

# Appendix B

## Phase III Sampling Locations and Rationale

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**TABLES**

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## ABBREVIATIONS

<b>abbreviation</b>	<b>definition</b>
BBP	butyl benzyl phthalate
BEHP	bis(2-ethylhexyl) phthalate
cPAH	carcinogenic polycyclic aromatic hydrocarbon
EF	exceedance factor
EPA	US Environmental Protection Agency
FNC	Federal Navigation Channel
LiDAR	light detection and ranging
MLLW	mean lower low water
OC	organic carbon
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
PDI	pre-design investigation
RAA	remedial action area
RAL	remedial action level
RC1	Recovery Category 1
RM	river mile
SCO	sediment quality objective
USACE	US Army Corps of Engineers

**Table B-1  
Sample Location Rationale and Analytes**

Location No.	RM	Tidal Category	30% RAA	Sample Type(s)					Recovery Category	In FNC?	Shoaling Area	Potential Vessel Scour Area	Mudline Elevation (ft MLLW)	Bathymetry Survey Year	Rationale and Notes	Analytes by Sample Type <sup>1</sup>		
				RAL Intervals				Vertical Extent								Surface Sediment Samples (0–10 cm)	Subsurface Sediment Samples (0–45 cm, 0–60 cm, or Shoaling Intervals)	Analytes for Vertical Extent Samples
				0–10 cm	0–45 cm	0–60 cm	Shoal											
750	3	subtidal	1/2/3			x		x	3	No	No	Yes	-6.7	2020	Provide a vertical extent transect to help define toe of cut.	-	PCBs	PCBs
751	3	subtidal	1/2/3					x	1	No	No	Yes	-11.6	2020	Characterize vertical extent; core at SC510 is vertically unbounded for PCBs (analysis of RAL interval is not needed because RAL interval is already characterized by nearby existing data and location is within RAA).	-	-	PCBs
752	3	subtidal	1/2/3			x		x	3	No	No	Yes	-7.8	2020	Provide a vertical extent transect to help define toe of cut.	-	PCBs	PCBs
753	3	subtidal	1/2/3			x		x	1	No	No	Yes	-11.1	2020	Characterize area adjacent to FNC between Areas 1 and 3 (characterize vertical extent in case of RAL exceedance).	-	PCBs	PCBs
754	3.1	subtidal	1/2/3			x		x	3	No	No	Yes	-8.0	2020	Provide a vertical extent transect to help define toe of cut.	-	PCBs	PCBs
755	3.1	subtidal	1/2/3					x	1	No	No	Yes	-11.8	2020	Characterize vertical extent; core at SC519 is vertically unbounded for PCBs (analysis of RAL interval is not needed because RAL interval is already characterized by nearby existing data and location is within RAA).	-	-	PCBs
756	3.1	subtidal	1/2/3			x			1	Yes	No	Yes	-17.1	2020	Refine horizontal delineation in area with higher uncertainty.	-	PCBs	-
757	3.1	subtidal	4/5			x		x	3	No	No	Yes	-8.2	2020	Provide a vertical extent transect to help define toe of cut.	-	PCBs	PCBs
758	3.1	subtidal	4/5					x	1	No	No	Yes	-12.5	2020	Characterize vertical extent (analysis of RAL interval is not needed because RAL interval is already characterized by nearby existing data and location is within RAA).	-	-	PCBs
759	3.1	subtidal	4/5					x	1	Yes	No	Yes	-16.9	2020	Characterize vertical extent (analysis of RAL interval is not needed because RAL interval is already characterized by nearby existing data and location is within RAA).	-	-	PCBs
760	3.2	subtidal	4/5			x		x	3	No	No	Yes	-8.7	2020	Provide a vertical extent transect to help define toe of cut.	-	PCBs	PCBs
761	3.2	subtidal	4/5			x		x	1	No	No	Yes	-12.7	2020	Refine horizontal delineation and characterize vertical extent.	-	PCBs	PCBs
762	3.2	subtidal	6			x		x	1	No	No	Yes	-12.1	2020	Area exists because of subsurface interpolation from nearby sample (SC128, with PCB concentration of 53 mg/kg OC) into RC1 area where RAL is 12 mg/kg OC. Collect sample in area to confirm interpolation (characterize vertical extent in case of RAL exceedance).	-	PCBs	PCBs
763	3.2	subtidal	4/5					x	na	Yes	No	Yes	-16.2	2020	Characterize vertical extent at eastern boundary of dredge cut along Boeing Plant 2 EAA to integrate remedies.	-	-	PCBs
764	3.3	subtidal	4/5					x	na	Yes	No	Yes	-16.3	2020	Characterize vertical extent at toe of slope along Boeing Plant 2 EAA to integrate remedies.	-	-	PCBs
765	3.4	subtidal	4/5					x	1	Yes	No	Yes	-20.5	2020	Characterize vertical extent at toe of slope along Boeing Plant 2 EAA to integrate remedies.	-	-	PCBs
766	3.3	intertidal	-	x					3	No	No	No	0.5	2020	MNR to benthic SCO re-occupation sample. Reoccupy DR203 (1998) at RM 3.3 W; phenol > benthic SCO.	PCBs, phenol	-	-
767	3.3	subtidal	11			x		x	3	No	No	Yes	-5.4	2020	Provide a vertical extent transect to help define toe of cut.	-	PCBs	PCBs, PAHs, mercury
768	3.3	subtidal	11					x	3	Yes	Yes	Yes	-11.7	2020	Shoal at SC148 is unbounded vertically for mercury and fluoranthene.	-	PCBs, PAHs, mercury	PCBs, PAHs, mercury
769	3.4	subtidal	-					x	3	Yes	Yes	Yes	-10.7	2020	Characterize RAL interval near Area 12 (characterize vertical extent in case of RAL exceedance).	-	PCBs	PCBs

**Table B-1  
Sample Location Rationale and Analytes**

Location No.	RM	Tidal Category	30% RAA	Sample Type(s)					Recovery Category	In FNC?	Shoaling Area	Potential Vessel Scour Area	Mudline Elevation (ft MLLW)	Bathymetry Survey Year	Rationale and Notes	Analytes by Sample Type <sup>1</sup>		
				RAL Intervals			Shoal	Vertical Extent								Surface Sediment Samples (0-10 cm)	Subsurface Sediment Samples (0-45 cm, 0-60 cm, or Shoaling Intervals)	Analytes for Vertical Extent Samples
				0-10 cm	0-45 cm	0-60 cm												
770	3.4	subtidal	-				x	x	3	Yes	Yes	Yes	-9.1	2020	Investigate discrepancy between USACE core LDW13 (2012) and PDI core SC558 (2021) near Area 12. Composites used for LDW13 are a total of 13 ft apart; PDI sample was collected about 3.6 ft from USACE composite centroid. Phase III target has been placed between the northern two cores included in USACE composite.	-	PCBs	PCBs
771	3.5	subtidal <sup>2</sup>	13	x		x			2	No	No	No	-3.0	2020	Characterize surface sediment in vicinity of 2015 dredging and refine extent of existing RAA.	PCBs, 4-methylphenol	PCBs	-
772	3.5	subtidal	13	x		x			3	No	No	Yes	-4.3	2020	Characterize surface sediment in vicinity of 2015 dredging; reoccupy LDW-SS2214-U (2011) with 4-methylphenol EF of 3.7.	PCBs, 4-methylphenol	PCBs	-
773	3.5	intertidal	13	x					3	No	No	No	7.0	2016 (LiDAR)	Reoccupy 99-G (2008); sample located in area that was remediated to the extent possible using vacuum extraction in 2014.	PCBs, 4-methylphenol	-	-
774	3.5	intertidal	13	x					3	No	No	No	6.5	2016 (LiDAR)	Collect sample to refine horizontal extent in area that was remediated to the extent possible using vacuum extraction in 2013.	PCBs, 4-methylphenol	-	-
775	3.5	subtidal	-				x	x	3	Yes	Yes	Yes	-9.5	2020	Investigate discrepancy between USACE core LDW14 (2012) and PDI core SC564 (2021) near Area 13. Composites used for LDW14 are a total of 6 ft apart; PDI sample was collected about 0.7 ft from USACE composite centroid. Phase III target has been placed between the southern two cores included in USACE composite.	-	PCBs	PCBs
776	3.6	subtidal	-				x	x	3	Yes	Yes	No	-10.2	2020	Characterize shoaling RAL intervals in area with higher uncertainty (characterize vertical extent in case of RAL exceedance).	-	PCBs	PCBs
777	3.6	subtidal	14			x		x	1	Yes	No	Yes	-15.6	2020	Refine horizontal delineation in area of higher uncertainty (characterize vertical extent in case of RAL exceedance).	-	PCBs	PCBs
778	3.6	subtidal	14					x	1	Yes	No	No	-18.8	2020	Characterize vertical extent in northern part of area (analysis of RAL interval is not needed because RAL interval is already characterized by nearby existing data and location is within RAA).	-	-	PCBs
779	3.6	subtidal	14			x		x	1	Yes	No	Yes	-15.5	2020	Characterize RAL interval near Area 14 to refine boundary (characterize vertical extent in case of RAL exceedance).	-	PCBs	PCBs
780	3.6	subtidal	15/16			x			1	No	No	Yes	-9.1	2020	Horizontal delineation to north of SC570.	-	PCBs	-
781	3.6	subtidal	15/16					x	1	No	No	Yes	-7.6	2020	Characterize vertical extent on the slope (analysis of RAL interval is not needed because RAL interval is already characterized by nearby existing data and location is within RAA).	-	-	PCBs
782	3.6	subtidal	15/16					x	1	No	No	Yes	-10.6	2020	Characterize vertical extent (analysis of RAL interval is not needed because RAL interval is already characterized by nearby existing data and location is within RAA).	-	-	PCBs
783	3.6	subtidal	15/16					x	1	No	No	Yes	-8.2	2020	Characterize vertical extent (analysis of RAL interval is not needed because RAL interval is already characterized by nearby existing data and location is within RAA).	-	-	PCBs
784	3.6	subtidal	15/16					x	1	No	No	Yes	-11.0	2020	Characterize vertical extent (analysis of RAL interval is not needed because RAL interval is already characterized by nearby existing data and location is within RAA).	-	-	PCBs
785	3.7	subtidal	15/16			x		x	1	No	No	Yes	-9.8	2020	Refine horizontal delineation to south of SC573 (characterize vertical extent in case of RAL exceedance).	-	PCBs	PCBs

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Sample Location Rationale and Analytes**

Location No.	RM	Tidal Category	30% RAA	Sample Type(s)					Recovery Category	In FNC?	Shoaling Area	Potential Vessel Scour Area	Mudline Elevation (ft MLLW)	Bathymetry Survey Year	Rationale and Notes	Analytes by Sample Type <sup>1</sup>		
				RAL Intervals				Vertical Extent								Surface Sediment Samples (0-10 cm)	Subsurface Sediment Samples (0-45 cm, 0-60 cm, or Shoaling Intervals)	Analytes for Vertical Extent Samples
				0-10 cm	0-45 cm	0-60 cm	Shoal											
786	3.7	intertidal	-	x				3	No	No	No	-0.5	2020	MNR to benthic SCO re-occupation sample. Reoccupy DR209 (1998); phenol > benthic SCO.	PCBs, phenol	-	-	
787	3.7	subtidal	18				x	1	Yes	Yes	Yes	-13.9	2020	Refine horizontal delineation to west of SC580 (characterize vertical extent in case of RAL exceedance).	-	PCBs, arsenic	PCBs, arsenic	
788	3.7	subtidal	18					1	No	No	Yes	-11.5	2020	Characterize vertical extent (analysis of RAL interval is not needed because RAL interval is already characterized by nearby existing data and location is within RAA).	-	-	PCBs, arsenic	
789	3.7	intertidal	18					2	No	No	No	0.5	2020	Characterize vertical extent; core at IT582 is vertically unbounded for arsenic (analysis of RAL interval is not needed because location is within RAA).	-	-	PCBs, arsenic	
790	3.8	intertidal	18					2	No	No	No	-0.4	2020	Characterize vertical extent; core at IT585 is vertically unbounded for arsenic (analysis of RAL interval is not needed because location is within RAA).	-	-	PCBs, arsenic	
791	3.7	intertidal	19/20		x			3	No	No	No	5.4	2016 (LiDAR)	Characterize subsurface RAL interval adjacent to former outfall (characterize vertical extent in case of RAL exceedance).	-	PCBs	PCBs	
792	3.8	intertidal	19/20		x			3	No	No	No	5.7	2016 (LiDAR)	Refine horizontal delineation north of IT606.	-	PCBs	-	
793	3.8	intertidal	19/20		x			3	No	No	No	5.8	2016 (LiDAR)	Refine horizontal delineation north of IT606.	-	PCBs	PCBs	
794	3.8	intertidal	19/20	x	x			3	No	No	No	10.5 <sup>3</sup>	2022 (topo)	Refine horizontal delineation west of IT606.	PCBs	PCBs	-	
795	3.8	intertidal	19/20					3	No	No	No	6.9	2016 (LiDAR)	Characterize vertical extent at IT606 (analysis of RAL interval is not needed because RAL interval is already characterized by nearby existing data and location is within RAA).	-	-	PCBs	
796	3.8	intertidal	19/20		x			3	No	No	No	-1.9	2020	Refine horizontal delineation east of IT606 and north of IT609.	-	PCBs	-	
797	3.8	intertidal	19/20	x	x			3	No	No	No	10.5 <sup>3</sup>	2022 (topo)	Refine horizontal delineation west of IT606.	PCBs	PCBs	-	
798	3.8	intertidal	19/20		x			3	No	No	No	6.1	2016 (LiDAR)	Refine horizontal delineation south of IT606.	-	PCBs	-	
799	3.9	intertidal	19/20		x			3	No	No	No	5.3	2016 (LiDAR)	Characterize subsurface RAL interval adjacent to former outfall (characterize vertical extent in case of RAL exceedance).	-	PCBs	PCBs	
800	3.8	subtidal	21			x		1	No	No	Yes	-8.6	2020	Area exists because of subsurface interpolation from nearby sample (SC599, with PCB concentration of 14.4 mg/kg OC) into RC1 area where RAL is 12 mg/kg OC. Collect sample in area to confirm interpolation (characterize vertical extent in case of RAL exceedance).	-	PCBs	PCBs	
801	3.8	subtidal	-			x		1	No	No	Yes	-9.1	2020	Characterize subsurface RAL interval in area with higher subsurface uncertainty between Areas 21 and 22. Characterization of vertical extent is not needed because of existing vertical (non-RAL interval) data in this area.	-	PCBs	-	
802	3.9	subtidal	-				x	1	Yes	Yes	Yes	-12.4	2020	Investigate discrepancy between USACE core LDW17 (2012) and PDI core SC629 (2021) near Area 22. Composites used for LDW17 are a total of 22 ft apart; PDI sample was collected about 1.1 ft from USACE composite centroid. Phase III target has been placed at southernmost core included in USACE composite.	-	PCBs	PCBs	
803	3.9	subtidal	22			x		1	No	No	Yes	-8.6	2020	Refine horizontal delineation north of SC620.	-	PCBs, BBP	-	

**Table B-1  
Sample Location Rationale and Analytes**

Location No.	RM	Tidal Category	30% RAA	Sample Type(s)					Recovery Category	In FNC?	Shoaling Area	Potential Vessel Scour Area	Mudline Elevation (ft MLLW)	Bathymetry Survey Year	Rationale and Notes	Analytes by Sample Type <sup>1</sup>		
				RAL Intervals			Shoal	Vertical Extent								Surface Sediment Samples (0–10 cm)	Subsurface Sediment Samples (0–45 cm, 0–60 cm, or Shoaling Intervals)	Analytes for Vertical Extent Samples
				0–10 cm	0–45 cm	0–60 cm												
804	3.9	subtidal	22					x	1	No	No	Yes	-8.3	2020	Characterize vertical extent at SC620 (analysis of RAL interval is not needed because RAL interval is already characterized by nearby existing data and location is within RAA).	-	-	PCBs, BBP
805	3.9	intertidal	22		x				2	No	No	No	6.3	2016 (LiDAR)	Refine horizontal delineation north of IT622.	-	PCBs, dioxins/furans	-
806	3.9	intertidal	23		x			x	3	No	No	No	4.3	2020	Characterize subsurface RAL interval (characterize vertical extent in case of RAL exceedance).	-	PCBs	PCBs
807	3.9	intertidal	24/25		x				2	No	No	No	4.6	2016 (LiDAR)	Characterize subsurface RAL interval in offset area to east of IT257. Analyze 0–45-cm interval from IT632 (LDW21IT632A) if sample cannot be successfully collected in offset area due to site conditions.	-	PCBs, dioxins/furans	-
808	4	intertidal	24/25		x			x	2	No	No	No	0.3	2020	Refine horizontal delineation south of IT257 (between Areas 24 and 25) and characterize vertical extent. Areas 24 and 25 are expected to merge once data interpolation is re-run as a result of new RC1 area.	-	PCBs, dioxins/furans	PCBs, dioxins/furans
809	4	intertidal	-		x			x	2	No	No	No	3.2	2020	Characterize subsurface RAL interval in area along shoreline between Areas 24/25 and 26 (characterize vertical extent in case of RAL exceedance).	-	PCBs, dioxins/furans	PCBs, BBP, dioxins/furans
810	4	intertidal	26		x			x	2	No	No	No	2.5	2020	Refine horizontal delineation (subsurface RAL interval) and characterize vertical extent.	-	PCBs, dioxins/furans	PCBs, BBP, dioxins/furans
811	4	subtidal	-	x					1	No	No	Yes	-8.1	2020	Characterize surface sediment in area of higher uncertainty.	PCBs	-	-
812	4.2	intertidal	-	x					3	No	No	No	6.7	2016 (LiDAR)	MNR to benthic SCO re-occupation sample. At Slip 6, reoccupy 04-intsed-3 (1996); mercury > benthic SCO.	PCBs, mercury	-	-
813	4.2	subtidal	28			x			1	No	No	Yes	-8.9	2020	Characterize subsurface RAL interval in area with higher uncertainty.	-	PCBs	-
814	4.7	intertidal	31					x	1	No	No	No	1.6	2020	Characterize vertical extent at IT697 (analysis of RAL interval is not needed because RAL interval is already characterized by nearby existing data and location is within RAA).	-	-	PCBs
815	4.7	intertidal	31		x				1	No	No	No	1.5	2020	Refine horizontal delineation north of IT697 in RC1 area.	-	PCBs	-
816	4.7	intertidal	31		x				1	No	No	No	1.4	2020	Refine horizontal delineation to northeast of IT697 in RC1 area.	-	PCBs	-
817	4.7	intertidal	31		x				3	No	No	No	2.4	2020	Refine horizontal delineation to southwest of IT697 in the channel.	-	PCBs	-
818	4.8	intertidal	-	x					3	No	No	No	-1.4	2020	MNR to benthic SCO re-occupation sample. Reoccupy R79 (1997); acenaphthene > benthic SCO.	PCBs, PAHs	-	-
819	4.8	subtidal	-	x					2	No	No	Yes	-7.6	2020	MNR to benthic SCO re-occupation sample. Reoccupy DR254 (1998); lead > benthic SCO.	PCBs, lead	-	-
699X	4.9	intertidal	33		x				2	No	No	No	-3.2	calculated <sup>4</sup>	Phase II archived 0–45-cm interval to be analyzed as part of Phase III. No sample collection needed.	-	PCBs	-
820	4.9	subtidal	35	x					2	No	No	Yes	-4.3	2020	Refine horizontal delineation to south (away from shoreline).	PCBs	-	-
821	4.9	intertidal	35	x					2	No	No	No	-3.7	2020	Refine horizontal delineation to south (away from shoreline).	PCBs	-	-
822	4.9	intertidal	35	x					2	No	No	No	-3.9	2020	Refine horizontal delineation to south (away from shoreline).	PCBs	-	-
823	4.9	intertidal	-	x					2	No	No	No	no data	no data	MNR to benthic SCO re-occupation sample. Reoccupy NFK005 (1994); BEHP > benthic SCO.	PCBs, BEHP	-	-

Notes:

- The columns indicating analytes by sample type use green shading to show that sample intervals will be collected. A single dash (-) indicates that the sample will not be analyzed for any additional chemicals. A double dash (-) indicates that a given interval will not be collected.
- A 0- to 60-cm subsurface sample (rather than a 0- to 45-cm sample) will be collected at this location because subtidal conditions are consistent with the intended use for the South Park Marina.

3. Elevation is approximate based on contours from the Phase III topographic survey.
4. The mudline elevation for 699X is the field-calculated mudline (i.e., it was calculated using the water depth and tide stage information).

BBP: butyl benzyl phthalate

BEHP: bis(2-ethylhexyl) phthalate

cPAH: carcinogenic polycyclic aromatic hydrocarbon

EF: exceedance factor

EPA: US Environmental Protection Agency

FNC: Federal Navigation Channel

LiDAR: light detection and ranging (elevation mapping)

MLLW: mean lower low water

MNR: monitored natural recovery

OC: organic carbon

PAH: polycyclic aromatic hydrocarbon

PCB: polychlorinated biphenyl

PDI: pre-design investigation

RAA: remedial action area

RAL: remedial action level

RC1: Recovery Category 1

RM: river mile

SCO: sediment cleanup objective

USACE: US Army Corps of Engineers

x: Tier 1 sample to be analyzed



**Table B-2  
Sample Location Details**

Location No.	RM	Tidal Category	30% RAA	Sample Type(s)					Reoccu- pation?	Vertical Extent Details <sup>1</sup>			In the FNC?	Mudline Elevation (ft MLLW)	Bathymetry Survey Year	Estimated Shoal Thickness (cm)	Target Coordinates			
				0-10 cm	0-45 cm	0-60 cm	Shoal	Vertical Extent		Target Depth	Intervals to Analyze	Estimated No. of Intervals					X	Y	Longitude	Latitude
750	3	subtidal	1/2/3			x		x	-	8 ft core	A to G	7	No	-6.7	2020	-	1273269	197621	-122.31963	47.53205
751	3	subtidal	1/2/3					x	-	-25 ft MLLW (13.4 ft)	-18 (F) to -25 (M)	8	No	-11.6	2020	-	1273287	197643	-122.31956	47.53211
752	3	subtidal	1/2/3			x		x	-	8 ft core	A to G	7	No	-7.8	2020	-	1273388	197515	-122.31913	47.53177
753	3	subtidal	1/2/3			x		x	-	-25 ft MLLW (13.9 ft)	A to -25 (M)	13	No	-11.1	2020	-	1273404	197534	-122.31907	47.53182
754	3.1	subtidal	1/2/3			x		x	-	8 ft core	A to G	7	No	-8.0	2020	-	1273478	197435	-122.31877	47.53155
755	3.1	subtidal	1/2/3					x	-	-25 ft MLLW (13.2 ft)	-18 (F) to -25 (M)	8	No	-11.8	2020	-	1273499	197457	-122.31868	47.53161
756	3.1	subtidal	1/2/3			x			-	-	-	-	Yes	-17.1	2020	-	1273668	197401	-122.31800	47.53147
757	3.1	subtidal	4/5			x		x	-	8 ft core	A to G	7	No	-8.2	2020	-	1273708	197229	-122.31782	47.53100
758	3.1	subtidal	4/5					x	-	-25 ft MLLW (12.5 ft)	B to -25 (L)	11	No	-12.5	2020	-	1273728	197252	-122.31774	47.53106
759	3.1	subtidal	4/5					x	-	-25 ft MLLW (8.1 ft)	B to -25 (G)	6	Yes	-16.9	2020	-	1273858	197259	-122.31721	47.53109
760	3.2	subtidal	4/5			x		x	-	8 ft core	A to G	7	No	-8.7	2020	-	1273863	197087	-122.31718	47.53062
761	3.2	subtidal	4/5			x		x	-	-25 ft MLLW (12.3 ft)	A to -25 (L)	12	No	-12.7	2020	-	1273884	197111	-122.31710	47.53068
762	3.2	subtidal	6			x		x	-	-25 ft MLLW (12.9 ft)	A to -25 (L)	12	No	-12.1	2020	-	1273978	197019	-122.31671	47.53044
763	3.2	subtidal	4/5					x	-	-30 ft MLLW (13.8)	-21 (E) to -30 (M)	9	Yes	-16.2	2020	-	1274237	196962	-122.31566	47.53029
764	3.3	subtidal	4/5					x	-	-30 ft MLLW (13.7)	-21 (E) to -30 (M)	9	Yes	-16.3	2020	-	1274405	196819	-122.31497	47.52991
765	3.4	subtidal	4/5					x	-	-26 ft MLLW (5.5 ft)	B to -26 (E)	4	Yes	-20.5	2020	-	1274714	196536	-122.31369	47.52915
766	3.3	intertidal	-	x					Yes	-	-	-	No	0.5	2020	-	1274270	196653	-122.31550	47.52945
767	3.3	subtidal	11			x		x	-	8 ft core	A to G	7	No	-5.4	2020	-	1274592	196474	-122.31418	47.52898
768	3.3	subtidal	11				x	x	-	-26 ft MLLW (14.3 ft)	A to -26 (L)	12	Yes	-11.7	2020	3.3 ft (100 cm)	1274611	196497	-122.31411	47.52904
769	3.4	subtidal	-				x	x	-	-25 ft MLLW (14.3 ft)	A to -25 (K)	11	Yes	-10.7	2020	4.3 ft (131 cm)	1274858	196285	-122.31309	47.52847
770	3.4	subtidal	-				x	x	-	-25 ft MLLW (15.9 ft)	A to -25 (K)	11	Yes	-9.1	2020	5.9 ft (180 cm)	1274895	196242	-122.31294	47.52836
771	3.5	subtidal <sup>2</sup>	13	x		x			-	-	-	-	No	-3.0	2020	-	1275130	195853	-122.31196	47.52730
772	3.5	subtidal	13	x		x			Yes	-	-	-	No	-4.3	2020	-	1275134	195819	-122.31194	47.52721
773	3.5	intertidal	13	x					Yes	-	-	-	No	7.0	2016 (LiDAR)	-	1275094	195817	-122.31210	47.52720
774	3.5	intertidal	13	x					-	-	-	-	No	6.5	2016 (LiDAR)	-	1275114	195801	-122.31202	47.52716
775	3.5	subtidal	-				x	x	-	-25 ft MLLW (15.5 ft)	A to -25 (K)	11	Yes	-9.5	2020	5.5 ft (168 cm)	1275296	195888	-122.31129	47.52741
776	3.6	subtidal	-				x	x	-	-26 ft MLLW	A to -26 (L)	12	Yes	-10.2	2020	4.8 ft (146 cm)	1275523	195663	-122.31035	47.52680
777	3.6	subtidal	14			x		x	-	-26 ft MLLW	A to -26 (L)	12	Yes	-15.6	2020	-	1275596	195697	-122.31006	47.52690
778	3.6	subtidal	14					x	-	-26 ft MLLW (7.2 ft)	B to -26 (F)	5	Yes	-18.8	2020	-	1275642	195716	-122.30987	47.52695
779	3.6	subtidal	14			x		x	-	-26 ft MLLW (10.5 ft)	A to -26 (J)	10	Yes	-15.5	2020	-	1275710	195550	-122.30959	47.52650
780	3.6	subtidal	15/16			x			-	-	-	-	No	-9.1	2020	-	1275593	195544	-122.31006	47.52648
781	3.6	subtidal	15/16					x	-	8 ft core	B to G	6	No	-7.6	2020	-	1275612	195487	-122.30998	47.52632
782	3.6	subtidal	15/16					x	-	-26 ft MLLW (15.4 ft)	B to -26 (O)	14	No	-10.6	2020	-	1275636	195492	-122.30988	47.52634
783	3.6	subtidal	15/16					x	-	8 ft core	B to G	6	No	-8.2	2020	-	1275666	195365	-122.30975	47.52599
784	3.6	subtidal	15/16					x	-	-26 ft MLLW (15 ft)	B to -26 (N)	13	No	-11.0	2020	-	1275689	195373	-122.30966	47.52601

**Table B-2  
Sample Location Details**

Location No.	RM	Tidal Category	30% RAA	Sample Type(s)					Reoccu- pation?	Vertical Extent Details <sup>1</sup>			In the FNC?	Mudline Elevation (ft MLLW)	Bathymetry Survey Year	Estimated Shoal Thickness (cm)	Target Coordinates			
				0-10 cm	0-45 cm	0-60 cm	Shoal	Vertical Extent		Target Depth	Intervals to Analyze	Estimated No. of Intervals					X	Y	Longitude	Latitude
785	3.7	subtidal	15/16			x		x	-	-26 ft MLLW (16.2 ft)	A to -26 ft (O)	15	No	-9.8	2020	-	1275708	195276	-122.30957	47.52575
786	3.7	intertidal	-	x					Yes	-	-	-	No	-0.5	2020	-	1275718	195037	-122.30951	47.52510
787	3.7	subtidal	18				x	x	-	-26 ft MLLW (12.1 ft)	A to -26 (K)	11	Yes	-13.9	2020	1.1 ft (34 cm)	1275929	195015	-122.30866	47.52505
788	3.7	subtidal	18					x	-	8 ft core	B to G	6	No	-11.5	2020	-	1275965	195026	-122.30851	47.52508
789	3.7	intertidal	18					x	-	-12 ft MLLW (12.5 ft)	-6 (G) to -12 (L)	6	No	0.5	2020	-	1276047	194993	-122.30818	47.52499
790	3.8	intertidal	18					x	-	-12 ft MLLW (11.6 ft)	-8 (H) to -12 (K)	4	No	-0.4	2020	-	1276055	194896	-122.30814	47.52473
791	3.7	intertidal	19/20		x			x	-	6.5 ft core	A to F	6	No	5.4	2016 (LiDAR)	-	1275710	194923	-122.30954	47.52478
792	3.8	intertidal	19/20		x				-	-	-	-	No	5.7	2016 (LiDAR)	-	1275741	194809	-122.30941	47.52447
793	3.8	intertidal	19/20		x			x	-	-1 ft MLLW (6.8 ft)	A to -1 (G)	7	No	5.8	2016 (LiDAR)	-	1275749	194742	-122.30937	47.52429
794	3.8	intertidal	19/20	x	x				-	-	-	-	No	10.5 <sup>4</sup>	2022 (topo)	-	1275727	194720	-122.30945	47.52423
795	3.8	intertidal	19/20					x	-	-1 ft MLLW (7.9 ft)	B to -1 (G)	6	No	6.9	2016 (LiDAR)	-	1275745	194700	-122.30938	47.52417
796	3.8	intertidal	19/20		x				-	-	-	-	No	-1.9	2020	-	1275803	194711	-122.30915	47.52421
797	3.8	intertidal	19/20	x	x				-	-	-	-	No	10.5 <sup>4</sup>	2022 (topo)	-	1275732	194684	-122.30943	47.52413
798	3.8	intertidal	19/20		x				-	-	-	-	No	6.1	2016 (LiDAR)	-	1275753	194665	-122.30934	47.52408
799	3.9	intertidal	19/20		x			x	-	6.5 ft core	A to F	6	No	5.3	2016 (LiDAR)	-	1275826	194306	-122.30902	47.52310
800	3.8	subtidal	21			x		x	-	8 ft core	A to G	7	No	-8.6	2020	-	1276092	194553	-122.30796	47.52379
801	3.8	subtidal	-			x			-	-	-	-	No	-9.1	2020	-	1276120	194415	-122.30784	47.52341
802	3.9	subtidal	-				x	x	-	-25 ft MLLW (12.6 ft)	A to -25 (J)	10	Yes	-12.4	2020	2.6 ft (79 cm)	1276123	194239	-122.30781	47.52293
803	3.9	subtidal	22			x			-	-	-	-	No	-8.6	2020	-	1276151	194291	-122.30770	47.52307
804	3.9	subtidal	22					x	-	8 ft core	B to G	6	No	-8.3	2020	-	1276165	194247	-122.30764	47.52295
805	3.9	intertidal	22		x				-	-	-	-	No	6.3	2016 (LiDAR)	-	1276298	194288	-122.30711	47.52307
806	3.9	intertidal	23		x			x	-	6.5 ft core	A to F	6	No	4.3	2020	-	1275890	194057	-122.30874	47.52242
807	3.9	intertidal	24/25		x				-	-	-	-	No	4.6	2016 (LiDAR)	-	1276378	193929	-122.30676	47.52209
808	4	intertidal	24/25		x			x	-	6.5 ft core	A to F	6	No	0.3	2020	-	1276339	193880	-122.30691	47.52196
809	4	intertidal	-		x			x	-	6.5 ft core	A to F	6	No	3.2	2020	-	1276398	193852	-122.30667	47.52188
810	4	intertidal	26		x			x	-	6.5 ft core	A to F	6	No	2.5	2020	-	1276416	193738	-122.30659	47.52157
811	4	subtidal	-	x					-	-	-	-	No	-8.1	2020	-	1276276	193750	-122.30716	47.52160
812	4.2	intertidal	-	x					Yes	-	-	-	No	6.7	2016 (LiDAR)	-	1277194	192953	-122.30338	47.51946
813	4.2	subtidal	28			x			No	-	-	-	No	-8.9	2020	-	1277356	192897	-122.30272	47.51932
814	4.7	intertidal	31					x	-	6.5 ft core	B to F	5	No	1.6	2020	-	1277570	190025	-122.30163	47.51145
815	4.7	intertidal	31		x				-	-	-	-	No	1.5	2020	-	1277570	190062	-122.30164	47.51155
816	4.7	intertidal	31		x				-	-	-	-	No	1.4	2020	-	1277608	190058	-122.30148	47.51155
817	4.7	intertidal	31		x				-	-	-	-	No	2.4	2020	-	1277572	189969	-122.30162	47.51130
818	4.8	intertidal	-	x					Yes	-	-	-	No	-1.4	2020	-	1277664	190514	-122.30129	47.51280
819	4.8	subtidal	-	x					Yes	-	-	-	No	-7.6	2020	-	1277888	190434	-122.30038	47.51259
699X <sup>3</sup>	4.9	intertidal	32		x				-	-	-	-	No	-3.2	calculated <sup>5</sup>	-	-	-	-	-

**Table B-2  
Sample Location Details**

Location No.	RM	Tidal Category	30% RAA	Sample Type(s)					Reoccu- pation?	Vertical Extent Details <sup>1</sup>			In the FNC?	Mudline Elevation (ft MLLW)	Bathymetry Survey Year	Estimated Shoal Thickness (cm)	Target Coordinates			
				0-10 cm	0-45 cm	0-60 cm	Shoal	Vertical Extent		Target Depth	Intervals to Analyze	Estimated No. of Intervals					X	Y	Longitude	Latitude
820	4.9	subtidal	35	x					-	-	-	-	No	-4.3	2020	-	1278409	190269	-122.29826	47.51217
821	4.9	intertidal	35	x					-	-	-	-	No	-3.7	2020	-	1278437	190197	-122.29814	47.51197
822	4.9	intertidal	35	x					-	-	-	-	No	-3.9	2020	-	1278472	190175	-122.29800	47.51191
823	4.9	intertidal	-	x					Yes	-	-	-	No	no data	-	-	1278643	190121	-122.29730	47.51177

Notes:

1. Core diagram details are presented on Maps 4-1a through 4-1j.
2. A 0- to 60-cm subsurface sample (rather than a 0- to 45-cm sample) will be collected at this location because subtidal conditions are consistent with the intended use for the South Park Marina.
3. Phase II archived 0-45-cm sample will be analyzed as part of Phase III. Thus, no sample collection is needed.
4. Elevation is approximate based on contours from the Phase III topographic survey.
5. The mudline elevation for 699X is the field-calculated mudline (i.e., it was calculated using the water depth and tide stage information).

FNC: Federal Navigation Channel

LiDAR: light detection and ranging (elevation mapping)

MLLW: mean lower low water

RAA: remedial action area

RM: river mile

x: Tier 1 sample to be analyze