City of Bellevue
Development Services Department
Land Use Staff Report

Proposal Name:	**Underwood Caretaker Cabin**
Proposal Address:	**4202 134th Ave NE**
Proposal Description:	The applicant requests a Critical Areas Land Use Permit for the reduction of a steep slope critical area buffer to a minimum distance of 4 feet in order to construct a guest cottage with a footprint of 600 square feet.
File Number:	**10-121787-LO**
Applicant:	**John Underwood**
Decisions Included:	Critical Areas Land Use Permit (Process II. LUC 20.30P)
Planner:	**Kevin LeClair**, Planner
State Environmental Policy Act Threshold Determination:	**SEPA Exempt per WAC 197-11-800**
Director's Decision:	**Approval with Conditions** Michael Brennan, Director Development Services Department Richard N. Tanner for By: Carol V. Helland, Land Use Director

Application Date:	September 13, 2010
Notice of Application Publication Date:	September 30, 2010
Decision Publication Date:	October 28, 2010
Project/SEPA Appeal Deadline:	November 11, 2010

For information on how to appeal a proposal, visit Development Services Center at City Hall or call (425) 452-6800. Comments on State Environmental Policy Act (SEPA) Determinations can be made with or without appealing the proposal within the noted comment period for a SEPA Determination. 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. Critical Areas Report Narrative and Geotechnical Report
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I. Proposal Description

The applicant is requesting a critical areas land use permit to reduce the 50-foot steep slope critical area buffer to a minimum distance of 5 feet in order to construct a 1,326 square foot guest cottage with a footprint of 600 square feet.

Land Use Code (LUC) 20.25H.120 prescribes a top-of-slope buffer of 50 feet from slopes of 40 percent or more that have a rise of at least 10 feet and exceed 1,000 square feet in area. The request is to reduce the prescribed buffer to minimum distance of 4 feet. LUC 20.25H.120.B allows for the modification of a critical area buffer through a critical areas report. The critical areas report is a mechanism by which certain LUC requirements may be modified for a specific proposal.

The critical areas report is intended to provide flexibility for sites where the expected critical areas functions and values are not present due to degraded conditions. The critical area buffer on the property is degraded in function and value because it lacks vegetative structural diversity found in undisturbed slopes and buffers. Additionally, a portion of the buffer is covered in a thick layer of yard waste debris that is potentially destabilizing the slope. Therefore, the slope and buffer are currently not fully protecting the property from risk of landslide, supporting desirable vegetation and providing wildlife habitat.

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

A. Site Description

The property is located at 4202 134th Ave NE and is accessed via a private shared access driveway that begins at the intersection of 134th Ave NE and NE 40th Street.

The 105,217 square feet (2.41 acre) property is oddly-shaped, with the main residence located in the southeastern third. The western third of the property contains a lawn area with numerous significant conifer trees. The northeastern third of the property contains a depressed area with steep slope critical areas on either side. The depressed area and the slopes are heavily forested with native conifers and dense understory of native shrubs.

The critical area steep slope for which the proposed modification is being requested is approximately 12 feet in height and extends west and east to the property lines. North of and below the slope is the heavily forested portion of the northeastern third of the property. The native forest area extends to the north property line where another slope ascends toward the neighboring property.

Figure 1: Property Map

B. Zoning

The property is zoned R-1. Due to the presence of steep slope critical areas, the property is also located within the Critical Areas Overlay District.

C. Land Use Context

The property is located in the Bridle Trails Subarea. The neighborhood is characterized by low-density, single-family residential properties. The homes are widely spaced neighborhood in which it is located is heavily treed with native conifers.

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 provide 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. Habitat Associated with Species of Local Importance

Urbanization, the increase in human settlement density and associated intensification of land use, has a profound and lasting effect on the natural environment and wildlife habitat. Cities are typically located along rivers, on coastlines, or near large bodies of water. The associated floodplains and riparian systems make up a relatively small percentage of land cover in the western United States, yet they provide habitat for rich wildlife communities, which in turn provide a source for urban habitat patches or reserves. Consequently, suburban areas can support rich wildlife communities. In fact, species richness peaks for some groups, including songbirds, at an intermediate level of development.

III. Consistency with Land Use Code Requirements:

A. Zoning District Dimensional Requirements (LUC 20.20.010):

The site is located in the R-1 land use zoning district. The following table demonstrates the proposal's compliance with the dimensional standards for the district.

Standard	Requirement	Proposed for guest cottage
Front yard structure setback	35'	>35' No change
Rear yard structure setback	25'	>25' No change
Side yard structure setback	5'	8'
2-side yards structure setback	15'	> 15'
Building height	30'/35'	15.7'
Lot coverage	35%	5%
Impervious surface	50%	13%
Greenscape	50%	87% No change

B. Consistency with LUC 20.25H.125 - Performance standards for landslide hazards and steep slopes

Development within a landslide hazard or steep slope critical area or the critical area buffers of such hazards shall incorporate the following additional performance standards in design of the development, as applicable. The requirement for long-term slope stability shall exclude designs that require regular and periodic maintenance to maintain their level of function.

i. Structures and improvements shall minimize alterations to the natural contour of the slope, and foundations shall be tiered where possible to conform to existing topography;

The structure will minimize alterations to the natural contour of the slope, and

foundations shall be tiered where possible to conform to existing topography. This will allow the natural vegetation virtually unchanged. Existing contours will be maintained as much as possible, and the steep slope area will remain unchanged since construction does not occur with the steep slopes.

ii. Structures and improvements shall be located to preserve the most critical portion of the site and its natural landforms and vegetation;

The structure and improvements will be located outside of the steep slope critical area to preserve the most critical portion of the site and its natural landforms and vegetation.

iii. The proposed development shall not result in greater risk or a need for increased buffers on neighboring properties;

Neighboring properties, or their buffers, will not be affected by this project. The project is very small when compared to the size of the site and the amount of vegetation present.

iv. Development shall be designed to minimize impervious surfaces within the critical area and critical area buffer;

One small landscape retaining wall will be used, and topographic modification will be minimized.

v. Development shall be designed to minimize impervious surfaces within the critical area and critical area buffer;

The project minimizes impervious surfaces, to only those locations necessary for function. This includes a small patio, front stoop, sidewalk adjacent to the home, and sidewalk connecting to the existing path.

vi. Where change in grade outside the building footprint is necessary, the site retention system should be stepped and regrading should be designed to minimize topographic modification. On slopes in excess of 40 percent, grading for yard area may be disallowed where inconsistent with this criteria;

The project will primarily utilize natural grades, and development will not occur within the 40 percent slopes. There will be a small amount of grading directly adjacent to the building to direct water away from the foundation, and the landscape wall will be of a minimal size.

vii. Building foundation walls shall be utilized as retaining walls rather than rockeries or retaining structures built separately and away from the building wherever feasible. Freestanding retaining devices are only permitted when they cannot be designed as structural elements of the building foundation;

This does not apply as the proposed structure is to be placed outside of the sloped area.

viii. On slopes in excess of 40 percent, use of pole-type construction which conforms to the existing topography is required where feasible. If pole-type construction is not technically feasible, the structure must be tiered to conform to the existing topography and to minimize topographic modification;

This does not apply as the proposed structure is to be placed outside of the sloped

area.

ix. On slopes in excess of 40 percent, piled deck support structures are required where technically feasible for parking or garages over fill-based construction types; and

This does not apply as the proposed structure is to be placed outside of the sloped area.

x. Areas of new permanent disturbance and all areas of temporary disturbance shall be mitigated and/or restored pursuant to a mitigation and restoration plan meeting the requirements of LUC 20.25H.210.

A conceptual mitigation and restoration plan that complies with the requirements of LUC 20.25H.210 was submitted.

C. Consistency with Critical Areas Report LUC 20.25.230.

The applicant supplied a complete critical areas report prepared by John Powell, Architect, a qualified professional and was substantially supported by a Geotechnical Report prepared by Scott Riegel, Licensed Geologist, of Earth Solution NW, LLC. The report met the minimum requirements in LUC 20.25H.250.

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

In addition to the provisions of LUC 20.25H.230, any proposal to modify a landslide hazard or steep slope or associated critical area buffer through a critical areas report shall comply with the requirements of this section.

i. Limitation on Modification.

The provisions for coal mine hazard areas in LUC 20.25H.130 may not be modified through a critical areas report.

This requirement does not apply because there are no coal mine hazard areas on or near the property.

ii. Area Addressed in Critical Area Report.

In addition to the general requirements of LUC 20.25H.230, the following areas shall be addressed in a critical areas report for geologically hazardous areas:

a. Site and Construction Plans. The report shall include a copy of the site plans for the proposal and a topographic survey;

The applicant submitted a boundary and topographic survey along with the critical areas report.

b. Assessment of Geological Characteristics. The report shall include an assessment of the geologic characteristics of the soils, sediments, and/or rock of the project area and potentially affected adjacent properties, and a review of the site history regarding landslides, erosion, and prior grading. Soils analysis shall be accomplished in accordance with accepted classification systems in use in the region;

The geotechnical report assessed the underlying geology of the property and reviewed the site history relative to landslide, erosion and prior grading. The report used the Natural Resource Conservation Service and King County Soil Survey data, along with site-specific borings to analyze the subsurface soil conditions.

c. Analysis of Proposal. The report shall contain a hazards analysis including a detailed description of the project, its relationship to the geologic hazard(s), and its potential impact upon the hazard area, the subject property, and affected adjacent properties; and

A slope hazard analysis was prepared by the applicant's geotechnical engineer. In the geotechnical engineer's opinion, the slope is generally stable and the proposed development will not increase the potential for slope instability. There are no properties adjacent to the affected slope, therefore there is no increased risk for adjacent properties.

d. Minimum Critical Area Buffer and Building Setback. The report shall make a recommendation for a minimum geologic hazard critical area buffer, if any, and minimum building setback, if any, from any geologic hazard based upon the geotechnical analysis.

The geotechnical report recommended a minimum structure setback from the top of slope of 15 feet. The structure setback could be reduced by advancing the foundations to a depth that maintains a minimum distance of 15 feet between the face of the foundation and the face of the slope at that depth.

E. Critical Areas Report Approval of Modification (LUC 20.25H.145)

Modifications to geologic hazard critical areas and critical area buffers shall only be approved if the Director determines that the modification:

i. Will not increase the threat of the geological hazard to adjacent properties over conditions that would exist if the provisions of this part were not modified;

The property is such that the placement of the structure in the proposed location presents no risk to adjacent properties, as the toe of the slope is on the subject property.

ii. Will not adversely impact other critical areas;

The proposed reduction of the critical area buffer and construction of the guest cottage will have no impact on any other critical areas.

iii. Is designed so that the hazard to the project is eliminated or mitigated to a level equal to or less than would exist if the provisions of this part were not modified;

The applicant's geotechnical report include construction recommendations that result in a project that is equal to or less than any risk that would be presented if the buffer were not modified.

iv. Is certified as safe as designed and under anticipated conditions by a qualified engineer or geologist, licensed in the state of Washington;

The applicant's geotechnical report was prepared by a geologist and is considered safe as designed under anticipated conditions.

v. The applicant provides a geotechnical report prepared by a qualified professional demonstrating that modification of the critical area or critical area buffer will have no adverse impacts on stability of any adjacent slopes, and will not impact stability of any existing structures;

The applicant's geotechnical report was prepared by a geologist and demonstrates that if the recommendations are followed, the proposed reduction of the critical

area buffer will have no adverse impact on the slope stability or impact the stability of the existing structures currently within the 50-foot critical area buffer.

vi. Any modification complies with recommendations of the geotechnical support with respect to best management practices, construction techniques or other recommendations; and

The applicant's geotechnical report includes recommended best management practices for site preparation and earthwork, excavations and slopes, utility support ad trench backfill, foundations, slab-on-grade floors, cast-in-place retaining walls, drainage, and seismic considerations.

vii. The proposed modification to the critical area or critical area buffer with any associated mitigation does not significantly impact habitat associated with species of local importance, or such habitat that could reasonably be expected to exist during the anticipated life of the development proposal if the area were regulated under this part.

The proposed modification is not anticipated to have any adverse impact on habitat associated with species of local importance. The site currently contains a sizable area that is dominated by Puget Sound western lowland coniferous forest. The addition of the proposed development, although in the buffer of the steep slope critical area does not remove any large trees or disturb any established understory of the native forest area. The habitat value of the property will remain unchanged because the forested critical area and the area north of the slope will remain unchanged with the exception of the restoration of the area below the guest cottage that is currently covered by yard waste debris.

IV. Public Notice and Comment

Application Date:	September 13, 2010
Public Notice (500 feet):	September 30, 2010
Minimum Comment Period:	October 14, 2010

The Notice of Application for this project was published in the City of Bellevue weekly permit bulletin on September 30, 2010. It was mailed to property owners within 500 feet of the project site. Two requests for additional information were received from the public as of the writing of this staff report. Additional information relative to the location and size of the proposed guest cottage was provided to the requesters. No further comments or questions were received.

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 project is categorically exempt from SEPA environmental review per WAC 197-11-800(1)(i).

VII. Changes to proposal as a result of City review

No changes were made to the applicant's proposal as a result of city review. The applicant provided all of the necessary information and demonstrated compliance with the applicable performance standards and decision criteria.

VIII. Decision Criteria

A. Critical Areas Report Decision Criteria-Proposals to Reduce Regulated Critical Area Buffer LUC 20.25H.255.

The Director may approve, or approve with modifications, a proposal to reduce the regulated critical area buffer on a site where the applicant demonstrates:

1. The proposal includes plans for restoration of degraded critical area or critical area buffer functions which demonstrate a net gain in overall critical area or critical area buffer functions;

Finding: The applicant submitted a critical areas report that included a functional lift analysis demonstrating a net gain in overall functions of the critical area and critical area buffer through implementation of the mitigation and restoration plan, construction recommendations of the geotechnical engineer, and stormwater management BMPs.

2. The proposal includes plans for restoration of degraded critical area or critical area buffer functions which demonstrate a net gain in the most important critical area or critical area buffer functions to the ecosystem in which they exist;

Finding: The most important steep slope critical area and critical area buffer function is the protection of life and property from the risk of poorly sited development. Through the implementation of the restoration plan components, which include the removal of accumulated yard waste debris and restoration with native plantings, along with the geotechnical engineer's recommendation, these functions will be improved over time.

3. The proposal includes a net gain in stormwater quality function by the critical area buffer or by elements of the development proposal outside of the reduced regulated critical area buffer;

Finding: The use of a vegetated-fiber-roll, bioretention system as a low-impact

development technique, the applicant expect to see a net gain in stormwater quality function on the site.

4. Adequate resources to ensure completion of any required restoration, mitigation and monitoring efforts;

Finding: A performance and maintenance assurance device will be required to be submitted prior to the commencement of construction activities to ensure adequate resources are in hand to carry out the required restoration and ensure success per the submitted mitigation and restoration plan performance standards.

5. 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: Based on the analysis provided by the applicant's geotechnical engineer the modification of the performance standards are not detrimental to the functions and values of critical area and critical area buffers off-site.

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

Finding: The resulting development of a guest cottage on the 2.14 acre property in the Bridle Trails neighborhood is compatible with other uses and development in the neighborhood.

B. Critical Areas Land Use Permit Decision Criteria 20.30P.140

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 is required to obtain a single-family residential building permit prior to commencement of construction of the proposed guest cottage.

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 contractor will disturb a minimal amount of the natural environment during construction. There will be a construction road built with silt fences and tree protection to contain any disturbance to a controlled area. During construction, best management practices such as the silt fence and fiber roll will be employed to avoid erosion and runoff. At completion, disturbed ground will be revegetated, and the restoration of the yard waste areas will be complete.

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

Finding: Based on the discussion provided above in Section III, the proposal incorporates and complies with all of the applicable performance standards.

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 services on the property.

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

Finding: A mitigation and restoration plan consistent with the requirements of LUC 20.25H.210 was submitted with the application materials. It is conceptual in nature and will be finalized as a condition of approval of this land use decision.

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

Finding: As discussed in Section III of this report, the proposal complies with all other applicable requirements of the Land Use Code.

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 Planning and Community Development does hereby **approve with conditions** the proposal to modify the steep slope critical area buffer to a minimum distance of 5 feet in order to construct a guest cottage.

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:

Applicable Ordinances	Contact Person
Clearing and Grading Code- BCC 23.76	Janney Gwo, 425-452-6190
Land Use Code- BCC 20.25H	Kevin LeClair, 425-452-2928

Noise Control- BCC 9.18	Kevin LeClair, 425-452-2928

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

1. Restoration for Areas of Temporary Disturbance: A restoration plan for all areas of temporary disturbance is required to be submitted for review and approval by the City of Bellevue prior to the issuance of the Building Permit. The plan shall include documentation of existing site conditions and shall identify the restoration measures to return the site to its existing conditions per LUC 20.25H.220.H.

Authority: Land Use Code 20.25H.220.H
Reviewer: Planner, Land Use

2. Mitigation for Areas of New Permanent Disturbance: A final mitigation plan for all areas of permanent new disturbance is required to be submitted for review and approval by the City of Bellevue prior to issuance of the Building Permit. The plan shall document the total area of permanent disturbance within the reduced critical area buffer and the area of mitigation within the critical area and critical area buffer. The amount of mitigation shall equate to a minimum of 50% of the total area of permanent disturbance. The mitigation plan shall include the specific information relative to the species, size and quantity of native trees, shrubs and ground covers. The minimum expected standard shall be equal to or better than included in the city's *Critical Areas Handbook*.

Authority: Land Use Code 20.25H.220
Reviewer: Planner, Land Use

3. Rainy Season restrictions: Due to the proximity to steep slope critical areas, 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: Janney Gwo, Clearing and Grading

4. Pesticides, Insecticides, and Fertilizers: The applicant must submit as part of the required Clearing and Grading Permit information regarding the use of pesticides, insecticides, and fertilizers in accordance with the City of Bellevue's "Environmental Best Management Practices".

Authority: Land Use Code 20.25H.220.H
Reviewer: Kevin LeClair, Land Use

5. 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: Kevin LeClair, Land Use

6. Geotechnical Engineer Required: In order to ensure the geotechnical engineers recommendations are satisfactorily followed during the development of the proposed guest cottage, a geotechnical engineer must be on-site to verify that the condition of the underlying soils are consistent with the assumed conditions in the geotechnical report submitted in connection with the critical areas report. Furthermore, the geotechnical engineer shall verify that the building foundations are constructed to the appropriate depth and distance from the steep slope critical area and that appropriate drainage improvements have been installed. Proof of this verification shall be made in the form of a letter issued to the City of Bellevue stating that the recommendations have been followed.

Authority: Bellevue City Code 23.76
Reviewer: Janney Gwo, Clearing and Grading

CRITICAL AREAS LAND USE PERMIT
W/ CRITICAL AREAS REPORT

COVER SHEET

September 8, 2010

Underwood Caretaker's Cabin (Guest Cottage)
4202 134th Ave NE
File # 10-120177 DB

Prepared by:
The Jarvis Group
PO Box 626
Ketchum, ID 83340

Contact: John Powell
208.726.4031

THE JARVIS GROUP
ARCHITECTS, AIA, PLLC

CRITICAL AREAS REPORT NARRATIVE

Date: September 1, 2010

Re: Underwood Caretaker's Cabin (Guest Cottage)
4202 134th Ave NE
File # 10-120177 DB

Project Description:
The project is a two-story 1,326 sf guest cottage with a footprint of approximately 600 square feet within a 50-foot steep slope critical area buffer. The majority of the site is relatively flat, with the sloping area running across the northeastern quarter. The cabin will be constructed to the northwest of the existing house, near the top of the 40% slope, but not within the critical area. (4) smaller shed structures will be demolished and the new cabin constructed in their place. The site is forested and vegetated, with stable soils at the sloping areas.

Because of the relatively small scope of this project when compared to the large site (105,271 sf), the impacts to the subject property will be negligible. Neighboring properties should not be affected at all. The steep slope hazard area should not experience any measurable impact either.

CRITICAL AREAS REPORT

1. Identification and classification of all critical areas and critical area buffers on the site;

    a. **This site contains a steep slope critical area. A small gorge runs across the NE corner of the site. The existing main house and (2) outbuildings are within the 50' top of slope buffer. The guest house will be constructed in roughly the same area as the outbuildings.**

2. Identification and characterization of all critical areas and critical area buffers on those properties immediately adjacent to the site;

    a. **According to the City of Bellevue MapGuide, these sloping areas are found intermittently in the surrounding area.**

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

    a. **The code section that is being requested to be modified is Land Use Code section 20.25H.120.B. We propose to modify the steep slope buffer.**

4. A habitat assessment consistent with the requirements of LUC 20.25H.165;

    a. **This requirement has been waived due to the limited scope of the proposal and the lack of tree and vegetation removal that is proposed.**

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

    a. **The steep slope critical area will not be affected by this project. Construction will not occur within the critical areas. The geotechnical report has indicated stable slopes, and the recommendations for slope setback will be followed during construction.**

6. 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.

FUNCTIONAL LIFT ANALYSIS				
Steep Slope Buffer Functions	Existing Conditions	Standard Code Application (no impacts)	Proposed Modification (reduced buffer width)	Functional Improvement with Proposed Modification?
Erosion control	50' buffer is vegetated with trees, shrubs, grasses	Provides vegetation to slow surface run-off	Vegetation retained outside of footprint; Permanent vegetated fiber roll controls run-off; silt construction fence inhibits impact during construction	Yes; minimizes potential for rill and gully development, reduces sediment loads to receiving waters; provides bank stabilization after removing slabs
Wildlife habitat and movement corridors	Wooded habitat and movement corridor through sloped area and bottom of slope	Adequate movement areas in critical area; buffer area interrupted by existing house(s) and out-buildings	Habitat and movement corridors maintained	No negative impact on wildlife corridors or habitat
Conduit for groundwater draining from hillsides to form headwaters	50' buffer and critical area is vegetated with trees, shrubs, grasses	Natural drainage	Permanent vegetated fiber roll controls sediment loads	Yes; minimizes potential for rill and gully development, reduces sediment loads to receiving waters; plenty of pervious surfaces due to detatched nature of structure
Net Condition	50' steep slope buffer is wooded and vegetated	Adequate drainage and wildlife habitat corridors	Increase in run-off control	Run-off controlled; wildlife movement remains unchanged

7. 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;

    a. **A habitat assessment has been waived. The project scope is small so the effect on wildlife is minimal.**

8. 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;

    a. **We propose to restore areas of the site covered by years of yard waste accrual. The waste and concrete slabs will be removed, and the area will be restored to its natural vegetated state. See included Mitigation and Restoration Plan.**

9. Any additional information required for the specific critical area as specified in the sections of this part addressing that critical area. (See Performance Standards discussion below)

    a. The steep slope critical area will not be modified. The construction within the top of slope buffer will follow geotechnical specifications. The additional information required is listed below under Performance Standards and Additional Provisions for Steep Slopes.

Performance Standards:
The following performance standards should be addressed either directly by the geotechnical engineer in their report, or through reference in the application narrative supplied by the applicant or their architect.
Please reference the included Geotechnical Report.

LUC 20.25H.125 Performance standards – Landslide hazards and steep slopes.

Development within a landslide hazard or steep slope critical area or the critical area buffers of such hazards shall incorporate the following additional performance standards in design of the development, as applicable. The requirement for long-term slope stability shall exclude designs that require regular and periodic maintenance to maintain their level of function.

A. Structures and improvements shall minimize alterations to the natural contour of the slope, and foundations shall be tiered where possible to conform to existing topography;

    a. The structure will minimize alterations to the natural contour of the slope, and foundations shall be tiered where possible to conform to existing topography. This will allow the natural vegetation virtually unchanged. Existing contours will be maintained as much as possible, and the steep slope area will remain unchanged since construction does not occur with the steep slopes.

B. Structures and improvements shall be located to preserve the most critical portion of the site and its natural landforms and vegetation;

    a. The structure and improvements will be located outside of the steep slope critical area to preserve the most critical portion of the site and its natural landforms and vegetation.

C. The proposed development shall not result in greater risk or a need for increased buffers on neighboring properties;

   a. **Neighboring properties, or their buffers, will not be affected by this project. The project is very small when compared to the size of the site and the amount of vegetation present.**

D. The use of retaining walls that allow the maintenance of existing natural slope area is preferred over graded artificial slopes where graded slopes would result in increased disturbance as compared to use of retaining wall;

   a. **Retaining wall use will be limited to one small landscape wall, and topographic modification will be minimized.**

E. Development shall be designed to minimize impervious surfaces within the critical area and critical area buffer;

   a. **The project minimizes impervious surfaces, to only those locations necessary for function. This includes a small patio, front stoop, sidewalk adjacent to the home, and sidewalk connecting to the existing path.**

F. Where change in grade outside the building footprint is necessary, the site retention system should be stepped and regrading should be designed to minimize topographic modification. On slopes in excess of 40 percent, grading for yard area may be disallowed where inconsistent with this criteria;

   a. **The project will primarily utilize natural grades, and development will not occur within the 40 percent slopes. There will be a small amount of grading directly adjacent to the building to direct water away from the foundation, and the landscape wall will be of a minimal size.**

G. Building foundation walls shall be utilized as retaining walls rather than rockeries or retaining structures built separately and away from the building wherever feasible. Freestanding retaining devices are only permitted when they cannot be designed as structural elements of the building foundation; **Does not apply**

H. On slopes in excess of 40 percent, use of pole-type construction which conforms to the existing topography is required where feasible. If pole-type construction is not technically feasible, the structure must be tiered to conform to the existing topography and to minimize topographic modification; **Does not apply**

I. On slopes in excess of 40 percent, piled deck support structures are required where technically feasible for parking or garages over fill-based construction types; **Does not apply**

J. Areas of new permanent disturbance and all areas of temporary disturbance shall be mitigated and/or restored pursuant to a mitigation and restoration plan meeting the requirements of LUC 20.25H.210. ***A significant item of mitigation/restoration would be to remove all of the yard waste debris that has been deposited on the steep slope below the proposed structure location and the area restored with native plants.***

i. **There is a fairly large area of yard waste debris that has been deposited on the steep slope below the proposed structure location, and some of the area has been compacted. We propose to clear that area and restored with native plants. There will be at least 288 sf of restoration outside of the proposed building footprint. See site plan for approximate location of the yard waste area. See Mitigation and Restoration Plan for details.**

LUC 20.25H.140 Critical areas report – Additional provisions for landslide hazards and steep slopes.

In addition to the provisions of LUC 20.25H.230, any proposal to modify a landslide hazard or steep slope or associated critical area buffer through a critical areas report shall comply with the requirements of this section.

A. Limitation on Modification.

The provisions for coal mine hazard areas in LUC 20.25H.130 may not be modified through a critical areas report. **Does not apply**

B. Area Addressed in Critical Area Report.

In addition to the general requirements of LUC 20.25H.230, the following areas shall be addressed in a critical areas report for geologically hazardous areas:

1. Site and Construction Plans. The report shall include a copy of the site plans for the proposal and a topographic survey; **Included.**

2. Assessment of Geological Characteristics. The report shall include an assessment of the geologic characteristics of the soils, sediments, and/or rock of the project area and potentially affected adjacent properties, and a review of the site history regarding landslides, erosion, and prior grading. Soils analysis shall be accomplished in accordance with accepted classification systems in use in the region; **See included Geotechnical Report – Geologic Map and Soil Map Review.**

3. Analysis of Proposal. The report shall contain a hazards analysis including a detailed description of the project, its relationship to the geologic hazard(s), and its potential impact upon the hazard area, the subject property, and affected adjacent properties; **Impact will be negligible. See included Geotechnical Report – Critical Areas and Geologic Hazards Areas Assessment – Analysis of Proposal / Critical Areas Functions and Values.**

4. Minimum Critical Area Buffer and Building Setback. The report shall make a recommendation for a minimum geologic hazard critical area buffer, if any, and minimum building setback, if any, from any geologic hazard based upon the geotechnical analysis. **See included Geotechnical Report – Minimum Critical Area Buffer and Setback. The geotechnical engineer did address this in the submitted report. The setback from top of slope is recommended at 15', but advancing the foundations within that setback is allowable. See Plate 3. The foundation details follow this recommendation.**

Decision Criteria:
The critical areas report narrative, supported by the site plan and mitigation/restoration plan, shall demonstrate compliance with the following decision criteria.

20.25H.255 Critical areas report – Decision criteria.

B. Decision Criteria – Proposals to Reduce Regulated Critical Area Buffer.

The Director may approve, or approve with modifications, a proposal to reduce the regulated critical area buffer on a site where the applicant demonstrates:

1. The proposal includes plans for restoration of degraded critical area or critical area buffer functions which demonstrate a net gain in overall critical area or critical area buffer functions;

    a. **Protect life and property from the risk of poorly-sited development. This proposal will not affect the sloping areas, and will not have any adverse affect on life or property. It is a safe location with no risk of landslide.**

    b. **Protection of significant vegetation corridors for wildlife habitat and stormwater interception and infiltration. The wildlife and stormwater functions will not be negatively affected for the reasons described in this narrative, and in the Geotechnical Report. This project is small, and the original functions will remain intact.**

2. The proposal includes plans for restoration of degraded critical area or critical area buffer functions which demonstrate a net gain in the most important critical area or critical area buffer functions to the ecosystem in which they exist;

    a. **See the Functional Lift Analysis above. The project is small to begin with, and combined with the proposed restoration of the vegetation at the concrete slabs and yard waste area, the overall impact is a positive one.**

3. The proposal includes a net gain in stormwater quality function by the critical area buffer or by elements of the development proposal outside of the reduced regulated critical area buffer;

    a. **We propose to use a low-impact development technique, a permanent vegetated fiber roll bioretention system to control possible stormwater runoff, though excess runoff is not expected.**

4. Adequate resources to ensure completion of any required restoration, mitigation and monitoring efforts; **This requirement is satisfied through the provision of performance and maintenance assurance devices that are processed as conditions of approval during the building permit.**

5. 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

    a. **This proposal does not affect off-site critical areas or buffers. This is a small project that is being built in the location of (4) smaller existing structures which will be removed.**

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

    a. **The project usage is residential, and is in compliance with the R-1 zone.**

20.30P.140 Critical areas land use permit – Decision criteria.

The Director may approve or approve with modifications an application for a Critical Areas Land Use Permit if:

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

    a. The other permit required is a Single-family Addition Building Permit. Additional permits that may be required are a Right-of-Way Use Permit and any Utilities permits to be obtained during building permit process.

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;

    a. The contractor will disturb a minimal amount of the natural environment during construction. There will be a construction road built with silt fences and tree protection to contain any disturbance to a controlled area. During construction, best management practices such as the silt fence and fiber roll will be employed to avoid erosion and runoff. At completion, disturbed ground will be revegetated, and the restoration of the yard waste areas will be complete.

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

    a. Yes, please see the Performance Standards section above.

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

    a. The project is adequately served by all needed public facilities.

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

   a. **Yes, please see the included Mitigation and Restoration Plan included below and discussed above.**

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

   a. Yes.

End of Critical Areas Report Narrative

MITIGATION AND RESTORATION PLAN

LUC 20.25H.135 Mitigation and monitoring – Additional provisions for landslide hazards and steep slopes. ***In addition to the general mitigation and restoration plan requirements of LUC 20.25H.210, each mitigation or restoration plan for geologic hazard critical areas shall include:***

A. Erosion and Sediment Control Plan.

B. Drainage Plan.

C. Monitoring Surface Waters. **Does not apply.**

Per Kevin LeClair, a detailed narrative of the mitigation plan will suffice for the critical areas land use permit phase. The plans will be drawn up for the building permit phase, as required by the reviewers.

Mitigation and Restoration Plan Project Details:

We propose a Mitigation and Restoration Plan as detailed below. See the project description above for the project overview. Adverse affects to the critical area buffer are very minimal. We are removing (4) structures with a footprint of 510 sf and repacing them with (1) structure of 936 sf. This is an increase of only 426 sf of new footprint. The effect of this project is very minimal to the critical area because the area is heavily vegetated and will retain the small amount of run-off from the building.

The area of yard waste accrual is compacted and not conducive to native growth. We propose to restore this area beyond the building envelope, and downslope, to its natural vegetated state. A total of 288 sf or more will be restored.

Written Report Identifying environmental goals and objectives of the restoration proposed

We propose to restore an area of the site by the following measures:

1. Remove (2) concrete pads of 75 sf and 13 sf and revegetate the area with native plants.
2. Remove the "veneer of yard waste" at the building footprint and beyond, 200+ sf of which are outside the building footprint. Fill and restore to original vegetated state with native plants.
3. Provide a new permanent vegetated fiber roll on the downslope side of the new building. This will minimize the potential for rill and gully development, and reduces sediment loads to receiving waters (per EPA BMPs description.)

Measurable criteria for evaluating the success of the plan

The following criteria can be used to determine whether the goals have been attained:

1. Has the new vegetation been planted and watered as recommended? New vegetation must be successfully established and shown to be healthy after 3 years. Vegetation survival rates should be according to this schedule: after year 1: 99%, after year 2: 90%, after year 3: 80%.
2. Is the new fiber roll functioning properly? Verify the vegetated fiber roll has taken hold and integrated into the terrain after a year. No new rills or gullies within the first 3 years.
3. Have any new erosion patterns developed because of the new construction? Verify there are no new rills or gullies after 3 years.

Written specifications and descriptions

1. General areas for work
    a. Restoration will occur from the small concrete pad at the east of the new building to the NW of the piled yard waste. All piled yard waste to be removed.

   b. The permanent vegetated fiber roll shall be placed according to the site plan, near the top of the slope line at the downhill side of the new building.
2. Planting species, size, number
   a. Grasses to match existing – See final Restoration Plan at building permit submittal.
   b. Shrubs to match existing species and frequency – See final Restoration Plan at permit submittal.

Timing of Work

Work will occur during construction, completed prior to final inspection or temp certificate of occupancy.

Monitoring Program

The restoration shall be monitored for a period of three years by photo documentation. Photos will submitted once per year by a representative of the Owner's choosing.

Contingency Plan

Should any vegetation die within the 3-year period beyond the stated limits of 99%, 90%, and 80%, it shall be replaced.

Assurance Devices

Maintenance assurance device – Rehabilitated areas to receive frequent watering as appropriate, of a frequency and duration necessary for the plants to become established.

Restoration for Areas of Temporary Disturbance

Temporary disturbance areas shall be restored to their pre-construction condition per the Construction Documents.

End of Mitigation and Restoration Plan

CONTENTS

- COVER SHEET
- CRITICAL AREAS LAND USE PERMIT REQUIREMENTS
- LAND USE APPLICATION
- "BILL TO" FORM
- PRE-APPLICATION MEETING LETTER
- CRITICAL AREAS REPORT
- MITIGATION PLAN per LUC 20.25H.210
- GEOTECHNICAL REPORT
- ENVIRONMENTAL CHECKLIST

- BOUNDARY AND TOPOGRAPHIC SURVEY – SITE SURVEY A1.0
- SITE PLAN – OVERALL SITE PLAN A1.2 - A site plan showing steep slope critical area, location of the proposed structure, the top of slope, the 50-foot top of slope buffer, the proposed modification to the top of slope buffer, and the standard dimensional requirements for the land use district.
    - Lot Coverage 35% (based on net lot area excluding critical areas)
    - Impervious Surface 50% (based on gross lot area)
    - Building Height 30' max
    - Greenscape 50% of front yard structure setback (Definition 20.50.022)
- SITE PLAN A1.1 – See SITE PLAN A1.1 for distances of structures to property lines.

Other Requirements

- Performance Assurance Device in an amount that ensures adequate resources to complete the project once it has begun. **The Contractor will be using a Certificate of Insurance to assure performance. To be included with the building permit submittal.**
- Maintenance Assurance Device to ensure the required Mitigation/Restoration actions are successful. **See Mitigation / Restoration Plan.**

PREPARED FOR

THE JARVIS GROUP, PLLC

August 5, 2010

For: Sonya M. Rogers

Scott S. Riegel, L.G.
Senior Project Geologist

8/6/10

Raymond A. Coglas, P.E.
Principal

GEOTECHNICAL ENGINEERING STUDY AND CRITICAL AREAS REPORT PROPOSED CABIN 4202 – 134TH AVENUE NORTHEAST BELLEVUE, WASHINGTON

ES-1834

Earth Solutions NW, LLC
1805 - 136th Place Northeast, Suite 201
Bellevue, Washington 98005
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Earth Solutions NW LLC

• Geotechnical Engineering
• Construction Monitoring
• Environmental Sciences

August 5, 2010
ES-1834

The Jarvis Group, PLLC
511 Sun Valley Road #202
P.O. Box 626
Ketchum, Idaho 83340

Attention: Mr. John Powell

Dear Mr. Powell:

Earth Solutions NW, LLC (ESNW) is pleased to present this report titled "Geotechnical Engineering Study and Critical Areas Report, Proposed Cabin, 4202 – 134th Avenue Northeast, Bellevue, Washington. This study has been prepared to address the Critical Areas Report requirements prescribed by the City of Bellevue. Construction of a caretaker cabin is proposed near the top of a steeply descending natural slope. Based on the results of our study, construction of the cabin as planned is feasible from a geotechnical standpoint, provided a minimum total structural setback of 15 feet from the top of steep slopes is maintained.

The soils underlying the proposed cabin footprint consist primarily of a veneer of yard waste transitioning to medium dense to very dense glacial deposits. Groundwater was not observed at the test sites during our fieldwork (July 2010).

Geotechnical recommendations for the proposed site development including buffer and setback recommendations, foundation design recommendations and other pertinent geotechnical considerations are provided in this study. The opportunity to be of service to you is appreciated. If you have any questions regarding the content of this Geotechnical Engineering Study, please call.

Sincerely,

EARTH SOLUTIONS NW, LLC

FOR: Raymond A. Coglas, P.E.
Principal

1805 - 136th Place N.E., Suite 201 • Bellevue, WA 98005 • (425) 449-4704 • FAX (425) 449-4711

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Appendix A	Field Exploration Boring Logs
Appendix B	Laboratory Test Results

INTRODUCTION

General

This Geotechnical Engineering Study and Critical Areas Report was prepared for the proposed cabin to be constructed off the northwestern corner of an existing residence located at 4202 – 134th Avenue Northeast, Bellevue, Washington (see Vicinity Map, Plate 1). The purpose of this study was to explore the subsurface conditions within the proposed building envelope and prepare geotechnical recommendations for the proposed development. Our scope of services for completing this Geotechnical Engineering Study included the following:

- Conducting subsurface explorations within accessible portions of the development envelope;
- Conduct engineering analyses, and
- Preparation of this report

As part of our report preparation, pertinent sections of the following documents were reviewed:

- Site Plan prepared by The Jarvis Group, PLLC, Sheets A1.0 and A1.1;
- The Geologic Map of the Kirkland Quadrangle, Minard 1983;
- The USDA Soil Conservation Survey (SCS) of King County, and;
- City of Bellevue Critical Area Ordinance (Part 20.25).

Project Description

The project area is located off the northwestern corner of the existing residence, which is adjacent to the top of a steeply descending natural slope. The proposal includes construction of a two-story caretaker's cabin. The approximate limits of the property and building footprint are illustrated on the Boring Location Plan (Plate 2). The proposed building will be two stories in height with a footprint of about 600 square feet. The building construction will consist of relatively light wood-framing and conventional foundations. Perimeter and interior continuous footing loads are estimated to be on the order of 1 to 2 kips per lineal foot. Slab loading is estimated to be on the order of 150 pounds per square foot.

The building finish floor is currently estimated to be approximately elevation 496 feet, which will be close to the existing grade surrounding the property. The maximum cuts for the proposed structure foundations will be on the order of six feet, or to the extent required to maintain the minimum allowable setback from the top of the slope. We anticipate footings will follow the existing grade in order to minimize disturbance to the extent practical.

If the above design assumptions are incorrect or change, ESNW should be contacted to review the recommendations in this report. ESNW should review the final design to verify that our geotechnical recommendations have been incorporated into the design.

SITE CONDITIONS

Surface

The site is located on the north side of 134th Avenue Northeast in the Bridle Trails neighborhood of Bellevue, Washington. The property consists of a single residential tax parcel which is currently developed with single-family residence, detached garage and associated improvements. A steeply descending natural slope borders the site to the north and based on visual observations made during the July 27, 2010 site visit appears to be about 50 feet in height near the project area.

Slope Reconnaissance

During our fieldwork, we performed a visual slope reconnaissance across portions of the steep slope areas of the site. The main focus of our reconnaissance was to identify signs of instability or erosion hazards along the site slopes. The typical instability indicators include such features as; head scarps, tension cracks, hummocky terrain, groundwater seeps along the surface and erosion features such as gulleys and rills. During our slope reconnaissance, we observed no obvious signs of recent, large scale erosion or slope instability. In general, based on the slope reconnaissance, stability of the slope areas of the property can be characterized as good.

Subsurface

A representative of ESNW observed, logged and sampled two borings advanced within the proposed footprint of the cabin using a limited-access drill rig and operator contracted by our firm. The approximate locations of the boring are illustrated on the Boring Location Plan (Plate 2). The boring logs are provided in Appendix A. The following is a general description of the soil conditions encountered at the test sites.

At boring location B-1, about five feet of loose silty sand (Unified Soil Classification SM) was encountered. Soil conditions improved to medium dense at about five feet. Poorly graded sand with silt (SP-SM) was encountered below about seven feet and conditions improved to dense to very dense below about ten feet and extending to the termination depth of 21.5 feet below existing grade.

At Boring location B-2, medium dense to very dense silty sand with gravel was encountered extending to a depth of about five feet. Poorly graded sand with silt (SP-SM) in a dense to very dense condition was encountered extending to a depth of about 14 feet where very dense silty sand was then observed extending to the termination depth of 16.5 feet below existing grade.

Geologic Map and Soil Map Review

As part of our report preparation, we reviewed available maps regarding soil conditions for the subject site. The Geologic Map of the Kirkland Quadrangle, Washington, Minard 1983 identifies Vashon till along the upland areas and advance outwash deposits along the sloped areas of the subject property.

The Soil Survey of King County identifies Alderwood series (AgC and AgD) soils across the site and surrounding area. Alderwood series soils formed in glacial till and slopes range from 6 to 15 percent for AgC and 15 to 30 percent for AgD soils. Erosion hazards are moderate to severe and runoff is medium to fast for these type soils.

Groundwater

Groundwater seepage was not observed at the boring locations during the fieldwork (July 2010). However, localized perched zones of groundwater seepage should be expected in the site excavations. Groundwater seepage rates and elevations fluctuate depending on many factors, including precipitation duration and intensity, the time of year, and soil conditions. In general, groundwater seepage and flow rates are higher during the wetter, winter months. However, zones of persistent or chronic groundwater seepage are not uncommon, and can be encountered during any time of year.

CRITICAL AREAS AND GEOLOGIC HAZARDOUS AREAS ASSESSMENT

As part of this geotechnical engineering study and critical areas report, the City of Bellevue Critical Area Ordinance (Part 20.25H) was reviewed. Per the City of Bellevue Critical Areas Report requirements, the following topics related to development plans and site conditions are addressed.

Site and Construction Plans

The attached Boring Location Plan (Plate 2) illustrates the proposed building footprint area and local site topography. Construction of a caretaker cabin is planned for the site. The finish floor elevation will likely be close to the existing elevation near the existing shed of approximately 496 feet. The maximum cuts for the proposed structure foundations will be on the order of six feet, or to the extent required to maintain the minimum allowable setback from the top of the slope. The overall stability of the steep slope areas can be characterized as good.

Assessment of Geological Characteristics

The Geologic Map of King County identifies Vashon till and advance outwash deposits along the sloped areas of the subject property. The native soils encountered at the boring locations consisted primarily of medium dense to very dense silty sand and poorly graded sand with silt consistent with the geologic map designations. The boring logs are provided in Appendix A of this study and laboratory test data are provided in Appendix B.

Landslide Hazard

With respect to landslide hazard areas, Part 20.25H.120 of the City of Bellevue Critical Area Ordinance defines landslide hazard areas as slopes of 15 percent or greater with a vertical rise of more than ten feet and displaying any of the following characteristics:

- Areas of historic failure, including those areas designated as Quaternary slumps, earthflows, mudflows or landslides.
- Areas that have shown movement during the Holocene Epoch (past 13,500 years) or that are underlain by landslide deposits.
- Slopes that are parallel or sub-parallel to planes of weakness in subsurface materials.
- Slopes exhibiting geomorphological features indicative of past failures, such as hummocky ground and back-rotated benches on slopes.
- Areas with seeps indicating a shallow groundwater table on or adjacent to the slope face.
- Areas of potential instability because of rapid stream incision, stream bank erosion and undercutting by wave action.

The natural slope off the north side of the proposed structure is in excess of 15 percent with a vertical rise of more than ten feet. Overall stability of the slopes 15 percent or greater can be characterized as good. As previously described in the *Slope Reconnaissance* section of this study, typical indicators of instability such as head scarps, tension cracks, hummocky terrain, groundwater seeps along the surface and erosion features such as gulleys and rills were not observed. Therefore, in our opinion the sloped areas of the site do not meet the definition of a landslide hazard area as defined in Part 20.25H.120 of the City of Bellevue Critical Area Ordinance.

Steep Slopes

With respect to steep slope critical areas, the referenced section of the Bellevue Code defines steep slopes as follows:

- Slopes of 40 percent or more that have a rise of at least 10 feet and exceed 1,000 square feet in area.

Based on our observations and review of the referenced topographic survey, steep slopes are present along the northern margins of the property. Based on our observations, the areas of 40 percent slope were likely created during erosion of retreating glacial epochs. Overall stability of the slope area can be characterized as good.

Erosion Hazard

With respect to erosion hazard areas, the referenced King County i-MAP online GIS resource does not identify the site and surrounding areas as an erosion hazard area. The sloped areas along the northern portions of the site would be severely susceptible to erosion, in our opinion. However, the sloped areas of the property will remain largely unaltered and vegetated. In our opinion, the planned development will not increase the erosion hazard at the site, provided appropriate Best Management Practices are implemented during the earthwork and development activities. General guidelines for erosion control are provided in the *Site Preparation and Earthwork* section of this study.

Analysis of Proposal

The planned development activity will involve grading and construction of a two-story cabin structure adjacent to the steep slope area. The proposed development activity will be located near the top of steep slope areas located along the northern portion of the property. As previously described, the slopes exhibit good stability, and the planned development activity will not involve alterations to the areas of 40 percent slope. The proposed development activity is feasible in our opinion, and will not decrease stability of the site or surrounding properties. The project designs must comply with Section 20.25H.125 of the Bellevue Land Use Code.

Critical Areas Functions and Values

The geologic hazard critical areas associated with the subject property include potential landslide and steep slopes. The proposal includes increasing the impervious area by about 600 square feet. In our opinion, the impacts to the function and value of the geologic hazard critical areas will be minimal. The scale of the project relative to the critical area is such that negative impacts to the function and value of the landslide and steep slope area will be negligible in our opinion.

Minimum Critical Area Buffer and Setback

In our opinion, the proposed grading and development activity can be completed as currently planned without adversely impacting the slope area. Section 20.25H.120.B provides standard minimum buffer distances for landslide and steep slopes. A buffer modification is allowed subsequent to an approved critical areas report. Given the overall stable characteristics of the slope area, it is our opinion a minimum buffer distance of ten feet and setback of five feet between the top of the slope and the proposed cabin foundations should be maintained. This condition will result in a total structural setback of 15 feet from the top of the steep slopes. Advancing foundations to maintain the minimum total setback is acceptable from a geotechnical standpoint provided grading and associated disturbance is kept to a minimum. A typical detail is provided on Plate 3 of this report illustrating the structural setback conditions.

The slopes exhibit good stability, and the proposed development will not result in an alteration to the slope area. In this respect, it is our opinion the planned development activity can incorporate a buffer of ten feet and a setback of five feet, and will not decrease stability of the site or surrounding properties.

DISCUSSION AND RECOMMENDATIONS

General

Based on the results of our study, construction of the two-story cabin as planned is feasible from a geotechnical standpoint. The primary geotechnical considerations are associated with foundation support and minimizing impacts to the slope area. In our opinion, the proposed cabin can be supported on conventional shallow foundations supported on competent or recompacted native soil or structural fill. We anticipate competent native soil capable of providing adequate foundation support will be encountered at depths of between two to four feet below existing grades. Overexcavation may be required under foundation elements depending on the condition during grading activities. ESNW should be onsite during foundation excavations to confirm conditions are as anticipated and to provide supplemental recommendations for foundation subgrade preparation.

In our opinion, the soils generated from cuts throughout the majority of the site should generally be suitable for use as structural fill. Moisture conditioning of the on-site soils prior to use as structural fill would likely involve the addition of moisture, where dry soil conditions are encountered or aeration of soils where over-optimum conditions are present. A representative of ESNW should be on-site during fill placement to confirm that adequate compaction is achieved.

This report has been prepared for the exclusive use of The Jarvis Group, PLLC and their representatives. This study has been prepared in a manner consistent with the level of care and skill ordinarily exercised by other members of the profession currently practicing under similar conditions in this area.

Site Preparation and Earthwork

Site preparation will likely include removing structural improvements located within the project envelope and stripping the footprint of vegetation.

Temporary Erosion Control

Temporary erosion control measures should include, at a minimum, silt fencing placed along the downslope perimeter of the construction envelope, and a construction entrance consisting of at least six inches of quarry spalls should be considered in order to minimize off-site soil tracking and to provide a firm surface. Surface water should not be allowed to flow over temporary or permanent slopes. Interceptor drains or swales should be considered for controlling surface water flow patterns. The geotechnical engineer should observe the erosion control measures, and provide supplement recommendations for minimizing erosion during construction, as necessary. If temporary discharge of stormwater offsite is planned during construction, turbidity monitoring should be performed, as required by the City of Bellevue.

Excavations

Based on the subsurface conditions observed at the boring locations, medium dense to dense silty sand and sand soils are anticipated to be encountered in the planned building foundation excavations. The soils anticipated to be encountered in the proposed excavations can be characterized as having of moderate to high sensitivity to moisture. During periods of extended precipitation, placement and compaction of the excavated soils could be difficult.

The presence of localized perched groundwater seepage could be encountered in the planned excavations. The geotechnical engineer should observe the excavations, and provide supplement recommendations for drainage, as necessary.

Structural Fill Placement

In general, areas to receive structural fill should be sufficiently stripped of organic matter and other deleterious material. The majority of the organic matter associated with trees, brush, root balls, and groundcover should be removed from the proposed fill and cut areas.

Structural fill is defined as compacted soil placed in foundation, slab-on-grade, and roadway areas. Fills placed to construct permanent slopes and throughout retaining wall and utility trench backfill areas are also considered structural fill. Soils placed in the building pad areas should be placed in maximum 12 inch loose lifts and compacted to a relative compaction of 90 percent, based on the maximum dry density as determined by the Modified Proctor Method (ASTM D-1557-02).

If the on-site soils cannot be successfully compacted, the use of an imported soil may be necessary. Imported soil intended for use as structural fill should consist of a well graded granular soil with a maximum aggregate grain size of four inches, and a moisture content that is at or near the optimum level. During wet weather conditions, imported soil intended for use as structural fill should consist of a well graded granular soil with a fines content of 5 percent or less defined as the percent passing the #200 sieve, based on the minus three-quarter inch fraction.

Excavations and Slopes

The Federal and state Occupation Safety and Health Administration (OSHA/WISHA) classifies soils in terms of minimum safe slope inclinations. Based on the soil conditions described at the test locations, the site soils would generally be classified by OSHA/WISHA as Type A. Temporary slopes over four feet in height in Type A soils should be sloped no steeper than 0.75H:1V (Horizontal:Vertical). If temporary slopes cannot be constructed in accordance with OSHA/WISHA guidelines, temporary shoring may be necessary. Permanent slopes should maintain a gradient of 2H:1V, or flatter, and should be planted with an appropriate species of vegetation to enhance stability and to minimize erosion.

The geotechnical engineer should observe temporary and permanent slopes to verify that the inclination is appropriate, and to provide additional grading recommendations, as necessary.

Utility Support and Trench Backfill

In general, the on-site soils observed at the test sites should be suitable for use as structural backfill in the utility trench excavations, provided the soil is at or near the optimum moisture content at the time of placement and compaction. Areas of the onsite soils, however, may not be suited for utility trench backfill, and should be further evaluated by the geotechnical engineer at the time of construction. Utility trench backfill should be placed and compacted to the specifications of structural fill provided in this report, or to the applicable specifications of the City of Bellevue, as appropriate. Groundwater should be expected in utility trench excavations.

Foundations

In our opinion, the proposed cabin can be supported on conventional shallow foundations supported on competent or recompacted native soil or structural fill. We anticipate competent native soil capable of providing adequate foundation support will be encountered at depths of between two to four feet below existing grade. Loose or otherwise unsuitable soil should be removed and replaced with structural fill. Assuming the foundations will be supported as described above, the following parameters can be used for the foundation design:

• Allowable bearing capacity	2,500 psf
• Coefficient of friction	0.40 (Foundation /soil interface)
• Passive resistance	350 pcf (structural backfill)
• Wind and seismic	allowable one-third Increase
• Total settlement	1.0 to 1.5 inches
• Differential settlement	0.5 to 0.75 inches
• Steep Slope Setback	15 feet

Slab-On-Grade Floors

Slab-on-grade floors should be constructed continuous with the building foundation structural elements and supported on a minimum of one foot of structural fill. A capillary break consisting of a minimum of four inches of free draining crushed rock or gravel should be placed below the slab. The free draining material should have a fines content of 5 percent or less (percent passing the #200 sieve, based on the minus three-quarter inch fraction). Installation of an approved vapor barrier should be installed below the slab. The vapor barrier must be a product specifically designed for that purpose and installed in accordance with the manufacturer's specifications.

Cast-In-Place Retaining Walls

Where retaining walls will be utilized on this project, they should be designed to resist earth pressures and any applicable surcharge loads. For design, the following parameters can be assumed for retaining wall design:

- Active earth pressure (yielding wall) — 35 pcf (equivalent fluid)
- At-rest earth pressure (restrained wall) — 50 pcf
- Passive resistance — 350 pcf (equivalent fluid)
- Coefficient of friction — 0.40

Additional surcharge loading from foundations, sloped backfill, or other loading should be included in the retaining wall design, as appropriate. Drainage should be provided behind retaining walls such that hydrostatic pressures do not develop. If drainage is not provided, hydrostatic pressures should be included in the wall design, as appropriate. The geotechnical engineer should review retaining wall designs to verify that appropriate earth pressure values have been incorporated into design and to provide additional recommendations, as necessary.

Retaining walls should be backfilled with free draining material that extends along the height of the wall, and a distance of at least eighteen (18) inches behind the wall. The upper one foot of the wall backfill can consist of a less permeable (surface seal) soil, if desired. A rigid, perforated drain pipe should be placed along the base of the wall, and connected to an appropriate discharge location. A typical retaining wall and drainage detail is illustrated on Plate 4 of this report.

Drainage

The presence of groundwater seepage should be expected in the building site excavations and the utility trench excavations. Temporary measures to control groundwater and surface water runoff during construction will likely involve the use of interceptor trenches, sumps and associated conveyance systems. Interceptor trenches should be installed along the cut slope areas as necessary during the mass grading of the site. The geotechnical engineer should observe site conditions during the grading and utility installation and provide supplement recommendations for drainage, as appropriate.

In our opinion, perimeter footing drains should be installed at or below the invert of the building footings. A typical footing drain detail is provided on Plate 5 of this report. Water should not be allowed to flow over the adjacent slopes. Provisions should be included in site designs to either tightline drainage elements to the base of the slope or convey runoff to an approved discharge point away from the slope area.

Seismic Considerations

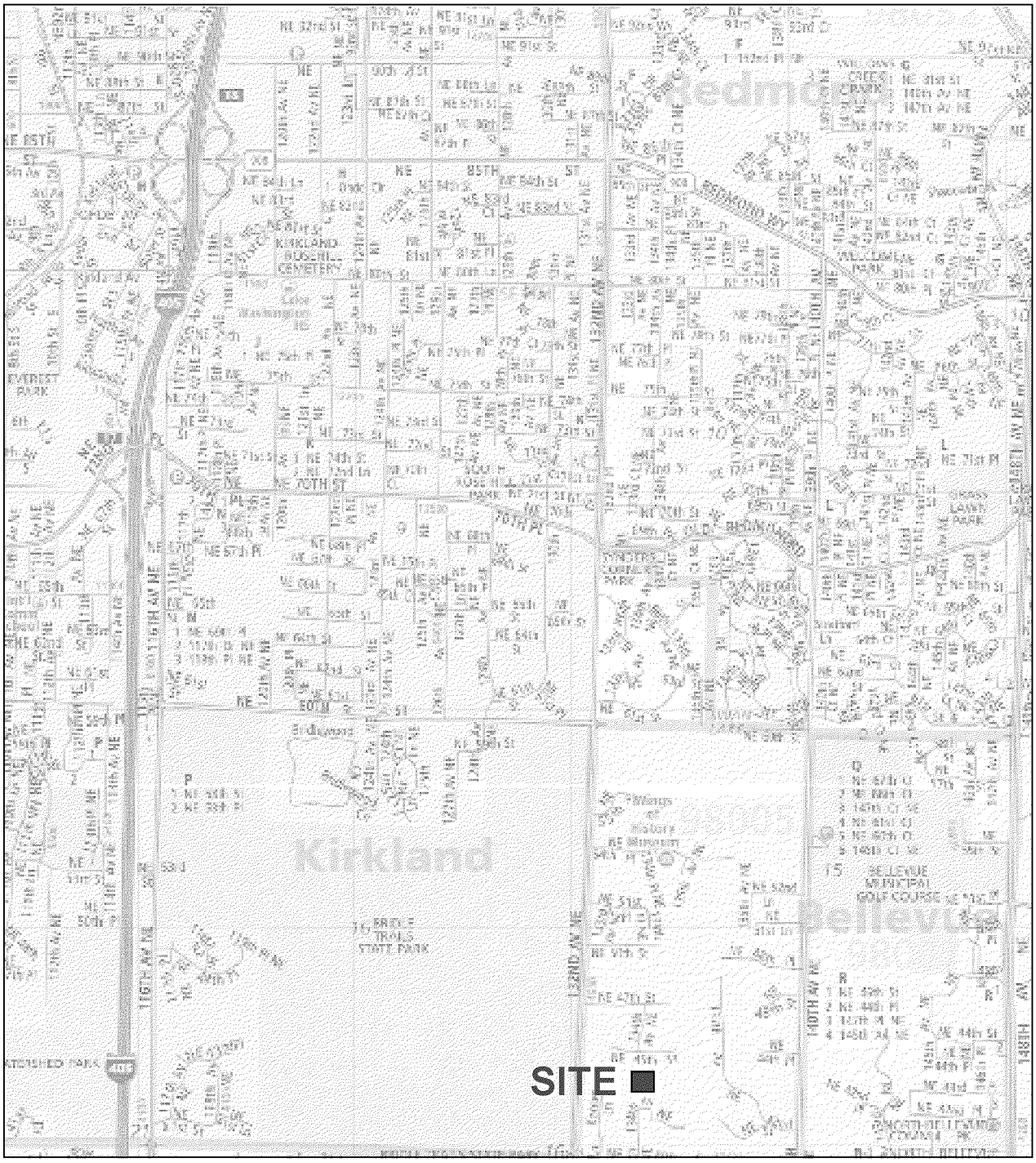
The 2006 International Building Code specifies several soil profiles that are used as a basis for seismic design of structures. Based on the soil conditions observed at the test sites, Site Class C, from table 1613.5.2, should be used for design. In our opinion, liquefaction susceptibility at the site can be characterized as low. The relative density of the native soil and lack of a shallow groundwater table is the primary basis for this opinion.

LIMITATIONS

The recommendations and conclusions provided in this geotechnical engineering study are professional opinions consistent with the level of care and skill that is typical of other members in the profession currently practicing under similar conditions in this area. A warranty is not expressed or implied. Variations in the soil and groundwater conditions observed at the boring and test pit locations may exist, and may not become evident until construction. ESNW should reevaluate the conclusions in this geotechnical engineering study if variations are encountered.

Additional Services

ESNW should have an opportunity to review the final design with respect to the geotechnical recommendations provided in this study. ESNW should also be retained to provide testing and consultation services during construction.



NORTH

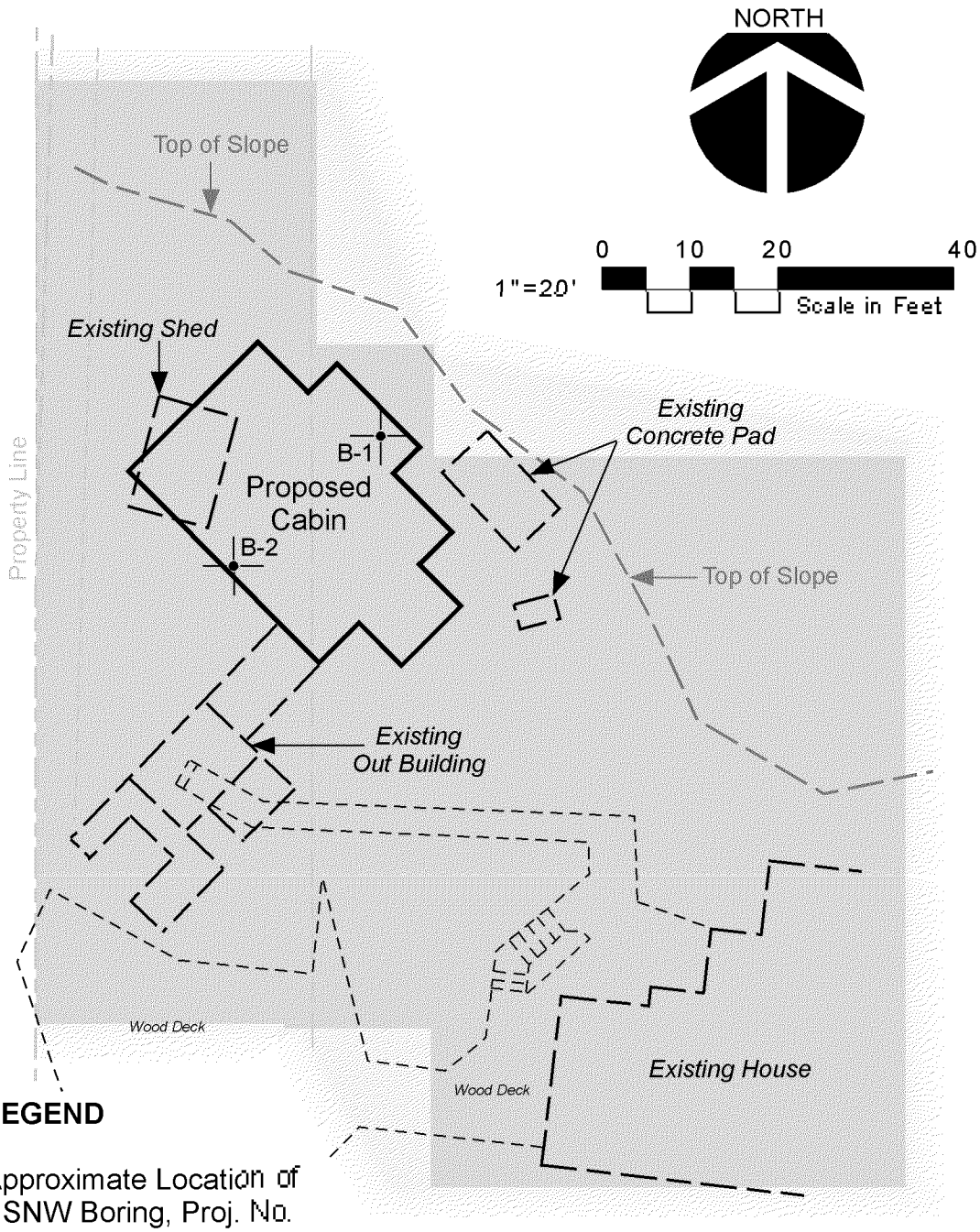
Reference:
King County
Map 536
By Thomas Brothers Maps
Dated 2009

NOTE: This plate may contain areas of color. ESNW cannot be responsible for any subsequent misinterpretation of the information resulting from black & white reproductions of this plate.

Earth Solutions NW LLC
Geotechnical Engineering, Construction Monitoring and Environmental Sciences

Vicinity Map
Underwood Caretaker Cabin
Bellevue, Washington

Drwn.	GLS	Date	08/03/2010	Proj. No.	1834
Checked	SSR	Date	Aug. 2010	Plate	1



LEGEND

B-1 — Approximate Location of ESNW Boring, Proj. No. ES-1834, July 2010

Proposed Building

Existing Building

NOTE: The graphics shown on this plate are not intended for design purposes or precise scale measurements, but only to illustrate the approximate test locations relative to the approximate locations of existing and / or proposed site features. The information illustrated is largely based on data provided by the client at the time of our study. ESNW cannot be responsible for subsequent design changes or interpretation of the data by others.

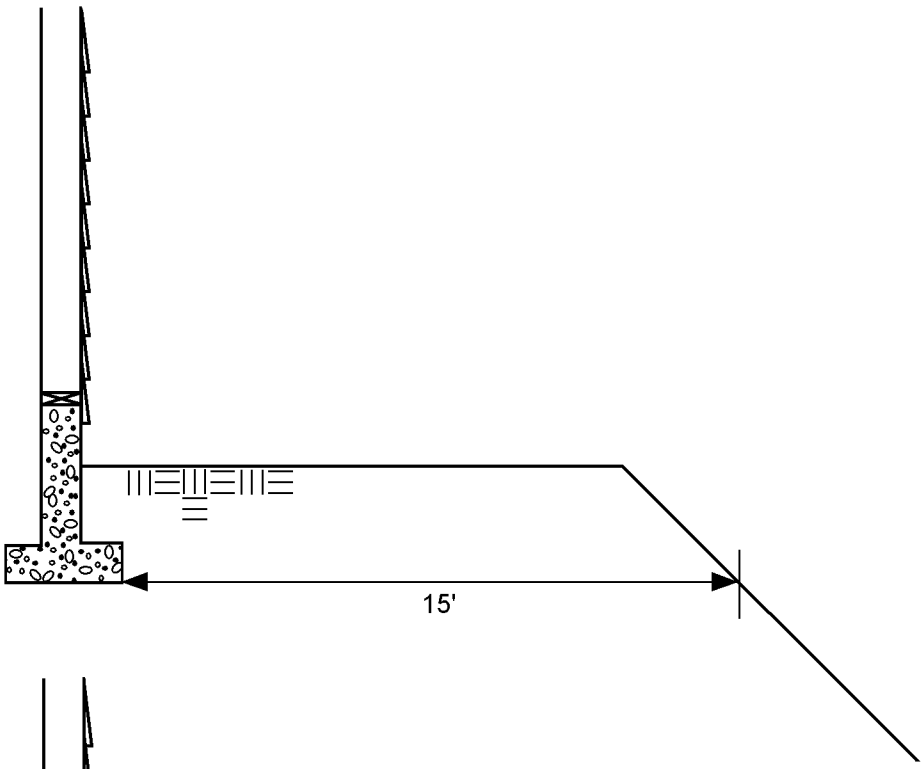
NOTE: This plate may contain areas of color. ESNW cannot be responsible for any subsequent misinterpretation of the information resulting from black & white reproductions of this plate.

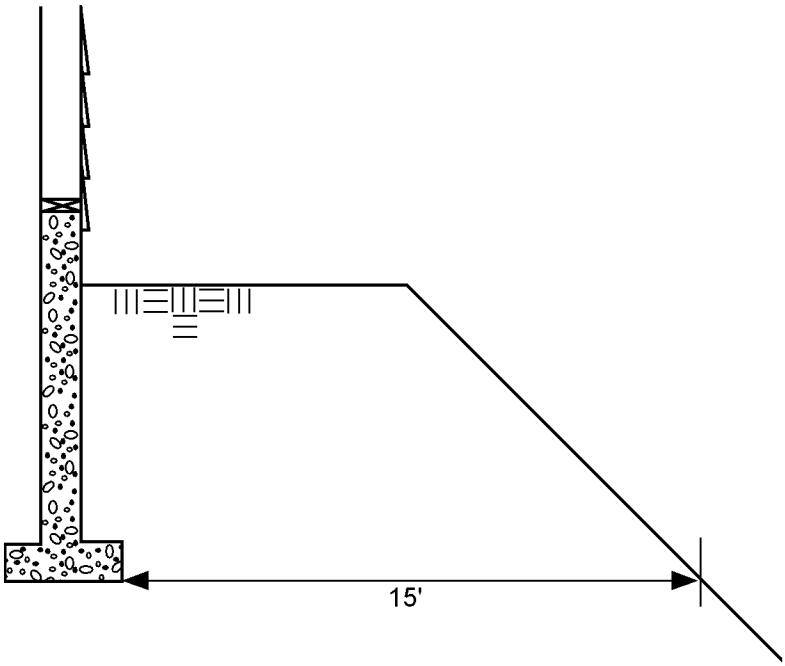
Earth Solutions NW LLC

Geotechnical Engineering, Construction Monitoring and Environmental Sciences

Boring Location Plan
Underwood Caretaker Cabin
Bellevue, Washington

Drwn.	GLS	Date	08/03/2010	Proj. No.	1834
Checked	SSR	Date	Aug. 2010	Plate	2





Earth Solutions NW LLC

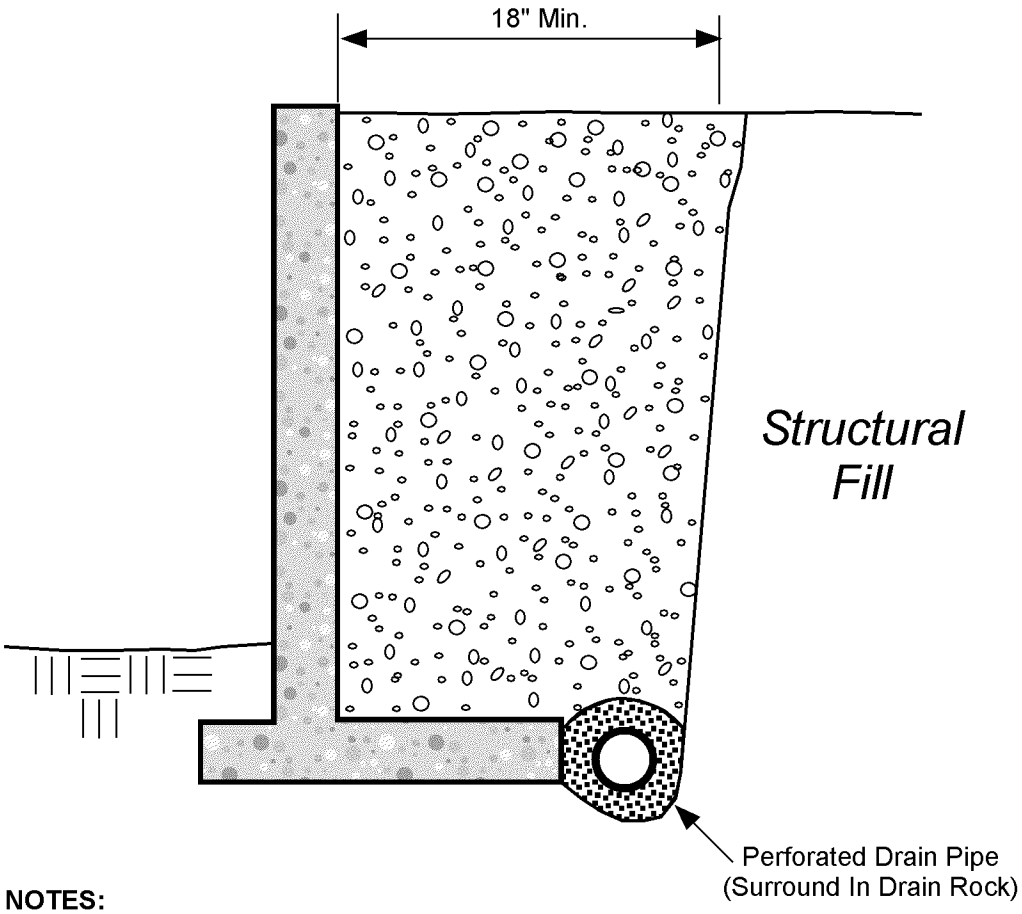
Geotechnical Engineering, Construction Monitoring and Environmental Sciences

FOUNDATIONS ADJACENT TO SLOPES

Underwood Caretaker Cabin

Bellevue, Washington

Drwn.	GLS	Date	08/05/2010	Proj. No.	1834
Checked	SSR	Date	Aug. 2010	Plate	3



NOTES:

- Free Draining Backfill should consist of soil having less than 5 percent fines. Percent passing #4 should be 25 to 75 percent.
- Sheet Drain may be feasible in lieu of Free Draining Backfill, per ESNW recommendations.
- Drain Pipe should consist of perforated, rigid PVC Pipe surrounded with 1" Drain Rock.

SCHEMATIC ONLY - NOT TO SCALE
NOT A CONSTRUCTION DRAWING

LEGEND:

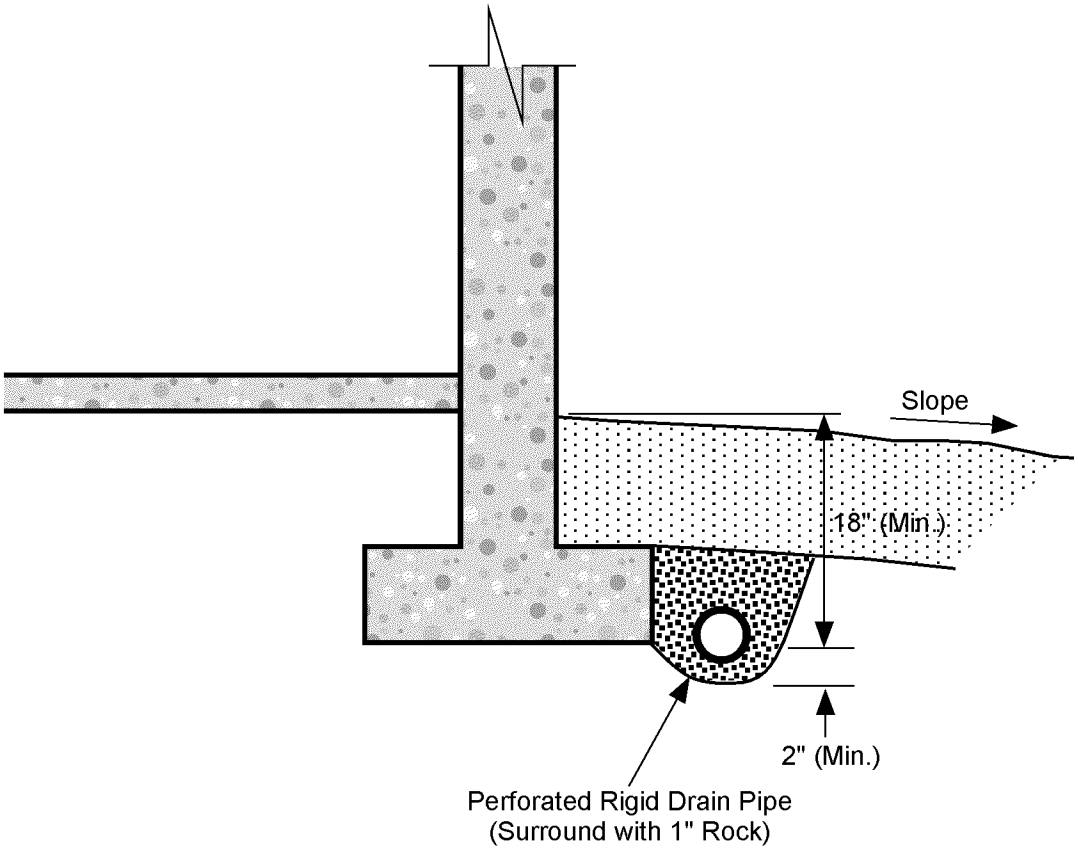
Free Draining Structural Backfill

1 inch Drain Rock

Earth Solutions NW LLC
Geotechnical Engineering, Construction Monitoring and Environmental Sciences

RETAINING WALL DRAINAGE DETAIL
Underwood Caretaker Cabin
Bellevue, Washington

Drwn. GLS	Date 08/05/2010	Proj. No. 1834
Checked SSR	Date Aug. 2010	Plate 4



NOTES:

- Do NOT tie roof downspouts to Footing Drain.
- Surface Seal to consist of 12" of less permeable, suitable soil. Slope away from building.

LEGEND:

Surface Seal; native soil or other low permeability material.

1" Drain Rock

SCHEMATIC ONLY - NOT TO SCALE
NOT A CONSTRUCTION DRAWING

Earth Solutions NW LLC
Geotechnical Engineering, Construction Monitoring and Environmental Sciences

FOOTING DRAIN DETAIL
Underwood Caretaker Cabin
Bellevue, Washington

Drwn. GLS	Date 08/05/2010	Proj. No. 1834
Checked SSR	Date Aug. 2010	Plate 5

APPENDIX A

SUBSURFACE EXPLORATION

ES-1834

Subsurface conditions at the site were explored through a series of borings. The approximate locations of the borings are illustrated on the Boring Location Plan. The logs are provided in this Appendix. The stratification lines on the logs represent the approximate boundaries between soil types. In actuality, the transitions may be more gradual.

Earth Solutions NW LLC

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS GRAPH	SYMBOLS LETTER	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
				GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
	MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	SAND AND SANDY SOILS	CLEAN SANDS (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
				SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES
	MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND - SILT MIXTURES
				SC	CLAYEY SANDS, SAND - CLAY MIXTURES
FINE GRAINED SOILS	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

DUAL SYMBOLS are used to indicate borderline soil classifications.

The discussion in the text of this report is necessary for a proper understanding of the nature of the material presented in the attached logs.

Earth Solutions NW
2881 152nd Avenue N.E.
Redmond, Washington 98052
Telephone: 425-284-3300
Fax: 425-284-2855

BORING NUMBER B-1

CLIENT Jarvis Group
PROJECT NAME Underwood Caretaker Cabin
PROJECT NUMBER 1834
PROJECT LOCATION Bellevue, Washington
DATE STARTED 7/27/10 **COMPLETED** 7/27/10
GROUND ELEVATION 494 ft **HOLE SIZE**
DRILLING CONTRACTOR Geologic Drill
GROUND WATER LEVELS:
DRILLING METHOD HSA
AT TIME OF DRILLING ---
LOGGED BY SSR **CHECKED BY** SSR
AT END OF DRILLING ---
NOTES Brush and Landscaping Debris
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0					SM		Brown silty SAND, very loose, moist (Fill) -abundant organics
2.0							492.0
	SS	100	2-3-3 (6)	MC = 10.40%	SM		Brown silty SAND, loose, moist -trace gravel
5	SS	100	8-10-12 (22)	MC = 9.50% Fines = 22.80%			-gravel increase at 5' -becomes medium dense
7.0							487.0
	SS	100	9-11-15 (26)	MC = 5.80%	SP-SM		Brown poorly graded SAND with silt, medium dense, moist
10	SS	100	12-38-28 (66)				-no sample recovery - driving in gravel, becomes very dense
15	SS	100	20-27-20 (47)	MC = 7.40%			-becomes dense
20.0							474.0

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BORING NUMBER B-1

CLIENT Jarvis Group

PROJECT NAME Underwood Caretaker Cabin

PROJECT NUMBER 1834

PROJECT LOCATION Bellevue, Washington

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
20	SS	100	27-38-50/4"	MC = 8.30%	SP-SM		Brown poorly graded SAND with silt, very dense, moist
							21.5 472.5
							Boring terminated at 21.5 feet below existing grade. No groundwater encountered during drilling. Boring backfilled with bentonite. Bottom of hole at 21.5 feet.

Earth Solutions NW
2881 152nd Avenue N.E.
Redmond, Washington 98052
Telephone: 425-284-3300
Fax: 425-284-2855

BORING NUMBER B-2

CLIENT Jarvis Group
PROJECT NAME Underwood Caretaker Cabin
PROJECT NUMBER 1834
PROJECT LOCATION Bellevue, Washington
DATE STARTED 7/27/10 **COMPLETED** 7/27/10
GROUND ELEVATION 496 ft **HOLE SIZE**
DRILLING CONTRACTOR Geologic Drill
GROUND WATER LEVELS:
DRILLING METHOD HSA
AT TIME OF DRILLING ---
LOGGED BY SSR **CHECKED BY** SSR
AT END OF DRILLING ---
NOTES Landscaping
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0					SM		Brown silty SAND with gravel, medium dense, moist -becomes dense
	SS	100	8-32-28 (60)	MC = 5.60%			-becomes very dense 4.0 — 492.0
5					SP-SM		Grades to brown poorly graded SAND with silt, dense, moist
	SS	100	18-19-24 (43)	MC = 7.10% Fines = 11.30%			-trace gravel
	SS	100	21-24-29 (53)	MC = 7.10%			
10							
	SS	100	22-26-22 (48)	MC = 8.40%			14.0 — 482.0
15					SM		Brown silty SAND, very dense, moist -trace gravel
	SS	100	22-38-50 (88)	MC = 9.70%			16.5 — 479.5
							Boring terminated at 16.5 feet below existing grade. No groundwater encountered during drilling. Boring backfilled with bentonite. Bottom of hole at 16.5 feet.

APPENDIX B

LABORATORY TEST RESULTS

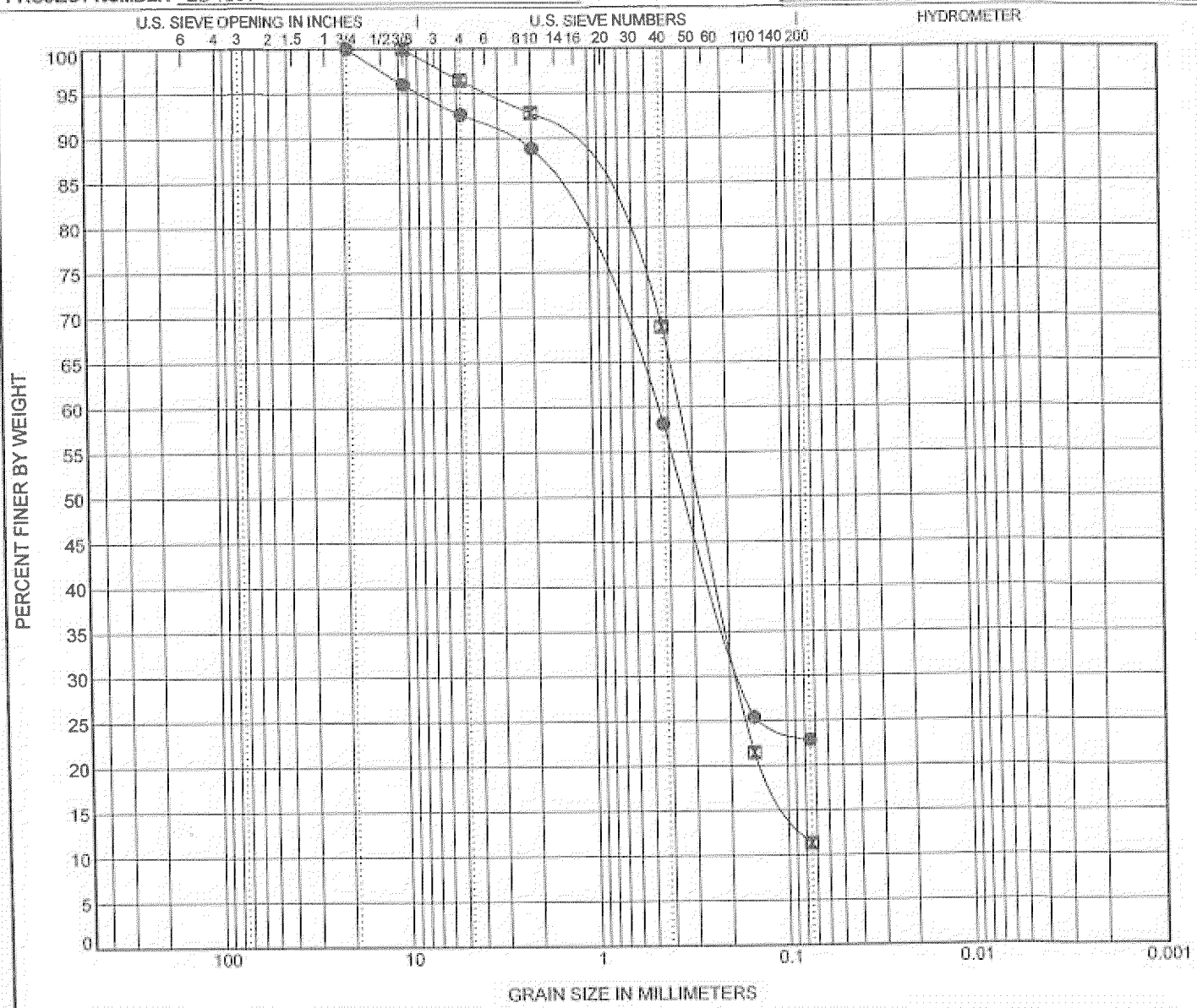
ES-1834

GRAIN SIZE DISTRIBUTION

Earth Solutions NW

CLIENT The Jarvis Group **PROJECT NAME** Underwood Caretakers Cabin

PROJECT NUMBER ES-1834 **PROJECT LOCATION** Bellevue



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	B-1	5.0ft.	Brown silty SAND, SM					
⊠	B-2	5.0ft.	Brown poorly graded SAND with silt, SP-SM				1.37	5.10

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	B-1	5.0ft.	19	0.467	0.174		7.3	69.8	22.8	
⊠	B-2	5.0ft.	9.5	0.349	0.181		3.5	85.1	11.3	

REPORT DISTRIBUTION

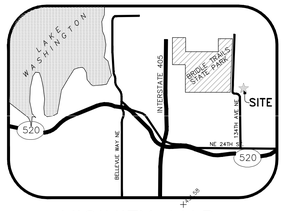
ES-1834

4 COPIES

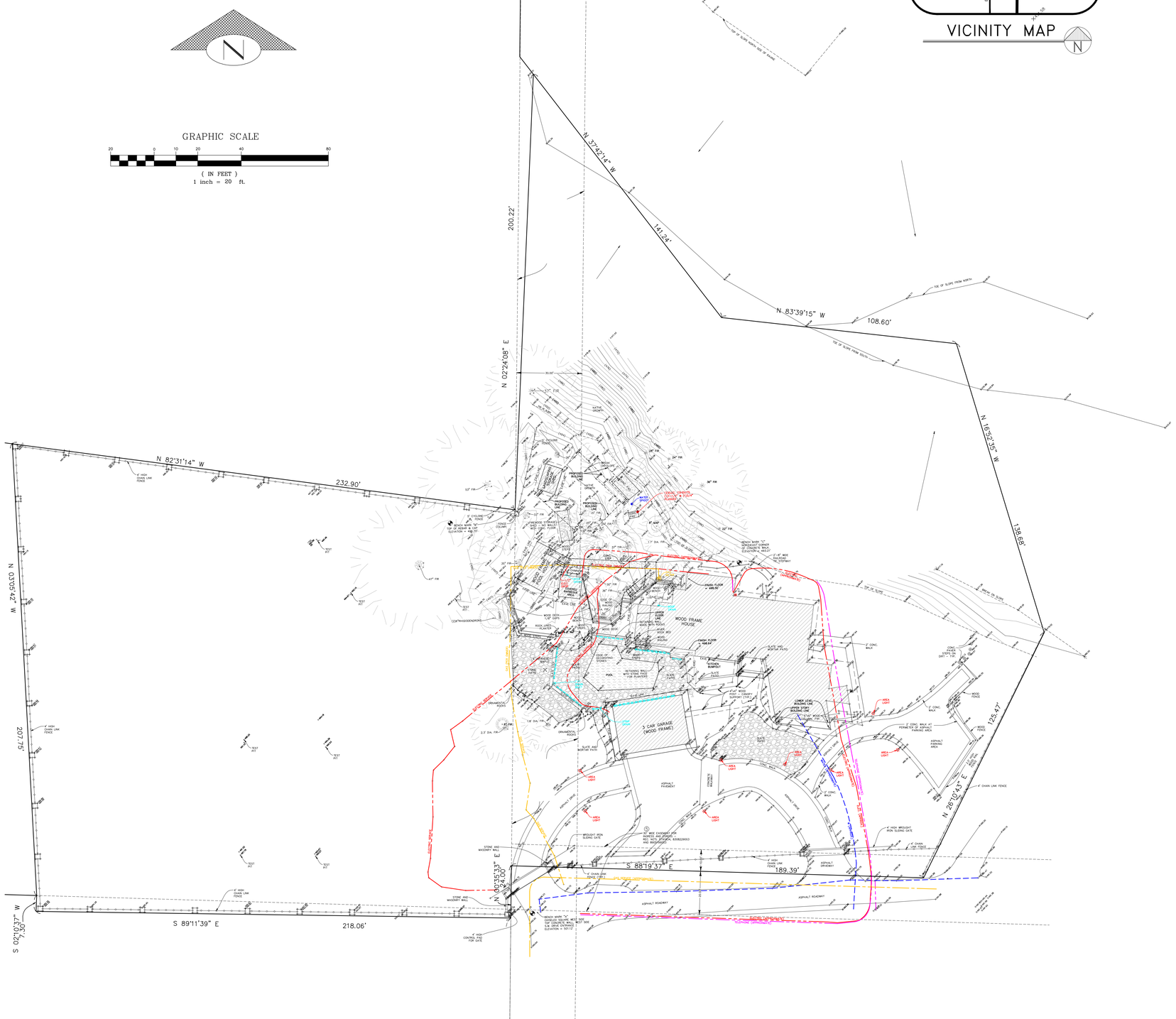
The Jarvis Group, PLLC
511 Sun Valley Road, #202
PO Box 626
Ketchum, Idaho 83340

Attention: Mr. John Powell

S.W. 1/4, SEC. 15, T 25 N., RG. 5 E., W.M.



VICINITY MAP



SITE NOTES

SITE ADDRESS:
4202 134TH AVENUE NE
BELLEVUE, WA 98005

TAX ACCOUNT NO.:
152505-9193-07

ZONING:
R-1

ZONING AGENCY:
CITY OF BELLEVUE
DEPARTMENT OF PLANNING AND COMMUNITY DEVELOPMENT
450 110TH AVENUE NE
PO BOX 90012
BELLEVUE, WA 98009
(425) 452-6864

SETBACKS:
CURRENT SETBACK REQUIREMENTS SUBJECT TO SITE PLAN REVIEW. CURRENT SETBACKS MAY DIFFER FROM THOSE IN EFFECT DURING DESIGN/CONSTRUCTION OF EXISTING IMPROVEMENTS.

THE ISSUANCE OF A CERTIFICATE OF OCCUPANCY BY THE GOVERNING JURISDICTION INDICATES THAT STRUCTURES ON THIS PROPERTY COMPLIED WITH MINIMUM SETBACK AND HEIGHT REQUIREMENTS FOLLOWING CONSTRUCTION.

FLOOD ZONE:
THIS SITE APPEARS ON NATIONAL FLOOD INSURANCE RATE MAP, DATED MAY 16, 1995, COMMUNITY PANEL NO. 530335G368F, AND IS SITUATED IN ZONE "X", AREA DETERMINED TO BE OUTSIDE 500 YEAR FLOODPLAIN.

HORIZONTAL DATUM:
NAD 83 (2007)
REPORTS (CITY OF BELLEVUE)

VERTICAL DATUM:
NAVD 88

CITY OF BELLEVUE REFERENCE POINTS:

POINT NO.: 144
DESCRIPTION: MIC INTERSECTION 140TH AVENUE NE & NE 40TH STREET
ELEVATION: 317.94
COORDINATES: N. 238444.1825, E. 1315014.3511

POINT NO.: 199
DESCRIPTION: EASTERLY OF TWO MIC'S AT TURNOUT FOR PARKSIDE AT 132ND AND NE 40TH STREET
ELEVATION: 498.46
COORDINATES: N. 238534.0155, E. 1312375.9891

AREA:
SITE AS SHOWN CONTAINS 105,271 SQUARE FEET OR 2.4167 ACRES, MORE OR LESS.

SUBSTRUCTURES:
BURIED UTILITIES ARE SHOWN AS INDICATED ON RECORDS MAPS FURNISHED BY OTHERS AND VERIFIED WHERE POSSIBLE BY FEATURES LOCATED IN THE FIELD. WE ASSUME NO LIABILITY FOR THE ACCURACY OF THOSE RECORDS. FOR THE FINAL LOCATION OF EXISTING UTILITIES IN AREAS CRITICAL TO DESIGN CONTACT THE UTILITY OWNER/AGENCY.

TELECOMMUNICATIONS/FIBER OPTIC DISCLAIMER:
RECORDS OF UNDERGROUND TELECOMMUNICATIONS AND/OR FIBER OPTIC LINES ARE NOT ALWAYS AVAILABLE TO THE PUBLIC. BRH HAS NOT CONTACTED EACH OF THE MANY COMPANIES, IN THE COURSE OF THIS SURVEY, WHICH COULD HAVE UNDERGROUND LINES WITHIN ADJACENT RIGHTS-OF-WAY. THEREFORE, BRH DOES NOT ACCEPT RESPONSIBILITY FOR THE EXISTENCE OF UNDERGROUND TELECOMMUNICATIONS/FIBER OPTIC LINES WHICH ARE NOT MADE PUBLIC RECORD WITH THE LOCAL JURISDICTION. AS ALWAYS, CALL 1-800-424-5555 BEFORE CONSTRUCTION.

UTILITY PROVIDERS:

SANITARY SEWERS, STORM DRAINAGE & WATER:
CITY OF BELLEVUE
DEPARTMENT OF PLANNING AND COMMUNITY DEVELOPMENT
450 110TH AVENUE NE
PO BOX 90012
BELLEVUE, WA 98009
(425) 452-6864

POWER & NATURAL GAS:
PUGET SOUND ENERGY
10885 NE 4TH STREET
BELLEVUE, WA 98009
(425) 452-1234
(888) 225-5773

TELEPHONE:
QWEST
PO BOX 625001
LITTLETON, CO 80162
(800) 526-3557

DESCRIPTION:
BEGINNING AT THE SOUTHWEST CORNER OF THE NORTHEAST QUARTER OF THE SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 15, TOWNSHIP 25 NORTH, RANGE 5 EAST, W.M.;
THENCE NORTH 00°35'05" EAST, ALONG THE WEST LINE OF SAID SUBDIVISION, 20.00 FEET TO THE TRUE POINT OF BEGINNING;
THENCE CONTINUING NORTHERLY, ALONG SAID WEST LINE, A DISTANCE OF 371.62 FEET;
THENCE SOUTH 37°42'42" EAST, A DISTANCE OF 151.44 FEET;
THENCE SOUTH 83°39'43" EAST, A DISTANCE OF 108.60 FEET;
THENCE SOUTH 16°53'03" EAST, A DISTANCE OF 138.68 FEET;
THENCE SOUTH 26°10'15" WEST, A DISTANCE OF 125.46 FEET TO THE NORTH LINE OF THE SOUTH 20 FEET OF SAID SUBDIVISION;
THENCE NORTH 88°20'05" WEST, ALONG SAID NORTH LINE, A DISTANCE OF 189.38 FEET TO THE POINT OF BEGINNING.

(ALSO KNOWN AS LOT "U" OF LOT LINE ADJUSTMENT NO. 89-1434 RECORDED UNDER RECORDING NUMBER 8905199003);

TOGETHER WITH THAT PORTION OF THE NORTHWEST QUARTER OF THE SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 15, TOWNSHIP 25 NORTH, RANGE 5 EAST, W.M., DESCRIBED AS FOLLOWS:

BEGINNING AT THE SOUTHEAST CORNER OF SAID SUBDIVISION AND THE SOUTHEAST CORNER OF A TRACT OF LAND CONVEYED TO KENNETH AND JANETTE GREEN BY CONTRACT OF SALE AS RECORDED UNDER AUDITOR'S NO. 6713156 BY ORVIN W. AND DAISY M. NELSON;
THENCE NORTH 88°20'05" WEST, ALONG THE SOUTH LINE OF SAID SUBDIVISION AND SAID TRACT, 217.90 FEET;
THENCE NORTH 03°06'10" WEST 207.74 FEET;
THENCE SOUTH 82°31'42" WEST PARALLEL WITH AND 9.00 FEET SOUTH OF, WHEN MEASURED AT RIGHT ANGLES TO THE NORTH LINE OF SAID TRACT, 232.90 FEET, MORE OR LESS, TO THE EAST LINE OF SAID SUBDIVISION;
THENCE SOUTH 00°35'05" WEST, ALONG SAID EAST LINE, 187.49 FEET TO THE POINT OF BEGINNING.

AND TOGETHER WITH THAT PORTION OF THE SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 15, TOWNSHIP 25 NORTH, RANGE 5 EAST, W.M., DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT LYING SOUTH 89°29'39" EAST 660.04 FEET AND NORTH 00°49'25" WEST 482.54 FEET FROM THE SOUTHWEST CORNER OF SAID SECTION 15;
THENCE NORTH 00°49'25" WEST 184.00 FEET;
THENCE NORTH 89°46'14" WEST 217.90 FEET;
THENCE SOUTH 00°44'00" WEST 189.30 FEET;
THENCE NORTH 88°51'46" EAST 223.01 FEET TO THE POINT OF BEGINNING.

EXCEPT THAT PORTION THEREOF LYING SOUTH OF A LINE DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT ON THE EAST LINE OF THE ABOVE DESCRIBED SUBDIVISION WHICH IS 4 FEET SOUTH OF THE NORTHEAST CORNER THEREOF;
THENCE WESTERLY TO A POINT ON THE WEST LINE OF SAID TRACT WHICH IS 7.3 FEET SOUTH OF THE NORTHWEST CORNER THEREOF;

AND TOGETHER WITH AN EASEMENT FOR INGRESS, EGRESS, AND UTILITIES OVER, UNDER, AND ACROSS THE SOUTH 20 FEET OF THE NORTHEAST QUARTER OF THE SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 15, TOWNSHIP 25 NORTH, RANGE 5 EAST, W.M.;

EXCEPT THE EAST 502.9 FEET THEREOF;

AND TOGETHER WITH AN EASEMENT FOR INGRESS, EGRESS, AND UTILITY PURPOSES OVER THE WEST 30 FEET OF THE SOUTHEAST QUARTER OF THE SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SAID SECTION 15, AND OVER THE SOUTH 30 FEET OF THE SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER, LYING EAST OF COUNTY ROAD (NORTHEAST 40TH STREET) IN SAID SECTION 15; (AKA PARCELS B AND LOT BELLEVUE BOUNDARY LINE ADJUSTMENT #91-3998 RECORDED UNDER RECORDING NUMBER 9112189002)

TITLE REPORT REFERENCE:
THIS SURVEY WAS CONDUCTED ACCORDING TO THE DESCRIPTION SHOWN, FURNISHED BY FIRST AMERICAN TITLE INSURANCE COMPANY, COMMITMENT NO. 1119042, DATED APRIL 30, 2010. THE EASEMENTS SHOWN OR NOTED HEREON RELATE TO THIS COMMITMENT.

NOTE: EASEMENTS CREATED OR RESCINDED AFTER THIS DATE ARE NOT SHOWN OR NOTED HEREON.

TITLE REPORT SCHEDULE B EXCEPTIONS:
NO EXCEPTIONS HAVE BEEN PLOTTED.

3. AN EASEMENT AFFECTING THE PORTION OF SAID PREMISES AND FOR THE PURPOSES STATED THEREIN, INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING:
   IN FAVOR OF: FRANKLYN R. TICHY AND CAROL N. TICHY, HIS WIFE
   FOR: INGRESS AND EGRESS
   AREA AFFECTED: PORTION OF SAID PREMISES
   DISCLOSED BY INSTRUMENT
   RECORDED: SEPTEMBER 29, 1964
   RECORDING NO.: 5791834
4. ROAD MAINTENANCE AND USE AGREEMENT AND THE TERMS AND CONDITIONS THEREOF:
   BY AND BETWEEN: VARIOUS OWNERS
   RECORDED: OCTOBER 19, 1984
   RECORDING NO.: 8410190874
5. COVENANTS, CONDITIONS, RESTRICTIONS AND EASEMENTS CONTAINED IN BOUNDARY LINE ADJUSTMENT 91-3998:
   RECORDED: DECEMBER 18, 1991
   RECORDING NO.: 9112189002
6. EASEMENT AND THE TERMS AND CONDITIONS THEREIN, INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING:
   GRANTEE: PUGET SOUND ENERGY, INC., A WASHINGTON CORPORATION
   PURPOSE: TRANSMISSION, DISTRIBUTION AND SALE OF GAS
   AREA AFFECTED: AS CONSTRUCTED OR TO BE CONSTRUCTED, EXTENDED OR RELOCATED
   RECORDED: SEPTEMBER 13, 2000
   RECORDING NO.: 20000913001076

NO.	REVISION	DATE
3	ADDITIONAL TOPOGRAPHY	9-7-10
2	REVISED TOP OF SLOPE POINTS, TEST PITS AND PROPOSED BLDG STAKING	8-4-10
1	REVISED TOP LINES	7-16-10

JEFFREY J. McMANUS STATE OF WASHINGTON 35385 REGISTERED PROFESSIONAL LAND SURVEYOR

BUSH, ROED & HITCHINGS, INC. CORPORATE SEAL 1969 WASHINGTON

BUSH, ROED & HITCHINGS, INC.
CIVIL ENGINEERS & LAND SURVEYORS
2009 MINOR AVE. EAST
SEATTLE, Washington
98102-3513
(206) 323-4144
1-800-935-0508
FAX # (206) 323-9515
WEBSITE: BRHINC.COM

LIMITED TOPOGRAPHIC SURVEY
MARY ANNE UNDERWOOD
4202 134TH AVE N.E.
BELLEVUE, KING COUNTY, WASHINGTON

drawn by	checked by
MAJ	JJMc
scale 1"=20'	date 9-07-10
job no. 2010042.03	
sheet 1 of 1	

SITE SURVEY

THE JARVIS GROUP
511 SUN VALLEY ROAD
POSTAL BOX 626
KETCHUM, IDAHO 83340
PHONE 208.726.4031 ♦ FAX 208.726.4097

UNDERWOOD CARETAKER'S CABIN

4202 134TH AVE. N.E.

BELLEVUE WASHINGTON

ARCHITECT

ENGINEER

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DRAWN JW

DATE Critical Areas Permit Submittal 9.08.2010

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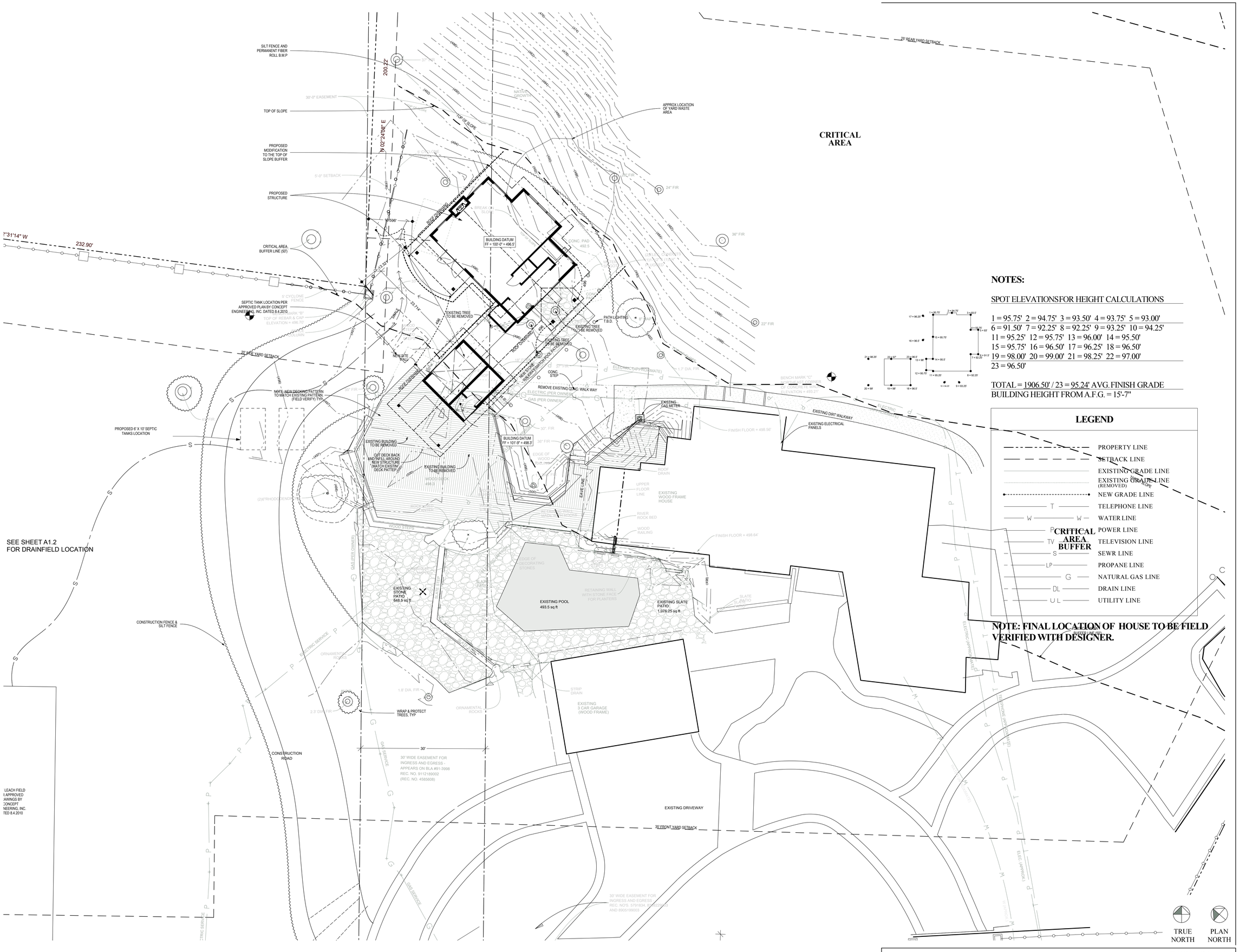
REVISIONS

NO.	DATE	DESCRIPTION

PRINT DATE: Thursday, September 09, 2010

A1.0



NOTES:

SPOT ELEVATIONS FOR HEIGHT CALCULATIONS

1 = 95.75' 2 = 94.75' 3 = 93.50' 4 = 93.75' 5 = 93.00'
6 = 91.50' 7 = 92.25' 8 = 92.25' 9 = 93.25' 10 = 94.25'
11 = 95.25' 12 = 95.75' 13 = 96.00' 14 = 95.50'
15 = 95.75' 16 = 96.50' 17 = 96.25' 18 = 96.50'
19 = 98.00' 20 = 99.00' 21 = 98.25' 22 = 97.00'
23 = 96.50'

TOTAL = 1906.50' / 23 = 95.24' AVG. FINISH GRADE
BUILDING HEIGHT FROM A.F.G. = 15'-7"

LEGEND

	PROPERTY LINE
	SETBACK LINE
	EXISTING GRADE LINE
	EXISTING GRADE LINE (REMOVED)
	NEW GRADE LINE
T	TELEPHONE LINE
W	WATER LINE
P	POWER LINE
TV	TELEVISION LINE
S	SEWR LINE
LP	PROPANE LINE
G	NATURAL GAS LINE
DL	DRAIN LINE
UL	UTILITY LINE

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

SITE PLAN

THE JARVIS GROUP

J

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LOT COVERAGE (35% MAX)

LOT COVERAGE	
LOT AREA	105,271SF
PROTECTED SLOPE AREA	19,372SF
REVISED LOT AREA	85,899SF
EXISTING HOUSE & GARAGE AREA	3,815SF
BUILDINGS AREA TO BE REMOVED	<510SF>
NEW BUILDING AREA	936SF
NEW FOOTPRINT	4,241SF
STRUCTURAL COVERAGE	
4,241 / 85,899	5 %

IMPERVIOUS SURFACE (50% MAX)

LOT COVERAGE	
LOT AREA	105,271SF
PROTECTED SLOPE AREA	19,372SF
REVISED LOT AREA	85,899SF
DRIVEWAY & WALKWAYS	3,815SF
STONE PATIOS & POOL	2,136SF
WOOD DECK'S - 1/8" GAP	1,183SF
STRUCTURAL COVERAGE	4,241SF
TOTAL	11,375SF
IMPERVIOUS SURFACES	
11,375 / 85,899	13 %

BUILDING HEIGHT

SPOT ELEVATIONS FOR HEIGHT CALCULATIONS

1 = 95.75' 2 = 94.75' 3 = 93.50' 4 = 93.75' 5 = 93.00'
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19 = 98.00' 20 = 99.00' 21 = 98.25' 22 = 97.00'
23 = 96.50'

TOTAL = 1906.50' / 23 = 95.24' AVG. FINISH GRADE
BUILDING HEIGHT FROM A.F.G. = 15'-7"

GREEN SCAPE (50% MAX OF FRONT SETBACK)

TOTAL SETBACK AREA = 15,446 sf
HARDSCAPE AREA = 2,015 sf
GREENSCAPE AREA = 13,431 sf = 87%

CONSTRUCTION CONDITIONS

- CONSTRUCTION ROAD - CONSTRUCTION ENTRANCE
- TREE PROTECTION - SILT FENCE
- CONSTRUCTION FENCE

NOTES

1. RESTORE ALL TEMPORARY DISTURBANCE AREAS TO ORIGINAL PRE-CONSTRUCTION CONDITION.

SCALE: 1"=20'-0"

OVERALL SITE PLAN

THE JARVIS GROUP

J

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