HYNES

JOHN D. HYNES & ASSOCIATES, INC.

Geotechnical and Environmental Consultants
Monitoring Well Installation
Construction Inspection and Materials Testing

January 31, 2024

Edward Bednarz
St. Vincent de Paul of Easton, Inc.
29533 Canvasback Drive
Easton, Maryland 21601

Re: Report of Subsurface Exploration and Geotechnical
Engineering Services
St. Vincent de Paul Facility Expansion
Easton, Maryland
Project No.: JDH-10/24/102

Dear Mr. Bednarz:

John D. Hynes & Associates, Inc. has completed the authorized subsurface exploration and geotechnical engineering evaluations for an addition to the St. Vincent de Paul Facility Expansion project located in Easton, Maryland. Our services were conducted, generally, in accordance with our proposal dated December 29, 2023.

This report describes the exploration methods employed, exhibits the data obtained, and presents our evaluations and recommendations. In summary, we recommend that the building addition's structural elements be supported by spread footing foundations bearing on firm, natural soils or controlled, structural fill. If the recommendations of this report regarding subgrade preparation and construction are followed, then 1,500 psf bearing may be used to proportion the spread footings for the wall and column elements of the proposed new building addition.

We appreciate the opportunity to be of service to you. If you have any questions regarding the contents of this report or if we may be of further assistance, please contact our office.

Respectfully,
JOHN D. HYNES & ASSOCIATES, INC.

Kelly Childs
For: Daniel S. Rom, P.E.
Senior Geotechnical Engineer

John D. Hynes, P.E.
President

STATE OF MARYLAND JOHN DAVID HYNES No. 16233 REGISTERED PROFESSIONAL ENGINEER

DSR: JDH/kc

32185 Beaver Run Drive • Salisbury, Maryland 21804 • 410-546-6462 • Fax 410-548-5346
Email: jdh@jdhynesinc.com

REPORT OF
SUBSURFACE EXPLORATION
AND
GEOTECHNICAL CONSULTING SERVICES

ST. VINCENT DE PAUL FACILITY EXPANSION
EASTON, MARYLAND

PREPARED FOR
ST. VINCENT DE PAUL OF EASTON, INC.

JANUARY 31, 2024
PROJECT NO.: JDH-10/24/102

32185 Beaver Run Drive • Salisbury, Maryland 21804 • 410-546-6462 • Fax 410-548-5346
Email: jdh@jdhynesinc.com

HYNES

TABLE OF CONTENTS

PAGE

32185 Beaver Run Drive • Salisbury, Maryland 21804 • 410-546-6462 • Fax 410-548-5346
Email: jdh@jdhynesinc.com

PURPOSE AND SCOPE

The subsurface exploration study was performed to evaluate the subsurface conditions with respect to the following:

1. General site and subgrade preparation;
2. Fill and backfill construction;
3. Foundation recommendations, including allowable bearing capacity and estimated embedment depths of spread footings;
4. Foundation construction and inspection procedures;
5. Ground slab support;
6. Pavement subgrade preparation and design;
7. Location of groundwater and applicable construction dewatering control procedures; and
8. Other aspects of the design and construction for the proposed structures indicated by the exploration.

An evaluation of the site, with respect to potential construction problems and recommendations dealing with earthwork and inspection during construction, is included. The inspection is considered necessary both to confirm the subsurface conditions and to verify that the soils related construction phases are performed properly.

EXISTING SITE CONDITIONS

As shown on the Project Location Map (Drawing JDH-10/24/102-A) in the Appendix, the project site is the site of the existing St. Vincent de Paul facility at 29533 Canvasback Drive in Easton, Maryland. The existing St. Vincent de Paul building is a pre-engineered steel building measuring 40 feet by 114 feet in plan with a 2,200 sf post and beam pole building addition. An asphalt parking lot is located in front of the building between the building and Canvasback Drive. A driveway extension and dumpster pad extends northwest of the northwest corner of the parking lot near the 2016 building addition. The land west of the parking lot is a lawn with a few small trees. Topographically the site is essentially flat with surface grades varying generally between Elevation 53 and Elevation 54, except at the swale at the rear of the site.

FIELD EXPLORATION AND STUDY

In order to determine the nature of the subsurface conditions at the site, 6 test borings were drilled on January 18, 2024 at the approximate locations shown on our Boring Location Plan (Drawing JDH-10/24/102-B) in the Appendix. We drilled 2 building borings (B-1 and B-2) to depths of 20.5 feet. We drilled 2 stormwater pond borings (S-1 and S-2) to depths of 8 feet. We drilled 2 pavement borings to depths of 5 feet. Included in the Appendix are test borings drilled in 2015. We include the Boring Location Plan (Drawing JDH-10/14/207-B) and Borings S-1, S-2, P-1, P-3 and P-4 from the 2015 report. The S-borings were building borings drilled to 25.5 feet. The P-borings were pavement borings drilled to 5 feet. We used these 2015 borings with the 2024 borings in our evaluation. A Geoprobe 7822 DT drill rig was used to drill the 2024 borings.

Soil sampling and testing were carried out in accordance with ASTM Specification D-1586. A brief description of our field procedures is included in the Appendix. The results of all boring and sampling operations are shown on the boring logs.

32185 Beaver Run Drive • Salisbury, Maryland 21804 • 410-546-6462 • Fax 410-548-5346
Email: jdh@jdhynesinc.com

Samples of the subsurface soils were examined by our engineering staff and were visually classified in accordance with the Unified Soil Classification System (USCS) and ASTM Specification D-2488. The estimated USCS symbols appear on the boring logs and a key to the system nomenclature is provided in the Appendix of this report. Also included are reference sheets which define the terms and symbols used on the boring logs and explain the Standard Penetration Test procedures.

We note that the test boring records represent our interpretation of the field data based on visual examination and selected soil classification tests. Indicated interfaces between materials may be gradual.

The field exploration data was supplemented with laboratory testing data. The laboratory at John D. Hynes & Associates, Inc. performed 1 Sieve Analysis test, and 1 Atterberg Limits test and 2 Natural Moisture Content tests. The test results are noted on the boring logs in the Appendix.

SUBSURFACE CONDITIONS

At the time of our field exploration, there was approximately 6 to 14 inches of organic bearing soil present at the ground surface at the test boring locations in 2024. In the 2015 test borings, we encountered 6 to 10 inches of organic bearing soil in borings. Organic bearing soil and other surficial materials may vary in thickness at other locations on the site.

The subsurface soils were visually classified in accordance with the USCS, and consisted of Silty SANDs (SM), SANDs and SILTs (SM-ML), low Silt SANDs (SP-SM) and Silty CLAYs (CL) to boring termination depths.

In the borings, sands were characterized by Standard Penetration Test (SPT) values (N-values) of 3 to 18 blows per foot. This range of penetration resistance indicates an in-place relative density of very loose to medium dense. We did not perform SPT's in the fine-grained strata.

Groundwater was encountered during and following drilling operations at depths of 4 to 5 feet below the surface. Groundwater elevations may vary at other times during the year depending upon the amount of precipitation, and the extent of local surface development.

PROJECT CHARACTERISTICS

Proposed for development on the site is an addition to the existing structure. The new addition is to be a post and beam pole building. The addition will add approximately 2,480 sf to the northwest portion of the building. Hynes & Associates used addition loads based on our previous experience with the project. The estimated maximum loads are 4.5 kips for columns and 1 klf for walls.

A stormwater management pond is planned along the west side of the existing pavement at the location indicated on the Boring Location Plan. An addition to the parking lot and entrance driveway are planned between the stormwater pond at the west property line. The existing trash container storage pad will be removed and a new dumpster pad is planned at the new northwest corner of the pavement.

RECOMMENDATIONS

The following recommendations and considerations are based on our understanding of the proposed construction, the data obtained from the exploration, the estimated loading conditions and our previous experience with similar subsurface conditions and projects. If there are any significant changes to the project characteristics, such as revised

32185 Beaver Run Drive • Salisbury, Maryland 21804 • 410-546-6462 • Fax 410-548-5346
Email: jdh@jdhynesinc.com

structural loads differing significantly from those noted above, building addition geometry, building addition location, elevations, etc., we request that this office be advised so the recommendations of this report can be re-evaluated.

A. Site Preparation

Prior to the construction of foundations, or the placement of fill in any structural areas, all existing organic materials, frozen or wet, excessively soft or loose soils, existing pavements, and other deleterious materials should be removed and wasted. The existing organic bearing soil should be stripped and can be stockpiled for reuse in landscape areas. It should also be determined if any existing utilities are located within the structural areas. If utilities are within the proposed addition area, they should be relocated to other areas that will not be affected by the footing and slab construction and future loading. Following utility removal, the affected areas should be prepared and backfilled in accordance with the recommendations of this report. If groundwater or perched surface water is encountered during any grading or excavation process, Hynes & Associates should be consulted for additional recommendations regarding the stabilization of the bases of the excavations and backfilling.

After the stripping operations have been completed, the exposed subgrade soils should be inspected by the Geotechnical Engineer or his approved representative. The inspector should verify that organic matter has been removed from structural subgrade areas. The inspector may require the exposed subgrade materials be proofrolled or compacted to provide surficial densification and to locate any isolated areas of soft or loose soils requiring undercutting. Precipitation may result in standing water (perched water) at low areas. If the water is allowed to pond, the natural soils may deteriorate and overexcavation or subgrade improvement may be necessary at those areas. The Geotechnical Engineer should be consulted to evaluate poor subgrade conditions during construction.

Care should be exercised during the grading operations at the site. Shallow SM, SC, and CL materials were identified at the boring locations. These materials are moderately to highly sensitive to changes in moisture conditions and should therefore be protected. Most shallow soils are highly sensitive. We recommend that site work be performed during a predominantly dry period. The contractor should grade the site to direct stormwater from structural subgrades (building and pavement). The contractor should allow the subgrade to drain and dry following precipitation events. If earthwork is conducted in the presence of moisture, the traffic of heavy equipment, including heavy compaction equipment, will likely create pumping and a general deterioration of the subgrade soils. Construction traffic should be minimized at structural subgrade areas. If subgrade problems arise, the Geotechnical Engineer should be consulted for an evaluation of the conditions. Overexcavated areas resulting from the removal of organic matter, tree stumps, old foundations, old utilities, or otherwise unsuitable materials should be backfilled with properly compacted materials in accordance with the procedures discussed in the following section.

B. Fill Selection, Placement and Compaction

It is recommended that all materials to be used as structural fill be inspected, tested and approved by the Geotechnical Engineer prior to use. Acceptable borrow material should include GW, SM, SW and SP classified in accordance with the USCS. Furthermore, the material to be utilized as structural fill should have a Plasticity Index (PI) less than 20. The native materials should not be reused as structural fill.

32185 Beaver Run Drive • Salisbury, Maryland 21804 • 410-546-6462 • Fax 410-548-5346
Email: jdh@jdhynesinc.com

The importation of high quality, granular material should be allowed, and acceptable unit rates for importation and placement should be established. Sand, gravel or sand/gravel mixtures would be appropriate for wet weather placement. Otherwise, the materials noted above will be acceptable for use as structural fill. Native or imported SM soils will be sensitive to alteration in moisture content and will become unworkable during and following periods of precipitation. For this reason, if earthwork is attempted in late autumn, winter or early spring, the above mentioned high quality imported granular material should be limited to those soils better than SM. SM materials become unworkable at moisture contents greater than 3 percentage points above optimum. The contractor would have to dry these SM materials or set them aside for use in landscaping areas.

Structural fill should be placed in lifts which are eight inches or less in loose thickness and should be compacted to at least 95 percent of the Standard Proctor maximum dry density (ASTM D-698). Adjustments to the natural moisture content of the soils may be required in order to obtain specified compaction levels. Should utility construction be performed after earthwork, the Contractor should be responsible for achieving 95 percent compaction in all trench backfill. These guidelines should be set for all structural fill at the site including, but not limited to building addition, and ground slab fills.

For the proofrolling and fill compaction operations, fill limits should be extended at least 5 feet beyond the building additions' elements exterior walls, where possible. A sufficient number of in-place density tests should be performed by an engineering technician to verify that the proper degree of compaction is being obtained in all fill soils.

C. Building Addition Foundations

Considering current and proposed grade levels, the in-situ soil conditions and our estimated structural loadings, we recommend that the building additions' structural elements be supported on spread footing foundations bearing on firm, natural soils or controlled, structural fill. Footings supporting the building addition may be proportioned based upon a maximum allowable soil pressure not in excess of 1,500 psf. This allowable soil bearing pressure reflects the need to limit foundation settlements to ½ inch or less.

In general, new building addition footings should be spaced a sufficient distance away from existing footings so that the loss of overburden pressure during excavation for new footings does not adversely affect the bearing capacity of the existing footings. Where new footings are slightly higher than existing footings, the distance between the new and existing footings should be greater than the difference in elevations between the footings. This avoids adding new structure loadings to the existing footings. If the new footings must be closer, then lower the new footing to bear at the same elevation as the existing footing. If new footings must bear at a depth lower than the existing, adjacent footings, then the existing adjacent footings should be underpinned to bear at the same elevation as the new footings. New wall footings in a direction perpendicular to the existing building may be set initially at the existing footing subgrade elevation and then gradually raised (or lowered) to the recommended bottom of the footing elevation using step construction procedures with a 2:1 or more gentle slope.

Minimum dimensions of 24 inches for square footings and 18 inches for continuous or rectangular footings should be used in foundation design to minimize the possibility of a local shear failure. Turned down slabs may be 12 inches wide. All foundation excavations should be inspected by the Geotechnical Engineer or his approved representative prior to the placement of concrete. The purpose of the inspection would be to verify that the exposed bearing materials are suitable for the design soil bearing pressure and that loose, wet, frozen or compressible soils are not present.

32185 Beaver Run Drive • Salisbury, Maryland 21804 • 410-546-6462 • Fax 410-548-5346
Email: jdh@jdhynesinc.com

Exterior footings and footings in unheated areas should be located at a depth of at least 2 feet to bottom of footing below the outside final grade to provide adequate frost cover protection. If the building addition is to be constructed during the winter months or if the building addition will be subjected to freezing temperatures after footing construction, then all footings should be adequately protected during freezing periods.

Soils exposed at the bases of all satisfactory foundation excavations should be protected against any detrimental change in condition, such as disturbance from rain or frost. Surface runoff should be drained away from the excavations and not be allowed to pond.

If our recommendations are followed, we estimate total and differential settlements of approximately ½ inch or less. This could result in settlement differential of as much as ½ inch between the existing building and the proposed addition.

D. Floor Slab Support

Ground supported slabs may be supported on firm, natural soils or on a layer of controlled, structural fill. The subgrade should be prepared in accordance with the procedures described in Sections A and B of this report. It is, also, recommended that a 4 to 6 inch clean, granular, leveling and load-distributing material such as washed gravel, or screened crushed stone, be used beneath the floor slabs. This material will require acquisition from off-site sources. Prior to placing the leveling and load distributing material, the slab subgrade should be free of standing water or mud. A suitable moisture barrier should also be provided for the building slab. These procedures will help to prevent capillary rise and damp floor slab conditions. For native soil or fill material placed and compacted according to the procedures outlined in this report, we recommend using a value of modulus of subgrade reaction of 150 pounds per cubic inch.

E. Pavement Subgrade and Preparation Design

As indicated under "Field Exploration and Study" above, 2 pavement borings, designated as P-2 and P-2, were drilled to a depth of 5 feet in the proposed pavement areas within the study area. We, also, reviewed the pavement borings P-1, P-3 and P-4 and the pavement recommended from the 2015 Report.

Samples of the subsurface soils were examined by our engineering staff and visually classified in accordance with USCS requirements. For the 5 foot depth in all borings, the USCS designation in the test borings was Silty SANDs (SM), and Silty CLAYs (CL).

The following recommendations are provided assuming uniformly firm subgrade with the subgrade soils and fill compacted to 95 percent of ASTM D-698, and that organic soils have been removed from pavement subgrade areas (see Section A) and approved subgrade soil types:

PASSENGER CAR PAVEMENT (RESTRICTED):

Hot Mix Asphalt Surface Course (Superpave 12.5 mm, PG 64-22)	1 ½ inches
Hot Mix Asphalt Base Course (Superpave 19mm, PG 64-22)	2 ½ inches
Graded Aggregate Subbase (Maryland Type CR-6 or GA Subbase)	6 inches

32185 Beaver Run Drive • Salisbury, Maryland 21804 • 410-546-6462 • Fax 410-548-5346
Email: jdh@jdhynesinc.com

The pavement materials and construction should be in general accordance with the Maryland Department of Transportation, State Highway Administration, "Standard Specifications for Construction and Materials,' latest edition, and this report.

All pavement subgrade areas should be inspected and proofrolled in accordance with Section A and B of this report. As noted, the pavement subgrade soils will consist of materials having the classifications of SM or CL in accordance with the USCS. The top 12 inches of the natural subgrades at pavement areas should be compacted to 95 percent of the Standard Proctor maximum dry density (ASTM D-698) prior to fill or stone placement. Refer to Sections A and B for recommendations for subgrade preparation and fill construction related to areas that have roots or other obstructions and the pavement subgrade.

The pavement subgrade and pavement layers should be graded such that surface water is carried off the pavement areas and away from building areas. The surface water should not be allowed to pond. Runoff onto adjacent properties should be controlled property.

Hynes & Associates recommends that rigid pavement be designed and installed for use at trash container storage and pick-up locations. These "dumpster pad" locations receive extreme wheel loads during emptying and placement. Also, hydraulic oils usually accumulate at these areas causing a breakdown in asphalt pavement mixtures.

F. Groundwater and Drainage

As noted above in this report, groundwater was encountered during drilling operations at a depth of 4 to 5 feet below the ground surface. The Contractor may not experience foundation construction issues relating to the groundwater. The Contractor should be prepared to dewater the lowest excavations in the event of the infiltration of precipitation. If required, suitable measures for dewatering should be implemented. These methods may include sumping and pumping, etc. Efforts should be made to keep exposed subgrade areas dry during construction, primarily because the soils will be susceptible to deterioration and loss of strength in the presence of moisture. Adequate drainage should be provided at the site to minimize any increase in moisture content of the foundation and pavement subgrade soils. The final site drainage should also be designed such that run-off onto adjacent properties is controlled properly.

ADDITIONAL SERVICES RECOMMENDED

Additional engineering, testing, and consulting services recommended for this project are summarized below.

A. Site Preparation and Proofrolling Monitoring

The Geotechnical Engineer or experienced soils inspector should inspect the site after it has been stripped and excavated. The inspector should determine if any undercutting or in-place densification is necessary to prepare a subgrade for fill placement, or slab and pavement support. The inspector should verify that organic soils and organic matter have been removed from all structural subgrade areas prior to filling operations.

B. Fill Placement and Compaction Monitoring

The Geotechnical Engineer or experienced soils inspector should witness all fill operations and take sufficient in-place density tests to verify that the specified degree of fill compaction is achieved. The inspector should observe and approve borrow materials used and should determine if their existing moisture contents are suitable.

32185 Beaver Run Drive • Salisbury, Maryland 21804 • 410-546-6462 • Fax 410-548-5346
Email: jdh@jdhynesinc.com

C. Footing Excavation Inspections

The Geotechnical Engineer should inspect all footing excavations for the structure addition. He should verify that the design bearing pressures are available and that no loose or soft areas exist beneath the bearing surfaces of the footing excavations.

D. Pavement System Inspection

Pavement subgrade soils should be inspected prior to the placement of pavement materials to verify that proper compaction has been achieved and that project specifications are being followed. A sufficient number of in place density tests should be performed to assure that the specified degree of compaction is achieved in the subbase stone layer.

REMARKS

This report has been prepared solely and exclusively for St. Vincent de Paul of Easton, Inc. to provide guidance to design professionals in developing facilities plans for the St. Vincent de Paul Facility Expansion project located in Easton, Maryland. It has not been developed to meet the needs of others, and application of this report for other than its intended purpose could result in substantial difficulties. The Consulting Engineer cannot be held accountable for any problems which occur due to the application of this report to other than its intended purpose. This report in its entirety should be attached to the project specifications.

These analyses and recommendations are, of necessity, based on the concepts made available to us at the time of the writing of this report, and on-site conditions, surface and subsurface that existed at the time the exploratory borings were drilled. Further assumption has been made that the limited exploratory borings, in relation both to the areal extent of the site and to depth, are representative of conditions across the site. It is also recommended that we be given the opportunity to review all plans for the project in order to comment on the interaction of soil conditions as described herein and the design requirements.

Our professional services have been performed, our findings obtained and our recommendations prepared in accordance with generally accepted engineering principles and practices.

32185 Beaver Run Drive • Salisbury, Maryland 21804 • 410-546-6462 • Fax 410-548-5346
Email: jdh@jdhynesinc.com

HYNES

APPENDIX

32185 Beaver Run Drive • Salisbury, Maryland 21804 • 410-546-6462 • Fax 410-548-5346
Email: jdh@jdhynesinc.com

INVESTIGATIVE PROCEDURES

SOIL TEST BORINGS

Soil drilling and sampling operations were conducted in accordance with ASTM Specification D-1586. The borings were advanced by mechanically turning continuous hollow stem auger flights into the ground. At regular intervals, samples were obtained with a standard 1.4 inch I.D., 2.0 inch O.D. splitspoon sampler. The sampler was first seated 6 inches to penetrate any loose cuttings 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 the "Standard Penetration Resistance". The penetration resistance, when properly evaluated, is an index to the soil's strength, density and behavior under applied loads. The soil descriptions and penetration resistances for each boring are presented on the Test Boring Records in the Appendix.

SOIL CLASSIFICATION

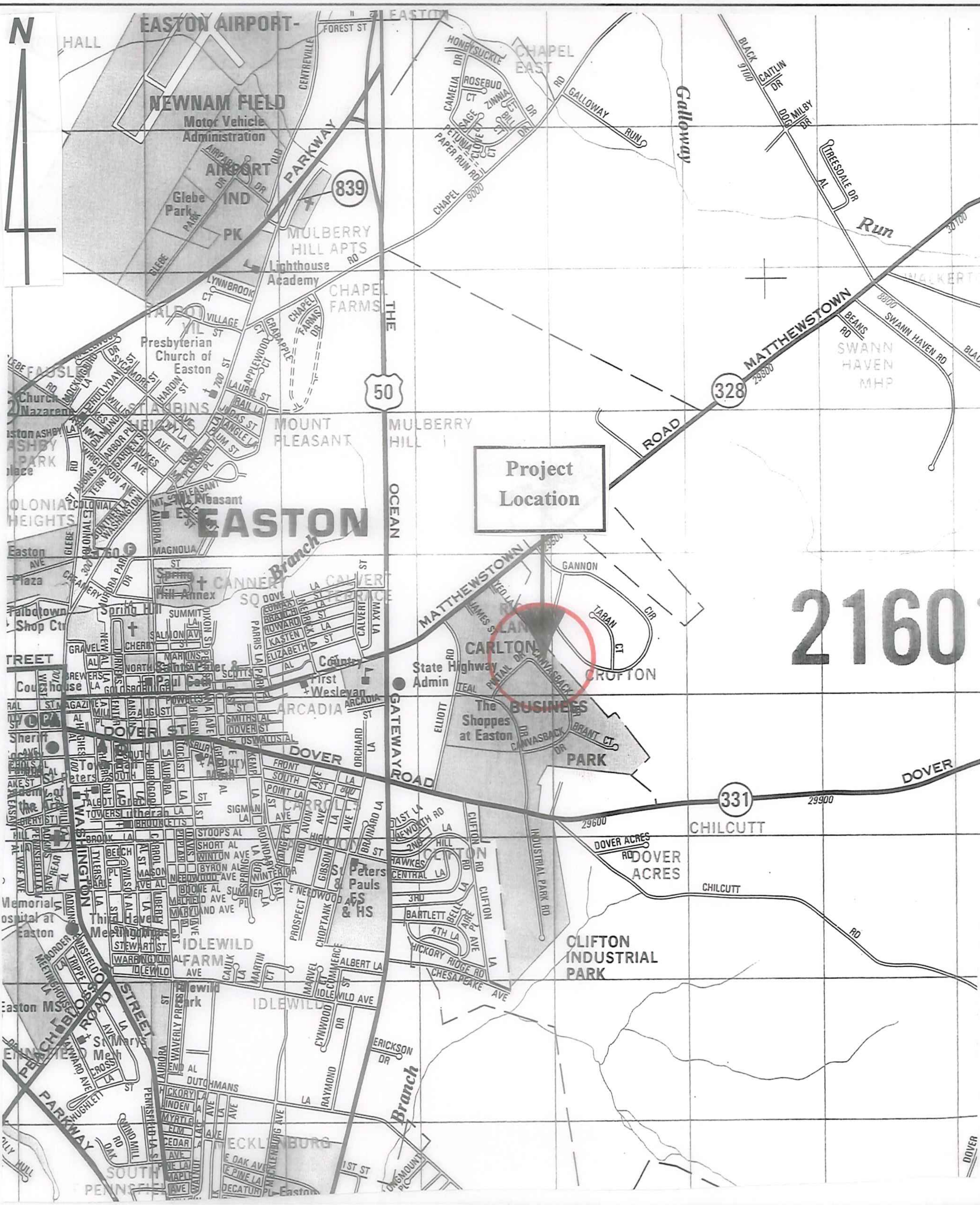
Soil classifications provide a general guide to the engineering properties of various soil types and enable the engineer to apply his past experience to current problems. In our investigation, jar samples obtained during drilling operations are examined in our laboratory and visually classified by the geotechnical engineer in accordance with ASTM Specification D-2488. The soils are classified according to the AASHTO or Unified Classification System (ASTM D-2487). Each of these classification systems and the in-place physical soil properties provides an index for estimating the soil's behavior.

NATURAL MOISTURE

Portions from representative soil samples obtained during drilling operations were selected for Natural Moisture Content tests. The Natural Moisture Content Test determines the water content of soils by drying into an oven with a standard drying temperature of 110 °C. The lost of mass drying the sample, determines the water content into the soil. The water content of the sample is calculated in percentage. The water content of soils (natural moisture) is determined in accordance with ASTM Specification D-2216.

SIEVE ANALYSIS

Gradational analysis tests were performed to determine the particle size and distribution of the samples tested. The grain size distribution of soils coarser than a No. 200 sieve is determined by passing the sample through a standard set of nested sieves. The percentage of materials passing the No. 200 sieve is determined by washing the material over a No. 200 sieve. These tests are in accordance with ASTM D-421, D-422 and D-1140. The results are presented in the Appendix to our report.

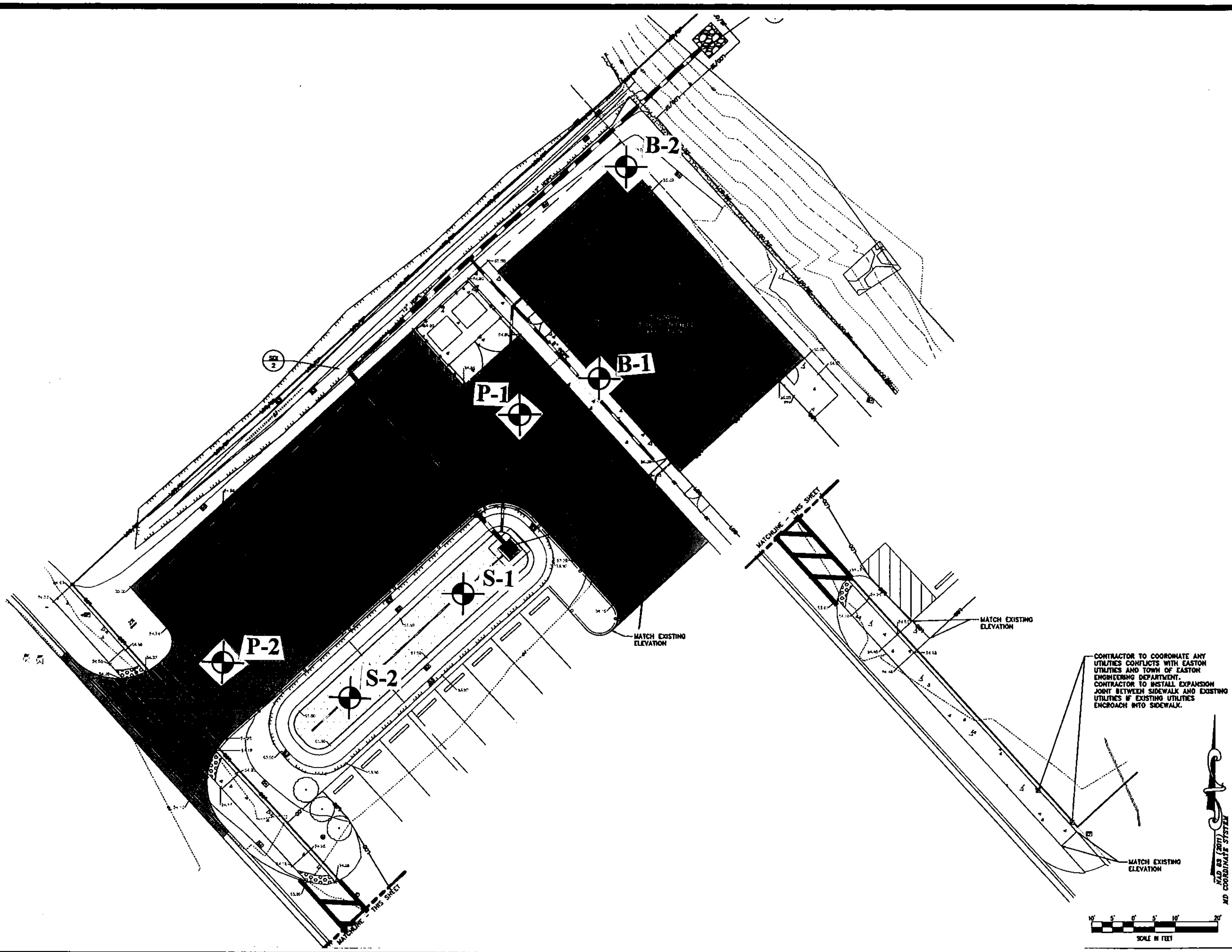


HYNES **JOHN D. HYNES & ASSOCIATES, INC.**

32185 Beaver Run Drive • Salisbury, Maryland 21804

410-546-6462 / Fax: 410-548-5346

Project Location Map St. Vincent de Paul Addition Seaford, Delaware	**Date: January 22, 2024** **Scale: 1 in. = 2,000 ft.** **Drawn: ADC Maps** **DWG. No.** **JDH-10/24/102-A**



HYNES
JOHN D. HYNES & ASSOCIATES, INC.
32185 Beaver Run Drive • Salisbury, Maryland 21804
410-546-6462 / Fax: 410-548-5346

Boring Location Plan
St. Vincent De Paul Addition
Seaford Delaware

Date: January 22, 2024	
Scale: As Shown	
Drawn: Lane Engineering	
DWG. No. JDH-10/24/102-B	

LOG OF BORING B-1

HYNES & ASSOCIATES

St. Vincent de Paul
29533 Canvasback Drive
Easton, Maryland 21601

St. Vincent de Paul Addition

Project No.: JDH-10/24/102

Date Completed: : January 18, 2024
Logged By: : R. Rhoads
Drilled By: : B. Hynes
Drilling Method: : HSA (Geoprobe 7822 DT)
Total Depth: : 20.5 feet

Depth in Feet	DESCRIPTION	GRAPHIC	USCS	Sample	Blow Count
0	Brown, wet, loose, fine to coarse SAND, with some silt, trace gravel		SM	1	3-3-4-5
1	Gray, wet, loose, fine to coarse SAND, with little to some silt, little clay, trace gravel		SM	2	2-3-3-4
4	Gray, saturated, very loose, fine to coarse SAND and clayey SILT, with trace gravel		SM-ML	3	2-1-1-2
6	Gray, saturated, loose, fine to medium SAND, with little silt, trace clay		SM	4	2-3-4-4
8	Orange-brown, saturated, medium dense, fine to coarse SAND, with trace to little silt, trace clay		SM	5	4-6-8-9
12	Orange-brown, saturated, medium dense, fine to coarse SAND, with little gravel, trace to little silt, trace clay		SM	6	3-5-8
17	Orange-brown, saturated, medium dense, fine to medium SAND, with trace silt, trace clay		SM-SP	7	4-7-9
20.5	Boring terminated at 20.5 feet.				

REMARKS

Scale 1" ~ 4.5 feet

Approximately 8 inches of organic bearing soil was encountered at the ground surface.

Groundwater was encountered at 4 feet during drilling operations.

Boring caved in at 4.5 feet.

Laboratory Test Results

Sample No. 3
From 4 to 6 feet

Sieve Analysis

Sieve Size	Passing %
3/8"	100
No. 4	99.0
No. 10	97.8
No. 20	94.7
No. 40	84.6
No. 60	61.9
No. 100	42.2
No. 200	36.5

Natural Moisture = 17.0%

HYNES & ASSOCIATES

LOG OF BORING B-2

St. Vincent de Paul
29533 Canvasback Drive
Easton, Maryland 21601

St. Vincent de Paul Addition

Project No.: JDH-10/24/102

Date Completed: : January 18, 2024
Logged By: : R. Rhoads
Drilled By: : B. Hynes
Drilling Method: : HSA (Geoprobe 7822 DT)
Total Depth: : 20.5 feet

Depth in Feet	DESCRIPTION	GRAPHIC	USCS	Sample	Blow Count	REMARKS
0–2	Gray to brown, wet, loose, fine to coarse SAND, with little silt, little clay, trace gravel		SM	1	2-2-3-5	Scale 1" ~ 4.5 feet Approximately 6 inches of organic bearing soil was encountered at the ground surface. Groundwater was encountered at 5 feet during drilling operations. Boring caved in at 4 feet. Laboratory Test Results Sample No. 4 From 6 to 8 feet Natural Moisture = 14.7%
2–4	Gray to brown, wet, very loose to loose, fine to medium SAND, with little to some silt, trace clay, trace gravel		SM	2	2-2-2-2	
4–6	Gray, wet to saturated, loose, fine to coarse SAND, with little silt, trace clay, trace gravel		SM	3	2-2-3-4	
6–12	Orange-brown, saturated, medium dense, fine to coarse SAND, with little gravel, little silt, trace clay		SM	4	5-5-6-6	
				5	6-8-9-9	
12–20.5	Orange-brown, saturated, medium dense, fine to medium SAND, with little silt, trace clay		SM	6	3-4-6	
				7	3-4-7	

Boring terminated at 20.5 feet.

HYNES & ASSOCIATES

LOG OF BORING P-1

St. Vincent de Paul 29533 Canvasback Drive Easton, Maryland 21601	Date Completed: : January 18, 2024 Logged By: : R. Rhoads Drilled By: : B. Hynes
St. Vincent de Paul Addition	Drilling Method: : Hand AUger
Project No.: JDH-10/24/102	Total Depth: : 5 feet

Depth in Feet	DESCRIPTION	GRAPHIC	USCS	Sample	REMARKS
0	Brown to gray, wet, fine to coarse SAND, with little silt, little clay, trace gravel		SM	1	Scale 1" ~ 4.5 feet Approximately 12 inches of organic bearing soil was encountered at the ground surface. Groundwater was encountered at 5 feet during drilling operations. Laboratory Test Results Sample No. 3 From 3 to 4 feet Natural Moisture = 16.3%
2	Gray, wet, silty CLAY, with trace sand		CL	2	
4	Gray, wet to saturated, silty CLAY, with little sand, trace gravel		CL	3 4	
6	Boring terminated at 5 feet.				
8					

10
12
14
16
18
20
22
24
26
28
30

HYNES & ASSOCIATES

LOG OF BORING P-2

St. Vincent de Paul
29533 Canvasback Drive
Easton, Maryland 21601

St. Vincent de Paul Addition

Project No.: JDH-10/24/102

Date Completed: : January 18, 2024
Logged By: : R. Rhoads
Drilled By: : B. Hynes
Drilling Method: : Hand AUger
Total Depth: : 5 feet

Depth in Feet	DESCRIPTION	GRAPHIC	USCS	Sample	REMARKS
0	Orange-brown, wet, silty CLAY, with little sand, trace gravel (fill)		CL	1	Scale 1" ~ 4.5 feet Approximately 14 inches of organic bearing soil was encountered at the ground surface. Groundwater was encountered at 5 feet during drilling operations.
2	Brown to gray, wet, fine to coarse SAND, with little gravel, little silt, trace to little clay (fill)		SM	2	
4	Brown to gray, wet to saturated, silty CLAY, with trace sand		CL	3 4	
6	Boring terminated at 5 feet.				
8					
10					
12					
14					
16					
18					
20					
22					
24					
26					
28					
30					

HYNES & ASSOCIATES

LOG OF BORING S-1

St. Vincent de Paul
29533 Canvasback Drive
Easton, Maryland 21601

St. Vincent de Paul Addition

Project No.: JDH-10/24/102

Date Completed:	: January 18, 2024
Logged By:	: R. Rhoads
Drilled By:	: B. Hynes
Drilling Method:	: HSA (Geoprobe 7822 DT)
Total Depth:	: 8 feet

Depth in Feet	DESCRIPTION	GRAPHIC	USCS	Sample	Blow Count	REMARKS
0	Orange-brown, wet, very loose, fine to coarse SAND, with little silt, little clay, trace gravel (10YR 6/8, Sandy loam)		SM	1	2-2-2-4	Scale 1" ~ 4.5 feet Approximately 6 inches of organic bearing soil was encountered at the ground surface. Groundwater was encountered at 4 feet during drilling operations. Boring caved in at 3 feet.
	Gray, wet, medium stiff, silty CLAY, with trace sand (10YR 5/2, Silty clay)		CL			
2	Dark gray, wet, medium stiff, silty CLAY, with trace sand (10YR 4/2, Silty clay)		SM-ML	2	2-3-9-10	
4	Gray, saturated, medium stiff, silty CLAY, with trace sand (10YR 5/2, Silty clay)		CL	3	2-3-3-4	
6	Gray, saturated, loose, fine to medium SAND, with little silt, trace to little clay (10YR 5/2, Sandy loam)		SM	4	3-3-5-5	
8	Boring terminated at 8 feet.					
10						
12						
14						
16						
18						
20						
22						
24						
26						
28						
30						

HYNES & ASSOCIATES

LOG OF BORING S-2

St. Vincent de Paul
29533 Canvasback Drive
Easton, Maryland 21601

St. Vincent de Paul Addition

Project No.: JDH-10/24/102

Date Completed:	: January 18, 2024
Logged By:	: R. Rhoads
Drilled By:	: B. Hynes
Drilling Method:	: HSA (Geoprobe 7822 DT)
Total Depth:	: 8 feet

Depth in Feet	DESCRIPTION	GRAPHIC	USCS	Sample	Blow Count
0–1	Gray, wet, loose, fine to coarse SAND, with little silt, little clay (10YR 5/2, Sandy loam)		SM	1	2-3-5-5
1–6	Brown to gray, wet to saturated, soft to medium stiff, silty CLAY, with little sand (10YR 5/3, Silty clay)		CL	2	2-3-5-3
				3	2-2-2-3
6–8	Orange-brown, saturated, loose, fine to medium SAND, with little silt, trace to little clay (10YR 6/8, Sandy loam)		SM	4	2-2-3-3
8	Boring terminated at 8 feet.				

Depth scale: 0, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30

REMARKS

Scale 1" ~ 4.5 feet

Approximately 6 inches of organic bearing soil was encountered at the ground surface.

Groundwater was encountered at 5 feet during drilling operations.

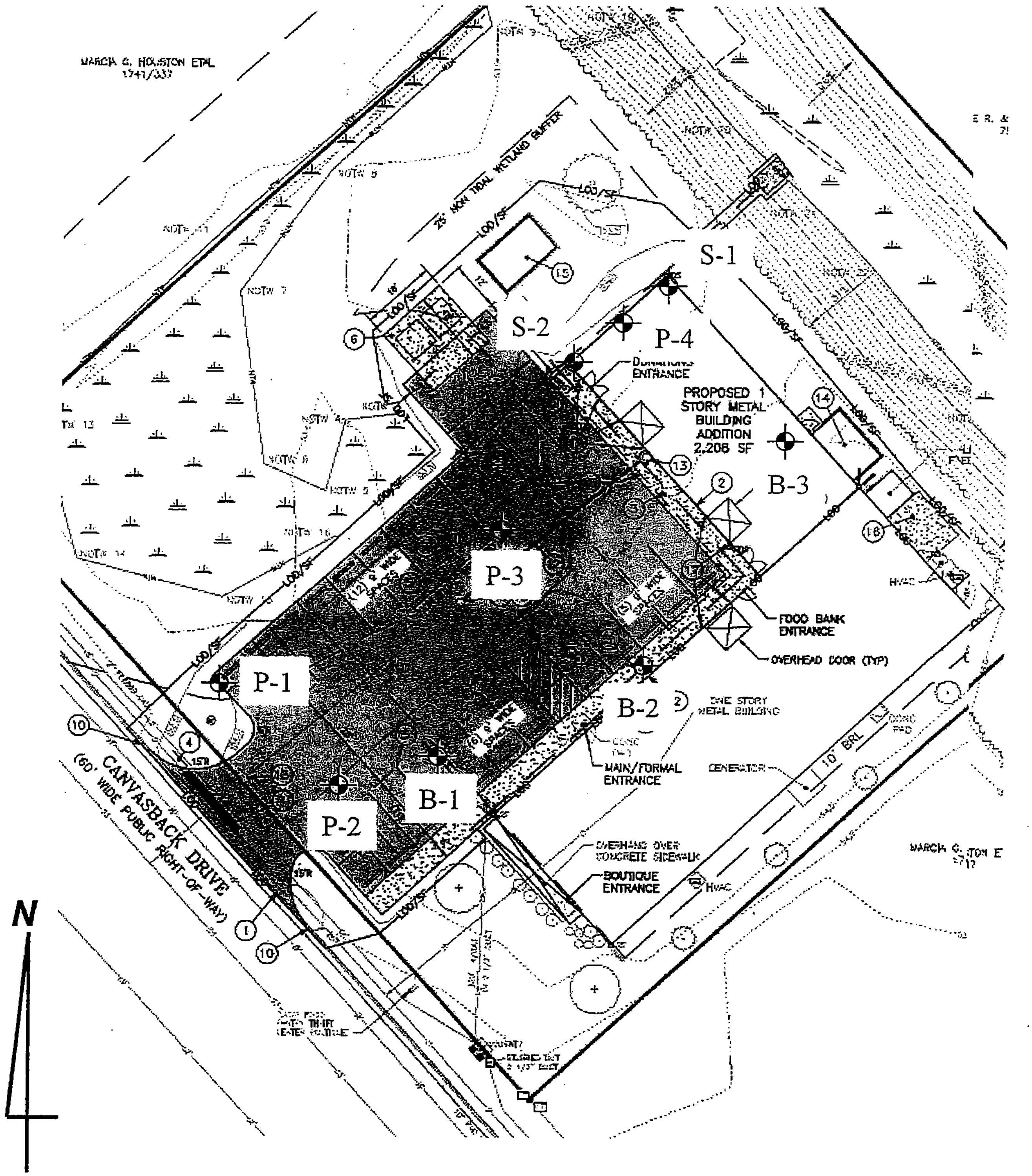
Boring caved in at 2 feet.

Laboratory Test Results

Sample No. 2
From 2 to 4 feet

Atterberg Limits

Liquid Limit = 24
Plasticity Index = 12
Natural Moisture = 15.2%



HYNES JOHN D. HYNES & ASSOCIATES, INC.

32185 Beaver Run Drive • Salisbury, Maryland 21804

410-546-6462 / Fax: 410-548-5346

Boring Location Plan St. Vincent de Paul Facility Expansion Easton, Maryland	Date: Nov. 30, 2015 Scale: 1 in. = 38 ft. Drawn: P. Gardner DWG. No. JDH-10/14/207-B

HYNES & ASSOCIATES

LOG OF BORING S-1

c/o Michael J. Klein
P.O. Box 10
Oxford, Maryland 21654

St. Vincent de Paul Facility Expansion

Project No.: JDH-10/14/207

Date Completed: : November 25, 2015
Logged By: : J. Lindsey
Drilled By: : A. Collins
Drilling Method: : HSA (Mobile B-47 HD)
Total Depth: : 25.5 feet.

Depth in Feet	DESCRIPTION	GRAPHIC	USCS	Sample No.	Blows per 6 inches	Remarks
0–2.5	Brown, wet, stiff, silty CLAY, with some sand, trace gravel		CL	1	3-7-7-7	Scale 1" ~ 4.5 feet Approximately 6 inches of organic bearing soil was encountered at the ground surface. Groundwater was encountered at 6 feet during drilling operations. At completion water was at 9 feet; boring caved in at 11 feet. Laboratory Test Results Sample No. 3 From 6 to 7.5 feet Natural Moisture = 21.3%
2.5–5.5	Brown, wet, loose, fine to medium SAND, with some silt, little clay		SM	2	3-3-3	
5.5–8.5	Brown, saturated, medium dense, fine to medium SAND, with little silt		SP-SM	3	4-6-8	
8.5–12	Brown, saturated, medium dense, fine to coarse SAND, with some silt, little gravel		SM	4	5-9-7	
12–17	Brown, saturated, medium dense, fine SAND, with some silt		SM	5	4-6-10	
17–22	Brown, saturated, medium dense, fine SAND, with little silt		SP-SM	6	6-9-13	
22–25.5	Gray, saturated, medium dense, fine to medium SAND, with little silt		SP-SM	7	4-6-7	

Boring terminated at 25.5 feet.

HYNES & ASSOCIATES

LOG OF BORING S-2

c/o Michael J. Klein
P.O. Box 10
Oxford, Maryland 21654

St. Vincent de Paul Facility Expansion

Project No.: JDH-10/14/207

Date Completed: : November 25, 2015
Logged By: : J. Lindsey
Drilled By: : A. Collins
Drilling Method: : HSA (Mobile B-47 HD)
Total Depth: : 25.5 feet.

Depth in Feet	DESCRIPTION	GRAPHIC	USCS	Sample No.	Blows per 6 inches
0–2.5	Brown, wet, stiff, silty CLAY, with some sand		CL	1	3-5-5-6
2.5–5.5	Gray, wet, very stiff, silty CLAY, with little sand		CL	2	8-7-11
5.5–8.5	Light gray, saturated, medium dense, fine to medium SAND, with little silt		SP-SM	3	5-9-9
8.5–12	Brown, saturated, medium dense, fine to coarse SAND, with some silt, little gravel		SM	4	5-7-9
12–22	Brown, saturated, medium dense, fine SAND, with some silt		SM	5	3-5-8
				6	7-9-10
22–25.5	Gray, saturated, medium dense, fine SAND, with little silt		SP-SM	7	6-8-12
25.5	Boring terminated at 25.5 feet.				

Remarks

Scale 1" ~ 4.5 feet

Approximately 6 inches of organic bearing soil was encountered at the ground surface.

Groundwater was encountered at 6 feet during drilling operations.

At completion water was at 8.5 feet; boring caved in at 10.5 feet.

Laboratory Test Results

Sample No. 3
From 6 to 7.5 feet

Sieve Analysis

Sieve Size	Passing %
No. 4	100
No. 10	99.9
No. 20	97.7
No. 40	84.5
No. 60	41.8
No. 100	18.6
No. 200	15.4

Natural Moisture = 25.2%

LOG OF BORING P-1

HYNES & ASSOCIATES

c/o Michael J. Klein
P.O. Box 10
Oxford, Maryland 21654

St. Vincent de Paul Facility Expansion

Project No.: JDH-10/14/207

Date Completed: : April 21, 2014
Logged By: : J. Redding
Drilled By: : J. Briddell
Drilling Method: : Hand Auger
Total Depth: : 5 feet

Depth in Feet	Surf. Elev. 53.5	DESCRIPTION	GRAPHIC	USCS	Sample No.	Remarks
0	53.5	Orange-brown, wet, clayey, fine to medium SAND, with trace to little silt (A-6)		SC	1	Scale 1" ~ 4.5 feet Approximately 10 inches of organic bearing soil was encountered at the ground surface. Groundwater was not encountered during augering operations.
2	51.5	Light brown-gray, wet, silty CLAY, with some to little fine to coarse sand (A-6)		CL	2	
4	49.5	Gray, wet, fine to medium SAND, with some silt, trace clay (A-2-4)		SM	3	
		Boring terminated at 5 feet.				
6	47.5					
8	45.5					
10	43.5					
12	41.5					
14	39.5					
16	37.5					
18	35.5					
20	33.5					
22	31.5					
24	29.5					
26	27.5					
28	25.5					
30						

HYNES & ASSOCIATES

LOG OF BORING P-3

Pamela P. Gardner, LLC
8 West Dover Street
Easton, Maryland 21601

St. Vincent de Paul Facility Expansion

Project No.: JDH-10/14/207

Date Completed: : April 21, 2014
Logged By: : J. Redding
Drilled By: : J. Briddell
Drilling Method: : Hand Auger
Total Depth: : 5 feet

Depth in Feet	Surf. Elev. 54.0	DESCRIPTION	GRAPHIC	USCS	Sample No.	Remarks
0	54	Brown-gray, wet, silty CLAY, with some fine to coarse SAND, with trace fine gravel (A-6)		CL	1	Scale 1" ~ 4.5 feet Approximately 9 inches of organic bearing soil was encountered at the ground surface. Groundwater was not encountered during augering operations.
2	52	Brown, wet, fine to coarse SAND, with some clay, little silt, trace fine gravel (A-6)		SC	2	
4	50	Light brown, wet to saturated, silty CLAY, with little fine to coarse sand (A-6)		CL	3	
		Boring terminated at 5 feet.				
6	48					
8	46					
10	44					
12	42					
14	40					
16	38					
18	36					
20	34					
22	32					
24	30					
26	28					
28	26					
30						

05-12-2014 J:\Mtech 2010\St. Vincent de Paul Facility Expansion-14207\P-3.bor

HYNES & ASSOCIATES

LOG OF BORING P-4

c/o Michael J. Klein
P.O. Box 10
Oxford, Maryland 21654

St. Vincent de Paul Facility Expansion

Project No.: JDH-10/14/207

Date Completed:	: April 21, 2014
Logged By:	: J. Redding
Drilled By:	: J. Briddell
Drilling Method:	: Hand Auger
Total Depth:	: 5 feet

Depth in Feet	Surf. Elev. 53.5	DESCRIPTION	GRAPHIC	USCS	Sample No.	Remarks
0	53.5	Light brown, wet, fine to medium SAND, with some silt, trace to little clay (A-4)		SM	1	Scale 1" ~ 4.5 feet Approximately 10 inches of organic bearing soil was encountered at the ground surface. Groundwater was not encountered during augering operations.
2	51.5	Brown, wet, silty CLAY, with some fine to coarse sand, trace to little organic silt (A-6)		CL	2	
4	49.5	Light gray, wet, silty CLAY, with some fine to coarse sand (A-6)		CL	3	
6	47.5	Boring terminated at 5 feet.				
8	45.5					
10	43.5					
12	41.5					
14	39.5					
16	37.5					
18	35.5					
20	33.5					
22	31.5					
24	29.5					
26	27.5					
28	25.5					
30						

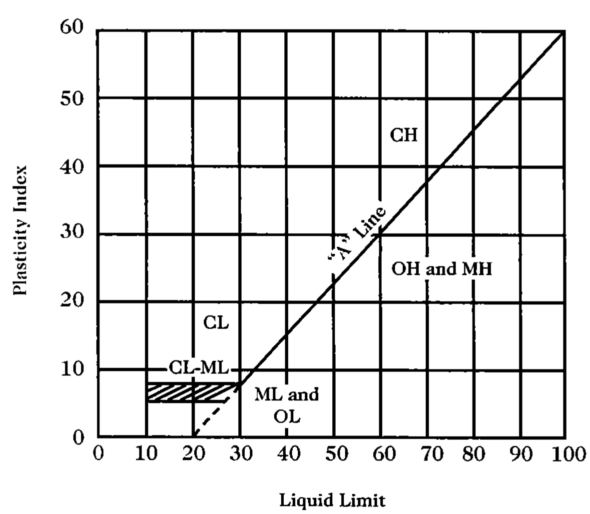
HYNES

JOHN D. HYNES & ASSOCIATES, INC.

Geotechnical and Environmental Consultants
Monitoring Well Installation
Construction Inspection and Materials Testing

UNIFIED SOIL CLASSIFICATION SYSTEM

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 of fines (fraction smaller than No 200 sieve size), coarse grained soils are classified as follows: Less than 5 percent: GW, GP, SW, SP; More than 12 percent: GM, GC, SM, SC; 5 to 12 percent: *Borderline cases requiring dual symbols"*	$C_u = \frac{D_{60}}{D_{10}}$ 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 graduation requirements for GW	
		Gravels with fines (Appreciable amount of fines)	GM[a] d / u	Silty gravels, gravel-sand-silt mixtures		Atterberg limits below "A" line or P.I. less than 4	Above "A" line with P.I. between 4 and 7 are *border-line* cases requiring use of dual symbols
			GC	Clayey gravels, gravel-sand-clay mixtures		Atterberg limits above "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,		$C_u = \frac{D_{60}}{D_{10}}$ 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 graduation requirements for SW	
		Sands with fines (Appreciable amount of fines)	SM[a] d / u	Silty sands, sand-silt mixtures		Atterberg limits below "A" line or P.I. less than 4	Above "A" line with P.I. between 4 and 7 are *border-line* cases requiring use of dual symbols.
			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)	Silts 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			
			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 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			



32185 Beaver Run Drive • Salisbury, Maryland 21804 • 410-546-6462 • Fax 410-548-5346
E-mail - jdh@jdhynesinc.com

HYNES

FIELD CLASSIFICATION SYSTEM FOR SOIL EXPLORATION

NON-COHESIVE SOILS
(Silt, Sand, Gravel and Combinations)

DENSITY

Very Loose	- 5 blows/ft. or less
Loose	- 6 to 10 blows/ft.
Medium Dense	- 11 to 30 blows/ft.
Dense	- 31 to 50 blows/ft.
Very Dense	- 51 blows/ft. or more

RELATIVE PROPORTIONS

Descriptive Term	Percent
Trace	1 - 10
Little	11 - 20
Some	21 - 35
And	36 - 50

PARTICLE SIZE IDENTIFICATION

Boulders	- 8 inch diameter or more
Cobbles	- 3 to 8 inch diameter
Gravel	- Coarse - 1 to 3 inch
	- Medium - 1/2 to 1 inch
	- Fine - 4.75 mm to 1/2 inch
Sand	- Coarse - 2.0 mm to 4.75 mm
	- Medium - 0.425 mm to 2.0 mm
	- Fine - 0.075 mm to 0.425 mm
Silt	- 0.075 mm to 0.002 mm

COHESIVE SOILS
(Clay, Silt and Combinations)

CONSISTENCY

Very Soft	- 3 blows/ft. or less
Soft	- 4 to 5 blows/ft.
Medium Stiff	- 6 to 10 blows/ft.
Stiff	- 11 to 15 blows/ft.
Very Stiff	- 16 to 30 blows/ft.
Hard	- 31 blows/ft. or more

PLASTICITY

Degree of Plasticity	Plasticity Index
None to Slight	0 - 4
Slight	5 - 7
Medium	8 - 22
High to Very High	over 22

Classification on logs are made by visual inspection of samples unless a sample has been subjected to laboratory classification testing.

Standard Penetration Test - Driving a 2.0 " O.D., 1-3/8" I.D., splitspoon sampler a distance of 1.0 foot into undisturbed soil with a 140 pound hammer free falling a distance of 30.0 inches. It is customary to drive the spoon 6 inches to seat into undisturbed soil, then perform the test. The number of hammer blows for seating the spoon and making the test are recorded for each 6 inches of penetration on the drill log (Example - 6/8/9). The standard penetration test value (N - value) can be obtained by adding the last two figures (i.e. 8 + 9 = 17 blows/ft.). (ASTM D-1586)

Strata Changes - In the column "Soil Descriptions," on the drill log, the horizontal lines represent strata changes. A solid line (—) represents an actually observed change, a dashed line (----) represents an estimated change.

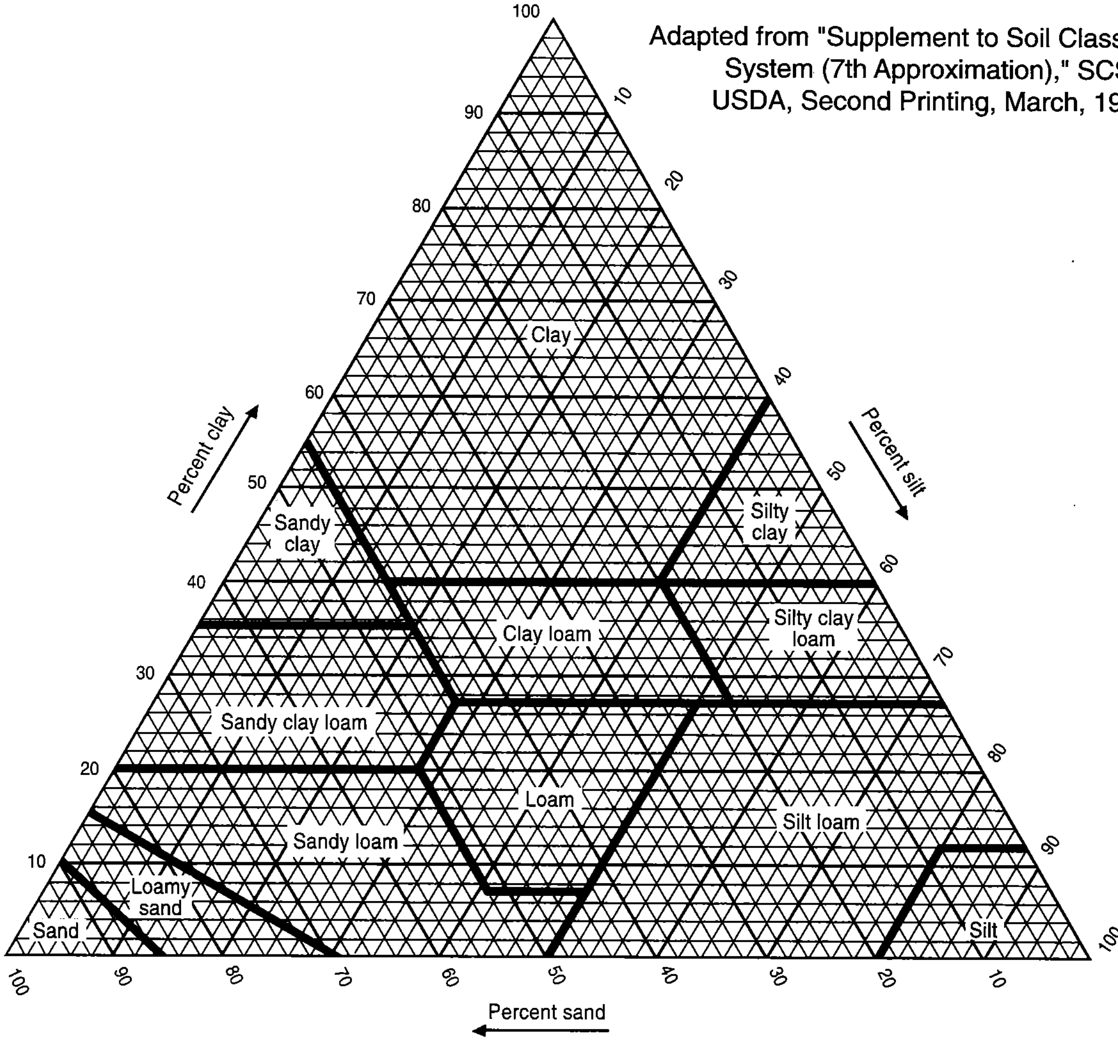
Groundwater - Observations were made at the times indicated. Porosity of soil strata, weather conditions, site topography, etc. may cause changes in the water levels indicated on the logs.

32185 Beaver Run Drive • Salisbury, Maryland 21804
410-546-6462 • Fax 410-548-5346

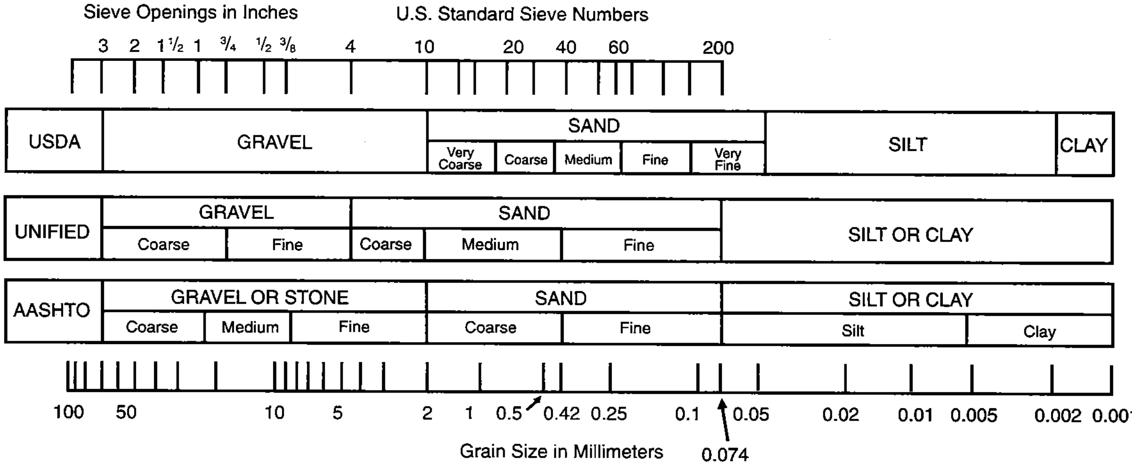
HYNES

USDA SOIL CLASSIFICATION SYSTEM

Adapted from "Supplement to Soil Classification System (7th Approximation)," SCS, USDA, Second Printing, March, 1967



COMPARISON OF PARTICLE - SIZE SCALES



Soil triangle of the basic soil textural classes. (U.S. Soil Conservation Service.) 288-D-2782.

☐ *Main Office* - 32185 Beaver Run Drive • Salisbury, Maryland 21804 • 410-546-6462 • Fax 410-548-5346
E-mail Salisbury jdhynes@aol.com

Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical-engineering study conducted for a civil engineer may not fulfill the needs of a constructor — a construction contractor — or even another civil engineer. Because each geotechnical- engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client. No one except you should rely on this geotechnical-engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you* — should apply this report for any purpose or project except the one originally contemplated.

Read the Full Report

Serious problems have occurred because those relying on a geotechnical-engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

Geotechnical Engineers Base Each Report on a Unique Set of Project-Specific Factors

Geotechnical engineers consider many unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk-management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical-engineering report that was:

- not prepared for you;
- not prepared for your project;
- not prepared for the specific site explored; or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical-engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light-industrial plant to a refrigerated warehouse;
- the elevation, configuration, location, orientation, or weight of the proposed structure;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical-engineering report is based on conditions that existed at the time the geotechnical engineer performed the study. *Do not rely on a geotechnical-engineering report whose adequacy may have been affected by*: the passage of time; man-made events, such as construction on or adjacent to the site; or natural events, such as floods, droughts, earthquakes, or groundwater fluctuations. *Contact the geotechnical engineer before applying this report to determine if it is still reliable.* A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ — sometimes significantly — from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide geotechnical-construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are Not Final

Do not overrely on the confirmation-dependent recommendations included in your report. *Confirmation-dependent recommendations are not final,* because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations *only* by observing actual subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's confirmation-dependent recommendations if that engineer does not perform the geotechnical-construction observation required to confirm the recommendations' applicability.*

A Geotechnical-Engineering Report Is Subject to Misinterpretation

Other design-team members' misinterpretation of geotechnical-engineering reports has resulted in costly