GEO Group Northwest, Inc.
Geotechnical Engineers, Geologists & Environmental Specialists

January 9, 2020 G-5077

Mr. Leroy Dunn
10423 Forest Ave S
Seattle, Washington 98178
Email: taadowfm@gmail.com
cc: dpalmaffy@aol.com

Subject: Infiltration Evaluation
Proposed Condominium Development
11231 Auburn Ave S
Seattle, WA 98178

Dear Mr. Dunn,

GEO Group Northwest, Inc. is pleased to provide geotechnical consulting services for the above referenced property in Seattle, Washington. We understand that the development of the property includes constructing five separate, 350 square-foot condominiums and a 1,680 square-foot vault, while retaining an existing residence located at the southeast corner of the property. The scope of our services consisted of a review of the area geologic map, subsurface investigation, and the preparation of this report.

GEOLOGIC OVERVIEW

According to published geologic mapping of the area, the site soils are identified as Vashon till (Qv_t) deposits from the Fraser Glaciation. Vashon till deposits typically consist of non-stratified mixtures of sand, silt, and gravel that were deposited beneath the sole of the Vashon glacier as it advanced southward into the Puget Sound area approximately 15,000 years ago. As a result of being consolidated by the glacial ice, these deposits are typically dense to very dense and relatively impermeable.

SUBSURFACE INVESTIGATION

On January 7, 2020, Bryce Frisher of GEO Group Northwest, Inc., advanced three hand auger soil borings at different sections of the project site. HA-1 was located north of the existing driveway, HA-2 was located west of the existing residence, and HA-3 was located northwest of the residence. Soil boring locations are illustrated in Plate 2 – Site Plan. The borings were advanced to depths of 3 feet (HA-1) and 2 feet (HA-2), and 2 feet (HA-3). We logged the soil and geologic conditions encountered and obtained soil samples from the borings. Soil samples were visually classified using the United Soil Classification System (USCS). Soil density was determined by using a 0.5-inch diameter T-handle probing rod at various depths during each boring.

Boring HA-1 consisted of 10 inches of dark brown, loose and damp sand with tree debris and some gravel. Soils below 10 inches consisted of medium dense, light brown to brown fine-grained sand that showed slight mottling. Water seepage was encountered at a depth of 30 inches below the ground surface, and the boring was terminated at a depth of 3 feet due to the presence of very dense, grayish light brown fine-grained silty sand. Boring HA-2 consisted of a 10-inch layer of medium dense, damp, brown fine-grained sand, underlain with moist, light brown sand with gravel to a depth of 20 inches, where water seepage was encountered. The boring was terminated at a depth of 29 inches where we encountered very dense, mottled gray silty sand and hand-auger refusal. HA-3 consisted of a 12-inch layer of dark brown, loose silty sand underlain with grayish brown, medium dense and moist fine-grained sand with silt. Water seepage was encountered at 13 inches, and the boring was terminated at a depth of 24 inches due to hand-auger refusal in the very dense, mottled, moist, gray silty sand. Detailed descriptions of the soils encountered in these borings are shown in Attachment 1 – Soil Boring Logs.

Based on the results of our subsurface investigation and our review of the area geologic map, it is our opinion that we encountered very dense, impermeable glacial till (Q_{vt}) in each of these borings at depths of 3 feet, 2.5 feet, and 2 feet, respectively. We encountered standing water near the bottom of each boring that was unable to properly infiltrate through the impermeable soil layer. Therefore, it is our opinion that the results of our subsurface investigation confirm the need for the planned vault at the project site.

LIMITATIONS

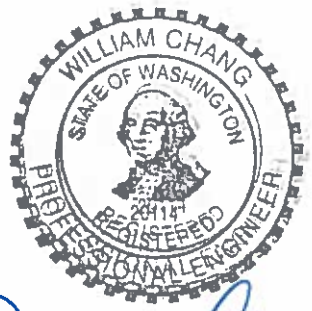
The findings and recommendations stated herein are based on field observations, our experience on similar projects and our professional judgment. The recommendations presented herein are our professional opinion derived in a manner consistent with the level of care and skill ordinarily exercised by other members of the profession currently practicing under similar conditions in this area within the project schedule and budget constraints. No warranty is expressed or implied. In the event that site conditions are found to differ from those described herein, we should be notified so that the relevant recommendations can be reevaluated and modified if appropriate.

CLOSING

We appreciate the opportunity to provide you with geotechnical engineering services for this project. Please feel welcome to call us if you have any questions.

Sincerely,

GEO Group Northwest, Inc.



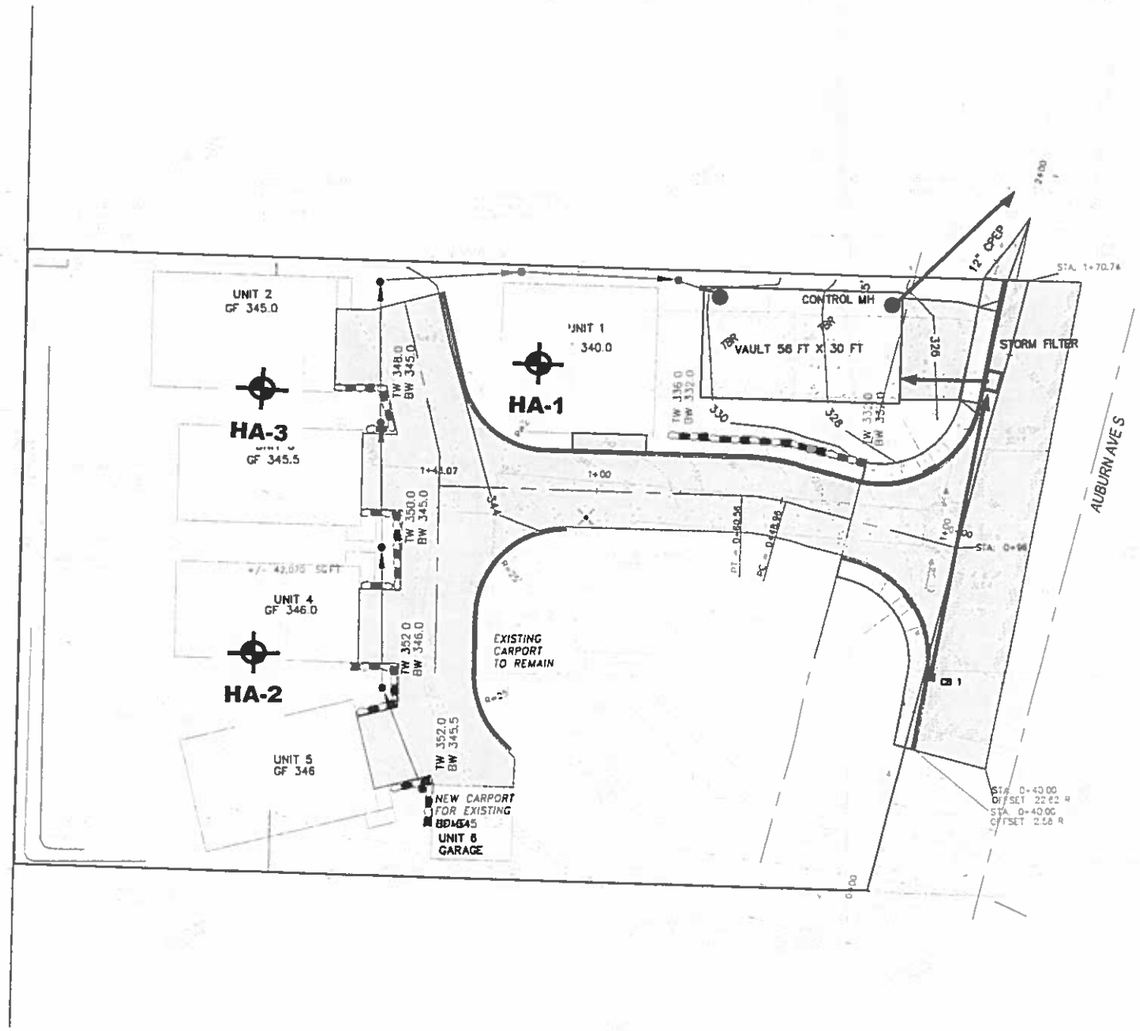
Bryce Frisher, E.I.T.
Staff Geotechnical Engineer

William Chang, P.E.
Principal Engineer

Plates and Attachment:

Plate 1: Site Plan
Attachment 1: Soil Boring Log

SECTION.12, T.23N., R.4E., W.M. KING COUNTY, WASHINGTON



PROJECT DESIGN TEAM

ENGINEER/CESCL:
DECCIO ENGINEERING INC
17217 7TH AVE W
BOTHELL, WA 98012
(206) 390-8374
CONTACT: RICHARD DECCIO
EMAIL: RDECCIO@COMCAST.NET

APPLICANT
11231 AUBURN AVE SOUTH
C/O BUILDERS CAPITAL
505 5TH AVE SOUTH SUITE 650
SEATTLE, WA 98104
CONTACT: MARK WOODBRIDGE
206-267-2650

SITE INFORMATION:

SITE LOCATION:	11231 AUBURN AVE SOUTH SEATTLE WA 98178
PARCEL NUMBER	1223049051
SITE AREA:	42,113 SF (0.967 AC)
ZONING:	R-5-P
COMP. PLAN	WEST HILL
PROPOSED UNITS	6
REC SPACE:	2,340 SF (6 @ 390 SF/EA)
DISTURBANCE AREA	42,113 SF (0.967 AC)

UTILITY INFORMATION:

WATER:	SKYWAY WATER DISTRICT
SEWER	SKYWAY SEWER DISTRICT
FIRE:	KING COUNTY FIRE DISTRICT 20
SCHOOL:	RENTON SCHOOL DISTRICT NO. 403
ELECTRICITY	SEATTLE CITY LIGHT
GAS:	PUGET SOUND ENERGY
PHONE:	CENTURY LINK OR XFINITY
CABLE:	COMCAST

PROJECT DISCRIPTION:

CREATION OF SIX BUILDING PADS

LEGEND

EXPLORATORY SOIL BORING LOCATION

HA-1

Source: Auburn Ave South Condominium by DECCIO Engineering, Dated 10/31/2019

GEO Group Northwest, Inc.
Geotechnical Engineers, Geologists, & Environmental Scientists

SITE PLAN

PROPOSED CONDOMINIUM DEVELOPMENT
11231 AUBURN AVE S
SEATTLE, WASHINGTON

SCALE	1" = 20'	DRAWN BY	BF	CHECKED BY	WC	DATE	1/9/2020	PROJECT NO.	G-5077	PLATE	1

ATTACHMENT 1

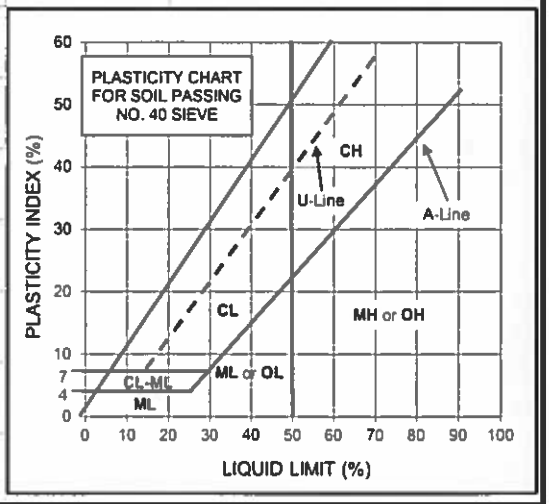
G-5077

SOIL BORING LOGS

SOIL CLASSIFICATION & PENETRATION TEST DATA EXPLANATION

UNIFIED SOIL CLASSIFICATION SYSTEM (USCS)

MAJOR DIVISION			GROUP SYMBOL	TYPICAL DESCRIPTION	LABORATORY CLASSIFICATION CRITERIA	
COARSE-GRAINED SOILS	GRAVELS (More Than Half Coarse Fraction Is Larger Than No. 4 Sieve)	CLEAN GRAVELS (little or no fines)	GW	WELL GRADED GRAVELS, GRAVEL-SAND MIXTURE, LITTLE OR NO FINES	CONTENT OF FINES BELOW 5%	Cu = (D60 / D10) greater than 4 Cc = $(D30)^2$ / (D10 * D60) between 1 and 3
			GP	POORLY GRADED GRAVELS, AND GRAVEL-SAND MIXTURES LITTLE OR NO FINES		CLEAN GRAVELS NOT MEETING ABOVE REQUIREMENTS
		DIRTY GRAVELS (with some fines)	GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES	CONTENT OF FINES EXCEEDS 12%	GM: ATTERBERG LIMITS BELOW "A" LINE, or P.I. LESS THAN 4
			GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES		GC: ATTERBERG LIMITS ABOVE "A" LINE, or P.I. MORE THAN 7
More Than Half by Weight Larger Than No. 200 Sieve	SANDS (More Than Half Coarse Fraction Is Smaller Than No. 4 Sieve)	CLEAN SANDS (little or no fines)	SW	WELL GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES	CONTENT OF FINES BELOW 5%	Cu = (D60 / D10) greater than 6 Cc = $(D30)^2$ / (D10 * D60) between 1 and 3
			SP	POORLY GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES		CLEAN SANDS NOT MEETING ABOVE REQUIREMENTS
		DIRTY SANDS (with some fines)	SM	SILTY SANDS, SAND-SILT MIXTURES	CONTENT OF FINES EXCEEDS 12%	ATTERBERG LIMITS BELOW "A" LINE with P.I. LESS THAN 4
			SC	CLAYEY SANDS, SAND-CLAY MIXTURES		ATTERBERG LIMITS ABOVE "A" LINE with P.I. MORE THAN 7
FINE-GRAINED SOILS	SILTS (Below A-Line on Plasticity Chart, Negligible Organics)	Liquid Limit < 50%	ML	INORGANIC SILTS, ROCK FLOUR, SANDY SILTS OF SLIGHT PLASTICITY		
		Liquid Limit > 50%	MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS, FINE SANDY OR SILTY SOIL		
	CLAYS (Above A-Line on Plasticity Chart, Negligible Organics)	Liquid Limit < 50%	CL	INORGANIC CLAYS OF LOW PLASTICITY, GRAVELLY, SANDY, OR SILTY CLAYS, CLEAN CLAYS		
		Liquid Limit > 50%	CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS		
Less Than Half by Weight Larger Than No. 200 Sieve	ORGANIC SILTS & CLAYS (Below A-Line on Plasticity Chart)	Liquid Limit < 50%	OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY		
		Liquid Limit > 50%	OH	ORGANIC CLAYS OF HIGH PLASTICITY		
HIGHLY ORGANIC SOILS			Pt	PEAT AND OTHER HIGHLY ORGANIC SOILS		



SOIL PARTICLE SIZE

FRACTION	U.S. STANDARD SIEVE			
	Passing		Retained	
	Sieve	Size (mm)	Sieve	Size (mm)
SILT / CLAY	#200	0.075		
SAND				
FINE	#40	0.425	#200	0.075
MEDIUM	#10	2.00	#40	0.425
COARSE	#4	4.75	#10	2.00
GRAVEL				
FINE	0.75"	19	#4	4.75
COARSE	3"	76	0.75"	19
COBBLES	76 mm to 203 mm			
BOULDERS	> 203 mm			
ROCK FRAGMENTS	> 76 mm			
ROCK	>0.76 cubic meter in volume			

GENERAL GUIDANCE FOR ENGINEERING PROPERTIES OF SOILS, BASED ON STANDARD PENETRATION TEST (SPT) DATA

SANDY SOILS				SILTY & CLAYEY SOILS		
Blow Counts N	Relative Density, %	Friction Angle ϕ, degrees	Description	Blow Counts N	Unconfined Strength q_u, tsf	Description
0 - 4	0 -15		Very Loose	< 2	< 0.25	Very soft
4 - 10	15 - 35	26 - 30	Loose	2 - 4	0.25 - 0.50	Soft
10 - 30	35 - 65	28 - 35	Medium Dense	4 - 8	0.50 - 1.00	Medium Stiff
30 - 50	65 - 85	35 - 42	Dense	8 - 15	1.00 - 2.00	Stiff
> 50	85 - 100	38 - 46	Very Dense	15 - 30	2.00 - 4.00	Very Stiff
				> 30	> 4.00	Hard

GEO Group Northwest, Inc.
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13240 NE 20th Street, Suite 10 Bellevue, WA 98005
Phone (425) 649-8757 Fax (425) 649-8758

PLATE A1

BORING NO. HA - 1

Completed By: BF Date Drilled: 1/7/2020 Surface Elev. 344'

Depth ft.	Elevation	USCS Code	Description	Sample Loc.	Sample No.	Probing Rod Penet. (in.)	Water Content %	Other Tests/ Comments
0		SP	SAND, gray, loose, grassy lawn.			9"		
0.5		SP	SAND, dark brown, loose, some gravel and tree debris, damp, likely topsoil.					
1						2"		
1.5		SP	SAND, brown and light brown, medium dense, fine-grained with some medium grains, slightly mottled, damp, silty fines.			20"		
2								
2.5	▽	SP - SM	SAND with SILT, moist to wet, light brown, loose to medium dense, fine to medium grained, rare gravel.			4"		
3		SM	SILTY SAND, very dense, mottled, grayish light brown, moist, fine-grained, rare gravel.			< 1/2"		
3.5			Depth of boring: 2.3 feet. Hand auger refusal. Drilling Method: Hand auger and tools. Sampling Method: Grab Groundwater encountered at 2.5 feet.					
4								

LEGEND: I 2" O.D. SPT Sampler; II 3" O.D. California Sampler; ▽ Water Level noted during drilling; ▼ Water Level measured at later time, as noted

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BORING LOG

PROPOSED CONDOMINIUM DEVELOPMENT
11231 AUBURN AVE S
SEATTLE, WASHINGTON

JOB NO. G-5077 **DATE** 1/9/2020 **PLATE** A2

BORING NO. HA - 2

Completed By: BF Date Drilled: 1/7/2020 Surface Elev. 352'

Depth ft.	Elevation	USCS Code	Description	Sample Loc.	Sample No.	Probing Rod Penet. (in.)	Water Content %	Other Tests/ Comments
		SP - SM	Grayish brown SAND with SILT, moist, grass.			4"		
0.5		SP	SAND with GRAVEL, fine-grained, medium dense, damp, brown, rare cobble.			4"		
1.5	▽	SP	SAND with GRAVEL, moist, fine-grained, light brown, medium dense, some silty fines.			10"		
2.5		SM	SILTY SAND, very dense and mottled, fine-grained, damp to moist, rare gravel, grayish brown.			< 1"		
3			Depth of boring: 2.5 feet. Hand auger refusal. Drilling Method: Hand auger and tools. Sampling Method: Grab Groundwater encountered at 1.6 feet.					

LEGEND: I 2" O.D. SPT Sampler; II 3" O.D. California Sampler; ▽ Water Level noted during drilling; ▼ Water Level measured at later time, as noted

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BORING LOG

PROPOSED CONDOMINIUM DEVELOPMENT
11231 AUBURN AVE S
SEATTLE, WASHINGTON

JOB NO.	G-5077	DATE	1/9/2020	PLATE	A3

BORING NO. HA - 3

Completed By: BF | Date Drilled: 1/7/2020 | Surface Elev. 350'

Depth ft.	Elevation	USCS Code	Description	Sample Loc.	Sample No.	Probing Rod Penet. (in.)	Water Content %	Other Tests/ Comments
0		ML	SILT, gray and moist at surface.			5"		
0.5		SP - SM	SAND with SILT, loose, thin roots encountered, dark brown, moist, rare gravel.					
1	▽							
1.5		SP	SAND, brown to grayish brown, medium dense, moist to wet, fine-grained, some gravel, silty fines.			5"		
2		SM	SILTY SAND, very dense, gray, mottled, moist to wet, fine-grained with some medium grains and rare gravel.			< 1"		
2.5			Depth of boring: 2 feet. Hand auger refusal. Drilling Method: Hand auger and tools. Sampling Method: Grab Groundwater encountered at 1.1 feet.					
3								

LEGEND: 2" O.D. SPT Sampler; 3" O.D. California Sampler; ▽ Water Level noted during drilling; ▼ Water Level measured at later time, as noted

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BORING LOG

PROPOSED CONDOMINIUM DEVELOPMENT
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SEATTLE, WASHINGTON

JOB NO. G-5077 | **DATE** 1/9/2020 | **PLATE** A4