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GENERAL CONTRACTORS
CONSTRUCTION MANAGERS

ADDENDUM #3 - CM CLARIFICATIONS

Hunger Solution Center
Additions & Renovations
August 12, 2025

1. Attached is the Soil Boring Report issued by the Architect as part of the bid documents.

Attachment:

Soil Boring Report (27 pages)

END OF ADDENDUM #3 - CM CLARIFICATIONS

SOIL EVALUATION
FOR
PROPOSED ADDITION TO
HUNGER SOLUTIONS
SAGINAW, MICHIGAN

August 27, 2024

Prepared For:

TSSF Architects, Inc.
122 N. Washington Ave.
Saginaw, Michigan 48607

Prepared By:

Snyder & Staley Engineering, PLC
824 Tittabawassee Road
Saginaw, Michigan 48604

Project Number 24-316-031

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General Notes
Soil Boring Location Diagram
Soil Boring Logs (B1 through B11)
Unified Soil Classification System

I. INTRODUCTION

We have completed the requested soil evaluation for the proposed addition to the Hunger Solutions building in Saginaw, Michigan. This report presents the results of our evaluation, our interpretation of the soil and groundwater conditions at the soil boring locations, and our geotechnical recommendations for design and construction of the proposed development. Our evaluation was performed under the direction of a registered Professional Engineer in the State of Michigan.

A. Site and Project Description

The site of the existing Hunger Solutions building is located at 940 East Genesee Avenue in Saginaw, Michigan. We understand that the proposed L-shaped building addition will be constructed on the south side of the existing building. The proposed addition will consist of a 8150 square foot building addition tying into the south face of the existing building which will feature a drive-thru canopy and off the south wall of this addition at the east end will be approximately an 11,000 square foot building addition with a loading dock. The proposed addition will be situated over the existing Thompson St. It our understanding the existing Thompson St. will be abandoned, a portion of this street will be repurposed as part of the drive-thru canopy area and a new drive will be construction around the addition to exit on South 4th Avenue. We assume the propose building finish floor elevation will be at or slightly above the surrounding roadway elevation.

B. General

The recommendations submitted in this report have been based on the available soil boring information and the preliminary design details furnished for the proposed development. Any revisions in the noted location or design details for the proposed structures should be brought to our immediate attention so we may evaluate the extent to which our recommendations may be impacted by the changes. When final plans and specifications are available, we should be given the opportunity to review them to verify our understanding of the anticipated project and to verify our recommendations have been properly interpreted. The conclusions, recommendations and considerations presented herein have been based on the information obtained from the eleven (11) soil borings performed at this site. This report does not reflect changes in subsurface conditions that may occur between these soil boring locations. If significant variations from our reported subsurface conditions are noted during construction, we should be notified immediately to determine if modifications to our recommendations are needed. We have strived to conduct this soil evaluation in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing under similar conditions in the locality of this project. No other warranties, implied or expressed, are made. The recommendations presented herein are intended solely for the use of TSSF Architects, Inc and their design consultants in evaluating this site for the specific development being proposed.

II. DESCRIPTION OF INVESTIGATION PROCEDURES

A. Field Operations

We drilled seven soil borings, labeled as Borings B1 through B7, to depths of approximately 15 feet below the existing ground surface within the proposed building addition footprint. Borings B8 through B11 were drilled to depths of 5 feet below the existing ground surface within the proposed pavement drive-thru drive and parking areas. The approximate soil boring locations are shown on the appended diagram. Snyder & Staley Engineering, PLC personnel staked the soil borings in the field using normal taping procedures and existing landmarks as reference points.

The soil borings were performed by AFT Drilling of Standish, Michigan with a trailer-mounted rotary drill rig in general accordance with the American Society of Testing and Materials (ASTM) Standard D-1586 (Penetration Test and Split-Barrel Sampling of Soils) using hollow-stem, continuous flight augers to advance the holes. The sampling intervals, standard penetration test results (N-values), groundwater observations and other pertinent field information are shown on the Soil Boring Logs included in the Appendix of this report. The symbols and notations used on the boring logs are defined on the General Notes, also appended to this report.

B. Laboratory Testing

The soil samples were sealed in labeled glass jars in the field and returned to the laboratory where they were visually classified in general accordance with the Unified Soil Classification System (USCS) (ASTM Standard D-2487). These descriptions appear on the appended Soil Boring Logs. A chart that describes the USCS group symbols, which appear in parenthesis after the soil descriptions, is also included in the Appendix of this report.

Additionally, selected representative portions of the cohesive soil samples were subjected to moisture content and calibrated hand penetrometer tests. The moisture content of a soil sample is the ratio of the weight of water in the sample to the oven-dried weight of the soil, as determined by ASTM Standard D-2216, expressed as a percentage. In the hand penetrometer test, the unconfined compressive strength of a soil sample is estimated by measuring the resistance of the soil to penetration of a calibrated spring-loaded cylinder. The capacity of the hand penetrometer is 4½ tons per square foot (tsf). Results of these laboratory tests are shown on the appended Soil Boring Logs.

III. DESCRIPTION OF SUBSURFACE CONDITIONS

The soil profile description and groundwater observations discussed herein are intended to provide a brief and general summary of the typical subsurface conditions encountered at this site. For a more detailed description of the soil and groundwater conditions encountered at the respective boring locations, please refer to the attached Soil Boring Logs and Soil Boring Location Diagram. The stratification lines of the boring logs are intended to indicate a general transition between soil types and the actual transition may vary between boring locations.

A. Soil Conditions

A relatively uniform soil profile was encountered in each of the soil borings performed for this evaluation. Each major component of the generalized soil profile observed at this site, beginning from the ground surface, is described below:

Soil Group 1 – Surficial Materials

At the surface of all of these eleven soil borings, the driller reported 3 to 24 inches of sandy topsoil with traces of silt and gravel.

Soil Group 2 – Fine/Foundry Sand Fill (SP-FILL), Sandy Clay (CL-FILL), Gravelly Sand Fill (GW-FILL) and Sandy Clay Topsoil (CL-TOPSOIL)

Beneath the surficial materials at all of the borings except Borings B1, B7 and B11, deposits of fine and foundry sand fill, gravelly sand fill, sandy clay topsoil fill and topsoil deposits were encountered to depths of 1 to 2 feet below the existing ground surface.

Soil Group 3 – Sandy/Silty Clay (CL)

Beneath these surficial and fill deposits at each boring location, layers of natural, sandy/silty clay were observed to explored depths of these soil borings. Hand penetrometer unconfined compressive strengths in these clays was approximately 1½ tsf to in excess of 4½ tsf. Corresponding natural moisture contents in these cohesive soils varied between 10 and 25 percent.

B. Groundwater Observations

No ground water seepage was observed in borings during the drilling and/or sampling operations. Upon completion of the drilling operations and removal of the augers from the ground, no groundwater was observed in the open boreholes. All of the boreholes were backfill with natural soils upon their completion; therefore no long-term groundwater observations are available.

In granular (sandy) soils, a relatively short amount of time is usually required for the water level in an open bore hole to stabilize with the prevailing hydrostatic groundwater level. Due to the inherent low permeability of cohesive (clayey) soils, however, a long time may be required for the water level in an open bore hole to stabilize with the long-term hydrostatic groundwater level. Where granular soil layers overlie cohesive soils, as was generally the case at this site, a complicated subsurface hydraulic condition, possibly involving perched groundwater accumulations, multiple aquifers, or artesian flow may arise. For this reason, the short-term groundwater level measurements recorded in our borings, as noted above, may not accurately depict the true position of the hydrostatic groundwater level at this site. To do so, in our opinion, would require installation and monitoring of several piezometers.

Perched groundwater accumulations may develop when surface runoff infiltrates the more pervious sandy soil layers and/or intrusions situated above or within a mass of less permeable clayey or silty soil. These groundwater accumulations may then become temporarily trapped or "perched" above the long-term hydrostatic groundwater level. For this reason, perched groundwater accumulations are generally more prevalent during the spring months after the snow melts or following periods of prolonged precipitation and they may essentially disappear during extended dry periods. Conditions appear to be favorable for perched groundwater accumulations to develop at varying depths at this site given the presence of the granular fill deposits above the cohesive deposits as encountered in our soil borings.

Since the soils generally encountered in our borings are of a cohesive nature, which have a relatively low permeability, a long time period is required for the water level in the bore hole to equalize with the long term hydrostatic groundwater level. Therefore the short time readings described above may not be reliable as an indicator of the long-term hydrostatic groundwater table. In our experience, the depth at which the clay soils change permanently from brown to gray may often indicate the position of the hydrostatic groundwater table. On this basis, we estimate the long-term hydrostatic groundwater table at the building site to be at approximately 13 feet below the existing ground surface.

Normal variations in the depth of the prevailing groundwater level should be expected due to its undulating surface. The long-term hydrostatic groundwater level at this site should be expected to fluctuate with variations in precipitation, evaporation and surface runoff. The groundwater levels indicated on the soil borings and discussed above represent the conditions at the time the measurements were taken.

IV. CONCLUSIONS AND RECOMMENDATIONS

The recommendations submitted herein have been based upon available soil boring and site plan information and the preliminary design details for the proposed development. If our understanding of the project, as previously described, is inaccurate or if any revisions in the plans are made, they should be brought to our attention so we may determine if changes to our recommendations are required. Likewise, if significant variations in the reported subsurface conditions are encountered during construction, we should be notified immediately.

A. Concrete Slab on Grade and Pavement Subgrade Preparation

We recommend all vegetation, topsoil, concrete and pavement materials and fill deposits be completely stripped from areas of proposed foundations, floor slabs, pavements, walkways and other similar types of site improvements. Based on the results of our soil borings, we anticipate these materials can extend down to depths of about 2 feet below the existing ground surface. After surficial materials are removed, we anticipate the exposed subgrade soils will consist of the stiff to hard, sandy/silty clays as encountered in our soil borings. We believe these soils will be suitable for support of engineered fill and/or the proposed slab-on-grade following proper subgrade preparation activities as described herein.

The resulting exposed subgrade materials that consist of clay materials shall be thoroughly proof rolled under the observation of a qualified soils engineer. The proof rolling should be performed with a fully loaded dump truck or other heavily loaded pneumatic tired vehicle making continuous side-by-side passes across the entire floor slab area. The purpose of this procedure is to uniformly compact the surface and locate any soft areas that may require stabilization. Subgrade areas that deflect excessively or 'pump' during proof rolling should be excavated and backfilled with acceptable engineered fill.

After the exposed subgrade materials have been properly prepared, as described above, engineered fill can be placed to the planned final subgrade elevation. Refer to section below for material and placement requirements.

B. Engineered Fill Requirements

All engineered fill for this project, including foundation wall and utility trench backfill, should be an approved, granular material free of frozen chunks, organics, debris or other deleterious material. The fill should be spread in level layers not exceeding 12 inches in loose thickness, with each layer being compacted to at least 95 percent of the maximum dry density value determined by ASTM Standard D-1557 (Modified Proctor). A sufficient number of field density tests should be performed during placement to verify

proper compaction is achieved. Fill material should never be placed on frozen or muddy ground.

To facilitate compaction, we recommend any granular fill materials be placed within +/- 4 percent of the optimum moisture content determined by ASTM Standard D-1557 (Modified Proctor). If necessary to achieve this condition, appropriate moisture reconditioning should be performed at the time of placement. If it is necessary to add moisture, we recommend it be done by disking and harrowing the soil, as the water is added by spraying, to provide a relatively uniform moisture content throughout the soil mass. Alternately, if the soil is too wet at the time of placement, we recommend it be disked and aerated to allow it to dry to the desired moisture content prior to compaction, weather conditions permitting. In open areas, granular fill materials should be compacted using heavy vibratory smooth drummed rollers, however in confined or limited access areas, vibratory plate compactors are recommended.

C. Foundations

We recommend the proposed structures at this site be supported on spread type foundations. It should be noted, no proposed building foundation shall bear on the existing fill deposits. A maximum net allowable design soil pressure of 5,000 pounds per square foot (psf) shall be used to proportion the footings where they are placed on the natural, very stiff to hard, sandy/silty clays as encountered in our soil borings. Suitable bearing materials at this site for the recommended design bearing pressure is anticipated to be present below the existing topsoil and fill deposits and extending down to nominal frost depths.

Interior building foundations which are not subject to the effects of frost heave could be placed at any convenient depth below the floor slab where they bear on engineered fill which has been placed directly on suitable natural soils. These foundations bearing on engineered fill placed on the underlying natural soils can be designed using a maximum net allowable soil pressure of 5,000 psf. To verify adequate foundation bearing where engineered fill is used, we recommend close monitoring and testing of the earthwork contractor's work is performed during construction.

For bearing capacity and settlement considerations, we recommend all individual columns footings have a minimum lateral dimension (or a minimum diameter) of 30 inches and all continuous wall footings be at least 16 inches wide. To provide protection against the effects of frost heave during normal winters, we recommend all foundations be embedded a minimum of 42 inches below the final exterior site grade along the outside perimeter walls or in areas that will not be permanently heated. With regard to settlement, we estimate total post-construction settlement for building foundations designed and constructed in accordance with the recommendations presented in this report will be on the order of 1/2 inch or less for any of the design alternatives given. This estimate is based on the anticipated loading conditions and our experience with similar soils.

D. Pavement Design Recommendations

As stated above, we anticipate the exposed subgrade materials will generally consist of fine sands as encountered in the borings. In general, these subgrade materials are presumed to be characteristic of soils having fair to good pavement support characteristics. On this basis and from our experience with similar soils, we have assumed an effective roadbed subgrade resilient modulus (M_R) of 5,000 pounds per square inch (psi) in our pavement analysis.

We have assumed the following pavement design criteria, for light duty and heavy-duty pavement areas, the design shall be based on 12,000 and 30,000, respectively, 18-kip Equivalent Axle Loads over the 20-year design life. In our pavement design, we utilized initial serviceability, p_o , of 4.5, a terminal serviceability, p_t , of 2.5 (therefore our design serviceability loss index (ΔPSI) is 2.0), a reliability (R) value of 95 percent, an overall standard deviation (S_o) value of 0.49 and drainage has been determined to be good with the percent of time pavement structure is exposed to moisture levels approaching saturation to 5% to 25%, thus a drainage coefficient, m_i , of 1.00 was determined.

The contractor shall be required to submit a job mix formula for each specified bituminous material, which has been approved by MDOT or has accompanying test results verifying the job mix formula is within MDOT requirements for the specified material. We recommend an asphalt grade of PG 58-22 be used in the production of all bituminous paving mixtures. Aggregates, mineral filler (if required), and asphalt binder shall be combined as necessary to produce a mixture proportioned within the uniformity tolerances listed in MDOT's Special Provision Document 03SP502(O), Acceptance of HMA Mixture on Local Agency Projects. The master gradation range is to be used for establishing mix design only. Topsoil, clay, or loam shall not be added to aggregates that are to be used in plant mixed HMA mixtures. The bituminous wearing and leveling courses should be compacted to a minimum of 95 percent of the theoretical maximum density determined by job mix formula. Additional material and testing requirements can be found in MDOT's Special Provision Document 03SP502(O), Acceptance of HMA Mixture on Local Agency Projects.

The foregoing recommendations are predicated on the assumption that heavy truck and trash removal vehicular traffic will be restricted from using the designated automobile parking areas. If segregation of the traffic types cannot be maintained, consideration should be given to using the heavier pavement section throughout the entire pavement area.

The recommended light-duty and heavy-duty pavement sections have different aggregate base course and total asphalt thickness. Where these two types of pavement sections adjoin, we recommend a gradual transition be provided in the subgrade grading and

paving plans. In the subgrade transition, we recommend a minimum a 12-inch horizontal strip be provided for each one-inch difference in the aggregate base course thickness between adjacent sections (i.e., a gradual 6-foot-wide transition from 6 to 12 inches in aggregate base course thickness between adjacent pavement sections). The transition in asphalt course thickness should also be gradual over the same distance as the aggregate base course transition. To provide positive surface drainage of the pavements at all times, we recommend a minimum surface slope of 1 percent be provided throughout.

Based on the anticipated environmental load and the foregoing AASHTO design parameters for a 20-year service life, we recommend the following flexible and rigid pavement sections presented below. If any of our stated assumptions are grossly in error, we should be contacted so we may re-evaluate our pavement design recommendations in light of any additional information.

Table 1
Recommended Flexible Pavement Sections

Layer	Specified Material*	Recommended Minimum Thickness	
		Light-Duty (Parking)	Heavy-Duty (Drives)
Bituminous Wearing Course	36A or LVSP	1-1/2 in.	2 in.
Bituminous Leveling Course	13A or LVSP	1-1/2 in.	2 in.
Aggregate Base Course	21-AA (or equal)	6 in.	8 in.
Sand Subbase	Class II	12 in.	12 in.

* Note: Material designations refer to Michigan D.O.T. "Standard Specifications for Construction" and all supplemental specifications. Construction of the pavement and the related earthwork should also be performed in accordance with M.D.O.T. Specifications unless otherwise noted herein

V. CONSTRUCTION CONSIDERATIONS

We do not anticipate any significant geotechnical problems associated with constructing shallow spread footing foundations for the proposed building as described herein. Considering the apparent position of the long-term hydrostatic groundwater level relative to the anticipated depth of excavation, we do not believe groundwater seepage into conventional spread footing type foundation excavations will be a serious concern during construction. During construction, foundation excavations must be maintained in a dry condition until they are completely backfilled. Some seepage from surface runoff or perched groundwater within granular fill deposits may occur, but should be manageable with standard sump pits and pumps. During the site grading operations, the subgrade should always be graded to provide positive surface drainage and to prevent water from ponding on the site.

The foundation excavation bottoms may also become disturbed due to groundwater accumulations and/or construction operations. All loose or disturbed materials must be completely removed from the excavations bottoms or re-compacted prior to placing any foundation concrete. This is especially important where a toothed backhoe bucket is used to excavate the footings. If disturbance of the bearing soils persists, we recommend a layer of clean, well-graded, crushed aggregate should be placed along the undisturbed foundation excavation bottoms to minimize further disturbance of the bearing soils. Lean concrete would also be suitable for this purpose. To further minimize the risk of disturbance, the footing concrete should be placed as soon as possible after the excavations have been dug and the design soil pressure has been verified.

All excavations must be properly braced or sloped to comply with MI-OSHA Regulations -- Part 9 (Excavation, Trenching and Shoring) and to provide a safe work place for construction personnel. The practice of stockpiling excavated soils adjacent to the footing excavation is not recommended as this surcharge loading may cause sudden collapse of the excavation sidewalls. If material and/or equipment is to be stored or operated near an excavation, additional bracing or shoring must be provided to resist these heavier surcharge loadings.

VI. GENERAL COMMENTS

Samples taken in the field will be retained in our laboratory for a period of sixty days from the date of this report and will then be disposed of, unless otherwise requested. Samples stored over an extended time period, even in sealed jars, are subject to moisture loss and are then no longer representative of the in-situ condition in which they were sampled.

During the course of the soil evaluation, procedures were followed which represent accepted practices in the field of geotechnical engineering. Therefore, discrepancies may exist between the driller's field logs and the final Soil Boring Logs submitted operations and describe field occurrences, sampling locations and other relevant information. The engineer preparing the report reviews the field logs as well as the laboratory soil classifications and laboratory test data. The final Soil Boring Logs are then promulgated based on all the information available from the field and laboratory operations.

The services of a qualified, independent construction testing firm should be engaged during construction to monitor the earthwork and foundation activities and to verify the use of proper materials, equipment and procedures. An appropriate number of field density tests should be performed during the earthwork operations to verify proper compaction is achieved where engineered fill is used. Foundation bearing surfaces should also be tested and observed to verify conditions are similar to those anticipated at the time our recommendations were formulated.

APPENDIX

GENERAL NOTES

SOIL BORING LOCATION DIAGRAM

SOIL BORING LOGS (B1 through B11)

UNIFIED SOIL CLASSIFICATION SYSTEM



GENERAL NOTES

Drilling and Sampling Symbols

- SS - Split-spoon Sample - 1 1/2" I.D.,
2" O.D. except where noted.
- ST - Shelby Tube Sample - 3" O.D.
except where noted.
- AS - Auger Sample
- BS - Bag Sample
- WS - Wash Sample
- RC - Rock Core with Diamond Bit-NX Size
except where noted.
- NR - No Recovery
- PS - Probe Sample
- DR - Drove Rock
- DS - Disturbed Sample

Water Level Measurement Symbols

- WL - Water Level
- WD - While Drilling
- AB - After Boring
- WC - Wet Cave-In
- DC - Dry Cave-In
- WS - While Sampling

NOTE:

Water levels indicated on the boring logs are the levels measured in the boring at the times indicated. With Impervious Soils, short term observations of water level may not be an accurate indication of the long term ground water level. These levels may also fluctuate throughout the year with variations in precipitation, evaporation, and runoff.

Soil Property Symbols

- N - Standard Penetration Resistance (ASTM D-1586. Blows of a 140 lb hammer falling 30 inches req'd to drive a 2 inch O.D. split-spoon sampler (except where otherwise noted) 1 ft into the soil).
- qp - Calibrated hand penetrometer unconfined compressive strength, tsf.
- qu - Controlled strain unconfined compressive strength, tsf (ASTM D-2166)
- cs - Calibrated Torvane shear strength, tsf.
- w - Water content, % (ASTM D-2216)
- γ - Natural unit weight, pcf.
- LL - Liquid Limit, % (ASTM D-4318)
- PL - Plastic Limit, % (ASTM D-4318)
- PI - Plasticity Index, % (ASTM D-4318)

Sample Classification

All Samples are visually classified in general accordance with ASTM Standard D-2487 (Unified Soil Classification System), unless otherwise noted.

PARTICLE SIZE

- Boulders: Greater than 12" (305mm)
- Cobbles: 3" to 12" (76mm to 305mm)
- Coarse Gravel: 3/4" to 3" (19mm to 76mm)
- Fine Gravel: #4 to 3/4" (4.75mm to 19mm)
- Coarse Sand: #10 to #4 (2.00mm to 4.75mm)
- Medium Sand: #40 to #10 (0.425mm to 2.00mm)
- Fine Sand: #200 to #40 (0.074mm to 0.425mm)
- Silt: 0.005mm to 0.074mm
- Clay: Less than 0.005mm

CONSTITUENT TERMS

- Few/Trace: Less than 10%
- Occasional/Trace to Some: 10% to 20%
- Frequent/Some: 20% to 35%
- And: 35% for each type
of soil identified.

NOTE:

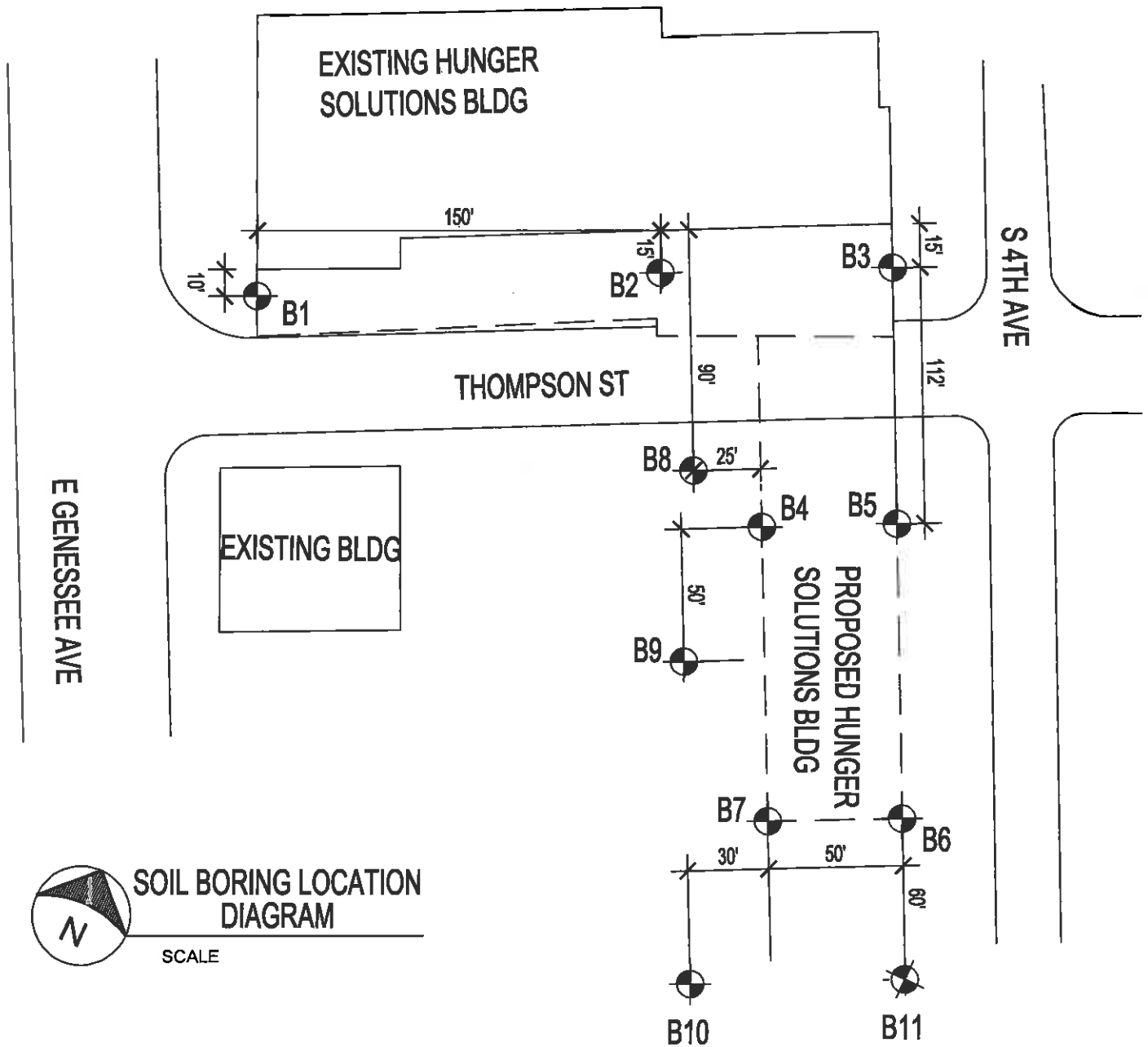
Soil constituents area based on visually estimated quantities.

RELATIVE DENSITY OF GRANULAR SOILS

	STANDARD PENETRATION (N) VALUE, BLOWS / FOOT
Very Loose	Less than 4
Loose	4 - 9
Medium Dense	10 - 29
Dense	30 - 49
Very Dense	50 - 80
Extremely Dense	Greater than 80

CONSISTENCY OF COHESIVE SOILS

	UNCONFINED COMPRESSIVE STRENGTH (qu or qp), tsf
Very Soft	Less than 0.25
Soft	0.25 - 0.49
Firm	0.50 - 0.99
Stiff	1.00 - 1.99
Very Stiff	2.00 - 3.99
Hard	Greater than 4.00



SOIL BORING LOCATION
DIAGRAM

SCALE

PROJECT NUMBER:
24-316-031

DATE: 08/26/2024

SHEET NUMBER:

SK1

SHT 1 OF 1

DRAWN BY: EK

CHK'D BY: MDS

PROJECT TITLE:
PROPOSED HUNGER SOLUTIONS
BUILDING ADDITION SAGINAW, MI

SHEET TITLE:
SOIL BORING
LOCATION DIAGRAM



SNYDER & STALEY ENGINEERING, P.L.C.

CONSULTING ENGINEERS
824 TITTABAWASSEE ROAD
SAGINAW, MI 48604
PH: (989) 797-1710



SNYDER & STALEY ENGINEERING, P.L.C.

SOIL BORING LOG

Boring No: B1

Project: Hunger Solutions Proposed Addition

Project No: 24-316-031

Location: 940 E Genesee Ave. Saginaw, MI 48607

Client: TSSF Architects Inc.

Description of Material	DEPTH (ft)	Sample Length	Sample I.D.	Sample Type	Standard Penetration	Hand Penetrometer	Unconfined compression	Torvane Shear	Moisture Content	Natural Unit Weight
					'N' Blows Per Ft.	qp (tsf)	qu (tsf)	cs (tsf)	w (%)	γ (pcf)
Driller reported 9" of Sandy TOPSOIL; trace roots, silt and gravel – dark brown Silty CLAY; trace sand and gravel – mottled; brown and gray, turning gray @13' – hard to stiff (CL)										
			S1	SS	10	4			19	
	5		S2	SS	22	4 ½+			15	
			S3	SS	22	4 ½+			11	
	10		S4	SS	24	4 ½+			18	
	15		S5	SS	17	1 ½			14	
Boring Terminated at 15 feet										

NOTE: Changes in soil stratification indicated by lines are approximate. In situ, the transition between materials maybe gradual unless otherwise noted.
The bored hole was backfilled with natural soil.

WATER LEVEL OBSERVATIONS

NONE While Sampling or Drilling
NONE Immediately After Completion
 @ After Completion

BORING

Rig: AFT DRILLING Foreman: B. BELLWS
Started: 08/11/2024 Drawn By: E. KLENOW
Completed: 08/11/2024 Approved: M. STALEY

SHEET

1 of 11



SNYDER & STALEY ENGINEERING, P.L.C.

SOIL BORING LOG

Boring No: B2

Project: Hunger Solutions Proposed Addition

Project No: 24-316-031

Location: 940 E Genesee Ave. Saginaw, MI 48607

Client: TSSF Architects Inc.

Description of Material	DEPTH (ft)	Sample Length	Sample I.D.	Sample Type	Standard Penetration	Hand Penetrometer	Unconfined compression	Torvane Shear	Moisture Content	Natural Unit Weight
					N Blows Per Ft.	qp (tsf)	qu (tsf)	cs (tsf)	w (%)	γ (pcf)
Driller reported 11" of Sandy TOPSOIL; trace roots, silt and gravel – dark brown Foundry/fine sand FILL; trace silt, slag and wood fiber – black – damp – medium dense (SP-FILL) Silty CLAY; sand and gravel – mottled; brown and gray, turning gray @13' – very stiff to hard to very stiff (CL)										
			S1	SS	10	2			18	
	5		S2	SS	10	2 ½			35	
			S3	SS	25	4 ½+			11	
	10		S4	SS	29	4 ½+			13	
	15		S5	SS	19	3 ½			14	
Boring Terminated at 15 feet										

NOTE: Changes in soil stratification indicated by lines are approximate. In situ, the transition between materials maybe gradual unless otherwise noted.
 The bored hole was backfilled with natural soil.

WATER LEVEL OBSERVATIONS

NONE While Sampling or Drilling
NONE Immediately After Completion
 © After Completion

BORING

Rig: AFT DRILLING Foreman: B. BELLOWS
 Started: 08/10/2024 Drawn By: E. KLENOW
 Completed: 08/10/2024 Approved: M. STALEY

SHEET

2 of 11



SNYDER & STALEY ENGINEERING, P.L.C.

SOIL BORING LOG

Boring No: B3

Project: Hunger Solutions Proposed Addition Project No: 24-316-031

Location: 940 E Genesee Ave. Saginaw, MI 48607 Client: TSSF Architects Inc.

Description of Material	DEPTH (ft)	Sample Length	Sample I.D.	Sample Type	Standard Penetration	Hand Penetrometer	Unconfined compression	Torvane Shear	Moisture Content	Natural Unit Weight
					'N' Blows Per Ft.	qp (tsf)	qu (tsf)	cs (tsf)	w (%)	γ (pcf)
Driller reported 9" of Sandy TOPSOIL; trace roots, silt and gravel – dark brown Foundry/fine sand FILL; trace silt, slag and wood fiber – black – damp – medium dense (SP-FILL) Silty CLAY; trace sand and gravel – mottled; brown and gray, turning gray @13' – hard to very stiff (CL)										
			S1	SS	14	4 ½+			15	
			S2	SS	30	4 ½+			12	
	5									
			S3	SS	25	4 ½+			12	
			S4	SS	24	4 ½+			18	
	10									
			S5	SS	16	2			15	
	15									
Boring Terminated at 15 feet										

NOTE: Changes in soil stratification indicated by lines are approximate. In situ, the transition between materials maybe gradual unless otherwise noted. The bored hole was backfilled with natural soil.

WATER LEVEL OBSERVATIONS

NONE While Sampling or Drilling
NONE Immediately After Completion
 © After Completion

BORING

Rig: AFT DRILLING Foreman: B. BELLOWS
 Started: 08/11/2024 Drawn By: E. KLENOW
 Completed: 08/11/2024 Approved: M. STALEY

SHEET

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SNYDER & STALEY ENGINEERING, P.L.C.

SOIL BORING LOG

Boring No: B4

Project: Hunger Solutions Proposed Addition

Project No: 24-316-031

Location: 940 E Genesee Ave. Saginaw, MI 48607

Client: TSSF Architects Inc.

Description of Material	DEPTH (ft)	Sample Length	Sample I.D.	Sample Type	Standard Penetration	Hand Penetrometer	Unconfined compression	Torvane Shear	Moisture Content	Natural Unit Weight
					N Blows Per Ft.	qp (tsf)	qu (tsf)	cs (tsf)	w (%)	γ (pcf)
Driller reported 6" of Sandy TOPSOIL; trace roots, silt and gravel – dark brown Foundry/fine sand FILL; trace silt, slag and gravel – black – damp – loose (SP-FILL) Sandy clay TOPSOIL; trace silt and gravel – dark brown – very stiff (CL-TOPSOIL) Silty CLAY; trace sand and gravel – mottled; brown and gray, turning gray @13' – hard to very stiff (CL)										
			S1	SS	8	3 ½			20	
	5		S2	SS	18	4 ½+			15	
			S3	SS	28	4 ½+			11	
	10		S4	SS	28	4 ½+			13	
	15		S5	SS	20	3 ½			14	
Boring Terminated at 15 feet										

NOTE: Changes in soil stratification indicated by lines are approximate. In situ, the transition between materials maybe gradual unless otherwise noted. The bored hole was backfilled with natural soil.

WATER LEVEL OBSERVATIONS

NONE While Sampling or Drilling
 NONE Immediately After Completion
 . © . After Completion

BORING

Rig: AFT DRILLING Foreman: B. BELLOWS
 Started: 08/10/2024 Drawn By: E. KLENOW
 Completed: 08/10/2024 Approved: M. STALEY

SHEET

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SNYDER & STALEY ENGINEERING, P.L.C.

SOIL BORING LOG

Boring No: B5

Project: Hunger Solutions Proposed Addition

Project No: 24-316-031

Location: 940 E Genesee Ave. Saginaw, MI 48607

Client: TSSF Architects Inc.

Description of Material	DEPTH (ft)	Sample Length	Sample I.D.	Sample Type	Standard Penetration	Hand Penetrometer	Unconfined compression	Torvane Shear	Moisture Content	Natural Unit Weight
					N Blows Per Ft.	qp (tsf)	qu (tsf)	cs (tsf)	w (%)	γ (pcf)
Driller reported 3" of Sandy TOPSOIL; trace roots, silt and gravel – dark brown Foundry/fine sand FILL; trace silt, slag and wood fiber – black – damp – medium dense (SP-FILL) Sandy clay TOPSOIL; trace silt and gravel – dark brown – hard (CL-TOPSOIL) Silty CLAY; trace sand and gravel – mottled; brown and gray, turning gray @13' – hard to very stiff (CL)										
			S1	SS	14	4 ½+			13	
	5		S2	SS	23	4 ½+			13	
			S3	SS	28	4 ½+			10	
	10		S4	SS	27	4 ½+			18	
	15		S5	SS	23	3			12	
Boring Terminated at 15 feet										

NOTE: Changes in soil stratification indicated by lines are approximate. In situ, the transition between materials maybe gradual unless otherwise noted. The bored hole was backfilled with natural soil.

WATER LEVEL OBSERVATIONS

NONE While Sampling or Drilling
NONE Immediately After Completion
. @ . After Completion

BORING

Rig: AFT DRILLING Foreman: B. BELLOWS
 Started: 08/10/2024 Drawn By: E. KLENOW
 Completed: 08/10/2024 Approved: M. STALEY

SHEET

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SNYDER & STALEY ENGINEERING, P.L.C.

SOIL BORING LOG

Boring No: B6

Project: Hunger Solutions Proposed Addition

Project No: 24-316-031

Location: 940 E Genesee Ave. Saginaw, MI 48607

Client: TSSF Architects Inc.

Description of Material	DEPTH (ft)	Sample Length	Sample I.D.	Sample Type	Standard Penetration	Hand Penetrometer	Unconfined compression	Torvane Shear	Moisture Content	Natural Unit Weight
					N ₆₀ Blows Per Ft.	qp (tsf)	qu (tsf)	cs (tsf)	w (%)	γ (pcf)
Driller reported 4" of Sandy TOPSOIL; trace roots, silt and gravel – dark brown										
Sandy clay TOPSOIL; trace silt, wood fibers, brick and gravel – dark brown – very stiff (CL-TOPSOIL)			S1	SS	5	2			14	
Sandy clay; trace silt and gravel – mottled; brown and gray – very stiff (CL)										
			S2	SS	8	2			25	
Silty CLAY; trace sand and gravel – mottled; brown and gray, turning gray @13' – hard to very stiff (CL)	5									
			S3	SS	23	4 ½+			11	
			S4	SS	29	4 ½+			12	
	10									
			S5	SS	27	3 ½			14	
	15									
Boring Terminated at 15 feet										

NOTE: Changes in soil stratification indicated by lines are approximate. In situ, the transition between materials maybe gradual unless otherwise noted. The bored hole was backfilled with natural soil.

WATER LEVEL OBSERVATIONS

NONE While Sampling or Drilling
 NONE Immediately After Completion
 . © . After Completion

BORING

Rig: AFT DRILLING Foreman: B. BELLAWS
 Started: 08/10/2024 Drawn By: E. KLENOW
 Completed: 08/10/2024 Approved: M. STALEY

SHEET

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SNYDER & STALEY ENGINEERING, P.L.C.

SOIL BORING LOG

Boring No: B7

Project: Hunger Solutions Proposed Addition

Project No: 24-316-031

Location: 940 E Genesee Ave. Saginaw, MI 48607

Client: TSSF Architects Inc.

Description of Material	DEPTH (ft)	Sample Length	Sample I.D.	Sample Type	Standard Penetration	Hand Penetrometer	Unconfined compression	Torvane Shear	Moisture Content	Natural Unit Weight
					N Blows Per Ft.	qp (tsf)	qu (tsf)	cs (tsf)	w (%)	γ (pcf)
Driller reported 2' of Sandy TOPSOIL; trace roots, silt and gravel – dark brown										
			S1	SS	9	2			15	
Sandy clay; trace topsoil, silt and gravel – brown – very stiff (CL)										
Silty CLAY; trace sand and gravel – mottled; brown and gray, turning gray @13' – hard (CL)	5		S2	SS	19	4 1/2+			35	
			S3	SS	27	4 1/2+			14	
	10		S4	SS	28	4 1/2+			18	
	15		S5	SS	28	4 1/2+			15	
Boring Terminated at 15 feet										

NOTE: Changes in soil stratification indicated by lines are approximate. In situ, the transition between materials maybe gradual unless otherwise noted. The bored hole was backfilled with natural soil.

WATER LEVEL OBSERVATIONS

NONE While Sampling or Drilling
NONE Immediately After Completion
 @ After Completion

BORING

Rig: AFT DRILLING Foreman: B. BELLOWS
 Started: 08/10/2024 Drawn By: E. KLENOW
 Completed: 08/10/2024 Approved: M. STALEY

SHEET

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Boring No: B8

Project No: 24-316-031

Client: TSSF Architects Inc.

NOTE: Changes in soil stratification indicated by lines are approximate. In situ, the transition between materials maybe gradual unless otherwise noted. The bored hole was backfilled with natural soil.

SHEET

Rig: <u>AFT Drilling</u>	Foreman: <u>B. BELLOWS</u>
Started: <u>08/10/2024</u>	Drawn By: <u>E. KLENOW</u>
Completed: <u>08/10/2024</u>	Approved: <u>M. STALEY</u>

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Boring No: B9

Project No: 24-316-031

Client: TSSF Architects Inc.

NOTE: Changes in soil stratification indicated by lines are approximate. In situ, the transition between materials maybe gradual unless otherwise noted. The bored hole was backfilled with natural soil.

SHEET

Rig: AFT Drilling Foreman: B. BELLOWS
 Started: 08/10/2024 Drawn By: E. KLENOW
 Completed: 08/10/2024 Approved: M. STALEY

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Boring No: B10

Location: 940 E Genesee Ave. Saginaw, MI 48607 Client: TSSF Architects Inc.

NOTE: Changes in soil stratification indicated by lines are approximate. In situ, the transition between materials maybe gradual unless otherwise noted. The bored hole was backfilled with natural soil.

WATER LEVEL OBSERVATIONS		BORING		SHEET
<u>NONE</u>	While Sampling or Drilling	Rig: <u>AFT Drilling</u>	Foreman: <u>B. BELLOWS</u>	10 of 11
<u>NONE</u>	Immediately After Completion	Started: <u>08/10/2024</u>	Drawn By: <u>E. KLENOW</u>	
<u>.</u>	© <u>.</u> After Completion	Completed: <u>08/10/2024</u>	Approved: <u>M. STALEY</u>	



SNYDER & STALEY ENGINEERING, P.L.C.

SOIL BORING LOG

Boring No: B11

Project: Hunger Solutions Proposed Addition Project No: 24-316-031

Location: 940 E Genesee Ave. Saginaw, MI 48607 Client: TSSF Architects Inc.

Description of Material	DEPTH (ft)	Sample Length	Sample I.D.	Sample Type	Standard Penetration	Hand Penetrometer	Unconfined compression	Torvane Shear	Moisture Content	Natural Unit Weight
					'N' Blows Per Ft.	qp (tsf)	qu (tsf)	cs (tsf)	w (%)	γ (pcf)
Driller reported 2' of Sandy TOPSOIL; trace roots, silt and gravel – dark brown										
			S1	SS	6	1 ½			21	
Sandy CLAY; trace silt and gravel – mottled; brown and gray – stiff to very stiff (CL)										
			S2	SS	16	2 ½			18	
Boring Terminated at 5 feet	5									
	10									

NOTE: Changes in soil stratification indicated by lines are approximate. In situ, the transition between materials maybe gradual unless otherwise noted. The bored hole was backfilled with natural soil.

WATER LEVEL OBSERVATIONS

NONE While Sampling or Drilling
NONE Immediately After Completion
 © After Completion

BORING

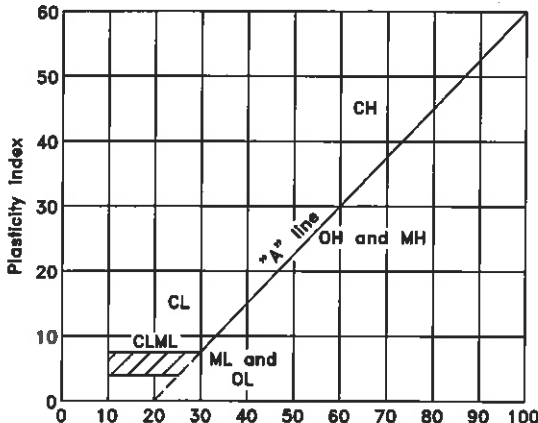
Rig: AFT Drilling Foreman: B. BELLOWS
 Started: 08/10/2024 Drawn By: E. KLENOW
 Completed: 08/10/2024 Approved: M. STALEY

SHEET

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UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D-2487)

Major Divisions		Group Symbols	Typical Names		Laboratory Classification Criteria					
Coarse-grained soils (More than half of material is larger than No. 200 sieve size)	Gravels (More than half of coarse fraction is larger than No. 4 sieve size)	Clean gravels (Little or no fines)	GW	Well graded gravels, gravel-sand mixtures, little or no fines.	Determine percentages of sand and gravel from grain-size curve. Depending on percentage to fines (fraction smaller than No. 200 sieve size), coarse grained soils are classified as follows:	$C_u = \frac{D_{60}}{D_{10}}$ greater than 4; $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3				
			GP	Poorly graded gravels, gravel-sand mixtures, little or no fines.		Not meeting all gradation requirements for GW.				
		Gravels with fines (Appreciable amount of fines)	GM ^a	d		Silty gravels, gravel-sand-silt mixtures.	GW, GP, SW, SP GM, GC, SM, SC Borderline cases requiring dual symbol	Atterberg limits below "A" line or P.I. less than 4.		Above "A" line with P.I. between 4 and 7 are borderline cases requiring use of dual symbols.
				u						
	GC	Clayey gravels, gravel-sand-clay mixtures.	Atterberg limits below "A" line with P.I. greater than 7.							
	Sands (More than half of coarse fraction is smaller than No. 4 sieve size)	Clean sands (Little or no fines)	SW	Well graded sands, gravelly sands, little or no fines.		$C_u = \frac{D_{60}}{D_{10}}$ greater than 6; $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3				
			SP	Poorly graded sands, gravelly sands little or no fines.		Not meeting all gradation requirements for SW.				
		Sands with fines (Appreciable amount of fines)	SM ^a	d		Silty sands, sand-silt mixtures.	Atterberg limits above "A" line or P.I. less than 4.		Limits plotting in hatched zone with P.I. between 4 and 7 are borderline cases requiring use of dual symbols.	
				u						
		SC	Clayey sands, sand-clay mixtures.	Atterberg limits above "A" line with P.I. greater than 7.						
Fine grained soils (more than half material is smaller than No. 200 sieve)		Sils and 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.	Plasticity Chart 					
	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.							
	Sils and 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 of medium to high plasticity, organic silts.							
	Highly organic soils	PT	Peat and other highly organic soils.							

^a Division of GM and SM groups into subdivisions of d and u are for roads and airfields only. Subdivision is based on Atterberg limits; suffix d used when L.L. is 28 or less and the P.I. is 6 or less; the suffix u used when L.L. is greater than 28.

^b Borderline classifications, used for soils possessing characteristics of two groups, are designated by combinations of group symbols. For example: GW-GC, well graded gravel sand mixture with clay binder.