



**City of Bellevue
Development Services Department
Land Use Staff Report**

Proposal Name: Valentine Critical Areas setback modification

Proposal Address: 1006 West Lake Sammamish Pkwy SE

Proposal Description: The applicant requests a Critical Areas Land Use Permit to modify a geologic hazard and shoreline structure setback to construct a new single family residence.

File Number: 12-114103-LO

Applicant: Dave Elwell, DME Construction

Decisions Included: Critical Areas Land Use Permit
(Process II. LUC 20.30P)

Planner: Heidi M. Bedwell, Planner

**State Environmental Policy Act
Threshold Determination:** Exempt

Director's Decision: Approval with Conditions

Carol V. Helland, Land Use Director
Development Services Department

Application Date: May 22, 2012
Notice of Application Publication Date: June 28, 2012
Decision Publication Date: August 23, 2012
Project Appeal Deadline: September 6, 2012

For information on how to appeal a proposal, visit Development Services Center at City Hall or call (425) 452-6800. Appeal of the Decision must be received in the City's Clerk's Office by 5 PM on the date noted for appeal of the decision.

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1. Project Plans
2. Critical Areas Report including Geotechnical Report

I. Proposal Description

The applicant is requesting a Critical Areas Land Use Permit approval to reduce shoreline and geologic hazard (steep slope) structure setbacks in order to construct a single-family residence on the subject site.

In addition to a 25-foot shoreline buffer, the Land Use Code (LUC) 20.25H.035 prescribes a 25-foot shoreline structure setback and a 75-foot geologic hazard toe of slope structure setback. The land use code permits modification of critical area structure setbacks using a critical areas report. The critical areas report is a mechanism by which certain LUC requirements may be modified for a specific project proposal on a site.

The critical areas report is intended to provide flexibility for sites where the expected critical areas functions and values may not be fully present due to degraded conditions. The site is currently developed with a single family residence and ancillary development which has modified much of the site. Some of the functions intended to be provided by the setbacks are not fully functioning and are in a degraded condition. The proposal includes the enhancement of existing functions along with the construction of a new single-family residence.

II. Site Description, Zoning, Land Use and Critical Areas

A. Site Description

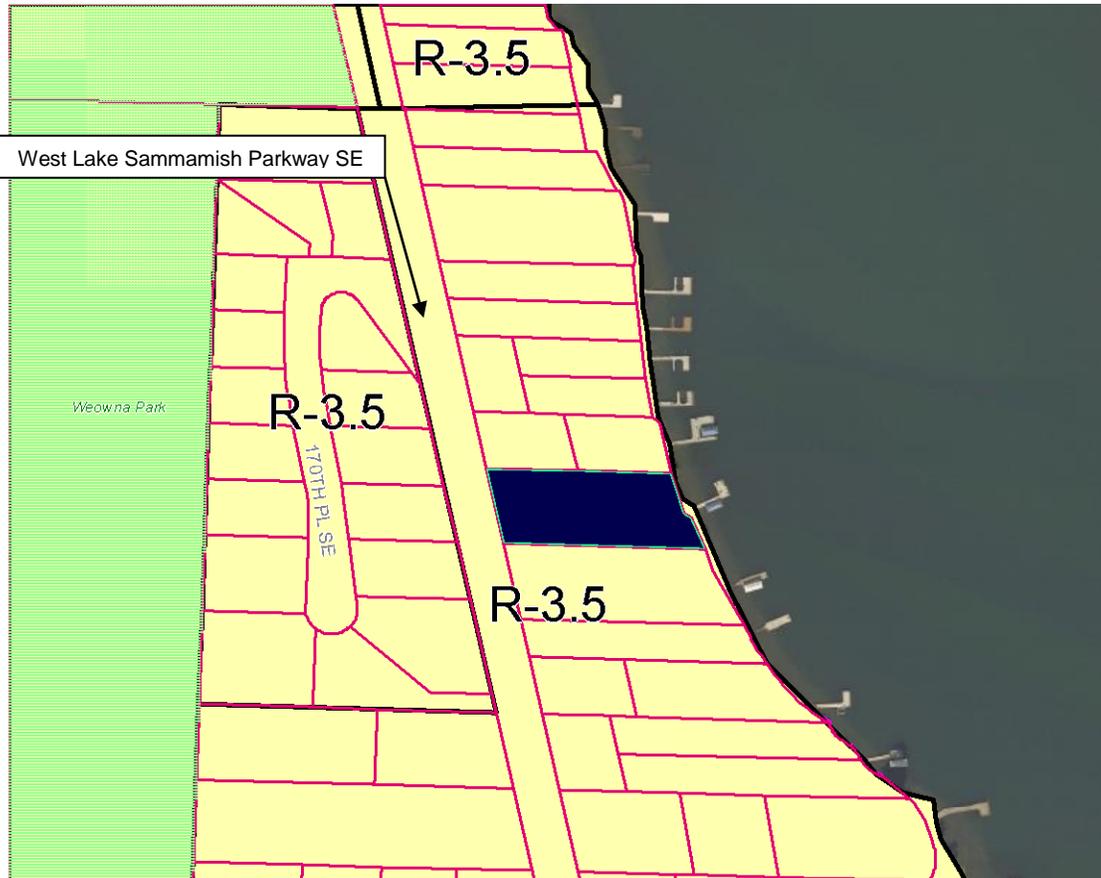
The site is generally rectangular in shape, approximately 24,007 square feet in size, and contains a steep slope (40% and greater) covered in a mix of mature native trees and invasive vegetation. The slope drops downward from west to east. A rockery, running north south, is located at the toe of the slope adjacent to an improved road easement. An existing single-family residence is located on the site along with ancillary improvements including a detached shed, wooden deck, concrete planters, ornamental landscaping, and a shoreline bulkhead.



(2009 aerial photo COB)

B. Zoning

The property is zoned R-3.5 and is within the Shoreline and Critical Areas Overlay districts.



C. Land Use Context

The site and surrounding development are characterized by single-family residential development within 100 feet of the lake shoreline. The site is accessed via a private improved access easement connected to West Lake Sammamish Parkway SE.

D. Critical Areas Functions and Values

i. Geologic Hazard Areas

Geologic hazards pose a threat to the health and safety of citizens when commercial, residential, or industrial development is inappropriately sited in areas of significant hazard. Some geologic hazards can be reduced or mitigated by engineering, design, or modified construction practices. When technology cannot reduce risks to acceptable levels, building in geologically hazardous areas is best avoided (WAC 365-190).

Steep slopes may serve several other functions and possess other values for the

City and its residents. Several of Bellevue's remaining large blocks of forest are located in steep slope areas, providing habitat for a variety of wildlife species and important linkages between habitat areas in the City. These steep slope areas also act as conduits for groundwater, which drains from hillsides to provides a water source for the City's wetlands and stream systems. Vegetated steep slopes also provide a visual amenity in the City, providing a "green" backdrop for urbanized areas enhancing property values and buffering urban development.

ii. Shorelines

Shorelines provide a variety of functions including shade, temperature control, water purification, woody debris recruitment, channel, bank and beach erosion, sediment delivery, and terrestrial-based food supply (Gregory et al. 1991; Naiman et al. 1993; Spence et al.1996).

Shorelines provide a wide variety of functions related to aquatic and riparian habitat, flood control and water quality, economic resources, and recreation, among others. Each function is a product of physical, chemical, and biological processes at work within the overall landscape. In lakes, these processes take place within an integrated system (ecosystem) of coupled aquatic and riparian habitats (Schindler and Scheuerell 2002). Hence, it is important to have an ecosystem approach which incorporates an understanding of shoreline functions and values. The discussion presented herein emphasizes this ecosystem approach.

III. Consistency with Land Use Code Requirements:

A. Zoning District Dimensional Requirements:

The R-3.5 zoning dimensional requirements found in LUC 20.20.010 apply to the proposal. The plans submitted generally demonstrate conformance with these standards, however conformance will be verified during building permit review.

B. Critical Areas Requirements LUC 20.25H:

The City of Bellevue Land Use Code Critical Areas Overlay District (LUC 20.25H) establishes performance standards and procedures that apply to development on any site which contains in whole or in part any portion designated as critical area, critical area buffer or structure setback from a critical area or buffer. The project area is within the 75-foot toe-of-slope setback from a steep slope and a 25-foot shoreline structure setback and is subject to the performance standards found below.

a. Consistency with LUC 20.25H.115.C and 120.C Structure Setbacks

Structure setbacks are required in order to:

- a. Minimize long-term impacts of development adjacent to critical areas and critical area buffers; and
- b. Protect critical areas and critical area buffers from adverse impacts during construction.

Steep Slope Setback: The proposal will not impact the steep slope critical area or its associated buffer. Construction will be confined to already disturbed areas and the steep slope is separated by an existing rockery and paved roadway. The proposal includes enhancement plantings on the steep slope. No long-term impacts from the development are anticipated.

Shoreline Setback: The proposal will maintain between a 5 and 20-foot structure setback from the required 25 foot buffer providing sufficient area to minimize long term impacts to the shoreline. In addition, the buffer will be enhanced from the existing condition with the proposed native plantings and with the condition that the existing wood deck be removed from the buffer. A temporary construct fence will be required at the edge of the buffer during construction to minimize construction impacts. **See Conditions of Approval in Section X of this report.**

b. Consistency with Critical Areas Report LUC 20.25H.230.

The applicant supplied a complete critical areas report prepared by staff from 4D Architects and The Watershed Company, qualified professionals. The report met the minimum requirements in LUC 20.25H.250.

c. Consistency with Critical Areas Report – Additional provisions LUC 20.25H.140.

The application includes a copy of the site plans for the proposal and a topographic survey. In addition, a geotechnical report prepared by Geotech Consultants Inc, on March 1, 2012 includes an analysis of the sites geological characteristics and the proposed project. The report makes the following recommendation related to the slope structure setback:

“The set back between the new house and the toe of the steep slope will be less than the 75-foot structure set back required from the toe of slope for new construction by Bellevue Code 20.25E035. Even so, considering that the paved road will remain in the same condition and the rockery and steep slope will be untouched, allowing the reduced toe-of-slope structure setback for the planned development will not adversely impact the stability of the rockery or the steep slope...The steep slope is not mantled with colluvium, and deep-seated slides are not known to occur in this area. As a result, large-scal slides on steep slopes are not expected in the future. However, as with any steep slope in the area, shallow “skin” slides or mudflows may affect the upper few feet of looser weathered soil... However, for the new house, the 25- to 30-foot structure setback from the toe of slope provides a relatively wide run-out area for soil or mud that could potentially travel down the slope in a shallow slide. Even so, we recommend that additional protection for the portion of the structure south of the garage be provided by extending the westernmost foundation wall to at approximately 3 feet above grade to deflect any soil or mud that might travel across the paved road. The exterior siding can cover this extension of the foundation wall. Alternatively, a short stand-alone wall or planter could be constructed on the west side of the house to provide the same additional protection.”

The project will be conditioned to incorporate the recommendation for extending the foundation as per the geotech report analysis. **See Conditions of Approval in Section X of this report.**

IV. Public Notice and Comment

Application Date:	May 22, 2012
Public Notice (500 feet):	June 26, 2012
Minimum Comment Period:	July 12, 2012

The Notice of Application for this project was published in the City of Bellevue weekly permit bulletin on June 26, 2012. It was mailed to property owners within 500 feet of the project site. No comments have been received from the public as of the writing of this staff report.

V. Summary of Technical Reviews

Clearing and Grading:

The Clearing and Grading Division of the Development Services Department has reviewed the proposed development for compliance with Clearing and Grading codes and standards. The Clearing and Grading staff found no issues with the proposed development.

VI. State Environmental Policy Act (SEPA)

The proposed project is exempt from additional environmental review per BCC 22.02.032 Determination of categorical exemption.

VII. Changes to proposal as a result of City review

No changes to the proposed setbacks and building footprint have been required. Additional mitigation measures, as conditioned in Section X are required for approval.

VIII. Decision Criteria

A. Critical Areas Report Decision Criteria- General Criteria LUC 20.25H.255

The Director may approve, or approve with modifications, the proposed modification where the applicant demonstrates:

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

Finding: The site contains an existing residential structure partially located within the

steep slope critical area structure setback and the shoreline structure setback. The applicant proposed to rebuild the existing structure and extend the new footprint further into the steep slope and shoreline structure setbacks.

The applicant supplied a geotechnical report prepared by Geotech Consultants Inc, on March 1, 2012. The geotechnical report concludes that with the addition of foundation wall structural improvements, the proposed setback still provides adequate protection of the critical area steep slope. The proposal includes a mitigation plan to enhance 2,315 square feet of the steep slope with native vegetation per the landscape plan found in Attachment 1. This planting further enhances the natural characteristics of the steep slope critical area providing a level of protection at least as protective as the application of the regulations and standards of the code.

In addition to the existing structure located in the setbacks, a wooden deck structure is located within the shoreline buffer. The presence of this structure limits the establishment of shoreline functions. In order to balance the request to reduce the shoreline structure setback and the protection of the shoreline buffer and critical area, the applicant will be required to remove the deck from the buffer. A pervious walkway may be permitted in the buffer to access the existing dock and beach. All other areas of disturbance associated with the deck removal shall be restored with vegetation.

The applicant proposed to plant 1,338 square feet of native vegetation in the shoreline buffer and shoreline setback. An additional area totaling 400 square feet of native vegetation shall be planted within the shoreline buffer, at and below the ordinary high water mark. A revised planting plan is required prior to the issuance of a building permit for construction of the single family residence. **See Conditions of Approval in Section X of this report.**

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

Finding: The applicant will be required to provide a performance assurance device for the required mitigation measures associated with the proposed development within the structure setback from the steep slope and shoreline critical areas.

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

Finding: The functions and values of the critical areas and critical area buffers on adjacent properties will be unaffected by the actions in the proposal. As discussed in Section III of this report, the applicable performance standards of LUC Section 20.25H are being met.

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

Finding: The proposed project is to construct a single family residence. This use is compatible with the surrounding residential development permitted in the same land use district.

B. Critical Areas Land Use Permit Decision Criteria 20.30P

The Director may approve or approve with modifications an application for a critical areas land use permit if:

1. The proposal obtains all other permits required by the Land Use Code;

Finding: The proposal will be required to obtain a single-family building permit for the construction of the new residence. **See Conditions of Approval in Section X of this report.**

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

Finding: The proposed project is being constructed generally in the same location of the existing home's footprint rather than expanding into areas that have not been disturbed. The design utilizes existing foundation walls which will minimize the amount of required excavation for the construction of the new home. The geotechnical report also suggests the use of erosion control techniques during construction. No excavation is permitted within the shoreline buffer. The only disturbance permitted within the shoreline buffer is that associated with the installation of required utilities, the removal of the existing deck, and installation of mitigation plantings. **See Conditions of Approval in Section X of this report.**

3. The proposal incorporates the performance standards of Part 20.25H to the maximum extent applicable, and ;

Finding: The proposed structure will be located outside of any critical area or critical area buffers. As discussed in Section III of this report, the applicable performance standards of LUC Section 20.25H are being met.

4. The proposal will be served by adequate public facilities including street, fire protection, and utilities; and;

Finding: The property is currently served by adequate public facilities. The proposal will not change the need for public facilities on the property.

5. The proposal includes a mitigation or restoration plan consistent with the requirements of LUC Section 20.25H.210; and

Finding: The mitigation planting is conditioned to add the removal of the existing deck and the addition of 400 square feet of native planting per the City's Critical Areas Handbook within the shoreline buffer, at and below the ordinary high water mark. At time of building permit a cost estimate for the planting will be required and a planting plan that shows all plants to be installed as required by this decision. Part of the permit inspection process will include an inspection by Land Use staff to ensure the planting is installed. See Conditions of Approval in Section X of this report.

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

Finding: As discussed in this report, the proposal complies with or can demonstrate compliance at application of a building permit with all other applicable requirements of the Land Use Code and Bellevue City Code. See Conditions of Approval in Section X of this report.

IX. Conclusion and Decision

After conducting the various administrative reviews associated with this proposal, including Land Use Code consistency, SEPA, City Code and Standard compliance reviews, the Director of the Development Services Department does hereby **approve with conditions** the proposal to construct a single family residence within a steep slope and shoreline critical area setback.

Note- Expiration of Approval: In accordance with LUC 20.30P.150 a Critical Areas Land Use Permit automatically expires and is void if the applicant fails to file for a Clearing and Grading Permit or other necessary development permits within one year of the effective date of the approval.

X. Conditions of Approval

The applicant shall comply with all applicable Bellevue City Codes and Ordinances including but not limited to:

<u>Applicable Ordinances</u>	<u>Contact Person</u>
Clearing and Grading Code- BCC 23.76	Savina Uzunow, 425-452-7860
Land Use Code- BCC 20.25H	Heidi M. Bedwell, 425-452-4862
Noise Control- BCC 9.18	Heidi M. Bedwell, 425-452-4862

The following conditions are imposed under the Bellevue City Code authority referenced:

- 1. Construction Fencing.** No excavation is permitted within the shoreline buffer except for the location of necessary utilities. All areas of temporary disturbance shall be restored. An erosion control fence shall be located at the edge of the shoreline buffer to limit disturbance of the shoreline.

Authority: Land Use Code 20.25H.210

Reviewer: Heidi Bedwell, Development Services Department

- 2. Rainy Season restrictions:** Due to the proximity to a steep slope critical area and lake shoreline, no clearing and grading activity may occur during the rainy season, which is defined as October 1 through April 30 without written authorization of the Development Services Department. Should approval be granted for work during the rainy season, increased erosion and sedimentation measures, representing the best available technology must be implemented prior to beginning or resuming site work.

Authority: Bellevue City Code 23.76.093.A,

Reviewer: Savina Uzunow, Clearing and Grading

- 3. Noise Control:** Noise related to construction is exempt from the provisions of BCC 9.18 between the hours of 7 am to 6 pm Monday through Friday and 9 am to 6 pm on Saturdays, except for Federal holidays and as further defined by the Bellevue City Code. Noise emanating from construction is prohibited on Sundays or legal holidays unless expanded hours of operation are specifically authorized in advance. Requests for construction hour extension must be done in advance with submittal of a construction noise expanded exempt hours permit.

Authority: Bellevue City Code 9.18

Reviewer: Heidi Bedwell, Development Services Department

- 4. Hold Harmless Agreement:** The applicant shall submit a hold harmless agreement in a form approved by the City Attorney which releases the City from liability for any damage arising from the location of improvements within a critical area in accordance with LUC 20.30P.170. The hold harmless agreement is required to be recorded with King County prior to final building permit. Staff will provide the applicant with the hold harmless form.

Authority: Land Use Code 20.30P.170

Reviewer: Heidi Bedwell, Development Services Department

- 5. Geotechnical Report Recommendations** The application shall submit a building permit for the construction of the single family residence that incorporates the recommendations found in the report prepared by **Geotech Consultants Inc, on March 1, 2012 (Attachment 2).**

Authority: Land Use Code 20.25H.210

Reviewer: Heidi Bedwell, Development Services Department

- 6. Mitigation Plan** A mitigation plan for the steep slope and shoreline critical area setbacks that includes the proposed planting plan in Attachment 1 and the removal of the existing deck and the addition of 400 square feet of native planting per the City's Critical Areas Handbook within the shoreline buffer, at and below the ordinary high water mark is required to be submitted for review and approval by the City of Bellevue prior to issuance of the Building Permit.

Authority: Land Use Code 20.25H.210
Reviewer: Heidi Bedwell, Development Services Department

- 7. Performance Assurance Device** In order to ensure adequate resources are available to implement the required landscape on the slope, a performance assurance device in an amount equal to 100% of the cost of labor and materials for the landscape installation shall be held until of successful installation is verified by the City of Bellevue at which time the performance assurance device will be released to the applicant.

Authority: Land Use Code 20.25H.210
Reviewer: Heidi Bedwell, Development Services Department

- 8. Maintenance Assurance Device** In order to ensure the required landscape restoration successfully establishes on the slope, a maintenance assurance device in an amount equal to 25% of the cost of labor and materials for the landscape installation shall be held for a period of three years from the date of successful installation. The maintenance assurance device will be released to the applicant upon receipt of documentation of reporting successful establishment in compliance with the performance standards.

Authority: Land Use Code 20.25H.210
Reviewer: Heidi Bedwell, Development Services Department

- 9. Land Use Inspection:** Following installation of planting the applicant shall contact Land Use staff to inspect the planting area prior to final building inspection. Staff will need to find that the plants are in a healthy and growing condition.

Authority: Land Use Code 20.30P.140
Reviewer: Heidi Bedwell, Development Services Department

- 10. Mitigation Monitoring Plan:** The plan shall also a 5-year mitigation monitoring plan. At a minimum, the monitoring plan shall include:
The following success criteria will be monitored over a 5 year period and will apply to areas that are planted with native vegetation according to the mitigation plan.

Year 1

- 100 percent survival of planted vegetation.
- 0 percent invasive plant cover within areas of planted vegetation.

Year 2

- Minimum 90 percent survival of planted vegetation.
- Less than 10 percent invasive plant cover within areas of planted vegetation.

Year 3

- Minimum 85 percent survival of planted vegetation.
- Greater than 35 percent cover of native vegetation within areas of planted vegetation.
- Less than 10 percent invasive plant cover within areas of planted vegetation.

Year 4

- Greater than 50 percent cover of native vegetation within areas of planted vegetation.
- Less than 15 percent invasive plant cover within areas of planted vegetation.

Year 5

- Greater than 70 percent cover of native vegetation within areas of planted vegetation.
- Less than 15 percent invasive plant cover within areas of planted vegetation.

Authority: Land Use Code 20.25H.210

Reviewer: Heidi Bedwell, Development Services Department



Critical Areas Report for:

**1006 W. Lake Sammamish Parkway SE
Bellevue 98008**

Property Owner:
Brian Valentine

Prepared for the City of Bellevue
Pre- Development Service Number
11-130361-DC

Tax Lot Number 925390-0051

Owner's Representative:
Dave Elwell
DME Construction

Report Organized and Written by:
Barbara Pickens, AIA
Architect
4D Architects, Inc.

May 21, 2012

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EXHIBITS

- A** Survey of Site
By GeoDimensions
dated 10/27/2012

- B** Existing Site Conditions- Photos & Existing House Drawings
By 4D Architects, Inc.
Drawing and photos not dated

- C** Proposed SRF Site & Schematic Design Plans
By 4D Architects, Inc.
dated 5/21/2012

- D** Wetlands Mitigation Plan and Graphics
By Watershed Company
Mark Garff
dated 05/17/2012

- E** Geotechnical Report
By Geotech Consultants, Inc.
Marc R McGinnis, PE
dated March 1, 2102

- F** Environmental Check List
By DME Construction
Dave Elwell
dated 5/17/2012

- G** Boundary Line Adjustment Submittal
By GeoDimensions
dated 2/28/2012

Project Team

Owner:

Brian Valentine
842 West Lake Sammamish Parkway SE
Bellevue, WA 98008

Project Lead and Design Professionals:

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Geotechnical Engineers:

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Mitigation and Landscape Plan:

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Kenny Booth, Planner
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Kirkland, WA 98033
425-822-5242
Email mgarff@watershedco.com

Introduction – Scope of Proposal

Code Review - Summary of Critical Areas Affected

We are requesting the following code variances and review procedures in response to the following City regulations:

1. Critical Area Steep Slope - relief from the Toe of Slope 75 foot setback LUC section 20.25H.035
2. Shoreline Critical Structure Setback – permission to build in the 25 foot Shoreline Structure Setback LUC sections 20.25E.017, 20.25H.035
3. Confirmation of our Exemption from the need to secure a Shoreline Substantial Development Permit LUC 20.25E.050G
4. Zoning District Dimensional Requirements LUC 20.20.010 for Zoning District R-3.5 - no variance requested, we comply will all requirements

If we are granted approval on these first two items we will submit for a Building Permit. A Boundary Line Adjustment application has previously been submitted and reviewed; it will receive final approval if we are granted our Critical Area Permit.

Brief Project Description

We propose to demolish the existing 1950's home, retaining the home's west side retaining wall and construct a new owner occupied single family residence in the same footprint with increase of house footprint to the south and the east.

Description of our Proposal

Existing Site Conditions, Current Home and Proposed Site Work – including review of the Critical Areas on the Site

This lot has the following Critical Area Designations:

- Shoreline Designation – Shoreline Residential Zone
- Steep Slope Area
- Flood Plain Areas adjacent to the Lake

The existing site extends from the edge of the Public ROW at West Lake Sammamish Parkway SE to the West shoreline of Lake Sammamish. This site is crossed by an asphalt paved access easement at the top of the site next to the Public ROW in a North to South direction and again about halfway down the site in a South to North direction. This access easement continues past our home and serves three additional homes on the properties to the North. This lower access easement includes a stone retaining wall that varies between 12 and 16 feet tall. Access to the proposed garage will be directly from this access easement. We will be adding a driveway garage apron area of 152 SF to the site that consists of paving and an existing planting bed.

This site is a continuation of a band of properties located between West Lake Sammamish Parkway SE and the water that all share the steep slope and front on Lake Sammamish. All of the homes along this access easement are built on the lower steep

stepped bank that is below the lower access easement. The homes appear to be two to three stories tall when seen from the Lake side with the landscape including various rockeries, site retaining walls and slopes. The home immediately to the South was built about 6 years ago and has a substantial three story massing with little relief on the end walls or the waterside elevation. The home to the North is a three story home with a flat roof, unusual for this neighborhood. Homes further to the north that are served by this access easement have sloped roofs and are mostly three stories tall, the two story homes appear to have daylight basements.

The original site has a gross area of 25,508 SF. The Property Owner proposes to modify the North property line, adjusting it by moving the East half of the property line to the South and thereby reducing this property size to 24,007 SF. For purposes of this submittal, we are assuming that the lot line adjustment will be approved and we are working with the smaller lot size area throughout this proposal.

The area inside the two paved surfaces of the access easements is a steep bank and is considered Steep Slope Area; it is 8,992 SF. The slopes in this area vary from 68% to 89%. The area to the West of the upper access easement is also sloping, however it does not exhibit any of the conditions listed in code section 20.25H.120 A to define it as a Geologic Hazard Area. All of these areas appear stable and show no signs of failure. At the top of the lower driveway retaining wall at the North end, there is an area of approximately 50 to 70 SF that is showing signs of sloughing. We propose to stabilize this area and replant native vegetation.

The access easement drive is stable consisting of easy to negotiate slopes. The upper access driveway is sloped 10% and the lower access driveway is less than a 5% slope. We do not propose to work on the road except to correct and repave any damage that occurs as a result of construction traffic. We also do not have any plans to work in the areas to the West of the upper drive. We do propose to complete some mitigation work on the vegetation on the Steep Slope area between the two access easement drive sections. We will maintain any drainage facilities and repair or correct those facilities as needed during and after construction. Currently there is a drainage pipe visible at the wood bulkhead South of the dock. During the course of, and at the conclusion of, construction we will investigate to determine that surface water and any subsurface water that is encountered will be controlled. We will confirm that any new or existing facilities are constructed appropriately and that all drainage is directed to an approved outlet. All this work will be completed prior to final inspection.

Current structures and landscape existing at the site consist of a home, built in 1953, and one car garage totaling approximately 2,900 SF divided on two levels. All rooms are of modest size with outdated equipment. The current homes construction does not comply with current building codes or State Energy Code requirement. The grounds are simply landscaped and well maintained with various decks and stairs leading to the water's edge. Again all appear to be structurally sound, but not in compliance with current staircase and guardrail codes. There is a set of concrete stairs to the South of the house leading from the access easement drive to the South lower door and on to the lower yard and deck areas. There is a wood bulkhead at the water's edge that appears to be in good shape and a lower wood deck and a dock; we propose to retain both of these features. There is also a roofed over wood storage shed at the South property line approximately 50 feet West of the Lake bulkhead. The landscape at the various yards does not appear to include any native Northwest plants.

It appears that the land was platted in 1930; this author has not seen a copy of those documents. The access easement is dated 1945. We assume that the property has been used as a vacation site and then a permanent home after 1953.

We propose to add additional space to the current homes footprint in the South and Easterly direction. This design allows for a Family Room, Kitchen and eating Nook, a Dining Area, and a Library home office on this main floor. There will be an upper floor that has four bedrooms and lower level that has an additional bedroom and a multi-purpose recreation room. These areas are appropriately sized for a family that would occupy five bedrooms.

We propose to retain the 10 to 12 foot rockery that is North of the home, in the side yard setback. That rockery extends perpendicular from the North wall of the house, approximately 15 feet East of the NW corner of the existing home. The height of this rockery is in excess of the current height limits for rockeries in the setbacks. This is a rockery wall that is stable and effectively supporting the parking area at the edge of the access easement. We would prefer to retain this wall and not disturb this stable area. We propose to improve the condition by installing a taller curb and bollards to retain any parked cars in that upper area. Landscaping will also be added along this property line to the East of this wall.

The existing home has extensive decks, wood and concrete retaining walls, and gravel paths on the water side of the home. The lower floor level deck attached to the house is over 7 feet above existing grade and has a waterproof deck. The upper floor deck to the South is attached to the house and has spaced wood decking. Both of these decks and the related stairs will be removed. The deck at yard level located at the West end of the dock has a spaced wood deck, guard rails and seating areas; we plan to retain that deck. The dock will also be retained.

Our proposal will have the following impacts on the defined Critical Areas:

- Steep slope area will have maintenance performed including removal of invasive none native species and additional trees planted primarily at the top of the steep slope area.
- There will be 1,000 SF of temporary disturbance to the site during construction. These areas will be revegetated, restored or remain pervious.
- There will be 1,481 SF of additional permanent building/deck coverage to the South and East of the current home. This area includes impacts to areas in all directions around the existing residence footprint, with the most significant encroachment occurring in the areas to the East of the footprint. We will also be removing 93 SF of building coverage to the North East.
- We will be adding 1,338 SF of planting area to the lower yard area at the perimeter to enhance the shoreline area.

Proposal to Utilize Existing Conditions to Optimize the Construction Process

Toe of Slope Setback Relief

Condition of the Existing Home & Proposed Retention of the Foundation Wall

We are proposing to remove all of the wood frame components of the existing 1953 circa home and construct a new owner occupied, single family home. The new home will have a footprint that will be expanded to the East and the South. Currently there is a wood storage shed with a roof on the South end of the lot that extends to the South property line, we propose to remove the upper wood roof and walls; to further stabilize the site we propose to retain the foundation site walls of this structure.

The entirety of the existing home is located within the 75 feet of toe of the steep slope setback. However, pursuant to 20.25H.035.B, the footprint of the residence is excluded from the regulated critical area setback. As mentioned, the toe of the steep slope consists of a large stone retaining wall and at this time there does not appear to be any negative impact to the immediate area from that condition. The recent Geotechnical Report supports the construction of this expanded footprint and finds no projected impacts from our proposed construction. See page 4 and 5 of this report where these issues are directly addressed.

We considered alternate ways to layout a home on this site (see comments in Section entitled Feasible Alternative Narrative below); after examining the current home, we propose to build a home that would utilize the existing foundation as a temporary means of stabilizing the work area during construction. The existing home has a west side interior foundation retaining wall that upon visual inspection is smooth, intact and does not have any fractures or other signs of failure or distress. There are also counterfort braces on this wall, at both the North and South end of the home and two additional perpendicular concrete counterfort elements along the interior length of this wall. Our proposal is to retain this existing west side foundation retaining wall, counterforts and also approximately 12 to 20 feet of the adjacent concrete slab. Please review the Exhibit B plan sheet Existing Conditions, Existing House Drawings. This combined structure should substantially reduce the hazard of site movement during our construction of the proposed house within the steep slope setback. We will be constructing a new load bearing foundation to the East of the existing retaining walls, as well as new conventional foundation for the balance of the new home. We should have less erosion and less potential sloughing on the site by retaining and working within the existing stable foundation elements.

As mitigation for reconstructing portions of the residence within the steep slope setback, significant portions of the steep slope area will be enhanced. The Watershed Company has proposed a total of approximately 3,660 square feet of invasive species removal and enhancement through the planting of native trees and shrubs. Species include western red cedar, Douglas-fir, vine maple, serviceberry, cascara, evergreen huckleberry, snowberry, and red flowering currant. According to The Watershed Company, the new native plantings will have deeper root systems than the current invasive species,

reducing erosion potential and improving slope stability. See the attached mitigation plan from The Watershed Company for additional details.

Proposed New Foundation Construction

The new uphill foundation and West wall of the new home will be located in the same alignment as the existing home with the extensions noted above to the South and East. Our design for the foundation is to construct a new load bearing foundation on pipe piles just to the East of the existing foundation wall. We have determined that we do not want to cut the existing retaining wall from its existing footing, but leave it and allow it to stabilize the existing wall. Once the pipe pile foundation elements are in place we would construct a new structural bearing system just East of the existing West foundation wall. That system will support the new main floor framing as well as the upper floor and roof. We are working on the details related to the structure and the waterproofing in these areas.

The proposed home will respect the 5 foot setback from the new Northern property line, as well as the 10 foot setback on the South side. This new design will be within the allowable FAR requirements. There will be a three car garage, relieving some of the parking problems adjacent to the access easement. The design will have a sloped roof and comply with all of the Zoning Envelope limits from table 20.20.010 including both of the height limit requirements.

Although there is a steep bench in the site at the location of the home, those areas are less than 1,000 SF and not considered regulated Critical Area. We will be building within the 75 foot setback from the toe of the upper slope. The Geotech Report confirms that the soils have excellent bearing capacity and their recommendations direct us to use a conventional foundation system for the construction of the home. We will work closely within the recommendations of the Geotechnical Report to design the foundation elements for the home. We will also pay close attention to the erosion control recommendations in the Geotechnical Report and field conditions encountered during construction.

The current site has catch basins in the lower access easement road. We also see two outfall pipes in the East face of the water front bulkhead. We assume that there is footing drains connected to this outfall. During construction we will further investigate the surface and sub surface drainage systems and we will enhance those systems bringing them up to code.

Our design also considers the impacts of excavation. We have attempted to reduce the cut and fill on the site for numerous reasons. We will designate areas inside the new footprint that will allow for the placement of some of the cut materials. In some cases these fill materials can be located in a deep crawl space that will be over framed with wood joist. We may possibly use these materials for a slab on grade terrace to the South and East. We will confirm with the Geotechnical Engineer that these materials are suitable for placement prior to doing so. We would like to reduce the number of truck trips entering and leaving the site.

Shoreline Critical Structure Setback relief

The Watershed Company has reviewed the condition of the shoreline and proposed mitigation for the disturbance within the shoreline structure setback. As mentioned, a total of 2,315 square feet of critical area setback impacts will occur. As mitigation for those impacts proposed within the shoreline setback, The Watershed Company has proposed a total 1,338 square feet of native revegetation and restoration within the shoreline buffer and shoreline setback. The plan proposes the planting of native trees, shrubs, and groundcover. Species include shore pine, hairy manzanita, nootka rose, evergreen huckleberry, serviceberry, cascara, kinnikinnick, sand strawberry, salal, goat's beard, menzie's larkspur, and Oregon sunshine. According to The Watershed Company, vegetative enhancement along the shoreline will enhance fish habitat by providing overwater shade, cover, and allochthonous input of detritus and insects. Further, plantings will increase the native plant structural and compositional diversity and enhance terrestrial songbird and small mammal habitat.

Underlying Zoning Regulations Review

We comply with all of the following code requirements. Please review our Site Plan Exhibit C Sheet 2 for more details and calculations.

Code Section	20.20.010
Zoning District	R 3.5
Setbacks	Front: 10 feet from the access easement Rear: 25 feet Sides: 5 feet minimum 15 feet total of two sides
Min. Lot Area	10,000 SF
Min. Street Frontage	30 feet
Min. Lot Width	70 feet
Min. Lot Depth	80 feet
Structure Lot Coverage	35%
Max. Impervious Surface	50%

Feasible Alternative Narrative

Smaller home

A reasonable alternative to the home that we are designing would possibly be a smaller home on the site. That alternate has been considered and deemed unacceptable to the owner occupant. We discussed a home with fewer bedrooms, however our clients clearly directed us that their family needs required the five bedroom layout. Looking at the homes in the area, all appear to have large footprints and four to five bedroom count.

Refurbish the Existing Home

This home exhibits outdated construction methods and has clearly served its purpose. The standards of construction today have clearly passed this property by; current codes would not allow for many of the conditions that exist within this home. In addition it is too small to respond to the current market for waterfront properties.

Addition to the Existing Home

Another alternate we considered was to add on to the existing home. We considered using the same footprint and building up. We attempted to find any structural engineering for the current foundation that might provide us with the necessary technical information. We have been unable to find any detailed information for the existing home; permit agencies do not have 60 year old documents. We also concluded that the cost of this would exceed the requirements outlined in LUC section 20.20.560 and we would still be required to complete comprehensive Critical Area Report. It would also leave our client with a home that is too small for their family and with a questionable foundation and therefore questionable safety and resale value in years to come.

We considered building a far smaller home within the existing footprint but that footprint is too small to accommodate a three car garage and any bedrooms. It seems that we would be building out further to the East. The existing home has 7' 0" ceilings in the lower floor and 7' 6" ceilings on the main floor. To allow for higher ceilings we would need to build up on the main floor and also demolish the existing house retaining wall to the West. We would need to lower the existing footing in the daylight basement to allow for a ceiling taller than the current 7' 0" height. We believe retaining that wall and its adjacent slab is critical to stabilizing the site.

Do not build on the site

The site has great monetary value and as such it is not feasible to consider not rebuilding.

Detailed Critical Areas Code Review

Response to 20.25H.250 and 20.25H.255

20.25H.250

B. Minimum Report Requirements.

1, 2 & 3 responses are provided in prior locations of this report.

3. *A habitat assessment consistent with the requirements of LUC [20.25H.165](#);*

Section 20.25.165

1. Detailed description of vegetation and habitat on and adjacent to the site;

The upper hillside is densely vegetated with trees, scrubs and plants. Many of the plants and scrubs are not native to the Northwest. These trees and scrubs serve as a habitat for birds and insects in the area.

2. Identification of any species of local importance that have a primary association with habitat on or adjacent to the site and assessment of potential project impacts to the use of the site by the species;

The developed portion of the site is nearly void of native vegetation. Existing native vegetation can be found on the steep slope, west of the residence. According to The Watershed Company, species that have the potential to use the steep slope area or areas adjacent to the site include bald eagle, pileated woodpecker, Vaux's swift, merlin, purple martin, great blue heron, osprey, red-tailed hawk, and common loon. Potential fish use of Lake Sammamish includes Chinook and coho salmon, bull trout, and river lamprey. Impacts to species of local importance are expected to be insignificant as all improvements are proposed on disturbed or developed portions of the site, away from the steep slope and the lake.

3. A discussion of any federal, state, or local special management recommendations, including Washington Department of Fish and Wildlife habitat management recommendations, that have been developed for species or habitats located on or adjacent to the site;

Impacts to species of local importance are not anticipated. Therefore, implementation of wildlife management plans developed by WDFW or other agencies is not necessary.

4. A detailed discussion of the direct and indirect potential impacts on habitat by the project, including potential impacts to water quality;

Impacts will occur within areas of existing disturbance or non-native vegetation. No trees are proposed for removal. Therefore, direct impacts on habitat are not expected. According to The Watershed Company, water quality will improve with the planting of native vegetation along the shoreline. This will allow for more effective filtering of runoff, improving water quality to the lake over existing conditions.

5. *A discussion of measures, including avoidance, minimization, and mitigation, proposed to preserve existing habitats and restore any habitat that was degraded prior to the current proposed use or activity and to be conducted in accordance with the mitigation sequence set forth in LUC [20.25H.215](#); and*

As mentioned, no impacts to native vegetation will occur. Therefore, habitat impacts are expected to be insignificant. However, as mitigation for structural encroachment into the steep slope and shoreline setbacks, native enhancement is proposed. 1,338 square feet of native revegetation and restoration within the shoreline buffer and shoreline setback is proposed, while 3,660 square feet of invasive species removal and enhancement is proposed on the steep slope. According to The Watershed Company, enhancement in both areas will provide a net increase in species and structural diversity and an increase in organic matter and foraging and nesting opportunities for terrestrial wildlife, including several songbird species. Overall, a net improvement in habitat quality is expected.

6. *A discussion of ongoing management practices that will protect habitat after the site has been developed, including proposed monitoring and maintenance programs.*

See The Watershed Company mitigation plan for details of the proposed maintenance and monitoring of the mitigation areas.

Returning to code section 20.25H.250

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

The site is a developed site and has been since the early 1950's. Although we are expanding the homes foot print to respond to our clients design goals we do not foresee any cumulative or long term impacts on the Critical Areas or adjacent areas. We are proposing to do mitigation work on the Steep Slope and in the Shoreline Buffer area; we will not be constructing any additional structures in those areas. Please see preceding sections for a discussion of the enhancements that are proposed to offset any impacts of our proposed construction.

We also do not plan to do any construction in the Steep Slope Areas. Our work in these areas will enhance the vegetation by replacing invasive species with non invasive native species that will further stabilize the hillside.

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

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

According to The Watershed Company, the shoreline is presently armored and vegetated primarily with non-native species and maintained grass. Some water quality and hydrologic function is provided by the existing vegetation, but function is limited by the predominance of grass and the armored shore. The bulkhead also allows only simple habitat to exist in the nearshore area by presenting a vertical interface with the ordinary high water mark. This limits organic input and prevents the formation of quality shallow water habitat. Due to the presence of a floodplain on Lake Sammamish, water quality is important and this function is limited by the bulkhead and simple buffer vegetation.

The proposed mitigation will increase the ability of the shoreline buffer to improve water quality in the lake by increasing the filtering area and density of low woody growth. The overhanging vegetation will also increase organic input to the lake and allow for more vegetation and greater vegetative structural diversity to develop in the nearshore area.

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

The strict application of the regulations and standards of LUC 20.25H would restrict redevelopment to the limits of the existing residential footprint. However, as mentioned, the smaller footprint is not compatible with the surrounding neighborhood, nor does it fulfill the project purpose for the owner. Further, the existing degraded steep slope and shoreline buffer/setback would remain in their existing degraded condition and no restoration would occur.

Instead, the proposed project will result in the addition of substantial native vegetation within the steep slope critical area and the shoreline buffer and setback. According to The Watershed Company, vegetative enhancement along the shoreline will enhance fish habitat by providing overwater shade, cover, and allochthonous input of detritus and insects. Enhancement of the steep slope will result in deeper root systems than the current invasive species, reducing erosion potential and improving slope stability.

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

By requesting a critical area modification pursuant to LUC 20.25H.230, the opportunity exists to restore portions of the on-site steep slope critical area, as

well as portions of the shoreline buffer and setback. A mitigation plan has been prepared that details the area proposed for restoration. This plan mitigates for the construction of the proposed residence within the steep slope setback and shoreline setback. 1,338 square feet of native revegetation and restoration within the shoreline buffer and shoreline setback is proposed, while 3,660 square feet of invasive species removal and enhancement is proposed on the steep slope. According to The Watershed Company, vegetative enhancement along the shoreline will enhance fish habitat by providing overwater shade, cover, and allochthonous input of detritus and insects. Enhancement of the steep slope will result in deeper root systems than the current invasive species, reducing erosion potential and improving slope stability.

Overall, a net gain in critical area functions is proposed. Therefore, modification of the on-site critical area setbacks, and subsequent restoration, will provide a substantially higher level of protection than provided through the application of the regulations of LUC 20.25H.

6. A discussion of the performance standards applicable to the critical area and proposed activity pursuant to LUC 20.25H.160, and recommendation for additional or modified performance standards, if any.

Impacts to habitat associated with species of local importance are not anticipated. Therefore, compliance with 20.25H.160 is not applicable.

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

The proposed mitigation plan has been developed in accordance with the standards of LUC 20.25H.210 through 20.25H.225. Building on this site will result in unavoidable disturbance to the critical area buffers, setbacks and areas. However, because strict application of LUC 20.25H would result in inability to construct a residence larger than the existing footprint, we have proceeded with the proposed design and attempted to minimize impacts to the greatest extent possible. We propose to work within the previously disturbed areas of the site. Subsequently, the residence has been configured in a shape that most effectively avoids impacts to the on-site steep slope setback and shoreline structure setback. Further we have compensated for impacts to the critical area setbacks by proposing a mitigation plan that will improve the critical area functions and values relative to the existing condition. A monitoring and maintenance plan has also been prepared.

20.25H.255.A

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

A mitigation plan that details the areas proposed for restoration as a result of the critical area setback modifications has been prepared. The plan

mitigates for the proposed construction of a single-family residence within portions of the steep slope setback and shoreline structure setback. Restoration will involve the planting of native vegetation (trees, shrubs, and groundcover) on the steep slope and within the shoreline buffer and setback.

According to The Watershed Company, proposed native plantings on the steep slope will increase species diversity, providing a variety of foraging resources for wildlife. An increase in structural diversity over existing conditions will also result, providing more suitable year-round cover conditions for wildlife, particularly songbirds. The proposed native plantings will also maintain stormwater functions within the slope. Along the shoreline, nearshore vegetation will enhance the aquatic community by providing overhanging vegetation, which will increase allochthonous input of detritus and insects and provide an overall benefit to fish habitat.

Overall, the restoration plan will provide for substantially improved critical area and buffer functions and values relative to the existing condition. The monitoring and maintenance plan will ensure long-term success of the mitigation.

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

A comprehensive five-year maintenance and monitoring plan is included in the attached mitigation plan.

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

The on-site steep slopes (and Lake Sammamish) continue off-site to the north and south. However, restoration of significant portions of the on-site steep slope will improve water quality, erosion control, and slope stability. Furthermore, restoration of the on-site slope, as well as the shoreline buffer, will increase the overall habitat function of the area, thereby improving habitat functions on adjacent properties.

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

Along this shoreline of Lake Sammamish there is continuous development of single family homes of similar size and layout. Our proposal will enhance the shoreline and provide for a restoration of shoreline vegetation as well as improve and further stabilize the upper steep slope area.

Response to 20.30P Decision Requirements

20.30P.140

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

Work is ongoing to develop and finish the building permit construction plans. We will await preliminary feedback on our proposal prior to starting engineering work on the construction details. We will submit for the building permit directly. The Owner has submitted for the Boundary Line Adjustment and that set plans is pending the approval of the Critical Area Land Use Permit.

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

Our design uses systems and concepts that will result in the least impact to the site and the adjacent areas. We will mitigate any impacts to the lot with thoughtful designs that will enhance the disturbed areas and restore any areas that have been affected during construction. We will improve the utility services to the site and confirm the functioning of and improve the storm water control.

C. The proposal incorporates the performance standards of Part 20.25H LUC to the maximum extent applicable.

We have previously answered the performance standards referred to here.

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

As we are building on a site that has an existing home, there is already a complete set of utility services available at the site. These include sanitary sewer, water, electricity, natural gas, road access, telephone and cable service. The driveway has an active storm water system that will be maintained during construction and improved as necessary to serve the new construction.

E. The proposal includes a mitigation or restoration plan consistent with the requirements of LUC 20.25H.210; except that a proposal to modify or remove vegetation pursuant to an approved Vegetation Management Plan under LUC 20.25H.055.C.3.i shall not require a mitigation or restoration plan.

A Mitigation Plan has been prepared by The Watershed Company and it is attached to this report for your review.

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

We have studied the codes as they relate to our proposed project and know of no other sections of the code that we do not comply with. We propose to comply with all Local, State and Federal regulations.

LEGAL DESCRIPTION

THAT PORTION OF THE SOUTH 400 FEET OF THE NORTH 528 FEET OF SECTION 10, TOWNSHIP 24 NORTH, RANGE 5 EAST, MILLWATE MERIDIAN, IN KING COUNTY, WASHINGTON, LYING EAST OF THE EAST MARGIN OF THE LAKE SAMMAMISH SHORE ROAD, TOGETHER WITH SPOURLANDS OF THE SECOND CLASS IN FRONT OF AND ABUTTING THEREON.

TOGETHER WITH AN EASEMENT FOR ROADWAY OVER THAT PORTION OF THE SOUTH 600 FEET OF THE NORTH 900 FEET OF SAID GOVERNMENT LOT 1 LYING EAST OF LAKE SAMMAMISH SHORE LINE ROAD SAID EASEMENT LOT 1 BEING ESTABLISHED BY DEED RECORDED OCTOBER 31, 1940 UNDER RECORDING NUMBER 3513994.

(THE PORTIONS OF LOTS 10, 11 AND 12 OF UNRECORDED PLAT OF MEDMA BEACH.)

BEARING MERIDIAN

A BEARING OF N4 57' 19" W BETWEEN CITY OF BELLEVUE HORIZONTAL STATION NO. 1911 AND CITY OF BELLEVUE HORIZONTAL STATION NO. 1212.

VERTICAL DATUM

CITY OF BELLEVUE BENCHMARK NO. 494

(NAVD 88) (VISITED 10/29/2011)
 FOUND 4" x 4" CONCRETE MON. W/ CITY OF BELLEVUE BRASS CAP STAMPED "1911" & "494" W/ PUNCH MK. IN CASE. TOP MON TO TOP RIM CASE 0.98 FEET, LOCATED WEST SIDE W LK SAMMAMISH PKWY-55 FEET +- SOUTH OF INTERSECTION W LK SAMMAMISH PKWY & 170TH PL. SE.
 ELEVATION = 135.00'

METHOD OF SURVEY

INSTRUMENTATION FOR THIS SURVEY WAS A LEICA ELECTRONIC DISTANCE MEASUREMENT SYSTEM (EDM) WITH AN ELECTRONIC LEVEL. ALL ANGLES WERE REVERSE ANGLES. NO CORRECTION NECESSARY. MEETS KING COUNTY AND STATE STANDARDS SET BY MAC 322-130-090.

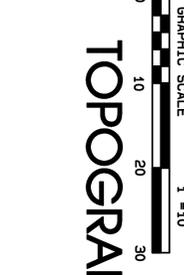
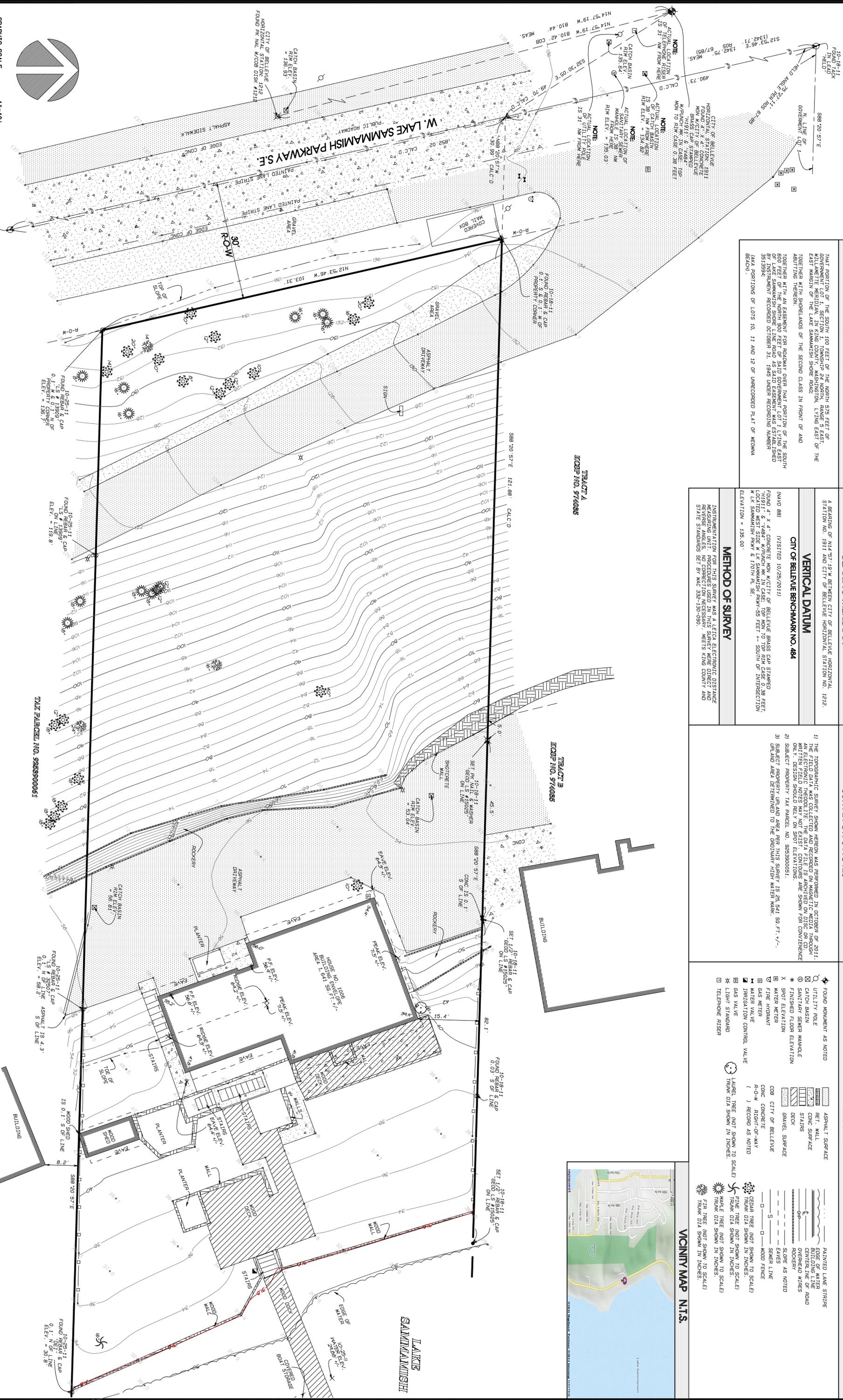
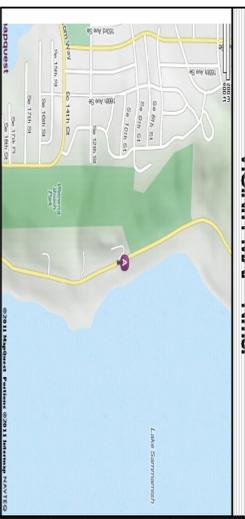
SURVEYOR'S NOTES

- 1) THE TOPOGRAPHIC SURVEY SHOWN HEREON WAS PERFORMED IN OCTOBER OF 2011. THE FIELD DATA WAS COLLECTED AND RECORDED ON MAGNETIC MEDIA THROUGHOUT THE SURVEY. THE SURVEYOR HAS REVIEWED THE DATA AND FOUND IT TO BE ACCURATE. ALL FIELD NOTES MAY NOT EXIST. CONTIGUOUS ARE SHOWN FOR CONVENIENCE ONLY. DESIGN SHOULD RELY ON SPOT ELEVATIONS.
- 2) SUBJECT PROPERTY TAX PARCEL NO. 9263900051.
- 3) SUBJECT PROPERTY UP AND AREA PER THIS SURVEY IS 25,541.50 FT. +-.
- 4) SUBJECT AREA DETERMINED TO THE ORDINARY HIGH WATER MARK.

LEGEND

- FOUND MONUMENT AS NOTED
- UTILITY POLE
- CATCH BASIN
- SANITARY SEWER MANHOLE
- FINISHED FLOOR ELEVATION
- SPOT ELEVATION
- WATER METER
- WATER HYDRANT
- WATER VALVE
- IRIGATION CONTROL VALVE
- GAS METER
- GAS VALVE
- WATER STANDAR
- TELEPHONE RISER
- LAUREL TREE (NOT SHOWN TO SCALE)
- TRUNK DIA SHOWN IN INCHES.
- MAPLE TREE (NOT SHOWN TO SCALE)
- FIR TREE (NOT SHOWN TO SCALE)
- TRUNK DIA SHOWN IN INCHES.
- TRUNK DIA SHOWN IN INCHES.
- PAINTED LAKE STRIPE
- EDGE OF WATER
- CENTRAL LINE OF ROAD
- OVERHEAD WIRES
- ROCKERY
- SLOPE AS NOTED
- EAVES
- SEWER LINE
- WOOD FENCE
- CEGAR TREE (NOT SHOWN TO SCALE)
- TRUNK DIA SHOWN IN INCHES.
- ONE TREE (NOT SHOWN TO SCALE)
- MAPLE TREE (NOT SHOWN TO SCALE)
- TRUNK DIA SHOWN IN INCHES.
- FIR TREE (NOT SHOWN TO SCALE)
- TRUNK DIA SHOWN IN INCHES.

VICINITY MAP N.T.S.



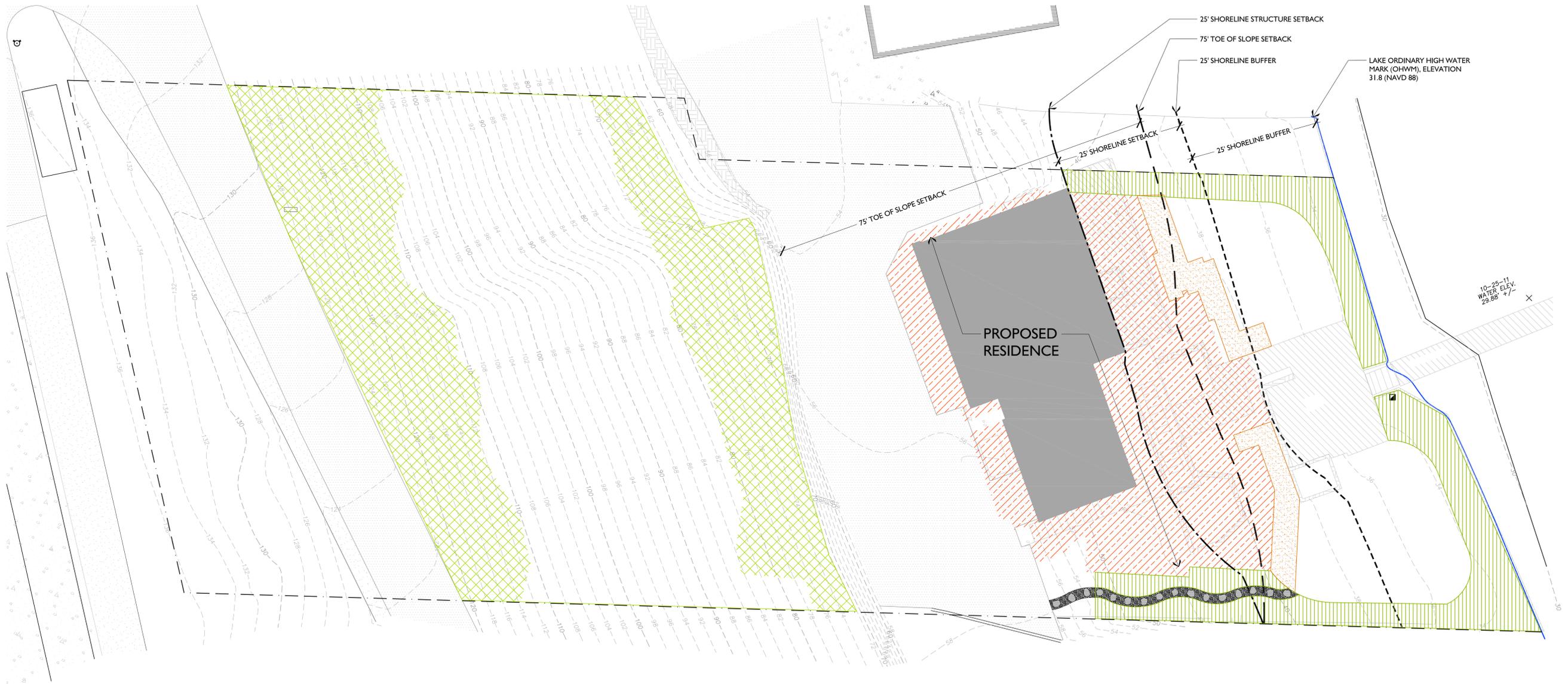
TOPOGRAPHIC & BOUNDARY SURVEY

JOB NUMBER:	11529
DATE:	10/27/2011
DRAFTED BY:	V.L.U.
CHECKED BY:	E.J.G.
SCALE:	1" = 10'
REVISION HISTORY	
SHEET NUMBER	1 OF 1



TOPOGRAPHIC & BOUNDARY SURVEY
 NE 1/4 OF THE NW 1/4 OF SEC. 1, TWP. 24N., RGE. 5E., W.M.
 CITY OF BELLEVUE, KING COUNTY, WA.
VALENTINE RESIDENCE
 1006 W. LAKE SAMMAMISH PARKWAY S.E.,
 BELLEVUE, WA. 98008

measure success



PLAN LEGEND

- LAKE SAMMAMISH OHWM (EL. 31.8, NAVD 88)
- 25' SHORELINE BUFFER
- 25' SHORELINE STRUCTURE SETBACK
- 75' TOE OF SLOPE SETBACK
- EXISTING HOUSE FOOTPRINT

IMPACTS LEGEND

PERMANENT IMPACTS	2,315 SF
TEMPORARY LANDSCAPE DISTURBANCE (RETURN TO LAWN POST-CONSTRUCTION)	390 SF

MITIGATION LEGEND

PROPOSED SETBACK ENHANCEMENT MITIGATION AREA (ENHANCED THROUGH THE REMOVAL OF INVASIVES AND INSTALLATION OF NATIVE PLANTS)	~3660 SF
NATIVE REVEGETATION AND RESTORATION	1,338 SF

VALENTINE RESIDENCE
SHORELINE & STEEP SLOPE MITIGATION PLAN
FOR: DME CONSTRUCTION C/O DAVE ELWELL
SITE ADDRESS: 1006 W. LAKE SAMMAMISH PKWY S.E.
BELLEVUE, WA 98008

SUBMITTALS & REVISIONS

NO.	DATE	DESCRIPTION	BY
1	04-12-12	REVIEW SET	CL
2	04-26-12	REVIEW SET 2	MG
3	05-07-12	PERMIT SET	MF

GENERAL NOTES:

SHEET SIZE:
ORIGINAL PLAN IS 24" x 36"
SCALE ACCORDINGLY.

PROJECT MANAGER: KB
DESIGNED: MG
DRAFTED: CL
CHECKED: MG, KB
JOB NUMBER: 120234
SHEET NUMBER: 2 OF 4

IMPACTS AND MITIGATION PLAN



NOT FOR CONSTRUCTION
THESE PLANS ARE SUBJECT TO AGENCY APPROVAL. UNTIL APPROVED, THESE PLANS ARE SUBJECT TO REVISION

VALENTINE RESIDENCE
SHORELINE & STEEP SLOPE MITIGATION PLAN
FOR: DME CONSTRUCTION C/O DAVE ELWELL
SITE ADDRESS: 1006 W. LAKE SAMMAMISH PKWY S.E.
BELLEVUE, WA 98008



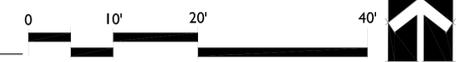
PLANT SCHEDULE

NAME	QTY	SIZE / REMARKS
TREES - ALL TREES TO BE HEALTHY & WELL BRANCHED		
ARCTOSTAPHYLOS COLUMBIANA HAIRY MANZINITA	4	5 GAL
PINUS CONTORTA SHORE PINE	1	8' HT. MIN.
PSEUDOTSUGA MENZIESII DOUGLAS FIR	2	5 GAL
THUJA PLICATA WESTERN RED CEDAR	2	5 GAL
SHRUBS - ALL SHRUBS TO BE HEALTHY, FULL & VIGOROUS		
ACER CIRCINATUM VINE MAPLE	12	5 GAL
AMELANCHIER ALNIFOLIA SERVICEBERRY	6	5 GAL
CORNUS SERICEA RED TWIG DOGWOOD	6	2 GAL
RHAMNUS PURSHIANA CASCARA	17	5 GAL
RIBES SANGUINEUM RED FLOWERING CURRANT	8	2 GAL
ROSA NUTKANA NOOTKA ROSE	6	2 GAL
SAMBUCUS RACEMOSA RED ELDERBERRY	14	2 GAL
SYMPHORICARPOS ALBUS SNOWBERRY	23	2 GAL
VACCINIUM OVATUM EVERGREEN HUCKLEBERRY	43	2 GAL
PERENNIALS / GROUNDCOVERS		
ARCTOSTAPHYLOS UVA URSI KINKINICK	37	1 GAL @ 18" OC
ARUNCUS DIOICUS GOAT'S BEARD	9	1 GAL
DELPHINIUM MENZIESII MENZIES' LARKSPUR	11	1 GAL
ERIOPHYLLUM LANATUM OREGON SUNSHINE	45	1 GAL
FESTUCA IDAHOENSIS IDAHO FESCUE	21	1 GAL
FRAGARIA CHILOENSIS SAND STRAWBERRY	39	4" POTS @ 24" OC
GAULTHERIA SHALLON SALAL	111	1 GAL @ 24" OC
OXALIS OREGANA WOOD SORREL	60	1 GAL @ 24" OC

PLANTING NOTES

- NATIVE PLANT INSTALLATION SHALL OCCUR DURING FROST-FREE PERIODS ONLY.
- PREPARE PLANTING BEDS BY COMPLETING THE FOLLOWING SEQUENCE:
 - DECOMPACT ALL PLANTING AREAS USING A ROTO-TILLER TO A DEPTH OF 12" BELOW FINISH GRADE.
 - TO BRING PLANTING BED TO FINISH GRADE, PROVIDE NEW TOPSOIL CONSISTING OF 50% SAND AND 50% COMPOST IN ALL PLANTING AREAS. DEPENDING ON THE LEVEL OF SUB-GRADE, PROVIDE ENOUGH NEW TOPSOIL SUCH THAT FINISH GRADE IS ACHIEVED AFTER LIGHTLY COMPACTING NEW TOPSOIL.
 - IF FINISH GRADE IS ALREADY ACHIEVED WITH EXISTING SITE SOILS, INCORPORATE 3" OF COMPOST INTO THE DECOMPACTED 12" OF EXISTING SOIL.
 - HOLD FINISH GRADE 1/2 INCH BELOW ANY ADJACENT PAVED SURFACE. THE CONTRACTOR IS RESPONSIBLE FOR ANY ADVERSE DRAINAGE CONDITIONS THAT MAY AFFECT PROPER PLANT GROWTH AND ESTABLISHMENT. NOTIFY OWNER AND LANDSCAPE ARCHITECT OF ANY POOR DRAINAGE CONDITIONS PRIOR TO CONSTRUCTION.
- REMOVE ANY AND ALL INVASIVE WEEDS AND THEIR ROOTS FROM THE PLANTING AREA. PARTICULAR ATTENTION SHALL BE PAID TO THE ENCROACHMENT OR EMERGENCE OF HIMALAYAN BLACKBERRY, ENGLISH IVY, ENGLISH LAUREL, ENGLISH HOLLY, EVERGREEN BLACKBERRY, MORNING GLORY, BUTTERFLY BUSH, PURPLE AND YELLOW LOOSESTRIFE, AND JAPANESE KNOTWEED.
- LOCATE ALL EXISTING UTILITIES WITHIN THE LIMIT OF WORK. THE CONTRACTOR IS RESPONSIBLE FOR ANY UTILITY DAMAGE AS A RESULT OF THE LANDSCAPE CONSTRUCTION.
- LOOSEN ANY COMPACTED SOILS IN THE PLANTING AREA.
- AMEND SOIL AS NEEDED PER #2.
- LAYOUT PLANT MATERIAL PER PLAN FOR INSPECTION BY THE LANDSCAPE ARCHITECT. PLANT SUBSTITUTIONS WILL NOT BE ALLOWED WITHOUT THE APPROVAL OF THE LANDSCAPE ARCHITECT.
- INSTALL PLANTS PER PLANTING DETAILS.
- WATER EACH PLANT THOROUGHLY TO REMOVE AIR POCKETS.
- INSTALL A 4" DEPTH, COARSE WOOD-CHIP MULCH RING AROUND EACH PLANT.
- INSTALL A TEMPORARY IRRIGATION SYSTEM CAPABLE OF DELIVERING 2" OF WATER PER WEEK TO THE ENTIRE PLANTED AREA. MAINTAIN IRRIGATION SYSTEM IN WORKING CONDITION FOR TWO (2) SUMMERS AFTER INITIAL PLANT INSTALLATION.
- ONE YEAR AFTER INITIAL PLANT INSTALLATION, APPLY ORGANIC, SLOW-RELEASE FERTILIZER SUCH AS OSMOCOTE OR PERFECT BLEND 4-4-4 TO EACH PLANT.
- THE LANDSCAPE CONTRACTOR SHALL MAINTAIN ALL PLANT MATERIAL UNTIL FINAL INSPECTION AND APPROVAL BY THE OWNER OR OWNERS REPRESENTATIVE. ALL PLANTINGS AND WORKMANSHIP SHALL BE GUARANTEED FOR ONE YEAR FOLLOWING FINAL OWNER ACCEPTANCE.

PLANTING PLAN, SCHEDULE, AND NOTES



NOT FOR CONSTRUCTION
THESE PLANS ARE SUBJECT TO AGENCY APPROVAL UNTIL APPROVED, THESE PLANS ARE:
SUBJECT TO REVISION

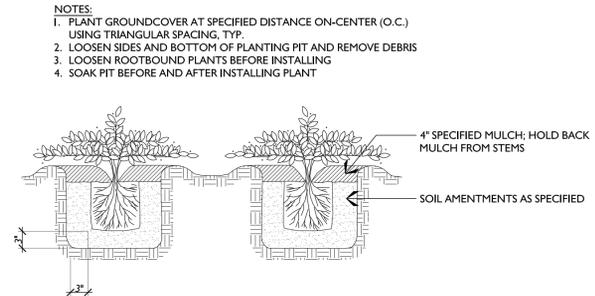
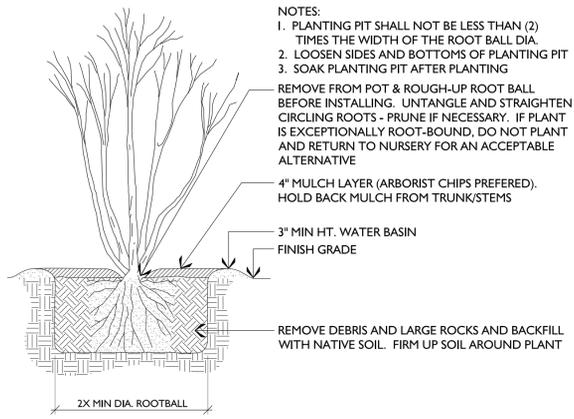
SUBMITTALS & REVISIONS		BY	DATE
NO.	DESCRIPTION	CL	MG
1	REVIEW SET		04-12-12
2	REVIEW SET 2		04-26-12
3	PERMIT SET		05-07-12

GENERAL NOTES:

SHEET SIZE:
ORIGINAL PLAN IS 24" x 36" .
SCALE ACCORDINGLY.

PROJECT MANAGER: KB
DESIGNED: MG
DRAFTED: CL
CHECKED: MG, KB
JOB NUMBER: 120234
SHEET NUMBER: 3 OF 4

DATE: 5/7/2012
PRINTED BY: MARINA FRENCH
FILENAME: WS-120234-SHORELINE PLANT.DWG



A SHRUB & TREE PLANTING DETAIL
NTS

B GROUNDCOVER & PERENNIAL PLANTING DETAIL
NTS

PLANT INSTALLATION SPECIFICATIONS

NOTE: THESE SPECIFICATIONS ARE A LEGALLY BINDING CONTRACT

GENERAL NOTES

- QUALITY ASSURANCE**
- PLANTS SHALL MEET OR EXCEED THE SPECIFICATIONS OF FEDERAL, STATE, AND LOCAL LAWS REQUIRING INSPECTION FOR PLANT DISEASE AND INSECT CONTROL.
 - PLANTS SHALL BE HEALTHY, VIGOROUS, AND WELL-FORMED, WITH WELL-DEVELOPED, FIBROUS ROOT SYSTEMS, FREE FROM DEAD BRANCHES OR ROOTS. PLANTS SHALL BE FREE FROM DAMAGE CAUSED BY TEMPERATURE EXTREMES, LACK OR EXCESS OF MOISTURE, INSECTS, DISEASE, AND MECHANICAL INJURY. PLANTS IN LEAF SHALL BE WELL-FOLIATED AND OF GOOD COLOR. PLANTS SHALL BE HABITUATED TO THE OUTDOOR ENVIRONMENTAL CONDITIONS INTO WHICH THEY WILL BE PLANTED (HARDENED-OFF).
 - TREES WITH DAMAGED, CROOKED, MULTIPLE OR BROKEN LEADERS WILL BE REJECTED. WOODY PLANTS WITH ABRASIONS OF THE BARK OR SUNSCALD WILL BE REJECTED.

DEFINITIONS

- PLANTS/PLANT MATERIALS: PLANTS AND PLANT MATERIALS SHALL INCLUDE ANY LIVE PLANT MATERIAL USED ON THE PROJECT. THIS INCLUDES BUT IS NOT LIMITED TO CONTAINER GROWN, BAR OR BAREROOT PLANTS, LIVE STAKES AND FASCINES (WATTLES), TUBERS, CORNS, BULBS, ETC.; SPRIGS, PLUGS, AND LIMBS, CONTAINER GROWN. CONTAINER GROWN PLANTS ARE THOSE WHOSE ROOTBALLS ARE ENCLOSED IN A POT OR BAG IN WHICH THAT PLANT GREW.

SUBSTITUTIONS

- IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN SPECIFIED MATERIALS IN ADVANCE IF SPECIAL GROWING, MARKETING OR OTHER ARRANGEMENTS MUST BE MADE IN ORDER TO SUPPLY SPECIFIED MATERIALS.
- SUBSTITUTION OF PLANT MATERIALS NOT ON THE PROJECT LIST WILL NOT BE PERMITTED UNLESS AUTHORIZED IN WRITING BY THE LANDSCAPE ARCHITECT / CONSULTANT.
- IF PROOF IS SUBMITTED THAT ANY PLANT MATERIAL SPECIFIED IS NOT OBTAINABLE, A PROPOSAL WILL BE CONSIDERED FOR USE OF THE NEAREST EQUIVALENT SIZE OR ALTERNATIVE SPECIES, WITH CORRESPONDING ADJUSTMENT OF CONTRACT PRICE.
- SUCH PROOF WILL BE SUBSTANTIATED AND SUBMITTED IN WRITING TO THE CONSULTANT AT LEAST 30 DAYS PRIOR TO START OF WORK UNDER THIS SECTION.

INSPECTION

- PLANTS SHALL BE SUBJECT TO INSPECTION AND APPROVAL BY THE CONSULTANT FOR CONFORMANCE TO SPECIFICATIONS, EITHER AT TIME OF DELIVERY ON-SITE OR AT THE GROWER'S NURSERY. APPROVAL OF PLANT MATERIALS AT ANY TIME SHALL NOT IMPAIR THE SUBSEQUENT RIGHT OF INSPECTION AND REJECTION DURING PROGRESS OF THE WORK.
- PLANTS INSPECTED ON-SITE AND REJECTED FOR NOT MEETING SPECIFICATIONS MUST BE REMOVED IMMEDIATELY FROM SITE OR RED-TAGGED AND REMOVED AS SOON AS POSSIBLE.
- THE CONSULTANT MAY ELECT TO INSPECT PLANT MATERIALS AT THE PLACE OF GROWTH. AFTER INSPECTION AND ACCEPTANCE, THE CONSULTANT MAY REQUIRE THE INSPECTED PLANTS BE LABELED AND RESERVED FOR PROJECT. SUBSTITUTION OF THESE PLANTS WITH OTHER INDIVIDUALS, EVEN OF THE SAME SPECIES AND SIZE, IS UNACCEPTABLE.

MEASUREMENTS OF PLANTS

- PLANTS SHALL CONFORM TO SIZES SPECIFIED UNLESS SUBSTITUTIONS ARE MADE AS OUTLINED IN THIS CONTRACT.
- HEIGHT AND SPREAD DIMENSIONS SPECIFIED REFER TO MAIN BODY OF PLANT AND NOT BRANCH OR ROOT TIP TO TIP. PLANT DIMENSIONS SHALL BE MEASURED WHEN THEIR BRANCHES OR ROOTS ARE IN THEIR NORMAL POSITION.
- WHERE A RANGE OF SIZE IS GIVEN, NO PLANT SHALL BE LESS THAN THE MINIMUM SIZE AND AT LEAST 50% OF THE PLANTS SHALL BE AS LARGE AS THE MEDIAN OF THE SIZE RANGE. (EXAMPLE: IF THE SIZE RANGE IS 12" TO 18", AT LEAST 50% OF PLANTS MUST BE 15" TALL.)

SUBMITTALS

- PROPOSED PLANT SOURCES**
- WITHIN 45 DAYS AFTER AWARD OF THE CONTRACT, SUBMIT A COMPLETE LIST OF PLANT MATERIALS PROPOSED TO BE PROVIDED DEMONSTRATING

CONFORMANCE WITH THE REQUIREMENTS SPECIFIED. INCLUDE THE NAMES AND ADDRESSES OF ALL GROWERS AND NURSERIES.

PRODUCT CERTIFICATES

- PLANT MATERIALS LIST - SUBMIT DOCUMENTATION TO CONSULTANT AT LEAST 30 DAYS PRIOR TO START OF WORK UNDER THIS SECTION THAT PLANT MATERIALS HAVE BEEN ORDERED. ARRANGE PROCEDURE FOR INSPECTION OF PLANT MATERIAL WITH CONSULTANT AT TIME OF SUBMISSION.
- HAVE COPIES OF VENDORS OR GROWERS' INVOICES OR PACKING SLIPS FOR ALL PLANTS ON SITE DURING INSTALLATION. INVOICE OR PACKING SLIP SHOULD LIST SPECIES BY SCIENTIFIC NAME, QUANTITY, AND DATE DELIVERED (AND GENETIC ORIGIN IF THAT INFORMATION WAS PREVIOUSLY REQUESTED).

DELIVERY, HANDLING, & STORAGE

NOTIFICATION

CONTRACTOR MUST NOTIFY CONSULTANT 48 HOURS OR MORE IN ADVANCE OF DELIVERIES SO THAT CONSULTANT MAY ARRANGE FOR INSPECTION.

PLANT MATERIALS

- TRANSPORTATION - DURING SHIPPING, PLANTS SHALL BE PACKED TO PROVIDE PROTECTION AGAINST CLIMATE EXTREMES, BREAKAGE AND DRYING. PROPER VENTILATION AND PREVENTION OF DAMAGE TO BARK, BRANCHES, AND ROOT SYSTEMS MUST BE ENSURED.
- SCHEDULING AND STORAGE - PLANTS SHALL BE DELIVERED AS CLOSE TO PLANTING AS POSSIBLE. PLANTS IN STORAGE MUST BE PROTECTED AGAINST ANY CONDITION THAT IS DETRIMENTAL TO THEIR CONTINUED HEALTH AND VIGOR.
- HANDLING - PLANT MATERIALS SHALL NOT BE HANDLED BY THE TRUNK, LIMBS, OR FOLIAGE BUT ONLY BY THE CONTAINER, BALL, BOX, OR OTHER PROTECTIVE STRUCTURE. EXCEPT BAREROOT PLANTS SHALL BE KEPT IN BUNDLES UNTIL PLANTING AND THEN HANDLED CAREFULLY BY THE TRUNK OR STEM.
- LABELS - PLANTS SHALL HAVE DURABLE, LEGIBLE LABELS STATING CORRECT SCIENTIFIC NAME AND SIZE. TEN PERCENT OF CONTAINER GROWN PLANTS IN INDIVIDUAL POTS SHALL BE LABELED. PLANTS SUPPLIED IN FLATS, RACKS, BOXES, BAGS, OR BUNDLES SHALL HAVE ONE LABEL PER GROUP.

WARRANTY

PLANT WARRANTY
PLANTS MUST BE GUARANTEED TO BE TRUE TO SCIENTIFIC NAME AND SPECIFIED SIZE, AND TO BE HEALTHY AND CAPABLE OF VIGOROUS GROWTH.

REPLACEMENT

- PLANTS NOT FOUND MEETING ALL OF THE REQUIRED CONDITIONS MUST BE REMOVED FROM SITE AND REPLACED IMMEDIATELY AT THE CONSULTANT'S DISCRETION.
- PLANTS NOT SURVIVING AFTER ONE YEAR TO BE REPLACED AT THE CONTRACTOR'S EXPENSE.

PLANT MATERIAL

- GENERAL**
- PLANTS SHALL BE NURSERY GROWN IN ACCORDANCE WITH GOOD HORTICULTURAL PRACTICES UNDER CLIMATIC CONDITIONS SIMILAR TO OR MORE SEVERE THAN THOSE OF THE PROJECT SITE.
 - PLANTS SHALL BE TRUE TO SPECIES AND VARIETY OR SUBSPECIES. NO CULTIVARS OR NAMED VARIETIES SHALL BE USED UNLESS SPECIFIED AS SUCH.

QUANTITIES

SEE PLANT LIST ON ACCOMPANYING PLANS.

ROOT TREATMENT

- CONTAINER GROWN PLANTS (INCLUDES PLUGS): PLANT ROOT BALLS MUST HOLD TOGETHER WHEN THE PLANT IS REMOVED FROM THE POT, EXCEPT THAT A SMALL AMOUNT OF LOOSE SOIL MAY BE ON THE TOP OF THE ROOTBALL.
- PLANTS MUST NOT BE ROOT-BOUND; THERE MUST BE NO CIRCLING ROOTS PRESENT IN ANY PLANT INSPECTED.
- ROOTBALLS THAT HAVE CRACKED OR BROKEN WHEN REMOVED FROM THE CONTAINER SHALL BE REJECTED.

Overview

The proposed mitigation plan fulfills the requirements of LUC 20.25H.220(B). The plan seeks to restore and enhance substantial portions of the Lake Washington shoreline and on-site steep slope critical area. The entirety of the existing shoreline frontage (with the exception of the dock) will be enhanced with native plantings. The steep slope has a high potential for enhancement to increase several important functions, as it presently contains non-native vegetation. To achieve this, the plan calls for the planting of approximately 2,780 square feet of native trees, shrubs and groundcover within the steep slope critical area and the planting of 1,378 square feet of native trees, shrubs, and groundcover within the shoreline buffer and setback. The mitigation plan can be found in Appendix A. Species include western red cedar, shore pine, Douglas-fir, hairy Manzanita, vine maple, red-twig dogwood, serviceberry, cascara, nootka rose, red elderberry, snowberry, evergreen huckleberry, kinikinnick, goat's beard, menzie's larkspur, Oregon sunshine, Idaho fescue, sand strawberry, salad, and wood sorrel.

Maintenance and Monitoring Plan

Appendix A includes details of the 5-year maintenance and monitoring plan, also detailed below.

Goals

- Within the proposed mitigation areas, establish dense native vegetation that is appropriate to the eco-region and site.
- Where indicated on the plan, areas within the mitigation area will remain substantially vegetated with a preponderance of native plants and will contain little invasive or noxious weed cover.
- Increase habitat cover and refuge for amphibians, small mammals, and invertebrates. Provide perching habitat for native birds.

Performance Standards

The standards listed below will be used to judge the success of the installation over time. If performance standards are met at the end of Year 5, the site will then be deemed successful and the performance security bond will be eligible for release by the City of Bellevue.

- Survival: Achieve 100% survival of installed plants by the end of Year 1. This standard can be met through plant establishment or through replanting as necessary to achieve the required numbers.
- Native cover:
 - Achieve 40% understory cover of native shrubs and sapling trees by Year 2. Native volunteer species may count towards this cover standard.
 - Achieve 60% understory cover of native shrubs and sapling trees by Year 3. Native volunteer species may count towards this cover standard.
 - Achieve 80% understory cover of native shrubs and sapling trees by Year 3. Native volunteer species may count towards this cover standard.
- Species diversity: Establish at least three native shrub species by Year 3 and maintain this diversity through Year 5. Native volunteer species may count towards this standard. Establish at least five western red cedar trees and at least five other individual trees from the plant list or other suitable native volunteer tree species.
- Invasive cover: Aerial cover for all non-native, invasive and noxious weeds will not exceed 10% at any year during the monitoring period. Invasive plants include Himalayan blackberry (*Rubus armeniacus*), cut leaf blackberry (*Rubus laciniatus*), reed canarygrass (*Phalaris arundinacea*), cherry (hedge) laurel (*Prunus laurocerasus*), English holly (*Ilex aquifolium*), and ivy species (*Hedera* spp.).

Monitoring Methods

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

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

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

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

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

Construction Notes and Specifications

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

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

- All site preparation
 - Soil preparation.
 - Mulch placement.
- Plant material inspection
 - Plant material delivery inspection.
 - 100% plant installation inspection.

General Work Sequence

- All plant installation is to take place during the dormant season (October 15th - March 1st), for best survival.
- Prepare a planting pit for each plant and install per the planting details.
- Mulch the entire planted area with wood chip mulch, four inches thick.
- Install a temporary, above ground irrigation system to provide full coverage to all plants within the restoration area.

Material Specifications and Definitions

- Fertilizer:** Slow release, granular PHOSPHOROUS-FREE fertilizer. Follow manufacturer's instructions for application. Keep fertilizer in a weather-tight container while on site. Note that fertilizer is to be applied only in Years 2 through 5 and not in the first year.
- Irrigation system:** Automated system capable of delivering at least one inches of water per week from June 1 through September 30 for the first two years following installation.
- Restoration Professional:** Watershed Company [(425) 822-5242] personnel or other persons qualified to evaluate environmental restoration projects.
- Wood chip mulch:** Arborist chips (chipped woody material) approximately 1 to 3 inches in maximum dimension (not sawdust or coarse hog fuel). This material is commonly available in large quantities from arborists or tree-pruning companies. This material is sold as "Animal Friendly Hog Fuel" at Pacific Topsoils [(800) 884-7645]. Mulch must not contain appreciable quantities of garbage, plastic, metal, soil, and dimensional lumber or construction/demolition debris.

Contingencies

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

Maintenance

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

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

NOT FOR CONSTRUCTION
THESE PLANS ARE SUBJECT TO AGENCY APPROVAL UNTIL APPROVED, THESE PLANS ARE SUBJECT TO REVISION

SHEET SIZE:
ORIGINAL PLAN IS 24" x 36" .
SCALE ACCORDINGLY.

PROJECT MANAGER: KB
DESIGNED: MG
DRAFTED: CL
CHECKED: MG, KB

JOB NUMBER: 120234
SHEET NUMBER: 4 OF 4

DATE: 5/7/2012
PRINTED BY: MARINA FRENCH
FILENAME: WS-120234-SHORELINE PLAN1.DWG

SUBMITTALS & REVISIONS		NO.	DATE	DESCRIPTION	BY	CL	MG	KB
1	04-12-12	REVIEW SET						
2	04-26-12	REVIEW SET 2						
3	05-07-12	PERMIT SET						

GENERAL NOTES:

VALENTINE RESIDENCE
SHORELINE & STEEP SLOPE MITIGATION PLAN

FOR: DME CONSTRUCTION C/O DAVE ELWELL
SITE ADDRESS: 1006 W. LAKE SAMMAMISH PKWY S.E.
BELLEVUE, WA 98008

THE WATERSHED COMPANY

750 Sixth Street South
Kirkland WA 98033

p 425.822.5242 f 425.827.8136
www.watershedco.com

Science & Design



THE VALENTINE RESIDENCE



SELECTED NATIVE PLANTS

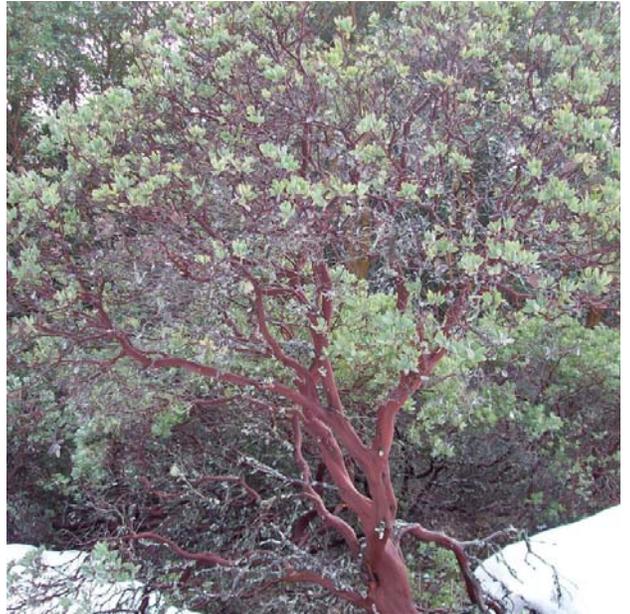
SHORELINE AND STEEP SLOPE MITIGATION



TREES



HAIRY MANZANITA
Arctostaphylos columbiana



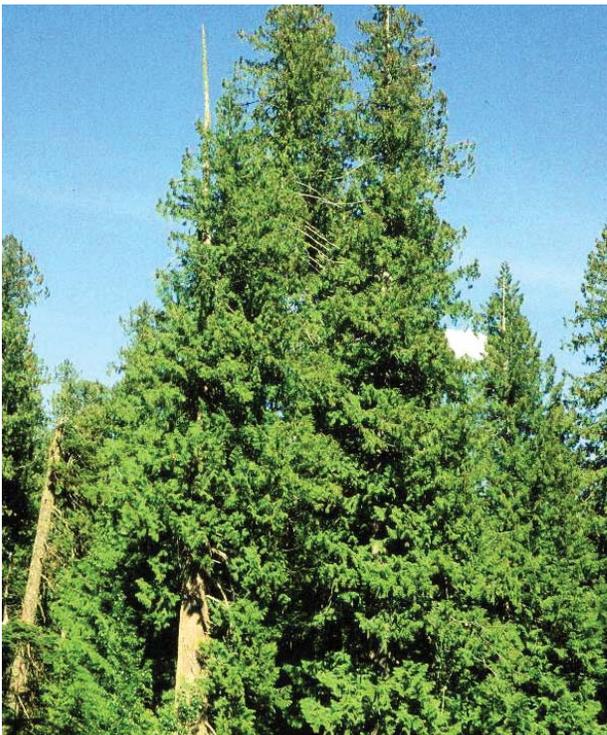
SHORE PINE
Pinus contorta



TREES



DOUGLAS FIR
Pseudotsuga menziesii



WESTERN REDCEDAR
Thuja plicata



SHRUBS



VINE MAPLE
Acer circinatum



SERVICEBERRY
Amelanchier alnifolia



SHRUBS



RED TWIG DOGWOOD
Cornus sericea



CASCARA
Rhamnus purshiana





SHRUBS



RED FLOWERING CURRANT
Ribes sanguineum



NUTKA ROSE
Rosa nutkana





SHRUBS



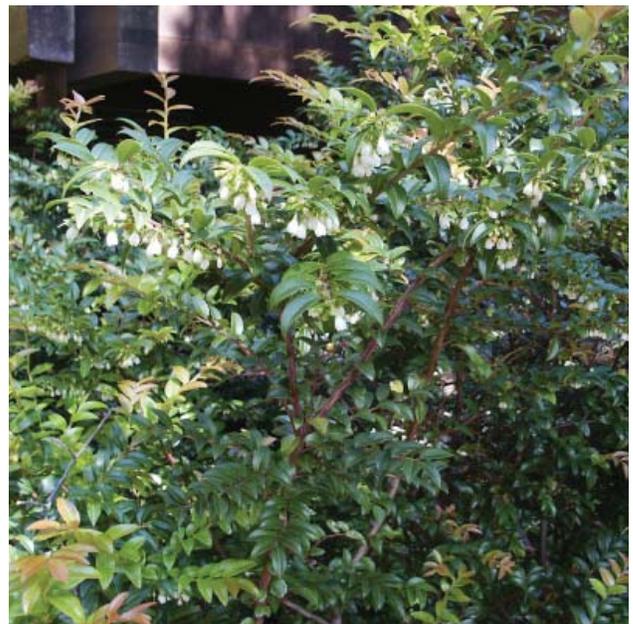
RED ELDERBERRY
Sambucus racemosa



SNOWBERRY
Symphoricarpos albus



EVERGREEN HUCKLEBERRY
Vaccinium ovatum





GRASSES



IDAHO FESCUE
Festuca idahoensis



GOAT'S BEARD

Aruncus diocus



MENZIES' LARKSPUR

Delphinium menziesii

OREGON SUNSHINE

Eriophyllum lanatum





GROUNDCOVER



KINIKINNICK
Arctostaphylos uva ursi



SAND STRAWBERRY
Fragaria chiloensis



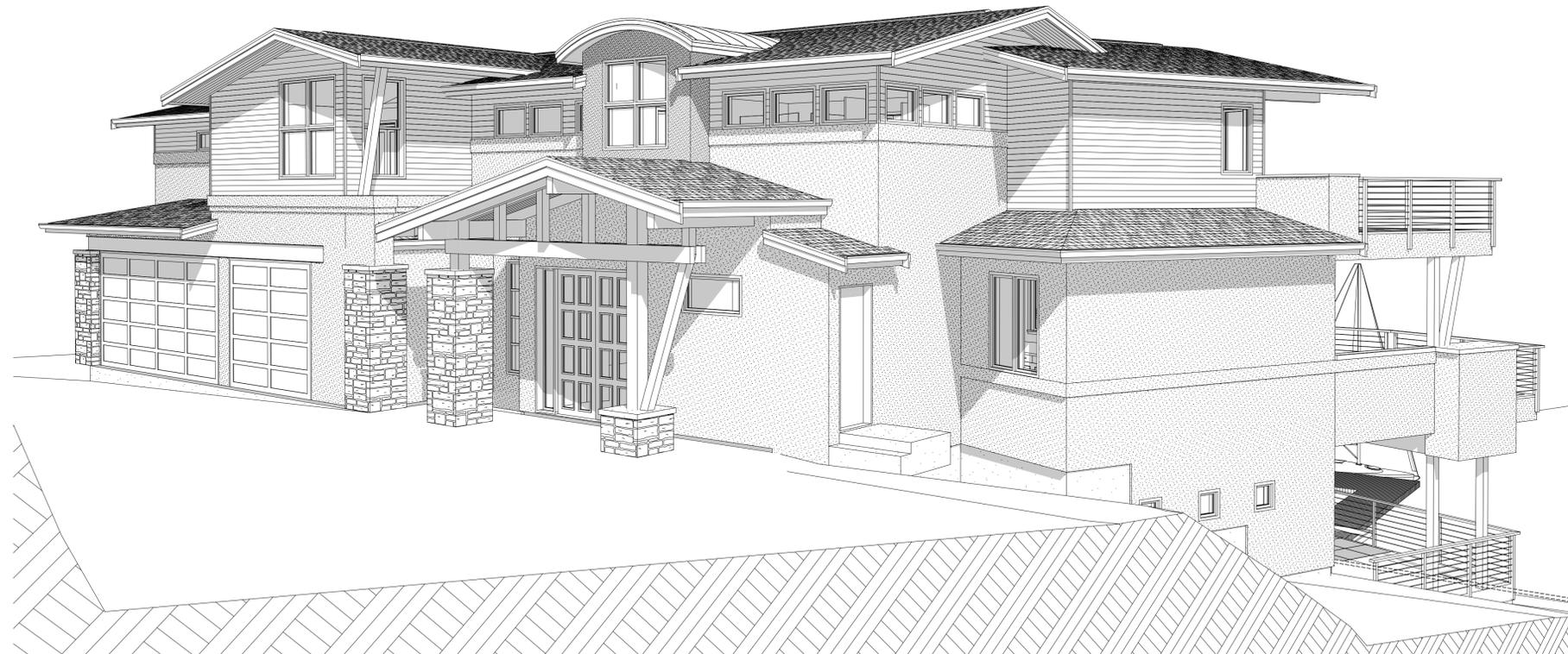
GROUNDCOVER



SALAL
Gaultheria shallon

OREGON WOOD SORREL
Oxalis oregana





APPROACH VIEW

SCALE: 3/16" = 1'-0"



LAKE VIEW

SCALE: 3/16" = 1'-0"

EXISTING CONC. FOUNDATION TO REMAIN

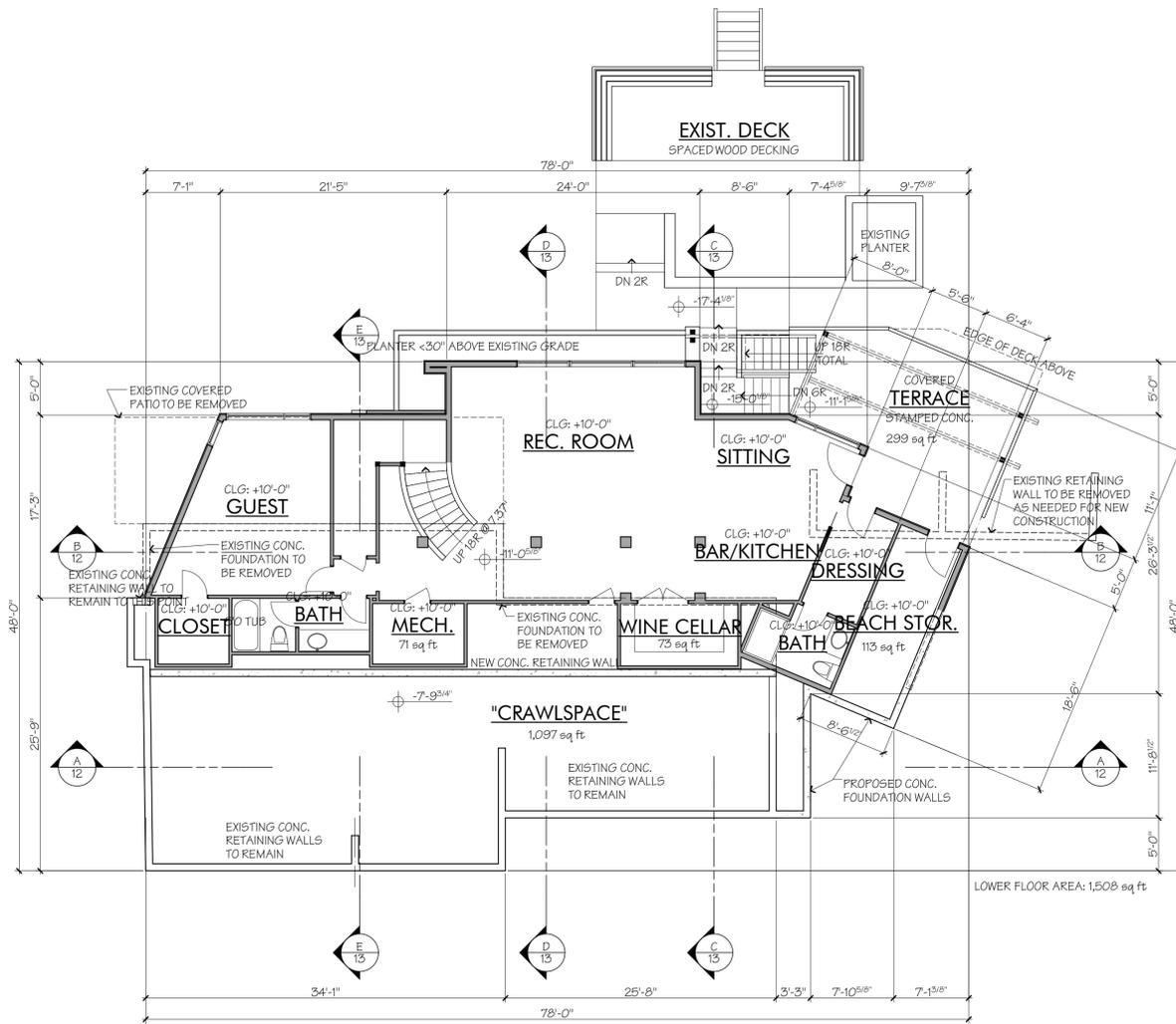
EXISTING CONC. FLOOR AND FOUNDATION TO BE REMOVED

C.A.R. SHEET INDEX	
ID	SHEET TITLE
1	PERSPECTIVES
2	CRITICAL AREAS PLAN
3	PROPOSED FLOOR PLANS
4	PROPOSED ELEVATIONS / SITE SECTION
5	PROPOSED SECTIONS

Issued	Date	Drawn By
C.A.R.	05/21/2012	mds

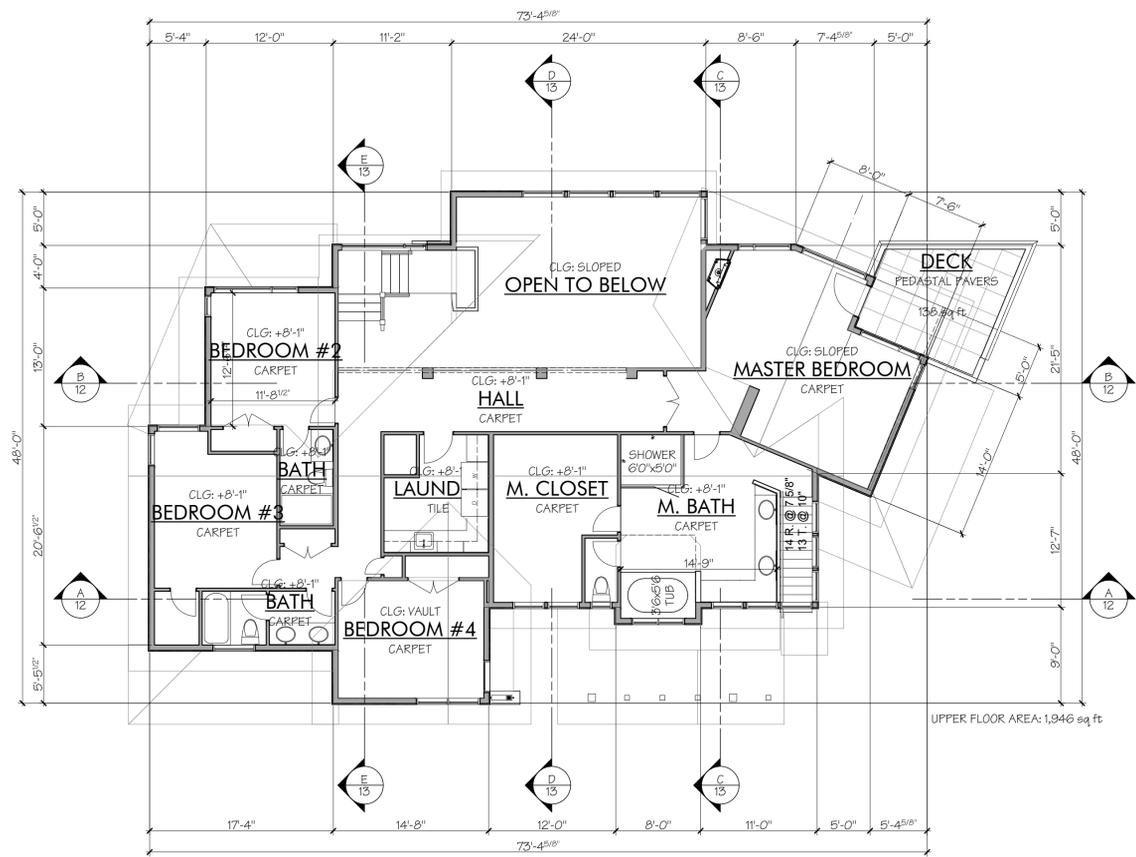
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1
 PERSPECTIVES



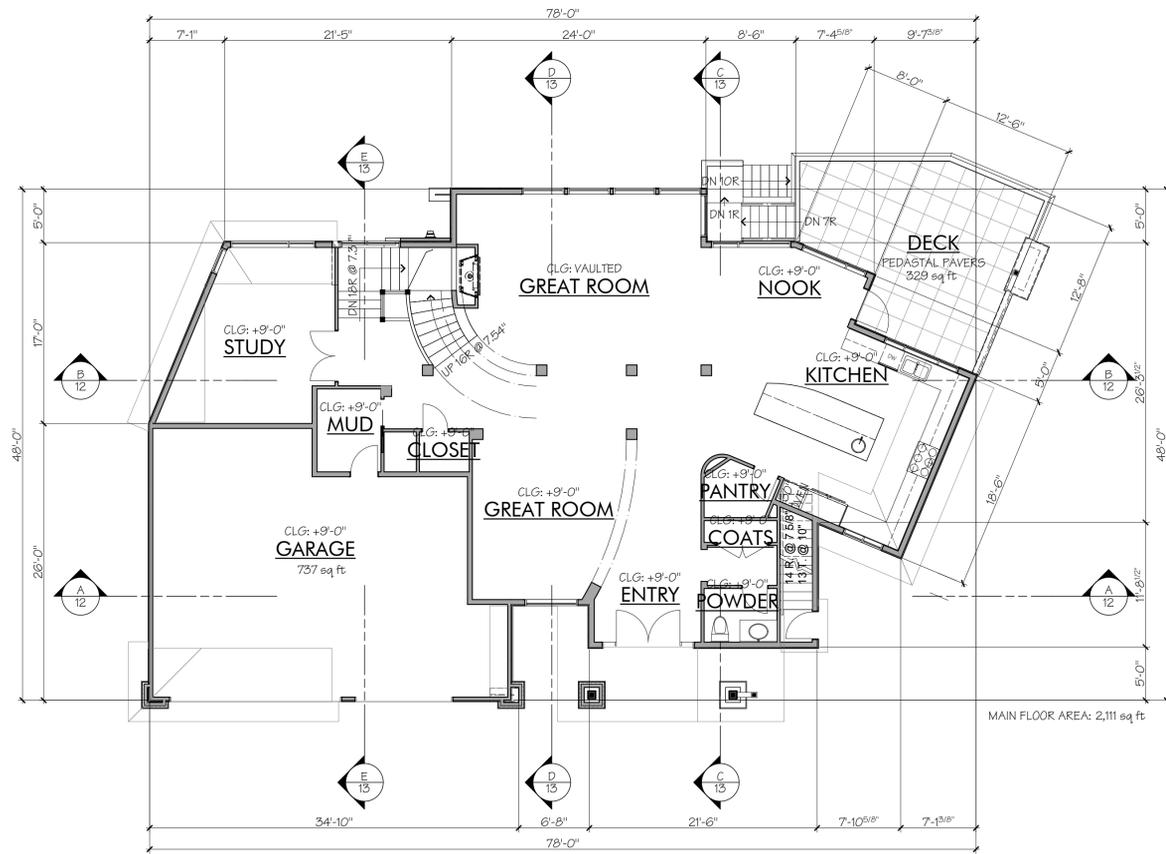
LOWER FLOOR

SCALE: 1/8" = 1'-0"



UPPER FLOOR

SCALE: 1/8" = 1'-0"



MAIN FLOOR

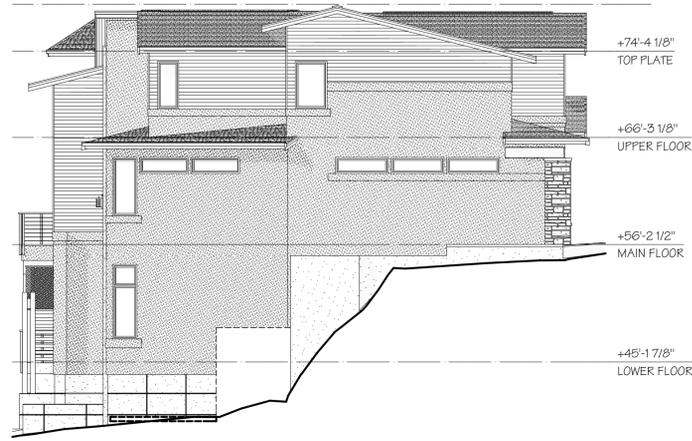
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Issued	Date	Drawn By	ms
C.A.R.	05/21/2012	ms	

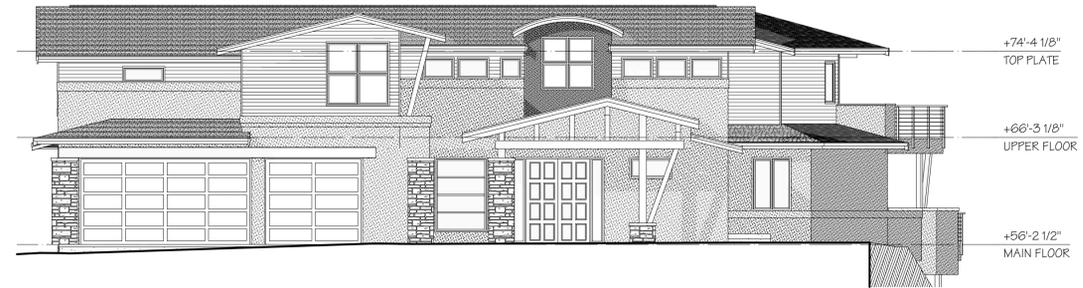
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3
 PROPOSED FLOOR PLANS



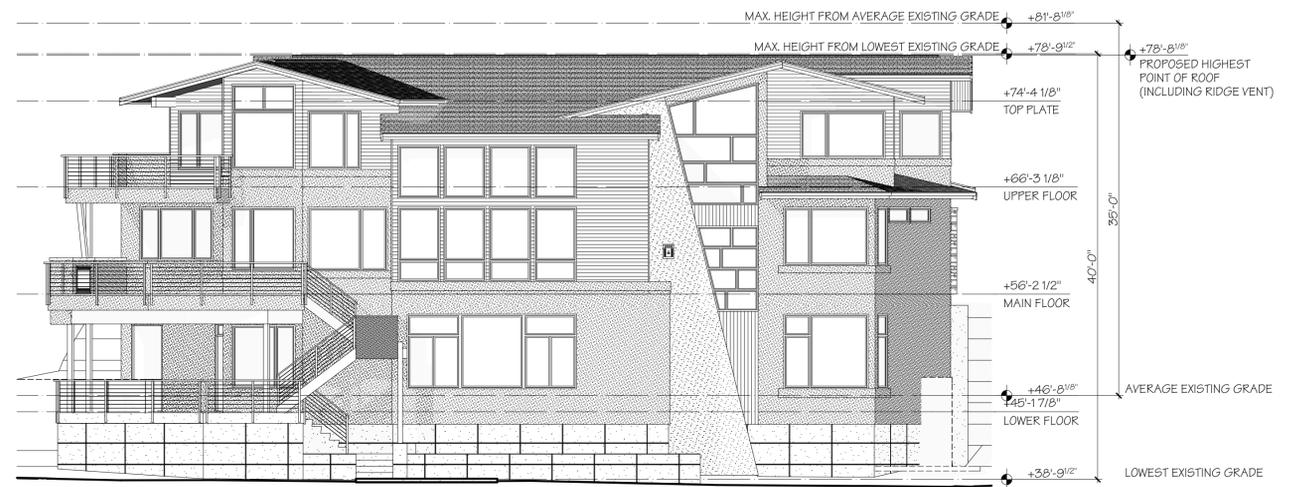
NORTH ELEVATION

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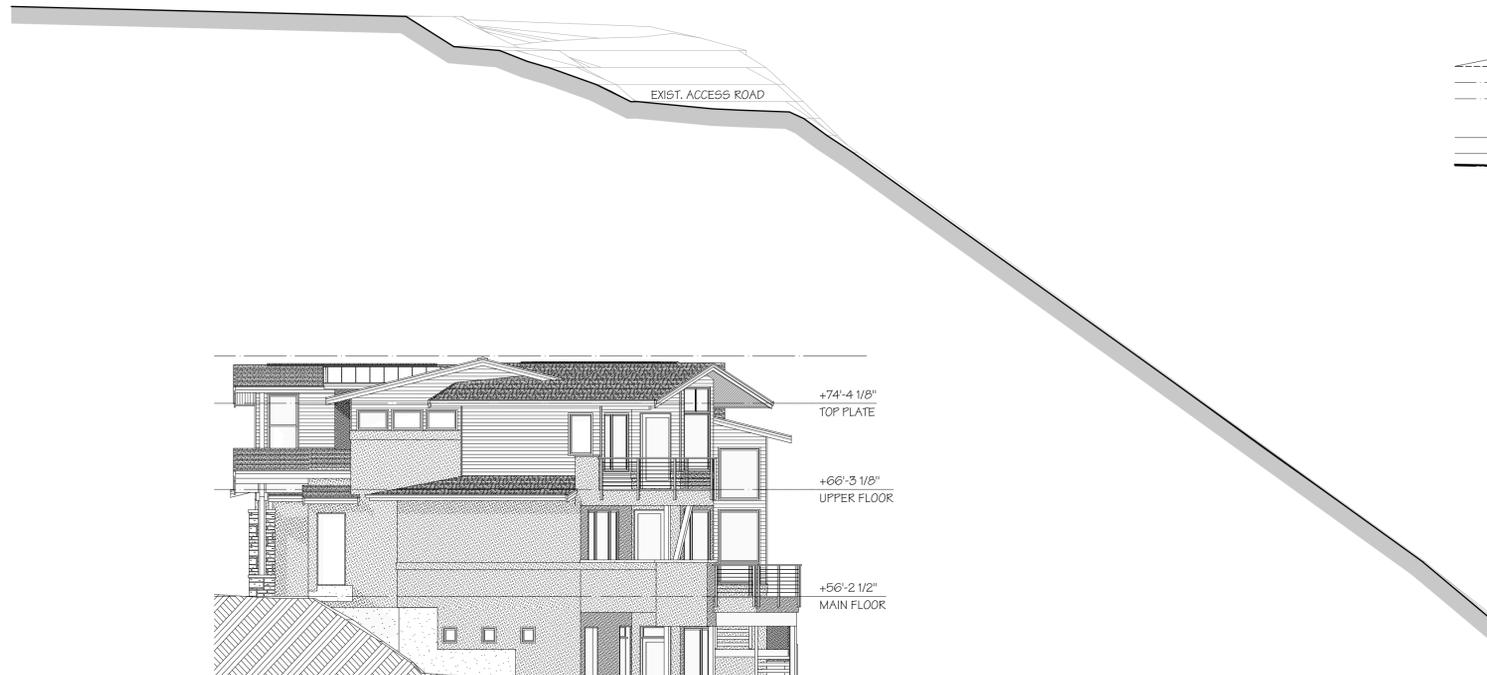
WEST ELEVATION

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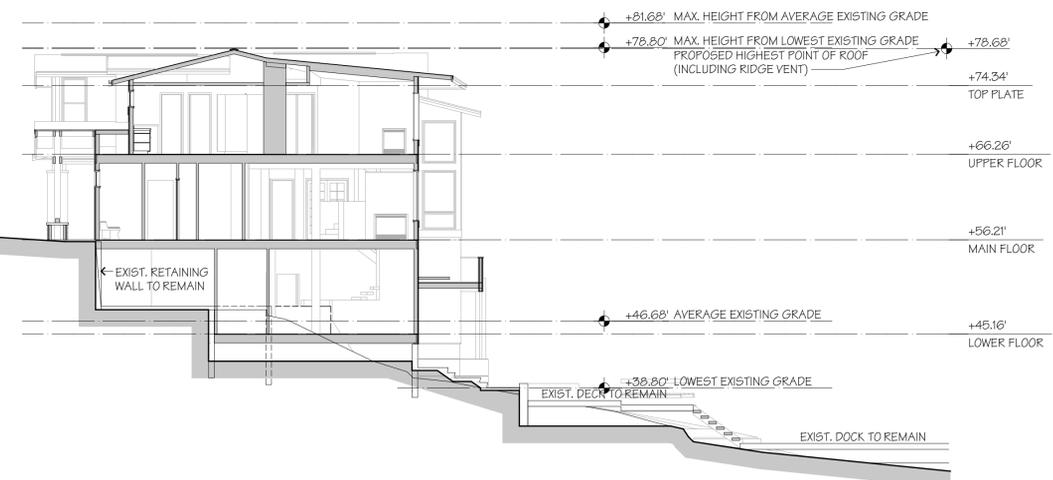
EAST ELEVATION

SCALE: 1/8" = 1'-0"



SOUTH ELEVATION

SCALE: 1/8" = 1'-0"



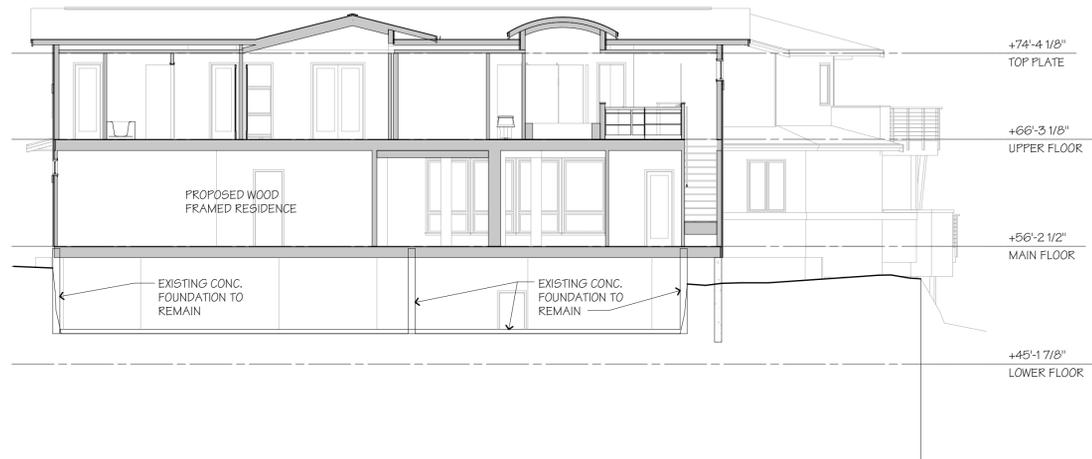
AA SITE SECTION

SCALE: 1" = 10'

Issued	Date	Drawn By
C.A.R.	05/21/2012	mds

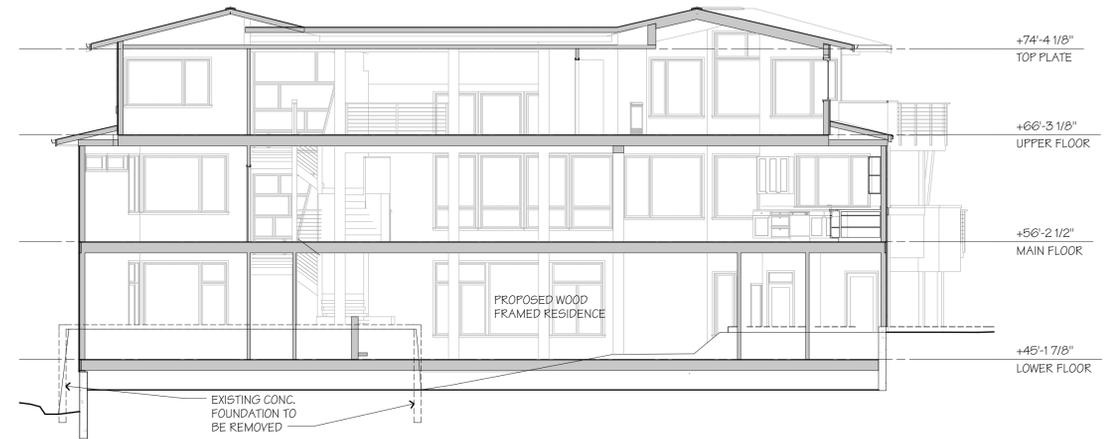
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4
 PROPOSED
 ELEVATIONS / SITE
 SECTION



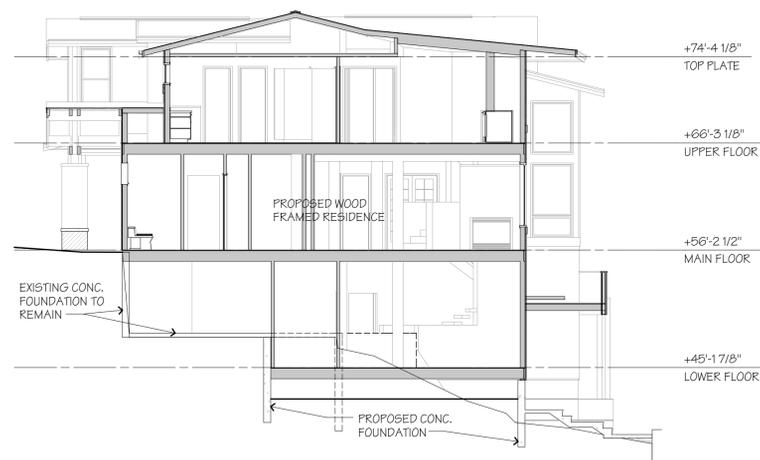
A SECTION

SCALE: 1/8" = 1'-0"



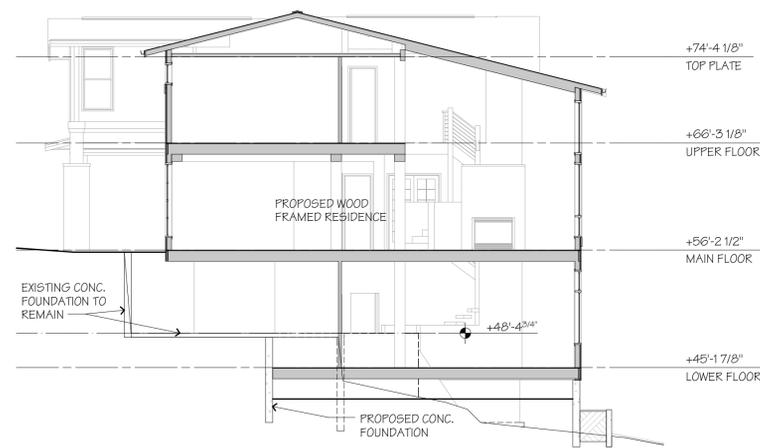
B SECTION

SCALE: 1/8" = 1'-0"



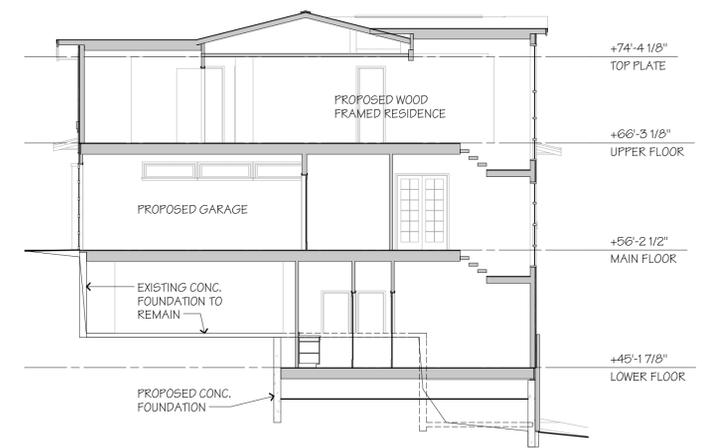
C SECTION

SCALE: 1/8" = 1'-0"



D SECTION

SCALE: 1/8" = 1'-0"



E SECTION

SCALE: 1/8" = 1'-0"

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C.A.R.	05/21/2012	mjs

11034

5
 PROPOSED
 SECTIONS

March 1, 2012

JN 12040

DME Construction
10777 Main Street, Suite 105
Bellevue, Washington 98004

via email

Attention: David M. Elwell

Subject: **Transmittal Letter – Geotechnical Engineering Study**
Proposed New Residence
1006 West Lake Sammamish Parkway Southeast
Bellevue, Washington

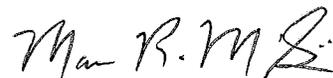
Dear Mr. Elwell:

Attached to this transmittal letter is our completed geotechnical engineering report for the new home to be constructed in Bellevue. The scope of our services consisted of exploring site surface and subsurface conditions, and then developing this report to provide recommendations for general earthwork and design considerations for foundations, retaining walls, slope stability and subsurface drainage. This work was authorized by your acceptance of our proposal, P-8311, dated February 6, 2012.

The attached report contains a discussion of the study and our recommendations. Please contact us if there are any questions regarding this report, or for further assistance during the design and construction phases of this project.

Respectfully submitted,

GEOTECH CONSULTANTS, INC.



Marc R. McGinnis, P.E.
Principal

cc: **4D Architects** – Barbara Pickens
via email

MRM: jyb

GEOTECHNICAL ENGINEERING STUDY
Proposed New Residence
1006 West Lake Sammamish Parkway Southeast
Bellevue, Washington

This report presents the findings and recommendations of our geotechnical engineering study for the site of the proposed new house to be constructed on the subject property in Bellevue.

Plans for the development are in the initial conceptual stage. We were provided with a copy of the Topographic and Boundary Survey, on which the footprint of the proposed house has been superimposed. Conceptual floor plans prepared by 4D Architects were also provided. Based on this information, and discussions with the project team, we expect that the existing house will be demolished and be replaced with a residence that has another story above-grade and which extends further toward the east and south. It will not reach further toward the west or north than the existing house does. Similar to the existing structure, the new residence will have a basement that will underlie at least the eastern half of the structure. The garage will be on the main floor, and will occupy the northwestern portion of the residence. South of the garage, the main floor will be underlain by a crawl space on the western portion of the house. No development or disturbance is planned for the existing paved road, rockery, and steep slope to the west of the house.

If the scope of the project changes from what we have described above, we should be provided with revised plans in order to determine if modifications to the recommendations and conclusions of this report are warranted.

SITE CONDITIONS

SURFACE

The Vicinity Map, Plate 1, illustrates the general location of the site. The subject property is an irregularly-shaped lot situated in the Bass Cove neighborhood. This lot extends between West Lake Sammamish Parkway Southeast and the western shore of Lake Sammamish. Located on the eastern side of the property, the existing house consists of one story overlying a partial basement. The paved access road to the houses of Bass Cove crosses the west edge of the lot, and then crosses the lot again along the west side of the existing house. During our visits to the property we closely observed the condition of the exterior foundation walls of the current house. We saw no signs of large cracks or offsets that would suggest excessive differential foundation settlement. In the area to the east of the house there is yard, decks and planters that extend toward Lake Sammamish.

Overall, the eastern half of the site slopes gently to moderately down to the shore of Lake Sammamish. There are very small areas of steep ground along the north and south side of the house where fill was placed in the past to create the paved access road and a small parking spot. These slopes are only 10 to 12 feet in height, and each of them covers a very limited portion of the site. Along the west side of the paved access road is a rockery having a height of 10 to 15 feet, which was constructed in front of the cut originally made for the road. This rockery is 25 to 30 feet to the west of both the existing and proposed house footprints. Large rocks were used for its construction, and we did not observe any indications of bulging or movement of the rockery. Above the rockery is an approximate 4-foot near-vertical cut, with a natural steep slope above the near-vertical cut. This cut face exposes dense to very dense glacial till soil and does not show any signs

of recent instability. The steep slope above the cut is overgrown with native vegetation and trees and does not exhibit indications of recent instability.

The properties to the north and south have been developed with single-family homes. Our firm completed a geotechnical engineering study and observed foundation excavation for the house immediately to the south (#1016). This home was constructed on conventional foundations bearing on the medium-dense to dense sands that underlie the area east of the paved drive. For that house, it was necessary to overexcavate areas closer to the lake and restore the footing grades using quarry spalls. Also, seepage flowing into the bottom of the basement excavation made it necessary to install underdrainage, and to utilize shoring to support the tall cut that was made along the paved access road. To the north of the subject site are two lots, each of which contains a residence. The house on the eastern lot (#842) is similarly located along the eastern, downslope, edge of the paved access road. On that lot, a tall soil-nail retaining wall faced with concrete has recently been constructed to retain a 15- to 25-foot cut that was made to widen the paved area. On the lot above the soil nail wall is a residence constructed within the last few years.

SUBSURFACE

The subsurface conditions were explored by drilling two borings at the approximate locations shown on the Site Exploration Plan, Plate 2. Additionally, one hand-excavated test hole was conducted near the northeast corner of the existing house to assess the bearing conditions beneath the perimeter foundation. We also have subsurface information available from our previous work on the adjacent southern residence. Our exploration program was based on the proposed construction, anticipated subsurface conditions and those encountered during exploration, and the scope of work outlined in our proposal.

The test borings were drilled on February 17, 2012 using a portable Acker drill. This drill system utilizes a small, gasoline-powered engine to advance a hollow-stem auger to the sampling depth. Samples were taken at 5-foot intervals with a standard penetration sampler. This split-spoon sampler, which has a 2-inch outside diameter, is driven into the soil with a 140-pound hammer falling 30 inches. The number of blows required to advance the sampler a given distance is an indication of the soil density or consistency. A geotechnical engineer from our staff observed the drilling process, logged the test borings, and obtained representative samples of the soil encountered. The Test Boring Logs are attached as Plates 3 and 4.

Soil Conditions

The boring to the east of the existing house and deck (Boring 1) was drilled near the approximate eastern extent of the new residence. Beneath a thin layer of sod and topsoil, this exploration encountered medium-dense, slightly silty, gravelly sand that became denser with depth. This native soil is consistent with the sand we observed in the excavation for the residence to the south. The sand became more coarse-grained with increasing depth.

In Boring 2, which was drilled within the expected southern portion of the new house, we observed approximately 8 feet of fill immediately below the existing ground surface. This was expected, as the area to the south of the current home has been filled and graded to construct the edge of the paved access road. Underlying this fill, the boring revealed native sand similar to that found in Boring 1. The native sand was initially loose, but became medium-dense to dense within a few feet of the old ground line. Similar to Boring 1, the native sand became less silty and more coarse-grained with increasing depth.

In both of the borings, shallow groundwater seepage and the potential for heaving sands forced the driller to use drilling mud below a depth of approximately 10 feet.

In the hand-excavated test hole conducted at the northeast corner of the existing house, we were able to verify that the footing bears directly on native medium-dense to dense sand.

From our observation of the conditions around the rockery located to the west of the house, we expect that the steep slope is generally comprised of glacially-compressed, gravelly, silty sand (glacial till). There is typically a layer of looser soil overlying the unweathered glacial till that has formed from long-term weathering of the glacial till due primarily to freeze/thaw cycles.

Although our explorations did not encounter cobbles or boulders, they can be found scattered through coarse-grained soils that have been deposited by glaciers or fast-moving water.

Groundwater Conditions

In Boring 1, the groundwater table within the sand soils was found at a depth of only 2 feet below the existing grade. We expect that this water table extends down to an underlying impervious layer at a depth below that of the borings. In Boring 2, we observed shallow perched seepage within the fill, and then the same water table within the underlying native sands at an estimated depth of 8 to 10 feet below the ground surface. Similar conditions were encountered in the excavation for the house to the south. Any excavations below the water table in the native sands encountered heavy groundwater seepage and flowing sand conditions.

It should be noted that groundwater levels vary seasonally with rainfall and other factors. The borings were drilled following a wet fall and winter, and after a recent snow melt, so the encountered groundwater levels should be near their seasonal high level.

The stratification lines on the logs represent the approximate boundaries between soil types at the exploration locations. The actual transition between soil types may be gradual, and subsurface conditions can vary between exploration locations. The logs provide specific subsurface information only at the locations tested. If a transition in soil type occurred between samples in the borings, the depth of the transition was interpreted. The relative densities and moisture descriptions indicated on the test boring logs are interpretive descriptions based on the conditions observed during drilling

CONCLUSIONS AND RECOMMENDATIONS

GENERAL

THIS SECTION CONTAINS A SUMMARY OF OUR STUDY AND FINDINGS FOR THE PURPOSES OF A GENERAL OVERVIEW ONLY. MORE SPECIFIC RECOMMENDATIONS AND CONCLUSIONS ARE CONTAINED IN THE REMAINDER OF THIS REPORT. ANY PARTY RELYING ON THIS REPORT SHOULD READ THE ENTIRE DOCUMENT.

The explorations conducted for this study encountered medium-dense to dense native sands similar to those found previously on the adjacent southern property. These sands are suitable to

support the new house using conventional footings. It is prudent to excavate the footing subgrades with a smooth bucket or grade bar to prevent disturbance of the underlying soil from the teeth of a bucket. Additionally, bearing surfaces should be covered with at least a thin layer of clean crushed stone (quarry spalls, railroad ballast rock, etc.) to prevent disturbance under foot traffic while forms and rebar are being placed. Where overexcavation below planned footing subgrades is needed and/or where the foundation excavation encounters seepage, the excavation should be filled with clean crushed stone back up to footing subgrade elevation. If only 2 to 3 feet of this rock fill is needed, it can be compacted in 12- to 16-inch lifts by hard tamping with the bucket of the excavator. A hoe-pack should be used to compact thicker fill.

Excavation to reach suitable bearing soils may not be desirable for portions of the structure to the south of the existing house, particularly for the western crawl space area. In this case, small-diameter pipe piles can be used to support those portions of the new structure. Projects involving small-diameter pipe piles often include the need for lateral resistance from fill placed against the foundations. If this is the case for this project, it is important that the structural engineer indicate this requirement on the plans for the general and earthwork contractor's information. Compaction requirements for this fill are discussed below in pipe piles.

It is likely that some settlement of the ground surrounding any pile-supported portions of the structure will occur over time. In order to reduce the potential problems associated with this, we recommend the following:

- Fill to the desired site grades several months prior to constructing on-grade slabs, walkways, and pavements around the buildings. This allows the underlying soils to undergo some consolidation under the new soil loads before final grading is accomplished.
- Construct all entrance walkways as reinforced slabs that are doweled into the grade beam at the door thresholds. This will allow the walkways to ramp down and away from the building as they settle, without causing a downset at the threshold.
- Isolate on-grade elements, such as walkways or pavements, from pile-supported foundations and columns to allow differential movement.

Excavation of more than a few feet into the native sands will likely encounter heavy groundwater seepage and flowing soil conditions. As a result, it is important that the depth of temporary excavations be minimized. As we encountered on the adjacent southern property, the fill and native sands will likely not stand at a 1:1 (Horizontal:Vertical) unsupported temporary slope. As a result, it is prudent to utilize the existing house's foundation walls as temporary excavation shoring wherever possible, particularly along the paved access drive to the west. New foundations and walls can be poured inside of the existing ones, with drainage and waterproofing installed between the existing and new construction.

The basement slab elevation will likely be close to the existing one, so should not be cut very far into the ground. Even so, it would be prudent to install an underslab drainage system under at least the western half of the slab area, in the event that groundwater levels rise above the current ones during unusually wet years.

The new house will be situated no closer to the western steep slope than the existing one is. This will result in a 25- to 30-foot buffer between the construction and the rockery/steep slope. Under the City of Bellevue Code, the steep slope above the rockery would be designated as a landslide

hazard. The set back between the new house and the toe of the steep slope will be less than the 75-foot structure set back required from the toe of slope for new construction by Bellevue Code 20.25H.035. Even so, considering that the paved road will remain in the same condition, and the rockery and steep slope will be untouched, allowing the reduced toe-of-slope structure setback for the planned development will not adversely impact the stability of the rockery or the steep slope. It is not even possible to set the structure 75 feet from the slope's toe. The steep slope is not mantled with colluvium, and deep-seated slides are not known to occur in this area. As a result, large-scale slides on the steep slope are not expected in the future. However, as with any steep slope in the area, shallow "skin" slides or mudflows may affect the upper few feet of looser, weathered soil. This is a risk that exists on all of the surrounding properties, and in many cases is not mitigated at all by the existing construction. However, for the new house, the 25- to 30-foot structure setback from the toe of the slope provides a relatively wide run-out area for soil or mud that could potentially travel down the slope in a shallow slide. Even so, we recommend that additional protection for the portion of the structure south of the garage be provided by extending the westernmost foundation wall to at approximately 3 feet above grade to deflect any soil or mud that might travel across the paved road. The exterior siding can cover this extension of the foundation wall. Alternatively, a short stand-alone wall or planter could be constructed on the west side of the house to provide the same additional protection.

The erosion control measures needed during the site development will depend heavily on the weather conditions that are encountered. We anticipate that a silt fence will be needed around the downslope sides of any cleared areas. Existing vegetation should remain undisturbed around the work area until final landscaping is to occur. As much as possible, trucks should drive and be loaded on the existing pavement. Rock-covered access roads and/or staging areas should be provided where vehicles or trucks must drive off paved areas and onto the site. In wet conditions, the base of the excavation should be covered with a layer of clean rock to prevent silty runoff from leaving the excavation. Cut slopes and soil stockpiles should be covered with plastic during wet weather. Following rough grading, it may be necessary to mulch or hydroseed bare areas that will not be immediately covered with landscaping or an impervious surface. As with any project, additional erosion control measures may need to be implemented to address conditions that are encountered during earthwork and construction.

The drainage and/or waterproofing recommendations presented in this report 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 the surrounding soil, and can even be transmitted from slabs and foundation walls due to the concrete curing process. Water vapor also results from occupant uses, such as cooking and bathing. 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. 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.

Geotech Consultants, Inc. should be allowed to review the final development plans to verify that the recommendations presented in this report are adequately addressed in the design. Such a plan review would be additional work beyond the current scope of work for this study, and it may include revisions to our recommendations to accommodate site, development, and geotechnical constraints that become more evident during the review process.

We recommend including this report, in its entirety, in the project contract documents. This report should also be provided to any future property owners so they will be aware of our findings and recommendations.

SEISMIC CONSIDERATIONS

In accordance with the International Building Code (IBC), the site class within 100 feet of the ground surface is best represented by Site Class Type D (Stiff Site Class). The dense soils that will support the foundations are not susceptible to liquefaction (soil bearing loss) in the code-level earthquake. As noted in the USGS website, the mapped spectral acceleration value for a 0.2 second (S_s) and 1.0 second period (S_1) equals 1.34g and 0.45g, respectively.

CONVENTIONAL FOUNDATIONS

We recommend that continuous and individual spread footings have minimum widths of 12 and 16 inches, respectively. Exterior footings should also be bottomed at least 18 inches below the lowest adjacent finish ground surface for protection against frost and erosion. The local building codes should be reviewed to determine if different footing widths or embedment depths are required. Footing subgrades must be cleaned of loose or disturbed soil prior to pouring concrete. Depending upon site and equipment constraints, this may require removing the disturbed soil by hand.

Depending on the final site grades, overexcavation may be required below the footings to expose competent native soil. Clean crushed material, such as quarry spalls, railroad ballast rock, or 2- to 4-inch recycled concrete should be used to fill any overexcavation beneath footings. Overexcavation beneath footings must be at least as wide at the bottom as the sum of the half the depth of the overexcavation plus the footing width. For example, an overexcavation extending 2 feet below the bottom of a 2-foot-wide footing must be at least 3 feet wide at the base of the excavation.

An allowable bearing pressure of 3,000 pounds per square foot (psf) is appropriate for footings supported on competent native soil. A one-third increase in this design bearing pressure may be used when considering short-term wind or seismic loads. For the above design criteria, it is anticipated that the total post-construction settlement of footings founded on competent native soil, or on structural fill up to 5 feet in thickness, will be less than one inch inch, with differential settlements on the order of one-quarter inch in a distance of 25 feet along a continuous footing with a uniform load.

Lateral loads due to wind or seismic forces may be resisted by friction between the foundation and the bearing soil, or by passive earth pressure acting on the vertical, embedded portions of the foundation. For the latter condition, the foundation must be either poured directly against relatively level, undisturbed soil or be surrounded by level, well-compacted fill.

We recommend using the following ultimate values for the foundation's resistance to lateral loading:

PARAMETER	ULTIMATE VALUE
Coefficient of Friction	0.45
Passive Earth Pressure	300 pcf

Where: (i) pcf is pounds per cubic foot, and (ii) passive earth pressure is computed using the equivalent fluid density.

If the ground in front of a foundation is loose or sloping, the passive earth pressure given above will not be appropriate. We recommend maintaining a safety factor of at least 1.5 for the foundation's resistance to lateral loading, when using the above ultimate values.

PIPE PILES

Three- or 4-inch-diameter pipe piles driven with a 650- or 800- or 1,100-pound hydraulic jackhammer to the following final penetration rates may be assigned the following compressive capacities.

INSIDE PILE DIAMETER	FINAL DRIVING RATE (650-pound hammer)	FINAL DRIVING RATE (800-pound hammer)	FINAL DRIVING RATE (1,100-pound hammer)	ALLOWABLE COMPRESSIVE CAPACITY
3 inches	12 sec/inch	10 sec/inch	6 sec/inch	6 tons
4 inches	20 sec/inch	15 sec/inch	10 sec/inch	10 tons

Note: The refusal criteria indicated in the above table are valid only for pipe piles that are installed using a hydraulic impact hammer carried on leads that allow the hammer to sit on the top of the pile during driving. If the piles are installed by alternative methods, such as a vibratory hammer or a hammer that is hard-mounted to the installation machine, numerous load tests to 200 percent of the design capacity would be necessary to substantiate the allowable pile load. The appropriate number of load tests would need to be determined at the time the contractor and installation method are chosen.

As a minimum, Schedule 40 pipe should be used. The site soils should not be highly corrosive. Considering this, it is our opinion that standard "black" pipe can be used, and corrosion protection, such as galvanizing, is not necessary for the pipe piles.

Pile caps and grade beams should be used to transmit loads to the piles. Isolated pile caps should include a minimum of two piles to reduce the potential for eccentric loads being applied to the piles. Subsequent sections of pipe can be connected with slip or threaded couplers, or they can be welded together. If slip couplers are used, they should fit snugly into the pipe sections. This may require that shims be used or that beads of welding flux be applied to the outside of the coupler.

Lateral loads due to wind or seismic forces may be resisted by passive earth pressure acting on the vertical, embedded portions of the foundation. For this condition, the foundation must be either poured directly against relatively level, undisturbed soil or surrounded by level, structural fill. We recommend using a passive earth pressure of 300 pounds per cubic foot (pcf) for this resistance. If the ground in front of a foundation is loose or sloping, the passive earth pressure given above will not be appropriate. We recommend a safety factor of at least 1.5 for the foundation's resistance to

lateral loading, when using the above ultimate passive value. Due to their small diameter, the lateral capacity of vertical pipe piles is relatively small. However, if lateral resistance in addition to passive soil resistance is required, we recommend driving battered piles in the same direction as the applied lateral load. The lateral capacity of a battered pile is equal to one-half of the lateral component of the allowable compressive load, with a maximum allowable lateral capacity of 1,000 pounds. The allowable vertical capacity of battered piles does not need to be reduced if the piles are battered steeper than 1:5 (Horizontal:Vertical).

PERMANENT FOUNDATION AND RETAINING WALLS

Retaining walls backfilled on only one side should be designed to resist the lateral earth pressures imposed by the soil they retain. The following recommended parameters are for walls that restrain level backfill:

PARAMETER	VALUE
Active Earth Pressure *	40 pcf
Passive Earth Pressure	300 pcf
Coefficient of Friction	0.45
Soil Unit Weight	135 pcf

Where: (i) pcf is pounds per cubic foot, and (ii) active and passive earth pressures are computed using the equivalent fluid pressures.

* For a restrained wall that cannot deflect at least 0.002 times its height, a uniform lateral pressure equal to 10 psf times the height of the wall should be added to the above active equivalent fluid pressure.

The values given above are to be used to design only permanent foundation and retaining walls that are to be backfilled, such as conventional walls constructed of reinforced concrete or masonry. It is not appropriate to use the above earth pressures and soil unit weight to back-calculate soil strength parameters for design of other types of retaining walls, such as soldier pile, reinforced earth, modular or soil nail walls. We can assist with design of these types of walls, if desired. The passive pressure given is appropriate only for a shear key poured directly against undisturbed native soil, or for the depth of level, well-compacted fill placed in front of a retaining or foundation wall. The values for friction and passive resistance are ultimate values and do not include a safety factor. We recommend a safety factor of at least 1.5 for overturning and sliding, when using the above values to design the walls. Restrained wall soil parameters should be utilized for a distance of 1.5 times the wall height from corners or bends in the walls. This is intended to reduce the amount of cracking that can occur where a wall is restrained by a corner.

The design values given above do not include the effects of any hydrostatic pressures behind the walls and assume that no surcharges, such as those caused by slopes, vehicles, or adjacent foundations will be exerted on the walls. If these conditions exist, those pressures should be added to the above lateral soil pressures. Where sloping backfill is desired behind the walls, we will need to be given the wall dimensions and the slope of the backfill in order to provide the appropriate design earth pressures. The surcharge due to traffic loads behind a wall can typically be accounted for by adding a uniform pressure equal to 2 feet multiplied by the above active fluid density. Heavy

construction equipment should not be operated behind retaining and foundation walls within a distance equal to the height of a wall, unless the walls are designed for the additional lateral pressures resulting from the equipment.

Wall Pressures Due to Seismic Forces

The surcharge wall loads that could be imposed by the design earthquake can be modeled by adding a uniform lateral pressure to the above-recommended active pressure. The recommended surcharge pressure is $7H$ pounds per square foot (psf), where H is the design retention height of the wall. Using this increased pressure, the safety factor against sliding and overturning can be reduced to 1.2 for the seismic analysis.

Retaining Wall Backfill and Waterproofing

Backfill placed behind retaining or foundation walls should be coarse, free-draining structural fill containing no organics. This backfill should contain no more than 5 percent silt or clay particles and have no gravel greater than 4 inches in diameter. The percentage of particles passing the No. 4 sieve should be between 25 and 70 percent. If the native sand is used as backfill, a minimum 12-inch width of free-draining gravel should be placed against the backfilled retaining walls.

The purpose of these backfill requirements is to ensure that the design criteria for a retaining wall are not exceeded because of a build-up of hydrostatic pressure behind the wall. The top 12 to 18 inches of the backfill should consist of a compacted, relatively impermeable soil or topsoil, or the surface should be paved. The ground surface must also slope away from backfilled walls to reduce the potential for surface water to percolate into the backfill.

It is critical that the wall backfill be placed in lifts and be properly compacted, in order for the above-recommended design earth pressures to be appropriate. The wall design criteria assume that the backfill will be well-compacted in lifts no thicker than 12 inches. The compaction of backfill near the walls should be accomplished with hand-operated equipment to prevent the walls from being overloaded by the higher soil forces that occur during compaction. The section entitled ***General Earthwork and Structural Fill*** contains additional recommendations regarding the placement and compaction of structural fill behind retaining and foundation walls.

The above recommendations are not intended to waterproof below-grade walls, or to prevent the formation of mold, mildew or fungi in interior spaces. Over time, the performance of subsurface drainage systems can degrade, subsurface groundwater flow patterns can change, and utilities can break or develop leaks. Therefore, waterproofing should be provided where future seepage through the walls is not acceptable. This typically includes limiting cold-joints and wall penetrations, and using bentonite panels or membranes on the outside of the walls. There are a variety of different waterproofing materials and systems, which should be installed by an experienced contractor familiar with the anticipated construction and subsurface conditions. Applying a thin coat of asphalt emulsion to the outside face of a wall is not considered waterproofing, and will only help to reduce moisture generated from water vapor or capillary action from seeping through the concrete. As with any project, adequate ventilation of basement and crawl space areas is important to prevent a build up of water vapor that is commonly transmitted through concrete walls from the surrounding soil, even when seepage is not present. This is

appropriate even when waterproofing is applied to the outside of foundation and retaining walls. We recommend that you contact a specialty consultant if detailed recommendations or specifications related to waterproofing design, or minimizing the potential for infestations of mold and mildew are desired.

SLABS-ON-GRADE

Even where the exposed soils appear dry, water vapor will tend to naturally migrate upward through the soil to the new constructed space above it. This can affect moisture-sensitive flooring, cause imperfections or damage to the slab, or simply allow excessive water vapor into the space above the slab. 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 that has a fines content (percent passing the No. 200 sieve) of less than 3 percent and a sand content (percent passing the No. 4 sieve) of no more than 10 percent. As discussed in the **General** section, an underslab drainage system should be installed beneath at least the west portion of the basement slab. Where this underslab drainage is installed, it is not necessary to also have the capillary break layer.

As noted by the American Concrete Institute (ACI) in the *Guides for Concrete Floor and Slab Structures*, proper moisture protection is desirable immediately below any on-grade slab that will be covered by tile, wood, carpet, impermeable floor coverings, or any moisture-sensitive equipment or products. ACI also notes that vapor *retarders*, such as 6-mil plastic sheeting, have been used in the past, but are now recommending a minimum 10-mil thickness. A vapor retarder is defined as a material with a permeance of less than 0.3 perms, as determined by ASTM E 96. It is possible that concrete admixtures may meet this specification, although the manufacturers of the admixtures should be consulted. Where vapor retarders are used under slabs, their edges should overlap by at least 6 inches and be sealed with adhesive tape. The sheeting should extend to the foundation walls for maximum vapor protection. If no potential for vapor passage through the slab is desired, a vapor *barrier* should be used. A vapor barrier, as defined by ACI, is a product with a water transmission rate of 0.01 perms when tested in accordance with ASTM E 96. Reinforced membranes having sealed overlaps can meet this requirement.

EXCAVATIONS AND SLOPES

Excavation slopes should not exceed the limits specified in local, state, and national government safety regulations. Temporary cuts to a depth of about 4 feet may be attempted vertically in unsaturated soil, if there are no indications of slope instability. However, vertical cuts should not be made near property boundaries, or existing utilities and structures. Based upon Washington Administrative Code (WAC) 296, Part N, the soil at the subject site would generally be classified as Type C above the level of groundwater seepage. Temporary cuts in the near-surface soils should be planned no steeper than 1.5:1 (Horizontal:Vertical). Shoring will be needed for any unsupported cuts that need to be steeper, extend below the water table, or encounter sloughing soils.

The above-recommended temporary slope inclination is based on the conditions exposed in our explorations, and on what has been successful at other sites with similar soil conditions. It is possible that variations in soil and groundwater conditions will require modifications to the inclination at which temporary slopes can stand. Temporary cuts are those that will remain unsupported for a relatively short duration to allow for the construction of foundations, retaining walls, or utilities. Temporary cut slopes should be protected with plastic sheeting during wet weather. It is also important that surface water be directed away from temporary slope cuts. The

cut slopes should also be backfilled or retained as soon as possible to reduce the potential for instability. Please note that loose, wet soil can cave suddenly and without warning. Excavation, foundation, and utility contractors should be made especially aware of this potential danger. These recommendations may need to be modified if the area near the potential cuts has been disturbed in the past by utility installation, or if settlement-sensitive utilities are located nearby.

All permanent cuts into native soil should be inclined no steeper than 2.5:1 (H:V). Water should not be allowed to flow uncontrolled over the top of any temporary or permanent slope. All permanently exposed slopes should be seeded with an appropriate species of vegetation to reduce erosion and improve the stability of the surficial layer of soil.

DRAINAGE CONSIDERATIONS

Foundation drains should be used where (1) crawl spaces or basements will be below a structure, (2) a slab is below the outside grade, or (3) the outside grade does not slope downward from a building. Drains should also be placed at the base of all earth-retaining walls. These drains should be surrounded by at least 6 inches of 1-inch-minus, washed rock and then wrapped in non-woven, geotextile filter fabric (Mirafi 140N, Supac 4NP, or similar material). At its highest point, a perforated pipe invert should be at least 6 inches below the bottom of a slab floor or the level of a crawl space, and it should be sloped for drainage. All roof and surface water drains must be kept separate from the foundation drain system. A typical drain detail is attached to this report as Plate 5. For the best long-term performance, perforated PVC pipe is recommended for all subsurface drains.

As discussed in the **General** section, an underslab drainage system should be provided beneath the basement slab. This type of drainage should also be provided wherever the final grade (crawl space or slab) is close to the groundwater level encountered in our borings. A typical detail for an underslab drain is attached to this report.

As a minimum, a vapor retarder, as defined in the **Slabs-On-Grade** section, should be provided in any crawl space area to limit the transmission of water vapor from the underlying soils. Also, an outlet drain is recommended for all crawl spaces to prevent a build up of any water that may bypass the footing drains.

Groundwater was observed during our field work. If seepage is encountered in an excavation, it should be drained from the site by directing it through drainage ditches, perforated pipe, or French drains, or by pumping it from sumps interconnected by shallow connector trenches at the bottom of the excavation. This type of simple dewatering would not be adequate for cuts extending more than a foot or two below the water table. Deeper cuts would likely require dewatering with wells or wellpoints.

The excavation and site should be graded so that surface water is directed off the site and away from the tops of slopes. Water should not be allowed to stand in any area where foundations, slabs, or pavements are to be constructed. Final site grading in areas adjacent to exterior foundations and retaining walls should slope away at least 2 percent, except where the area is paved. Surface drains should be provided where necessary to prevent ponding of water behind foundation or retaining walls.

GENERAL EARTHWORK AND STRUCTURAL FILL

All building and pavement areas should be stripped of surface vegetation, topsoil, organic soil, and other deleterious material. The stripped or removed materials should not be mixed with any materials to be used as structural fill, but they could be used in non-structural areas, such as landscape beds.

Structural fill is defined as any fill, including utility backfill, placed under, or close to, a building, behind permanent retaining or foundation walls, or in other areas where the underlying soil needs to support loads. All structural fill should be placed in horizontal lifts with a moisture content at, or near, the optimum moisture content. The optimum moisture content is that moisture content that results in the greatest compacted dry density. The moisture content of fill is very important and must be closely controlled during the filling and compaction process.

The allowable thickness of the fill lift will depend on the material type selected, the compaction equipment used, and the number of passes made to compact the lift. The loose lift thickness should not exceed 12 inches. We recommend testing the fill as it is placed. If the fill is not sufficiently compacted, it can be recompacted before another lift is placed. This eliminates the need to remove the fill to achieve the required compaction. The following table presents recommended relative compactions for structural fill:

LOCATION OF FILL PLACEMENT	MINIMUM RELATIVE COMPACTION
Beneath footings, slabs or walkways	95%
Filled slopes and behind retaining walls	90%
Beneath pavements	95% for upper 12 inches of subgrade; 90% below that level

Where: Minimum Relative Compaction is the ratio, expressed in percentages, of the compacted dry density to the maximum dry density, as determined in accordance with ASTM Test Designation D 1557-91 (Modified Proctor).

The **General** section should be reviewed for considerations related to the reuse of on-site soils. Structural fill that will be placed in wet weather should consist of a coarse, granular soil with a silt or clay content of no more than 5 percent. The percentage of particles passing the No. 200 sieve should be measured from that portion of soil passing the three-quarter-inch sieve.

LIMITATIONS

The conclusions and recommendations contained in this report are based on site conditions as they existed at the time of our exploration and assume that the soil and groundwater conditions encountered in the explorations are representative of subsurface conditions on the site. If the subsurface conditions encountered during construction are significantly different from those observed in our explorations, we should be advised at once so that we can review these conditions and reconsider our recommendations where necessary. Unanticipated soil conditions are commonly encountered on construction sites and cannot be fully anticipated by merely taking soil samples in test borings. Subsurface conditions can also vary between exploration locations. Such unexpected conditions frequently require making additional expenditures to attain a properly

constructed project. It is recommended that the owner consider providing a contingency fund to accommodate such potential extra costs and risks. This is a standard recommendation for all projects.

The recommendations presented in this report are directed toward the protection of only the proposed structure from damage due to slope movement. Predicting the future behavior of steep slopes and the potential effects of development on their stability is an inexact and imperfect science that is currently based mostly on the past behavior of slopes with similar characteristics. Landslides and soil movement can occur on steep slopes before, during, or after the development of property. As a result, the property owner must ultimately accept the possibility that some slope movement could occur, resulting in possible loss of ground or damage to the facilities around the proposed residence.

This report has been prepared for the exclusive use of DME Construction, and its representatives, for specific application to this project and site. Our conclusions and recommendations are professional opinions derived in accordance with current standards of practice within the scope of our services and within budget and time constraints. No warranty is expressed or implied. The scope of our services does not include services related to construction safety precautions, and our recommendations are not intended to direct the contractor's methods, techniques, sequences, or procedures, except as specifically described in our report for consideration in design. Our services also do not include assessing or minimizing the potential for biological hazards, such as mold, bacteria, mildew and fungi in either the existing or proposed site development.

ADDITIONAL SERVICES

Geotech Consultants, Inc. should be retained to provide geotechnical consultation, testing, and observation services during construction. This is to confirm that subsurface conditions are consistent with those indicated by our exploration, to evaluate whether earthwork and foundation construction activities comply with the general intent of the recommendations presented in this report, and to provide suggestions for design changes in the event subsurface conditions differ from those anticipated prior to the start of construction. However, our work would not include the supervision or direction of the actual work of the contractor and its employees or agents. Also, job and site safety, and dimensional measurements, will be the responsibility of the contractor.

During the construction phase, we will provide geotechnical observation and testing services when requested by you or your representatives. Please be aware that we can only document site work we actually observe. It is still the responsibility of your contractor or on-site construction team to verify that our recommendations are being followed, whether we are present at the site or not.

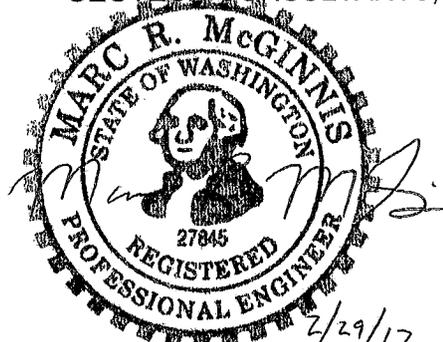
The following plates are attached to complete this report:

Plate 1	Vicinity Map
Plate 2	Site Exploration Plan
Plates 3 and 4	Test Boring Logs
Plate 5	Typical Footing Drain Detail
Plate 6	Typical Underslab Drainage Detail

We appreciate the opportunity to be of service on this project. If you have any questions, or if we may be of further service, please do not hesitate to contact us.

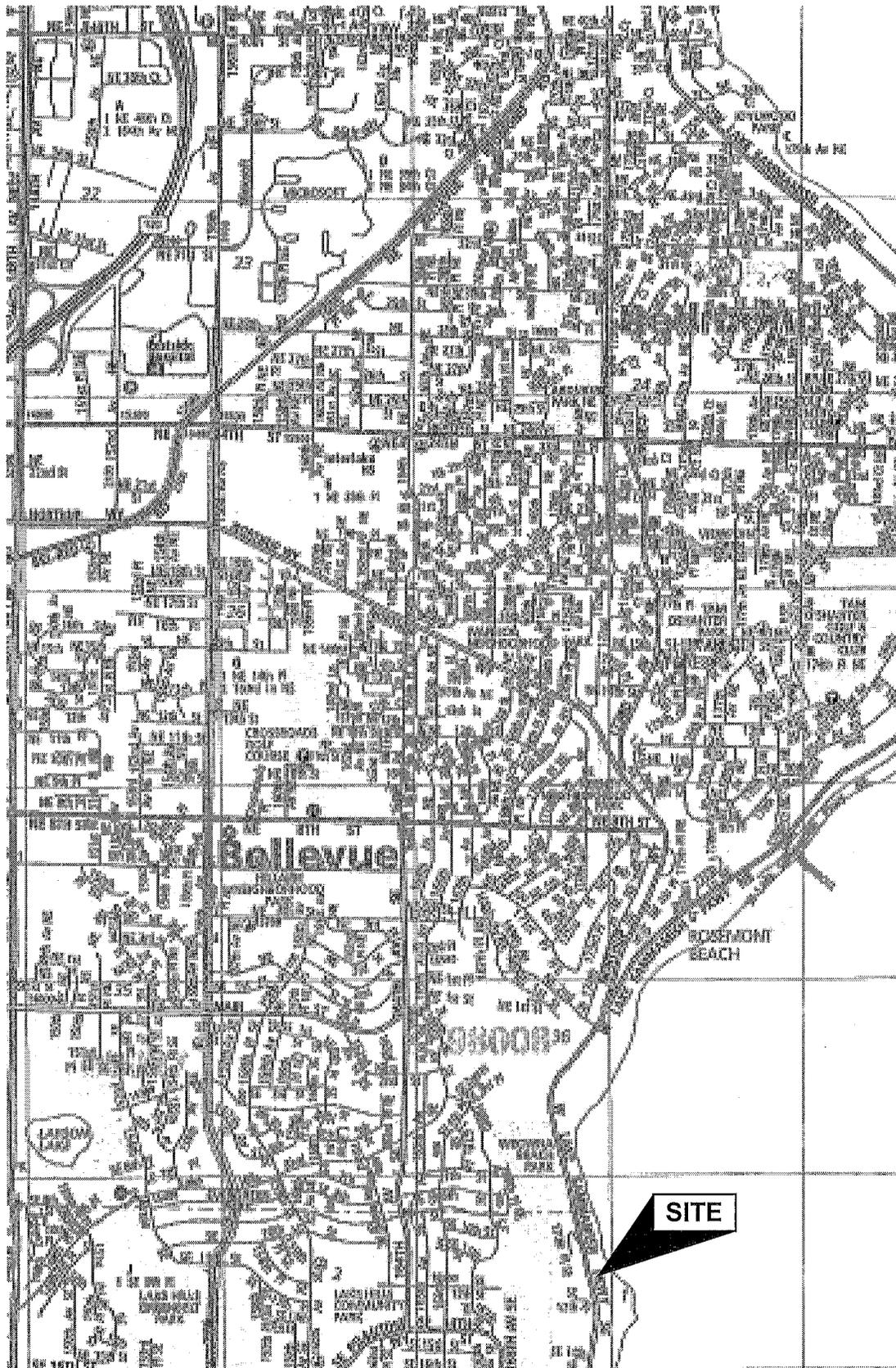
Respectfully submitted,

GEOTECH CONSULTANTS, INC.



Marc R. McGinnis, P.E.
Principal

MRM: jyb



(Thomas Guide 2009)



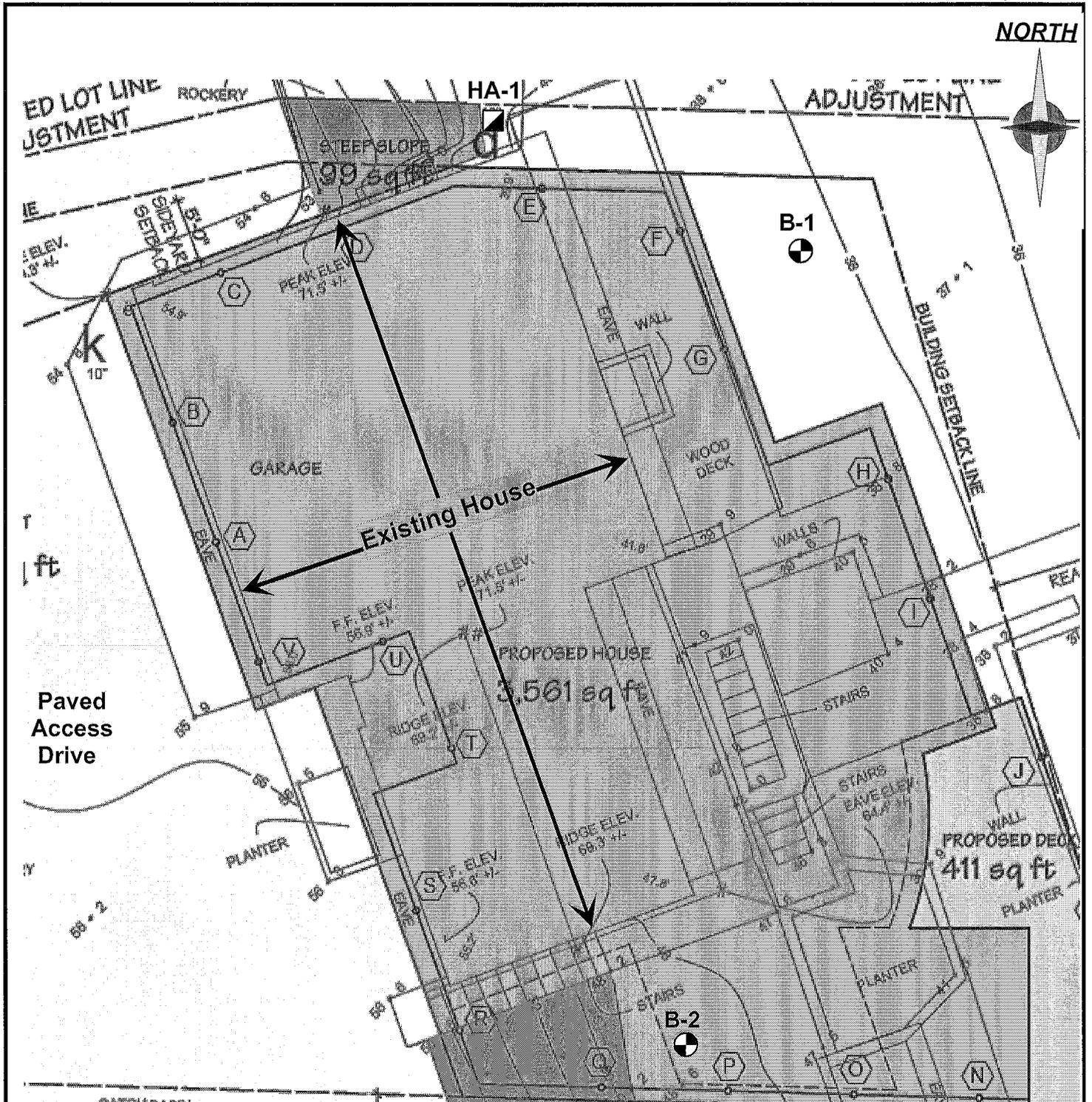
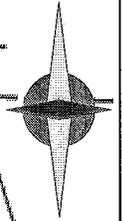
**GEOTECH
CONSULTANTS, INC.**

VICINITY MAP

1006 West Lake Sammamish Pkwy. S.E.
Bellevue, Washington

Job No: 12040	Date: Feb. 2012	Plate: 1
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NORTH



Legend:

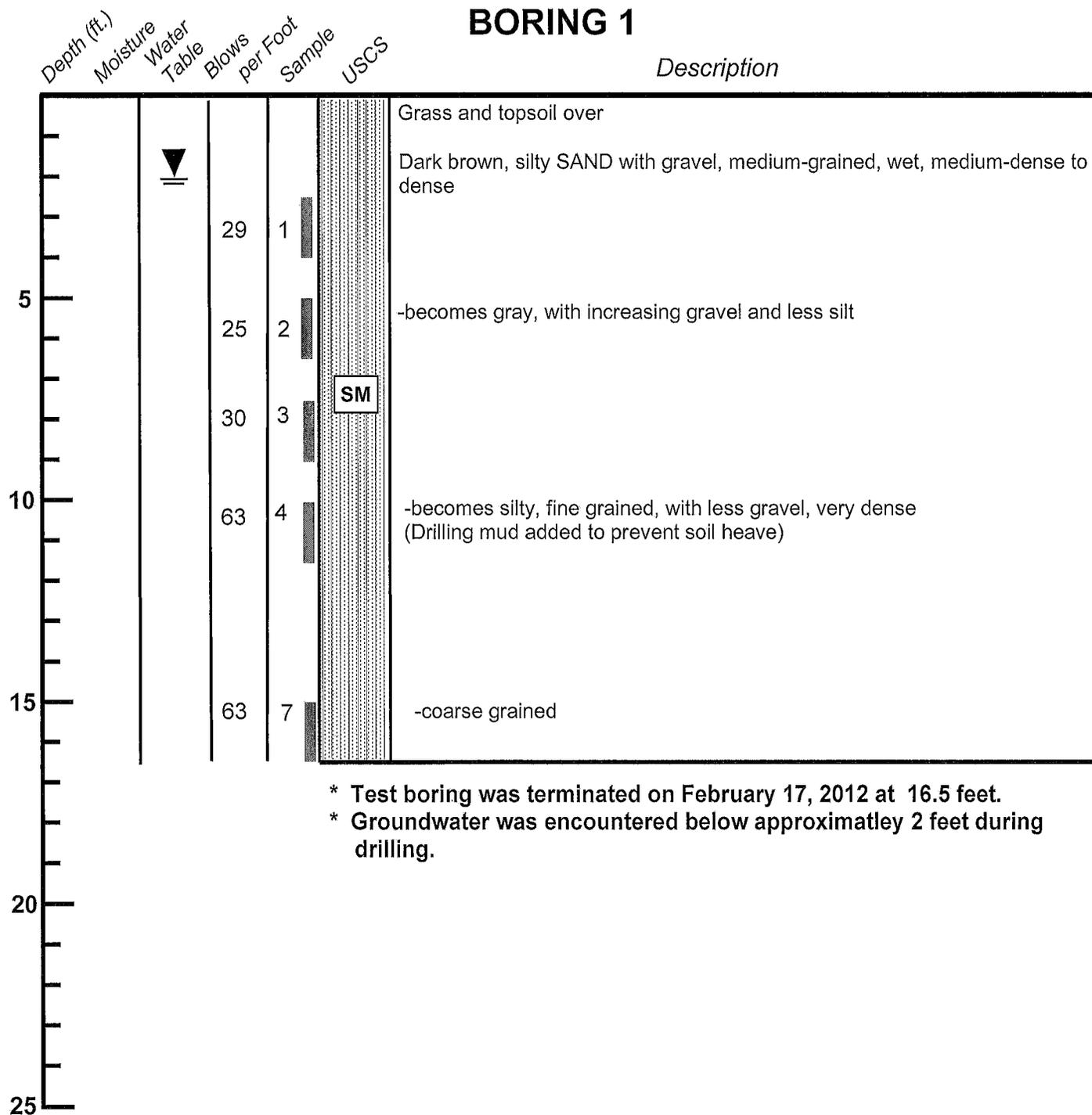
-  Approximate test boring location
-  Hand test hole location



SITE EXPLORATION PLAN
1006 West Lake Sammamish Pkwy. S.E.
Bellevue, Washington

Job No: 12040	Date: Feb. 2012	Plate: 2
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BORING 1



- * Test boring was terminated on February 17, 2012 at 16.5 feet.
- * Groundwater was encountered below approximately 2 feet during drilling.



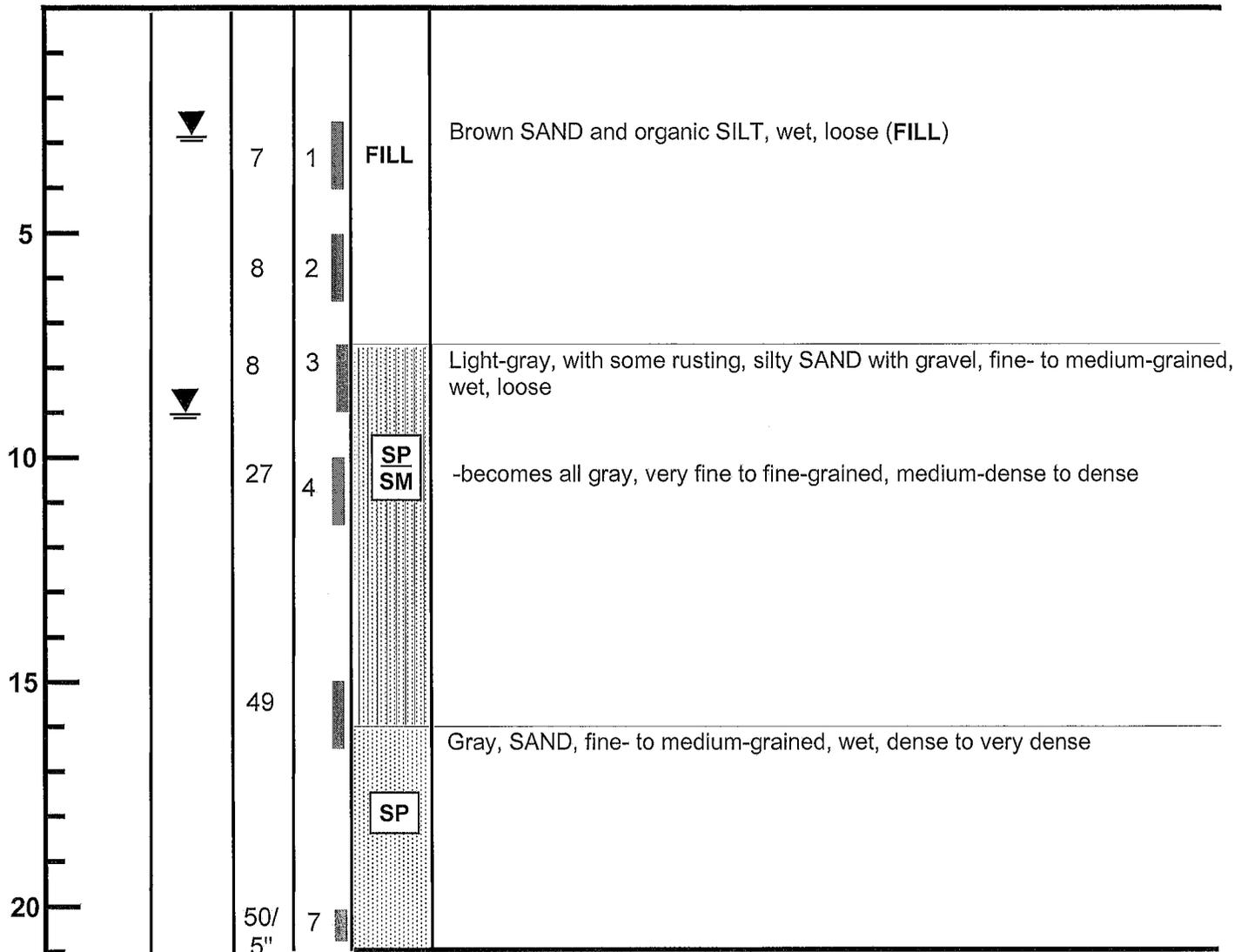
TEST BORING LOG
1006 West Lake Sammamish Pkwy. S.E.
Bellevue, Washington

Job 12040	Date: Feb. 2012	Logged by: JLH	Plate: 3
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BORING 2

Depth (ft.)
Moisture
Water
Table
Blows
per Foot
Sample
USCS

Description



- * Test boring was terminated on February 17, 2012 at 21 feet.
- * Perched groundwater was encountered at approximately 2.5 feet during drilling, and heavy groundwater seepage was found below approximately 9 feet.

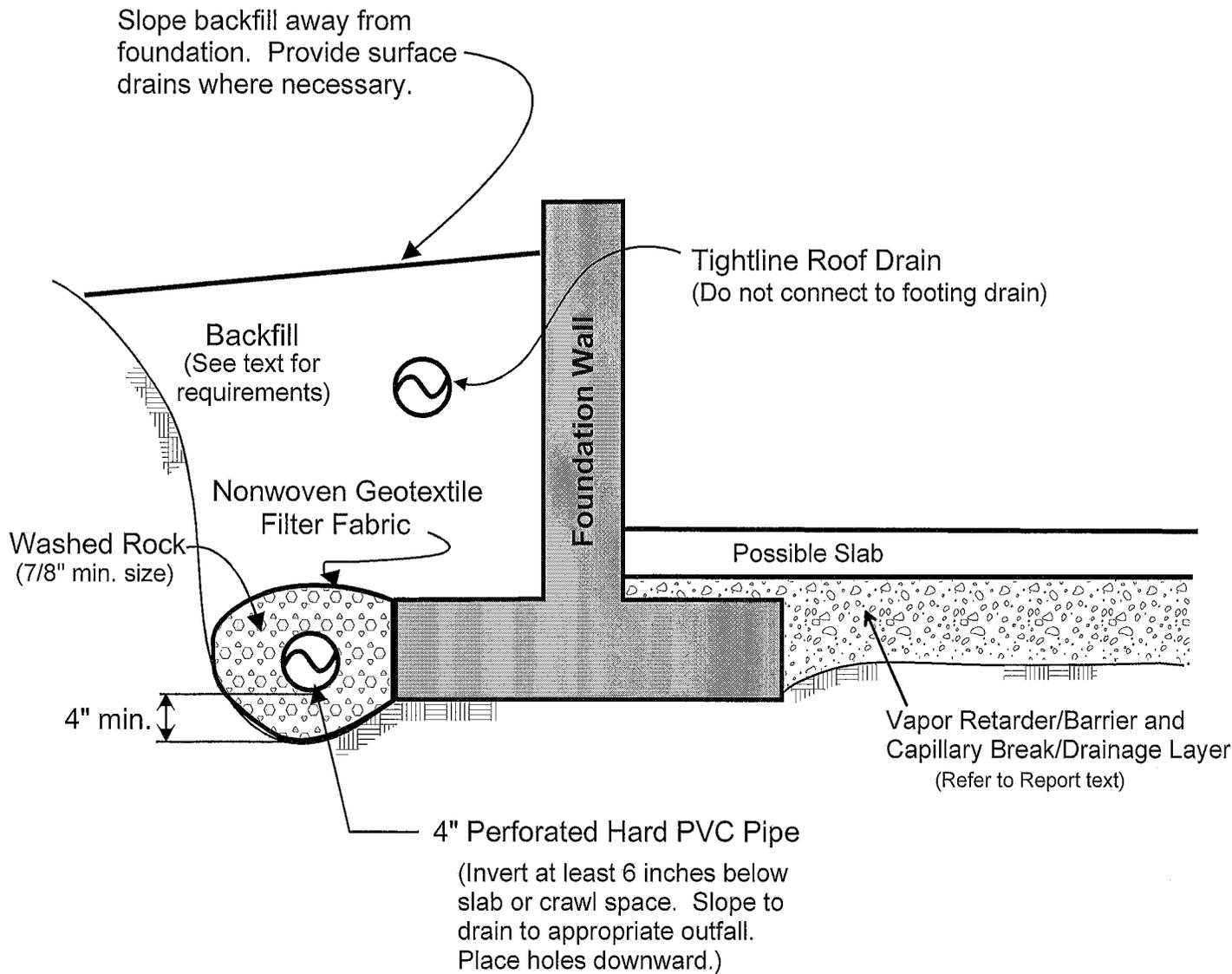


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TEST BORING LOG

1006 West Lake Sammamish Pkwy. S.E.
Bellevue, Washington

Job	Date:	Logged by:	Plate:
12040	Feb. 2012	JLH	4



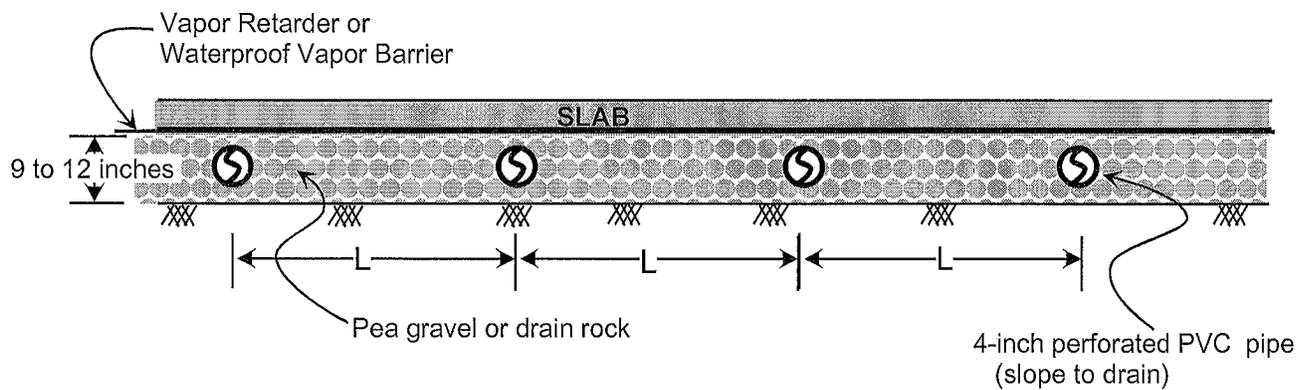
NOTES:

- (1) In crawl spaces, provide an outlet drain to prevent buildup of water that bypasses the perimeter footing drains.
- (2) Refer to report text for additional drainage, waterproofing, and slab considerations.



FOOTING DRAIN DETAIL
1006 West Lake Sammamish Pkwy. S.E.
Bellevue, Washington

Job No: 12040	Date: Feb. 2012	Plate: 5
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NOTES:

- (1) Refer to the report text for additional drainage and waterproofing considerations.
- (2) The typical maximum underslab drain separation (L) is 15 to 20 feet.
- (3) No filter fabric is necessary beneath the pipes as long as a minimum thickness of 4 inches of rock is maintained beneath the pipes.
- (4) The underslab drains and foundation drains should discharge to a suitable outfall.



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TYPICAL UNDERSLAB DRAINAGE

1006 West Lake Sammamish Pkwy. S.E
Bellevue, Washington

Job No:
12040

Date:
Feb. 2012

Plate:
6