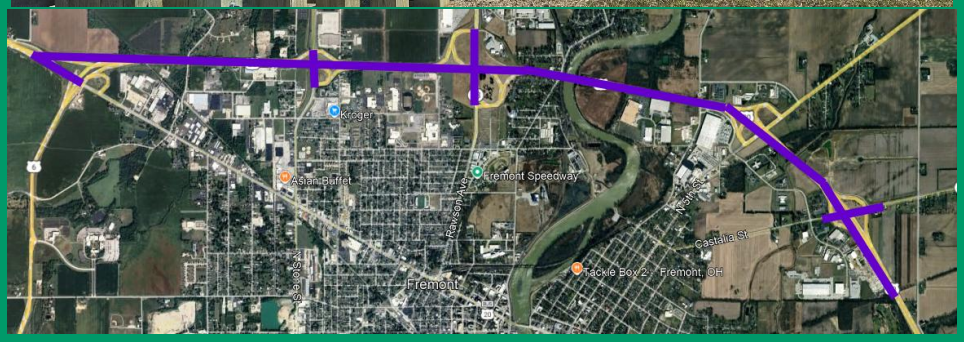
GEOTECHNICAL DATA REPORT

SAN Signs FY 2026

PID 117268

US 6, SR 19, SR 53, and SR 412/US 20 Interchange

Sandusky County, Ohio



Submitted to ODOT District 2

Date *August 5, 2025*

Prepared by

consultants
engineers • architects • planners
a verdantas company

(CT Project No. 242420)

Ohio Department of Transportation

SAN Signs FY 2026

PID 117268
Sandusky County, Ohio

Geotechnical Data Report

ODOT District 2
Bowling Green, Ohio

August 5, 2025

Project No. 242420

CT consultants
engineers • architects • planners
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August 5, 2025 **CT Project No. 242420**

Ms. Jorey Summersett, P.E.
Contract Manager, District 2
ODOT District 2
317 East Poe Road
Bowling Green, Ohio 43402

FINAL Geotechnical Data Report
SAN Signs FY 2026
PID 117268
Sandusky County, Ohio

Dear Ms. Summersett,

CT Consultants, Inc. – a Verdantas Company (CT), has prepared the geotechnical data report of our exploration at the site of the referenced project. This exploration was performed in general accordance with CT Proposal No. P242420 V3 dated December 9, 2024, and authorized by you via an email sent on December 13, 2024, referencing Encumbrance number 743746.

A draft version of this report was provided on May 6, 2025. A request to review the plan set and provide a final version of the report was provided from you to Verdantas via email on July 28, 2025. This final report contains the results of our study, our engineering interpretation of the results with respect to the project characteristics, our evaluation of the potential need for special foundation design for sign foundations, as well as average soil strength for consideration of various embedment depths for drilled shaft foundations. Drilled shaft embedment evaluations were completed by ODOT Office of Geotechnical Engineering.

Should you have any questions regarding this report or require additional information, please contact our office.

Sincerely,

CT Consultants, Inc.

Cole R. Olson
Geotechnical Staff

Christopher P. Iott, P.E.
Chief Geotechnical Engineer

STATE OF OHIO
CHRISTOPHER P IOTT
E-69734
REGISTERED
PROFESSIONAL ENGINEER

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FINAL GEOTECHNICAL DATA REPORT
SAN SIGNS FY 2026
PID 117268
SANDUSKY COUNTY, OHIO

FOR

ODOT DISTRICT 2
317 EAST POE ROAD
BOWLING GREEN, OHIO 43402

SUBMITTED

AUGUST 5, 2025
PROJECT NO. 242420

CT CONSULTANTS, INC.
1915 NORTH 12TH STREET
TOLEDO, OHIO 43604
(419) 324-2222

EXECUTIVE SUMMARY

This geotechnical data report has been prepared for the addition or replacement of existing overhead signage along US 6, SR 19, SR 53, and SR 412/ US 20 Interchange as part of the SAN Signs FY 2026 project in Sandusky County, Ohio, designated as PID 117268. This exploration included drilling eleven (11) Type E5 borings, laboratory testing, evaluation of the potential need for special design of overhead sign foundations, as well as evaluations for average soil strengths for various embedment depths of drilled shaft foundations.

1. The surface materials encountered in the borings consisted of topsoil or pavement materials. Borings B-003, B-004, B-005, and B-007 encountered predominantly granular existing fill and/or embankment fill materials with varying amounts of crushed stone, which were generally slightly organic. Fill materials encountered in Boring B-001 were cohesive soils with trace crushed stone.

2. The subsoils encountered in the borings underlying the surface materials can be generally described as predominantly cohesive soils varying in strength characteristics. However, granular zones were also encountered at overhead sign locations 20-66 (B-005), 53-11 and 53-6 (B-008), 412-13 (B-010), and 412-5 (B-011).

3. Only Sign 20-15 may be designed using a typical foundation, based on the conditions encountered in Boring B-002. All other borings performed for this exploration indicated that a special foundation design will be required.

4. Due to the presence of granular fill materials and granular zones within native cohesive soils, soft cohesive soils, as well as potential for groundwater encountered within the depth of drilled shaft installation, it should be anticipated that casing will be required for foundation installations.

This executive summary highlights our evaluations and recommendations and should only be utilized in conjunction with the accompanying report, including the detailed findings, conclusions, and qualifications presented herein.

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APPENDICES

1.0 INTRODUCTION

This geotechnical data report has been prepared for the addition or replacement of existing overhead sign-support along US 6, SR 19, SR 53, and SR 412/ US 20 Interchange in Sandusky County, Ohio. The project is designated as SAN Signs FY 2026, PID 117268. This exploration included drilling eleven (11) Type E5 borings, laboratory testing, our evaluation of the potential need for special design of overhead sign foundations, as well as evaluations of average soil strengths for various embedment depths for drilled shafts. The general location of the site is shown on the attached Site Location Map (Plate 1.0).

This exploration was performed in general accordance with CT Proposal No. P242420 (V3) dated December 9, 2024, and authorized by Ms. Jorey Summersett of ODOT District 2 via an email sent December 13, 2024, which referenced Encumbrance No. 743746.

1.1 Purpose and Scope of Exploration

The purpose of this exploration was to evaluate the subsurface conditions relative to proposed addition or replacement of sign-support foundations. To accomplish this, eleven (11) ODOT Type E5 borings, field and laboratory soil testing, and review of available geologic and soils data for the project area were performed.

This report summarizes our understanding of the proposed construction, describes the investigative and testing procedures utilized to evaluate the subsurface conditions at the site, and presents our findings from the field and laboratory testing.

This report includes a description of the existing surface cover, as well as the subsurface soil- and groundwater-conditions encountered in the borings.

Appendix B includes pertinent ODOT Geotechnical Engineering Design Checklists that apply to the scope of this report.

The CT scope of work did not include preparation of special foundation designs. Additionally, the scope of this study did not include an environmental assessment of the surface or subsurface materials at this site.

1.2 Proposed Construction

It is our understanding that the project will include fifteen (15) new overhead signs. The structures are proposed to be supported on structure foundation types summarized in the following table. Eleven (11) of the signs are planned to be cantilevered, supported on a single foundation. The remaining four (4) are planned to be trusses supported by a foundation at either end. The table below also includes the reference number that is used to identify each sign throughout this report, the boring associated with each sign, as well as the location of each sign.

Table 1.2: General Information for the Proposed Signs

Boring Number	Sign Reference Number	Structure Type	Location	Structure Foundation Type	Standard Foundation Depth (ft)
B-001-0-24	20R-2	Truss	Exit 98 (State St.) WB	TC-15.116 Design 1	12
B-002-0-24	20-15	Truss	SAN-6-16.15 EB	TC-15.116 Design 1	12
B-003-0-24	20-102	Truss	SAN-6-16.34 WB	TC-15.116 Design 2	14
B-004-0-24	20-76	Cantilever	SAN-20-19.10 WB	TC-12.31 Design 12	18
B-005-0-24 B-005-1-24	20-66	Truss	SAN-20-19.90 WB	TC-15.116 Design 1	12
B-006-0-24	19-12	Cantilever	SAN-19-10.91 SB	TC-12.31 Design 6	12
	19-8	Cantilever	SAN-19-10.91 NB	TC-12.31 Design 6	12
B-007-0-24	19-15	Cantilever	Oak Harbor Rd. SB	TC-12.31 Design 6	12
	19-5	Cantilever	Oak Harbor Rd. NB	TC-12.31 Design 6	12
B-008-0-24	53-11	Cantilever	SAN-53-10.84 SB	TC-12.31 Design 6	12
	53-6	Cantilever	SAN-53-10.84 NB	TC-12.31 Design 6	12
B-009-0-24	53-13	Cantilever	Rawson Ave. SB	TC-12.31 Design 6	12
	53-3	Cantilever	Rawson Ave. NB	TC-12.31 Design 6	12
B-010-0-24	412-13	Cantilever	SAN-412-0.34 WB	TC-12.31 Design 6	12
B-011-0-24	412-5	Cantilever	SAN-412-0.17 EB	TC-12.31 Design 6	12

The scope of this project included determination whether or not a special foundation will be required at each foundation location. It was indicated that a special foundation design will be required for subsurface profiles over the standard drilled shaft embedment depth with an average strength less than minimum design values used for standard design. Standard design is based on cohesive soils exhibiting an undrained shear strength (s_u, c) of 2,000 pounds per square foot (psf) or for granular soils with an angle of internal friction (ϕ) of 30 degrees and a wet density of 120 pounds per cubic foot (pcf).

2.0 GEOLOGY AND OBSERVATIONS OF THE PROJECT

2.1 General Geology and Hydrogeology

Published geologic maps from the Ohio Department of Natural Resources (ODNR) indicate that the project corridor is located in the Maumee Lake Plains Region of the Huron-Erie Lake Plains section. Within this region, Pleistocene-age silt, clay, and wave-planed clayey till are present overlying Silurian-and Devonian-age carbonate rocks and shales.

Bedrock in the project area is broadly mapped on the "Geologic Map of Ohio" as Lockport Dolomite (Upper and Lower Silurian). Based on a published local well log, bedrock in the project vicinity is mapped on the order of Elevs. 600± to 520± which is generally approximately 25 to 100 feet or greater below existing grades of the project roadways. Bedrock was not encountered in the test borings performed for this exploration.

Review of the Ohio Department of Natural Resources (ODNR) Map of Mines indicated no areas of mining activity in the general location of the sign sites.

Review of the ODNR "Ohio Karst Areas" map indicated that the site is not located in an indicated area of probable karst.

2.2 Site Reconnaissance

CT performed site reconnaissance on January 9, 2025. The project areas were generally interchanges in rural or rural residential areas, although some industrial areas were also present. The pavements around Borings B-001 through B-009 and were in good condition. The pavement conditions in the areas of Borings B-010 and B-011 included shoulders that were in poor condition with a frequent unsealed transverse cracks observed.

3.0 EXPLORATION

3.1 Historic Borings

Along the approximately 11 mile stretch that is planned to receive new overhead signs, review of ODOT records from the Transportation Information Mapping System (TIMS) indicated that hundreds of borings had been drilled along US 20 (US 20) and intersecting roads as part of four projects associated with the construction (reconstruction) of US 20 preformed in 1943, 1955, 1956, and 1966. Only the closest borings to each overhead sign location is referenced herein. The boring and (if available) laboratory data for the historic projects are included in Appendix C of this report. Additionally, the approximate locations of the historic borings are shown on the Test Boring Location Plans (Plates 2.01 through 2.11).

The historic borings were not enumerated. For designation within this report, these borings were numerated as B-CCC-D-EE as follows:

- B = Boring.
- CCC = Whole historic station number (040 for Sta. 40+75, etc.).
- D = Utilized to identify multiple borings within the same 100 feet station.
- EE = Date which the borings were performed (61 for 1961).

A summary of the historic borings in closest proximity to the overhead sign locations is provided in the following table.

Table 3.1 General Historic Boring Information

Overhead Sign Reference Number(s)	Historic Project ID (Year)	Closest Historic Boring Designation
20R-2	SAN-20-(11.44-15.56) (1943)	B-252-0-43
20-15	SAN-19-10.89 (1966)	B-099-1-66
20-102	SAN-20-14.60 (1955)	B-876-0-55
20-76	SAN-20-14.60 (1955)	B-1010-0-55
20-66	SAN-20-14.60 (1955)	B-1050-0-55
19-12 19-8	SAN-19-10.89 (1966)	B-104-0-66
19-15 19-5	SAN-19-10.89 (1966)	B-094-0-66

Table 3.1 General Historic Boring Information		
Overhead Sign Reference Number(s)	**Historic Project ID (Year)**	**Closest Historic Boring Designation**
53-11 53-6	SAN-53-7.67 (1956)	B-448-0-56
53-13	SAN-53-7.67 (1956)	B-426-0-56
53-3	SAN-53-7.67 (1956)	B-426-0-56
412-13	SAN-20-14.60 (1955)	B-1038-0-55
412-5	SAN-20-14.60 (1955)	B-1038-0-55

We have assumed that the information provided in the historic borings was accurate and correct, at the time of those respective explorations, but cannot guarantee as such. Additionally, subgrade soil conditions may have changed or may have been modified due to construction performed following completion of the historic subsurface explorations.

3.2 Project Exploration Program

Eleven (11) test borings, designated as Borings B-001-0-24 through B-011-0-24 were performed for this exploration. Boring B-005-1-24 was performed as an offset to Boring B-005-0-24 to obtain a Shelby tube sample. The borings were drilled by TTL Engineering Services under the guidance of CT from January 13, 2025 through March 13, 2025. These borings are fully designated in accordance with ODOT protocol, but the "-0-24" or "-24" portion of the nomenclature is generally omitted in the discussions within this report. The approximate locations of the borings are presented on the Test Boring Location Plans (Plates 2.01 through 2.11).

Stationing and offsets were not available at the time of preparing this final report. Stations and offsets were not included in the plan set and it was indicated by ODOT that it would be sufficient to include only latitude and longitude on the logs of test borings for this project. Latitude, Longitude, and ground surface elevations were surveyed by CT via a hand-held GPS. The accuracy from the handheld GPS device was generally found to be approximately 2 to 6 inches horizontal, and approximately 4 to 12 inches vertical. These are presented on the Logs of Test Borings.

The borings were performed as ODOT Type E5 structure borings per geotechnical investigative procedures outlined in Ohio Department of Transportation (ODOT) "Specifications for Geotechnical Explorations" (SGE). All but one of the borings were terminated at the target depth of 25 feet in accordance with ODOT criteria for Type E5 borings. Due to particularly soft cohesive soils encountered in Boring B-005-0-24, this boring was extended to a depth of 40 feet where medium stiff cohesive soils were encountered. Additionally, an offset Boring B-005-1-24 was performed adjacent to Boring B-005-0-24 and extended to termination at a depth of 18 feet after obtaining a Shelby tube sample.

Experience indicates that the actual subsoil conditions at a site could vary from those generalized on the basis of test borings made at specific locations. Therefore, it is essential that a geotechnical engineer be retained to provide soil engineering services during the site preparation, excavation, and foundation phases of the proposed project. This is to observe compliance with the design concepts, specifications, and recommendations, and to allow design changes in the event subsurface conditions differ from those anticipated prior to the start of construction.

3.3 Boring Methods

The test borings performed during this exploration were drilled with a track-mounted GeoProbe® 7822DT with drilling capabilities utilizing 3¼-inch inside diameter hollow-stem augers. During auger advancement, split-spoon drive samples were taken at 2½-foot intervals to termination. The samples were sealed in jars and transported to our laboratory for further classification and testing.

Split-spoon (SS) soil samples were obtained by the Standard Penetration Test Method (ASTM D 1586). The Standard Penetration Test (SPT) consists of driving a 2-inch outside diameter split-spoon sampler into the soil with a 140-pound weight falling freely through a distance of 30 inches. The sampler was driven in three successive 6-inch increments, with the number of blows per increment being recorded. The number of blows per increment was recorded at each depth interval, and these data are presented under the "SPT" column on the Logs of Test Borings attached to this report. The sum of the number of blows required to advance the sampler the second and third 6-inch increments is termed the Standard Penetration Resistance, or N_m-value, and is typically reported in blows per foot (bpf). The N_m-values were corrected to an equivalent rod energy ratio of 60 percent, N_{60}. The calibrated hammer/rod

energy ratio for the track-mounted GeoProbe® 7822DT utilized in this project was 89.3 percent, based on calibration performed on June 11, 2024. The N_{60}-values are presented on the attached Logs of Test Borings.

In offset Boring B-005-1-24, a Shelby tube push sample, designated ST on the Log of Test Boring, was obtained from 16 to 18 feet below existing grade. The Shelby tube sample was obtained by hydraulically advancing a 3-inch diameter, thin-walled sampler approximately 24 inches beyond the hollow-stem auger into relatively undisturbed soil in accordance with ASTM D 1587. The Shelby tube was then extracted from the subsoils, and the ends were capped and sealed. The sample was transported to our laboratory where it was extruded, classified, and tested.

Soil conditions encountered in the test borings are presented in the Logs of Test Borings, along with information related to sample data, SPT results, water conditions observed in the borings, and laboratory test data. In conjunction with published data and typical correlations, the N_{60}-values can be evaluated as a measure of soil compactness/consistency as well as shear strength.

Field and laboratory data were incorporated into gINT™ software for presentation purposes. It should be noted that these logs have been prepared on the basis of laboratory classification and testing as well as field logs of the encountered soils and rock.

3.4 Laboratory Testing Program

All samples were visually or manually classified in accordance with the ODOT Soil Classification System. All samples of the subsoils were also tested in our laboratory for moisture content (ASTM D 2216). Unconfined compressive strength estimates were obtained for the intact cohesive samples using a calibrated hand penetrometer. An unconsolidated-undrained (UU) triaxial compressive strength test (ASTM D 2850) was performed on an intact specimen from the Shelby tube sample obtained from Boring B-005-1-24. The test was performed using a confining pressure approximately equal to the overburden pressure at the sample depth. Atterberg limits tests (ASTM D 4318) and particle size analyses (ASTM D 6913 and D 7928) were performed on approximately half of the samples to determine soil classification and index properties. These test results are presented on the Logs of Test Borings, and Grain Size Distribution sheets.

4.0 FINDINGS

4.1 General Site Conditions

The majority of the borings were performed in grass areas beyond the extent of the roadway. Boring B-002 encountered aggregate base underlying the topsoil. Borings B-010 and B-011 were performed along the roadway due to guardrail and slopes. Boring B-010 was performed in the roadway and encountered broken asphalt underlain by aggregate base. Boring B-011 encountered surface materials consisting of aggregate shoulder material with asphalt fragments. A summary of the encountered surface materials in each boring is provided in the table below.

Table 4.1 Summary of Encountered Surface Materials

Boring Number	Topsoil Thickness (in)	Broken Asphalt Thickness (in)	Aggregate Base Thickness (in)	Aggregate Shoulder Material w/Asphalt Fragments Thickness (in)
B-001-0-24	7	-	-	-
B-002-0-24	8	-	14	-
B-003-0-24	7	-	-	-
B-004-0-24	6	-	-	-
B-005-0-24	4	-	-	-
B-006-0-24	6	-	-	-
B-007-0-24	7	-	-	-
B-008-0-24	8	-	-	-
B-009-0-24	7	-	-	-
B-010-0-24	-	17	19	-
B-011-0-24	-	-	-	15

"-" = Not Encountered

Borings B-003, B-004, B-005, and B-007 encountered predominantly granular existing fill and/or embankment fill materials with varying amounts of crushed stone, which were generally slightly organic. Fill materials encountered in Boring B-001 were cohesive soils with trace crushed stone. Embankment fill consisting of cohesive soils similar to the native soils may have been present in the borings as well. However, similar re-graded cohesive site soils for fill were not discernible from the native cohesive soils.

4.2 General Soil Conditions

Based on the results of our field and laboratory tests, the subsoils encountered in the borings underlying the surface materials can be generally described as predominantly cohesive soils varying in strength characteristics. However, granular zones were also

encountered at overhead sign locations 20-66 (B-005), 53-11 and 53-6 (B-008), 412-13 (B-010), and 412-5 (B-011).

A generalized description of the encountered soils at each sign location is provided in each of the following subsections.

Additional descriptions of the stratigraphy encountered in the borings are presented on the Logs of Test Borings.

4.2.1 Overhead Signs 20R-2, 19-15, 19-5, 412-13, and 412-5

Borings B-001, B-007, B-010, and B-011 encountered predominantly stiff to very stiff cohesive soils to depths ranging from 18½ feet below existing grade to termination at a depth of 25 feet. In each of the borings, except Boring B-001, the upper-profile stiff to very stiff cohesive soils were underlain by **very soft** to medium stiff cohesive soils to termination at a depth of 25 feet. Approximately 1-foot thick granular zones were encountered in Borings B-010 and B-011 at depths of approximately 17½ feet and 12 feet, respectively.

4.2.2 Overhead Signs 20-15, 19-12, and 19-8

Borings B-002 and B-006 encountered predominantly stiff to hard cohesive soils to termination at a depth of 25 feet. However, zones of medium stiff to stiff cohesive soils were encountered in Boring B-002 from 18 to 24 feet, as well as in Boring B-006 from 23 to 25 feet.

4.2.3 Overhead Sign 20-102

Boring B-003 encountered predominantly medium stiff to stiff cohesive soils to termination at a depth of 25 feet.

4.2.4 Overhead Signs 20-76, 20-66, 53-11, 53-6, 53-13, and 53-3

Borings B-004, B-005-0, B-008, and B-009 encountered predominantly medium stiff to stiff cohesive soils underlain by **very soft** to medium stiff cohesive soils to termination generally at a depth of 25 feet. Boring B-005-0 was extended to termination at a depth of 40 feet due to particularly soft soils encountered at the planned termination depth of 25 feet. The upper-profile medium stiff to stiff cohesive soils extended to depths ranging from approximately 3 to 8½ feet.

4.3 Groundwater Conditions

During this exploration, groundwater was initially encountered during drilling in eight of the eleven borings and was observed upon completion of drilling in three borings. A summary of the groundwater encountered in each boring is provided in the following table. It should be noted that test borings were drilled and sealed within the same day. Therefore, stabilized water conditions may not have occurred over the limited period of time during drilling operations. In any case, instrumentation was not installed to observe long-term groundwater levels.

Table 4.3 Summary of Groundwater in Borings

Boring Number	Approximate Depth (Elev.) of Groundwater (Feet)	
	Initially Encountered	Observed Upon Completion
B-003	6.7 (616.3)	-
B-004	4 (615.8)	-
B-005-0	8.8 (611.7)	-
B-007	14 (619.0)	16.3 (616.7)
B-008	3 (614.4)	-
B-009	7 (617.8)	-
B-010	17.6 (612.9)	17.1 (613.4)
B-011	20.5 (610.4)	16.3 (614.6)

" - " = Not Encountered

Based on the limited data available, such as the soil characteristics and the groundwater conditions encountered in the borings, it is our opinion that the “normal” groundwater level may generally be encountered at depths ranging from 8 to 18½ feet below existing grades. However, this exploration did not include research of possible hydrological influences at the project site. It should be noted that groundwater elevations can fluctuate with seasonal and climatic influences. In particular, “perched” water may be encountered in existing fill materials or granular soils that are underlain by relatively impermeable native cohesive soils.

In any case, based on guidance provided in Section 1201 of the Geotechnical Design Manual (GDM), it shall be assumed that the groundwater will be at a depth of 3 feet below the proposed top of the foundation at the deepest regardless of encountered conditions.

4.4 Remedial Measures

Only Sign 20-15 may be designed using a typical foundation, based on the conditions encountered in Boring B-002. All other borings performed for this exploration indicated that a special foundation design will be required. Due to the presence of granular fill materials and granular zones within native cohesive soils, soft cohesive soils, as well as potential for groundwater encountered within the depth of drilled shaft installation, it should be anticipated that casing will be required for foundation installations.

5.0 ANALYSES AND RECOMMENDATIONS

The following analysis and recommendations are based on our understanding of the proposed construction and upon the data obtained during our field exploration. If the project information or location as outlined is incorrect or should change significantly, a review of these recommendations should be made by CT.

5.1 Sign-Support Foundation Special Design Considerations

It was indicated that a special foundation design will be required for cohesive soils with an undrained shear strength (s_u, c) of less than 2,000 pounds per square foot (psf) or for granular soils with an angle of internal friction (ϕ') less than 30 degrees and/or a wet density of less than 120 pounds per cubic foot (pcf).

Based on guidance provided in Section 1201 of the Geotechnical Design Manual (GDM), the upper 3 feet of the drilled shaft embedment depth is modeled as soft clay with undrained shear strength of 250 psf, regardless of the conditions encountered in the boring, due to potential for frost action. Additionally, it is prescribed that the groundwater be modeled at a depth of 3 feet below the proposed top of the foundation.

The test borings encountered predominantly cohesive soils. Granular soil seams were encountered in Borings B-005, B-008, B-010, and B-011. The granular soil seams were on the order of 1 to 1½ feet in thickness. Due to the predominantly cohesive soil profile, the undrained shear strength evaluation was used for all borings with respect to need for special foundations.

Below is a summary table of the test borings performed for this exploration, the associated structure(s), the proposed foundation depth for the indicated standard foundation, the average undrained shear strength for the soils within the proposed foundation depth, and an indication of whether or not a special foundation is needed based on minimum undrained shear strength of 2,000 psf.

Table 5.1.A Summary of Soil Data and Special Design Requirements				
Boring Number	**Sign Reference Number**	**Proposed Foundation Depth (Feet)**	**Average Undrained Shear Strength, Su (psf)**	**Special Foundation Needed?**
B-001-0-24	20R-2	12	1,025	Yes
B-002-0-24	20-15	12	2,120	No
B-003-0-24	20-102	14	790	Yes
B-004-0-24	20-76	18	515	Yes
B-005-0-24	20-66	12	850	Yes
B-006-0-24	19-12	12	1,870	Yes
	19-8	12		Yes
B-007-0-24	19-15	12	1,605	Yes
	19-5	12		Yes
B-008-0-24	53-11	12	385	Yes
	53-6	12		Yes
B-009-0-24	53-13	12	345	Yes
	53-3	12		Yes
B-010-0-24	412-13	12	1,780	Yes
B-011-0-24	412-5	12	1,075	Yes

Only one boring (B-002) contained soils that were suitable for a standard foundation. All other borings indicated the need for a special foundation. A summary table is provided below that includes evaluations at 5-foot intervals for average undrained shear strength at depths greater than the depths for standard foundations. For Boring B-006, an undrained shear strength of 2,000 psf was achieved at the analyzed depth of 20 feet. For all other borings beside Borings B-002 and B-006, undrained shear strength of 2,000 psf was not achieved at any of the 5 feet intervals evaluated within a depth of 25 feet.

Table 5.1.B Summary of Average Shear Strength for Special Design				
Boring Number	Sign Reference Number	Average Undrained Shear Strength, Su (psf)		
		15 Feet Embedment Depth	20 Feet Embedment Depth	25 Feet Embedment Depth
B-001-0-24	20R-2	1,220	1,140	1,105
B-003-0-24	20-102	810	845	825
B-004-0-24	20-76	N/A	475	405
B-005-0-24	20-66	770	665	600
B-006-0-24	19-12	1,995	2,145	2,085
	19-8			
B-007-0-24	19-15	1,845	1,630	1,435
	19-5			
B-008-0-24	53-11	335	655	585
	53-6			
B-009-0-24	53-13	350	340	295
	53-3			
B-010-0-24	412-13	1,800	1,605	1,305
B-011-0-24	412-5	1,000	940	825

"N/A" = Not Applicable. Standard foundation depth is deeper.

Due to the presence of granular fill materials and granular zones within native cohesive soils, soft cohesive soils, as well as potential for groundwater encountered within the depth of drilled shaft installation, it should be anticipated that casing will be required for foundation installations.

The CT scope of work did not include preparation of special foundation designs.

6.0 QUALIFICATION OF RECOMMENDATIONS

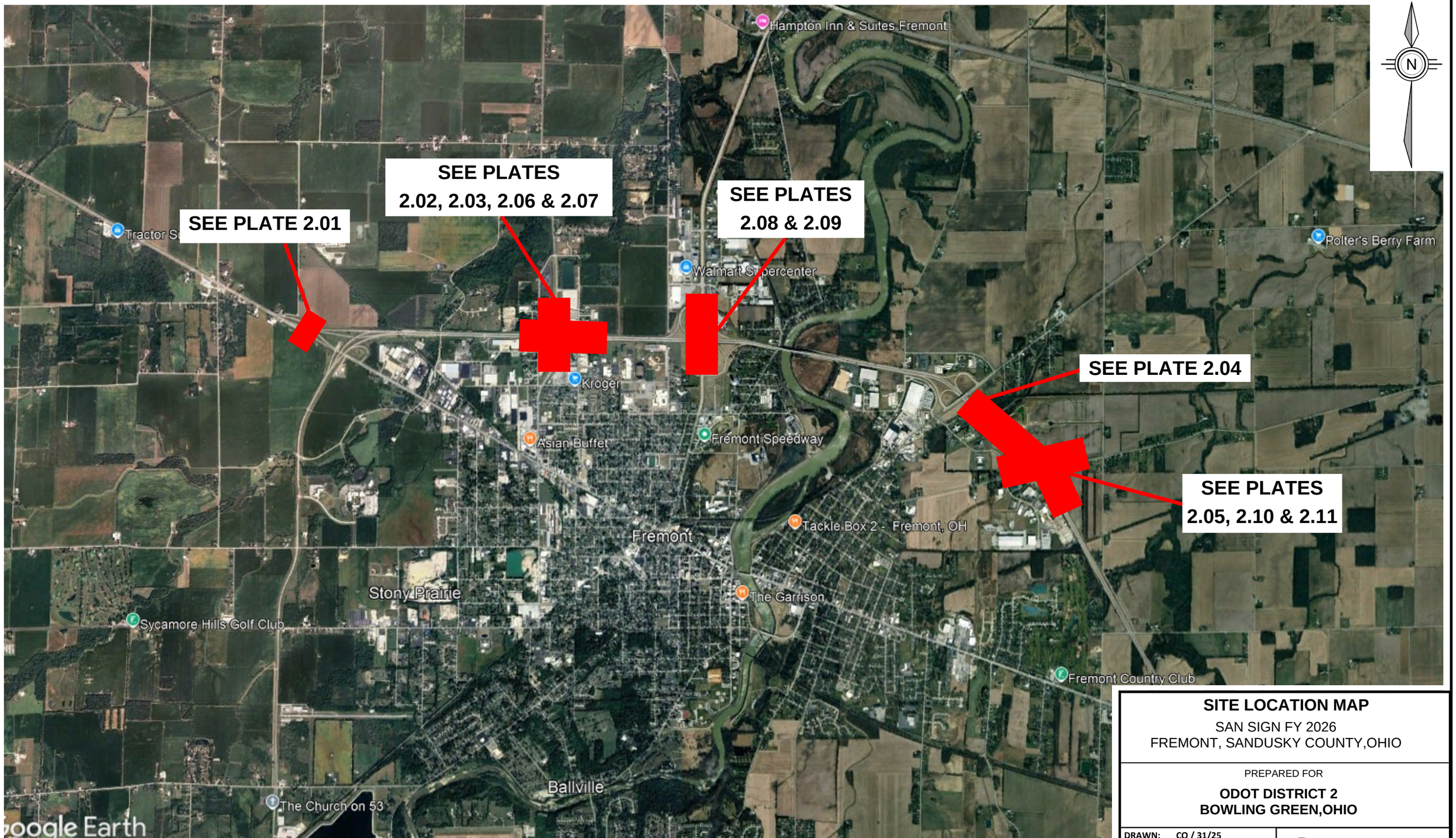
Our evaluation of the need for special design sign-support foundations has been based on our understanding of the site and project information and the data obtained during our field exploration. The general subsurface conditions were based on interpretation of the data obtained at specific boring locations. Regardless of the thoroughness of a subsurface exploration, there is the possibility that conditions between borings will differ from those at the boring locations, that conditions are not as anticipated by the designers, or that the construction process has altered the soil conditions. This potential is increased for previously developed sites. Therefore, experienced geotechnical engineers should observe earthwork and foundation construction to confirm that the conditions anticipated in design are noted. Otherwise, CT assumes no responsibility for construction compliance with the design concepts or specifications.

The nature and extent of variations between the borings may not become evident until the course of construction. If such variations are encountered, it will be necessary to reevaluate the recommendations of this report after on-site observations of the conditions.

Our professional services have been performed, our findings derived, and our recommendations prepared in accordance with generally accepted geotechnical engineering principles and practices. This warranty is in lieu of all other warranties either expressed or implied. CT is not responsible for the conclusions, opinions, or recommendations of others based on this data.

PLATES

PLATE 1.0	**SITE LOCATION MAP**
PLATES 2.01 – 2.11	**TEST BORING LOCAITON PLANS**



BASE PLAN "SITE AERIAL PLAN" DATED 07/22/2021 OBTAINED FROM GOOGLE EARTH.

SCALE IN FEET

0' 5,280' 1 MILE 10,560' 2 MILE

SITE LOCATION MAP

SAN SIGN FY 2026
FREMONT, SANDUSKY COUNTY,OHIO

PREPARED FOR

ODOT DISTRICT 2
BOWLING GREEN,OHIO

DRAWN:	CO / 31/25
REVISED:	---
PROJECT No:	242420

PLATE 1.0

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LEGEND:

B-001-0-24

APPROXIMATE TEST BORING LOCATION

B-252-0-43

APPROXIMATE HISTORIC TEST BORING LOCATION

SCALE IN FEET

0' 25' 50'

TEST BORING LOCATION PLAN

SAN SIGN FY 2026
FREMONT, SANDUSKY COUNTY,OHIO

PREPARED FOR

ODOT DISTRICT 2
BOWLING GREEN,OHIO

DRAWN:	CO / 31/25
REVISED:	---
PROJECT No:	242420

PLATE 2.01

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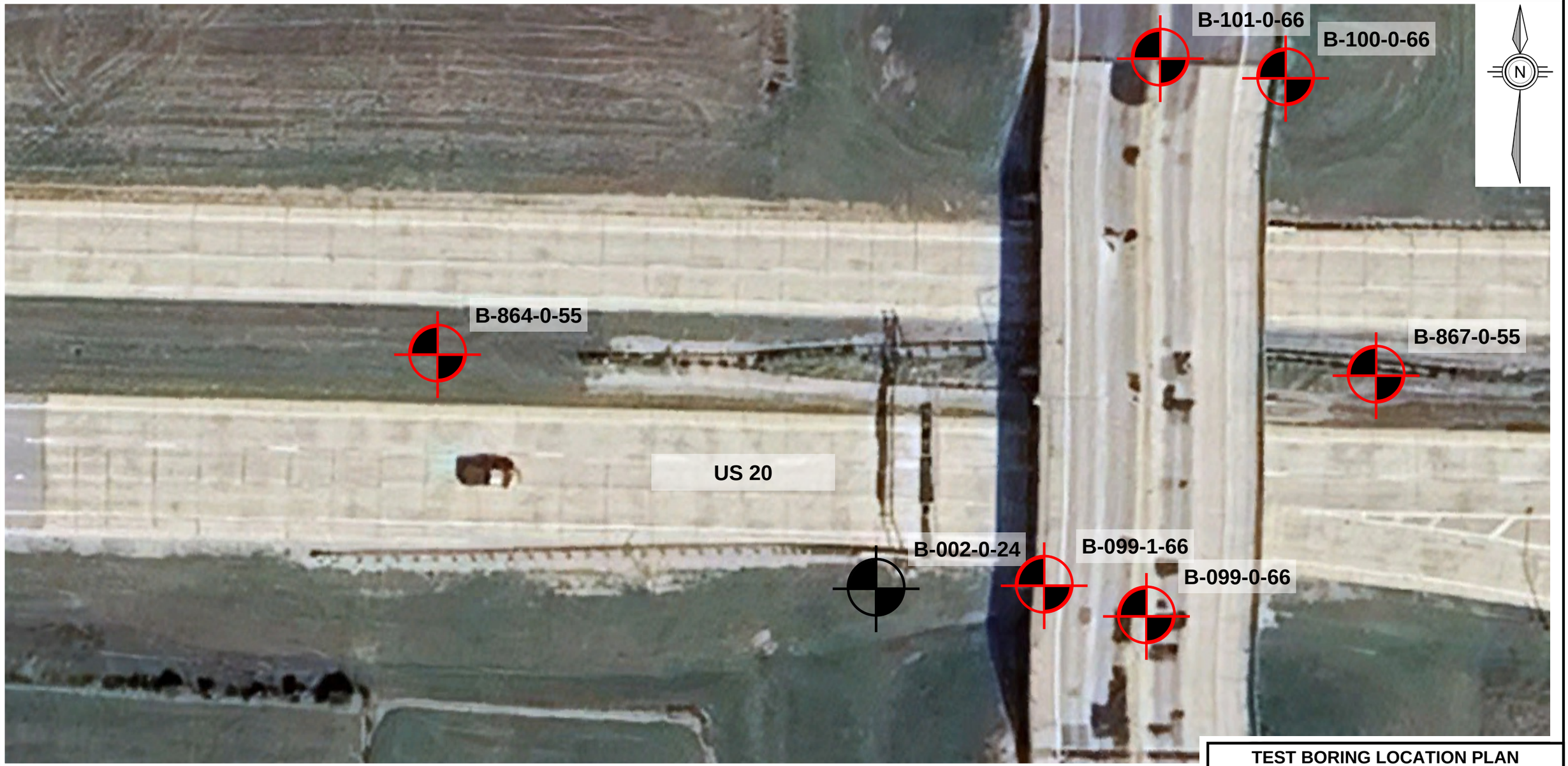

LEGEND:

B-002-0-24

APPROXIMATE TEST BORING LOCATION

B-099-1-66

APPROXIMATE HISTORIC TEST BORING LOCATION

SCALE IN FEET

0' 25' 50'

TEST BORING LOCATION PLAN

SAN SIGN FY 2026
FREMONT, SANDUSKY COUNTY,OHIO

PREPARED FOR

ODOT DISTRICT 2
BOWLING GREEN,OHIO

DRAWN:	CO / 31/25
REVISED:	---
PROJECT No:	242420

PLATE 2.02

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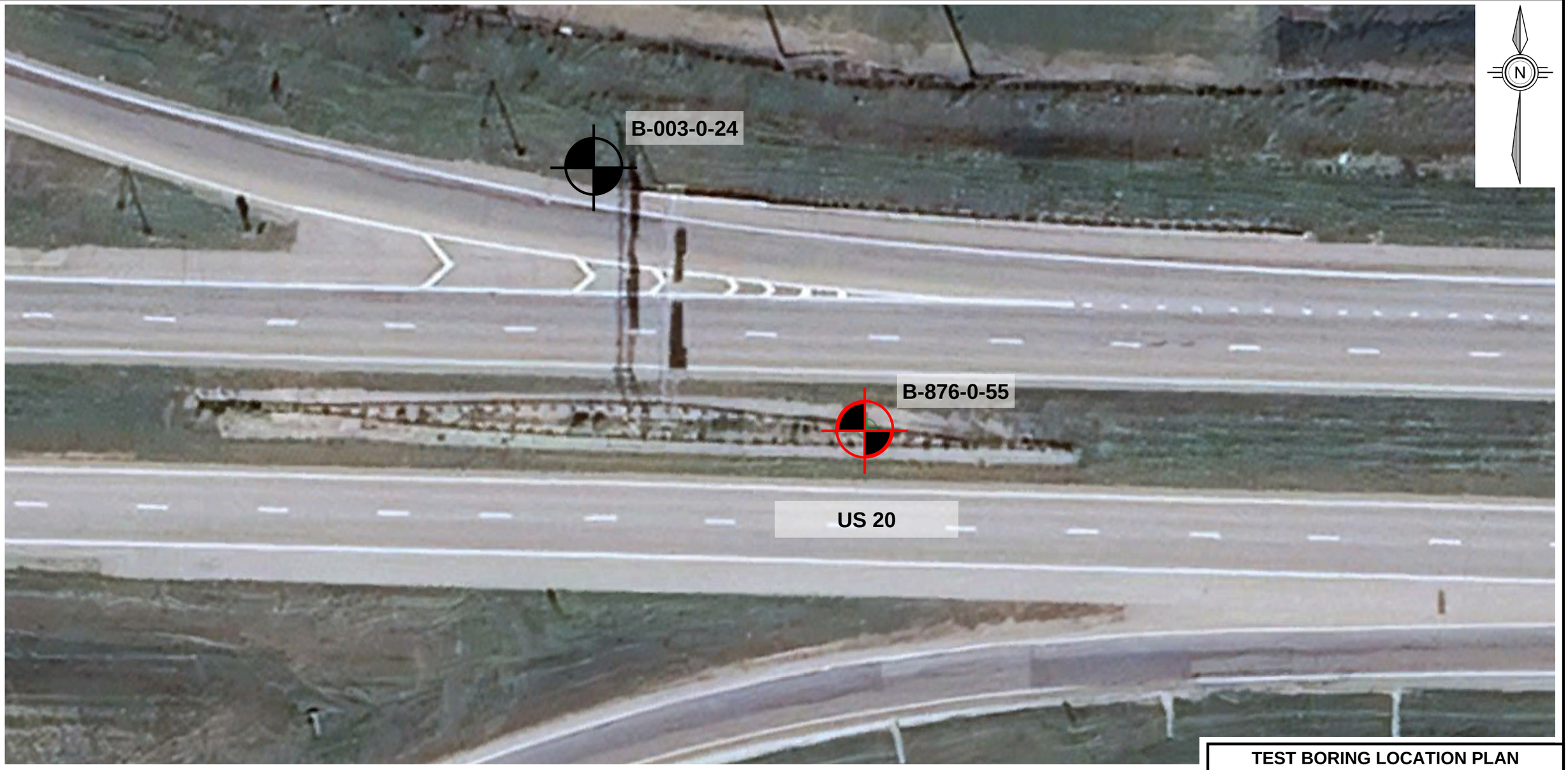

LEGEND:

B-003-0-24

APPROXIMATE TEST BORING LOCATION

B-876-0-55

APPROXIMATE HISTORIC TEST BORING LOCATION

SCALE IN FEET

0' 25' 50'

TEST BORING LOCATION PLAN

SAN SIGN FY 2026
FREMONT, SANDUSKY COUNTY,OHIO

PREPARED FOR

ODOT DISTRICT 2
BOWLING GREEN,OHIO

DRAWN:	CO / 31/25
REVISED:	---
PROJECT No:	242420

PLATE 2.03

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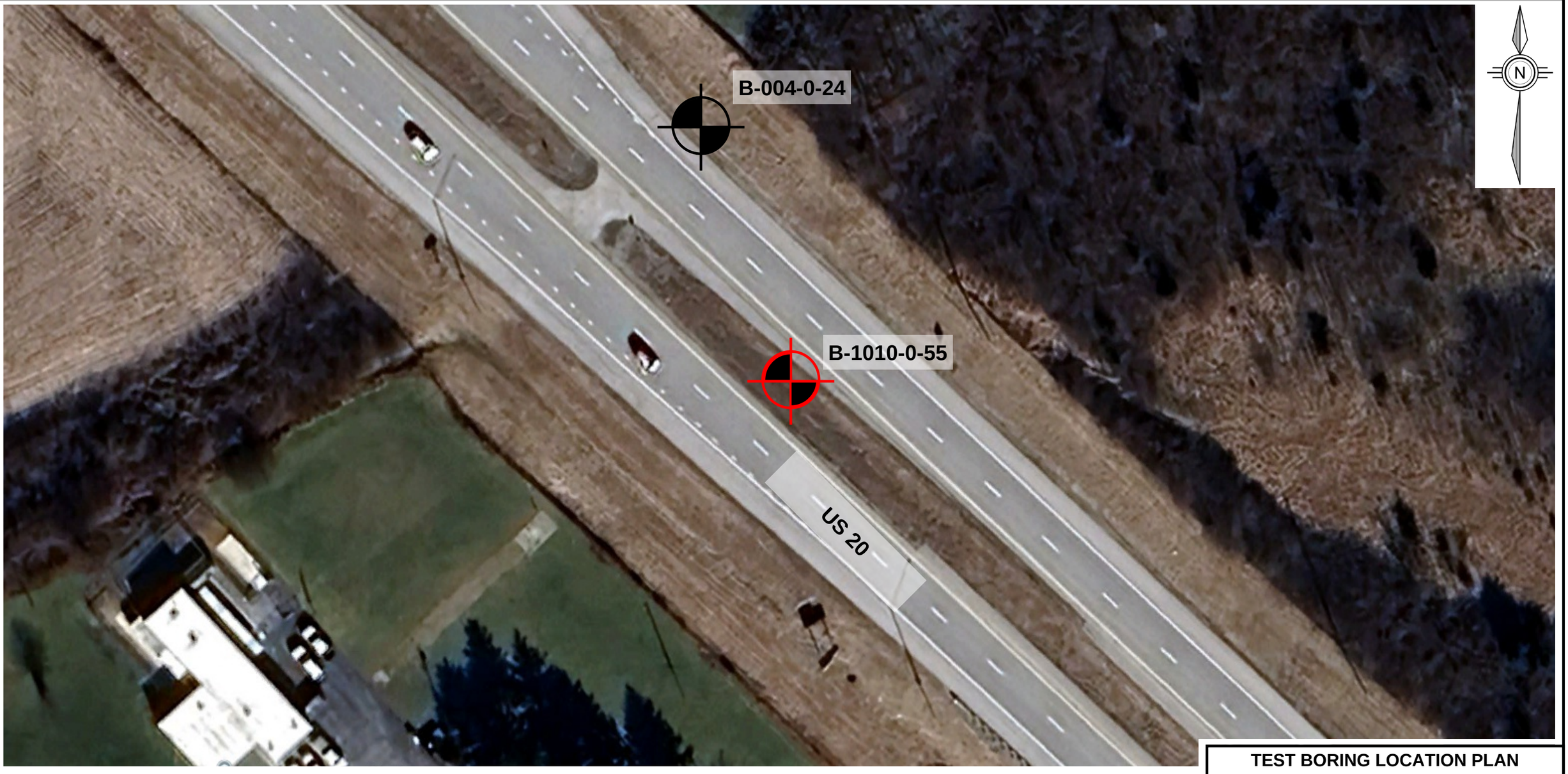

LEGEND:

B-004-0-24

APPROXIMATE TEST BORING LOCATION

B-1010-0-55

APPROXIMATE HISTORIC TEST BORING LOCATION

SCALE IN FEET

0' 50' 100'

TEST BORING LOCATION PLAN

SAN SIGN FY 2026
FREMONT, SANDUSKY COUNTY,OHIO

PREPARED FOR

ODOT DISTRICT 2
BOWLING GREEN,OHIO

DRAWN:	CO / 31/25
REVISED:	---
PROJECT No:	242420

PLATE 2.04

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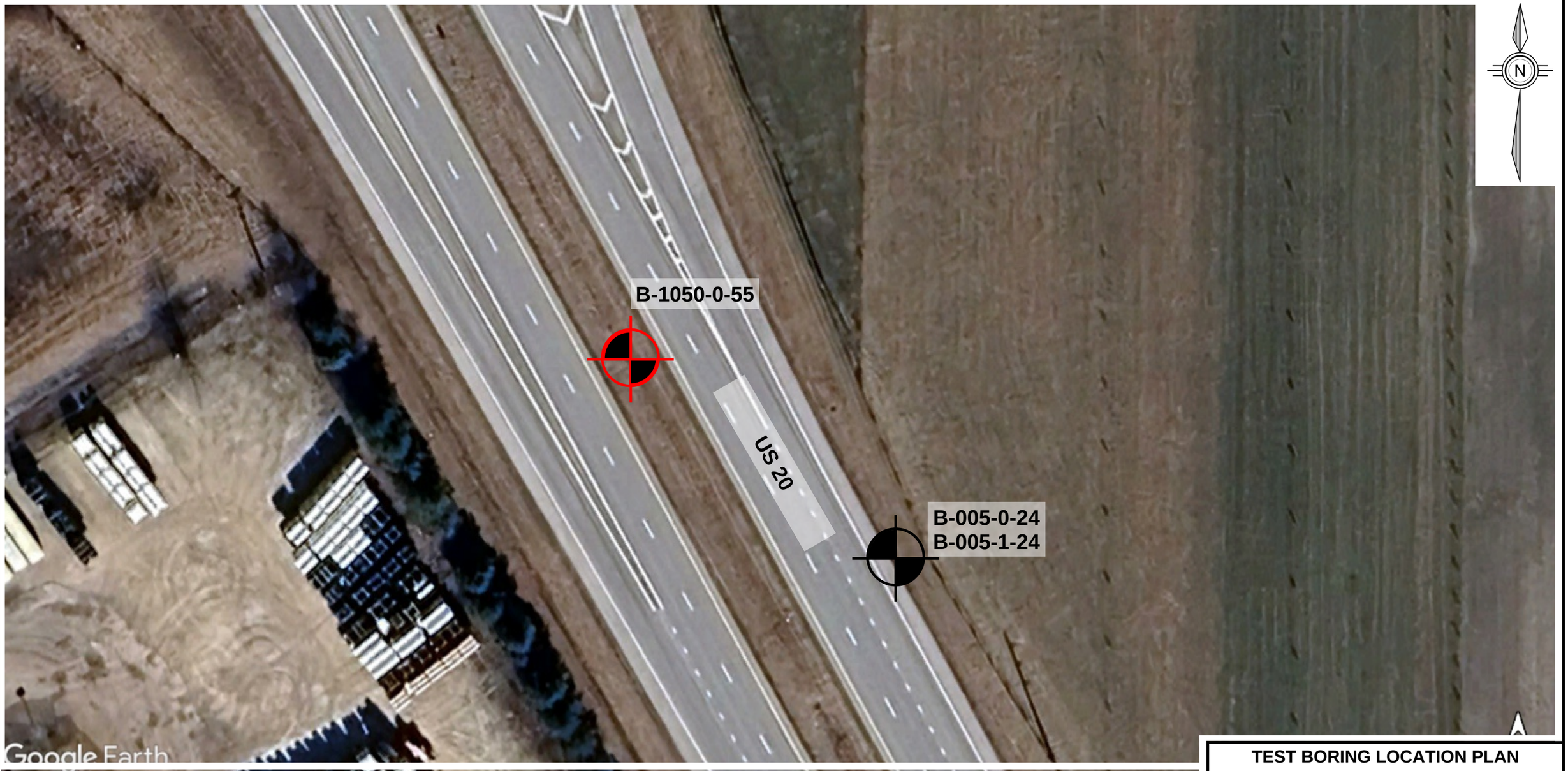

LEGEND:

B-005-0-24

APPROXIMATE TEST BORING LOCATION

B-1050-0-55

APPROXIMATE HISTORIC TEST BORING LOCATION

SCALE IN FEET

0' 50' 100'

TEST BORING LOCATION PLAN

SAN SIGN FY 2026
FREMONT, SANDUSKY COUNTY,OHIO

PREPARED FOR

ODOT DISTRICT 2
BOWLING GREEN,OHIO

DRAWN:	CO / 31/25
REVISED:	---
PROJECT No:	242420

PLATE 2.05

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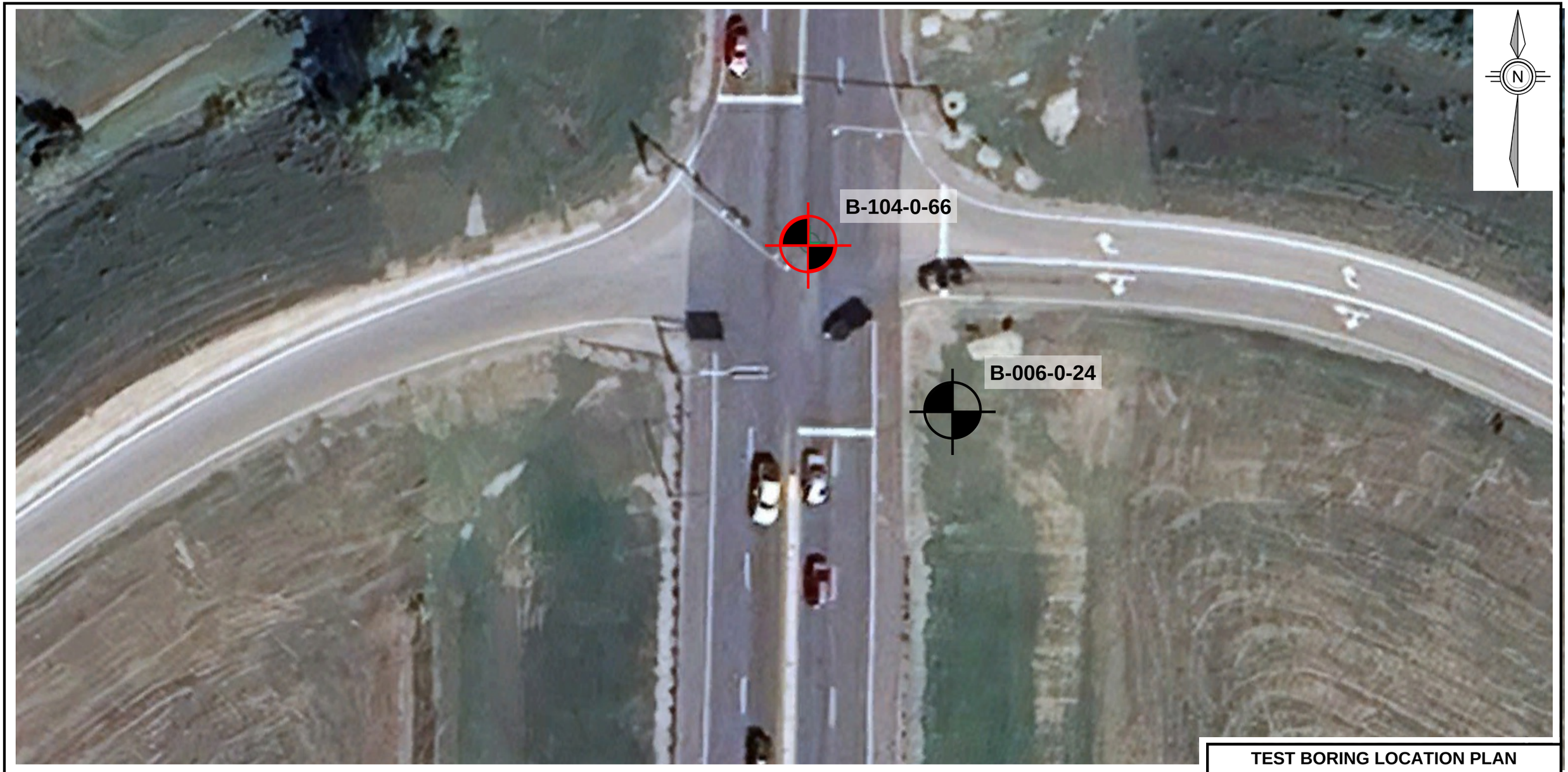

LEGEND:

B-006-0-24

APPROXIMATE TEST BORING LOCATION

B-104-0-66

APPROXIMATE HISTORIC TEST BORING LOCATION

SCALE IN FEET

0' 25' 50'

TEST BORING LOCATION PLAN

SAN SIGN FY 2026
FREMONT, SANDUSKY COUNTY,OHIO

PREPARED FOR

ODOT DISTRICT 2
BOWLING GREEN,OHIO

DRAWN:	CO / 31/25
REVISED:	---
PROJECT No:	242420

PLATE 2.06

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LEGEND:

B-007-0-24

APPROXIMATE TEST BORING LOCATION

B-094-0-66

APPROXIMATE HISTORIC TEST BORING LOCATION

SCALE IN FEET

0' 25' 50'

TEST BORING LOCATION PLAN

SAN SIGN FY 2026
FREMONT, SANDUSKY COUNTY,OHIO

PREPARED FOR

ODOT DISTRICT 2
BOWLING GREEN,OHIO

DRAWN:	CO / 31/25
REVISED:	---
PROJECT No:	242420

PLATE 2.07

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LEGEND:

B-008-0-24

APPROXIMATE TEST BORING LOCATION

B-448-0-56

APPROXIMATE HISTORIC TEST BORING LOCATION

SCALE IN FEET

0' 25' 50'

TEST BORING LOCATION PLAN

SAN SIGN FY 2026
FREMONT, SANDUSKY COUNTY,OHIO

PREPARED FOR

ODOT DISTRICT 2
BOWLING GREEN,OHIO

DRAWN:	CO / 31/25
REVISED:	---
PROJECT No:	242420

PLATE 2.08

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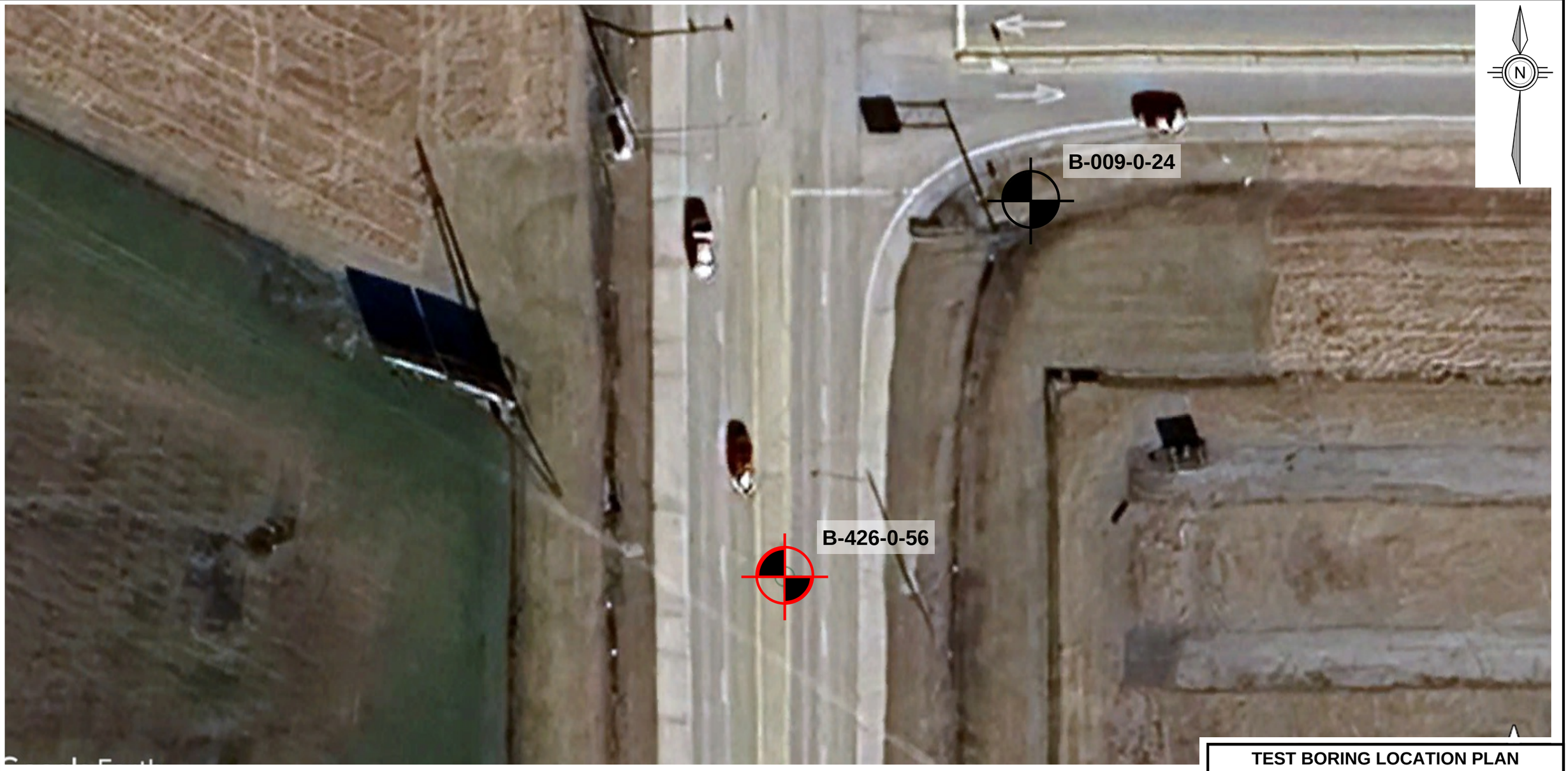

LEGEND:

B-009-0-24

APPROXIMATE TEST BORING LOCATION

B-426-0-56

APPROXIMATE HISTORIC TEST BORING LOCATION

SCALE IN FEET

0' 25' 50'

TEST BORING LOCATION PLAN

SAN SIGN FY 2026
FREMONT, SANDUSKY COUNTY,OHIO

PREPARED FOR

ODOT DISTRICT 2
BOWLING GREEN,OHIO

DRAWN:	CO / 31/25
REVISED:	---
PROJECT No:	242420

PLATE 2.09

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LEGEND:

B-010-0-24

APPROXIMATE TEST BORING LOCATION

B-1038-0-55

APPROXIMATE HISTORIC TEST BORING LOCATION

SCALE IN FEET

0' 50' 100'

TEST BORING LOCATION PLAN

SAN SIGN FY 2026
FREMONT, SANDUSKY COUNTY,OHIO

PREPARED FOR

ODOT DISTRICT 2
BOWLING GREEN,OHIO

DRAWN:	CO / 31/25
REVISED:	---
PROJECT No:	242420

PLATE 2.10

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LEGEND:

B-011-0-24

APPROXIMATE TEST BORING LOCATION

B-1038-0-55

APPROXIMATE HISTORIC TEST BORING LOCATION

SCALE IN FEET

0' 50' 100'

TEST BORING LOCATION PLAN

SAN SIGN FY 2026
FREMONT, SANDUSKY COUNTY,OHIO

PREPARED FOR

ODOT DISTRICT 2
BOWLING GREEN,OHIO

DRAWN:	CO / 31/25
REVISED:	---
PROJECT No:	242420

PLATE 2.11

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FIGURES

LOGS OF TEST BORINGS
KEY TO SYMBOLS
GRAIN SIZE DISTRIBUTION
UU TRIAXIAL TEST RESULTS

PROJECT: SAN SIGN FY2026	DRILLING FIRM / OPERATOR: TTL / CW	DRILL RIG: GEOPROBE 7822DT	STATION / OFFSET:	EXPLORATION ID B-001-0-24
TYPE: OVERHEAD SIGN FOUNDATION	SAMPLING FIRM / LOGGER: TTL / CW	HAMMER: AUTOMATIC HAMMER	ALIGNMENT:	
PID: 117268 SFN: N/A	DRILLING METHOD: HSA	CALIBRATION DATE: 6/11/24	ELEVATION: 629.0 (NAVD88) EOB: 25.0 ft.	PAGE 1 OF 1
START: 1/13/25 END: 1/13/25	SAMPLING METHOD: SPT	ENERGY RATIO (%): 89.3	LAT / LONG: 41.367554, -83.162069	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	HOLE SEALED
TOPSOIL - 7 INCHES	629.0 628.4																	
STIFF TO VERY STIFF, BROWN/GRAY, **SILT AND CLAY**, LITTLE SAND, TRACE GRAVEL (CRUSHED STONE) (FILL), TRACE IRON OXIDE STAIN, SLIGHTLY ORGANIC, MOIST	626.0		4 3 3	9	89	SS-1 B	3.25	-	-	-	-	-	-	-	-	28	A-6a (V)	
SOFT TO MEDIUM STIFF, BROWN/GRAY, **SILTY CLAY**, LITTLE SAND, TRACE GRAVEL, TRACE IRON OXIDE STAIN SEAM, MOIST	623.0		1 1 1	3	100	SS-2	1.25	5	1	12	27	55	38	18	20	25	A-6b (12)	
MEDIUM STIFF TO STIFF, BROWN/GRAY, **SILTY CLAY**, LITTLE SAND, TRACE GRAVEL, TRACE IRON OXIDE STAIN SEAM, MOIST	620.5		2 2 3	7	100	SS-3	2.25	-	-	-	-	-	-	-	-	28	A-6b (V)	
VERY STIFF, GRAY, **CLAY**, SOME SILT. TRACE SAND, TRACE GRAVEL, MOIST @11': Damp	615.5		5 5 6	16	100	SS-4	>4.5	4	2	3	21	70	47	18	29	26	A-7-6 (17)	
			8 9 9	27	100	SS-5	3.25	-	-	-	-	-	-	-	-	18	A-7-6 (V)	
MEDIUM STIFF TO STIFF, GRAY, **SILT AND CLAY**, SOME SAND, TRACE GRAVEL, MOIST	613.0		2 2 2	6	100	SS-6	1.50	5	7	17	25	46	28	13	15	18	A-6a (9)	
STIFF, GRAY, **SILT AND CLAY**, LITTLE SAND, TRACE GRAVEL, MOIST	611.0		4 4 5	13	100	SS-7	1.50	-	-	-	-	-	-	-	-	17	A-6b (V)	
VERY SOFT, GRAY, **SILT AND CLAY**, LITTLE SAND, LITTLE GRAVEL, MOIST @21': SOFT, TRACE SAND	606.0		0 0 1	1	100	SS-8	1.00	11	6	12	24	47	28	14	14	20	A-6a (9)	
			0 1 2	4	100	SS-9	1.00	-	-	-	-	-	-	-	-	19	A-6a (V)	
STIFF TO VERY STIFF, GRAY, **SILTY CLAY**, LITTLE SAND, TRACE ROCK FRAGMENTS, DAMP	604.0	EOB	2 4 6	15	100	SS-10	>4.5	9	6	13	23	49	30	14	16	12	A-6b (10)	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: PUMPED 7 CF CEMENT-BENTONITE GROUT

STANDARD ODOT SOIL BORING LOG (8.5 X 11) - OH DOT.GDT - 8/5/25 07:54 - X:\PROJECTS\242420.GPJ

PROJECT: SAN SIGN FY2026	DRILLING FIRM / OPERATOR: TTL / CW	DRILL RIG: GEOPROBE 7822DT	STATION / OFFSET:	EXPLORATION ID B-002-0-24	
TYPE: OVERHEAD SIGN FOUNDATION	SAMPLING FIRM / LOGGER: TTL / CW	HAMMER: AUTOMATIC HAMMER	ALIGNMENT:		
PID: 117268 SFN: N/A	DRILLING METHOD: HSA	CALIBRATION DATE: 6/11/24	ELEVATION: 623.8 (NAVD88) EOB: 25.0 ft.	PAGE 1 OF 1	
START: 3/13/25 END: 3/13/25	SAMPLING METHOD: SPT	ENERGY RATIO (%): 89.3	LAT / LONG: 41.368077, -83.135068		

MATERIAL DESCRIPTION AND NOTES	ELEV. 623.8	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	HOLE SEALED
TOPSOIL - 8 INCHES	623.1																	
AGGREGATE BASE - 14 INCHES	622.0	1	3 3 3	9	83	SS-1 A	-	-	-	-	-	-	-	-	-	-	A-1-b (V)	
STIFF, BROWN, **SILTY CLAY**, LITTLE SAND, TRACE GRAVEL, MOIST	620.8	2				SS-1 B	2.50	-	-	-	-	-	-	-	-	14	A-6b (V)	
STIFF TO VERY STIFF, GRAY, **SILTY CLAY**, SOME SAND, MOIST		3																
		4	3 4 5	13	83	SS-2	2.50	0	5	24	28	43	40	21	19	22	A-6b (11)	
@6.2': BROWN/GRAY	615.8	5																
		6	3 4 5	13	83	SS-3	1.75	-	-	-	-	-	-	-	-	25	A-6b (V)	
HARD, BROWN, **SILT AND CLAY**, SOME SAND, TRACE GRAVEL, DAMP		7																
		8																
		9	6 12 16	42	100	SS-4	>4.5	1	8	20	26	45	32	17	15	15	A-6a (9)	
@11.5': BROWN/GRAY	610.3	10																
		11	6 9 13	33	100	SS-5	4.50	-	-	-	-	-	-	-	-	15	A-6a (V)	
VERY STIFF, GRAY, **SILTY CLAY**, SOME SAND, LITTLE GRAVEL, DAMP TO MOIST		12																
		13																
		14	4 5 7	18	89	SS-6	3.75	-	-	-	-	-	-	-	-	15	A-6b (V)	
	605.8	15																
MEDIUM STIFF TO STIFF, GRAY, **SILTY CLAY**, LITTLE SAND, TRACE GRAVEL, MOIST		16																
		17	6 7 8	22	100	SS-7	2.25	16	6	17	23	38	32	16	16	17	A-6b (8)	
		18																
		19	2 2 4	9	100	SS-8	1.00	-	-	-	-	-	-	-	-	20	A-6b (V)	
		20																
		21																
		22	3 3 4	10	100	SS-9	0.75	-	-	-	-	-	-	-	-	21	A-6b (V)	
		23																
	599.8	24	12 20 26	68	100	SS-10A	-	-	-	-	-	-	-	-	-	-	A-6b (V)	
HARD, GRAY, **SANDY SILT**, LITTLE CLAY, TRACE ROCK FRAGMENTS, MOIST TO DAMP	598.8	EOB 25				SS-10 B	>4.5	5	12	20	45	18	16	9	7	10	A-4a (6)	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: PUMPED 7 CF CEMENT-BENTONITE GROUT

STANDARD ODOT SOIL BORING LOG (8.5 X 11) - OH DOT.GDT - 8/5/25 07:54 - X:\PROJECTS\242420.GPJ

PROJECT: SAN SIGN FY2026	DRILLING FIRM / OPERATOR: TTL / CW	DRILL RIG: GEOPROBE 7822DT	STATION / OFFSET:	EXPLORATION ID B-003-0-24
TYPE: OVERHEAD SIGN FOUNDATION	SAMPLING FIRM / LOGGER: TTL / CW	HAMMER: AUTOMATIC HAMMER	ALIGNMENT:	
PID: 117268 SFN: N/A	DRILLING METHOD: HSA	CALIBRATION DATE: 6/11/24	ELEVATION: 622.0 (NAVD88) EOB: 25.0 ft.	PAGE 1 OF 1
START: 3/13/25 END: 3/13/25	SAMPLING METHOD: SPT	ENERGY RATIO (%): 89.3	LAT / LONG: 41.368432, -83.131512	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GR	CS	FS	SI	CL	LL	PL	PI	WC	ODOT CLASS (GI)	HOLE SEALED
	622.0																	
TOPSOIL - 7 INCHES	621.4																	
STIFF, TAN/DARK BROWN, **SILTY CLAY**, LITTLE SAND, LITTLE GRAVEL (CRUSHED STONE), SLIGHTLY ORGANIC, DAMP (FILL)	620.0		2 3 5	12	67	SS-1 A	3.00	-	-	-	-	-	-	-	-	15	A-6b (V)	
						SS-1 B	-	-	-	-	-	-	-	-	-	-	A-1-b (V)	
MEDIUM DENSE, LIGHT BROWN, **GRAVEL AND STONE FRAGMENTS WITH SAND**, (CRUSHED STONE) (FILL), DAMP	619.2																	
MEDIUM STIFF TO STIFF, BROWN, **SILTY CLAY**, SOME SAND, MOIST	616.0		2 2 2	6	72	SS-2	1.25	0	4	28	25	43	38	21	17	26	A-6b (9)	
MEDIUM STIFF, BROWN, **SANDY SILT**, "AND" CLAY, MOIST	615.3	W 615.3	2 2 2	6	89	SS-3A	0.50	0	2	17	42	39	34	25	9	29	A-4a (8)	
MEDIUM STIFF TO STIFF, BROWN, **SILTY CLAY**, TRACE SAND, MOIST	614.0					SS-3B	1.25	-	-	-	-	-	-	-	-	30	A-6b (V)	
MEDIUM STIFF TO STIFF, GRAY, **SILTY CLAY**, TRACE SAND, MOIST			2 2 4	9	100	SS-4	1.50	-	-	-	-	-	-	-	-	22	A-6b (V)	
@11': LITTLE SAND			4 3 4	10	100	SS-5	0.75	0	3	10	26	61	33	16	17	26	A-6b (11)	
@13.5': TRACE GRAVEL			2 2 4	9	100	SS-6	1.25	-	-	-	-	-	-	-	-	18	A-6b (V)	
			5 4 5	13	100	SS-7	1.00	-	-	-	-	-	-	-	-	18	A-6b (V)	
			2 3 3	9	100	SS-8	0.75	9	6	17	24	44	31	15	16	19	A-6b (9)	
			3 4 4	12	100	SS-9	0.75	-	-	-	-	-	-	-	-	20	A-6b (V)	
	597.0	EOB	1 2 3	7	100	SS-10	0.50	-	-	-	-	-	-	-	-	20	A-6b (V)	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: PUMPED 7 CF CEMENT-BENTONITE GROUT

PROJECT: SAN SIGN FY2026	DRILLING FIRM / OPERATOR: TTL / CW	DRILL RIG: GEOPROBE 7822DT	STATION / OFFSET:	EXPLORATION ID B-004-0-24	
TYPE: OVERHEAD SIGN FOUNDATION	SAMPLING FIRM / LOGGER: TTL / CW	HAMMER: AUTOMATIC HAMMER	ALIGNMENT:		
PID: 117268 SFN: N/A	DRILLING METHOD: HSA	CALIBRATION DATE: 6/11/24	ELEVATION: 619.8 (NAVD88) EOB: 25.0 ft.	PAGE 1 OF 1	
START: 1/13/25 END: 1/13/25	SAMPLING METHOD: SPT	ENERGY RATIO (%): 89.3	LAT / LONG: 41.362042, -83.084233		

MATERIAL DESCRIPTION AND NOTES	ELEV. 619.8	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	HOLE SEALED
TOPSOIL - 6 INCHES	619.3																	
MEDIUM DENSE, GRAY/BROWN, **GRAVEL AND/OR STONE FRAGMENTS WITH SAND**, TRACE SILT, TRACE CLAY, MOIST (FILL)	616.8		4 4 5	13	78	SS-1	-	-	-	-	-	-	-	-	-	6	A-1-b (V)	
MEDIUM STIFF TO STIFF, BROWN, **SILT AND CLAY**, "AND" SAND, MOIST	613.8	W 615.8	2 2 2	6	100	SS-2	2.00	0	2	46	28	24	29	18	11	23	A-6a (4)	
STIFF, BROWN, **SANDY SILT**, TRACE CLAY, TRACE GRAVEL, MOIST	611.3		3 4 4	12	100	SS-3	2.00	1	1	43	47	8	21	17	4	18	A-4a (4)	
SOFT TO MEDIUM STIFF, GRAY, **SILTY CLAY**, TRACE SAND, MOIST			1 1 1	3	100	SS-4	2.50	-	-	-	-	-	-	-	-	26	A-6b (V)	
@11': LITTLE SAND, TRACE GRAVEL, WET			2 1 2	4	100	SS-5	0.50	2	2	8	21	67	34	16	18	32	A-6b (11)	
@13': VERY SOFT, MOIST			0 0 0	0	100	SS-6	0.25	-	-	-	-	-	-	-	-	29	A-6b (V)	
VERY SOFT TO SOFT, GRAY, **SILT AND CLAY**, TRACE SAND, WET	603.8		0 0 0	0	100	SS-7	0.50	0	2	6	24	68	29	18	11	30	A-6a (8)	
			0 0 0	0	100	SS-8	0.25	-	-	-	-	-	-	-	-	30	A-6a (V)	
@21': TRACE GRAVEL			0 0 1	1	100	SS-9	0.25	1	2	5	24	68	28	17	11	28	A-6a (8)	
	594.8	EOB	0 0 2	3	100	SS-10	0.25	-	-	-	-	-	-	-	-	30	A-6a (V)	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: PUMPED 7 CF CEMENT-BENTONITE GROUT

PROJECT: SAN SIGN FY2026	DRILLING FIRM / OPERATOR: TTL / CW	DRILL RIG: GEOPROBE 7822DT	STATION / OFFSET:	EXPLORATION ID B-005-0-24
TYPE: OVERHEAD SIGN FOUNDATION	SAMPLING FIRM / LOGGER: TTL / CW	HAMMER: AUTOMATIC HAMMER	ALIGNMENT:	
PID: 117268 SFN: N/A	DRILLING METHOD: HSA	CALIBRATION DATE: 6/11/24	ELEVATION: 620.8 (NAVD88) EOB: 40.0 ft.	PAGE 1 OF 2
START: 3/13/25 END: 3/13/25	SAMPLING METHOD: SPT	ENERGY RATIO (%): 89.3	LAT / LONG: 41.353376, -83.073924	

MATERIAL DESCRIPTION AND NOTES	ELEV. 620.8	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	HOLE SEALED
TOPSOIL - 4 INCHES	620.5																	
LOOSE, BROWN, **COARSE AND FINE SAND**, LITTLE GRAVEL (CRUSHED STONE), LITTLE CLAY, TRACE SILT, SLIGHTLY ORGANIC, DAMP (FILL)	617.8		3 2 3	7	100	SS-1	-	-	-	-	-	-	-	-	-	15	A-3a (V)	
STIFF TO VERY STIFF, GRAY, **SILTY CLAY**, TRACE SAND, MOIST			2 3 4	10	100	SS-2	2.50	-	-	-	-	-	-	-	-	27	A-6b (V)	
@6.2': GRAY/BROWN	612.0	W 612.0	5 5 7	18	100	SS-3	1.50	0	4	18	25	53	39	22	17	29	A-6b (11)	
SOFT TO MEDIUM STIFF, BROWN, **SILTY CLAY**, TRACE SAND, MOIST			1 2 1	4	100	SS-4	2.00	-	-	-	-	-	-	-	-	27	A-6b (V)	
@11': MEDIUM STIFF	609.1		3	12	100	SS-5A	1.25	-	-	-	-	-	-	-	-	29	A-6b (V)	
MEDIUM DENSE, BROWN, **COARSE AND FINE SAND**, SOME SILT, TRACE GRAVEL, TRACE CLAY, WET (FREE WATER NOTED)	607.8		4 4			SS-5B	-	5	22	39	29	5	NP	NP	NP	27	A-3a (0)	
SOFT TO MEDIUM STIFF, GRAY, **SILTY CLAY**, TRACE SAND, MOIST	604.8		1 1 1	3	100	SS-6	0.50	0	2	6	24	68	39	22	17	29	A-6b (11)	
MEDIUM STIFF, GRAY, **SILT**, "AND" CLAY, TRACE SAND, WET	602.8		1 1 2	4	100	SS-7	0.50	-	-	-	-	-	-	-	-	29	A-4b (V)	
SOFT TO MEDIUM STIFF, GRAY, **SILTY CLAY**, TRACE SAND, MOIST			1 1 1	3	100	SS-8	0.50	-	-	-	-	-	-	-	-	33	A-6b (V)	
			1 1 1	3	100	SS-9	0.75	-	-	-	-	-	-	-	-	34	A-6b (V)	
			0 0 1	1	100	SS-10	0.50	-	-	-	-	-	-	-	-	27	A-6b (V)	
	594.8																	

PID: 117268	SFN: N/A	PROJECT: SAN SIGN FY2026	STATION / OFFSET:	START: 3/13/25	END: 3/13/25	PG 2 OF 2	B-005-0-24

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	HOLE SEALED
MEDIUM STIFF, GRAY, **SILTY CLAY**, LITTLE SAND, TRACE GRAVEL, MOIST	594.8	27 28 29 30 31 32 33	0 3 2	7	100	SS-11	0.75	-	-	-	-	-	-	-	-	19	A-6b (V)	
SOFT TO MEDIUM STIFF, GRAY, **SILTY CLAY**, SOME SAND, TRACE GRAVEL, MOIST	587.3	34 35 36 37 38	0 0 2	3	100	SS-12	0.75	6	8	16	24	46	32	16	16	18	A-6b (9)	
MEDIUM STIFF, GRAY, **SILTY CLAY**, LITTLE SAND, TRACE GRAVEL, MOIST	582.3	39	0 3 4	10	100	SS-13	1.00	-	-	-	-	-	-	-	-	18	A-6b (V)	
	580.8	EOB 40																

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: PUMPED 11 CF CEMENT-BENTONITE GROUT

PROJECT: SAN SIGN FY2026	DRILLING FIRM / OPERATOR: TTL / CW	DRILL RIG: GEOPROBE 7822DT	STATION / OFFSET:
TYPE: OVERHEAD SIGN FOUNDATION	SAMPLING FIRM / LOGGER: TTL / CW	HAMMER: AUTOMATIC HAMMER	ALIGNMENT:
PID: 117268 SFN: N/A	DRILLING METHOD: HSA	CALIBRATION DATE: 6/11/24	ELEVATION: 620.8 (NAVD88) EOB: 18.0 ft.
START: 3/13/25 END: 3/13/25	SAMPLING METHOD: SPT	ENERGY RATIO (%): 89.3	LAT / LONG: 41.353364, -83.073916

EXPLORATION ID: B-005-1-24

PAGE: 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 620.8	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	HOLE SEALED
SEE B-005-0-24																		
	604.8	W 612.0																
MEDIUM STIFF, GRAY, **SILT**, "AND" CLAY, TRACE SAND, WET UU TRIAXIAL: C = 3.7 PSI = 533 psf	602.8	EOB			54	ST-1	0.50	0	2	6	55	37	27	19	8	32	A-4b (8)	

NOTES: OFFSET 3 FEET SOUTH TO OBTAIN A SHELBY TUBE SAMPLE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: PUMPED 5 CF CEMENT-BENTONITE GROUT

STANDARD ODOT SOIL BORING LOG (8.5 X 11) - OH DOT.GDT - 8/5/25 07:54 - X:\PROJECTS\242420.GPJ

PROJECT: SAN SIGN FY2026	DRILLING FIRM / OPERATOR: TTL / CW	DRILL RIG: GEOPROBE 7822DT	STATION / OFFSET:	EXPLORATION ID B-006-0-24
TYPE: OVERHEAD SIGN FOUNDATION	SAMPLING FIRM / LOGGER: TTL / CW	HAMMER: AUTOMATIC HAMMER	ALIGNMENT:	
PID: 117268 SFN: N/A	DRILLING METHOD: HSA	CALIBRATION DATE: 6/11/24	ELEVATION: 640.0 (NAVD88) EOB: 25.0 ft.	PAGE 1 OF 1
START: 1/14/25 END: 1/14/25	SAMPLING METHOD: SPT	ENERGY RATIO (%): 89.3	LAT / LONG: 41.369226, -83.134488	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	HOLE SEALED
TOPSOIL - 6 INCHES	640.0 / 639.5																	
STIFF TO VERY STIFF, BROWN/GRAY, **SILT AND CLAY**, LITTLE SAND, TRACE GRAVEL, TRACE IRON OXIDE STAIN SEAM, MOIST	637.0	1–3	6 5 5	15	89	SS-1	>4.5	-	-	-	-	-	-	-	-	15	A-6a (V)	
STIFF TO VERY STIFF, GRAY, **SILTY CLAY**, "AND" GRAVEL, TRACE SAND, MOIST	634.0	4–5	3 3 5	12	89	SS-2	>4.5	36	2	6	15	41	38	18	20	16	A-6b (8)	
VERY STIFF TO HARD, BROWN/GRAY, **CLAY**, LITTLE GRAVEL, LITTLE SILT, TRACE SAND, MOIST		6–7	9 10 10	30	100	SS-3	>4.5	16	1	6	15	62	48	23	25	25	A-7-6 (16)	
@8.5': DAMP		8–10	4 4 6	15	100	SS-4	>4.5	-	-	-	-	-	-	-	-	17	A-7-6 (V)	
@11': VERY STIFF, GRAY		11–12	10 9 8	25	100	SS-5	4.00	-	-	-	-	-	-	-	-	22	A-7-6 (V)	
		14–15	4 5 5	15	100	SS-6	4.00	-	-	-	-	-	-	-	-	20	A-7-6 (V)	
	623.0	16–17	9 9 30	58	100	SS-7 A	-	-	-	-	-	-	-	-	-	-	A-7-6 (V)	
						SS-7 B	>4.5	11	4	10	20	55	36	16	20	15	A-6b (12)	
HARD, BROWN/GRAY, **SILTY CLAY**, LITTLE SAND, LITTLE GRAVEL, MOIST	621.5																	
STIFF TO VERY STIFF, GRAY/DARK GRAY, **SILTY CLAY**, SOME SAND, TRACE GRAVEL, TRACE ORGANICS, MOIST	619.5	19–20	3 4 5	13	100	SS-8	>4.5	3	2	25	26	44	36	20	16	21	A-6b (9)	
VERY STIFF TO HARD, GRAY/BROWN, **SILT AND CLAY**, LITLTE SAND, TRACE GRAVEL,, MOIST	617.0	21–22	11 11 11	33	100	SS-9	2.75	-	-	-	-	-	-	-	-	23	A-6a (V)	
MEDIUM STIFF, GRAY/BROWN, **SANDY SILT**, "AND" CLAY, TRACE SAND, MOIST	615.0	24	1 1 3	6	100	SS-10	2.00	0	1	6	41	52	28	19	9	25	A-4a (8)	
		EOB 25																

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: PUMPED 7 CF CEMENT-BENTONITE GROUT

STANDARD ODOT SOIL BORING LOG (8.5 X 11) - OH DOT.GDT - 8/5/25 07:54 - X:\PROJECTS\242420.GPJ

PROJECT: SAN SIGN FY2026	DRILLING FIRM / OPERATOR: TTL / CW	DRILL RIG: GEOPROBE 7822DT	STATION / OFFSET:
TYPE: OVERHEAD SIGN FOUNDATION	SAMPLING FIRM / LOGGER: TTL / CW	HAMMER: AUTOMATIC HAMMER	ALIGNMENT:
PID: 117268 SFN: N/A	DRILLING METHOD: HSA	CALIBRATION DATE: 6/11/24	ELEVATION: 633.0 (NAVD88) EOB: 25.0 ft.
START: 1/15/25 END: 1/15/25	SAMPLING METHOD: SPT	ENERGY RATIO (%): 89.3	LAT / LONG: 41.366540, -83.134497

EXPLORATION ID: B-007-0-24

PAGE: 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	HOLE SEALED
633.0																		
TOPSOIL - 7 INCHES	632.4																	
MEDIUM DENSE, BROWN/BLACK, **COARSE AND FINE SAND**, SOME CLAY, LITTLE SILT, TRACE GRAVEL, SLIGHTLY ORGANIC, MOIST (FILL)	630.2		4 4 6	15	89	SS-1	-	-	-	-	-	-	-	-	-	16	A-3a (V)	
MEDIUM STIFF TO STIFF, BROWN/GRAY, **SILTY CLAY**, SOME SAND, TRACE GRAVEL, MOIST	627.0		3 3 2	7	100	SS-2	4.00	9	4	17	25	45	28	12	16	15	A-6b (9)	
VERY STIFF, BROWN/GRAY, **SILTY CLAY**, LITTLE SAND, TRACE GRAVEL, MOIST			7 8 8	24	100	SS-3	>4.5	-	-	-	-	-	-	-	-	13	A-6b (V)	
@8.5': GRAY	619.0	W 619.0	3 4 6	15	100	SS-4	>4.5	6	3	14	22	55	29	13	16	13	A-6b (10)	
			10 10 10	30	100	SS-5	4.00	-	-	-	-	-	-	-	-	21	A-6b (V)	
MEDIUM STIFF TO STIFF, BROWN/GRAY, **SILTY CLAY**, SOME SAND, MOIST	617.5		3 3 2	7	100	SS-6	1.50	0	4	28	26	42	38	20	18	24	A-6b (10)	
STIFF, GRAY/BROWN, **SANDY SILT**, SOME CLAY, MOIST			3 3 4	10	100	SS-7	1.00	0	3	22	42	33	29	21	8	27	A-4a (8)	
@18': BROWN/GRAY			4 3 3	9	100	SS-8	1.00	-	-	-	-	-	-	-	-	26	A-4a (V)	
@21': MEDIUM STIFF, WET, (FREE WATER NOTED IN JAR)	610.0		2 3 4	10	100	SS-9	0.75	-	-	-	-	-	-	-	-	26	A-4a (V)	
VERY SOFT TO SOFT, BROWN/GRAY, **SANDY SILT**, "AND" CLAY, MOIST	608.0	EOB	0 0 1	1	100	SS-10	1.00	0	1	9	38	52	29	22	7	26	A-4a (8)	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: PUMPED 7 CF CEMENT-BENTONITE GROUT

STANDARD ODOT SOIL BORING LOG (8.5 X 11) - OH DOT.GDT - 8/5/25 07:54 - X:\PROJECTS\242420.GPJ

PROJECT: SAN SIGN FY2026	DRILLING FIRM / OPERATOR: TTL / CW	DRILL RIG: GEOPROBE 7822DT	STATION / OFFSET:	EXPLORATION ID B-008-0-24	
TYPE: OVERHEAD SIGN FOUNDATION	SAMPLING FIRM / LOGGER: TTL / CW	HAMMER: AUTOMATIC HAMMER	ALIGNMENT:		
PID: 117268 SFN: N/A	DRILLING METHOD: HSA	CALIBRATION DATE: 6/11/24	ELEVATION: 617.4 (NAVD88) EOB: 25.0 ft.	PAGE 1 OF 1	
START: 1/15/25 END: 1/15/25	SAMPLING METHOD: SPT	ENERGY RATIO (%): 89.3	LAT / LONG: 41.370835, -83.116735		

MATERIAL DESCRIPTION AND NOTES	ELEV. 617.4	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	HOLE SEALED
TOPSOIL - 8 INCHES	616.7																	
MEDIUM STIFF, GRAY/BROWN, **SILT AND CLAY**, LITTLE SAND, TRACE GRAVEL, SLIGHTLY ORGANIC, MOIST	614.4	W 614.4	3 3 2	7	100	SS-1	3.25	-	-	-	-	-	-	-	-	20	A-6a (V)	
MEDIUM STIFF, BROWN/GRAY, **SANDY SILT**, LITTLE CLAY, SLIGHTLY ORGANIC, MOIST	611.4		1 1 3	6	100	SS-2	1.00	0	0	41	46	13	28	20	8	24	A-4a (5)	
SOFT TO MEDIUM STIFF, BROWN/GRAY, **SANDY SILT**, TRACE CLAY, WET (FREE WATER NOTED) @8': GRAY	606.4		7 8 9	25	100	SS-3	0.25	0	0	50	45	5	28	20	8	22	A-4a (3)	
			3 3 1	6	100	SS-4	0.25	-	-	-	-	-	-	-	-	27	A-4a (V)	
VERY LOOSE, GRAY, **COARSE AND FINE SAND**, SOME SILT, TRACE CLAY, MOIST	604.9		0 0 2	3	100	SS-5	-	0	7	59	30	4	NP	NP	NP	23	A-3a (0)	
SOFT TO MEDIUM STIFF, GRAY, **SILT AND CLAY**, LITTLE SAND, MOIST	601.4		0 0 1	1	100	SS-6	3.00	-	-	-	-	-	-	-	-	23	A-6a (V)	
STIFF TO VERY STIFF, GRAY, **SILT AND CLAY**, LITTLE SAND, MOIST	598.9		2 3 4	10	100	SS-7	4.00	-	-	-	-	-	-	-	-	21	A-6a (V)	
VERY STIFF, GRAY, **SANDY SILT**, "AND" CLAY, MOIST	596.4		5 5 6	16	100	SS-8	3.00	0	2	6	40	52	25	16	9	18	A-4a (8)	
SOFT TO MEDIUM STIFF, GRAY, **SILT AND CLAY**, TRACE SAND, WET @23.5': VERY SOFT, LITTLE SAND	592.4	EOB	3 2 2	6	100	SS-9	0.25	0	2	7	23	68	35	20	15	33	A-6a (10)	
			0 0 1	1	100	SS-10	0.25	-	-	-	-	-	-	-	-	34	A-6a (V)	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: PUMPED 7 CF CEMENT-BENTONITE GROUT

STANDARD ODOT SOIL BORING LOG (8.5 X 11) - OH DOT.GDT - 8/5/25 07:54 - X:\PROJECTS\242420.GPJ

PROJECT: SAN SIGN FY2026	DRILLING FIRM / OPERATOR: TTL / CW	DRILL RIG: GEOPROBE 7822DT	STATION / OFFSET:	EXPLORATION ID B-009-0-24
TYPE: OVERHEAD SIGN FOUNDATION	SAMPLING FIRM / LOGGER: TTL / CW	HAMMER: AUTOMATIC HAMMER	ALIGNMENT:	
PID: 117268 SFN: N/A	DRILLING METHOD: HSA	CALIBRATION DATE: 6/11/24	ELEVATION: 624.8 (NAVD88) EOB: 25.0 ft.	PAGE 1 OF 1
START: 1/15/25 END: 1/16/25	SAMPLING METHOD: SPT	ENERGY RATIO (%): 89.3	LAT / LONG: 41.364750, -83.116743	

MATERIAL DESCRIPTION AND NOTES	ELEV. 624.8	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	HOLE SEALED
TOPSOIL - 7 INCHES	624.2																	
MEDIUM STIFF TO STIFF, BROWN/GRAY, **SILT AND CLAY**, LITTLE SAND, TRACE GRAVEL, SLIGHTLY ORGANIC, MOIST	621.8		2 2 2	6	89	SS-1	2.50	-	-	-	-	-	-	-	-	19	A-6a (V)	
SOFT TO MEDIUM STIFF, BROWN, **SANDY SILT**, TRACE CLAY, MOIST	616.3	W 617.8	3 1 2	4	100	SS-2	0.50	0	0	55	41	4	26	19	7	23	A-4a (2)	
			4 4 5	13	100	SS-3	0.25	0	2	48	44	6	29	21	8	26	A-4a (3)	
SOFT TO MEDIUM STIFF, GRAY, **SILT AND CLAY**, LITTLE SAND, MOIST			1 1 1	3	100	SS-4	1.00	0	2	9	22	67	32	19	13	26	A-6a (9)	
			1 1 1	3	100	SS-5	0.50	-	-	-	-	-	-	-	-	28	A-6a (V)	
@13.5': TRACE SAND			0 1 1	3	100	SS-6	0.50	0	2	7	23	68	34	19	15	30	A-6a (10)	
			1 1 1	3	100	SS-7	0.50	-	-	-	-	-	-	-	-	29	A-6a (V)	
@18.5': VERY SOFT			0 0 1	1	100	SS-8	0.25	-	-	-	-	-	-	-	-	31	A-6a (V)	
			0 0 0	0	100	SS-9	0.25	0	2	6	24	68	34	20	14	28	A-6a (10)	
	599.8	EOB	0 0 1	1	100	SS-10	0.25	-	-	-	-	-	-	-	-	29	A-6a (V)	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: PUMPED 7 CF CEMENT-BENTONITE GROUT

STANDARD ODOT SOIL BORING LOG (8.5 X 11) - OH DOT.GDT - 8/5/25 07:54 - X:\PROJECTS\242420.GPJ

PROJECT: SAN SIGN FY2026	DRILLING FIRM / OPERATOR: TTL / CW	DRILL RIG: GEOPROBE 7822DT	STATION / OFFSET:	EXPLORATION ID B-010-0-24	
TYPE: OVERHEAD SIGN FOUNDATION	SAMPLING FIRM / LOGGER: TTL / CW	HAMMER: AUTOMATIC HAMMER	ALIGNMENT:		
PID: 117268 SFN: N/A	DRILLING METHOD: HSA	CALIBRATION DATE: 6/11/24	ELEVATION: 630.5 (NAVD88) EOB: 25.0 ft.	PAGE 1 OF 1	
START: 1/17/25 END: 1/17/25	SAMPLING METHOD: SPT	ENERGY RATIO (%): 89.3	LAT / LONG: 41.356498, -83.075033		

MATERIAL DESCRIPTION AND NOTES	ELEV. 630.5	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	HOLE SEALED
BROKEN ASPHALT - 17 INCHES	629.1																	
AGGRETATE BASE - 19 INCHES	627.5		9 5 3	12	89	SS-1	-	-	-	-	-	-	-	-	-	16	A-2-4 (V)	
STIFF TO VERY STIFF, GRAY/DARK GRAY, **SILT AND CLAY**, SOME SAND, MOIST			4 5 5	15	100	SS-2	>4.5	0	1	29	22	48	30	17	13	18	A-6a (8)	
@6': VERY STIFF, DARK GRAY	622.5		8 8 8	24	100	SS-3	>4.5	-	-	-	-	-	-	-	-	19	A-6a (V)	
STIFF, GRAY, **SILTY CLAY**, LITTLE SAND, MOIST	617.0		5 6 6	18	100	SS-4	4.00	0	1	14	21	64	38	19	19	21	A-6b (12)	
			7 6 6	18	100	SS-5	3.50	-	-	-	-	-	-	-	-	19	A-6a (V)	
MEDIUM STIFF, GRAY/BROWN, **CLAY**, SOME SILT, LITTLE SAND, MOIST	614.5		4 4 4	12	100	SS-6	3.00	0	2	9	21	68	44	22	22	22	A-7-6 (14)	
STIFF TO VERY STIFF, BROWN/GRAY, **SILT AND CLAY**, SOME SAND, MOIST	612.9	W 612.9	6 6 5	16	100	SS-7	1.00	0	1	26	22	51	30	16	14	24	A-6a (9)	
GRAY, **FINE SAND**, WET (BASED ON DRILLING RESISTANCE ENCOUNTERED AND AUGER CUTTINGS)	612.0																	
SOFT TO MEDIUM STIFF, GRAY, **SILT AND CLAY**, TRACE SAND, MOIST			1 1 1	3	100	SS-8	1.00	0	2	7	23	68	33	19	14	27	A-6a (10)	
@21': VERY SOFT			0 0 1	1	100	SS-9	0.25	-	-	-	-	-	-	-	-	31	A-6a (V)	
@23.5': SOME SAND	605.5	EOB	0 0 1	1	100	SS-10	0.25	-	-	-	-	-	-	-	-	29	A-6a (V)	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.25 BAG ASPHALT PATCH; PUMPED 7 CF CEMENT-BENTONITE GROUT

STANDARD ODOT SOIL BORING LOG (8.5 X 11) - OH DOT.GDT - 8/5/25 07:54 - X:\PROJECTS\242420.GPJ

PROJECT: SAN SIGN FY2026	DRILLING FIRM / OPERATOR: TTL / CW	DRILL RIG: GEOPROBE 7822DT	STATION / OFFSET:	EXPLORATION ID B-011-0-24	
TYPE: OVERHEAD SIGN FOUNDATION	SAMPLING FIRM / LOGGER: TTL / CW	HAMMER: AUTOMATIC HAMMER	ALIGNMENT:		
PID: 117268 SFN: N/A	DRILLING METHOD: HSA	CALIBRATION DATE: 6/11/24	ELEVATION: 630.9 (NAVD88) EOB: 25.0 ft.	PAGE 1 OF 1	
START: 1/17/25 END: 1/17/25	SAMPLING METHOD: SPT	ENERGY RATIO (%): 89.3	LAT / LONG: 41.355919, -83.078111		

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	HOLE SEALED
AGGREGATE BASE WITH ASPHALT FRAGMENTS - 15 INCHES	630.9																	
	629.6	1				SS-1A	-	-	-	-	-	-	-	-	-	-	A-1-b (V)	
MEDIUM STIFF TO STIFF, BROWN, **SANDY SILT**, LITTLE CLAY, TRACE GRAVEL, DAMP		2	9 5 5	15	78	SS-1B	0.50	9	9	29	41	12	18	16	2	15	A-4a (4)	
	627.4	3																
MEDIUM STIFF TO STIFF, GRAY/BROWN, **SILT AND CLAY**, LITTLE SAND, MOIST		4	2 2 2	6	94	SS-2	4.00	-	-	-	-	-	-	-	-	17	A-6a (V)	
	625.3	5																
STIFF TO VERY STIFF, GRAY/BROWN, **SILT AND CLAY**, SOME SAND, MOIST		6	5 5 5	15	100	SS-3	>4.5	0	2	22	25	51	27	15	12	18	A-6a (9)	
@8.5': BROWN/GRAY LITTLE SAND, TRACE GRAVEL		8	4 4 3	10	100	SS-4	>4.5	-	-	-	-	-	-	-	-	24	A-6a (V)	
@11': SOME SAND	618.8	10	5 6 8	21	100	SS-5A	3.00	7	11	15	22	45	29	16	13	19	A-6a (8)	
		12				SS-5B	-	-	-	-	-	-	-	-	-	-	A-3a (V)	
MEDIUM DENSE, GRAY, **FINE SAND**, TRACE SILT, TRACE CLAY, MOIST	617.9																	
SOFT TO MEDIUM STIFF, BROWN/DARK GRAY, **SILT AND CLAY**, LITTLE SAND, TRACE GRAVEL, MOIST		14	2 1 2	4	100	SS-6	2.50	-	-	-	-	-	-	-	-	19	A-6a (V)	
	614.9	16																
STIFF, BROWN/GRAY, **SILT AND CLAY**, SOME SAND, MOIST		17	3 3 3	9	100	SS-7	1.50	0	4	25	26	45	32	18	14	22	A-6a (9)	
	612.4	19																
SOFT TO MEDIUM STIFF, GRAY, **SILT AND CLAY**, TRACE SAND, MOIST		20	1 1 1	3	100	SS-8	1.50	-	-	-	-	-	-	-	-	25	A-6a (V)	
		W 610.4																
		21	2 1 1	3	100	SS-9	0.25	0	2	7	23	68	33	19	14	28	A-6a (10)	
		23																
	605.9	24 EOB	0 1 1	3	100	SS-10	0.50	-	-	-	-	-	-	-	-	28	A-6a (V)	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.25 BAG ASPHALT PATCH; PUMPED 7 CF CEMENT-BENTONITE GROUT

STANDARD ODOT SOIL BORING LOG (8.5 X 11) - OH DOT.GDT - 8/5/25 07:54 - X:\PROJECTS\242420.GPJ

KEY TO SYMBOLS

OHIO DEPARTMENT OF TRANSPORTION
OFFICE OF GEOTECHNICAL ENGINEERING

PROJECT SAN SIGN FY2026 **PID** 117268

OGE NUMBER N/A **PROJECT TYPE** STRUCTURE FOUNDATION

LITHOLOGIC SYMBOLS
(Unified Soil Classification System)

- A-1-B: Ohio DOT: A-1-b, gravel and/or stone fragments with sand
- A-3: Ohio DOT: A-3, fine sand
- A-3A: Ohio DOT: A-3a, coarse and fine sand
- A-4A: Ohio DOT: A-4a, sandy silt
- A-4B: Ohio DOT: A-4b, silt
- A-6A: Ohio DOT: A-6a, silt and clay
- A-6B: Ohio DOT: A-6b, silty clay
- A-7-6: Ohio DOT: A-7-6, clay
- PAVEMENT OR BASE: Ohio DOT: Pavement or Aggregate base
- TOPSOIL: Ohio DOT: Sod and Topsoil

SAMPLER SYMBOLS

- Thin Walled Undisturbed Sample

WELL CONSTRUCTION SYMBOLS

- Bentonite: Bottom of hole
- Asphalt or Concrete Pavement Patch

ABBREVIATIONS

LL - LIQUID LIMIT (%)
PI - PLASTIC INDEX (%)
W - MOISTURE CONTENT (%)
DD - DRY DENSITY (PCF)
NP - NON PLASTIC
-200 - PERCENT PASSING NO. 200 SIEVE
PP - POCKET PENETROMETER (TSF)

TV - TORVANE
PID - PHOTOIONIZATION DETECTOR
UC - UNCONFINED COMPRESSION
ppm - PARTS PER MILLION

- Water Level at Time Drilling, or as Shown
- Water Level at End of Drilling, or as Shown
- Water Level After 24 Hours, or as Shown

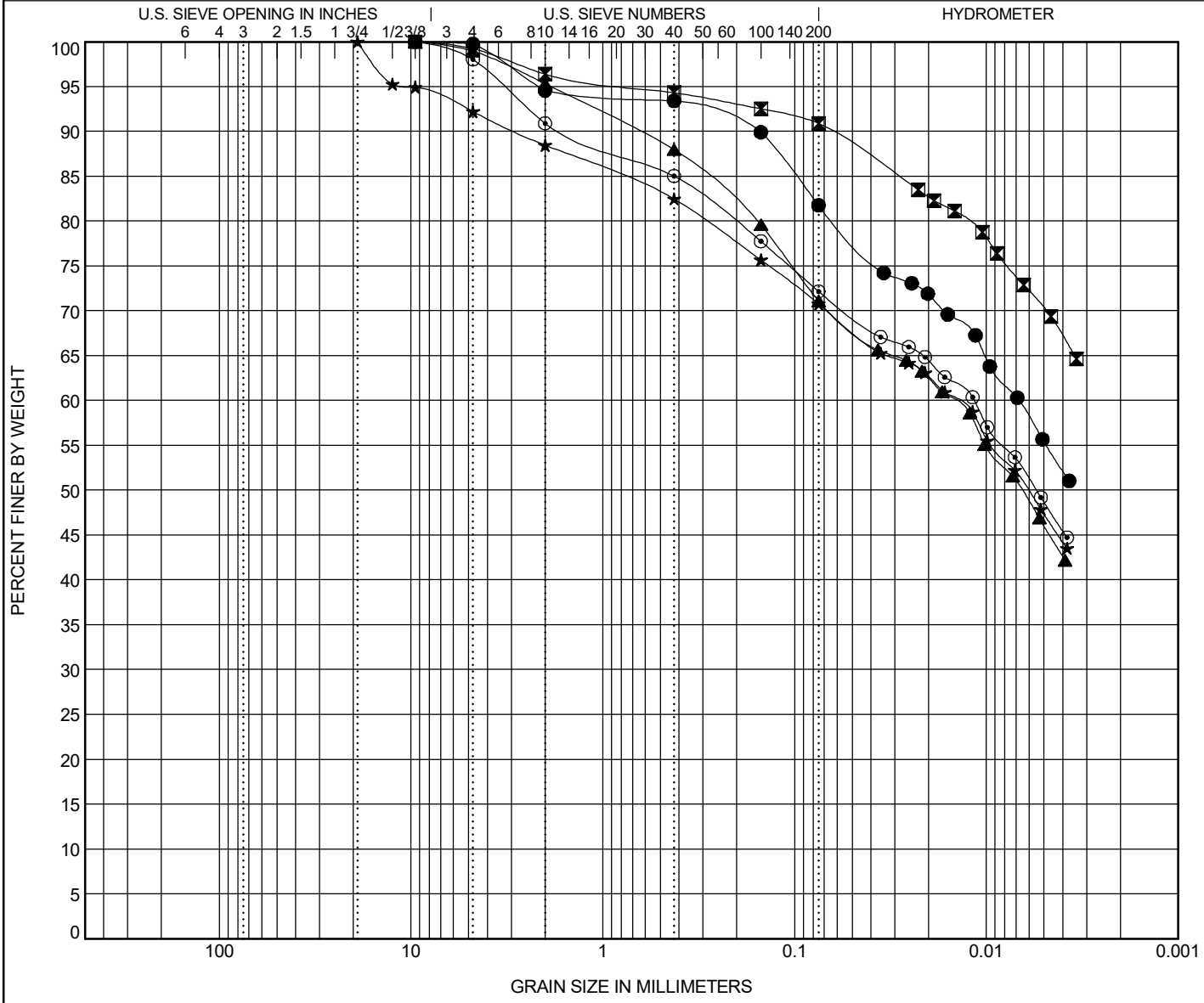
KEY TO SYMBOLS - OH DOT.GDT - 4/3/25 08:34 - X:\PROJECTS\242420.GPJ

GRAIN SIZE DISTRIBUTION

OHIO DEPARTMENT OF TRANSPORTION
OFFICE OF GEOTECHNICAL ENGINEERING

PROJECT SAN SIGN FY2026 **PID** 117268

OGE NUMBER N/A **PROJECT TYPE** STRUCTURE FOUNDATION



COBBLES	GRAVEL	SAND		SILT	CLAY
		coarse	fine		

Specimen Identification			ODOT (Modified AASHTO) ~ USCS Classification	LL	PL	PI
●	B-001-0-24	3.5	**A-6b ~ LEAN CLAY with SAND(CL)**	**38**	**18**	**20**
⊠	B-001-0-24	8.5	**A-7-6 ~ LEAN CLAY(CL)**	**47**	**18**	**29**
▲	B-001-0-24	13.5	**A-6a ~ LEAN CLAY with SAND(CL)**	**28**	**13**	**15**
★	B-001-0-24	18.5	**A-6a ~ LEAN CLAY with SAND(CL)**	**28**	**14**	**14**
⊙	B-001-0-24	23.5	**A-6b ~ LEAN CLAY with SAND(CL)**	**30**	**14**	**16**

Specimen Identification			D90	D50	D30	D10	%G	%CS	%FS	%M	%C	Cc	Cu
●	B-001-0-24	3.5	**0.154**				**5**	**1**	**12**	**27**	**55**		
⊠	B-001-0-24	8.5	**0.065**				**4**	**2**	**3**	**21**	**70**		
▲	B-001-0-24	13.5	**0.653**	**0.007**			**5**	**7**	**17**	**25**	**46**		
★	B-001-0-24	18.5	**2.848**	**0.006**			**11**	**6**	**12**	**24**	**47**		
⊙	B-001-0-24	23.5	**1.577**	**0.006**			**9**	**6**	**13**	**23**	**49**		

GRAIN SIZE - OH DOT.GDT - 4/3/25 08:32 - X:\PROJECTS\242420.GPJ

GRAIN SIZE DISTRIBUTION

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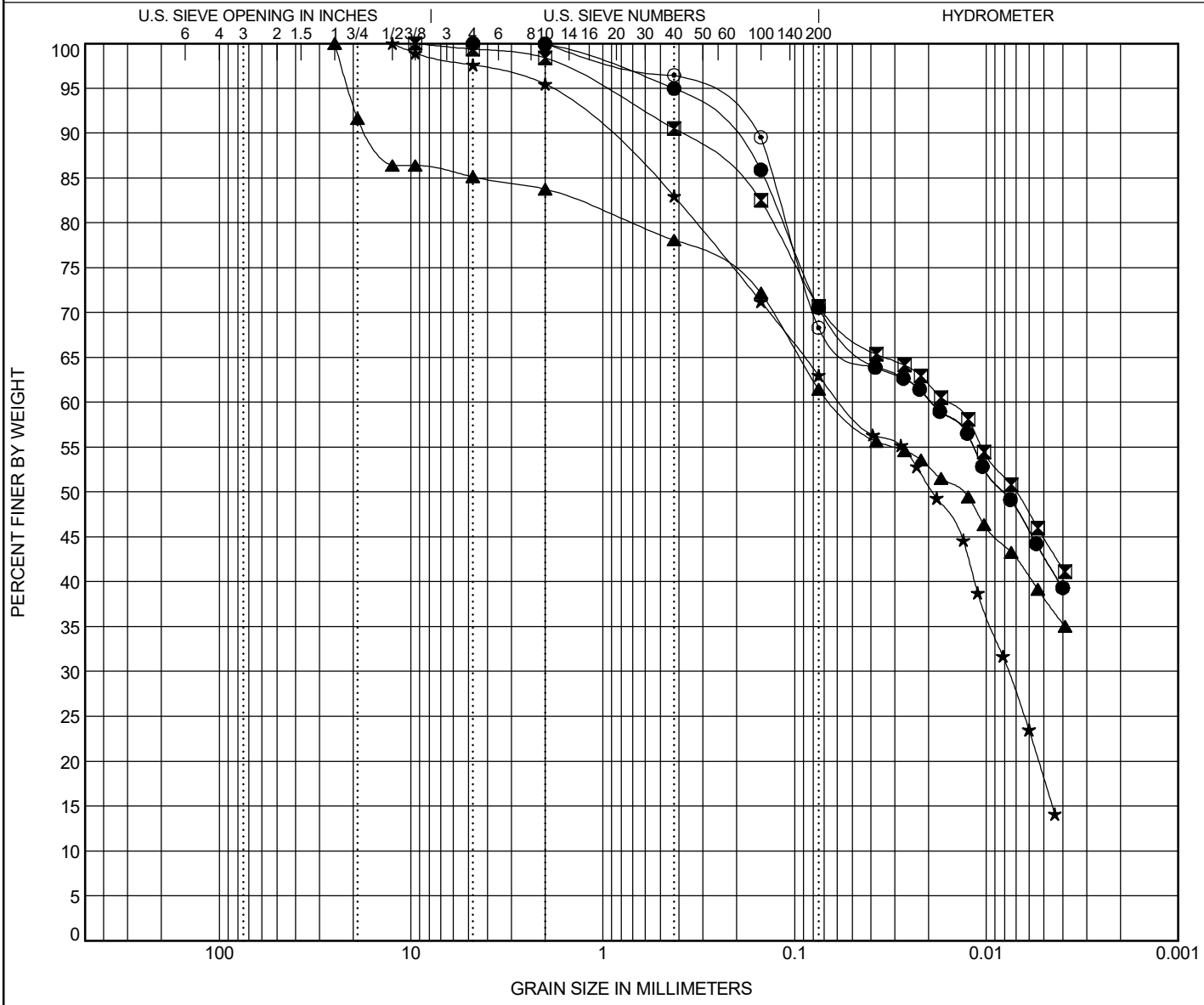

COBBLES	GRAVEL	SAND		SILT	CLAY
		coarse	fine		

Specimen Identification			ODOT (Modified AASHTO) ~ USCS Classification	LL	PL	PI
●	B-002-0-24	3.5	**A-6b ~ LEAN CLAY with SAND(CL)**	**40**	**21**	**19**
⊠	B-002-0-24	8.5	**A-6a ~ LEAN CLAY with SAND(CL)**	**32**	**17**	**15**
▲	B-002-0-24	16.0	**A-6b ~ SANDY LEAN CLAY(CL)**	**32**	**16**	**16**
★	B-002-0-24	24.0	**A-4a ~ SANDY SILTY CLAY(CL-ML)**	**16**	**9**	**7**
⊙	B-003-0-24	3.5	**A-6b ~ SANDY LEAN CLAY(CL)**	**38**	**21**	**17**

Specimen Identification			D90	D50	D30	D10	%G	%CS	%FS	%M	%C	Cc	Cu
●	B-002-0-24	3.5	**0.24**	**0.008**			**0**	**5**	**24**	**28**	**43**		
⊠	B-002-0-24	8.5	**0.398**	**0.007**			**1**	**8**	**20**	**26**	**45**		
▲	B-002-0-24	16.0	**16.666**	**0.014**			**16**	**6**	**17**	**23**	**38**		
★	B-002-0-24	24.0	**1.015**	**0.019**	**0.008**		**5**	**12**	**20**	**45**	**18**		
⊙	B-003-0-24	3.5	**0.161**	**0.008**			**0**	**4**	**28**	**25**	**43**		

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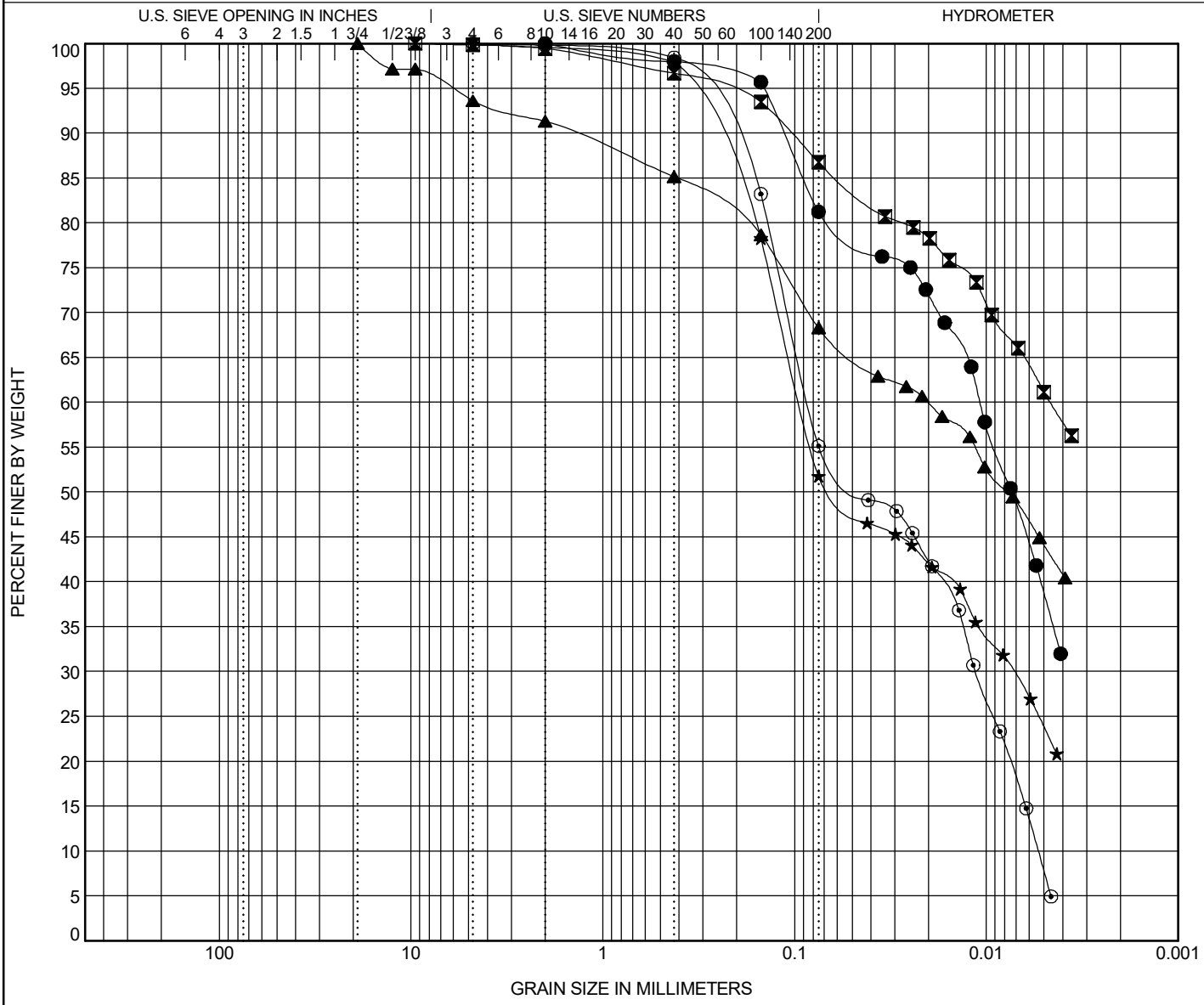

COBBLES	GRAVEL	SAND		SILT	CLAY
		coarse	fine		

	Specimen Identification		ODOT (Modified AASHTO) ~ USCS Classification	LL	PL	PI
●	B-003-0-24	6.0	A-4a ~ SILT with SAND(ML)	34	25	9
⊠	B-003-0-24	11.0	A-6b ~ LEAN CLAY(CL)	33	16	17
▲	B-003-0-24	18.5	A-6b ~ SANDY LEAN CLAY(CL)	31	15	16
★	B-004-0-24	3.5	A-6a ~ SANDY LEAN CLAY(CL)	29	18	11
⊙	B-004-0-24	6.0	A-4a ~ SANDY SILTY CLAY(CL-ML)	21	17	4

	Specimen Identification		D90	D50	D30	D10	%G	%CS	%FS	%M	%C	Cc	Cu
●	B-003-0-24	6.0	0.114	0.007			0	2	17	42	39		
⊠	B-003-0-24	11.0	0.105				0	3	10	26	61		
▲	B-003-0-24	18.5	1.435	0.008			9	6	17	24	44		
★	B-004-0-24	3.5	0.279	0.062	0.007		0	2	46	28	24		
⊙	B-004-0-24	6.0	0.239	0.045	0.011	0.005	1	1	43	47	8	0.28	15.75

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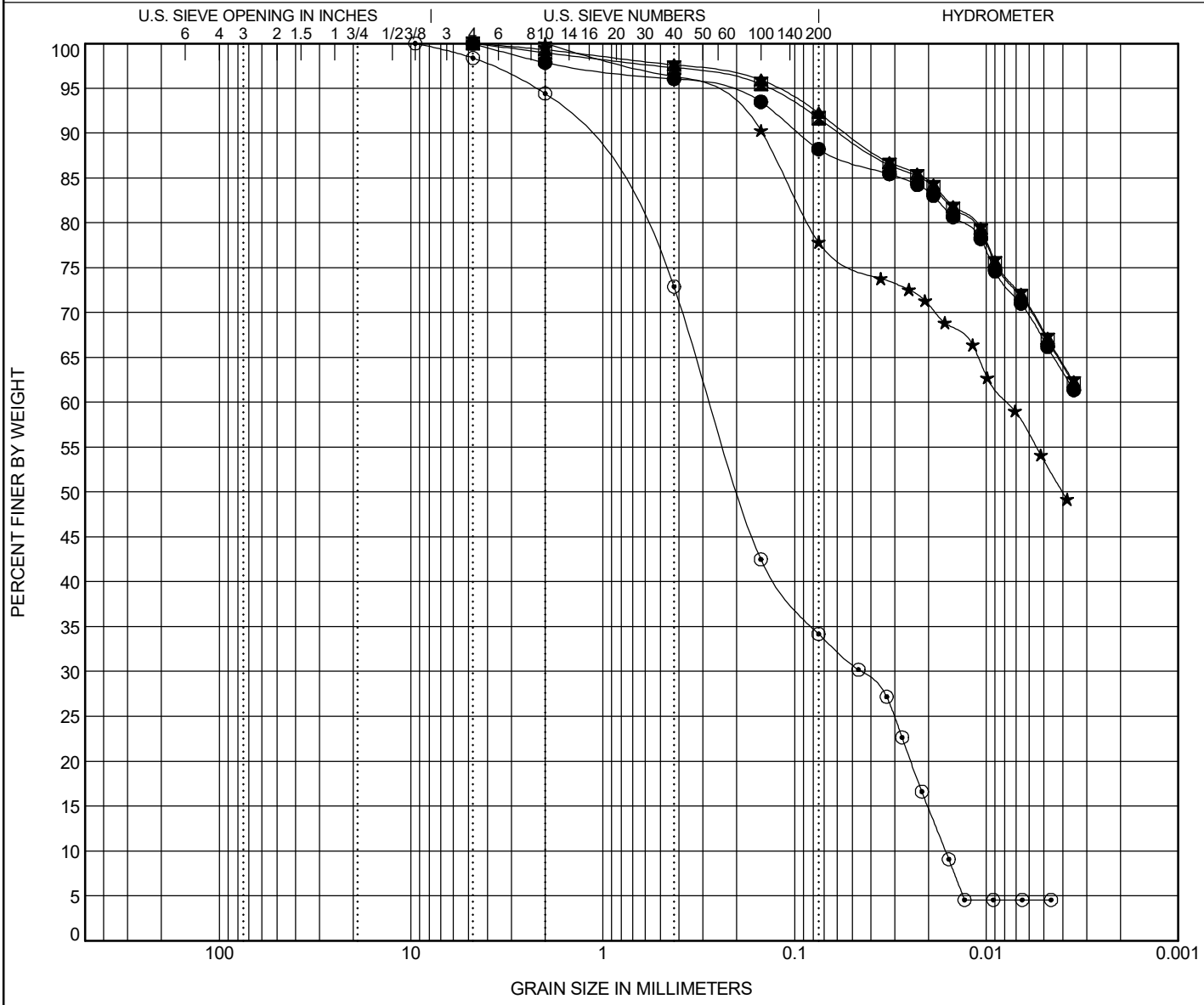
OGE NUMBER N/A **PROJECT TYPE** STRUCTURE FOUNDATION



COBBLES	GRAVEL	SAND		SILT	CLAY
		coarse	fine		

Specimen Identification			ODOT (Modified AASHTO) ~ USCS Classification	LL	PL	PI
●	B-004-0-24	11.0	**A-6b ~ LEAN CLAY(CL)**	**34**	**16**	**18**
⊠	B-004-0-24	16.0	**A-6a ~ LEAN CLAY(CL)**	**29**	**18**	**11**
▲	B-004-0-24	21.0	**A-6a ~ LEAN CLAY(CL)**	**28**	**17**	**11**
★	B-005-0-24	6.0	**A-6b ~ LEAN CLAY with SAND(CL)**	**39**	**22**	**17**
⊙	B-005-0-24	11.7	**A-3a ~ SILTY SAND(SM)**	**NP**	**NP**	**NP**

Specimen Identification			D90	D50	D30	D10	%G	%CS	%FS	%M	%C	Cc	Cu
●	B-004-0-24	11.0	**0.095**				**2**	**2**	**8**	**21**	**67**		
⊠	B-004-0-24	16.0	**0.057**				**0**	**2**	**6**	**24**	**68**		
▲	B-004-0-24	21.0	**0.053**				**1**	**2**	**5**	**24**	**68**		
★	B-005-0-24	6.0	**0.147**	**0.004**			**0**	**4**	**18**	**25**	**53**		
⊙	B-005-0-24	11.7	**1.455**	**0.194**	**0.045**	**0.016**	**5**	**22**	**39**	**29**	**5**	**0.46**	**16.72**

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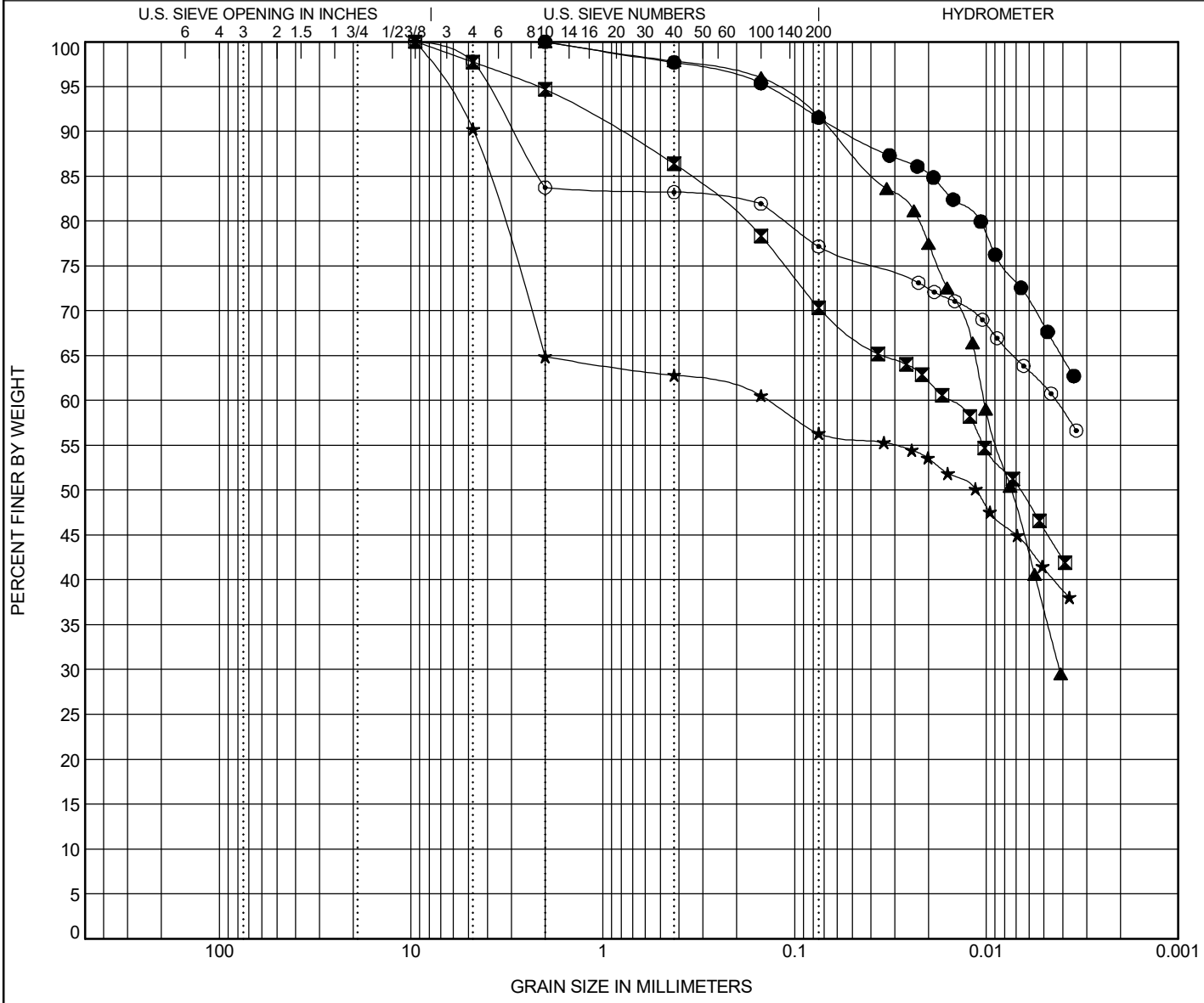

COBBLES	GRAVEL	SAND		SILT	CLAY
		coarse	fine		

Specimen Identification			ODOT (Modified AASHTO) ~ USCS Classification	LL	PL	PI
●	B-005-0-24	13.5	**A-6b ~ LEAN CLAY(CL)**	39	22	17
⊠	B-005-0-24	33.5	**A-6b ~ LEAN CLAY with SAND(CL)**	32	16	16
▲	B-005-1-24	16.0	**A-4b ~ LEAN CLAY(CL)**	27	19	8
★	B-006-0-24	3.5	**A-6b ~ SANDY LEAN CLAY(CL)**	38	18	20
⊙	B-006-0-24	6.0	**A-7-6 ~ LEAN CLAY with SAND(CL)**	48	23	25

Specimen Identification			D90	D50	D30	D10	%G	%CS	%FS	%M	%C	Cc	Cu
●	B-005-0-24	13.5	0.055				0	2	6	24	68		
⊠	B-005-0-24	33.5	0.836	0.007			6	8	16	24	46		
▲	B-005-1-24	16.0	0.063	0.007	0.004		0	2	6	55	37		
★	B-006-0-24	3.5	4.708	0.011			36	2	6	15	41		
⊙	B-006-0-24	6.0	2.94				16	1	6	15	62		

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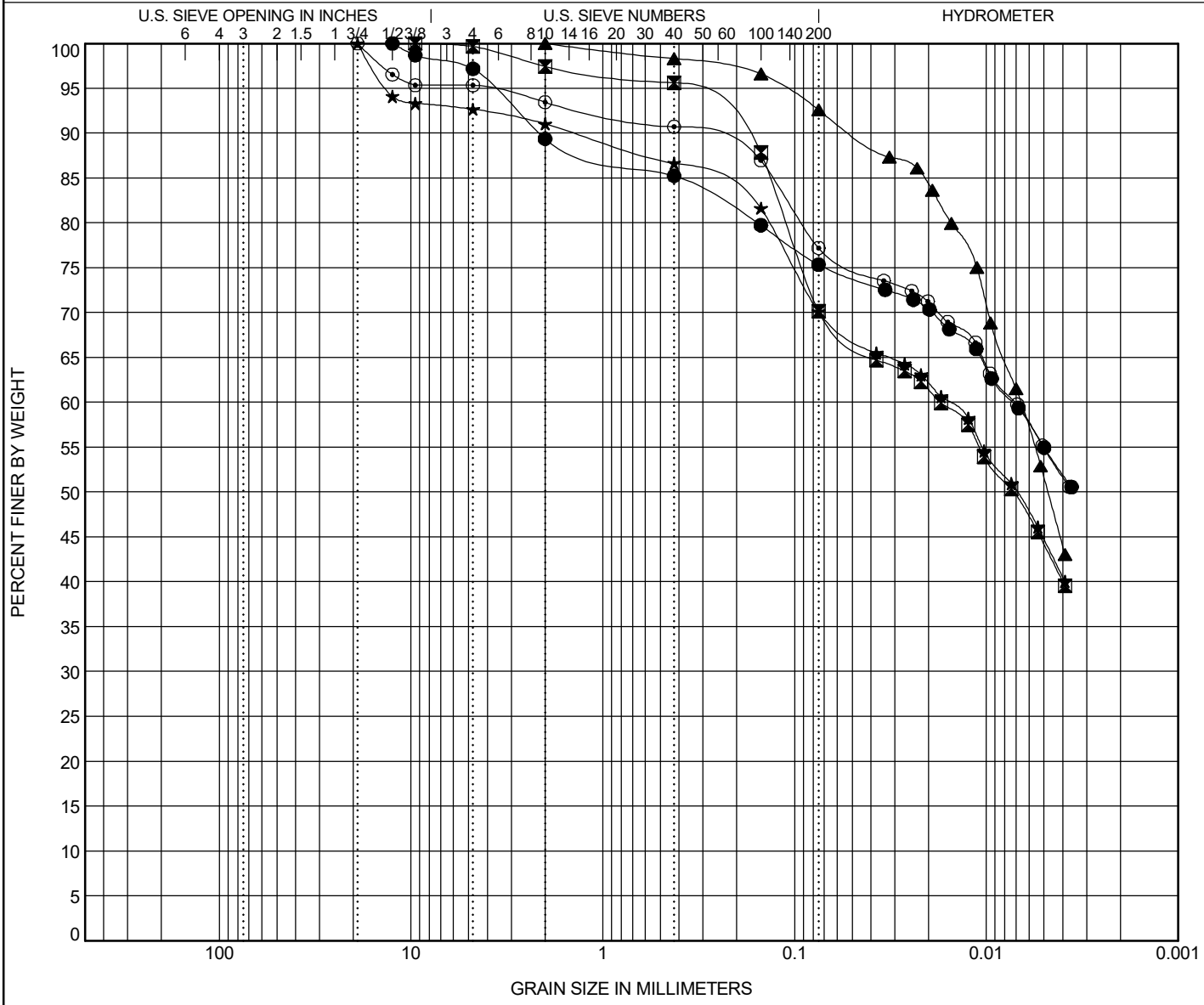

COBBLES	GRAVEL	SAND		SILT	CLAY
		coarse	fine		

	Specimen Identification		ODOT (Modified AASHTO) ~ USCS Classification	LL	PL	PI
●	B-006-0-24	17.0	A-6b ~ LEAN CLAY with SAND(CL)	36	16	20
⊠	B-006-0-24	18.5	A-6b ~ LEAN CLAY with SAND(CL)	36	20	16
▲	B-006-0-24	23.5	A-4a ~ LEAN CLAY(CL)	28	19	9
★	B-007-0-24	3.5	A-6b ~ LEAN CLAY with SAND(CL)	28	12	16
⊙	B-007-0-24	8.5	A-6b ~ LEAN CLAY with SAND(CL)	29	13	16

	Specimen Identification		D90	D50	D30	D10	%G	%CS	%FS	%M	%C	Cc	Cu
●	B-006-0-24	17.0	2.146				11	4	10	20	55		
⊠	B-006-0-24	18.5	0.201	0.007			3	2	25	26	44		
▲	B-006-0-24	23.5	0.049	0.005			0	1	6	41	52		
★	B-007-0-24	3.5	1.386	0.007			9	4	17	25	45		
⊙	B-007-0-24	8.5	0.348				6	3	14	22	55		

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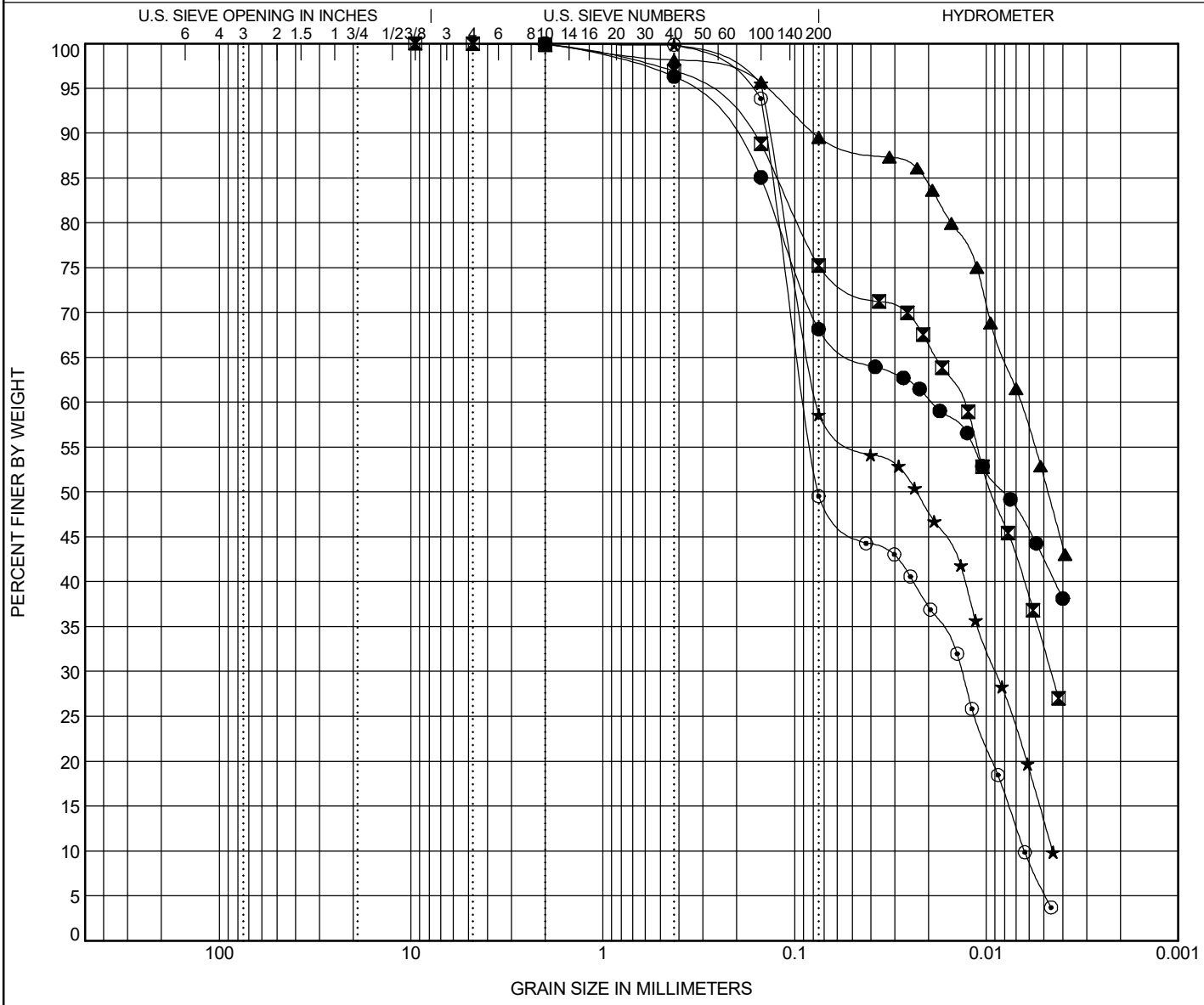

COBBLES	GRAVEL	SAND		SILT	CLAY
		coarse	fine		

	Specimen Identification		ODOT (Modified AASHTO) ~ USCS Classification	LL	PL	PI
●	B-007-0-24	13.5	A-6b ~ SANDY LEAN CLAY(CL)	38	20	18
⊠	B-007-0-24	16.0	A-4a ~ LEAN CLAY with SAND(CL)	29	21	8
▲	B-007-0-24	23.5	A-4a ~ SILTY CLAY(CL-ML)	29	22	7
★	B-008-0-24	3.5	A-4a ~ SANDY LEAN CLAY(CL)	28	20	8
⊙	B-008-0-24	6.0	A-4a ~ CLAYEY SAND(SC)	28	20	8

	Specimen Identification		D90	D50	D30	D10	%G	%CS	%FS	%M	%C	Cc	Cu
●	B-007-0-24	13.5	0.237	0.008			0	4	28	26	42		
⊠	B-007-0-24	16.0	0.175	0.009	0.005		0	3	22	42	33		
▲	B-007-0-24	23.5	0.079	0.005			0	1	9	38	52		
★	B-008-0-24	3.5	0.135	0.023	0.009	0.005	0	0	41	46	13	0.23	17.02
⊙	B-008-0-24	6.0	0.141	0.076	0.013	0.006	0	0	50	45	5	0.32	13.94

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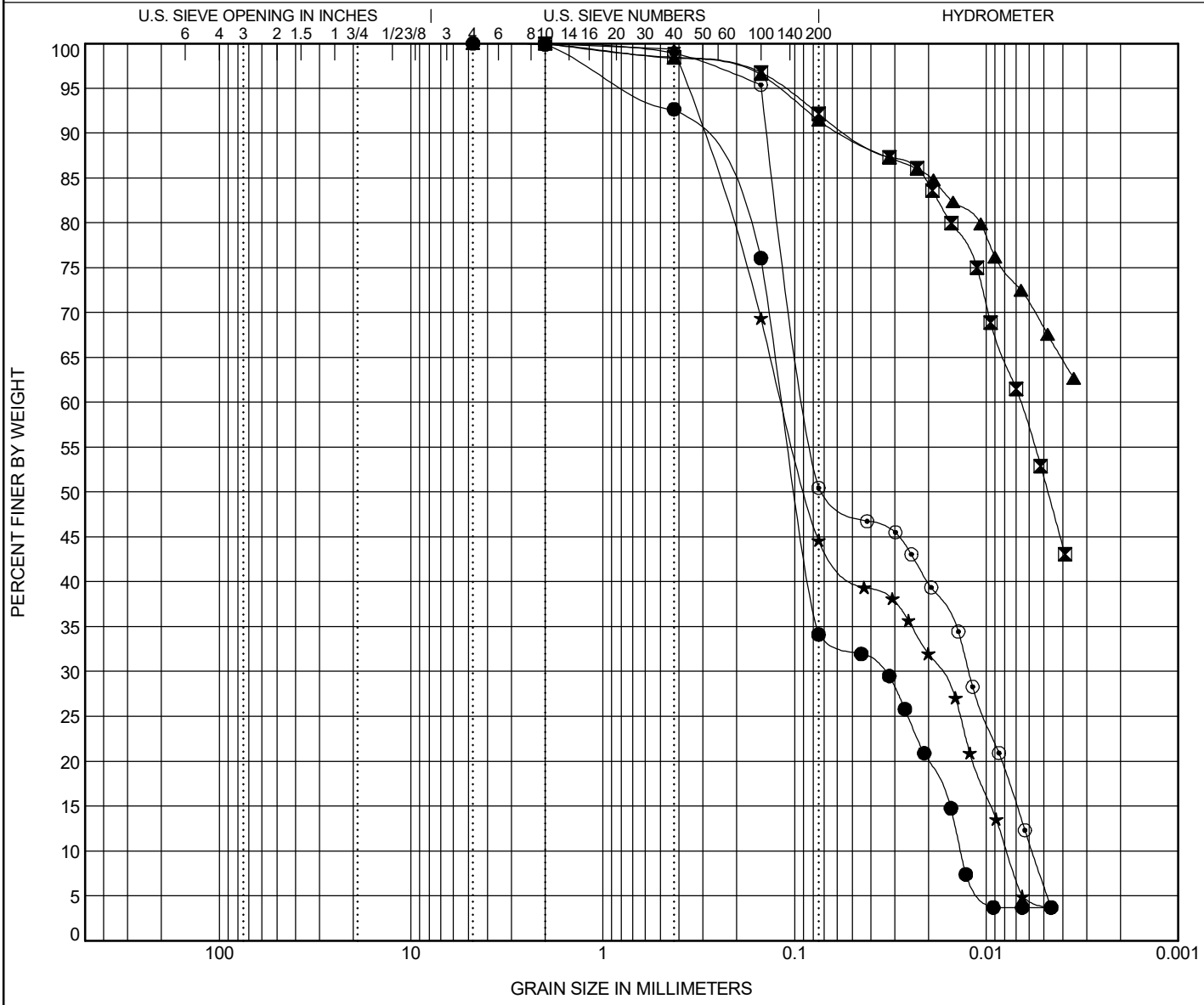

COBBLES	GRAVEL	SAND		SILT	CLAY
		coarse	fine		

	Specimen Identification		ODOT (Modified AASHTO) ~ USCS Classification	LL	PL	PI
●	B-008-0-24	11.0	A-3a ~ SILTY SAND(SM)	NP	NP	NP
⊠	B-008-0-24	18.5	A-4a ~ LEAN CLAY(CL)	25	16	9
▲	B-008-0-24	21.0	A-6a ~ LEAN CLAY(CL)	35	20	15
★	B-009-0-24	3.5	A-4a ~ SILTY, CLAYEY SAND(SC-SM)	26	19	7
⊙	B-009-0-24	6.0	A-4a ~ SANDY LEAN CLAY(CL)	29	21	8

	Specimen Identification		D90	D50	D30	D10	%G	%CS	%FS	%M	%C	Cc	Cu
●	B-008-0-24	11.0	0.36	0.098	0.034	0.014	0	7	59	30	4	0.76	8.43
⊠	B-008-0-24	18.5	0.051	0.005			0	2	6	40	52		
▲	B-008-0-24	21.0	0.056				0	2	7	23	68		
★	B-009-0-24	3.5	0.307	0.087	0.018	0.008	0	0	55	41	4	0.34	14.74
⊙	B-009-0-24	6.0	0.138	0.07	0.012	0.006	0	2	48	44	6	0.30	15.00

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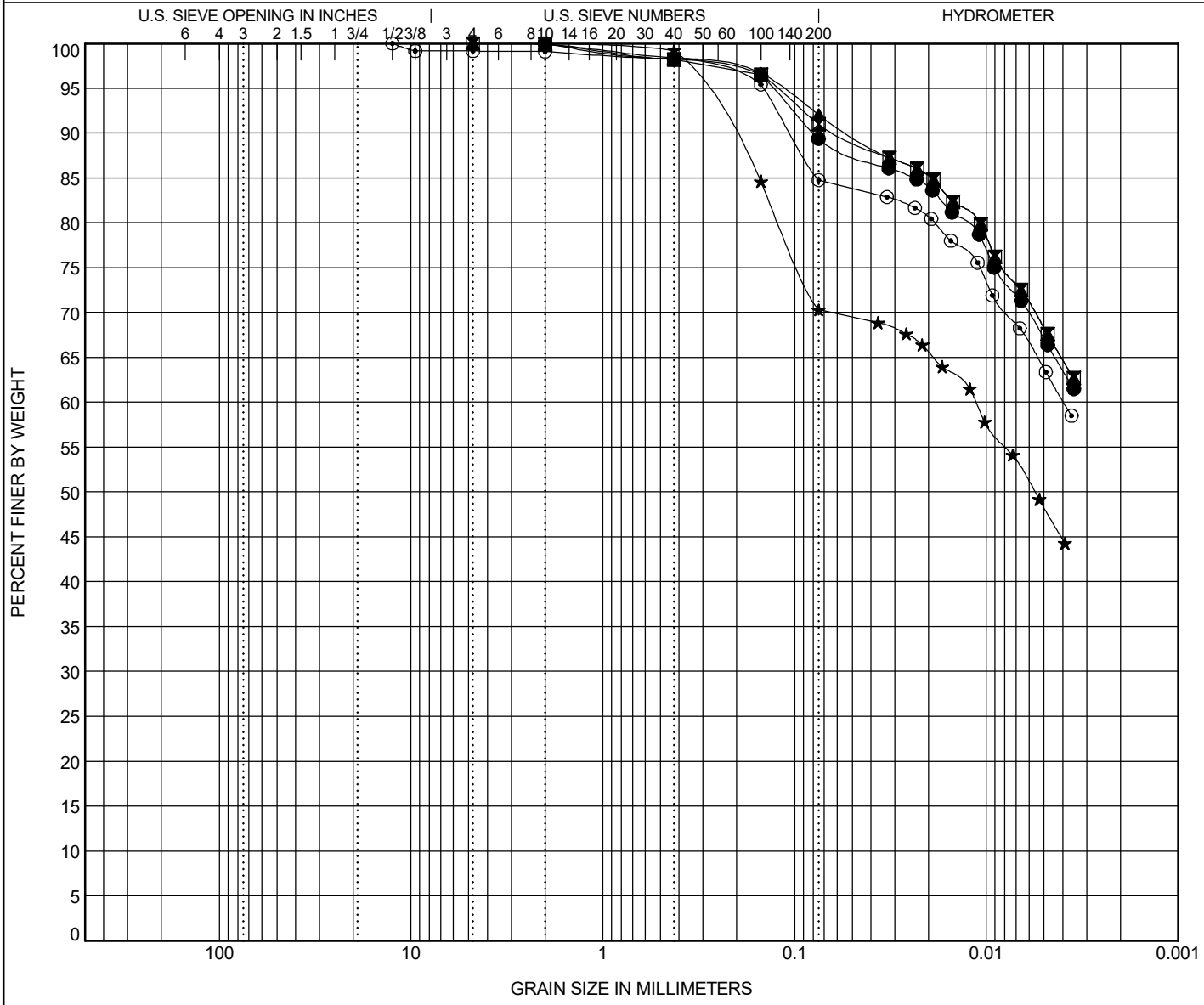


COBBLES	GRAVEL	SAND		SILT	CLAY
		coarse	fine		

	Specimen Identification		ODOT (Modified AASHTO) ~ USCS Classification	LL	PL	PI
●	**B-009-0-24**	**8.5**	**A-6a ~ LEAN CLAY(CL)**	**32**	**19**	**13**
⊠	**B-009-0-24**	**13.5**	**A-6a ~ LEAN CLAY(CL)**	**34**	**19**	**15**
▲	**B-009-0-24**	**21.0**	**A-6a ~ LEAN CLAY(CL)**	**34**	**20**	**14**
★	**B-010-0-24**	**3.5**	**A-6a ~ LEAN CLAY with SAND(CL)**	**30**	**17**	**13**
⊙	**B-010-0-24**	**8.5**	**A-6b ~ LEAN CLAY with SAND(CL)**	**38**	**19**	**19**

	Specimen Identification		D90	D50	D30	D10	%G	%CS	%FS	%M	%C	Cc	Cu
●	**B-009-0-24**	**8.5**	**0.08**				**0**	**2**	**9**	**22**	**67**		
⊠	**B-009-0-24**	**13.5**	**0.06**				**0**	**2**	**7**	**23**	**68**		
▲	**B-009-0-24**	**21.0**	**0.052**				**0**	**2**	**6**	**24**	**68**		
★	**B-010-0-24**	**3.5**	**0.22**	**0.006**			**0**	**1**	**29**	**22**	**48**		
⊙	**B-010-0-24**	**8.5**	**0.105**				**0**	**1**	**14**	**21**	**64**		

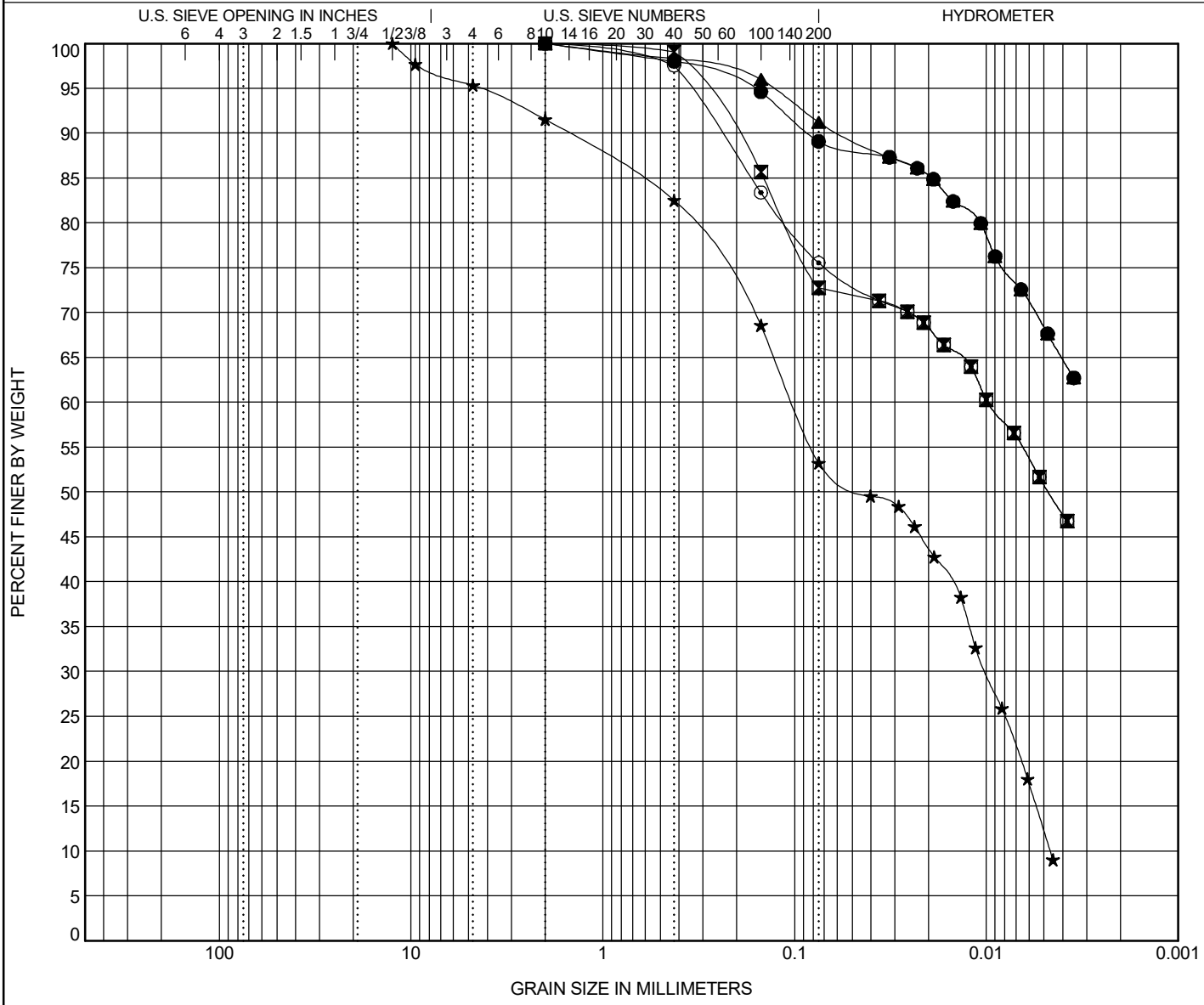
GRAIN SIZE - OH DOT.GDT - 4/3/25 08:33 - X:\PROJECTS\242420.GPJ

GRAIN SIZE DISTRIBUTION

OHIO DEPARTMENT OF TRANSPORTION
OFFICE OF GEOTECHNICAL ENGINEERING

PROJECT SAN SIGN FY2026 **PID** 117268

OGE NUMBER N/A **PROJECT TYPE** STRUCTURE FOUNDATION



COBBLES	GRAVEL	SAND		SILT	CLAY
		coarse	fine		

Specimen Identification			ODOT (Modified AASHTO) ~ USCS Classification	LL	PL	PI
●	B-010-0-24	13.5	**A-7-6 ~ LEAN CLAY(CL)**	**44**	**22**	**22**
⊠	B-010-0-24	16.0	**A-6a ~ LEAN CLAY with SAND(CL)**	**30**	**16**	**14**
▲	B-010-0-24	18.5	**A-6a ~ LEAN CLAY(CL)**	**33**	**19**	**14**
★	B-011-0-24	1.3	**A-4a ~ SANDY SILT(ML)**	**18**	**16**	**2**
⊙	B-011-0-24	6.0	**A-6a ~ LEAN CLAY with SAND(CL)**	**27**	**15**	**12**

Specimen Identification			D90	D50	D30	D10	%G	%CS	%FS	%M	%C	Cc	Cu
●	B-010-0-24	13.5	**0.084**				**0**	**2**	**9**	**21**	**68**		
⊠	B-010-0-24	16.0	**0.21**	**0.005**			**0**	**1**	**26**	**22**	**51**		
▲	B-010-0-24	18.5	**0.057**				**0**	**2**	**7**	**23**	**68**		
★	B-011-0-24	1.3	**1.537**	**0.044**	**0.01**	**0.005**	**9**	**9**	**29**	**41**	**12**	**0.21**	**21.88**
⊙	B-011-0-24	6.0	**0.244**	**0.005**			**0**	**2**	**22**	**25**	**51**		

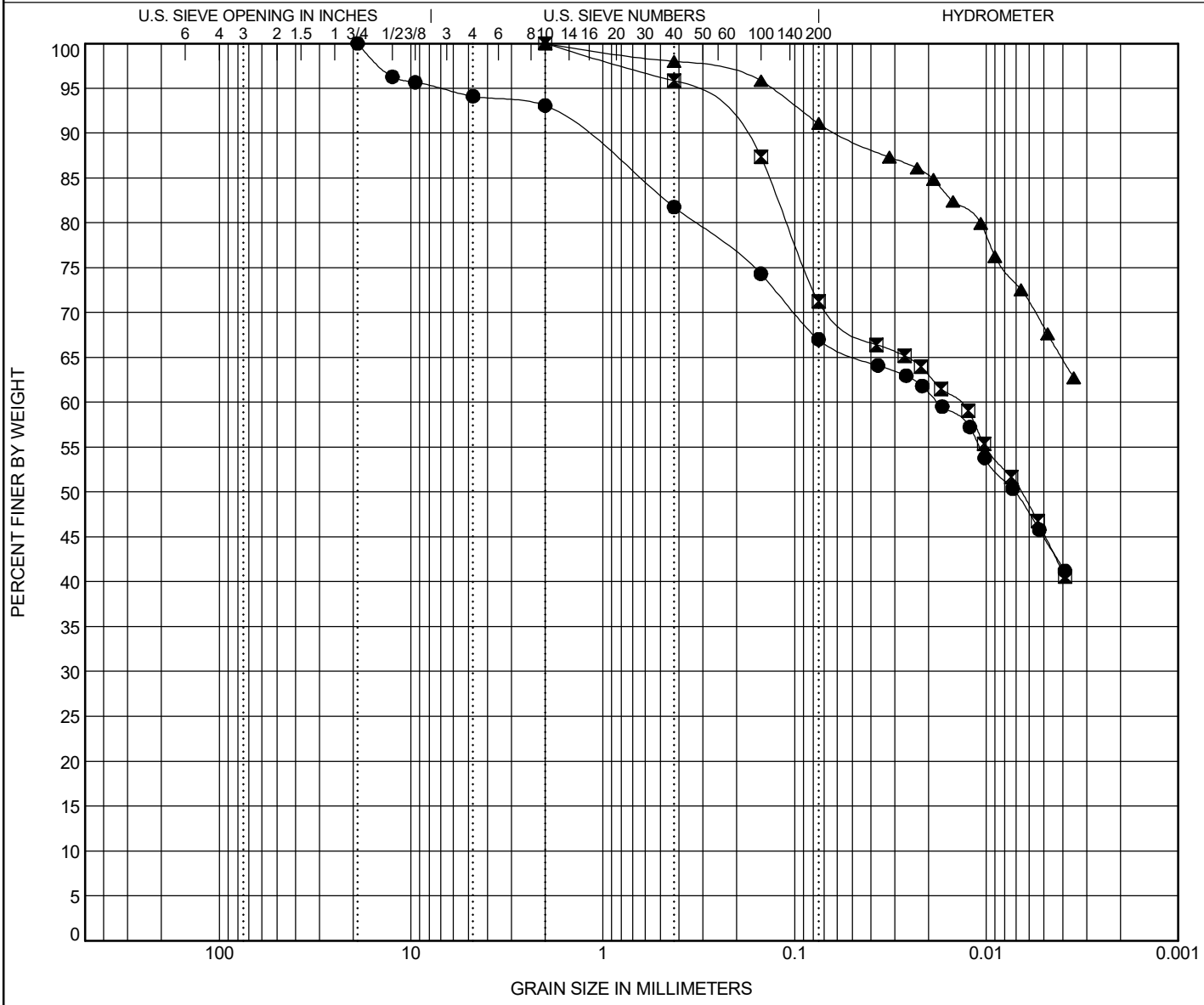
GRAIN SIZE - OH DOT.GDT - 4/3/25 08:33 - X:\PROJECTS\242420.GPJ

GRAIN SIZE DISTRIBUTION

OHIO DEPARTMENT OF TRANSPORTION
OFFICE OF GEOTECHNICAL ENGINEERING

PROJECT SAN SIGN FY2026 **PID** 117268

OGE NUMBER N/A **PROJECT TYPE** STRUCTURE FOUNDATION



COBBLES	GRAVEL	SAND		SILT	CLAY
		coarse	fine		

Specimen Identification		ODOT (Modified AASHTO) ~ USCS Classification	LL	PL	PI
●	**B-011-0-24 11.0**	**A-6a ~ SANDY LEAN CLAY(CL)**	**29**	**16**	**13**
⊠	**B-011-0-24 16.0**	**A-6a ~ LEAN CLAY with SAND(CL)**	**32**	**18**	**14**
▲	**B-011-0-24 21.0**	**A-6a ~ LEAN CLAY(CL)**	**33**	**19**	**14**

Specimen Identification		D90	D50	D30	D10	%G	%CS	%FS	%M	%C	Cc	Cu
●	**B-011-0-24 11.0**	**1.312**	**0.007**			**7**	**11**	**15**	**22**	**45**		
⊠	**B-011-0-24 16.0**	**0.207**	**0.007**			**0**	**4**	**25**	**26**	**45**		
▲	**B-011-0-24 21.0**	**0.059**				**0**	**2**	**7**	**23**	**68**		

UNCONSOLIDATED, UNDRAINED COMPRESSIVE STRENGTH OF COHESIVE SOILS IN TRIAXIAL COMPRESSION (ASTM D 2850)

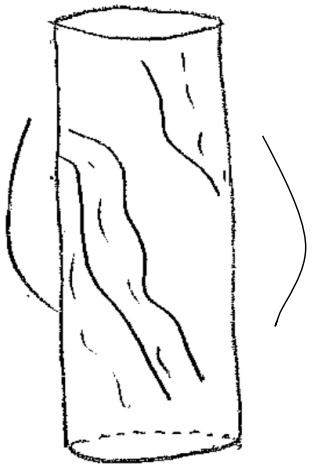
Project:	SAN Signs FY 2026	Date:	3/16/2025
Client:	ODOT	File:	242420B-005-2-24ST-1
Sample ID:	B-005-2-24 ST-1	Depth:	16.0 - 18.0'
Project No.:	242420	Specimen ID:	"B" (16.5 - 17.0 Feet)

SAMPLE PROPERTIES

Visual Description:	Gray SILT, "and" Clay, Trace Sand A-4b (8)		
Diameter:	2.88 in.	Initial Dry Unit Weight of Sample:	91.6 pcf
Area:	6.514 in^2	Initial Moisture Content:	31.6 %
Length:	6.00 in.	Specific Gravity (assumed):	2.75
Initial Void Ratio:	0.87	Initial Degree of Saturation:	99 %
Chamber Pressure:	12 psi	Proving Ring Number:	1155-12-13322

STRESS-STRAIN DATA

Speciman Deformation (in)	Vertical Strain	Proving Ring Reading	Piston Load (lbs)	Corrected Area (in^2)	Deviator Stress (psi)
0.000	0.000	0.0	0.0	6.514	0.0
0.010	0.002	1.5	1.0	6.525	0.2
0.020	0.003	3.5	2.4	6.536	0.4
0.030	0.005	5.0	3.4	6.547	0.5
0.040	0.007	7.0	4.8	6.558	0.7
0.050	0.008	9.0	6.2	6.569	0.9
0.075	0.013	14.5	9.9	6.597	1.5
0.100	0.017	19.5	13.4	6.625	2.0
0.125	0.021	25.5	17.5	6.653	2.6
0.150	0.025	30.5	20.9	6.681	3.1
0.175	0.029	36.0	24.7	6.710	3.7
0.200	0.033	40.0	27.4	6.739	4.1
0.250	0.042	48.0	32.9	6.798	4.8
0.300	0.050	54.5	37.4	6.857	5.5
0.350	0.058	60.0	41.2	6.918	5.9
0.400	0.067	64.5	44.2	6.980	6.3
0.450	0.075	68.5	47.0	7.043	6.7
0.500	0.083	71.5	49.0	7.107	6.9
0.550	0.092	74.0	50.8	7.172	7.1
0.600	0.100	76.0	52.1	7.238	7.2
0.650	0.108	77.5	53.2	7.306	7.3
0.700	0.117	78.5	53.9	7.375	7.3
0.750	0.125	79.5	54.5	7.445	7.3
0.800	0.133	80.5	55.2	7.517	7.3
0.850	0.142	81.0	55.6	7.590	7.3
0.900	0.150	81.5	55.9	7.664	7.3



Sketch of Tested Specimen

RESULTS

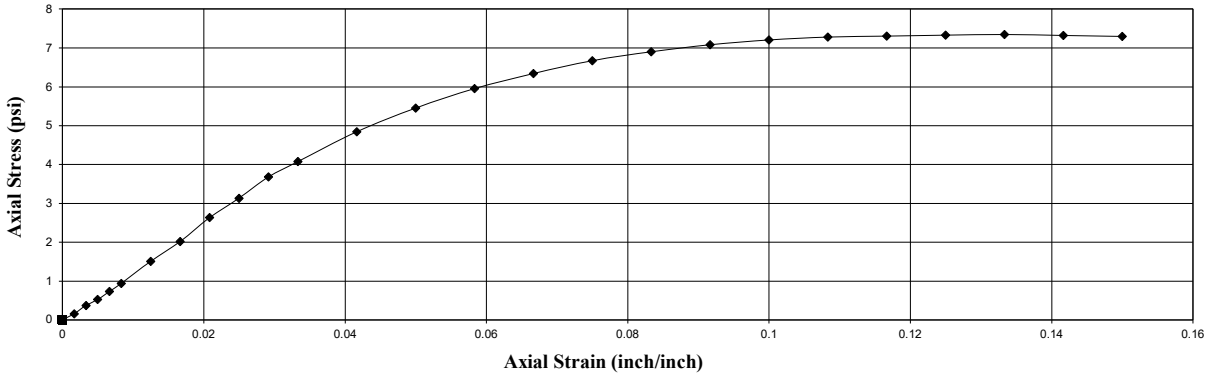
Maximum Deviator Stress 7.3 psi

Unconsolidated - Undrained Triaxial Shear Strength Test

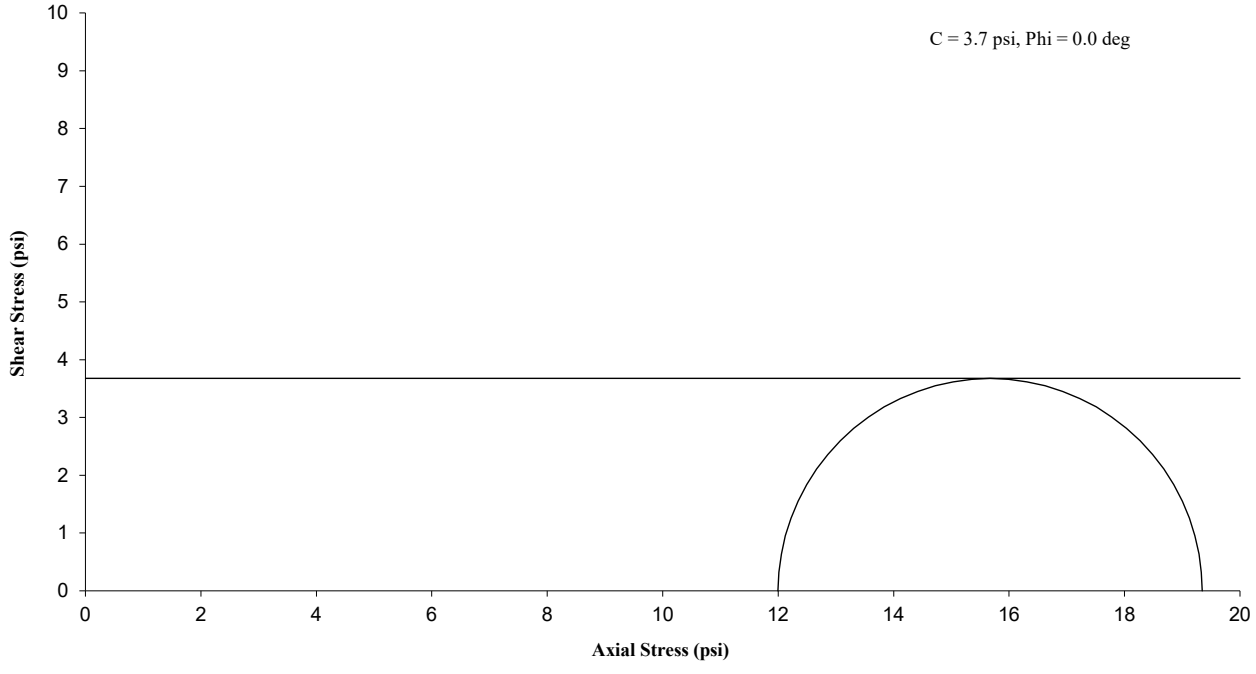
ASTM D 2850

General Sample Data		Triaxial Specimen Data			
Project No.:	242420	Symbol	◆	■	●
Project:	SAN Signs FY 2026	Init. Specimen Height (in.)	6.00	-	-
Sample ID:	B-005-2-24 ST-1	Init. Specimen Diameter (in.)	2.88	-	-
Sample Interval:	16.0 - 18.0'	Init. Moisture Content* (%)	31.6	-	-
		Init. Dry Unit Weight (pcf)	91.6	-	-
Soil Description:	Gray SILT, "and" Clay, Trace Sand A-4b (8)				
Liquid Limit:	27	Init. Void Ratio	0.87	-	-
Plastic Limit:	19	Init. Degree of Saturation (%)	99	-	-
Plasticity Index:	8	Minor Principal Stress (psi)	12.0	-	-
Specific Gravity:	2.75 (Assumed)	Deviator Stress at Failure (psi)	7.3	-	-
Rate of Strain:	0.03 Inches per Minute	Major Principal Stress (psi)	19.3	-	-
Failure Criteria:	Peak Deviator Stress or Deviator Stress at 15% Axial Strain	Axial Strain at Failure (%)	13.3	-	-

Stress/Strain



Mohr Circle Plot



APPENDIX A

ENGINEERING CALCULATIONS

CT No.: 242420 CRO Prepared 3/20/2025
Project: San Signs FY2026 CPI Reviewed 3/20/2025
PID: 117268

Subject: Sign-Support Foundation Average Shear Strength Evaluations
Special Foundation Requirement Evaluation for
approximately 12 ft deep drilled shaft for potential special foundation

Top Depth (ft)	Bottom Depth (ft)	Thickness (ft)	N60 (bpf)	Su=N60*125 (psf)	HP (tsf)	Su=HP*1000 (psf)	Recommended Su (psf)	Notes
Boring No.:	**B-001-0-24**							
0	3	3	-	-	-	-	250	Required per GDM
3	6	3	3	375	1.25	1250	375	
6	8.5	2.5	7	875	2.25	2250	875	
8.5	11	2.5	16	2000	4.5	4500	2000	
11	12	1	27	3375	3.25	3250	3250	
							1026	**Say 1,025 psf**
Boring No.:	**B-002-0-24**							
0	3	3	-	-	-	-	250	Required per GDM
3	8	5	13	1625	2.5	2500	1625	
8	11.5	3	41	5125	4.5	4500	4500	
11.5	12	0.5	32	4000	4.5	4500	4000	
							2120	**Say 2,120 psf**
Boring No.:	**B-005-0-24**							
0	3	3	-	-	-	-	250	Required per GDM
3	6.2	1.5	10	1250	2.5	2500	1250	
6.2	8.8	2.6	17	2125	1.5	1500	1500	
8.8	11	2.2	4	500	2.0	2000	500	
11	11.7	0.7	12	1500	1.25	1250	1250	
11.7	12	0.3						Granular seam
							850	**Say 850 psf**
Boring No.:	**B-006-0-24**							
0	3	3	-	-	-	-	250	Required per GDM
3	6	3	12	1500	4.5	4500	1500	
6	8.5	2.5	30	3750	4.5	4500	3750	
8.5	11	2.5	15	1875	4.5	4500	1900	
11	12	1	25	3125	4.0	4000	3100	
							1873	**Say 1,870 psf**
Boring No.:	**B-007-0-24**							
0	3	3	-	-	-	-	250	Required per GDM
3	6	3	7	875	4.0	4000	875	
6	8.5	2.5	24	3000	4.5	4500	3000	
8.5	11	2.5	15	1875	4.5	4500	1875	
11	12	1	30	3750	4.0	4000	3750	
							1609	**Say 1,605 psf**
Boring No.:	**B-008-0-24**							
0	3	3	-	-	-	-	250	Required per GDM
3	6	3	6	750	1.0	1000	750	
6	8	2	25	3125	0.25	250	250	
8	11	3	6	750	0.25	250	250	
11	12	1						Granular seam
							386	**Say 385 psf**
Boring No.:	**B-009-0-24**							
0	3	3	-	-	-	-	250	Required per GDM
3	6	3	4	500	0.5	500	500	
6	8.5	2.5	13	1625	0.25	250	250	
8.5	11	2.5	3	375	1.0	1000	375	
11	12	1	3	375	0.5	500	375	
							349	**Say 345 psf**

CT No.: 242420 CRO Prepared 3/20/2025
Project: San Signs FY2026 CPI Reviewed 3/20/2025
PID: 117268

Subject: **Sign-Support Foundation Average Shear Strength Evaluations**
Special Foundation Requirement Evaluation for
approximately 12 ft deep drilled shaft for potential special foundation

Top Depth (ft)	Bottom Depth (ft)	Thickness (ft)	N60 (bpf)	Su=N60*125 (psf)	HP (tsf)	Su=HP*1000 (psf)	Recommended Su (psf)	Notes
Boring No.:	**B-010-0-24**							
0	3	3	-	-	-	-	250	Required per GDM
3	6	3	15	1875	4.5	4500	1875	
6	8	2	24	3000	4.5	4500	3000	
8	11	3	18	2250	4.0	4000	2250	
11	12	1	18	2250	3.5	3500	2250	
							1781	**Say 1,780 psf**
Boring No.:	**B-011-0-24**							
0	3	3	-	-	-	-	250	Required per GDM
3	3.5	0.5	15	1875	0.5	500	500	
3.5	6	2.5	6	750	4.0	4000	750	
6	8.5	2.5	15	1875	4.5	4500	1875	
8.5	11	2.5	10	1250	4.5	4500	1250	
11	12	1	18	2250	3.0	3000	2250	
							1078	**Say 1,075 psf**

CT No.: 242420 CRO Prepared 3/20/2025
Project: San Signs FY2026 CPI Reviewed 3/21/2025
PID: 117268

Subject: Sign-Support Foundation Average Shear Strength Evaluations
Special Foundation Requirement Evaluation for
approximately 14 ft deep drilled shaft for potential special foundation

Top Depth	Bottom Depth	Thickness	N60	Su=N60*125	HP	Su=HP*1000	Recommended Su	
(ft)	(ft)	(ft)	(bpf)	(psf)	(tsf)	(psf)	(psf)	Notes
Boring No.:	B-003-0-24							
0	3	3	-	-	-	-	250	Required per GDM
3	6	3	6	750	1.25	1250	750	
6	6.7	0.7	6	750	0.5	500	500	
6.7	8	1.3	6	750	1.25	1250	750	
8	14	6	9	1125	1.25	1250	1125	
							791	Say 790 psf

CT No.: 242420 CRO Prepared 3/20/2025
Project: San Signs FY2026 CPI Reviewed 3/21/2025
PID: 117268

Subject: Sign-Support Foundation Average Shear Strength Evaluations
Special Foundation Requirement Evaluation for
approximately 15 ft deep drilled shaft for potential special foundation

Top Depth	Bottom Depth	Thickness	N60	Su=N60*125	HP	Su=HP*1000	Recommended Su	Notes
(ft)	(ft)	(ft)	(bpf)	(psf)	(tsf)	(psf)	(psf)	
Boring No.:	**B-001-0-24**							
0	3	3	-	-	-	-	250	Required per GDM
3	6	3	3	375	1.25	1250	375	
6	8.5	2.5	7	875	2.25	2250	875	
8.5	11	2.5	16	2000	4.5	4500	2000	
11	13.5	2.5	27	3375	3.25	3250	3250	
13.5	15	1.5	6	750	1.5	1500	750	
							1221	**Say 1,220 psf**
Boring No.:	**B-002-0-24**							
0	3	3	-	-	-	-	250	Required per GDM
3	8	5	13	1625	2.5	2500	1625	
8	11.5	3	41	5125	4.5	4500	4500	
11.5	13.5	2	32	4000	4.5	4500	4000	
13.5	15	1.5	17	2125	3.75	3750	2125	
							2315	**Say 2,315 psf**
Boring No.:	**B-003-0-24**							
0	3	3	-	-	-	-	250	Required per GDM
3	6	3	6	750	1.25	1250	750	
6	6.7	0.7	6	750	0.5	500	500	
6.7	8	1.3	6	750	1.25	1250	750	
8	15	7	9	1125	1.25	1250	1125	
							813	**Say 810 psf**
Boring No.:	**B-005-0-24**							
0	3	3	-	-	-	-	250	Required per GDM
3	6.2	1.5	10	1250	2.5	2500	1250	
6.2	8.8	2.6	17	2125	1.5	1500	1500	
8.8	11	2.2	4	500	2.0	2000	500	
11	11.7	0.7	12	1500	1.25	1250	1250	
11.7	13	1.3						Granular seam
13	15	2	3	375	0.5	500	375	
							771	**Say 770 psf**
Boring No.:	**B-006-0-24**							
0	3	3	-	-	-	-	250	Required per GDM
3	6	3	12	1500	4.5	4500	1500	
6	8.5	2.5	30	3750	4.5	4500	3750	
8.5	11	2.5	15	1875	4.5	4500	1900	
11	13.5	2.5	25	3125	4.0	4000	3100	
13.5	15	1.5	15	1875	4.0	4000	1900	
							1998	**Say 1,995 psf**
Boring No.:	**B-007-0-24**							
0	3	3	-	-	-	-	250	Required per GDM
3	6	3	7	875	4.0	4000	875	
6	8.5	2.5	24	3000	4.5	4500	3000	
8.5	11	2.5	15	1875	4.5	4500	1875	
11	14	3	30	3750	4.0	4000	3750	
14	15	1	7	875	1.5	1500	875	
							1846	**Say 1,845 psf**

CT No.: 242420 CRO Prepared 3/20/2025
Project: San Signs FY2026 CPI Reviewed 3/21/2025
PID: 117268

Subject: Sign-Support Foundation Average Shear Strength Evaluations
Special Foundation Requirement Evaluation for
approximately 15 ft deep drilled shaft for potential special foundation

Top Depth	Bottom Depth	Thickness	N60	Su=N60*125	HP	Su=HP*1000	Recommended Su	
(ft)	(ft)	(ft)	(bpf)	(psf)	(tsf)	(psf)	(psf)	Notes
Boring No.:	**B-008-0-24**							
0	3	3	-	-	-	-	250	Required per GDM
3	6	3	6	750	1.0	1000	750	
6	8	2	25	3125	0.25	250	250	
8	11	3	6	750	0.25	250	250	
11	12.5	1.5						Granular seam
12.5	15	2.5	1	125	3.0	3000	125	
							338	**Say 335 psf**
Boring No.:	**B-009-0-24**							
0	3	3	-	-	-	-	250	Required per GDM
3	6	3	4	500	0.5	500	500	
6	8.5	2.5	13	1625	0.25	250	250	
8.5	11	2.5	3	375	1.0	1000	375	
11	13.5	2.5	3	375	0.5	500	375	
13.5	15	1.5	3	375	0.5	500	375	
							354	**Say 350 psf**
Boring No.:	**B-010-0-24**							
0	3	3	-	-	-	-	250	Required per GDM
3	6	3	15	1875	4.5	4500	1875	
6	8	2	24	3000	4.5	4500	3000	
8	11	3	18	2250	4.0	4000	2250	
11	13.5	2.5	18	2250	3.5	3500	2250	
13.5	15	1.5	12	1500	3.0	3000	1500	
							1800	**Say 1,800 psf**
Boring No.:	**B-011-0-24**							
0	3	3	-	-	-	-	250	Required per GDM
3	3.5	0.5	15	1875	0.5	500	500	
3.5	6	2.5	6	750	4.0	4000	750	
6	8.5	2.5	15	1875	4.5	4500	1875	
8.5	11	2.5	10	1250	4.5	4500	1250	
11	12.1	1.1	18	2250	3.0	3000	2250	
12.1	13	0.9						Granular seam
13	15	2	4	500	2.5	2500	500	
							1004	**Say 1,000 psf**

CT No.: 242420 CRO Prepared 3/20/2025
Project: San Signs FY2026 CPI Reviewed 3/21/2025
PID: 117268

Subject: Sign-Support Foundation Average Shear Strength Evaluations
Special Foundation Requirement Evaluation for
approximately 18 ft deep drilled shaft for potential special foundation

Top Depth	Bottom Depth	Thickness	N60	Su=N60*125	HP	Su=HP*1000	Recommended Su	
(ft)	(ft)	(ft)	(bpf)	(psf)	(tsf)	(psf)	(psf)	Notes
Boring No.:	B-004-0-24							
0	3	3	-	-	-	-	250	Required per GDM
3	6	3	6	750	2.0	2000	750	
6	8.5	2.5	12	1500	2.0	2000	1500	
8.5	11	2.5	3	375	2.5	2500	375	
11	13	2	4	500	0.5	500	500	
13	16	3	0	0	0.25	250	125	Using value from below.
16	18	2	1	125	0.31	313	125	
							517	Say 515 psf

CT No.: 242420 CRO Prepared 3/20/2025
Project: San Signs FY2026 CPI Reviewed 3/21/2025
PID: 117268

Subject: Sign-Support Foundation Average Shear Strength Evaluations
Special Foundation Requirement Evaluation for
approximately 20 ft deep drilled shaft for potential special foundation

Top Depth (ft)	Bottom Depth (ft)	Thickness (ft)	N60 (bpf)	Su=N60*125 (psf)	HP (tsf)	Su=HP*1000 (psf)	Recommended Su (psf)	Notes
								Highlight below indicates Su(N60) by alternate method Stroud (1974, 1989) for N60>52.
Boring No.:	**B-001-0-24**							
0	3	3	-	-	-	-	250	Required per GDM
3	6	3	3	375	1.25	1250	375	
6	8.5	2.5	7	875	2.25	2250	875	
8.5	11	2.5	16	2000	4.5	4500	2000	
11	13.5	2.5	27	3375	3.25	3250	3250	
13.5	16	2.5	6	750	1.5	1500	750	
16	18	2	13	1625	1.5	1500	1500	
18	20	2	3	375	1.0	1000	375	
							1141	**Say 1,140 psf**
Boring No.:	**B-002-0-24**							
0	3	3	-	-	-	-	250	Required per GDM
3	8	5	13	1625	2.5	2500	1625	
8	11.5	3	41	5125	4.5	4500	4500	
11.5	13.5	2	32	4000	4.5	4500	4000	
13.5	16	2.5	17	2125	3.75	3750	2125	
16	18	2	22	2750	2.25	2250	2250	
18	20	2	9	1125	1.0	1000	1000	
							2163	**Say 2,160 psf**
Boring No.:	**B-003-0-24**							
0	3	3	-	-	-	-	250	Required per GDM
3	6	3	6	750	1.25	1250	750	
6	6.7	0.7	6	750	0.5	500	500	
6.7	8	1.3	6	750	1.25	1250	750	
8	16	8	9	1125	1.25	1250	1125	
16	18.5	2.5	13	1625	1.0	1000	1000	
18.5	20	1.5	9	1125	0.75	750	750	
							848	**Say 845 psf**
Boring No.:	**B-004-0-24**							
0	3	3	-	-	-	-	250	Required per GDM
3	6	3	6	750	2.0	2000	750	
6	8.5	2.5	12	1500	2.0	2000	1500	
8.5	11	2.5	3	375	2.5	2500	375	
11	13	2	4	500	0.5	500	500	
13	16	3	0	0	0.25	250	125	Using value from below.
16	20	4	1	125	0.31	313	125	
							478	**Say 475 psf**

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Subject: Sign-Support Foundation Average Shear Strength Evaluations
Special Foundation Requirement Evaluation for
approximately 20 ft deep drilled shaft for potential special foundation

Top Depth (ft)	Bottom Depth (ft)	Thickness (ft)	N60 (bpf)	Su=N60*125 (psf)	HP (tsf)	Su=HP*1000 (psf)	Recommended Su (psf)	Notes
								Highlight below indicates Su(N60) by alternate method Stroud (1974, 1989) for N60>52.
Boring No.:	**B-005-0-24**							
0	3	3	-	-	-	-	250	Required per GDM
3	6.2	1.5	10	1250	2.5	2500	1250	
6.2	8.8	2.6	17	2125	1.5	1500	1500	
8.8	11	2.2	4	500	2.0	2000	500	
11	11.7	0.7	12	1500	1.25	1250	1250	
11.7	13	1.3						Granular seam
13	16	3	3	375	0.5	500	375	
16	18	2	4	500	0.5	500	500	Using UU results for B-005-1-24
18	20	2	3	375	0.5	500	375	
							669	**Say 665 psf**
Boring No.:	**B-006-0-24**							
0	3	3	-	-	-	-	250	Required per GDM
3	6	3	12	1500	4.5	4500	1500	
6	8.5	2.5	30	3750	4.5	4500	3750	
8.5	11	2.5	15	1875	4.5	4500	1900	
11	13.5	2.5	25	3125	4.0	4000	3100	
13.5	17	3.5	15	1875	4.0	4000	1900	
17	18.5	1.5	58	6629	4.5	4500	4500	Su(N60) by Stroud (1974, 1989), f1=5.4 for PI=20
18.5	20	1.5	13	1625	4.5	4500	1625	
							2148	**Say 2,145 psf**
Boring No.:	**B-007-0-24**							
0	3	3	-	-	-	-	250	Required per GDM
3	6	3	7	875	4.0	4000	875	
6	8.5	2.5	24	3000	4.5	4500	3000	
8.5	11	2.5	15	1875	4.5	4500	1875	
11	14	3	30	3750	4.0	4000	3750	
14	15.5	1.5	7	875	1.5	1500	875	
15.5	20	4.5	10	1250	1.0	1000	1000	
							1631	**Say 1,630 psf**
Boring No.:	**B-008-0-24**							
0	3	3	-	-	-	-	250	Required per GDM
3	6	3	6	750	1.0	1000	750	
6	8	2	25	3125	0.25	250	250	
8	11	3	6	750	0.25	250	250	
11	12.5	1.5						Granular seam
12.5	16	3.5	1	125	3.0	3000	125	
16	18.5	2.5	10	1250	4.0	4000	1250	
18.5	21	2.5	16	2000	3.0	3000	2000	
							657	**Say 655 psf**

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Special Foundation Requirement Evaluation for
approximately 20 ft deep drilled shaft for potential special foundation

Top Depth (ft)	Bottom Depth (ft)	Thickness (ft)	N60 (bpf)	Su=N60*125 (psf)	HP (tsf)	Su=HP*1000 (psf)	Recommended Su (psf)	Notes
								Highlight below indicates Su(N60) by alternate method Stroud (1974, 1989) for N60>52.
Boring No.:	**B-009-0-24**							
0	3	3	-	-	-	-	250	Required per GDM
3	6	3	4	500	0.5	500	500	
6	8.5	2.5	13	1625	0.25	250	250	
8.5	11	2.5	3	375	1.0	1000	375	
11	13.5	2.5	3	375	0.5	500	375	
13.5	16	2.5	3	375	0.5	500	375	
16	18.5	2.5	3	375	0.5	500	375	
18.5	20	1.5	1	125	0.25	250	125	
							341	**Say 340 psf**
Boring No.:	**B-010-0-24**							
0	3	3	-	-	-	-	250	Required per GDM
3	6	3	15	1875	4.5	4500	1875	
6	8	2	24	3000	4.5	4500	3000	
8	11	3	18	2250	4.0	4000	2250	
11	13.5	2.5	18	2250	3.5	3500	2250	
13.5	16	2.5	12	1500	3.0	3000	1500	
16	17.6	1.6	16	2000	1.0	1000	1000	
17.6	18.5	0.9						Granular seam
18.5	20	1.5	3	375	1.0	1000	375	
							1605	**Say 1,605 psf**
Boring No.:	**B-011-0-24**							
0	3	3	-	-	-	-	250	Required per GDM
3	3.5	0.5	15	1875	0.5	500	500	
3.5	6	2.5	6	750	4.0	4000	750	
6	8.5	2.5	15	1875	4.5	4500	1875	
8.5	11	2.5	10	1250	4.5	4500	1250	
11	12.1	1.1	18	2250	3.0	3000	2250	
12.1	13	0.9						Granular seam
13	16	3	4	500	2.5	2500	500	
16	18.5	2.5	9	1125	1.5	1500	1125	
18.5	20	1.5	3	375	1.5	1500	375	
							944	**Say 940 psf**

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Subject: Sign-Support Foundation Average Shear Strength Evaluations
Special Foundation Requirement Evaluation for
approximately 25 ft deep drilled shaft for potential special foundation

Top Depth (ft)	Bottom Depth (ft)	Thickness (ft)	N60 (bpf)	Su=N60*125 (psf)	HP (tsf)	Su=HP*1000 (psf)	Recommended Su (psf)	Notes
								Highlight below indicates Su(N60) by alternate method Stroud (1974, 1989) for N60>52.
Boring No.:	**B-001-0-24**							
0	3	3	-	-	-	-	250	Required per GDM
3	6	3	3	375	1.25	1250	375	
6	8.5	2.5	7	875	2.25	2250	875	
8.5	11	2.5	16	2000	4.5	4500	2000	
11	13.5	2.5	27	3375	3.25	3250	3250	
13.5	16	2.5	6	750	1.5	1500	750	
16	18	2	13	1625	1.5	1500	1500	
18	23	5	3	375	1.0	1000	375	
23	25	2	15	1875	4.5	4500	1875	
							1108	**Say 1,105 psf**
Boring No.:	**B-002-0-24**							
0	3	3	-	-	-	-	250	Required per GDM
3	8	5	13	1625	2.5	2500	1625	
8	11.5	3	41	5125	4.5	4500	4500	
11.5	13.5	2	32	4000	4.5	4500	4000	
13.5	16	2.5	17	2125	3.75	3750	2125	
16	18	2	22	2750	2.25	2250	2250	
18	24	6	9	1125	1.0	1000	1000	
24	25	1	68	8060	4.5	4500	4500	Su(N60) by Stroud (1974, 1989), f1=5.6 for PI=7
							2069	**Say 2,065 psf**
Boring No.:	**B-003-0-24**							
0	3	3	-	-	-	-	250	Required per GDM
3	6	3	6	750	1.25	1250	750	
6	6.7	0.7	6	750	0.5	500	500	
6.7	8	1.3	6	750	1.25	1250	750	
8	16	8	9	1125	1.25	1250	1125	
16	18.5	2.5	13	1625	1.0	1000	1000	
18.5	25	6.5	9	1125	0.75	750	750	
							828	**Say 825 psf**
Boring No.:	**B-004-0-24**							
0	3	3	-	-	-	-	250	Required per GDM
3	6	3	6	750	2.0	2000	750	
6	8.5	2.5	12	1500	2.0	2000	1500	
8.5	11	2.5	3	375	2.5	2500	375	
11	13	2	4	500	0.5	500	500	
13	16	3	0	0	0.25	250	125	Using value from below.
16	25	9	1	125	0.31	313	125	
							408	**Say 405 psf**

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Special Foundation Requirement Evaluation for
approximately 25 ft deep drilled shaft for potential special foundation

Top Depth (ft)	Bottom Depth (ft)	Thickness (ft)	N60 (bpf)	Su=N60*125 (psf)	HP (tsf)	Su=HP*1000 (psf)	Recommended Su (psf)	Notes
								Highlight below indicates Su(N60) by alternate method Stroud (1974, 1989) for N60>52.
Boring No.:	**B-005-0-24**							
0	3	3	-	-	-	-	250	Required per GDM
3	6.2	1.5	10	1250	2.5	2500	1250	
6.2	8.8	2.6	17	2125	1.5	1500	1500	
8.8	11	2.2	4	500	2.0	2000	500	
11	11.7	0.7	12	1500	1.25	1250	1250	
11.7	13	1.3						Granular seam
13	16	3	3	375	0.5	500	375	
16	18	2	4	500	0.5	500	500	Using UU results for B-005-1-24
18	25	7	3	375	0.5	500	375	
							602	**Say 600 psf**
Boring No.:	**B-006-0-24**							
0	3	3	-	-	-	-	250	Required per GDM
3	6	3	12	1500	4.5	4500	1500	
6	8.5	2.5	30	3750	4.5	4500	3750	
8.5	11	2.5	15	1875	4.5	4500	1900	
11	13.5	2.5	25	3125	4.0	4000	3100	
13.5	17	3.5	15	1875	4.0	4000	1900	
17	18.5	1.5	58	6629	4.5	4500	4500	Su(N60) by Stroud (1974, 1989), f1=5.4 for PI=20
18.5	20.5	2	13	1625	4.5	4500	1625	
20.5	23	2.5	33	4125	2.75	2750	2750	
23	25	2	6	750	2	2000	750	
							2086	**Say 2085 psf**
Boring No.:	**B-007-0-24**							
0	3	3	-	-	-	-	250	Required per GDM
3	6	3	7	875	4.0	4000	875	
6	8.5	2.5	24	3000	4.5	4500	3000	
8.5	11	2.5	15	1875	4.5	4500	1875	
11	14	3	30	3750	4.0	4000	3750	
14	15.5	1.5	7	875	1.5	1500	875	
15.5	23	7.5	10	1250	1.0	1000	1000	
23	25	2	1	125	1.0	1000	125	
							1435	**Say 1,435 psf**
Boring No.:	**B-008-0-24**							
0	3	3	-	-	-	-	250	Required per GDM
3	6	3	6	750	1.0	1000	750	
6	8	2	25	3125	0.25	250	250	
8	11	3	6	750	0.25	250	250	
11	12.5	1.5						Granular seam
12.5	16	3.5	1	125	3.0	3000	125	
16	18.5	2.5	10	1250	4.0	4000	1250	
18.5	21	2.5	16	2000	3.0	3000	2000	
21	25	4	4	500	0.25	250	250	
							588	**Say 585 psf**

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Special Foundation Requirement Evaluation for
approximately 25 ft deep drilled shaft for potential special foundation

Top Depth (ft)	Bottom Depth (ft)	Thickness (ft)	N60 (bpf)	Su=N60*125 (psf)	HP (tsf)	Su=HP*1000 (psf)	Recommended Su (psf)	Notes
								Highlight below indicates Su(N60) by alternate method Stroud (1974, 1989) for N60>52.
Boring No.:	**B-009-0-24**							
0	3	3	-	-	-	-	250	Required per GDM
3	6	3	4	500	0.5	500	500	
6	8.5	2.5	13	1625	0.25	250	250	
8.5	11	2.5	3	375	1.0	1000	375	
11	13.5	2.5	3	375	0.5	500	375	
13.5	16	2.5	3	375	0.5	500	375	
16	18.5	2.5	3	375	0.5	500	375	
18.5	25	6.5	1	125	0.25	250	125	
							298	**Say 295psf**
Boring No.:	**B-010-0-24**							
0	3	3	-	-	-	-	250	Required per GDM
3	6	3	15	1875	4.5	4500	1875	
6	8	2	24	3000	4.5	4500	3000	
8	11	3	18	2250	4.0	4000	2250	
11	13.5	2.5	18	2250	3.5	3500	2250	
13.5	16	2.5	12	1500	3.0	3000	1500	
16	17.6	1.6	16	2000	1.0	1000	1000	
17.6	18.5	0.9						Granular seam
18.5	21	2.5	3	375	1.0	1000	375	
21	25	4	1	125	0.25	250	125	
							1309	**Say 1,305 psf**
Boring No.:	**B-011-0-24**							
0	3	3	-	-	-	-	250	Required per GDM
3	3.5	0.5	15	1875	0.5	500	500	
3.5	6	2.5	6	750	4.0	4000	750	
6	8.5	2.5	15	1875	4.5	4500	1875	
8.5	11	2.5	10	1250	4.5	4500	1250	
11	12.1	1.1	18	2250	3.0	3000	2250	
12.1	13	0.9						Granular seam
13	16	3	4	500	2.5	2500	500	
16	18.5	2.5	9	1125	1.5	1500	1125	
18.5	25	6.5	3	375	1.5	1500	375	
							826	**Say 825 psf**

APPENDIX B

GEOTECHNICAL ENGINEERING DESIGN CHECKLISTS

I. Geotechnical Design Checklists	
Project: SAN Signs FY 2026	PDP Path:
PID: 117268	Review Stage:

Checklist	Included in This Submission
II. Reconnaissance and Planning	✓
III. A. Centerline Cuts III. B. Embankments III. C. Subgrade	
IV. A. Foundations of Structures IV. B. Retaining Wall	✓
V. A. Landslide Remediation V. B. Rockfall Remediation V. C. Wetland or Peat Remediation V. D. Underground Mine Remediation V. E. Surface Mine Remediation V. F. Karst Remediation	
VI. A. Geotechnical Profile VI. D. Geotechnical Reports	✓

II. Reconnaissance and Planning Checklist

C-R-S:	SAN Signs FY 2026	PID:	117268	Reviewer:	CPI	Date:	4/29/2025

Reconnaissance		(Y/N/X)	Notes:
1	Based on Section 302.1 in the SGE, have the necessary plans been developed in the following areas prior to the commencement of the subsurface exploration reconnaissance:	N	List of reference sign number and SLM was provided.
	Roadway plans		
	Structures plans		
	Geohazards plans		
2	Have the resources listed in Section 302.2.1 of the SGE been reviewed as part of the office reconnaissance?	Y	
3	Have all the features listed in Section 302.3 of the SGE been observed and evaluated during the field reconnaissance?	Y	
4	If notable features were discovered in the field reconnaissance, were the GPS coordinates of these features recorded?	X	

Planning - General		(Y/N/X)	Notes:
5	In planning the geotechnical exploration program for the project, have the specific geologic conditions, the proposed work, and historic subsurface exploration work been considered?	Y	
6	Has the ODOT Transportation Information Mapping System (TIMS) been accessed to find all available historic boring information and inventoried geohazards?	Y	
7	Have the borings been located to develop the maximum subsurface information while using a minimum number of borings, utilizing historic geotechnical explorations to the fullest extent possible?	Y	
8	Have the topography, geologic origin of materials, surface manifestation of soil conditions, and any other special design considerations been utilized in determining the spacing and depth of borings?	Y	
9	Have the borings been located so as to provide adequate overhead clearance for the equipment, clearance of underground utilities, minimize damage to private property, and minimize disruption of traffic, without compromising the quality of the exploration?	Y	

II. Reconnaissance and Planning Checklist

Planning - General ✓	(Y/N/X)	Notes:
10 Have the scaled boring plans, showing all project and historic borings, and a schedule of borings in tabular format, been submitted to the District Geotechnical Engineer?	Y	
The schedule of borings should present the following information for each boring:		
a. exploration identification number	Y	
b. location by station and offset	N	Station and offset not provided.
c. estimated amount of rock and soil, including the total for each for the entire program.	Y	

Planning – Exploration Number	(Y/N/X)	Notes:
11 Have the coordinates, stations and offsets of all explorations (borings, soundings, test pits, etc.) been identified?	N	Station and offset not provided.
12 Has each exploration been assigned a unique identification number, in the following format X-ZZZ-W-YY, as per Section 303.2 of the SGE?	Y	
13 When referring to historic explorations that did not use the identification scheme in 12 above, have the historic explorations been assigned identification numbers according to Section 303.2 of the SGE?	Y	

II. Reconnaissance and Planning Checklist

Planning – Boring Types		(Y/N/X)	Notes:
14	Based on Sections 303.3 to 303.7.6 of the SGE, have the location, depth, and sampling requirements for the following boring types been determined for the project?		
	Check all boring types utilized for this project:		
	Existing Subgrades (Type A)		
	Roadway Borings (Type B)		
	Embankment Foundations (Type B1)		
	Cut Sections (Type B2)		
	Sidehill Cut Sections (Type B3)		
	Sidehill Cut-Fill Sections (Type B4)		
	Sidehill Fill Sections on Unstable Slopes (Type B5)		
	Geohazard Borings (Type C)		
	Lakes, Ponds, and Low-Lying Areas (Type C1)		
	Peat Deposits, Compressible Soils, and Low Strength Soils (Type C2)		
	Uncontrolled Fills, Waste Pits, and Reclaimed Surface Mines (Type C3)		
	Underground Mines (C4)		
	Landslides (Type C5)		
	Rock Slope (Type C6)		
	Karst (Type C7)		
	Proposed Underground Utilities (Type D)		
	Structure Borings (Type E)		
	Bridges (Type E1)		
	Culverts (Type E2 a,b,c)		
	Retaining Walls (Type E3 a and b)		
	Noise Barrier (Type E4)		
	CCTV & High Mast Lighting Towers (Type E5)	✓	
	Buildings and Salt Domes (Type E6)		

IV.A Foundations of Structures Checklist

C-R-S:	SAN Signs FY 2026	PID:	117268	Reviewer:	CPI	Date:	4/29/2025

Use this Checklist in conjunction with the bridge foundation design guidance in GDM Section 1300
If you do not have such a foundation or structure on the project, you do not have to fill out this checklist.

	Soil and Bedrock Strength Data	(Y/N/X)	Notes:
1	Has the shear strength of the foundation soils been determined?	Y	
	Check method used:		
	laboratory shear tests		
	estimation from SPT or field tests	✓	
2	Have sufficient soil shear strength, consolidation, and other parameters been determined so that the required allowable loads for the foundation/structure can be designed?	Y	
3	Has the shear strength of the foundation bedrock been determined?	X	
	Check method used:		
	laboratory shear tests		
	other (describe other methods)		
	Spread Footings	**(Y/N/X)**	**Notes:**
4	Are there spread footings on the project? If no, go to Question 11	N	
5	Have the recommended bottom of footing elevation and reason for this recommendation been provided?		
a.	Has the recommended bottom of footing elevation taken scour from streams or other water flow into account?		
6	Were representative sections analyzed for the entire length of the structure for the following:		
a.	factored bearing resistance?		
b.	factored sliding resistance?		
c.	eccentric load limitations (overturning)?		
d.	predicted settlement?		
e.	overall (global) stability?		
7	Has the need for a shear key been evaluated?		
a.	If needed, have the details been included in the plans?		
8	If special conditions exist (e.g. geometry, sloping rock, varying soil conditions), was the bottom of footing “stepped” to accommodate them?		
9	Have the Service I and Maximum Strength Limit States for bearing pressure on soil or rock been provided?		

IV.A Foundations of Structures Checklist

Spread Footings	(Y/N/X)	Notes:
10 If weak soil is present at the proposed foundation level, has the removal / treatment of this soil been developed and included in the plans?		
a. Have the procedure and quantities related to this removal / treatment been included in the plans?		
Pile Structures	**(Y/N/X)**	**Notes:**
11 Are there piles on the project? If no, go to Question 17	N	
12 Has an appropriate pile type been selected?		
Check the type selected:		
H-pile (driven)		
H-pile (prebored)		
Cast In-place Reinforced Concrete Pipe		
Micropile		
Continuous Flight Auger (CFA)		
other (describe other types)		
13 Have the estimated pile length or tip elevation and section (diameter) based on either the Ultimate Bearing Value (UBV) or the depth to top of bedrock been specified? Indicate method used.		
14 If scour is predicted, has pile resistance in the scour zone been neglected?		
15 Has a wave equation drivability analysis been performed as per BDM 305.3.1.2 to determine whether the pile can be driven to either the UBV, the pile tip elevation, or refusal on bedrock without overstressing the pile?		
16 If required for design, have sufficient soil parameters been provided and calculations performed to evaluate the:		
a. Nominal unit tip resistance and maximum settlement of the piles?		
b. Nominal unit side resistance for each contributing soil layer and maximum deflection of the piles?		
c. Downdrag load on piles driven through new embankment or compressible soil layers, as per BDM 305.3.2.2?		
d. Potential for and impact of lateral squeeze from soft foundation soils?		

IV.A Foundations of Structures Checklist

Pile Structures		(Y/N/X)	Notes:
17	If piles are to be driven to strong bedrock (Q_u >7.5 ksi) or through very dense granular soils or overburden containing boulders, have "pile points" been recommended in order to protect the tips of the steel piling, as per BDM 305.3.5.6?		
18	If subsurface obstacles exist, has preboring been recommended to avoid these obstructions?		
19	If piles will be driven through 15 feet or more of new embankment, has preboring been specified as per BDM 305.3.5.7?		

IV.A Foundations of Structures Checklist

Drilled Shafts	(Y/N/X)	Notes:
20 Are there drilled shafts on the project? If no, go to the next checklist.	Y	
21 Have the drilled shaft diameter and embedment length been specified?	X	Provided indication of whether a special foundation is needed.
22 Have the recommended drilled shaft diameter and embedment been developed based on the nominal unit side resistance and nominal unit tip resistance for vertical loading situations?	X	Provided indication of whether a special foundation is needed.
23 For shafts undergoing lateral loading, have the following been determined:	X	Provided indication of whether a special foundation is needed.
a. total factored lateral shear?		
b. total factored bending moment?		
c. maximum deflection?		
d. reinforcement design?		
24 If a bedrock socket is required, has a minimum rock socket length equal to 1.5 times the rock socket diameter been used, as per BDM 305.4.2?	X	
25 Generally, bedrock sockets are 6" smaller in diameter than the soil embedment section of the drilled shaft. Has this factor been accounted for in the drilled shaft design?	X	
26 If scour is predicted, has shaft resistance in the scour zone been neglected?	X	
27 Has the site been assessed for groundwater influence?	Y	Design is based on groundwater at 3 feet deep regardless of encountered conditions.
a. If yes, and if artesian flow is a potential concern, does the design address control of groundwater flow during construction?	X	
28 Have all the proper items been included in the plans for integrity testing?	X	Provided indication of whether a special foundation is needed.
29 If special construction features (e.g., slurry, casing, load tests) are required, have all the proper items been included in the plans?	X	Indicated in the report the need for casing.
30 If necessary, have wet construction methods been specified?	X	
General	(Y/N/X)	Notes:
31 Has the need for load testing of the foundations been evaluated?	X	
a. If needed, have details and plan notes for load testing been included in the plans?	X	

VI.B. Geotechnical Reports

C-R-S:	SAN Signs FY 2026	PID:	117268	Reviewer:	CPI	Date:	8/5/2025

General		(Y/N/X)	Notes:
1	Has an electronic copy of all geotechnical submissions been provided to the District Geotechnical Engineer (DGE)?	Y	
2	Has the first complete version of a geotechnical report being submitted been labeled as 'Draft'?	Y	
3	Subsequent to ODOT's review and approval, has the complete version of the revised geotechnical report being submitted been labeled 'Final'?	Y	
4	Has the boring data been submitted in a native format that is DIGGS (Data Interchange for Geotechnical and Geoenvironmental) compatable? gINT files meet this demand?	Y	The gINT project file is being submitted with this final report.
5	Does the report cover format follow ODOT's Brand and Identity Guidelines Report Standards found at http://www.dot.state.oh.us/brand/Pages/default.aspx ?	Y	
6	Have all geotechnical reports being submitted been titled correctly as prescribed in Section 706.1 of the SGE?	Y	
Report Body		(Y/N/X)	Notes:
7	Do all geotechnical reports being submitted contain the following:		
a.	an Executive Summary as described in Section 706.2 of the SGE?	Y	
b.	an Introduction as described in Section 706.3 of the SGE?	Y	
c.	a section titled "Geology and Observations of the Project," as described in Section 706.4 of the SGE?	Y	
d.	a section titled "Exploration," as described in Section 706.5 of the SGE?	Y	
e.	a section titled "Findings," as described in Section 706.6 of the SGE?	Y	
f.	a section titled "Analyses and Recommendations," as described in Section 706.7 of the SGE?	Y	
Appendices		(Y/N/X)	Notes:
8	Do all geotechnical reports being submitted contain all applicable Appendices as described in Section 706.8 of the SGE?	Y	
9	Do the Appendices present a site Boring Plan showing all boring locations as described in Section 706.8.1 of the SGE?	Y	

VI.B. Geotechnical Reports

Appendices		(Y/N/X)	Notes:
10	Do the Appendices include boring logs and color pictures of rock, if applicable, as described in Section 706.8.2 of the SGE?	Y	
11	Do the Appendices include reports of undisturbed test data as described in Section 706.8.3 of the SGE?	X	
12	Do the Appendices include calculations in a logical format to support recommendations as described in Section 706.8.4 of the SGE?	Y	

APPENDIX C

HISTORIC BORINGS

1943 Year

Job No.

Changes

014706

County SANDUSKY

Project Identification SAN-20-(11,44-15,56) SAN-275-K(PT)-E-1, E-2

File No. FEP-34 5A-030/4C-64

Proj. No.

Begin Sta. End Sta. Length 4.13 Miles

Drafting By GRS, RAL, FRR

Completion Date

Drafting Hours

Topo Sheet

	RECON	AUGER	CORE	DRIVE ROD	RESISTIVITY
By		F.R.R.			
Dates		8-20-41			
No. of Holes or Soundings					
Footage		403,5			
Samples Tested		82			

☐ Samples Accounted For

Transmittal Date 11-30-43

No. of Tracings 2 Filed with year 4-M-36

Revisions

Remarks FET-36

Refer to

DO NOT WRITE IN THIS SPACE

Length	Auger Data			Core Data			Drive Rod Data		Resistivity
	No. of Holes	Footage	Samples	No. of Holes	Footage	Samples	No. of Soundings	Footage	No. of Locations
4.13		403,5	82	—	—	—	—	—	—

* See Reverse Side

SUMMARY OF TESTS ON SUBGRADE SAMPLES

Sandusky Co.

S.H. 275

Sec. K(PH), E-2, E-1, N(PH).

3/4

Lab. No. So.	Field Sample No.	Station No.	Represents (Feet)	Mechanical Analysis					Physical Characteristics			S.H.T.L. Class	B.P.R. Class
				Lgg. %	C. Sand %	F. Sand %	Silt %	Clay %	Liquid Limit	Plasticity Index	Water Content		
34824	40	179+00, LR	4.0-5.0	9.2	6.7	9.6	31.2	43.3	38.7	19.1	22.0		
34825	41	185+00, LR	0.5-1.5	2.3	7.5	10.9	40.5	38.8	47.7	18.4	30.9	15	A-7
34914	47	282+00, 25R	3.0-5.0	1.1	7.4	6.7	24.0	60.8	40.7	18.0	23.6		
34915	48	279+00, L	1.0-2.0	3.5	5.6	9.5	31.7	49.7	35.5	15.5	21.0	(Cont'd.)	
34918	51	273+00, L	0.8-2.0	1.5	19.2	5.7	42.3	26.3	36.2	15.0	20.2		
34921	54	270+00, L	6.0-7.0	—	1.8	7.8	34.4	54.0	40.3	18.7	38.1		
34926	59	252+00, L	0.5-1.5	0.4	9.1	10.3	47.7	32.5	38.3	16.1	17.9		
34934	67	231+00, L	2.5-5.0	—	0.6	8.2	50.4	39.8	38.4	18.9	20.1		
34938	71	225+00, L	3.0-5.0	3.0	11.6	10.7	32.3	42.4	34.4	17.5	15.2		
34940	73	223+00, L	1.0-2.0	3.1	9.5	14.6	39.7	33.1	40.3	14.9	23.1		
34944	77	213+00, L	1.5-3.0	2.6	10.3	12.4	33.4	41.3	38.0	17.1	21.4		
34948	81	277+50, L	1.5-4.0	—	0.2	1.6	60.4	37.8	35.6	16.5	27.8		
34827	1	69+00, L	0.5-2.5	1.4	7.6	10.3	41.8	38.9	42.3	15.0	26.2		
		Totals No. Det.	26	45.3	140.2	295.1	1046.2	1073.2	1003.8	442.5	541.1		
		Av.		1.7	5.4	11.4	40.2	41.3	38.6	17.2	21.6		
34786	2	69+00, L	2.5-4.5	—	3.2	10.4	34.6	51.8	40.7	20.3	27.9		
34789	5	75+00, L	2.5-5.0	—	2.0	7.6	26.6	63.8	49.1	27.6	24.1		
34791	7	78+00, L	4.5-5.0	—	1.0	15.4	37.0	46.6	40.4	19.9	25.2	16	A-7
34802	18	106+00, L	1.5-5.0	2.8	1.9	6.8	32.2	51.3	44.3	22.7	17.2		
34804	20	109+00, L	2.5-5.0	0.6	1.7	5.9	40.5	51.3	41.1	20.7	23.3		
34805	21	115+00, L	1.5-4.5	0.8	3.4	7.7	32.1	56.0	45.8	23.5	23.8		
34806	22	121+00, L	0.5-2.0	—	2.2	8.8	38.0	51.0	46.1	21.5	21.8		
34807	23	127+00, L	0.5-5.0	0.3	3.0	7.3	32.3	57.1	41.9	20.0	—		
34826	42	188+00, LR	1.5-4.0	3.7	8.5	10.2	34.4	43.2	40.4	20.3	22.2		
34917	50	276+00, L	1.0-5.0	2.6	15.8	6.9	40.3	34.4	40.8	21.4	20.9		
34922	53	267+00, L	2.0-4.0	—	0.2	6.0	55.8	38.0	41.5	22.5	24.7		
34923	56	261+00, L	4.0-5.0	—	0.4	8.6	53.0	38.0	39.5	20.9	23.4		
34924	57	258+00, L	1.8-5.0	—	0.6	11.2	42.2	46.0	41.5	22.1	19.7		
34925	58	255+00, L	2.0-4.0	—	0.2	7.8	58.0	34.0	37.9	20.2	21.1		
34927	60	252+00, L	2.5-5.0	—	0.8	9.4	46.8	43.0	40.4	20.0	21.5		

SOIL PROFILE
SANDUSKY CO., OHIO
S.H. 275
SEC. K(PT.), E-1, E-2, & N(PT.)
STATE HIGHWAY TESTING LABORATORY.
O. S. U. CAMPUS, COLUMBUS, OHIO

2/2

640 630 620

STA. 132 TO STA. 159 - VARIABLE SILT SUBGRADE. DEEP LONGITUDINAL DRAINAGE RECOMMENDED.

132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164

630 620

WATER

TOP OF LIMESTONE

164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196

640 630 620

TOP OF LIMESTONE

STA. 196 TO STA. 216 - VARIABLE SILT SUBGRADE. LONGITUDINAL DRAINAGE TO ROCK RECOMMENDED.

STA. 216 TO STA. 221+50 - EXCEPTIONALY UNSTABLE SILT SUBGRADE. THE USE OF A POROUS, WELL DRAINED, BLANKET COURSE APPROXIMATELY 18 INCHES THICK RECOMMENDED.

196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228

640 630 620 610

STA. 221+50 TO STA. 235 - VARIABE SILT SUBGRADE. DEEP LONGITUDINAL DRAINAGE RECOMMENDED.

228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260

630 620 610

WATER

STA. 253 TO STA. 272 - VARIABLE SILT UNDERLAIN BY IMPERVIOUS CLAY SUBGRADE. LONGITUDINAL DRAINAGE TO PREVENT WATER BEING TRAPPED IN THE SILT BY THE IMPERVIOUS CLAY RECOMMENDED.

MUSKELLUNGE CREEK

LOG OF AUGER HOLE 25' RT.

FLOW LINE

EXISTING FILL - APPROX. 8' HIGH AT HIGHEST PLACE

260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290

1955 Year

Job No. _____

Changes _____

014707

County SANDUSKY

Project Identification SAN-20-14.60

File No. FEP-34 SA-030, 4C-64

Proj. No. _____

Begin Sta. 774+00 End Sta. 1141+00 Length 6.95 Miles

	RECON	AUGER	CORE	DRIVE ROD	RESISTIVITY
By		T.G.W, N.P.L.			
Dates		2/1-15/55			
No. of Holes or Soundings					
Footage		2255.5			
Samples Tested		345			

Drafting By E.B.W, B.P.H.

Completion Date 3-10-55

Drafting Hours

Topo Sheet

☐ Samples Accounted For

Transmittal Date 3-15-55

No. of Tracings 6 Filed with year 4-M-36

Revisions _____

Remarks FET 36

Refer to _____

DO NOT WRITE IN THIS SPACE

Length	Auger Data			Core Data			Drive Rod Data		Resistivity
	No. of Holes	Footage	Samples	No. of Holes	Footage	Samples	No. of Soundings	Footage	No. of Locations
6.95		2255.5	345	—	—	—	—	—	—

* See Reverse Side

2/9/65

90 Sta 1050+0 ℄

7-6 21 175 — 0.0-2.0 Topsoil
2.0-6.5 Brown clay & silt
6a 27 176 — 6.5-10. Brown silt

91 Sta 1053+0 ℄

0.0-1.0 Topsoil
7-6 28 177 — 1.0-5.0 Brown silt clay
4b 28 178 — 5.0-7.0 Brown silt
7a 29 179 — 7.0-10. Brown clay & some silt

92 Sta 1056+55 ℄

0.0-1.0 Topsoil
7-6 23 180 — 1.0-6.5 Brown & Gray silt clay
6a 31 181 — 6.5-10 Brown clay some silt

Water at 7.0 feet

2/6/55

84 Sta 1033+00 ℄

0.0-0.5 Topsoil

7-6 23
159 0.5-2.0 Brown silt clay

40w @ 30
160 2.0-4.5 Brown silt

30w 10 23
4.5-7.0 Brown sand

40w @ 26
162 7.0-12. Stiff clay + some silt

85 Sta 1035+00 ℄

0.0-0.5 Topsoil

6w 22
163 0.5-2.5 Brown + Gray silt clay

3w 19
164 2.5-7.0 Brown sand

6w 13
165 7.0-12. Gray clay

86 Sta 1038+00 ℄

0.0-1.0 Topsoil

6w 22
166 1.0-3.0 Brown silt clay

40w @ 24
167 3.0-7.0 Brown fine sand + silt

4w @ 25
168 7.0-10 Gray clay

2/8/85

75 Sta 1004+0 Ø

	0.0-1.0	Topsoil
4a 18 131	1.0-2.5	Brown silt clay
3a 132 22	2.5-6.0	Brown sand
6a 24 133	6.0-10.	Gray silt + clay

76 Sta 1007+0 Ø 12

	0.0-1.0	Topsoil
3a 0 18 134	1.0-2.0	Dark sand + silt
4a 25 135	2.0-4.5	Brown sand
3a 27 136	4.5-7.0	Gray sand
4a 29 137	7.0-12.	Gray clay + silt

77 Sta 1010+0 Ø 12

	0.0-1.0	Topsoil
6a 0 25 138	1.0-2.5	Brown silty clay
3a 139 18	2.5-5.0	Brown fine sand
6a 40 26	5.0-12.	Gray clay + silt

9. 2/24/55

25 Sta 876+0 ℄

0.0-1.0 Topsoil

Gr 21
62 1.0-4.0 Brown silt clay

Gr 25
63 4.0-9.0 Brown silt

Water at 5.5 feet

26 Sta 879+0 ℄

0.0-1.0 Topsoil

Gr
62 1.0-4.0 Brown silt clay

Gr
63 4.0-7.0 Brown silt (laminated)

Gr 26
64 7.0-9.0 Gray silt

Water at 6.0 feet

8 2/2/55

22 Sta 867+0 ℄

	0.0-1.0	Topsoil
6b 55 23	1.0-3.0	Brown silt clay (some
6b 56 27	3.0-7.0	Brown silt
6a 57 28	7.0-10	Brown silt + fine sand

23 Sta 870+0 ℄

	0.0-1.0	Topsoil
4b 58 19	1.0-3.0	Brown silt some clay
4b 59 21	3.0-6.5	Brown silt
6a 60 17	6.5-9.0	Reddish brown clay

24 Sta 873+0 ℄

4b	0.0-1.0	Topsoil
4b 58	1.0-3.0	Brown silt + clay
4b 59	3.0-7.0	Brown silt
6b 61 26	7.0-10	Gray clay

7 2/7/55

	19	Sta 858+0	
		0.0-1.0	Topsoil
7-6	48	22 1.0-2.5	Brown silt clay
6a	49	14 2.5-8.5	Brown silt clay
	20	Sta 861+10	
		0.0-1.0	Topsoil
7-6	50	22 1.0-4.0	Brown silt clay
6b	51	19 4.0-9.5	Brown silt clay
	21	Sta 864+0	
		0.0-1.0	Topsoil
7-6	52	25 1.0-3.5	Brown silt clay
6b	53	27 3.5-7.0	Brown silt some
6a	54	18 7.0-10.0	Brown clay

SUMMARY OF TESTS ON SOIL PROFILE SUBGRADE SAMPLES

County, Rt. No., Section Sandusky County

SAN - 20 - 14.60

Note Book No. F.16

Lab. No. So.	Field No.	Station No.	Represents Feet	Mechanical Analysis						Physical Charact			Density Data			Class. No.	
				Agg. %	C Sand %	F Sand %	Silt %	Clay %		L.L.	P.I.	Water Cont.	Comp.	Opt.	Max. Dry Wt.	SHTL	HRB
9547	127	998+00	5.5-10	0	0	2	46	50		23	14	29				A-6a	A-6(9)
9550	130	1001+00	6-10	0	0	4	54	42		30	13	25					
9553	133	1004+00	6-10	0	0	3	56	41		30	14	24					
9558	138	1010+00	1-4.5	0	3	49	27	21		24	11	15					
9560	140	1010+00	5-12	0	0	2	55	43		31	14	26					
9562	142	1013+00 Rt	5-8	0	0	1	57	42		34	14	29					
9563	143	1013+00 Lt	8-12	0	0	1	67	32		33	14	33					
9569	149	1021+00	7-12	0	0	1	44	55		34	15	26					
9571	151	1024+00	4-6.5	0	0	5	53	42		30	11	26					
9573	153	1027+00	4-9.5	0	1	48	29	22		26	11	20					
9585	165	1035+00	7-12.5	0	0	13	44	43		27	11	13					
9586	166	1038+00	1-3	0	1	28	55	16		26	12	22					
9594	174	1047+00	6.5-10	0	3	6	51	40		26	11	21					
9596	176	1050+00	6.5-10	0	1	6	52	41		30	12	27					
9599	179	1053+00	2-10	0	0	1	55	44		30	13	29					
9601	181	1056+00	6.5-10	0	0	1	51	48		32	15	31					
9603	183	1059+00	5.5-10	0	0	1	49	50		32	13	28					
9605	185	1062+00	4.5-10	0	0	1	53	46		30	12	27					
9608	187	1065+00	4-10	0	0	1	59	40		31	12	26					
9609	189	1068+00	3-10	0	0	1	51	48		35	15	30					
9614	194	1074+00	5.5-10	0	0	2	52	46		30	12	27					
9616	196	1057+00	2.5-4	0	1	47	35	17		29	15	21					
9617	197	1077+00	4-7	0	0	1	56	43		31	13	27					
9618	198	1077+00	7-10	0	0	1	56	43		30	12	26					
9619	199	1080+00	1-2.5	0	3	50	25	22		25	12	20					
9620	200	1080+00	2.5-11	0	0	1	59	40		30	12	28					
9621	201	1080+00	1-4.5	5	0	1	66	33		29	12	35					
9624	204	1082+50	2.5-7	0	1	17	51	31		30	13	28					
9627	207	1084+50	4.5-7	0	0	3	54	43		32	13	27					
9628	208	1084+50	7-12	2	2	14	33	49		30	14	23					
9871	215	1023+00	4.5-8.5	0	0	1	62	37		31	12	24					
9877	221	1102+00	5.5-10	0	0	0	47	53		32	14	29					
9880	224	1105+00	7-10	0	0	1	52	47		32	13	26					

SUMMARY OF TESTS ON SOIL PROFILE SUBGRADE SAMPLES

County, Rt. No., Section SANDUSKY COUNTY
SAN-20-19.60

Note Book No. F/6

(5/12)

Lab. No. So.	Field No.	Station No.	Represents Feet	Mechanical Analysis					Physical Charact			Density Data			Class. No.	
				Agg. %	C Sand %	F Sand %	Silt %	Clay %	L.L.	P.I.	Water Cont.	Comp.	Opt.	Max. Dry Wt.	SHTL	HRB
9598	178	1053+00	5-7	0	2	18	59	21	22	6	28				A-4	A-4(8)
9611	191	1071+00	6-10	0	0	2	52	46	27	9	28					
9668	212	1090+00	65-85	0	0	10	60	30	26	9	23					
9669	213	1090+00	85-12	0	0	1	65	34	26	7	25					
9673	217	1096+00	45-10	0	9	1	53	36	25	10	28					
		(46) TOTAL		11	18	380	355	1045	806	213	1089					
		AVERAGES		0	0	8	60	23	25	5	24					
9102	1	774+00	0-3	0	1	10	57	32	36	14	22				A-6a	A-6(9)
9104	3	774+00	6-7	4	1	6	70	23	30	13	26					
9105	4	774+00	7-8	4	2	9	55	35	30	13	22					
9106	5	774+00	0-4	6	0	9	56	33	35	15	26					
9109	6	774+00	25-5	6	2	4	64	30	33	15	21					
9111	10	781+00	35-55	0	1	12	61	26	30	12	20					
9116	17	788+00	7-8	6	0	1	40	54	33	13	25					
9132	31	832+00	5-6.5	3	2	14	49	32	31	13	22					
9135	34	835+00	25-6.5	0	1	2	60	37	28	11	25					
9136	35	835+00	6.5-11	2	1	6	40	51	31	14	21					
9137	36	835+00	11-12.5	5	5	9	46	35	31	15	16					
9139	38	838+00	6-12	9	6	12	38	35	30	14	17					
9149	40	841+00	25-10	6	7	14	40	33	28	11	12					
9150	42	843+00	25-55	5	7	16	40	32	30	12	21					
9153	45	852+00	25-3	12	5	7	47	29	30	14	17					
9157	49	858+00	25-85	17	6	12	29	36	29	11	14					
9162	54	864+00	7-10	3	2	5	37	53	32	13	18					
9163	57	866+00	7-10	0	0	1	55	44	32	13	26					
9168	60	870+00	65-9	4	3	7	34	52	29	13	17					
9169	61	873+00	7-10	0	0	1	42	57	33	13	26					
9171	63	876+00	4-9	0	0	7	51	42	35	15	25					
9174	66	882+00	4-85	0	0	3	40	57	29	12	26					
9279	23A	918+00	0-4	0	1	40	28	31	29	14	19					
9421	6A	806+00	8-11	3	4	8	43	42	30	12	22					

SUMMARY OF TESTS ON SOIL PROFILE SUBGRADE SAMPLES

County, Rt. No., Section SANDUSKY County
SAN-20-14.60

Note Book No. F16

(9/12)

Lab. No. So.	Field No.	Station No.	Represents Feet	Mechanical Analysis					Physical Charact			Density Data			Class. No.	
				Agg. %	C Sand %	F Sand %	Silt %	Clay %	L.L.	P.I.	Water Cont.	Comp.	Opt.	Max. Dry Wt.	SHTL	HRB
9149	41	843+00	1.5-2.5	4	2	14	46	34	40	18	21				A-6	A-6(11)
9151	43	843+00	1-5	8	4	11	42	35	37	16	19					
9154	46	855+00	1-2.5	6	4	12	38	40	35	18	18					
9155	47	855+00	2.5-4	37	4	9	21	29	35	17	16					
9159	51	861+00	4-9.5	4	4	12	40	40	39	21	19					
9161	53	864+00	3.5-7	0	1	4	49	46	36	16	21					
9163	55	867+00	1-3	0	1	11	47	41	38	20	23					
9164	56	867+00	3-7	0	0	7	49	44	39	20	21					
9170	62	876+00	1-4	0	1	16	39	44	40	20	21					
9175	67	888+00	1-4	0	1	12	56	31	31	19	20					
9177	69	888+00	6.5-10	0	0	6	54	40	34	16	27					
9178	70	894+00	1-3.5	0	1	21	37	41	39	19	20					
9181	73	900+00 20A	1-3.5	0	1	24	37	38	35	17	22					
9417	24A	803+00	7-12	2	3	5	33	37	35	17	25					
9436	21X	819+00	0-12	0	1	11	41	47	39	21	22					
9439	24X	822+00	7-13	7	4	9	27	53	38	20	15					
9441	26X	822+00	12-18	6	8	20	32	34	32	18	11					
9442	27X	825+00	0-4	16	5	11	30	38	38	18	17					
9443	28A	829+00	0-8	0	1	12	40	47	36	19	21					
9444	29A	829+00	8-11	3	7	10	34	46	35	18	14					
9453	35A	940+00	9-11	0	1	4	44	51	34	16	24					
9455	40A	940+00	11-14	0	0	1	49	50	32	16	28					
9467	32A	955+00	0-7	0	1	17	43	39	39	19	26					
9496	76	903+00	1.5-4	0	1	31	29	39	35	17	19					
9499	79	909+00	1-3.5	0	2	31	31	36	32	17	19					
9520	100	933+00	10.5-12	0	2	7	45	46	33	17	34					
9524	104	937+00	1-2.5	0	1	51	20	28	31	17	21					
9527	107	980+00	0-2	0	2	41	22	35	34	17	17					
9531	111	983+00	1-3	0	1	51	21	27	29	16	21					
9545	126	1001+00	1-2.5	0	1	43	22	34	33	18	23					
9565	145	1018+00	3-7	0	0	2	76	22	37	18	26					
9572	152	1024+00	6.5-10	0	0	5	46	49	34	17	26					

SUMMARY OF TESTS ON SOIL PROFILE SUBGRADE SAMPLES

County, Rt. No., Section SANDUSKY COUNTY
SAN-20-19.60

Note Book No. File

Lab. No. So.	Field No.	Station No.	Represents Feet	Mechanical Analysis					Physical Charact			Density Data			Class. No.	
				Agg. %	C Sand %	F Sand %	Silt %	Clay %	L.L.	P.I.	Water Cont.	Comp.	Opt.	Max. Dry Wt.	SHTL	HRB
9173	65	882+00	1-4.5	0	1	14	37	48	43	24	21				A-7-6	A-7-6(15)
9416	1A	903+00	0-5	0	1	9	42	48	43	24	22					
9419	4A	906+00	0-5	0	1	10	35	54	46	26	22					
9423	8A	909+00	0-5	0	1	6	35	58	46	26	29					
9424	9A	909+00	0-2.5	0	1	3	20	76	49	25	31					
9425	10A	912+00	0-2	0	1	3	34	62	46	25	24					
9427	12A	913+25	0-7	0	1	9	39	51	46	27	23					
9430	23X	922+00	0-3	0	1	6	44	49	50	30	21					
9436	31A	936+00	0-3	0	2	20	31	47	41	23	24					
9503	63	941+00	3-4.5	0	3	15	36	46	44	28	30					
9507	67	952+00	0	0	3	11	37	51	44	24	26					
9561	121	1013+00	0-5	0	9	30	52	49	46	23	26					
9576	136	1030+00	1-4.5	0	21	30	31	36	46	26	23					
9579	139	1033+00	.5-2	0	1	32	31	36	46	26	23					
9589	169	1041+00	1-3	0	1	6	38	55	46	25	31					
9592	172	1047+00	1-3	0	1	9	42	48	49	27	27					
9595	175	1050+00	1-6.5	0	1	2	37	60	43	23	21					
9597	177	1053+00	1-5	0	1	4	39	56	44	21	24					
9600	180	1056+55	1-6.5	0	1	3	45	51	42	23	23					
9603	183	1059+00	1-5.5	0	1	7	46	47	47	23	20					
9604	184	1062+00	1-4.5	0	0	3	47	50	31	26	24					
9608	188	1068+00	1-3	0	0	14	44	42	42	23	24					
9610	190	1071+00	1-6	0	0	6	48	46	45	25	25					
9612	192	1074+00	1-2.5	0	1	11	42	46	43	23	21					
9615	195	1077+00	1-2.5	0	0	26	33	41	41	26	22					
9622	202	1082+50	0-4.5	0	0	0	43	57	51	23	26					
9625	205	1083+50	7-8	0	1	6	41	52	41	19	28					
9865	209	1088+00	0-3.5	0	1	12	42	46	45	25	29					
9867	211	1090+00	1-4.5	0	1	12	35	52	49	27	23					
9872	216	1096+00	1-4.5	0	0	5	56	41	42	23	22					
9874	218	1099+00	1-4	0	1	5	50	45	46	24	24					
9876	220	1102+00	0-3.5	0	0	2	48	50	44	24	24					
9878	222	1105+00	0-4	0	0	2	47	51	46	21	25					

SOIL PROFILE
SANDUSKY COUNTY
SAN.-20-14.60

STATE HIGHWAY TESTING AND RESEARCH LABORATORY
O. S. U. CAMPUS, COLUMBUS, OHIO

2/6

N.Y.C. RAILROAD

C.E. 57

MUSKELLUNGE CREEK

HIGH WATER ELEV.- 611.8'

S.B. 19

50'LT. ℄ 50'RT.

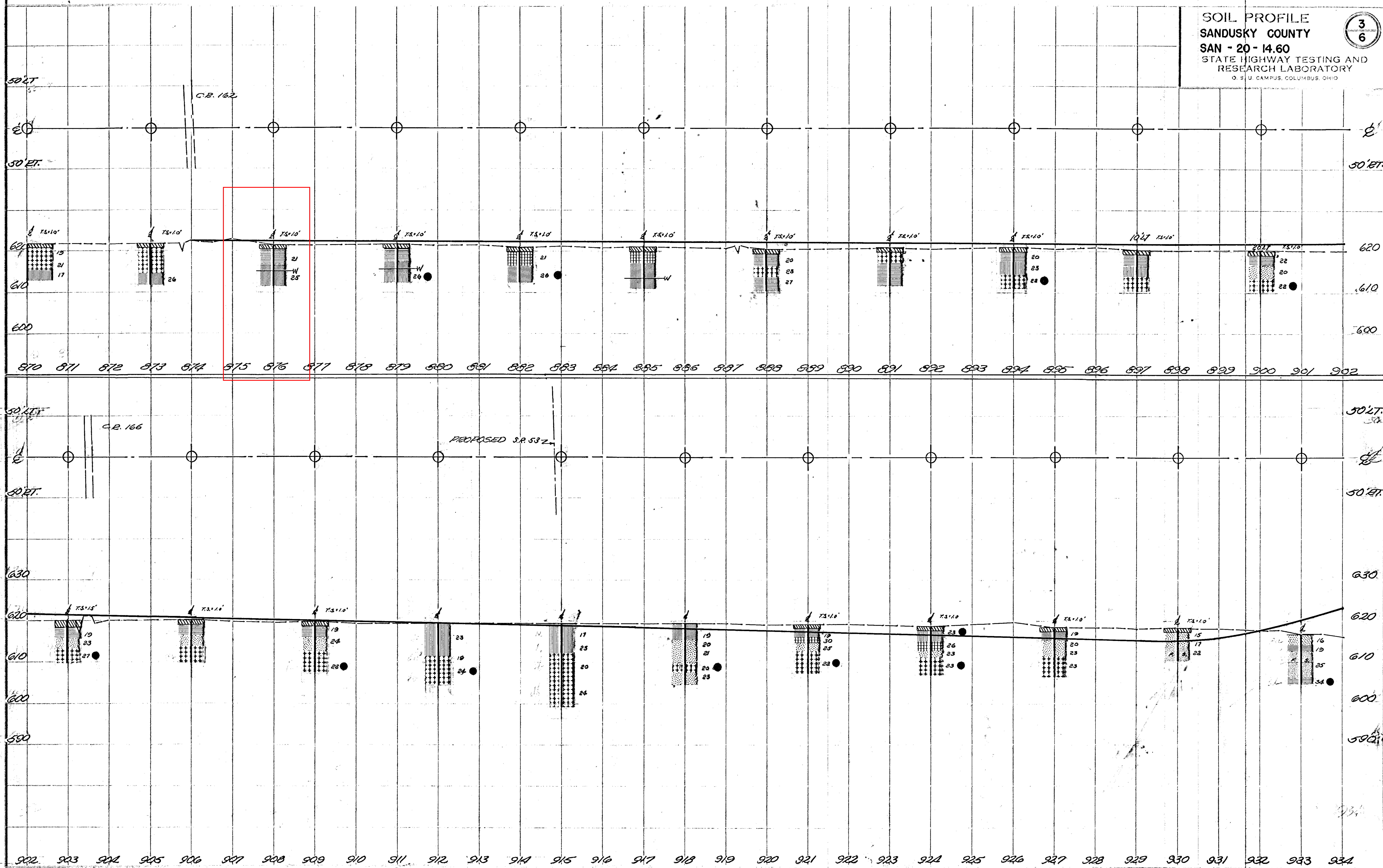
650 640 630 620 610 600 590

806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838

838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870

SOIL PROFILE
SANDUSKY COUNTY
SAN - 20 - 14.60
STATE HIGHWAY TESTING AND RESEARCH LABORATORY
O. S. U. CAMPUS, COLUMBUS, OHIO

3/6



SOIL PROFILE
SANDUSKY COUNTY
SAN.-20-14.60

STATE HIGHWAY TESTING AND RESEARCH LABORATORY
O. S. U. CAMPUS, COLUMBUS, OHIO

5
6

C.P. 176

U.S. 6

N.Y.C. & St. L. RAILROAD

BARK CREEK

C.P. 190

C.P. 12

EQUATION: 1044+55.65 BACK = 1045+55.65 AHEAD

1956 Year	Job No.		County	SANDUSKY
	Changes		014715 Project Identification	SAN-53-7.67
File No.	FEP-34 5A-030/4C-64	Proj. No.		

Begin Sta. 416+00 End Sta. 557+5 Length 2.77 Miles

	RECON	AUGER	CORE	DRIVE ROD	RESISTIVITY
By		N.R.L.			
Dates		1-25-55 To 2-3-55			
No of Holes or Soundings		-3			
Footage		629.5-19			
Samples Tested		168 - 9			

Drafting By	R.I.R.
Completion Date	
Drafting Hours	
Topo Sheet	

☐ Samples Accounted For

Transmittal Date 3-4-55 No. of Tracings _____ Filed with year 4-M-37

Revisions 6-1-56 Remarks FET-37

Refer to _____

DO NOT WRITE IN THIS SPACE

Length	Auger Data			Core Data			Drive Rod Data		Resistivity
	No. of Holes	Footage	Samples	No. of Holes	Footage	Samples	No. of Soundings	Footage	No. of Locations
2.77		638.5	177	—	—	—	—	—	—

* See Reverse Side

3 1/25/55

Sta

B9 432+0 ℄ 10

20-0.5 Topsoil

6b 18 19 0.5-4.5 Brown Silt + clay much

3a 19 27 4.5-7.5 Brown sand + silt

4b 20 23 7.5-10. Gray fine sand + some

Water at 5.5 feet

40 Sta 448+0 ℄

0.0-0.5 Topsoil

6a 21 22 0.5-2.5 Brown silty clay much

3a 22 16 2.5-6.0 Brown sand

3a 23 20 6.0-8.5 Gray sand

6a 24 25 8.5-11.0 Gray silt clay some

2 1/25/55

36 Sta 423+0

	0.0-1.0	Topsoil
6a 9 20	1.0-4.0	Brown silt clay some
4b 10 24	4.0-6.0	Brown fine grained sand
6a 11 27	6.0-8.0	Brown + Gray silt + gray fine sand

37 Sta 426+0

	0.0-1.0	Topsoil
6b 12 18	1.0-4.5	Brown silt clay + sand
4a 13 22	4.5-6.5	Brown fine grained sand
6a 14 25	6.5-8.0	Gray silt + fine sand

38 Sta 429+0

	0.0-0.5	Topsoil
6a 15 16	0.5-2.5	Brown silt clay +
1.6 16 33	2.5-6.0	Brown silt clay
3a 17 25	6.0-8.0	Gray sand

Water at 7.0 feet

SUMMARY OF TESTS ON SOIL PROFILE SUBGRADE SAMPLES

County, Rt. No., Section SANDUSKY COUNTY
SAN-53-16.67

Note Book No.

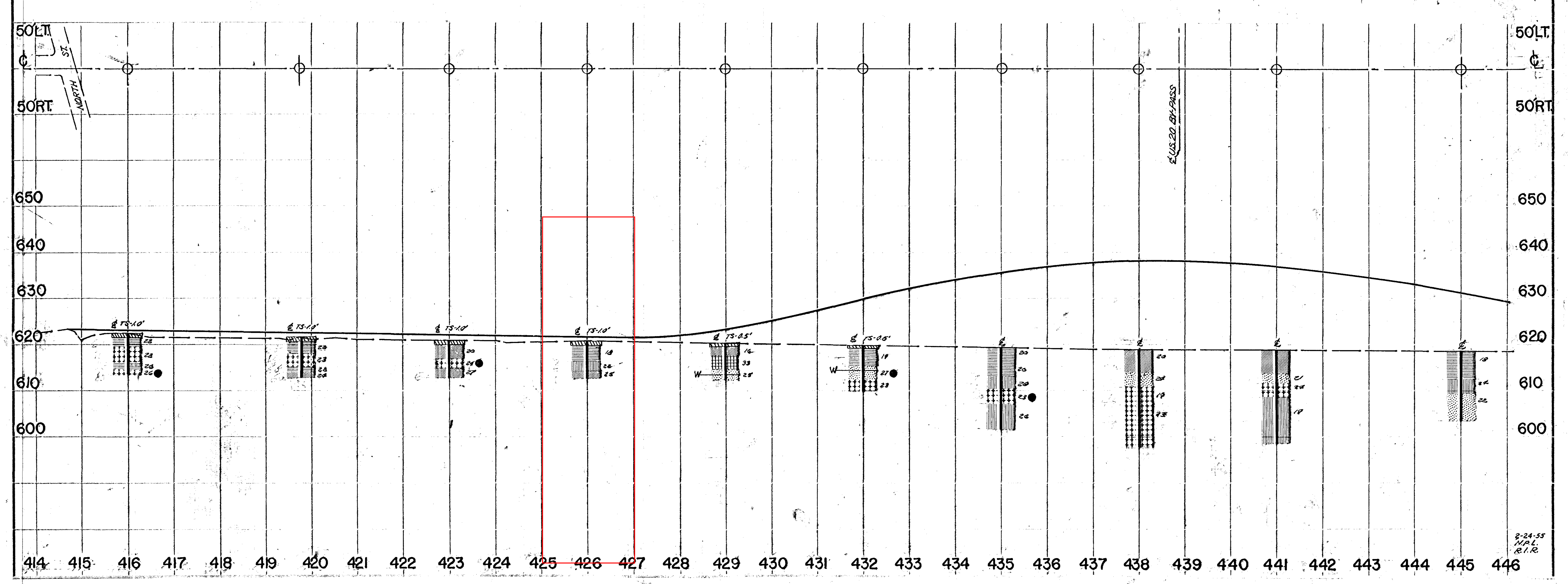
Lab. No. So.	Field No.	Station No.	Represents Feet	Mechanical Analysis Agg. %	C Sand %	F Sand %	Silt %	Clay %	Physical Charact L.L.	P.I.	Water Cont.	Density Data Comp.	Opt.	Max. Dry Wt.	Class. No. SHTL	HRB
8754	8	419+80, Q.L.	7.5-8.5	0	0	7	58	39	29	12	24				A-6a	A-6(9)
8755	9	423+00, Q.L.	1.-5.	0	1	32	33	34	32	15	20					
8757	11	431+00, Q.L.	6-7	0	0	3	62	35	31	14	27					
8760	14	446+00, Q.L.	6.5-8.	0	0	5	55	40	30	14	25					
8764	15	450+00, Q.L.	0.5-2.5	0	1	36	28	36	29	14	22					
8767	21	468+00, Q.L.	0.5-2.5	0	3	38	26	33	29	14	22					
8770	24	484+00, Q.L.	0.5-1.5	0	0	7	53	38	31	12	25					
8786	40	460+50, Q.L.	7-8.	0	0	2	71	27	34	13	25					
8772	53	518+00, Q.L.	0.0-1.0	0	3	5	43	49	36	15	22					
8806	60	521+00, Q.L.	7.-8.	0	0	1	56	43	35	14	29					
8822	76	535+00, Q.L.	3.-3.5	0	0	1	70	29	31	11	21					
9185	80	543+00, Q.L.	3.5-4.5	0	1	2	31	46	32	11	24					
9190	85	546+00, Q.L.	8.5-10.0	0	0	0	49	51	33	1	32					
9192	87	549+00, Q.L.	4.-5.5	0	1	0	58	41	32	12	25					
9195	90	552+00, Q.L.	4.5-7.0	0	1	1	51	47	33	12	26					
9198	93	554+00, Q.L.	4.-7.	0	1	1	50	48	34	15	27					
9201	6a	438+00,	0.0-5.	0	1	28	41	30	31	15	20					
9206	37a	505+00,	0.0-5.	0	1	7	60	32	32	12	25					
9242	53a	514+00, Q.L.	0.0-8.	0	0	21	48	30	28	13	23					
9243	54a	514+00, Q.L.	8.-20.	7	6	14	36	37	26	11	18					
		(20) TOTAL		7	20	218	976	779	622	257	476					
		AVERAGE		0	1	11	49	39	31	13	24					
8741	1	416+00, Q.L.	1.-3.	0	1	31	35	33	37	21	22				A-6b	A-6(11)
8749	3	416+00, Q.L.	6.5-7.5	0	0	5	46	49	36	18	26					
8751	5	419+80, Q.L.	1.-3.5	0	3	18	34	45	36	19	22					
8753	7	419+80, Q.L.	6.5-7.5	0	0	4	48	48	31	14	22					
8758	12	426+00, Q.L.	1.-2.5	0	1	45	28	26	31	17	18					
8764	18	432+00, Q.L.	0.5-4.5	0	1	33	35	31	33	18	19					
8771	25	451+00, Q.L.	0.5-4.0	0	1	32	30	37	36	20	20					
8775	29	463+90, Q.L.	2.5-3.5	0	1	34	24	41	32	16	25					
8783	37	460+50, Q.L.	0.5-2.5	0	1	13	48	38	39	20	25					

SUMMARY OF TESTS ON SOIL PROFILE SUBGRADE SAMPLES

County, Rt. No., Section: Sandusky County San.-53-7.67

Note Book No.

Lab. No. So.	Field No.	Station No.	Represents Feet	Mechanical Analysis Agg. %	C Sand %	F Sand %	Silt %	Clay %	Physical Charact L.L.	P.I.	Water Cont.	Density Data Comp.	Opt.	Max. Dry Wt.	Class. No. SHTL	HRB
8763	17	420+00 cl.	6-8.	0	0	84	10	6	NP	NP	25				A-3a	~~A-3~~
8765	19	432+00 cl.	4.5-7.5	0	0	65	10	25	21	3	27					
8768	22	448+00 cl.	7.5-6+	0	0	77	13	10	NP	NP	16					
8769	23	448+00 ca.	6-8.5	1	9	75	12	3	NP	NP	20					
8775	29	451+00 cl.	4-6.	0	0	81	16	11	NP	NP	17					
8776	30	453+00 cl.	3.5-5.0	0	0	75	14	11	NP	NP	11					
8777	31	453+00 cl.	5-6.5	0	0	85	11	4	NP	NP	7					
8784	38	460+50 cl.	6.5-6.9	0	1	73	14	13	NP	NP	20					
8791	45	466+00 cl.	2.5-6.0	0	0	82	5	13	NP	NP	20					
8794	48	469+00 cl.	3-7.	0	2	65	13	20	NP	NP	21					
8797	51	472+00 cl.	3.5-7.	0	0	71	11	18	NP	NP	18					
9208	7A	438+00	5-8.	0	0	66	23	11	NP	NP	24					
9211	10A	441+00	5-7.	0	1	82	11	6	NP	NP	21					
9216	15A	445+00	2.5-5.	0	0	79	13	8	NP	NP	22					
9245	56A	574+00	4-8.	1	3	76	6	14	NP	NP	22					
9247	58	476+00	3-5.	0	2	63	25	10	NP	NP	25					
9250	61A	479+00	4-8.	0	0	77	12	11	NP	NP	20					
9255	66A	485+00	3-6.	0	0	71	21	8	NP	NP	25					
9264	75A	494+00	3-7.	0	0	68	23	9	NP	NP	15					
		(19) TOTAL		2	18	1403	260	217	21	3	376					
		AVERAGE		0	1	74	14	11	21	0	20					
8759	13	426+00 ca.	1.5-6.5	0	0	61	26	13	NP	NP	22				A-4a	A-4(2)
8778	32	453+90 cl.	6.5-8.	0	0	64	32	4	NP	NP	20					
8785	40	462+00	7-8.	0	0	56	41	3	NP	NP	21					
9204	3A	435+00	6-7.	0	0	54	33	13	NP	NP	28					
9206	5	453+00	1.5-7.5	0	0	58	32	10	NP	NP	26					
9213	12A	441+00	1.5-3.	0	2	52	32	14	NP	NP	18					
9215	14A	445+00	6-8.	0	1	50	22	18	NP	NP	24					
9218	29A	499+00	5-8.	2	2	49	25	22	24	6	26					
9227	38A	505+00	5-8.	0	1	54	30	15	NP	NP	25					
9240	51A	538+00	0.0-6.0	2	3	32	41	22	22	6	18					



50LT.
℄
50RT.
NORTH ST.
℄ U.S. 20 BY-PASS
650
640
630
620
610
600
℄ TS-1.0'
℄ TS-0.5'
W
414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446
2-24-55
N.P.L.
R.I.R.

SOIL PROFILE

SANDUSKY COUNTY
SAN.-53-7.67

STATE HIGHWAY TESTING AND RESEARCH LABORATORY
O. S. U. CAMPUS, COLUMBUS, OHIO

2/3

50LT. ℄ 50RT.

640 630 620 610 600

℄ 15-0.5'

446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478

WHEELING & LAKE ERIE R.R.

650 640 630 620 610 600

478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510

Year	Job No.	County
1966	02557	SANDUSKY

Changes _____

014702

Project Identification: SAN-19-10.89

File No. FEP-192 / 12-J-06

Proj. No. _____

Begin Sta. 77+81 End Sta. 225+00 Length * 3.54 Miles

	RECON	AUGER	CORE	DRIVE ROD	RESISTIVITY
By	J.S.M.	F.D.C.			
Dates	9/13/66 to 9/15/66	9/20/66 to 9/22/66			
No. of Holes or Soundings		38			
Footage		402.0'			
Samples Tested		113			

Drafting By: R.C.B.

Completion Date: 10-10-66

Drafting Hours: 60

Topo Sheet: 541-5-SW and 541-5-NW

☒ Samples Accounted For

Transmittal Date 10-11-66

No. of Tracings 9 Filed with year FET-212 5-1-95

Revisions _____

Remarks _____

Refer to _____

DO NOT WRITE IN THIS SPACE

Length	Auger Data			Core Data			Drive Rod Data		Resistivity
	No. of Holes	Footage	Samples	No. of Holes	Footage	Samples	No. of Soundings	Footage	No. of Locations
3.54	38	402.0	113	—	—	—	—	—	—

* See Reverse Side

FIELD BORING LOG

622.5'

County, Route No., Section SAN-19-10.89

Station 94+00 Offset ℄ Elev. ?

Date 9/22/66 Water Elev.

Crew EBEN-BURKE Equipment HA

Culbertson

Drafting	9

Depth Feet	Field Number	Description
0.0-	109	CLAY SILT DRY BR
6	6	DENSE
		REFUSAL (H.A)
5		
10		
15		
20		
25		
30		

Use reverse side of this sheet for additional notes.

Bldg 25, 25'Bt

FIELD BORING LOG

621.0'

County, Route No., Section SAN - 15 - 10.8E

Station 99+15 Offset 0' Elev. 0

Date 9/20/66 Water Elev. 15

Crew EBLEN-BURKE Equipment NA

Custertown

Drafting | 1 |

Depth Feet	Field Number	Description
0.0-	7	SILT CLAY BR MOIST
7-6	20	
5	23	
4-6	8	SILTY CLAY SR MORE MOIST
		CLAY SILT GRAY
6a	9	LITTLE MOIST
10	16	
	10	SILTY CLAY GRAY
6a	19	MORE MOIST
15		
	17	GRAY CLAY SILT
6a	11	LITTLE MOIST
W 20		
	17	GRAY CLAY SILT
6a	12	MORE MOIST
25		REFUSAL 24.0
30		

Use reverse side of this sheet for additional notes.

FIELD BORING LOG 622.5

County, Route No., Section SAN-19-10.89

Station 101+00 Offset 0 Elev. 9

Date 9/20/66 Water Elev. 18.0

Crew EBLEN-BURKE Culbertson Equipment WA

Drafting 1+2

Depth Feet	Field Number	Description
0.0-	13	SILT CLAY BR. MOIST
66	16	
	14	SILTY CLAY BR MORE MOIST
5 6a	28●	
	15	GRAY SILT MOIST
10 4b	27●	
	26●	GRAY SILT VERY MOIST
15 4a	16	
W	17	GRAY CLAY SILT DRYER MORE DENSE
20 6a	17	
		COMP
25		
30		

Use reverse side of this sheet for additional notes.

Ramp C 867+05
Ramp D 865+45

FIELD BORING LOG

620.8'

County, Route No., Section SAN-19-10.89

Station 104+00 Offset 9 Elev. 9

Date 9/21/66 Water Elev.

Crew ERLEN-BURKE Culbertson Equipment WA

Drafting	7

Depth Feet	Field Number	Description
0.0-	84	SILT CLAY BR MOIST
66	16	
5		SANDY CLAY SILT MORE MOIST BR
	85	
6a	26	
10		SANDY SILT GRAY WET
	86	
6a	28●	
15		COM.
20		
25		
30		

Use reverse side of this sheet for additional notes.

SUMMARY OF TESTS ON SOIL PROFILE SAMPLES

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County, Rt. No., & Section SAN-19-10.89 (CULBERSON)

Lab. No. So.-	Sample No.	Station	Depth in Feet	Mechanical Analysis					Physical Charact.			Density		SHTL Class	Remarks
				Agg. %	C Sand %	F Sand %	Silt %	Clay %	L.L.	P.I.	Water Cont. %	Opt.	Max. Dry Wt.		
27287	1	83+0 ℄	0-3'	0	3	13	40	44	34	16	14			A6b	MC BrGr -
8	2	"	3-8	0	1	4	48	47	36	16	28			A6b	" +
9	3	"	8-10	9	5	13	26	47	29	11	15			A6a	" Gr -
27290	4	873+50 Rt of ℄	0-4	0	1	20	34	45	35	16	14			A6b	" Br -
1	5	"	4-8	0	0	4	59	37	26	7	24			A4b	○ MC Br +
2	6	"	8-10	0	0	1	62	37	25	5	27			A4b	○ " Gr +
3	7	99+15 ℄	0-4	0	0	5	41	54	46	23	20			A-7-6	" Br -
4	8	"	4-7	0	0	1	58	41	26	6	23			A4b	○ " +
5	9	"	7-12	0	6	14	31	49	29	11	16			A6a	SMC-Gr -
6	10	"	12-17	0	6	14	33	47	28	12	19			A6a	" +
7	1	"	17-21	0	6	14	33	47	26	11	17			A6a	" +
8	2	"	21-24	7	9	13	25	46	28	11	17			A6a	" +
9	3	101+0 ℄	0-3	0	1	16	33	50	40	21	16			A6b	MC Br -

SO-8

SUMMARY OF TESTS ON SOIL PROFILE SAMPLES

2
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County, Rt. No., & Section SAN - 19 - 10.89

Lab. No. So.-	Sample No.	Station	Depth in Feet	Mechanical Analysis Agg. %	C Gavel %	F Sand %	Silt %	Clay %	Physical Charact. L.L.	P.I.	Water Cont. %	Density Opt.	Max. Dry Wt.	SHTL Class	Remarks
27300	14	101+0 ℄	3'-8'	0	0	7	51	42	23	12	28			A6a	⊙ M·C-Br +
1	5	"	8-13	0	0	1	57	42	28	9	27			A4b	⊙ " Gr +
2	6	"	13-18	0	7	14	30	49	27	10	26			A4a	⊙ s m c Gr +
3	7	"	18-22	0	7	13	28	52	28	11	17			A6a	" =
4	8	126+50 ℄	0'-3'	0	1	7	38	54	37	15	20			A6a	M C Br =
5	9	"	3-8	0	1	6	51	42	30	12	21			A6a	" +
6	20	"	8-13	0	0	4	54	42	25	8	25			A4b	⊙ " +
7	1	"	13-18	0	0	4	65	31	25	8	25			A4b	⊙ " +
8	2	"	18-23	0	1	3	51	45	26	9	26			A4b	⊙ " Gr +
9	3	"	23-27	0	0	4	50	46	27	9	24			A4b	⊙ " Gr +
27310	4	"	27-30	0	1	4	50	45	28	11	26			A6a	⊙ " Gr +
1	5	130+0 7RT	0-3	0	5	18	40	37	24	8	24			A4a	⊙ s m c +
2	6	"	3-8	0	2	13	28	57	38	18	21			A6b	M C Gr =

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SUMMARY OF TESTS ON SOIL PROFILE SAMPLES

County, Rt. No., & Section

Lab. No. So.-	Sample No.	Station	Depth in Feet	Mechanical Analysis: Agg. %	C Sand %	F Sand %	Silt %	Clay %	Physical Charact.: L.L.	P.I.	Water Cont. %	Density: Opt.	Max. Dry Wt.	SHTL Class	Remarks
27392	106	90+50 ℄	1'-4'	0	2	21	32	45	33	15	15			A6a	S-M C Br =
3	7	"	4-9	0	0	4	64	32	24	4	25			A4b	M C Br Ca +
4	8	"	9-12	0	0	1	63	36	26	5	27			A4b	" Ca +
5	9	94+00 ℄	0-3	0	2	20	33	45	36	16	18			A6b	S-M C Br Ca =
6	110	86+06 Ramp "A" "B"	0-3	0	6	15	32	47	39	17	19			A6b	" Gr =
7	1	78+00 ℄ Rt	0-2	0	33	20	10	37	32	13	20			A6a	S-C Br =
8	2	"	2-5	0	1	7	44	48	39	19	22			A6b	M C Br +
27399	113	"	5-10	0	0	2	62	36	25	5	26			A4b	M C Br +

SO-8

SO-8

SOIL PROFILE

SANDUSKY COUNTY

SAN - 19 - 10.98

OHIO STATE HIGHWAY TESTING LABORATORY
1620 W. BROAD ST. COLUMBUS 23, OHIO

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SUMMARY OF SOIL TEST DATA

NOTE: NP SHOWN IN LIQUID LIMIT AND PLASTICITY INDEX COLUMNS INDICATES THAT THE MATERIAL IS NON-PLASTIC.
*DENOTES SAMPLE TAKEN AT OR NEAR GRADE.

SR 19

STATION	OFFSET	DEPTH FROM - TO	% AGG.	% C.S.	% F.S.	% SILT	% CLAY	L.L.	P.I.	% W.C.	SHTL CLASS.
78+00	15'Lt	0.0-2.0	0	33	20	10	37	32	13	20	A-6a*
		2.0-5.0	0	1	7	44	48	39	19	22	A-6b*
		5.0-10.0	0	0	2	62	36	25	5	26	A-4b
83+00	CL	0.0-3.0	0	3	13	40	44	34	16	14	A-6b*
		3.0-8.0	0	1	4	48	47	36	16	28	A-6b
		8.0-10.0	9	5	13	26	47	29	11	18	A-6a
90+50	CL	0.0-1.0	0	1	15	41	43	46	17	30	A-7-6
		1.0-4.0	0	2	21	32	45	33	15	18	A-6a
		4.0-9.0	0	0	4	64	32	24	4	25	A-4b
		9.0-14.0	0	0	1	63	36	26	5	27	A-4b
94+00	CL	0.0-3.0	0	2	20	33	45	36	16	18	A-6b
99+15	CL	0.0-4.0	0	0	5	41	54	46	23	20	A-7-6
		4.0-7.0	0	0	1	58	41	26	6	23	A-4b
		7.0-12.0	0	6	14	31	49	29	11	16	A-6a
		12.0-17.0	0	6	14	33	47	28	12	19	A-6a
		17.0-21.0	0	6	14	33	47	26	11	17	A-6a
		21.0-24.0	7	9	13	25	46	28	11	17	A-6a
101+00	CL	0.0-3.0	0	1	16	33	50	40	21	16	A-6b
		3.0-8.0	0	0	7	51	42	23	12	28	A-6a
		8.0-13.0	0	0	1	57	42	28	9	27	A-4b
		13.0-18.0	0	7	14	30	49	27	10	26	A-4a
		18.0-22.0	0	7	13	28	52	28	11	17	A-6a
104+00	CL	0.0-5.0	0	1	20	35	44	34	18	16	A-6b
		5.0-10.0	0	1	6	50	43	32	13	26	A-6a
		10.0-15.0	0	1	3	42	54	30	11	28	A-6a
110+00	CL	0.0-1.0	0	2	14	45	39	33	11	23	A-6a
		1.0-6.0	0	5	15	27	53	48	28	19	A-7-6
		6.0-10.0	0	7	15	29	49	42	22	15	A-7-6
115+00	CL	0.0-3.0	0	1	11	33	55	32	11	21	A-6a*
		3.0-6.0	13	5	11	25	46	29	11	15	A-6a
		6.0-8.0	10	6	11	25	48	31	13	15	A-6a
120+00	CL	0.0-1.0	0	2	15	46	37	32	11	20	A-6a*
		1.0-5.0	0	1	16	50	33	25	8	23	A-4b
		5.0-8.0	0	2	4	44	50	31	11	21	A-6a
		8.0-10.0	0	4	9	34	53	32	14	18	A-6a
126+50	CL	0.0-3.0	0	1	7	39	54	37	15	20	A-6a*
		3.0-8.0	0	1	6	51	42	30	12	21	A-6a
		8.0-13.0	0	0	4	54	42	25	8	25	A-4b
		13.0-18.0	0	0	4	65	31	25	8	25	A-4b
		18.0-23.0	0	1	3	51	45	26	9	26	A-4b
		23.0-27.0	0	0	4	50	46	27	9	24	A-4b
		27.0-30.0	0	1	4	50	45	28	11	26	A-6a
130+00	7'Rt	0.0-3.0	0	5	18	40	37	24	8	24	A-4a*
		3.0-8.0	0	2	13	28	57	38	18	21	A-6b
		8.0-10.0	0	0	3	47	50	27	11	28	A-6a
134+83	10'Rt	0.0-3.0	0	3	15	33	49	36	19	18	A-6b*
		3.0-8.0	0	2	39	20	39	27	12	20	A-6a
		8.0-11.0	0	1	9	55	35	26	6	22	A-4b
140+00	25'Rt	0.0-4.0	0	2	11	39	48	31	11	19	A-6a*
		4.0-9.0	0	1	41	21	37	28	11	26	A-6a
		9.0-10.0	0	0	4	54	42	25	8	25	A-4b
143+00	200'Lt	0.0-3.0	0	31	46	8	15	NP	NP	26	A-3a
144+00	CL	0.0-4.0	0	0	18	50	32	NP	NP	18	A-4b
146+00	110'Lt	0.0-3.0	0	0	33	38	29	29	12	14	A-6a
148+00	CL	0.0-3.0	0	1	43	31	25	NP	NP	12	A-4a
149+00	150'Lt	0.0-3.0	0	0	37	37	26	29	10	14	A-4a
150+00	20'Rt	0.0-3.0	21	10	15	23	51	26	10	16	A-4a
		3.0-8.0	13	9	42	15	21	NP	NP	10	A-4a*
		8.0-12.0	0	1	4	41	54	38	18	22	A-6b*
156+85	20'Rt	0.0-3.0	0	5	20	33	42	25	9	17	A-4a*
		3.0-8.0	0	5	25	38	32	24	6	19	A-4a
		8.0-10.0	0	8	17	41	34	25	6	18	A-4a
161+50	15'Rt	0.0-5.0	49	11	11	19	10	NP	NP	10	A-2-4
		5.0-10.0	0	3	29	29	39	27	9	22	A-4a
		10.0-14.0	0	1	20	41	38	31	12	20	A-6a
		14.0-18.0	0	2	9	33	56	33	12	23	A-6a
167+00	15'Rt	0.0-5.0	0	2	29	30	39	28	11	13	A-6a*
		5.0-8.0	0	0	27	61	12	NP	NP	24	A-4b
		8.0-10.0	0	0	23	68	9	NP	NP	23	A-4b
172+50	15'Rt	0.0-3.0	0	3	23	32	42	34	15	17	A-6a*
		3.0-7.0	0	0	60	26	14	NP	NP	27	A-4a*
		7.0-10.0	0	0	1	76	23	NP	NP	24	A-4b
177+00	15'Rt	0.0-2.0	16	1	19	46	18	31	6	18	A-4a*
		2.0-7.0	0	1	33	50	16	NP	NP	25	A-4b*
		7.0-10.0	0	2	18	68	12	NP	NP	21	A-4b
182+00	15'Rt	0.0-3.0	11	4	22	37	26	27	9	15	A-4a*
		3.0-8.0	0	0	15	74	11	NP	NP	23	A-4b*
		8.0-10.0	0	0	12	76	12	NP	NP	22	A-4b
187+00	15'Rt	0.0-3.0	0	1	17	46	36	32	11	20	A-6a*
		3.0-8.0	0	1	9	41	49	36	16	28	A-6b*
		8.0-10.0	0	0	1	77	22	NP	NP	35	A-4b
192+50	12'Rt	0.0-3.0	0	1	8	53	38	36	16	19	A-6b*
		3.0-8.0	0	2	2	83	13	NP	NP	9	A-4b*
		8.0-10.0	0	0	0	90	10	NP	NP	22	A-4b
198+00	10'Rt	0.0-4.0	0	1	5	43	51	42	22	22	A-7-6*
		4.0-8.0	0	0	3	88	9	NP	NP	25	A-4b
		8.0-10.0	0	1	0	85	14	NP	NP	25	A-4b
203+00	10'Rt	0.0-2.0	0	1	5	54	40	41	19	22	A-7-6*
		2.0-5.0	0	0	4	41	55	43	21	23	A-7-6*
		5.0-10.0	0	0	0	80	20	NP	NP	30	A-4b
208+00	10'Rt	0.0-5.0	0	1	2	48	49	44	22	20	A-7-6*
		5.0-10.0	0	0	1	79	20	NP	NP	28	A-4b
213+50	10'Rt	0.0-3.0	0	4	9	46	41	40	26	20	A-6b*
		3.0-6.0	0	0	2	30	68	52	26	23	A-7-6*
		6.0-10.0	0	0	1	71	28	29	7	26	A-4b
219+00	12'Rt	0.0-3.0	0	7	8	50	35	32	12	18	A-6a*
		3.0-5.0	0	0	2	30	68	61	34	38	A-7-6*
		5.0-10.0	0	0	1	69	30	NP	NP	30	A-4b
224+00	12'Rt	0.0-2.0	0	3	6	52	39	37	15	17	A-6a*
		2.0-5.0	0	1	3	27	69	64	40	30	A-7-6*
		5.0-10.0	0	0	2	66	32	27	8	28	A-4b

RAMPS A&B

STATION	OFFSET	DEPTH FROM - TO	% AGG.	% C.S.	% F.S.	% SILT	% CLAY	L.L.	P.I.	% W.C.	SHTL CLASS.
869+00	BL	0.0-3.0	0	6	15	32	47	39	17	19	A-6b

RAMP A

STATION	OFFSET	DEPTH FROM - TO	% AGG.	% C.S.	% F.S.	% SILT	% CLAY	L.L.	P.I.	% W.C.	SHTL CLASS.
873+50	BL	0.0-4.0	0	1	20	34	45	35	16	14	A-6b
		4.0-8.0	0	0	4	59	37	26	7	24	A-4b
		8.0-10.0	0	0	1	62	37	25	5	27	A-4b

RAMP C

STATION	OFFSET	DEPTH FROM - TO	% AGG.	% C.S.	% F.S.	% SILT	% CLAY	L.L.	P.I.	% W.C.	SHTL CLASS.
863+00	BL	0.0-1.0	0	3	15	40	42	35	12	21	A-6a
		1.0-6.0	0	1	14	28	57	48	24	22	A-7-6
		6.0-11.0	0	1	3	47	49	32	13	21	A-6a
		11.0-13.0	0	6	12	27	55	36	16	18	A-6b

RAMP D

STATION	OFFSET	DEPTH FROM - TO	% AGG.	% C.S.	% F.S.	% SILT	% CLAY	L.L.	P.I.	% W.C.	SHTL CLASS.
869+50	BL	0.0-3.0	0	1	21	32	46	41	21	22	A-7-6
		3.0-8.0	0	0	8	52	40	31	11	26	A-6a
		8.0-11.0	0	0	7	54	39	30	11	18	A-6a
		11.0-15.0	0	3	6	28	63	42	21	33	A-7-6

DRIVE SAMPLE SOIL TEST DATA

SR 19

STATION	OFFSET	DEPTH FROM - TO	% AGG.	% C.S.	% F.S.	% SILT	% CLAY	L.L.	P.I.	% W.C.	SHTL CLASS.
99+29	38'Lt	2.5-3.5	0	4	11	35	50	37	17	20	A-6b
		5.0-6.0	0	5	12	30	53	35	14	17	A-6a
		7.5-8.5	8	10	14	22	46	29	12	16	A-6a
		10.0-11.0	17	9	13	23	38	27	10	17	A-4a
		12.5-13.5	0	8	14	29	49	29	11	20	A-6a
		15.0-16.0	6	7	14	26	47	27	8	19	A-4a
		17.5-18.5	14	9	14	26	37	27	11	14	A-6a
		20.0-21.0	22	22	13	16	27	26	11	17	A-6a

SOIL PROFILE

SANDUSKY COUNTY

SAN - 19 - 10.89

OHIO STATE HIGHWAY TESTING LABCRATORY
1620 W. BROAD ST. COLUMBUS 23, OHIO

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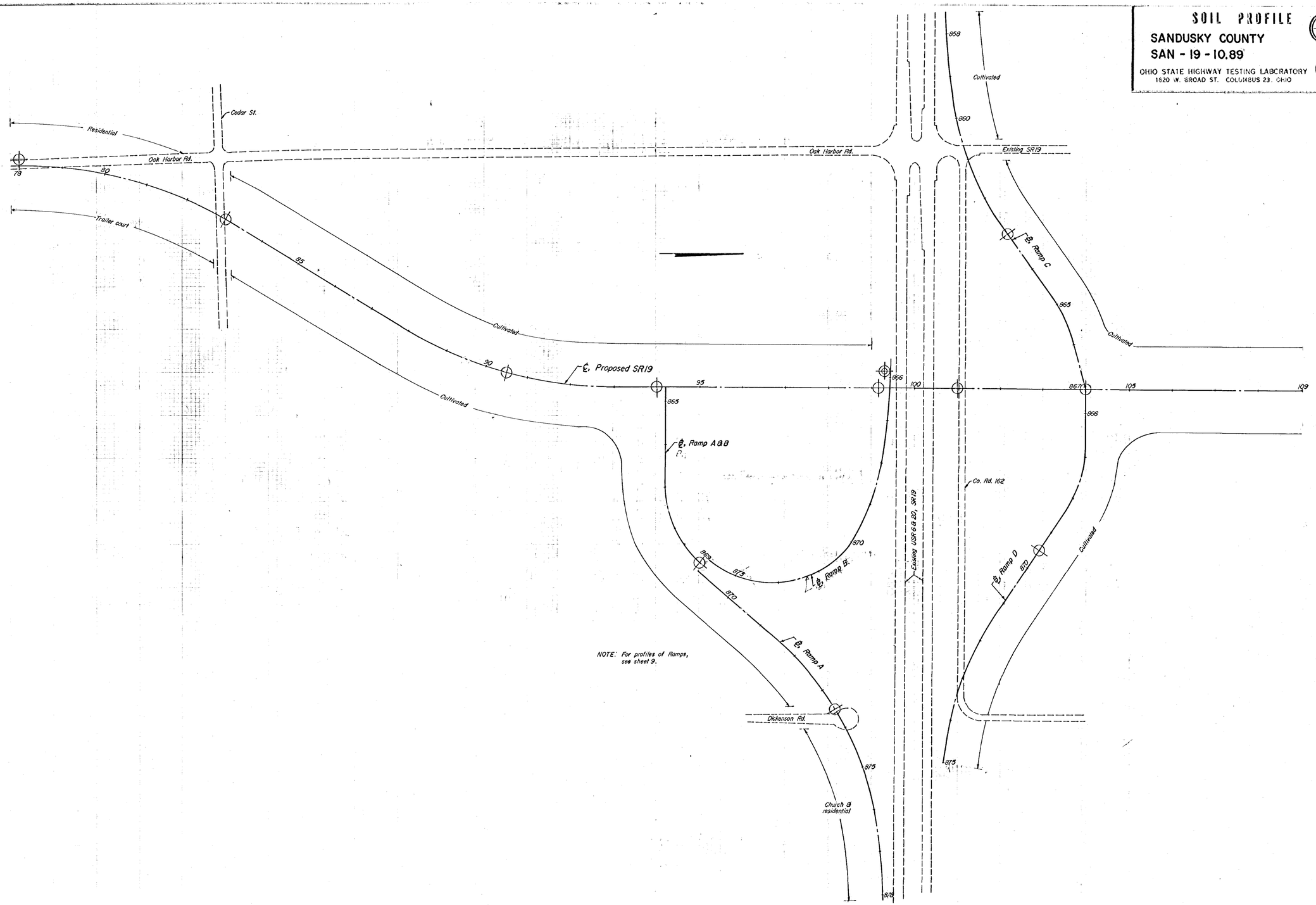

SOIL PROFILE

SANDUSKY COUNTY

SAN - 19 - 10.89

OHIO STATE HIGHWAY TESTING LABORATORY
1620 W. BROAD ST. COLUMBUS 23, OHIO

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