



** The City of Anacortes Planning Commission is following Section 3 of Anacortes [Resolution 2082](#) Ratifying Proclamation of Emergency and Providing Temporary Procedures to Respond to the COVID-19 Epidemic, adopted by the Anacortes City Council on March 16, 2020, and [Resolution 3038](#), adopted June 28, 2021, extending the duration of portions of Resolution 2082 through September 30, 2021, according to which open public meetings may be held partially or entirely virtually.

- Meetings may be viewed on the [City of Anacortes website](#), on the City of Anacortes [YouTube](#) Channel, or on TV [Channel 10](#).
- The public may also watch or listen to the meeting live by visiting <https://us02web.zoom.us/j/85918981678> or by telephoning 1-253-215-8782 and entering Meeting ID 859 1898 1678.
- Listen to the meeting by phone: 872-240-3412, Access Code: 261-991-485
- The public is encouraged to comment via email to pced@cityofanacortes.org, via written comment addressed to PCED, P.O. Box 547, Anacortes, WA 98221, or via e-comment (<https://www.anacorteswa.gov/700/Watch-Meetings> - click on meeting you wish to provide comment and in upper right corner is an option to include Public Comment). Public comments received prior to 3:00 p.m. the day of the meeting will become part of the record for the meeting, just as if presented in person.
- Complete guidelines for virtual participation in Anacortes Planning Commission meetings are available [here](#) (page 2). View the quick video example for connecting to the meeting [here](#).

ANACORTES PLANNING COMMISSION

Site Visit - 5005 Croatian Way, 3 p.m. No public comments will be taken at the site visit. At the conclusion of the site visit, the Planning Commission will resume the public hearing on this matter at 6 p.m., July 28, 2021, in City Hall Council Chambers.

July 28, 2021

**Municipal Building Council Chambers
6th Street and "Q" Avenue**

**** Attendees in Council Chambers must comply with [Dept. of Health orders](#) in effect on the date of each meeting ****

AGENDA

6:00 PM

[VIEW PACKET MATERIALS HERE](#)

A. Roll Call

B. Minutes

1) Draft Minutes of March 24, 2021

C. Correspondence

D. New Business

The City of Anacortes encourages people with disabilities to participate in public meetings. For assistance with special needs, please contact the City Clerk at 360-299-1960 in advance of the meeting.

- 1) Flood Plain Management Anacortes Municipal Code Chapter 19.74
- 2) Croatian Way Seawall Reinforcement: SDP-2021-0002, SDP-2021-0003, SDP-2021-0004

E. Old Business

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Planning Commission Public Hearing Minutes for March 24, 2021

This is not a verbatim transcript of the meeting and is written in an attempt to capture the general spirit of the discussion based upon notes and video observation by the author. To view the video recording of this meeting, click [here](https://www.anacorteswa.gov/700/Watch-Meetings), or go to <https://www.anacorteswa.gov/700/Watch-Meetings>.

Commissioner Ruether called the Public Hearing of March 24, 2021 to order at approximately 6:00 p.m.

Roll Call

Members Present: Commissioners Mike Cortright, Gary Molyneaux, Jeff Graf, Sarah Ruether, Frank Jeretzky

Members Absent: Linda Martin & Ward MacKenzie

Staff Present: Don Measamer, Libby Grage, Steve Lange, Dave Oicles

Minutes: The minutes from March 10, 2021 were accepted as submitted.

Correspondence

No additional correspondence other than the items currently on the agenda.

New Business

Don Measamer, PCED Director, gave a presentation on upcoming planning commission legislative work for 2021. Some of the highlights include:

- Shoreline Master Program update
- R4 zone bonus height provisions
- Tree Preservation regulations update
- Short Term Rentals in R zones
- 2020/2021 Comp Plan & Development regulation amendments
- Recodify AMC 17.70 Frequently Flooded areas, and Capital Facilities Plan update

Steve Lange, Senior Engineer, gave a presentation on current and upcoming Public Works projects. Some of the highlights include:

- Water line replacement
- Slurry seal road projects
- Road overlay projects
- Sidewalk replacements
- Wastewater Treatment Plant outfall project
- Cooperative Drainage Basin project
- R Ave long-term improvement project

Old Business

With no further discussion, Commissioner Ruether concluded the meeting at approximately 7:00 p.m.



Planning Commission Agenda Bill

Meeting Date: July 28, 2021

Agenda Item: D.1.

Subject: Flood Plain Management Anacortes Municipal Code Chapter 19.74

Staff Contact: DON MEASAMER

Approved for Submittal to Commission by

DON MEASAMER

LIBBY GRAGE

Action Type

Discussion

Summary Statement:

Background: Previously titled Frequently Flooded Areas under AMC Chapter 17.17.020 was first established approximately 1994 and updated with minor changes 2005 and 2008 established through the Flood Insurance Study for the City of Anacortes dated March 17, 2003 with the accompanying Flood Insurance maps (FIRM) and has not been updated since. The Chapter was reviewed and approved by Ecology and the Federal Emergency Management Agency (FEMA). In early 2021 the city was contacted by David Radabaugh, State National Flood Insurance Program (NFIP) Coordinator, Department of Ecology, regarding updates to the city Flood Plain Management regulations. Mr. Radabaugh reviewed the existing code sections and provided several updates to ensure consistency with current FEMA and NFIP guidelines.

The attached document reflects the required updates as noted by Mr. Radabaugh, Department of Ecology with strike through, underline and highlighted.

Previous Action: NA

Competing Viewpoints Considered:

Recommended Motion: NA

Alternative Actions: NA

Attachments (listed in order presented):

1. Flood Plain Management Chapter 19.74

Chapter 19.74 Floodplain Management Article II. Frequently Flooded Areas (FEMA Approved)

~~17.70.020~~ 19.74.010 — Statutory authorization, findings of fact, purpose, and objectives.

A. *Statutory Authorization.* The legislature of the state of Washington has delegated the responsibility to local governmental units to adopt regulations designed to promote the public health, safety, and general welfare of its citizenry. Therefore, the City Council of Anacortes does ordain as follows:

1. *Findings of Fact.*

- a. The flood hazard areas of Anacortes are subject to periodic inundation which results in loss of life and property, health and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures for flood protection and relief, and impairment of the tax base, all of which adversely affect the public health, safety, and general welfare.
- b. These flood losses are caused by the cumulative effect of obstructions in areas of special flood hazards which increase flood heights and velocities and, when inadequately anchored, damage uses in other areas. Uses that are inadequately flood-proofed, elevated, or otherwise protected from flood damage also contribute to the flood loss.

2. *Statement of Purpose.* It is the purpose of this chapter to promote the public health, safety, and general welfare, and to minimize public and private losses due to flood conditions in specific areas by provisions designed:

- a. To protect human life and health;
- b. To minimize expenditure of public money and costly flood control projects;
- c. To minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;
- d. To minimize prolonged business interruptions;
- e. To minimize damage to public facilities and utilities, such as water and gas mains, electric, telephone and sewer lines, streets, and bridges located in areas of special flood hazard;
- f. To help maintain a stable tax base by providing for the sound use and development of areas of special flood hazard so as to minimize future flood blight areas;
- g. To ensure that potential buyers are notified that property is in an area of special flood hazard;
- h. To ensure that those who occupy the areas of special flood hazard assume responsibility for their actions; and
- i. To incorporate LID BMPs if feasible.

3. *Methods of Reducing Flood Losses.* In order to accomplish its purposes, this chapter includes methods and provisions for:

- a. Restricting or prohibiting uses which are dangerous to health, safety, and property due to water or erosion hazards, or which result in damaging increases in erosion or in flood heights or velocities;
- b. Requiring that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;
- c. Controlling the alteration of natural floodplains, stream channels, and natural protective barriers, which help accommodate or channel floodwaters;
- d. Controlling filling, grading, dredging, and other development which may increase flood damage; and
- e. Preventing or regulating the construction of flood barriers which will unnaturally divert floodwaters or may increase flood hazards in other areas. (Ord. 3031 § 1 (Exh. A), 2018; Ord. 2794 § 1 (Att. A), 2008; Ord. 2702 § 3, 2005*)

~~*—Code reviser's note: Ord. 3031, Section 3, states: "This ordinance shall be effective for six months from the date of adoption, and the provisions provided in Exhibit A shall expire on May 19, 2019."~~

~~17.70.030~~ 19.74.020 Definitions.

Unless specifically defined below, words or phrases used in this chapter shall be interpreted so as to give them the meaning they have in common usage and to give this chapter its most reasonable application.

"Adjacent/regulated slopes" means within 100 feet of the project site boundaries.

"Administrator" means the Director of Community Development.

"Alteration of watercourse" Any action that will change the location of the channel occupied by water within the banks of any portion of a riverine waterbody.

"Appeal" means a request for a review of the interpretation of any provision of this chapter or a request for a variance.

~~"Area of shallow flooding" means a designated AO, or AH Zone on the Flood Insurance Rate Map (FIRM). The base flood depths range from one to three feet; a clearly defined channel does not exist; the path of flooding is unpredictable and indeterminate; and, velocity flow may be evident. AO is characterized as sheet flow and AH indicates ponding.~~

"Area of shallow flooding" A designated zone AO, AH, AR/AO or AR/AH (or VO) on a communities Flood Insurance Rate Map (FIRM) with a one percent or greater annual chance of flooding to an average depth of one to three feet where a clearly defined channel does not exist, where the path of flooding is unpredictable, and where velocity flow may be evident. Such flooding is characterized by ponding or sheet flow. Also referred to as sheet flow area.

~~"Area of special flood hazard" means the land in the floodplain within a community subject to a one percent or greater chance of flooding in any given year. Designation on maps always includes the letters A or V.~~

“Area of special flood hazard” The land in the floodplain within a community subject to a 1 percent or greater chance of flooding in any given year. It is shown on the Flood Insurance Rate Map (FIRM) as zone A, AO, AH, A1-30, AE, A99, AR, (V, VO, V1-30, VE). “Special flood hazard area” is synonymous in meaning with the phrase “area of special flood hazard”.

“Base flood” means the flood having a one percent chance of being equaled or exceeded in any given year. Also referred to as the “one hundred-year flood.” Designation on maps always includes the letters A or V.

“Base Flood Elevation (BFE)” The elevation to which floodwater is anticipated to rise during the base flood.

“Basement” means any area of the building having its floor subgrade (below ground level) on all sides.

“Breakaway wall” means a wall that is not part of the structural support of the building and is intended through its design and construction to collapse under specific lateral loading forces, without causing damage to the elevated portion of the building or supporting foundation system.

“Buffer” means a naturally vegetated area or vegetated area established or managed to protect nontidal wetlands or other areas from human disturbances.

~~Buffer Strip. The term’s “Buffer Strip” means the intended purpose is~~ to provide a sight, sound, and/or psychological barrier between land uses with a high degree of incompatibility, whether real or perceived.

“Channel” means the geographical area within either the natural or artificial banks of a watercourse or drainway.

“Coastal high hazard area” means an area of special flood hazard extending from offshore to the inland limit of a primary frontal dune along an open coast and any other area subject to high velocity wave action from storms or seismic sources. The area is designated on the FIRM as Zone V1-30, VE or V.

“Creation, wetland” means a human activity bringing a wetland into existence at a site in which it did not formerly exist.

“Critical facility” means a facility for which even a slight chance of flooding might be too great. Critical facilities include, but are not limited to, schools, nursing homes, hospitals, police, fire and emergency response installations, installations which produce, use or store hazardous materials or hazardous waste.

“Development” means any human-made change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations or storage of equipment or materials located within the area of special flood hazard.

“Drainway” means any depression below the surrounding land serving to give direction to a regular current of water and having a bed and well-defined banks.

“Elevated building” means for insurance purposes, a nonbasement building which has its lowest elevated floor raised above ground level by foundation walls, shear walls, post, piers, pilings, or columns.

“Existing manufactured home park or subdivision” means a manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including, at a minimum, the installation of utilities, the construction of streets, and either final site grading or

the pouring of concrete pads) is completed before the effective date of the adopted floodplain management regulations.

“Expansion to an existing manufactured home park or subdivision” means the preparation of additional sites by the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads).

“Flood” or “flooding” means a general and temporary condition of partial or complete inundation of normally dry land areas from:

1. The overflow of inland or tidal waters; and/or
2. The unusual and rapid accumulation of runoff of surface waters from any source.
3. Mudslides (i.e., mudflows) which are proximately caused by flooding and are akin to a river of liquid and flowing mud on the surfaces of normally dry land areas, as with when earth is carried by a current of water and deposited along the path of the current.
4. The collapse of subsidence of land along the shore of a lake or other body of water as a result of erosion or undermining caused by waves or currents of water exceeding anticipated cyclical levels or suddenly caused by an unusually high water level in a natural body of water, accompanied by a severe storm, or by an unanticipated force of nature, such as a flash flood or an abnormal tidal surge, or by some similarly unforeseeable event which results in flooding.

“Flood elevation study” means an examination , evaluation and determination of flood hazards and, if appropriate , corresponding water surface elevations, or an examination , evaluation and determination of mudslides (i.e., mudflow) and/or flood-related erosion hazards. Also known as a Flood Insurance Study (FIS).

“Flood Insurance Rate Map (FIRM)” means the official map on which the Federal Insurance Administration has delineated both the areas of special flood hazards and the risk premium zones applicable to the community. A FIRM that has been made available digitally is called a Digital Flood Insurance Rate Map (DFIRM)

“Flood Insurance Study” means the official report provided by the Federal Insurance Administration that includes flood profiles, the flood boundary-floodway map, and the water surface elevation of the base flood.

“Floodplain or flood-prone area” means any land area susceptible to being inundated by water from any source. See “Flood or flooding”

“Flood proofing” means any combination of structural and nonstructural additions, changes, or adjustments to structures which reduce or eliminate risk of flood damage to real estate or improved real property, water and sanitary facilities, structures, and their contents. Flood proofed structures are those that have the structural integrity and design to be impervious to floodwater below the Base Flood Elevation

“Floodway” means the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than ~~one foot~~. a designated height. Also referred to as “Regulatory Floodway”.

“Functionally dependent use” means a use which cannot perform its intended purpose unless it is located or carried out in close proximity to water. The term includes only docking facilities, port facilities that are necessary for the loading and unloading of cargo or passengers, and ship building and ship repair facilities, and does not include long-term storage or related manufacturing facilities.

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“Function/wetlands” means the beneficial roles nontidal wetlands serve, including storage, conveyance, and attenuation of floodwaters and stormwaters; groundwater recharge and discharge; protection of water quality and reduction of sediment and erosion; production of waterfowl, game and nongame birds, mammals, and other living resources; protection of habitat for rare, threatened, and endangered species, food chain support for a broad range of wildlife and fisheries; educational, historical, and archaeological value protection; and scenic, aesthetic, and recreational amenities.

“Highest adjacent grade” means the highest natural elevation of the ground surface prior to construction next to the proposed walls of a structure.

“Historic structure” means aAny structure that is;

1. Listed individually in the National Register of Historic Places (a listing maintained by the Department of Interior) or preliminarily determined by the Secretary of Interior as meeting the requirements for individual listing on the National Register.
2. Certified or preliminarily determined by the Secretary of Interior as contributing to the historical significance of a registered historic district or a district preliminarily determined by the Secretary of the Interior to qualify as a registered historic district.
3. Individually listed on a state inventory of historic places in states with historic preservation programs which have been approved by the Secretary of Interior; or
4. Individually listed on a local inventory of historic places in communities with historic preservation programs that have been certified either:
 - a) By an approved state program as determined by the Secretary of the Interior., or
 - b) Directly by the Secretary of the Interior in states without approved programs.

“Hydrophytic vegetation” means macrophytic plant life growing in water or on a substrate that is at least periodically deficient in oxygen as a result of excessive water content.

“In-kind construction, wetland” means the restoration or creation of a wetland with vegetation and other characteristics closely approximating those of a specified wetland.

“Lowest floor” means the lowest floor of the lowest enclosed area (including basement). An unfinished or flood resistant enclosure, usable solely for parking of vehicles, building access or storage, in an area other than a basement area, is not considered a building’s lowest floor, provided that such enclosure is not built so as to render the structure in violation of the applicable nonelevation design requirements of this chapter found at subsection 19.74.050.D

“Manufactured home” means a structure, transportable in one or more sections, which is built on a permanent chassis and is designed for use with or without a permanent foundation when attached to the required utilities. The term “manufactured home” does not include a “recreational vehicle.”

“Manufactured home park or subdivision” means a parcel (or contiguous) of land divided into two or more manufactured home lots for rent or sale.

“Mean Sea Level” for purpose of the National Flood Insurance Program, means the vertical datum to which Base Flood Elevations shown on a community’s Flood Insurance Rate Map are referenced.

~~“New construction” means structures for which the “start of construction” commenced on or after the effective date of the ordinance codified in this chapter.~~

“New construction” for the purposes of determining insurance rates, means structures for which the “start of construction” commenced on or after the effective date of an initial Flood Insurance Rate map or after December 31, 1974, whichever is later, and includes any subsequent improvements to such structures. For floodplain management purposes, “new construction”, means structures for which the “start of construction” commenced on or after the effective date of a floodplain management regulation adopted by a community and includes any subsequent improvements to such structures.

“New manufactured home park or subdivision” means a manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including at a minimum, the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads) is completed on or after the effective date of adopted floodplain management regulations.

“Nontidal wetland” means an area that is inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil conditions (commonly known as hydrophytic vegetation).

“Off-site construction, wetland” means restoration or creation of a wetland at a location not adjacent to a previously specified wetland.

“Out-of-kind, wetland” means the restoration or creation of a wetland with vegetation or other characteristics not resembling those of a specified wetland.

“Partially developed lot” means a lot or parcel of land on which a building is located and which is of sufficient area so as to be capable of subdivision into two or more lots in accordance with city standards.

“Practicable alternative, wetland” means an alternative to the proposed project that would accomplish the basic purpose of the project and avoid or have less adverse impact on a nontidal wetland.

“Recreational vehicle” means a vehicle which is:

1. Built on a single chassis;
2. Four hundred square feet or less when measured at the largest horizontal projection;
3. Designed to be self-propelled or permanently towable by a light duty truck; and

4. Designed primarily not for use as a permanent dwelling but as temporary living quarters for recreational, camping, travel, or seasonal use.

“Regulated activity, wetlands” means an activity with a significant impact on nontidal wetlands, including:

1. The removal, excavation, or dredging of soil, sand, gravel, minerals, organic matter, or materials of any kind;
2. The changing of existing drainage characteristics, sedimentation patterns, flow patterns, or flood retention characteristics;
3. The disturbance of the nontidal wetland water level or water table by drainage, impoundment, or other means;
4. The dumping or discharging of material, or the filling of a nontidal wetland with material;
5. The placing of fill or the grading or removal of material that would alter existing topography;
6. The driving of piles, placement of obstructions, and erection or repair of buildings or structures of any kind;
7. The destruction or removal of plant life that would alter the character of a nontidal wetland; and
8. The conduct of an activity that results in a significant change of water temperature, a significant change of physical or chemical characteristics of nontidal wetland water sources, or the introduction of pollutants.

“Regulated slopes” means slopes that average 15 percent or greater over a vertical interval of 10 feet.

“Restoration, wetland” means a human activity that returns a wetland or former wetland from a disturbed or altered condition with lesser acreage or functions to a previous condition with greater wetland acreage or functions.

“Scientist, professional wetland” means a professional wetland scientist shall be certified through the Society of Wetland Scientists Professional Certification Program.

“Start of construction” includes substantial improvement, and means the date the building permit was issued, provided the actual start of construction, repair, reconstruction, placement or other improvement was within one hundred eighty days of the permit date. The actual start means either the first placement of permanent construction of a structure on a site, such as the pouring of slab or footings, the installation of piles, the construction of columns, or any work beyond the stage of excavation; or the placement of a manufactured home on a foundation. Permanent construction does not include land preparation, such as clearing, grading and filling; nor does it include the installation of streets and/or walkways; nor does it include excavation for a basement, footings, piers, or foundations or the erection of temporary forms; nor does it include the installation on the property of accessory buildings, such as garages or sheds not occupied as dwelling units or not part of the main structure. For a substantial improvement, the actual start of construction means the first alteration of any wall, ceiling, floor, or other structural part of a building, whether or not that alteration affects the external dimensions of the building.

“Structure” means a walled and roofed building including a gas or liquid storage tank that is principally above ground.

“Substantial damage” means damage of any origin sustained by a structure whereby the cost of restoring the structure to its before damaged condition would equal or exceed fifty percent of the market value of the structure before the damage occurred.

~~“Substantial improvement” means any repair, reconstruction, or improvement of a structure, the cost of which equals or exceeds fifty percent of the market value of the structure either:~~

- ~~1. Before the improvement or repair is started; or~~
- ~~2. If the structure has been damaged and is being restored, before the damage occurred. For the purposes of this definition “substantial improvement” is considered to occur when the first alteration of any wall, ceiling, floor, or other structural part of the building commences, whether or not that alteration affects the external dimensions of the structure.~~

~~The term does not, however, include either:~~

- ~~1. Any project for improvement of a structure to correct existing violations of state or local health, sanitary, or safety code specifications which have been identified by the local code enforcement official and which are the minimum necessary to assure safe living conditions, or~~
- ~~2. Any alteration of a structure listed on the National Register of Historic Places or a State Inventory of Historic Places.~~

“Substantial Improvement” means aAny reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure before the “start of construction” of the improvement. This term includes structures which have incurred “substantial damage”, regardless of the actual repair work performed. The term does not, however, include either:

- 1.) Any project for improvement of a structure to correct previously identified existing violations of state or local health, sanitary, or safety code specifications that have been identified by the local code enforcement official and that are the minimum necessary to assure safe living conditions; or
- 2) Any alteration of a historic structure”, provided that the alteration will not preclude the structure’s continued designation as a “historic structure”.

“Variance” means a grant of relief from the requirements of this chapter which permits construction in a manner that would otherwise be prohibited by this chapter.

“Water dependent” means a structure for commerce or industry which cannot exist in any other location and is dependent on the water by reason of the intrinsic nature of its operations. (Ord. 3040 § 2 (Att. A), 2019; Ord. 2794 § 1 (Att. A), 2008; Ord. 2702 § 3, 2005; Ord. 2316 § 3, 1994)

~~17.70.040~~ 19.74.030 General provisions.

- A. *Lands to Which This Chapter Applies.* This chapter shall apply to all areas of special flood hazards within the jurisdiction of the City of Anacortes.
- B. *Basis for Establishing the Areas of Special Flood Hazard.* The areas of special flood hazard identified by the Federal Insurance Administration in a scientific and engineering report entitled “The Flood Insurance Study for the City of Anacortes” dated March 17, 2003, and any revisions thereto, with an accompanying Flood Insurance Rate Map (FIRM), and any revisions thereto, are hereby adopted by reference and declared to be a part of this chapter. The Flood Insurance Study and the FIRM are on file at 904-6th Street. The best available information for flood hazard area identification as outlined in subsection ~~19.74.040.(C)(2)~~~~17.70.050(C)(2)~~ of this chapter shall be the basis for regulation until a new FIRM is issued which incorporates the data utilized under subsection ~~19.74.040.(C)(2)~~ ~~17.70.050(C)(2)~~ of this chapter.
- C. *Penalties for Noncompliance.* No structure or land shall hereafter be constructed, located, extended, converted, or altered without full compliance with the terms of this chapter and other applicable regulations. Violations of the provisions of this chapter by failure to comply with any of its requirements (including violations of conditions and safeguards established in connection with conditions), shall constitute a misdemeanor. Any person who violates this chapter or fails to comply with any of its requirements shall upon conviction thereof be fined not more than one thousand dollars or imprisoned for not more than ten days, or both, for each violation, and in addition shall pay all costs and expenses involved in the case. Nothing herein contained shall prevent the Administrator from taking such other lawful action as is necessary to prevent or remedy any violation.
- D. *Abrogation and Greater Restrictions.* This chapter is not intended to repeal, abrogate, or impair any existing easements, covenants, or deed restrictions. However, where this chapter and another ordinance, easement, covenant, or deed restriction conflict or overlap, whichever imposes the more stringent restrictions shall prevail.
- E. *Interpretation.* In the interpretation and application of this chapter, all provisions shall be:
1. Considered as minimum requirements;
 2. Liberally construed in favor of the governing body; and
 3. Deemed neither to limit nor repeal any other powers granted under state statutes.
- F. *Warning and Disclaimer of Liability.* The degree of flood protection required by this chapter is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. Larger floods can and will occur on rare occasions. Flood heights may be increased by man-made or natural causes. This chapter does not imply that land outside the areas of special flood hazards or uses permitted within such areas will be free from flooding or flood damages. This chapter shall not create liability on the part of the city of Anacortes, any officer or employee thereof, or the Federal Insurance Administration, for any flood damages that result from reliance on this chapter or any administrative decision lawfully made hereunder.~~-(Ord. 2794 § 1 (Att. A), 2008; Ord. 2702 § 3, 2005)~~

~~17.70.050~~ 19.74.040 Administration.

A. Establishment of development permit.

1. *Development Permit Required.* A development permit shall be obtained before construction or development begins within any area of special flood hazard established in subsection ~~17.70.040(B)~~ 19.74.030 (B) of this chapter. The permit shall be for all structures including manufactured homes, as set forth in the “Definitions,” and for all development including fill and other activities, also as set forth in the “Definitions.”
2. *Application for Development Permit.* Application for a development permit shall be made on forms furnished by the city of Anacortes and may include, but not be limited to, plans in duplicate drawn to scale showing the nature, location, dimensions, and elevations of the area in question; existing or proposed structures, fill, storage of materials, drainage facilities, and the location of the foregoing. Specifically, the following information is required:
 - a. Elevation in relation to mean sea level, of the lowest floor (including basement) of all structures;
 - b. Elevation in relation to mean sea level to which any structure has been floodproofed;
 - c. Certification by a registered professional engineer or architect that the floodproofing methods for any nonresidential structure meet the floodproofing criteria in subsection ~~17.70.060(B)(2)~~ 19.74.050 (B)(2) of this chapter; and
 - d. Description of the extent to which a watercourse will be altered or relocated as a result of proposed development.

B. *Designation of the Local Administrator.* The administrator is hereby appointed to administer and ___ implement this chapter by granting or denying development permit applications in accordance with its provisions.

C. *Duties and Responsibilities of the Local Administrator.* Duties of the administrator shall include, but not be limited to:

1. *Permit Review.*
 - a. Review all development permits to determine that the permit requirements of this chapter have been satisfied.
 - b. Review all development permits to determine that all necessary permits have been obtained from those federal, state, or local governmental agencies from which prior approval is required.
 - c. Review all development permits to determine if the proposed development is located in the floodway. If located in the floodway, assure that the encroachment provisions of subsection ~~17.70.060(D)~~ 19.74.050(D) of this chapter are met.
2. *Use of Other Base Flood Data (In A and V Zones).* When base flood elevation data has not been provided (A and V Zones) in accordance with subsection ~~17.70.040(B)~~ 19.74.030(B), basis for establishing the areas of special flood hazard, the administrator shall obtain, review, and reasonably

utilize any base flood elevation and floodway data available from a federal, state or other source, in order to administer subsection ~~17.70.060(B)~~ 19.74.050(B), specific standards, and subsection ~~17.70.060(D)~~ 19.74.050(D), critical facility.

3. Information to be Obtained and Maintained.

- a. Where base flood elevation data is provided through the Flood Insurance Study, FIRM, or required as in subsection (C)(2) of this section, obtain and record the actual elevation (in relation to mean sea level) of the lowest floor (including basement) of all new or substantially improved structures, and whether or not the structure contains a basement.
- b. For all new or substantially improved floodproofed structures where base flood elevation data is provided through the Flood Insurance Study, FIRM, or as required in subsection (C)(2) of this section:
 - i. Obtain and record the elevation (in relation to mean sea level) to which the structure was floodproofed; and
 - ii. Maintain the floodproofing certifications required in subsection (A)(2)(c) of this section.
- c. Maintain for public inspection all records pertaining to the provisions of this chapter.

4. *Alteration of Watercourses.*

- a. Notify adjacent communities and the Department of Ecology prior to any alteration or relocation of a watercourse, and submit evidence of such notification to the Federal Insurance Administration.
- b. Require that maintenance is provided within the altered or relocated portion of said watercourse so that the flood carrying capacity is not diminished.

5. *Interpretation of FIRM Boundaries.* Make interpretations where needed, as to exact location of the boundaries of the areas of special flood hazards (for example, where there appears to be a conflict between a mapped boundary and actual field conditions). The person contesting the location of the boundary shall be given a reasonable opportunity to appeal the interpretation as provided ~~in subsection (D) of this section.~~ in Table 19.20.030, Type I Administrative Ministerial Actions, and Section 19.20.180.

D. *Variance Procedure.*

1. Variances to this chapter must be processed according to the procedures in Title 19.
2. *Conditions for Variances.*
 - a. Generally, the only condition under which a variance from the elevation standard may be issued is for new construction and substantial improvements to be erected on a lot of one-half acre or less in size contiguous to and surrounded by lots with existing structures constructed below the base flood level, providing items ~~(i through xi)~~ in subsection ~~(D)(1)(d)~~ (D)(3)(a) of this section

have been fully considered. As the lot size increases the technical justification required for issuing the variance increases.

- b. Variances may be issued for the reconstruction, rehabilitation, or restoration of structures listed on the National Register of Historic Places or the State Inventory of Historic Places, without regard to the procedures set forth in this section: Upon a determination that the proposed repair or rehabilitation will not preclude the structure's continued designation as a historic structure and the variance is the minimum necessary to preserve the historic character and design of the structure.
- c. Variances shall not be issued within a designated floodway if any increase in flood levels during the base flood discharge would result.
- d. Variances shall only be issued upon a determination that the variance is the minimum necessary, considering the flood hazard, to afford relief.
- e. Variances shall only be issued upon:
 - i. A showing of good and sufficient cause;
 - ii. A determination that failure to grant the variance would result in exceptional hardship to the applicant;
 - iii. A determination that the granting of a variance will not result in increased flood heights, additional threats to public safety, extraordinary public expense, create nuisances, cause fraud on or victimization of the public, or conflict with existing local laws or ordinances.
 - iv. A demonstration that no net loss of critical areas functions and values will occur as a result.
- f. Variances as interpreted in the National Flood Insurance Program are based on the general zoning law principle that they pertain to a physical piece of property; they are not personal in nature and do not pertain to the structure, its inhabitants, economic or financial circumstances. They primarily address small lots in densely populated residential neighborhoods. As such, variances from the flood elevations should be quite rare.
- g. Variances may be issued for nonresidential buildings in very limited circumstances to allow a lesser degree of floodproofing than watertight or dry-floodproofing, where it can be determined that such action will have low damage potential, complies with all other variance criteria except subsection (D)(2)(a) of this section, and otherwise complies with subsections 17.70.060(A)(1) 19.74.050(A)(1), (3) (a) and (4) (b) of the general standards.
- h. Any applicant to whom a variance is granted shall be given written notice that the structure will be permitted to be built with a lowest floor elevation below the base flood elevation and that the cost of flood insurance will be commensurate with the increased risk resulting from the reduced lowest floor elevation. (Ord. 2992 § 1 (Att. A), 2016; Ord. 2794 § 1 (Att. A), 2008; Ord. 2702 § 3, 2005)

3. Variance review criteria.

- a. In considering variance applications, the governing body must consider all technical evaluations, all relevant factors, all standards specified in other sections of this chapter, and;
- i. The danger that materials may be swept onto other lands to the injury of others;
 - ii. The danger to life and property due to flooding or erosion damage;
 - iii. The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owner;
 - iv. The importance of the services provided by the proposed facility to the community;
 - v. The necessity to the facility of a waterfront location, where applicable;
 - vi. The availability of alternative locations for the proposed use, which are not subject to flooding or erosion damage;
 - vii. The compatibility of the proposed use with existing and anticipated development;
 - viii. The relationship of the proposed use to the comprehensive plan and floodplain management program for that area;
 - i-ix. The safety of access to the property in time of flood for ordinary and emergency vehicles;
 - ii-x. The expected heights, velocity, duration, rate of rise, and sediment transport of the floodwaters expected at the site; and
 - iii-xi. The costs of providing governmental services during and after flood conditions, including maintenance and repair of public utilities and facilities, such as sewer, gas, electrical, water system, and streets and 3. Variance review criteria

1. In considering variance applications, the governing body must consider all technical evaluations, all relevant factors, all standards specified in other sections of this chapter, and;

- a) The danger that materials may be swept onto other lands to the injury of others;
- b) The danger to life and property due to flooding or erosion damage;
- c) The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owner;
- d) The importance of the services provided by the proposed facility to the community;
- e) The necessity to the facility of a waterfront location, where applicable;
- f) The availability of alternative locations for the proposed use, which are not subject to flooding or erosion damage;
- g) The compatibility of the proposed use with existing and anticipated development;

~~— h) The relationship of the proposed use to the comprehensive plan and floodplain management program for that area;~~

~~— i) The safety of access to the property in time of flood for ordinary and emergency vehicles;~~

~~— j) The expected heights, velocity, duration, rate of rise, and sediment transport of the floodwaters expected at the site; and~~

~~— k) The costs of providing governmental services during and after flood conditions, including maintenance and repair of public utilities and facilities, such as sewer, gas, electrical, water system, and streets and bridges.~~

~~17.70.060~~19.74.050 Provisions for flood hazard reduction.

A. *General Standards.* In all areas of special flood hazards, the following standards are required:

1. *Anchoring.*

- a. All new construction and substantial improvements shall be anchored to prevent flotation, collapse, or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads including effects of buoyancy.
- b. All manufactured homes must likewise be anchored to prevent flotation, collapse, or lateral movement, and shall be installed using methods and practices that minimize flood damage. Anchoring methods may include, but are not limited to, use of over-the-top or frame ties to ground anchors (Reference FEMA's "Manufactured Home Installation in Flood Hazard Areas" guidebook for additional techniques).

2. *Construction Materials and Methods.*

- a. All new construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage.
- b. All new construction and substantial improvements shall be constructed using methods and practices that minimize flood damage.
- c. Electrical, heating, ventilation, plumbing, and air-conditioning equipment and other service facilities shall be designed and/or otherwise elevated or located so as to prevent water from entering or accumulating within the components during conditions of flooding.

3. *Utilities.*

- a. All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of floodwaters into the systems;
- b. The proposed water well shall be located on high ground that is not in the floodway (WAC [173-160-171](#));
- c. New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of floodwaters into the systems and discharges from the systems into floodwaters; and

- d. Onsite waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding.
4. *Subdivision Proposals and Other Development.*
 - a. All subdivision proposals shall be consistent with the need to minimize flood damage;
 - b. All subdivision proposals shall have public utilities and facilities, such as sewer, gas, electrical, and water systems located and constructed to minimize or eliminate flood damage;
 - c. All subdivision proposals shall have adequate drainage provided to reduce exposure to flood damage; and
 - d. Where base flood elevation data has not been provided or is not available from another authoritative source, it shall be generated for subdivision proposals and other proposed developments which contain at least fifty lots or five acres (whichever is less).
5. *Review of Building Permits.* Where elevation data is not available either through the Flood Insurance Study, FIRM, or from another authoritative source (subsection ~~17.70.050(C)(2)~~ 19.74.040(C (2)), applications for building permits shall be reviewed to assure that proposed construction will be reasonably safe from flooding. The test of reasonableness is a local judgment and includes use of historical data, high water marks, photographs of past flooding, etc., where available. Failure to elevate at least two feet above the highest adjacent grade in these zones may result in higher insurance rates.
- B. *Specific Standards.* In all areas of special flood hazards where base flood elevation data has been provided (Zones A1-30, AH, and AE) as set forth in subsection ~~17.70.040(B)~~ 19.74.030(B), basis for establishing the areas of special flood hazard, or subsection ~~17.70.050(C)(2)~~ 19.74.040(C) (2), use of other base flood data (In A and V Zones), the following provisions are required:
 1. *Residential Construction.*
 - a. ~~a)~~ In AE and A1-30 zones or other A zoned areas where the BFE has been determined or can be reasonably obtained, new construction and substantial improvement of any residential structure must have the lowest floor, including basement, elevated one foot or more above the BFE. Mechanical equipment and utilities must be waterproof or elevated at least one foot above BFE.
 - b. ~~b)~~ New construction and substantial improvement of any residential structure in an unnumbered A zone for which a BFE is not available and cannot be reasonably obtained must be reasonably safe from flooding, but in all cases the lowest floor must be at least two feet above the Highest Adjacent Grade.
 - c. ~~c)~~ New construction and substantial improvement of any residential structure in a V, V1-30, or VE zone must meet the requirements of section 19.74.050(C Coastal High Hazard).
 - d. ~~d)~~ Fully enclosed areas below the lowest floor that are subject to flooding are prohibited, or must be designed to automatically equalize hydrostatic flood forces on the exterior walls by allowing for the entry and exit of flood waters. Designs must meet or exceed the minimum following criteria or be designed by a registered engineer or architect and certify engineered openings;

- i. Have a minimum of two openings with a total net area of not less than one square inch for every square foot of enclosed area subject to flooding.
 - ii. The bottom of all openings must be no higher than one foot above grade.
 - iii. Openings may be equipped with screens, louvers, valves, or other coverings or devices provided they permit the automatic entry and exit of floodwater.
 - iv. A garage attached to a residential structure, constructed with the garage floor slab below the BFE, must be designed to allow for the automatic entry and exit of floodwaters. a. New construction and substantial improvement of any residential structure shall have the lowest floor, including basement, elevated one foot or more above the base flood elevation.
 - b. Fully enclosed areas below the lowest floor that are subject to flooding are prohibited, or shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. Designs for meeting this requirement must either be certified by a registered professional engineer or architect or must meet or exceed the following minimum criteria:
 - i. A minimum of two openings having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding shall be provided;
 - ii. The bottom of all openings shall be no higher than one foot above grade;
 - iii. Openings may be equipped with screens, louvers, or other coverings or devices provided that they permit the automatic entry and exit of floodwaters.
- 2. *Nonresidential Construction.* New construction or substantial improvement of any commercial, industrial, or other nonresidential structure must meet the requirements of subsection a or b, below.
 - a. ~~1.~~ New construction and substantial improvement of any commercial, industrial, or other nonresidential structure must meet all the following requirements.
 - i. ~~a.)~~ In AE and A1-30 zones or other A zoned areas where the BFE has been determined or can be reasonably obtained: New construction and substantial improvement of any commercial, industrial, or other nonresidential structure must have the lowest floor, including basement, elevated one foot or more above the BFE, or elevated as required by ASCE 24, whichever is greater. Mechanical equipment and utilities must be waterproofed or elevated at least one foot above BFE, or as required by ASCE 24, whichever is greater.
 - ii. ~~b.)~~ If located in an Unnumbered A zone for which a BFE is not available and cannot be reasonably obtained, the structure must be reasonably safe from flooding, but in all cases the lowest floor must be at least two feet above the Highest Adjacent Grade.
 - iii. If located in a V, V1-30, or VE zone, the structure must meet the requirements of Section 19.54.050 (C Coastal High Hazard).

~~b. Have structural components capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy;~~

~~c. Be certified by a registered professional engineer or architect that the design and methods of construction are in accordance with accepted standards of practice for meeting provisions of this subsection based on their development and/or review of the structural design, specifications and plans. Such certifications shall be provided to the official as set forth in subsection 17.70.050(C)(3)(b) of this chapter;~~

~~d. Nonresidential structures that are elevated, not floodproofed, must meet the same standards for space below the lowest floor as described in subsection (B)(1)(b) of this section;~~

~~e. Applicants floodproofing nonresidential buildings shall be notified that flood insurance premiums will be based on rates that are one foot below the floodproofed level (e.g. a building floodproofed to the base flood level will be rated as one foot below).~~

3. *Manufactured Homes.*

a. All manufactured homes to be placed or substantially improved on sites:

- i. Outside of a manufactured home park or subdivision,
- ii. ~~In~~ In a new manufactured home park or subdivision,
- iii. ~~In~~ In an expansion to an existing manufactured home park or subdivision, or
- iv. In an existing manufactured home park or subdivision on which a manufactured home has incurred “substantial damage” as the result of a flood;
- v. Shall be elevated on a permanent foundation such that the lowest floor of the manufactured home is elevated one foot or more above the base flood elevation and be securely anchored to an adequately designed foundation system to resist flotation, collapse and lateral movement.

b. Manufactured homes to be placed or substantially improved on sites in an existing manufactured home park or subdivision that are not subject to the above manufactured home provisions be elevated so that either:

- i. The lowest floor of the manufactured home is elevated one foot or more above the base flood elevation, or
- ii. ~~The~~ The manufactured home chassis is supported by reinforced piers or other foundation elements of at least equivalent strength that are no less than thirty-six inches in height above grade and be securely anchored to an adequately designed foundation system to resist flotation, collapse, and lateral movement.

4. *Recreational Vehicles.* Recreational vehicles placed on sites are required to either:

a. Be on the site for fewer than one hundred eighty consecutive days;

- b. Be fully licensed and ready for highway use, on its wheels or jacking system, is attached to the site only by quick disconnect type utilities and security devices, and has no permanently attached additions; or
 - c. Meet the requirements of subsection (B)(3) of this section and the elevation and anchoring requirements for manufactured homes.
- 5. Enclosed area below the lowest floor:
 - a. If buildings or manufactured homes are constructed or substantially improved with fully enclosed areas below the lowest floor, the areas must be used for parking of vehicles, building access, or storage.
- 6. Appurtenant Structures (Detached Garages & Small Storage Structures)
 - a. Appurtenant structures used solely for parking of vehicles or limited storage may be constructed such that the floor is below the BFE, provided the structure is designed and constructed in accordance with the following requirements:
 - i. Use of the appurtenant structure must be limited to parking of vehicles or storage;
 - ii. The portions of the appurtenant structure located below the BFE must be built using flood resistant materials;
 - iii. The appurtenant structure must be anchored to prevent flotation, collapse, and lateral movement;
 - iv. Any machinery or equipment servicing the appurtenant structure must be elevated or flood proofed to or above the BFE;
 - v. The appurtenant structure must comply with floodway encroachment provisions in section 19.74.050 (D):
 - vi. The appurtenance structure must be designed to allow for the automatic entry and exit of floodwaters in accordance with 1-d of this section:
 - vii. The structure must have low damage potential:
 - viii. If the structure is converted to another use, it must be brought into full compliance with standards governing such use:
 - ix. The structure must not be used for human habitation:
 - b. Detached garages, storage structures, and other appurtenant structures not meeting the above standards must be constructed in accordance with all applicable standards in section 1-d.
 - c. Upon completion of the structure, certification that the requirement of this section has been satisfied must be provided to the Floodplain Administrator for verification.
- 7. AE and A1-30 Zones with Base Flood Elevations but No Floodways
 - a. In areas with BFEs (when a regulatory floodway has not been designated), no new construction, substantial improvements, or other development (including fill) shall be permitted within zones

A1-30 and AE on the communities FIRM, unless it is demonstrated that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood more than one foot at any point within the community.

C. *Coastal High Hazard Areas.* Located within areas of special flood hazard established in subsection ~~17.70.040(B)~~ 19.74.030.B of this chapter are coastal high hazard areas, designated as Zones V1-30, VE and/or V. These areas have special flood hazards associated with high velocity waters from surges and, therefore, in addition to meeting all provisions in this chapter, the following provisions shall also apply:

- ~~1. All new construction and substantial improvements in Zones V1-30 and VE (V if base flood elevation data is available) on the community's FIRM shall be elevated on pilings and columns so that:~~
 - ~~a. The bottom of the lowest horizontal structural member of the lowest floor (excluding the pilings or columns) is elevated one foot or more above the base flood level, and~~
1. All new construction and substantial improvements in zones V1-30 and VE (V if base flood elevation is available) on the communities FIRM must be elevated on pilings and columns so that:
 - a. For residential buildings the bottom of the lowest horizontal structural member of the lowest floor (excluding the pilings or columns) is elevated one foot or more above the base flood level.
 - a.b. For nonresidential buildings the bottom of the lowest horizontal member of the lowest floor (excluding the pilings or columns) is elevated one foot or more above the base flood level or meets the elevation requirements of ASCE 24, whichever is higher.
 - ~~b.c.~~ The pile or column foundation and structure attached thereto is anchored to resist flotation, collapse and lateral movement due to the effects of wind and water loads acting simultaneously on all building components. Wind and water loading values shall each have a one percent chance of being equaled or exceeded in and given year (one hundred-year mean recurrence interval).
 - ~~e.d.~~ A registered professional engineer or architect shall develop or review the structural design, specifications and plans for the construction, and shall certify that the design and methods of construction to be used are in accordance with accepted standards of practice for meeting the provisions of this section.
2. Obtain the elevation (in relation to mean sea level) of the bottom of the lowest structural member of the lowest floor (excluding pilings and columns) of all new and substantially improved structures in Zones V1-30, VE, and V on the community's FIRM and whether or not such structures contain a basement. The administrator shall maintain a record of all such information;
3. All new construction within Zones V1-30, VE, and V on the community's FIRM shall be located landward of the reach of mean high tide;
4. Provide that all new construction and substantial improvements within Zones V1-30, VE, and V on the community's FIRM have the space below the lowest floor either free of obstruction or constructed with nonsupporting breakaway walls, open wood lattice-work, or insect screening intended to collapse under wind and water loads without causing collapse, displacement, or other structural damage to the elevated

portion of the building or supporting foundation system. For the purposes of this section, a breakaway wall shall have a design safe loading resistance of not less than ten and no more than twenty pounds per square foot. Use of breakaway walls which exceed a design safe loading resistance of twenty pounds per square foot (either by design or when so required by local or state codes) may be permitted only if a registered professional engineer or architect certifies that the designs proposed meet the following conditions:

- a. Breakaway wall collapse shall result from water load less than that which would occur during the base flood, and
 - b. The elevated portion of the building and supporting foundation system shall not be subject to collapse, displacement, or other structural damage due to the effects of wind and water loads acting simultaneously on all building components (structural and nonstructural). Maximum wind and water loading values to be used in this determination shall each have a one percent chance of being equaled or exceeded in any given year (one hundred-year mean recurrence interval).
 - c. If breakaway walls are utilized, such enclosed space shall be useable solely for parking of vehicles, building access, or storage. Such space shall not be used for human habitation.
5. Prohibit the use of fill for structural support of buildings within Zones V1-30, VE, and V on the community's FIRM;
6. Prohibit ~~man-made~~ human caused alteration of sand dunes within Zones V1-30, VE, and V on the community's FIRM which would increase potential flood damage;
7. All manufactured homes to be placed or substantially improved within Zones V1-30, V, and VE on the community's FIRM on sites:
 - a. Outside of a manufactured home park or subdivision,
 - b. In a new manufactured home park or subdivision,
 - c. In an expansion to an existing manufactured home park or subdivision, or
 - d. In an existing manufactured home park or subdivision on which a manufactured home has incurred "substantial damage" as the result of a flood;
 - e. Meet the standards of subsections (C)(1) through (C)(6) of this section and that manufactured homes placed or substantially improved on other sites in an existing manufactured home park or subdivision within Zones V1-30, V, and VE on the FIRM meet the requirements of subsection (B)(3) of this section.
8. Recreational vehicles placed on sites within Zones V1-30, V, and VE on the community's FIRM either:
 - a. Be on the site for fewer than one hundred eighty consecutive days,
 - b. Be fully licensed and ready for highway use, on its wheels or jacking system, is attached to the site only by quick disconnect type utilities and security devices, and has no permanently attached additions, or
 - c. Meet the requirements of subsection 17.70.050(A)(1) of this chapter, development permit required and subsection (C)(1) through (C)(6) of this section.

D. *Critical Facility*. Construction of new critical facilities shall be, to the extent possible, located outside the limits of the special flood hazard area (SFHA) (one hundred-year floodplain). Construction of new critical facilities shall be permissible within the SFHA if no feasible alternative site is available. Critical facilities constructed within the SFHA shall have the lowest floor elevated three feet or to the height of the five hundred-year flood, whichever is higher. Access to and from the critical facility should also be protected to the height utilized above. Floodproofing and sealing measures must be taken to ensure that toxic substances will not be displaced by or released into floodwaters. Access routes elevated to or above the level of the base flood elevation shall be provided to all critical facilities to the extent possible. (Ord. 2794 § 1 (Att. A), 2008; Ord. 2702 § 3, 2005)

~~17.70.070~~ 19.74.060 Stand alone ordinance.

This chapter is adopted as a stand alone ordinance will be enforced only in those areas presently identified or become identified as special flood hazard areas within the City of Anacortes. (~~Ord. 2794 § 1 (Att. A), 2008; Ord. 2702 § 3, 2005~~)

~~The Anacortes Municipal Code is current through Ordinance 3081, passed January 25, 2021.~~

~~Disclaimer: The city attorney's office has the official version of the Anacortes Municipal Code. Users should contact the city attorney's office for ordinances passed subsequent to the ordinance cited here.~~

~~**Note:** This site does not support Internet Explorer. To view this site, Code Publishing Company recommends using one of the following browsers: Google Chrome, Firefox, or Safari.~~

~~City Website: www.cityofanacortes.org~~

~~City Telephone: (360) 293-1900~~

~~Code Publishing Company~~



Planning Commission Agenda Bill

Meeting Date: July 28, 2021

Agenda Item: D.2.

Subject: Croatian Way Seawall Reinforcement: SDP-2021-0002, SDP-2021-0003, SDP-2021-0004

Staff Contact: TESS COOPER

Approved for Submittal to Commission by

TESS COOPER

LIBBY GRAGE

Action Type

Public Hearing

Summary Statement: Repair / Reinforcement of an existing rock seawall that is being undercut with erosion on the beach.

Background: The three projects have held mandatory pre application conferences and neighborhood meeting. SEPA comment period and staff review.

Previous Action: None

Competing Viewpoints Considered: N/A

Recommended Motion: Approve with Conditions

Alternative Actions: N/A

Attachments (listed in order presented):

1. DRAFT-PC-Decision
2. StaffReport - McIntyre
3. StaffReport - Waring
4. StaffReport - Horesh
5. Vicinity Map
6. SDP-2021-0004 Horesh Application
7. SDP-2021-0002 0003 McIntyre Waring Application
8. Approved Plans
9. Notices
10. SEPA Signed



DRAFT

Anacortes Planning Commission

Findings of Fact, Conclusions of Law and Decision

File Number:	SDP-2021-0002, SDP-2021-0003, SDP-2021-0004
Project Name:	Croatian Way Seawall
Proposal Description:	The proposal is to reinforce and repair the existing rock seawall with a light reinforced concrete face butted right up against it as closely as the contractor is able and buried deeper to make further undercutting extremely unlikely. The concrete toe of the existing wall will be removed and the new facing will go in its place so there will be no new footprint on the beach. The new deeper protection that this refacing will provide, at the base of the existing rock sea wall, will prevent further degradation of the wall by winter storm wave action.
Documents available at:	City Hall, Planning Community & Economic Development Department and at https://www.anacorteswa.gov/161/Planning-Community-Economic-Development
Public hearing & decision body:	Anacortes Planning Commission
Public hearing date:	July 28, 2021
PC deliberations:	July 28, 2021

After considering the written and spoken comments and considering the record before it, the Planning Commission enters the following findings of fact, conclusions of law, and decision:

Findings of Fact & Conclusions of Law

1. The Staff report dated July 21, 2021 accurately describes the project proposal and is hereby incorporated by reference. (Exhibit 1)
2. The following members of the public provided testimony during the public hearing:
 - a.
3. The following additional exhibits were entered into the record at the public hearing:
 - a.
4. The following additional Findings of Fact and/or Conclusions of Law are entered:
 - a. _____

- b. _____
- c. _____

Decision

Based on the foregoing findings and conclusions of law, and review of the City's regulatory authority to implement the policies, standards, and regulations of the Anacortes Municipal Code, the Planning Commission hereby makes the following decision regarding the subject Preliminary Short Subdivision and Conditional Use Permit applications:

- ☒ Approve with Conditions
☐ Approve
☐ Deny

Subject to staff's recommended conditions in the Staff Report dated July 21, 2021 and any additional Commissioner conditions of approval as listed below:

1. _____
2. _____
3. _____

Commission Vote	Support	Oppose	Absent	Abstain
Frank Jeretzky				
Mike Cortright				
Sarah Ruether				
Jeff Mount				
Vacant				
Jeff Graf				
Ward MacKenzie				
Total	0	0	0	0

ANACORTES PLANNING COMMISSION
ANACORTES, WASHINGTON

War MacKenzie, Planning Commission Chair

Date

Appeals:

Pursuant to AMC 19.20.030, a local appeal of Type 3-PC Planning Commission Decisions is available to the City Council. Appeals of this decision must be filed in accordance with AMC 19.20.180 by 5:00 PM on _____.



Anacortes Planning, Community & Economic Development Department

904 6TH Street / P.O. Box 547, Anacortes, WA 98221

360.299-1984 - Office Hours: Mon-Fri 8:00 AM – 5:00 PM

STAFF REPORT

A. PROJECT SUMMARY DATA

PROJECT INFORMATION:

File Number	SDP-2021-0002	Date of Report	July 21, 2021				
Project Title	Croatian Way Seawall						
Site Address	5003 Croatian Way, Anacortes WA 98221						
APN(s)	P83307	Section	27	Township	35N	Range	01E
Request	The proposal is to reinforce and repair the existing rock seawall with a light reinforced concrete face butted right up against it as closely as the contractor is able and buried deeper to make further undercutting extremely unlikely. The concrete toe of the existing wall will be removed and the new facing will go in its place so there will be no new footprint on the beach. The new deeper protection that this refacing will provide, at the base of the existing rock sea wall, will prevent further degradation of the wall by winter storm wave action.						
Landowner & Applicant	John & Colleen McIntyre 5003 Croatian Way Anacortes, WA 98221		Meg Amos Marine Surveys & Assessment 380 Jefferson St Port Townsend, WA 98368				
Application Date	May 6, 2021	Complete Application Date	May 14, 2021				
Public Hearing Date	July 28, 2021						
Present Use of Property	Single Family Residential						
Comprehensive Plan Designation	Residential Low Density 2	Zoning:	R2 (Residential Low Density 2)				
Shoreline Environment	Aquatic	Critical Areas	Fish and Wildlife Habitat Conservation Area Frequently Flooded Areas				
Water Supply	Current City	Proposed N/A	Sewer Supply	Current City	Proposed N/A		
Staff Recommendation	Approve, with conditions						

CITY STAFF CONTACTS:

Name:	Title:	Phone:	E-mail:
Tess Cooper	Senior Planner	(360) 588-8234	tessc@cityofanacortes.org
Steve Lange	Public Works Engineering	360-293-1986	stevel@cityofanacortes.org

PROJECT LOCATION & SURROUNDING AREA



B. PROCEDURAL

1. **Type of Review.** The application for Shoreline Substantial Development Permit is a Type 3 Planning Commission Decision as a project under \$1,000,000 value.
2. **Project history.** A mandatory preapplication meeting was held on July 28, 2020. A neighborhood meeting was held on October 27, 2020. The formal application was submitted on May 6, 2021 and determined complete on May 14, 2021.
3. **Public Notice and Public Hearing.** A notice of application with a 30-day public comment period ending on June 25, 2021 was published in the Anacortes American, posted on the project site and mailed to property owners within 300'.

Notice of Application:	May 26, 2021
Notice of Public Hearing:	June 30, 2021
Open-record Public Hearing:	July 28, 2021

4. **Reviewing departments/agencies.** The project application was routed for review to applicable agencies and City departments.

REVIEWING DEPARTMENTS & AGENCIES:				
City of Anacortes	Local Agencies & Districts	State & Federal	Skagit County	Other
☒ Building ☒ Fire Dept. ☒ Parks ☒ Planning ☒ Police ☒ Public Works ☒ Operations	☐ Skagit Transit ☐ Anacortes School District 103 ☐ Port of Anacortes	☒ DOE ☒ WDFW ☒ WSDOT ☒ DNR ☒ DAHP	☐ Health District ☐ Planning ☐ Public Works	☒ Swinomish Tribe ☒ Samish Tribe ☒ Upper Skagit Tribe
X = Request for review/comments sent to department or agency.				

C. DEPARTMENT REVIEW – Findings of Fact

- John & Colleen McIntyre and Meg Amos, applicants and agent, have requested SEPA review, and shoreline substantial development approval for a residential seawall reinforcement in Burrows Bay. (Exhibit 3)
- The applicant proposes the removal, demolition and replacement of the concrete footing for the existing seawall and new concrete reinforcement placed in front of the existing rock wall.
- The property is zoned Residential Low Density 2 (R2). The proposed use is consistent with the R2 zoning designation within the Anacortes Municipal Code as well as the Comprehensive Plan designation of Residential Low Density.
- The project site is centrally located along Croatian Way, on Assessor Parcel Number P83307 along the shoreline of the property at 5003 Croatian Way.
- Environmental review.** A SEPA Mitigated Determination of Nonsignificance (MDNS) was issued for the proposal on July 22, 2021 after utilizing the optional SEPA DNS process identified in WAC 197-11-355. (Exhibit 7)
- Consideration of written comments and applicant responses.** The notice of application public comment period ended on June 25, 2021. No public comment was received during this time.

In making its recommendation, the Department considered timely received written comments and the applicant's responses, if any, as required in AMC 19.20.130.C.

D. CONCLUSIONS

- A. Pursuant to AMC 19.20.030 and AMC 19.20.040.A, the Planning Commission has authority to make a decision on the proposal after conducting a pre-decision open record public hearing. The proposal requires shoreline substantial development permit.
- B. Property notice for the public hearing has been provided. Notice was posted on the property and published in the Anacortes American newspaper on June 30, 2021, more than 15 days prior to the date of the hearing.
- C. SHORELINE MANAGEMENT ACT (RCW 90.58):
 - 1. Proposed development lies within two hundred (200) feet of a shoreline of statewide significance (RCW 90.58.030(2)(f)) and is therefore subject to conformance with the City of Anacortes' Shoreline Master Program (SMP).
 - 2. The subject proposal is located in the Aquatic Shoreline Environment Designation with remainder of the residential property located in the Shoreline Residential Shoreline Environment Designation.
 - 3. According to Table 5.1 of the SMP hard structural stabilization is permitted in the Aquatic Shoreline Environment Designations.
 - 4. The subject proposal is not exempt from obtaining an approved Shoreline Substantial Development Permit (SSDP) per WAC § 173.27.040. Accordingly, on May 6, 2021, the City of Anacortes' Department of Planning, Community, & Economic Development received the subject application from the applicant.
 - 5. According to AMC 19.20.030-1 and 18.16.100(B) shoreline substantial development permit applications for projects valued less than \$1 million are considered a Type 3 type of review. For type 34 reviews, the Planning Commission makes a final decision regarding the subject shoreline substantial development permit. The applicant states that the value of this project will \$100,000.
 - 6. The purpose of the "Shoreline Residential" shoreline designation is to accommodate residential development and associated structures that are consistent with the Shoreline Management Act, this Master Program, and the protection and restoration of ecological functions. An additional purpose is to provide appropriate public access and recreational uses.
 - 7. The purpose of the "Aquatic" shoreline designation "is to protect, restore, and manage the unique characteristics and resources of marine waters, including habitat, ecology, navigation and public enjoyment."
 - 8. Water Dependent uses within both the Shoreline Residential and Aquatic Shoreline Environment Designations have a zero (0) foot setback as measured from the ordinary high water mark (OHWM) pursuant to SMP Table 5.2.
- D. The subject shoreline permit was reviewed for conformance with Section 9.11 of the Shoreline Master Program that regulates shoreline stabilization. Accordingly, the following development regulations (DR) were reviewed for conformance with as follows:

1. According to Policy 9.11 shoreline stabilization that surpasses the threshold of more than 50% of the length of the existing stabilization structure is no longer normal repair and maintenance but shall be considered “replacement”.

Conclusion: The applicant has submitted for a Shoreline Substantial Development Permit for replacement within the Aquatic Shoreline Environmental Designation. The subject proposal will meet Policy 9.11.

2. According to Policy 9.11.4, Allow structural stabilization methods only where: Where it has been demonstrated to be necessary to support or protect a legally established, inhabited structure or shoreline use that is in danger of loss or substantial damage.

Conclusion: The applicant submitted pictures of serious erosion and undercutting of the existing seawall, the homes along Croatian Way have had historical damage from winter storm surge. The subject proposal will meet Policy 9.11.4.

3. According to Policy 9.11.11, Shoreline stabilization structures should be allowed only where demonstrated to be necessary to support or protect permitted shoreline uses or where an existing structure is in imminent danger from shoreline erosion.

Conclusion: The applicant submitted pictures of serious erosion and undercutting of the existing seawall, the homes along Croatian Way have had historical damage from winter storm surge. The subject proposal will meet Policy 9.11.11.

4. According to Policy 9.11.14 the project must evaluate the cumulative effect of allowing “hard” stabilization methods along the shoreline prior to permitting “hard” structures. If it is determined that the cumulative effect would have a net loss of ecological functions on the shoreline, then exemptions and permits should not be granted.

Conclusion: The proposal incorporates appropriate evaluation and design to meet these standards as conditioned below, the subject proposal will meet Policy 9.11.14.

- E. The subject proposal is consistent with the Washington State’s Shoreline Management Act, City of Anacortes’ 2010 Shoreline Master Program and development regulations listed therein for developments within the “Aquatic” shoreline environment designations.

- F. Any other factors deemed relevant to the decision-maker.

Conclusion: No other relevant factors have been identified.

E. RECOMMENDATION

Based upon the application, Findings of Fact, and Conclusions of the staff report, staff recommends that the Planning Commission conditionally approve of the shoreline substantial development permit with the following conditions of approval:

1. The scope of the project shall not exceed that as set-out in the shoreline permit application, and in accordance with the determinations made and conditions imposed. **Exhibit 4** shall be the approved site plan.
2. Steve Lange of Public Works notes a Municipal Stormwater Outfall in the vicinity of the project and requires the location of which to be shown on plans at the Building Permit Submittal.
3. A FEMA Floodplain Habitat Assessment Report must be submitted and building permit(s) with the City of Anacortes' shall be secured prior to work.
4. All applicable permits (local, state, & federal) shall be secured before any construction activities begin onsite and copies provided to the City of Anacortes' PCED.
5. Development shall comply with the mitigation measures as listed in the SEPA Mitigated Determination of Non-Significance (MDNS) issued on July 22, 2021.
6. Hours of construction /work are limited to 7:00 AM to 10:00 PM seven (7) days a week unless a noise variance is obtained.
7. Noise levels shall not to exceed those standards as established by the state pursuant to Chapter 70.107 RCW and contained in Chapter 173.60 WAC.
8. The applicant /landowner shall comply with federal statutes including but not limited to: Endangered Species Act, Clean Water Act, Marine Mammal Protection Act, and other federal statutes.
9. The project shall comply with all applicable Shoreline Master Program regulations, including but not limited to, Section 5.6 Aquatic Environment, Chapter 5, Shoreline Environments & Associated Policies and Regulations, Chapter 6 Environmental Protection General Regulations, Chapter 8 Specific Use Policies and Development Regulations, and Chapter 9 Specific Shoreline Modification Policies and Development Regulations.
10. Development shall comply with AMC § 18.16.130 regulating the time limit for shoreline permits as follows:
 - A. Construction, or substantial progress toward completion, must begin within two (2) years after approval of the permit. Substantial progress toward construction shall include, but not limited to, the letting of bids, making of contracts, purchasing of materials involved in development, but shall not include development or uses which are inconsistent with the Shoreline Management Act or the city's master program. In determining the running two-year period hereof, there shall not be included the time during which development was not actually pursued by construction and the pendency of litigation reasonably related thereto made it reasonable not to so pursue; provided, that the city may, in its discretion, extend the two-year time period for a reasonable time based on factors, including the inability to expeditiously obtain other governmental permits which are required prior to the commencement of construction.
 - B. Five-Year Permit Authorization: If construction has not been completed within five years of approval by the City of Anacortes, the city will review the permit, with prior notice to parties of record, and, upon showing of good cause, either extend the permit for one additional year, or terminate the permit. Prior to the city authorizing any permit extensions, it shall notify any parties of record and the Department of Ecology. Note: Only one single extension is permitted.

Staff reserves the right to supplement the record of the case to respond to matters and information raised subsequent to the writing of this report.

Exhibit List

1	Staff Report
2	Vicinity Map
3	Shoreline Substantial Development Permit Application Materials
4	Approved Site Plan
5	Notices
6	Issued SEPA DNS



Anacortes Planning, Community & Economic Development Department

904 6TH Street / P.O. Box 547, Anacortes, WA 98221

360.299-1984 - Office Hours: Mon-Fri 8:00 AM – 5:00 PM

STAFF REPORT

A. PROJECT SUMMARY DATA

PROJECT INFORMATION:

File Number	SDP-2021-0003	Date of Report	July 21, 2021				
Project Title	Croatian Way Seawall						
Site Address	5005 Croatian Way, Anacortes WA 98221						
APN(s)	P83306	Section	27	Township	35N	Range	01E
Request	The proposal is to reinforce and repair the existing rock seawall with a light reinforced concrete face butted right up against it as closely as the contractor is able and buried deeper to make further undercutting extremely unlikely. The concrete toe of the existing wall will be removed and the new facing will go in its place so there will be no new footprint on the beach. The new deeper protection that this refacing will provide, at the base of the existing rock sea wall, will prevent further degradation of the wall by winter storm wave action.						
Landowner & Applicant	Barton Waring 5005 Croatian Way Anacortes, WA 98221		Meg Amos Marine Surveys & Assessment 380 Jefferson St Port Townsend, WA 98368				
Application Date	May 6, 2021	Complete Application Date	May 14, 2021				
Public Hearing Date	July 28, 2021						
Present Use of Property	Single Family Residential						
Comprehensive Plan Designation	Residential Low Density 2	Zoning:	R2 (Residential Low Density 2)				
Shoreline Environment	Aquatic	Critical Areas	Fish and Wildlife Habitat Conservation Area Frequently Flooded Areas				
Water Supply	Current City	Proposed N/A	Sewer Supply	Current City	Proposed N/A		
Staff Recommendation	Approve, with conditions						

CITY STAFF CONTACTS:

Name:	Title:	Phone:	E-mail:
Tess Cooper	Senior Planner	(360) 588-8234	tessc@cityofanacortes.org
Steve Lange	Public Works Engineering	360-293-1986	stevel@cityofanacortes.org

PROJECT LOCATION & SURROUNDING AREA



B. PROCEDURAL

1. **Type of Review.** The application for Shoreline Substantial Development Permit is a Type 3 Planning Commission Decision as a project under \$1,000,000 value.
2. **Project history.** A mandatory preapplication meeting was held on July 28, 2020. A neighborhood meeting was held on October 27, 2020. The formal application was submitted on May 6, 2021 and determined complete on May 14, 2021.
3. **Public Notice and Public Hearing.** A notice of application with a 30-day public comment period ending on June 25, 2021 was published in the Anacortes American, posted on the project site and mailed to property owners within 300'.

Notice of Application:	May 26, 2021
Notice of Public Hearing:	June 30, 2021
Open-record Public Hearing:	July 28, 2021

4. **Reviewing departments/agencies.** The project application was routed for review to applicable agencies and City departments.

REVIEWING DEPARTMENTS & AGENCIES:				
City of Anacortes	Local Agencies & Districts	State & Federal	Skagit County	Other
☒ Building ☒ Fire Dept. ☒ Parks ☒ Planning ☒ Police ☒ Public Works ☒ Operations	☐ Skagit Transit ☐ Anacortes School District 103 ☐ Port of Anacortes	☒ DOE ☒ WDFW ☒ WSDOT ☒ DNR ☒ DAHP	☐ Health District ☐ Planning ☐ Public Works	☒ Swinomish Tribe ☒ Samish Tribe ☒ Upper Skagit Tribe
X = Request for review/comments sent to department or agency.				

C. DEPARTMENT REVIEW – Findings of Fact

1. Barton Waring and Meg Amos, applicants and agent, have requested SEPA review, and shoreline substantial development approval for a residential seawall reinforcement in Burrows Bay. (Exhibit 3)
2. The applicant proposes the removal, demolition and replacement of the concrete footing for the existing seawall and new concrete reinforcement placed in front of the existing rock wall.
3. The property is zoned Residential Low Density 2 (R2). The proposed use is consistent with the R2 zoning designation within the Anacortes Municipal Code as well as the Comprehensive Plan designation of Residential Low Density.
4. The project site is centrally located along Croatian Way, on Assessor Parcel Number P83307 along the shoreline of the property at 5003 Croatian Way.
5. **Environmental review.** A SEPA Mitigated Determination of Nonsignificance (MDNS) was issued for the proposal on July 22, 2021 after utilizing the optional SEPA DNS process identified in WAC 197-11-355. (Exhibit 7)
6. **Consideration of written comments and applicant responses.** The notice of application public comment period ended on June 25, 2021. No public comment was received during this time.

In making its recommendation, the Department considered timely received written comments and the applicant's responses, if any, as required in AMC 19.20.130.C.

D. CONCLUSIONS

- A. Pursuant to AMC 19.20.030 and AMC 19.20.040.A, the Planning Commission has authority to make a decision on the proposal after conducting a pre-decision open record public hearing. The proposal requires shoreline substantial development permit.
- B. Property notice for the public hearing has been provided. Notice was posted on the property and published in the Anacortes American newspaper on June 30, 2021, more than 15 days prior to the date of the hearing.
- C. SHORELINE MANAGEMENT ACT (RCW 90.58):
 - 1. Proposed development lies within two hundred (200) feet of a shoreline of statewide significance (RCW 90.58.030(2)(f)) and is therefore subject to conformance with the City of Anacortes' Shoreline Master Program (SMP).
 - 2. The subject proposal is located in the Aquatic Shoreline Environment Designation with remainder of the residential property located in the Shoreline Residential Shoreline Environment Designation.
 - 3. According to Table 5.1 of the SMP hard structural stabilization is permitted in the Aquatic Shoreline Environment Designations.
 - 4. The subject proposal is not exempt from obtaining an approved Shoreline Substantial Development Permit (SSDP) per WAC § 173.27.040. Accordingly, on May 6, 2021, the City of Anacortes' Department of Planning, Community, & Economic Development received the subject application from the applicant.
 - 5. According to AMC 19.20.030-1 and 18.16.100(B) shoreline substantial development permit applications for projects valued less than \$1 million are considered a Type 3 type of review. For type 34 reviews, the Planning Commission makes a final decision regarding the subject shoreline substantial development permit. The applicant states that the value of this project will \$100,000.
 - 6. The purpose of the "Shoreline Residential" shoreline designation is to accommodate residential development and associated structures that are consistent with the Shoreline Management Act, this Master Program, and the protection and restoration of ecological functions. An additional purpose is to provide appropriate public access and recreational uses.
 - 7. The purpose of the "Aquatic" shoreline designation "is to protect, restore, and manage the unique characteristics and resources of marine waters, including habitat, ecology, navigation and public enjoyment."
 - 8. Water Dependent uses within both the Shoreline Residential and Aquatic Shoreline Environment Designations have a zero (0) foot setback as measured from the ordinary high water mark (OHWM) pursuant to SMP Table 5.2.
- D. The subject shoreline permit was reviewed for conformance with Section 9.11 of the Shoreline Master Program that regulates shoreline stabilization. Accordingly, the following development regulations (DR) were reviewed for conformance with as follows:

1. According to Policy 9.11 shoreline stabilization that surpasses the threshold of more than 50% of the length of the existing stabilization structure is no longer normal repair and maintenance but shall be considered “replacement”.

Conclusion: The applicant has submitted for a Shoreline Substantial Development Permit for replacement within the Aquatic Shoreline Environmental Designation. The subject proposal will meet Policy 9.11.

2. According to Policy 9.11.4, Allow structural stabilization methods only where: Where it has been demonstrated to be necessary to support or protect a legally established, inhabited structure or shoreline use that is in danger of loss or substantial damage.

Conclusion: The applicant submitted pictures of serious erosion and undercutting of the existing seawall, the homes along Croatian Way have had historical damage from winter storm surge. The subject proposal will meet Policy 9.11.4.

3. According to Policy 9.11.11, Shoreline stabilization structures should be allowed only where demonstrated to be necessary to support or protect permitted shoreline uses or where an existing structure is in imminent danger from shoreline erosion.

Conclusion: The applicant submitted pictures of serious erosion and undercutting of the existing seawall, the homes along Croatian Way have had historical damage from winter storm surge. The subject proposal will meet Policy 9.11.11.

4. According to Policy 9.11.14 the project must evaluate the cumulative effect of allowing “hard” stabilization methods along the shoreline prior to permitting “hard” structures. If it is determined that the cumulative effect would have a net loss of ecological functions on the shoreline, then exemptions and permits should not be granted.

Conclusion: The proposal incorporates appropriate evaluation and design to meet these standards as conditioned below, the subject proposal will meet Policy 9.11.14.

- E. The subject proposal is consistent with the Washington State’s Shoreline Management Act, City of Anacortes’ 2010 Shoreline Master Program and development regulations listed therein for developments within the “Aquatic” shoreline environment designations.

- F. Any other factors deemed relevant to the decision-maker.

Conclusion: No other relevant factors have been identified.

E. RECOMMENDATION

Based upon the application, Findings of Fact, and Conclusions of the staff report, staff recommends that the Planning Commission conditionally approve of the shoreline substantial development permit with the following conditions of approval:

1. The scope of the project shall not exceed that as set-out in the shoreline permit application, and in accordance with the determinations made and conditions imposed. **Exhibit 4** shall be the approved site plan.

2. Steve Lange of Public Works notes a Municipal Stormwater Outfall in the vicinity of the project and requires the location of which to be shown on plans at the Building Permit Submittal.
3. A FEMA Floodplain Habitat Assessment Report must be submitted and building permit(s) with the City of Anacortes' shall be secured prior to work.
4. All applicable permits (local, state, & federal) shall be secured before any construction activities begin onsite and copies provided to the City of Anacortes' PCED.
5. Development shall comply with the mitigation measures as listed in the SEPA Mitigated Determination of Non-Significance (MDNS) issued on July 22, 2021.
6. Hours of construction /work are limited to 7:00 AM to 10:00 PM seven (7) days a week unless a noise variance is obtained.
7. Noise levels shall not to exceed those standards as established by the state pursuant to Chapter 70.107 RCW and contained in Chapter 173.60 WAC.
8. The applicant /landowner shall comply with federal statutes including but not limited to: Endangered Species Act, Clean Water Act, Marine Mammal Protection Act, and other federal statutes.
9. The project shall comply with all applicable Shoreline Master Program regulations, including but not limited to, Section 5.6 Aquatic Environment, Chapter 5, Shoreline Environments & Associated Policies and Regulations, Chapter 6 Environmental Protection General Regulations, Chapter 8 Specific Use Policies and Development Regulations, and Chapter 9 Specific Shoreline Modification Policies and Development Regulations.
10. Development shall comply with AMC § 18.16.130 regulating the time limit for shoreline permits as follows:
 - A. Construction, or substantial progress toward completion, must begin within two (2) years after approval of the permit. Substantial progress toward construction shall include, but not limited to, the letting of bids, making of contracts, purchasing of materials involved in development, but shall not include development or uses which are inconsistent with the Shoreline Management Act or the city's master program. In determining the running two-year period hereof, there shall not be included the time during which development was not actually pursued by construction and the pendency of litigation reasonably related thereto made it reasonable not to so pursue; provided, that the city may, in its discretion, extend the two-year time period for a reasonable time based on factors, including the inability to expeditiously obtain other governmental permits which are required prior to the commencement of construction.
 - B. Five-Year Permit Authorization: If construction has not been completed within five years of approval by the City of Anacortes, the city will review the permit, with prior notice to parties of record, and, upon showing of good cause, either extend the permit for one additional year, or terminate the permit. Prior to the city authorizing any permit extensions, it shall notify any parties of record and the Department of Ecology. Note: Only one single extension is permitted.

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Exhibit List

1	Staff Report
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360.299-1984 - Office Hours: Mon-Fri 8:00 AM – 5:00 PM

STAFF REPORT

A. PROJECT SUMMARY DATA

PROJECT INFORMATION:

File Number	SDP-2021-0004	Date of Report	July 21, 2021				
Project Title	Croatian Way Seawall						
Site Address	4909 Croatian Way, Anacortes WA 98221						
APN(s)	P83309	Section	27	Township	35N	Range	01E
Request	The proposal is to reinforce and repair the existing rock seawall with a light reinforced concrete face butted right up against it as closely as the contractor is able and buried deeper to make further undercutting extremely unlikely. The concrete toe of the existing wall will be removed and the new facing will go in its place so there will be no new footprint on the beach. The new deeper protection that this refacing will provide, at the base of the existing rock sea wall, will prevent further degradation of the wall by winter storm wave action.						
Landowner & Applicant	Allen Horesh 4909 Croatian Way Anacortes, WA 98221		Meg Amos Marine Surveys & Assessment 380 Jefferson St Port Townsend, WA 98368				
Application Date	May 5, 2021	Complete Application Date	May 14, 2021				
Public Hearing Date	July 28, 2021						
Present Use of Property	Single Family Residential						
Comprehensive Plan Designation	Residential Low Density 2	Zoning:	R2 (Residential Low Density 2)				
Shoreline Environment	Aquatic	Critical Areas	Fish and Wildlife Habitat Conservation Area Frequently Flooded Areas				
Water Supply	Current City	Proposed N/A	Sewer Supply	Current City	Proposed N/A		
Staff Recommendation	Approve, with conditions						

CITY STAFF CONTACTS:

Name:	Title:	Phone:	E-mail:
Tess Cooper	Senior Planner	(360) 588-8234	tessc@cityofanacortes.org
Steve Lange	Public Works Engineering	360-293-1986	stevel@cityofanacortes.org

PROJECT LOCATION & SURROUNDING AREA

B. PROCEDURAL

1. **Type of Review.** The application for Shoreline Substantial Development Permit is a Type 3 Planning Commission Decision as a project under \$1,000,000 value.
2. **Project history.** A mandatory preapplication meeting was held on March 23, 2021. A neighborhood meeting was held on April 27, 2020. The formal application was submitted on May 5, 2021 and determined complete on May 14, 2021.
3. **Public Notice and Public Hearing.** A notice of application with a 30-day public comment period ending on June 25, 2021 was published in the Anacortes American, posted on the project site and mailed to property owners within 300'.

Notice of Application:	May 26, 2021
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4. **Reviewing departments/agencies.** The project application was routed for review to applicable agencies and City departments.

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☒ Building ☒ Fire Dept. ☒ Parks ☒ Planning ☒ Police ☒ Public Works ☒ Operations	☐ Skagit Transit ☐ Anacortes School District 103 ☐ Port of Anacortes	☒ DOE ☒ WDFW ☒ WSDOT ☒ DNR ☒ DAHP	☐ Health District ☐ Planning ☐ Public Works	☒ Swinomish Tribe ☒ Samish Tribe ☒ Upper Skagit Tribe
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C. DEPARTMENT REVIEW – Findings of Fact

- Allen Horesh and Meg Amos, applicants and agent, have requested SEPA review, and shoreline substantial development approval for a residential seawall reinforcement in Burrows Bay. (Exhibit 3)
- The applicant proposes the removal, demolition and replacement of the concrete footing for the existing seawall and new concrete reinforcement placed in front of the existing rock wall.
- The property is zoned Residential Low Density 2 (R2). The proposed use is consistent with the R2 zoning designation within the Anacortes Municipal Code as well as the Comprehensive Plan designation of Residential Low Density.
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In making its recommendation, the Department considered timely received written comments and the applicant's responses, if any, as required in AMC 19.20.130.C.

D. CONCLUSIONS

- A. Pursuant to AMC 19.20.030 and AMC 19.20.040.A, the Planning Commission has authority to make a decision on the proposal after conducting a pre-decision open record public hearing. The proposal requires shoreline substantial development permit.
- B. Property notice for the public hearing has been provided. Notice was posted on the property and published in the Anacortes American newspaper on June 30, 2021, more than 15 days prior to the date of the hearing.
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 - 1. Proposed development lies within two hundred (200) feet of a shoreline of statewide significance (RCW 90.58.030(2)(f)) and is therefore subject to conformance with the City of Anacortes' Shoreline Master Program (SMP).
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1. According to Policy 9.11 shoreline stabilization that surpasses the threshold of more than 50% of the length of the existing stabilization structure is no longer normal repair and maintenance but shall be considered “replacement”.

Conclusion: The applicant has submitted for a Shoreline Substantial Development Permit for replacement within the Aquatic Shoreline Environmental Designation. The subject proposal will meet Policy 9.11.

2. According to Policy 9.11.4, Allow structural stabilization methods only where: Where it has been demonstrated to be necessary to support or protect a legally established, inhabited structure or shoreline use that is in danger of loss or substantial damage.

Conclusion: The applicant submitted pictures of serious erosion and undercutting of the existing seawall, the homes along Croatian Way have had historical damage from winter storm surge. The subject proposal will meet Policy 9.11.4.

3. According to Policy 9.11.11, Shoreline stabilization structures should be allowed only where demonstrated to be necessary to support or protect permitted shoreline uses or where an existing structure is in imminent danger from shoreline erosion.

Conclusion: The applicant submitted pictures of serious erosion and undercutting of the existing seawall, the homes along Croatian Way have had historical damage from winter storm surge. The subject proposal will meet Policy 9.11.11.

4. According to Policy 9.11.14 the project must evaluate the cumulative effect of allowing “hard” stabilization methods along the shoreline prior to permitting “hard” structures. If it is determined that the cumulative effect would have a net loss of ecological functions on the shoreline, then exemptions and permits should not be granted.

Conclusion: The proposal incorporates appropriate evaluation and design to meet these standards as conditioned below, the subject proposal will meet Policy 9.11.14.

- E. The subject proposal is consistent with the Washington State’s Shoreline Management Act, City of Anacortes’ 2010 Shoreline Master Program and development regulations listed therein for developments within the “Aquatic” shoreline environment designations.

- F. Any other factors deemed relevant to the decision-maker.

Conclusion: No other relevant factors have been identified.

E. RECOMMENDATION

Based upon the application, Findings of Fact, and Conclusions of the staff report, staff recommends that the Planning Commission conditionally approve of the shoreline substantial development permit with the following conditions of approval:

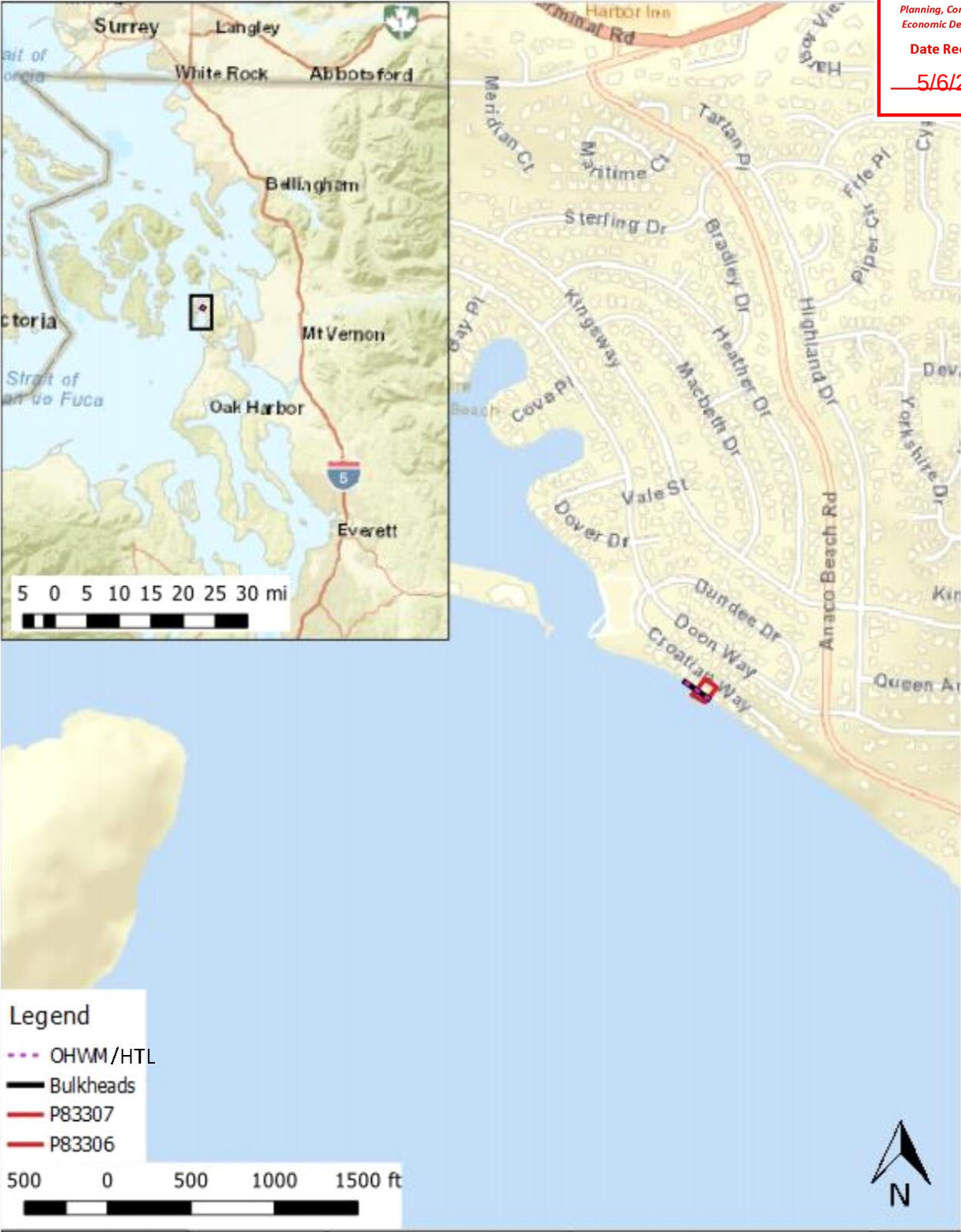
1. The scope of the project shall not exceed that as set-out in the shoreline permit application, and in accordance with the determinations made and conditions imposed. **Exhibit 4** shall be the approved site plan.

2. Steve Lange of Public Works notes a Municipal Stormwater Outfall in the vicinity of the project and requires the location of which to be shown on plans at the Building Permit Submittal.
3. A FEMA Floodplain Habitat Assessment Report must be submitted and building permit(s) with the City of Anacortes' shall be secured prior to work.
4. All applicable permits (local, state, & federal) shall be secured before any construction activities begin onsite and copies provided to the City of Anacortes' PCED.
5. Development shall comply with the mitigation measures as listed in the SEPA Mitigated Determination of Non-Significance (MDNS) issued on July 22, 2021.
6. Hours of construction /work are limited to 7:00 AM to 10:00 PM seven (7) days a week unless a noise variance is obtained.
7. Noise levels shall not to exceed those standards as established by the state pursuant to Chapter 70.107 RCW and contained in Chapter 173.60 WAC.
8. The applicant /landowner shall comply with federal statutes including but not limited to: Endangered Species Act, Clean Water Act, Marine Mammal Protection Act, and other federal statutes.
9. The project shall comply with all applicable Shoreline Master Program regulations, including but not limited to, Section 5.6 Aquatic Environment, Chapter 5, Shoreline Environments & Associated Policies and Regulations, Chapter 6 Environmental Protection General Regulations, Chapter 8 Specific Use Policies and Development Regulations, and Chapter 9 Specific Shoreline Modification Policies and Development Regulations.
10. Development shall comply with AMC § 18.16.130 regulating the time limit for shoreline permits as follows:
 - A. Construction, or substantial progress toward completion, must begin within two (2) years after approval of the permit. Substantial progress toward construction shall include, but not limited to, the letting of bids, making of contracts, purchasing of materials involved in development, but shall not include development or uses which are inconsistent with the Shoreline Management Act or the city's master program. In determining the running two-year period hereof, there shall not be included the time during which development was not actually pursued by construction and the pendency of litigation reasonably related thereto made it reasonable not to so pursue; provided, that the city may, in its discretion, extend the two-year time period for a reasonable time based on factors, including the inability to expeditiously obtain other governmental permits which are required prior to the commencement of construction.
 - B. Five-Year Permit Authorization: If construction has not been completed within five years of approval by the City of Anacortes, the city will review the permit, with prior notice to parties of record, and, upon showing of good cause, either extend the permit for one additional year, or terminate the permit. Prior to the city authorizing any permit extensions, it shall notify any parties of record and the Department of Ecology. Note: Only one single extension is permitted.

Staff reserves the right to supplement the record of the case to respond to matters and information raised subsequent to the writing of this report.

Exhibit List

1	Staff Report
2	Vicinity Map
3	Shoreline Substantial Development Permit Application Materials
4	Approved Site Plan
5	Notices
6	Issued SEPA DNS



CORPS REFERENCE:	PARCEL ID/Owner:	PROPOSED PROJECT:
APPLICANT: John & Colleen McIntyre	P83307/John & Colleen McIntyre	Bulkhead Maintenance
SITE ADDRESS:	ADJACENT PARCELS / OWNERS & ADDRESS:	Sheet 1 of 8
5003 Croatian Way, Anacortes, WA	P83306 / Barton Waring	DATE: 6/12/2020
In: Burrows Bay, Puget Sound	5005 Croatian Way, Anacortes, WA 98221	Revised 2/19/2021
County: Skagit State: WA	P83308 / Thomas & Sally Foster	
	4911 Croatian Way, Anacortes, WA 98221	



PLANNING, COMMUNITY, & ECONOMIC DEVELOPMENT DEPARTMENT
 Mailing Address: P.O. Box 547, Anacortes, WA 98221
 Office Location: 904 6th Street, Anacortes WA 98221
 Phone: (360) 299-1984

CITY OF ANACORTES

Planning, Community, &
Economic Development

Date Received:

5/5/2021

SDP-2021-0004

Master Land Use Permit Application

TYPE OF APPLICATION (check all that apply):

☐ Administrative Interpretation	☐ Essential Public Facility	☐ Short Subdivision (Preliminary)**
☐ Annexation Request	☐ Floodplain Development Permit	☐ Site Plan Review – Type 1**
☐ Binding Site Plan (Preliminary)	☐ Home Occupation Permit**	☐ Site Plan Review – Type 2**
☐ Boundary Line Adjustment (BLA)**	☐ Long Subdivision (Preliminary)**	☐ Stormwater Management Manual Adjustments & Exceptions
☐ BLA: Lot Consolidation**	☐ Lot Certification	☐ Variance (Level 1) **
☐ Comprehensive Plan/ Map Amendment Request**	☐ Minor Permit Revision	☐ Variance (Level 2) **
☐ Conditional Use Permit (CUP) per AMC 19.36**	☐ Plat Amendment /Modification	☐ Wireless Conditional Use Permit (WCUP)**
☐ Conditional/Special Use Permit (CUP) per AMC 17.70**	☒ SEPA Environmental Review**	☐ Wireless Service Facility (WSF) Permit**
☐ Cottage Housing Development**	☒ Shoreline Conditional Use Permit**	☐ Zoning Code/ Map Amendment Request (Rezone)
☐ Development Agreement	☐ Shoreline Exemption**	
	☐ Shoreline Substantial Development Permit**	
	☐ Shoreline Variance**	

****Permit type has supplemental application/checklist that must be submitted with Master Land Use Permit Application**

PROJECT & SITE INFORMATION:

SITE ADDRESS: 4909 Croatian Way, Anacortes, WA 98221	PROJECT NAME: Horesh Bulkhead Repair
PARCEL NUMBER(S): P83309	SECTION, TOWNSHIP, & RANGE SW 1/4 Section 27, T35N, R01W
LOT SQUARE FOOTAGE & ACREAGE: 0.4 acres including the portion of lot north of Croatian way	PROJECT VALUATION: 150,000.00
LEGAL DESCRIPTION: Cheung-Mavar's Skyline 21, Undivided Interest 50%	PRESENT ZONING: Shoreline Residential
PRESENT USE OF PROPERTY: Single family residence	CUT & FILL (CY) PROPOSED:
PRE-APPLICATION CONFERENCE HELD?: ☒ Yes, the City file # is <u>PRE-2021-0013</u> ☐ No	WATER SOURCE: ☒ City of Anacortes ☐ Private Well ☐ Community Well
SEWAGE DISPOSAL: ☒ City of Anacortes ☐ Septic	ROAD ACCESS: ☒ City Road ☐ State Highway ☐ Private Road

CRITICAL AREAS OR BUFFERS ON SITE OR WITHIN 300 FEET: ☒ Yes / Type <u>Burrows Bay</u> ☐ No		WATER BODIES WITHIN 200 FEET: ☒ Yes / Name: <u>Burrows Bay</u> ☐ No	
FLOODPLAIN: Flood Zone: AE FIRM Panel # 530317 Date of Panel: 9/17/2003			
LOT COVERAGE AREA CALCULATIONS: Existing Square Footage: N/A Proposed Square Footage: N/A			
IMPERVIOUS SURFACE AREA CALCULATIONS: Existing Impervious Square Footage: N/A New Impervious Surface: N/A			
DESCRIPTION OF SUBJECT PROPOSAL: ☐ Additional pages attached			
PROPOSED WORK: <u>Construction of a concrete bulkhead placed in the same footprint as the concrete toe</u> <u>Protection, which will be removed. The new protection at the base of the existing</u> <u>rip rap seawall will prevent further degradation of the wall by wave action.</u> 			
PROPERTY OWNER INFORMATION: ☐ Multiple owners attached			
NAME: Allen Horesh		MAILING ADDRESS: 4909 Croatiaan Way	
CITY, STATE, ZIP: Anacortes, WA 98221		PHONE #: 360.333.2708	
FAX #:		EMAIL ADDRESS: allfish88@gmail.com	
APPLICANT INFORMATION: ☒ Same as property owner			
NAME:		MAILING ADDRESS:	
CITY, STATE, ZIP:		PHONE #:	
FAX #:		EMAIL ADDRESS:	
CONTACT PERSON: ☐ Same as property owner ☐ Same as applicant			
NAME: Marine Surveys & Assessments - Meg Amos		MAILING ADDRESS: 380 Jefferson Street	
CITY, STATE, ZIP: Port Townsend, WA 98368		PHONE #: 360.385.4073	
FAX #:		EMAIL ADDRESS: meg@msaenvironmental.com	

ACKNOWLEDGEMENTS & SIGNATURE

Read and initial each of the following statements prior to signing this application:

AH	I understand that land use and/or planning permits do not authorize earth disturbing activities, the removal of vegetation, or the construction of buildings. I understand that additional permits will be required after my land use and/or planning permitting process is completed. I understand that no earth disturbing activities (including the removal of vegetation) may take place until after my land use and/or planning process is complete, and only after I have received additional permits such as Fill & Grade, Building Permit, or Right-of-Way permit(s).
AH	I understand that if critical areas (wetlands, streams, steep slopes, etc.) are found on or near my property I am not authorized to impact these areas in any way and will be required to leave an undisturbed buffer area around the critical area, as determined according the City's critical areas regulations.
AH	I understand that depending on the size and scope of my project, I may be required to provide maintenance and/or performance bonds for items such as landscaping, critical areas, public roads and/or public utilities that I construct or install.
AH	I understand that I am solely responsible for providing complete and accurate information to the City. I understand that if my application is missing information or if inaccurate materials are submitted, my permits will be delayed. I understand that depending on how inaccurate and how incomplete my application is or becomes, the Department may require an entirely new application be submitted. I understand that when and if conditions change from that which my application originally represented, I am responsible for letting the City staff person assigned to my project know.
AH	I understand that I am applying for permits from the City of Anacortes only; and that additional permits from other Federal, State, and Local agencies could be required. I understand that the City of Anacortes cannot advise me of permits that are required from other agencies, and that I must contact these agencies to make sure I comply with their requirements. These agencies include (but are not limited to): Corps of Engineers, Department of Natural Resources, Department of Fish & Wildlife, Department of Ecology, and Northwest Clean Air Agency.
AH	I understand that I will be responsible for paying consultants that the City may deem necessary to review certain aspects of my application. I understand that these consultant reviews could include special inspections, traffic concurrency, critical areas, landscaping, stormwater, etc.

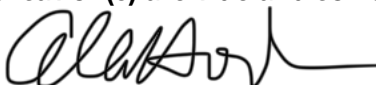
Signature required on next page.

By affixing my signature hereto, I certify that I am the owner, or am acting as the Owner's authorized agent, and that the application and documents contained with this submittal are complete and accurate to the best of my knowledge and abilities. If your title report lists a company, partnership or other owners, you must submit evidence that you are authorized to sign on behalf of the entity or others that are listed.

If you are an authorized representative you must submit an Agent Authorization Form.

Please attach additional signature sheets if there is more than one owner.

Under penalty of perjury, I certify that the information, statements, answers above regarding the subject application(s) are true and correct to the best of my knowledge and belief.

Signature:  Date: 05/04/2021

Printed Name: Allen Horesh

STATE OF WASHINGTON)
) ss.
COUNTY OF SKAGIT

I certify that I know or have satisfactory evidence that _____ is the person who appeared before me, and said person acknowledged that he/she signed this instrument, and acknowledged it as the free and voluntary act for the uses and purposes mentioned in this instrument.

Given under my hand and official seal this _____ day of _____, 20____

Notary Public

Residing at _____

My appointment expires _____

(SEAL)

AGENT AUTHORIZATION FORM

Use this form to authorize someone other than the property owner to apply for permits for the subject property.

Project Name: Horesh Bulkhead Repair

Property Address: 4909 Croatian Way

City, State, Zip: Anacortes, WA 98221

AUTHORIZATION STATEMENT

I / we, as the owners of the property identified above, authorize the below listed individual to act as our agent to submit applications, receive correspondence regarding the above-listed application, and sign and to receive notices on my/our behalf.

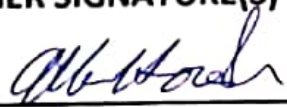
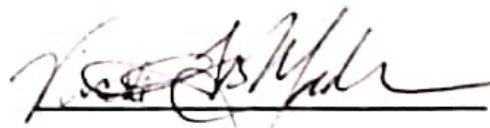
DESIGNATED AGENT

Agent Name: Marine Surveys & Assessments (Meg Amos)

Agent Address: 380 Jefferson Street

Agent City, State, Zip: Port Townsend, WA 98368

PROPERTY OWNER SIGNATURE(S)**

Signature: <u></u> Printed Name: <u>Allen Horesh</u> Title: _____ Company: _____ Date: <u>02/16/2021</u>	Signature: <u></u> Printed Name: <u>Vicki Fishfader</u> Title: _____ Company: _____ Date: <u>02/16/2021</u>
--	---

****Each property owner listed must have their signature notarized.**

STATE OF WASHINGTON

)
) ss.

COUNTY OF SKAGIT

I certify that I know or have satisfactory evidence that Allen Horresh is the person who appeared before me, and said person acknowledged that he/she signed this instrument, on oath stated that he/she was authorized to execute the instrument, and acknowledged it as the Owner to be the free and voluntary act and deed of said City of Anacortes for the uses and purposes therein mentioned.

Given under my hand and official seal this 16 day of February, 2021



Colleen Craig
Notary Public

Residing at Anacortes, Wa

My appointment expires 4/10/2021

STATE OF WASHINGTON

)
) ss.

COUNTY OF SKAGIT

I certify that I know or have satisfactory evidence that Vicki Fishader is the person who appeared before me, and said person acknowledged that he/she signed this instrument, on oath stated that he/she was authorized to execute the instrument, and acknowledged it as the Owner to be the free and voluntary act and deed of said City of Anacortes for the uses and purposes therein mentioned.

Given under my hand and official seal this 16 day of February, 2021



Colleen Craig
Notary Public

Residing at Anacortes, Wa

My appointment expires 4/10/2021

**City of Anacortes Narrative Description for
Proposed Bulkhead Work at
4909 Croatian Way**

February 21, 2021

The proposed project is the maintenance of an existing bulkhead, which is 118 ft. long with a toe that is 18 inches tall by 18 inches deep and does not contain any steel rebar. The existing bulkhead is currently being undermined because it does not extend deep enough to be protected from erosion (See attached photos). This pre-application request is to determine what will be needed for the City of Anacortes to process a shoreline permit for a project located at/below the OHWM of Burrows Bay.

The proposed bulkhead will stay 118 ft. long and be 9-10 ft. tall above beach grade and 2-3 ft. below (12 ft. tall in total); the elevation of the beach can vary +/- 1 ft. depending on the season. The height of the proposed bulkhead will stay in line with the height of the bulkheads of the adjacent properties that were completed under NWS-2019-664. The toe will be 12 inches tall by 48 inches deep.

The proposed bulkhead replacement will stabilize the toe of the slope and extend the bulkhead deep enough that there will be no undermining to protect uplands from further erosion, as the High Tide Line (HTL) is at the face of the bulkhead. The proposed project will be located landward of the outer (seaward) edge of the existing toe to comply with WAC 220-660-370 which allows no waterward expansion from the concrete toe of the existing structure.

The current proposed project would include: 1. Remove the existing concrete toe. 2. Form a stable concrete bulkhead adjoining to the seaward face of the existing bulkhead 3. Backfill all spaces between the face and interior of the existing bulkhead with 3/4-inch river pebble. 4. Stabilize any areas under the concrete deck with reinforced concrete and fill, as necessary.

The construction crew and a small excavator will access the project site using a neighbor's boat ramp 0.19 miles southeast of the project site. Equipment will be staged within the cul-de-sac at the end of Croatian Way, northeast of parcel P83311. The existing 18-inch concrete toe will be removed with an excavator at low tide and disposed of at an upland site.

At low tide, an excavator will be used to install steel sheets that will be put up on sections of the bulkhead walls that are being worked on to avoid collapse and run off. The steel sheets are 20 ft. long by 8 ft. tall and weigh approximately 3,000 lbs. apiece. The existing concrete toe will be removed at low tide by jack-hammering the toe into approximately 3 ft. sections. Debris will be lifted and placed into a small dump truck by an excavator operating on the shoreline in the dry. All debris from the toe will be removed during a single tide cycle with no debris exposed to the water. Equipment used for dismantling and removing the debris will be brought to the site and removed from the area during a single low tide cycle. An air compressor required for the jackhammer will be located shore side.

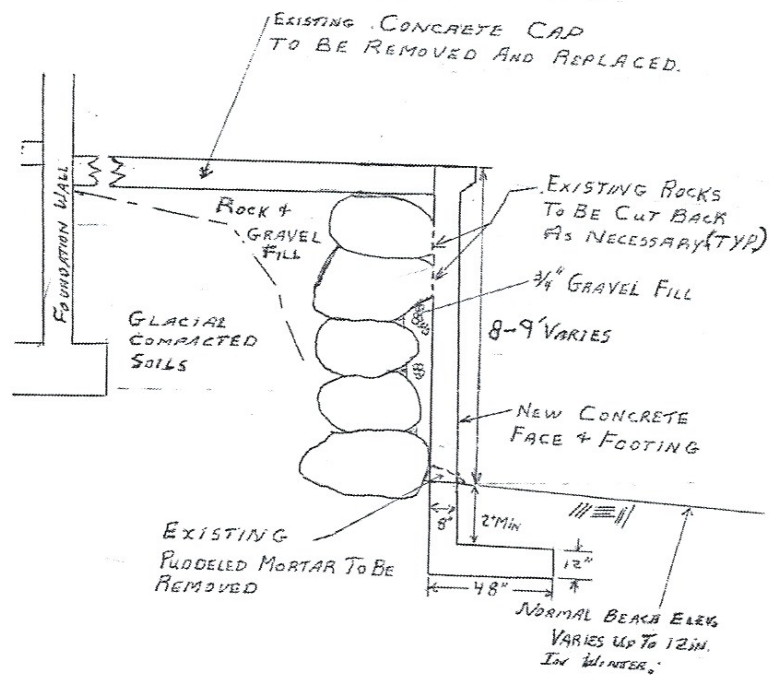
Construction will include digging three feet into beach substrate, seaward of the existing bulkhead, and creating a footer with 12-inch rebar centers to support a 4-foot high concrete wall section. Additional 4 feet high wall sections, with 12-inch rebar centers, will be poured with concrete until the wall is approximately 12 feet in height (3 feet below grade and 9 feet above). The vertical wall, above grade, will be 8 inches thick and 9 feet tall with a 16-inch-thick lip at the top, protruding seaward. The concrete has 2% calcium in it, so it will harden in 20 minutes. Drainage holes will be drilled to allow stormwater to drain seaward. Excavation of the existing base, forming of the bulkhead, and pouring concrete will be done in 40-foot sections, in the dry. Construction is anticipated to take 6-8 weeks. The Horesh bulkhead will be in line with adjacent permitted bulkheads when finished.



Signs of undercutting.



Signs of undercutting, debris on the beach and a new, permitted wall to the east.



WARING
5005 CROATIAN WAY
ANACORTES, WA



Cantilever Retaining Wall Calculations

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Design Assumptions

f'_c	=	3,000	psi
f_y	=	60	ksi
Soil Bearing Capacity, S	=	2,000	psf (Table 1804.2)
Equivalent Soil Pressure, g	=	35	pcf
Soil Weight, w	=	120	pcf
Sliding Coefficient, μ	=	0.35	(Table 1804.2)
Lateral Soil Bearing, Lb	=	150	psf/ft (Table 1804.2)
Wall Width, b	=	8	in
Design d	=	6.0	in
Footing Depth, T	=	12	in
Wall Height, H	=	10.00	ft
Toe Width, x	=	0	in
Design Heal Width, y	=	40	in
Total Footing Width, D	=	48	in
$F_1 = wyH$	=	4,000	lbs
$F_2 = (h^2)g/2$	=	1,750	lbs
$Ma(cw) = F_1(y/2+b)$	=	9,333	ft-lbs
$Ma(ccw) = F_2(y/2+b)$	=	5,833	ft-lbs

Overturning

$Ma(ccw) * 1.5 \text{ F.S.}$	=	8,750	ft-lbs
$Ma(ccw) = Ma(cw)$	=		
$Ma(cw) = F_1(y/2+b)$	=		
$yo = 2((Ma(cw)/F_1)-b)$	=	37	in

Sliding

Weight of Wall/ft, F_w	=	1,600	lbs/ft
Weight of Soil above Heal, F_1	=	4,000	lbs/ft
Total Weight, F_t	=	5,600	lbs/ft
Friction Resistance = μF_t	=	1,960	lbs
Buried Toe Depth, T	=	12	in
$F_3 = T * Lb / (12 * 3)$	=	50	lbs/ft
Total Sliding Resistance	=	2010	lbs

Bearing Capacity

Min D per Soil Bearing Capacity	=		
$D = (F.S.) * (F_1 + F_w) / S$	=	101	in

Seismic Lateral

Seismic Importance Factor, I	=	1.00	Ss	=	1.25
Seismic Use Group	=	I	S1	=	0.5
Site Class	=	D	Fa	=	1.00
Response Modification Factor, R	=	3	(Table 9.5.2.2)		
$S_{ms} = FaSs$	=	1.25			
$S_{os} = (2/3) * S_{ms}$	=	0.84			
$Cs = S_{os} / (R/I)$	=	0.26			
Seismic Base Shear, V = CsW	=	1466	lbs/ft		

Reinforcement - Stem

$M_u = 1.4Ma$	=	8,167	ft-lbs
$M_n = M_u / 0.9$	=	9,074	ft-lbs

$$M_n = A_s f_y d - \frac{A_s^2 f_y^2}{1.7 f'_c b} \quad A_s^2 - \frac{0.425 b f'_c}{f_y} + \frac{0.85 M_n f'_c b}{f_y^2} = 0$$

$$A_s = 0.329 \text{ sl/ft}$$

$$\rho_{min} = \frac{200}{f_y} \quad \rho_{min} = \frac{A_{s(min)}}{A_c} \quad A_{s(min)} = \rho_{min} A_c = \frac{200 A_c}{f_y} = \frac{200 b (12)}{f_y}$$

Area of Steel, A_s (sl/ft)

	6 in O.C.	8 in O.C.	10 in O.C.	12 in O.C.	14 in O.C.	16 in O.C.
# 4	0.393	0.294	0.236	0.196	0.168	0.147
# 5	0.613	0.460	0.368	0.307	0.263	0.230
# 6	0.883	0.662	0.530	0.442	0.378	0.331
# 7	1.202	0.902	0.721	0.601	0.515	0.451
# 8	1.570	1.178	0.942	0.785	0.673	0.589

Use #	5 bar at	10 in O.C.	Vertical	$A_s =$	0.368	sl/ft
Use #	5 bar at	12 in O.C.	Horizontal			

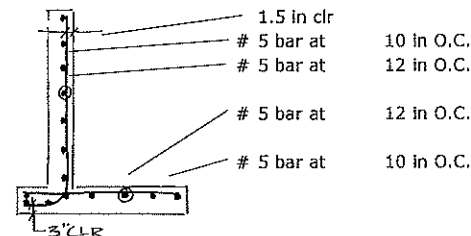
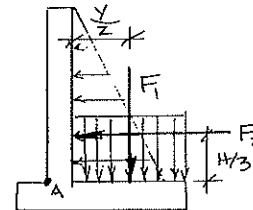
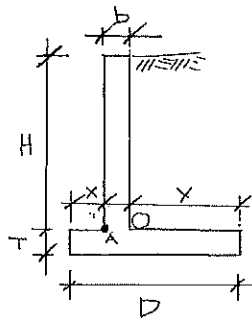
Project: Puget Sound Shoreline

By: AGT

Date: 6/8/20

	F.S.	10.00' (SOIL DIFFERENTIAL) 12" WALL
Overturning	=	1.60
Sliding	=	1.72
Bearing	=	1.43
Seismic	=	1.37

Min. Cover =	1.5 in
$d_{(wall)} =$	6.19 in



Structural Calculations
for the
4909 Croatian Way Bulkhead
Island County



By:

X-SOUND
ENGINEERING

P.O. Box 1265
Freeland, WA 98249
(360) 331-3113

Job No. 0

The residents of 4909 Croatian Way are currently protected from wave erosion by a rock wall with a front surface mortar between adjoining rocks. A reinforced concrete toe approximately 18x18 -inches in cross section is at the base of the rock wall. A concrete cap extends from the top of the rock wall to the residence's foundation.

Tidal and wave action at the base under the toe and wall have been removed some of the backfill material from behind the wall leaving a void under the concrete cap. In the region of the void the wall has sagged resulting in a crack along the front face of the rock wall. Measurements of the void cavity behind the wall were performed as a result of two cavities extending shoreward from the face of the wall as far as 5 feet.

The failure mode in action is clearly erosion and removal of backfill by wave action from under the toe of the wall. Inspection of the homes foundation and surrounding lot reveals no evidence of ground water intrusion from shoreward. Long term stabilization of the property is obviously required to prevent loss of the property from continuing erosion.

My determination after a site visit there are a number of reasons for this bulkhead failing. The Dowell's and the Fosters on either side, Puget Sound Shoreline has had to do a substantial amount of work to the foundation due to the existing failing bulkheads. From the undermining that is happening to the bulkhead is causing the foundation to drop and wall are cracking and fire[laces are slipping inside the homes. The Horesh and Fishader bulkhead is in between these two bulkheads and its only a matter of time. I can stick a rod with a measuring tape on it, between the rocks and the concrete footing over 4 feet under the existing footing and bulkhead. It is severely undermined.

Alternative armoring solutions were considered, including removal of the existing wall and replacement by a concrete bulkhead, sheet piles or soft shore armoring. None of these concepts is feasible in view of the home's location relative to the shoreline and each would require significant construction along the beach.

Given the objective of providing long term protection to the legally constructed and occupied property with minimal net change to the current effect on the ecology of the beach, a reinforced concrete bulk head with a base at least 2 feet below the beach level and placed immediately in front of the existing rock wall is not only the best, but the only feasible protection concept.

Removal of the existing 18x18-inch toe permits the exterior face of the bulkhead to be placed approximately 10-12-inches shoreward of the existing protection. This placement of the bulkhead assures that no water ward beach will be taken for the project. Additionally, soft armoring will be placed in front of the bulkhead to reduce sand drift compared to the current wall. The soft shore armoring will consist of river pebbles placed on the beach from the toe of the bulkhead water ward to ten feet. Large rocks will be placed at 20-foot intervals along the toe to stabilize the gravel.

There currently exist several bulkheads of identical construction to the proposed bulkhead within a half mile on either side of the property. These bulkheads were constructed up to 40 years ago and have experienced no failures in the same environment as the proposed project. The proposed project is clearly within the same geological zone as the existing bulkheads.



SEPA ENVIRONMENTAL CHECKLIST

Purpose of checklist:

Governmental agencies use this checklist to help determine whether the environmental impacts of your proposal are significant. This information is also helpful to determine if available avoidance, minimization or compensatory mitigation measures will address the probable significant impacts or if an environmental impact statement will be prepared to further analyze the proposal.

Instructions for applicants: [\[help\]](#)

This environmental checklist asks you to describe some basic information about your proposal. Please answer each question accurately and carefully, to the best of your knowledge. You may need to consult with an agency specialist or private consultant for some questions. You may use "not applicable" or "does not apply" only when you can explain why it does not apply and not when the answer is unknown. You may also attach or incorporate by reference additional studies reports. Complete and accurate answers to these questions often avoid delays with the SEPA process as well as later in the decision-making process.

The checklist questions apply to all parts of your proposal, even if you plan to do them over a period of time or on different parcels of land. Attach any additional information that will help describe your proposal or its environmental effects. The agency to which you submit this checklist may ask you to explain your answers or provide additional information reasonably related to determining if there may be significant adverse impact.

Use of checklist for nonproject proposals: [\[help\]](#)

For nonproject proposals (such as ordinances, regulations, plans and programs), complete the applicable parts of sections A and B plus the [SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS \(part D\)](#). Please completely answer all questions that apply and note that the words "project," "applicant," and "property or site" should be read as "proposal," "proponent," and "affected geographic area," respectively. The lead agency may exclude (for non-projects) questions in Part B - Environmental Elements –that do not contribute meaningfully to the analysis of the proposal.

A. BACKGROUND [\[help\]](#)

1. Name of proposed project, if applicable:
- [\[help\]](#)

Horesh Bulkhead Repair

2. Name of applicant:
- [\[help\]](#)

Allen Horesh

3. Address and phone number of applicant and contact person:
- [\[help\]](#)

**Allen Horesh - 4909 Croatian Way, Anacortes, WA 98221
Marine Surveys & Assessments (Meg Amos)/ 360.385.4073**

4. Date checklist prepared:
- [\[help\]](#)

May 1, 2021

5. Agency requesting checklist:
- [\[help\]](#)

City of Anacortes

6. Proposed timing or schedule (including phasing, if applicable):
- [\[help\]](#)

Work to begin immediately after permits are obtained. Expected duration is two months.

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.
- [\[help\]](#)

No

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.
- [\[help\]](#)

Biological Evaluation with No Net Loss

9. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.
- [\[help\]](#)

No

10. List any government approvals or permits that will be needed for your proposal, if known.
- [\[help\]](#)

**Shoreline Substantial Development permit (City of Anacortes), HPA - WDFW
Water Quality (Ecology), Section 10 (Corps) Building permit (City of Anacortes)**

11. Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on project description.)
- [\[help\]](#)
- The proposed work is the construction of a concrete bulkhead placed in the same footprint as the concrete toe protection, which will be removed. The extent of the repair will span 118 linear feet.**

12. Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and

range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist. [\[help\]](#)

4909 Croatian Way, Anacortes, WA 98221, SW 1/4 Section 27, T35N, R01W

B. ENVIRONMENTAL ELEMENTS [\[help\]](#)

1. Earth

a. General description of the site [\[help\]](#)

(circle one): **Flat**, rolling, hilly, steep slopes, mountainous,
other _____

b. What is the steepest slope on the site (approximate percent slope)? [\[help\]](#)

0 to 5%

c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any agricultural land of long-term commercial significance and whether the proposal results in removing any of these soils. [\[help\]](#)

Sand, cobble and large rock.

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe. [\[help\]](#)

No

e. Describe the purpose, type, total area, and approximate quantities and total affected area of any filling, excavation, and grading proposed. Indicate source of fill. [\[help\]](#)

Approximately 30 cubic yards of concrete will be poured for the entire extent of the wall, above and below the OHWM.

f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe.

[\[help\]](#)

No

g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)? [\[help\]](#)

Concrete wall will be located on beach below the OHWL.

h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any: [\[help\]](#)

Does not apply.

2. Air

- a. What types of emissions to the air would result from the proposal during construction, operation, and maintenance when the project is completed? If any, generally describe and give approximate quantities if known. [\[help\]](#)

Fuel emissions from excavator during construction.

- b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe. [\[help\]](#)

No

- c. Proposed measures to reduce or control emissions or other impacts to air, if any: [\[help\]](#)

None

3. Water

- a. Surface Water: [\[help\]](#)

- 1) Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into. [\[help\]](#)

Yes, Burrows Bay in the Salish Sea

- 2) Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans. [\[help\]](#)

Yes, work will occur below the OHWM.

- 3) Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material. [\[help\]](#)

Approximately 30 cubic yards of concrete, including above and below the OHWM.

- 4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known. [\[help\]](#)

No

- 5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.

[\[help\]](#) **Yes, according to the FEMA Flood Map this area is classified as AE. Additionally, the area is regularly flooded – tides alternately flood and expose the substrate at least once daily.**

- 6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge. [\[help\]](#)

No

b. Ground Water:

- 1) Will groundwater be withdrawn from a well for drinking water or other purposes? If so, give a general description of the well, proposed uses and approximate quantities withdrawn from the well. Will water be discharged to groundwater? Give general description, purpose, and approximate quantities if known. [\[help\]](#)

Does not apply

- 2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial, containing the following chemicals. . . ; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve. [\[help\]](#)

Does not apply

c. Water runoff (including stormwater):

- 1) Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe. [\[help\]](#)

Does not apply

- 2) Could waste materials enter ground or surface waters? If so, generally describe. [\[help\]](#)

No

- 3) Does the proposal alter or otherwise affect drainage patterns in the vicinity of the site? If so, describe.

No, outfall pipes are located in bulkhead/wall.

d. Proposed measures to reduce or control surface, ground, and runoff water, and drainage pattern impacts, if any:

Does not apply

4. Plants [\[help\]](#)

- a. Check the types of vegetation found on the site: [\[help\]](#)

____deciduous tree: alder, maple, aspen, other

____evergreen tree: fir, cedar, pine, other

____shrubs

____grass

____pasture

____crop or grain

____Orchards, vineyards or other permanent crops.

____wet soil plants: cattail, buttercup, bullrush, skunk cabbage, other

_____ water plants: water lily, eelgrass, milfoil, other
 _____ other types of vegetation

No plants located in project footprint vicinity.

- b. What kind and amount of vegetation will be removed or altered? [\[help\]](#)

None

- c. List threatened and endangered species known to be on or near the site. [\[help\]](#)

There is eel grass located waterward of proposed construction location, well outside of work area.

- d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any: [\[help\]](#)

None

- e. List all noxious weeds and invasive species known to be on or near the site.

No invasive plant species were observed on site.

5. Animals

- a. List any birds and other animals which have been observed on or near the site or are known to be on or near the site. Examples include: [\[help\]](#)

birds: hawk, heron, eagle, songbirds, other:

mammals: deer, bear, elk, beaver, other:

fish: bass, salmon, trout, herring, shellfish, other _____

- b. List any threatened and endangered species known to be on or near the site. [\[help\]](#)

Salmon and forage fish species (See Biological Evaluation for species information)

- c. Is the site part of a migration route? If so, explain. [\[help\]](#)

Yes, salmon migrate through the area (See BE)

- d. Proposed measures to preserve or enhance wildlife, if any: [\[help\]](#)

Salmon and forage fish work windows

- e. List any invasive animal species known to be on or near the site.

No known invasive animal species exist on site.

6. Energy and natural resources

- a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc. [\[help\]](#)

Does not apply

- b. Would your project affect the potential use of solar energy by adjacent properties?

If so, generally describe. [\[help\]](#)

No

- c. What kinds of energy conservation features are included in the plans of this proposal?
List other proposed measures to reduce or control energy impacts, if any: [\[help\]](#)

Does not apply

7. Environmental health

- a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur as a result of this proposal?
If so, describe. [\[help\]](#)

Potential fuel spill from construction equipment.

- 1) Describe any known or possible contamination at the site from present or past uses.

None

- 2) Describe existing hazardous chemicals/conditions that might affect project development and design. This includes underground hazardous liquid and gas transmission pipelines located within the project area and in the vicinity.

None

- 3) Describe any toxic or hazardous chemicals that might be stored, used, or produced during the project's development or construction, or at any time during the operating life of the project.

None

- 4) Describe special emergency services that might be required.

None

- 5) Proposed measures to reduce or control environmental health hazards, if any:

Equipment will be maintained regularly.

b. Noise

- 1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)? [\[help\]](#)

Does not apply

- 2) What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site. [\[help\]](#)

Short term construction noise.

- 3) Proposed measures to reduce or control noise impacts, if any: [\[help\]](#)

None

8. Land and shoreline use

- a. What is the current use of the site and adjacent properties? Will the proposal affect current land uses on nearby or adjacent properties? If so, describe. [\[help\]](#)

Single family residences. Adjacent properties also have bulkheads and are undergoing the same repairs.

- b. Has the project site been used as working farmlands or working forest lands? If so, describe.
How much agricultural or forest land of long-term commercial significance will be converted

to other uses as a result of the proposal, if any? If resource lands have not been designated, how many acres in farmland or forest land tax status will be converted to nonfarm or nonforest use? [\[help\]](#) **Does not apply.**

1) Will the proposal affect or be affected by surrounding working farm or forest land normal business operations, such as oversize equipment access, the application of pesticides, tilling, and harvesting? If so, how: **No**

c. Describe any structures on the site. [\[help\]](#)

There is a 2,948 sq ft single family residence on site that was built in 1990 and concrete capped rip rap sea wall.

d. Will any structures be demolished? If so, what? [\[help\]](#)

Yes, old bulkhead toe protection will be removed and taken away to an approved upland dump site.

e. What is the current zoning classification of the site? [\[help\]](#)

Shoreline residential.

f. What is the current comprehensive plan designation of the site? [\[help\]](#)

Unknown

g. If applicable, what is the current shoreline master program designation of the site? [\[help\]](#)

Aquatic environment

h. Has any part of the site been classified as a critical area by the city or county? If so, specify. [\[help\]](#)

Yes, the adjacent water body (Salish Sea) and associated shoreline has been designated a "critical area".

i. Approximately how many people would reside or work in the completed project? [\[help\]](#)

Does not apply

j. Approximately how many people would the completed project displace? [\[help\]](#)

Does not apply

k. Proposed measures to avoid or reduce displacement impacts, if any: [\[help\]](#)

Does not apply

L. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any: [\[help\]](#)

m. Proposed measures to ensure the proposal is compatible with nearby agricultural and forest lands of long-term commercial significance, if any:

Compliance with local, state and federal regulations. WDFW "Best Management Practices Compliance".

9. Housing

- a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing. [\[help\]](#) **Does not apply**

- b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing. [\[help\]](#) **Does not apply**

- c. Proposed measures to reduce or control housing impacts, if any: [\[help\]](#)
Does not apply

10. Aesthetics

- a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed? [\[help\]](#)

A concrete wall 9'-10' above grade at the toe of existing 10 foot wall. The new structure will not be taller than the existing structure.

- b. What views in the immediate vicinity would be altered or obstructed? [\[help\]](#)

No views will be altered or obstructed.

- c. Proposed measures to reduce or control aesthetic impacts, if any: [\[help\]](#)
None

11. Light and glare

- a. What type of light or glare will the proposal produce? What time of day would it mainly occur? [\[help\]](#)

None

- b. Could light or glare from the finished project be a safety hazard or interfere with views? [\[help\]](#)

No

- c. What existing off-site sources of light or glare may affect your proposal? [\[help\]](#)

None

- d. Proposed measures to reduce or control light and glare impacts, if any: [\[help\]](#)

None

12. Recreation

- a. What designated and informal recreational opportunities are in the immediate vicinity? [\[help\]](#)

Boating, swimming, fishing, beach combing.

- b. Would the proposed project displace any existing recreational uses? If so, describe. [\[help\]](#)

No, the repair will take place at the toe of the existing wall on private tidelands.

- c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any: [\[help\]](#) **None**

13. Historic and cultural preservation

- a. Are there any buildings, structures, or sites, located on or near the site that are over 45 years old listed in or eligible for listing in national, state, or local preservation registers located on or near the site? If so, specifically describe. [\[help\]](#)

Unknown

- b. Are there any landmarks, features, or other evidence of Indian or historic use or occupation? This may include human burials or old cemeteries. Are there any material evidence, artifacts, or areas of cultural importance on or near the site? Please list any professional studies conducted at the site to identify such resources. [\[help\]](#)

Unknown

- c. Describe the methods used to assess the potential impacts to cultural and historic resources on or near the project site. Examples include consultation with tribes and the department of archeology and historic preservation, archaeological surveys, historic maps, GIS data, etc. [\[help\]](#)

Tribes will be notified through the permit review process with the City and Corps of Engineers.

- d. Proposed measures to avoid, minimize, or compensate for loss, changes to, and disturbance to resources. Please include plans for the above and any permits that may be required.

Mitigation is proposed on site. In addition to reducing the footprint impacting the beach, concrete debris will be removed and gravel will be brought in for beach nourishment. Additional mitigation will be added as needed once the agencies review.

14. Transportation

- a. Identify public streets and highways serving the site or affected geographic area and describe proposed access to the existing street system. Show on site plans, if any. [\[help\]](#)

Does not apply

- b. Is the site or affected geographic area currently served by public transit? If so, generally describe. If not, what is the approximate distance to the nearest transit stop? [\[help\]](#)

Does not apply.

- c. How many additional parking spaces would the completed project or non-project proposal have? How many would the project or proposal eliminate? [\[help\]](#)

Does not apply.

- d. Will the proposal require any new or improvements to existing roads, streets, pedestrian, bicycle or state transportation facilities, not including driveways? If so, generally describe (indicate whether public or private). [\[help\]](#)

No

- e. Will the project or proposal use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe. [\[help\]](#) **No**

- f. How many vehicular trips per day would be generated by the completed project or proposal? If known, indicate when peak volumes would occur and what percentage of the volume would be trucks (such as commercial and nonpassenger vehicles). What data or transportation models were used to make these estimates? [\[help\]](#)

Does not apply

- g. Will the proposal interfere with, affect or be affected by the movement of agricultural and forest products on roads or streets in the area? If so, generally describe.

Does not apply

- h. Proposed measures to reduce or control transportation impacts, if any: [\[help\]](#)

Does not apply

15. Public services

- a. Would the project result in an increased need for public services (for example: fire protection, police protection, public transit, health care, schools, other)? If so, generally describe. [\[help\]](#)

No

- b. Proposed measures to reduce or control direct impacts on public services, if any. [\[help\]](#)

None

16. Utilities

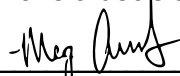
- a. Circle utilities currently available at the site: [\[help\]](#)

electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other _____

- b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed. [\[help\]](#) **Does not apply**

C. SIGNATURE [\[HELP\]](#)

I certify (or declare) under penalty of perjury under laws of the State of Washington that the above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make a decision.

Signature:  _____

Name of signee **Meg Amos** _____

Position and Agency/Organization **Permit Coordinator - Marine Surveys & Assessments**

Date Submitted: **5/4/2021** _____



WASHINGTON STATE

Joint Aquatic Resources Permit Application (JARPA) Form^{1,2} [\[help\]](#)

USE BLACK OR BLUE INK TO ENTER ANSWERS IN THE WHITE SPACES BELOW.



US Army Corps
of Engineers®
Seattle District

AGENCY USE ONLY

Date received:

Agency reference #: _____

Tax Parcel #(s): _____

Part 1—Project Identification

1. Project Name (A name for your project that you create. Examples: Smith's Dock or Seabrook Lane Development) [\[help\]](#)

Horesh Bulkhead Repair

Part 2—Applicant

The person and/or organization responsible for the project. [\[help\]](#)

2a. Name (Last, First, Middle)

Horesh, Allen

2b. Organization (If applicable)

2c. Mailing Address (Street or PO Box)

4909 Croatian Way

2d. City, State, Zip

Anacortes, WA 98221

2e. Phone (1)

2f. Phone (2)

2g. Fax

2h. E-mail

360.333.2708

allfish88@gmail.com

¹ Additional forms may be required for the following permits:

- If your project may qualify for Department of the Army authorization through a Regional General Permit (RGP), contact the U.S. Army Corps of Engineers for application information (206) 764-3495.
- Not all cities and counties accept the JARPA for their local Shoreline permits. If you need a Shoreline permit, contact the appropriate city or county government to make sure they accept the JARPA.

² To access an online JARPA form with [\[help\]](#) screens, go to

http://www.epermitting.wa.gov/site/alias_resourcecenter/jarpa_jarpa_form/9984/jarpa_form.aspx.

For other help, contact the Governor's Office for Regulatory Innovation and Assistance at (800) 917-0043 or help@oria.wa.gov.

Part 3—Authorized Agent or Contact

Person authorized to represent the applicant about the project. (Note: Authorized agent(s) must sign 11b of this application.) [\[help\]](#)

3a. Name (Last, First, Middle)			
Amos, Meg			
3b. Organization (If applicable)			
Marine Surveys & Assessments			
3c. Mailing Address (Street or PO Box)			
380 Jefferson Street			
3d. City, State, Zip			
Port Townsend, WA 98368			
3e. Phone (1)	3f. Phone (2)	3g. Fax	3h. E-mail
360.385.4073			meg@marinesurveysandassessments.com

Part 4—Property Owner(s)

Contact information for people or organizations owning the property(ies) where the project will occur. Consider both **upland and aquatic** ownership because the upland owners may not own the adjacent aquatic land. [\[help\]](#)

- ☒ Same as applicant. (Skip to Part 5.)
- ☐ Repair or maintenance activities on existing rights-of-way or easements. (Skip to Part 5.)
- ☐ There are multiple upland property owners. Complete the section below and fill out [JARPA Attachment A](#) for each additional property owner.
- ☐ Your project is on Department of Natural Resources (DNR)-managed aquatic lands. If you don't know, contact the DNR at (360) 902-1100 to determine aquatic land ownership. If yes, complete [JARPA Attachment E](#) to apply for the Aquatic Use Authorization.

4a. Name (Last, First, Middle)			
4b. Organization (If applicable)			
4c. Mailing Address (Street or PO Box)			
4d. City, State, Zip			
4e. Phone (1)	4f. Phone (2)	4g. Fax	4h. E-mail

Part 5—Project Location(s)

Identifying information about the property or properties where the project will occur. [\[help\]](#)

- ☐ There are multiple project locations (e.g. linear projects). Complete the section below and use [JARPA Attachment B](#) for each additional project location.

5a. Indicate the type of ownership of the property. (Check all that apply.) [\[help\]](#)

- ☒ Private
☐ Federal
☐ Publicly owned (state, county, city, special districts like schools, ports, etc.)
☐ Tribal
☐ Department of Natural Resources (DNR) – managed aquatic lands (Complete [JARPA Attachment E](#))

5b. Street Address (Cannot be a PO Box. If there is no address, provide other location information in 5p.) [\[help\]](#)

4909 Croatian Way

5c. City, State, Zip (If the project is not in a city or town, provide the name of the nearest city or town.) [\[help\]](#)

Anacortes, WA 98221

5d. County [\[help\]](#)

Skagit County

5e. Provide the section, township, and range for the project location. [\[help\]](#)

¼ Section	Section	Township	Range
SW	27	35N	01

5f. Provide the latitude and longitude of the project location. [\[help\]](#)

- Example: 47.03922 N lat. / -122.89142 W long. (Use decimal degrees - NAD 83)

48.48858 N. Lat./122.67252 W Long.

5g. List the tax parcel number(s) for the project location. [\[help\]](#)

- The local county assessor's office can provide this information.

P83309

5h. Contact information for all adjoining property owners. (If you need more space, use [JARPA Attachment C.](#)) [\[help\]](#)

Name	Mailing Address	Tax Parcel # (if known)
Tom & Sally Foster	4911 Croatian Way Anacortes, WA 98221	P83308
Bob & Elaine Dowell	4907 Croatian Way Anacortes, WA 98221	P83310

5i. List all wetlands on or adjacent to the project location. [help]
The US Fish & Wildlife National Wetlands Inventory shows estuarine and marine wetlands.
5j. List all waterbodies (other than wetlands) on or adjacent to the project location. [help]
Burrows Bay
5k. Is any part of the project area within a 100-year floodplain? [help] .
☒ Yes ☐ No ☐ Don't know
5l. Briefly describe the vegetation and habitat conditions on the property. [help]
The property above the OHWM/HTL consists of single-family residences with a concrete capped riprap wall, which sits on the beach. The beach immediately adjacent to the bulkhead (below the OHWM/HTL) consists of sand, cobble and larger rock. No wetland plants were observed.
5m. Describe how the property is currently used. [help]
Single-family residences with tideland ownership.
5n. Describe how the adjacent properties are currently used. [help]
Single-family residences with tideland ownership.
5o. Describe the structures (above and below ground) on the property, including their purpose(s) and current condition. [help]
The Horesh single-family residence was built in 1990 and is in good condition. The home is protected by a rock sea wall that was built around 1988.
5p. Provide driving directions from the closest highway to the project location, and attach a map. [help]
Follow WA-20 west to Campbell Lake Road (1.8 miles); follow Campbell lake road and Rosario Road to Marine Drive (2.4 miles); Slight right onto Marine Drive (1.1 miles); Continue on Marine Drive to Croatian Way (2.4 miles).

Part 6—Project Description

6a. Briefly summarize the overall project. You can provide more detail in 6b. [\[help\]](#)

The existing bulkhead is 118 ft long with a toe that is 18 inches tall by 18 inches deep and does not contain any steel rebar. The existing bulkhead is currently being undermined because it does not extend deep enough to be protected from erosion.

The proposed bulkhead will stay 118 ft long and be 9-10 ft tall above beach grade and 2-3 ft below (12 ft tall in total); the elevation of the beach can vary +/- 1 ft depending on the season. The height of the proposed bulkhead will stay in line with the height of the bulkheads of the adjacent properties that were completed under NWS-2019-664 (Figure 8). The toe will be 12 inches tall by 48 inches deep.

The proposed bulkhead replacement will stabilize the toe of the slope and extend the bulkhead deep enough that there will be no undermining to protect uplands from further erosion, as the High Tide Line (HTL) is at the face of the bulkhead. The proposed project will be located landward of the outer (seaward) edge of the existing toe to comply with WAC 220-660-370 which allows no waterward expansion from the concrete toe of the existing structure.

6b. Describe the purpose of the project and why you want or need to perform it. [\[help\]](#)

The purpose of this work is to prevent the home located shoreward of the existing bulkhead from collapsing into the sea. The existing bulkhead (built in the 1980's) has suffered considerable damage from wave action during winter high tide storms. The existing wall is severely undercut and cracked in places. There are no other alternatives for this site as the home sits approximately 2-feet behind the top of the wall. Properties on either side of Parcel P83309 began construction of the same sort of protective wall in the summer of 2020 after receiving an emergency permit from the Corps and other relevant permits from the City and WDFW. That application involved three homes. Two sections of wall were completed before the late season high tides. The third and final on that permit will be completed this year (2021). At that point, the Horesh site will have new sections of wall on either side. This proposal will fill the gap in the wall, giving all of the homes the same protection.

6c. Indicate the project category. (Check all that apply) [\[help\]](#)

- ☐ Commercial
 ☒ Residential
 ☐ Institutional
 ☐ Transportation
 ☐ Recreational
☒ Maintenance
 ☐ Environmental Enhancement

6d. Indicate the major elements of your project. (Check all that apply) [\[help\]](#)

☐ Aquaculture ☒ Bank Stabilization ☐ Boat House ☐ Boat Launch ☐ Boat Lift ☐ Bridge ☒ Bulkhead ☐ Buoy ☐ Channel Modification	☐ Culvert ☐ Dam / Weir ☐ Dike / Levee / Jetty ☐ Ditch ☐ Dock / Pier ☐ Dredging ☐ Fence ☐ Ferry Terminal ☐ Fishway	☐ Float ☐ Floating Home ☐ Geotechnical Survey ☐ Land Clearing ☐ Marina / Moorage ☐ Mining ☐ Outfall Structure ☐ Piling/Dolphin ☐ Raft	☐ Retaining Wall (upland) ☐ Road ☐ Scientific Measurement Device ☐ Stairs ☐ Stormwater facility ☐ Swimming Pool ☐ Utility Line
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☐ Other:

6e. Describe how you plan to construct each project element checked in 6d. Include specific construction methods and equipment to be used. [\[help\]](#)

- Identify where each element will occur in relation to the nearest waterbody.
- Indicate which activities are within the 100-year floodplain.

The current proposed project will include: 1. Remove the existing concrete toe. 2. Form a stable concrete bulkhead adjoining to the seaward face of the existing bulkhead 3. Backfill all spaces between the face and interior of the existing bulkhead with 3/4 inch river pebble. 4. Stabilize any areas under the concrete deck with reinforced concrete and fill, as necessary.

The construction crew and a small excavator will access the project site using a neighbor's boat ramp 0.19 miles southeast of the project site. Equipment will be staged within the cul-de-sac at the end of Croatian Way, northeast of parcel P83311. The existing 18-inch concrete toe will be removed with an excavator at low tide and disposed of at an upland site.

At low tide, an excavator will be used to install steel sheets that will be put up on sections of the bulkhead walls that are being worked on to avoid collapse and run off. The steel sheets are 20 ft long by 8 ft tall and weigh approximately 3,000 lbs apiece. The existing concrete toe will be removed at low tide by jack-hammering the toe into approximately 3 ft sections. Debris will be lifted and placed into a small dump truck by an excavator operating on the shoreline in the dry. All debris from the toe will be removed during a single tide cycle with no debris exposed to the water. Equipment used for dismantling and removing the debris will be brought to the site and removed from the area during a single low tide cycle. An air compressor required for the jackhammer will be located shore side.

Construction will include digging three feet into beach substrate, seaward of the existing bulkhead, and creating a footer with 12-inch rebar centers to support a 4-foot high concrete wall section. Additional 4 feet high wall sections, with 12-inch rebar centers, will be poured with concrete until the wall is approximately 12 feet in height (3 feet below grade and 9 feet above). The vertical wall, above grade, will be 8 inches thick and 9 feet tall with a 16-inch-thick lip at the top, protruding seaward. The concrete has 2% calcium in it, so it will harden in 20 minutes. Drainage holes will be drilled to allow stormwater to drain seaward. Excavation of the existing base, forming of the bulkhead, and pouring concrete will be done in 40-foot sections, in the dry. Construction is anticipated to take 6-8 weeks. The Horesh bulkhead will be in line with the adjacent, permitted bulkheads when finished.

In order to take advantage of as many low tides as necessary, an in-water work window is not being proposed for this project since all construction will be completed in the dry. Due to the restrictions of in-water work windows, the bulkhead work for the adjacent properties permitted under NWS-2019-664 was not fully completed in 2020 since there were not enough low tides available during the work window.

6f. What are the anticipated start and end dates for project construction? (Month/Year) [\[help\]](#)

- If the project will be constructed in phases or stages, use [JARPA Attachment D](#) to list the start and end dates of each phase or stage.

Start Date: Spring 2021

End Date: Spring 2021

☐ See JARPA Attachment D

6g. Fair market value of the project, including materials, labor, machine rentals, etc. [\[help\]](#)

\$150,000.00

6h. Will any portion of the project receive federal funding? [\[help\]](#)

- If **yes**, list each agency providing funds.

☐ Yes ☒ No ☐ Don't know

Part 7–Wetlands: Impacts and Mitigation

☐ Check here if there are wetlands or wetland buffers on or adjacent to the project area.

(If there are none, skip to Part 8.) [\[help\]](#)

7a. Describe how the project has been designed to avoid and minimize adverse impacts to wetlands. [\[help\]](#)

- ☒ Not applicable **Note: The US Fish & Wildlife National Wetlands Inventory shows estuarine and marine wetlands. However, no wetland vegetation was observed at the site.**

7b. Will the project impact wetlands? [\[help\]](#)

☐ Yes ☐ No ☐ Don't know

7c. Will the project impact wetland buffers? [\[help\]](#)

☐ Yes ☐ No ☐ Don't know

7d. Has a wetland delineation report been prepared? [\[help\]](#)

- **If Yes**, submit the report, including data sheets, with the JARPA package.

☐ Yes ☐ No

7e. Have the wetlands been rated using the Western Washington or Eastern Washington Wetland Rating System? [\[help\]](#)

- **If Yes**, submit the wetland rating forms and figures with the JARPA package.

☐ Yes ☐ No ☐ Don't know

7f. Have you prepared a mitigation plan to compensate for any adverse impacts to wetlands? [\[help\]](#)

- **If Yes**, submit the plan with the JARPA package and answer 7g.
- **If No, or Not applicable**, explain below why a mitigation plan should not be required.

☐ Yes ☐ No ☐ Don't know

7g. Summarize what the mitigation plan is meant to accomplish, and describe how a watershed approach was used to design the plan. [\[help\]](#)

7h. Use the table below to list the type and rating of each wetland impacted, the extent and duration of the impact, and the type and amount of mitigation proposed. Or if you are submitting a mitigation plan with a similar table, you can state (below) where we can find this information in the plan. [\[help\]](#)

Activity (fill, drain, excavate, flood, etc.)	Wetland Name ¹	Wetland type and rating category ²	Impact area (sq. ft. or Acres)	Duration of impact ³	Proposed mitigation type ⁴	Wetland mitigation area (sq. ft. or acres)

¹ If no official name for the wetland exists, create a unique name (such as "Wetland 1"). The name should be consistent with other project documents, such as a wetland delineation report.

² Ecology wetland category based on current Western Washington or Eastern Washington Wetland Rating System. Provide the wetland rating forms with the JARPA package.

³ Indicate the days, months or years the wetland will be measurably impacted by the activity. Enter "permanent" if applicable.

⁴ Creation (C), Re-establishment/Rehabilitation (R), Enhancement (E), Preservation (P), Mitigation Bank/In-lieu fee (B)

Page number(s) for similar information in the mitigation plan, if available: _____

7i. For all filling activities identified in 7h, describe the source and nature of the fill material, the amount in cubic yards that will be used, and how and where it will be placed into the wetland. [\[help\]](#)

7j. For all excavating activities identified in 7h, describe the excavation method, type and amount of material in cubic yards you will remove, and where the material will be disposed. [\[help\]](#)

Part 8—Waterbodies (other than wetlands): Impacts and Mitigation

In Part 8, “waterbodies” refers to non-wetland waterbodies. (See Part 7 for information related to wetlands.) [\[help\]](#)

☒ Check here if there are waterbodies on or adjacent to the project area. (If there are none, skip to Part 9.)

8a. Describe how the project is designed to avoid and minimize adverse impacts to the aquatic environment. [\[help\]](#)

☐ Not applicable

Above ground repair and replacement of the bulkhead will be within the same footprint as the existing structure. Beach nourishment will include the addition of $\frac{3}{4}$ inch beach pebble, which will be placed on the seaward face of the proposed project and taper 8 feet to the marine shoreline.

A forage fish survey will be conducted prior to work by a biologist certified by the WDFW. Surveys will be repeated every two weeks until the project is completed.

Backfill behind the rebuilt bulkhead will only use new, clean $\frac{3}{4}$ inch pebbles that are free from contaminants and fine dirt.

To further minimize effects of the demolition or other earthwork on the adjacent water, all construction activities prior to the creation of the new bulkhead wall, will be performed during low tide.

Utilization of silt curtains and best management practices to minimize potential turbidity caused from sediment disturbed by the proposed project.

8b. Will your project impact a waterbody or the area around a waterbody? [\[help\]](#)

☒ Yes ☐ No

8c. Have you prepared a mitigation plan to compensate for the project’s adverse impacts to non-wetland waterbodies? [\[help\]](#)

- If **Yes**, submit the plan with the JARPA package and answer 8d.
- If **No**, or **Not applicable**, explain below why a mitigation plan should not be required.

☒ Yes ☐ No ☐ Don’t know

Beach nourishment is proposed immediately after completing the project as required by the WDFW. Because this is a replacement in the same footprint as opposed to a new structure, the project will perpetuate effects associated with hard armoring on nearshore habitat but will not result in additional habitat or functional loss. Short-term impacts from construction will be minimized through avoidance and minimization measures. The applicant will await comments from agencies before a mitigation plan is finalized.

8d. Summarize what the mitigation plan is meant to accomplish. Describe how a watershed approach was used to design the plan.

- If you already completed 7g you do not need to restate your answer here. [\[help\]](#)

To be determined at a later date.

8e. Summarize impact(s) to each waterbody in the table below. [\[help\]](#)

Activity (clear, dredge, fill, pile drive, etc.)	Waterbody name ¹	Impact location ²	Duration of impact ³	Amount of material (cubic yards) to be placed in or removed from waterbody	Area (sq. ft. or linear ft.) of waterbody directly affected
Bulkhead construction and beach nourishment.	Burrows Bay	Bulkhead at and behind OHWM/HTL. Beach nourishment below.	6 weeks for construction impact	30 Cubic yards concrete to form new facing. Approximately 65 Cubic yards of gravel will be placed for beach nourishment.	118 linear feet

¹ If no official name for the waterbody exists, create a unique name (such as "Stream 1") The name should be consistent with other documents provided.

² Indicate whether the impact will occur in or adjacent to the waterbody. If adjacent, provide the distance between the impact and the waterbody and indicate whether the impact will occur within the 100-year flood plain.

³ Indicate the days, months or years the waterbody will be measurably impacted by the work. Enter "permanent" if applicable.

8f. For all activities identified in 8e, describe the source and nature of the fill material, amount (in cubic yards) you will use, and how and where it will be placed into the waterbody. [\[help\]](#)

A total of 30 cubic yards of concrete will be used to form the protective wall. A trench, 2-3 feet deep will be dug at the base of the existing wall to construct a footing with rebar 12 inches on center. The footing will be below beach grade. A wall will be built on top of the footing, above grade using a form with rebar at 12" on center. Sections will be added four feet at a time to reach the height of the existing wall (12 feet total, including below grade portion)

8g. For all excavating or dredging activities identified in 8e, describe the method for excavating or dredging, type and amount of material you will remove, and where the material will be disposed. [\[help\]](#)

The construction crew and a small excavator will access the project site using a neighbor's boat ramp 0.19 miles southeast of the project site. Equipment will be staged within the cul-de-sac at the end of Croatian Way, northeast of parcel P83311. Concrete debris will be removed from the beach using a boom truck, which will be parked in the cul-de-sac and hauled to an approved dump site.

Part 9—Additional Information

Any additional information you can provide helps the reviewer(s) understand your project. Complete as much of this section as you can. It is ok if you cannot answer a question.

9a. If you have already worked with any government agencies on this project, list them below. [\[help\]](#)

Agency Name	Contact Name	Phone	Most Recent Date of Contact
City of Anacortes	Tess Cooper	360.588.8234	
Corps of Engineers	Ron Wilcox	206.764.6602	

9b. Are any of the wetlands or waterbodies identified in Part 7 or Part 8 of this JARPA on the Washington Department of Ecology's 303(d) List? [\[help\]](#)

- If **Yes**, list the parameter(s) below.
- If you don't know, use Washington Department of Ecology's Water Quality Assessment tools at: <https://ecology.wa.gov/Water-Shorelines/Water-quality/Water-improvement/Assessment-of-state-waters-303d>.

☐ Yes ☒ No

9c. What U.S. Geological Survey Hydrological Unit Code (HUC) is the project in? [\[help\]](#)

- Go to <http://cfpub.epa.gov/surf/locate/index.cfm> to help identify the HUC.

171100092

9d. What Water Resource Inventory Area Number (WRIA #) is the project in? [\[help\]](#)

- Go to <https://ecology.wa.gov/Water-Shorelines/Water-supply/Water-availability/Watershed-look-up> to find the WRIA #.

WRIA #3

9e. Will the in-water construction work comply with the State of Washington water quality standards for turbidity? [\[help\]](#)

- Go to <https://ecology.wa.gov/Water-Shorelines/Water-quality/Freshwater/Surface-water-quality-standards/Criteria> for the

standards.

☐ Yes ☐ No ☒ Not applicable

9f. If the project is within the jurisdiction of the Shoreline Management Act, what is the local shoreline environment designation? [\[help\]](#)

- If you don't know, contact the local planning department.
- For more information, go to: <https://ecology.wa.gov/Water-Shorelines/Shoreline-coastal-management/Shoreline-coastal-planning/Shoreline-laws-rules-and-cases>.

☐ Urban ☐ Natural ☐ Aquatic ☐ Conservancy ☒ Other: Shoreline Residential

9g. What is the Washington Department of Natural Resources Water Type? [\[help\]](#)

- Go to <http://www.dnr.wa.gov/forest-practices-water-typing> for the Forest Practices Water Typing System.

☒ Shoreline ☐ Fish ☐ Non-Fish Perennial ☐ Non-Fish Seasonal

9h. Will this project be designed to meet the Washington Department of Ecology's most current stormwater manual? [\[help\]](#)

- **If No**, provide the name of the manual your project is designed to meet.

☒ Yes ☐ No

Name of manual: 2012 Stormwater Management Manual for Western Washington, as Amended in December 2014 (The 2014 SWMMWW).

9i. Does the project site have known contaminated sediment? [\[help\]](#)

- **If Yes**, please describe below.

☐ Yes ☒ No

9j. If you know what the property was used for in the past, describe below. [\[help\]](#)

Residential properties.

9k. Has a cultural resource (archaeological) survey been performed on the project area? [\[help\]](#)

- **If Yes**, attach it to your JARPA package.

☐ Yes ☒ No

9l. Name each species listed under the federal Endangered Species Act that occurs in the vicinity of the project area or might be affected by the proposed work. [\[help\]](#)

Bull Trout critical habitat, Chum Salmon, Final Deep-water Rockfish critical habitat, Green Sturgeon critical habitat, Leatherback Sea Turtle critical habitat, Marbled Murrelet, marine critical habitat for Puget Sound Chinook Salmon, marine critical habitat for Hood Canal summer-run Chum Salmon, Puget Sound Steelhead critical habitat, Sockeye Salmon critical habitat, Southern Eulachon and Southern Killer Whale critical habitat.

9m. Name each species or habitat on the Washington Department of Fish and Wildlife's Priority Habitats and Species List that might be affected by the proposed work. [\[help\]](#)

Bull Trout final critical habitat, Chum Salmon, final deep-water Rockfish critical habitat, final near shore Rockfish critical habitat, Green Sturgeon critical habitat, Leatherback Sea Turtle critical habitat, Marbled Murrelet and marine critical habitat for Puget Sound Chinook Salmon.

Part 10–SEPA Compliance and Permits

Use the resources and checklist below to identify the permits you are applying for.

- Online Project Questionnaire at <http://apps.oria.wa.gov/opas/>.
- Governor's Office for Regulatory Innovation and Assistance at (800) 917-0043 or help@oria.wa.gov.
- For a list of addresses to send your JARPA to, click on [agency addresses for completed JARPA](#).

10a. Compliance with the State Environmental Policy Act (SEPA). (Check all that apply.) [\[help\]](#)

- For more information about SEPA, go to [Document4https://ecology.wa.gov/regulations-permits/SEPA-environmental-review](https://ecology.wa.gov/regulations-permits/SEPA-environmental-review).

☐ A copy of the SEPA determination or letter of exemption is included with this application.

☒ A SEPA determination is pending with City of Anacortes (lead agency). The expected decision date is Spring 2021.

☐ I am applying for a Fish Habitat Enhancement Exemption. (Check the box below in 10b.) [\[help\]](#)

☐ This project is exempt (choose type of exemption below).

☐ Categorical Exemption. Under what section of the SEPA administrative code (WAC) is it exempt?

☐ Other: _____

☐ SEPA is pre-empted by federal law.

10b. Indicate the permits you are applying for. (Check all that apply.) [\[help\]](#)

LOCAL GOVERNMENT

Local Government Shoreline permits:

- ☒ Substantial Development ☒ Conditional Use ☐ Variance
☐ Shoreline Exemption Type (explain): _____

Other City/County permits:

- ☐ Floodplain Development Permit ☐ Critical Areas Ordinance

STATE GOVERNMENT

Washington Department of Fish and Wildlife:

- ☒ Hydraulic Project Approval (HPA) ☐ Fish Habitat Enhancement Exemption – [Attach Exemption Form](#)

Washington Department of Natural Resources:

- ☐ Aquatic Use Authorization
Complete [JARPA Attachment E](#) and submit a check for \$25 payable to the Washington Department of Natural Resources.
Do not send cash.

Washington Department of Ecology:

- ☒ Section 401 Water Quality Certification

FEDERAL AND TRIBAL GOVERNMENT

United States Department of the Army (U.S. Army Corps of Engineers):

- ☒ Section 404 (discharges into waters of the U.S.) ☒ Section 10 (work in navigable waters)

United States Coast Guard:

- ☐ General Bridge Act Permit ☐ Private Aids to Navigation (for non-bridge projects)

United States Environmental Protection Agency:

- ☐ Section 401 Water Quality Certification (discharges into waters of the U.S.) on tribal lands where tribes do not have treatment as a state (TAS)

Tribal Permits: (Check with the tribe to see if there are other tribal permits, e.g., Tribal Environmental Protection Act, Shoreline Permits, Hydraulic Project Permits, or other in addition to CWA Section 401 WQC)

- ☐ Section 401 Water Quality Certification (discharges into waters of the U.S.) where the tribe has treatment as a state (TAS).

Part 11—Authorizing Signatures

Signatures are required before submitting the JARPA package. The JARPA package includes the JARPA form, project plans, photos, etc. ()

11a. Applicant Signature (required) ()

I certify that to the best of my knowledge and belief, the information provided in this application is true, complete, and accurate. I also certify that I have the authority to carry out the proposed activities, and I agree to start work only after I have received all necessary permits.

I hereby authorize the agent named in Part 3 of this application to act on my behalf in matters related to this application. AH (initial)

By initialing here, I state that I have the authority to grant access to the property. I also give my consent to the permitting agencies entering the property where the project is located to inspect the project site or any work related to the project. AH (initial)

Applicant Printed Name Applicant Signature Date

Allen Horeh *Allen Horeh* 02/12/2021

11b. Authorized Agent Signature ()

I certify that to the best of my knowledge and belief, the information provided in this application is true, complete, and accurate. I also certify that I have the authority to carry out the proposed activities and I agree to start work only after all necessary permits have been issued.

Marine Surveys & Assessments - Meg
Amos
Authorized Agent Printed Name

Meg Amos 2/18/2021
Authorized Agent Signature Date

11c. Property Owner Signature (if not applicant) ()

Not required if project is on existing rights-of-way or easements (provide copy of easement with JARPA).

I consent to the permitting agencies entering the property where the project is located to inspect the project site or any work. These inspections shall occur at reasonable times and, if practical, with prior notice to the landowner.

Property Owner Printed Name Property Owner Signature Date

Allen Horeh *Allen Horeh* 02/16/2021

18 U.S.C §1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly falsifies, conceals, or covers up by any trick, scheme, or device a material fact or makes any false, fictitious, or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious, or fraudulent statement or entry, shall be fined not more than \$10,000 or imprisoned not more than 5 years or both.

If you require this document in another format, contact the Governor's Office for Regulatory Innovation and Assistance (ORIA) at (800) 917-0043. People with hearing loss can call 711 for Washington Relay Service. People with a speech disability can call (877) 833-6341.



McIntyre-Waring Habitat Report (to accompany map dated 6/29/2020)

An intertidal habitat survey was performed on June 8, 2020 from approximately 10 am to 11:30 am at the project site located 5003 & 5005 Croatian Way, Anacortes, WA. Kimberly McClurg and Meg Amos from Marine Surveys & Assessments surveyed 9 transects of a proposed bulkhead repair to identify flora, fauna, substrate types and other qualitative information.

The survey transect baseline was along the HTL (High Tide Line) at the bulkhead that runs the shoreline at the site. Nine transects were surveyed from the baseline and transects were oriented perpendicular to the bulkhead. Transects were each 100 ft long and arranged from northwest to southeast, or when looking at the water from shore, from right to left (T1 to T9). Transects were spaced 25 ft apart.

Substrate at the site is primarily sand, gravel, and small cobble from HTL to about 50 feet seaward, and then transitions to sand with boulders. Anemones were observed in this transition zone.

Areas of macroalgae included *Ulva* up to 75%, *Fucus* up to 65%, *Porphyra* up to 25%, *Mastocarpus* up to 30%, Foliose Reds up to 25%, *Neorhodomela* up to 90%, *Cryptosiphonia* up to 25%, and *Desmarestia* up to 1%.

Eelgrass was observed just beyond the survey area with a bed starting 80 to 150 feet from HTL.

The intertidal zone is relatively flat and elevations were only collected in 2 locations at the waters edge. On Transect 9, -1.7 ft MLLW was measured 200 feet seaward of the HTL line. On Transect 1, 0.4 ft MLLW was measured 124 feet seaward of the HTL line.

Transect 1

Distance (Ft) along transect from baseline	Substrate and Other Features Noted	Macroalgae % Cover
0	sand	Barren
18	sand, gravel	Barren
46	pea gravel, small cobble	Barren
78	sand, large boulders	<i>Ulva</i> 10%.
84	sand, large boulder	<i>Ulva</i> 50%; <i>Fucus</i> 20%; <i>Porphyra</i> 5%; <i>Mastocarpus</i> 5%; <i>Cryptosiphonia</i> 25%.
100	sand, large boulder	<i>Ulva</i> 50%; <i>Fucus</i> 20%; <i>Porphyra</i> 5%; <i>Mastocarpus</i> 5%; <i>Cryptosiphonia</i> 25%.

Transect 2

Distance (Ft) along transect from baseline	Substrate and Other Features Noted	Macroalgae % Cover
0	sand	Barren
16	sand, pea gravel	Barren
48	sand, small rock	Barren
65	sand, large rock	<i>Ulva</i> 5%; <i>Porphyra</i> 5%; <i>Cryptosiphonia</i> 5%.
85	sand, large rock	<i>Ulva</i> 50%; <i>Fucus</i> 5%; <i>Porphyra</i> 5%; <i>Cryptosiphonia</i> 5%.
98	sand, large rock/boulders	<i>Ulva</i> 75%; <i>Fucus</i> 25%; <i>Porphyra</i> 5%; <i>Mastocarpus</i> 5%; <i>Cryptosiphonia</i> 25%.
150	sand	Eelgrass bed starts

Transect 3

Distance (Ft) along transect from baseline	Substrate and Other Features Noted	Macroalgae % Cover
0	sand, gravel	Barren
43	pea gravel, small cobble	Barren
56	sand, cobble	<i>Ulva</i> 10%; <i>Fucus</i> 5%; <i>Porphyra</i> 15%.
74	sand, scattered large boulders	<i>Ulva</i> 10%; <i>Fucus</i> 5%; <i>Porphyra</i> 5%; <i>Mastocarpus</i> 5%; <i>Cryptosiphonia</i> 10%.
84	sand, cobble	<i>Ulva</i> 50%; <i>Fucus</i> 5%; <i>Porphyra</i> 5%; <i>Mastocarpus</i> 10%; <i>Cryptosiphonia</i> 25%.
100	sand, cobble	<i>Ulva</i> 75%; <i>Fucus</i> 10%; <i>Porphyra</i> 1%; <i>Mastocarpus</i> 5%; <i>Cryptosiphonia</i> 10%.
126	sand	Eelgrass bed starts

Transect 4

Distance (Ft) along transect from baseline	Substrate and Other Features Noted	Macroalgae % Cover
0	sand, gravel	Barren
32	small cobble	Barren
41	sand, small cobble	Barren
53	sand, cobble, large rock	Barren
59	sand, cobble, large rock	<i>Ulva</i> 25%; <i>Fucus</i> 10%; <i>Porphyra</i> 5%; <i>Neorhodomela</i> 10%; <i>Cryptosiphonia</i>

		10%.
92	sand, cobble, large rock	<i>Ulva</i> 75%; <i>Fucus</i> 10%; <i>Porphyra</i> 10%; Foliose Reds 5%; <i>Neorhodomela</i> 5%; <i>Cryptosiphonia</i> 5%.
92	sand, cobble, large rock	<i>Ulva</i> 75%; <i>Fucus</i> 10%; <i>Porphyra</i> 10%; Foliose Reds 5%; <i>Neorhodomela</i> 10%; <i>Cryptosiphonia</i> 5%.
131	sand	Eelgrass bed starts

Transect 5

Distance (Ft) along transect from baseline	Substrate and Other Features Noted	Macroalgae % Cover
0	sand, gravel	Barren
17	sand, pea gravel, cobble, large rock	Barren
38	sand, cobble, boulders	<i>Ulva</i> 75%; <i>Porphyra</i> 15%.
64	sand, cobble, boulders	<i>Ulva</i> 75%; <i>Fucus</i> 1%; <i>Porphyra</i> 5%; <i>Neorhodomela</i> 10%.
70	sand, cobble, boulders	<i>Ulva</i> 10%; <i>Fucus</i> 5%; <i>Mastocarpus</i> 5%; <i>Neorhodomela</i> 50%; <i>Desmarestia</i> 1%.
89	sand, cobble, boulders	<i>Ulva</i> 5%; <i>Fucus</i> 10%; Foliose Reds 1%; <i>Neorhodomela</i> 10%.
131	sand	Eelgrass bed starts

Transect 5

Distance (Ft) along transect from baseline	Substrate and Other Features Noted	Macroalgae % Cover
0	sand, large rock	Barren
12	sand, pea gravel	Barren
18	sand, cobble	Barren
38	sand, cobble	<i>Ulva</i> 25%; <i>Porphyra</i> 25%.
58	sand, cobble	<i>Ulva</i> 30%; <i>Porphyra</i> 25%; <i>Mastocarpus</i> 30%.
63	sand, cobble	<i>Ulva</i> 10%; <i>Fucus</i> 5%; <i>Mastocarpus</i> 10%; <i>Neorhodomela</i> 75%.
79	sand, cobble	<i>Ulva</i> 10%; <i>Fucus</i> 10%; <i>Mastocarpus</i> 10%; <i>Neorhodomela</i> 50%.
124	sand	Eelgrass bed starts

Transect 7

Distance (Ft) along transect from baseline	Substrate and Other Features Noted	Macroalgae % Cover
0	sand, cobble	Barren
38	sand, cobble	<i>Ulva</i> 40%; <i>Porphyra</i> 5%; <i>Neorhodomela</i> 5%.
55	sand, cobble	<i>Ulva</i> 5%; <i>Fucus</i> 65%; <i>Porphyra</i> 5%; Foliose Reds 1%; <i>Neorhodomela</i> 50%.
93	sand, cobble	<i>Ulva</i> 5%; <i>Fucus</i> 65%; <i>Porphyra</i> 5%; Foliose Reds 1%; <i>Neorhodomela</i> 75%.
103	sand	Eelgrass bed starts

Transect 8

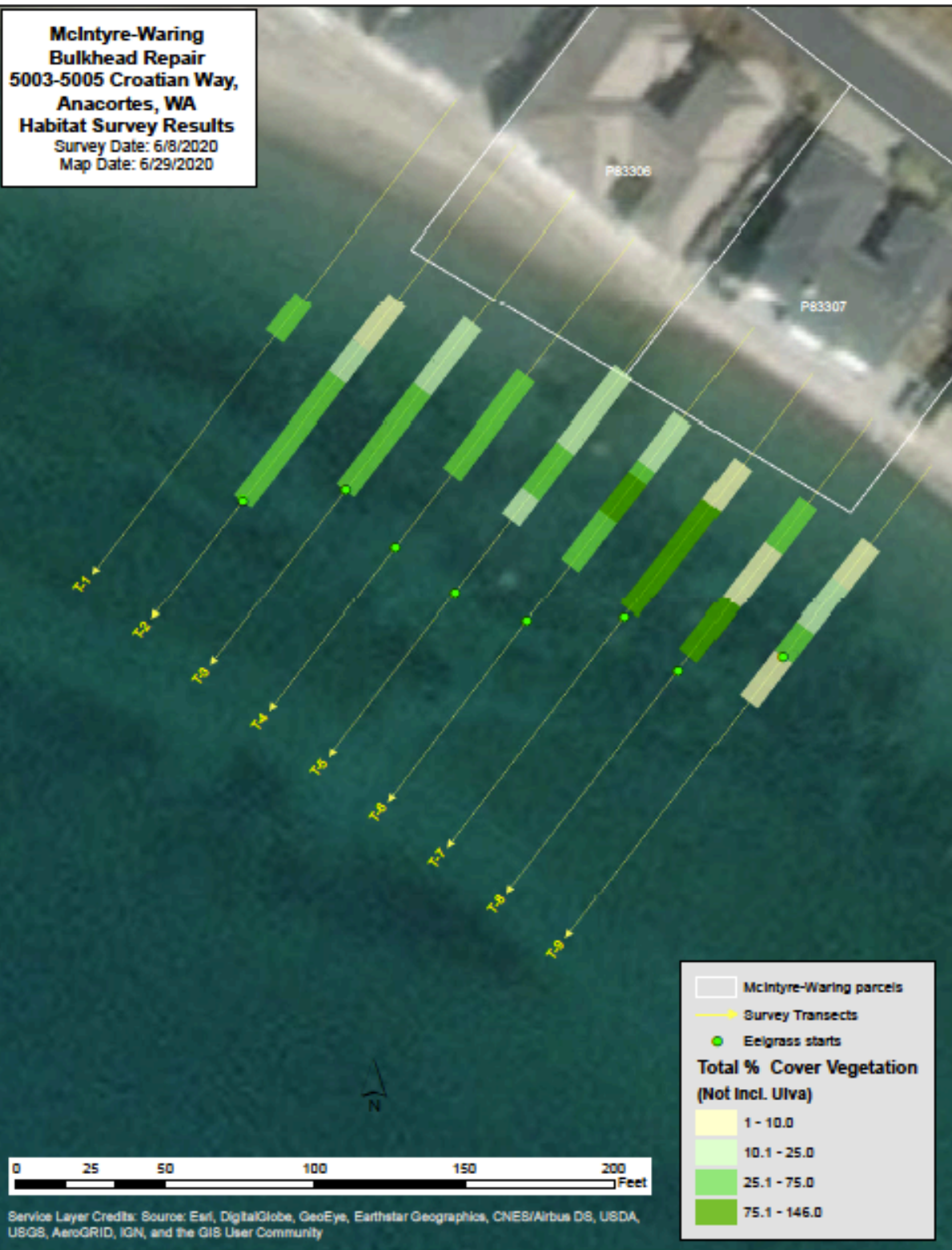
Distance (Ft) along transect from baseline	Substrate and Other Features Noted	Macroalgae % Cover
0	pea gravel, large rock, boulder	Barren
16	sand, large rock, boulder	Barren
35	sand, large rock, boulder	<i>Ulva</i> 20%; <i>Fucus</i> 5%; <i>Porphyra</i> 10%; <i>Neorhodomela</i> 20%; <i>Cryptosiphonia</i> 5%.
50	sand, large rock, boulder	<i>Ulva</i> 10%; <i>Fucus</i> 5%; <i>Porphyra</i> 10%; <i>Neorhodomela</i> 10%; <i>Cryptosiphonia</i> 5%.
54	sandy patch w/ scattered large rock	<i>Porphyra</i> 5%; <i>Mastocarpus</i> 5%.
77	sand, large rock boulder	<i>Ulva</i> 5%; <i>Fucus</i> 5%; <i>Porphyra</i> 5%; Foliose Reds 25%; <i>Neorhodomela</i> 90%; <i>Cryptosiphonia</i> 15%.
106		Eelgrass bed starts

Transect 9

Distance (Ft) along transect from baseline	Substrate and Other Features Noted	Macroalgae % Cover
0	sand, pea gravel, cobble, large rock	Barren
17	sand, cobble	Barren
33	gravel, cobble	<i>Ulva</i> 10%; <i>Porphyra</i> 5%.
50	gravel, cobble	<i>Ulva</i> 10%; <i>Fucus</i> 10%; <i>Porphyra</i> 5%; <i>Mastocarpus</i> 5%.
60	gravel, cobble	<i>Ulva</i> 20%; <i>Fucus</i> 10%; <i>Porphyra</i> 5%; <i>Mastocarpus</i> 5%.
69	sand, rock	<i>Ulva</i> 20%; <i>Fucus</i> 10%; <i>Porphyra</i> 5%;

		<i>Mastocarpus</i> 5%; <i>Neorhodomela</i> 10%.
77	sand, rock	<i>Ulva</i> 20%; <i>Fucus</i> 10%; <i>Porphyra</i> 5%; <i>Mastocarpus</i> 5%; <i>Neorhodomela</i> 10%.
81	sand	Foliose Reds 5%. Eelgrass bed starts
100	sand	Foliose Reds 5%. Eelgrass bed.

**McIntyre-Waring
Bulkhead Repair
5003-5005 Croatian Way,
Anacortes, WA
Habitat Survey Results**
Survey Date: 6/8/2020
Map Date: 6/29/2020



Horesh Bulkhead Replacement

Biological Evaluation for the City of Anacortes

February 16, 2021

**For: Allen Horesh
4909 Croatian Way
Anacortes, WA 98221**



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1 Project Overview

1.1 Purpose

The proposed project described herein is a replacement of a failing bulkhead at 4909 Croatian Way in Anacortes, Washington. The existing bulkhead is actively being eroded, exposing the single-family residence to potential damage from wave action. The proposed project aims to fully repair the existing bulkhead and replace failed areas closest to the marine shoreline with new hard armoring. New fill may be added to the existing bulkhead. Beach nourishment is also being proposed to reduce further erosion to the beach and minimize impacts to forage fish.

The purpose of this biological evaluation (BE) is to evaluate the potential effects of the proposed project on ESA-listed and priority wildlife, fish, and plant species and designated or proposed critical habitats that are likely to occur in the vicinity of the project.

1.2 Applicant Information

Name: Allen Horesh

Mailing Address: 4909 Croatian Way, Anacortes, WA

1.3 Project Location

Section 27, Township 35N, Range 01E

Site Address: 4909 Croatian Way, Anacortes, WA

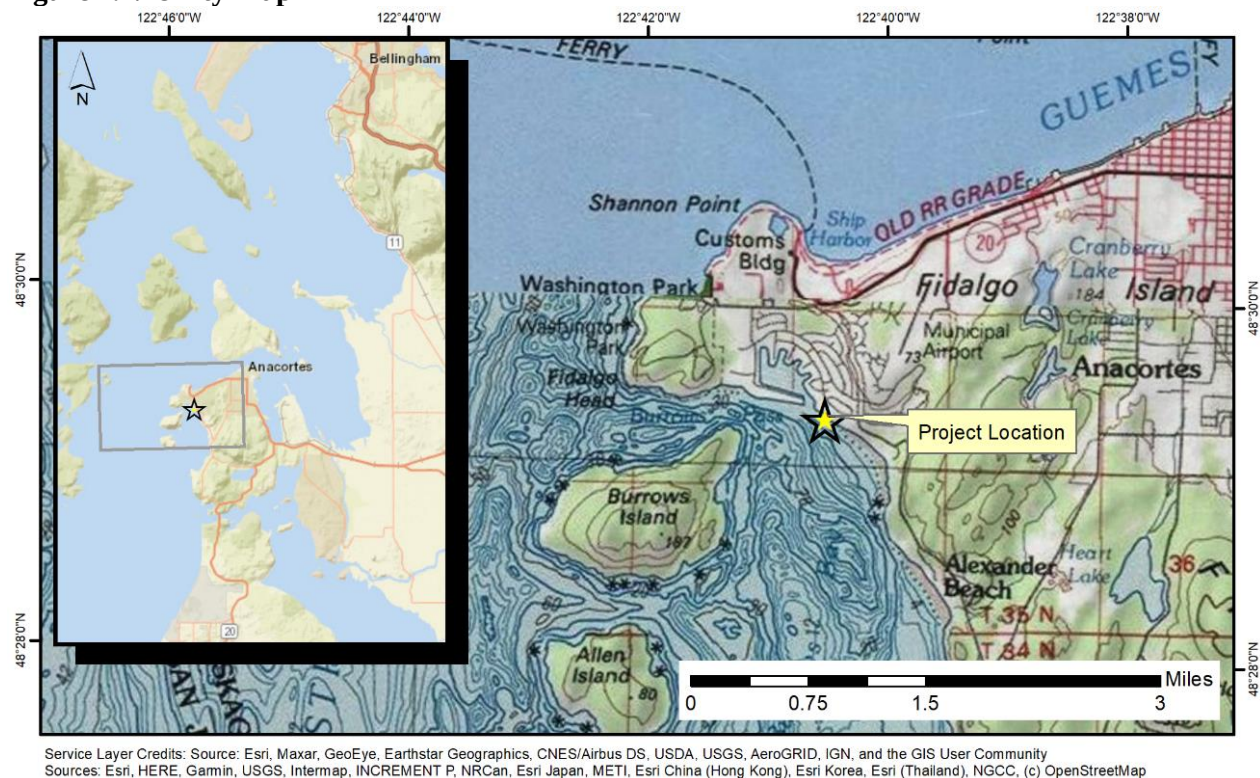
Parcel: P83309 in Skagit County

Latitude: 48.48858, **Longitude:** -122.67252

Waterbody: Burrows Bay, Puget Sound

The project location is seen in Figure 1.

Figure 1. Vicinity Map



1.4 Project Description

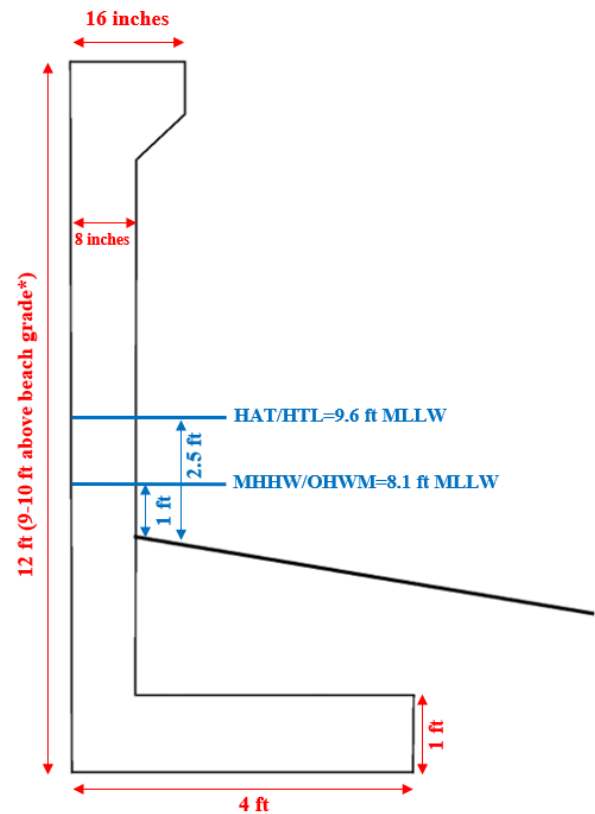
The existing bulkhead is 118 ft long (Figure 8) with a toe that is 18 inches tall by 18 inches deep and does not contain any steel rebar (Figure 6). The existing bulkhead is currently being undermined because it does not extend deep enough to be protected from erosion (Figure 2).

The proposed bulkhead will stay 118 ft long and be 9-10 ft tall above beach grade and 2-3 ft below (12 ft tall in total); the elevation of the beach can vary +/- 1 ft depending on the season. The height of the proposed bulkhead will stay in line with the height of the bulkheads of the adjacent properties that were recently permitted and completed (Figure 5). The toe will be 12 inches tall by 48 inches deep (Figure 3).

The proposed bulkhead replacement will stabilize the toe of the slope and extend the bulkhead deep enough that there will be no undermining to protect uplands from further erosion, as the Ordinary High Water Mark (OHWM) line is at the face of the bulkhead. The proposed project will be located landward of the outer (seaward) edge of the existing toe to comply with WAC 220-660-370 which allows no waterward expansion from the concrete toe of the existing structure.



Figure 2. Photo of existing bulkhead and exposed toe



**Figure 3. Proposed Bulkhead Profile
(not drawn to scale)**

*beach elevation can change +/- 1 ft depending on the [season](#)

1.5 Construction Details

The current proposed project will include:

1. Remove the existing concrete toe.
2. Form a stable concrete bulkhead adjoining to the seaward face of the existing bulkhead
3. Backfill all spaces between the face and interior of the existing bulkhead with $\frac{3}{4}$ inch river pebble.
4. Stabilize any areas under the concrete deck with reinforced concrete and fill, as necessary.

The construction crew and a small excavator will access the project site using a neighbor's boat ramp 0.19 miles southeast of the project site. Equipment will be staged within the cul-de-sac at the end of Croatian Way, northeast of parcel P83311. The existing 18-inch concrete toe will be removed with an excavator at low tide and disposed of at an upland site.

At low tide, an excavator will be used to install steel sheets that will be put up on sections of the bulkhead walls that are being worked on to avoid collapse and run off. The steel sheets are 20 ft long by 8 ft tall and weigh approximately 3,000 lbs apiece. The existing concrete toe will be removed at low tide by jack- hammering the toe into approximately 3 ft sections. Debris will be lifted and placed into a small dump truck by an excavator operating on the shoreline in the dry. All debris from the toe will be removed during a single tide cycle with no debris exposed to the water. Equipment used for dismantling and removing the debris will be brought to the site and removed from the area during a single low tide cycle. An air compressor required for the jack hammer will be located shore side.

Construction will include digging three feet into beach substrate, seaward of the existing bulkhead, and creating a footer with 12-inch rebar centers to support a 4-foot high concrete wall section. Additional 4 feet high wall sections, with 12-inch rebar centers, will be poured with concrete until the wall is approximately 12 feet in height (3 feet below grade and 9 feet above). The vertical wall, above grade, will be 8 inches thick and 9 feet tall with a 16-inch-thick lip at the top, protruding seaward. The concrete has 2% calcium in it, so it will harden in 20 minutes. Drainage holes will be drilled to allow stormwater to drain seaward. Excavation of the existing base, forming of the bulkhead, and pouring concrete will be done in 40-foot sections, in the dry. Construction is anticipated to take 6-8 weeks. The Horesh bulkhead will be in line with the adjacent bulkheads when finished.

In order to take advantage of as many low tides as necessary, an in-water work window is not being proposed for this project since all construction will be completed in the dry. Due to the restrictions of in-water work windows, the bulkhead work for the adjacent properties permitted under NWS-2019-664 was not fully completed in 2020 since there were not enough low tides available during the work window.

2 Action Area

The “project area” is the area within the bulkhead replacement footprint. The project area also includes areas used for staging materials and equipment and accessing the site. The “action area” includes any areas with potential ecological effects from short-term construction activities or long-term habitat modifications and will cover approximately ½ mile to account for noise during the bulkhead replacement and includes a portion of Burrows Bay (Rosario Strait) (Figure 6).

Existing Bulkhead Profile (not drawn to scale)
Figure 7).

3 Species and Habitat Information

3.1 On Site Habitat Information

A habitat survey has not yet been performed at the site; however, data exists from the adjacent parcels that were permitted for bulkhead replacement under NWS-2019-664 (Appendix A and B).

For the habitat surveys that were completed for the adjacent parcels, the survey transect baseline was along the bulkhead that runs along the shoreline at the site. 100-foot transects spaced 25 ft apart were surveyed from the baseline and were oriented perpendicular to the bulkhead.

Substrate at the sites is mostly sand and cobble or large rock with some pea gravel in the upper intertidal zone along the base of the bulkheads. Areas of macroalgae cover included *Ulva* 2-90%, *Fucus* 2-40%, *Mastocarpus* 2-10%, and foliose reds 2-50/60%. At the Foster site, an eelgrass bed (*Zostera marina*) was observed along three of the transects at the site approximately 50-80 feet offshore, with a few small patches elsewhere (Appendix A). At the Dowell and Schutzler sites, an eelgrass bed (*Zostera marina*) was observed approximately 50-100 ft offshore in the northwest portion of the surveyed area (Appendix B).

The project footprint, particularly the existing bulkhead and the proposed bulkhead replacement work, is at the extreme upslope end of a beach which reveals itself at low tide as a very wide, very low-sloped beach. The base of the bulkhead is approximately 1 ft below the MHHW/OHWM line.

3.2 State Priority Habitat & Species

The Washington Department of Fish & Wildlife (WDFW) Priority Habitat and Species (PHS) data indicates estuarine and marine wetland and estuarine zone at the project site. In the 0.5 mile action area, surf smelt and sand lance spawning habitat, pandalid shrimp, pinto abalone, red sea urchin, and Yuma myotis (*Myotis yumanensis*; a species of bat) are mapped.

According to queries of the Salmonid Stock Inventory (SaSI) data (WDFW), the following salmonid species have been documented inside the action area in an unnamed stream approximately 2,000 ft southeast of the project site:

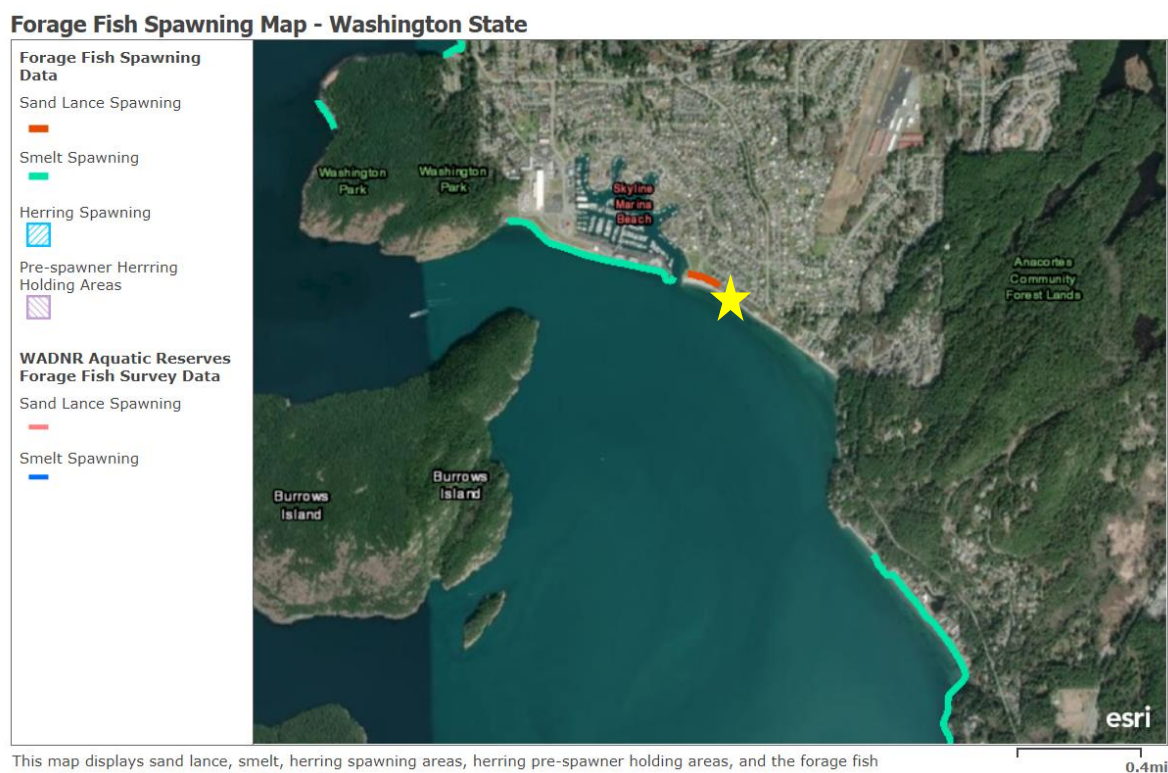
- Coho: presence
- Fall Chinook: presence
- Winter Steelhead: presence
- Pink salmon (odd year): presence

3.2.1 Forage Fish

Migrating salmon utilize baitfish such as Pacific herring (*Clupea harengus pallasii*), sand lance (*Ammodytes hexapterus*) and surf smelt (*Hypomesus pretiosus*) as prey resources. These forage fish form a very important trophic link between plankton resources and a wide variety of predatory marine organisms as well as providing food for marbled murrelets and bald eagles.

According to WDFW, there is documented spawning activity in the action area for surf smelt and sand lance (Figure 4). Beach nourishment suitable for surf smelt is being proposed to minimize impacts to forage fish at this site.

Figure 4. WDFW Forage Fish Spawning Map



USDA FSA, GeoEye, Maxar | Washington Department of Natural Resources Aquatics Division | These data were collected by WDFW staff with contributions from the North Olympic Salmon Coalition and the Friends of the San Juans. | Washington Department of Fish and Wildlife | County of Skagit, Esri, HERE, Garmin, NRCAN

3.3 Federal ESA Species & Critical Habitat

For each listed species with the *potential to be in the project action area*, the listing status, distribution of species, and relevant life history traits are presented in the sections below. Salmon species that utilize streams and have designated critical habitat located in Burrows Bay will also be included as they may migrate past the project site. For species with critical habitat within the action area, a detailed Assessment of Impacts to Critical Habitat is included with this report as an attachment (see Attachments 2-5).

Table 1. National Marine Fisheries Service & U.S. Fish & Wildlife Service Designated Critical Habitat

NMFS/USFWS Critical Habitat	Project Footprint	Action Area	Burrows Bay
Final Nearshore Rockfish Critical Habitat (NMFS, 2014)	Y	Y	Y
Final Deepwater Rockfish Critical Habitat (NMFS, 2014)	N	N	Y
Chum Salmon Critical Habitat (NMFS, 2005)	N	N	N
Marine Critical Habitat for Puget Sound Chinook Salmon (NMFS, 2005)	Y	Y	Y
Freshwater Puget Sound Chinook Salmon Critical Habitat (NMFS, 2005)	N	N	N
Critical Habitat for Puget Sound Steelhead (NOAA, 2016)	N	N	N
Marine Critical Habitat Hood Canal Summer-run Chum Salmon (NMFS, 2005)	N	N	N
Southern Resident Killer Whale Critical Habitat (NMFS, 2006)	N	Y	Y
Steelhead Trout Critical Habitat (NMFS, 2005)	N	N	N
Bull Trout Final Critical Habitat (USFWS, 2010)	N	N	N
Marbled Murrelet (USFWS, 2016)	N	N	N
Leatherback Sea Turtle Critical Habitat (NMFS, 2012)	N	N	N
Green Sturgeon Critical Habitat (NMFS, 2009)	Y	Y	Y
Southern Eulachon (NMFS, 2011)	N	N	N
Proposed Humpback Whale Critical Habitat (NMFS, 2019)	N	N	N

3.3.1 Puget Sound Chinook

Puget Sound Chinook (*Oncorhynchus tshawytscha*), also called the king salmon, are distinguished from all other Pacific salmon by their large size. Most Chinook in the Puget Sound are “ocean-type” and migrate to the marine environment during their first year (Myers et al. 1998). They may enter estuaries immediately after emergence as fry from March to May at a length of 40 mm or they may enter the estuaries as fingerling smolts during May and June of their first year at a length of 60-80 mm (Healey 1982). Chinook fry in Washington estuaries feed on emergent insects and epibenthic crustaceans (gammarid amphipods, mysids, and cumaceans). As they grow and move into neritic habitats, they feed on decapod larvae, larval and juvenile fish, drift insects, and euphausiids (Simenstad et al. 1982). These ocean-type Chinook use estuaries as rearing areas and are the most dependent of all salmon species on estuaries for survival.

The Puget Sound Chinook is listed under the Endangered Species Act (ESA) as threatened according to the National Marine Fisheries Service (NMFS) (70 FR 37160; June 28, 2005). In addition, NMFS has designated critical habitat for 12 Evolutionarily Significant Units (ESUs) of West Coast salmon, including the Puget Sound Chinook Salmon ESU. The portion of the project footprint and action area below the line of extreme high water is in an area designated as critical habitat for the Puget Sound Chinook ESU (70 FR 52685; September 2, 2005).

The project site and action area are within marine Puget Sound Chinook critical habitat. According to Salmonid Stock Inventory (SaSI) data (WDFW), Fall Chinook presence is documented in an unnamed stream within the action area of the project, approximately 2000 ft southeast of the project site. Chinook may migrate past the project site or forage along the shoreline as submerged aquatic vegetation and forage fish spawning habitat is also present.

An “Assessment of Impacts to Critical Habitat for Puget Sound Chinook” is provided in Attachment 2.

3.3.2 Hood Canal Summer-run Chum

In Puget Sound, chum spawning grounds are situated near coastal rivers and lowland streams. Puget Sound chum typically spawn from September to March (WSCC 2003). Chum (along with ocean-type Chinook) spend more time in the estuarine environment than other species of salmon (Healey 1982). Residence time in the Hood Canal ranges from 4 to 32 days with an average residence of 24 days (Simenstad et al. 1982). Juvenile chum consume benthic organisms found in and around eelgrass beds (harpacticoid copepods, gammarid amphipods and isopods), but change their diet to drift insects and plankton such as calanoid copepods, larvaceans, and hyperiid amphipods as their size increases to 50 - 60 mm (Simenstad, Fresh, & Salo 1982). Chum move offshore and switch diets when presented with a lack of food supply (Simenstad et al. 1982).

NMFS has listed the Hood Canal summer-run chum ESU (*Oncorhynchus keta*) as threatened under the ESA (70 FR 37160; June 28, 2005). NMFS designated critical habitat for the Hood Canal summer-run chum ESU shortly after (70 FR 52739; September 2, 2005) and it includes the entire Hood Canal and contiguous shoreline north/northwest, ending past Dungeness Bay near Sequim.

The project site and action area do not contain critical habitat for Hood Canal summer-run chum. No streams near the project site or in Burrows Bay have documented summer chum presence (SaSI, WDFW). It is unlikely this species or critical habitat would be affected by this project.

3.3.3 Bull Trout

Coastal-Puget Sound bull trout (*Salvelinus confluentus*) have ranged geographically from northern California (at present they are extinct in California) to the Bering Sea coast of Alaska, and northwest along the Pacific Rim to northern Japan and Korea. Bull trout are members of the char subgroup of the salmon family. Spawning occurs typically from August to November in streams and migration to the open sea (for anadromous populations) takes place in the spring. Eggs and juveniles require extremely cold water for survival. Temperatures in excess of about 15 degrees C are thought to limit bull trout distribution (Rieman & McIntyre, 1993). They live both in fresh and marine waters. Some migrate to larger rivers (fluvial), lakes (adfluvial), or saltwater (anadromous) before returning to smaller streams to spawn. Others (resident bull trout) complete all of their life in the streams where they were reared. Habitat degradation, dams and diversions, and predation by non-native fish threaten the Coastal Puget Sound population (64 FR 58910; November 1, 1999).

All populations of bull trout including the Coastal-Puget Sound populations, were listed as threatened by the United States Fish and Wildlife Service (USFWS) in 1999 (64 FR 58910; November 1, 1999). USFWS designated critical habitat for bull trout in 2010 (75 FR 63898; October 18, 2010).

Critical habitat is found on the eastern side of Anacortes and northern Rosario Strait; however, no critical habitat is present in the action or project area and bull trout presence has not been documented in the action area (SaSI WDFW). It is unlikely this species or critical habitat will be affected by this project.

3.3.4 Puget Sound Steelhead

Steelhead is the name given to the anadromous form of the species *Oncorhynchus mykiss*. The freshwater residents are called rainbow trout. Steelhead can return to the ocean after spawning and migrate to freshwater to spawn again, unlike Pacific salmon. Steelhead fry can spend one to

two years in freshwater before heading to the open ocean, where they may stay for two to four years before returning to Washington streams. Steelhead migrate quickly through Puget Sound and into the open sea as individuals or in small groups (PSEMP 2012). Unlike Chinook, steelhead do not have a long term feeding and growth period in Puget Sound nearshore areas (PSEMP 2012).

NMFS has listed the Puget Sound steelhead (*O. mykiss*) as a threatened species under the ESA (72 FR 26722; May 11, 2007). Critical habitat has been finalized for the Puget Sound steelhead distinct population segment (81 FR 9252; February 24, 2016).

There is no designated critical habitat for steelhead in the action area or in Burrows Bay. According to Salmonid Stock Inventory (SaSI) data (WDFW), winter steelhead presence is documented in an unnamed stream within the action area of the project, approximately 2000 ft southeast of the project site. Steelhead may migrate past the project site or forage along the shoreline as submerged aquatic vegetation and forage fish spawning habitat is also present.

3.3.5 Rockfish

Bocaccio (*Sebastes paucispinis*) and yelloweye (*Sebastes ruberrimus*) rockfish remain in the upper part of the water column as larvae and pelagic juveniles. Around 3 to 6 months old, bocaccio rockfish settle into intertidal, nearshore habitat; they prefer to settle in rocky reefs, kelp beds, low rock, and cobble areas (Love et al. 2002). Juvenile yelloweye rockfish are usually found in the upper extent of the adult depth range instead of in intertidal habitat (Studebaker et al. 2009). As both species grow larger, they move into deeper waters. Adults are found around rocky reefs and coarse habitats. Marine habitats high in complexity are associated with higher numbers of rockfish species (Young et al. 2010). Adult yelloweye and bocaccio rockfish generally inhabit depths from approximately 90 ft to 1,400 ft (Love et al. 2002). Both species are opportunistic feeders, with their prey dependent on their life stage. Predators of adult rockfish include marine mammals, salmon, other rockfish, lingcod, and sharks.

NOAA has listed the distinct population segments (DPSs) of yelloweye (*Sebastes ruberrimus*) as threatened species under the ESA and listed the Georgia Basin DPS of bocaccio rockfish (*Sebastes paucispinis*) as endangered (75 FR 22276 April 28, 2010). The Georgia Basin refers to all of Puget Sound, including the area around the San Juan Islands, and the Strait of Georgia, north to the mouth of the Campbell River in British Columbia. The western boundary of the Georgia Basin runs from east of Port Angeles to Victoria in the Strait of Juan de Fuca. Critical habitat for both species was designated in 2014 (79 FR 68042; November 13, 2014).

The proposed project is in the designated nearshore rockfish critical habitat. Although these species have the potential to be present within the action area, the effects of this project are expected to be minimal. Adult rockfish and juvenile yelloweye rockfish are commonly found in

deeper water than exists at the project site. Shallow, intertidal, nearshore waters in rocky, cobble, and sand substrates (with or without kelp) can provide suitable substrate for juvenile (3-6 month old) bocaccio rockfish. However, the highest densities of juvenile rockfish are found in areas with floating or submerged kelp species, which was not observed at this site.

An “Assessment of Impacts to Critical Habitat for Rockfish” can be found in Attachment 3.

3.3.6 Marbled Murrelets

Marbled murrelets (*Brachyramphus marmoratus*) are small marine birds in the Alcidae family. They spend most of their time at sea and only use old growth areas for nesting. In the critical nesting areas, fragmentation and loss of old growth forest has a significant impact on the survival and conservation of the species (WDW 1993). Adult birds are found within or adjacent to the marine environment where they dive for sand lance, sea perch, Pacific herring, surf smelt, other small schooling fish and invertebrates.

Marbled murrelets have been listed as threatened by the USFWS since 1992 (57 FR 45328; October 1, 1992). Critical habitat was designated by USFWS in 1996, revised in 2011, and reviewed again in 2016 to determine if the ESA definition of critical habitat was being met (81 FR 51348, August 4, 2016).

There is no critical habitat within close range of the project and there are no nests close to the project site (WDFW, USFWS); however, with forage fish spawning habitat nearby, they could potentially forage in the area. Results from the Puget Sound Seabird Survey (PSSS, managed by Seattle Audubon) group that monitors sites at Green Point in Anacortes (the closest sites to the project site) have shown marbled murrelet sightings with a frequency of 77.78%, high count of 3, and average count of 1; with the last sighting being 12/07/2019 (PSSS 2019).

3.3.7 Humpback Whales

NMFS has listed the humpback whale (*Megaptera novaeangliae*) as an endangered species that may occur in Puget Sound (81 FR 62260; September 8, 2016). Critical habitat was proposed by NMFS in 2019, but does not include Burrows Bay (84 FR 54354; October 9, 2019).

In at least the last three years, no more than four humpback whale sightings have been documented in Burrows Bay (Orca Network). Due to low sightings of humpback whales near the site, coupled with work being done in the dry and without substantial in-water noise (i.e. pile driving) being present, it is unlikely that the species would be impacted by this project.

3.3.8 Leatherback Sea Turtle

NMFS has listed the Pacific leatherback turtle (*Dermochelys coriacea*) as an endangered species that may occur in Puget Sound (35 FR 8491; June 2, 1970). There is no designated critical

habitat for Pacific leatherback turtles in Puget Sound at this time; it is designated along the outer coast of Washington state (77 FR 4170; January 26, 2012).

It is highly unlikely leatherback turtles would be found near the project site as they are usually documented along the coast.

3.3.9 Southern Resident Killer Whales

The Southern Resident population consists of three pods: J, K and L. According to Wiles (2004), “While in inland waters during warmer months, all of the pods concentrate their activity in Haro Strait, Boundary Passage, the Southern Gulf Islands, the eastern end of the Strait of Juan de Fuca and several localities in the southern Georgia Strait.” During early autumn, these pods, especially J pod, extend their movements into Puget Sound to take advantage of the chum and Chinook salmon runs. Resident killer whales spend more time in deeper water and only occasionally enter water less than 5 meters deep (Baird 2001).

On November 15, 2005 NMFS listed the Southern Resident killer whale (*Orcinus orca*) as endangered under the ESA (70 FR 69903; November 18, 2005). NOAA Fisheries has designated critical habitat for killer whales: “Critical habitat includes waters deeper than 20 ft relative to a contiguous shoreline delimited by the line of extreme high water.” (71 FR 69054; November 29, 2006).

According to the Southern Resident Killer Whale Sighting 1990-2013 map (Olson 2014), in quad #219, only the summer months had more than four sightings. Sightings recorded by the Orca Network show that most sightings within the last few years have been outside of Burrows Bay, on the west side of Burrows Island and Allen Island.

The waterward portion of the action area is within Southern Resident killer whale critical habitat. The project footprint would not be within critical habitat even at the highest tide since work for the proposed bulkhead repair and replacement will be performed at low tide on dry land.

An “Assessment of Impacts to Critical Habitat for Southern Resident Killer Whales” is provided in Attachment 4.

3.3.10 Green Sturgeon

On April 7, 2006, NMFS determined that the Southern Distinct Population Segment of North American green sturgeon (*Acipenser medirostris*; hereafter, “Southern DPS”) is at risk of extinction in the foreseeable future throughout all or a significant portion of its range and listed the species as threatened under the Endangered Species Act (71 FR 17757; April 7, 2006). Critical habitat for the threatened Southern DPS green sturgeon was subsequently designated by NMFS in 2009 (74 FR 52300; October 9, 2009).

Southern DPS green sturgeon occupy coastal bays and estuaries from Monterey Bay, CA to Puget Sound, WA. Observations of green sturgeon in Puget Sound are much less common compared to the other estuaries in Washington State. Green sturgeon have a complex anadromous reproductive cycle and do not reach reproductive age until 15 years old for males and 17 years old for females; female green sturgeon are thought to spawn every 5 years (Adams et al. 2002). Activities of concern in Puget Sound include dredging and capping, which could affect benthic habitats, alter water flow, and water quality (NMFS 2009).

There is designated critical habitat for green sturgeon in the action area. However, green sturgeon typically keep to deeper benthic areas for feeding and rearing so it is unlikely they would be affected by this project.

An “Assessment of Impacts to Critical Habitat for Southern DPS Green Sturgeon” is provided in Attachment 5.

4 Effects of the Action

The status of each of the listed species in the action area has been provided. The project has been described and the action area defined. When reviewing all the data, the direct and indirect effects of the project on the listed species and their critical habitat should be considered. Impacts to ESA-listed species and critical habitats are based on current baseline conditions versus historic pre-development conditions, where existing structures are considered an element of the environmental baseline at the time of a proposed action.

4.1 Direct Effects

When considering the direct effects of the proposed project, one must determine if the proposed project will immediately reduce or destroy the listed species and/or their habitat. The potential, direct impacts caused by the construction process include increased noise and turbidity.

4.1.1 Water quality

The removal of structures could cause temporary and localized increases in turbidity and total suspended solids (TSS). This could impact migrating salmonids and forage fish by reducing feeding rates and causing physiological stress. The impact level depends on duration of exposure, concentration of turbidity, the life stage during the increased exposure, and the options available for the fish to avoid the plumes (Newcombe and MacDonald 1991). The effects can be discussed in terms of lethal, sublethal or behavioral (Nightingale and Simenstad 2001). For this project, turbidity effects are expected to be localized and brief.

Variations in suspended sediment concentration can negatively impact species composition, biomass, algal growth and can affect secondary production as well (Newcombe and MacDonald

1991). Filter feeders can have blockages in feeding structures and effect their feeding efficiency, in turn reducing growth rates, increasing stress or in some cases can result in death (Newcombe and MacDonald 1991). Suspended sediments can also impact salmonid fishes by increasing mortality rate, reducing growth rate and/or reducing resistance to disease, modifying natural movements, interfering with development, reducing prey abundance and fish catch methods (Newcombe and MacDonald 1991).

According to the Department of Ecology's Water Quality Atlas, the northwest portion of the action area (near Skyline Marina) includes a Category 2 water for temperature and a Category 5 – 303d water for copper. The Category 2 (Listing ID: 65616) exceeded normal water temperature levels, however, Washington Department of Ecology (WECY) staff concluded that additional study was needed for this waterbody. The Category 5 – 303d (Listing ID: 64707) exceeded levels of copper within the water basin.

The replacement would include the removal of bulkhead and the addition of concrete to the front of the bulkhead to stabilize the area where a toe existed. All work will be done in the dry at low tide, therefore, any disturbed sediment that may become suspended on an incoming tide is not anticipated to stay suspended for more than one tidal cycle.

4.1.2 Noise

In-water noise levels will be minimized due to work occurring “in the dry” i.e., when tidal waters are not inundating the direct work area. Some in-air noise levels may be elevated above background levels due to demolition and construction. Therefore, it is still possible that noise could cause in-water species to avoid the area for the duration of the work, even though the probability is minimal since construction does not include pile driving.

4.2 Indirect Effects

When considering the indirect effects of the proposed project on the listed species and their habitat, one must determine the effects that might occur later in time, after completion of the project compared to the environmental baseline at the time of a proposed action.

4.2.1 Salmonid migratory pathway alteration

All salmonid species are known to use estuarine and nearshore environments at some time during their life cycle. In addition, critical food fish for salmonids, such as surf smelt (*Hypomesus pretiosus*), sand lance (*Ammodytes hexapterus*) and herring (*Clupea harengus*) depend on quiet embayments, sandy, undisturbed, shaded beaches, and eelgrass beds for spawning (Shaffer 2001). Ecosystem links between upland and nearshore habitats are extremely important. Even in rural and remote areas, habitat loss has been identified as the most serious threat to marine ecosystems of Puget Sound and the Salish Sea. Shoreline armoring has been shown to alter movement patterns and rates of out-migrating juvenile salmon (Toft et al. 2010). For

example, juvenile fish such as salmon, prefer to swim alongshore in shallow water (possibly predation avoidance); which is limited at high tide by revetments (Dethier et al. 2017). The replacement revetment will further perpetuate habitat loss by extending the lifetime of the hard armoring.

4.2.2 Wave energy impacts

Wave regime and local geology are the primary drivers of modern beach geomorphology. In addition, structures lower on the beach result in more frequent interaction with more energetic waves, increasing scour and even alongshore transport (Ruggiero 2010). Hydrodynamic effects such as active erosion caused by wave reflection from seawalls also impacts the amount and stability of appropriately sized spawning substrate for forage fish (Ruggiero 2010).

Within the Puget Sound watershed, bluff erosion is a significant source of beach sediment and armoring prevents the replacement of fine sediment that is naturally winnowed from beaches by waves over time (Shipman 2010). Many ecological functions, as well as recreational uses, decline as beaches get coarser (Dethier et al. 2016). For example, forage fish, which are a key link in food webs up to the iconic orca whales, require a mix of sand and gravel to spawn on the upper beach (Pentilla 2007). A bulkhead replacement would occur, with the same footprint as the existing bulkhead; therefore, no new impacts are expected to occur.

The bulkhead to be replaced is below the OHWM which can exacerbate beach erosion through wave action during storms. When waves reflect off the bulkhead, wave scour can accelerate the loss of sand and small sediments (Kraus and McDougal 1996). A study in Thurston County demonstrates the end effect of these physical processes: it compared beach structure between armored and unarmored shorelines and found that armored beaches were significantly narrower and had a smaller upper beach area (Herrera Environmental Consultants 2005). Physical changes in beach structure, specifically beach narrowing and lowering, are also linked to biological effects. Most directly, forage fish spawning habitat in the upper intertidal zone may be degraded in both extent and quality (Pentilla 2007).

4.2.3 Shading impacts

Due to the orientation of the bulkhead, shading of the intertidal zone may occur during morning hours and could reduce or eliminate the potential existence of macroalgae and associated epibenthic organisms, resulting in reduced prey and refugia resources for salmon and bull trout. As observed at the site and documented in data searches, macroalgae species are currently present in the intertidal zone. Nevertheless, new shading impacts will not occur. The shoreline armoring will not likely increase intertidal shade since it is being built in the same footprint as the existing bulkhead. The house, located at a higher elevation and landward of the armoring, would also be shading this area during morning daylight hours.

4.2.4 Hard armoring habitat alteration

Many challenges arise in quantifying impacts of hard armoring due to the diverse mechanisms by which it alters shorelines (Dethier et al. 2017). Depending on regional context (wave energy and geomorphology), are likely to show alterations at different scales of space and time (Dethier et al. 2017). Even though some direct impacts are documented, indirect impacts have been difficult to demonstrate; they are commonly hypothesized (Dethier et al. 2017).

Recent reviews have summarized how armored shorelines can affect beach shape and hydrodynamic processes (Bernatchez & Fraser 2012; Nordstrom 2014), local biodiversity (Chapman & Underwood 2011; Gittman et al. 2016), and accumulation of beach wrack along with the primary and secondary consumers that depend on it (Dugan et al. 2011). In addition to forage fish habitat, upper intertidal invertebrate communities may be affected. Unarmored beaches have more large woody debris, significantly more wrack, a habitat for invertebrates which are prey for juvenile salmon (Heerhartz 2015, 2016). Other mechanisms of impact include loss of connectivity across the land-sea ecotone (Heerhartz et al. 2014), as well as resilience to sea level rise and changes in groundwater filtering (Dethier et al. 2017).

In a Salish Sea study by Dethier et al. 2016, a threshold in the elevation of armoring (~0.5 m below local MHHW) was found, for the accumulation of natural debris. There is an abrupt drop in the number of beach logs and the amount of wrack that accumulates when having armoring that extends below ~0.5 m MHHW because of the lack of space for material to be retained between high tides, which in turn changes nutrient cycling at the site (Dethier et al. 2016). This is prevalent at the proposed site, as the bulkhead is located low on the shoreline and extends into the intertidal zone, with the MHHW line approximately 1 ft up the face of the bulkhead. A properly graded intertidal and supratidal zone are crucial habitat elements for biota, as revetments can also affect the trophic support (or supply of crustaceans, insects and invertebrates) (Dethier 1990; Heerhartz et al. 2015; Heerhartz & Toft 2015). Loss of habitat connectivity on marine shorelines can be compounded, especially in areas within Evolutionarily Significant Unit (ESU) boundaries. The project and action areas are within designated coho, steelhead, and chum Evolutionarily Significant Unit (ESU) boundaries and within NOAA NMFS Essential Fish Habitat (EFH) and Pacific Salmon Freshwater EFH.

Furthermore, forage fish spawning occurs high on the shoreline, which is impeded by structures (like revetments) which cut off part of the intertidal zone (Quinn et al. 2012). The proposed project will continue to impede forage fish spawning; however, no new impacts to habitat would occur.

5 Interrelated/Interdependent Effects

Completion of this project is not anticipated to promote future construction or other activities that would not otherwise occur without its completion. Therefore, no additional interrelated or

interdependent actions that could affect species regulated under ESA are anticipated to occur because of this project.

6 Take Analysis

The ESA (Section 3) defines “take” as to “harass, harm, pursue, hunt, shoot, wound, trap, capture, collect or attempt to engage in any such conduct.” The USFWS further defines “harm” as “significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering.” It is likely that no “take” will result from this project.

7 Conservation and Minimization Measures

All shoreline development must be located, designed, constructed, and maintained in a manner that protects ecological functions and ecosystem processes. This BE is proposing the least environmentally damaging practicable alternative that achieves the project goal of stabilizing the shoreline and preventing erosion and loss of property. The FEMA Programmatic Biological Assessment – For Fourteen Common Disaster Activities (June 29, 2009) is being referenced here for guidelines on effective and appropriate conservation measures and covers the following seawall repairs:

1. Reposition wall to pre-disaster alignment.
2. Replace damaged panels.
3. Repair panels in place.
4. Pour new concrete panels in place.
5. Backfill eroded soil material.

The project is not proposing to reposition the wall to pre-disaster alignment; however, the bulkhead will be repaired and replaced within the existing footprint. Six Conservation Measures (CM) are recommended for repairing concrete walls near or along nearshore areas (Table 2).

Table 2. Conservation Measures Index

Type	CM No.	Conservation Measure Description
Timing	CM-1	Schedule non-emergency activities and in-water work to abide by the approved work windows for all relevant species.
	CM-2	Perform “Emergency Response Notifications” before initiating actions as applicable.
Best Management Practices (BMPs)	CM-4	Check with WDFW Biologist to determine whether or not fish are present or likely to be present during the proposed in-water work. Select, implement, and monitor BMPs appropriate for species present.

	CM-7	This action shall be covered for no more than once per structure, facility, stream reach, or site during the five-year span of the Programmatic Biological Assessment (PBA)
	CM-33	Work will be restricted to between two hours after sunrise and two hours before sunset during the murrelet nesting season (April 1 through September 15).
Material	CM-14	Uncured concrete will not come in contact with any waterbody.

* CM-30 was referred to in Activity 8, however, no description was located in the PBA

Site specific conservation measures for the proposed project include:

1. Although a four-foot wide footer will be buried below the current marine shore grade, above ground repair and replacement of the bulkhead will be within the same footprint as the existing structure.
2. Beach nourishment suitable for surf smelt will be placed along the new bulkhead at 12 inches deep and taper to 0 inches approximately 10 feet seaward from the proposed bulkhead. For surf smelt spawning beaches, sieve size percent passing by weight is as follows:
 - 5/8-inch 100%
 - 3/8-inch 90-100%
 - 1/16-inch 40-50%
 - 1/100-inch (0.25 mm) 0-5%
3. Due to the presence of sand lance and surf smelt northwest of the proposed project site, a forage fish survey will be completed by a WDFW certified biologist prior to any work performed on the beach. Surveys will be completed every two weeks for the duration of the construction work or as outlined in the HPA.
4. Backfill behind the rebuilt bulkhead will only use new, clean ¾ inch pebbles that are free from contaminants and fine dirt (minus).
5. To further minimize effects of the demolition or other earthwork on the adjacent water, all construction activities prior to the creation of the new bulkhead wall, will be performed during low tide.
6. To utilize steel sheets that will avoid collapse and runoff during construction activities and best management practices to minimize potential turbidity caused from sediment disturbed by the proposed project.

8 Determination of Effect

After reviewing the appropriate data and surveys, the determination of effect is:

- **Puget Sound Chinook** - “May affect, not likely to adversely affect”

- **Rockfish** - "May effect, not likely to adversely affect"
- **Bull trout** - "May affect, not likely to adversely affect"
- **Puget Sound Steelhead** - "May affect, not likely to adversely affect"
- **Hood Canal Summer-run chum** - "No effect"
- **Green Sturgeon** – "May affect, not likely to adversely affect"
- **Southern Eulachon** – "No effect"
- **Marbled murrelet** - "No effect"
- **Humpback whale** - "No effect"
- **Leatherback sea turtle** - "No effect"
- **Southern Resident Killer Whale** - "May affect, not likely to adversely affect"

9 No Net Loss Statement

The goal of the proposed project is to achieve no net loss, per the City of Anacortes Shoreline Master Program – Restoration and Adaptive Management Element (4.8) and Washington State Legislature.

According to WAC 173-26-201(2)(e) – Environmental impact mitigation, the following criteria is required:

(i) To assure no net loss of shoreline ecological functions, master programs shall include provisions that require proposed individual uses and developments to analyze environmental impacts of the proposal and include measures to mitigate environmental impacts not otherwise avoided or mitigated by compliance with the master program and other applicable regulations. To the extent Washington's State Environmental Policy Act of 1971 (SEPA), chapter 43.21C RCW, is applicable, the analysis of such environmental impacts shall be conducted consistent with the rules implementing SEPA, which also address environmental impact mitigation in WAC 197-11-660 and define mitigation in WAC 197-11-768. Master programs shall indicate that, where required, mitigation measures shall be applied in the following sequence of steps listed in order of priority, with (e)(i)(A) of this subsection being top priority.

- (A) Avoiding the impact altogether by not taking a certain action or parts of an action;
- (B) Minimizing impacts by limiting the degree or magnitude of the action and its implementation by using appropriate technology or by taking affirmative steps to avoid or reduce impacts;
- (C) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;
- (D) Reducing or eliminating the impact over time by preservation and maintenance operations;
- (E) Compensating for the impact by replacing, enhancing, or providing substitute resources or environments; and
- (F) Monitoring the impact and the compensation projects and taking appropriate corrective measures.

(ii) In determining appropriate mitigation measures applicable to shoreline development, lower priority measures shall be applied only where higher priority measures are determined to be infeasible or inapplicable.

According to WAC 173-26-231 – Shoreline modification:

(C) An existing shoreline stabilization structure may be replaced with a similar structure if there is a demonstrated need to protect principal uses or structures from erosion caused by currents, tidal action, or waves.

- The replacement structure should be designed, located, sized, and constructed to assure no net loss of ecological functions.
- Replacement walls or bulkheads shall not encroach waterward of the ordinary high-water mark or existing structure unless the residence was occupied prior to January 1, 1992, and there are overriding safety or environmental concerns. In such cases, the replacement structure shall abut the existing shoreline stabilization structure.
- Where a net loss of ecological functions associated with critical saltwater habitats would occur by leaving the existing structure, remove it as part of the replacement measure.
- Soft shoreline stabilization measures that provide restoration of shoreline ecological functions may be permitted waterward of the ordinary high-water mark.
- For purposes of this section standards on shoreline stabilization measures, "replacement" means the construction of a new structure to perform a shoreline stabilization function of an existing structure which can no longer adequately serve its purpose. Additions to or increases in size of existing shoreline stabilization measures shall be considered new structures.

The proposed project is considered a new structure and not a replacement. Because the proposed project is necessary to protect an existing single-family residence from continued wave action, new structural stabilization measures fall within the SMP permissible criteria.

Beach nourishment is proposed for mitigation and will include sediment suitable for surf smelt spawning which will be placed seaward of the bulkhead and will taper 10 feet seaward. Avoidance measures will be implemented where applicable and short-term impacts from demolition and construction will be minimized through the conservation measures included in Section 7.

Considering the project scope is occurring within the existing footprint, urgency to address the failing bulkhead, no additional impacts to ESA-listed species or critical habitat, proposed mitigation, and proposed conservation measures, no net loss is likely to occur from the proposed project.

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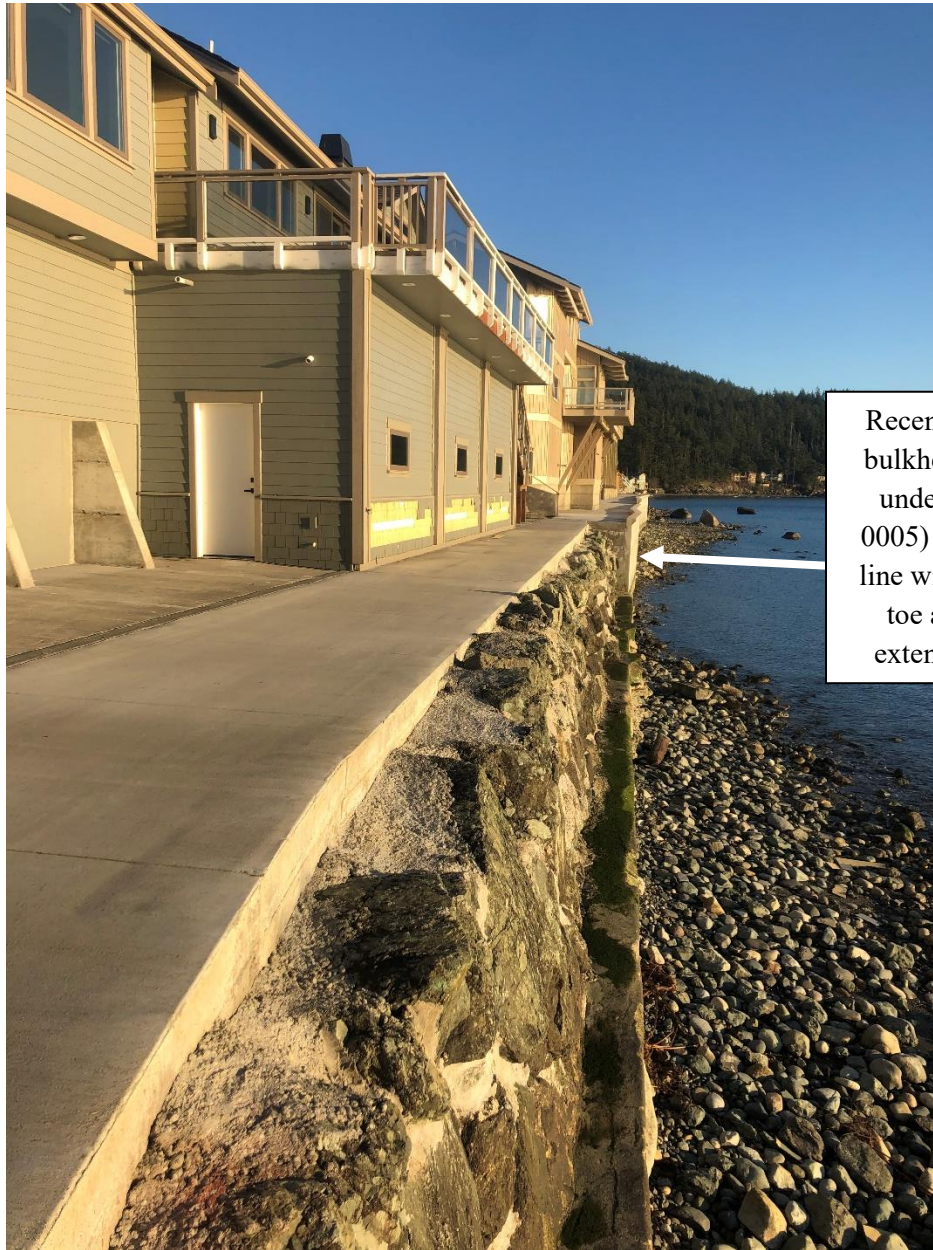
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Figure 5. Photo of existing bulkhead and exposed toe



Recently completed bulkhead (permitted under SDP-2019-0005) which stays in line with the existing toe and does not extend waterward.

Figure 6. Existing Bulkhead Profile (not drawn to scale)

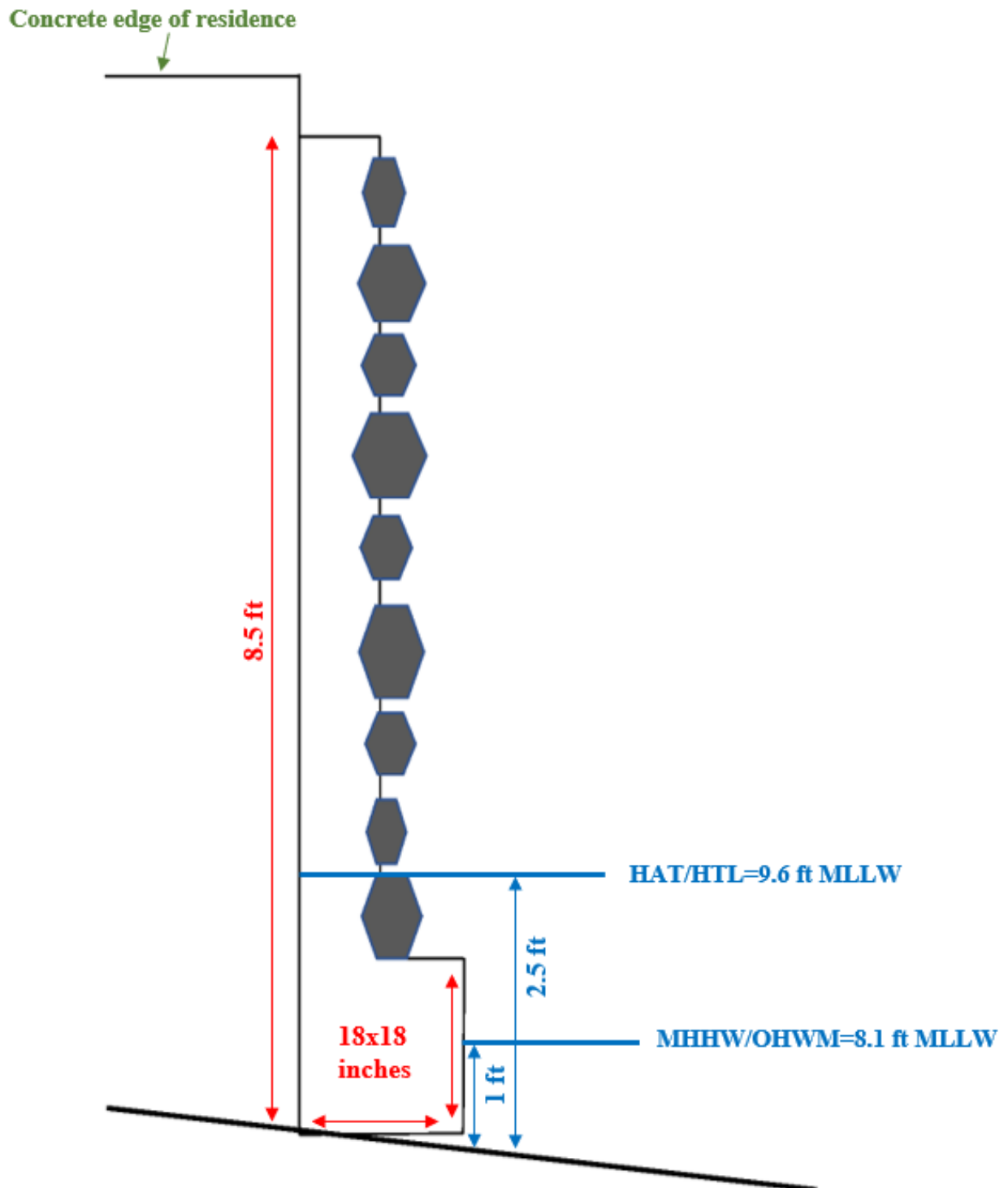


Figure 7. Action Area Map



Figure 8. Site Plan Showing Existing and Proposed Bulkhead

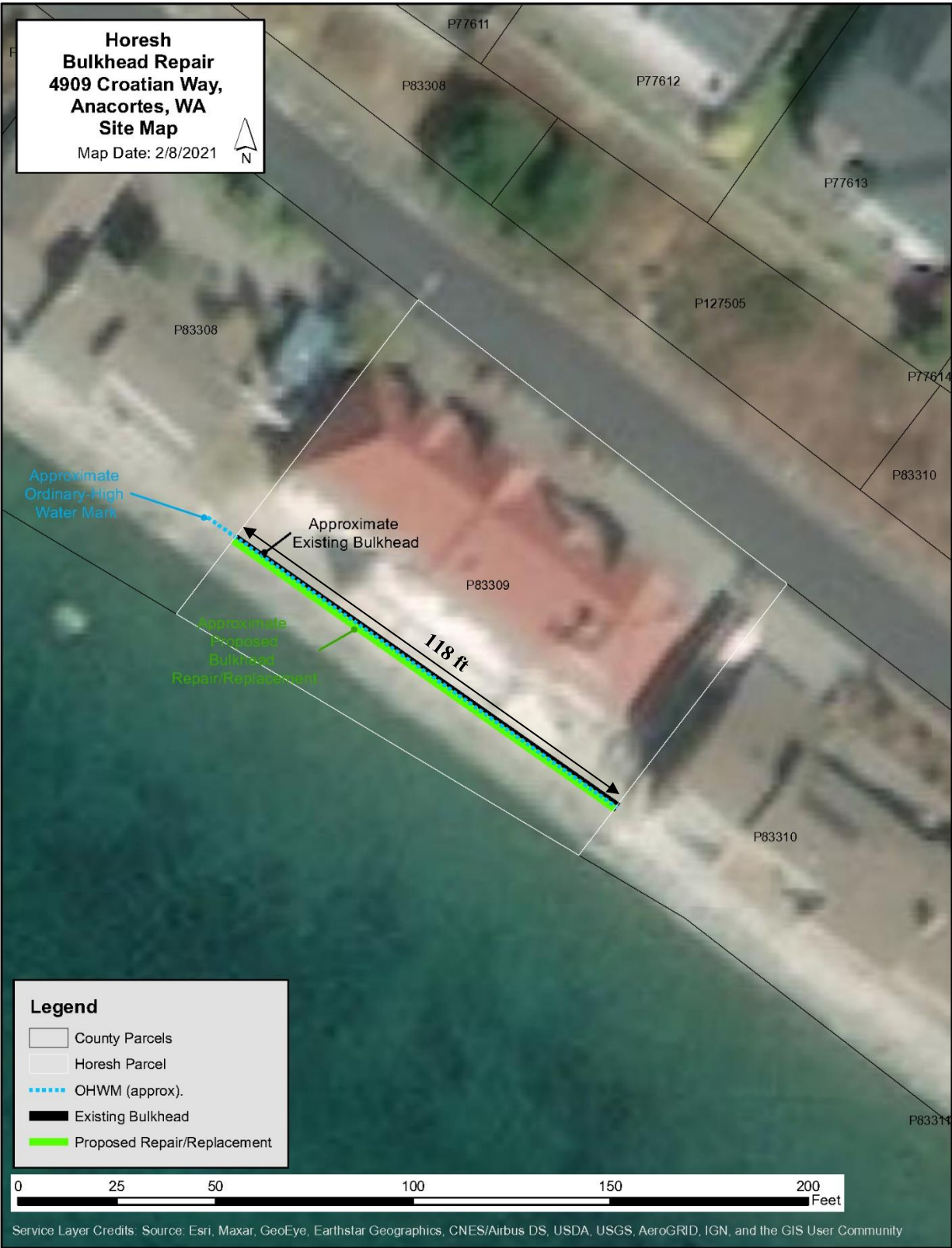


Figure 9. Proposed Horesh Bulkhead-Engineer Cross Section

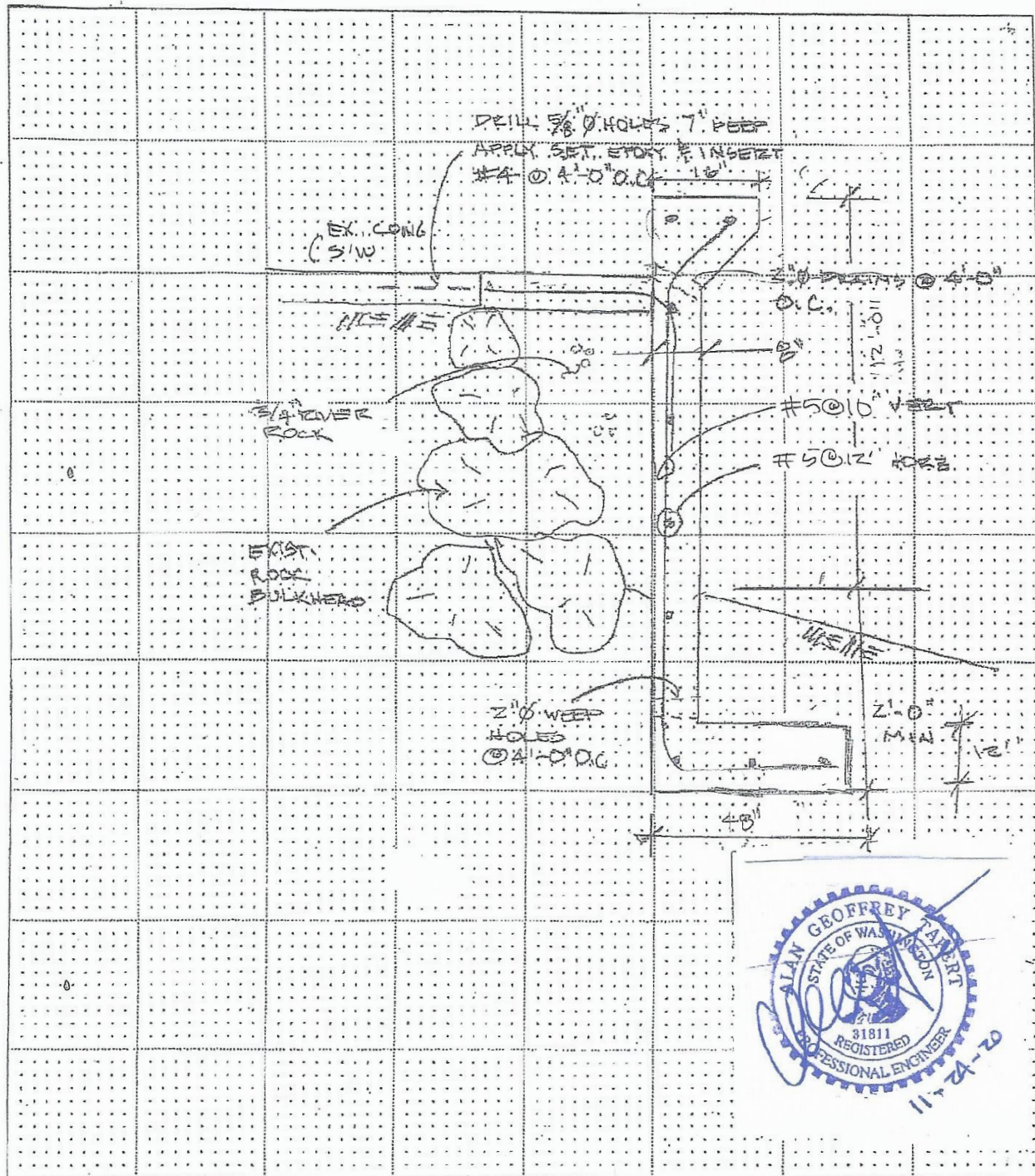


Figure 10. Proposed Horesh Bulkhead Calculations

Cantilever Retaining Wall Calculations

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Design Assumptions

f'_c	=	3,000	psi
f_y	=	60	ksi
Soil Bearing Capacity, S	=	2,000	psf (Table 1804.2)
Equivalent Soil Pressure, q	=	35	pcf
Soil Weight, w	=	120	pcf
Sliding Coefficient, μ	=	0.35	(Table 1804.2)
Lateral Soil Bearing, L_b	=	150	psf/ft (Table 1804.2)
Wall Width, b	=	8	in
Design d	=	6.0	in
Footing Depth, T	=	12	in
Wall Height, H	=	10.00	ft
Toe Width, x	=	0	in
Design Heel Width, y	=	48	in
Total Footing Width, D	=	56	in
$F_1 = wyH$	=	4,800	lbs
$F_2 = (h \times 2)g/2$	=	1,750	lbs
$Ma(cw) =$	=	12,800	ft-lbs
$Ma(ccw) =$	=	5,633	ft-lbs

Overturning

$Ma(ccw) \times 1.5$	=	8,750	ft-lbs
$Ma(ccw) = Ma(cw)$	=		
$Ma(cw) = F_1(y/2+b)$	=		
$y_o = 2[(Ma(cw)/F_1)-b]$	=	28	in

Sliding

Weight of Wall/ft, F_w	=	1,700	lbs/ft
Weight of Soil above Heel, F_1	=	4,800	lbs/ft
Total Weight, F_t	=	6,500	lbs/ft
Friction Resistance = μF_t	=	2,275	lbs
Buried Toe Depth, T	=	12	in
$F_3 = T \times L_b / (12 \times 3)$	=	50	lbs/ft
Total Sliding Resistance =	=	2325	lbs

Bearing Capacity

Min D per Soil Bearing Capacity	=		
$D = (F.S.) (F_1 + F_w) / S$	=	117	in

Seismic Lateral

Seismic Importance Factor, I	=	1.00	S_s
Seismic Use Group	=	I	S_1
Site Class	=	D	F_a
Response Modification Factor, R	=	3	(Table 9.5.2.2)
$S_{ms} = F_a S_s$	=	1.25	
$S_{ps} = (2/3) \times S_{ms}$	=	0.84	
$C_s = S_{ps} / (R/I)$	=	0.26	
Seismic Base Shear, $V = C_s W$	=	170	lbs/ft

Reinforcement - Stem

$M_u = 1.4 M_a$	=	8,167	ft-lbs
$M_n = M_u / 0.9$	=	9,074	ft-lbs

$$M_u = A_s f_y d - \frac{A_s^2 f_y^2}{1.7 f'_c b}$$

$$A_s^2 - \frac{0.425 b f'_c}{f_y} + \frac{0.85 M_n f'_c b}{f_y^2} = 0$$

$$A_s = 0.329 \text{ sl/ft}$$

$$\rho_{min} = \frac{200}{f_y} \quad \rho_{min} = \frac{A_{s(min)}}{A_c} \quad A_{s(min)} = \rho_{min} A_c = \frac{200 A_c}{f_y} = \frac{200 b (12)}{f_y}$$

Area of Steel, A_s (sl/ft)

	6 in O.C.	8 in O.C.	10 in O.C.	12 in O.C.	14 in O.C.	16 in O.C.
# 4	0.393	0.294	0.236	0.196	0.168	0.147
# 5	0.613	0.460	0.358	0.307	0.263	0.230
# 6	0.893	0.662	0.530	0.442	0.378	0.331
# 7	1.202	0.902	0.721	0.601	0.515	0.451
# 8	1.570	1.178	0.942	0.785	0.673	0.599

Use # 5 bar at 10 in O.C. Vertical
Use # 5 bar at 12 in O.C. Horizontal

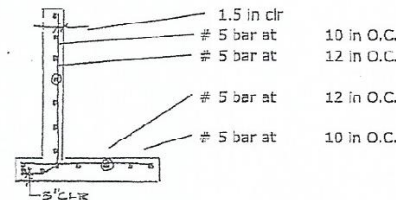
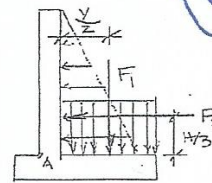
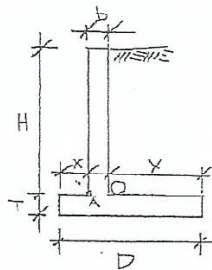
Project: Puget Sound Shoreline

By: AGT

Date: 6/17/19

F.S.	
Overturning	2.19
Sliding	1.99
Bearing	1.44
Seismic	1.37

Min. Cover =	1.5 in
$d_{(avall)} =$	6.19 in



< Total Sliding Resistance therefore OK

$$A_s = \frac{0.85 f'_c b d}{f_y} \pm \frac{\sqrt{\left(\frac{1.7 f'_c b d}{f_y}\right)^2 - 4(1) \left(\frac{1.7 f'_c b M_n}{f_y^2}\right)}}{2}$$

Figure 11. Critical Habitat Map

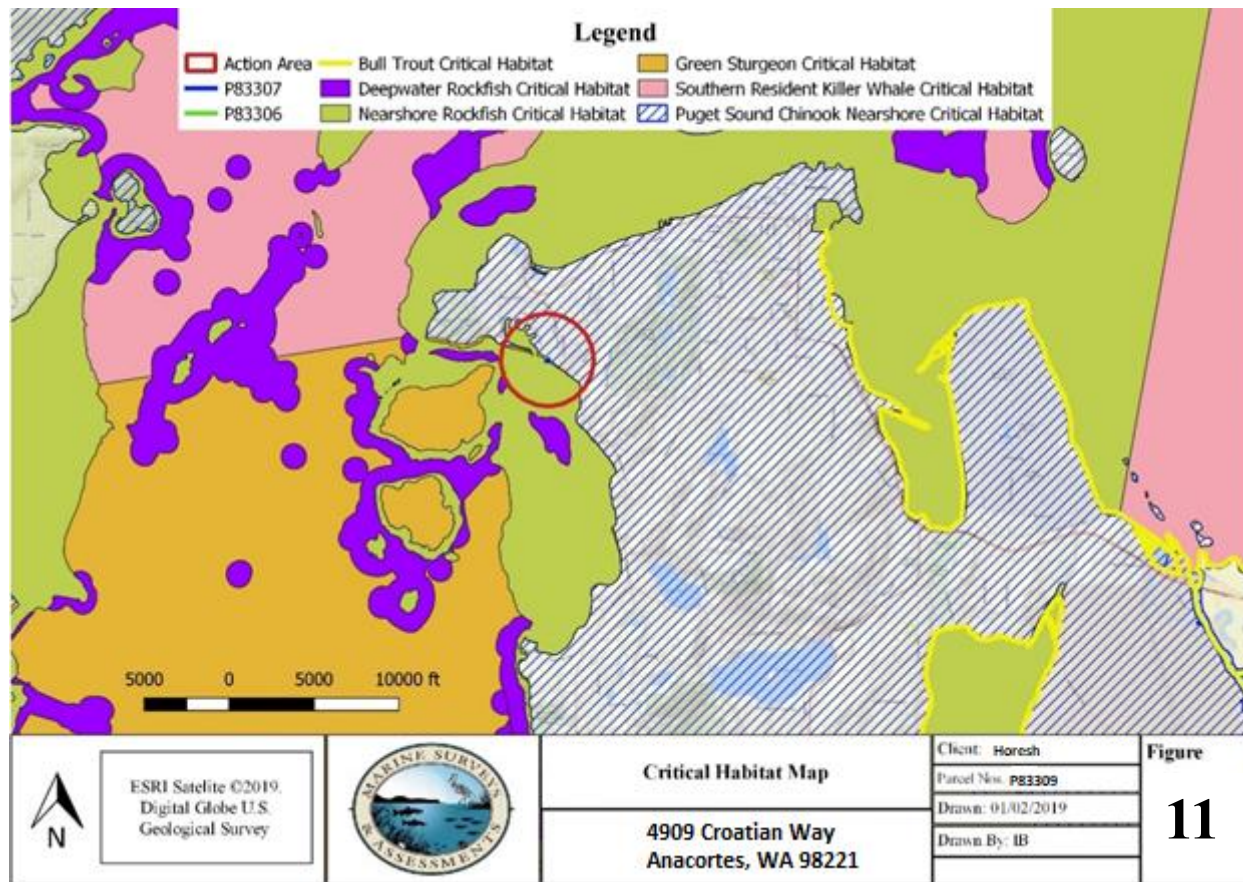


Figure 12. Surveyed Site Plan

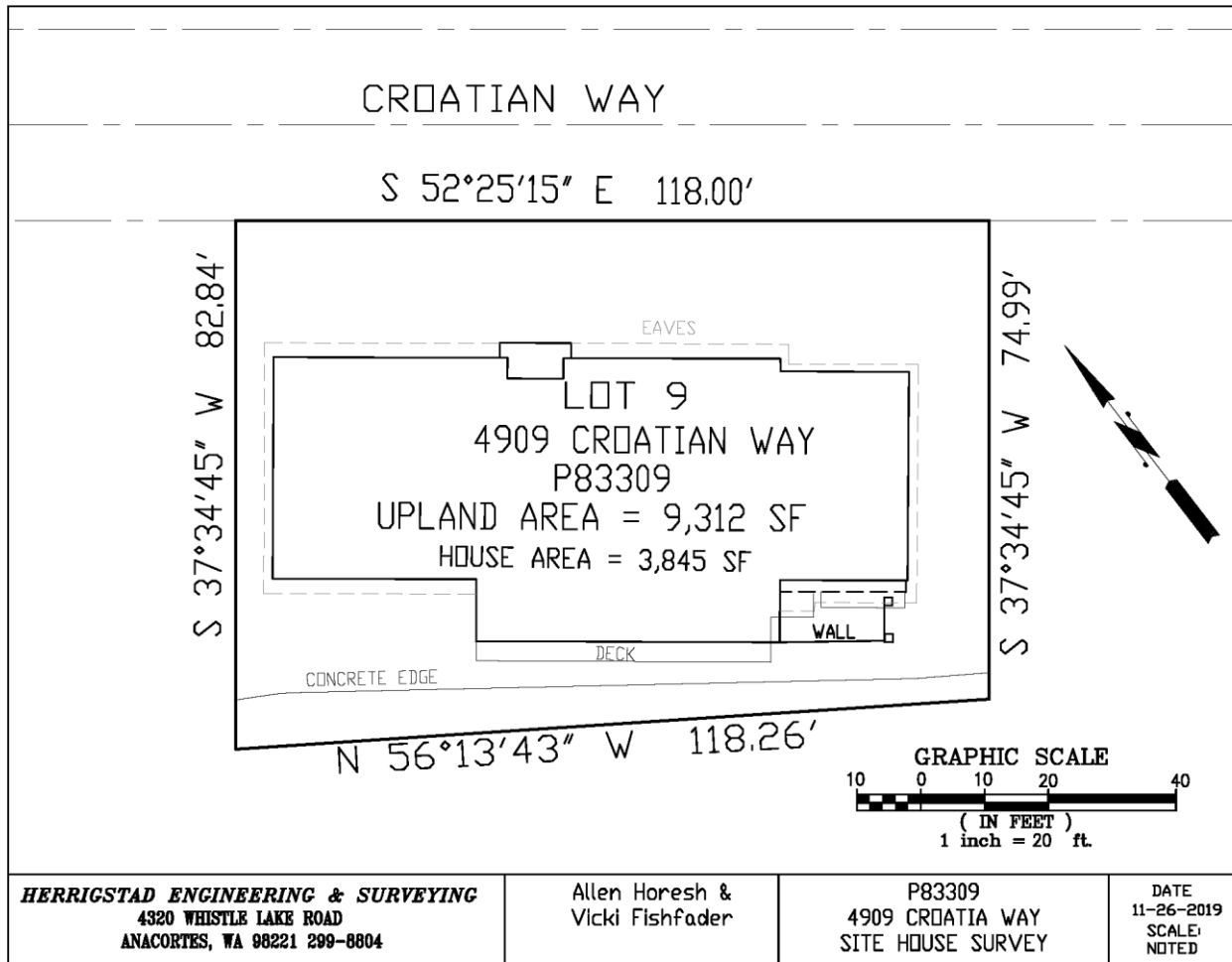


Figure 13. WECY Water Quality Map

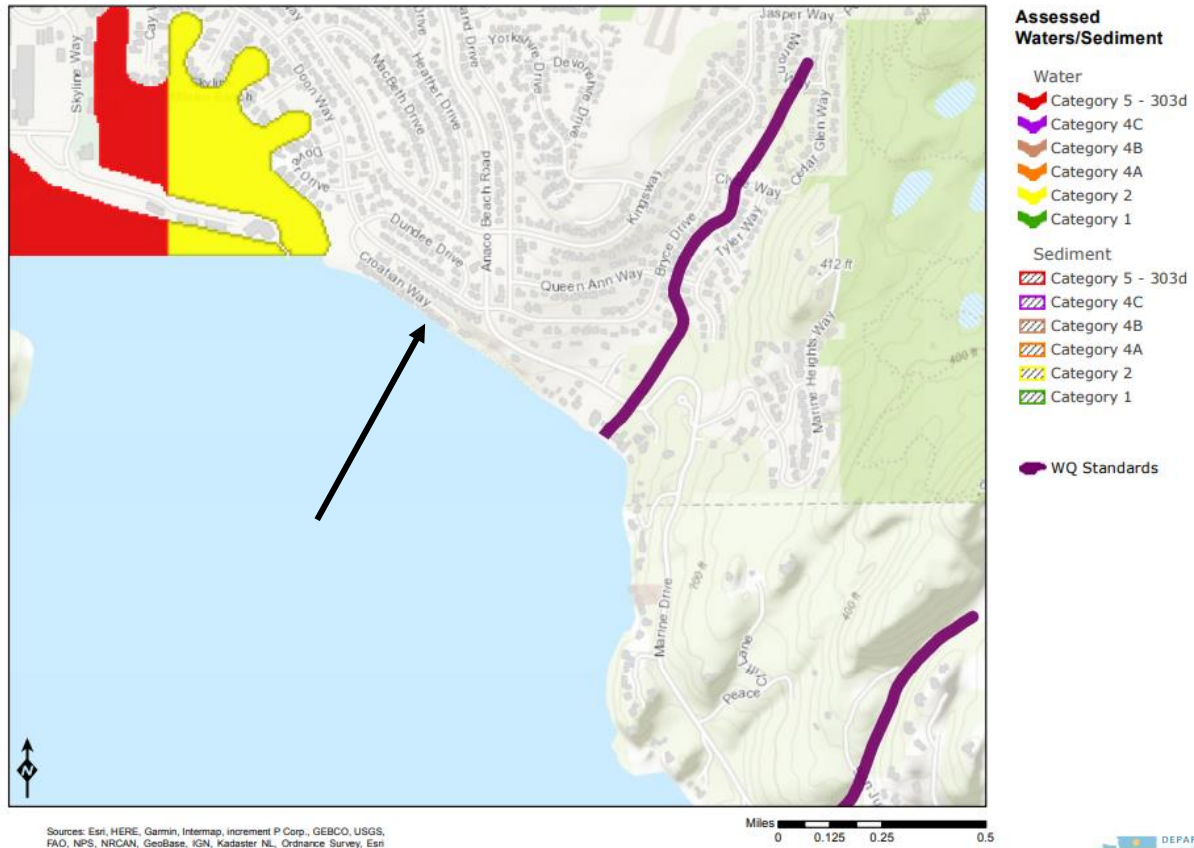


Figure 14. NOAA ERMA Submerged Aquatic Vegetation Map

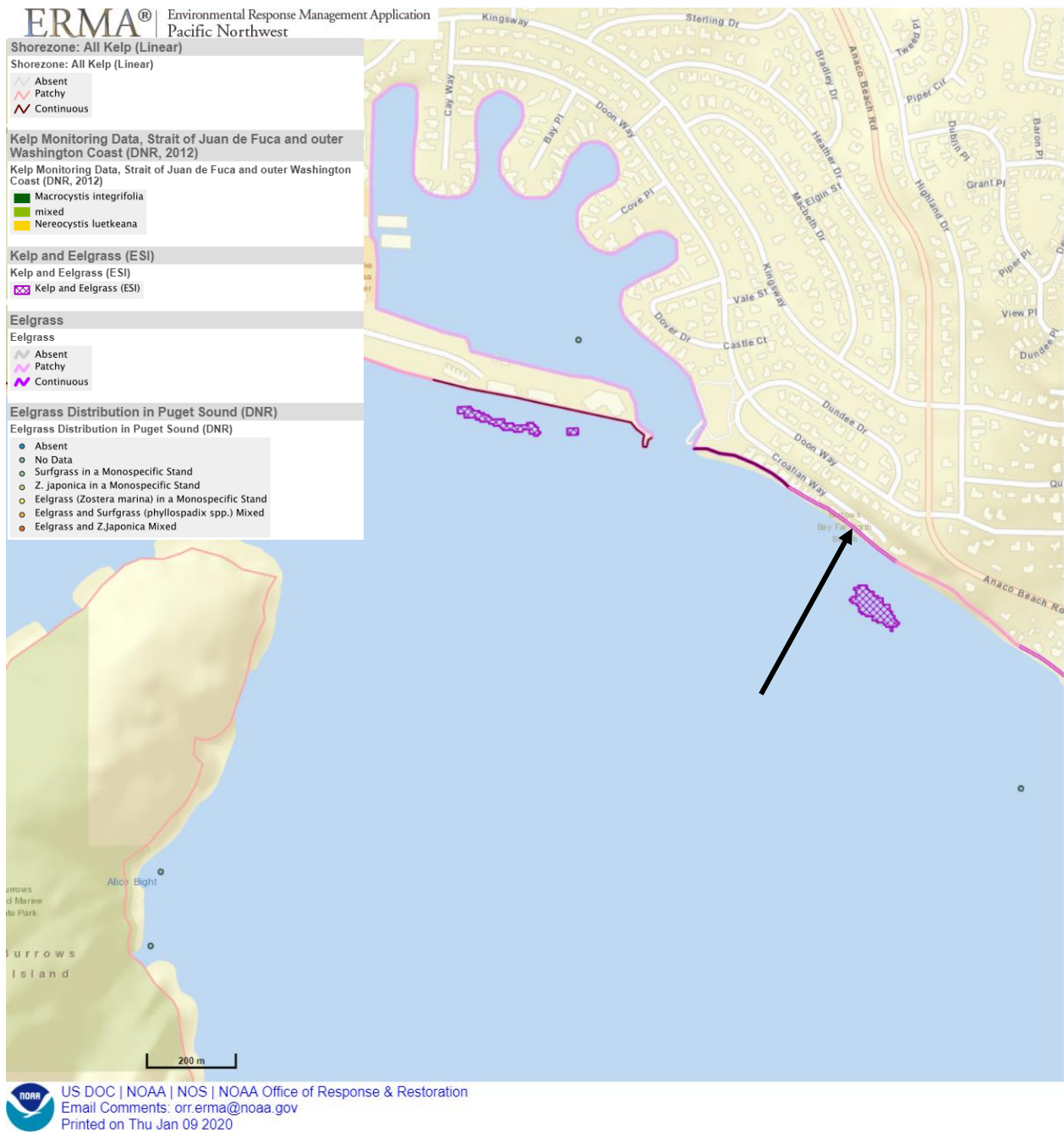


Figure 15. WECY Shoreline Aerial Photo (8/18/2016)



Figure 16. Winter Storm Wave Action



Attachment 1. Essential Fish Habitat Assessment

A. Background

The Magnuson-Stevens Fishery Conservation and Management Act (MSA), as amended by the Sustainable Fisheries Act of 1996 (Public law 104-267), requires Federal agencies to consult with NMFS on activities that may adversely affect designated Essential Fish Habitat (EFH) for the relevant species. According to the MSA, EFH means “those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.” For the Pacific West Coast, the Pacific Fisheries Management Council (Council) has designated EFH for federally managed groundfish (PFMC 1998a), coastal pelagic (PFMC 1998b) and Pacific salmon fisheries (PFMC 1999).

The purpose of the EFH Assessment is to determine the effects of the proposed project on the EFH for the relevant species and to recommend conservation measures to avoid, minimize or otherwise offset adverse effects on EFH.

B. Identification of EFH

The designated EFH for groundfish and coastal pelagic species encompasses all waters from the mean high water line, and upriver extent of saltwater intrusion in river mouths, along the coasts of Washington, Oregon and California, seaward to the boundary of the U. S. exclusive economic zone (370.4 km) (PFMC 1998a, 1998b). The designated EFH in estuarine and marine areas for salmon species extends from the nearshore and tidal submerged environments within state territorial water out to the full extent of the exclusive economic zone (370.4 km) offshore of Washington, Oregon and California north of Point Conception to the Canadian border (PFMC, 1999).

C. Proposed Action

The details of the proposed project are presented in “**Project Description**” section of the BE. The project consists of bulkhead replacement.

D. Effects of the Proposed Action

The effects of this project on designated EFH are likely to be similar to the effects described in detail in the “**Effects Analysis**” section of the attached BE. The project may have minor temporary adverse effects on EFH designated for Pacific coast salmon and groundfish due to turbidity impacts resulting from construction.

E. EFH Conservation Measures

The conservation measures contained in the BE will be implemented to minimize any possible adverse effects to EFH.

F. Conclusion

The project may have temporary adverse effects on EFH for groundfish and Pacific salmonids in the form of refuge and prey inputs. Due to the revetment being a replacement within the intertidal zone, no new permanent adverse effects on EFH will occur.

The site is in PSNERP shoreline process unit 8056, which has a recommendation of “Enhance” for the project area. “Enhance” is defined as “sites are large, complex, and are moderately degraded suggesting there may be substantial opportunities to increase ecosystem services.” (Cereghino et al. 2012).

G. Additional References

Cereghino, P., Toft, J., Simenstad, C., Iverson, E., Campbell, S., Behrens, C., Burke, J., 2012. Strategies for Nearshore Protection and Restoration in Puget Sound (Prepared for the Puget Sound Nearshore Ecosystem Restoration Project No. Technical Report 2012-01).

Lestelle, L., 2015. Guidance for Prioritizing Salmonid Stocks, Issues, and Actions for the Hood Canal Coordinating Council. Biostream Environmental.

PFMC (Pacific Fishery Management Council). 1999. Amendment 14 to the Pacific Coast Salmon Plan.

Appendix A: Description and Identification of Essential Fish Habitat, Adverse Impacts and Recommended Conservation Measures for Salmon (August 1999).

PFMC, 1998a. Final Environmental Assessment/Regulatory Review for Amendment 11 to the Pacific Coast Groundfish Fishery Management Plan (October, 1998).

PFMC, 1998b. The Coastal Pelagic Species Fishery Management Plan: Amendment 8 (December, 1998).

Attachment 2. Assessment of Impacts to Critical Habitat for Puget Sound Chinook

Project description: Bulkhead replacement

Applicant: Allen Horesh

COE reference:

NMFS reference:

The Physical and Biological Features (PBFs) determined essential to the conservation of salmon are:

(1) Freshwater spawning sites with water quantity and quality conditions and substrate supporting spawning, incubation, and larval development.

Existing Conditions: Does not apply – project is in the marine environment.

Effects to PBF: None

(2) Freshwater rearing sites with water quantity and floodplain connectivity to form and maintain physical habitat conditions and support juvenile growth and mobility; water quality and forage supporting juvenile development; and natural cover such as shade, submerged and overhanging large wood, log jams and beaver dams, aquatic vegetation, large rocks and boulders, side channels, and undercut banks.

Existing Conditions: Does not apply – project is in the marine environment.

Effects to PBF: None

(3) Freshwater migration corridors free of obstruction with water quantity and quality conditions and natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, side channels, and undercut banks supporting juvenile and adult mobility and survival.

Existing Conditions: Does not apply – project is in the marine environment.

Effects to PBF: None

(4) Estuarine areas free of obstruction with water quality, water quantity and salinity conditions supporting juvenile and adult physiological transitions between fresh-and saltwater; natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders,

and side channels, and juvenile and adult forage, including aquatic invertebrates and fishes, supporting growth and maturation.

Existing Conditions: Inferences can be made from the habitat survey results for the adjacent properties (Schutzler, Dowell, Foster) can be found in Appendix A and B. As noted in the Schutzler, Dowell, Foster (NWS-2019-664) habitat survey (Appendix B), the intertidal area includes macroalgae and occurs on already-modified intertidal habitat. Eelgrass was observed 50+ ft from the bulkhead. There is documented forage fish spawning habitat in the project area. It is highly probable that similar vegetation is found at the Horesh property. The project footprint, particularly the existing bulkhead and the proposed bulkhead replacement work, is at the extreme upslope end of a beach which reveals itself at low tide as a very wide, very low-sloped beach. The base of the wall is approximately one foot below MHHW depending on the season as quite a bit of sediment can be moved around.

Effects to PBF: The project will create minor, temporary impacts during construction that may include localized increased turbidity and noise, which may cause short-term avoidance of the area by the listed fish species. The proposed project includes repair and replacement of an existing bulkhead in the same footprint.

(5) Nearshore marine areas free of obstruction with water quality and quantity conditions and forage, including aquatic invertebrates and fishes, supporting growth and maturation; and natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulder and side channels.

Existing Conditions: See 4 above.

Effects to PBF: The project occurs along a stretch of developed shoreline that is already armored with revetments. The project will not additionally obstruct nearshore marine habitat; however, it will extend the life of the bulkhead.

(6) Offshore marine areas with water quality conditions and forage, including aquatic invertebrates and fishes, supporting growth and maturation.

Existing Conditions: Does not apply - the site is in a nearshore marine environment

Effects to PBF: None

Determination of Effect: “May affect, not likely to adversely affect” critical habitat

Attachment 3. Assessment of Impacts to Critical Habitat for Juvenile Puget Sound/Georgia Basin Bocaccio & Yelloweye Rockfish

Juvenile bocaccio rockfish (nearshore areas are contiguous with the shoreline from the line of extreme high water out to a depth no greater than 30 meters relative to MLLW). Juvenile and adult yelloweye rockfish are found in deepwater sites (>30 meters).

The Physical and Biological Features (PBFs) determined essential to the conservation of Puget Sound/Georgia Basin Bocaccio and Yelloweye Rockfish are:

(1) Nearshore juvenile rearing sites with sand, rock, and/or cobble to support forage and refuge.

Existing Conditions: The existing intertidal substrate is mostly cobble with a sand base.

Effects to PBF: Alterations to the shoreline environment which affect the substrate composition as discussed in 4.2.4 of the BE may continue to happen with the increased life span of this bulkhead. However, beach nourishment in the form of suitable spawning substrate for surf smelt is proposed to help offset these impacts.

(2) Quantity, quality, and availability of prey species to support individual growth, survival, reproduction, and feeding opportunities.

Existing Conditions: The existing intertidal substrate is mostly sand and cobble, with eelgrass likely being present 50+ ft waterward which could support prey (i.e. zooplankton) for juvenile rockfish.

Effects to PBF: Little to no impact is anticipated for this PBF as work is occurring in the upper intertidal zone outside of any eelgrass and the bulkhead will be replaced in the same footprint.

(3) Water quality and sufficient levels of dissolved oxygen to support growth, survival, reproduction, and feeding opportunities.

Existing Conditions: The project site is in Burrows Bay. In the action area, Department of Ecology's 303(d) list lists nearby Skyline Marina as Category 2 water quality for temperature and Category 5 for Copper (Figure 13).

Effects to PBF: The proposed project will have a brief and localized impact on water quality due to turbidity impacts associated with removal and replacement of the existing bulkhead.

Determination of Effect: "May affect, not likely to adversely affect" critical habitat

Attachment 4. Assessment of Impacts to Critical Habitat for Southern Resident Killer Whales

The Physical and Biological Features (PBFs) determined essential to the conservation of Southern Resident Killer Whales (SRKW) are:

(1) Water quality to support growth and development.

Existing Conditions: In nearby Skyline Marina (~1/8 mi away, within the action area), Department of Ecology's 303(d) lists Category 2 water for temperature and Category 5 for Copper (Figure 13).

Effects to PBF: Localized impacts associated with construction on site will cause localized, short term increased turbidity.

(2) Prey species of sufficient quantity, quality, and availability to support individual growth, reproduction, and development as well as overall population growth.

Existing Conditions: There is documented sand lance and surf smelt spawning habitat northwest of the project site which could be fed upon by migrating salmon.

Effects to PBF: The project could have brief and temporary negative impacts on Chinook salmon (prey species for the SKRW population), due to brief turbidity and noise resulting from excavation and replacement of the existing bulkhead.

(3) Passage conditions to allow for migration, resting, and foraging. NMFS is gathering data to assist it in evaluating sound as a potential PBF.

Existing Conditions: SRKW can potentially be found in the action area. The current bulkhead does not impede SRKW movement and foraging.

Effects to PBF: None, work will occur at low tide in the dry to minimize impacts. No pile driving will occur.

Determination of Effect: "May affect, not likely to adversely affect" critical habitat

Attachment 5. Assessment of Impacts to Southern DPS Green Sturgeon Critical Habitat

The Physical and Biological Features (PBFs) determined essential to the conservation of Southern DPS Green Sturgeon (*Acipenser medirostris*) in Coastal Marine Areas are:

(1) Migratory corridor

Existing Conditions: There are no overwater structures or structures that extend into the water at the site which could affect migration.

Effects to PBF: This PBF is not anticipated to be affected as the bulkhead is being replaced in the same footprint. No overwater structures are proposed.

(2) Food resources

Existing Conditions: There is documented sand lance and surf smelt spawning habitat northwest of the project site (Figure 4). Benthic invertebrates that sturgeon may feed upon are not likely to be found in the immediate vicinity of the bulkhead due to its placement high in the intertidal area. The project site may be used as a migratory corridor by Southern DPS Green Sturgeon.

Effects to PBF: The proposed project may have a brief and localized impact on estuarine and coastal marine water quality due to excavation and replacement of the existing bulkhead. Brief turbidity and noise may also have negative impacts on prey species for Southern DPS Green Sturgeon in estuarine systems, resulting from excavation and replacement of the existing bulkhead. Water flow, water depth, and sediment quality are not expected to be impacted in estuarine systems. The proposed project will be completed “in the dry”; therefore, no permanent impacts to the migratory corridor or water quality of Southern DPS Green Sturgeon are expected to occur.

(3) Water quality

Existing Conditions: In nearby Skyline Marina (~1/8 mi away, within the action area), Department of Ecology’s 303(d) lists Category 2 water for temperature and Category 5 for Copper (Figure 14).

Effects to PBF: see 2 above

Determination of Effect: "May affect, not likely to adversely affect" critical habitat

Appendix A. Habitat Report for adjoining Foster property

An intertidal survey was performed on July 9th, 2019 (65°F, overcast and calm) between approximately 3:00 pm to 5:00 pm at the project site located at 4911 Croatian Way, Anacortes, WA 98221. Meg Amos from Marine Surveys & Assessments surveyed 7 transects in the area of a proposed emergency bulkhead replacement to identify flora, fauna, substrate types and other qualitative information.

The survey transect baseline was along the MHHW mark at the bulkhead that runs the shoreline at the site. Seven transects were surveyed from the baseline and transects were oriented perpendicular to the bulkhead. Transects were each 100 ft long and were arranged from northwest to southeast, or when looking at the water from shore, from right to left (T1 to T7). Transects were separated from each other by 25 ft.

Substrate at the site is mostly sand and cobble or large rock. Areas of macroalgae cover included *Ulva* 2-90%, *Fucus* 2-40%, *Mastocarpus* 2-10%, and foliose reds 2-60%.

An eelgrass bed (*Zostera marina*) was observed along three of the transects at the site approximately 50-80 feet offshore, with a few small patches elsewhere.

Transect 1

Transect Distance (ft) from baseline	Substrate and Other Features	Macroalgae % Cover & Eelgrass Presence
0	sand/cobble/rock; At bulkhead	----
10	sand/cobble/rock	----
20	sand/cobble/rock	----
30	sand/cobble/rock	<i>Mastocarpus</i> 10%. No eelgrass.
38	sand/cobble/rock	<i>Ulva</i> 20%; <i>Fucus</i> 15%. No eelgrass.
44	sand/cobble/rock	<i>Ulva</i> 20%; <i>Fucus</i> 15%. No eelgrass.
50	sand/cobble/rock	<i>Ulva</i> 20%; <i>Fucus</i> 15%. No eelgrass.
60	sand	----
63	sand	<i>Ulva</i> 5%; <i>Fucus</i> 5%. No eelgrass.
70	sand	<i>Ulva</i> 5%; <i>Fucus</i> 5%. No eelgrass.
80	sand large rock	<i>Ulva</i> 40%; <i>Fucus</i> 20%; <i>Mastocarpus</i> 5%; foliose reds

		60%. No eelgrass.
90	sand large rock	<i>Ulva</i> 40%; <i>Fucus</i> 20%; <i>Mastocarpus</i> 5%; foliose reds 60%. No eelgrass.
100	sand large rock	<i>Ulva</i> 40%; <i>Fucus</i> 20%; <i>Mastocarpus</i> 5%; foliose reds 60%. No eelgrass.

Transect 2

Transect Distance (ft) from baseline	Substrate and Other Features	Macroalgae % Cover & Eelgrass Presence
0	sand large rock; Oyster catchers	----
10	sand large rock	----
20	sand large rock	----
30	sand large rock	<i>Mastocarpus</i> 10%. No eelgrass.
35	sand large rock	----
40	sand large rock	<i>Mastocarpus</i> 10%. No eelgrass.
42	sand large rock	<i>Ulva</i> 30%; <i>Fucus</i> 10%. No eelgrass.
50	sand large rock	<i>Ulva</i> 70%; <i>Fucus</i> 20%; foliose reds 20%. No eelgrass.
60	sand large rock	<i>Ulva</i> 70%; <i>Fucus</i> 20%; foliose reds 20%. No eelgrass.
63	sand/boulder	<i>Fucus</i> 30%. <i>Z. marina</i> , 8 sf.
70	sand/boulder	<i>Fucus</i> 30%. No eelgrass.
82	sand	----
83	sand	<i>Z. marina</i> , 50 sf.
90	sand	<i>Z. marina</i> , Begin bed, 50 sf.
100	sand	<i>Z. marina</i> , Bed extends beyond 100'.

Transect 3

Transect Distance (ft) from baseline	Substrate and Other Features	Macroalgae % Cover & Eelgrass Presence
0	sand large rock	----
10	sand large rock	----
20	sand large rock	----
30	sand large rock	----
31	sand large rock	----
33	sand large rock	<i>Fucus</i> 5%; <i>Mastocarpus</i> 10%. No eelgrass.
40	sand large rock	<i>Fucus</i> 5%; <i>Mastocarpus</i> 10%. No eelgrass.
50	sand large rock	<i>Fucus</i> 5%; <i>Mastocarpus</i> 10%. No eelgrass.
60	sand large rock	<i>Fucus</i> 5%; <i>Mastocarpus</i> 10%. No eelgrass.
70	sand large rock	<i>Fucus</i> 5%; <i>Mastocarpus</i> 10%. No eelgrass.
80	sand large rock	<i>Fucus</i> 5%; <i>Mastocarpus</i> 10%. No eelgrass.
90	sand large rock	<i>Fucus</i> 5%; <i>Mastocarpus</i> 10%. No eelgrass.
97	sand large rock	<i>Ulva</i> 70%; <i>Fucus</i> 30%; foliose reds 10%. No eelgrass.
100	sand large rock	<i>Ulva</i> 70%; <i>Fucus</i> 30%; foliose reds 10%. No eelgrass.

Transect 4

Transect Distance (ft) from baseline	Substrate and Other Features	Macroalgae % Cover & Eelgrass Presence
0	sand large rock	----
10	sand large rock	----
20	sand large rock	----
25	sand large rock	----
30	sand large rock	----
38	sand	----
50	sand	----
61	sand	<i>Z. marina</i> , small patch ~2 sf.
71-100	boulders	<i>Fucus</i> 10%. No eelgrass.

Transect 5

Transect Distance (ft) from baseline	Substrate and Other Features	Macroalgae % Cover & Eelgrass Presence
0	sand/cobble/rock	----
11	sand/cobble/rock	----
20	sand large rock	----
27	sand large rock	----
29	sand large rock	----
30	sand large rock	----
45	sand large rock	<i>Ulva</i> 10%; foliose reds 10%. No eelgrass.
50	sand large rock	<i>Ulva</i> 10%; foliose reds 10%. No eelgrass.
56	sand large rock	<i>Ulva</i> 40%; <i>Fucus</i> 10%. No eelgrass.
60	sand large rock	<i>Ulva</i> 40%; <i>Fucus</i> 10%. No eelgrass.
70	sand	. <i>Z. marina</i> , begin bed.
80	sand	<i>Z. marina</i> , bed extends beyond 80 feet.
90	sand; visual only from 80'	----
100	sand	----

Transect 6

Transect Distance (ft) from baseline	Substrate and Other Features	Macroalgae % Cover & Eelgrass Presence
0	sand & rock	----
8	sand/cobble/large rock	----
10	sand/cobble/large rock	----
20	sand/cobble/large rock	----
30	sand/cobble/large rock	----
40	sand/cobble/large rock	<i>Ulva</i> 5%; <i>Mastocarpus</i> 5%; foliose reds 10%. No eelgrass.
48	sand/cobble/large rock	<i>Ulva</i> 30%; <i>Mastocarpus</i> 5%; foliose reds 10%. No eelgrass.
50	sand/cobble/large rock	<i>Ulva</i> 30%; foliose reds 20%. No eelgrass.
58	sand	Foliose reds 20%. No eelgrass.
59	sand & rock	<i>Ulva</i> 30%; <i>Fucus</i> 10%. <i>Z. marina</i> , 0.05 sq ft patch.

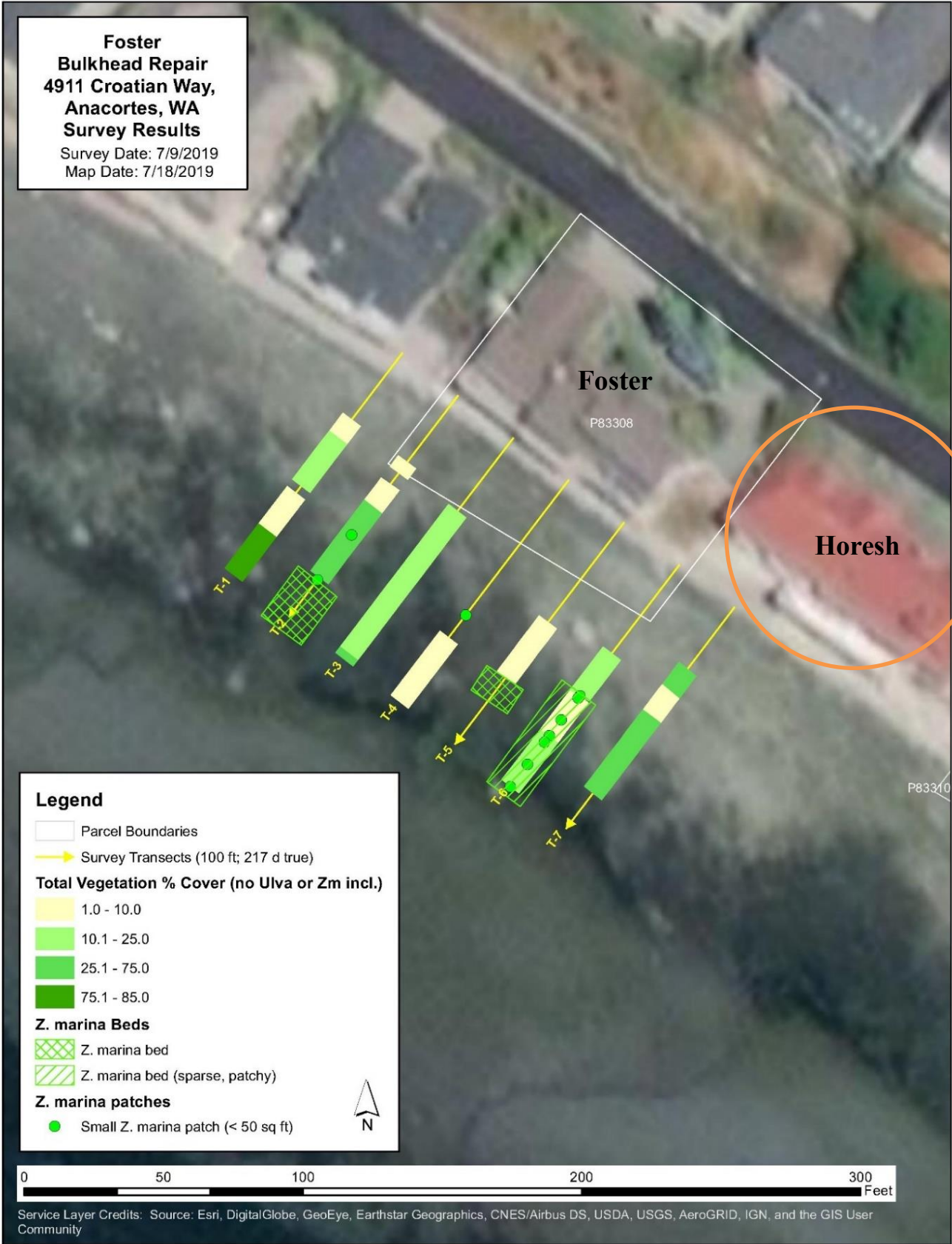
60	sand & rock	<i>Ulva</i> 30%; <i>Fucus</i> 10%. <i>Z. marina</i> , 0.05 sq ft patch.
70	sand & rock	<i>Ulva</i> 30%; <i>Fucus</i> 10%. <i>Z. marina</i> , 0.05 sq ft patch.
77	sand & rock	<i>Ulva</i> 30%; <i>Fucus</i> 20%. <i>Z. marina</i> , 0.05 sq ft patch.
80	sand & rock	<i>Ulva</i> 30%; <i>Fucus</i> 20%. <i>Z. marina</i> , 0.05 sq ft patch.
90	sand & rock	<i>Ulva</i> 30%; <i>Fucus</i> 20%. <i>Z. marina</i> , 0.05 sq ft patch.
100	sand & rock	<i>Fucus</i> 20%. <i>Z. marina</i> , 0.05 sq ft patch.

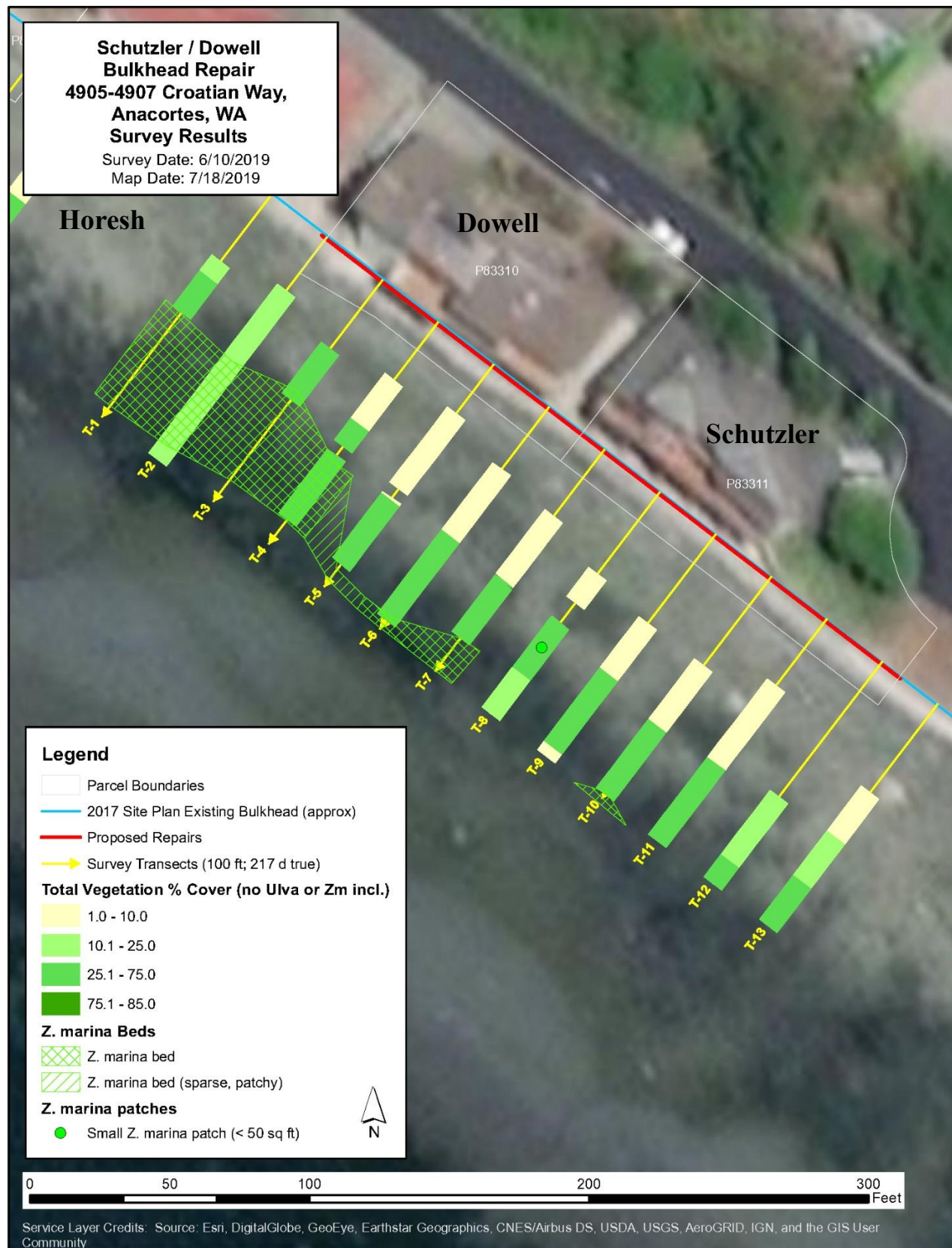
Transect 7

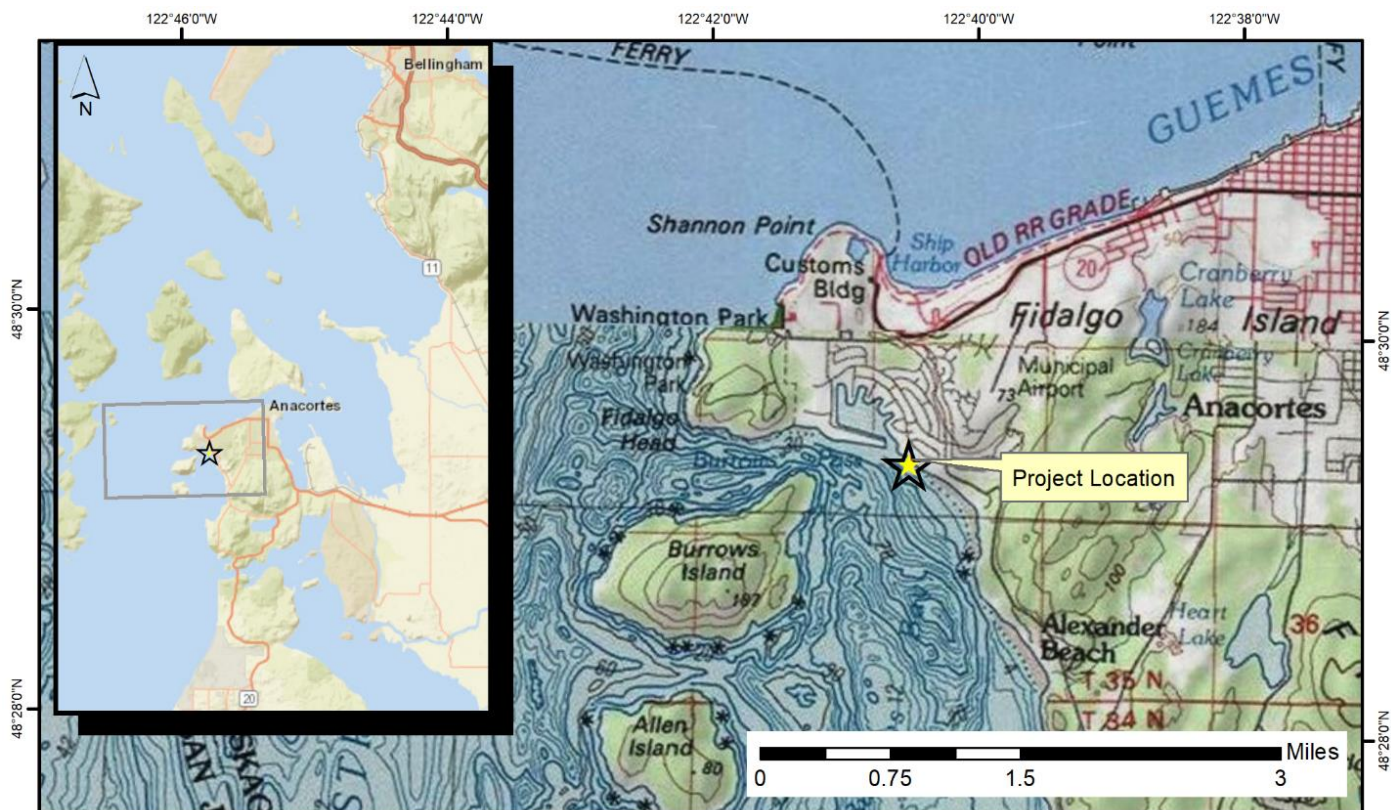
Transect Distance (ft) from baseline	Substrate and Other Features	Macroalgae % Cover & Eelgrass Presence
0	sand	----
7	pea gravel rock	----
14	rock	----
20	rock	----
28	rock	<i>Mastocarpus</i> 5%; foliose reds 30%. No eelgrass.
30	rock	<i>Mastocarpus</i> 5%; foliose reds 30%. No eelgrass.
32	rock	<i>Mastocarpus</i> 5%; foliose reds 30%. No eelgrass.
38	rock	<i>Fucus</i> 10%. No eelgrass.
40	rock	<i>Fucus</i> 10%. No eelgrass.
49	rock	<i>Ulva</i> 5%; <i>Fucus</i> 40%; foliose reds 20%. No eelgrass.
50	rock	<i>Fucus</i> 40%; foliose reds 20%. No eelgrass.
60	rock	<i>Fucus</i> 40%; foliose reds 20%. No eelgrass.
62	large rock	<i>Ulva</i> 30%; <i>Fucus</i> 20%; foliose reds 10%. No eelgrass.
70	large rock	<i>Ulva</i> 30%; <i>Fucus</i> 20%; foliose reds 10%. No eelgrass.

		<i>Ulva</i> 30%; <i>Fucus</i> 20%; foliose reds 10%. No eelgrass.
80	large rock	
84	sand & rock	<i>Z. marina</i> , Start patchy bed.
90	sand & rock	<i>Z. marina</i> present.
100	sand & rock	<i>Z. marina</i> , patchy bed continues.

Appendix B. Habitat maps for adjoining properties

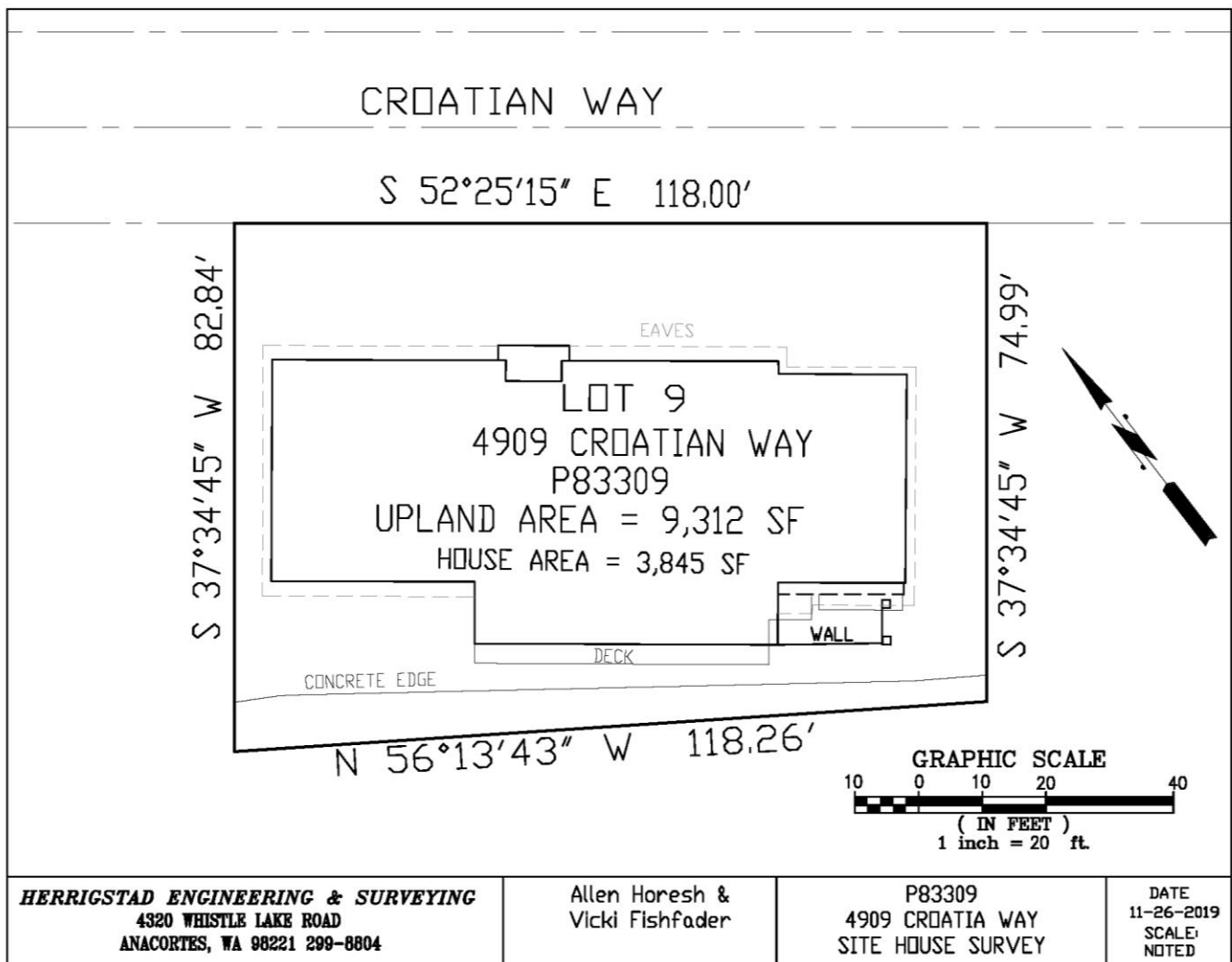




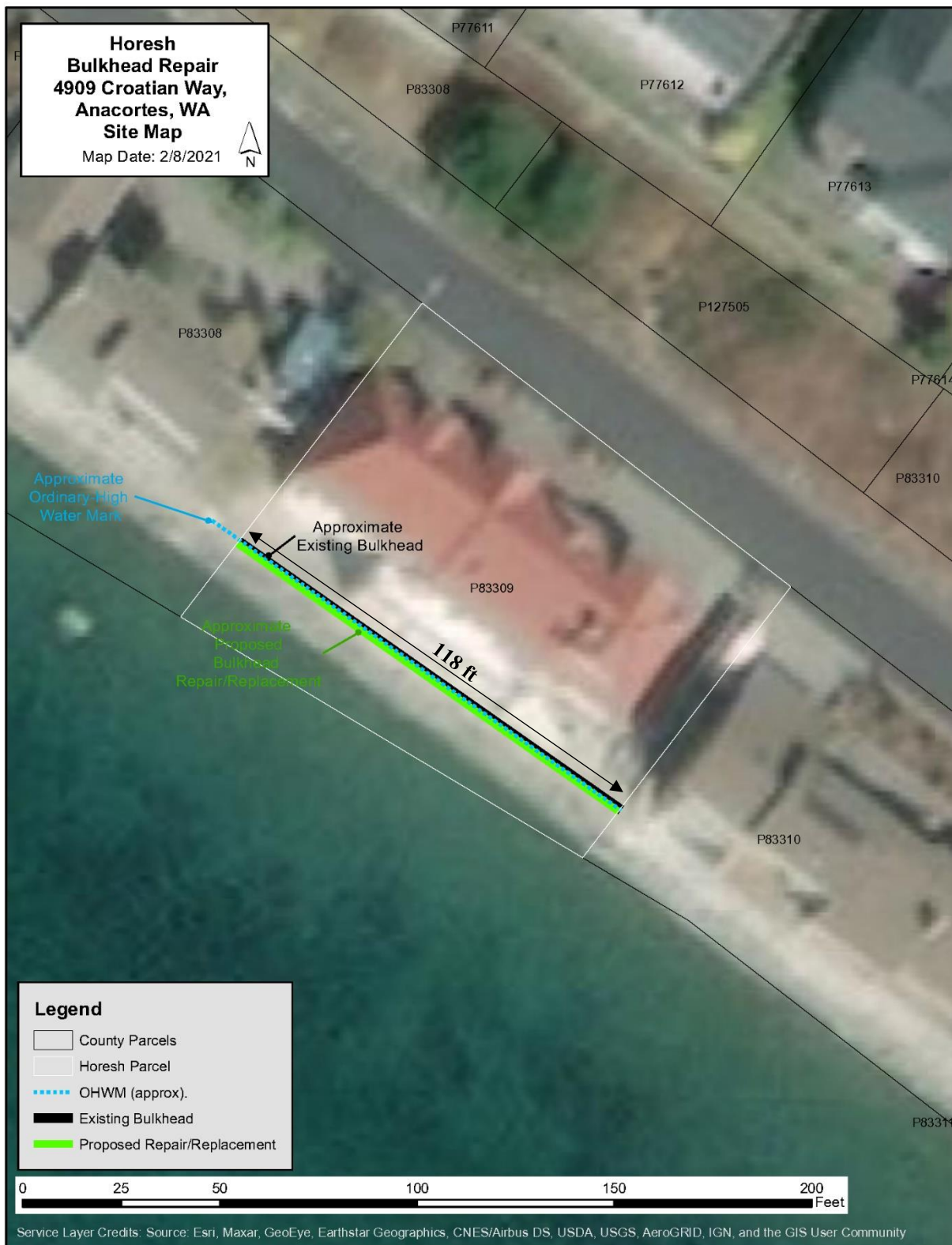


Service Layer Credits: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
 Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap

APPLICATION #: APPLICANT: Allen Horesh	PARCEL ID/Owner : P83309/Horesh	PROPOSED PROJECT: Bulkhead Replacement
SITE ADDRESS: 4909 Croatian Way, Anacortes, WA In: Burrows Bay, Puget Sound County: Skagit State: WA	ADJACENT PARCELS / OWNERS & ADDRESS: P83310 / Dowell Family Trust (Robert & Elaine) 4907 Croatian Way, Anacortes, WA 98221 P83308 / Thomas & Sally Foster 4911 Croatian Way, Anacortes, WA 98221	Sheet 1 of 8 DATE: 2/23/2021

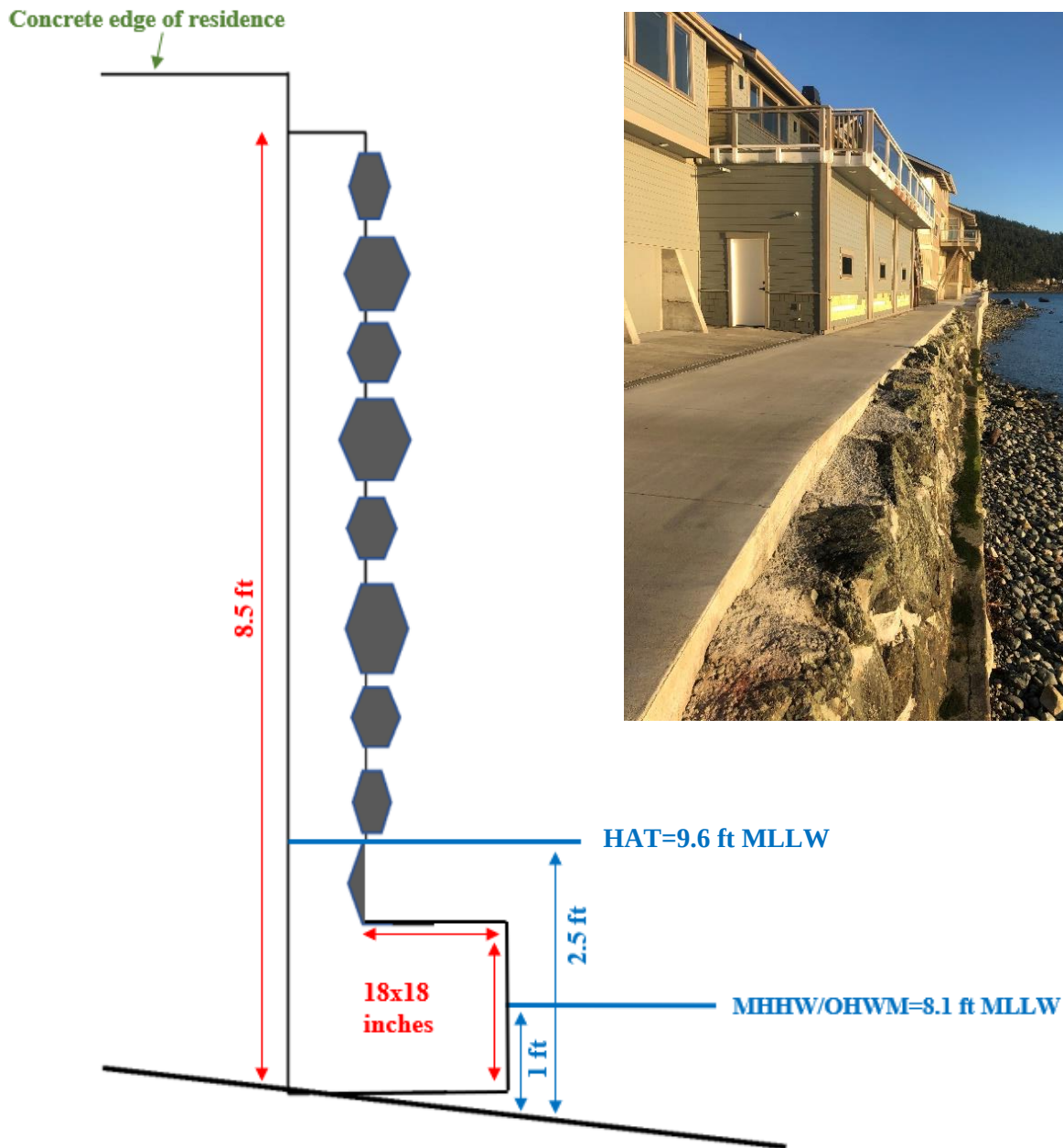


APPLICATION #: APPLICANT: Allen Horesh	PARCEL ID/Owner : P83309/Horesh	PROPOSED PROJECT: Bulkhead Replacement
SITE ADDRESS: 4909 Croatian Way, Anacortes, WA In: Burrows Bay, Puget Sound County: Skagit State: WA	ADJACENT PARCELS / OWNERS & ADDRESS: P83310 / Dowell Family Trust (Robert & Elaine) 4907 Croatian Way, Anacortes, WA 98221 P83308 / Thomas & Sally Foster 4911 Croatian Way, Anacortes, WA 98221	Sheet 2 of 8 DATE: 2/23/2021



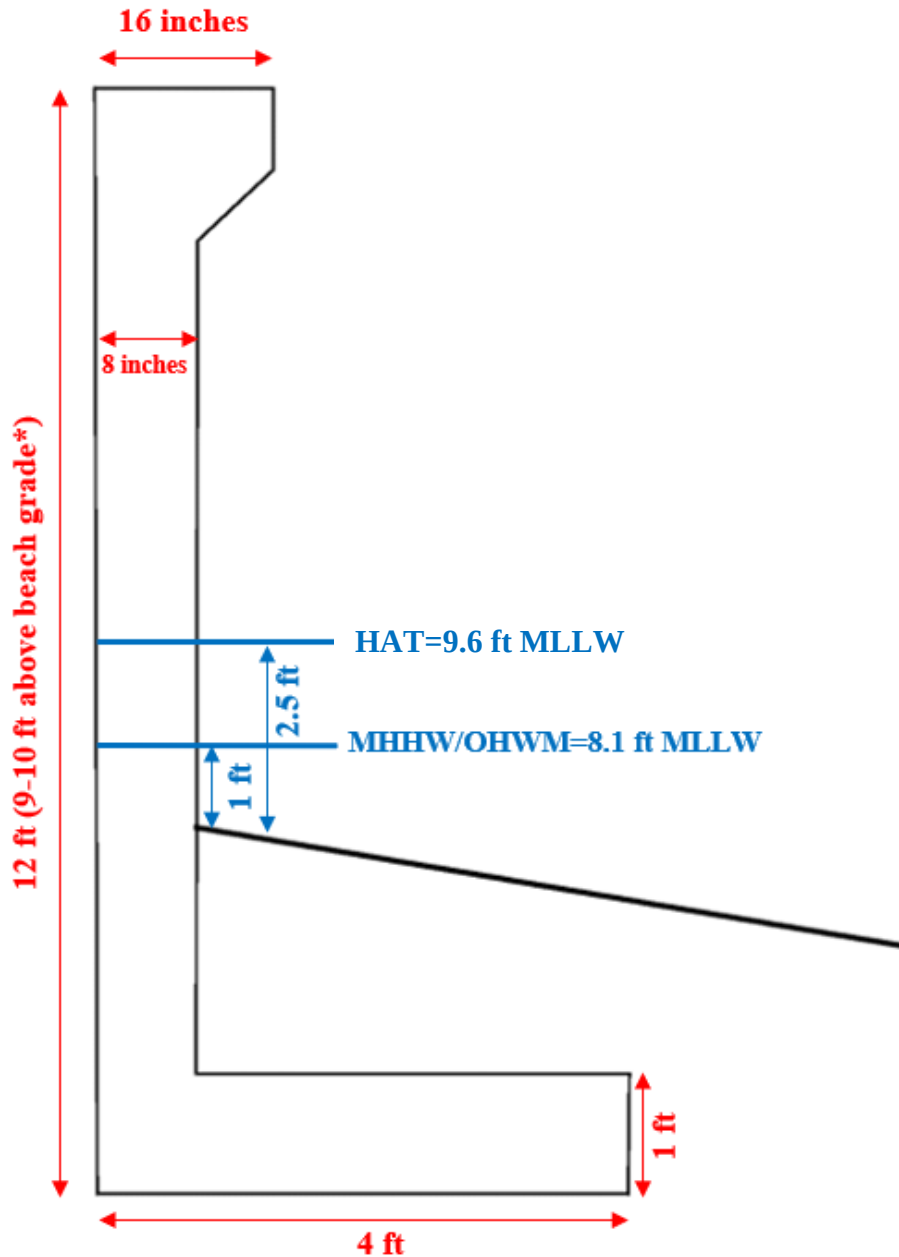
APPLICATION #:	PARCEL ID/Owner :	PROPOSED PROJECT:
APPLICANT: Allen Horesh	P83309/Horesh	Bulkhead Replacement
SITE ADDRESS:	ADJACENT PARCELS / OWNERS & ADDRESS:	Sheet 3 of 8
4909 Croatian Way, Anacortes, WA	P83310 / Dowell Family Trust (Robert & Elaine)	DATE: 2/23/2021
In: Burrows Bay, Puget Sound	4907 Croatian Way, Anacortes, WA 98221	
County: Skagit State: WA	P83308 / Thomas & Sally Foster	
	4911 Croatian Way, Anacortes, WA 98221	

Existing Horesh Bulkhead (not drawn to scale)



APPLICATION #: APPLICANT: Allen Horesh	PARCEL ID/Owner : P83309/Horesh	PROPOSED PROJECT: Bulkhead Replacement
SITE ADDRESS: 4909 Croatian Way, Anacortes, WA In: Burrows Bay, Puget Sound County: Skagit State: WA	ADJACENT PARCELS / OWNERS & ADDRESS: P83310 / Dowell Family Trust (Robert & Elaine) 4907 Croatian Way, Anacortes, WA 98221 P83308 / Thomas & Sally Foster 4911 Croatian Way, Anacortes, WA 98221	Sheet 4 of 8 DATE: 2/23/2021

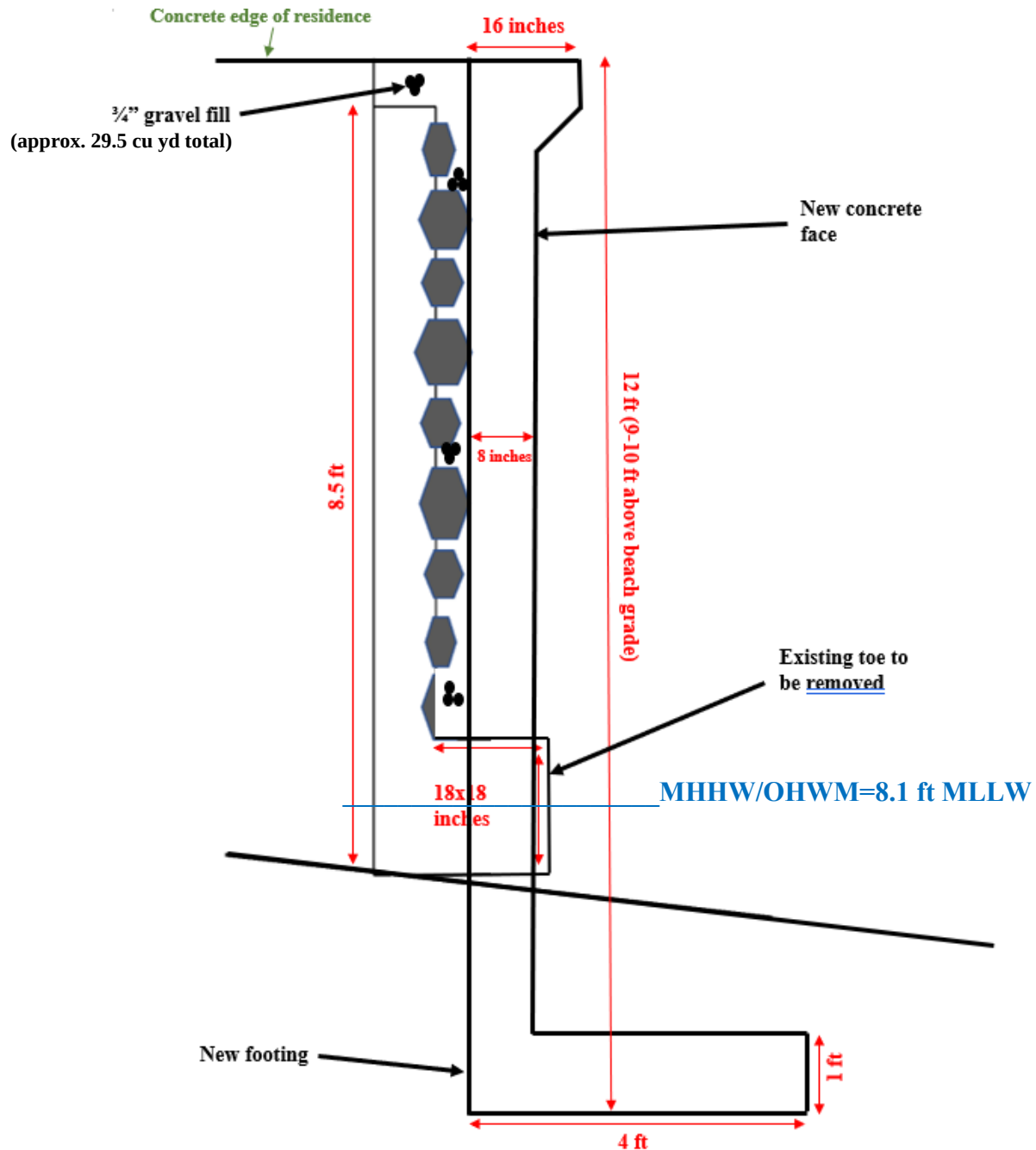
Proposed Horesh Bulkhead (not drawn to scale)



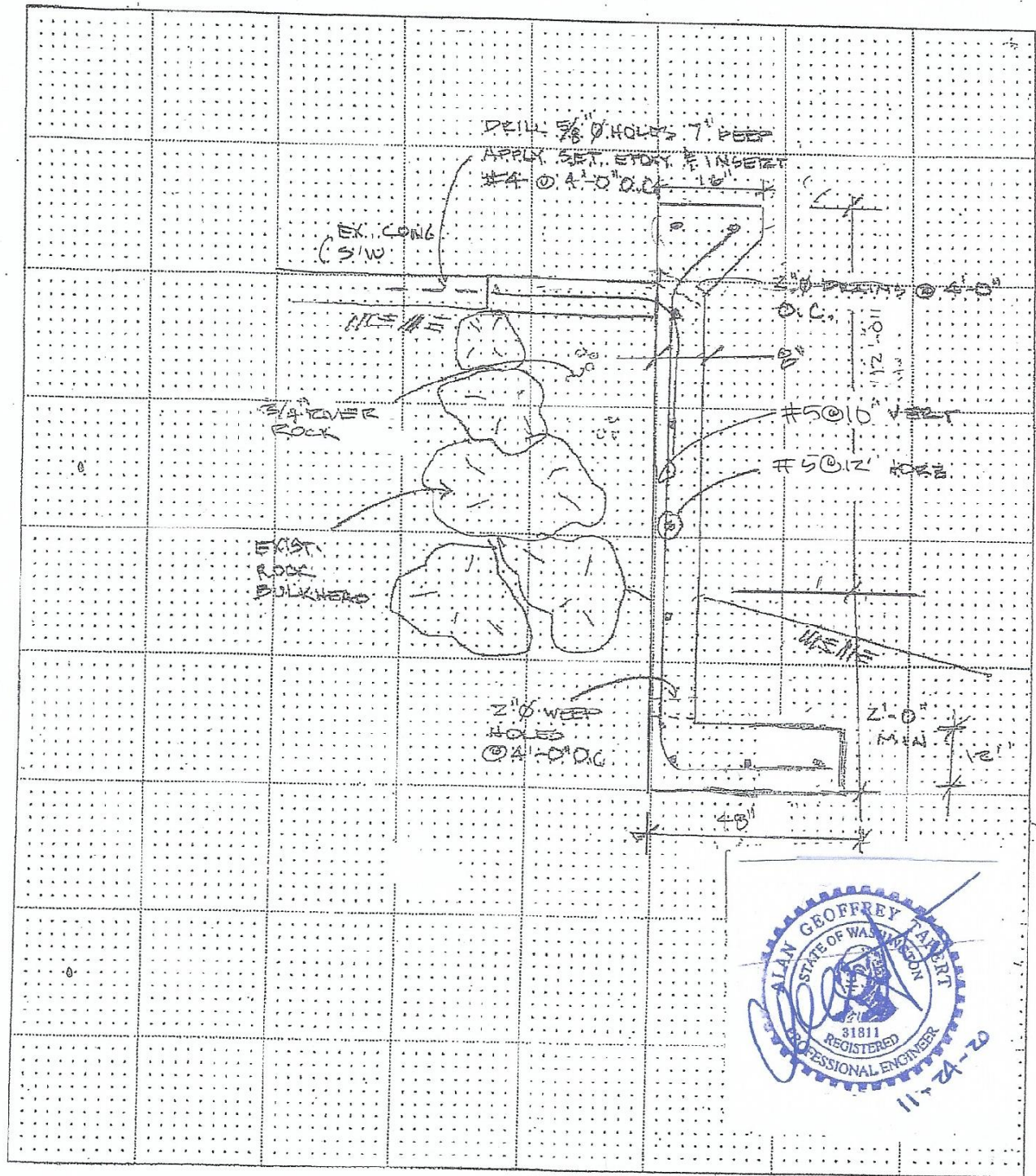
*beach elevation can change +/- 1 ft depending on the season

APPLICATION #: APPLICANT: Allen Horesh	PARCEL ID/Owner : P83309/Horesh	PROPOSED PROJECT: Bulkhead Replacement
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**Proposed Horesh Bulkhead with Existing Bulkhead Detail
(to demonstrate proposed bulkhead will not extend waterward of existing toe)**



APPLICATION #: APPLICANT: Allen Horesh	PARCEL ID/Owner : P83309/Horesh	PROPOSED PROJECT: Bulkhead Replacement
SITE ADDRESS: 4909 Croatian Way, Anacortes, WA In: Burrows Bay, Puget Sound County: Skagit State: WA	ADJACENT PARCELS / OWNERS & ADDRESS: P83310 / Dowell Family Trust (Robert & Elaine) 4907 Croatian Way, Anacortes, WA 98221 P83308 / Thomas & Sally Foster 4911 Croatian Way, Anacortes, WA 98221	Sheet 6 of 8 DATE: 2/23/2021



APPLICATION #: APPLICANT: Allen Horesh	PARCEL ID/Owner : P83309/Horesh	PROPOSED PROJECT: Bulkhead Replacement
SITE ADDRESS: 4909 Croatian Way, Anacortes, WA In: Burrows Bay, Puget Sound County: Skagit State: WA	ADJACENT PARCELS / OWNERS & ADDRESS: P83310 / Dowell Family Trust (Robert & Elaine) 4907 Croatian Way, Anacortes, WA 98221 P83308 / Thomas & Sally Foster 4911 Croatian Way, Anacortes, WA 98221	Sheet 7 of 8 DATE: 2/23/2021

Cantilever Retaining Wall Calculations

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Design Assumptions

Project: Puget Sound Shoreline
By: AGT
Date: 6/17/19

$f'_c = 3,000$ psi
 $f_y = 60$ ksi
Soil Bearing Capacity, $S = 2,000$ psf (Table 1804.2)
Equivalent Soil Pressure, $q = 35$ pcf
Soil Weight, $w = 120$ pcf
Sliding Coefficient, $\mu = 0.35$ (Table 1804.2)
Lateral Soil Bearing, $l_b = 150$ psf/ft (Table 1804.2)
Wall Width, $b = 8$ in
Design $d = 6.0$ in
Footing Depth, $T = 12$ in
Wall Height, $H = 10.00$ ft
Toe Width, $x = 0$ in
Design Heel Width, $y = 48$ in
Total Footing Width, $D = 56$ in
 $F_1 = wyH = 4,800$ lbs
 $F_2 = (H^2/2)g/2 = 1,750$ lbs
 $M_a(cw) = 12,800$ ft-lbs
 $M_a(ccw) = 5,633$ ft-lbs

F.S.
Overturning 2.19
Sliding 1.99
Bearing 1.44
Seismic 1.37
Min. Cover = 1.5 in
 $d_{(avail)} = 6.19$ in

10.00 foot wall

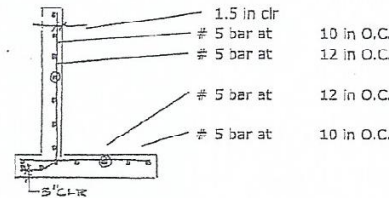
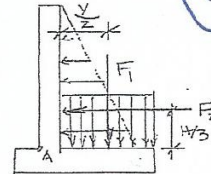
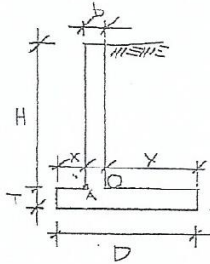


Overturning
 $M_a(ccw) * 1.5 \text{ F.S.} = 8,750$ ft-lbs
 $M_a(ccw) = M_a(cw)$
 $M_a(cw) = F_1(y/2+b)$
 $y_o = 2((M_a(ccw)/F_1)-b) = 28$ in

Sliding
Weight of Wall/ft, $F_w = 1,700$ lbs/ft
Weight of Soil above Heel, $F_1 = 4,800$ lbs/ft
Total Weight, $F_t = 6,500$ lbs/ft
Friction Resistance = $\mu F_t = 2,275$ lbs
Buried Toe Depth, $T = 12$ in
 $F_3 = T * l_b / (12 * 3) = 50$ lbs/ft
Total Sliding Resistance = 2325 lbs

Bearing Capacity
Min D per Soil Bearing Capacity
 $D = (F.S.) * (F_1 + F_w) / S = 117$ in

Seismic Lateral
Seismic Importance Factor, $I = 1.00$ Ss
Seismic Use Group I S1
Site Class D Ss
Response Modification Factor, $R = 3$ (Table 9.5.2.2)
 $S_{ws} = F_a S_s = 1.25$
 $S_{ps} = (2/3) * S_{ws} = 0.84$
 $C_s = S_{ps} / (R/I) = 0.26$
Seismic Base Shear, $V = C_s W = 170$ lbs/ft



Reinforcement - Stem
 $M_u = 1.4 M_a = 8,167$ ft-lbs
 $M_n = M_u / 0.9 = 9,074$ ft-lbs

$$M_u = A_s f_y d - \frac{A_s^2 f_y^2}{1.7 f'_c b}$$

$$A_s^2 - \frac{0.425 b f'_c}{f_y} + \frac{0.85 M_u f'_c b}{f_y^2} = 0$$

$$A_s = \frac{0.85 f'_c b d}{f_y} \pm \sqrt{\left(\frac{1.7 f'_c b d}{f_y}\right)^2 - 4(1) \left(\frac{1.7 f'_c b M_u}{f_y^2}\right)}$$

$$\rho_{min} = \frac{200}{f_y} \quad \rho_{min} = \frac{A_{s(min)}}{A_c} \quad A_{s(min)} = \rho_{min} A_c = \frac{200 A_c}{f_y} = \frac{200 b (12)}{f_y}$$

Area of Steel, A_s (sl/ft)

	6 in O.C.	8 in O.C.	10 in O.C.	12 in O.C.	14 in O.C.	16 in O.C.
# 4	0.393	0.294	0.236	0.196	0.160	0.147
# 5	0.613	0.460	0.358	0.307	0.263	0.230
# 6	0.883	0.662	0.530	0.442	0.378	0.331
# 7	1.202	0.902	0.721	0.601	0.515	0.451
# 8	1.570	1.178	0.942	0.785	0.673	0.589

Use # 5 bar at 10 in O.C. Vertical
Use # 5 bar at 12 in O.C. Horizontal
 $A_s = 0.368$ sl/ft

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In: Burrows Bay, Puget Sound County: Skagit State: WA		

***Compensatory Mitigation Plan for Impacts to
Overwater Structures Impacts in Marine Waters in the Seattle District,
U.S. Army Corps of Engineers***

Compensatory Mitigation Plan for:

***McIntyre & Waring Bulkhead Repair and Replacement
Corps reference # NWS-2020-593***

*Applicants: John & Colleen McIntyre
5003 Croatian Way
Anacortes, WA 98221*

*Barton Waring
5005 Croatian Way
Anacortes, WA 98221*

Prepared by: Marine Surveys & Assessments

July 16, 2020

1. Project Description

The existing Waring bulkhead is 83 ft long and 7 to 8.5 ft tall (at the current beach elevation), while the McIntyre bulkhead is 88 ft long and 9 to 10 ft tall (at the current beach elevation). The existing toe is on McIntyre's property and measures 12 inches wide by 8 inches deep; it does not contain any steel rebar. The existing McIntyre/Waring bulkhead is currently being undermined because it does not extend deep enough to be protected from erosion.

The proposed bulkhead replacement will stabilize the toe of the slope and extend the bulkhead deep enough that there will be no undermining to protect uplands from further erosion, as the High Tide Line (HTL) and Ordinary High Water Mark (OHWM) line is at the face of the bulkhead. The proposed project will be located landward of the outer (seaward) edge of the existing toe to comply with WAC 220-660-370 which allows no waterward expansion from the concrete toe of the existing structure.

The current proposed project will include:

1. Remove the existing concrete toe on the McIntyre property.
2. Form a stable concrete bulkhead adjoining to the seaward face of the existing bulkhead
3. Backfill all spaces between the face and interior of the existing bulkhead with $\frac{3}{4}$ inch river pebble.
4. Stabilize any areas under the existing concrete deck with reinforced concrete and fill, as necessary.

The construction crew and a small excavator will access the project site using a neighbor's boat ramp 0.19 miles southeast of the project site. Equipment will be staged within the cul-de-sac at the end of Croatian Way, northeast of parcel P83311. The existing concrete toe and debris will be removed with an excavator at low tide and disposed of at an upland site.

At low tide, an excavator will be used to install steel sheets that will be put up on sections of the bulkhead walls that are being worked on to avoid collapse and run off. The steel sheets are 20 ft long by 8 ft tall and weigh approximately 3,000 lbs apiece. The existing concrete toe will be removed at low tide by jack-hammering the toe into approximately 3 ft sections. A saw and jackhammer will also be used to remove a portion of the face of the Waring rock bulkhead to keep the new Waring bulkhead in line with the McIntyre bulkhead. The saw will have a garden hose hooked up to it to keep it wet which will minimize any dust that may result. Debris will be lifted and placed into a small dump truck by an excavator operating on the shoreline in the dry. All debris from the toe and bulkhead face will be removed during a single tide cycle with no debris exposed to the water. Equipment used for dismantling and removing the debris will be brought to the site and removed from the area during a single low tide cycle. An air compressor required for the jack hammer will be located shore side.

Construction will include digging three feet into beach substrate below HTL, seaward of the existing bulkhead, and creating a footer with 10-inch rebar centers to support a four-foot high concrete wall section. Additional 4 feet high wall sections, with 10-inch rebar centers, will be poured with concrete until the wall is approximately 12 feet in height (3 feet below grade and 9 feet above). The vertical wall, above grade, will be 8 inches thick and 9 feet tall with a 16-inch-thick lip at the top, protruding seaward. As per the builder, the concrete has 2% calcium in it, so it will harden in 20 minutes. Drainage holes will be drilled to allow stormwater to drain seaward. Beach nourishment suitable for surf smelt will be placed along the bulkhead at 12 inches deep and taper to 0 inches approximately 10 feet seaward from the proposed bulkhead. For surf smelt spawning beaches, sieve size percent passing by weight is as follows:

- 5/8-inch 100%
- 3/8-inch 90-100%
- 1/16-inch 40-50%
- 1/100-inch (0.25 mm) 0-5%

Excavation of the existing base, forming of the bulkhead, and pouring concrete will be done in 40-foot sections for each property, in the dry. According to the Washington State Coastal Atlas Map, drift cells currently move southeast to northwest along the shoreline of the project site.

Waring's bulkhead will be in line with the McIntyre's bulkhead when finished.

See the Biological Evaluation for more details.

2. Existing Conditions of Aquatic Resources

The property above the OHWM consists of single-family residences with a concrete capped riprap wall, which sits on the beach. The beach immediately adjacent to the bulkhead (below the OHWM) consists of mostly sand and large rock with pea gravel and sand along the upper intertidal zone along the bulkhead. Areas of macroalgae cover included *Ulva* up to 75%, *Fucus* up to 65%, *Porphyra* up to 25%, *Mastocarpus* up to 30%, *Neorhodomela* up to 90%, *Cryptosiphonia* up to 25%, *Desmarestia* up

to 1%, and foliose reds up to 25%. *Zostera marina* was observed just beyond the survey area with a bed starting 80 to 150 ft from the bulkhead. No wetland plants were observed.

There is no documented forage fish spawning habitat at the site, however, there is documented sand lance spawning immediately adjacent to the sites and surf smelt spawning northwest of the site within the 0.5 mile action area (Figure 6).

3. Avoidance and Minimization of Aquatic Resource Impacts

Avoidance and minimization measures to prevent impacts to listed species and designated critical habitat include management and design decisions that were made during the planning phases of the project and are outlined in the Alternatives Analysis. The project is proposing to replace the bulkheads in the same footprint with a footer that will be deep enough, it will not be undermined by wave action. Waring's bulkhead will be in line with the McIntyre's bulkhead when finished.

Site specific conservation measures for the proposed project include:

- Although a four-foot wide footer will be buried below the current marine shore grade, above ground repair and replacement of the bulkhead will be within the same footprint as the existing structure.
- Beach nourishment suitable for surf smelt will be placed on the seaward face of the proposed project and taper 10 feet to the marine shoreline. For surf smelt spawning beaches, sieve size percent passing by weight is as follows:
 - 5/8-inch 100%
 - 3/8-inch 90-100%
 - 1/16-inch 40-50%
 - 1/100-inch (0.25 mm) 0-5%
- A combined work window of July 16th to February 15th is proposed for any work to occur in. At any time during the work window, a forage fish survey should be completed by a WDFW certified biologist to confirm presence/absence of forage fish spawning on the beach before any work commences.
- Backfill behind the rebuilt bulkhead will only use new, clean ¾ inch pebbles that are free from contaminants and fine dirt (minus).
- To further minimize effects of the demolition or other earthwork on the adjacent water, all construction activities prior to the creation of the new bulkhead wall, will be performed during low tide.
- To utilize steel sheets that will avoid collapse and runoff during construction activities and best management practices to minimize potential turbidity caused from sediment disturbed by the proposed project.

4. Unavoidable Aquatic Resources Impact Acreage

Table 1. Expected Impacts to Aquatic Resources From Bulkhead Repair

Activity (clear, dredge, fill, pile drive, etc.)	Waterbody name	Impact location ²	Duration of impact	Amount of material to be placed in or removed from waterbody	Area (sq. ft. or linear ft.) of waterbody directly affected
New bulkhead construction	Burrows Bay	At and behind OHWM/HTL	Permanent	Above grade: 47 yd ³ of concrete poured into forms (8 in. wide by 10 ft tall above grade) for wall including top caps Below grade: 29 yd ³ Total: 76 yd³ (39 yd ³ – McIntyre, 37 yd ³ – Waring)	171 linear ft (McIntyre-88 ft, Waring-83 ft)
Beach Nourishment	Burrows Bay	Below OHWM/HTL	Permanent	31.7 yd³ total (16.3 yd ³ - McIntyre, 15.4 yd ³ - Waring)	171 linear ft
Existing bulkhead toe removal (below beach grade)	Burrows Bay	At and below HTL	Permanent	Average 8 in. high x 12 ft wide x 88 ft long = 2.2 yd³ total removed	Average 1 ft wide x 88 ft long = 88 ft² removed

5. Impacted Aquatic Resource Functions

Work will be done in the dry but there may be some temporary turbidity and noise associated with the construction activities. Indirect effects associated with bulkheads include sediment impoundment and scouring which may degrade potential forage fish spawning habitat and nearshore habitat utilized by juvenile salmon at the site over time.

6. Mitigation Site Selection Rationale

Mitigation will be on site and will involve the removal of a total of approximately 2.2 yd³ (60 ft³) of the existing bulkhead and toe.

Beach nourishment suitable for surf smelt will be placed along the bulkhead at 12 inches deep at the bulkhead and taper to 0 inches 10 ft waterward. That would result in a breakdown of nourishment at each property as follows:

- McIntyre: 16.3 yd³
- Waring: 15.4 yd³

7. Mitigation Work Plan and Description of Aquatic Functions Provided at Mitigation Site

Work Plan

The construction crew and a small excavator will access the project site using a neighbor's boat ramp 0.19 miles southeast of the project site. Equipment will be staged within the cul-de-sac at the end of Croatian Way, northeast of parcel P83311. The excavator that will be used to remove the concrete from the beach will also spread the beach nourishment. Work will be done in the dry at low tide.

Aquatic Functions Provided

Beach nourishment will create suitable habitat for forage fish spawning and may reduce sediment impoundment and drift.

8. Site protection instrument

No site protection is proposed.

9. Maintenance plan

No maintenance for the beach nourishment is proposed. Once it is initially placed on the beach, it will be left to natural processes.

10. Performance standards

All concrete rubble and debris will be removed and waste hauled to a permitted site.

General BMPs will be followed:

- Daily inspection of equipment and storage areas will be conducted prior to commencing work activities to prevent drips, leaks, or failures of hoses, valves, fittings, containers, pumps, or other systems that contain or transfer hazardous materials to prevent spills into State waters.
- All fueling locations and procedures are via double wall fuel tanks, secondary containment, near spill kits, etc. as described in the SPCC Plan under separate SPCC Plan Submittal.
- BMPs such as spill kits on board vessels, including diapers and secondary containment basins placed underneath equipment stored onsite. The BMPs will be maintained daily.
- Any equipment having petroleum products or having spill potential will have spill response kits and containment booms nearby due to the proximity to the beach. These kits and booms shall be maintained, immediately accessible and located near all hazardous materials and equipment.
- Containment shall be provided for spill sources. Secondary containment containing 110% of the volume of the largest tank shall be used under fuel tanks and during fueling of equipment. Double walled tanks shall not require additional secondary containment.
- Portable restrooms shall be anchored down to prevent tipping and/or losing these structures near state waters during high wind events.
- Throughout the work the Contractor shall ensure that all construction-related debris is collected and contained and that no debris, garbage, or fuel shall enter the water via the implementation of the BMPs.

11. Monitoring requirements

No monitoring is proposed.

12. Long-term management plan

No long-term management is anticipated to be needed and is therefore not proposed.

Figure 1. Overall site plan showing beach nourishment placement



Figure 2. Proposed McIntyre bulkhead cross section

X-SOUND
ENGINEERING, INC.

P.O. Box 1266
Freeland, WA 98249
(360) 331-3113 (C)
(360) 331-7114 (F)

JOB MCINTYRE BULKHEAD
BY ACT DATE 6-8-20

CONC. BULKHEAD
(12' WALL, 10' SOIL PIPE) X

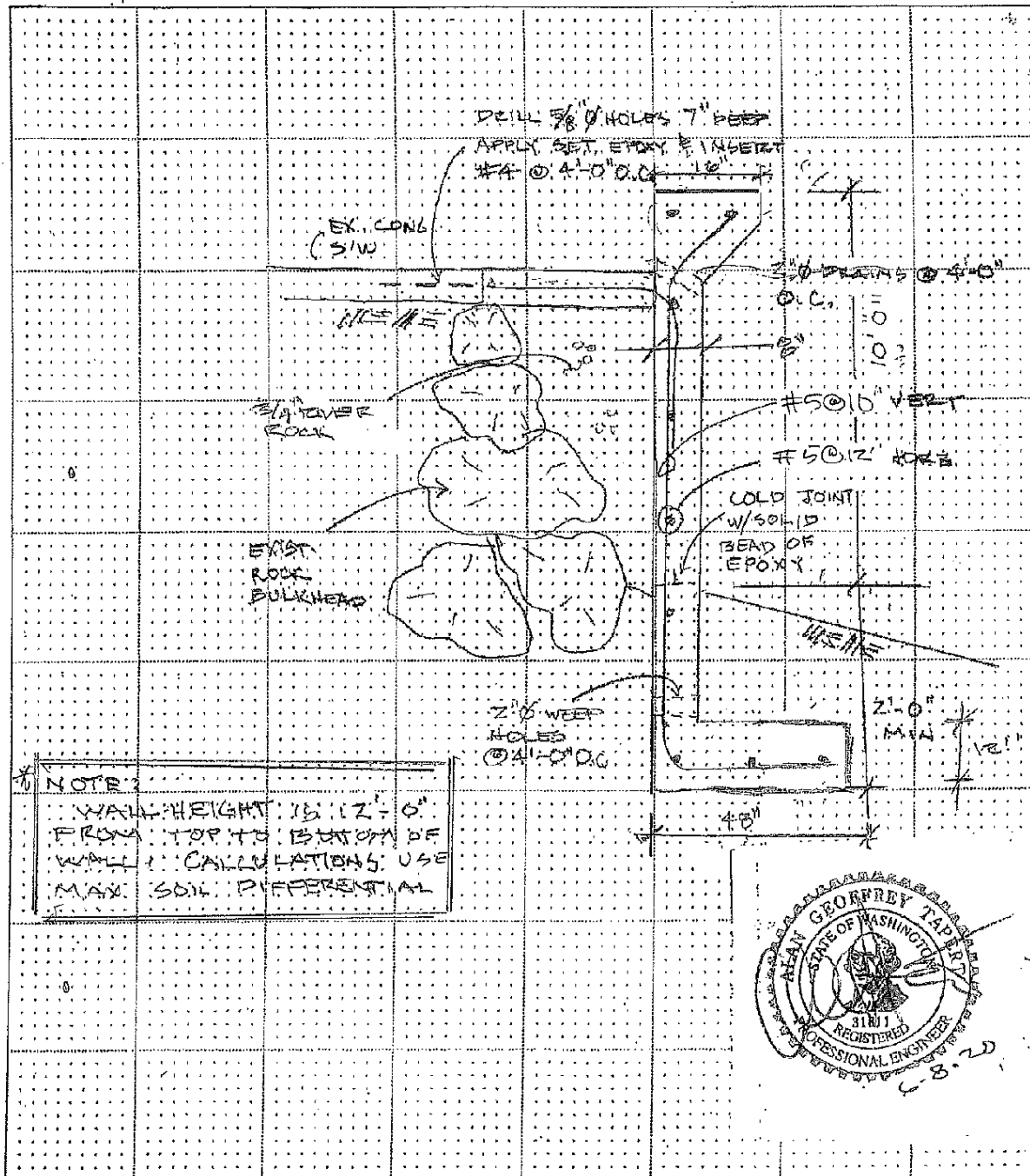


Figure 3. Proposed Waring bulkhead cross section

X-SOUND

ENGINEERING, INC.

P.O. Box 1285
Freeland, WA 98248
(360) 331-3113 (O)
(360) 331-7114 (F)

JOB WARING BULKHEAD
BY AGT DATE 6-8-20

CONC. BULKHEAD
(12' WALL, 10' SOIL PIFF)

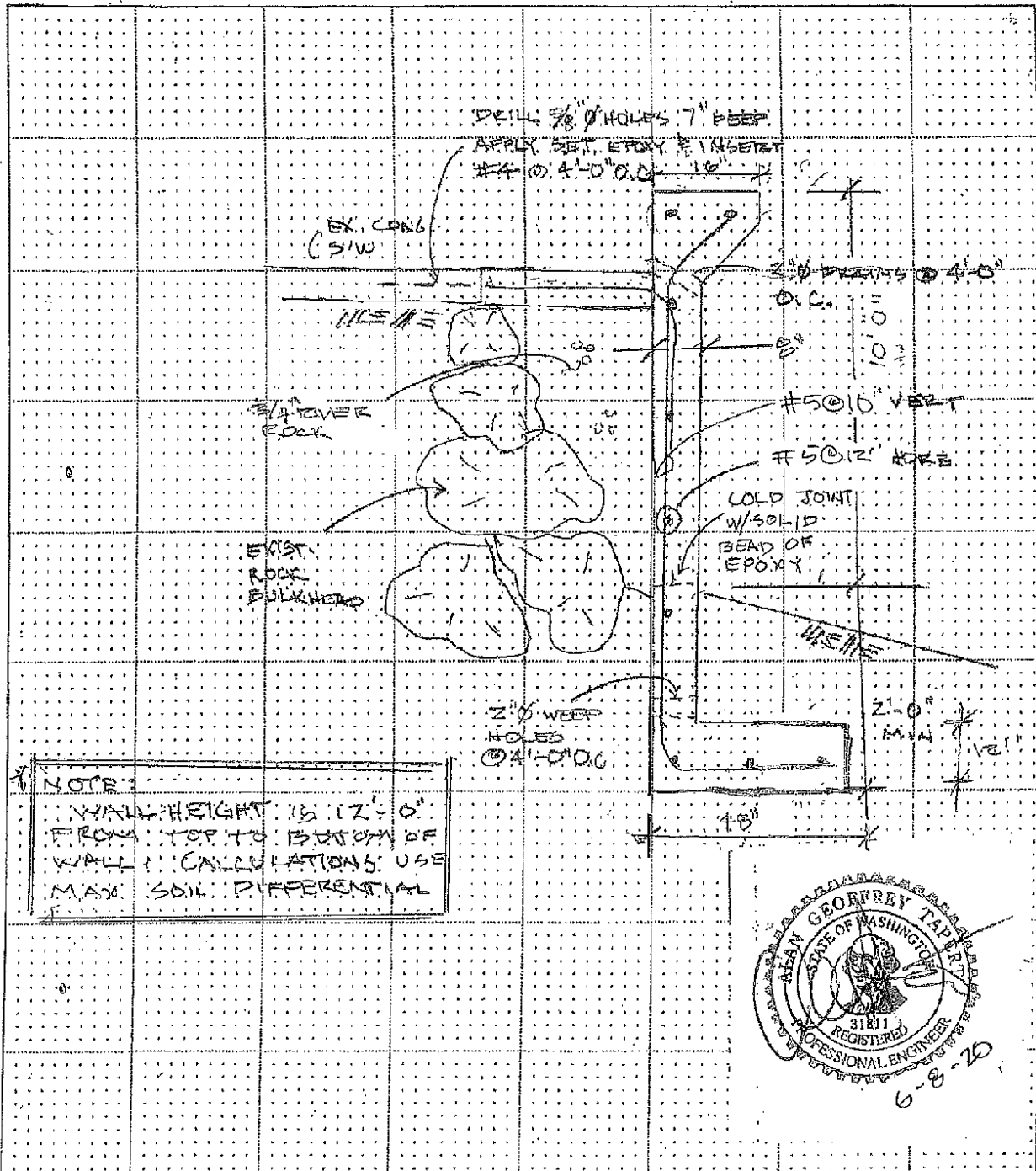
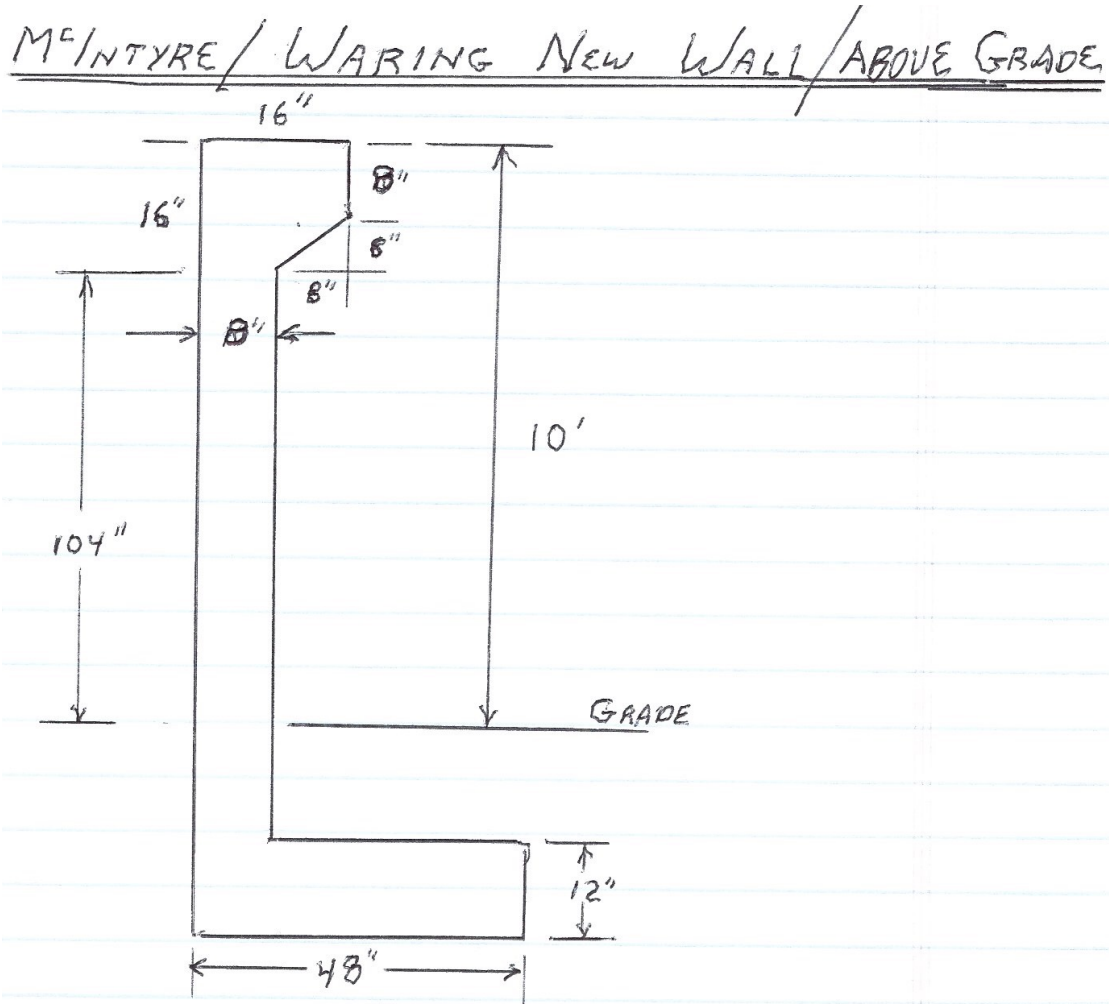


Figure 4. Proposed Bulkhead Calculations (above grade)



McINTYRE - 88' WARING - 83'

$$\frac{(8 \times 104) + (16 \times 16) - \frac{1}{2}(8 \times 8)}{144 \frac{\text{in}^3}{\text{ft}^2}} = \frac{832 + 256 - 32}{144} = 7.33 \frac{\text{sf}}{\text{ft}}$$

$$\frac{7.33 \frac{\text{sf}}{\text{ft}} \times 88'}{27 \frac{\text{ft}^3}{\text{yd}}} = 24 \text{ yds} - \text{McINTYRE}$$

$$\frac{7.33 \frac{\text{sf}}{\text{ft}} \times 83'}{27 \frac{\text{ft}^3}{\text{yd}}} = 23 \text{ yds} - \text{WARING}$$

$$\underline{47 \text{ yds} - \text{TOTAL}}$$

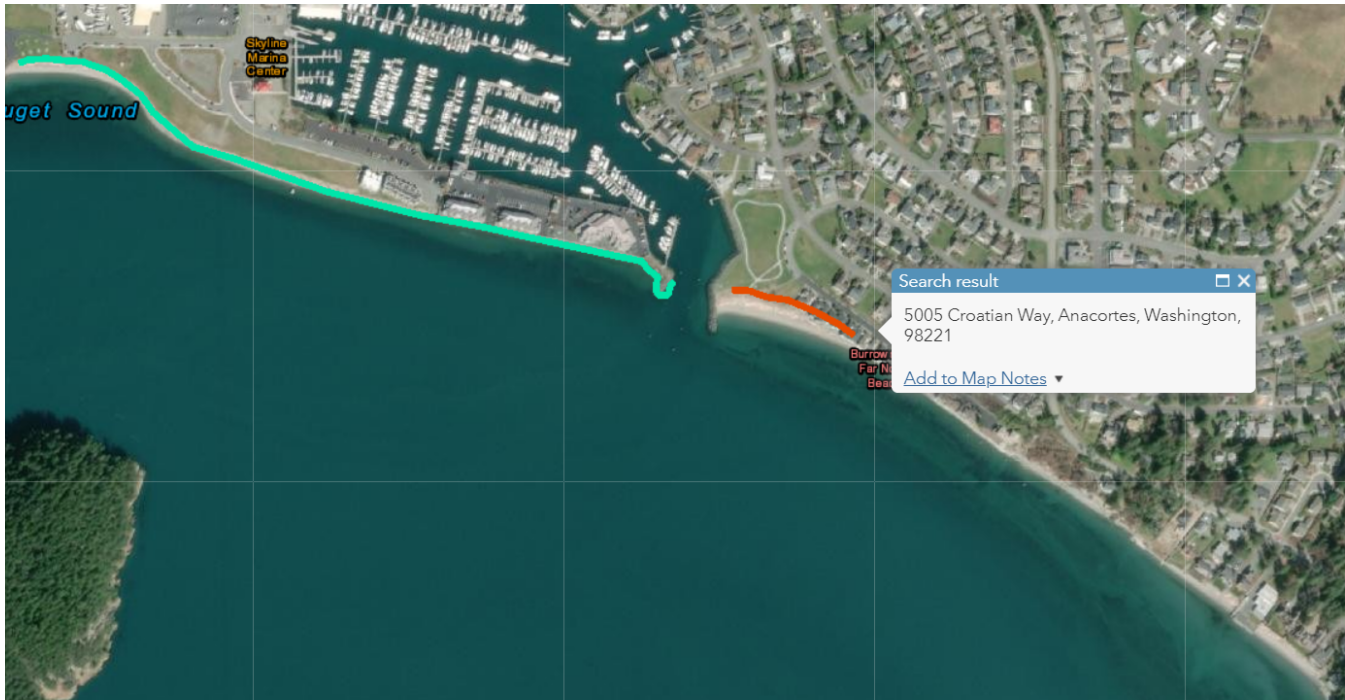
Figure 5. Proposed Bulkhead Calculations (below grade)

McINTYRE / WARING
NEW WALL VOLUME BELOW GRADE

McINTYRE - 88 ft WARING - 83 ft

$$\frac{(24 \times 8) + (40 \times 12)}{144 \text{ in}^2/\text{ft}^2} = \frac{192 + 480}{144} = 4.67 \text{ sf/ft}$$
$$\frac{4.67 \text{ sf/ft} \times 88 \text{ ft}}{27 \text{ ft}^3/\text{cy}} = 15 \text{ cy} - \text{McINTYRE}$$
$$\frac{4.67 \text{ sf/ft} \times 83 \text{ ft}}{27 \text{ ft}^3/\text{cy}} = 14 \text{ cy} - \text{WARING}$$

Figure 6. WDFW Documented Forage Fish Spawning



Legend

Forage Fish Spawning Data

Sand Lance Spawning



Smelt Spawning



Herring Spawning



Pre-spawner Herring Holding Areas



Attachment 1. Photos of the Existing Bulkheads (Waring then McIntyre)





PLANNING, COMMUNITY, & ECONOMIC DEVELOPMENT DEPARTMENT
Mailing Address: P.O. Box 547, Anacortes, WA 98221
Office Location: 904 6th Street, Anacortes WA 98821
Phone: (360) 299-1984

CITY OF ANACORTES

Planning, Community, &
Economic Development

Date Received:

5/6/2021

SDP-2021-0002

Master Land Use Permit Application

TYPE OF APPLICATION (check all that apply):		
☐ Administrative Interpretation ☐ Annexation Request ☐ Binding Site Plan (Preliminary) ☐ Boundary Line Adjustment (BLA) ☐ Comprehensive Plan/ Map Amendment Request ☐ Conditional Use Permit (CUP) per AMC 19.36 ☐ Conditional/Special Use Permit (CUP) per AMC 17.70 ☐ Cottage Housing Development ☐ Development Agreement ☐ Essential Public Facility	☐ Floodplain Development Permit ☐ Home Occupation Permit ☐ Long Subdivision (Preliminary) ☐ Lot Certification ☐ Minor Permit Revision ☐ Plat Amendment /Modification ☒ SEPA Environmental Review ☐ Shoreline Conditional Use Permit ☐ Shoreline Exemption ☒ Shoreline Substantial Development Permit ☐ Shoreline Variance	☐ Short Subdivision (Preliminary) ☐ Site Plan Review – Type 1 ☐ Site Plan Review – Type 2 ☐ Stormwater Management Manual Adjustments & Exceptions ☐ Variance (Level 1) ☐ Variance (Level 2) ☐ Wireless Conditional Use Permit (WCUP) ☐ Wireless Service Facility (WSF) Permit ☐ Zoning Code/ Map Amendment Request (Rezone)
PROJECT & SITE INFORMATION:		
SITE ADDRESS: 5003 & 5005 Croatian Way, Anacortes	PROJECT NAME: Bulkhead Repair	
PARCEL NUMBER(S): P83307 (McIntyre) and P83306 (Waring)	SECTION, TOWNSHIP, & RANGE SW 1/4 Section 27, T35N, R01W	
LOT SQUARE FOOTAGE/ACREAGE: Both lots are 0.24 Acres	PROJECT VALUATION: \$100,000.00	
LEGAL DESCRIPTION: CHEUNG-MAVAR'S SKYLINE 21, LOTS 7 & 6,	PRESENT ZONING R2 (Residential Low Density 2)	
PRESENT USE OF PROPERTY: Single family residences	CUT & FILL (CY) PROPOSED: N/A	
PRE-APPLICATION CONFERENCE HELD: ☒ Yes, the City file # is <u>Pre-2020-0015</u> ☐ No	WATER SOURCE: ☒ City of Anacortes ☐ Private Well ☐ Community Well	
SEWAGE DISPOSAL: ☒ City of Anacortes ☐ Septic	ROAD ACCESS: ☐ City Road ☐ State Highway ☒ Private Road	

CRITICAL AREAS OR BUFFERS ON SITE OR W/ 300': ☒ Yes / Type Marine Shoreline ☐ No		WATER BODIES WITHIN 200 FEET: ☒ Yes / Name: Burrows Bay, Salish Sea ☐ No	
FLOODPLAIN: City of Anacortes Flood Zone: AE FIRM Panel #: 530317 Date of Panel: 9/17/2003			
LOT COVERAGE AREA CALCULATIONS: Existing Square Footage: Bulkhead, approx 46 square feet Proposed Square Footage: Replace in same foot print			
IMPERVIOUS SURFACE AREA CALCULATIONS: Existing Impervious Square Footage: N/A New Impervious Surface: N/A			
DESCRIPTION OF SUBJECT PROPOSAL: ☐ Additional pages attached			
PROPOSED WORK: The proposal is to reinforce and repair the existing rock seawall with a light reinforced concrete face butted right up against it as closely as the contractor is able and buried deep to make further undercutting extremely unlikely. The concrete toe of the existing wall will be removed and the new facing will go in it's place so there will be no new footprint on the beach. The new deeper protection that this refacing will provide, at the base of the existing rock sea wall, will prevent further degradation of the wall by winter storm wave action.			
PROPERTY OWNER INFORMATION: ☒ Multiple owners attached			
NAME: John & Colleen McIntyre		MAILING ADDRESS: 5003 Croatian Way	
CITY, STATE, ZIP: Anacortes, WA, 98221		PHONE #: 253-208-5919	
FAX #: 		EMAIL ADDRESS: jsmcintyre@aol.com	
APPLICANT INFORMATION: ☒ Same as property owner			
NAME:		MAILING ADDRESS:	
CITY, STATE, ZIP:		PHONE #:	
FAX #:		EMAIL ADDRESS:	
CONTACT PERSON: ☐ Same as property owner ☐ Same as applicant			
NAME: Marine Surveyes & Assessments - Meg Amos		MAILING ADDRESS: 380 Jefferson Street	
CITY, STATE, ZIP: Port Townsend, WA 98368		PHONE #: (360) 385-4073	
FAX #:		EMAIL ADDRESS: meg@msaenvironmental.com	

ACKNOWLEDGEMENTS & SIGNATURE	
Read and initial each of the following statements prior to signing this application:	
	I understand that land use and/or planning permits do not authorize earth disturbing activities, the removal of vegetation, or the construction of buildings. I understand that additional permits will be required after my land use and/or planning permitting process is completed. I understand that no earth disturbing activities (including the removal of vegetation) may take place until after my land use and/or planning process is complete, and only after I have received additional permits such as Fill & Grade, Building Permit, or Right-of-Way permit(s).
	I understand that if critical areas (wetlands, streams, steep slopes, etc.) are found on or near my property I am not authorized to impact these areas in any way and will be required to leave an undisturbed buffer area around the critical area, as determined according the City's critical areas regulations.
	I understand that depending on the size and scope of my project, I may be required to provide maintenance and/or performance bonds for items such as landscaping, critical areas, public roads and/or public utilities that I construct or install.
	I understand that I am solely responsible for providing complete and accurate information to the City. I understand that if my application is missing information or if inaccurate materials are submitted, my permits will be delayed. I understand that depending on how inaccurate and how incomplete my application is or becomes, the Department may require an entirely new application be submitted. I understand that when and if conditions change from that which my application originally represented, I am responsible for letting the City staff person assigned to my project know.
	I understand that I am applying for permits from the City of Anacortes only; and that additional permits from other Federal, State, and Local agencies could be required. I understand that the City of Anacortes cannot advise me of permits that are required from other agencies, and that I must contact these agencies to make sure I comply with their requirements. These agencies include (but are not limited to): Corps of Engineers, Department of Natural Resources, Department of Fish & Wildlife, Department of Ecology, and Northwest Clean Air Agency.
	I understand that I will be responsible for paying consultants that the City may deem necessary to review certain aspects of my application. I understand that these consultant reviews could include special inspections, traffic concurrency, critical areas, landscaping, stormwater, etc.

Signature required on next page.

By affixing my signature hereto, I certify that I am the owner, or am acting as the Owner's authorized agent, and that the application and documents contained with this submittal are complete and accurate to the best of my knowledge and abilities. If your title report lists a company, partnership or other owners, you must submit evidence that you are authorized to sign on behalf of the entity or others that are listed.

If you are an authorized representative you must submit an Agent Authorization Form.

Please attach additional signature sheets if there is more than one owner.

Under penalty of perjury, I certify that the information, statements, answers above regarding the subject application(s) are true and correct to the best of my knowledge and belief.

Signature: _____ Date: _____

Printed Name: _____

STATE OF WASHINGTON)
) ss.
COUNTY OF SKAGIT

I certify that I know or have satisfactory evidence that _____ is the person who appeared before me, and said person acknowledged that he/she signed this instrument, and acknowledged it as the free and voluntary act for the uses and purposes mentioned in this instrument.

Given under my hand and official seal this _____ day of _____, 20_____

Notary Public

(SEAL)

Residing at _____

My appointment expires _____

CRITICAL AREAS OR BUFFERS ON SITE OR WITHIN 300 FEET: ☒ Yes / Type <u>Marine shoreline</u> ☐ No	WATER BODIES WITHIN 200 FEET: ☒ Yes / Name: <u>Burrows Bay, Salish Sea</u> ☐ No
FLOODPLAIN: Flood Zone: <u>AE</u> FIRM Panel # <u>City of Anacortes 530317</u> Date of Panel: <u>9/17/2003</u>	
LOT COVERAGE AREA CALCULATIONS: Existing Square Footage: Proposed Square Footage: <u>Same foot print</u> Bulkhead, ~ 46 square feet (concrete toe)	
IMPERVIOUS SURFACE AREA CALCULATIONS: Existing Impervious Square Footage: <u>N/A</u> New Impervious Surface: <u>N/A</u>	
DESCRIPTION OF SUBJECT PROPOSAL: ☐ Additional pages attached	
PROPOSED WORK:	
The proposal is to reinforce and repair the existing rock seawall with a light reinforced concrete face butted right up against it as closely as the contractor is able, buried deep to make further undercutting extremely unlikely. The puddled grout extending onto the beach at the normal beach level of the existing wall will be removed. The new deeper protection that this refacing will provide, at the base of the existing rock sea wall, will prevent further degradation of the wall by winter storm wave action.	
PROPERTY OWNER INFORMATION: ☒ Multiple owners attached	
NAME: Barton Waring	MAILING ADDRESS: 5005 Croatian Way
CITY, STATE, ZIP: Anacortes, WA 98221	PHONE #: (360) 941-3566
FAX #: 	EMAIL ADDRESS: bartonwaring@gmail.com
APPLICANT INFORMATION: ☒ Same as property owner	
NAME: 	MAILING ADDRESS:
CITY, STATE, ZIP: 	PHONE #:
FAX #: 	EMAIL ADDRESS:
CONTACT PERSON: ☐ Same as property owner ☐ Same as applicant	
NAME: Marine Surveys & Assessments - Meg Amos	MAILING ADDRESS: 380 Jefferson Street
CITY, STATE, ZIP: Port Townsend, WA 98368	PHONE #: (360) 385-4073
FAX #: 	EMAIL ADDRESS: Meg@msaenvironmental.com

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If you are an authorized representative you must submit an Agent Authorization Form.

Please attach additional signature sheets if there is more than one owner.

Under penalty of perjury, I certify that the information, statements, answers above regarding the subject application(s) are true and correct to the best of my knowledge and belief.

Signature: _____ Date: _____

Printed Name: _____

STATE OF WASHINGTON)
) ss.
COUNTY OF SKAGIT

I certify that I know or have satisfactory evidence that _____ is the person who appeared before me, and said person acknowledged that he/she signed this instrument, and acknowledged it as the free and voluntary act for the uses and purposes mentioned in this instrument.

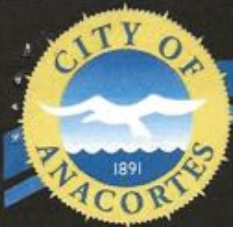
Given under my hand and official seal this _____ day of _____, 20_____

Notary Public

(SEAL)

Residing at _____

My appointment expires _____

**CITY OF ANACORTES**Planning, Community, &
Economic Development**Date Received:**5/6/2021904 6th St. / P.O. Box 947, Anacortes, WA 98221**AGENT AUTHORIZATION FORM**

Use this form to authorize someone other than the property owner to apply for permits for the subject property.

Project Name: McIntyre and Waring Bulkhead Repair

Property Address: 5003 and 5005 Croation Way

City, State, Zip: Anacortes, WA 98221

AUTHORIZATION STATEMENT

I / we, as the owners of the property identified above, authorize the below listed individual to act as our agent to submit applications, receive correspondence regarding the above-listed application, and sign and to receive notices on my/our behalf.

DESIGNATED AGENT

Agent Name: Marine Surveys & Assessments (Meg Amos)

Agent Address: 380 Jefferson Street

Agent City, State, Zip: Port Townsend, WA 98368

PROPERTY OWNER SIGNATURE(S)**

Signature:

John S McIntyre

Signature:

Colleen M McIntyre

Printed Name:

JOHN S. MCINTYRE

Printed Name:

Colleen M. McIntyre

Title:

OWNER

Title:

Owner

Company:

N/A

Company:

N/A

Date:

6/18/2020

Date:

6/18/2020

**Each property owner listed must have their signature notarized.

SEE ATTACHED CALIFORNIA JURAT

STATE OF WASHINGTON)
) ss.
COUNTY OF SKAGIT

I certify that I know or have satisfactory evidence that _____ is the person who appeared before me, and said person acknowledged that he/she signed this instrument, on oath stated that he/she was authorized to execute the instrument, and acknowledged it as the _____ to be the free and voluntary act and deed of said _____ for the uses and purposes therein mentioned.

Given under my hand and official seal this _____ day of _____, 20____

Notary Public

Residing at _____

My appointment expires _____

(SEAL)

STATE OF WASHINGTON)
) ss.
COUNTY OF SKAGIT

I certify that I know or have satisfactory evidence that _____ is the person who appeared before me, and said person acknowledged that he/she signed this instrument, on oath stated that he/she was authorized to execute the instrument, and acknowledged it as the _____ to be the free and voluntary act and deed of said _____ for the uses and purposes therein mentioned.

Given under my hand and official seal this _____ day of _____, 20____

Notary Public

Residing at _____

My appointment expires _____

(SEAL)

CALIFORNIA JURAT

GOVERNMENT CODE § 8202

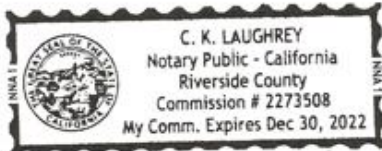
A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California

County of

RIVERSIDE

Subscribed and sworn to (or affirmed) before me on

this 18th day of JUNE, 2020, by
Date Month Year(1) JOHN S. MCINTYRE(and (2) COLLEEN M. MCINTYRE,
Name(s) of Signer(s)proved to me on the basis of satisfactory evidence to
be the person(s) who appeared before me.

Place Notary Seal and/or Stamp Above

Signature

C. K. Laughrey
Signature of Notary Public**OPTIONAL**

Completing this information can deter alteration of the document or
fraudulent reattachment of this form to an unintended document.

Description of Attached DocumentTitle or Type of Document: AGENT AUTHORIZATION FORMDocument Date: JUNE 18, 2020 Number of Pages: 3Signer(s) Other Than Named Above: NONE

**City of Anacortes Narrative Description for
Proposed Bulkhead Work at
5003 & 5005 Croation Way**

May 20, 2020

CITY OF ANACORTES

*Planning, Community, &
Economic Development*

Date Received:

5/6/2021

The proposed project aims to fully repair the existing bulkhead and replace failed areas closest to the marine shoreline with new hard armoring. New fill may be added to the existing bulkhead. Beach nourishment is also being proposed to reduce further erosion to the beach and minimize impacts to forage fish

The existing Waring bulkhead is 83 ft. long and 7 to 8.5 ft. tall (at the current beach elevation), while the McIntyre bulkhead is 88 ft. long and 9 to 10 ft. tall (at the current beach elevation). The existing toe is 12 inches wide by 8 inches deep and does not contain any steel rebar. The existing McIntyre/Waring bulkhead is currently being undermined because it does not extend deep enough to be protected from erosion.

The proposed bulkhead replacement will stabilize the toe of the slope and extend the bulkhead deep enough that there will be no undermining to protect uplands from further erosion, as the HTL/OHWM is at the face of the bulkhead. The proposed project will be located landward of the outer (seaward) edge of the existing toe to comply with WAC 220-660-370 which, allows no waterward expansion from the concrete toe of the existing structure.

The current proposed project will include:

1. Remove the existing concrete toe.
2. Form a stable concrete bulkhead adjoining to the seaward face of the existing bulkhead
3. Backfill all spaces between the face and interior of the existing bulkhead with $\frac{3}{4}$ inch river pebble.
4. Stabilize any areas under the concrete deck with reinforced concrete and fill, as necessary.

The construction crew and a small excavator will access the project site using a neighbor's boat ramp 0.19 miles southeast of the project site. Equipment will be staged within the cul-de-sac at the end of Croation Way, northeast of parcel P83311. The existing concrete toe and scattered concrete toe debris will be removed with an excavator at low tide and disposed of at an upland site.

At low tide, the excavator will be used to install steel sheets that will be put up on sections of the bulkhead walls that are being worked on to avoid collapse and run off. The steel sheets are 20 ft. long by 8 ft. tall and weigh approximately 3,000 lbs. apiece. The existing concrete toe will be removed at low tide by jack- hammering the toe into approximately 3 ft. sections. A saw and jackhammer will also be used to remove a portion of the face of the Waring rock bulkhead to keep the new Waring bulkhead in line with the McIntyre bulkhead. The saw will have a garden hose hooked up to it to keep it wet, which will minimize any dust that may result. Debris will be lifted and placed into a

small dump truck by an excavator operating on the shoreline in the dry. All debris from the toe and bulkhead face will be removed during a single tide cycle with no debris exposed to the water. Equipment used for dismantling and removing the debris will be brought to the site and removed from the area during a single low tide cycle. An air compressor required for the jackhammer will be located shore side.

Construction will include digging three feet into beach substrate below the HTL, seaward of the existing bulkhead, and creating a footer with 12-inch rebar centers to support a four-foot high concrete wall section. Additional 4 feet high wall sections, with 12-inch rebar centers, will be poured with concrete until the wall is approximately 12 feet in height (3 feet below grade and 9 feet above). As per the project engineer, "the cold joint should have a solid bead consisting of an epoxy such as Simpson SET laid before the next pour." The vertical wall, above grade, will be 8 inches thick and 9 feet tall with a 16-inch-thick lip at the top, protruding seaward. The concrete has 2% calcium in it, so it will harden in 20 minutes. Drainage holes will be drilled to allow storm water to drain seaward. Beach nourishment suitable for surf smelt will be placed along the bulkhead at 12 inches deep and taper to 0 inches approximately 10 feet seaward from the proposed bulkhead. For surf smelt spawning beaches, sieve size percent passing by weight is as follows:

- 5/8-inch 100%
- 3/8-inch 90-100%
- 1/16-inch 40-50%
- 1/100-inch (0.25 mm) 0-5%

Excavation of the existing base, forming of the bulkhead, and pouring concrete will be done in 40-foot sections for each property, in the dry. According to the Washington State Coastal Atlas Map, drift cells currently move southeast to northwest along the shoreline of the project site. Periodic re-nourishment may be necessary to replenish future drift of the beach nourishment sediment.

Waring's bulkhead will be in line with the McIntyr's bulkhead when finished.

Date Received:5/6/2021

The residents of 5003 and 5005 Croatian Way are currently from wave erosion by a rock wall with a front surface mortar adjoining rocks. A reinforced concrete toe approximately 18 in cross section is at the base of the rock wall. A concrete cap from the top of the rock wall to the residence's foundation.

Tidal and wave action at the base under the toe and wall have been removed some of the backfill material from behind the wall leaving a void under the concrete cap. In the region of the void the wall has sagged resulting in a crack along the front face of the rock wall. Measurements of the void cavity behind the wall were performed as a result of two cavities extending shoreward from the face of the wall as far as 5 feet.

The failure mode in action is clearly erosion and removal of backfill by wave action from under the toe of the wall. Inspection of the home's foundation and surrounding lot reveals no evidence of ground water intrusion from shoreward. Long term stabilization of the property is obviously required to prevent loss of the property from continuing erosion.

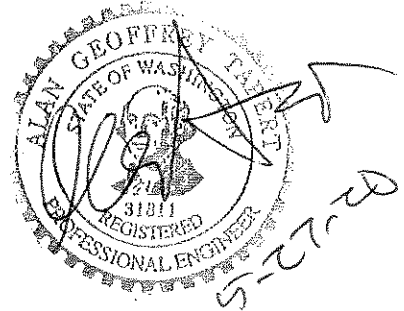
Alternative armoring solutions were considered, including removal of the existing wall and replacement by a concrete bulkhead, sheet piles or soft shore armoring. None of these concepts is feasible in view of the home's location relative to the shoreline and each would require significant construction along the beach.

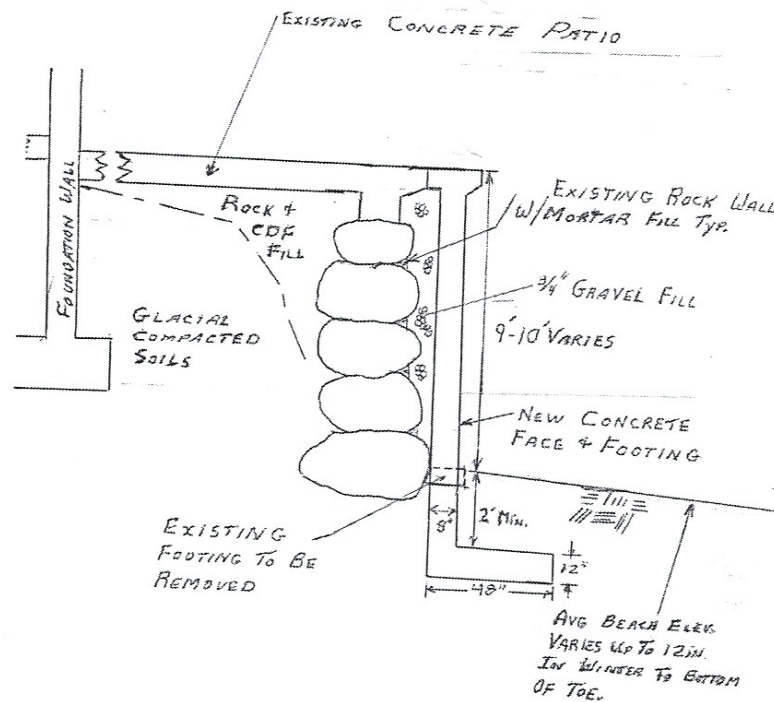
Given the objective of providing long term protection to the legally constructed and occupied property with minimal net change to the current effect on the ecology of the beach, a reinforced concrete bulk head with a base at least 2 feet below the beach level and placed immediately in front of the existing rock wall is not only the best, but the only feasible protection concept.

Removal of the existing 18x18-inch toe permits the exterior face of the bulkhead to be placed approximately 10-12-inches shoreward of the existing protection. This placement of the bulkhead assures that no water ward beach will be taken for the project. Additionally, soft armoring will be placed in front of the bulkhead to reduce sand drift

compared to the current wall. The soft shore armoring will consist of river pebbles placed on the beach from the toe of the bulkhead water ward to ten feet. Large rocks will be placed at 20-foot intervals along the toe to stabilize the gravel.

There currently exist several bulkheads of identical construction to the proposed bulkhead within a half mile on either side of the property. These bulkheads were constructed up to 40 years ago and have experienced no failures in the same environment as the proposed project. The proposed project is clearly within the same geological zone as the existing bulkheads.





M^CINTYRE
5003 CROATIAN WAY
ANACORTES, WA



Cantilever Retaining Wall Calculations

© Geoff Tapert, P.E., 2004, All Rights Reserved

Design Assumptions

f'_c	=	3,000	psi
f_y	=	60	ksi
Soil Bearing Capacity, S	=	2,000	psf (Table 1804.2)
Equivalent Soil Pressure, g	=	35	pcf
Soil Weight, w	=	120	pcf
Sliding Coefficient, μ	=	0.35	(Table 1804.2)
Lateral Soil Bearing, Lb	=	150	psf/ft (Table 1804.2)
Wall Width, b	=	8	in
Design d	=	6.0	in
Footing Depth, T	=	12	in
Wall Height, H	=	10.00	ft
Toe Width, x	=	0	in
Design Heel Width, y	=	40	in
Total Footing Width, D	=	48	in
$F_1 = wyH$	=	4,000	lbs
$F_2 = (h^2)g/2$	=	1,750	lbs
$Ma(cw) = F_1(y/2+b)$	=	9,333	ft-lbs
$Ma(ccw) = F_2(y/2+b)$	=	5,833	ft-lbs

Overturning

$Ma(ccw) * 1.5 F.S.$	=	8,750	ft-lbs
$Ma(ccw) = Ma(cw)$	=		
$Ma(cw) = F_1(y/2+b)$	=		
$yo = 2((Ma(cw)/F_1)-b)$	=	37	in

Sliding

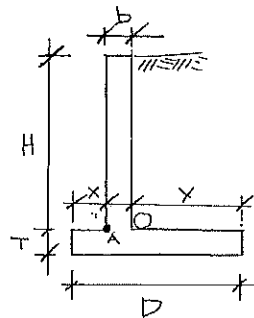
Weight of Wall/ft, F_w	=	1,600	lbs/ft
Weight of Soil above Heel, F_1	=	4,000	lbs/ft
Total Weight, F_t	=	5,600	lbs/ft
Friction Resistance = μF_t	=	1,960	lbs
Buried Toe Depth, T	=	12	in
$F_3 = T * Lb / (12 * 3)$	=	50	lbs/ft
Total Sliding Resistance	=	2010	lbs

Bearing Capacity

Min D per Soil Bearing Capacity	=		
$D = (F.S.) * (F_1 + F_w) / S$	=	101	in

Seismic Lateral

Seismic Importance Factor, I	=	1.00	Ss	=	1.25
Seismic Use Group	=	I	S1	=	0.5
Site Class	=	D	Fa	=	1.00
Response Modification Factor, R	=	3	(Table 9.5.2.2)		
$Sms = FaSs$	=	1.25			
$Sos = (2/3) * Sms$	=	0.84			
$Cs = Sos / (R/I)$	=	0.26			
Seismic Base Shear, V = CsW	=	1466	lbs/ft		



Project: Puget Sound Shoreline

By: AGT

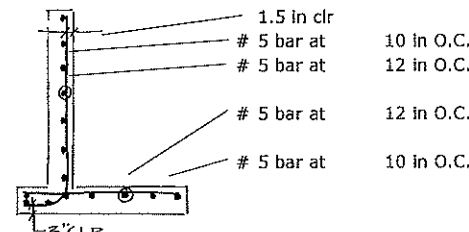
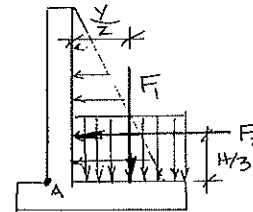
Date: 6/8/20

F.S.

Overturning	=	1.60
Sliding	=	1.72
Bearing	=	1.43
Seismic	=	1.37

Min. Cover =	=	1.5	in
$d_{(wall)}$	=	6.19	in

10.00' $\leftarrow$
(SOIL DIFFERENTIAL)
12" WALL



Reinforcement - Stem

$$M_n = A_s f_y d - \frac{A_s^2 f_y^2}{1.7 f'_c b}$$

$$A_s^2 - \frac{0.425 b f'_c}{f_y} + \frac{0.85 M_n f'_c b}{f_y^2} = 0$$

$$A_s = 0.329 \text{ sl/ft}$$

$$A_s = \frac{0.85 f'_c b d}{f_y} \pm \sqrt{\left(\frac{1.7 f'_c b d}{f_y}\right)^2 - 4(1) \left(\frac{1.7 f'_c b M_n}{f_y^2}\right)}$$

$$\rho_{min} = \frac{200}{f_y} \quad \rho_{min} = \frac{A_{s(min)}}{A_c} \quad A_{s(min)} = \rho_{min} A_c = \frac{200 A_c}{f_y} = \frac{200 b (12)}{f_y}$$

Area of Steel, A_s (sl/ft)

	6 in O.C.	8 in O.C.	10 in O.C.	12 in O.C.	14 in O.C.	16 in O.C.
# 4	0.393	0.294	0.236	0.196	0.168	0.147
# 5	0.613	0.460	0.368	0.307	0.263	0.230
# 6	0.883	0.662	0.530	0.442	0.378	0.331
# 7	1.202	0.902	0.721	0.601	0.515	0.451
# 8	1.570	1.178	0.942	0.785	0.673	0.589

Use #	5 bar at	10 in O.C.	Vertical	$A_s =$	0.368	sl/ft
Use #	5 bar at	12 in O.C.	Horizontal			



CITY OF ANACORTES
Planning, Community, & Economic Development
Date Received:
<u>5/6/2021</u>

SEPA ENVIRONMENTAL CHECKLIST

Purpose of checklist:

Governmental agencies use this checklist to help determine whether the environmental impacts of your proposal are significant. This information is also helpful to determine if available avoidance, minimization or compensatory mitigation measures will address the probable significant impacts or if an environmental impact statement will be prepared to further analyze the proposal.

Instructions for applicants: [\[help\]](#)

This environmental checklist asks you to describe some basic information about your proposal. Please answer each question accurately and carefully, to the best of your knowledge. You may need to consult with an agency specialist or private consultant for some questions. You may use "not applicable" or "does not apply" only when you can explain why it does not apply and not when the answer is unknown. You may also attach or incorporate by reference additional studies reports. Complete and accurate answers to these questions often avoid delays with the SEPA process as well as later in the decision-making process.

The checklist questions apply to all parts of your proposal, even if you plan to do them over a period of time or on different parcels of land. Attach any additional information that will help describe your proposal or its environmental effects. The agency to which you submit this checklist may ask you to explain your answers or provide additional information reasonably related to determining if there may be significant adverse impact.

Use of checklist for nonproject proposals: [\[help\]](#)

For nonproject proposals (such as ordinances, regulations, plans and programs), complete the applicable parts of sections A and B plus the [SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS \(part D\)](#). Please completely answer all questions that apply and note that the words "project," "applicant," and "property or site" should be read as "proposal," "proponent," and "affected geographic area," respectively. The lead agency may exclude (for non-projects) questions in Part B - Environmental Elements –that do not contribute meaningfully to the analysis of the proposal.

A. BACKGROUND [\[help\]](#)

1. Name of proposed project, if applicable: [\[help\]](#)
McIntyre and Waring Bulkhead Repair
2. Name of applicant: [\[help\]](#)
John & Colleen McIntyre and Barton Waring
3. Address and phone number of applicant and contact person: [\[help\]](#)
5003 & 5005 Croatian Way, Anacortes, WA 98221/ (253-208-5919); Agent contact Marine Surveys & Assessments (Meg Amos)/ (360-385-4073)
4. Date checklist prepared: [\[help\]](#)
February 19th, 2020
5. Agency requesting checklist: [\[help\]](#)
City of Anacortes
6. Proposed timing or schedule (including phasing, if applicable): [\[help\]](#)
Work to begin immediately after permits are obtained. Expected duration is two months.
7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain. [\[help\]](#)
No.
8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal. [\[help\]](#)
Biological Evaluation with No Net Loss, Alternatives Analysis, Mitigation Plan
9. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain. [\[help\]](#)
No.
10. List any government approvals or permits that will be needed for your proposal, if known. [\[help\]](#)
Shoreline Substantial Development and building permit (City of Anacortes), HPA (WDFW), 401 Water Quality (Ecology), Section 10 (Corps)
11. Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on project description.) [\[help\]](#)
The proposed work is the construction of a concrete bulkhead placed in the same footprint as the concrete toe protection, which will be removed. The extent of the repair will span two properties, 171 linear feet.
12. Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist. [\[help\]](#) **5003 & 5005 Croatian Way, Anacortes, WA 98221/ SW 1/4 Section 27, T35N, R01W**

B. ENVIRONMENTAL ELEMENTS [\[help\]](#)**1. Earth**

a. General description of the site [\[help\]](#)
(circle one): **Flat**, rolling, hilly, steep slopes, mountainous,
Other

b. What is the steepest slope on the site (approximate percent slope)? [\[help\]](#)

0 to 5%

c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any agricultural land of long-term commercial significance and whether the proposal results in removing any of these soils. [\[help\]](#)

Sand, cobble and large rock.

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe. [\[help\]](#)

No.

e. Describe the purpose, type, total area, and approximate quantities and total affected area of any filling, excavation, and grading proposed. Indicate source of fill. [\[help\]](#)

The proposed project aims to fully repair the existing bulkhead by re-facing with concrete, the base of which will be buried below any likelihood of further undercutting. New fill may be added between the facing and the existing bulkhead. Beach nourishment is also being proposed.

McIntyre: The bulkhead is 88 ft. long and 9 to 10 ft. tall (at the current beach elevation). There is a small concrete toe immediately in front of the rock wall, of varying width but about 8" high x 12" deep. It will be removed and the new 8-inch-wide bulkhead facing will be fit into that space with approximately 3-feet located below grade to prevent undermining by wave action.

Waring: The existing bulkhead is 83 ft. long and 7 to 8.5 ft. tall. There is a substantial concrete "grout line" at the base, from puddled cement collected when the wall was grouted, a line that sits at the normal level of the beach. This grout line is quite irregular and varies in width. It is often a matter of 3-6 inches, but at a number of both short and extended locations it protrudes out from the wall close to a foot, sometimes several inches more. It is proposed to cut the protruding grout line off, and place the new reinforcing face within a line along the wall formed by connecting the outer seaward extent of these protrusions. This would be in alignment and no further seaward than the new, adjacent McIntyre wall.

The proposed bulkhead replacement will stabilize the toe of the slope and extend the bulkhead deep enough that there will be no undermining to protect uplands from further erosion, as the HTL/OHWM is at the face of the bulkhead. The proposed project will be located landward of the outer (seaward) edge of the existing toe and puddled grout line to comply with WAC 220-660-370 which, allows no waterward expansion from the concrete toe/puddled grout line of the existing structure.

The construction crew and a small excavator will access the project site using a neighbor's boat ramp 0.19 miles southeast of the project site. Equipment will be staged within the cul-de-sac at the end of Croatian Way, northeast of parcel P83311. The existing concrete toe, puddled concrete grout line and scattered debris will be removed with an excavator at low tide and disposed of at an

upland site (it may be possible and even expeditious to remove it manually, over the seawall).

At low tide, an excavator will be used to install temporary steel sheets that will be put up on sections of the bulkhead walls that are being worked on to avoid collapse and run off. The steel sheets are 20 ft. long by 8 ft. tall and weigh approximately 3,000 lbs. apiece. The existing concrete toe and puddled grout line will be removed at low tide by jack- hammering and cutting into small sections. A saw, a drill, and a jackhammer may also be used to remove a protruding portion of some of the rocks on the bulkhead to ensure the new bulkhead reinforcement facing is entirely upland of the existing structure. The saw will have a garden hose hooked up to it to keep it wet and cool, which will minimize any dust that may result. Debris will be lifted and placed into a small dump truck by an excavator operating on the shoreline in the dry or simply be lifted over the wall manually, as is most expeditious. All debris from the toe and bulkhead face will be removed during a single tide cycle with no debris exposed to the water. Equipment used for dismantling and removing the debris will be brought to the site and removed from the area during a single low tide cycle. An air compressor required for the jackhammer will be located shore side.

Construction will include digging three feet into beach substrate, seaward of the existing bulkhead, to create a footer with 10-inch rebar centers to support an 8 inch thick, four-foot high concrete wall section butted up as tight as possible to the existing bulkhead. Additional 4 feet high wall sections, with 10-inch rebar centers, will be poured with concrete until the wall is approximately 12 feet in height (3 feet below grade and 9 feet above), no higher than the existing seawall. As per the project engineer, "the cold joint should have a solid bead consisting of an epoxy such as Simpson SET laid before the next pour." The vertical wall, above grade, will be 8 inches thick and 9 feet tall with a 16-inch-thick lip at the top, protruding seaward. The concrete has 2% calcium in it, so it will harden quickly, before the next tide cycle. Drainage holes will be cast in to allow stormwater to drain seaward.

Beach nourishment suitable to encourage new surf smelt spawning (no surf smelt or sand lances are known to be on the property currently) will be placed along the bulkhead at 12 inches deep and taper to 0 inches approximately 10 feet seaward from the proposed bulkhead. The sieve size percent passing by weight is as follows, as is appropriate for surf smelt:

- 5/8-inch 100%
- 3/8-inch 90-100%
- 1/16-inch 40-50%
- 1/100-inch (0.25 mm) 0-5%

Excavation of the existing base, forming of the new face, and pouring concrete will be done in 40-foot sections in the dry. According to the Washington State Coastal Atlas Map, drift cells currently move southeast to northwest along the shoreline of the project site.

- f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe. [\[help\]](#)

No.

- g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)? [\[help\]](#)

No new impervious surface will be created as the new wall will sit on the same footprint as the existing concrete toe and grout line.

- h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any: [\[help\]](#)

Does not apply.

2. Air

a. What types of emissions to the air would result from the proposal during construction, operation, and maintenance when the project is completed? If any, generally describe and give approximate quantities if known. [\[help\]](#)

Fuel emissions from excavator during construction.

b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe. [\[help\]](#)

No.

c. Proposed measures to reduce or control emissions or other impacts to air, if any: [\[help\]](#)

None.

3. Water

a. Surface Water: [\[help\]](#)

- 1) Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into. [\[help\]](#)

Yes, Burrows Bay in the Salish Sea

- 2) Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans. [\[help\]](#)

Yes, work will occur below the OHWM.

- 3) Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material. [\[help\]](#)

Approximately 30 cubic yards of concrete on the McIntyre property and 25 cubic yards on the Waring property (55 cubic yards total)

- 4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known. [\[help\]](#)

No.

- 5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan. [\[help\]](#)

Yes, according to the FEMA Flood Map this area is classified as AE. Additionally, the area is regularly flooded – tides alternately flood and expose the substrate at least once daily.

- 6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge. [\[help\]](#)

No.

b. Ground Water:

- 1) Will groundwater be withdrawn from a well for drinking water or other purposes? If so, give a general description of the well, proposed uses and approximate quantities withdrawn from the well. Will water be discharged to groundwater? Give general description, purpose, and approximate quantities if known. [\[help\]](#)

Does not apply

- 2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial, containing the following chemicals. . . ; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve. [\[help\]](#)

Does not apply

c. Water runoff (including stormwater):

- 1) Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe. [\[help\]](#)

Does not apply

- 2) Could waste materials enter ground or surface waters? If so, generally describe. [\[help\]](#)
No.

- 3) Does the proposal alter or otherwise affect drainage patterns in the vicinity of the site? If so, describe.

No, outfall pipes are located in the existing bulkhead/wall and will extend through the new wall.

d. Proposed measures to reduce or control surface, ground, and runoff water, and drainage pattern impacts, if any:

Does not apply.

4. Plants [\[help\]](#)

- a. Check the types of vegetation found on the site: [\[help\]](#)

____deciduous tree: alder, maple, aspen, other

____evergreen tree: fir, cedar, pine, other

____shrubs

____grass

____pasture

____crop or grain

____Orchards, vineyards or other permanent crops.

____wet soil plants: cattail, buttercup, bullrush, skunk cabbage, other

____ water plants: water lily, eelgrass, milfoil, other
 ____ other types of vegetation

No plants located in project footprint. See the habitat survey attached here.

- b. What kind and amount of vegetation will be removed or altered? [\[help\]](#)

None.

- c. List threatened and endangered species known to be on or near the site. [\[help\]](#)

There is eel grass located waterward of proposed construction location, well outside of work area on the adjacent property. See the habitat survey (attached) conducted on June 8, 2020.

- d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any: [\[help\]](#)

None.

- e. List all noxious weeds and invasive species known to be on or near the site.

No invasive plant species were observed on site.

5. Animals

- a. List any birds and other animals which have been observed on or near the site or are known to be on or near the site. Examples include: [\[help\]](#)

birds: hawk, **heron, eagle, songbirds**, other:

mammals: deer, bear, elk, beaver, other:

fish: bass, **salmon**, trout, herring, shellfish, other

- b. List any threatened and endangered species known to be on or near the site. [\[help\]](#)

Salmon and forage fish species (See Biological Evaluation for species information)

- c. Is the site part of a migration route? If so, explain. [\[help\]](#)

Yes, salmon migrate through the area (See BE)

- d. Proposed measures to preserve or enhance wildlife, if any: [\[help\]](#)

Salmon and forage fish work windows

- e. List any invasive animal species known to be on or near the site.

No known invasive animal species exist on site.

6. Energy and natural resources

- a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc. [\[help\]](#)

Does not apply

- b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe. [\[help\]](#)

No.

- c. What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any: [\[help\]](#)
Does not apply.

7. Environmental health

- a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur as a result of this proposal? If so, describe. [\[help\]](#)
Potential fuel spill from construction equipment.

- 1) Describe any known or possible contamination at the site from present or past uses.
None.
- 2) Describe existing hazardous chemicals/conditions that might affect project development and design. This includes underground hazardous liquid and gas transmission pipelines located within the project area and in the vicinity.
None.
- 3) Describe any toxic or hazardous chemicals that might be stored, used, or produced during the project's development or construction, or at any time during the operating life of the project.
None.
- 4) Describe special emergency services that might be required.
None.
- 5) Proposed measures to reduce or control environmental health hazards, if any:
Equipment will be maintained regularly.

b. Noise

- 1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)? [\[help\]](#)
Does not apply.
- 2) What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site. [\[help\]](#)
Short-term construction noise.
- 3) Proposed measures to reduce or control noise impacts, if any: [\[help\]](#)
None.

8. Land and shoreline use

- a. What is the current use of the site and adjacent properties? Will the proposal affect current land uses on nearby or adjacent properties? If so, describe. [\[help\]](#)
Single-family residences. Adjacent properties also have bulkheads.

- b. Has the project site been used as working farmlands or working forest lands? If so, describe. How much agricultural or forest land of long-term commercial significance will be converted

to other uses as a result of the proposal, if any? If resource lands have not been designated, how many acres in farmland or forest land tax status will be converted to nonfarm or nonforest use? [\[help\]](#)

Does not apply.

1) Will the proposal affect or be affected by surrounding working farm or forest land normal business operations, such as oversize equipment access, the application of pesticides, tilling, and harvesting? If so, how:

No.

c. Describe any structures on the site. [\[help\]](#)

Both properties are developed with single family residences and a concrete and rock bulkhead.

d. Will any structures be demolished? If so, what? [\[help\]](#)

Yes, old bulkhead toe protection will be removed and taken away to an approved upland dump site.

e. What is the current zoning classification of the site? [\[help\]](#)

Shoreline residential.

f. What is the current comprehensive plan designation of the site? [\[help\]](#)

Unknown.

g. If applicable, what is the current shoreline master program designation of the site? [\[help\]](#)

Aquatic environment.

h. Has any part of the site been classified as a critical area by the city or county? If so, specify. [\[help\]](#)

Yes, the adjacent water body (Salish Sea) and associated shoreline has been designated a "critical area".

i. Approximately how many people would reside or work in the completed project? [\[help\]](#)

Does not apply.

j. Approximately how many people would the completed project displace? [\[help\]](#)

Does not apply.

k. Proposed measures to avoid or reduce displacement impacts, if any: [\[help\]](#)

Does not apply.

L. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any: [\[help\]](#)

Compliance with local, state and federal regulations, including BMP's in the WDFW HPA application. All shoreline development must be located, designed, constructed, and maintained in a manner that protects ecological functions and ecosystem processes. This Biological Evaluation is proposing the least environmentally damaging practicable alternative that achieves the project goal of stabilizing the shoreline and preventing erosion and loss of property. The FEMA Programmatic Biological Assessment – For Fourteen Common Disaster Activities (June 29, 2009) is being referenced here for guidelines on effective and appropriate conservation measures and covers the following seawall repairs:

1. Reposition wall to pre-disaster alignment.

2. Replace damaged panels.

3. Repair panels in place.
4. Pour new concrete panels in place.
5. Backfill eroded soil material.

The project is not proposing to reposition the wall to pre-disaster alignment; however, the bulkhead will be repaired within an existing footprint. Six Conservation Measures (CM) are recommended for repairing concrete walls near or along nearshore areas. Site specific conservation measures for the proposed project include:

1. Although a footer will be buried below the current marine shore grade, above ground repair and replacement of the bulkhead will be within the same footprint as the existing structure.
2. For mitigation, beach nourishment will be placed on the seaward face of the proposed project and taper 10 feet to the marine shoreline. Beach nourishment will create suitable habitat for surf smelt spawning and may reduce sediment impoundment and drift. Re-nourishment is recommended to continue at a pace that allows sufficient long-term suitable forage fish habitat and to recreate natural beach conditions.
3. Due to the presence of sand lance and surf smelt northwest of the proposed project site, a forage fish survey will be completed by a WDFW certified biologist prior to any work performed on the beach.
4. Backfill behind the rebuilt bulkhead will only use new, clean $\frac{3}{4}$ inch pebbles (approximately 21 cu. yd. total) that are free from contaminants and fine dirt (minus).
5. To further minimize effects of the demolition or other earthwork on the adjacent water, all construction activities prior to the creation of the new bulkhead wall, will be performed during low tide.
6. To utilize steel sheets that will avoid collapse and runoff during construction activities and best management practices to minimize potential turbidity caused from sediment disturbed by the proposed project.

- m. Proposed measures to ensure the proposal is compatible with nearby agricultural and forest lands of long-term commercial significance, if any:
Does not apply.

9. Housing

- a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing. [\[help\]](#)
Does not apply.
- b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing. [\[help\]](#)
Does not apply.
- c. Proposed measures to reduce or control housing impacts, if any: [\[help\]](#)
Does not apply.

10. Aesthetics

- a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed? [\[help\]](#)
A concrete wall ranging to 9' above grade at the toe of the existing wall.
- b. What views in the immediate vicinity would be altered or obstructed? [\[help\]](#)
**The existing wall is located immediately in front of the homes seeking permits.
No other views will be affected.**
- c. Proposed measures to reduce or control aesthetic impacts, if any: [\[help\]](#)

None.

11. Light and glare

- a. What type of light or glare will the proposal produce? What time of day would it mainly occur? [\[help\]](#)
None.
- b. Could light or glare from the finished project be a safety hazard or interfere with views? [\[help\]](#)
No.
- c. What existing off-site sources of light or glare may affect your proposal? [\[help\]](#)
None.
- d. Proposed measures to reduce or control light and glare impacts, if any: [\[help\]](#)
None.

12. Recreation

- a. What designated and informal recreational opportunities are in the immediate vicinity? [\[help\]](#)
Boating, swimming, fishing, beach combing.
- b. Would the proposed project displace any existing recreational uses? If so, describe. [\[help\]](#)
No, the repair will take place at the toe of the existing wall on private tidelands.
- c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any: [\[help\]](#)
None.
- a. Are there any buildings, structures, or sites, located on or near the site that are over 45 years old listed in or eligible for listing in national, state, or local preservation registers located on or near the site? If so, specifically describe. [\[help\]](#)
Unknown.
- b. Are there any landmarks, features, or other evidence of Indian or historic use or occupation? This may include human burials or old cemeteries. Are there any material evidence, artifacts, or areas of cultural importance on or near the site? Please list any professional studies conducted at the site to identify such resources. [\[help\]](#)
Unknown.
- c. Describe the methods used to assess the potential impacts to cultural and historic resources on or near the project site. Examples include consultation with tribes and the department of archeology and historic preservation, archaeological surveys, historic maps, GIS data, etc. [\[help\]](#)
Tribes will be notified through the permit review process with the City and Corps of Engineers.
- d. Proposed measures to avoid, minimize, or compensate for loss, changes to, and disturbance to resources. Please include plans for the above and any permits that may be required.
Mitigation is proposed on site. Concrete and rock debris will be removed and gravel suitable for forage fish spawning will be brought in for beach nourishment.

14. Transportation

- a. Identify public streets and highways serving the site or affected geographic area and describe proposed access to the existing street system. Show on site plans, if any. [\[help\]](#)
Croatian Way.
- b. Is the site or affected geographic area currently served by public transit? If so, generally describe. If not, what is the approximate distance to the nearest transit stop? [\[help\]](#)
Does not apply.
- c. How many additional parking spaces would the completed project or non-project proposal have? How many would the project or proposal eliminate? [\[help\]](#)
Does not apply.
- d. Will the proposal require any new or improvements to existing roads, streets, pedestrian, bicycle or state transportation facilities, not including driveways? If so, generally describe (indicate whether public or private). [\[help\]](#)
No.
- e. Will the project or proposal use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe. [\[help\]](#)
No.
- f. How many vehicular trips per day would be generated by the completed project or proposal? If known, indicate when peak volumes would occur and what percentage of the volume would be trucks (such as commercial and nonpassenger vehicles). What data or transportation models were used to make these estimates? [\[help\]](#)
Does not apply.
- g. Will the proposal interfere with, affect or be affected by the movement of agricultural and forest products on roads or streets in the area? If so, generally describe.
Does not apply.
- h. Proposed measures to reduce or control transportation impacts, if any: [\[help\]](#)
Does not apply

15. Public services

- a. Would the project result in an increased need for public services (for example: fire protection, police protection, public transit, health care, schools, other)? If so, generally describe. [\[help\]](#)
No.
- b. Proposed measures to reduce or control direct impacts on public services, if any. [\[help\]](#)
None.

16. Utilities

- a. Circle utilities currently available at the site: [\[help\]](#)
electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other

- b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed. [\[help\]](#)
Does not apply.

C. SIGNATURE [\[HELP\]](#)

I certify (or declare) under penalty of perjury under laws of the State of Washington that the above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make a decision.

Signature: 

Name of signee: **Meg Amos**

Position and Agency/Organization: **Permit Coordinator/Marine Surveys & Assessments**

Date Submitted: **4/25/2021**



McIntyre-Waring Habitat Report (to accompany map dated 6/29/2020)

An intertidal habitat survey was performed on June 8, 2020 from approximately 10 am to 11:30 am at the project site located 5003 & 5005 Croatian Way, Anacortes, WA. Kimberly McClurg and Meg Amos from Marine Surveys & Assessments surveyed 9 transects of a proposed bulkhead repair to identify flora, fauna, substrate types and other qualitative information.

The survey transect baseline was along the HTL (High Tide Line) at the bulkhead that runs the shoreline at the site. Nine transects were surveyed from the baseline and transects were oriented perpendicular to the bulkhead. Transects were each 100 ft long and arranged from northwest to southeast, or when looking at the water from shore, from right to left (T1 to T9). Transects were spaced 25 ft apart.

Substrate at the site is primarily sand, gravel, and small cobble from HTL to about 50 feet seaward, and then transitions to sand with boulders. Anemones were observed in this transition zone.

Areas of macroalgae included *Ulva* up to 75%, *Fucus* up to 65%, *Porphyra* up to 25%, *Mastocarpus* up to 30%, Foliose Reds up to 25%, *Neorhodomela* up to 90%, *Cryptosiphonia* up to 25%, and *Desmarestia* up to 1%.

Eelgrass was observed just beyond the survey area with a bed starting 80 to 150 feet from HTL.

The intertidal zone is relatively flat and elevations were only collected in 2 locations at the waters edge. On Transect 9, -1.7 ft MLLW was measured 200 feet seaward of the HTL line. On Transect 1, 0.4 ft MLLW was measured 124 feet seaward of the HTL line.

Transect 1

Distance (Ft) along transect from baseline	Substrate and Other Features Noted	Macroalgae % Cover
0	sand	Barren
18	sand, gravel	Barren
46	pea gravel, small cobble	Barren
78	sand, large boulders	<i>Ulva</i> 10%.
84	sand, large boulder	<i>Ulva</i> 50%; <i>Fucus</i> 20%; <i>Porphyra</i> 5%; <i>Mastocarpus</i> 5%; <i>Cryptosiphonia</i> 25%.
100	sand, large boulder	<i>Ulva</i> 50%; <i>Fucus</i> 20%; <i>Porphyra</i> 5%; <i>Mastocarpus</i> 5%; <i>Cryptosiphonia</i> 25%.

Transect 2

Distance (Ft) along transect from baseline	Substrate and Other Features Noted	Macroalgae % Cover
0	sand	Barren
16	sand, pea gravel	Barren
48	sand, small rock	Barren
65	sand, large rock	<i>Ulva</i> 5%; <i>Porphyra</i> 5%; <i>Cryptosiphonia</i> 5%.
85	sand, large rock	<i>Ulva</i> 50%; <i>Fucus</i> 5%; <i>Porphyra</i> 5%; <i>Cryptosiphonia</i> 5%.
98	sand, large rock/boulders	<i>Ulva</i> 75%; <i>Fucus</i> 25%; <i>Porphyra</i> 5%; <i>Mastocarpus</i> 5%; <i>Cryptosiphonia</i> 25%.
150	sand	Eelgrass bed starts

Transect 3

Distance (Ft) along transect from baseline	Substrate and Other Features Noted	Macroalgae % Cover
0	sand, gravel	Barren
43	pea gravel, small cobble	Barren
56	sand, cobble	<i>Ulva</i> 10%; <i>Fucus</i> 5%; <i>Porphyra</i> 15%.
74	sand, scattered large boulders	<i>Ulva</i> 10%; <i>Fucus</i> 5%; <i>Porphyra</i> 5%; <i>Mastocarpus</i> 5%; <i>Cryptosiphonia</i> 10%.
84	sand, cobble	<i>Ulva</i> 50%; <i>Fucus</i> 5%; <i>Porphyra</i> 5%; <i>Mastocarpus</i> 10%; <i>Cryptosiphonia</i> 25%.
100	sand, cobble	<i>Ulva</i> 75%; <i>Fucus</i> 10%; <i>Porphyra</i> 1%; <i>Mastocarpus</i> 5%; <i>Cryptosiphonia</i> 10%.
126	sand	Eelgrass bed starts

Transect 4

Distance (Ft) along transect from baseline	Substrate and Other Features Noted	Macroalgae % Cover
0	sand, gravel	Barren
32	small cobble	Barren
41	sand, small cobble	Barren
53	sand, cobble, large rock	Barren
59	sand, cobble, large rock	<i>Ulva</i> 25%; <i>Fucus</i> 10%; <i>Porphyra</i> 5%; <i>Neorhodomela</i> 10%; <i>Cryptosiphonia</i>

		10%.
92	sand, cobble, large rock	<i>Ulva</i> 75%; <i>Fucus</i> 10%; <i>Porphyra</i> 10%; Foliose Reds 5%; <i>Neorhodomela</i> 5%; <i>Cryptosiphonia</i> 5%.
92	sand, cobble, large rock	<i>Ulva</i> 75%; <i>Fucus</i> 10%; <i>Porphyra</i> 10%; Foliose Reds 5%; <i>Neorhodomela</i> 10%; <i>Cryptosiphonia</i> 5%.
131	sand	Eelgrass bed starts

Transect 5

Distance (Ft) along transect from baseline	Substrate and Other Features Noted	Macroalgae % Cover
0	sand, gravel	Barren
17	sand, pea gravel, cobble, large rock	Barren
38	sand, cobble, boulders	<i>Ulva</i> 75%; <i>Porphyra</i> 15%.
64	sand, cobble, boulders	<i>Ulva</i> 75%; <i>Fucus</i> 1%; <i>Porphyra</i> 5%; <i>Neorhodomela</i> 10%.
70	sand, cobble, boulders	<i>Ulva</i> 10%; <i>Fucus</i> 5%; <i>Mastocarpus</i> 5%; <i>Neorhodomela</i> 50%; <i>Desmarestia</i> 1%.
89	sand, cobble, boulders	<i>Ulva</i> 5%; <i>Fucus</i> 10%; Foliose Reds 1%; <i>Neorhodomela</i> 10%.
131	sand	Eelgrass bed starts

Transect 5

Distance (Ft) along transect from baseline	Substrate and Other Features Noted	Macroalgae % Cover
0	sand, large rock	Barren
12	sand, pea gravel	Barren
18	sand, cobble	Barren
38	sand, cobble	<i>Ulva</i> 25%; <i>Porphyra</i> 25%.
58	sand, cobble	<i>Ulva</i> 30%; <i>Porphyra</i> 25%; <i>Mastocarpus</i> 30%.
63	sand, cobble	<i>Ulva</i> 10%; <i>Fucus</i> 5%; <i>Mastocarpus</i> 10%; <i>Neorhodomela</i> 75%.
79	sand, cobble	<i>Ulva</i> 10%; <i>Fucus</i> 10%; <i>Mastocarpus</i> 10%; <i>Neorhodomela</i> 50%.
124	sand	Eelgrass bed starts

Transect 7

Distance (Ft) along transect from baseline	Substrate and Other Features Noted	Macroalgae % Cover
0	sand, cobble	Barren
38	sand, cobble	<i>Ulva</i> 40%; <i>Porphyra</i> 5%; <i>Neorhodomela</i> 5%.
55	sand, cobble	<i>Ulva</i> 5%; <i>Fucus</i> 65%; <i>Porphyra</i> 5%; Foliose Reds 1%; <i>Neorhodomela</i> 50%.
93	sand, cobble	<i>Ulva</i> 5%; <i>Fucus</i> 65%; <i>Porphyra</i> 5%; Foliose Reds 1%; <i>Neorhodomela</i> 75%.
103	sand	Eelgrass bed starts

Transect 8

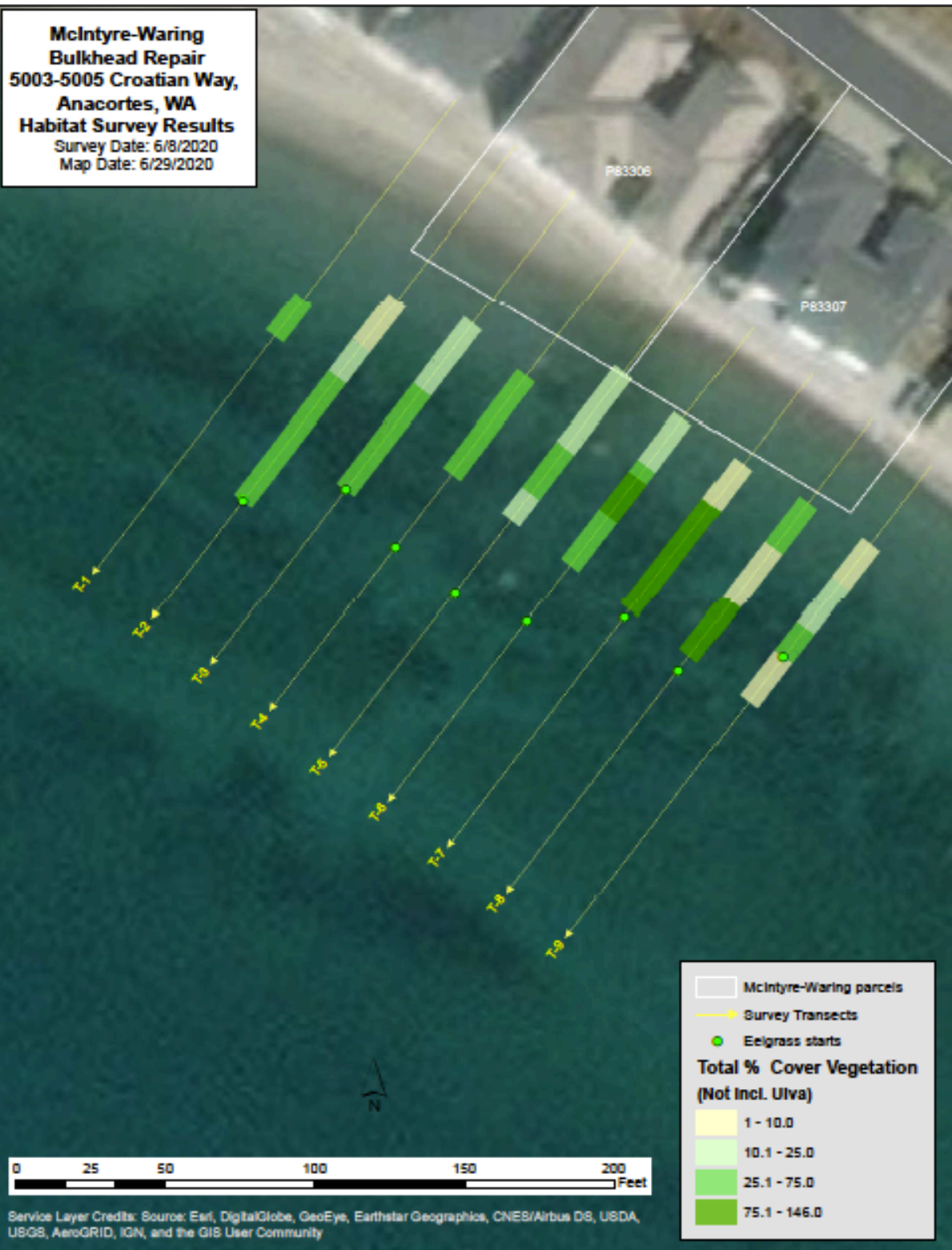
Distance (Ft) along transect from baseline	Substrate and Other Features Noted	Macroalgae % Cover
0	pea gravel, large rock, boulder	Barren
16	sand, large rock, boulder	Barren
35	sand, large rock, boulder	<i>Ulva</i> 20%; <i>Fucus</i> 5%; <i>Porphyra</i> 10%; <i>Neorhodomela</i> 20%; <i>Cryptosiphonia</i> 5%.
50	sand, large rock, boulder	<i>Ulva</i> 10%; <i>Fucus</i> 5%; <i>Porphyra</i> 10%; <i>Neorhodomela</i> 10%; <i>Cryptosiphonia</i> 5%.
54	sandy patch w/ scattered large rock	<i>Porphyra</i> 5%; <i>Mastocarpus</i> 5%.
77	sand, large rock boulder	<i>Ulva</i> 5%; <i>Fucus</i> 5%; <i>Porphyra</i> 5%; Foliose Reds 25%; <i>Neorhodomela</i> 90%; <i>Cryptosiphonia</i> 15%.
106		Eelgrass bed starts

Transect 9

Distance (Ft) along transect from baseline	Substrate and Other Features Noted	Macroalgae % Cover
0	sand, pea gravel, cobble, large rock	Barren
17	sand, cobble	Barren
33	gravel, cobble	<i>Ulva</i> 10%; <i>Porphyra</i> 5%.
50	gravel, cobble	<i>Ulva</i> 10%; <i>Fucus</i> 10%; <i>Porphyra</i> 5%; <i>Mastocarpus</i> 5%.
60	gravel, cobble	<i>Ulva</i> 20%; <i>Fucus</i> 10%; <i>Porphyra</i> 5%; <i>Mastocarpus</i> 5%.
69	sand, rock	<i>Ulva</i> 20%; <i>Fucus</i> 10%; <i>Porphyra</i> 5%;

		<i>Mastocarpus</i> 5%; <i>Neorhodomela</i> 10%.
77	sand, rock	<i>Ulva</i> 20%; <i>Fucus</i> 10%; <i>Porphyra</i> 5%; <i>Mastocarpus</i> 5%; <i>Neorhodomela</i> 10%.
81	sand	Foliose Reds 5%. Eelgrass bed starts
100	sand	Foliose Reds 5%. Eelgrass bed.

**McIntyre-Waring
Bulkhead Repair
5003-5005 Croatian Way,
Anacortes, WA
Habitat Survey Results**
Survey Date: 6/8/2020
Map Date: 6/29/2020





WASHINGTON STATE

Joint Aquatic Resources Permit Application (JARPA) Form^{1,2} [\[help\]](#)

USE BLACK OR BLUE INK TO ENTER ANSWERS IN THE WHITE SPACES BELOW.



US Army Corps
of Engineers®
Seattle District

Date received

Agency

Tax Payer

CITY OF ANACORTES

*Planning, Community, &
Economic Development*

Date Received:

5/6/2021

Part 1—Project Identification

Project Name (A name for your project that you create. Examples: Smith's Dock or Seabrook Lane Development) [\[help\]](#)

McIntyre Bulkhead Maintenance/Re-facing

Part 2—Applicant

The person and/or organization responsible for the project. [\[help\]](#)

2a. Name (Last, First, Middle)

McIntyre, John & Colleen

2b. Organization (If applicable)

2c. Mailing Address (Street or PO Box)

5003 Croatian Way

2d. City, State, Zip

Anacortes, WA 98221

2e. Phone (1)

2f. Phone (2)

2g. Fax

2h. E-mail

253-208-5919

jsmcintyre@aol.com

¹ Additional forms may be required for the following permits:

- If your project may qualify for Department of the Army authorization through a Regional General Permit (RGP), contact the U.S. Army Corps of Engineers for application information (206) 764-3495.
- Not all cities and counties accept the JARPA for their local Shoreline permits. If you need a Shoreline permit, contact the appropriate city or county government to make sure they accept the JARPA.

² To access an online JARPA form with [\[help\]](#) screens, go to

http://www.epermitting.wa.gov/site/alias_resourcecenter/jarpa_jarpa_form/9984/jarpa_form.aspx.

For other help, contact the Governor's Office for Regulatory Innovation and Assistance at (800) 917-0043 or help@oria.wa.gov.

Part 3—Authorized Agent or Contact

Person authorized to represent the applicant about the project. (Note: Authorized agent(s) must sign 11b of this application.) [\[help\]](#)

3a. Name (Last, First, Middle)			
Amos, Meg			
3b. Organization (If applicable)			
Marine Surveys & Assessments			
3c. Mailing Address (Street or PO Box)			
380 Jefferson Street			
3d. City, State, Zip			
Port Townsend, WA 98368			
3e. Phone (1)	3f. Phone (2)	3g. Fax	3h. E-mail
360.385.4073			meg@marinesurveysandassessments.com

Part 4—Property Owner(s)

Contact information for people or organizations owning the property(ies) where the project will occur. Consider both **upland and aquatic** ownership because the upland owners may not own the adjacent aquatic land. [\[help\]](#)

☒ Same as applicant. (Skip to Part 5.)

☐ Repair or maintenance activities on existing rights-of-way or easements. (Skip to Part 5.)

☐ There are multiple upland property owners. Complete the section below and fill out [JARPA Attachment A](#) for each additional property owner.

☐ Your project is on Department of Natural Resources (DNR)-managed aquatic lands. If you don't know, contact the DNR at (360) 902-1100 to determine aquatic land ownership. If yes, complete [JARPA Attachment E](#) to apply for the Aquatic Use Authorization.

4a. Name (Last, First, Middle)			
4b. Organization (If applicable)			
4c. Mailing Address (Street or PO Box)			
4d. City, State, Zip			
4e. Phone (1)	4f. Phone (2)	4g. Fax	4h. E-mail

Part 5–Project Location(s)

Identifying information about the property or properties where the project will occur. [\[help\]](#)

- ☐ There are multiple project locations (e.g. linear projects). Complete the section below and use [JARPA Attachment B](#) for each additional project location.

5a. Indicate the type of ownership of the property. (Check all that apply.) [help]			
☒ Private			
☐ Federal			
☐ Publicly owned (state, county, city, special districts like schools, ports, etc.)			
☐ Tribal			
☐ Department of Natural Resources (DNR) – managed aquatic lands (Complete JARPA Attachment E)			
5b. Street Address (Cannot be a PO Box. If there is no address, provide other location information in 5p.) [help]			
5003 Croatian Way			
5c. City, State, Zip (If the project is not in a city or town, provide the name of the nearest city or town.) [help]			
Anacortes, WA 98221			
5d. County [help]			
Skagit County			
5e. Provide the section, township, and range for the project location. [help]			
¼ Section	Section	Township	Range
SW	27	35N	01
5f. Provide the latitude and longitude of the project location. [help]			
Example: 47.03922 N lat. / -122.89142 W long. (Use decimal degrees - NAD 83)			
48.48888889 / -122.67305556			
5g. List the tax parcel number(s) for the project location. [help]			
The local county assessor's office can provide this information.			
P83307			
5h. Contact information for all adjoining property owners. (If you need more space, use JARPA Attachment C.) [help]			
Name	Mailing Address	Tax Parcel # (if known)	
Thomas and Sally Foster	5911 Croatian Way Anacortes, WA 98221	P83308	
Barton Waring	5005 Croatian Way Anacortes, WA 98221	P83306	

5i. List all wetlands on or adjacent to the project location. [\[help\]](#)

The US Fish & Wildlife National Wetlands Inventory shows estuarine/marine wetlands; however the site visit concluded that there is no wetland vegetation and the project location is not in an estuary.

The US Fish & Wildlife National Wetlands Inventory shows estuarine and marine wetlands.

5j. List all waterbodies (other than wetlands) on or adjacent to the project location. [\[help\]](#)

Burrows Bay

5k. Is any part of the project area within a 100-year floodplain? [\[help\]](#)

☒ Yes ☐ No ☐ Don't know

5l. Briefly describe the vegetation and habitat conditions on the property. [\[help\]](#)

The property above the OHWM/HTL consists of a single-family residence with a concrete capped rock seawall with mortar between the rocks and a concrete toe which sits on the beach. The beach immediately adjacent to the bulkhead (below the OHWM/HTL) consists of sand, cobble and larger rock. No wetland plants were observed.

5m. Describe how the property is currently used. [\[help\]](#)

Single-family residence with tideland ownership.

5n. Describe how the adjacent properties are currently used. [\[help\]](#)

Single-family residence with tideland ownership.

5o. Describe the structures (above and below ground) on the property, including their purpose(s) and current condition. [\[help\]](#)

5003 – 3,295 Square Foot single-family residence built in 2004 – superior condition.

The home is protected by a rock sea wall that was originally built sometime between 1979 and 1986; and then rebuilt in 2003 following storm damage. It is in very good condition. Some undercutting and erosion is happening which left unchecked will undermine the wall. This maintenance work is designed to prevent further undercutting.

5p. Provide driving directions from the closest highway to the project location, and attach a map. [\[help\]](#)

Follow WA-20 west to Campbell Lake Road (1.8 miles); follow Campbell lake road and Rosario Road to Marine Drive (2.4 miles); Slight right onto Marine Drive (1.1 miles); Continue on Marine Drive to Anaco Beach Road to Doon Way (2.4 miles). Turn west on Doon Way 0.2 miles to Croatian Way.

Part 6—Project Description

6a. Briefly summarize the overall project. You can provide more detail in 6b. [\[help\]](#)

The proposal is to reinforce and repair the existing rock seawall with a light reinforced concrete face butted right up against it as closely as the contractor is able and buried deep to make further undercutting extremely unlikely. The concrete toe of the existing wall will be removed and the new facing will go in it's place so there will be no new footprint on the beach. The new deeper protection that this refacing will provide, at the base of the existing rock sea wall, will prevent further degradation of the wall by winter storm wave action.

6b. Describe the purpose of the project and why you want or need to perform it. [\[help\]](#)

The purpose of this work is to prevent the home located shoreward of the existing bulkhead from eventually suffering damage if the existing bulkhead was to fail. The existing bulkhead has begun to suffer some undercutting from wave action during winter high tide storms. Damage that if left unchecked will at some point result in failure. Failure is not imminent; this is maintenance work required under USACE nationwide general condition 14, and allowed under USACE nationwide permit 3.

6c. Indicate the project category. (Check all that apply) [\[help\]](#)

- ☐ Commercial
 ☒ Residential
 ☐ Institutional
 ☐ Transportation
 ☐ Recreational
☒ Maintenance
 ☐ Environmental Enhancement

6d. Indicate the major elements of your project. (Check all that apply) [\[help\]](#)

- | | | | |
|--|---|--|--|
| ☐ Aquaculture | ☐ Culvert | ☐ Float | ☐ Retaining Wall (upland) |
| ☒ Bank Stabilization | ☐ Dam / Weir | ☐ Floating Home | ☐ Road |
| ☐ Boat House | ☐ Dike / Levee / Jetty | ☐ Geotechnical Survey | ☐ Scientific Measurement Device |
| ☐ Boat Launch | ☐ Ditch | ☐ Land Clearing | ☐ Stairs |
| ☐ Boat Lift | ☐ Dock / Pier | ☐ Marina / Moorage | ☐ Stormwater facility |
| ☐ Bridge | ☐ Dredging | ☐ Mining | ☐ Swimming Pool |
| ☒ Bulkhead | ☐ Fence | ☐ Outfall Structure | ☐ Utility Line |
| ☐ Buoy | ☐ Ferry Terminal | ☐ Piling/Dolphin | |
| ☐ Channel Modification | ☐ Fishway | ☐ Raft | |

☐ Other:

6e. Describe how you plan to construct each project element checked in 6d. Include specific construction methods and equipment to be used. [\[help\]](#)

- Identify where each element will occur in relation to the nearest waterbody.
- Indicate which activities are within the 100-year floodplain.

The proposed project aims to fully repair the existing bulkhead by re-facing with concrete, the base of which will be buried below any likelihood of further undercutting. New fill may be added between the facing and the existing bulkhead. Beach nourishment is also being proposed to reduce further erosion to the beach.

The existing bulkhead is 88 ft. long and 9 to 10 ft. tall. There is a small concrete toe immediately in front of the rock wall approximately 8" high x 12" wide. It will be removed and the new 8-inch-wide bulkhead facing will be fit into that space with approximately 3-feet located below grade to prevent undermining by wave action.

The proposed bulkhead replacement will extend the bulkhead deep enough that there will be no undermining to threaten the integrity of the existing bulkhead, as the HTL/OHWM is at the face of the bulkhead. The proposed project will be located landward of the outer (seaward) edge of the existing toe to comply with WAC 220-660-370 which, allows no waterward expansion from the concrete toe of the existing structure.

The current proposed project will include:

1. Remove the existing concrete toe.
2. Form a stable concrete cast in place facing adjoining to the seaward face of the existing bulkhead
3. Backfill any spaces remaining between the face and interior of the existing bulkhead with $\frac{3}{4}$ inch river pebble.
4. Stabilize any voids under the concrete deck with concrete and/or fill, as necessary.

The construction crew and a small excavator will access the project site using a neighbor's boat ramp 0.19 miles southeast of the project site. Equipment will be staged within the cul-de-sac at the end of Croatian Way, northeast of parcel P83311. The existing concrete toe and debris will be removed with an excavator at low tide and disposed of at an upland site (it may be possible and even expeditious to remove it manually, over the seawall).

At low tide, an excavator will be used to install temporary steel sheets that will be put up on sections of the bulkhead walls that are being worked on to avoid collapse and run off. The steel sheets are 20 ft. long by 8 ft. tall and weigh approximately 3,000 lbs. apiece. The existing concrete toe will be removed at low tide by jackhammering the toe into small sections. Debris will be lifted and placed into a small dump truck by an excavator operating on the shoreline in the dry or be lifted over the wall manually, as is most expeditious. All debris from the toe will be removed during a single tide cycle with no debris exposed to the water. Equipment used for dismantling and removing the debris will be brought to the site and removed from the area during a single low tide cycle. An air compressor required for the jackhammer will be located shore side.

Construction will include digging three feet into beach substrate, seaward of the existing bulkhead, to create a footer with 10-inch rebar centers to support a four-foot high concrete wall section butted up to the existing bulkhead. Additional 4 feet high wall sections, with 10-inch rebar centers, will be poured with concrete until the wall is approximately 12 feet in height (3 feet below grade and 9 feet above) and no higher than the existing seawall. As per the project engineer, "the cold joint should have a solid bead consisting of an epoxy such as Simpson SET laid before the next pour." The vertical wall, above grade, will be 8 inches thick and 9 feet tall with a 16-inch-thick lip at the top, protruding seaward. The concrete has 2% calcium in it, so it will harden quickly before the next tide cycle. Drainage holes will be cast in to allow stormwater to drain seaward. Beach nourishment suitable to encourage new surf smelt spawning (no surf smelt or sand lances are known to be on the project area currently) will be placed along the bulkhead at 12 inches deep and taper to 0 inches approximately 10 feet seaward from the proposed bulkhead. The sieve size percent passing by weight is as follows as is appropriate for surf smelt:

- 5/8-inch 100%
- 3/8-inch 90-100%
- 1/16-inch 40-50%
- 1/100-inch (0.25 mm) 0-5%

Excavation of the existing base, forming of the new face, and pouring concrete will be done in 40-foot sections in the dry. According to the Washington State Coastal Atlas Map, drift cells currently move southeast to northwest along the shoreline of the project site.

6f. What are the anticipated start and end dates for project construction? (Month/Year) [\[help\]](#)

- If the project will be constructed in phases or stages, use [JARPA Attachment D](#) to list the start and end dates of each phase or stage.

Start Date: Fall 2021 End Date: Fall 2021 ☐ See JARPA Attachment D

6g. Fair market value of the project, including materials, labor, machine rentals, etc. [\[help\]](#)

\$50,000.00

6h. Will any portion of the project receive federal funding? [\[help\]](#)

- If **yes**, list each agency providing funds.

☐ Yes ☒ No ☐ Don't know

Part 7–Wetlands: Impacts and Mitigation

- ☐ Check here if there are wetlands or wetland buffers on or adjacent to the project area.
(If there are none, skip to Part 8.) [\[help\]](#)

7a. Describe how the project has been designed to avoid and minimize adverse impacts to wetlands. [\[help\]](#)

☒ Not applicable **No wetland vegetation was identified during site visit.**

7b. Will the project impact wetlands? [\[help\]](#)

☐ Yes ☐ No ☐ Don't know

7c. Will the project impact wetland buffers? [\[help\]](#)

☐ Yes ☐ No ☐ Don't know

7d. Has a wetland delineation report been prepared? [\[help\]](#)

- If **Yes**, submit the report, including data sheets, with the JARPA package.

☐ Yes ☐ No

7e. Have the wetlands been rated using the Western Washington or Eastern Washington Wetland Rating System? [\[help\]](#)

- **If Yes**, submit the wetland rating forms and figures with the JARPA package.

- ☐ Yes ☐ No ☐ Don't know

7f. Have you prepared a mitigation plan to compensate for any adverse impacts to wetlands? [\[help\]](#)

- **If Yes**, submit the plan with the JARPA package and answer 7g.
- **If No, or Not applicable**, explain below why a mitigation plan should not be required.

- ☐ Yes ☐ No ☐ Don't know

--	--

7g. Summarize what the mitigation plan is meant to accomplish, and describe how a watershed approach was used to design the plan. [\[help\]](#)

7h. Use the table below to list the type and rating of each wetland impacted, the extent and duration of the impact, and the type and amount of mitigation proposed. Or if you are submitting a mitigation plan with a similar table, you can state (below) where we can find this information in the plan. [\[help\]](#)

Activity (fill, drain, excavate, flood, etc.)	Wetland Name ¹	Wetland type and rating category ²	Impact area (sq. ft. or Acres)	Duration of impact ³	Proposed mitigation type ⁴	Wetland mitigation area (sq. ft. or acres)

¹ If no official name for the wetland exists, create a unique name (such as "Wetland 1"). The name should be consistent with other project documents, such as a wetland delineation report.

² Ecology wetland category based on current Western Washington or Eastern Washington Wetland Rating System. Provide the wetland rating forms with the JARPA package.

⁴ Creation (C), Re-establishment/Rehabilitation (R), Enhancement (E), Preservation (P), Mitigation Bank/In-lieu fee (B)

Page number(s) for similar information in the mitigation plan, if available: _____

7i. For all filling activities identified in 7h, describe the source and nature of the fill material, the amount in cubic yards that will be used, and how and where it will be placed into the wetland. [\[help\]](#)

7j. For all excavating activities identified in 7h, describe the excavation method, type and amount of material in cubic yards you will remove, and where the material will be disposed. [\[help\]](#)

Part 8–Waterbodies (other than wetlands): Impacts and Mitigation

In Part 8, “waterbodies” refers to non-wetland waterbodies. (See Part 7 for information related to wetlands.) [\[help\]](#)

☒ Check here if there are waterbodies on or adjacent to the project area. (If there are none, skip to Part 9.)

8a. Describe how the project is designed to avoid and minimize adverse impacts to the aquatic environment. [\[help\]](#)

☐ Not applicable

Six Conservation Measures (CM) are recommended for repairing seawalls near or along nearshore areas. Site specific conservation measures for the proposed project include:

1. Although a footer will be buried below the current marine shore grade, above ground repair and replacement of the bulkhead will be within the same footprint as the existing structure, as described in 6(e) above .
2. For mitigation, beach nourishment will be placed on the seaward face of the proposed project and taper 10 feet to the marine shoreline. Beach nourishment will create suitable habitat for new surf smelt spawning areas and may reduce sediment impoundment and drift.
3. Due to the presence of sand lance and surf smelt northwest of the proposed project site (not known to be on the Waring and McIntyre sites), a forage fish survey will be completed by a WDFW certified biologist prior to any work performed on the beach.
4. Backfill in the space between the existing rock seawall and the new concrete facing will only use new, clean ¾ inch pebbles (approximately 21 cu. yd. total) that are free from contaminants and fine dirt (minus).
5. To further minimize effects of the demolition or other earthwork on the adjacent water, all construction activities prior to the creation of the new bulkhead wall, will be performed during low tide.
6. To utilize steel sheets that will avoid collapse and runoff during construction activities and best management practices to minimize potential turbidity caused from sediment disturbed by the proposed project.

8b. Will your project impact a waterbody or the area around a waterbody? [\[help\]](#)

☒ Yes ☐ No

8c. Have you prepared a mitigation plan to compensate for the project’s adverse impacts to non-wetland waterbodies? [\[help\]](#)

- If Yes, submit the plan with the JARPA package and answer 8d.
- If No, or Not applicable, explain below why a mitigation plan should not be required.

☒ Yes ☐ No ☐ Don't know

A final mitigation plan will be submitted upon receiving comments from the agencies.

8d. Summarize what the mitigation plan is meant to accomplish. Describe how a watershed approach was used to design the plan.

- If you already completed 7g you do not need to restate your answer here. [\[help\]](#)

8e. Summarize impact(s) to each waterbody in the table below. [\[help\]](#)

Activity (clear, dredge, fill, pile drive, etc.)	Waterbody name ¹	Impact location ²	Duration of impact ³	Amount of material (cubic yards) to be placed in or removed from waterbody	Area (sq. ft. or linear ft.) of waterbody directly affected
Bulkhead repair, reinforcement and beach nourishment.	Burrows Bay	Bulkhead at and behind OHWM/HTL Beach nourishment below.	1 months	Approx 16.3 cubic yards of gravel will be placed for beach nourishment	88 linear feet

¹ If no official name for the waterbody exists, create a unique name (such as "Stream 1") The name should be consistent with other documents provided.
² Indicate whether the impact will occur in or adjacent to the waterbody. If adjacent, provide the distance between the impact and the waterbody and indicate whether the impact will occur within the 100-year flood plain.
³ Indicate the days, months or years the waterbody will be measurably impacted by the work. Enter "permanent" if applicable.

8f. For all activities identified in 8e, describe the source and nature of the fill material, amount (in cubic yards) you will use, and how and where it will be placed into the waterbody. [\[help\]](#)

A total of 30 cubic yards of concrete will be used to form the protective facing. A trench, 3 feet deep will be dug at the base of the existing wall to construct a footing with rebar 10 inches on center. The footing will be below beach grade. A wall will be built on top of the footing, above grade using a form with rebar at 10" on center. Sections will be added four feet at a time to reach the height of the existing wall (12 feet total, including below grade portion).

Beach nourishment suitable to encourage new surf smelt spawning area will be placed along the bulkhead at 12 inches deep and taper to 0 inches approximately 10 feet seaward from the proposed bulkhead. For surf

smelt spawning beaches, sieve size percent passing by weight is as follows:

- 5/8-inch 100%
- 3/8-inch 90-100%
- 1/16-inch 40-50%
- 1/100-inch (0.25 mm) 0-5%

8g. For all excavating or dredging activities identified in 8e, describe the method for excavating or dredging, type and amount of material you will remove, and where the material will be disposed. [\[help\]](#)

The construction crew and a small excavator will access the project site using a neighbor's boat ramp 0.19 miles southeast of the project site. Equipment will be staged within the cul-de-sac at the end of Croatian Way, northeast of parcel P83311. Concrete and rock debris will be removed from the beach manually and hauled to an approved dump-site.

Part 9—Additional Information

Any additional information you can provide helps the reviewer(s) understand your project. Complete as much of this section as you can. It is ok if you cannot answer a question.

9a. If you have already worked with any government agencies on this project, list them below. [\[help\]](#)

Agency Name	Contact Name	Phone	Most Recent Date of Contact
WDFW	Marcus Reeves	360.466.4345 ext. 251	1/28/2020
USACE	Ron Wilcox	206.316.3893	10/27/2020
City of Anacortes	Tess Cooper	360.588.8234	11/2020

9b. Are any of the wetlands or waterbodies identified in Part 7 or Part 8 of this JARPA on the Washington Department of Ecology's 303(d) List? [\[help\]](#)

- If **Yes**, list the parameter(s) below.
- If you don't know, use Washington Department of Ecology's Water Quality Assessment tools at: <https://ecology.wa.gov/Water-Shorelines/Water-quality/Water-improvement/Assessment-of-state-waters-303d>.

☐ Yes ☒ No

9c. What U.S. Geological Survey Hydrological Unit Code (HUC) is the project in? [\[help\]](#)

Go to http://cfpub.epa.gov/surf/locate/index.cfm to help identify the HUC.
1711002
9d. What Water Resource Inventory Area Number (WRIA #) is the project in? [help] Go to https://ecology.wa.gov/Water-Shorelines/Water-supply/Water-availability/Watershed-look-up to find the WRIA #.
WRIA #3
9e. Will the in-water construction work comply with the State of Washington water quality standards for turbidity? [help] Go to https://ecology.wa.gov/Water-Shorelines/Water-quality/Freshwater/Surface-water-quality-standards/Criteria for the standards.
☐ Yes ☐ No ☒ Not applicable
9f. If the project is within the jurisdiction of the Shoreline Management Act, what is the local shoreline environment designation? [help] - If you don't know, contact the local planning department. - For more information, go to: https://ecology.wa.gov/Water-Shorelines/Shoreline-coastal-management/Shoreline-coastal-planning/Shoreline-laws-rules-and-cases.
☐ Urban ☐ Natural ☐ Aquatic ☐ Conservancy ☒ Other: <u>Shoreline Residential</u>
9g. What is the Washington Department of Natural Resources Water Type? [help] Go to http://www.dnr.wa.gov/forest-practices-water-typing for the Forest Practices Water Typing System.
☒ Shoreline ☐ Fish ☐ Non-Fish Perennial ☐ Non-Fish Seasonal
9h. Will this project be designed to meet the Washington Department of Ecology's most current stormwater manual? [help] If No, provide the name of the manual your project is designed to meet.
☒ Yes ☐ No
Name of manual: _____
9i. Does the project site have known contaminated sediment? [help] If Yes, please describe below.
☐ Yes ☒ No
9j. If you know what the property was used for in the past, describe below. [help]

Residential property.

9k. Has a cultural resource (archaeological) survey been performed on the project area? [\[help\]](#)

- If **Yes**, attach it to your JARPA package.

☐ Yes ☒ No

9l. Name each species listed under the federal Endangered Species Act that occurs in the vicinity of the project area or might be affected by the proposed work. [\[help\]](#)

Bull Trout critical habitat, Chum Salmon, Final Deep-water Rockfish critical habitat, Green Sturgeon critical habitat, Leatherback Sea Turtle critical habitat, Marbled Murrelet, marine critical habitat for Puget Sound Chinook Salmon, marine critical habitat for Hood Canal summer-run Chum Salmon, Puget Sound Steelhead critical habitat, Sockeye Salmon critical habitat, Southern Eulachon and Southern Killer Whale critical habitat. (See Biological Evaluation for indepth details on species effects).

9m. Name each species or habitat on the Washington Department of Fish and Wildlife's Priority Habitats and Species List that might be affected by the proposed work. [\[help\]](#)

Bull Trout final critical habitat, Chum Salmon, final deep-water Rockfish critical habitat, final near shore Rockfish critical habitat, Green Sturgeon critical habitat, Leatherback Sea Turtle critical habitat, Marbled Murrelet and marine critical habitat for Puget Sound Chinook Salmon. (See Biological Evaluation for indepth details on species effects).

Part 10–SEPA Compliance and Permits

Use the resources and checklist below to identify the permits you are applying for.

- Online Project Questionnaire at <http://apps.oria.wa.gov/opas/>.
- Governor's Office for Regulatory Innovation and Assistance at (800) 917-0043 or help@oria.wa.gov.
- For a list of addresses to send your JARPA to, click on [agency addresses for completed JARPA](#).

10a. Compliance with the State Environmental Policy Act (SEPA). (Check all that apply.) [\[help\]](#)

- For more information about SEPA, go to <https://ecology.wa.gov/regulations-permits/SEPA-environmental-review>.

☐ A copy of the SEPA determination or letter of exemption is included with this application.

☒ A SEPA determination is pending with City of Anacortes (lead agency). The expected decision date is Summer 2021.

☐ I am applying for a Fish Habitat Enhancement Exemption. (Check the box below in 10b.) [\[help\]](#)

☐ This project is exempt (choose type of exemption below).

☐ Categorical Exemption. Under what section of the SEPA administrative code (WAC) is it exempt?

☐ Other: _____

☐ SEPA is pre-empted by federal law.

10b. Indicate the permits you are applying for. (Check all that apply.) [\[help\]](#)

LOCAL GOVERNMENT

Local Government Shoreline permits:

☒ Substantial Development ☒ Conditional Use ☐ Variance

☐ Shoreline Exemption Type (explain): _____

Other City/County permits:

☐ Floodplain Development Permit ☐ Critical Areas Ordinance

STATE GOVERNMENT

Washington Department of Fish and Wildlife:

☒ Hydraulic Project Approval (HPA) ☐ Fish Habitat Enhancement Exemption – [Attach Exemption Form](#)

Washington Department of Natural Resources:

☐ Aquatic Use Authorization

Complete [JARPA Attachment E](#) and submit a check for \$25 payable to the Washington Department of Natural Resources.

Do not send cash.

Washington Department of Ecology:

☒ Section 401 Water Quality Certification

FEDERAL AND TRIBAL GOVERNMENT

United States Department of the Army (U.S. Army Corps of Engineers):

☐ Section 404 (discharges into waters of the U.S.) ☒ Section 10 (work in navigable waters)

United States Coast Guard:

☐ General Bridge Act Permit ☐ Private Aids to Navigation (for non-bridge projects)

United States Environmental Protection Agency:

☐ Section 401 Water Quality Certification (discharges into waters of the U.S.) on tribal lands where tribes do not have treatment as a state (TAS)

Tribal Permits: (Check with the tribe to see if there are other tribal permits, e.g., Tribal Environmental Protection Act, Shoreline Permits, Hydraulic Project Permits, or other in addition to CWA Section 401 WQC)

☐ Section 401 Water Quality Certification (discharges into waters of the U.S.) where the tribe has treatment as a state (TAS).

Part 11—Authorizing Signatures

Signatures are required before submitting the JARPA package. The JARPA package includes the JARPA form, project plans, photos, etc. [\[help\]](#)

11a. Applicant Signature [\[help\]](#)

I certify that to the best of my knowledge and belief, the information provided in this application is true, complete, and accurate. I also certify that I have the authority to carry out the proposed activities, and I agree to start work only after I have received all necessary permits.

I hereby authorize the agent named in Part 3 of this application to act on my behalf in matters related to this application. JSM (initial)

By initialing here, I state that I have the authority to grant access to the property. I also give my consent to the permitting agencies entering the property where the project is located to inspect the project site or any work related to the project. JSM (initial)

JOHN S. MCINTYRE John S. McIntyre 3/04/2021
Applicant Printed Name Applicant Signature Date

11b. Authorized Agent Signature [\[help\]](#)

I certify that to the best of my knowledge and belief, the information provided in this application is true, complete, and accurate. I also certify that I have the authority to carry out the proposed activities and I agree to start work only after all necessary permits have been issued.

Marine Surveys & Assessments Mag Amos 3/4/2021
Authorized Agent Printed Name Authorized Agent Signature Date

11c. Property Owner Signature (if not applicant) [\[help\]](#)

Not required if project is on existing rights-of-way or easements (provide copy of easement with JARPA).

I consent to the permitting agencies entering the property where the project is located to inspect the project site or any work. These inspections shall occur at reasonable times and, if practical, with prior notice to the landowner.

Property Owner Printed Name Property Owner Signature Date

18 U.S.C §1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly falsifies, conceals, or covers up by any trick, scheme, or device a material fact or makes any false, fictitious, or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious, or fraudulent statement or entry, shall be fined not more than \$10,000 or imprisoned not more than 5 years or both.

If you require this document in another format, contact the Governor's Office for Regulatory Innovation and Assistance (ORIA) at (800) 917-0043. People with hearing loss can call 711 for Washington Relay Service. People with a speech disability can call (877) 833-6341.
ORIA publication number: ORIA-16-011 rev. 09/2018

360-385-4073

msa@marinesurveysandassessments.com



380 Jefferson

Port Townsend WA 98368

McIntyre-Waring Habitat Report (to accompany map dated 6/29/2020)

An intertidal habitat survey was performed on June 8, 2020 from approximately 10 am to 11:30 am at the project site located 5003 & 5005 Croatian Way, Anacortes, WA. Kimberly McClurg and Meg Amos from Marine Surveys & Assessments surveyed 9 transects of a proposed bulkhead repair to identify flora, fauna, substrate types and other qualitative information.

The survey transect baseline was along the HTL (High Tide Line) at the bulkhead that runs the shoreline at the site. Nine transects were surveyed from the baseline and transects were oriented perpendicular to the bulkhead. Transects were each 100 ft long and arranged from northwest to southeast, or when looking at the water from shore, from right to left (T1 to T9). Transects were spaced 25 ft apart.

Substrate at the site is primarily sand, gravel, and small cobble from HTL to about 50 feet seaward, and then transitions to sand with boulders. Anemones were observed in this transition zone.

Areas of macroalgae included *Ulva* up to 75%, *Fucus* up to 65%, *Porphyra* up to 25%, *Mastocarpus* up to 30%, Foliose Reds up to 25%, *Neorhodomela* up to 90%, *Cryptosiphonia* up to 25%, and *Desmarestia* up to 1%.

Eelgrass was observed just beyond the survey area with a bed starting 80 to 150 feet from HTL.

The intertidal zone is relatively flat and elevations were only collected in 2 locations at the waters edge. On Transect 9, -1.7 ft MLLW was measured 200 feet seaward of the HTL line. On Transect 1, 0.4 ft MLLW was measured 124 feet seaward of the HTL line.

Transect 1

Distance (Ft) along transect from baseline	Substrate and Other Features Noted	Macroalgae % Cover
0	sand	Barren
18	sand, gravel	Barren
46	pea gravel, small cobble	Barren
78	sand, large boulders	<i>Ulva</i> 10%.
84	sand, large boulder	<i>Ulva</i> 50%; <i>Fucus</i> 20%; <i>Porphyra</i> 5%; <i>Mastocarpus</i> 5%; <i>Cryptosiphonia</i> 25%.
100	sand, large boulder	<i>Ulva</i> 50%; <i>Fucus</i> 20%; <i>Porphyra</i> 5%; <i>Mastocarpus</i> 5%; <i>Cryptosiphonia</i> 25%.

Transect 2

Distance (Ft) along transect from baseline	Substrate and Other Features Noted	Macroalgae % Cover
0	sand	Barren
16	sand, pea gravel	Barren
48	sand, small rock	Barren
65	sand, large rock	<i>Ulva</i> 5%; <i>Porphyra</i> 5%; <i>Cryptosiphonia</i> 5%.
85	sand, large rock	<i>Ulva</i> 50%; <i>Fucus</i> 5%; <i>Porphyra</i> 5%; <i>Cryptosiphonia</i> 5%.
98	sand, large rock/boulders	<i>Ulva</i> 75%; <i>Fucus</i> 25%; <i>Porphyra</i> 5%; <i>Mastocarpus</i> 5%; <i>Cryptosiphonia</i> 25%.
150	sand	Eelgrass bed starts

Transect 3

Distance (Ft) along transect from baseline	Substrate and Other Features Noted	Macroalgae % Cover
0	sand, gravel	Barren
43	pea gravel, small cobble	Barren
56	sand, cobble	<i>Ulva</i> 10%; <i>Fucus</i> 5%; <i>Porphyra</i> 15%.
74	sand, scattered large boulders	<i>Ulva</i> 10%; <i>Fucus</i> 5%; <i>Porphyra</i> 5%; <i>Mastocarpus</i> 5%; <i>Cryptosiphonia</i> 10%.
84	sand, cobble	<i>Ulva</i> 50%; <i>Fucus</i> 5%; <i>Porphyra</i> 5%; <i>Mastocarpus</i> 10%; <i>Cryptosiphonia</i> 25%.
100	sand, cobble	<i>Ulva</i> 75%; <i>Fucus</i> 10%; <i>Porphyra</i> 1%; <i>Mastocarpus</i> 5%; <i>Cryptosiphonia</i> 10%.
126	sand	Eelgrass bed starts

Transect 4

Distance (Ft) along transect from baseline	Substrate and Other Features Noted	Macroalgae % Cover
0	sand, gravel	Barren
32	small cobble	Barren
41	sand, small cobble	Barren
53	sand, cobble, large rock	Barren
59	sand, cobble, large rock	<i>Ulva</i> 25%; <i>Fucus</i> 10%; <i>Porphyra</i> 5%; <i>Neorhodomela</i> 10%; <i>Cryptosiphonia</i>

		10%.
92	sand, cobble, large rock	<i>Ulva</i> 75%; <i>Fucus</i> 10%; <i>Porphyra</i> 10%; Foliose Reds 5%; <i>Neorhodomela</i> 5%; <i>Cryptosiphonia</i> 5%.
92	sand, cobble, large rock	<i>Ulva</i> 75%; <i>Fucus</i> 10%; <i>Porphyra</i> 10%; Foliose Reds 5%; <i>Neorhodomela</i> 10%; <i>Cryptosiphonia</i> 5%.
131	sand	Eelgrass bed starts

Transect 5

Distance (Ft) along transect from baseline	Substrate and Other Features Noted	Macroalgae % Cover
0	sand, gravel	Barren
17	sand, pea gravel, cobble, large rock	Barren
38	sand, cobble, boulders	<i>Ulva</i> 75%; <i>Porphyra</i> 15%.
64	sand, cobble, boulders	<i>Ulva</i> 75%; <i>Fucus</i> 1%; <i>Porphyra</i> 5%; <i>Neorhodomela</i> 10%.
70	sand, cobble, boulders	<i>Ulva</i> 10%; <i>Fucus</i> 5%; <i>Mastocarpus</i> 5%; <i>Neorhodomela</i> 50%; <i>Desmarestia</i> 1%.
89	sand, cobble, boulders	<i>Ulva</i> 5%; <i>Fucus</i> 10%; Foliose Reds 1%; <i>Neorhodomela</i> 10%.
131	sand	Eelgrass bed starts

Transect 5

Distance (Ft) along transect from baseline	Substrate and Other Features Noted	Macroalgae % Cover
0	sand, large rock	Barren
12	sand, pea gravel	Barren
18	sand, cobble	Barren
38	sand, cobble	<i>Ulva</i> 25%; <i>Porphyra</i> 25%.
58	sand, cobble	<i>Ulva</i> 30%; <i>Porphyra</i> 25%; <i>Mastocarpus</i> 30%.
63	sand, cobble	<i>Ulva</i> 10%; <i>Fucus</i> 5%; <i>Mastocarpus</i> 10%; <i>Neorhodomela</i> 75%.
79	sand, cobble	<i>Ulva</i> 10%; <i>Fucus</i> 10%; <i>Mastocarpus</i> 10%; <i>Neorhodomela</i> 50%.
124	sand	Eelgrass bed starts

Transect 7

Distance (Ft) along transect from baseline	Substrate and Other Features Noted	Macroalgae % Cover
0	sand, cobble	Barren
38	sand, cobble	<i>Ulva</i> 40%; <i>Porphyra</i> 5%; <i>Neorhodomela</i> 5%.
55	sand, cobble	<i>Ulva</i> 5%; <i>Fucus</i> 65%; <i>Porphyra</i> 5%; Foliose Reds 1%; <i>Neorhodomela</i> 50%.
93	sand, cobble	<i>Ulva</i> 5%; <i>Fucus</i> 65%; <i>Porphyra</i> 5%; Foliose Reds 1%; <i>Neorhodomela</i> 75%.
103	sand	Eelgrass bed starts

Transect 8

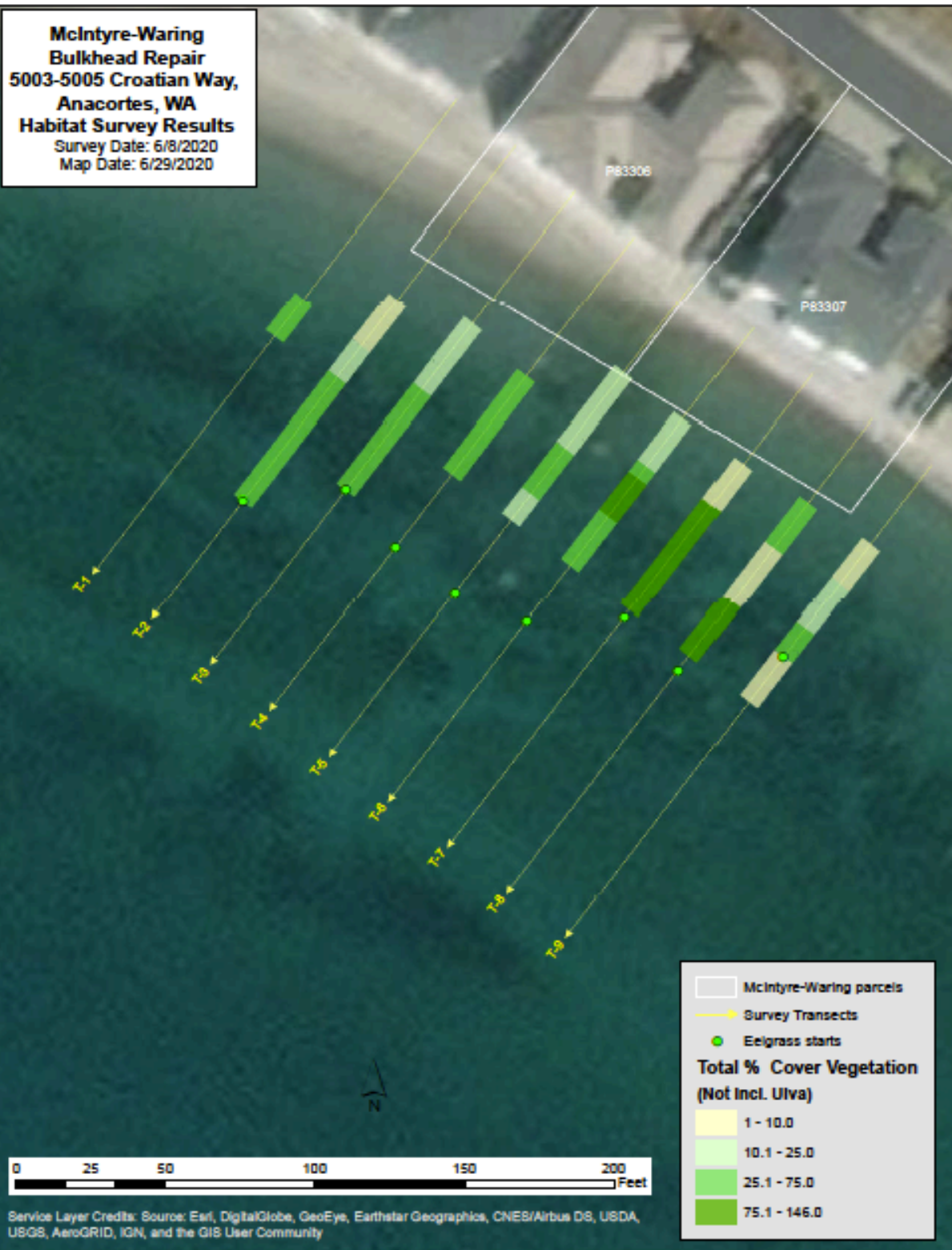
Distance (Ft) along transect from baseline	Substrate and Other Features Noted	Macroalgae % Cover
0	pea gravel, large rock, boulder	Barren
16	sand, large rock, boulder	Barren
35	sand, large rock, boulder	<i>Ulva</i> 20%; <i>Fucus</i> 5%; <i>Porphyra</i> 10%; <i>Neorhodomela</i> 20%; <i>Cryptosiphonia</i> 5%.
50	sand, large rock, boulder	<i>Ulva</i> 10%; <i>Fucus</i> 5%; <i>Porphyra</i> 10%; <i>Neorhodomela</i> 10%; <i>Cryptosiphonia</i> 5%.
54	sandy patch w/ scattered large rock	<i>Porphyra</i> 5%; <i>Mastocarpus</i> 5%.
77	sand, large rock boulder	<i>Ulva</i> 5%; <i>Fucus</i> 5%; <i>Porphyra</i> 5%; Foliose Reds 25%; <i>Neorhodomela</i> 90%; <i>Cryptosiphonia</i> 15%.
106		Eelgrass bed starts

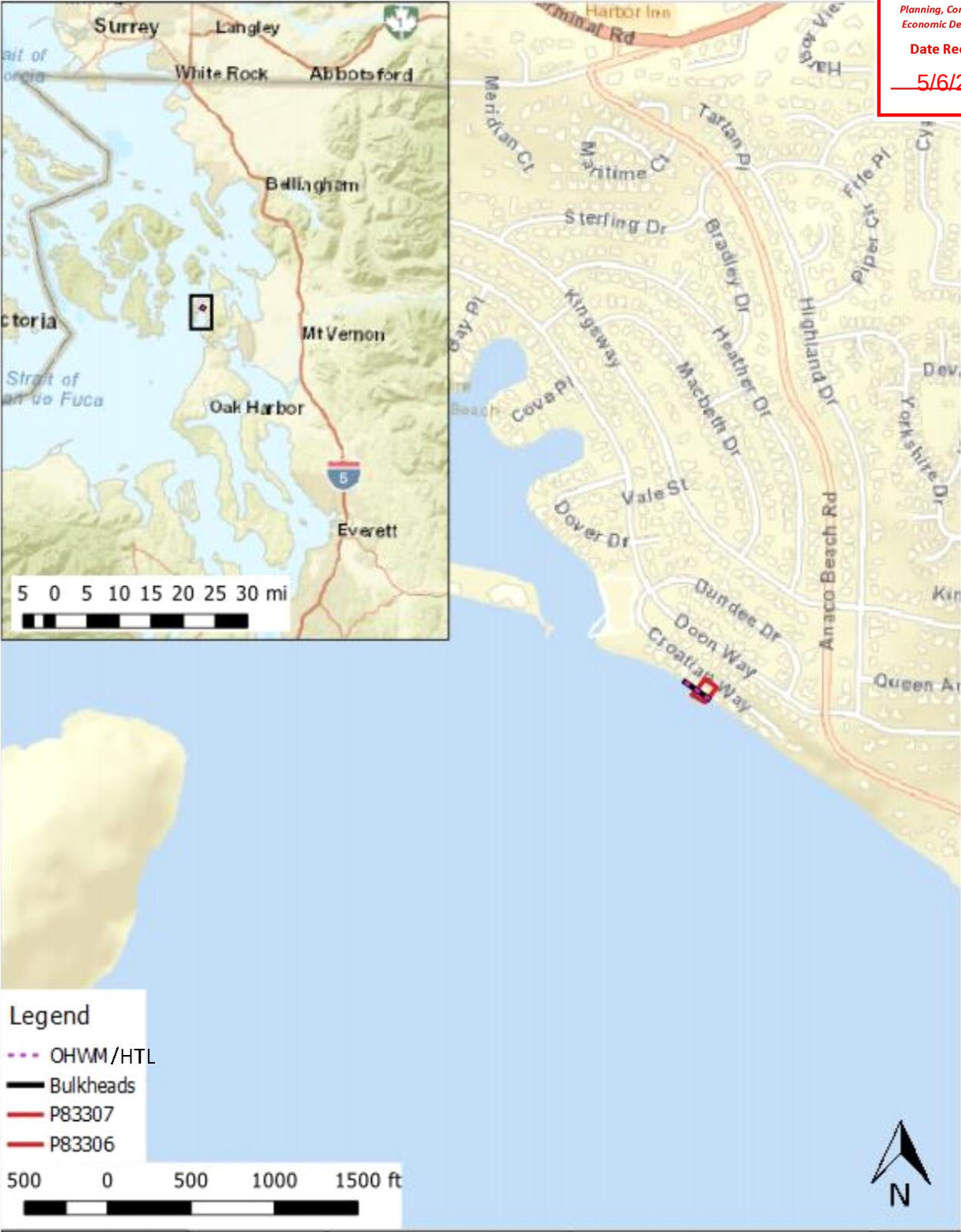
Transect 9

Distance (Ft) along transect from baseline	Substrate and Other Features Noted	Macroalgae % Cover
0	sand, pea gravel, cobble, large rock	Barren
17	sand, cobble	Barren
33	gravel, cobble	<i>Ulva</i> 10%; <i>Porphyra</i> 5%.
50	gravel, cobble	<i>Ulva</i> 10%; <i>Fucus</i> 10%; <i>Porphyra</i> 5%; <i>Mastocarpus</i> 5%.
60	gravel, cobble	<i>Ulva</i> 20%; <i>Fucus</i> 10%; <i>Porphyra</i> 5%; <i>Mastocarpus</i> 5%.
69	sand, rock	<i>Ulva</i> 20%; <i>Fucus</i> 10%; <i>Porphyra</i> 5%;

		<i>Mastocarpus</i> 5%; <i>Neorhodomela</i> 10%.
77	sand, rock	<i>Ulva</i> 20%; <i>Fucus</i> 10%; <i>Porphyra</i> 5%; <i>Mastocarpus</i> 5%; <i>Neorhodomela</i> 10%.
81	sand	Foliose Reds 5%. Eelgrass bed starts
100	sand	Foliose Reds 5%. Eelgrass bed.

**McIntyre-Waring
Bulkhead Repair
5003-5005 Croatian Way,
Anacortes, WA
Habitat Survey Results**
Survey Date: 6/8/2020
Map Date: 6/29/2020





CORPS REFERENCE:	PARCEL ID/Owner:	PROPOSED PROJECT:
APPLICANT: John & Colleen McIntyre	P83307/John & Colleen McIntyre	Bulkhead Maintenance
SITE ADDRESS:	ADJACENT PARCELS / OWNERS & ADDRESS:	Sheet 1 of 8
5003 Croatian Way, Anacortes, WA	P83306 / Barton Waring	DATE: 6/12/2020
In: Burrows Bay, Puget Sound	5005 Croatian Way, Anacortes, WA 98221	Revised 2/19/2021
County: Skagit	P83308 / Thomas & Sally Foster	
State: WA	4911 Croatian Way, Anacortes, WA 98221	

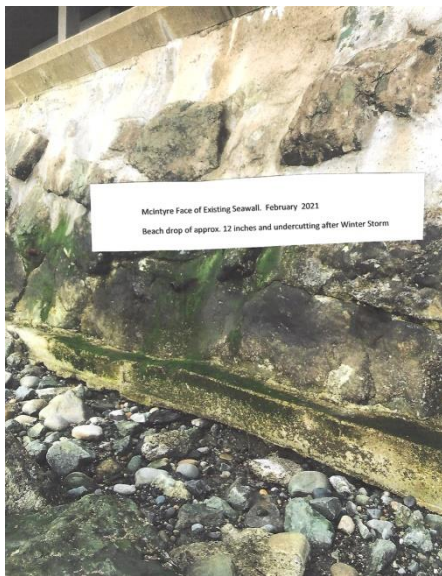


CORPS REFERENCE:	PARCEL ID/Owner:	PROPOSED PROJECT:
APPLICANT: John & Colleen McIntyre	P83307/John & Colleen McIntyre	Bulkhead Maintenance
SITE ADDRESS:	ADJACENT PARCELS / OWNERS & ADDRESS:	Sheet 2 of 8
5003 Croatian Way, Anacortes, WA	P83306 / Barton Waring	DATE: 6/12/2020
In: Burrows Bay, Puget Sound	5005 Croatian Way, Anacortes, WA 98221	Revised 2/19/2021
County: Skagit State: WA	P83308 / Thomas & Sally Foster	
	4911 Croatian Way, Anacortes, WA 98221	

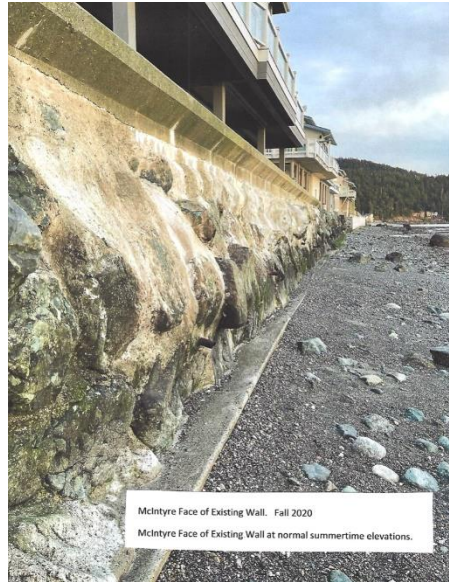


CORPS REFERENCE:	PARCEL ID/Owner:	PROPOSED PROJECT:
APPLICANT: John & Colleen McIntyre	P83307/John & Colleen McIntyre	Bulkhead Maintenance
SITE ADDRESS:	ADJACENT PARCELS / OWNERS & ADDRESS:	Sheet 3 of 8
5003 Croatian Way, Anacortes, WA	P83306 / Barton Waring	DATE: 6/12/2020
In: Burrows Bay, Puget Sound	5005 Croatian Way, Anacortes, WA 98221	Revised 2/19/2021
County: Skagit State: WA	P83308 / Thomas & Sally Foster	
	4911 Croatian Way, Anacortes, WA 98221	

Existing McIntyre Bulkhead Profile (based on 1/26/2020 Lisser topographic survey findings)

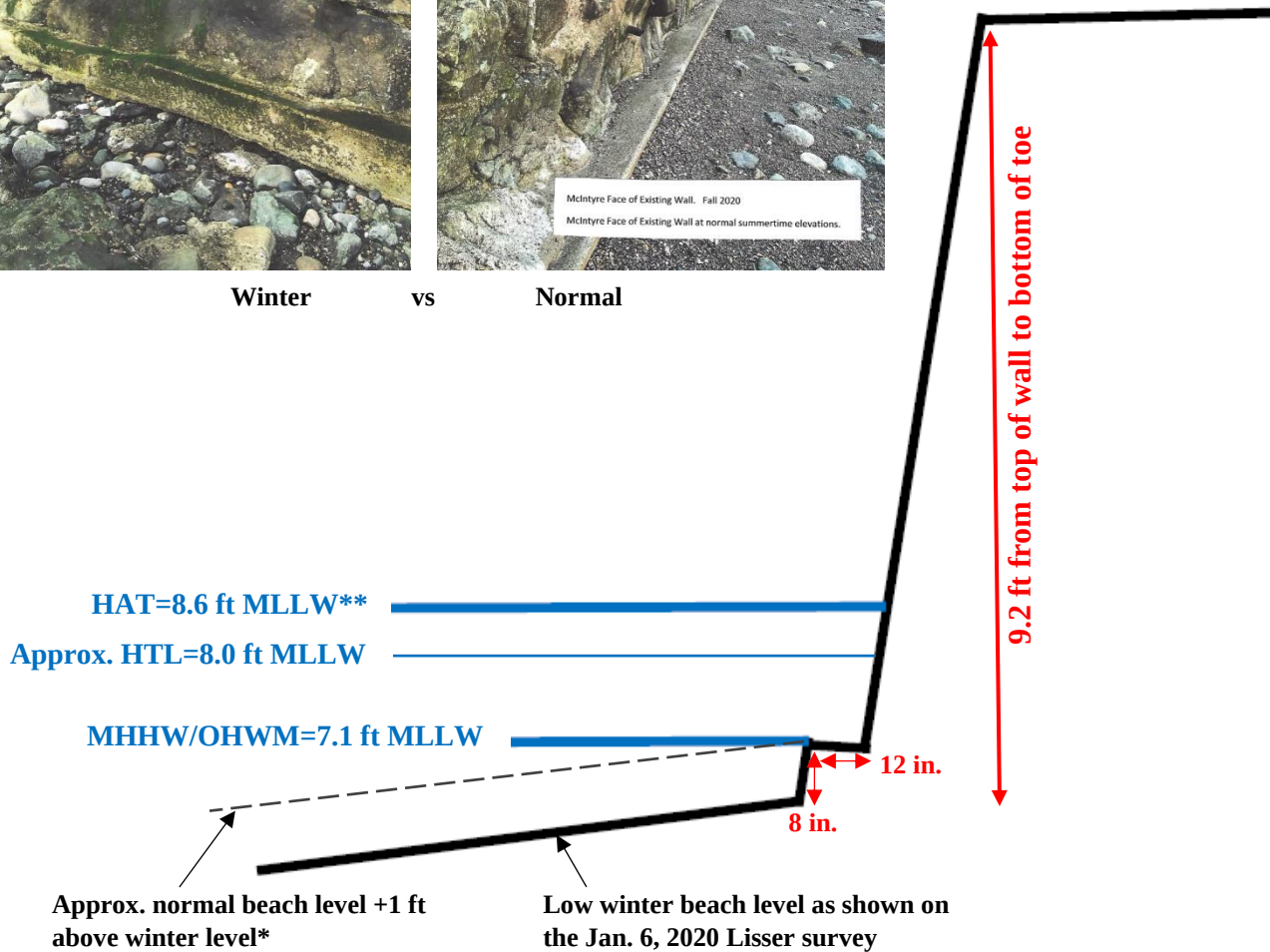


Winter



vs

Normal

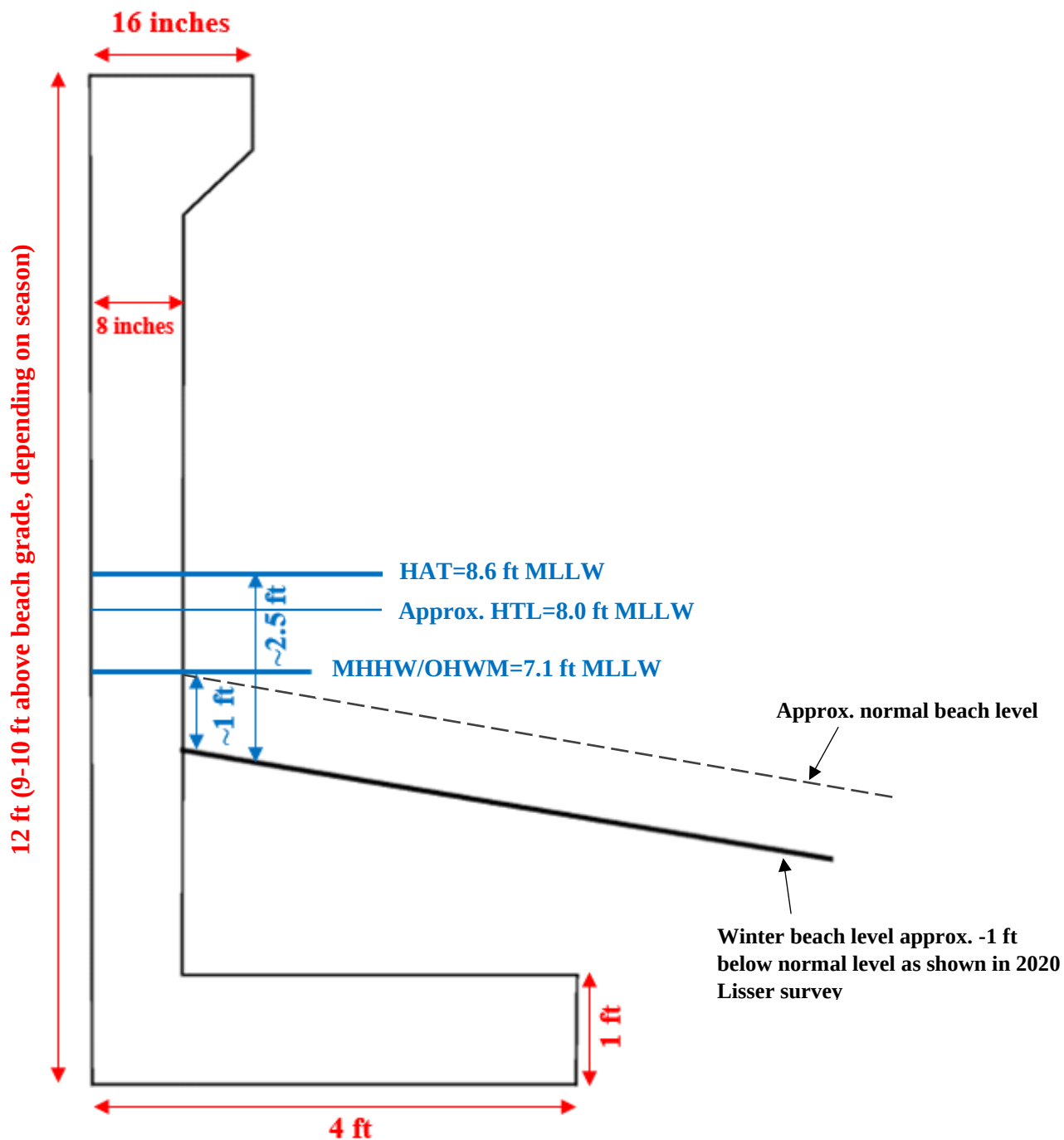


*Depending on the season, the beach elevation can vary by approximately 1 ft.

**HAT value taken from the *average difference* between HAT & MHHW values of the 3 closest tidal datums, as there was not a datum for Burrows Bay. The average difference was 1.5 ft.

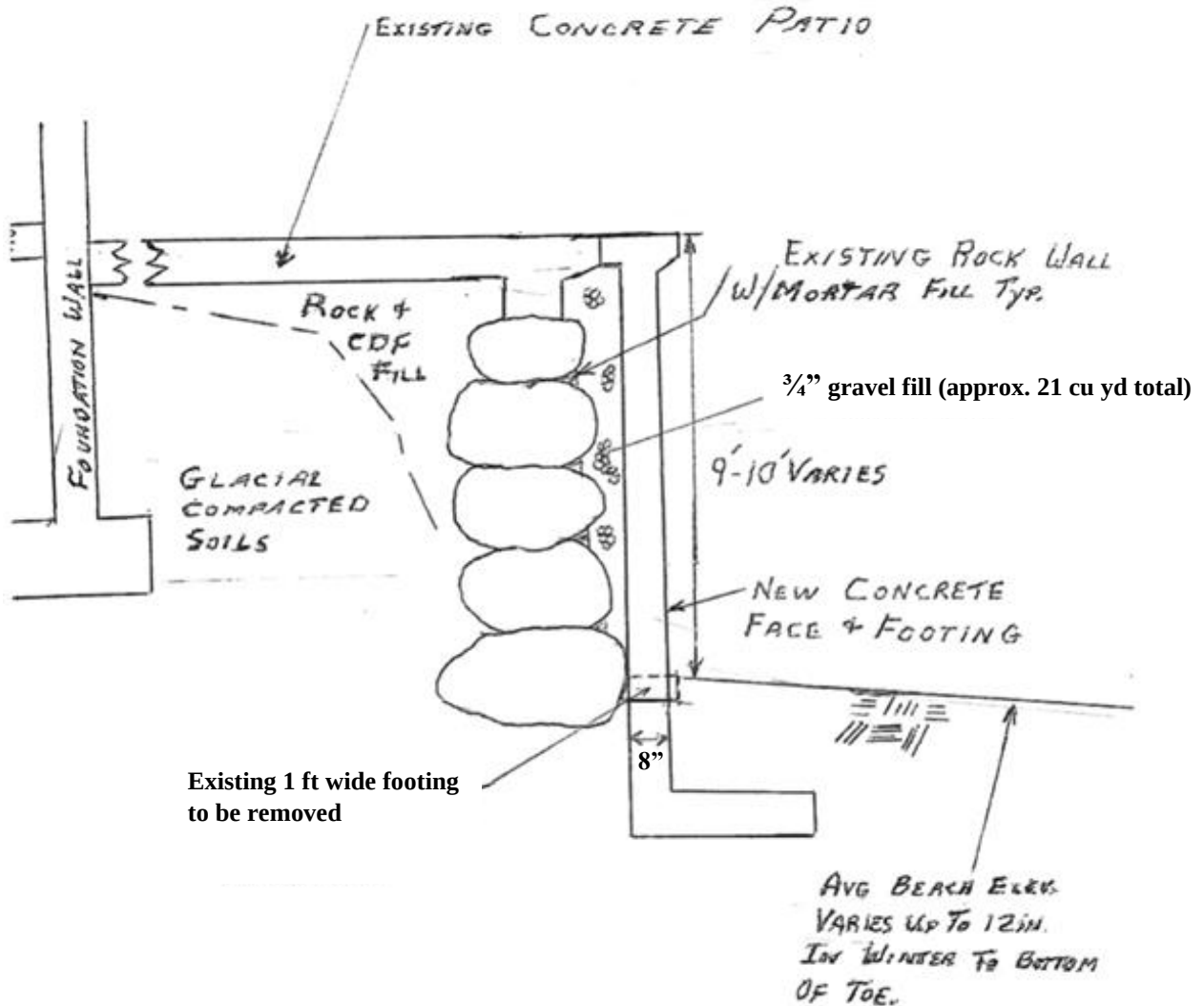
CORPS REFERENCE: APPLICANT: John & Colleen McIntyre	PARCEL ID/Owner: P83307/John & Colleen McIntyre	PROPOSED PROJECT: Bulkhead Maintenance
SITE ADDRESS: 5003 Croatian Way, Anacortes, WA In: Burrows Bay, Puget Sound County: Skagit State: WA	ADJACENT PARCELS / OWNERS & ADDRESS: P83306 / Barton Waring 5005 Croatian Way, Anacortes, WA 98221 P83308 / Thomas & Sally Foster 4911 Croatian Way, Anacortes, WA 98221	Sheet 4 of 8 DATE: 6/12/2020 Revised 2/19/2021

Proposed McIntyre Bulkhead Profile (not drawn to scale)



CORPS REFERENCE: APPLICANT: John & Colleen McIntyre	PARCEL ID/Owner: P83307/John & Colleen McIntyre	PROPOSED PROJECT: Bulkhead Maintenance
SITE ADDRESS: 5003 Croatian Way, Anacortes, WA In: Burrows Bay, Puget Sound County: Skagit State: WA	ADJACENT PARCELS / OWNERS & ADDRESS: P83306 / Barton Waring 5005 Croatian Way, Anacortes, WA 98221 P83308 / Thomas & Sally Foster 4911 Croatian Way, Anacortes, WA 98221	Sheet 5 of 8 DATE: 6/12/2020 Revised 2/19/2021

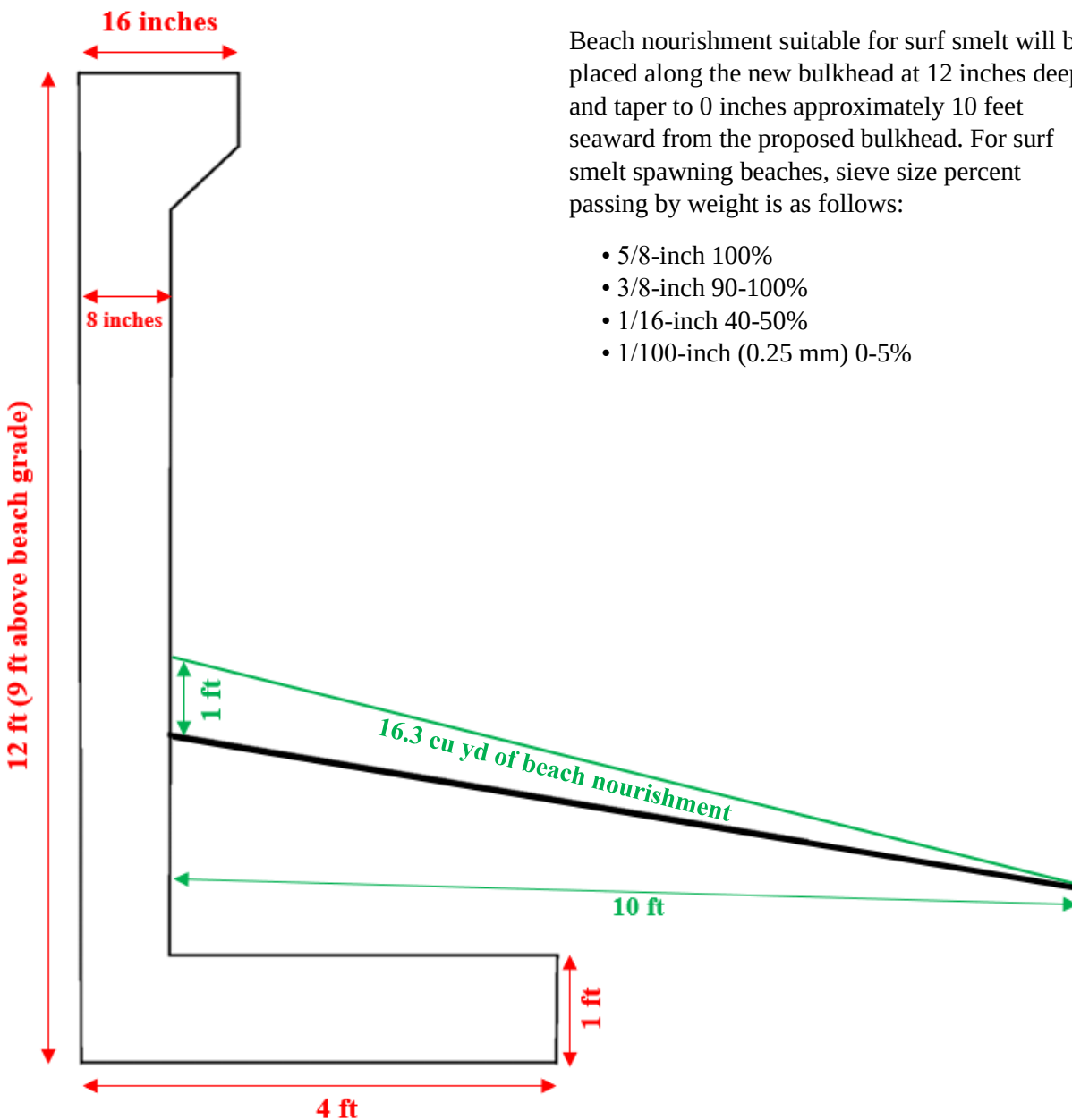
**Proposed McIntyre Bulkhead with Existing Bulkhead Detail
(to demonstrate proposed bulkhead will not extend waterward of existing footing)**



McINTYRE
5003 CROATIAN WAY
ANACORTES, WA

CORPS REFERENCE: APPLICANT: John & Colleen McIntyre	PARCEL ID/Owner: P83307/John & Colleen McIntyre	PROPOSED PROJECT: Bulkhead Maintenance
SITE ADDRESS: 5003 Croatian Way, Anacortes, WA In: Burrows Bay, Puget Sound County: Skagit State: WA	ADJACENT PARCELS / OWNERS & ADDRESS: P83306 / Barton Waring 5005 Croatian Way, Anacortes, WA 98221 P83308 / Thomas & Sally Foster 4911 Croatian Way, Anacortes, WA 98221	Sheet 6 of 8 DATE: 6/12/2020 Revised 2/19/2021

Proposed Beach Nourishment



Beach nourishment suitable for surf smelt will be placed along the new bulkhead at 12 inches deep and taper to 0 inches approximately 10 feet seaward from the proposed bulkhead. For surf smelt spawning beaches, sieve size percent passing by weight is as follows:

- 5/8-inch 100%
- 3/8-inch 90-100%
- 1/16-inch 40-50%
- 1/100-inch (0.25 mm) 0-5%

CORPS REFERENCE: APPLICANT: Barton Waring	PARCEL ID/Owner: P83306/Barton Waring	PROPOSED PROJECT: Bulkhead Maintenance
SITE ADDRESS: 5005 Croatian Way, Anacortes, WA In: Burrows Bay, Puget Sound County: Skagit State: WA	ADJACENT PARCELS / OWNERS & ADDRESS: P83307 / John & Colleen McIntyre 5003 Croatian Way, Anacortes, WA 98221 P83305 / Arrington Trust 5009 Croatian Way, Anacortes, WA 98221	Sheet 8 of 8 DATE: 6/12/2020 Revised 2/19/2021

McIntyre and Waring Bulkhead Repair & Replacement Biological Evaluation

June 17, 2020

**For: John & Colleen McIntyre
5003 Croatian Way
Anacortes, WA 98221**

**Barton Waring
5005 Croatian Way
Anacortes, WA 98221**



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1. Project Information

The proposed project described herein is an emergency repair and replacement of a failing bulkhead at parcels 83306 and 83307, in Skagit County, Washington. The existing bulkhead is actively being eroded, exposing the single-family residences to potential damage from wave action (Figure 19). The proposed project aims to fully repair the existing bulkhead and replace failed areas closest to the marine shoreline with new hard armoring. New fill may be added to the existing bulkhead. Beach nourishment is also being proposed to reduce further erosion to the beach and minimize impacts to forage fish.

1.1. Project Location

Section 35N, Township 27, Range 1E

John & Colleen McIntyre property
5003 Croatian Way
Anacortes, WA 98221

Barton Waring property
5005 Croatian Way
Anacortes, WA 98221

Parcel: P83307 (McIntyre) and P83306 (Waring) in Skagit County

Latitude: 48.488940, Longitude: -122.673409

Waterbody: Burrows Bay, Puget Sound

The project location is seen in Figures 1 and 2.

1.2. Project Description

The existing Waring bulkhead is 83 ft long and 7 to 8.5 ft tall (at the current beach elevation), while the McIntyre bulkhead is 88 ft long and 9 to 10 ft tall (at the current beach elevation). The existing toe is 12 inches wide by 8 inches deep and does not contain any steel rebar. The existing McIntyre/Waring bulkhead is currently being undermined because it does not extend deep enough to be protected from erosion.

The proposed bulkhead replacement will stabilize the toe of the slope and extend the bulkhead deep enough that there will be no undermining to protect uplands from further erosion, as the High Tide Line (HTL) and Ordinary High Water Mark (OHWM) line is at the face of the bulkhead. The proposed project will be located landward of the outer (seaward) edge of the existing toe to comply with WAC 220-660-370 which allows no waterward expansion from the concrete toe of the existing structure.

The current proposed project will include:

1. Remove the existing concrete toe.
2. Form a stable concrete bulkhead adjoining to the seaward face of the existing bulkhead

3. Backfill all spaces between the face and interior of the existing bulkhead with ¾ inch river pebble.
4. Stabilize any areas under the concrete deck with reinforced concrete and fill, as necessary.

The construction crew and a small excavator will access the project site using a neighbor's boat ramp 0.19 miles southeast of the project site. Equipment will be staged within the cul-de-sac at the end of Croatian Way, northeast of parcel P83311. The existing 18-inch concrete toe and scattered concrete toe debris will be removed with an excavator at low tide and disposed of at an upland site.

At low tide, an excavator will be used to install steel sheets that will be put up on sections of the bulkhead walls that are being worked on to avoid collapse and run off. The steel sheets are 20 ft long by 8 ft tall and weigh approximately 3,000 lbs apiece. The existing concrete toe will be removed at low tide by jackhammering the toe into approximately 3 ft sections. A saw and jackhammer will also be used to remove a portion of the face of the Waring rock bulkhead to keep the new Waring bulkhead in line with the McIntyre bulkhead. The saw will have a garden hose hooked up to it to keep it wet which will minimize any dust that may result. Debris will be lifted and placed into a small dump truck by an excavator operating on the shoreline in the dry. All debris from the toe and bulkhead face will be removed during a single tide cycle with no debris exposed to the water. Equipment used for dismantling and removing the debris will be brought to the site and removed from the area during a single low tide cycle. An air compressor required for the jack hammer will be located shore side.

Construction will include digging three feet into beach substrate below HTL, seaward of the existing bulkhead, and creating a footer with 12-inch rebar centers to support a four-foot high concrete wall section. Additional 4 feet high wall sections, with 12-inch rebar centers, will be poured with concrete until the wall is approximately 12 feet in height (3 feet below grade and 9 feet above). The vertical wall, above grade, will be 8 inches thick and 9 feet tall with a 16-inch-thick lip at the top, protruding seaward. The concrete has 2% calcium in it, so it will harden in 20 minutes. Drainage holes will be drilled to allow stormwater to drain seaward. Beach nourishment suitable for surf smelt will be placed along the bulkhead at 12 inches deep and taper to 0 inches approximately 10 feet seaward from the proposed bulkhead. For surf smelt spawning beaches, sieve size percent passing by weight is as follows:

- 5/8-inch 100%
- 3/8-inch 90-100%
- 1/16-inch 40-50%
- 1/100-inch (0.25 mm) 0-5%

Excavation of the existing base, forming of the bulkhead, and pouring concrete will be done in 40-foot sections for each property, in the dry. According to the Washington State Coastal Atlas Map, drift cells currently move southeast to northwest along the shoreline of the project site. Periodic re-nourishment may be necessary to replenish future drift of the beach nourishment sediment.

Waring's bulkhead will be in line with the McIntyre's bulkhead when finished.

2. Action Area

The “project area” is the area within the bulkhead replacement footprint. The project area also includes areas used for staging materials and equipment and accessing the site. The “action area” includes any areas with potential ecological effects from short-term construction activities or long-term habitat modifications and will cover approximately ½ mile to account for noise during the bulkhead replacement and includes a portion of Burrows Bay (Rosario Strait) (Figure 2).

3. Species and Habitat Information

3.1 Habitat Information

A habitat survey has not yet been performed at the site; however, data exists from the adjacent “Foster” parcel (Appendix A). The habitat survey was performed on July 9th, 2019 (65°F, overcast and calm) between approximately 3:00 pm to 5:00 pm at 4911 Croatian Way, Anacortes, WA. Meg Amos from Marine Surveys & Assessments surveyed 7 transects in the area of a proposed emergency bulkhead replacement to identify flora, fauna, substrate types and other qualitative information.

The survey transect baseline was along the HTL mark at the bulkhead that runs along the shoreline at the site. Seven transects were surveyed from the baseline and transects were oriented perpendicular to the bulkhead. Transects were each 100 ft long and were arranged from northwest to southeast, or when looking at the water from shore, from right to left (T1 to T7). Transects were separated from each other by 25 ft.

Substrate at the site is mostly sand and cobble or large rock. Areas of macroalgae cover included *Ulva* 2-90%, *Fucus* 2-40%, *Mastocarpus* 2-10%, and foliose reds 2-60%. An eelgrass bed (*Zostera marina*) was observed along three of the transects at the site approximately 50-80 feet offshore, with a few small patches elsewhere.”

The project footprint, particularly the existing bulkhead and the proposed bulkhead replacement work, is at the extreme upslope end of a beach which reveals itself at low tide as a very wide, very low-sloped beach. The base of the wall work is very close to MHHW, and thus the immediately adjacent beach is only flooded on the highest portion of high tides (aside from the storm surges causing damage to the existing bulkhead).

3.2 State Species

The WDFW Priority Habitat and Species (PHS) data indicates estuarine and marine wetland and estuarine zone at the project site. In the action area, surf smelt and sand lance spawning habitat, pandalid shrimp, pinto abalone, red sea urchin and Yuma myotis (*Myotis yumanensis*; a species of bat) are mapped.

According to queries of the Salmonid Stock Inventory (SaSI) data (WDFW), the following salmonid species have been documented inside the action area in an unnamed stream approximately 2,000 ft southeast of the project site:

- Coho: presence
- Fall Chinook: presence
- Winter Steelhead: presence

- Pink salmon (odd year): presence

3.2.1 Forage Fish

Migrating salmon utilize baitfish such as Pacific herring (*Clupea harengus pallasii*), sand lance (*Ammodytes hexapterus*) and surf smelt (*Hypomesus pretiosus*) as prey resources. These forage fish form a very important trophic link between plankton resources and a wide variety of predatory marine organisms as well as providing food for marbled murrelets and bald eagles.

According to WDFW, there is documented spawning activity in the action area for surf smelt and sand lance (Figure 13). Beach nourishment suitable for surf smelt is being proposed to minimize impacts to forage fish at this site.

3.3 Federal ESA Species & Critical Habitat

For each listed species with the *potential to be in the project action area*, the listing status, distribution of species, and relevant life history traits are presented in the sections below. Salmon species that utilize streams and have designated critical habitat located in Rosario Strait will also be included as they may migrate past the project site. For species with Critical Habitat within the action area, a detailed Assessment of Impacts to Critical Habitat is included with this report as an attachment (see Attachments 2-5).

Table 1. NMFS/USFWS Critical Habitat

NMFS/USFWS Critical Habitat	Action Area	Project Footprint	Burrows Bay
Final Nearshore Rockfish Critical Habitat (NMFS, 2014)	Y	Y	Y
Final Deepwater Rockfish Critical Habitat (NMFS, 2014)	Y	N	Y
Chum Salmon Critical Habitat (NMFS, 2005)	N	N	N
Marine Critical Habitat for Puget Sound Chinook Salmon (NMFS, 2005)	Y	Y	Y
Freshwater Puget Sound Chinook Salmon Critical Habitat (NMFS, 2005)	N	N	N
Critical Habitat for Puget Sound Steelhead (NOAA, 2016)	N	N	N
Marine Critical Habitat Hood Canal Summer-run Chum Salmon (NMFS, 2005)	N	N	N
Southern Resident Killer Whale Critical Habitat (NMFS, 2006)	Y	N	Y
Steelhead Trout Critical Habitat (NMFS, 2005)	N	N	N
Bull Trout Final Critical Habitat (USFWS, 2010)	N	N	N
Marbled Murrelet (USFWS, 2016)	N	N	N
Leatherback Sea Turtle Critical Habitat (NMFS, 2012)	N	N	N
Green Sturgeon Critical Habitat (NMFS, 2009)	Y	Y	Y
Southern Eulachon (NMFS, 2011)	N	N	N
Proposed Humpback Whale Critical Habitat (NMFS, 2019)	N	N	N

3.3.1. Puget Sound Chinook

Puget Sound Chinook (*Oncorhynchus tshawytscha*), also called the king salmon, are distinguished from all other Pacific salmon by their large size. Most Chinook in the Puget Sound are “ocean-type” and migrate to the marine environment during their first year (Myers et al. 1998). They may enter estuaries immediately after emergence as fry from March to May at a length of 40 mm or they may enter the estuaries as fingerling smolts during May and June of their first year at a length of 60-80 mm (Healey 1982). Chinook fry in Washington estuaries feed on emergent insects and epibenthic crustaceans (gammarid amphipods, mysids, and cumaceans). As they grow and move into neritic habitats, they feed on decapod larvae, larval and juvenile fish, drift insects, and euphausiids (Simenstad et al. 1982). These ocean-type Chinook use estuaries as rearing areas and are the most dependent of all salmon species on estuaries for survival.

The Puget Sound Chinook is listed under the Endangered Species Act (ESA) as threatened according to the National Marine Fisheries Service (NMFS) (70 FR 37160; June 28, 2005). In addition, NMFS has designated critical habitat for 12 Evolutionarily Significant Units (ESUs) of West Coast salmon, including the Puget Sound Chinook Salmon ESU. The portion of the project footprint and action area below the line of extreme high water is in an area designated as critical habitat for the Puget Sound Chinook ESU (70 FR 52685; September 2, 2005).

The project site and action area are within marine Puget Sound Chinook critical habitat. According to Salmonid Stock Inventory (SaSI) data (WDFW), Fall Chinook presence is documented in an unnamed stream within the action area of the project, approximately 2000 ft southeast of the project site. Chinook may migrate past the project site or forage along the shoreline as submerged aquatic vegetation and forage fish spawning habitat is also present.

An “Assessment of Impacts to Critical Habitat for Puget Sound Chinook” is provided in Attachment 2.

3.3.2. Hood Canal Summer-run Chum

In Puget Sound, chum spawning grounds are situated near coastal rivers and lowland streams. In Hood Canal, the summer-run stocks spawn from early-September to mid-October (WSCC 2002). Chum (along with ocean-type Chinook) spend more time in the estuarine environment than other species of salmon (Healey, 1982). Residence time in the Hood Canal ranges from 4 to 32 days with an average residence of 24 days (Simenstad, Fresh, & Salo, 1982). Juvenile chum consume benthic organisms found in and around eelgrass beds (harpacticoid copepods, gammarid amphipods and isopods), but change their diet to drift insects and plankton such as calanoid copepods, larvaceans, and hyperiid amphipods as their size increases to 50 - 60 mm (Simenstad, Fresh, & Salo, 1982). Summer chum escapements in Hood Canal have generally experienced a continuous decline for the past 30 years. However, beginning in 2003, escapements began to increase. In 2004, the escapements were the highest recorded during the period that total spawner numbers have been estimated (1974-2004) (WDFW 2005).

NMFS has listed the Hood Canal summer-run chum ESU (*Oncorhynchus keta*) as threatened under the ESA (70 FR 37160; June 28, 2005). NMFS designated critical habitat for the Hood Canal

summer-run chum ESU shortly after (70 FR 52739; September 2, 2005) and it includes the entire Hood Canal and contiguous shoreline north/northwest, ending past Dungeness Bay near Sequim.

The project site and action area do not contain critical habitat for Hood Canal summer-run chum.

3.3.3. Bull Trout

Coastal-Puget Sound bull trout have ranged geographically from northern California (at present they are extinct in California) to the Bering Sea coast of Alaska, and northwest along the Pacific Rim to northern Japan and Korea. Bull trout are members of the char subgroup of the salmon family. Spawning occurs typically from August to November in streams and migration to the open sea (for anadromous populations) takes place in the spring. Eggs and juveniles require extremely cold water for survival. Temperatures in excess of about 15 degrees C are thought to limit bull trout distribution (Rieman & McIntyre, 1993). They live both in fresh and marine waters. Some migrate to larger rivers (fluvial), lakes (adfluvial), or saltwater (anadromous) before returning to smaller streams to spawn. Others (resident bull trout) complete all of their life in the streams where they were reared. Habitat degradation, dams and diversions, and predation by non-native fish threaten the Coastal Puget Sound population (64 FR 31647; June 10, 1998; 64 FR 17112, April 8, 1999).

All populations of bull trout (*Salvelinus confluentus*), including the Coastal-Puget Sound populations, were listed as threatened by the United States Fish and Wildlife Service (USFWS) in 1999 (64 FR 58910; November 1, 1999). USFWS designated critical habitat for bull trout in 2010 (75 FR 63898; October 18, 2010).

Critical habitat is found on the eastern side of Anacortes and northern Rosario Strait; however, no critical habitat is present in the action or project area and bull trout presence has not been documented in the action area (SaSI WDFW).

3.3.4. Puget Sound Steelhead

Steelhead is the name given to the anadromous form of the species *Oncorhynchus mykiss*. The freshwater residents are called Rainbow trout. Steelhead spawn in the winter through spring and can return to the ocean after spawning and migrate to freshwater to spawn again, unlike Pacific salmon. Steelhead fry can spend one to two years in freshwater before heading to the open ocean, where they may stay for two to four years before returning to Washington streams.

NMFS has listed the Puget Sound steelhead as a threatened species under the ESA (72 FR 26722; May 11, 2007). Critical habitat was designated by NMFS for the Puget Sound steelhead distinct population segment effective March 25, 2016 (81 FR 9252; February 24, 2016).

Based on SaSI data, winter steelhead are documented in an unnamed stream southeast of the project site so steelhead may migrate past the project site.

3.3.5. Rockfish

Bocaccio and yelloweye rockfish remain in the upper part of the water column as larvae and pelagic juveniles. Around 3 to 6 months old, bocaccio rockfish settle into intertidal, nearshore habitat; they

prefer to settle in rocky reefs, kelp beds, low rock, and cobble areas (Love et al. 2002). Juvenile yelloweye rockfish are usually found in the upper extent of the adult depth range instead of in intertidal habitat (Studebaker et al. 2009). As both species grow larger, they move into deeper waters. Adults are found around rocky reefs and coarse habitats. Marine habitats high in complexity are associated with higher numbers of rockfish species (Young et al. 2010). Adult yelloweye and bocaccio rockfish generally inhabit depths from approximately 90 ft to 1,400 ft (Love et al. 2002). Both species are opportunistic feeders, with their prey dependent on their life stage. Predators of adult rockfish include marine mammals, salmon, other rockfish, lingcod, and sharks.

NOAA has listed the distinct population segments (DPSs) of yelloweye (*Sebastes ruberrimus*) as threatened species under the ESA and listed the Georgia Basin DPS of bocaccio rockfish (75 FR 22276; April 28, 2010). The Georgia Basin refers to all of Puget Sound, including the area around the San Juan Islands, and the Strait of Georgia, north to the mouth of the Campbell River in British Columbia. The western boundary of the Georgia Basin runs from east of Port Angeles to Victoria in the Strait of Juan de Fuca. Critical habitat for both species was designated in 2014 (79 FR 68042; November 13, 2014).

As adults are found in deeper water, they will not be affected but the larvae and juveniles found in the nearshore environment may be affected by this project. The substrate and macroalgae/eelgrass presence in the nearby area could support larvae and juvenile bocaccio rockfish.

An “Assessment of Impacts to Critical Habitat for Rockfish” can be found in Attachment 3.

3.3.6. Marbled Murrelets

Marbled murrelets (*Brachyramphus marmoratus*) are small marine birds in the Alcidae family. They spend most of their time at sea and only use old growth areas for nesting. In the critical nesting areas, fragmentation and loss of old growth forest has a significant impact on the survival and conservation of the species (WDW 1993). Adult birds are found within or adjacent to the marine environment where they dive for sand lance, sea perch, Pacific herring, surf smelt, other small schooling fish and invertebrates.

Marbled murrelets have been listed as threatened by the USFWS since 1992 (57 FR 45328; October 1, 1992). Critical habitat was designated by USFWS in 1996, revised in 2011, and reviewed again in 2016 to determine if the ESA definition of critical habitat was being met (81 FR 51348; August 4, 2016).

There is no critical habitat within close range of the project and there are no nests close to the project site (WDFW, USFWS); however, with forage fish spawning habitat nearby, they could potentially forage in the area. Results from the Puget Sound Seabird Survey (PSSS, managed by Seattle Audubon) group that monitors sites at Green Point in Anacortes (the closest sites to the project site) have shown marbled murrelet sightings with a frequency of 77.78%, high count of 3, and average count of 1; with the last sighting being 12/07/2019 (PSSS 2019). Based on eBird sightings, a citizen science website, the closest site birdwatchers recorded marbled murrelet sightings are at Tugboat beach, at the mouth of the Skyline Marina, with the last sighting being 02/19/2018.

3.3.7. Humpback Whales

NMFS has listed the humpback whale (*Megaptera novaeangliae*) as an endangered species that may occur in Puget Sound (81 FR 62260; September 8, 2016). Critical habitat was proposed by NMFS in 2019, but does not include the project site or action area (84 FR 54354; October 9, 2019).

In at least the last two years, no more than four humpback whale sightings have been documented in Burrows Bay (Orca Network). Due to low sightings of humpback whales near the site, coupled with work being done in the dry and without substantial noise (i.e. pile driving) being present, it is unlikely that the species would be impacted by this project.

3.3.8. Leatherback Sea Turtle

NMFS has listed the Pacific leatherback turtle (*Dermochelys coriacea*) as an endangered species that may occur in Puget Sound (35 FR 8491). There is no designated critical habitat for Pacific leatherback turtles in Puget Sound at this time; it is designated along the outer coast of Washington state (77 FR 4170; January 26, 2012).

Breeding habitat for leatherback sea turtles in Washington does not exist, even though they are occasionally seen along the coast (Bowlby et al. 1994). Leatherback sea turtles are rarely seen in Puget Sound (McAllister, pers. comm.).

It is highly unlikely leatherback turtles would be found near the project site.

3.3.9. Southern Resident Killer Whales

The Southern Resident population consists of three pods: J, K and L. According to Wiles (2004), "While in inland waters during warmer months, all of the pods concentrate their activity in Haro Strait, Boundary Passage, the Southern Gulf Islands, the eastern end of the Strait of Juan de Fuca and several localities in the southern Georgia Strait." During early autumn, these pods, especially J pod, extend their movements into Puget Sound to take advantage of the chum and Chinook salmon runs. Resident killer whales spend more time in deeper water and only occasionally enter water less than 5 meters deep (Baird 2001).

On November 15, 2005 NMFS listed the Southern Resident killer whale (SRKW) (*Orcinus orca*) as endangered under the ESA (70 FR 69903; November 18, 2005). NMFS has designated critical habitat for killer whales: "Critical habitat includes waters deeper than 20 ft relative to a contiguous shoreline delimited by the line of extreme high water." (71 FR 69054; November 29, 2006).

According to the Southern Resident Killer Whale Sighting 1990-2013 map (Olson 2014), all of the following sightings in quad #219 (which encompasses Burrows Bay) are as follows for the July-February work window:

- July - 29
- August - 18
- September - 5
- October - 0
- November - 0

- December - 0
- January - 2
- February – 0

The action area is within Southern Resident killer whale critical habitat. The project footprint would not be within critical habitat even at the highest tide since work for the proposed bulkhead repair and replacement will be performed at low tide on dry land. An “Assessment of Impacts to Critical Habitat for Southern Resident Killer Whales” is provided in Attachment 4.

3.3.10. Green Sturgeon

Green sturgeon has a complex anadromous reproductive cycle and do not reach reproductive age until 15 years old for males and 17 years old for females; female green sturgeon are thought to spawn every 3-5 years (70 FR 17386; April 6, 2005). Activities of concern in Puget Sound include dredging and capping, which could affect benthic habitats, alter water flow and water quality (74 FR 52300; October 9, 2009).

On April 7, 2006, NMFS determined that the Southern Distinct Population Segment of North American green sturgeon (*Acipenser medirostris*; hereafter, “Southern DPS”) is at risk of extinction in the foreseeable future throughout all or a significant portion of its range and listed the species as threatened under the ESA (71 FR 17757; April 7, 2006). Critical habitat for the threatened Southern DPS green sturgeon was subsequently designated by NMFS in 2009 (74 FR 52300; October 9, 2009). Southern DPS green sturgeon occupy coastal bays and estuaries from Monterey Bay, CA to Puget Sound, WA. Observations of green sturgeon in Puget Sound are much less common compared to the other estuaries in Washington State.

There is designated Critical Habitat for green sturgeon in the action area. An “Assessment of Impacts to Critical Habitat for Southern DPS Green Sturgeon” is provided in Attachment 5.

4. Effects of the Action

The status of each of the listed species in the action area has been provided. The project has been described and the action area defined. When reviewing all the data, the direct and indirect effects of the project on the listed species and their critical habitat should be considered. Impacts to ESA species and critical habitats are based on current baseline conditions versus historic pre-development conditions, where existing structures are considered an element of the environmental baseline at the time of a proposed action.

4.1. Direct Effects

When considering the direct effects of the proposed project, one must determine if the proposed project will immediately reduce or destroy the listed species and/or their habitat. The potential, direct impacts caused by the construction process include increased noise and turbidity.

4.1.1. Water quality

The removal of structures could cause temporary and localized increases in turbidity and total suspended solids (TSS). This could impact migrating salmonids and forage fish by reducing feeding

rates and causing physiological stress. The impact level depends on duration of exposure, concentration of turbidity, the life stage during the increased exposure, and the options available for the fish to avoid the plumes (Newcombe and MacDonald 1991). The effects can be discussed in terms of lethal, sublethal or behavioral (Nightingale and Simenstad 2001a and Simenstad, editor, 1988). For this project, turbidity effects are expected to be localized and brief.

Variations in suspended sediment concentration can negatively impact species composition, biomass, algal growth and can affect secondary production as well (Newcombe and MacDonald 1991). Filter feeders can have blockages in feeding structures and effect their feeding efficiency, in turn reducing growth rates, increasing stress or in some cases can result in death (Newcombe and MacDonald 1991). Suspended sediments can also impact salmonid fishes by increasing mortality rate, reducing growth rate and/or reducing resistance to disease, modifying natural movements, interfering with development, reducing prey abundance and fish catch methods (Newcombe and MacDonald 1991).

The replacement would include the removal of bulkhead and the addition of concrete to the front of the bulkhead to stabilize the area where a toe existed.

The northwest portion of the action area includes a Category 2 and Category 5 – 303d impacted waterway. The Category 2 (Listing ID: 65616) exceeded normal water temperature levels, however, Washington Department of Ecology (WDOE) staff concluded that additional study was needed for this waterbody. The Category 5 – 303d (Listing ID: 64707) exceeded levels of copper within the water basin. A water quality improvement project is in development throughout the Puget Sound for nutrient source reduction and includes the project site. The proposed project is unlikely to affect or be affected by any of these sites beyond the action area.

4.1.2. Noise

In-water noise levels will be minimized due to work occurring “in the dry” i.e., when tidal waters are not inundating the direct work area. Some in-air noise levels may be elevated above background levels due to demolition and construction. Therefore, it is still possible that noise could cause in-water species to avoid the area for the duration of the work, even though the probability is minimal since construction does not include pile driving.

4.2. Indirect Effects

When considering the indirect effects of the proposed project on the listed species and their habitat, one must determine the effects that might occur later in time, after completion of the project compared to the environmental baseline at the time of a proposed action.

4.2.1. Salmonid migratory pathway alteration

All salmonid species are known to use estuarine and nearshore environments at some time during their life cycle. In addition, critical food fish for salmonids, such as surf smelt (*Hypomesus pretiosus*), sand lance (*Ammodytes hexapterus*) and herring (*Clupea harengus*) depend on quiet embayments, sandy, undisturbed, shaded beaches, and eelgrass beds for spawning (Shaffer 2001). Ecosystem links between upland and nearshore habitats are extremely important.

Even in rural and remote areas, habitat loss has been identified as the most serious threat to marine ecosystems of Puget Sound and the Salish Sea. Shoreline armoring has been shown to alter movement patterns and rates of out-migrating juvenile salmon (Heerhartz 2010). For example, juvenile fish such as salmon, prefer to swim alongshore in shallow water (possibly predation avoidance); which is limited at high tide by revetments (Dethier et al. 2017). The replacement revetment will further perpetuate habitat loss by extending the lifetime of the hard armoring.

4.2.2 Wave energy impacts

Wave regime and local geology are the primary drivers of modern beach geomorphology. In addition, structures lower on the beach result in more frequent interaction with more energetic waves, increasing scour and even alongshore transport (Ruggiero 2010). Hydrodynamic effects such as active erosion caused by wave reflection from seawalls also impacts the amount and stability of appropriately sized spawning substrate for forage fish (Ruggiero 2010).

Within the Puget Sound watershed, bluff erosion is a significant source of beach sediment and armoring prevents the replacement of fine sediment that is naturally winnowed from beaches by waves over time (Shipman 2010). Many ecological functions as well as recreational uses decline as beaches get coarser (Dethier et al. 2016). For example, forage fish, which are a key link in food webs up to the iconic orca whales, require a mix of sand and gravel to spawn on the upper beach (Pentilla 2007). A bulkhead replacement would occur, with the same footprint as the existing bulkhead; therefore, no new impacts are expected to occur.

The bulkhead to be replaced is below the OHWM and all but the most westerly 8 ft is below the HTL line, which can exacerbate beach erosion through wave action during storms. When waves reflect off the bulkhead, wave scour can accelerate the loss of sand and small sediments (Kraus and McDougal 1996). A study in Thurston County demonstrates the end effect of these physical processes: it compared beach structure between armored and unarmored shorelines and found that armored beaches were significantly narrower and had a smaller upper beach area (Herrera Environmental Consultants 2005). Physical changes in beach structure, specifically beach narrowing and lowering, are also linked to biological effects. Most directly, forage fish spawning habitat in the upper intertidal zone may be degraded in both extent and quality (Pentilla 2007).

4.2.3 Shading impacts

Due to the orientation of the bulkhead, shading of the intertidal zone may occur during morning hours and could reduce or eliminate the potential existence of macroalgae and associated epibenthic organisms, resulting in reduced prey and refugia resources for salmon and bull trout. As observed at the site and documented in data searches, macroalgae species are currently present in the intertidal zone. Nevertheless, new shading impacts will not occur. The shoreline armoring will not likely increase intertidal shade since it is being built in the same footprint as the existing bulkhead. The house, located at a higher elevation and landward of the armoring, would also be shading this area during morning daylight hours.

4.2.4 Hard armoring habitat alteration

Many challenges arise in quantifying impacts of hard armoring due to the diverse mechanisms by which it alters shorelines (Dethier et al. 2017). Depending on regional context (wave energy and geomorphology), are likely to show alterations at different scales of space and time (Dethier et al. 2017). Even though some direct impacts are documented, indirect impacts have been difficult to demonstrate; they are commonly hypothesized (Dethier et al. 2017).

Recent reviews have summarized how armored shorelines can affect beach shape and hydrodynamic processes (Bernatchez & Fraser 2012; Nordstrom 2014), local biodiversity (Chapman & Underwood 2011; Gittman et al. 2016a), and accumulation of beach wrack along with the primary and secondary consumers that depend on it (Dugan et al. 2011). In addition to forage fish habitat, upper intertidal invertebrate communities may be affected. Unarmored beaches have more large woody debris, significantly more wrack, a habitat for invertebrates which are prey for juvenile salmon (Heerhartz 2015, 2016). Other mechanisms of impact include loss of connectivity across the land-sea ecotone (Heerhartz et al. 2014), as well as resilience to sea level rise and changes in groundwater filtering (Dethier et al. 2017).

In a Salish Sea study by Dethier et al. 2016, a threshold in the elevation of armoring (~0.5 m below local MHHW) was found, for the accumulation of natural debris. There is an abrupt drop in the number of beach logs and the amount of wrack that accumulates when having armoring that extends below ~0.5 m MHHW because of the lack of space for material to be retained between high tides, which in turn changes nutrient cycling at the site (Dethier et al. 2016). This is prevalent at the proposed site, as the bulkhead is located low on the shoreline and extends into the intertidal zone, with the HTL line approximately between 0.0 and 2.7 ft up the bulkhead. A properly graded intertidal and supratidal zone are crucial habitat elements for biota, as revetments can also affect the trophic support (or supply of crustaceans, insects and invertebrates) (Dethier 1990; Heerhartz et al. 2015; Heerhartz & Toft 2015). Loss of habitat connectivity on marine shorelines can be compounded, especially in areas within Evolutionarily Significant Unit (ESU) boundaries. The project and action areas are within designated coho, steelhead, and chum Evolutionarily Significant Unit (ESU) boundaries and within NOAA NMFS Essential Fish Habitat (EFH) and Pacific Salmon Freshwater EFH.

Furthermore, forage fish spawning occurs high on the shoreline, which is impeded by structures (like revetments) which cut off part of the intertidal zone (Quinn et al. 2012). The proposed project will continue to impede forage fish spawning; however, no new impacts to habitat would occur.

5. Interrelated/Interdependent Effects

Completion of this project is not anticipated to promote future construction or other activities that would not otherwise occur without its completion. Therefore, no additional interrelated or interdependent actions that could affect species regulated under ESA are anticipated to occur because of this project.

6. Take Analysis

The ESA (Section 3) defines “take” as to “harass, harm, pursue, hunt, shoot, wound, trap, capture, collect or attempt to engage in any such conduct.” The USFWS further defines “harm” as “significant habitat

modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering.” It is likely that no “take” will result from this project.

7. Conservation and Mitigation Measures

All shoreline development must be located, designed, constructed, and maintained in a manner that protects ecological functions and ecosystem processes (*Please see mitigation plan for full analysis*). This Biological Evaluation is proposing the least environmentally damaging practicable alternative that achieves the project goal of stabilizing the shoreline and preventing erosion and loss of property. The FEMA Programmatic Biological Assessment – For Fourteen Common Disaster Activities (June 29, 2009) is being referenced here for guidelines on effective and appropriate conservation measures and covers the following seawall repairs:

1. Reposition wall to pre-disaster alignment.
2. Replace damaged panels.
3. Repair panels in place.
4. Pour new concrete panels in place.
5. Backfill eroded soil material.

The project is not proposing to reposition the wall to pre-disaster alignment; however, the bulkhead will be repaired and replaced within the existing footprint. Six Conservation Measures (CM) are recommended for repairing concrete walls near or along nearshore areas (Table 2).

Table 2. Conservation Measures Index

Type	CM No.	Conservation Measure Description
Timing	CM-1	Schedule non-emergency activities and in-water work to abide by the approved work windows for all relevant species.
	CM-2	Perform “Emergency Response Notifications” before initiating actions as applicable.
Best Management Practices (BMPs)	CM-4	Check with WDFW Biologist to determine whether or not fish are present or likely to be present during the proposed in-water work. Select, implement, and monitor BMPs appropriate for species present.
	CM-7	This action shall be covered for no more than once per structure, facility, stream reach, or site during the five-year span of the Programmatic Biological Assessment (PBA)
	CM-33	Work will be restricted to between two hours after sunrise and two hours before sunset during the murrelet nesting season (April 1 through September 15).
Material	CM-14	Uncured concrete will not come in contact with any waterbody.

* CM-30 was referred to in Activity 8, however, no description was located in the PBA

Site specific conservation measures for the proposed project include:

1. Although a four-foot wide footer will be buried below the current marine shore grade, above ground repair and replacement of the bulkhead will be within the same footprint as the existing structure.
2. For mitigation, beach nourishment will be placed on the seaward face of the proposed project and taper 10 feet to the marine shoreline. Beach nourishment will create suitable habitat for surf smelt spawning and may reduce sediment impoundment and drift. Re-nourishment is recommended to continue at a pace that allows sufficient long-term suitable forage fish habitat and to recreate natural beach conditions.
3. A combined work window between July 16th to February 15th is proposed before any work can start for this project. The work window by the U.S. Army Corps of Engineers' Approved Work Windows for All Marine/Estuarine Areas for Tidal Reference Area 9 is:
 - Salmon (July 2nd – March 2nd)
 - Bull Trout (July 16th – February 15th)
 - Surf Smelt (closed year round)
 - Sand Lance (March 2nd – October 14th)
4. Due to the presence of sand lance and surf smelt northwest of the proposed project site, a forage fish survey will be completed by a WDFW certified biologist prior to any work performed on the beach during the recommended work window.
5. Backfill behind the rebuilt bulkhead will only use new, clean ¾ inch pebbles that are free from contaminants and fine dirt (minus).
6. To further minimize effects of the demolition or other earthwork on the adjacent water, all construction activities prior to the creation of the new bulkhead wall, will be performed during low tide.
7. To utilize steel sheets that will avoid collapse and runoff during construction activities and best management practices to minimize potential turbidity caused from sediment disturbed by the proposed project.

8. Determination of Effect

After reviewing the appropriate data and surveys, the determination of effect is:

1. Puget Sound Chinook - "May affect, not likely to adversely affect"
2. Rockfish - "May effect, not likely to adversely affect"
3. Bull trout - "May affect, not likely to adversely affect"
4. Steelhead - "May affect, not likely to adversely affect"
5. Hood Canal Summer-run chum - "No effect"
6. Green Sturgeon – "May affect, not likely to adversely affect"
7. Southern Eulachon – "No effect"
8. Marbled murrelet - "No effect"
9. Humpback whale - "No effect"
10. Leatherback sea turtle - "No effect"
11. Southern Resident Killer Whale - "May affect, not likely to adversely affect"

9. No Net Loss Statement

The goal of the proposed project is to achieve no net loss, per the City of Anacortes Shoreline Master Program – Restoration and Adaptive Management Element (4.8) and Washington State Legislature.

According to WAC 173-26-201(2)(e) – Environmental impact mitigation, the following criteria is required:

- (i) *To assure no net loss of shoreline ecological functions, master programs shall include provisions that require proposed individual uses and developments to analyze environmental impacts of the proposal and include measures to mitigate environmental impacts not otherwise avoided or mitigated by compliance with the master program and other applicable regulations. To the extent Washington's State Environmental Policy Act of 1971 (SEPA), chapter 43.21C RCW, is applicable, the analysis of such environmental impacts shall be conducted consistent with the rules implementing SEPA, which also address environmental impact mitigation in WAC 197-11-660 and define mitigation in WAC 197-11-768. Master programs shall indicate that, where required, mitigation measures shall be applied in the following sequence of steps listed in order of priority, with (e)(i)(A) of this subsection being top priority.*
- (A) *Avoiding the impact altogether by not taking a certain action or parts of an action;*
(B) *Minimizing impacts by limiting the degree or magnitude of the action and its implementation by using appropriate technology or by taking affirmative steps to avoid or reduce impacts;*
(C) *Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;*
(D) *Reducing or eliminating the impact over time by preservation and maintenance operations;*
(E) *Compensating for the impact by replacing, enhancing, or providing substitute resources or environments; and*
(F) *Monitoring the impact and the compensation projects and taking appropriate corrective measures.*
- (ii) *In determining appropriate mitigation measures applicable to shoreline development, lower priority measures shall be applied only where higher priority measures are determined to be infeasible or inapplicable.*

According to WAC 173-26-231 – Shoreline modification:

- (C) *An existing shoreline stabilization structure may be replaced with a similar structure if there is a demonstrated need to protect principal uses or structures from erosion caused by currents, tidal action, or waves.*
- The replacement structure should be designed, located, sized, and constructed to assure no net loss of ecological functions.*
 - Replacement walls or bulkheads shall not encroach waterward of the ordinary high-water mark or existing structure unless the residence was occupied prior to January 1, 1992, and there are overriding safety or environmental concerns. In such cases, the replacement structure shall abut the existing shoreline stabilization structure.*
 - Where a net loss of ecological functions associated with critical saltwater habitats would occur by leaving the existing structure, remove it as part of the replacement measure.*
 - Soft shoreline stabilization measures that provide restoration of shoreline ecological functions may be permitted waterward of the ordinary high-water mark.*
 - For purposes of this section standards on shoreline stabilization measures, "replacement" means the construction of a new structure to perform a shoreline stabilization function of an existing structure which can no longer adequately serve its purpose. Additions to or increases in size of existing shoreline stabilization measures shall be considered new structures.*

The proposed project is considered a new structure and not a replacement. Because the proposed project is necessary to protect two existing single-family residences from continued wave action, new structural stabilization measures fall within the SMP permissible criteria.

Beach nourishment is proposed for mitigation and will include sediment suitable for surf smelt spawning which will be placed seaward of the bulkhead and will taper 10 feet seaward. Avoidance measures will be implemented where applicable and short-term impacts from demolition and construction will be minimized through the conservation measures included in Section 7.

Considering the project scope is occurring within the existing footprint, urgency to address the failing bulkhead, potential impacts to ESA listed species critical habitat, proposed mitigation, and proposed conservation measures, no net loss is likely to occur from the proposed project.

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Federal Register / Vol. 79, No. 219 / Friday, November 13, 2014 / Rules and Regulations.
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Figure 1. Vicinity Map



Figure 2. Action Area Map



Figure 3. Critical Area Map

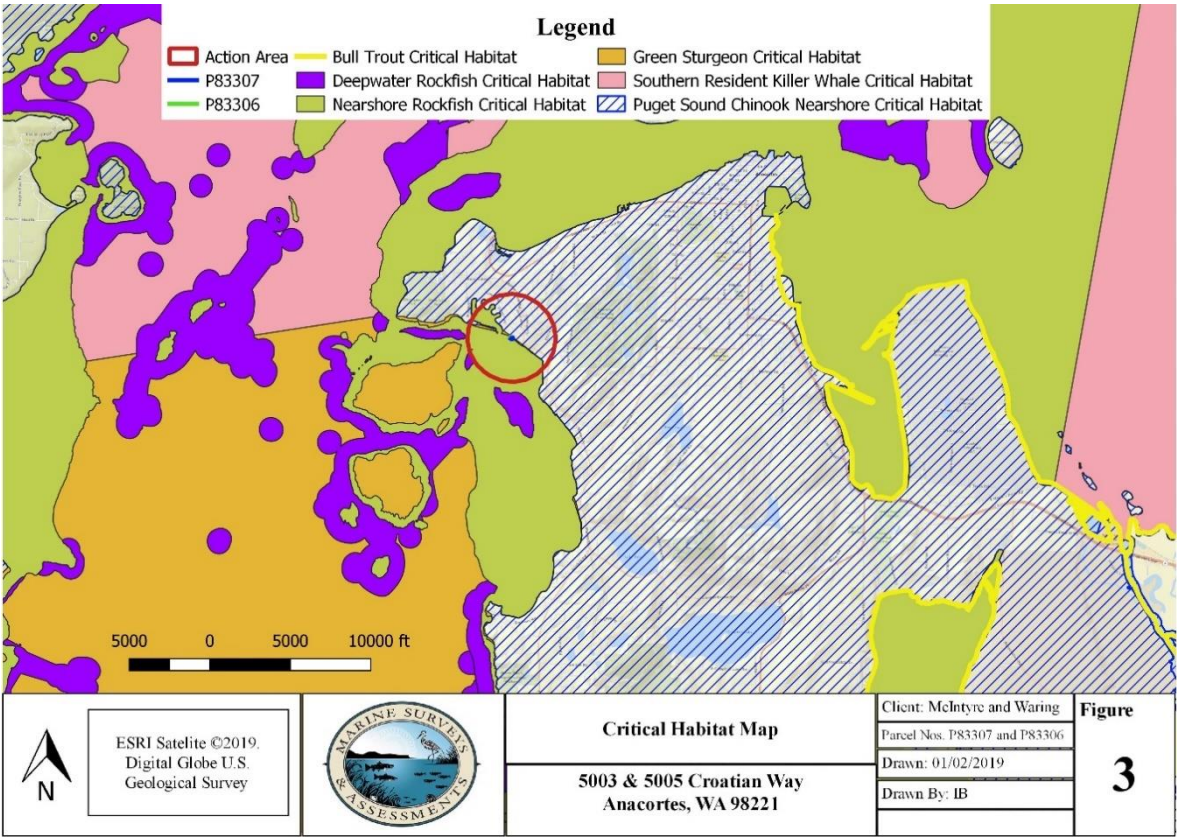


Figure 4. OHWM/HTL on Bulkhead

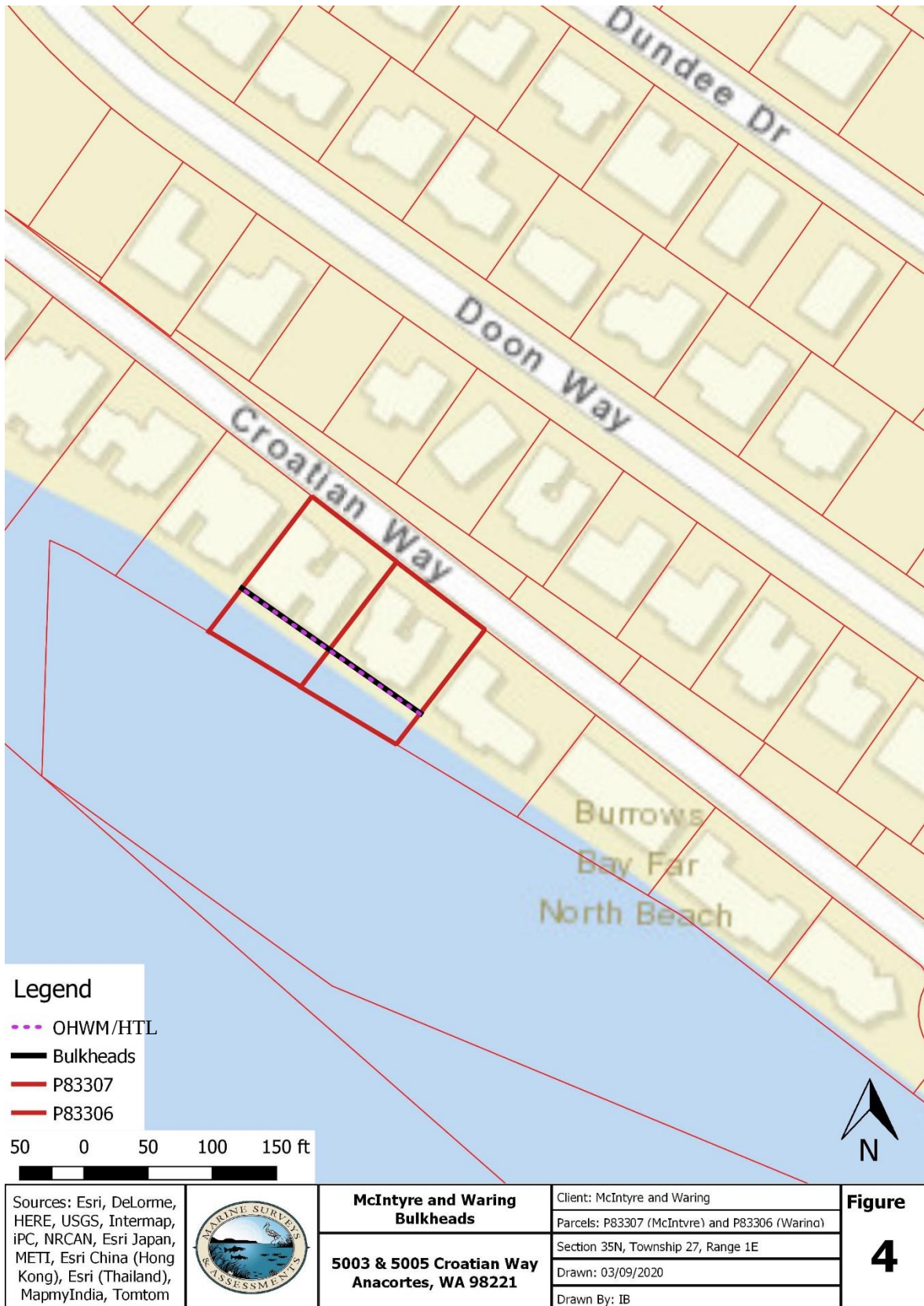


Figure 5. Bulkhead Satellite View



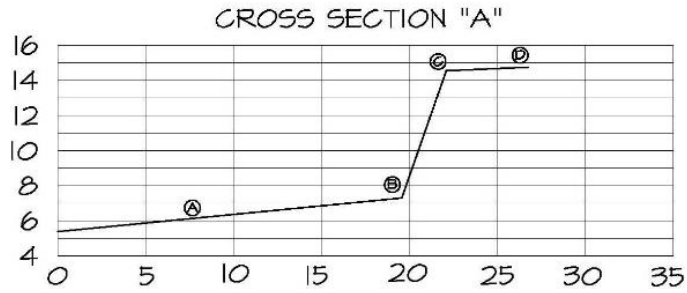
McIntyre and Waring Bulkhead Replacement



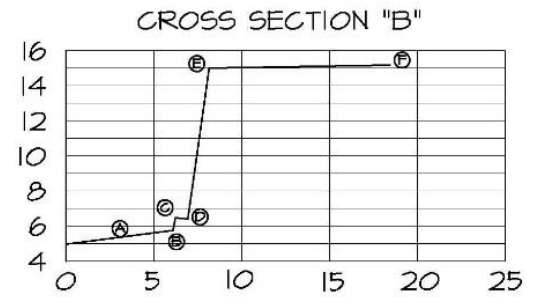
Figure 7. Existing Bulkhead Cross Section

CROSS SECTION DETAIL

SCALE: 1" = 10'



- Ⓐ SAND, ELV=5.4'
- Ⓑ TOE WALL, ELV=7.3'
- Ⓒ TOP WALL, ELV=14.5'
- Ⓓ BUILDING LINE, ELV=14.7'



- Ⓐ SAND, ELV=5.0'
- Ⓑ TOE FOOTING, ELV=5.8'
- Ⓒ TOP FOOTING, ELV=6.5'
- Ⓓ TOE WALL, ELV=6.4'
- Ⓔ TOP WALL, ELV=15.0'
- Ⓕ BUILDING LINE, ELV=15.2'

Figure 8. Proposed McIntyre Bulkhead Cross Section

X-SOUND

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JOB MCINTYRE BULKHEAD
BY AGT DATE 6-8-20

CONC. BULKHEAD
(12' WALL, 10' SOIL PIPE) x

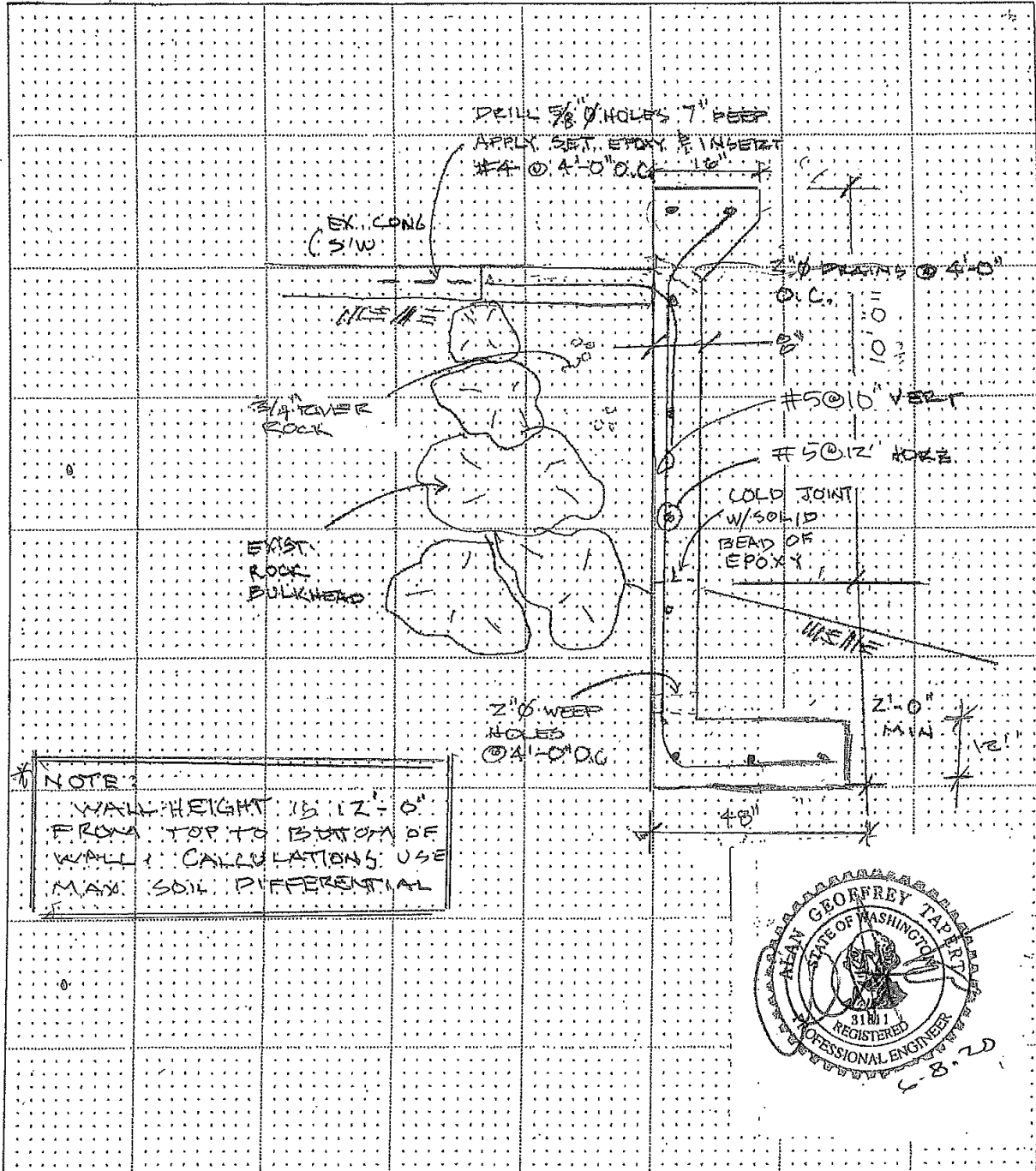


Figure 9. Proposed McIntyre Bulkhead Calculations

Cantilever Retaining Wall Calculations

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Design Assumptions

f'_c	=	3,000	psi
f_y	=	60	ksi
Soil Bearing Capacity, S	=	2,000	psf (Table 1804.2)
Equivalent Soil Pressure, g	=	35	pcf
Soil Weight, w	=	120	pcf
Sliding Coefficient, μ	=	0.35	(Table 1804.2)
Lateral Soil Bearing, Lb	=	150	psf/ft (Table 1804.2)
Wall Width, b	=	8	in
Design d	=	6.0	in
Footing Depth, T	=	12	in
Wall Height, H	=	10.00	ft
Toe Width, x	=	0	in
Design Heel Width, y	=	40	in
Total Footing Width, D	=	48	in
$F_1 = wyH$	=	4,000	lbs
$F_2 = (h^2)g/2$	=	1,750	lbs
$Ma(cw) = F_1(y/2+b)$	=	9,333	ft-lbs
$Ma(ccw) = F_2(y/2+b)$	=	5,833	ft-lbs

Overturning

$Ma(ccw)*1.5 \text{ F.S.}$	=	8,750	ft-lbs
$Ma(ccw) = Ma(cw)$	=		
$Ma(ccw) = F_1(y/2+b)$	=		
$y_o = 2((Ma(ccw)/F_1)-b)$	=	37	in

Sliding

Weight of Wall/ft, Fw	=	1,600	lbs/ft
Weight of Soil above Heel, F1	=	4,000	lbs/ft
Total Weight, Ft	=	5,600	lbs/ft
Friction Resistance = μFt	=	1,960	lbs
Buried Toe Depth, T	=	12	in
$F_3 = T*Lb/(12*3)$	=	50	lbs/ft
Total Sliding Resistance	=	2010	lbs

Bearing Capacity

Min D per Soil Bearing Capacity	=		
$D = (F.S.)(F_1 + F_w)/S$	=	101	in

Seismic Lateral

Seismic Importance Factor, I	1.00	Ss	1.25
Seismic Use Group	I	S1	0.5
Site Class	D	Fa	1.00
Response Modification Factor, R	3	(Table 9.5.2.2)	
$S_{ms} = FaS_s$	=	1.25	
$S_{os} = (2/3)*S_{ms}$	=	0.84	
$C_s = S_{os}/(R/I)$	=	0.26	
Seismic Base Shear, V = $C_s W$	=	1466	lbs/ft

Reinforcement - Stem

$M_u = 1.4Ma$	=	8,167	ft-lbs
$M_n = M_u/0.9$	=	9,074	ft-lbs

$$M_n = A_s f_y d - \frac{A_s^2 f_y^2}{1.7 f'_c b}$$

$$A_s^2 - \frac{0.425 b f'_c}{f_y} + \frac{0.85 M_n f'_c b}{f_y^2} = 0$$

$$A_s = 0.329 \text{ sl/ft}$$

$$A_s = \frac{0.85 f'_c b d}{f_y} \pm \sqrt{\left(\frac{1.7 f'_c b d}{f_y}\right)^2 - 4(1) \left(\frac{1.7 f'_c b M_n}{f_y^2}\right)}$$

$$\rho_{min} = \frac{200}{f_y} \quad \rho_{min} = \frac{A_{s(min)}}{A_c} \quad A_{s(min)} = \rho_{min} A_c = \frac{200 A_c}{f_y} = \frac{200 b (12)}{f_y}$$

Area of Steel, A_s (sl/ft)

	6 in O.C.	8 in O.C.	10 in O.C.	12 in O.C.	14 in O.C.	16 in O.C.
# 4	0.393	0.294	0.236	0.196	0.168	0.147
# 5	0.613	0.460	0.368	0.307	0.263	0.230
# 6	0.883	0.662	0.530	0.442	0.378	0.331
# 7	1.202	0.902	0.721	0.601	0.515	0.451
# 8	1.570	1.178	0.942	0.785	0.673	0.589

Use #	5 bar at	10 in O.C.	Vertical	$A_s =$	0.368	sl/ft
Use #	5 bar at	12 in O.C.	Horizontal			

Project: Puget Sound Shoreline

By: AGT

Date: 6/8/20

	F.S.	10.00' (SOIL DIFFERENTIAL)
Overturning	1.60	
Sliding	1.72	
Bearing	1.43	
Seismic	1.37	

Min. Cover =	1.5 in
$d_{(avail)} =$	6.19 in

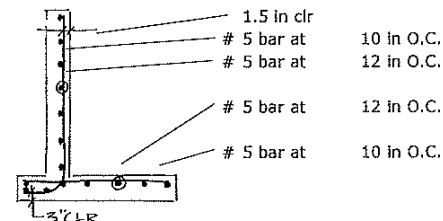
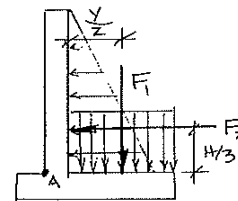
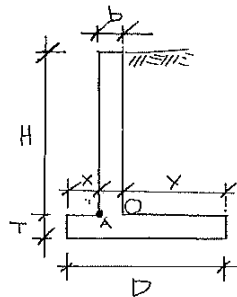


Figure 10. Proposed Waring Bulkhead Cross Section

X-SOUND
ENGINEERING, INC.

P.O. Box 1265
Freeland, WA 98249
(360) 331-3113 (O)
(360) 331-7114 (F)

JOB WARING BULKHEAD
BY AGT DATE 6-8-20

CONC. BULKHEAD
(12' WALL, 10' SOIL PIPE) X

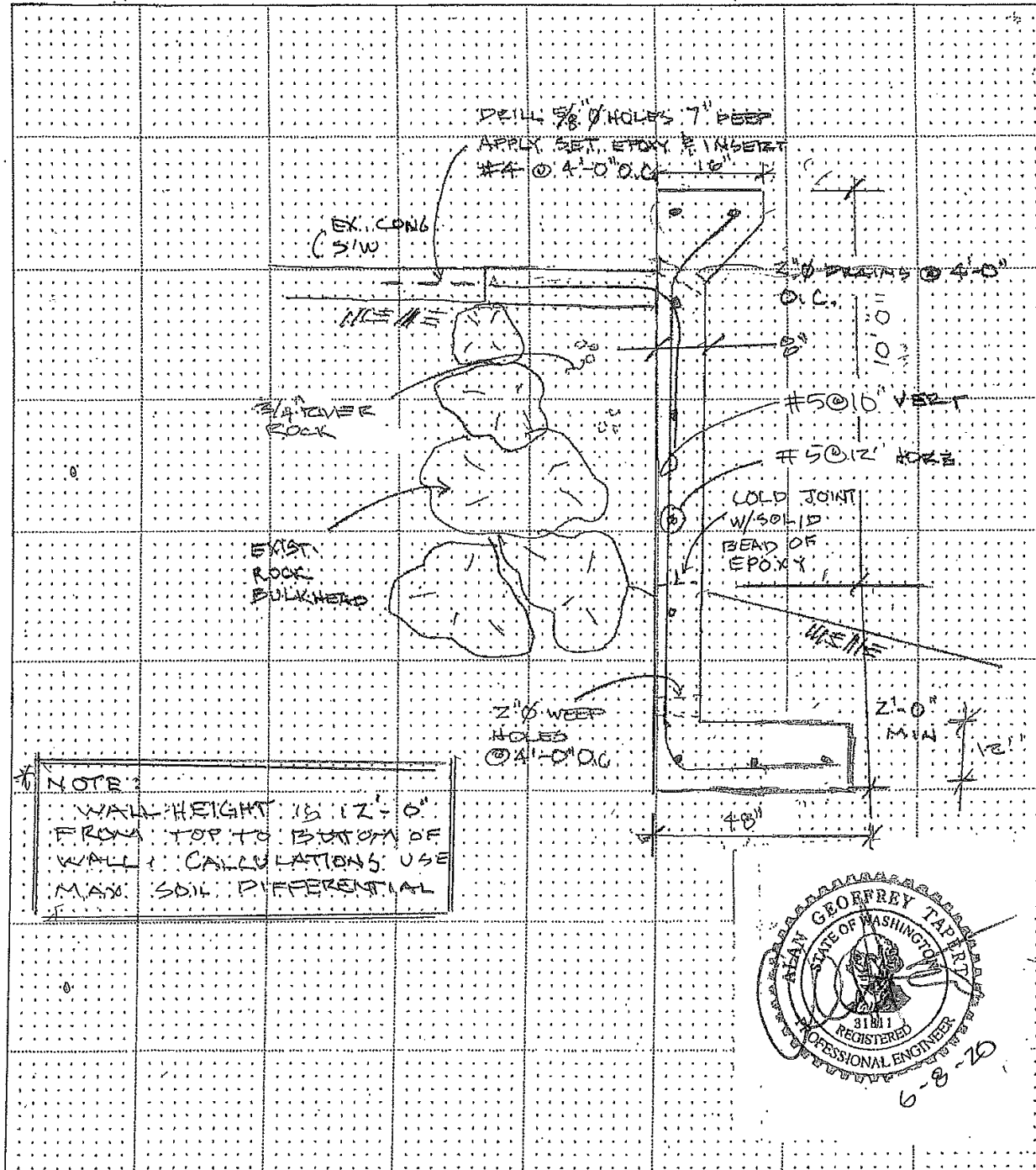


Figure 11. Proposed Waring Bulkhead Calculations

Cantilever Retaining Wall Calculations

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Design Assumptions

f'_c =	3,000	psi
f_y =	60	ksi
Soil Bearing Capacity, S =	2,000	psf (Table 1804.2)
Equivalent Soil Pressure, g =	35	pcf
Soil Weight, w =	120	pcf
Sliding Coefficient, μ =	0.35	(Table 1804.2)
Lateral Soil Bearing, L_b =	150	psf/ft (Table 1804.2)
Wall Width, b =	8	in
Design d =	6.0	in
Footing Depth, T =	12	in
Wall Height, H =	10.00	ft
Toe Width, x =	0	in
Design Heal Width, y =	40	in
Total Footing Width, D =	48	in
$F_1 = wyH$	4,000	lbs
$F_2 = (h^2/2)g/2$	1,750	lbs
$Ma(cw) =$	9,333	ft-lbs
$Ma(ccw) =$	5,833	ft-lbs

Overturning

$Ma(ccw) * 1.5 \text{ F.S.} =$	8,750	ft-lbs
$Ma(ccw) = Ma(cw)$		
$Ma(cw) = F_1(y/2+b)$		
$y_o = 2((Ma(cw)/F_1)-b) =$	37	in

Sliding

Weight of Wall/ft, F_w =	1,600	lbs/ft
Weight of Soil above Heal, F_1 =	4,000	lbs/ft
Total Weight, F_t =	5,600	lbs/ft
Friction Resistance = μF_t	1,960	lbs
Buried Toe Depth, T =	12	in
$F_3 = T * L_b / (12 * 3) =$	50	lbs/ft
Total Sliding Resistance =	2010	lbs

Bearing Capacity

Min D per Soil Bearing Capacity		
$D = (F.S.) * (F_1 + F_w) / S$	101	in

Seismic Lateral

Seismic Importance Factor, I	1.00	S_s	1.25
Seismic Use Group	I	S_1	0.5
Site Class	D	F_a	1.00
Response Modification Factor, R	3	(Table 9.5.2.2)	
$S_{MS} = F_a S_s =$	1.25		
$S_{DS} = (2/3) * S_{MS} =$	0.84		
$C_s = S_{DS} / (R/I) =$	0.26		
Seismic Base Shear, $V = C_s W$	1466	lbs/ft	< Total Sliding Resistance therefor OK

Reinforcement - Stem

$M_u = 1.4 Ma$	8,167	ft-lbs
$M_n = M_u / 0.9$	9,074	ft-lbs

$$M_n = A_s f_y d - \frac{A_s^2 f_y^2}{1.7 f'_c b} \quad A_s^2 - \frac{0.425 b f'_c}{f_y} + \frac{0.85 M_n f'_c b}{f_y^2} = 0$$

$$A_s = 0.329 \text{ sl/ft}$$

$$\rho_{min} = \frac{200}{f_y} \quad \rho_{min} = \frac{A_{s(min)}}{A_c} \quad A_{s(min)} = \rho_{min} A_c = \frac{200 A_c}{f_y} = \frac{200 b (12)}{f_y}$$

Area of Steel, A_s (sl/ft)

	6 in O.C.	8 in O.C.	10 in O.C.	12 in O.C.	14 in O.C.	16 in O.C.
# 4	0.393	0.294	0.236	0.196	0.168	0.147
# 5	0.613	0.460	0.368	0.307	0.263	0.230
# 6	0.883	0.662	0.530	0.442	0.378	0.331
# 7	1.202	0.902	0.721	0.601	0.515	0.451
# 8	1.570	1.178	0.942	0.785	0.673	0.589

Use # 5 bar at 10 in O.C. Vertical
Use # 5 bar at 12 in O.C. Horizontal

Project: Puget Sound Shoreline

By: AGT

Date: 6/8/20

	F.S.	10.00' $\leftarrow$ (SOIL DIFFERENTIAL) 12' WALL
Overturning	1.60	
Sliding	1.72	
Bearing	1.43	
Seismic	1.37	

Min. Cover =	1.5 in
$d_{(avail)} =$	6.19 in

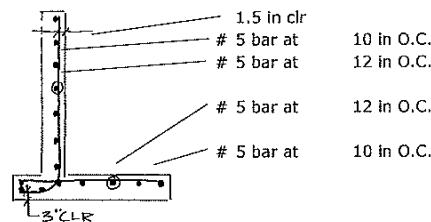
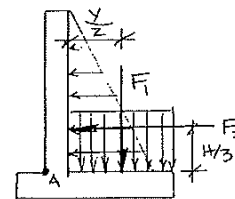
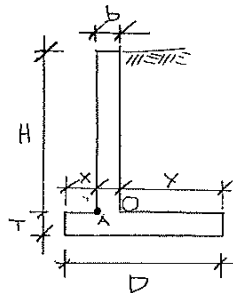


Figure 12. Land Survey Dimensions

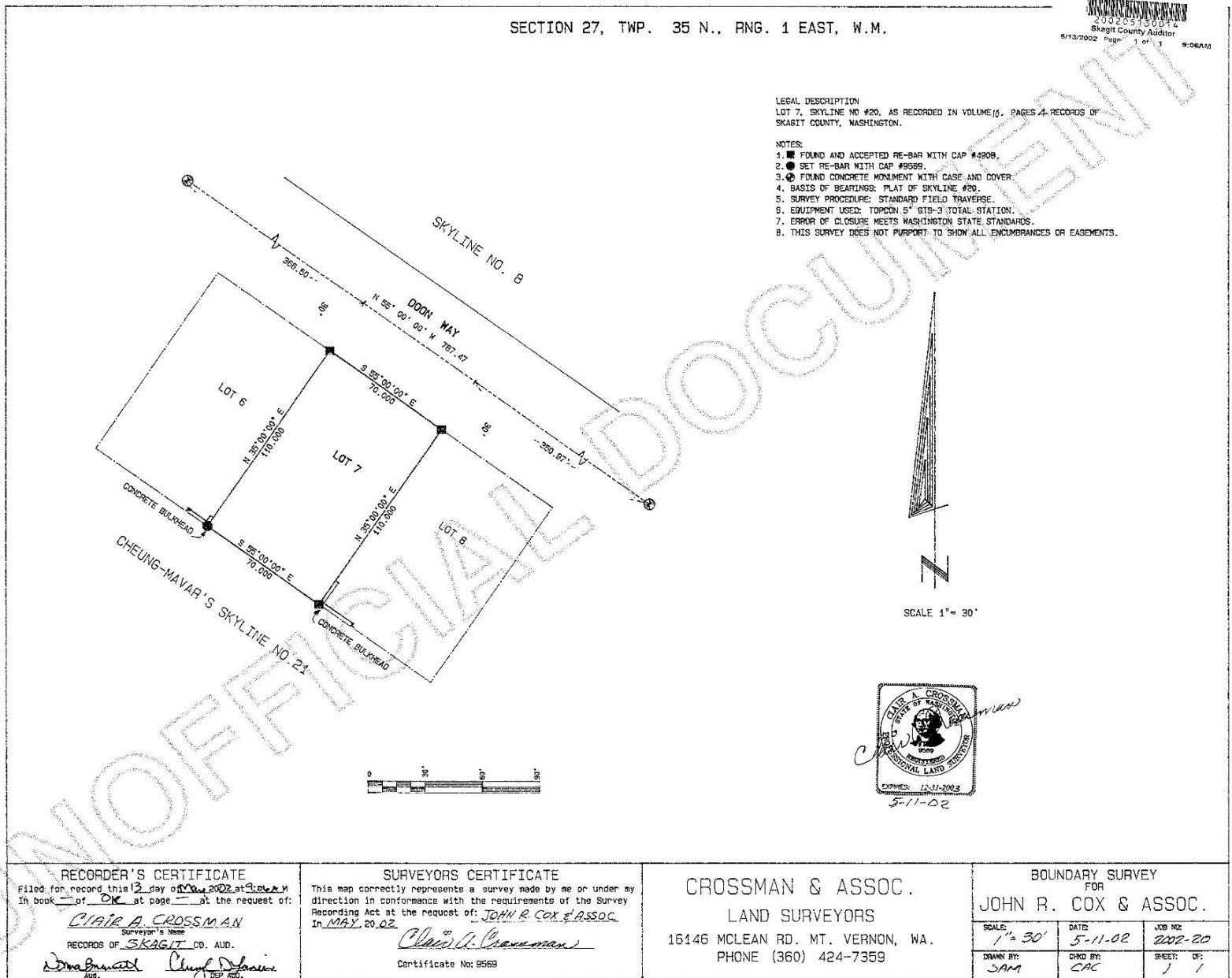


Figure 13. WDFW Forage Fish Spawning Map
(arrow indicates project area)



This map displays sand lance, smelt, herring spawning areas, herring pre-spawner holding areas, and the forage fish spawning survey beaches in Washington State.

Figure 14. WECY Water Quality Map

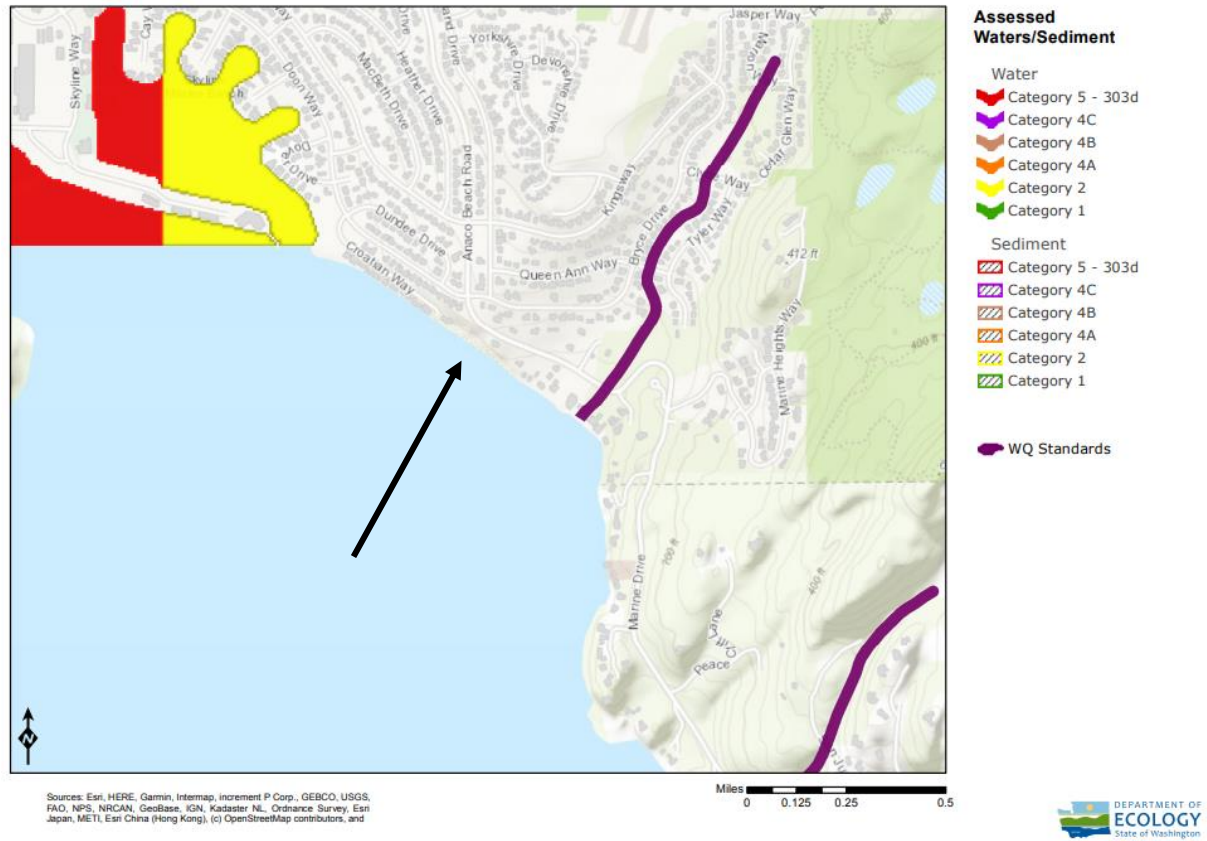


Figure 15. NOAA ERMA Submerged Aquatic Vegetation Map

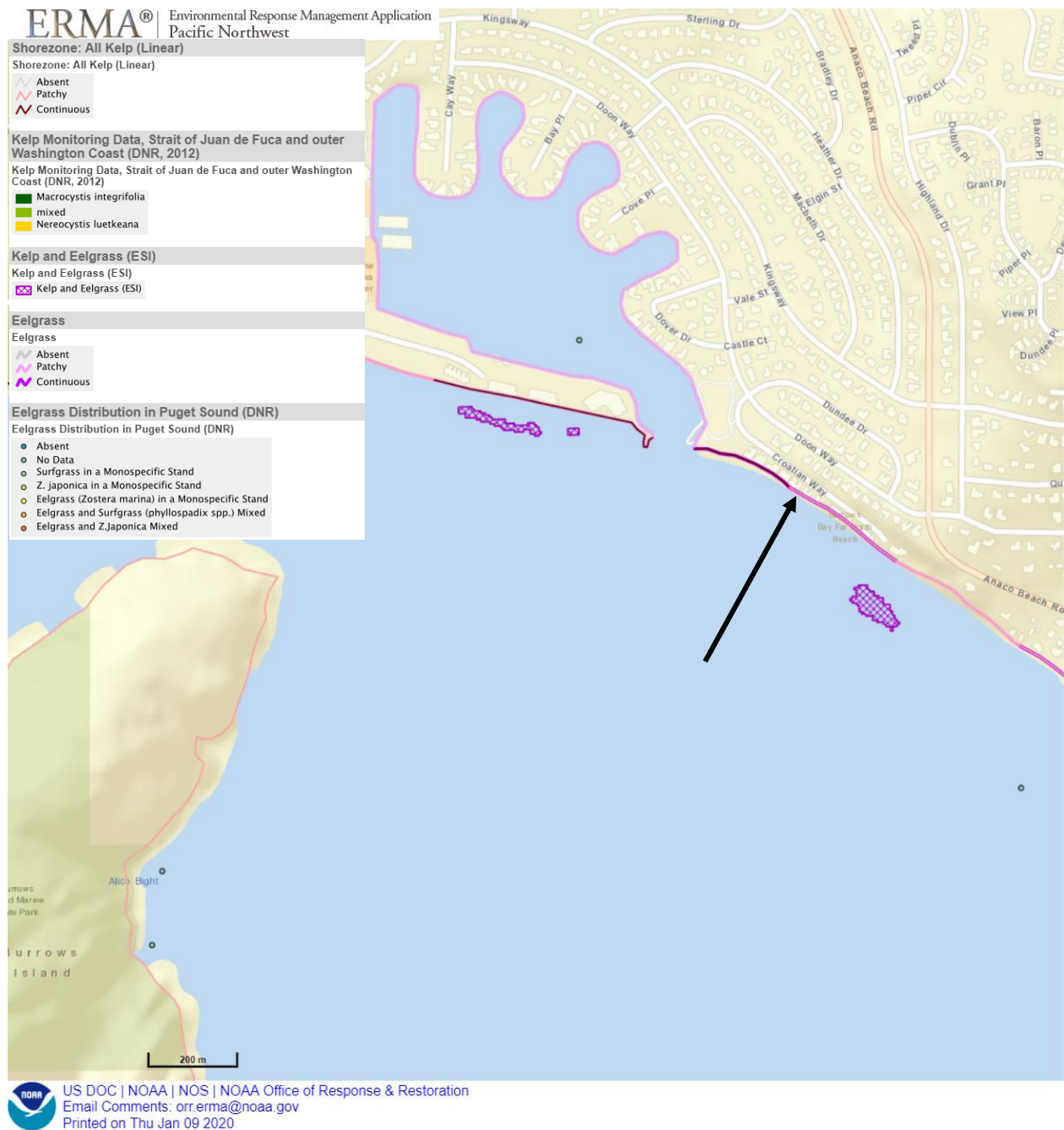


Figure 16. WECY Aerial Photo

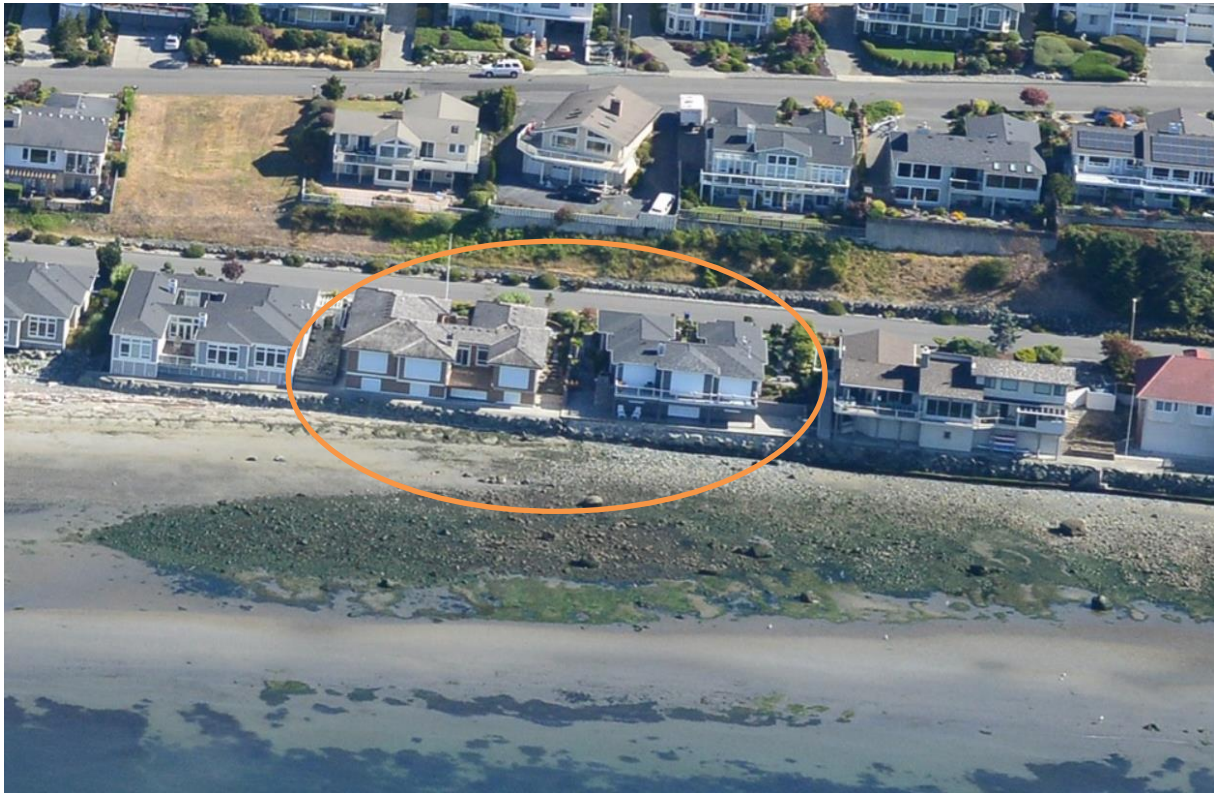


Figure 17. Bulkhead Pictures (Waring then McIntyre)



Figure 18. Bulkhead of adjacent Foster property (NWS-2019-664)



Figure 19. Winter Storm Wave Action



Attachment 1. Essential Fish Habitat Assessment

A. Background

The Magnuson-Stevens Fishery Conservation and Management Act (MSA), as amended by the Sustainable Fisheries Act of 1996 (Public law 104-267), requires Federal agencies to consult with NMFS on activities that may adversely affect designated Essential Fish Habitat (EFH) for the relevant species. According to the MSA, EFH means “those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.” For the Pacific West Coast, the Pacific Fisheries Management Council (Council) has designated EFH for federally managed groundfish (PFMC 1998a), coastal pelagic (PFMC 1998b) and Pacific salmon fisheries (PFMC 1999).

The purpose of the EFH Assessment is to determine the effects of the proposed project on the EFH for the relevant species and to recommend conservation measures to avoid, minimize or otherwise offset adverse effects on EFH.

B. Identification of EFH

The designated EFH for groundfish and coastal pelagic species encompasses all waters from the mean high water line, and upriver extent of saltwater intrusion in river mouths, along the coasts of Washington, Oregon and California, seaward to the boundary of the U. S. exclusive economic zone (370.4 km) (PFMC 1998a, 1998b). The designated EFH in estuarine and marine areas for salmon species extends from the nearshore and tidal submerged environments within state territorial water out to the full extent of the exclusive economic zone (370.4 km) offshore of Washington, Oregon and California north of Point Conception to the Canadian border (PFMC, 1999).

C. Proposed Action

The details of the proposed project are presented in “**Project Description**” section of the BE. The project consists of bulkhead replacement.

D. Effects of the Proposed Action

The effects of this project on designated EFH are likely to be similar to the effects described in detail in the “**Effects Analysis**” section of the attached BE. The project may have minor temporary adverse effects on EFH designated for Pacific coast salmon and groundfish due to turbidity impacts resulting from construction.

E. EFH Conservation Measures

The conservation measures contained in the BE will be implemented to minimize any possible adverse effects to EFH.

F. Conclusion

The project may have temporary adverse effects on EFH for groundfish, Pacific salmonids in the form of refuge and prey inputs. Due to the revetment being a replacement within the intertidal zone, no new permanent adverse effects on EFH will occur.

The site is in PSNERP shoreline process unit 8056, which has a recommendation of “Enhance” for the project area. “Enhance” is defined as “sites are large, complex, and are moderately degraded suggesting there may be substantial opportunities to increase ecosystem services.” (Cereghino et al. 2012).

G. Additional References

Cereghino, P., Toft, J., Simenstad, C., Iverson, E., Campbell, S., Behrens, C., Burke, J., 2012. Strategies for Nearshore Protection and Restoration in Puget Sound (Prepared for the Puget Sound Nearshore Ecosystem Restoration Project No. Technical Report 2012-01).

Lestelle, L., 2015. Guidance for Prioritizing Salmonid Stocks, Issues, and Actions for the Hood Canal Coordinating Council. Biostream Environmental.

PFMC (Pacific Fishery Management Council). 1999. Amendment 14 to the Pacific Coast Salmon Plan.

Appendix A: Description and Identification of Essential Fish Habitat, Adverse Impacts and Recommended Conservation Measures for Salmon (August 1999).

PFMC, 1998a. Final Environmental Assessment/Regulatory Review for Amendment 11 to the Pacific Coast Groundfish Fishery Management Plan (October, 1998).

PFMC, 1998b. The Coastal Pelagic Species Fishery Management Plan: Amendment 8 (December, 1998).

Attachment 2. Assessment of Impacts to Critical Habitat for Puget Sound Chinook

Project description: Bulkhead replacement

Applicant: McIntyre and Waring

COE reference:

NMFS reference:

The Physical and Biological Features (PBFs) determined essential to the conservation of salmon are:

(1) Freshwater spawning sites with water quantity and quality conditions and substrate supporting spawning, incubation, and larval development.

Existing Conditions: Does not apply – project is in the marine environment.

Effects to PBF: None

(2) Freshwater rearing sites with water quantity and floodplain connectivity to form and maintain physical habitat conditions and support juvenile growth and mobility; water quality and forage supporting juvenile development; and natural cover such as shade, submerged and overhanging large wood, log jams and beaver dams, aquatic vegetation, large rocks and boulders, side channels, and undercut banks.

Existing Conditions: Does not apply – project is in the marine environment.

Effects to PBF: None

(3) Freshwater migration corridors free of obstruction with water quantity and quality conditions and natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, side channels, and undercut banks supporting juvenile and adult mobility and survival.

Existing Conditions: Does not apply – project is in the marine environment.

Effects to PBF: None

(4) Estuarine areas free of obstruction with water quality, water quantity and salinity conditions supporting juvenile and adult physiological transitions between fresh-and saltwater; natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, and side channels, and juvenile and adult forage, including aquatic invertebrates and fishes, supporting growth and maturation.

Existing Conditions: A Habitat Survey for the 2 parcels will be provided as an addendum in the next diving season (July/Aug 2020). Some inferences can be made from the neighboring properties Schutzler, Dowell, Foster. As noted in the Schutzler, Dowell, Foster (NWA2019-664) Habitat Survey (Appendix 2), the intertidal area includes seagrass, macroalgae and occurs on already-modified intertidal habitat. There is documented forage fish breeding in the project area. It is highly probable that similar vegetation is found at the Waring and McIntyre properties. The project footprint, particularly the existing bulkhead and

the proposed bulkhead replacement work, is at the extreme upslope end of a beach which reveals itself at low tide as a very wide, very low-sloped beach. The base of the wall work is very close to MHHW, and thus the immediately adjacent beach is only flooded on the highest portion of high tides (aside from the storm surges causing damage to the existing bulkhead).

Effects to PBF: The project will create minor, temporary impacts during construction that may include localized increased turbidity and noise, which may cause short-term avoidance of the area by the listed fish species. The proposed project includes repair and replacement of an existing bulkhead in the same footprint, except for the addition of a footing to the Waring bulkhead.

(5) Nearshore marine areas free of obstruction with water quality and quantity conditions and forage, including aquatic invertebrates and fishes, supporting growth and maturation; and natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulder and side channels.

Existing Conditions: See 4 above.

Effects to PBF: The project occurs along a stretch of developed shoreline that is already armored with revetments. The project will not additionally obstruct nearshore marine habitat; however, it will extend the footprint of the bulkheads by extending their lifetime.

(6) Offshore marine areas with water quality conditions and forage, including aquatic invertebrates and fishes, supporting growth and maturation.

Existing Conditions: Does not apply - the site is in a nearshore marine environment

Effects to PBF: None

Determination of Effect: May affect, not likely to adversely affect critical habitat

Attachment 3. Assessment of Impacts to Critical Habitat for Juvenile Puget Sound/Georgia Basin Bocaccio

Juvenile bocaccio rockfish (nearshore areas are contiguous with the shoreline from the line of extreme high water out to a depth no greater than 30 meters relative to MLLW). Juvenile and adult yelloweye rockfish are found in deepwater sites (>30 meters).

The Physical and Biological Features (PBFs) determined essential to the conservation of Puget Sound/Georgia Basin Bocaccio and Yelloweye Rockfish are:

(1) Nearshore juvenile rearing sites with sand, rock, and/or cobble to support forage and refuge.

Existing Conditions: The existing intertidal substrate is mostly cobble with a sand base.

Effects to PBF: Alterations to the shoreline environment which affect the substrate composition as discussed in 4.2.4 of the BE may continue to happen with the increased life span of this bulkhead. However, beach nourishment in the form of suitable spawning substrate for surf smelt is proposed to help offset these impacts.

(2) Quantity, quality, and availability of prey species to support individual growth, survival, reproduction, and feeding opportunities.

Existing Conditions: The existing intertidal substrate is mostly cobble, with potential eelgrass being present across all parcels (Figure 15) which could support prey (i.e. zooplankton) for juvenile rockfish.

Effects to PBF: Little to no impact is anticipated for this PBF as work is occurring in the upper intertidal zone outside of any eelgrass and the bulkhead will be replaced in the same footprint.

(3) Water quality and sufficient levels of dissolved oxygen to support growth, survival, reproduction, and feeding opportunities.

Existing Conditions: The project site is in Burrows Bay. In the action area, Department of Ecology's 303(d) list lists nearby Skyline Marina as Category 2 water quality for temperature and Category 5 for Copper (Figure 14).

Effects to PBF: The proposed project will have a brief and localized impact on water quality due to turbidity impacts associated with removal and replacement of the existing shoreline armoring.

Determination of Effect: "May affect, not likely to adversely affect"

Attachment 4. Assessment of Impacts to Critical Habitat for Southern Resident Killer Whales

The Physical and Biological Features (PBFs) determined essential to the conservation of Southern Resident Killer Whales (SRKW) are:

(1) Water quality to support growth and development.

Existing Conditions: In nearby Skyline Marina (~1/8 mi away, within the action area), Department of Ecology's 303(d) lists Category 2 water for temperature and Category 5 for Copper (Figure 14).

Effects to PBF: Localized impacts associated with construction on site will cause localized, short term increased turbidity.

(2) Prey species of sufficient quantity, quality, and availability to support individual growth, reproduction, and development as well as overall population growth.

Existing Conditions: There is documented Pacific sand lance and surf smelt spawning habitat northwest of the project site which could be fed upon by migrating Chinook and steelhead salmon.

Effects to PBF: The project could have brief and temporary negative impacts on Chinook salmon (prey species for the SRKW population), due to brief turbidity and noise resulting from excavation and replacement of the existing bulkhead.

(3) Passage conditions to allow for migration, resting, and foraging. NMFS is gathering data to assist it in evaluating sound as a potential PBF.

Existing Conditions: SRKW can potentially be found in the action area. The current bulkhead does not impede SRKW movement and foraging.

Effects to PBF: None, work will occur at low tide in the dry to minimize impacts. No pile driving will occur.

Determination of Effect: May affect, not likely to adversely affect critical habitat

Attachment 5. Assessment of Impacts to Southern DPS Green Sturgeon Critical Habitat

The Physical and Biological Features (PBFs) determined essential to the conservation of Southern DPS Green Sturgeon (*Acipenser medirostris*) in Coastal Marine Areas are:

(1) Migratory corridor

Existing Conditions: There are no overwater structures or structures that extend into the water at the site which could affect migration.

Effects to PBF: This PBF is not anticipated to be affected as the bulkhead is being replaced in the same footprint. No overwater structures are proposed.

(2) Food resources

Existing Conditions: There is documented Pacific sand lance and surf smelt spawning habitat northwest of the project site (Figure 13). Benthic invertebrates that they may feed upon are not likely to be found in the immediate vicinity of the bulkhead due to its placement high in the intertidal area. The project site may be used as a migratory corridor by Southern DPS Green Sturgeon.

Effects to PBF: The proposed project may have a brief and localized impact on estuarine and coastal marine water quality due to excavation and replacement of the existing bulkhead. Brief turbidity and noise may also have negative impacts on prey species for Southern DPS Green Sturgeon in estuarine systems, resulting from excavation and replacement of the existing bulkhead. Water flow, water depth, and sediment quality are not expected to be impacted in estuarine systems. The proposed project will be completed “in the dry”; therefore, no permanent impacts to the migratory corridor or water quality of Southern DPS Green Sturgeon are expected to occur.

(3) Water quality

Existing Conditions: In nearby Skyline Marina (~1/8 mi away, within the action area), Department of Ecology’s 303(d) lists Category 2 water for temperature and Category 5 for Copper (Figure 14).

Effects to PBF: see 2 above

Determination of Effect: "May affect, not likely to adversely affect"

Appendix A. Habitat Report/Map for adjoining Foster property (NWS-2019-664)

An intertidal survey was performed on July 9th, 2019 (65°F, overcast and calm) between approximately 3:00 pm to 5:00 pm at the project site located at 4911 Croatian Way, Anacortes, WA 98221. Meg Amos from Marine Surveys & Assessments surveyed 7 transects in the area of a proposed emergency bulkhead replacement to identify flora, fauna, substrate types and other qualitative information.

The survey transect baseline was along the HTL mark at the bulkhead that runs the shoreline at the site. Seven transects were surveyed from the baseline and transects were oriented perpendicular to the bulkhead. Transects were each 100 ft long and were arranged from northwest to southeast, or when looking at the water from shore, from right to left (T1 to T7). Transects were separated from each other by 25 ft.

Substrate at the site is mostly sand and cobble or large rock. Areas of macroalgae cover included *Ulva* 2-90%, *Fucus* 2-40%, *Mastocarpus* 2-10%, and foliose reds 2-60%.

An eelgrass bed (*Zostera marina*) was observed along three of the transects at the site approximately 50-80 feet offshore, with a few small patches elsewhere.

Transect 1

Transect Distance (ft) from baseline	Substrate and Other Features	Macroalgae % Cover & Eelgrass Presence
0	sand/cobble/rock; At bulkhead	Barren
10	sand/cobble/rock	Barren
20	sand/cobble/rock	Barren
30	sand/cobble/rock	<i>Mastocarpus</i> 10%. No eelgrass.
38	sand/cobble/rock	<i>Ulva</i> 20%; <i>Fucus</i> 15%. No eelgrass.
44	sand/cobble/rock	<i>Ulva</i> 20%; <i>Fucus</i> 15%. No eelgrass.
50	sand/cobble/rock	<i>Ulva</i> 20%; <i>Fucus</i> 15%. No eelgrass.
60	sand	Barren
63	sand	<i>Ulva</i> 5%; <i>Fucus</i> 5%. No eelgrass.

Transect 1 (Continued)

Transect Distance (ft) from baseline	Substrate and Other Features	Macroalgae % Cover & Eelgrass Presence
70	sand	<i>Ulva</i> 5%; <i>Fucus</i> 5%. No eelgrass.
80	Sand/large rock	<i>Ulva</i> 40%; <i>Fucus</i> 20%; <i>Mastocarpus</i> 5%; foliose reds 60%. No eelgrass.
90	Sand/large rock	<i>Ulva</i> 40%; <i>Fucus</i> 20%; <i>Mastocarpus</i> 5%; foliose reds 60%. No eelgrass.
100	Sand/large rock	<i>Ulva</i> 40%; <i>Fucus</i> 20%; <i>Mastocarpus</i> 5%; foliose reds 60%. No eelgrass.

Transect 2

Transect Distance (ft) from baseline	Substrate and Other Features	Macroalgae % Cover & Eelgrass Presence
0	Sand/large rock; Oyster catchers	Barren
10	Sand/large rock	Barren
20	Sand/large rock	Barren
30	Sand/large rock	<i>Mastocarpus</i> 10%. No eelgrass.
35	Sand/large rock	Barren
40	Sand/large rock	<i>Mastocarpus</i> 10%. No eelgrass.
42	Sand/large rock	<i>Ulva</i> 30%; <i>Fucus</i> 10%. No eelgrass.
50	Sand/large rock	<i>Ulva</i> 70%; <i>Fucus</i> 20%; foliose reds 20%. No eelgrass.
60	Sand/large rock	<i>Ulva</i> 70%; <i>Fucus</i> 20%; foliose reds 20%. No eelgrass.
63	sand/boulder	<i>Fucus</i> 30%. <i>Z. marina</i> , 8 sf.
70	sand/boulder	<i>Fucus</i> 30%. No eelgrass.
82	sand	Barren
83	sand	<i>Z. marina</i> , 50 sf.
90	sand	<i>Z. marina</i> , Begin bed, 50 sf.
100	sand	<i>Z. marina</i> , Bed extends beyond 100'.

Transect 3

Transect Distance (ft) from baseline	Substrate and Other Features	Macroalgae % Cover & Eelgrass Presence
0	Sand/large rock	Barren
10	Sand/large rock	Barren
20	Sand/large rock	Barren
30	Sand/large rock	Barren
31	Sand/large rock	Barren
33	Sand/large rock	<i>Fucus</i> 5%; <i>Mastocarpus</i> 10%. No eelgrass.
40	Sand/large rock	<i>Fucus</i> 5%; <i>Mastocarpus</i> 10%. No eelgrass.
50	Sand/large rock	<i>Fucus</i> 5%; <i>Mastocarpus</i> 10%. No eelgrass.
60	Sand/large rock	<i>Fucus</i> 5%; <i>Mastocarpus</i> 10%. No eelgrass.
70	Sand/large rock	<i>Fucus</i> 5%; <i>Mastocarpus</i> 10%. No eelgrass.
80	Sand/large rock	<i>Fucus</i> 5%; <i>Mastocarpus</i> 10%. No eelgrass.
90	Sand/large rock	<i>Fucus</i> 5%; <i>Mastocarpus</i> 10%. No eelgrass.
97	Sand/large rock	<i>Ulva</i> 70%; <i>Fucus</i> 30%; foliose reds 10%. No eelgrass.
100	Sand/large rock	<i>Ulva</i> 70%; <i>Fucus</i> 30%; foliose reds 10%. No eelgrass.

Transect 4

Transect Distance (ft) from baseline	Substrate and Other Features	Macroalgae % Cover & Eelgrass Presence
0	Sand/large rock	Barren
10	Sand/large rock	Barren
20	Sand/large rock	Barren
25	Sand/large rock	Barren
30	Sand/large rock	Barren
38	sand	Barren
50	sand	Barren
61	sand	<i>Z. marina</i> , small patch ~2 sf.
71	boulders	<i>Fucus</i> 10%. No eelgrass.

Transect 5

Transect Distance (ft) from baseline	Substrate and Other Features	Macroalgae % Cover & Eelgrass Presence
0	sand/cobble/rock	Barren
11	sand/cobble/rock	Barren
20	Sand/large rock	Barren
27	Sand/large rock	Barren
29	Sand/large rock	Barren
30	Sand/large rock	Barren
45	Sand/large rock	<i>Ulva</i> 10%; foliose reds 10%. No eelgrass.
50	Sand/large rock	<i>Ulva</i> 10%; foliose reds 10%. No eelgrass.
56	Sand/large rock	<i>Ulva</i> 40%; <i>Fucus</i> 10%. No eelgrass.
60	Sand/large rock	<i>Ulva</i> 40%; <i>Fucus</i> 10%. No eelgrass.
70	sand	. <i>Z. marina</i> , begin bed.
80	sand	<i>Z. marina</i> , bed extends beyond 80 feet.
90	sand; visual only from 80'	Barren
100	sand	Barren

Transect 6

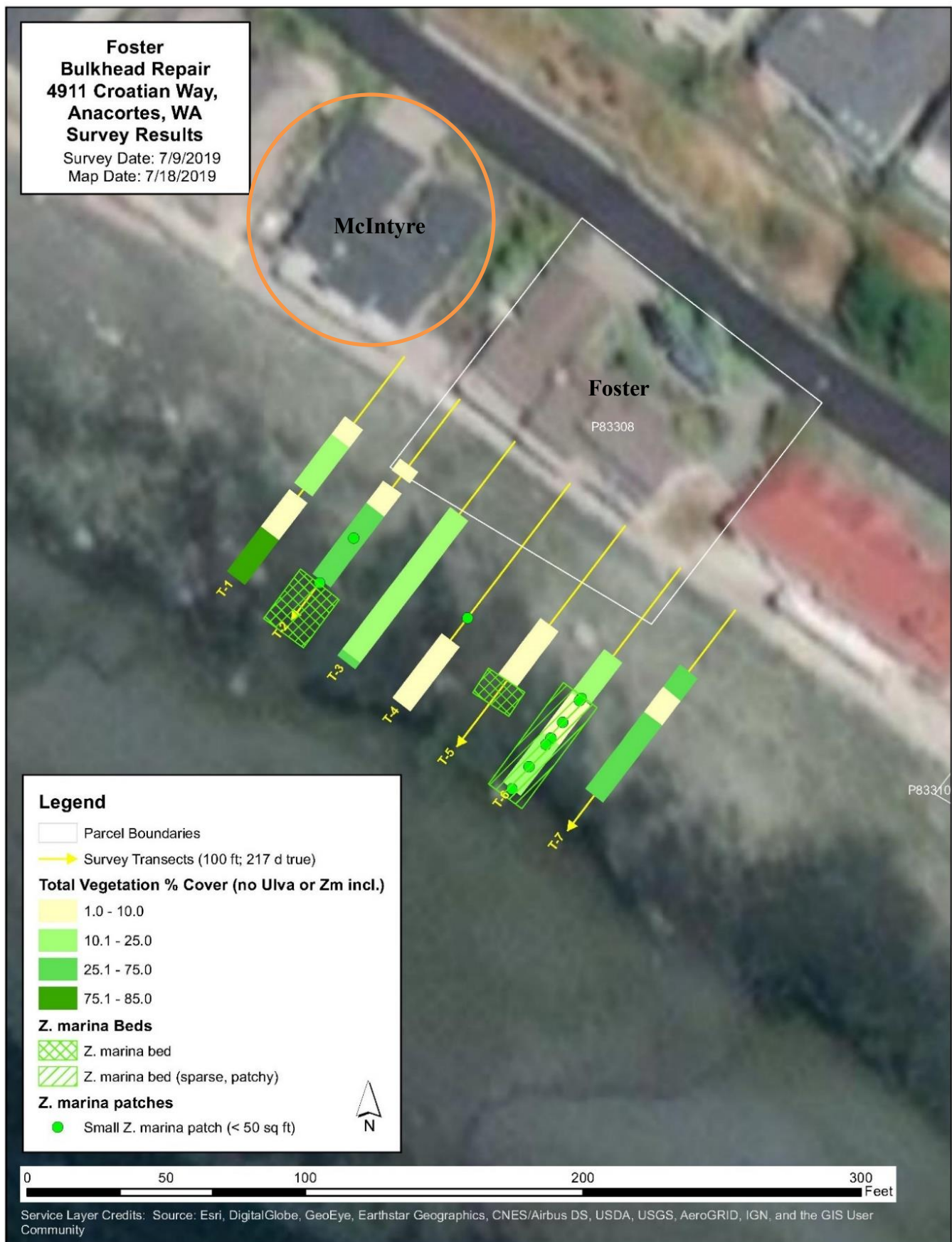
Transect Distance (ft) from baseline	Substrate and Other Features	Macroalgae % Cover & Eelgrass Presence
0	sand & rock	Barren
8	sand/cobble/large rock	Barren
10	sand/cobble/large rock	Barren
20	sand/cobble/large rock	Barren
30	sand/cobble/large rock	Barren
40	sand/cobble/large rock	<i>Ulva</i> 5%; <i>Mastocarpus</i> 5%; foliose reds 10%. No eelgrass.
48	sand/cobble/large rock	<i>Ulva</i> 30%; <i>Mastocarpus</i> 5%; foliose reds 10%. No eelgrass.
50	sand/cobble/large rock	<i>Ulva</i> 30%; foliose reds 20%. No eelgrass.
58	sand	Foliose reds 20%. No eelgrass.
59	sand & rock	<i>Ulva</i> 30%; <i>Fucus</i> 10%. <i>Z. marina</i> , 0.05 sq ft patch.
60	sand & rock	<i>Ulva</i> 30%; <i>Fucus</i> 10%. <i>Z. marina</i> , 0.05 sq ft patch.

Transect 6 (Continued)

Transect Distance (ft) from baseline	Substrate and Other Features	Macroalgae % Cover & Eelgrass Presence
70	Sand/rock	<i>Ulva</i> 30%; <i>Fucus</i> 10%. <i>Z. marina</i> , 0.05 sq ft patch.
77	Sand/rock	<i>Ulva</i> 30%; <i>Fucus</i> 20%. <i>Z. marina</i> , 0.05 sq ft patch.
80	Sand/rock	<i>Ulva</i> 30%; <i>Fucus</i> 20%. <i>Z. marina</i> , 0.05 sq ft patch.
90	Sand/rock	<i>Ulva</i> 30%; <i>Fucus</i> 20%. <i>Z. marina</i> , 0.05 sq ft patch.
100	Sand/rock	<i>Fucus</i> 20%. <i>Z. marina</i> , 0.05 sq ft patch.

Transect 7

Transect Distance (ft) from baseline	Substrate and Other Features	Macroalgae % Cover & Eelgrass Presence
0	sand	Barren
7	pea gravel/rock	Barren
14	rock	Barren
20	rock	Barren
28	rock	<i>Mastocarpus</i> 5%; foliose reds 30%. No eelgrass.
30	rock	<i>Mastocarpus</i> 5%; foliose reds 30%. No eelgrass.
32	rock	<i>Mastocarpus</i> 5%; foliose reds 30%. No eelgrass.
38	rock	<i>Fucus</i> 10%. No eelgrass.
40	rock	<i>Fucus</i> 10%. No eelgrass.
49	rock	<i>Ulva</i> 5%; <i>Fucus</i> 40%; foliose reds 20%. No eelgrass.
50	rock	<i>Fucus</i> 40%; foliose reds 20%. No eelgrass.
60	rock	<i>Fucus</i> 40%; foliose reds 20%. No eelgrass.
62	large rock	<i>Ulva</i> 30%; <i>Fucus</i> 20%; foliose reds 10%. No eelgrass.
70	large rock	<i>Ulva</i> 30%; <i>Fucus</i> 20%; foliose reds 10%. No eelgrass.
80	large rock	<i>Ulva</i> 30%; <i>Fucus</i> 20%; foliose reds 10%. No eelgrass.
84	Sand/rock	<i>Z. marina</i> , Start patchy bed.
90	Sand/rock	<i>Z. marina</i> present.
100	Sand/rock	<i>Z. marina</i> , patchy bed continues.



***Compensatory Mitigation Plan for Impacts to
Overwater Structures Impacts in Marine Waters in the Seattle
U.S. Army Corps of Engineers***

Compensatory Mitigation Plan for:

***McIntyre & Waring Bulkhead Repair and Replacement
Corps reference # NWS-2020-593***

*Applicants: John & Colleen McIntyre
5003 Croatian Way
Anacortes, WA 98221*

*Barton Waring
5005 Croatian Way
Anacortes, WA 98221*

Prepared by: Marine Surveys & Assessments

July 16, 2020

1. Project Description

The existing Waring bulkhead is 83 ft long and 7 to 8.5 ft tall (at the current beach elevation), while the McIntyre bulkhead is 88 ft long and 9 to 10 ft tall (at the current beach elevation). The existing toe is on McIntyre's property and measures 12 inches wide by 8 inches deep; it does not contain any steel rebar. The existing McIntyre/Waring bulkhead is currently being undermined because it does not extend deep enough to be protected from erosion.

The proposed bulkhead replacement will stabilize the toe of the slope and extend the bulkhead deep enough that there will be no undermining to protect uplands from further erosion, as the High Tide Line (HTL) and Ordinary High Water Mark (OHWM) line is at the face of the bulkhead. The proposed project will be located landward of the outer (seaward) edge of the existing toe to comply with WAC 220-660-370 which allows no waterward expansion from the concrete toe of the existing structure.

The current proposed project will include:

1. Remove the existing concrete toe on the McIntyre property.
2. Form a stable concrete bulkhead adjoining to the seaward face of the existing bulkhead
3. Backfill all spaces between the face and interior of the existing bulkhead with $\frac{3}{4}$ inch river pebble.
4. Stabilize any areas under the existing concrete deck with reinforced concrete and fill, as necessary.

The construction crew and a small excavator will access the project site using a neighbor's boat ramp 0.19 miles southeast of the project site. Equipment will be staged within the cul-de-sac at the end of Croatian Way, northeast of parcel P83311. The existing concrete toe and debris will be removed with an excavator at low tide and disposed of at an upland site.

At low tide, an excavator will be used to install steel sheets that will be put up on sections of the bulkhead walls that are being worked on to avoid collapse and run off. The steel sheets are 20 ft long by 8 ft tall and weigh approximately 3,000 lbs apiece. The existing concrete toe will be removed at low tide by jack-hammering the toe into approximately 3 ft sections. A saw and jackhammer will also be used to remove a portion of the face of the Waring rock bulkhead to keep the new Waring bulkhead in line with the McIntyre bulkhead. The saw will have a garden hose hooked up to it to keep it wet which will minimize any dust that may result. Debris will be lifted and placed into a small dump truck by an excavator operating on the shoreline in the dry. All debris from the toe and bulkhead face will be removed during a single tide cycle with no debris exposed to the water. Equipment used for dismantling and removing the debris will be brought to the site and removed from the area during a single low tide cycle. An air compressor required for the jack hammer will be located shore side.

Construction will include digging three feet into beach substrate below HTL, seaward of the existing bulkhead, and creating a footer with 10-inch rebar centers to support a four-foot high concrete wall section. Additional 4 feet high wall sections, with 10-inch rebar centers, will be poured with concrete until the wall is approximately 12 feet in height (3 feet below grade and 9 feet above). The vertical wall, above grade, will be 8 inches thick and 9 feet tall with a 16-inch-thick lip at the top, protruding seaward. As per the builder, the concrete has 2% calcium in it, so it will harden in 20 minutes. Drainage holes will be drilled to allow stormwater to drain seaward. Beach nourishment suitable for surf smelt will be placed along the bulkhead at 12 inches deep and taper to 0 inches approximately 10 feet seaward from the proposed bulkhead. For surf smelt spawning beaches, sieve size percent passing by weight is as follows:

- 5/8-inch 100%
- 3/8-inch 90-100%
- 1/16-inch 40-50%
- 1/100-inch (0.25 mm) 0-5%

Excavation of the existing base, forming of the bulkhead, and pouring concrete will be done in 40-foot sections for each property, in the dry. According to the Washington State Coastal Atlas Map, drift cells currently move southeast to northwest along the shoreline of the project site.

Waring's bulkhead will be in line with the McIntyre's bulkhead when finished.

See the Biological Evaluation for more details.

2. Existing Conditions of Aquatic Resources

The property above the OHWM consists of single-family residences with a concrete capped riprap wall, which sits on the beach. The beach immediately adjacent to the bulkhead (below the OHWM) consists of mostly sand and large rock with pea gravel and sand along the upper intertidal zone along the bulkhead. Areas of macroalgae cover included *Ulva* up to 75%, *Fucus* up to 65%, *Porphyra* up to 25%, *Mastocarpus* up to 30%, *Neorhodomela* up to 90%, *Cryptosiphonia* up to 25%, *Desmarestia* up

to 1%, and foliose reds up to 25%. *Zostera marina* was observed just beyond the survey area with a bed starting 80 to 150 ft from the bulkhead. No wetland plants were observed.

There is no documented forage fish spawning habitat at the site, however, there is documented sand lance spawning immediately adjacent to the sites and surf smelt spawning northwest of the site within the 0.5 mile action area (Figure 6).

3. Avoidance and Minimization of Aquatic Resource Impacts

Avoidance and minimization measures to prevent impacts to listed species and designated critical habitat include management and design decisions that were made during the planning phases of the project and are outlined in the Alternatives Analysis. The project is proposing to replace the bulkheads in the same footprint with a footer that will be deep enough, it will not be undermined by wave action. Waring's bulkhead will be in line with the McIntyre's bulkhead when finished.

Site specific conservation measures for the proposed project include:

- Although a four-foot wide footer will be buried below the current marine shore grade, above ground repair and replacement of the bulkhead will be within the same footprint as the existing structure.
- Beach nourishment suitable for surf smelt will be placed on the seaward face of the proposed project and taper 10 feet to the marine shoreline. For surf smelt spawning beaches, sieve size percent passing by weight is as follows:
 - 5/8-inch 100%
 - 3/8-inch 90-100%
 - 1/16-inch 40-50%
 - 1/100-inch (0.25 mm) 0-5%
- A combined work window of July 16th to February 15th is proposed for any work to occur in. At any time during the work window, a forage fish survey should be completed by a WDFW certified biologist to confirm presence/absence of forage fish spawning on the beach before any work commences.
- Backfill behind the rebuilt bulkhead will only use new, clean ¾ inch pebbles that are free from contaminants and fine dirt (minus).
- To further minimize effects of the demolition or other earthwork on the adjacent water, all construction activities prior to the creation of the new bulkhead wall, will be performed during low tide.
- To utilize steel sheets that will avoid collapse and runoff during construction activities and best management practices to minimize potential turbidity caused from sediment disturbed by the proposed project.

4. Unavoidable Aquatic Resources Impact Acreage

Table 1. Expected Impacts to Aquatic Resources From Bulkhead Repair

Activity (clear, dredge, fill, pile drive, etc.)	Waterbody name	Impact location ²	Duration of impact	Amount of material to be placed in or removed from waterbody	Area (sq. ft. or linear ft.) of waterbody directly affected
New bulkhead construction	Burrows Bay	At and behind OHWM/HTL	Permanent	Above grade: 47 yd ³ of concrete poured into forms (8 in. wide by 10 ft tall above grade) for wall including top caps Below grade: 29 yd ³ Total: 76 yd³ (39 yd ³ – McIntyre, 37 yd ³ – Waring)	171 linear ft (McIntyre-88 ft, Waring-83 ft)
Beach Nourishment	Burrows Bay	Below OHWM/HTL	Permanent	31.7 yd³ total (16.3 yd ³ - McIntyre, 15.4 yd ³ - Waring)	171 linear ft
Existing bulkhead toe removal (below beach grade)	Burrows Bay	At and below HTL	Permanent	Average 8 in. high x 12 ft wide x 88 ft long = 2.2 yd³ total removed	Average 1 ft wide x 88 ft long = 88 ft² removed

5. Impacted Aquatic Resource Functions

Work will be done in the dry but there may be some temporary turbidity and noise associated with the construction activities. Indirect effects associated with bulkheads include sediment impoundment and scouring which may degrade potential forage fish spawning habitat and nearshore habitat utilized by juvenile salmon at the site over time.

6. Mitigation Site Selection Rationale

Mitigation will be on site and will involve the removal of a total of approximately 2.2 yd³ (60 ft³) of the existing bulkhead and toe.

Beach nourishment suitable for surf smelt will be placed along the bulkhead at 12 inches deep at the bulkhead and taper to 0 inches 10 ft waterward. That would result in a breakdown of nourishment at each property as follows:

- McIntyre: 16.3 yd³
- Waring: 15.4 yd³

7. Mitigation Work Plan and Description of Aquatic Functions Provided at Mitigation Site

Work Plan

The construction crew and a small excavator will access the project site using a neighbor's boat ramp 0.19 miles southeast of the project site. Equipment will be staged within the cul-de-sac at the end of Croatian Way, northeast of parcel P83311. The excavator that will be used to remove the concrete from the beach will also spread the beach nourishment. Work will be done in the dry at low tide.

Aquatic Functions Provided

Beach nourishment will create suitable habitat for forage fish spawning and may reduce sediment impoundment and drift.

8. Site protection instrument

No site protection is proposed.

9. Maintenance plan

No maintenance for the beach nourishment is proposed. Once it is initially placed on the beach, it will be left to natural processes.

10. Performance standards

All concrete rubble and debris will be removed and waste hauled to a permitted site.

General BMPs will be followed:

- Daily inspection of equipment and storage areas will be conducted prior to commencing work activities to prevent drips, leaks, or failures of hoses, valves, fittings, containers, pumps, or other systems that contain or transfer hazardous materials to prevent spills into State waters.
- All fueling locations and procedures are via double wall fuel tanks, secondary containment, near spill kits, etc. as described in the SPCC Plan under separate SPCC Plan Submittal.
- BMPs such as spill kits on board vessels, including diapers and secondary containment basins placed underneath equipment stored onsite. The BMPs will be maintained daily.
- Any equipment having petroleum products or having spill potential will have spill response kits and containment booms nearby due to the proximity to the beach. These kits and booms shall be maintained, immediately accessible and located near all hazardous materials and equipment.
- Containment shall be provided for spill sources. Secondary containment containing 110% of the volume of the largest tank shall be used under fuel tanks and during fueling of equipment. Double walled tanks shall not require additional secondary containment.
- Portable restrooms shall be anchored down to prevent tipping and/or losing these structures near state waters during high wind events.
- Throughout the work the Contractor shall ensure that all construction-related debris is collected and contained and that no debris, garbage, or fuel shall enter the water via the implementation of the BMPs.

11. Monitoring requirements

No monitoring is proposed.

12. Long-term management plan

No long-term management is anticipated to be needed and is therefore not proposed.

Figure 1. Overall site plan showing beach nourishment placement



Figure 2. Proposed McIntyre bulkhead cross section

X-SOUND
ENGINEERING, INC.

P.O. Box 1266
Freeland, WA 98249
(360) 331-3113 (C)
(360) 331-7114 (F)

JOB MCINTYRE BULKHEAD
BY ACT DATE 6-8-20

CONC. BULKHEAD
(12' WALL, 10' SOIL PIPE) X

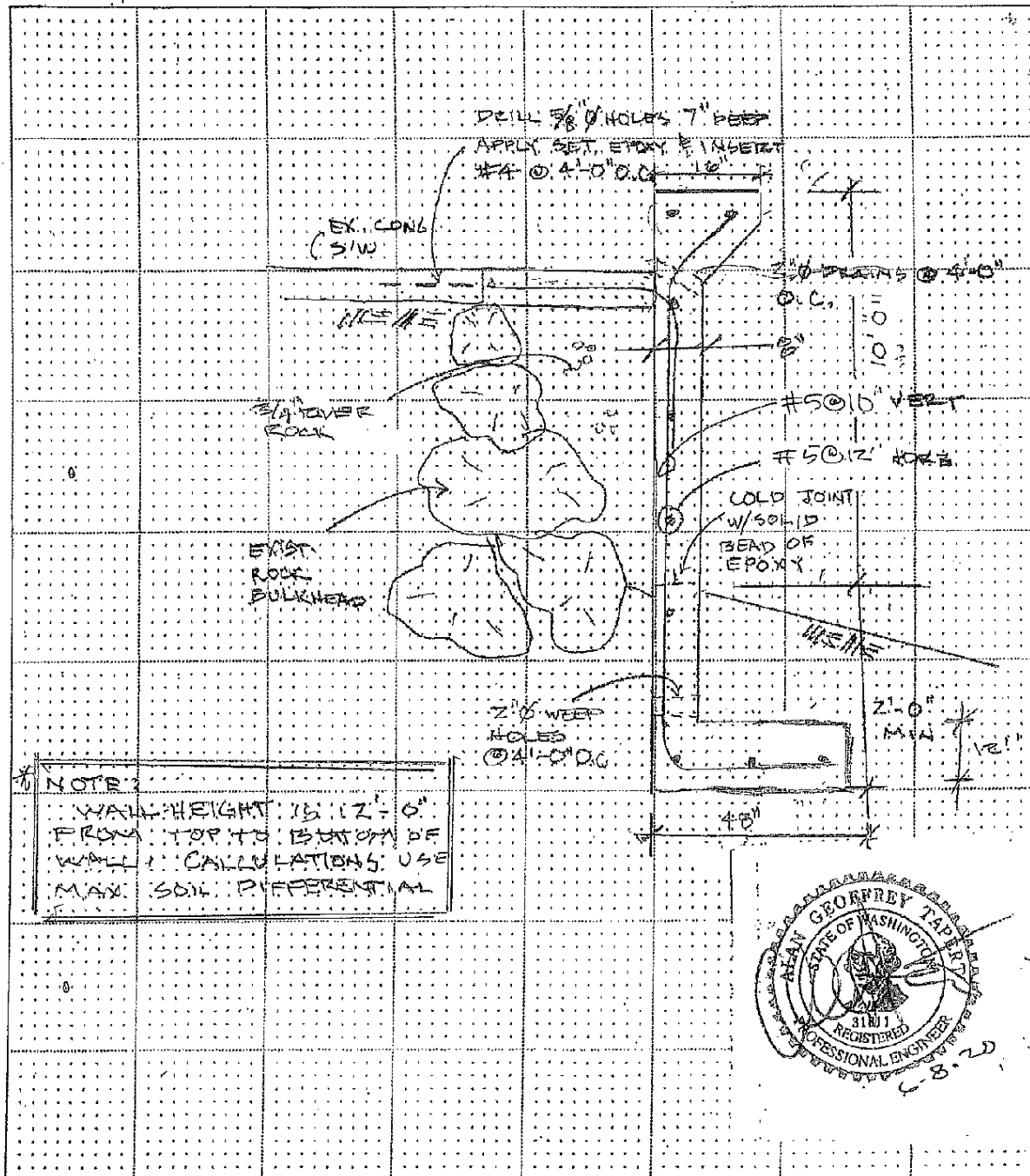


Figure 3. Proposed Waring bulkhead cross section

ENGINEERING, INC.

P.O. Box 1265
Freeland, WA 98249
(360) 331-3118 (O)
(360) 331-7114 (F)

JOB WAKING BULKHEAD
 BY AGT DATE 6-8-20

CONC. FOUNDATION
(12' WALL, 10' SOIL PIPE) *

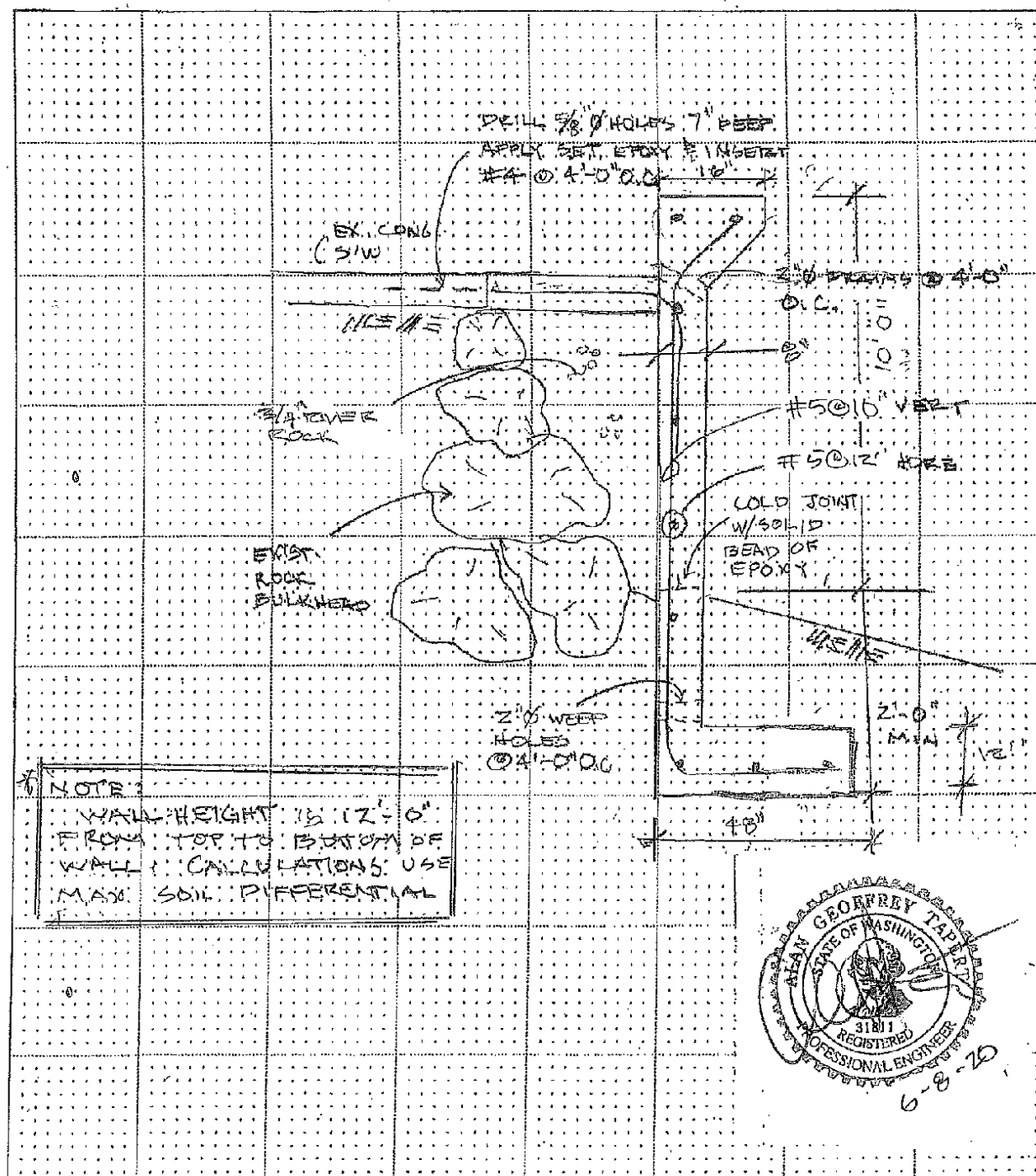
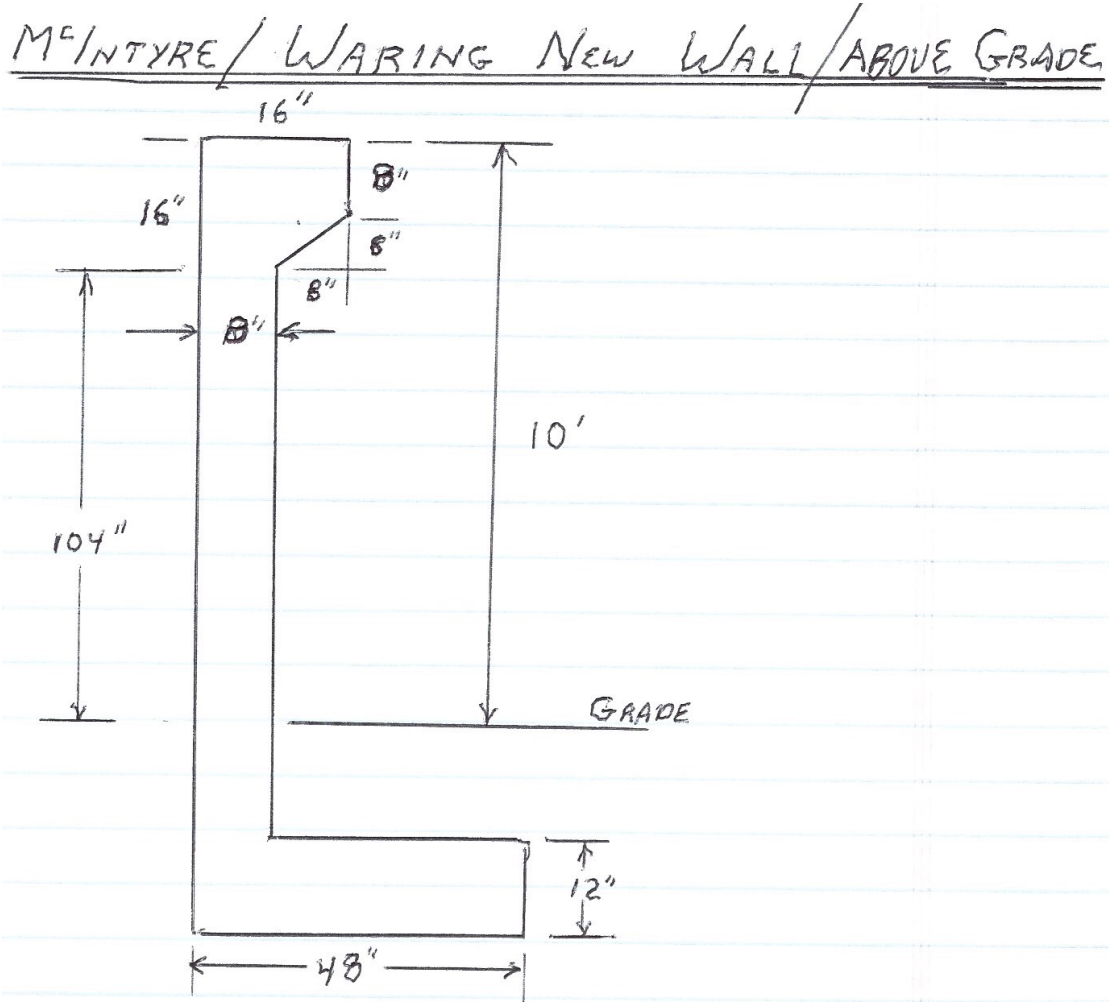


Figure 4. Proposed Bulkhead Calculations (above grade)



McINTYRE - 88' WARING - 83'

$$\frac{(8 \times 104) + (16 \times 16) - \frac{1}{2}(8 \times 8)}{144 \frac{\text{in}^3}{\text{ft}^2}} = \frac{832 + 256 - 32}{144} = 7.33 \frac{\text{sf}}{\text{ft}}$$

$$\frac{7.33 \frac{\text{sf}}{\text{ft}} \times 88'}{27 \frac{\text{ft}^3}{\text{yd}}} = 24 \text{ yds} - \text{McINTYRE}$$

$$\frac{7.33 \frac{\text{sf}}{\text{ft}} \times 83'}{27 \frac{\text{ft}^3}{\text{yd}}} = 23 \text{ yds} - \text{WARING}$$

$$\underline{47 \text{ yds} - \text{TOTAL}}$$

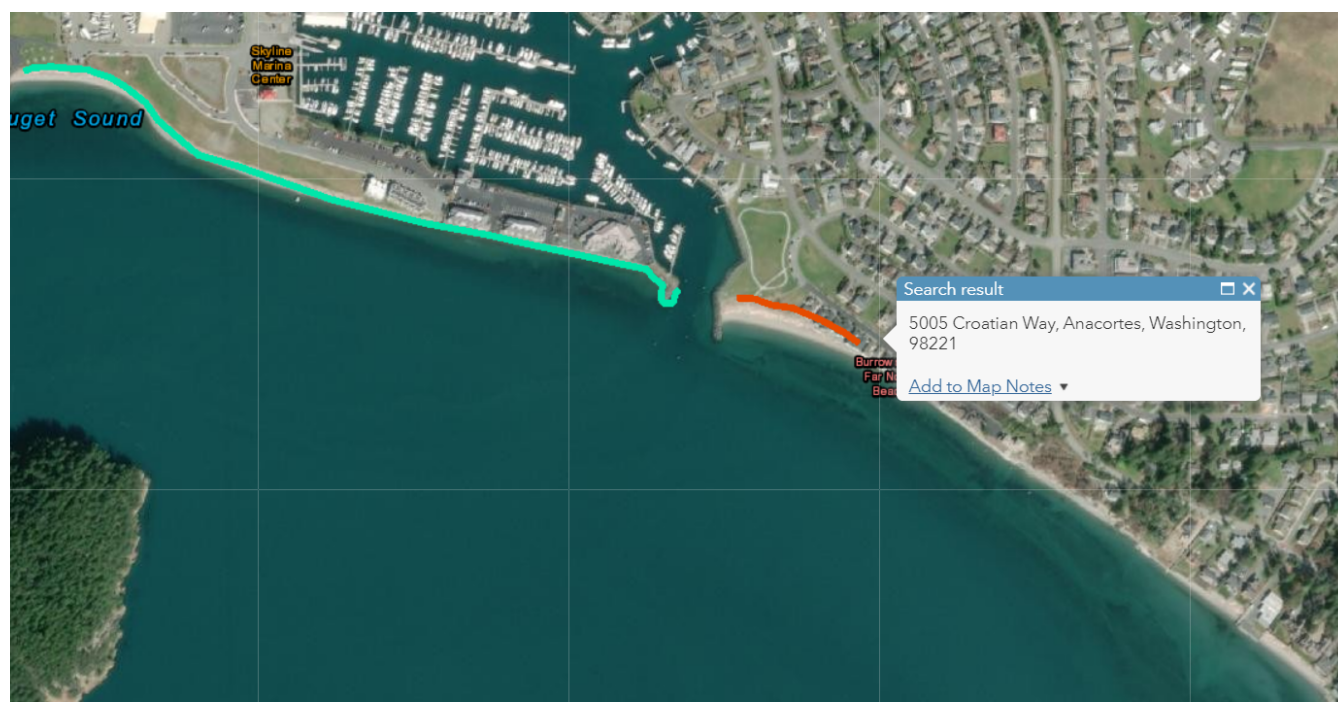
Figure 5. Proposed Bulkhead Calculations (below grade)

McINTYRE / WARING
NEW WALL VOLUME BELOW GRADE

McINTYRE - 88 ft WARING - 83 ft

$$\frac{(24 \times 8) + (40 \times 12)}{144 \text{ in}^2/\text{ft}^2} = \frac{192 + 480}{144} = 4.67 \text{ sf/ft}$$
$$\frac{4.67 \text{ sf/ft} \times 88 \text{ ft}}{27 \text{ ft}^3/\text{cy}} = 15 \text{ cy} - \text{McINTYRE}$$
$$\frac{4.67 \text{ sf/ft} \times 83 \text{ ft}}{27 \text{ ft}^3/\text{cy}} = 14 \text{ cy} - \text{WARING}$$

Figure 6. WDFW Documented Forage Fish Spawning



Legend

Forage Fish Spawning Data

Sand Lance Spawning



Smelt Spawning



Herring Spawning



Pre-spawner Herring Holding Areas



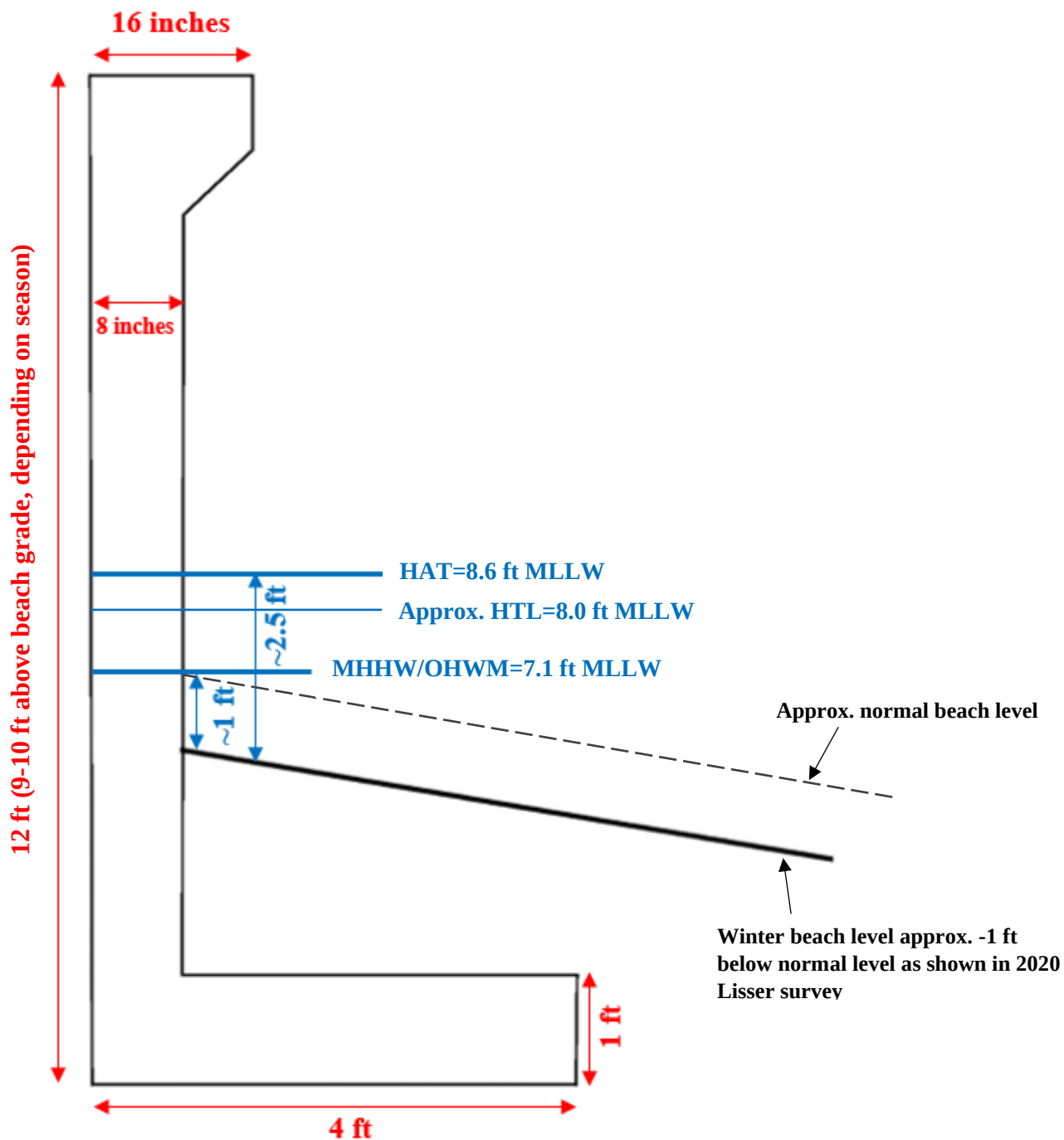
Attachment 1. Photos of the Existing Bulkheads (Waring then McIntyre)





CORPS REFERENCE:	PARCEL ID/Owner:	PROPOSED PROJECT:
APPLICANT: John & Colleen McIntyre	P83307/John & Colleen McIntyre	Bulkhead Maintenance
SITE ADDRESS:	ADJACENT PARCELS / OWNERS & ADDRESS:	Sheet 3 of 8
5003 Croatian Way, Anacortes, WA	P83306 / Barton Waring	DATE: 6/12/2020
In: Burrows Bay, Puget Sound	5005 Croatian Way, Anacortes, WA 98221	Revised 2/19/2021
County: Skagit State: WA	P83308 / Thomas & Sally Foster	
	4911 Croatian Way, Anacortes, WA 98221	

Proposed McIntyre Bulkhead Profile (not drawn to scale)

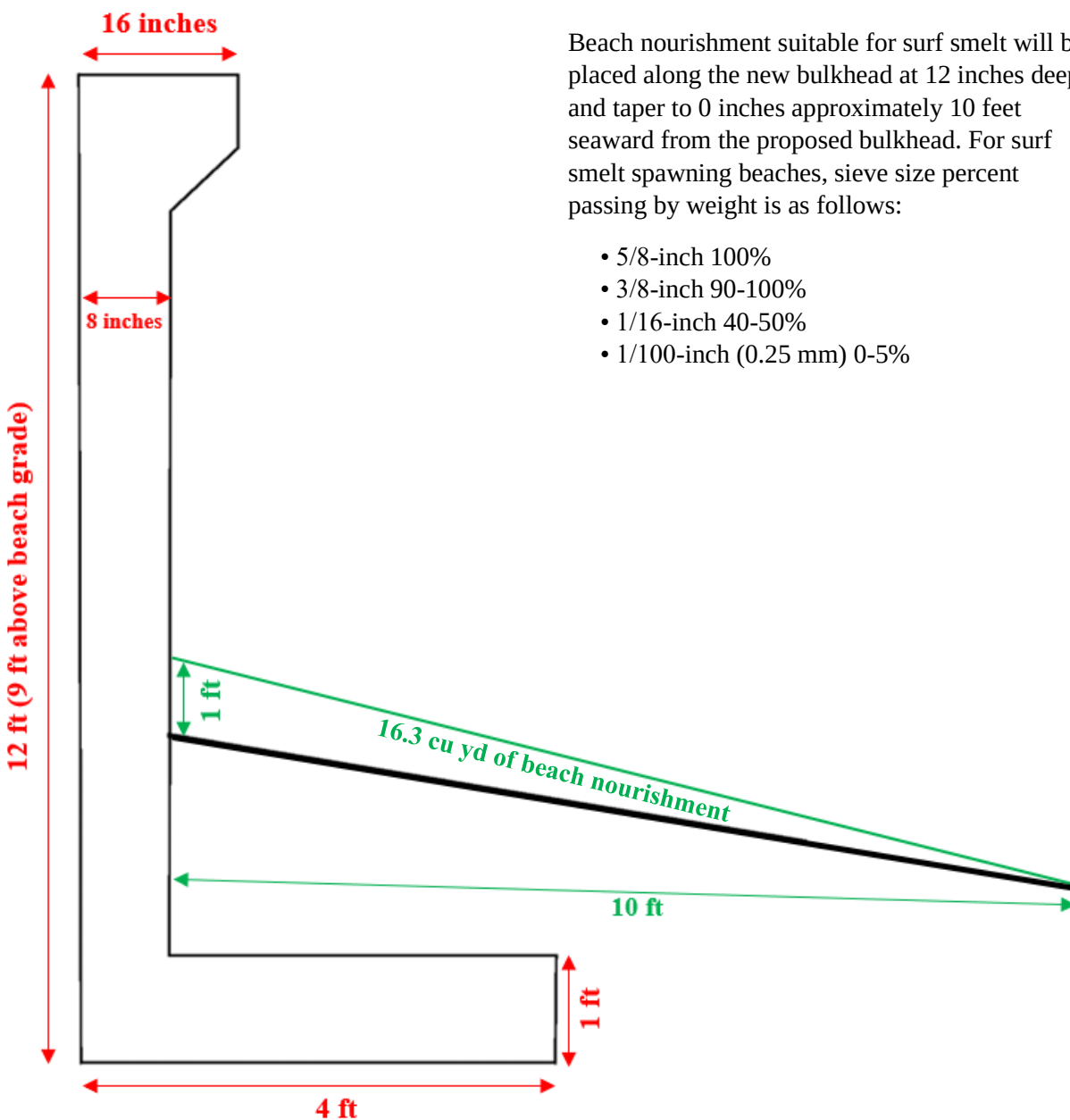


CORPS REFERENCE: APPLICANT: John & Colleen McIntyre	PARCEL ID/Owner: P83307/John & Colleen McIntyre	PROPOSED PROJECT: Bulkhead Maintenance
SITE ADDRESS: 5003 Croatian Way, Anacortes, WA In: Burrows Bay, Puget Sound County: Skagit State: WA	ADJACENT PARCELS / OWNERS & ADDRESS: P83306 / Barton Waring 5005 Croatian Way, Anacortes, WA 98221 P83308 / Thomas & Sally Foster 4911 Croatian Way, Anacortes, WA 98221	Sheet 5 of 8 DATE: 6/12/2020 Revised 2/19/2021



CORPS REFERENCE: APPLICANT: Barton Waring	PARCEL ID/Owner: P83306/Barton Waring	PROPOSED PROJECT: Bulkhead Maintenance
SITE ADDRESS: 5005 Croatian Way, Anacortes, WA In: Burrows Bay, Puget Sound County: Skagit State: WA	ADJACENT PARCELS / OWNERS & ADDRESS: P83307 / John & Colleen McIntyre 5003 Croatian Way, Anacortes, WA 98221 P83305 / Arrington Trust 5009 Croatian Way, Anacortes, WA 98221	Sheet 3 of 8 DATE: 6/12/2020 Revised 2/19/2021

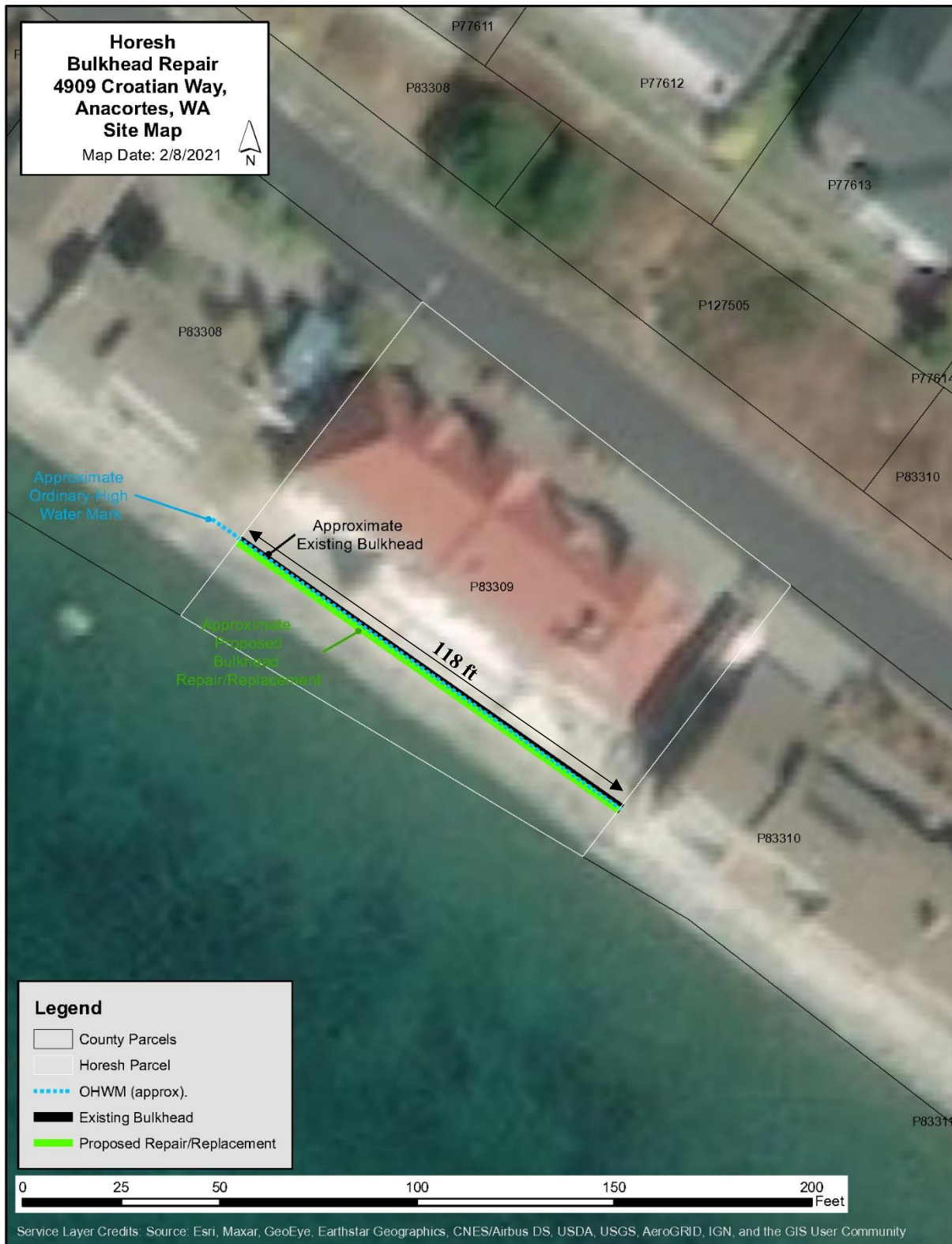
Proposed Beach Nourishment



Beach nourishment suitable for surf smelt will be placed along the new bulkhead at 12 inches deep and taper to 0 inches approximately 10 feet seaward from the proposed bulkhead. For surf smelt spawning beaches, sieve size percent passing by weight is as follows:

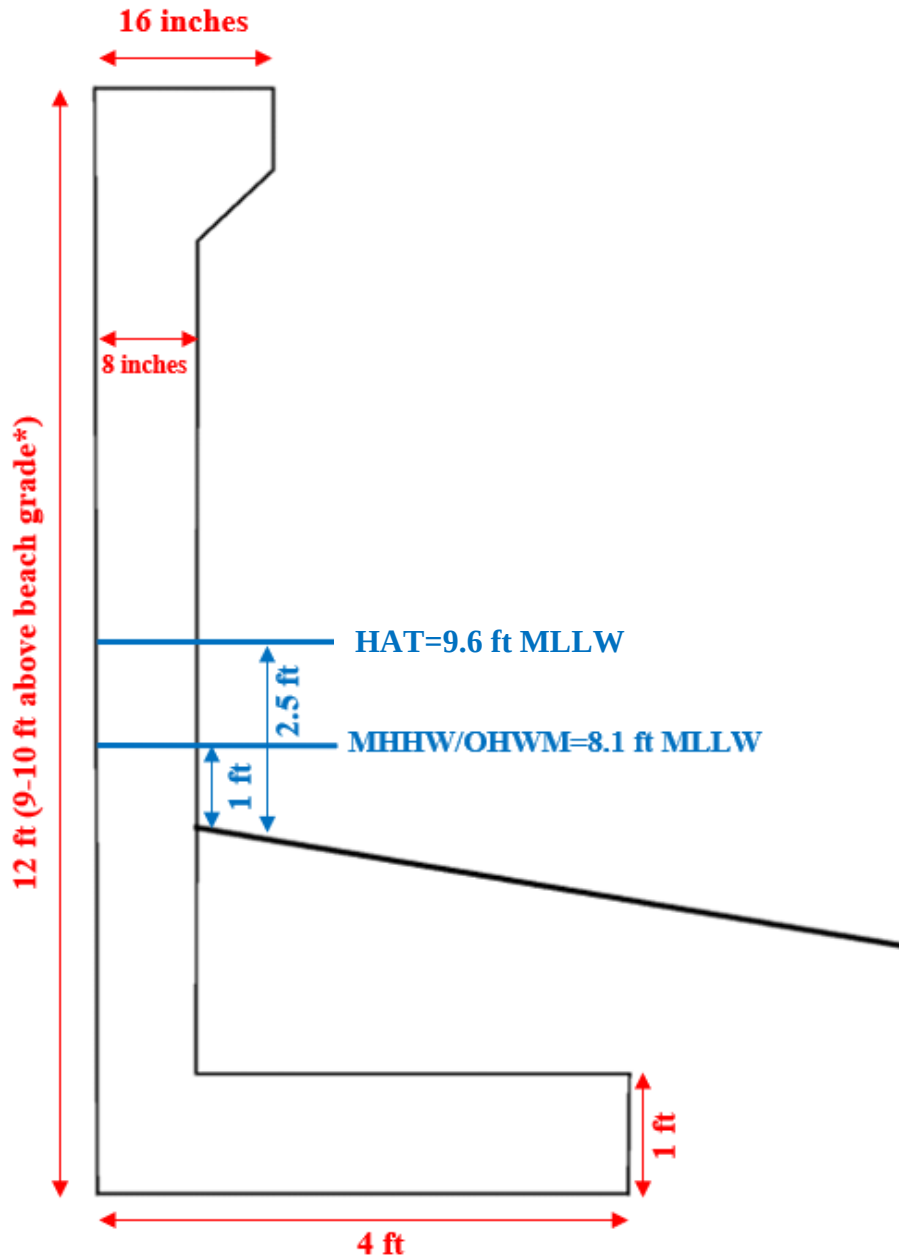
- 5/8-inch 100%
- 3/8-inch 90-100%
- 1/16-inch 40-50%
- 1/100-inch (0.25 mm) 0-5%

CORPS REFERENCE: APPLICANT: Barton Waring	PARCEL ID/Owner: P83306/Barton Waring	PROPOSED PROJECT: Bulkhead Maintenance
SITE ADDRESS: 5005 Croatian Way, Anacortes, WA In: Burrows Bay, Puget Sound County: Skagit State: WA	ADJACENT PARCELS / OWNERS & ADDRESS: P83307 / John & Colleen McIntyre 5003 Croatian Way, Anacortes, WA 98221 P83305 / Arrington Trust 5009 Croatian Way, Anacortes, WA 98221	Sheet 8 of 8 DATE: 6/12/2020 Revised 2/19/2021



APPLICATION #:	PARCEL ID/Owner :	PROPOSED PROJECT:
APPLICANT: Allen Horesh	P83309/Horesh	Bulkhead Replacement
SITE ADDRESS:	ADJACENT PARCELS / OWNERS & ADDRESS:	Sheet 3 of 8
4909 Croatian Way, Anacortes, WA	P83310 / Dowell Family Trust (Robert & Elaine)	DATE: 2/23/2021
In: Burrows Bay, Puget Sound	4907 Croatian Way, Anacortes, WA 98221	
County: Skagit State: WA	P83308 / Thomas & Sally Foster	
	4911 Croatian Way, Anacortes, WA 98221	

Proposed Horesh Bulkhead (not drawn to scale)



*beach elevation can change +/- 1 ft depending on the season

APPLICATION #: APPLICANT: Allen Horesh	PARCEL ID/Owner : P83309/Horesh	PROPOSED PROJECT: Bulkhead Replacement
SITE ADDRESS: 4909 Croatian Way, Anacortes, WA In: Burrows Bay, Puget Sound County: Skagit State: WA	ADJACENT PARCELS / OWNERS & ADDRESS: P83310 / Dowell Family Trust (Robert & Elaine) 4907 Croatian Way, Anacortes, WA 98221 P83308 / Thomas & Sally Foster 4911 Croatian Way, Anacortes, WA 98221	Sheet 5 of 8 DATE: 2/23/2021



Notice of Application with Optional SEPA DNS:

NOTICE IS HEREBY GIVEN THAT APPLICATION WAS MADE FOR THE FOLLOWING THREE PROPOSALS:

File Number:	SDP-2021-0002	SDP-2021-0003	SDP-2021-0004
Property Owner/Applicant:	John & Colleen McIntyre	Barton Waring	Allen Horesh
Date of Application:	May 6, 2021	May 6, 2021	May 5, 2021
Date of Completeness:	May 14, 2021	May 14, 2021	May 14, 2021
Project Location:	5003 Croatian Way, (P83307)	5005 Croatian Way (P83306)	4909 Croatian Way (P83309)
Request:	The proposal is to reinforce and repair the existing rock seawall with a light reinforced concrete face butted right up against it as closely as the contractor is able and buried deeper to make further undercutting extremely unlikely. The concrete toe of the existing wall will be removed and the new facing will go in its place so there will be no new footprint on the beach.		
Other permits required:	WDFW HPA Permit, USACE permit/authorization.		
Environmental documents:	SEPA Environmental Checklist, Habitat Survey, Biological Evaluation, Mitigation.		
SEPA Review:	Based on the submitted application, the City anticipates issuing an MDNS for this proposal and the optional DNS process as specified in WAC § 197.11.355 is being utilized. Consequently, this may be the only opportunity to comment on the environmental impacts of this proposal. This proposal may include mitigation measures under applicable codes, and the project review process may incorporate or require mitigation measures regardless of whether an EIS is prepared.		
Public Hearing:	A pre-decision open-record public hearing is required to be held by the Planning Commission and will be scheduled at a later date – due to COVID-19 restrictions.		
Public Comment Period:	The Notice of Application was published on May 26th, 2021. Written comments must be submitted to the contact person listed below by <u>5:00 PM on June 25th, 2021.</u>		

ANY PERSON HAS THE RIGHT TO RECEIVE NOTICE, PARTICIPATE IN ANY HEARINGS, REQUEST A COPY OF THE FINAL DECISION AND APPEAL THE DECISION AS PROVIDED BY LAW.

Document Availability: Project documents may be reviewed at <https://www.anacorteswa.gov/161/Planning-Community-Economic-Development> by clicking “Notices of Application” and then opening the appropriate project file number folder.

Appeals: Any party with standing may appeal the decision, once made, within 14 calendar days after written notice of the decision is mailed, per the provisions in AMC 19.20.180, *Appeals*.

For Project Information: Tess Cooper, Senior Planner; 360-588-8234, tessc@cityofanacortes.org; City of Anacortes Planning, Community, & Economic Development, P.O. Box 547, Anacortes, WA 98221



NOTICE OF PLANNING COMMISSION VIRTUAL / TELEPHONIC PUBLIC HEARING

A virtual/telephonic Pre-decision Open Record Public Hearing will be held by the Anacortes Planning Commission on **July 28, 2021 at 6:00 PM** by means of the Zoom video conferencing web application to consider the following application:

Project Name: Croatian Way Seawall Repair

File Number: SDP-2021-0002, 003, 004

Applicant: Meg Amos, Marine Surveys & Assessments, 380 Jefferson Street, Port Townsend, WA 360-385-4073

Land Owners: John & Colleen McIntyre, Barton Waring, Allen Horesh

Project Location: 5003, 5005, 4909 Croatian Way, Anacortes, WA 98221, Parcel # P83307, 83306, 83309

Application Type / Description: The proposal is to reinforce and repair the existing rock seawall with a light reinforced concrete face butted right up against it as closely as the contractor is able and buried deeper to make further undercutting extremely unlikely. The concrete toe of the existing wall will be removed and the new facing will go in its place so there will be no new footprint on the beach.

Environmental Review: A SEPA threshold Determination of Mitigated Determination of Non-significance (MDNS) is anticipated, under WAC 197-11-340(2), after using the Optional DNS process in WAC 197-11-355. As of 5:00 PM on June 25th, 2021 there is no further comment period on the DNS.

Open-Record Decision Hearing: A virtual open-record decision hearing on the application will be held by the Planning Commission on Wednesday, July 28, 2021 6:00 PM via Zoom video conferencing. The Planning Commission will conduct a **site visit onsite at 3:00 PM prior to the hearing**.

Appeals: The decision on this application, once made, may be appealable pursuant to the procedures outlined in AMC 19.20.030 and AMC 19.20.210.

Staff Report: The staff report will be available no later than 5:00 p.m. on July 22, 2021 and can be viewed at <https://www.anacorteswa.gov/161/Planning-Community-Economic-Development> by clicking "Other Notices" and then opening the appropriate project file number folder. You may also request a copy by contacting the project contact listed below.

Attending and Providing Comment at the Public Hearing

1. To participate in the Public Hearing:

- Click [this link](https://us02web.zoom.us/j/85918981678) or copy/paste this URL into your browser: <https://us02web.zoom.us/j/85918981678> or
- Dial in to the meeting by phone: Dial in the US: +1 253-215-8782, enter the Meeting ID 859 1898 1678

2. Written comments received before 3:00 p.m. on the day of the Public Hearing will be distributed to the Planning Commission in advance of the public hearing. Comments can be submitted by:

- Emailing tessc@cityofanacortes.org (include in the subject line *Public Comment for Planning Commission Meeting on [date]*) or
- Visit [Watch Meetings](#) on the City of Anacortes website and click the eComment link beside the agenda item for the public hearing you wish to comment on.

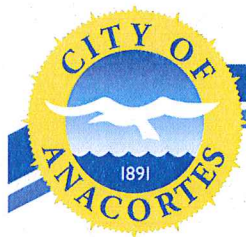
3. To view the live Public Hearing without participating: Visit [Watch Meetings](#) on the City of Anacortes website (<https://www.anacorteswa.gov/700/Watch-Meetings>) or tune in to Channel 10.

4. Members of the public who require special assistance to participate in or access the public hearing may contact the [City Clerk](#) 24 hours before the meeting to make special arrangements. Dial 360-299-1960.

Project Contact: Tess Cooper, Senior Planner; Phone: (360) 588-8234; tessc@cityofanacortes.org; City of Anacortes, P.O. Box 547, Anacortes, WA 98221

Date Issued: June 30, 2021

Date Published: June 30, 2021



STATE ENVIRONMENTAL POLICY ACT (SEPA)

Mitigated Determination of Non-Significance (MDNS)

PROJECT INFORMATION:			
Project Title	Croatian Way Seawall Repair		
File Number	SDP-2021-0002, SDP-2021-0003, SDP-2021-0004		
Site Address	5003, 5005, 4909 Croatian Way, Anacortes, WA		
APN(s)	P83307, P83306, P83309		
Landowners	John & Colleen McIntyre 5003 Croatian Way Anacortes, WA 98221	Agent	Meg Amos Marine Surveys & Assessments 380 Jefferson Street Port Townsend, WA 98368
	Barton Waring 5005 Croatian Way Anacortes, WA 98221		
	Allen Horesh 4909 Croatian Way Anacortes, WA 98221		
Complete Application Date	May 14, 2021		
Request	The applicant has applied for a Shoreline Substantial Development Permit (SSDP) to reinforce and repair the existing rock seawall with a light reinforced concrete face butted right up against it as closely as the contractor is able and buried deeper to make further undercutting extremely unlikely. The concrete toe of the existing wall will be removed and the new facing will go in its place so there will be no new footprint on the beach. The new deeper protection that this refacing will provide, at the base of the existing rock sea wall, will prevent further degradation of the wall by winter storm wave action.		

The City of Anacortes Department of Planning, Community & Economic Development has determined that this project does not have a probable significant adverse impact on the environment. Pursuant to WAC 197-11-350(3), the proposal has been clarified, changed, and conditioned to include necessary mitigation measures to avoid, minimize or compensate for probable significant impacts. An environmental impact statement (EIS) is not required under RCW § 43.21C.030(2)(c). The necessary mitigation measures are listed below, the Environmental Checklist is attached, and additional project information is available at <https://www.anacorteswa.gov/161/Planning-Community-Economic-Development>.

CRITICAL AREA REVIEW:

Pursuant to Appendix "A" of the Shoreline Master Program (SMP) regulating shoreline critical areas, the subject development was reviewed for proximity to critical areas.

The marine shoreline is a fish and wildlife habitat conservation area and regulated by the City of Anacortes' 2010 Shoreline Master Program (SMP) & shoreline specific critical area regulations. The applicant submitted a "Biological Evaluation" (BE) prepared by their consultant, Marine Surveys & Assessments dated June 17, 2020. The BE evaluated direct and indirect impacts and effects that the project may have on endangered and threatened aquatic species and critical habitat. According to the biological evaluation, a determination of effect on endangered and threatened species listed therein was determined it is likely that no "take" will result from this project.

The biological evaluation also evaluated "no net loss" is likely to occur to the ecological functions of the shoreline. Avoiding the impact to the shoreline by not taking the action [construction of a bulkhead] was not feasible in this case as the existing rock seawall protecting the residences upland from erosion, dissipation of wave energy, and ground subsidence is in disrepair. The existing rock seawall and a few feet of land above it is the only thing that separates itself from the three (3) single-family residences and the waters of Burrows Bay. The proposed bulkhead would help shore-up the land upland behind the existing rock seawall while stabilizing the subject properties that abut Burrows Bay while protecting the three (3) single-family residences that are part of the subject application(s). Recommendations of the biological evaluation have been made as recommended conditions of approval /mitigation measures.

The applicant submitted a Habitat Survey Report. This Report evaluated the project for proximity to Endangered Species Act (ESA) endangered and threatened species and their habitat. The seawall reinforcement will occur no further waterward of the OHWM within the footprint of the existing concrete footer, and just in front of the existing rock wall, located at Croatian Way. Proposed development will not extend further into Flounder Bay.

All proposed work will occur waterward of the ordinary high water mark (OHWM) as plans show the existing wall at or below the OHWM elevation. The existing stone wall will remain in place, the concrete footing will be replaced. It is expected that minimal impacts will result from this project. Project compliance with WDFW HPA and USACE authorizations are expected further to mitigate project impacts to critical areas /shoreline functions.

PUBLIC COMMENTS RECEIVED:

Notice of application with optional SEPA DNS process was posted on May 26, 2021 with the comment period ending at 5:00 pm on June 25, 2021. No comments were received from received by a member of the public.

MITIGATION MEASURES/ CONDITIONS OF APPROVAL:

1. Construction activities shall comply with best management practices (BMPs) and are subject to building permit and storm water requirements from the City of Anacortes Planning, Community & Economic Development Department.
2. Hours of construction /work are limited to 7:00 AM to 10:00 PM. If work must occur outside these hours a noise variance must first be obtained.

3. Noise levels shall not exceed those standards as established by the state pursuant to Chapter 70.107 RCW and contained in Chapter 173.60 WAC.
4. Prior to commencement of site activities, copies of all applicable state and federal permits and/or approvals shall be provided to the City.
5. Proposed activities shall occur at low tide equipment usage should be minimized on the tidelands.
6. If any artifacts or human remains are found upon excavation, the Samish Indian Nation; the City of Anacortes' Department of Planning, Community, & Economic Development; the City of Anacortes' Police Department; and the State of Washington's Department of Archaeology and Historic Preservation (DAHP) shall be immediately notified and the work in the immediate area cease. Pursuant to RCW § 27.53.060 it is unlawful to destroy any historic or prehistoric archaeological resources. RCW 27.44 and § 27.53.060 require that a person obtain a permit from the Washington State Department of Archaeology and Historic Preservations before excavating, removing, or altering Native American human remains or archaeological resources in Washington.

Responsible Official: Don Measamer
Position & Title: Director of Planning, Community & Economic Development
Phone: (360)-299-1942
Email: don@cityofanacortes.org
Address: P.O. Box 547, Anacortes, Washington 98221

Signature: _____

Date of Issuance: July 22, 2021

The conditions listed above along with the City of Anacortes' code governing noise, land use, traffic, drainage, fire protection, and building will provide substantial mitigation of the aforementioned environmental impacts. The City of Anacortes' derives the authority to require mitigation from Chapter 18.04 of the Anacortes Municipal Code and the State Environmental Policy Act. This MDNS is issued after using the optional MDNS process in WAC § 197.11.355. There is no further comment period on this MDNS.

For further information, contact the City of Anacortes' Department of Planning, Community, & Economic Development at (360) 299-1984. The issuance of this Mitigated Determination of Non-significance should not be interpreted as acceptance or approval of the proposal as presented. The City of Anacortes reserves the right to deny or approve said proposal subject to conditions if it is determined to be in the best interests of the city and/or necessary for the general health, safety and welfare of the public to do so.

SEPA APPEAL PROCEDURE:

This environmental determination may be appealed in accordance with the procedures outlined in AMC Chapter 18.04 and 19.20. Appeals must be on forms provided by the Planning, Community & Economic Department (PCED), contain the information specified in AMC 19.20.180.F, be accompanied by a filing fee of \$200, and be delivered to the City Clerk by mail or personal delivery by **5:00 PM August 5, 2021.**

Additional information regarding the appeal process may be obtained from City of Anacortes PCED, (360) 299-1984.