Pavement Evaluation Report

Jerome Stake Center

26 North 100 East, Jerome, Idaho

Property No. 5202701

Prepared For:

The Church of Jesus Christ of Latter-day Saints,

a Utah corporation sole

50 East North Temple Street, COB 12th Floor

Salt Lake City, Utah 84150-0012

Terracon GeoReport

Prepared by:

Terracon Consultants, Inc.

11849 W. Executive Drive, Suite G
Boise, Idaho 83713

September 14, 2022

September 14, 2022

The Church of Jesus Christ of Latter-day Saints
50 East North Temple Street, COB 12th Floor
Salt Lake City, Utah 84150-0012

Attn: Mr. Logan King – Project Manager
P: (385) 228 4288
E: KingLC@churchofjesuschrist.org

Re: Pavement Evaluation Report
Jerome Stake Center – Property No. 5202701
26 North 100 East
Jerome, Idaho
Terracon Project No. 62225035

Dear Mr. King:

We have completed the Pavement Evaluation services for the above referenced project. This study was performed in general accordance with Terracon Proposal No. P62225035 dated May 6, 2022. This report presents the findings of the subsurface exploration and provides geotechnical recommendations concerning the design and construction of pavements for the proposed project.

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 service, please contact us.

Sincerely,
Terracon Consultants, Inc.

Aleshia M Silverthorne, E.I.
Staff Professional

Ryan J. Olsen, P.E.
Geotechnical Department Manager

REPORT TOPICS

Note: This report was originally delivered in a web-based format. **Orange Bold** text in the report indicates a referenced section heading. The PDF version also includes hyperlinks which direct the reader to that section and clicking on the ***GeoReport*** logo will bring you back to this page. For more interactive features, please view your project online at client.terracon.com.

ATTACHMENTS

Note: Refer to each individual Attachment for a listing of contents.

EXECUTIVE SUMMARY

Topic [1]	Overview Statement [2]
Project Description	The project consists of the rehabilitation of the existing parking area of the church building at 26 North 100 East in Jerome, Idaho. Approximate Latitude/Longitude: 42.7281°, -114.5012°
Findings and Results	The existing pavement section is distressed and deteriorating. In addition, the existing underlying granular fill materials were generally of insufficient thickness for the support of design traffic loads and construction traffic. As a result, we recommend the asphalt paved parking areas be reconstructed.
Site Grading and Earthwork	Subgrade soils will likely be susceptible to rutting or pumping under construction traffic. To reduce the potential for disturbing the native soils, we recommend the contractor stage construction so that equipment and trucks avoid operating directly on areas of exposed subgrade. Based on our limited number of explorations, the fill material composed of sand with silt and gravel appeared to be of sufficient quality that they could be recycled into the reconstructed pavement section as Subbase, provided they do not become contaminated with other materials during excavation or construction. However, the thickness of this layer varied from about 4 to 7 inches, which may make it difficult to recover this material for reuse.
Pavement Design Recommendations	Pavement section alternatives for reconstruction of the parking areas, driveways, and trash enclosure approach slab are included in this report.
General Comments	This section contains important information about the limitations of this geotechnical engineering report.

1. If the reader is reviewing this report as a pdf, the topics above can be used to access the appropriate section of the report by simply clicking on the topic itself.
2. This summary is for convenience only. It should be used in conjunction with the entire report for design purposes.

Pavement Evaluation Report

Jerome Stake Center – Property No. 5202701

26 North 100 East

Jerome, Idaho

Terracon Project No. 62225035

September 14, 2022

INTRODUCTION

This report presents the results of our subsurface exploration performed in the existing asphalt parking lots and driveway adjacent to the church building at 26 North 100 East in Jerome, Idaho. This report provides geotechnical recommendations and alternatives for the reconstruction of the existing asphalt pavement section.

AUTHORIZATION

This exploration was performed in general accordance with our proposal number P62225037 dated May 6, 2022. The Agreement between Client and Consultant was signed by Mr. Logan King on July 26, 2022.

PROJECT DESCRIPTION, PURPOSE OF EVALUATION, AND SCOPE OF WORK

Project Description and Purpose of Evaluation

The project consisted of observing the condition of the existing asphalt pavement and evaluating the subgrade materials for the meetinghouse located at 26 North 100 East in Jerome, Idaho. During the pavement condition survey, it was noted that the southwest portion of the parking lot appeared to have been reconstructed and exhibited little to no visible distresses. At the Church's request, this portion of the parking lot was excluded from exploration and testing. Based on the observations and testing, Terracon has provided recommendations for the reconstruction of the parking lot.

Scope of Work

Our geotechnical engineering scope of work for this project included the advancement of four test pits, engineering analysis, and preparation of this report.

Maps showing the site and exploration locations are shown in **Site Location and Exploration Plans**. The results of the laboratory testing performed on soil samples obtained from the site during the field exploration are included on the boring logs and as separate graphs in **Exploration Results**.

DESIGN CRITERIA

Based on project information provided to us by the Church, and design information presented in the Church's "Geotechnical Evaluation Report Template", a description of our understanding of the project is presented below. If these details are not consistent with final design criteria, we should be notified so that we might update our recommendations, as needed.

Item	Description
Site Layout	The project includes the evaluation of the existing asphalt parking areas and driveway located adjacent to the church building. The existing asphalt paved parking areas total approximately 2.3 acres. See **Site Location and Exploration Plans**.
Grading	We assume the reconstructed pavement surface will be at or near existing grade to connect to the existing adjacent roadways and curbing.
Parking and Driveway Loads on Pavement	We anticipate that the pavement will generally support passenger vehicles with periodic garbage trucks. Based on the Church's requirements for new construction of parking lots, we assume the following traffic loading: ■ Parking: Six 18-kip flexible ESALs per week ■ Driveways: Fifteen 18-kip flexible ESALs per week ■ Trash Enclosure Approach Slab: One 40-kip axle load per week ■ Traffic Analysis Period: Asphaltic Concrete Pavement: 40 years
Stormwater Management	Exploration and recommendations for stormwater management are not included in Terracon's scope of services.

SITE CONDITIONS

Item	Description
General site description	The project is located at 26 North 100 East (also known as North Tiger Drive) in Jerome, Idaho. See **Site Location and Exploration Plans**. Approximate Latitude/Longitude: 42.7281°, -114.5012°.
Current land use/ Existing structures	The site is an existing church building with associated parking areas and landscaping.
Current ground cover	The existing parking area is paved with asphalt. Lawn, trees and some areas of bushes and shrubs are located in landscaping areas.
Existing topography	The site is relatively level

Item	Description
Existing slopes	Existing slopes at the site are relatively minor.
Surrounding land use	The site is bordered to the north and west by residential properties, to the south is a high school, and to the east is a grass covered playing field.
Frost depth	According to published information, the frost depth in the vicinity is 24 inches.
Site geology	Based on a USGS geologic map database, the site location is mapped as "Snake River Plain Late Pleistocene Basalt and Silt." This is described as Upper Pleistocene basalt flows with interlayered lacustrine silt beds.

FIELD STUDY

Number of Test Pits	Approximate Test Pit Depth (feet) [1]	Location
4	1¼ to 1½	Existing parking areas

1. Below ground surface.

A total of four test pits were excavated at the site. The approximate locations of the explorations are shown in **Site Location and Exploration Plans**.

The exploration locations were selected by Terracon based on the relative spacing throughout the existing parking lot and current pavement conditions. The test pit locations were recorded using a recreational grade global positioning system (GPS) having an accuracy typically within 20 feet. The approximate ground surface elevations at the exploration locations were obtained from Google Earth Pro.

The test pits were excavated with a mini-excavator. Disturbed soil samples were obtained at various depths in the test pits. Upon completion the test pits were backfilled with soil cuttings and patched with cold mix asphalt.

A field log of each test pit was recorded by a Terracon field engineer during the field explorations. These logs included visual classifications of the materials encountered during excavation. Final test pit logs included with this report represent the engineer's interpretation of the field logs and include modifications based on laboratory observation and tests of the samples.

SUBSURFACE WATER AND SUBSURFACE CONITIONS

Subsurface Profile

We have developed a general characterization of the subsurface conditions based upon our review of the subsurface exploration, laboratory data, geologic setting and our understanding of the project. This characterization, termed GeoModel, forms the basis of our geotechnical calculations and evaluation of site preparation and foundation options. Conditions encountered at each exploration point are indicated on the individual logs and summarized below. The individual logs can be found in the **Exploration Results** section and the GeoModel can be found in the **Figures** section of this report.

Layer	TP-1	TP-2	TP-3	TP-4
Location	Northwest parking area	Northeast parking area	Southeast parking area	South-middle parking area
Asphalt (Inches)	3	3	4½	3
Granular Fill (Inches) [1]	4½	7	4	4½
Total Pavement Section Thickness (Inches)	7½	10	8½	7½
Subgrade Soils	Lean Clay with Sand	Silt with Sand	Sandy Silt	Sandy Lean Clay

1. Within the test pits the encountered gravel-sized particles in the granular fill included angular particles.

Groundwater

The test pits were monitored during excavation for the presence and level of groundwater. Groundwater was not encountered at the time of exploration. Groundwater level fluctuations occur due to seasonal variations in the amount of rainfall, runoff, irrigation, and other factors not evident at the time the excavations were performed. Therefore, groundwater levels during construction or at other times in the life of the pavement may be higher or lower than the levels indicated on the test pit logs.

LABORATORY TESTING

As part of the testing program, samples were visually examined in our laboratory and classified in accordance with the Unified Soil Classification System (USCS). The USCS group symbol is shown on the boring logs, and a brief description of the USCS and General Notes are included in the **Supporting Information**. Representative samples were selected for laboratory testing. Types of tests performed, and the purpose of the tests, are summarized in the table below.

Test Conducted	To Determine
Natural moisture content	Moisture content of the sample.
Percent passing No. 200 sieve	Amount of clay/silt sized particles in the sample.
Grain size analysis	Amount of gravel, sand, and silt/clay sized particles in the sample.
Atterberg limits	Plasticity of the sample.

Results of the moisture content and the percent passing the No. 200 sieve tests are summarized on the exploration logs. Also included in the **Exploration Results** are graphical results of the grain size analysis testing.

FINDINGS AND RESULTS

The existing asphalt surface is currently exhibiting significant distress and deterioration. Photographs showing some of the observed distress at the project site are presented in the **Photography Log**. Observed pavement distress types included:

- low to high severity random cracking (due to thermal cycling);
- moderate to high severity fatigue (alligator) cracking resulting in isolated potholes;
- raveling and delamination;
- medium severity patching (multiple patches with varying levels of distress within the patch); and
- some of the cracks had previously been sealed.

The southwest portion of the parking lot had few visible distresses. It is unknown to Terracon what type of rehabilitation or reconstruction this portion of the parking lot received. Photographs of the southwest portion of the parking lot have been included in the **Photography Log** to show the lack of visible distress in this portion of the parking lot.

RECOMMENDATIONS AND CONCLUSIONS

General Geotechnical Considerations

Primary geotechnical considerations identified include the following:

- As described above, the existing pavement section is distressed and deteriorating. In addition, the thickness of the existing granular fill materials was generally insufficient for the support of design traffic loads and construction traffic, especially considering the native clay subgrade material. As a result, we recommend the asphalt paved parking areas be reconstructed.

- Based on the results of our laboratory testing of the native clay soil, we anticipate the subgrade soils will likely be susceptible to rutting or pumping under construction traffic.

Specific conclusions and recommendations regarding the geotechnical aspects of design and construction are presented in the following sections. The recommendations contained in this report are based upon the results of field and laboratory testing, engineering analyses, and our current understanding of the proposed project.

Temporary Excavations and Utility Trenches

The Contractor is responsible for designing and constructing stable, temporary excavations as required to maintain stability of the excavation sides and bottom, and for protecting existing facilities/utilities. Excavations should be sloped or shored in accordance with local, state, and federal regulations, including current OSHA excavation and trench safety standards. Since exposure to weather can significantly weaken the sidewalls of a trench, a competent person should evaluate the excavations for stability prior to each entry by personnel.

Site Grading and Earthwork

As the parking areas will be reconstructed, the existing pavement section and any encountered deleterious materials such as vegetation, root systems, topsoil, debris, and soft, frozen, disturbed, or otherwise unsuitable materials should be completely removed. The subgrade should be excavated in a manner such that the exposed surface consists of undisturbed soils. Exposed surfaces should be free of mounds and depressions that could prevent uniform compaction.

Engineered Fill Requirements

Material requirements for soils used as Aggregate Base and Structural Fill within the proposed reconstructed parking areas are outlined in the table below.

Fill Designation [1]	Materials
Subbase	Subbase should consist of 3-inch or 6-inch minus uncrushed aggregates meeting the requirements of Idaho Standards for Public Works Construction (ISPWC) Section 801.
Aggregate Base	Aggregate Base should meet the requirements for ¾-inch (Type I) crushed aggregate in accordance with ISPWC Section 802.

1. Frozen material should not be used, and fill should not be placed on a frozen subgrade.

Based on our limited number of explorations, the fill material composed of sand with silt and gravel appeared to be of sufficient quality that they could be recycled into the reconstructed pavement section as Subbase, provided they do not become contaminated with other materials during

excavation or construction. However, the thickness of this layer at the test pit locations ranged from about 4 to 7 inches, which may make it difficult to recover this material for reuse.

Compaction Requirements

Fill should be placed in maximum 8-inch-thick, loose lifts. Import fill composed of granular soils should be adjusted to within 2 percent of the optimum moisture content and onsite soils should be adjusted to within 0 to +3 percent of the optimum moisture content. Fill soils should be compacted to the minimum percentages of either maximum dry density or relative density shown in the following table, whichever is appropriate for the material being used. Each lift of fill should be tested at various locations within the structure's footprint and parking/drive areas to verify it meets the density requirements presented in the following table.

Location	Percent of Maximum Dry Density, ASTM D1557	Percent Relative Density, ASTM D4253/D4254
Beneath paved areas and slabs	95	80

Earthwork Construction Considerations

Based on the moisture content of the subgrade soils, we anticipate these soils will likely be susceptible to rutting or pumping under construction traffic. Soils that rut, pump, or are otherwise disturbed are not suitable for support of the proposed pavements.

To reduce the potential for disturbing the native soils, we recommend the contractor stage construction so that equipment and trucks avoid operating directly on areas of exposed subgrade. This could be accomplished by positioning all excavating equipment and trucks above the excavation on the existing asphalt pavement and expanding the limits of the excavation outward to the pavements that will remain in place.

In addition, we recommend performing earthwork during warm, dry weather. Irrigation of adjacent lawn areas should be monitored to prevent contribution of water to the exposed soil. Grading operations should be controlled to prevent water from flowing into construction areas. Excessive wetting or drying of the subgrade soils should be avoided during construction. Excess water should be promptly removed. If the contractor must use equipment on the exposed subgrade, the contractor should use light track-mounted equipment and avoid heavy repeated traffic over a given area.

If unstable subgrade conditions develop during construction, suitable methods of stabilization will depend upon factors such as schedule, weather, size of the area to be stabilized and the nature of the instability. Stabilization should consist of undercutting wet or yielding soils and replacing them with Subbase or Aggregate Base. Typical undercut depths would range from about ½ to 1½ feet. After excavation, a nonwoven Type III Subgrade Separation Geotextile meeting the requirements of ISPWC Section 2050 should be placed on the undisturbed subgrade soils. A

Type II Geogrid meeting the requirements of ITD Standard Specifications for Highway Construction Section 641 placed directly above the geotextile could also be considered, depending on the soil conditions and possible utilities in the area. Equipment should not be operated above the geotextile or geogrid until one full lift (8 inches loose) of Subbase is placed above it.

Earthwork on the project should be observed and evaluated by Terracon. Monitoring of earthwork should include observation and testing of site clearing and subgrade preparation, placement of fill, and other geotechnical conditions exposed during construction of the project.

Pavements

General Pavement Comments

As previously indicated, the existing pavement section is distressed and deteriorating. In the test pits, the encountered asphalt pavement and existing granular material thickness are insufficient to support rehabilitation for future projected traffic and construction traffic. As a result, we recommend the asphalt paved parking area be reconstructed.

The recommended pavement thicknesses are based upon:

- Flexible design ESALs of 12,480 in parking areas, and 31,200 in driveways, which are based on the weekly traffic loading conditions provided for the project by the Church, the design ESALS would occur over a period of 40 years.
- An assumed R-value of 15, based on our experience with similar soils in the vicinity.

Reconstruction Option

The table below shows an asphalt pavement section alternative for each of the previously described traffic loading conditions.

Recommended Pavement Sections		
Layer	Thickness (inches)	
	Parking Areas [1]	Driveways [1]
Asphalt Concrete [2,3]	3	3
Aggregate Base [2]	6	6
Subbase [2]	8	10
Total Thickness	17	19

1. See **Design Criteria** for more specifics regarding traffic loading for parking and driveway areas.
2. All materials should conform to the requirements of the ISPWC.

Recommended Pavement Sections		
Layer	Thickness (inches)	
	Parking Areas [1]	Driveways [1]

3. Asphalt concrete should be ½-inch Superpave SP-2 or SP-3 using PG 64-28 Performance Graded Asphalt binder.

A nonwoven Type III Subgrade Separation Geotextile meeting the requirements of ISPWC Section 2050 should be placed on the undisturbed subgrade soils, prior to placing the Granular Subbase/Base layer of the pavement section. To reduce the potential for disturbing the subgrade or damaging the geotextile, the pavement section aggregates should be placed using dump and spread procedures, and equipment should not be operated above the geotextile until one full lift (8 inches loose) of subbase/base materials are placed above it.

Rigid Pavement

For areas subject to concentrated and repetitive loading conditions, i.e. dumpster pads and ingress/egress aprons, or in areas where vehicles will turn at low speeds, we recommend using a Portland cement concrete pavement with a thickness of at least 7 inches underlain by at least 8 inches of Crushed Aggregate Base (ISPWC Section 802). For dumpster pads, the concrete pavement area should be of sufficient length to extend approximately 3 feet beyond the front axle of the garbage truck. This is intended to support the truck's front tires during lifting operations.

Concrete pavement should be air-entrained and have a minimum compressive strength of 4,000 psi after 28 days of laboratory curing per ASTM C-31. The presented recommendations for pavement construction are based upon compliance with the recommended material specifications. Observation and testing should be performed under the direction of the geotechnical engineer.

Considerations and Maintenance

The placement of a partial pavement thickness for use during construction is not suggested without a detailed pavement analysis incorporating construction traffic.

Future performance of pavements constructed on the soils at this site will be dependent upon several factors, including:

- maintaining stable moisture content of the subgrade soils;
- providing a planned program of preventative maintenance.

The recommended pavement sections have been designed structurally based on the number of flexible ESALs projected to occur over a period of 40 years, based on traffic projections provided by the Church. However, it is important to realize that for asphaltic concrete in particular, the life of the pavement is largely controlled by durability and oxidation or weathering of the material, and carefully planned, regular maintenance of the pavement will be required to achieve a 40-year life

from the pavement. This maintenance should include regular seal coating, and at least one mill and overlay or similar rehabilitation treatment should be expected in the life of the pavement.

The performance of all pavements can be enhanced by reducing moisture that reaches the subgrade soils. The following recommendations should be considered a minimum:

- Provide a minimum 2% grade in the ground surface away from the edge of pavements.
- Provide a minimum 2% cross slope for the subgrade and pavement surface to promote proper surface drainage.
- Install pavement drainage at the perimeter of areas where frequent wetting, such as from irrigation or other sources of water, is anticipated.
- Install joint sealant and seal cracks promptly.
- Seal all landscaped areas adjacent to pavements to reduce moisture migration to subgrade soils.

If, due to requirements to match adjacent grades and ADA requirements a 2% slope in the parking areas is not achievable in all areas, the grade should be designed using as close to a 2% minimum slope as project constraints will allow, and the final slopes should provide positive drainage from all paved surfaces. Care must be taken during construction, so the constructed grades are not less than designed. Prevention of infiltration of water into the subgrade is essential for the successful performance of any pavement.

GENERAL COMMENTS

Our analysis and opinions are based upon our understanding of the project, the geotechnical conditions in the area, and the data obtained from our site exploration. Natural variations will occur between exploration point locations or due to the modifying effects of construction or weather. The nature and extent of such variations may not become evident until during or after construction. Terracon should be retained as the Geotechnical Engineer, where noted in this report, to provide observation and testing services during pertinent construction phases. If variations appear, we can provide further evaluation and supplemental recommendations. If variations are noted in the absence of our observation and testing services on-site, we should be immediately notified so that we can provide evaluation and supplemental recommendations.

Our Scope of Services does not include either specifically or by implication any environmental or biological (e.g., mold, fungi, bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials or conditions. If the owner is concerned about the potential for such contamination or pollution, other studies should be undertaken.

Our services and any correspondence or collaboration through this system are intended for the sole benefit and exclusive use of our client for specific application to the project discussed and are accomplished in accordance with generally accepted geotechnical engineering practices with

no third-party beneficiaries intended. Any third-party access to services or correspondence is solely for information purposes to support the services provided by Terracon to our client. Reliance upon the services and any work product is limited to our client and is not intended for third parties. Any use or reliance of the provided information by third parties is done solely at their own risk. No warranties, either express or implied, are intended or made.

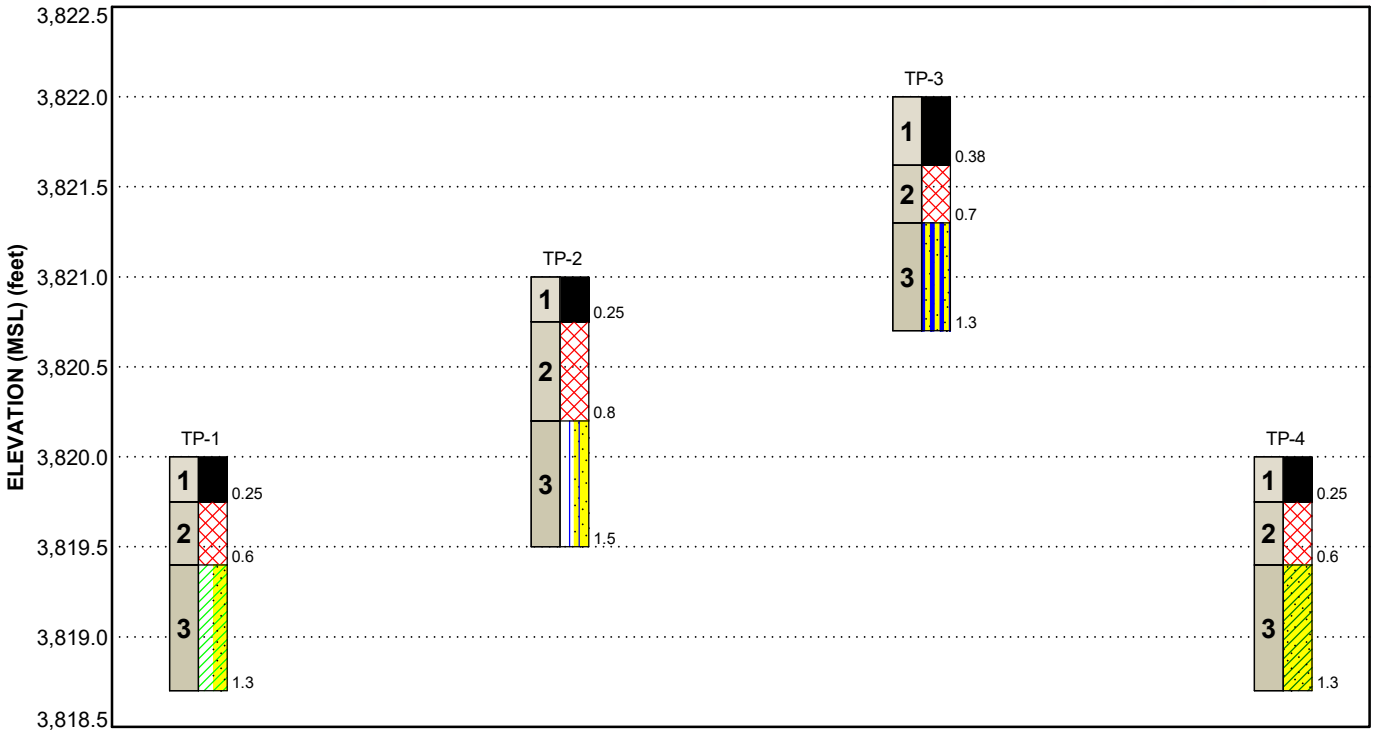
Site characteristics as provided are for design purposes and not to estimate excavation cost. Any use of our report in that regard is done at the sole risk of the excavating cost estimator as there may be variations on the site that are not apparent in the data that could significantly impact excavation cost. Any parties charged with estimating excavation costs should seek their own site characterization for specific purposes to obtain the specific level of detail necessary for costing. Site safety, and cost estimating including, excavation support, and dewatering requirements/design are the responsibility of others. If changes in the nature, design, or location of the project are planned, our conclusions and recommendations shall not be considered valid unless we review the changes and either verify or modify our conclusions in writing.

FIGURES

Contents:

GEOMODEL

Jerome Stake Center Pavement Evaluation ■ Jerome, ID
Terracon Project No. 62225035



This is not a cross section. This is intended to display the Geotechnical Model only. See individual logs for more detailed conditions.

Model Layer	Layer Name	General Description
1	**Asphalt**	Hot mix asphalt.
2	**Fill**	Fill materials encountered consisted of sand with silt and gravel.
3	**Native Silt and Clay**	Native soils encountered consisted of silts and clayswith varying amounts of sand and varying degrees of cementation.

LEGEND

- Asphalt
- Fill
- Lean Clay with Sand
- Silt with Sand
- Sandy Silt
- Sandy Lean Clay

NOTES:
Layering shown on this figure has been developed by the geotechnical engineer for purposes of modeling the subsurface conditions as required for the subsequent geotechnical engineering for this project. Numbers adjacent to soil column indicate depth below ground surface.

ATTACHMENTS

PHOTOGRAPHY LOG

North Lot – Transverse, Longitudinal, Block, and Alligator Cracking, Some with Sealant

North Lot – Block and Alligator Cracking with Pothole

North Lot – Transverse, Longitudinal, and Block Cracking, Some with Sealant

North Lot –Patch with Raveling

North Lot – Block and Alligator Cracking with Raveling

North Lot – Alligator Cracking and Raveling with Pothole

North of Building – Block and Alligator Cracking with Rutting Adjacent to Curb

North of Building – Block and Alligator Cracking with Rutting Adjacent to Curb

North Lot – Alligator Cracking and Raveling

North Lot – Alligator Cracking

North Lot – Block and Alligator Cracking with Utility Patch

Northeast Corner of Building – Dumpster Area

East Lot – Alligator Cracking with Repair Patch

East Lot – Alligator Cracking

East Lot – Block and Alligator Cracking

East of Building – Alligator Cracking and Rutting Adjacent to Curbing

East of Building – Alligator Cracking, Raveling, and Rutting Adjacent to Curbing

East of Building – Alligator Cracking, Raveling, and Rutting Adjacent to Curbing

East of Building – Alligator Cracking, Raveling, and Rutting Adjacent to Curbing

East Lot – Block and Alligator Cracking

East Lot – Utility Patch with Cracking

East Lot – Transverse and Longitudinal Cracking with Raveling

East Lot – Block and Alligator Cracking

East Lot – Transverse, Longitudinal, and Block Cracking

East Lot – Block and Alligator Cracking

East Lot – Transverse, Longitudinal, Block, and Alligator Cracking

East Lot – Raveling

Southeast Corner – Undulating due to Tree Roots

East of Building – Block and Alligator Cracking

South of Building – Alligator Cracking

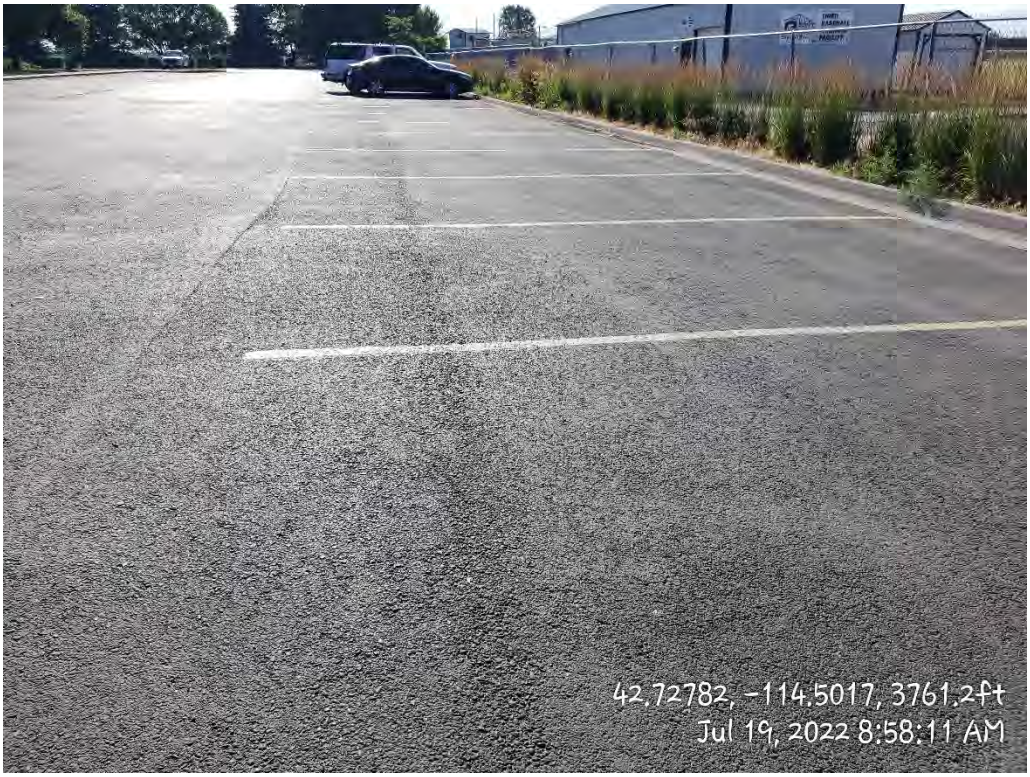
South of Building – Alligator Cracking

South of Building – Block and Alligator Cracking

South of Building – Alligator Cracking

South of Building – Block and Alligator Cracking

South of Building – Transition from Distressed to Less/Non-Distressed Pavement



Southwest of Building – Few Visible Distresses

SITE LOCATION AND EXPLORATION PLANS

Contents:

Site Location Plan
Exploration Plan

Note: All attachments are one page unless noted above.

SITE LOCATION

Jerome Stake Center – Property No. 5202701 ■ Jerome, Idaho
September 14, 2022 ■ Terracon Project No. 62225035

Terracon GeoReport

DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

MAP PROVIDED BY MICROSOFT BING MAPS

EXPLORATION PLAN

Jerome Stake Center – Property No. 5202701 ■ Jerome, Idaho
September 14, 2022 ■ Terracon Project No. 62225035

DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

MAP PROVIDED BY MICROSOFT BING MAPS

EXPLORATION RESULTS

Contents:

Note: All attachments are one page unless noted above.

TEST PIT LOG NO. TP-1

PROJECT: Jerome State Center Pavement Evaluation

CLIENT: The Church of Jesus Christ of Latter-Day Saints
Salt Lake City, UT

SITE: 26 North 100 East
Jerome, Idaho

LOCATION See Exploration Plan

Latitude: 42.7284° Longitude: -114.5018°

Approximate Surface Elev.: 3820 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
1		**ASPHALT**, about 3 inches thick							
		0.3	3819.8+/-						
2		**FILL - POORLY GRADED SAND WITH SILT AND GRAVEL**, dark brown							
		0.6	3819.4+/-						
3		**LEAN CLAY WITH SAND**, light brown		1			21.5	28-19-9	80
		1.3	3818.7+/-						
		Test Pit Terminated at 1.3 Feet							

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:

Abandonment Method:
Test pit backfilled with soil cuttings and patched with cold mix asphalt.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations obtained from Google Earth Pro.

Notes:

WATER LEVEL OBSERVATIONS

No free water observed

Terracon
11849 W Executive Dr Ste G
Boise, ID

Test Pit Started: 08-02-2022
Test Pit Completed: 08-02-2022
Excavator: Mini-Excavator
Operator: Syman, LLC.
Project No.: 62225035

TEST PIT LOG NO. TP-2

PROJECT: Jerome State Center Pavement Evaluation

CLIENT: The Church of Jesus Christ of Latter-Day Saints
Salt Lake City, UT

SITE: 26 North 100 East
Jerome, Idaho

LOCATION See Exploration Plan

Latitude: 42.7287° Longitude: -114.5005°

Approximate Surface Elev.: 3821 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
1		0.3	3820.8+/-	1					
2		0.8	3820.2+/-				3.7		9
3		1.5	3819.5+/-						

ASPHALT, about 3 inches thick

FILL - POORLY GRADED SAND WITH SILT AND GRAVEL, dark brown

SILT WITH SAND (ML), trace gravel, light brown with black, zones of weak to strong cementation, gravel is basalt

Test Pit Terminated at 1.5 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:

Abandonment Method:
Test pit backfilled with soil cuttings and patched with cold mix asphalt.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations obtained from Google Earth Pro.

Notes:

WATER LEVEL OBSERVATIONS

No free water observed

Terracon
11849 W Executive Dr Ste G
Boise, ID

Test Pit Started: 08-02-2022 | Test Pit Completed: 08-02-2022

Excavator: Mini-Excavator | Operator: Syman, LLC.

Project No.: 62225035

TEST PIT LOG NO. TP-3

PROJECT: Jerome State Center Pavement Evaluation

CLIENT: The Church of Jesus Christ of Latter-Day Saints
Salt Lake City, UT

SITE: 26 North 100 East
Jerome, Idaho

LOCATION See Exploration Plan

Latitude: 42.7279° Longitude: -114.5003°

Approximate Surface Elev.: 3822 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
1		**ASPHALT**, about 4 1/2 inches thick							
		0.4	3821.6+/-						
2		**FILL - POORLY GRADED SAND WITH SILT AND GRAVEL**, dark brown							
		0.7	3821.3+/-						
3		**SANDY SILT (ML)**, light brown, zones of weak to strong cementation		1					
		1.3	3820.7+/-						
		Test Pit Terminated at 1.3 Feet							

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:

Abandonment Method:
Test pit backfilled with soil cuttings and patched with cold mix asphalt.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations obtained from Google Earth Pro.

Notes:

WATER LEVEL OBSERVATIONS

No free water observed

Terracon
11849 W Executive Dr Ste G
Boise, ID

Test Pit Started: 08-02-2022
Test Pit Completed: 08-02-2022
Excavator: Mini-Excavator
Operator: Syman, LLC.
Project No.: 62225035

TEST PIT LOG NO. TP-4

PROJECT: Jerome State Center Pavement Evaluation

CLIENT: The Church of Jesus Christ of Latter-Day Saints
Salt Lake City, UT

SITE: 26 North 100 East
Jerome, Idaho

LOCATION See Exploration Plan

Latitude: 42.7278° Longitude: -114.5013°

Approximate Surface Elev.: 3820 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
1		**ASPHALT**, about 3 inches thick							
		0.3	3819.8+/-						
2		**FILL - POORLY GRADED SAND WITH SILT AND GRAVEL**, brown to dark brown					2.4		7
		0.6	3819.4+/-						
3		**SANDY LEAN CLAY (CL)**, trace gravel, light brown with black, gravel is basalt		1			19.2	30-21-9	61
		1.3	3818.7+/-						
		Test Pit Terminated at 1.3 Feet							

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:

Abandonment Method:
Test pit backfilled with soil cuttings and patched with cold mix asphalt.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations obtained from Google Earth Pro.

Notes:

WATER LEVEL OBSERVATIONS

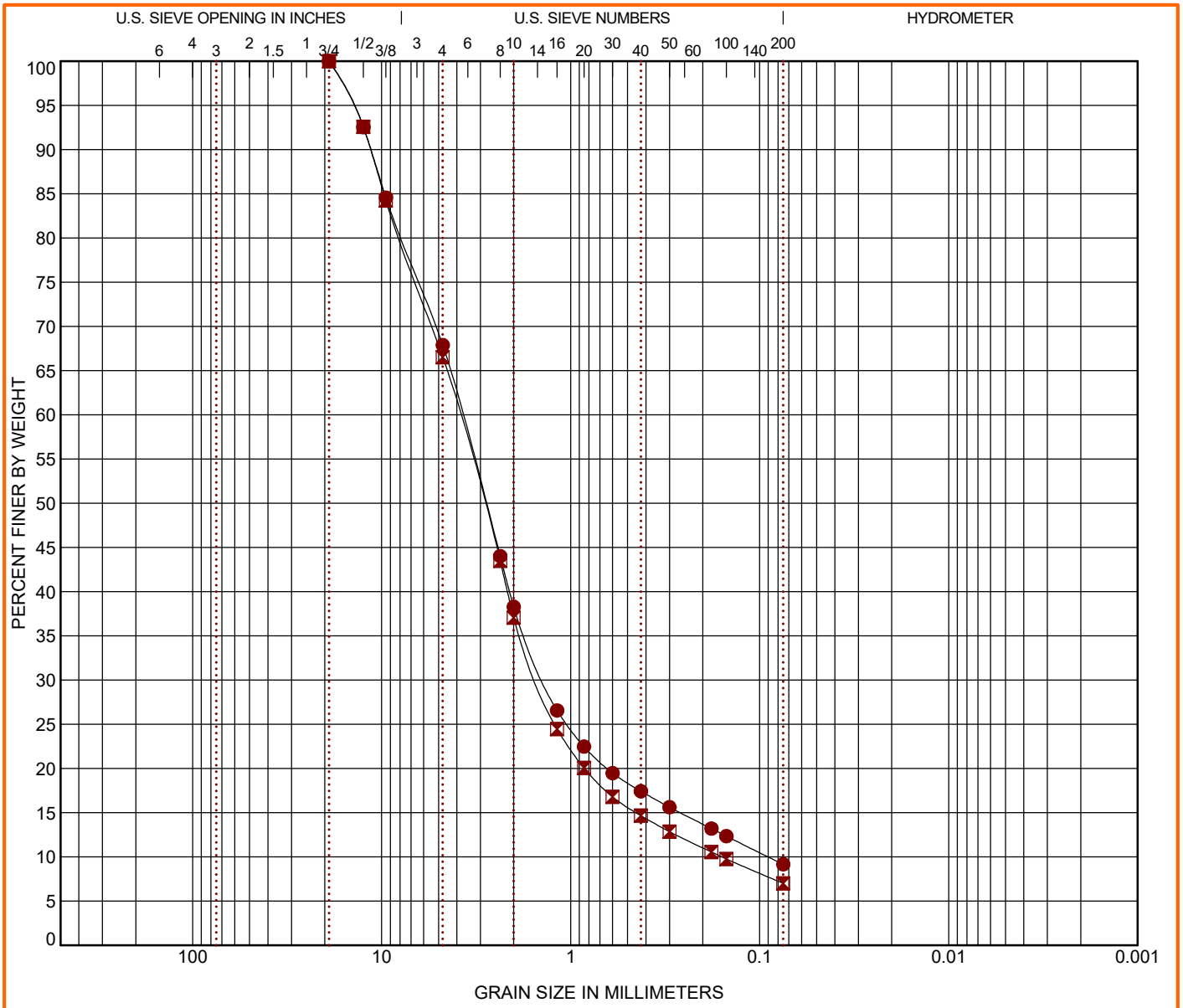
No free water observed

Terracon
11849 W Executive Dr Ste G
Boise, ID

Test Pit Started: 08-02-2022
Test Pit Completed: 08-02-2022
Excavator: Mini-Excavator
Operator: Syman, LLC.
Project No.: 62225035

GRAIN SIZE DISTRIBUTION

ASTM D422 / ASTM C136



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Boring ID		Depth (Ft)	USCS Classification	WC (%)	LL	PL	PI	Cc	Cu
●	TP-2	0.3 - 0.7	FILL: POORLY GRADED SAND with SILT and GRAVEL	3.7				5.59	41.84
⊠	TP-4	0.3 - 0.4	FILL: POORLY GRADED SAND with SILT and GRAVEL	2.4				3.59	24.62

Boring ID		Depth (Ft)	D_{100}	D_{60}	D_{30}	D_{10}	%Cobbles	%Gravel	%Sand	%Silt	%Fines	%Clay
●	TP-2	0.3 - 0.7	19	3.771	1.378	0.09	0.0	32.1	58.7		9.2	
⊠	TP-4	0.3 - 0.4	19	3.897	1.488	0.158	0.0	33.5	59.5		7.0	

PROJECT: Jerome Stake Center Pavement Evaluation

SITE: 26 North 100 East
Jerome, ID

Terracon
11849 W Executive Dr Ste G
Boise, ID

PROJECT NUMBER: 62225035

CLIENT: The Church of Jesus Christ of Latter-Day Saints
Salt Lake City, UT

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GRAIN SIZE: USCS-2 62225035 JEROME STAKE CENT.GPJ TERRACON_DATATEMPLATE.GDT 8/31/22

SUPPORTING INFORMATION

Contents:

Note: All attachments are one page unless noted above.

GENERAL NOTES

DESCRIPTION OF SYMBOLS AND ABBREVIATIONS
Jerome Stake Center Pavement Evaluation ■ Jerome, ID
Terracon Project No. 62225035

SAMPLING	WATER LEVEL	FIELD TESTS
Auger Cuttings	**Water Initially Encountered** **Water Level After a Specified Period of Time** **Water Level After a Specified Period of Time** **Cave In Encountered** Water levels indicated on the soil boring logs are the levels measured in the borehole at the times indicated. Groundwater level variations will occur over time. In low permeability soils, accurate determination of groundwater levels is not possible with short term water level observations.	**N** Standard Penetration Test Resistance (Blows/Ft.) **(HP)** Hand Penetrometer **(T)** Torvane **(DCP)** Dynamic Cone Penetrometer **UC** Unconfined Compressive Strength **(PID)** Photo-Ionization Detector **(OVA)** Organic Vapor Analyzer

DESCRIPTIVE SOIL CLASSIFICATION

Soil classification as noted on the soil boring logs is based Unified Soil Classification System. Where sufficient laboratory data exist to classify the soils consistent with ASTM D2487 "Classification of Soils for Engineering Purposes" this procedure is used. ASTM D2488 "Description and Identification of Soils (Visual-Manual Procedure)" is also used to classify the soils, particularly where insufficient laboratory data exist to classify the soils in accordance with ASTM D2487. In addition to USCS classification, coarse grained soils are classified on the basis of their in-place relative density, and fine-grained soils are classified on the basis of their consistency. See "Strength Terms" table below for details. The ASTM standards noted above are for reference to methodology in general. In some cases, variations to methods are applied as a result of local practice or professional judgment.

LOCATION AND ELEVATION NOTES

Exploration point locations as shown on the Exploration Plan and as noted on the soil boring logs in the form of Latitude and Longitude are approximate. See Exploration and Testing Procedures in the report for the methods used to locate the exploration points for this project. Surface elevation data annotated with +/- indicates that no actual topographical survey was conducted to confirm the surface elevation. Instead, the surface elevation was approximately determined from topographic maps of the area.

STRENGTH TERMS

RELATIVE DENSITY OF COARSE-GRAINED SOILS (More than 50% retained on No. 200 sieve.) Density determined by Standard Penetration Resistance		CONSISTENCY OF FINE-GRAINED SOILS (50% or more passing the No. 200 sieve.) Consistency determined by laboratory shear strength testing, field visual-manual procedures or standard penetration resistance		
Descriptive Term (Density)	**Standard Penetration or N-Value Blows/Ft.**	**Descriptive Term (Consistency)**	**Unconfined Compressive Strength Qu, (psf)**	**Standard Penetration or N-Value Blows/Ft.**
Very Loose	0 - 3	Very Soft	less than 500	0 - 1
Loose	4 - 9	Soft	500 to 1,000	2 - 4
Medium Dense	10 - 29	Medium Stiff	1,000 to 2,000	4 - 8
Dense	30 - 50	Stiff	2,000 to 4,000	8 - 15
Very Dense	> 50	Very Stiff	4,000 to 8,000	15 - 30
		Hard	> 8,000	> 30

RELEVANCE OF SOIL BORING LOG

The soil boring logs contained within this document are intended for application to the project as described in this document. Use of these soil boring logs for any other purpose may not be appropriate.

UNIFIED SOIL CLASSIFICATION SYSTEM

Terracon GeoReport

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests [A]					Soil Classification	
					Group Symbol	Group Name [B]
Coarse-Grained Soils: More than 50% retained on No. 200 sieve	**Gravels:** More than 50% of coarse fraction retained on No. 4 sieve	**Clean Gravels:** Less than 5% fines [C]	Cu ³ 4 and 1 £ Cc £ 3 [E]		GW	Well-graded gravel [F]
			Cu < 4 and/or [Cc<1 or Cc>3.0] [E]		GP	Poorly graded gravel [F]
		Gravels with Fines: More than 12% fines [C]	Fines classify as ML or MH		GM	Silty gravel [F, G, H]
			Fines classify as CL or CH		GC	Clayey gravel [F, G, H]
	Sands: 50% or more of coarse fraction passes No. 4 sieve	**Clean Sands:** Less than 5% fines [D]	Cu ³ 6 and 1 £ Cc £ 3 [E]		SW	Well-graded sand [I]
			Cu < 6 and/or [Cc<1 or Cc>3.0] [E]		SP	Poorly graded sand [I]
		Sands with Fines: More than 12% fines [D]	Fines classify as ML or MH		SM	Silty sand [G, H, I]
			Fines classify as CL or CH		SC	Clayey sand [G, H, I]
Fine-Grained Soils: 50% or more passes the No. 200 sieve	**Silts and Clays:** Liquid limit less than 50	**Inorganic:**	PI > 7 and plots on or above “A”		CL	Lean clay [K, L, M]
			PI < 4 or plots below “A” line [J]		ML	Silt [K, L, M]
		Organic:	Liquid limit - oven dried	< 0.75	OL	Organic clay [K, L, M, N]
			Liquid limit - not dried			Organic silt [K, L, M, O]
	Silts and Clays: Liquid limit 50 or more	**Inorganic:**	PI plots on or above “A” line		CH	Fat clay [K, L, M]
			PI plots below “A” line		MH	Elastic Silt [K, L, M]
		Organic:	Liquid limit - oven dried	< 0.75	OH	Organic clay [K, L, M, P]
			Liquid limit - not dried			Organic silt [K, L, M, Q]
Highly organic soils:	Primarily organic matter, dark in color, and organic odor				PT	Peat

[A] Based on the material passing the 3-inch (75-mm) sieve.

[B] If field sample contained cobbles or boulders, or both, add “with cobbles or boulders, or both” to group name.

[C] Gravels with 5 to 12% fines require dual symbols: GW-GM well-graded gravel with silt, GW-GC well-graded gravel with clay, GP-GM poorly graded gravel with silt, GP-GC poorly graded gravel with clay.

[D] Sands with 5 to 12% fines require dual symbols: SW-SM well-graded sand with silt, SW-SC well-graded sand with clay, SP-SM poorly graded sand with silt, SP-SC poorly graded sand with clay.

[E] $Cu = D_{60}/D_{10}$ $\quad Cc = \dfrac{(D_{30})^2}{D_{10} \times D_{60}}$

[F] If soil contains ³ 15% sand, add “with sand” to group name.

[G] If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.

[H] If fines are organic, add “with organic fines” to group name.

[I] If soil contains ³ 15% gravel, add “with gravel” to group name.

[J] If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay.

[K] If soil contains 15 to 29% plus No. 200, add “with sand” or “with gravel,” whichever is predominant.

[L] If soil contains ³ 30% plus No. 200 predominantly sand, add “sandy” to group name.

[M] If soil contains ³ 30% plus No. 200, predominantly gravel, add “gravelly” to group name.

[N] PI ³ 4 and plots on or above “A” line.

[O] PI < 4 or plots below “A” line.

[P] PI plots on or above “A” line.

[Q] PI plots below “A” line.