October 9, 2015

Christian Geitz
City of Kirkland
Planning & Community Development
123 Fifth Avenue
Kirkland, WA 98033

Re: SHR15-01187 Evans Pier – Shoreline Mitigation Review
The Watershed Company Reference Number: 140622.50

Dear Christian:

On September 5, 2015 I visited the Evans property, located at 8331 Juanita Drive NE (parcel # 3760500242). The applicant is proposing a new single-family residential pier along with bulkhead modifications, beach creation and shoreline planting as mitigation. The purpose of the site visit and this review letter is to evaluate the proposed shoreline mitigation plan required by KZC 83.270.5.

The following documents were provided for this review:

- *Evans Dock Proposed Plans (SHR15-01187). Prepared by Marine Restoration & Construction LLC. July 21, 2015.*

Findings

The project site is located along the southeast facing side of Holmes Point, at the western end of Juanita Bay. Holmes Point is subject to a long wave fetch and associated shoreline erosion from wind waves and boat wakes. Shoreline armoring is extensive along most properties in the general vicinity. Existing nearshore substrate waterward of the existing bulkhead consists of large gravel and cobble, primarily between 4 to 8 inches in diameter. The lack of small gravel is indicative of strong wave forces.

The proposed project includes a new pier, which is greater than 480 square feet, and a new boatlift. As mitigation, the project has proposed reconstruction of a portion of the existing rock bulkhead in a slightly different configuration to form a larger gravel beach along with planting both emergent and upland vegetation. The existing hard armored shoreline is not contiguous, but rather is staggered with an unarmored small gravel beach located near the center of the property.

While the overall intent of the mitigation plan appears to improve the shoreline function by utilizing a softer approach inclusive of logs, gravel, and vegetation, there are several facets of the plan which do not fully comply with Chapter 83 KZC. Specifically, the following issues have been identified:

1. Shoreline Stabilization

    a. Two areas on the proposed plan show new hard armoring. One area (called "jetty") extends existing armoring by 7.5 feet. A second area, described above as an unarmored small gravel beach, extends approximately 10 feet across. However, this unarmored section of shoreline is inaccurately depicted on the Existing Plan View as "armored."

    b. As proposed, new hard armoring requires a geotechnical analysis to provide conclusive evidence that the primary structure is in danger from shoreline erosion caused by waves (KZC 83.300.2.b(1)(b)(1)).

    c. Sheets 11 and 12 note that the existing bulkhead footing is to remain in areas of the gravel beach in order to maintain shoreline integrity. However, bulkhead footings should be removed if possible so they do not continue to degrade the beach profile. Only in cases where a footing rock is completely below the native substrate prior reconstruction efforts, should they be allowed to remain in place.

    d. An in-water sediment control curtain should be utilized during shoreline construction per KZC 83.420. Use of such a curtain is not identified on the plans.

2. Shoreline Planting

    a. Per KZC 83.270.5, native emergent vegetation shall be planted waterward of the OHWM along 75 percent of the shoreline frontage unless determined to be inappropriate or infeasible. Based on the existing substrate conditions observed during my site visit and the known wave forces acting upon this shoreline area, emergent vegetation below the OHWM would be difficult to establish and therefore should be deemed inappropriate across 75 percent of the shoreline.

    b. KZC 83.270.5 also requires native riparian vegetation to be planted along 75 percent of the nearshore riparian area located along the water's edge with an average width of 10 feet. The shoreline frontage of the subject site is approximately 140 feet. Therefore, the planting plan should cover

approximately 105 feet of the shoreline. The proposed shoreline planting plan does not meet the 75 percent or the 10-foot average width standard.

c. KZC 83.270.5 also requires three trees per 100 linear feet of shoreline. The proposed plan includes one Pacific willow. Of the existing trees on the property, only one mature weeping willow is providing nearshore riparian coverage.

d. A five-year vegetation maintenance and monitoring plan, required by KZC 83.270.5, is not included.

Disclaimer

The information contained in this letter or report is based on the application of technical guidelines currently accepted as the best available science and in conjunction with the manuals and criteria outlined in the methods section. All discussions, conclusions and recommendations reflect the best professional judgment of the author(s) and are based upon information available to us at the time the study was conducted. All work was completed within the constraints of budget, scope, and timing. The findings of this report are subject to verification and agreement by the appropriate local, State and Federal regulatory authorities. No other warranty, expressed or implied, is made.

The scope of work for this project did not include any analysis of the erosion risk, sediment drift or other stability- or safety-related issues. Similarly, this review should not be construed as an endorsement of the design with respect to sediment movement, engineering, safety risk or risk to property.

Please call if you have any questions or if we can provide you with any additional information.

Sincerely,

Dan Nickel, Environmental Engineer
Principal