October 16, 2024

Mr. Doug Shaw, AIA
Managing Member / Owner
Jericho Design Group, LLC
208 Pirkle Ferry Road, Suite C
Cumming, GA 30040

Re: Subsurface Exploration and Geotechnical Engineering Evaluation
Rockdale County Fire Training Facility – Conyers, Rockdale County
Matrix Engineering Group Project Number MEG-303074

Dear Mr. Shaw:

Matrix Engineering Group, Inc. has completed the authorized Subsurface Exploration for the Rockdale County Fire Training Facility located at 2349 Smyrna Road SW Conyers, Georgia 30094. The scope of this work included the drilling of twenty-five (25) soil test borings and two (2) infiltration tests within the areas planned for construction and providing the findings and recommendations regarding the geotechnical aspects of the proposed project.

This report describes our investigative procedures and presents our findings, conclusions, and engineering recommendations.

Matrix Engineering Group, Inc. appreciates the opportunity to have worked with you on this project and looks forward to our continued association. If you have any questions or need further assistance, please do not hesitate to call.
Sincerely,

Matrix Engineering Group, inc.

Sulemana Alhassan
Project Manager
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SUMMARY OF GEOTECHNICAL FINDINGS & RECOMMENDATIONS

–THIS SUMMARY DOES NOT REPLACE THE REPORT. REFER TO THE APPROPRIATE SECTION IN THE BODY OF THE REPORT FOR DETAILED RECOMMENDATIONS–

ITEM	DESCRIPTION/FINDINGS/RECOMMENDATIONS
PROJECT	Rockdale County Fire Training Facility
DATE OF REPORT	10/16/2024
PLANNED DEVELOPMENT	Proposed Fire Training Facility [Includes Driving Course, Physical Training Area, Fire Academy, a Warehouse, a Burn Building, and an Above Ground Stormwater Management Facility]
FINISHED FLOOR ELEVATIONS	Not provided at the time of writing this report
EXISTING GRADE ELEVATIONS	Not provided at the time of writing this report
NO. OF BORINGS	Twenty-Five (25) SPT Borings – Up to 20 ft Deep.
SUBSURFACE CONDITIONS	⌖ Approximately 6-12 inches of leaf litter and Topsoil ⌖ Man-made Fill – Man-made fill was not encountered at the drilled locations ⌖ Residual Soil consisting of Loose to Very Dense Silty Sand (SM), Loose Clayey Sand (SC), Firm to Very Stiff Clayey Silt (ML), and Firm to Hard Sandy Silt (ML)
PWR & ROCK	⌖ Partially Weathered Rock (PWR) was encountered at 1 and at 18.5 ft at B-18. ⌖ Auger Refusal – was not encountered within the drilled depth.
GROUNDWATER	Groundwater was encountered at B-16 and B-17 at approximately 16 feet BGS.
FOUNDATIONS	Site suitable for Shallow Foundations. ⌖ Recommended Allowable Bearing Capacity: **3,000 psf**. ⌖ Minimum Foundation Dimensions: **18 inches (Continuous): 24 inches (Column)** ⌖ Minimum Embedment Depth of Foundation: **18 inches (exterior); 12 inches (interior)**
ANTICIPATED SETTLEMENTS	⌖ Differential Settlement < ½ Inches between Columns ⌖ Total Settlement <1 Inches
GRADING & STRUCTURAL FILL	⌖ Generally, the encountered soil at the site is suitable for use as structural fill, provided that they are moisture conditioned at the time of use. ⌖ Inherent in the heterogeneity of man-made fill is the possibility of unsuitable soils presence at the time of mass-grading and/or excavation for underground utilities. When encountered, unsuitable soils should be evaluated by a qualified Geotechnical Engineer for assessment and remedial recommendations. ⌖ Recommended Compaction of Fill: **95%** of Maximum Dry Density as Determined by Standard Proctor (ASTM D698). **98%** for top 1 foot.
SLAB-ON-GRADE	⌖ Recommended Modulus of Subgrade Reaction, **K = 110 pci**. ⌖ Recommended Minimum 10 mil vapor barrier/retarder. ⌖ Recommended **4 inches** of clean, **densely graded, granular material** with balanced content of fines under concrete slab.
C.I.P. RETAINING WALLS	⌖ **Φ' = 28°** , **c' = 200 psf**, **γ_w = 120 pcf**, Ultimate Coefficient of **Friction = 0.4** **Recommended Equivalent Fluid Earth Pressures (**EFEP**):** ⌖ **$EFEP_{active}$ = 43.3 pcf, $EFEP_{at\text{-}rest}$ = 63.7 pcf, $EFEP_{passive}$ = 166 pcf**
PAVEMENT DESIGN	⌖ Recommended **CBR** value of **4** – 98% ASTM D698 Relative Compaction for Soil Subgrade ⌖ **100% ASTM D1557C** Relative Compaction of Graded Aggregate Base (**GAB**) ⌖ Refer to Report for Various Design Recommendations for Light, Medium and Heavy-Duty Pavement.
PERCOLATION/ INFILTRATION	Field Testing using the Modified TAFT Engineering Center Method, produced the following Percolation Rates /Infiltration Rates: ⌖ 1.5 inches per hour/ 0.30 $^{inch}/_{hr}$ at location I-1, and ⌖ 0.75 inches per hour / 0.35 $^{inch}/_{hr}$ at location I-2
SPECIAL CONDITIONS	⌖ Potential for unsuitable Materials in unexplored areas. ⌖ Potential for unrippble rock at unexplored areas ⌖ If soft soils and/or unsuitable soils are encountered within the structural areas, they will require excavation and replacement in order to support shallow foundations and slab-on-grades.

TABLE OF CONTENTS

Cover Letter
Summary of Geotechnical Findings & Recommendations
Table of Contents

1.0 INTRODUCTION

Matrix Engineering Group, Inc. (Matrix) has completed the authorized Subsurface Exploration and Geotechnical Engineering Evaluation for the Rockdale County Fire Training Facility located at 2349 Smyrna Road SW Conyers, Georgia 30094. The objective was to explore the subsurface conditions by performing twenty-five (25) soil test borings and two (2) infiltration tests and providing the findings and recommendations regarding the geotechnical aspects of the proposed development. This report describes our investigative procedures and presents our findings, conclusions, and engineering recommendations.

This work was performed in general accordance with Matrix Proposal Number 090324-1, dated September 3, 2024, and the subsequent authorization to proceed by Mr. Doug Shaw, AIA, Managing member/owner, Jericho Design, LLC on September 9, 2024.

2.0 PROJECT DESCRIPTION

- It is our understanding that Rockdale County intends to build a new Fire Training Facility on the site. The development will include a driving course, a physical training area, a fire academy, a burn building, a warehouse, a parking area, and an above ground stormwater management facility.
- The proposed Finished Floor Elevations (FFE) and structural loads were not provided at the time of writing this report.

3.0 SCOPE OF WORK

The scope of work for this project consisted of:

- Drilling and sampling a total of twenty-five (25) soil test borings distributed within the proposed development to explore the subsurface conditions and provide geotechnical recommendations for the proposed development. The planned depth of the borings ranged from 10 feet to 20 feet below the existing ground surface (BGS).
- Limited Level 3 Soil Survey (attached in the Appendix of this report with the Certificate of Insurance from our consultant).
- Conducting two (2) percolation/infiltration tests at depths; +/- of 5 feet BGS.
- Field and laboratory testing to determine the characteristics of the soils encountered in the soil borings.
- Preparation of this geotechnical report based on the data gathered during the exploration.

The purpose of this report is to determine the site's subsurface conditions, to analyze and evaluate the data obtained, and to provide recommendations regarding the geotechnical aspects of the proposed development.

4.0 EXPLORATION AND TESTING PROGRAM

4.1 Subsurface Exploration

The geotechnical exploration program consisted of the drilling and sampling of a total of twenty-five (25) soil test borings spread throughout the proposed development. The approximate locations of the soil borings are shown on Figure 2 presented in the Appendix of this report. For exact locations, the owner may elect to survey the boring locations. Matrix should be informed of any deviations in order to evaluate and modify our recommendations, if necessary.

The test borings were performed utilizing a track rig mounted with a CME 75 drilling apparatus equipped with an automatic hammer in general accordance with ASTM D1586 standards. The planned depth of the borings ranged from 10 feet to 20 feet BGS. Borings were advanced by auguring through the soils with continuous flights of 3 1/4-inch ID augers. At regular intervals, soil samples were obtained through the center of the auger flights with a standard 1.4-inch I.D., 2-inch O.D., split-tube sampler. The sampler is first seated 6 inches to penetrate loosened strata before sampling, and then driven an additional foot with blows of a 140-pound hammer falling 30 inches. The number of hammer blows required to drive the sampler the final foot is recorded and is designated as the Standard Penetration Resistance (N-Value). The penetration resistance, when properly evaluated, is an index of the soil strength, consistency and ability to support foundations.

Representative soil samples were obtained using split-spoon sampling techniques. The samples were classified in the field in general accordance with ASTM D2488 (Visual-Manual Procedure for Description of Soils). Representative portions of the soil samples were placed in sealable, plastic bags and transported to our laboratory. During the field operations, Matrix staff maintained a continuous log of the subsurface conditions including changes in the stratigraphy and any observed groundwater levels. Soil descriptions and penetration resistance values are presented graphically on the Soil Boring Records included in the Appendix of this report.

All borings were backfilled with the soil cuttings by Matrix Engineering staff at the conclusion of the field work. Some consolidation of the backfilled soil column should be expected over time.

4.2 Percolation/Infiltration Testing

Two (2) percolation/Infiltration tests were performed at the elevations specified by the Civil Designer and designated as I-1 and I-2 at an approximate depth of 5 feet each. The field testing was conducted in general accordance with the Modified Taft Engineering Center Method. Refer to Figure 2, included in the Appendix for the approximate test locations. The test result is summarized in Table 3 in Section 6.5.

The percolation rate measurements were made in accordance with the Modified Taft Engineering Method. The percolation test holes were bored with a minimum diameter of four (4) inches. Approximately two (2) inches of gravel was added to protect the bottom of the percolation test holes from sediment. The percolation test holes were filled with water. Water was allowed to stand in the test holes until the soil was saturated. A fixed point at the ground surface was established and repeated measurements made using a Water Level Indicator of the distance in inches from that point to the water surface. Approximately the same time interval was used between measurements. Successive measurements were continued at approximately equal time intervals until a constant rate of percolation was demonstrated by the water surface dropping the same distance per time interval. The infiltration rate was estimated based on the soil's classification, laboratory test results, and the percolation rate of the soils.

4.3 Laboratory Testing

The laboratory testing program for this project consisted of performing soil classifications in accordance with ASTM D2488 (Visual-Manual Method for Identification of Soils) and Natural Moisture Content in general accordance with ASTM D2216. The soil samples were examined in the laboratory by a geotechnical engineer and visually classified based on texture and plasticity in accordance with the Unified Soil Classification System (ASTM D2487). Refer to Table 2 in Section 6.5 of this report for the detailed test results on the various representative samples which were tested.

5.0 SITE DESCRIPTION AND GENERAL SITE GEOLOGY

5.1 Site Description

The site address is 2349 Smyrna Road SW Conyers, Georgia 30094. It is an undeveloped large piece of land in Rockdale County. We noted a gas and an overhead electric utility easement at the southern boundary of the site. A gravel drive from Smyrna Road meanders through the western boundary of the site to the Rockdale County South Tower. The site is heavily wooded, and the ground is covered with leaf litter. We noted large boulders at the northeastern part quadrant of the site.

Based on our site visit, the site slopes down in a southernly direction from the northern quadrant to the southern quadrant.

5.2 General Site Geology

The subject site is located in the Piedmont Geologic Province, which contains the oldest rock formations in the Southeastern United States; refer to Figure 1. The parent rocks in the region are primarily comprised of the unconsolidated mass of quartz, feldspar, mica, and a wide variety of dark minerals such as hornblende and amphibole. The proportion of felsic and mafic minerals in these parent rocks, as well as of quartz that is very resistant to weathering, limits the amount of clay in the soils. Therefore, these soils are sandy and have faint horizons, and in small-scattered areas, hard rock is exposed.

Chemical decomposition initially occurs along the boundaries of individual mineral crystals. As a result, partially weathered rock has the appearance of dense sand (SM, SP). With further weathering, the individual crystals other than quartz are attacked and the mass becomes a micaceous silty sand (SM) or micaceous sandy silt (ML). In this stage, the original banding of the parent rock is apparent, but the original crystalline structure is not observed. Reflecting the composition of the original rock, mica flakes, rather than the quartz grains, often comprise the majority of the sand-size particles. Finally, in the more advanced stages of chemical weathering, the material is changed into a red or reddish-brown silty clay (CL or CH) or clayey silt (ML or MH). Depending on the quartz content, a sandy fraction will be present. In this weathered stage, the banding and crystalline structure of the parent rocks is lost. Refer to Figure 1 in the appendix for the Geological Survey Map for the subject site.

6.0 GENERAL SUBSURFACE CONDITIONS

The subsurface conditions were generally characterized by visual-manual examination of the soils obtained from the split-spoon sampler and observation from the auger cutting during the drilling and auguring operations. The soil boring logs, designated as B-1 to B-25 are provided in the Appendix of this report. The subsurface conditions within the drilled borings are characterized as follows:

6.1 Surface Materials and Man-Made Fill

The ground at the subject site is covered with leaf litter and topsoil. Approximately 6 to 12 inches thick of leaflitter and topsoil were measured at the test boring locations. **The reported thicknesses should not be used to estimate the amount of stripping that will be necessary to prepare the final grades**.

Additionally, the term topsoil should not connote a horticultural (or agricultural) definition or classification, but rather a visually determined organic-laden material.

Man-made fill was not encountered within the drilled depth. However, it is possible to encounter at unexplored areas.

6.2 Residual Material

Residual soils are those which have weathered in place from the parent rock. Residual soils were encountered at all the soil borings below the surficial cover. The residual soils generally consisted of Loose to Very Dense Silty Sand (SM), Loose Clayey Sand (SC), Firm to Very Stiff Clayey Silt (ML), and Firm to Hard Sandy Silt (ML). The residual material exhibited N-values ranging from 3 to 54 bpf.

6.3 Partially Weathered Rock and Bedrock

Partially Weathered Rock (PWR) is a regionally used term for residual material with a Standard Penetration Resistance (N-values) of 100 bpf or more, but which can be penetrated by the soil drilling equipment. PWR was encountered at B-18 at the depth of 1 foot and 18.5 feet BGS.

Rock lenses and/or boulders were not encountered within the drilled depths. Refer to the attached boring logs for details. A Generalized Cross Section profile was taken at the test borings and are shown on Figure 2 and is presented in the Appendix.

6.4 Groundwater

Groundwater was encountered at test borings B-16 and B-17. Stabilized groundwater was measured after 24 hours at approximately 16 feet BGS. Groundwater elevations do fluctuate with seasonal changes and typically vary on the order of 4 to 8 feet.

6.5 Summary of Subsurface Conditions

The geologic profile described generally represents the conditions encountered in the soil borings. Some variations in the description should be expected. The stratification lines designating the interfaces between earth materials shown on the attached boring logs are approximate; in-situ transition may be gradual. Table 1 below summarizes the field findings from the soils test borings:

Table 1: Summary of test boring records.

Boring No.	Drilled Depth (ft)	Depth of Fill (ft)	Depth (ft) of Groundwater	Depth(ft) of PWR	Depth of Auger Refusal (ft)
B-1	20.0	N/E	N/E	N/E	N/E
B-2	20.0	N/E	N/E	N/E	N/E
B-3	20.0	N/E	N/E	N/E	N/E
B-4	20.0	N/E	N/E	N/E	N/E
B-5	20.0	N/E	N/E	N/E	N/E
B-6	20.0	N/E	N/E	N/E	N/E
B-7	20.0	N/E	N/E	N/E	N/E
B-8	20.0	N/E	N/E	N/E	N/E
B-9	20.0	N/E	N/E	N/E	N/E
B-10	20.0	N/E	N/E	N/E	N/E
B-11	20.0	N/E	N/E	N/E	N/E
B-12	20.0	N/E	N/E	N/E	N/E
B-13	20.0	N/E	N/E	N/E	N/E
B-14	20.0	N/E	N/E	N/E	N/E
B-15	20.0	N/E	N/E	N/E	N/E
B-16	20.0	N/E	16.0	N/E	N/E
B-17	20.0	N/E	16.0	1.0 & 18.5	N/E
B-18	20.0	N/E	N/E	1.0 & 18.5	N/E
B-19	10.0	N/E	N/E	N/E	N/E
B-20	10.0	N/E	N/E	N/E	N/E
B-21	10.0	N/E	N/E	N/E	N/E
B-22	10.0	N/E	N/E	N/E	N/E
B-23	10.0	N/E	N/E	N/E	N/E
B-24	10.0	N/E	N/E	N/E	N/E
B-25	10.0	N/E	N/E	N/E	N/E

(1): N/E: Not Encountered

Table 2: Summary of Laboratory Results

Boring No.	Sample Type	Depth (ft)	Natural Moisture Content (%)	Classification (USCS)
B-1	Split Spoon (SP)	3.5-5.0	17.2	ML
B-2	SP	3.5-5.0	26.7	SM
B-3	SP	3.5-5.0	26.1	SM
B-4	SP	3.5-5.0	23.7	SM
B-5	SP	3.5-5.0	17.8	SM
B-6	SP	3.5-5.0	16.8	ML
B-10	SP	3.5-5.0	21.4	SM
B-14	SP	3.5-5.0	24.7	ML
B-19	SP	3.5-5.0	24.9	SM

Table 3: Summary of Percolation/Infiltration Tests Results.

Test Location	Test Depth in (ft)	Percolation Rate (inches/hour)	Infiltration Rate (inches/hour)
I-1	5	1.5	0.30
I-2	5	0.75	0.35

7.0 FINDINGS AND RECOMMENDATIONS

The following recommendations are based on the information furnished to us, the data obtained from the subsurface exploration, and our past experience with similar projects. They were prepared in general accordance with established and accepted professional geotechnical engineering practice in this region. Our recommendations are based on findings from the dates referenced within this report and do not reflect any variations that would likely exist at later dates or between the pre-designated borings or unexplored areas. If information becomes available which may impact our recommendations, Matrix Engineering Group shall be afforded the opportunity to review this information and re-evaluate the recommendations contained within this report and make any alterations deemed necessary by a Georgia Registered professional engineer. This report is intended

for the use of Rockdale County and Jericho Design Group, LLC. No other warranty is expressed or implied. Matrix Engineering Group, Inc. is not responsible for conclusions, opinions, or recommendations made by others based on this report.

The following recommendations present general guidelines for the proposed development:

7.1 General Considerations

The recommendations provided in this Section are based on the information we gathered from the drilling as well as the topography of the site. Finished floor elevations (FFE) of the structures are not provided at the time of writing this report. Based on the site topography, cuts and fills will be required to achieve the desired finished elevations. The amount of cut and fill cannot be determined at this time. The site designer should carefully choose the finished elevations based on the information provided in this report.

Fill soils should be free of organics, construction debris, cobbles, boulders, or other deleterious materials. This may also require the excavation of test pits within the existing soil to qualify these materials, provided these materials are planned for reuse at the subject site.

The laboratory moisture contents at various locations ranged between 16.8% to 26.7%. Based on the laboratory test results, moisture conditioning may be required/anticipated during structural fill placement. Any unsuitable materials encountered at unexplored areas such as burial pits or man-made fill should be brought to the geotechnical engineer's attention to determine appropriate remedial measures. These materials can only be discovered during grading or by performing an extensive test pit exploration program.

Partially Weathered Rock (PWR) was encountered at test boring B-18. No auger refusal was encountered within the drilled depth. However, it is possible to encounter auger refusal at unexplored areas. Therefore, we recommend that the following general specifications for rock excavation, or a variation thereof, be incorporated into the project documents.

(1) General Excavation: Any material occupying an original volume of more than one cubic yard which cannot be excavated with a single-tooth ripper drawn by a crawler tractor having a minimum draw bar pull rated at not less than 80,000 pounds (caterpillar D-9 or larger)

(2) Trench Excavation: Any material occupying an original volume of more than one cubic yard which cannot be excavated with a backhoe having a bucket curling force rated at not less than 40,000 pounds, using a rock bucket and rock teeth (a John Deere 790 or larger).

Rock quantification should be based on a surveyed profile of exposed rock that is verified as unrippable. Relying on rock blasting drill logs should not be permitted unless sufficient testing is performed to verify the depth of unrippable rock is consistent with the calibrated gauges used by the drill rig or the estimated depth logged by the driller. Decomposed rock and partially weathered rock that can be removed by tractor-drawn ripper or power machinery, as previously defined, will be classified as earth excavation, and should be billed as such.

7.2 Groundwater & Dewatering

Based on our subsurface investigation, we do not anticipate that groundwater will impact the construction of this project. If encountered, groundwater levels should be maintained at a minimum of 3 feet below the bottom of any proposed excavation (only during construction) in order to protect the exposed subgrade's integrity. If groundwater is encountered during the installation of any utility lines, the water should be controlled with a sump and pump system, as required at the time of construction.

7.3 Subgrade Preparation

Subgrade preparation for the proposed development should be the removal of trees, stripping of leaf litter, grass and topsoil, and all other deleterious matter, when encountered. Topsoil may be used in landscape areas. Any deleterious materials or buried debris, such as underground utility lines, septic tanks, or trash pits that may be encountered during the grading operation should be treated on an individual basis.

After removal of the surface materials, the suitability of the exposed subgrade should be confirmed by proofrolling, which will discern any localized soft zones in the subgrade. The proofrolling should be performed by a loaded tandem-wheeled dump truck with an approximate weight of 25 tons. Any material that deflects excessively or ruts under the loaded truck should be densified or removed and replaced with well-compacted material. Due to the presence of man-made fill as well as shallow groundwater, stabilization should be anticipated at areas where structural fill is required to achieve the proposed finished subgrade elevations.

Similarly, the suitability of all other areas of the exposed subgrade needs to be confirmed by proofrolling at the time of construction, after any unsuitable or softened materials are removed. The

proofrolling should be observed by the geotechnical engineer. Structural fill procedures are provided in Section 8.1 of this report.

7.4 Slab-On-Grade Construction

The concrete slab-on-grade for the proposed structure(s) should be supported on compacted, and properly prepared, soil subgrade. Provided the fill material and/or existing subgrade is installed to a minimum of 98% of the Standard Proctor's maximum dry density, a modulus of subgrade reaction (k) of 110 pci can be used for designing the floor slab-on-grade. Slab reinforcement and joint spacing should be carefully considered to control random cracking due to slab shrinkage. We recommend that a 10-mil vapor barrier/retarder (such as polyethylene) be installed below the (slab-on-grade) concrete. Beneath slab-on-grade areas, a minimum of 4 inches of clean, densely graded, granular material with a balanced content of fines is recommended to facilitate fine grading and provide stable surface for construction traffic and building loads. Open-graded bases (such as #57 stone) do not meet these requirements because they are relatively incompatible, difficult to trim, and are unstable for construction traffic. It is also difficult to fine grade an open-graded base to a relatively uniform elevation, which can result in restraint to concrete movement as the concrete cools or dries, thus increasing the probability of out-of-joint cracking. If open-graded bases are specified, the surface of these bases should be choked off with a clean fine-graded material with at least 10 to 30% of the particles passing a No. 100 sieve, but not contaminated with clay, silt, or organic material.

7.5 Foundations

The drilled subsurface conditions consisted of residual. No man-made fill was encountered at the drilled locations. However, it is possible to encounter in an unexplored location. Therefore, care should be exercised to ensure that adequate foundations testing is performed during construction and that all soils are properly evaluated by a registered Geotechnical Engineer to determine compliance with our recommendations and make recommendations for remedial measures as warranted by the field conditions.

Our findings reveal that the site may support shallow foundations. The foundations should be situated in well compacted and properly tested soils and be designed for a maximum net allowable soil bearing pressure not to exceed **3,000 pounds per square foot (psf)**.

The net allowable soil bearing pressure refers to that pressure which may be transmitted to the foundation soils in excess of the final minimum surrounding overburden pressure.

A recommended shallow foundation inspection criterion is provided in Section 8.2 of this report. We recommend that **all continuous and column footings have a minimum width of 18 inches and 24 inches, respectively**. In order to prevent shear failure and to minimize the effects of frost, we further recommend a minimum embedment depth of 18 inches and 12 inches below subgrade elevations for exterior and interior foundations, respectively.

Total settlement of footing foundations is estimated to be on the order of 1 inch or less. Based on the subsurface conditions and our experience with similar soils, we do not anticipate differential settlements to exceed $^1/_2$ inch between column supports (assuming 50 foot spacing or less).

7.6 Pavement Design

We recommend that a **CBR value of 4** be used for pavement design of light and heavy-duty pavements. The thickness of the base course material under the pavement is dependent upon the pavement type, magnitude and frequency of loading, and expected pavement life. Based on our experience with projects of similar magnitude and soil conditions, we recommend the following design sections be considered in the design of pavements. These recommendations present a wide range of loading conditions. The architect/engineer should select the pavement section most appropriate to the development. Pavements should be constructed in accordance with all applicable specifications of the Asphalt Institute and the Georgia Department of Transportation:

Heavy Duty Asphalt Pavement:
98% compacted soil subgrade (Standard Proctor – ASTM D698)
8 inches Graded Aggregate Base (GAB), compacted to 100% of maximum dry density (Modified Proctor – ASTM D1557C)
2 inches 19mm SP Asphalt Base
1.5 inches 9.5mm SP II Asphalt Topping
Asphalt layers should be separated by a tack coat.

Light & Medium Duty Asphalt Pavement:
98% compacted soil subgrade (Standard Proctor – ASTM D698)
6 inches GAB, compacted to 100% of maximum dry density (Modified Proctor – ASTM D1557C)
2 inches 19mm SP Asphalt Base
1.5 inches 9.5mm SP II Asphalt Topping
Asphalt layers should be separated by a tack coat.

Heavy Duty Concrete Pavement:

98% compacted soil subgrade (Standard Proctor – ASTM D698)

8 inches GAB, compacted to 100% of maximum dry density (Modified Proctor – ASTM D1557C)

6 inches (4000 psi compressive strength) concrete with Welded Wire Fabric (6x6 – W2.9 x W2.9).

Subgrade preparation should be performed in accordance with our recommendations provided in Section 8.1 and 8.2 of Matrix geotechnical report.

Pavements sub-base (Graded Aggregate Base) should conform to Section 815 of the State of Georgia Department of Transportation Specifications for Road and Bridge Construction. The sub-base should be compacted to 100% of the maximum dry density for crushed stone as determined by the modified moisture-density relationship test (ASTM D1557). Additionally, proofrolling of the sub-base should be performed prior to paving in order to detect any soft spots or excessive rutting which may require stabilization.

Exterior pavements should be provided with facilities for surface and subsurface drainage. Standing water on the pavement surface eventually may seep into the base course layer and softens the pavement subgrade which leads to premature deterioration of the pavement. In areas where landscape areas slope toward the pavement, a perimeter drain along the back of the curb intercepting migration of surface water should be provided to minimize seepage under the pavement.

7.7 Slope Stability

Slope stability analysis was beyond the scope of our study. Slopes which are limited to 2:1 (horizontal: vertical), or flatter, will have adequate long term slope stability, based on our experience with the type of soils encountered onsite. The slopes' crest should be protected against water ponding. Any proposed cut/fill slopes should incorporate only suitable fill, **clean organics or any other vegetative content**. Topsoil should only be used to provide cover over the completed slope's free face so as to promote vegetative growth which in turn protects the slope's surface against scour and erosion. Slopes should be overbuilt and cut back to the proposed grades, exposing the firm compacted inner core.

When placing fill in horizontal lifts adjacent to areas sloping steeper than 5:1 (horizontal: vertical), horizontal keys and vertical benches should be excavated into the adjacent slope area. Materials generated by the benching operation should be moved sufficiently away from the bench area to allow the geotechnical engineer (testing agency) to properly inspect the area and ascertain that the benching is performed properly. We recommend that the fill is compacted to a minimum of 98% of the Standard Proctor Maximum Dry Density (ASTM Specifications D 698) in lifts not exceeding 8 inches in loose measure. Placement and

compaction of fill should be continuously monitored and tested by qualified technicians working under the direction of a registered Geotechnical Engineer.

7.8 Retaining Walls and Lateral Earth Pressures

The design of any retaining wall is based on the determination of the lateral earth pressures that will act on the wall. These pressures are a function of the retained soils properties, and the structural design of the wall. Three common conditions are considered to exist behind a retaining wall depending on the wall's structural design; namely Active, At-Rest, and Passive earth pressure conditions. Active earth pressures are mobilized when a relatively flexible retaining structure such as a free standing wall is designed allowing for slight movement or deflection. At-rest conditions apply to restrained retaining wall design such as basement or tunnel walls. The passive state represents the maximum possible pressure when a structure is pushed against the soil, and is used in wall design to help resist at-rest or active pressures. Since significant movement has to occur before the passive earth pressure is mobilized, the total calculated passive pressure should be reduced by one-half to two-thirds for design purposes.

Based on our experience, wall movement (known as tilt) is necessary for earth pressures to mobilize range from 0.01H to 0.02H for the Active state, and 0.02H to 0.04H for the Passive state. It is assumed that the ground surfaces behind retaining walls will be relatively level and that soils like those encountered in our borings will be used for wall backfill. Based on our experience with similar soils, we recommend that an effective angle of internal friction **(Φ') = 28° and a cohesion c' = 200 psf** be used as design strength parameters for the silty fine sand (SM) and sandy silts (ML) encountered at the site. These strength parameters result in the following earth pressures coefficients and equivalent fluid pressure per foot of depth for compacted fill (based on a total **wet unit weight (γ_w) of 120 pcf). A coefficient of friction of 0.40** could be used between the wall foundations and the underlying soil, which includes a factor of safety of 1.5.

Table 4: Recommended Equivalent Earth Pressures

Earth Pressure Condition	*Coefficient*	*Recommended Equivalent Earth Pressure (pcf)*[1]
Active	(K_a) 0.36	43.3
At-Rest	(K_o) 0.53	63.7
Passive	(K_p) 2.77	166

[1] *Assumes a functional drainage system.*

8.0 CONSTRUCTION RECOMMENDATIONS

8.1 Structural Fill

Staged, methodical and well-planned grading is key to avoiding unnecessary costs and time delays. Areas should not be stripped or disturbed if the grading contractor is unable to properly seal the subgrade prior to departure each day. Exposure of soils to moisture from direct rainfall or runoff usually renders these soils un-usable for several days. This usually gets mischaracterized as an unsuitable soils condition which is inaccurate. Unsuitable soils are defined as those containing deleterious matter (such as organics, alluvium, debris and/or trash). Moisture related problems should be avoided by employing best management practices that involve maintaining positive drainage, installation of berms, diversion channels, and/or sealing the subgrade to avoid water infiltration. Other measures involve covering all stockpiled soils with heavy tarps or plastic to avoid saturating the soils in the event of rainfall. Means and methods of construction are certainly the contractor's jurisdiction; however, exposing otherwise suitable soils to excessive moisture or softening of existing subgrades as a result of unscrupulous construction traffic should be avoided and planned for. We recommend that the following criteria be used for structural fill:

1. Adequate laboratory proctor density tests should be performed on representative samples of the proposed fill materials to provide data necessary for the quality control. The moisture content at the time of compaction should be within 3 percentage points of the optimum moisture content. In addition, we recommend that the fill soils be free of organics and rock boulder/cobbles larger than 2 inches in nominal size and relatively non-plastic with plasticity indices less than 20.

2. Suitable fill material should be placed in thin lifts (lift thickness depends on type of equipment used, but generally lifts of 8 inches loose measurements are recommended). The soils should be compacted by mechanical means such as sheepsfoot rollers.
3. Slopes that are limited to 2:1 (horizontal: vertical), or flatter, will have adequate long term slope stability, if limited in height to 15 feet, based on our experience with the type of soils encountered onsite. The slope's crest should be protected against water ponding. Proposed slopes should incorporate only suitable fill, clean of organics or any other vegetative content. Topsoil should only be used to provide cover over the completed slope's free face so as to promote vegetative growth which in turn protects the slope's surface against scour and erosion. Slopes should be overbuilt and cut back to the proposed grades, exposing the firm compacted inner core. The amount of overbuilding would vary depending on the site conditions at the time of construction, types of soils used, and degree of compaction achieved.

4. When placing fill in horizontal lifts adjacent to areas sloping steeper than 5:1 (horizontal: vertical), horizontal keys and vertical benches should be excavated into the adjacent slope area. Materials generated by the benching operation should be moved sufficiently away from the bench area to allow the geotechnical engineer (testing agency) to properly inspect the area and ascertain that the benching is performed properly.

5. We recommend that the fill be compacted to a minimum of 95% of the Standard Proctor Maximum Dry Density (ASTM Specifications D 698). The top 1 foot under pavements or structural areas should be compacted to a minimum of 98% of the Standard Proctor Test.

6. An experienced soil engineering inspector should take adequate density tests throughout the fill placement operation to ensure that the specified compaction is being achieved.

8.2 Construction Inspection and Testing

During construction, it is advisable that Matrix Engineering Group inspect the site preparation and foundation construction work in order to ensure that our recommended procedures are followed. The placement of any compacted fill should be inspected and tested. The utilization of acceptable on-site borrow materials, as well as adequate off-site selected fill must be verified.

Each footing excavation should be inspected by Matrix Engineering Group, Inc. in order to verify the availability of the required bearing pressure and to determine any special procedures required. At a minimum, Hand Auger and Dynamic Cone Penetrometer testing in accordance with ASTM STP 399 should be performed at each shallow column footing, and every 50 linear feet for wall footings, or as directed by the geotechnical engineer.

It is anticipated that the construction phase will be governed by an IBC 2018 Special Inspections Schedule. Such a schedule should include at a minimum the following earthwork and footing related items:

- Verify materials below footings are adequate to achieve the designed bearing capacity.
- Verify excavations are extended to proper depths and have reached proper material.
- Perform classification and testing of controlled fill materials.
- Verify use of proper materials, densities and lift thicknesses during placement and compaction of controlled fill.
- Prior to placement of controlled fill, observe subgrade and verify that the site has been properly prepared.

APPENDIX

FIGURE 1: Streets and Geologic Map

FIGURE 2: Approximate Soil Borings, Infiltrations, and Cross-Section Line Locations Plan

Generalized Soil Profile

Correlation of Standard Penetration Resistance with Relative Compactness and Consistency

Soil Boring Logs

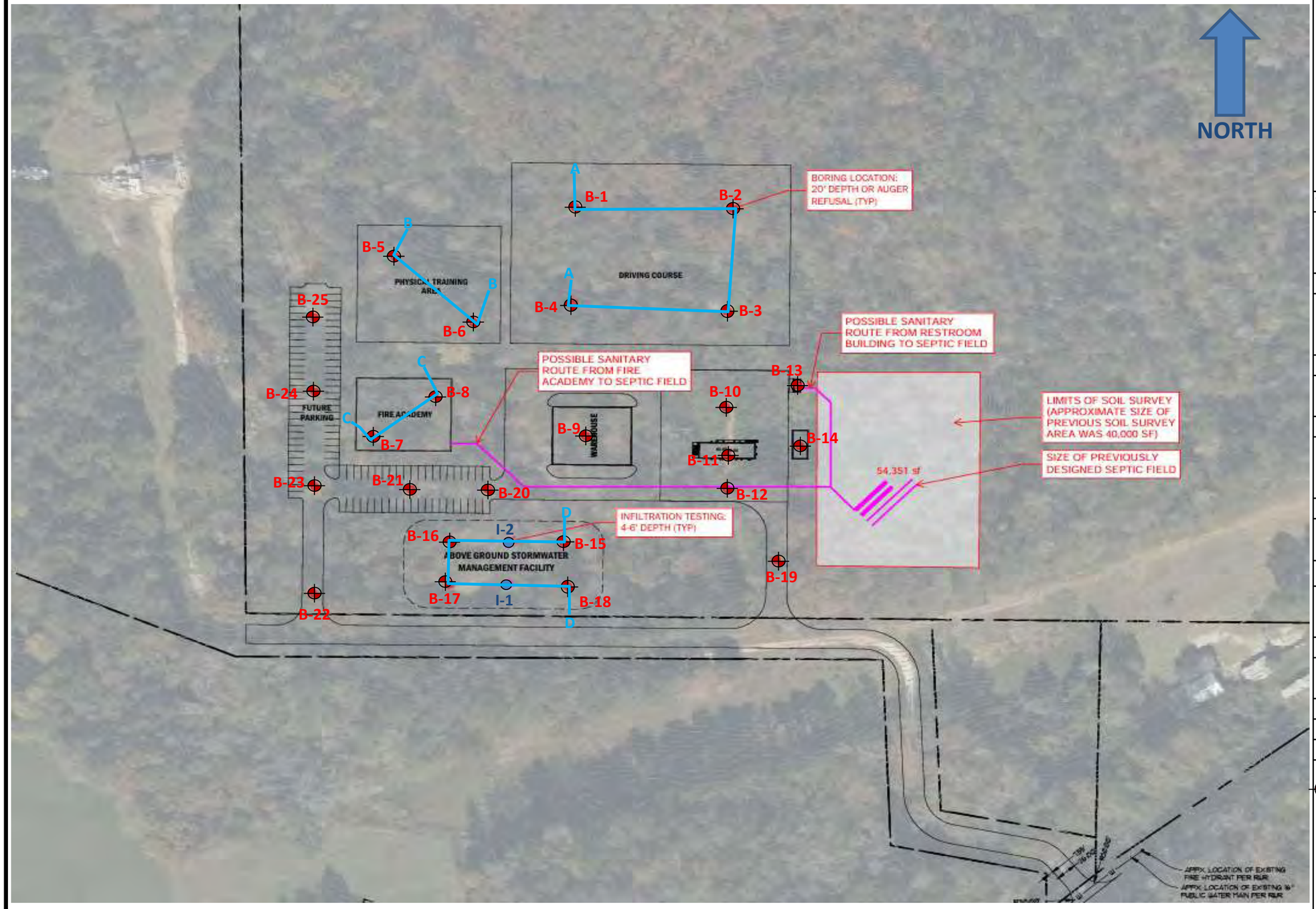
Limited Level 3 Soil Survey

Certificate of Insurance

Site Photos.

matrix engineering group

TITLE	Streets and Geologic Map
PROJECT	2349 Smrna Road SW Conyers, GA 30094
PROJECT NO.	MEG 303074
CLIENT	Rockdale County
SCALE	Not to Scale
REVIEWED	Sam Alyateem, PE
DATE	10/9/2024
FIGURE	1
LEGEND	



matrix engineering group

TITLE	Approximate Borings and Percolation Tests Locations Plan
PROJECT	2349 Smrna Road SW Conyers, GA 30094
PROJECT NO.	303074
CLIENT	Rockdale County
SCALE	Not to Scale
REVIEWED	Sulemana Alhassan
DATE	10/8/2024
FIGURE	2

LEGEND

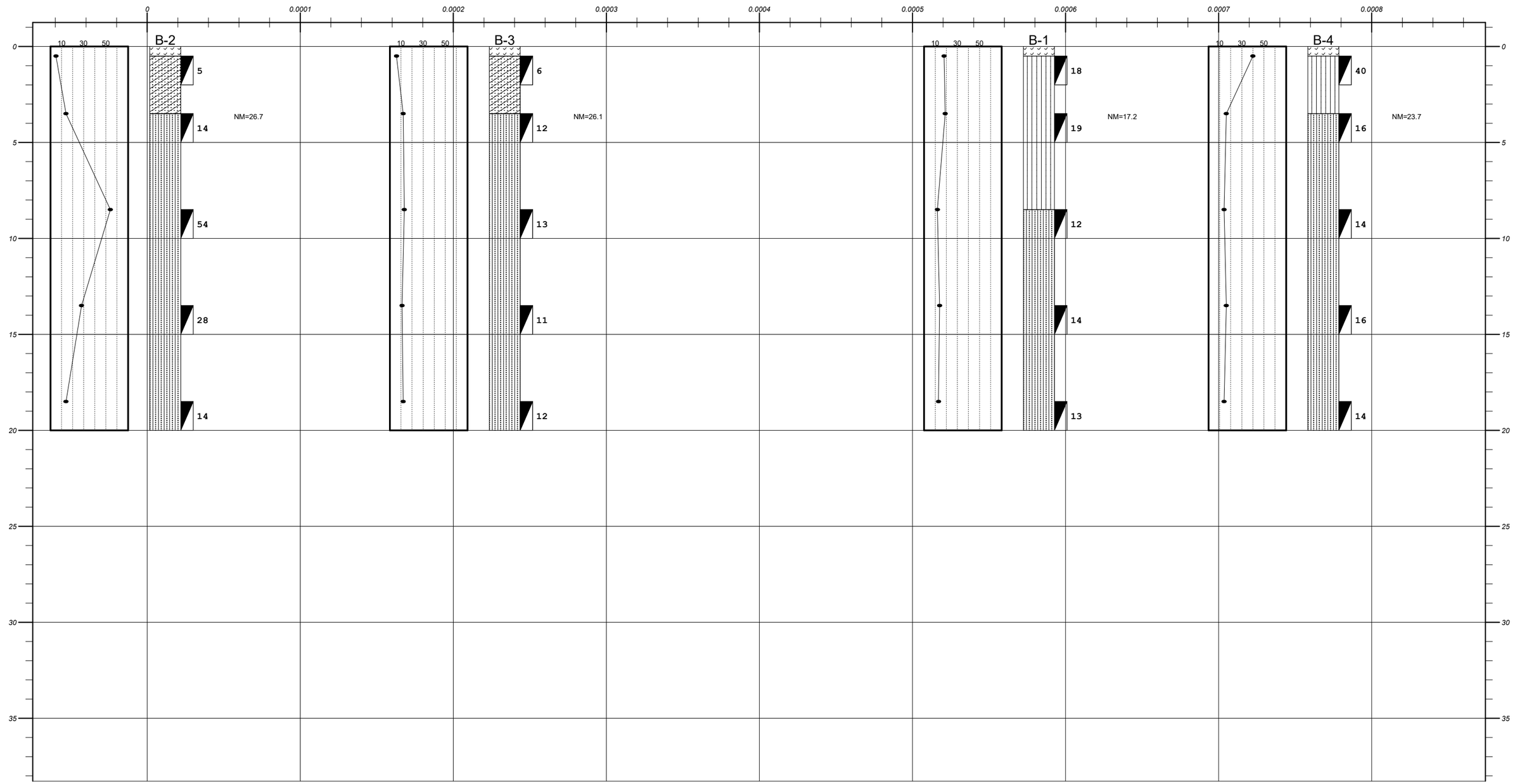
B-1 Boring Location

I-1 Infiltration Test Location

A — A Cross-Section Line

LOG OF BORINGS A-A

Rockdale County Fire Training Facility



Top Soil

Clayey sand/
Low plasticity clay

Silty sand

Silt

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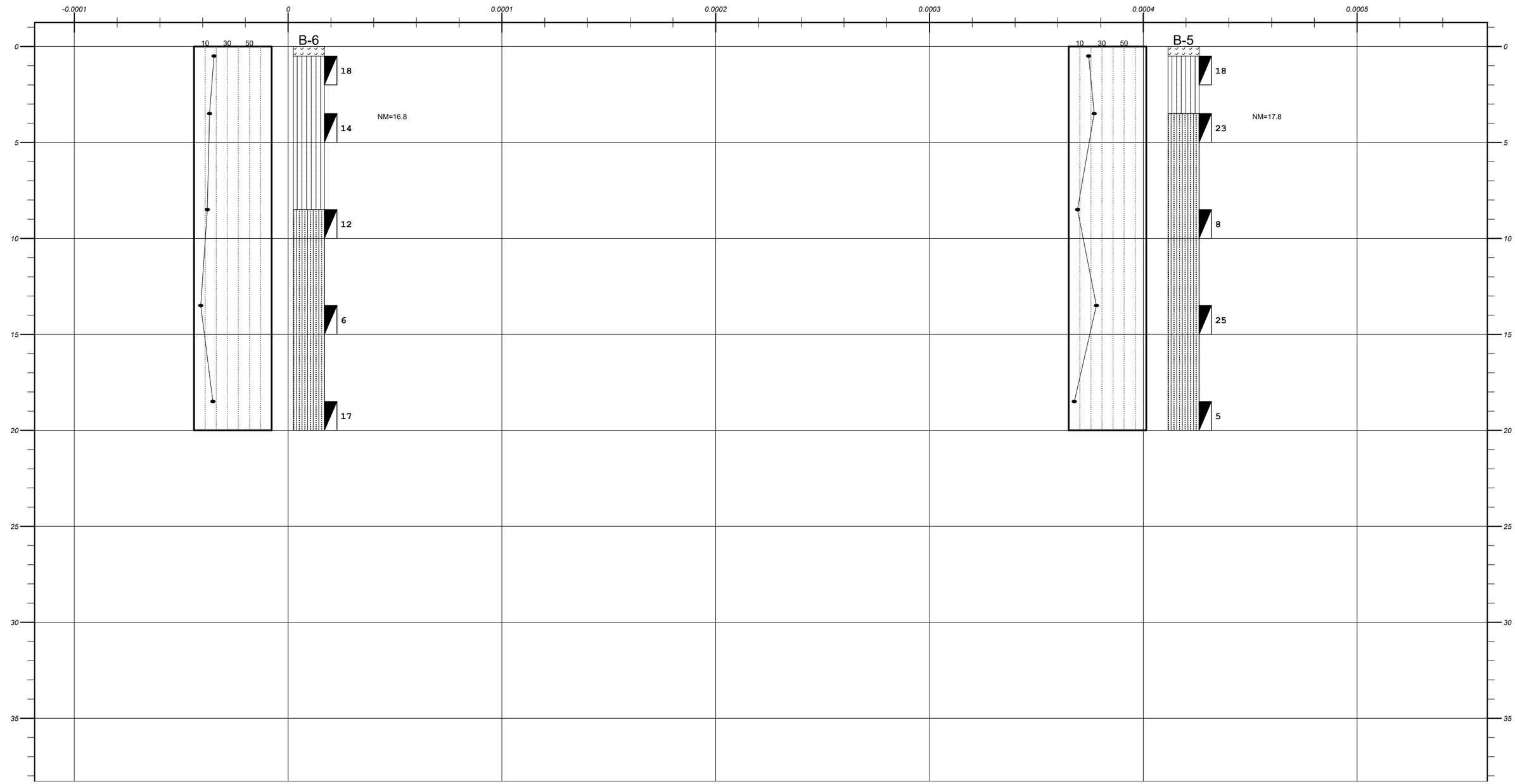
LOG OF BORINGS B-B

Rockdale County Fire Training Facility



Top Soil

Silt

Silty sand

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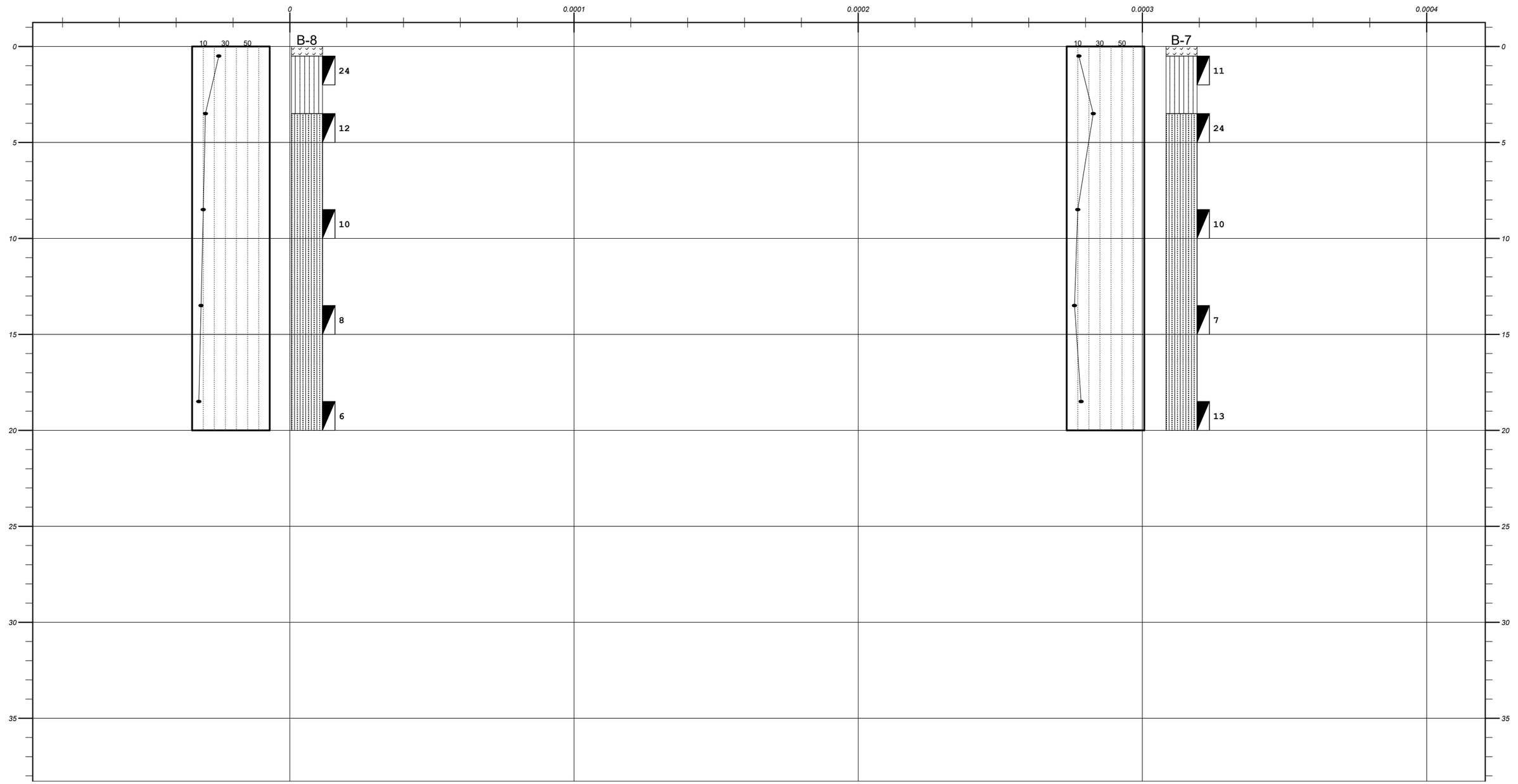
LOG OF BORINGS C-C

Rockdale County Fire Training Facility



Top Soil

Silt

Silty sand

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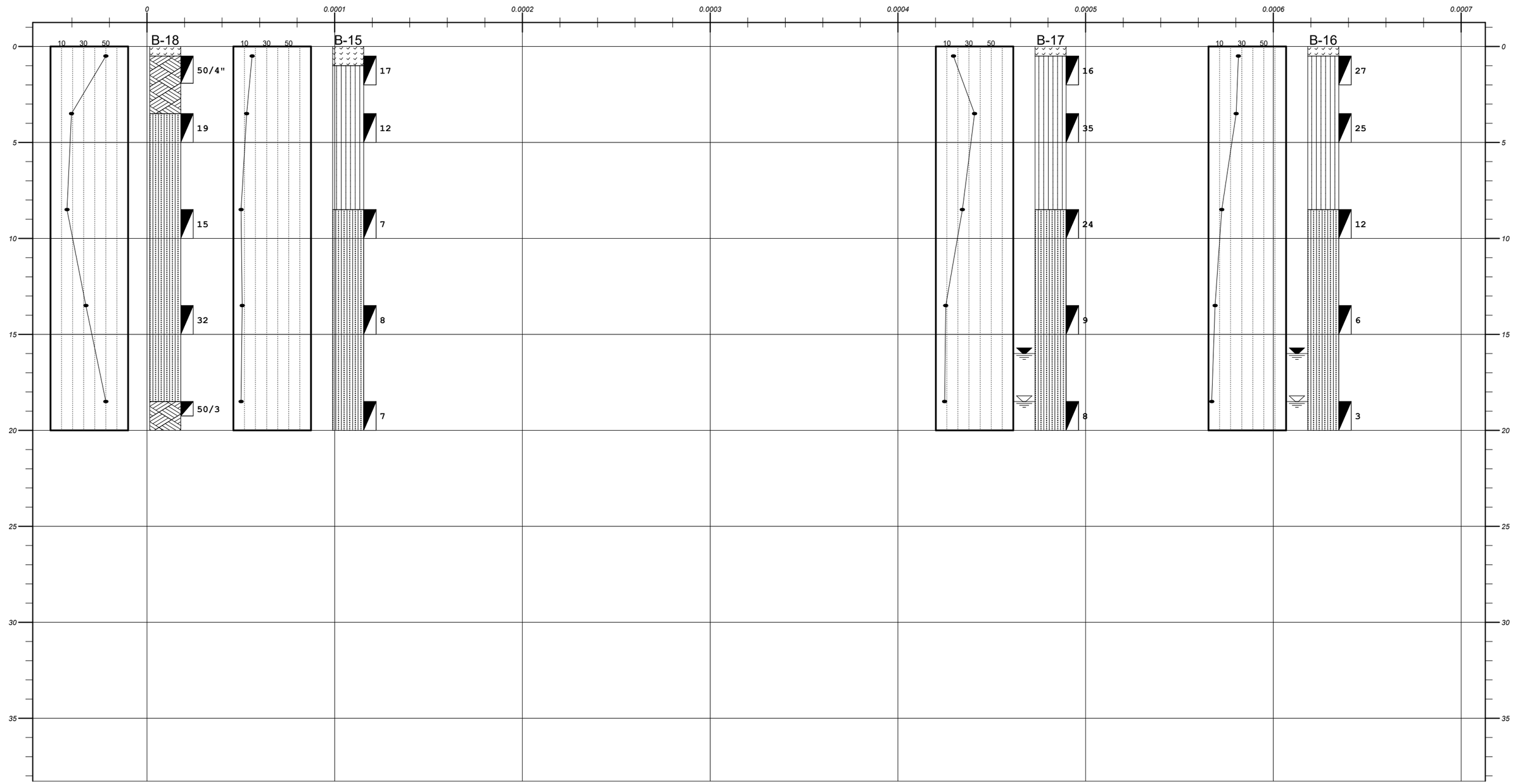
LOG OF BORINGS D-D

Rockdale County Fire Training Facility



Top Soil

Partially Weathered Rock

Silty sand

Silt

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MAJOR DIVISIONS		SYMBOLS	TYPICAL NAMES	CLASSIFICATION CHART
COARSE-GRAINED SOILS (More Than 1/2 of Soil > #200 Sieve)	**GRAVELS** (More Than 1/2 of Coarse Fraction > #4 Sieve)	GW	Well Graded Gravels or Gravel-Sand Mixtures; Little or no fines	
		GP	Poorly Graded Gravels or Gravel-Sand Mixtures; Little or no fines	
		GM	Silty Gravels, Gravel-Sand-Silt Mixtures	
		GC	Clayey Gravels, Gravel-Sand-Clay Mixtures	
	SANDS (MORE Than 1/2 of Coarse Fraction < #4 Sieve)	SW	Well Graded Sands or Gravelly Sands; Little or no fines	
		SP	Poorly Graded Sands or Gravelly Sands; Little or no fines	
		SM	Silty Sands, Sand-Silt Mixtures	
		SC	Clayey Sands, Sand-Clay Mixtures	
FINE-GRAINED SOILS (More Than 1/2 of Soil < #200 Sieve)	**SILTS & CLAYS** Liquid Limit Less Than 50	ML	Inorganic Silts and Very Fine Sands, Rock Flour, Silty or Clayey Fine Sands or Clayey Silts with Slight Plasticity	
		CL	Inorganic Clays of Low to Medium Plasticity, Gravelly Clays, Sandy Clays, Silty Clays, Lean Clays	
		OL	Organic Silts and Organic Silty Clays of Low Plasticity	
	SILTS & CLAYS Liquid Limit Greater Than 50	MH	Inorganic Silts, Micaceous or Diatomaceous Fine Sandy or Silty Soils, Elastic Silts	
		CH	Inorganic Clays of High Plasticity, Fat Clays	
		OH	Organic Clays or Medium to High Plasticity, Organic Silty Clays, Organic Silts	
HIGHLY ORGANIC SOILS		PT	Peat and Other Highly Organic Soils	

Relative Density of Cohesionless Soils from Standard Penetration Test	
Very Loose	≤ 4 bpf
Loose	5-10 bpf
Medium Dense	11-30 bpf
Dense	31-50 bpf
Very Dense	> 50 bpf
(bpf=blows per foot; ASTM D1586)	

Consistency of Cohesive Soils	
Very Soft	≤ 2 bpf
Soft	3-4 bpf
Firm	5-8 bpf
Stiff	9-15 bpf
Very Stiff	16-30 bpf
Hard	30-50 bpf
Very Hard	> 50 bpf

Relative Hardness of Rock	
Very Soft	Hard rock disintegrates or easily compresses to touch; can be hard to very hard soil
Soft	May be broken with fingers
Moderately Soft	May be scratched with a nail, corners and edges may be broken with fingers
Moderately Hard	Light Blow of hammer required to break samples
Hard	Hard blow of hammer required to break sample

Particle Size Identification	
Boulders	Larger than 12"
Cobbles	3"-12"
Gravel	
Coarse	3/4"-3"
Fine	4.76mm-3/4"
Sand	
Coarse	2.0-4.76 mm
Medium	0.42-2.00 mm
Fine	0.42-0.074 mm
Fines (Silt or Clay)	Smaller than 0.074 mm

Rock Continuity	
RECOVERY (%) = Total Length of Core x 100 / Length of Core Run	
Description	Core Recovery (%)
Incompetent	Less than 40
Competent	40-70
Fairly Continuous	71-90
Continnuous	91-100

Relative Quality of Rocks	
RQD (%) =((Total core, counting only pieces >4" long)/(Length of Core Run)) x 100	
Description	RQD (%)
Very Poor	0-25
Poor	25-50
Fair	50-75
Good	75-90
Excellent	90-100

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engineers | special inspectors | construction consultants

Correlation of Penetration Resistance with Relative Density and Consistency Sheet and Soil Classification Chart

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DRILL HOLE LOG

BORING NO. B-1

File: Borings Date Printed: 10/8/2024

PROJECT: Rockdale County Fire Training Facility **PROJECT NO.:** MEG 303074
CLIENT: Jericho Design Group, LLC **DATE:** 9/23/2024
LOCATION: Proposed Driving Course **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Sulemana Alhassan
DRILLING METHOD: ASTM D1586 with Automatic Hammer **STATION:**
DEPTH TO - WATER> INITIAL: ▽ ____ **After 48+ Hours:** ▽ ____ **CAVING>** C ____

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS: Natural Moisture Content (%). ▲ Penetration - ● (10 20 30 40 50)	N-Value Blows/ft (ASTM 1586)
	0						
	1	Approximately 6 inches Leaf Litter and Topsoil.					
	1	Residual - Very Stiff, Reddish Brown, Micaceous, Sandy SILT.	ML				18
	2						
	3						
	4	Color Changes to Yellowish Brown.					19
	5						
	6						
	7						
	8						
	9	Medium Dense, Mottled (Purple and Yellowish Orange), Micaceous, Silty SAND with MnO.	SM				12
	10						
	11						
	12						
	13						
	14	Color Changes to Mottled (Light Brown and Purple).					14
	15						
	16						
	17						
	18						
	19						13
	20						
	21	Boring was Terminated at 20 feet BGS.					
	22						
	23						
	24						
	25						
	26						
	27						
	28						
	29						

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DRILL HOLE LOG

BORING NO. B-2

File: Borings Date Printed: 10/8/2024

PROJECT: Rockdale County Fire Training Facility **PROJECT NO.:** MEG 303074
CLIENT: Jericho Design Group, LLC **DATE:** 9/30/2024
LOCATION: Proposed Driving Course **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Sulemana Alhassan
DRILLING METHOD: ASTM D1586 with Automatic Hammer **STATION:**
DEPTH TO - WATER> INITIAL: ▽ ____ **After 48+ Hours:** ▽ ____ **CAVING>** C ____

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS: Natural Moisture Content (%). ▲ Penetration - ● (10 20 30 40 50)	N-Value Blows/ft (ASTM 1586)
	0						
	1	Approximately 6 inches Leaf Litter and Topsoil. Residual - Loose, Brown, Clayey SAND.	SC				5
	2						
	3						
	4	Medium Dense, Brown, Micaceous, Silty SAND.	SM				14
	5						
	6						
	7						
	8						
	9	Changes to Very Dense, Mottled (Light Gray and Greenish Gray).					54
	10						
	11						
	12						
	13						
	14	Changes to Medium Dense, Mottled (Dark Brown and White).					28
	15						
	16						
	17						
	18						
	19	Color Changes to Dark Brown.					14
	20						
	21	Boring was Terminated at 20 feet BGS.					
	22						
	23						
	24						
	25						
	26						
	27						
	28						
	29						

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DRILL HOLE LOG

BORING NO. B-3

File: Borings Date Printed: 10/8/2024

PROJECT: Rockdale County Fire Training Facility **PROJECT NO.:** MEG 303074
CLIENT: Jericho Design Group, LLC **DATE:** 9/30/2024
LOCATION: Proposed Driving Course **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Sulemana Alhassan
DRILLING METHOD: ASTM D1586 with Automatic Hammer **STATION:**
DEPTH TO - WATER> INITIAL: ▽ ____ **After 48+ Hours:** ▽ ____ **CAVING>** C ____

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS: Natural Moisture Content (%). ▲ Penetration - ● (10 20 30 40 50)	N-Value Blows/ft (ASTM 1586)
	0						
	1	**Approximately 6 inches Leaf Litter and Topsoil.**					
	1	**Residual - Loose, Brown, Clayey SAND.**	SC				6
	2						
	3						
	4	**Medium Dense, Brown, Micaceous, Silty SAND.**	SM				12
	5						
	6						
	7						
	8						
	9	**Color Changes to , Mottled (Purple and Yellowish Orange), Micaceous, with MnO.**					13
	10						
	11						
	12						
	13						
	14						11
	15						
	16						
	17						
	18						
	19	**Color Changes to Mottled (Purple and Dark Brown).**					12
	20						
	21	**Boring was Terminated at 20 feet BGS.**					
	22						
	23						
	24						
	25						
	26						
	27						
	28						
	29						

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

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DRILL HOLE LOG

BORING NO. B-4

File: Borings Date Printed: 10/8/2024

PROJECT: Rockdale County Fire Training Facility **PROJECT NO.:** MEG 303074
CLIENT: Jericho Design Group, LLC **DATE:** 9/23/2024
LOCATION: Proposed Driving Course **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Sulemana Alhassan
DRILLING METHOD: ASTM D1586 with Automatic Hammer **STATION:**
DEPTH TO - WATER> INITIAL: ▽ ____ **After 48+ Hours:** ▽ ____ **CAVING>** C ____

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS: Natural Moisture Content (%). ▲ Penetration - ● (10 20 30 40 50)	N-Value Blows/ft (ASTM 1586)
	0						
	1	Approximately 6 inches Leaf Litter and Topsoil. Residual - Hard, Reddish Brown, Micaceous, Sandy SILT.	ML				40
	2						
	3						
	4	Medium Dense, Light Brown, Micaceous, Silty SAND.	SM				16
	5						
	6						
	7						
	8						
	9	Color Changes to Purple.					14
	10						
	11						
	12						
	13						
	14	Contains MnO.					16
	15						
	16						
	17						
	18						
	19	Color Changes to Mottled (Purple and Yellowish Orange).					14
	20						
	21	Boring was Terminated at 20 feet BGS.					
	22						
	23						
	24						
	25						
	26						
	27						
	28						
	29						

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DRILL HOLE LOG

BORING NO. B-5

File: Borings Date Printed: 10/8/2024

PROJECT: Rockdale County Fire Training Facility **PROJECT NO.:** MEG 303074
CLIENT: Jericho Design Group, LLC **DATE:** 9/23/2024
LOCATION: Proposed Physical Training Area **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Sulemana Alhassan
DRILLING METHOD: ASTM D1586 with Automatic Hammer **STATION:**
DEPTH TO - WATER> INITIAL: **After 48+ Hours:** **CAVING>** C

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS: Natural Moisture Content (%). ▲ Penetration - ● (10 20 30 40 50)	N-Value Blows/ft (ASTM 1586)
	0						
	1	Approximately 6 inches Leaf Litter and Topsoil.					
	1	Residual - Very Stiff, Reddish Brown, Micaceous, Sandy SILT.	ML				18
	2						
	3						
	4	Medium Dense, Reddish Brown, Micaceous, Silty SAND with Clay.	SM				23
	5						
	6						
	7						
	8						
	9	Changes to Loose and Brown.					8
	10						
	11						
	12						
	13						
	14	Changes to Medium Dense, Mottled (Brown and Light Gray).					25
	15						
	16						
	17						
	18						
	19	Changes to Loose, Yellowish Brown with MnO.					5
	20						
	21	Boring was Terminated at 20 feet BGS.					
	22						
	23						
	24						
	25						
	26						
	27						
	28						
	29						

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DRILL HOLE LOG

BORING NO. B-6

File: Borings Date Printed: 10/8/2024

PROJECT: Rockdale County Fire Training Facility **PROJECT NO.:** MEG 303074
CLIENT: Jericho Design Group, LLC **DATE:** 9/23/2024
LOCATION: Proposed Physical Training Area **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Sulemana Alhassan
DRILLING METHOD: ASTM D1586 with Automatic Hammer **STATION:**
DEPTH TO - WATER> INITIAL: **After 48+ Hours:** **CAVING>** C

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS: Natural Moisture Content (%). ▲ Penetration - ● (10 20 30 40 50)	N-Value Blows/ft (ASTM 1586)
	0						
	1	Approximately 6 inches Leaf Litter and Topsoil.					
	1	Residual - Very Stiff, Reddish Brown, Micaceous, Sandy SILT.	ML				18
	2						
	3						
	4	Changes to Stiff.					14
	5						
	6						
	7						
	8						
	9	Medium Dense, Mottled (Purple and Light Gray), Micaceous, Silty SAND.	SM				12
	10						
	11						
	12						
	13						
	14	Changes to Loose, Mottled (Dark Brown and Light Gray).					6
	15						
	16						
	17						
	18						
	19	Changes to Medium Dense, Mottled (Yellowish Orange and Brown), Moist with MnO.					17
	20						
	21	Boring was Terminated at 20 feet BGS.					
	22						
	23						
	24						
	25						
	26						
	27						
	28						
	29						

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DRILL HOLE LOG

BORING NO. B-7

File: Borings Date Printed: 10/8/2024

PROJECT: Rockdale County Fire Training Facility **PROJECT NO.:** MEG 303074
CLIENT: Jericho Design Group, LLC **DATE:** 9/24/2024
LOCATION: Proposed Fire Academy **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Sulemana Alhassan
DRILLING METHOD: ASTM D1586 with Automatic Hammer **STATION:**
DEPTH TO - WATER> INITIAL: **After 48+ Hours:** **CAVING>** C

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS: Natural Moisture Content (%). ▲ Penetration - ● (10 20 30 40 50)	N-Value Blows/ft (ASTM 1586)
	0						
	1	Approximately 6 inches Leaf Litter and Topsoil. Residual - Stiff, Reddish Brown, Micaceous, Sandy SILT.	ML				11
	2						
	3						
	4	Medium Dense, Light Brown, Micaceous, Silty SAND.	SM				24
	5						
	6						
	7						
	8						
	9	Changes to Loose,Mottled (Brown and Yellowish Brown).					10
	10						
	11						
	12						
	13						
	14	Color Changes to Mottled (Dark Brown and Light Gray).					7
	15						
	16						
	17						
	18						
	19	Changes to Medium Dense, Mottled (Yellowish Orange and Light Gray).					13
	20						
	21	Boring was Terminated at 20 feet BGS.					
	22						
	23						
	24						
	25						
	26						
	27						
	28						
	29						

MATRIX ENGINEERING GROUP, INC.
Geotechnical, Environmental & Construction Materials Consultants

DRILL HOLE LOG

BORING NO. B-8

File: Borings Date Printed: 10/8/2024

PROJECT: Rockdale County Fire Training Facility **PROJECT NO.:** MEG 303074
CLIENT: Jericho Design Group, LLC **DATE:** 9/25/2024
LOCATION: Proposed Fire Academy **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Sulemana Alhassan
DRILLING METHOD: ASTM D1586 with Automatic Hammer **STATION:**
DEPTH TO - WATER> INITIAL: ____ **After 48+ Hours:** ____ **CAVING>** C

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS: Natural Moisture Content (%). ▲ Penetration - ● (10 20 30 40 50)	N-Value Blows/ft (ASTM 1586)
	0						
	1	**Approximately 6 inches Leaf Litter and Topsoil.**					
	1	**Residual - Stiff, Reddish Brown, Micaceous, Sandy SILT.**	ML				**24**
	2						
	3						
	4	**Medium Dense, Light Brown, Micaceous, Silty SAND.**	SM				**12**
	5						
	6						
	7						
	8						
	9	**Changes to Loose,Mottled (White and Yellowish Brown).**					**10**
	10						
	11						
	12						
	13						
	14	**Color Changes to Brown.**					**8**
	15						
	16						
	17						
	18						
	19	**Contains MnO>**					**6**
	20						
	21	**Boring was Terminated at 20 feet BGS.**					
	22						
	23						
	24						
	25						
	26						
	27						
	28						
	29						

MATRIX ENGINEERING GROUP, INC.
Geotechnical, Environmental & Construction Materials Consultants

DRILL HOLE LOG

BORING NO. B-9

File: Borings Date Printed: 10/8/2024

PROJECT: Rockdale County Fire Training Facility **PROJECT NO.:** MEG 303074
CLIENT: Jericho Design Group, LLC **DATE:** 9/24/2024
LOCATION: Proposed Warehouse **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Sulemana Alhassan
DRILLING METHOD: ASTM D1586 with Automatic Hammer **STATION:**
DEPTH TO - WATER> INITIAL: ▽ ____ **After 48+ Hours:** ▽ ____ **CAVING>** C ____

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS: Natural Moisture Content (%). ▲ Penetration - ● (10 20 30 40 50)	N-Value Blows/ft (ASTM 1586)
	0						
	1	**Approximately 6 inches Leaf Litter and Topsoil.**					
	1	**Residual - Stiff, Reddish Brown, Micaceous, Sandy SILT.**	ML				**19**
	2						
	3						
	4						**18**
	5						
	6						
	7						
	8						
	9	**Changes to Stiff.**					**12**
	10						
	11						
	12						
	13						
	14	**Loose, Light Brown, Micaceous, Silty SAND with MnO.**	SM				**8**
	15						
	16						
	17						
	18						
	19	**Color Changes to Mottled (Light Gray and Light Brown).**					**8**
	20						
	21	**Boring was Terminated at 20 feet BGS.**					
	22						
	23						
	24						
	25						
	26						
	27						
	28						
	29						

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DRILL HOLE LOG

BORING NO. B-10

File: Borings Date Printed: 10/8/2024

PROJECT: Rockdale County Fire Training Facility **PROJECT NO.:** MEG 303074
CLIENT: Jericho Design Group, LLC **DATE:** 9/30/2024
LOCATION: Proposed Burn Building **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Sulemana Alhassan
DRILLING METHOD: ASTM D1586 with Automatic Hammer **STATION:**
DEPTH TO - WATER> INITIAL: ▽ ____ **After 48+ Hours:** ▽ ____ **CAVING>** C ____

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS: Natural Moisture Content (%). ▲ Penetration - ● (10 20 30 40 50)	N-Value Blows/ft (ASTM 1586)
	0						
	1	**Approximately 6 inches Leaf Litter and Topsoil.**					
	1	**Residual - Stiff, Brown, Micaceous, Clayey SILT.**	ML				**13**
	2						
	3						
	4	**Medium Dense, Mottled (Brown and White), Micaceous, Silty SAND.**	SM				**21**
	5						
	6						
	7						
	8						
	9	**Changes to Loose Brown.**					**9**
	10						
	11						
	12						
	13						
	14	**Changes to Dense, Mottled (Brown and White), MnO.**					**40**
	15						
	16						
	17						
	18						
	19	**Changes to Medium Dense, Brown and Micaceous.**					**11**
	20						
	21	**Boring was Terminated at 20 feet BGS.**					
	22						
	23						
	24						
	25						
	26						
	27						
	28						
	29						

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DRILL HOLE LOG

BORING NO. B-11

File: Borings Date Printed: 10/8/2024

PROJECT: Rockdale County Fire Training Facility **PROJECT NO.:** MEG 303074
CLIENT: Jericho Design Group, LLC **DATE:** 9/30/2024
LOCATION: Proposed Burn Building **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Sulemana Alhassan
DRILLING METHOD: ASTM D1586 with Automatic Hammer **STATION:**
DEPTH TO - WATER> INITIAL: ▽ ____ **After 48+ Hours:** ▽ ____ **CAVING>** C ____

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS: Natural Moisture Content (%). ▲ Penetration - ● (10 20 30 40 50)	N-Value Blows/ft (ASTM 1586)
	0						
	1	Approximately 6 inches Leaf Litter and Topsoil.					
	1	Residual - Very Stiff, Reddish Brown, Micaceous, Sandy SILT.	ML				16
	2						
	3						
	4	Medium Dense, Brown, Silty SAND.	SM				12
	5						
	6						
	7						
	8						
	9	Changes to Loose, Mottled (Brown and Yellowish Orange).					7
	10						
	11						
	12						
	13						
	14	Changes to Medium Dense, White and Micaceous.					12
	15						
	16						
	17						
	18						
	19	Color Changes to (Yellowish Orange and Greenish Gray).					26
	20						
	21	Boring was Terminated at 20 feet BGS.					
	22						
	23						
	24						
	25						
	26						
	27						
	28						
	29						

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DRILL HOLE LOG

BORING NO. B-12

File: Borings Date Printed: 10/8/2024

PROJECT: Rockdale County Fire Training Facility **PROJECT NO.:** MEG 303074
CLIENT: Jericho Design Group, LLC **DATE:** 9/30/2024
LOCATION: Proposed Burn Building **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Sulemana Alhassan
DRILLING METHOD: ASTM D1586 with Automatic Hammer **STATION:**
DEPTH TO - WATER> INITIAL: **After 48+ Hours:** **CAVING>** C

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS: Natural Moisture Content (%). ▲ Penetration - ● (10 20 30 40 50)	N-Value Blows/ft (ASTM 1586)
	0						
	1	Approximately 6 inches Leaf Litter and Topsoil.					
	1	Residual - Very Stiff, Reddish Brown, Micaceous, Sandy SILT.	ML				23
	2						
	3						
	4	Medium Dense, Reddish Brown, Micaceous, Silty SAND.	SM				16
	5						
	6						
	7						
	8						
	9	Changes to Loose, Brown, Micaceous, with MnO.					8
	10						
	11						
	12						
	13						
	14	Color Changes to Mottled (Light Gray and Brown).					9
	15						
	16						
	17						
	18						
	19	Color Changes to Olive Gray.					10
	20						
	21	Boring was Terminated at 20 feet BGS.					
	22						
	23						
	24						
	25						
	26						
	27						
	28						
	29						

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DRILL HOLE LOG

BORING NO. B-13

File: Borings Date Printed: 10/8/2024

PROJECT: Rockdale County Fire Training Facility **PROJECT NO.:** MEG 303074
CLIENT: Jericho Design Group, LLC **DATE:** 9/30/2024
LOCATION: Proposed Driving Course **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Sulemana Alhassan
DRILLING METHOD: ASTM D1586 with Automatic Hammer **STATION:**
DEPTH TO - WATER> INITIAL: ▽ ____ **After 48+ Hours:** ▽ ____ **CAVING>** C ____

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS: Natural Moisture Content (%). ▲ Penetration - ● (10 20 30 40 50)	N-Value Blows/ft (ASTM 1586)
	0						
	1	**Approximately 12 inches Leaf Litter and Topsoil.**					
	2	**Residual - Firm, Reddish Brown, Micaceous, Clayey SILT.**	ML				**8**
	3						
	4	**Changes to Very Stiff with Quartz Fragments.**					**18**
	5						
	6						
	7						
	8						
	9	**Loose, Mottled (Purple and Yellowish Orange), Micaceous, Silty SAND.**	SM				**10**
	10						
	11						
	12						
	13						
	14	**Changes to Medium Dense, Purple, and Micaceous, with MnO.**					**11**
	15						
	16						
	17						
	18						
	19	**Changes to Loose Mottled (Purple and Yellowish Orange).**					**10**
	20						
	21	**Boring was Terminated at 20 feet BGS.**					
	22						
	23						
	24						
	25						
	26						
	27						
	28						
	29						

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DRILL HOLE LOG

BORING NO. B-14

File: Borings Date Printed: 10/8/2024

PROJECT: Rockdale County Fire Training Facility **PROJECT NO.:** MEG 303074
CLIENT: Jericho Design Group, LLC **DATE:** 9/30/2024
LOCATION: Proposed Driving Course **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Sulemana Alhassan
DRILLING METHOD: ASTM D1586 with Automatic Hammer **STATION:**
DEPTH TO - WATER> INITIAL: ▽ ____ **After 48+ Hours:** ▽ ____ **CAVING>** C ____

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS: Natural Moisture Content (%). ▲ Penetration - ● (10 20 30 40 50)	N-Value Blows/ft (ASTM 1586)
	0						
	1	**Approximately 12 inches Leaf Litter and Topsoil.**					
	2	**Residual - Stiff, Reddish Brown, Micaceous, Clayey SILT.**	ML				**11**
	3						
	4	**Changes to Very Stiff.**					**21**
	5						
	6						
	7						
	8						
	9	**Loose, Purple, Micaceous, Silty SAND with MnO.**	SM				**7**
	10						
	11						
	12						
	13						
	14	**Changes to Medium Dense, Mottled (Brown and Yellowish Orange), with MnO.**					**14**
	15						
	16						
	17						
	18						
	19						**23**
	20						
	21	**Boring was Terminated at 20 feet BGS.**					
	22						
	23						
	24						
	25						
	26						
	27						
	28						
	29						

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DRILL HOLE LOG

BORING NO. B-15

File: Borings Date Printed: 10/8/2024

PROJECT: Rockdale County Fire Training Facility **PROJECT NO.:** MEG 303074
CLIENT: Jericho Design Group, LLC **DATE:** 9/25/2024
LOCATION: Proposed Stormwater Management Facility **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Sulemana Alhassan
DRILLING METHOD: ASTM D1586 with Automatic Hammer **STATION:**
DEPTH TO - WATER> INITIAL: ▽ ____ **After 48+ Hours:** ▽ ____ **CAVING>** C ____

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS: Natural Moisture Content (%). ▲ Penetration - ● (10 20 30 40 50)	N-Value Blows/ft (ASTM 1586)
	0						
	1	**Approximately 6 inches Leaf Litter and Topsoil.**					
	2	**Residual - Very Stiff, Reddish Brown, Micaceous, Sandy SILT.**	ML				17
	3						
	4	**Changes to Stiff.**					12
	5						
	6						
	7						
	8						
	9	**Loose, Light Brown, Micaceous, Silty SAND with MnO.**	SM				7
	10						
	11						
	12						
	13						
	14	**Color Changes to Mottled (Brown and Light Gray), Moist, with MnO.**					8
	15						
	16						
	17						
	18						
	19						7
	20						
	21	**Boring was Terminated at 20 feet BGS.**					
	22						
	23						
	24						
	25						
	26						
	27						
	28						
	29						

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DRILL HOLE LOG

BORING NO. B-16

File: Borings Date Printed: 10/8/2024

PROJECT: Rockdale County Fire Training Facility **PROJECT NO.:** MEG 303074
CLIENT: Jericho Design Group, LLC **DATE:** 9/25/2024
LOCATION: Proposed Stormwater Management Facility **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Sulemana Alhassan
DRILLING METHOD: ASTM D1586 with Automatic Hammer **STATION:**
DEPTH TO - WATER> INITIAL: ▽ 18.5 **After 48+ Hours:** ▽ 16 **CAVING>** C

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS: Natural Moisture Content (%). ▲ Penetration - ● (10 20 30 40 50)	N-Value Blows/ft (ASTM 1586)
	0						
	1	Approximately 6 inches Leaf Litter and Topsoil.					
	1	Residual - Very Stiff, Reddish Brown, Micaceous, Sandy SILT.	ML				27
	2						
	3						
	4	Changes to Very Stiff.					25
	5						
	6						
	7						
	8						
	9	Medium Dense, Mottled (Brown and Yellowish Orange), Micaceous, Silty SAND with MnO.	SM				12
	10						
	11						
	12						
	13						
	14	Becomes Loose and Moist.					6
	15						
	16 ▽						
	17						
	18						
	19 ▽	Changes to Very Loose.					3
	20						
	21	Boring was Terminated at 20 feet BGS.					
	22						
	23						
	24						
	25						
	26						
	27						
	28						
	29						

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DRILL HOLE LOG

BORING NO. B-17

File: Borings Date Printed: 10/8/2024

PROJECT: Rockdale County Fire Training Facility **PROJECT NO.:** MEG 303074
CLIENT: Jericho Design Group, LLC **DATE:** 9/25/2024
LOCATION: Proposed Stormwater Management Facility **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Sulemana Alhassan
DRILLING METHOD: ASTM D1586 with Automatic Hammer **STATION:**
DEPTH TO - WATER> INITIAL: ▽ 18.5 **After 48+ Hours:** ▽ 16 **CAVING>** C

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS: Natural Moisture Content (%). ▲ Penetration - ● (10 20 30 40 50)	N-Value Blows/ft (ASTM 1586)
	0						
	1	Approximately 6 inches Leaf Litter and Topsoil.					
	1	Residual - Very Stiff, Reddish Brown, Micaceous, Sandy SILT.	ML				16
	2						
	3						
	4	Changes to Hard.					35
	5						
	6						
	7						
	8						
	9	Medium Dense, Reddish Brown, Micaceous, Silty SAND.	SM				24
	10						
	11						
	12						
	13						
	14	Changes to Loose, Mottled (White and Dark Brown), Micaceous, MnO, Moist.					9
	15						
	16	▽					
	17						
	18						
	19	▽					8
	20						
	21	Boring was Terminated at 20 feet BGS.					
	22						
	23						
	24						
	25						
	26						
	27						
	28						
	29						

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DRILL HOLE LOG

BORING NO. B-18

File: Borings Date Printed: 10/8/2024

PROJECT: Rockdale County Fire Training Facility **PROJECT NO.:** MEG 303074
CLIENT: Jericho Design Group, LLC **DATE:** 9/30/2024
LOCATION: Proposed Stormwater Management Facility **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Sulemana Alhassan
DRILLING METHOD: ASTM D1586 with Automatic Hammer **STATION:**
DEPTH TO - WATER> INITIAL: **After 48+ Hours:** **CAVING>** C

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS	N-Value Blows/ft (ASTM 1586)
	0					Natural Moisture Content (%). ▲ Penetration - ● 10 20 30 40 50	
	1	Approximately 6 inches Leaf Litter and Topsoil. Residual - Partially Weathered Rock (PWR), Sampled as Very Dense, Olive Gray, Micaceous, Silty SAND.	PWR				50/4"
	4	Medium Dense, Mottled (Light Brown and Dark Brown), Micaceous, Silty SAND with MnO.	SM				19
	9	Color Changes to Mottled (Yellowish Orange and Light Gray).					15
	14	Changes to Dense, Mottled (Yellowish Orange, Light Gray, and Greenish Gray).					32
	19	Partially Weathered Rock (PWR), Sampled as Very Dense, Mottled (Light Gray and Yellowish Orange), Micaceous, Silty SAND.	PWR				50/3
	20	Boring was Terminated at 20 feet BGS.					

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

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DRILL HOLE LOG

BORING NO. B-19

File: Borings Date Printed: 10/8/2024

PROJECT: Rockdale County Fire Training Facility **PROJECT NO.:** MEG 303074
CLIENT: Jericho Design Group, LLC **DATE:** 9/30/2024
LOCATION: Proposed Driving Course **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Sulemana Alhassan
DRILLING METHOD: ASTM D1586 with Automatic Hammer **STATION:**
DEPTH TO - WATER> INITIAL: ▽ ____ **After 48+ Hours:** ▽ ____ **CAVING>** C ____

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS: Natural Moisture Content (%). ▲ Penetration - ● (10 20 30 40 50)	N-Value Blows/ft (ASTM 1586)
	0						
	1	Approximately 6 inches Leaf Litter and Topsoil. Residual - Firm, Reddish Brown, Micaceous, Clayey SILT.	ML				5
	2						
	3						
	4	Medium Dense, Reddish Brown, Micaceous, Silty SAND.	SM				14
	5						
	6						
	7						
	8						
	9	Color Changes to Mottled (White and Brown).					11
	10						
	11	Boring was Terminated at 10 feet BGS.					
	12						
	13						
	14						
	15						
	16						
	17						
	18						
	19						
	20						
	21						
	22						
	23						
	24						
	25						
	26						
	27						
	28						
	29						

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DRILL HOLE LOG

BORING NO. B-20

File: Borings Date Printed: 10/8/2024

PROJECT: Rockdale County Fire Training Facility **PROJECT NO.:** MEG 303074
CLIENT: Jericho Design Group, LLC **DATE:** 9/24/2024
LOCATION: Proposed Driving Course **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Sulemana Alhassan
DRILLING METHOD: ASTM D1586 with Automatic Hammer **STATION:**
DEPTH TO - WATER> INITIAL: ____ **After 48+ Hours:** ____ **CAVING>** C

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS: Natural Moisture Content (%). ▲ Penetration - ● (10 20 30 40 50)	N-Value Blows/ft (ASTM 1586)
	0						
	1	Approximately 6 inches Leaf Litter and Topsoil.					
	1	Residual - Very Stiff, Reddish Brown, Micaceous, Clayey SILT.	ML				24
	2						
	3						
	4	Medium Dense, Reddish Brown, Micaceous, Silty SAND.	SM				22
	5						
	6						
	7						
	8						
	9	Color Changes to Mottled (White and Brown).					8
	10						
	11	Boring was Terminated at 10 feet BGS.					
	12						
	13						
	14						
	15						
	16						
	17						
	18						
	19						
	20						
	21						
	22						
	23						
	24						
	25						
	26						
	27						
	28						
	29						

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DRILL HOLE LOG

BORING NO. B-21

File: Borings Date Printed: 10/8/2024

PROJECT: Rockdale County Fire Training Facility **PROJECT NO.:** MEG 303074
CLIENT: Jericho Design Group, LLC **DATE:** 9/24/2024
LOCATION: Proposed Driving Course **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Sulemana Alhassan
DRILLING METHOD: ASTM D1586 with Automatic Hammer **STATION:**
DEPTH TO - WATER> INITIAL: ▽ ____ **After 48+ Hours:** ▽ ____ **CAVING>** C ____

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS: Natural Moisture Content (%). ▲ Penetration - ● (10 20 30 40 50)	N-Value Blows/ft (ASTM 1586)
	0						
	1	Approximately 6 inches Leaf Litter and Topsoil.					
	1	Residual - Hard, Reddish Brown, Micaceous, Sandy SILT.	ML				35
	2						
	3						
	4	Medium Dense, Reddish Brown, Micaceous, Silty SAND.	SM				17
	5						
	6						
	7						
	8						
	9	Changes to Loose, Mottled (Yellowish Brown and Brown).					10
	10						
	11	Boring was Terminated at 10 feet BGS.					
	12						
	13						
	14						
	15						
	16						
	17						
	18						
	19						
	20						
	21						
	22						
	23						
	24						
	25						
	26						
	27						
	28						
	29						

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DRILL HOLE LOG

BORING NO. B-22

File: Borings Date Printed: 10/8/2024

PROJECT: Rockdale County Fire Training Facility **PROJECT NO.:** MEG 303074
CLIENT: Jericho Design Group, LLC **DATE:** 9/23/2024
LOCATION: Proposed Driving Course **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Sulemana Alhassan
DRILLING METHOD: ASTM D1586 with Automatic Hammer **STATION:**
DEPTH TO - WATER> INITIAL: **After 48+ Hours:** **CAVING>** C

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS: Natural Moisture Content (%). ▲ Penetration - ● (10 20 30 40 50)	N-Value Blows/ft (ASTM 1586)
	0						
	1	Approximately 6 inches Leaf Litter and Topsoil.					
	1	Residual - Very Stiff, Reddish Brown, Micaceous, Sandy SILT.	ML				24
	2						
	3						
	4						27
	5						
	6						
	7						
	8						
	9	Changes to Firm.					8
	10						
	11	Boring was Terminated at 10 feet BGS.					
	12						
	13						
	14						
	15						
	16						
	17						
	18						
	19						
	20						
	21						
	22						
	23						
	24						
	25						
	26						
	27						
	28						
	29						

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DRILL HOLE LOG

BORING NO. B-23

File: Borings Date Printed: 10/8/2024

PROJECT: Rockdale County Fire Training Facility **PROJECT NO.:** MEG 303074
CLIENT: Jericho Design Group, LLC **DATE:** 9/23/2024
LOCATION: Proposed Driving Course **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Sulemana Alhassan
DRILLING METHOD: ASTM D1586 with Automatic Hammer **STATION:**
DEPTH TO - WATER> INITIAL: ▽ ____ **After 48+ Hours:** ▽ ____ **CAVING>** C ____

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS: Natural Moisture Content (%). ▲ Penetration - ● (10 20 30 40 50)	N-Value Blows/ft (ASTM 1586)
	0						
	1	Approximately 6 inches Leaf Litter and Topsoil.					
	1	Residual - Very Stiff, Reddish Brown, Micaceous, Sandy SILT.	ML				22
	2						
	3						
	4	Changes to Hard.					32
	5						
	6						
	7						
	8						
	9	Medium Dense, Mottled (Reddish Brown and Yellowish Orange), Micaceous, Silty SAND>					13
	10						
	11	Boring was Terminated at 10 feet BGS.					
	12						
	13						
	14						
	15						
	16						
	17						
	18						
	19						
	20						
	21						
	22						
	23						
	24						
	25						
	26						
	27						
	28						
	29						

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DRILL HOLE LOG

BORING NO. B-24

File: Borings Date Printed: 10/8/2024

PROJECT: Rockdale County Fire Training Facility **PROJECT NO.:** MEG 303074
CLIENT: Jericho Design Group, LLC **DATE:** 9/23/2024
LOCATION: Proposed Driving Course **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Sulemana Alhassan
DRILLING METHOD: ASTM D1586 with Automatic Hammer **STATION:**
DEPTH TO - WATER> INITIAL: ▽ ____ **After 48+ Hours:** ▽ ____ **CAVING>** C ____

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS: Natural Moisture Content (%). ▲ Penetration - ● (10 20 30 40 50)	N-Value Blows/ft (ASTM 1586)
	0						
	1	Approximately 6 inches Leaf Litter and Topsoil.					
	1	Residual - Very Stiff, Reddish Brown, Micaceous, Sandy SILT.	ML				18
	2						
	3						
	4						22
	5						
	6						
	7						
	8						
	9	Loose, Mottled (Brown and Light Gray), Micaceous, Silty SAND.					10
	10						
	11	Boring was Terminated at 10 feet BGS.					
	12						
	13						
	14						
	15						
	16						
	17						
	18						
	19						
	20						
	21						
	22						
	23						
	24						
	25						
	26						
	27						
	28						
	29						

MATRIX ENGINEERING GROUP, INC.
Geotechnical, Environmental & Construction Materials Consultants

DRILL HOLE LOG

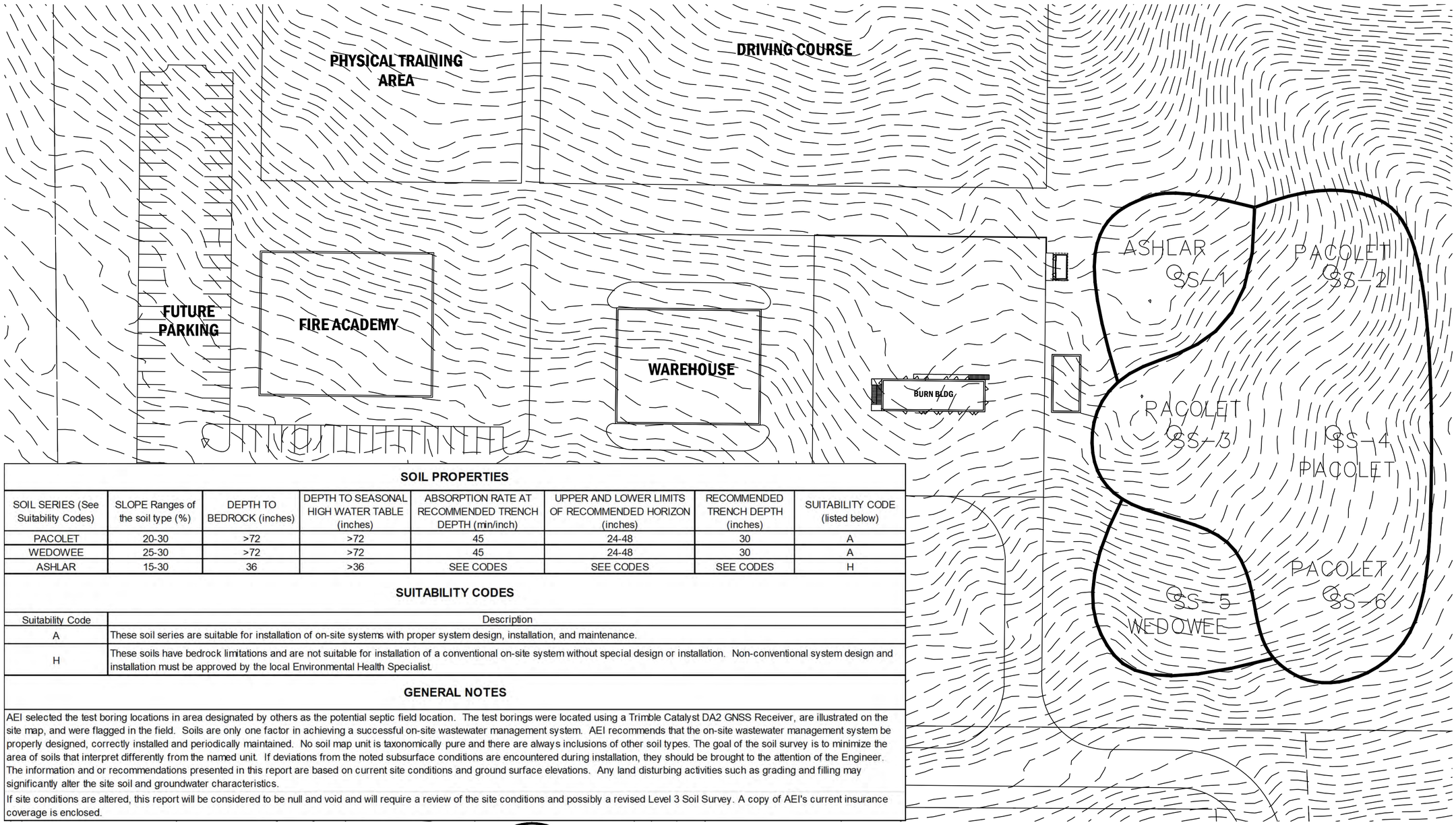
BORING NO. B-25

File: Borings Date Printed: 10/8/2024

PROJECT: Rockdale County Fire Training Facility **PROJECT NO.:** MEG 303074
CLIENT: Jericho Design Group, LLC **DATE:** 9/23/2024
LOCATION: Proposed Driving Course **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Sulemana Alhassan
DRILLING METHOD: ASTM D1586 with Automatic Hammer **STATION:**
DEPTH TO - WATER> INITIAL: ▽ ____ **After 48+ Hours:** ▽ ____ **CAVING>** C ____

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS: Natural Moisture Content (%). ▲ Penetration - ● (10 20 30 40 50)	N-Value Blows/ft (ASTM 1586)
	0						
	1	Approximately 6 inches Leaf Litter and Topsoil.					
	1	Residual - Stiff, Reddish Brown, Micaceous, Sandy SILT.	ML				15
	2						
	3						
	4	Changes to Very Stiff.					18
	5						
	6						
	7						
	8						
	9	Loose, Yellowish Brown, Micaceous, Silty SAND.					10
	10						
	11	Boring was Terminated at 10 feet BGS.					
	12						
	13						
	14						
	15						
	16						
	17						
	18						
	19						
	20						
	21						
	22						
	23						
	24						
	25						
	26						
	27						
	28						
	29						

LIMITED LEVEL 3 SOIL SURVEY
ROCKDALE FIRE TRAINING FACILITY
ALTERNATE SITE
ROCKDALE COUNTY, GEORGIA



SOIL PROPERTIES

SOIL SERIES (See Suitability Codes)	SLOPE Ranges of the soil type (%)	DEPTH TO BEDROCK (inches)	DEPTH TO SEASONAL HIGH WATER TABLE (inches)	ABSORPTION RATE AT RECOMMENDED TRENCH DEPTH (min/inch)	UPPER AND LOWER LIMITS OF RECOMMENDED HORIZON (inches)	RECOMMENDED TRENCH DEPTH (inches)	SUITABILITY CODE (listed below)
PACOLET	20-30	>72	>72	45	24-48	30	A
WEDOWEE	25-30	>72	>72	45	24-48	30	A
ASHLAR	15-30	36	>36	SEE CODES	SEE CODES	SEE CODES	H

SUITABILITY CODES

Suitability Code	Description
A	These soil series are suitable for installation of on-site systems with proper system design, installation, and maintenance.
H	These soils have bedrock limitations and are not suitable for installation of a conventional on-site system without special design or installation. Non-conventional system design and installation must be approved by the local Environmental Health Specialist.

GENERAL NOTES

AEI selected the test boring locations in area designated by others as the potential septic field location. The test borings were located using a Trimble Catalyst DA2 GNSS Receiver, are illustrated on the site map, and were flagged in the field. Soils are only one factor in achieving a successful on-site wastewater management system. AEI recommends that the on-site wastewater management system be properly designed, correctly installed and periodically maintained. No soil map unit is taxonomically pure and there are always inclusions of other soil types. The goal of the soil survey is to minimize the area of soils that interpret differently from the named unit. If deviations from the noted subsurface conditions are encountered during installation, they should be brought to the attention of the Engineer. The information and or recommendations presented in this report are based on current site conditions and ground surface elevations. Any land disturbing activities such as grading and filling may significantly alter the site soil and groundwater characteristics.

If site conditions are altered, this report will be considered to be null and void and will require a review of the site conditions and possibly a revised Level 3 Soil Survey. A copy of AEI's current insurance coverage is enclosed.

BOUNDARY AND TOPOGRAPHIC SURVEY DATA
PROVIDED BY BREEDLOVE LAND PLANNING.
NO WARRANTY, EXPRESS OR IMPLIED IS MADE
TO THE ACCURACY OF THE DATA.

GEORGIA REGISTERED No. PE26752 PROFESSIONAL ENGINEER RYAN D. WOODCUM

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

LIMITED LEVEL 3 SOIL SURVEY
ROCKDALE FIRE TRAINING FACILITY
AEI PROJECT NO. 01-244025

AHLBERG ENGINEERING, INC.
525 WEBB INDUSTRIAL DRIVE, SUITE A
MARIETTA, GA 30062
770-919-9968

PREPARED FOR
MATRIX ENGINEERING GROUP, INC.

SCALE: 1" = 50' DATE: 09-19-24

LAND LOTS 236 & 237, 11TH DISTRICT

ROCKDALE COUNTY, GEORGIA

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 06/11/2024

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	CONTACT NAME: Ashton Weig
RSC Insurance Brokerage, Inc. 1745 N. Brown Road Suite 250 Lawrenceville GA 30043	PHONE (A/C, No, Ext): FAX (A/C, No): E-MAIL ADDRESS: aweig@risk-strategies.com

INSURER(S) AFFORDING COVERAGE	NAIC #
INSURER A : Berkley Insurance Company	32603
INSURER B :	
INSURER C :	
INSURER D :	
INSURER E :	
INSURER F :	

INSURED

Ahlberg Engineering, Inc.
525 Webb Industrial Drive
Suite A
Marietta GA 30062

COVERAGES **CERTIFICATE NUMBER:** CL2461159771 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
	COMMERCIAL GENERAL LIABILITY ☐ CLAIMS-MADE ☐ OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: ☐ POLICY ☐ PRO-JECT ☐ LOC ☐ OTHER:						EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG 	$ $ $ $ $ $ $
	AUTOMOBILE LIABILITY ☐ ANY AUTO ☐ OWNED AUTOS ONLY ☐ SCHEDULED AUTOS ☐ HIRED AUTOS ONLY ☐ NON-OWNED AUTOS ONLY						COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident) 	$ $ $ $ $
	☐ **UMBRELLA LIAB** ☐ OCCUR ☐ **EXCESS LIAB** ☐ CLAIMS-MADE ☐ DED ☐ RETENTION $						EACH OCCURRENCE AGGREGATE 	$ $ $
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY Y / N ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? ☐ N / A **(Mandatory in NH)** If yes, describe under DESCRIPTION OF OPERATIONS below						☐ PER STATUTE ☐ OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	 $ $ $
A	Professional Liabililty			AEC-9077747-08	06/24/2024	06/24/2025	Each Claim Annual Aggregate	$2,000,000 $2,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

Jim Ahlberg and Ryan Woodcum are insured under this policy while acting on behalf of Ahlberg Engineering, Inc.

CERTIFICATE HOLDER

Georgia Department of Public Health
Environmental Health Section
#2 Peachtree St., NW., 13th FL
Atlanta GA 30303

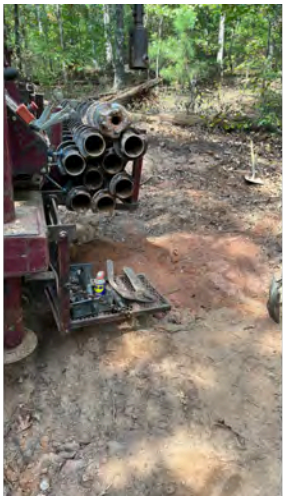
CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

RSC Insurance Brokerage Inc.

matrix engineering group	Project Name: Rockdale County Fire Training Facility - Geotechnical	
	Project Location: 2349 Smyrna Rd SW, Conyers, GA 30094, USA	
	Client: Jericho Design Group, LLC	Project Code: MEG 303074
	Preparer: Sulemana Alhassan	Reviewer: Sam Alyateem, PE
	Report Date: 2024-10-09	Page Number: 1 of 8



Media 1: B-1

Weather: Sunny

Lat/Lng: 33.6305,-84.0801
Bearing: N
Date Taken: 09/23/2024

Taken By: Sulemana J. A
Tags:

Media 2: B-2

Weather: Sunny

Lat/Lng: 33.6305,-84.0793
Bearing: S
Date Taken: 09/30/2024

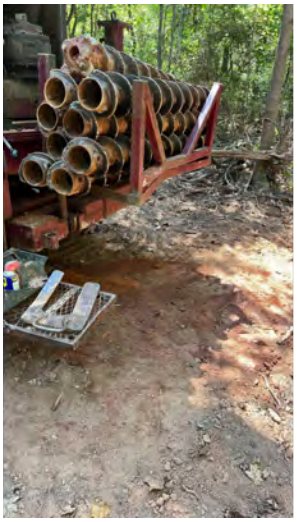
Taken By: Sulemana J. A
Tags:

Media 3: B-3

Weather: Partly cloudy

Lat/Lng: 33.6302,-84.0794
Bearing: W
Date Taken: 09/30/2024

Taken By: Sulemana J. A
Tags:



Media 4: B-4

Weather: Sunny

Lat/Lng: 33.6302,-84.0801
Bearing: S
Date Taken: 09/23/2024

Taken By: Sulemana J. A
Tags:

matrix engineering group

Project Name: Rockdale County Fire Training Facility - Geotechnical

Project Location: 2349 Smyrna Rd SW, Conyers, GA 30094, USA

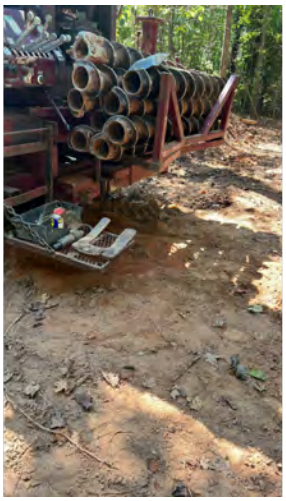
Client: Jericho Design Group, LLC

Project Code: MEG 303074

Preparer: Sulemana Alhassan

Reviewer: Sam Alyateem, PE

Report Date: 2024-10-09



Media 5: B-5

Weather: Sunny

Lat/Lng: 33.6304,-84.0808
Bearing: S
Date Taken: 09/23/2024

Taken By: Sulemana J. A

Tags:

Media 6: B-6

Weather: Sunny

Lat/Lng: 33.6301,-84.0805
Bearing: E
Date Taken: 09/23/2024

Taken By: Sulemana J. A

Tags:

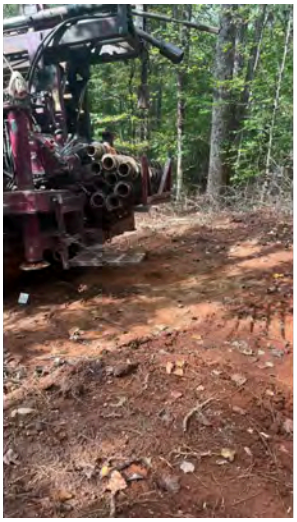
Media 7: B-7

Weather: Partly cloudy

Lat/Lng: 33.6297,-84.0809
Bearing: SE
Date Taken: 09/24/2024

Taken By: Sulemana J. A

Tags:



Media 8: B-8

Weather: Partly cloudy

Lat/Lng: 33.6299,-84.0806
Bearing: SW
Date Taken: 09/25/2024

Taken By: Sulemana J. A

Tags:

matrix engineering group

Project Name: Rockdale County Fire Training Facility - Geotechnical

Project Location: 2349 Smyrna Rd SW, Conyers, GA 30094, USA

Client: Jericho Design Group, LLC

Project Code: MEG 303074

Preparer: Sulemana Alhassan

Reviewer: Sam Alyateem, PE

Report Date: 2024-10-09

Media 9: B-9

Weather: Sunny

Lat/Lng: 33.6296,-84.0801
Bearing: W
Date Taken: 09/24/2024

Taken By: Sulemana J. A
Tags:

Media 10: B-10

Weather: Fog

Lat/Lng: 33.6298,-84.0795
Bearing: NW
Date Taken: 09/30/2024

Taken By: Sulemana J. A
Tags:

Media 11: B11

Weather: Partly cloudy

Lat/Lng: 33.6296,-84.0795
Bearing: NW
Date Taken: 09/30/2024

Taken By: Sulemana J. A
Tags:

Media 12: B-12

Weather: Partly cloudy

Lat/Lng: 33.6294,-84.0794
Bearing: W
Date Taken: 09/30/2024

Taken By: Sulemana J. A
Tags:

matrix engineering group

Project Name: Rockdale County Fire Training Facility - Geotechnical

Project Location: 2349 Smyrna Rd SW, Conyers, GA 30094, USA

Client: Jericho Design Group, LLC

Project Code: MEG 303074

Preparer: Sulemana Alhassan

Reviewer: Sam Alyateem, PE

Report Date: 2024-10-09

Media 13: B-13

Weather: Partly cloudy

Lat/Lng: 33.6300,-84.0793
Bearing: SW
Date Taken: 09/30/2024

Taken By: Sulemana J. A
Tags:

Media 14: B-14

Weather: Partly cloudy

Lat/Lng: 33.6297,-84.0791
Bearing: E
Date Taken: 09/30/2024

Taken By: Sulemana J. A
Tags:

Media 15: B-15

Weather: Partly cloudy

Lat/Lng: 33.6293,-84.0802
Bearing: NE
Date Taken: 09/25/2024

Taken By: Sulemana J. A
Tags:

Media 16: B-16

Weather: Partly cloudy

Lat/Lng: 33.6293,-84.0805
Bearing: SE
Date Taken: 09/25/2024

Taken By: Sulemana J. A
Tags:

matrix engineering group

Project Name: Rockdale County Fire Training Facility - Geotechnical

Project Location: 2349 Smyrna Rd SW, Conyers, GA 30094, USA

Client: Jericho Design Group, LLC

Project Code: MEG 303074

Preparer: Sulemana Alhassan

Reviewer: Sam Alyateem, PE

Report Date: 2024-10-09

Media 17: B-17

Weather: Partly cloudy

Lat/Lng: 33.6292,-84.0806
Bearing: S
Date Taken: 09/25/2024

Taken By: Sulemana J. A
Tags:

Media 18: B-18

Weather: Partly cloudy

Lat/Lng: 33.6291,-84.0800
Bearing: SE
Date Taken: 09/25/2024

Taken By: Sulemana J. A
Tags:

Media 19: B-19

Weather: Fog

Lat/Lng: 33.6291,-84.0792
Bearing: N
Date Taken: 09/30/2024

Taken By: Sulemana J. A
Tags:

Media 20: B-20

Weather: Sunny

Lat/Lng: 33.6294,-84.0805
Bearing: N
Date Taken: 09/24/2024

Taken By: Sulemana J. A
Tags:

matrix engineering group

Project Name: Rockdale County Fire Training Facility - Geotechnical

Project Location: 2349 Smyrna Rd SW, Conyers, GA 30094, USA

Client: Jericho Design Group, LLC

Project Code: MEG 303074

Preparer: Sulemana Alhassan

Reviewer: Sam Alyateem, PE

Report Date: 2024-10-09

Media 21: B-21

Weather: Partly cloudy

Lat/Lng: 33.6296,-84.0808
Bearing: SE
Date Taken: 09/24/2024

Taken By: Sulemana J. A
Tags:

Media 22: B-22

Weather: Partly cloudy

Lat/Lng: 33.6290,-84.0811
Bearing: SE
Date Taken: 09/23/2024

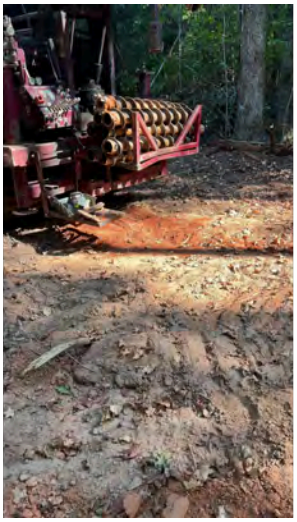
Taken By: Sulemana J. A
Tags:

Media 23: B-23

Weather: Partly cloudy

Lat/Lng: 33.6295,-84.0811
Bearing: SW
Date Taken: 09/23/2024

Taken By: Sulemana J. A
Tags:



Media 24: B-24

Weather: Partly cloudy

Lat/Lng: 33.6185,-84.0678
Bearing: N
Date Taken: 09/23/2024

Taken By: Sulemana J. A
Tags:

matrix engineering group

Project Name: Rockdale County Fire Training Facility - Geotechnical

Project Location: 2349 Smyrna Rd SW, Conyers, GA 30094, USA

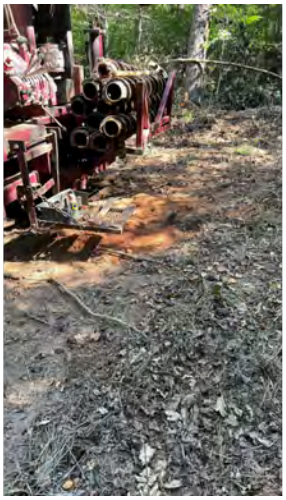
Client: Jericho Design Group, LLC

Project Code: MEG 303074

Preparer: Sulemana Alhassan

Reviewer: Sam Alyateem, PE

Report Date: 2024-10-09



Media 25: B-25

Weather: Sunny

Lat/Lng: 33.6302,-84.0812
Bearing: N
Date Taken: 09/23/2024

Taken By: Sulemana J. A
Tags:

Media 26: I1

Weather: Partly cloudy

Lat/Lng: 33.6289,-84.0800
Bearing: NW
Date Taken: 09/25/2024

Taken By: Omar Abu-Khal
Tags: Sheet 1: Rockdale Fire Training Facility - Concept

Media 27: I2

Weather: Partly cloudy

Lat/Lng: 33.6293,-84.0802
Bearing: NE
Date Taken: 09/25/2024

Taken By: Omar Abu-Khal
Tags: Sheet 1: Rockdale Fire Training Facility - Concept

matrix engineering group

Project Name: Rockdale County Fire Training Facility - Geotechnical

Project Location: 2349 Smyrna Rd SW, Conyers, GA 30094, USA

Client: Jericho Design Group, LLC

Project Code: MEG 303074

Preparer: Sulemana Alhassan

Reviewer: Sam Alyateem, PE

Report Date: 2024-10-09