
	SED-T08-MCM	3.0	5.8	3.1	yes
	SED-T08-MCS	2.1	3.0	2.8	yes
	SED-T08-SSS	0.1	0.1	0.0	no
	SED-T08-SSS-E	2.5	--	--	no
	SED-T08-SSS-N	2.0	--	--	no
	SED-T08-SSS-S	3.5	4.0	3.9	yes
	SED-T08-SSS-W	1.0	--	--	no
T8.5	SED-T08.5-MCM	2.7	2.7	2.1	yes
	SED-T08.5-MCN	4.6	4.7	3.0	yes
	SED-T08.5-MCS	1.5	2.0	1.8	yes
T9	SED-T09-SSN	2.1	2.1	1.5	yes
	SED-T09-MCN	2.7	4.0	3.0	yes
	SED-T09-MCM	4.7	7.0	5.0	yes
	SED-T09-MCS	2.9	3.0	2.7	yes
	SED-T09-SSS	0.2	0.0	0.0	no
	SED-T09-SSS-E	2.2	--	--	no
	SED-T09-SSS-N	3.0	--	--	no
	SED-T09-SSS-S	8.0	9.5	9.3	yes
	SED-T09-SSS-W	2.1	--	--	no
T9.5	SED-T09.5-MCM	2.8	3.0	2.2	yes
	SED-T09.5-MCN	3.0	3.0	1.8	yes
	SED-T09.5-MCS	2.0	2.0	1.0	yes
T10	SED-T10-SSN	4.7	5.0	3.6	yes
	SED-T10-MCN	2.8	3.0	2.5	yes
	SED-T10-MCM	2.2	3.0	1.4	yes
	SED-T10-MCS	1.0	1.0	0.5	yes
	SED-T10-SSS	3.7	3.8	2.7	yes
T10.5	SED-T10.5-MCN	0.8	4.3	3.1	yes
	SED-T10.5-MCM	2.0	3.3	2.6	yes
	SED-T10.5-MCS	2.3	2.3	2.1	yes
	SED-T10.5-MCS-E	2.2	--	--	no
	SED-T10.5-MCS-N	2.3	--	--	no
	SED-T10.5-MCS-S	2.2	--	--	no
	SED-T10.5-MCS-W	2.8	--	--	no
T11	SED-T11-SSN	0.3	0.3	0.0	no
	SED-T11-SSN-E	0.2	--	--	no
	SED-T11-SSN-N	0.0	--	--	no
	SED-T11-SSN-S	0.8	0.6	0.4	yes
	SED-T11-SSN-W	0.3	--	--	no
	SED-T11-MCN	1.0	1.0	0.8	yes
	SED-T11-MCM	0.8	0.8	0.5	yes
	SED-T11-MCS	0.0	0.0	0.0	no

Table 4-1
Summary of Phase 1 Vibracore Sediment Sampling

2006 Data Summary Report
Grasse River Study Area, Massena, New York

Transect	Core Location ID[1,2,3]	Probe Depth (ft)	Penetration Depth (ft)	Sediment Recovered (ft)	Sediment Core Recovered and Processed?
	SED-T11-SSS	1.0	1.0	1.0	yes
T11.5	SED-T11.5-MCN	0.1	0.0	0.0	no
	SED-T11.5-MCM	0.3	0.3	0.3	yes
	SED-T11.5-MCS	0.1	0.2	0.0	no
T12	SED-T12-SSN	2.0	4.0	3.5	yes
	SED-T12-MCN	0.0	0.0	0.0	no
	SED-T12-MCM	0.0	0.0	0.0	no
	SED-T12-MCS	0.0	0.0	0.0	no
	SED-T12-SSS	0.5	1.3	1.1	yes
T12.5	SED-T12.5-MCN	1.0	1.0	0.6	yes
	SED-T12.5-MCM	0.0	0.0	0.0	no
	SED-T12.5-MCS	2.2	2.2	1.3	yes
T13	SED-T13-SSN	0.6	0.6	0.6	yes
	SED-T13-MCN	0.4	0.4	0.0	no
	SED-T13-MCN-E	0.1	--	--	no
	SED-T13-MCN-N	--	--	--	no
	SED-T13-MCN-S	0.5	--	--	no
	SED-T13-MCN-W	0.1	--	--	no
	SED-T13-MCM	1.8	2.0	2.0	yes
	SED-T13-MCS	0.1	0.1	0.0	no
	SED-T13-MCS-E	0.0	--	--	no
	SED-T13-MCS-N	0.3	--	--	no
	SED-T13-MCS-S	0.0	--	--	no
	SED-T13-MCS-W	0.0	--	--	no
	SED-T13-SSS	0.8	1.0	0.7	yes
T13.5	SED-T13.5-MCN	0.4	0.3	0.0	no
	SED-T13.5-MCN-E	0.0	--	--	no
	SED-T13.5-MCN-N	0.0	--	--	no
	SED-T13.5-MCN-S	0.0	--	--	no
	SED-T13.5-MCN-W	0.0	--	--	no
	SED-T13.5-MCM	0.3	0.3	0.0	no
	SED-T13.5-MCM-E	0.0	--	--	no
	SED-T13.5-MCM-N	0.0	--	--	no
	SED-T13.5-MCM-S	0.0	--	--	no
	SED-T13.5-MCM-W	0.0	--	--	no
	SED-T13.5-MCS	0.0	0.0	0.0	no
	SED-T13.5-MCS-E	0.0	--	--	no
	SED-T13.5-MCS-N	0.0	--	--	no
	SED-T13.5-MCS-S	0.0	--	--	no
	SED-T13.5-MCS-W	0.0	--	--	no
T14	SED-T14-SSN	0.2	0.7	0.6	yes
	SED-T14-MCN	0.4	0.2	0.0	no
	SED-T14-MCN-E	0.0	--	--	no
	SED-T14-MCN-N	0.0	--	--	no

Table 4-1
Summary of Phase 1 Vibracore Sediment Sampling

2006 Data Summary Report
Grasse River Study Area, Massena, New York

Transect	Core Location ID[1,2,3]	Probe Depth (ft)	Penetration Depth (ft)	Sediment Recovered (ft)	Sediment Core Recovered and Processed?
	SED-T14-MCN-S	0.0	--	--	no
	SED-T14-MCN-W	0.0	--	--	no
	SED-T14-MCM	0.0	0.0	0.0	no
	SED-T14-MCS	0.0	0.0	0.0	no
	SED-T14-SSS	0.3	1.8	1.3	yes
T14.5	SED-T14.5-MCN	0.0	0.3	0.3	yes
	SED-T14.5-MCM	0.2	0.6	0.0	no
	SED-T14.5-MCM-E	0.0	--	--	no
	SED-T14.5-MCM-N	0.0	--	--	no
	SED-T14.5-MCM-S	0.0	--	--	no
	SED-T14.5-MCM-W	0.0	--	--	no
	SED-T14.5-MCS	0.0	0.0	0.0	no
	SED-T14.5-MCS-E	0.0	--	--	no
	SED-T14.5-MCS-N	0.0	--	--	no
	SED-T14.5-MCS-S	0.0	--	--	no
	SED-T14.5-MCS-W	0.0	--	--	no
T15	SED-T15-SSN	3.8	4.0	3.6	yes
	SED-T15-MCN	0.0	0.0	0.0	no
	SED-T15-MCN-E	0.0	--	--	no
	SED-T15-MCN-N	0.0	--	--	no
	SED-T15-MCN-S	0.0	--	--	no
	SED-T15-MCN-W	0.0	--	--	no
	SED-T15-MCM	0.0	0.0	0.0	no
	SED-T15-MCM	0.0	0.0	0.0	no
	SED-T15-MCM-E	0.0	--	--	no
	SED-T15-MCM-N	0.0	--	--	no
	SED-T15-MCM-S	0.0	--	--	no
	SED-T15-MCM-W	0.0	--	--	no
	SED-T15-MCS	0.1	1.0	0.9	yes
	SED-T15-SSS	2.2	2.8	2.3	yes

Notes:
1. Vibracore locations are shown on Figure 4-1.
2. Probing was conducted prior to vibracore collection, and also around locations where no sediment was recovered during vibracoring in an attempt to locate recoverable sediment. For some locations, coordinates were obtained at the north, east, south, and west points of a 25-ft radius (denoted by -N, -S, -E, or -W at the end of the location ID); at other locations, the extent of the boat (approximately 20 ft by 10 ft) was used to estimate a 20-ft radius, and specific coordinates were not obtained.
3. Three attempts were made at each location to recover sediment; an exception was noted at one core location (SED-T10-MCN), which had four attempts.

Alcoa = Alcoa Inc.
ft = feet
MCN = main channel north
MCM = main channel middle
MCS = main channel south
SED = sediment
SSN = side slope north
SSS = side slope south
T# = transect number (i.e., T10.5 = transect 10.5)
-- = no core was collected at that location

Table 4-2
Summary of Phase 1 Sediment Vibracore Samples
Collected from 5/2-5/11/06 from the Main Channel and Side Slope Areas

2006 Data Summary Report
Grasse River Study Area, Massena, New York

Core ID	Start Depth (in)	End Depth (in)	Total PCB Amount (µg/g)	Total Solids (%)	Total Organic Carbon (%)	Bulk Density (g/cm^3)	Grain Size (%)			
							Gravel	Sand	Silt	Clay
Main Channel										
T8-MCN	0	3	0.22	84.80	0.47	1.40	17.20	77.30	4.10	1.40
	3	6	0.08	84.90	0.56	1.50	0.60	91.50	6.70	1.20
	6	12	0.19	84.90	0.89	1.50	6.60	85.60	7.40	0.40
	12	18	ND	85.20	0.92	1.60	3.90	87.20	6.40	2.50
	18	24	35.89	78.70	0.82	1.50	1.10	86.30	11.20	1.40
	24	30	43.95	81.40	0.63	1.50	3.50	87.60	6.40	2.50
	30	36	ND	92.10	0.14	2.00	9.60	49.10	35.90	5.40
T8-MCM	0	3	8.05	76.20	0.57	1.40	0.00	87.50	11.10	1.40
	3	6	1.61	82.50	0.48	1.60	0.90	89.30	9.40	0.40
	6	12	21.14 (47.43)	85.40 (83.00)	0.25 (0.37)	1.40	9.30 (5.60)	66.20 (81.20)	22.30 (11.90)	2.20 (1.30)
	12	18	28.76	88.50	0.66	1.70	41.00	42.10	13.50	3.40
	18	24	58.14	76.10	0.88	1.30	5.30	79.40	14.70	0.60
	24	30	22.36	83.40	1.90	1.40	5.30	85.70	8.60	0.40
	30	36	110.40	82.00	0.54	1.30	9.10	66.80	20.50	3.60
T8-MCS	0	3	3.47	82.80	0.22	1.40	0.30	96.80	2.50	0.40
	3	6	11.18	83.10	0.14	1.40	0.30	96.80	2.90	0.00
	6	12	5.67	82.10	0.16	1.40	0.30	98.70	0.60	0.40
	12	18	2.47	82.10	0.14	1.40	0.00	99.80	0.00	0.20
	18	24	0.07	92.60	0.12	1.60	4.50	49.30	38.90	7.30
	24	30	ND	92.20	0.22	1.60	8.40	42.80	43.80	5.00
T8.5-MCN	0	3	4.39	79.90	0.29	1.40	0.40	93.80	5.10	0.70
	3	6	1.33	83.90	0.21	1.40	0.00	97.40	1.50	1.10
	6	12	5.65 (4.51)	81.30 (77.80)	0.40 (1.60)	1.40	0.00 (0.00)	94.70 (92.70)	4.40 (6.50)	0.90 (0.80)
	12	18	2.62	82.30	0.24	1.10	0.00	83.20	16.60	0.20
	18	24	100.70	49.10	4.80	0.59	0.00	50.00	50.00	0.00
	24	30	969.00	42.20	5.40	0.58	0.10	38.10	60.90	0.90
T8.5-MCM	0	3	40.10	80.00	0.31	1.30	5.10	80.30	14.00	0.60
	3	6	21.13	51.70	2.40	0.80	4.90	83.70	9.90	1.50
	6	12	7.13	73.00	0.51	1.20	0.00	83.30	15.10	1.60
	12	18	23.11	61.00	2.00	1.00	0.30	99.10	0.20	0.40
	18	24	1.97	81.30	0.18	1.40	0.00	98.90	0.50	0.60
	24	27	1423.00	52.90	2.60	0.81	0.00	75.60	23.60	0.80
T8.5-MCS	0	3	3.49	64.70	2.00	0.92	16.80	70.80	12.00	0.40
	3	6	4.03	61.20	4.10	1.10	0.00	70.90	28.60	0.50
	6	12	4.58	83.10	0.17	1.40	0.90	88.10	10.50	0.50
	12	18	0.62	91.20	0.16	2.00	38.20	38.40	19.70	3.70
T9-MCN	0	3	4.98	66.90	3.40	0.96	0.80	86.10	12.60	0.50
	3	6	46.21	60.70	2.40	0.87	0.10	83.00	16.40	0.50
	6	12	93.07 (43.77)	69.00 (75.00)	3.20 (0.31)	1.20	0.00 (0.00)	72.20 (79.60)	26.80 (19.40)	1.00 (1.00)
	12	18	80.68	46.10	5.60	0.56	0.00	39.90	57.30	2.80
	18	24	2773.00	32.60	8.70	0.40	---	---	---	---
	24	30	1.86	90.00	0.26	2.00	17.10	32.90	38.80	11.20
	30	35	0.07	90.90	0.10	1.70	10.40	34.80	49.60	5.20

(continued)

Table 4-2
Summary of Phase 1 Sediment Vibracore Samples
Collected from 5/2-5/11/06 from the Main Channel and Side Slope Areas

2006 Data Summary Report
Grasse River Study Area, Massena, New York

Core ID	Start Depth (in)	End Depth (in)	Total PCB Amount (µg/g)	Total Solids (%)	Total Organic Carbon (%)	Bulk Density (g/cm^3)	Grain Size (%)			
							Gravel	Sand	Silt	Clay
T9-MCM	0	3	62.60	33.20	6.90	0.41	0.00	60.80	33.90	5.30
	3	6	34.50	40.20	5.00	0.51	0.00	71.90	23.20	4.90
	6	12	6.34	54.90	2.60	0.71	0.30	80.10	18.20	1.40
	12	18	6.99	80.80	0.49	1.40	0.10	95.50	3.00	1.40
	18	24	13.78	81.30	0.19	1.30	0.20	87.50	10.80	1.50
	24	30	384.40	56.70	2.00	0.84	0.20	77.80	20.00	2.00
	30	36	78.06	39.10	7.10	0.56	2.50	71.10	24.30	2.10
	36	42	3106.00	33.70	9.30	0.40	0.00	33.90	63.00	3.10
	42	48	581.40	40.70	6.50	0.48	0.00	34.70	62.60	2.70
	48	54	26.08	88.50	0.14	1.80	16.60	50.30	31.60	1.50
	54	60	0.06	93.50	0.17	1.90	8.80	59.40	29.20	2.60
T9-MCS	0	3	4.04	56.80	2.20	0.79	0.00	80.40	18.00	1.60
	3	6	0.80	65.90	1.10	1.10	20.20	67.90	10.90	1.00
	6	12	0.61	70.60	1.40	1.10	0.00	86.50	11.80	1.70
	12	18	12.25	84.10	0.22	1.30	2.30	95.60	1.00	1.10
	18	24	5.20	80.30	0.18	1.30	8.20	79.50	11.70	0.60
	24	27	12.87	50.20	4.00	0.66	40.20	37.10	22.30	0.40
T9.5-MCN	0	3	4.44	67.70	0.43	1.10	0.00	78.80	21.00	0.20
	3	6	2.30	69.20	0.55	0.96	0.70	92.90	5.20	1.20
	6	12	6.18	73.80	0.61	1.30	0.00	85.40	13.60	1.00
	12	18	6.65	60.00	2.90	0.91	0.00	77.40	21.40	1.20
T9.5-MCM	0	3	5.09	66.20	0.53	1.10	0.00	88.30	11.10	0.60
	3	6	3.67	65.10	1.20	1.20	0.00	79.00	19.60	1.40
	6	12	1.17 (1.52)	61.90 (67.60)	1.60 (1.50)	1.00	0.30 (0.20)	87.60 (82.30)	11.30 (17.10)	0.80 (0.40)
	12	18	3.39	77.10	0.52	1.30	0.00	94.30	4.40	1.30
	18	24	14.99	47.10	4.10	0.94	0.00	85.60	13.90	0.50
	24	26	137.70	41.40	6.30	0.55	0.00	60.50	37.90	1.60
T9.5-MCS	0	3	6.05	69.10	0.26	1.30	0.20	97.10	1.40	1.30
	3	6	13.31	79.80	0.21	1.40	1.00	91.30	6.50	1.20
	6	12	2.76	82.00	0.38	1.40	0.00	96.70	2.10	1.20
T10-MCN	0	3	3.86	66.00	1.30	1.20	0.00	89.40	10.10	0.50
	3	6	7.29	69.50	1.10	1.10	0.00	89.50	9.60	0.90
	6	12	5.09	63.60	2.60	0.89	0.00	88.20	10.30	1.50
	12	18	15.88	58.70	2.60	0.90	0.00	80.50	18.60	0.90
	18	24	46.40	57.80	8.90	0.83	0.00	53.70	45.40	0.90
	24	30	822.00	39.90	6.30	0.41	0.00	19.30	78.20	2.50
T10-MCM	0	3	9.33	70.30	2.20	1.30	N/A	N/A	N/A	N/A
	3	6	5.38	76.30	0.34	1.20	0.00	95.20	3.10	1.70
	6	12	3.97	62.80	0.89	0.94	0.50	87.70	9.90	1.90
	12	16	0.85	82.10	0.17	1.40	0.00	97.30	1.60	1.10
T10-MCS	0	3	0.86	73.00	1.30	1.20	6.00	81.10	11.50	1.40
	3	6	1.35	79.80	1.20	1.40	0.00	97.70	1.90	0.40
T10.5-MCN	0	3	25.21	34.20	6.40	0.42	N/A	N/A	N/A	N/A
	3	6	4.35	75.00	0.60	1.20	0.20	91.40	8.00	0.40
	6	12	7.25	80.00	3.70	1.40	4.00	90.70	4.40	0.90
	12	18	0.06	91.80	0.21	1.60	12.70	39.60	42.50	5.20
	18	24	ND	92.20	0.20	1.60	7.20	39.00	46.90	6.90
T10.5-MCM	0	3	2.45	75.10	0.94	1.30	0.10	88.90	10.50	0.50
	3	6	1.32	79.80	0.26	1.40	0.00	96.60	2.50	0.90
	6	12	1.59	80.10	0.19	1.40	0.00	99.20	% fines = 0.80	
	12	18	7.47	79.40	1.10	1.40	3.80	92.90	2.90	0.40
	18	24	ND	94.50	0.13	1.90	16.90	52.20	28.60	2.30
	24	30	ND	91.80	0.13	1.80	16.70	45.90	32.80	4.60

(continued)

Table 4-2
Summary of Phase 1 Sediment Vibracore Samples
Collected from 5/2-5/11/06 from the Main Channel and Side Slope Areas

2006 Data Summary Report
Grasse River Study Area, Massena, New York

Core ID	Start Depth (in)	End Depth (in)	Total PCB Amount (µg/g)	Total Solids (%)	Total Organic Carbon (%)	Bulk Density (g/cm^3)	Grain Size (%)			
							Gravel	Sand	Silt	Clay
T10.5-MCS	0	3	8.72	58.70	1.90	0.89	40.60	32.00	24.80	2.60
	3	6	0.59	75.50	0.60	1.30	38.30	35.10	24.10	2.50
	6	12	0.98	58.50	2.60	0.93	48.40	29.90	19.30	2.40
	12	18	2.56	62.00	2.20	0.98	0.00	76.00	23.90	0.10
	18	24	211.70	46.60	5.40	0.65	0.00	57.80	42.20	0.00
	24	26	476.80	41.00	5.20	0.50	0.00	40.90	56.90	2.20
T11-MCN	0	3	1.21	79.10	0.16	1.40	0.00	96.90	3.10	0.00
	3	6	1.89	79.60	0.35	1.40	0.30	99.40	0.00	0.30
	6	12	3.84	79.20	0.27	1.40	0.00	99.10	0.00	0.90
T11-MCM	0	3	13.95	16.90	12.00	0.26	N/A	N/A	N/A	N/A
	3	6	13.16	19.20	12.00	0.27	N/A	N/A	N/A	N/A
T11.5-MCM	0	3	26.34	64.50	0.81	0.99	2.40	89.50	5.80	2.30
T12.5-MCN	0	3	4.31	73.40	1.20	1.40	0.00	95.10	2.60	2.30
	3	6	3.20	78.90	0.19	1.30	0.00	98.90	0.00	1.10
T12.5-MCS	0	3	20.18	67.70	1.40	1.10	0.00	88.90	10.10	1.00
	3	6	2.01	74.40	3.50	1.30	0.00	89.90	8.40	1.70
	6	12	9.48	71.70	0.40	1.20	0.00	92.50	6.10	1.40
	12	16	7.54	74.40	0.60	1.10	0.00	84.80	13.40	1.80
T13-MCM	0	3	2.09	66.70	0.64	1.10	0.10	80.90	18.60	0.40
	3	6	32.27	65.40	1.80	0.95	0.00	74.10	24.90	1.00
	6	12	40.40	66.70	1.10	1.10	0.00	83.30	16.10	0.60
	12	18	13.72	80.40	1.30	1.30	66.60	29.10	% fines = 4.30	
	18	24	17.82	66.90	1.20	0.98	0.00	66.20	32.90	0.90
T14.5-MCN	0	3	6.59	74.40	0.82	1.30	30.80	50.70	15.80	2.70
T15-MCS	0	3	6.14	78.90	1.10	1.40	0.00	79.10	18.40	2.50
	3	6	0.80	91.50	0.23	2.00	0.00	85.70	13.50	0.80
	6	12	1.05	87.70	0.49	1.90	0.00	75.30	22.20	2.50
T11-MCS	No material recovered[3]									
T11.5-MCN										
T11.5-MCS										
T12-MCN										
T12-MCM										
T12-MCS										
T12.5-MCM										
T13-MCN										
T13-MCS										
T13.5-MCN										
T13.5-MCM										
T13.5-MCS										
T14-MCN										
T14-MCM										
T14-MCS										
T14.5-MCM										
T14.5-MCS										
T15-MCN										
T15-MCM										

(continued)

Table 4-2
Summary of Phase 1 Sediment Vibracore Samples
Collected from 5/2-5/11/06 from the Main Channel and Side Slope Areas

2006 Data Summary Report
Grasse River Study Area, Massena, New York

Core ID	Start Depth (in)	End Depth (in)	Total PCB Amount (µg/g)	Total Solids (%)	Total Organic Carbon (%)	Bulk Density (g/cm^3)	Grain Size (%)			
							Gravel	Sand	Silt	Clay
Side Slope										
T8-SSN	0	3	ND	83.70	0.41	1.50	4.60	90.60	3.10	1.70
	3	6	ND	85.20	0.34	1.50	0.00	95.30	4.30	0.40
	6	12	0.06 (0.12)	85.70 (86.10)	0.73 (0.95)	1.40	0.70 (0.20)	92.10 (92.60)	6.80 (6.80)	0.40 (0.40)
	12	18	5.04	64.60	1.50	1.50	0.00	61.30	28.00	10.70
	18	24	0.41	68.40	0.46	1.10	0.40	48.40	27.00	24.20
	24	30	1.30	70.50	0.53	1.40	5.60	48.30	28.60	17.50
	30	36	12.61	63.10	2.60	1.10	0.80	61.50	26.40	11.30
	36	42	20.54	57.50	3.40	0.72	0.00	66.30	30.90	2.80
	42	48	220.50	52.20	3.50	0.73	0.00	57.70	41.70	0.60
	48	54	197.50	48.60	4.00	0.68	0.00	40.70	57.00	2.30
	54	60	2139.00	40.10	7.20	0.51	0.00	30.20	66.50	3.30
	60	66	764.80	49.00	5.20	0.64	0.30	43.50	52.30	3.90
	66	68	865.70	47.20	5.30	0.61	0.30	36.10	58.70	4.90
T8-SSS	0	3	7.11	53.40	2.90	0.72	0.00	74.80	22.50	2.70
	3	6	7.09	52.40	2.50	0.70	0.00	72.30	25.70	2.00
	6	12	16.28 (24.12)	59.90 (60.10)	2.60 (2.90)	0.85	0.00 (0.20)	63.70 (14.40)	33.40 (28.20)	2.90 (57.20)
	12	18	1.03	70.50	1.20	1.20	39.10	40.50	17.80	2.60
	18	24	0.20	52.90	1.20	0.70	2.50	25.80	18.10	53.60
	24	30	0.91	51.40	3.70	0.69	0.00	46.30	49.50	4.20
	30	32	ND	47.50	5.60	0.62	0.00	20.10	78.40	1.50
	32	38	ND	52.50	1.40	0.71	0.00	20.70	38.60	40.70
	38	44	ND	87.70	0.23	2.00	6.70	40.00	37.20	16.10
T9-SSN	0	3	9.54	50.30	2.90	0.64	0.10	57.70	41.90	0.30
	3	6	7.22	56.10	2.40	0.80	0.20	64.60	33.40	1.80
	6	12	16.29 (28.34)	64.30 (61.20)	2.20 (1.90)	0.94	0.00 (0.00)	73.20 (74.60)	25.00 (24.30)	1.80 (1.10)
	12	18	30.21	60.30	2.70	0.98	0.00	72.10	27.20	0.70
T9-SSS	0	3	28.32	64.80	0.43	1.00	4.50	29.60	18.90	47.00
	3	9	0.43 (0.38)	64.90 (63.50)	0.66 (0.34)	0.97	0.00 (1.30)	10.30 (80.90)	57.10 (11.30)	32.60 (6.50)
	9	15	ND	63.40	0.42	0.93	0.00	3.30	60.20	36.50
T10-SSN	0	3	0.40	64.80	0.44	1.00	0.00	13.50	60.80	25.70
	3	6	0.22	63.00	0.27	0.97	0.00	6.20	69.50	24.30
	6	12	ND	66.10	0.28	1.10	23.80	22.00	34.40	19.80
	12	18	ND	68.70	0.43	1.20	4.60	38.30	28.70	28.40
T10-SSS	0	3	0.12	72.20	0.47	1.20	14.70	61.80	17.80	5.70
	3	6	0.08	74.40	0.64	1.30	21.90	61.10	10.80	6.20
	6	12	ND (ND)	73.20 (72.00)	0.63 (0.44)	1.20	15.40 (11.40)	58.30 (65.80)	21.30 (14.40)	5.00 (8.40)
	12	18	0.12	74.80	0.44	1.40	2.20	70.50	21.70	5.60
	18	24	0.59	76.50	0.68	1.40	3.90	67.10	13.10	15.90
	24	30	3.33	74.20	1.10	1.20	1.10	59.00	34.90	5.00
	30	34	65.15	66.70	2.50	0.95	25.50	45.80	25.50	3.20
T11-SSN	0	3	3.97	52.70	2.80	0.83	0.00	72.40	24.60	3.00
	3	6	2.85	49.50	2.60	0.78	0.00	62.60	34.40	3.00
T11-SSS	0	3	0.17	77.30	0.42	1.30	43.10	37.40	6.60	12.90
	3	6	0.12	75.50	0.49	1.30	2.50	73.80	18.50	5.20
	6	12	0.50	70.10	1.40	1.00	3.30	68.50	22.70	5.50

(continued)

Table 4-2
Summary of Phase 1 Sediment Vibracore Samples
Collected from 5/2-5/11/06 from the Main Channel and Side Slope Areas

2006 Data Summary Report
Grasse River Study Area, Massena, New York

Core ID	Start Depth (in)	End Depth (in)	Total PCB Amount (µg/g)	Total Solids (%)	Total Organic Carbon (%)	Bulk Density (g/cm^3)	Grain Size (%)			
							Gravel	Sand	Silt	Clay
T12-SSN	0	3	ND	59.40	0.56	0.90	0.40	37.40	39.70	22.50
	3	6	ND	56.60	0.31	0.88	0.50	14.80	71.40	13.30
	6	12	0.10 (ND)	60.20 (60.40)	0.39 (0.35)	0.95	0.00 (0.00)	2.90 (24.90)	% fines = 97.10 (75.10)	
	12	18	ND	63.70	0.33	0.91	0.40	16.20	58.40	25.00
	18	24	ND	63.60	0.29	0.98	0.00	5.60	78.50	15.90
	24	30	ND	71.90	0.37	1.30	8.00	40.70	32.40	18.90
	30	36	ND	79.60	0.33	1.40	19.60	41.60	28.10	10.70
	36	42	ND	76.20	0.19	1.30	12.50	39.40	33.60	14.50
T12-SSS	0	3	0.98	73.30	1.00	1.00	1.70	74.70	23.60	0.00
	3	6	1.36	69.70	1.10	1.10	0.20	81.80	16.00	2.00
	6	12	6.16	60.50	2.10	0.90	1.80	77.90	17.90	2.40
	12	15	3.98	82.50	0.51	1.60	45.70	45.40	% fines = 8.90	
T13-SSN	0	3	4.63	49.70	2.30	0.72	0.80	80.30	17.30	1.60
	3	6	3.45	67.50	1.90	1.10	0.00	77.70	20.70	1.60
T13-SSS	0	3	95.50	41.00	4.50	0.45	32.20	46.80	18.30	2.70
	3	6	12.51	93.90	0.51	1.40	---	---	---	---
	6	12	9.17	87.40	0.23	1.70	---	---	---	---
T14-SSN	0	3	1.57	67.60	0.64	1.10	1.70	31.50	43.60	23.20
	3	7	3.88	79.00	0.36	1.60	53.10	26.80	12.10	8.00
T14-SSS	0	3	16.27	68.30	1.00	1.20	2.40	66.70	24.70	6.20
	3	6	5.70	78.70	0.44	1.50	3.20	79.60	11.50	5.70
	6	10	4.78	85.50	0.50	1.70	56.80	37.60	4.10	1.50
	10	16	4.38	91.00	0.23	1.90	19.40	36.70	32.40	11.50
T15-SSN	0	3	1.20	56.60	0.59	0.86	35.00	27.30	21.00	16.70
	3	6	0.75	59.40	0.42	0.87	0.00	13.50	47.30	39.20
	6	12	ND	58.80	0.36	0.88	0.40	17.40	61.70	20.50
	12	18	ND	57.60	0.39	0.86	0.00	2.60	58.30	39.10
	18	24	ND	59.30	0.43	0.88	0.00	10.00	69.20	20.80
	24	30	ND	62.30	0.43	0.95	0.00	7.70	73.20	19.10
	30	36	1.38	63.60	0.42	0.98	0.00	7.30	66.80	25.90
	36	42	19.07	62.50	0.56	0.92	0.00	12.70	49.00	38.30
	42	44	42.85	58.50	0.66	0.90	0.20	11.00	70.20	18.60
T15-SSS	0	3	2.54	30.50	5.40	0.39	N/A	N/A	N/A	N/A
	3	6	2.40	63.10	1.90	0.92	0.10	82.10	16.30	1.50
	6	12	9.59 (13.10)	64.90 (66.50)	1.70 (1.60)	1.00	0.70 (1.40)	80.00 (77.90)	17.40 (18.40)	1.90 (2.30)
	12	18	74.56	48.60	3.30	0.60	0.30	34.50	62.60	2.60
	18	24	0.35	85.80	0.20	1.80	12.30	35.60	33.70	18.40
	24	30	ND	90.70	0.19	1.20	4.40	38.80	36.20	20.60

Notes:
1. Samples with PCB concentrations below the detection limit are shown as 'ND'.
2. Duplicate values are shown in parenthesis.
3. Several attempts were made at each location to recover sediment per the SOP in the 2006 Sediment Sampling Program for the Lower Grasse River Work Plan (Alcoa, 2006)
4. 'N/A' = Not Available: Grain size testing could not be performed due to excess organic material or loss of sample; '---' = Sample lost during lab processing.
5. '% fines' indicates the total of 'Silt' and 'Clay' where 'Clay' was not reported separately by laboratory.

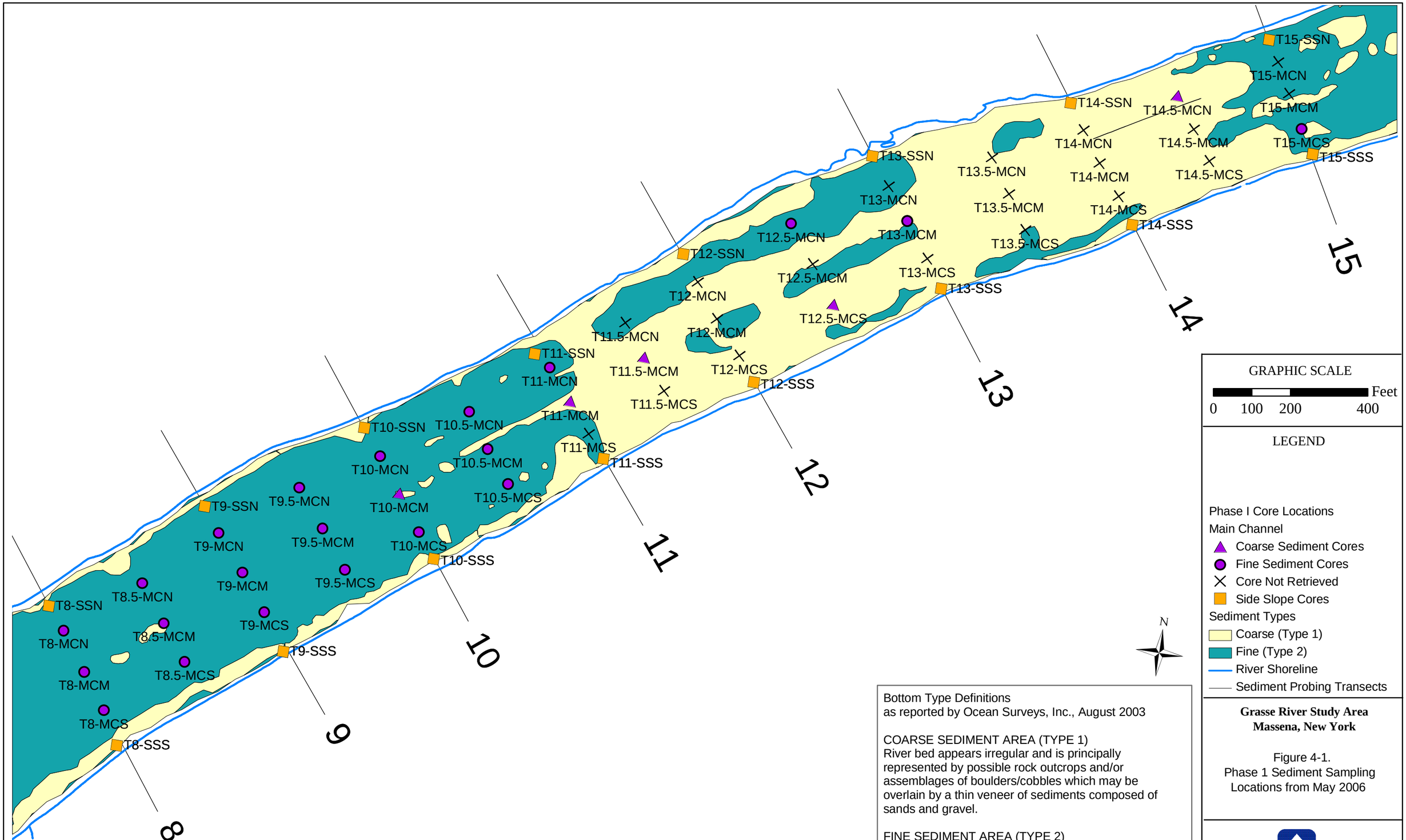
Table 4-3
Average Sediment Depth and Volume Estimates of PCB Containing Sediments in the 2006 Phase 1 Fine Sediment Area

2006 Data Summary Report
Grasse River Study Area, Massena, New York

Estimation Method	Average Sediment Depth (ft)	Estimated Volume of PCB-Containing Sediment (cy)
DoCs	1.8	45,800
Sediment Probing Depth	2.8	69,100

Notes:
1. DoC based on 1ppm limit for Phase 1 vibracores collected from T8-T11.
2. DoC estimated as the depth of the last measured section for incomplete cores.
3. Probing depths measured at time of core collection.

ft = feet
cy = cubic yards
DoC = depth of contaminated sediment



Bottom Type Definitions
as reported by Ocean Surveys, Inc., August 2003

COARSE SEDIMENT AREA (TYPE 1)
River bed appears irregular and is principally represented by possible rock outcrops and/or assemblages of boulders/cobbles which may be overlain by a thin veneer of sediments composed of sands and gravel.

FINE SEDIMENT AREA (TYPE 2)
River bed appears flat/smooth and is principally composed of sediment deposits of clay, sand and gravel.

Grasse River Study Area
Massena, New York

Figure 4-1.
Phase 1 Sediment Sampling Locations from May 2006

ALCOA

March 2007

AC:\\D_drive\ALCgra\Analysis\Sediment\2006_PhaseI_PhaseII\GIS\2006_Vibracores_060526.mxd

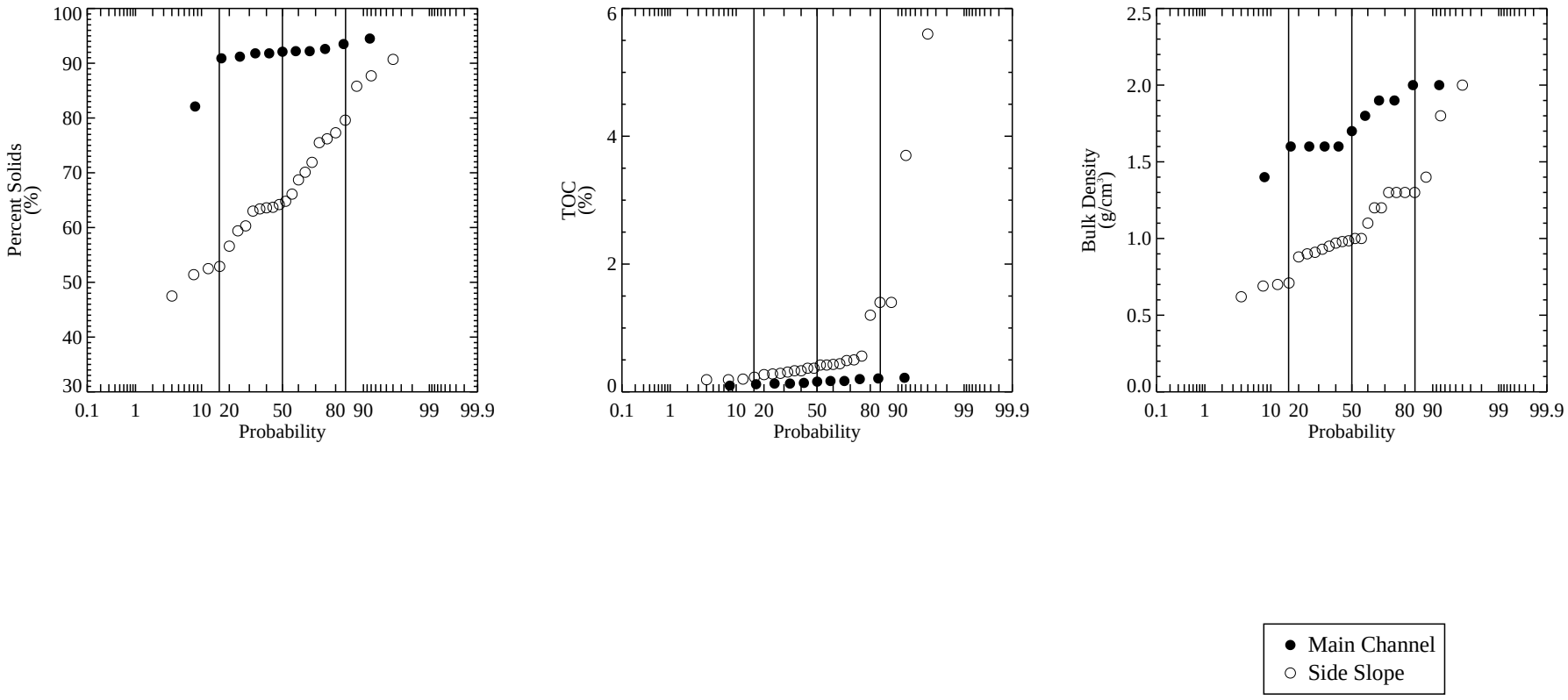


Figure 4-2. Physical Characteristics of Underlying Sediments from the Main Channel and Side Slopes (T8-T15)
Data collected during the 2006 Phase 1 sediment sampling program.
Duplicates are averaged.

Data table: sediment_aro

ARC - D:\ALCgra\Analysis\Sediment\2006_PhaseI_PhaseII\IDL\PhaseI_vs_ROPS_historic\PhaseI_ROPS_historic_pSol_TOC_Bdens.pro
Thu Mar 15 15:00:59 2007

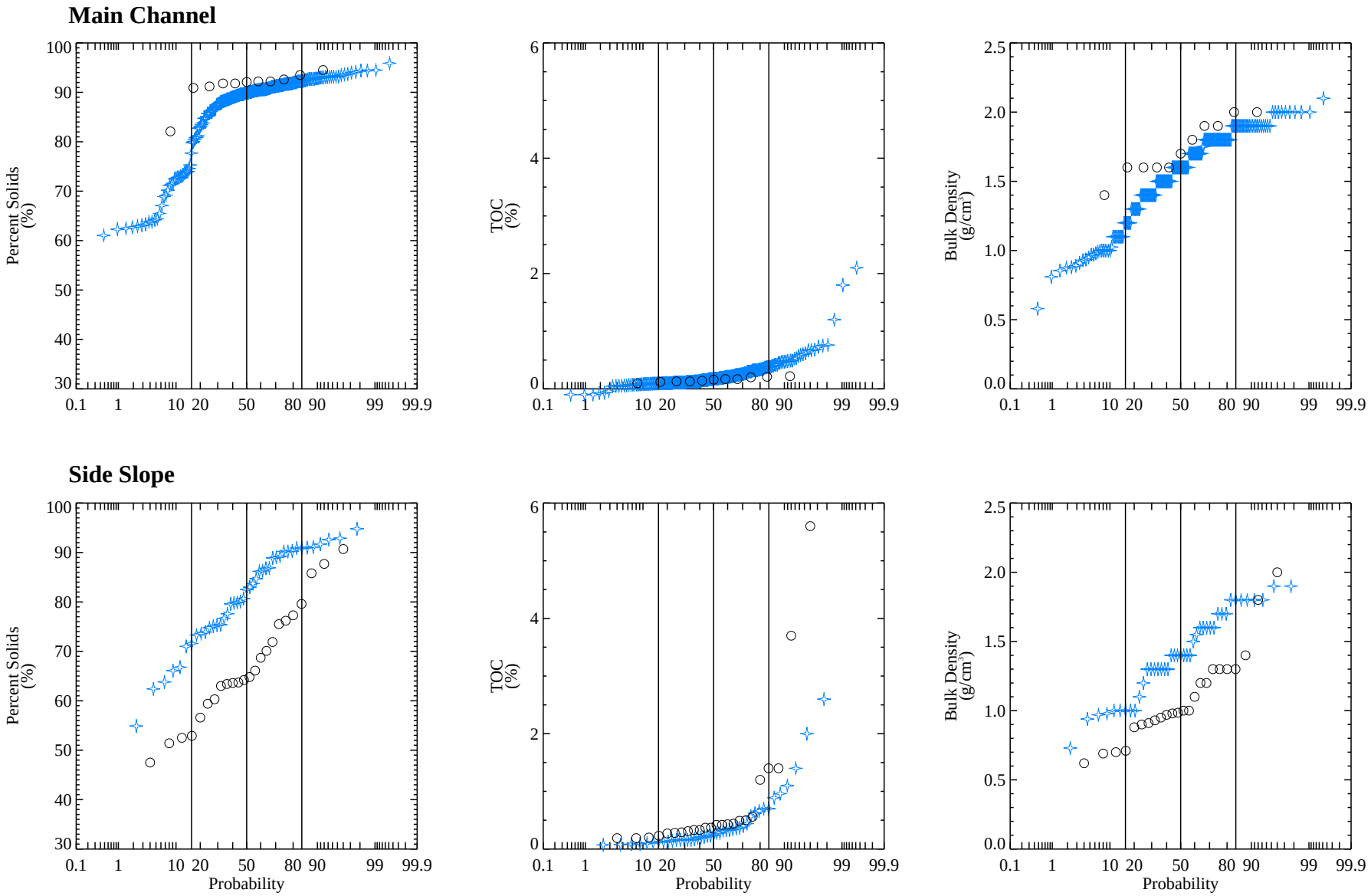


Figure 4-3. Physical Characteristics of Underlying Sediments Collected During ROPS and Phase 1 Activities
2005 ROPS samples collected from T6.5-T8.5; 2006 Phase 1 samples collected from T8-T15. Duplicates are averaged.

Data table: sediment_aro, sed_aro_ROPS

ARC - D:\ALCgra\Analysis\Sediment\2006_PhaseI_PhaseII\IDL\PhaseI_vs_ROPS_historic\PhaseI_ROPS_historic_pSol_TOC_Bdens.pro
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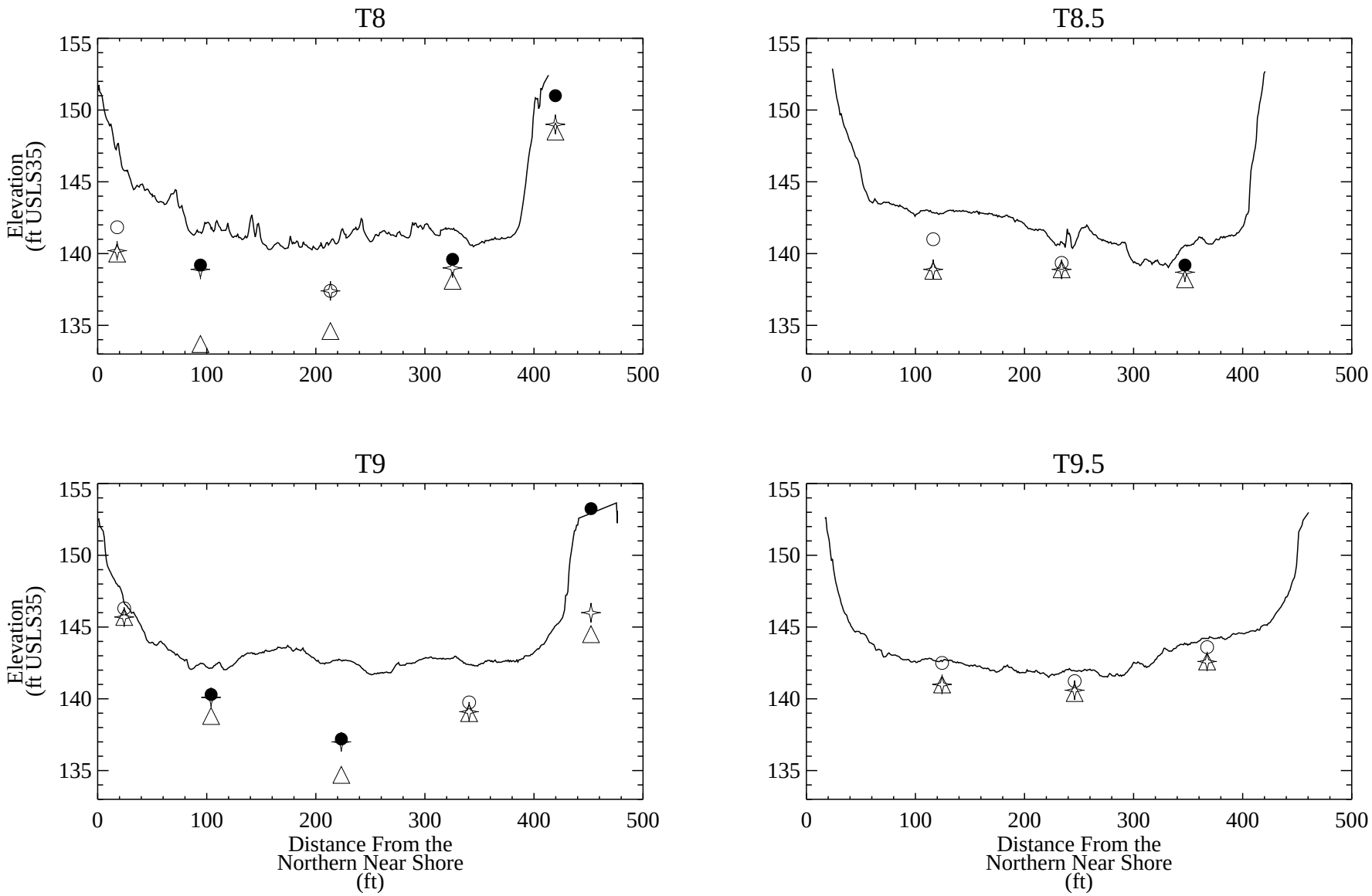

Figure 4-4a. Transects T8 to T9.5: Cross-Sections of River Bottom Elevation and Sediment Metrics Measured During the 2006 Phase I Vibracore Program

DoC based on a 1 ppm limit for vibracores. Probe and penetration depths measured at time of core collection.
Cross sections sampled every foot. Elevations based on the latest OSI multi-beam bathymetric data; T8: 11/18/05, T9-T15: 2003.

Data tables: sediment_aro, sediment_field.

ARC - D:\ALCgra\Analysis\Sediment\Xsections\2003MB\bathy_overplot_2003_T8_T15.pro
Tue Jun 26 09:51:33 2007

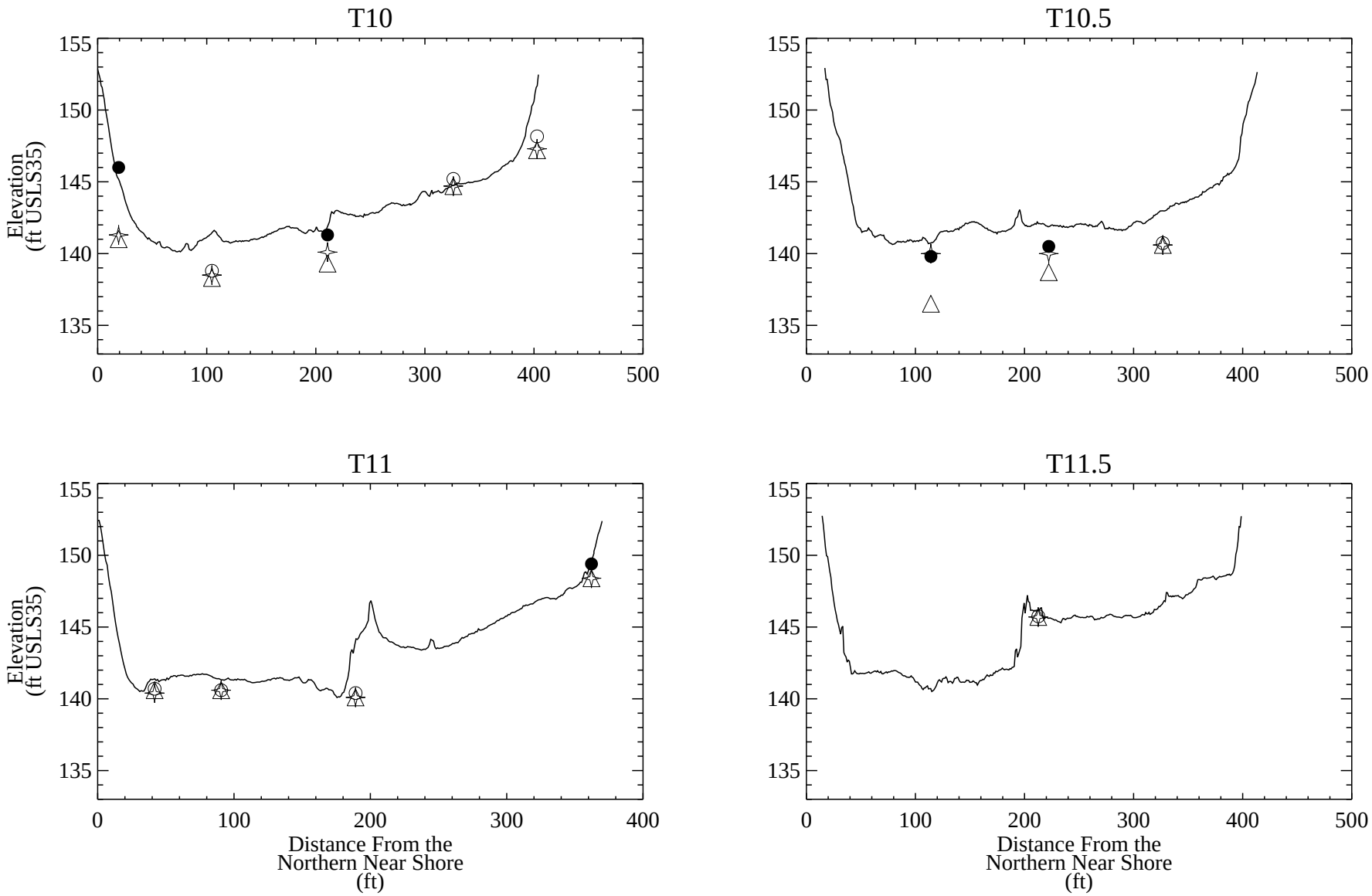

Figure 4-4b. Transects T10 to T11.5: Cross-Sections of River Bottom Elevation and Sediment Metrics Measured During the 2006 Phase I Vibracore Program

DoC based on a 1 ppm limit for vibracores. Probe and penetration depths measured at time of core collection.
Cross sections sampled every foot. Elevations based on the latest OSI multi-beam bathymetric data; T8: 11/18/05, T9-T15: 2003.

Data tables: sediment_aro, sediment_field.

ARC - D:\ALCgra\Analysis\Sediment\Xsections\2003MB\bathy_overplot_2003_T8_T15.pro
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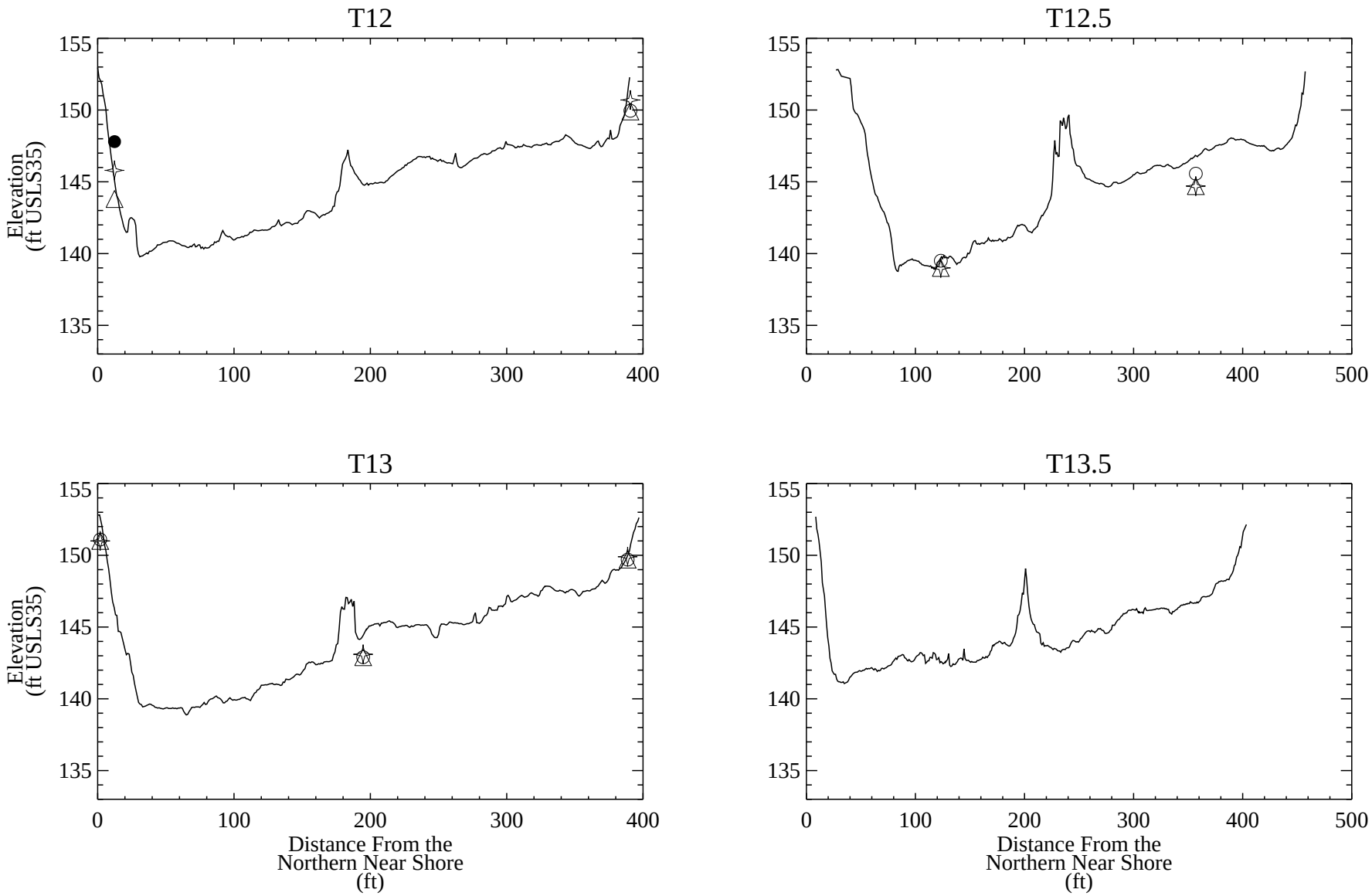

Figure 4-4c. Transects T12 to T13.5: Cross-Sections of River Bottom Elevation and Sediment Metrics Measured During the 2006 Phase I Vibracore Program

DoC based on a 1 ppm limit for vibracores. Probe and penetration depths measured at time of core collection.
Cross sections sampled every foot. Elevations based on the latest OSI multi-beam bathymetric data; T8: 11/18/05, T9-T15: 2003.

Data tables: sediment_aro, sediment_field.

ARC - D:\ALCgra\Analysis\Sediment\Xsections\2003MB\bathy_overplot_2003_T8_T15.pro
Tue Jun 26 09:51:33 2007

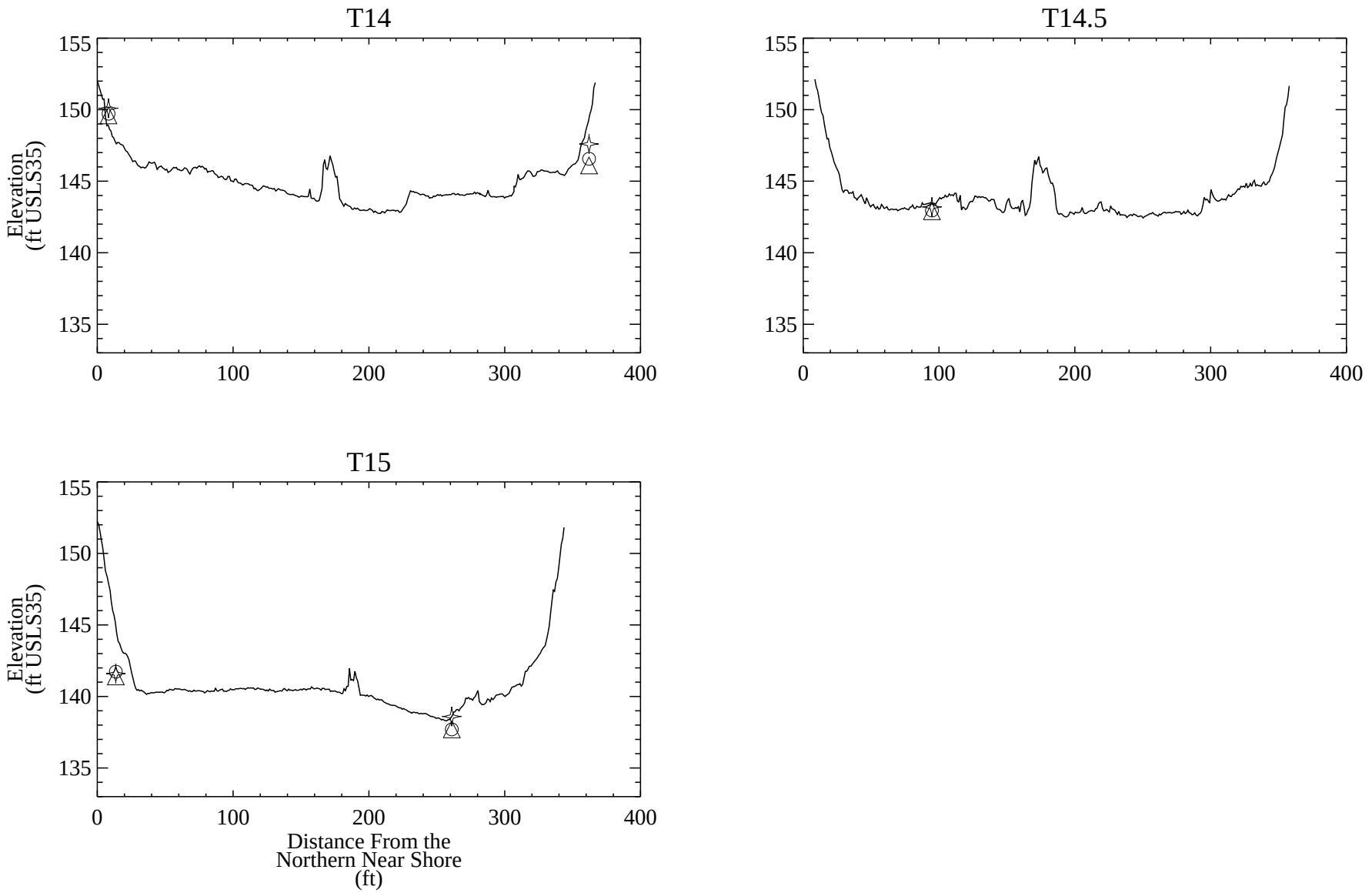

Figure 4-4d. Transects T14 to T15: Cross-Sections of River Bottom Elevation and Sediment Metrics Measured During the 2006 Phase I Vibracore Program

DoC based on a 1 ppm limit for vibracores. Probe and penetration depths measured at time of core collection.
Cross sections sampled every foot. Elevations based on the latest OSI multi-beam bathymetric data; T8: 11/18/05, T9-T15: 2003.

Data tables: sediment_aro, sediment_field.

ARC - D:\ALCgra\Analysis\Sediment\Xsections\2003MB\bathy_overplot_2003_T8_T15.pro
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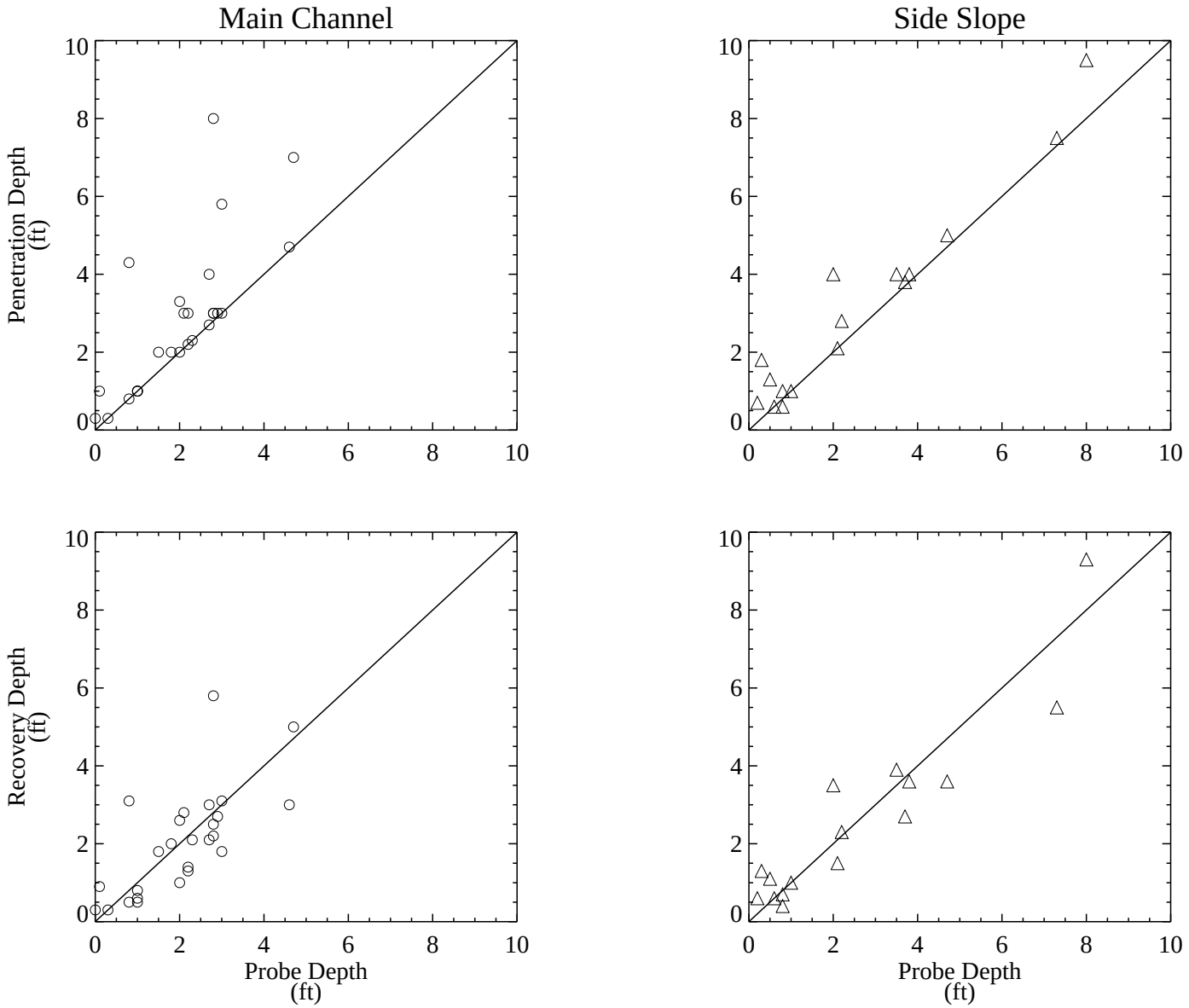

Figure 4-5. 2006 Phase 1 Probing, Penetration, and Recovery Depths in the Main Channel and Side Slope (T8-T15)
Depths measured at time of 2006 Phase 1 vibracore sampling.

Data table: sediment_aro, sediment_field

SJR - D:\ALCgra\Analysis\Sediment\2006_PhaseI_PhaseII\IDL\DoC\DoC_PCBprobe_1to1_probplots_MC_SS.pro
Tue Jun 26 11:51:00 2007

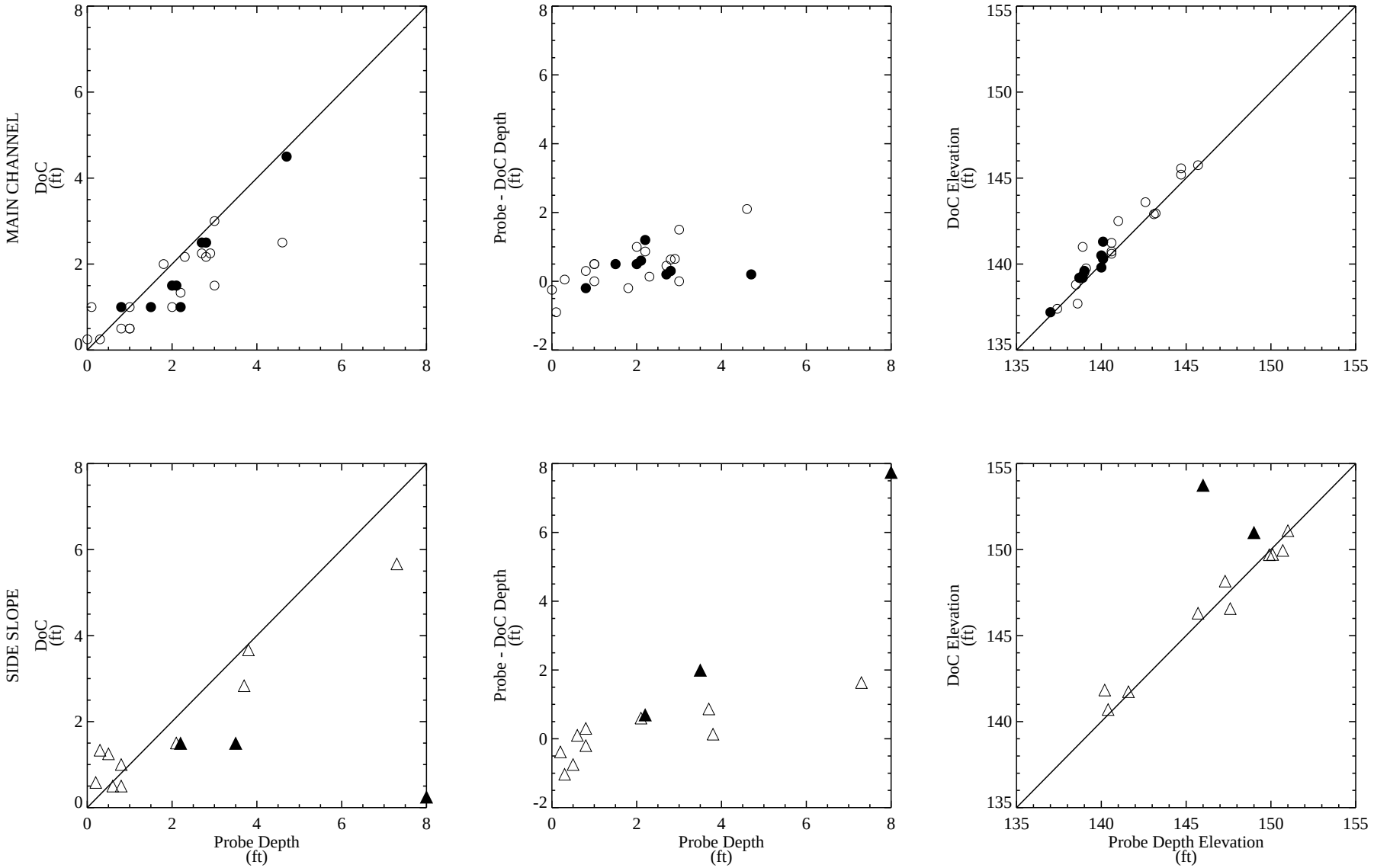

Figure 4-6. 2006 Phase 1 Probing Depths and DoC Estimates in the Main Channel and Side Slope (T8-T15)

DoC based on a 1ppm limit for 2006 Phase 1 vibracores.
Probe depth measured at time of core collection.
Elevations based on USLS 1935.

Data table: sediment_aro, sediment_field

SJR - D:\ALCgra\Analysis\Sediment\2006_PhaseI_PhaseII\IDL\DoC\DoC_PCBprobe_1to1_probplots_MC_SS.pro
Tue Jun 26 11:51:00 2007