

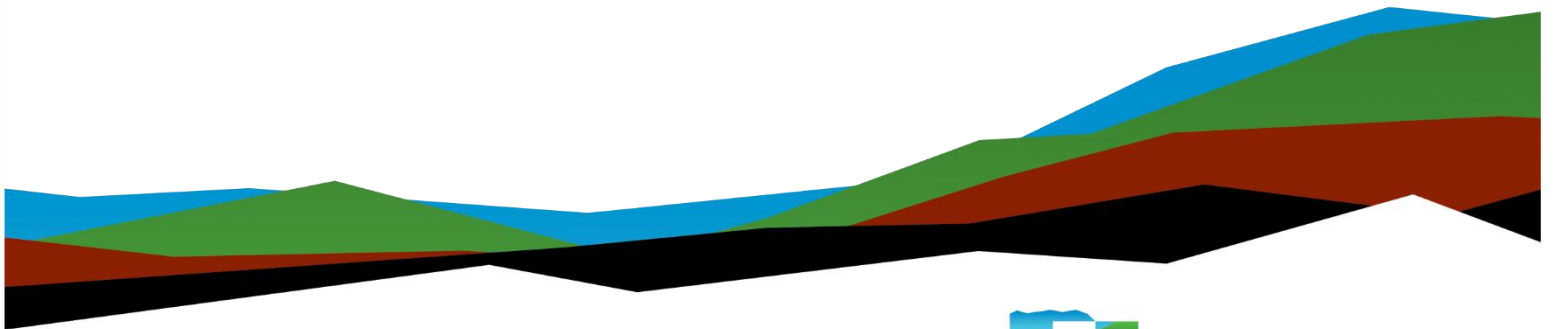
Agrilife Facility

Geotechnical Engineering Report

November 7, 2025 | Terracon Project No. 93255058

Prepared for:

Anderson County
703 North Mallard, Suite 101
Palestine, Texas 75801



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November 7, 2025

Anderson County
703 North Mallard, Suite 101
Palestine, Texas 75801

Attn: Ms. Megan Lambright
P: (903) 723 7403

Re: Geotechnical Engineering Report
Agrilife Facility
603 North Sycamore Street
Palestine, Texas
Terracon Project No. 93255058

Dear Ms. Lambright:

We have completed the scope of Geotechnical Engineering services for the above referenced project in general accordance with Terracon Proposal No. 93255058 dated September 17, 2025. This report presents the findings of the subsurface exploration and provides geotechnical recommendations concerning earthwork and the design and construction of foundations and floor slabs 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
(Texas Firm Registration No. F-3272)

William M. Martin, P.E., APMP
Senior Geotechnical Engineer

Kevin R. Ali, P.E.
Senior Associate

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Note: This report was originally delivered in a web-based format. **Blue 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  Terracon logo will bring you back to this page. For more interactive features, please view your project online at client.terracon.com. Refer to each individual Attachment for a listing of contents.

Report Summary

Topic ¹	Overview Statement ²
Project Description	3,500 square foot single-story building
Geotechnical Characterization	The native soil is generally layers of sandy lean clays and clayey sands over silty sands. Groundwater was not observed in either of the borings during drilling or upon completion of drilling.
Earthwork	At least 4 feet of structural fill required beneath the floor slab
Shallow Foundations	Shallow foundations are recommended for building support Allowable bearing pressure: <ul style="list-style-type: none">■ 2,000 psf for spread footings■ 1,600 psf for continuous footings Expected settlements: < 1-inch total, < ½-inch differential
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.

Introduction

This report presents the results of our subsurface exploration and Geotechnical Engineering services performed for the proposed Agrilife Facility to be located at 603 North Sycamore Street in Palestine, Texas. The purpose of these services was to provide information and geotechnical engineering recommendations relative to:

- Subsurface soil conditions
- Groundwater conditions
- Seismic site classification per IBC
- Site preparation and earthwork
- Foundation design and construction
- Floor slab design and construction

The geotechnical engineering Scope of Services for this project included the advancement of test borings, laboratory testing, engineering analysis, and preparation of this report.

Drawings showing the site and boring locations are shown on the [Site Location](#) and [Exploration Plan](#), respectively. The results of the laboratory testing performed on soil samples obtained from the site during our field exploration are included on the boring logs in the [Exploration Results](#) section.

Project Description

Our initial understanding of the project was provided in our proposal and was discussed during project planning. A period of collaboration has transpired since the project was initiated, and our final understanding of the project conditions is as follows:

Item	Description
Project Description	The project includes the construction of a single-story building covering an area of about 3,500 square feet.
Finished Floor Elevation	Unknown; however, we anticipate the finished floor elevation of the building will be within 2 feet of existing grade.
Maximum Loads	Unknown; however, we anticipate the building will be lightly loaded.
Grading/Slopes	Final slopes are planned with a maximum inclination of 3H:1V (Horizontal:Vertical) or flatter

Terracon should be notified if any of the above information is inconsistent with the planned construction, especially the grading limits, as modifications to our recommendations may be necessary.

Site Conditions

The following description of site conditions is derived from our site visit in association with the field exploration and our review of publicly available geologic and topographic maps.

Item	Description
Parcel Information	The project is located at 603 North Sycamore Street in Palestine, Texas. Approximate GPS: 31.764393°, -95.631946° See Site Location
Existing Improvements	None within the footprint of the planned building
Current Ground Cover	Grass and weeds
Existing Topography	Based on a Google Earth Pro imagine, the topography appears to be relatively level with less than 2 feet of elevation change across the building footprint.

Geotechnical Characterization

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 the site. Conditions observed at each exploration point are indicated on the individual logs. The individual logs can be found in the [Exploration Results](#) and the GeoModel can be found in the [Figures](#) attachment of this report.

As part of our analyses, we identified the following model layers within the subsurface profile. For a more detailed view of the model layer depths at each boring location, refer to the GeoModel.

Model Layer	Layer Name	General Description
1	Clay	Sandy Lean Clay, generally stiff to hard
2	Sand	Silty Sand and Clayey Sand, medium dense to very dense

Groundwater Conditions

The boreholes were observed while drilling and immediately after completion for the presence and level of groundwater. However, groundwater was not observed in either of the borings during drilling or upon completion of drilling.

A relatively long period may be necessary for a groundwater level to develop and stabilize in a borehole. Long-term observations in piezometers or observation wells sealed from the influence of surface water are often required to define groundwater levels in materials of this type.

Groundwater level fluctuations occur due to seasonal variations in the amount of rainfall, runoff and other factors not evident at the time the borings were performed. Therefore, groundwater levels during construction or at other times in the life of the structure may be higher or lower than the levels indicated on the boring logs. The possibility of groundwater level fluctuations should be considered when developing the design and construction plans for the project.

Seismic Site Class

The seismic design requirements for buildings and other structures are based on Seismic Design Category. Site Classification is required to determine the Seismic Design Category for a structure. The Site Classification is based on the upper 100 feet of the site profile defined by a weighted average value of either shear wave velocity, standard penetration resistance, or undrained shear strength in accordance with Section 20.4 of ASCE 7 and the International Building Code (IBC). Based on the soil properties observed at the site and as described on the exploration logs and results, our professional opinion is for that a **Seismic Site Classification of D** be considered for the project. Subsurface explorations at this site were extended to a maximum depth of 20 feet. The site properties below the boring depth to 100 feet were estimated based on our experience and knowledge of geologic conditions of the general area. Additional deeper borings or geophysical testing may be performed to confirm the conditions below the current boring depth.

Geotechnical Overview

Design finished floor elevation for the planned building and the grading plan were not available at the time of this report. That information should be provided to Terracon that our recommendations can be reviewed and revised, if needed.

To provide an estimated PVR of about one inch or less at the finished subgrade surface and to provide uniform bearing for the grade supported slab, a pad of structural fill soil at least 4-feet thick should be constructed below the design finished subgrade elevation for the grade supported slab. We recommend all existing organics, vegetation and any weak soil should be removed prior to placement of structural fill. Additional overexcavation may be required depending on the finished floor elevation of the building. Prior to placing fill, the exposed subgrade soils should be thoroughly proof-rolled and/or evaluated by Terracon using other methods. Proof-rolling could indicate that additional overexcavation or chemical treatment may be required prior to placement of structural fill.

The near surface soils could become unstable with typical earthwork and construction traffic, especially after precipitation events. Effective drainage should be established early in the construction sequence and maintained after construction to avoid potential issues. If possible, the grading should be performed during the warmer and drier times of the year. If grading is performed during the winter months, an increased risk for possible undercutting and replacement of unstable subgrade will persist. Additional site preparation recommendations, including subgrade improvement and fill placement, are provided in the **Earthwork** section.

Expansive soils are present on this site. This report provides recommendations to help mitigate the effects of soil shrinkage and expansion. However, even if these procedures are followed, some movement and (at least minor) cracking in the foundations should be anticipated. The severity of cracking and other damage will probably increase if modification of the site results in excessive wetting or drying of the expansive soils. Eliminating the risk of movement and distress may not be feasible, but it may be possible to further reduce the risk of movement if significantly more expensive measures are used during construction. Some of these options are discussed in this report.

As tentatively planned by the project design team, a shallow foundation system and floor slab-on-grade on a structural fill pad can be used for the proposed building if the risk of shrink/swell and settlement movement is acceptable, and provided the subgrade is prepared as discussed in this report, including stripping, overexcavation and placement of compacted structural fill. Recommendations are provided in the following sections for preparation of the subgrade, and construction of the structural fill building pad, foundations, and floor slab. The **Shallow Foundations** section addresses support of the building bearing on native soil or structural fill. The **Floor Slabs** section addresses slab-on-grade support of the building.

The recommendations contained in this report are based upon the results of field and laboratory testing (presented in the **Exploration Results**), engineering analyses, and our current understanding of the proposed project. The **General Comments** section provides an understanding of the report limitations.

Earthwork

Earthwork is anticipated to include clearing and grubbing, excavations, and engineered fill placement. The following sections provide recommendations for use in the preparation of specifications for the work. Recommendations include critical quality criteria, as necessary, to render the site in the state considered in our geotechnical engineering evaluation for foundations and floor slabs.

Site Preparation

Prior to placing fill, vegetation, topsoil, and root mats along with any underlying weak soil should be removed. Complete stripping of the topsoil should be performed in the proposed building areas.

Subgrade Preparation

To provide an estimated PVR of about one inch or less at the finished subgrade surface and to provide uniform bearing for the grade supported slab, a pad of structural fill soil at least 4-feet thick should be constructed below the design finished subgrade elevation for the grade supported slab. We recommend all existing organics, vegetation and any weak soil should be removed prior to placement of structural fill. Additional overexcavation may be required depending on the finished floor elevation of the building. Prior to placing fill, the exposed subgrade soils should be thoroughly proof-rolled and/or evaluated by Terracon using other methods. Proof-rolling could indicate that additional overexcavation or chemical treatment may be required prior to placement of structural fill.

Structural fill placed beneath the building footprint should extend horizontally a minimum distance of 5 feet beyond the outside edge of the building. Portions of the near-surface materials anticipated to be developed as excavation spoils are not considered suitable for use as structural fill.

Buried debris might be present within the existing soil. If encountered during earthwork or excavation for foundations, such debris would need to be completely removed and replaced with compacted structural fill soil in the structure. The construction contract documents should make provision for the possibility of encountering underground

utilities and buried/surface debris. Additional subgrade preparation recommendations specific to the building foundations and floor slabs are discussed subsequently.

The subgrade should be proofrolled with an adequately loaded vehicle such as a fully-loaded tandem-axle dump truck. The proofrolling should be performed under the observation of the Geotechnical Engineer or representative. Areas excessively deflecting under the proofroll should be delineated and subsequently addressed by the Geotechnical Engineer. Such areas should either be removed or modified by stabilizing with lime or lime fly-ash. Excessively wet or dry material should either be removed or moisture conditioned and recompacted.

Based upon the subsurface conditions determined from the geotechnical exploration, subgrade soils exposed during construction are anticipated to be relatively workable; however, the workability of the subgrade may be affected by precipitation, repetitive construction traffic or other factors. If unworkable conditions develop, workability may be improved by scarifying and drying.

Fill Material Types

Fill required to achieve design grade should be classified as structural fill. Structural fill is material used below, or within 5 feet of structures.

Fill materials should meet the following material property requirements. Regardless of its source, compacted fill should consist of approved materials that are free of organic matter and debris.

Soil Type ¹	USCS Classification and Parameters	Acceptable Placement Location
Structural Fill	Clayey Sand (SC) 4 ≤ PI ≤ 15 Less than 45% passing on No. 200 sieve	Must be used to construct the structural fill pad under the grade-supported slab. Structural fill should also be considered below exterior flatwork to reduce potential movements.

1. Structural fill should consist of approved materials free of organic matter and debris. A sample of each material type should be submitted to the Geotechnical Engineer for evaluation prior to use on this site.

Fill Placement and Compaction Requirements

Structural fill should meet the following compaction requirements.

Item	Structural Fill
Maximum Lift Thickness	8 inches or less in loose thickness when heavy, self-propelled compaction equipment is used 4 to 6 inches in loose thickness when hand-guided equipment (i.e. jumping jack or plate compactor) is used
Minimum Compaction Requirements ^{1,2,3}	95% of maximum 98% of maximum below 5-foot depth where fill thickness is greater than 5 feet
Water Content Range ¹	-3% to +3% of optimum

1. Maximum density and optimum water content as determined by the standard Proctor test (ASTM D 698).
2. High plasticity cohesive fill should not be compacted to more than 100% of standard Proctor maximum dry density.
3. If the granular material is a coarse sand or gravel, or of a uniform size, or has a low fines content, compaction comparison to relative density may be more appropriate. In this case, granular materials should be compacted to at least 70% relative density (ASTM D 4253 and D 4254). Materials not amenable to density testing should be placed and compacted to a stable condition observed by the Geotechnical Engineer or representative.

Utility Trench Backfill

Any soft or unsuitable materials encountered at the bottom of utility trench excavations should be removed and replaced with structural fill or bedding material in accordance with public works specifications for the utility to be supported. This recommendation is particularly applicable to utility work requiring grade control and/or in areas where subsequent grade raising could cause settlement in the subgrade supporting the utility.

Trench backfill should be mechanically placed and compacted as discussed earlier in this report. Compaction of initial lifts should be accomplished with hand-operated tampers or other lightweight compactors. Where trenches are placed beneath slabs or footings, the backfill should satisfy the gradation and expansion index requirements of engineered fill discussed in this report. Flooding or jetting for placement and compaction of backfill is not recommended.

For low permeability subgrades, utility trenches are a common source of water infiltration and migration. Utility trenches penetrating beneath the building should be effectively sealed to restrict water intrusion and flow through the trenches, which could migrate below the building. The trench should provide an effective trench plug that extends at least 5 feet from the face of the building exterior. The plug material should

consist of cementitious flowable fill or low permeability clay. The trench plug material should be placed to surround the utility line. If used, the clay trench plug material should be placed and compacted to comply with the water content and compaction recommendations for structural fill stated previously in this report.

Grading and Drainage

All grades must provide effective drainage away from the building during and after construction and should be maintained throughout the life of the structure. Water retained next to the building can result in soil movements greater than those discussed in this report. Greater movements can result in unacceptable differential floor slab and/or foundation movements, cracked slabs and walls, and roof leaks. The roof should have gutters/drains with downspouts that discharge onto splash blocks at a distance of at least 10 feet from the building.

Exposed ground should be sloped and maintained at a minimum 5% away from the building for at least 10 feet beyond the perimeter of the building. Locally, flatter grades may be necessary to transition ADA access requirements for flatwork. After building construction and landscaping have been completed, final grades should be verified to document effective drainage has been achieved. Grades around the structure should also be periodically inspected and adjusted, as necessary, as part of the structure's maintenance program. Where paving or flatwork abuts the structure, a maintenance program should be established to effectively seal and maintain joints and prevent surface water infiltration.

Earthwork Construction Considerations

Shallow excavations for the proposed structure are anticipated to be accomplished with conventional construction equipment. Upon completion of filling and grading, care should be taken to maintain the subgrade water content prior to construction of floor slabs and pavements. Construction traffic over the completed subgrades should be avoided. The site should also be graded to prevent ponding of surface water on the prepared subgrades or in excavations. Water collecting over or adjacent to construction areas should be removed. If the subgrade freezes, desiccates, saturates, or is disturbed, the affected material should be removed, or the materials should be scarified, moisture conditioned, and recompacted prior to floor slab construction.

Although not observed in our borings, during seasons of significant rainfall, the groundwater table could affect overexcavation efforts, especially for overexcavation and replacement of lower strength soils. A temporary dewatering system consisting of sumps with pumps may be necessary to achieve the recommended depth of overexcavation depending on groundwater conditions at the time of construction.

As a minimum, excavations should be performed in accordance with OSHA 29 CFR, Part 1926, Subpart P, "Excavations" and its appendices, and in accordance with any applicable local and/or state regulations.

Construction site safety is the sole responsibility of the contractor who controls the means, methods, and sequencing of construction operations. Under no circumstances shall the information provided herein be interpreted to mean Terracon is assuming responsibility for construction site safety or the contractor's activities; such responsibility shall neither be implied nor inferred.

Excavations or other activities resulting in ground disturbance have the potential to affect adjoining properties and structures. Our scope of services does not include review of available final grading information or consider potential temporary grading performed by the contractor for potential effects such as ground movement beyond the project limits. A preconstruction/ precondition survey should be conducted to document nearby property/infrastructure prior to any site development activity. Excavation or ground disturbance activities adjacent or near property lines should be monitored or instrumented for potential ground movements that could negatively affect adjoining property and/or structures.

Construction Observation and Testing

The earthwork efforts should be observed by the Geotechnical Engineer (or others under their direction). Observation should include documentation of adequate removal of surficial materials (vegetation and topsoil) as well as proofrolling and mitigation of unsuitable areas delineated by the proofroll.

Each lift of compacted fill should be tested, evaluated, and reworked, as necessary, as recommended by the Geotechnical Engineer prior to placement of additional lifts. Each lift of fill should be tested for density and water content at a frequency of at least one test for every 2,500 square feet (minimum of 3 tests per lift) of compacted fill in the building area. Where not specified by local ordinance, one density and water content test should be performed for every 50 linear feet of compacted utility trench backfill.

In areas of foundation excavations, the bearing subgrade should be evaluated by the Geotechnical Engineer. If unanticipated conditions are observed, the Geotechnical Engineer should prescribe mitigation options.

In addition to the documentation of the essential parameters necessary for construction, the continuation of the Geotechnical Engineer into the construction phase of the project provides the continuity to maintain the Geotechnical Engineer's evaluation of subsurface conditions, including assessing variations and associated design changes.

Shallow Foundations

If the site has been prepared in accordance with the requirements noted in [Earthwork](#), the following design parameters are applicable for shallow foundations.

Design Parameters – Compressive Loads

Item	Individual Column	Continuous Wall
Maximum Net Allowable Bearing Pressure, Dead Load Plus Sustained Live Load ^{1, 2}	2,000 psf	1,600 psf
Maximum Net Allowable Bearing Pressure, Total Load ^{1, 2}	2,400 psf	2,000 psf
Required Bearing Stratum ³	Structural fill or competent native soil Bearing stratum to be verified by Terracon	
Minimum Foundation Dimensions	30 inches	16 inches
Ultimate Passive Resistance (Equivalent fluid pressure) ⁴	150 psf per foot of depth	
Sliding Resistance ⁵	130 psf allowable (structural fill)	
Minimum Embedment below Finished Grade ⁶	18 inches	18 inches
Estimated Total Settlement from Structural Loads ²	Less than about 1 inch	
Estimated Differential Settlement ^{2, 7}	About 1/2 of total settlement	

1. The maximum net allowable bearing pressure is the pressure in excess of the minimum surrounding overburden pressure at the footing base elevation. Values assume that exterior grades are no steeper than 20% within 10 feet of structure.
2. Values provided are for maximum loads noted in [Project Description](#). Additional geotechnical consultation will be necessary if higher loads are anticipated.
3. Unsuitable or soft soils should be overexcavated and replaced per the recommendations presented in [Earthwork](#).
4. Use of passive earth pressures requires the sides of the excavation for the spread footing foundation to be nearly vertical and the concrete placed neat against these vertical faces or that the footing forms be removed and compacted structural fill be placed against the vertical footing face. Assumes no hydrostatic pressure.

Item	Individual Column	Continuous Wall
5.	Can be used to compute sliding resistance where foundations are placed on suitable soil/materials. Frictional resistance for granular materials is dependent on the bearing pressure which may vary due to load combinations. For fine-grained materials, lateral resistance using cohesion should not exceed ½ the dead load.	
6.	Embedment necessary to minimize the effects of frost and/or seasonal water content variations. For sloping ground, maintain depth below the lowest adjacent exterior grade within 5 horizontal feet of the structure.	
7.	Differential settlements are noted for equivalent-loaded foundations and bearing elevation as measured over a span of 50 feet.	

Design Parameters – Overturning and Uplift Loads

Shallow foundations subjected to overturning loads should be proportioned such that the resultant eccentricity is maintained in the center-third of the foundation (e.g., $e < b/6$, where b is the foundation width). This requirement is intended to keep the entire foundation area in compression during the extreme lateral/overturning load event. Foundation oversizing may be required to satisfy this condition.

Uplift resistance of spread footings can be developed from the effective weight of the footing and the overlying soils with consideration to the IBC basic load combinations.

Item	Description
Soil Moist Unit Weight	120 pcf
Soil Effective Unit Weight¹	58 pcf
Soil weight included in uplift resistance	Soil included within the prism extending up from the top perimeter of the footing at an angle of 20 degrees from vertical to ground surface

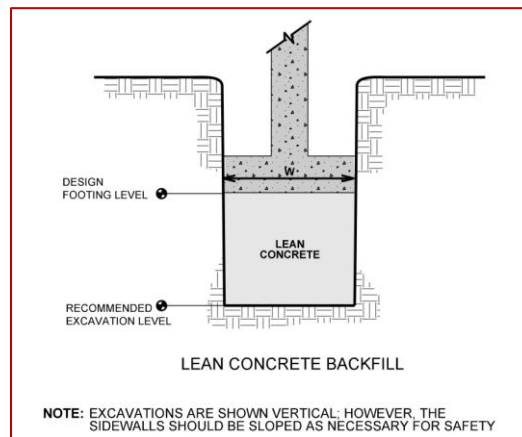
1. Effective (or buoyant) unit weight should be used for soil above the foundation level and below a water level. The high groundwater level should be used in uplift design as applicable.

Foundation Construction Considerations

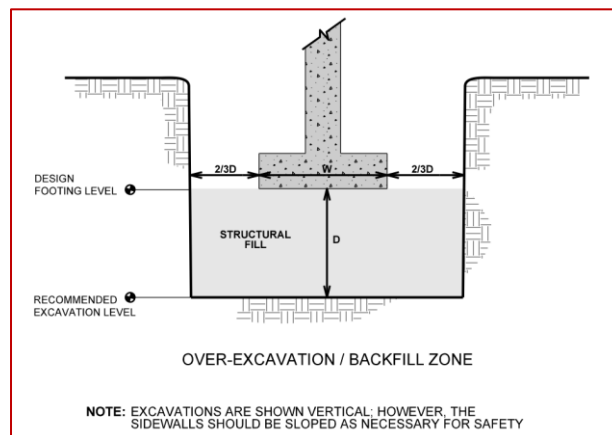
As noted in **Earthwork**, the footing excavations should be evaluated under the observation of the Geotechnical Engineer. The base of all foundation excavations should be free of water and loose soil, prior to placing concrete. Concrete should be placed soon after excavating to reduce bearing soil disturbance. Care should be taken to prevent wetting or drying of the bearing materials during construction. Excessively wet or dry material or any loose/disturbed material in the bottom of the footing excavations should be removed/reconditioned before foundation concrete is placed.

Sensitive soils exposed at the surface of footing excavations may require surficial compaction with hand-held dynamic compaction equipment prior to placing structural fill, steel, and/or concrete. Should surficial compaction not be adequate, construction of a working surface consisting of either crushed stone or a lean concrete mud mat may be required prior to the placement of reinforcing steel and construction of foundations.

If unsuitable bearing soils are observed at the base of the planned footing excavation, the excavation should be extended deeper to suitable soils, and the footings could bear directly on these soils at the lower level or on lean concrete backfill placed in the excavations. The lean concrete replacement zone is illustrated on the sketch below.



Overexcavation for structural fill placement below footings should be conducted as shown below. The overexcavation should be backfilled up to the footing base elevation, with structural fill, as recommended in the [Earthwork](#) section.



Floor Slabs

Based on the information developed from our field and laboratory programs and on method Tex-124-E in the Texas Department of Transportation (TxDOT) Manual of Testing Procedures, we estimate that the subgrade soils have potential vertical rise (PVR) values ranging from about one and one half inches to about two inches at the existing ground surface. Those PVR values were estimated using existing moisture conditions, as well as assuming dry conditions for the upper 6 feet, and average to wet conditions below 6 feet. The actual movements could be greater if poor drainage, ponded water, and/or other sources of moisture are allowed to infiltrate beneath the structure after construction. Removal of existing soil and/or placement of fill would change the PVR values, as would changing the moisture conditions used for analysis.

To provide an estimated PVR of about one inch or less at the finished subgrade surface and to provide uniform bearing for the grade supported slab, a pad of structural fill soil at least 4-feet thick should be constructed below the design finished subgrade elevation for the grade supported slab. We recommend all existing organics, vegetation and any weak soil should be removed prior to placement of structural fill. Additional overexcavation may be required depending on the finished floor elevation of the building. Prior to placing fill, the exposed subgrade soils should be thoroughly proof-rolled and/or evaluated by Terracon using other methods and prepared as outlined in **Earthwork**. Proof-rolling could indicate that additional overexcavation or chemical treatment may be required prior to placement of structural fill.

Once the final site topographic map, grading plan, and design finished floor elevation is available, that information should be provided to Terracon so that our recommendations can be reviewed, and revised if needed.

The structural fill pad should extend a minimum of 5 feet beyond the edge of the proposed structure. The final exterior grade adjacent to the slab should be sloped to promote positive drainage away from the structures. Following overexcavation of the soil to the specified depth, and prior to placement of structural fill, the exposed subgrade soils should be thoroughly proof-rolled and/or evaluated by Terracon using other methods, and prepared as outlined in **Earthwork**.

The subgrade and structural fill soils should be prepared as outlined in **Earthwork**, which contains material and placement requirements for structural fill, as well as other subgrade preparation recommendations. Design parameters for the floor slab assume the requirements for **Earthwork** have been followed. Specific attention should be given to positive drainage away from the structure.

Floor Slab Design Parameters

Item	Description
Floor Slab Support	At least 4 feet of structural fill
Estimated Potential Vertical Rise (PVR)	Approximate 1 inch

The use of a vapor retarder should be considered beneath concrete slabs on grade covered with wood, tile, carpet, or other moisture sensitive or impervious coverings, when the project includes humidity-controlled areas, or when the slab will support equipment sensitive to moisture. When conditions warrant the use of a vapor retarder, the slab designer should refer to ACI 302 and/or ACI 360 for procedures and cautions regarding the use and placement of a vapor retarder.

Saw-cut contraction joints should be placed in the slab to help control the location and extent of cracking. For additional recommendations, refer to the ACI Design Manual. Joints or cracks should be sealed with a waterproof, non-extruding compressible compound specifically recommended for heavy duty concrete pavement and wet environments.

Where floor slabs are tied to perimeter walls or turn-down slabs to meet structural or other construction objectives, our experience indicates differential movement between the walls and slabs will likely be observed in adjacent slab expansion joints or floor slab cracks beyond the length of the structural dowels. The Structural Engineer should account for potential differential settlement through use of sufficient control joints, appropriate reinforcing or other means.

Floor Slab Construction Considerations

Finished subgrade, within and for at least 10 feet beyond the floor slab, should be protected from traffic, rutting, or other disturbance and maintained in a relatively moist condition until floor slabs are constructed. If the subgrade should become damaged or desiccated prior to construction of floor slabs, the affected material should be removed, and structural fill should be added to replace the resulting excavation. Final conditioning of the finished subgrade should be performed immediately prior to placement of the floor slab support course.

The Geotechnical Engineer should observe the condition of the floor slab subgrades immediately prior to placement of the floor slab support course, reinforcing steel, and concrete. Attention should be paid to high traffic areas that were rutted and disturbed earlier, and to areas where backfilled trenches are located.

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. 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 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 effect 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. Construction and site development have the potential to affect adjacent properties. Such impacts can include damages due to vibration, modification of groundwater/surface water flow during construction, foundation movement due to undermining or subsidence from excavation, as well as noise or air quality concerns. Evaluation of these items on nearby properties are commonly associated with contractor means and methods and are not addressed in this report. The owner and contractor should consider a preconstruction/precondition survey of surrounding development. If changes in the nature, design, or location of the project are planned, our conclusions and

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recommendations shall not be considered valid unless we review the changes and either verify or modify our conclusions in writing.

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Agrilife Facility | Palestine, Texas

November 7, 2025 | Terracon Project No. 93255058

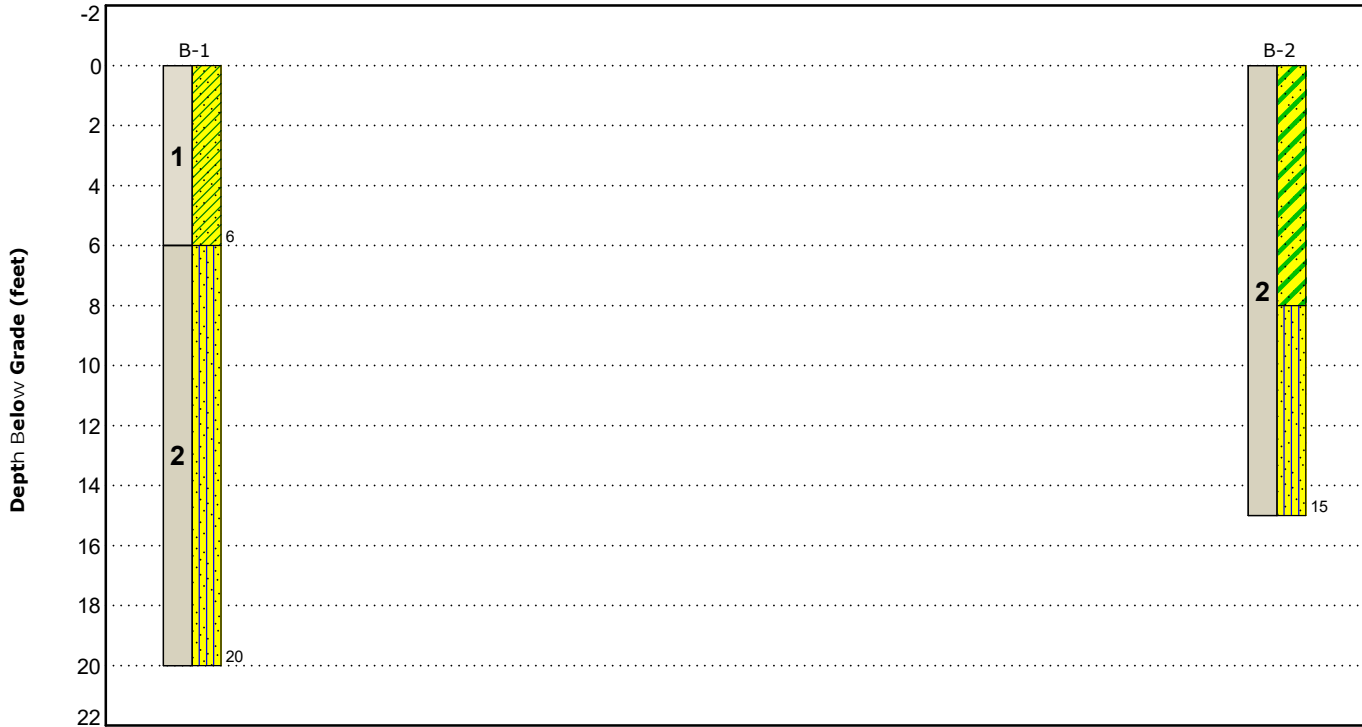


Figures

Contents:

GeoModel

GeoModel



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	Legend	
1	Clay	Sandy Lean Clay, stiff to hard	Sandy Lean Clay	Silty Sand
2	Sand	Silty Sand and Clayey Sand, medium dense to very dense	Clayey Sand	

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.

Geotechnical Engineering Report

Agrilife Facility | Palestine, Texas

November 7, 2025 | Terracon Project No. 93255058



Attachments

Exploration and Testing Procedures

Field Exploration

Number of Borings	Approximate Boring Depth (feet)	Location
1	20	Building Area
1	15	

Boring Layout and Elevations: Terracon personnel provided the boring layout using handheld GPS equipment (estimated horizontal accuracy of about ± 10 feet) and referencing existing site features. Approximate ground surface elevations were estimated using Google Earth. If elevations and a more precise boring layout are desired, we recommend borings be surveyed.

Subsurface Exploration Procedures: We advanced the borings with a track-mounted, rotary drill rig using continuous flight augers (solid stem). Five samples were obtained in the upper 10 feet of each boring and at intervals of 5 feet thereafter. In the split-barrel sampling procedure, a standard 2-inch outer diameter split-barrel sampling spoon was driven into the ground by a 140-pound automatic hammer falling a distance of 30 inches. The number of blows required to advance the sampling spoon the last 12 inches of a normal 18-inch penetration is recorded as the Standard Penetration Test (SPT) resistance value. The SPT resistance values, also referred to as N-values, are indicated on the boring logs at the test depths. For safety purposes, all borings were backfilled with auger cuttings after their completion.

We also observed the boreholes while drilling and at the completion of drilling for the presence of groundwater. The groundwater levels are shown on the attached boring logs.

An automatic SPT hammer was used in advancing the split-barrel sampler in all the borings. A greater efficiency is typically achieved with the automatic hammer compared to the conventional safety hammer operated with a cathead and rope. Published correlations between the SPT N-values and soil properties are based on the lower efficiency cathead and rope method. The higher efficiency of an automatic SPT hammer affects the SPT N-value by increasing the penetration per hammer blow over what would be obtained using the cathead and rope method. The effect of the automatic hammer efficiency has been considered in the interpretation and analysis of the subsurface information for this report.

The sampling depths, penetration distances, and other sampling information was recorded on the field boring logs. The samples were placed in appropriate containers and

taken to our soil laboratory for testing and classification by a Geotechnical Engineer. Our exploration team prepared field boring logs as part of the drilling operations. These field logs included visual classifications of the materials observed during drilling and our interpretation of the subsurface conditions between samples. Final boring logs were prepared from the field logs. The final boring logs represent the Geotechnical Engineer's interpretation of the field logs and include modifications based on observations and tests of the samples in our laboratory.

Laboratory Testing

The project engineer reviewed the field data and assigned laboratory tests. The laboratory testing program included the following types of tests:

- Moisture Content
- Percent Passing No. 200 Sieve
- Atterberg Limits

The laboratory testing program often included examination of soil samples by an engineer. Based on the results of our field and laboratory programs, we described and classified the soil samples in accordance with the Unified Soil Classification System.

Site Location and Exploration Plans

Contents:

Site Location Plan

Exploration Plan

Note: All attachments are one page unless noted above.

Site Location

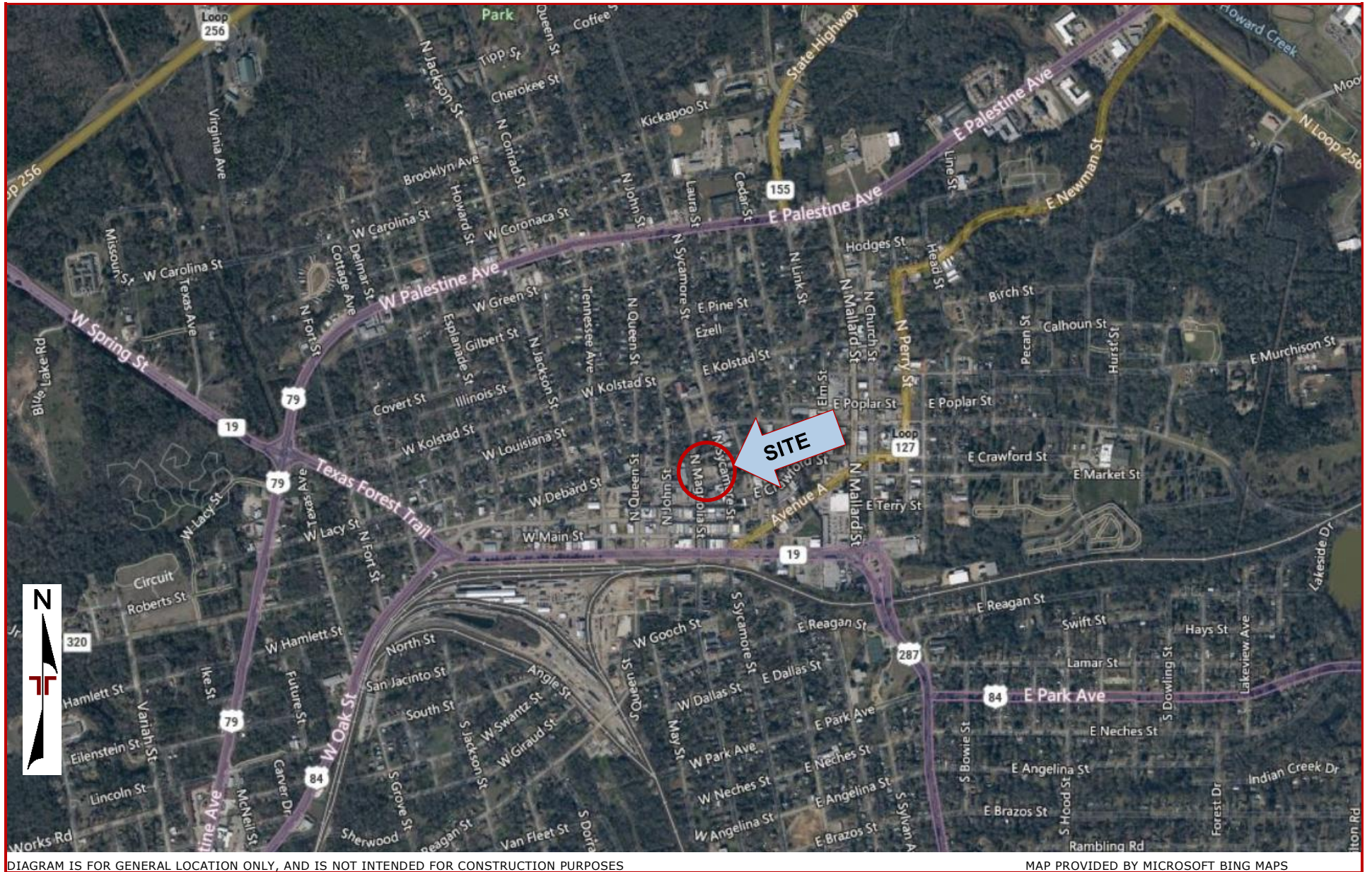


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

MAP PROVIDED BY MICROSOFT BING MAPS

Exploration Plan



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

MAP PROVIDED BY MICROSOFT BING MAPS

Exploration and Laboratory Results

Contents:

Boring Logs (B-1 and B-2)

Note: All attachments are one page unless noted above.

Boring Log No. B-1

Model Layer	Graphic Log	Location: See Exploration Plan Latitude: 31.7644° Longitude: -95.6322° Depth (Ft.)	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Strength Test			Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits				
							Test Type	Compressive Strength (tsf)	Strain (%)			LL-PL-PI	Percent Fines			
1	[Diagonal Hatching]	SANDY LEAN CLAY (CL) , brown, stiff to very stiff	6.0		X	7-14-24 N=38										
						7-13-19 N=32								17.8	69-25-44	56.7
						6-7-8 N=15										
2	[Vertical Dotted]	SILTY SAND (SM) , red and tan, very dense	10.0		X	16-15-21 N=36										
						16-26-27 N=53								15.0	NP	29.4
						28-50-50/3"										
						18-38-50 N=88										
Boring Terminated at 20 Feet			20.0													

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.

Water Level Observations
 Groundwater was not observed during drilling
 Dry and open to 20 ft upon completion

Drill Rig
Track
Hammer Type
Automatic
Driller
J. Zamarippa

Notes

Advancement Method
Dry auger to 20 feet
Abandonment Method
Boring backfilled with Auger Cuttings

Logged by
R. Reyes
Boring Started
10-14-2025
Boring Completed
10-14-2025

Boring Log No. B-2

Model Layer	Graphic Log	Location: See Exploration Plan Latitude: 31.7643° Longitude: -95.6320° Depth (Ft.)	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Strength Test			Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits	
							Test Type	Compressive Strength (tsf)	Strain (%)			LL-PL-PI	Percent Fines
2		CLAYEY SAND (SC) , brown, medium dense to very dense	5		X	11-18-20 N=38			13.3		49-19-30	42.2	
						12-15-19 N=34							
						7-10-17 N=27							
						20-30-31 N=61							
						15-24-30 N=54							
	26-49-50/5"												
		SILTY SAND (SM) , red and tan, very dense	10		X								
		Boring Terminated at 15 Feet	15										

<p>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.</p> <p>Notes</p>	<p>Water Level Observations Groundwater was not observed during drilling Dry and open to 15 ft upon completion</p> <p>Drill Rig Track</p> <p>Hammer Type Automatic</p> <p>Driller J. Zamariippa</p> <p>Advancement Method Dry auger to 15 feet</p> <p>Abandonment Method Boring backfilled with Auger Cuttings</p> <p>Logged by R. Reyes</p> <p>Boring Started 10-14-2025</p> <p>Boring Completed 10-14-2025</p>
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Supporting Information






Contents:

General Notes

Unified Soil Classification System

Note: All attachments are one page unless noted above.

General Notes

Sampling	Water Level	Field Tests
 Standard Penetration Test	 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		
Relative Density	Standard Penetration or N-Value (Blows/Ft.)	Consistency	Unconfined Compressive Strength Qu (tsf)	Standard Penetration or N-Value (Blows/Ft.)
Very Loose	0 - 3	Very Soft	less than 0.25	0 - 1
Loose	4 - 9	Soft	0.25 to 0.50	2 - 4
Medium Dense	10 - 29	Medium Stiff	0.50 to 1.00	5 - 8
Dense	30 - 50	Stiff	1.00 to 2.00	9 - 15
Very Dense	> 50	Very Stiff	2.00 to 4.00	16 - 30
		Hard	> 4.00	> 30

Relevance of Exploration and Laboratory Test Results

Exploration/field results and/or laboratory test data contained within this document are intended for application to the project as described in this document. Use of such exploration/field results and/or laboratory test data should not be used independently of this document.

Unified Soil Classification System

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 ≥ 4 and 1 ≤ Cc ≤ 3 ^E	GW	Well-graded gravel ^F
		Gravels with Fines: More than 12% fines ^C	Cu < 4 and/or [Cc < 1 or Cc > 3.0] ^E	GP	Poorly graded gravel ^F
			Fines classify as ML or MH	GM	Silty gravel ^{F, G, H}
	Sands: 50% or more of coarse fraction passes No. 4 sieve	Clean Sands: Less than 5% fines ^D	Fines classify as CL or CH	GC	Clayey gravel ^{F, G, H}
			Cu ≥ 6 and 1 ≤ Cc ≤ 3 ^E	SW	Well-graded sand ^I
		Sands with Fines: More than 12% fines ^D	Cu < 6 and/or [Cc < 1 or Cc > 3.0] ^E	SP	Poorly graded sand ^I
Fines classify as ML or MH	SM		Silty 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 above "A" line ^J	CL	Lean clay ^{K, L, M}
			PI < 4 or plots below "A" line ^J	ML	Silt ^{K, L, M}
		Organic:	$\frac{LL \text{ oven dried}}{LL \text{ not dried}} < 0.75$	OL	Organic clay ^{K, L, M, N} Organic silt ^{K, L, M, O}
			Inorganic:	PI plots on or above "A" line	CH
	PI plots below "A" line	MH		Elastic silt ^{K, L, M}	
	Silts and Clays: Liquid limit 50 or more	Organic:	$\frac{LL \text{ oven dried}}{LL \text{ not dried}} < 0.75$	OH	Organic clay ^{K, L, M, P} Organic silt ^{K, L, M, Q}
			Highly organic soils: Primarily organic matter, dark in color, and organic odor		PT

^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 $Cu = D_{60}/D_{10}$ $Cc = \frac{(D_{30})^2}{D_{10} \times D_{60}}$

^F If soil contains ≥ 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 ≥ 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 ≥ 30% plus No. 200 predominantly sand, add "sandy" to group name.

^M If soil contains ≥ 30% plus No. 200, predominantly gravel, add "gravelly" to group name.

^N PI ≥ 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.

