

# APPENDIX F

## Confined Waterways Information

*Prepared by Blue Coast Engineering*



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**Re:** PSRC route Tier 1 screening

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As part of Task 5 for the Puget Sound Regional Council (PSRC) Passenger Only Ferry (POF) Study, a preliminary environmental screening assessment was prepared that reviewed waterway compatibility to support passenger-ferry travel. Confined waterways and water depths are key criteria in the identification of viable ferry routes. An example of this is the recent, extensive work around vessel design, operating parameters and the monitoring of shoreline supporting the implementation of the Kitsap Transit Fast Ferry route between Bremerton and downtown Seattle.

#### **Rich Passage POFF Route Feasibility Summary**

Ferry travel through confined waterways such as Rich Passage warrants comprehensive, site specific study. Wake wash generated by high-speed passenger ferries can potentially cause adverse effect to shorelines and biological habitats from erosion of beach sediments (<1500 feet wide). Analysis can draw upon the research conducted on implementing POFFs in Rich Passage beginning in 2004 and continuing to this day in the monitoring phase. Property owners along Rich Passage filed a lawsuit over damage to their beaches attributed to wakes created by WSF high speed passenger ferries and won an injunction to slow these ferries in 2003. Kitsap Transit coordinated the work of a research team in more than a decade long (2005 to 2016), multi-million dollar project to understand vessel generated wake impacts along shorelines in confined waterways and to design, build and test a prototype low wake fast ferry to allow high speed ferry service through Rich Passage to recommence. The program also included extensive public and property owner outreach to educate the stakeholders about the integration of the science into the design of the new low wake ferry. A five-year monitoring program designed to measure beach impact through a phased ramp up of service is now underway. No new transportation operations through Rich Passage can be considered until the Kitsap Transit ferries have reached full scale operation.

#### **PSRC Confined Waterway Screening**

Three narrow passage ways have been identified during the Tier 1 screening. These passage ways are discussed in the following sections.



## **1. Dana Passage**

There is narrow passage on the route leading to the City of Olympia, at Dana Passage with mostly private property along both shorelines (Figure 1). The width of the passage is almost entirely within a 1500ft buffer from the shoreline. The shoreline is both armored and unarmored, and studies have shown that erosion may increase in confined waterways where wave energy is increased as a result of wake wash. In particular, vessel wakes reflect off shoreline structures and cause erosion at the toe of armored structures. In addition, erosion of unarmored shorelines can increase at locations where there is a transition from armor to unarmored.

There is also a marine aquatic reserve around Anderson Island that does not prohibit vessel traffic but would require additional level of environmental review, <https://apps.leg.wa.gov/wac/default.aspx?cite=332-30-151>.

## **2. Rich Passage**

A ferry operation to Port Orchard would require travel through either Rich Passage to get to east and south sound terminals or through Agate Pass to get to north sound terminals (Figure 2). There is an existing passenger only ferry route operated by Kitsap Transit that travels between Bremerton and Seattle through the sensitive waterway of Rich Passage. The existing operations has not yet been implemented at full scale because of concerns of increased high-speed vessel traffic impacting the shoreline. No new transportation operations through Rich Passage can be considered until the Kitsap Transit ferries have reached full scale operation. See section on Rich Passage POFF Route Feasibility Summary for more information.

## **3. Port Washington Narrows**

A ferry operation to Silverdale would require travel through Dyes Inlet and the narrow passage of Port Washington Narrows past Bremerton and then travel through either Rich Passage to get to east and south sound terminals or through Agate Pass to get to north sound terminals (Figure 3). Port Washington Narrows is a confined waterway and the shorelines are primarily private property with bulkheads that could be impacted by a new POF operation. The width of the passage from Bremerton to Tracyton is entirely within a 1500ft buffer from the shoreline. In addition, Dyes Inlet is very sheltered from both wind-waves and there is no regular commercial vessel traffic. A new POF operation to Silverdale would require extensive environmental analysis to quantify the potential impacts to the beaches from this new wake wash energy being transmitted to the shorelines through Port Washington Narrows and Dyes Inlet.

In addition, the required travel through Rich Passage (section 2) and Agate Passage (section 4) adds further complexity to a proposed POF operation to Silverdale at this time.



#### **4. Agate Passage**

A route travelling to Poulsbo from north sound or east-central sound would travel through the narrow passage at Agate Passage (Figure 2). The shorelines along this confined waterway are primarily private property with bulkheads and could be impacted by a new POF operation. The width of the passage is entirely within a 1500ft buffer from the shoreline. Once the route enters Liberty Bay there is approximately 4 miles of travel that would be within a 1500ft buffer from the shoreline and/or shallow water as well as privately owned shorelines.

A route travelling to Poulsbo from south sound would require travel through Rich Passage and as discussed this is not feasible at this time.



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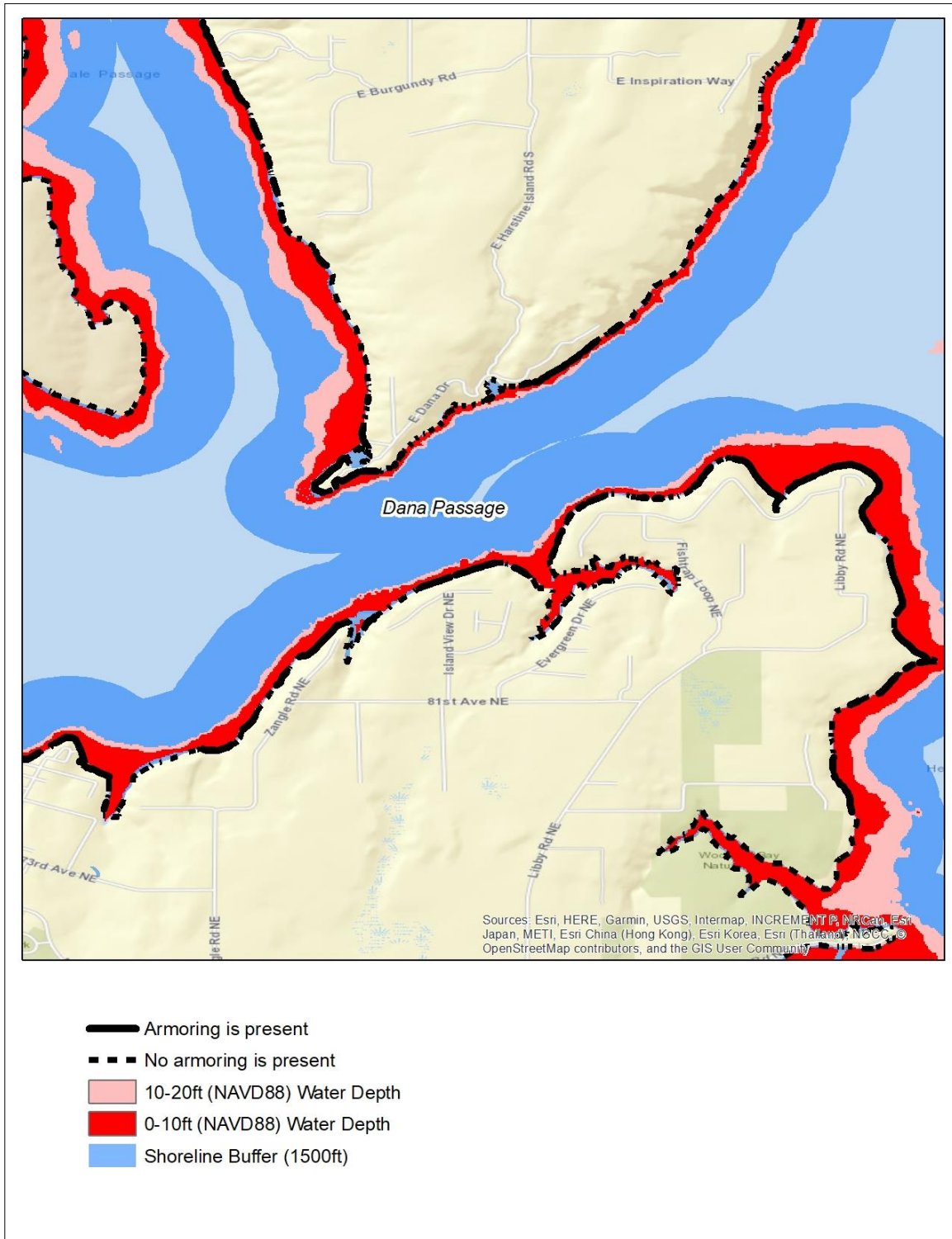


Figure 1. Dana Passage on the route leading to the City of Olympia.



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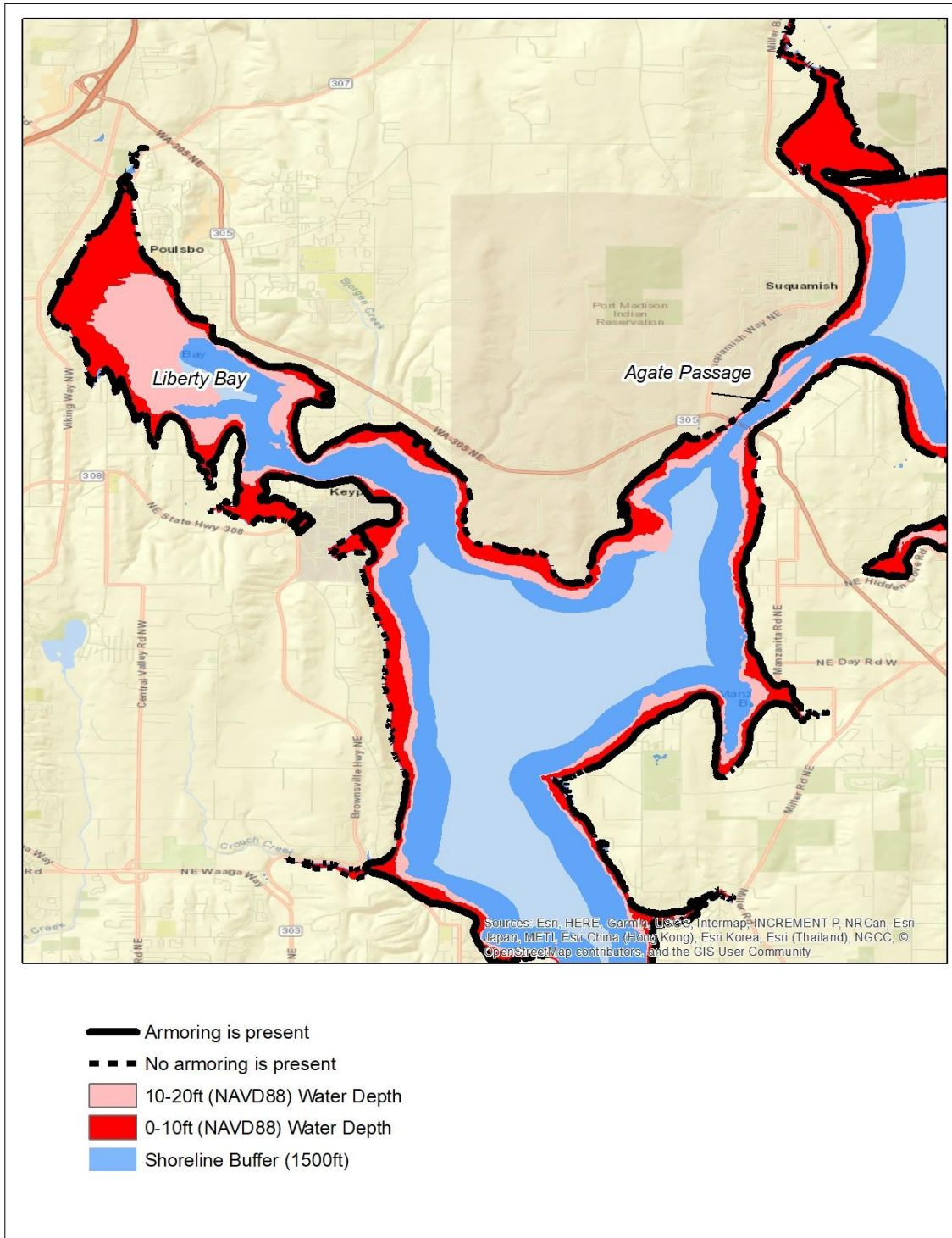


Figure 2. Dana Passage on the route leading to the City of Olympia.



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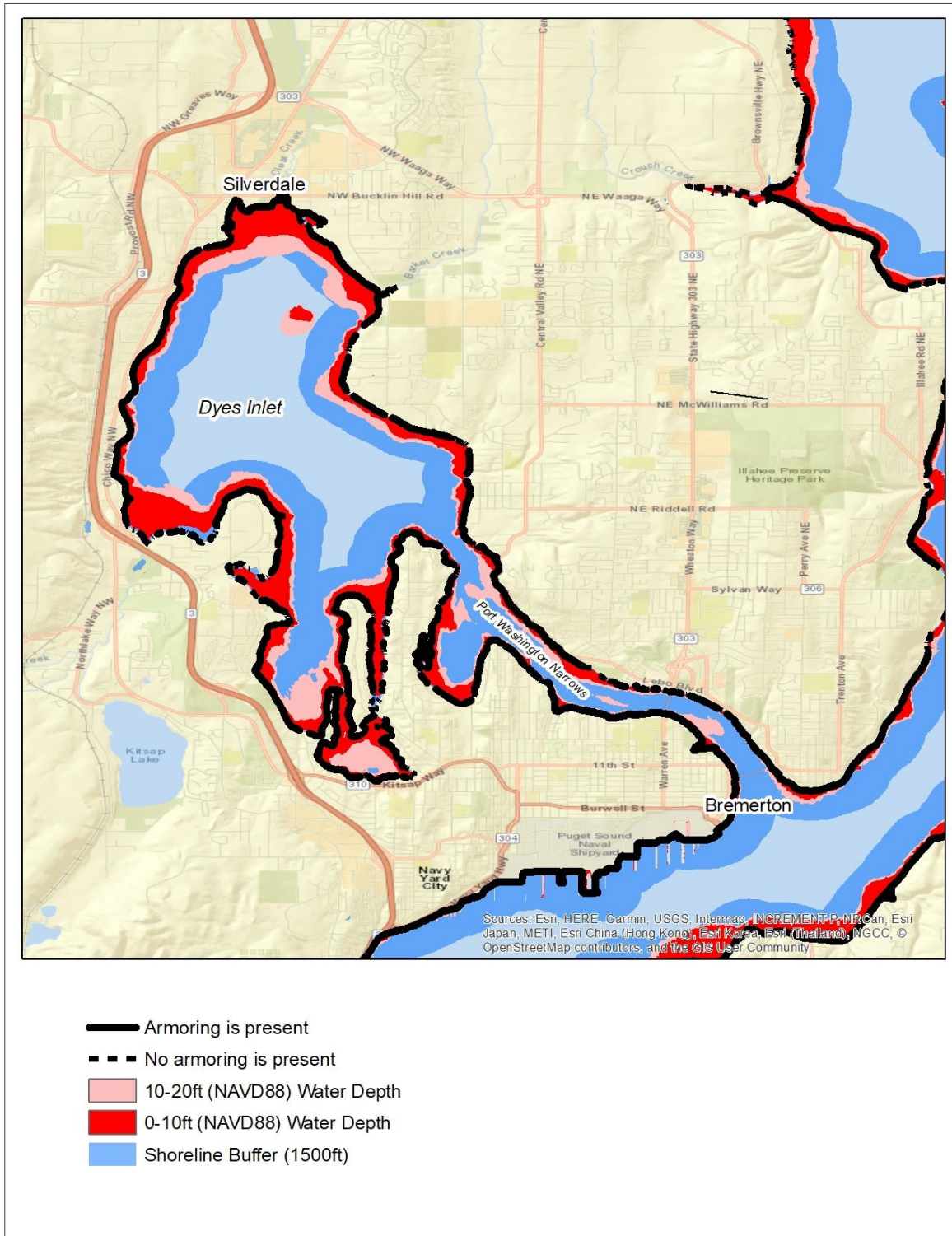


Figure 3. Port Washington Narrows Dyes Inlet on the route leading to the City of Silverdale.