City of Bellevue
Development Services Department
Land Use Staff Report

Proposal Name:	Bates Deck Remodel
Proposal Address:	4411 164th Lane SE, Bellevue, WA 98006
Proposal Description:	Proposal to repair and expand two (2) existing rear yard decks within a 50-foot top-of-slope buffer from a steep slope critical area. The proposal includes mitigation and restoration planting within the steep slope.
File Number:	23-109697-LO
Applicant:	Deepa Sharma, GHDA Architects
Decisions Included:	Critical Areas Land Use Permit (Process II. LUC 20.30P)
Planner:	Jordan Borst, Associate Land Use Planner
State Environmental Policy Act Threshold Determination:	**Exempt per WAC 197-11-800 (1)**
Director's Decision:	**Approval with Conditions** Rebecca Horner, Director Development Services Department ***Reilly Pittman*** ***Planning Manager*** Elizabeth Stead, Land Use Director Development Services Department

Application Date:	May 11, 2023
Notice of Application Publication Date:	June 8, 2023
Decision Publication Date:	August 3, 2023
Project Appeal Deadline:	August 17, 2023

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

CONTENTS

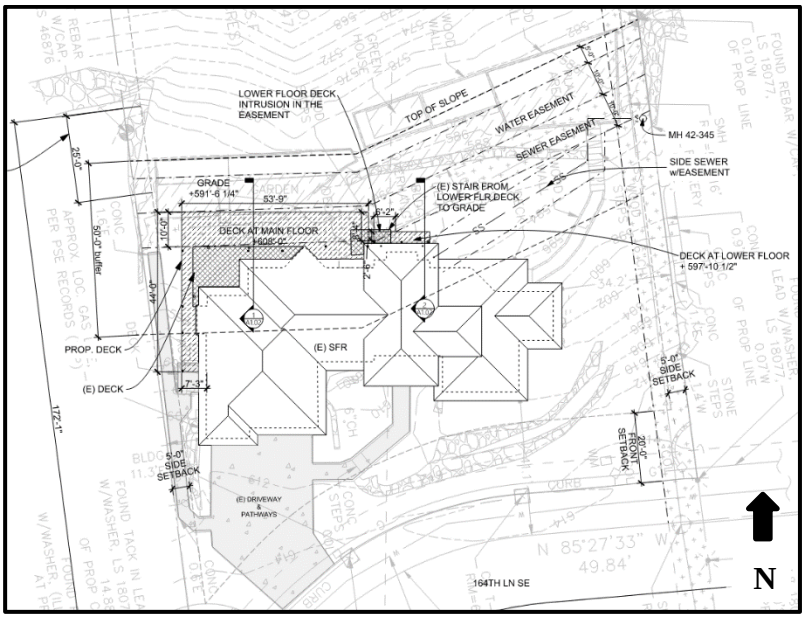
Attachments

1. Site Plan
2. Mitigation & Restoration Planting Plan
3. Critical Areas Report – David Consulting Group Watershed dated 05/2023
4. Geotechnical Report – Geotech Consultants, Inc. dated 05/08/2023

I. Proposal Description

The applicant has requested a Critical Areas Land Use Permit to repair and expand an existing 312 square-foot main floor deck by an additional 783 square feet and the residence's existing 97 square-foot lower floor deck by an additional 63 square feet. Both expansions are proposed within a 50-foot top-of-slope buffer required from a steep slope critical area. The proposal includes the reduction of the existing 25-foot buffer to 15-feet, at which the proposed deck expansion is to be located and includes approximately 1,180 square feet of native restoration and mitigation planting within the steep slope. **See Figure 1 below for site layout.**

Figure 1



A Critical Areas Land Use permit is required to reduce a critical area or reduce critical area buffers, and critical area structure setbacks.

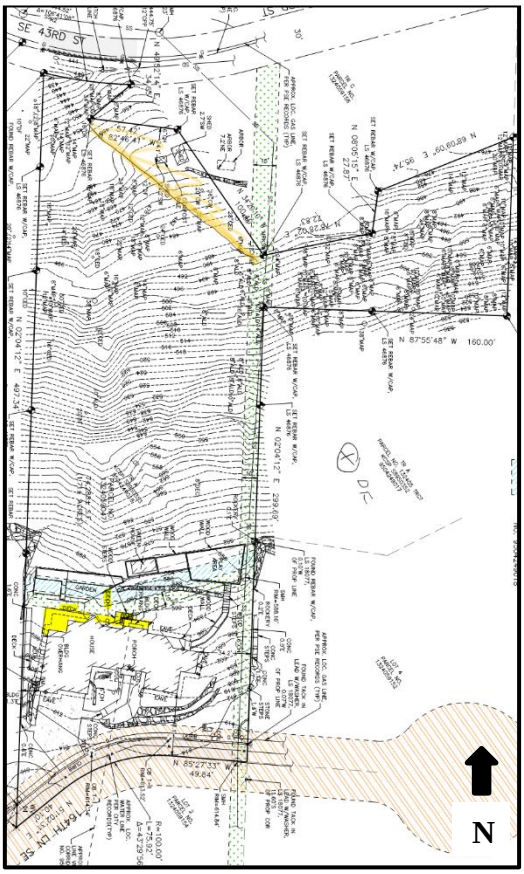
Land Use Code (LUC) 20.25H.120.B prescribes a 50-foot critical area buffer from the surveyed top-of-slope. The request is to permanently reduce a portion of the steep slope buffer to repair and expand two (2) residential decks. LUC 20.25H.125 allows for the reduction of a critical area buffer through a critical areas report. The critical areas report is a mechanism by which certain critical area 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 steep slope critical area and buffer on the property are degraded in function and value because they lack the vegetative structural diversity found in higher-quality steep slope critical areas.

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

A. Site Description

The subject parcel is 74, 288 square feet in size (1.71 acres), abutting City Right-of-Way (ROW), 164th Lane SE to the south and SE 43rd Street to the north. As part of King County, the parcel was developed with an approximately 4,000 square foot single-family residence, attached garage and two (2) decks in 1996. Then in May 2012, the parcel was annexed by the City of Bellevue. A steep slope critical area with north-facing aspect slopes encompasses most of the subject property, which contains a small portion of flat area where all the existing development is present. Lawn, ornamental landscaping, and some native and non-native vegetation can be found on-site but the latter two are mostly located within the critical area steep slope. **See Figure 2 for more information.**

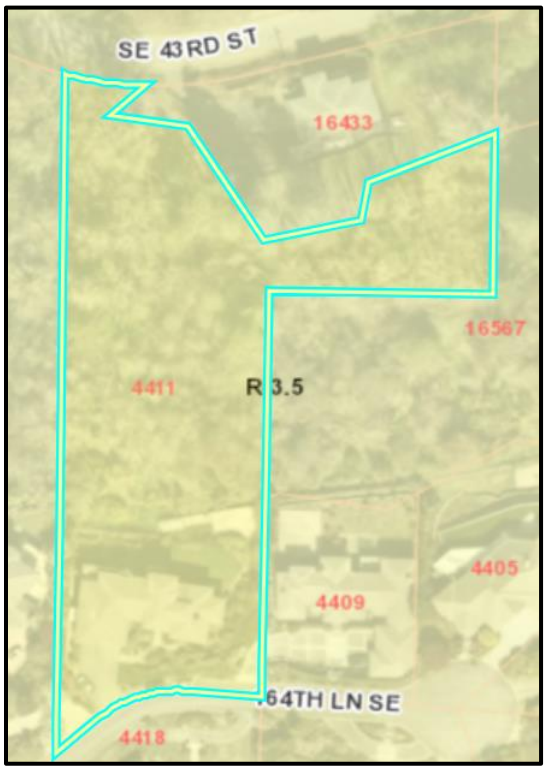
Figure 2



B. Zoning

The property is zoned R-3.5, single-family residential. **See Figure 3 for a zoning map**.

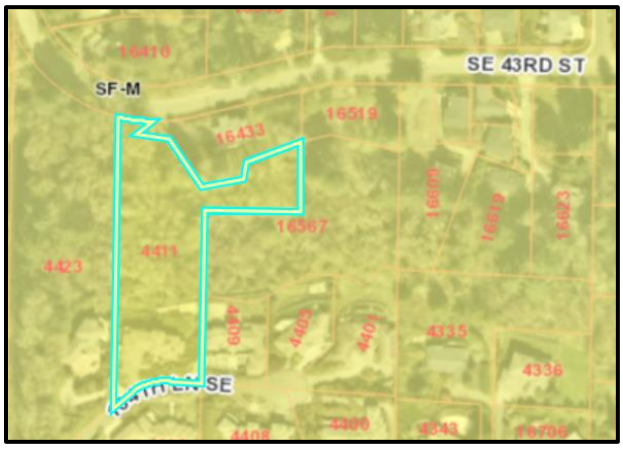
Figure 3



C. Land Use Context

The site has a Comprehensive Plan Land Use Designation of SF-M (Single-Family Low Density) and is surrounded by properties within the same comprehensive land use designation.. **See Figure 4 for Comprehensive Plan Map.**

Figure 4



D. Critical Areas Functions and Values

i. Geologic Hazard Areas

Geologic hazards pose a threat to the health and safety of citizens when commercial, residential, or industrial development is inappropriately sited in areas of significant hazard. Some geologic hazards can be reduced or mitigated by engineering, design, or

modified construction practices. When technology cannot reduce risks to acceptable levels, building in geologically hazardous areas is best avoided (WAC 365-190).

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

ii. Habitat Associated with Species of Local Importance

The increase in human settlement density and associated intensification of land use known as urbanization has a profound and lasting effect on the natural environment and wildlife habitat (McKinney 2002, Blair 2004, Marzluff 2005, Munns 2006), is a major cause of native species local extinctions (Czech et al 2000), and is likely to become the primary cause of extinctions in the coming century (Marzluff et al. 2001a). 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 (Knopf et al. 1988), which in turn provide a source for urban habitat patches or reserves. Consequently, urban areas can support rich wildlife communities. In fact, species richness peaks for some groups, including songbirds, at an intermediate level of development (Blair 1999, Marzluff 2005).Protected wild areas alone cannot be depended on to conserve wildlife species. Impacts from catastrophic events, environmental changes, and evolutionary processes (genetic drift, inbreeding, colonization) can be magnified when a taxonomic group or unit is confined to a specific area, and no one area or group of areas is likely to support the biological processes necessary to maintain biodiversity over a range of geographic scales (Shaughnessy and O'Neil 2001). As well, typological approaches to taxonomy or the use of indicators present the risk that evolutionary potential will be lost when depending on reserves for preservation (Rojas 2007). Urban habitat is a vital link in the process of wildlife conservation in the U.S.

III. Consistency with Land Use Code Requirements:

A. Zoning District Dimensional Requirements:

The R-3.5 zoning dimensional requirements found in LUC 20.20.010 are generally met by the proposed expansion, but conformance will be verified during building permit review. All setbacks, height, lot coverage by structure, and impervious surface may be required to be verified by survey through the building permit inspection process. **See Conditions of Approval in Section X of this report**.

R-3.5	Allowed	Proposed	Complies
Front Setback	20 feet	No Change	No Change
Rear Setback	25 feet	300+ feet	Can Comply
Side Setback	5 feet	7 feet	Can Comply
Combined Side	15 feet	67.5 feet	Can Comply
Lot Coverage*	40%*	22.6%*	Can Comply*
Impervious Surface	55%	11.5%	Can Comply
Greenscape	50%	No Change	No Change

*Lot coverage is calculated after subtracting all critical areas and stream critical area buffers, pursuant to LUC 20.20.010(13).

B. Consistency with Land Use Code Critical Areas Performance Standards:

The City of Bellevue Land Use Code Critical Area Overlay District (LUC 20.25H) establishes performance standards and procedures that apply to development on any site which contains in whole or in part any portion designated as critical area, critical area buffer, or structure setback from a critical area buffer. This site contains a steep slope with a 50-foot buffer. The project is subject to the following performance standards which are reviewed below.

C. Consistency with Performance Standards for Steep Slopes 20.25H.125

Development within a landslide hazard, 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.

1. **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 proposed repair and expansion of the single-family residential decks do not result in any alteration to the existing grade outside the footprint area and has been designed to impact areas of lawn that are flat in elevation and within the steep slope buffer. The deck expansions will be constructed with concrete pile caps or grade beams supported by pipe piles within the top-of-slope buffer to avoid any impact or alteration to the critical area steep slope. This standard is met.

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

   Structures and improvements have been located in already disturbed areas and over degraded portions of the steep slope critical area buffer to avoid impacts to the

critical area steep slope. The configuration of the new decks does not result in the removal of any significant trees. This standard is met.

3. **The proposed development shall not result in great risk or a need for increased buffers on neighboring properties;**
   The geotechnical review of the project found the proposed development "*will not result in greater risk of instability…due to the transfer of the deck loads from the existing footings currently located on the loose near-surface soils and into the very dense underlying sandstone that comprises the core of the steep slope with the new pipe pile foundation system."* (Attachment 4, pg. 6). The geotechnical review notes that this will increase the stability of the steep slope. **See Section IX for conditions of approval associated with geotechnical documentation, inspections, and hold harmless agreement required for construction permit approval.**

4. **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 walls;**
   The project proposal includes two (2) deck expansions with grade beams and pipe piles. No retaining wall nor foundation walls are proposed as part of this project. This standard is met.

5. **Development shall be designated to minimize impervious surfaces within the critical area and critical area buffer.**
   The proposed addition will result in an additional 846 square feet of deck footprint within lawned area of the steep slope buffer that is degraded and already impacted by development. This standard is met.

6. **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 proposed two (2) deck expansions will be located on a relatively flat area of the subject property. Any changes in grade outside of the deck footprint is not proposed nor is any yard area proposed within the steep slope. This standard is met.

7. **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 foundations.**
   No retaining walls nor foundation walls are proposed as part of this project. Grade beams and pipe piles are proposed for the two (2) deck expansions within the relatively flat top-of-slope buffer, which will provide greater safety and stability to the existing steep slope and steep slope buffer. Additionally, no rockeries or retaining structures are proposed. This standard is not applicable.

8. **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;**
   The deck expansions are located outside of the steep slope critical area and the addition has been designed with grade beams and pipe piles with geotechnical recommendations (attachment 4, pg. 7). This standard is not applicable.

9. **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**
   The project proposal is located outside of the steep slope critical area. This standard is not applicable.

10. **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 mitigation and restoration plan (attachment 2) containing 1,180 square feet of native planting and meeting the requirements of LUC 20.25H.210 has been submitted within this request. **See Section IX for condition of approval associated with temporary restoration and mitigation plans required for construction permit approval.**

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

The applicant supplied a complete critical areas report (attachment 4, in file) prepared by Geotech Consultants, Inc. The report met the minimum requirements in LUC 20.25H.250.

E. Consistency with Critical Areas Report LUC 20.25H.140 & 20.25H.145

Reduction of a steep slope and steep slope buffer requires a critical areas report as part of the application for a Critical Area Land Use Permit. The applicant has obtained the services of a qualified geotechnical engineering company to study the site and document the observed conditions. Staff has reviewed the following documents:

Geotechnical Report (May 8, 2023) prepared by Adam S. Moyer, Geotechnical Engineer. (attachment 4).

The geotechnical analysis documented existing site conditions and documents "*based on our explorations onsite and our other projects in this area of Bellevue, the very dense sandstone encountered underlying the subject site is not prone to instability…*" The geotechnical engineer also provided recommendations for pipe pile construction, erosion, and drainage, among other recommendations. **See Section IX for conditions of approval, and for information on requirements for geotechnical monitoring and hold harmless letter submittal.**

IV. Public Notice and Comment

Application Date:	May 11, 2023
Public Notice (500 feet):	June 8, 2023
Minimum Comment Period:	June 22, 2023

The Notice of Application for this project was published in the City of Bellevue weekly permit bulletin on June 8, 2023. It was mailed to property owners within 500 feet of the project site. No comments were received as of the writing of this staff report.

V. Summary of Technical Reviews

Clearing and Grading:
The Clearing and Grading Division of the Development Services Department has reviewed the proposed development for compliance with Clearing and Grading codes and standards and found no issues with the proposed development. A Building Permit with Clearing and Grading review is required, and the application must contain a letter from the project geotechnical engineer verifying the construction plans meet the recommendations contained within this report. The project will require geotechnical inspection and is subject to Clearing & Grading rainy season restrictions. **See Section IX for conditions of approval associated with Building Permit requirements, inspection requirements, and rainy season restrictions.**

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

VI. State Environmental Policy Act (SEPA)

The proposal is exempt from SEPA review, per WAC 197-11-800 and BCC 22.01.032. Construction of a single-family residence, even when located in a critical area, is a categorical exemption.

VII. 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 proposal includes the removal of invasive species and the planting of

1,180 square feet of native vegetation within the northern portion of the steep slope area that will result in an overall net gain in critical area and critical area buffer functions. This criterion is met.

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 proposed 1,180 square feet of native vegetation planting will provide a net gain in critical area and critical area functions with such activities resulting in "*positive effects on nearby off-site areas, specifically to the adjoining forested slope to the north, by improving habitat, water quality hydrology, and slope stability*" (attachment 3, pg. 23). This criterion is met.

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 applicant proposes to comply with all applicable City of Bellevue and Washington State Department of Ecology stormwater requirements. Additionally, the proposed mitigation within the steep slope area will result in a net gain in stormwater quality functions. This criterion is met.

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

Finding: This is a proposal to reduce a steep slope buffer from 25 feet to 15 feet for the repair and expansion of two (2) residential decks. The applicant is proposing mitigation proportional to the anticipated impact and has included a mitigation and restoration plan with the proposal. To ensure installation and appropriate maintenance of the proposed and required mitigation the applicant is required to submit a financial security device meeting the requirements of LUC 20.40.490. Mitigation measures must be installed before occupancy is granted and maintenance of required plantings is required for a period of five years. **See Section IX for condition of approval associated with assurance device requirements.**

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: As discussed in Section III of this report, the proposed two (2) deck repairs and expansions achieves the intended functions of the expansion and will result in an additional 846 square feet of deck area on the subject site. Additionally, the deck expansions have been designed to utilize approximately 402 square feet of the existing deck area. The requested reduction has been mitigated by removing invasive species

and installing 1,180 square feet of native trees, shrubs, and herbaceous species resulting in an overall net increase in ecological functions within the steep slope area and steep slope buffer. This criterion is met.

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

Finding: The proposal to repair and expand two (2) existing single-family residential existing decks maintains consistency with the surrounding residential land use district. This criterion is met.

B. Critical Areas Land Use Permit Decision Criteria 20.30P

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

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

Finding: The applicant must obtain required development permits. Construction permit, 23-114346 BR, has been submitted for this work. **See Section IX for condition of approval associated with required permitting.**

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 single-family residential repair and expansions of two (2) decks and native landscaping utilize the best available construction, design, and development techniques. As noted previously, mitigation and restoration landscaping is proposed to increase the level of function of the steep slope critical area and steep slope buffer. This criterion is met.

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

Finding: As discussed in Section III of this report, the applicable performance standards of LUC Section 20.25H are being met.

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

Finding: The proposed activity will not impact public facilities and adequate services are available to serve the proposed project. This criterion is met.

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

Finding: The proposal seeks reduction of the steep slope buffer to facilitate the two (2) residential deck expansions. Included with this proposal is a mitigation plan which provides approximately 1,180 square feet of native plantings within the critical area steep slope. The applicant is required to follow the recommendation included in the project geotechnical report, which shall be verified by an inspection made by a qualified engineer. **See Section IX for conditions of approval associated with temporary restoration and mitigation plan requirements.**

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

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

VIII. Conclusion and Decision

After conducting the various administrative reviews associated with this proposal, including Land Use Code consistency, City Code and Standard compliance reviews, the Director of the Development Services Department does hereby **approve with conditions** the proposal to modify the steep slope buffer at 4411 164th LN SE.

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, Building Permit, or other necessary development permits within one year of the effective date of the approval.

IX. 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	Savina Uzunow, 425-452-7860
Utilities Code - BCC 24	James Henderson, 425-452-7889
Land Use Code - BCC 20.25H	Jordan Borst, 425-452-6997

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

1. Building Permit: Approval of this Critical Areas Land Use Permit does not constitute an approval of a development permit. A Building Permit for the single-family residential addition and replacement deck is required. All dimensional standards will be

confirmed at the time of building permit review. Building Permit must include Clearing and Grading review.

Authority: Land Use Code 20.30P.140; Clearing and Grading Code 23.76.035
Reviewer: Jordan Borst, Land Use; Savina Uzunow, Clear & Grade

2. Approved Reduction: The critical area steep slope buffer reduction approved is for the repair and expansion of the residential decks only as depicted in the project site plan (Attachment 1) and does not authorize additional site changes outside of this project scope. The reduction does not allow future structures or improvements to be located in the steep slope critical area or the steep slope buffer without approval of a Critical Areas Land Use Permit and geotechnical evaluation.

Authority: Land Use Code 20.30P.140
Reviewer: Jordan Borst, Land Use

3. Geotechnical Review: The project geotechnical engineer must review the final plans, including all foundation, retaining wall, shoring, and vault designs. A letter from the geotechnical stating that the plans conform to the recommendations in the geotechnical report and any addendums and supplements must be submitted to the clearing and grading section prior to issuance of the construction permit.

Authority: Land Use Code 20.30P.140, Clearing & Grading Code 23.76.050
Reviewer: Jordan Borst, Land Use; Savina Uzunow, Clearing & Grading

4. Mitigation and Restoration Planting: Plans submitted for the building permit must provide 1,180 square feet of restoration planting that adheres to the minimum standards found in the City of Bellevue's Critical Areas Handbook.

Authority: Land Use Code, 20.30P.140
Reviewer: Jordan Borst, Land Use

5. Rainy Season restrictions: No clearing and grading activity may occur during the rainy season, which is defined as October 1 through April 30 without written authorization of the Development Services Department. Should approval be granted for work during the rainy season, increased erosion and sedimentation measures, representing the best available technology must be implemented prior to beginning or resuming site work.

Authority: Bellevue City Code 23.76.093.A,
Reviewer: Savina Uzunow, Clearing & Grading

6. Maintenance and Monitoring: The planting area shall be maintained and monitored for 5 years as required by LUC 20.25H.220. An annual monitoring report is to be submitted to Development Services, Land Use Division in each of the five consecutive years following installation. The monitoring report shall include detailed

information regarding the goals and standards outlined in the approved management plan. Photos from selected photo points shall be included in the monitoring reports to document the planting and ongoing success. As stated in the submitted maintenance and monitoring plan.

Annual monitoring reports are to be submitted to Land Use each of the five years. The reports, along with a copy of the planting plan, can be sent to Jordan Borst at jborst@bellevuewa.gov or to the address below:

Environmental Planning Manager
Development Services Department
City of Bellevue
PO Box 90012
Bellevue, WA 98009-9012

Authority: Land Use Code 20.30P.140; 20.25H.220
Reviewer: Jordan Borst, Land Use

7. Planting Cost Estimate: A cost estimate for the proposed mitigation and restoration plant installation must be submitted prior to Building Permit issuance.

Authority: Land Use Code 20.30P.160
Reviewer: Jordan Borst, Land Use

8. Maintenance and Monitoring Assurance Device: A maintenance assurance device in an amount equal to 100% of the cost of plants and for five years of maintenance labor and materials is required to ensure the plants are maintained and monitored. Release of this assurance device is contingent upon receipt of documentation reporting successful establishment in compliance with the approved management plan. Land Use inspection of the planting after 5-years is required to release the surety. The maintenance surety is required to be submitted prior to building permit issuance.

Authority: Land Use Code 20.25H.220
Reviewer: Jordan Borst, Development Services Department

9. Land Use Inspection: Following installation of the mitigation planting the applicant shall call the inspection line and request a Land Use inspection of the planting area prior to final building inspection. Staff will need to find that the plants are in a healthy and growing condition. Land Use inspection is also required to release the maintenance surety at the end of the 5-year monitoring period. Release of the maintenance surety is

contingent upon successful monitoring and maintenance and submittal of the annual monitoring reports.

Authority: Land Use Code 20.30P.140
Reviewer: Jordan Borst, Development Services Department

10. Hold Harmless Agreement: The applicant shall submit a hold harmless agreement in a form approved by the City Attorney which releases the City from liability for any damage arising from the location of improvements within a critical area, critical area buffer, and critical area structure setback in accordance with LUC 20.30P.170. The hold harmless agreement is required to be recorded with King County prior to clearing and grading permit issuance. Staff will provide the applicant with the hold harmless form.

Authority: Land Use Code 20.30P.170
Reviewer: Jordan Borst, Land Use

11. Geotechnical Monitoring: The project geotechnical engineer of record or his representative must be on site during critical earthwork operations. The geotechnical engineer shall observe all excavations and fill areas. In addition, the engineer shall monitor the soil cuts prior to construction of rockeries and verify compaction in fill areas. The engineer must submit field report in writing to the DSD inspector for soils verification and foundation construction. All earthwork must be in general conformance with the recommendations in the geotechnical report.

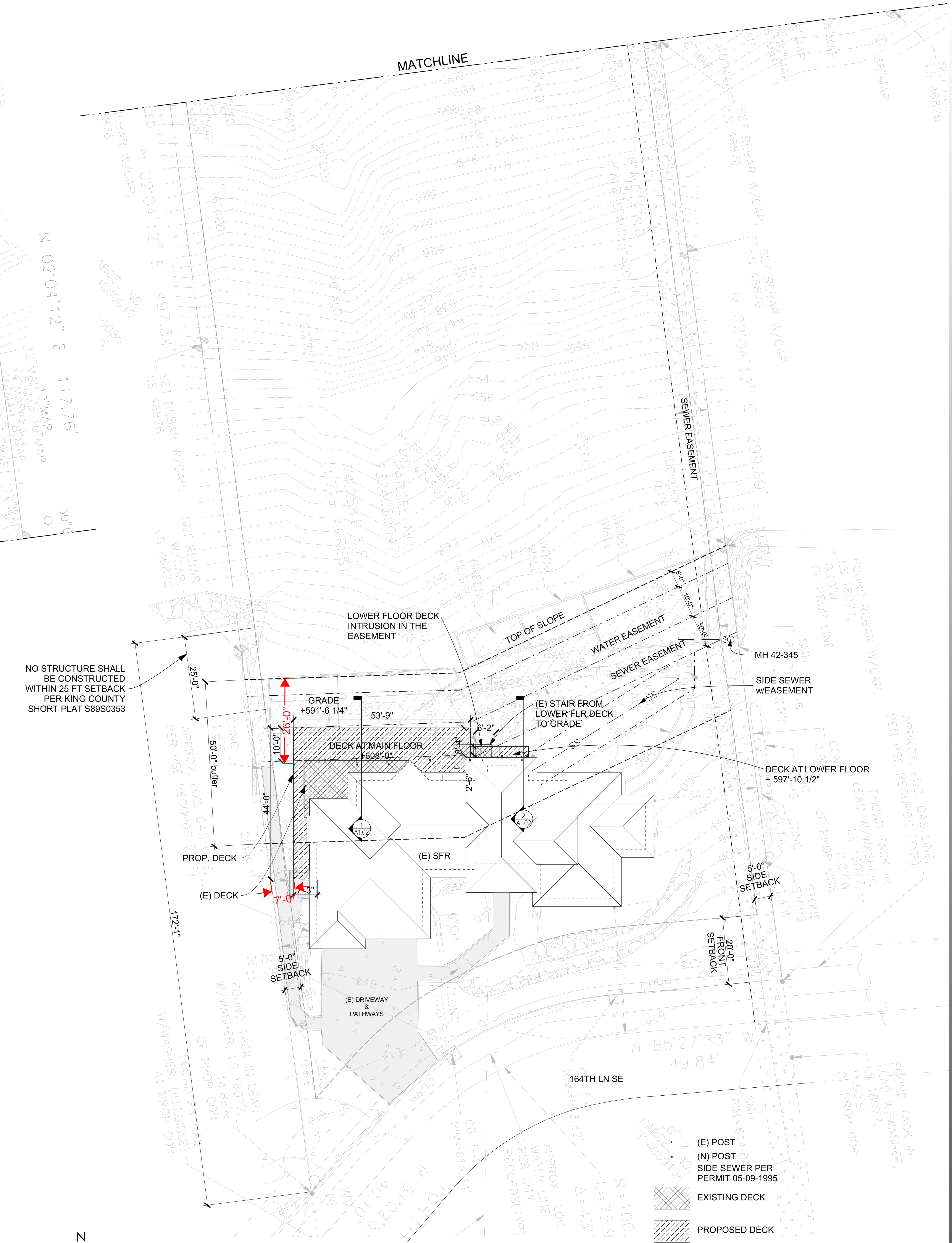
Authority: Clearing & Grading Code 23.76.160
Reviewer: Savina Uzunow, Clearing & Grading

Vicinity Map

0 155 309

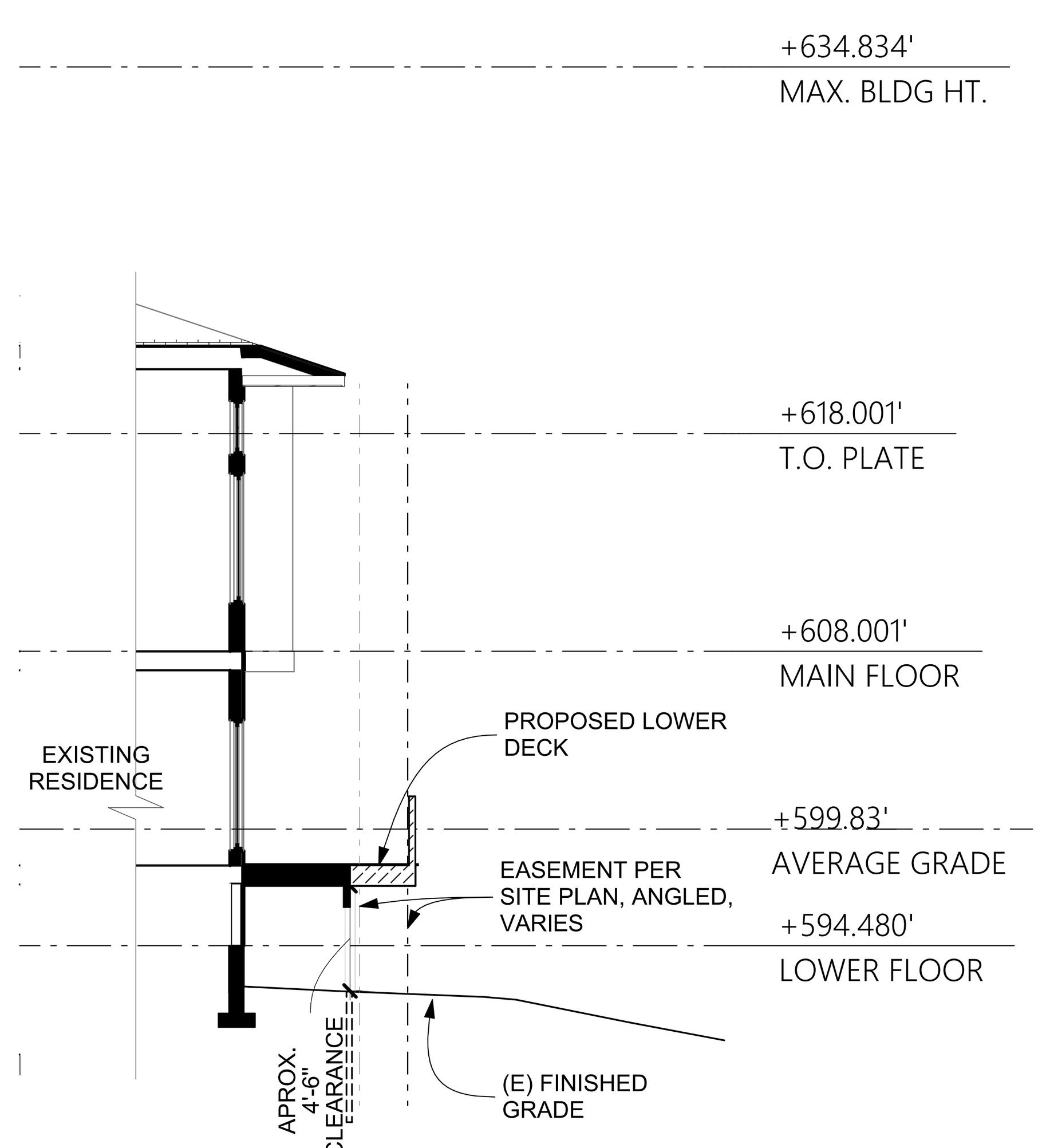
Scale 1:1,855 Feet

Map Generated on: 07/20/2023



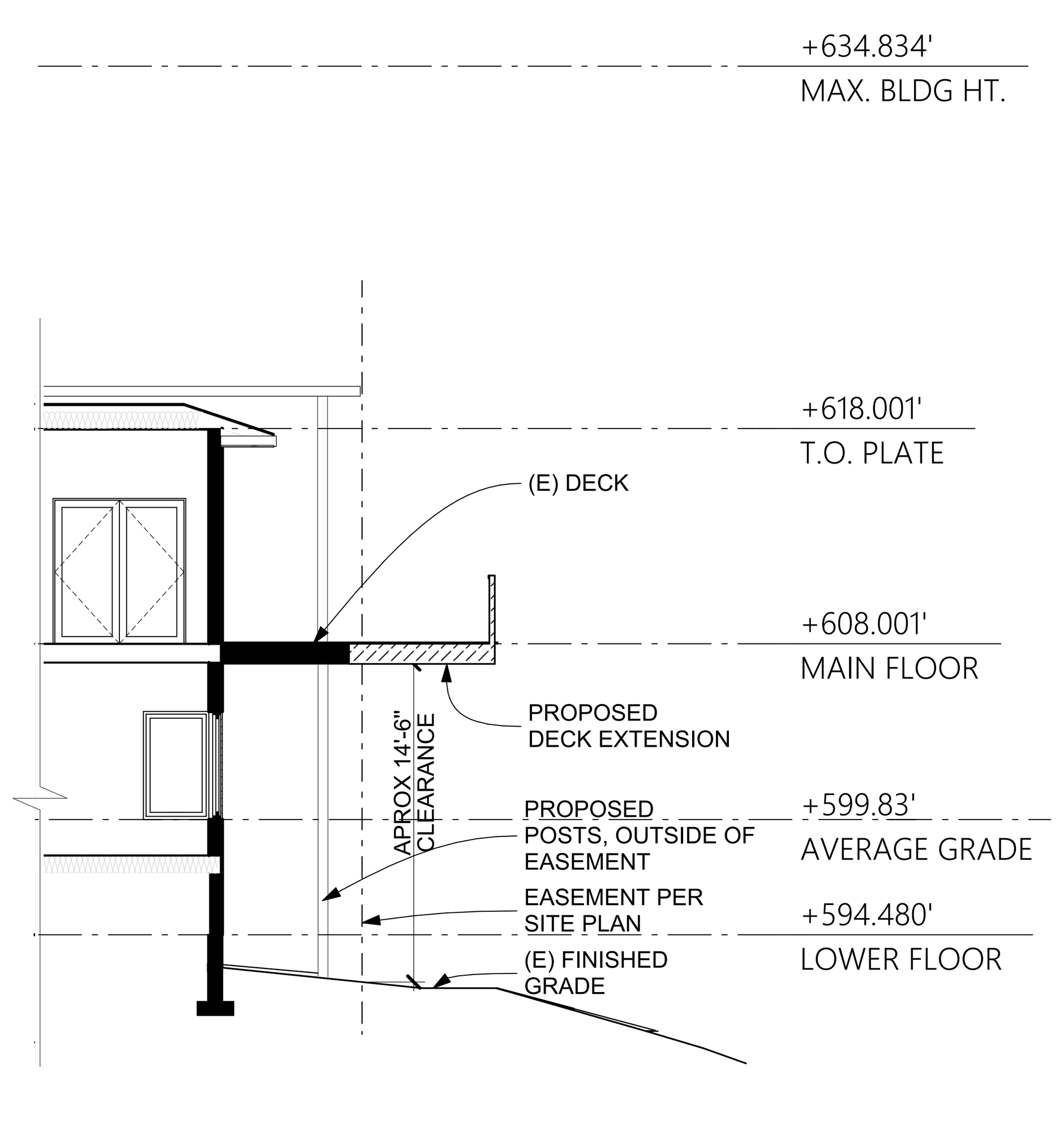
ARCHITECTURAL SITE PLAN

SCALE: 1" = 20'



2 SITE SECTION

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



1 SITE SECTION

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

GELOTTE HOMMAS DRIVDAHL
ARCHITECTURE
THEARTOFARCHITECTURE.COM
2340 130th Ave. NE, Suite 100, Bellevue, WA 98005
425.828.3081

BATES DECK REMODEL

4411 164TH LN SE
BELLEVUE, WA 98006

Job No.	#2205
Project Manager:	DS
Issue Date:	5/11/2023

NO.	DATE	REVISION
	05/10/2023	CALUP PERMIT SUBMITTAL

ARCHITECTURAL SITE PLAN

A1.02

FILE: 2205 Bates Remodel PRINTED: Thursday, May 11, 2023

EXISTING STRUCTURAL COVERAGE

(E) DECK	409
(E) HOUSE & GARAGE	3,273
(E) PATIO	72
	3,754 ft²

NEW STRUCTURAL COVERAGE

(N) DECK	846
	846 ft²

IMPERVIOUS SURFACE EXISTING

(E) HOUSE	4,545
(E) PATHWAY	220
(E) PAVING & DRIVEWAY	1,844
(E) PLAY AREA	1,242
	7,851 ft²

SITE IMPERVIOUS SURFACE PROPOSED

(N) DECK	63
(N) DECK	703
	766 ft²

LOT COVERAGE CALCULATIONS

TOTAL LOT AREA: 74,288 SF
CRITICAL AREA : 53,965 SF

LOT AREA FOR COVERAGE CALCULATIONS (TOTAL -CRITICAL ARAES): 20,323 SF

ALLOWED LOT COVERAGE BY STRUCTURES PERVENTAGE 35%

20,323 SF x 0.35= 7,113 SF SF ALLOWED

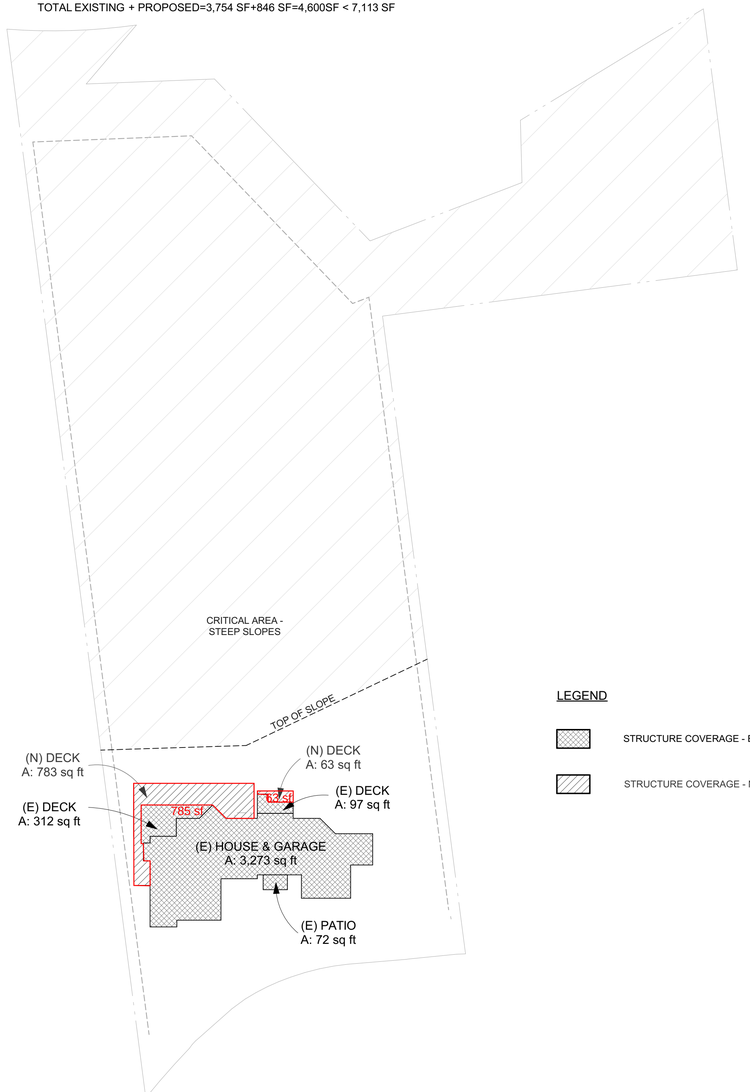
TOTAL EXISTING + PROPOSED=3,754 SF+846 SF=4,600SF < 7,113 SF

IMPERVIOUS SURFACE COVERAGE CALCULATIONS

TOTAL LOT AREA: 74,288 SF
ALLOWED IMPERVIOUS COVERAGE 45%

74,288 SF x 0.45= 33,430 SF ALLOWED

TOTAL EXISTING + PROPOSED=7,851 SF+766 SF=8,581SF<33,430 SF



LEGEND

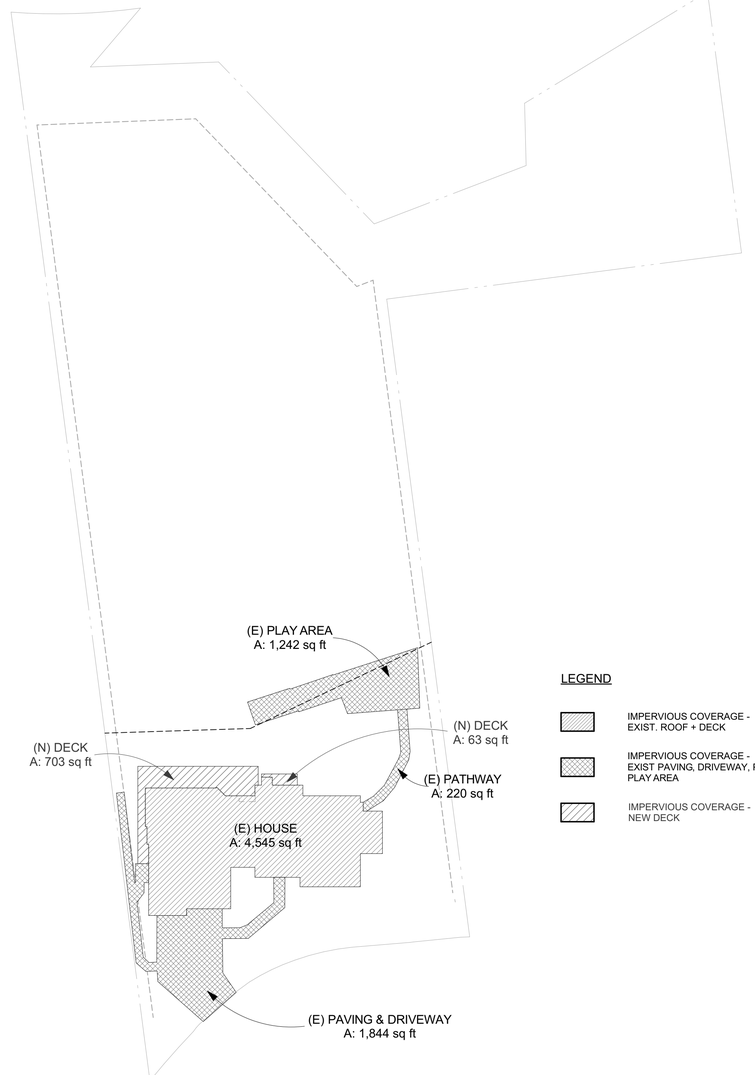
STRUCTURE COVERAGE - EXISTING

STRUCTURE COVERAGE - NEW

N

LOT COVERAGE DIAGRAM

SCALE: 1/32" = 1'-0"



LEGEND

IMPERVIOUS COVERAGE - EXIST. ROOF + DECK

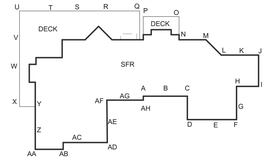
IMPERVIOUS COVERAGE - EXIST PAVING, DRIVEWAY, PATHWAY, & PLAY AREA

IMPERVIOUS COVERAGE - NEW DECK

N

IMPERVIOUS COVERAGE DIAGRAM

SCALE: 1/32" = 1'-0"



	FT
A	608
B	608
C	608
D	608
E	604
F	604
G	604
H	604
I	596
J	594
K	594
L	594
M	593
N	593
O	590
P	590
Q	591.5
R	591.5
S	591.5
T	591.5
U	591.5
V	591.5
W	593
X	593
Y	596
Z	602.5
AA	608
AB	609
AC	609
AD	609
AE	609
AF	609
AG	608
AH	608

Avg Grade 20394 / 34 = **599.8'**

Max Bldg Ht **634.8'**

GELOTTE HOMMAS DRIVDAHL
ARCHITECTURE
THEARTOFARCHITECTURE.COM
2340 130th Ave. NE, Suite 100, Bellevue, WA 98005
425.828.3081

BATES DECK REMODEL

4411 164TH LN SE
BELLEVUE, WA 98006

Job No. #2205
Project Manager: DS
Issue Date: 5/11/2023

NO.	DATE	REVISION
	05/10/2023	CALUP PERMIT SUBMITTAL

IMPERVIOUS CALCULATION

A1.03

FILE: 2205 Bates Remodel PRINTED: Thursday, May 11, 2023

1 NORTH ELEVATION DEMO

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

0 2' 4' 8'

LEGEND

- EXISTING WALL REMAINS
- EXISTING TO DEMO
- EXISTING TO DEMO
- ELEMENT ABOVE

FILE: 2205 Bates Remodel PRINTED: Thursday, May 11, 2023

GELOTTE HOMMAS DRIVDAHL
ARCHITECTURE
THEARTOFARCHITECTURE.COM
2340 130th Ave. NE, Suite 100, Bellevue, WA 98005
425.828.3081

BATES DECK REMODEL

4411 164TH LN SE
BELLEVUE, WA 98006

Job No. #2205
Project Manager: DS
Issue Date: 5/11/2023

NO.	DATE	REVISION
	05/10/2023	CALUP PERMIT SUBMITTAL

EXTERIOR ELEVATIONS
DEMO

A3.01D

1 NORTH ELEVATION

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

0 2" 4" 8"

PROPOSED DECK & PATIO ROOF

FILE: 2205 Bates Remodel PRINTED: Thursday, May 11, 2023

GELOTTE HOMMAS DRIVDAHL
ARCHITECTURE
THEARTOFARCHITECTURE.COM
2340 130th Ave. NE, Suite 100, Bellevue, WA 98005
425.828.3081

BATES DECK REMODEL

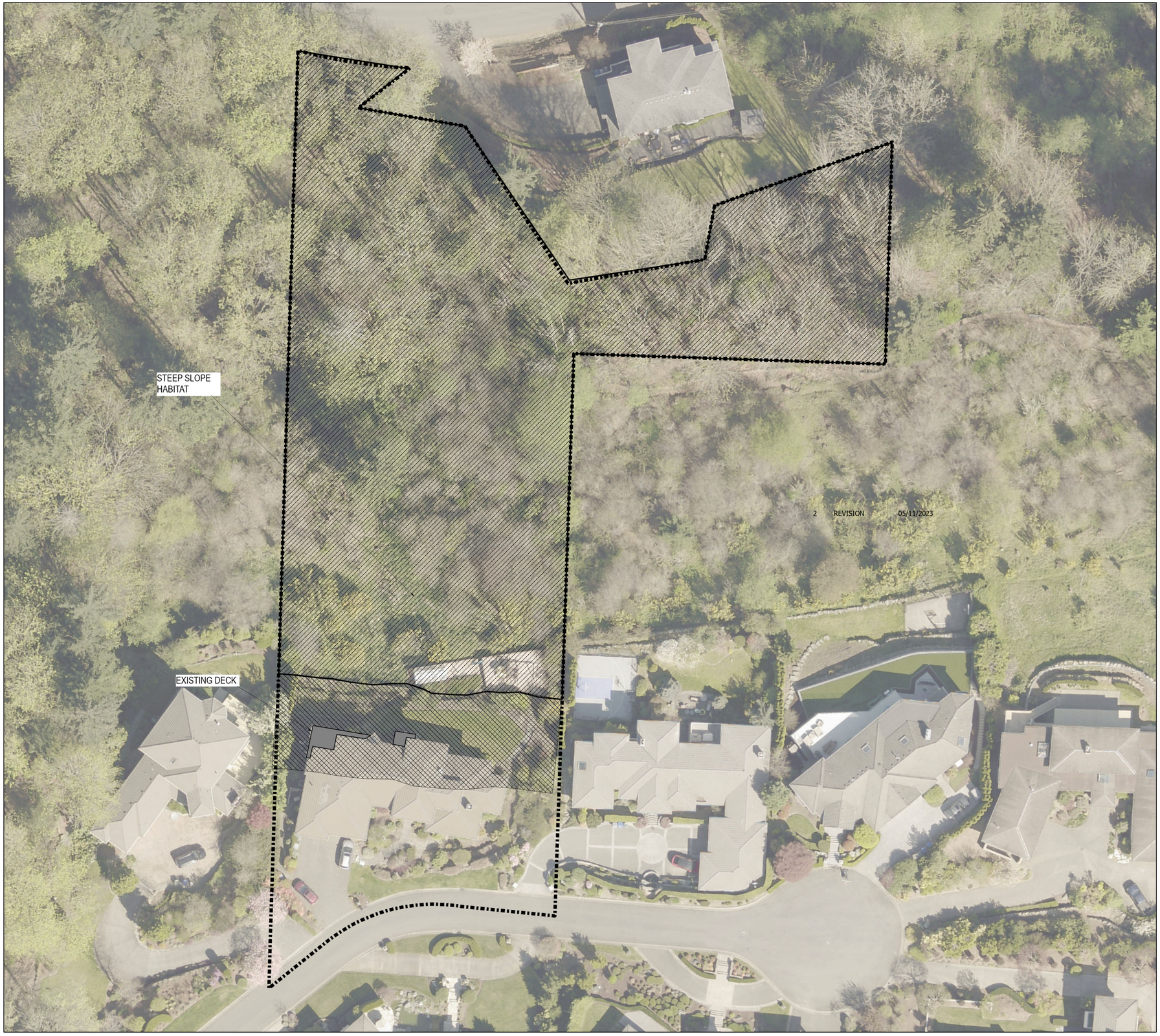
4411 164TH LN SE
BELLEVUE, WA 98006

Job No. #2205
Project Manager: DS
Issue Date: 5/11/2023

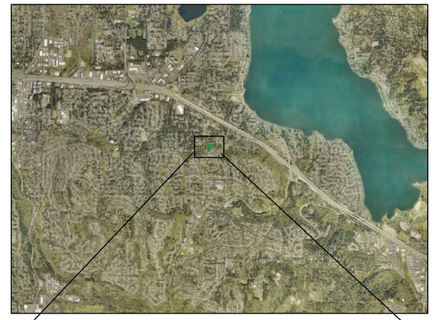
NO.	DATE	REVISION
	05/10/2023	CALUP PERMIT SUBMITTAL

EXTERIOR ELEVATION

A3.01



2 REVISION 05/11/2023



VICINITY MAPS

LEGEND

- Project Site
- Steep Slope
- Existing Deck
- Steep Slope Buffer (50 ft.)

NOTES

1. CRITICAL AREAS DELINEATED BY THE WATERSHED COMPANY ON MARCH 30, 2023
2. SURVEY DATED MARCH 1, 2021 BY BBA LAND SURVEY

0 25 50 Feet

N

DCG WATERSHED

SCIENCE & DESIGN

750 6TH STREET SOUTH
KIRKLAND WA 98033

425.822.5242
WWW.WATERSHEDCO.COM

PROJECT:

BATES MITIGATION PLAN

4411 164TH LN SE
BELLEVUE, WA 98006

PRINCIPLE: HM
PM: KB
DRAWN BY: BH

REVIEWED BY: NB
JOB NO.: 230308
DATE: 04/26/2023

REVISIONS

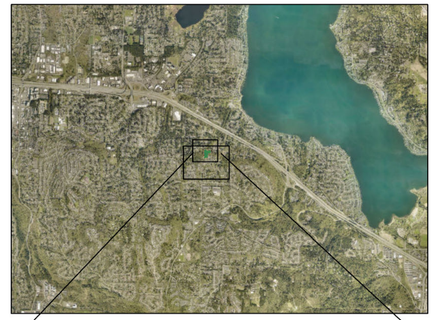
NO.	DESCRIPTION	DATE
1	DRAFT	04/26/2023
2	REVISION	05/11/2023

NOT FOR CONSTRUCTION

PERMIT LEVEL DESIGN

04/26/2023

EXISTING CONDITIONS



VICINITY MAPS

LEGEND

- Existing Deck
- Steep Slope Buffer (50 ft.)
- Project Site
- Steep Slope
- Proposed Deck Expansion (1,260 SF total; 1,180 SF within buffer)

0 25 50 Feet

N

DCG WATERSHED

SCIENCE & DESIGN

750 6TH STREET SOUTH
KIRKLAND WA 98033

425.822.5242
WWW.WATERSHEDCO.COM

BATES MITIGATION PLAN

PROJECT:
4411 164TH LN SE
BELLEVUE, WA 98006

PRINCIPLE: HM
PM: KB
DRAWN BY: BH

REVIEWED BY: NB
JOB NO.: 230308
DATE: 04/26/2023

REVISIONS

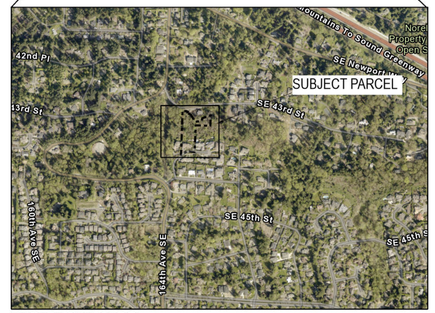
NO.	DESCRIPTION	DATE
1	DRAFT	04/26/2023
2	REVISION	05/11/2023

NOT FOR CONSTRUCTION

PERMIT LEVEL DESIGN

04/26/2023

IMPACTS ASSESSMENT



VICINITY MAPS

LEGEND

- Project Site
- Existing Deck
- Proposed Deck Expansion (1,260 SF total; 1,180 SF within buffer)
- Mitigation Area (1,180 SF)

NOTES

1. SEE PLANT SCHEDULE ON SHEET 4.
2. SEE MITIGATION NOTES ON SHEET 4 FOR SITE PREPARATION REQUIREMENTS

0 30 60 Feet

N

DCG WATERSHED
SCIENCE & DESIGN
760 8TH STREET SOUTH
KIRKLAND WA 98033
425.822.5242
WWW.WATERSHEDDCG.COM

PROJECT:
BATES MITIGATION PLAN
4411 164TH LN SE
BELLEVUE, WA 98006

PRINCIPLE: HM
PM: KB
DRAWN BY: BH

REVIEWED BY: NB
JOB NO.: 230308
DATE: 04/26/2023

REVISIONS

NO.	DESCRIPTION	DATE
1		
2	REVISION	05/11/2023

NOT FOR CONSTRUCTION

PERMIT LEVEL DESIGN

04/26/2023

MITIGATION PLAN

MITIGATION NOTES

OVERVIEW

THIS PLAN HAS BEEN PREPARED AS MITIGATION FOR IMPACTS TO THE STEEP SLOPE HABITAT BUFFER. THE IMPACTS TO THE BUFFER ARE TO ACCOMMODATE THE DECK EXPANSION ADJACENT TO THE RESIDENCE. THE IMPACTED BUFFER AREA IS AN EXISTING GRASS LAWN WITH LOW HABITAT VALUE. THIS PROPOSAL WILL PERMANENTLY IMPACT A TOTAL OF 1,180 SQUARE FEET OF CRITICAL AREA BUFFER. TO OFFSET THESE CRITICAL AREA BUFFER IMPACTS, A TOTAL OF 1,180 SQUARE FEET OF ENHANCEMENT IS PROPOSED. THIS RESULTS IN A NET ENHANCEMENT TO IMPACT RATIO OF 1:1 MEETING THE REQUIRED 1:1 RATIO. ENHANCEMENT OF THE BUFFER WILL INCLUDE REMOVAL OF NON-NATIVE, AND INVASIVE SPECIES AND THE INSTALLATION OF A NATIVE SHRUB AND GROUNDCOVER PLANT COMMUNITY.

MAINTENANCE AND MONITORING PLAN

THE SITE SHALL BE MAINTAINED AND MONITORED FOR FIVE YEARS FOLLOWING SUCCESSFUL INSTALLATION.

GOALS

1) ENHANCE 1.180 SQUARE FEET OF STEEP SLOPE HABITAT BUFFER.
   A) ESTABLISH DENSE NATIVE VEGETATION THAT IS APPROPRIATE TO THE STEEP SLOPE BUFFER.
   B) LIMIT INVASIVE AND/OR NOXIOUS WEED COVER ON-SITE.

PERFORMANCE STANDARDS
THE STANDARDS LISTED BELOW WILL BE USED TO JUDGE THE SUCCESS OF THE INSTALLATION OVER TIME. IF PERFORMANCE STANDARDS ARE MET AT THE END OF YEAR 5, THE SITE WILL THEN BE DEEMED SUCCESSFUL.

1) SURVIVAL: ACHIEVE 85% SURVIVAL OF INSTALLED PLANTS BY THE END OF YEAR 1. THIS STANDARD CAN BE MET THROUGH PLANT ESTABLISHMENT OR THROUGH REPLANTING AS NECESSARY TO ACHIEVE THE REQUIRED NUMBERS.

2) NATIVE PLANT COVER:
ACHIEVE 40% COVER OF NATIVE VEGETATION BY YEAR 2.
ACHIEVE 60% COVER OF NATIVE VEGETATION BY YEAR 3.
ACHIEVE 80% COVER OF NATIVE VEGETATION BY YEAR 5.

RETAINED VEGETATION AND NATIVE VOLUNTEER SPECIES MAY COUNT TOWARDS THESE COVER STANDARDS.

3) SPECIES DIVERSITY: ESTABLISH AT LEAST THREE NATIVE SHRUB SPECIES AND TWO GROUNDCOVER SPECIES BY YEAR 3 AND MAINTAIN THIS DIVERSITY THROUGH YEAR 5. NATIVE VOLUNTEER SPECIES MAY COUNT TOWARDS THIS STANDARD.

4) INVASIVE COVER: AERIAL COVER FOR ALL NOXIOUS WEEDS WILL NOT EXCEED 10% AT ANY YEAR DURING THE MONITORING PERIOD. NOXIOUS WEEDS INCLUDE BOTH REGULATED (E.G. JAPANESE AND BOHEMIAN KNOTWEED) AND NON-REGULATED SPECIES (E.G. HIMALAYAN BLACKBERRY, ENGLISH IVY, ENGLISH HOLLY) DESIGNATED BY THE KING COUNTY NOXIOUS WEED CONTROL BOARD.

MONITORING METHODS

THIS MONITORING PROGRAM IS DESIGNED TO TRACK THE SUCCESS OF THE MITIGATION SITE OVER TIME AND TO MEASURE THE DEGREE TO WHICH IT IS MEETING THE PERFORMANCE STANDARDS OUTLINED IN THE PRECEDING SECTION.

AN AS-BUILT PLAN WILL BE PREPARED BY A RESTORATION PROFESSIONAL PRIOR TO THE BEGINNING OF THE MONITORING PERIOD. THE AS-BUILT PLAN WILL BE A MARK UP OF THE PLANTING PLANS INCLUDED IN THIS PLAN SET. THE AS-BUILT PLAN WILL DOCUMENT ANY DEPARTURES IN PLANT PLACEMENT OR OTHER COMPONENTS FROM THE PROPOSED PLAN.

MONITORING WILL TAKE PLACE ONCE ANNUALLY IN THE FALL FOR FIVE YEARS. YEAR-1 MONITORING WILL COMMENCE IN THE FIRST FALL SUBSEQUENT TO INSTALLATION.

THE FORMAL MONITORING VISIT SHALL RECORD AND REPORT THE FOLLOWING IN AN ANNUAL REPORT SUBMITTED TO THE CITY OF BELLEVUE:

1) VISUAL ASSESSMENT OF THE OVERALL SITE.
2) YEAR-1 COUNTS OF LIVE AND DEAD PLANTS BY SPECIES.
3) COUNTS OF DEAD PLANTS WHERE MORTALITY IS SIGNIFICANT IN ANY MONITORING YEAR.
4) VISUAL ESTIMATE OF NON-NATIVE, INVASIVE WEED COVER IN THE RESTORATION AREA.
5) ESTIMATE OF NATIVE COVER IN THE MITIGATION AREA.
6) TABULATION OF ESTABLISHED NATIVE SPECIES TYPES, INCLUDING BOTH PLANTED AND VOLUNTEER SPECIES.
7) PHOTOGRAPHIC DOCUMENTATION FROM AT LEAST TWO FIXED REFERENCE POINTS.
8) ANY INTRUSIONS INTO OR CLEARING OF THE PLANTING AREAS, VANDALISM, OR OTHER ACTIONS THAT IMPAIR THE INTENDED FUNCTIONS OF THE MITIGATION AREA.
9) RECOMMENDATIONS FOR MAINTENANCE OR REPAIR OF ANY PORTION OF THE MITIGATION AREA.

MAINTENANCE

THE SITE WILL BE MAINTAINED IN ACCORDANCE WITH THE FOLLOWING INSTRUCTIONS FOR AT LEAST FIVE YEARS FOLLOWING COMPLETION OF CONSTRUCTION:

1) FOLLOW THE RECOMMENDATIONS NOTED IN THE PREVIOUS MONITORING SITE VISIT.
2) GENERAL WEEDING FOR ALL PLANTED AREAS:
   A) AT LEAST TWICE YEARLY DURING THE SPRING AND SUMMER, REMOVE ALL COMPETING WEEDS AND WEED ROOTS FROM BENEATH EACH INSTALLED PLANT, INCLUDING ANY DESIRABLE VOLUNTEER VEGETATION, TO A DISTANCE OF 18 INCHES FROM THE MAIN PLANT STEM. FREQUENT WEEDING WILL RESULT IN LOWER MORTALITY, LOWER PLANT REPLACEMENT COSTS, AND INCREASED LIKELIHOOD THAT THE PLAN MEETS PERFORMANCE STANDARDS BY YEAR 5.
   B) MORE FREQUENT WEEDING MAY BE NECESSARY DEPENDING ON WEED CONDITIONS THAT DEVELOP AFTER PLAN INSTALLATION. IF MORE FREQUENT WEEDING IS NECESSARY, IT WILL BE DESCRIBED IN THE ANNUAL MONITORING REPORT.
   C) DO NOT WEED THE AREA NEAR THE PLANT BASES WITH A STRING TRIMMER (WEED WHACKER/WEED EATER). NATIVE PLANTS ARE EASILY DAMAGED OR KILLED, AND WEEDS EASILY RECOVER AFTER TRIMMING.
   D) SELECTIVE APPLICATION OF HERBICIDE MAY BE NEEDED TO CONTROL INVASIVE WEEDS, ESPECIALLY WHEN INTERMIXED WITH NATIVE SPECIES. HERBICIDE APPLICATION, WHEN NECESSARY, SHALL BE CONDUCTED ONLY BY A STATE-LICENSED APPLICATOR QUALIFIED TO USE HERBICIDE NEAR AQUATIC ENVIRONMENTS.
3) APPLY SLOW-RELEASE, GRANULAR FERTILIZER TO EACH INSTALLED PLANT ANNUALLY IN THE SPRING (BY JUNE 1) OF YEARS 2 THROUGH 5.
4) REPLACE MULCH AS NECESSARY TO MAINTAIN A 4-INCH-THICK LAYER, RETAIN SOIL MOISTURE, AND LIMIT WEEDS.
5) REPLACE DEAD PLANTS OR SPARSELY VEGETATED AREAS AS DIRECTED IN THE ANNUAL MONITORING REPORT DURING THE UPCOMING DORMANT SEASON (OCTOBER 15 TO MARCH 1), FOR BEST SURVIVAL.
6) THE PROPERTY OWNER WILL ENSURE THAT WATER IS PROVIDED FOR THE ENTIRE PLANTED AREA WITH A MINIMUM OF 1 INCH OF WATER PER WEEK FROM JUNE 1 THROUGH SEPTEMBER 30 FOR THE FIRST TWO YEARS FOLLOWING INSTALLATION, THROUGH THE OPERATION OF A TEMPORARY IRRIGATION SYSTEM. LESS WATER IS NEEDED DURING MARCH, APRIL, MAY, AND OCTOBER.

CONSTRUCTION NOTES AND SPECIFICATIONS

THE RESTORATION PROFESSIONAL WILL MONITOR:

1) ALL SITE PREPARATION.
   A) WEED REMOVAL.
2) PLANT MATERIAL INSPECTION.
   A) PLANT MATERIAL DELIVERY INSPECTION.
   B) 100% PLANT INSTALLATION INSPECTION.

GENERAL WORK SEQUENCE

SITE PREPARATION:

1) IN STEEP SLOPE AREAS ENSURE SHORT TERM EROSION CONTROL MEASURES ARE IN PLACE DURING SITE PREPARATION AND PLANTING. USE CITY BMPS FOR TEMPORARY EROSION AND SEDIMENT CONTROL.

2) WORK DONE IN ROOT ZONES OF EXISTING VEGETATION SHALL BE BY HAND AND SHALL BE DONE CAREFULLY TO AVOID DAMAGE TO EXISTING ROOTS.

3) REMOVE ALL NOXIOUS WEEDS (REGULATED AND UNREGULATED) PER KING COUNTY NOXIOUS WEED BMPS. FOR MORE INFORMATION SEE: (WEBSITE)

4) PLACE BLANKET LAYER OF WOOD CHIP MULCH, 4" THICK, OVER ALL RESTORATION AREAS AFTER NOXIOUS WEEDS ARE REMOVED.

MITIGATION PLANTING AND IRRIGATION:
1) INSTALL MITIGATION PLANTS DURING THE DORMANT SEASON FOR BEST SURVIVAL (OCTOBER 15 – MARCH 1).
   A) PULL BLANKET-MULCH BACK AND PREPARE A PLANTING PIT FOR EACH PLANT AND INSTALL PER THE PLANTING DETAILS.
   B) REPLACE MULCH AROUND PLANTING PIT AFTER INSTALLATION; DO NOT APPLY MULCH TO INSTALLED PLANT TRUNK/STEMS.
2) INSTALL A TEMPORARY, ABOVE GROUND IRRIGATION SYSTEM TO PROVIDE FULL COVERAGE TO ALL INSTALLED PLANTS WITHIN THE RESTORATION AREA.

MATERIAL SPECIFICATIONS AND DEFINITIONS

1) FERTILIZER: SLOW RELEASE, GRANULAR PHOSPHOROUS-FREE FERTILIZER. FOLLOW MANUFACTURER'S INSTRUCTIONS FOR APPLICATION. KEEP FERTILIZER IN A WEATHER-TIGHT CONTAINER WHILE ON SITE. NOTE THAT FERTILIZER IS TO BE APPLIED ONLY IN YEARS 2 THROUGH 5 AND NOT IN THE FIRST YEAR.
2) IRRIGATION SYSTEM: AUTOMATED SYSTEM CAPABLE OF DELIVERING AT LEAST ONE INCH OF WATER PER WEEK FROM JUNE 1 THROUGH SEPTEMBER 30 FOR THE FIRST TWO YEARS FOLLOWING INSTALLATION.
3) RESTORATION PROFESSIONAL: WATERSHED COMPANY [(425) 822-5242] PERSONNEL, OR OTHER PERSONS QUALIFIED TO EVALUATE ENVIRONMENTAL RESTORATION PROJECTS.
4) WOODCHIP MULCH: "BARK OR WOOD CHIP MULCH" PER WSDOT STANDARD SPECIFICATION 9-14.5(3). QUANTITY REQUIRED: 30 CUBIC YARDS
5) COMPOST: COMPOST SHALL MEET WSDOT STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION, 9-14.4(8) FOR FINE COMPOST AND SHALL COMPLY WITH WAC 173-350. QUANTITY REQUIRED: 24 CUBIC YARDS

CONTINGENCY PLAN
IF THERE IS A SIGNIFICANT PROBLEM WITH THE RESTORATION AREAS MEETING PERFORMANCE STANDARDS, A CONTINGENCY PLAN WILL BE DEVELOPED AND IMPLEMENTED. CONTINGENCY PLANS CAN INCLUDE BUT ARE NOT LIMITED TO: SOIL AMENDMENT; ADDITIONAL PLANT INSTALLATION; AND PLANT SUBSTITUTIONS OF TYPE, SIZE, QUANTITY, AND LOCATION.

PLANT SCHEDULE

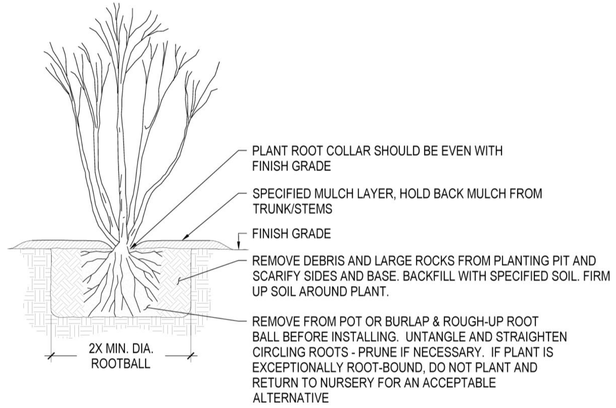
	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	QUANTITY
SHRUBS	THIMBLEBERRY	RUBUS PARVIFLORUS	1 GAL	6' O.C.	5
	HOLODISCUS DISCOLOR	OCEANSPRAY	1 GAL	6' O.C.	5
	RIBES SANGUINEAM	RED FLOWERING CURRANT	1 GAL	6' O.C.	5
	SYMPHOROCARPUS ALBUS	SNOWBERRY	1 GAL	6' O.C.	5
GROUNDCOVER	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	QUANTITY
	POLYSTICHUM MUNITUM	SWORD FERN	1 GAL	2' O.C.	137
	GAULTHERIA SHALLON	SALAL	1 GAL	6' O.C.	137

IMPACT TABLE

IMPACT	TYPE	AREA
IMPACT PERMANENT	DECK EXPANSION	1,180 SF

MITIGATION	TYPE	AREA
PLANTING AREA 1	STEEP SLOPE HABITAT ENHANCEMENT	1,180 SF

PLANTING DETAIL



DCG WATERSHED
SCIENCE & DESIGN
750 6TH STREET SOUTH
KIRKLAND WA 98033
425.822.5242
WWW.WATERSHEDCO.COM

BATES MITIGATION PLAN

4411 164TH LN SE
BELLEVUE, WA 98006

PROJECT:

PRINCIPLE: HM
PM: KB
DRAWN BY: BH
REVIEWED BY: NB
JOB NO.: 230308
DATE: 04/26/2023

REVISIONS

NO.	DESCRIPTION	DATE
1	REVISION	05/11/2023

NOT FOR CONSTRUCTION

PERMIT LEVEL DESIGN

04/26/2023

MITIGATION NOTES

Critical Areas Report

BATES RESIDENCE

BELLEVUE, WA

DCG WATERSHED

May 2023

Prepared for:

City of Bellevue
PO Box 90012
Bellevue, WA 98009-9012

Prepared on behalf of:

Justin & Lyndsi Bates
4411 164th Lane SE
Bellevue, WA 98006

Seattle
9706 4th Ave NE, Ste 300
Seattle, WA 98115
Tel 206.523.0024

Kirkland
750 6th Street
Kirkland, WA 98033
Tel 425.822.5242

Mount Vernon
2210 Riverside Dr, Ste 110
Mount Vernon, WA 98273
Tel 360.899.1110

Whidbey
1796 E Main St, Ste 105
Freeland, WA 98249
Tel 360.331.4131

Federal Way
31620 23rd Ave S, Ste 307
Federal Way, WA 98003
Tel 253.237.7770

Spokane
601 Main Ave, Ste 617
Spokane, WA 99201
Tel 509.606.3600

Title-page image: Backyard of subject property, showing top of slope and steep slope habitat buffer, facing north.

DCG WATERSHED

Reference Number: 230308

Contact: Brianna Hines
Environmental Planner

Table of Contents

List of Figures

List of Tables

1 Introduction

1.1 Purpose and Background

The purpose of this report is to document potential critical area and buffer/setback impacts associated with a proposed residential improvement project at 4411 164th Lane SE in Bellevue, WA. The applicant proposes to expand an existing deck at the rear of the home; the deck expansion would occur within portions of the top-of-slope buffer of a steep slope critical area. Bellevue Land Use Code (LUC) 20.25H.230 requires compliance with specific critical areas report criteria as part of any modification to a critical area or critical area buffer/setback, including a demonstration of how the development leads to equivalent or better protection of critical area functions and values. This report fulfills these criteria. This report presents a detailed discussion of the habitat and vegetation on-site and how the proposed development can be achieved with no net loss of critical area functions and values. Further, pursuant to LUC 20.25H.250(C)(1), this report has been prepared in conjunction with a geotechnical analysis report by GeoTech Consultants, Inc. For technical details related to geologic hazard areas, the project geotechnical report should be referenced.

1.2 Methods

Ecologist Brianna Hines from The Watershed Company visited the site on March 30, 2023, to evaluate existing site conditions. Vegetative structure and composition, special habitat features, presence of wildlife species and signs, and human disturbance were assessed. Details of these elements inform the discussion of habitat presented in this report. Observations of established trees and dominant plant species on-site were obtained for preparation of the associated mitigation plan (Appendix A).

During the site visit, the property was also screened for wetland and stream critical areas. Presence or absence of wetland was determined on the basis of an examination of vegetation, soils, and hydrology according to the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region Version 2.0* (U.S. Army Corps of Engineers May 2010). The study area was evaluated for streams based on the presence or absence of an OHWM as defined by Section 404 of the Clean Water Act, the Washington Administrative Code (WAC) 220-660-030, and the Revised Code of Washington (RCW) 90.58.030. No wetland or stream indicators were observed.

2 Existing Conditions

2.1 Site Location and Description

The subject property is located at 4411 164th Lane SE in Bellevue, WA (parcel #1324059047). The site is located within Section 13, Township 24 North, Range 05 East, of the Public Land Survey System. The parcel totals approximately 74,487 sq. ft. (1.71 acres) and slopes downward significantly from south to north. The parcel includes an existing single-family residence, constructed in 1996, and situated adjacent to 164th Lane SE. The parcel is bordered immediately to the west, east, and south by similarly sized single-family residences. An additional residence is situated further to the north, at an elevation approximately 150 feet lower than the subject residence.

The subject property contains a single-family residence at the top of an undeveloped steep slope habitat which descends to the north. Vegetated areas on-site include landscaped planting areas around the residence, and lawn/landscape planting strips bordering the top of slope steep slope habitat. The steep slope habitat is primarily dominated by grasses and mature shrubs toward the top of slope, with the vegetation communities diversifying into a forested habitat downslope. The shrub-dominated portion of the steep slope is primarily Oregon grape (*Mahonia aquifolium*) and grasses. The forested steep slope habitat is primarily dominated by red alder (*Alnus rubra*) and big leaf maple (*Acer macrophyllum*), with an understory comprised of sword fern (*Polystichum munitum*), Oregon grape (*Mahonia aquifolium*), and various grass species. Existing on-site vegetation is discussed in further detail in Section 2.4 (Habitat Functions) of this report.

The project site is situated in the Lake Sammamish subbasin of the Cedar-Sammamish Watershed (WRIA 8). According to the Natural Resources Conservation Service Web Soil Survey, the soils within the southern half of the project site are classified as Beausite gravelly sandy loam, 15 to 30 percent slopes. The northern half of the site is classified as Alderwood gravelly sandy loam, 15 to 30 percent slopes. Based on the direction of topographic gradients, surface and groundwater is expected to flow north.

Figure 1. Vicinity and street level map, with the project area outlined in blue (*Basemap obtained from King County iMap, 2021*).

2.2 Landscape Setting

The general habitat type used to categorize the study area vicinity is urban residential. This habitat type primarily contains dense single-family residences with some natural open spaces. The ability for any property to provide habitat is dependent on current wildlife interactions as well as its connections to surrounding habitat areas. Therefore, the presence or absence of habitat patches in the landscape surrounding the subject property is considered in this assessment.

The area surrounding the subject property is moderately dense residential neighborhoods, with the nearest adjacent homes sharing the same patch of steep slope habitat. The steep slope habitat drains toward an unnamed perennial fish-bearing stream, which traverses under Interstate-90 and eventually drains into Lake Sammamish. The habitat in the surrounding areas is patchy but many areas are connected to the riparian corridor of the unnamed perennial stream. Habitats on the property may still be utilized by urban adapted and urban exploiting species.

2.3 Public Information Review

Public-domain information reviewed for the site is summarized in Table 1 below.

Table 1. Summary of online mapping and inventory resources.

Resource	Summary
USDA NRCS: Web Soil Survey	*Beausite gravelly sandy loam, 15 to 30 percent slopes and Alderwood gravelly sandy loam, 15 to 30 percent slopes*
USFWS: NWI Wetland Mapper	*Riverine habitat mapped approximately 400 feet northwest of the project area.*
WDFW: PHS on the Web	*No elements mapped within or adjacent to the project area.*
WDFW: SalmonScape	*Stream mapped 400 feet northwest of the project area. Smaller tributary mapped 250 west of the project area. Fish passage barrier downstream at SE 43rd Street.*
WA-DNR: Forest Practices Activity Mapping Tool	*Type F stream (123785) mapped 400 feet northwest of the project area.*
King County iMap	*Erosion hazard areas mapped along the northern boundary of the project area. Stream mapped 400 feet northwest of the project area.*
City of Bellevue GIS data	*Erosion hazard areas mapped along the northern boundary of the project area, extending further north off-site. Stream 0160 mapped 400 feet northwest of the project area. Smaller tributary mapped 250 west of the project area.*

2.4 Habitat Functions

The subject property slopes downward to the north, following a meandering shallow depression downslope to the bottom of the hilled parcel. The habitat is on average at a 40% slope, with drainage toward the western half of the parcel, as shown on the Boundary and Topography survey, dated 3/1/2021. The steep slope critical area is vegetated with a mixture of shrub and tree species. The slope habitat closest to the top of slope has mature tall Oregon grape (*Mahonia aquifolium*) bushes interspersed with low grass. The downslope habitat is forested with

multiple tree species, which provides habitat for local wildlife including birds, amphibians and small mammals as documented in the Arborist Survey dated August 20, 2021 (Appendix A). Habitat within the study area has been maintained annually for approximately 10 years. Annual maintenance includes removal of invasive species, laying straw to aid in erosion reduction during storm events, and supplemental planting (as needed).

Tree species composition in the forest slope is primarily Douglas-fir (*Pseudotsuga menziesii*) with collections of red alder (*Alnus rubra*) and big leaf maple (*Acer macrophylum*). The forested understory is sparse but contains primarily native species, including vine maple (*Acer circinatum*) and Oregon grape (*Mahonia aquifolium*). Current understory conditions have lower biodiversity, abundance, and structural complexity than is typical for forests in the region. A separate permitted project on the subject property will be planting 28 native plants in the forested slope area to mitigate for the removal of two trees. This restoration/mitigation will plant shore pine (*Pinus contorta*), sword fern (*Polystichum munitum*) and snowberry (*Symphorocarpus albus*) in 1,244 sq. ft. of steep slope critical habitat. The plants are scheduled to be installed in Fall 2023.

The steep slope buffer area, which contains the existing single-family residence and the adjoining backyard, is a mixture of maintained lawn, a play area, a garden shed/greenhouse, and a terraced garden. There are patches of landscaped plants in this area which have a mixture of native and ornamental vegetation.

2.4.1 Wildlife

The majority of the subject property and the surrounding landscape have been left in modified natural conditions, with the exception of the residence, the terraced garden, the play area, and the maintained lawn. The subject property is still capable of supporting a wide variety of wildlife species, especially those adapted to urban environments such as raccoons, opossums, eastern gray squirrels, rats, mice, bats and numerous bird species. The applicant has also observed bears and coyotes utilizing the sloped habitat on their property.

During site investigations, no species of local importance were observed on the subject property. Further, no habitat on-site was observed that is expected to have a primary association with any species of local importance given the local- and landscape-level conditions. However, the remaining forested patches and habitat features do have the potential to support some species of local importance, as discussed in Section 3.2 (Habitat Associated with Species of Local Importance) below.

2.5 Water Quality, Hydrology, and Slope Stability Functions

In addition to habitat functions, vegetation in and adjacent to critical areas provide important water quality and hydrology functions. The ability of the site to perform these functions well is dependent upon the quality and quantity of vegetation present (e.g., dense native forest versus invasive species monocultures or simplistic and sparse native vegetation), among other physical factors such as the soil and duff conditions, and local topography. While portions of the subject property have been previously developed and are covered with hardened surfaces (single-family residence, driveway, etc.), the northernmost portion of the site remains densely forested. This area is concentrated along the on-site steep slope critical area, which extends further off-site. Additionally, some landscaping vegetation is present adjoining the residence and as a border between the lawn and steep slope habitat.

Vegetated areas provide benefits to nearby aquatic ecosystems by intercepting rainwater, evapotranspiration, and improving soil infiltration capacity, thereby functioning well to both filter water and reduce the quantity of water flowing down-gradient. Water quality improvements also occur through bioretention and bioremediation, reduction of fine sediments in surface flows, and infiltration (where pollutants bond to soil particles and may break down to less harmful components). Areas with dense, woody, vegetation and conifer trees are expected to intercept a greater amount of precipitation than sparse vegetation, invasive species, and deciduous trees.

Furthermore, when located on steep slopes, vegetation can function to prevent soil erosion and improve slope stability. During heavy rain events, live vegetation and dead plant parts (e.g., dead logs, branches, leaves, and detritus, etc.) prevent concentrated and potentially erosive flows from developing on steep slopes through rainwater interception. Vegetation growing on slopes also has the opportunity to provide slope stability through establishment of deep, inter-woven plant roots. Most native conifer trees, shrubs, and groundcover plants perform this function well, while shallow-rooted plants like black cottonwood trees, Himalayan blackberry and English ivy do not.

2.6 Site Photographs

Photo 1. Existing site conditions, facing east toward backyard, the proposed deck to be expanded is to the right.

Photo 2. Existing low-functioning steep slope buffer, adjacent to deck proposed for expansion.

Photo 3. Steep slope habitat, northern half of the property, facing downslope.

Photo 4. Mature Oregon grape (*Mahonia aquifolium*) toward the top of slope, likely remnant plantings from previous vegetation management plan.

3 Critical Areas and Regulations

The City of Bellevue regulates critical areas and their associated buffers/setbacks, in Chapter 20.25H (Critical Areas Overlay District) of the Bellevue Land Use Code (LUC). Impacts within critical areas, buffers, and/or setbacks are subject to the mitigation sequencing criteria of LUC 20.25H.215. On-site critical areas are discussed in detail in the following sections.

3.1 Steep Slopes

According to LUC 20.25H.120(A)(2), slopes of 40 percent or more that have a rise of at least 10 feet and exceed 1,000 sq. ft. in area are designated as geologic hazard areas and therefore subject to the regulations of LUC 20.25H.120 through 20.25H.145. Per LUC 20.25H.120(B)(1)(b), steep slope critical areas require a top-of-slope buffer of 50 feet. Further, pursuant to LUC 20.25H.120(C)(2), steep slopes require a standard toe-of-slope setback of 75 feet.

The subject property contains areas of steep slope that meet the City's definition of a critical area as a type of geologic hazard area. These areas are concentrated along the northern portion of the site and extend further north off-site. Vegetation located in and adjacent to this critical area provides a number of functions, as discussed above in Section 2 (Existing Conditions).

3.2 Habitat Associated with Species of Local Importance

Habitats associated with species of local importance are regulated as a critical area unless otherwise designated as another type of critical area or buffer, according to LUC 20.25H.150(B). In this context, "habitat" is defined as "the place, including physical and biotic conditions, where a plant or animal usually occurs and is fundamentally linked to the distribution and abundance of species." All natural areas that contain native vegetation and habitats on-site are already designated as critical areas and/or critical area buffers/setbacks. Therefore, on-site habitats associated with species of local importance are not separately designated as a regulated critical area.

As noted in Section 2.4 (Habitat Functions), habitat on the property may be utilized by urban adapted wildlife species such as deer, small mammals, birds, and reptiles; but is unlikely to provide appreciable habitat for species of local importance that typically inhabit more specialized niche environments. The forested area on-site is part of a patchwork connection steep slope habitat corridor, which drains toward a perennial fish-bearing stream. These connected patches of forest are valuable to urban-adapted wildlife and synanthropes. Urban forests also provide important refuge for migratory birds and act as steppingstones for dispersal and migration. As such, although habitat within the property does not provide optimal

conditions for species of local importance, some of the more ubiquitous and opportunistic species may utilize the area.

Table 2. Species of Local Importance summary table. Presence of suitable habitat does not confirm species presence.

Species or Habitat	Protected Status	Habitat Association	Habitat Present
Bald eagle (*Haliaeetus leucocephalus*)	Species of Local Importance, Bald and Golden Eagle Protection Act	Limited potential roosting or nesting habitat on-site; nests in mature trees, presence not verified	No habitat present
Peregrine falcon (*Falco peregrinus*)	Species of Local Importance	Nests in cliffs, ledges, and tall human built structures and forages in open habitats such as estuaries, agricultural fields, coastal beaches, water bodies, and in some urban areas	No habitat present
Common loon (*Gavia immer*)	Species of Local Importance	Breeds in the shorelines of lakes, may forage in other waters such as coastlines, estuaries, and large rivers	No habitat present
Pileated woodpecker (*Dryocopus pileatus*)	Species of Local Importance	Occupies forests and breeds in nest cavities excavated in large snags typically >25" in diameter, may forage and disperse in forests with snags and logs of smaller sizes	The site contains small snags which may be utilized for foraging, but no large snags suitable for nesting
Vaux's swift (*Chaetura vauxi*)	Species of Local Importance	Resides primarily in old growth conifer forest and require large trees or snags with hollow tops and chambers for nesting and roosting	No habitat present
Merlin (*Falco columbarius*)	Species of Local Importance	Found in open forests, grasslands, and especially coastal areas; Pacific Northwest subspecies typically breeds in coastal areas and along rivers, but may also use forest edges; uses the nests of other birds	Edge of small forest patch provides potential habitat, although it may be low quality due to the proximity to an urban center. Some merlin populations are adapted to urban life and may be present in areas with sufficient prey density (such as house sparrows)
Purple martin (*Progne subis*)	Species of Local Importance	Typically occur in open lands near water and can be found in developed areas, along waterfronts, and in fields, wetlands, and clearing; secondary cavity nesters in deadwood	No habitat present due to distance to water
Western grebe (*Aechmophorus occidentalis*)	Species of Local Importance	Breeds in freshwater lakes and marshes, found in marine environments during migration	No habitat present
Great blue heron (*Ardea herodias*)	Species of Local Importance	Forages in coasts, estuaries, rivers, lakes, and wetlands; breeds at colonies near foraging habitat in the canopy of forests, typically in groves of deciduous trees	No habitat present
Osprey (*Pandion haliaetus*)	Species of Local Importance	Forages in both freshwater and saltwater bodies and nest in open	No habitat present

		nesting platforms such as large snags or trees	
Green heron (*Butorides striatus*)	Species of Local Importance	Breeds and forages in coastal and inland wetlands	No habitat present
Red-tailed hawk (*Buteo jamaicensis*)	Species of Local Importance	Occupies nearly all types of open habitats such as desert, scrublands, grasslands, roadsides, fields and pastures, parks, and woodlands; builds nests in the crowns of tall trees	As a habitat generalist, the site may provide potentially suitable habitat
Western big-eared bat (*Plecotus townsendii*)	Species of Local Importance	Roosts and hibernaculum may be found in caves and mines, cliffs, talus, boulders, buildings, bridges, trees and snags with cavities or crevices, habitat generalist for foraging	Suitable foraging habitat present
Keen's myotis (*Myotis keenii*)	Species of Local Importance	Roosts and hibernaculum may be found in caves and mines, cliffs, talus, boulders, buildings, bridges, trees and snags with cavities or crevices, habitat generalist for foraging	Suitable foraging habitat present
Long-legged myotis (*Myotis volans*)	Species of Local Importance	Active in conifer forests and riparian habitat with preference for old growth, roosts variable and include snags and live trees with loose bark, long vertical. cracks, or hollows, cracks and crevices in rocks, stream banks, and the ground, buildings, bridges, caves, and mines	Potentially suitable foraging habitat present
Long-eared myotis (*Myotis evotis*)	Species of Local Importance	Active in conifer forests and many habitat types when suitable roosts are present, roosts in beneath loose bark on trees, snags, stumps, and downed logs, as well as in buildings, crevices in ground-level rocks and cliffs, tree cavities, caves, and mines	Suitable foraging habitat present
Oregon spotted frog (*Rana pretiosa*)	Species of Local Importance	Large shallow wetland systems associated with a stream or stream network; breeding habitat is in seasonally flooded margins of wetlands and areas of extensive shallows	No habitat present
Western toad (*Bufo boreas*)	Species of Local Importance	Wetlands, ponds, lakes, reservoirs, and stream backwaters during tadpole stage and breeding; habitat generalist during terrestrial adult stage such as forests, prairies, and grasslands	No habitat present
Western pond turtle (*Clemmys marmorata*)	Species of Local Importance	Found in marshes, ponds, sloughs, and small lakes from sea level to approximately 763 m	No habitat present
Chinook salmon (*Oncorhynchus tshawytscha*)	Species of Local Importance, Federally Threatened	Anadromous life history in both marine and freshwater ecosystems	No habitat present

Bull trout (*Salvelinus confluentus*)	Species of Local Importance, Federally Threatened	Resides in cold pristine freshwater streams and lakes	No habitat present
Coho salmon (*Oncorhynchus kisutch*)	Species of Local Importance	Anadromous life history in both marine and freshwater ecosystems	No habitat present
River lamprey (*Lampetra ayresi*)	Species of Local Importance	Habitat not present; active in freshwater streams and waterbodies	No habitat present

As can be seen in the table above, the habitat on site is unlikely to be used extensively by any species of local importance. Furthermore, WDFW Priority Habitat Species (PHS) data does not indicate the presence of any priority species within the project vicinity. As such, no areas on-site are needed to be separately designated as critical areas as habitats associated with species of local importance. Therefore, it is The Watershed Company's opinion that the site is unencumbered by additional critical area habitat that has a primary association with species of local importance.

3.3 Critical Area Functions Based on Application of Code Standards

If the regulations and standards of the LUC were applied to this site, the existing impervious surfaces would remain, and existing vegetated areas would continue to be available for wildlife use. The existing forest structure would not be expected to change significantly and would continue to be dominated by a sparsely vegetated understory. Non-native and invasive species present would presumably remain and may proliferate, potentially degrading habitat over time. These species would be expected to have detrimental effects on the existing native vegetation by out-competing native plants for light, nutrients, and/or water resources. Overall, critical area functions and values would be expected to decline over time if the property were maintained in its current state.

3.4 Modification

Critical areas standards for steep slopes and their associated buffers can only be modified through an approved critical areas report. The applicant must demonstrate that the modifications to the critical area and/or buffer, combined with any restoration efforts, will result in equivalent or better protection of critical area functions and values than would result from adhering to the standard application of the regulations (LUC 20.25H.230). Restoration activities require monitoring and maintenance in accordance with LUC 20.25H.220 and shall be consistent with an approved mitigation plan.

4 Project Description

4.1 Overview

The project proposes to expand the deck at the back of the house in order to repair failing posts as well as to increase the outdoor relaxation area. To achieve this, the project proposes to expand the main floor deck by approximately 1,095 sq. ft. the lower floor deck by approximately 165 sq. ft – for a total impact area of 1,260 sq. ft. Of the 1,260 sq. ft. total impact area, 1,180 sq. ft. is within the steep slope buffer. No vegetation will be removed as a part of this proposal. However, the majority of the backyard space is encumbered by the required steep slope buffer.

The subject property has only ever been used as a single-family residence. As such, substantial portions of the property have already been cleared of vegetation and developed with hardened surfaces. The replacement and expansion of the deck will be concentrated in areas that have been impacted by previous site development, such as the maintained lawn and terraced garden. The proposed expansion will not extend into the steep slope habitat but will encroach further into the steep slope buffer. No direct impacts will occur to the steep slope habitat itself. Areas within the on-site steep slope will be enhanced with dense and diverse native plantings to serve as mitigation for unavoidable impacts to the critical area buffer.

4.2 Mitigation Sequencing

Pursuant to LUC 20.25H.215, attempts to avoid and minimize impacts to critical area and associated buffer, have been taken.

Avoidance. As previously mentioned, the northern portion of the subject property is encumbered by critical areas and associated buffer/setbacks. In order to expand and repair the back deck adjoining the residence, full avoidance of impacts is not possible. The expansion is concentrated in areas of existing disturbance; proposed changes will extend further into the steep slope buffer than the existing deck, however the entire site is encumbered by the steep slope habitat buffer, so this is unavoidable. No direct impacts to the steep slope habitat are proposed.

Minimization. Minimization techniques were utilized during the design process in order to limit impacts to the critical area and associated buffer. Minimization measures include:

- To the maximum extent practicable, locating expanded structures in previously impacted areas on-site, thereby limiting new impacts to native vegetation.
- Implementation of standard best management practices, including temporary erosion and sediment control measures, during construction.

Mitigation. As mitigation for unavoidable, permanent impacts to the critical area buffer, 1,180 sq. ft. of the site will be enhanced through invasive species removal and native plant installation (see details in Section 4.4 and Appendix A).

4.3 Impacts

4.3.1 Critical Area Impact Assessment

Project impacts on the critical area buffer is discussed in detail in the following sub-sections.

4.3.1.1 *Direct Impacts*

No permanent direct impacts are proposed to the steep slope habitat. A total of 1,180 sq. ft. of direct impacts are proposed within the steep slope habitat buffer. To compensate for impacts, a total of 1,180 sq. ft. of mitigation plantings is proposed within the steep slope critical area. Mitigation includes an assemblage of native shrub species that will create a dense and diverse understory upslope from the forested portion of the steep slope habitat, which will enrich and enhance the existing ecosystem. All non-native species are to be removed from mitigation areas prior to planting.

Temporary impacts are anticipated to be concentrated in the existing deck footprint, primarily consisting of construction debris as the old deck is repaired and expanded. Temporary impacts will be restored in place.

The impacts are not anticipated to reduce the critical area functions discussed in Sections 2.4 and 2.5 (habitat, water quality, hydrology, and slope stability) due to the low functionality of the existing steep slope buffer (sparse vegetation, lacking species diversity, etc).

4.3.1.2 *Indirect Impacts*

Disturbances associated with the proposed improvements, like increased light and noise, are types of indirect effects on wildlife and habitat on-site. Fertilizer/herbicide use in landscape/mitigation planting areas are also potential sources of indirect effects to wildlife/habitat from the proposed project. While the property has been previously developed and contains substantial amounts of impervious surface area, the proposed deck expansion will affect the sun exposure to vegetation in the backyard. The proposed development will result in an increase in total impervious/hardscape surfaces, though the increase will not be as substantial as if the proposed development were to occur on an undeveloped parcel. Modern techniques and other low-impact development measures will be implemented where feasible. Attempts to offset the temporal loss include maximizing the on-site mitigation area to be restored.

4.3.1.3 *Cumulative Impacts*

Impacts that result from collective changes over the landscape have the potential to affect habitat over time. The area within the vicinity of the project site is almost entirely developed with urban, residential land uses. While some development or redevelopment can be expected, the overall character of the urban setting is not likely to change substantially. Urban areas trend toward less mature native vegetation and more ornamental vegetation and impervious surface. The proposed project is consistent with this trend in that some vegetated areas will be encroached upon with development and increased impervious surface. However, the functions of retained habitat will be improved, not further degraded, once proposed mitigation activities are considered. Retained habitat is not likely to be developed further because of the presence of regulatory critical areas (on-site steep slopes).

Overall, the cumulative impacts to urban habitat from development proposals similar to this project are expected to be minor. This is primarily due to the fact that the majority of the surrounding area has already been similarly developed, the subject property has been previously developed, and uses are unlikely to substantially change in the foreseeable future. Similar proposals may require restoration of degraded habitat areas (as does this one), in which case, wildlife habitat would benefit.

4.4 Mitigation

The proposed mitigation plan (Appendix A) seeks to enhance a total of 1,180 sq. ft. of the site through the planting of native trees and shrubs within the steep slope, as well as the removal of invasive understory species from these areas. These restoration actions will serve as mitigation for 1,180 sq. ft. of impact to the steep slope buffer. Proposed shrub species include snowberry (*Symphorocarpus albus*), red flowering currant (*Ribes sanguineaum*), oceanspray (*Holodiscus discolor*), and thimbleberry (*Rubus parviflorus*). Proposed groundcover species include swordfern (*Polystichum munitum*) and salal (*Gaultheria shallon*). Overall, proposed mitigation measures will result in no net loss of critical area functions.

4.5 Critical Area Functional Lift Analysis

The proposed project, with incorporation of mitigation activities, will improve the functions of on-site critical areas. A qualitative analysis of the change in critical area functions of the steep slope and associated buffer is provided below.

4.5.1 Habitat

Existing Conditions. The steep slope critical area is partially forested with a diverse tree stratum on the northern half of the property. Tree composition consists primarily of Douglas-fir with a minor broadleaf component. The forest understory is sparse and contains both native

and invasive species. Native understory species include salal, trailing blackberry, and sword fern, while invasive understory species include holly, Himalayan blackberry, and English ivy. Understory conditions are characterized as having lower biodiversity, abundance, and structural complexity than is typical for forests in the region. The top-of-slope buffer is largely developed with existing building footprints, associated walkways and the existing deck which adjoins the residence, though there are several ornamental shrubs. The existing vegetation assemblage provides some habitat value, primarily for urban wildlife.

Proposed Conditions. Expand and repair the existing deck by approximately 1,260 sq. ft., 1,180 sq. ft. of which will further encroach in the steep slope habitat buffer. The proposed changes occur within areas of existing development and disturbance; proposed improvements will not extend into the steep slope habitat directly. Forested areas on steep slopes are retained and enhanced through the removal of invasive understory species and the installation of a diverse assemblage of native vegetation.

Net Result. Increase in the quality and quantity of vegetated areas available to provide wildlife habitat. Native plants improve habitat function compared to ornamental and invasive species due to their influence on providing complex forest structure, diverse food resources, and the niche habitat that has historically coevolved with native wildlife. New plantings will provide food, cover, and nesting opportunities for wildlife. Overall, the quality of habitat will be increased by enhancing the steep slope habitat with a dense and diverse native plant assemblage appropriate to the eco-region and growing conditions on-site. Although there are tradeoffs associated with the new land use, the increase in forest habitat quality and increase in vegetated area are anticipated to provide a net increase in habitat function.

4.5.2 Water Quality, Hydrology, and Slope Stability

Existing Conditions. The steep slope critical area is partially forested with a diverse tree stratum on the northern half of the property. Tree composition consists primarily of Douglas-fir with a minor broadleaf component. The forest understory is sparse and contains both native and invasive species. Native understory species include salal, trailing blackberry, and sword fern, while invasive understory species include holly, Himalayan blackberry, and English ivy. Understory conditions are characterized as having lower biodiversity, abundance, and structural complexity than is typical for forests in the region. The top-of-slope buffer is largely developed with existing building footprints, associated walkways and the existing deck which adjoins the residence, though there are several ornamental shrubs. The existing vegetation assemblage provides some habitat value, primarily for urban wildlife.

Functions currently provided by the on-site vegetated steep slope critical area and associated buffer include rain and surface water interception, slope stabilization, transpiration, and

improvements to soil structure and infiltration. The lack of diverse native perennial vegetation impairs slope stability functions by encouraging invasive species presence which suppresses natural regeneration of native species. Much of the existing top-of-slope buffer is covered by the residence, walkways or the driveway.

Proposed Conditions. Expand and repair the existing deck by approximately 1,260 sq. ft., 1,180 sq. ft. of which will further encroach in the steep slope habitat buffer. The proposed changes occur within areas of existing development and disturbance; proposed improvements will not extend into the steep slope habitat directly. Forested areas on steep slopes are retained and enhanced through the removal of invasive understory species and the installation of a diverse assemblage of native vegetation.

Net Result. New native plantings will have deeper root systems than the current areas of grass species and sparse understory vegetation, reducing erosion potential and increasing soil stability on the steep slope critical area. As the enhanced steep slope setback matures, surface roots, woody debris, and understory species will also aid in the physical filtering of sediments and particulate matter. Slope stability, water quality and hydrology functions are improved, resulting in an overall net benefit to these functions on-site.

4.5.3 Functional Lift Summary

Overall, the mitigation plan represents a lift of the functions and values of the on-site critical area and associated buffer. The proposed impacts are balanced by an extensive and high-quality mitigation plan that seeks to return the forested steep slope area to a healthy and highly functioning critical area. The resulting mitigation areas will eventually complete a diverse native forest that will provide superior habitat and water quality functions when compared to existing conditions.

5 Critical Areas Code Compliance

As previously mentioned, critical areas and their associated buffers/setbacks, may be modified pursuant to LUC 20.25H.230. The Director may approve modifications if it can be shown that, through restoration, the modification will result in equivalent or better protection of critical area functions and values. The existing project site contains areas of low-to-moderate functioning critical areas and buffers/setbacks.

Per the LUC, the critical areas report must meet specific decision criteria in order for the Director to approve a proposal to modify the steep slope critical area buffer. Compliance with the relevant critical areas report criteria is addressed below.

LUC 20.25H.250(B) – Minimum Report Requirements

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

Critical areas and buffers located on or adjacent to the subject property are described in Section 3 (Critical Areas and Regulations).

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

The project site contains steep slope critical areas, as defined by LUC 20.25H.120(A)(2). Pursuant to LUC 20.25H.120(B)(1)(b) and LUC 20.25H.120(C)(2)(b), a 50-foot top-of-slope buffer (off-site) and 75-foot toe-of-slope setback are required. The applicant proposes to repair the existing deck adjoining the residence and expand the footprint to create additional outdoor space to be enjoyed. This expansion will further encroach into the top-of-slope buffer, which will impact the steep slope habitat buffer by approximately 1,180 sq. ft.

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

Habitat is assessed in Section 2.4 (Habitat Functions). Referenced requirements are addressed in the Habitat Assessment subsection.

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

Cumulative impacts are discussed in Section 4.3.1.3 (Cumulative Impacts).

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. The analysis shall include:*

    a. *A discussion of the functions and values currently provided by the critical area and critical area buffer on the site and their relative importance to the ecosystem in which they exist;*
    b. *A discussion of the functions and values likely to be provided by the critical area and critical area buffer on the site through application of the regulations and standards of this Code over the anticipated life of the proposed development; and*
    c. *A discussion of the functions and values likely to be provided by the critical area and critical area buffer on the site through the modifications and performance standards included in the proposal over the anticipated life of the proposed development;*

Discussion of current critical area functions is provided in Section 2 (Existing Conditions). Critical area functions and values expected through application of standard regulations is provided in Section 3.3 (Critical Area Functions Based on Application of Code Standards). The

anticipated improvement of functions is provided in the functional lift evaluation in Section 4.5 Critical Area Functional Lift Analysis).

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;*

No species of local importance have been determined to have a primary association with the habitat available on the property, therefore additional performance standards (WDFW recommendations) do not apply. No additional or modified performance standards are required.

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; and*

A mitigation plan has been developed to meet the requirements of the LUC. No additional or modified mitigation is required.

9. *Any additional information required for the specific critical area as specified in the sections of this part addressing that critical area.*

None at this time.

LUC 20.25H.165(A) – Habitat Assessment

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

See Section 2.4 (Habitat Functions).

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

No species of local importance have a primary association with on-site habitat. See Section 3.2, titled Habitat Associated with Species of Local Importance.

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

No species have a primary association; therefore, no special management recommendations apply.

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

See Section 4.3 (Impacts).

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

Mitigation sequencing is demonstrated in Section 4.2 (Mitigation Sequencing).

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

A mitigation plan has been prepared (Appendix A), which includes five years of monitoring and maintenance of the mitigation areas (Appendix B).

LUC 20.25H.255 – Critical areas report – Decision criteria

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

A. General.

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

See functional lift analysis in Section 4.5 (Critical Area Functional Lift Analysis).

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

The mitigation plan specifies appropriate species for planting and planting techniques, describes proper maintenance activities, and sets forth annual performance standards to be met during monitoring to ensure that restoration plantings will be maintained and ensure successful establishment within the first five years following implementation.

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

Proposed mitigation will improve the functions of the on-site critical area and associated buffer. Mitigation activities will have positive effects on nearby off-site areas as well by enhancing the steep slope with native trees, shrubs and herbaceous species, which will improve habitat, water quality, hydrology, and slope stability functions.

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

The proposed development is compatible with adjacent properties and surrounding development within the same land use district. Adjacent properties include similar residential uses.

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

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;*

The mitigation plan proposes planting a total of 1,180 sq. ft. of native trees, shrubs and herbaceous species that will provide for an overall net gain in critical area functions.

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;*

The mitigation plan proposes planting a total of 1,180 sq. ft. of native trees, shrubs and herbaceous species that will provide for an overall net gain in critical area functions. Mitigation activities will have positive effects on nearby off-site areas as well, specifically to the adjoining forested slope to the north, by improving habitat, water quality, hydrology, and slope stability functions.

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 critical area buffer;*

The proposed development will comply with all applicable stormwater regulations. However, the addition of native plantings in the steep slope will create a net gain in stormwater quality functions.

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

The mitigation plan includes five years of monitoring and maintenance of the mitigation areas (Appendix B).

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*

The mitigation plan proposes planting a total of 1,180 sq. ft. of native trees, shrubs and herbaceous species that will provide for an overall net gain in critical area functions. Mitigation activities will have positive effects on nearby off-site areas as well, specifically to the adjoining

forested slope to the north, by improving habitat, water quality, hydrology, and slope stability functions.

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

The proposed development is compatible with adjacent properties and surrounding development within the same land use district. Adjacent properties include similar single-family uses.

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

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 mitigation plan that meets the requirements of LUC 20.25H.210 has been prepared and is included in Appendix A. Areas of temporary disturbance will be restored in place. Areas of new permanent disturbance will be mitigated through the removal of invasive species and the installation of a diverse native tree and shrub plant assemblage.

LUC 20.25H.145 – Critical Areas Report – Approval of Modification (Steep Slopes)

B. Will not adversely impact other critical areas.

No additional critical areas exist in the project vicinity.

G. 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.

As discussed in Section 3.3, Habitat Associated with Species of Local Importance, the habitat on site is unlikely to be used extensively by species of local importance. Furthermore, WDFW Priority Habitat Species (PHS) data does not indicate the presence of any priority species within the vicinity. As such, no areas on-site are needed to be separately designated as critical areas as habitats associated with species of local importance.

While the proposed project does include impacts to the regulatory steep slope critical area top-of-slope buffer, the overall plan represents a lift of functions and values of on-site critical areas and the associated buffer. The proposed impacts are balanced by an extensive and high-quality landscaping plan that seeks to return the forested steep slope to a healthy and highly functioning critical area. The resulting mitigation area will eventually become a diverse native

forest that will provide superior habitat and water quality functions when compared to existing conditions.

Additional LUC 20.25H Criteria

Additional decision criteria related to geologic hazard areas is concurrently being addressed by GeoTech Consultants, Inc. in their geotechnical report, including the following sections:

- LUC 20.25H.125 – Performance standards – Landslide hazards and steep slopes
- LUC 20.25H.140 – Critical Areas report – Additional provisions for landslide hazards and steep slopes
- LUC 20.25H.145 – Critical areas report – Approval of modification

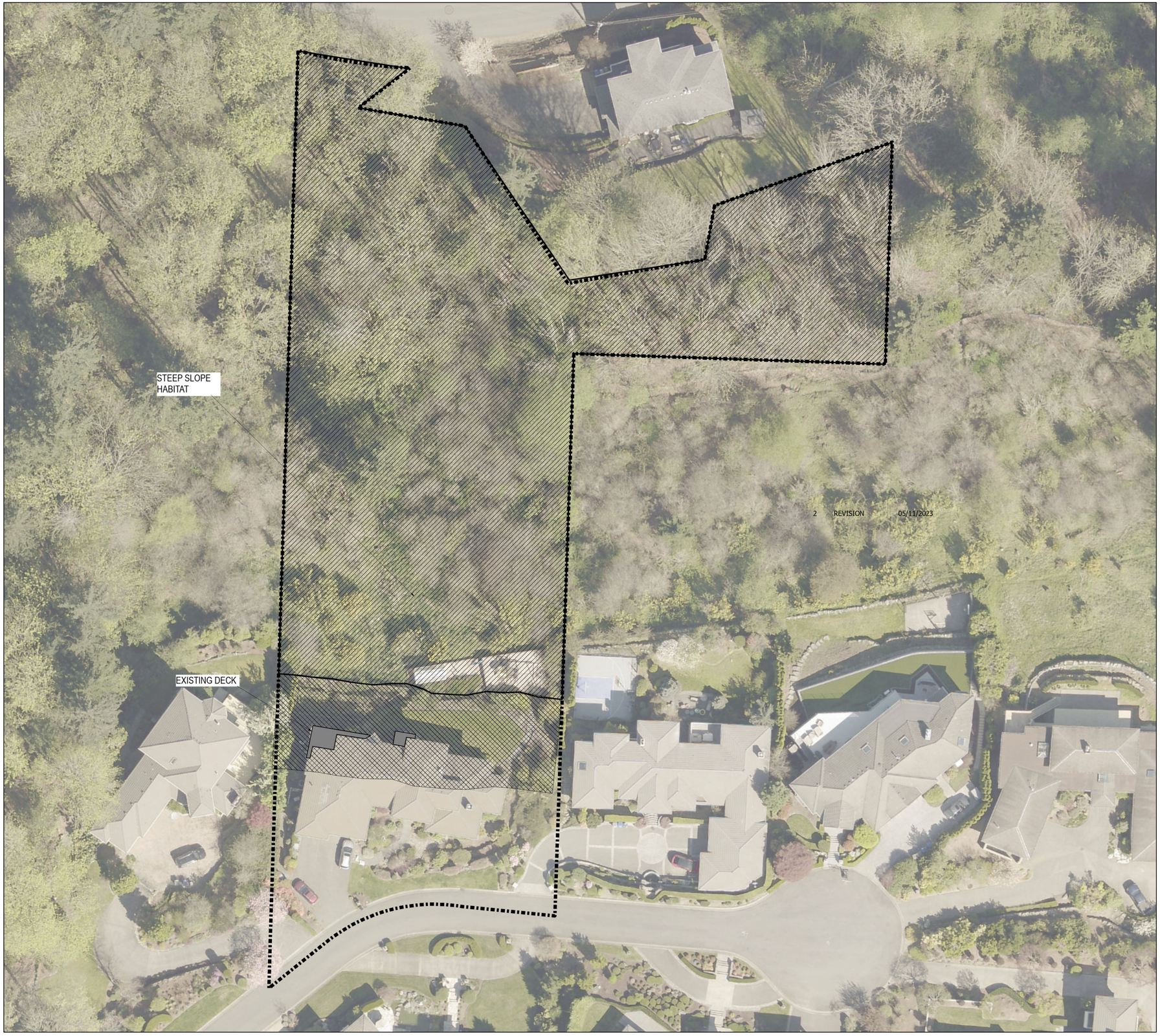
6 Summary

The subject property contains a single-family residence at the top of an undeveloped steep slope habitat which descends to the north. Vegetated areas on-site include landscaped planting areas around the residence, and lawn/landscape planting strips bordering the top of slope steep slope habitat. The applicant proposes to expand the existing deck adjoining the residence. The majority of the project site is encumbered by the required steep slope habitat buffer. The proposed project will expand and repair the existing deck by approximately 1,260 sq. ft., 1,180 sq. ft. of which will further encroach in the steep slope habitat buffer. The proposed changes occur within areas of existing development and disturbance; proposed improvements will not extend into the steep slope habitat directly. Forested areas on steep slopes are retained and enhanced through the removal of invasive understory species and the installation of a diverse assemblage of native vegetation.

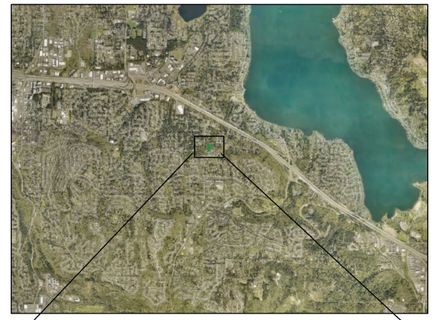
Impacts to critical area buffers and setbacks will be fully compensated for through the removal of invasive species and the installation of native plantings throughout the on-site steep slope. This approach is consistent with the criteria of the City's critical areas regulations and will result in no net loss of critical area functions. To compensate for the proposed impacts, approximately 1,180 sq. ft. of native plantings is proposed within the steep slope. This approach follows the City's critical areas report process, as described within this document. The proposed planting plan results in better protection of critical area functions and values than would be provided by the standard application of the critical area regulations. Overall, a net gain in critical area functions and values is proposed both on- and off-site.

Appendix A

MITIGATION PLAN



2 REVISION 05/11/2023



VICINITY MAPS

LEGEND

- Project Site
- Steep Slope
- Existing Deck
- Steep Slope Buffer (50 ft.)

NOTES

1. CRITICAL AREAS DELINEATED BY THE WATERSHED COMPANY ON MARCH 30, 2023
2. SURVEY DATED MARCH 1, 2021 BY BBA LAND SURVEY

0 25 50 Feet

N

DCG WATERSHED

SCIENCE & DESIGN

750 6TH STREET SOUTH
KIRKLAND WA 98033

425.822.5242
WWW.WATERSHEDCO.COM

PROJECT:

BATES MITIGATION PLAN

4411 164TH LN SE
BELLEVUE, WA 98006

PRINCIPLE: HM
PM: KB
DRAWN BY: BH

REVIEWED BY: NB
JOB NO.: 230308
DATE: 04/26/2023

REVISIONS

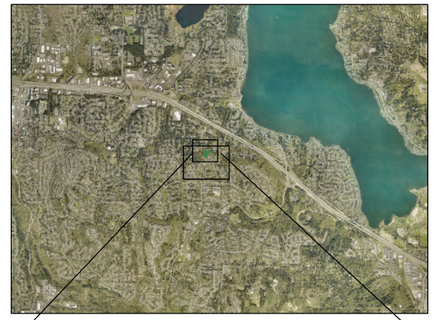
NO.	DESCRIPTION	DATE
1	DRAFT	04/26/2023
2	REVISION	05/11/2023

NOT FOR CONSTRUCTION

PERMIT LEVEL DESIGN

04/26/2023

EXISTING CONDITIONS



VICINITY MAPS

LEGEND

- Existing Deck
- Steep Slope Buffer (50 ft.)
- Project Site
- Steep Slope
- Proposed Deck Expansion (1,260 SF total; 1,180 SF within buffer)

0 25 50 Feet

N

DCG WATERSHED

SCIENCE & DESIGN

750 6TH STREET SOUTH
KIRKLAND WA 98033

425.822.5242
WWW.WATERSHEDCO.COM

BATES MITIGATION PLAN

PROJECT:
4411 164TH LN SE
BELLEVUE, WA 98006

PRINCIPLE: HM
PM: KB
DRAWN BY: BH

REVIEWED BY: NB
JOB NO.: 230308
DATE: 04/26/2023

REVISIONS

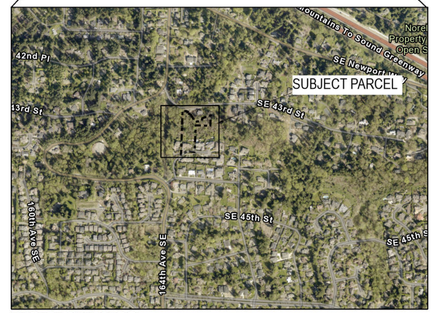
NO.	DESCRIPTION	DATE
1	DRAFT	04/26/2023
2	REVISION	05/11/2023

NOT FOR CONSTRUCTION

PERMIT LEVEL DESIGN

04/26/2023

IMPACTS ASSESSMENT



VICINITY MAPS

LEGEND

- Project Site
- Existing Deck
- Proposed Deck Expansion (1,260 SF total; 1,180 SF within buffer)
- Mitigation Area (1,180 SF)

NOTES

1. SEE PLANT SCHEDULE ON SHEET 4.
2. SEE MITIGATION NOTES ON SHEET 4 FOR SITE PREPARATION REQUIREMENTS

0 30 60 Feet

N

DCG WATERSHED
SCIENCE & DESIGN
760 8TH STREET SOUTH
KIRKLAND WA 98033
425.822.5242
WWW.WATERSHEDDCG.COM

PROJECT:
BATES MITIGATION PLAN
4411 164TH LN SE
BELLEVUE, WA 98006

PRINCIPLE: HM
PM: KB
DRAWN BY: BH

REVIEWED BY: NB
JOB NO.: 230308
DATE: 04/26/2023

REVISIONS

NO.	DESCRIPTION	DATE
1		
2	REVISION	05/11/2023

NOT FOR CONSTRUCTION

PERMIT LEVEL DESIGN

04/26/2023

MITIGATION PLAN

MITIGATION NOTES

OVERVIEW

THIS PLAN HAS BEEN PREPARED AS MITIGATION FOR IMPACTS TO THE STEEP SLOPE HABITAT BUFFER. THE IMPACTS TO THE BUFFER ARE TO ACCOMMODATE THE DECK EXPANSION ADJACENT TO THE RESIDENCE. THE IMPACTED BUFFER AREA IS AN EXISTING GRASS LAWN WITH LOW HABITAT VALUE. THIS PROPOSAL WILL PERMANENTLY IMPACT A TOTAL OF 1,180 SQUARE FEET OF CRITICAL AREA BUFFER. TO OFFSET THESE CRITICAL AREA BUFFER IMPACTS, A TOTAL OF 1,180 SQUARE FEET OF ENHANCEMENT IS PROPOSED. THIS RESULTS IN A NET ENHANCEMENT TO IMPACT RATIO OF 1:1 MEETING THE REQUIRED 1:1 RATIO. ENHANCEMENT OF THE BUFFER WILL INCLUDE REMOVAL OF NON-NATIVE, AND INVASIVE SPECIES AND THE INSTALLATION OF A NATIVE SHRUB AND GROUNDCOVER PLANT COMMUNITY.

MAINTENANCE AND MONITORING PLAN

THE SITE SHALL BE MAINTAINED AND MONITORED FOR FIVE YEARS FOLLOWING SUCCESSFUL INSTALLATION.

GOALS

1) ENHANCE 1.180 SQUARE FEET OF STEEP SLOPE HABITAT BUFFER.
   A) ESTABLISH DENSE NATIVE VEGETATION THAT IS APPROPRIATE TO THE STEEP SLOPE BUFFER.
   B) LIMIT INVASIVE AND/OR NOXIOUS WEED COVER ON-SITE.

PERFORMANCE STANDARDS
THE STANDARDS LISTED BELOW WILL BE USED TO JUDGE THE SUCCESS OF THE INSTALLATION OVER TIME. IF PERFORMANCE STANDARDS ARE MET AT THE END OF YEAR 5, THE SITE WILL THEN BE DEEMED SUCCESSFUL.

1) SURVIVAL: ACHIEVE 85% SURVIVAL OF INSTALLED PLANTS BY THE END OF YEAR 1. THIS STANDARD CAN BE MET THROUGH PLANT ESTABLISHMENT OR THROUGH REPLANTING AS NECESSARY TO ACHIEVE THE REQUIRED NUMBERS.

2) NATIVE PLANT COVER:
ACHIEVE 40% COVER OF NATIVE VEGETATION BY YEAR 2.
ACHIEVE 60% COVER OF NATIVE VEGETATION BY YEAR 3.
ACHIEVE 80% COVER OF NATIVE VEGETATION BY YEAR 5.

RETAINED VEGETATION AND NATIVE VOLUNTEER SPECIES MAY COUNT TOWARDS THESE COVER STANDARDS.

3) SPECIES DIVERSITY: ESTABLISH AT LEAST THREE NATIVE SHRUB SPECIES AND TWO GROUNDCOVER SPECIES BY YEAR 3 AND MAINTAIN THIS DIVERSITY THROUGH YEAR 5. NATIVE VOLUNTEER SPECIES MAY COUNT TOWARDS THIS STANDARD.

4) INVASIVE COVER: AERIAL COVER FOR ALL NOXIOUS WEEDS WILL NOT EXCEED 10% AT ANY YEAR DURING THE MONITORING PERIOD. NOXIOUS WEEDS INCLUDE BOTH REGULATED (E.G. JAPANESE AND BOHEMIAN KNOTWEED) AND NON-REGULATED SPECIES (E.G. HIMALAYAN BLACKBERRY, ENGLISH IVY, ENGLISH HOLLY) DESIGNATED BY THE KING COUNTY NOXIOUS WEED CONTROL BOARD.

MONITORING METHODS

THIS MONITORING PROGRAM IS DESIGNED TO TRACK THE SUCCESS OF THE MITIGATION SITE OVER TIME AND TO MEASURE THE DEGREE TO WHICH IT IS MEETING THE PERFORMANCE STANDARDS OUTLINED IN THE PRECEDING SECTION.

AN AS-BUILT PLAN WILL BE PREPARED BY A RESTORATION PROFESSIONAL PRIOR TO THE BEGINNING OF THE MONITORING PERIOD. THE AS-BUILT PLAN WILL BE A MARK UP OF THE PLANTING PLANS INCLUDED IN THIS PLAN SET. THE AS-BUILT PLAN WILL DOCUMENT ANY DEPARTURES IN PLANT PLACEMENT OR OTHER COMPONENTS FROM THE PROPOSED PLAN.

MONITORING WILL TAKE PLACE ONCE ANNUALLY IN THE FALL FOR FIVE YEARS. YEAR-1 MONITORING WILL COMMENCE IN THE FIRST FALL SUBSEQUENT TO INSTALLATION.

THE FORMAL MONITORING VISIT SHALL RECORD AND REPORT THE FOLLOWING IN AN ANNUAL REPORT SUBMITTED TO THE CITY OF BELLEVUE:

1) VISUAL ASSESSMENT OF THE OVERALL SITE.
2) YEAR-1 COUNTS OF LIVE AND DEAD PLANTS BY SPECIES.
3) COUNTS OF DEAD PLANTS WHERE MORTALITY IS SIGNIFICANT IN ANY MONITORING YEAR.
4) VISUAL ESTIMATE OF NON-NATIVE, INVASIVE WEED COVER IN THE RESTORATION AREA.
5) ESTIMATE OF NATIVE COVER IN THE MITIGATION AREA.
6) TABULATION OF ESTABLISHED NATIVE SPECIES TYPES, INCLUDING BOTH PLANTED AND VOLUNTEER SPECIES.
7) PHOTOGRAPHIC DOCUMENTATION FROM AT LEAST TWO FIXED REFERENCE POINTS.
8) ANY INTRUSIONS INTO OR CLEARING OF THE PLANTING AREAS, VANDALISM, OR OTHER ACTIONS THAT IMPAIR THE INTENDED FUNCTIONS OF THE MITIGATION AREA.
9) RECOMMENDATIONS FOR MAINTENANCE OR REPAIR OF ANY PORTION OF THE MITIGATION AREA.

MAINTENANCE

THE SITE WILL BE MAINTAINED IN ACCORDANCE WITH THE FOLLOWING INSTRUCTIONS FOR AT LEAST FIVE YEARS FOLLOWING COMPLETION OF CONSTRUCTION:

1) FOLLOW THE RECOMMENDATIONS NOTED IN THE PREVIOUS MONITORING SITE VISIT.
2) GENERAL WEEDING FOR ALL PLANTED AREAS:
   A) AT LEAST TWICE YEARLY DURING THE SPRING AND SUMMER, REMOVE ALL COMPETING WEEDS AND WEED ROOTS FROM BENEATH EACH INSTALLED PLANT, INCLUDING ANY DESIRABLE VOLUNTEER VEGETATION, TO A DISTANCE OF 18 INCHES FROM THE MAIN PLANT STEM. FREQUENT WEEDING WILL RESULT IN LOWER MORTALITY, LOWER PLANT REPLACEMENT COSTS, AND INCREASED LIKELIHOOD THAT THE PLAN MEETS PERFORMANCE STANDARDS BY YEAR 5.
   B) MORE FREQUENT WEEDING MAY BE NECESSARY DEPENDING ON WEED CONDITIONS THAT DEVELOP AFTER PLAN INSTALLATION. IF MORE FREQUENT WEEDING IS NECESSARY, IT WILL BE DESCRIBED IN THE ANNUAL MONITORING REPORT.
   C) DO NOT WEED THE AREA NEAR THE PLANT BASES WITH A STRING TRIMMER (WEED WHACKER/WEED EATER). NATIVE PLANTS ARE EASILY DAMAGED OR KILLED, AND WEEDS EASILY RECOVER AFTER TRIMMING.
   D) SELECTIVE APPLICATION OF HERBICIDE MAY BE NEEDED TO CONTROL INVASIVE WEEDS, ESPECIALLY WHEN INTERMIXED WITH NATIVE SPECIES. HERBICIDE APPLICATION, WHEN NECESSARY, SHALL BE CONDUCTED ONLY BY A STATE-LICENSED APPLICATOR QUALIFIED TO USE HERBICIDE NEAR AQUATIC ENVIRONMENTS.
3) APPLY SLOW-RELEASE, GRANULAR FERTILIZER TO EACH INSTALLED PLANT ANNUALLY IN THE SPRING (BY JUNE 1) OF YEARS 2 THROUGH 5.
4) REPLACE MULCH AS NECESSARY TO MAINTAIN A 4-INCH-THICK LAYER, RETAIN SOIL MOISTURE, AND LIMIT WEEDS.
5) REPLACE DEAD PLANTS OR SPARSELY VEGETATED AREAS AS DIRECTED IN THE ANNUAL MONITORING REPORT DURING THE UPCOMING DORMANT SEASON (OCTOBER 15 TO MARCH 1), FOR BEST SURVIVAL.
6) THE PROPERTY OWNER WILL ENSURE THAT WATER IS PROVIDED FOR THE ENTIRE PLANTED AREA WITH A MINIMUM OF 1 INCH OF WATER PER WEEK FROM JUNE 1 THROUGH SEPTEMBER 30 FOR THE FIRST TWO YEARS FOLLOWING INSTALLATION, THROUGH THE OPERATION OF A TEMPORARY IRRIGATION SYSTEM. LESS WATER IS NEEDED DURING MARCH, APRIL, MAY, AND OCTOBER.

CONSTRUCTION NOTES AND SPECIFICATIONS

THE RESTORATION PROFESSIONAL WILL MONITOR:

1) ALL SITE PREPARATION.
   A) WEED REMOVAL.
2) PLANT MATERIAL INSPECTION.
   A) PLANT MATERIAL DELIVERY INSPECTION.
   B) 100% PLANT INSTALLATION INSPECTION.

GENERAL WORK SEQUENCE

SITE PREPARATION:

1) IN STEEP SLOPE AREAS ENSURE SHORT TERM EROSION CONTROL MEASURES ARE IN PLACE DURING SITE PREPARATION AND PLANTING. USE CITY BMPS FOR TEMPORARY EROSION AND SEDIMENT CONTROL.

2) WORK DONE IN ROOT ZONES OF EXISTING VEGETATION SHALL BE BY HAND AND SHALL BE DONE CAREFULLY TO AVOID DAMAGE TO EXISTING ROOTS.

3) REMOVE ALL NOXIOUS WEEDS (REGULATED AND UNREGULATED) PER KING COUNTY NOXIOUS WEED BMPS. FOR MORE INFORMATION SEE: (WEBSITE)

4) PLACE BLANKET LAYER OF WOOD CHIP MULCH, 4" THICK, OVER ALL RESTORATION AREAS AFTER NOXIOUS WEEDS ARE REMOVED.

MITIGATION PLANTING AND IRRIGATION:
1) INSTALL MITIGATION PLANTS DURING THE DORMANT SEASON FOR BEST SURVIVAL (OCTOBER 15 – MARCH 1).
   A) PULL BLANKET-MULCH BACK AND PREPARE A PLANTING PIT FOR EACH PLANT AND INSTALL PER THE PLANTING DETAILS.
   B) REPLACE MULCH AROUND PLANTING PIT AFTER INSTALLATION; DO NOT APPLY MULCH TO INSTALLED PLANT TRUNK/STEMS.
2) INSTALL A TEMPORARY, ABOVE GROUND IRRIGATION SYSTEM TO PROVIDE FULL COVERAGE TO ALL INSTALLED PLANTS WITHIN THE RESTORATION AREA.

MATERIAL SPECIFICATIONS AND DEFINITIONS

1) FERTILIZER: SLOW RELEASE, GRANULAR PHOSPHOROUS-FREE FERTILIZER. FOLLOW MANUFACTURER'S INSTRUCTIONS FOR APPLICATION. KEEP FERTILIZER IN A WEATHER-TIGHT CONTAINER WHILE ON SITE. NOTE THAT FERTILIZER IS TO BE APPLIED ONLY IN YEARS 2 THROUGH 5 AND NOT IN THE FIRST YEAR.
2) IRRIGATION SYSTEM: AUTOMATED SYSTEM CAPABLE OF DELIVERING AT LEAST ONE INCH OF WATER PER WEEK FROM JUNE 1 THROUGH SEPTEMBER 30 FOR THE FIRST TWO YEARS FOLLOWING INSTALLATION.
3) RESTORATION PROFESSIONAL: WATERSHED COMPANY [(425) 822-5242] PERSONNEL, OR OTHER PERSONS QUALIFIED TO EVALUATE ENVIRONMENTAL RESTORATION PROJECTS.
4) WOODCHIP MULCH: "BARK OR WOOD CHIP MULCH" PER WSDOT STANDARD SPECIFICATION 9-14.5(3). QUANTITY REQUIRED: 30 CUBIC YARDS
5) COMPOST: COMPOST SHALL MEET WSDOT STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION, 9-14.4(8) FOR FINE COMPOST AND SHALL COMPLY WITH WAC 173-350. QUANTITY REQUIRED: 24 CUBIC YARDS

CONTINGENCY PLAN
IF THERE IS A SIGNIFICANT PROBLEM WITH THE RESTORATION AREAS MEETING PERFORMANCE STANDARDS, A CONTINGENCY PLAN WILL BE DEVELOPED AND IMPLEMENTED. CONTINGENCY PLANS CAN INCLUDE BUT ARE NOT LIMITED TO: SOIL AMENDMENT; ADDITIONAL PLANT INSTALLATION; AND PLANT SUBSTITUTIONS OF TYPE, SIZE, QUANTITY, AND LOCATION.

PLANT SCHEDULE

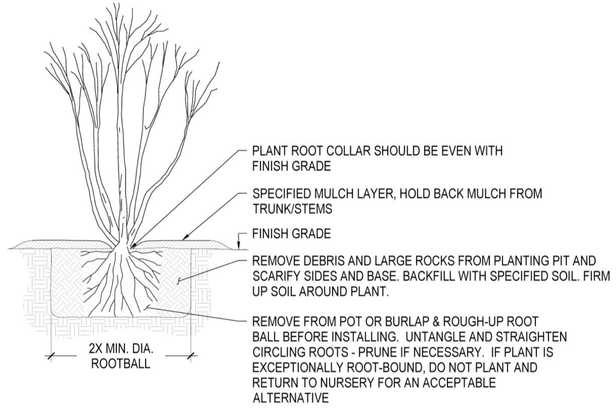
	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	QUANTITY
SHRUBS	THIMBLEBERRY	RUBUS PARVIFLORUS	1 GAL	6' O.C.	5
	HOLODISCUS DISCOLOR	OCEANSPRAY	1 GAL	6' O.C.	5
	RIBES SANGUINEAM	RED FLOWERING CURRANT	1 GAL	6' O.C.	5
	SYMPHOROCARPUS ALBUS	SNOWBERRY	1 GAL	6' O.C.	5
GROUNDCOVER	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	QUANTITY
	POLYSTICHUM MUNITUM	SWORD FERN	1 GAL	2' O.C.	137
	GAULTHERIA SHALLON	SALAL	1 GAL	6' O.C.	137

IMPACT TABLE

IMPACT	TYPE	AREA
IMPACT PERMANENT	DECK EXPANSION	1,180 SF

MITIGATION	TYPE	AREA
PLANTING AREA 1	STEEP SLOPE HABITAT ENHANCEMENT	1,180 SF

PLANTING DETAIL



DCG WATERSHED
SCIENCE & DESIGN
750 6TH STREET SOUTH
KIRKLAND WA 98033
425.822.5242
WWW.WATERSHEDCO.COM

BATES MITIGATION PLAN

4411 164TH LN SE
BELLEVUE, WA 98006

PROJECT:

PRINCIPLE: HM
PM: KB
DRAWN BY: BH
REVIEWED BY: NB
JOB NO.: 230308
DATE: 04/26/2023

REVISIONS

NO.	DESCRIPTION	DATE
1	REVISION	05/11/2023

NOT FOR CONSTRUCTION

PERMIT LEVEL DESIGN

04/26/2023

MITIGATION NOTES

GEOTECH
CONSULTANTS, INC.

2401 10th Ave E
Seattle, Washington 98102
(425) 747-5618

May 8, 2023

JN 23086

Justin Bates
4411 – 164th Lane Southeast
Bellevue, Washington 98006
via email: justin.t.bates@icloud.com

Subject: **Transmittal Letter – Geotechnical Engineering Study**
Proposed Deck Reconstruction and Expansion
4411 – 164th Lane Southeast
Bellevue, Washington

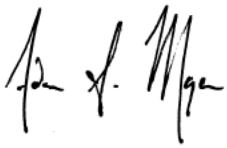
Dear Mr. Bates:

We are pleased to present this geotechnical engineering report for the proposed reconstruction and expansion of a portion of deck at your existing residence in Bellevue. The scope of our services consisted of exploring site surface and subsurface conditions, and then developing this report to provide recommendations for general earthwork, steep slope considerations, and design criteria for foundations. This report is also intended to address the geotechnical considerations for the City of Bellevue's Critical Area Land Use Permit (CALUP). This work was authorized by your acceptance of our proposal, P-11350, dated March 13, 2023.

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

Respectfully submitted,

GEOTECH CONSULTANTS, INC.



Adam S. Moyer
Geotechnical Engineer

cc: **Gelotte Hommas Drivdahl Architecture** – Deepa Sharma
via email: deepas@ghdarch.com

ASM/MRM:kg

GEOTECHNICAL ENGINEERING STUDY
Proposed Deck Reconstruction and Expansion
4411 – 164th Lane Southeast
Bellevue, Washington

This report presents the findings and recommendations of our geotechnical engineering study for the site of the proposed new deck reconstruction and expansion project at the subject site located in Bellevue.

We were provided with preliminary plans of the proposed project and a topographic survey of the subject site. The plans were developed by Gelotte Hommas Drivdahl Architecture and dated January 16, 2023 and the topographic survey was developed by BBA Land Surveying and dated March 1, 2021. Based on these plans, we understand that the existing upper and lower decks off the northern side of the residence will be reconstructed and expanded slightly to the north.

An existing upper deck extends north off the western half of the existing residence's perimeter at the main (first) floor elevation. This deck is supported by tall timber posts that extend down to the ground surface. We understand that the deck will be reconstructed and will also be extended approximately 10 feet to the north; the new extended portion of the deck will cantilever over the sewer easement that is located north, and downslope, of the full length of the residence. However, the reconstructed deck will be supported on new posts and foundations located in generally the same location as the existing deck supports just outside (south) of the sewer easement. The plans also indicate the reconstructed upper deck will also be expanded to wrap around the residence's northwest corner and follow the northern half of the western perimeter of the house.

A smaller lower existing deck is also located off the central portion of the residence's northern perimeter at the daylight basement elevation, which is elevated several feet above the ground surface to the north. The provided plans indicate the new lower deck will be expanded several feet to the north and northeast beyond its existing footprint; the new expanded portion of the lower deck will also cantilever over the downslope adjacent sewer easement, with deck support posts located upslope and outside of the easement, within the existing deck footprint.

As mentioned above, both a sewer and a stormwater easement span the width of the subject site from west to east, directly downslope, and north, of the residence. Beginning directly downslope of these easements is the top of a tall steep slope that covers the remaining northern majority of the subject site. This steep slope area is considered a Geological Critical Area under the City of Bellevue's Land Use Code. We expect that a Critical Area Land Use Permit (CALUP) will be applied for to reduce the prescriptive minimum required buffer from the top of the steep slope.

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

SITE CONDITIONS

SURFACE

The Vicinity Map, Plate 1, illustrates the general location of the site in the Lakemont area of Bellevue. The irregular-shaped subject site spans up to 497 feet between 164th Lane Southeast to

the south and Southeast 43rd Street to the north, and generally has a width of about 150 feet in the east-west direction. However, a small 34 to 117-foot-wide section of the northern end of the property also extends an additional 160 feet to the east from the "main" portion of the property. The northern property line is very irregular, with multiple "jogs"; only the westernmost 58 feet of the property line abuts Southeast 43rd Street to the north. The remainder of the northern property line is set back to the south from the right-of-way.

The subject site is located on a large northern-facing slope that covers the general vicinity and the southern end of the City of Bellevue, which descends from Cougar Mountain to the south. The subject site itself also slopes downwards to the north, with a total change in elevation of 182 feet across the property. The southern upslope end of the property slopes moderately downwards from 164th Lane Southeast. A one-story residence underlain by a north-facing daylight basement surrounded by a small yard with landscaping, garden areas, and play areas, is located on this upper, southern, moderately-sloped, end of the property. The remaining northern majority of the slopes steeply downwards to the north. Based on the provided survey, the northern steeply-sloped portion of the site has an overall inclination of about 45 percent over a vertical height of about 150 feet. The City of Bellevue classifies this northern end of the subject site as a Steep Slope, which is defined as any slope with an inclination of 40 percent or more that has a rise of at least 10 feet. A Steep Slope is a specific category of Geologic Hazard Area (Critical Area) for which the City has development restrictions. These development restrictions are discussed further in subsequent sections of this report.

The northern perimeter of the basement floor is elevated several feet above the adjacent ground surface and at least the northern end of the basement overlies a crawlspace. An attached garage is located off the southwest corner of the main floor and is connected to 164th Lane Southeast to the south by a concrete driveway. A wooden deck extends north off the western half of residence's northern perimeter at the main floor elevation. This deck is supported by tall wooden posts that extend down to the ground surface below. A second smaller deck also extends north off approximately the central third of the residence at the basement level; a wooden staircase descends from this deck to the grass lawn located along the northern perimeter of the building. A small landscaped front yard covers the remainder of the property between the house and the street. Short tiered rockeries follow the southeastern perimeter of the site, where the grade drops 6 to 8 feet from the street to the narrow southern front yard. A concrete footpath follows the western property line, sloping down from the driveway to the lower northern backyard. The northern end of the residence abuts a small grass lawn; north of the lawn is a series of tiered timber retaining walls, between which contains a garden area and kids play area on the western and eastern ends of the backyard, respectively. A small greenhouse is also located between the garden and play area. These areas are located over sewer and stormwater easements that span the width of the property from west to east.

As discussed above, the northern end of the property slopes steeply downwards to the north. The top of this steep slope aligns with the northern, downslope base of the tiered timber retaining walls located just north of the residence. Approximately the upper third of this steep slope appears to have been previously cleared during the original site development, and is now covered by grass with small scattered trees. The remaining lower northern end of the slope is undeveloped and contains mature evergreen trees with thick underbrush. We observed a small area of slumping soils located several feet downslope of the green house. This localized area of soil movement appears to be occurring in fill that was likely "pushed" downslope during the original site grading. Creep of the weathered near-surface soils overlying the very dense sandstone core of the slope (discussed further below) is a very common occurrence in the Puget Sound region, and is not necessarily indicative of any potential larger deep-seated slope movement.

The subject site is bordered by residential properties containing single-family residences to the east and west that have large setbacks from the subject site. As discussed above, the subject site is bordered by 164th Lane Southeast to the south and Southeast 43rd Street to the north.

SUBSURFACE

The subsurface conditions were explored by drilling one test boring at the approximate location shown on the Site Exploration Plan, Plate 2. Our exploration program was based on the proposed construction, anticipated subsurface conditions and those encountered during exploration, and the scope of work outlined in our proposal.

The boring was drilled on April 13, 2023 using a limited-access, track-mounted, hollow-stem auger drill. Samples were taken at approximate 2.5- and 5-foot intervals with a standard penetration sampler. This split-spoon sampler, which has a 2-inch outside diameter, is driven into the soil with a 140-pound hammer falling 30 inches. The number of blows required to advance the sampler a given distance is an indication of the soil density or consistency. A geotechnical engineer from our staff observed the drilling process, logged the test boring, and obtained representative samples of the soil encountered. The Test Boring Log is attached as Plate 3.

Soil Conditions

The test boring conducted on the subject site near the proposed corner of the northwestern reconstructed deck encountered 3.5 feet of loose native silty sand fill soils with gravel immediately beneath the ground surface. Below this depth, native loose to medium-dense silty sand / sandy silt with occasional organics and fragments of weathered sandstone was revealed. These loose to medium-dense upper native soils appear to be heavily weathered sandstone. Very dense sandstone was encountered below the heavily-weathered material at a depth of 7 feet in the test boring. The small limited-access drill reached refusal in the very dense sandstone at a depth of 11.6 feet.

This geologic sequence of heavily-weathered sandstone over dense to very dense, intact sandstone is typical for the area.

No obstructions were revealed by our explorations. However, debris, buried utilities, and old foundation and slab elements are commonly encountered on sites that have had previous development.

Groundwater Conditions

No groundwater seepage was observed in our subsurface exploration. However, slightly elevated moisture was observed at 10 to 10.5 feet within the sandstone. As discussed above, groundwater seepage was observed exiting the ground surface lower on the tall steep slope north of the residence, indicating that small amounts of groundwater may be perched on top of or within the upper bounds of the very dense sandstone; this is the process that creates the upper weathered sandstone over geologic time scales. The test borings were left open for only a short time period. Therefore, the seepage levels on the logs represent the location of transient water seepage and may not indicate the static groundwater level.

It should be noted that groundwater levels vary seasonally with rainfall and other factors. We anticipate that isolated zones groundwater could be found in perched between the looser near-surface soil and the underlying very dense sandstone. This is most likely to occur following extended wet weather.

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

CONCLUSIONS AND RECOMMENDATIONS

GENERAL

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

The test boring conducted for this study encountered 7 feet of loose silty sand fill soils and loose to medium-dense native silty sand / sandy silt (heavily-weathered sandstone) overlying very dense sandstone in the area of the proposed northwestern reconstructed decks. Conventional footings constructed on the loose to medium-dense near-surface soils will experience post-construction settlement as the loose surficial soils consolidate over time. Therefore, we recommend the reconstructed decks be supported on a deep foundation system consisting of concrete pile caps or grade beams supported by small-diameter pipe piles driven into the very dense sandstone below. Due to the limited equipment access, we anticipate that 2-inch-diameter pipe piles will need to be used, which can be installed with hand-carried jackhammer equipment. Additional recommendations can be found in the ***Pipe Piles*** section of this report.

The Bellevue Land Use Code requires a prescriptive minimum 50-foot buffer from the top of a Steep Slope. Based on the provided plans, the existing residence and northern decks currently encroach within the prescriptive 50-foot buffer. The proposed reconstructed decks will be expanded and will cantilever up to 10 feet closer to the top of the Steep Slope on the northern portion of the property; however, the reconstructed deck supports will contact the ground surface within the existing deck footprint and outside (south) of the sewer easement which is located between residence and the top of the steep slope. From a geotechnical engineering standpoint, this cantilever will not adversely impact the stability of the slope. The recommendations and conclusions of this report are intended to support a reduction of the prescriptive buffer. Modifications to the required buffer require an approved Critical Areas Report as part of the process of acquiring a Critical Area Land Use Permit (CALUP). Based on our explorations onsite and our experience with other projects in this area of Bellevue, the very dense sandstone encountered underlying the subject site is not prone to instability, even in a large earthquake. There is always the possibility of shallow movement in the loose, upper weathered soils. This type of near-surface movement is typical for any slope in the Puget Sound area. No fill should be placed above the existing grade between the residence and the top of the Steep Slope, or on the Steep Slope. We anticipate very minimal excavations will be required to construct the deep foundation system to support the reconstructed decks. However, any excess soil created during the excavations for the project

should be exported from the site. Our comments related to a CALUP are presented in a following section of this report.

The sandstone encountered underlying the site is essentially impervious and will not accommodate stormwater infiltration. Any water that percolates through the loose upper soils will become perched above the relatively impervious underlying sandstone and migrate downslope toward the steep slope to the north. Increasing the potential for shallow perched groundwater can adversely impact slope stability. Therefore, it is our opinion that onsite dispersion or concentrated infiltration of collected stormwater is not appropriate for the subject site. All collected stormwater should be tightlined to an approved off-site stormwater discharge system. If precipitation can flow through the deck, it will not be necessary to collect the water and tightline it away from the slope.

The erosion control measures needed during the site development will depend heavily on the weather conditions that are encountered. We anticipate that a silt fence will be needed around the downslope sides of any cleared areas. Existing ground cover and landscaping should be left in place wherever possible to minimize the amount of exposed soil. Cut slopes and soil stockpiles should be covered with plastic during wet weather. Following clearing or rough grading, it may be necessary to mulch or hydroseed bare areas that will not be immediately covered with landscaping or an impervious surface. On most construction projects, it is necessary to periodically maintain or modify temporary erosion control measures to address specific site and weather conditions.

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

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

CRITICAL AREA REPORT COMPONENTS

The following are our replies to specific items in the Bellevue Land Use Code (LUC 20.25H.125 and 20.25H.145) that are related to steep slope performance standards and Critical Areas Report (CAR) requirements.

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

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:** The proposed reconstructed decks will be constructed on a foundation supported by pipe piles to minimize the amount of excavation and site disturbance. As previously discussed, the proposed new deck extensions will cantilever farther north than the existing deck footprint. However, the reconstructed deck will have supports and foundations located within the existing development footprint. The proposed reconstructed decks will not alter the existing topography. Minimal excavations will be necessary to construct the pile caps and install the pipe piles for the new deck supports.

B. **Structures and improvements shall be located to preserve the most critical portion of the site and its natural landforms and vegetation:** The location of the proposed reconstructed decks off the northern end of the residence are within the existing developed area of the site, which has already been

disturbed during the original house construction, landscaping, and installation of the sewer and storm lines north of the residence. The pipe pile foundation system will extend the loads into the dense core of the slope consisting of very dense sandstone. This system will allow the reconstructed and expanded decks to be constructed with minimal amounts of excavation and disturbance near the top of the steep slope. The use of the deep foundations for the reconstruction will improve the slope stability by extending the deck loads into the very dense, stable sandstone.

.

As part of the submitted plans, a temporary erosion and sedimentation control (TESC) plan will likely need to be generated. This plan will clearly delineate the area of construction, as well as the means and methods used to reduce the erosion potential and potential for disturbance outside of the construction area. The disturbed area around the proposed new deck foundations will be landscaped to maintain appropriate permanent erosion control.

C. **The proposed development shall not result in greater risk or a need for increased buffers on neighboring properties:** The proposed development will not result in greater risk of instability on the site or the neighboring properties, or a create a need for increased buffers on neighboring properties. This is due to the transfer of the deck loads from the existing footings currently located on the loose near-surface soils and into the very dense underlying sandstone that comprises the core of the steep slope with the new pipe pile foundation system. This will increase the stability of the steep slope.

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:** Minimal grading will be required to construct the new deep foundation system for the new decks. We understand no alterations to the contours of the slope through grading is proposed as part of the project. The natural grade downslope of deck reconstruction and expansion project will remain undisturbed.

E**. Development shall be designed to minimize impervious surfaces within the critical area and critical area buffer:** Downslope of the house, the proposed deck expansions towards to the top of the steep slope will cover an area that currently contains loose fill soils along the top of the steep slope, above slope's the very dense sandstone core. The underlying impervious sandstone prevents precipitation from percolating downward. Currently, any water in the proposed development area percolates through the loose fill soils to the contact with the sandstone below, where it naturally migrates laterally toward the top of the steep slope. If the deck uses flow-through materials, such as gapped decking boards, it is not necessary to collect the precipitation falling on the deck. Any stormwater collected from the proposed expanded deck footprint will be properly directed away from the top of the steep slope to the stormwater drainage system.

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:** Based on our understanding of the project, the proposed project does not include any regrading or topographic modification.

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:** It is our understanding that no freestanding retaining walls or rockeries are planned for the project.

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:** As discussed above, the reconstructed/expanded decks will be supported on posts supported on pipe piles in pole-type construction. No modifications to the existing topography are planned as part of the project to our knowledge.

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:** This is not applicable to the project, as there will be no alteration to the parking and garage spaces on the southern, upslope, side of the house.

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.** Outside of the footprint of the new construction, we expect that all areas of new permanent disturbance and all areas of temporary disturbance will be mitigated with erosion control and restoration plans as a part of the building permit.

Section 20.25H.140 Critical Areas Report – Additional Provisions for Landslide Hazards and Steep Slopes:

A. **The provisions for coal mine hazard areas in LUC 20.25H.130 may not be modified through a critical areas report.** Not applicable. The site is not in a coal mine hazard.

B. 1. **Site and Construction Plans. The report shall include a copy of the site plans for the proposal and a topographic survey:** The attached Site Exploration plan shows the configuration of the proposed development and includes topographic information.

2. **Assessment of Geological Characteristics.** This geotechnical report includes an assessment of the onsite soils as well as a review of the site history including publicly available information regarding previous geologic events and site grading. Please refer to the ***Surface, Subsurface***, and ***General*** sections of the report.

3. **Analysis of Proposal.** The above discussions contain descriptions of the proposed project, which will include minimal disturbances to the site area within the prescriptive steep slope buffer, as well as its potential impact on the hazard area and surrounding properties.

As a part of our study, we completed a limit equilibrium slope stability analysis using the program Slope/W. This analysis was conducted to assess the safety factor against a potential slope failure that could reach the proposed new deck supports. The results of this slope stability analysis are attached to the end of this report. Based on our results, theoretical potential failure surfaces that could reach the downslope edge of the proposed deck foundations under static and seismic conditions have safety factors greater than 1.5 and 1.15, respectively.

4. **Minimum Critical Area Buffer and Building Setback.** The existing construction, as well as the proposed reconstructed and expanded decks will encroach within City of Bellevue's prescriptive top-of-slope buffer of 50 feet. The new foundations for the reconstructed deck will be at least 20 feet from the top of the steep slope. Considering the recommendations presented in this report, it is our professional opinion that this reduced steep slope buffer will not adversely impact the slope's stability, and will actually improve the stability of the slope. Also, our recommendations are intended to protect the new residence addition from damage from potential future shallow slope movement.

Section 20.25H.145 Critical Areas Report – Approval of Modification:

A. **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 proposal will not increase the geological hazards to adjacent properties due to the new foundations being supported on pipe piles embedded into the very dense sandstone core of the steep slope. Furthermore, removing the existing deck loads from the loose near-surface soils will improve the stability of the steep slope.

B. **Will not adversely impact other critical areas:** The proposed modifications to the prescriptive onsite buffers will not adversely impact other critical areas due to the competent nature of the underlying

sandstone, the use of foundations supported on pipe piles embedded into the very dense sandstone, and the removal of the existing deck loads from the loose near-surface fill soils at the top of the steep slope.

C. **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 hazard to the project is mitigated to a level equal to, or less than, would exist if the proposed modifications to critical area buffers were not approved. The reconstructed foundations will transmit the structural loads down the very dense, stable, sandstone that comprises the core of the steep slope. The removal of the existing deck loads from the loose near-surface soils and extending them to the sandstone below will also improve the slope stability. Thus, the proposed deck reconstruction and expansions will not adversely impact the stability of the steep slope, and will actually improve its stability.

D. **Is certified as safe as designed and under anticipated conditions by a qualified engineer or geologist, licensed in the state of Washington:** The proposed development protects life safety under the conditions that we anticipate. The foundations of the proposed new deck will be supported on pipe piles driven into the very dense sandstone that comprises the core of the steep slope.

E. **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.** This geotechnical report has been prepared by a Registered Professional Engineer with expertise in geotechnical engineering. The report is intended to satisfy this criteria for a geotechnical report demonstrating no adverse impacts on stability of surrounding slopes or structures.

F. **Any modification complies with recommendations of the geotechnical support with respect to best management practices, construction techniques or other recommendations:** From our understanding of the current development proposal, if it incorporates the recommendations of this *Geotechnical Engineering Study*, it will comply with best management practices.

G. **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.** We are not aware of any species of importance in the planned work area.

SEISMIC CONSIDERATIONS

In accordance with the International Building Code (IBC), the site class within 100 feet of the ground surface is best represented by Site Class Type C (Very Dense Soil and Soft Rock). As noted in the USGS website, the mapped spectral acceleration value for a 0.2 second (S_s) and 1.0 second period (S_1) equals 1.35g and 0.47g, respectively.

The IBC and ASCE 7 require that the potential for liquefaction (soil strength loss) be evaluated for the peak ground acceleration of the Maximum Considered Earthquake (MCE), which has a probability of occurring once in 2,475 years (2 percent probability of occurring in a 50-year period). The materials beneath the site are not susceptible to seismic liquefaction under the ground motions of the MCE because the lack of a near-surface water table, or the dense, compact nature of the bedrock.

PIPE PILES

A 2-inch-diameter pipe pile driven with a minimum 90-pound jackhammer or a 140-pound Rhino hammer to a final penetration rate of 1-inch or less for one minute of continuous driving may be assigned an allowable compressive load of 3 tons. Extra-strong steel pipe should be used. The site soils are not highly organic, and are not located near salt water. As a result, they do not have an elevated corrosion potential. Considering this, it is our opinion that standard "black" pipe can be used, and corrosion protection, such as galvanizing, is not necessary for the pipe piles. Subsequent pipe sections should be connected together using threaded or slip couplers, or by welding. If slip couplers are used, they must fit snugly into the ends of the pipes. This can require that shims or beads of welding flux be applied to the couplers.

Pile caps and grade beams should be used to transmit loads to the piles. We recommend that each pile cap contain a minimum of three piles, with one vertical and two battered downslope to the north at a 1:5 (Horizontal:Vertical) inclination.

The City of Bellevue has adopted the Seattle Director's Rule 10-2009 contains several prescriptive requirements related to the use of pipe piles having a diameter of less than 10 inches. Under Director's Rule 10-2009, load tests are not required for 2-inch-diameter piles that are designed for an allowable 3-ton capacity. Load tests and a code alternate or modification would be required if alternative installation methods are used, or if a higher capacity is desired. Additionally, full-time observation of the pile installation by the geotechnical engineer-of-record is required for projects within Bellevue.

The lateral capacity of 2-inch pipe piles is negligible. Due to the ground surface sloping downwards to the north and away from the deck foundations, no passive earth resistance can be accounted for against the pile caps or grade beams. Friction on the base of the pile-supported foundations cannot be assumed either. Lateral resistance could be obtained by driving battered piles in the same direction as the applied lateral load. The lateral capacity of a battered pile is equal to one-half of the lateral component of the allowable compressive load, with a maximum allowable lateral capacity of 500 pounds. The allowable vertical capacity of battered piles does not need to be reduced if the piles are battered steeper than 1:5 (Horizontal:Vertical).

LIMITATIONS

The conclusions and recommendations contained in this report are based on site conditions as they existed at the time of our exploration and assume that the soil and groundwater conditions encountered in the test borings are representative of subsurface conditions on the site. If the subsurface conditions encountered during construction are significantly different from those observed in our explorations, we should be advised at once so that we can review these conditions and reconsider our recommendations where necessary. Unanticipated conditions are commonly encountered on construction sites and cannot be fully anticipated by merely taking samples in test borings. Subsurface conditions can also vary between exploration locations. Such unexpected conditions frequently require making additional expenditures to attain a properly constructed project. It is recommended that the owner consider providing a contingency fund to accommodate such potential extra costs and risks. This is a standard recommendation for all projects.

The recommendations presented in this report are directed toward the protection of only the proposed new deck from damage due to slope movement. Predicting the future behavior of steep slopes and the potential effects of development on their stability is an inexact and imperfect science

that is currently based mostly on the past behavior of slopes with similar characteristics. Landslides and soil movement can occur on steep slopes before, during, or after the development of property. The owner of any property containing, or located close to steep slopes must ultimately accept the possibility that some slope movement could occur, resulting in possible loss of ground or damage to the facilities around the new deck.

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

ADDITIONAL SERVICES

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

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

The following plates are attached to complete this report:

Plate 1	Vicinity Map
Plate 2	Site Exploration Plan
Plate 3	Test Boring Log
Appendix	Slope Stability Analyses

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

Respectfully submitted,

GEOTECH CONSULTANTS, INC.

Adam S. Moyer
Geotechnical Engineer

5/8/2023
Marc R. McGinnis, P.E.
Principal

ASM/MRM:kg

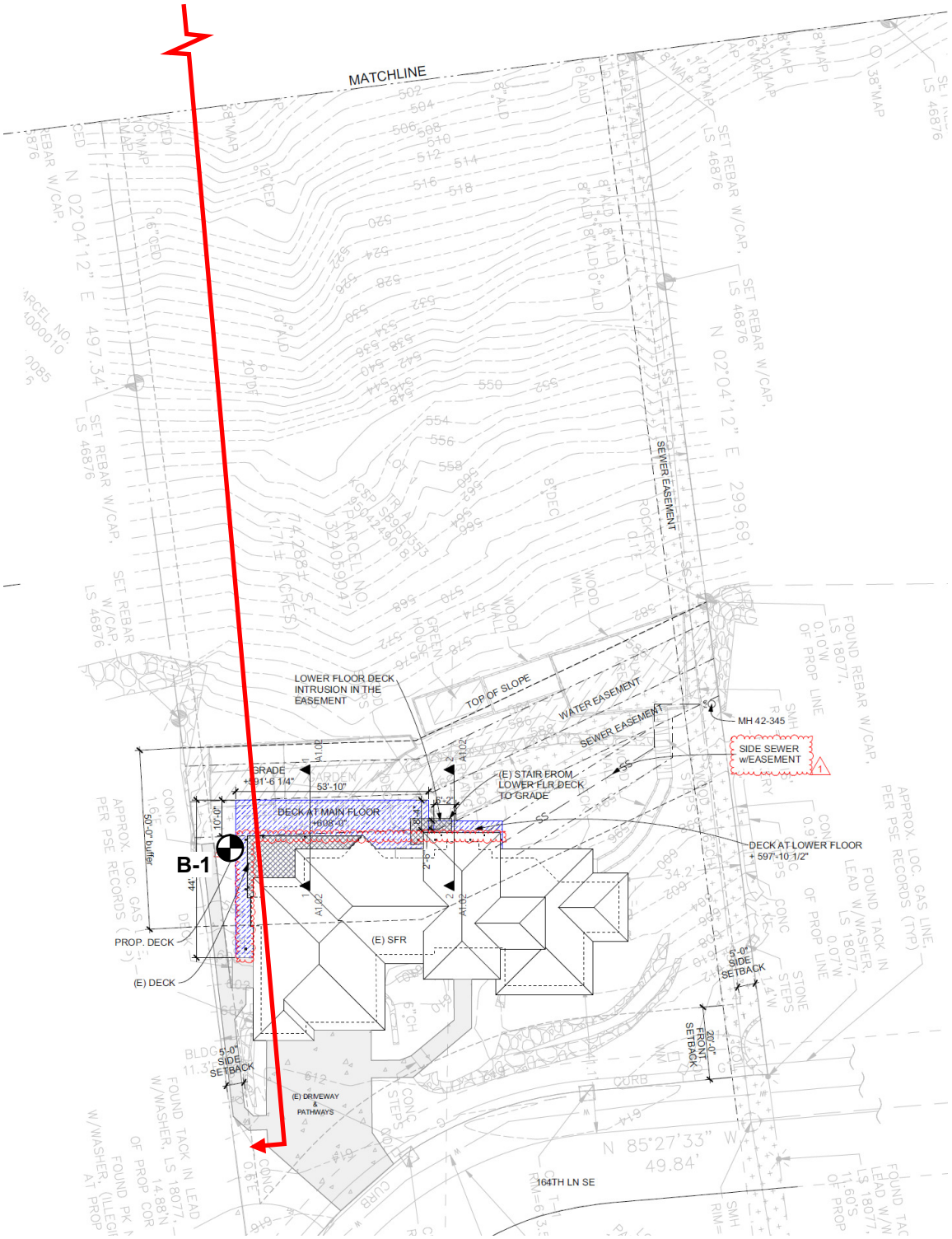
(Source: Microsoft MapPoint, 2013)

GEOTECH CONSULTANTS, INC.

VICINITY MAP

4411 - 164th Lane Southeast
Bellevue, Washington

Job No:	Date:		Plate:
23086	May 2023		1



Legend:

Test Boring Location

Slope Stability Analysis Cross Section

GEOTECH CONSULTANTS, INC.

SITE EXPLORATION PLAN

4411 - 164th Lane Southeast
Bellevue, Washington

Job No:	Date:		Plate:
23086	May 2023	No Scale	2

BORING 1

Depth (ft.)	Moisture	Water Table	Blows per Foot	Sample	USCS	Description
					FILL	Gray silty SAND with gravel, fine- to medium-grained, moist, loose **(FILL)**
			12	1	SM / ML	Rust-brown silty SAND / sandy SILT, very fine-grained, moist, loose (Weathered Sandstone)
5			12	2	SM / ML	-becomes brown with rust mottling, with occasional organics and dense sandstone inclusions
			87/10"	3	Rx	Gray with iron oxide staining, SANDSTONE, moist, very dense
10			50/3"	4	Rx	-becomes dark-rust-brown, very moist to wet
			50/1"	5	Rx	-becomes gray-brown with iron oxide staining -becomes gray
15						

*** Test boring was terminated at 11.6 feet on April 13, 2023 due to refusal.**

*** No groundwater was encountered during drilling.**

GEOTECH
CONSULTANTS, INC.

TEST BORING LOG

4411 - 164th Lane Southeast
Bellevue, Washington

Job No:	Date:	Logged by:	Plate:
23086	May 2023	ASM	3

JN 23086 - Bates
Slope Stability Analysis

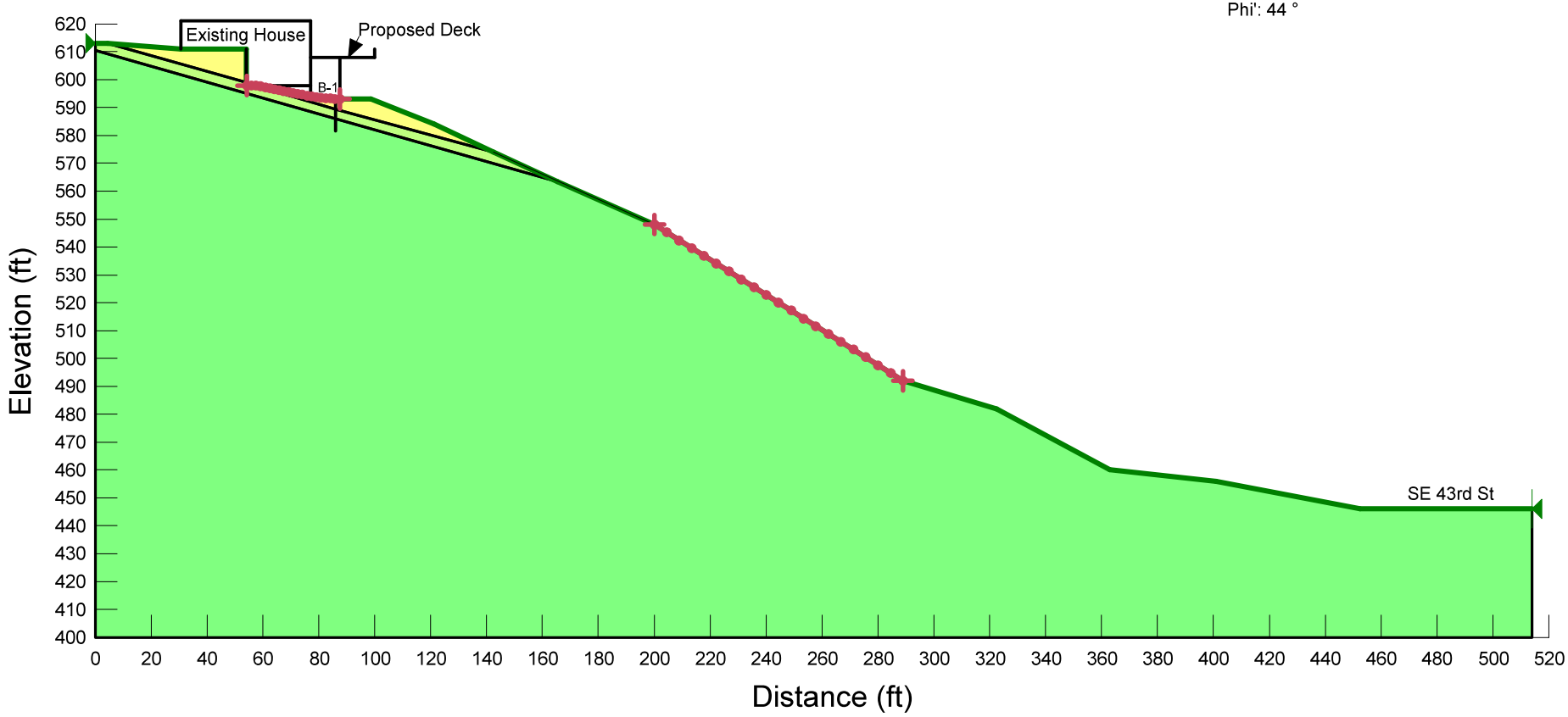
Materials
- Loose Silty Sand FILL
- Meduim-Dense Silty SAND / Sandy SILT
- Very Dense SANDSTONE

Name: Loose Silty Sand FILL
Unit Weight: 120 pcf
Cohesion': 0 psf
Phi': 28 °

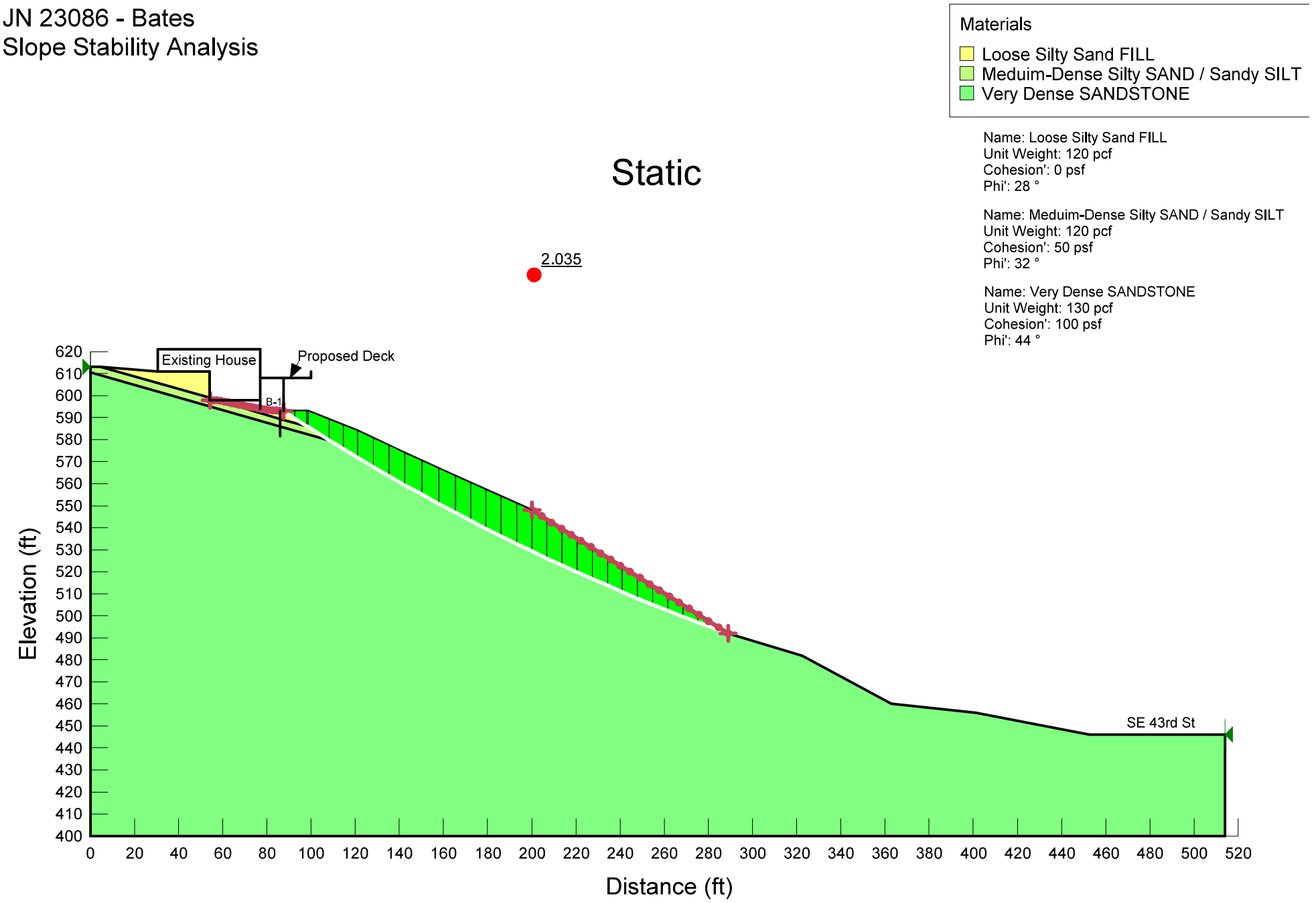
Name: Meduim-Dense Silty SAND / Sandy SILT
Unit Weight: 120 pcf
Cohesion': 50 psf
Phi': 32 °

Name: Very Dense SANDSTONE
Unit Weight: 130 pcf
Cohesion': 100 psf
Phi': 44 °

Cross Section



JN 23086 - Bates
Slope Stability Analysis



Static

File Information

File Version: 8.15
Title: 23086 Slope Stability Analysis
Created By: Adam Moyer
Last Edited By: Adam Moyer
Revision Number: 19
Date: 5/5/2023
Time: 7:49:04 PM
Tool Version: 8.15.6.13446
File Name: 23086 Slope Stability Analysis.gsz
Directory: C:\Users\AdamM\Geotech Consultants\Shared Documents - Documents\2023 Jobs\23086 Bates (MRM)\

Project Settings

Length(L) Units: Feet
Time(t) Units: Seconds
Force(F) Units: Pounds
Pressure(p) Units: psf
Strength Units: psf
Unit Weight of Water: 62.4 pcf
View: 2D
Element Thickness: 1

Analysis Settings

Static

Kind: SLOPE/W
Method: Morgenstern-Price
Settings
Side Function
Interslice force function option: Half-Sine
PWP Conditions Source: (none)
Slip Surface
Direction of movement: Left to Right
Use Passive Mode: No
Slip Surface Option: Entry and Exit
Critical slip surfaces saved: 1
Resisting Side Maximum Convex Angle: 1 °
Driving Side Maximum Convex Angle: 5 °
Optimize Critical Slip Surface Location: No
Tension Crack

Tension Crack Option: (none)

F of S Distribution

F of S Calculation Option: Constant

Advanced

Number of Slices: 30

F of S Tolerance: 0.001

Minimum Slip Surface Depth: 0.1 ft

Search Method: Root Finder

Tolerable difference between starting and converged F of S: 3

Maximum iterations to calculate converged lambda: 20

Max Absolute Lambda: 2

Materials

Loose Silty Sand FILL

Model: Mohr-Coulomb

Unit Weight: 120 pcf

Cohesion': 0 psf

Phi': 28 °

Phi-B: 0 °

Meduim-Dense Silty SAND / Sandy SILT

Model: Mohr-Coulomb

Unit Weight: 120 pcf

Cohesion': 50 psf

Phi': 32 °

Phi-B: 0 °

Very Dense SANDSTONE

Model: Mohr-Coulomb

Unit Weight: 130 pcf

Cohesion': 100 psf

Phi': 44 °

Phi-B: 0 °

Slip Surface Entry and Exit

Left Projection: Range

Left-Zone Left Coordinate: (54.15203, 598) ft

Left-Zone Right Coordinate: (87.5, 593) ft

Left-Zone Increment: 20

Right Projection: Range

Right-Zone Left Coordinate: (200, 548) ft

Right-Zone Right Coordinate: (289, 492) ft

Right-Zone Increment: 20

Radius Increments: 20

Slip Surface Limits

Left Coordinate: (0, 613) ft
Right Coordinate: (514, 446) ft

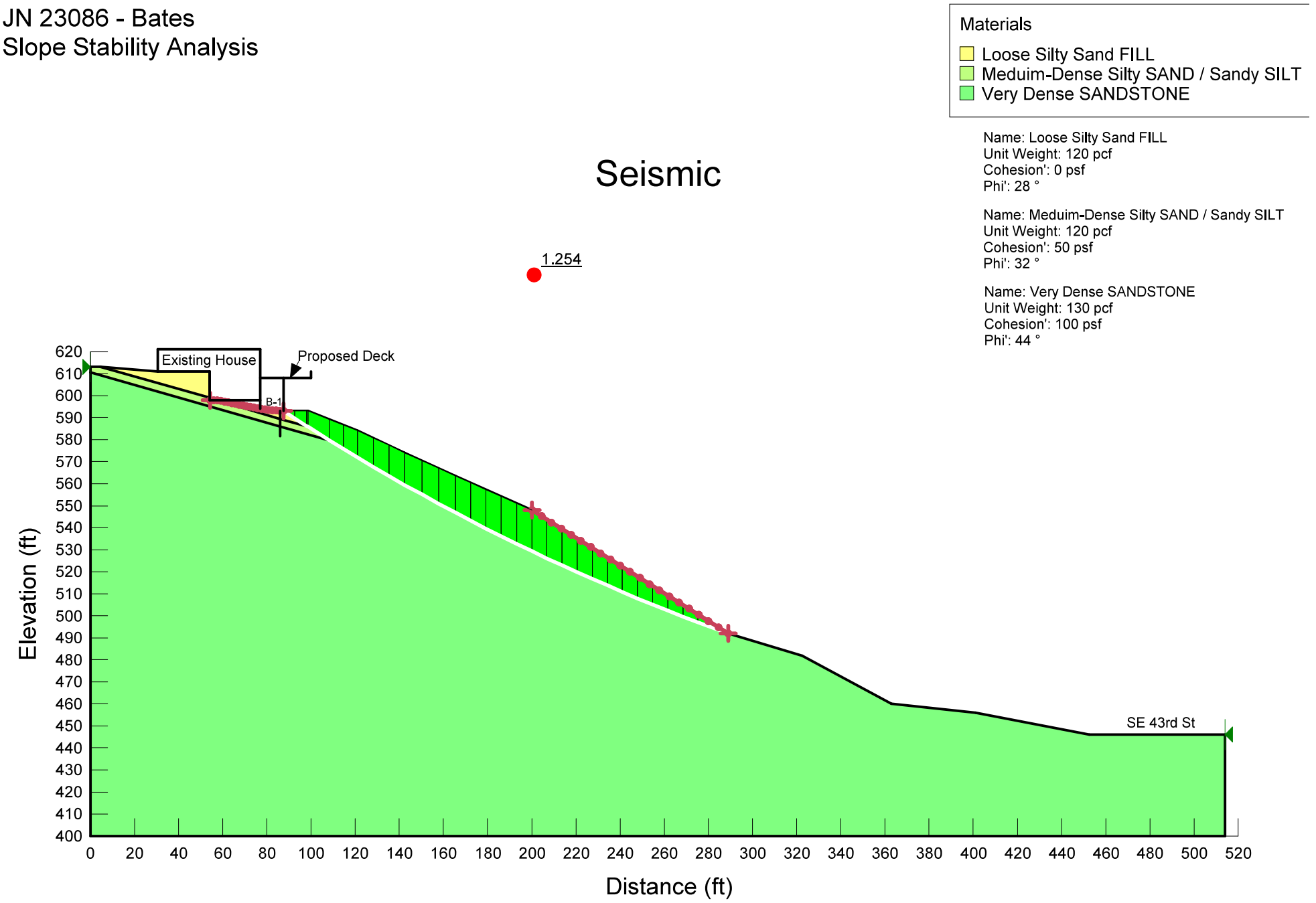
Points

	X (ft)	Y (ft)
Point 1	0	613
Point 2	30.5	611
Point 3	54	611
Point 4	54	598
Point 5	77	594
Point 6	86	593
Point 7	98.5	593
Point 8	121	584
Point 9	200	548
Point 10	289	492
Point 11	322.5	482
Point 12	363	460
Point 13	401	456
Point 14	452.5	446
Point 15	514	446
Point 16	514	400
Point 17	0	400
Point 18	86	589.5
Point 19	86	586
Point 20	86	581.5
Point 21	142.5	574
Point 22	70.5	594
Point 23	57	598
Point 24	0	610.5
Point 25	165.5	563.5
Point 26	4.5	613
Point 27	54	599

Regions

	Material	Points	Area (ft²)
Region 1	Very Dense SANDSTONE	24,17,16,15,14,13,12,11,10,9,25,19	60,445
Region 2	Meduim-Dense Silty SAND / Sandy SILT	26,1,24,19,25,21,18,22,23,4,27	575.63
Region 3	Loose Silty Sand FILL	26,2,3,27	273.5
Region 4	Loose Silty Sand FILL	23,5,6,7,8,21,18,22	276.75

JN 23086 - Bates
Slope Stability Analysis



Seismic

File Information

File Version: 8.15
Title: 23086 Slope Stability Analysis
Created By: Adam Moyer
Last Edited By: Adam Moyer
Revision Number: 19
Date: 5/5/2023
Time: 7:49:04 PM
Tool Version: 8.15.6.13446
File Name: 23086 Slope Stability Analysis.gsz
Directory: C:\Users\AdamM\Geotech Consultants\Shared Documents - Documents\2023 Jobs\23086 Bates (MRM)\

Project Settings

Length(L) Units: Feet
Time(t) Units: Seconds
Force(F) Units: Pounds
Pressure(p) Units: psf
Strength Units: psf
Unit Weight of Water: 62.4 pcf
View: 2D
Element Thickness: 1

Analysis Settings

Seismic

Kind: SLOPE/W
Method: Morgenstern-Price
Settings
    Side Function
        Interslice force function option: Half-Sine
    PWP Conditions Source: (none)
Slip Surface
    Direction of movement: Left to Right
    Use Passive Mode: No
    Slip Surface Option: Entry and Exit
    Critical slip surfaces saved: 1
    Resisting Side Maximum Convex Angle: 1 °
    Driving Side Maximum Convex Angle: 5 °
    Optimize Critical Slip Surface Location: No
    Tension Crack

Tension Crack Option: (none)

F of S Distribution

F of S Calculation Option: Constant

Advanced

Number of Slices: 30

F of S Tolerance: 0.001

Minimum Slip Surface Depth: 0.1 ft

Search Method: Root Finder

Tolerable difference between starting and converged F of S: 3

Maximum iterations to calculate converged lambda: 20

Max Absolute Lambda: 2

Materials

Loose Silty Sand FILL

Model: Mohr-Coulomb

Unit Weight: 120 pcf

Cohesion': 0 psf

Phi': 28 °

Phi-B: 0 °

Meduim-Dense Silty SAND / Sandy SILT

Model: Mohr-Coulomb

Unit Weight: 120 pcf

Cohesion': 50 psf

Phi': 32 °

Phi-B: 0 °

Very Dense SANDSTONE

Model: Mohr-Coulomb

Unit Weight: 130 pcf

Cohesion': 100 psf

Phi': 44 °

Phi-B: 0 °

Slip Surface Entry and Exit

Left Projection: Range

Left-Zone Left Coordinate: (54.15203, 598) ft

Left-Zone Right Coordinate: (87.5, 593) ft

Left-Zone Increment: 20

Right Projection: Range

Right-Zone Left Coordinate: (200, 548) ft

Right-Zone Right Coordinate: (289, 492) ft

Right-Zone Increment: 20

Radius Increments: 20

Slip Surface Limits

Left Coordinate: (0, 613) ft
Right Coordinate: (514, 446) ft

Seismic Coefficients

Horz Seismic Coef.: 0.231

Points

	X (ft)	Y (ft)
Point 1	0	613
Point 2	30.5	611
Point 3	54	611
Point 4	54	598
Point 5	77	594
Point 6	86	593
Point 7	98.5	593
Point 8	121	584
Point 9	200	548
Point 10	289	492
Point 11	322.5	482
Point 12	363	460
Point 13	401	456
Point 14	452.5	446
Point 15	514	446
Point 16	514	400
Point 17	0	400
Point 18	86	589.5
Point 19	86	586
Point 20	86	581.5
Point 21	142.5	574
Point 22	70.5	594
Point 23	57	598
Point 24	0	610.5
Point 25	165.5	563.5
Point 26	4.5	613
Point 27	54	599

Regions

	Material	Points	Area (ft²)
Region 1	Very Dense SANDSTONE	24,17,16,15,14,13,12,11,10,9,25,19	60,445
Region 2	Meduim-Dense Silty SAND / Sandy SILT	26,1,24,19,25,21,18,22,23,4,27	575.63
Region 3	Loose Silty Sand FILL	26,2,3,27	273.5
Region 4	Loose Silty Sand FILL	23,5,6,7,8,21,18,22	276.75

LEGAL DESCRIPTION

PARCEL A
LOT 1, KING COUNTY SHORT PLAT NO. S89S0353, ACCORDING TO THE SHORT PLAT RECORDED UNDER RECORDING NUMBER 9504249018, RECORDS OF KING COUNTY, STATE OF WASHINGTON;

TOGETHER WITH TRACT A OF SAID SHORT PLAT.

PARCEL B:
A NON-EXCLUSIVE EASEMENT FOR INGRESS AND EGRESS AS DELINEATED ON KING COUNTY LOT LINE ADJUSTMENT NO. S91L0085 RECORDED UNDER RECORDING NO. 9407210616, AND SURVEY RECORDED UNDER RECORDING NO. 9112199012, RECORDS OF KING COUNTY, WASHINGTON;

EXCEPT THAT PORTION LYING WITHIN ABOVE PARCEL A.

PARCEL C:
A NON-EXCLUSIVE EASEMENT FOR INGRESS AND EGRESS DISCLOSED BY INSTRUMENT RECORDED UNDER RECORDING NO. 9805281047 WHICH IS A RE-RECORD OF 9504170881 AND AMENDED BY 9805281048, WHICH IS A RE-RECORD OF 9507200261;

EXCEPT THAT PORTION LYING WITHIN ABOVE PARCEL A.
SITUATE IN THE COUNTY OF KING, STATE OF WASHINGTON.

BASIS OF BEARINGS

WASHINGTON COORDINATE SYSTEM, NAD83(2011), NORTH ZONE, DERIVED FROM CITY OF BELLEVUE SURVEY CONTROL NETWORK - ACCEPTED THE BEARING OF N 74°13'49" W BETWEEN THE WEST QUARTER CORNER OF SECTION 13, TOWNSHIP 24 N., RANGE 5 E., W.M. AND THE INTERSECTION OF SE 44TH PL AND 167TH AVE SE, BASED ON FOUND MONUMENTS AT PUBLISHED CITY OF BELLEVUE SURVEY CONTROL POINT NOS. 140 & 392.

VERTICAL DATUM & CONTOUR INTERVAL

NAVD88 - ELEVATIONS SHOWN ON THIS DRAWING WERE DERIVED FROM INFORMATION PROVIDED BY CITY OF BELLEVUE SURVEY CONTROL DATABASE.

POINT ID NO. V362 - BRASS DISK AT SOUTHEAST CORNER OF BRICK PLANTER WITH CONCRETE BASE IN THE NORTHWEST QUADRANT OF THE INTERSECTION OF SE 44TH PL AND 164TH LN SE.

ELEVATION: 649.739 FEET

2.0' CONTOUR INTERVAL ARE DERIVED FROM DIRECT FIELD OBSERVATIONS - THE EXPECTED VERTICAL ACCURACY IS EQUAL TO 1/2 CONTOUR INTERVAL OR ± 1.0' FOR THIS PROJECT

REFERENCES

1. JEFFREY HEIGHTS, VOL. 65, PG. 79, RECORDS OF KING COUNTY, WA.
2. KING COUNTY SHORT PLAT NO. S89S0352, VOL. 103, PGS. 122-122A, RECORDS OF KING COUNTY, WA.

SURVEY PURPOSE

VIEW CLEARING PERMIT

GENERAL NOTES

1. THIS SURVEY WAS COMPLETED WITHOUT BENEFIT OF A CURRENT TITLE REPORT. EASEMENTS AND OTHER ENCUMBRANCES MAY EXIST ON THIS PROPERTY THAT ARE NOT SHOWN HEREON.
2. INSTRUMENTATION FOR THIS SURVEY WAS A 3-SECOND LEICA TS16 ROBOTIC TOTAL STATION AND/OR LEICA GS16 GPS RECEIVER. PROCEDURES USED IN THIS SURVEY MEET OR EXCEED STANDARDS SET BY WAC 332-130-090.
3. THE INFORMATION ON THIS MAP REPRESENTS THE RESULTS OF A SURVEY MADE IN FEBRUARY 2021 AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME.
4. UTILITIES SHOWN ON THIS SURVEY ARE BASED UPON ABOVE GROUND OBSERVATIONS AND AS-BUILT PLANS WHERE AVAILABLE. ACTUAL LOCATIONS OF UNDERGROUND UTILITIES MAY VARY AND UTILITIES NOT SHOWN ON THIS SURVEY MAY EXIST ON THIS SITE.
5. ALL MONUMENTS WERE LOCATED DURING IN OCTOBER, 2020.

PROJECT INFORMATION

TAX PARCEL NUMBER:	1324059047
PROJECT ADDRESS:	4411 164TH LN SE BELLEVUE, WA 98006
ZONING:	R-3.5
JURISDICTION:	BELLEVUE
TOTAL PARCEL ACREAGE:	74,288 S.F. (1.71± ACRES) AS SURVEYED

SW 1/4, NW 1/4, SEC. 13, T. 24 N., R. 5 E., W.M.

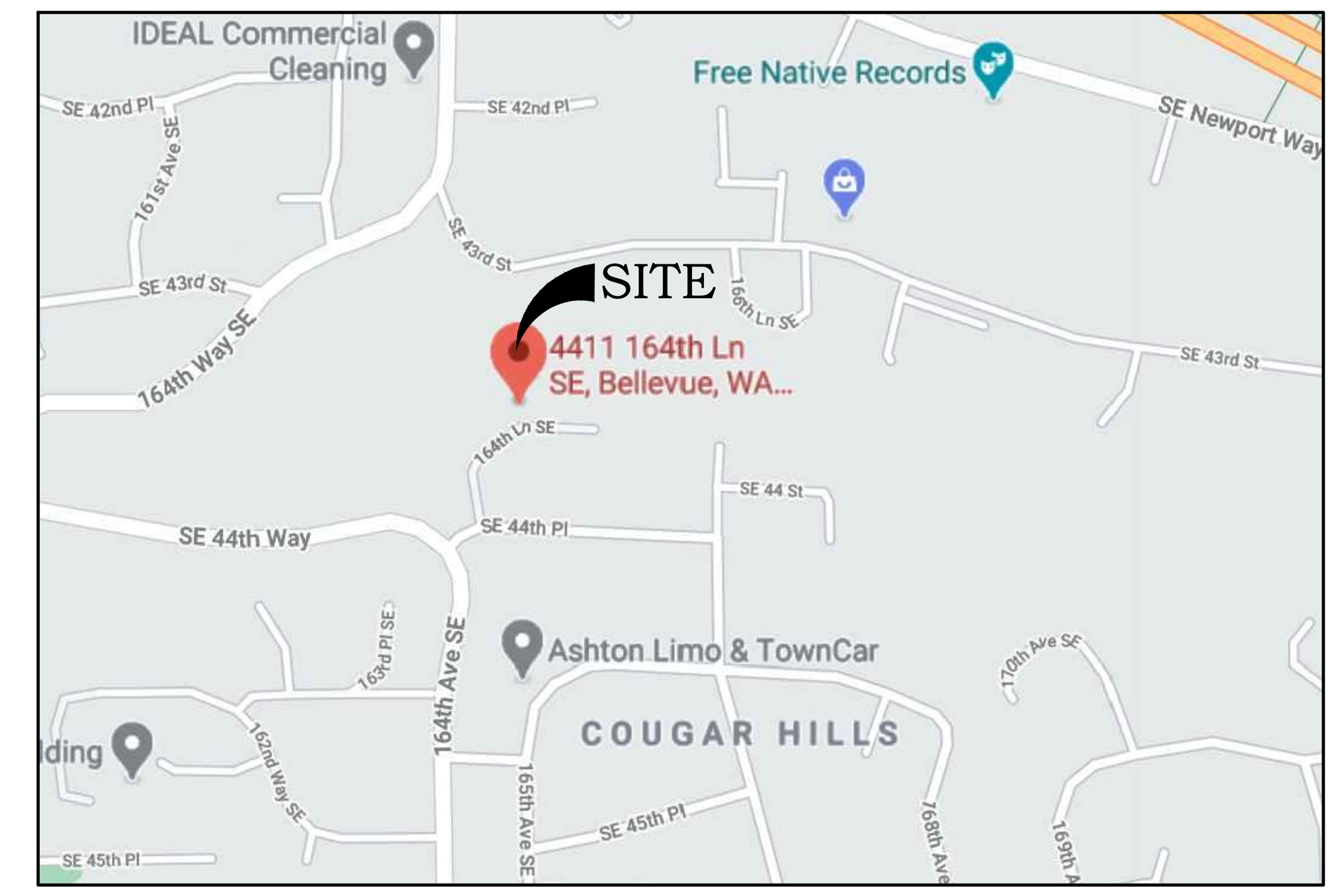
LEGEND

CH	CHERRY	— SD —	STORM DRAINAGE LINE
ALD	ALDER	— W —	WATER LINE
CED	CEDAR	— G —	GAS LINE
DF	DOUGLAS FIR		HOGWIRE FENCE
MAP	MAPLE		BUILDING LINE
	MANHOLE		CONCRETE WALL
CO	CLEANOUT		ASPHALT SURFACE
WM	WATER METER		CONCRETE SURFACE
GM	GAS METER		ROCKERY
COL	COLUMN		FOUND BRASS DISK
ACU	AC UNIT		SET/FOUND NAIL AS DESCRIBED
	CB (TYPE–1)		SET/FOUND AS DESCRIBED
	SECTION CORNER		FOUND MONUMENT IN CASE
MRKSW	SEWER MARKER		FOUND 1/4 SECTION CORNER
	CULVERT	DITCH	DITCH

INGRESS, EGRESS & UTILITIES ESM'T, REC. NO. 9504170881

SEWER ESM'T, REC. NO. 9504249018

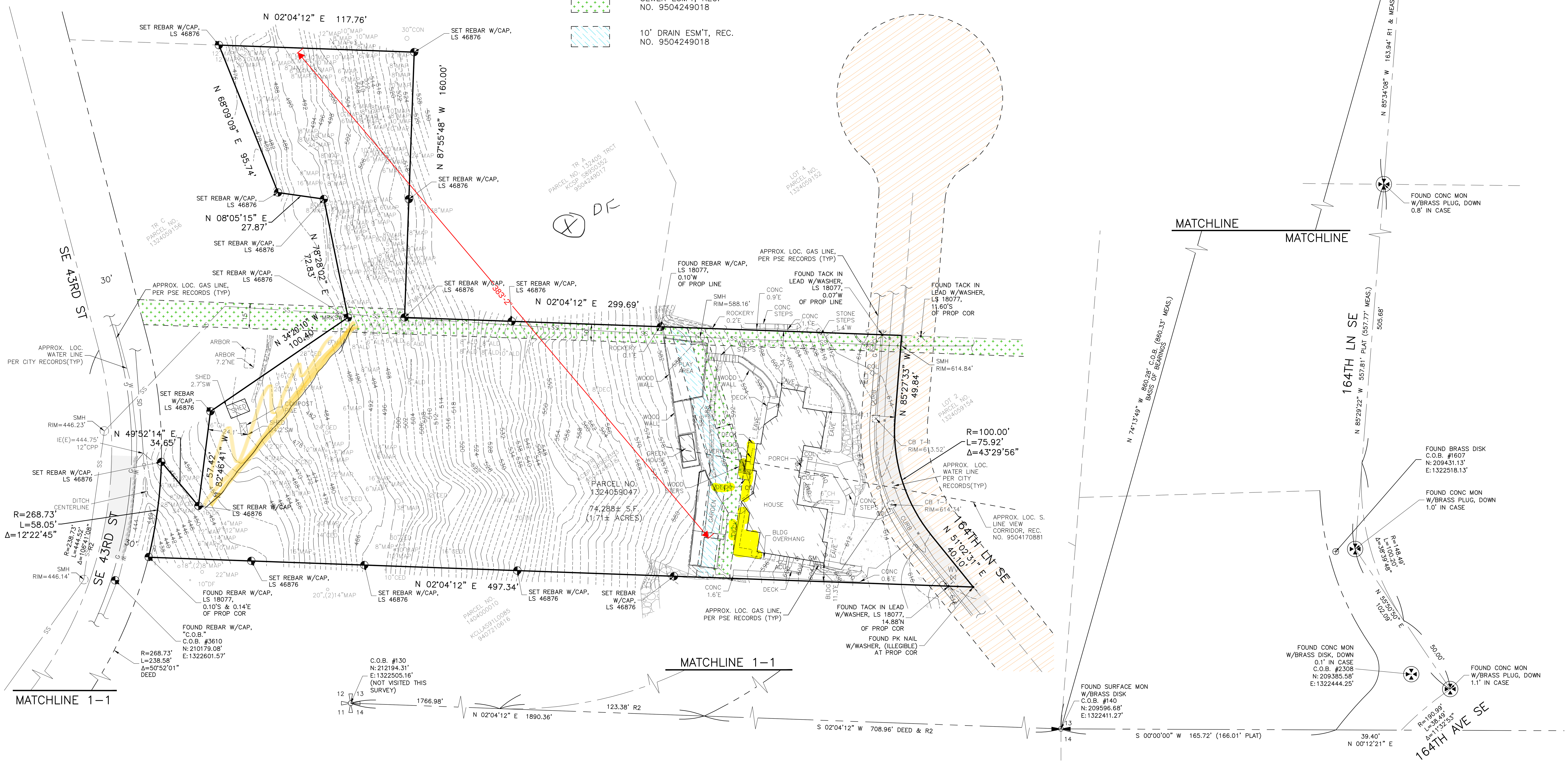
10' DRAIN ESM'T, REC. NO. 9504249018



VICINITY MAP
NTS

N

GRAPHIC SCALE
15 0 15 30 60
1 INCH = 30 FT.



Ph: 206.406.1257
nicoleb@bbasurveying.com
www.bbasurveying.com

BBA Land Surveying

MARK A. BORYS, STATE OF WASHINGTON, REGISTERED PROFESSIONAL LAND SURVEYOR, 46876, 03/01/21

DATE	REVISION	DRN

BOUNDARY & TOPOGRAPHIC SURVEY

JUSTIN BATES
4411 164TH LN SE
BELLEVUE, 98006

JOB NO.	19006
DRAWN BY:	RSN
CHECKED BY:	MAB
DATE:	03/01/2021

SHEET
1 OF 1