



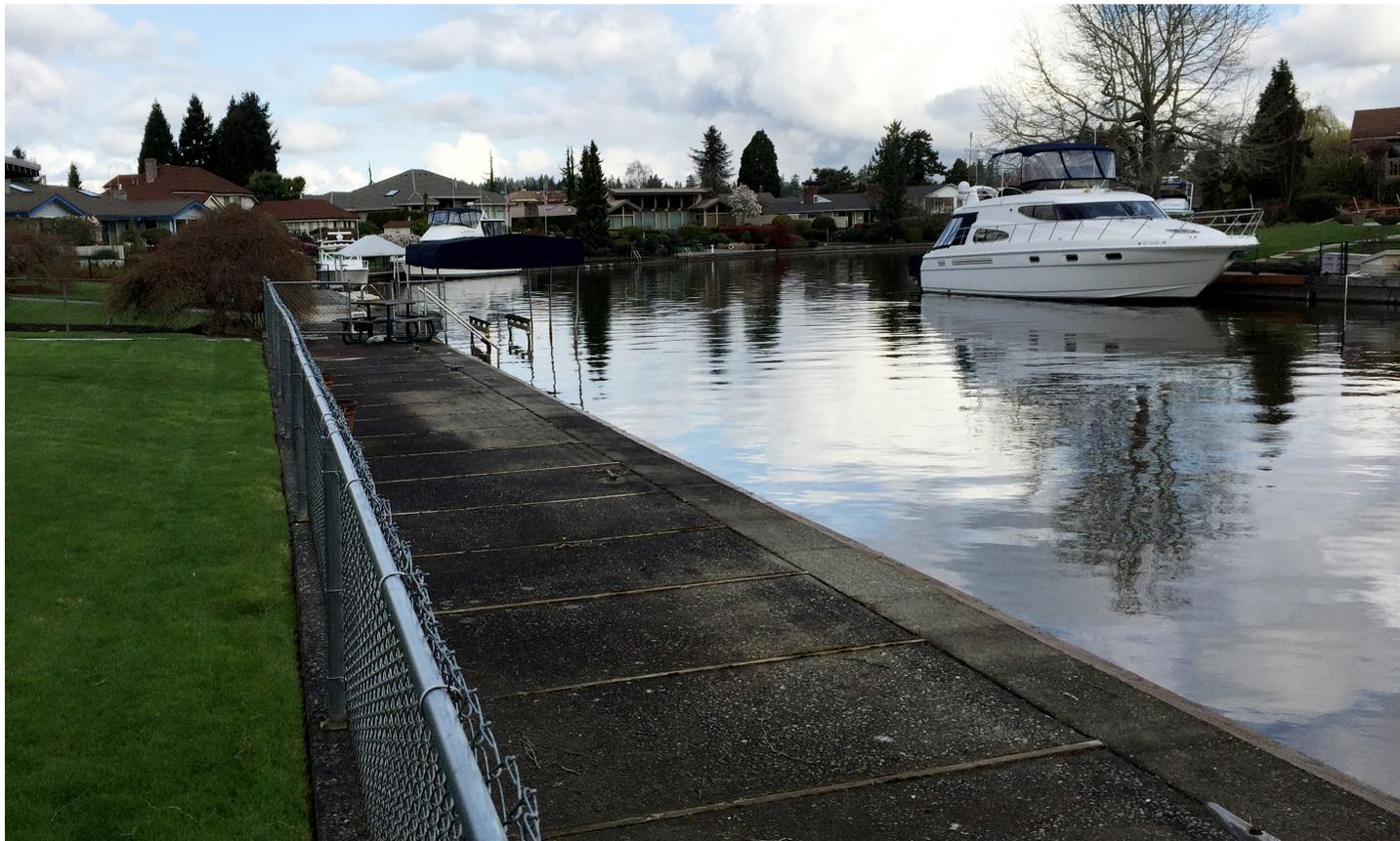
CRITICAL AREAS REPORT

79 Cascade Key - Bellevue, WA

Prepared for: Todd and Roanne Patrick



June 2016



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TABLE OF CONTENTS

	Page #
1 Introduction	1
1.1 Background and Purpose	1
1.2 Description of Project Area	2
2 Local Regulations	4
3 Project Description	5
3.1 Project Purpose	6
3.2 Mitigation Sequencing.....	6
4 Impact Assessment / Lift Analysis	7
5 Critical Areas Report Criteria	9
6 Mitigation Plan	14
6.1 Overview.....	14
6.2 Maintenance and Monitoring Plan	14
Goals.....	14
Performance Standards	14
Monitoring Methods	15
Construction Notes and Specifications	16
General Work Sequence	16
Material Specifications and Definitions	17
Contingencies.....	17
Maintenance	18
7 Summary.....	18

Appendix A: Mitigation Plan

LIST OF EXHIBITS

Figure 1. Vicinity Map (Google Maps).....	1
Figure 2. Project setting within the Newport Shores neighborhood (Google Maps).	1
Figure 3. View of the subject site prior to excavation of the Newport canals (circa 1936 - photo courtesy of iMAP).	2

Figure 4. View of the new residence and the lawn which comprises the shoreline buffer and structure setback – facing south, photo taken 3/16/2016.3

Figure 5. View of the bulkhead – photo taken 3/16/2016.3

Figure 6. View of the concrete walkway within the shoreline buffer facing west from the concrete bulkhead - photo taken 3/16/2016.....4

CRITICAL AREAS REPORT

79 CASCADE KEY – BELLEVUE, WA

1 INTRODUCTION

1.1 Background and Purpose

The purpose of this report is to document potential critical area, critical area buffer, and critical area structure setback impacts associated with the proposed residential project located on the shoreline of Lake Washington in the City of Bellevue, Washington (Figures 1 and 2). The property was recently purchased and the new landowner proposes landscaping and hardscape renovations to improve property aesthetics and functionality.

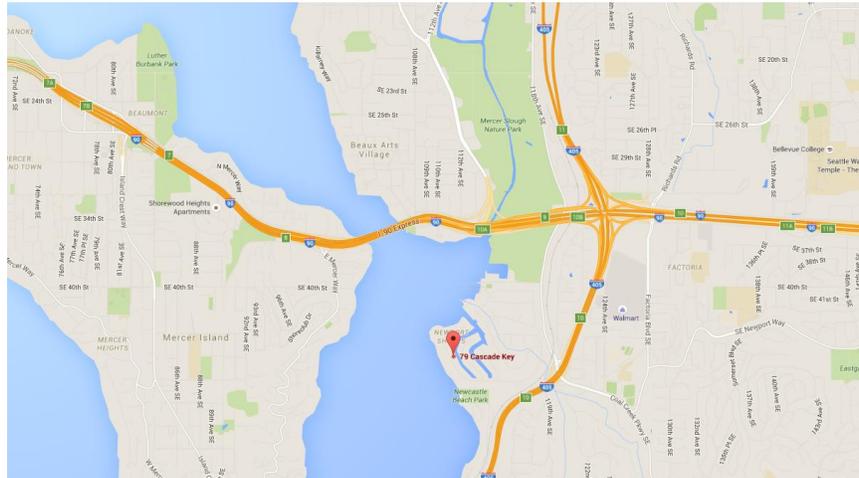


Figure 1. Vicinity Map (Google Maps).



Figure 2. Project setting within the Newport Shores neighborhood (Google Maps).

Lake Washington is considered a critical area by the City of Bellevue. The applicant proposes to construct or improve typical residential amenities including a deck, a fence, concrete pathways, and resurfacing the shoreline boardwalk within portions of the critical area buffer and structure setback. Bellevue Land Use Code (LUC) 20.25H.230 requires compliance with specific critical areas report criteria as part of any modification to a critical area, critical area buffer, or structure setback. This report fulfills these criteria.

1.2 Description of Project Area

The subject property is located at 79 Cascade Key (parcel 6072800205) in the Newport Shores community in the City of Bellevue. Newport Shores borders Lake Washington to the east and includes several canals, or manmade inlets. The subject parcel is located on the western shoreline of the western canal. The canal is approximately 80 feet wide adjacent to the parcel and approximately 1,600 linear feet of canal separates the parcel from Lake Washington. The canals were carved from uplands during the 1950s with the first residences established in the early 1960s (Figure 3). The canals are lined on both sides with concrete bulkheads. Vessels are typically moored parallel to the bulkhead with some properties containing lifts or moorage covers.

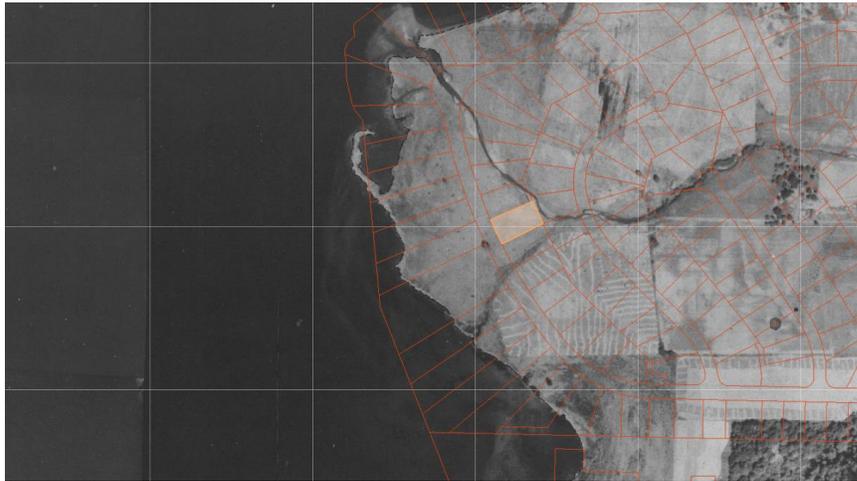


Figure 3. View of the subject site prior to excavation of the Newport canals (circa 1936 - photo courtesy of iMAP).

The residence was originally constructed in 1969. The residence was recently purchased by the applicant, and the applicant is interested in renovating and improving the property and landscaping to improve the aesthetics and to increase the functionality of the property. The residence is situated approximately 49.5 feet upland of the ordinary high water mark (OHWM). Between the foundation and the bulkhead is a chain link fence, lawn area, concrete walkways, and a 330-square-foot wood deck. There are only one existing tree and very few shrubs within the shoreline buffer or setback. The single tree - a shore pine - exists within

the shoreline buffer and has a diameter at breast height that is less than eight inches. This shore pine is in poor health. The only shrubs that exist are wisteria, Japanese maple, lilac and rhododendron. Besides the areas of bare ground and concrete, the groundcover in the backyard area is exclusively grass.



Figure 4. View of the residence and the lawn which comprises the shoreline buffer and structure setback – facing south, photo taken 3/16/2016.



Figure 5. View of the concrete boardwalk and bulkhead – photo taken 3/16/2016.



Figure 6. View of the concrete walkway within the shoreline buffer and setback, facing west from the concrete bulkhead - photo taken 3/16/2016.

No wetlands or streams were noted on the property, nor do publicly available data indicate the presence of aquatic areas aside from Lake Washington. According to the Natural Resources Conservation Service, the property contains Urban land (Ur) soils.

Habitat

Habitat structure on the property is virtually non-existent. Aside from the shore pine, no native vegetation is present in the buffer or setback. As mentioned, several ornamental shrubs and areas of lawn are present. The lack of structural diversity and fruit-producing plants limits food and cover opportunities for most wildlife species, including songbirds and small mammals.

2 LOCAL REGULATIONS

In Bellevue, shoreline areas are governed by Critical Areas Ordinance No. 5680 and regulated specifically by LUC 20.25H.115 and 20.25E. Developed sites on Lake Washington require a 25-foot critical area buffer [LUC 20.25H.115(B)(1)(a)(ii)]. An additional shoreline structure setback, measured from the edge of the buffer is required. The standard structure setback is 25-feet. However, the setback can be modified, pursuant to LUC 20.25H.115(C)(3)(a),

based upon the location of adjacent development. The setback is intended to minimize long-term impacts of development and protect the critical area from adverse impacts during construction, maintenance, and uses associated with the structure.

Shoreline buffers and shoreline setbacks can only be modified through an approved critical areas report. The applicant must demonstrate that the modifications to the buffer and/or setback, combined with any mitigation efforts, will result in equivalent or better protection of critical area functions and values than would result from adhering to the standard application of the regulations (LUC 20.25H.230). Mitigation or restoration of the critical area may involve restoring the shoreline by removing structures or impervious surfaces, removing invasive plant species, and/or planting native vegetation within the buffer and/or setback. An approved mitigation plan would require monitoring and maintenance in accordance with LUC 20.25H.220.

3 PROJECT DESCRIPTION

The proposed project involves rebuilding and slightly expanding the existing deck, resurfacing the existing concrete boardwalk adjacent to the lake, replacing the existing chain link fences, replacing the concrete walkway that leads to the bulkhead, moving the hot tub pad, installing a small concrete fireplace, and installing a variety of native trees and shrubs. The project also includes some improvements outside of the shoreline buffer and shoreline setback.

The project will involve the removal of impervious surface including 84 square feet in the vicinity of the southeastern and northeastern corners of the house. The project involves installation of a concrete masonry unit pad for a proposed fireplace, totaling 9 square feet of impervious surface. Within the shoreline buffer and part of the shoreline setback, the existing concrete path will be removed and reconstructed. The current walkway that provides access to the bulkhead is two feet wide. The proposed walkway will be four feet wide, which, when combined with the fireplace will add 152 square feet of impervious surface and result in a net increase of 68 square feet of impervious surface. The project also involves expanding the existing deck from 597 square feet to 941 square feet, an increase of 344 square feet. The deck will have at least one-eighth inch spacing so that it can function as a pervious surface. The project also involves moving the existing 64-square foot hot tub pad to the east, resulting in the same level of impact as exists currently.

The existing concrete shoreline area will be resurfaced resulting in temporary impacts on 940 square feet. A portion of the remaining of the shoreline buffer

and setback area totaling 500 square feet will be planted with native trees, shrubs, and groundcovers.

3.1 Project Purpose

The purpose of the proposed project is to provide typical private recreational amenities that are in keeping with the residential neighborhood and the lakefront setting.

3.2 Mitigation Sequencing

Pursuant to LUC 20.25H.215, attempts to avoid and minimize impacts to the on-site shoreline buffer and setback have been taken.

Avoidance: As previously mentioned, the project site includes a 25-foot shoreline buffer and an additional 25-foot structure setback. Proposed improvements in the structure setback include improving and expanding the existing wooden deck, replacing the concrete walkway, replacing the existing fence, resurfacing the concrete shoreline area, moving the hot tub pad, installing a small concrete fireplace, and installation of native plantings. Other placement options were considered for these improvements. A shoreline patio and outdoor living area was considered. This patio and living area would provide a place for residents to cook and recreate outdoors. However, this proposal was rejected and removed altogether from the plans in favor of less impactful deck improvements. The proposed improvements to the deck are located as far from the water as possible given the location of the house, and proposed improvements are completely outside of the shoreline buffer. The proposed fence will not create any additional impacts, besides temporary impacts associated with replacement. The fence options being considered will likely improve access for small mammals as compared with the existing chain-link fence. Further, no impacts to the shoreline critical area are proposed.

Minimization: Minimization techniques were utilized during the design process in order to limit impacts to the shoreline buffer and setback. Minimization measures included proposing deck improvements entirely outside of the shoreline buffer and as far from the shore as possible while attaining the minimum needs for the deck. Further, the deck has been designed to feature eighth inch spacing between deck boards so as to function as a pervious surface by allowing infiltration of water. Additionally, shoreline access will occur through a single shoreline access point.

Mitigation: Mitigation includes enhancement of 500 square feet of the site through planting of native vegetation within the buffer and portions of the setback. The planting layout incorporates a diversity of native plant species, Potential species include mountain hemlock, shore pine, red flowering currant,

nootka rose, cascade mahonia, evergreen huckleberry, tufted hairgrass, kinnikinnick, dull mahonia, coastal strawberry, and salal. The mitigation plan will provide for substantially improved critical area and buffer functions relative to the existing condition. A monitoring and maintenance plan is also included in this report. Overall, a net improvement in critical area functions is proposed (see Table 2).

4 IMPACT ASSESSMENT / LIFT ANALYSIS

As mentioned, residential appurtenances will be constructed within the shoreline buffer and structure setback. The proposed amenities within the buffer and setback area will result in an additional 68 square feet of impervious surface and an additional 344 square feet of pervious deck. As mitigation for the increase in hardscape surfaces within both the structure setback and buffer, native plantings in the setback and buffer are proposed. A summary of impacts and proposed mitigation is presented in the table below.

Table 1. Impact Assessment

Impervious Surface	Shoreline Buffer (square feet)	Structure Setback (square feet)	Total (square feet)
Existing	970	109	1,079
Proposed for Removal	0	84	84
Proposed New	30	122	152
Proposed Net Increase	30	38	68
Proposed Total	1,000	147	1,147
Pervious Surface	Shoreline Buffer (square feet)	Structure Setback (square feet)	
Existing Deck	-	597	-
Proposed Deck	-	941	-
Native Vegetation	Shoreline Buffer (square feet)	Structure Setback (square feet)	Total (square feet)
Existing	9	0	9
Proposed	432	68	500

*Note: Relocation of hot tub pad (approximately 64 square feet) is not included in these calculations.

As can be seen in the above table, impervious surfaces within the buffer will increase from 970 square feet (including concrete walkway and existing concrete shoreline area) to 1,000 square feet (an increase of 30 square feet).

Approximately 122 square feet of new impervious surface will be installed as

part of the replaced concrete walkway, however, approximately 84 square feet of existing impervious surface will be removed. This results in a net increase of approximately 38 square feet of impervious surface within the structure setback. The existing deck will be rebuilt and increase in size from 597 square feet to 941 square feet, resulting in an increase in pervious surface within the shoreline structure setback of 344 square feet.

Meanwhile 500 square feet of native mitigation plantings will be added to the buffer and portions of the setback. An analysis of the specific functions and values provided by the existing site and the post-project site is provided in Table 2.

Table 2. Functional Lift Analysis

Critical Area/ Buffer Functions	Existing Conditions	Proposed Conditions	Functional Improvement?
Water Quality	The shoreline area is devoid of significant vegetation capable of filtering stormwater before it enters the lake.	Significant new native plantings added to the shoreline buffer and setback.	Yes; water quality will be improved. New native plantings will help to filter stormwater prior to it reaching the shoreline.
Hydrology	The shoreline area lacks vegetative structure that can slow stormwater velocities discharging into the lake from the lawn and nearby impervious areas.	Restore significant portions of the shoreline buffer by establishing native shrubs and groundcovers.	Yes; new native plantings will provide increased density and resistance to storm flows, reducing peak stormwater velocities entering the lake.
Habitat	The existing buffer and setback lack the native vegetation necessary to provide structure, forage and cover opportunities.	Enhance habitat with a diversity of native plantings.	Yes; new native plantings will provide a net increase in species and structural diversity. Plantings will also provide new foraging and nesting opportunities for terrestrial wildlife, including several songbird species.
Net Condition	Degraded buffer and setback with no native vegetation and impervious surfaces at the shoreline edge.	Significant native vegetation added to the buffer and setback.	The shoreline habitat will be enhanced through an increase in native vegetation; filtering of stormwater by native plantings; increased habitat structural and compositional complexity, and an increase in organic material to the food chain.

The mitigation plan proposes a significant increase in native plantings within the buffer and setback. The presence of these plants on the site will provide greater vegetative structural complexity than exists in the area presently. The property will be more suitable overall for urban songbird, small mammal and herptile species than it is presently because of the structural complexity provided by the woody vegetation. Woody shrub vegetation is more attractive to songbirds and small mammals than is lawn. A mix of flowering, fruiting and seeding plants will provide forage opportunities that do not currently exist on-site. Wildlife species of the Pacific Northwest are also better adapted to forage provided by native plants than non-native and ornamental species.

The significant increase in native vegetation is expected to compensate and mitigate for temporary impacts associated with the proposed slight increase in impervious surface and the slightly larger deck structure within the shoreline buffer and shoreline setback. The proposed native vegetation will help to filter stormwater and will provide an increase in on-site habitat potential. In addition, the proposed fence will have larger openings that will also increase access for small mammals over the existing chain link fence.

5 CRITICAL AREAS REPORT CRITERIA

As previously mentioned, shoreline buffers and setbacks may be modified pursuant to LUC 20.25H.230. The Director may approve the modifications described above if it can be shown that, through mitigation, the modifications will result in equivalent or better protection of critical area functions and values. The existing project site contains areas of low-functioning shoreline, as well as a degraded shoreline buffer and setback. Limited, non-native vegetation and impervious surfaces occupy portions of the buffer and setback.

Per the LUC, the critical areas report must meet specific decision criteria in order for the Director to approve a proposal to modify the regulated structure setback or buffer. Compliance with the relevant critical areas report criteria listed in LUC 20.25H.250(B) is addressed below.

3. *Identification of each regulation or standard of this code proposed to be modified.*

The site is adjacent to Lake Washington, a regulated shoreline that, pursuant to LUC 20.25H.115(B)(1)(a)(ii) and LUC 20.25H.115(C)(2)(b), requires a 25-foot critical area buffer and a shoreline critical area structure setback of 25-feet. The proposed project involves rebuilding and slightly expanding the existing deck, resurfacing the existing concrete surface adjacent to the lake, replacing the existing chain link

fences, replacing the concrete walkway that leads to the bulkhead, moving the hot tub pad, installing a small concrete fireplace, and installing a variety of native trees and shrubs. These improvements will occur within the structure setback and portions of the buffer as accessories to the single-family residence.

4. *An assessment of the probable cumulative impacts to critical areas resulting from development of the site and the proposed development.*

No in-water work is proposed; therefore, all impacts and offsetting mitigation will occur within the buffer and structure setback. The proposed improvements will occur mostly within the structure setback, over an area that is currently composed of grass lawn. The proposed improvements would cause limited impacts to the already limited water quality and hydrologic functions that currently exist. The proposed native plantings within the buffer and structure setback are expected to provide for an overall increase in critical area functions at the site.

5. *An analysis of the level of protection of critical area functions and values provided by the regulations or standards of this Code, compared with the level of protection provided by the proposal. The analysis shall include:*

- a. *A discussion of the functions and values currently provided by the critical area and critical area buffer on the site and their relative importance to the ecosystem in which they exist;*

The shoreline is presently armored, and the buffer is primarily lawn with very limited existing ornamental vegetation, and an impervious concrete boardwalk at the water's edge. The structure setback is mostly lawn, with a portion covered by deck. Therefore, water quality, hydrologic, and habitat functions are essentially absent from the shoreline. The bulkhead allows only simple habitat to exist in the nearshore area by presenting a vertical interface with the ordinary high water mark. In addition to being a physical shoreline barrier, this limits vegetation establishment and organic input and prevents the formation of quality shallow water habitat.

- b. *A discussion of the functions and values likely to be provided by the critical area and critical area buffer on the site through application of the regulations and standards of this Code over the anticipated life of the proposed development;*

The strict application of the regulations and standards of LUC 20.25H would prevent the proposed improvements from being constructed in the structure setback and buffer, and thus the required native vegetation compensation would not be implemented. Therefore, the

shoreline buffer would remain in its existing impaired condition, as described in the response above.

- c. *A discussion of the functions and values likely to be provided by the critical area and critical area buffer on the site through the modifications and performance standards included in the proposal over the anticipated life of the proposed development; and*

By requesting a critical area modification pursuant to LUC 20.25H.230, the applicant is provided the opportunity to restore and enhance portions of the on-site shoreline critical area buffer and structure setback. A mitigation plan has been prepared (see Appendix A) that details the area proposed for mitigation. Mitigation will involve the enhancement of 500 square feet of the shoreline buffer and structure setback through the planting of native vegetation. The planting layout incorporates a diversity of native plant species. A monitoring and maintenance plan for the proposed mitigation area is also included in this report. See Table 2 for a detailed assessment of the functions provided by the improved site. Overall, a net gain in critical area functions is proposed. Therefore, modification of the on-site structure setback and buffer, and subsequent mitigation, will provide a substantially higher level of protection than provided through the application of the regulations of LUC 20.25H.

7. *A discussion of the mitigation requirements applicable to the proposal pursuant to LUC 20.25H.210, and a recommendation for additional or modified mitigation, if any.*

The proposed mitigation plan has been developed in accordance with the standards of LUC 20.25H.210 through 20.25H.225. The applicant proceeded through the design of the proposed project by first attempting to avoid impacts to the on-site structure setback and buffer. However, because strict application of LUC 20.25H would result in the applicant being unable to fulfill the project purpose (adequate walkway and expanded, functional deck), the applicant proceeded with a design that minimized modifications and impacts to the greatest extent possible. Included as part of the plan is a proposal to restore significant portions of the buffer and structure setback with native species. The mitigation plan will improve the critical area functions and values relative to the existing condition. A monitoring and maintenance plan for the proposed mitigation area has also been prepared and is included in this report. The plan includes the components required by LUC 20.25H.220.

To allow a shoreline structure setback and buffer modification through an approved critical areas report, the Director must also find compliance with the decision criteria established in LUC 20.25H.255(A). Compliance with the relevant sections listed in LUC 20.25H.255(A) is addressed below.

1. *The modifications and performance standards included in the proposal lead to levels of protection of critical area functions and values at least as protective as application of the regulations and standards of this code.*

See response 5 in the preceding discussion.

2. *Adequate resources to ensure completion of any required mitigation and monitoring efforts.*

A comprehensive five-year maintenance and monitoring plan is included in this report (Section 6). The plan specifies appropriate species for planting and planting techniques, describes proper maintenance activities, and sets forth performance standards to be met yearly during monitoring. This will ensure that mitigation plantings will be maintained, monitored, and successfully established within the first five years following implementation. Furthermore, to ensure that the proposed plantings are installed and that the five-year maintenance and monitoring plan is implemented, if required, the applicant will post an Installation Assurance Device and a Maintenance Assurance Device prior to building permit issuance.

3. *The modifications and performance standards included in the proposal are not detrimental to the functions and values of critical area and critical area buffers off-site.*

The on-site critical area (Lake Washington – Newport Shores canal) continues off-site to the northwest and southeast. An encroachment into the shoreline structure setback and buffer will not have a detrimental impact on off-site critical areas and buffers. As mentioned previously, the immediately adjacent critical area is artificial, having been constructed as part of the development of the Newport Shores canal system in the 1950s. The existing condition of the immediate area surrounding the project site is entirely developed, with many nearby lots having structures within the setback and hardscape improvements within the buffer. This built-out environment will therefore not suffer a detrimental impact as a result of the proposal. In fact, on-site improvements (mitigation plantings in the setback and buffer) will have a beneficial effect on the subject property and a small cumulative improvement to the overall habitat function.

4. *The resulting development is compatible with other uses and development in the same land use district.*

The proposed single-family residence will remain compatible with adjacent properties and surrounding development within the same land use district (Single Family R-2.5). Adjacent properties also contain single-family land uses, all of a similar size and character, and many with a greater degree of alteration in the buffer and setback.

Modification of a shoreline structure setback or buffer requires the applicant to apply for and receive a Critical Areas Land Use Permit. Before issuing a Critical Areas Land Use Permit, the Director must find that the project meets specific decision criteria. Compliance with the applicable Critical Areas Land Use Permit decision criteria listed in LUC 20.30P.140 is addressed below.

- A. *The proposal obtains all other permits required by the Land Use Code.*

The project applicant has applied for a Critical Areas Land Use Permit (LO) to modify the on-site shoreline buffer and structure setback. No other City of Bellevue land use permits will be required of the project at this time.

- B. *The proposal utilizes to the maximum extent possible the best available construction, design and development techniques, which result in the least impact on the critical area and critical area buffer.*

No direct impacts to the critical area are proposed. Minimal impacts to the buffer are associated with the widened access path. There will be temporary, limited impacts associated with resurfacing the existing shoreline concrete surface. These minimal impacts will be to areas that are currently devoid of significant vegetation; they are currently covered with lawn or concrete walkway. Temporary impacts will result from replacement of the fence. Enhancement to the buffer and setback through installation of native shrubbery and ground cover will result in a permanent beneficial modification to the buffer.

- D. *The proposal will be served by adequate public facilities including streets, fire protection, and utilities.*

The proposed project will be served by adequate public facilities. No new streets will be needed to serve the site and the project site will utilize existing utilities available to the site. Additionally, fire and police protection are currently available at the site.

- E. *The proposal includes a mitigation or restoration plan consistent with the requirements of LUC 20.25H.210; except that a proposal to modify or remove*

vegetation pursuant to an approved Vegetation Management Plan under LUC 20.25H.055.C.3.i shall not require a mitigation or restoration plan.

A mitigation plan has been prepared in accordance with the requirements of LUC 20.25H.210. See Section 6 and Appendix A.

F. The proposal complies with other applicable requirements of this code.

The proposed project complies with all other applicable City of Bellevue Land Use Codes.

6 MITIGATION PLAN

6.1 Overview

The proposed mitigation plan fulfills the requirements of LUC 20.25H.220(B). The plan seeks to restore and enhance portions of the Lake Washington shoreline buffer and setback. To achieve this, the plan calls for the enhancement of 500 square feet of the buffer and portions of the setback through the planting of native trees, shrubs, and groundcover. Potential species list includes mountain hemlock, shore pine, red flowering currant, nootka rose, cascade mahonia, evergreen huckleberry, tufted hairgrass, kinnikinnick, dull mahonia, coastal strawberry, and salal.

6.2 Maintenance and Monitoring Plan

A five-year maintenance and monitoring plan is proposed to ensure and document the plan meets performance standards.

Goals

- 1) Within the proposed mitigation areas, establish dense native vegetation that is appropriate to the eco-region and site.
- 2) Where indicated on the plan, planted mitigation areas will remain substantially vegetated with a preponderance of native plants and will contain little invasive or noxious weed cover.
- 3) Increase habitat cover, refuge and food resources for herptiles, small mammals, and invertebrates. In addition to cover and food resources, provide perching habitat for native birds.

Performance Standards

The standards listed below will be used to judge the success of the installation over time. If performance standards are met at the end of Year 5, the site will

then be deemed successful and the performance security bond will be eligible for release by the City of Bellevue.

- 1) Survival: Achieve 100% survival of installed plants by the end of Year 1. This standard can be met through plant establishment or through replanting as necessary to achieve the required numbers.
- 2) Species diversity: Establish at least three native woody species by Year 3 and maintain this diversity through Year 5. Native volunteer species may count towards this standard.
- 3) Native cover:
 - a. Within tree and shrub- planted areas, achieve 40% cover of native trees and shrubs by Year 2. Native volunteer species may count towards this cover standard.
 - b. Within tree and shrub planted areas, achieve 60% cover of native trees and shrubs by Year 3. Native volunteer species may count towards this cover standard.
- 4) Invasive cover: Aerial cover for all non-native, invasive and noxious weeds will not exceed 10% at any year during the monitoring period. Invasive plants include Himalayan blackberry (*Rubus armeniacus*), cut leaf blackberry (*Rubus laciniatus*), cherry (hedge) laurel (*Prunus laurocerasus*), purple loosestrife (*Lythrum salicaria*), yellow-flag iris (*Iris pseudacorus*), reed canarygrass (*Phalaris arundinacea*), morning glory/bindweed (*Convolvulus arvensis*), English holly (*Ilex aquifolium*), and ivy species (*Hedera* spp.).

Monitoring Methods

This monitoring program is designed to track the success of the mitigation site over time and to measure the degree to which it is meeting the performance standards outlined in the preceding section.

An as-built plan will be prepared by the **restoration professional** (Watershed Company [(425) 822-5242] personnel, or other persons qualified to evaluate environmental restoration projects) prior to the beginning of the monitoring period. The as-built plan will be a mark-up of the planting plans included in this plan set. The as-built plan will document any departures in plant placement or other components from the proposed plan.

Monitoring will take place once annually in the fall for five years. Year 1 monitoring will commence in the first fall subsequent to successful installation as documented in the as-built plan.

The formal monitoring visit shall record and report the following in an annual report submitted to the City of Bellevue:

- 1) Visual assessment of the overall site.
- 2) Year 1 counts of live and dead woody plants by species. Year 2 through Year 5 counts of established woody plants by species.
- 3) Counts of dead plants where mortality is significant in any monitoring year.
- 4) Estimate of native woody species cover.
- 5) Estimate of non-native, invasive weed cover.
- 6) Tabulation of established native species, including both planted and volunteer species.
- 7) Photographic documentation from at least three fixed reference points.
- 8) Any intrusions into or clearing of the planting areas, vandalism, or other actions that impair the intended functions of the mitigation area.
- 9) Recommendations for maintenance or repair of any portion of the mitigation area.

Construction Notes and Specifications

Note: specifications for items in **bold** can be found below under “Material Specifications and Definitions.”

Note: The Watershed Company [(425) 822-5242] personnel, or other persons qualified to evaluate environmental restoration projects, will monitor:

- 1) All site preparation
 - a) Soil preparation.
 - b) Mulch placement.
- 2) Plant material inspection
 - a) Plant material delivery inspection.
 - b) 100% plant installation inspection.

General Work Sequence

- 1) All plant installation is to take place during the dormant season (October 15th – December 15th) for best survival.
- 2) For all areas to be planted, install a four-inch depth of fine vegetable compost, Cedar Grove or approved equal. Rototill into soil to a depth of 12 inches.
- 3) Prepare a planting pit for each plant and install per the planting details.

- 4) Mulch the entire planted area with **organic landscape mulch**, four inches thick.

Material Specifications and Definitions

- 1) **Fertilizer:** Slow release, granular PHOSPHORUS-FREE fertilizer. Follow manufacturer's instructions for application. Apply fertilizer at rates recommended by soil test. Keep fertilizer in a weather-tight container while on site. Within mitigation area, fertilizer is to be applied only in Years 2 through 5 and not in the first year.
- 2) **Restoration Professional:** The Watershed Company [(425) 822-5242] personnel, or other persons qualified to evaluate environmental restoration projects.
- 3) **Organic landscape mulch:** Organic landscape mulch shall consist of bark or wood chips from 100% native species. Mulch texture shall be fine to medium, ground or chipped, and shall meet the following texture requirements:

Sieve Size	Ground Mulch	Chipped Mulch
3"	100%	100%
2"	100%	95-100%
1"	100%	70-100%
5/8"	85-100%	0-50%
1/4"	75-100%	0-40%

Mulch must not contain appreciable quantities of garbage, plastic, metal, soil, and dimensional lumber or construction/demolition debris. Final mulch product meeting the specifications above will be submitted for owner approval.

- 4) **Compost:** Compost shall be certified in compliance with U.S. Composting Council Seal of Testing Assurance (STA) program and must be the result of biological degradation of recycled plant materials, under controlled conditions designed to promote aerobic decomposition, per WAC 173-350-220. Physical contaminants, defined in WAC 173-330 (plastic, concrete, ceramics, metal, dimensional lumber ect.) shall be less than 0.5 percent by weight as determined by TMWXX03.08-A "Classification of Inerts by Sieve Sizes". Plastic film shall be less than 0.1 percent by weight.

Contingencies

If there is a significant problem with the mitigation areas meeting performance standards, a contingency plan will be developed and implemented. Contingency plans can include, but are not limited to: soil amendment; additional plant installation; and plant substitutions of type, size, quantity and location.

Maintenance

The site will be maintained in accordance with the following instructions for three years following completion of the construction.

- 1) Follow the recommendations noted in the previous monitoring site visit.
- 2) General weeding for all planted areas:
 - a. At least twice yearly, remove all competing weeds and weed roots from beneath each installed plant and any desirable volunteer vegetation to a distance of 18 inches from the main plant stem. Weeding should occur at least twice during the spring and summer. Frequent weeding will result in lower mortality, lower plant replacement costs, and increased likelihood that the plan meets performance standards by Year 5.
 - b. More frequent weeding may be necessary depending on weed conditions that develop after plan installation.
 - c. Do not weed the area near the plant bases with string trimmer (weed whacker/weed eater). Native plants are easily damaged or killed, and weeds easily recover after trimming.
 - d. Selective applications of herbicide may be needed to control invasive weeds, especially when intermixed with native species. Herbicide application, when necessary, shall be conducted only by a state-licensed applicator. Use only herbicide formulations approved for aquatic areas.
- 3) Apply slow release granular fertilizer to each installed plant annually in the spring (by June 1) of Years 2 through 5. Do not apply fertilizer to inundated or ponded areas or lakeshore areas that may become inundated.
- 4) Replace mulch as necessary to maintain a 4-inch-thick layer, retain soil moisture, and limit weeds.
- 5) Replace each plant found dead in the first summer monitoring visit during the upcoming fall dormant season (October 15th – December 15th).
- 6) The homeowner will ensure that water is provided for the entire planted area with a minimum of 1 inch of water provided per week from June 1 through September 30 for the first two years following installation. Less water is needed during March, April, May and October.

7 SUMMARY

The proposed residential alterations will occur within the shoreline structure setback and shoreline buffer. A net increase of 38 square feet of new hardscape

surfaces are proposed within the setback and a total of 30 square feet of new hardscape surface will be located within the shoreline buffer. Additionally, an increase of 344 square feet of pervious deck is proposed within the shoreline structure setback. To offset the proposed encroachments, a mitigation plan is proposed. Improvements will result in the addition of 500 square feet of native plantings within the buffer and structure setback. Potential species list includes mountain hemlock, shore pine, red flowering currant, nootka rose, cascade mahonia, evergreen huckleberry, tufted hairgrass, kinnikinnick, dull mahonia, coastal strawberry, and salal.

The planting layout incorporates a diversity of native plant species. The mitigation plan will provide significantly better protection of those critical area functions and values than would be provided by the standard application of the critical area regulations. Therefore, an overall net gain in critical area buffer functions and values is proposed.

APPENDIX A

Mitigation Plan

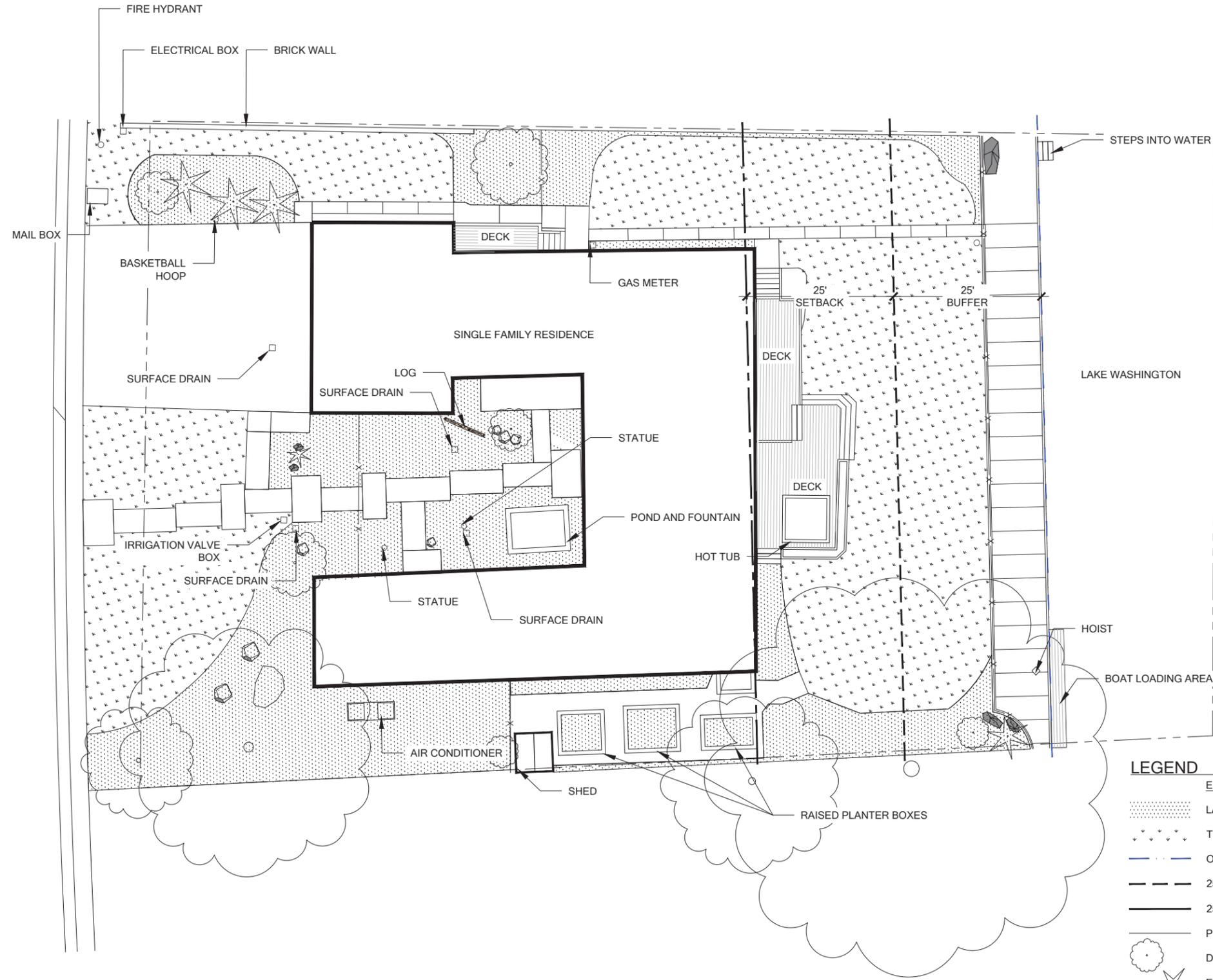
THE PATRICK RESIDENCE



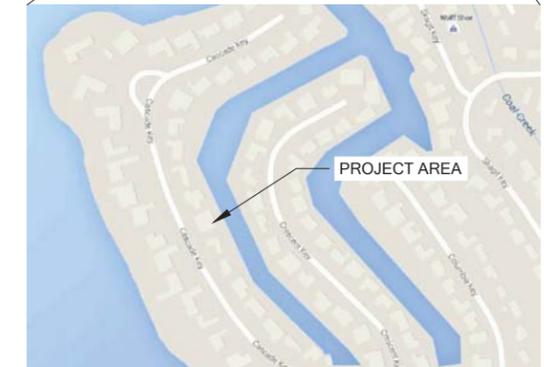
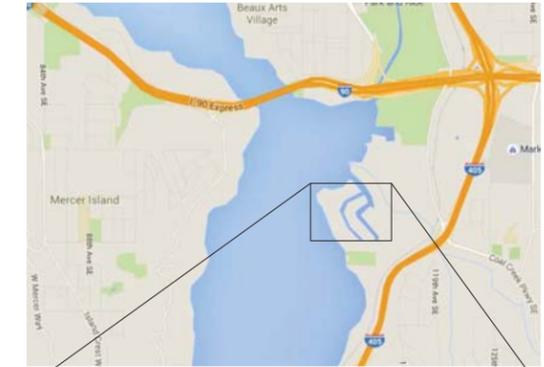
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Science & Design



EXISTING CONDITIONS



VICINITY MAPS

LEGEND

- EXISTING FEATURES
- LANDSCAPE BED
- TURF
- OHWM (AT FACE OF BULKHEAD)
- 25' SHORELINE BUFFER
- 25' SHORELINE SETBACK
- PROPERTY LINE
- DECIDUOUS TREE
- EVERGREEN TREE

SHEET INDEX

- 1 EXISTING CONDITIONS
- 2 PROPOSED SITE PLAN
- 3 IMPACT ASSESSMENT AND MITIGATION PLAN
- 4 MITIGATION AND RESTORATION NOTES
- 5 PLANT INSTALLATION DETAILS AND NOTES

NOTES

1. NO SURVEY RECEIVED. ALL EXISTING SITE FEATURES ARE APPROXIMATE.

PERMIT SET

NOT FOR
CONTRACTOR
BIDDING

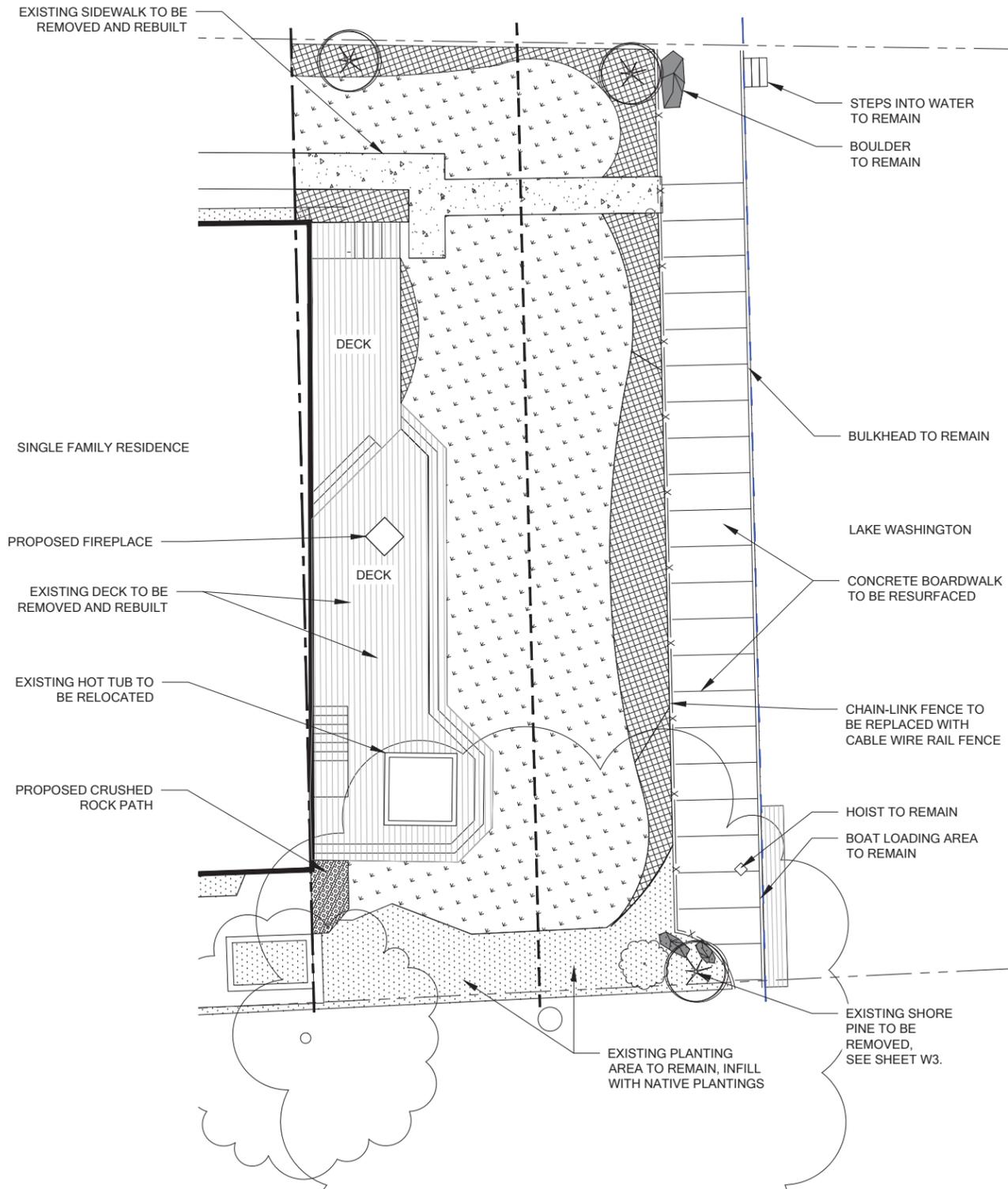


PATRICK RESIDENCE
LANDSCAPE PLAN
PREPARED FOR TODD AND ROANNE PATRICK
PARCEL #6072800205
79 CASCADE KEY
BELLEVUE, WA 98006

SUBMITTALS & REVISIONS	
NO.	DESCRIPTION
1	REVIEW SET
2	PERMIT SET

SHEET SIZE:
ORIGINAL PLAN IS 22" x 34".
SCALE ACCORDINGLY.

PROJECT MANAGER: AR
DESIGNED: LV / AR
DRAFTED: LV
CHECKED: AR / KB
JOB NUMBER:
160318
SHEET NUMBER:
W1 OF 5



LEGEND

PROPOSED FEATURES

-  LANDSCAPE BED (540 SF)
-  TURF (2,097 SF)
-  TREE (3 EA)
-  DECK (941 SF)
-  CONCRETE WALK (193 SF)
(WITHIN SHORELINE BUFFER = 63 SF)
(WITHIN SHORELINE SETBACK = 130 SF)
-  CRUSHED ROCK PATH
(WITHIN SHORELINE SETBACK = 30 SF)

CANDIDATE PLANT LIST

TREES

- CORNUS NUTTALLII 'EDDIE'S WHITE WONDER' / EDDIE'S WHITE WONDER DOGWOOD
- PINUS CONTORTA / SHORE PINE
- TSUGA MERTENSIANA / MOUNTAIN HEMLOCK

SHRUBS

- MAHONIA NERVOSA / CASCADE MAHONIA
- RIBES SANGUINEUM / RED-FLOWERING CURRANT
- ROSA NUTKANA / NOOTKA ROSE
- SYMPHORICARPOS ALBUS / SNOWBERRY
- VACCINIUM OVALIFOLIUM / OVAL-LEAF BLUEBERRY
- VACCINIUM OVATUM / EVERGREEN HUCKLEBERRY

GROUNDCOVER & PERENNIAL MIX

- ARCTOSTAPHYLOS UVA-URSI / KINNIKINNICK
- ARMERIA MARITIMA / SEA THRIFT
- BLECHNUM SPICANT / DEER FERN
- DESCHAMPSIA CESPITOSA / TUFTED HAIRGRASS
- ERYTHRONIUM OREGONUM / OREGON FAWN-LILY
- FRAGARIA CHILOENSIS / COASTAL STRAWBERRY
- GAULTHERIA SHALLON / SALAL
- IRIS TENAX / OREGON IRIS
- OXALIS OREGANA / WOOD SORREL
- POLYSTICHUM MUNITUM / WESTERN SWORDFERN
- XEROPHYLLUM TENAX / BEARGRASS

LAWN

PATRICK RESIDENCE
LANDSCAPE PLAN
PREPARED FOR TODD AND ROANNE PATRICK
PARCEL #6072800205
79 CASCADE KEY
BELLEVUE, WA 98006

SUBMITTALS & REVISIONS		NO.	DATE	DESCRIPTION	BY
1	06-10-16	REVIEW SET	LV		
2	06-29-16	PERMIT SET	LV		

SHEET SIZE:
ORIGINAL PLAN IS 22" x 34".
SCALE ACCORDINGLY.

PROJECT MANAGER: AR
DESIGNED: LV / AR
DRAFTED: LV
CHECKED: AR / KB
JOB NUMBER: 160318

SHEET NUMBER:
W2 OF 5

PERMIT SET
NOT FOR CONTRACTOR BIDDING

PROPOSED SITE PLAN



