Prepared by:
Dredged Material Management Office
Seattle District, U.S. Army Corps of Engineers

MEMORANDUM FOR: RECORD **June 10, 2020**

SUBJECT: DETERMINATION REGARDING THE SUITABILITY OF PROPOSED DREDGED MATERIAL FROM SHELTER BAY MARINA EVALUATED UNDER SECTION 404 OF THE CLEAN WATER ACT FOR UNCONFINED OPEN-WATER DISPOSAL AT THE ROSARIO STRAIT DISPERSIVE DISPOSAL SITE.

1. Introduction

This memorandum reflects the consensus determination of the Dredged Material Management Program (DMMP) agencies – the U. S. Army Corps of Engineers Seattle District, U.S. Environmental Protection Agency Region 10, Washington State Department of Ecology and Washington State Department of Natural Resources – regarding the suitability of up to 55,851 cubic yards (cy) of dredged material from Shelter Bay Marina for open-water disposal at the Rosario Strait dispersive site, and for compliance with the State of Washington's antidegradation policy.

2. Background

The Shelter Bay Marina is located on the southern end on the Swinomish Channel, see Figure 1 for a vicinity map. It was characterized in 2014 and received a DMMP suitability determination on December 9, 2014 (DMMP, 2014). All 37,400 cy of material were found suitable for open-water disposal at the Rosario Strait dispersive site.

No dredging has occurred since the 2014 characterization and the recency expired in December 2019. In July 2019 additional areas needing dredging (DMMUs 5 and 6) were identified by the applicant, and during the SAP development process, in consultation with the DMMP agencies, it was determined that additional testing would be required of the newly identified areas. In addition, infill in the areas previously characterized (DMMUs 1-4) was identified, resulting in an increase in the total volume of material proposed to be dredged. See Figure 2 for the project area and dredged material management units.

3. Project Summary

Table 1 includes project summary and tracking information.

Table 1. Project Summary

Project ranking	Moderate
Proposed dredging volume	55,851 cy
Proposed dredging depth	-9 ft MLLW (plus 1 ft overdepth)
1st draft SAP received	August 26, 2019
Comments provided on 1st draft SAP	September 18, 2019
2nd draft SAP received	September 20, 2019
Comments provided on 2nd draft SAP	September 26, 2019

3rd draft SAP received	October 1, 2019
Discussion regarding permitting timeline and sampling for recency	October 2 – November 20, 2019
Final SAP received	November 26, 2019
SAP approved	December 10, 2019
Sampling dates	February 12, 2020
Draft data report received	April 16, 2020
Comments provided on draft report	April 22 and May 6, 2020
Final data report received	May 12, 2020
EIM Study ID	SHEBA20
USACE Permit Application Number	
Recency Expiration (moderate rank = 5 years)	February 2025

4. Project Ranking and Sampling Requirements

This project was ranked "moderate" by the DMMP agencies for assessing concerns related to the potential for contamination since the 2014 suitability determination. This is consistent with guidelines set out in the DMMP User Manual for marinas.

In a moderate-ranked area the number of field samples and dredged material management units (DMMUs) are as follows (DMMP, 2018):

- Maximum volume of sediment represented by each field sample = 4,000 cubic yards
- Maximum volume of sediment represented by each analysis in the upper 4-feet of the dredging prism (surface sediment) = 16,000 cubic yards

Based on volumes and location, two new DMMUs were identified in July 2019. Three grab samples were collected from DMMU 5 and two grab samples were collected from DMMU 6 in order to meet the sampling requirements for a moderate-ranked area. In addition, one grab sample was collected from each of the original DMMUs 1-4 and composited into a single analysis to represent the material that has deposited since the 2014 characterization. The DMMP did not require analysis for either of the special COCs: dioxin/furans or TBT, based on previous results and reason-to-believe guidelines.

Based on sampling dates, project characterization results are valid until February 2025.

5. Sampling

Sampling took place on February 12, 2020. Grab samples were collected using a stainless steel 6 x 6 inch Ponar bottom grab sampler. Each grab sample collected the top 0-6 inches of sediment. Grabs from DMMUs 1,2, 4 and 6 were collected with a 15-ft. center consoles service boat, and grabs from DMMUs 3 and 5 were collected from docks. Figure 2 shows the actual sampling locations and Table 2 lists the location coordinates.

The approved sampling and analysis plan (HWA Geosciences, 2019) was followed and there were no significant deviations from the SAP.

All samples were submitted to Analytical Resources, Inc., of Tukwila, WA, for analysis.

Table 2. Sample Location Coordinates (WGS 1984)

Sample	Latitude	Longitude
DMMU-6N	48° 22' 59.16" N	122° 30' 38.34" W
DMMU-6S	48° 22' 58.22" N	122° 30' 38.02" W
DMMU-2	48° 22' 55.20" N	122° 30' 37.58" W
DMMU-4	48° 22' 54.48" N	122° 30' 43.96" W
DMMU-1	48° 22' 55.63" N	122° 30' 36.25" W
DMMU-3	48° 22' 51.85" N	122° 30' 35.46" W
DMMU-5N	48° 22' 49.76" N	122° 30' 36.32" W
DMMU-5M	48° 22' 49.76" N	122° 30' 36.68" W
DMMU-5S	48° 22' 45.30" N	122° 30' 36.79" W

6. Chemical Analysis

The conventional and chemistry results for DMMUs 5 and 6 and the confirmatory DMMU 1,2,3,4 composite are presented in Table 3 alongside DMMP marine guidelines.

Data Validation Findings. Stage 2B data validation was conducted by EcoChem, Inc. A number of minor data validation issues were discovered, and EcoChem's evaluation concluded that the all data, as qualified, were acceptable for use.

Puget Sound Sediment Reference Material (PS-SRM) was analyzed within batch with the samples for PCB Aroclor analyses. PS-SRM Aroclor results were 110 μg/kg, with the acceptance limits of 44-180 μg/kg and very close to the average concentration of the PS-SRM found during round robin testing of 108 μg/kg.

Sediment Conventionals. All samples were analyzed for all conventional sediment parameters. TOC was moderate, ranging from 1.64% to 1.85%, and grain size analyses indicated that the material had significant fines content (from 82.8 to 92.3% fines).

Standard Marine DMMP Chemicals of Concern. All analytical results were less than DMMP screening levels except for phenol in DMMU 1,2,3,4, which was detected at 501 μg/kg, above the SL of 420 μg/kg. A review of the results for this compound revealed that phenol was found at elevated levels in the method blank. Although the concentration found in DMMU 1,2,3,4 was above the data validation threshold of five times the concentration found in the blank, the DMMP agencies determined that the elevated concentrations in the blank were concerning and that re-analysis was warranted.

Five phenol re-analyses were conducted by ARI in April 2020 – the composite DMMU 1,2,3,4 was re-extracted and re-analyzed, along with the individual grab archives for each of the four grabs comprising the composite. The results were subjected to Stage 2B data validation by EcoChem, and are shown below in Table 4.

Table 4. Re-analysis Results for Phenol

Sample ID	Phenol concentration (μg/kg)
DMMU 1,2,3,4	17.5 J
DMMU 1	17.4 J
DMMU 2	11.5 J
DMMU 3	14.4 J
DMMU 4	57.6

Based on these results, the DMMP agencies agreed that the original results were erroneous and that the reanalysis results provided sufficient clear evidence that phenol is not present in the project sediments at concentrations above DMMP screening levels.

Antimony results were all less than the SL, verifying the DMMP's decision in 2014 that antimony was not a concern at the project site. Similarly, benzyl alcohol, which was also an issue in the 2014 characterization, was not detected above the SL in any of the samples.

7. Sediment Exposed by Dredging

The sediment to be exposed by dredging must either meet the State of Washington SMS or the State's Anti-degradation Standard (Ecology, 2013) as outlined by DMMP guidance (DMMP, 2008).

Comparison of the dredged material results to SQS serves as a first-tier indicator for this purpose, and results are shown in Table 5. Concentrations of DMMP COCs in the overlying sediment were below the SMS SQS for all compounds except hexachlorobenzene and 1,2,4-trichlorobenzene in all samples. However, since the exceedances were undetected and the same chemicals were less than the DMMP screening level, the DMMP agencies determined using best professional judgment that these chemicals do not present a concern at these levels. In addition, there is no reason to think that the quality of the leave surface has changed since the previous 2014 characterization.

Thus, the sediment to be exposed by dredging is not considered to be degraded relative to the current sediment surface. On this basis the DMMP agencies conclude that this project is in compliance with the State of Washington anti-degradation policy.

8. Debris Management

Debris is not allowed to be disposed at a DMMP disposal site. This includes all floatable debris, large non-floatable debris such as logs, piling, rip rap and concrete and all solid waste (e.g. tires, crab pots, rebar, garbage). A debris assessment requirement was implemented following the 2015 SMARM in order to prevent the disposal of solid waste and debris at open-water disposal sites in Puget Sound (DMMP, 2015). No debris greater than 12 inches in any dimension is allowed at the open-water disposal sites. All projects must use a 12-inch x 12-inch screen unless it can be demonstrated that debris is unlikely to be present, or can be removed using another method. Marina slips are known to be sources of debris.

9. Suitability Determination

This memorandum documents the evaluation of the suitability of sediment proposed for dredging from Shelter Bay Marina for unconfined open-water disposal at the Rosario Strait dispersive disposal site. The approved sampling and analysis plan was followed and the data gathered were deemed sufficient and acceptable for regulatory decision-making under the DMMP program.

In summary, based on the results described here, the DMMP agencies conclude that **all 55,851 cy of dredged material from Shelter Bay marina are suitable** for unconfined open-water disposal at the Rosario Strait dispersive disposal site.

This suitability determination does ***not*** constitute final agency approval of the project. During the public comment period that follows a public notice, the resource agencies will provide input on the overall project. A final decision will be made after full consideration of agency input, and after an alternatives analysis is done under section 404(b)(1) of the Clean Water Act.

A pre-dredge meeting with DNR, Ecology and the Corps of Engineers is required at least 7 days prior to dredging. A dredging quality control plan must be developed and submitted to the Regulatory Branch of the Seattle District Corps of Engineers at least 7 days prior to the pre-dredge meeting. A DNR site use authorization must also be acquired.

10. References.

DMMP, 2018. *Dredged Material Evaluation and Disposal Procedures (Users Manual)*. Prepared by the Seattle District Dredged Material Management Office for the Dredged Material Management Program, December 2018.

DMMP, 2015. *Final Clarification Paper: Debris Screening Requirements for Dredged Material Disposed at Open-Water Sites.* Prepared by Erika Hoffman (EPA), Celia Barton (DNR) and David Fox (USACE) for the DMMP Agencies, October 2, 2015.

DMMP, 2014. *Determination Regarding the Suitability of Proposed Dredged Material from the Shelter Bay Marina, LaConner, WA Evaluated Under Section 404 of the Clean Water Act for Unconfined Open-Water Disposal at the Rosario Strait Disposal Site*. Dredged Material Management Program, December 2014.

DMMP, 2008. *Quality of Post-Dredge Sediment Surfaces (Updated).* A Clarification Paper Prepared by David Fox (USACE), Erika Hoffman (EPA) and Tom Gries (Ecology) for the Dredged Material Management Program, June 2008.

Ecology, 2013. *Sediment Management Standards – Chapter 173-204 WAC.* Washington State Department of Ecology, February 2013.

HWA Geosciences, 2019. *Sampling and Analysis Plan Addendum, Shelter Bay Marina Maintenance Dredging, LaConner, Washington*. Prepared by HWA Geosciences for the Shelter Bay Community. November 26, 2019.

HWA Geosciences, 2020. *Sediment Sampling and Analysis Report, Shelter Bay Marina Maintenance Dredging, LaConner, Washington*. Prepared by HWA Geosciences for the Shelter Bay Company. June 3, 2020.

11. Agency Signatures.

Signed copy is available in the Dredged Material Management Office, Seattle District, U.S. Army Corps of Engineers

Concur:

_____ _____
Date Kelsey van der Elst - Seattle District, U.S. Army Corps of Engineers

_____ _____
Date Justine Barton - Environmental Protection Agency, Region 10

_____ _____
Date Laura Inouye, Ph.D. - Washington Department of Ecology

_____ _____
Date Shannon Soto - Washington Department of Natural Resources

Copies furnished:

DMMP signatories

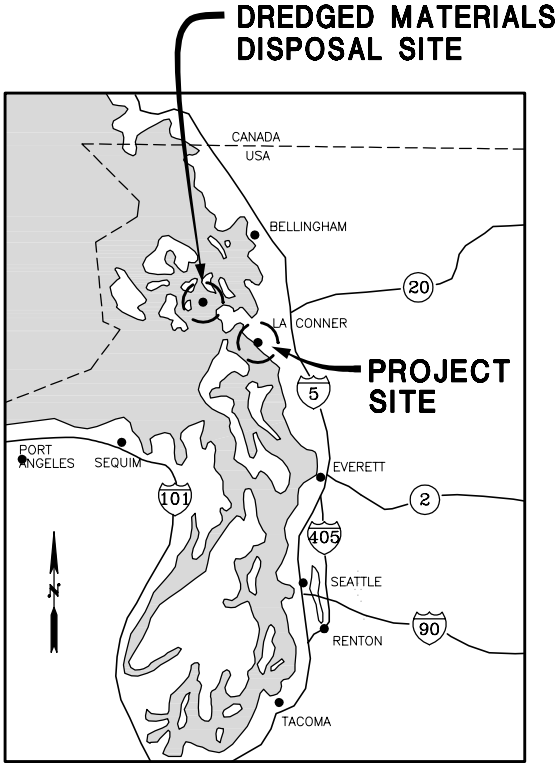
Ron Wilcox, USACE Regulatory PM

Arnie Sugar, HWA Geosciences

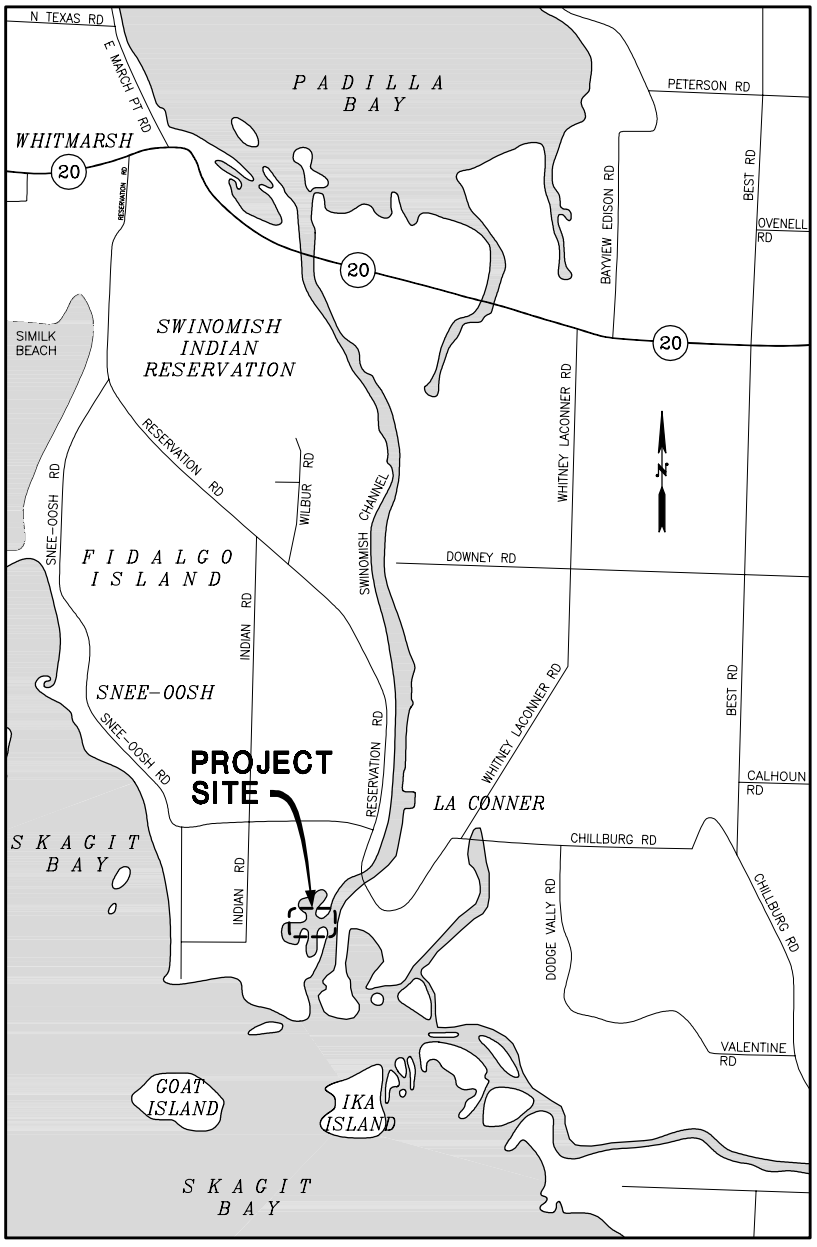
Shannon Kinsella, Reid Middleton

David Franklin, Shelter Bay Marina

SHELTER BAY MAINTENANCE DREDGING



VICINITY MAP
NOT TO SCALE



LOCATION MAP
NOT TO SCALE

OWNER
SHELTER BAY COMPANY
ADDRESS: 1000 SHOSHONE DRIVE
LA CONNER, WA 98257
CONTACT: DEBBIE BYRD
PHONE: 360-466-3805

PROJECT SITE ADDRESS
SHELTER BAY MARINA
SWINOMISH DRIVE, LA CONNER, WA
NORTHWEST QUARTER OF SECTION 1, TOWNSHIP 33 NORTH, RANGE 2 EAST, W. M.
LATITUDE: 48° 23' 03"
LONGITUDE: 122° 30' 37"

DREDGED MATERIALS DISPOSAL SITE
ROSARIO STRAIT
LATITUDE: 48° 30.87'
LONGITUDE: 122° 43.56'

PURPOSE: MAINTENANCE DREDGING OF EXISTING MARINA

DATUM: MLLW 0.0'

SHELTER BAY MAINTENANCE DREDGING

VICINITY AND LOCATION MAPS

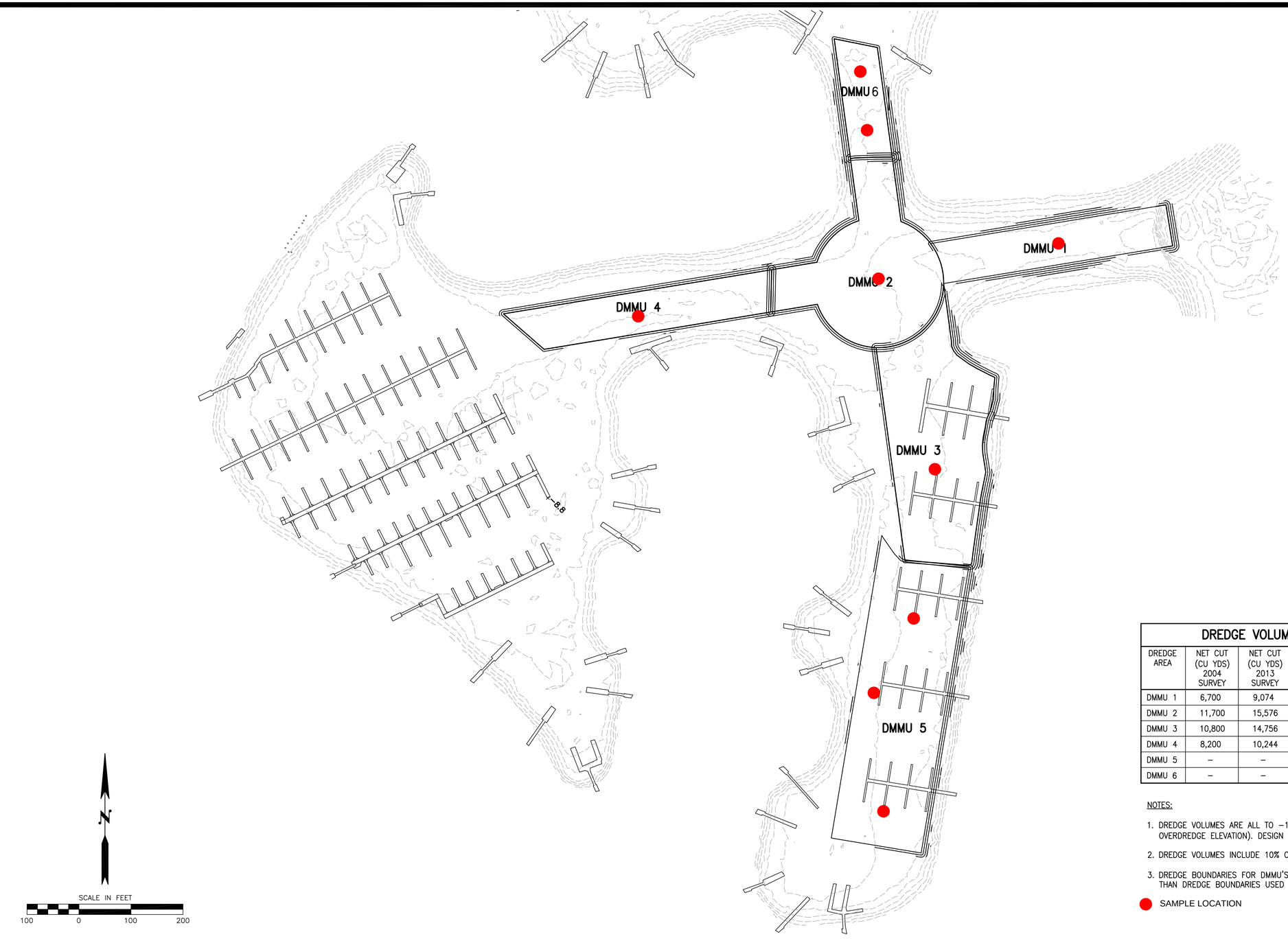
NAME: SHELTER BAY COMPANY
ADDRESS: 1000 SHOSHONE DRIVE
LA CONNER, WA 98257

Reid Middleton
728 134th Street SW · Suite 200
Everett, Washington 98204
Ph: 425 741-3800

IN: SHELTER BAY
AT: SHELTER BAY MARINA
COUNTY OF: SKAGIT
APPLICATION BY: SHELTER BAY COMPANY

FIGURE 1

DATE: AUGUST 2013



DREDGE VOLUMES (EL –10)				
DREDGE AREA	NET CUT (CU YDS) 2004 SURVEY	NET CUT (CU YDS) 2013 SURVEY	NET CUT (CU YDS) 2019 SURVEY	NET CHANGE (CU YDS) 2004 VS 2019
DMMU 1	6,700	9,074	6,700	0
DMMU 2	11,700	15,576	13,052	1,352
DMMU 3	10,800	14,756	12,890	2,090
DMMU 4	8,200	10,244	8,200	0
DMMU 5	–	–	11,495	–
DMMU 6	–	–	3,514	–

NOTES:

1. DREDGE VOLUMES ARE ALL TO –10' MLLW (ALLOWABLE 1 FOOT OVERDREDGE ELEVATION). DESIGN DREDGE ELEVATION IS –9' MLLW.
2. DREDGE VOLUMES INCLUDE 10% CONTINGENCY.
3. DREDGE BOUNDARIES FOR DMMU'S 1, 2, 3, 4 & 6 ARE SMALLER THAN DREDGE BOUNDARIES USED IN 2004 AND 2013.

● SAMPLE LOCATION

Reid Middleton
728 134th Street SW · Suite 200
Everett, Washington 98204
Ph: 425 741-3800

DREDGE ELEVATION -10 DMMU AREAS AND VOLUMES

SHELTER BAY MARINA

FIGURE 2

2019 SURVEY
DREDGE AREAS
07 / 10 / 2019

Table 3. Analytical Results Compared to DMMP Marine Guidelines

	SL	BT	ML	DMMU 1 2 3 4	VQ	DMMU 5	B	DMMU 6	B
Conventionals									
Gravel, %				**0.6**		**3.0**		**0.2**	
Sand, %				**15.7**		**4.5**		**11.0**	
Silt, %				**62.6**		**75.8**		**66.5**	
Clay, %				**20.2**		**16.5**		**20.9**	
Fines (Silt + Clay), %				**82.8**		**92.3**		**87.4**	
Total Solids, %				**43.9**		**37.8**		**44.8**	
Volatile Soilids, %				**6.3**		**6.6**		**6.6**	
Total Ammonia, mg N/kg				**12.1**		**13.8**		**38.6**	
Total Sulfides, mg/kg				**1120**	J	**1330**	J	**772**	J
Total Organic Carbon (%)				**1.72**		**1.64**		**1.85**	
METALS (mg/kg dry									
Antimony	150	---	200	0.45	UJ	0.52	UJ	0.41	UJ
Arsenic	57	507	700	**9.91**		**11.6**		**10.6**	
Cadmium	5.1	11.3	14.0	**0.3**		**0.34**		**0.20**	
Chromium	260	260	---	**45.2**		**59.4**		**51.7**	
Copper	390	1,027	1,300	**40.5**		**62.3**		**42.2**	
Lead	450	975	1,200	**7.41**		**10.3**		**8.6**	
Mercury	0.41	1.5	2.3	**0.0867**	J	**0.113**	J	**0.101**	J
Selenium	---	3	---	1.12	U	1.31	U	0.13	U
Silver	6.1	6.1	8.4	**0.15**	J	**0.18**	J	**0.16**	J
Zinc	410	2,783	3,800	**95.9**		**114**		**78**	
PAHs (µg/kg dry weight)									
Naphthalene	2,100	---	2,400	**6.9**	J	20	U	20	U
Acenaphthylene	560	---	1,300	20	UJ	20	J	20	UJ
Acenaphthene	500	---	2,000	20	U	20	U	20	U
Fluorene	540	---	3,600	**8**	J	20	U	20	U
Phenanthrene	1,500	---	21,000	**32.3**		**16.4**	J	**10.5**	J
Anthracene	960	---	13,000	**7.9**	J	20	J	20	UJ
2-Methylnaphthalene	670	---	1,900	**6.7**	J	20	U	20	U
Total LPAH	5200	---	29,000	**62**	J	**16.4**	J	**10.5**	J
Fluoranthene	1,700	4,600	30,000	**88.6**		**54.6**		**29.2**	
Pyrene	2,600	11,980	16,000	**65.7**		**52**		**24**	
Benz(a)anthracene	1,300	---	5,100	**12**	J	**11.4**	J	**6.8**	J
Chrysene	1,400	---	21,000	**34.9**		**36.9**		**16.4**	J
Benzofluoranthenes (b, j ,k)	3,200	---	9,900	**41.9**		**38.9**		**26.2**	J
Benzo(a)pyrene	1,600	---	3,600	**9.9**	J	**10.2**	J	**8.0**	J
Indeno(1,2,3-c,d)pyrene	600	---	4,400	**9**	UJ	20	J	20	UJ
Dibenz(a,h)anthracene	230	---	1,900	20	UJ	20	J	20	UJ
Benzo(g,h,i)perylene	670	---	3,200	**11.4**	UJ	**6.6**	J	**7.3**	UJ
Total HPAH	12000	---	69,000	**273.4**	J	**210.6**	J	**118.0**	J
CHLORINATED HYDROCARBONS (µg/kg dry weight)									
1,4-Dichlorobenzene	110	---	120	20	UJ	20	UJ	20	UJ
1,2-Dichlorobenzene	35	---	110	20	UJ	20	UJ	20	UJ
1,2,4-Trichlorobenzene	31	---	64	20	UJ	20	UJ	20	UJ
Hexachlorobenzene (HCB)	22	168	230	20	U	20	U	20	U

Table 3. Analytical Results Compared to DMMP Marine Guidelines

	SL	BT	ML	DMMU 1 2 3 4	VQ	DMMU 5	B	DMMU 6	B
PHTHALATES (µg/kg dry weight)									
Dimethyl phthalate	71	---	1,400	20	U	20	U	20	U
Diethyl phthalate	200	---	1,200	20	U	20	U	20	U
Di-n-butyl phthalate	1,400	---	5,100	20	U	20	U	20	U
Butyl benzyl phthalate	63	---	970	20	U	20	U	20	U
Bis(2-ethylhexyl) phthalate	1,300	---	8,300	49.9	U	49.9	U	49.9	U
Di-n-octyl phthalate	6,200	---	6,200	20	U	20	U	20	U
PHENOLS (µg/kg dry weight)									
Phenol*	420	---	1,200	**501***	B	**19.3**	U	**16.0**	U
2-Methylphenol (O-cresol)	63	---	77	20	U	<20	U	20	U
4-Methylphenol (P-cresol)	670	---	3,600	20	U	<20	U	20	U
2,4-Dimethylphenol	29	---	210	**2.5**	J	<20	J	20	UJ
Pentachlorophenol	400	504	690	99.8	UJ	<99.9	J	99.8	UJ
MISCELLANEOUS EXTRACTABLES (µg/kg dry weight)									
Benzyl alcohol	57	---	870	**19.1**	J	20	U	20	U
Benzoic acid	650	---	760	**102**	J	200	J	200	J
Dibenzofuran	540	---	1,700	**5.7**	J	20	U	20	U
Hexachlorobutadiene	11	---	270	5	U	5	U	5	U
N-Nitrosodiphenylamine	28	---	130	20	U	20	U	20	U
PESTICIDES & PCBs (µg/kg dry weight)									
4,4'-DDD	16	---		1	U	1	U	**0.8**	J
4,4'-DDE	9	---		1	U	1	U	**1.22**	
4,4'-DDT	12	---		1	U	1	U	1	U
Total DDT		50	69	1	U	1	U	2.08	J
Aldrin	9.5	---		0.5	U	0.5	U	0.5	U
Total Chlordane	2.8	37		1	U	1	U	1	U
Dieldrin	1.9	---		1	U	1	U	1	U
Heptachlor	1.5	---		0.5	U	0.5	U	0.5	U
Total PCBs (Aroclors)	130	38 (mg/kg OC)	3,100	4	U	4	U	4	U

Notes:

J - Estimated concentration
U - Undetected
UJ - Undetected, but reporting limit was identified duing validation to be an estimate
B - The analyte was detected in the method blank
SL - Screening level
BT - Bioaccumulation trigger
ML - Maximum level
OC - Organic Carbon
Bold - Parameter detected
* see phenol re-analyses results in Table 4

Table 5. Analytical Results Compared to SMS SQS

	SMS SQS	DMMU 1 2 3 4	VQ	DMMU 5	VQ	DMMU 6	VQ
Conventionals							
Total Ammonia, mg N/kg		**12.1**		**13.8**		**38.6**	
Total Sulfides, mg/kg		**1120**	J	**1330**	J	**772**	J
Total Organic Carbon		**1.72**		**1.64**		**1.85**	
METALS (mg/kg dry							
Arsenic	57	**9.91**		**11.6**		**10.6**	
Cadmium	5.1	**0.3**		**0.34**		**0.20**	
Chromium	260	**45.2**		**59.4**		**51.7**	
Copper	390	**40.5**		**62.3**		**42.2**	
Lead	450	**7.41**		**10.3**		**8.6**	
Mercury	0.41	**0.0867**	J	**0.113**	J	**0.101**	J
Silver	6.1	**0.15**	J	**0.18**	J	**0.16**	J
Zinc	410	**95.9**		**114**		**78**	
PAHs (mg/kg OC)							
Naphthalene	99	**0.4**	J	1.2	U	1.1	U
Acenaphthylene	66	1.2	UJ	**1.2**	J	1.1	UJ
Acenaphthene	16	1.2	U	1.2	U	1.1	U
Fluorene	23	**0.5**	J	1.2	U	1.1	U
Phenanthrene	100	**1.9**		**1.0**	J	**0.6**	J
Anthracene	220	**0.5**	J	**1.2**	J	1.1	UJ
2-Methylnaphthalene	38	**0.4**	J	1.2	U	1.1	U
Total LPAH	370	**3.6**	J	**1.0**	J	**0.6**	J
Fluoranthene	160	**5.2**		**3.3**		**1.6**	
Pyrene	1000	**3.8**		**3.2**		**1.3**	
Benz(a)anthracene	110	**0.7**	J	**0.7**	J	**0.4**	J
Chrysene	110	**2.0**		**2.3**		**0.9**	J
Benzofluoranthenes (b, j	230	**2.4**		**2.4**		**1.4**	J
Benzo(a)pyrene	99	**0.6**	J	**0.6**	J	**0.4**	J
Indeno(1,2,3-c,d)pyrene	34	0.5	UJ	**1.2**	J	1.1	UJ
Dibenz(a,h)anthracene	12	1.2	UJ	**1.2**	J	1.1	UJ
Benzo(g,h,i)perylene	34	0.7	UJ	**0.4**	J	0.4	UJ
Total HPAH	960	**15.9**	J	**12.8**	J	**6.4**	J
CHLORINATED BENZENES (mg/kg OC)							
1,4-Dichlorobenzene	2.3	1.2	UJ	1.2	UJ	1.1	UJ
1,2-Dichlorobenzene	3.1	1.2	UJ	1.2	UJ	1.1	UJ
1,2,4-Trichlorobenzene	0.81	1.2	UJ	1.2	UJ	1.1	UJ
Hexachlorobenzene	0.38	1.2	U	1.2	U	1.1	U
PHTHALATES (mg/kg OC)							
Dimethyl phthalate	53	1.2	U	1.2	U	1.1	U
Diethyl phthalate	61	1.2	U	1.2	U	1.1	U
Di-n-butyl phthalate	220	1.2	U	1.2	U	1.1	U
Butyl benzyl phthalate	4.9	1.2	U	1.2	U	1.1	U
Bis(2-ethylhexyl)	47	2.9	U	3.0	U	2.7	U
Di-n-octyl phthalate	58	1.2	U	1.2	U	1.1	U

Table 5. Analytical Results Compared to SMS SQS

	SMS SQS	DMMU 1 2 3 4	VQ	DMMU 5	VQ	DMMU 6	VQ
PHENOLS (µg/kg dry weight)							
Phenol*	420	**501***	B	19.3	U	16.0	U
2-Methylphenol (O-	63	20	U	<20	U	20	U
4-Methylphenol (P-	670	20	U	<20	U	20	U
2,4-Dimethylphenol	29	**2.5**	J	<20	J	20	UJ
Pentachlorophenol	360	99.8	UJ	<99.9	J	99.8	UJ
MISCELLANEOUS EXTRACTABLES (µg/kg dry weight)							
Benzyl alcohol	57	**19.1**	J	20	U	20	U
Benzoic acid	650	**102**	J	200	J	200	J
MISCELLANEOUS EXTRACTABLES (mg/kg OC)							
Dibenzofuran	15	**0.3**	J	1.2	U	1.1	U
Hexachlorobutadiene	3.9	0.3	U	0.3	U	0.3	U
N-Nitrosodiphenylamine	11	1.2	U	1.2	U	1.1	U
PCBs (mg/kg OC)							
Total PCBs (Aroclors)	12	0.2	U	0.2	U	0.2	U

Notes:

J - Estimated concentration
U - Undetected
UJ - Undetected, but reporting limit was identified duing validation to be an estimate
B - The analyte was detected in the method blank
SL - Screening level
BT - Bioaccumulation trigger
ML - Maximum level
OC - Organic Carbon
Bold - Parameter detected
* see phenol re-analyses results in Table 4