Mitigation Opportunities Inventory Report

Waterfront Marina, Albert Jensen and Sons Boatyard and Marina, and Jackson Beach Recreation Area

Prepared for:

Port of Friday Harbor

Friday Harbor, Washington

Prepared by:

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Abbreviations and Acronyms

CFR	*Code of Federal Regulations*
Corps	U.S. Army Corps of Engineers
ea	each
Ecology	Washington State Department of Ecology
Jensen's	Albert Jensen and Sons Boatyard and Marina
L-E	Leon Environmental, LLC
lf	linear feet
MHHW	mean higher high water
PoFH	Port of Friday Harbor
Port	Port of Friday Harbor
sf	square feet
cy	cubic yards
TBD	to be determined
Use Plan	Advance Mitigation Use Plan
WDFW	Washington Department of Fish and Wildlife
WE	Whatcom Environmental Services

1.0 INTRODUCTION

The Port of Friday Harbor (Port), located on San Juan Island, owns and operates three waterfront facilities: Waterfront Marina, Albert Jensen and Sons Boatyard and Marina (Jensen's), and the Jackson Beach recreation area. Most recently, the Port acquired the Shipyard Cove Marina, which is located immediately adjacent to Jensen's to the northwest.

The Port's mission is to maintain a healthy economy with family-wage jobs and to improve the social, economic, and natural environments of the island. As part of its efforts to achieve these goals, the Port prepared a Waterfront Master Plan to guide future development and improvements at these sites. Additionally, the Port intends to redevelop Jensen's, and is in the process of developing a Master Plan update for this facility, including plans for both the marina and upland infrastructure.

Many of these planned improvements will result in impacts to the aquatic environment that require compensatory mitigation under federal and state regulations (33 *Code of Federal Regulations* [CFR] Parts 325 and 332, 40 CFR Part 230, RCW 77.55, RCW 90.48, RCW 90.74, WAC 173-201A, WAC 173-201A-300-330, WAC 220-660-030(100)).

Significant mitigation credits[1] are needed for the Port to achieve its economic development goals. The Port hopes to prepare and implement a comprehensive mitigation strategy to complete waterfront improvements more cost-effectively than traditional mitigation approaches would allow. Locating mitigation sites and determining when to build them is a critical strategic decision. Well-planned sites can provide multiple benefits beyond compensatory mitigation, including land use buffers, stormwater enhancements, and public access opportunities.

1.1 Mitigation Background

As mitigation requirements have increased and become more complex, mitigation sites are becoming more expensive and time-consuming to permit.

The 2008 Final Rule on Compensatory Mitigation for Losses of Aquatic Resources provides three mitigation pathways: mitigation banks, in-lieu fee programs, and permittee-responsible mitigation.

- Mitigation banks are slow to develop, and often require years of agency negotiations and hundreds of thousands of dollars to establish.
- In-lieu fee options are typically expensive and do not take advantage of existing mitigation opportunities on Port property.
- Permittee-responsible mitigation includes concurrent and advance mitigation.

Permittee-responsible advance mitigation offers numerous cost and ecological benefits for the Port:

- Mitigation required for multiple projects can be combined into one site, reducing the cost of developing and monitoring multiple sites.
- Redevelopment schedules are reduced because mitigation has already been selected and completed.
- Advance mitigation is subject to reduced mitigation ratios relative to concurrent mitigation, which provides higher value per unit area.

[1] Mitigation "credits," as referenced in this proposal, are consistent with the "Interagency Regulatory Guide, Advance Permittee-Responsible Mitigation" (Ecology Publication no. 12-06-015).

- Advance mitigation provides greater certainty of mitigation success and reduces temporal loss of habitat functions.

The combination of lower cost, shorter development timeline, and enhanced ecological benefits make permittee-responsible advance mitigation a good choice for the Port.

There may be time-critical factors on the Port's waterfront that affect credit availability. Removal of numerous derelict structures (pilings, dolphins, piers, etc.) that degrade habitat and have outlived their useful life is a non-controversial mitigation opportunity. The problem is that once these structures crumble into the water or are removed, their removal or replacement can no longer be claimed as mitigation for future impacts. Documenting the remaining mitigation opportunities and providing a baseline of existing conditions, that is verified by the regulatory agencies, the Port can:

- Maximize existing low-cost mitigation opportunities before any more are lost,
- Provide more certainty that suitable mitigation credits are likely available for future redevelopment, and
- Eliminate expenses identifying and permitting mitigation on a project-by-project basis.

Other mitigation opportunities along the waterfront include the creation of shoreline habitat that may include vegetation restoration (where feasible), removal of fill and debris, placement of beneficial substrate (e.g. fish habitat spawning gravel), and placement of large woody debris (where feasible).

This mitigation opportunities inventory report is intended to serve as the first step in establishing baseline conditions for subsequent agency confirmation and approval of a comprehensive advance mitigation program to support future Port development that will inform:

- Design and permitting for practical and cost-effective mitigation projects that complement and enhance future Port development projects;
- Preparation of grant applications and strategies to help fund these projects;
- Subsequent negotiations with regulatory agencies, stakeholders and potential partners needed to maximize the total credits available for future development.

1.2 Report Objectives

The objective for this work is to prepare strategic planning materials needed for the Port to participate in the Advance Permittee-Responsible Mitigation Program developed jointly by the US Army Corps of Engineers (Corps), the Washington State Department of Ecology (Ecology), and the Washington Department of Fish and Wildlife (WDFW). Specifically, this report summarizes potential mitigation opportunities on Port-owned property that can be included in a Port Advance Mitigation Permittee-Responsible Mitigation Program that is consistent with the *Interagency Regulatory Guide, Advance Permittee-Responsible Mitigation* (Ecology 2012) and the federal rule on compensatory mitigation.

The objectives for this work include:

- Provide a comprehensive strategy for Port mitigation planning.
- Provide a cost-effective road map for areas to mitigate for future Port waterfront development impacts.
- Identify opportunities to extract maximum mitigation credits from existing on-site resources.
- Inform the Port's comprehensive land use and public access planning efforts.

Because the field investigation and initial draft report phases of this work occurred before the Port acquired Shipyard Cove Marina, identifying mitigation opportunities on this property is not an objective of this report.

1.3 Report Contents

The technical content of this Mitigation Opportunities Inventory Report includes the following sections:

- **Anticipated Future Mitigation Needs:** Section 2 of this report provides an overview of future mitigation needs anticipated based on existing Port Master Planning documents.
- **Potential Mitigation Opportunities:** Section 3 of this report provides an inventory of potential mitigation opportunities at three of the Port's waterfront facilities.
- **Advance Mitigation Process:** Section 4 of this report summarizes steps the Port can take to implement an Advance Mitigation Permittee-Responsible Mitigation Program based on Ecology guidance (Ecology 2012).

2.0 ANTICIPATED FUTURE MITIGATION NEEDS

The determination of anticipated future mitigation needs is based on a review of existing Port planning documents. The Port completed two master plans in recent years to guide future development and improvements for Port-owned facilities, the 2014 Port of Friday Harbor Waterfront Master Plan (Makers 2014), and the 2016 Waterfront Master Plan Addendum (Makers 2016), addressing planned improvements for the Waterfront Marina and Jackson Beach. Most recently, the 2018 Albert Jensen & Sons Boatyard & Marina Master Plan (PoFH 2018) was prepared for this newly acquired Port property. This master plan is currently being updated as part of the Jensen's Shipyard Integrated Planning Grant Support project.

2.1 Potential Future Infrastructure Improvements

The planned infrastructure improvements called for in the master planning documents include maintenance, upgrading, and expanding existing facilities in and over-water, as well as environmental remediation and other redevelopment activities, potentially impacting aquatic habitat.

2.1.1 2014 Port of Friday Harbor Waterfront Master Plan

The 2014 Waterfront Master Plan specifically identifies a range of near, mid, and long-term improvement projects for the Waterfront Marina and Jackson Beach. Proposed improvements for the Waterfront Marina include an upgrade and replacement program for in-water structures, including replacement of solid surfacing with grated surfacing allowing for light penetration. Other improvements include an over-water connection from the Port's property to the new boardwalk, a new public overlook at the main pier, replacing the existing bulkhead at the Spring Street Landing, and other building, circulation, and shoreline improvements. The plan also addresses opportunities for reconfiguring older sections of the marina to include facilities for larger vessels or expansion of business moorage.

The plan also calls for upland improvements for the Jackson Beach recreation area, including paths, picnic and play areas, and improvements for boat launch access and parking.

2.1.2 2016 Waterfront Master Plan Addendum

A life cycle analysis of the marina structures was conducted in 2009, providing an overview of existing conditions and a summary of project recommendations. The 2016 Waterfront Master Plan Addendum is based on the 2009 report and incorporates the overwater facilities of the Port's waterfront into the master plan to guide future development and improvements at the site.

2.1.3 2018 Albert Jensen & Sons Boatyard & Marina Master Plan

The 2018 Albert Jensen & Sons Boatyard & Marina Master Plan calls for maintenance, replacement, and expansion of the existing marina and other improvements associated with boatyard operations, economic development, environmental remediation, public access, and habitat improvements. The plan includes improvement considerations that are likely to impact aquatic habitat including potentially replacing the existing travel lift with a ramp and hydraulic trailer lift system; dredging a channel into the existing travel lift ways; filling the boat building shed area or rebuild the structure in place; construction of a ramp in the location of the old haul-out rails to serve as a cap over contaminated soil and sediment, as well as providing public access, additional commercial haul out capability, and to accommodate seaplane repair; a sea plane base for locally stationed planes and for maintenance and refueling services; public access and

possible small boat launch. The plan calls for the need to prepare a more detailed master plan to guide maintenance, reconstruction, and expansion of the marina. The recent Port acquisition of the adjacent Shipyard Cove Marina is likely to alter plans for Jensen's substantially. The Port is currently planning a long-term strategy to redevelop both Jensen's and Shipyard Cove Marina as a combined facility.

2.1.4 2020 Jensen's Shipyard Integrated Planning Grant Support Master Plan Update

Currently, an update to the 2018 Master Plan is under way to further define improvements and expansion of the marina, integrate environmental remediation with public access, shoreline restoration, and other upland redevelopment. The master plan update (L-E 2020), which includes the adjacent Shipyard Cove Marina, builds on and will further refine and integrate improvements identified in the 2018 master plan. A plan to reconfigure and expand the marina was completed as a first step in the master planning process. Other improvements under consideration include upland marina support facilities, including restrooms, showers and laundry facilities, expanded parking, ADA access; shoreline habitat improvements and public shoreline access; commercial and institutional development; seasonal workforce housing and/or live-work spaces; and other recreational water-dependent and water-related facilities.

As part of the master plan update effort, the Port had considered constructing a barge ramp on the Jensen's property; however, this effort is likely to change based on the recent acquisition of the Shipyard Cove Marina, which is likely to provide fewer operational constraints and better access to deeper water.

3.0 POTENTIAL MITIGATION OPPORTUNITIES

Many of the Port's planned infrastructure improvements will potentially result in impacts to the aquatic environment requiring compensatory mitigation. However, some of the planned improvements and ongoing maintenance activities will also benefit the aquatic environment. Any activities that benefit the aquatic environment have the potential to be translated into mitigation credits and to be used as mitigation.

In order to establish and preserve the value of the potential mitigation measures, baseline conditions need to be established against which ecological lift resulting from a specific mitigation action can be measured. The ecological lift translates to mitigation credits. Therefore, preparing a detailed mitigation inventory is the first step in the process of establishing quantifiable baseline conditions and eventually securing mitigation credits available to offset impacts related to future Port projects.

3.1 Methodology

During a 2-day field reconnaissance on October 2 and 3, 2018, an inventory of potential mitigation opportunities for three Port-owned sites, the Waterfront Marina, Jensen's and Jackson Beach, was conducted by Bill Rehe and Peter Leon of Leon Environmental, LLC (L-E). Bill Rehe is a fisheries biologist and restoration ecologist with over 25 years of experience in critical area investigations, permitting, mitigation, monitoring and compliance. Peter Leon is an environmental scientist with over 25 years of experience in environmental science, permitting and mitigation planning. Observations made during the reconnaissance were documented using maps, photos, field notes and descriptions to record items considered having mitigation potential. Peter Leon returned to the Port on March 12, 2019, to take additional photographs and measurements.

The Port acquired Shipyard Cove Marina after these data collection efforts were complete; therefore, site conditions at Shipyard Cove Marina are not addressed in this mitigation opportunities report.

The observations recorded during the reconnaissance were categorized and translated into table format for each site and then summarized combining all three sites into one table. Results are presented as estimated quantities of items associated with specific site elements in a given map area. They do not include detailed measurements or the location of items relative to tidal datums for the purpose of this inventory report. These quantities need to be refined when calculating accurate mitigation credits. Site maps (Attachment A), detailed inventory tables of potential mitigation opportunities (Attachment B), and photo logs for each site (Attachment C) were prepared and are attached to this report.

3.2 Inventory of Mitigation Opportunities

The following sections present general background information, existing conditions and the data and findings recorded during the reconnaissance for each of the sites; the tables included are condensed versions of the full tables provided as Attachment B.

3.2.1 Waterfront Marina

The Port's Waterfront Marina property encompasses much of Friday Harbor's downtown waterfront, spanning one-quarter mile from Spring Street to the San Juan Island Yacht Club. It is located adjacent to the town's commercial corridor, and near the Washington State Ferry terminal (Makers 2014).

The marina was originally constructed in the early 1970's. In 1982 the Port purchased the fuel pier and floats, and in 1994 buildings, docks and a pier adjacent to Spring Street. The Spring Street passenger terminal was constructed on this pier in 1998 (PoFH 2011). Over the years the marina has grown to 500 slips, with 100 of these available for overnight visitors. Services available at the Waterfront Marina include a fuel pier, potable water, on-site laundromat, restrooms, showers, and vessel sewage pump-out facilities (PoFH 2019).

The overwater portion of the marina includes four piers, four breakwaters, nine lettered docks, commercial dock, load dock and bypass, two walkways, and a seaplane float. The original marina was constructed with solid surface wood docks and creosote-treated piles, but portions of the marina were updated over time with concrete docks and steel piling (2014 Makers).

Generally, floats, piers, and breakwaters are constructed of wood or concrete held in place with creosote or steel pilings. Some have solid surfaces and others include grating; some surfaces are connected by solid steel plates. Gangways and fillets are either grated or solid. The failing rockery bulkhead at the Spring Street Landing is entirely built on fill.

3.2.1.1 Potential Mitigation Opportunities Observed

Mitigation opportunities for the Waterfront Marina include the removal and replacement of the remaining treated-wood pilings; reducing overwater coverage by fully or partially replacing solid overwater surfacing, including piers, floats, gangways, and fillets, with grated surfacing; removing/replacing tire bumpers and treated wood rub strips; repairing failing bulkhead; removing intertidal fill and debris; and removing invasive vegetation.

Tables 1 through 4 summarize the various mitigation opportunities for the Waterfront Marina by type of mitigation. For more detailed information refer to Attachment B 'Inventory'.

Reduce Overwater Coverage
Table 1 identifies existing solid overwater surfaces that could potentially be replaced with fully or partially grated surfacing resulting in a net decrease of overwater coverage.

Table 1. Waterfront Marina – Overwater Coverage

Item Description	Quantities (#)[1]	Estimated Area (sf)[1]
Fixed Structures on Pilings (Piers)	5	21,600
Floats[2]	259	111,400
Gangways	19	900
Fillets	267	1,400
Steel Plates	2	40
Total Overwater Coverage		**135,340**

[1] All quantities and areas are estimates to be validated when specific mitigation proposals are prepared.
[2] Includes finger floats.

In addition, a potential partnership mitigation opportunity exists at the Spring Street Landing. A privately-owned dock with solid surfaces that could be partially replaced with grating in a partnership between the private owner and the Port.

Remove Intertidal Fill

Miscellaneous debris, including concrete blocks and a pipe, and rock debris from a retaining wall were observed in the intertidal zone. Table 2 lists items that could be removed from below the mean higher high water (MHHW) mark to increase aquatic area and improve general habitat conditions and water quality.

Table 2. Waterfront Marina – Intertidal Fill

Item Description	Intertidal Fill (sf)
Debris Areas below MHHW	Not quantified; TBD

Pile Removal/Replacement

While many of the original treated-wood piles have been replaced with steel piles over the years, many treated-wood piles remain in place. Removing or replacing these piles with smaller-diameter steel piles would both improve water quality and reduce overwater coverage, and therefore qualify as mitigation. Table 3 summarizes the existing treated wood piles and provides an approximate range of pile sizes observed.

Table 3. Waterfront Marina – Pile Removal/Replacement

Item Description	Existing Piling to be Removed/Replaced (ea)[1]	Existing Piling Size Range (diameter)
Treated Wood Piles	216	12” – 20” observed; TBD

[1] All quantities and areas are estimates to be validated when specific mitigation proposals are prepared.

Other Mitigation Opportunities

Other mitigation opportunities include replacing treated wood rub strips and tire bumpers, replacing Styrofoam floats, removing pile stubs, and removing invasive vegetation.

Table 4. Waterfront Marina – Other Mitigation Opportunities

Item Description	Existing (to be Removed/Replaced) (ea; unless otherwise noted) [1]
Rub Strips (treated wood)	TBD
Tire Bumpers	99
Styrofoam Floats	10
Invasive Vegetation (upland)	4,000 sf

[1] All quantities and areas are estimates to be validated when specific mitigation proposals are prepared.

3.2.2 Albert Jensen and Sons Boatyard and Marina

In 2018, the Port acquired the Jensen’s property on Shipyard Cove southeast of downtown Friday Harbor that includes a marina; a working boatyard providing haul out, maintenance and repair, and boat storage; and a mostly undeveloped upland area. The Port’s goals for the property are to retain existing marine-related services and jobs, expand commercial marine business opportunities restore portions of the property’s shoreline, and create public waterfront access.

The marina includes approximately 50 slips of which about half are covered moorage. Marina structures include the main pier and a system of floats and floating finger piers, three areas of piling-supported boat house structures, an offshore pile-supported pier, a concrete floating breakwater, and various standalone piles and dolphins. A substantial amount of maintenance has been deferred and the marina infrastructure is generally in poor condition. Numerous piles are in advanced states of disrepair, including many that have already failed.

Sections of the main pier have solid surfacing and are supported by creosote-treated pilings. Floats generally consist of treated wood supported by open-cell Styrofoam, which appears to be highly degraded. Floats and piers are mostly covered with solid wooden decking (both treated and untreated) in various conditions. The wood-framed boat houses, each accommodating multiple boats, have solid metal roofs and creosote-treated pilings. Waterward and north of the boathouses, there is a pier supported by creosote-pilings that includes a creosote-treated wood wave wall underneath the northern pile-supported pier.

The boatyard area includes a 35-ton travel lift, 1½ acres of boat storage and work area, three buildings and a wash water recycling system and evaporating pond. A wooden bulkhead retaining intertidal fill is located west of the travel lift. Old boat haul-out rails, buried debris and contaminated soils and sediments are present along the shoreline and in aquatic areas (PoFH 2018). There are several other areas with intertidal fill along the shoreline consisting of debris and materials placed or sloughing from behind failing bank armor. There are also several remnant structures, including a failing overwater deck, a demolished shed, a derelict cabin, as well as concrete pads, treated-wood pile stubs, and a log/wood pile and miscellaneous debris. The upland area consists of approximately two acres of open space with gravel parking.

3.2.2.1 Potential Mitigation Opportunities Observed

Tables 5 through 8 summarize the various mitigation opportunities for the Jensen's property, for more detailed information refer to Attachment B 'Inventory'.

Reduce Overwater Coverage

Table 5 identifies existing solid overwater surfaces that could potentially be replaced with fully or partially grated surfacing resulting in a net decrease of overwater coverage.

Table 5. Jensen's – Overwater Coverage

Item Description	Quantities (ea) [1]	Estimated Area (sf) [1]
Piers (Fixed Structures on Pilings)	5	5,500
Floats[2]	17	10,700
Gangways	8	300
Boat House Roofing	3	21,600
Total Overwater Coverage		**38,100**

[1] All quantities and areas are estimates to be validated when specific mitigation proposals are prepared.
[2] Includes finger floats.

Remove Intertidal Fill

Several areas of intertidal fill and debris have been observed along the entire shoreline. Removing this fill and debris from both above and below the MHHW will increase aquatic area and improve general habitat conditions and water quality.

Table 6. Jensen's – Intertidal Fill

Item Description	Existing Intertidal Fill (sf)[1]
Intertidal Fill	13,750 + TBD
Debris below MHHW	sf TBD

[1] All quantities and areas are estimates to be validated when specific mitigation proposals are prepared.

Pile Removal/Replacement
Most of the existing piles are creosote-treated wood piles. Removing or replacing these piles with steel piles will improve water quality. Table 7 summarizes the existing treated wood piles observed.

Table 7. Jensen's – Pile Removal/Replacement

Item Description	Existing Piling to be Removed/Replaced (ea)[1]	Existing Piling Size Range (inch-diameter)
Treated-Wood Piles	234	16 to 18 observed; others TBD
Treated-Wood Posts and Pile Stubs	32	TBD
Total Treated-Wood Piles, Stubs and Posts	**266**	

[1] All quantities and areas are estimates to be validated when specific mitigation proposals are prepared.

Other Mitigation Opportunities
Other mitigation opportunities include removing/replacing degraded open cell Styrofoam (floats), removing creosote-treated pile stubs and other debris, including treated wood rails, stacked creosote piles, metal rail/beam, and misc. debris and rubble exposed and buried along the shoreline.

Table 8. Jensen's – Other Mitigation Opportunities

Item Description	Existing (to be Removed/Replaced)[1]
Shoreline Armor	210 lf
Styrofoam Float Debris	Not quantified; TBD
Debris above MHHW	7+ areas
Invasive Vegetation (Upland)	11,600 + sf

[1] All quantities and areas are estimates to be validated when specific mitigation proposals are prepared.

Numerous mitigation opportunities exist on the adjacent Shipyard Cove Marina; however, these are not addressed in this report because the Port acquired this property after data collection efforts were complete.

3.2.3 Jackson Beach Recreation Area

Located 2 miles south of Friday Harbor off Pear Point Road, the Port's Jackson Beach property is the closest publicly accessible beach near Friday Harbor. It is essentially a sandy spit along Argyle Lagoon providing 10 acres of natural shoreline maintained by the Port as a recreational area.

The Jackson Beach Recreation area is mostly undeveloped, but includes vehicular access and parking, a boat launch, a small dock, picnic areas, sand volleyball courts, and restrooms. It also includes an access easement to a former cannery, which includes a derelict commercial building and pier, located on a privately-owned property at the end of the spit. Various man-made debris was observed scattered throughout the driftwood on the upper beach area, and there are several creosote-treated wood piles and pile stubs, as well as angular rock and concrete rubble.

3.2.3.1 Potential Mitigation Opportunities Observed

Remove Intertidal Fill
Several areas of intertidal fill and debris have been observed along the entire shoreline. Removing this fill and debris from below the MHHW will increase aquatic area and improve general habitat conditions and water quality.

Table 9. Jackson Beach – Intertidal Fill

Item Description	Existing Intertidal Fill (sf)[1]
Intertidal Fill /Angular Rocks	90/TBD
Debris below MHHW	50/TBD
Total Intertidal Fill	**140/TBD**

[1] All quantities and areas are estimates to be validated when specific mitigation proposals are prepared.

Pile Removal

Mitigation opportunities for Jackson Beach include the removal of derelict piles.

Table 10. Jackson Beach – Pile Removal

Item Description	Existing Piling to be Removed/Replaced (ea)[1]	Existing Piling Size Range (diameter)
Treated-Wood Piles	3	TBD
Treated-Wood Pile Stubs	1	TBD
Total Treated-Wood Piles/Stubs	**4**	

[1] All quantities and areas are estimates to be validated when specific mitigation proposals are prepared.

Other Mitigation Opportunities

Other mitigation opportunities include removing creosote-treated pile stubs and other debris, including concrete blocks and rubble, and removing invasive vegetation.

Table 11. Jackson Beach – Other Mitigation Opportunities

Item Description	Existing (to be Removed/Replaced)
Remove Debris above MHHW	Not quantified; TBD
Remove Invasive Vegetation	Not quantified; TBD

East of the Port-owned property a defunct barge landing (approx. 1,500 sf) with 9 creosote piles, a remnant of the former cannery operations at the site, and concrete and plastic debris as well as creosote-treated wood was observed scattered below and above MHHW (see Attachment B). This might be another opportunity for the Port to partner with the private property owner to develop additional mitigation credits.

4.0 ADVANCE MITIGATION PROCESS

The Port is maintaining and improving its facilities on an ongoing basis and many of these activities result in improved aquatic habitat. Currently, none of these improvements are appropriately documented to qualify for advance mitigation credit. By implementing an advance mitigation program, the Port can take full advantage of the mitigation credit potential of these improvements, because advance mitigation allows for establishing and securing mitigation value or credit before any impact occurs, and to use these credits in the future to compensate for impacts on the same or other Port-owned sites.

4.1 Permittee-responsible Advance Mitigation

In December 2012 the Corps, the Washington Department of Ecology (Ecology) and the WDFW published the 'Interagency Regulatory Guide for Advance Permittee-Responsible Mitigation' (Ecology 2012) intended to help applicants in developing advance mitigation proposals and explain how advance mitigation can be used to mitigate for unavoidable impacts.

Permittee-responsible compensatory mitigation, as defined in 33 CFR 332.2, means that the permittee conducts the advance mitigation at their own risk and is ultimately responsible for implementation, protection, and success of the mitigation. Advance mitigation credits obtained through the advance mitigation process are tied to the applicant/permittee, the Port, and cannot be sold or transferred to another entity. Credits can, however, be used for other Port-owned sites.

4.2 Mitigation Sequencing

Mitigation sequencing applies to the advance mitigation process and requires that a project must first and foremost be designed to avoid, minimize, restore, and/or reduce, impacts to aquatic resources, and then compensates for the remaining unavoidable impacts associated with the project. Advance mitigation credit can only be applied to compensate for a specific project impact to aquatic resources after the first four steps of mitigation sequencing are exhausted. The three options for compensation available are: mitigation banks; in-lieu fee programs; and permittee-responsible mitigation, which includes concurrent and advance mitigation (2008 Final Rule on Compensatory Mitigation for Losses of Aquatic Resources).

4.3 Advance Mitigation Implementation

Implementation of an Advance Mitigation Program based on Ecology guidance (Ecology 2012) will initially focus on coordinating with the Corps, Ecology, WDFW and San Juan County to establish specific application requirements for the Port's Advance Mitigation Program. To apply for approval of the proposed advance mitigation, an advance mitigation plan containing information similar to that required for approval of a concurrent mitigation plan, should be prepared in accordance with 33 CFR 332.4(c) and the current Joint Guidance (Ecology 2006), and WDFW POL-M5002 for fish habitat (as applicable) and be submitted for agency review and approval. The plan should include further detail on baseline conditions, including accurate counts, areas, and a description of quantifiable habitat conditions etc., necessary to determine ecological lift translating into appropriate mitigation credits (Ecology 2012).

Establishing baseline conditions at the mitigation site(s) and obtaining agency verification of baseline conditions, is an important step in creating an advance mitigation program that will secure mitigation credits generated. Comparing baseline conditions to improvements is the basis for calculating ecological lift resulting from the improvements, which then gets translated into mitigation credits. Agency pre-approval of the advance mitigation action would also allow for the Port to take advantage of enhanced

compensation ratios available for improvements to the aquatic environment that result in greater ecological lift over time.

The plan should propose the number of mitigation credits generated presented as a credit-generating schedule and provide a rational for this determination. It should discuss how the advance mitigation measures will provide compensation for potential, future, unavoidable impacts to aquatic resources, and how the use of mitigation credits will be tracked.

4.4 Using Advance Mitigation Credits

In order to utilize the advance mitigation credits, an Advance Mitigation Use Plan (Use Plan) needs to be submitted to the regulatory agencies with jurisdiction over the action causing aquatic impacts. The Use Plan will describe the development project's future, proposed, unavoidable impacts to aquatic resources for which the use of the advance mitigation credits is proposed. The plan should reference the Advance Mitigation Plan that was developed and submitted during the advance mitigation application stage, and supplement information as needed that may not have been included in the Advance Mitigation Plan at the application stage.

The Use Plan should demonstrate the ecological lift resulting from the advance mitigation action over agency approved baseline conditions and describe how the advance mitigation adequately compensates for unavoidable project impacts. It should propose the amount of advance credit needed to mitigate for impacts based on the credit generating schedule. However, the final decision on the adequate type and amount of compensatory mitigation that is required to offset impacts will be determined by the regulatory agencies with jurisdiction over the impact site. Should the impact area fall within the service area of an approved mitigation bank, or an in-lieu-fee program be available at the time that the Use Plan is being prepared, the Use Plan needs to demonstrate that using advance mitigation credits are ecologically preferable to compensate for impacts. There may also be conditions that require that some critical functions be mitigated for on the impact site itself, instead of using advance mitigation credits from other Port-owned sites.

There is no guarantee that regulatory agencies will consider the advance mitigation credits generated adequate and/or suitable for any given specific future impacts, or that a proposed future impact will be authorized. The review and evaluation of impacts and the determination of what constitutes adequate mitigation is still subject to review by regulatory agencies with jurisdiction over the impacting proposal.

Site protection mechanisms, as well as adequate record keeping methods, ledgers and tracking procedures to monitor advance mitigation need to be in place before advance mitigation credit can be used.

5.0 DECEMBER 2019 UPDATE

The Port is in the process of acquiring the Shipyard Cove Marina property adjacent to Jensen's. This property will be integrated into the overall master planning process for the Jensen's property. Additional mitigation opportunities should be assessed for this site and integrated into the Advance Mitigation Program for the Port.

6.0 REFERENCES

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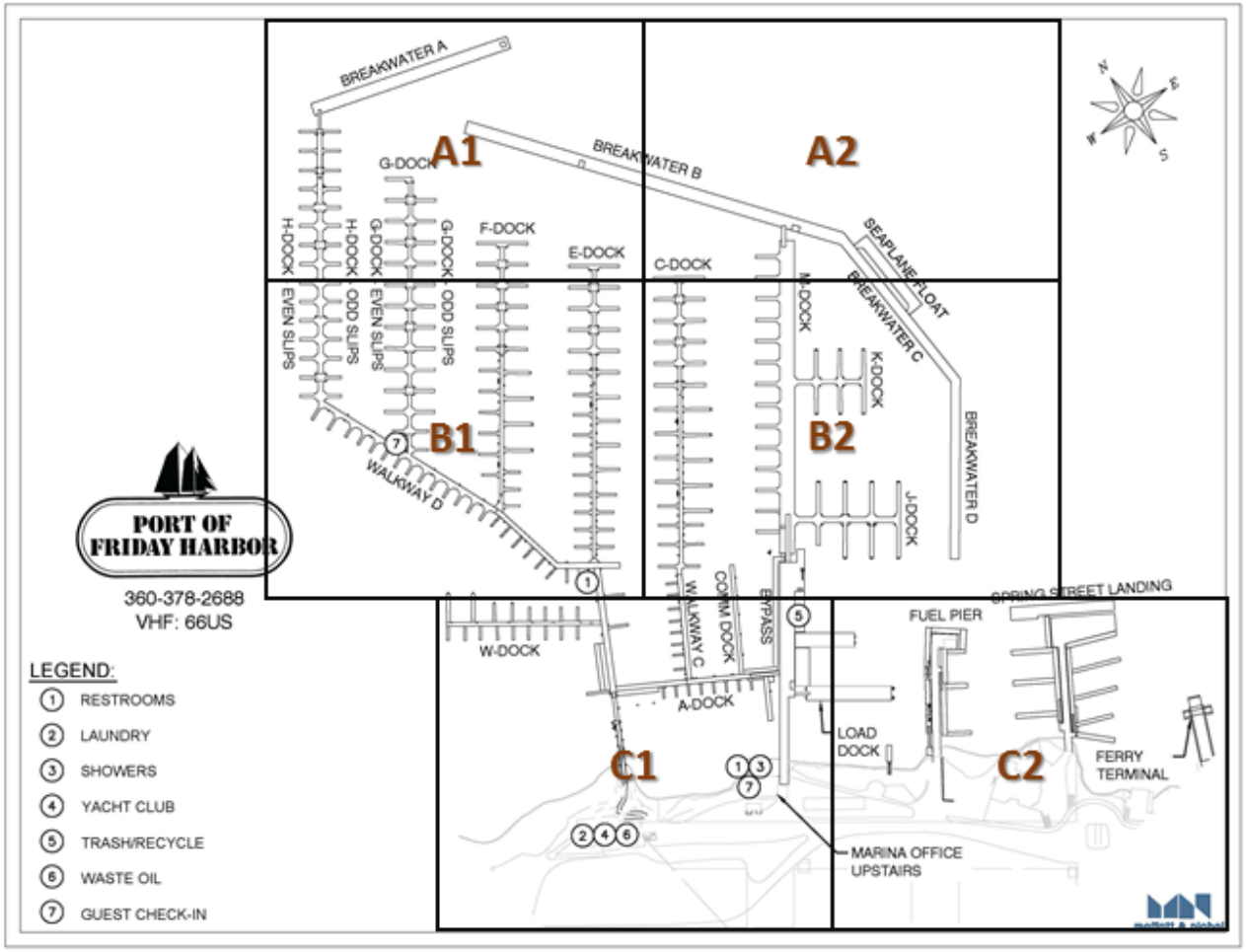
ATTACHMENT A

SITE MAPS

Port of Friday Harbor - Mitigation Inventory Field Maps

Waterfront Marina

LEON Environmental, LLC



A1 - MARINA WATERFRONT

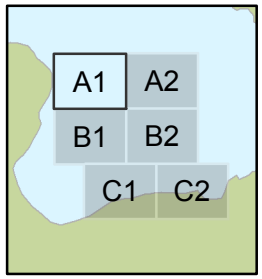
8/14/2019

Shoreline Tax Parcels

- Port
- San Juan Co.
- WA Parks & Recreation
- UW
- Friday Harbor
- DNR
- Other

Aquatic Parcel Owner

- Private Unknown
- State of WA



0 50 100 200 Feet

Data Sources:
San Juan County (2016)

LEON Environmental, LLC

A2 - MARINA WATERFRONT

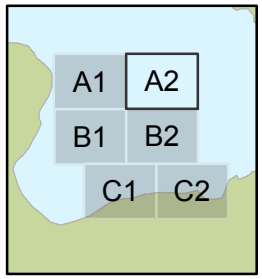
8/14/2019

Shoreline Tax Parcels

- Port
- San Juan Co.
- WA Parks & Recreation
- UW
- Friday Harbor
- DNR
- Other

Aquatic Parcel Owner

- Private Unknown
- State of WA



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Data Sources:
San Juan County (2016)

LEON Environmental, LLC

B1 - MARINA WATERFRONT

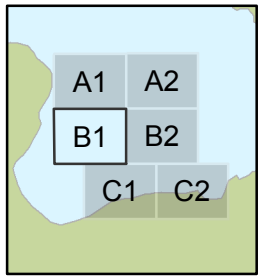
8/14/2019

Shoreline Tax Parcels

- Port
- San Juan Co.
- WA Parks & Recreation
- UW
- Friday Harbor
- DNR
- Other

Aquatic Parcel Owner

- Private Unknown
- State of WA



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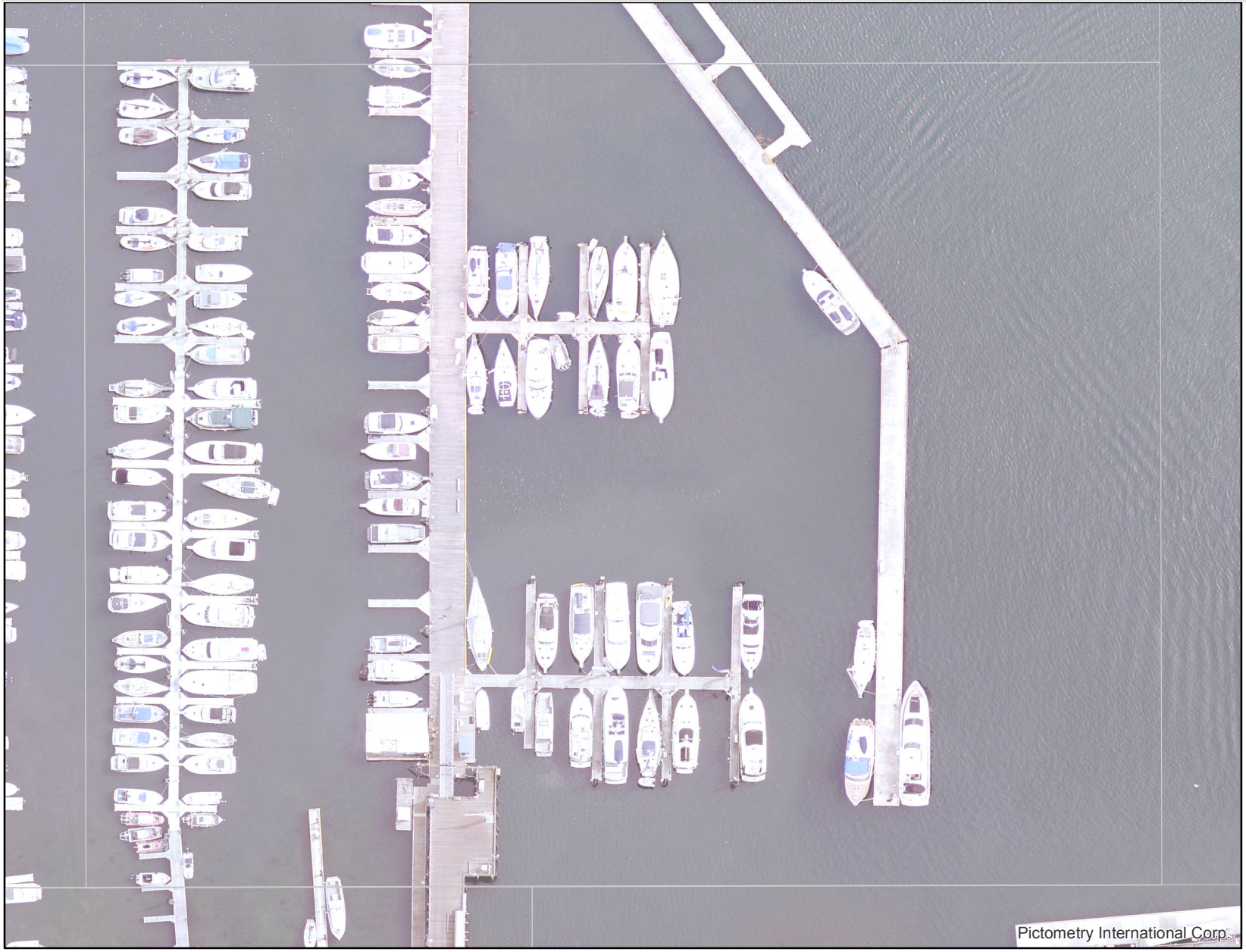
Data Sources:
San Juan County (2016)

LEON Environmental, LLC

B2 - MARINA WATERFRONT

8/14/2019

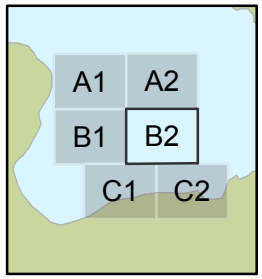


Shoreline Tax Parcels

- Port
- San Juan Co.
- WA Parks & Recreation
- UW
- Friday Harbor
- DNR
- Other

Aquatic Parcel Owner

- Private Unknown
- State of WA



0 50 100 200 Feet

Data Sources:
San Juan County (2016)

LEON Environmental, LLC

C1 - MARINA WATERFRONT

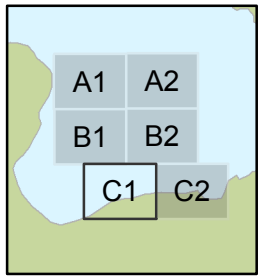
8/14/2019

Shoreline Tax Parcels

- Port
- San Juan Co.
- WA Parks & Recreation
- UW
- Friday Harbor
- DNR
- Other

Aquatic Parcel Owner

- Private Unknown
- State of WA



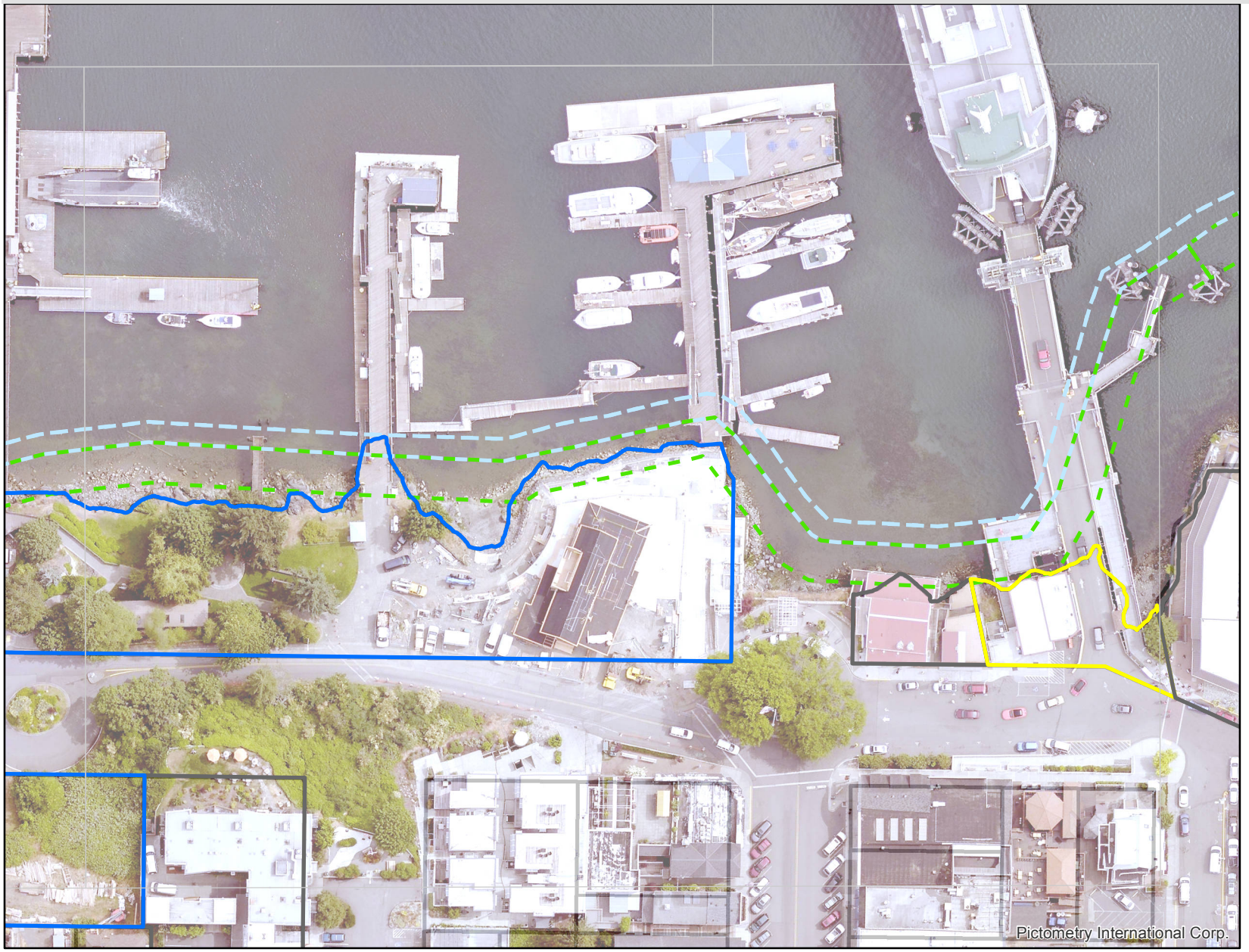
0 50 100 200 Feet

Data Sources:
San Juan County (2016)

LEON Environmental, LLC

C2 - MARINA WATERFRONT

8/14/2019

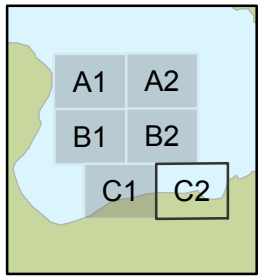


Shoreline Tax Parcels

- Port
- San Juan Co.
- WA Parks & Recreation
- UW
- Friday Harbor
- DNR
- Other

Aquatic Parcel Owner

- Private Unknown
- State of WA



0 50 100 200 Feet

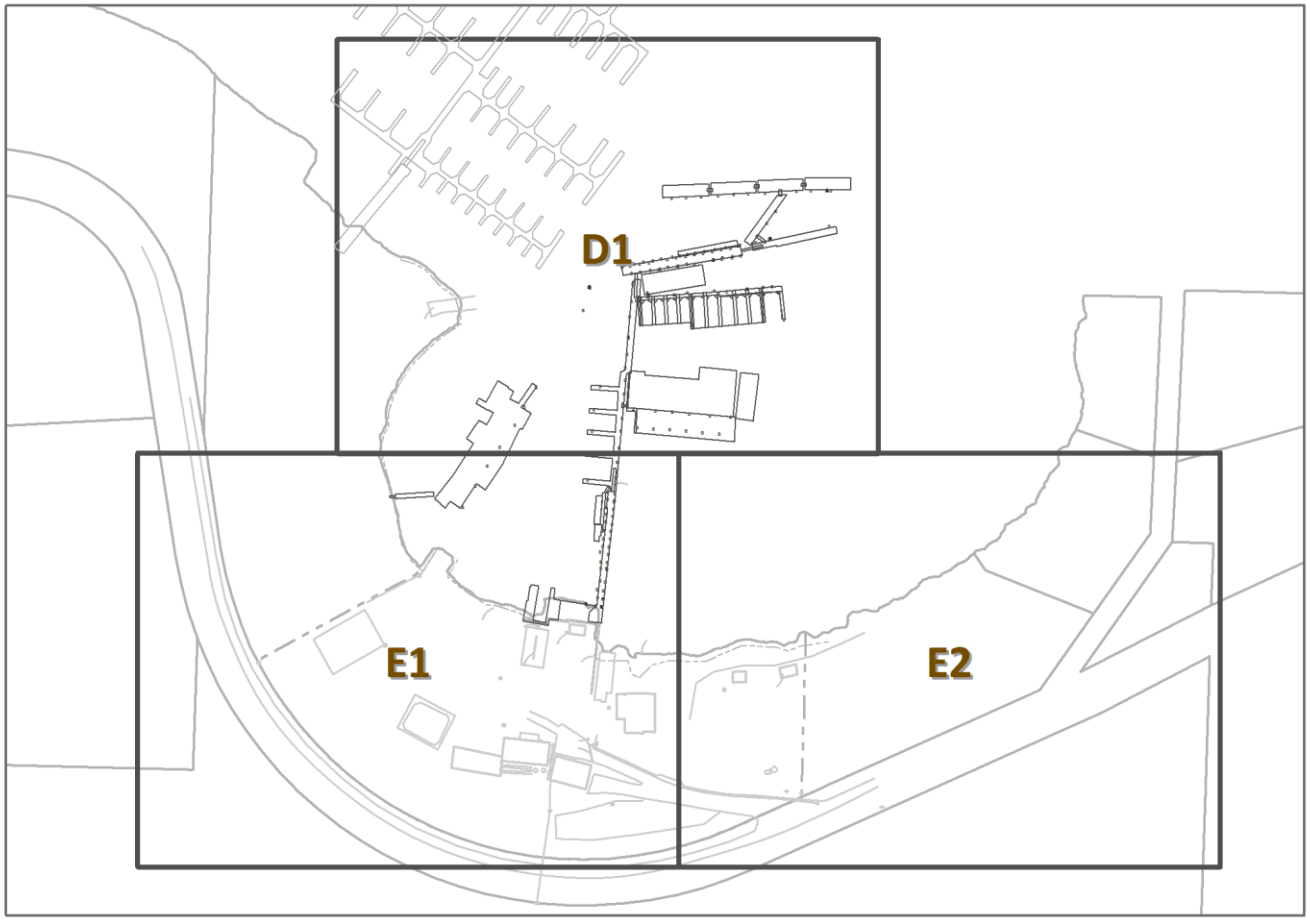
Data Sources:
San Juan County (2016)

LEON Environmental, LLC

Port of Friday Harbor - Mitigation Inventory Field Maps

Jensen and Sons Boatyard and Marina

LEON Environmental, LLC



D1 - JENSEN'S MARINA AND BOATYARD

8/14/2019

Shoreline Tax Parcels

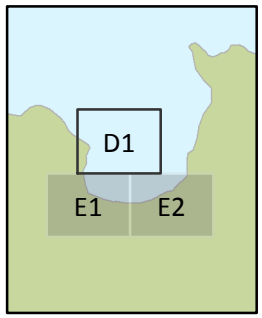
- Port
- San Juan Co.
- WA Parks & Recreation
- UW
- Friday Harbor
- DNR
- Other

Aquatic Parcel Owner

- Private Unknown
- State of WA

Survey

- Pilings
- Floats



0 50 100 200 Feet

N

Data Sources:
San Juan County (2016), San Juan Surveying (2018)

LEON Environmental, LLC

E1 - JENSEN'S MARINA AND BOATYARD

8/14/2019

Shoreline Tax Parcels

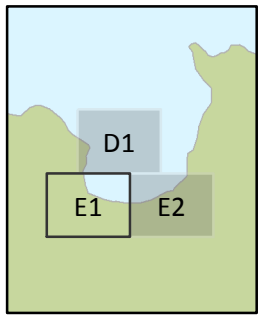
- Port
- San Juan Co.
- WA Parks & Recreation
- UW
- Friday Harbor
- DNR
- Other

Aquatic Parcel Owner

- Private Unknown
- State of WA

Survey

- Pilings
- Floats



0 50 100 200 Feet

N

Data Sources:
San Juan County (2016), San Juan Surveying (2018)

LEON Environmental, LLC

E2 - JENSEN'S MARINA AND BOATYARD

8/14/2019

Shoreline Tax Parcels

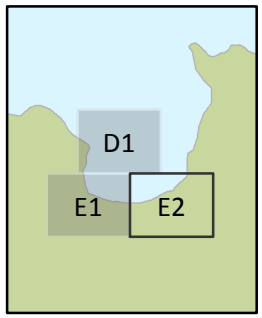
- Port
- San Juan Co.
- WA Parks & Recreation
- UW
- Friday Harbor
- DNR
- Other

Aquatic Parcel Owner

- Private Unknown
- State of WA

Survey

- ⊗ Pilings
- Floats



0 50 100 200 Feet

N

Data Sources:
San Juan County (2016), San Juan Surveying (2018)

LEON Environmental, LLC

Port of Friday Harbor - Mitigation Inventory Field Maps

Jackson Beach Recreation Area

LEON Environmental, LLC

F1 - JACKSON BEACH

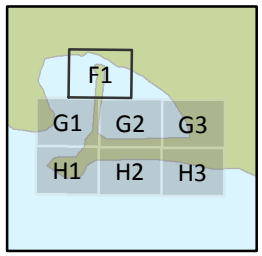
8/14/2019

Shoreline Tax Parcels

- Port
- San Juan Co.
- WA Parks & Recreation
- UW
- Friday Harbor
- DNR
- Other

Aquatic Parcel Owner

- Private Unknown
- State of WA



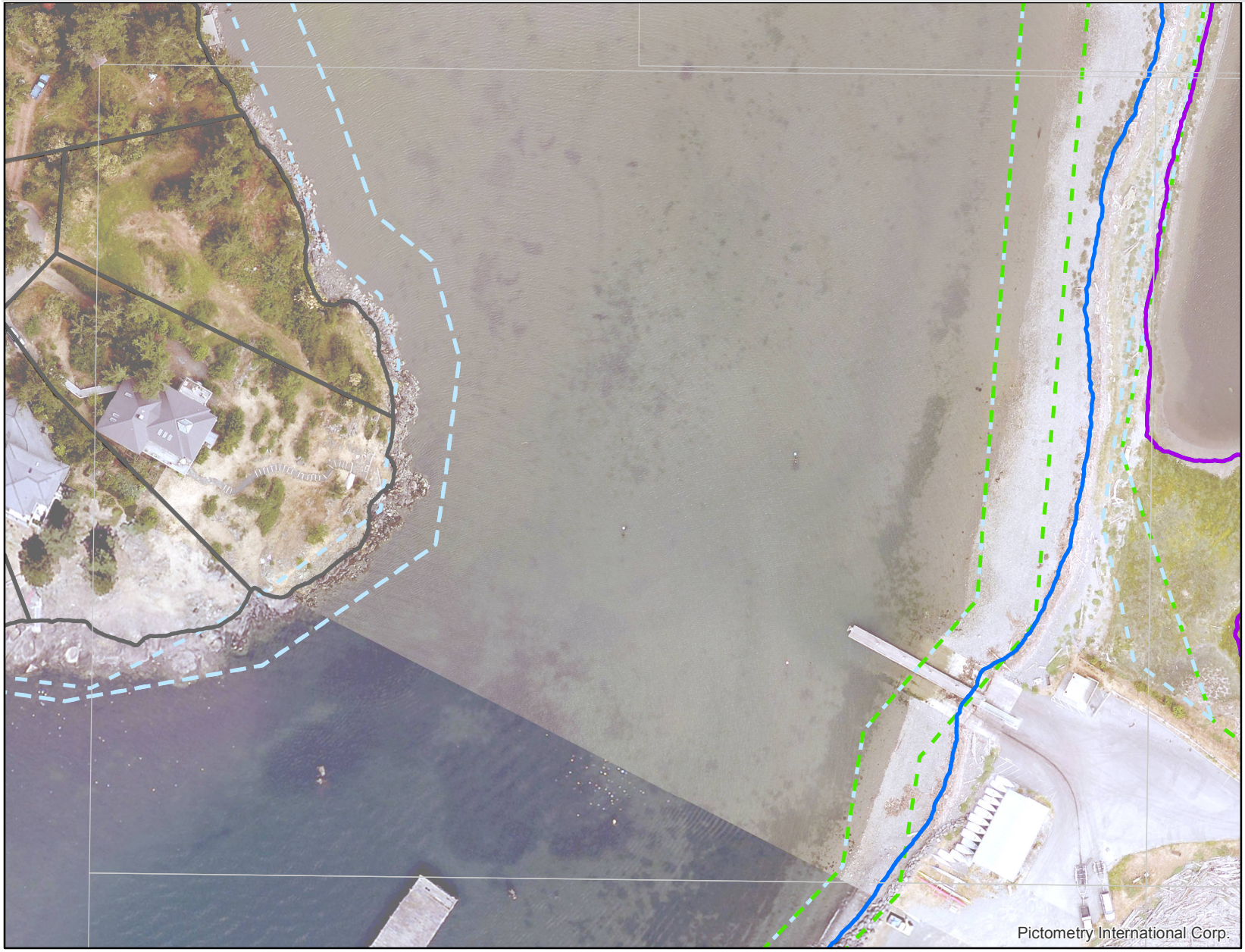
0 50 100 200 Feet

Data Sources:
San Juan County (2016)

LEON Environmental, LLC

G1 - JACKSON BEACH

8/14/2019

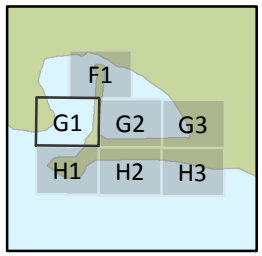


Shoreline Tax Parcels

- Port
- San Juan Co.
- WA Parks & Recreation
- UW
- Friday Harbor
- DNR
- Other

Aquatic Parcel Owner

- Private Unknown
- State of WA



0 50 100 200 Feet

Data Sources:
San Juan County (2016)

LEON Environmental, LLC

G2 - JACKSON BEACH

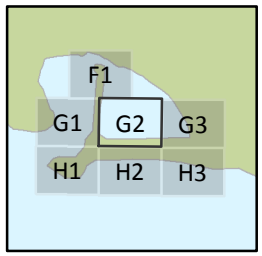
8/14/2019

Shoreline Tax Parcels

- Port
- San Juan Co.
- WA Parks & Recreation
- UW
- Friday Harbor
- DNR
- Other

Aquatic Parcel Owner

- Private Unknown
- State of WA



0 50 100 200 Feet

Data Sources:
San Juan County (2016)

LEON Environmental, LLC

G3 - JACKSON BEACH

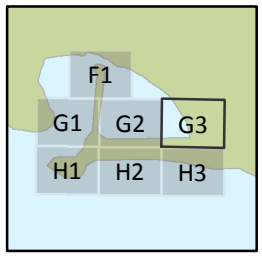
8/14/2019

Shoreline Tax Parcels

- Port
- San Juan Co.
- WA Parks & Recreation
- UW
- Friday Harbor
- DNR
- Other

Aquatic Parcel Owner

- Private Unknown
- State of WA



0 50 100 200 Feet

Data Sources:
San Juan County (2016)

LEON Environmental, LLC

H1 - JACKSON BEACH

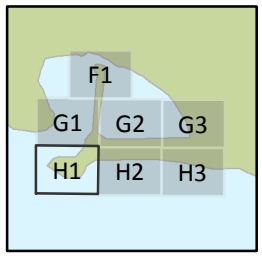
8/14/2019

Shoreline Tax Parcels

- Port
- San Juan Co.
- WA Parks & Recreation
- UW
- Friday Harbor
- DNR
- Other

Aquatic Parcel Owner

- Private Unknown
- State of WA



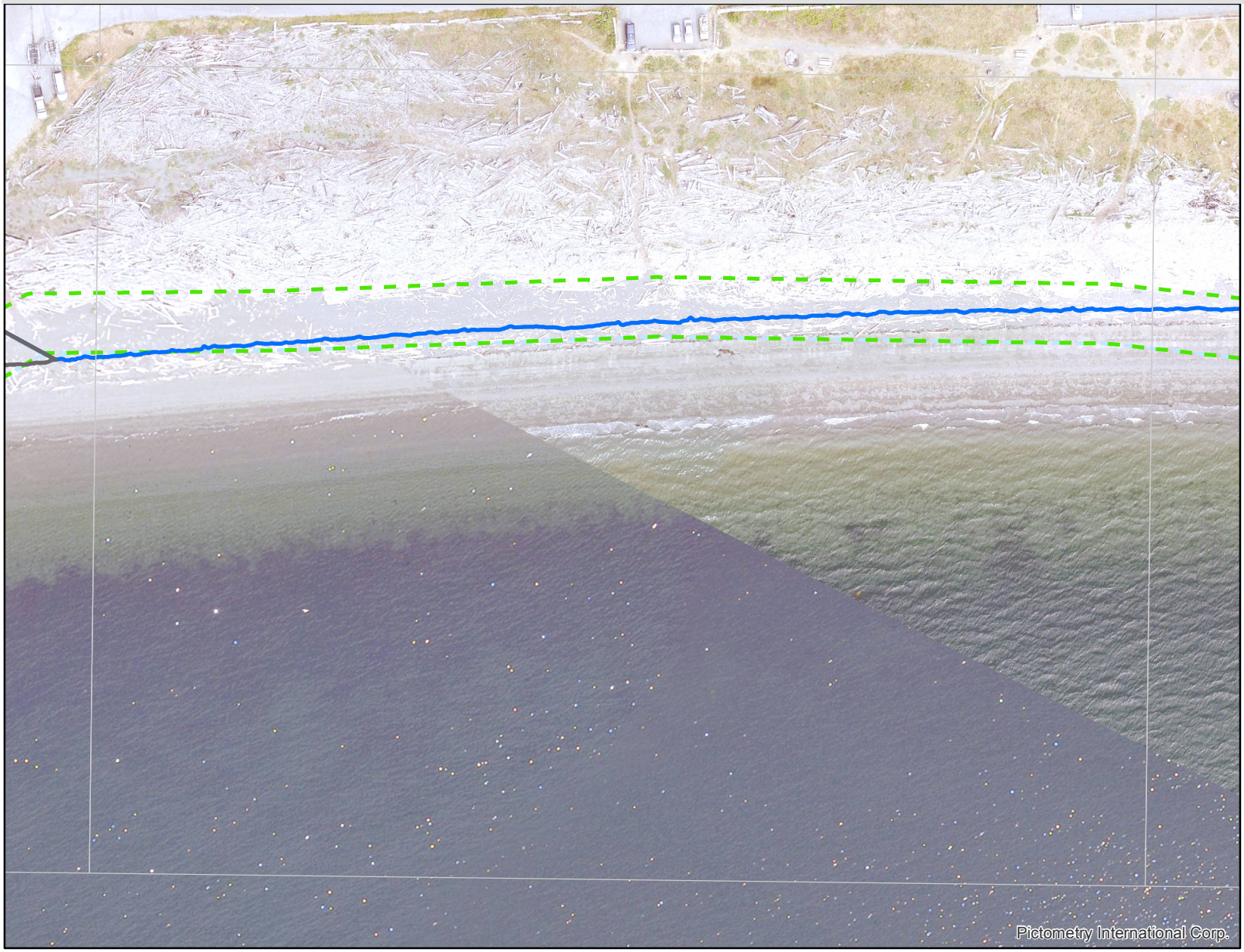
0 50 100 200 Feet

Data Sources:
San Juan County (2016)

LEON Environmental, LLC

H2 - JACKSON BEACH

8/14/2019

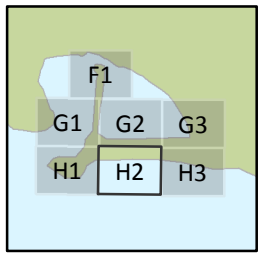


Shoreline Tax Parcels

- Port
- San Juan Co.
- WA Parks & Recreation
- UW
- Friday Harbor
- DNR
- Other

Aquatic Parcel Owner

- Private Unknown
- State of WA



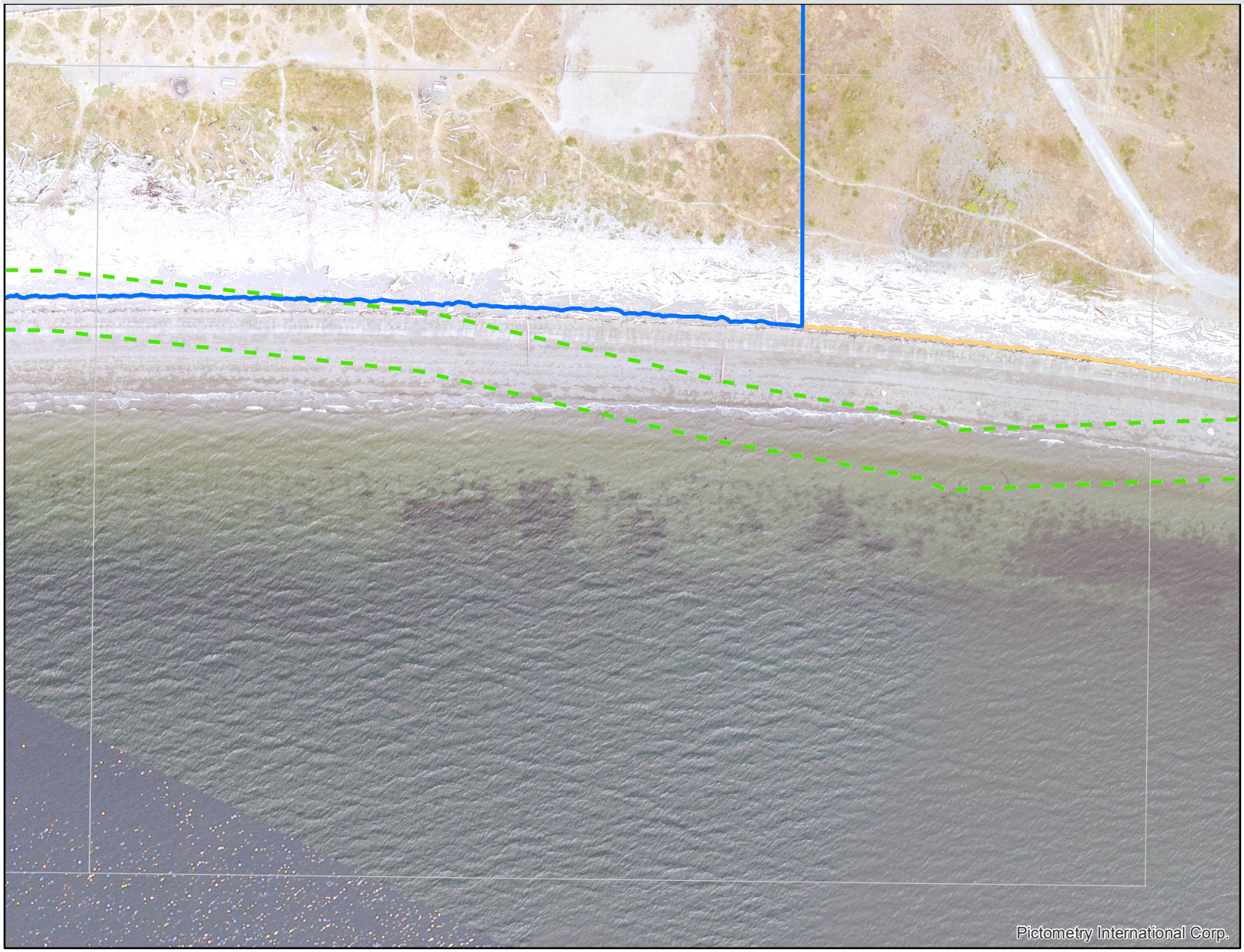
0 50 100 200 Feet

Data Sources:
San Juan County (2016)

LEON Environmental, LLC

H3 - JACKSON BEACH

8/14/2019

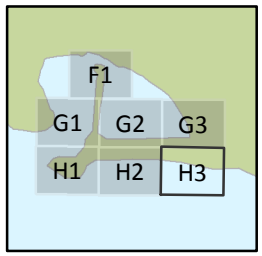


Shoreline Tax Parcels

- Port
- San Juan Co.
- WA Parks & Recreation
- UW
- Friday Harbor
- DNR
- Other

Aquatic Parcel Owner

- Private Unknown
- State of WA



0 50 100 200 Feet

Data Sources:
San Juan County (2016)

LEON Environmental, LLC

ATTACHMENT B

INVENTORY TABLES

Port of Friday Harbor Waterfront Mitigation Opportunities Inventory Summary

	OVERWATER COVERAGE												INTERTIDAL FILL		
Study Area	Overwater Roofing (#)	Area (sf)	Solid Surface Pier Decking (#)	Area (sf)	Solid Surface Floats (#)[1]	Area (sf)	Solid Surface Gangways (#)	Area (sf)	Solid Surface Fillets (#)	Area (sf)	Solid Surface Plates (#)	Area (sf)	Intertidal Fill (sf)[2]	Debris Area Below MHHW (#)[2]	Area (sf)[2]
Waterfront Marina			5	21,620	259	111,385	19	895	267	1,374	2	40		TBD	TBD
Jensen's	3	21,600	5	5,490	17	10,700	8	260					13,750+	TBD	TBD
Jackson Beach													90	1+	TBD
Totals	3	21,600	10	27,110	276	122,085	27	1,155	267	1,374	2	40	TBD	TBD	TBD

	TREATED WOOD PILES						OTHER							
Study Area	Creosote-Treated Piles (#)[2]	Diameter (in) Range[2]	Creosote-Treated Posts/Stubs (#)	Diameter (in)[2]	Chemonite-Treated Piles (#)	Diameter (in)[2]	Shoreline Armoring Length (ft)	Treated Rub Strips (#)	Tire Bumpers (#)	Styrofoam Floats (#)[2]	Area (sf)[2]	Debris Area Above MHHW (#)[2]	Area (sf)[2]	Invasive Plant Species (sf)[2]
Waterfront Marina	213	TBD	2	TBD	1	TBD		TBD	99	TBD	TBD			4,000
Jensen's	234	TBD	32	TBD			207			TBD	TBD	TBD	20	11,600
Jackson Beach	3+	TBD	1	TBD								TBD	TBD	TBD
Totals	447	TBD	35	TBD	1	TBD	207	TBD	99	TBD	TBD	TBD	20	15,600

Table Notes:
1. "Solid Surface Floats" includes floats and floating finger-piers
2. "TBD" - See individual Study Area tables for more detailed information

Port of Friday Harbor Waterfront Potential Partnership Mitigation Opportunities Inventory

	OVERWATER COVERAGE		TREATED WOOD PILES		INTERTIDAL FILL		OTHER	
Study Area	Solid Surface Floats (#)[1]	Area (sf)	Creosote-Treated Piles (#)	Diameter (in) Range[2]	Debris Area Below MHHW (#)[2]	Area (sf)[2]	Debris Area Above MHHW (#)[2]	Area (sf)[2]
Waterfront Marina	2	540						
Jensen's	1	200						
Jackson Beach			11	TBD	TBD	TBD	TBD	TBD
Totals	3	740	11	TBD	TBD	TBD	TBD	TBD

Table Notes:
1. "Solid Surface Floats" includes floats and floating finger-piers
2. "TBD" - See individual Study Area tables for more detailed information

Waterfront Marina Mitigation Opportunities Inventory

	OVERWATER COVERAGE												INTERTIDAL FILL		TREATED WOOD PILES						OTHER				
Subarea	Solid Surface Pier Decking (#)	Area (sf)[1]	Solid Surface Floats (#)	Area (sf)[1,2]	Solid Surface Finger-Floats (#)	Area (sf)[1]	Solid Surface Gangways (#)	Area (sf)[1]	Solid Surface Fillets (#)	Area (sf)[1]	Solid Surface Plates (#)	Area (sf)	Debris Area Below MHHW (#)	Area (sf)[3,4]	Creosote-Treated Piles (#)	Diameter (in) Range[4]	Posts/ Stubs (#)	Diameter (in)	Chemonite-Treated Piles (#)	Diameter (in)	Treated Rub Strips (#)	Tire Bumpers (#)	Styro-foam Floats (#)	Area (sf)[4]	Invasive Plant Species (sf)[1]
Breakwater A																						11			
Breakwater B																						7			
Breakwater C																						2			
Breakwater D																						4			
Seaplane Float			1	**1,700**																		66			
A-Dock			3	**3,960**	1	**N-MO**			3	24					6	TBD						2			
C-Dock			2	**3,300**	28	**5,680**	2	TBD	22	528					16	18-20					TBD				
E-Dock			2	**4,000**	29	**4,970**	2	TBD	18	TBD					16	TBD									
F-Dock			2	**3,700**	25	**4,740**	2	TBD	20	TBD					16	TBD					TBD				
G-Dock			1	**2,900**	26	**4,900**		TBD	51	TBD					32	TBD									
H-Dock			1	**3,400**	30	**3,750**		TBD	51	459	1	20			24	13-20					TBD				
J-Dock			1	**1,700**	8	**2,760**			14	TBD					18	TBD									
K-Dock			1	**900**	6	**1,800**			10	TBD					19	TBD					TBD				
M-Dock			3	**12,700**	15	**2,550**	1	TBD	28	TBD												1			
W-Dock			1	2,600	17	**2,160**			1	TBD					11	12-13									
Pier 1	1	**9,600**					2	TBD							TBD	TBD									
Pier 2	1	**1,000**													12	TBD									
Walkway C			1	**1,400**	8	**560**																			
Walkway D			2	**4,740**	14	**1,100**	1	**40**	42	336	1	20			11	14-17									
Walkway E			2	**4,100**	2	**320**			4	27															
Bypass			1	**2,000**			3																		
Comm. Dock			1	1,200											5	TBD									
Shoreline Area	1	**320**											3	*42*	7	TBD	2	TBD							**4,000**
Load Dock			4	7,475					3	TBD					6	TBD					TBD	6			
Fuel Pier	1	**4,200**	4	**4,200**	3	**700**	4	**395**							6	TBD									
Spring St Landing	1	**6,500**	7	5,710	7	**3,710**	2	**460**					1	TBD	8	TBD			1	TBD	TBD		TBD	TBD	
SUBTOTALS	5	21,620	40	71,685	219	39,700	19	895	267	1,374	2	40	4	TBD	213	TBD	2	TBD	1	TBD	TBD	99	TBD	TBD	4,000

Table Notes:

1. Bold text indicates surface area was estimated using the GoogleEarth measuring tool.
2. Underlined text indicates a subset of surface area was measured in the field and the remaining surface area was estimated using the GoogleEarth measuring tool.
3. Italicized text indicates incomplete surface area measurements in the field and no additional estimated surface area.
4. "TBD" - Information to be determined. Detailed area take-offs will be performed in a future phase.

Jensen's Marina Mitigation Opportunities Inventory

	OVERWATER COVERAGE										TREATED WOOD PILES			
Subarea	Over-water Roofing (#)	Area (sf)[1]	Solid Surface Pier Decking (#)	Area (sf)[1]	Solid Surface Floats (#)	Area (sf)[1]	Solid Surface Finger-Floats (#)	Area (sf)[1]	Solid Surface Gangways (#)	Area (sf)[1]	Creosote-Treated Piles (#)	Diameter (in) Range[2]	Creosote-Treated Posts/Stubs (#)	Diameter (in)[2]
Fill Area											20	TBD		
Shipyard Shoreline Area													4[a]	TBD
Boat Haul Out Area			2	**800**							41	TBD	16	TBD
Overwater Deck			1	**990**							40	TBD	8	TBD
Pile-Supported Marina Pier			1	**1,700**							42	TBD		
Rail Area													2	TBD
Eastern Shoreline													2	TBD
Floating Marina Pier					4	**3,260**	5	**1,060**	1	50				
Boat House 1	1	**13,000**				**250**					13	16-18		
Boat House 2	1	**6,500**			1	**600**	1	**180**	1	TBD	10	18-18		
Boat House 3	1	**2,100**												
North Pile-Supported Pier			1[a]	**2,000**					1	**80**	53	TBD		
Floating Pier 1					1	**1,000**			1	**50**	6	TBD		
Floating Pier 2					1	**750**			1	**20**	2	TBD		
Floating Pier 3					4	**3,600**			3	**60**	7	TBD		
SUBTOTALS	3	21,600	5	5,490	11	9,460	6	1,240	8	260	234	TBD	32	TBD

	INTERTIDAL FILL			OTHER						
Subarea	Intertidal Fill (sf)[1,2]	Debris Area Below MHHW (#)[2]	Area (sf)[2]	Shoreline Armor Length (f)[1]	Styrofoam Floats (#)[2]	Area (sf)[2]	Debris Area Above MHHW (#)	Area (sf)[1]	Invasive Plant Species (sf)[1]	Notes
Fill Area	**1400**[a]			**120**						[a] Fill sloughing from behind the wood bulkhead
Shipyard Shoreline Area	**2100**[b]									[a] 4 creosote-treated posts in upland; [b] debris (e.g., garbage, concrete) throughout
Boat Haul Out Area	**250**[a]	TBD[b]	TBD	**47**			3+	20[c]		[a] Fill material sloughing beneath the east bulkhead; [b] debris (e.g., concrete, engine parts) beneath structures; [c] incomplete surface area field measurements
Overwater Deck				**40**[a]						[a] Bulkhead appears to be failing
Rail Area	TBD[a]	4[b]	**102**							[a] Concrete rubble throughout intertidal substrate; [b] 4 rails (2 pairs of rails) made of 10"x10" treated wood extend from upper intertidal down to lower intertidal
Eastern Shoreline	**10000**[a]	TBD[b]	TBD				1	TBD	**11,600**	[a] Debris throughout lower intertidal; [b] wood/log piles, remnant structure
Floating Marina Pier					TBD	TBD				
Boat House 1		TBD[a]	TBD		TBD	TBD				[a] Tires visible on seabed
Boat House 2		TBD[a]	TBD							[a] Some debris visible on seabed
North Pile-Supported Pier										[a] There is a creosote treated wavewall (approximately 157 LF) under the pier
Floating Pier 1					TBD	TBD				
Floating Pier 2					TBD	TBD				
SUBTOTALS	13,750+	TBD	TBD	207	TBD	TBD	TBD	20	11,600	

Table Notes:

1. Bold text indicates surface area was estimated using the GoogleEarth measuring tool.
2. "TBD" - Information to be determined. Detailed area take-offs will be performed in a future phase.

Jackson Beach Mitigation Opportunities Inventory

	INTERTIDAL FILL			TREATED WOOD PILES				OTHER			
Subarea	Intertidal Fill (sf)	Debris Area Below MHHW (#)[1]	Area (sf)[1]	Creosote-Treated Piles (#)[1]	D (in) Range[1]	Creosote-Treated Stub (#)	D (in) Range[1]	Debris Area Above MHHW (#)[1]	Area (sf)	Invasive Plant Species (sf)[1]	Notes
Northwest Point in Argyle Lagoon				2	TBD						
North of Ramp	90[a]										[a] Angular rock in intertidal adjacent to ramp (replace with cobble); surface area was estimated using the GoogleEarth measuring tool.
South of Ramp				TBD[a]	TBD						[a] Piles recorded, preservation treatment to be determined in a future phase
Inner Argyle Lagoon Beach				TBD[a]	TBD						[a] Possible piles scattered along intertidal, preservation treatment to be determined in a future phase
Southeast Side of Point		TBD[a]	TBD								[a] Beach debris including painted wood
Middle Southeast Beach				TBD[a]	TBD			TBD[b]	TBD	TBD	[a] Some creosote piles among driftwood; [b] light garbage throughout area above MHHW
East Side of Southeast Beach		1[a]	48[b]	1	TBD	1	TBD				[a] 24" metal outfall pipe; [b] incomplete surface area measurements in the field
SUBTOTALS	90	1+	TBD	3+	TBD	1	TBD	TBD	TBD	TBD	

Table Notes: 1."TBD" - Information to be determined. Detailed area take-offs will be performed in a future phase.

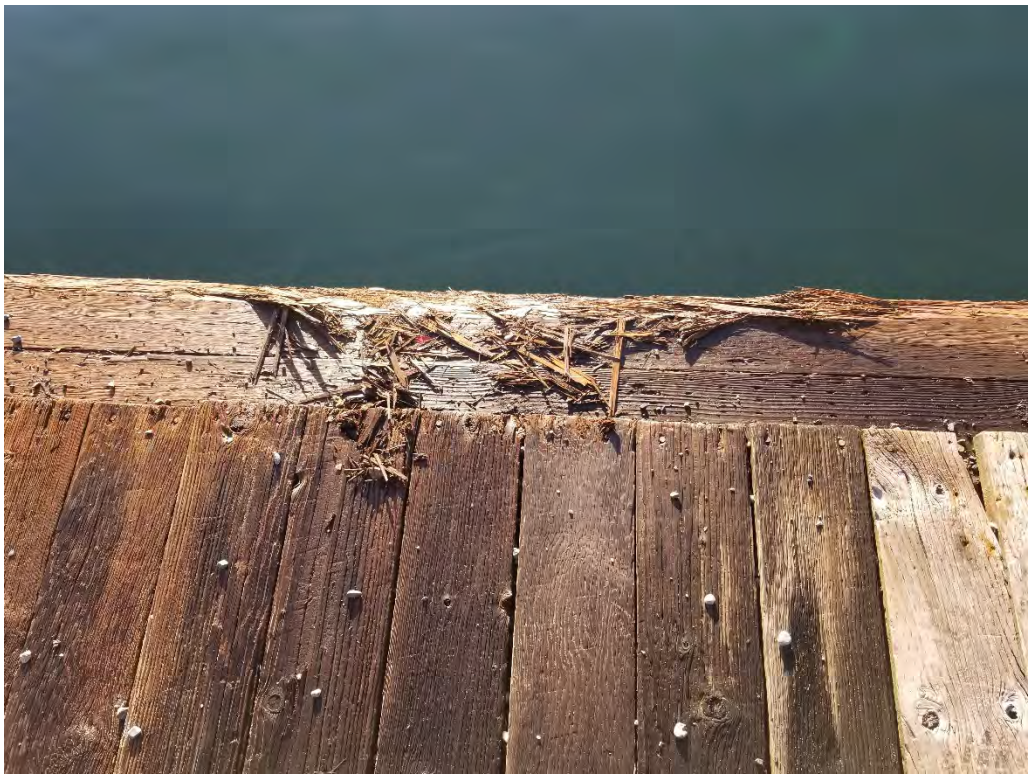
ATTACHMENT C

PHOTO LOGS

Photograph 1. Solid plywood fillet, wood and concrete floats with solid surfacing.

Photograph 2. Seaplane float and Breakwater C with solid surfacing.

Photograph 3. Load dock with solid timber surfacing, tire bumpers, and creosote-treated pilings at the end of the dock.



Photograph 4. Close up of worn treated wood rubstrip.

Photograph 5. Solid surfaced wood ramp between a solid surfaced pier and float at the Fuel dock.

Photograph 6. Metal plate between solid surfaced floats.

Photograph 7. Solid surfaced treated wood floats off of the Fuel Pier, creosote-treated piles, rock debris from retaining wall spilled on the pocket beach.

Photograph 8. Closed pier with degraded solid wood surfacing supported by creosote-treated pilings, invasive plants in upland (e.g., English ivy, blackberry).

Photograph 9. Intertidal debris (e.g., pipes, concrete blocks).

Photograph 1. Marina pier supported by creosote-treated pilings. The pier has wood surfacing with a central grating strip. Float surfacing is solid.

Photograph 2. Close-up of marina pier surfacing.

Site Photographs		
LEON Environmental, LLC	Port of Friday Harbor Mitigation Opportunities Inventory Survey Date: October 8, 2018	Jensen & Sons Boatyard & Marina 1293 Turn Point Road Friday Harbor, WA 98250

Photograph 3. The floating section of the marina pier and attached finger floats with solid wood surfacing, creosote-treated pilings, and treated wood rub strips.

Photograph 4. Close up of finger floats attached to floating section of the marina pier. Exposed, degrading Styrofoam floats under the solid-surface finger pier with treated wood rub strips.

Photograph 5. Covered boat houses with solid roofing.

Photograph 6. Creosote-treated wood wave wall beneath the northern solid surfaced pier supported by creosote-treated piles.

Photograph 7. Solid surfaced floats, solid surfaced gangways, creosote piles waterward of the covered boat houses.

Photograph 8. Close up of solid surfaced gangways.

Photograph 9. Fill material sloughing into intertidal area beneath failing treated wood bulkhead adjacent to boatyard.

Photograph 10. Treated wood bulkhead and fill area at boat haul-out. The berm between the boat haul-out and the bulkhead appears to be composed of rubble and debris.

Photograph 11. Close-up of berm between the bulkhead/fill area and the boat haul-out.

Photograph 12. The solid-surface boat haul-out structure, supported by creosote-treated pilings.

Photograph 13. Concrete ecology block bulkhead inside of the boat haul-out.

Photograph 14. Failing overwater structure with treated wood surfacing and creosote-treated pilings.

Photograph 15. Shoreline and intertidal areas east of the marina pier include concrete pads, treated wood rails, and miscellaneous debris.

Photograph 16. Pile of treated wood in the intertidal area east of the marina pier.

Photograph 17. Upland invasive plant species east of the marina pier.

Photograph 18. Intertidal debris east of the marina pier.

Photograph 1. Creosote-treated pile in the intertidal.

Photograph 2. Metal outfall and a creosote-treated pile stub.

Site Photographs		
LEON Environmental, LLC	Port of Friday Harbor Mitigation Opportunities Inventory Survey Date: October 9, 2018	Jackson Beach Jackson Beach Rd Friday Harbor, WA 98250

Photograph 3. Defunct barge landing with creosote piles, concrete debris.

Photograph 4. Close up of concrete debris and creosote-treated piles among driftwood.

Photograph 5. Plastic debris in scarp, wood debris among driftwood.

Photograph 6. Concrete boat ramp and adjacent angular rock.