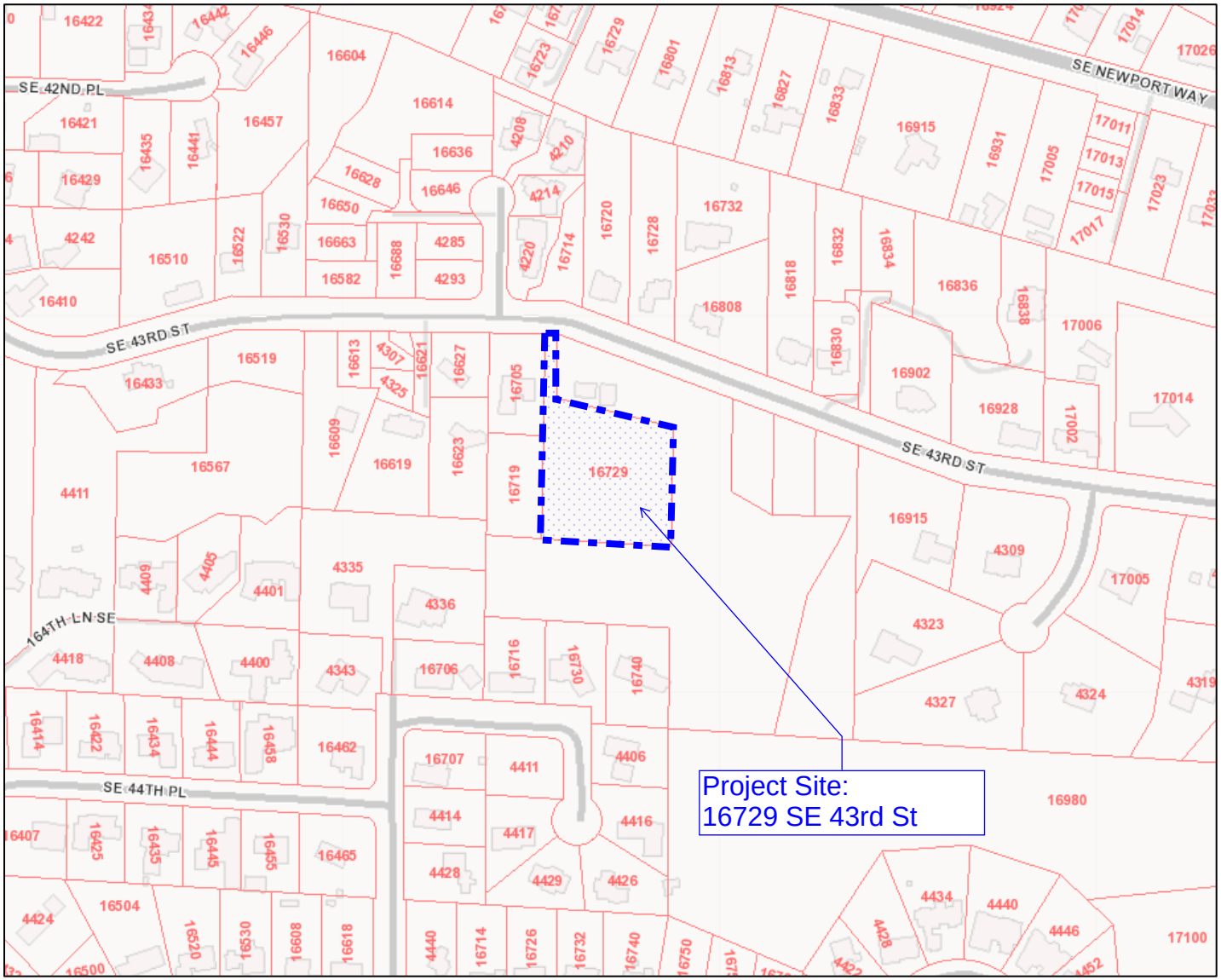
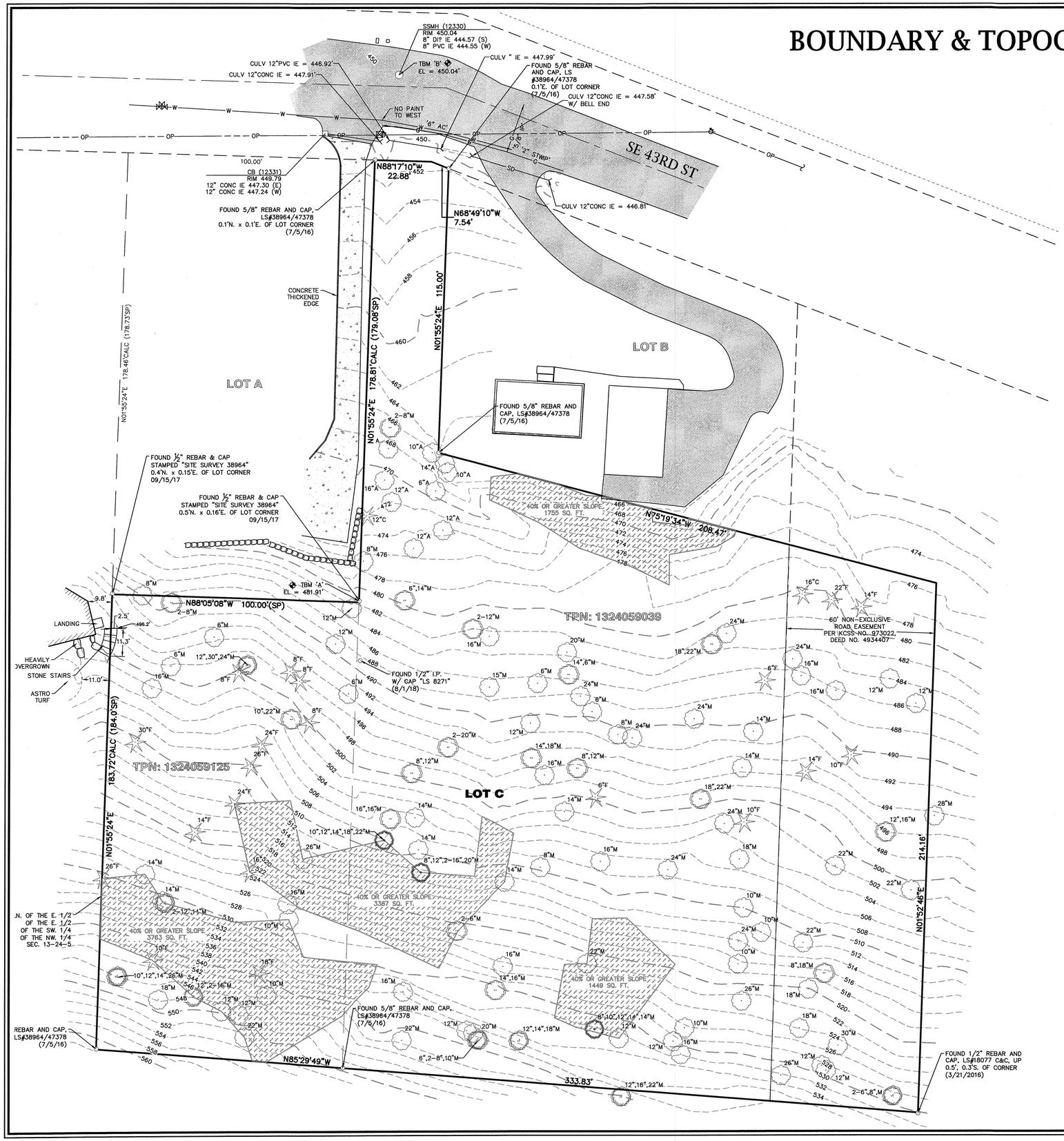
Vicinity Map for Gilderman Residence
File 18-128574-LO



BOUNDARY & TOPOGRAPHIC SURVEY



Axis

GRAPHIC SCALE

20' 10' 0 20' 40'

1" = 20'

2' CONTOUR INTERVAL

BASIS OF BEARINGS

HELD A BEARING OF N75°36'00"E, BETWEEN THE WEST QUARTER CORNER COB CONTROL #140 AND COB CONTROL #3613 MONUMENTS. NAD83/2011 (CITY OF BELLEVUE, WA) NORTH ZONE

RIGHT-OF-WAY NOTE: THE PARCEL LEGAL DESCRIPTIONS CALL FOR OWNERSHIP OF THE EXISTING ROADBED OF SE 43RD ST. AFTER FURTHER DISCUSSION WITH OUR CLIENT, CONSULTATION WITH CITY STAFF AND ADDITIONAL REVIEW OF THE CITED DEEDS AND UNDERLYING COUNTY ROAD SURVEY THIS SURVEY HOLDS A 30' OFFSET RIGHT-OF-WAY ALIGNMENT FOR EDGE OF PRIVATE OWNERSHIP.

LEGAL DESCRIPTION

LOT C OF KING COUNTY SHORT PLAT NUMBER 973022 RECORDED UNDER AUDITOR FILE NUMBER 8404100930, BEING A PORTION OF SECTION 13, TOWNSHIP 24 NORTH, RANGE 5 EAST, W.M., RECORDS OF KING COUNTY, WASHINGTON.

EQUIPMENT NOTES

PRIMARY CONTROL POINTS AND ACCESSIBLE MONUMENT POSITIONS WERE FIELD MEASURED UTILIZING GLOBAL POSITIONING SYSTEM (GPS) SURVEY TECHNIQUES USING LEICA GS14 GPS/GNSS EQUIPMENT EQUIPMENT. MONUMENT POSITIONS THAT WERE NOT DIRECTLY OBSERVED USING GPS SURVEY TECHNIQUES WERE TIED INTO THE CONTROL POINTS UTILIZING LEICA ELECTRONIC 1201 TOTAL STATIONS FOR THE MEASUREMENT OF BOTH ANGLES AND DISTANCES. THIS SURVEY MEETS OR EXCEEDS THE STANDARDS SET BY WACS 332-130-080/090.

DATUM

HORIZONTAL DATUM: NAD '83/'11

VERTICAL DATUM: NAVD '88

TEMPORARY BENCHMARK:

TBM 'A': 1/2" REBAR & CAP STAMPED "SITE SURVEY 38964", ±24' SOUTHERLY OF THE SOUTHEAST CORNER OF A CONCRETE DRIVEWAY FOR HOUSE NO. 16705.

ELEV = 481.91'

TBM 'B' CENTER LID OF A SANITARY SEWER MANHOLE LOCATED IN ASPHALT FOR SE 43RD ST, ±30' NORTHERLY OF THE NORTHEAST CORNER CONCRETE DRIVEWAY FOR HOUSE NO. 16705.

ELEV = 450.04'

REFERENCES

R1 – RECORD OF SURVEY BY JONES, BASSI & ASSOCIATES RECORDED DECEMBER 2ND, 1981 UNDER RECORDING NUMBER 8112029001.

R2 – RECORD OF SURVEY BY JONES ASSOCIATES, INC. RECORDED OCTOBER 7TH, 1977 UNDER RECORDING NUMBER 7710079013.

R3 – RECORD OF SURVEY BY O-K CONSULTANTS, INC. RECORDED OCTOBER 30TH, 1983 UNDER RECORDING NUMBER 8402079002.

SP – KING COUNTY SHORT PLAT NO. 973022 RECORDED APRIL 10TH, 1984 UNDER RECORDING NUMBER 8404100930.

P1 – FINAL PLAT OF SAMMAMISH TERRACE RECORDED IN VOLUME 80, PAGE 65.

R4 – CITY OF BELLEVUE BLA 16-131264 RECORDED SEPTEMBER 29TH, 2016 UNDER RECORDING NUMBER 20160929900007.

ALL RECORDS OF KING COUNTY, WASHINGTON.

PARCEL DATA

AREA = 76929.44 SQ. FT.

CRITICAL STEEP SLOPE AREAS

20.25H.120 DESIGNATION OF CRITICAL AREA AND BUFFERS.
THIS SECTION HAS BEEN AMENDED BY ORDINANCE 6417, WHICH IS PENDING DOE APPROVAL.

STEEP SLOPES: SLOPES OF 40 PERCENT OR MORE THAT HAVE A RISE OF AT LEAST 10 FEET AND EXCEED 1,000 SQUARE FEET IN AREA.

NOTES

NO EASEMENTS, RESTRICTIONS, OR RESERVATIONS OF RECORD WHICH WOULD BE DISCLOSED BY TITLE REPORT ARE SHOWN.

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF A SURVEY COMPLETED ON SEPTEMBER 19, 2017 & AUGUST 1, 2018 AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME.

THIS SURVEY DISCLOSES FACTORS OF RECORD AND ON THE GROUND AFFECTING THE SUBJECT PROPERTY BOUNDARY, BUT IT DOES NOT PURPORT TO LEGALLY RESOLVE RELATED PROPERTY LINE DISPUTES. WHERE AMBIGUITIES ARE NOTED, AXIS RECOMMENDS THAT THE OWNER CONSULT WITH LEGAL COUNSEL TO DETERMINE HOW BEST TO INTERPRET THEIR PROPERTY RIGHTS AND ADDRESS ANY POTENTIAL PROPERTY LINE DISPUTES.

UTILITY LOCATIONS SHOWN HEREON ARE BASED UPON ASBUILT FIELD LOCATION OF EXISTING STRUCTURES. OTHER UTILITIES MAY EXIST. NO SUB-SURFACE EXPLORATION WAS MADE TO VERIFY UTILITY ROUTINGS AND THE ROUTING OF ALL BURIED UTILITIES SHOULD BE CONFIRMED WITH THE UTILITY PURVEYOR AND EXPOSED IN AREAS CRITICAL TO DESIGN FOR VERIFICATION.

LEGEND

- FOUND IRON PIPE
- FOUND MONUMENT IN CASE
- FOUND REBAR AND CAP AS NOTED
- TELECOMMUNICATIONS RISER
- TELECOMMUNICATIONS JUNCTION BOX
- UTILITY POLE W/ TRANSFORMER & UNDERGROUND CONDUIT
- SANITARY SEWER MANHOLE
- CATCH BASIN
- CULVERT
- WATER VALVE
- MAIL BOX
- 12"A ALDER
- 12"C CEDAR
- 12"F FIR
- 12"M MAPLE
- W — WATER LINE
- G — GAS LINE
- EXISTING RETAINING WALL
- ROCKERY
- CONCRETE PAVING
- ASPHALT PAVING
- BUILDINGS

SE 1/4, NW 1/4, SEC. 13, TWP. 24N.,RGE. 5E.,W.M.
CITY OF BELLEVUE, KING COUNTY, WASHINGTON

REV#	DESCRIPTION OF REVISION	DATE	BY
#1			
#2			
#3			
#4			
#5			
#6			
#7			

BOUNDARY & TOPOGRAPHIC SURVEY
FOR
ILIA & ELENA GILDERMAN

Axis Survey & Mapping
15241 NE 90TH STREET
REDMOND, WA 98052
TEL. 425.823-5700
FAX 425.823-6700
www.axismap.com

JOB NO. 16-051A	DATE 8/10/18
DRAWN BY ARH	CHECKED BY MTSE
SCALE 1" = 20'	SHEET 1 OF 1

TREE INVENTORY

Tree #	Species	Size	Significant Trees	Significant Retained	Significant Removed**
1	maple	2			
2	maple	8	8		8
3	alder	10*	5		5
4	alder	16*	8		8
5	alder	12*	6		6
6	cedar	12	12	12	
7	alder	10*	5		5
8	alder	14*	7		7
9	alder	10*	5		5
10	alder	6			
11	alder	12*	6		6
12	alder	12*	6		6
13	maple	8	8	8	
14	maple	6			
15	maple	14	14		14
16	maple	12	12	12	
17	maple	12	12	12	
18	maple	8	8	8	
19	maple	2			
20	maple	8	8	8	
21	maple	6			
22	maple	6			
23	maple	16	16	16	
24	fir	8	8	8	
25	maple	12	12	12	
26	maple	30	30	30	
27	maple	24	24	24	
28	fir	8	8	8	
29	fir	8	8	8	
30	maple	6			
31	fir	8	8	8	
32	maple	10	10	10	
33	maple	22	22	22	
34	fir	24	24	24	
35	fir	26	26	26	
36	fir	24	24	24	
37	fir	14	14	14	
38	maple	26	26	26	
39	maple	16	16	16	
40	maple	10	10	10	
41	fir	26	26	26	
42	maple	14	14	14	
43	maple	14	14	14	
44	maple	2			
45	maple	12	12	12	
46	maple	14	14	14	
47	fir	16	16	16	
48	fir	18	18	18	
49	maple	10	10	10	
50	fir	10	10	10	
51	maple	10	10	10	
52	maple	12	12	12	
53	maple	14	14	14	
54	maple	26	26	26	
55	maple	18	18	18	
56	maple	12	12	12	
57	maple	2			
58	maple	16	16	16	
59	maple	12	12	12	
60	maple	12	12	12	
61	maple	22	22	22	
62	maple	22	22	22	
63	maple	6			
64	maple	2			
65	maple	8	8	8	
66	maple	10	10	10	
67	maple	12	12	12	
68	maple	20	20	20	
69	maple	12	12	12	
70	maple	14	14	14	
71	maple	18	18	18	
72	maple	16	16	16	
73	maple	14	14	14	
74	maple	16	16	16	
75	maple	16	16	16	
76	maple	22	22	22	
77	maple	8	8	8	
78	maple	10	10	10	
79	maple	12	12	12	
80	maple	14	14	14	
81	maple	14	14	14	
82	maple	12	12	12	
83	maple	10	10	10	
84	maple	12	12	12	
85	maple	16	16	16	
86	maple	26	26	26	
87	maple	2			
88	maple	6			
89	maple	8	8	8	
90	maple	12	12	12	
91	maple	12	12	12	
92	maple	30	30	30	
93	maple	18	18	18	
94	maple	26	26	26	
95	maple	18	18	18	
96	maple	8	8	8	
97	maple	18	18	18	
98	maple	22	22	22	
99	maple	10	10	10	
100	maple	24	24	24	
101	maple	10	10	10	
102	maple	10	10	10	
103	maple	2			
104	maple	6			
105	maple	14	14	14	
106	maple	8	8	8	
107	maple	16	16	16	
108	maple	24	24		24
109	maple	18	18		18
110	maple	22	22	22	
111	maple	22	22	22	
112	maple	12	12	12	
113	maple	16	16	16	
114	fir	10	10		10
115	maple	24	24		24
116	maple	14	14		14
117	fir	6			
118	maple	8	8	8	
119	maple	12	12	12	
120	maple	2			
121	maple	16	16	16	
122	maple	20	20	20	
123	maple	14	14	14	
124	maple	10	10	10	
125	maple	12	12	12	
126	maple	14	14	14	
127	maple	18	18	18	
128	maple	22	22	22	
129	maple	14	14	14	
130	maple	16	16	16	
131	maple	16	16	16	
132	maple	8	8	8	
133	maple	12	12	12	
134	maple	2			
135	maple	20	20	20	
136	maple	14	14		14
137	maple	18	18		18
138	maple	16	16		16
139	maple	8	8		8
140	maple	12	12		12
141	maple	18	18		18
142	maple	22	22		22
143	fir	10	10	10	
144	fir	14	14	14	
145	maple	14	14		14
146	maple	14	14		14
147	maple	24	24		24
148	maple	24	24		24
149	maple	8	8		8
150	maple	6			
151	maple	24	24		24
152	maple	14	14		14
153	maple	6			
154	maple	20	20		20
155	maple	6			
156	maple	12	12		12
157	maple	15	15		15
158	maple	16	16		16
159	maple	2			
160	maple	12	12		12
161	maple	18	18		18
162	maple	22	22		22
163	maple	24	24		24
164	fir	6			
165	maple	24	24		24
166	maple	16	16		16
167	maple	16	16	16	
168	maple	12	12	12	
169	maple	12	12	12	
170	cedar	16	16		16
171	fir	22	22		22
172	fir	14	14		14
		2221	**1600**		**621**

* .5 reduction for alders and cottonwoods
** removed with Building Permit approval
1600/2221 x 100% = 72% tree retention proposed

SITE PLAN

SCALE: 1" = 20'-0"

0 10' 20' 40' 60 FT. NORTH

PROJECT ADDRESS

16729 SE 43rd Street
Bellevue, WA, 98006

ZONING CLASSIFICATION

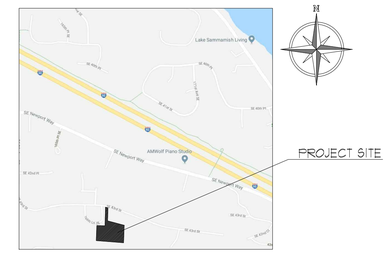
R-3.5

LEGAL DESCRIPTION

LOT C OF KING COUNTY SHORT PLAT NUMBER 973022 RECORDED UNDER AUDITOR FILE NUMBER 8404100930, BEING A PORTION OF SECTION 13, TOWNSHIP 24 NORTH, RANGE 5 EAST, W.M., RECORDS OF KING COUNTY, WASHINGTON.

KING COUNTY TAX PARCEL NO. #132405-9039 & 132405-9125

VICINITY MAP



STRUCTURAL COVERAGE

GROSS LOT AREA:	76,929 SF
CRITICAL AREAS:	-10,354 SF
NET LOT AREA:	66,575 SF
ALLOWABLE STRUCTURAL COVERAGE 35%:	23,301 SF
HOUSE W/ GARAGE FOOTPRINT:	2,870 SF
MAIN FLOOR DECK:	505 SF
COVERED PATIO:	469 SF
STAIRS ENTRY AND BACK:	424.3 SF
TOTAL PROPOSED STRUCTURE:	3,968 SF = 6% = OK

IMPERVIOUS SURFACE COVERAGE

GROSS LOT AREA:	76,929 SF
CRITICAL AREAS:	-10,354 SF
NET LOT AREA:	66,575 SF
ALLOWABLE IMPERVIOUS COVERAGE 45%:	29,959 SF
HOUSE W/ EAVES:	4,409 SF
DRIVEWAY WITH AUTO COURT:	3,115 SF
STAIRS (MINUS EAVES):	279 SF
MAIN PATIO AND SITE WALLS:	1,063 SF
WALKWAYS AND SITE WALLS:	509 SF
TOTAL IMPERVIOUS:	9,875 SF = 15% OK

* NO PERMEABLE HARD SURFACES PROPOSED

SQ. FT. CALCULATION & F.A.R.

LOWER FLOOR (INCLUDING GARAGE AND MECH'RM):	2,734 SF
MAIN FLOOR:	2,542 SF
UPPER FLOOR (INCLUDING DOUBLE HEIGHT SPACES):	2,187 SF
TOTAL AREA:	7,463 SF

F.A.R. 7,463 SF / 66,575sf = 11.2% OK (50% ALLOWED)

TREE IDENTIFICATION

12"A ALDER
12"C CEDAR
12"F FIR
12"M MAPLE
3 REMOVE TREE

SpaceLab
Design Services

Tatiana Darnell

Kirkland, WA 98033
425.444.6779
Tatiana@SpaceLabDesign.net

CALUP SUBMITTAL OCTOBER 15, 2018

GILDERMAN RESIDENCE
16729 SE 43rd ST
BELLEVUE, WA

NO.	DATE	REVISION

DATE: 10/15/18
JOB NUMBER: 1804
FILE:

SITE PLAN B

A1.0

© 2018 Space Lab Design Services LLC

October 15, 2018

Re: CALUP for 16729 SE 43rd St., Bellevue, WA, 98006
Project Narrative

To whom in may concern,

Space Lab Design Services LLC is assisting Ilia and Elena Gilderman, the owners of the property located at 16729 SE 43rd St., Bellevue, WA, 98006 (Parcel #132405-9039 & 132405-9125021), in development of 76,929 sf lot. The proposed development includes 3-story single family residence with garage, decks, patios, driveway and associated utilities at said address.

PROJECT SITE DESCRIPTION

Project site is an undeveloped panhandle property, zoned R3.5. The property slopes up from the street from elevation 450′ at northwest entry to property to 560′ at its southwest corner, sloping on average 10-35%, with few slopes ranging between 40-45%. The site is covered by scattered heavy brush and dense growth of deciduous and fir trees.

IMPACT ON CRITICAL AREAS

Critical Areas, in form of steep slopes, as defined by city of Bellevue Municipal Code, were mapped by Axis Surveying, and are shown the Survey and Architectural Site Plan. There are 3 Critical Areas upslope from proposed development. Per geotechnical engineer's analysis the mapped downslope area along north boundary should not be considered Critical Area, as it is artificially created. No development is proposed within 4 mapped areas.

IMPACT ON CRITICAL AREAS, BUFFERS AND SETBACKS

Per Critical Areas Report, the toe of the slope structural setback of southerly critical areas may be reduced to 20′. The top of the slope buffer of artificially created northern slope is reduced to 15′. No development is proposed within setback and buffer.

DESCRIPTION OF ALTERNATIVES

The proposed site structures, including northern planters and south site walls have been modified to avoid impact to critical areas setback and buffer. Additional grading was initially proposed to reduce the height of the southern patio walls, but was modified to avoid grading in the toe of slope structural setback.

SUMMARY OF HOW THE PROPOSAL MEETS EACH OF THE DECISION CRITERIA CONTAINED IN *LAND USE CODE* SECTION 20.30P

The City's Land Use Code (LUC), Chapter 20.30P establishes procedures and criteria (articulated in LUP 20.30P.140) that the City uses in making a decision on an application to develop, disturb or otherwise modify a critical area or critical area buffer (Chapter 20.30P.110). The following section below lists each applicable criteria of LUC 20.30P.140.A-F, 20.25H.125 and 20.25H.230 and followed by a response on how the project complies.

DECISIONAL CRITERIA
20.30P.140.A-F
Pursuant to Land Use Code 20.30P.140, the Director of Development Services may approve or approve with modification an application for a Critical Areas Land Use permit if:

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

Response: *As part of this submittal, the applicant has included a topographic and boundary line survey, completed by Axis Survey and Mapping (dated August 10, 2018) and detailed site plan showing the footprint of the new residence, including associated features and design elements. The applicant has also included a thorough geotechnical report completed by ABPB Consultants, dated September 11, 2018, which includes a critical areas analysis and a description of soil, slope and groundwater conditions. The ABPB report also analyzes key design and structural matters too, including site preparation, foundation design, retaining walls, stormwater and drainage.*

As the proposal progresses through the development cycle, the applicant plans on applying for all required permits, such as an environmental (SEPA) checklist, grading/land surface modification and building permit, including the civil and architectural plans. The recommendations found in the ABPB report will be integrated in all future plan sets and applicable application materials.

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

Response: *The applicant's geotechnical engineer in addition to analyzing the site's existing critical areas features - soils, groundwater and subsurface conditions - has also provided detailed recommendations for site preparation and construction. The report is included with the application.*

C. The proposal incorporates the performance standards of Part 20.25H LUC - Critical Areas Overlay District

Response: *A summary analysis of how the project complies with the requirements of 20.25H LUC is provided below.*

A SUMMARY OF HOW THE PROPOSAL MEETS EACH OF THE CRITERIA CONTAINED IN *LAND USE CODE* SECTION 20.25H.125 AS REQUIRED FOR APPLICATIONS PROPOSING A MODIFCATION THROUGH THE USE OF THE CRITICAL AREAS REPORT PROCESS

Pursuant to this section, development proposals, in addition to meeting the general performance standards of LUC 20.25.055 and 20.25H.065, shall incorporate the following additional performance standards in design of the development as applicable.

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;

Response: *The site plan provided by the applicant depicts the proposed location of the proposed residence and associated improvements. The applicant's geotechnical engineering consultant has provided recommendations on designing and constructing in a manner that respects the site's natural contour. The structure is proposed to be located on the lower portion of the site, meeting setbacks and avoiding the steepest slopes of 40% or greater. The lot coverage, structural coverage and FAR are all well below the total allowed in the zone.*

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

Response: *As part of this submittal the applicant has included a survey and geotechnical report. The surveyor (Axis Survey and Mapping) completed a topographic and boundary line survey, which includes the location of significant trees - approximately 120 in number, mostly alder, cedar, maple and fir, and identifies four areas with slopes of at least 40%.*

The applicant's site plan positions the proposed residence and associated improvements (driveway, patios, decks, etc) outside of these 40% slope areas. The applicant's geotechnical engineer has provided specific and measured recommendations for pre-construction vegetation removal, namely that it should be limited to the approved limits of disturbance.

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

Response: *The positioning of the proposed residence in the center portion of the parcel shall limit overall site disturbance, and more to the point, not create a risk of slope failure, erosion or slide hazard for neighboring properties, per the geotechnical report with the proposed buffers and setbacks.*

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 wall;

Response: *Retaining walls will be employed as part of the construction of the single-family residence, particularly for lower-level house walls and potentially some patios. The geotechnical report includes specific recommendations on constructing the walls, on page 12. The proposal complies with this criteria.*

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

Response: *As proposed, the plans represent a minimal approach to footprint, impervious surfaces and overall lot coverage. The total lot coverage proposed - house with eaves, driveway, patios, associated walkways, etc - totals 9,975 square feet or 15% of the net lot area (66,575 square feet). As mentioned, no grading or improvements are proposed within the areas with the greatest slope of 40% or greater. The four areas of 40% or greater slope are located on the survey and site plan - one on the northeast property line, and three on the south side of the property. Due to the presence of such steep slopes, their location and the unusual shape of the subject property (similar to a "panhandle"), in order to provide vehicular access and protect the most sensitive slopes, the applicant proposes to provide a 15-foot buffer from the top of the north 40%+ slope, and a 20-foot buffer from the toe of the north 40%+ slopes.*

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%, grading for yard area may be disallowed where inconsistent with this criteria;

Response: *Noted. The retaining walls will be employed to manage features adjacent to the perimeter of the home. Topographic modification is expected, in these cases, to be minimal, however. These features will be structurally designed as part of the complete building permit plan set and will include a stepped approach if warranted by the feature, soils and slope, as determined by input from the applicant's geotechnical engineer. No work is proposed within areas with greater than 40% slope.*

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 foundation.

Response: *Rockeries are not proposed. Freestanding retaining walls are only used where absolutely necessary to meet grade requirements for the driveway approach.*

8. On slopes in excess of 40%, use of pole-type construction is required where feasible.

Response: *The site plan provided demonstrates that all structures will be located outside of areas with slopes in excess of 40%. The proposal complies with this criteria.*

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

Response: *The site plan provided demonstrates that all structures will be located outside of areas with slopes in excess of 40%. The proposal complies with this criteria.*

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.

Response: *As part of the grading and/or building permit the applicant will provide a restoration plans in compliance with LUC 20.25.210. This plan will be submitted with a detailed clearing and grading permit.*

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

Response: *The proposed residence will be served adequately by SE 43rd St. The house will meet the latest fire protection requirements, including sprinklers. The proposed driveway is designed to meet the fire code requirements. Water, sewer, and stormwater facilities will be connected to the existing facilities in SE 43rd St. These utilities will meet the latest design standards.*

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

Response: *The proposal will comply with the buffer requirements of the geotechnical report, and minimize vegetation removal. The construction will also comply with the latest BMP requirements. The future grading and building plans will incorporate the recommendations by the geotechnical engineer.*

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

Response: *The project will apply for all other applicable permits. No variance is not being requested.*

SUMMARY OF HOW THE PROPOSAL MEETS EACH OF THE CRITERIA AND PERFORMANCE STANDARDS CINTAINED IN LAND USE CODE SECTION 20.25H.230

Pursuant to this section, the critical areas report is a mechanism by which site conditions may be evaluated, and flexibility may be permitted according to the subject property's conditions relative to the proposed development. Generally, the critical areas report must demonstrate that the proposal with the requested modifications leads to equivalent or better protection of critical area functions and values than would result from the application of the standard requirements.

Response: *The geotechnical engineer has identified and noted the subject property's critical areas (slope and erosion) and made appropriate recommendations for each phase of the development cycle. These recommendations, if followed by the contractor, will not result in a degradation of critical area function, neither will they, result in a negative impact to surrounding properties, public or private improvements, or the City as a whole. Each set of plans required for submittal to the City for review, will include the recommendations of the geotechnical engineer.*

Please find attached all supporting documentation as required per CALUP submittal checklist, including reports, drawings, checklists and application.

If you have any questions or concerns, please feel free to contact me.

Respectfully,

Tatiana Darnell
425.444.6779
Tatiana@SpaceLabDesign.net

ABPB CONSULTING

GEOTECHNICAL / EARTH SCIENCES

PAUL BONIFACI, P.E.G.
ANIL BUTAIL, P.E.

11251 – 120th Ave. NE, #209
P.O. Box 3239
Kirkland, WA 98083
425-820-2544

September 11, 2018
Project No. 1478

Ms. Tatiana Darnell
SpaceLab Design
11018-122nd Lane NE, L-91
Kirkland, WA 98033

Subject: Geotechnical and Critical Area Report
Proposed Gilderman Residence
King County Parcels Nos. 132405-9039 and 132405-9125
16729 SE 43rd Street
Bellevue, Washington

Dear Ms. Darnell:

As requested, we have conducted a geotechnical engineering study for the proposed Gilderman Residence in south Bellevue, Washington. We understand that the assigned address of the lot will be 16729 SE 43rd Street in Bellevue, Washington. The attached report presents our findings and recommendations for the geotechnical aspects of project design and construction as well as appropriate Critical Area report sections.

SUMMARY

Our field exploration indicates the house site is generally underlain by a thin layer of medium dense fine silty sands, scattered dense till and underlying hard bedrock at depth. No significant groundwater was encountered at the time of exploration in the test pits which extended to a maximum depth of 8 feet below the existing ground surface.

In our opinion, the site conditions encountered are suitable for construction of the planned residence and patio on the property. Several segments of Steep Slopes were identified on the site by the topo survey. These met the criteria for City of Bellevue Critical Areas and are shown on Figure 2, Site Exploration plan. In addition, the entire neighborhood is mapped as a Very Severe Erosion Hazard on the City Critical Area maps. Based on our findings, there are no Landslide Hazards or Seismic Hazards on the lot.

The undisturbed native soils and bedrock are suitable for supporting the proposed residence, access driveways, retaining walls and utilities provided the recommendations presented in this report are incorporated into project design and construction.

The onsite soils and weathered rock have a significant percentage of fines and will not be suitable for use as structural fill in wet weather conditions.

Difficulty in excavating the bedrock when excavations are more than about 6 feet should be anticipated, particularly at the proposed location of the back of the house and uphill sides of the rear patio walls where deeper excavations may be required.

The geotechnical recommendations presented in this report should be incorporated into project design and construction.

PROJECT DESCRIPTION

The planned house location is as shown on the Exploration Location Plan, Figure 2. This preliminary layout has been prepared by SpaceLab Design and overlain on the site topographic map prepared by Axis Survey. The approximate 40 by 80- foot residence will be located in the lower northern portion of the property. Patios and decks will be located around portions of the north and south sides of the home. The planned driveway will extend uphill from SE 43rd Street up the property "panhandle" and enter the west end of the residence.

Preliminary final grades around the homesite would result in cuts of up to 10 feet in some areas at the southeast house corner and southeast upper patio corner.

Detailed building plans for the residence have not been finalized. We anticipate that the multi-story home will have a daylight lower level based near the existing grade. We expect the new residence will have conventional spread footing foundations and concrete slab-on-grade garage floors. Building loads are expected to be light, on the order of one to two kips along building walls and 20 kips at columns.

The recommendations contained in the following sections of this report are based on our general understanding of design concepts provided by the designer. When actual layouts have been prepared, we should review them in order to verify or modify our recommendations, as required.

SCOPE OF WORK

We observed the excavation of five test pits on August 20th, 2018, using an intermediate size mini-trackhoe The test pits were dug to a maximum depth of about 8 feet below the existing ground surface. All of the test pits encountered refusal at depth on the dense glacial till and native bedrock. Using the information obtained from the subsurface exploration, we developed geotechnical recommendations for project design and construction.

Specifically, this report addresses the following:

- Critical Area Report Criteria
- Soil and groundwater conditions
- Site preparation and grading
- Foundation design
- Basement and Retaining Walls
- Slab-on-grade floors
- Storm water Infiltration Assessment
- Drainage
- Driveway Pavements

It should be noted that the recommendations outlined in this report regarding drainage are associated with soil strength, design earth pressures, erosion and stability. Design and performance issues with respect to moisture and seepage as it relates to structure environment (i.e., humidity, mildew, and mold) are beyond the scope of our study. A building envelope specialist or contractor should be consulted to address these potential issues.

SITE CONDITIONS

Surface

The approximately 1.5 acre property is an irregular shaped parcel located in the 16700 block of SE 43th Street in south Bellevue, Washington. The approximate site location is shown on the Vicinity Map, Figure 1.

The majority of the property measures about 330 feet wide in an east-west direction, and about 220 feet north-south. A "panhandle" connects the property to SE 43rd Street to the north.

Based on the site topography provided by Axis Survey, the property has a high point of about Elevation 560 feet up the slope in the southwest corner, and descends to the north to a low point of Elevation 450 feet at the north boundary at SE 43rd Street.

The overall slope through the property is about 10 to 35 percent with a few slopes of 40 to 45 percent gradient. The steeper slopes are shown on the site plan. It should be noted that the northern steep slope located below the house pad is probably created artificially by a cut on the northern neighbor's lot years ago extending uphill from an old house pad made on the adjacent lot.

The property is generally covered with a dense growth of deciduous and fir trees in most areas. Scattered heavy brush lies under the tree canopy. No springs or seepage were noted anywhere on the property during our work in August. The site is almost completely surrounded to the west, north, and east by other single family residences located on plats, short plats, and on larger parcels of land. No residences are located immediately uphill to the south of the site.

Subsurface Conditions

On August 20, 2018, we conducted our subsurface exploration by observing the excavation of five test pits with an intermediate size mini-trackhoe along paths cut through the wooded site. The test pits were dug to depths of up to 8 feet below existing grades.

The approximate test pit locations are shown on the Exploration Location Plan, Figure 2. The locations were approximately determined by pacing from known landmarks. An engineering geologist maintained a log of each test pit as it was excavated, classified the soil conditions encountered, and obtained representative soil samples. All soil samples were visually classified in accordance with the Unified Soil Classification System.

Representative soil samples obtained from the pits were placed in sealed plastic bags and returned to a laboratory for further examination. The test pit logs are presented with this report as Figures 3 through 7.

The soils encountered in the test pits are all similar residual soils and weathered to un-weathered bedrock underlying some glacial till soils. About 8 to 12 inches of duff and topsoil overlie the native red tan silty sand weathered soil horizon. This three to four foot thick layer is loose to medium dense and contains some rocks and occasional tree roots. Below this depth, we encountered the top of the weathered bedrock horizon in the higher Test Pits, TP-1, 2, and 3. Weathered glacial till and till were encountered in Test Pits TP-4 and TP-5. The till contained native bedrock pieces and we anticipate the till overlies the native rock in those two pits.

The rock cementation was apparent in the sandy matrix of the bedrock and became denser and more cemented with depth. Below depths of four to six feet, the rock was generally hard Sandstone. The test pit logs present more detailed descriptions of the subsurface conditions encountered in the explorations.

The site bedrock appears to be part of the Blakely Formation which is Sandstone/Siltstone of Tertiary age. Occasional fossils can be found in the unit in other areas.

The *US Soil Conservation Service Map for King County, Washington* shows the soils in the vicinity of the site as Alderwood Type soils on a gentle slope. The Alderwood soil is comprised of Glacial Till soil which is a product of the last glacial advance over the Puget Sound area about 12,000 years ago. The advancing glacier deposited the till to its high strength due to the overriding effect of 5000 feet of glacial ice consolidating the unsorted mix of sand, silt and gravel. At the project house site, the till was plastered over the underlying bedrock in some areas.

The fine-grained weathered rock, unweathered Sandstone, and Glacial Till under the site are in a very dense condition. These materials are not susceptible to liquefaction during an earthquake.

Groundwater

No groundwater was encountered in any of the test pits. However, seasonal fluctuations of groundwater levels at this site will occur. The looser near surface soils overlying the deeper till and bedrock will tend to perch groundwater seepage during the wet winter months above the impermeable Sandstone horizon. The perched groundwater gradient will be controlled by the subsurface topography of the top of the till and rock layer. In general, this perched winter seepage will flow downslope to the north and northeast, following the topography. We anticipate that no significant groundwater seepage will occur during the dry summer months. Minor fluctuations in the seepage water levels at the site would also be expected following periods of heavy precipitation.

CRITICAL AREA AND GEOLOGIC HAZARDS REPORT

The City of Bellevue specifies the designation of Critical areas as described in Section 20.25H.025 of the Bellevue Municipal Code. Our report addresses the geotechnical aspects of these requirements. For reference, the site is mostly underlain by bedrock and/or glacial till soils. These materials are very dense to hard in nature and are not susceptible to movements. The critical areas are defined below in accordance with the City of Bellevue's requirements:

Landslide Hazards

Landslide Hazards are areas of slopes of 15 percent or more with more than 10 feet of rise, which also display any of the following characteristics:

a. Areas of historic failures, including those areas designated as quaternary slumps, earthflows, mudflows, or landslides.

b. Areas that have shown movement during the Holocene Epoch (past 13,500 years) or that are underlain by landslide deposits.

c. Slopes that are parallel or subparallel to planes of weakness in subsurface materials.

d. Slopes exhibiting geomorphological features indicative of past failures, such as hummocky ground and back-rotated benches on slopes.

e. Areas with seeps indicating a shallow ground water table on or adjacent to the slope face.

f. Areas of potential instability because of rapid stream incision, stream bank erosion, and undercutting by wave action.

As discussed later in this report, there are several areas of slope with a gradient of more than 15 percent and a rise of 10 feet. However, none of the other criteria (*a. through f.*) are met. Based on the absence of the above criteria, the soil conditions underlying the site, the existing site topography and our onsite observations, it is our opinion that there are no Landslide Hazard Areas on the site.

Considering the above, there are no buffer or setback requirements from a landslide hazard perspective.

Steep Slopes

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

There are four areas which meet this definition. Three of these areas are upslope of the proposed residence while one is downslope. The downslope area is located along the boundary with the property to the north and is obviously an artificially created cut slope. This downslope area should therefore not be considered a steep slope.

The City of Bellevue (Ord. 20.25H.120) requires a top of slope buffer of 50 feet and a toe of slope structure setback of 75 feet for steep slopes.

Our site exploration and review of the existing site conditions indicate this entire area is underlain by very dense glacial till soils and hard bedrock. These are very competent and stable soils, forming stable slopes. In our opinion, the toe of slope structure setback on the uphill side may be reduced to 20 feet. On the downhill side, considering the "steep slope" is an artificially created slope and the slope has a maximum height of no more than 12 feet, the combined top of slope buffer and setback may be reduced to 15 feet.

In conjunction with the buffer and setback reduction, all recommendations contained in this report pertaining to erosion control and surface and subsurface drainage must be followed. With the recommended buffers/setbacks given above, it is our opinion that there will be no adverse impacts to the stability of the site or adjacent properties.

Coal Mine Hazards

There are no coal mine hazards on the site.

Seismic Hazard

High Seismic Hazard classifications areas exist where land is subject to severe risk of ground shaking, subsidence, or liquefaction due to certain combinations of soil and groundwater conditions. Areas susceptible to severe ground shaking might include the following:

- Soft or loose saturated alluvial deposits
- Soils with shallow, fully saturated and high groundwater conditions
- River valley deposits

Based on our study, the dense granular soils and bedrock that underlie the site slopes are not considered High Seismic Hazards areas. No special mitigation measures will be needed for site development to reduce the seismic hazard other than to design all structures under all applicable current earthquake and seismic codes.

Based on the soil conditions encountered and the local geology, per Chapter 16 of the 2012 International Building Code (IBC), Site Class "D" should be used in structural design. The following parameters should be used in computing seismic forces:

Seismic Design Parameters (IBC 2012)

Spectral Response acceleration (Short Period), Ss	1.344
Spectral Response acceleration (1 - Second Period), S1	0.513
Site Coefficient, Fa	1.00
Site Coefficient, Fv	1.50
Five percent damped .2 second period, Sds	0.896
Five percent damped 1.0 second, Sd1	0.513

Liquefaction is a phenomenon where there is a reduction or complete loss of soil strength due to an increase in water pressure induced by vibrations. Liquefaction mainly affects geologically recent deposits of fine-grained sands that are below the groundwater table. Soils of this nature derive their strength from intergranular friction. The generated water pressure or pore pressure essentially separates the soil grains and eliminates this intergranular friction; thus, eliminating the soil's strength.

Due to the dense and silty nature of the soils and rock underlying the site, it is our opinion that there is little or no risk for liquefaction to occur at this site affecting building construction during an earthquake.

Very Severe Erosion Hazard Area

The property is located in a broad zone of the City Critical Area Map as a Very Severe Erosion Hazard Area. However, based on our onsite observations, and the site and soil conditions existing on the property, a "moderate erosion hazard" designation is more appropriate. The site soils are mostly residual glacial till and weathered to unweathered bedrock materials with some looser weathered silty sands. The site lies on gently to moderately sloping grades of about 15 to greater than 40 percent grades. The City of Bellevue Critical Areas map shows the site as being in an area of "Very Severe Erosion Hazard". The onsite soils and other similar soil types have been developed upon for similar projects throughout the Puget Sound basin.

Best Management Practices (BMPs) should be used during construction to mitigate the potential erosion hazard. If the erosion control measures are properly implemented and maintained, it is our opinion that any planned residential development on the property will not adversely impact the erosion potential for the site or adjacent properties.

As a minimum, we recommend implementing erosion and sediment control BMPs prior to, during, and immediately following clearing and grading activities at the site. Application of BMPs should conform to the City of Bellevue standards and specifications and any other applicable standards.

In our opinion, special mitigation measures beyond standard erosion and sedimentation prevention and use of Best Management Practices (BMPs), required by the City of Bellevue, are not required. The recommended combined buffer and setbacks for the house and patio from the mapped Critical Area slopes should be sufficient for erosion protection. A site specific erosion and sedimentation control plan should be prepared and implemented prior to starting any site grading. Periodic monitoring should be conducted to confirm that the erosion control measures taken are performing as intended.

DISCUSSION AND RECOMMENDATIONS

General

Based on our study, the site is suitable for the proposed construction of the Gilderman Residence. The planned residence can be supported on conventional spread footings bearing on competent native soils and bedrock below the topsoil and any localized weathered soils. If required, spread footings can also be supported on structural fill or clean rock placed and compacted above the competent native soils. Garage and daylight lower level floors slabs and pavements can be similarly supported.

Materials obtained from onsite excavations are likely to have a high percentage of fines and not be likely to be readily compacted during wet weather. Also, due to the very hard nature of the bedrock, considerable difficulty is expected in excavating the bedrock.

The following sections provide detailed recommendations regarding the above issues and other geotechnical design considerations. These recommendations should be incorporated into the final design drawings and construction specifications.

Site Preparation and Grading

To prepare the site for construction, all vegetation, organic surface soils, and other deleterious materials should be stripped from below the access driveway and building areas.

Soils containing organic material will not be suitable for use as structural fill, but may be used in non-structural areas or for landscaping purposes.

Some of the shallow on-site soils generally appear suitable for use as structural fill in the drier summer months only. However, at depth, the weathered rock and unweathered rock may be difficult to use as fill or backfill. In broad areas, these residual rock materials should be crushed during compaction with a sheeps-foot type of compactor drum. If not crushed, some of the rock pieces may break down and decompose in compacted areas. Import structural fill may be required during project construction.

The upper residual soils are very silty and will be difficult to compact as structural fill when too wet. The ability to use these upper silty sands and fills from site excavations as structural fill will depend on their moisture content and the prevailing weather conditions at the time of construction.

If grading activities must take place during wet weather or in the wet season, the owner should be prepared to use wet weather structural fill as needed. For this purpose, we recommend using a granular soil which meets the following grading requirements:

Maximum Aggregate Size	3 inches
Minimum Retained on the No. 4 Sieve	25 percent
Maximum Passing the No. 200 Sieve	5 percent*

*Based on the 3/4 inch fraction

Prior to use, ABPB Consulting should examine and test all on-site or imported materials proposed for use as structural fill. Alternatively, railroad ballast or clean small quarry spalls may be used over wet subgrades or in any old utility area over-excavations as structural fill material.

Structural fill should be placed in uniform loose layers not exceeding 12 inches and then compacted to a minimum of 95 percent of the soil's maximum dry density as determined by ASTM Test Designation D-1557 (Modified Proctor). The moisture content of the soil at the time of compaction should be within two percent of its optimum, as determined by this ASTM standard. In non-structural areas or for backfill in utility trenches below a depth of four feet, the degree of compaction could be reduced to 90 percent.

Slopes excavated for driveway construction should be made no steeper than 2:1.

All finished slope surfaces should be planted with suitable species of vegetation to prevent the potential of future erosion.

Excavations

All excavations at the site associated with confined spaces, such as utility trenches, must be completed in accordance with local, state, or federal requirements. Based on current Occupational Safety and Health Administration (OSHA) regulations, the on-site soils above the rock layer would generally be classified as Group B soils. The weathered bedrock material would also be classified as Group B.

Caving of trench sidewalls in the upper loose soils may occur in some trench areas where excavations are deeper than about four feet. The contractor should use appropriate safety precautions and trench boxes. Below a depth of about four or five feet, the partially to fully cemented rock layer exists. Temporary excavations made in this rock material can be made at a slope of 0.5:1 (H:V).

While the test pits did not encounter groundwater at the time of excavation, we expect that some groundwater seepage may occur in the winter, in excavations extending below the perched seepage level. Dewatering should be anticipated if excavations will extend below the perched seepage level in the wet months of the year. The amount of water flow into excavations will be relatively low. Conventional sump pumping procedures, along with a system of collection trenches, if necessary should be capable of maintaining a relatively dry excavation for construction purposes.

The excavation into the rock layer for deeper excavations for the lower floor of the residence and the rear patio walls will become more difficult with depth. An experienced contractor with the proper equipment should be retained to grade the site and make the anticipated dense cut excavations.

The above information is provided solely for the benefit of the owner and other design consultants, and should not be construed to imply that ABPB Consulting assumes any responsibility for job site safety. It is understood that job site safety is the sole responsibility of the project contractor.

Foundations

The new house may be supported on conventional spread footings bearing on competent native soils, excavated bedrock or on structural fills placed above competent native soils.

Foundation subgrades should be prepared as recommended in the Site Preparation and Grading section. Perimeter foundations should extend at least 1.5 feet below final exterior grades. Interior foundations can be constructed at any convenient depth. All footing excavations should be thoroughly re-compacted with hand equipment following excavation disturbance.

Footings should have a minimum width of 15 inches or be in accordance with the IBC standards. We recommend designing foundations for a net allowable bearing capacity of 2,500 pounds per square foot (psf).

For short-term loads, such as wind and seismic, a 1/3 increase in these allowable capacities can be used. For the anticipated loads and bearing stresses, estimated total settlements should be 1/2 to 3/4 inch, of which 1/4 to 1/2 inch would be differential.

For designing foundations to resist lateral loads, a friction coefficient of 0.4 can be used. Passive earth pressures acting on the sides of the footings and buried portions of the foundation stem walls can also be considered. We recommend calculating this lateral resistance using an equivalent fluid weight of 350 pounds per cubic foot (pcf).

We recommend not including the upper 12 inches of soil in this computation because they can be affected by weather or disturbed by future grading activity. This value assumes the foundations will be constructed neat against competent soil or backfilled with structural fill as described in the Site Preparation and Grading section. The values recommended include a safety factor of 1.5.

Retaining Walls

It is anticipated that some retaining walls will be needed for the lower level house walls, and for some patio walls. The magnitude of earth pressures developing on any proposed retaining walls will depend on the quality of the wall backfill. We recommend placing and compacting wall backfill as structural fill. Below improved areas such as pavements or floor slabs, the backfill should be compacted to a minimum of 95 percent of its maximum dry unit weight, as determined by ASTM Test Designation D-1557 (Modified Proctor).

In unimproved areas, the relative compaction can be reduced to 90 percent. To prevent hydrostatic pressure development, wall drainage must also be installed.

With wall backfill placed and compacted as recommended and drainage properly installed, we recommend designing unrestrained walls for an active earth pressure equivalent to a fluid weighing 35 pcf. For restrained walls, an additional uniform lateral pressure of 100 psf should be added. These values assume a horizontal backfill condition and that no other surcharge loading, such as traffic, sloping embankments, or adjacent buildings, will act on the wall. If such conditions will exist, then the imposed loading must be included in the wall design. For seismic loading conditions, a uniform pressure of 8H psf should be added, where H is the wall height.

Friction at the base of foundations and passive earth pressure will provide resistance to these lateral loads. Values for these parameters are provided in the Foundations section.

Slab-on-grade Floors

We anticipate that some slabs-on-grade will be provided within the house and garage areas. Slab-on-grade floors may be supported on the subgrade prepared as recommended in the Site Preparation and Grading section. If moisture intrusion is a concern, the slabs should be provided with a four-inch thick capillary break layer of clean, free-draining sand or gravel that has less than three percent fines passing the No. 200 sieve.

This material will reduce the potential for upward capillary movement of water through the underlying soil and subsequent dampening of the garage floor slab. Where moisture by vapor transmission is undesirable, a durable plastic membrane should be placed below the slab above the capillary break.

This membrane is commonly covered with one to two inches of clean, moist sand to protect damage during construction and to aid in curing of the concrete. Other methods are available for preventing or reducing water vapor transmission through the slab. We recommend consulting with a building envelope specialist for additional assistance regarding this issue.

Drainage

Storm Water Infiltration Potential

The soils and rock observed in the test pits are very silty and become quite hard at depth. These soils and the underlying bedrock will not allow any significant infiltration into the ground due to the finer grained matrix of soil and the presence of an anticipated elevated winter water table. We do not recommend the use of any infiltration for this project.

Surface

Final exterior grades should promote free and positive drainage away from the house areas at all times. Water must not be allowed to pond or collect adjacent foundations or within the immediate building areas. We recommend providing a gradient of at least three percent for a minimum distance of five feet from the building perimeters, except in paved locations. In paved locations, a minimum gradient of one percent should be provided, unless provisions are included for collection and disposal of surface water adjacent the structures.

Subsurface

We recommend installing continuous drains along the outside lower edge of the perimeter house foundations and outside all basement walls. The foundation drains and roof downspouts should be tightlined separately to approved discharge facilities. Subsurface drains must be laid with a gradient sufficient to promote positive flow to a controlled point of approved discharge. Lower level drainage should be installed as noted above at the level of the lowest wall footing.

All drains should be provided with cleanouts at easily accessible locations. These cleanouts should be serviced regularly.

Pavements

Driveway pavements should be constructed on subgrades prepared as described in the Site Preparation and Grading section. However, regardless of the relative compaction achieved, the subgrade must be in a firm and relatively unyielding condition prior to paving. The subgrade should be proof-rolled with heavy construction equipment to verify this condition.

The appropriate pavement section depends upon the supporting capability of the subgrade soils and the traffic conditions to which it will be subjected. We expect that traffic will mainly consist of light passenger and commercial vehicles with occasional heavy traffic in the form of trash removal vehicles.

Based on the above information, with a stable subgrade prepared as recommended, we recommend the following pavement sections for light automobile traffic:

- Two inches of asphalt concrete (AC) over four inches of crushed rock base (CRB)
- Two inches of AC over three inches of asphalt treated base (ATB)

The paving materials used should conform to the Washington State Department of Transportation (WSDOT) specifications for Class B asphalt concrete, ATB, and CRB.

Long-term pavement performance will depend on surface drainage. A poorly-drained pavement section will be subject to premature failure as a result of surface water infiltrating into the subgrade soils and reducing their supporting capability. To improve pavement performance, surface drainage gradients of no less than two percent are recommended. Also, some longitudinal and transverse cracking of the pavement surface should be expected over time. Regular maintenance should be planned to seal cracks when they occur.

The following figures are included and complete this report:

Figure 1	Vicinity Map
Figure 2	Exploration Location Plan/ Critical Areas
Figures 3 through 7	Test Pit Logs

We prepared this report in accordance with generally accepted geotechnical engineering practices. This report is the property of ABPB Consulting, LLC and is intended for specific application to the Gilderman Residence project in Bellevue, Washington. This report is for the exclusive use of Ms. Tatiana Darnell and her authorized representatives. No other warranty, expressed or implied, is made.

Tatiana Darnell
September 11, 2018

We appreciate the opportunity to be of service during this phase of project development and design and look forward to working with you during the final design and construction phases.

We trust the information presented in this report is sufficient for your current needs. If you have any questions or need additional information, please call.

Sincerely yours,

ABPB CONSULTING

Paul K. Bonifaci, P.E.G.
Engineering Geologist

ANIL BUTAIL
STATE OF WASHINGTON
17005
REGISTERED
PROFESSIONAL ENGINEER

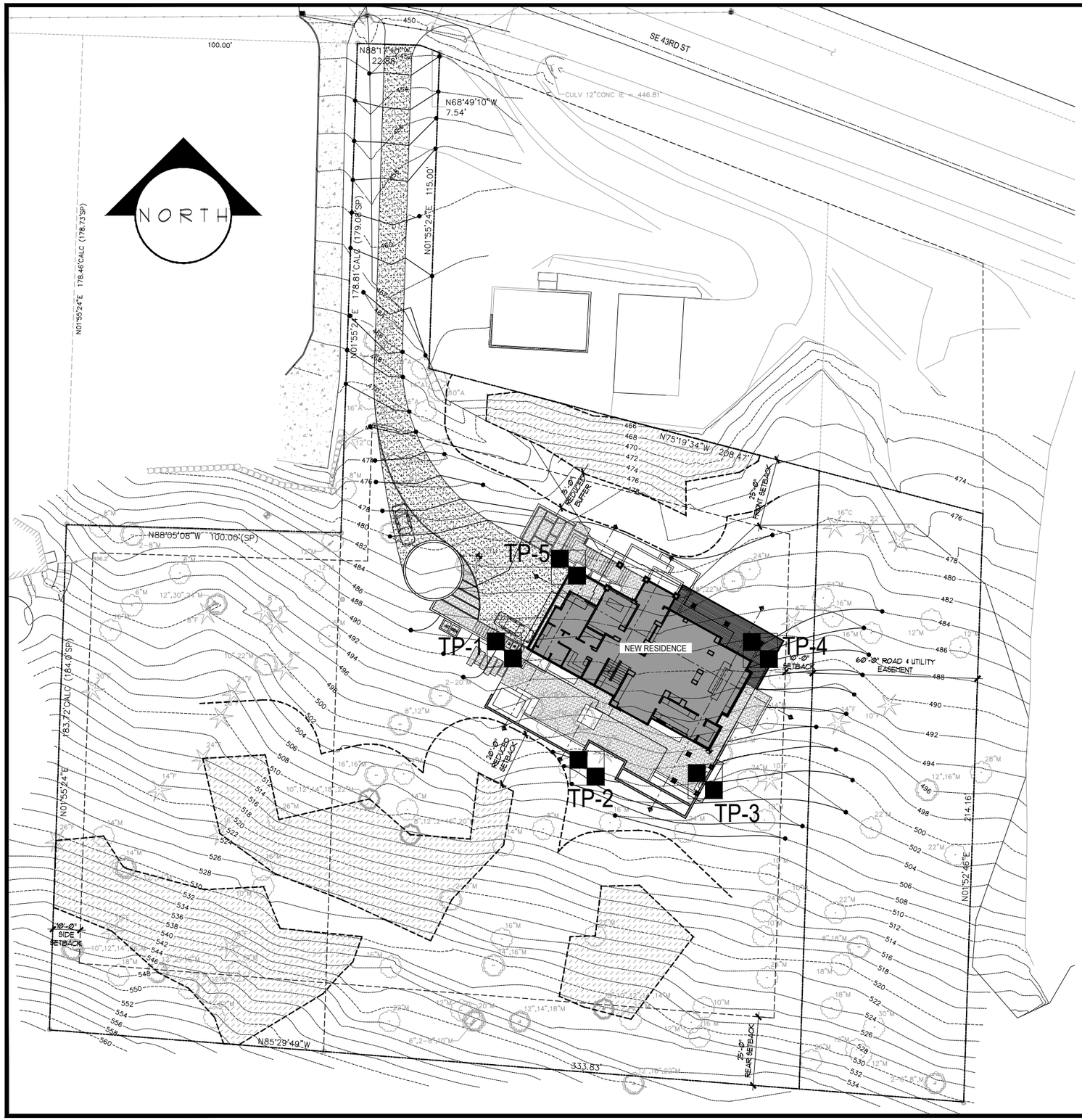
Anil Butail, P.E.
Principal Engineer

N

NTS

Ref: Google Maps

ABPB Consulting Geotechnical Consultants Kirkland, Wash.	Vicinity Map Gilderman Property Bellevue, Washington		
	Proj. No. 1478	Date : 8-18	Figure 1



LEGEND

TP-1 Approx. Test Pit Location and Number

Critical Steep Slope Area—per topo survey

0 20' 40' 80' 120 FT.

Ref: Site Plan by SpaceLab Design and topography by Axis Survey.

ABPB Consulting
Geotechnical Consultants
Kirkland, Wash.

Site Exploration Map / Critical Areas
Gilderman Property
Bellevue, Washington

Proj. No. 1478	Date : August 2018	Figure 2

Project :	**Gilderman**			Test Pit TP - 1
Project No.	1478	**Date :**	8-20-18	
Client :	SpaceLab	**Elevation**	488 feet	
Location:	Bellevue	**Logged By:**	PKB	

SUBSURFACE PROFILE			SAMPLE			Field Strength Tests	**Laboratory Results**
Depth (ft)	Soil Lithology	Soil Description	Water Level	Sample	USCS		Moisture Content
0		Silty Sand: (12 inches Sod/Fill) Tan grading to tan and grey, silty Sand with gravel, rocks, and roots, loose to medium dense, dry to moist					
-1							
-2					SM		
-3		Sandstone: tan, hard, Sandstone, moist (Bedrock)					
-4					SS		
-5		Test pit terminated at 5.5 feet.					

ABPB Consulting

Geotechnical Consultants

12525 Willows Road, Suite 80, Kirkland, Washington (425) 820-2544

Date : August 2018	Project Name :Gilderman Residence	Figure 3

Project :	**Gilderman**			Test Pit TP - 2
Project No.	1478	**Date :**	8-20-18	
Client :	SpaceLab	**Elevation**	501 feet	
Location:	Bellevue	**Logged By:**	PKB	

SUBSURFACE PROFILE			SAMPLE			Field Strength Tests	**Laboratory Results**
Depth (ft)	Soil Lithology	Soil Description	Water Level	Sample	USCS		Moisture Content
0		Silty Sand: (12 inches Sod/Fill) Tan grading to tan and grey, silty Sand with gravel, rocks, and roots, loose to medium dense, dry to moist					
-1							
					SM		
-2							
-3							
		Sandstone: tan, hard, Sandstone, moist (Bedrock)					
-4					SS		
-5		No groundwater seepage Test pit terminated at 5.3 feet.					

ABPB Consulting
Geotechnical Consultants

12525 Willows Road, Suite 80, Kirkland, Washington (425) 820-2544

Date : August 2018	Project Name :Gilderman Residence	Figure 4

Project :	**Gilderman**			Test Pit TP - 3
Project No.	1478	**Date :**	8-20-18	
Client :	SpaceLab	**Elevation**	502 feet	
Location:	Bellevue	**Logged By:**	PKB	

SUBSURFACE PROFILE			SAMPLE			Field Strength Tests	**Laboratory Results**
Depth (ft)	Soil Lithology	Soil Description	Water Level	Sample	USCS		Moisture Content
0		Silty Sand: (14 inches Sod/Fill) Tan grading to tan and grey, silty Sand with gravel, rocks, and roots, loose to medium dense, dry to moist					
-1							
					SM		
-2							
-3							
		Sandstone: tan, hard, Sandstone, moist (Bedrock)					
-4					SS		
		No groundwater seepage Test pit terminated at 5.0 feet.					
-5							

ABPB Consulting
Geotechnical Consultants

12525 Willows Road, Suite 80, Kirkland, Washington (425) 820-2544

Date : August 2018	Project Name :Gilderman Residence	Figure 5

Project :	**Gilderman**			Test Pit TP - 4
Project No.	1478	**Date :**	8-20-18	
Client :	SpaceLab	**Elevation**	489 feet	
Location:	Bellevue	**Logged By:**	PKB	

SUBSURFACE PROFILE			SAMPLE			Field Strength Tests	**Laboratory Results**
Depth (ft)	Soil Lithology	Soil Description	Water Level	Sample	USCS		Moisture Content
0		Silty Sand: (9 inches Sod/Fill) Tan grading to tan and grey, silty Sand with gravel, rocks, and roots, loose grading to dense, dry to moist, grades to weathered Till					
-1							
-2							
-3					SM		
-4		Silty Sand: Grey tan, gravelly silty SAND, moist, dense to very dense, a few pieces of native bedrock (Glacial Till)					
-5					SM		
-6		No groundwater seepage Test pit terminated at 7.5 feet.					
-7							

ABPB Consulting

Geotechnical Consultants

12525 Willows Road, Suite 80, Kirkland, Washington (425) 820-2544

Date : August 2018	Project Name :Gilderman Residence	Figure 6

Project :	**Gilderman**			Test Pit TP - 5
Project No.	1478	**Date :**	8-20-18	
Client :	SpaceLab	**Elevation**	479 feet	
Location:	Bellevue	**Logged By:**	PKB	

SUBSURFACE PROFILE			SAMPLE			Field Strength Tests	**Laboratory Results**
Depth (ft)	Soil Lithology	Soil Description	Water Level	Sample	USCS		Moisture Content
0		Silty Sand: (9 inches Sod/Fill) Tan grading to tan and grey, silty Sand with gravel, rocks, and roots, loose grading to dense, dry to moist, grades to weathered Till			SM		
-1							
-2							
-3		Silty Sand: Grey mottledf tan, gravelly silty SAND, moist, dense to very dense, (Glacial Till)			SM		
-4							
-5							
-6		Silty Sand: Tan, mixed layers of grey Till, silty Sand, and slightly silty Sand with pebbles, dense, moist, a few pieces of native bedrock, (Glacial Till)			SM		
-7		No groundwater seepage encountered Test Pit terminated at 8 feet.					
-8							

ABPB Consulting

Geotechnical Consultants

12525 Willows Road, Suite 80, Kirkland, Washington (425) 820-2544

Date : August 2018	Project Name :Gilderman Residence	Figure 7