GEOTECHNICAL ENGINEERING REPORT

MEDALLION INN – INFILTRATION FEASIBILITY EVALUATION
16710 SMOKEY POINT BLVD
ARLINGTON, WASHINGTON

ZGA Project No. 2889.01
May 20, 2025

Prepared for:

Medallion Inn and Suites

Prepared by:

ZipperGeo

19019 36th Avenue W., Suite E
Lynnwood, WA 98036

ZipperGeo
Geoprofessional Consultants

ZGA Project No. 2889.01
May 20, 2025

Medallion Inn and Suites
16710 Smokey Point BLVD
Arlington, Washington 98223

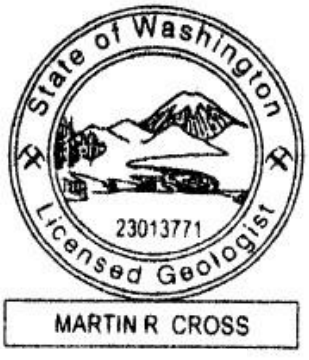
Attention: Chae Kim

Subject: **Medallion Inn – Infiltration Feasibility Evaluation**
16710 Smokey Point BLVD
Arlington, Washington 98223

Chae Kim:

In accordance with your request and written authorization, Zipper Geo Associates, LLC (ZGA) has completed our infiltration evaluation report for the Medallion Inn and Suites. This report presents the findings of the subsurface evaluation and geotechnical recommendations regarding stormwater infiltration for the project. Our services were completed in general accordance with the scope of services described in our proposal dated December 13, 2024. Written authorization to proceed was provided by you on January 20, 2025. We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report, or if we may be of further assistance, please contact us.

Sincerely,
Zipper Geo Associates, LLC



Martin R. Cross, LG
Project Geologist
Signed: 5/20/2025

Robert A. Ross, PE
Principal
Signed: 5/20/2025

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16710 SMOKEY POINT BLVD
ARLINGTON, WASHINGTON

Project No. 2889.01
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1.0 INTRODUCTION

This report summarizes the surface and subsurface conditions encountered at the site and our geotechnical engineering recommendations regarding stormwater infiltration for the Medallion Inn and Suites project (the Project). Our scope of services included a review of readily available geologic data, a site reconnaissance, subsurface evaluation, laboratory testing, geotechnical engineering analysis, and preparation of this report. The project description, site conditions, and our geotechnical conclusions and recommendations are presented in the text of this report. Supporting data including detailed exploration logs and field exploration procedures, the results of laboratory testing, and other analyses results are presented as appendices.

1.1 Site Description

The project site consists of an approximately 5-acre rectangular-shaped parcel located at 16710 Smokey Point BLVD in Arlington, Washington. The site is bordered to the north, east, and south by commercial properties, and to the west by Interstate 5. The property is currently occupied by the Medallion Inn and Suites.

The ground surface is relatively flat, with minimal change in elevation between 122 and 124 feet, according to the survey provided to us at the time of this report. The majority of the lot is surfaced with asphalt pavement parking and driveways, with planters located in between the rows of parking stalls. The Medallion Inn and Suites is located on the north-central side of the lot.

1.2 Project Understanding

We understand the proposed project consists of subdividing the parcel currently occupied by the Medallion Inn and Suites, in Arlington Washington (Snohomish County Parcel No. 31052900101700) into three separate parcels. Based on our conversations with the project civil engineer, we understand that after installation of new improvements as part of the parcel subdivision, the lots will likely require new stormwater management facilities.

2.0 SUBSURFACE CONDITIONS

2.1 General

In order to characterize subsurface soil and groundwater conditions at the project site, we reviewed readily available published geologic mapping and completed three (3) geotechnical borings at the locations shown on the attached Figure 1, Site and Exploration Plan. The following sections describe our understanding of subsurface soil and groundwater conditions based on the mapping and our borings.

2.2 Published Geologic Mapping

The *Geologic Map of the Arlington West 7.5 Minute Quadrangle, Snohomish County, Washington* (US Geological Survey, Miscellaneous Field Studies Map MF-1740, 1985) describes the site as underlain by the

Marysville Sand Member (Qvrm). The Marysville Sand Member deposit consists of stratified to massive outwash sand, some fine gravel, and areas of silt and clay, deposited by meltwater flowing south from the stagnating and receding Vashon glacier. The Marysville Sand Member is normally consolidated and generally medium dense in nature.

2.3 Soil Conditions

In addition to reviewing geologic mapping, we completed three (3) geotechnical boings (B-1 through B-3) at the site in early February 2025. The borings were completed to depths of about 16.5 feet below the existing ground surface (bgs). Approximate exploration locations are presented on the attached Figure 1, the Site and Exploration Plan. To further characterize site groundwater conditions, groundwater monitoring wells were installed in borings B-1 and B-3.

Soils encountered in the borings were visually described during recovery in general accordance with the Explanation of Exploration Logs provided in Appendix A. Detailed descriptive logs of the subsurface explorations and the procedures utilized in the subsurface exploration program are also presented in Appendix A.

For purposes of describing soil conditions observed in the borings and for reference in other sections of this report, soils with similar engineering characteristics were grouped together into Engineering Stratigraphic Units or ESUs. The following paragraphs provide our interpretation of ESUs encountered in the borings. ESUs are ordered in a top-down stratigraphic sequence as encountered in the explorations. Shallow surficial conditions encountered in our borings such as asphalt, concrete, and gravel surfacing are not described as ESUs below, and the reader is referred to the boring logs attached in Appendix A for information regarding shallow surficial conditions.

ESU 1 – Fill: Soils interpreted to be fill were encountered in each boring extending down to about 1.5 to 3 feet below the existing ground surface (bgs). ESU 1 soils (fill) observed in our borings generally consisted of a combination of loose to medium dense sand with varying gravel and silt content and relatively thin layers of crushed rock. A thin layer, approximately 3 inches in thickness, of relic topsoil was encountered below the fill material in B-3 at about 3 feet bgs. Please note that the nature of fill is such that its composition and thickness can vary over relatively short distances.

ESU 2 – Marysville Sand Member (Qvrm): Soils interpreted to be the Marysville Sand Member were encountered below the fill and relic topsoil (B-3 only) extending to the termination of each boring at about 16.5 feet bgs. ESU 2 soils encountered in our borings generally consisted of medium dense to dense, sand with varying gravel and silt content. In general, soils encountered in B-1 had an increased gravel content, ranging from gravelly sand to gravel with sand.

2.4 Groundwater Conditions

Groundwater was observed in all three borings at depths ranging from 5.8 to 6.4 bgs approximately 2 to 3 hours after well installation. Additional groundwater elevation measurements were taken after drill, between March 13, 2025 and May 14, 2025. A summary of groundwater data collected to date is provided in the table below.

Table 1: Groundwater Data

Boring Number	Approx. Surface Elevation (ft)	Date of Groundwater Measurement	Approx. Depth to Groundwater (ft)	Approx. Groundwater Elevation (ft)
B-1	122.5	2/10/2025 (ATD)	6.8	115.7
		2/10/2025 (Post Drilling)	6.4	116.1
		3/13/2025	5	117.5
		4/24/2025	6.5	115
		5/14/2025	6.4	116.1
B-2	122	2/10/2025 (ATD)	6.5	115.5
B-3	122	2/10/2025 (ATD)	6.5	115.5
		2/10/2025 (Post Drilling)	5.8	116.2
		3/13/2025	4.3	117.7
		4/24/2025	6	116
		5/14/2025	6.1	115.9

Ground surface elevations at the exploration locations were obtained from the site survey provided to us at the time of this report.

Groundwater levels, flow rates and soil moisture conditions should be expected to vary throughout the year. Fluctuations of the groundwater levels will likely occur due to seasonal variations in the amount of rainfall, runoff and other factors not evident at the time the explorations were performed. Therefore, groundwater levels during construction or at other times in the life of the development should be expected to vary. Groundwater elevations may be higher during winter and spring months.

2.5 Summary of Laboratory Testing

Laboratory tests including moisture content, grain size analyses, cation exchange capacity, and organic content were completed on select soil samples obtained from our borings. Table 2 below provides a summary of grain size analysis and moisture content laboratory testing results for ESU 2 Marysville Sand Member stormwater receptor soils. Organic content testing performed on samples from between 2.5 and 4 feet indicated organic content ranged from 0.8 to 2.1 percent. Cation Exchange Content (CEC) testing performed on samples from between 2.5 and 4 feet indicated CEC ranging from 4.01 to 4.46 meq/100g. Individual moisture contents are shown on the boring logs in Appendix A. Individual grain size analysis test, cation exchange capacity, and organic content results are provided in Appendix B.

Table 2: Summary of Laboratory Testing				
Engineering Stratigraphic Unit	*In Situ* Moisture Content Range (% of dry weight)	Average *In Situ* Moisture Content (% of dry weight)	Percent Passing No. 200 Sieve Range (fines)	Average Percent Passing No. 200 Sieve (fines)
ESU 2	8 – 23	18	8 - 43	18

3.0 CONCLUSIONS AND RECOMMENDATIONS

3.1 General

According to the City of Arlington Municipal Code, the City has adopted the 2024 Western Washington Department of Ecology Stormwater Management Manual for Western Washington (*Manual*). As described in Volume 5.4 of the *Manual*, for soils unconsolidated by glacial advance (such as those encountered in our borings), stormwater design infiltration rates may be determined via the grain size analysis method. The results of our infiltration evaluation are presented below.

3.2 Stormwater Infiltration

Soil conditions encountered on site consist of normally consolidated material (non-glacially compacted) therefore the stormwater design infiltration rate was determined via the grain size method, described in the *Manual*. The Initial soil saturated hydraulic conductivity was determined by the following formula:

$\text{Log10}\ (K_{sat,\ initial}) = -1.57 + 1.9D_{10} + 0.015D_{60} - 0.013D_{90} - 2.08f_{fines}$ where:

$K_{sat,\ initial}$ = initial saturated hydraulic conductivity in centimeters/second prior to the application of correction factors

D_{10} = grain size diameter (mm) for which 10 percent of the sample by weight is finer

D_{60} = grain size diameter (mm) for which 60 percent of the sample by weight is finer

D_{90} = grain size diameter (mm) for which 90 percent of the sample by weight is finer

f_{fines} = fraction of the sample by weight that passes the US No. 200 sieve.

Grain size distribution curves for the samples are presented in Appendix B.

In accordance with Volume V-5.4 of the *Manual*, the initial estimated hydraulic conductivity determined by the equation above is used to calculate the unfactored hydraulic conductivity based on whether the initial conductivity is greater than or less than 0.01 cm/sec. The saturated hydraulic conductivity for coarse-grained soils equation is used when the initial rate is greater than 0.01 cm/sec, while the saturated

hydraulic conductivity for fine-grained soils equation is used when the initial rate is less than 0.01 cm/sec, detailed below:

Saturated Hydraulic Conductivity for Coarse-Grained Soils:

$$\text{Log10}\ (K_{sat,\ unfactored}) = -1.32 + 1.225D_{10} - 0.376f_{fines}$$

Saturated Hydraulic Conductivity for Fine-Grained Soils:

$$\text{Log10}\ (K_{sat,\ unfactored}) = -2.89 + 7.57D_{10} - 0.527D_{60} + 0.030D_{90} + 0.142f_{fines}$$

The unfactored hydraulic conductivity values and recommended factored design infiltration rates for representative soils tested calculated in accordance with the appropriate Course-Grained and Fines-Grained Soil equations presented above are listed in the following table. ZGA will provide a recommended design infiltration rate or rates for the project once the location(s) and depth(s) of the infiltration facility have been defined.

Table 3: Infiltration Rate Summary

Exploration/Sample	Sample Depth (ft)	Soil Type	Unfactored Infiltration Rate (in/hour)	Factored Design Infiltration Rate (in/hr)[1]
B-1/S-1	2.5	ESU2: gravelly SAND, some silt	82.5[4]	29.7[3]
B-1/S-3	7.5	ESU2: gravelly SAND, some silt	25.5[5]	7.3[2]
B-2/S-1	2.5	ESU2: silty SAND, with gravel	2.4[5]	0.7[2]
B-2/S-2	5	ESU2: SAND, with silt, trace gravel	69.2[4]	19.9[2]
B-3/S-1	2.5	ESU1: SAND, with silt, some gravel	61.2[4]	17.6[2]
B-3/S-2	5	ESU2: SAND, some silt, trace gravel	74.1[4]	21.4[2]

1. Includes *Manual* Correction Factors: CFv = 0.8, CFt = 0.4 or 0.5, CFm = 0.9, and CFb = 1.0.
2. *Manual* correction factor CFt = 0.4
3. *Manual* correction factor CFt = 0.5
4. Unfactored Infiltration rate calculated using the coarse-grained equation.
5. Unfactored Infiltration rate calculated using the fine-grained equation.

The *Manual* requires applying correction factors to the initial unfactored saturated hydraulic conductivity rates. Table V-5.4: Correction Factors for In-Situ Ksat Measurements to Estimate Long-Term Design Infiltration Rate of Subgrade Soils calls for a 40 to 75 percent reduction of the baseline rate when using the grain size method (CFt) based on the percent of material passing the U.S. No. 200 sieve. Table V-5.4 also requires applying correction factors for site variability (CF_v) between 0.33 and 1 which we assigned a value of 0.8, and a 0.9 reduction factor applied to the baseline rate for long-term conductivity loss for systems other than bioretention and permeable pavement (CFm). At the time of this report, we understand that permeable pavement will not be used, therefore a quality of pavement aggregate base material (CF_b) correction factor of 1.0 was applied.

3.2.1 Site Suitability Criteria

Volume V-5.6 of the *Manual* includes nine site suitability criteria to be considered during design of infiltration systems. Our conclusions regarding selected topics related to geotechnical aspects of the project are presented below.

SSC-5 Depth to Bedrock, Water Table, or Impermeable Layer: The *Manual* states that the base of infiltration ponds or infiltration trenches shall be greater than or equal to 5 feet above the seasonal high-water mark, bedrock (or hardpan), or other low permeability layer. A separation down to 3 feet may be considered if the groundwater mounding analysis, volumetric holding capacity, and the design of the overflow and/or bypass structures are judged by the licensed professional to be adequate to prevent overtopping and to meet the other SSC specified in Section V-5.6 of the Manual. Bedrock or other low permeability layers were not encountered in our borings advanced up to 16.5 feet below grade. Based on the results of our wet season groundwater monitoring through the end of the 2024/2025 wet season, we recommend a seasonal high groundwater elevation of 117.5 feet on the eastern side of the site and 117.7 feet on the western side of the site.

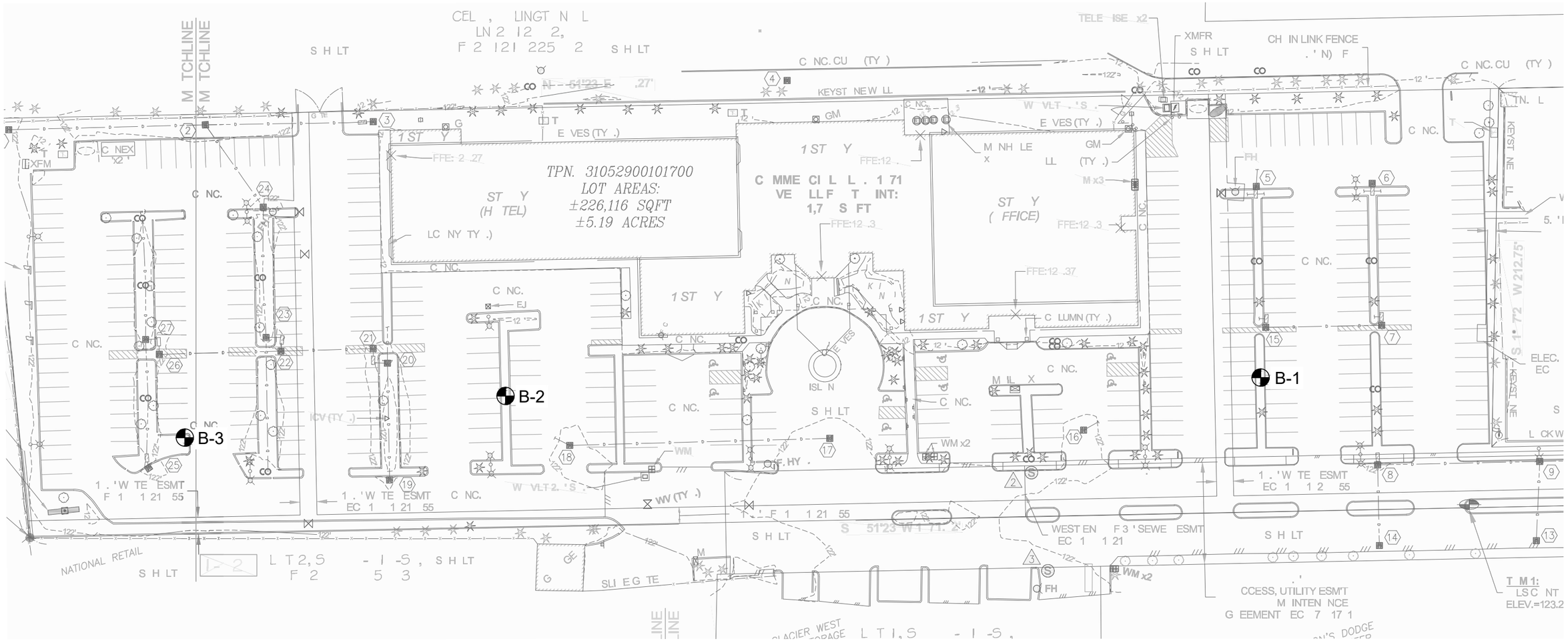
SSC-6 Soil Physical and Chemical Suitability for Treatment: The *Manual* states that for infiltration BMPs that intend to use native soil to provide runoff treatment must meet or exceed a cation exchange capacity (CEC) of ≥ 5 milliequivalents CEC/100 g dry soil and 1 percent organic content. CEC and organic content testing were performed on select samples from each boring location between 2-½ to 4 feet, with CEC results ranging from 4.01 to 4.46 meq/100g and organic content ranging from 0.8 to 2.1. Individual CEC and organic content results are provided in Appendix B.

4.0 CLOSURE

The analysis and recommendations presented in this report are based, in part, on the explorations completed for this study. The number, location, and depth of the explorations were completed within the constraints of budget and site access so as to yield the information for our environmental scope and to formulate our geotechnical recommendations. Project plans were in the preliminary stage at the time this report was prepared. We therefore recommend that ZGA be provided an opportunity to review the final plans and specifications when they become available in order to assess that the recommendations

and design considerations presented in this report have been properly interpreted and implemented into the project design.

This report has been prepared for the exclusive use of the Medallion Inn and Suites and their agents, for specific application to the project discussed and has been prepared in accordance with generally accepted geotechnical engineering practices. No warranties, either express or implied, are intended or made. Site safety and excavation support are the responsibility of others. In the event that changes in the nature, design, or location of the project as outlined in this report are planned, the conclusions and recommendations contained in this report shall not be considered valid unless Zipper Geo Associates, LLC reviews the changes and either verifies or modifies the conclusions of this report in writing.



LEGEND

B-1 BORING NUMBER AND APPROXIMATE LOCATION

REFERENCE: SITE & UTILITY DETAIL, TOPOGRAPHIC SURVEY, SHEET 3, MARCH 8, 2024

MEDALLION INN AND SUITES
16710 SMOKEY POINT BLVD
ARLINGTON, WASHINGTON

SITE AND EXPLORATION PLAN

Date: May 2025 Job No. 2889.01

Zipper Geo Associates, LLC
19019 36th Ave. W.,Suite E
Lynnwood, WA

FIGURE 1
SHT. 1 of 1

APPENDIX A

SUBSURFACE EXPLORATION PROCEDURES AND LOGS

APPENDIX A
SUBSURFACE EXPLORATION PROCEDURES AND LOGS

Subsurface Exploration Description

Our field exploration program for this project included completing a visual reconnaissance of the site and advancing three borings (B-1 through B-3). The approximate exploration locations are presented on Figure 1, the Site and Exploration Plan. Exploration locations were determined in the field using steel and fiberglass tapes by measuring distances from existing site features. The ground surface elevation at the exploration location was interpolated from elevation contours shown on the Topographic Survey prepared by CMJ66 Corp, dated March 8, 2024. As such, the exploration locations and elevations should be considered accurate to the degree implied by the measurement methods. The following sections describe our procedures associated with the explorations. Descriptive logs of the explorations are enclosed in this appendix.

Boring Procedures

The borings were advanced using a track-mounted drill rig operated by an independent drilling company (Geologic Drill) working under subcontract to ZGA. The borings were advanced using hollow stem auger drilling methods. A ZGA geologist continuously observed the borings, logged the subsurface conditions encountered, and obtained representative soil samples. All samples were stored in moisture-tight containers and transported to our laboratory for further evaluation and testing. Samples were generally obtained by means of the Standard Penetration Test at 2.5-foot intervals throughout the drilling operation.

The Standard Penetration Test (ASTM D 1586) procedure consists of driving a standard 2-inch outside diameter steel split spoon sampler 18 inches into the soil with a 140-pound hammer free falling 30 inches. The number of blows required to drive the sampler through each 6-inch interval is recorded, and the total number of blows struck during the final 12 inches is recorded as the Standard Penetration Resistance, or "blow count" (N value). If a total of 50 blows is struck within any 6-inch interval, the driving is stopped, and the blow count is recorded as 50 blows for the actual penetration distance. The resulting Standard Penetration Resistance values indicate the relative density of granular soils and the relative consistency of cohesive soils.

The enclosed boring logs describe the vertical sequence of soils and materials encountered in the boring, based primarily upon our field classifications. Where a soil contact was observed to be gradational, our logs indicate the average contact depth. Where a soil type changed between sample intervals, we inferred the contact depth. Our logs also graphically indicate the blow count, sample type, sample number, and approximate depth of each soil sample obtained from the boring. If groundwater was encountered in a borehole, the approximate groundwater depth and date of observation are depicted on the log.

EXPLANATION OF EXPLORATION LOGS

SOIL DESCRIPTION: Soil descriptions presented on the borings logs are based on visual observations. Soil descriptions include density (coarse-grained soils) or consistency (fine-grained soils), moisture, color, major soil type, and grain size modifiers and should not be interpreted to suggest laboratory or field testing unless indicated on the logs. Soil descriptions include the following: Density/consistency, moisture, color, grain size modifier (adjective implying 31-49 percent), major soil type (CAPITALIZED implying 50+ percent), minor grain size modifier (some implying 6-12 percent, with implying 13-30 percent, and trace implying 0-5 percent), descriptive modifiers (i.e. roots, fill debris, cemented, etc.), and interpreted general geologic description. Descriptions may also include comments describing geologic properties such as dilatancy, toughness, structure, plasticity, and angularity of coarse-grained particles. Additional information regarding geologic properties is presented in the report text as applicable.

DENSITY/CONSISTENCY: Soil density/consistency in borings is related to the blow count number in blows per foot using the sampling method indicated on the logs. Soil density/consistency in test pits is related to a "Field Test" as described below. Soil consistency in test pits or borings may be augmented by field Torvane or Pocket Penetrometer testing.

Coarse-Grained Soils

Density Descriptor	SPT (# blows/ft)	Field Test
Very Loose	0 – 4	Easily penetrated with ½ -inch steel rod pushed by hand.
Loose	5 – 10	Difficult to penetrate with ½ - inch steel rod pushed by hand.
Medium Dense	11 – 30	Easily penetrated a foot with ½-inch steel rod driven with 5-lb hammer.
Dense	31 – 50	Difficult to penetrate a foot with ½-inch steel rod driven with 5-lb hammer.
Very Dense	>50	Penetrated only a few inches with ½-inch steel rod driven with 5-lb hammer.

Fine-Grained Soils

Consistency Descriptor	SPT (# blows/ft)	Torvane	Pocket Penetrometer	Field Test
		Undrained shear strength (tsf)	Unconfined Compressive Strength (tsf)	
Very Soft	0 – 2	<0.125	<0.25	Easily penetrates several inches by thumb.
Soft	3 – 4	0.125 – 0.25	0.25 – 0.5	Easily penetrates one inch by thumb.
Medium Stiff	5 – 8	0.25 – 0.5	0.5 – 1.0	Penetrated over ½ inch by thumb with moderate effort.
Stiff	9 – 15	0.5 – 1.0	1.0 – 2.0	Indented by thumb but penetrated only with great effort.
Very Stiff	16 – 30	1.0 – 2.0	2.0 – 4.0	Readily indented by thumbnail.
Hard	>30	>2.0	>4.0	Indented by thumbnail with difficult effort.

MOISTURE

Descriptor	Field Test
Dry	Absence of moisture, dusty, dry to the touch.
Damp	Too low to achieve compaction
Moist	Appears near optimum moisture content for compaction
Wet	Too wet to achieve compaction
Saturated	Below the groundwater table, visible free moisture.

MAJOR SOIL TYPE: Coarse-grained soils with over 50% of the material retained on the U.S. No. 200 sieve. Coarse-grained soils include boulders, cobbles, gravels and sands. Fine-grained soils with over 50% of the material passing the U.S. No. 200 sieve. Fine-grained soils include silts and clays.

GRAIN SIZE

Descriptor	Sieve Size	Grain Size
Boulder	>12"	>12"
Cobble	3 – 12"	3 – 12"
Gravel	3" – #4	3" – 0.19"
Sand	>#4 – #200	<0.19" – >0.0029"
Silt/Clay	Passing #200	<0.0029"

GRAIN SIZE MODIFIERS

Descriptor	Approximate Percentage
Trace	0 – 5
Some	6 – 12
With	13 – 30
Adjective (silty, clayey, sandy, gravelly)	31 – 50

BORING LOG: B-1

B-1

Logged By:	MRC	Project Address:	16710 Smokey Point Blvd, Arlington, WA		
Location:	See Figure 1				
Elevation:	122.5 ft	Drilling Company:	Geologic Drill Partners	Borehole Diameter:	6-Inch
Drill Date:	2025-02-20	Drill Rig:	Mini Track Rig	Hammer Type:	Cathead
Reviewer:	MRC	Drilling Method:	Auger (Hollow-Stem)		

Depth (FT)	Lithologic Description	Symbol	Samples No.	Samples Type	Piezometer / Well	Standard Penetration Test (▲ NValue 10 20 30 40 50; ● % Fines (10 20 30 40 50; ○ % Moisture 10 20 30 40 50)	SPT Number (N)	Testing
	Ground Surface EL 122.5 ft				JP			
0–1	Upper 1.5 feet advanced using a posthole digger. 4-inches topsoil, over loose, moist, brown, SAND, over crushed rock (Fill) (ESU 1)							
1 ft / EL 121.5 ft								
2–4	Medium dense, moist, brown, gravelly SAND, some silt (Marysville Sand Member) (ESU 2)		S-1	▽	#1 Standpipe	● 8 ▲ 15	15	GSA
5–6	Medium dense, moist, brown, GRAVEL, some sand, low recovery		S-2	▽		○ 11 ▲ 12	12	
6 ▽								
7–8	Medium dense, saturated, gray-brown, gravelly SAND, some silt		S-3	▽		● 11 ○ 15 ▲ 29	29	GSA
9–11	Grades to dense, saturated, gray, gravelly SAND, some to trace silt		S-4	▽		○ 22 ▲ 37	37	
12–15	Grades to medium dense, saturated, SAND, some gravel. Heave encountered at 15 feet		S-5	▽		○ 18 ▲ 29	29	
16.5 ft / EL 106 ft								
17–18	Boring completed at about 16.5 feet bgs. Groundwater encountered at about 6.8 feet ATD and at 6.4 feet post drilling. Well Tag # BNZ-067.							
19–20								

ZipperGeo
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PROJECT TITLE:	PROJECT NO.:
Medallion Inn and Suites	2889.01
CLIENT:	SHEET:
Medallion Inn and Suites	1 of 1

BORING LOG: B-2

B-2

Logged By:	MRC	Project Address:	16710 Smokey Point Blvd, Arlington, WA		
Location:	See Figure 1				
Elevation:	122 ft	Drilling Company:	Geologic Drill Partners	Borehole Diameter:	6-Inch
Drill Date:	2025-02-20	Drill Rig:	Mini Track Rig	Hammer Type:	Cathead
Reviewer:	MRC	Drilling Method:	Auger (Hollow-Stem)		

Depth (FT)	Lithologic Description	Symbol	Samples No.	Samples Type	Piezometer / Well	Standard Penetration Test (▲ NValue, ● % Fines, ○ % Moisture; 10 20 30 40 50)	SPT Number (N)	Testing
	Ground Surface EL 122 ft							
0–1	Upper 1.5 feet advanced using a posthole digger. 5-inches topsoil, over 8-inches crushed rock, over medium dense, moist, gray, gravelly SAND (Fill) (ESU 1)							
1.5 ft / EL 120.5 ft								
2–4	Dense, moist, gray, silty SAND, with gravel, trace cobbles (Marysville Sand Member) (ESU 2)		S-1	▽		○22 ▲30 ●43	30	GSA
5			S-2	▽		●16 ○23 ▲28	28	GSA
6 ▽	Medium dense, moist to wet, gray-brown, SAND, with silt, trace gravel							
7–8	Grades to dense, saturated, gray, SAND, some gravel and silt		S-3	▽		○20 ▲48	48	
9–10			S-4	▽		○19 ▲37	37	
11–14								
15	Moderate heave encountered		S-5	▽		○19 (70)▲	60	
16								
16.5 ft / EL 105.5 ft								
17	Boring completed at about 16.5 feet bgs. Groundwater encountered at about 6.5 feet ATD.							
18–20								

RSLog / 1Zipper Geo Geotechnical Soil Log Multiple graph items test / zipper-geo-associates / admin / March 03, 2025 04:12 PM

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Geoprofessional Consultants
19019 36th Ave. W, Suite E
Lynnwood, WA 98036

PROJECT TITLE:	PROJECT NO.:
Medallion Inn and Suites	2889.01
CLIENT:	SHEET:
Medallion Inn and Suites	1 of 1

BORING LOG: B-3

B-3

Logged By:	MRC	Project Address:	16710 Smokey Point Blvd, Arlington, WA		
Location:	See Figure 1				
Elevation:	122 ft	Drilling Company:	Geologic Drill Partners	Borehole Diameter:	6-Inch
Drill Date:	2025-02-20	Drill Rig:	Mini Track Rig	Hammer Type:	Cathead
Reviewer:	MRC	Drilling Method:	Auger (Hollow-Stem)		

Depth (FT)	Lithologic Description	Symbol	Samples No.	Samples Type	Piezometer / Well	Standard Penetration Test (NValue ▲ / % Fines ● / % Moisture ○)	SPT Number (N)	Testing
	Ground Surface EL 122 ft				JP			
0–1	Upper 1.5 feet advanced using a posthole digger. 8-inches topsoil/planter soil, over medium dense crushed rock, over loose to medium dense, moist, gray, gravelly SAND (Fill) (ESU 1)				#1 Standpipe			
1.5 ft / EL 120.5 ft			S-1			○21 ●21 ▲25	25	GSA
2–3	Medium dense, wet grading to moist, gray, SAND, with silt, some gravel (Fill) (ESU 1)							
3 ft / EL 119 ft								
4–5	About 3 inches of relic topsoil over medium dense, moist, gray-brown, fine to medium SAND, some silt, trace gravel (Marysville Sand Member) (ESU 2)		S-2			●12 ○23 ▲26	26	GSA
6	▽							
7–8	Medium dense, saturated, gray, medium SAND, trace to some gravel		S-3			○21 ▲29	29	
9–10	Grades to dense, saturated, gray, course to medium SAND, trace gravel		S-4			○17 ▲32	32	
11–14								
15			S-5			○22 ▲24	24	
16								
16.5 ft / EL 105.5 ft								
17–18	Boring completed at about 16.5 feet bgs. Groundwater encountered at about 6.5 feet ATD and at 5.8 feet post drilling. Well Tag # BNZ-032							
19–20								

RSLog / 1Zipper Geo Geotechnical Soil Log Multiple graph items test / zipper-geo-associates / admin / March 03, 2025 04:12 PM

ZipperGeo
Geoprofessional Consultants
19019 36th Ave. W, Suite E
Lynnwood, WA 98036

PROJECT TITLE:	PROJECT NO.:
Medallion Inn and Suites	2889.01
CLIENT:	SHEET:
Medallion Inn and Suites	1 of 1

APPENDIX B
LABORATORY TESTING PROCEDURES AND RESULTS

LABORATORY TESTING PROCEDURES

A series of laboratory tests were performed during the course of this study to evaluate the index and geotechnical engineering properties of the subsurface soils. Descriptions of the types of tests performed are given below.

Visual Classification

Samples recovered from the exploration locations were visually classified in the field during the exploration program. Representative portions of the samples were carefully packaged in moisture tight containers and transported to our laboratory where the field classifications were verified or modified as required. Visual classification was generally done in accordance with the Unified Soil Classification system. Visual soil classification includes evaluation of color, relative moisture content, soil type based upon grain size, and accessory soil types included in the sample. Soil classifications are presented on the exploration logs in Appendix A.

Moisture Content Determinations

Moisture content determinations were performed on representative samples obtained from the exploration in order to aid in identification and correlation of soil types. The determinations were made in general accordance with the test procedures described in ASTM: D-2216. The results are shown on the exploration logs in Appendix A.

Grain Size Analysis

A grain size analysis indicates the range in diameter of soil particles included in a particular sample. Grain size analyses were performed on representative samples in general accordance with ASTM D 6913. The results of the grain size determinations for the samples were used in classification of the soils, and are presented in this appendix.

Cation Exchange Capacity

Selected samples were tested for Cation Exchange Capacity (CEC) by a subcontract analytical testing laboratory (AmTest Laborities of Kirkland, Washington). The tests were completed in general accordance with the EPA Laboratory Method 9081 testing procedure. The test results are presented in this appendix and discussed in the report text.

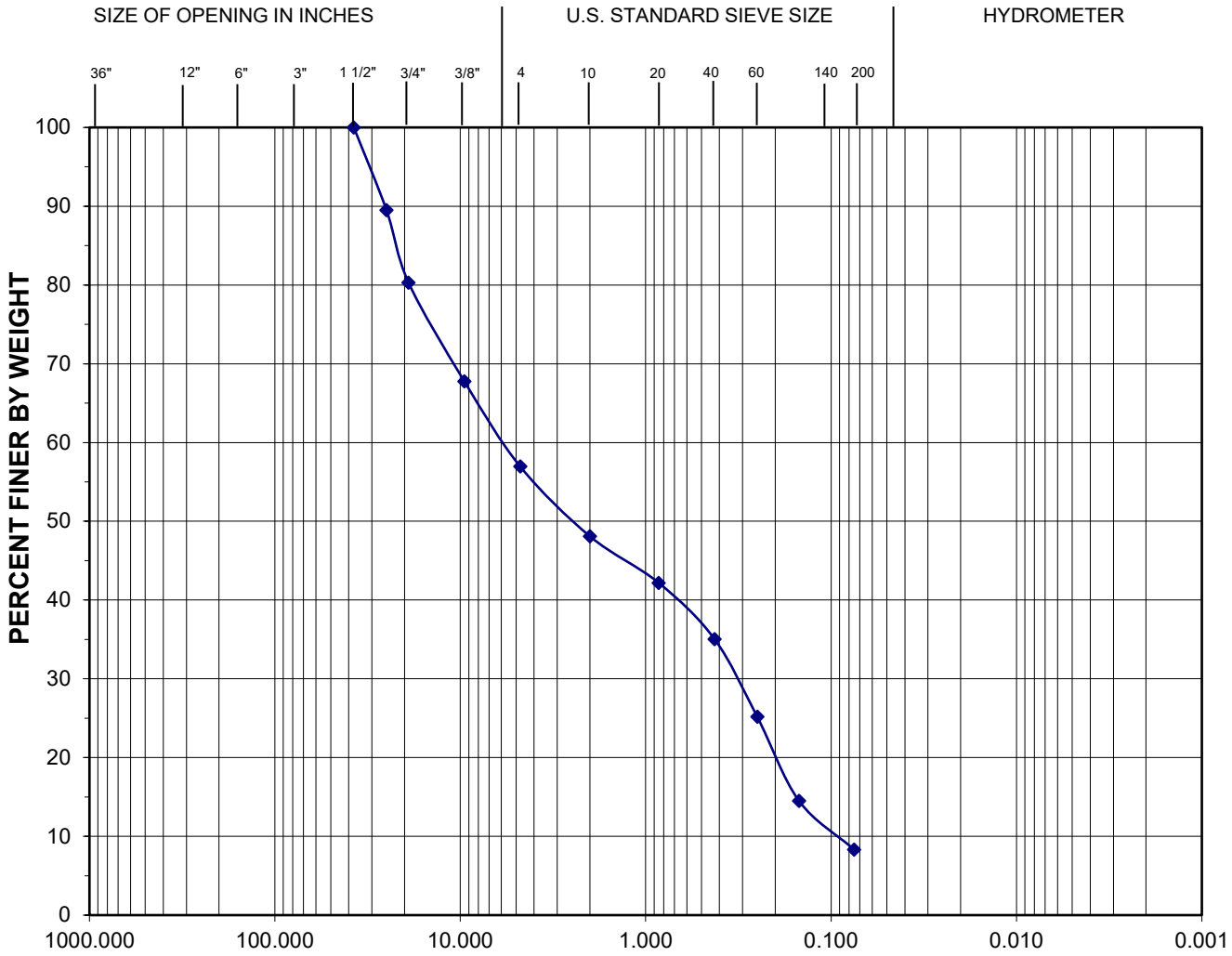
Organic Content

The organic content of selected samples was determined in general accordance with ASTM D 2974. The results of the tests are discussed in the report text.

GRAIN SIZE ANALYSIS

Test Results Summary

ASTM D6913



		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
BOULDERS	COBBLES	GRAVEL		SAND			FINE GRAINED	

Comments:

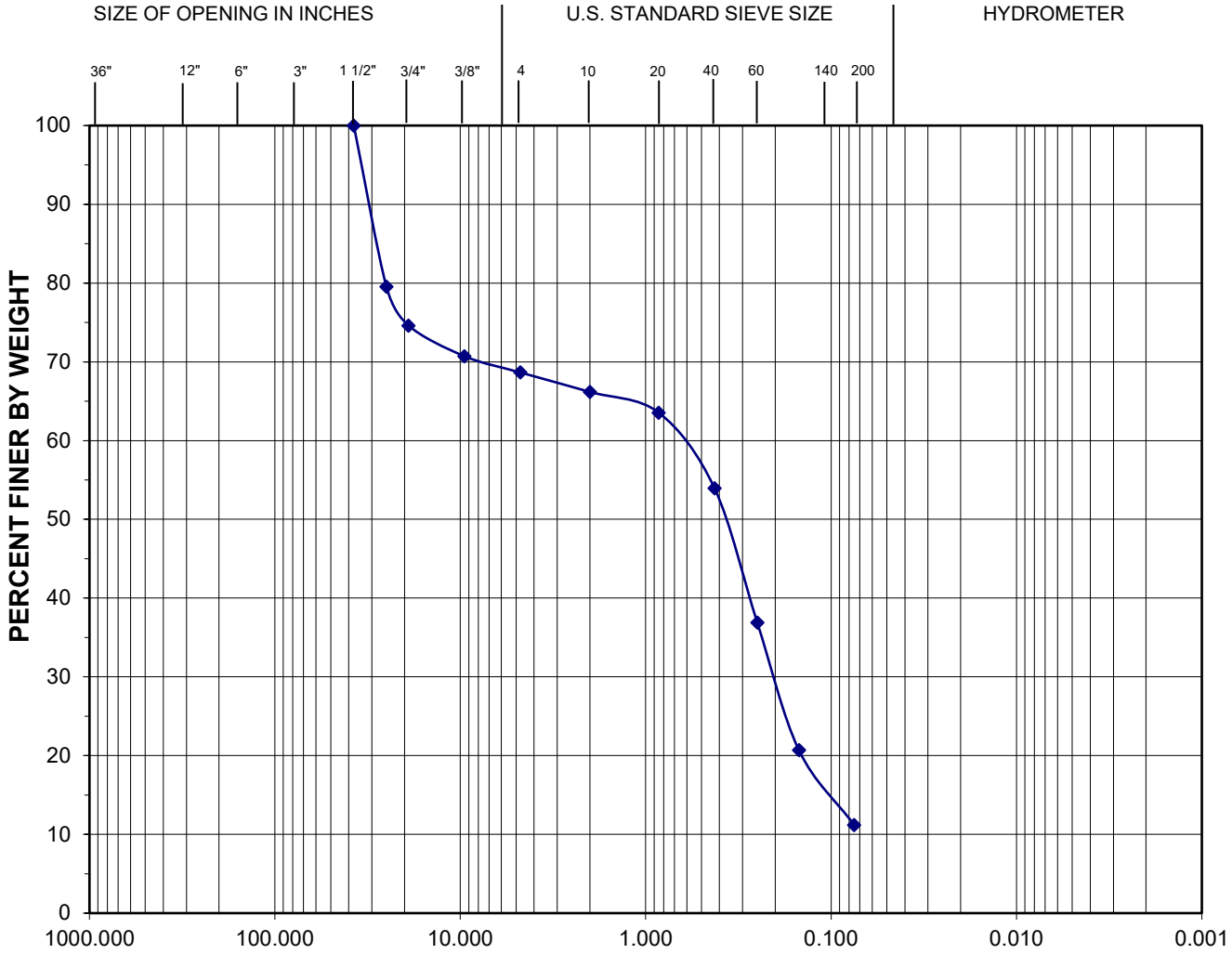
Exploration	Sample	Depth (feet)	Moisture (%)	Fines (%)	Description
B-1	S-1	2.5	8.1	8.3	Gravelly SAND, some silt

Zipper Geo Associates, LLC Geotechnical and Environmental Consultants	PROJECT NO: 2889.01 DATE OF TESTING: 2/27/2025	PROJECT NAME: Medallian Inn

GRAIN SIZE ANALYSIS

Test Results Summary

ASTM D6913



		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
BOULDERS	COBBLES	GRAVEL		SAND			FINE GRAINED	

Comments:

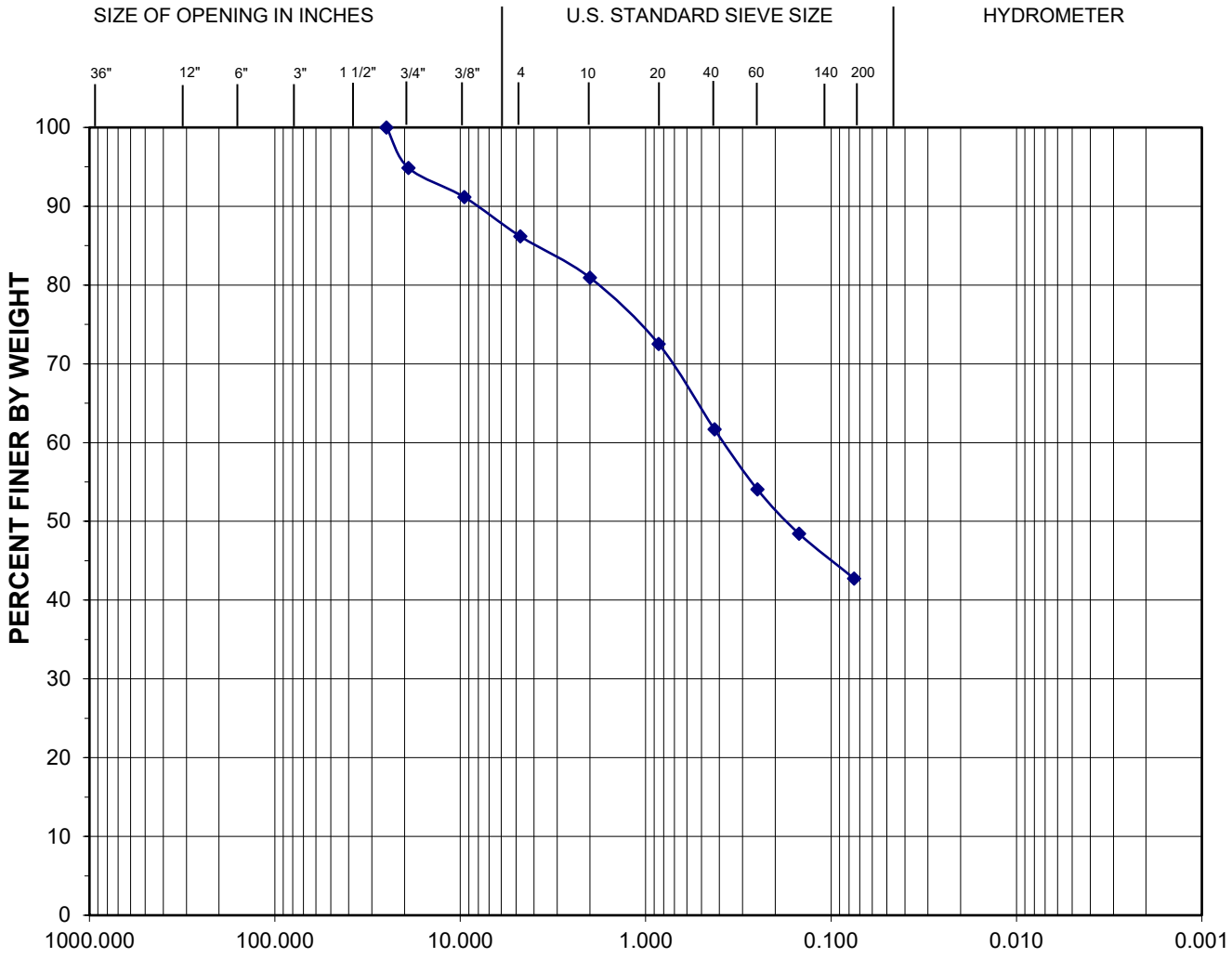
Exploration	Sample	Depth (feet)	Moisture (%)	Fines (%)	Description
B-1	S-3	7.5	15.2	11.2	Gravelly SAND, some silt

Zipper Geo Associates, LLC Geotechnical and Environmental Consultants	PROJECT NO: 2889.01 DATE OF TESTING: 2/27/2025	PROJECT NAME: Medallian Inn

GRAIN SIZE ANALYSIS

Test Results Summary

ASTM D6913



		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
BOULDERS	COBBLES	GRAVEL		SAND			FINE GRAINED	

Comments:

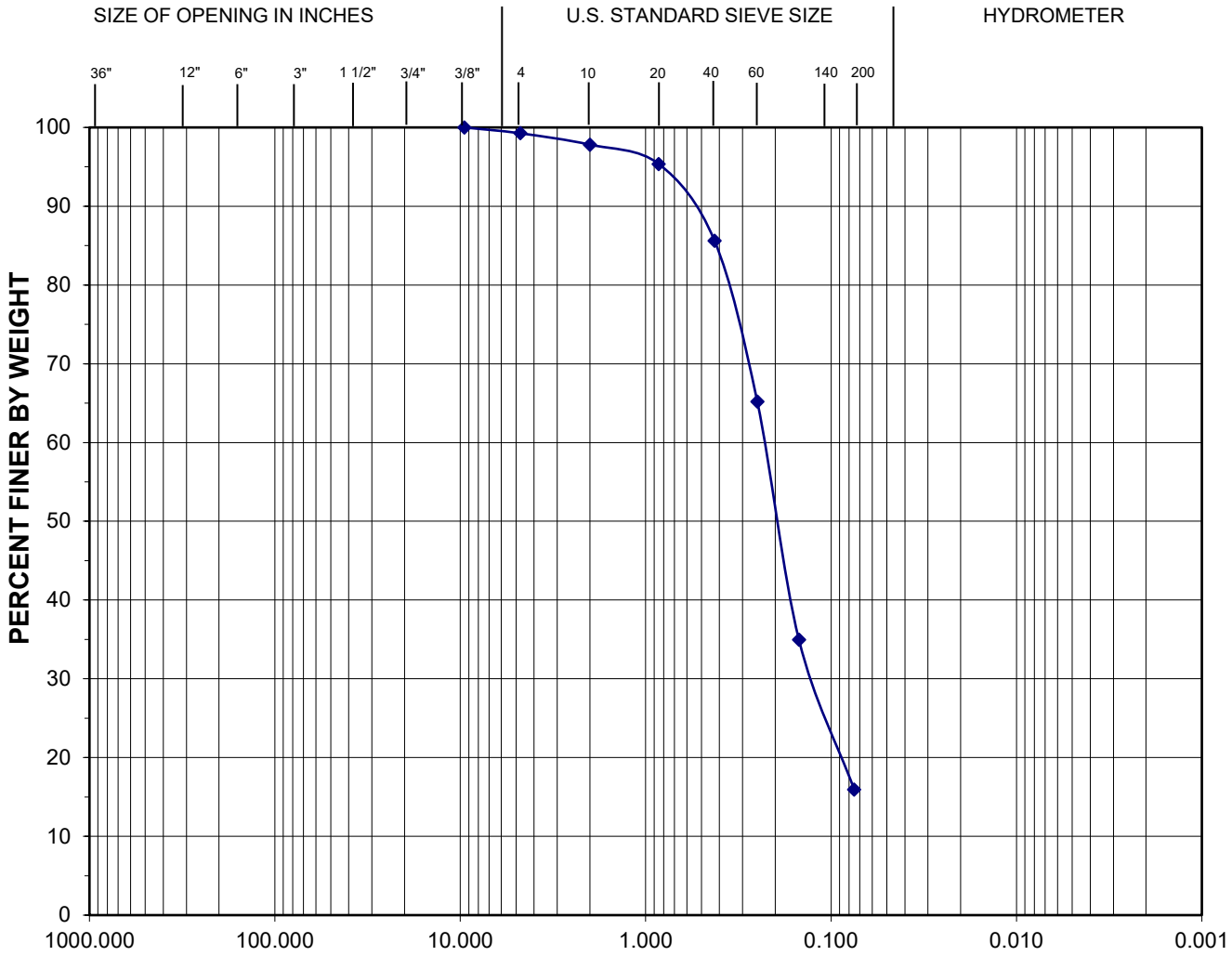
Exploration	Sample	Depth (feet)	Moisture (%)	Fines (%)	Description
B-2	S-1	2.5	21.6	42.7	Silty SAND, with gravel

Zipper Geo Associates, LLC Geotechnical and Environmental Consultants	PROJECT NO: 2889.01 DATE OF TESTING: 2/27/2025	PROJECT NAME: Medallian Inn

GRAIN SIZE ANALYSIS

Test Results Summary

ASTM D6913



		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
BOULDERS	COBBLES	GRAVEL		SAND			FINE GRAINED	

Comments:

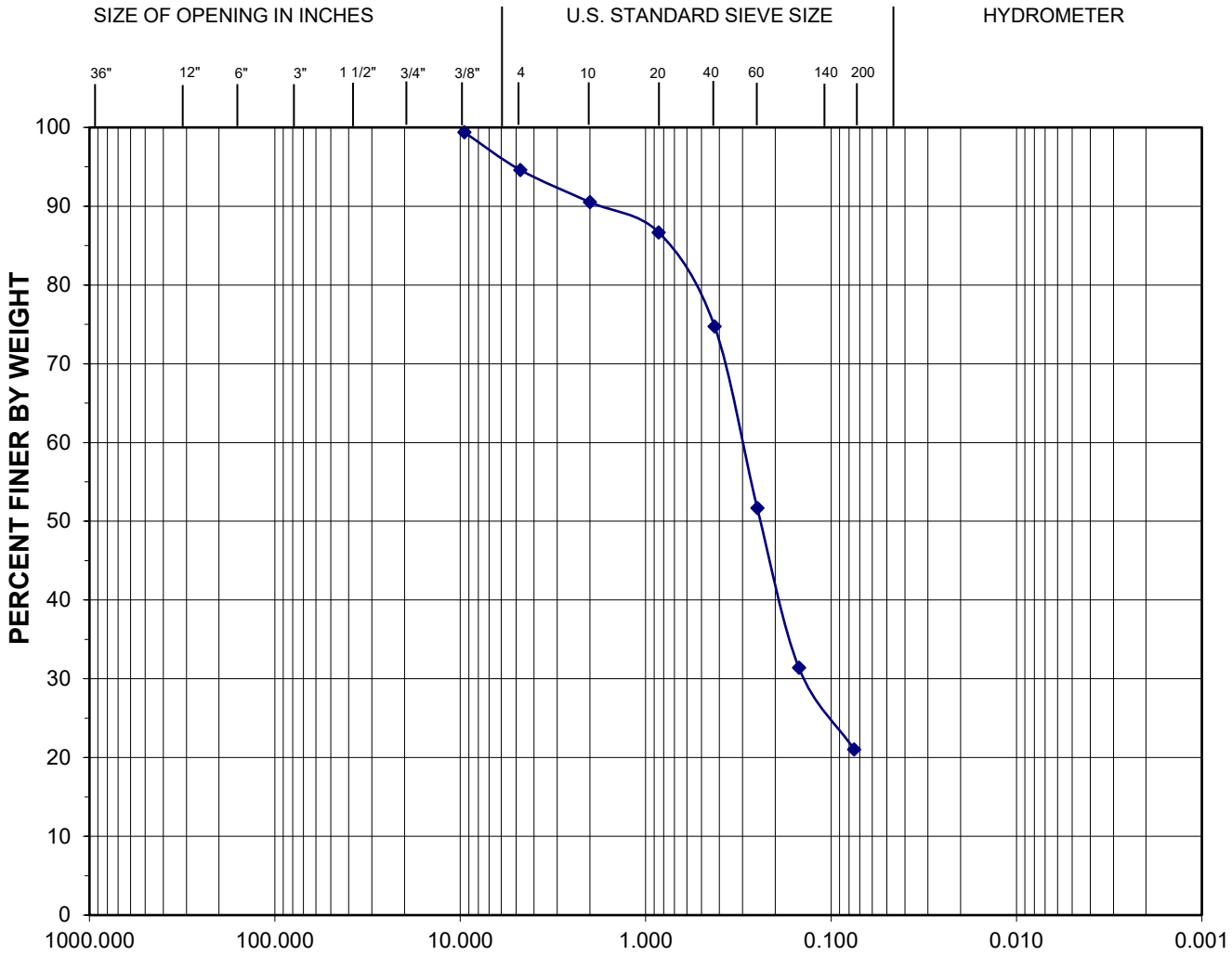
Exploration	Sample	Depth (feet)	Moisture (%)	Fines (%)	Description
B-2	S-2	5	22.7	15.9	SAND, with silt, trace gravel

Zipper Geo Associates, LLC Geotechnical and Environmental Consultants	PROJECT NO: 2889.01 DATE OF TESTING: 2/27/2025	PROJECT NAME: Medallian Inn

GRAIN SIZE ANALYSIS

Test Results Summary

ASTM D6913



		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
BOULDERS	COBBLES	GRAVEL		SAND			FINE GRAINED	

Comments:

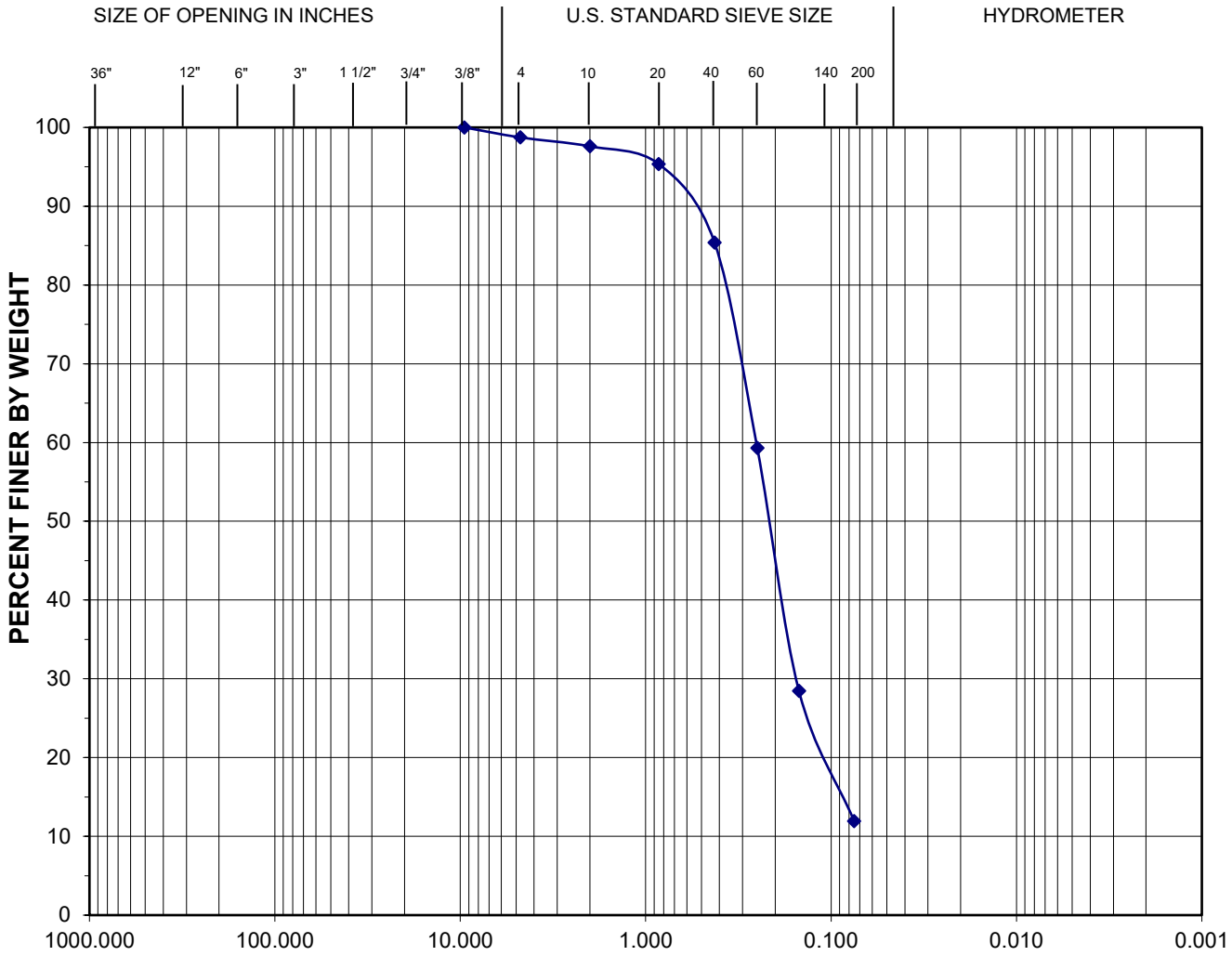
Exploration	Sample	Depth (feet)	Moisture (%)	Fines (%)	Description
B-3	S-1	2.5	18.0	21.0	SAND, with silt, some gravel

Zipper Geo Associates, LLC Geotechnical and Environmental Consultants	PROJECT NO: 2889.01 DATE OF TESTING: 2/27/2025	PROJECT NAME: Medallian Inn

GRAIN SIZE ANALYSIS

Test Results Summary

ASTM D6913



		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
BOULDERS	COBBLES	GRAVEL		SAND			FINE GRAINED	

Comments:

Exploration	Sample	Depth (feet)	Moisture (%)	Fines (%)	Description
B-3	S-2	5	21.6	11.9	SAND, some silt, trace gravel

Zipper Geo Associates, LLC Geotechnical and Environmental Consultants	PROJECT NO: 2889.01 DATE OF TESTING: 2/27/2025	PROJECT NAME: Medallian Inn

Am Test Inc.
13600 NE 126th Place Suite C
Kirkland, WA
(425) 885-1664
www.amtestlab.com

Professional Analytical Services

February 24, 2025

ZIPPER GEO ASSOCIATES, LLC
19019 36TH AVENUE W SUITE E
LYNNWOOD, WA 98036
Attention: Martin Cross

Project: Medallion Inn and Suites
Project Number: 2889.01
COC Number:

Martin Cross:

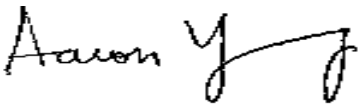
Enclosed please find the analytical data for your Medallion Inn and Suites project.

Your sample(s) were received on Friday, February 14, 2025 and properly maintained prior to the subsequent analysis. The analytical procedures used at AmTest are well documented and are typically derived from the protocols of the EPA, USDA, FDA, Standard Methods or the Army Corps of Engineers.

Following the analytical results you will find the Quality Control (QA/QC) results.

Please note that the detection limits that are listed in the body of the report refer to the Practical Quantitation Limits (PQL's), as opposed to the Method Detection Limits (MDL's).

If you should have any questions pertaining to the data package, please feel free to contact me.
Sincerely,



ElementStationManager For Aaron Young
President
aarony@amtestlab.com

Am Test Inc.
13600 NE 126th Place Suite C
Kirkland, WA
(425) 885-1664
www.amtestlab.com

ANALYSIS REPORT

Professional Analytical Services

Date Received: 02/14/25
Date Reported: 02/24/25

ZIPPER GEO ASSOCIATES, LLC
19019 36TH AVENUE W SUITE E
LYNNWOOD, WA 98036
Attention: Martin Cross
Project Name: Medallion Inn and Suites
Project #: 2889.01

Reported Samples

Lab ID	Sample	Matrix	Qualifiers	Date Sampled	Date Received
A25B0230-01	B-1, S-1	Solid		02/10/2025	02/14/2025
A25B0230-02	B-2, S-1	Solid		02/10/2025	02/14/2025
A25B0230-03	B-3, S-1	Solid		02/10/2025	02/14/2025

Am Test Inc.
13600 NE 126th Place Suite C
Kirkland, WA
(425) 885-1664
www.amtestlab.com

AMTEST LABORATORIES

Professional Analytical Services

ANALYSIS REPORT

Date Received: 02/14/25
Date Reported: 02/24/25

ZIPPER GEO ASSOCIATES, LLC
19019 36TH AVENUE W SUITE E
LYNNWOOD, WA 98036
Attention: Martin Cross
Project Name: Medallion Inn and Suites
Project #: 2889.01

AMTEST Identification Number: A25B0230-01
Client Identification: B-1, S-1
Sampling Date: 02/10/25 09:00

Metals Extraction

PARAMETER	RESULT	UNITS	Q	R.L.	METHOD	ANALYST	DATE
CEC (Cation Exchange Capacity)	4.46	meq/100 g		0.500	EPA 9081	AE	02/24/2025

AMTEST Identification Number: A25B0230-02
Client Identification: B-2, S-1
Sampling Date: 02/10/25 09:45

Metals Extraction

PARAMETER	RESULT	UNITS	Q	R.L.	METHOD	ANALYST	DATE
CEC (Cation Exchange Capacity)	4.01	meq/100 g		0.500	EPA 9081	AE	02/24/2025

AMTEST Identification Number: A25B0230-03
Client Identification: B-3, S-1
Sampling Date: 02/10/25 10:15

Metals Extraction

PARAMETER	RESULT	UNITS	Q	R.L.	METHOD	ANALYST	DATE
CEC (Cation Exchange Capacity)	4.41	meq/100 g		0.500	EPA 9081	AE	02/24/2025

Am Test Inc.
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Kirkland, WA
(425) 885-1664
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AMTEST LABORATORIES

Professional Analytical Services

ANALYSIS REPORT

ZIPPER GEO ASSOCIATES, LLC
19019 36TH AVENUE W SUITE E
LYNNWOOD, WA 98036
Attention: Martin Cross
Project Name: Medallion Inn and Suites
Project #: 2889.01

Date Received: 02/14/25
Date Reported: 02/24/25

Quality Control

Metals Extraction

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BCB0260 - EPA 9081 (CEC)										
Calibration Blank (BCB0260-CCB1)					Prepared & Analyzed: 02/24/25					
CEC (Cation Exchange Capacity)	0.0169			meq/100 g						
Calibration Blank (BCB0260-CCB2)					Prepared & Analyzed: 02/24/25					
CEC (Cation Exchange Capacity)	0.0144			meq/100 g						
Calibration Check (BCB0260-CCV1)					Prepared & Analyzed: 02/24/25					
CEC (Cation Exchange Capacity)	2.06		0.500	meq/100 g	2.000		103%	85-115%		
Calibration Check (BCB0260-CCV2)					Prepared & Analyzed: 02/24/25					
CEC (Cation Exchange Capacity)	2.06		0.500	meq/100 g	2.000		103%	85-115%		
Duplicate (BCB0260-DUP1)		**Source: A25B0301-03**			Prepared & Analyzed: 02/24/25					
CEC (Cation Exchange Capacity)	2.01		0.500	meq/100 g		2.40			17	20
Duplicate (BCB0260-DUP2)		**Source: A25B0350-02**			Prepared & Analyzed: 02/24/25					
CEC (Cation Exchange Capacity)	7.15		0.500	meq/100 g		7.39			3	20

Am Test Inc.
13600 NE 126th Place Suite C
Kirkland, WA
(425) 885-1664
www.amtestlab.com

ANALYSIS REPORT

Professional Analytical Services

Date Received: 02/14/25
Date Reported: 02/24/25

ZIPPER GEO ASSOCIATES, LLC
19019 36TH AVENUE W SUITE E
LYNNWOOD, WA 98036
Attention: Martin Cross
Project Name: Medallion Inn and Suites
Project #: 2889.01

Notes and Definitions

Item	Definition
Dry	Sample results reported on a dry weight basis.
ND	Analyte NOT DETECTED at or above the reporting limit.
RPD	Relative Percent Difference
%REC	Percent Recovery
Source	Sample that was matrix spiked or duplicated.

AMTEST LABORATORIES

AmTest Chain of Custody Record

A25B0230

13600 NE 126th PL, Suite C, Kirkland, WA 98034
Ph (425) 885-1664 Fx (425) 820-0245
www.amtestlab.com

Chain of Custody No. 5000

Client Name & Address:	Invoice To:
Zipper GEO Associates LLC 19019 36th Ave W Suite E Lynnwood, WA 98036	Zipper Geo Associates LLC 19019 36th Ave W, Suite E Lynnwood, WA 98036
Contact Person: Martin Cross	Invoice Contact: Martin Cross
Phone No: 425-231-1856	PO Number: ~~2889.01~~
Fax No: N/A	Invoice Ph/Fax: 425-231-1856
E-mail: mcross@zippergeo.com	Invoice E-mail: mcross@zippergeo.com
Report Delivery: (Choose all that apply) Mail / Fax / (Email) / Posted Online	Data posted to online account: YES / NO Web Login ID:

Special Instructions:

Requested TAT: **(Rush must be pre-approved by lab)**
(Standard) RUSH (5 Day / 3 Day / 48 HR / 24 HR)

Temperature upon Receipt: 18.3°C

Project Name: Medallion Inn and Suites
Project Number: 2889.01

AmTest ID	Client ID (35 characters max)	Date Sampled	Time Sampled	Matrix	No. of containers	Analysis Requested: Cation exchang Cap.								QA/QC
01	B-1, ~~S-2~~ S-1	2/10/25	9:00AM		1	X								
02	B-2, ~~S-2~~ S-1	2/10/25	9:45AM		1	X								
03	B-3, ~~S-2~~ S-1	2/10/25	10:15AM		1	X								

Collected/Relinquished By:	Date	Time	Received By:	Date	Time
Martin Cross	2/14/25	2:55PM	SF	2/14/25	14:53
Relinquished By:	Date	Time	Received By:	Date	Time
Relinquished By:	Date	Time	Received By:	Date	Time

COMMENTS:

Krazan & ASSOCIATES, INC.

GEOTECHNICAL ENGINEERING • ENVIRONMENTAL ENGINEERING
CONSTRUCTION TESTING & INSPECTION

February 27, 2025

KA No. 096-25093
Lab Report No. 01

Mr. Martin Cross, L.G. (E-Mail)
ZIPPER GEO ASSOCIATES, LLC
19019 36th Avenue W, Suite E
Lynnwood, WA 98036

RE: SOILS LABORATORY TESTING
Medallion Inn and Suites – Lab Testing
4303 198th Street SW
Lynnwood, Washington

Dear Mr. Cross,

In accordance with your request and authorization, we have performed laboratory tests for the above referenced project.

Laboratory testing was performed in accordance with ASTM standards. The results of the laboratory tests are presented on the following pages. If you have any questions; or if we can be of further assistance, please do not hesitate to contact our office.

Sample ID No:	88393 - (A-C)	
Loss of Ignition:	Organic Content (ASTM D-2974)	
Location:	Results	Specifications
B-1 / Sample #1 (A):	0.8%	N/A
B-2 / Sample #1 (B):	1.2%	N/A
B-3 / Sample #1 (C):	2.1%	N/A

Respectfully submitted,
KRAZAN & ASSOCIATES, INC.

Robert Cole Demas
Laboratory Supervisor
Pacific Northwest Division