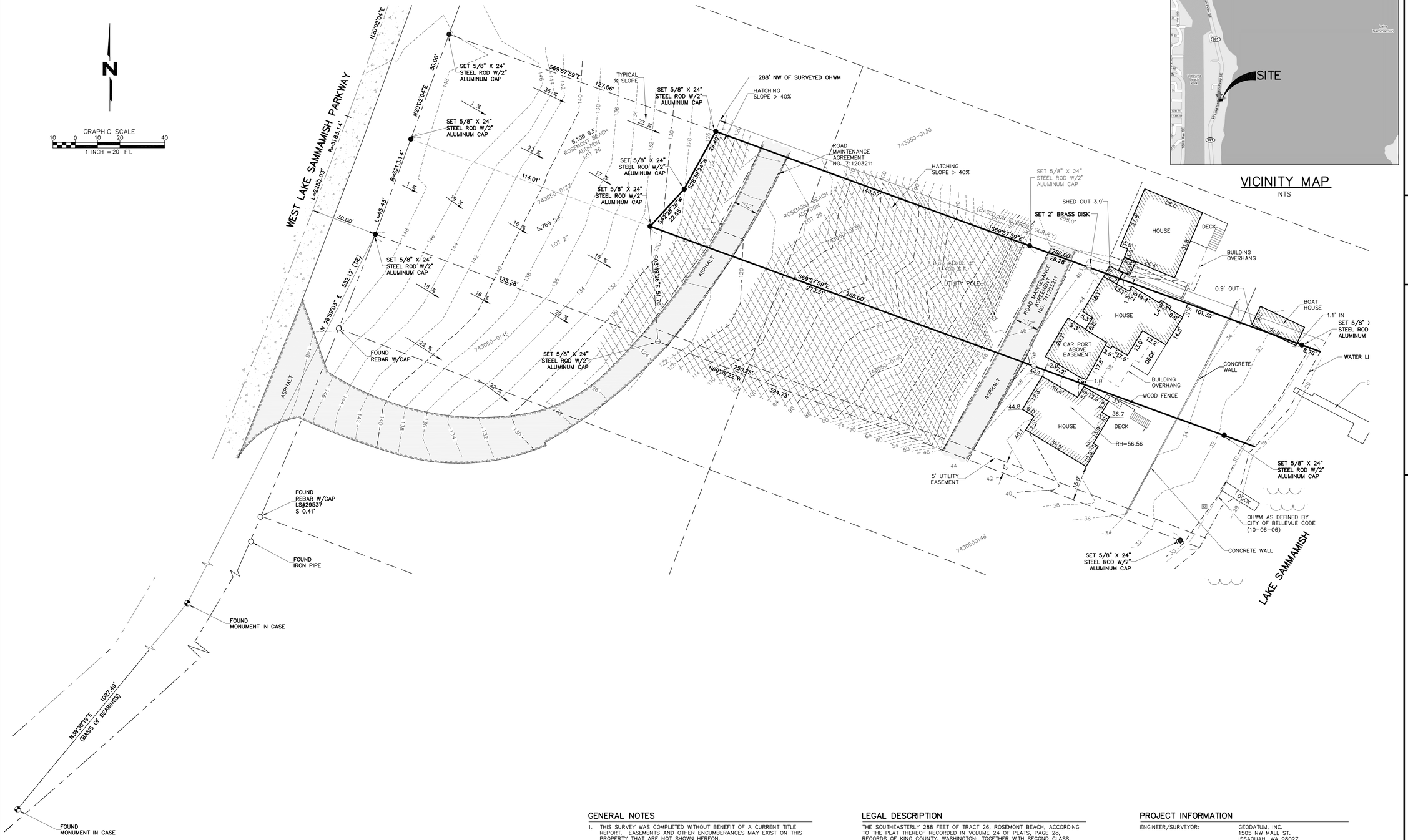
Lakeridge
Estates
Open
Space
185TH AVE NE
187TH AVE NE
W LAKE SAMMAMISH PKWY NE
MALLARD LN

SE 1/4, NW 1/4, SEC 30, TWN 25N, RGE 6E, W.M.



VERTICAL DATUM & CONTOUR INTERVAL

DATUM

ELEVATIONS SHOWN ON THIS DRAWING ARE WERE DERIVED FROM ELEVATION DATA PROVIDED BY THE CITY OF BELLEVUE.

CITY BENCHMARK 10' E/P WEST LAKE SAMMAMISH BOULEVARD NE 1200' NORTH OF 513 NEAR LARGE BOULDER.

CONCRETE MONUMENT W/CITY OF BELLEVUE BRASS CAP STAMPED "H514" & "V493" IN CASE, ELEVATION=150.68' (NAVD 88)

2.0' CONTOUR INTERVAL – THE EXPECTED VERTICAL ACCURACY IS EQUAL TO 1/2 THE CONTOUR INTERVAL OR PLUS / MINUS 1.0' FOR THIS PROJECT.

GENERAL NOTES

1. THIS SURVEY WAS COMPLETED WITHOUT BENEFIT OF A CURRENT TITLE REPORT. EASEMENTS AND OTHER ENCUMBERANCES MAY EXIST ON THIS PROPERTY THAT ARE NOT SHOWN HEREON.
2. INSTRUMENTATION FOR THIS SURVEY WAS A 3-SECOND NIKON NPL 352 TOTAL STATION. PROCEDURES USED IN THIS SURVEY MEET OR EXCEED STANDARDS SET BY WAC 332-130-090.
3. THE INFORMATION ON THIS MAP REPRESENTS THE RESULTS OF A SURVEY MADE IN OCTOBER 2007 AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME.
4. UTILITIES SHOWN ON THIS SURVEY ARE BASED UPON ABOVE GROUND OBSERVATIONS AND AS-BUILT PLANS WHERE AVAILABLE. ACTUAL LOCATIONS OF UNDERGROUND UTILITIES MAY VARY AND UTILITIES NOT SHOWN ON THIS SURVEY MAY EXIST ON THIS SITE.
5. ALL MONUMENTS WERE LOCATED DURING THIS SURVEY UNLESS OTHERWISE NOTED.
6. OHWM=ORDINARY HIGH WATER MARK

LEGAL DESCRIPTION

THE SOUTHEASTERLY 288 FEET OF TRACT 26, ROSEMONT BEACH, ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 24 OF PLATS, PAGE 28, RECORDS OF KING COUNTY, WASHINGTON; TOGETHER WITH SECOND CLASS SHORE LANDS ADJACENT.

SITUATE IN THE CITY OF BELLEVUE, COUNTY OF KING, STATE OF WASHINGTON.

BASIS OF BEARINGS

THE BLA-95-365, AS PER AUDITOR'S NO. 9602269001, RECORDED IN VOLUME 107 OF PLATS ON PAGE 293, CITY OF BELLEVUE, RECORDS OF KING COUNTY, WASHINGTON ACCEPTED THE PLAT BEARING OF N39°30'19"E FOR WEST LAKE SAMMAMISH PARKWAY BASED ON FOUND MONUMENTS IN CASE.

PROJECT INFORMATION

ENGINEER/SURVEYOR:	GEODATUM, INC. 1505 NW MALL ST. ISSAQUAH, WA 98027 PHONE: 425 837 8083 CELL 206-218-4707 FAX 425 837 0583
PROPERTY OWNER:	CAMPBELL MARSHALL 1604 W. LAKE SAMMAMISH PKWY NE BELLEVUE, WA 98008
TAX PARCEL NUMBER:	743050-0135
PROJECT ADDRESS:	1604 W. LK. SAMMAMISH PKWY. NE BELLEVUE, WA 98008
ZONING:	R2.5
PARCEL ACREAGE:	LOT 26 14,400 S.F. (0.33 ACRES ±) AS SURVEYED TO O.H.W.M.

www.geodatum.com
GeoDatum
SURVEY-CIVIL-STRUCTURAL
1505 NW Mall Street
Issaquah, WA 98027
(425) 837-8083

WOLDENDORP BOGANSKI AND THOMAS, INC. WASHINGTON STATE REGISTERED PROFESSIONAL ENGINEER

DATE	REVISION	APR

TOPOGRAPHIC SURVEY

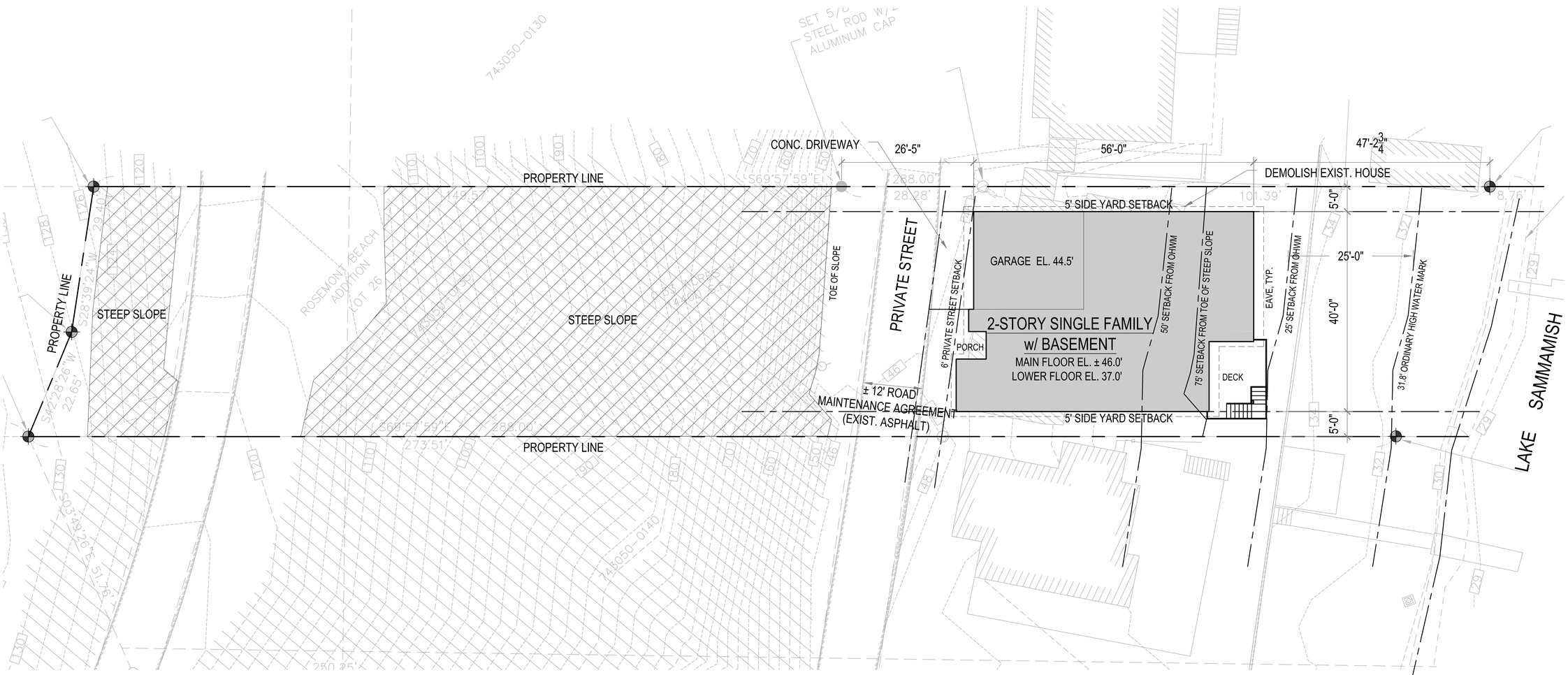
JOHN STRONG

1604 W. LAKE SAMMAMISH PARKWAY NE
BELLEVUE, WA 98006

© 2007, GEODATUM, INC., ALL RIGHTS RESERVED

DRAFTER: MJP
DESIGNER:
PROJ. ENGR./SURV.: TNW
DATE: 10-12-07
PROJECT NO.: 07596
SHEET 1 OF 1

P:\07596\dwg\2\prel\01-2797596.dwg 10/12/2007 11:35:46 AM EDT



SITE PLAN

SCALE: 1" = 10'-0"

LEGAL DESCRIPTION

THE SOUTHEASTERLY 288 FEET OF TRACT 26, ROSEMONT BEACH, ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 24 OF PLATS, PAGE 28, RECORDS OF KING COUNTY, WASHINGTON; TOGETHER WITH SECOND CLASS SHORE LANDS ADJACENT.

PROJECT INFORMATION

ZONING DTSTRICT	R-2.5
PROPERTY OWNER	JOHN STRONG
PARCEL NUMBER	743050-0135
LOT AREA	14,400 S.F.
STEEP SLOPE AREA	5,425 S.F.
NET LOT AREA	8,975 S.F.
OCCUPANCY CLASSIFICATION	R-3 / U
CONSTRUCTION TYPE	V-B

STRUCTURAL LOT COVERAGE

MAX. LOT COVERAGE FOR STRUCTURE	35%
BUILDING FOOTPRINT	2,142 S.F.
FRONT PORCH	50 S.F.
REAR DECK	178 S.F.
TOTAL STRUCTURAL AREA	2,370 S.F.
STRUCTURAL LOT COVERAGE	26.4 % (OK!)

IMPERVIOUS SURFACE COVERAGE

MAX. IMPERVIOUS SURFACE AREA	50%
STRUCTURAL AREA	2,370 S.F.
EAVES OVER PERVIOUS AREA	321 S.F.
PRIVATE STREET	608 S.F.
CONC. DRIVEWAY	104 S.F.
TOTAL IMPERVIOUS AREA	3,403 S.F.
IMPERVIOUS SURFACE COVERAGE	37.9 % (OK!)

CHC ARCHITECTS
12220 108th CT NE A111
KIRKLAND WA 98034
(M) 425.785.3992
(O) 425.285.9855
cchang03@yahoo.com

STRONG RESIDENCE

1604 WEST LAKE SAMMAMISH PKWY NE BELLEVUE WA 98008

NUMBER	DATE	DESCRIPTION OF REVISIONS
	07-28-2014	CRITICAL AREA LAND USE PERMIT

SHEET TITLE

SITE PLAN

JOB NUMBER

SHEET NUMBER

A1

CRITICAL AREAS REPORT
SHORELINE FUNCTIONS EVALUATION
FLOODPLAIN FUNCTIONS EVALUATION

Strong Residential Property Redevelopment

1604 West Lake Sammamish Parkway NE
Bellevue, Washington

Prepared by:
Cedarock Consultants, Inc.
19609 244th Avenue NE
Woodinville, Washington 98077

Prepared for:
John and Yan Strong
1604 W Lake Sammamish Pkwy NE
Bellevue, Washington 98006

September XX, 2014

TABLE OF CONTENTS

Page

1.0 INTRODUCTION 1
1.1 Project Description 1
1.2 Purpose of this Report 1
1.3 Report Author 2
2.0 EXISTING CONDITIONS 2
2.1 Lake Sammamish 3
2.2 Streams 4
2.3 Wetlands 4
2.4 Geologic Hazard Areas 4
2.5 Species of Local Importance 4
2.6 Flood Hazard Areas 5
3.0 EFFECTS OF THE PROPOSED ACTION ON SHORELINE FUNCTIONS 5
3.1 Water Quality 8
3.2 Water Quantity 8
3.3 Beneficial Nutrients 8
3.4 Microclimate 8
3.5 Temperature & Shade 9
3.6 Human Access Control 9
3.7 Woody Debris 9
3.8 Bank Stability 9
3.9 Shoreline Function Conclusion 9
4.0 PROJECT EFFECTS ON CRITICAL AREAS 10
4.1 Streams and Lakes 10
4.2 Wetlands 10
4.3 Shorelines 10
4.4 Steep Slopes 10
4.5 Species of Local Importance 10
4.6 Flood Hazard Areas 11
4.7 Critical Areas Effects Summary 11
5.0 EFFECTS OF THE PROPOSED ACTION ON FLOODPLAIN HABITAT 12
6.0 MITIGATION 12
6.1 Impact Avoidance 12
6.2 Impact Minimization 12
6.3 Compensatory Mitigation 13
7.0 MAINTENANCE 13
8.0 MONITORING 13
APPENDICES 15

Page

LIST OF TABLES

Table 1. Standard Lake Shoreline Buffer Functions and Analysis of Change 7
Table 2. Critical Area Impacts 11

LIST OF FIGURES

Figure 1. Strong property on Lake Sammamish 2
Figure 2. Shoreline conditions below (left) and above (right) retaining wall (August 2014) 3

APPENDICES

A) Mitigation planting plan

1.0 INTRODUCTION

1.1 Project Description

An existing home located at 1604 West Lake Sammamish Parkway NE (Figure 1) will be razed and replaced with an all new structure. The new structure will be located outside of the 25-foot Lake Sammamish buffer, and landward of an existing, legally established retaining wall. The base of the retaining wall is situated at and above the 34-foot elevation level. The top of the retaining wall is slightly above 36 feet. All proposed work will be approximately 5-feet and higher above the ordinary high water mark (OHWM) of 31.8 feet elevation used by the City of Bellevue as a regulatory line from which to measure buffers for Lake Sammamish. Disturbance due to excavation for the new foundation will temporarily affect 150 square feet (sq.ft.) of land within the Lake Sammamish buffer and floodplain, but there will be no permanent change in buffer quality or flood storage volume. Both the existing and new homes are located entirely within the Shoreline Management Area (SMA). There is no developable land on the lot that is not within the SMA. No native vegetation will be disturbed and no other critical areas or habitat will be affected by the proposed action.

Under the proposed action, there will be no net change in the developed area footprint on the site. The house footprint will be somewhat larger but will occur at the expense of existing concrete walkways, lawn, and planter boxes. The area of natural vegetation within the Lake Sammamish buffer and Shoreline Area will increase by 24 percent and by 5 percent respectively due to new mitigation plantings that are proposed. Some disturbance (as yet unquantified) will occur within the 100-year floodplain (below elevation 36.6). Compensatory excavation (if necessary) will be provided to balance the cut and fill volumes as needed to produce a zero net rise in floodplain elevations.

Temporary grading impacts during construction will affect 150 sq.ft. of land within the Lake Sammamish buffer and floodplain. These areas currently consist of lawn and concrete patio. Temporal effects will be mitigated by restoring the floodplain so that there is no net change in flood storage volume, and planting new native plants within the buffer at a 2:1 ratio with impacted area. A total of 300 sq.ft. of new native trees, shrubs, and groundcovers will be added waterward of the retaining wall in an area of the existing beach currently covered with gravel, landscaping rock, and weeds.

1.2 Purpose of this Report

This report was prepared for following purposes:

1. To evaluate environmental effects of the proposed redevelopment on environmental functions within the Lake Sammamish Shoreline environment;
2. To evaluate environmental effects of the proposed redevelopment on Critical Areas, and;

3. To evaluate environmental effects of the proposed redevelopment on floodplain habitat.

1.3 Report Author

This report was prepared by Carl Hadley, a professional fisheries biologist with over 20 years of experience in western Washington.

Figure 1. Strong property on Lake Sammamish.

2.0 EXISTING CONDITIONS

This section provides a description of shoreline habitat and critical areas on the affected site under existing conditions. Critical areas within 300-feet of the work area include Lake Sammamish, the lake's riparian buffer, steep slopes in excess of 40 percent, and habitat associated with species of local importance (Figure 1). Adjoining properties also include similar critical areas including Lake Sammamish and continuation of the steep slopes.

2.1 Lake Sammamish

A survey of Lake Sammamish in the vicinity of the work area survey was conducted on the morning of August 25, 2014 by a professional biologist. The Strong property and adjoining properties are highly modified including houses, retaining walls, docks, slope modifications and landscaping. A dock, two steel rails, and the end of a concrete walkway extend waterward of the OHWM on the Strong property.

Lake Sammamish is a shoreline of the state (classified as a Type S water under the Bellevue land use code LUC 20.25H.075.B.1). The lake in this area consists of open water that continues uninterrupted offshore for a half mile and more. The gravel dominated substrate drops off slowly to about 8 feet within 50 feet from shore. The property is located in an area subject to high wave action during storm events. The southeast facing shoreline of Lake Sammamish on which the property is located has a fetch of between 3 and 4 miles of open water to the south. Because prevailing storm winds come from the south and southeast, the waves that build up during peak events can exceed 3-feet, with a 2-foot wave not unusual. In addition to the waves, storm surges (seiches) sometimes occur when strong winds cause water to pile up at the north end of the lake. This can raise the water surface elevation by a foot or more.

A concrete retaining wall located two or more feet in elevation above the OHWM extends across the property and ranges from two to three feet in height above the beach (Figure 2). The landscape below the retaining wall consists primarily of a gravel beach sloped gently down into the water. There are no plants within this area with the exception of some weedy grasses and small forbs located below OHW. An elevated lava rock-covered terrace exists on the south side adjacent to the wall and is protected by small river rocks. A 3-foot wide concrete path leads from a staircase, across the beach, and down into the water. An older wooden dock and two steel rails provide boat access to the lake.

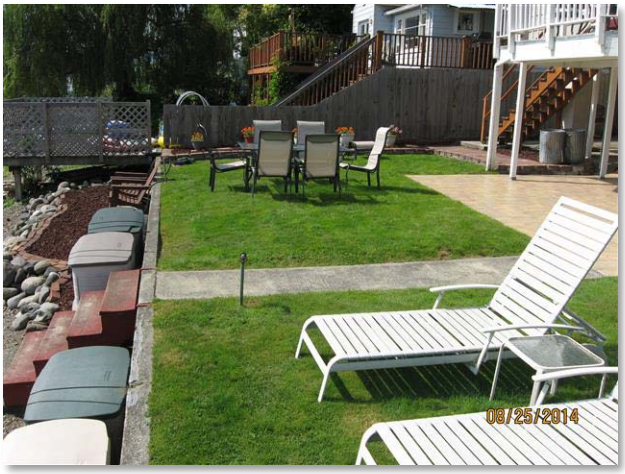


Figure 2. Shoreline conditions below (left) and above (right) retaining wall (August 2014).

The remainder of the Lake Sammamish buffer upland of the retaining wall consists of a small lawn (Figure 2) and a three foot-wide at-grade concrete walkway. The lawn and a concrete patio area lie within the 100-year floodplain. The existing house extends from the lawn/patio back about 50 feet to the access road. A well-vegetated steep slope extends from the road past the limits of the Shoreline Management Area (Figure 1).

Lake Sammamish has documented fall Chinook, coho, sockeye, and winter steelhead presence. Resident cutthroat trout and various warmwater fish species are also known to use Lake Sammamish year-round. No spawning has been observed within or near the project site but adult salmon migrate through Lake Sammamish to spawning habitat in Issaquah Creek and other tributaries feeding the lake. Juvenile salmon migrate past the site on their journey to Puget Sound. Chinook and steelhead are protected under the federal Endangered Species Act.

2.2 Streams

No watercourses were observed on or near the property. Local and state databases indicate a few minor non-fish-bearing watercourses are somewhere nearby but were probably incorporated into underground conveyances at sometime in the past.

2.3 Wetlands

A cursory examination of the property and a review of public records found no evidence of wetlands on the site. No seeps or wetland plants were noted.

2.4 Geologic Hazard Areas

The property is located on a southeast facing slope immediately adjacent to Lake Sammamish. Starting at OHW, the ground has an average 12 percent slope for the first 120-feet. It is on this part of the property in which the house and access road are located. The toe of a much steeper slope starts at the access road and continues approximately 100-feet to the west. The steep slope averages about 60 percent but has one short segment of about 12 feet that rises about 20 feet (170 percent).

2.5 Species of Local Importance

The wildlife habitat review consisted of a site-specific survey and consultation with the Washington Department of Fish and Wildlife database[1]. The site and surrounding lands have been developed mostly as high-density single-unit residential housing. Although some suitable wildlife habitat for terrestrial and avian species is found in the area, it has all been significantly modified by past clearing, fragmentation, and introduction of non-native landscaping species (e.g. English ivy). Species that may be expected to be found intermittently on this site are deer, coyote, Douglas and eastern grey squirrels, other assorted rodent species, raptors, woodpeckers, and song birds. There are many moderate to large conifer and deciduous trees suitable for red-tailed hawk or owl perching on the property. All of these trees are located on

[1] Washington Department of Fish and Wildlife. 2014. Priority habitat and species map.

the steep slope portion of the property. No nesting activity by sensitive species is known to have occurred in the recent past. Larger trees in the area may provide short-term perching sites for bald eagles, but none of these are known to be critical nesting or roosting habitat sites (WDFW 2014). No terrestrial wildlife species listed by the U.S. Fish and Wildlife Service, Washington Department of Fish and Wildlife, King County, or City of Bellevue as threatened, endangered, sensitive, critical, or candidate are expected to utilize habitats found on this property.

Chinook and coho salmon are found in Lake Sammamish. Additional description of aquatic species and habitat is provided in Section 2.1.

2.6 Flood Hazard Areas

Land subject to a one-hundred-year flood is present on the property below elevation 36.6 feet. This includes a small strip of land that extends above the existing retaining wall and up very close to the existing house. The floodplain area currently consists of managed lawn and concrete above the retaining wall, and the sand/gravel beach below the retaining wall.

3.0 EFFECTS OF THE PROPOSED ACTION ON SHORELINE FUNCTIONS

The effect of the proposed action on shoreline ecological functions is discussed in this section. Standard shoreline ecological functions include water quality improvements, bank protection, organic material source, and wildlife habitat. Each of these functions is reviewed below for both the pre- and post-redevelopment condition.

In shoreline areas the standard for protection is “no net loss”. No net loss means that, following an action, shoreline ecological functions necessary to sustain shoreline natural resources are equivalent to or greater than ecological functions immediately prior to the action. As noted in Ecology guidelines for the Shoreline Management Act, the “no net loss” standard focuses on shoreline ecological functions “as they currently exist”[2]. In this case “as they currently exist” refers to the conditions with the existing house, landscaped yard, patio, dock, retaining wall, and lack of native vegetation anywhere within 120 feet of Lake Sammamish. No net loss does not compare to theoretical, perfect, or undisturbed conditions as may have occurred before the area was developed.

Shoreline habitat in its natural condition performs many functions essential to fish survival and productivity. Vegetation in riparian areas can provide shade and helps maintain cool water temperatures needed by most fish native to the Pacific Northwest. Plant roots stabilize banks, help control erosion and sedimentation, and can offer refuge habitat for juvenile fish. Vegetation creates overhanging cover for fish. Where present, trees and shrubs contribute leaves, twigs, and insects to waterbodies, thereby providing basic food and nutrients that

[2] *See* WAC 173-26-201(2)(c) (no net loss focuses on sustaining “existing shoreline natural resources” and protecting shoreline resources “as they currently exist”).

support fish and aquatic wildlife. Large trees that fall can create refuge habitat needed by small fish for cover and protection from predators. Riparian vegetation, litter layers, and soils filter incoming sediments and pollutants, thereby assisting in the maintenance of high water quality needed for healthy fish populations[3].

Primary ecological functions provided within the Lake Sammamish shoreline on the project site are described below along with an evaluation of the project impact. Shoreline functions and values are based on WDFW guidelines[4] and other best available science[5]. The discussion is summarized in Table 1.

Existing conditions on the subject property consists of a moderately sloped gravel beach (Figure 2), a moderately sloped terrace on which the existing house, residential landscaping, and access road are located, and a steep slope which has been left in a relatively natural forested condition. There are large trees on the site, all of which are located on the steep slope greater than 120 feet from the lake. No native trees or shrubs are present within 50 feet of the lake on the project site. Vegetation near the shoreline consists of exotic annual and perennial grasses and forbs, the extent of which varies from year to year.

The Lake Sammamish shoreline area is currently developed with a primary structure, deck, carport, access road, concrete retaining wall, sidewalk, raised gravel seating area, and lawn. The rest consists of graveled beach and forestland. The replacement structure will lie entirely within previously developed areas of the lot and will not affect any of the graveled beach or forestland. No vegetation with the exception of managed lawn and areas currently maintained as residential landscaping will be eliminated with expansion of the house. Proposed mitigation will add 300 sq.ft. of new native landscaping within the shoreline area near OHW. This will have a small beneficial effect on habitat quality in the area.

[3] Knutson, K. L. and V. L. Naef. 1997. Management recommendations for Washington's priority habitats: riparian. Washington Department of Fish and Wildlife, Olympia, WA. 181p.

[4] Ibid.

[5] For example, see Citations of Recommended Sources of Best Available Science for Designating and Protecting Critical Areas. 2002. Washington State Office of Community Development, Olympia, WA. and City of Bellevue's 2005 Best Available Science (BAS) Review (Herrera 2005).

Table 1. Standard Lake Shoreline Buffer Functions and Analysis of Change

Buffer Function	Description of Function	Current Buffer Function	Buffer Function After Re-Development
Shade	The ability to help maintain low water temperatures and create a cool and humid microclimate.	**Non-existent** for the project site due to a lack of vegetation (trees and shrubs) overhanging or adjacent to Lake Sammamish.	**No change**
Beneficial Nutrient Sources	The ability to provide food resources to the Lake in the form of leaf litter, vegetative matter, and terrestrial insects.	**Low to non-existent** for the project site due to a scarcity of native vegetation within more than 120-feet of Lake Sammamish.	**Beneficial Effect** - 300-square feet of new native landscaping waterward of the retaining wall will increase nutrients.
Woody Debris Recruitment	The ability to provide large woody debris to Lake Sammamish.	**Non-existent** for the project site due to a lack of potential recruitment trees near the lake.	**Beneficial Effect** –two new trees will be planted near OHW as part of the mitigation proposal.
Sediment and Pollutant Control	The ability to physically filter sediments, chemicals, and nutrients.	**Low due** to a lack of native vegetation and little surface water running off of, or across the site.	**No change**
Bank Stability and Sediment Recruitment	The ability to maintain bank stability and prevent increased erosion along the shoreline of Lake Sammamish.	**Low** due to entirely developed shoreline with armoring needed to protect residences from wave action.	**No change**
Human Access Control	The ability to reduce or eliminate human disturbance along a sensitive shoreline.	**None.** Access control is not an issue for this private property.	**No change**
Wildlife Habitat Suitability	The ability to provide habitat for upland mammals and avian species within the riparian corridor.	**Low to moderate** for the project site. Poor habitat near lake, but northwest half of property is natural forest with moderate wildlife function.	**Beneficial Effect** - 300-square feet of new native landscaping waterward of the retaining wall will increase wildlife forage habitat

Shoreline Buffer Function: The physical, chemical, and biological processes or attributes of the buffer.

3.1 Water Quality

Vegetation adjacent to a waterbody can improve water quality by filtering pollutants, removing nutrients, and preventing sediment introduction. The water quality function of the existing shoreline area is generally absent. While the beach area periodically contains grasses and forbs, vegetation for the most part is absent or sparse. The beach consists primarily of gravels and sands. These soils absorb some rainfall and surface water runoff coming from nearby slopes but wave action and rapid infiltration means that most water landing on the beach ends up in Lake Sammamish relatively quickly. Any foreign material such as silts and landscaping or roadway chemicals receive minor filtering action by the soils before water reaches the lake.

Re-developing the site will result in the removal of some of the managed lawn located near the lake. Replacement of the lawn with impervious surface may slightly improve the quality of runoff from the site assuming chemicals such as fertilizer or herbicides are used on the non-native grasses. Because the new impervious surface will consist of non-motorized traffic areas, future runoff is assumed to be clean. However, the overall effects are minor given the absence of significant runoff in the area.

3.2 Water Quantity

The project will result in a slight increase of impervious surface and no change in land use. Runoff volume from the site will be about the same. Water from the site drains directly to Lake Sammamish, a very large waterbody. The effect on water surface elevation and flow rate will be discountable.

3.3 Beneficial Nutrients

Native riparian buffers can be important to aquatic habitat productivity being the primary source of leaf litter and insects delivered to fish habitat. When present, overhanging vegetation contributes leaves, vegetative litter, and small woody debris directly to the waterbody.

No trees or shrubs will be removed under the proposed action. The applicant has proposed a native species revegetation effort for the lakefront area as mitigation for temporal impacts to the lake buffer. Native plants will be placed in the beach area between the retaining wall and OHW. A small increase in nutrient delivery will be provided in this area.

3.4 Microclimate

Riparian vegetation has the ability to protect waterbodies from climate changes caused by widespread development away from the water, including soil and air temperature, humidity, and wind. There is no direct link between microclimate and the condition of salmonid habitat, however, it has been suggested that microclimate needs protection to maintain desirable assemblages of plants and animal species, including insects, beneficial to fish.

Upon finishing the new structure, approximately 62 percent of the property will consist of pervious open space most of which will be naturally vegetated. The area is roughly the same as

under existing conditions. No native vegetation will be removed under the proposed action and additional planting will occur along the waterfront. The net effect will be to slightly increase the overall vegetative community on the property.

3.5 Temperature & Shade

No overhanging vegetation will be removed during re-development of the property. The amount of shade is not expected to decrease. No effect on water temperature in Lake Sammamish will occur.

3.6 Human Access Control

One function of buffers in populated areas can be reducing the direct encroachment of humans on the watercourse. This project will be conducted on private property where access control is not an issue.

3.7 Woody Debris

Large and small woody debris consists of downed tree stems and branches and is a functionally important structural component of watercourses and lakes in the Pacific Northwest.

No vegetation capable of supplying woody debris will be removed during re-development of the property. Two new trees will be planted near OHW and will, over time, slightly increase woody debris contribution to the lake.

3.8 Bank Stability

Roots from vegetation growing along waterbodies can help stabilize soils and reduce erosion.

The sand and gravel found along the subject shoreline naturally aggrades and erodes with minimal influence of any native plants along the shoreline. A retaining wall currently located above OHW provides some stability along the upper shoreline area and prevents erosion from around the existing structure. No change is proposed to the retaining wall. Some planting waterward of the retaining wall will take place but will be above OHW. Bank stability will not be affected to any significant degree by the proposed re-development.

3.9 Shoreline Function Conclusion

The site is currently developed with an existing residence. Redevelopment consists primarily of replacing the old structure with some minor expansion of the new residence into areas currently utilized as walkways, patio, or landscaping. There is currently no structural development within the Lake Sammamish buffer and this will not change with redevelopment. The developed square footage within the Lake Sammamish shoreline area will increase by about 40 percent. The entire area of increase will take place within areas of existing disturbance including pathways, patios, and decks. No disturbance of natural habitat will occur. With the exception of some temporary grading within currently developed areas of the floodplain and lake buffer, no work is proposed in sensitive areas. Work in the floodplain is

minor, will only disturb already developed areas, and will be mitigated with equivalent or greater compensatory flood storage. No natural vegetation will be disturbed. Under the Shoreline Management Act, this level of protection will provide "no net loss" of shoreline ecological functions necessary to sustain shoreline natural resources.

4.0 PROJECT EFFECTS ON CRITICAL AREAS

Critical areas are defined in the City of Bellevue under BCC LUC 20.25H.025. They include streams, wetlands, shorelines, geologic hazards, habitat and species of local importance, flood hazard areas, and buffers. Existing conditions of each critical area on or near the site are described in Section 2.0 of this report. This section describes any actions that will be taken within or near the critical area and any proposed changes that will occur.

4.1 Streams and Lakes

There are no streams located on or near the site.

Lake Sammamish borders the east side of the property. The proposed redevelopment includes no inwater work, no work below the OHWM, and no permanent changes to the buffer or floodplain with the exception of the addition of 300 sq.ft. of new native plants to the buffer. All temporary impacts to the buffer due to grading will occur in areas currently underlying concrete or lawn. So the only impact will be temporary increases in noise and visual disturbances.

4.2 Wetlands

No wetlands, seeps or springs were noted on the site or reported in sensitive areas portfolios.

4.3 Shorelines

Lake Sammamish is a shoreline of the state. Changes to shoreline functions are described in Section 3.0 of this report.

4.4 Steep Slopes

No work will be completed on the steep slopes found on this site. The steep slope is located on the west side of the access road to the house. The house and all proposed work are located east of the access road.

4.5 Species of Local Importance

No habitat that may have provided urban wildlife habitat for species of local importance will be affected by redevelopment of the property. The large patch of vegetation on the steep slope will be left untouched. No native vegetation will be disturbed.

Sensitive fish species are found in Lake Sammamish. However, no spawning or other habitat critical to salmon life history is located on the site. With the exception of temporary impacts at the upper end of the floodplain area (discussed below in Section 5.0) no aquatic habitat will be disturbed as a result of the project.

4.6 Flood Hazard Areas

A flood hazard area is located on the site. Work in the Lake Sammamish floodplain is minor, will only disturb already developed areas, and will be mitigated by restoring equivalent or greater compensatory flood storage volume. Changes to the flood hazard area and habitat associated with the floodplain are described further in Section 5.0 of this report.

4.7 Critical Areas Effects Summary

The proposed action will take place within a footprint that was already entirely modified for the existing use a residence (Table 2). No permanent adverse changes to natural habitat will occur. Grading for the new foundation will temporarily affect 150 sq.ft. of the Lake Sammamish buffer and floodplain. However, the impacts will be small and temporary, and will occur in areas of existing lawn and patio. No significant adverse effects on critical areas are expected. Minor impacts are being mitigated with new native plantings in the buffer.

Table 2. Critical Area Impacts

Location of Impact	Area of Permanent Disturbance		
	Existing	Future	Change
Streams	0	0	0
Stream Buffers	0	0	0
Wetland	0	0	0
Wetland Buffer	0	0	0
Shoreline (within 200 feet of el. 31.8)	5,796 sq.ft.	5,496 sq.ft.	-300 sq.ft. (-5%)
Lake Sammamish Buffer (within 25 feet of el. 31.8)	1,270 sq.ft.	970 sq.ft.	-300 sq.ft. (-24%)
Steep Slope	0 sq.ft.	0 sq.ft.	0
Steep Slope Buffer	--[1]	--[1]	0
Flood Hazard Area Volume	--	--	0 cu.ft

[1] There is no buffer required at the toe of steep slopes and no work is proposed within the buffer at the top of the slope. No calculations were completed for this area.

5.0 EFFECTS OF THE PROPOSED ACTION ON FLOODPLAIN HABITAT

Under existing conditions the area below the 36.6 foot elevation (designated as the Lake Sammamish floodplain) can be differentiated into two distinct habitat morphologies separated by the existing vertical concrete retaining wall. Habitat waterward (below) below the retaining wall consists of the gravel beach where virtually all of the normal lake level fluctuations occur. No change in this area is proposed. The portion of the floodplain located landward (above) the retaining wall currently consists of lawn and concrete walkways. This area, where some grading and temporary excavation will occur, is all above elevation 36.1.

Under the proposed action, grading for new concrete footers and deck support will take place within the floodplain area above the retaining wall. None of the proposed work area contains native (undisturbed) habitat or vegetation, the entire area consists of lawn and concrete patio or walkway (see Figure 2). Compensatory flood storage will ultimately be provided by lowering whatever area is necessary to achieve an equivalent flood storage volume to that which currently exists.

Overall, no net change in flood storage volume will occur as a result of the project. No floodplain area having any significant value as fish or wildlife habitat will be disturbed as a result of filling or excavating within the floodplain.

6.0 MITIGATION

No significant adverse environmental effects of the project on sensitive areas or shoreline ecological functions are expected. Mitigation for the project is being provided primarily by avoiding and/or minimizing sensitive areas that are present on the site. Temporary impacts that may occur during construction are being mitigated by planting an area double the size of the buffer area that will be disturbed.

6.1 Impact Avoidance

The following actions are proposed to avoid impacts:

- No work is proposed below the ordinary high water mark of Lake Sammamish.
- No work is proposed waterward of the existing retaining wall (with the exception of planting).
- No work is proposed in wetlands, streams, or geologic hazard areas, or their buffers.
- No net fill is proposed within the floodplain.
- No native vegetation within the shoreline area or any buffer will be disturbed.

6.2 Impact Minimization

The following actions are proposed to minimize impacts:

- Work within the Lake Sammamish shoreline buffer and floodplain will be temporary and limited only to areas of existing disturbance.

6.3 Compensatory Mitigation

The following actions are proposed to mitigate for impacts:

- Any fill material placed within the floodplain of Lake Sammamish will be mitigated by providing equivalent or greater compensatory flood storage in the immediate area.
- An area of 300 sq.ft. of new native plantings will be added to the Lake Sammamish buffer to mitigate for 150 sq.ft. of temporary impacts within the shoreline buffer (see Planting Plan in Appendix).

7.0 MAINTENANCE

Controlling any non-native species and re-establishing native vegetation are the primary goals of this maintenance plan. Activities required to maintain new plantings include initial watering of the new plants, and periodic removal of non-native vegetation (weeding) within the buffer area.

New plantings shall be watered from May through mid-October during the first season. A temporary irrigation system is allowed. A potable water source is available for this use.

Due to the aggressively invasive habit of non-native species and the existence of nearby seed sources, control efforts shall be completed for five years following initial plant installation. Establishment of native plantings over the five year time period will create a well established native habitat lessening the chance for non-native vegetation invasion. The control of invasive weeds (competing grasses and herbs) shall be mechanically provided at the base of each plant at a minimum of twice per year, or more, should additional weeding be deemed necessary. The optimal season for weed control occurs in April thru September. The use of herbicides and pesticides after new planting operations is strictly prohibited unless given written permission by the City of Bellevue. All work shall be performed by hand with the lightest possible equipment.

8.0 MONITORING

Due to the small size and lack of critical areas being impacted, the planting area shall be self-maintained and self-monitored for five years. Vegetation monitoring shall consist of plant inspection to determine the health and vigor of each plant. All planted material in the buffer shall be inspected once a year for five years to determine the health of each specimen. Dead or dying material shall be replaced the following fall unless plant crowding is believed to be a problem. Plant species substitutions may be made if site conditions are believed responsible for plant mortality. Replacement species must be approved by the City.

Annual monitoring reports shall be submitted to the City of Bellevue, Attn: Environmental Planning Manager in each of the five years by October 31st. Photos of the mitigation planting will be included in the monitoring reports to document the planting. The following schedule and performance standards apply and are evaluated in the report for each year:

Year 1 (from date of plant installation)

- 100% survival of all installed plants and/or replanting in following dormant season to reestablish 100% of original plantings
- Less than 10% coverage of invasive plants in planting area.

Year 2 (from date of plant installation)

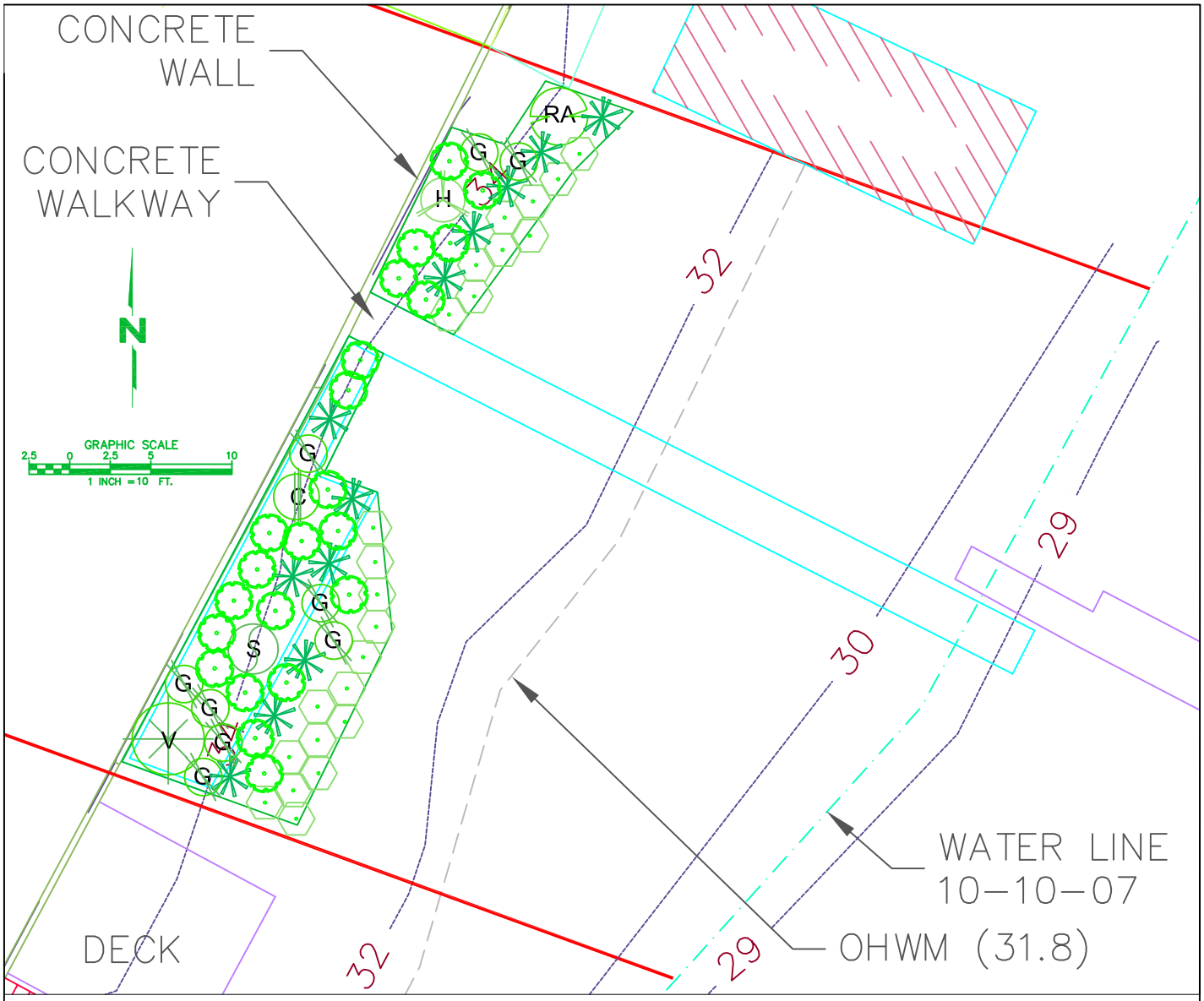
- At least 90% survival of all installed material
- Less than 10% coverage of planting area by invasive species or non-native/ornamental vegetation.

Year 3, 4, & 5 (from date of plant installation)

- At least 85% survival of all installed material
- At least 35% (Yr3), 50% (Yr4), 70% (Yr5) coverage of the planting area by native plants in each year respectively.
- Less than 10% coverage by invasive species or non-native/ornamental vegetation

APPENDICES

Mitigation Planting Plan



PLANT NAME AND SPECIES	SIZE	NUMBER
SALAL (Gaultheria shallon)	1-GAL	22
SWORD FERN (Polystichum munitum)	1-GAL	12
LOW OREGON GRAPE Mahonia nervosa)	1-GAL	9
FLOWERING CURRANT (Ribes sanguineum)	2-GAL	1
VINE MAPLE (Acer circinatum)	2-GAL	1
SNOWBERRY (Symphoricarpos albus)	2-GAL	1
BALD HIP ROSE (Rosa gymnocarpa)	2-GAL	1
RED ALDER (Alnus rubra)	5-GAL OR BB	1
KINNIKINNICK (Arctostaphylos uva-ursi)	1-GAL	23

A total of 300 square feet of area to be planted in two areas between OHWM and the existing retaining wall. The southern area will be approximately 10 feet wide by 29 feet long. The northern area shall be approximately 8 feet wide by 9 feet long. Cutouts in both areas will allow existing uses to continue.

A total of two trees (1 trees/ 150 square feet) and 69 shrubs/groundcovers (1 plants/4 square feet) shall be planted. See Sheet 2 for planting details.

STRONG RESIDENCE PLANTING PLAN

CEDAROCK CONSULTANTS, INC.
19609 244th Avenue NE
Woodinville, WA 98077
(425) 788-0961

1604 W. Lk. Sammamish Pkwy

Bellevue, WA 98008

1" = 10'

SHEET 1 OF 2