GeoEngineers

Memorandum

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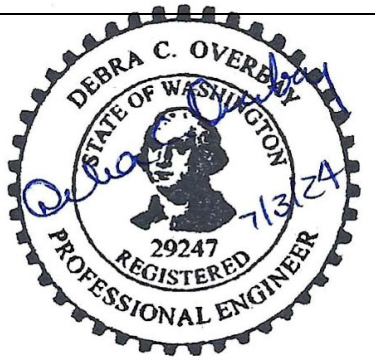
To: Dave Vranizan, Benaroya Capital Company, LLC
Cara Visintainer, PE, Barghausen Consulting Engineers
Baxter Hagan, Howard S. Wright

From: Debra Overbay PE, GeoEngineers, Inc

Date: July 3, 2024

File: 4565-064-09



Subject: Technical Memorandum – South Hill Business and Technology Center Centeris North Detention Pond

Introduction

This memorandum documents our geotechnical engineering services in support of the proposed North Utility Yard Detention Pond to be constructed at the South Hill Business and Technology Center in Puyallup, Washington. The overall site location is shown in the attached Figure 1, Vicinity Map.

GeoEngineers, Inc. (GeoEngineers) has been requested to observe test pit explorations in the proposed north utility pond area for the purposes of evaluating infiltration characteristics of the subsurface soils and providing geotechnical retaining wall parameters for the proposed mechanically stabilized earth (MSE) wall. A summary of the site conditions, field exploration, laboratory testing and geotechnical design recommendations within the proposed pond area are provided below

Field Explorations and Laboratory Testing

FIELD EXPLORATIONS

Subsurface soil and groundwater conditions were evaluated by excavating three test pits at the approximate locations shown in Figure 2, Centeris North Detention Pond Test Pits. The test pits were excavated using a tracked excavator owned and operated by the earthwork contractor at the site, Johannsen Excavating. Test pits were excavated to depths of 5½ to 10 feet below the ground surface (bgs). A detailed description of the field exploration and testing program and logs of the explorations are presented in Attachment A, Field Explorations and Laboratory Testing

LABORATORY TESTING

Soil samples obtained from the explorations were transported to GeoEngineers' Redmond, Washington geotechnical laboratory and evaluated to confirm or modify field classifications, as well as to evaluate engineering and index properties of the soil. Selected samples were tested for the determination of moisture content and grain size distribution. A description of the laboratory testing and the test results are presented in Attachment A.

Geology

We reviewed available geologic maps, including the geologic map of the Tacoma quadrangle (Schuster et al. 2015). The project area is located on a glaciated upland west and south of a major glacial trough, now occupied by the Puyallup River.

Surficial soils mapped in the project vicinity generally consist of geologic units deposited during the Vashon Stade of the Fraser glaciation and include Vashon Till (Qgt), Recessional outwash (Qgo) and ice-contact deposits (Qgoi). Surficial fill is also present at the site from historic grading activities.

Vashon till generally consists of a non-sorted, non-stratified mixture of clay, silt, sand and gravel with larger constituents up to the size of cobbles and boulders. The till is very dense and relatively impermeable but can contain localized zones of interbedded stratified sand and gravel.

Recessional outwash and ice-contact deposits typically consist of stratified outwash sand with some gravel, and some areas of silt and clay. The sediments were deposited by meltwater from the stagnating and receding Vashon glacier and are typically loose to medium dense.

Site Conditions

SURFACE CONDITIONS

The South Hill Business and Technology Center is located north of 39th Avenue SE, east of Bradley Lake and west of Pierce College in Puyallup, Washington. College Way borders the site to the north. The proposed north detention pond is located on the north side of the Centeris building (Building D) within an undeveloped forested area. Existing ground surface elevations within the proposed pond area range from about Elevation 460 to 464 feet (North American Vertical Datum of 1988 [NAVD 88]). We understand construction of the pond will require cuts on the order of 5 to 10 feet, and the pond bottom elevation will be Elevation 457 feet. An MSE wall is planned along the southern cut, ranging from about 7 to 10 feet in height. The wall design will be a deferred submittal

SUBSURFACE CONDITIONS

Soils encountered in the explorations consist of recessional outwash in the west and central test pits, and glacial till in the east test pit. The recessional outwash primarily consists of fine to coarse gravel with variable silt content, and occasional cobbles. Test Pit TP-2 encountered a layer of sand with silt beneath the gravel layer. The eastern test pit encountered weathered to unweathered glacial till below a surficial topsoil/forest duff layer. The glacial till is considered a hydraulic restriction layer and is not suitable for infiltration.

GROUNDWATER CONDITIONS

We did not encounter the static groundwater table during our test pit explorations. Minor perched seepage was encountered on the glacial till in the eastern test pit. Discontinuous perched zones are common within the glacial deposits as seepage from precipitation moves laterally within the unweathered or less permeable layers of the deposits. Perched groundwater conditions are expected to fluctuate as a result of season, precipitation and other factors

Conclusions and Recommendations

Based on our observations during the test pit explorations and measurements completed in nearby monitoring well MW-33 located near the proposed entrance to the pond, the static groundwater table is more than 20 feet below existing ground surface. As discussed previously, localized perched zones should be anticipated on the less permeable glacial deposits at the site. Subsurface soils consist of a complex mixture of recessional and ice contact deposits, and very dense glacial till. Although zones of the outwash are more permeable and suitable for infiltration, outwash was not encountered in the eastern test pit. Design and construction considerations for temporary and permanent slopes, earthwork, infiltration considerations and geotechnical parameters for MSE wall design are provided below

EARTHWORK

Based on the preliminary plan, 5 feet or more of excavation will be required to construct the pond and the adjacent retaining wall. We expect that the proposed earthwork can be accomplished with conventional earthmoving equipment. Although not observed in our test pits, boulders are common within glacial deposits and the contractor should be prepared to remove boulders if encountered.

Portions of the on-site native soils contain sufficient fines content (particles passing the U.S. Standard No. 200 sieve) such that they will be moisture-sensitive and susceptible to disturbance when wet. Site preparation and earthwork should be undertaken during extended periods of dry weather when the surficial soils will be less susceptible to disturbance and provide better support for construction equipment.

CLEARING AND SITE PREPARATION

All areas to be graded should be cleared of surface and subsurface deleterious matter, including existing trees, brush, vegetation and debris. We recommend stumps and roots larger than 1 inch in diameter be grubbed. Organic soils can be stockpiled and used in landscaping areas.

SUBGRADE EVALUATION

Following site grading, we recommend the pond surface be evaluated to confirm subsurface soils are as assumed during design. We understand infiltration may be considered for a portion of the pond. Where infiltration is planned, the pond surface should be excavated to final depth and configuration using equipment operating outside the footprint, as practical. The final surface should not be compacted, and may require scarifying based on conditions encountered

STRUCTURAL FILL

Materials

Materials used as backfill at the site should meet the requirements below.

- Structural fill placed within the reinforced zone of the MSE wall should consist of Washington State Department of Transportation (WSDOT) Standard Specification 9-03.14(4) Gravel Borrow for Structural Earth Wall.

- Structural fill placed to construct the pond berms should meet the requirements of Common Borrow, WSDOT Standard Specification 9-03.14(3) during dry weather (provided the material can be moisture conditioned to achieve compaction), or WSDOT Standard Specification 9-03.14(1), Gravel Borrow.
- Crushed surfacing should meet the requirements of WSDOT Specification 9-03.9(3).

Fill Placement and Compaction Criteria

Where structural fill is required, the fill should be mechanically compacted to a firm, non-yielding condition. Structural fill should be placed in loose lifts not exceeding 12 inches in thickness. Each lift should be conditioned to the proper moisture content and compacted to the specified density before placing subsequent lifts. The moisture content should not vary more than about two percent above or below the optimum moisture content (OMC). Structural fill should be compacted to the following criteria:

- Structural fill in pavement areas, including utility trench backfill, should be compacted to 90 percent of the maximum dry density (MDD) estimated in general accordance with ASTM International (ASTM) D 1557, except that the upper 2 feet of fill below final subgrade should be compacted to 95 percent of the MDD.
- Structural fill placed as crushed surfacing base course below pavements should be compacted to 95 percent of the MDD estimated in general accordance with ASTM D 1557.

TEMPORARY AND PERMANENT SLOPES

All temporary cut slopes and shoring must comply with the provisions of Title 296 Washington Administrative Code (WAC), Part N, "Excavation, Trenching and Shoring." The contractor performing the work has the primary responsibility for protection of workers and adjacent improvements.

We recommend temporary cut slope inclinations of 1.5H:1V (horizontal to vertical) in the native medium dense soils encountered at the site. Some raveling/sloughing of the cut slopes may occur at this inclination. The inclination may need to be flattened by the contractor if significant sloughing or seepage occurs. These cut slope recommendations apply to fully dewatered conditions. For open cuts at the site, we recommend that:

- No traffic, construction equipment, stockpiles or building supplies be allowed at the top of the cut slopes within a distance of at least 5 feet from the top of the cut.
- Exposed soil along the slope be protected from surface erosion using waterproof tarps or plastic sheeting.
- Construction activities be scheduled so that the length of time the temporary cut is left open is reduced to the extent practicable.
- Erosion control measures be implemented as appropriate such that runoff from the site is reduced to the extent practicable.
- Surface water be diverted away from the excavation.
- The general condition of the slopes should be observed periodically by GeoEngineers to confirm adequate stability.

Because the contractor has control of the construction operations, the contractor should be made responsible for the stability of cut slopes, as well as the safety of the excavations. The contractor should take all necessary steps to ensure the safety of the workers near slopes.

Permanent interior pond cut slopes should be inclined at 3H:1V or flatter. Exterior permanent slopes should be inclined at 2H:1V or flatter.

MSE RETAINING WALL CONSIDERATIONS

We understand an approximate 5 to 10-foot-high MSE wall will retain the south side of the pond. Based on the subsurface soils encountered in our test pits and the recommended backfill material within the reinforced zone, we recommend the following design parameters for the wall.

TABLE 1. WALL DESIGN PARAMETERS [1, 2]

PARAMETER	REINFORCED BACKFILL	RETAINED BACKFILL	FOUNDATION SOIL
Unit Weight (pcf)	130	125	120
Friction Angle (deg)	35	33	32
Cohesion (psf)	0	0	0
Allowable Bearing (psf)[3]	-	-	2,500

Notes:

[1] Walls should be designed for the planned backslope shown in the plans

[2] A seismic coefficient of 0.3 (modified peak ground acceleration times 0.5) can be used for seismic design

[3] If unsuitable soils are encountered at the footing subgrade elevation they should be removed and replaced with structural fill compacted to a minimum 95 percent of the maximum dry density.

These recommendations assume that all retaining walls will be provided with adequate drainage behind the wall.

INFILTRATION FEASIBILITY

As discussed previously, differing soil conditions resulting in a nonuniform infiltration surface was encountered in the test pits. Very dense glacial till was encountered in the eastern test pit, TP-3, which is considered a hydraulic restriction layer in accordance with the Washington State Department of Ecology Stormwater Management Manual of Western Washington (SMMWW). Granular outwash was encountered in the west and central test pit. Preliminary infiltration rates for the western portion of the pond based on the grain size analyses method are provided in Table 2

TABLE 2. ESTIMATED SOIL HYDRAULIC CONDUCTIVITIES[1]

Test Pit	Soil Sample Depth (feet)	Percent Fines[2]	D_{10} [3]	Estimated Saturated Hydraulic Conductivity with Correction Factor[4] (in/hr)
TP-1	3.5	7	0.85	>20
TP-1	8	2	0.70	>20
TP-2	3.5	5	0.20	5.1
TP-2	7.5	7	0.18	4.2

Notes:

[1] For selected soil samples.

[2] Defined as particles passing the No. 200 sieve.

[3] Defined as grain size in mm for which 10 percent of the sample is more fine.

[4] Correction factor of 0.119 calculated in accordance with Manual (Grain Size Method Correction = 0.4, Site Variability = 0.33, and CFm = 0.9)

Limitations

We have prepared this memorandum for the exclusive use of Benaroya Capital Company, LLC and their authorized agents for the proposed Centeris North Utility Pond. Within the limitations of scope, schedule and budget, our services have been executed in accordance with generally accepted practices in the field of geotechnical engineering in this area at the time this report was prepared. No warranty or other conditions, express or implied, should be understood. Please refer to Attachment B for additional information pertaining to use of our recommendations.

Attachments:

Figure 1, Vicinity Map

Figure 2, Site Plan

Attachment A. Field Exploration and Laboratory Data

Attachment B. Report Limitations and Guidelines for Use

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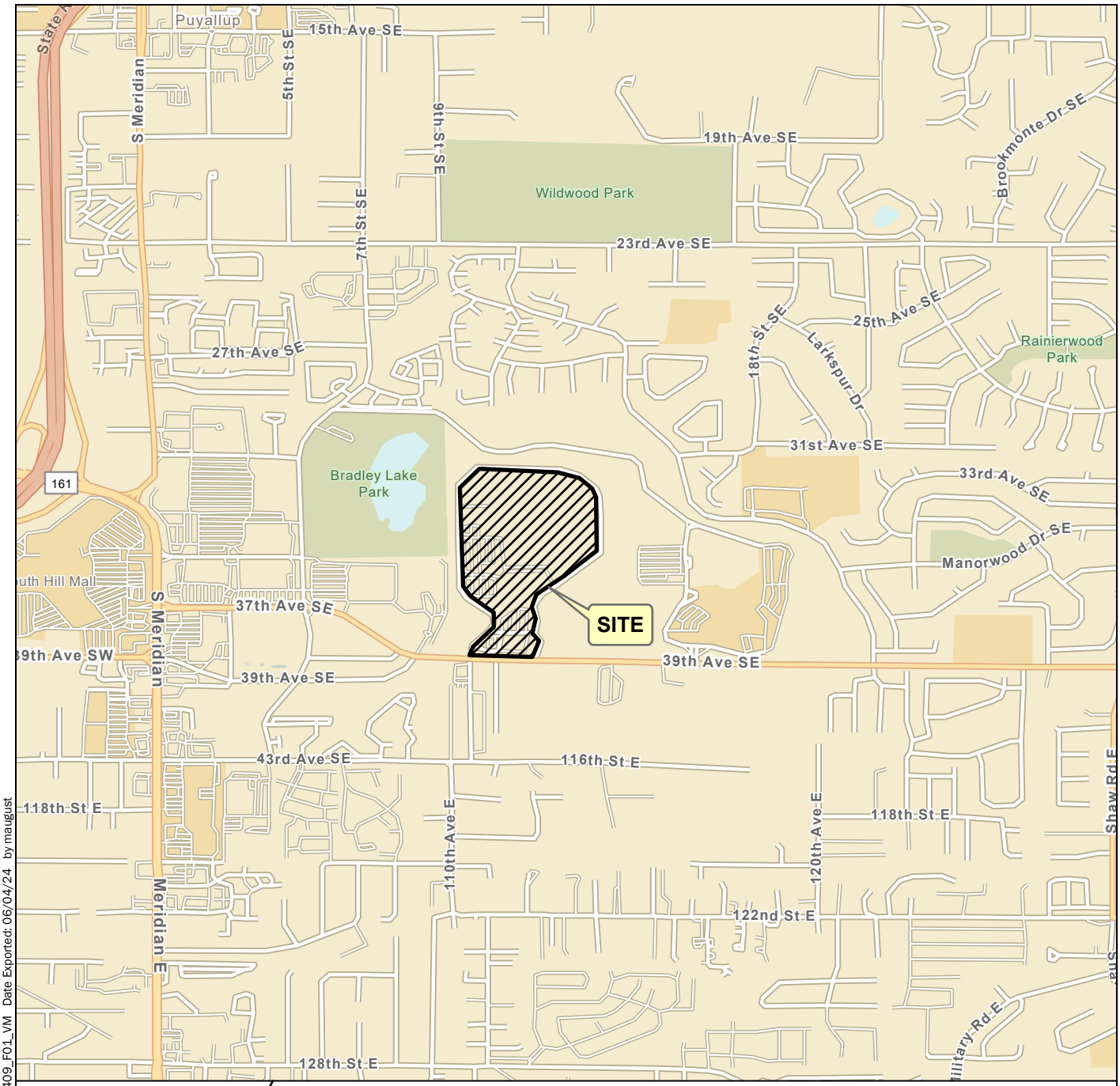
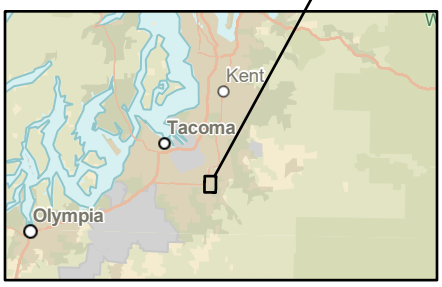
Figures





N
W E
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2,000 0 2,000
Feet

Notes:

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Data Source: ESRI

Projection: NAD 1983 StatePlane Washington South FIPS 4602 Feet

Vicinity Map

Benaroya Capital Company, LLC
South Hill Business & Technology Center
Puyallup, Washington

GeoEngineers

Figure 1

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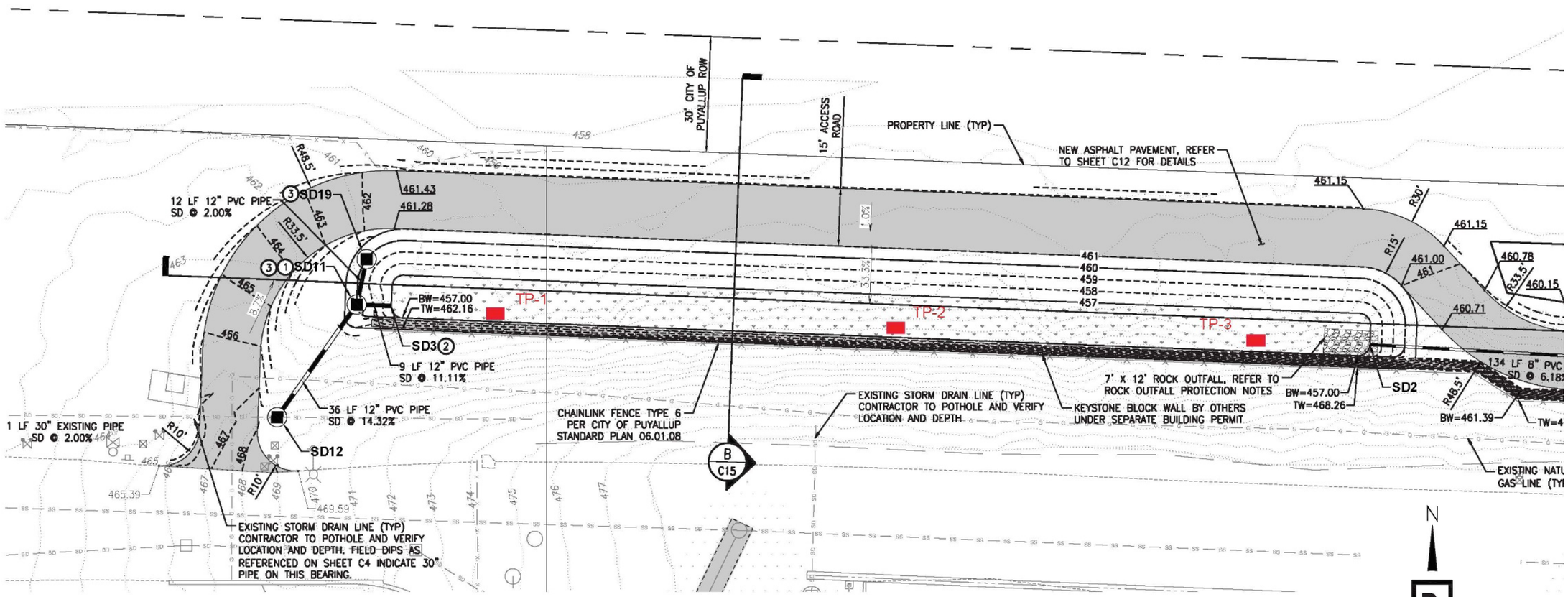

Not to Scale

Centeris North Detention Pond Test Pits

Benaroya Capital Company, LLC
South Hill Business & Technology Center,
Puyallup, Washington

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Figure 2

Notes:

1. The locations of all features shown are approximate.
2. This drawing is an excerpt from the drawing, "North Utility Yard Detention Pond, Centeris Voltage Park" by Barghausen Consulting Engineers, Inc. dated 4/25/24 and is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Appendices

Appendix A
Field Exploration and Laboratory Data

SOIL CLASSIFICATION CHART

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

NOTE: Multiple symbols are used to indicate borderline or dual soil classifications

ADDITIONAL MATERIAL SYMBOLS

SYMBOLS GRAPH	SYMBOLS LETTER	TYPICAL DESCRIPTIONS
	AC	Asphalt Concrete
	CC	Cement Concrete
	CR	Crushed Rock/ Quarry Spalls
	SOD	Sod/Forest Duff
	TS	Topsoil

Groundwater Contact

Measured groundwater level in exploration, well, or piezometer

Measured free product in well or piezometer

Graphic Log Contact

Distinct contact between soil strata

Approximate contact between soil strata

Material Description Contact

Contact between geologic units

Contact between soil of the same geologic unit

Sampler Symbol Descriptions

- 2.4-inch I.D. split barrel / Dames & Moore (D&M)
- Standard Penetration Test (SPT)
- Shelby tube
- Piston
- Direct-Push
- Bulk or grab
- Continuous Coring

Blowcount is recorded for driven samplers as the number of blows required to advance sampler 12 inches (or distance noted). See exploration log for hammer weight and drop.

"P" indicates sampler pushed using the weight of the drill rig.

"WOH" indicates sampler pushed using the weight of the hammer.

Laboratory / Field Tests

%F	Percent fines
%G	Percent gravel
AL	Atterberg limits
CA	Chemical analysis
CP	Laboratory compaction test
CS	Consolidation test
DD	Dry density
DS	Direct shear
HA	Hydrometer analysis
MC	Moisture content
MD	Moisture content and dry density
Mohs	Mohs hardness scale
OC	Organic content
PM	Permeability or hydraulic conductivity
PI	Plasticity index
PL	Point lead test
PP	Pocket penetrometer
SA	Sieve analysis
TX	Triaxial compression
UC	Unconfined compression
UU	Unconsolidated undrained triaxial compression
VS	Vane shear

Sheen Classification

NS	No Visible Sheen
SS	Slight Sheen
MS	Moderate Sheen
HS	Heavy Sheen

NOTE: The reader must refer to the discussion in the report text and the logs of explorations for a proper understanding of subsurface conditions. Descriptions on the logs apply only at the specific exploration locations and at the time the explorations were made; they are not warranted to be representative of subsurface conditions at other locations or times.

Key to Exploration Logs

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Figure A-1

Date Excavated	5/30/2024	Total Depth (ft)	10	Logged By / Checked By	PW / DCO
Excavator Equipment	Komatsu mid-size track mount PC 88MR	Groundwater not observed	Caving not observed		
Surface Elevation (ft) Vertical Datum	461	Easting (X) Northing (Y)		Coordinate System Horizontal Datum	WA North

Elevation (feet)	Depth (feet)	SAMPLE: Testing Sample	SAMPLE: Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
460	0				SM	Dark brown silty fine sand with gravel and trace organics (roots) (loose, moist) (topsoil, rootzone)			
					GW	Orange-brown fine to coarse gravel with sand (dense, moist) (outwash)			
459	1								
			S-1						
458	2				GP-GM	Tan-brown fine to coarse gravel with silt, sand and cobbles to 3 to 6 inches			
	3								
457			S-2 SA				4	7	
	4				GP/GW	Gray-brown fine to coarse gravel with sand and cobbles (dense, moist)			
456	5								
455			S-3						
	6								
454	7					Grades with less cobbles			
453	8		S-4 SA		GW	Gray-brown fine to coarse gravel with occaasional cobbles (dense, moist)	3	2	
452	9								
451	10					Bottom of test pit exploration 10 feet (practical refusal of excavator)			

Notes: See Figure A-1 for explanation of symbols.
The depths on the test pit logs are based on an average of measurements across the test pit and should be considered accurate to ½ foot.
Coordinates Data Source: Horizontal approximated based on . Vertical approximated based on Survey by H.S. Wright dated May 30, 2024.

Log of Test Pit TP-1

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Project: Benaroya North Gen Yard - Detention Pond
Project Location: Puyallup, Washington
Project Number: 4565-064-09

Figure A-2
Sheet 1 of 1

Date Excavated	5/30/2024	Total Depth (ft)	9.5	Logged By PW Checked By DCO	Excavator Equipment Komatsu mid-size track mount PC 88MR	Groundwater not observed Caving not observed
Surface Elevation (ft) Vertical Datum	466	Easting (X) Northing (Y)		Coordinate System Horizontal Datum	WA North	

Elevation (feet)	Depth (feet)	SAMPLE: Testing Sample	SAMPLE: Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
465	0				SM	Dark brown silty fine sand with gravel and cobbles and trace organics (roots) (loose, moist) (topsoil/forest duff)			
	1				SM	Orange-brown silty fine sand with gravel and cobbles to 3 to 6 inches (medium dense, moist)			
464	2		S-1						
463	3				GP	Orange-brown fine to coarse sand with gravel and cobbles to 3 to 6 inches (medium dense, moist) (outwash)			
462	4		S-2 SA				4	5	
461	5					Becomes yellow-brown at 5 feet			
460	6		S-3		SP-SM	Gray medium sand with silt, gravel and cobbles (very dense, moist)	8	7	
459	7								
458	8		S-4 SA						
457	9					Bottom of test pit exploration 9½ feet due to practical refusal of excavator			

Notes: See Figure A-1 for explanation of symbols.
The depths on the test pit logs are based on an average of measurements across the test pit and should be considered accurate to ½ foot.
Coordinates Data Source: Horizontal approximated based on . Vertical approximated based on Survey by H.S. Wright dated May 30, 2024.

Log of Test Pit TP-2

GeoEngineers

Project: Benaroya North Gen Yard - Detention Pond
Project Location: Puyallup, Washington
Project Number: 4565-064-09

Figure A-3
Sheet 1 of 1

Date Excavated	5/30/2024	Total Depth (ft)	5.5	Logged By PW Checked By DCO	Excavator Equipment Komatsu mid-size track mount PC 88MR
See "Remarks" section for groundwater observed Caving not observed					
Surface Elevation (ft) Vertical Datum	465	Easting (X) Northing (Y)		Coordinate System Horizontal Datum	WA North

Elevation (feet)	Depth (feet)	SAMPLE: Testing Sample	SAMPLE: Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
464	0				SM	Dark brown silty fine sand with gravel and trace organics (roots) (loose, moist) (topsoil/forest duff)			
	1				SM	Orange-brown silty fine to coarse sand with gravel and cobbles to 3 to 6 inches (medium dense, moist) (weathered till)			
463	2		S-1						
462	3								
	3.5		S-2		ML	Gray sandy silt with occasional gravel (very dense, moist) (glacial till)			
461	4								
460	5		S-3 SA				14	64	
	5.5					Bottom of test pit exploration 5½ feet due to practical refusal of excavator			Very slight water seep at 5½ feet from east side of pit

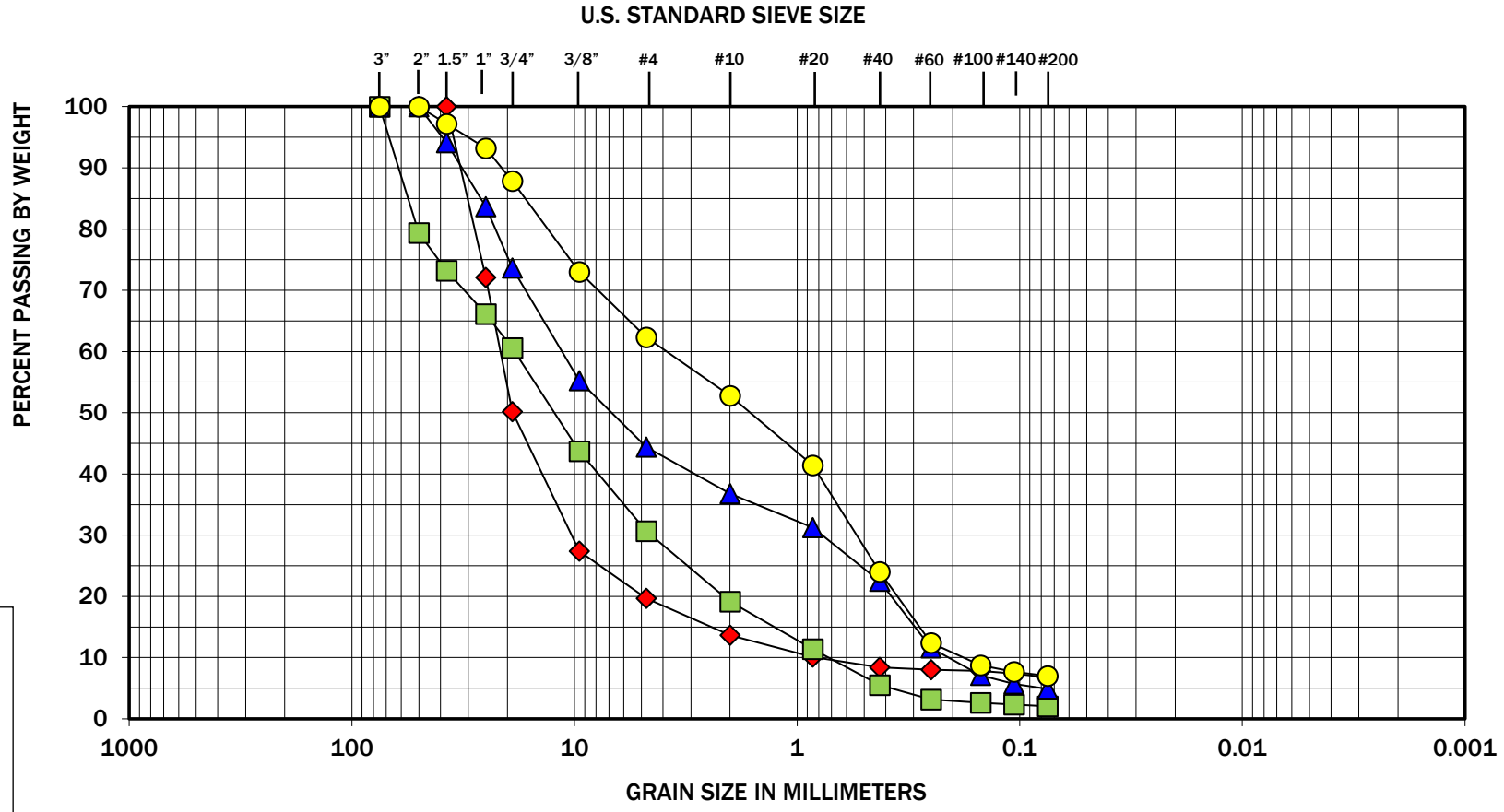
Notes: See Figure A-1 for explanation of symbols.
The depths on the test pit logs are based on an average of measurements across the test pit and should be considered accurate to ½ foot.
Coordinates Data Source: Horizontal approximated based on . Vertical approximated based on Survey by H.S. Wright dated May 30, 2024.

Log of Test Pit TP-3

GeoEngineers

Project: Benaroya North Gen Yard - Detention Pond
Project Location: Puyallup, Washington
Project Number: 4565-064-09

Figure A-4
Sheet 1 of 1



COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

Symbol	Boring Number	Depth (feet)	Moisture (%)	Soil Description
◆	TP-1	3.5	4	Poorly graded gravel with silt (GP-GM)
■	TP-1	8	3	Well-graded gravel with sand (GW)
▲	TP-2	3.5	4	Poorly graded gravel with sand (GP)
●	TP-2	7.5	8	Poorly graded sand with silt and gravel (SP-SM)

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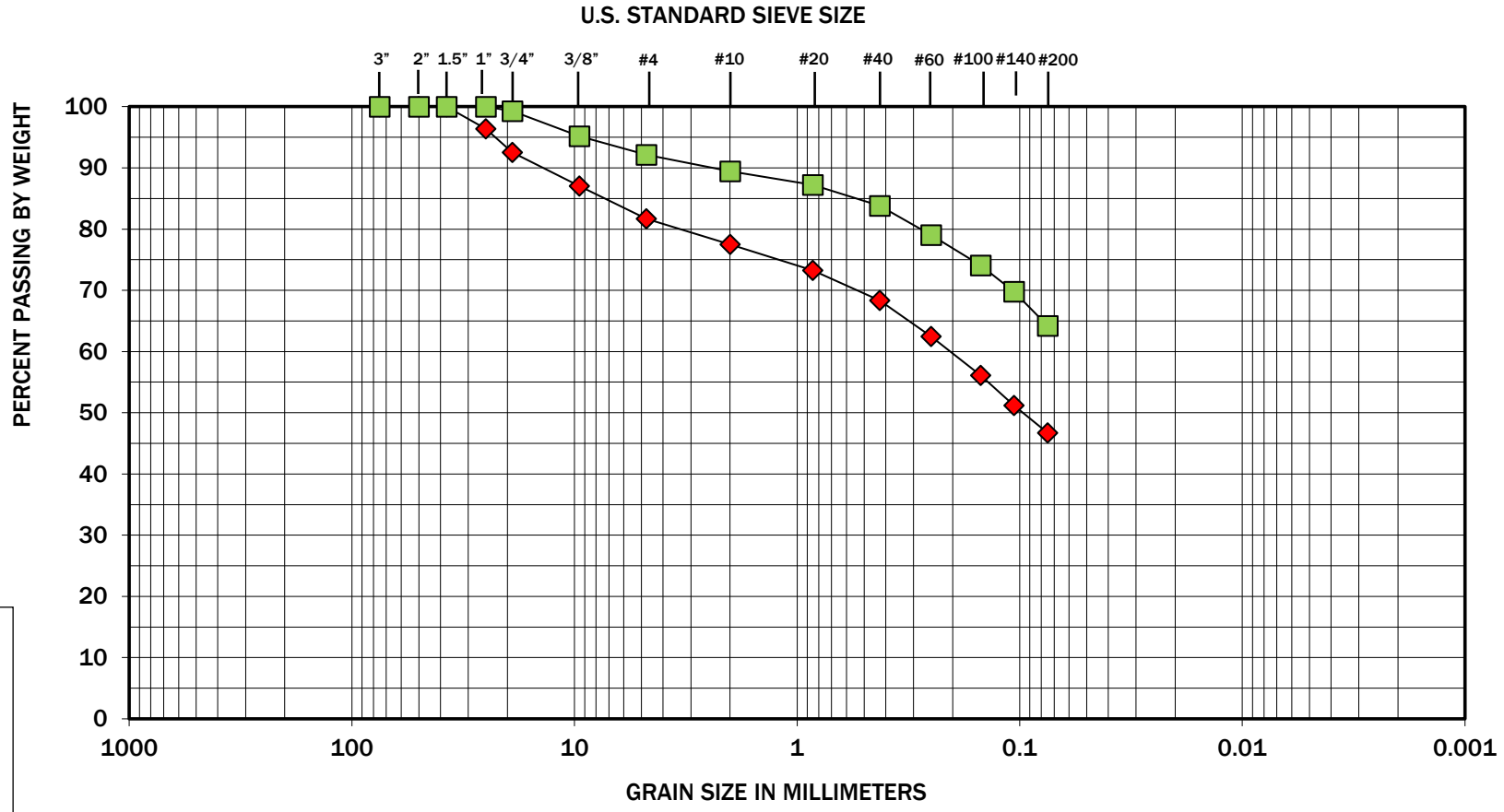
Figure A-5

Benaroya South Hill
Puyallup, Washington

Sieve Analysis Results

AASHTO ACCREDITED

The grain size analysis results were obtained in general accordance with ASTM D6913. GeoEngineers 17425 NE Union Hill Road Ste 250, Redmond, WA 98052



COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

Symbol	Boring Number	Depth (feet)	Moisture (%)	Soil Description
◆	TP-3	3.5	14	Silty sand with gravel (SM)
■	TP-3	5	14	Sandy silt (ML)

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Figure A-6

Benaroya South Hill
Puyallup, Washington

Sieve Analysis Results

AASHTO ACCREDITED

The grain size analysis results were obtained in general accordance with ASTM D6913. GeoEngineers 17425 NE Union Hill Road Ste 250, Redmond, WA 98052

Appendix B
Report Limitations and Guidelines for Use

Appendix B

REPORT LIMITATIONS AND GUIDELINES FOR USE[1]

This appendix provides information to help you manage your risks with respect to the use of this report.

Read These Provisions Closely

It is important to recognize that the geoscience practices (geotechnical engineering, geology, and environmental science) rely on professional judgment and opinion to a greater extent than other engineering and natural science disciplines, where more precise and/or readily observable data may exist. To help clients better understand how this difference pertains to our services, GeoEngineers includes the following explanatory "limitations" provisions in its reports. Please confer with GeoEngineers if you need to know more how these "Report Limitations and Guidelines for Use" apply to your project or site.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

This report has been prepared for the Benaroya Capital Company, LLC and for the Project(s) specifically identified in the report. The information contained herein is not applicable to other sites or projects.

GeoEngineers structures its services to meet the specific needs of its clients. No party other than the party to whom this report is addressed may rely on the product of our services unless we agree to such reliance in advance and in writing. Within the limitations of the agreed scope of services for the Project, and its schedule and budget, our services have been executed in accordance with our Agreement with Benaroya Capital Company, LLC dated April 5, 2023 and generally accepted geotechnical practices in this area at the time this report was prepared. We do not authorize, and will not be responsible for, the use of this report for any purposes or projects other than those identified in the report.

A Geotechnical Engineering or Geologic Report is Based on a Unique Set of Project-Specific Factors

This report has been prepared for the Centeris North Utility Pond project in Puyallup, Washington. GeoEngineers considered a number of unique, project-specific factors when establishing the scope of services for this project and report. Unless GeoEngineers specifically indicates otherwise, it is important not to rely on this report if it was:

- Not prepared for you,
- Not prepared for your project,
- Not prepared for the specific site explored, or
- Completed before important project changes were made.

For example, changes that can affect the applicability of this report include those that affect:

1 Developed based on material provided by GBA, GeoProfessional Business Association; www.geoprofessional.org.

- The function of the proposed structure;
- Elevation, configuration, location, orientation, or weight of the proposed structure;
- Composition of the design team; or
- Project ownership.

If changes occur after the date of this report, GeoEngineers cannot be responsible for any consequences of such changes in relation to this report unless we have been given the opportunity to review our interpretations and recommendations. Based on that review, we can provide written modifications or confirmation, as appropriate.

Subsurface Conditions Can Change

This geotechnical or geologic report is based on conditions that existed at the time the study was performed. The findings and conclusions of this report may be affected by the passage of time, by man-made events such as construction on or adjacent to the site, new information or technology that becomes available subsequent to the report date, or by natural events such as floods, earthquakes, slope instability or groundwater fluctuations. If more than a few months have passed since issuance of our report or work product, or if any of the described events may have occurred, please contact GeoEngineers before applying this report for its intended purpose so that we may evaluate whether changed conditions affect the continued reliability or applicability of our conclusions and recommendations.

Geotechnical and Geologic Findings Are Professional Opinions

Our interpretations of subsurface conditions are based on field observations from widely spaced sampling locations at the site. Site exploration identifies the specific subsurface conditions only at those points where subsurface tests are conducted or samples are taken. GeoEngineers reviewed field and laboratory data and then applied its professional judgment to render an informed opinion about subsurface conditions at other locations. Actual subsurface conditions may differ, sometimes significantly, from the opinions presented in this report. Our report, conclusions and interpretations are not a warranty of the actual subsurface conditions.

Geotechnical Engineering Report Recommendations Are Not Final

We have developed the following recommendations based on data gathered from subsurface investigation(s). These investigations sample just a small percentage of a site to create a snapshot of the subsurface conditions elsewhere on the site. Such sampling on its own cannot provide a complete and accurate view of subsurface conditions for the entire site. Therefore, the recommendations included in this report are preliminary and should not be considered final. GeoEngineers' recommendations can be finalized only by observing actual subsurface conditions revealed during construction. GeoEngineers cannot assume responsibility or liability for the recommendations in this report if we do not perform construction observation.

We recommend that you allow sufficient monitoring, testing and consultation during construction by GeoEngineers to confirm that the conditions encountered are consistent with those indicated by the explorations, to provide recommendations for design changes if the conditions revealed during the work differ from those anticipated, and to evaluate whether earthwork activities are completed in accordance with our recommendations. Retaining GeoEngineers for construction observation for this project is the most effective means of managing the risks associated with unanticipated conditions. If another party performs field observation and confirms our expectations, the other party must take full responsibility for both the observations and recommendations. Please note, however, that another party would lack our project-specific knowledge and resources.

A Geotechnical Engineering or Geologic Report Could Be Subject to Misinterpretation

Misinterpretation of this report by members of the design team or by contractors can result in costly problems. GeoEngineers can help reduce the risks of misinterpretation by conferring with appropriate members of the design team after submitting the report, reviewing pertinent elements of the design team's plans and specifications, participating in pre-bid and preconstruction conferences, and providing construction observation.

Give Contractors a Complete Report and Guidance

To help reduce the risk of problems associated with unanticipated subsurface conditions, GeoEngineers recommends giving contractors the complete geotechnical engineering or geologic report, including these "Report Limitations and Guidelines for Use." When providing the report, you should preface it with a clearly written letter of transmittal that:

- Advises contractors that the report was not prepared for purposes of bid development and that its accuracy is limited; and
- Encourages contractors to conduct additional study to obtain the specific types of information they need or prefer.

Contractors Are Responsible for Site Safety on Their Own Construction Projects

Our geotechnical recommendations are not intended to direct the contractor's procedures, methods, schedule, or management of the work site. The contractor is solely responsible for job site safety and for managing construction operations to minimize risks to on-site personnel and adjacent properties.