



Geotechnical Report
(GR251127)

for
Charles Jessop

4288 W 6000 N
Cedar City, UT

December 10, 2025

Charles Jessop
Cedar City, Utah 84741

Proposed New Construction
4288 W 6000 N
Cedar City, Utah 84741

Mr. Jessop,

Enclosed is the geotechnical investigation report prepared for the proposed new construction located at 4288 W 6000 N, Cedar City, Utah. This report summarizes the results of our field exploration and laboratory testing program, and presents our analysis, conclusions, and geotechnical recommendations to support the design and construction of the proposed structure.

Based on our investigation, the subsurface conditions at the site generally consist of well graded sand with fines (SW). The soils encountered exhibit **moderate to severe collapse potential**, which should be considered during foundation design and construction planning.

Summary of Key Recommendations:

- **Allowable Bearing Pressure:** 1,500 pounds per square foot (psf) for spread footings placed on properly compacted engineered fill.
- **Over-Excavation Requirement:** Excavate 3 feet below the proposed footing elevation and replace with compacted structural fill.
- **Frost Depth:** 30"
- **Maximum Dry Density of Onsite Soils:** 118 pcf at an optimum moisture content of 9%.

Additional details, including site preparation, grading, foundation design, and construction considerations, are provided in the main body of the report.

We appreciate the opportunity to support your project and look forward to assisting you during the next phases of development. Should you have any questions regarding the findings or recommendations, please do not hesitate to contact our office at your convenience.

Sincerely,
Les Whitmore, Principal
Reliant Engineering

[leswh, 12/10/2025, 1:03:05 PM](#)

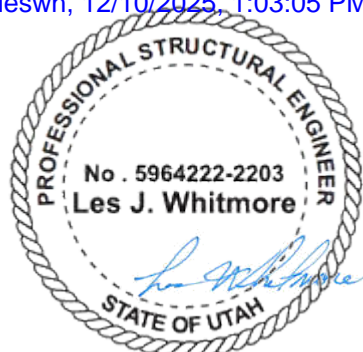


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INTRODUCTION

1.0 GENERAL

This report presents the results of a geotechnical investigation for a proposed residence located at W 4288 6000 N, Cedar City, UT. The study was conducted with the client's consent and authorization.

This investigation aimed to evaluate the engineering properties of the site's subsurface soils, identify the site's geologic conditions, and provide recommendations for site grading and the design and construction of foundations and concrete slabs on grade. The investigation included subsurface exploration, representative soil sampling, laboratory testing, engineering analyses, and the preparation of this report.

The recommendations in this report are subject to the limitations presented in the "Limitations" section.

1.1 Project Description

At the location described in Cedar City, UT, an approximate 5.5-acre site, for a proposed single-family residence. Structural loads are expected to be relatively low in magnitude. The approximate location of the borehole is in the report's appendix.

2.0 FIELD EXPLORATION

The subsurface soil conditions were determined by excavating (1) test pit to a depth of approximately 10 feet below the existing site grade. The soil and subsurface conditions encountered during the explorations were classified, logged, and recorded by our field professional during excavation. Boring logs are provided in the appendix of this report.

3.0 LABORATORY TESTING

Soil samples obtained during our investigation were tested to determine the USGS soil classifications and other pertinent engineering characteristics. The soil samples were tested for gradation, in-place density, moisture content, and maximum dry density.

4.0 GEOLOGIC AND SEISMIC CONDITIONS

4.1 Geologic Setting

According to the Utah Interactive Geologic Map Portal, the site lies within the boundaries of the TS (Basin-Fill Sedimentary Rocks) geologic formation.

Ts – Basin-Fill Sedimentary Rocks (Tertiary)

Description

Poorly to moderately consolidated, tan, gray, and light-red tuffaceous sandstone with subordinate mudstone, siltstone, and conglomerate, deposited in multiple basins of Pliocene to at least early Miocene (~19 Ma) age. Most basins are related to Basin and Range extensional tectonics; others formed as late subsidence features of the Caliente caldera complex or as sags associated with post-caldera ash-flow eruptions, locally intertongues with tuff units (Thr, Twr). The youngest parts of this sequence have been mapped as the Muddy Creek Formation (Cook, 1957, 1960; Hintze and others, 1994). The unit also includes volcanoclastic rocks of the Enterprise Reservoir (Blank, 1993).

North of Hebron, a north-striking graben contains a high proportion of air-fall tuff. The oldest parts of the sequence, exposed in the eastern and southern Harmony Mountains, North Hills, and Markagunt Plateau, are erosional deposits derived from rapid intrusion of the Iron Axis and may be more appropriately classified as Tpr, but are included here where they cannot be distinguished in the field. These older deposits contain large boulders of a distinctive latitic porphyry (Kolob latite of Averitt, 1962), interpreted by Averitt (1962, 1967) as intrusions and related alluvium, and by Anderson and Mehnert (1979) and Biek (2002a) as being derived from the Pine Valley Mountains. The maximum thickness of Ts is at least about 2,000 feet (600 m).

Engineering Considerations – Ts

- **Material Variability**
 - Highly variable mix of tuffaceous sandstone, mudstone, siltstone, and conglomerate, ranging from soil-like to weak rock.
 - Engineering properties can change significantly over short distances (lateral and vertical), requiring site-specific subsurface exploration and testing.
- **Strength and Compressibility**
 - Poorly to moderately consolidated tuffaceous sandstones and fine-grained beds (mudstone, siltstone) may exhibit low to moderate bearing capacity and moderate to high compressibility.
 - Potential for differential settlement where coarse, more competent conglomerate or sandstone lenses are interbedded with weaker fines.
 - Older, more indurated portions (with porphyry clasts/volcanoclastic material) may behave as weak to moderately strong rock.
- **Collapsibility and Cementation**
 - Tuffaceous and volcanoclastic components may be weakly cemented; partial saturation/desaturation cycles or introduction of water (irrigation, leakage, changes in drainage) can locally weaken the cement and produce collapse settlement.
 - Laboratory collapse potential and consolidation tests are recommended where loose, dry, or weakly cemented horizons are encountered.
- **Expansive and Shrink-Swell Behavior**
 - Mudstone and siltstone beds may locally contain expansive clay minerals.
 - Where fine-grained horizons are present near foundation level, perform Atterberg limits, swell tests, and moisture-density relationships to evaluate shrink-swell risk and need for moisture control or deepened foundations.
- **Excavation and Rippability**

- Poorly consolidated zones are generally excavatable with conventional equipment.
- Indurated tuffaceous beds, conglomerate layers with large clasts, and latite boulder-bearing zones may require heavy ripping equipment or localized blasting.
- Anticipate variable excavation conditions across the site.
- **Slope Stability**
 - Cut slopes in weakly consolidated tuffaceous and fine-grained units may be susceptible to raveling, sloughing, and shallow failures, especially when wetted.
 - Flatter slope angles, benching, and erosion protection may be necessary; local rockier zones may tolerate steeper cuts but should be evaluated individually.
 - Bedding orientation, faults, and graben-related structures north of Hebron may provide planes of weakness that affect slope performance.
- **Groundwater and Perched Water**
 - Fine-grained and tuffaceous layers may act as aquitards, producing perched groundwater conditions, especially near structural lows or in graben areas.
 - Perched or shallow groundwater can reduce the shear strength of slopes, increase settlement, and impact excavation stability and dewatering needs.
- **Seismic Response**
 - Overall, Ts is likely to be classified as Site Class C, D, or in some cases E under building-code definitions, depending on the degree of consolidation and the thickness of weaker horizons.
 - Variability in stiffness (soft fines vs. cemented/coarse lenses) may produce non-uniform seismic response; shear-wave velocity testing is recommended for critical structures.
- **Erosion and Surface Stability**
 - Unprotected slopes and exposed fine-grained tuffaceous materials are prone to erosion and gulying under concentrated runoff.
 - Surface drainage control, revegetation, and erosion protection measures should be incorporated for cuts, fills, and at the ground surface.
- **Foundation and Pavement Design**
 - Shallow spread footings may be feasible on competent, relatively uniform portions of Ts, provided collapsible/expansive zones are avoided or mitigated (overexcavation/recompaction, moisture conditioning, or deep foundations).
 - In areas with high variability, loose horizons, or collapsible behavior, deep foundations (piers, piles, micropiles) or mat foundations may be more appropriate.
 - Pavement subgrades underlain by soft or collapsible tuffaceous sediments may require overexcavation, stabilization (lime/cement), or thicker pavement sections.
- **Mapping and Correlation**
 - Some of the oldest Ts deposits may be more appropriately correlated with intrusive-related units (Tpr), but are mapped within Ts due to field indistinguishability.
 - For larger or critical projects, regional geologic mapping and correlation should be reviewed to identify areas where more competent intrusive-derived material may underlie or be interbedded within the Ts sequence.
- Carbonate-cemented zones may locally behave as hardpan, causing excavation variability.

4.2 Faulting and Seismicity

The site is approximately 0.35 miles west of the Cedar City west side faults and 5.3 miles west of the Enoch graben faults. The following seismic design values, according to the requirements of the 2021 International Building Code (IBC), shall be used for the design of structures at the site:

Soil site class: D -Default

Ground motion coefficient for 0.2 second period: $S_s = 0.699$

Ground motion coefficient for 1.0 second period: $S_1 = 0.222$

Site amplification factor at 0.2 seconds: $F_a = 1.2$

Site amplification factor at 1.0 second: $F_a = N/A$

Peak ground acceleration: $PGA = 0.307$

Seismic Design Category: $SDC = D$

Seismic response coefficient: $C_v = 1.149$

Reliant Engineering believes that, based on the soils encountered at the exploratory excavations and the groundwater depth, the potential for liquefaction at this site is low.

5.0 SITE CONDITIONS

5.1 Surface Conditions

At the time of our investigation, the site was graded, relatively flat, and covered with junipers and desert vegetation, and was approximately 5.5 acres in size.

5.2 Subsurface Conditions

The soils encountered during our investigation are described in this section. The boring logs are in the appendix of this report

The soil was slightly moist throughout the depths explored. We did not encounter groundwater during our investigation; however, numerous factors contribute to fluctuations in groundwater levels, and evaluating these factors is beyond the scope of this study.

Laboratory test results indicate that the on-site soils exhibit relatively low solubility, low plasticity, and moderate to severe collapse potential.

6.0 ENGINEERING ANALYSIS AND RECOMMENDATIONS

6.1 General

Based on our investigation, loose, soft, and/or collapsible soils are present at the site, requiring stabilization and/or overexcavation prior to structural fill placement. However, we believe the subject

site is suitable for the proposed construction of roadways, parking lots, and multi-family residences, provided that the recommendations in this report are followed.

The following sections of this report contain opinions and recommendations about construction considerations, site preparation and grading, structural fill, foundation design, retaining walls, concrete slabs on grade, soil corrosion, moisture protection, and structural pavement sections.

6.2 Construction Considerations

6.2.1 Foundation Systems

Conventional strip and/or spread footings, when placed on adequately compacted structural fill, can support the structures.

6.3 Earthwork

6.3.1 Site Preparation and Grading

Loose soil, vegetation, and debris should be removed from the site. Any undocumented fill soils and soft, loose, collapsible, and/or disturbed native soils should be excavated to expose competent, dense native soils.

Based on soil types and laboratory consolidation tests, the required depth of over-excavation is **3 feet** below the bottom of the footing. The overexcavation should extend laterally beyond the footings by a distance equal to the depth of overexcavation.

Concrete slabs-on-grade, exterior flatwork, and driveways should be supported by a properly placed and compacted structural fill zone. Slab sites should be over-excavated to a depth of 30 inches below the gravel layer. Alternatively, 15 inches of Type 1 pit run gravel can be substituted for the over-excavations. Excavations shall extend at least 1 foot beyond exterior flatwork and driveways laterally.

All over-excavations shall extend to competent, medium-dense granular soils. If loose, soft, or pumping soils are encountered at the bottom of the over-excavation, stabilization and/or additional over-excavation is required before placing the structural fill. A Reliant Engineering representative should observe the excavation and determine if it is acceptable to terminate it or reduce the over-excavation depth.

Following the excavation of unsuitable soils, a representative from this office should observe the excavation bottoms to verify that competent soils have been exposed. Native soils exposed after over-excavation should be scarified to a depth of 6 inches, brought to within 2 percent of the optimum moisture content for granular soils and slightly above optimum for fine-grained soils, and compacted to at least 90 percent of the maximum dry density for granular soils and 85 percent of the maximum dry density for fine-grained soils as determined by ASTM D1557.

On-site soil free of organic matter and debris is likely suitable for use as structural fill. If on-site soils are used for backfilling (structural fill), a shrinkage factor of up to 30 percent can be expected.

Subgrade materials supporting slabs-on-grade, exterior concrete flatwork, and pavements should be kept moist to prevent them from drying out and cracking.

It is critical to set the finished floor slab elevations high enough to facilitate proper drainage away from the structure.

We recommend that a Reliant Engineering representative be allowed to review the grading plans when they are prepared to evaluate their compatibility with the recommendations in this report.

6.3.2 Excavations

Most soils encountered in our explorations can be excavated with conventional earthwork equipment. Soft-pumping soil may also be encountered. Pumping soils will need to be stabilized before placing structural fill. The contractor is responsible for the safety of construction personnel.

6.3.4 Structural Fill

All fill placed to support slabs-on-grade, exterior concrete flatwork, and pavements should be structural fill. Structural fill may consist of approved excavated on-site or imported fill materials. Structural fill should have a swell potential of less than 4 percent under a 60 psf surcharge, a solubility of less than 3 percent, be free of organics, salts, and inert materials larger than 4 inches in nominal size, and have a gradation like that of the on-site soils.

Structural fill should be placed in a maximum of eight-inch loose lifts and compacted on a horizontal plane unless otherwise approved by the Geotechnical Engineer. Soils in compacted fills should be compacted to at least 90% of the maximum dry density, as determined by ASTM D1557 for fine-grained soil and 95% for granular soils. The moisture content should be within 2 percent of the optimum for granular soils and at least 2 percent above the optimum for fine-grained soils. Any imported fill materials should be approved before importing. Also, before placing any fill, a Reliant Engineering representative should observe the excavations to ensure that unsuitable materials have been removed.

Structural fill shall be tested for minimum density compliance using a moisture-density gauge following ASTM D6938 or other approved methods. Density testing shall be performed at the bottom of the over-excavation and at every 12-inch vertical interval until the bottom of the footing is reached. Backfill material surrounding basement and stem walls shall undergo moisture-density testing at the bottom of the footing elevation and continue at 24-inch vertical intervals until the finished grade is reached.

6.4 Foundations

6.4.1 Conventional Foundations

Conventional shallow foundations, consisting of strip and/or spread footings, can be utilized to support the proposed buildings if the over-excavation is completed in accordance with the requirements and recommendations of this report, as described in the Earthwork section.

For frost protection, the bottom of the conventional exterior spread and strip footings shall be at least 30 inches below the lowest adjacent final compacted subgrade.

Foundations for structures constructed on soil, prepared in accordance with the recommendations and requirements of this report, may be designed for an allowable net bearing pressure of 1,500

pounds per square foot (psf). This bearing pressure may be increased by one-third for seismic or wind load combinations.

The net allowable bearing pressure may be increased to 2000 PSF if pit-run material is used as backfill instead of the native soils. The pit run gravel must have a maximum dry density of at least 125 pcf, as determined using the test method ASTM D1557. The pit run gravel must also meet all the requirements outlined in the Structural Fill section of this report.

A Reliant Engineering representative should observe the footing excavations before constructing the foundations to confirm that the soil preparation has been completed in accordance with the requirements and recommendations outlined in this report.

Foundations established in accordance with the recommendations and requirements of this report are estimated to be subject to 1 ½ inches or less of settlement if the soils beneath the over-excavation or piercing do not become moistened. The estimated differential settlement could be approximately half of the total settlement.

Lateral Earth Pressures: The following lateral earth pressure equivalent fluid densities shall be used in the design of the structure.

Properly Compacted On-Site Soils

Active Pressure 34 pcf

At Rest Pressure 53 pcf

Passive Pressure 195 pcf

Properly Compacted Imported Granular Soils

Active Pressure 35 pcf

At Rest Pressure 55 pcf

Passive Pressure 295 pcf

The equivalent fluid densities presented above assume a level backfill and no hydrostatic pressure build-up. Any surcharge from adjacent structures or traffic loads should be added to this pressure. When passive pressure is used to resist lateral loads, the top foot of soil should be neglected. The maximum allowable passive pressure for lateral load resistance should not exceed 1600 psf.

The seismic lateral earth pressure coefficient (k_h) is estimated to be 0.33.

Lateral Load Resistance: Horizontal loads acting on foundations will be resisted by friction at the foundations' bases and/or by passive earth pressures acting against the sides of footings and concrete walls. If the design uses passive earth pressures, it is important that a Reliant Engineering representative be present during backfill placement.

The friction force acting along the base of footings on suitable foundation soils may be calculated using a coefficient of friction of 0.40.

Thrust blocks, when reacting against undisturbed native soil or adequately placed and compacted structural fill, may resist lateral loads acting on buried utility lines. The referenced passive lateral earth pressure equivalent fluid density and coefficient of friction may be used for the thrust block design.

6.5 Concrete Slabs-On-Grade

A 6-inch layer of compacted gravel, overlaid on adequately placed and compacted structural fill, as recommended in the Site Grading section of this report, may provide satisfactory support for concrete slabs on grade and exterior concrete flatwork. The layer of compacted gravel may consist of road base or pit-run gravel, with a maximum particle size of 2 inches and a maximum 12% fines passing the No. 200 sieve. The gravel layer should be compacted to at least 95% of its maximum dry density, as determined by the Proctor compaction test, ASTM D1557.

All concrete slabs should be designed to minimize shrinkage cracking. The Structural Engineer shall provide reinforcement requirements. Reinforcement should be installed at the mid-height of the slab unless directed otherwise by the Structural Engineer.

Special precautions must be taken when placing and curing all concrete slabs. Excessive slump (high water-cement ratio) of the concrete and/or improper curing procedures during hot or cold weather could lead to excessive shrinkage, cracking, or curling in the slabs. All concrete placement and curing operations shall follow the American Concrete Institute (ACI) Manual.

6.7 Soil Corrosion and Weathering Considerations

Based on similar studies in the area, the on-site soils contain salts at sufficiently high concentrations to be considered corrosive to concrete and metal. Therefore, all concrete used in stem walls, footings, and other concrete in contact with the on-site soils should contain Type V or equivalent sulfate-resistant cement and be placed with a maximum slump of four inches.

Additionally, concrete shall meet the requirements specified in Tables 19.3.1.1 & 19.3.2.1 of ACI 318-14 for severe sulfate exposure. Special protection for buried metal pipes and water lines should be considered for the long-term performance of these underground utilities. Consideration should be given to cathodic protection of buried metal or PVC pipes, where permitted by local building codes.

6.8 Moisture Protection and Drainage

Precautions must be taken during and after construction to minimize, or ideally eliminate, the wetting of foundation soils. Drainage and grading shall be constructed in accordance with Section 1804.4 of the 2021 International Building Code (IBC). Positive drainage shall be established away from the exterior walls of the structure. The required minimum slope is 5% in landscape areas and 2% in pavement areas for a minimum distance of 10 feet from the structure. Roof runoff and other sources of moisture should not be allowed to infiltrate the soil in the vicinity of, or upslope from, the structure. No roof moisture should penetrate the soil beneath the foundations.

All utility trenches leading into the structures should be backfilled with compacted, non-pervious fill. Special care should be taken when installing sewer and water lines to reduce the possibility of future subsurface saturation.

Landscape watering within 10 feet of the structures should be eliminated. As an additional protection measure, a concrete slab could be placed around the structure to facilitate drainage away from the structure, as described above. Any planters adjacent to the structure should have sealed bottoms. It is recommended that desert landscaping techniques be utilized.

These moisture protection requirements should be provided to the homeowner in writing.

7.0 CLOSURE

7.1 Limitations

Our professional services were performed using that degree of care and skill ordinarily exercised, under similar circumstances, by geotechnical engineers practicing in this or similar localities. Reliant Engineering does not guarantee the work of regulatory agencies or other third parties supplying information that may have been used during the preparation of this report. No warranty, express or implied, is made by preparing this report. Third parties reviewing this report should draw their own conclusions regarding site conditions and specific construction techniques for this project.

The recommendations in this report are based on field exploration, laboratory tests, and our understanding of the proposed construction. Variations in soil and groundwater conditions may exist elsewhere on the site, which may not be evident until construction begins. If site conditions differ from those described in this report during construction, Reliant Engineering should be notified immediately so that we may make the necessary revisions to our recommendations.

Although potential geologic hazards may be identified in this report, this is NOT a Geologic Hazards Report and should not be regarded as such. Reliant Engineering will not accept responsibility for damage caused by geologic hazards or by uncontrolled water at the site.

The development of recommendations for the mitigation of environmentally related conditions, including but not limited to biological or toxicological issues, is beyond the scope of this report. Reliant Engineering will not be liable for discovering dangerous materials or the spoilage produced by the discovery. Such hazardous materials remain the property owner's liability.

This report has been prepared for the exclusive use of the addressee and their authorized agents and is not intended for use by others; the information contained herein does not apply to other sites not named herein. This report is valid only for 18 months from the signature date or until the governing jurisdiction recognizes a new building code, whichever comes first.

You may NOT rely on this report if:

- Not prepared for you.
- Not prepared for your project.
- The proposed structure's design, function, configuration, location, or orientation has changed.
- Project ownership has changed.
- Not paid for in full.

The Client is responsible for ensuring that all parties to the project, including the Designer, Contractor, Subcontractors, and others, are made aware of this report. The use of information in this report for bidding purposes is at the Contractor's option and risk.

7.2 Additional Services

The recommendations assume that an adequate program of tests and observations will be conducted during construction to verify compliance. These tests and observations should include, but not necessarily be limited to, the following:

- Observations and testing during site preparation, earthwork, and structural fill placement
- Observations of footing excavations
- Consultation as may be required during construction

We recommend that Reliant review project plans and specifications to verify their compatibility with our conclusions and recommendations. Our office can provide additional information concerning the scope and cost of these services.



Address: 4288 W 6000 N Cedar City, UT

Client: Charles Jessop


Report No: GR251127






Fig: 1

BORING LOG Test Pit #1

Location: See Site Plan **Elevation:** Not Measured **Log Date:** 11/15/2025

Depth (ft)	Tests ¹	Sample	USCS Symbol ²	Soil Description (Additional comments below)	Color	Relative Moisture ³	Density ⁴	Cementation ⁵	Max size ⁶ Particle
0			SW	Silty Sand	Lt. Brown	SM	MD	M	FS
5	M		SW	Silty-Clayey Sand	Lt. Brown				Fine
	P								
	Cs								
			SW	Dense sand with fines	Brown				
			SW	Bottom @ 10'					
15			SW						
20			SW						

Sample:  Drive Sample  Bag Sample  Bucket Sample

- 1) At = Atterberg, M = Moisture, Sol = Solubility, E = Expansion, C = Consol, P = Proctor, CS = Coarse Sieve
- 2) See Plate 9 for explanation of Unified Soil Classification System
- 3) D = Dry, SM = Slightly Moist, M = Moist, VM = Very Moist, W = Wet
- 4) Coarse Grain: VL = Very Loose, L = Loose, MD = Medium Dense, D = Dense, VD = Very Dense Fine Grain: VSF = Very Soft, SF = Soft, MS = Medium Stiff, S = Stiff, VS = Very Stiff, H = Hard
- 5) W = Weak cementation, M = Moderate cementation, S = Strong cementation
- 6) B = Boulder, C = Cobble, CG = Coarse Gravel (3" - 3/4"), FG = Fine Gravel (3/4" - 1/4"), CS = Coarse Sand (#10 - #4), MS = Medium Sand (#40 - #10), FS = Fine Sand (#200 - #40), F = Fines

Notes: Groundwater: Not encountered
Caving of side walls: None noted

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Fig 2

THE UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS		TYPICAL NAMES	
FINE GRAINED SOILS	COARSE GRAINED SOILS	Grain Symbol	
		<p>More than 50% of the material is smaller than the No. 200 sieve</p>	
<p>SILTS AND CLAYS</p>	<p>SANDS</p>	GRAVELS	
		<p>More than 50% of coarse material is larger than the No. 4 sieve</p>	
<p>HIGHLY ORGANIC SOILS</p>	<p>GRAVELS</p>	CLEAN GRAVELS	
		<p>Liquid limit less than 50</p>	
<p>HIGHLY ORGANIC SOILS</p>	<p>GRAVELS w/ FINES</p>	GRAVELS w/ FINES	
		<p>Liquid limit greater than 50</p>	
<p>HIGHLY ORGANIC SOILS</p>	<p>SANDS w/ FINES</p>	Approximate amount of fines	
		<p>Appreciable amount of fines</p>	
<p>HIGHLY ORGANIC SOILS</p>	<p>CLEAN SANDS</p>	Little or no fines	
		<p>More than 12% passing No. 200 sieve; Atterberg limits plot below A-line or Pl > 7</p>	
<p>HIGHLY ORGANIC SOILS</p>	<p>SP</p>	Poorly graded sands or gravelly sands, little or no fines	
		<p>Less than 5% passing No. 200 sieve; Not meeting both criteria for SW</p>	
<p>HIGHLY ORGANIC SOILS</p>	<p>SM</p>	Silty sands, sand-silt mixtures	
		<p>More than 12% passing No. 200 sieve; Atterberg limits plot below A-line or Pl < 4</p>	
<p>HIGHLY ORGANIC SOILS</p>	<p>SC</p>	Clayey sands, sand clay mixtures	
		<p>More than 12% passing No. 200 sieve; Atterberg limits plot above A-line or Pl > 7</p>	
<p>HIGHLY ORGANIC SOILS</p>	<p>ML</p>	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands	
		<p>Pl < 4; Atterberg limits plot below A-Line</p>	
<p>HIGHLY ORGANIC SOILS</p>	<p>CL</p>	Inorganic clays, gravelly clays, sandy clays, silty clays, lean clays	
		<p>Pl > 7; Atterberg limits plot on or above A-Line</p>	
<p>HIGHLY ORGANIC SOILS</p>	<p>OL</p>	Organic silts and organic silty clays of low plasticity	
		<p>(IL - Oven Dried) / (IL - Not Dried) < 75</p>	
<p>HIGHLY ORGANIC SOILS</p>	<p>MH</p>	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils	
		<p>Atterberg limits plot below A-line</p>	
<p>HIGHLY ORGANIC SOILS</p>	<p>CH</p>	Inorganic clays of high plasticity, fat clays	
		<p>Atterberg limits plot on or above A-line</p>	
<p>HIGHLY ORGANIC SOILS</p>	<p>OH</p>	Organic clays or medium to high plasticity, organic silts	
		<p>(IL - Oven Dried) / (IL - Not Dried) < 75</p>	
<p>HIGHLY ORGANIC SOILS</p>	<p>PT</p>	Peat and other highly organic soils	

Address

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Fig: 3

SIEVE ANALYSIS

Sieve Analysis Data Sheet

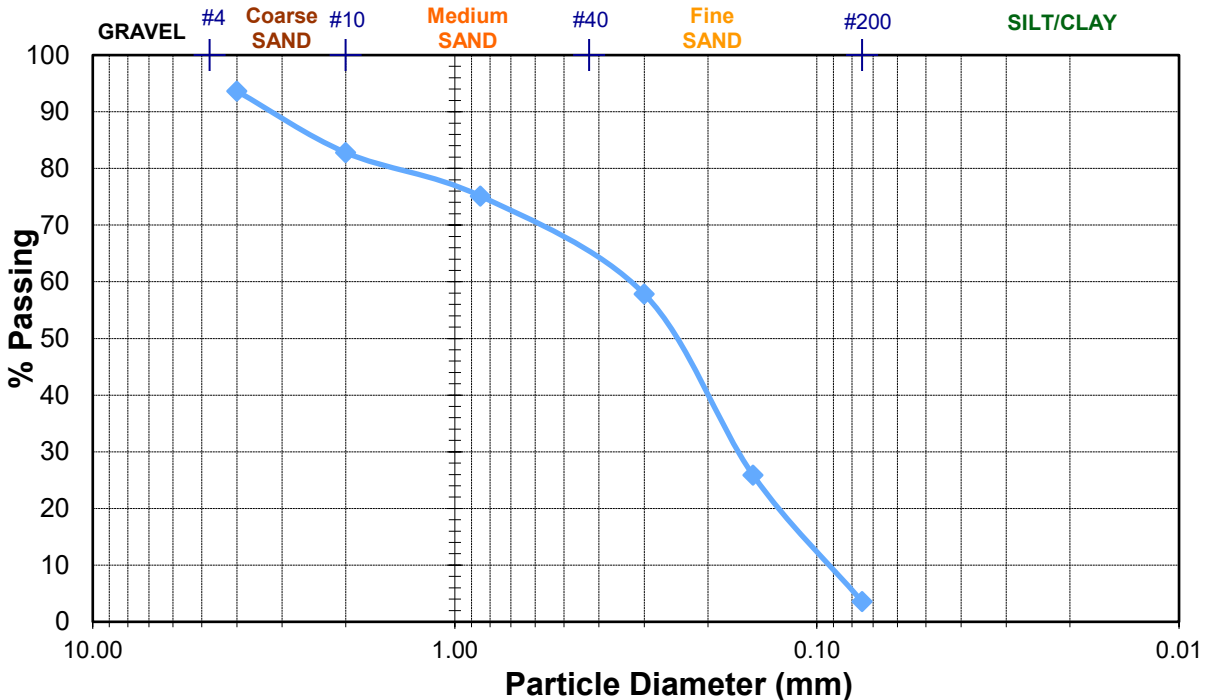
ASTM D422-63(2007)



Project Name: Charles Jessop Tested By: LJW Date: 12/10/2025
 Location: 4288 W 6000 N Cedar City, UT
 Boring No: TP-1 Test Number: 1
 Sample Depth: 60-72 inches Gnd Elev.: _____

USCS Soil Classification: SW-Well graded sand w/fines

Weight of Container (g): 525.9 Weight of Container & Soil (g): 2640.9
 Weight of Dry Sample (g): 2115.0

Sieve Number	Diameter (mm)	Mass of Sieve (g)	Mass of Sieve & Soil (g)	Soil Retained (g)	Soil Retained (%)	Soil Passing (%)
#5	4.00	355.7	490.2	134.5	6.4	93.6
#10	2.00	428.7	658.2	229.5	10.9	82.8
#20	0.85	344.9	507.1	162.2	7.7	75.1
#50	0.30	309.3	674.7	365.4	17.3	57.8
#100	0.15	315.4	992.1	676.7	32.0	25.8
#200	0.075	301.8	773.2	471.4	22.3	3.6
Pan		241.3	316.7	75.4	3.6	0.0
			0	2115.1	100.0	



Address: 4288 W 6000 N Cedar City,			Fig 5
Client: Charles Jessop			
Report No: GR251127			

