To: All Plan Holders of Record

From: Verdantas LLC
For the Owner

Re: ***Addendum No. 1***
Ebbert South Road And Methodist Ridge Road (Sites 1 & 2) Slip Repairs
Richland Township Trustees

Date: July 7, 2025

This Addendum forms a part of the contract documents and modifies the original bidding documents dated June 2025 and all previous addenda, if any. Acknowledge receipt of this addendum in the space provided in the bid forms. Failure to do so may subject the bidder to disqualification.

SPECIFIC PROJECT REQUIREMENTS

Add the following item:

5 - BORING LOGS

5.1 Boring Logs for Ebberts Road Landslide and Methodist Ridge Road Landslide by Geo-Technology Associates, Inc. were relied upon by the Engineer in the preparation of drawings and specifications. Copies of the report are provided along with each bid set but are not considered to be part of the contract documents.

CG:mep

Enclosures

Z:\Project Files\QA-RZ\Richlantrs\30038 - Richland Township Roadway Slip Repairs\Working\Bid Documents\Addenda\Addendum 01\Addendum 01.Doc

NOTES FOR EXPLORATION LOGS

KEY TO USCS TERMINOLOGY AND GRAPHIC SYMBOLS

MAJOR DIVISIONS (BASED UPON ASTM D 2488)			SYMBOLS GRAPHIC	SYMBOLS LETTER
COARSE - GRAINED SOILS	GRAVEL AND GRAVELY SOILS	CLEAN GRAVELS (LESS THAN 5% PASSING THE NO. 200 SIEVE)		GW
	MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE			GP
		GRAVELS WITH FINES (MORE THAN 15% PASSING THE NO. 200 SIEVE)		GM
				GC
MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	SAND AND SANDY SOILS	CLEAN SANDS (LESS THAN 5% PASSING THE NO. 200 SIEVE)		SW
	MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE			SP
		SANDS WITH FINES (MORE THAN 15% PASSING THE NO. 200 SIEVE)		SM
				SC
FINE - GRAINED SOILS	SILTS AND CLAYS LIQUID LIMIT LESS THAN 50	SILT OR CLAY (<15% RETAINED THE NO. 200 SIEVE)		ML
		SILT OR CLAY WITH SAND OR GRAVEL (15% TO 30% RETAINED THE NO. 200 SIEVE)		CL
		SANDY OR GRAVELY SILT OR CLAY (>30% RETAINED THE NO. 200 SIEVE)		OL
MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50	SILT OR CLAY (<15% RETAINED THE NO. 200 SIEVE)		MH
		SILT OR CLAY WITH SAND OR GRAVEL (15% TO 30% RETAINED THE NO. 200 SIEVE)		CH
		SANDY OR GRAVELY SILT OR CLAY (>30% RETAINED THE NO. 200 SIEVE)		OH
HIGHLY ORGANIC SOILS				PT

NOTE: DUAL SYMBOLS ARE USED TO INDICATE COARSE-GRAINED SOILS CONTAINING AN ESTIMATED 10% FINES BY VISUAL CLASSIFICATION OR WHEN THE SOIL HAS BETWEEN 5 AND 12 PERCENT FINES FROM LABORATORY TESTS; AND FOR FINE-GRAINED SOILS WHEN THE PLOT OF LIQUID LIMIT & PLASTICITY INDEX VALUES FALLS IN THE PLASTICITY CHART'S CROSSHATCHED AREA. FINE-GRAINED SOILS ARE CLASSIFIED AS ORGANIC -OL OR OH, WHEN ENOUGH ORGANIC PARTICLES ARE PRESENT TO INFLUENCE ITS PROPERTIES. LABORATORY TEST RESULTS ARE USED TO SUPPLEMENT SOIL CLASSIFICATION BY THE VISUAL-MANUAL PROCEDURES OF ASTM D2488.

ADDITIONAL TERMINOLOGY AND GRAPHIC SYMBOLS

	DESCRIPTION		GRAPHIC SYMBOLS
ADDITIONAL DESIGNATION	TOPSOIL		
	MAN-MADE FILL		
	GLACIAL TILL		
	COBBLES AND BOULDERS		
RESIDUAL SOIL DESIGNATION	DESCRIPTION	"N" VALUE	
	HIGHLY WEATHERED ROCK	50 TO 50/1"	
	PARTIALLY WEATHERED ROCK	MORE THAN 50 BLOWS FOR 1" PENETRATION, AUGER PENETRABLE	

COARSE-GRAINED SOILS
(GRAVEL AND SAND)

DESIGNATION	BLOWS PER FOOT (BPF) "N"
VERY LOOSE	0 - 4
LOOSE	5 - 10
MEDIUM DENSE	11 - 30
DENSE	31 - 50
VERY DENSE	>50

NOTE: "N" VALUE DETERMINED AS PER ASTM D1586

FINE-GRAINED SOILS
(SILT AND CLAY)

CONSISTENCY	BPF "N"
VERY SOFT	<2
SOFT	2 - 4
MEDIUM STIFF	5 - 8
STIFF	9 - 15
VERY STIFF	16 - 30
HARD	>30

NOTE: ADDITIONAL DESIGNATIONS TO ADVANCE SAMPLER INDICATED IN BLOW COUNT COLUMN:
WOH = WEIGHT OF HAMMER
WOR = WEIGHT OF ROD(S)

SAMPLE TYPE

DESIGNATION	SYMBOL
SPLIT-SPOON	S-
SHELBY TUBE	U-
ROCK CORE	R-

WATER DESIGNATION

DESCRIPTION	SYMBOL
ENCOUNTERED DURING DRILLING	▽
UPON COMPLETION OF DRILLING	▼
24 HOURS AFTER COMPLETION	▼

NOTE: WATER OBSERVATIONS WERE MADE AT THE TIME INDICATED. POROSITY OF SOIL STRATA, WEATHER CONDITIONS, SITE TOPOGRAPHY, ETC. MAY CAUSE WATER LEVEL CHANGES.

LOG OF BORING NO. ER-1

PROJECT: **Ebberts Road Landslide**
PROJECT NO.: **31242595**
PROJECT LOCATION: **Ebberts Rd Bellaire, OH**

WATER LEVEL (ft): **21.0'** **21.0'**
DATE: **11/18/24** **11/18/24**
CAVED (ft):

DATE STARTED: **11/18/24**
DATE COMPLETED: **11/18/24**
DRILLING CONTRACTOR: **Pennsylvania Drilling Co.**
DRILLER: **Craig**
DRILLING METHOD: **3.25" Hollow Stem Auger**
SOIL SAMPLING METHOD: **24" Split Spoon Sampler**
ROCK SAMPLING METHOD: **NQ2**

WATER ENCOUNTERED DURING DRILLING (ft.): **Dry**
GROUND SURFACE ELEVATION: **922'**
DATUM: **Site Plan**
DRILL MODEL: **CME**
DRILL CARRIER: **Track Mounted**
LOGGED BY: **Jack McGuane**
CHECKED BY: **Tyler Furr, P.G.**

SAMPLE NUMBER	SAMPLE DEPTH (ft.)	SAMPLE RECOVERY (in.)	SAMPLE BLOWS/6 inches	N (blows/ft.)	ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
					922.0	0			(FILL) 4" Asphalt	Augered to 1'
	0.0				921.0				7" Subbase	
1	1.0	8	2-5-5-7	10			CL		Brown and gray, dry to damp, stiff to hard, Sandy LEAN CLAY with Gravel	
2	3.0	10	7-10-6-7	16		5				
3	5.0	24	7-13-15-15	28						
					915.0		HW		Brown, dry, highly weathered, SILTSTONE	6" seam of rock fragments at 8'
4	7.0	14	27-48-37-8	85						
5	9.0	10	19-50/4	50/4		10				Augered to 10.5'
6	10.5	3	50/3	50/3	911.2		ROCK		Dark gray, highly weathered, highly fractured, SHALE Core 1: Recovery - 12/26.4 = 45% RQD:0/26.4 = 0%	Coring started at 10.8' due to split spoon refusal.
R-1	10.8	12							Core 2: Recovery - 12/24 = 50% RQD - 0/24 = 0%	
R-2	13.0	12			907.5		ROCK		Black, highly weathered, highly fractured, COAL	
R-3	15.0	36			906.8	15	ROCK		Gray, wet, highly weathered, CLAYSTONE	Possible slip clay seam
R-4	18.0	28			904.0	20	ROCK		Gray, moderately weathered, moderately fractured, SILTSTONE Core 4: Recovery - 28/60 = 47% RQD - 15.6/60 = 26%	▼
R-5	23.0	21							Core 5: Recovery - 21/36 = 58% RQD - 10.1/36 = 28%	
					896.0	25			Boring terminated at 26.0'	

NOTES:

GEO-TECHNOLOGY ASSOCIATES, INC.
206 Bursca Dr
Bridgeville, PA, 15017

LOG OF BORING NO. ER-2

PROJECT: **Ebberts Road Landslide**
PROJECT NO.: **31242595**
PROJECT LOCATION: **Ebberts Rd Bellaire, OH**

WATER LEVEL (ft): **Dry** | **Dry** |
DATE: **11/18/24** | **11/18/24** |
CAVED (ft): | |

DATE STARTED: **11/18/24**
DATE COMPLETED: **11/18/24**
DRILLING CONTRACTOR: **Pennsylvania Drilling Co.**
DRILLER: **Craig**
DRILLING METHOD: **3.25" Hollow Stem Auger**
SOIL SAMPLING METHOD: **24" Split Spoon Sampler**
ROCK SAMPLING METHOD: **N/A**

WATER ENCOUNTERED DURING DRILLING (ft.): **Dry**
GROUND SURFACE ELEVATION: **934'**
DATUM: **Site Plan**
DRILL MODEL: **CME**
DRILL CARRIER: **Track Mounted**
LOGGED BY: **Jack McGuane**
CHECKED BY: **Tyler Furr, P.G.**

SAMPLE NUMBER	SAMPLE DEPTH (ft.)	SAMPLE RECOVERY (in.)	SAMPLE BLOWS/6 inches	N (blows/ft.)	ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
					934.0	0				
	0.0				933.0				(FILL) 4" Asphalt 7" Subbase	Augered to 1'
1	1.0	12	3-4-8-8	12			SM		Brown and gray, dry to damp, medium dense to dense, Silty SAND with rock fragments	
2	3.0	10	17-15-18-21	33		5				
3	5.0	24	14-18-32-32	50	927.0					
4	7.0	18	10-6-8-9	14			SC		Gray, damp, medium dense, Clayey SAND with rock fragments	
5	9.0	24	8-7-4-6	11		10				
6	11.0	24	26-19-19-28	38	923.0		SM		Black, dry, dense, Silty SAND	Carbonaceous sand material (coal)
7	13.0	24	14-17-19-24	36	919.5					
					919.0	15	SM		Brown and gray, dry, Silty SAND	
8	15.0	19	6-31-40-19	71			HW		Gray and brown, dry, Highly Weathered SANDSTONE	8" seam of black and brown, moist, LEAN CLAY
9	17.0	24	28-20-38-35	58	915.0					
10	19.0	21	26-15-21-25	36		20	SC		Gray and brown, damp, dense, Clayey SAND with rock fragments	
					913.0					
11	21.0	16	12-18-50-50/1	68			HW		Gray and brown, dry, Highly Weathered SANDSTONE	
					911.4					
									Boring terminated at 22.6' due to split spoon refusal	
						25				

NOTES:

GEO-TECHNOLOGY ASSOCIATES, INC.
206 Bursca Dr
Bridgeville, PA, 15017

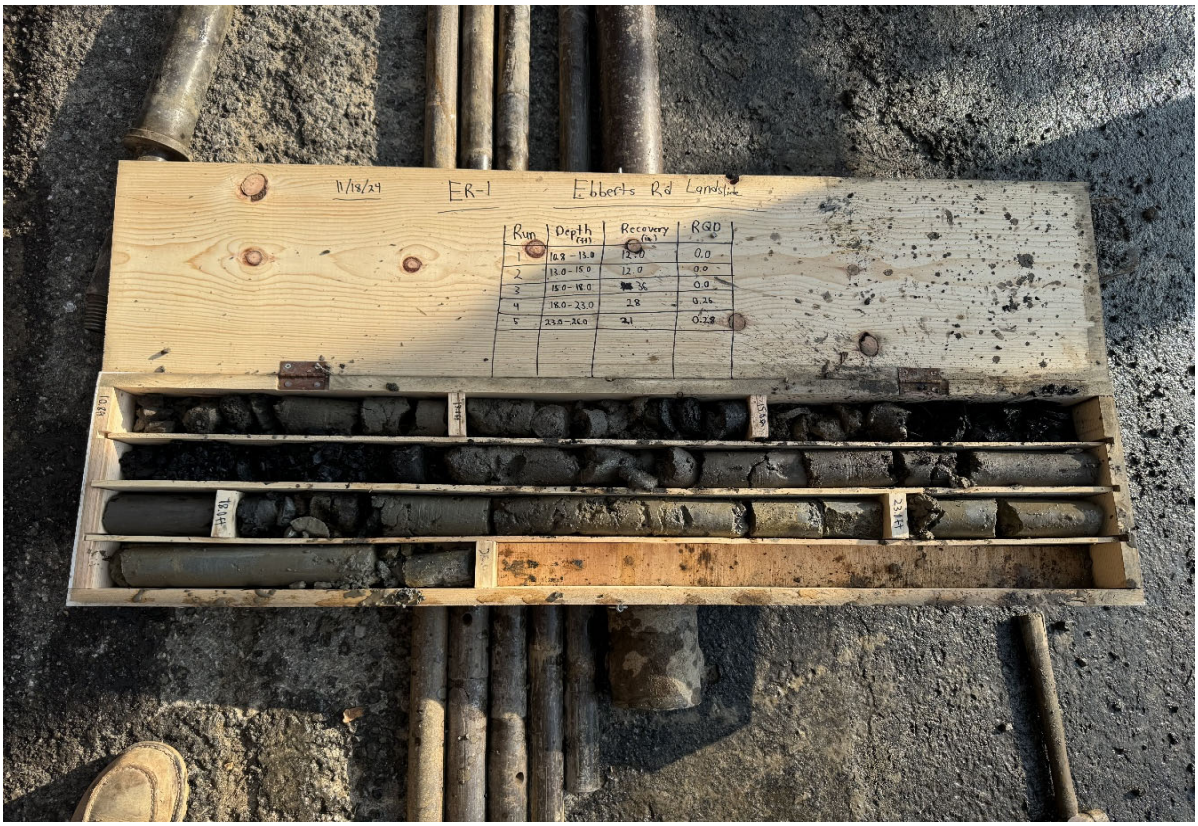


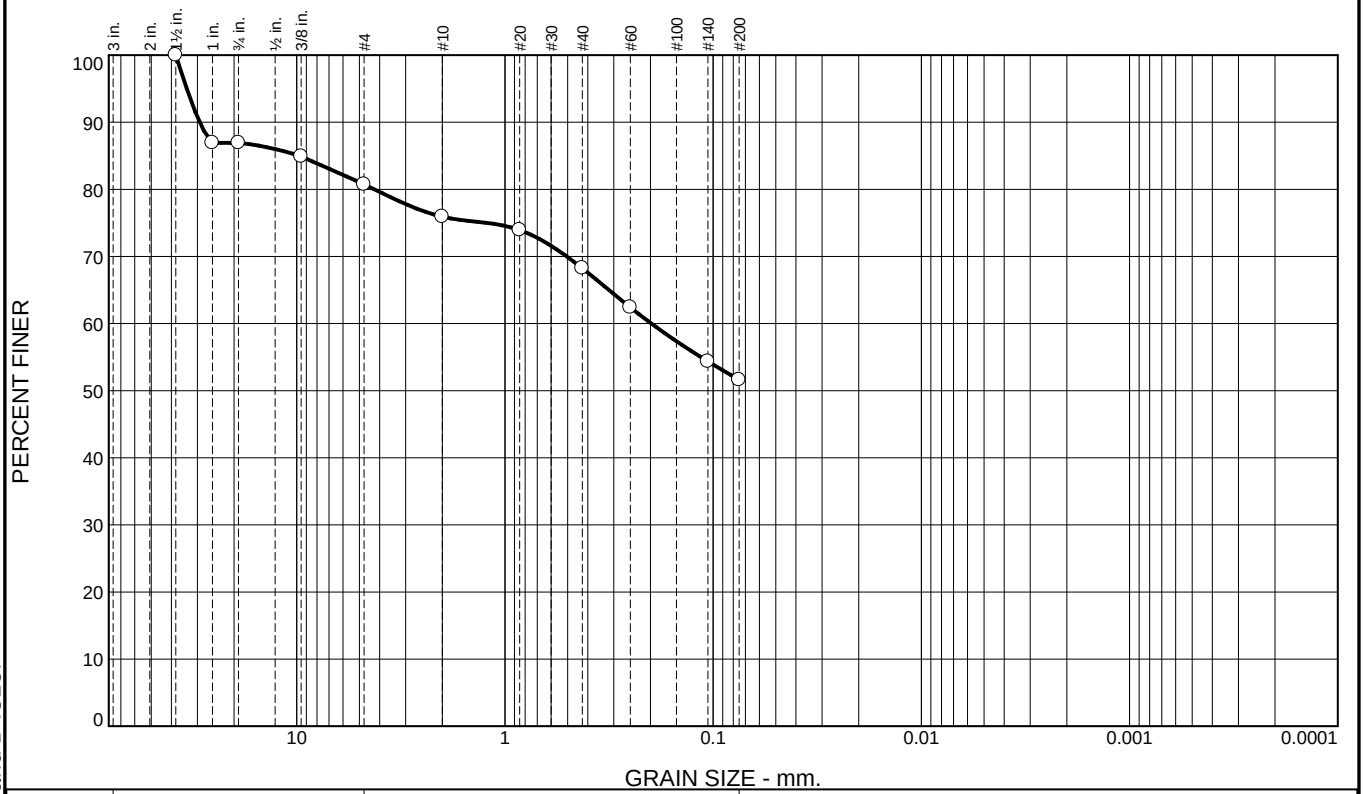
Photo 1 - Boring ER-1, Box 1 of 1

CORE BOX PHOTOGRAPHS
EBBERTS RD LANDSLIDE
ST. CLAIRSVILLE
BELMONT COUNTY, OHIO

GEOTECHNICAL EXPLORATION
NATURAL MOISTURE CONTENT
EBBERTS ROAD LANDSLIDE
31242595

LOCATION	DEPTH (ft)	MOISTURE	USCS
ER-1	1.0 - 3.0	10.9%	CL
	3.0 - 5.0	13.9%	CL
	5.0 - 7.0	12.2%	CL
	7.0 - 9.0	9.6%	CL
	9.0 - 9.8	8.5%	HW
	10.5 - 10.8	5.0%	HW
ER-2	1.0 - 3.0	16.1%	SM
	3.0 - 5.0	6.7%	SM
	5.0 - 7.0	6.8%	SM
	7.0 - 9.0	14.7%	SC
	9.0 - 11.0	17.9%	SC
	11.0 - 13.0	23.8%	SM
	13.0 - 15.0	16.0%	SM
	15.0 - 17.0	12.4%	SC
	17.0 - 19.0	11.1%	SC
	19.0 - 21.0	14.8%	SC
	21.0 - 22.8	10.5%	SC

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	13.1	6.2	4.8	7.7	16.6	51.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.5	100.0		
1	86.9		
.75	86.9		
.375	84.9		
#4	80.7		
#10	75.9		
#20	73.9		
#40	68.2		
#60	62.4		
#140	54.4		
#200	51.6		

* (no specification provided)

Soil Description

Sandy Lean Clay with Gravel

Atterberg Limits

PL= 18 LL= 36 PI= 18 NM= 13.9

Coefficients

D_{90}= 29.2739 D_{85}= 9.7285 D_{60}= 0.1980
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CL AASHTO= A-6(6)

Remarks

Location: ER-1 S2
Sample Number: ER-1 S2 **Depth:** 3.0'-5.0' **Date:** 12/19/2024

GEO-TECHNOLOGY ASSOCIATES, INC.
1420 W. Main Street
Alliance, OH 44601

Client: Verdantas
Project: Ebberts Road Landslide
Project No: 31242595 **Figure**

ASTM Specifications performed may include: D421, D422, D2216, D2217, and D4318.

Tested By: KEM **Checked By:** TF

Particle Size Distribution Report

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.3	0.8	21.5	43.2	33.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	98.7		
#10	97.9		
#20	91.0		
#40	76.4		
#60	61.4		
#140	38.5		
#200	33.2		

* (no specification provided)

Soil Description

Silty Sand

Atterberg Limits

PL= NP LL= NP PI= NP NM= 23.8

Coefficients

D_{90}= 0.7972 D_{85}= 0.6119 D_{60}= 0.2382
D_{50}= 0.1701 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-2-4(0)

Remarks

Location: ER-2 S6
Sample Number: ER-2 S6 **Depth:** 11.0'-13.0' **Date:** 12/19/2024

GEO-TECHNOLOGY ASSOCIATES, INC.
1420 W. Main Street
Alliance, OH 44601

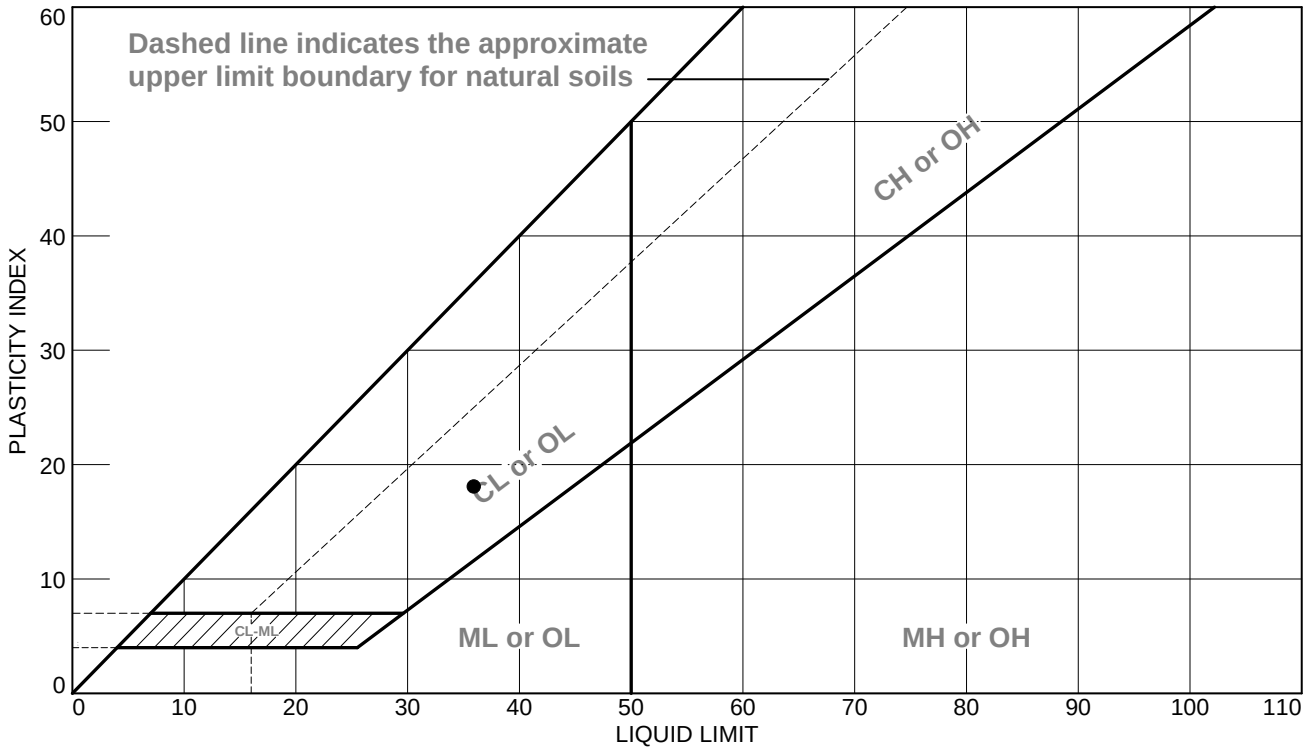
Client: Verdantas
Project: Ebberts Road Landslide

Project No: 31242595 **Figure**

Tested By: KEM **Checked By:** TF

ASTM Specifications performed may include: D421, D422, D2216, D2217, and D4318.

LIQUID AND PLASTIC LIMITS TEST REPORT - ASTM D4318



SOIL DATA

	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●		ER-1 S2	3.0'-5.0'	13.9	18	36	18	CL
■		ER-2 S6	11.0'-13.0'	23.8	NP	NP	NP	SM

ASTM Specifications performed may include: D421, D422, D2216, D2217, and D4318.

GEO-TECHNOLOGY ASSOCIATES, INC.
1420 W. Main Street
Alliance, OH 44601

Client: Verdantas
Project: Ebberts Road Landslide
Project No.: 31242595 **Figure**

Tested By: KEM **Checked By:** TF

Professional Service Industries, Inc.
4960 Vulcan Ave, Columbus, Ohio 43228
Phone: (614) 876-8000
Fax: (614) 876-0548

March 1, 2022

Mr. Rick Ferrell
Richland Township
66565 Warnock Saint Clairsville Road
Sanit Clairsville, Ohio 43950

Re: Geotechnical Exploration Data Report
Ebbert Road Slips
Ebbert South Rd and Willow Grove Rd
Saint Clairsville, Belmont County, Ohio
PSI Project No. 01022071

Dear Mr. Ferrell:

Professional Service Industries, Inc. (PSI), an Intertek company, has completed the field work and laboratory testing and prepared the results for the Ebbert Road Slips project located along Ebbert South Rd in Saint Clairsville, Belmont County, Ohio.

PSI services were authorized by Mr. Rick Ferrell of Richland Township on January 19, 2022. The exploration was accomplished in general accordance with PSI Proposal No. 0102-360780, dated December 6, 2021.

The results presented in this report are based on the available project information supplied to PSI and the subsurface materials described in this report.

Purpose and Scope of Services

The purpose of this study was to conduct field and laboratory testing in order to determine the subsurface conditions at the proposed site. The site was explored with soil boring locations that were selected and located in the field by Richland Township prior to drilling by PSI. PSI's contracted scope of services included drilling four (4) soil borings at the site to depths of 40 feet below the ground surface, performing selected laboratory testing, and preparation of this geotechnical data report. This data report presents available project information and presents the results of the testing.

Site Location and Description

The site is located near the intersection of Ebbert South Rd and Willow Grove Rd in Saint Clairsville, Belmont County, Ohio. The approximate site location is depicted on the "Site Location Map" in the Appendix.

If you have any questions pertaining to this report, please contact our office at (614) 876-8000. PSI would be pleased to continue providing geotechnical services throughout the implementation of the project, and we look forward to working with you and your organization on this and future projects.

Respectfully submitted,
PROFESSIONAL SERVICE INDUSTRIES, INC.

John Xu, P.E.
Senior Project Manager

Paul S. Hundley, P.E.
Geotechnical Dept. Manager/Principal Consultant

Attachments:
Site Location Plan
Boring Location Plan
Boring Logs
Laboratory Test Results
ODNR Mine Maps
General Notes
Unified Soil Classification System (USCS)

Note: Base map provided by client; altered for PSI use.

intertek psi
Professional Services Industries, Inc.
4960 Vulcan Ave. Suite C
Columbus, OH 43228
Telephone: (614) 876-8000

Site Vicinity Plan

Ebbert Road Slips

St. Clairsville, Belmont County, Ohio

PSI Project No.: 01022071

Note: Base map provided by client; altered for PSI use.

intertek psi
Professional Services Industries, Inc.
4960 Vulcan Ave. Suite C
Columbus, OH 43228
Telephone: (614) 876-8000

Boring Location Plan

Ebbert Road Slips

St. Clairsville, Belmont County, Ohio

PSI Project No.: 01022071

BORING B-1

DATE STARTED:	2/10/22	**DRILL COMPANY:**	PSI, Inc.
DATE COMPLETED:	2/10/22	**DRILLER:** Randy	**LOGGED BY:** Jesse
COMPLETION DEPTH	40.0 ft	**DRILL RIG:**	CME 55X300
BENCHMARK:	N/A	**DRILLING METHOD:**	Hollow Stem Auger
ELEVATION:	1025 ft	**SAMPLING METHOD:**	2-in SS
LATITUDE:	40.0478°	**HAMMER TYPE:**	Automatic
LONGITUDE:	-80.8516°	**EFFICIENCY**	85%
STATION: N/A	**OFFSET:** N/A	**REVIEWED BY:**	D.K.

Water

While Drilling	feet	
Upon Completion	feet	
Caved	feet	

BORING LOCATION:

REMARKS: N_{60} denotes the normalization to 60% efficiency as described in ASTM D4633. Soil Symbol in "( )" = Visual Classification

Elevation (feet)	Depth, (feet)	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch (SS)	Moisture, %	Additional Remarks
	0	1	14	**ASPHALT** (6") STIFF, MOTTLED BROWN AND GRAY, **LEAN CLAY**, LITTLE SAND, MOIST	(CL)	4-4-2 N_{60}=9	32	
		2	18	**SHALE**, BROWN AND GRAY, HIGHLY WEATHERED		5-8-27 N_{60}=50	16	LL = 39 PL = 19 Fines=76.6%
1020	5	3	18			8-10-14 N_{60}=34	10	
		4	5			3-3-4 N_{60}=10	21	
1015	10	5	18			7-13-18 N_{60}=44	18	
		6	18	**COAL**, BLACK, HIGHLY WEATHERED		10-13-19 N_{60}=45	24	
1010	15	7	18			34-39-46 N_{60}=120	28	
		8	18	**SHALE**, GRAY, WEATHERED		25-30-37 N_{60}=95	11	
1005	20	9	16			32-41-50/4" N_{60}=129	15	
1000	25	10	10			47-50/3"	6	
995	30	11	7			49-50/1"	9	
990	35	12	8			46-50/2"	8	
985	40	13	5	BORING DISCONTINUED UPON COMPLETION AT 40.3'		50/4"	8	

STANDARD PENETRATION TEST DATA
N in blows/ft ◎
× Moisture ◪ PL ✚ LL
0 25 50
STRENGTH, tsf
▲ Qu ✳ Qp
0 2.0 4.0

intertek psi
Professional Service Industries, Inc.
4960 Vulcan Ave, Suite C
Columbus, OH 43228
Telephone: (614) 876-8000

PROJECT NO.:	01022071
PROJECT:	Ebbert Road Slips
LOCATION:	Ebbert S Road
	St. Claresville
	Ohio

The stratification lines represent approximate boundaries. The transition may be gradual.

BORING B-2

DATE STARTED:	2/9/22	**DRILL COMPANY:**	PSI, Inc.
DATE COMPLETED:	2/9/22	**DRILLER:** Randy	**LOGGED BY:** Jesse
COMPLETION DEPTH	40.0 ft	**DRILL RIG:**	CME 55X300
BENCHMARK:	N/A	**DRILLING METHOD:**	Hollow Stem Auger
ELEVATION:	1026 ft	**SAMPLING METHOD:**	2-in SS
LATITUDE:	40.0479°	**HAMMER TYPE:**	Automatic
LONGITUDE:	-80.8515°	**EFFICIENCY**	85%
STATION: N/A	**OFFSET:** N/A	**REVIEWED BY:**	D.K.

Water

While Drilling	feet
Upon Completion	feet
Caved	feet

BORING LOCATION:

REMARKS: N_{60} denotes the normalization to 60% efficiency as described in ASTM D4633. Soil Symbol in "( )" = Visual Classification

Elevation (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch (SS)	Moisture, %	Additional Remarks
1025	0			1	12	**ASPHALT**(6") LOOSE, BROWN, **SILTY SAND**, TRACE GRAVEL, MOIST	(SM)	5-3-2 N_{60}=7	25	
				2	18	**SHALE**, BROWN AND GRAY, HIGHLY WEATHERED		3-6-31 N_{60}=52	18	
1020	5			3	18			11-11-13 N_{60}=34	15	LL = 37 PL = 21 Fines=79.1%
				4	6			5-6-7 N_{60}=18	15	
1015	10			5	18	**COAL**, BLACK, HIGHLY WEATHERED		8-15-17 N_{60}=45	31	
				6	18			38-42-39 N_{60}=115	25	
1010	15			7	18	**SHALE**, GRAY, WEATHERED		29-32-39 N_{60}=101	9	
				8	18			39-46-49 N_{60}=135	5	
1005	20			9	16			40-46-50/4" N_{60}=136	12	
1000	25			10	11			39-50/4"	9	
995	30			11	9			48-50/2"	10	
990	35			12	8			49-50/1"	10	
	40			13	5	BORING DISCONTINUED UPON COMPLETION AT 40.3'		50/4"	9	

STANDARD PENETRATION TEST DATA
N in blows/ft ◎
× Moisture ◪ PL ✚ LL
0 25 50

STRENGTH, tsf
▲ Qu ✳ Qp
0 2.0 4.0

intertek psi
Professional Service Industries, Inc.
4960 Vulcan Ave, Suite C
Columbus, OH 43228
Telephone: (614) 876-8000

PROJECT NO.: 01022071
PROJECT: Ebbert Road Slips
LOCATION: Ebbert S Road
St. Claresville
Ohio

The stratification lines represent approximate boundaries. The transition may be gradual.

BORING B-3

DATE STARTED:	2/10/22	**DRILL COMPANY:**	PSI, Inc.
DATE COMPLETED:	2/10/22	**DRILLER:** Randy	**LOGGED BY:** Jesse
COMPLETION DEPTH	40.0 ft	**DRILL RIG:**	CME 55X300
BENCHMARK:	N/A	**DRILLING METHOD:**	Hollow Stem Auger
ELEVATION:	907 ft	**SAMPLING METHOD:**	2-in SS
LATITUDE:	40.0471°	**HAMMER TYPE:**	Automatic
LONGITUDE:	-80.8552°	**EFFICIENCY**	85%
STATION: N/A	**OFFSET:** N/A	**REVIEWED BY:**	D.K.

Water

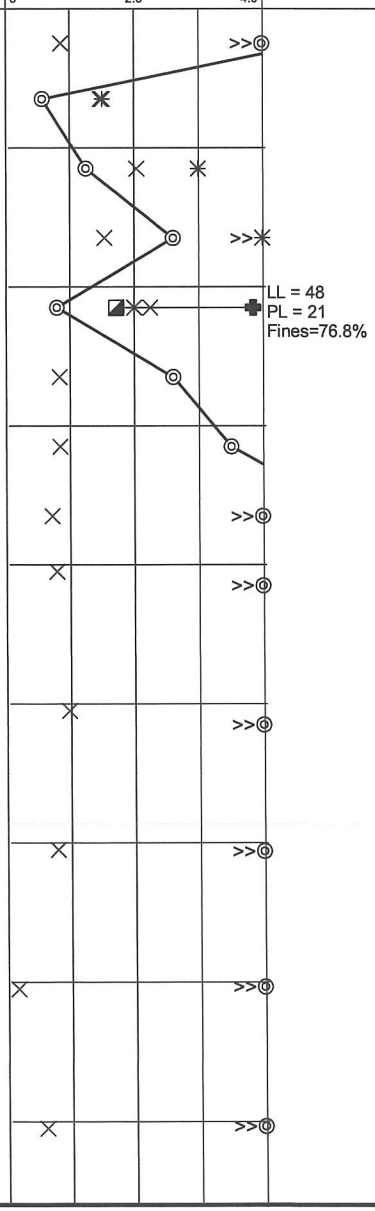
While Drilling		feet
Upon Completion		feet
Caved		feet

BORING LOCATION:

REMARKS: N_{60} denotes the normalization to 60% efficiency as described in ASTM D4633. Soil Symbol in "( )" = Visual Classification

Elevation (feet)	Depth, (feet)	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch (SS)	Moisture, %	Additional Remarks
907	0			**ASPHALT** (6")				
905		1	5	VERY DENSE, BROWN, **SILTY SAND WITH GRAVEL**, MOIST, **FILL**	(SM)	50/4"	11	
		2	12	FIRM TO HARD, BROWN, **LEAN CLAY WITH SAND**, TRACE GRAVEL, MOIST		3-3-2 N_{60}=7	18	
	5	3	18			3-5-6 N_{60}=16	25	
900		4	18		CL	11-12-11 N_{60}=33	19	
	10	5	18			7-4-3 N_{60}=10	28	LL = 48 PL = 21 Fines=76.8%
895		6	12	**SHALE**, GRAY, HIGHLY WEATHERED		7-12-11 N_{60}=33	10	
	15	7	18	BROWN AT 15'		5-9-22 N_{60}=44	10	
890		8	18	GRAY BEGINNING AT 17.5'		14-20-28 N_{60}=68	9	
	20	9	18			14-28-38 N_{60}=94	10	
885								
	25	10	18			17-21-24 N_{60}=64	12	
880								
	30	11	8			46-50/1"	10	
875								
	35	12	5			50/4"	2	
870								
	40	13	5	BORING DISCONTINUED UPON COMPLETION AT 40.3'		50/4"	7	

STANDARD PENETRATION TEST DATA
N in blows/ft ◎
× Moisture ◪ PL ✚ LL
0 25 50
STRENGTH, tsf
▲ Qu ✳ Qp
0 2.0 4.0



intertek psi
Professional Service Industries, Inc.
4960 Vulcan Ave, Suite C
Columbus, OH 43228
Telephone: (614) 876-8000

PROJECT NO.: 01022071
PROJECT: Ebbert Road Slips
LOCATION: Ebbert S Road
St. Claresville
Ohio

The stratification lines represent approximate boundaries. The transition may be gradual.

BORING B-4

DATE STARTED:	2/10/22	**DRILL COMPANY:**	PSI, Inc.
DATE COMPLETED:	2/10/22	**DRILLER:** Randy	**LOGGED BY:** Jesse
COMPLETION DEPTH	40.0 ft	**DRILL RIG:**	CME 55X300
BENCHMARK:	N/A	**DRILLING METHOD:**	Hollow Stem Auger
ELEVATION:	917 ft	**SAMPLING METHOD:**	2-in SS
LATITUDE:	40.0471°	**HAMMER TYPE:**	Automatic
LONGITUDE:	-80.8549°	**EFFICIENCY**	85%
STATION: N/A	**OFFSET:** N/A	**REVIEWED BY:**	D.K.

Water

While Drilling		feet
Upon Completion		feet
Caved		feet

BORING LOCATION:

REMARKS: N_{60} denotes the normalization to 60% efficiency as described in ASTM D4633. Soil Symbol in "( )" = Visual Classification

Elevation (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch (SS)	Moisture, %	Additional Remarks
915	0			1	10	**ASPHALT** (6") LOOSE, BROWN, **SILTY SAND**, TRACE GRAVEL, MOIST, **FILL**	(SM)	9-4-2 N_{60}=9	16	
				2	18	FIRM TO HARD, BROWN, **FAT CLAY**, TRACE SHALE FRAGMENTS, MOIST	CH	2-2-2 N_{60}=6	16	
910	5			3	18			4-4-5 N_{60}=13	26	LL = 50 PL = 24 Fines=89.0%
				4	18	HARD TO STIFF, BROWN, **LEAN CLAY WITH SAND**, TRACE SHALE FRAGMENTS, MOIST MOTTLED BROWN AND GRAY BEGINNING AT 7.5'		9-11-14 N_{60}=35	15	
905	10			5	18		(CL)	10-13-14 N_{60}=38	21	
				6	18			8-5-2 N_{60}=10	19	
900	15			7	18	**SHALE**, BROWN, HIGHLY WEATHERED		6-8-10 N_{60}=26	17	
				8	18			10-18-20 N_{60}=54	12	
895	20			9	18			17-24-30 N_{60}=77	10	
890	25			10	18	GRAY BEGINNING AT 25'		18-27-31 N_{60}=82	9	
885	30			11	9			42-50/2"	2	
880	35			12	7			47-50/1"	6	
	40			13	5	BORING DISCONTINUED UPON COMPLETION AT 40.3'		50/4"	4	

STANDARD PENETRATION TEST DATA
N in blows/ft ◎
× Moisture ◪ PL ✚ LL
0 25 50
STRENGTH, tsf
▲ Qu ✳ Qp
0 2.0 4.0

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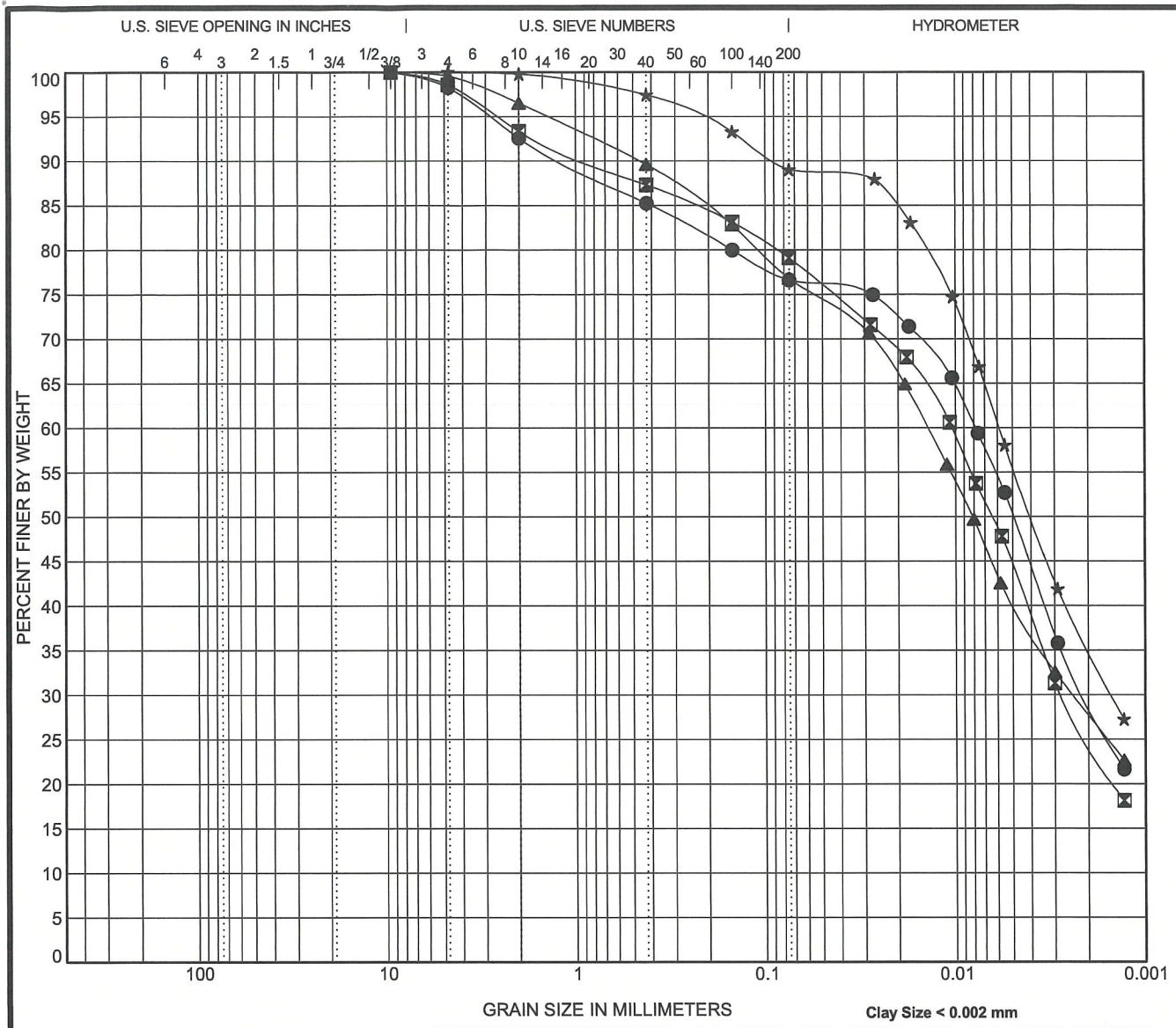
Columbus, OH 43228
Telephone: (614) 876-8000

PROJECT NO.:	01022071
PROJECT:	Ebbert Road Slips
LOCATION:	Ebbert S Road
	St. Claresville
	Ohio

The stratification lines represent approximate boundaries. The transition may be gradual.



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	B-1	3.3	Lean Clay with Sand (CL)	39	19	20		
⊠	B-2	5.8	Lean Clay with Sand (CL)	37	21	16		
▲	B-3	10.8	Lean Clay with Sand (CL)	48	21	27		
★	B-4	5.8	Fat Clay (CH)	50	24	26		

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	B-1	3.3	9.525	0.008	0.002		1.7	21.7	47.4	29.2
⊠	B-2	5.8	9.525	0.01	0.003		1.4	19.5	54.2	24.9
▲	B-3	10.8	9.525	0.014	0.002		0.4	22.8	49.0	27.8
★	B-4	5.8	4.75	0.006	0.002		0.0	11.0	53.9	35.1

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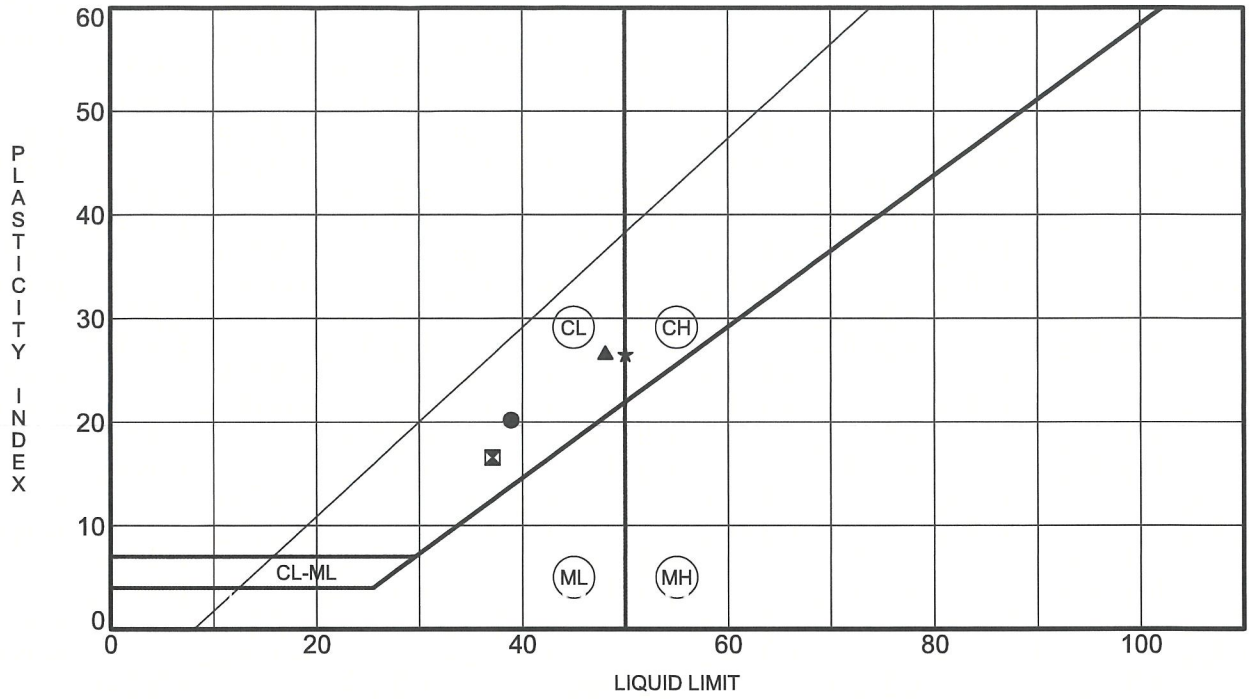
GRAIN SIZE DISTRIBUTION

Project: Ebbert Road Slips
PSI Job No.: 01022071
Location: Ebbert S Road
St. Claresville



	Boring	Depth (ft)	LL	PL	PI	Fines	Classification (*Visual)
●	B-1	3.3	39	19	20	76.6	Lean Clay with Sand (CL)
⊠	B-2	5.8	37	21	16	79.1	Lean Clay with Sand (CL)
▲	B-3	10.8	48	21	27	76.8	Lean Clay with Sand (CL)
★	B-4	5.8	50	24	26	89.0	Fat Clay (CH)

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ATTERBERG LIMIT RESULTS

PSI Job No.: 01022071
Project: Ebbert Road Slips
Location: Ebbert S Road
St. Claresville

Mines of Ohio

January 21, 2022

Abandoned before 1977

Past

Current

Proposed

Original Application

Adjacent Area Application

Historic - From Geology Maps

Past

Current

Proposed

Original Application

Adjacent Area Application

1:4,514

0 0.03 0.06 0.11 mi

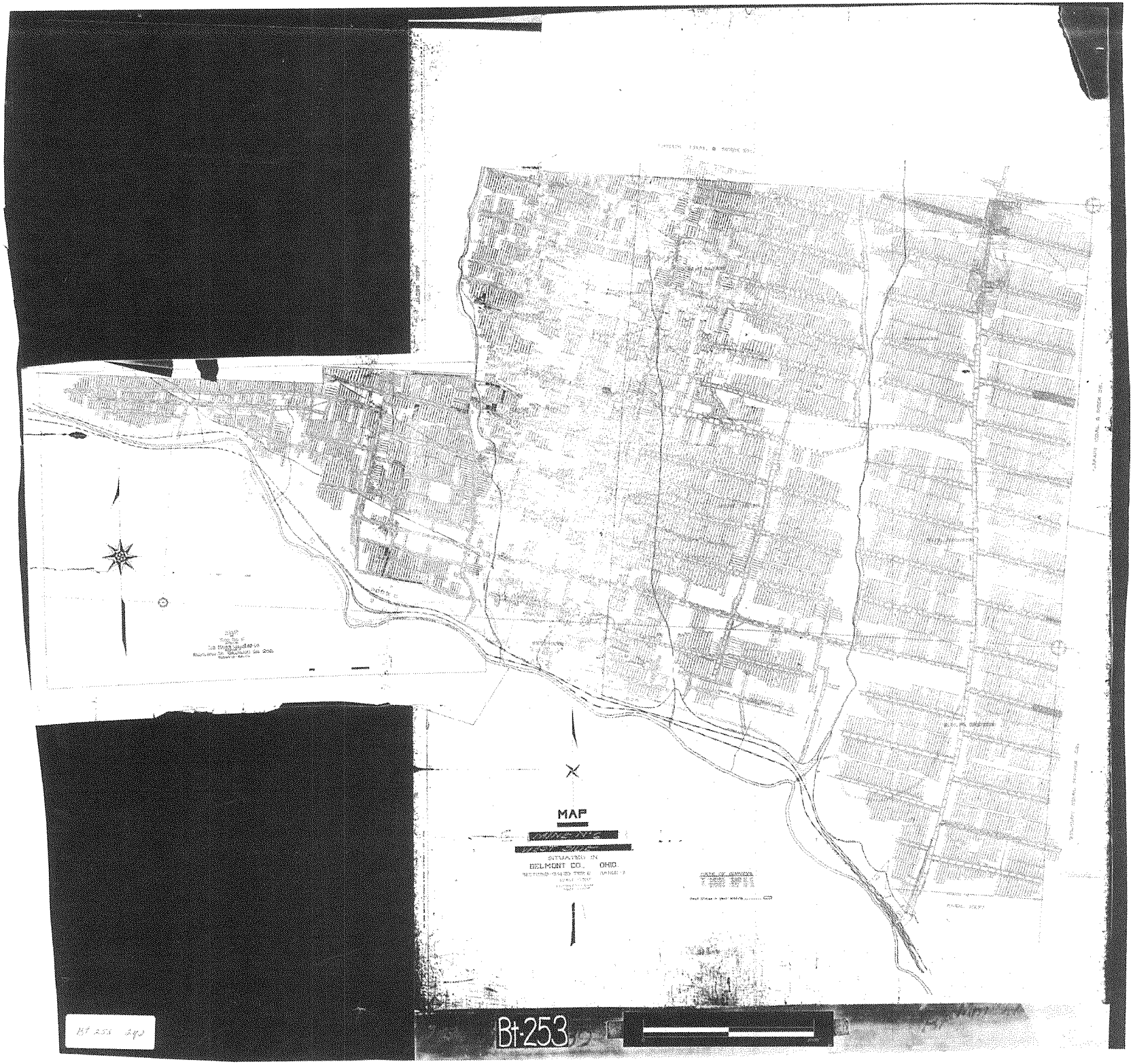
0 0.04 0.09 0.18 km

Maxar

Ohio Dept. of Natural Resources


LORAIN COAL AND DOCK COMPANY
THE MAHER COLLIERIES COMPANY
MINE Nº 6
EAST SIDE

Bt-253


MAP
SITUATED IN
BELMONT CO. OHIO.
Bt-253

GENERAL NOTES

SAMPLE IDENTIFICATION

The Unified Soil Classification System (USCS), AASHTO 1988 and ASTM designations D2487 and D-2488 are used to identify the encountered materials unless otherwise noted. Coarse-grained soils are defined as having more than 50% of their dry weight retained on a #200 sieve (0.075mm); they are described as: boulders, cobbles, gravel or sand. Fine-grained soils have less than 50% of their dry weight retained on a #200 sieve; they are defined as silts or clay depending on their Atterberg Limit attributes. Major constituents may be added as modifiers and minor constituents may be added according to the relative proportions based on grain size.

DRILLING AND SAMPLING SYMBOLS

SFA: Solid Flight Auger - typically 4" diameter flights, except where noted.
HSA: Hollow Stem Auger - typically 3¼" or 4¼ I.D. openings, except where noted.
M.R.: Mud Rotary - Uses a rotary head with Bentonite or Polymer Slurry
R.C.: Diamond Bit Core Sampler
H.A.: Hand Auger
P.A.: Power Auger - Handheld motorized auger

SS: Split-Spoon - 1 3/8" I.D., 2" O.D., except where noted.
ST: Shelby Tube - 3" O.D., except where noted.
BS: Bulk Sample
PM: Pressuremeter
CPT-U: Cone Penetrometer Testing with Pore-Pressure Readings

SOIL PROPERTY SYMBOLS

N: Standard "N" penetration: Blows per foot of a 140 pound hammer falling 30 inches on a 2-inch O.D. Split-Spoon.
N_{60}: A "N" penetration value corrected to an equivalent 60% hammer energy transfer efficiency (ETR)
Q_u: Unconfined compressive strength, TSF
Q_p: Pocket penetrometer value, unconfined compressive strength, TSF
w%: Moisture/water content, %
LL: Liquid Limit, %
PL: Plastic Limit, %
PI: Plasticity Index = (LL-PL),%
DD: Dry unit weight, pcf
▼,▽,▼ Apparent groundwater level at time noted

RELATIVE DENSITY OF COARSE-GRAINED SOILS

Relative Density	N - Blows/foot
Very Loose	0 - 4
Loose	4 - 10
Medium Dense	10 - 30
Dense	30 - 50
Very Dense	50 - 80
Extremely Dense	80+

ANGULARITY OF COARSE-GRAINED PARTICLES

Description	Criteria
Angular:	Particles have sharp edges and relatively plane sides with unpolished surfaces
Subangular:	Particles are similar to angular description, but have rounded edges
Subrounded:	Particles have nearly plane sides, but have well-rounded corners and edges
Rounded:	Particles have smoothly curved sides and no edges

GRAIN-SIZE TERMINOLOGY

Component	Size Range
Boulders:	Over 300 mm (>12 in.)
Cobbles:	75 mm to 300 mm (3 in. to 12 in.)
Coarse-Grained Gravel:	19 mm to 75 mm (¾ in. to 3 in.)
Fine-Grained Gravel:	4.75 mm to 19 mm (No.4 to ¾ in.)
Coarse-Grained Sand:	2 mm to 4.75 mm (No.10 to No.4)
Medium-Grained Sand:	0.42 mm to 2 mm (No.40 to No.10)
Fine-Grained Sand:	0.075 mm to 0.42 mm (No. 200 to No.40)
Silt:	0.002 mm to 0.075 mm
Clay:	<0.002mm to <0.005 mm depending on agency

PARTICLE SHAPE

Description	Criteria
Flat:	Particles with width/thickness ratio > 3
Elongated:	Particles with length/width ratio > 3
Flat & Elongated:	Particles meet criteria for both flat and elongated

RELATIVE PROPORTIONS OF FINES

Descriptive Term	% Dry Weight
Trace:	< 5%
With:	5% to 12%
Modifier:	>12%

GENERAL NOTES

(Continued)

CONSISTENCY OF FINE-GRAINED SOILS

Q_U - TSF	N - Blows/foot	Consistency
0 - 0.25	0 - 2	Very Soft
0.25 - 0.50	2 - 4	Soft
0.50 - 1.00	4 - 8	Firm (Medium Stiff)
1.00 - 2.00	8 - 15	Stiff
2.00 - 4.00	15 - 30	Very Stiff
4.00 - 8.00	30 - 50	Hard
8.00+	50+	Very Hard

MOISTURE CONDITION DESCRIPTION

Description	Criteria
Dry:	Absence of moisture, dusty, dry to the touch
Moist:	Damp but no visible water
Wet:	Visible free water, usually soil is below water table

RELATIVE PROPORTIONS OF SAND AND GRAVEL

Descriptive Term	% Dry Weight
Trace:	< 15%
With:	15% to 30%
Modifier:	>30%

STRUCTURE DESCRIPTION

Description	Criteria
Stratified:	Alternating layers of varying material or color with layers at least ¼-inch (6 mm) thick
Laminated:	Alternating layers of varying material or color with layers less than ¼-inch (6 mm) thick
Fissured:	Breaks along definite planes of fracture with little resistance to fracturing
Slickensided:	Fracture planes appear polished or glossy, sometimes striated
Blocky:	Cohesive soil that can be broken down into small angular lumps which resist further breakdown
Lensed:	Inclusion of small pockets of different soils
Layer:	Inclusion greater than 3 inches thick (75 mm)
Seam:	Inclusion 1/8-inch to 3 inches (3 to 75 mm) thick extending through the sample
Parting:	Inclusion less than 1/8-inch (3 mm) thick

SCALE OF RELATIVE ROCK HARDNESS

Q_U - TSF	Consistency
2.5 - 10	Extremely Soft
10 - 50	Very Soft
50 - 250	Soft
250 - 525	Medium Hard
525 - 1,050	Moderately Hard
1,050 - 2,600	Hard
>2,600	Very Hard

ROCK BEDDING THICKNESSES

Description	Criteria
Very Thick Bedded	Greater than 3-foot (>1.0 m)
Thick Bedded	1-foot to 3-foot (0.3 m to 1.0 m)
Medium Bedded	4-inch to 1-foot (0.1 m to 0.3 m)
Thin Bedded	1¼-inch to 4-inch (30 mm to 100 mm)
Very Thin Bedded	½-inch to 1¼-inch (10 mm to 30 mm)
Thickly Laminated	1/8-inch to ½-inch (3 mm to 10 mm)
Thinly Laminated	1/8-inch or less "paper thin" (<3 mm)

ROCK VOIDS

Voids	Void Diameter
Pit	<6 mm (<0.25 in)
Vug	6 mm to 50 mm (0.25 in to 2 in)
Cavity	50 mm to 600 mm (2 in to 24 in)
Cave	>600 mm (>24 in)

GRAIN-SIZED TERMINOLOGY

(Typically Sedimentary Rock)

Component	Size Range
Very Coarse Grained	>4.76 mm
Coarse Grained	2.0 mm - 4.76 mm
Medium Grained	0.42 mm - 2.0 mm
Fine Grained	0.075 mm - 0.42 mm
Very Fine Grained	<0.075 mm

ROCK QUALITY DESCRIPTION

Rock Mass Description	RQD Value
Excellent	90 -100
Good	75 - 90
Fair	50 - 75
Poor	25 -50
Very Poor	Less than 25

DEGREE OF WEATHERING

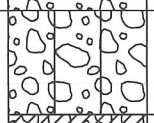
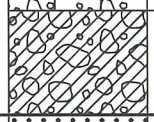
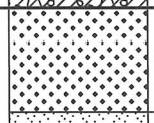
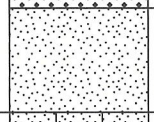
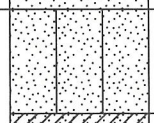
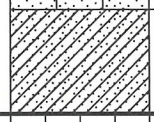
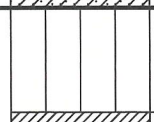
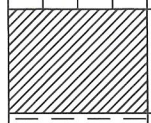
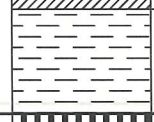
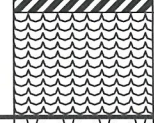
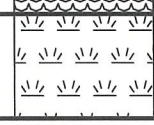
Slightly Weathered: Rock generally fresh, joints stained and discoloration extends into rock up to 25 mm (1 in), open joints may contain clay, core rings under hammer impact.

Weathered: Rock mass is decomposed 50% or less, significant portions of the rock show discoloration and weathering effects, cores cannot be broken by hand or scraped by knife.

Highly Weathered: Rock mass is more than 50% decomposed, complete discoloration of rock fabric, core may be extremely broken and gives clunk sound when struck by hammer, may be shaved with a knife.

SOIL CLASSIFICATION CHART

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

MAJOR DIVISIONS			SYMBOLS		TYPICAL DESCRIPTIONS
			GRAPH	LETTER	
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
	MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	(LITTLE OR NO FINES)		GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
		(APPRECIABLE AMOUNT OF FINES)		GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	SAND AND SANDY SOILS	CLEAN SANDS		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
	MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	(LITTLE OR NO FINES)		SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES
		SANDS WITH FINES		SM	SILTY SANDS, SAND - SILT MIXTURES
		(APPRECIABLE AMOUNT OF FINES)		SC	CLAYEY SANDS, SAND - CLAY MIXTURES
FINE GRAINED SOILS	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

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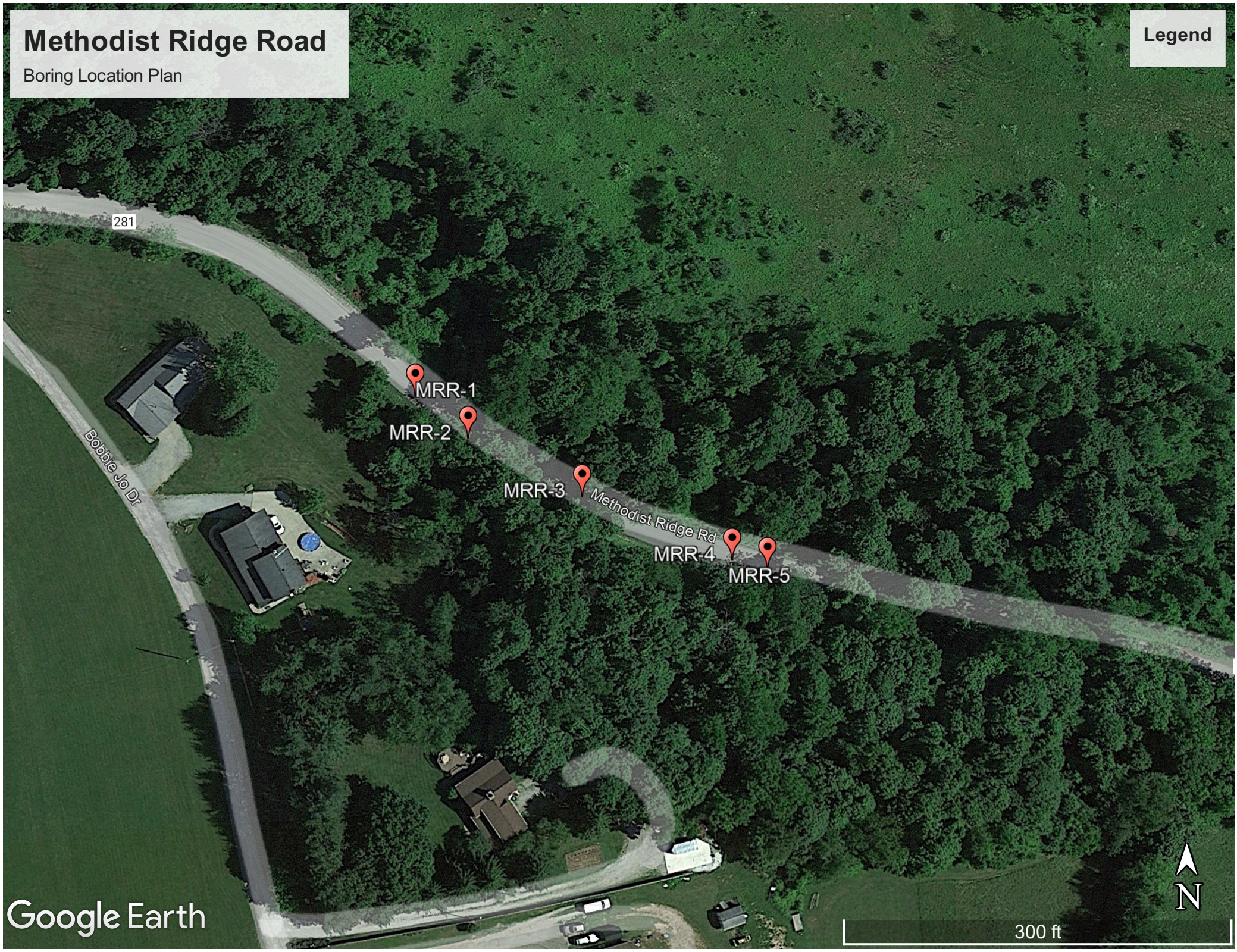
Methodist Ridge Road
Boring Location Plan
Legend
281
MRR-1
MRR-2
MRR-3
MRR-4
MRR-5
Methodist Ridge Rd
Bobbie Jo Dr
Google Earth
N
300 ft

NOTES FOR EXPLORATION LOGS

KEY TO USCS TERMINOLOGY AND GRAPHIC SYMBOLS

MAJOR DIVISIONS (BASED UPON ASTM D 2488)			SYMBOLS GRAPHIC	SYMBOLS LETTER
COARSE - GRAINED SOILS	GRAVEL AND GRAVELY SOILS	CLEAN GRAVELS (LESS THAN 5% PASSING THE NO. 200 SIEVE)		GW
	MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE			GP
		GRAVELS WITH FINES (MORE THAN 15% PASSING THE NO. 200 SIEVE)		GM
				GC
MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	SAND AND SANDY SOILS	CLEAN SANDS (LESS THAN 5% PASSING THE NO. 200 SIEVE)		SW
	MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE			SP
		SANDS WITH FINES (MORE THAN 15% PASSING THE NO. 200 SIEVE)		SM
				SC
FINE - GRAINED SOILS	SILTS AND CLAYS LIQUID LIMIT LESS THAN 50	SILT OR CLAY (<15% RETAINED THE NO. 200 SIEVE)		ML
		SILT OR CLAY WITH SAND OR GRAVEL (15% TO 30% RETAINED THE NO. 200 SIEVE)		CL
		SANDY OR GRAVELY SILT OR CLAY (>30% RETAINED THE NO. 200 SIEVE)		OL
MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50	SILT OR CLAY (<15% RETAINED THE NO. 200 SIEVE)		MH
		SILT OR CLAY WITH SAND OR GRAVEL (15% TO 30% RETAINED THE NO. 200 SIEVE)		CH
		SANDY OR GRAVELY SILT OR CLAY (>30% RETAINED THE NO. 200 SIEVE)		OH
HIGHLY ORGANIC SOILS				PT

NOTE: DUAL SYMBOLS ARE USED TO INDICATE COARSE-GRAINED SOILS CONTAINING AN ESTIMATED 10% FINES BY VISUAL CLASSIFICATION OR WHEN THE SOIL HAS BETWEEN 5 AND 12 PERCENT FINES FROM LABORATORY TESTS; AND FOR FINE-GRAINED SOILS WHEN THE PLOT OF LIQUID LIMIT & PLASTICITY INDEX VALUES FALLS IN THE PLASTICITY CHART'S CROSSHATCHED AREA. FINE-GRAINED SOILS ARE CLASSIFIED AS ORGANIC -OL OR OH, WHEN ENOUGH ORGANIC PARTICLES ARE PRESENT TO INFLUENCE ITS PROPERTIES. LABORATORY TEST RESULTS ARE USED TO SUPPLEMENT SOIL CLASSIFICATION BY THE VISUAL-MANUAL PROCEDURES OF ASTM D2488.

ADDITIONAL TERMINOLOGY AND GRAPHIC SYMBOLS

	DESCRIPTION		GRAPHIC SYMBOLS
ADDITIONAL DESIGNATION	TOPSOIL		
	MAN-MADE FILL		
	GLACIAL TILL		
	COBBLES AND BOULDERS		
RESIDUAL SOIL DESIGNATION	DESCRIPTION	"N" VALUE	
	HIGHLY WEATHERED ROCK	50 TO 50/1"	
	PARTIALLY WEATHERED ROCK	MORE THAN 50 BLOWS FOR 1" PENETRATION, AUGER PENETRABLE	

COARSE-GRAINED SOILS
(GRAVEL AND SAND)

DESIGNATION	BLOWS PER FOOT (BPF) "N"
VERY LOOSE	0 - 4
LOOSE	5 - 10
MEDIUM DENSE	11 - 30
DENSE	31 - 50
VERY DENSE	>50

NOTE: "N" VALUE DETERMINED AS PER ASTM D1586

FINE-GRAINED SOILS
(SILT AND CLAY)

CONSISTENCY	BPF "N"
VERY SOFT	<2
SOFT	2 - 4
MEDIUM STIFF	5 - 8
STIFF	9 - 15
VERY STIFF	16 - 30
HARD	>30

NOTE: ADDITIONAL DESIGNATIONS TO ADVANCE SAMPLER INDICATED IN BLOW COUNT COLUMN:
WOH = WEIGHT OF HAMMER
WOR = WEIGHT OF ROD(S)

SAMPLE TYPE

DESIGNATION	SYMBOL
SPLIT-SPOON	S-
SHELBY TUBE	U-
ROCK CORE	R-

WATER DESIGNATION

DESCRIPTION	SYMBOL
ENCOUNTERED DURING DRILLING	▽
UPON COMPLETION OF DRILLING	▼
24 HOURS AFTER COMPLETION	▼

NOTE: WATER OBSERVATIONS WERE MADE AT THE TIME INDICATED. POROSITY OF SOIL STRATA, WEATHER CONDITIONS, SITE TOPOGRAPHY, ETC. MAY CAUSE WATER LEVEL CHANGES.

LOG OF BORING NO. MRR-1

PROJECT: **Methodist Ridge Road Landslide**
PROJECT NO.: **31242597**
PROJECT LOCATION: **Methodist Ridge Rd Saint Clairsville, Ohio**

WATER LEVEL (ft): N/A | N/A |
DATE: | | |
CAVED (ft): | | |

DATE STARTED: **11/19/24**
DATE COMPLETED: **11/19/24**
DRILLING CONTRACTOR: **Pennsylvania Drilling Co**
DRILLER: **Craig**
DRILLING METHOD: **3.25" Hollow Stem Auger**
SOIL SAMPLING METHOD: **24" Split Spoon Sampler**
ROCK SAMPLING METHOD: **NQ2**

WATER ENCOUNTERED DURING DRILLING (ft.): **Dry**
GROUND SURFACE ELEVATION: **1216'**
DATUM: **.kmz**
DRILL MODEL: **CME**
DRILL CARRIER: **Track Mounted**
LOGGED BY: **Jack McGuane**
CHECKED BY: **Tyler Furr, P.G.**

SAMPLE NUMBER	SAMPLE DEPTH (ft.)	SAMPLE RECOVERY (in.)	SAMPLE BLOWS/6 inches	N (blows/ft.)	ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0.0				1216.0	0			Augered to 1'	
					1215.0				(FILL) 3" Asphalt	
1	1.0	8	15-8-3-2	11			CL		7" Subbase Dark brown, moist, stiff, LEAN CLAY	
					1213.0					
2	3.0	3	4-7-5-3	12		4	CL		Light brown, moist, stiff, Sandy LEAN CLAY	
					1211.0					
3	5.0	17	4-5-7-7	12			CL		Brown, damp, stiff, LEAN CLAY with rock fragments	
4	7.0	14	2-4-6-8	10		8				
5	9.0	7	23-6-4-5	10						
					1205.0					
6	11.0	8	6-8-11-9	19		12	SC		Brown, dry to moist, medium dense to dense, Clayey SAND with rock fragments	
7	13.0	24	13-18-20-20	38						
					1201.0					
8	15.0	24	10-23-30-28	53		16	HW		Brown, dry, Highly Weathered SANDSTONE	
					1199.0					
9	17.0	24	10-19-29-21	48			SC		Brown, dry to moist, dense, Clayey SAND with rock fragments	
10	19.0	24	20-15-18-21	33		20				
					1195.0					
11	21.0	24	17-13-18-50/6	50/6			HW		Brown, dry, Highly Weathered SANDSTONE	

NOTES:

GEO-TECHNOLOGY ASSOCIATES, INC.
206 Bursca Dr
Bridgeville, PA, 15017

LOG OF BORING NO. MRR-1

PROJECT: **Methodist Ridge Road Landslide**
PROJECT NO.: **31242597**
PROJECT LOCATION: **Methodist Ridge Rd Saint Clairsville, Ohio**

WATER LEVEL (ft): N/A N/A
DATE:
CAVED (ft):

SAMPLE NUMBER	SAMPLE DEPTH (ft.)	SAMPLE RECOVERY (in.)	SAMPLE BLOWS/6 inches	N (blows/ft.)	ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
12	23.0	24	42-28-40-48	68		24				
13	25.0	9	42-50/3	50/3	1191.0		HW		Light brown, dry, Highly Weathered SILTSTONE	Augered from 25.8' to 27'
14	27.0	2	50/2	50/2	1188.8		ROCK		Gray, moderately weathered, moderately fractured, SANDSTONE Core 1: Recovery - 22/29 = 76% RQD - 22/29 = 76%	Coring started at 27.2'
R-1	27.2	22				28			Core 2: Recovery - 58/60 = 97% RQD - 34.2/60 = 57%	
R-2	29.6	58				32				
R-3	34.6	57			1181.4	36	ROCK		Dark gray, highly weathered, moderately fractured, SHALE Core 3: Recovery - 57/60 = 95% RQD - 45/60 = 75%	
R-4	39.6	32			1176.4	40	ROCK		Gray and brown, moderately weathered, highly fractured, SANDSTONE Core 4: Recovery - 32/36 = 89% RQD - 22/36 = 61%	
					1173.4				Boring terminated at 42.6'	
						44				
						48				
						52				

LOG OF BORING NO. MRR-2

PROJECT: **Methodist Ridge Road Landslide**
PROJECT NO.: **31242597**
PROJECT LOCATION: **Methodist Ridge Rd Saint Clairsville, Ohio**

WATER LEVEL (ft): **16.8'** **17.3'**
DATE: **11/19/24** **11/19/24**
CAVED (ft):

DATE STARTED: **11/19/24**
DATE COMPLETED: **11/19/24**
DRILLING CONTRACTOR: **Pennsylvania Drilling Co**
DRILLER: **Craig**
DRILLING METHOD: **3.25" Hollow Stem Auger**
SOIL SAMPLING METHOD: **24" Split Spoon**
ROCK SAMPLING METHOD: **NQ2**

WATER ENCOUNTERED DURING DRILLING (ft.): **Dry**
GROUND SURFACE ELEVATION: **1214'**
DATUM: **.KMZ**
DRILL MODEL: **CME**
DRILL CARRIER: **Track Mounted**
LOGGED BY: **Jack McGuane**
CHECKED BY: **Tyler Furr, P.G.**

SAMPLE NUMBER	SAMPLE DEPTH (ft.)	SAMPLE RECOVERY (in.)	SAMPLE BLOWS/6 inches	N (blows/ft.)	ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
					1214.0	0				
	0.0								(FILL) 3" Asphalt 7" Subbase	Augered to 1'
					1213.0					
1	1.0	8	6-3-2-3	5			CL		Brown, moist, medium stiff, LEAN CLAY	
					1211.0					
2	3.0	16	8-4-3-2	7		4	CL		Light brown to dark brown, damp to moist, medium stiff to very stiff, LEAN CLAY with Sand	
3	5.0	14	8-7-12-7	19						
4	7.0	18	3-6-15-10	21		8				
5	9.0	8	9-3-3-4	6						
					1203.0					
6	11.0	24	7-14-12-12	26		12	SC		Brown and gray, dry, medium dense to very dense, Clayey SAND with rock fragments	
					1201.0					
7	13.0	9	22-50/3	50/3			HW		Brown, dry, Highly Weathered CLAYSTONE	Augered to 14'
	14.0	0	50/0	50/0						Augered to 15'
8	15.0	2	50/2	50/2						Augered to 16'
						16				Augered to 18'
9	16.0	22	50-40-50-50/4	50/4						Boring started at 18' due to split spoon refusal
					1196.0					
R-1	18.0	12					ROCK		Gray to brown, highly weathered, highly fractured SHALE RQD: 0% Core 2: Recovery - 57/60 = 95% RQD - 16.2/60 = 27%	
R-2	19.0	57				20				
					1191.3		ROCK		Gray and brown, moderately weathered to highly	

NOTES:

GEO-TECHNOLOGY ASSOCIATES, INC.
206 Bursca Dr
Bridgeville, PA, 15017

LOG OF BORING NO. MRR-2

PROJECT: **Methodist Ridge Road Landslide**
PROJECT NO.: **31242597**
PROJECT LOCATION: **Methodist Ridge Rd Saint Clairsville, Ohio**

WATER LEVEL (ft): **16.8'** **17.3'**
DATE: **11/19/24** **11/19/24**
CAVED (ft):

SAMPLE NUMBER	SAMPLE DEPTH (ft.)	SAMPLE RECOVERY (in.)	SAMPLE BLOWS/6 inches	N (blows/ft.)	ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
					1181.0	24			weathered, moderately fractured, SANDSTONE Core 3: Recovery - 57/60 = 95% RQD - 25.2/60 = 42%	
R-3	24.0	57				28			Core 4: Recovery - 48/48 = 100% RQD - 39.4/48 = 82%	
R-4	29.0	48				32			Boring terminated at 33.0'	
						36				
						40				
						44				
						48				
						52				

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LOG OF BORING NO. MRR-3

PROJECT: **Methodist Ridge Road Landslide**
PROJECT NO.: **31242597**
PROJECT LOCATION: **Methodist Ridge Rd Saint Clairsville, Ohio**

WATER LEVEL (ft): Dry | Dry |
DATE: 11/20/24 | 11/20/24 |
CAVED (ft): | | |

DATE STARTED: **11/20/24**
DATE COMPLETED: **11/20/24**
DRILLING CONTRACTOR: **Pennsylvania Drilling Co.**
DRILLER: **Craig**
DRILLING METHOD: **3.25" Hollow Stem Auger**
SOIL SAMPLING METHOD: **24" Split Spoon Sampler**
ROCK SAMPLING METHOD: **NQ2**

WATER ENCOUNTERED DURING DRILLING (ft.): **Dry**
GROUND SURFACE ELEVATION: **1212**
DATUM: **.kmz**
DRILL MODEL: **CME**
DRILL CARRIER: **Track Mounted**
LOGGED BY: **Jack McGuane**
CHECKED BY: **Tyler Furr, P.G.**

SAMPLE NUMBER	SAMPLE DEPTH (ft.)	SAMPLE RECOVERY (in.)	SAMPLE BLOWS/6 inches	N (blows/ft.)	ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
					1212.0	0			(FILL) 4" Asphalt 7" Subbase	Augered to 1'
	0.0				1211.0		SM		Light gray, damp, very loose to medium dense, Silty SAND with rock fragments	
1	1.0	11	5-4-5-5	9						
2	3.0	2	5-1-3-1	4		4				
3	5.0	2	3-3-4-4	7						
4	7.0	7	6-20-10-30	30		8				
					1203.0		GC		Light brown to brown and gray, damp, medium dense to very dense, Clayey GRAVEL with Sand	
5	9.0	22	11-7-7-12	14						
6	11.0	14	7-8-30-14	38		12				
7	13.0	24	29-31-25-28	56						
8	15.0	24	20-20-23-32	43		16				
					1195.0		HW		Light brown, dry, Highly Weathered SANDSTONE	
9	17.0	24	21-21-30-22	51						
10	19.0	10	32-50/4	50/4						Augered to 20.5'
						20				
11	20.5	4	50/4	50/4	1191.2				Boring terminated at 20.8' due to split spoon refusal.	

NOTES:

GEO-TECHNOLOGY ASSOCIATES, INC.
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Bridgeville, PA, 15017

LOG OF BORING NO. MRR-4

PROJECT: **Methodist Ridge Road Landslide**
PROJECT NO.: **31242597**
PROJECT LOCATION: **Methodist Ridge Rd Saint Clairsville, Ohio**

WATER LEVEL (ft): **23.8'** **23.8'**
DATE: **11/20/24** **11/20/24**
CAVED (ft):

DATE STARTED: **11/20/24**
DATE COMPLETED: **11/20/24**
DRILLING CONTRACTOR: **Pennsylvania Drilling Co.**
DRILLER: **Craig**
DRILLING METHOD: **3.25" Hollow Stem Auger**
SOIL SAMPLING METHOD: **24" Split Spoon Sampler**
ROCK SAMPLING METHOD: **NQ2**

WATER ENCOUNTERED DURING DRILLING (ft.): **Dry**
GROUND SURFACE ELEVATION: **1206'**
DATUM: **.KMZ**
DRILL MODEL: **CME**
DRILL CARRIER: **Track Mounted**
LOGGED BY: **Jack McGuane**
CHECKED BY: **Tyler Furr, P.G.**

SAMPLE NUMBER	SAMPLE DEPTH (ft.)	SAMPLE RECOVERY (in.)	SAMPLE BLOWS/6 inches	N (blows/ft.)	ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
					1206.0	0				
	0.0								(FILL) 5" Asphalt 9" Subbase	Augered to 1'
					1205.0		SM		Light gray, dry, very loose, Silty SAND with rock fragments	
1	1.0	7	4-1-3-2	4						
					1203.0		CL		Brown, moist, very loose to loose, LEAN CLAY with rock fragments	
2	3.0	7	4-4-2-2	6		4				
3	5.0	4	2-1-3-5	4						
4	7.0	0.5	6-4-4-5	8		8				
5	9.0	5	8-4-4-4	8						
6	11.0	24	2-4-5-6	9		12				
					1193.5		SC		Light brown and gray, dry, dense to very dense, Clayey SAND with rock fragments	
7	13.0	21	4-15-25-15	40						
					1191.0		HW		Light brown, dry, Highly Weathered SANDSTONE	Augered to 17'
8	15.0	10	20-50/4	50/4		16				
										Augered to 19'
9	17.0	21	32-26-36-50/3	62						
10	19.0	1	50/1	50/1	1186.7					
						20	ROCK		Gray, moderately weathered, moderately fractured, SANDSTONE Core 1: Recovery - 52/52.8 = 98% RQD - 22.7/52.8 = 43%	Coring started at 19.1' due to split spoon refusal
R-1	19.3	52								

NOTES:

GEO-TECHNOLOGY ASSOCIATES, INC.
206 Bursca Dr
Bridgeville, PA, 15017

LOG OF BORING NO. MRR-4

PROJECT: **Methodist Ridge Road Landslide**
PROJECT NO.: **31242597**
PROJECT LOCATION: **Methodist Ridge Rd Saint Clairsville, Ohio**

WATER LEVEL (ft):	23.8'	23.8'	
DATE:	11/20/24	11/20/24	
CAVED (ft):			

SAMPLE NUMBER	SAMPLE DEPTH (ft.)	SAMPLE RECOVERY (in.)	SAMPLE BLOWS/6 inches	N (blows/ft.)	ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
						24			Core 2: Recovery - 43/60 = 72% RQD - 10.8/60 = 18%	
R-2	23.5	43			1180.5		ROCK		Dark gray, moderately weathered to highly weathered, moderately fractured to highly fractured, SHALE	
						28			Core 3: Recovery - 43/60 = 72% RQD - 30/60 = 50%	
R-3	28.5	43								
						32				
R-4	33.5	12			1172.5 1171.5		ROCK		Dark gray, moderately weathered, moderately fractured, SANDSTONE Core 4: Recovery - 12/12 = 100% RQD - 4/12 = 33%	
						36			Boring terminated at 34.5'	
						40				
						44				
						48				
						52				

GEO-TECHNOLOGY ASSOCIATES, INC.
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LOG OF BORING NO. MRR-5

PROJECT: **Methodist Ridge Road Landslide**
PROJECT NO.: **31242597**
PROJECT LOCATION: **Methodist Ridge Rd Saint Clairsville, Ohio**

WATER LEVEL (ft): **29.6'** **29.6'**
DATE: **11/21/24** **11/21/24**
CAVED (ft):

DATE STARTED: **11/21/24**
DATE COMPLETED: **11/21/24**
DRILLING CONTRACTOR: **Pennsylvania Drilling Co.**
DRILLER: **Craig**
DRILLING METHOD: **3.25" Hollow Stem Auger**
SOIL SAMPLING METHOD: **24" Split Spoon Sampler**
ROCK SAMPLING METHOD: **NQ2**

WATER ENCOUNTERED DURING DRILLING (ft.): **Dry**
GROUND SURFACE ELEVATION: **1207'**
DATUM: **.KMZ**
DRILL MODEL: **CME**
DRILL CARRIER: **Track Mounted**
LOGGED BY: **Jack McGuane**
CHECKED BY: **Tyler Furr, P.G.**

SAMPLE NUMBER	SAMPLE DEPTH (ft.)	SAMPLE RECOVERY (in.)	SAMPLE BLOWS/6 inches	N (blows/ft.)	ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
					1207.0	0			(FILL) 4" Asphalt 8" Subbase	Augered to 1'
	0.0				1206.0		SM		Gray, dry, loose to medium dense, Silty SAND with rock fragments	
1	1.0	13	7-6-7-6	13						
2	3.0	5	6-4-3-3	7		4				
					1202.0		CH		Brown, damp to moist, medium stiff to very stiff, FAT CLAY	
3	5.0	21	2-2-3-5	5						
4	7.0	1	5-5-4-4	9		8				
5	9.0	8	8-8-9-9	17						
6	11.0	24	8-7-9-11	16		12				
					1194.0		HW		Light brown, dry, Highly Weathered SANDSTONE	
7	13.0	24	19-14-48-45	62						
					1192.0		SC		Light brown, damp, medium dense, Clayey SAND with rock fragments	
8	15.0	24	32-16-10-21	26		16				
					1190.0		HW		Light brown, dry, Highly Weathered SANDSTONE	Augered to 19'
9	17.0	15	22-36-50/3	50/3						
10	19.0	7	31-50/1	50/1						Augered to 20.5' Coring started at 20.5' due to prior split spoon refusal.
						20				
					1186.5		ROCK		Gray, moderately weathered, moderately fractured, SANDSTONE Core 1: Recovery - 34/38.4 = 89% RQD - 24.2/38.4 = 63%	
R-1	20.5	34								

NOTES:

GEO-TECHNOLOGY ASSOCIATES, INC.
206 Bursca Dr
Bridgeville, PA, 15017

LOG OF BORING NO. MRR-5

PROJECT: **Methodist Ridge Road Landslide**
PROJECT NO.: **31242597**
PROJECT LOCATION: **Methodist Ridge Rd Saint Clairsville, Ohio**

WATER LEVEL (ft): 29.6' 29.6'
DATE: 11/21/24 11/21/24
CAVED (ft):

SAMPLE NUMBER	SAMPLE DEPTH (ft.)	SAMPLE RECOVERY (in.)	SAMPLE BLOWS/6 inches	N (blows/ft.)	ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
					1183.3	24	ROCK		Gray and brown, moderately weathered to highly weathered, SHALE Core 2: Recovery - 56/60 = 93% RQD - 54/60 = 90%	
R-2	23.7	56				28				
					1178.3		ROCK		Gray to black, moderately weathered to to highly weathered, moderately fractured, SHALE Core 3: Recovery - 58/60 = 97% RQD - 43.2/60 = 72%	▼
R-3	28.7	58			1176.3		ROCK		Gray to black, moderately weathered to highly weathered, moderately fractured, SANDSTONE	
R-4	33.7	21				32			Core 4: Recovery - 21/27.6 = 76% RQD - 19/27.6 = 69%	
					1171.0	36			Boring terminated at 36.0'	
						40				
						44				
						48				
						52				

Photo 1 - Boring MRR-1, Box 1 of 1

Photo 2 - Boring MRR-2, Box 1 of 1

CORE BOX PHOTOGRAPHS
METHODIST RIDGE ROAD
RICHLAND TOWNSHIP
BELMONT COUNTY, OHIO

Photo 3 - Boring MRR-4, Box 1 of 1

Photo 4 - Boring MRR-5, Box 1 of 1

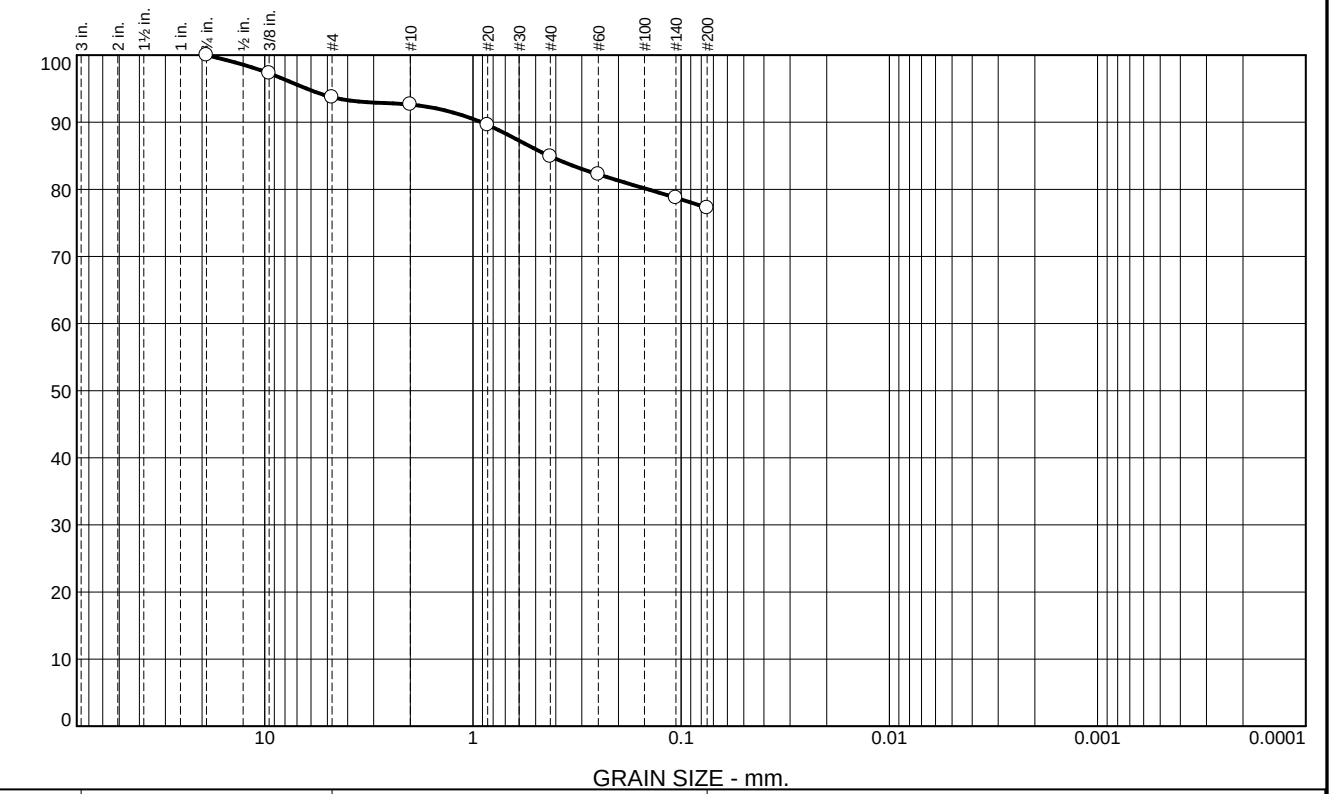
CORE BOX PHOTOGRAPHS
METHODIST RIDGE ROAD
RICHLAND TOWNSHIP
BELMONT COUNTY, OHIO

GEOTECHNICAL EXPLORATION
NATURAL MOISTURE CONTENT
METHODIST RIDGE ROAD LANDSLIDE
31242597

LOCATION	DEPTH (ft)	MOISTURE	USCS
MRR-1	1.0 - 3.0	21.6%	CL
	5.0 - 7.0	24.2%	CL
	7.0 - 9.0	25.6%	CL
	9.0 - 11.0	21.8%	CL
	11.0 - 13.0	16.4%	SC
	13.0 - 15.0	11.0%	SC
	15.0 - 17.0	10.4%	SC
	17.0 - 19.0	8.5%	SC
	19.0 - 21.0	11.0%	SC
	21.0 - 23.0	9.4%	SC
	23.0 - 25.0	6.5%	SC
	25.0 - 25.8	7.4%	HW
	27.0 - 27.2	6.0%	HW
MRR-2	1.0 - 3.0	28.4%	CL
	3.0 - 5.0	18.6%	CL
	5.0 - 7.0	18.5%	CL
	7.0 - 9.0	8.9%	CL
	9.0 - 11.0	17.2%	CL
	11.0 - 13.0	14.2%	SC
MRR-3	1.0 - 3.0	5.4%	SM
	5.0 - 7.0	6.8%	SM
	7.0 - 9.0	3.9%	SM
	9.0 - 11.0	10.0%	GC
	11.0 - 13.0	11.9%	GC
	13.0 - 15.0	8.2%	GC
	15.0 - 17.0	11.3%	GC
	17.0 - 19.0	10.9%	GC
	19.0 - 21.0	11.4%	GC
	20.5 - 20.8	7.6%	GC

LOCATION	DEPTH (ft)	MOISTURE	USCS
MRR-4	1.0 - 3.0	6.2%	SM
	3.0 - 5.0	11.4%	CL
	5.0 - 7.0	26.2%	CL
	9.0 - 11.0	18.0%	CL
	11.0 - 13.0	21.2%	CL
	13.0 - 15.0	10.2%	SC
	15.0 - 15.8	8.8%	HW
MRR-5	1.0 - 3.0	4.6%	SM
	3.0 - 5.0	2.9%	SM
	5.0 - 7.0	24.1%	CH
	7.0 - 9.0	17.8%	CH
	9.0 - 11.0	23.0%	CH
	11.0 - 13.0	17.1%	CH
	13.0 - 15.0	12.5%	SC
	15.0 - 17.0	14.3%	SC
	17.0 - 18.3	7.7%	HW

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	6.3	1.1	7.7	7.7	77.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.75	100.0		
.375	97.3		
#4	93.7		
#10	92.6		
#20	89.6		
#40	84.9		
#60	82.2		
#140	78.7		
#200	77.2		

* (no specification provided)

Soil Description

Lean Clay with Sand

Atterberg Limits

PL= 18 LL= 49 PI= 31 NM= 18.5

Coefficients

D_{90}= 0.9119 D_{85}= 0.4312 D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CL AASHTO= A-7-6(23)

Remarks

Location: MRR-2 S3
Sample Number: MRR-2 S3 **Depth:** 5.0'-7.0' **Date:** 12/19/2024

GEO-TECHNOLOGY ASSOCIATES, INC.
1420 W. Main Street
Alliance, OH 44601

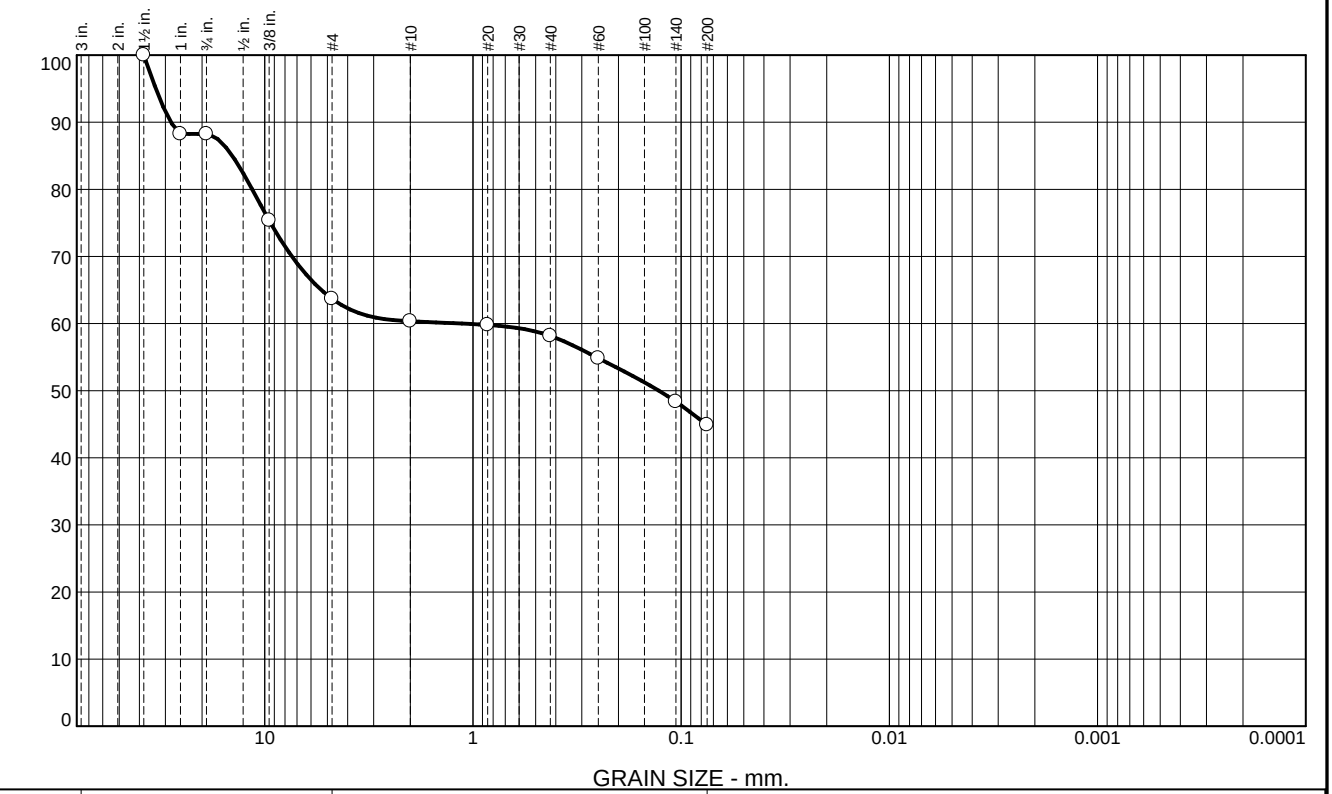
Client: Verdantas
Project: Methodist Ridge Road Landslide

Project No: 31242597 **Figure**

Tested By: KEM **Checked By:** TF

ASTM Specifications performed may include: D421, D422, D2216, D2217, and D4318.

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	11.7	24.6	3.4	2.1	13.3	44.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.5	100.0		
1	88.3		
.75	88.3		
.375	75.4		
#4	63.7		
#10	60.3		
#20	59.8		
#40	58.2		
#60	54.8		
#140	48.4		
#200	44.9		

* (no specification provided)

Soil Description

Clayey Gravel with Sand

Atterberg Limits

PL= 20 LL= 29 PI= 9 NM= 11.9

Coefficients

D_{90}= 28.2316 D_{85}= 14.3138 D_{60}= 1.1269
D_{50}= 0.1280 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= GC AASHTO= A-4(1)

Remarks

Location: MRR-3 S6
Sample Number: MRR-3 S6 **Depth:** 11.0'-13.0' **Date:** 12/19/2024

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1420 W. Main Street
Alliance, OH 44601

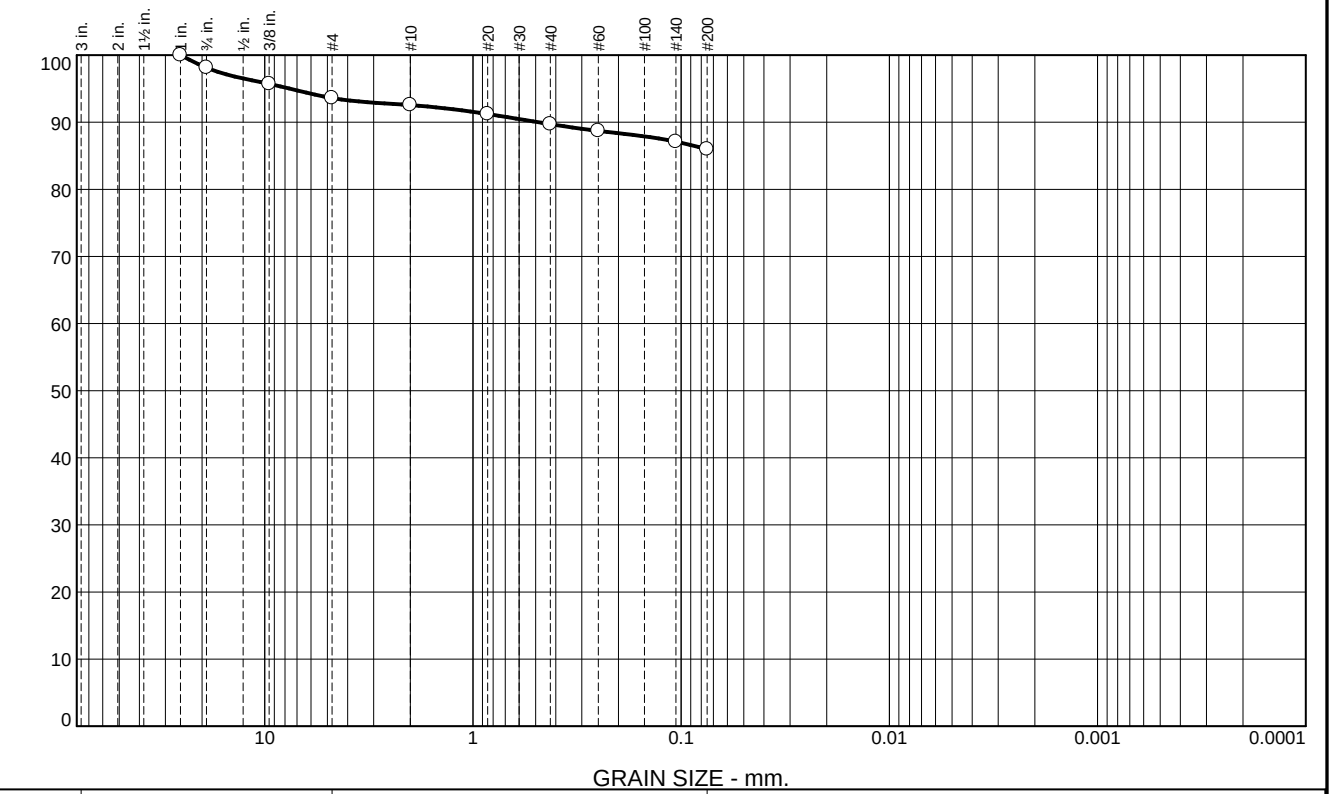
Client: Verdantas
Project: Methodist Ridge Road Landslide

Project No: 31242597 **Figure**

Tested By: KEM **Checked By:** TF

ASTM Specifications performed may include: D421, D422, D2216, D2217, and D4318.

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	1.9	4.5	1.0	2.9	3.7	86.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	98.1		
.375	95.7		
#4	93.6		
#10	92.6		
#20	91.2		
#40	89.7		
#60	88.7		
#140	87.1		
#200	86.0		

* (no specification provided)

Soil Description

Fat Clay

Atterberg Limits

PL= 18 LL= 50 PI= 32 NM= 24.1

Coefficients

D_{90}= 0.4857 D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CH AASHTO= A-7-6(28)

Remarks

Location: MRR-5 S3
Sample Number: MRR-5 S3 **Depth:** 5'-7.0' **Date:** 12/19/2024

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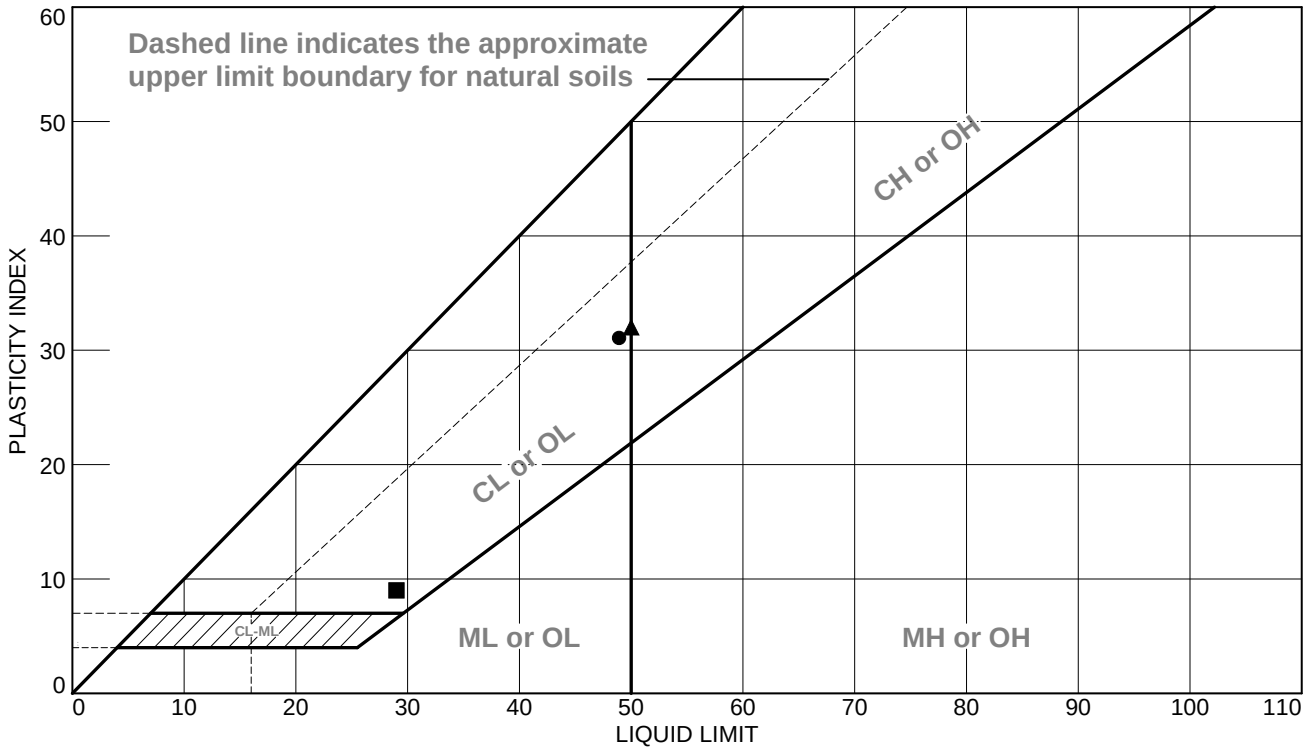
Client: Verdantas
Project: Methodist Ridge Road Landslide

Project No: 31242597 **Figure**

Tested By: KEM **Checked By:** TF

ASTM Specifications performed may include: D421, D422, D2216, D2217, and D4318.

LIQUID AND PLASTIC LIMITS TEST REPORT - ASTM D4318



SOIL DATA

	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●		MRR-2 S3	5.0'-7.0'	18.5	18	49	31	CL
■		MRR-3 S6	11.0'-13.0'	11.9	20	29	9	GC
▲		MRR-5 S3	5'-7.0'	24.1	18	50	32	CH

ASTM Specifications performed may include: D421, D422, D2216, D2217, and D4318.

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Alliance, OH 44601

Client: Verdantas
Project: Methodist Ridge Road Landslide
Project No.: 31242597 **Figure**

Tested By: KEM **Checked By:** TF

PROJECT NAME: Methodist Ridge Road Landslide DATE: 12/23/2024

CORE ID	MRR-2
Depth	29.2-29.5
Diameter	2.0"
Length	3.959
	3.966
	3.963
Average	3.963
Pounds	18560
PSI	5911

CORE ID	MRR-4
	22.9-23.2
Diameter	2.0"
Length	4.064
	4.066
	4.049
Average	4.060
Pounds	27770
PSI	8844

CORE ID	MRR-5
	34.0-34.4
Diameter	2.0"
Length	4.008
	4.016
	4.017
Average	4.014
Pounds	31770
PSI	10118

CORE ID	
Diameter	
Length	
Average	
Pounds	
PSI	0

CORE ID	
Diameter	
Length	
Average	
Pounds	
PSI	0