

CITY AND BOROUGH OF SITKA
New Sitka Seaplane Base



Wetland Delineation/ Functions & Values Report

June 2020



Prepared for:

City and Borough of Sitka
100 Lincoln Street
Sitka, Alaska 99835

Prepared by:

DOWL
4041 B Street
Anchorage, AK 99503

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ACRONYMS

AA.....	assessment area
CWA.....	Clean Water Act
FAC.....	Facultative
FACU.....	Facultative Upland
GHCN.....	global historical climatology network
MHW.....	Mean High Water
M2.....	marine intertidal
PFO.....	palustrine forested
PSS.....	palustrine scrub shrub
US.....	United States
USACE.....	United States Army Corps of Engineers
USGS.....	United States Geological Survey
USFWS.....	United States Fish and Wildlife Service

1.0 INTRODUCTION

DOWL is providing environmental support for the City and Borough of Sitka for a new Sitka Seaplane Base. The project area is located at 1190 Seward Avenue, Sitka, Alaska 99835 (57.055418 North Latitude; -135.363889 West Longitude, Copper River Meridian, Township 55S, Range 63E, Section 34 and 35) (Appendix A; Figure 1). This project may impact jurisdictional waters of the United States (US) in Sitka, Alaska.

DOWL was contracted to conduct a Wetland Delineation and assess wetland function and values for an approximately 2.0 acre-study area to identify and classify areas that may fall under the United States Army Corps of Engineers (USACE) jurisdiction per Section 404 of the Clean Water Act (CWA). The USACE is the jurisdictional agency with authority to permit the discharge of dredged or fill material into a Waters of the United States (WOUS) per Section 404 of the CWA. Outlined within the CWA, wetlands are categorized as “Other WOUS.” The USACE further defines wetlands as areas that are “inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal conditions do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” (USACE 1987) (40 CFR Part 230.3(t)).

The data herein is intended to provide the USACE with sufficient information to determine regulatory jurisdiction of aquatic resources subject to Section 404 of the CWA, and to evaluate the hydrological connectivity of such resources to a traditional navigable waterway, territorial sea, or navigable interstate waterway.

1.1 Environmental Setting

1.1.1 Regional Characteristics

The study area is within the Coastal Western Hemlock-Sitka Spruce Forest ecoregion, which is characterized by deep narrow bays, steep valley walls, irregular coastline and thin moraine deposits on hills and in valleys. Forests of western hemlock and Sitka spruce are widespread. The ecoregion has a maritime climate and has the mildest winters in Alaska and is generally free of permafrost. Soils near the mountains formed in gravelly and stony moraine deposits or in a mantle of volcanic ash over the morainal deposits. Soils of river deltas, terraces, alluvial fans, and floodplains formed in waterlain silts and clays. Poorly drained depressions are filled with fibrous peat (Gallant et al. 1995).

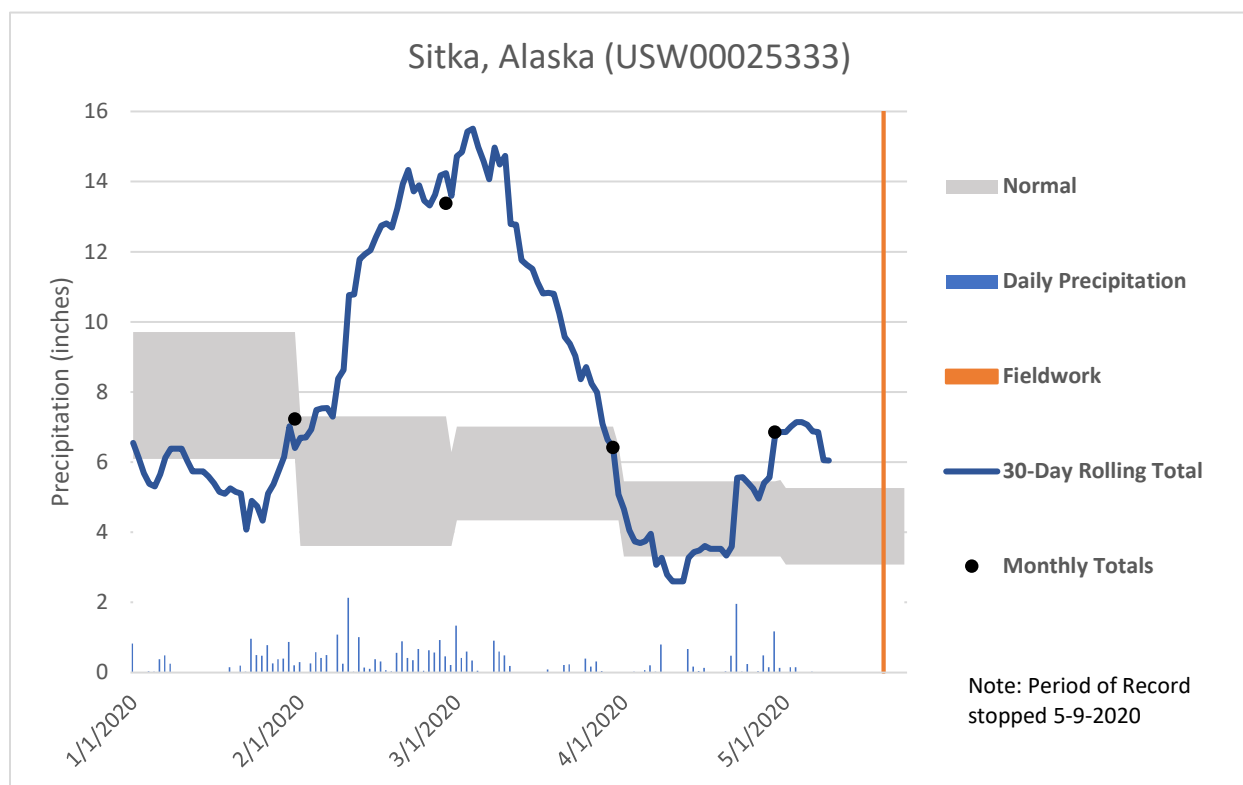
1.1.2 Study Area Characteristics

The City of Sitka is located on Baranof Island, approximately 93 miles southwest of Juneau. The study area is on Japonskii Island near the airport. Sitka lies in the maritime climate zone with small temperature variations, wet, cool summers, and relatively mild winters. Vegetation consists primarily of coastal western hemlock and Sitka spruce forest. Mean annual precipitation is about 87 inches (USGS 1995). The mean high-water (MHW) elevation for Sitka harbor is 9.16 feet. Japonski Island has seven distinct surficial deposits including drift, volcanic ash, muskeg, elevated delta and shore deposits, alluvial deposits, modern beach deposits, and man-made fill (Yehle 1974). Numerous expanses of subtidal wetlands exist on Japonski Island. The Indian River, Sawmill Creek, Swan Lake, Cascade Creek, Blue Lake, and an unnamed lagoon on

Japonski Island are the principal surface-water bodies in the Sitka area (USGS 1995). The City of Sitka is located in the Baranof Mountains, with a gradual southwest slope and steep eastern slope (Figure 1) (Wahrhaftig 1965). The growing season of this region is from May 29th to September 27th (USACE 2007).

1.2 Precipitation and Climatic Data

The closest global historical climatology network (GHCN) weather station is the Sitka Airport. The Sitka Airport GHCN weather station is located approximately 0.5 miles south of the project area. Precipitation data (Utah Climate Center 2020; Western Regional Climate Center 2020) from May 2000 to May 2020 was used to analyze antecedent conditions preceding the May 2020 data collection (Graphic 1). Daily precipitation values over a 30-day period were accumulated in order to examine the three-month period preceding data collection activities to determine if surface hydrology or soil moisture conditions observed were drier than normal, or wetter than normal (Natural Resource Conservation Service 2018). The period of record was stopped 5/9/2020 possibly due to COVID-19 impacts to data collection. Surface hydrology or soil moisture conditions observed were wetter than normal according to the precipitation analysis.



Graphic 1: Sitka Airport (USW00025333) 2020 Precipitation Data.

2.0 METHODS

2.1 Existing Data and Preparatory Analysis

The approximate 2.0-acre study area consists of forested, scrub shrub, and tidal areas adjacent to Sitka Harbor. A preliminary review of the study area was conducted prior to fieldwork based on:

- U.S. Geological Survey (USGS) 2017 Sitka A-5 SE Quadrangle
- USGS National Hydrography Dataset
- 2019 Aerial imagery
- U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory
- National Oceanic and Atmospheric Administration (NOAA) Tidal Datum for Sitka, Alaska
- Natural Resources Conservation Service (NRCS) Web Soil Survey

2.2 Field Data Collected

DOWL Environmental Specialists Joshua Grabel and Caity Kennedy conducted the wetland delineation fieldwork May 20, 2020 in accordance with *Part IV of the Corps of Engineers Wetlands Delineation Manual* (USACE 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Alaska Region [Version 2.0, (USACE 2007)]*.

Data was collected using the three-parameter approach combining site-specific indicators of hydrophytic vegetation, hydric soils, and wetland hydrology. Field notes were taken to document landscape topography and general site characteristics.

At each sampling location, soil test pits (TH) were excavated to a depth of at least 24 inches, or to the presence of a restrictive digging layer. Soil and hydrology characteristics of texture, color, saturation, and depth to water table were recorded on Corps Routine Wetland Determination forms (Appendix B). Soil color was recorded using *Munsell Soil-Color Charts* (Munsell Color 2012). In the event soil excavation was not necessary to make a wetland/upland determination, a photographic point (PP) was taken. MHW photopoints (MHW) were taken along the 9.16-foot elevation to verify the NOAA tidal datum.

Typically, US Department of Agriculture Natural Resource Conservation Service Web Soil Survey is analyzed. No soil data was available for the terrestrial portions of the study area.

A GPS with 20-ft accuracy and Trimble Nomad with sub-meter accuracy were used to pinpoint sample point and photopoint locations for GIS mapping reference. ESRI ArcMap was used to calculate acreages. Report mapping is an estimate of wetland boundaries based on site photos and sketches, topographic data, and field observations. Additional survey investigations will be conducted to capture flagged wetland boundaries under a dense forest canopy, where a normal GPS and Trimble Nomad have trouble with accuracy.

Wetlands were classified and grouped according to guidelines outlined in the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al. 1979). Sampling locations were selected to verify the preliminary mapping.

3.0 RESULTS

The 2.0-acre study area is comprised of approximately 0.06 acres of potentially jurisdictional wetlands and 0.01 acres of WOUS (3% of the study area), and 1.9 acres of non-jurisdictional uplands (97% of the study area) (Appendix 1: Figure 2). Percentages are rounded to the nearest whole number. All data sheets and photos are included in Appendix B. Table 1 summarizes the results by Cowardin classification.

Table 1: Wetlands, Waters of the U.S., and Uplands

Jurisdictional Type	Acres	Cowardin Classification	Data Points
Wetlands	0.06	PSS1B	TH2, TH5
Waterbodies	0.01	M2USN	MHW1, MHW2, MHW3, MHW4, MHW5, MHW6, MHW7
Uplands	1.9	N/A	TH1, TH3, TH4, PP1, PP2, PP3, PP4, PP5, PP6
Total Study Area	2.0		

PSS1B Palustrine, Scrub-Shrub, Broad-Leaved Deciduous, Saturated
M2USN Marine, Intertidal, Unconsolidated Bottom, Regularly Flooded

On-site observations indicate the study area has predominantly facultative (FAC) dominant hydrophytic vegetation and has greater than 2 inches of an organic layer typically. Wetland hydrology comes from primary indicators of high-water table, saturation, and sparsely vegetated concave surface. Analysis of the data collected in 2020 identified approximately 0.07 acres of wetlands and waterbodies, and 1.9 acres of uplands.

3.1 Wetlands

Wetland habitats in the study area typically begin as small seeps and flow downhill and are found in the northern and northwestern portion of the study area. One wetland starts as two seeps that flow together into a single swale. The other wetland is a small seep that starts at a toeslope. The wetlands are found on 2-3 percent slopes between several hills. Both wetlands are adjacent to the coastline and Sitka Harbor, separated by approximately 6-20 feet of uplands.

Wetland habitat types in the study area are palustrine, composed of two wetland areas. Palustrine habitats contain scrub shrub vegetation with a forest canopy growing overtop, however tree canopy did not exceed 10%. There is 30-60 percent bare ground underneath the scrub shrub canopy. Hydrology is composed of saturation, water table, sparsely vegetated concave surface, geomorphic position, and presence of reduce iron. Saturation is at 4-6 inches below the soil surface. Hydric soils indicators were histosols and histic epipedon.

The study area has one wetland Cowardin habitat system consisting of palustrine. Habitats within the study area are organized by vegetation stratum and then classified based on the

presence of hydrophytic vegetation, hydric soils, and wetland hydrology. See Table 2 for a summary of the data collected.

Table 2: Summary of Data Collected

Data #	Date Data Taken	Wetland Determination Form Completed	Hydrophytic Vegetation Present	Hydric Soils Present	Wetland Hydrology Present	Jurisdictional Status (Cowardin)
TH1	5/20/2020	Yes	No	Yes	No	Upland
TH2	5/20/2020	Yes	Yes	Yes	Yes	PSS1B
TH3	5/20/2020	Yes	Yes	No	No	Upland
TH4	5/20/2020	Yes	Yes	No	No	Upland
TH5	5/20/2020	Yes	Yes	Yes	Yes	PSS1B
PP1	5/20/2020	No	No	N/A	No	Upland
PP2	5/20/2020	No	No	N/A	No	Upland
PP3	5/20/2020	No	No	N/A	No	Upland
PP4	5/20/2020	No	No	N/A	No	Upland
PP5	5/20/2020	No	No	N/A	No	Upland
PP6	5/20/2020	No	No	N/A	No	Upland

Within the study area, there is one wetland habitat type as defined by a Cowardin classification.

3.1.1 Vegetation

Scrub-shrub wetlands (Cowardin classifications: PSS1B) are characterized by greater than 30% percent aerial cover in the shrub layer (Photo Set 1). These wetlands have a robust scrub shrub layer of stink currant (*Ribes bracteosum*) and salmonberry (*Rubus spectabilis*) with an herbaceous layer of false lily of the valley (*Maianthemum dilatatum*). All wetlands in the study area are classified as PSS1B. Characteristically, these wetlands are depressional, concave (two-to-three percent slopes) features that form as seeps.



Photo Set 1: Typical Scrub-Shrub Wetland

These wetlands are located beneath the forest canopy but are small in size and have either scrub shrub vegetation or a sparsely vegetated concave surface. Both wetlands start as seeps flowing downhill. One wetland forms a swale while the other flows to a downhill point, forming a

triangle. Dominant vegetation includes stink currant, false lily of the valley, and salmonberry. Wetland vegetation is dominantly FAC to FACU.

The triangle-shaped seep wetland at TH 5 has problematic hydrophytic vegetation due to having a hydric soil, primary wetland hydrology, being a concave seep forming at a toeslope, and having a sparsely vegetated concave surface. The shrub stratum is growing over top of the wetland to maximize sunlight with few individuals rooted in the seep, and the herb stratum is growing at the downslope point of the triangle on a slight rise in elevation. The shrub stratum is dominantly salmonberry, which is most common on moist to wet, water-receiving sites in forested or wooded areas (Zouhar 2015). The Salmonberry aerial stems can be seen in Photo Set 1 on the right photo, growing laterally over top of the seep.

The most common plant species identified in the study area include western hemlock (*Tsuga heterophylla*), Sitka mountain ash (*Sorbus sitchensis*), salmonberry, false lily of the valley, stink currant, and red alder (*Alnus rubra*). All species and wetland indicators observed within the study area are shown in Table 3.

Table 3: Plant Species within the Study Area

Scientific Name	Common Name	Indicator Status
<i>Alnus rubra</i>	Red alder	FAC
<i>Alnus viridis</i>	Sitka alder	FAC
<i>Maianthemum dilatatum</i>	False lily of the valley	FAC
<i>Picea sitchensis</i>	Sitka spruce	FACU
<i>Ribes bracteosum</i>	Stink currant	FAC
<i>Rubus spectabilis</i>	Salmonberry	FACU
<i>Sorbus sitchensis</i>	Sitka mountain ash	FACU
<i>Tsuga heterophylla</i>	Western hemlock	FAC
<i>Vaccinium ovalifolium</i>	Oval-leaf blueberry	FAC

Notes: FAC = Facultative; FACU = Facultative Upland

3.1.2 Soils

Soils observed within the study area had anywhere from 2 to 24 inches of organic layer. Table 4 describes observations made in the field.

Table 4: Soil Observations at Full Sample Points within the Study Area

Sample Point	Organic Thickness (inches)	Mineral Soil	Saturated Organics	Hydric
TH1	9	Sandy Loam	No	Yes, black histic
TH2	24	N/A	Yes	Yes, histosol
TH3	8	Silt Loam	No	No, 3" buried organics
TH4	2	Sandy Loam	No	No
TH5	12	Silt Loam	Yes	Yes, histic epipedon

A black histic was observed at TH1. This soil profile was characterized by 9 inches of organic material underlain by a sandy loam (B) horizon with a color of 7.5YR 3/2 from the Munsell Soil Color Chart (Munsell 2012). This site was moderately well drained, and no wetland hydrology was observed.

A histosol (A1) was observed at TH2. This soil profile was characterized by 24 inches of organic material. This site was very poorly drained and was characterized by saturation and high water table (4 inches deep).

A histic epipedon was observed at TH5. This soil profile was characterized by 12 inches of organic material underlain by a silt loam (B) horizon with a color of 10YR 2/1 from the Munsell Soil Color Chart (Munsell 2012). Soils at this site were poorly drained and primary wetland hydrology was present.

3.1.3 Hydrology

Using the NRCS method, it was determined that precipitation for the three months prior to the field investigation was above normal. Indicators of wetland hydrology were prevalent in the wetlands but lacking in upland areas.

At least one primary indicator was observed at both wetland locations where data forms were completed. Both sites (TH2 and TH5) had evidence of one secondary hydrologic indicator (geomorphic position, presence of reduced iron). No evidence of primary or secondary wetland hydrology indicators were observed at the remaining three data form sites. Hydrology indicators observed at each plot are shown in Table 5.

Table 5: Soil Observations at Full Sample Points within the Study Area

Sample Point	Hydrology Indicators	Wetland Hydrology Met
TH1	N/A	No
TH2	High water table, saturation, geomorphic position	Yes
TH3	N/A	No
TH4	N/A	No
TH5	Saturation, sparsely vegetated concave surface, presence of reduced iron, geomorphic position	Yes

3.2 Waterbody

Marine waters are found in tidal areas in Sitka Harbor below MHW. Waterbody consists of a tidally influenced coastline of Sitka Harbor. The MHW elevation of 9.16 feet was confirmed using a submeter accuracy GPS with visual observations of barnacles, saltwater vegetation growing on boulders, and debris deposits.



Photo Set 2: Mean High Water

Marine waters below MHW are composed of gravel, cobble, boulder, and bedrock substrate with barnacles and marine vegetation growing along the rocks. A low tide survey was conducted with photos for various substrate types and is attached as Appendix C. Table 6 is a summary of marine waterbody data collected.

Table 6: Summary of Data Collected

Data #	Date Data Taken	Jurisdictional Status (Cowardin)
MHW1	5/20/2020	M2USN
MHW2	5/20/2020	M2USN
MHW3	5/20/2020	M2USN
MHW4	5/20/2020	M2USN
MHW5	5/20/2020	M2USN
MHW6	5/20/2020	M2USN
MHW7	5/20/2020	M2USN

3.3 Non-Jurisdictional Uplands

The study area is predominantly uplands, consisting of western hemlock and Sitka spruce forests. The southern side of the access road has an open understory, while the northern forested area has a scrub shrub understory consisting of salmonberry, Sitka mountain ash, and alder. Upland slopes are 2-3%.

A black histic was detected at TH1. This soil profile was characterized by 9 inches of organic material with a 10YR 2/1 color from the Munsell Soil Color Chart but no saturation (Munsell 2012). The soil was underlain by a mineral soil material with chroma of 2 or less. Soil at this site was somewhat poorly drained.

TH3 had 5 inches of organic material, a 3-inch layer of mineral soil with a chroma greater than 2, and then a lower layer of 3 inches of organic material. The mineral soil beneath the lower organic layer contained a chroma of 2 or less. Black histic is not described in the 2007 Alaska Regional Supplement. The description comes from the NRCS Field Indicators of Hydric Soils in the United States (2018) that does not describe the separation of organic material by thin mineral layers to meet hydric soil indicator requirements. This forested area was near the

access road and potential disturbance and contained a soil layer of iron colored silt between layers of organics and a layer of ash below organics.

No hydrology indicators were met in upland areas.

3.4 Ecosystem Services Score and Functional Assessment

The WESPAK-SE Functional Assessment was completed for the two PSS1B wetlands as an assessment area. These wetlands were similar in Cowardin Classification, hydrogeomorphic classification, small in size, and similar in formation from spring seeps. The field and desktop tabs of the workbook were completed resulting in an overall score of 7.17 and higher overall rating (Appendix 4). The assessment area scored higher functioning for surface water storage, streamwater cooling, sediment & toxicant retention & stabilization, phosphorus retention, and nitrate removal & retention.

The online, WESPAK-SE module is no longer functioning to answer some of the questions in the workbook, and the data available for download does not encompass all data needs. The same sources were used to answer questions with data from original sources.

4.0 CONCLUSION OR DISCUSSION

Approximately 0.06 acres of wetlands and 0.01 acres of waterbody fall within the extend of USACE jurisdiction under Section 404 and 10 the CWA. No streams were observed in the study area. Even though climatic conditions were wetter than normal, no surface water was observed in either wetland during the May 20, 2020 fieldwork. Wetland seeps such as those observed in the study area are common to southeast Alaska.

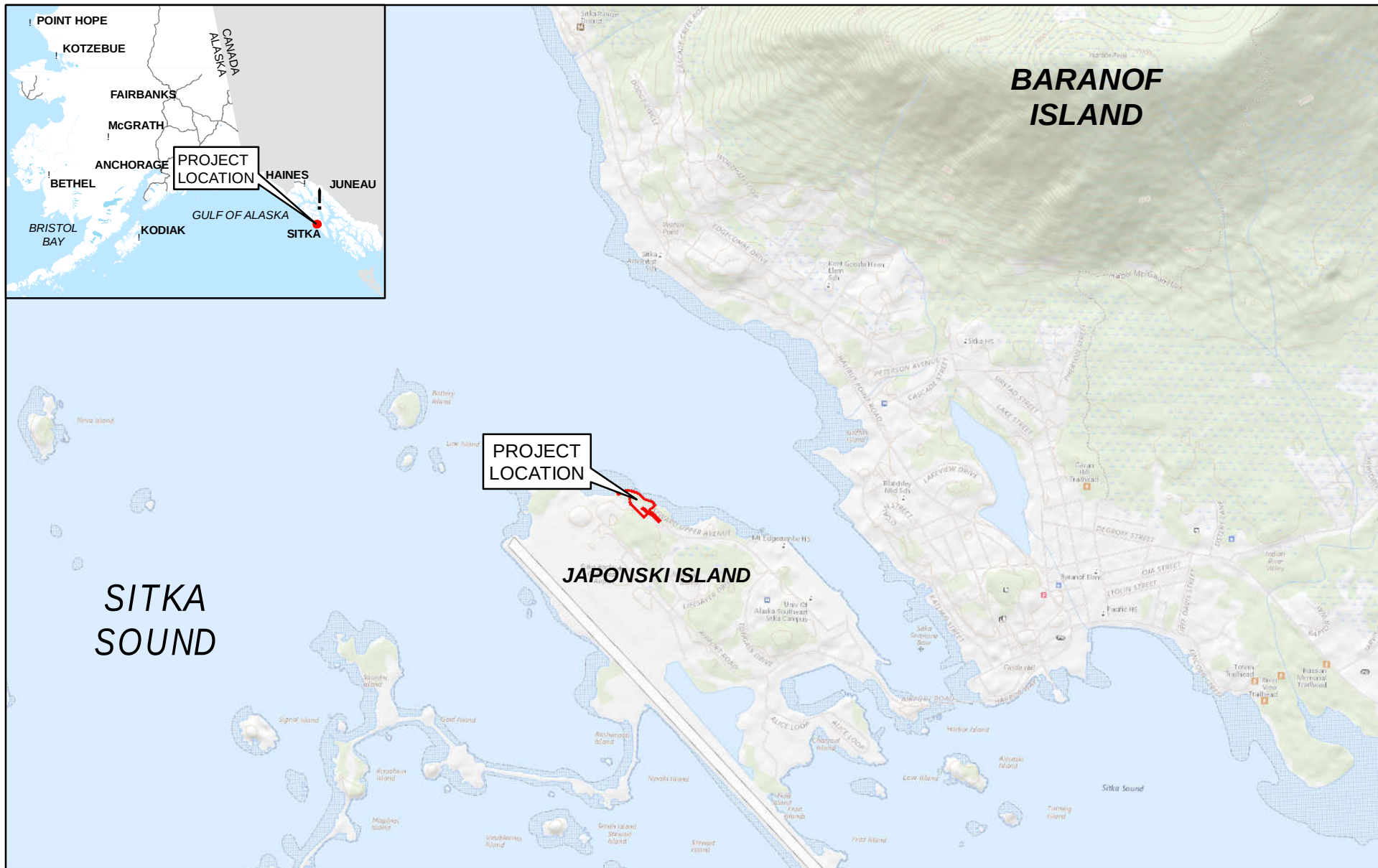
Wetlands within the study area are adjacent to a traditional navigable water (Sitka Harbor) and are separated by approximately 6-20 feet of uplands. The waterbody is Sitka Harbor. Wetlands and waters are assumed to be jurisdictional according to Section 10 and 404 of the Clean Water Act due to proximity to a traditional navigable water.

5.0 REFERENCES

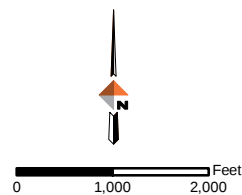
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Zouhar, Kris. 2019. *Rubus spectabilis*, salmonberry. In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Missoula Fire Sciences Laboratory (Producer). Available: <http://www.fs.fed.us/database/feis/plants/plants/shrub/rubspe/all.html> [2020, June 1].

APPENDIX 1: FIGURES



 Study Area



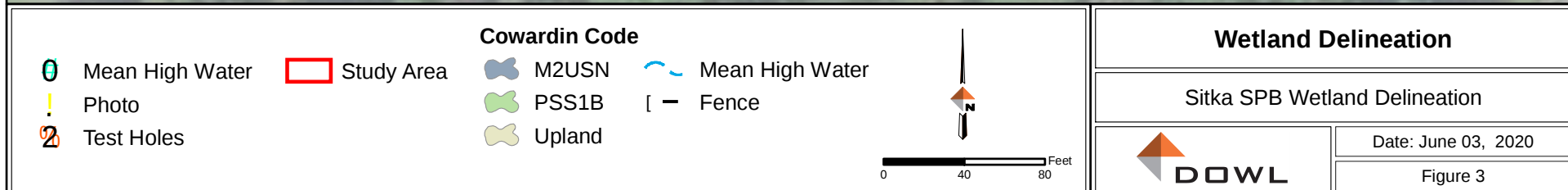
Location Vicinity Map

Sitka SPB Wetland Delineation

Date: June 02, 2020

Figure 1





APPENDIX 2: DATASHEETS AND PHOTODOC

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Sitka Seaplane Base Borough/City: Sitka Sampling Date: 5/20/2020
 Applicant/Owner: City of Sitka Sampling Point: TH1
 Investigator(s): JRG, CLK Landform (hillside, terrace, hummocks, etc.): Hillside
 Local relief (concave, convex, none): convex Slope (%): 2
 Subregion: Southeast Lat: 57.055628 Long: -135.364343 Datum: NAD 83
 Soil Map Unit Name: No digital data available NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present? Yes <u>X</u> No _____	
Wetland Hydrology Present? Yes _____ No <u>X</u>	
Remarks: Wetter than normal climatic conditions.	

VEGETATION – Use scientific names of plants. List all species in the plot.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)
1. <u>Tsuga heterophylla</u>	<u>10.00</u>	<u>Y</u>	<u>FAC</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
Total Cover: <u>10</u>				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>-</u> x 1 = <u>-</u> FACW species <u>-</u> x 2 = <u>-</u> FAC species <u>50</u> x 3 = <u>150</u> FACU species <u>65</u> x 4 = <u>260</u> UPL species <u>-</u> x 5 = <u>-</u> Column Totals: <u>115</u> (A) <u>410</u> (B) Prevalence Index = B/A = <u>3.57</u>
50% of total cover: <u>5</u> 20% of total cover: <u>2</u>				
Sapling/Shrub Stratum 1. <u>Sorbus sitchensis</u> <u>35</u> <u>Y</u> <u>FACU</u> 2. <u>Alnus viridis</u> <u>15</u> <u>N</u> <u>FACU</u> 3. <u>Rubus spectabilis</u> <u>30</u> <u>Y</u> <u>FACU</u> 4. _____ 5. _____ 6. _____				
Total Cover: <u>80</u>				
50% of total cover: <u>40</u> 20% of total cover: <u>16</u>				
Herb Stratum 1. <u>Maianthemum dilatatum</u> <u>25</u> <u>Y</u> <u>FAC</u> 2. _____ 3. _____ 4. _____ 5. _____ 6. _____ 7. _____ 8. _____ 9. _____ 10. _____				Hydrophytic Vegetation Indicators: ☐ Dominance Test is >50% ☐ Prevalence Index is ≤3.0 ☐ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ☐ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.
Total Cover: <u>25</u>				
50% of total cover: <u>12.5</u> 20% of total cover: <u>5</u>				
Plot size (radius, or length x width) <u>1/10th acre</u> % Bare Ground <u>10</u>				
% Cover of Wetland Bryophytes <u>-</u> Total Cover of Bryophytes <u>5</u> (Where applicable)				

Remarks:
Mossy alder trunks

SOIL

Sampling Point: TH1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3	Dead roots	-	-	-	-	-	Org	Fibric
3-9	10YR 2/1	100	-	-	-	-	Org	Hemic
9-24	7.5YR 3/2	100	-	-	-	-	SaL	Coarse

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
☐ Histic Epipedon (A2)
☐ Hydrogen Sulfide (A4)
☐ Thick Dark Surface (A12)
☐ Alaska Gleyed (A13)
☐ Alaska Redox (A14)
☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils³:

- ☐ Alaska Color Change (TA4)⁴
☐ Alaska Alpine Swales (TA5)
☐ Alaska Redox With 2.5Y Hue

- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
☒ Other (Explain in Remarks)

³One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.

⁴Give details of color change in Remarks.

Restrictive Layer (if present):

Type: -

Depth (inches): -

Hydric Soil Present? Yes X No

Remarks:

Black histic hydric soil indicator met.
 Dark mineral soil below organic
 No aquic soil conditions in 0-9" layers

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- | | |
|---|--|
| ☐ Surface Water (A1) | ☐ Inundation Visible on Aerial Imagery (B7) |
| ☐ High Water Table (A2) | ☐ Sparsely Vegetated Concave Surface (B8) |
| ☐ Saturation (A3) | ☐ Marl Deposits (B15) |
| ☐ Water Marks (B1) | ☐ Hydrogen Sulfide Odor (C1) |
| ☐ Sediment Deposits (B2) | ☐ Dry-Season Water Table (C2) |
| ☐ Drift Deposits (B3) | ☐ Other (Explain in Remarks) |
| ☐ Algal Mat or Crust (B4) | |
| ☐ Iron Deposits (B5) | |
| ☐ Surface Soil Cracks (B6) | |

Secondary Indicators (2 or more required)

- ☐ Water-stained Leaves (B9)
☐ Drainage Patterns (B10)
☐ Oxidized Rhizospheres along Living Roots (C3)
☐ Presence of Reduced Iron (C4)
☐ Salt Deposits (C5)
☐ Stunted or Stressed Plants (D1)
☐ Geomorphic Position (D2)
☐ Shallow Aquitard (D3)
☐ Microtopographic Relief (D4)
☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes No X Depth (inches):
 Water Table Present? Yes No X Depth (inches):
 Saturation Present? Yes No X Depth (inches):
 (includes capillary fringe)

Wetland Hydrology Present? Yes No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Dry soils -- no indicators of hydrology.

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Sitka Seaplane Base Borough/City: Sitka Sampling Date: 5/20/2020
 Applicant/Owner: City of Sitka Sampling Point: TH2
 Investigator(s): JRG, CLK Landform (hillside, terrace, hummocks, etc.): Swale
 Local relief (concave, convex, none): Concave Slope (%): 2
 Subregion: Southeast Lat: 57.055748 Long: -135.364531 Datum: NAD 83
 Soil Map Unit Name: No digital data available NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Hydric Soil Present? Yes <u>X</u> No _____	
Wetland Hydrology Present? Yes <u>X</u> No _____	
Remarks: Wetter than normal climatic conditions.	

VEGETATION – Use scientific names of plants. List all species in the plot.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
1. _____				
2. _____				
3. _____				
4. _____				
Total Cover: <u>0</u>				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>-</u> x 1 = <u>-</u> FACW species <u>-</u> x 2 = <u>-</u> FAC species <u>100</u> x 3 = <u>300</u> FACU species <u>5</u> x 4 = <u>20</u> UPL species <u>-</u> x 5 = <u>-</u> Column Totals: <u>105</u> (A) <u>320</u> (B) Prevalence Index = B/A = <u>3.04</u>
50% of total cover: _____ 20% of total cover: _____				
Sapling/Shrub Stratum				
1. <u>Rubus spectabilis</u>	<u>5</u>	<u>N</u>	<u>FACU</u>	
2. <u>Vaccinium ovalifolium</u>	<u>10</u>	<u>N</u>	<u>FACU</u>	
3. <u>Alnus viridis</u>	<u>5</u>	<u>N</u>	<u>FAC</u>	Hydrophytic Vegetation Indicators: ☒ Dominance Test is >50% ☐ Prevalence Index is ≤3.0 ☐ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ☐ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.
4. <u>Ribes bracteosum</u>	<u>50</u>	<u>Y</u>	<u>FAC</u>	
5. _____				
6. _____				
Total Cover: <u>70</u>				
50% of total cover: <u>35</u> 20% of total cover: <u>14</u>				Hydrophytic Vegetation Present? Yes <u>X</u> No _____
Herb Stratum				
1. <u>Maianthemum dilatatum</u>	<u>35</u>	<u>Y</u>	<u>FAC</u>	
2. _____				
3. _____				
4. _____				Hydrophytic Vegetation Present? Yes <u>X</u> No _____
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				Hydrophytic Vegetation Present? Yes <u>X</u> No _____
10. _____				
Total Cover: <u>35</u>				
50% of total cover: <u>17.5</u> 20% of total cover: <u>7</u>				
Plot size (radius, or length x width) <u>1/10th acre *</u> % Bare Ground <u>30</u>				
% Cover of Wetland Bryophytes <u>-</u> Total Cover of Bryophytes <u>-</u> (Where applicable)				

Remarks:

* Swale has trees with canopy over top but not growing in swale, Western hemlock. 30% bare ground in swale.

SOIL

Sampling Point: TH2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-8	10YR 2/2	100	-	-	-	-	Org	Sapric
8-24	10YR 2/2	50	-	-	-	-	Org	Sapric, 50% gravels

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☒ Histosol or Histel (A1)
☐ Histic Epipedon (A2)
☐ Hydrogen Sulfide (A4)
☐ Thick Dark Surface (A12)
☐ Alaska Gleyed (A13)
☐ Alaska Redox (A14)
☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils³:

- ☐ Alaska Color Change (TA4)⁴
☐ Alaska Alpine Swales (TA5)
☐ Alaska Redox With 2.5Y Hue

- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
☐ Other (Explain in Remarks)

³One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.

⁴Give details of color change in Remarks.

Restrictive Layer (if present):

Type: -

Depth (inches): -

Hydric Soil Present? Yes X No _____

Remarks:

Broken down organics
thick organics in swale

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
☒ High Water Table (A2)
☒ Saturation (A3)
☐ Water Marks (B1)
☐ Sediment Deposits (B2)
☐ Drift Deposits (B3)
☐ Algal Mat or Crust (B4)
☐ Iron Deposits (B5)
☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
☐ Sparsely Vegetated Concave Surface (B8)
☐ Marl Deposits (B15)
☐ Hydrogen Sulfide Odor (C1)
☐ Dry-Season Water Table (C2)
☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-stained Leaves (B9)
☐ Drainage Patterns (B10)
☐ Oxidized Rhizospheres along Living Roots (C3)
☐ Presence of Reduced Iron (C4)
☐ Salt Deposits (C5)
☐ Stunted or Stressed Plants (D1)
☒ Geomorphic Position (D2)
☐ Shallow Aquitard (D3)
☐ Microtopographic Relief (D4)
☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____
 Water Table Present? Yes X No _____ Depth (inches): 4
 Saturation Present? Yes X No _____ Depth (inches): 4
 (includes capillary fringe)

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

-Water seeping into pit at 4 inches
-Swale collects water flowing down hill

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Sitka Seaplane Base Borough/City: Sitka Sampling Date: 5/20/2020
 Applicant/Owner: City of Sitka Sampling Point: TH3
 Investigator(s): JRG, CLK Landform (hillside, terrace, hummocks, etc.): Terrace
 Local relief (concave, convex, none): None Slope (%): 0-1
 Subregion: Southeast Lat: 57.055718 Long: -135.364931 Datum: NAD 83
 Soil Map Unit Name: No digital data available NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present? Yes _____ No <u>X</u>	
Wetland Hydrology Present? Yes _____ No <u>X</u>	
Remarks: Wetter than normal climatic conditions.	

VEGETATION – Use scientific names of plants. List all species in the plot.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>75</u> (A/B)
1. <u>Tsuga heterophylla</u>	<u>40.00</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Alnus rubra</u>	<u>10.00</u>	<u>Y</u>	<u>FAC</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
Total Cover: <u>50</u>				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>-</u> x 1 = <u>-</u> FACW species <u>-</u> x 2 = <u>-</u> FAC species <u>100</u> x 3 = <u>300</u> FACU species <u>35</u> x 4 = <u>140</u> UPL species <u>-</u> x 5 = <u>-</u> Column Totals: <u>135</u> (A) <u>440</u> (B) Prevalence Index = B/A = <u>3.26</u>
50% of total cover: <u>25</u> 20% of total cover: <u>10</u>				
Sapling/Shrub Stratum				
1. <u>Rubus spectabilis</u>	<u>35</u>	<u>Y</u>	<u>FACU</u>	
2. <u>Vaccinium ovalifolium</u>	<u>5</u>	<u>N</u>	<u>FAC</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	Hydrophytic Vegetation Indicators: ☒ Dominance Test is >50% ☐ Prevalence Index is ≤3.0 ☐ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ☐ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
Total Cover: <u>40</u>				Hydrophytic Vegetation Present? Yes <u>X</u> No _____
50% of total cover: <u>20</u> 20% of total cover: <u>8</u>				
Herb Stratum				
1. <u>Maianthemum dilatatum</u>	<u>45</u>	<u>Y</u>	<u>FAC</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <u>X</u> No _____
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <u>X</u> No _____
10. _____	_____	_____	_____	
Total Cover: <u>45</u>				
50% of total cover: <u>22.5</u> 20% of total cover: <u>9</u>				
Plot size (radius, or length x width) <u>1/10th acre</u> % Bare Ground <u>2</u>				
% Cover of Wetland Bryophytes <u>-</u> Total Cover of Bryophytes <u>-</u> (Where applicable)				Hydrophytic Vegetation Present? Yes <u>X</u> No _____

Remarks:

Forested area with minimal species diversity

SOIL

Sampling Point: TH3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-5	10YR 2/1	100	-	-	-	-	Org	Hemic
5-8	2.5YR 3/6	90	-	10	-	-	SiL	10% Org, Iron layer
8-11	10YR 2/1	100	-	-	-	-	Org	Sapric
11-20	5Y 5/1	90	-	10	-	-	SiL	10% gravels, Ash layer

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
☐ Histic Epipedon (A2)
☐ Hydrogen Sulfide (A4)
☐ Thick Dark Surface (A12)
☐ Alaska Gleyed (A13)
☐ Alaska Redox (A14)
☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils³:

- ☐ Alaska Color Change (TA4)⁴
☐ Alaska Alpine Swales (TA5)
☐ Alaska Redox With 2.5Y Hue

- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
☐ Other (Explain in Remarks)

³One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.

⁴Give details of color change in Remarks.

Restrictive Layer (if present):

Type: Rock

Depth (inches): 20"

Hydric Soil Present? Yes _____ No X

Remarks:

Rock refusal at 20"
AA(-) in all layers

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
☐ High Water Table (A2)
☐ Saturation (A3)
☐ Water Marks (B1)
☐ Sediment Deposits (B2)
☐ Drift Deposits (B3)
☐ Algal Mat or Crust (B4)
☐ Iron Deposits (B5)
☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
☐ Sparsely Vegetated Concave Surface (B8)
☐ Marl Deposits (B15)
☐ Hydrogen Sulfide Odor (C1)
☐ Dry-Season Water Table (C2)
☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-stained Leaves (B9)
☐ Drainage Patterns (B10)
☐ Oxidized Rhizospheres along Living Roots (C3)
☐ Presence of Reduced Iron (C4)
☐ Salt Deposits (C5)
☐ Stunted or Stressed Plants (D1)
☐ Geomorphic Position (D2)
☐ Shallow Aquitard (D3)
☐ Microtopographic Relief (D4)
☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____
 Water Table Present? Yes _____ No X Depth (inches): _____
 Saturation Present? Yes _____ No X Depth (inches): _____
 (includes capillary fringe)

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No wetland hydrology present

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Sitka Seaplane Base Borough/City: Sitka Sampling Date: 5/20/2020
 Applicant/Owner: City of Sitka Sampling Point: TH4
 Investigator(s): JRG, CLK Landform (hillside, terrace, hummocks, etc.): Bench
 Local relief (concave, convex, none): None Slope (%): 0-1
 Subregion: Southeast Lat: 57.055233 Long: -135.364446 Datum: NAD 83
 Soil Map Unit Name: No digital data available NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present? Yes _____ No <u>X</u>	
Wetland Hydrology Present? Yes _____ No <u>X</u>	
Remarks: Wetter than normal climatic conditions.	

VEGETATION – Use scientific names of plants. List all species in the plot.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Tsuga heterophylla</u>	<u>80.00</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Picea sitchensis</u>	<u>5.00</u>	<u>N</u>	<u>FACU</u>	Total Number of Dominant Species Across All Strata: <u>4</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>75</u> (A/B)
4. _____	_____	_____	_____	Prevalence Index worksheet:
Total Cover: <u>85</u>				
50% of total cover: <u>42.5</u> 20% of total cover: <u>17</u>				
Sapling/Shrub Stratum				Total % Cover of: _____ Multiply by: _____
1. <u>Rubus spectabilis</u>	<u>5</u>	<u>Y</u>	<u>FACU</u>	OBL species <u>-</u> x 1 = <u>-</u>
2. <u>Vaccinium ovalifolium</u>	<u>2</u>	<u>Y</u>	<u>FAC</u>	FACW species <u>-</u> x 2 = <u>-</u>
3. _____	_____	_____	_____	FAC species <u>102</u> x 3 = <u>306</u>
4. _____	_____	_____	_____	FACU species <u>10</u> x 4 = <u>40</u>
5. _____	_____	_____	_____	UPL species <u>-</u> x 5 = <u>-</u>
6. _____	_____	_____	_____	Column Totals: <u>112</u> (A) <u>346</u> (B)
Total Cover: <u>7</u>				Prevalence Index = B/A = <u>3.08</u>
50% of total cover: <u>3.2</u> 20% of total cover: <u>1.4</u>				Hydrophytic Vegetation Indicators:
Herb Stratum				
1. <u>Maianthemum dilatatum</u>	<u>20</u>	<u>Y</u>	<u>FAC</u>	
2. _____	_____	_____	_____	☒ Dominance Test is >50%
3. _____	_____	_____	_____	☐ Prevalence Index is ≤3.0
4. _____	_____	_____	_____	☐ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
5. _____	_____	_____	_____	☐ Problematic Hydrophytic Vegetation ¹ (Explain)
6. _____	_____	_____	_____	¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <u>X</u> No _____
10. _____	_____	_____	_____	
Total Cover: <u>20</u>				
50% of total cover: <u>10</u> 20% of total cover: <u>4</u>				
Plot size (radius, or length x width) <u>1/10th acre</u> % Bare Ground <u>60</u>				
% Cover of Wetland Bryophytes <u>-</u> Total Cover of Bryophytes <u>-</u> (Where applicable)				

Remarks:
 60% bare ground under tree canopy
 Hemlock dominant forest with open understory

SOIL

Sampling Point: TH4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	10YR 2/1	100	-	-	-	-	Org	Fibric
2-8	7.5YR 4/4	100	-	-	-	-	SaL	Coarse
8-24	7.5YR 3/3	90	-	-	-	-	SaL	Coarse, 10% organic inclusions

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
☐ Histic Epipedon (A2)
☐ Hydrogen Sulfide (A4)
☐ Thick Dark Surface (A12)
☐ Alaska Gleyed (A13)
☐ Alaska Redox (A14)
☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils³:

- ☐ Alaska Color Change (TA4)⁴
☐ Alaska Alpine Swales (TA5)
☐ Alaska Redox With 2.5Y Hue

- ☐ Alaska Gleyed Without Hue 5Y or Redder
 Underlying Layer
☐ Other (Explain in Remarks)

³One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.

⁴Give details of color change in Remarks.

Restrictive Layer (if present):

Type: -

Depth (inches): -

Hydric Soil Present? Yes _____ No X

Remarks:

Bright, upland soils

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- | | |
|---|--|
| ☐ Surface Water (A1) | ☐ Inundation Visible on Aerial Imagery (B7) |
| ☐ High Water Table (A2) | ☐ Sparsely Vegetated Concave Surface (B8) |
| ☐ Saturation (A3) | ☐ Marl Deposits (B15) |
| ☐ Water Marks (B1) | ☐ Hydrogen Sulfide Odor (C1) |
| ☐ Sediment Deposits (B2) | ☐ Dry-Season Water Table (C2) |
| ☐ Drift Deposits (B3) | ☐ Other (Explain in Remarks) |
| ☐ Algal Mat or Crust (B4) | |
| ☐ Iron Deposits (B5) | |
| ☐ Surface Soil Cracks (B6) | |

Secondary Indicators (2 or more required)

- ☐ Water-stained Leaves (B9)
☐ Drainage Patterns (B10)
☐ Oxidized Rhizospheres along Living Roots (C3)
☐ Presence of Reduced Iron (C4)
☐ Salt Deposits (C5)
☐ Stunted or Stressed Plants (D1)
☐ Geomorphic Position (D2)
☐ Shallow Aquitard (D3)
☐ Microtopographic Relief (D4)
☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____Water Table Present? Yes _____ No X Depth (inches): _____Saturation Present? Yes _____ No X Depth (inches): _____
(includes capillary fringe)Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No wetland hydrology

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Sitka Seaplane Base Borough/City: Sitka Sampling Date: 5/20/2020
 Applicant/Owner: City of Sitka Sampling Point: TH5
 Investigator(s): JRG, CLK Landform (hillside, terrace, hummocks, etc.): Hillside
 Local relief (concave, convex, none): concave Slope (%): 2-3
 Subregion: Southeast Lat: 57.055882 Long: -135.365142 Datum: NAD 83
 Soil Map Unit Name: No digital data available NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation Y, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Hydric Soil Present? Yes <u>X</u> No _____	
Wetland Hydrology Present? Yes <u>X</u> No _____	
Remarks: Problematic vegetation with shrubs growing over top of seep. Some rooted in seep. Wetter than normal.	

VEGETATION – Use scientific names of plants. List all species in the plot.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)
4. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>-</u> x 1 = <u>-</u> FACW species <u>-</u> x 2 = <u>-</u> FAC species <u>20</u> x 3 = <u>60</u> FACU species <u>85</u> x 4 = <u>340</u> UPL species <u>-</u> x 5 = <u>-</u> Column Totals: <u>105</u> (A) <u>400</u> (B) Prevalence Index = B/A = <u>3.8</u>
Total Cover: <u>0</u>				
50% of total cover: _____ 20% of total cover: _____				
Sapling/Shrub Stratum				Hydrophytic Vegetation Indicators: ☐ Dominance Test is >50% ☐ Prevalence Index is ≤3.0 ☐ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ☒ Problematic Hydrophytic Vegetation ¹ (Explain)
1. <u>Rubus spectabilis</u>	<u>70</u>	<u>Y</u>	<u>FACU</u>	
2. <u>Sorbus sitchensis</u>	<u>15</u>	<u>N</u>	<u>FACU</u>	
3. _____	_____	_____	_____	¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <u>X</u> No _____
Total Cover: <u>85</u>				
50% of total cover: <u>42.5</u> 20% of total cover: <u>17</u>				
Herb Stratum				
1. <u>Maianthemum dilatatum</u>	<u>20</u>	<u>Y</u>	<u>FAC</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
Total Cover: <u>20</u>				
50% of total cover: <u>10</u> 20% of total cover: <u>4</u>				
Plot size (radius, or length x width) <u>20' x 10'</u> % Bare Ground <u>60</u>				
% Cover of Wetland Bryophytes <u>-</u> Total Cover of Bryophytes <u>5</u> (Where applicable)				

Remarks:
 60% bare ground beneath shrub layer
 Salmonberry growing over top of seep but not dominantly rooted in seep. Sparse veg in seep. Hydrophytic vegetation problematic due to lack of indicator. Hydric soil and primary indicator of wetland hydrology met. Area is concave seep at toeslope.

SOIL

Sampling Point: TH5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-12	10YR 2/1	100	-	-	-	-	Org	Sapric
12-24	10YR 2/1	5	-	-	-	-	SiL	95% gravels, cobbles

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
☒ Histic Epipedon (A2)
☐ Hydrogen Sulfide (A4)
☐ Thick Dark Surface (A12)
☐ Alaska Gleyed (A13)
☐ Alaska Redox (A14)
☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils³:

- ☐ Alaska Color Change (TA4)⁴
☐ Alaska Alpine Swales (TA5)
☐ Alaska Redox With 2.5Y Hue

- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
☐ Other (Explain in Remarks)

³One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.

⁴Give details of color change in Remarks.

Restrictive Layer (if present):

Type: -

Depth (inches): -

Hydric Soil Present? Yes X No

Remarks:

Dark organics
AA(+) in both layers

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
☐ High Water Table (A2)
☒ Saturation (A3)
☐ Water Marks (B1)
☐ Sediment Deposits (B2)
☐ Drift Deposits (B3)
☐ Algal Mat or Crust (B4)
☐ Iron Deposits (B5)
☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
☒ Sparsely Vegetated Concave Surface (B8)
☐ Marl Deposits (B15)
☐ Hydrogen Sulfide Odor (C1)
☐ Dry-Season Water Table (C2)
☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-stained Leaves (B9)
☐ Drainage Patterns (B10)
☐ Oxidized Rhizospheres along Living Roots (C3)
☒ Presence of Reduced Iron (C4)
☐ Salt Deposits (C5)
☐ Stunted or Stressed Plants (D1)
☒ Geomorphic Position (D2)
☐ Shallow Aquitard (D3)
☐ Microtopographic Relief (D4)
☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes No X Depth (inches):
 Water Table Present? Yes X No Depth (inches): 14
 Saturation Present? Yes X No Depth (inches): 6
 (includes capillary fringe)

Wetland Hydrology Present? Yes X No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Seep starting at toeslope and flowing downhill
AA(+) in 0-24'

Location Description: PP1 LANDSCAPE – FACING Northeast



LANDSCAPE – FACING Southeast



Observed ground cover



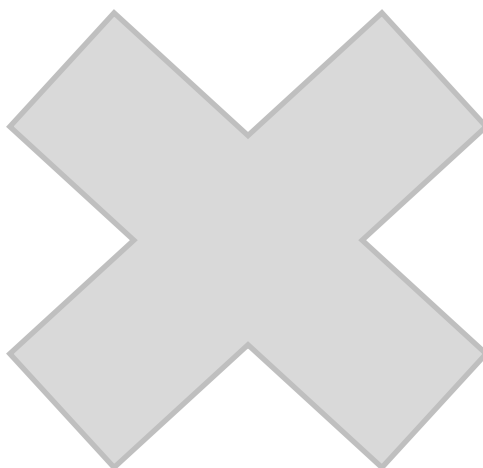
Location Description: PP2 LANDSCAPE – FACING Northeast



LANDSCAPE – FACING Northwest



Observed ground cover



Location Description: PP3 LANDSCAPE – FACING Northeast



LANDSCAPE – FACING Southeast



Observed ground cover



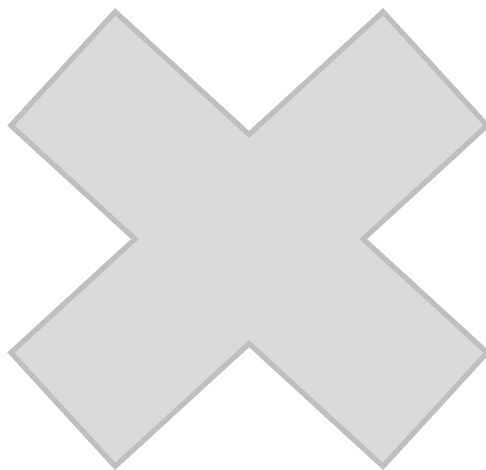
Location Description: PP4 LANDSCAPE – FACING Southeast



LANDSCAPE – FACING Southwest



Observed ground cover



Location Description: PP5 LANDSCAPE – FACING Southeast



LANDSCAPE – FACING Southwest



Observed ground cover



Location Description: PP6 LANDSCAPE – FACING Southeast



LANDSCAPE – FACING Southwest



Observed ground cover



Location Description: TH1 LANDSCAPE – FACING Southwest



LANDSCAPE – FACING Northwest



SOILS: Soil pit



Location Description: TH2 LANDSCAPE – FACING Northeast



LANDSCAPE – FACING Southwest



SOILS: Soil pit



Location Description: TH3 LANDSCAPE – FACING Northeast



LANDSCAPE – FACING Southeast



SOILS: Soil pit



Location Description: TH4 LANDSCAPE – FACING North



LANDSCAPE – FACING West



SOILS: Soil pit



Location Description: TH5 LANDSCAPE – FACING Northeast



LANDSCAPE – FACING Southwest



SOILS: Soil pit



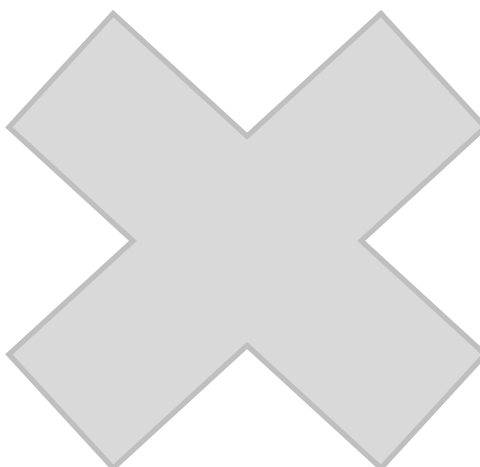
Location Description: MHW1 LANDSCAPE – FACING Northeast



LANDSCAPE – FACING Southwest



Observed ground cover



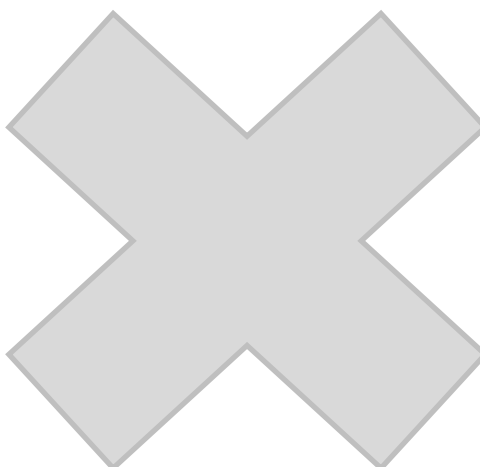
Location Description: MHW2 LANDSCAPE – FACING Northeast



LANDSCAPE – FACING Northwest



Observed ground cover



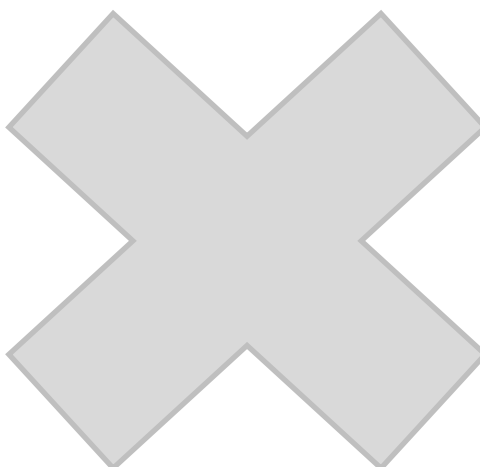
Location Description: MHW3 LANDSCAPE – FACING Northeast



LANDSCAPE – FACING Southeast



Observed ground cover



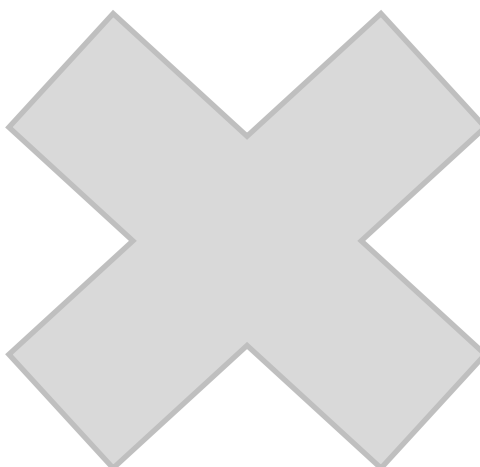
Location Description: MHW4 LANDSCAPE – FACING Northeast



LANDSCAPE – FACING Northwest



Observed ground cover



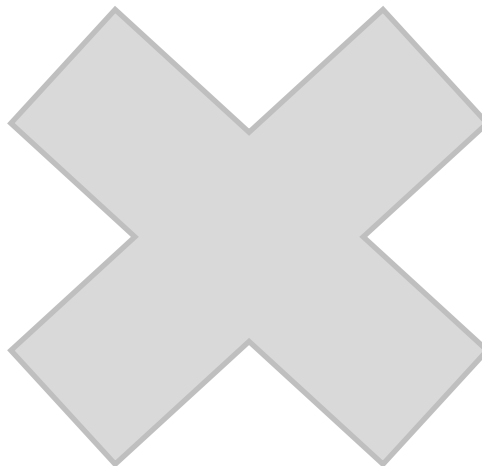
Location Description: MHW5 LANDSCAPE – FACING Southwest



LANDSCAPE – FACING Northwest



Observed ground cover



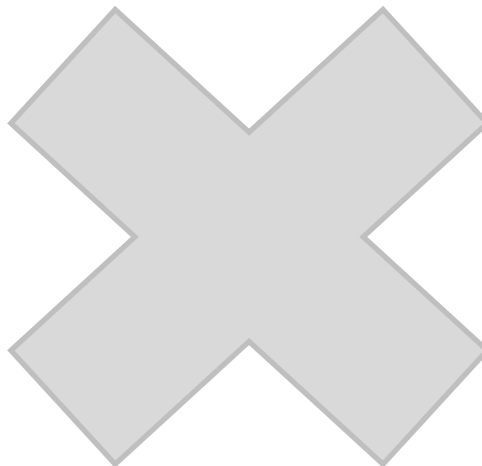
Location Description: MHW6 LANDSCAPE – FACING Southeast



LANDSCAPE – FACING Southwest



Observed ground cover



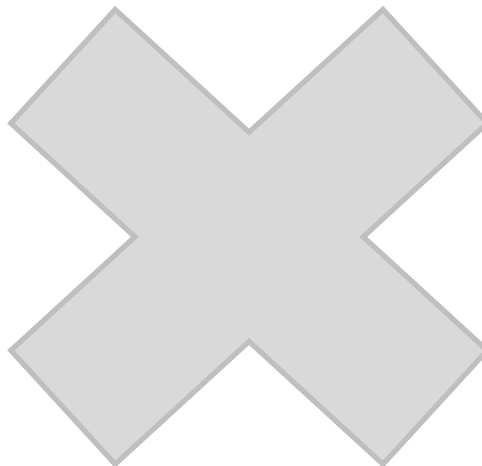
Location Description: MHW7 LANDSCAPE – FACING Northeast



LANDSCAPE – FACING Northwest



Observed ground cover



APPENDIX 3: LOW TIDE SURVEY

Low Tide Survey 5-20-2020



Location Description: B1

2" gravel swath down to low tide, boulders scattered along mean high water area.

FACING Northeast



FACING Southeast



FACING Southwest



FACING Northwest



Location Description: B2

Boulders down to low tide, bedrock near mean high water area.

FACING Northeast



FACING Southeast



FACING Southwest



FACING Northwest



Location Description: B3

Boulders from mean high water to low tide.

FACING Northeast	FACING Southeast
	
FACING Southwest	FACING Northwest
	

Location Description: B4

Cobbles and boulders down to low tide.

FACING Northeast



FACING Southeast



FACING Southwest



FACING Northwest



Location Description: B5

Boulders and cobbles down to low tide.

FACING Northeast



FACING Southeast



FACING Southwest



FACING Northwest



Location Description: B6

Gravel from mean high water to start of boulders, bedrock in areas.

FACING Northeast	FACING Southeast
	
FACING Southwest	FACING Northwest
	

APPENDIX 4: WESPAK-SE SUMMARY

Site Name or ID #:	Sitka Seaplane Base
Investigator Name:	Joshua Grabel
Date of Field Assessment:	5/20/2020
Nearest Town:	City of Sitka
Latitude (decimal degrees):	57.05418
Longitude (decimal degrees):	-135.363889
HUC12 Watershed # (from UAS web site):	190102121206
Approximate size of the Assessment Area (AA, in acres)	0.06
AA as percent of entire wetland (approx.)	100
Tidal phase during most of visit:	Low
What percent (approx.) of thewetland were you able to visit?	100.00
What percent (approx.) of theAA were you able to visit?	70.00
Have you attended a training session for this protocol? If so, indicate approximate month & year.	
How many wetlands have you assessed previously using this protocol (approx.)?	10.00

Scores will appear below after data are entered in worksheets OF, F, and S. See Manual for definitions and descriptions of how scores were computed.

WESPAK-SE version 2 scores for this NON-tidal Wetland Assessment Area (AA):										FUNCTION			VALUE		
Specific Functions or Values:	Function Score raw	Value Score raw	Score (normalized)	Function Rating	Value Score (normalized)	Value Rating	FV raw	FV Index	(normalized d)	Median of d F Scores	Thresholds for Function Rating (normalized score)		Median of Normalized V Scores	Thresholds for Value Rating (normalized score)	
											Low is < or =	High is >		Low is < or =	High is >
Surface Water Storage (WS)	10.00	10.00	10.00	Higher	10.00	Higher	10.00	10.00	10.00	2.95	2.89	6.34	3.06	1.85	5.00
Stream Flow Support (SFS)	0.00	0.00	0.00	Lower	0.00	Lower	0.00	0.00	0.00	3.17	2.67	6.13	3.33	1.45	4.48
Streamwater Cooling (WC)	7.20	0.00	7.20	Higher	0.00	Lower	3.60	7.20	7.00	4.00	3.36	5.87	1.98	2.11	5.49
Streamwater Warming (WW)	5.00	0.00	5.00	Moderate	0.00	Lower	2.50	5.00	4.03	5.42	3.33	6.80	2.78	2.78	6.63
Sediment & Toxicant Retention & Stabilization (SR)	10.00	0.17	10.00	Higher	0.00	Lower	5.00	10.00	10.00	3.13	3.36	6.52	0.84	2.05	5.86
Phosphorus Retention (PR)	10.00	1.07	10.00	Higher	1.04	Lower	5.52	10.00	10.00	3.34	3.06	6.17	1.27	2.45	5.73
Nitrate Removal & Retention (NR)	10.00	4.17	10.00	Higher	4.56	Moderate	7.28	10.00	10.00	2.33	2.19	4.64	3.25	2.17	4.94
Carbon Sequestration (CS)	6.08		3.89	Moderate			3.89	3.89	3.89	6.53	3.66	6.43			
Organic Nutrient Export (OE)	0.00	0.00	0.00	Lower	0.00	Lower	0.00	0.00	0.00	7.68	0.00	7.59	7.00	0.00	7.00
Anadromous Fish Habitat (FA)	0.00	0.00	0.00	Lower	0.00	Lower	0.00	0.00	0.00	0.00	2.93	7.23	0.00	0.63	6.67
Resident & Other Fish Habitat (FR)	0.00	0.00	0.00	Lower	0.00	Lower	0.00	0.00	0.00	0.00	0.00	7.43	0.00	1.50	7.76
Aquatic Invertebrate Habitat (INV)	4.53	2.26	3.50	Moderate	0.71	Lower	2.11	3.50	3.50	3.92	2.48	5.04	2.22	2.50	6.43
Amphibian Habitat (AM)	5.66	5.56	4.35	Moderate	6.45	Higher	5.40	5.40	4.80	4.40	3.59	6.74	4.21	2.43	5.19
Waterbird Feeding Habitat (WBF)	0.00	0.00	0.00	Lower	0.00	Lower	0.00	0.00	0.00	4.60	0.00	5.68	2.53	0.85	4.07
Waterbird Nesting Habitat (WBN)	2.53	0.00	3.65	Moderate	0.00	Lower	1.83	3.65	3.65	4.58	0.00	6.44	6.90	1.67	8.70
Songbird, Raptor, & Mammal Habitat (SBM)	5.35	3.33	6.61	Moderate	3.33	Moderate	4.97	6.61	6.44	8.05	0.00	7.35	4.22	2.50	5.63
Pollinator Habitat (POL)	2.30	3.20	2.72	Moderate	4.29	Moderate	3.50	3.50	3.06	4.94	2.45	5.38	4.15	2.65	5.83
Native Plant Habitat (PH)	5.28	5.88	4.88	Moderate	4.54	Moderate	4.71	4.88	3.94	5.24	4.52	6.51	3.78	3.78	6.46
Other Values or Attributes:															
Public Use & Recognition (PU)		2.54			3.16	Moderate	3.16	3.16	3.16				2.91	2.32	5.59
Subsistence & Provisioning Services (Subsis)		10.00			10.00	Higher	10.00	10.00	10.00				5.00	0.00	6.67
Wetland Sensitivity (Sens) - not used in subsequent calculations		4.58			7.13	Moderate	7.13	7.13	10.00				5.91	5.03	7.46
Wetland Ecological Condition (EC) - not used in subsequent calculations		1.72			1.81	Lower	1.81	1.81	1.91				4.15	2.79	5.08
Stress Potential (STR) - not used in subsequent calculations		4.91			7.32	Higher	7.32	7.32	10.00				6.43	3.31	5.73
Summary Scores for Groups:										Group Score Not Normalized	Group Score Normalized	Group Rating			
HYDROLOGIC Group (WS)								10.00	10.00	Higher	3.08	5.91			
WATER QUALITY Group (max+avg/2 of SR, PR, NR, CS)								9.24	10.00	Higher	4.23	6.75			
AQUATIC SUPPORT Group (max+avg/2 of SFS, INV, OE, WC, WW)								4.95	0.00	Lower	4.07	6.60			
FISH Group (max+avg/2 of FA, FR)								0.00	0.00	Lower	2.52	5.83			
AQUATIC HABITAT Group (max+avg/2 of AM, WBF, WBN)								3.81	2.48	Lower	4.04	6.82			
TERRESTRIAL HABITAT Group (max+avg/2 of SBM, PH, POL)								5.46	3.95	Moderate	3.61	6.32			
SOCIAL GROUP (max+avg/2 of PU, Subsis)								10.00	10.00	Higher	3.66	6.58			
AVG w/o Socialwith Social selected higher normalized										7.20	7.60	7.60	7.17		
Overall Score (see Manual for explanation of how the spreadsheet calculates it):										7.17					
Overall Rating:										Higher					
HYDRO										0.00	10.00				
WQ & CS										3.00	9.14				
AQSUPP										4.97	9.42				
FISH										0.00	10.00				
HABAQ										1.82	9.84				
HABTERR										2.49	10.00				
SOCIAL										0.60	8.66				

NOTE: Complete WESPAK spreadsheet available to agencies electronically upon request.