

**GEOTECHNICAL INVESTIGATION
CROSSROADS MIXED USE - ALT 1 PAD BUILDING
WEST OF THE INTERSECTION OF
U.S. HIGHWAY 24 AND COLORADO STATE HIGHWAY 94
COLORADO SPRINGS, COLORADO**

Prepared for:

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Project No. CS19629.001-125

December 14, 2022

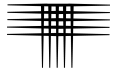


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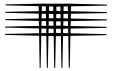
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FIG. 1 – LOCATION OF EXPLORATORY BORINGS

FIG. 2 – SUMMARY LOGS OF EXPLORATORY BORINGS

FIGS. 3 AND 4 – GRADATION TEST RESULTS

TABLE 1 – SUMMARY OF LABORATORY TESTING



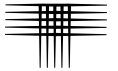
SCOPE

This report presents the results of our Geotechnical Investigation for a proposed commercial pad building referred to as the Alt 1 Pad Site. The pad site is planned as a Starbucks restaurant containing a drive thru and is to be constructed near the west corner of the intersection of U.S. Highway 24 and Colorado State highway 94 in Colorado Springs, Colorado. The purpose of our investigation was to evaluate subsurface conditions at the site in order to develop geotechnical design criteria for the proposed restaurant building and site improvements. This report summarizes the results of our field and laboratory investigations, and presents our design and construction recommendations for foundations, floor systems, and pavement section alternatives, as well as other details influenced by subsurface conditions. We believe the investigation was completed in accordance with our proposal (CTL|T Proposal No. CS-22-0176) dated September 29, 2022. Evaluation of the property for the possible presence of potentially hazardous materials (environmental site assessment) is beyond the scope of this investigation.

The report was prepared based on conditions disclosed by our exploratory borings, results of laboratory tests, engineering analyses, and our experience. The design criteria presented in the report were based on our understanding of the planned construction. The following section summarizes the report. More detailed descriptions of subsurface conditions, as well as our design and construction recommendations, are presented in the report.

SUMMARY OF CONCLUSIONS

1. The near surface soils encountered in the two exploratory borings drilled during this investigation consisted of 20 to 30 feet of slightly silty to silty sand. Bedrock was not encountered in the exploratory borings.
2. At the time of drilling, groundwater was not encountered in the exploratory borings drilled to depths 30 feet. When checked 3 days following the completion of the drilling operations, the borings were again found

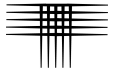


to be dry. Groundwater elevations will vary with seasonal precipitation and landscaping irrigation.

3. We believe the proposed building can be constructed on a spread footing foundation system underlain by new, properly moisture conditioned and densely compacted fill.
4. We judge the risk of poor slab-on-grade performance to be low for slabs constructed on properly moisture conditioned and densely compacted fill.
5. The parking lots can be paved with 3 inches of asphalt concrete over 6 inches of aggregate base course. Alternative pavement recommendations are discussed in the report.
6. Overall surface drainage should provide for the rapid removal of runoff away from the proposed building and off of the pavement areas.
7. The design and construction criteria for foundations and slabs-on-grade included in this report were compiled with the expectation that all recommendations will be incorporated into the project and that the property manager will maintain the structures, use prudent irrigation practices, and maintain surface drainage. It is critical that all recommendations in this report are followed.

PROPOSED CONSTRUCTION

We understand the proposed Alt 1 Pad Building will consist of a Starbucks restaurant and drive thru. The building is planned as a single story, 2,400 square-foot, single-story, structure with a slab-on-grade floor. No below grade levels are planned. Exterior improvements will include areas of concrete flatwork, asphalt paved parking and drive aisles, and underground utilities. We understand the building will be constructed using steel framing with steel joists and decking for the roof. Stucco or other similar exterior finishes are planned. Structural loading is expected to light to moderate considering the type of construction. Detailed grading plans and finish floor elevations were not available at the time of this report. Based on the existing gently sloping grades of the site and the adjacent rough grades of the adjacent roadways, we expect maximum cuts and fills will be less than 3 feet to achieve final grades.



SITE CONDITIONS

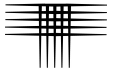
At the time of our investigation, the overall Crossroads Mixed-Use development had been rough site graded. Utility installation was not complete. Roadways were rough graded without curb and gutter. Aerial photography of the overall site indicate grading and construction has generally taken place during the years of 2021 and 2022. The Alt 1 Pad site is centrally located at the overall development, adjacent to the intersection of U.S. Highway 24. The site is about 0.9-acres in size and is bordered on the southeast by Colorado State Highway 94. Areas to the northeast, northwest, and southwest consist of vacant, rough graded commercial lots. The site exhibits a gently sloping ground surface descending at an approximate gradient of less than about 1 percent to the west. The lot is devoid of vegetation due to recent site grading. The general vicinity of the property is presented in Fig. 1.

SUBSURFACE INVESTIGATION

Subsurface conditions at the site were investigated by drilling two exploratory borings at the approximate locations shown on Fig. 1. The borings were located at opposing corners of the proposed building, based on a preliminary site plan provided by the client. The exploratory borings were advanced to depths of 20 to 30 feet using a 4-inch diameter, continuous-flight auger, and a truck-mounted drill rig.

Samples of the soils were obtained at 5 to 10-foot intervals using a 2.5-inch diameter (O.D.) modified California barrel sampler driven by blows from a 140-pound hammer falling 30 inches. Bulk samples were obtained from the upper 4 feet of the borings. A representative of CTL|Thompson, Inc. was present during drilling to observe drilling operations, log the subsurface conditions encountered in the borings, and obtain samples for laboratory tests.

Samples were returned to our laboratory where they were examined by the geotechnical engineer for this project, and laboratory tests were assigned. Laboratory



tests included dry density, moisture content, Atterberg limits, sieve analysis, and water-soluble sulfate content. Graphical logs of the conditions found in our exploratory borings, the results of field penetration resistance tests, and a portion of laboratory test data are presented in Fig. 2. Gradation test results are presented in Figs 3 and 4. Laboratory test data are summarized in Table 1.

SUBSURFACE CONDITIONS

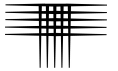
Subsurface conditions found within the borings consisted of natural, slightly sandy to silty sand to the maximum depths explored of 30 feet. Bedrock was not encountered in the exploratory borings. Some of the pertinent engineering characteristics of the soils and bedrock encountered and groundwater conditions are discussed in the following paragraphs.

Sand Soils

The soils encountered consisted of clean to silty sand. The sand encountered in the borings extended to the maximum depth explored of 30-feet below the existing ground surface. The near surface sands were loose, becoming medium dense to very dense with depth based on the results of field penetration resistance tests. Samples of the sand tested in our laboratory contained 9 to 18 percent clay and silt-sized particles (passing the No. 200 sieve). Our experience indicates the clean to silty sands are non-expansive when wetted. Testing indicates the sand soils may exhibit moderate collapse-prone properties when wetted.

Seismicity

The soil is not expected to respond unusually to seismic activity. According to the 2015 International Building Code (IBC), we judge the site classifies as Site Class D (stiff soil).



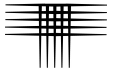
SITE DEVELOPMENT

We anticipate spread footing foundations are the preferred foundation alternative for the proposed Starbucks. Grading plans have not been provided; however, we expect the roughly graded site is near proposed finished grade elevations. The most significant geotechnical constraint is the presence of loose, potentially collapse prone near surface silty sands found at depths anticipated to impact new foundations. Collapse prone soils may be susceptible to hydro-collapse, a phenomenon where soils undergo a decrease in volume (consolidate rapidly) upon an increase in moisture content, with or without an increase in external load. The presence of collapse prone soils implies risk that slab-on-grade and foundations will settle and be damaged. We believe the presence of collapse prone soils at this site present a moderate risk without mitigation. Accordingly, we recommend over-excavation below the proposed building as described below in the Over-Excavation section. The following sections discuss our recommendations for design and construction of the commercial building.

Over Excavation

Over excavation of the near surface, loose silty sand soils will reduce the risk of excessive differential movement associated with collapse prone soils and create a more uniform bearing layer for support of the proposed structure. We recommend the building foundations be constructed on at least a 4-foot-thick layer of new fill consisting of the on-site soils that have been densely compacted and processed with moisture. The thickness of fill should be measured from the lowest member of the foundation element.

The excavation should extend laterally at least 5 feet beyond the outer edges of the footings. Fill should be placed in accordance with the criteria set forth in the Fill Placement section of this report. Our representative should observe the completed excavation prior to any backfill placement to verify the conditions exposed in the excavation are as expected. The placement and compaction of fill below foundations



and foundation subgrade preparation should be observed and tested by a representative of our firm during construction.

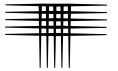
Excavation

We believe shallow cuts into the near-surface materials for foundations and of utilities can be excavated with conventional, heavy-duty excavation equipment. Based on our investigation and Occupational Safety and Health Administration (OSHA) standards, we believe the surficial clayey sand soils classify as Type C. Type C soil requires a maximum slope inclination of 1.5:1 (horizontal to vertical) for dry conditions. Excavation slopes specified by OSHA are dependent on the types of soil and groundwater conditions encountered. The contractor's "competent person" should identify the soils encountered in the excavations and refer to OSHA standards to determine appropriate slopes. Stockpiles of soils and equipment should not be placed within a horizontal distance equal to one-half the excavation depth, from the edge of the excavation.

Fill Placement

The on-site soils are suitable for use as site grading fill, provided they are free of debris, vegetation/organics, and other deleterious materials. Soil particles larger than 2 inches in diameter should not be used for fill. Imported fill should ideally consist of soil having a maximum particle size of 2 inches and less than 30 percent passing the No. 200 sieve. The import material should exhibit a Liquid Limit of less than 30 and a Plasticity Index of less than 15. A sample of any potential imported fill material should be submitted to our office for testing prior to its use at the site.

Soils containing high organic content materials should be removed and excluded from the new fill. Areas to receive fill should be scarified to a depth of 8 inches, moisture conditioned to near optimum moisture content, and compacted to provide a firm subgrade surface prior to fill placement. New fill should be placed in thin (8 inches or less), loose lifts that have been moisture conditioned to within 2 percent



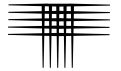
of optimum moisture content and compacted to at least 95 percent of maximum modified Proctor dry density (ASTM D 1557). Placement and compaction of the fill should be observed and tested by a representative of our firm during construction.

Water and sewer lines are often constructed beneath slabs and pavements. Compaction of utility trench backfill can have a significant effect on the life and serviceability of floor slabs, pavements, and exterior flatwork. We recommend utility trench backfill be moisture conditioned to within 2 percent of optimum moisture content and compacted to at least 95 percent of maximum modified Proctor dry density (ASTM D 1557). We recommend utility pipes be adequately bedded to reduce the risk of stress concentrations along the bottom of the pipe. Our experience indicates the use of a self-propelled compactor results in more reliable performance compared to trench backfill compacted by a sheep'sfoot wheel attachment on a backhoe or trackhoe. The upper portion of the trenches should be widened to allow the use of a self-propelled compactor. The placement and compaction of utility trench backfill should be observed and tested by a representative of our firm during construction.

Permanent cut and fill slopes should be stable at a slope ratio of 3:1 (horizontal to vertical) or flatter. Use of flatter slopes (4:1) is preferable to control erosion from run-off and sheet-flow. Seeding and re-vegetation can also be used to reduce erosion.

FOUNDATIONS

Based on our exploratory borings and understanding of the proposed construction, we anticipate natural, loose to very dense silty sand materials are present at elevations that will influence the performance of spread footing foundations. Footing foundations constructed on loose, potentially collapse-prone soils may experience differential settlement and associated foundation damage. In our opinion, a footing foundation is appropriate, provided the loose sands are over excavated to a

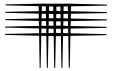


uniform depth of at least 4 feet below bottom of footing foundations and throughout the entire building footprint. Design and construction criteria for the footing foundation are presented below.

1. Spread footings constructed on properly compacted and moisture conditioned fill, as previously discussed, can be designed for a maximum allowable soil pressure of 3,000 psf.
2. We recommend footings beneath continuous foundation walls be at least 16 inches wide. Footings beneath isolated column pads should be at least 24 inches square. Larger footing sizes may be required to accommodate the anticipated foundation loads.
3. Foundation walls should be well-reinforced. We recommend reinforcement sufficient to span an unsupported distance of at least 10 feet.
4. We recommend designs consider total movement of 1-inch and differential movement of 1/2-inch.
5. Exterior footings must be protected from frost action. Normally, 30 inches of frost cover is assumed in the area.
6. A representative of our firm should observe the completed foundation excavation to confirm the exposed conditions are similar to those encountered in our exploratory borings. The placement and compaction of below-footing fill and footing subgrade preparation should be observed and tested by a representative of our firm during construction.
7. Excessive wetting of foundation soils during and after construction can cause heave or softening and settlement of foundation soils and result in footing and slab movements. Proper surface drainage around the building is critical to control wetting.

FLOOR SYSTEMS

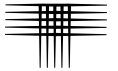
We understand a slab-on-grade floor is considered the preferred floor system alternative for the proposed building. We believe a low risk of poor slab performance (movement and damage) will exist for a floor slab underlain by a uniform thick layer of properly compacted and moisture conditioned fill, as previously discussed. Our representative should observe and test the placement and compaction of below-slab fill during construction. We estimate about 1-inch of differential movement is possible between a lightly loaded slab-on-grade floor and the more heavily loaded founda-



tions. Movement is expected due to settlement of foundations and is generally expected to occur relatively quickly as building loads are applied to the granular soils during construction. If differential movement cannot be tolerated, a structurally supported floor should be considered.

If the owner elects to use slab-on-grade construction and accepts the risk of movement and associated damage, we recommend the following precautions for slab-on-grade construction at this site. These recommendations will not prevent movement. Rather, they tend to reduce damage if movement occurs.

1. The slab should be separated from exterior walls and interior bearing members with slip joints that allow free vertical movement of the slab. This detail can reduce cracking if movement of the slab occurs.
2. Slab-bearing partitions should be designed and constructed to allow for slab movement. The slip joint should accommodate at least 1.5 inches of apparent slab movement. If the “float” is provided at the tops of partitions, the connection between interior, slab-supported partitions and exterior, foundation-supported walls should be detailed to allow differential movement. These architectural connections are critical to help reduce cosmetic damage when foundations and floor slabs move relative to each other. We have seen instances where these architectural connections were not designed and constructed properly and resulted in moderate cosmetic damage, even though the movement experienced was well within the anticipated range. The architect should pay special attention to these issues and detail the connections accordingly.
3. While, in our opinion, there is no need from a geotechnical standpoint for a vapor retarder at this site, the 2015 International Building Code (IBC) requires a vapor retarder be placed between a base course layer or the subgrade soils and a concrete slab-on-grade floor, unless the designer of the floor waives this requirement. The merits of installing a vapor retarder below the floor slab depend on the sensitivity of floor coverings and building use to moisture. A properly installed vapor retarder (10 mil minimum) is more beneficial below concrete slab-on-grade floors where floor coverings, painted floor surfaces or products stored on the floor will be sensitive to moisture. The vapor retarder is most effective when concrete is placed directly on top of it, rather than placing a sand or gravel leveling course between the vapor retarder and the floor slab. We typically do not recommend a sand or gravel leveling course be placed between the vapor retarder and the floor slab as this layer will provide a permeable zone through which a point water source

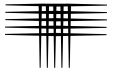


can move beneath the entire floor slab. The placement of concrete on the vapor retarder may increase the risk of shrinkage cracking and curling. Use of concrete with reduced shrinkage characteristics including minimized water content, maximized coarse aggregate content, and reasonably low slump will reduce the risk of shrinkage cracking and curling. Considerations and recommendations for the installation of vapor retarders below concrete slabs are outlined in Section 3.2.3 of the 2006 report of the American Concrete Institute (ACI) Committee 302, "Guide for Concrete Floor and Slab Construction (ACI 302.R-96)"

4. Masonry partition walls (load bearing or not) should be placed on their own foundations and not on a thickened slab.
5. Underslab plumbing should be eliminated where feasible. Where such plumbing is unavoidable it should be thoroughly pressure tested for leaks prior to slab construction and be provided with flexible couplings. Pressurized water supply lines should be brought above the floor as quickly as possible.
6. Plumbing and utilities that pass through the slab should be isolated from the slab and constructed with flexible couplings. Utilities, as well as electrical and mechanical equipment should be constructed with sufficient flexibility to allow for movement.
7. HVAC systems supported by the slab (if any) should be provided with flexible connections capable of withstanding at least 1 inch of movement.
8. The American Concrete Institute (ACI) recommends frequent control joints be provided in slabs to reduce problems associated with shrinkage cracking and curling. To reduce curling, the concrete mix should have a high aggregate content and a low slump. If desired, a shrinkage compensating admixture could be added to the concrete to reduce the risk of shrinkage cracking. We can perform a mix design or assist the design team in selecting a pre-existing mix.

Exterior Flatwork

We recommend exterior flatwork and sidewalks be isolated from the foundation to reduce the risk of transferring heave, settlement, or freeze-thaw movement to the structure. One alternative would be to construct the inner edges of the flatwork on haunches or steel angles bolted to the foundation walls and detail the connections such that movement will cause less distress to the building, rather than tying the



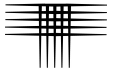
slabs directly into the building foundation. Construction on haunches or steel angles and reinforcing the sidewalks and other exterior flatwork will reduce the potential for differential settlement and better allow them to span across wall backfill. Frequent control joints should be provided to reduce problems associated with shrinkage cracking. Panels that are approximately square perform better than rectangular areas.

BELOW-GRADE CONSTRUCTION

It is our understanding that no habitable, below-grade construction is planned for the proposed building. If plans change and below-grade areas such as a basement level will be included in the structure, our office should be contacted to provide design criteria for lateral earth pressures and subsurface drain systems.

PAVEMENTS

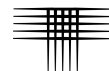
Paved access driveways, a drive thru, and automobile parking areas will surround the proposed restaurant building. Our exploratory borings and understanding of the proposed construction suggest the subgrade soils within the planned pavement areas will consist predominantly of natural silty sand. A sample was tested to classify the pavement subgrade materials and evaluate index properties for the soils that will influence pavement design. The sample contained 15 percent silt and clay-sized particles (passing the No. 200 sieve). The sample was non-plastic. The pavement subgrade sample classified as SM soils using the Unified Soil Classification System (USCS) and A-2-4 material according to the American Association of State Highway Transportation Officials (AASHTO) classification system. This type of material generally exhibits good to excellent pavement support characteristics. Based on our laboratory classification testing (Atterberg Limits and sieve analysis), a Hveem Stabilometer ("R") value of 40 was assigned to the subgrade materials for design purposes.



We anticipate the access driveways will be subjected to occasional heavy vehicle loads such as trash and delivery trucks. We considered daily traffic numbers (DTN) of 5 for the automobile parking lot and access driveways, which correspond to 18-kip Equivalent Single-Axle Loads (ESAL) of 36,500 for a 20-year pavement design life. We believe the automobile parking stalls and drive lanes can be paved with 4.5 inches of asphalt concrete or 3 inches of asphalt concrete over 6 inches of aggregate base course. As an alternative to an asphalt paving system, the proposed access drives and parking lots can be paved with 6 inches of plain portland cement concrete placed on a prepared subgrade.

We recommend a concrete pad be provided at the trash dumpster site. The pad should be at least 8 inches thick and long enough to support the entire length of the trash truck and dumpster. Joints between concrete and asphalt pavements should be sealed with a flexible compound.

Our design considers pavement construction will be completed in accordance with the City of Colorado Springs "Standard Specifications" and the Pikes Peak Region Asphalt Paving Specifications. The specifications contain requirements for the pavement materials (asphalt, base course, and concrete) as well as the construction practices used (compaction, materials sampling, and proof-rolling). Of particular importance are those recommendations directed toward subgrade and base course compaction and proof-rolling. During proof-rolling, attention should be directed toward the areas of confined backfill compaction such as utility trenches. Soft or loose subgrade or areas that pump excessively should be stabilized prior to pavement construction. Subgrade areas that pass the proof-roll should be stable enough to pave. A representative of our office should be present at the site during placement of fill and construction of pavements to perform density testing.



CONCRETE

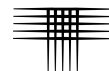
Concrete in contact with soil can be subject to sulfate attack. We measured water-soluble sulfate concentrations of at less than 0.1 percent in one sample. As indicated in our tests and ACI 318-19, the sulfate exposure class is *Not Applicable* or S0.

SULFATE EXPOSURE CLASSES PER ACI 318-19

Exposure Classes		Water-Soluble Sulfate (SO ₄) in Soil ^A (%)
Not Applicable	S0	< 0.10
Moderate	S1	0.10 to 0.20
Severe	S2	0.20 to 2.00
Very Severe	S3	> 2.00

A) Percent sulfate by mass in soil determined by ASTM C1580

For this level of sulfate concentration, ACI 318-19 *Code Requirements* indicates there are no, special cement type requirements for sulfate resistance as indicated in the table below.

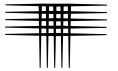


CONCRETE DESIGN REQUIREMENTS FOR SULFATE EXPOSURE PER ACI 318-19

Exposure Class		Maximum Water/Cement Ratio	Minimum Compressive Strength (psi)	Cementitious Material Types ^A			Calcium Chloride Admixtures
				ASTM C150/C150M	ASTM C595/C595M	ASTM C1157/C1157M	
S0		N/A	2500	No Type Restrictions	No Type Restrictions	No Type Restrictions	No Restrictions
S1		0.50	4000	II ^B	Type with (MS) Designation	MS	No Restrictions
S2		0.45	4500	V ^B	Type with (HS) Designation	HS	Not Permitted
S3	Option 1	0.45	4500	V + Pozzolan or Slag Cement ^C	Type with (HS) Designation plus Pozzolan or Slag Cement ^C	HS + Pozzolan or Slag Cement ^C	Not Permitted
S3	Option 2	0.4	5000	V ^D	Type with (HS) Designation	HS	Not Permitted

- A) Alternate combinations of cementitious materials shall be permitted when tested for sulfate resistance meeting the criteria in section 26.4.2.2(c).
- B) Other available types of cement such as Type III or Type I are permitted in Exposure Classes S1 or S2 if the C3A contents are less than 8 or 5 percent, respectively.
- C) The amount of the specific source of pozzolan or slag to be used shall not be less than the amount that has been determined by service record to improve sulfate resistance when used in concrete containing Type V cement. Alternatively, the amount of the specific source of the pozzolan or slag to be used shall not be less than the amount tested in accordance with ASTM C1012 and meeting the criteria in section 26.4.2.2(c) of ACI 318.
- D) If Type V cement is used as the sole cementitious material, the optional sulfate resistance requirement of 0.040 percent maximum expansion in ASTM C150 shall be specified.

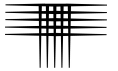
Superficial damage may occur to the exposed surfaces of highly permeable concrete. To control this risk and to resist freeze-thaw deterioration, the water-to-cementitious materials ratio should not exceed 0.50 for concrete in contact with soils that are likely to stay moist due to surface drainage or high-water tables. Concrete should have a total air content of 6 percent \pm 1.5 percent. We advocate damp-proofing of all foundation walls and grade beams in contact with the subsoils.



SURFACE DRAINAGE

Performance of the foundation system, floor slabs, pavements, and concrete flatwork to be constructed at this site will be influenced by the moisture conditions existing within the near-surface soils. Overall surface drainage patterns must be planned to provide for the rapid removal of storm runoff. Water should not be allowed to pond adjacent to foundations or over pavements or concrete flatwork. We recommend the following precautions be observed during construction and maintained at all times after the building is completed.

1. Excessive wetting or drying of the open foundation excavation should be avoided.
2. Foundation wall backfill should be graded to provide for the rapid removal of runoff. We recommend a slope equivalent to at least 6 inches in the first 10 feet. In flatwork areas adjacent to the structure, the slope may be reduced to comply with ADA requirements.
3. Backfill around foundations should be moistened and compacted according to criteria presented in Fill Placement.
4. Roof downspouts and drains should discharge well away from the building. Downspout extensions and/or splash blocks should be provided to help reduce infiltration into the backfill adjacent to the structure.
5. Landscaping concepts should concentrate on use of plantings that require little or no supplemental irrigation after the vegetation is established. Irrigated sod, if it is included in the landscaping plan, should not be located within 6 feet of the foundation walls. Irrigation should be limited to the minimum amount sufficient to maintain vegetation. Application of more water will increase likelihood of slab and foundation movements.
6. Backfill around foundations should be moistened and compacted according to criteria presented in Fill Placement.



CONSTRUCTION OBSERVATIONS

We recommend that CTL|Thompson, Inc. provide construction observation services to allow us the opportunity to confirm subsurface conditions are consistent with those found during this investigation. If others perform these observations, they must accept responsibility to judge whether the recommendations in this report remain appropriate.

GEOTECHNICAL RISK

The concept of risk is an important aspect with any geotechnical evaluation primarily because the methods used to develop geotechnical recommendations do not comprise an exact science. We never have complete knowledge of subsurface conditions. Our analysis must be tempered with engineering judgment and experience. Therefore, the recommendations presented in any geotechnical evaluation should not be considered risk-free. Our recommendations represent our judgment of those measures that are necessary to increase the chances that the structures will perform satisfactorily. It is critical that all recommendations in this report are followed during construction. The owner must assume responsibility for maintaining the structure and use appropriate practices regarding drainage.

LIMITATIONS

This report has been prepared for the exclusive use of Colorado Springs Equities for the purpose of providing geotechnical design and construction criteria for the proposed Alt 1 Commercial Pad Building planned to be constructed as a Starbucks located at the Crossroads Mixed Use Commercial development. The information, conclusions, and recommendations presented herein are based upon consideration of many factors including, but not limited to, the type of structure proposed, the geologic setting, and the subsurface conditions encountered. The conclusions and recommendations contained in the report are not valid for use by others. Standards of practice continuously evolve in the area of geotechnical engineering. The recom-



mendations provided are appropriate for about three years. If the project is not constructed within about three years, we should be contacted to determine if we should update this report.

Our borings were spaced to obtain a reasonably accurate picture of foundation conditions below the proposed building area. Locations were limited by the existing structure. The data are representative of conditions encountered only at the exact boring locations. Variations in the subsurface conditions not indicated by our borings are possible. Representatives of our firm should periodically visit the site during construction to perform observation and testing services.

We believe this investigation was conducted in a manner consistent with that level of skill and care normally used by geotechnical engineers practicing in this area at this time. No warranty, express or implied, is made.

If we can be of further service in discussing the contents of this report or in the analysis of the influence of the subsoil conditions on design of the building, please call.

CTL|THOMPSON, INC.


Patrick Foley, E.I.
Staff Engineer

Reviewed by:


Jeffery M. Jones, P.E.
Associate Engineer

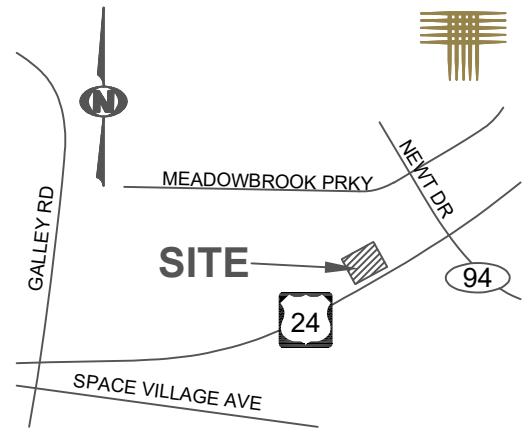


PF:JMJ:cw
(1 copy via email)

Via e-mail: kelly@theequitygroup.net

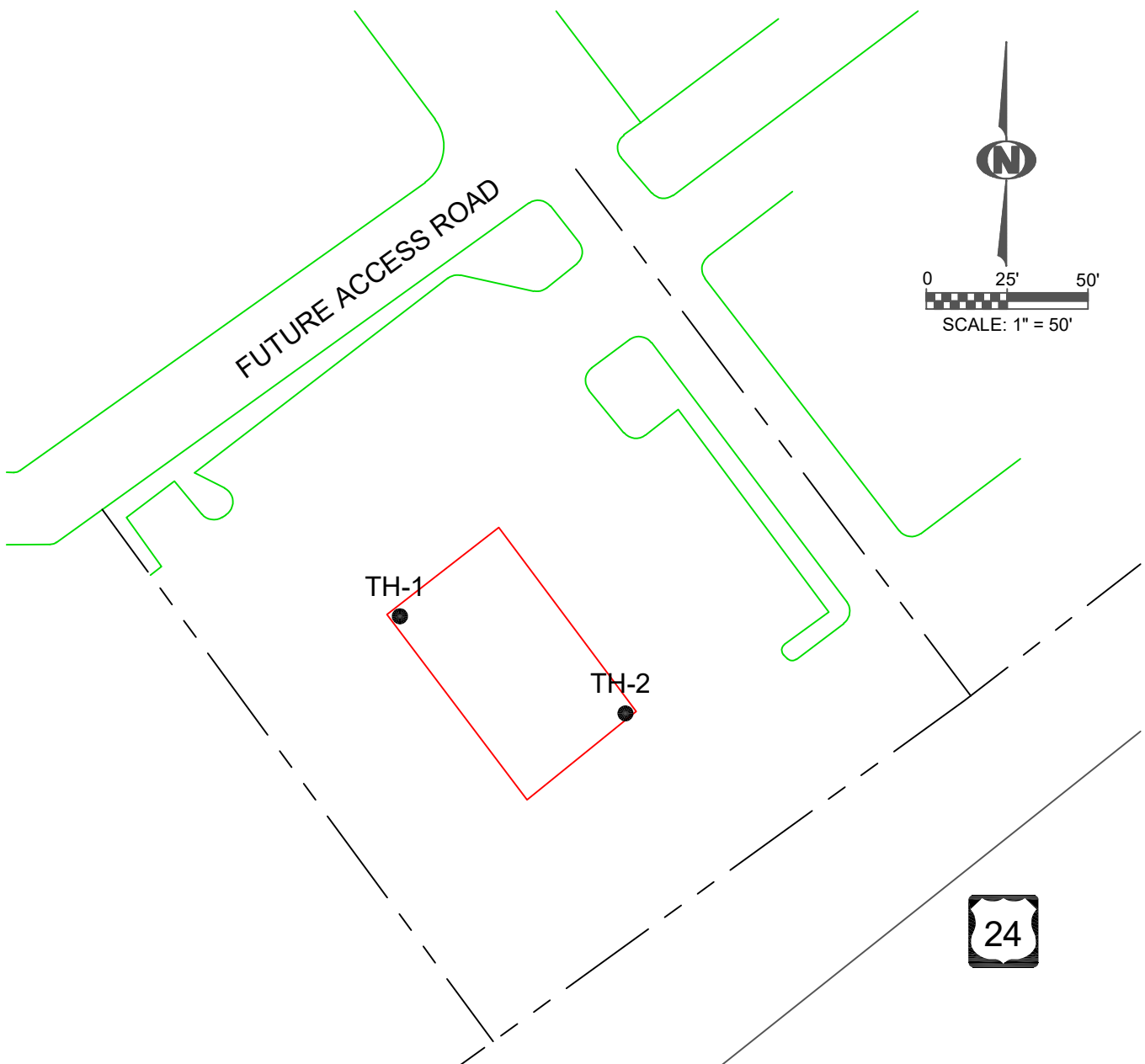
LEGEND:

- TH-1 ● APPROXIMATE LOCATION OF EXPLORATORY BORING.
- PROJECT BOUNDARY
- LOCATION OF PROPOSED BUILDING FOOTPRINT.
- LOCATION OF PROPOSED DRIVE LANES AND PARKING AREAS.



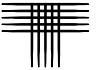
VICINITY MAP

(NOT TO SCALE)



TH - 1

TH - 2

**LEGEND:**

SAND, SLIGHTLY SILTY TO SILTY, LOOSE TO DENSE, SLIGHTLY MOIST TO MOIST, LIGHT BROWN TO BROWN (SM, SP-SM).



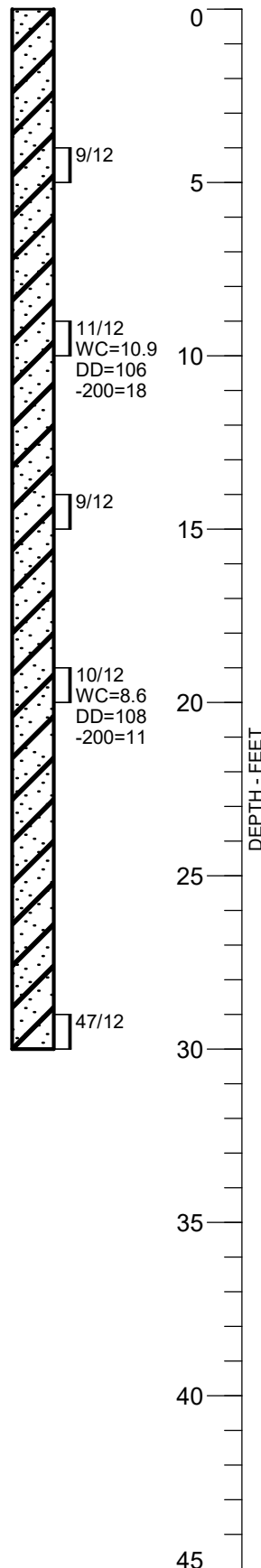
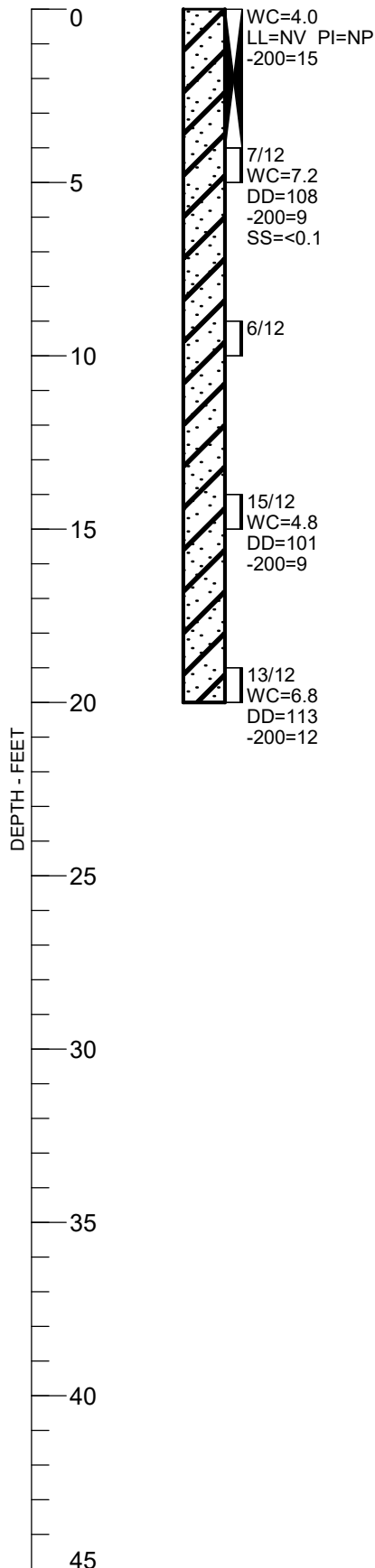
DRIVE SAMPLE. THE SYMBOL 9/12 INDICATES 9 BLOWS OF A 140-POUND HAMMER FALLING 30 INCHES WERE REQUIRED TO DRIVE A 2.5-INCH O.D. SAMPLER 12 INCHES.

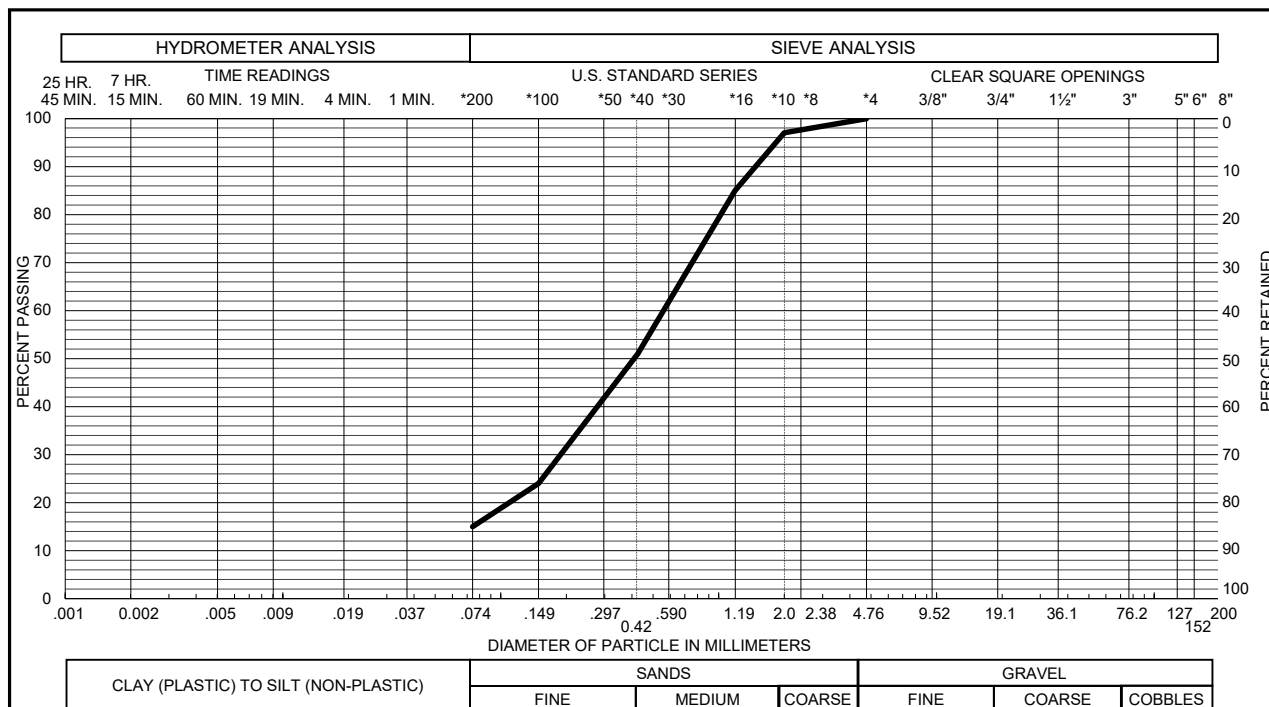
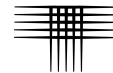


INDICATES BULK SAMPLE OBTAINED FROM AUGER CUTTINGS.

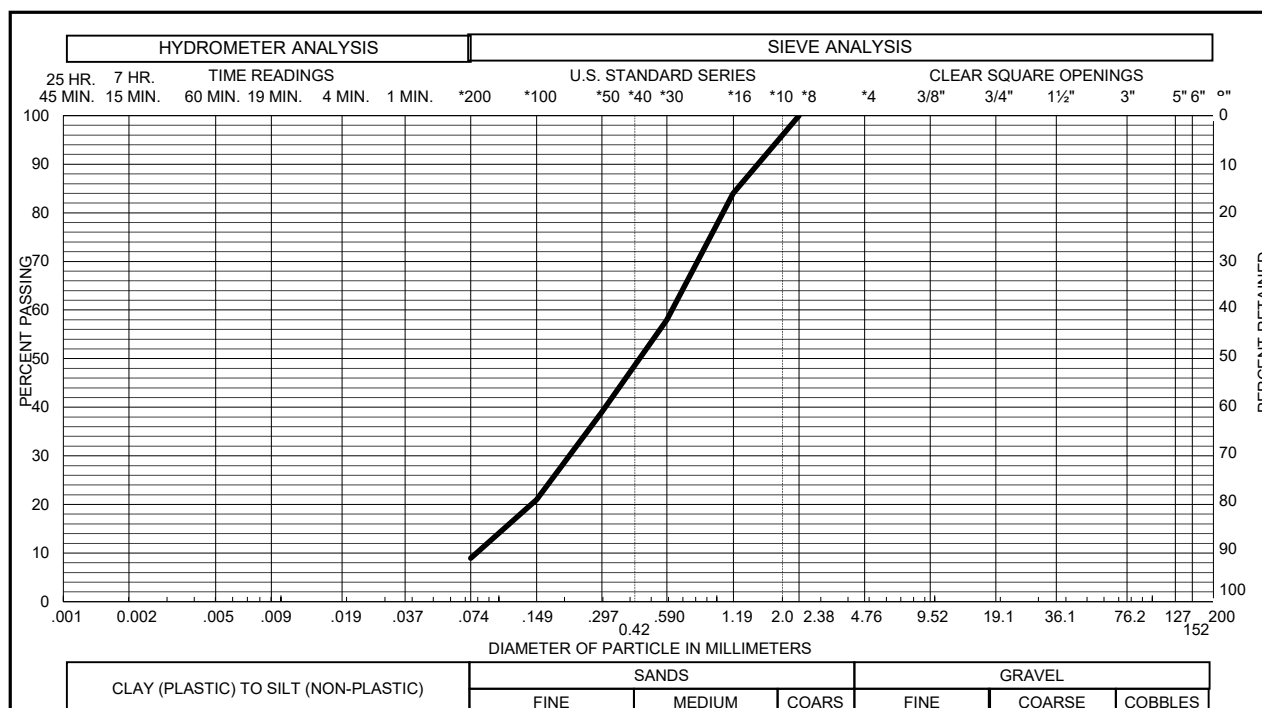
NOTES:

1. THE BORINGS WERE DRILLED NOVEMBER 7, 2022 USING A 4-INCH DIAMETER, CONTINUOUS-FLIGHT AUGER AND A CME-45, TRUCK-MOUNTED DRILL RIG.
2. THESE LOGS ARE SUBJECT TO THE EXPLANATIONS, LIMITATIONS, AND CONCLUSIONS AS CONTAINED IN THIS REPORT.
3. GROUNDWATER WAS NOT ENCOUNTERED IN THE EXPLORATORY BORINGS DURING THIS INVESTIGATION.
4. WC - INDICATES MOISTURE CONTENT. (%)
DD - INDICATES DRY DENSITY. (PCF)
LL - INDICATES LIQUID LIMIT.
(NV : NO VALUE)
PI - INDICATES PLASTICITY INDEX.
(NP : NON-PLASTIC)
-200 - INDICATES PASSING NO. 200 SIEVE. (%)
SS - INDICATES WATER-SOLUBLE SULFATE CONTENT. (%)

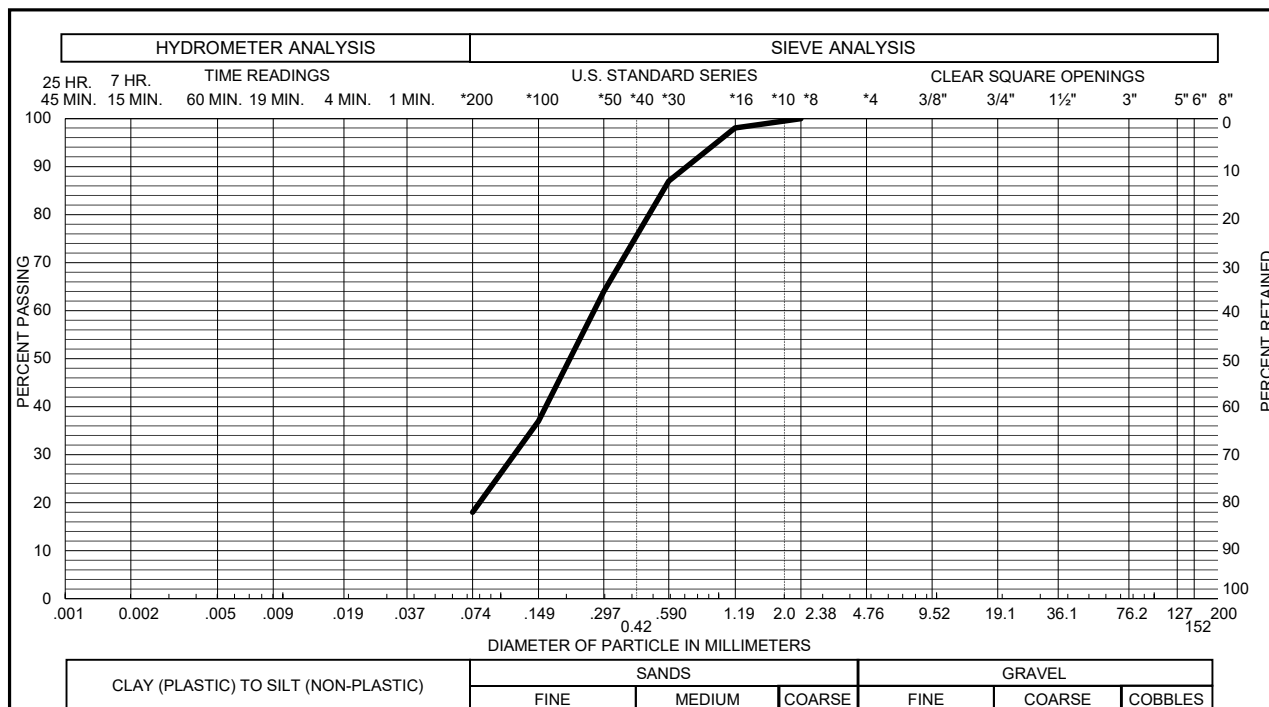
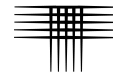




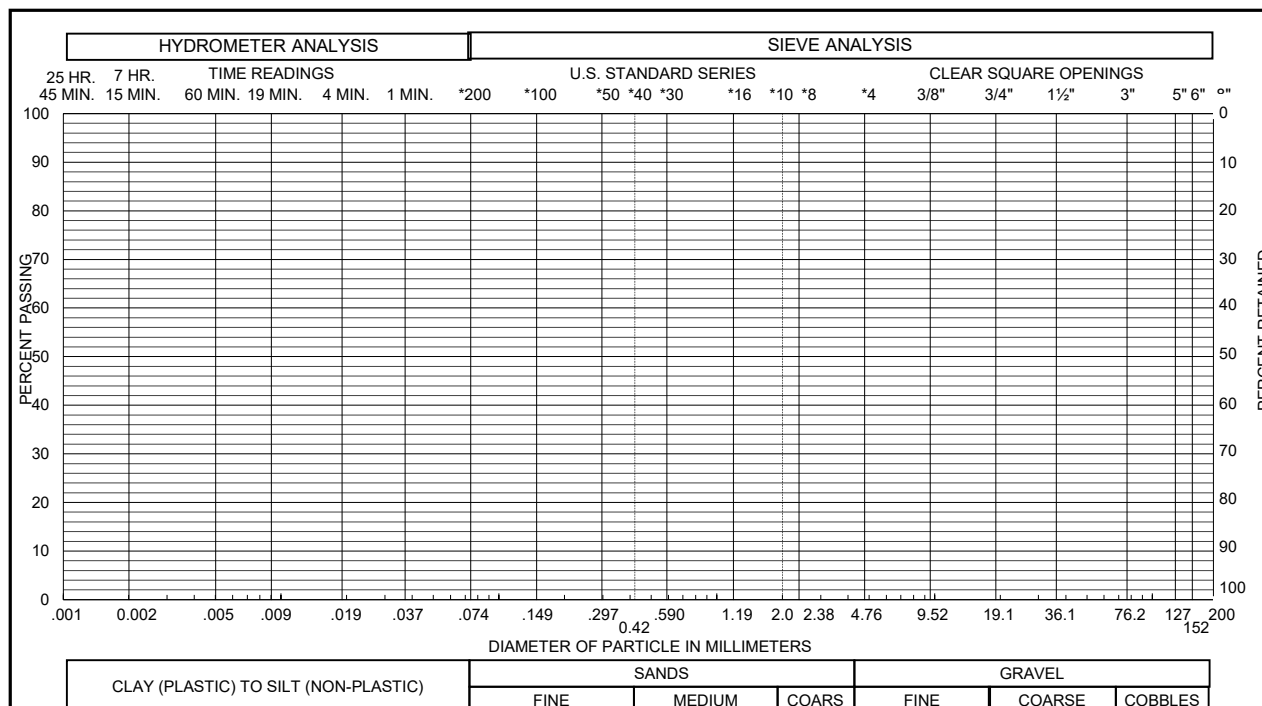
Sample of **SAND, SILTY (SM)** GRAVEL 0 % SAND 85 %
From **TH - 1 AT 0-4 FEET** SILT & CLAY 15 % LIQUID LIMIT NV
PLASTICITY INDEX NP



Sample of **SAND, SLIGHTLY SILTY (SP-SM)** GRAVEL 0 % SAND 91 %
From **TH - 1 AT 14 FEET** SILT & CLAY 9 % LIQUID LIMIT
PLASTICITY INDEX



Sample of **SAND, SILTY (SM)** GRAVEL 0 % SAND 82 %
From **TH - 2 AT 9 FEET** SILT & CLAY 18 % LIQUID LIMIT _____
PLASTICITY INDEX _____



Sample of _____ GRAVEL _____ % SAND _____ %
From _____ SILT & CLAY _____ % LIQUID LIMIT _____
PLASTICITY INDEX _____

SUMMARY OF LABORATORY TESTING
CTL/T PROJECT NO. CS19629.001-125 (ALT 1 PAD BUILDING)

[illegible]

* SWELL MEASURED UNDER ESTIMATED IN-SITU OVERBURDEN PRESSURE.
NEGATIVE VALUE INDICATES COMPRESSION.