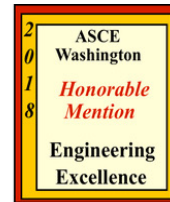


November 26, 2022
Project No. 2DK0233995



Chunling Ou
chunling.office@gmail.com

Re: Geotechnical Infiltration Study
Proposed Single Family House
3804 E Mercer Way
Mercer Island, WA 98040

Dear Chunling:

At your request, we have conducted a subsurface investigation at the above referenced site. We understand that a residential building is proposed for construction on the site. The purpose of this study was to perform field tests in a specified area at the site to evaluate soil and groundwater conditions, conducted a small-scale Pilot Infiltration Test (PIT) and prepare a summary letter evaluating whether the site soils are suitable for civil engineering design of stormwater infiltration.

The scope of this study to date has included:

1. Observing two (2) test holes to maximum depth of 5.0'.
2. Logging, and interpreting soil, ground water, and subsurface conditions;
3. Preparing a report with recommendations for feasibility of soil infiltration.

SITE CONDITIONS: The subject property is located at 3804 E Mercer Way, Mercer Island, Washington, to east of E Mercer Way. The site has existing house with a detached garage. The backyard is a grass lawn with gentle slope towards to the lake.

Adjacent lots around the site are developed residential neighborhoods. The project location and vicinity is shown in Figure 1 and the site plan in Figure 2 in Appendix.

GEOLOGIC BACKGROUND: The project area is located in the Northern Puget lowlands. This area was invaded by glacial ice at least three times during the Pleistocene Epoch, about 1.6 million to 10,000 years ago. The site is mapped as Pleistocene continental glacial till according to the 1:250,000 Washington Interactive Geological Map. The soils are described as Qgt - Pleistocene till, which is unsorted, unstratified, highly compacted mixture of clay, silt, sand, gravel, and boulders deposited by glacial ice; may contain interbedded stratified sand, silt, and gravel.

SURFACE AND GROUNDWATER CONDITIONS: No groundwater seepage was observed in test pits excavated at 11/26/2022. No surface water was observed during our site visit.

SOIL CONDITIONS: Soil conditions were investigated by conducting two (2) test pits. For detailed soil observations, please refer to Figures 4 and 5 in Appendix; a USCS soil classification chart is provided in Figure 3 in Appendix. Native soils were generally consistent with findings of all test pit locations. Subsurface soil conditions are summarized as follows, from top to bottom:

- a. 0' - 2' Topsoil (OL)/Fill
- b. 2' - 5' Clayey Sands with Gravel (Till)

a. Topsoil (OL)/Fill

Dark brown, sandy silt topsoil with grass roots was encountered at the surface in TP#1. The black silty sand and some bricks was found in TP#2. This soil ranged from 0" to 2' thick, damp, and moderately loose.

b. Clayey Sands with Gravel (Till)

The clayey sands underlying topsoil extends to excavation depth of ~5'. The soil is light brown to gray, stiff to hard, damp.

CONCLUSIONS: Based on the findings of our study, it is our opinion and conclusion that site soil and subsurface conditions observed are not suitable for on site stormwater infiltration. This is due primarily to hard TILL soil from depth ~2' to ~5'. And the onsite TILL soil layer is within 3 feet of the base of infiltration basins or trench systems according to the 2014 Stormwater Management Manual for Western Washington, Volume III, Section 3.3.7 - Site Suitability Criteria, SSC-5 *Depth to Bedrock, Water Table, or Impermeable Layer*. Therefore, project stormwater runoff will need to be directed to a controlled detention/release stormwater facility.

Thank you for this opportunity to work with you on this project. Please contact us at (425) 454-2133 if you have any questions.

Sincerely,



November 26, 2022

Austin X. Huang, Ph.D., P.E., L.G., D.GE., F.ASCE
Principal
F.ASCE: Fellow - American Society of Civil Engineering
D.GE - Diplomate - Academy of GeoProfessionals

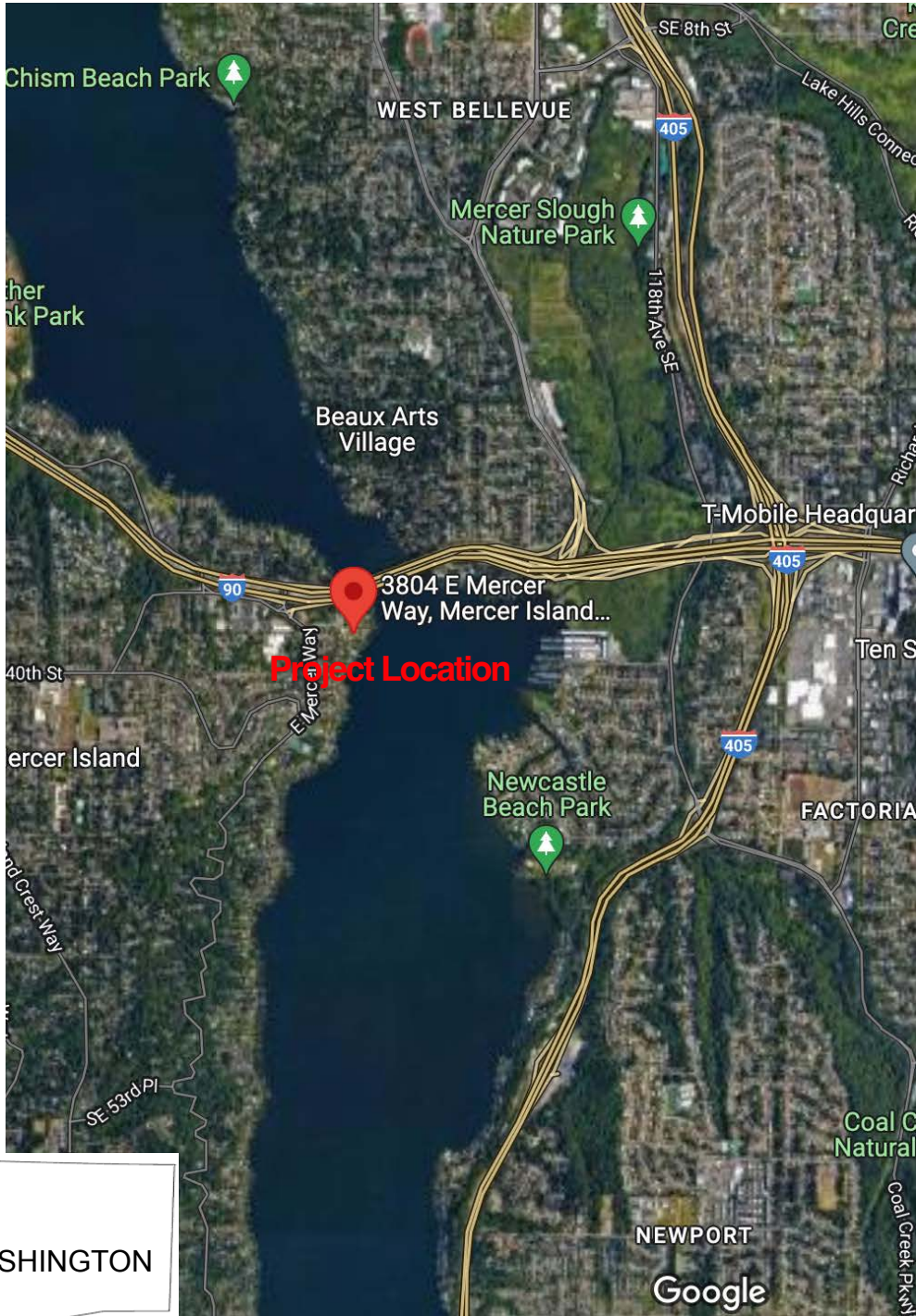
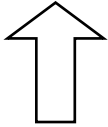
D.GEs provide successful projects that benefit their clients.

The D.GE certification recognizes geotechnical engineers who possess specialty education, extensive experience, integrity, and good judgment.

Appendix

Figure 1 Project Location and Vicinity
Figure 2 Site Plan
Figure 3 USCS Soils Classification Chart
Figures 4 and 5 Test Pit Logs


MERCER ISLAND, WASHINGTON



| | | | |
|------------------------|--|------------------|-----------------|
| Project No. 2DK0233995 | PROJECT LOCATION & VICINITY MAP | Date: 11/26/2022 | <i>Figure 1</i> |
|------------------------|--|------------------|-----------------|

Proposed Single Family House
 3804 R Mercer Way
 Mercer Island, Washington 98040

Prepared For: Chunling Ou



MERIT ENGINEERING INC.
 10129 Main Street, #201
 Bellevue, Washington 98004
 Telephone: (425) 454-2133
<http://www.MeritEngineering.com>



LEGEND

| | |
|---|---------------------------|
| ⊙ FOUND MONUMENT AS DESCRIBED | —○— OVERHEAD POWER |
| ⊙ FOUND MARK AS DESCRIBED | —○— OVERHEAD UTILITY |
| ⊗ TACK IN LEAD POUND | —○— OVERLINE FENCE |
| ⊗ SET OF 2.0" BIRCH ROD WITH YELLOW PLASTIC CAP | —○— WOOD FENCE |
| ⊗ FOUND METER | —○— CONCRETE WALL |
| ⊗ UTILITY POLE | —○— ROOFTOP |
| ⊗ GAS METER | —○— ASPHALT SURFACE |
| ⊗ CATCH BASIN | —○— CONCRETE SURFACE |
| ⊗ SANITARY MANHOLE | —○— BRICK SURFACE |
| ⊗ WATER VALVE | ○ C CROWN |
| ⊗ FIRE HYDRANT | ○ S S CIRCULAR |
| ⊗ WATER METER | ○ D D DOLLY |
| —○— APPROPRIATE LOCATION BENCHMARK | ○ M MAPLE |
| —○— APPROPRIATE LOCATION | ○ * INDICATES MULTI-TRUNK |

LEGAL DESCRIPTION
 LOT 10, DOYLE SHAWNEE ADDITION TO THE CITY OF SEATTLE, ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 19 OF PLATS, PAGE 24, IN KING COUNTY, WASHINGTON.
 SITUATE IN THE CITY OF MERCER ISLAND, COUNTY OF KING, STATE OF WASHINGTON.

BASIS OF BEARINGS
 THE PLAT OF DOYLE SHAWNEE ADDITION TO THE CITY OF SEATTLE, ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 19 OF PLATS, PAGE 24, IN KING COUNTY, WASHINGTON.

PROJECT INFORMATION

| | |
|---------------------------|---|
| SURVEYOR: | SITE SURVEYING, INC. 2300 NE 15TH ST SEASIDE, WA 98148 PHONE: 425.454.4422 |
| PROPERTY OWNER: | OU CHUNLING & FANG HONG 3804 E MERCER WAY MERCER ISLAND, WA 98040 |
| TAX PARCEL NUMBER: | 37096-010 |
| PROJECT ADDRESS: | 3804 E MERCER WAY MERCER ISLAND, WA 98040 |
| ZONING: | R-3A |
| JURISDICTION: | CITY OF MERCER ISLAND |
| PARCEL ADDRESS: | 11.00 AC. (0.50 ACRES) AS SHOWN |

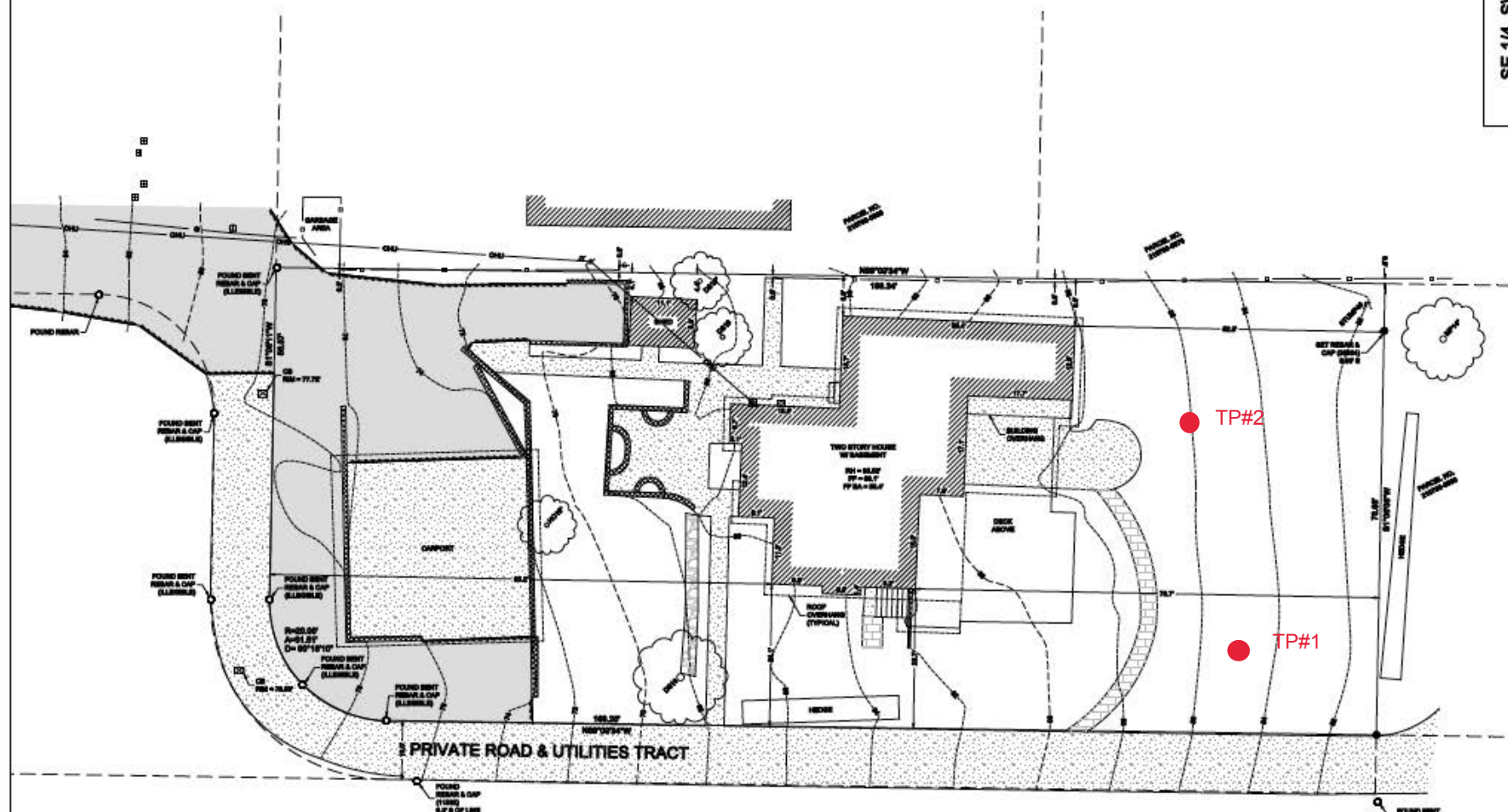
GENERAL NOTES

- THIS SURVEY WAS BASED ON ORIGINAL TITLE COMPANY OF WASHINGTON ORDER NUMBER 014444-04 DATED DECEMBER 14, 2016.
- INSTRUMENTATION FOR THIS SURVEY WAS A SECOND SPECTROPRECISION FOCUS-SH TOTAL STATION. PROCEDURES USED IN THIS SURVEY MEET OR EXCEED REQUIREMENTS SET BY WAC 163-10-010.
- THE INFORMATION ON THIS MAP REPRESENTS THE RESULTS OF A SURVEY MADE IN APRIL 2022 AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME.
- UTILITIES SHOWN ON THIS SURVEY ARE BASED UPON ABOVE CROWNED CONDUITING AND AN 8" x 8" PLUM INVERT MANHOLE. ACTUAL LOCATIONS OF UNDERGROUND UTILITIES MAY VARY AND UTILITIES NOT SHOWN ON THIS SURVEY MAY EXIST ON THIS SITE.
- ALL MONUMENTS WERE LOCATED DURING THIS SURVEY UNLESS OTHERWISE NOTED.

VERTICAL DATUM & CONTOUR INTERVAL
 ELEVATIONS SHOWN ON THIS DRAWING ARE ON AN ADJUSTED DATUM.
 2' CONTOUR INTERVAL - THE SPECIFIED VERTICAL ACCURACY IS EQUAL TO OR BETTER THAN THE CONTOUR INTERVAL OR PLAIN TABLE 1.0 FOR THIS PROJECT.



VICINITY MAP
NTS



MERCER ISLAND, WASHINGTON

Note:
 The site plan was based on the map from Site Surveying, Inc.

| Proposed Single Family House 3804 R Mercer Way Mercer Island, Washington 98040 | SITE PLAN | | | |
|--|---------------------|-------------|------------|-------------|
| | Figure 2 | PROJECT NO. | DATE | APPROVED BY |
| Prepared For: Chunling Ou | Scale: Not to Scale | 2DK0233995 | 11/26/2022 | AXH |

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





SE 1/4, SW 1/4, SEC 24, TWP 25N, RNG 3E, W.M.







TOPOGRAPHIC SURVEY
 OU CHUNLING & FANG HONG
 3804 E MERCER WAY
 MERCER ISLAND, WA 98040

PROJECT NO. 20-127
 DRAWN BY: EFJ
 CHECKED BY: TNW
 DATE: 8/16/22
 SHEET 1 OF 1

UNIFIED SOIL CLASSIFICATION SYSTEM

| MAJOR DIVISIONS | | DESCRIPTION | | |
|---|---|--|--|--|
| COARSE GRAINED SOILS more than 50% retained on #200 sieve | GRAVELS more than 50% coarse fraction is larger than No. 4 sieve size | Gravels with less than 5% fines |  GW Well graded gravels, gravel-sand mixtures | |
| | | Gravels with more than 12% fines |  GP Poorly graded gravels, gravel-sand mixtures | |
| | | Gravels with less than 5% fines |  GM Silty gravels, gravel-sand-silt mixtures | |
| | | Gravels with more than 12% fines |  GC Clayey gravels, gravel-sand-clay mixtures | |
| | SANDS more than 50% coarse fraction is smaller than No. 4 sieve size | Sands with less than 5% fines |  SW Well graded sands, gravelly sands | |
| | | Sands with more than 12% fines |  SP Poorly graded sands, gravelly sands | |
| | | Sands with less than 5% fines |  SM Silty sands, sand-silt mixtures | |
| | | Sands with more than 12% fines |  SC Clayey sands, sand-clay mixtures | |
| | | SILTS AND CLAYS Liquid Limit less than 50 | |  ML Inorganic silts & very fine sands, rock flour, silty or clayey fine sands, or clayey silts with slight plasticity |
| | | SILTS AND CLAYS Liquid Limits greater than 50 | |  CL Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, or lean clays |
| HIGHLY ORGANIC SOILS | |  PT Peat and other highly organic soils | | |
| UNCONTROLLED FILL | |  Uncontrolled, with highly variable constituents | | |

LEGEND

| SAMPLE | SYMBOL |
|---|---|
|  SPLIT SPOON SAMPLER |  GROUNDWATER TABLE |
|  SHELBY TUBE SAMPLER |  PENETROMETER READING TSF (<i>tons per square foot</i>) |



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 Fax: (360) 738-1499
<http://www.MeritEngineering.com>

SOIL CLASSIFICATION & LEGEND

Figure 3

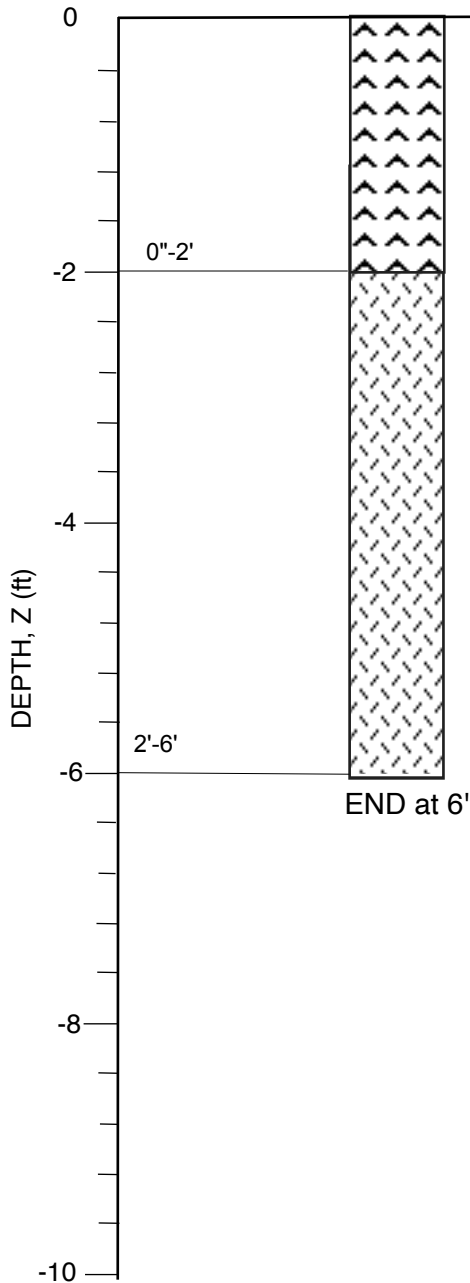
TP - 1

Surface Elevation \approx

X =

Y =

SOIL DESCRIPTION AND CLASSIFICATION



TOPSOIL (OL)

Black organic silty sand with grassroots moist, loose

CLAYEY SANDS WITH GRAVEL (TILL)

Gray clayey sand with gravel, very stiff to hard, and damp.

Project No. 2DK0233995

Date: 11/26/2022

Approved by AH

Figure 4

Proposed Single Family House
3804 R Mercer Way
Mercer Island, Washington 98040

Prepared For: Chunling Ou



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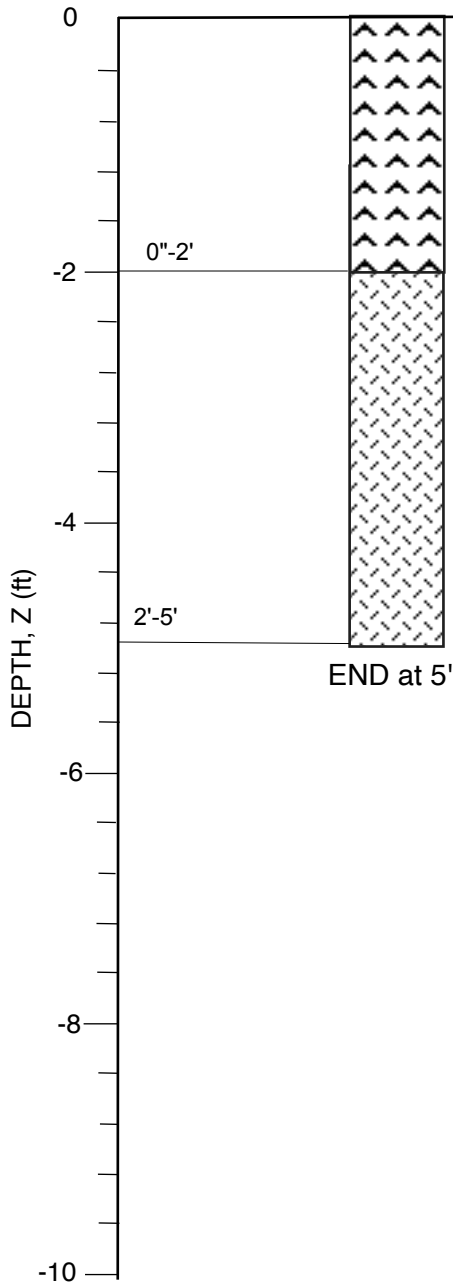
TP - 2

Surface Elevation ≈

X =

Y =

SOIL DESCRIPTION AND CLASSIFICATION



Fill

Black organic silty sand with grassroots moist, loose, and some bricks.

CLAYEY SANDS WITH GRAVEL (TILL)

Gray clayey sand with gravel, very stiff to hard, and damp.

Project No. 2DK0233995

Date: 11/26/2022

Approved by AH

Figure 5

Proposed Single Family House
3804 R Mercer Way
Mercer Island, Washington 98040

Prepared For: Chunling Ou



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