DEVELOPMENT SERVICES DEPARTMENT
ENVIRONMENTAL COORDINATOR
450 110th Ave NE., P.O. BOX 90012
BELLEVUE, WA 98009-9012

OPTIONAL DETERMINATION OF NON-SIGNIFICANCE (DNS) NOTICE MATERIALS

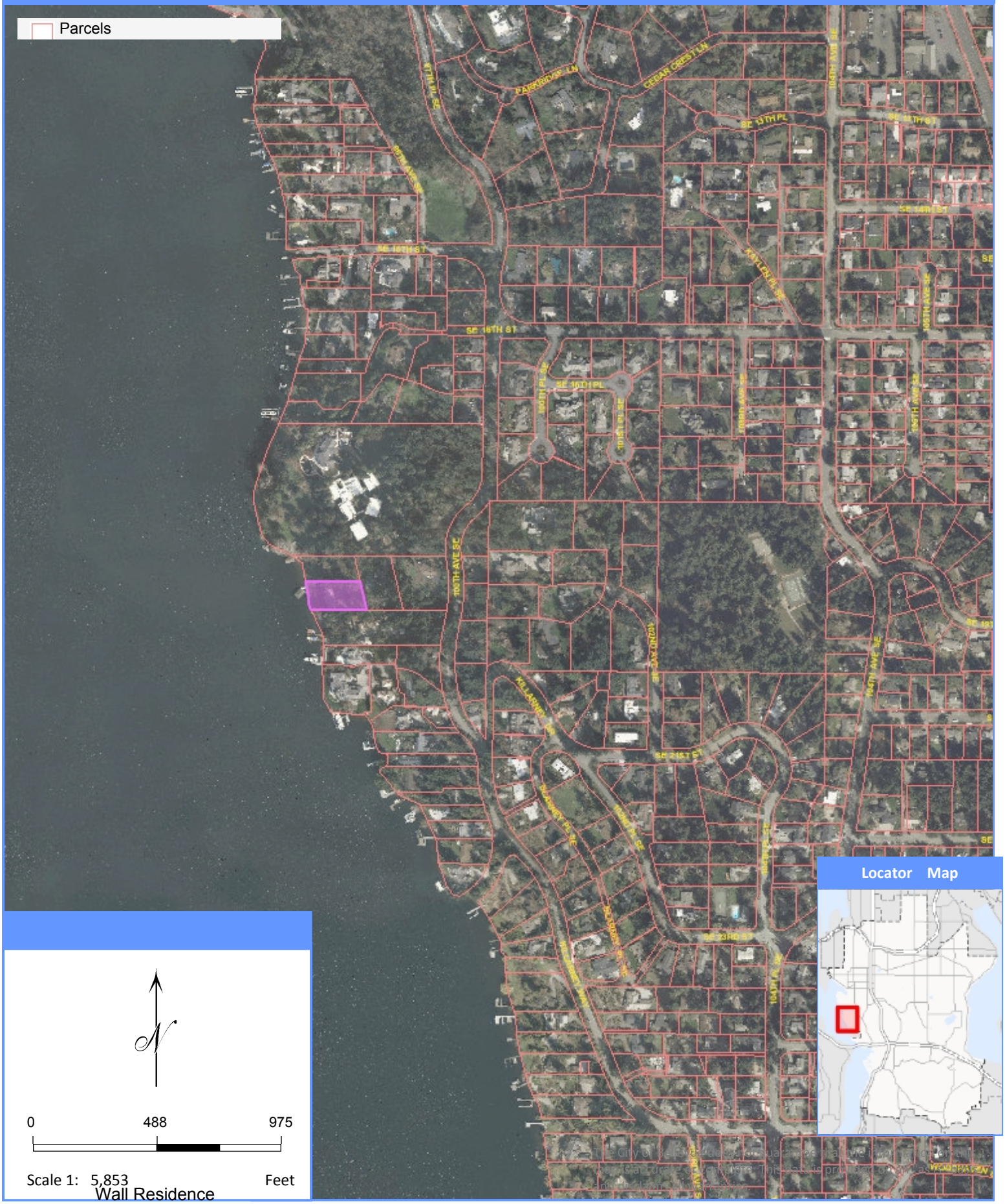
The attached materials are being sent to you pursuant to the requirements for the Optional DNS Process (WAC 197-11-355). A DNS on the attached proposal is likely. This may be the only opportunity to comment on environmental impacts of the proposal. Mitigation measures from standard codes will apply. Project review may require mitigation regardless of whether an EIS is prepared. A copy of the subsequent threshold determination for this proposal may be obtained upon request.

File No.	13-114599-LO
Project Name/Address:	Wall Residence Critical Areas Land Use Permit
	1839 Killarney Way SE
Planner:	David Pyle / dpyle@bellevuewa.gov
Phone Number:	425-452-2973
Minimum Comment Period:	June 13, 2013

Materials included in this Notice:

- [x] Blue Bulletin
- [x] Checklist
- [x] Vicinity Map
- [x] Plans
- [ ] Other:

Wall Residence



Wall Residence

File #13-114599-LO

Map Generated [illegible] 05/23/2013

Altmann Oliver Associates, LLC

PO Box 578 Carnation, WA 98014 Office (425) 333-4535 Fax (425) 333-4509

AOA

Environmental Planning & Landscape Architecture

April 30, 2013

AOA-4324

Tom Kuniholm
Tom Kuniholm Architects
600 - 1st Ave., Suite 205
Seattle, WA 98104

SUBJECT: **Critical Areas Report - Wall Residence - 1839 Killarney Way SE Shoreline Buffer & Structure Setback Modification, Steep Slope Modification**

Dear Tom:

On February 27, 2013 I conducted a reconnaissance on the subject property located along the shoreline of the east side of Lake Washington. The site is currently developed with an existing single-family residence and maintained yard areas to the lake edge. A large rock bulkhead is located along the entire shoreline and the property contains an existing roofed wooden dock structure.

The purpose of the site visit was to assess proposed modifications to the required 25-foot shoreline buffer and 25-foot structure setback of Lake Washington as part of a proposed re-development of the property to replace the existing residence. This report is intended to meet the requirements for Critical Area Reports per LUC 20.25H.

1.0 CRITICAL AREA IMPACTS

1.1 Shoreline Buffer

The only work that would be conducted within the 25-foot shoreline buffer is: 1) the removal of a portion of the rock bulkhead, 2) the creation of a small beach, and 3) the planting of a variety of native species to increase the habitat value of the shoreline environment. This work is intended to mitigate for increased impervious surface associated with construction within the 25-foot shoreline structure setback.

1.2 Shoreline Structure Setback

Although no portion of the re-developed residence would be constructed within the structure setback, 1,076 s.f. of existing yard would be converted to a terraced patio and associated built in pool and wall system.

All of the structure setback modification areas currently consist of maintained yard and no native vegetation will be removed as part of the project (**Photo 1**). The proposed impact areas currently have a very low functional value and do not provide any of the significant functions such as shade, temperature control, water purification, woody debris recruitment, erosion control, or habitat typically associated with functioning shoreline buffers.

Photo 1: View of existing shoreline.

1.3 Steep Slope

The proposed project requires the encroachment into 478 s.f. of steep slope located at the toe of the slope to the east of the existing residence. The slope area that would be impacted consists primarily of a mat of English ivy (*Hedera helix*) with scattered ornamental plantings (**Photo 2**).

Photo 2: View of proposed slope impact area.

2.0 CRITICAL AREA MITIGATION

Although there should be no significant impact to the shoreline buffer from the proposed project, mitigation to increase the habitat value of a portion of the shoreline buffer is proposed. As part of the project, a portion of the rock bulkhead would be removed and converted to a more natural beach. In addition, 1,076 s.f. of yard area within the shoreline buffer and structure setback would be planted with a variety of native plantings.

Mitigation for the 478 s.f. of impact to the slope would occur through the enhancement of 1,492 s.f. of degraded slope habitat with a variety of native plantings.

2.1 Buffer Functions Provided By Shoreline Enhancement Area

The enhancement plan has been designed to increase the overall wildlife habitat value of the shoreline by creating a beach that better mimics natural conditions. Planting the area with native species would increase the plant species and structural diversity over existing conditions and will increase food chain support by increasing the biological production of both vegetation and insects. This in turn should provide food and cover for a variety of song birds and other wildlife and increase the habitat function of the shoreline.

As part of the plan, native plants would be planted directly adjacent selected portions of the bulkhead. This would provide some limited natural shade to the lake that is currently lacking. The planting of shrubs that could extend over the bulkhead would also create some overhead cover while contributing detritus and other desirable allochthonous inputs into the aquatic environment. The contribution of insects and leaf litter into the lake is a primary buffer function that is currently lacking and would increase following planting of the area with native species.

Since the current shoreline buffer does not contain any significant native vegetation, natural shade, cover, or detritus input into the aquatic area, implementation of the enhancement plan should replace the minor habitat functions currently provided by the existing shoreline structure setback.

2.2 Buffer Functions Provided By Slope Area

The area of proposed slope impact is currently dominated by English ivy and a variety of ornamental plantings with limited value as wildlife habitat. As part of the proposed project, a much larger area of slope would be enhanced by removing the invasive species and planting with a variety of native species to increase the plant species and structural diversity of the slope. Increasing the plant species and structural diversity should significantly increase the habitat value of the slope over current conditions.

2.3 Goal, Objectives, and Performance Standards for Mitigation Areas
The primary goal of the mitigation plan is to increase the habitat and biological input functions of the selected shoreline and slope areas. To meet this goal, the following objectives and performance standards have been incorporated into the design of the plan:

Objective A: Increase the structural and plant species diversity within the mitigation area.
Performance Standard: There will be 100% survival of all woody planted species throughout the mitigation area at the end of the first year of planting. For Years 2-5, success will be based on an 80% survival rate or similar number of recolonized native woody plants.

Objective B: Limit the amount of invasive and exotic species within the mitigation area.
Performance Standard: After construction and following every monitoring event for a period of five years, exotic and invasive plant species will be maintained at levels below 10% total cover in the designated mitigation areas. Invasive species include, but are not limited to, Himalayan and evergreen blackberry, Japanese knotweed, and English ivy.

2.4 Construction Management
Prior to commencement of any work in the mitigation areas, the clearing limits will be staked and any existing vegetation to be saved will be clearly marked. A pre-construction meeting will be held at the site to review and discuss all aspects of the project with the landscape contractor and the owner.

A consultant will supervise plan implementation during construction to ensure that objectives and specifications of the mitigation plan are met. Any necessary significant modifications to the design that occur as a result of unforeseen site conditions will be jointly approved by the City of Bellevue and the consultant prior to their implementation.

2.5 Monitoring Methodology
The monitoring program will be conducted for a period of five years, with annual reports submitted to the City. Vegetation monitoring will include general appearance, health, mortality, colonization rates, percent cover, percent survival, volunteer plant species, and invasive weeds.

Photo-points will be established from which photographs will be taken throughout the monitoring period. These photographs will document general appearance and progress in plant community establishment in the mitigation area. Review of the photos over time will provide a visual representation of success of the mitigation plan.

2.6 Maintenance Plan
Maintenance will be conducted on a routine, year round basis. Additional maintenance needs will be identified and addressed following periodic maintenance reviews. Contingency measures and remedial action on the site shall be implemented on an as-needed basis at the direction of the consultant or the owner.

2.7 Weed Control
Routine removal and control of non-native and other invasive plants within the designated mitigation areas shall be performed by manual means. Undesirable and weedy exotic plant species shall be maintained at levels below 10% total cover within all mitigation areas during the monitoring period.

2.8 General Maintenance Items
Routine maintenance of planted trees and shrubs shall be performed. Measures include resetting plants to proper grades and upright positions. Tall grasses and other competitive weeds shall be weeded at the base of plants to prevent engulfment. Weed control should be performed by hand removal.

2.9 Contingency Plan
All dead plants will be replaced with the same species or an approved substitute species that meets the goal of the mitigation plan. Plant material shall meet the same specifications as originally-installed material. Replanting will not occur until after reason for failure has been identified (e.g., moisture regime, poor plant stock, disease, shade/sun conditions, wildlife damage, etc.). Replanting shall be completed under the direction of the consultant, City of Bellevue, or the owner.

2.10 As-Built Plan
Following completion of construction activities, an as-built plan for the mitigation area will be provided to the City of Bellevue. The plan will identify and describe any changes in relation to the original approved plan.

Conclusion
Implementation of the proposed mitigation plan will result in an overall improvement in the habitat and functional value of the shoreline buffer and slope over current conditions.

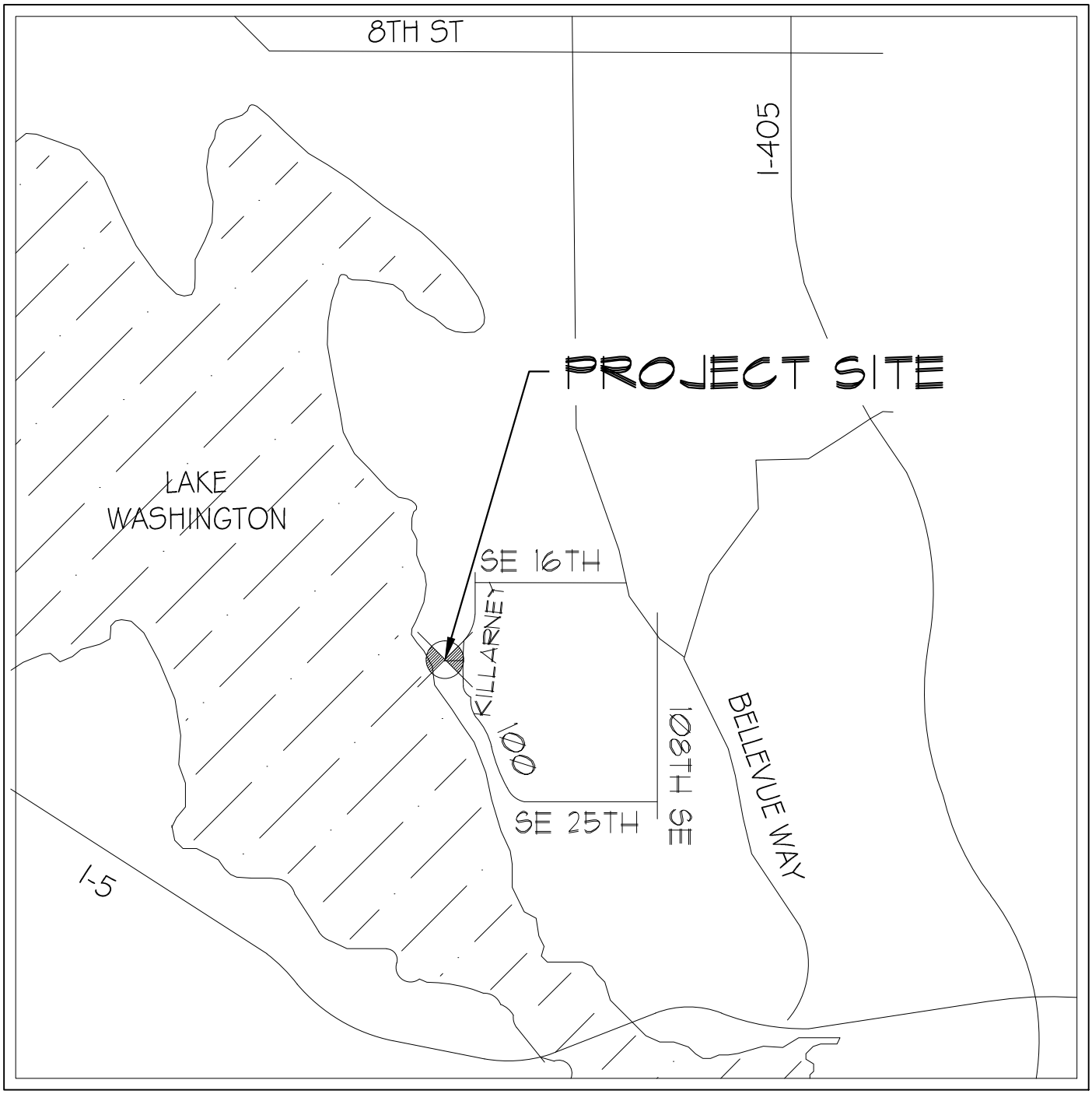
If you have any questions regarding the mitigation plan, please give me a call.

Sincerely,

ALTMANN OLIVER ASSOCIATES, LLC

John Altmann
Ecologist

Attachment: Figures 1-3 dated 4-30-13 by AOA



VICINITY MAP - NTS

Altmann Oliver Associates, LLC
AOA
PO Box 578 Carnation, WA 98014 Office (425) 333-4535 Fax (425) 333-4509
Environmental Planning & Landscape Architecture

FIGURE 1: VICINITY MAP
WALL PROPERTY
1839 KILLARNEY WAY SE
BELLEVUE, WA 98004
PARCEL #062405-9094

DRAWN	PROJECT
SO	4324
SCALE	
AS NOTED	
DATE	
4-30-13	1/3
REVISED	

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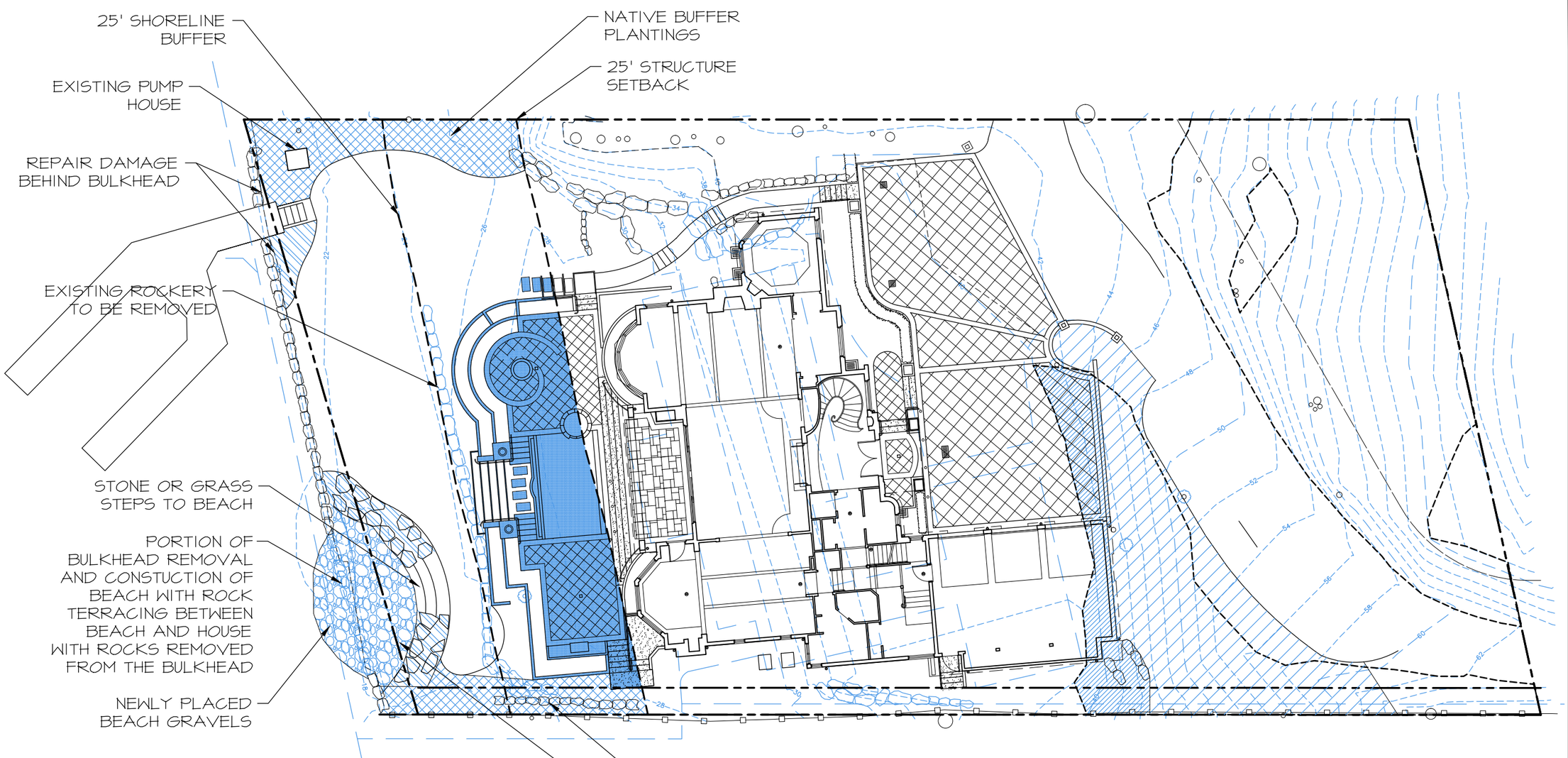
Wall Residence
File #13-114599-LO



IMPACT LEGEND

NEW IMPERVIOUS	1,076 SF
STEEP SLOPE IMPACTS	436 SF

MITIGATION LEGEND

LOW NATIVE PLANTINGS	300 SF
NATIVE BUFFER PLANTINGS	776 SF
BEACH GRAVELS	435 SF
STEEP SLOPE ENHANCEMENT	1,492 SF

GRAPHIC SCALE (IN FEET)

0 10 20 30 40 60

SCALE: 1:20

N

NOTES

1. BASE INFORMATION PROVIDED BY KUNIHOLM ARCHITECTS, 600 1ST AVE., SUITE 205, SEATTLE, WA 98104, (206) 625-9010.

PROJECT 4324

DRAWN SO

SCALE AS NOTED

DATE 4-30-13

REVISED

2/3

FIGURE 2: IMPACTS AND MITIGTION PLAN
WALL PROPERTY
1839 KILLARNEY WAY SE
BELLEVUE, WA 98004
PARCEL #062405-9094

Altmann Oliver Associates, LLC
AOA Environmental Planning & Landscape Architecture
PO Box 578 Carnation, WA 98014 Office (425) 333-4535 Fax (425) 333-4569

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Wall Residence
File #13-114599-LO

CANDIDATE PLANT LIST

LOW NATIVE PLANTINGS

SCIENTIFIC NAME	COMMON NAME
ARCTOSTAPHYLOS UVA-URSI	KINNIKINNICK
GAULTHERA SHALLON	SALAL
MAHONIA NERVOSA	LOW OREGON GRAPE
VACCINIUM OVATUM	EVERGREEN HUCKLEBERRY
NATIVE SEDGES	
NATIVE PERENNIALS	

NATIVE BUFFER PLANTINGS

SCIENTIFIC NAME	COMMON NAME
ACER CIRCINATUM	VINE MAPLE
ARCTOSTAPHYLOS UVA-URSI	KINNIKINNICK
GAULTHERIA SHALLON	SALAL
MAHONIA AQUIFOLIUM	TALL OREGON GRAPE
RIBES SANGUINEUM	RED CURRANT
THUJA PLICATA	WESTERN RED CEDAR
VACCINIUM OVATUM	EVERGREEN HUCKLEBERRY
NATIVE SEDGES	
NATIVE PERENNIALS	

STEEP SLOPE MITIGATION PLANTINGS

SCIENTIFIC NAME	COMMON NAME
ACER CIRCINATUM	VINE MAPLE
ARCTOSTAPHYLOS UVA-URSI	KINNIKINNICK
GAULTHERIA SHALLON	SALAL
MAHONIA AQUIFOLIUM	TALL OREGON GRAPE
POLYSTICHUM MUNITUM	SWORD FERN
RIBES SANGUINEUM	RED CURRANT
THUJA PLICATA	WESTERN RED CEDAR
VACCINIUM OVATUM	EVERGREEN HUCKLEBERRY
NATIVE SEDGES	
NATIVE PERENNIALS	

Altmann Oliver Associates, LLC
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Environmental Planning & Landscape Architecture

FIGURE 3: CANDIDATE PLANTS
WALL PROPERTY
1839 KILLARNEY WAY SE
BELLEVUE, WA 98004
PARCEL #062405-9094

DRAWN	PROJECT
SO	4324
SCALE: AS NOTED	
DATE: 4-30-13	3/3
REVISED	

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Wall Residence
File #13-114599-LO

City of Bellevue File Number 13-114599-LO
05/30/2013
Wall Residence
Project SEPA Checklist
1839 Killarney Way

SEPA Checklist Reviewed By:
David Pyle, Land Use Planner
425-452-2973 - dpyle@bellevuewa.gov

WAC 197-11-960 Environmental checklist.

ENVIRONMENTA

City of Bellevue Processing

Purpose of checklist:

The State Environmental Policy Act (SEPA), chapter 43.21C RCW, requires all governmental agencies to consider the environmental impacts of a proposal before making decisions. An environmental impact statement (EIS) must be prepared for all proposals with probable significant adverse impacts on the quality of the environment. The purpose of this checklist is to provide information to help you and the agency identify impacts from your proposal (and to reduce or avoid impacts from the proposal, if it can be done) and to help the agency decide whether an EIS is required.

Instructions for applicants:

This environmental checklist asks you to describe some basic information about your proposal. Governmental agencies use this checklist to determine whether the environmental impacts of your proposal are significant, requiring preparation of an EIS. Answer the questions briefly, with the most precise information known, or give the best description you can.

You must answer each question accurately and carefully, to the best of your knowledge. In most cases, you should be able to answer the questions from your own observations or project plans without the need to hire experts. If you really do not know the answer, or if a question does not apply to your proposal, write "do not know" or "does not apply." Complete answers to the questions now may avoid unnecessary delays later.

Some questions ask about governmental regulations, such as zoning, shoreline, and landmark designations. Answer these questions if you can. If you have problems, the governmental agencies can assist you.

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

Use of checklist for nonproject proposals:

Complete this checklist for nonproject proposals, even though questions may be answered "does not apply." IN ADDITION, complete the SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS (part D).

For nonproject actions, the references in the checklist to the words "project," "applicant," and "property or site" should be read as "proposal," "proposer," and "affected geographic area," respectively.

A. BACKGROUND

1. Name of proposed project, if applicable:
Daniel and Cari Wall Residence

2. Name of applicant:
Thomas Kuniholm Architect AIA

3. Address and phone number of applicant and contact person:
Tom Kuniholm Architects AIA
600 First Avenue Suite 205
Seattle, WA 98104

4. Date checklist prepared: 4/26/13

5. Agency requesting checklist: Bellevue Development Services

6. Proposed timing or schedule (including phasing, if applicable):
Construction planned for Fall 2013-Spring 2015

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain. NO

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.

See Environmental Report with Proposed Mitigation Submitted with this application prepared by Altmann/Oliver Consultants

See Geotech Report prepared by Perrone Geotechnical Consultants.

9. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain. NO

10. List any government approvals or permits that will be needed for your proposal, if known.
Bellevue Critical Areas Land Use Permit
Shoreline Permit
Bellevue Building Permit

11. Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on project description.)

The Wall residence site is a sloped west facing waterfront property on Lake Washington accessed off Killarney Way in Bellevue. The property is reached via a drive serving other houses leading down to the property. The property itself is mostly sloped, with steep slopes on the upper portion. It levels off to a mid-low bank waterfront lawn with a rockery bulkhead and dock at the water's edge. The new house is primarily two stories, with an attached three car garage with space above. It has a smaller lower level with an exercise room, basement, wine storage room, and bath. The house is designed to step down with the grade to the terrace that faces the water. We will be building on the site of an existing 1965 house that is a daylight basement structure.

The house is to be wood framed with extensive stone veneer proposed.
It has four bedrooms and about 6,000 sq. ft. of heated space with a covered porch, plunge pool, and terraces facing the water. The roofs are pitched, tile or composition. Geothermal buried coils will be explored. We have completed a geotech report that allows us to compact and use some of the existing soil and build on conventional footings without piles.

12. Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist.

TO BE COMPLETED BY APPLICANT FOR ONLY

EVALUATION FOR AGENCY USE ONLY

B. ENVIRONMENTAL ELEMENTS

1. **Earth**

a. General description of the site (circle one): Flat, rolling, **HILLY,** steep slopes, mountainous, other . . . . . .

b. What is the steepest slope on the site (approximate percent slope)?
Slopes slightly over 40% are present.

c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any prime farmland.

Loose to medium silty Sand with gravel over subsurface Vashon glacial till and/or Vashon glacial advance outwash soils. See Geotech Report attached.

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.

No. See Geotech Report

e. Describe the purpose, type, and approximate quantities of any filling or grading proposed. Indicate source of fill.

Fill will be required as structural bearing beneath terraces and site steps. Some fill on-site can be utilized with compaction, some will be imported. Grading will be required for new footings and foundations and driveway.

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

Some erosion could occur at toe of slope behind garage after heavy rains.

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

42.5%

h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any:

Silt fences wattles straw will be applied during construction.

a. **Air**

a. What types of emissions to the air would result from the proposal (i.e., dust, automobile, odors, industrial wood smoke) during construction and when the project is completed? If any, generally describe and give approximate quantities if known.

Exhaust from trucks, machinery, barge with crane if req'd.

b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe.

No.

c. Proposed measures to reduce or control emissions or other impacts to air, if any:

Best practices by contractor.

TO BE COMPLETED BY APPLICANT EVALUATION FOR AGENCY USE ONLY

3. **Water**

a. Surface:

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

2) Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans.
YES, see attached.

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

Approx. 10-20 yds. Of gravel and sand in lake for shoreline restoration.

4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known.
All surface water from buildings and drives is to be collected and tight-lined to the shore.

5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.
No

6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.
No.

b. Ground:

1) Will ground water be withdrawn, or will water be discharged to ground water? Give general description, purpose, and approximate quantities if known.

No.

2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial, containing the following chemicals. . . ; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve. None.

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c. Water runoff (including stormwater):

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

Storm water collected from roofs, terraces and driveways will be tight-lined to an outlet in Lake Washington.

2) Could waste materials enter ground or surface waters? If so, generally describe.

No. Contractor to utilize best practices.

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

Extensive new Native vegetation.

4. **Plants**

a. Check or circle types of vegetation found on the site:

x deciduous tree: alder, maple, aspen, other
x evergreen tree: fir, cedar, pine, other
x shrubs
x grass
pasture
crop or grain
wet soil plants: cattail, buttercup, bullrush, skunk cabbage, other
water plants: water lily, eelgrass, milfoil, other
other types of vegetation

b. What kind and amount of vegetation will be removed or altered?

Existing grass and shrubs and a few small trees will be removed and replaced.

b. List threatened or endangered species known to be on or near the site.

Sockeye and Kokanee Salmon in Lake Washington

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:

See Environmental Report by Altmann/Oliver attached.

5. **Animals**

a. Circle any birds and animals which have been observed on or near the site or are known to be on or near the site:

birds: hawk, heron, eagle, songbirds, other:
mammals: **deer**, bear, elk, beaver, other:
fish: bass, salmon, trout, herring, shellfish, other:

b. List any threatened or endangered species known to be on or near the site.

Not known, Sockeye and Kokanee Salmon in Lake Washington.

TO BE COMPLETED BY APPLICANT

EVALUATION FOR AGENCY USE

ONLY

c. Is the site part of a migration route? If so, explain.

Not known.

d. Proposed measures to preserve or enhance wildlife, if any:

Addition of new native plantings, demolition of portion of bulkhead and shoreline restoration.

6. **Energy and natural resources**

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

Electric Power, heat pump

Natural gas for appliances and for boiler for radiant heat.

b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe.

No.

c. What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any:

Replace outdated inefficient 1965 house with new house meeting current energy code.

7. **Environmental health**

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

No.

1) Describe special emergency services that might be required.

None beyond expectations for a typical residence.

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

Utilization of Best practices.

b. **Noise**

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

Compliance w/ Bellevue Noise Ordinance.

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

Trucks, machinery, traffic, during construction and during allowable hours of the day.

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3) Proposed measures to reduce or control noise impacts, if any:
Compliance with Bellevue Noise Ordinance.

8. **Land and shoreline use**

a. What is the current use of the site and adjacent properties?

Single family residence.

b. Has the site been used for agriculture? If so, describe.

No.

c. Describe any structures on the site.

Existing 1965 era house, garage and dock.

d. Will any structures be demolished? If so, what?
Yes, house and garage.

e. What is the current zoning classification of the site?
R-8

f. What is the current comprehensive plan designation of the site?
Single family residential, Shoreline Overlay

g. If applicable, what is the current shoreline master program designation of the site?
Shoreline Residential

h. Has any part of the site been classified as an "environmentally sensitive" area? If so, specify.
Yes, Steep slope areas, shoreline buffer and building setback.

i. Approximately how many people would reside or work in the completed project?
Two-three.

j. Approximately how many people would the completed project displace?
Three.

k. Proposed measures to avoid or reduce displacement impacts, if any:
None.

TO BE COMPLETED BY APPLICANT EVALUATION
FOR AGENCY USE
ONLY

l. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:

Proposal is compatible with existing use.

9. **Housing**

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.

1, High.

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.

1, High

c. Proposed measures to reduce or control housing impacts, if any:

None.

10. **Aesthetics**

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

The tallest gable roof is about 36' from grade. Materials proposed are natural stone walls and paving, wood and stucco.

b. What views in the immediate vicinity would be altered or obstructed?

None.

c. Proposed measures to reduce or control aesthetic impacts, if any:

New shoreline restoration replaces unsightly and tall rockery along the lake. Natural materials and high degree of craftsmanship.

11. **Light and glare**

a. What type of light or glare will the proposal produce? What time of day would it mainly occur?

Western glazing could cause some glare in the afternoon.

b. Could light or glare from the finished project be a safety hazard or interfere with views?

No.

c. What existing off-site sources of light or glare may affect your proposal?

N.A.

d. Proposed measures to reduce or control light and glare impacts, if any:

Sun screens, overhangs.

TO BE COMPLETED BY APPLICANT FOR ONLY

EVALUATION AGENCY USE

12. **Recreation**

a. What designated and informal recreational opportunities are in the immediate vicinity?

Swimming, boating, waterskiing.

b. Would the proposed project displace any existing recreational uses? If so, describe.

No.

c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any:

New beach at waters edge proposed to allow better recreation.

13. **Historic and cultural preservation**

a. Are there any places or objects listed on, or proposed for, national, state, or local preservation registers known to be on or next to the site? If so, generally describe.

No.

b. Generally describe any landmarks or evidence of historic, archaeological, scientific, or cultural importance known to be on or next to the site.

c. Old Nunnery about four properties north of the site

c. Proposed measures to reduce or control impacts, if any:

None.

14. **Transportation**

a. Identify public streets and highways serving the site, and describe proposed access to the existing street system. Show on site plans, if any.

Killarney Way SE

b. Is site currently served by public transit? If not, what is the approximate distance to the nearest transit stop?

No. Approximately a half mile to transit.

c. How many parking spaces would the completed project have? How many would the project eliminate?

Eight new. Four existing.

d. Will the proposal require any new roads or streets, or improvements to existing roads or streets, not including driveways? If so, generally describe (indicate whether public or private).

No.

TO BE COMPLETED BY APPLICANT EVALUATION
FOR AGENCY USE
ONLY

e. Will the project use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.

No.

f. How many vehicular trips per day would be generated by the completed project? If known, indicate when peak volumes would occur.

3-4 trips per day average.

g. Proposed measures to reduce or control transportation impacts, if any:

None.

15. **Public services**

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

New house will require sprinkler system, reducing risk of fire.

b. Proposed measures to reduce or control direct impacts on public services, if any.

None.

16. **Utilities**

a. Circle utilities currently available at the site: **electricity, natural gas, water, refuse service, telephone, sanitary sewer,** septic system, other.

b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.

PSE

Washington Natural Gas

Bellevue City Water.

Cable Data

C. SIGNATURE

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Signature:

Date Submitted: 4.30.13

TO BE COMPLETED BY APPLICANT FOR ONLY

EVALUATION FOR AGENCY USE

D. SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS

(do not use this sheet for project actions)

Because these questions are very general, it may be helpful to read them in conjunction with the list of the elements of the environment.

When answering these questions, be aware of the extent the proposal, or the types of activities likely to result from the proposal, would affect the item at a greater intensity or at a faster rate than if the proposal were not implemented. Respond briefly and in general terms.

1. How would the proposal be likely to increase discharge to water; emissions to air; production, storage, or release of toxic or hazardous substances; or production of noise?

Not significant.

Proposed measures to avoid or reduce such increases are:

Oil/water separator in driveway catch basins.

2. How would the proposal be likely to affect plants, animals, fish, or marine life?

Likely to create better feeding and spawning habitat for fish.

Proposed measures to protect or conserve plants, animals, fish, or marine life are:

New native plantings proposed and shoreline restoration.

3. How would the proposal be likely to deplete energy or natural resources?

N.A.

Proposed measures to protect or conserve energy and natural resources are:

Heat pump with possible geothermal ground source proposed.

4. How would the proposal be likely to use or affect environmentally sensitive areas or areas designated (or eligible or under study) for governmental protection; such as parks, wilderness, wild and scenic rivers, threatened or endangered species habitat, historic or cultural sites, wetlands, floodplains, or prime farmlands?

Proposed shoreline restoration makes clear improvements for both humans, and native ecosystem flora and fauna.

Proposed measures to protect such resources or to avoid or reduce impacts are:

New native plantings proposed and shoreline restoration.

TO BE COMPLETED BY APPLICANT EVALUATION
FOR AGENCY USE
ONLY

5. How would the proposal be likely to affect land and shoreline use, including whether it would allow or encourage land or shoreline uses incompatible with existing plans?

Proposed shoreline restoration makes clear improvements for both humans, and native ecosystem flora and fauna.

Proposed measures to avoid or reduce shoreline and land use impacts are:

See shoreline restoration plan.

6. How would the proposal be likely to increase demands on transportation or public services and utilities?

Slight increase in electrical power usage expected due to size of project.

Proposed measures to reduce or respond to such demand(s) are:

More energy efficient construction.

7. Identify, if possible, whether the proposal may conflict with local, state, or federal laws or requirements for the protection of the environment.

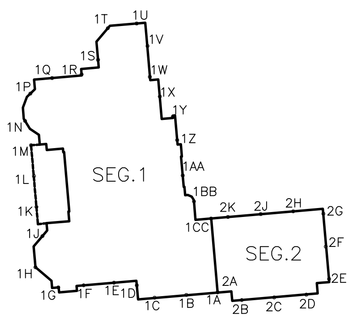
None.

GENERAL NOTES

1. CODES: ALL WORK SHALL CONFORM TO THE 2009 EDITION OF THE UNIFORM BULDING CODE W/ WASHINGTON STATE AMENDMENTS, 2006 NEC, 2009 PLUMBING, 2009 MECHANICAL AND AS MODIFIED BY THE CITY OF BELLEVUE AND BY LOCAL JURISDICTIONS AND ALL OTHER GOVERNING LAWS, CODES, ORDINANCES AND REGULATIONS.
2. DO NOT SCALE DIMENSIONS FROM DRAWINGS. USE CALCULATED DIMENSIONS ONLY. NOTIFY THE ARCHITECT IMMEDIATELY IF ANY CONFLICTS EXIST.
3. ALL DIMENSIONS ARE TO FACE OF FRAMING AND CONCRETE WALLS UNLESS NOTED OTHERWISE.
4. CONTRACTOR SHALL VERIFY ALL CONDITIONS PRIOR TO INITIATING THE WORK. NOTIFY THE ARCHITECT OF ANY DISCREPANCIES.
5. VERIFY ALL ROUGH-IN DIMENSIONS FOR EQUIPMENT. PROVIDE ALL BUCK-OUT, BLOCKING, BACKING AND JACKS REQUIRED FOR INSTALLATION.
6. VERIFY LOCATION OF ALL EXISTING UTILITIES AND SLEEVING: CAP, MARK, AND PROTECT AS NECESSARY TO COMPLETE THE WORK.
7. ALL WOOD IN CONTACT WITH CONCRETE TO BE PRESSURE TREATED.
8. SERVICE WATER PIPES IN UNHEATED SPACES TO BE INSULATED.
9. PROVIDE SEISMIC ANCHORAGE OF APPLIANCES, PER UMC 304.4.
10. THE GENERAL CONTRACTOR SHALL INSPECT EXISTING BATT INSULATION IN WALL CAVITIES, CRAWL SPACES, AND CEILING AND ATTIC LOCATIONS FOR BOTH DAMAGE, CONDENSATION ISSUES AND HEAT LOSS IN ORDER TO UPGRADE THE INTEGRITY OF THE INSULATION AS MUCH AS POSSIBLE. ALL OPENED UP CAVITIES SHALL BE INSPECTED AND FILLED.
11. CAULKING AND SEALING: THE GENERAL CONTRACTOR SHALL VERIFY THE ADEQUACY OF EXISTING DRAFT STOPS AND PROVIDE CAULKING & SEALING AS REQ'D TO SEAL LEAKS AND MINIMIZE AIR INFILTRATION. ATTENTION SHALL BE PAID TO THE FOLLOWING AREAS:
    PLUMBING VENT STACKS
    DUCT REGISTERS AND CONNECTIONS
    SILL PLATES
    RECESSED LIGHTING FIXTURES & LIGHTING OUTLETS
    FLOOR PENETRATIONS IN GENERAL
    REPLACEMENT WINDOWS
12. INSTALLATION OF TILE AND WATERPROOF MEMBRANES SHALL BE IN ACCORDANCE WITH PRACTICES ILLUSTRATED IN THE TILE COUNCIL OF NORTH AMERICA HANDBOOK, (TCNA). TILE AND WATERPROOFING INSTALLATION SHALL MEET ANSI A118.1 STANDARDS.
13. ENTIRE INTERIOR OF HOUSE & GARAGE SHALL BE SERVED BY A NEW AUTOMATIC SPRINKLER SYSTEM.
14. FOR NEW CONSTRUCTION, AN APPROVED CARBON MONOXIDE ALARM SHALL BE INSTALLED OUTSIDE OF EACH SEPARATE SLEEPING AREA IN THE IMMEDIATE VICINITY OF THE BEDROOMS IN DWELLING UNITS AND ON EACH LEVEL OF THE DWELLING, AND IN THE GARAGE, AND IN ACCORDANCE WITH THE MFRS RECOMMENDATIONS.
15. LOWER LEVEL: HEATING AND COOLING TO BE FURNISHED BY THE RADIANT INFLOOR AND HEAT PUMP/FORCED AIR SYSTEM THROUGHOUT THE HOUSE.
16. HEATING AND COOLING EQUIPMENT SHALL BE SIZED IN ACCORDANCE WITH ACCA MANUAL 'S' BASED ON BUILDING LOADS CALCULATED IN ACCORDANCE WITH ACCA MANUAL 'J' OR OTHER APPROVED HEATING AND COOLING CALCULATION METHODOLOGIES. WHOLE HOUSE VENTILATION IN THE GUEST SUITE WILL BE PROVIDED BY A BATH FAN WITH TIMER.

AVERAGE SPOT ELEVATIONS
SEGMENTS #1 & #2

WALL RESID. AVG ELEVATIONS			
Segment 1		Segment 2	
1A	36	2A	36
1B	34.7	2B	38.1
1C	32.3	2C	38.1
1D	31.3	2D	38.1
1E	31.3	2E	46.2
1F	28	2F	47.6
1G	28	2G	46.2
1H	33.3	2H	38.8
1J	33.8	2J	38.8
1K	33.8	2K	38.8
1L	33.8		
1M	33.3		
1N	33.3		
1P	33.3		
1Q	32.1		
1R	32.1		
1S	33.5		
1T	36		
1U	38.3		
1V	38.3		
1W	38.3		
1X	37.4		
1Y	37.4		
1Z	35.8		
1AA	38.3		
1BB	38.3		
1CC	38.3		
AVG	34.5	AVG	40.7



FLOOR AREA (SF):

	HEATED	UNHEATED
LOWER LEVEL	614	732
MAIN LEVEL	2,994	0
- GARAGE	0	855
UPPER LEVEL	2,670	0
TOTAL HOUSE:	6,278	1,587

IMPERVIOUS SURFACE AREA (SF):

LOT AREA	23,545
HOUSE & GARAGE	3,980
DRIVEWAY	
EXISTING (TO REMAIN)	1,830
NEW CONC.	2,179
NEW ASPHALT	1,615
WEST PATIO	100
NORTH CONC. WALK & STAIR	104
FRONT ENTRY	201
STAIR TO DOCK	27
CONC. PAD	26
PLUMBING SHED	17
STAIR AT GARAGE	27
TOTAL:	10,106
	42.91%

TOTAL IMPERVIOUS AREA:

LOT COVERAGE (SF):

LOT AREA:	23,545
CRITICAL SLOPE - NORTH	- 3,167
CRITICAL SLOPE - SOUTH	-1,793
REVISED LOT AREA:	18,585

LOT COVERAGE:

HOUSE & GARAGE	3,980
PATIO & STAIRS >30"	1,615
TOTAL LOT COVERAGE:	5,595

LOT COVERAGE AS A PERCENT OF REVISED LOT AREA: 30.1%

PROJECT DESCRIPTION:
SINGLE FAMILY RESIDENCE

TAX LOT PARCEL #:
062405-9094

LEGAL DESCRIPTION:
LOT 3 CITY OF BELLEVUE SP 75-6 REC AF #7507240473 SD PLAT DAF THAT POR OF GL 4 IN SD SEC DAF- BEG AT SE COR OF GL 4 TH N 00-54-17 E ALG E LN OF SD GL 236 FT TH N 89-59-06 W PLW S LN OF SD GL 163.13 FT TO POB ON WLY MGN OF 100TH AVE SE AT A PT ON CRV WH CENTER BRS N 79-58-56 W 543.14 FT DIST TH CONTG N 89-59-06 W 521.87 FT TAP ON SH OF LK WASH TH N 16-19-15 W ALG SD SH 219.46 FT TH E 580.13 FT TO WLY MGN OF 100TH AVE SE AT A PT ON CRV FR WH CENTER BRS N 83-42-17 E 220.99 FT DIST TH SLY ALG SD MGN & ALG SD CRV TO LEFT THRU C/A OF 04-18-00 AN ARC DIST OF 16.59 FT TAP OF REVERSE CURVATURE & BEG OF CRV TO RGT A RAD OF 543.14 FT TH SLY ALG SD CRV THRU A C/A OF 20-36-47 AN ARC DIST OF 195.40 FT TO POB TGW 2ND CL SH LDS ABUTTING DESC TR LY SELY OF LN BRG S 59-15-00 W THRU NW COR OF SD TR

BUILDING CODES:
ALL NEW CONSTRUCTION SHALL COMPLY WITH THE FOLLOWING CODES:
2009 INTERNATIONAL BUILDING CODE
2009 INTERNATIONAL RESIDENTIAL CODE
2009 WASHINGTON STATE ENERGY CODE (PROJECT COMPLIES W/ WSEC PRE-SCRIPTIVE REQUIREMENT APPROACH)

FIRE PROTECTION
AUTOMATIC SPRINKLER SYSTEM TO BE INSTALLED THROUGHOUT ALL STRUCTURES

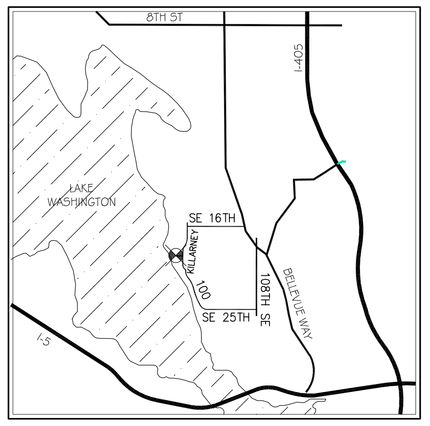
ZONING
R1.8

OWNER
CARI & DANIEL WALL

ARCHITECT
TOM KUNIHOLM ARCHITECTS
600 FIRST AVE, STE 205
SEATTLE, WA 98104
p 206.625.9010

STRUCTURAL ENGINEERS
QUANTUM CONSULTING ENGINEERS
1511 THIRD AVE. SUITE 323
SEATTLE, WA 98101
p 206.957.3900

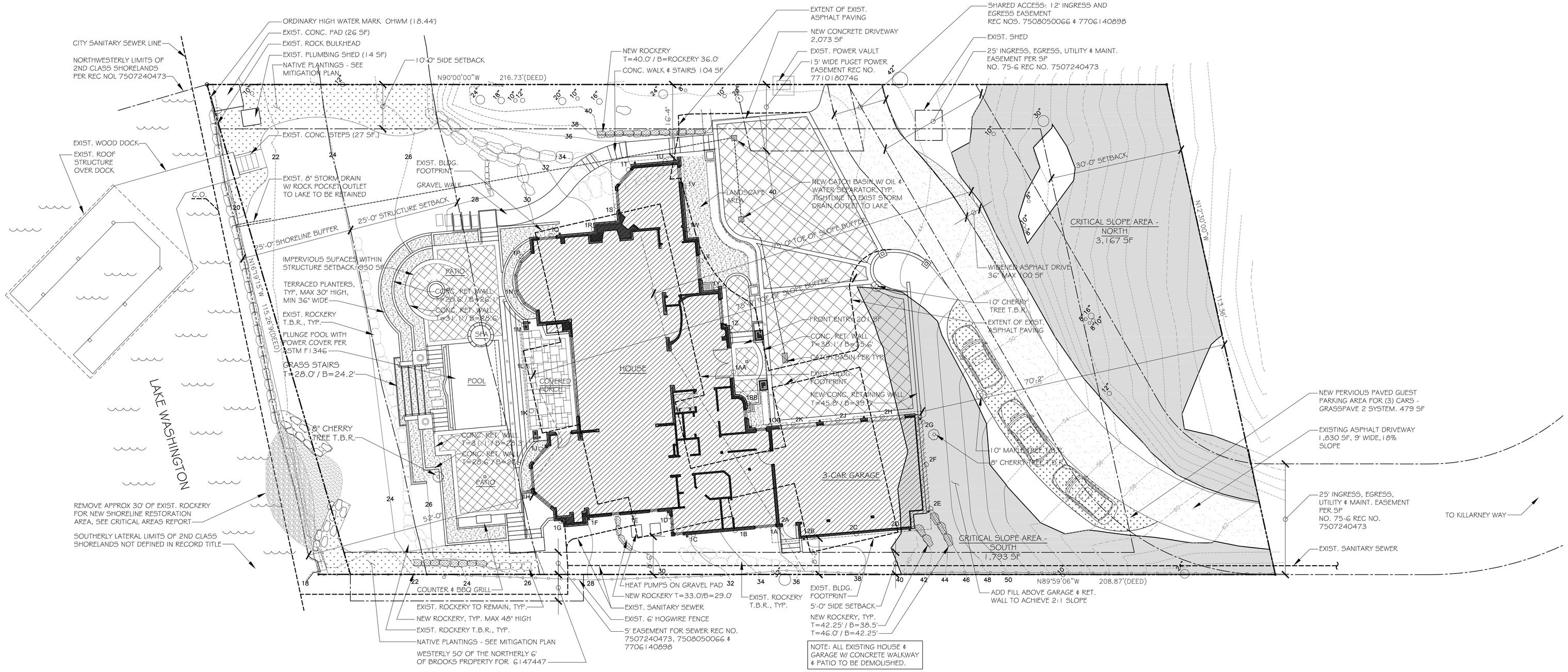
GEOTECHNICAL ENGINEERS
PERRONE CONSULTING
11220 FIELDSTONE LN NE
BAINBRIDGE ISLAND, WA 98110
p 206.780.5667



VICINITY MAP
SCALE: NTS

KUNIHOLM
Tom Kuniholm Architects
600 1st Ave
Suite 205
Seattle, Washington 98104
p. 206 625 9010
tom@tomkuniholmarchitects.com
4907 REGISTERED ARCHITECT THOMAS C. KUNIHOLM STATE OF WASHINGTON

A RESIDENCE FOR CARI & DANIEL WALL



NOTE: ALL EXISTING HOUSE & GARAGE W/ CONCRETE WALKWAY & PATIO TO BE DEMOLISHED.

SITE PLAN
SCALE: 1" = 10'-0"

A RESIDENCE FOR CARI & DANIEL WALL
1839 KILLARNEY WAY SE BELLEVUE, WA 98004

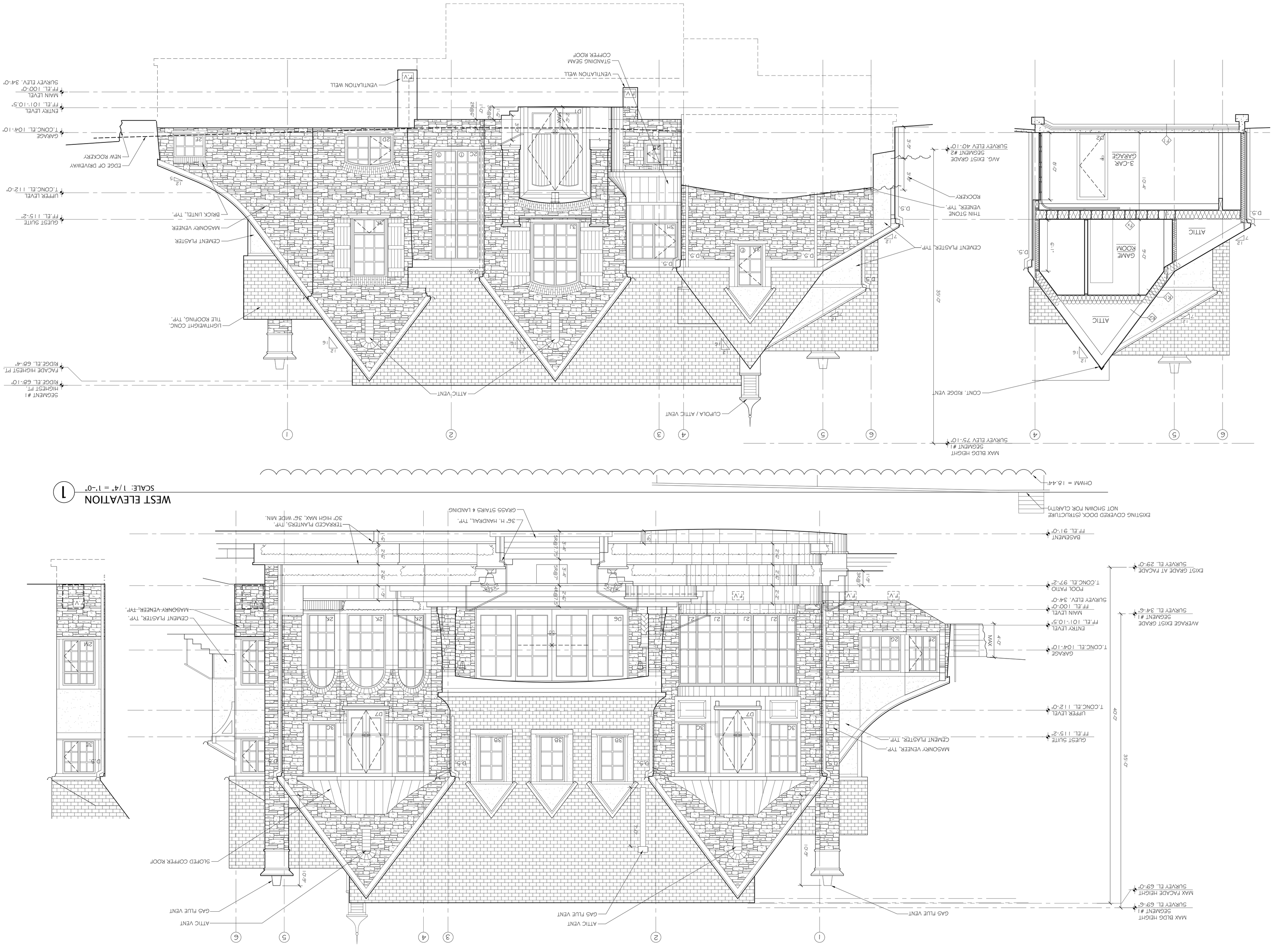
REVISION	DATE

SITE PLAN & PROJECT INFO

DATE: 5/2/13

A0.0

Wall Residence
PM#1871-4895-00



A RESIDENCE FOR CARI & DANIEL WALL

1839 KILLARNEY WAY SE

BELLEVUE, WA 98004

REVISION	DATE

ELEVATIONS

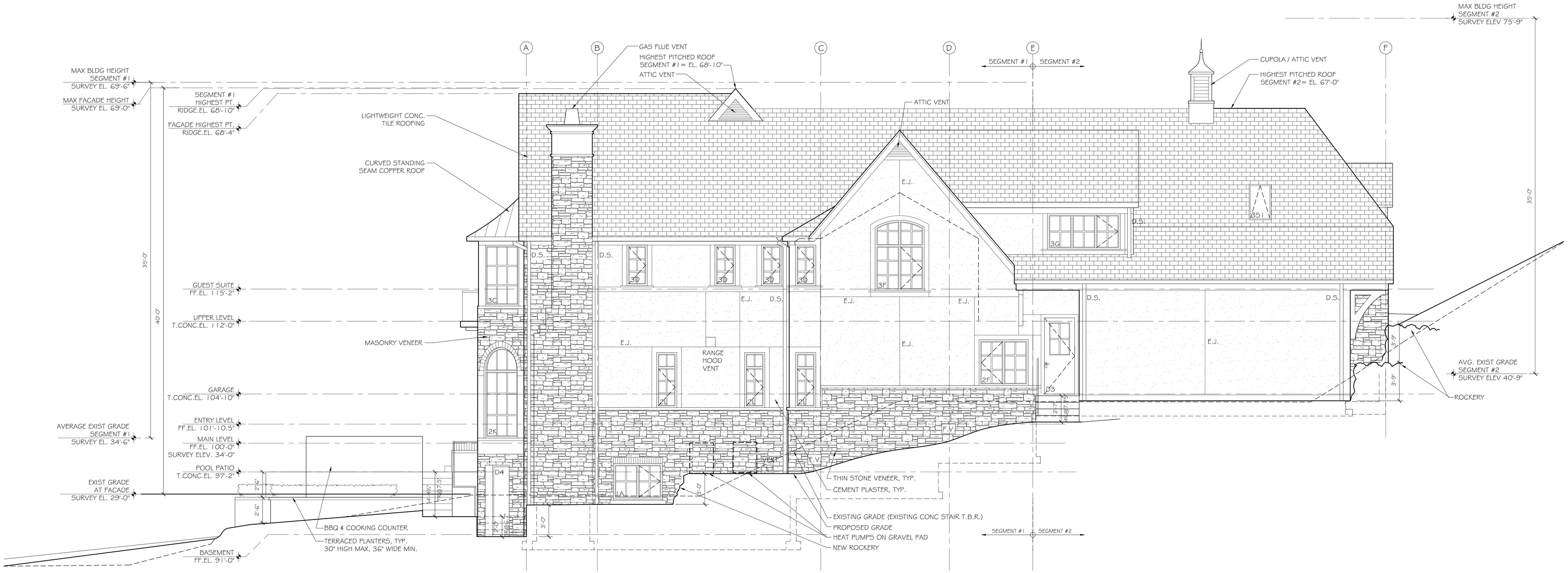
DATE: 5/2/13

A3.1

Tom Kunholm Architects
600 1st Ave
Suite 205
Seattle, Washington 98104
p. 206 625 9010
tom@tomkunholmarchitects.com

REGISTERED ARCHITECT THOMAS C. KUNHOLM STATE OF WASHINGTON 4907

Wall Residence
File #13-1748SFD



SOUTH ELEVATION 1
SCALE: 1/4" = 1'-0"

NORTH ELEVATION 2
SCALE: 1/4" = 1'-0"

KUNI HOLM
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#907 REGISTERED ARCHITECT THOMAS C. KUNIHOLM STATE OF WASHINGTON

A RESIDENCE FOR CARI & DANIEL WALL

1839 KILLARNEY WAY SE
BELLEVUE, WA 98004

REVISION	DATE

ELEVATIONS

DATE: 5/2/13

A3.2

Wall Residence
Proj #5715005.00

PERRONE CONSULTING, INC., P.S.

Geotechnical & Underground Engineering

Geotechnical Investigation

Daniel & Cari Wall Residence

Bellevue, Washington

Prepared for:

Daniel and Cari Wall

February 22, 2013

Project No. 13102

www.perroneconsulting.com

PERRONE CONSULTING, INC., P.S.

Geotechnical & Underground Engineering

11220 Fieldstone Lane NE
Bainbridge Island, Washington 98110
Tel: 206-778-8074 Fax: 206-780-5669
www.perroneconsulting.com

February 22, 2013

Daniel & Cari Wall
c/o Kuniholm Architects
Tom Kuniholm Architects
600 First Avenue, Suite 205
Seattle, WA 98104

Subject: Geotechnical Investigation
Wall Residence
Bellevue, Washington
Perrone Consulting Project #13102

Dear Mr. & Mrs. Wall:

This letter transmits 3 copies of our February 22, 2013 report titled, "Geotechnical Investigation, Wall Residence, Bellevue, Washington." The scope of our services was outlined in our proposal dated January 23, 2013.

This report presents the results of our field explorations and engineering analyses. Geotechnical recommendations are provided for design of the project. In summary, the new house could be founded on shallow spread footings. The existing fill in the southwest corner of the building area should be removed and replaced with compacted structural fill. The native soils could be used for structural backfill in the area west of the house if the site grading is performed during the drier summer months.

We appreciate the opportunity to be of service to you on this project. If you have any questions about the content of this report, or if we can be of further assistance, please contact us.

Sincerely,
PERRONE CONSULTING, INC., P.S.

2/22/13

VINCENT J. PERRONE
STATE OF WASHINGTON
19526
REGISTERED
PROFESSIONAL ENGINEER
EXPIRES 02/27/13

Vincent J. Perrone, Ph.D., P.E.
Principal Engineer

TABLE OF CONTENTS

1 INTRODUCTION 1
2 PROJECT AND SITE DESCRIPTION 1
3 FIELD PROCEDURES 1
4 SUBSURFACE CONDITIONS 1
4.1 Soils 1
4.2 Groundwater 2
5 CONCLUSIONS AND RECOMMENDATIONS 2
5.1 General 2
5.2 Slope Stability 2
5.3 Seismic Design 3
5.4 Site Grading 3
5.4.1 Site Preparation 3
5.4.2 Excavation and Fills 3
5.4.3 Temporary Excavation Slopes 4
5.4.4 Permanent Slopes 4
5.5 Spread Footing Foundations 4
5.6 Basement Walls and Retaining Walls 5
5.7 Slab on Grade Floors 6
5.8 Site Drainage 7
6 ADDITIONAL GEOTECHNICAL SERVICES 8
7 LIMITATIONS 8
8 REFERENCES 8

APPENDIX A – GEOTECHNICAL EXPLORATIONS A1

APPENDIX B – IMPORTANT INFORMATION ABOUT YOUR GEOTECHNICAL ENGINEERING REPORT B1

TABLES

Table 1 – Recommended Compaction Standards 4
Table 2 – Allowable Soil Bearing Pressures 5
Table 3 – Drain Gravel 5
Table 4 – Non-Woven Drainage Geotextile 6
Table 5 – Lateral Earth Pressure Parameters 6
Table 6 – Under-Slab Drain Gravel 7
Table 7 – Drain Gravel 7

FIGURES

Figure 1 – Site and Exploration Plan
Figure 2 – Foundation and Retaining Wall Drainage

APPENDIX A
Figure A1 – Key to Log of Boring
Figure A2 – Log of Boring B-1
Figure A3 – Log of Boring B-2
Figure A4 – Log of Boring B-3

1 INTRODUCTION

This report presents the results of our geotechnical investigation for the proposed house at 1839 Killarney Way SE in Bellevue, Washington. The purpose of our investigation was to examine subsurface conditions, evaluate the stability of the existing site slope, and to provide geotechnical recommendations for design of building foundations, Our scope of services included subsurface explorations, engineering analyses and preparation of this report.

2 PROJECT AND SITE DESCRIPTION

The rectangular shaped property is located in a residential neighborhood on a 23,545 sq ft lot on the east shore of Lake Washington. The property extends about 215 ft east from the shore of Lake Washington and is about 110 ft wide. The property generally slopes down to the west from elevation 74 at the east property line to about elevation 20 at the existing shoreline rock bulkhead. The slopes along the easterly 75 ft of the property are steepest and vary from about 1H:1V (horizontal to vertical) to 2H:1V. These steeper slopes generally appear to be the result of a side hill cut and fill placement for construction of the driveway. The remainder of the property slopes down gently at about 5H:1V. As such, the City of Bellevue has classified the site as geologically hazardous due to the steeper slopes on the east side of the property.

We understand that the proposed development will consist of removing the existing house and constructing a new house and garage with a total square footage of about 5000 sq ft. The new house will be located in the gently sloping portion of the site, where the existing house is currently situated. The lowest floor level of the new house will be about 5 ft lower than the lowest floor level of the existing house. Approximately 3 ft of new fill will be placed to the west of the existing house for a new patio and in-ground swimming pool.

3 FIELD PROCEDURES

Subsurface conditions for this project were explored by drilling 3 borings on February 6, 2013 at the locations shown on Figure 1. The borings were approximately located in the field by taping from the existing buildings. The approximate ground surface elevations shown on the boring logs were taken from the site topographic map (Triad, 2012) The locations and elevations should be considered accurate only to the degree implied by the methods of measurement.

A description of the drilling and sampling methods and the boring logs are presented in Appendix A – Field Explorations. Soils were classified in general accordance with the Unified Soil Classification System (ASTM D-2488 and ASTM D-2487)

4 SUBSURFACE CONDITIONS

4.1 Soils

Published geologic maps (Yount et al, 1993) indicate that the site area is underlain by Vashon glacial till and/or Vashon glacial advance outwash soils. Subsurface conditions encountered in the borings generally confirm the presence of Vashon glacial advance outwash soils. Some fill due to previous site grading operations was encountered overlying the glacial deposits in all of the borings. The principal soil units encountered in the explorations consisted of the following soil types:

> Fill. Loose to medium dense, moist, silty sand with gravel (SM) and poorly graded, moist, fine to medium sand (SP). Fill thickness was 6 ft in B-1, 1½ ft in B-2, and 4½ ft in B-3.
>
> Glacial Advance Outwash. Medium dense to very dense, reddish brown, moist fine to medium sand with silt (SP-SM), grayish brown, moist, fine to medium silty sand (SM) with trace to few

gravel and sandy silt (ML) interbeds, and grayish brown, moist, non-plastic, fine sandy silt (ML).

4.2 Groundwater

Groundwater was not encountered in the borings at the time of drilling. No surface groundwater seeps or springs were observed on the property during our site reconnaissance on January 23, 2013. Rust colored oxidation stains were observed beneath the fill and within the upper portion of the glacial advance outwash soils in boring B-1 indicating previous and/or intermittent groundwater infiltration and seepage. Groundwater levels will fluctuate due to seasonal precipitation, infiltration and percolation of surface water.

5 CONCLUSIONS AND RECOMMENDATIONS

5.1 General

The existing fill should be removed from beneath the location of the proposed building foundations and slab on grade areas and, if required to achieve final site grades, replaced with compacted structural fill. Shallow spread footings for the house, retaining walls and the pool should be founded on undisturbed glacial advance outwash deposits.

The drainage and/or waterproofing recommendations presented in this report (see Section 5.7 – Slab on Grade) are intended only to prevent active seepage from flowing through concrete walls or slabs. Even in the absence of active seepage into and beneath structures, water vapor can migrate through walls, slabs, and floors from concrete curing process and from moisture in the soil. Although a moisture barrier may be placed under slabs on grade, it is our experience that the barrier may not fully protect against intrusion of moisture below the slab. Water vapor also results from occupant uses. Excessive water vapor trapped within structures can result in a variety of undesirable conditions, including, but not limited to, moisture problems with flooring systems, excessively moist air within occupied areas, and the growth of molds, fungi, and other biological organisms that may be harmful to the health of the occupants. Moisture intrusion may also cause deterioration of concrete. The designer or architect must consider the potential vapor sources and likely occupant uses, and provide sufficient ventilation, either passive or mechanical, to prevent a build-up of excessive water vapor within the planned structure. The architect should also consider the use of exterior waterproofing consisting of barriers and coatings in the design.

5.2 Slope Stability

Available City of Bellevue critical area maps (eCityGov Alliance, 2012) indicate that there have been no documented landslides on this site and the slopes are classified as a “steep slope area” due to the presence of slopes with inclinations greater than 40%. Our site reconnaissance and review of LIDAR (Light Distance and Ranging) images did not reveal any evidence of large scale or deep seated slope instability issues at the site. The native dense to very dense glacial advance deposits and the absence of visible springs or seeps on the slopes generally indicate relatively stable slope conditions.

While we don’t anticipate that the proposed construction will adversely impact the stability of the project site it is probable that the existing 1H:1V hillside cut along the upslope side of the driveway could slough and erode during extended wet weather periods or in combination with freezing weather conditions. In its current condition, these slopes will pose an on-going maintenance issue which could be mitigated by flattening the steeper slopes (see Section 5.4.4 - Permanent Slopes) or constructing retaining walls (see Section 5.6 – Basement Walls and Retaining Walls).

The wedge of fill along the outboard (downslope) side of the driveway above the existing garage is marginally stable in its current 1.5H:1V configuration. Therefore we recommend flattening this slope to 2H:1V. This could be accomplished by constructing the new garage foundation wall to retain sufficient fill placement to achieve a 2H:1V slope. Retaining wall recommendations are presented in Section 5.6.

5.3 Seismic Design

Earthquake events occur regularly in the Puget Sound region although many events are too small to be felt. The most recent damaging earthquakes were the 2001 Nisqually earthquake (moment magnitude, M6.8), the 1965 Seattle earthquake (M6.5) and the 1949 Olympia earthquake (M7.1). Larger earthquakes associated with subduction of the continental plates along the West Coast can also occur. Geologic hazards associated with earthquakes can include: 1. fault rupture of the ground surface; 2. liquefaction or soil strength loss of saturated soils; 3. ground settlement and; 4. slope instability by ground shaking.

There are no documented faults through this site. The nearest documented fault is the Seattle fault located about 1 mile south of the site (USGS, 2008). Therefore, the potential for ground fault rupturing during an earthquake is low.

Due to the dense nature of the native soils, the potential for liquefaction or seismically induced ground settlement at this site is considered low. Shallow slope instability could occur in the existing steep driveway cuts as discussed in Section 5.2 - Slope Stability.

Based on the 2012 International Building Code (IBC) the seismic site classification is Class C.

5.4 Site Grading

Site grading, as described in this section, includes all major excavations and fills necessary to bring the site to the proposed finished elevations shown on the site plan, including fill to support building foundations and slabs, and backfill of foundation elements and retaining walls.

5.4.1 Site Preparation

All buried foundations, utilities, organic and inorganic debris, existing fill soils and any topsoil should be removed from the new building area and to 8 ft beyond the edge of the all building foundations to expose native glacial advance outwash soil. Topsoil is not considered suitable for reuse as structural fill and should be removed from the site or stockpiled for reuse in landscaping areas.

The exposed subgrade surfaces after stripping and fill removal should be compacted in place to at least 90 percent of the maximum dry density as determined by ASTM D1557. Care should be taken to avoid disturbing exposed subgrade soils. Loose or soft soil identified at subgrade level should be over excavated and replaced with properly compacted structural fill as discussed in Section 5.4.2 – Excavations and Fills.

5.4.2 Excavation and Fills

The term “structural fill” used in this report is defined as all fill which will be placed beneath foundations, slabs, the pool, and pavements. Structural fill should extend at least 5 ft beyond the edge of the slabs and footings and should consist of sand and gravel meeting the requirement of WSDOT specification 9-03.14(1) for “Gravel Borrow” except that the maximum particle size not exceed 3 inches.

The on-site fill and native soils vary from slightly silty to silty sands (SP-SM, SM) to sandy non-plastic silt (ML) and as such they are not suitable for use as structural fill beneath the house or beneath the outdoor pool. These soils may be used as structural fill in the patio and landscaped areas west of the proposed house provided they are placed at moisture contents near optimum to permit proper compaction. These soils should be free of organic debris and roots, and soil particles larger than 3 inches should be removed. Reuse of the on-site materials fill will require full time inspection and testing during construction to insure proper placement and compaction. The soils will be difficult to impossible to properly place and compact as structural fill during wet weather conditions. Therefore, if these soils will be used as structural fill, then the work should be done during drier weather periods.

All fill should be placed in uniform, horizontal layers not exceeding eight inches in loose thickness and compacted to meet the criteria in Table 1.

Table 1 – Recommended Compaction Standards

Location	Minimum Compaction (1)
Structural fill beneath foundations, floor slabs, and to a depth of 2 feet beneath pavements and exterior concrete slabs.	95%
Structural fill placed more than 2 feet below pavement and exterior concrete slab subgrades.	90%
Subgrade prior to filling	90%
Utility trench backfill from finished grade to one foot above pipe crown (2)	Same as adjacent fill

1) Percentage of maximum dry density as determined by ASTM D1557
2) Pipe bedding and initial backfill around the pipe should satisfy manufacturer's specifications.

If subgrade or fill soils become loosened or disturbed, the Contractor should over excavate to expose dense, undisturbed soils and place properly compacted fill.

5.4.3 Temporary Excavation Slopes

Sloped temporary construction excavations may be used where planned excavation limits will not undermine existing structures, interfere with other construction, or extend beyond construction limits. Where there is not enough area for sloped excavations, temporary shoring should be provided.

Based on the subsurface conditions encountered in the explorations, it is our opinion that sloped temporary excavations, in the absence of water, may be made at 1H:1V (horizontal to vertical) for short periods of time.

Safe slope configurations will depend on actual site conditions encountered during construction. If cohesionless soils are allowed to dry, surface sloughing may occur. If groundwater is flowing or seeping into the excavation, it should be expected to cause an unstable condition in the side slopes. If wetted by surface water, whether from precipitation or construction activities, slopes may be subject to relatively rapid erosion. The contractor is responsible for maintaining safe slopes. A competent person meeting regulatory safety requirements should be on site at all times the work is being performed. All applicable local, state, and federal safety codes should be followed.

5.4.4 Permanent Slopes

Permanent cut slopes in native undisturbed glacial soils should be no steeper than 1-1/2H:1V. Permanent fill slopes should be constructed by over-building the slope with compacted soil and then trimming the slope back to no steeper than 2H:1V.

We recommend planting permanent slopes with relatively fast-growing vegetation to reduce surficial sloughing and erosion. In non-growing and wet weather seasons, vegetative mats, jute matting, or plastic sheeting should be used until permanent vegetation can be established.

5.5 Spread Footing Foundations

The proposed building and retaining walls may be supported by shallow spread footings founded on undisturbed, glacial deposits. All footings should have a minimum embedment depth of at least 18 inches and the minimum footing widths should be 1.5 ft for continuous strip footings and 2.0 ft for isolated column footings. Footings may be designed for allowable soil bearing pressures presented in Table 2. The recommended soil bearing pressures may be increased by one-third to include short-term loads such as from wind or earthquakes.

Table 2 – Allowable Soil Bearing Pressures

Footing Width (ft)[(a)]	1.5	2.0	3.0	5.0
Allowable Bearing Capacity (psf)	3000	4000	6000	6000

(a) Minimum footing width = 1.5 ft for continuous strip footings and 2.0 ft for isolated footings.

If loose, wet, or disturbed soils are encountered at the foundation subgrade, these soils should be removed to expose undisturbed bearing soils, and the resulting over excavation should be backfilled with lean concrete or compacted granular structural fill. The base of all excavations should be dry and free of loose soil at the time of concrete placement.

The estimated total and differential settlements of foundations designed and constructed as recommended above should not exceed one inch and ½ inch respectively. Foundation settlement should occur as the loads are applied.

Lateral loads may be resisted by friction along the base of foundations and by passive soil resistance against buried foundations and walls. Footings cast directly on the undisturbed bearing soils or on properly compacted structural fill may be designed using an allowable coefficient of base friction of 0.35. An ultimate passive resistance may be computed using an equivalent fluid density of 350 pounds per cubic foot (pcf). This value is based on the assumption of a horizontal surface beyond the footing or wall of at least three times the depth of embedment in the direction of wall movement. One inch of movement may occur prior to development of the full passive pressure allowance. Passive resistance should be ignored in the upper 12 inches if not covered by floor slabs or pavements or ignored entirely if future development will result in removal of the soils providing resistance.

5.6 Basement Walls and Retaining Walls

Foundation walls and retaining walls (including the in-ground pool walls) should be backfilled with free-draining sand and gravel meeting the requirements of WSDOT specification 9-03.12(2) for "Gravel Backfill for Walls", as shown in Figure 2. A perforated rigid collection pipe (such as PVC or an approved equivalent) should be placed at the base of all foundation walls in a blanket of drain gravel meeting the gradational requirements specified in Table 3. The widths of the openings (slots or round holes) in the pipe should not exceed ¼ inch. The pipe should be placed with the perforations downward and surrounded by at least 6 inches of drain gravel wrapped in non-woven filter fabric (see Table 4). The Contractor should take care to protect drainage pipe from damage by equipment and from clogging during construction. Collected water from the drains should be tight lined to the storm drain system.

Table 3 – Drain Gravel

U.S. Standard Sieve Size	**Percent Passing by Dry Weight**
3/8 inch	100
¼ inch	30 – 50
No. 8	0 – 5

Care should be exercised when compacting backfill against retaining and foundation walls. To reduce temporary construction loads on the walls, heavy equipment should not be used for placing and compacting fill within a region as determined by a 0.5H:1V line drawn upward from the bottom of the wall, or within 3 feet of the wall, whichever is greater. We recommend using hand-operated compaction equipment within 5 feet of the wall.

Table 4 - Non-Woven Drainage Geotextile

Property	Recommended Value
Minimum permeability	0.01 cm/sec
Percent open area	Greater than 4%
Porosity	Greater than 30%

Foundation and retaining walls that are constructed as recommended above, may be designed for earth pressures summarized in Table 5. Active pressures apply to walls which are free to yield at least 0.1 percent of the wall height otherwise, we recommend using at rest pressures. Surcharge loads, including construction and traffic loads, and loads from stockpiled material, should be added to these values. For horizontal backfills, the lateral surcharge load may be computed using a lateral earth pressure coefficient of 0.3 for yielding walls and 0.4 for non-yielding walls.

Table 5 – Lateral Earth Pressure Parameters

	Equivalent Fluid Density (pcf)		Seismic Increment[(a)]
Backslope	**Active**	**At-rest**	
Horizontal	35	50	4H
2H:1V	50	70	8H

(a) H = wall height

Basement and retaining walls taller than 6 ft should be designed for seismic earth pressures. The dynamic lateral earth pressure increments are given in Table 5 and should be applied as a uniform pressure in addition to the active earth pressures.

The allowable coefficient of base friction, passive resistance, and bearing pressure for basement wall footings may be taken as the values given in Section 5.5 - "Spread Footing Foundations" provided that the recommended foundation preparation is performed. Retaining wall

5.7 Slab on Grade Floors

The building floors can be constructed as slabs-on-grade placed on undisturbed glacial soils or compacted structural fill. The subgrade soil must be in a firm, non-yielding condition at the time of slab construction. Any soft areas encountered should be excavated and replaced with select, imported structural fill. We recommend designing the concrete slabs using a subgrade coefficient of 40 pounds per cubic inch for properly compacted structural fill or native undisturbed glacial soil. We also recommend installing under-slab drains at 15 ft centers.

The drain should consist of 4-inch diameter perforated pipes. The widths of the openings (slots or round holes) in the pipe should not exceed ¼ inch. The pipe should be placed with the perforations downward and surrounded by at least 6 inches of drain gravel wrapped in non-woven filter fabric (see Table 4). Collected water from the drains should be tight lined to the storm drain system.

Water vapor from the subgrade soils below the slab will naturally migrate upward through the soil to the new constructed space above it. Therefore all interior slabs-on-grade should be underlain by a capillary break or drainage layer consisting of a minimum 4-inch thickness of gravel or crushed rock with the gradation specified in Table 6.

Table 6 – Under-Slab Drain Gravel

U.S. Standard Sieve Size	Percent Passing by Dry Weight
3 – inch	100
No. 4	0 - 10
No 200	0 – 3

A vapor retarder, such as 10-mil plastic sheeting with 24 inches of overlap at the seams, is desirable for moisture protection immediately below any on-grade slab that will be covered by tile, wood, carpet, impermeable floor coverings, or any moisture-sensitive equipment or products. A vapor retarder is defined as a material with a permeance of less than 0.3 U.S. perms per square foot (psf) per hour, as determined by ASTM E 96. Where plastic sheeting is used under slabs, joints should overlap by at least 12 inches and be sealed with adhesive tape. The sheeting should extend to the foundation walls for maximum vapor protection. If nearly no vapor passage through the slab is desired, then a vapor barrier with a water transmission rate of 0.00 perms per square foot per hour (ASTM E 96) should be used but recognizing that some vapor may still pass through the slab. Reinforced membranes having tightly sealed overlaps may meet this requirement.

The placement of a granular layer (slab curing layer) above the vapor retarder or barrier for protection and to aid in concrete curing is recommended if the material does not become wet prior to placement of the concrete slab. The granular layer should consist of minus 5/8-inch crushed rock as specified in Table 7.

Table 7 –Slab Curing Layer

U.S. Standard Sieve Size	Percent Passing by Dry Weight
5/8 – inch	95 - 100
1/4 - inch	30 – 50
No. 200	0 – 7.5
Sand equivalent, min.	32

If the slab curing layer becomes wet, water vapor will migrate upward through the slab and eliminate the effectiveness of the vapor barrier/retarder. If there is the potential that the curing layer will become wet before slab placement, then do not use the curing layer above the vapor barrier/retarder. To compensate for the loss of curing moisture, the slab joint spacing should be reduced and a low shrinkage concrete mixture should be used along with reinforcing.

We recommend that the contractor, the project materials engineer, and the owner discuss these issues and review recent ACI literature and ASTM E-1643 for installation guidelines and guidance on the use of the granular layer. Our opinion is that with impervious surfaces that all means should be undertaken to reduce water vapor transmission.

5.8 Site Drainage

We recommend that you capture all surface stormwater runoff from paved surfaces, roofs and downspouts and transport it by tight pipeline to the area west of the pool. The paved driveway should be sloped back towards the hill and into a drainage ditch and catch basin to prevent surface water flowing over the slope. The under-slab and foundation drains should not be connected to any other stormwater drains.

6 ADDITIONAL GEOTECHNICAL SERVICES

We recommend that you retain Perrone Consulting, Inc. to review those portions of the plans and specifications that pertain to foundations and earthwork to determine whether they are consistent with the recommendations in this report.

We recommend that monitoring, and consultation be provided by our firm during construction to confirm that the conditions encountered are consistent with those indicated by our explorations, to provide expedient recommendations should conditions be revealed during construction which differ from those anticipated, and to evaluate whether earthwork activities comply with contract plans and specifications. Such activities would include subgrade preparation for foundations, floor slabs, and pavements; fill placement and compaction; basement and retaining wall construction; and other geotechnical related earthwork activities.

7 LIMITATIONS

This report was prepared for the exclusive use of the Owner, Architect, and Engineer for specific application to the design of the project at this site as it relates to the geotechnical aspects discussed herein. The data and report should be provided to prospective contractors for their information, but our report, conclusions and interpretations should not be construed as a warranty of subsurface conditions included in this report.

Within the limitations of scope, schedule and budget, the analyses, conclusions, and recommendations presented in this report were prepared in accordance with generally accepted professional geotechnical engineering principles and practice in this area at the time this report was prepared. We make no other warranty, either express or implied. These conclusions and recommendations were based on our understanding of the project as described in this report and the site conditions as observed at the time of our explorations.

If there is a substantial lapse of time between the submission of this report and the start of construction at the site, or if conditions have changed due to natural causes or construction operations at or adjacent to the site, or appear to be different from those described in our report, we recommend that we review our report to determine the applicability of the conclusions and recommendations considering the changed conditions and time lapse.

Additional guidance about this geotechnical report can be found in Appendix B to this report, “Important Information about Your Geotechnical Engineering Report.”

8 REFERENCES

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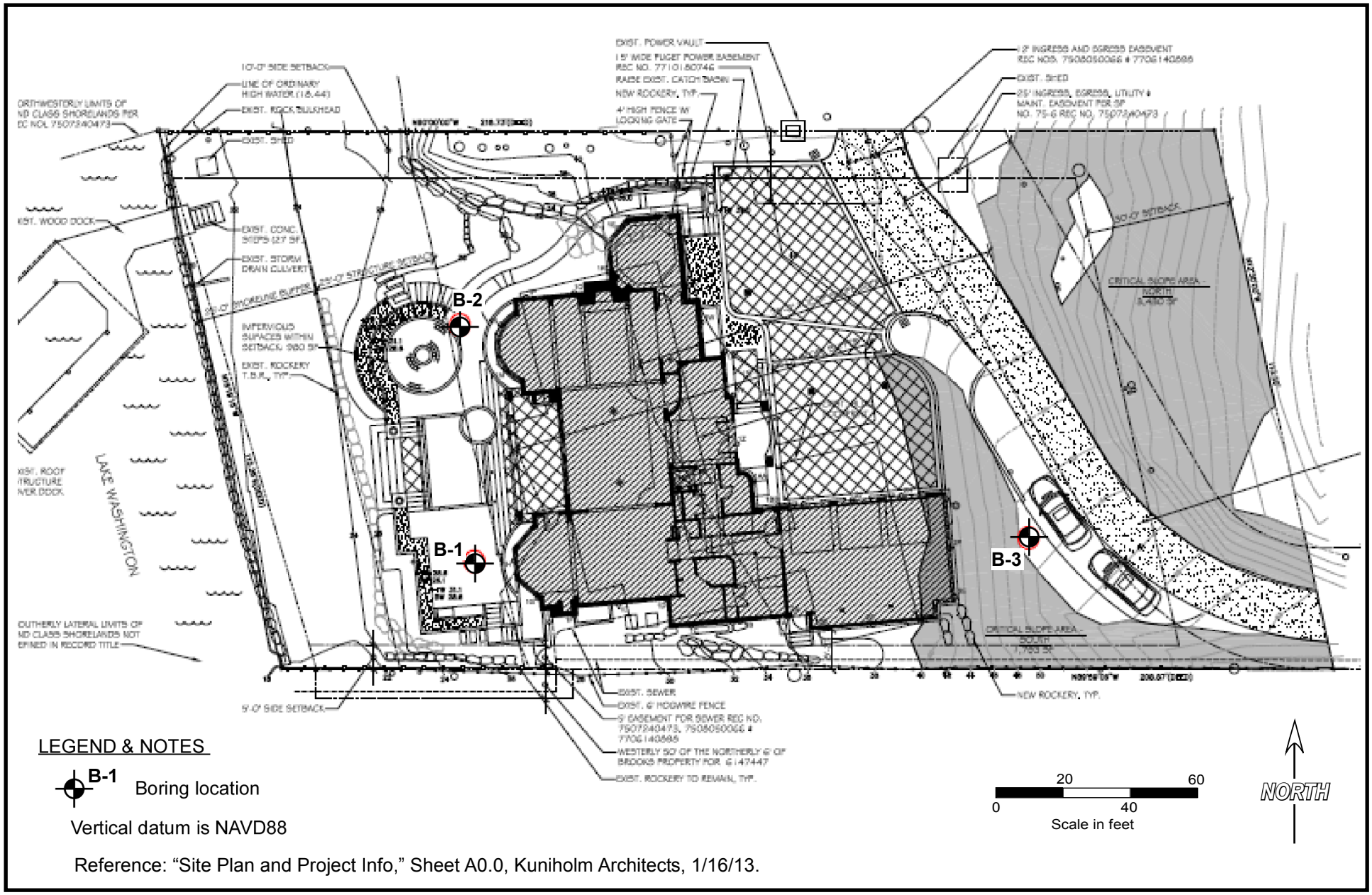


FIGURE 1

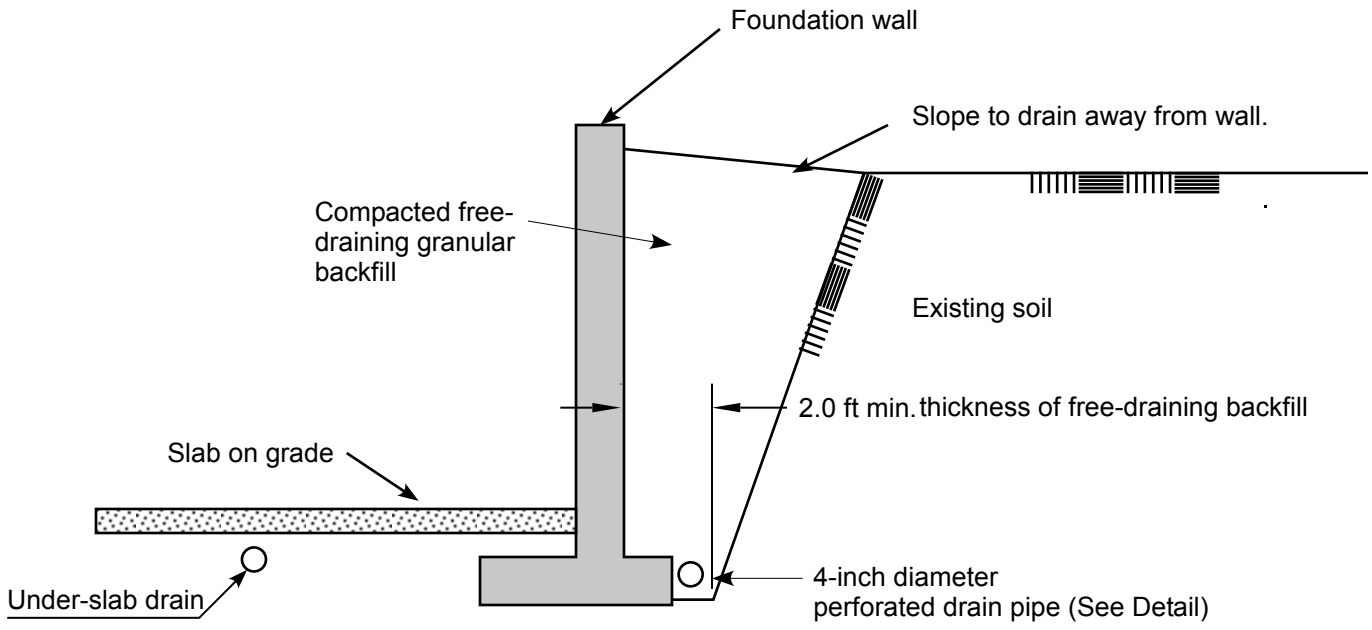
Site and Exploration Plan

February 2013

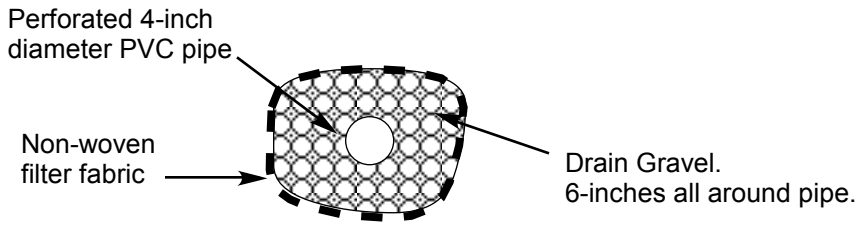
PERRONE CONSULTING, INC., P.S.
Project No. 13102

1839 Killarney Way SE
for Daniel & Cari Wall

Wall Residence
File #13-114599-LO



WALL BACKFILL & DRAIN



DRAIN DETAIL

Notes:
1. Schematic only - not to scale
2. Drain pipe should be placed with perforations facing down
3. See text for geotextile specifications
4. See text for backfill and drain gravel gradation specifications

Figure 2
Foundation Wall Backfill & Drain

February 2013

PERRONE CONSULTING, INC., P.S.
Project No. 13102

Wall Residence
File #13-114599-LO

1839 Killarney Way SE
for Daniel & Cari Wall

APPENDIX A

GEOTECHNICAL **EXPLORATIONS**

APPENDIX A – GEOTECHNICAL EXPLORATIONS

Borings B-1 through B-3 were drilled to depths ranging from 6-1/2 ft to 16 ft using an Acker Mechanic portable drill rig equipped with 2-1/2-inch I.D. augers. Disturbed samples were obtained using Standard Penetration Test (SPT) procedures at approximately 2½ to 5-foot intervals. A standard split spoon sampler was driven into the soil a distance of 18-inches with a 140-pound safety hammer free-falling from a height of 30 inches using a cathead and winch system. Recorded blows for each six inches of penetration are shown on the boring logs. The number of blows required to drive the sampler the last 12 inches is the Standard Penetration Test Resistance (N-value). This resistance, or blow count, provides a qualitative measure of the relative density of cohesionless soils and consistency of cohesive soils. Representative portions of the samples were placed in plastic bags and transported to the laboratory for classification and testing. Upon completion of each boring the borehole was backfilled. Borings B-1 and B-3 were backfilled with bentonite chips.

The Key to Log of Boring is shown in Figure A-1 and the boring logs are shown in Figures A-2 through A-4.

PERRONE CONSULTING, INC.
11220 Fieldstone Lane NE
Bainbridge Island, WA 98110
Telephone: (206) 778-8074

Key to Log of Boring

Project: 1839 Killarney Way SE
Bellevue, WA

UNIFIED SOIL CLASSIFICATION SYSTEM AND SYMBOL CHART

MAJOR DIVISIONS			SYMBOLS	DESCRIPTIONS
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS LITTLE OR NO FINES	GW	Well-graded gravels, gravel-sand mixtures, little or no fines
			GP	Poorly graded gravels, gravel-sand mixtures, little or no fines
	MORE THAN 50% OF COARSE FRACTION RETAINED ON NO.4 SIEVE	GRAVELS WITH FINES APPRECIABLE AMOUNT OF FINES	GM	Silty gravels, gravel-sand-silt mixtures
			GC	Clayey gravels, gravel-sand-clay mixtures
MORE THAN 50% OF MATERIAL COARSER THAN NO. 200 SIEVE SIZE	SAND AND SANDY SOILS	CLEAN SANDS LITTLE OR NO FINES	SW	Well-graded sands, gravelly sands, little or no fines
			SP	Poorly graded sands, gravelly sands, little or no fines
	MORE THAN 50% OF COARSE FRACTION PASSING NO.4 SIEVE	SANDS WITH FINES APPRECIABLE AMOUNT OF FINES	SM	Silty sands, sand-silt mixtures
			SC	Clayey sands, sand-clay mixtures
FINE GRAINED SOILS	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50	ML	Inorganic silts, very fine sands, rock flour, silty/clayey fine sands or clayey silts of slight plasticity
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
			OL	Organic silts and organic silty clays of low plasticity
MORE THAN 50% OF MATERIAL FINER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silt
			CH	Inorganic clays of high plasticity, fat clays
			OH	Organic clays of medium to high plasticity, organic silts
HIGHLY ORGANIC SOILS			PT	Peat, humus, swamp soils with high organic content

NOTE: DUAL SYMBOLS USED FOR BORDERLINE CLASSIFICATIONS

Blow Count / Density and Consistency Relationship

Coarse-Grained Soils		Fine-Grained Soils	
Relative Density	N, SPT Blows / Foot	Relative Consistency	N, SPT Blows / Foot
Very loose	0 - 4	Very soft	<2
Loose	5 - 10	Soft	2 - 4
Medium dense	11 - 30	Medium stiff	5 - 8
Dense	31 - 50	Stiff	9 - 15
Very dense	>50	Very Stiff	16 - 30
		Hard	>30

Minor Descriptors

Trace clay, silt, sand, gravel	<5%
Few clay, silt, sand, gravel	5 - 10%
Little clay, silt, sand, gravel	15 - 25%
Some clay, silt, sand, gravel	30 - 45%

Moisture Content

Dry	Absence of moisture, dusty
Moist	Damp but no visible water
Wet	Visible free water, from below the water table

Abbreviations

AL	Atterberg Limits
C	Consolidation
DS	Direct Shear
HA	Hydrometer Analysis
LL	Liquid Limit
LV	Laboratory Vane Shear
N	Number of hammer blows for last 12 inches driven
OVA	Organic Vapor Analyzer
Pc	Constant Head Permeability
Pf	Falling Head Permeability
PI	Plasticity Index
PP	Pocket Penetrometer
SA	Sieve Analysis
SG	Specific Gravity
TV	Torvane Shear
TX	Triaxial Shear

Sampler Symbols

- 2-inch-O.D. Split Spoon Sampler Driven with 140-lb Hammer and 30-inch Drop (SPT)
- 3-inch-O.D. Split Spoon Sampler with Brass Rings Driven with 140-lb Hammer and 30-inch Drop
- 2-inch-O.D. Split Spoon Sampler Driven with 140-lb Hammer and 18-inch Drop
- Grab Sample
- 3-inch-O.D. Shelby Tube Sampler

Piezometer Symbols

- Pipe in cement grout
- Pipe in filter pack
- Pipe in bentonite-cement
- Slotted pipe in filter pack
- Pipe in bentonite seal
- Vibrating wire piezometer

Groundwater Level Symbols

- Water level at time of drilling (ATD)
- Water level measured in piezometer

General Notes

1. Descriptions and stratum lines are interpretive; field descriptions may have been modified to reflect lab test results. Descriptions on these logs apply only at the specific boring locations and at the time the borings were advanced; they are not warranted to be representative of subsurface conditions at other locations or times.
2. Soil descriptions are recorded in the following order: SOIL CLASSIFICATION (USCS Symbol), relative density or consistency, color, moisture, plasticity or gradation, angularity, minor constituents, additional comments (organics, odor, etc.) [GEOLOGIC UNIT].

Report: VP SOIL LOG KEY; File: WALLHOME.GPJ; PCI #13180; 2/13/13

PERRONE CONSULTING, INC.
11220 Fieldstone Lane NE
Bainbridge Island, WA 98110
Telephone: (206) 778-8074

Log of Boring B-1

Project: 1839 Killarney Way SE
Bellevue, WA

Borehole Location: **East of garage**
Drilling Contractor: **Geologic Drilling, Inc.**
Drilling Method: **Hollow-Stem Auger**
Drill Rig Type: **MT-5B rig equipped with 3-inch-ID auger**

Date(s) Drilled: **2/6/13**
Logged By: **D. Yonemitsu**
Total Depth of Borehole: **16.0 feet**
Surface Elevation / Datum: **54 feet / NAVD88**

Elevation, feet	Depth, feet	SAMPLES Type Number	Blows per 6 inches (N)	Recovery, %	Graphic Log	MATERIAL DESCRIPTION	Lab Tests	Moisture Content, %	Dry Unit Weight, pcf	REMARKS
	0					SILTY SAND WITH GRAVEL (SM), very loose, brown, moist, fine to medium sand, trace charcoal [FILL]				
		1	2-2-2 (4)	33						
50						SILTY SAND (SM), loose, brown, moist, fine sand [FILL]				
	5	2	3-3-7 (10)	33						
						POORLY GRADED SAND WITH SILT (SP-SM), dense, reddish brown, moist, fine to medium sand [GLACIAL ADVANCE OUTWASH]				
		3	11-16-17 (33)	100						
45										
	10					SANDY SILT (ML), very dense, yellowish brown, moist, nonplastic, no to slow dilatancy, laminated [GLACIAL ADVANCE OUTWASH]				
		4	17-29-33 (62)	100						
		5	21-31-50 (81)	100						
40										
						Scattered layers of fine to coarse sand				
	15	6	23-50/6"	100						
						Bottom of Boring = 16.0 feet below ground surface				
						No groundwater encountered during drilling. Borehole backfilled with bentonite chips.				
35										
	20									
30										
	25									

Report: VP SOIL LOG; File: WALLHOME.GPJ; PCI #13180; 2/13/13

PERRONE CONSULTING, INC.
11220 Fieldstone Lane NE
Bainbridge Island, WA 98110
Telephone: (206) 778-8074

Log of Boring B-2

Project: 1839 Killarney Way SE
Bellevue, WA

Borehole Location: **West of deck just beyond hedges (north end)**
Drilling Contractor: **Geologic Drilling, Inc.**
Drilling Method: **Hollow-Stem Auger**
Drill Rig Type: **Acker rig equipped with 2.5-inch-ID auger**

Date(s) Drilled: **2/6/13**
Logged By: **D. Yonemitsu**
Total Depth of Borehole: **6.5 feet**
Surface Elevation / Datum: **28 feet / NAVD88**

Elevation, feet	Depth, feet	SAMPLES Type Number	Blows per 6 inches (N)	Recovery, %	Graphic Log	MATERIAL DESCRIPTION	Lab Tests	Moisture Content, %	Dry Unit Weight, pcf	REMARKS
	0					SILTY SAND (SM), dark brown, moist, medium sand [FILL]				
						SILTY SAND (SM), medium dense, grayish brown, moist, fine to medium sand, few gravel, with interbeds of SANDY SILT (ML) [GLACIAL ADVANCE OUTWASH]				
25		1	9-13-16 (29)	100						
						SANDY SILT (ML), very dense, brown, moist, nonplastic [GLACIAL ADVANCE OUTWASH]				
	5	2	27-40-46 (86)	100						
						Bottom of Boring = 6.5 feet below ground surface				
						No groundwater encountered during drilling. Borehole backfilled with bentonite chips.				
20										
	10									
15										
	15									
10										
	20									
5										
	25									

Report: VP SOIL LOG; File: WALLHOME.GPJ; PCI #13180; 2/13/13

PERRONE CONSULTING, INC.
11220 Fieldstone Lane NE
Bainbridge Island, WA 98110
Telephone: (206) 778-8074

Log of Boring B-3

Project: 1839 Killarney Way SE
Bellevue, WA

Borehole Location: **West of deck just beyond hedges (south end)**
Drilling Contractor: **Geologic Drilling, Inc.**
Drilling Method: **Hollow-Stem Auger**
Drill Rig Type: **Acker rig equipped with 2.5-inch-ID auger**

Date(s) Drilled: **2/6/13**
Logged By: **D. Yonemitsu**
Total Depth of Borehole: **14.0 feet**
Surface Elevation / Datum: **28 feet / NAVD88**

Elevation, feet	Depth, feet	SAMPLES Type Number	Blows per 6 inches (N)	Recovery, %	Graphic Log	MATERIAL DESCRIPTION	Lab Tests	Moisture Content, %	Dry Unit Weight, pcf	REMARKS
	0					Sod				
						SILTY SAND (SM), brown, moist, fine to medium sand [FILL]				
						POORLY GRADED SAND WITH GRAVEL (SP), loose, reddish brown, moist, fine to medium sand, fine gravel [FILL]				
25		1	6-3-3 (6)	33						
	5					SILTY SAND (SM), medium dense, grayish brown, moist, fine to medium sand, few fine gravel [GLACIAL ADVANCE OUTWASH]				
		2	4-7-12 (19)	100						
						POORLY GRADED SAND WITH SILT (SP-SM), dense, grayish brown, very moist, fine to medium sand, trace fine gravel [GLACIAL ADVANCE OUTWASH]				
20		3	17-22-24 (46)	100						
	10					SILTY SAND (SM), dense to very dense, grayish brown, wet, fine sand, few fine gravel [GLACIAL ADVANCE OUTWASH]				
		4	16-17-34 (51)	100						
15		5	16-22-34 (56)	100		POORLY GRADED SAND WITH SILT (SP-SM), very dense, brown, wet, fine sand, trace fine gravel, laminated with SANDY SILT (ML) [GLACIAL ADVANCE OUTWASH]				
						Bottom of Boring = 14.0 feet below ground surface				
	15					**First groundwater at 9 feet during drilling.** **Borehole backfilled with bentonite chips.**				
10										
	20									
5										
	25									

Report: VP SOIL LOG; File: WALLHOME.GPJ; PCI #13180; 2/13/13

APPENDIX B

IMPORTANT INFORMATION ABOUT YOUR GEOTECHNICAL ENGINEERING REPORT

Important Information about Your

Geotechnical Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical engineering study conducted for a civil engineer may not fulfill the needs of a construction contractor or even another civil engineer. Because each geotechnical engineering study is unique, each geotechnical engineering report is unique, prepared *solely* for the client. No one except you should rely on your geotechnical engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you* — should apply the report for any purpose or project except the one originally contemplated.

Read the Full Report

Serious problems have occurred because those relying on a geotechnical engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

A Geotechnical Engineering Report Is Based on A Unique Set of Project-Specific Factors

Geotechnical engineers consider a number of unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical engineering report that was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light industrial plant to a refrigerated warehouse,
- elevation, configuration, location, orientation, or weight of the proposed structure,
- composition of the design team, or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical engineering report is based on conditions that existed at the time the study was performed. *Do not rely on a geotechnical engineering report* whose adequacy may have been affected by: the passage of time; by man-made events, such as construction on or adjacent to the site; or by natural events, such as floods, earthquakes, or groundwater fluctuations. *Always* contact the geotechnical engineer before applying the report to determine if it is still reliable. A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ—sometimes significantly—from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are *Not* Final

Do not overrely on the construction recommendations included in your report. *Those recommendations are not final,* because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations only by observing actual

subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's recommendations if that engineer does not perform construction observation.*

A Geotechnical Engineering Report Is Subject to Misinterpretation

Other design team members' misinterpretation of geotechnical engineering reports has resulted in costly problems. Lower that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Contractors can also misinterpret a geotechnical engineering report. Reduce that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Contractors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make contractors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give contractors the complete geotechnical engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise contractors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure contractors have sufficient time* to perform additional study. Only then might you be in a position to give contractors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and contractors do not recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations" many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform a *geoenvironmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical engineering report does not usually relate any geoenvironmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own geoenvironmental information, ask your geotechnical consultant for risk management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, a number of mold prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; ***none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.***

Rely, on Your ASFE-Member Geotechncial Engineer for Additional Assistance

Membership in ASFE/The Best People on Earth exposes geotechnical engineers to a wide array of risk management techniques that can be of genuine benefit for everyone involved with a construction project. Confer with you ASFE-member geotechnical engineer for more information.

ASFE
THE BEST PEOPLE ON EARTH

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e-mail: info@asfe.org www.asfe.org

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Wall Residence
File #13-114599-LO

GOV'T LOT 4, NE 1/4, SE 1/4, SEC. 6. TWP. 24 N., RGE. 5 E., W.M.

SCALE: 1" = 10'

0 5 10 20

CONTOUR INTERVAL = 2'

BASIS OF BEARING

NORTH 00°54'17" EAST ALONG THE EAST LINE OF GOVERNMENT LOT 4, SECTION 6, TOWNSHIP 24 NORTH, RANGE 5 EAST, W.M.

VERTICAL DATUM

NAVD 88 (SEE SURVEY NOTE "D")

BENCH MARK

ORIGINAL BENCHMARK –

TBM "A"– SET CHISELED SQUARE AT THE SOUTHWEST CORNER TOP OF CONCRETE WALL. ELEVATION=23.78

TBM "B"– SET CHISELED SQUARE AT THE SOUTHEAST CORNER OF CONCRETE POWER VAULT. ELEVATION=42.35

LEGAL DESCRIPTION

LOT 3, CITY OF BELLEVUE SHORT PLAT NUMBER SP-75-6, RECORDED UNDER RECORDING NUMBER 7507240473, IN KING COUNTY, WASHINGTON;

TOGETHER WITH AN EASEMENT FOR INGRESS, EGRESS AND UTILITIES AS DESCRIBED IN SAID SHORT PLAT.

SCHEDULE B EASEMENTS

1. THIS PROPERTY IS SUBJECT TO COVENANTS, CONDITIONS, RESTRICTIONS, EASEMENTS, NOTES, DEDICATIONS AND SETBACKS, IF ANY, SET FORTH IN OR DELINEATED ON SAID SHORT PLAT. THE INGRESS, EGRESS AND UTILITIES EASEMENT AND 5-FOOT SEWER EASEMENT (BENEFITING LOTS 1 AND 2) ARE PLOTTED ON THE SURVEY MAP.
2. THIS PROPERTY IS SUBJECT TO AN EASEMENT AND THE TERMS AND CONDITIONS THEREOF IN FAVOR OF THE BELLEVUE SEWER DISTRICT, A MUNICIPAL CORPORATION, FOR SEWER PIPELINE AS CONSTRUCTED ACROSS SECOND CLASS SHORELANDS RECORDED APRIL 28, 1966 UNDER RECORDING NUMBERS 6021370 AND 6021371. NO SURFACE EVIDENCE OF THE PIPE WAS FOUND DURING THE FIELD SURVEY UNDER THE LAKE. REFER TO THAT INSTRUMENT FOR ITS FULL PARTICULARS
3. THIS PROPERTY IS SUBJECT TO AN EASEMENT FOR SIDE SEWER AND MAINTENANCE PROVISIONS CONTAINED THEREIN NEAR THE SOUTH PROPERTY LINE AS RECORDED MARCH 8, 1967 UNDER RECORDING NUMBER 6147447. NO SURFACE EVIDENCE OF THE PIPE WAS FOUND DURING THE FIELD SURVEY. REFER TO THAT INSTRUMENT FOR ITS FULL PARTICULARS.
4. THIS PROPERTY IS SUBJECT TO AN EASEMENT AND THE TERMS AND CONDITIONS THEREOF AS DISCLOSED BY REAL ESTATE CONTRACT FOR SEWER, INGRESS, EGRESS AND UTILITIES AS DESCRIBED IN INSTRUMENT RECORDED AUGUST 5, 1975 UNDER RECORDING NUMBER 7508050066. IT INCLUDES THE MAIN INGRESS, EGRESS AND UTILITIES EASEMENT AND 5-FOOT SEWER EASEMENT CREATED IN THE SHORT PLAT NOTED ABOVE. IT ALSO INCLUDES AN EASEMENT FOR THE MAINTENANCE AND REPAIR OF AN EXISTING WATER LINE WHICH PROVIDES WATER TO LOT 3 (THE PROPERTY HEREIN SURVEYED). (NO SURFACE EVIDENCE WAS FOUND FOR SAID WATER LINE DURING THE FIELD SURVEY.) IT ALSO INCLUDES PROVISIONS FOR THE PURPOSES OF INGRESS TO AND EGRESS FROM THE ADJOINING REALTY DESCRIBED AS LOT 4 IN THE PROPOSED ANDERSON SHORT PLAT (PRESUMABLY THAT SHORT SUBDIVISION THAT WAS RECORDED UNDER RECORDING NUMBER 7507240473 MENTIONED ABOVE) OVER THE EASTERLY TWELVE FEET OF THE PAVED AREA ON LOT 3 (THE PROPERTY HEREIN SURVEYED). THE EASTERLY TWELVE FEET OF THE PAVED AREA HAS BEEN NOTED ON THE SURVEY MAP. REFER TO SAID REAL ESTATE CONTRACT FOR ITS FULL PARTICULARS. ALL OF THE EASEMENTS NOTED ABOVE ALSO APPEAR OF RECORD IN INSTRUMENT RECORDED JUNE 14, 1977 UNDER RECORDING NUMBER 7706140898.

SCHEDULE B EASEMENTS (CONTINUED)

5. THIS PROPERTY IS SUBJECT TO AN EASEMENT AND THE TERMS AND CONDITIONS THEREOF GRANTED TO PUGET SOUND POWER & LIGHT COMPANY FOR AN ELECTRIC TRANSMISSION AND/OR DISTRIBUTION SYSTEM WITHIN THE NORTH 15 FEET OF THE WEST 25 FEET OF THE EAST 95 FEET OF THE PROPERTY HEREIN SURVEYED RECORDED OCTOBER 18, 1977 UNDER RECORDING NUMBER 7710180746. THIS PARALLELOGRAM (15'X25') HAS BEEN PLOTTED ON THE SURVEY MAP. REFER TO THE RECORDED INSTRUMENT FOR ITS FULL PARTICULARS
6. THIS PROPERTY IS SUBJECT TO COVENANTS, CONDITIONS AND RESTRICTIONS CONTAINED IN INSTRUMENT RECORDED JULY 2, 1975 UNDER RECORDING NUMBER 7507020592. REFER TO THAT INSTRUMENT FOR ITS FULL PARTICULARS.
7. THIS PROPERTY IS SUBJECT TO TERMS AND CONDITIONS OF NOTICE OF CHARGES RECORDED DECEMBER 20, 1996 UNDER RECORDING NUMBER 9612200938. REFER TO THAT INSTRUMENT FOR ITS FULL PARTICULARS.
8. THIS PROPERTY IS SUBJECT TO THE QUESTION OF LOCATION OF LATERAL BOUNDARIES OF SAID SECOND CLASS TIDELANDS OR SHORELANDS. THE NORTHERLY LIMITS OF THE ADJOINING SHORELANDS HAS BEEN DEFINED AND IS PLOTTED ON THE SURVEY MAP. NO SUCH DEFINITION OF THE SOUTHERLY LIMITS OF THE ADJOINING SHORELANDS HAS BEEN RECORDED.

NOTE

EVIDENCE OF OCCUPATION OF LAND (FOR EXAMPLE: FENCES, STRUCTURES, PAVING, GRAVELED SURFACES, ETC.) MAY NOT COINCIDE WITH THE DEEDED BOUNDARY LINES AS SHOWN ON THIS DRAWING. THERE ARE AREAS ON THIS SURVEY APPEARING TO HAVE DISCREPANCIES BETWEEN THE DEEDED BOUNDARY LINES AND CERTAIN EVIDENCE OF OCCUPATION.
WHERE DISCREPANCIES EXIST TRIAD RECOMMENDS THAT THE OWNER OR POTENTIAL PURCHASER CONSULT WITH LEGAL COUNSEL TO DETERMINE HOW BEST TO INTERPRET THEIR PROPERTY RIGHTS AND ADDRESS ANY POTENTIAL BOUNDARY DISPUTES.

GENERAL NOTES

1. INSTRUMENTATION FOR THIS SURVEY WAS A LEICA TOTAL STATION. PROCEDURES USED IN THIS SURVEY WERE FIELD TRAVERSE, MEETING OR EXCEEDING STANDARDS SET BY WAC 332-130-090.
2. THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF A SURVEY MADE ON DATE INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITION EXISTING AT THAT TIME.
3. SANITARY SEWER AND STORM DRAINAGE FACILITIES HAVE BEEN ASBUILT THROUGH FIELD MEASUREMENTS OF THE LOCATION OF THE ACCESS STRUCTURES, THE TOP ELEVATION OF THE STRUCTURES, AND THE INVERT ELEVATIONS OF ANY PIPES ENTERING OR LEAVING THE STRUCTURES. IT IS STANDARD PRACTICE TO SHOW THE PIPES CONNECTING THESE STRUCTURES AS STRAIGHT LINES. THIS IS ONLY AN ASSUMPTION AND THE ACTUAL LOCATION OF THE PIPING MUST BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO ANY CONSTRUCTION.
4. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION, ELEVATION AND SIZE OF EXISTING UTILITIES PRIOR TO CONSTRUCTION.

SURVEY NOTES

A. LEGAL DESCRIPTION, EASEMENTS AND OTHER MATTERS OF PUBLIC RECORD WERE DERIVED FROM AN A.L.T.A. UPDATED COMMITMENT FOR TITLE INSURANCE DATED OCTOBER 17, 2011 WITH TWO SUPPLEMENTAL REPORTS, EACH DATED FEBRUARY 17, 2012.

B. THE RECORD LEGAL DESCRIPTION IN STATUTORY WARRANTY DEED RECORDED MARCH 5, 2008 UNDER RECORDING NUMBER 20080305000943 FOR THE PROPERTY IMMEDIATELY SOUTH OF THE PROPERTY HEREIN SURVEYED INDICATES A TITLE OVERLAP OF 0.02 FEET. REFER TO THAT INSTRUMENT FOR ITS FULL PARTICULARS.

C. THE LOCATION OF THE SANITARY SEWER PIPE SHOWN HEREON (EXCEPT FOR THE TWO CLEANOUTS, WHICH WERE FIELD LOCATED) IS SCALED BASED ON THE POSITION OF THE HOUSE AND SOUTH PROPERTY LINE PER BELLEVUE SEWER DISTRICT AS-BUILTS FOR 1839 KILLARNEY WAY SE, PERMIT NO. 4315, DATED FEBRUARY 14, 1967.

D. THE VERTICAL DATUM FOR THIS SURVEY IS NAVD 88. THE EQUATION TO TRANSLATE NAVD 88 TO THE LAKE WASHINGTON CORPS OF ARMY ENGINEERS' DATUM IS:
   i. NAVD 88 + 3.41' = LAKE WASHINGTON CORPS OF ARMY ENGINEERS' DATUM.
   ii. LAKE WASHINGTON CORPS OF ARMY ENGINEERS' DATUM – 3.41' = NAVD 88.

SYMBOL LEGEND

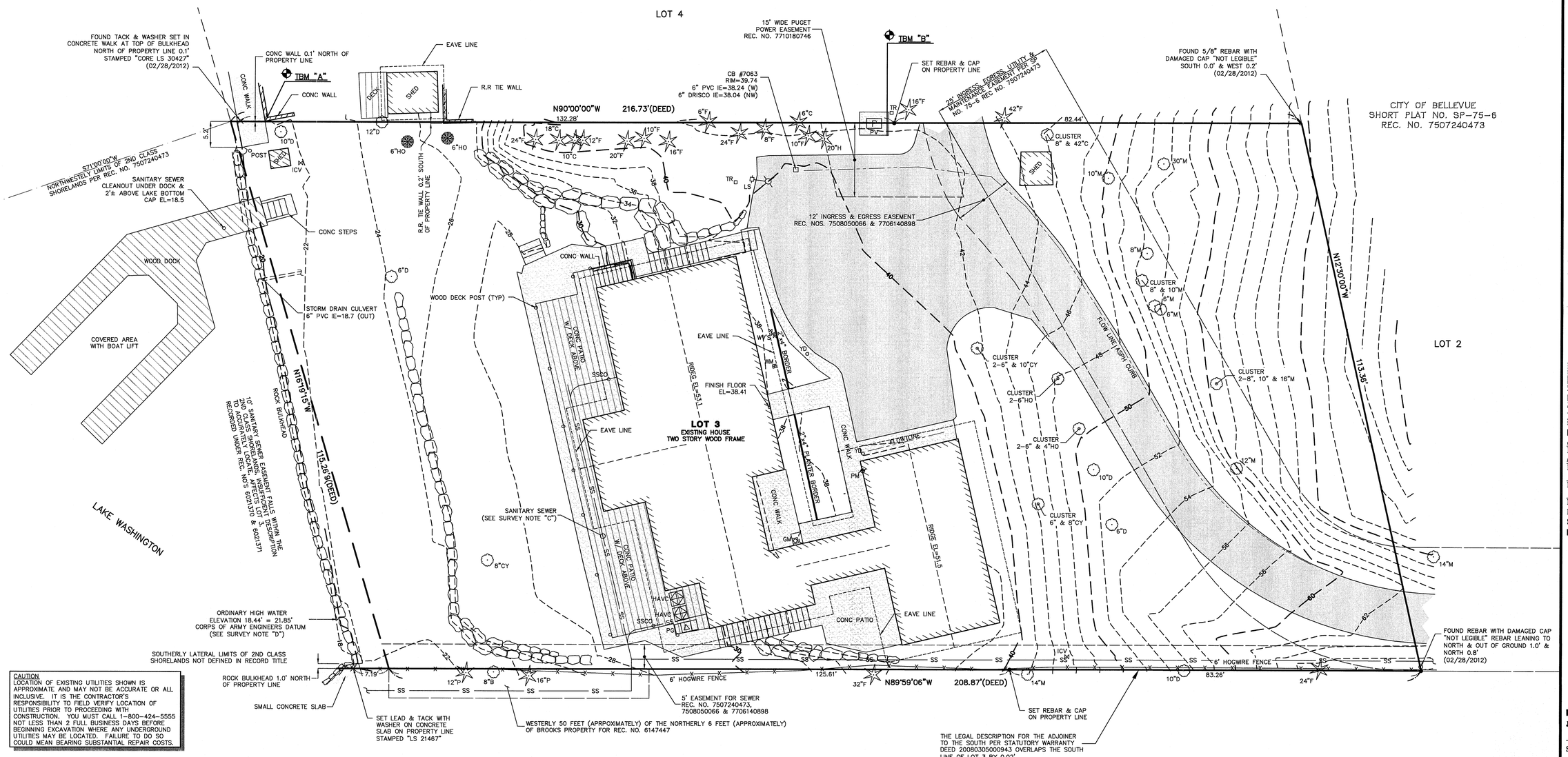
	CB	CATCH BASIN (TYP I)
	YD	YARD DRAIN
	SSCO	SANITARY SEWER CLEANOUT
	ICV	IRRIGATION CONTROL VALVE
	WM	WATER METER
	WV	WATER VALVE
	GM	GAS METER
	HVAC	H.V. AIR COND. SYSTEM
	PM	POWER METER
P	PV	POWER VAULT
	PG	POWER GENERATOR
	LS	LIGHT STANDARD (PARKING LOT)
	TR	TELEPHONE JCT. RISER
		ROCKERY
		LEAD AND TACK FOUND
		LEAD AND TACK AS NOTED
		PROPERTY CORNER FOUND AS NOTED
		DENOTES SET REBAR W/CAP "TRIAD 21467"

TREE LEGEND

	CONIFER TREE
C	CEDAR
F	FIR
H	HEMLOCK
P	PINE
	EVERGREEN TREE
HO	HOLLY
	DECIDUOUS TREE
B	BIRCH
CY	CHERRY
D	DECIDUOUS
M	MAPLE

HATCH LEGEND

	CONCRETE
	ASPHALT PAVEMENT
	EXISTING BUILDING



CAUTION
LOCATION OF EXISTING UTILITIES SHOWN IS APPROXIMATE AND MAY NOT BE ACCURATE OR ALL INCLUSIVE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY LOCATION OF UTILITIES PRIOR TO PROCEEDING WITH CONSTRUCTION. YOU MUST CALL 1-800-424-5555 NOT LESS THAN 2 FULL BUSINESS DAYS BEFORE BEGINNING EXCAVATION WHERE ANY UNDERGROUND UTILITIES MAY BE LOCATED. FAILURE TO DO SO COULD MEAN BEARING SUBSTANTIAL REPAIR COSTS.

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Land Development Consultants

BOUNDARY / TOPOGRAPHIC SURVEY FOR
DANIEL & CARI WALL
WALL RESIDENCE
1839 - 101ST AVE SE
BELLEVUE, WA 98004
CITY OF BELLEVUE, WASHINGTON

NO.	DATE	REVISION	BY	CK

Gregory T. Juneau, PLS
PROJECT MANAGER
Mark S. Harrison, PLS
PROJECT SURVEYOR
PROJECT ENGINEER
PROJECT LANDSCAPE ARCHITECT
FIRST SUBMITTAL DATE: 03/05/2012
SCALE: HORIZ.: 1"=10' VERT.:

STAMP NOT VALID UNLESS SIGNED AND DATED

JOB NO. 12-015
SHEET NO. 1 OF 1

12015.DWG
TOPO-030512

12015.DWG, TOPO-030512, , kirley, Mar 05, 2012 - 5:11pm
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Wall Residence
File #13-114599-LO