SUBGRADE EXPLORATION REPORT

LAK–20-19.59
PID: 108665
LAKE COUNTY, OHIO

SME Project Number: 080953.00
February 3, 2022

SME

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Kirtland, OH 44094-8501

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February 3, 2022

Mr. William D. Baker, Jr., P.E.
Principal
CT Consultants, Inc.
8150 Sterling Court
Mentor, Ohio 44060

Via Email: bbaker@ctconsultants.com (PDF file)

RE: Subgrade Exploration Report
LAK-20-19.59
PID: 108665
Lake County, Ohio
SME Project No. 080953.00

Dear Mr. Baker:

We have completed the subgrade exploration report for the pavement replacement along US-20 in Lake County, Ohio. The attached report presents the results of our subsurface investigation and our recommendations for subgrade preparation.

We appreciate the opportunity to work with you on this project. If you have questions, please call.

Sincerely,

SME

Brendan P. Lieske, PE
Project Manager

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EXECUTIVE SUMMARY

This report presents the results of the subgrade exploration and soil analysis for Ridge Road (US-20) from SR-2 to SR-528 in Perry and Madison, Lake County, Ohio. SME performed this work in accordance with its proposal dated December 10, 2018, which was authorized on February 5, 2019. We understand that ODOT plans to replace the pavement, improve drainage where needed, and widen the roadway. The new roadway will consist of 11-foot-wide inside lanes and 13 foot wide outside lanes in each direction. The exploration and analyses were conducted in general accordance with the January 2021 of ODOT's Specifications for Geotechnical Engineering (SGE), and Geotechnical Bulletin 1 (GB1).

We cored the existing pavement, sampled the base material, and obtained Standard Penetration Test (SPT) subgrade samples at 61 locations designated B-001-0-19 through B-055-0-19 and B-003-1-19, B-003-2-19, B-003-3-19, B-004-1-19, B-004-2-19, and B-005-1-19. A total of 64 historical borings were selected from over 100 borings within the project limits to be included in our analysis. These historical borings are from two 1992 explorations and one 2006 exploration.

The pavement section within the limits of this project generally consisted of asphalt over concrete and/or brick pavements. Total pavement thicknesses range from about 8 to 18 inches. Subgrade soils along the project generally consists of beach ridge deposits of sand with some gravel. The majority of soil consisted of loose to medium dense coarse and fine sand (A-3a) or fine sand (A-3), with isolated zones of sandy silt (A-4a), gravel with sand (A-1b), gravel (A-1a), and gravel with sand and silt (A-2-4). Our findings were consistent with geologic references and historical boring information. Borings approximately between Station 154+00 to Station 164+50 indicate low blow count and high moisture content subgrade soils that may require remediation. Similar unstable soils are indicated in smaller, more localized areas. Groundwater was not observed within the shallow depth of our sampling; however, both 1992 explorations encountered groundwater ranging from 2 to 10 feet below grade. Groundwater levels in granular deposits may undergo significant changes during periods of wet or dry weather. Groundwater conditions may vary during construction and may differ from what was encountered in the borings, especially since some of this information is about 27 years old.

The ODOT GB1 spreadsheet analysis indicates an average CBR of 12 and an average N_{60L} of 10 blows/foot. Sulfate content tests indicate concentrations below the GB1 specified threshold; however chemical stabilization is not an economical option since only about 10% of the subgrade soils require stabilization. Unstable soils should either be excavated and replaced with geogrid and engineered fill or scarified, dried, and re-compacted.

Almost 98% of the soils encountered consist of A-1-a, A-1-b, A-3, and A-3a soils, which should be suitable to stabilize in place with vibratory compaction. The majority of these soils have N_{60} values below 12 blows/foot and/or have moisture contents above their optimum moisture content. Therefore, we recommend installing underdrains throughout the project to increase drainage and improve subgrade stability. The subgrade should then be compacted and proofrolled in accordance with ODOT Item 204, through the entire project area. Unstable zones identified during proofrolling should be mechanically improved (compacted) in-place, if feasible, or removed and replaced with geogrid and engineered fill.

Due to the lack of an aggregate base layer throughout most of the roadway, some of the pavement distress may be attributed to a rise in groundwater through capillary action and the subsequent freezing and expansion of the subgrade during winter. Therefore, we recommend including a free-draining aggregate base below the new pavement section to act as a capillary break.

The summary presented above includes selected elements of our findings and recommendations and is provided solely for purposes of overview. It does not present details needed for the proper application of our findings and recommendations.

1. INTRODUCTION

This report presents the results of our subgrade exploration for the pavement replacement planned along Ridge Road (US-20) from SR-2 to SR-528 in Perry and Madison, Lake County, Ohio. We performed this work in accordance with our proposal dated December 10, 2018, which was authorized on February 5, 2019. We understand that ODOT plans to replace the pavement, improve drainage where needed, and widen the roadway. The new roadway will consist of 11-foot-wide inside lanes and 13 foot outside lanes in each direction.

2. GEOLOGY AND OBSERVATIONS

The project site is located along the northernmost beach ridge in Lake County, Ohio. Beach ridges in this area consist of fine to coarse sand with some gravel, deposited in ridges that can be 5 to 30 feet high. The ridges are above and adjacent to lacustrine plain deposits of silt and sand. Geologic references indicate that bedrock is about 50 feet below the surface in this area and consists of Ohio shale.

The existing pavement along US-20 is in fair to poor condition. Transverse cracks were observed throughout the project area, with secondary cracks observed along many of the transverse cracks. Longitudinal cracks were observed between lanes in many areas. Much of the adjacent right-of-way is relatively flat or gently sloping and grass covered. For most of the project length, the ground surface slopes down north of the road and slopes up south of the road. Most of these sloping areas are heavily covered with trees and brush. Streams cross the road and are culverted near Station 199+00, Station 254+00, and Station 313+50.

3. EXPLORATION

3.1 HISTORIC BORINGS

We located five historical projects located along US-20 within the project limits.

- A 1940 exploration from SLM 22.93 to 24.99.
- A 1963 exploration from SLM 16.49 to 20.11
- CT Consultants' 1992 exploration from SLM 18.40 to Townline Road (SLM 24.89), which includes 70 borings within our project limits. The borings from this exploration are designated B-017-0-92 to B-086-0-92.
- Osborn Engineering's 1992 exploration from Townline Road (SLM 24.89) to County Line Road (SLM 30.41), which includes 40 borings within our project limits. The borings from this exploration are designated B-087-0-92 to B-124-0-92.
- PSI's 2006 exploration from SR 2 (SLM 19.59) to County Line Road (SLM 30.41), which includes 20 borings within our project limits. The borings from this exploration are designated B-001-0-06 to B-020-0-06.

For the purposes of our analysis, we considered selected borings from both 1992 explorations and the 2006 exploration. The 1992 explorations used duplicate boring numbers; therefore, we have renumbered the Osborn borings to begin where the CT borings left off. For example, CT's boring B-1 is B-001-0-92 and Osborn's boring B-1 is designated as B-087-0-92.

PSI's 2006 exploration did not include any surface elevations, coordinates, stations, or offsets of the boring locations; therefore, we used a surface elevation of 100 feet for each of their borings and estimated the stations based on each boring's SLM. The SLMs on these borings are only shown to the nearest 0.1 mile; therefore, the stations are approximate.

Due to the overlap of our borings and the historical borings, we selected historical borings spaced about 400 to 800 feet apart to include in our analysis. Copies of the historic boring logs used in our analysis are included in Appendix B. Additional boring information is available through ODOT Office of Geotechnical Engineering.

3.2 FIELD EXPLORATION

Subsurface conditions within the project limits were identified by a field exploration program consisting of pavement cores and Standard Penetration Tests (SPT) at 61 locations. The test locations were selected by SME in coordination with ODOT and were generally staggered right and left of centerline. The locations were selected to provide representative coverage of pavement conditions, while avoiding intersections, and underground and overhead utilities. The approximate test locations are shown on the attached *Boring Location Plan*.

Locations B-001-0-19 through B-055-0-19 were drilled from March 13 to 26, 2019. These borings were spaced at approximately 800-foot intervals between SR-2 and SR-528. Per ODOT's request, SPT samples at these locations were obtained from the top 18 inches of subgrade. At each test location, we cored through the existing pavement with a 4-inch diameter core barrel to obtain cores. Aggregate base material, if present, was sampled and the thicknesses of the pavement materials were measured.

Locations B-003-1-19, B-003-2-19, B-003-3-19, B-004-1-19, B-004-2-19, and B-005-1-19 were drilled on October 22, 2021 to obtain deeper information and supplement other borings in this area. These borings were spaced at approximately 350-foot intervals from Station 149+71 to 167+63. SPT samples at these locations were obtained to depths of 6 feet below top of pavement.

At completion, the holes were backfilled with soil cuttings blended with bentonite chips and the pavement was patched with cold-mix asphalt. The field-measured blow counts are corrected to N_{60} based on energy measurements obtained from hammer calibration. The energy-corrected blow counts are reported on the boring logs and on the GB1 spreadsheet.

3.3 LABORATORY TESTING

The pavement cores, bulk samples of base material, and split-spoon samples were taken to our laboratory. The cores were measured and photographed. The base materials were classified. The soil samples were examined and classified in accordance with Sections 602 and 603 of the ODOT Specifications for Geotechnical Explorations (SGE), updated January 2019. The soil samples were visually inspected for the presence of gypsum. A representative portion from each split-spoon sample was tested for water content. One specimen from each sample was tested for Atterberg limits, particle size distribution, and sulfate content in accordance with ODOT Supplement 1122 (2018). The results of our field exploration are presented on the enclosed logs.

4. FINDINGS

4.1 SUBSURFACE CONDITIONS

The pavement section within the limits of this project generally consisted of asphalt over concrete and/or brick pavements. Total pavement thicknesses range from about 8 to 18 inches. The asphalt layer thickness ranges from 2 to 12 inches, the concrete layer thickness ranges from 1 to 9½ inches, and the brick layer thickness is about 4 inches. Base material was seldom found, but where encountered, the base is about 3 to 6 inches thick and consists of crushed limestone and/or slag. Photos of the pavement cores and material descriptions are included on the attached core photos.

The subgrade along the project generally consists of beach ridge deposits of sand with some gravel. The majority of soil consisted of loose to medium dense coarse and fine sand (A-3a) or fine sand (A-3), with isolated zones of sandy silt (A-4a), gravel with sand (A-1b), gravel (A-1a), and gravel with sand and silt (A-2-4). Our findings were consistent with geologic references and historical boring information.

Borings between Stations 153+00 and 168+00 encountered fill treated with cement, which we assume was part of a historic pavement rehabilitation project. We used phenolphthalein to verify the presence of cement in these samples, which was present through depths ranging from 2 feet to the termination depths of approximately 6 feet.

Historical borings between approximately Stations 150+00 and 170+00 indicate low blow count and high moisture content subgrade soils that may require remediation. Similar unstable soils are indicated in smaller, more localized areas.

With the shallow sampling depths, groundwater was not observed during our exploration; however, both 1992 explorations encountered groundwater ranging from 2 to 10 feet below grade. These historic borings found groundwater at 38 of the 110 locations within the project limits, encountering it at an average depth of about 7 feet. Groundwater was only encountered within 1 boring during the 2006 exploration at a depth of 5 feet below grade. Groundwater conditions indicated by the borings represent conditions at the time the readings were taken. The groundwater levels at the time of construction may vary from those conditions described, especially since some of this information is about 27 years old.

4.2 SULFATE TEST RESULTS

Sulfate contents in the subgrade samples ranged from 41 to 753 parts per million (ppm). Gypsum was not visually evident in any of the subgrade samples. The risk of sulfate-induced heave becomes significant above 3,000 ppm when calcium-based stabilizers are used. GB1 indicates that chemical stabilization should not be considered if any samples have a sulfate concentration above 5,000 ppm. Since our tests indicate sulfate contents well below these limits, chemical stabilization may be considered.

5. ANALYSES AND RECOMMENDATIONS

The GB1 analysis spreadsheet includes all of SME's borings, all of PSI 2006 borings within the project limits, and selected Osborn and CT borings from 1992. Since PSI's borings do not include surface elevations, we have assumed these were drilled near the current existing pavement surface elevations for all their borings. Based on the Stage 2 plan sets, the proposed subgrade elevation for this project is approximately 1.3 feet below the planned pavement surface elevation. To determine the proposed subgrade elevation at each boring location, we subtracted 1.3 feet from the planned pavement surface elevation.

The ODOT GB1 spreadsheet analysis indicates to use a design CBR of 12. The average N_{60L} for the project is 10 blows/foot. The average PI of 6 is not representative, since most of the soils tested were non-plastic. The spreadsheet indicates that about 10% of the project area has unstable soil that requires stabilization. The largest section of unstable soil is about 1,050 feet from Station 154+00 to Station 164+50. Since most of these unstable soils are in small, localized areas, chemical stabilization is not an economical option. Therefore, unstable soils should either be scarified, dried, and re-compacted or excavated and replaced with geogrid and engineered fill.

Almost 98% of the soils encountered consist of granular soils, which should be suitable to stabilize in place with vibratory compaction. The majority of these soils have N_{60} values below 12 blows/foot and/or have moisture contents above their optimum moisture content, per GB1 Figure A. Therefore, we recommend installing underdrains throughout the project site as early in the construction process as possible to reduce the time that the subgrade may remain saturated during wet periods, and to reduce the potential for higher groundwater levels that may exist during wet weather to reduce the stability of the subgrade soils.

The subgrade should then be compacted and proofrolled in accordance with ODOT Item 204 through the entire project area. Unstable zones identified during proofrolling should be mechanically improved (compacted in-place), if feasible, or removed and replaced with geogrid and engineered fill. Based on the results of the GB1 analysis, anticipate that undercuts could extend 12 to 36 inches below the top of subgrade.

The results of our field and laboratory testing suggest the following areas may require undercut and replacement with geogrid and engineered fill if a proofroll indicates unstable subgrade which cannot be stabilized in place:

- Based on B-001-0-19, subgrade from Station 120+75 to Station 123+10 could require 12 inches of undercut and replacement.
- Based on B-003-1-19, subgrade from Station 149+50 to Station 150+00 could require 24 inches of undercut and replacement.
- Based on B-004-0-06, B-004-1-19, B-026+92, and B-004-2-19 subgrade, from Station 154+00 to Station 164+50 could require up to 24 inches of undercut and replacement.
- Based on B-005-1-19 and B-028-0-92, subgrade from Station 166+00 to Station 171+00 could require 12 inches of undercut and replacement.
- Based on B-017-0-19 and B-051-0-92 subgrade, from Station 256+25 to Station 264+75 could require 18 inches of undercut and replacement.
- Based on B-081-0-92 subgrade, from Station 380+00 to Station 384+00 could require 36 inches of undercut and replacement.
- Based on B-043-0-19 subgrade, from Station 465+00 to Station 469+25 could require 18 inches of undercut and replacement.

The actual extent of subgrade improvement should be determined in the field in accordance with ODOT Item 204. Positive drainage should be provided to all undercuts.

Due to the lack of an aggregate base layer throughout most of the roadway, some of the pavement distress may be attributed to a rise in groundwater through capillary action and the subsequent freezing and expansion of the subgrade during winter. Therefore, we recommend including a free-draining aggregate base below the new pavement section to act as a capillary break.

6. SIGNATURES

Report Prepared by:

Brendan P. Lieske, PE
Senior Project Engineer

Report Reviewed by:

Alan J. Esser, PE, D.GE
Chief Consultant

APPENDIX A

ODOT GB1 SPREADSHEET
BORING LOCATIONS SHOWN ON MARKUPS OF GOOGLE EARTH AERIAL PHOTOS
BORING LOG TERMINOLOGY
BORING LOGS
CORE PHOTOS

OHIO DEPARTMENT OF TRANSPORTATION

OFFICE OF GEOTECHNICAL ENGINEERING

PLAN SUBGRADES
Geotechnical Bulletin GB1

LAK-20-19.59

PID: 108665

Roadway replacement and widening along US-20 from SR-2 (SLM 19.59) to SR-528 (SLM 28.01)

SME

Prepared By: Brendan Lieske
Date prepared: Thursday, January 20, 2022

Brendan Lieske
SME
9375 Chillicothe Road
Kirtland, Ohio 44094
440-256-6500
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NO. OF BORINGS: 125

#	Boring ID	Alignment	Station	Offset	Dir	Drill Rig	ER	Boring EL.	Proposed Subgrade EL	Cut Fill
1	B-001-0-06	CENTERLINE OF LAK-2	109+98		Rt	PSI Drill Rig	60	687.0	685.7	1.3 C
2	B-017-0-92	CENTERLINE OF LAK-2	113+33	26	Lt	ACT Drill Rig	60	684.7	683.0	1.7 C
3	B-002-0-06	CENTERLINE OF LAK-2	120+54		Rt	PSI Drill Rig	60	684.2	682.0	2.2 C
4	B-001-0-19	CENTERLINE OF LAK-2	120+93	19	Lt	SME	81	684.2	682.1	2.1 C
5	B-020-0-92	CENTERLINE OF LAK-2	137+97	5	Rt	ACT Drill Rig	60	686.3	683.7	2.6 C
6	B-002-0-19	CENTERLINE OF LAK-2	141+78	3	Lt	SME	81	686.6	684.8	1.8 C
7	B-003-0-06	CENTERLINE OF LAK-2	143+79		Rt	PSI Drill Rig	60	687.1	685.4	1.7 C
8	B-003-0-19	CENTERLINE OF LAK-2	149+33		Lt	SME	81	685.2	684.4	0.8 C
9	B-003-1-19	CENTERLINE OF LAK-2	149+70	18	Rt	SME	70	685.3	684.4	0.9 C
10	B-023-0-92	CENTERLINE OF LAK-2	150+01	34	Rt	ACT Drill Rig	60	686.4	684.6	1.8 C
11	B-003-2-19	CENTERLINE OF LAK-2	153+27	17	Lt	SME	70	687.6	686.7	0.9 C
12	B-004-0-06	CENTERLINE OF LAK-2	154+35		Lt	PSI Drill Rig	60	687.6	686.3	1.0 C
13	B-003-3-19	CENTERLINE OF LAK-2	156+55	16	Rt	SME	70	687.0	686.0	1.3 C
14	B-004-0-19	CENTERLINE OF LAK-2	156+94	17	Rt	SME	81	688.6	686.1	2.5 C
15	B-004-1-19	CENTERLINE OF LAK-2	160+60	16	Lt	SME	70	687.0	684.8	2.2 C
16	B-026-0-92	CENTERLINE OF LAK-2	163+00	16	Lt	ACT Drill Rig	60	686.3	684.3	2.0 C
17	B-004-2-19	CENTERLINE OF LAK-2	163+99	16	Rt	SME	70	685.1	684.5	0.6 C
18	B-005-0-19	CENTERLINE OF LAK-2	164+81	18	Rt	SME	81	684.5	684.3	0.2 C
19	B-005-1-19	CENTERLINE OF LAK-2	167+63	19	Lt	SME	70	684.1	683.2	0.9 C
20	B-028-0-92	CENTERLINE OF LAK-2	170+02	24	Lt	ACT Drill Rig	60	684.8	682.6	2.2 C
21	B-006-0-19	CENTERLINE OF LAK-2	171+85	25	Rt	SME	81	683.1	682.1	1.0 C
22	B-030-0-92	CENTERLINE OF LAK-2	178+05	5	Lt	ACT Drill Rig	60	684.8	682.7	2.1 C
23	B-007-0-19	CENTERLINE OF LAK-2	179+61	26	Rt	SME	81	683.8	683.0	0.8 C
24	B-005-0-06	CENTERLINE OF LAK-2	186+03		Lt	PSI Drill Rig	60	684.9	683.1	1.8 C
25	B-008-0-19	CENTERLINE OF LAK-2	187+00	16	Rt	SME	81	684.2	682.8	1.4 C
26	B-034-0-92	CENTERLINE OF LAK-2	194+02	15	Lt	ACT Drill Rig	60	683.4	681.5	1.9 C
27	B-009-0-19	CENTERLINE OF LAK-2	195+58	19	Rt	SME	81	682.0	680.8	1.2 C
28	B-036-0-92	CENTERLINE OF LAK-2	202+09	5	Lt	ACT Drill Rig	60	679.2	676.5	2.7 C
29	B-010-0-19	CENTERLINE OF LAK-2	203+65		Rt	SME	81	678.9	677.0	1.9 C
30	B-006-0-06	CENTERLINE OF LAK-2	207+15	3	Lt	PSI Drill Rig	60	680.1	678.0	2.1 C
31	B-011-0-19	CENTERLINE OF LAK-2	211+00	19	Rt	SME	81	680.1	679.2	0.9 C
32	B-039-0-92	CENTERLINE OF LAK-2	214+15	32	Lt	ACT Drill Rig	60	681.5	680.0	1.5 C
33	B-012-0-19	CENTERLINE OF LAK-2	218+32	17	Lt	SME	81	679.9	678.8	1.1 C
34	B-041-0-92	CENTERLINE OF LAK-2	221+95	28	Rt	ACT Drill Rig	60	679.9	677.7	2.2 C
35	B-013-0-19	CENTERLINE OF LAK-2	226+46	20	Lt	SME	81	678.0	677.1	0.9 C
36	B-043-0-92	CENTERLINE OF LAK-2	230+04	37	Rt	ACT Drill Rig	60	683.6	680.7	2.9 C
37	B-007-0-06	CENTERLINE OF LAK-2	233+55		Lt	PSI Drill Rig	60	685.0	683.7	1.3 C
38	B-014-0-19	CENTERLINE OF LAK-2	234+18	17	Rt	SME	81	684.3	683.6	0.7 C
39	B-045-0-92	CENTERLINE OF LAK-2	238+03	31	Lt	ACT Drill Rig	60	683.7	682.4	1.3 C
40	B-015-0-19	CENTERLINE OF LAK-2	242+41	16	Rt	SME	81	682.4	681.0	1.4 C
41	B-047-0-92	CENTERLINE OF LAK-2	246+08	26	Lt	ACT Drill Rig	60	680.6	679.0	1.6 C
42	B-008-0-06	CENTERLINE OF LAK-2	249+39		Rt	PSI Drill Rig	60	681.2	679.9	1.3 C
43	B-016-0-19	CENTERLINE OF LAK-2	250+67	6	Rt	SME	81	681.3	679.7	1.6 C

#	Boring ID	Alignment	Station	Offset	Dir	Drill Rig	ER	Boring EL.	Proposed Subgrade EL	Cut Fill
44	B-049-0-92	CENTERLINE OF LAK-2	254+00	22	Lt	ACT Drill Rig	60	677.7	675.9	1.8 C
45	B-017-0-19	CENTERLINE OF LAK-2	258+67	23	Rt	SME	81	680.1	679.1	1.0 C
46	B-051-0-92	CENTERLINE OF LAK-2	261+98	16	Lt	ACT Drill Rig	60	684.7	682.8	1.9 C
47	B-018-0-19	CENTERLINE OF LAK-2	267+44	16	Rt	SME	81	689.7	688.6	1.1 C
48	B-053-0-92	CENTERLINE OF LAK-2	270+08	26	Lt	ACT Drill Rig	60	691.4	689.4	2.0 C
49	B-019-0-19	CENTERLINE OF LAK-2	273+50	22	Lt	SME	81	691.0	690.0	1.0 C
50	B-009-0-06	CENTERLINE OF LAK-2	275+79		Rt	PSI Drill Rig	60	690.3	689.0	1.3 C
51	B-056-0-92	CENTERLINE OF LAK-2	281+95	15	Lt	ACT Drill Rig	60	686.4	684.1	2.3 C
52	B-020-0-19	CENTERLINE OF LAK-2	282+28	25	Rt	SME	81	684.5	684.0	0.5 C
53	B-058-0-92	CENTERLINE OF LAK-2	290+02	16	Lt	ACT Drill Rig	60	684.0	682.7	1.3 C
54	B-021-0-19	CENTERLINE OF LAK-2	290+31	18	Rt	SME	81	683.0	682.6	0.4 C
55	B-010-0-06	CENTERLINE OF LAK-2	296+91		Lt	PSI Drill Rig	60	675.9	674.6	1.3 C
56	B-022-0-19	CENTERLINE OF LAK-2	298+40	16	Lt	SME	81	674.2	673.4	0.8 C
57	B-061-0-92	CENTERLINE OF LAK-2	302+01	25	Rt	ACT Drill Rig	60	673.7	671.7	2.0 C
58	B-023-0-19	CENTERLINE OF LAK-2	306+99	19	Lt	SME	81	665.6	665.1	0.5 C
59	B-063-0-92	CENTERLINE OF LAK-2	310+56	26	Rt	ACT Drill Rig	60	660.4	657.7	2.7 C
60	B-024-0-19	CENTERLINE OF LAK-2	313+93	17	Rt	SME	81	653.5	651.3	2.2 C
61	B-065-0-92	CENTERLINE OF LAK-2	317+99	24	Rt	ACT Drill Rig	60	654.6	653.1	1.5 C
62	B-025-0-19	CENTERLINE OF LAK-2	321+71	19	Rt	SME	81	660.6	658.5	2.1 C
63	B-067-0-92	CENTERLINE OF LAK-2	326+16	26	Rt	ACT Drill Rig	60	666.4	665.1	1.3 C
64	B-026-0-19	CENTERLINE OF LAK-2	329+66	15	Rt	SME	81	670.8	669.8	1.0 C
65	B-011-0-06	CENTERLINE OF LAK-2	333+87		Rt	PSI Drill Rig	60	672.9	671.6	1.3 C
66	B-027-0-19	CENTERLINE OF LAK-2	337+54	18	Rt	SME	81	673.7	671.2	2.5 C
67	B-071-0-92	CENTERLINE OF LAK-2	341+98	27	Rt	ACT Drill Rig	60	675.2	672.1	3.1 C
68	B-028-0-19	CENTERLINE OF LAK-2	346+63	4	Rt	SME	81	674.6	673.4	1.2 C
69	B-073-0-92	CENTERLINE OF LAK-2	349+98	27	Rt	ACT Drill Rig	60	676.6	673.2	3.4 C
70	B-029-0-19	CENTERLINE OF LAK-2	354+33	18	Rt	SME	81	676.1	674.6	1.5 C
71	B-075-0-92	CENTERLINE OF LAK-2	358+00	31	LT	ACT Drill Rig	60	678.2	675.7	2.5 C
72	B-030-0-19	CENTERLINE OF LAK-2	362+61	3	RT	SME	81	678.6	677.0	1.6 C
73	B-077-0-92	CENTERLINE OF LAK-2	366+18	26	RT	ACT Drill Rig	60	680.8	678.1	2.7 C
74	B-031-0-19	CENTERLINE OF LAK-2	369+78	18	LT	SME	81	680.1	679.2	0.9 C
75	B-012-0-06	CENTERLINE OF LAK-2	370+83		LT	PSI Drill Rig	60	680.8	679.5	1.3 C
76	B-079-0-92	CENTERLINE OF LAK-2	373+98	26	RT	ACT Drill Rig	60	680.7	679.6	1.1 C
77	B-032-0-19	CENTERLINE OF LAK-2	377+71	17	RT	SME	81	679.6	678.4	1.2 C
78	B-081-0-92	CENTERLINE OF LAK-2	381+99	25	RT	ACT Drill Rig	60	680.7	677.6	3.1 C
79	B-033-0-19	CENTERLINE OF LAK-2	385+70	19	LT	SME	81	681.0	679.9	1.1 C
80	B-083-0-92	CENTERLINE OF LAK-2	389+99	26	LT	ACT Drill Rig	60	685.1	682.7	2.4 C
81	B-034-0-19	CENTERLINE OF LAK-2	393+57	3	RT	SME	81	686.7	685.0	1.7 C
82	B-013-0-06	CENTERLINE OF LAK-2	397+23		LT	PSI Drill Rig	60	684.8	683.5	1.3 C
83	B-086-0-92	CENTERLINE OF LAK-2	402+08	6	LT	ACT Drill Rig	60	682.2	679.9	2.3 C
84	B-035-0-19	CENTERLINE OF LAK-2	402+25	24	RT	SME	81	681.0	679.9	1.1 C
85	B-087-0-92	CENTERLINE OF LAK-2	407+05	26	RT	R&R Drill Rig	60	686.7	685.1	1.6 C
86	B-036-0-19	CENTERLINE OF LAK-2	412+27	19	LT	SME	81	690.2	689.0	1.2 C

#	Boring ID	Alignment	Station	Offset	Dir	Drill Rig	ER	Boring EL.	Proposed Subgrade EL	Cut Fill
87	B-089-0-92	CENTERLINE OF LAK-2	415+20	24	LT	R&R Drill Rig	60	689.9	687.7	2.2 C
88	B-037-0-19	CENTERLINE OF LAK-2	418+93	19	LT	SME	81	687.5	686.1	1.4 C
89	B-014-0-06	CENTERLINE OF LAK-2	423+63		RT	PSI Drill Rig	60	686.3	684.7	1.6 C
90	B-038-0-19	CENTERLINE OF LAK-2	426+44	20	LT	SME	81	687.0	685.9	1.1 C
91	B-093-0-92	CENTERLINE OF LAK-2	432+00	32	LT	R&R Drill Rig	60	683.5	682.2	1.3 C
92	B-039-0-19	CENTERLINE OF LAK-2	435+31	21	RT	SME	81	684.3	683.1	1.2 C
93	B-015-0-06	CENTERLINE OF LAK-2	439+47		RT	PSI Drill Rig	60	684.2	682.9	1.3 C
94	B-040-0-19	CENTERLINE OF LAK-2	443+01	18	LT	SME	81	682.9	681.9	1.0 C
95	B-097-0-92	CENTERLINE OF LAK-2	447+45	25	LT	R&R Drill Rig	60	683.1	681.4	1.7 C
96	B-041-0-19	CENTERLINE OF LAK-2	450+75	21	LT	SME	81	686.4	684.9	1.5 C
97	B-042-0-19	CENTERLINE OF LAK-2	459+08	2	RT	SME	81	681.8	680.8	1.0 C
98	B-016-0-06	CENTERLINE OF LAK-2	460+59		RT	PSI Drill Rig	60	680.3	679.0	1.3 C
99	B-101-0-92	CENTERLINE OF LAK-2	463+54	23	LT	R&R Drill Rig	60	687.8	675.7	12.1 C
100	B-043-0-19	CENTERLINE OF LAK-2	466+42	20	RT	SME	81	673.6	672.1	1.5 C
101	B-103-0-92	CENTERLINE OF LAK-2	471+88	27	RT	R&R Drill Rig	60	675.4	673.0	2.4 C
102	B-044-0-19	CENTERLINE OF LAK-2	474+40	3	LT	SME	81	673.5	673.7	0.2 F
103	B-105-0-92	CENTERLINE OF LAK-2	479+60	23	LT	R&R Drill Rig	60	676.7	675.2	1.5 C
104	B-045-0-19	CENTERLINE OF LAK-2	482+59	20	RT	SME	81	677.1	675.0	2.1 C
105	B-017-0-06	CENTERLINE OF LAK-2	486+99		RT	PSI Drill Rig	60	676.4	675.1	1.3 C
106	B-046-0-19	CENTERLINE OF LAK-2	490+47	25	LT	SME	81	675.1	674.2	0.9 C
107	B-108-0-92	CENTERLINE OF LAK-2	491+61	20	LT	R&R Drill Rig	60	675.0	673.8	1.2 C
108	B-047-0-19	CENTERLINE OF LAK-2	498+33	27	RT	SME	81	674.6	673.7	0.9 C
109	B-110-0-92	CENTERLINE OF LAK-2	499+52	23	LT	R&R Drill Rig	60	675.5	674.2	1.3 C
110	B-048-0-19	CENTERLINE OF LAK-2	506+25	3	LT	SME	81	675.1	673.2	1.9 C
111	B-018-0-06	CENTERLINE OF LAK-2	508+11		LT	PSI Drill Rig	60	675.5	673.7	1.8 C
112	B-049-0-19	CENTERLINE OF LAK-2	514+00	19	RT	SME	81	676.0	674.3	1.7 C
113	B-114-0-92	CENTERLINE OF LAK-2	515+80	21	RT	R&R Drill Rig	60	675.1	673.8	1.3 C
114	B-050-0-19	CENTERLINE OF LAK-2	520+78	18	LT	SME	81	673.7	672.1	1.6 C
115	B-116-0-92	CENTERLINE OF LAK-2	523+80	21	LT	R&R Drill Rig	60	672.8	671.3	1.5 C
116	B-051-0-19	CENTERLINE OF LAK-2	528+53	21	RT	SME	81	675.4	673.7	1.7 C
117	B-019-0-06	CENTERLINE OF LAK-2	534+51		RT	PSI Drill Rig	60	678.0	676.2	1.8 C
118	B-052-0-19	CENTERLINE OF LAK-2	536+53	18	RT	SME	81	678.4	676.9	1.5 C
119	B-120-0-92	CENTERLINE OF LAK-2	539+80	20	RT	R&R Drill Rig	60	678.6	676.7	1.9 C
120	B-053-0-19	CENTERLINE OF LAK-2	544+50	21	LT	SME	81	675.0	673.6	1.4 C
121	B-122-0-92	CENTERLINE OF LAK-2	547+80	21	RT	R&R Drill Rig	60	672.5	671.0	1.5 C
122	B-054-0-19	CENTERLINE OF LAK-2	551+61	18	RT	SME	81	669.4	668.3	1.1 C
123	B-124-0-92	CENTERLINE OF LAK-2	555+50	21	RT	R&R Drill Rig	60	671.5	669.4	2.1 C
124	B-055-0-19	CENTERLINE OF LAK-2	559+39	21	LT	SME	81	676.2	675.1	1.1 C
125	B-020-0-06	CENTERLINE OF LAK-2	560+91		LT	PSI Drill Rig	60	676.5	675.2	1.3 C

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#	Boring	Sample	Sample Depth		Subgrade Depth		Standard Penetration		HP (tsf)	Physical Characteristics						Moisture		Ohio DOT		Sulfate Content (ppm)	Problem		Excavate and Replace (Item 204)		Recommendation (Enter depth in inches)
			From	To	From	To	N_{60}	N_{60L}		LL	PL	PI	% Silt	% Clay	P200	M_C	M_{OPT}	Class	GI		Unsuitable	Unstable	Unsuitable	Unstable	
1	B	SS-1	0.9	2.9	-0.4	1.6	25			0	0	NP	15	2	17	13	8	A-3a	0						
	001-0	SS-2	2.9	4.9	1.6	3.6	19									11	8	A-3a	0						
	06	SS-3	4.9	6.9	3.6	5.6	8									10	10	A-2-6	4						
								8																	
2	B	SS-1	1.5	3.0	-0.2	1.3	13									16	14	A-6a	10						
	017-0	SS-2	3.5	5.0	1.8	3.3	9									11	10	A-2-4	0			N_{60}			
	92	SS-3	5.5	7.0	3.8	5.3	8									11	10	A-2-4	0						
								8																	
3	B	SS-1	1.3	3.3	-0.9	1.1	12			0	0	NP	27	3	30	10	6	A-1-b	0						
	002-0	SS-2	3.3	5.3	1.1	3.1	6									13	6	A-1-b	0						
	06	SS-3	5.3	7.3	3.1	5.1	12									14	8	A-3	0						
								6																	
4	B	SS-1	1.1	2.6	-1.0	0.5	7			0	0	NP	31	8	39	17	11	A-4a	1	346		N_{60} & Mc		15"	12" 861 Geogrid
	001-0																								
	19																								
								7																	
5	B	SS-1	1.5	3.0	-1.1	0.4	14									9	10	A-2-4	0						
	020-0	SS-2	5.5	7.0	2.9	4.4	12									22	10	A-2-4	0						
	92																								
								12																	
6	B	SS-1	1.3	2.8	-0.5	1.0	8			0	0	NP	22	8	30	8	8	A-3a	0	356					
	002-0																								
	19																								
								8																	
7	B	SS-1	0.8	2.8	-0.9	1.1	12			0	0	NP	27	3	30	10	10	A-2-4	0						
	003-0	SS-2	2.8	4.8	1.1	3.1	6									13	10	A-2-4	0			N_{60} & Mc			
	06	SS-3	4.8	6.8	3.1	5.1	12									14	8	A-3a	0						
								6																	
8	B	SS_1	1.1	2.6	0.3	1.8	12			0	0	NP	13	7	20	27	8	A-3a	0	387					
	003-0																								
	19																								
								12																	

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Subgrade Analysis

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#	Boring	Sample	Sample Depth		Subgrade Depth		Standard Penetration		HP (tsf)	Physical Characteristics						Moisture		Ohio DOT		Sulfate Content (ppm)	Problem		Excavate and Replace (Item 204)		Recommendation (Enter depth in inches)
			From	To	From	To	N_{60}	N_{60L}		LL	PL	PI	% Silt	% Clay	P200	M_C	M_{OPT}	Class	GI		Unsuitable	Unstable	Unsuitable	Unstable	
9	B	SS-1	0.8	2.3	-0.1	1.4	7		1.5	0	0	NP	6	10	16	22	8	A-3a	0	250					24"
	003-1	SS-2	2.3	3.8	1.4	2.9	5		0.6	28	21	7	32	24	56	24	16	A-4a	4			HP & Mc			861 Geogrid
	19	SS-3	3.8	5.3	2.9	4.4	4		0.6							32	10	A-4a	8						
		SS-4	5.3	6.8	4.4	5.9	5	4	0.4							34	10	A-4a	8						
10	B	SS-1	0.0	1.5	-1.8	-0.3	2			30	23	7	35	19	54	17	18	A-4a	4						
	023-0	SS-2	2.0	3.5	0.2	1.7	4										8	A-3	0						
	92	SS-3	5.0	6.5	3.2	4.7	7										8	A-3	0						
								4																	
11	B	SS-1	0.7	2.2	-0.2	1.3	12			0	0	NP	21	15	36	12	11	A-4a	0	200					
	003-2	SS-2	2.2	3.7	1.3	2.8	15									8	10	A-4a	8						
	19	SS-3	3.7	5.2	2.8	4.3	12									12	10	A-4a	8						
		SS-4	5.2	6.7	4.3	5.8	13	12		0	0	NP	19	14	33	9	10	A-2-4	0						
12	B	SS-1	0.9	2.4	-0.1	1.4	8			0	0	NP	15	17	32	9	8	A-3a	0	160					
	003-3	SS-2	2.4	3.9	1.4	2.9	7		2.25	27	21	6	16	15	31	11	10	A-2-4	0			N_{60}			
	19	SS-3	3.9	5.4	2.9	4.4	11									12	10	A-2-4	0						
		SS-4	5.4	6.9	4.4	5.9		7								14	10	A-4a	8						
13	B	SS-1	0.9	2.9	-0.4	1.6	4			20	19	1	33	3	36	14	14	A-4a	0			N_{60}		24"	24"
	004-0	SS-2	2.9	4.9	1.6	3.6	12										10	A-4a	8						861 Geogrid
	06	SS-3	4.9	6.9	3.6	5.6	12										10	A-2-4	0						
								4																	
14	B	SS-1	0.7	2.2	-1.8	-0.3	16			0	0	NP	8	3	11	13	8	A-3a	0	375					
	004-0																								
	19																								
								16																	
15	B	SS-1	0.7	2.2	-1.5	0.0	22			0	0	NP	6	9	15	11	8	A-3a	0	100					24"
	004-1	SS-2	2.2	3.7	0.0	1.5	7		1.5							22	14	A-6a	10			HP & Mc		15"	861 Geogrid
	19	SS-3	3.7	5.2	1.5	3.0	7		1.5	33	21	12	42	30	72	31	16	A-6a	8			HP & Mc			
		SS-4	5.2	6.7	3.0	4.5	9	7	1.5							16	14	A-6a	10						
16	B	SS-1	1.0	2.5	-1.0	0.5	2									18	10	A-2-4	0			N_{60} & Mc		42"	24"
	026-0	SS-2	3.0	4.5	1.0	2.5	7									19.5	10	A-2-4	0			N_{60} & Mc		15"	861 Geogrid
	92	SS-3	5.5	7.0	3.5	5.0	1									19	10	A-4a	8						
								1																	

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Subgrade Analysis

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#	Boring	Sample	Sample Depth		Subgrade Depth		Standard Penetration		HP (tsf)	Physical Characteristics						Moisture		Ohio DOT		Sulfate Content (ppm)	Problem		Excavate and Replace (Item 204)		Recommendation (Enter depth in inches)
			From	To	From	To	N_{60}	N_{60L}		LL	PL	PI	% Silt	% Clay	P200	M_C	M_{OPT}	Class	GI		Unsuitable	Unstable	Unsuitable	Unstable	
17	B	SS-1	0.8	2.3	0.2	1.7	5		0.5	25	19	6	25	15	40	17	14	A-4a	1	290		HP & Mc		24"	24"
	004-2	SS-2	2.3	3.8	1.7	3.2	6									12	10	A-4a	8			N_{60}			861 Geogrid
	19	SS-3	3.8	5.3	3.2	4.7	11									12	10	A-4a	8						
		SS-4	5.3	6.8	4.7	6.2	13	5		24	19	5	24	14	38	12	14	A-4a	1						
18	B	SS-1	0.9	2.4	0.7	2.2	7			0	0	NP	16	9	25	7	6	A-1-b	0	565					
	005-0																								
	19																								
								7																	
19	B	SS-1	0.9	2.4	0.0	1.5	11			20	17	3	19	14	33	18	12	A-4a	0	430		N_{60} & Mc		12"	12"
	005-1	SS-2	2.4	3.9	1.5	3.0	13			0	0	NP	11	10	21	9	6	A-1-b	0						861 Geogrid
	19	SS-3	3.9	5.4	3.0	4.5	15									8	6	A-1-b	0						
		SS-4	5.4	6.9	4.5	6.0	14	11								8	6	A-1-b	0						
20	B	SS-1	0.0	1.5	-2.2	-0.7	5									12	10	A-4a	8						12"
	028-0	SS-2	2.0	3.5	-0.2	1.3	8									12	10	A-4a	8			N_{60}		12"	861 Geogrid
	92	SS-3	5.0	6.5	2.8	4.3	4									16	10	A-4a	8						
								4																	
21	B	SS-1	1.4	2.9	0.4	1.9	20			0	0	NP	6	1	7	7	6	A-1-b	0	565					
	006-0																								
	19																								
								20																	
22	B	SS-1	1.5	3.0	-0.6	0.9	19									11	6	A-1-b	0						
	030-0	SS-2	3.5	5.0	1.4	2.9	15									11	6	A-1-b	0						
	92	SS-3	5.5	7.0	3.4	4.9	16									14	6	A-1-b	0						
								15																	
23	B	SS-1	1.7	3.2	0.9	2.4	9			0	0	NP	6	1	7	7	6	A-1-a	0	247					
	007-0																								
	19																								
								9																	
24	B	SS-1	0.9	2.9	-0.9	1.1	9			0	0	NP	16	3	19	14	8	A-3a	0						
	005-0	SS-2	2.9	4.9	1.1	3.1	16									8	8	A-3a	0						
	06	SS-3	4.9	6.9	3.1	5.1	12									13	8	A-3	0						
								9																	

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#	Boring	Sample	Sample Depth		Subgrade Depth		Standard Penetration		HP (tsf)	Physical Characteristics						Moisture		Ohio DOT		Sulfate Content (ppm)	Problem		Excavate and Replace (Item 204)		Recommendation (Enter depth in inches)
			From	To	From	To	N_{60}	N_{60L}		LL	PL	PI	% Silt	% Clay	P200	M_C	M_{OPT}	Class	GI		Unsuitable	Unstable	Unsuitable	Unstable	
25	B	SS-1	0.9	1.4	-0.5	0.0	4			0	0	NP	20	8	28	16	8	A-3a	0	296					
	008-0																								
	19																								
								4																	
26	B	SS-1	1.0	2.5	-0.9	0.6	20									12	10	A-4a	8						
	034-0	SS-2	3.5	5.0	1.6	3.1	24									16	10	A-2-4	0			Mc			
	92	SS-3	5.5	7.0	3.6	5.1	11									30	10	A-2-4	0						
								11																	
27	B	SS-1	0.8	2.3	-0.4	1.1	9			0	0	NP	15	7	22	8	8	A-3a	0	291					
	009-0																								
	19																								
								9																	
28	B	SS-1	1.5	3.0	-1.2	0.3	15						4	4	8	6	6	A-1-a	0						
	036-0	SS-2	3.5	5.0	0.8	2.3	13									7	6	A-1-a	0						
	92	SS-3	5.5	7.0	2.8	4.3	16									15	6	A-1-a	0						
								13																	
29	B	SS-1	1.3	2.8	-0.6	0.9	9			0	0	NP	15	8	23	16	8	A-3a	0	668					
	010-0																								
	19																								
								9																	
30	B	SS-1	0.9	2.9	-1.2	0.8	9			0	0	NP	19	3	22	9	8	A-3a	0						
	006-0	SS-2	2.9	4.9	0.8	2.8	10									6	8	A-3a	0						
	06	SS-3	4.9	6.9	2.8	4.8	11									8	8	A-3a	0						
								9																	
31	B	SS-1	1.0	2.5	0.1	1.6	5			0	0	NP	19	10	29	12	8	A-3a	0	272					
	011-0																								
	19																								
								5																	
32	B	SS-1	0.0	2.0	-1.5	0.5	7									13	8	A-3a	0						
	039-0	SS-2	5.0	6.5	3.5	5.0	6									8	8	A-3a	0						
	92																								
								6																	

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Subgrade Analysis

V. 14.5 1/18/2019

#	Boring	Sample	Sample Depth		Subgrade Depth		Standard Penetration		HP (tsf)	Physical Characteristics						Moisture		Ohio DOT		Sulfate Content (ppm)	Problem		Excavate and Replace (Item 204)		Recommendation (Enter depth in inches)
			From	To	From	To	N_{60}	N_{60L}		LL	PL	PI	% Silt	% Clay	P200	M_C	M_{OPT}	Class	GI		Unsuitable	Unstable	Unsuitable	Unstable	
33	B	SS-1	0.9	2.4	-0.2	1.3	7			0	0	NP	11	7	18	17	8	A-3a	0	407					
	012-0																								
	19																								
								7																	
34	B	SS-1	0.5	2.0	-1.7	-0.2	9									11	10	A-4a	8						
	041-0	SS-2	2.5	4.0	0.3	1.8	11									10	8	A-3a	0						
	92	SS-3	5.0	6.5	2.8	4.3	8									9	8	A-3a	0						
								8																	
35	B	SS-1	1.0	2.5	0.1	1.6	11			0	0	NP	18	7	25	14	8	A-3a	0	299					
	013-0																								
	19																								
								11																	
36	B	SS-1	0.5	2.0	-2.4	-0.9	24									8	8	A-3a	0						
	043-0	SS-2	3.0	4.5	0.1	1.6	4									7	8	A-3a	0						
	92	SS-3	5.5	7.0	2.6	4.1	6									17	8	A-3a	0						
								4																	
37	B	SS-1	1.1	3.1	-0.2	1.8	6			0	0	NP	18	3	21	10	6	A-1-b	0						
	007-0	SS-2	3.1	5.1	1.8	3.8	7									8	8	A-3a	0						
	06	SS-3	5.1	7.1	3.8	5.8	9									8	8	A-3a	0						
								6																	
38	B	SS-1	0.8	2.3	0.1	1.6	9			0	0	NP	16	5	21	13	8	A-3a	0	366					
	014-0																								
	19																								
								9																	
39	B	SS-1	0.0	1.5	-1.3	0.2	3									9	8	A-3a	0						
	045-0	SS-2	2.0	3.5	0.7	2.2	5									6	8	A-3a	0						
	92	SS-3	5.5	7.0	4.2	5.7	5									17	8	A-3a	0						
								3																	
40	B	SS-1	0.9	2.4	-0.5	1.0	9			0	0	NP	10	5	15	13	8	A-3a	0	229					
	015-0																								
	19																								
								9																	

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Subgrade Analysis

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#	Boring	Sample	Sample Depth		Subgrade Depth		Standard Penetration		HP (tsf)	Physical Characteristics						Moisture		Ohio DOT		Sulfate Content (ppm)	Problem		Excavate and Replace (Item 204)		Recommendation (Enter depth in inches)
			From	To	From	To	N_{60}	N_{60L}		LL	PL	PI	% Silt	% Clay	P200	M_C	M_{OPT}	Class	GI		Unsuitable	Unstable	Unsuitable	Unstable	
41	B	SS-1	0.0	2.0	-1.6	0.4	3									14	8	A-3a	0						
	047-0	SS-2	5.0	6.5	3.4	4.9	12									10	8	A-3a	0						
	92																								
								3																	
42	B	SS-1	0.9	2.9	-0.4	1.6	6			0	0	NP	12	1	13	8	8	A-3a	0						
	008-0	SS-2	2.9	4.9	1.6	3.6	4									6	8	A-3a	0						
	06	SS-3	4.9	6.9	3.6	5.6	10									6	8	A-3a	0						
								4																	
43	B	SS-1	1.1	2.6	-0.5	1.0	22			0	0	NP	26	6	32	+	8	A-3a	0	570					
	016-0																								
	19																								
								22																	
44	B	SS-1	1.0	2.5	-0.8	0.7	20									8	8	A-3a	0						
	049-0	SS-2	3.0	4.5	1.2	2.7	4									12	8	A-3a	0						
	92	SS-3	5.0	6.5	3.2	4.7	8									12	8	A-3a	0						
								4																	
45	B	SS-1	0.9	2.4	-0.1	1.4	5			26	17	9	26	26	52	21	12	A-4a	3	434		N_{60} & Mc		**21"**	**18"**
	017-0																								**861 Geogrid**
	19																								
								5																	
46	B	SS-1	1.0	2.5	-0.9	0.6	5									12	10	A-2-4	0			N_{60}		**21"**	**18"**
	051-0	SS-2	3.0	4.5	1.1	2.6	8									9	10	A-2-4	0			N_{60}			**861 Geogrid**
	92	SS-3	5.5	7.0	3.6	5.1	6									15	10	A-2-4	0						
								5																	
47	B	SS-1	1.0	2.5	-0.1	1.4	11			0	0	NP	9	3	12	8	8	A-3a	0	305					
	018-0																								
	19																								
								11																	
48	B	SS-1	0.5	2.0	-1.5	0.0	5									10	8	A-3	0						
	053-0	SS-2	2.5	4.0	0.5	2.0	1									15	8	A-3	0						
	92	SS-3	5.5	7.0	3.5	5.0	10									8	8	A-3	0						
								1																	

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Subgrade Analysis

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#	Boring	Sample	Sample Depth		Subgrade Depth		Standard Penetration		HP (tsf)	Physical Characteristics						Moisture		Ohio DOT		Sulfate Content (ppm)	Problem		Excavate and Replace (Item 204)		Recommendation (Enter depth in inches)
			From	To	From	To	N_{60}	N_{60L}		LL	PL	PI	% Silt	% Clay	P200	M_C	M_{OPT}	Class	GI		Unsuitable	Unstable	Unsuitable	Unstable	
49	B	SS-1	1.5	3.0	0.5	2.0	22			0	0	NP	11	5	16	10	8	A-3a	0	499					
	019-0																								
	19																								
								22																	
50	B	SS-1	0.9	2.9	-0.4	1.6	12			0	0	NP	8	1	9	10	8	A-3	0						
	009-0	SS-2	2.9	4.9	1.6	3.6	6									7	8	A-3	0						
	06	SS-3	4.9	6.9	3.6	5.6	9									8	8	A-3a	0						
								6																	
51	B	SS-1	1.0	2.5	-1.3	0.2	27									5	8	A-3a	0						
	056-0	SS-2	5.0	6.5	2.7	4.2	8									4	8	A-3a	0						
	92																								
								8																	
52	B	SS-1	1.0	2.5	0.5	2.0	69																		
	020-0																								
	19																								
								30																	
53	B	SS-1	1.0	2.5	-0.3	1.2	16									5	8	A-3a	0						
	058-0	SS-2	3.0	4.5	1.7	3.2	9									6	8	A-3a	0						
	92	SS-3	5.0	6.5	3.7	5.2	5									14	8	A-3a	0						
								5																	
54	B	SS-1	0.9	2.4	0.5	2.0	22			0	0	NP	11	5	16	10	8	A-3	0	306					
	021-0																								
	19																								
								22																	
55	B	SS-1	0.8	2.8	-0.5	1.5	21			0	0	NP	10	1	11	12	8	A-3a	0						
	010-0	SS-2	2.8	4.8	1.5	3.5	46									7	8	A-3a	0						
	06	SS-3	4.8	6.8	3.5	5.5	23									7	6	A-1-b	0						
								21																	
56	B	SS-1	1.0	2.5	0.2	1.7	5			0	0	NP	17	11	28	16	8	A-3a	0	133					
	022-0																								
	19																								
								5																	

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Subgrade Analysis

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#	Boring	Sample	Sample Depth		Subgrade Depth		Standard Penetration		HP (tsf)	Physical Characteristics						Moisture		Ohio DOT		Sulfate Content (ppm)	Problem		Excavate and Replace (Item 204)		Recommendation (Enter depth in inches)
			From	To	From	To	N_{60}	N_{60L}		LL	PL	PI	% Silt	% Clay	P200	M_C	M_{OPT}	Class	GI		Unsuitable	Unstable	Unsuitable	Unstable	
57	B	SS-1	1.0	2.5	-1.0	0.5	11									10	8	A-3a	0						
	061-0	SS-2	5.0	6.5	3.0	4.5	8									8	8	A-3a	0						
	92																								
								8																	
58	B	SS-1	0.9	2.4	0.4	1.9	11			0	0	NP	9	4	13	14	8	A-3a	0	318					
	023-0																								
	19																								
								11																	
59	B	SS-1	0.0	2.0	-2.7	-0.7	9									5	8	A-3a	0						
	063-0	SS-2	2.0	3.5	-0.7	0.8	7									12	8	A-3a	0						
	92	SS-3	5.5	7.0	2.8	4.3	9									11	8	A-3a	0						
								7																	
60	B	SS-1	1.0	2.5	-1.2	0.3	15			0	0	NP	10	4	14	10	6	A-1-b	0	295					
	024-0																								
	19																								
								15																	
61	B	SS-1	0.0	1.5	-1.5	0.0	1									11	8	A-3a	0						
	065-0	SS-2	2.0	3.5	0.5	2.0	10									8	8	A-3a	0						
	92	SS-3	5.0	6.5	3.5	5.0	14									15	8	A-3a	0						
								10																	
62	B	SS-1	0.8	2.3	-1.3	0.2	31			0	0	NP	9	1	10	7	6	A-1-a	0	363					
	025-0																								
	19																								
								30																	
63	B	SS-1	0.5	2.0	-0.8	0.7	9									9	8	A-3a	0						
	067-0	SS-2	2.5	4.0	1.2	2.7	8									7	8	A-3a	0						
	92	SS-3	5.5	7.0	4.2	5.7	12									10	8	A-3a	0						
								8																	
64	B	SS-1	0.9	2.4	-0.1	1.4	16			0	0	NP	7	2	9	6	6	A-1-b	0	235					
	026-0																								
	19																								
								16																	

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Subgrade Analysis

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#	Boring	Sample	Sample Depth		Subgrade Depth		Standard Penetration		HP (tsf)	Physical Characteristics						Moisture		Ohio DOT		Sulfate Content (ppm)	Problem		Excavate and Replace (Item 204)		Recommendation (Enter depth in inches)
			From	To	From	To	N_{60}	N_{60L}		LL	PL	PI	% Silt	% Clay	P200	M_C	M_{OPT}	Class	GI		Unsuitable	Unstable	Unsuitable	Unstable	
65	B	SS-1	1.2	3.2	-0.1	1.9	9			0	0	NP	18	3	21	10	8	A-3a	0						
	011-0	SS-2	3.2	5.2	1.9	3.9	5									7	8	A-3a	0						
	06	SS-3	5.2	7.2	3.9	5.9	5									6	8	A-3a	0						
								5																	
66	B	SS-1	0.9	2.4	-1.6	-0.1	18			0	0	NP	6	3	9	6	6	A-1-b	0	224					
	027-0																								
	19																								
								18																	
67	B	SS-1	0.0	1.5	-3.1	-1.6	5									10	8	A-3a	0						
	071-0	SS-2	2.0	3.5	-1.1	0.4	7									12	8	A-3a	0						
	92	SS-3	5.5	7.0	2.4	3.9	6									7	8	A-3a	0						
								6																	
68	B	SS-1	1.4	2.9	0.2	1.7	27			0	0	NP	17	7	24	9	6	A-1-b	0	753					
	028-0																								
	19																								
								27																	
69	B	SS-1	0.0	1.5	-3.4	-1.9	11									27	10	A-4a	8						
	073-0	SS-2	2.5	4.0	-0.9	0.6	5									9	8	A-3a	0						
	92	SS-3	5.5	7.0	2.1	3.6	5									8	8	A-3a	0						
								5																	
70	B	SS-1	0.9	2.4	-0.6	0.9	7			0	0	NP	18	6	24	15	8	A-3a	0	381					
	029-0																								
	19																								
								7																	
71	B	SS-1	0.5	2.0	-2.0	-0.5	7									10	8	A-3	0						
	075-0	SS-2	2.5	4.0	0.0	1.5	1									11	8	A-3a	0						
	92	SS-3	5.5	7.0	3.0	4.5	2									11	8	A-3a	0						
								1																	
72	B	SS-1	1.3	2.8	-0.3	1.2	14			0	0	NP	15	7	22	10	8	A-3a	0	312					
	030-0																								
	19																								
								14																	

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Subgrade Analysis

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#	Boring	Sample	Sample Depth		Subgrade Depth		Standard Penetration		HP (tsf)	Physical Characteristics						Moisture		Ohio DOT		Sulfate Content (ppm)	Problem		Excavate and Replace (Item 204)		Recommendation (Enter depth in inches)
			From	To	From	To	N_{60}	N_{60L}		LL	PL	PI	% Silt	% Clay	P200	M_C	M_{OPT}	Class	GI		Unsuitable	Unstable	Unsuitable	Unstable	
73	B	SS-1	0.0	1.5	-2.7	-1.2	1									13	8	A-3a	0						
	077-0	SS-2	2.0	3.5	-0.7	0.8	4									7	8	A-3a	0						
	92	SS-3	5.5	7.0	2.8	4.3	7									6	8	A-3a	0						
								4																	
74	B	SS-1	0.8	2.3	-0.1	1.4	8			0	0	NP	14	7	21	13	8	A-3a	0	369					
	031-0																								
	19																								
								8																	
75	B	SS-1	0.8	2.8	-0.5	1.5	12			0	0	NP	8	1	9	7	8	A-3	0						
	012-0	SS-2	2.8	4.8	1.5	3.5	6									7	8	A-3	0						
	06	SS-3	4.8	6.8	3.5	5.5	8									10	8	A-3	0						
								6																	
76	B	SS-1	0.0	1.5	-1.1	0.4	4									11	8	A-3a	0						
	079-0	SS-2	2.0	3.5	0.9	2.4	2									12	8	A-3a	0						
	92	SS-3	5.5	7.0	4.4	5.9	6									10	8	A-3a	0						
								2																	
77	B	SS-1	0.9	2.4	-0.3	1.2	19			0	0	NP	13	3	16	10	8	A-3a	0	270					
	032-0																								
	19																								
								19																	
78	B	SS-1	0.5	2.0	-2.6	-1.1	4			37	28	9	40	27	67	9	23	A-4a	6						36"
	081-0	SS-2	2.5	4.0	-0.6	0.9	1									15	10	A-4a	8			N_{60} & Mc		42"	861 Geogrid
	92	SS-3	5.5	7.0	2.4	3.9	11									25	8	A-3	0						
								1																	
79	B	SS-1	1.0	2.5	-0.1	1.4	12			0	0	NP	9	3	12	12	8	A-3a	0	268					
	033-0																								
	19																								
								12																	
80	B	SS-1	0.0	1.5	-2.4	-0.9	6									11	8	A-3a	0						
	083-0	SS-2	2.0	3.5	-0.4	1.1	13									9	8	A-3a	0						
	92	SS-3	5.5	7.0	3.1	4.6	4									10	8	A-3a	0						
								4																	

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#	Boring	Sample	Sample Depth		Subgrade Depth		Standard Penetration		HP (tsf)	Physical Characteristics						Moisture		Ohio DOT		Sulfate Content (ppm)	Problem		Excavate and Replace (Item 204)		Recommendation (Enter depth in inches)
			From	To	From	To	N_{60}	N_{60L}		LL	PL	PI	% Silt	% Clay	P200	M_C	M_{OPT}	Class	GI		Unsuitable	Unstable	Unsuitable	Unstable	
81	B 034-0 19	SS-1	1.4	2.9	-0.3	1.2	18	18		0	0	NP	11	7	18	6	8	A-3a	0	339					
82	B 013-0 06	SS-1	0.9	2.9	-0.4	1.6	17	11		0	0	NP	5	0	5	3	8	A-3	0						
		SS-2	2.9	4.9	1.6	3.6	11									3	8	A-3	0						
		SS-3	4.9	6.9	3.6	5.6	11									4	8	A-3	0						
83	B 086-0 92	SS-1	1.5	3.0	-0.8	0.7	25	10		0	0	NP	9	3	12	7	8	A-3a	0						
		SS-2	3.0	4.5	0.7	2.2	10									5	8	A-3a	0						
		SS-3	5.5	7.0	3.2	4.7	11									9	8	A-3a	0						
84	B 035-0 19	SS-1	1.5	3.0	0.4	1.9	9	9		0	0	NP	11	7	18	6	8	A-3a	0	551					
85	B 087-0 92	SS-1	1.5	3.0	-0.1	1.4	7	7		0	0	NP	0	5	5	7	8	A-3	0						
		SS-2	3.5	5.0	1.9	3.4	7			0	0	NP	0	7	7	10	8	A-3	0						
86	B 036-0 19	SS-1	1.4	2.9	0.2	1.7	18	18		0	0	NP	6	3	9	6	8	A-3a	0	292					
87	B 089-0 92	SS-1	1.5	3.0	-0.7	0.8	16	16									8	A-3	0						
		SS-2	3.5	5.0	1.3	2.8	27			0	0	NP	0	8	8	7	8	A-3	0						
88	B 037-0 19	SS-1	1.0	2.5	-0.4	1.1	14	14		26	17	9	12	5	17	12	10	A-2-4	0	223					

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#	Boring	Sample	Sample Depth		Subgrade Depth		Standard Penetration		HP (tsf)	Physical Characteristics						Moisture		Ohio DOT		Sulfate Content (ppm)	Problem		Excavate and Replace (Item 204)		Recommendation (Enter depth in inches)
			From	To	From	To	N_{60}	N_{60L}		LL	PL	PI	% Silt	% Clay	P200	M_C	M_{OPT}	Class	GI		Unsuitable	Unstable	Unsuitable	Unstable	
89	B	SS-1	1.3	3.3	-0.3	1.7	8			0	0	NP	6	0	6	4	8	A-3	0						
	014-0	SS-2	3.3	5.3	1.7	3.7	8									4	8	A-3	0						
	06	SS-3	5.3	7.3	3.7	5.7	9									6	8	A-3	0						
								8																	
90	B	SS-1	1.2	2.7	0.1	1.6	42			0	0	NP	9	2	11	6	8	A-3a	0						
	038-0																								
	19																								
								30																	
91	B	SS-1	1.5	3.0	0.2	1.7	3			0	0	NP	0	13	13	13	8	A-3a	0						
	093-0	SS-2	3.5	5.0	2.2	3.7	8			0	0	NP	0	21	21	13	8	A-3a	0						
	92																								
								3																	
92	B	SS-1	1.2	2.7	0.0	1.5	16			0	0	NP	12	5	17	8	8	A-3a	0	252					
	039-0																								
	19																								
								16																	
93	B	SS-1	1.0	3.0	-0.3	1.7	6			0	0	NP	19	3	22	18	8	A-3a	0						
	015-0	SS-2	3.0	5.0	1.7	3.7	11									11	8	A-3a	0						
	06	SS-3	5.0	7.0	3.7	5.7	8									17	8	A-3	0						
								6																	
94	B	SS-1	0.9	2.4	-0.1	1.4	7			0	0	NP	17	7	24	13	8	A-3a	0	340					
	040-0																								
	19																								
								7																	
95	B	SS-1	1.5	3.0	-0.2	1.3	5			0	0	NP	0	23	23	19	8	A-3a	0						
	097-0	SS-2	3.5	5.0	1.8	3.3	6										8	A-3	0						
	92																								
								5																	
96	B	SS-1	1.1	2.6	-0.4	1.1	16			0	0	NP	7	3	10	10	8	A-3	0	323					
	041-0																								
	19																								
								16																	

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Subgrade Analysis

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#	Boring	Sample	Sample Depth		Subgrade Depth		Standard Penetration		HP (tsf)	Physical Characteristics						Moisture		Ohio DOT		Sulfate Content (ppm)	Problem		Excavate and Replace (Item 204)		Recommendation (Enter depth in inches)
			From	To	From	To	N_{60}	N_{60L}		LL	PL	PI	% Silt	% Clay	P200	M_C	M_{OPT}	Class	GI		Unsuitable	Unstable	Unsuitable	Unstable	
97	B 042-0 19	SS-1	1.4	2.9	0.4	1.9	16	16		0	0	NP	6	3	9	5	8	A-3	0	336					
98	B 016-0 06	SS-1	0.9	2.9	-0.4	1.6	24	6		0	0	NP	10	1	11	7	8	A-3a	0						
		SS-2	2.9	4.9	1.6	3.6	12			0	0	NP	7	0	7	6	8	A-3	0						
		SS-3	4.9	6.9	3.6	5.6	6									8	8	A-3	0						
99	B 101-0 92	SS-1	1.5	3.0	-10.6	-9.1	9	18		0	0	NP	0	14	14	12	8	A-3a	0						
		SS-2	3.5	5.0	-8.6	-7.1	18			0	0	NP	0	6	6	6	6	A-1-b	0						
100	B 043-0 19	SS-1	1.0	2.5	-0.5	1.0	4	4		0	0	NP	33	11	44	21	11	A-4a	2	651		N_{60} & Mc		24"	18" 861 Geogrid
101	B 103-0 92	SS-1	1.5	3.0	-0.9	0.6	11	11		0	0	NP	0	5	5		6	A-1-b	0						
		SS-2	3.5	5.0	1.1	2.6	13			0	0	NP	0	2	2	7	6	A-1-b	0						
102	B 044-0 19	SS-1	1.5	3.0	1.7	3.2	11	11		0	0	NP	7	4	11	6	8	A-3a	0	259					
103	B 105-0 92	SS-1	1.5	3.0	0.0	1.5	16	11		0	0	NP	0	16	16	13	8	A-3a	0						
		SS-2	3.5	5.0	2.0	3.5	11			0	0	NP	0	31	31	14	8	A-3a	0						
104	B 045-0 19	SS-1	1.1	2.6	-1.0	0.5	22	22		0	0	NP	7	3	10	15	8	A-3	0	195					

OHIO DEPARTMENT OF TRANSPORTATION

Subgrade Analysis

V. 14.5 1/18/2019

#	Boring	Sample	Sample Depth		Subgrade Depth		Standard Penetration		HP (tsf)	Physical Characteristics						Moisture		Ohio DOT		Sulfate Content (ppm)	Problem		Excavate and Replace (Item 204)		Recommendation (Enter depth in inches)
			From	To	From	To	N_{60}	N_{60L}		LL	PL	PI	% Silt	% Clay	P200	M_C	M_{OPT}	Class	GI		Unsuitable	Unstable	Unsuitable	Unstable	
105	B	SS-1	0.7	2.7	-0.6	1.4	11			0	0	NP	16	2	18	16	8	A-3a	0						
	017-0	SS-2	2.7	4.7	1.4	3.4	8									7	8	A-3a	0						
	06	SS-3	4.7	6.7	3.4	5.4	8									9	8	A-3	0						
								8																	
106	B	SS-1	1.5	3.0	0.6	2.1	26			0	0	NP	5	1	6	5	8	A-3	0	414					
	046-0																								
	19																								
								26																	
107	B	SS-1	1.5	3.0	0.3	1.8	26			0	0	NP	0	6	6	12	8	A-3	0						
	108-0	SS-2	3.5	5.0	2.3	3.8	11			0	0	NP	0	8	8	6	6	A-1-a	0						
	92																								
								11																	
108	B	SS-1	1.3	2.8	0.4	1.9	15			0	0	NP	9	4	13	11	8	A-3a	0	332					
	047-0																								
	19																								
								15																	
109	B	SS-1	1.5	3.0	0.2	1.7	4										6	A-1-b	0						
	110-0	SS-2	3.5	5.0	2.2	3.7	8			0	0	NP	0	8	8	8	6	A-1-b	0						
	92																								
								4																	
110	B	SS-1	1.1	2.6	-0.8	0.7	15			0	0	NP	11	9	20	17	8	A-3a	0	363					
	048-0																								
	19																								
								15																	
111	B	SS-1	0.9	2.9	-0.9	1.1	11			0	0	NP	7	0	7	7	8	A-3	0						
	018-0	SS-2	2.9	4.9	1.1	3.1	4									13	8	A-3	0						
	06	SS-3	4.9	6.9	3.1	5.1	3									10	8	A-3	0						
								3																	
112	B	SS-1	0.9	2.4	-0.8	0.7	24			0	0	NP	7	4	11	13	8	A-3a	0	205					
	049-0																								
	19																								
								24																	

OHIO DEPARTMENT OF TRANSPORTATION

Subgrade Analysis

V. 14.5 1/18/2019

#	Boring	Sample	Sample Depth		Subgrade Depth		Standard Penetration		HP (tsf)	Physical Characteristics						Moisture		Ohio DOT		Sulfate Content (ppm)	Problem		Excavate and Replace (Item 204)		Recommendation (Enter depth in inches)
			From	To	From	To	N_{60}	N_{60L}		LL	PL	PI	% Silt	% Clay	P200	M_C	M_{OPT}	Class	GI		Unsuitable	Unstable	Unsuitable	Unstable	
113	B	SS-1	1.5	3.0	0.2	1.7	17										6	A-1-b	0						
	114-0	SS-2	3.5	5.0	2.2	3.7	26			0	0	NP	0	13	13	8	6	A-1-b	0						
	92																								
								17																	
114	B	SS-1	1.0	2.5	-0.6	0.9	5			0	0	NP	9	5	14	8	8	A-3a	0	416					
	050-0																								
	19																								
								5																	
115	B	SS-1	1.5	3.0	0.0	1.5	15										8	A-3a	0						
	116-0	SS-2	3.5	5.0	2.0	3.5	5			0	0	NP	0	16	16	30	8	A-3a	0						
	92																								
								5																	
116	B	SS-1	1.0	2.5	-0.7	0.8	7			0	0	NP	10	4	14	11	8	A-3a	0	176					
	051-0																								
	19																								
								7																	
117	B	SS-1	1.1	3.1	-0.7	1.3	11			0	0	NP	20	2	22	11	8	A-3a	0						
	019-0	SS-2	3.1	5.1	1.3	3.3	8									6	8	A-3a	0						
	06	SS-3	5.1	7.1	3.3	5.3	8									5	8	A-3a	0						
								8																	
118	B	SS-1	0.9	2.4	-0.6	0.9	22			0	0	NP	10	3	13	14	8	A-3a	0	148					
	052-0																								
	19																								
								22																	
119	B	SS-1	1.5	3.0	-0.4	1.1	10										8	A-3	0						
	120-0	SS-2	3.5	5.0	1.6	3.1	15			0	0	NP	0	5	5	8	8	A-3	0						
	92																								
								10																	
120	B	SS-1	1.0	2.5	-0.4	1.1	15			0	0	NP	11	4	15	10	8	A-3a	0	170					
	053-0																								
	19																								
								15																	

OHIO DEPARTMENT OF TRANSPORTATION

Subgrade Analysis

V. 14.5 1/18/2019

#	Boring	Sample	Sample Depth		Subgrade Depth		Standard Penetration		HP (tsf)	Physical Characteristics						Moisture		Ohio DOT		Sulfate Content (ppm)	Problem		Excavate and Replace (Item 204)		Recommendation (Enter depth in inches)
			From	To	From	To	N_{60}	N_{60L}		LL	PL	PI	% Silt	% Clay	P200	M_C	M_{OPT}	Class	GI		Unsuitable	Unstable	Unsuitable	Unstable	
121	B	SS-1	1.5	3.0	0.0	1.5	9										6	A-1-b	0						
	122-0	SS-2	3.5	5.0	2.0	3.5	11			0	0	NP	0	5	5	6	6	A-1-b	0						
	92																								
								9																	
122	B	SS-1	0.9	2.4	-0.2	1.3	15			0	0	NP	14	7	21	12	8	A-3a	0	393					
	054-0																								
	19																								
								15																	
123	B	SS-1	1.5	3.0	-0.6	0.9	7										8	A-3a	0						
	124-0	SS-2	3.5	5.0	1.4	2.9	12										8	A-3a	0						
	92																								
								7																	
124	B	SS-1	1.1	2.6	0.0	1.5	19			0	0	NP	9	1	10	12	8	A-3	0	161					
	055-0																								
	19																								
								19																	
125	B	SS-1	0.9	2.9	-0.4	1.6				0	0	NP	9	1	10	10	8	A-3	0						
	020-0	SS-2	2.9	4.9	1.6	3.6										6	6	A-1-b	0						
	06	SS-3	4.9	6.9	3.6	5.6										6	6	A-1-b	0						
								0																	

OHIO DEPARTMENT OF TRANSPORTATION

Subgrade Analysis

V. 14.5 1/18/2019

PID: PID: 108665

County-Route-Section: LAK-20-19.59

No. of Borings: 125

Geotechnical Consultant: SME

Prepared By: Brendan Lieske

Date prepared: Friday, January 20, 2022

Chemical Stabilization Options		
320	Rubblize & Roll	No
206	Cement Stabilization	Option
	Lime Stabilization	No
206	Depth	14''

Excavate and Replace Stabilization Options	
Global Geotextile Override(N60L):	18''
Override(HP):	24''
Global Geogrid Override(N60L):	12''
Override(HP):	18''

Design CBR	12

% Samples within 6 feet of subgrade			
$N_{60} \leq 5$	18%	HP ≤ 0.5	1%
$N_{60} < 12$	62%	0.5 < HP ≤ 1	1%
$12 \leq N_{60} < 15$	13%	1 < HP ≤ 2	2%
$N_{60} \geq 20$	11%	HP > 2	0%
M+	6%		
Rock	0%		
Unsuitable	0%		

Excavate and Replace at Surface	
Average	1''
Maximum	36''
Minimum	0''

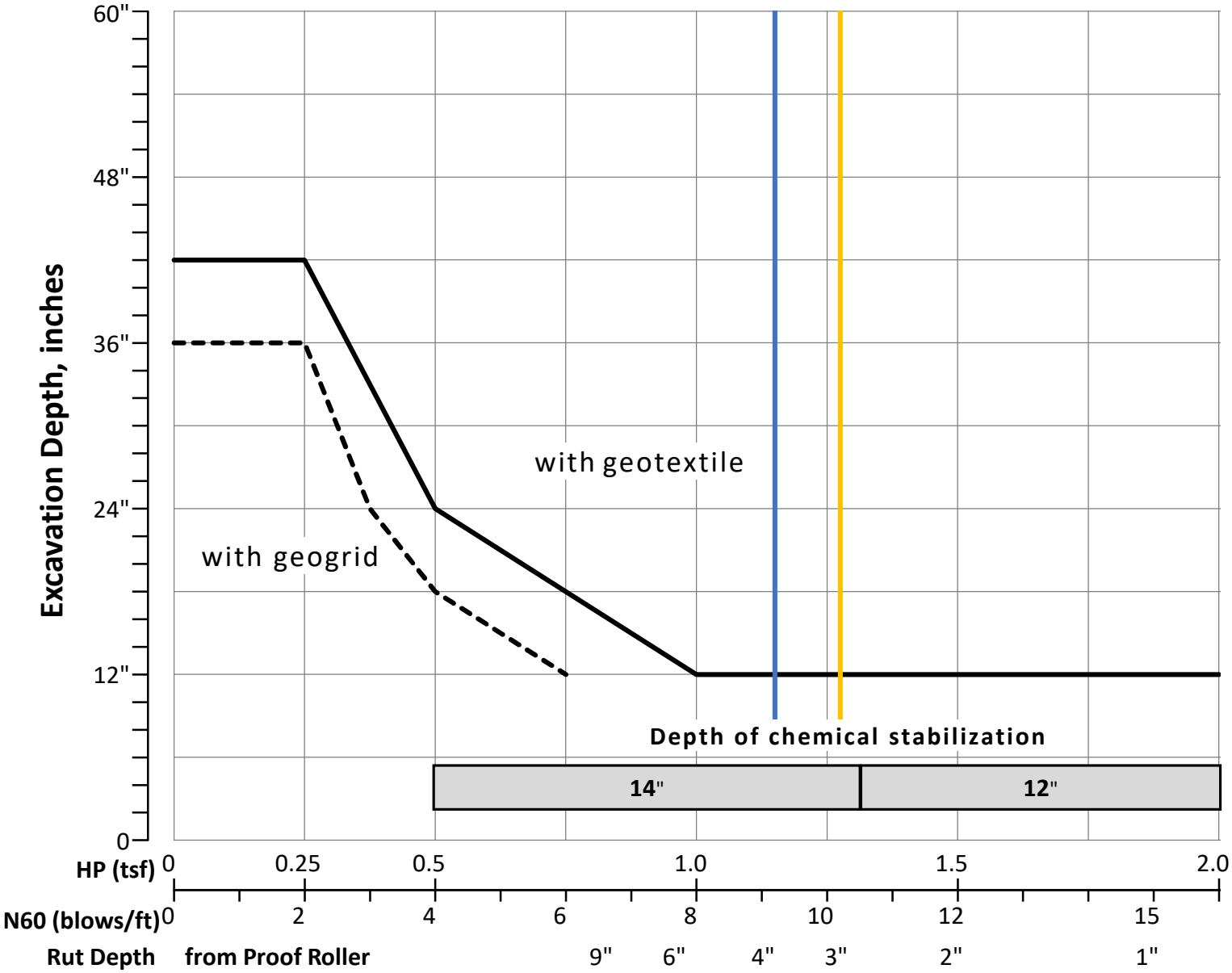
% Proposed Subgrade Surface	
Unstable & Unsuitable	10%
Unstable	10%
Unsuitable	0%

	N_{60}	N_{60L}	HP	LL	PL	PI	Silt	Clay	P 200	M_C	M_{OPT}	GI
Average	11	10	1.15	2	2	6	12	7	19	11	8	1
Maximum	69	30	2.25	37	28	12	42	31	72	34	23	10
Minimum	1	0	0.40	0	0	1	0	0	2	3	6	0

Classification Counts by Sample

ODOT Class	Rock	A-1-a	A-1-b	A-2-4	A-2-5	A-2-6	A-2-7	A-3	A-3a	A-4a	A-4b	A-5	A-6a	A-6b	A-7-5	A-7-6	A-8a	A-8b	Totals
Count	0	6	25	18	0	1	0	40	116	22	0	0	4	0	0	0	0	0	232
Percent	0%	3%	11%	8%	0%	0%	0%	17%	50%	9%	0%	0%	2%	0%	0%	0%	0%	0%	100%
% Rock|Granular|Cohesive	0%	98%									2%								100%
Surface Class Count	0	5	22	11	0	0	0	31	104	19	0	0	3	0	0	0	0	0	195
Surface Class Percent	0%	3%	11%	6%	0%	0%	0%	16%	53%	10%	0%	0%	2%	0%	0%	0%	0%	0%	100%

GB1 Figure B – Subgrade Stabilization



OVERRIDE TABLE

Calculated Average	New Values	Check to Override
1.15	0.50	☐ HP
10.25	6.00	☐ N60L

Average HP
Average N_{60L}


LAK-20-19.59
PID: 108665
SME PROJECT #: 080593.00
Legend
Historic
SME
B-004-1-19
B-004-0-19
B-003-3-19
B-004-0-06
B-003-2-19
B-003-1-19
B-023-0-92
B-003-0-19
B-022-0-92
B-003-0-06
B-002-0-19
B-020-0-92
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B-002-0-06
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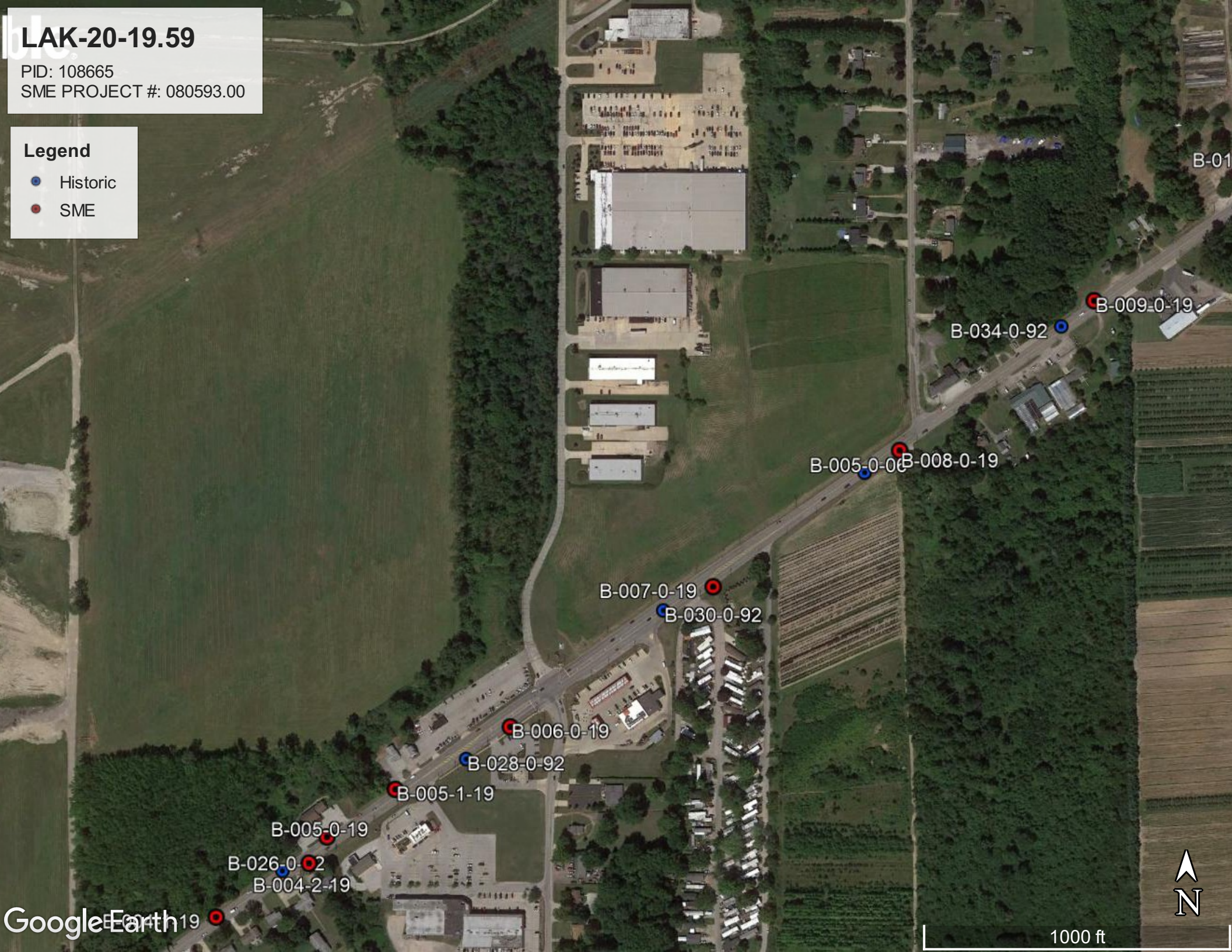
B-017-0-92
B-001-0-06
Google Earth
N
1000 ft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Historic
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B-005-0-06
B-008-0-19
B-007-0-19
B-030-0-92
B-006-0-19
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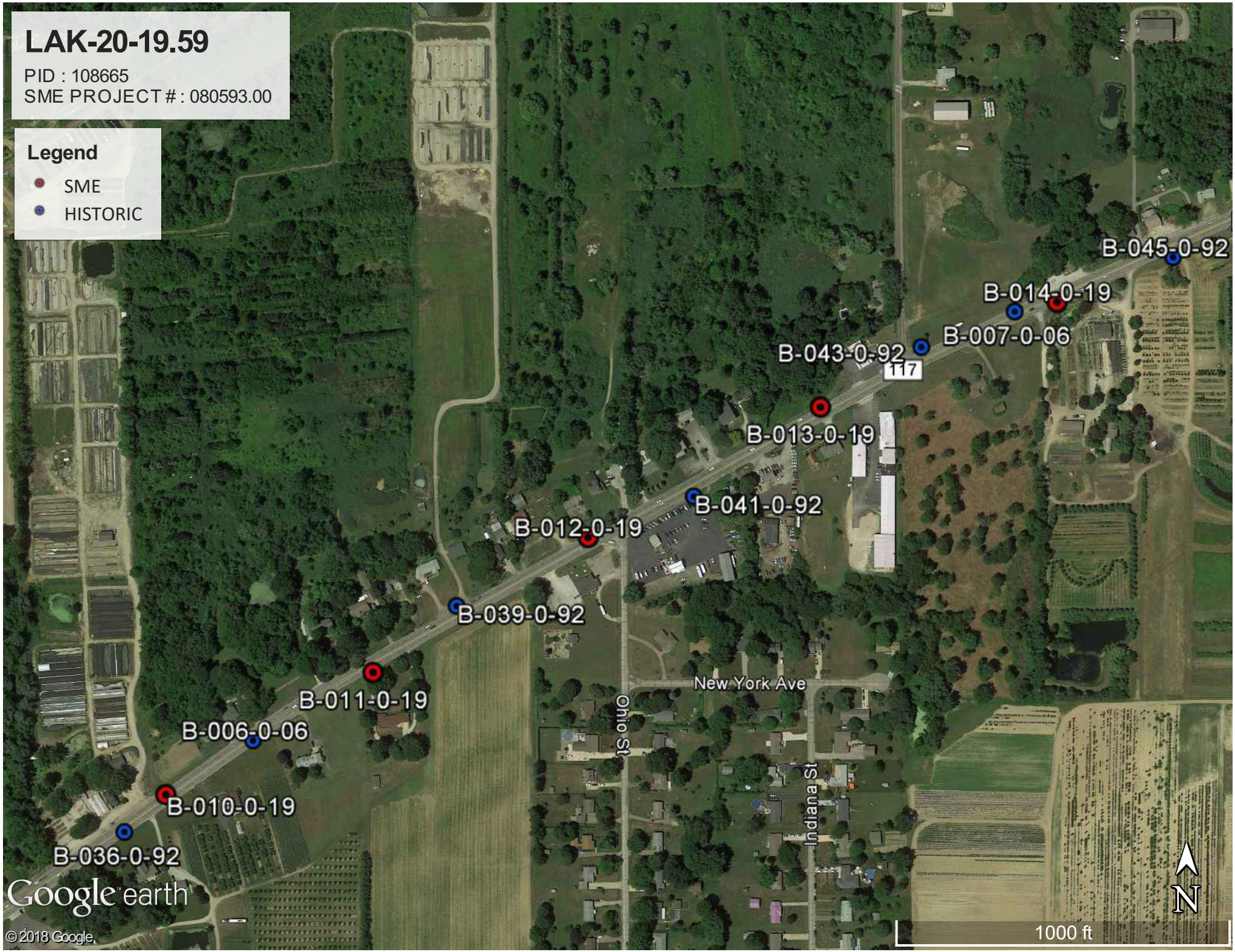
1000 ft
Google Earth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SME
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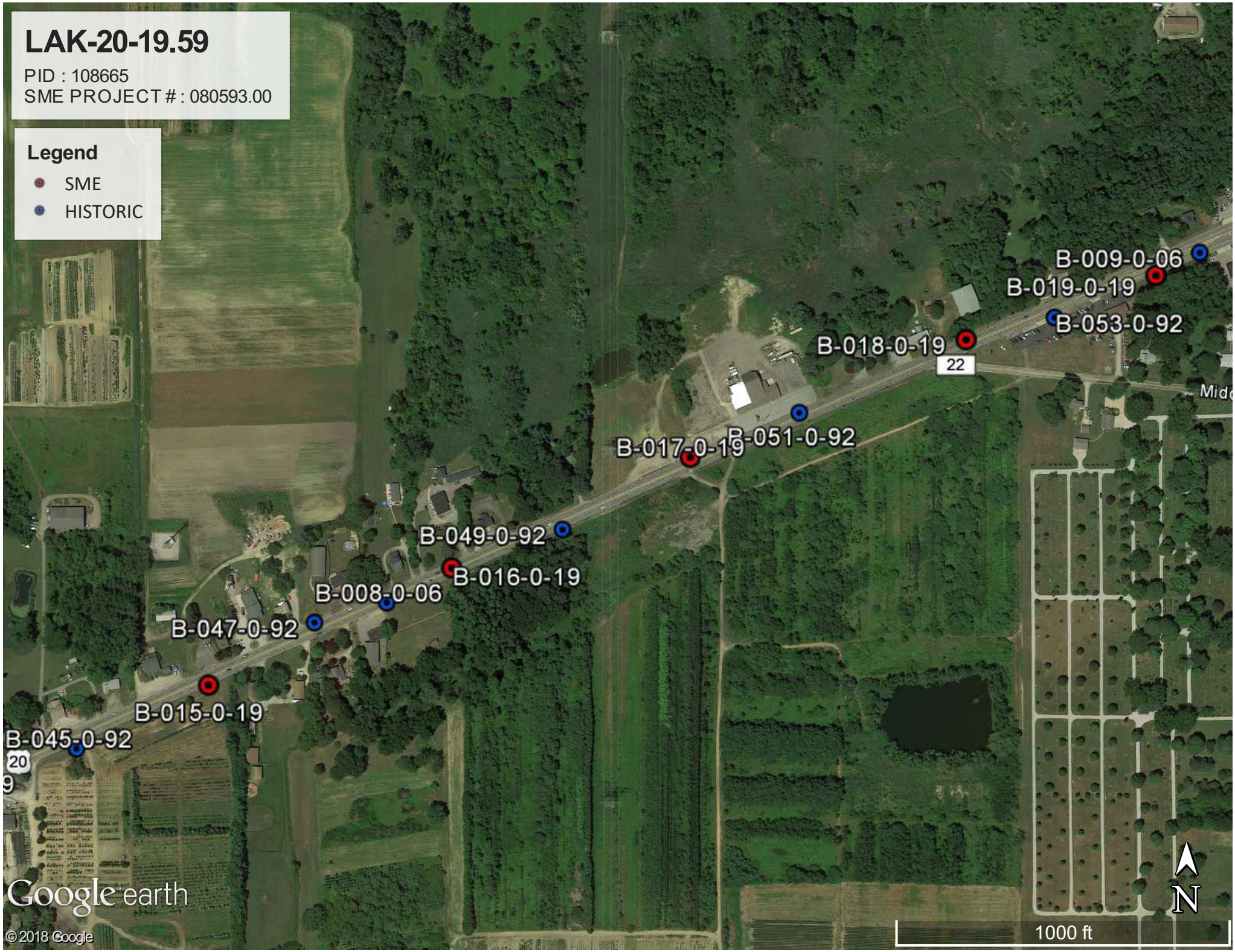
B-043-0-92
117
B-013-0-19
B-041-0-92
B-012-0-19
B-039-0-92
New York Ave
Ohio St
Indiana St
B-011-0-19
B-006-0-06
B-010-0-19
B-036-0-92
Google earth
© 2018 Google
N
1000 ft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22
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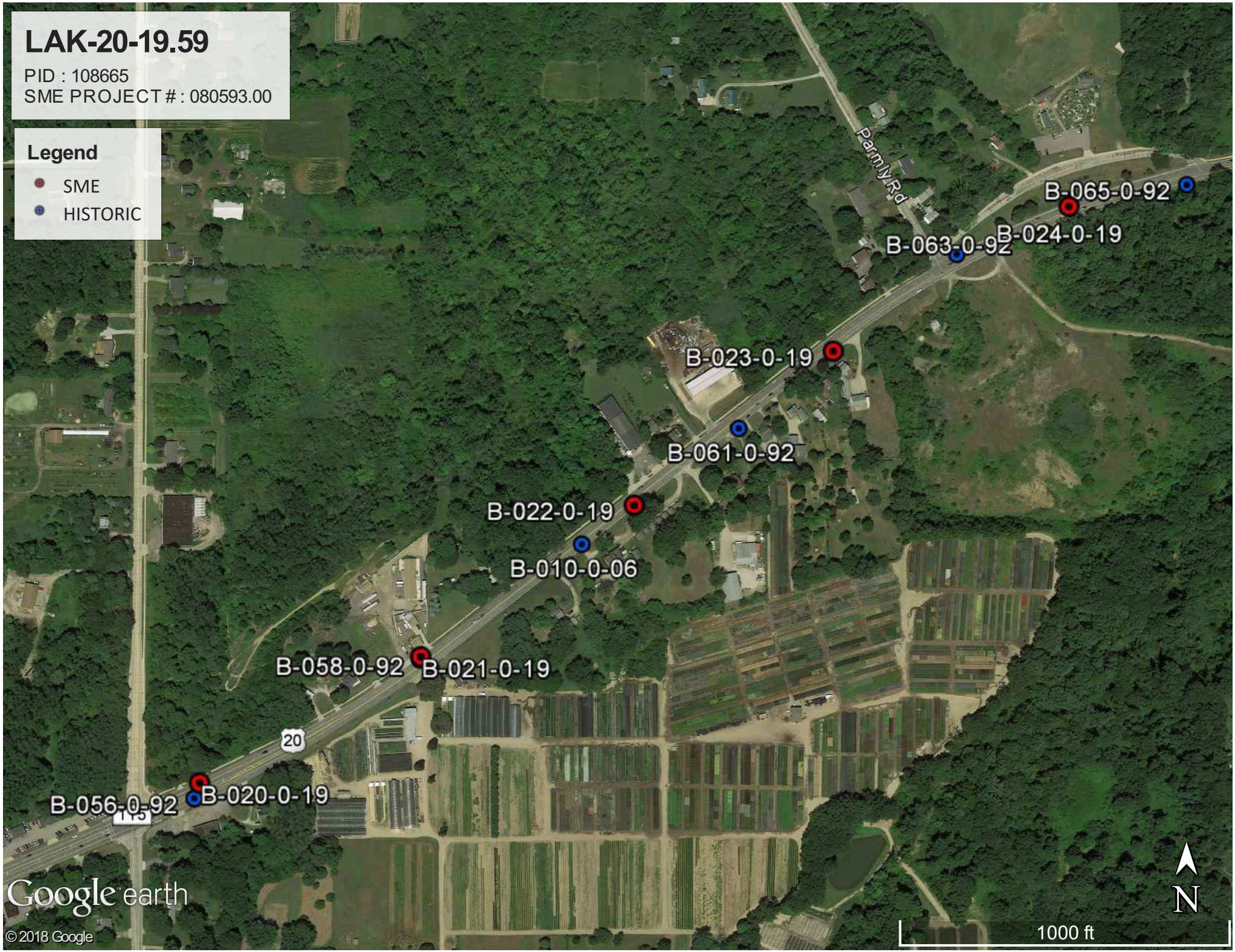
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B-023-0-19
B-061-0-92
B-022-0-19
B-010-0-06
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175
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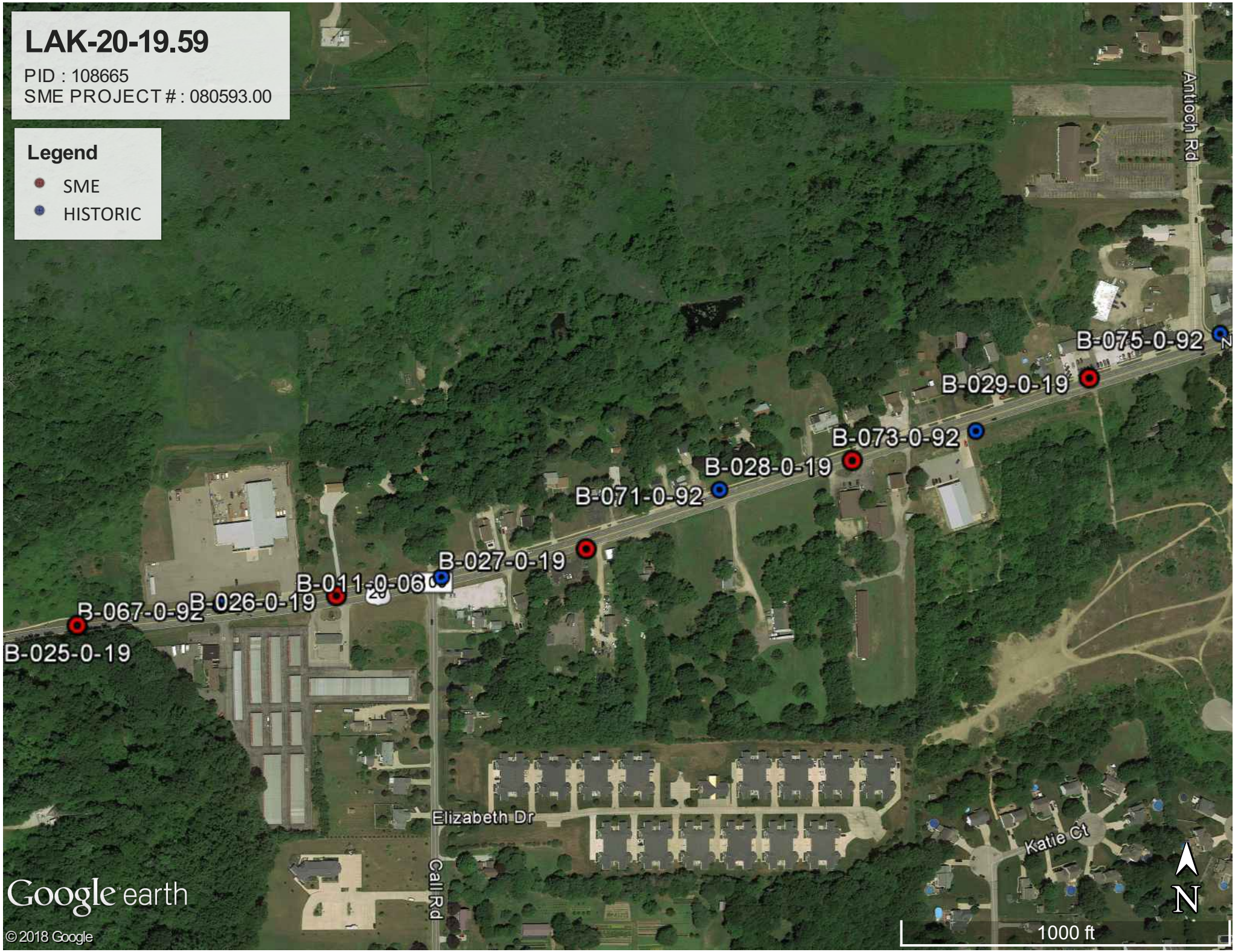
1000 ft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B-027-0-19
B-011-0-06
B-026-0-19
B-067-0-92
B-025-0-19
Antioch Rd
Elizabeth Dr
Call Rd
Katie Ct
Google earth
© 2018 Google
N
1000 ft


LAK-20-19.59
PID : 108665
SME PROJECT # : 080593.00
Legend
SME
HISTORIC
B-013-0-06
B-034-0-19
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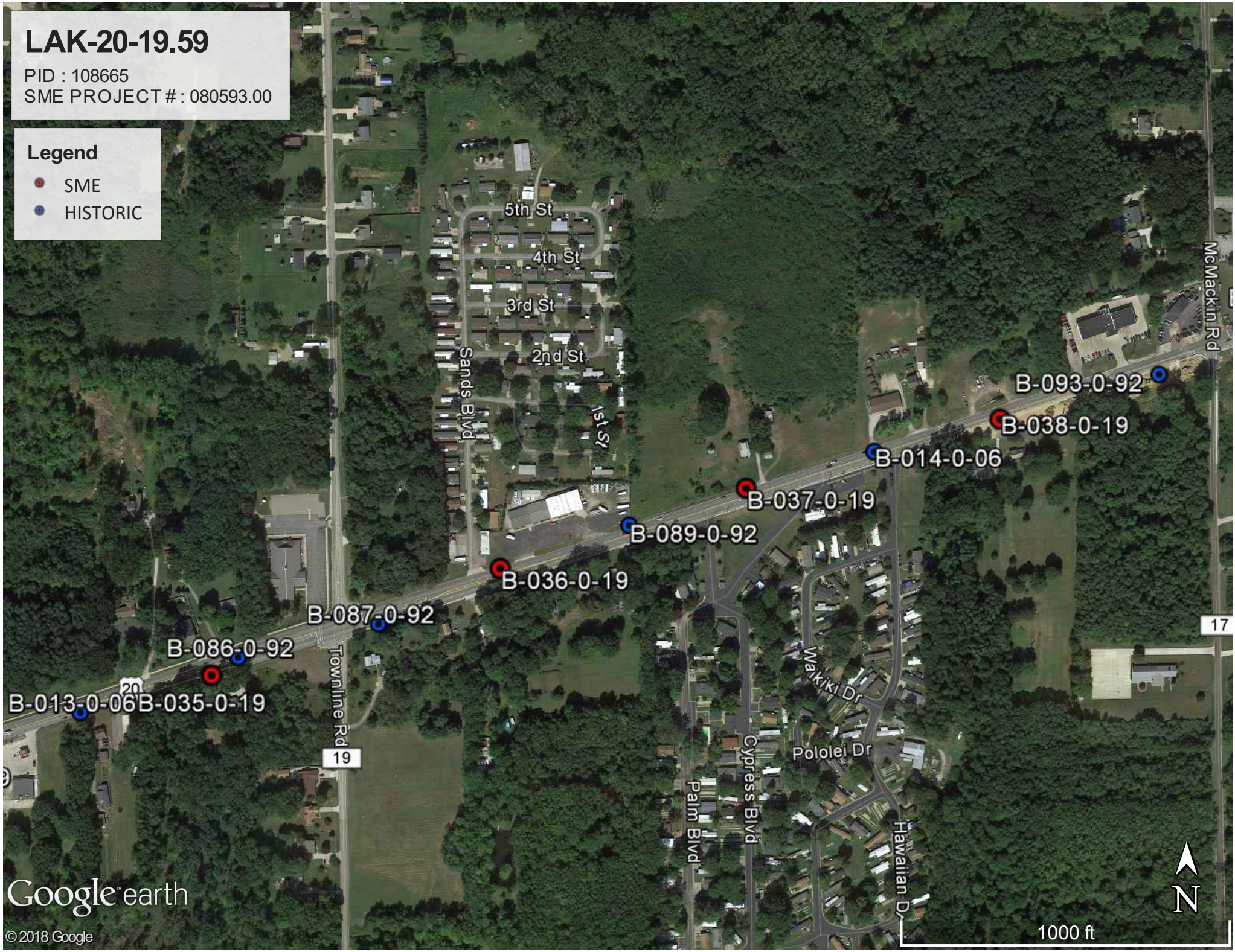
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SME
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5th St
4th St
3rd St
2nd St
Sands Blvd
1st St
McMackin Rd
B-093-0-92
B-038-0-19
B-014-0-06
B-037-0-19
B-089-0-92
B-036-0-19
B-087-0-92
B-086-0-92
B-013-0-06
B-035-0-19
Townline Rd
19
20
17
Waikiki Dr
Pololei Dr
Cypress Blvd
Palm Blvd
Hawaiian Dr
Google earth
© 2018 Google
N
1000 ft


LAK-20-19.59
PID : 108665
SME PROJECT # : 080593.00
Legend
SME
HISTORIC
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17
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McMackin Rd
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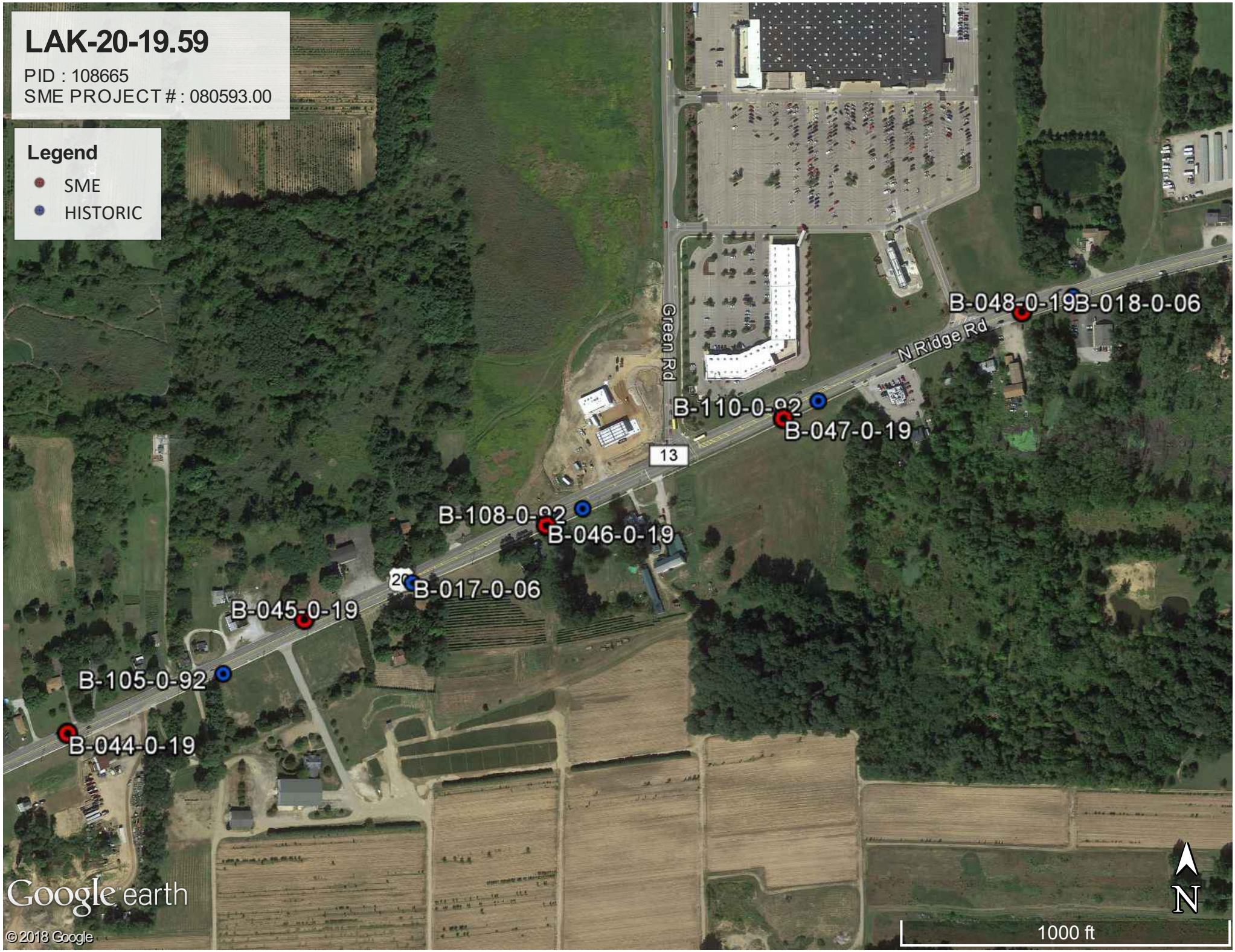
1000 ft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N Ridge Rd
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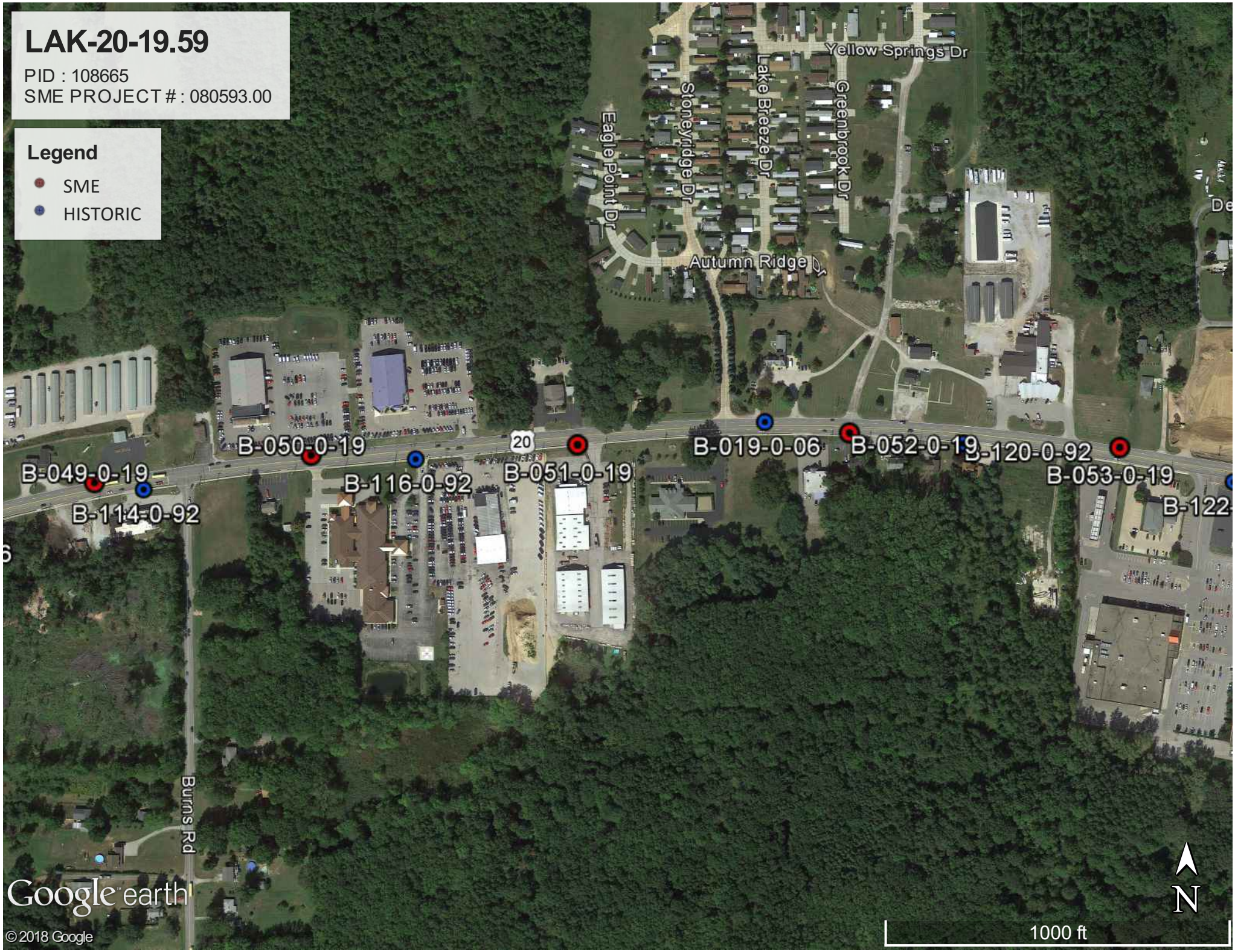
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HISTORIC
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Lake Breeze Dr
Greenbrook Dr
Stoneyridge Dr
Eagle Point Dr
Autumn Ridge Dr
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B-049-0-19
B-114-0-92
B-116-0-92
B-051-0-19
B-019-0-06
B-052-0-19
B-120-0-92
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20
Burns Rd
Google earth
© 2018 Google
N
1000 ft


LAK-20-19.59
PID : 108665
SME PROJECT # : 080593.00
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SME
HISTORIC
Derubertis
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B-052-0-19
B-120-0-92
B-053-0-19
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B-054-0-19
B-124-0-92
B-055-0-19
B-020-0-06
7
528
Hubbard Rd
N
1000 ft
Google earth
© 2018 Google

1) STRENGTH OF SOIL:

Non-Cohesive (granular) Soils - Compactness	
Description	**Blows Per Ft.**
Very Loose	≤ 4
Loose	5 – 10
Medium Dense	11 – 30
Dense	31 – 50
Very Dense	> 50

2) COLOR :

If a color is a uniform color throughout, the term is single, modified by an adjective such as light or dark. If the predominate color is shaded by a secondary color, the secondary color procedes the primary color. If two major and distinct colors are swirled throughout the soil, the colors are modified by the term "mottled"

3) PRIMARY COMPONENT

Use **DESCRIPTION** from ODOT Soil Classification Chart on Back

Cohesive (fine grained) Soils - Consistency

Description	Qu (TSF)	Blows Per Ft.	Hand Manipulation
Very Soft	<0.25	<2	Easily penetrates 2" by fist
Soft	0.25-0.5	2 - 4	Easily penetrates 2" by thumb
Medium Stiff	0.5-1.0	5 - 8	Penetrates by thumb with moderate effort
Stiff	1.0-2.0	9 - 15	Readily indents by thumb, but not penetrate
Very Stiff	2.0-4.0	16 - 30	Readily indents by thumbnail
Hard	>4.0	>30	Indent with difficulty by thumbnail

4) COMPONENT MODIFIERS:

Description	Percentage By Weight
Trace	0% - 10%
Little	10% - 20%
Some	20% - 35%
"And"	35% -50%

5) Soil Organic Content

Description	% by Weight
Slightly Organic	2% - 4%
Moderately Organic	4% - 10%
Highly Organic	> 10%

6) Relative Visual Moisture

Description	Criteria	
	Cohesive Soil	**Non-cohesive Soils**
Dry	Powdery; Cannot be rolled; Water content well below the plastic limit	No moisture present
Damp	Leaves very little moisture when pressed between fingers; Crumbles at or before rolled to $^1/_8$"; Water content below plastic limit	Internal moisture, but no to little surface moisture
Moist	Leaves small amounts of moisture when pressed between fingers; Rolled to $^1/_8$" or smaller before crumbling; Water content above plastic limit to -3% of the liquid limit	Free water on surface, moist (shiny) appearance
Wet	Very mushy; Rolled multiple times to $^1/_8$" or smaller before crumbles; Near or above the liquid limit	Voids filled with free water, can be poured from split spoon.

CLASSIFICATION OF SOILS

Ohio Department of Transportation

(The classification of a soil is found by proceeding from top to bottom of the chart.
The first classification that the test data fits is the correct classification.)

SYMBOL	DESCRIPTION	Classifcation AASHTO	Classifcation OHIO	LL_O/LL x 100*	% Pass #40	% Pass #200	Liquid Limit (LL)	Plastic Index (PI)	Group Index Max.	REMARKS
	Gravel and/or Stone Fragments	A-1-a			30 Max.	15 Max.		6 Max.	0	Min. of 50% combined gravel, cobble and boulder sizes
	Gravel and/or Stone Fragments with Sand	A-1-b			50 Max.	25 Max.		6 Max.	0	
F.S.	Fine Sand	A-3			51 Min.	10 Max.	NON-PLASTIC		0	
	Coarse and Fine Sand	--	A-3a			35 Max.		6 Max.	0	Min. of 50% combined coarse and fine sand sizes
	Gravel and/or Stone Fragments with Sand and Silt	A-2-4				35 Max.	40 Max.	10 Max.	0	
		A-2-5					41 Min.			
	Gravel and/or Stone Fragments with Sand, Silt and Clay	A-2-6				35 Max.	40 Max.	11 Min.	4	
		A-2-7					41 Min.			
	Sandy Silt	A-4	A-4a	76 Min.		36 Min.	40 Max.	10 Max.	8	Less than 50% silt sizes
	Silt	A-4	A-4b	76 Min.		50 Min.	40 Max.	10 Max.	8	50% or more silt sizes
	Elastic Silt and Clay	A-5		76 Min.		36 Min.	41 Min.	10 Max.	12	
	Silt and Clay	A-6	A-6a	76 Min.		36 Min.	40 Max.	11 - 15	10	
	Silty Clay	A-6	A-6b	76 Min.		36 Min.	40 Max.	16 Min.	16	
	Elastic Clay	A-7-5		76 Min.		36 Min.	41 Min.	≤ LL-30	20	
	Clay	A-7-6		76 Min.		36 Min.	41 Min.	>LL-30	20	
	Organic Silt	A-8	A-8a	75 Max.		36 Min.				W/o organics would classify as A-4a or A-4b
	Organic Clay	A-8	A-8b	75 Max.		36 Min.				W/o organics would classify as A-5, A-6a, A-6b, A-7-5 or A-7-6

MATERIAL CLASSIFIED BY VISUAL INSPECTION

Sod and Topsoil

Pavement or Base

Uncontrolled Fill (Describe)

Bouldery Zone

P Peat

* Only perform the oven-dried liquid limit test and this calculation if organic material is present in the sample.

PROJECT: LAK-20-19.59	DRILLING FIRM / OPERATOR: SME / JH	DRILL RIG: CME 55 TRUCK 293	STATION / OFFSET: 120+93, 19' LT.	EXPLORATION ID B-001-0-19
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: SME / JF	HAMMER: CME AUTOMATIC	ALIGNMENT: CL RW & CONSTRUCTION	
PID: 108665 SFN:	DRILLING METHOD: 4" SSA	CALIBRATION DATE: 4/5/17	ELEVATION: 684.2 (MSL) EOB: 2.6 ft.	PAGE 1 OF 1
START: 3/26/19 END: 3/26/19	SAMPLING METHOD: SPT	ENERGY RATIO (%): 81	LAT / LONG: 41.759039, -81.191755	

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)	SO4 ppm	BACK FILL
5" ASPHALT, 8" CONCRETE (DRILLERS DESCRIPTION)	684.2																		
	683.1	1																	
LOOSE, BROWN, **SANDY SILT**, TRACE CLAY, LITTLE GRAVEL, MOIST		2	2 3 2	7	44	SS-1	-	15	19	27	31	8	NP	NP	NP	17	A-4a (1)	350	
	681.6	EOB																	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; AUGER CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: LAK-20-19.59	DRILLING FIRM / OPERATOR: SME / JH	DRILL RIG: CME 55 TRUCK 293	STATION / OFFSET: 141+78, 3' RT.	EXPLORATION ID B-002-0-19
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: SME / JF	HAMMER: CME AUTOMATIC	ALIGNMENT: CL RW & CONSTRUCTION	
PID: 108665 SFN:	DRILLING METHOD: 4" SSA	CALIBRATION DATE: 4/5/17	ELEVATION: 686.6 (MSL) EOB: 2.7 ft.	PAGE 1 OF 1
START: 3/26/19 END: 3/26/19	SAMPLING METHOD: SPT	ENERGY RATIO (%): 81	LAT / LONG: 41.760700, -81.189741	

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)	SO4 ppm	BACK FILL
5" ASPHALT, 4" BRICK, 5.75" CONCRETE (DRILLERS DESCRIPTION)	686.6	1																	
	685.3																		
LOOSE, BROWN, **COARSE AND FINE SAND**, TRACE CLAY, SOME SILT, TRACE GRAVEL, WET		2	3 3 3	8	83	SS-1	-	4	33	33	22	8	NP	NP	NP	14	A-3a (0)	360	
	683.8	EOB																	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; AUGER CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: LAK-20-19.59	DRILLING FIRM / OPERATOR: SME / JH	DRILL RIG: CME 55 TRUCK 293	STATION / OFFSET: 149+33, 17' RT.	EXPLORATION ID B-003-0-19
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: SME / JF	HAMMER: CME AUTOMATIC	ALIGNMENT: CL RW & CONSTRUCTION	
PID: 108665 SFN:	DRILLING METHOD: 4" SSA	CALIBRATION DATE: 4/5/17	ELEVATION: 685.2 (MSL) EOB: 2.6 ft.	PAGE 1 OF 1
START: 3/26/19 END: 3/26/19	SAMPLING METHOD: SPT	ENERGY RATIO (%): 81	LAT / LONG: 41.762194, -81.187829	

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)	SO4 ppm	BACK FILL
6" ASPHALT, 6.75" CONCRETE (DRILLERS DESCRIPTION)	685.2																		
	684.1	1																	
MEDIUM DENSE, BROWN, **COARSE AND FINE SAND**, TRACE CLAY, LITTLE SILT, TRACE GRAVEL, WET			4 4 5	12	89	SS-1	-	6	11	63	13	7	NP	NP	NP	27	A-3a (0)	390	
	682.6	2 EOB																	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; AUGER CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: LAK-20-19.59	DRILLING FIRM / OPERATOR: SME / RM	DRILL RIG: CME 75 TRUCK 253	STATION / OFFSET: 149+71, 18' RT.	EXPLORATION ID B-003-1-19
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: SME / BM	HAMMER: CME AUTOMATIC	ALIGNMENT: CL RW & CONSTRUCTION	
PID: 108665 SFN:	DRILLING METHOD: 4" SSA	CALIBRATION DATE: 3/10/20	ELEVATION: 685.3 (MSL) EOB: 6.83 ft.	PAGE 1 OF 1
START: 10/22/21 END: 10/22/21	SAMPLING METHOD: SPT	ENERGY RATIO (%): 70	COORD: 2326516.4733 N, 766195.3280 E	

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)	SO4 ppm	ABAN-DONED
4" ASPHALT, 6" CONCRETE (DRILLER'S DESCRIPTION)	685.3																		
	684.5																		
LOOSE, BROWN, **COARSE AND FINE SAND**, TRACE TO LITTLE CLAY, TRACE SILT, TRACE GRAVEL, **FILL**, WET	684.0	1	4 3 3	7	100	SS-1A	-	2	8	74	6	10	NP	NP	NP	22	A-3a (0)	250	
STIFF, DARK BROWN AND GRAY, **SANDY SILT**, SOME CLAY, TRACE GRAVEL, **FILL**, MOIST		2				SS-1B	1.50	-	-	-	-	-	-	-	-	23	A-4a (V)	-	
	682.3	3	3 2 2	5	100	SS-2A	1.50	6	16	22	32	24	28	21	7	24	A-4a (4)	-	
SOFT TO MEDIUM STIFF, BROWN AND GRAY, **SANDY SILT**, SOME CLAY, TRACE GRAVEL, WET						SS-2B	0.60	-	-	-	-	-	-	-	-	23	A-4a (V)	-	
		4	2 2 1	4	100	SS-3	0.60	-	-	-	-	-	-	-	-	32	A-4a (V)	-	
		5				SS-4A	0.40	-	-	-	-	-	-	-	-	34	A-4a (V)	-	
	679.2	6	2 2 2	5	100														
LOOSE, GRAY AND BROWN, **COARSE AND FINE SAND**, SOME CLAY, TRACE SILT, TRACE GRAVEL, MOIST	678.5	EOB				SS-4B	-	-	-	-	-	-	-	-	-	19	A-3a (V)	-	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; AUGER CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: LAK-20-19.59	DRILLING FIRM / OPERATOR: SME / RM	DRILL RIG: CME 75 TRUCK 253	STATION / OFFSET: 153+27, 17' LT.
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: SME / BM	HAMMER: CME AUTOMATIC	ALIGNMENT: CL RW & CONSTRUCTION
PID: 108665 SFN:	DRILLING METHOD: 4" SSA	CALIBRATION DATE: 3/10/20	ELEVATION: 687.6 (MSL) EOB: 6.75 ft.
START: 10/22/21 END: 10/22/21	SAMPLING METHOD: SPT	ENERGY RATIO (%): 70	COORD: 2326743.7444 N, 766472.6137 E

EXPLORATION ID B-003-2-19

PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 687.6	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
3" ASPHALT, 6" CONCRETE (DRILLER'S DESCRIPTION)	686.9																		
STIFF, BROWN, **SANDY SILT**, LITTLE GRAVEL, LITTLE CLAY, **CHEMICALLY TREATED FILL**, DAMP		1	4 4 6	12	56	SS-1	-	16	20	28	21	15	NP	NP	NP	12	A-4a (0)	200	
		2																	
		3	5 6 7	15	89	SS-2	-	-	-	-	-	-	-	-	-	8	A-4a (V)	-	
		4	4 5 5	12	78	SS-3	-	-	-	-	-	-	-	-	-	12	A-4a (V)	-	
	682.4	5																	
MEDIUM DENSE, BROWN, **GRAVEL AND STONE FRAGMENTS WITH SAND AND SILT**, LITTLE CLAY, DAMP	680.9	6	4 5 6	13	78	SS-4	-	24	22	21	19	14	NP	NP	NP	9	A-2-4 (0)	-	
		EOB																	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; AUGER CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: LAK-20-19.59	DRILLING FIRM / OPERATOR: SME / RM	DRILL RIG: CME 75 TRUCK 253	STATION / OFFSET: 156+55, 16' RT.	EXPLORATION ID B-003-3-19
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: SME / BM	HAMMER: CME AUTOMATIC	ALIGNMENT: CL RW & CONSTRUCTION	
PID: 108665 SFN:	DRILLING METHOD: 4" SSA	CALIBRATION DATE: 3/10/20	ELEVATION: 687.0 (MSL) EOB: 6.92 ft.	PAGE 1 OF 1
START: 10/22/21 END: 10/22/21	SAMPLING METHOD: SPT	ENERGY RATIO (%): 70	COORD: 2326999.1611 N, 766680.7378 E	

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)	SO4 ppm	ABAN-DONED
5" ASPHALT, 6" CONCRETE (DRILLER'S DESCRIPTION)	687.0																		
	686.1																		
LOOSE, BROWN, **COARSE AND FINE SAND**, LITTLE CLAY, LITTLE SILT, TRACE GRAVEL, **FILL**, DAMP		1	3 3 4	8	78	SS-1	-	8	17	43	15	17	NP	NP	NP	9	A-3a (0)	160	
	684.6	2																	
LOOSE TO MEDIUM DENSE, BROWN, **GRAVEL AND STONE FRAGMENTS WITH SAND AND SILT**, LITTLE CLAY, **CHEMICALLY TREATED FILL**, DAMP		3	2 3 3	7	17	SS-2	2.25	25	21	23	16	15	27	21	6	11	A-2-4 (0)	-	
		4	3 4 5	11	89	SS-3	-	-	-	-	-	-	-	-	-	12	A-2-4 (V)	-	
		5																	
		6	4 5 5	12	100	SS-4	-	-	-	-	-	-	-	-	-	14	A-4a (V)	-	
	680.1	EOB																	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; AUGER CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: LAK-20-19.59	DRILLING FIRM / OPERATOR: SME / RH/RM	DRILL RIG: CME 55 TRUCK 293	STATION / OFFSET: 156+94, 17' LT.	EXPLORATION ID B-004-0-19
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: SME / JF	HAMMER: CME AUTOMATIC	ALIGNMENT: CL RW & CONSTRUCTION	
PID: 108665 SFN:	DRILLING METHOD: 4" SSA	CALIBRATION DATE: 4/5/17	ELEVATION: 688.6 (MSL) EOB: 2.3 ft.	PAGE 1 OF 1
START: 3/19/19 END: 3/19/19	SAMPLING METHOD: SPT	ENERGY RATIO (%): 81	LAT / LONG: 41.763717, -81.185918	

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)	SO4 ppm	BACK FILL
3" ASPHALT, 6" CONCRETE (DRILLERS DESCRIPTION)	688.6																		
	687.9																		
MEDIUM DENSE, BROWN, **COARSE AND FINE SAND**, TRACE CLAY, TRACE SILT, MOIST		1	4 6 6	16	78	SS-1	-	0	4	85	8	3	NP	NP	NP	13	A-3a (0)	380	
	686.4	2 EOB																	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; AUGER CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: LAK-20-19.59	DRILLING FIRM / OPERATOR: SME / RM	DRILL RIG: CME 75 TRUCK 253	STATION / OFFSET: 160+60, 16' LT.
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: SME / BM	HAMMER: CME AUTOMATIC	ALIGNMENT: CL RW & CONSTRUCTION
PID: 108665 SFN:	DRILLING METHOD: 4" SSA	CALIBRATION DATE: 3/10/20	ELEVATION: 687.0 (MSL) EOB: 6.67 ft.
START: 10/22/21 END: 10/22/21	SAMPLING METHOD: SPT	ENERGY RATIO (%): 70	COORD: 2327289.2611 N, 766964.0261 E

EXPLORATION ID B-004-1-19

PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 687.0	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
2" ASPHALT, 6" CONCRETE (DRILLER'S DESCRIPTION)	686.3																		
MEDIUM DENSE, BROWN, **COARSE AND FINE SAND**, TRACE CLAY, TRACE SILT, TRACE GRAVEL, **CHEMICALLY TREATED FILL**, MOIST	685.6	1	7 9 10	22	83	SS-1A	-	4	7	74	6	9	NP	NP	NP	11	A-3a (0)	<100	
						SS-1B	-	-	-	-	-	-	-	-	-	14	A-6a (V)	-	
STIFF, BROWN, **SILT AND CLAY**, SOME SAND, TRACE GRAVEL, **CHEMICALLY TREATED FILL**, MOIST		2																	
		3	3 3 3	7	100	SS-2	1.50	-	-	-	-	-	-	-	-	22	A-6a (V)	-	
		4	3 3 3	7	100	SS-3	1.50	4	8	16	42	30	33	21	12	31	A-6a (8)	-	
		5																	
		6	3 4 4	9	100	SS-4	1.50	-	-	-	-	-	-	-	-	16	A-6a (V)	-	
	680.3	EOB																	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; AUGER CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: LAK-20-19.59	DRILLING FIRM / OPERATOR: SME / RM	DRILL RIG: CME 75 TRUCK 253	STATION / OFFSET: 164+00, 16' RT.
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: SME / BM	HAMMER: CME AUTOMATIC	ALIGNMENT: CL RW & CONSTRUCTION
PID: 108665 SFN:	DRILLING METHOD: 4" SSA	CALIBRATION DATE: 3/10/20	ELEVATION: 685.1 (MSL) EOB: 6.83 ft.
START: 10/22/21 END: 10/22/21	SAMPLING METHOD: SPT	ENERGY RATIO (%): 70	COORD: 2327583.1886 N, 767135.3049 E

EXPLORATION ID B-004-2-19

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)	SO4 ppm	ABAN-DONED
4" ASPHALT, 6" CONCRETE (DRILLER'S DESCRIPTION)	685.1																		
	684.3																		
MEDIUM STIFF TO STIFF, BROWN, **SANDY SILT**, LITTLE GRAVEL, LITTLE CLAY, **CHEMICALLY TREATED FILL**, DAMP		1	3 2 2	5	78	SS-1	0.50	18	21	21	25	15	25	19	6	17	A-4a (1)	290	
		2																	
		3	2 2 3	6	78	SS-2	2.00	-	-	-	-	-	-	-	-	12	A-4a (V)	-	
		4				SS-3A	-	-	-	-	-	-	-	-	-	13	A-4a (V)	-	
	680.6		3 4 5	11	100	SS-3B	-	-	-	-	-	-	-	-	-	12	A-2-6 (V)	-	
MEDIUM DENSE, BROWN, **GRAVEL AND STONE FRAGMENTS WITH SAND, SILT, AND CLAY**, **CHEMICALLY TREATED FILL**, DAMP	680.1	5				SS-3C	1.50	-	-	-	-	-	-	-	-	13	A-4a (V)	-	
STIFF, BROWN, **SANDY SILT**, LITTLE GRAVEL, LITTLE CLAY, **CHEMICALLY TREATED FILL**, DAMP		6	5 5 6	13	100	SS-4	-	17	25	20	24	14	24	19	5	12	A-4a (1)	-	
	678.3	EOB																	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; AUGER CUTTINGS MIXED WITH BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 1/25/22 15:30 - \\SME-INC\PZ\WIP\080953.01\PROJECT DATA\GINT\2021 BORINGS\LAK-20_2021 BORINGS.GPJ

PROJECT: LAK-20-19.59	DRILLING FIRM / OPERATOR: SME / RH/RM	DRILL RIG: CME 55 TRUCK 293	STATION / OFFSET: 164+81, 18' LT.	EXPLORATION ID B-005-0-19
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: SME / JF	HAMMER: CME AUTOMATIC	ALIGNMENT: CL RW & CONSTRUCTION	
PID: 108665 SFN:	DRILLING METHOD: 4" SSA	CALIBRATION DATE: 4/5/17	ELEVATION: 684.5 (MSL) EOB: 2.4 ft.	PAGE 1 OF 1
START: 3/19/19 END: 3/19/19	SAMPLING METHOD: SPT	ENERGY RATIO (%): 81	LAT / LONG: 41.765004, -81.183595	

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)	SO4 ppm	BACK FILL
3.25" ASPHALT, 7.25" CONCRETE (DRILLERS DESCRIPTION)	684.5																		
	683.6																		
LOOSE, BROWN, **COARSE AND FINE SAND**, TRACE CLAY, LITTLE SILT, LITTLE GRAVEL, WET		1 2	3 3 2	7	100	SS-1	-	11	23	41	16	9	NP	NP	NP	16	A-3a (0)	130	
	682.1	EOB																	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; AUGER CUTTINGS MIXED WITH BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/20/19 14:37 - \\SME-INC\PZ\WIP\080953.00\PROJECT DATA\GINT\LAK-20_B-1 TO B-20.GPJ

PROJECT: LAK-20-19.59	DRILLING FIRM / OPERATOR: SME / RM	DRILL RIG: CME 75 TRUCK 253	STATION / OFFSET: 167+63, 19' LT.
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: SME / BM	HAMMER: CME AUTOMATIC	ALIGNMENT: CL RW & CONSTRUCTION
PID: 108665 SFN:	DRILLING METHOD: 4" SSA	CALIBRATION DATE: 3/10/20	ELEVATION: 684.1 (MSL) EOB: 6.92 ft.
START: 10/22/21 END: 10/22/21	SAMPLING METHOD: SPT	ENERGY RATIO (%): 70	COORD: 2327858.7517 N, 767376.0104 E

EXPLORATION ID B-005-1-19

PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 684.1	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
7" ASPHALT, 4" CRUSHED SLAG (DRILLER'S DESCRIPTION)	683.2																		
MEDIUM DENSE, BROWN, **COARSE AND FINE SAND**, LITTLE SILT, LITTLE CLAY, LITTLE GRAVEL, **CHEMICALLY TREATED FILL**, WET	682.1	1	4 4 5	11	78	SS-1A	-	14	32	21	19	14	20	17	3	18	A-3a (0)	430	
		2				SS-1B	-	-	-	-	-	-	-	-	-	-	A-1-b (V)	-	
MEDIUM DENSE, BROWN, **GRAVEL AND STONE FRAGMENTS WITH SAND**, LITTLE SILT, TRACE TO LITTLE CLAY, DAMP		3	4 5 6	13	67	SS-2	-	24	40	15	11	10	NP	NP	NP	9	A-1-b (0)	-	
		4	7 7 6	15	33	SS-3	-	-	-	-	-	-	-	-	-	8	A-1-b (V)	-	
		5																	
		6	5 6 6	14	100	SS-4	-	-	-	-	-	-	-	-	-	8	A-1-b (V)	-	
	677.2	EOB																	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; AUGER CUTTINGS MIXED WITH BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 1/25/22 15:30 - \\SME-INC\PZ\WIP\080953.01\PROJECT DATA\GINT\2021 BORINGS\LAK-20_2021 BORINGS.GPJ

PROJECT: LAK-20-19.59	DRILLING FIRM / OPERATOR: SME / RH/RM	DRILL RIG: CME 55 TRUCK 293	STATION / OFFSET: 171+85, 25' RT.	EXPLORATION ID B-006-0-19
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: SME / JF	HAMMER: CME AUTOMATIC	ALIGNMENT: CL RW & CONSTRUCTION	
PID: 108665 SFN:	DRILLING METHOD: 4" SSA	CALIBRATION DATE: 4/5/17	ELEVATION: 683.1 (MSL) EOB: 2.9 ft.	PAGE 1 OF 1
START: 3/19/19 END: 3/19/19	SAMPLING METHOD: SPT	ENERGY RATIO (%): 81	LAT / LONG: 41.766011, -81.181385	

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)	SO4 ppm	BACK FILL
12.25" ASPHALT, 4.75" Crushed Limestone and Slag Base (DRILLERS DESCRIPTION)	683.1	1																	
MEDIUM DENSE, BROWN, **GRAVEL AND STONE FRAGMENTS WITH SAND**, TRACE CLAY, LITTLE SILT, MOIST	681.7	2	9 7 8	20	100	SS-1	-	30	22	24	15	9	NP	NP	NP	12	A-1-b (0)	570	
	680.2	EOB																	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; AUGER CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: LAK-20-19.59	DRILLING FIRM / OPERATOR: SME / RH/DL	DRILL RIG: CME 55 TRUCK 293	STATION / OFFSET: 179+61, 26' RT.
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: SME / JF	HAMMER: CME AUTOMATIC	ALIGNMENT: CL RW & CONSTRUCTION
PID: 108665 SFN:	DRILLING METHOD: 4" SSA	CALIBRATION DATE: 4/5/17	ELEVATION: 683.8 (MSL) EOB: 3.2 ft.
START: 3/18/19 END: 3/18/19	SAMPLING METHOD: SPT	ENERGY RATIO (%): 81	LAT / LONG: 41.767225, -81.179048

EXPLORATION ID B-007-0-19

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)	SO4 ppm	BACK FILL
14.5" ASPHALT, 6" CRUSHED LIMESTONE (DRILLERS DESCRIPTION)	683.8	1																	
	682.1																		
LOOSE, BROWN, **GRAVEL AND/OR STONE FRAGMENTS**, TRACE CLAY, TRACE SILT, LITTLE SAND, DAMP		2	5 5 2	9	44	SS-1	-	75	10	8	6	1	NP	NP	NP	7	A-1-a (0)	250	
	680.6	3 EOB																	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; AUGER CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: LAK-20-19.59	DRILLING FIRM / OPERATOR: SME / RH/DL	DRILL RIG: CME 55 TRUCK 293	STATION / OFFSET: 187+00, 16' RT.	EXPLORATION ID B-008-0-19
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: SME / JF	HAMMER: CME AUTOMATIC	ALIGNMENT: CL RW & CONSTRUCTION	
PID: 108665 SFN:	DRILLING METHOD: 4" SSA	CALIBRATION DATE: 4/5/17	ELEVATION: 684.2 (MSL) EOB: 2.4 ft.	PAGE 1 OF 1
START: 3/18/19 END: 3/18/19	SAMPLING METHOD: SPT	ENERGY RATIO (%): 81	LAT / LONG: 41.768405, -81.176843	

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)	SO4 ppm	BACK FILL
4" ASPHALT, 6.75" CONCRETE (DRILLERS DESCRIPTION)	684.2																		
LOOSE, BROWN, **COARSE AND FINE SAND**, TRACE CLAY, LITTLE TO SOME SILT, TRACE GRAVEL, WET	683.3	1 2	2 1 2	4	100	SS-1	-	6	14	52	20	8	NP	NP	NP	16	A-3a (0)	300	
	681.8	EOB																	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; AUGER CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: LAK-20-19.59	DRILLING FIRM / OPERATOR: SME / RH/DL	DRILL RIG: CME 55 TRUCK 293	STATION / OFFSET: 195+58, 19' LT.	EXPLORATION ID B-009-0-19
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: SME / JF	HAMMER: CME AUTOMATIC	ALIGNMENT: CL RW & CONSTRUCTION	
PID: 108665 SFN:	DRILLING METHOD: 4" SSA	CALIBRATION DATE: 4/5/17	ELEVATION: 682.0 (MSL) EOB: 2.3 ft.	PAGE 1 OF 1
START: 3/18/19 END: 3/18/19	SAMPLING METHOD: SPT	ENERGY RATIO (%): 81	LAT / LONG: 41.769833, -81.174340	

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)	SO4 ppm	BACK FILL
2.5" ASPHALT, 7" CONCRETE (DRILLERS DESCRIPTION)	682.0																		
	681.2																		
LOOSE, BROWN, **COARSE AND FINE SAND**, TRACE CLAY, LITTLE SILT, TRACE GRAVEL, WET		1	3	9	-	SS-1	-	6	25	46	15	8	NP	NP	NP	16	A-3a (0)	290	
			4																
		2	3																
	679.7	EOB																	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; AUGER CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: LAK-20-19.59	DRILLING FIRM / OPERATOR: SME / JH	DRILL RIG: CME 55 TRUCK 293	STATION / OFFSET: 203+65, 3' LT.	EXPLORATION ID B-010-0-19
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: SME / JF	HAMMER: CME AUTOMATIC	ALIGNMENT: CL RW & CONSTRUCTION	
PID: 108665 SFN:	DRILLING METHOD: 4" SSA	CALIBRATION DATE: 4/5/17	ELEVATION: 678.9 (MSL) EOB: 2.8 ft.	PAGE 1 OF 1
START: 3/26/19 END: 3/26/19	SAMPLING METHOD: SPT	ENERGY RATIO (%): 81	LAT / LONG: 41.771067, -81.171882	

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)	SO4 ppm	BACK FILL
7" ASPHALT, 3.5" BRICK, 4.75" CONCRETE (DRILLERS DESCRIPTION)	678.9	1																	
LOOSE, BROWN, **COARSE AND FINE SAND**, TRACE CLAY, LITTLE SILT, LITTLE GRAVEL, DAMP	677.7	2	3 3 4	9	83	SS-1	-	19	23	36	15	7	NP	NP	NP	8	A-3a (0)	670	
	676.2	EOB																	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; AUGER CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: LAK-20-19.59	DRILLING FIRM / OPERATOR: SME / RH/DL	DRILL RIG: CME 55 TRUCK 293	STATION / OFFSET: 211+01, 19' RT.
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: SME / JF	HAMMER: CME AUTOMATIC	ALIGNMENT: CL RW & CONSTRUCTION
PID: 108665 SFN:	DRILLING METHOD: 4" SSA	CALIBRATION DATE: 4/5/17	ELEVATION: 680.1 (MSL) EOB: 2.5 ft.
START: 3/18/19 END: 3/18/19	SAMPLING METHOD: SPT	ENERGY RATIO (%): 81	LAT / LONG: 41.772117, -81.169588

EXPLORATION ID B-011-0-19

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)	SO4 ppm	BACK FILL
4.75" ASPHALT, 7.5" CONCRETE (DRILLERS DESCRIPTION)	680.1																		
	679.0	1																	
LOOSE, BROWN, **COARSE AND FINE SAND**, TRACE TO LITTLE CLAY, LITTLE SILT, TRACE GRAVEL, MOIST			3 2 2	5	100	SS-1	-	9	25	37	19	10	NP	NP	NP	12	A-3a (0)	270	
	677.5	2 EOB																	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; AUGER CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: LAK-20-19.59	DRILLING FIRM / OPERATOR: SME / RH/DL	DRILL RIG: CME 55 TRUCK 293	STATION / OFFSET: 218+32, 17' LT.	EXPLORATION ID B-012-0-19
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: SME / JF	HAMMER: CME AUTOMATIC	ALIGNMENT: CL RW & CONSTRUCTION	
PID: 108665 SFN:	DRILLING METHOD: 4" SSA	CALIBRATION DATE: 4/5/17	ELEVATION: 679.9 (MSL) EOB: 2.4 ft.	PAGE 1 OF 1
START: 3/18/19 END: 3/18/19	SAMPLING METHOD: SPT	ENERGY RATIO (%): 81	LAT / LONG: 41.773174, -81.167303	

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)	SO4 ppm	BACK FILL
3.75" ASPHALT, 7.25" CONCRETE (DRILLERS DESCRIPTION)	679.9																		
	679.0																		
LOOSE, BROWN, **COARSE AND FINE SAND**, TRACE CLAY, LITTLE SILT, TRACE GRAVEL, WET		1 2	3 3 2	7	78	SS-1	-	5	10	67	11	7	NP	NP	NP	17	A-3a (0)	410	
	677.5	EOB																	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; AUGER CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: LAK-20-19.59	DRILLING FIRM / OPERATOR: SME / RH/DL	DRILL RIG: CME 55 TRUCK 293	STATION / OFFSET: 226+46, 20' LT.	EXPLORATION ID B-013-0-19
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: SME / JF	HAMMER: CME AUTOMATIC	ALIGNMENT: CL RW & CONSTRUCTION	
PID: 108665 SFN:	DRILLING METHOD: 4" SSA	CALIBRATION DATE: 4/5/17	ELEVATION: 678.0 (MSL) EOB: 2.5 ft.	PAGE 1 OF 1
START: 3/18/19 END: 3/18/19	SAMPLING METHOD: SPT	ENERGY RATIO (%): 81	LAT / LONG: 41.774260, -81.164696	

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)	SO4 ppm	BACK FILL
2.75" ASPHALT, 9.75" CONCRETE (DRILLERS DESCRIPTION)	678.0																		
	676.9	1																	
MEDIUM DENSE, BROWN, **COARSE AND FINE SAND**, TRACE CLAY, LITTLE SILT, TRACE GRAVEL, WET			5 5 3	11	100	SS-1	-	1	14	60	18	7	NP	NP	NP	14	A-3a (0)	300	
	675.4	2 EOB																	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; AUGER CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: LAK-20-19.59	DRILLING FIRM / OPERATOR: SME / RH/DL	DRILL RIG: CME 55 TRUCK 293	STATION / OFFSET: 234+18, 17' RT.	EXPLORATION ID B-014-0-19
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: SME / JF	HAMMER: CME AUTOMATIC	ALIGNMENT: CL RW & CONSTRUCTION	
PID: 108665 SFN:	DRILLING METHOD: 4" SSA	CALIBRATION DATE: 4/5/17	ELEVATION: 684.3 (MSL) EOB: 2.3 ft.	PAGE 1 OF 1
START: 3/18/19 END: 3/18/19	SAMPLING METHOD: SPT	ENERGY RATIO (%): 81	LAT / LONG: 41.775116, -81.162105	

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)	SO4 ppm	BACK FILL
3" ASPHALT, 6.75" CONCRETE (DRILLERS DESCRIPTION)	684.3																		
	683.5																		
LOOSE, BROWN, **COARSE AND FINE SAND**, TRACE CLAY, LITTLE SILT, TRACE GRAVEL, MOIST		1	3	9	100	SS-1	-	2	9	68	16	5	NP	NP	NP	13	A-3a (0)	370	
		2	3 4																
	682.0	EOB																	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; AUGER CUTTINGS MIXED WITH BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/20/19 14:37 - \\SME-INC\PZ\WIP\080953.00\PROJECT DATA\GINT\LAK-20_B-1 TO B-20.GPJ

PROJECT: LAK-20-19.59	DRILLING FIRM / OPERATOR: SME / RH/DL	DRILL RIG: CME 55 TRUCK 293	STATION / OFFSET: 242+41, 16' RT.
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: SME / JF	HAMMER: CME AUTOMATIC	ALIGNMENT: CL RW & CONSTRUCTION
PID: 108665 SFN:	DRILLING METHOD: 4" SSA	CALIBRATION DATE: 4/5/17	ELEVATION: 682.4 (MSL) EOB: 2.4 ft.
START: 3/18/19 END: 3/18/19	SAMPLING METHOD: SPT	ENERGY RATIO (%): 81	LAT / LONG: 41.776026, -81.159343

EXPLORATION ID B-015-0-19

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)	SO4 ppm	BACK FILL
3.5" ASPHALT, 7.5" CONCRETE (DRILLERS DESCRIPTION)	682.4																		
LOOSE, BROWN, **COARSE AND FINE SAND**, TRACE CLAY, TRACE TO LITTLE SILT, TRACE GRAVEL, MOIST	681.5	1 2	2 4 3	9	100	SS-1	-	2	6	77	10	5	NP	NP	NP	13	A-3a (0)	230	
	680.0	EOB																	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; AUGER CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: LAK-20-19.59	DRILLING FIRM / OPERATOR: SME / JH	DRILL RIG: CME 55 TRUCK 293	STATION / OFFSET: 250+67, 6' LT.	EXPLORATION ID B-016-0-19
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: SME / JF	HAMMER: CME AUTOMATIC	ALIGNMENT: CL RW & CONSTRUCTION	
PID: 108665 SFN:	DRILLING METHOD: 4" SSA	CALIBRATION DATE: 4/5/17	ELEVATION: 681.3 (MSL) EOB: 2.7 ft.	PAGE 1 OF 1
START: 3/26/19 END: 3/26/19	SAMPLING METHOD: SPT	ENERGY RATIO (%): 81	LAT / LONG: 41.776992, -81.156605	

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)	SO4 ppm	BACK FILL
5.5" ASPHALT, 3.75" BRICK, 4.5" CONCRETE (DRILLERS DESCRIPTION)	681.3	1																	
MEDIUM DENSE, BROWN, **COARSE AND FINE SAND**, TRACE CLAY, LITTLE SILT, TRACE TO LITTLE GRAVEL, DAMP	680.1	2	6 7 9	22	89	SS-1	-	10	15	55	15	5	NP	NP	NP	6	A-3a (0)	570	
	678.6	EOB																	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; AUGER CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: LAK-20-19.59	DRILLING FIRM / OPERATOR: SME / JH	DRILL RIG: CME 55 TRUCK 293	STATION / OFFSET: 273+50, 23' LT.	EXPLORATION ID B-017-0-19
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: SME / JF	HAMMER: CME AUTOMATIC	ALIGNMENT: CL RW & CONSTRUCTION	
PID: 108665 SFN:	DRILLING METHOD: 4" SSA	CALIBRATION DATE: 4/5/17	ELEVATION: 680.1 (MSL) EOB: 2.4 ft.	PAGE 1 OF 1
START: 3/15/19 END: 3/15/19	SAMPLING METHOD: SPT	ENERGY RATIO (%): 81	LAT / LONG: 41.777916, -81.153942	

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)	SO4 ppm	BACK FILL
3.25" ASPHALT, 7.25" CONCRETE (DRILLERS DESCRIPTION)	680.1																		
LOOSE, BROWN, **SANDY SILT**, SOME CLAY, TRACE GRAVEL, MOIST	679.3	1 2 2	2 2 2	5	94	SS-1	-	4	14	30	26	26	26	17	9	21	A-4a (3)	430	
	677.8	EOB																	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; AUGER CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: LAK-20-19.59	DRILLING FIRM / OPERATOR: SME / JH	DRILL RIG: CME 55 TRUCK 293	STATION / OFFSET: 267+44, 16' LT.	EXPLORATION ID B-018-0-19
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: SME / JF	HAMMER: CME AUTOMATIC	ALIGNMENT: CL RW & CONSTRUCTION	
PID: 108665 SFN:	DRILLING METHOD: 4" SSA	CALIBRATION DATE: 4/5/17	ELEVATION: 689.7 (MSL) EOB: 2.5 ft.	PAGE 1 OF 1
START: 3/15/19 END: 3/15/19	SAMPLING METHOD: SPT	ENERGY RATIO (%): 81	LAT / LONG: 41.778861, -81.150953	

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)	SO4 ppm	BACK FILL
3.75" ASPHALT, 8.25" CONCRETE (DRILLERS DESCRIPTION)	689.7																		
	688.7																		
MEDIUM DENSE, BROWN, **COARSE AND FINE SAND**, TRACE CLAY, TRACE SILT, TRACE GRAVEL, DAMP		1 2	4 4 4	11	56	SS-1	-	5	10	73	9	3	NP	NP	NP	8	A-3a (0)	310	
	687.2	EOB																	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; AUGER CUTTINGS MIXED WITH BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/20/19 14:37 - \\SME-INC\PZ\WIP\080953.00\PROJECT DATA\GINT\LAK-20_B-1 TO B-20.GPJ

PROJECT: LAK-20-19.59	DRILLING FIRM / OPERATOR: SME / RH/DL	DRILL RIG: CME 55 TRUCK 293	STATION / OFFSET: 273+50, 22' RT.	EXPLORATION ID B-019-0-19	
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: SME / JF	HAMMER: CME AUTOMATIC	ALIGNMENT: CL RW & CONSTRUCTION		
PID: 108665 SFN:	DRILLING METHOD: 4" SSA	CALIBRATION DATE: 4/5/17	ELEVATION: 691.0 (MSL) EOB: 3.0 ft.		PAGE 1 OF 1
START: 3/18/19 END: 3/18/19	SAMPLING METHOD: SPT	ENERGY RATIO (%): 81	LAT / LONG: 41.779406, -81.148880		

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)	SO4 ppm	BACK FILL
12.5" ASPHALT, 6" CONCRETE (DRILLERS DESCRIPTION)	691.0	1																	
	689.4																		
MEDIUM DENSE, BROWN, **COARSE AND FINE SAND**, TRACE CLAY, LITTLE SILT, DAMP		2	5 8 8	22	67	SS-1	-	0	5	79	11	5	NP	NP	NP	10	A-3a (0)	500	
	687.9	EOB 3																	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; AUGER CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: LAK-20-19.59	DRILLING FIRM / OPERATOR: SME / JH	DRILL RIG: CME 55 TRUCK 293	STATION / OFFSET: 282+28, 25' LT.	EXPLORATION ID B-020-0-19
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: SME / JF	HAMMER: CME AUTOMATIC	ALIGNMENT: CL RW & CONSTRUCTION	
PID: 108665 SFN:	DRILLING METHOD: 4" SSA	CALIBRATION DATE: 4/5/17	ELEVATION: 684.5 (MSL) EOB: 2.5 ft.	PAGE 1 OF 1
START: 3/15/19 END: 3/18/19	SAMPLING METHOD: SPT	ENERGY RATIO (%): 81	LAT / LONG: 41.780459, -81.145987	

MATERIAL DESCRIPTION AND NOTES	ELEV. 684.5	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	BACK FILL
12" ASPHALT (DRILLERS DESCRIPTION)	683.5																		
Gray, Slag and Gravel (Possible utility backfill)	682.0	1 2 EOB	22 24 27	69	100	SS-1	-	-	-	-	-	-	-	-	-	-		-	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; AUGER CUTTINGS MIXED WITH BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/20/19 14:38 - \\SME-INC\PZ\WIP\080953.00\PROJECT DATA\GINT\LAK-20_B-1 TO B-20.GPJ

PROJECT: LAK-20-19.59	DRILLING FIRM / OPERATOR: SME / RH/DL	DRILL RIG: CME 55 TRUCK 293	STATION / OFFSET: 290+31, 18' LT.	EXPLORATION ID B-021-0-19
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: SME / JF	HAMMER: CME AUTOMATIC	ALIGNMENT: CL RW & CONSTRUCTION	
PID: 108665 SFN:	DRILLING METHOD: 4" SSA	CALIBRATION DATE: 4/5/17	ELEVATION: 683.0 (MSL) EOB: 2.4 ft.	PAGE 1 OF 1
START: 3/15/19 END: 3/15/19	SAMPLING METHOD: SPT	ENERGY RATIO (%): 81	LAT / LONG: 41.781538, -81.143447	

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)	SO4 ppm	BACK FILL
3.25" ASPHALT, 7.25" BRICK (DRILLERS DESCRIPTION)	683.0																		
	682.2																		
MEDIUM DENSE, BROWN, **FINE SAND**, TRACE CLAY, TRACE SILT, TRACE GRAVEL, DAMP		1	5	22	100	SS-1	-	1	4	87	6	2	NP	NP	NP	9	A-3 (0)	310	
F.S.			8																
		2	8																
	680.7	EOB																	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; AUGER CUTTINGS MIXED WITH BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/20/19 14:40 - \\SME-INC\PZ\WIP\080953.00\PROJECT DATA\GINT\LAK-20_B-21 TO B-40.GPJ

PROJECT: LAK-20-19.59	DRILLING FIRM / OPERATOR: SME / RH/DL	DRILL RIG: CME 55 TRUCK 293	STATION / OFFSET: 298+40, 16' RT.
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: SME / JF	HAMMER: CME AUTOMATIC	ALIGNMENT: CL RW & CONSTRUCTION
PID: 108665 SFN:	DRILLING METHOD: 4" SSA	CALIBRATION DATE: 4/5/17	ELEVATION: 674.2 (MSL) EOB: 2.5 ft.
START: 3/18/19 END: 3/18/19	SAMPLING METHOD: SPT	ENERGY RATIO (%): 81	LAT / LONG: 41.782923, -81.141026

EXPLORATION ID B-022-0-19

PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 674.2	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	BACK FILL
5.25" ASPHALT, 6.75" CONCRETE (DRILLERS DESCRIPTION)	673.2																		
LOOSE, BROWN, **COARSE AND FINE SAND**, LITTLE CLAY, LITTLE SILT, TRCAE TO LITTLE GRAVEL, WET	671.7	1 2 EOB	2 2 2	5	100	SS-1	-	10	15	47	17	11	NP	NP	NP	16	A-3a (0)	130	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; AUGER CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: LAK-20-19.59	DRILLING FIRM / OPERATOR: SME / RH/RM	DRILL RIG: CME 55 TRUCK 293	STATION / OFFSET: 306+99, 19' RT.
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: SME / JF	HAMMER: CME AUTOMATIC	ALIGNMENT: CL RW & CONSTRUCTION
PID: 108665 SFN:	DRILLING METHOD: 4" SSA	CALIBRATION DATE: 4/5/17	ELEVATION: 665.6 (MSL) EOB: 2.4 ft.
START: 3/19/19 END: 3/19/19	SAMPLING METHOD: SPT	ENERGY RATIO (%): 81	LAT / LONG: 41.784261, -81.138533

EXPLORATION ID B-023-0-19

PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 665.6	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	BACK FILL
3.5" ASPHALT, 7.5" CONCRETE (DRILLERS DESCRIPTION)	664.7																		
MEDIUM DENSE, BROWN, **COARSE AND FINE SAND**, TRACE CLAY, TRACE SILT, TRACE GRAVEL, WET	663.2	1 2 EOB	4 4 4	11	100	SS-1	-	2	9	76	9	4	NP	NP	NP	14	A-3a (0)	320	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; AUGER CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: LAK-20-19.59	DRILLING FIRM / OPERATOR: SME / RH/DL	DRILL RIG: CME 55 TRUCK 293	STATION / OFFSET: 306+99, 17' LT.
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: SME / JF	HAMMER: CME AUTOMATIC	ALIGNMENT: CL RW & CONSTRUCTION
PID: 108665 SFN:	DRILLING METHOD: 4" SSA	CALIBRATION DATE: 4/5/17	ELEVATION: 653.5 (MSL) EOB: 2.5 ft.
START: 3/15/19 END: 3/15/19	SAMPLING METHOD: SPT	ENERGY RATIO (%): 81	LAT / LONG: 41.785249, -81.136364

EXPLORATION ID B-024-0-19

PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 653.5	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	BACK FILL
4.25" ASPHALT, 7.25" CONCRETE (DRILLERS DESCRIPTION)																			
	652.6																		
MEDIUM DENSE, BROWN, **GRAVEL AND STONE FRAGMENTS WITH SAND**, TRACE CLAY, TRACE TO LITTLE SILT, DAMP		1 2	4 5 6	15	100	SS-1	-	33	33	20	10	4	NP	NP	NP	10	A-1-b (0)	300	
	651.1	EOB																	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; AUGER CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: LAK-20-19.59	DRILLING FIRM / OPERATOR: SME / RH/DL	DRILL RIG: CME 55 TRUCK 293	STATION / OFFSET: 321+71, 19' LT.	EXPLORATION ID B-025-0-19
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: SME / JF	HAMMER: CME AUTOMATIC	ALIGNMENT: CL RW & CONSTRUCTION	
PID: 108665 SFN:	DRILLING METHOD: 4" SSA	CALIBRATION DATE: 4/5/17	ELEVATION: 660.6 (MSL) EOB: 2.3 ft.	PAGE 1 OF 1
START: 3/15/19 END: 3/15/19	SAMPLING METHOD: SPT	ENERGY RATIO (%): 81	LAT / LONG: 41.785760, -81.133584	

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)	SO4 ppm	BACK FILL
2.75" ASPHALT, 7.25" CONCRETE (DRILLERS DESCRIPTION)	660.6																		
	659.7																		
DENSE, BROWN, **GRAVEL AND STONE FRAGMENTS**, AND SAND, TRACE CLAY, TRACE SILT, DAMP		1	8	31	56	SS-1	-	53	18	19	9	1	NP	NP	NP	7	A-1-a (0)	360	
			11 12																
	658.2	2 EOB																	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; AUGER CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: LAK-20-19.59	DRILLING FIRM / OPERATOR: SME / RH/DL	DRILL RIG: CME 55 TRUCK 293	STATION / OFFSET: 329+66, 15' LT.	EXPLORATION ID B-026-0-19
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: SME / JF	HAMMER: CME AUTOMATIC	ALIGNMENT: CL RW & CONSTRUCTION	
PID: 108665 SFN:	DRILLING METHOD: 4" SSA	CALIBRATION DATE: 4/5/17	ELEVATION: 670.8 (MSL) EOB: 2.4 ft.	PAGE 1 OF 1
START: 3/15/19 END: 3/15/19	SAMPLING METHOD: SPT	ENERGY RATIO (%): 81	LAT / LONG: 41.786013, -81.130692	

MATERIAL DESCRIPTION AND NOTES	ELEV. 670.8	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	BACK FILL
3.25" ASPHALT, 7.25" CONCRETE (DRILLERS DESCRIPTION)	669.9																		
MEDIUM DENSE, BROWN, **GRAVEL AND STONE FRAGMENTS WITH SAND**, TRACE CLAY, TRACE SILT, DAMP	668.4	1 2 EOB	5 6 6	16	56	SS-1	-	5	61	25	7	2	NP	NP	NP	6	A-1-b (0)	240	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; AUGER CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: LAK-20-19.59	DRILLING FIRM / OPERATOR: SME / RH/RM	DRILL RIG: CME 55 TRUCK 293	STATION / OFFSET: 337+54, 18' RT.	EXPLORATION ID B-027-0-19
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: SME / JF	HAMMER: CME AUTOMATIC	ALIGNMENT: CL RW & CONSTRUCTION	
PID: 108665 SFN:	DRILLING METHOD: 4" SSA	CALIBRATION DATE: 4/5/17	ELEVATION: 673.7 (MSL) EOB: 2.4 ft.	PAGE 1 OF 1
START: 3/19/19 END: 3/19/19	SAMPLING METHOD: SPT	ENERGY RATIO (%): 81	LAT / LONG: 41.786408, -81.127852	

MATERIAL DESCRIPTION AND NOTES	ELEV. 673.7	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	BACK FILL
3.25" ASPHALT, 7.25" CONCRETE (DRILLERS DESCRIPTION)	672.8																		
MEDIUM DENSE, BROWN, **GRAVEL AND/OR STONE FRAGMENTS WITH SAND**, TRACE CLAY, TRACE SILT, DAMP	671.3	1 2 EOB	5 6 7	18	83	SS-1	-	2	48	41	6	3	NP	NP	NP	6	A-1-b (0)	220	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; AUGER CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: LAK-20-19.59	DRILLING FIRM / OPERATOR: SME / RH/RM	DRILL RIG: CME 55 TRUCK 293	STATION / OFFSET: 346+63, 4' RT.	EXPLORATION ID B-028-0-19
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: SME / JF	HAMMER: CME AUTOMATIC	ALIGNMENT: CL RW & CONSTRUCTION	
PID: 108665 SFN:	DRILLING METHOD: 4" SSA	CALIBRATION DATE: 4/5/17	ELEVATION: 674.6 (MSL) EOB: 2.9 ft.	PAGE 1 OF 1
START: 3/20/19 END: 3/20/19	SAMPLING METHOD: SPT	ENERGY RATIO (%): 81	LAT / LONG: 41.787139, -81.124878	

MATERIAL DESCRIPTION AND NOTES	ELEV. 674.6	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	BACK FILL
7.75" ASPHALT, 4" BRICK, 5.25" CONCRETE (DRILLERS DESCRIPTION)		1																	
MEDIUM DENSE, BROWN, **GRAVEL AND STONE FRAGMENTS WITH SAND**, TRACE CLAY, LITTLE SILT, DAMP	673.2	2	10 10 10	27	100	SS-1	-	19	31	26	17	7	NP	NP	NP	9	A-1-b (0)	750	
	671.7 EOB																		

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; AUGER CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: LAK-20-19.59	DRILLING FIRM / OPERATOR: SME / RH/DL	DRILL RIG: CME 55 TRUCK 293	STATION / OFFSET: 354+33, 18' LT.	EXPLORATION ID B-029-0-19
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: SME / JF	HAMMER: CME AUTOMATIC	ALIGNMENT: CL RW & CONSTRUCTION	
PID: 108665 SFN:	DRILLING METHOD: 4" SSA	CALIBRATION DATE: 4/5/17	ELEVATION: 676.1 (MSL) EOB: 2.4 ft.	PAGE 1 OF 1
START: 3/15/19 END: 3/15/19	SAMPLING METHOD: SPT	ENERGY RATIO (%): 81	LAT / LONG: 41.788438, -81.122204	

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)	SO4 ppm	BACK FILL
11" ASPHALT (DRILLERS DESCRIPTION)	676.1																		
	675.1																		
LOOSE, BROWN, **COARSE AND FINE SAND**, TRACE CLAY, LITTLE SILT, TRACE GRAVEL, WET		1	4	7	78	SS-1	-	6	27	43	18	6	NP	NP	NP	15	A-3a (0)	380	
		2	2 3																
	673.6	EOB																	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; AUGER CUTTINGS MIXED WITH BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/20/19 14:40 - \\SME-INC\PZ\WIP\080953.00\PROJECT DATA\GINT\LAK-20_B-21 TO B-40.GPJ

PROJECT: LAK-20-19.59	DRILLING FIRM / OPERATOR: SME / RH/RM	DRILL RIG: CME 55 TRUCK 293	STATION / OFFSET: 362+61, 3' RT.
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: SME / JF	HAMMER: CME AUTOMATIC	ALIGNMENT: CL RW & CONSTRUCTION
PID: 108665 SFN:	DRILLING METHOD: 4" SSA	CALIBRATION DATE: 4/5/17	ELEVATION: 678.6 (MSL) EOB: 2.8 ft.
START: 3/20/19 END: 3/20/19	SAMPLING METHOD: SPT	ENERGY RATIO (%): 81	LAT / LONG: 41.788438, -81.119282

EXPLORATION ID B-030-0-19

PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 678.6	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	BACK FILL
7" ASPHALT, 4" BRICK, 4.75" CONCRETE (DRILLERS DESCRIPTION)	677.3	1																	
MEDIUM DENSE, BROWN, **COARSE AND FINE SAND**, TRACE CLAY, LITTLE SILT, LITTLE TO SOME GRAVEL, DAMP	675.8	2 EOB	10 5 5	14	100	SS-1	-	20	23	35	15	7	NP	NP	NP	10	A-3a (0)	310	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; AUGER CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: LAK-20-19.59	DRILLING FIRM / OPERATOR: SME / RH/DL	DRILL RIG: CME 55 TRUCK 293	STATION / OFFSET: 369+78, 18' RT.	EXPLORATION ID B-031-0-19
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: SME / JF	HAMMER: CME AUTOMATIC	ALIGNMENT: CL RW & CONSTRUCTION	
PID: 108665 SFN:	DRILLING METHOD: 4" SSA	CALIBRATION DATE: 4/5/17	ELEVATION: 680.1 (MSL) EOB: 2.3 ft.	PAGE 1 OF 1
START: 3/15/19 END: 3/15/19	SAMPLING METHOD: SPT	ENERGY RATIO (%): 81	LAT / LONG: 41.788982, -81.116753	

MATERIAL DESCRIPTION AND NOTES	ELEV. 680.1	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	BACK FILL
3" ASPHALT, 7" CONCRETE (DRILLERS DESCRIPTION)	679.2																		
LOOSE, BROWN, **COARSE AND FINE SAND**, TRACE CLAY, LITTLE SILT, TRACE GRAVEL, MOIST	677.7	1 2 EOB	3 3	8	78	SS-1	-	8	15	56	14	7	NP	NP	NP	13	A-3a (0)	370	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; AUGER CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: LAK-20-19.59	DRILLING FIRM / OPERATOR: SME / RH/DL	DRILL RIG: CME 55 TRUCK 293	STATION / OFFSET: 377+71, 17' LT.
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: SME / JF	HAMMER: CME AUTOMATIC	ALIGNMENT: CL RW & CONSTRUCTION
PID: 108665 SFN:	DRILLING METHOD: 4" SSA	CALIBRATION DATE: 4/5/17	ELEVATION: 679.6 (MSL) EOB: 2.4 ft.
START: 3/14/19 END: 3/14/19	SAMPLING METHOD: SPT	ENERGY RATIO (%): 81	LAT / LONG: 41.789726, -81.114018

EXPLORATION ID B-032-0-19

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)	SO4 ppm	BACK FILL
3.25" ASPHALT, 7.25" CONCRETE (DRILLERS DESCRIPTION)	679.6																		
	678.8																		
MEDIUM DENSE, BROWN, **COARSE AND FINE SAND**, TRACE CLAY, LITTLE SILT, TRACE GRAVEL, DAMP		1 2	5 8 6	19	100	SS-1	-	6	7	71	13	3	NP	NP	NP	10	A-3a (0)	270	
	677.3	EOB																	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; AUGER CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: LAK-20-19.59	DRILLING FIRM / OPERATOR: SME / RH/DL	DRILL RIG: CME 55 TRUCK 293	STATION / OFFSET: 385+70, 19' LT.	EXPLORATION ID B-033-0-19
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: SME / JF	HAMMER: CME AUTOMATIC	ALIGNMENT: CL RW & CONSTRUCTION	
PID: 108665 SFN:	DRILLING METHOD: 4" SSA	CALIBRATION DATE: 4/5/17	ELEVATION: 681.0 (MSL) EOB: 2.5 ft.	PAGE 1 OF 1
START: 3/14/19 END: 3/14/19	SAMPLING METHOD: SPT	ENERGY RATIO (%): 81	LAT / LONG: 41.790391, -81.111227	

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)	SO4 ppm	BACK FILL
4" ASPHALT, 8.25" CONCRETE (DRILLERS DESCRIPTION)	681.0																		
	680.0	1																	
MEDIUM DENSE, BROWN, **COARSE AND FINE SAND**, TRACE CLAY, TRACE SILT, LITTLE GRAVEL, MOIST			4 5 4	12	100	SS-1	-	14	15	59	9	3	NP	NP	NP	12	A-3a (0)	270	
	678.5	2 EOB																	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; AUGER CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: LAK-20-19.59	DRILLING FIRM / OPERATOR: SME / RH/RM	DRILL RIG: CME 55 TRUCK 293	STATION / OFFSET: 393+57, 3' RT.	EXPLORATION ID B-034-0-19	
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: SME / JF	HAMMER: CME AUTOMATIC	ALIGNMENT: CL RW & CONSTRUCTION		
PID: 108665 SFN:	DRILLING METHOD: 4" SSA	CALIBRATION DATE: 4/5/17	ELEVATION: 686.7 (MSL) EOB: 2.9 ft.		PAGE 1 OF 1
START: 3/20/19 END: 3/20/19	SAMPLING METHOD: SPT	ENERGY RATIO (%): 81	LAT / LONG: 41.790980, -81.108449		

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)	SO4 ppm	BACK FILL
7.25" ASPHALT, 4" BRICK, 5" CONCRETE (DRILLERS DESCRIPTION)	686.7	1																	
	685.4																		
MEDIUM DENSE, BROWN, **COARSE AND FINE SAND**, TRACE CLAY, LITTLE SILT, LITTLE GRAVEL, DAMP		2	10 7 6	18	100	SS-1	-	15	14	53	11	7	NP	NP	NP	6	A-3a (0)	340	
	683.9	EOB																	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; AUGER CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: LAK-20-19.59	DRILLING FIRM / OPERATOR: SME / RH/RM	DRILL RIG: CME 55 TRUCK 293	STATION / OFFSET: 402+25, 24' RT.
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: SME / JF	HAMMER: CME AUTOMATIC	ALIGNMENT: CL RW & CONSTRUCTION
PID: 108665 SFN:	DRILLING METHOD: 4" SSA	CALIBRATION DATE: 4/5/17	ELEVATION: 681.0 (MSL) EOB: 3.0 ft.
START: 3/19/19 END: 3/19/19	SAMPLING METHOD: SPT	ENERGY RATIO (%): 81	LAT / LONG: 41.791639, -81.105388

EXPLORATION ID B-035-0-19

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)	SO4 ppm	BACK FILL
12" ASPHALT, 6.5" CONCRETE (DRILLERS DESCRIPTION)	681.0	1																	
	679.5																		
LOOSE, BROWN, **COARSE AND FINE SAND**, LITTLE CLAY, SOME SILT, TRACE GRAVEL, WET		2	3 4 3	9	100	SS-1	-	1	3	61	23	12	NP	NP	NP	19	A-3a (0)	550	
	678.0	EOB 3																	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; AUGER CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: LAK-20-19.59	DRILLING FIRM / OPERATOR: SME / RH/DL	DRILL RIG: CME 55 TRUCK 293	STATION / OFFSET: 412+27, 19' LT.	EXPLORATION ID B-036-0-19
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: SME / JF	HAMMER: CME AUTOMATIC	ALIGNMENT: CL RW & CONSTRUCTION	
PID: 108665 SFN:	DRILLING METHOD: 4" SSA	CALIBRATION DATE: 4/5/17	ELEVATION: 690.2 (MSL) EOB: 2.9 ft.	PAGE 1 OF 1
START: 3/13/19 END: 3/13/19	SAMPLING METHOD: SPT	ENERGY RATIO (%): 81	LAT / LONG: 41.792572, -81.101931	

MATERIAL DESCRIPTION AND NOTES	ELEV. 690.2	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	BACK FILL
12" ASPHALT, 5" Slag Base (DRILLERS DESCRIPTION)	688.8	1																	
MEDIUM DENSE, BROWN, **FINE SAND**, TRACE CLAY, TRACE SILT, TRACE GRAVEL, DAMP	687.3	2	6 6 7	18	94	SS-1	-	5	4	82	6	3	NP	NP	NP	6	A-3 (0)	290	
		EOB																	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; AUGER CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: LAK-20-19.59	DRILLING FIRM / OPERATOR: SME / RH/DL	DRILL RIG: CME 55 TRUCK 293	STATION / OFFSET: 418+93, 19' LT.	EXPLORATION ID B-037-0-19
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: SME / JF	HAMMER: CME AUTOMATIC	ALIGNMENT: CL RW & CONSTRUCTION	
PID: 108665 SFN:	DRILLING METHOD: 4" SSA	CALIBRATION DATE: 4/5/17	ELEVATION: 687.5 (MSL) EOB: 2.5 ft.	PAGE 1 OF 1
START: 3/13/19 END: 3/13/19	SAMPLING METHOD: SPT	ENERGY RATIO (%): 81	LAT / LONG: 41.793131, -81.099606	

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)	SO4 ppm	BACK FILL
5" ASPHALT, 7" CONCRETE (DRILLERS DESCRIPTION)	687.5																		
	686.5																		
MEDIUM DENSE, BROWN, **GRAVEL AND STONE FRAGMENTS WITH SAND AND SILT**, TRACE CLAY, DAMP		1	5	14	100	SS-1	-	5	7	71	12	5	26	17	9	12	A-2-4 (0)	220	
		2	5																
	685.0	EOB																	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; AUGER CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: LAK-20-19.59	DRILLING FIRM / OPERATOR: SME / RH/DL	DRILL RIG: CME 55 TRUCK 293	STATION / OFFSET: 426+44, 20' RT.	EXPLORATION ID B-038-0-19
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: SME / JF	HAMMER: CME AUTOMATIC	ALIGNMENT: CL RW & CONSTRUCTION	
PID: 108665 SFN:	DRILLING METHOD: 4" SSA	CALIBRATION DATE: 4/5/17	ELEVATION: 687.0 (MSL) EOB: 2.7 ft.	PAGE 1 OF 1
START: 3/14/19 END: 3/14/19	SAMPLING METHOD: SPT	ENERGY RATIO (%): 81	LAT / LONG: 41.793665, -81.096944	

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)	SO4 ppm	BACK FILL
8.75" ASPHALT, 6" CONCRETE (DRILLERS DESCRIPTION)	687.0	1																	
	685.7																		
DENSE, BROWN, **COARSE AND FINE SAND**, TRACE CLAY, TRACE SILT, TRACE GRAVEL, DAMP		2	5 15 16	42	83	SS-1	-	2	4	83	9	2	NP	NP	NP	6	A-3a (0)	310	
	684.2	EOB																	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; AUGER CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: LAK-20-19.59	DRILLING FIRM / OPERATOR: SME / RH/DL	DRILL RIG: CME 55 TRUCK 293	STATION / OFFSET: 435+31, 21' LT.	EXPLORATION ID B-039-0-19
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: SME / JF	HAMMER: CME AUTOMATIC	ALIGNMENT: CL RW & CONSTRUCTION	
PID: 108665 SFN:	DRILLING METHOD: 4" SSA	CALIBRATION DATE: 4/5/17	ELEVATION: 684.3 (MSL) EOB: 2.7 ft.	PAGE 1 OF 1
START: 3/13/19 END: 3/13/19	SAMPLING METHOD: SPT	ENERGY RATIO (%): 81	LAT / LONG: 41.794534, -81.093904	

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)	SO4 ppm	BACK FILL
6.75" ASPHALT, 7.25" CONCRETE (DRILLERS DESCRIPTION)	684.3																		
	683.2	1																	
MEDIUM DENSE, BROWN, **COARSE AND FINE SAND**, TRACE CLAY, LITTLE SILT, TRACE GRAVEL, DAMP		2	4 7 5	16	78	SS-1	-	4	5	74	12	5	NP	NP	NP	8	A-3a (0)	250	
	681.7	EOB																	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; AUGER CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: LAK-20-19.59	DRILLING FIRM / OPERATOR: SME / RH/DL	DRILL RIG: CME 55 TRUCK 293	STATION / OFFSET: 443+01, 18' LT.
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: SME / JF	HAMMER: CME AUTOMATIC	ALIGNMENT: CL RW & CONSTRUCTION
PID: 108665 SFN:	DRILLING METHOD: 4" SSA	CALIBRATION DATE: 4/5/17	ELEVATION: 682.9 (MSL) EOB: 2.4 ft.
START: 3/13/19 END: 3/13/19	SAMPLING METHOD: SPT	ENERGY RATIO (%): 81	LAT / LONG: 41.795279, -81.091261

EXPLORATION ID B-040-0-19

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)	SO4 ppm	BACK FILL
3" ASPHALT, 7.75" CONCRETE (DRILLERS DESCRIPTION)	682.9																		
	682.0																		
COARSE AND FINE SAND, MOIST		1	3	18	100	SS-1	-	1	7	68	17	7	NP	NP	NP	13	A-3a (0)	340	
			5 8																
	680.5	2 EOB																	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; AUGER CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: LAK-20-19.59	DRILLING FIRM / OPERATOR: SME / RH/DL	DRILL RIG: CME 55 TRUCK 293	STATION / OFFSET: 450+75, 21' LT.	EXPLORATION ID B-041-0-19
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: SME / JF	HAMMER: CME AUTOMATIC	ALIGNMENT: CL RW & CONSTRUCTION	
PID: 108665 SFN:	DRILLING METHOD: 4" SSA	CALIBRATION DATE: 4/5/17	ELEVATION: 686.4 (MSL) EOB: 2.6 ft.	PAGE 1 OF 1
START: 3/13/19 END: 3/13/19	SAMPLING METHOD: SPT	ENERGY RATIO (%): 81	LAT / LONG: 41.796083, -81.088637	

MATERIAL DESCRIPTION AND NOTES	ELEV. 686.4	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	BACK FILL
4.5" ASPHALT, 5.5" CONCRETE, 3" AGREGATE BASE (DRILLERS DESCRIPTION)	685.3	1																	
MEDIUM DENSE, BROWN, **FINE SAND**, TRACE CLAY, TRACE SILT, TRACE GRAVEL, DAMP	683.8	2 EOB	5 5 7	16	83	SS-1	-	6	4	80	7	3	NP	NP	NP	10	A-3 (0)	320	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; AUGER CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: LAK-20-19.59	DRILLING FIRM / OPERATOR: SME / RH/RM	DRILL RIG: CME 55 TRUCK 293	STATION / OFFSET: 459+08, 2' RT.	EXPLORATION ID B-042-0-19
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: SME / JF	HAMMER: CME AUTOMATIC	ALIGNMENT: CL RW & CONSTRUCTION	
PID: 108665 SFN:	DRILLING METHOD: 4" SSA	CALIBRATION DATE: 4/5/17	ELEVATION: 681.8 (MSL) EOB: 2.9 ft.	PAGE 1 OF 1
START: 3/20/19 END: 3/20/19	SAMPLING METHOD: SPT	ENERGY RATIO (%): 81	LAT / LONG: 41.796930, -81.085800	

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)	SO4 ppm	BACK FILL
8" ASPHALT, 4" BRICK, 4.75" CONCRETE (DRILLERS DESCRIPTION)	681.8	1																	
	680.4																		
MEDIUM DENSE, BROWN, **FINE SAND**, TRACE CLAY, TRACE SILT, WET		2	3 6 6	16	78	SS-1	-	0	2	89	6	3	NP	NP	NP	5	A-3 (0)	340	
	678.9	EOB																	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; AUGER CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: LAK-20-19.59	DRILLING FIRM / OPERATOR: SME / RH/DL	DRILL RIG: CME 55 TRUCK 293	STATION / OFFSET: 466+42, 20' RT.
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: SME / JF	HAMMER: CME AUTOMATIC	ALIGNMENT: CL RW & CONSTRUCTION
PID: 108665 SFN:	DRILLING METHOD: 4" SSA	CALIBRATION DATE: 4/5/17	ELEVATION: 673.6 (MSL) EOB: 2.4 ft.
START: 3/14/19 END: 3/14/19	SAMPLING METHOD: SPT	ENERGY RATIO (%): 81	LAT / LONG: 41.797898, -81.083308

EXPLORATION ID B-043-0-19

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MATERIAL DESCRIPTION AND NOTES	ELEV. 673.6	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	BACK FILL
2.25" ASPHALT, 9" CONCRETE (DRILLERS DESCRIPTION)	672.6																		
VERY LOOSE, BROWN, **COARSE AND FINE SAND**, LITTLE CLAY, TRACE GRAVEL, WET	671.6	1	2 2 1	4	100	SS-1A	-	4	18	34	33	11	NP	NP	NP	21	A-4a (2)	650	
SOFT, BROWN, **SILT AND CLAY**, LITTLE SAND, MOIST	671.1	2 EOB				SS-1B	-	-	-	-	-	-	31	19	12	-		-	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; AUGER CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: LAK-20-19.59	DRILLING FIRM / OPERATOR: SME / RH/RM	DRILL RIG: CME 55 TRUCK 293	STATION / OFFSET: 474+40, 3' LT.	EXPLORATION ID B-044-0-19
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: SME / JF	HAMMER: CME AUTOMATIC	ALIGNMENT: CL RW & CONSTRUCTION	
PID: 108665 SFN:	DRILLING METHOD: 4" SSA	CALIBRATION DATE: 4/5/17	ELEVATION: 637.5 (MSL) EOB: 2.9 ft.	PAGE 1 OF 1
START: 3/20/19 END: 3/20/19	SAMPLING METHOD: SPT	ENERGY RATIO (%): 81	LAT / LONG: 41.798660, -81.080679	

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)	SO4 ppm	BACK FILL
8.25" ASPHALT, 4" BRICK, 5" CONCRETE (DRILLERS DESCRIPTION)	637.5	1																	
	636.0																		
MEDIUM DENSE, BROWN, **COARSE AND FINE SAND**, TRACE CLAY, TRACE SILT, TRAEC GRAVEL, DAMP		2	3 4 4	11	100	SS-1	-	4	9	76	7	4	NP	NP	NP	6	A-3a (0)	260	
	634.5	EOB																	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; AUGER CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: LAK-20-19.59	DRILLING FIRM / OPERATOR: SME / RH/DL	DRILL RIG: CME 55 TRUCK 293	STATION / OFFSET: 482+59, 20' LT.	EXPLORATION ID B-045-0-19
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: SME / JF	HAMMER: CME AUTOMATIC	ALIGNMENT: CL RW & CONSTRUCTION	
PID: 108665 SFN:	DRILLING METHOD: 4" SSA	CALIBRATION DATE: 4/5/17	ELEVATION: 677.1 (MSL) EOB: 2.6 ft.	PAGE 1 OF 1
START: 3/13/19 END: 3/13/19	SAMPLING METHOD: SPT	ENERGY RATIO (%): 81	LAT / LONG: 41.799632, -81.077970	

MATERIAL DESCRIPTION AND NOTES	ELEV. 677.1	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	BACK FILL
6" ASPHALT, 7" CONCRETE (DRILLERS DESCRIPTION)	676.0	1																	
MEDIUM DENSE, BROWN, **FINE SAND**, TRACE CLAY, TRACE SILT, TRACE GRAVEL, DAMP	674.5	2 EOB	6 8 8	22	83	SS-1	-	3	4	83	7	3	NP	NP	NP	15	A-3 (0)	200	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; AUGER CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: LAK-20-19.59	DRILLING FIRM / OPERATOR: SME / RH/DL	DRILL RIG: CME 55 TRUCK 293	STATION / OFFSET: 490+47, 25' RT.
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: SME / JF	HAMMER: CME AUTOMATIC	ALIGNMENT: CL RW & CONSTRUCTION
PID: 108665 SFN:	DRILLING METHOD: 4" SSA	CALIBRATION DATE: 4/5/17	ELEVATION: 675.1 (MSL) EOB: 2.9 ft.
START: 3/14/19 END: 3/14/19	SAMPLING METHOD: SPT	ENERGY RATIO (%): 81	LAT / LONG: 41.800413, -81.075266

EXPLORATION ID B-046-0-19

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MATERIAL DESCRIPTION AND NOTES	ELEV. 675.1	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	BACK FILL
12.75" ASPHALT, 4.5" CONCRETE (DRILLERS DESCRIPTION)	673.7	1																	
MEDIUM DENSE, BROWN, **FINE SAND**, TRACE CLAY, TRACE SILT, TRACE GRAVEL, DAMP	672.2	2 EOB	7 10 9	26	83	SS-1	-	6	3	85	5	1	NP	NP	NP	5	A-3 (0)	410	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; AUGER CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: LAK-20-19.59	DRILLING FIRM / OPERATOR: SME / RH/DL	DRILL RIG: CME 55 TRUCK 293	STATION / OFFSET: 498+33, 27' RT.	EXPLORATION ID B-047-0-19
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: SME / JF	HAMMER: CME AUTOMATIC	ALIGNMENT: CL RW & CONSTRUCTION	
PID: 108665 SFN:	DRILLING METHOD: 4" SSA	CALIBRATION DATE: 4/5/17	ELEVATION: 674.6 (MSL) EOB: 2.8 ft.	PAGE 1 OF 1
START: 3/14/19 END: 3/14/19	SAMPLING METHOD: SPT	ENERGY RATIO (%): 81	LAT / LONG: 41.801298, -81.072642	

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)	SO4 ppm	BACK FILL
12" ASPHALT, 4" SLAG (DRILLERS DESCRIPTION)	674.6	1																	
MEDIUM DENSE, BROWN, **COARSE AND FINE SAND**, TRACE CLAY, TRACE SILT, LITTLE GRAVEL, DAMP	673.3	2	8 6 5	15	100	SS-1	-	15	10	62	9	4	NP	NP	NP	11	A-3a (0)	330	
	671.8	EOB																	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; AUGER CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: LAK-20-19.59	DRILLING FIRM / OPERATOR: SME / RH/RM	DRILL RIG: CME 55 TRUCK 293	STATION / OFFSET: 506+25, 3' RT.	EXPLORATION ID B-048-0-19
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: SME / JF	HAMMER: CME AUTOMATIC	ALIGNMENT: CL RW & CONSTRUCTION	
PID: 108665 SFN:	DRILLING METHOD: 4" SSA	CALIBRATION DATE: 4/5/17	ELEVATION: 675.1 (MSL) EOB: 2.6 ft.	PAGE 1 OF 1
START: 3/20/19 END: 3/20/19	SAMPLING METHOD: SPT	ENERGY RATIO (%): 81	LAT / LONG: 41.802192, -81.069998	

MATERIAL DESCRIPTION AND NOTES	ELEV. 675.1	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	BACK FILL
12.25" ASPHALT, 1.25" CONCRETE (DRILLERS DESCRIPTION)	673.9	1																	
MEDIUM DENSE, BROWN, **COARSE AND FINE SAND**, TRACE CLAY, LITTLE SILT, TRACE GRAVEL, DAMP	672.4	2 EOB	8 5 6	15	100	SS-1	-	6	21	53	11	9	NP	NP	NP	17	A-3a (0)	360	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; AUGER CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: LAK-20-19.59	DRILLING FIRM / OPERATOR: SME / RH/DL	DRILL RIG: CME 55 TRUCK 293	STATION / OFFSET: 514+01, 19' LT.	EXPLORATION ID B-049-0-19
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: SME / JF	HAMMER: CME AUTOMATIC	ALIGNMENT: CL RW & CONSTRUCTION	
PID: 108665 SFN:	DRILLING METHOD: 4" SSA	CALIBRATION DATE: 4/5/17	ELEVATION: 676.0 (MSL) EOB: 2.4 ft.	PAGE 1 OF 1
START: 3/13/19 END: 3/13/19	SAMPLING METHOD: SPT	ENERGY RATIO (%): 81	LAT / LONG: 41.802810, -81.067273	

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)	SO4 ppm	BACK FILL
3.75" ASPHALT, 7.25" CONCRETE (DRILLERS DESCRIPTION)	676.0																		
	675.0																		
MEDIUM DENSE, BROWN, **COARSE AND FINE SAND**, TRACE CLAY, TRACE SILT, TRACE GRAVEL, WET		1 2	6 9 9	24	83	SS-1	-	2	3	84	7	4	NP	NP	NP	13	A-3a (0)	210	
	673.5	EOB																	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; AUGER CUTTINGS MIXED WITH BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/20/19 14:41 - \\SME-INC\PZ\WIP\080953.00\PROJECT DATA\GINT\LAK-20_B-41 TO B-55.GPJ

PROJECT: LAK-20-19.59	DRILLING FIRM / OPERATOR: SME / RH/DL	DRILL RIG: CME 55 TRUCK 293	STATION / OFFSET: 520+77, 18' LT.
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: SME / JF	HAMMER: CME AUTOMATIC	ALIGNMENT: CL RW & CONSTRUCTION
PID: 108665 SFN:	DRILLING METHOD: 4" SSA	CALIBRATION DATE: 4/5/17	ELEVATION: 673.7 (MSL) EOB: 2.4 ft.
START: 3/13/19 END: 3/13/19	SAMPLING METHOD: SPT	ENERGY RATIO (%): 81	LAT / LONG: 41.803061, -81.064807

EXPLORATION ID B-050-0-19

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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)	SO4 ppm	BACK FILL
3.75" ASPHALT, 7.25" CONCRETE (DRILLERS DESCRIPTION)	673.7																		
	672.7																		
LOOSE, BROWN, **COARSE AND FINE SAND**, TRACE CLAY, TRACE SILT, TRACE GRAVEL, DAMP		1	3	5	83	SS-1	-	1	5	80	9	5	NP	NP	NP	8	A-3a (0)	420	
			2 2																
	671.2	2 EOB																	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; AUGER CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: LAK-20-19.59	DRILLING FIRM / OPERATOR: SME / RH/DL	DRILL RIG: CME 55 TRUCK 293	STATION / OFFSET: 528+53, 21' RT.
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: SME / JF	HAMMER: CME AUTOMATIC	ALIGNMENT: CL RW & CONSTRUCTION
PID: 108665 SFN:	DRILLING METHOD: 4" SSA	CALIBRATION DATE: 4/5/17	ELEVATION: 675.4 (MSL) EOB: 2.5 ft.
START: 3/14/19 END: 3/14/19	SAMPLING METHOD: SPT	ENERGY RATIO (%): 81	LAT / LONG: 41.803140, -81.061962

EXPLORATION ID B-051-0-19

PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 675.4	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	BACK FILL
3.75" ASPHALT, 8" CONCRETE (DRILLERS DESCRIPTION)	674.4																		
LOOSE, BROWN, **COARSE AND FINE SAND**, TRACE CLAY, TRACE TO LITTLE SILT, TRACE GRAVEL, MOIST	672.9	1 2 EOB	2 2 3	7	83	SS-1	-	1	6	79	10	4	NP	NP	NP	11	A-3a (0)	180	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; AUGER CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: LAK-20-19.59	DRILLING FIRM / OPERATOR: SME / RH/DL	DRILL RIG: CME 55 TRUCK 293	STATION / OFFSET: 536+53, 18' RT.	EXPLORATION ID B-052-0-19
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: SME / JF	HAMMER: CME AUTOMATIC	ALIGNMENT: CL RW & CONSTRUCTION	
PID: 108665 SFN:	DRILLING METHOD: 4" SSA	CALIBRATION DATE: 4/5/17	ELEVATION: 678.4 (MSL) EOB: 2.4 ft.	PAGE 1 OF 1
START: 3/14/19 END: 3/14/19	SAMPLING METHOD: SPT	ENERGY RATIO (%): 81	LAT / LONG: 41.803223, -81.059043	

MATERIAL DESCRIPTION AND NOTES	ELEV. 678.4	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	BACK FILL
3.5" ASPHALT, 7.25" CONCRETE (DRILLERS DESCRIPTION)	677.5																		
MEDIUM DENSE, BROWN, **COARSE AND FINE SAND**, TRACE CLAY, TRACE TO LITTLE SILT, TRACE GRAVEL, DAMP	676.0	1 2 EOB	3 6 10	22	67	SS-1	-	1	8	78	10	3	NP	NP	NP	14	A-3a (0)	150	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; AUGER CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: LAK-20-19.59	DRILLING FIRM / OPERATOR: SME / RH/DL	DRILL RIG: CME 55 TRUCK 293	STATION / OFFSET: 544+50, 21' LT.	EXPLORATION ID B-053-0-19
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: SME / JF	HAMMER: CME AUTOMATIC	ALIGNMENT: CL RW & CONSTRUCTION	
PID: 108665 SFN:	DRILLING METHOD: 4" SSA	CALIBRATION DATE: 4/5/17	ELEVATION: 675.0 (MSL) EOB: 2.5 ft.	PAGE 1 OF 1
START: 3/13/19 END: 3/13/19	SAMPLING METHOD: SPT	ENERGY RATIO (%): 81	LAT / LONG: 41.803106, -81.056120	

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)	SO4 ppm	BACK FILL
4.5" ASPHALT, 8" CONCRETE (DRILLERS DESCRIPTION)	675.0																		
	673.9	1																	
MEDIUM DENSE, BROWN, **COARSE AND FINE SAND**, TRACE CLAY, LITTLE SILT, TRACE GRAVEL, MOIST			5 6 5	15	83	SS-1	-	3	7	75	11	4	NP	NP	NP	10	A-3a (0)	170	
	672.4	2 EOB																	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; AUGER CUTTINGS MIXED WITH BENTONITE CHIPS

PROJECT: LAK-20-19.59	DRILLING FIRM / OPERATOR: SME / RH/DL	DRILL RIG: CME 55 TRUCK 293	STATION / OFFSET: 551+61, 18' RT.
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: SME / JF	HAMMER: CME AUTOMATIC	ALIGNMENT: CL RW & CONSTRUCTION
PID: 108665 SFN:	DRILLING METHOD: 4" SSA	CALIBRATION DATE: 4/5/17	ELEVATION: 669.4 (MSL) EOB: 2.4 ft.
START: 3/14/19 END: 3/14/19	SAMPLING METHOD: SPT	ENERGY RATIO (%): 81	LAT / LONG: 41.802696, -81.053566

EXPLORATION ID B-054-0-19

PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 669.4	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	BACK FILL
3.75" ASPHALT, 7.25" CONCRETE (DRILLERS DESCRIPTION)	668.5																		
MEDIUM DENSE, BROWN, **COARSE AND FINE SAND**, TRACE CLAY,LITTLE SILT, LITTLE GRAVEL, DAMP	667.0	1 2 EOB	4 4 7	15	78	SS-1	-	14	6	59	14	7	NP	NP	NP	12	A-3a (0)	390	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; AUGER CUTTINGS MIXED WITH BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/20/19 14:41 - \\SME-INC\PZ\WIP\080953.00\PROJECT DATA\GINT\LAK-20_B-41 TO B-55.GPJ

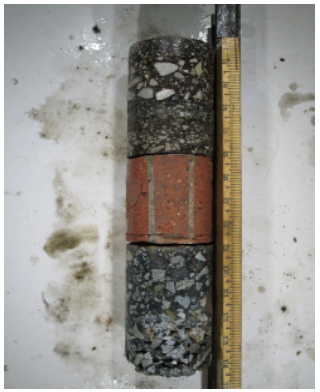
PROJECT: LAK-20-19.59	DRILLING FIRM / OPERATOR: SME / RH/DL	DRILL RIG: CME 55 TRUCK 293	STATION / OFFSET: 559+39, 21' LT.	EXPLORATION ID B-055-0-19
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: SME / JF	HAMMER: CME AUTOMATIC	ALIGNMENT: CL RW & CONSTRUCTION	
PID: 108665 SFN:	DRILLING METHOD: 4" SSA	CALIBRATION DATE: 4/5/17	ELEVATION: 676.2 (MSL) EOB: 2.6 ft.	PAGE 1 OF 1
START: 3/13/19 END: 3/13/19	SAMPLING METHOD: SPT	ENERGY RATIO (%): 81	LAT / LONG: 41.802469, -81.050726	

MATERIAL DESCRIPTION AND NOTES	ELEV. 676.2	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	BACK FILL
4" ASPHALT, 9" CONCRETE (DRILLERS DESCRIPTION)	675.1																		
MEDIUM DENSE, BROWN, **COARSE AND FINE SAND**, TRACE CLAY, TRACE SILT, TRACE GRAVEL, WET	673.6	1 2 EOB	6 7 7	19	56	SS-1	-	1	3	86	9	1	NP	NP	NP	12	A-3 (0)	160	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; AUGER CUTTINGS MIXED WITH BENTONITE CHIPS

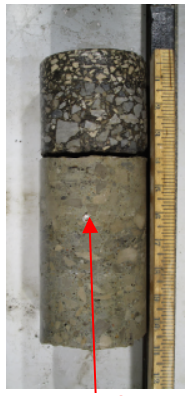
Project Name: LAK-20-19.59
Project Location: Perry, Ohio
SME Project No.: 080953.00

				
CORE	B-001-0-19	B-002-0-19	B-003-0-19	B-004-0-19
ASPHALT, in	5	5	6	3
CONCRETE, in	8	5 ¾	6 ¾	6
BASE, in	-	-	-	-
BASE DESCRIPTION				
TOTAL PAVEMENT, in.	13	14 ¾	12 ¾	9
SUBGRADE CLASSIFICATION (Visual)	Brown SANDY SILT	Brown coarse and fine SAND	Brown coarse and fine SAND	Brown coarse and fine SAND
Notes		Brick: 4”		

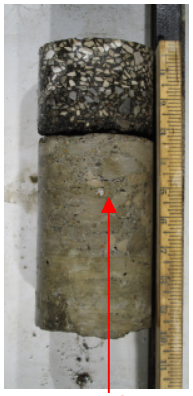
Project Name: LAK-20-19.59
Project Location: Perry, Ohio
SME Project No.: 080953.00

				
CORE	B-005-0-19	B-006-0-19	B-007-0-19	B-008-0-19
ASPHALT, in	3¼	12¼	14½	4
CONCRETE, in	7¼	-	-	6¾
BASE, in	-	4¾	6	-
BASE DESCRIPTION		Slag/limestone	Limestone	
TOTAL PAVEMENT, in.	10½	17	20½	10¾
SUBGRADE CLASSIFICATION (Visual)	Brown coarse and fine SAND	Brown GRAVEL with sand	Brown GRAVEL	Brown coarse and fine SAND
Notes				

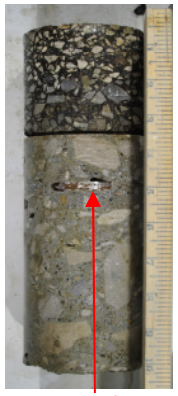
Project Name: LAK-20-19.59 PID 108665
Project Location: Perry, Ohio
SME Project No.: 080953.00

	 Steel Reinforcing		 Steel Reinforcing	 Steel Reinforcing
CORE	B-009-0-19	B-010-0-19	B-011-0-19	B-012-0-19
ASPHALT, in	2 ½	7	4¾	3¾
CONCRETE, in	7	4¾	7½	7¼
BASE, in	-	-	-	-
BASE DESCRIPTION				
TOTAL PAVEMENT, in.	9½	15¼	12¼	11
SUBGRADE CLASSIFICATION (Visual)	Brown coarse and fine SAND	Brown coarse and fine SAND	Brown coarse and fine SAND	Brown coarse and fine SAND
Notes	Concrete broken on top of core	Brick: 3½ ”		

Project Name: LAK-20-19.59 PID 108665
Project Location: Perry, Ohio
SME Project No.: 080953.00

	 Steel Reinforcing	 Steel Reinforcing	 Steel Reinforcing	
CORE	B-013-0-19	B-014-0-19	B-015-0-19	B-016-0-19
ASPHALT, in	2¾	3	3½	5½
CONCRETE, in	9¾	6¾	7½	4½
BASE, in	-	-	-	-
BASE DESCRIPTION				
TOTAL PAVEMENT, in.	12½	9¾	11	13¾
SUBGRADE CLASSIFICATION (Visual)	Brown coarse and fine SAND	Brown coarse and fine SAND	Brown coarse and fine SAND	Brown coarse and fine SAND
Notes				Brick: 3¾ ”

Project Name: LAK-20-19.59 PID 108665
Project Location: Perry, Ohio
SME Project No.: 080953.00

	 Steel Reinforcing	 Steel Reinforcing		
CORE	B-017-0-19	B-018-0-19	B-019-0-19	B-020-0-19
ASPHALT, in	3¼	3¾	12½	12
CONCRETE, in	7¼	8¼	6	-
BASE, in	-	-	-	-
BASE DESCRIPTION				
TOTAL PAVEMENT, in.	10½	12	18½	12
SUBGRADE CLASSIFICATION (Visual)	Brown SANDY SILT	Brown coarse and fine SAND	Brown Coarse and Fine SAND	Gray Slag and Gravel (Possible utility backfill)
Notes				

Project Name: LAK-20-19.59 PID 108665
Project Location: Perry, Ohio
SME Project No.: 080953.00

				
CORE	B-021-0-19	B-022-0-19	B-023-0-19	B-024-0-19
ASPHALT, in	3¼	5¼	3½	4¼
CONCRETE, in	7¼	6¾	7½	7¼
BASE, in	-	-	-	-
BASE DESCRIPTION				
TOTAL PAVEMENT, in.	10½	12	11	11½
SUBGRADE CLASSIFICATION (Visual)	Brown Fine SAND	Brown coarse and fine SAND	Brown coarse and fine SAND	Brown GRAVEL with sand
Notes	Rebar 2.5” from top of concrete			Rebar 3.5” from top of concrete

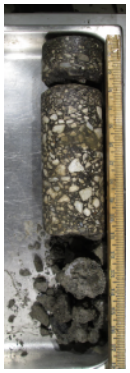
Project Name: LAK-20-19.59 PID 108665
Project Location: Perry, Ohio
SME Project No.: 080953.00

				
CORE	B-025-0-19	B-026-0-19	B-027-0-19	B-028-0-19
ASPHALT, in	2¾	3¼	3¼	7¾
CONCRETE, in	7¼	7¼	7¼	5¼
BASE, in	-	-	-	-
BASE DESCRIPTION				
TOTAL PAVEMENT, in.	10	10½	10½	17
SUBGRADE CLASSIFICATION (Visual)	Brown GRAVEL	Brown GRAVEL with sand	Brown GRAVEL with sand	Brown GRAVEL with sand
Notes				Brick: 4”

Project Name: LAK-20-19.59 PID 108665
Project Location: Perry, Ohio
SME Project No.: 080953.00

				 Steel Reinforcing
CORE	B-029-0-19	B-030-0-19	B-031-0-19	B-032-0-19
ASPHALT, in	11	7	3	3¼
CONCRETE, in	-	4¾	7	7¼
BASE, in	-	-	-	-
BASE DESCRIPTION				
TOTAL PAVEMENT, in.	11	15¾	10	10½
SUBGRADE CLASSIFICATION (Visual)	Brown coarse and fine SAND	Brown coarse and fine SAND	Brown coarse and fine SAND	Brown coarse and fine SAND
Notes		Brick: 4”		

Project Name: LAK-20-19.59 PID 108665
Project Location: Perry, Ohio
SME Project No.: 080953.00

	 Steel Reinforcing			
CORE	B-033-0-19	B-034-0-19	B-035-0-19	B-036-0-19
ASPHALT, in	4	7¼	12	12
CONCRETE, in	8¼	5	6½	-
BASE, in	-	-	-	5
BASE DESCRIPTION				Slag
TOTAL PAVEMENT, in.	12¼	16¼	18½	17
SUBGRADE CLASSIFICATION (Visual)	Brown coarse and fine SAND	Brown coarse and fine SAND	Brown coarse and fine SAND	Brown fine SAND
Notes		Brick: 4”		

Project Name: LAK-20 19.59 PID 108665
Project Location: Perry, Ohio
SME Project No.: 080953.00

	 Steel Reinforcing			
CORE	B-037-0-19	B-038-0-19	B-039-0-19	B-040-0-19
ASPHALT, in	5	8¾	6¾	3
CONCRETE, in	7	6	7¼	7¾
BASE, in	-	-	-	-
BASE DESCRIPTION				
TOTAL PAVEMENT, in.	12	14 ¾	14	10 ¾
SUBGRADE CLASSIFICATION (Visual)	Brown GRAVEL with Sand and Silt	Brown coarse and fine SAND	Brown coarse and fine SAND	Brown coarse and fine SAND
Notes				

Project Name: LAK-20 19.59 PID 108665
Project Location: Perry, Ohio
SME Project No.: 080953.00

				
CORE	B-041-0-19	B-042-0-19	B-043-0-19	B-044-0-19
ASPHALT, in	4½	8	2¼	8¼
CONCRETE, in	5½	4¾	9	5
BASE, in	3	-	-	-
BASE DESCRIPTION	Limestone			
TOTAL PAVEMENT, in.	13	16¾	11¼	17¼
SUBGRADE CLASSIFICATION (Visual)	Brown fine SAND	Brown fine SAND	Brown coarse and fine SAND	Brown coarse and fine SAND
Notes		Brick: 4”		Brick: 4”

Project Name: LAK-20 19.59 PID 108665
Project Location: Perry, Ohio
SME Project No.: 080953.00

	 Steel Reinforcing			
CORE	B-045-0-19	B-046-0-19	B-047-0-19	B-048-0-19
ASPHALT, in	6	12¾	12	12¼
CONCRETE, in	7	4½	-	1¼
BASE, in	-	-	4	-
BASE DESCRIPTION			SLAG	
TOTAL PAVEMENT, in.	13	17 ¼	16	13 ½
SUBGRADE CLASSIFICATION (Visual)	Brown fine SAND	Brown fine SAND	Brown coarse and fine SAND	Brown coarse and fine SAND
Notes				

Project Name: LAK-20 19.59 PID 108665
Project Location: Perry, Ohio
SME Project No.: 080953.00

		 Steel Reinforcing	 Steel Reinforcing	 Steel Reinforcing
CORE	B-049-0-19	B-050-0-19	B-051-0-19	B-052-0-19
ASPHALT, in	3¾	3¾	3¾	3½
CONCRETE, in	7¼	7¼	8	7¼
BASE, in	-	-	-	-
BASE DESCRIPTION				
TOTAL PAVEMENT, in.	11	11	11¾	10¾
SUBGRADE CLASSIFICATION (Visual)	Brown coarse and fine SAND	Brown coarse and fine SAND	Brown coarse and fine SAND	Brown coarse and fine SAND
Notes				

Project Name: LAK-20 19.59 PID 108665
Project Location: Perry, Ohio
SME Project No.: 080953.00

				
CORE	B-053-0-19	B-054-0-19	B-055-0-19	
ASPHALT, in	4½	3¾	4	
CONCRETE, in	8	7¼	9	
BASE, in	-	-	-	
BASE DESCRIPTION				
TOTAL PAVEMENT, in.	12½	11	13	
SUBGRADE CLASSIFICATION (Visual)	Brown coarse and fine SAND	Brown coarse and fine SAND	Brown coarse and fine SAND	
Notes	Rebar 3” from top of concrete	Steel 2” from top of concrete	Broken/deteriorated concrete	

APPENDIX B
HISTORICAL BORING LOGS

TEST BORING LOG

B-017-0-92

ACT PROJECT NO. 9209.27 BORING NO. B-17 SHEET 1 OF 1

CLIENT: CT CONSULTANTS, INC. DATE DRILLED: 11-18-92

PROJECT: "LAK" 20-18,40 - STATE ROUTE 20 IMPROVEMENTS

DRILLING METHOD: ROTARY DRIVE - SOLID STEM AUGERS SURFACE ELEVATION: 684.70'

SAMPLE Depth (Ft.)	SAMPLE No.	SAMPLE Type	SYMBOL	SAMPLE IDENTIFICATION	BLOW COUNT ON SS/6"	PROPERTIES W (%)	PROPERTIES LL/PI	PROPERTIES γd (PCF)	PROPERTIES qu (KSF)	PROPERTIES qp (TSF)
0				2-1/4" Asphalt 9-1/4" Concrete						
2.5	1	SS		Brown silt and clay, some sand, trace gravel. Stiff. Moist. (A-6a) (Visual)	5-8-5	16.1				
5.0	2	SS		Brown sand, some gravel, trace silt. Loose. Wet. (A-2-4) (Visual)	4-4-5	11.4				4.0
7.5	3	SS			3-4-4	10.5				4.0
10.0	4	SS			2-2-2	18.3				
				END OF BORING @ 10.0'						

GROUNDWATER

ENCOUNTERED AT: 7.5'

ON COMPLETION: 8.0'

AFTER:

REMARKS:

AS - Auger Sample
ST - Shelby Tube Sample
SS - 2" O.D. Split Spoon Sample
W - Moisture Content

LL/PI - Liquid Limit/Plasticity Index
γd - Dry Density
qu - Unconfined Strength
qp - Pocket Penetrometer Reading

APPLIED CONSTRUCTION TECHNOLOGIES, INC.

TEST BORING LOG

B-020-0-92

ACT PROJECT NO. 9209.27 BORING NO. B-20 SHEET 1 OF 1

CLIENT: CT CONSULTANTS, INC. DATE DRILLED: 11-12-92

PROJECT: "LAK" 20-18.40 - STATE ROUTE 20 IMPROVEMENTS

DRILLING METHOD: ROTARY DRIVE - SOLID STEM AUGERS SURFACE ELEVATION: 686.34'

SAMPLE Depth (Ft.)	SAMPLE No.	SAMPLE Type	SYMBOL	SAMPLE IDENTIFICATION	BLOW COUNT ON SS/6"	PROPERTIES W (%)	PROPERTIES LL/PI	PROPERTIES γd (PCF)	PROPERTIES qu (KSF)	PROPERTIES qp (TSF)
0				6-1/4" Asphalt 3-7/8" Red brick 6-1/2" Concrete						
2.5	1	SS		Brown sand, some gravel, trace clay. Medium dense. Moist. (A-2-4) (Visual)	10-8-6	9.0				
5.0	2	ST			Rec.21"	18.1		108.3	1.1	
	3	SS			3-5-7	21.8				
7.5	4	SS		Gray sandy silt, some clay, trace gravel. Very stiff. Very moist to wet. (A-4a)	5-10-20	22.0	21/6			1.25
10.0				END OF BORING @ 10.0'						

GROUNDWATER

ENCOUNTERED AT: 7.0'

ON COMPLETION: 6.0'

AFTER:

REMARKS:

AS - Auger Sample
ST - Shelby Tube Sample
SS - 2" O.D. Split Spoon Sample
W - Moisture Content

LL/PI - Liquid Limit/Plasticity Index
γd - Dry Density
qu - Unconfined Strength
qp - Pocket Penetrometer Reading

APPLIED CONSTRUCTION TECHNOLOGIES, INC.

TEST BORING LOG

B-023-0-92

ACT PROJECT NO. 9209.27 BORING NO. B-23 SHEET 1 OF 1

CLIENT: CT CONSULTANTS DATE DRILLED: 11-05-92

PROJECT: "LAK" 20-18.40 - STATE ROUTE 20 IMPROVEMENTS

DRILLING METHOD: ROTARY DRIVE - SOLID STEM AUGERS SURFACE ELEVATION: 686.42'

SAMPLE Depth (Ft.)	No.	Type	SYMBOL	SAMPLE IDENTIFICATION	BLOW COUNT ON SS/6"	PROPERTIES W (%)	LL/PI	γ_d (PCF)	q_u (KSF)	q_p (TSF)
0										
	1	SS		Dark brown sandy silt, little clay, trace gravel. Very loose. Moist. (A-4a)	1-1-1	16.6				1.5
2.5	2	SS			1-1-3	18.9	30/7			2.0
				Brown and gray fine sand, little gravel, trace silt. Loose. Moist to wet. (A-3) (Visual)						
5.0	3	SS			3-3-4	23.7				
7.5										
	4	SS		Gray silt and clay, some sand, trace gravel. Very stiff. Moist. (A-6a) (Visual)	6-7-10	14.4				3.5
10.0				END OF BORING @ 10.0'						

GROUNDWATER

ENCOUNTERED AT: 5.5'

ON COMPLETION: 5.0'

AFTER:

REMARKS:

AS - Auger Sample
ST - Shelby Tube Sample
SS - 2" O.D. Split Spoon Sample
W - Moisture Content

LL/PI - Liquid Limit/Plasticity Index
γ_d - Dry Density
q_u - Unconfined Strength
q_p - Pocket Penetrometer Reading

APPLIED CONSTRUCTION TECHNOLOGIES, INC.

TEST BORING LOG

B-026-0-92

ACT PROJECT NO. 9209.27 BORING NO. B-26 SHEET 1 OF 1

CLIENT: CT CONSULTANTS DATE DRILLED: 11-16-92

PROJECT: "LAK" 20-18,40 - STATE ROUTE 20 IMPROVEMENTS

DRILLING METHOD: ROTARY DRIVE - HOLLOW STEM AUGERS SURFACE ELEVATION: 686.31'

SAMPLE Depth (Ft.)	SAMPLE No.	SAMPLE Type	SYMBOL	SAMPLE IDENTIFICATION	BLOW COUNT ON SS/6"	PROPERTIES W (%)	PROPERTIES LL/PI	PROPERTIES γd (PCF)	PROPERTIES qu (KSF)	PROPERTIES qp (TSF)
0				3" Asphalt 7-1/2" Concrete						
	1	SS		Brown sand, some gravel, trace clay. Very loose to loose. Moist. (A-2-4) (Visual)	4-1-1	11.0 18.0				
2.5	2	SS			3-3-4	15.6 19.5				
5.0	3	SS		Gray sandy silt, some gravel, trace clay. Very loose to medium dense. Wet. (A-4a) (Visual)	1/12"-1	18.9				
7.5	4	SS			4-6-11	21.1				
10.0				END OF BORING @ 10.0'						

GROUNDWATER

ENCOUNTERED AT: 5.0'

ON COMPLETION: 3.0'

AFTER:

REMARKS:

AS - Auger Sample
ST - Shelby Tube Sample
SS - 2" O.D. Split Spoon Sample
W - Moisture Content

LL/PI - Liquid Limit/Plasticity Index
γd - Dry Density
qu - Unconfined Strength
qp - Pocket Penetrometer Reading

APPLIED CONSTRUCTION TECHNOLOGIES, INC.

TEST BORING LOG

B-028-0-92

ACT PROJECT NO. 9209.27 BORING NO. B-28 SHEET 1 OF 1

CLIENT: CT CONSULTANTS DATE DRILLED: 11-05-92

PROJECT: "LAK" 20-18,40 - STATE ROUTE 20 IMPROVEMENTS

DRILLING METHOD: ROTARY DRIVE - SOLID STEM AUGERS SURFACE ELEVATION: 684.77'

SAMPLE Depth (Ft.)	SAMPLE No.	SAMPLE Type	SYMBOL	SAMPLE IDENTIFICATION	BLOW COUNT ON SS/6"	PROPERTIES W (%)	PROPERTIES LL/PI	PROPERTIES γ_d (PCF)	PROPERTIES q_u (KSF)	PROPERTIES q_p (TSF)
0				4" Sandy topsoil						
	1	SS		Brown sandy silt, trace gravel and clay seams. Loose. Very moist. (A-4a) (Visual)	1-2-3	11.9				
2.5	2	SS			2-3-5	11.6				2.0
5.0	3	SS			4-2-2	15.8				1.5
7.5	4	SS		Gray sand, some gravel, little silt. Medium dense. Wet. (A-2-4) (Visual)	9-9-9	16.2				
10.0				END OF BORING @ 10.0'						

GROUNDWATER

ENCOUNTERED AT: 8.0'

ON COMPLETION: 6.0'

AFTER:

REMARKS:

AS - Auger Sample
ST - Shelby Tube Sample
SS - 2" O.D. Split Spoon Sample
W - Moisture Content

LL/PI - Liquid Limit/Plasticity Index
γ_d - Dry Density
q_u - Unconfined Strength
q_p - Pocket Penetrometer Reading

APPLIED CONSTRUCTION TECHNOLOGIES, INC.

B-030-0-92

TEST BORING LOG

ACT PROJECT NO. 9209.27 BORING NO. B-30 SHEET 1 OF 1

CLIENT: CT CONSULTANTS DATE DRILLED: 11-11-92

PROJECT: "LAK" 20-18.40 - STATE ROUTE 20 IMPROVEMENTS

DRILLING METHOD: ROTARY DRIVE - HOLLOW STEM AUGERS SURFACE ELEVATION: 684.83'

SAMPLE Depth (Ft.)	SAMPLE No.	SAMPLE Type	SYMBOL	SAMPLE IDENTIFICATION	BLOW COUNT ON SS/6"	PROPERTIES W (%)	PROPERTIES LL/PI	PROPERTIES γ_d (PCF)	PROPERTIES q_u (KSF)	PROPERTIES q_p (TSF)
0				7" Asphalt 4" Red brick 5" Concrete						
2.5	1	SS		Dark brown sand and gravel, trace silt. Medium dense. Moist. (A-1-b) (Visual)	7-8-11	11.2				3.5
5.0	2	SS			8-8-7	10.5				
7.5	3	SS			7-8-8	14.1				
10.0	4	SS		Brown sand, some gravel, trace silt. Very loose. Wet. (A-2-4) (Visual)	2-2-2	SAT.				
				END OF BORING @ 10.0'						

GROUNDWATER

ENCOUNTERED AT: 5.5'

ON COMPLETION: 6.0'

AFTER:

REMARKS:

AS - Auger Sample
ST - Shelby Tube Sample
SS - 2" O.D. Split Spoon Sample
W - Moisture Content

LL/PI - Liquid Limit/Plasticity Index
γ_d - Dry Density
q_u - Unconfined Strength
q_p - Pocket Penetrometer Reading

A C T

B-034-0-92

TEST BORING LOG

ACT PROJECT NO. 9209.27 BORING NO. B-34 SHEET 1 OF 1

CLIENT: CT CONSULTANTS DATE DRILLED: 11-16-92

PROJECT: "LAK" 20-18.40 - STATE ROUTE 20 IMPROVEMENTS

DRILLING METHOD: ROTARY DRIVE - HOLLOW STEM AUGERS SURFACE ELEVATION: 683.36'

SAMPLE Depth (Ft.)	SAMPLE No.	SAMPLE Type	SYMBOL	SAMPLE IDENTIFICATION	BLOW COUNT ON SS/6"	PROPERTIES W (%)	PROPERTIES LL/PI	PROPERTIES γ_d (PCF)	PROPERTIES q_u (KSF)	PROPERTIES q_p (TSF)
0				3" Asphalt 7" Concrete						
	1	SS		Dark brown sandy silt, trace organics, fill. Medium dense. Moist. (A-4a) (Visual)	5-11-9	11.9				3.75
2.5										
	2	SS		Gray sand, some gravel, little silt and clay. Medium dense. Very moist. (A-2-4) (Visual)	8-11-14	16.2				1.0
5.0										
	3	SS		Brown sand, some gravel, trace silt. Medium dense. Wet. (A-2-4) (Visual)	7-6-5	SAT.				
7.5										
	4	SS			12-18-11	SAT.				
10.0				END OF BORING @ 10.0'						

GROUNDWATER

ENCOUNTERED AT: 5.5'

ON COMPLETION: 4.0'

AFTER: SEEPAGE @ 3.5'

REMARKS: BULK SAMPLE @ .8' TO 5.5'

AS - Auger Sample
ST - Shelby Tube Sample
SS - 2" O.D. Split Spoon Sample
W - Moisture Content

LL/PI - Liquid Limit/Plasticity Index
γ_d - Dry Density
q_u - Unconfined Strength
q_p - Pocket Penetrometer Reading

A C T

TEST BORING LOG

B-036-0-92

ACT PROJECT NO. 9209.27 BORING NO. B-36 SHEET 1 OF 1

CLIENT: CT CONSULTANTS DATE DRILLED: 11-13-92

PROJECT: "LAK" 20-18,40 - STATE ROUTE 20 IMPROVEMENTS

DRILLING METHOD: ROTARY DRIVE - HOLLOW STEM AUGERS SURFACE ELEVATION: 679.15'

SAMPLE Depth (Ft.)	SAMPLE No.	SAMPLE Type	SYMBOL	SAMPLE IDENTIFICATION	BLOW COUNT ON SS/6"	PROPERTIES W (%)	PROPERTIES LL/PI	PROPERTIES γ_d (PCF)	PROPERTIES q_u (KSF)	PROPERTIES q_p (TSF)
0				7-3/4" Asphalt						
				4" Red brick						
				4-3/4" Concrete						
2.5	1	SS		Brown gravel and sand, trace silt and clay. Medium dense. Moist to wet. (A-1-a)	5-7-8	6.1				
	2	SS			8-7-6	6.8				
5.0	3	SS			7-9-7	14.9	NP			
7.5										
	4	SS		Gray silt and clay, little sand and gravel. Hard. Moist. (A-6a) (Visual)	4-14-21	12.5				4.5+
10.0				END OF BORING @ 10.0'						

GROUNDWATER

ENCOUNTERED AT: 6.0'

ON COMPLETION: 6.0'

AFTER:

REMARKS:

AS - Auger Sample
ST - Shelby Tube Sample
SS - 2" O.D. Split Spoon Sample
W - Moisture Content

LL/PI - Liquid Limit/Plasticity Index
γ_d - Dry Density
q_u - Unconfined Strength
q_p - Pocket Penetrometer Reading

APPLIED CONSTRUCTION TECHNOLOGIES, INC.

TEST BORING LOG

B-039-0-92

ACT PROJECT NO. 9209.27 BORING NO. B-39 SHEET 1 OF 1

CLIENT: CT CONSULTANTS DATE DRILLED: 11-18-92

PROJECT: "LAK" 20-18.40 - STATE ROUTE 20 IMPROVEMENTS

DRILLING METHOD: ROTARY DRIVE - HOLLOW STEM AUGERS SURFACE ELEVATION: 681.48'

SAMPLE Depth (Ft.)	SAMPLE No.	SAMPLE Type	SYMBOL	SAMPLE IDENTIFICATION	BLOW COUNT ON SS/6"	PROPERTIES W (%)	PROPERTIES LL/PI	PROPERTIES γd (PCF)	PROPERTIES qu (KSF)	PROPERTIES qp (TSF)
0				6" Sandy topsoil						
	1	SS		Brown coarse to fine sand, little silt and gravel. Loose. Moist. (A-3a) (Visual)	1-3-4-2	13.2 10.6				
2.5										
	2	ST			Rec.24"	11.0		116.7		
5.0	3	SS			3-3-3	7.9				
7.5										
	4	SS			5-5-4	9.6				
10.0				END OF BORING @ 10.0'						

GROUNDWATER

ENCOUNTERED AT: NONE

ON COMPLETION: NONE

AFTER:

REMARKS:

AS - Auger Sample
ST - Shelby Tube Sample
SS - 2" O.D. Split Spoon Sample
W - Moisture Content

LL/PI - Liquid Limit/Plasticity Index
γd - Dry Density
qu - Unconfined Strength
qp - Pocket Penetrometer Reading

APPLIED CONSTRUCTION TECHNOLOGIES, INC.

TEST BORING LOG

B-041-0-92

ACT PROJECT NO. 9209.27 BORING NO. B-41 SHEET 1 OF 1

CLIENT: CT CONSULTANTS DATE DRILLED: 11-05-92

PROJECT: "LAK" 20-18.40 - STATE ROUTE 20 IMPROVEMENTS

DRILLING METHOD: ROTARY DRIVE - HOLLOW STEM AUGERS SURFACE ELEVATION: 679.89'

SAMPLE Depth (Ft.)	SAMPLE No.	SAMPLE Type	SYMBOL	SAMPLE IDENTIFICATION	BLOW COUNT ON SS/6"	PROPERTIES W (%)	PROPERTIES LL/PI	PROPERTIES γ_d (PCF)	PROPERTIES q_u (KSF)	PROPERTIES q_p (TSF)
0				6" Gravel						
	1	SS		Brown sandy silt, trace gravel and clay seams. Loose. Moist. (A-4a) (Visual)	6-5-4	11.3				2.0
2.5	2	SS		Brown coarse and fine sand, little gravel, trace silt and clay. Medium dense to loose. Moist. (A-3a) (Visual)	4-5-6	10.1				
5.0	3	SS			3-4-4	9.1				
7.5	4	SS			2-1-3	6.9				
10.0				END OF BORING @ 10.0'						

GROUNDWATER

ENCOUNTERED AT: NONE

ON COMPLETION: NONE

AFTER:

REMARKS:

AS - Auger Sample
ST - Shelby Tube Sample
SS - 2" O.D. Split Spoon Sample
W - Moisture Content

LL/PI - Liquid Limit/Plasticity Index
γ_d - Dry Density
q_u - Unconfined Strength
q_p - Pocket Penetrometer Reading

APPLIED CONSTRUCTION TECHNOLOGIES, INC.

TEST BORING LOG

B-043-0-92

ACT PROJECT NO. 9209.27 BORING NO. B-43 SHEET 1 OF 1

CLIENT: CT CONSULTANTS DATE DRILLED: 11-18-92

PROJECT: "LAK" 20-18.40 - STATE ROUTE 20 IMPROVEMENTS

DRILLING METHOD: ROTARY DRIVE - HOLLOW STEM AUGERS SURFACE ELEVATION: 683.58'

SAMPLE Depth (Ft.)	SAMPLE No.	SAMPLE Type	STRATA SYMBOL	SAMPLE IDENTIFICATION	BLOW COUNT ON SS/6"	PROPERTIES W (%)	PROPERTIES LL/PI	PROPERTIES γ_d (PCF)	PROPERTIES q_u (KSF)	PROPERTIES q_p (TSF)
0				6" Loose gravel.						
	1	SS		Brown coarse to fine sand, little gravel, trace silt. Medium dense to loose. Moist. (A-3a) (Visual)	14-18-6	7.9				
2.5										
	2	SS			1-2-2	7.2				
5.0										
	3	SS			2-3-3	16.9				
7.5										
	4	SS			2-1-1	11.4				
10.0				END OF BORING @ 10.0'						

GROUNDWATER

ENCOUNTERED AT: NONE

ON COMPLETION: NONE

AFTER:

REMARKS:

AS - Auger Sample
ST - Shelby Tube Sample
SS - 2" O.D. Split Spoon Sample
W - Moisture Content

LL/PI - Liquid Limit/Plasticity Index
γ_d - Dry Density
q_u - Unconfined Strength
q_p - Pocket Penetrometer Reading

APPLIED CONSTRUCTION TECHNOLOGIES, INC.

TEST BORING LOG

B-045-0-92

ACT PROJECT NO. 9209.27 BORING NO. B-45 SHEET 1 OF 1

CLIENT: CT CONSULTANTS DATE DRILLED: 11-05-92

PROJECT: "LAK" 20-18.40 - STATE ROUTE 20 IMPROVEMENTS

DRILLING METHOD: ROTARY DRIVE - HOLLOW STEM AUGERS SURFACE ELEVATION: 683.67'

SAMPLE Depth (Ft.)	SAMPLE No.	SAMPLE Type	SYMBOL	SAMPLE IDENTIFICATION	BLOW COUNT ON SS/6"	PROPERTIES W (%)	PROPERTIES LL/PI	PROPERTIES γ_d (PCF)	PROPERTIES q_u (KSF)	PROPERTIES q_p (TSF)
0				5" Sandy topsoil						
	1	SS		Brown coarse and fine sand, little gravel, trace silt. Very loose to loose. Moist. (A-3a) (Visual)	2-2-1	8.6				
2.5	2	SS			2-2-3	6.4				
5.0	3	SS			3-2-3	16.7				.50
7.5	4	SS			4-3-3	8.0				
10.0				END OF BORING @ 10.0'						

GROUNDWATER

ENCOUNTERED AT: NONE

ON COMPLETION: NONE

AFTER:

REMARKS:

AS - Auger Sample
ST - Shelby Tube Sample
SS - 2" O.D. Split Spoon Sample
W - Moisture Content

LL/PI - Liquid Limit/Plasticity Index
γ_d - Dry Density
q_u - Unconfined Strength
q_p - Pocket Penetrometer Reading

APPLIED CONSTRUCTION TECHNOLOGIES, INC.

TEST BORING LOG

B-047-0-92

ACT PROJECT NO. 9209.27 BORING NO. B-47 SHEET 1 OF 1

CLIENT: CT CONSULTANTS DATE DRILLED: 11-19-92

PROJECT: "LAK" 20-18.40 - STATE ROUTE 20 IMPROVEMENTS

DRILLING METHOD: ROTARY DRIVE - HOLLOW STEM AUGERS SURFACE ELEVATION: 680.57'

SAMPLE Depth (Ft.)	SAMPLE No.	SAMPLE Type	SYMBOL	SAMPLE IDENTIFICATION	BLOW COUNT ON SS/6"	PROPERTIES W (%)	PROPERTIES LL/PI	PROPERTIES γ_d (PCF)	PROPERTIES q_u (KSF)	PROPERTIES q_p (TSF)
0	1	SS		Brown coarse and fine sand, little gravel, trace silt. Loose to medium dense. Moist. (A-3a) (Visual)	3-2-1-3	10.3 14.2				
2.5										
	2	SS			Rec.24"	9.6		95.5		
5.0	3	SS			10-6-6					
7.5										
	4	SS			3-4-5	7.3				
10.0				END OF BORING @ 10.0'						

GROUNDWATER

ENCOUNTERED AT: NONE

ON COMPLETION: NONE

AFTER:

REMARKS:

AS - Auger Sample
ST - Shelby Tube Sample
SS - 2" O.D. Split Spoon Sample
W - Moisture Content

LL/PI - Liquid Limit/Plasticity Index
γ_d - Dry Density
q_u - Unconfined Strength
q_p - Pocket Penetrometer Reading

APPLIED CONSTRUCTION TECHNOLOGIES, INC.

TEST BORING LOG

B-049-0-92

ACT PROJECT NO. 9209.27 BORING NO. B-49 SHEET 1 OF 1

CLIENT: CT CONSULTANTS DATE DRILLED: 11-10-92

PROJECT: "LAK" 20-18.40 - STATE ROUTE 20 IMPROVEMENTS

DRILLING METHOD: ROTARY DRIVE - HOLLOW STEM AUGERS SURFACE ELEVATION: 677.66'

SAMPLE Depth (Ft.)	SAMPLE No.	SAMPLE Type	SYMBOL	SAMPLE IDENTIFICATION	BLOW COUNT ON SS/6"	PROPERTIES W (%)	PROPERTIES LL/PI	PROPERTIES γ_d (PCF)	PROPERTIES q_u (KSF)	PROPERTIES q_p (TSF)
0				4" Asphalt						
				5" Concrete						
	1	SS		Brown coarse to fine sand, little gravel. Medium dense to loose. Moist. (A-3a) (Visual)	11-12-8	8.1				
2.5										
	2	SS			2-2-2	11.7				
5.0										
	3	SS			2-3-5	11.6				
7.5										
	4	SS			6-7-6	10.5				
10.0				END OF BORING @ 10.0'						

GROUNDWATER

ENCOUNTERED AT: NONE

ON COMPLETION: NONE

AFTER:

REMARKS: BULK SAMPLE @ 1.0'-5.0'

AS - Auger Sample
ST - Shelby Tube Sample
SS - 2" O.D. Split Spoon Sample
W - Moisture Content

LL/PI - Liquid Limit/Plasticity Index
γ_d - Dry Density
q_u - Unconfined Strength
q_p - Pocket Penetrometer Reading

APPLIED CONSTRUCTION TECHNOLOGIES, INC.

TEST BORING LOG

B-051-0-92

ACT PROJECT NO. 9209.27 BORING NO. B-51 SHEET 1 OF 1

CLIENT: CT CONSULTANTS DATE DRILLED: 11-18-92

PROJECT: "LAK" 20-18.40 - STATE ROUTE 20 IMPROVEMENTS

DRILLING METHOD: ROTARY DRIVE - HOLLOW STEM AUGERS SURFACE ELEVATION: 684.65'

SAMPLE Depth (Ft.)	No.	Type	SYMBOL	SAMPLE IDENTIFICATION	BLOW COUNT ON SS/6"	PROPERTIES W (%)	LL/PI	γ_d (PCF)	q_u (KSF)	q_p (TSF)
0				2-1/2" Asphalt						
			A-4	7-1/2" Concrete						
	1	SS		Brown sand, some gravel, trace silt, clay, silt seams, and clay seams. Loose. Moist. (A-2-4) (Visual)	6-3-2	11.7				
2.5	2	SS			3-4-4	9.2				
5.0	3	SS			2-3-3	14.5 10.5				2.5
7.5	4	SS			4-2-3	6.8				
10.0				END OF BORING @ 10.0'						

GROUNDWATER

ENCOUNTERED AT: NONE

ON COMPLETION: NONE

AFTER:

REMARKS:

AS - Auger Sample
ST - Shelby Tube Sample
SS - 2" O.D. Split Spoon Sample
W - Moisture Content

LL/PI - Liquid Limit/Plasticity Index
γ_d - Dry Density
q_u - Unconfined Strength
q_p - Pocket Penetrometer Reading

APPLIED CONSTRUCTION TECHNOLOGIES, INC.

TEST BORING LOG

B-053-0-92

ACT PROJECT NO. 9209.27 BORING NO. B-53 SHEET 1 OF 1

CLIENT: CT CONSULTANTS DATE DRILLED: 11-05-92

PROJECT: "LAK" 20-18.40 - STATE ROUTE 20 IMPROVEMENTS

DRILLING METHOD: ROTARY DRIVE - HOLLOW STEM AUGERS SURFACE ELEVATION: 691.42'

SAMPLE Depth (Ft.)	SAMPLE No.	SAMPLE Type	SYMBOL	SAMPLE IDENTIFICATION	BLOW COUNT ON SS/6"	PROPERTIES W (%)	PROPERTIES LL/PI	PROPERTIES γd (PCF)	PROPERTIES qu (KSF)	PROPERTIES qp (TSF)
0				6" Coarse sand and gravel.						
	1	SS	FS	Brown, fine sand, trace silt. Loose. Moist. (A-3) (Visual)	4-3-2	10.1				
2.5	2	SS	FS	Dark brown fine sand, little silt. Very loose. Moist. (A-3) (Visual)	1 / 18"	15.0				
5.0	3	SS	FS	Brown fine sand, little silt. Loose. Moist. (A-3) (Visual)	4-3-7	8.3				
7.5	4	SS			5-4-5	14.2				
10.0				END OF BORING @ 10.0'						

GROUNDWATER

ENCOUNTERED AT: NONE

ON COMPLETION: NONE

AFTER:

REMARKS:

AS - Auger Sample
ST - Shelby Tube Sample
SS - 2" O.D. Split Spoon Sample
W - Moisture Content

LL/PI - Liquid Limit/Plasticity Index
γ_d - Dry Density
q_u - Unconfined Strength
q_p - Pocket Penetrometer Reading

APPLIED CONSTRUCTION TECHNOLOGIES, INC.

TEST BORING LOG

B-055-0-92

ACT PROJECT NO. 9209.27 BORING NO. B-56 SHEET 1 OF 1

CLIENT: CT CONSULTANTS DATE DRILLED: 11-10-92

PROJECT: "LAK" 20-18.40 - STATE ROUTE 20 IMPROVEMENTS

DRILLING METHOD: ROTARY DRIVE - HOLLOW STEM AUGERS SURFACE ELEVATION: 686.41'

SAMPLE Depth (Ft.)	SAMPLE No.	SAMPLE Type	SYMBOL	SAMPLE IDENTIFICATION	BLOW COUNT ON SS/6"	PROPERTIES W (%)	PROPERTIES LL/PI	PROPERTIES γ_d (PCF)	PROPERTIES q_u (KSF)	PROPERTIES q_p (TSF)
0				2-3/4" Asphalt						
				6-3/4" Concrete						
	1	SS		Brown coarse to fine sand, little gravel, trace silt. Medium dense to loose. Moist. (A-3a) (Visual)	12-15-12	5.4				
2.5										
	2	ST			Rec.23"	3.9		98.1		
5.0	3	SS			4-4-4	3.8				
7.5										
	4	SS			4-4-3	7.8				
10.0				END OF BORING @ 10.0'						

GROUNDWATER

ENCOUNTERED AT: NONE

ON COMPLETION: NONE

AFTER:

REMARKS:

AS - Auger Sample
ST - Shelby Tube Sample
SS - 2" O.D. Split Spoon Sample
W - Moisture Content

LL/PI - Liquid Limit/Plasticity Index
γ_d - Dry Density
q_u - Unconfined Strength
q_p - Pocket Penetrometer Reading

APPLIED CONSTRUCTION TECHNOLOGIES, INC.

TEST BORING LOG

B-058-0-92

ACT PROJECT NO. 9209.27 BORING NO. B-58 SHEET 1 OF 1

CLIENT: CT CONSULTANTS DATE DRILLED: 11-09-92

PROJECT: "LAK" 20-18.40 - STATE ROUTE 20 IMPROVEMENTS

DRILLING METHOD: ROTARY DRIVE - HOLLOW STEM AUGERS SURFACE ELEVATION: 684.02'

SAMPLE Depth (Ft.)	SAMPLE No.	SAMPLE Type	SYMBOL	SAMPLE IDENTIFICATION	BLOW COUNT ON SS/6"	PROPERTIES W (%)	PROPERTIES LL/PI	PROPERTIES γ_d (PCF)	PROPERTIES q_u (KSF)	PROPERTIES q_p (TSF)
0				3-1/4" Asphalt						
				7" Concrete						
	1	SS		Brown coarse to fine sand, little gravel, trace silt. Medium dense to loose. Moist. (A-3a) (Visual)	6-7-9	4.7				
2.5										
	2	SS			3-4-5	5.5				
5.0										
	3	SS			3-2-3	13.6				
7.5										
	4	SS			3-4-4	7.9				
10.0				END OF BORING @ 10.0'						

GROUNDWATER

ENCOUNTERED AT: NONE

ON COMPLETION: NONE

AFTER:

REMARKS: BULK SAMPLE @ 1.0'-5.0'

AS - Auger Sample
ST - Shelby Tube Sample
SS - 2" O.D. Split Spoon Sample
W - Moisture Content

LL/PI - Liquid Limit/Plasticity Index
γ_d - Dry Density
q_u - Unconfined Strength
q_p - Pocket Penetrometer Reading

APPLIED CONSTRUCTION TECHNOLOGIES, INC.

TEST BORING LOG

B-061-0-92

ACT PROJECT NO. 9209.27 BORING NO. B-61 SHEET 1 OF 1

CLIENT: CT CONSULTANTS DATE DRILLED: 11-10-92

PROJECT: "LAK" 20-18.40 - STATE ROUTE 20 IMPROVEMENTS

DRILLING METHOD: ROTARY DRIVE - HOLLOW STEM AUGERS SURFACE ELEVATION: 673.73'

SAMPLE Depth (Ft.)	No.	Type	SYMBOL	SAMPLE IDENTIFICATION	BLOW COUNT ON SS/6"	PROPERTIES W (%)	LL/PI	γd (PCF)	qu (KSF)	qp (TSF)
0				3" Asphalt						
				6" Concrete						
	1	SS		Brown coarse and fine sand, trace gravel and silt. Medium dense to loose. Moist. (A-3a) (Visual)	5-6-5	9.6				
2.5										
	2	ST			Rec.21"	7.8		105.7		
5.0										
	3	SS			5-4-4	6.1				
7.5										
	4	SS			4-4-5	7.8 6.0				
10.0				END OF BORING @ 10.0'						

GROUNDWATER

ENCOUNTERED AT: NONE

ON COMPLETION: NONE

AFTER:

REMARKS:

AS - Auger Sample
ST - Shelby Tube Sample
SS - 2" O.D. Split Spoon Sample
W - Moisture Content

LL/PI - Liquid Limit/Plasticity Index
γ_d - Dry Density
q_u - Unconfined Strength
q_p - Pocket Penetrometer Reading

APPLIED CONSTRUCTION TECHNOLOGIES, INC.

TEST BORING LOG

B-063-0-92

ACT PROJECT NO. 9209.27 BORING NO. B-63 SHEET 1 OF 1

CLIENT: CT CONSULTANTS DATE DRILLED: 11-18-92

PROJECT: "LAK" 20-18.40 - STATE ROUTE 20 IMPROVEMENTS

DRILLING METHOD: ROTARY DRIVE - HOLLOW STEM AUGERS SURFACE ELEVATION: 660.44'

SAMPLE Depth (Ft.)	SAMPLE No.	SAMPLE Type	SYMBOL	SAMPLE IDENTIFICATION	BLOW COUNT ON SS/6"	PROPERTIES W (%)	PROPERTIES LL/PI	PROPERTIES γd (PCF)	PROPERTIES qu (KSF)	PROPERTIES qp (TSF)
0										
	1	SS		Brown coarse and fine sand, trace gravel and silt. Loose. Moist. (A-3a) (Visual)	3-5-4-4	5.3				
2.5	2	SS			2-3-4	11.8				
5.0	3	SS			4-3-6	10.9				
7.5	4	SS			13-3-2	18.9				
10.0				END OF BORING @ 10.0'						

GROUNDWATER

ENCOUNTERED AT: NONE

ON COMPLETION: NONE

AFTER:

REMARKS:

AS - Auger Sample
ST - Shelby Tube Sample
SS - 2" O.D. Split Spoon Sample
W - Moisture Content

LL/PI - Liquid Limit/Plasticity Index
γd - Dry Density
qu - Unconfined Strength
qp - Pocket Penetrometer Reading

APPLIED CONSTRUCTION TECHNOLOGIES, INC.

TEST BORING LOG

B-065-0-92

ACT PROJECT NO. 9209.27 BORING NO. B-65 SHEET 1 OF 1

CLIENT: CT CONSULTANTS DATE DRILLED: 11-11-92

PROJECT: "LAK" 20-18,40 - STATE ROUTE 20 IMPROVEMENTS

DRILLING METHOD: ROTARY DRIVE - HOLLOW STEM AUGERS SURFACE ELEVATION: 654.62'

SAMPLE Depth (Ft.)	SAMPLE No.	SAMPLE Type	SYMBOL	SAMPLE IDENTIFICATION	BLOW COUNT ON SS/6"	PROPERTIES W (%)	PROPERTIES LL/PI	PROPERTIES γ_d (PCF)	PROPERTIES q_u (KSF)	PROPERTIES q_p (TSF)
0	1	SS		7" Sandy topsoil	1/18"	10.8				
				Brown coarse and fine sand, little gravel, trace silt. Very loose to medium dense. Moist. (A-3a) (Visual)						
2.5	2	SS			3-4-6	7.7				
5.0	3	SS			4-6-8	14.5				
7.5	4	SS			6-3-5	8.1				
10.0				END OF BORING @ 10.0'						

GROUNDWATER

ENCOUNTERED AT: NONE

ON COMPLETION: NONE

AFTER:

REMARKS: BULK SAMPLE @ 1.0'-5.0'

AS - Auger Sample
ST - Shelby Tube Sample
SS - 2" O.D. Split Spoon Sample
W - Moisture Content

LL/PI - Liquid Limit/Plasticity Index
γ_d - Dry Density
q_u - Unconfined Strength
q_p - Pocket Penetrometer Reading

APPLIED CONSTRUCTION TECHNOLOGIES, INC.

TEST BORING LOG

B-067-0-92

ACT PROJECT NO. 9209.27 BORING NO. B-67 SHEET 1 OF 1

CLIENT: CT CONSULTANTS DATE DRILLED: 11-06-92

PROJECT: "LAK" 20-18.40 - STATE ROUTE 20 IMPROVEMENTS

DRILLING METHOD: ROTARY DRIVE - HOLLOW STEM AUGERS SURFACE ELEVATION: 666.35'

SAMPLE Depth (Ft.)	SAMPLE No.	SAMPLE Type	SYMBOL	SAMPLE IDENTIFICATION	BLOW COUNT ON SS/6"	PROPERTIES W (%)	PROPERTIES LL/PI	PROPERTIES γ_d (PCF)	PROPERTIES q_u (KSF)	PROPERTIES q_p (TSF)
0				6" Coarse sand and gravel.						
	1	SS		Brown coarse and fine sand, some gravel, trace silt. Loose to medium dense. Moist. (A-3a) (Visual)	5-5-4	9.1				
2.5	2	SS			3-3-5	6.8				
5.0	3	SS			1-3-9	10.0				
7.5	4	SS			9-6-7	7.6				
10.0				END OF BORING @ 10.0'						

GROUNDWATER

ENCOUNTERED AT: NONE

ON COMPLETION: NONE

AFTER:

REMARKS:

AS - Auger Sample
ST - Shelby Tube Sample
SS - 2" O.D. Split Spoon Sample
W - Moisture Content

LL/PI - Liquid Limit/Plasticity Index
γ_d - Dry Density
q_u - Unconfined Strength
q_p - Pocket Penetrometer Reading

APPLIED CONSTRUCTION TECHNOLOGIES, INC.

TEST BORING LOG

B-071-0-92

ACT PROJECT NO. 9209.27 BORING NO. B-71 SHEET 1 OF 1

CLIENT: CT CONSULTANTS DATE DRILLED: 11-06-92

PROJECT: "LAK" 20-18.40 - STATE ROUTE 20 IMPROVEMENTS

DRILLING METHOD: ROTARY DRIVE - HOLLOW STEM AUGERS SURFACE ELEVATION: 675.17'

SAMPLE Depth (Ft.)	SAMPLE No.	SAMPLE Type	SYMBOL	SAMPLE IDENTIFICATION	BLOW COUNT ON SS/6"	PROPERTIES W (%)	PROPERTIES LL/PI	PROPERTIES γ_d (PCF)	PROPERTIES q_u (KSF)	PROPERTIES q_p (TSF)
0				4" Sandy topsoil						
	1	SS		Brown coarse and fine sand, trace gravel and silt. Loose to medium dense. Moist. (A-3a) (Visual)	1-2-3	9.9				
2.5	2	SS			4-3-4	12.4				
5.0	3	SS			4-3-3	7.0				
7.5	4	SS			4-6-7	8.7				
10.0				END OF BORING @ 10.0'						

GROUNDWATER

ENCOUNTERED AT: NONE

ON COMPLETION: NONE

AFTER:

REMARKS:

AS - Auger Sample
ST - Shelby Tube Sample
SS - 2" O.D. Split Spoon Sample
W - Moisture Content

LL/PI - Liquid Limit/Plasticity Index
γ_d - Dry Density
q_u - Unconfined Strength
q_p - Pocket Penetrometer Reading

APPLIED CONSTRUCTION TECHNOLOGIES, INC.

TEST BORING LOG

B-073-0-92

ACT PROJECT NO. 9209.27 BORING NO. B-73 SHEET 1 OF 1

CLIENT: CT CONSULTANTS DATE DRILLED: 11-05-92

PROJECT: "LAK" 20-18,40 - STATE ROUTE 20 IMPROVEMENTS

DRILLING METHOD: ROTARY DRIVE - HOLLOW STEM AUGERS SURFACE ELEVATION: 676.58'

SAMPLE Depth (Ft.)	SAMPLE No.	SAMPLE Type	SYMBOL	SAMPLE IDENTIFICATION	BLOW COUNT ON SS/6"	PROPERTIES W (%)	PROPERTIES LL/PI	PROPERTIES γ_d (PCF)	PROPERTIES q_u (KSF)	PROPERTIES q_p (TSF)
0				6.00" Sandy topsoil						
	1	SS		Dark brown sandy silt, trace organics. Medium dense. Moist. (A-4a) (Visual)	1-6-5	27.2				
2.5	2	SS		Brown coarse and fine sand, some gravel, trace silt. Loose. Moist. (A-3a) (Visual)	3-2-3	8.5				
5.0	3	SS			2-2-3	7.6				
7.5	4	SS		Brown coarse and fine sand, trace gravel and silt. Medium dense. Wet. (A-3a) (Visual)	8-8-7	11.7				
10.0				END OF BORING @ 10.0'						

GROUNDWATER

ENCOUNTERED AT: NONE

ON COMPLETION: NONE

AFTER:

REMARKS: BULK SAMPLE @ 5' - 5.0'

AS - Auger Sample
ST - Shelby Tube Sample
SS - 2" O.D. Split Spoon Sample
W - Moisture Content

LL/PI - Liquid Limit/Plasticity Index
γ_d - Dry Density
q_u - Unconfined Strength
q_p - Pocket Penetrometer Reading

APPLIED CONSTRUCTION TECHNOLOGIES, INC.

TEST BORING LOG

B-075-0-92

ACT PROJECT NO. 9209.27 BORING NO. B-75 SHEET 1 OF 1

CLIENT: CT CONSULTANTS DATE DRILLED: 11-06-92

PROJECT: "LAK" 20-18,40 - STATE ROUTE 20 IMPROVEMENTS

DRILLING METHOD: ROTARY DRIVE - HOLLOW STEM AUGERS SURFACE ELEVATION: 678.17'

SAMPLE Depth (Ft.)	SAMPLE No.	SAMPLE Type	SYMBOL	SAMPLE IDENTIFICATION	BLOW COUNT ON SS/6"	PROPERTIES W (%)	PROPERTIES LL/PI	PROPERTIES γ_d (PCF)	PROPERTIES q_u (KSF)	PROPERTIES q_p (TSF)
0				6.00" Gravel and coarse sand.						
	1	SS	TS	Brown fine sand, trace silt. Loose. Moist. (A-3) (Visual)	4-4-3	9.8				
2.5	2	SS		Brown coarse and fine sand, trace silt. Very loose. Moist. (A-3a) (Visual)	2-1/12"	11.4				
5.0	3	SS			1-1-1	10.5				
7.5				Brown gravel and sand, trace cobbles and silt. Loose. Wet. (A-1-b) (Visual)						
10.0	4	SS			3-4-5	24.7				
				End of boring @ 11.0'						

GROUNDWATER

ENCOUNTERED AT: 9.5'

ON COMPLETION: NONE

AFTER:

REMARKS:

AS - Auger Sample
ST - Shelby Tube Sample
SS - 2" O.D. Split Spoon Sample
W - Moisture Content

LL/PI - Liquid Limit/Plasticity Index
γ_d - Dry Density
q_u - Unconfined Strength
q_p - Pocket Penetrometer Reading

APPLIED CONSTRUCTION TECHNOLOGIES, INC.

TEST BORING LOG

B-077-0-92

ACT PROJECT NO. 9209.27 BORING NO. B-77 SHEET 1 OF 1

CLIENT: CT CONSULTANTS DATE DRILLED: 11-05-92

PROJECT: "LAK" 20-18,40 - STATE ROUTE 20 IMPROVEMENTS

DRILLING METHOD: ROTARY DRIVE - HOLLOW STEM AUGERS SURFACE ELEVATION: 680.77'

SAMPLE Depth (Ft.)	SAMPLE No.	SAMPLE Type	SYMBOL	SAMPLE IDENTIFICATION	BLOW COUNT ON SS/6"	PROPERTIES W (%)	PROPERTIES LL/PI	PROPERTIES γ_d (PCF)	PROPERTIES q_u (KSF)	PROPERTIES q_p (TSF)
0				6.00" Sandy topsoil						
	1	SS		Brown coarse and fine sand, little gravel and silt. Very loose to loose. Moist. (A-3a) (Visual)	1/12"-1	12.7				
2.5	2	SS			2-2-2	7.0				
5.0	3	SS			4-3-4	5.7				
7.5	4	SS			2-5-4	22.8				
10.0				END OF BORING @ 10.0'						

GROUNDWATER

ENCOUNTERED AT: NONE

ON COMPLETION: NONE

AFTER:

REMARKS:

AS - Auger Sample
ST - Shelby Tube Sample
SS - 2" O.D. Split Spoon Sample
W - Moisture Content

LL/PI - Liquid Limit/Plasticity Index
γ_d - Dry Density
q_u - Unconfined Strength
q_p - Pocket Penetrometer Reading

APPLIED CONSTRUCTION TECHNOLOGIES, INC.

TEST BORING LOG

B-079-0-92

ACT PROJECT NO. 9209.27 BORING NO. B-79 SHEET 1 OF 1

CLIENT: CT CONSULTANTS DATE DRILLED: 11-06-92

PROJECT: "LAK" 20-18,40 - STATE ROUTE 20 IMPROVEMENTS

DRILLING METHOD: ROTARY DRIVE - HOLLOW STEM AUGERS SURFACE ELEVATION: 680.72'

SAMPLE Depth (Ft.)	SAMPLE No.	SAMPLE Type	SYMBOL	SAMPLE IDENTIFICATION	BLOW COUNT ON SS/6"	PROPERTIES W (%)	PROPERTIES LL/PI	PROPERTIES γ_d (PCF)	PROPERTIES q_u (KSF)	PROPERTIES q_p (TSF)
0				4" Sandy topsoil						
	1	SS		Brown coarse and fine sand, little gravel, trace silt. Very loose to loose. Moist. (A-3a) (Visual)	1-1-3	10.6				
2.5	2	SS			1-1-1	12.1				
5.0	3	SS			3-3-3	9.8				
7.5	4	SS			3-3-3	28.9				
10.0				END OF BORING @ 10.0'						

GROUNDWATER

ENCOUNTERED AT: SEEPAGE @ 2.0'

ON COMPLETION: NONE

AFTER:

REMARKS:

AS - Auger Sample
ST - Shelby Tube Sample
SS - 2" O.D. Split Spoon Sample
W - Moisture Content

LL/PI - Liquid Limit/Plasticity Index
γ_d - Dry Density
q_u - Unconfined Strength
q_p - Pocket Penetrometer Reading

APPLIED CONSTRUCTION TECHNOLOGIES, INC.

B-081-0-92

TEST BORING LOG

ACT PROJECT NO. 9209.27 BORING NO. B-81 SHEET 1 OF 1

CLIENT: CT CONSULTANTS DATE DRILLED: 11-06-92

PROJECT: "LAK" 20-18.40 - STATE ROUTE 20 IMPROVEMENTS

DRILLING METHOD: ROTARY DRIVE - HOLLOW STEM AUGERS SURFACE ELEVATION: 680.66'

SAMPLE Depth (Ft.)	SAMPLE No.	SAMPLE Type	SYMBOL	SAMPLE IDENTIFICATION	BLOW COUNT ON SS/6"	PROPERTIES W (%)	PROPERTIES LL/PI	PROPERTIES γ_d (PCF)	PROPERTIES q_u (KSF)	PROPERTIES q_p (TSF)
0				6" Gravel and coarse sand.						
	1	SS		Brown sandy silt, some clay, trace gravel and clay seams. Loose to very loose. Moist. (A-4a)	3-2-2	9.4				
2.5	2	SS			2-1/12"	14.9	37/9			1.0
5.0	3	SS	FS	Brown fine sand, trace silt. Medium dense to loose. Wet. (A-3) (Visual)	8-6-5	24.8				
7.5	4	SS			4-3-2	27.6				
10.0				END OF BORING @ 10.0'						

GROUNDWATER

ENCOUNTERED AT: 5.0'

ON COMPLETION: 6.0'

AFTER:

REMARKS:

AS - Auger Sample
ST - Shelby Tube Sample
SS - 2" O.D. Split Spoon Sample
W - Moisture Content

LL/PI - Liquid Limit/Plasticity Index
γ_d - Dry Density
q_u - Unconfined Strength
q_p - Pocket Penetrometer Reading

ACT

TEST BORING LOG

B-083-0-92

ACT PROJECT NO. 9209.27 BORING NO. B-83 SHEET 1 OF 1

CLIENT: CT CONSULTANTS DATE DRILLED: 11-06-92

PROJECT: "LAK" 20-18.40 - STATE ROUTE 20 IMPROVEMENTS

DRILLING METHOD: ROTARY DRIVE - HOLLOW STEM AUGERS SURFACE ELEVATION: 685.08'

SAMPLE Depth (Ft.)	SAMPLE No.	SAMPLE Type	SYMBOL	SAMPLE IDENTIFICATION	BLOW COUNT ON SS/6"	PROPERTIES W (%)	PROPERTIES LL/PI	PROPERTIES γ_d (PCF)	PROPERTIES q_u (KSF)	PROPERTIES q_p (TSF)
0				4" Sandy topsoil						
	1	SS		Brown coarse and fine sand, little gravel, trace silt. Loose to medium dense. Moist. (A-3a) (Visual)	1-3-3	10.9				
2.5	2	SS			3-6-8	8.8				
5.0	3	SS			2-2-2	10.1				
7.5	4	SS			2-2-5	17.0				
10.0				END OF BORING @ 10.0'						

GROUNDWATER

ENCOUNTERED AT: 9.0'

ON COMPLETION: NONE

AFTER:

REMARKS:

AS - Auger Sample
ST - Shelby Tube Sample
SS - 2" O.D. Split Spoon Sample
W - Moisture Content

LL/PI - Liquid Limit/Plasticity Index
γ_d - Dry Density
q_u - Unconfined Strength
q_p - Pocket Penetrometer Reading

APPLIED CONSTRUCTION TECHNOLOGIES, INC.

TEST BORING LOG

B-086-0-92

ACT PROJECT NO. 9209.27 BORING NO. B-86 SHEET 1 OF 1

CLIENT: CT CONSULTANTS DATE DRILLED: 11-09-92

PROJECT: "LAK" 20-18.40 - STATE ROUTE 20 IMPROVEMENTS

DRILLING METHOD: ROTARY DRIVE - HOLLOW STEM AUGERS SURFACE ELEVATION: 682.19'

SAMPLE Depth (Ft.)	SAMPLE No.	SAMPLE Type	SYMBOL	SAMPLE IDENTIFICATION	BLOW COUNT ON SS/6"	PROPERTIES W (%)	PROPERTIES LL/PI	PROPERTIES γ_d (PCF)	PROPERTIES q_u (KSF)	PROPERTIES q_p (TSF)
0				8.25" Asphalt						
				4.00" Red Brick						
				5.00" Concrete						
2.5	1	SS		Brown coarse and fine sand, trace gravel, silt, and clay. Medium dense to loose. Moist. (A-3a)	11-15-10	7.4				
	2	SS			6-4-6	5.0				
5.0										
	3	SS			5-5-6	9.0	NP			
7.5										
	4	SS			7-6-4	23.8				
10.0				END OF BORING @ 10.0'						

GROUNDWATER

ENCOUNTERED AT: NONE

ON COMPLETION: NONE

AFTER:

REMARKS: BULK SAMPLE @ 1.5'-5.0'

AS - Auger Sample
ST - Shelby Tube Sample
SS - 2" O.D. Split Spoon Sample
W - Moisture Content

LL/PI - Liquid Limit/Plasticity Index
γ_d - Dry Density
q_u - Unconfined Strength
q_p - Pocket Penetrometer Reading

APPLIED CONSTRUCTION TECHNOLOGIES, INC.

R&R INTERNATIONAL, INC.

B-087-0-92

HOLE NO. B-1
ELEV. 686.7

DRILLING LOG

Client THE OSBORN ENGINEERING COMPANY
Project LAK-20-24.89 (ROADWAY SUBSURFACE EXPLORATION) Project No. 001151
Location LAKE COUNTY, OHIO STA 407+5, 26' RT.
Date: Started 6-9-92 Completed 6-9-92 Driller J.M.
Sampler: Dia 2.0 ins Type SS Hammer Wt 140 lbs Fall 30 ins
Casing: Dia 3.25 ins Type HSA Hammer Wt N/A Fall N/A
Coring Fluid: Water ___ Mud ___ Air ___ None ___ Geologist/Engineer -----

Depth (ft)	Graphic Log	Material Description	Sample No	Sample Depth	Blows/0.5'	N	Rec (ft)
0.5		TOPSOIL					
		Loose, brown FINE SAND, trace clay, moist to dry.	1	1.5	4-3-4	7	1.3
			2	3.5	3-3-4	7	1.5
			3	8.5	13-4-5	9	1.7
10.0		TERMINATION DEPTH = 10.0 FEET					

WATER DEPTH: During Drilling DRY ft. Upon Compl. DRY ft. -----Hrs. after Compl. N.R. ft.
Weather: ___ Remarks: N.R.= No Reading Taken

R&R INTERNATIONAL, INC.

B-089-0-92

HOLE NO. B-3

ELEV. 689.9

DRILLING LOG

Client THE OSBORN ENGINEERING COMPANY

Project LAK-20-24.89 (ROADWAY SUBSURFACE EXPLORATION) Project No. 001151

Location LAKE COUNTY, OHIO STA 415+20, 24' LT.

Date: Started 6-9-92 Completed 6-9-92 Driller J.M.

Sampler: Dia 2.0 ins Type SS Hammer Wt 140 lbs Fall 30 ins

Casing: Dia 3.25 ins Type HSA Hammer Wt N/A Fall N/A

Coring Fluid: Water ___ Mud ___ Air ___ None ___ Geologist/Engineer -----

Depth (ft)	Graphic Log	Material Description	Sample No	Sample Depth	Blows/0.5'	N	Rec (ft)
0.1		TOPSOIL					
			1	1.5	2-7-9	16	1.2
		Medium dense, brown FINE SAND, trace clay, moist.	2	3.5	13-13-14	27	1.3
8.5			3	8.5	5-14-19	33	1.3
		Dense, brown COARSE AND FINE SAND, little clay, dry.					
10.0		TERMINATION DEPTH = 10.0 FEET					

WATER DEPTH: During Drilling DRY ft. Upon Compl. DRY ft. ----- Hrs. after Compl. N.R. ft.

Weather: _____ Remarks: N.R.= No Reading Taken

R&R INTERNATIONAL, INC

B-093-0-92

HOLE NO. B-7

ELEV. 683.5

DRILLING LOG

Client OSBORN ENGINEERING COMPANY

Project LAK-20-24.89 (ROADWAY SUBSURFACE EXPLORATION) Project No. 001151

Location LAKE COUNTY, OHIO STA 432+00, 32' RT.

Date: Started 6-9-92 Completed 6-9-92 Driller J.M.

Sampler: Dia 2.00 ins Type SS Hammer Wt 140 lbs Fall 30 ins

Casing: Dia 3.25 ins Type HSA Hammer Wt N/A Fall N/A

Coring Fluid: Water ___ Mud ___ Air ___ None ___ Geologist/Engineer ----

Depth (ft)	Graphic Log	Material Description	Sample No	Sample Depth	Blows/0.5'	N	Rec (ft)
			1	1.5	1-1-2	3	1.4
			2	3.5	2-3-5	8	0.5
		Very loose to medium dense, brown COARSE AND FINE SAND, little to some silt, dry to moist.					
			3	8.5	5-10-8	18	1.1
10.0		TERMINATION DEPTH 10.0 FEET					

WATER DEPTH: During Drilling DRY ft. Upon Compl. DRY ft. ----Hrs. after Compl. N.R. ft.

Weather: ___ Remarks: N.R.= No reading taken

R&R INTERNATIONAL, INC.

B-097-0-92

HOLE NO. B-11

ELEV. 683.1

DRILLING LOG

Client OSBORN ENGINEERING COMPANY

Project LAK-20-24.89 (ROADWAY SUBSURFACE EXPLORATION) Project No. 001151

Location LAKE COUNTY, OHIO STA 447+45, 25' RT.

Date: Started 6-9-92 Completed 6-9-92 Driller J.M.

Sampler: Dia 2.00 ins Type SS Hammer Wt 140 lbs Fall 30 ins

Casing: Dia 3.25 ins Type HSA Hammer Wt N/A Fall N/A

Coring Fluid: Water ___ Mud ___ Air ___ None ___ Geologist/Engineer ----

Depth (ft)	Graphic Log	Material Description	Sample No	Sample Depth	Blows/0.5'	N	Rec (ft)
0.3		CONCRETE SIDEWALK					
		Loose, brown COARSE AND FINE SAND, moist.	1	1.5	4-3-2	5	0.8
3.5			2	3.5	3-3-3	6	0.6
		Loose to medium dense, brown FINE SAND, trace clay, moist.	3	8.5	12-6-6	12	1.3
10.0		TERMINATION DEPTH 10.0 FEET					

WATER DEPTH: During Drilling DRY ft. Upon Compl. DRY ft. ----Hrs. after Compl. N.R. ft.

Weather: _____ Remarks: N.R.= No reading taken

R&R INTERNATIONAL, INC

B-101-0-92

HOLE NO. B-15

ELEV. 687.8

DRILLING LOG

Client OSBORN ENGINEERING COMPANY

Project LAK-20-24.89 (ROADWAY SUBSURFACE EXPLORATION) Project No. 001151

Location LAKE COUNTY, OHIO STA 463+54, 23' RT.

Date: Started 6-9-92 Completed 6-9-92 Driller J.M.

Sampler: Dia 2.00 ins Type SS Hammer Wt 140 lbs Fall 30 ins

Casing: Dia 3.25 ins Type HSA Hammer Wt N/A Fall N/A

Coring Fluid: Water ___ Mud ___ Air ___ None ___ Geologist/Engineer ----

Depth (ft)	Graphic Log	Material Description	Sample No	Sample Depth	Blows/0.5'	N	Rec (ft)
0.3		CONCRETE SIDEWALK					
		Loose, brown COARSE AND FINE SAND, little clay, dry.	1	1.5	5-5-4	9	1.3
3.5		Medium dense, brown SAND AND GRAVEL, trace clay, moist.	2	3.5	7-8-10	18	0.9
			3	8.5	6-8-8	16	1.3
10.0		TERMINATION DEPTH 10.0 FEET					

WATER DEPTH: During Drilling DRY ft. Upon Compl. DRY ft. ---- Hrs. after Compl. N.R. ft.

Weather: _____ Remarks: N.R.= No reading taken

R&R INTERNATIONAL, INC.

B-103-0-92

HOLE NO. B-17

ELEV. 675.4

DRILLING LOG

Client OSBORN ENGINEERING COMPANY

Project LAK-20-24.89 (ROADWAY SUBSURFACE EXPLORATION) Project No. 001151

Location LAKE COUNTY, OHIO STA 471+88, 27' RT.

Date: Started 6-10-92 Completed 6-10-92 Driller J.M.

Sampler: Dia 2.00 ins Type SS Hammer Wt 140 lbs Fall 30 ins

Casing: Dia 3.25 ins Type HSA Hammer Wt N/A Fall N/A

Coring Fluid: Water ___ Mud ___ Air ___ None ___ Geologist/Engineer ----

Depth (ft)	Graphic Log	Material Description	Sample No	Sample Depth	Blows/0.5'	N	Rec (ft)
0.3		CONCRETE SIDEWALK					
			1	1.5	5-5-6	11	0.8
		Medium dense, brown SAND AND GRAVEL, trace clay, moist.	2	3.5	6-7-6	13	1.2
8.5			3	8.5	6-4-5	9	1.3
		Loose, brown FINE SAND, trace clay, moist.					
10.0		TERMINATION DEPTH 10.0 FEET					

WATER DEPTH: During Drilling DRY ft. Upon Compl. DRY ft. ---- Hrs. after Compl. N.R. ft.

Weather: ___ Remarks: N.R.= No reading taken

B-105-0-92

HOLE NO. B-19

ELEV. 676.7

DRILLING LOG

Client OSBORN ENGINEERING COMPANY

Project LAK-20-24.89 (ROADWAY SUBSURFACE EXPLORATION) Project No. 001151

Location LAKE COUNTY, OHIO STA 479+60, 23' RT.

Date: Started 6-10-92 Completed 6-10-92 Driller J.M.

Sampler: Dia 2.00 ins Type SS Hammer Wt 140 lbs Fall 30 ins

Casing: Dia 3.25 ins Type HSA Hammer Wt N/A Fall N/A

Coring Fluid: Water ___ Mud ___ Air ___ None ___ Geologist/Engineer ----

Depth (ft)	Graphic Log	Material Description	Sample No	Sample Depth	Blows/0.5'	N	Rec (ft)
0.1		TOPSOIL					
			1	1.5	4-7-9	16	0.8
			2	3.5	4-4-7	11	0.8
		Medium dense, brown COARSE AND FINE SAND, little to some clay, moist.					
			3	8.5	9-7-9	16	1.3
10.0		TERMINATION DEPTH 10.0 FEET					

WATER DEPTH: During Drilling DRY ft. Upon Compl. DRY ft. ----Hrs. after Compl. N.R. ft.

Weather: ___ Remarks: N.R.= No reading taken

R&R INTERNATIONAL, INC

B-108-0-92

HOLE NO. B-22

ELEV. 675

DRILLING LOG

Client OSBORN ENGINEERING COMPANY

Project LAK-20-24.89 (ROADWAY SUBSURFACE EXPLORATION) Project No. 001151

Location LAKE COUNTY, OHIO STA 491+61, 20' RT.

Date: Started 6-10-92 Completed 6-10-92 Driller J.M.

Sampler: Dia 2.00 ins Type SS Hammer Wt 140 lbs Fall 30 ins

Casing: Dia 3.25 ins Type HSA Hammer Wt N/A Fall N/A

Coring Fluid: Water ___ Mud ___ Air ___ None ___ Geologist/Engineer ----

Depth (ft)	Graphic Log	Material Description	Sample No	Sample Depth	Blows/0.5'	N	Rec (ft)
0.1		TOPSOIL					
		Loose, brown FINE SAND, trace clay, moist.	1	1.5	3-5-21	26	1.3
3.5			2	3.5	5-7-4	11	1.0
		Medium dense to loose, brown GRAVEL, some sand, trace clay, moist.	3	8.5	6-4-3	7	0.3
10.0		TERMINATION DEPTH 10.0 FEET					

WATER DEPTH: During Drilling DRY ft. Upon Compl. DRY ft. ---- Hrs. after Compl. N.R. ft.

Weather: ___ Remarks: N.R.= No reading taken

R&R INTERNATIONAL, INC

B-110-0-92

HOLE NO. B-24

ELEV. 675.5

DRILLING LOG

Client OSBORN ENGINEERING COMPANY

Project LAK-20-24.89 (ROADWAY SUBSURFACE EXPLORATION) Project No. 001151

Location LAKE COUNTY, OHIO STA 499+52, 23' RT.

Date: Started 6-10-92 Completed 6-10-92 Driller J.M.

Sampler: Dia 2.00 ins Type SS Hammer Wt 140 lbs Fall 30 ins

Casing: Dia 3.25 ins Type HSA Hammer Wt N/A Fall N/A

Coring Fluid: Water ___ Mud ___ Air ___ None ___ Geologist/Engineer ----

Depth (ft)	Graphic Log	Material Description	Sample No	Sample Depth	Blows/0.5'	N	Rec (ft)
0.1		TOPSOIL					
			1	1.5	3-2-2	4	1.2
		Loose, brown SAND AND GRAVEL, moist.	2	3.5	4-3-5	8	0.9
8.5			3	8.5	8-5-4	9	0.7
		Stiff, brown SANDY SILT, some gravel, moist.					
10.0		TERMINATION DEPTH 10.0 FEET					

WATER DEPTH: During Drilling DRY ft. Upon Compl. DRY ft. ---- Hrs. after Compl. N.R. ft.

Weather: _____ Remarks: N.R.= No reading taken

R&R INTERNATIONAL, INC

B-114-0-92

HOLE NO. B-28

ELEV. 675.1

DRILLING LOG

Client OSBORN ENGINEERING COMPANY

Project LAK-20-24.89 (ROADWAY SUBSURFACE EXPLORATION) Project No. 001151

Location LAKE COUNTY, OHIO STA 515+80, 21' RT.

Date: Started 6-10-92 Completed 6-10-92 Driller J.M.

Sampler: Dia 2.00 ins Type SS Hammer Wt 140 lbs Fall 30 ins

Casing: Dia 3.25 ins Type HSA Hammer Wt N/A Fall N/A

Coring Fluid: Water ___ Mud ___ Air ___ None ___ Geologist/Engineer ----

Depth (ft)	Graphic Log	Material Description	Sample No	Sample Depth	Blows/0.5'	N	Rec (ft)
0.3		ASPHALT					
1.0		CONCRETE					
			1	1.5	6-8-9	17	1.2
			2	3.5	7-12-14	26	1.0
		Medium dense, brown SAND AND GRAVEL, little to trace clay, moist to dry.					
			3	8.5	5-7-5	12	0.8
10.0		TERMINATION DEPTH 10.0 FEET					

WATER DEPTH: During Drilling DRY ft. Upon Compl. DRY ft. ---- Hrs. after Compl. N.R. ft.

Weather: _____ Remarks: N.R.= No reading taken

R&R INTERNATIONAL, INC

B-116-0-92

HOLE NO. B-30

ELEV. 672.8

DRILLING LOG

Client OSBORN ENGINEERING COMPANY

Project LAK-20-24.89 (ROADWAY SUBSURFACE EXPLORATION) Project No. 001151

Location LAKE COUNTY, OHIO STA 523+80, 21' RT.

Date: Started 6-10-92 Completed 6-10-92 Driller J.M.

Sampler: Dia 2.00 ins Type SS Hammer Wt 140 lbs Fall 30 ins

Casing: Dia 3.25 ins Type HSA Hammer Wt N/A Fall N/A

Coring Fluid: Water ___ Mud ___ Air ___ None ___ Geologist/Engineer ----

Depth (ft)	Graphic Log	Material Description	Sample No	Sample Depth	Blows/0.5'	N	Rec (ft)
0.3		ASPHALT					
0.9		CONCRETE					
			1	1.5	5-8-7	15	0.0
			2	3.5	2-2-3	5	0.6
		Medium dense to loose, brown SAND, little to some clay, trace gravel, moist to wet.					
			3	8.5	1-2-4	6	1.3
10.0		TERMINATION DEPTH 10.0 FEET					

WATER DEPTH: During Drilling 4.0 ft. Upon Compl. DRY ft. ---- Hrs. after Compl. N.R. ft.

Weather: ___ Remarks: N.R.= No reading taken

R&R INTERNATIONAL, INC

B-120-0-92

HOLE NO. B-34

ELEV. 678.6

DRILLING LOG

Client OSBORN ENGINEERING COMPANY

Project LAK-20-24.89 (ROADWAY SUBSURFACE EXPLORATION) Project No. 001151

Location LAKE COUNTY, OHIO STA 539+80, 20' RT.

Date: Started 6-10-92 Completed 6-10-92 Driller J.M.

Sampler: Dia 2.00 ins Type SS Hammer Wt 140 lbs Fall 30 ins

Casing: Dia 3.25 ins Type HSA Hammer Wt N/A Fall N/A

Coring Fluid: Water ___ Mud ___ Air ___ None ___ Geologist/Engineer ----

Depth (ft)	Graphic Log	Material Description	Sample No	Sample Depth	Blows/0.5'	N	Rec (ft)
0.3		ASPHALT					
1.0		CONCRETE					
			1	1.5	5-4-6	10	1.0
		Medium dense, brown FINE SAND, trace clay, moist.	2	3.5	6-8-7	15	0.6
8.5			3	8.5	3-7-5	12	0.8
		Medium dense, brown GRAVEL, some sand, trace clay, moist.					
10.0		TERMINATION DEPTH 10.0 FEET					

WATER DEPTH: During Drilling DRY ft. Upon Compl. DRY ft. ---- Hrs. after Compl. N.R. ft.

Weather: ___ Remarks: N.R.= No reading taken

R&R INTERNATIONAL, INC.

B-122-0-92

HOLE NO. B-36

ELEV. 672.5

DRILLING LOG

Client OSBORN ENGINEERING COMPANY

Project LAK-20-24.89 (ROADWAY SUBSURFACE EXPLORATION) Project No. 001151

Location LAKE COUNTY, OHIO STA 547+80, 21' RT.

Date: Started 6-10-92 Completed 6-10-92 Driller J.M.

Sampler: Dia 2.00 ins Type SS Hammer Wt 140 lbs Fall 30 ins

Casing: Dia 3.25 ins Type HSA Hammer Wt N/A Fall N/A

Coring Fluid: Water ___ Mud ___ Air ___ None ___ Geologist/Engineer ----

Depth (ft)	Graphic Log	Material Description	Sample No	Sample Depth	Blows/0.5'	N	Rec (ft)
0.3		ASPHALT					
1.0		CONCRETE					
			1	1.5	3-5-4	9	1.3
		Loose to medium dense, brown SAND AND GRAVEL, trace clay, moist.	2	3.5	5-6-5	11	1.0
8.5			3	8.5	3-3-3	6	1.1
		Loose, gray COARSE AND FINE SAND, some gravel, trace clay, moist.					
10.0		TERMINATION DEPTH 10.0 FEET					

WATER DEPTH: During Drilling DRY ft. Upon Compl. DRY ft. ----Hrs. after Compl. N.R. ft.

Weather: ___ Remarks: N.R.= No reading taken

R&R INTERNATIONAL, INC.

B-124-0-92

HOLE NO. B-38

ELEV. 671.5

DRILLING LOG

Client OSBORN ENGINEERING COMPANY

Project LAK-20-24.89 (ROADWAY SUBSURFACE EXPLORATION) Project No. 001151

Location LAKE COUNTY, OHIO STA 555+50, 21' RT.

Date: Started 6-11-92 Completed 6-11-92 Driller J.Mc.

Sampler: Dia 2.00 ins Type SS Hammer Wt 140 lbs Fall 30 ins

Casing: Dia 3.25 ins Type HSA Hammer Wt N/A Fall N/A

Coring Fluid: Water ___ Mud ___ Air ___ None ___ Geologist/Engineer ----

Depth (ft)	Graphic Log	Material Description	Sample No	Sample Depth	Blows/0.5'	N	Rec (ft)
0.3		ASPHALT					
0.8		CONCRETE					
			1	1.5	2-3-4	7	1.3
		Note: Petrolium odor noted to 10.0 feet					
			2	3.5	6-6-6	12	0.9
		Loose to medium dense, brown COARSE AND FINE SAND, wet to moist.					
			3	8.5	7-8-5	13	0.3
10.0		TERMINATION DEPTH 10.0 FEET					

WATER DEPTH: During Drilling DRY ft. Upon Compl. DRY ft. ----Hrs. after Compl. N.R. ft.

Weather: ___ Remarks: N.R.= No reading taken

Stat[illegible] Ohi[illegible]
Department of Transportation
Division of Highways
Testing Laboratory

B-001-0-06

LOG OF BORING

Date Started 9/25/06 Sampler: Type 2.25" HSA Dia. 2" Water Elev. None Project Identification: 142-65091 - CUY-GEA-LAK
Date Completed 9/25/06 Casing: Length 2.0ft Dia. 2" Ohio Department of Transportation
Task Order 11973-16 - PID Number 75177
Boring No. B-1 Station & Offset SLM 19.6, Eastbound, Right Lane Surface Elev. U.S. Route 20, Lake County, Ohio

Elev. (ft)	Depth (ft)	Std. Pen./ RQD	Rec. (in)	Qp (tsf)	Sample No.	Description	Physical Characteristics								ODOT Class
							% Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	
	0	–			CORE-1	1.3" ASPHALT Concrete 9.1" CONCRETE									
		10-12-13-8	16.0		SS-2	Medium Dense to Loose, Brown, Moist, Coarse and Fine SAND, Little to Some Silt and Clay, Occasional Clay Partings	11.0 10.0	16.0 38.0	56.0 20.0	15.0 29.0	2.0 3.0	NP 21	NP 3	13 12	A-3a
		12-14-5-4	16.0		SS-3									11	
	5	4-4-4-4	14.0		SS-4	Loose, Brown, Moist, GRAVEL and/or Stone Fragments With Sand, Silt and Clay								10	A-2-6*

End of Boring - 6.9'

* ODOT Classification based on Visual Description

Particle Sizes: Agg => 2.00mm, Coarse Sand = 2.00-0.42mm, Fine Sand = 0.42-0.074mm, Silt = 0.074-0.005mm, Clay =< 0.005mm.

State of Ohio
Department of Transportation
Division of Highways
Testing Laboratory

B-002-0-06

LOG OF BORING

Date Started 9/26/06 Sampler: Type 2.25" HSA Dia. 2" Water Elev. Induced to Core Project Identification: 142-65091 - CUY-GEA-LAK
Date Completed 9/26/06 Casing: Length 2.0ft Dia. 2"
Ohio Department of Transportation
Task Order 11973-16 - PID NO. 75177
U.S. Route 20, Lake County, Ohio

Boring No. B-2 Station & Offset SLM 19.8, Westbound, Left Lane Surface Elev.

Elev. (ft)	Depth (ft)	Std. Pen./ RQD	Rec. (in)	Qp (tsf)	Sample No.	Description	Physical Characteristics % Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	ODOT Class
	0														
		--			CORE-1	6.9" ASPHALT Concrete									
						3.9" Red BRICKS									
						4.6" CONCRETE									
		3-3-5-6	10.0		SS-2	Medium Dense to Very Moist, Loose, Brown, Moist to Very Moist, GRAVEL and/or Stone Fragments With Sand, Trace Silt and Clay	31.0	41.0	11.0	15.0	2.0	NP	NP	11	A-1-b(Fill)
		5-5-4-3	14.0		SS-3									9	
	5														
		4-5-5-2	18.0		SS-4	Loose, Brown, Very Moist, Fine SAND, Little to Some Silt and Clay, Trace Gravel								13	A-3(Fill)*
						Loose, Brown, Reddish Brown, Gray and Grayish Green, Very Moist, Sandy SILT, Trace to Little Clay, Trace Gravel								40	A-4a(Fill)*

End of Boring - 7.3'

* ODOT Classification based on Visual Description

Particle Sizes: Agg => 2.00mm, Coarse Sand = 2.00-0.42mm, Fine Sand = 0.42-0.074mm, Silt = 0.074-0.005mm, Clay =< 0.005mm.

Form TE-151 Revised 9/94

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Division of Highways
Testing Laboratory

B-003-0-06

LOG OF BORING

Date Started 9/25/06 Sampler: Type 2.25" HSA Dia. 2" Water Elev. 5.0' Project Identification: 142-65091 - CUY-GEA-LAK
Date Completed 9/25/06 Casing: Length 2.0ft Dia. 2" Ohio Department of Transportation
Task Order 11973-16 - PID Number 75177
Boring No. B-3 Station & Offset SLM 20.0, Eastbound, Right Lane Surface Elev. U.S. Route 20, Lake County, Ohio

Elev. (ft)	Depth (ft)	Std. Pen./ RQD	Rec. (in)	Qp (tsf)	Sample No.	Description	Physical Characteristics								ODOT Class
							% Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	
	0														
		--			CORE-1	2.8" ASPHALT Concrete									
						7.2" CONCRETE									
		5-6-6-5	17.0		SS-2	Medium Dense to Loose, Brown, Moist to Very Moist, GRAVEL and/or Stone Fragments With Sand and Silt, Trace Clay	37.0	16.0	17.0	27.0	3.0	NP	NP	10	A-2-4
		4-3-3-3	15.0		SS-3									13	
	▼ 5	4-5-7-4	13.0		SS-4	Medium Dense, Brown, Very Moist/Saturated, Coarse and Fine SAND, Little Gravel								14	A-3a*

End of Boring - 6.8'

* ODOT Classification based on Visual Description

Particle Sizes: Agg => 2.00mm, Coarse Sand = 2.00-0.42mm, Fine Sand = 0.42-0.074mm, Silt = 0.074-0.005mm, Clay =< 0.005mm.

State of Ohio
Department of Transportation
Division of Highways
Testing Laboratory

LOG OF BORING

B-004-0-06

Date Started 9/25/06 Sampler: Type 2.25" HSA Dia. 2" Water Elev. None Project Identification: 142-65091 - CUY-GEA-LAK
Date Completed 9/25/06 Casing: Length 2.0ft Dia. 2"
Ohio Department of Transportation
Task Order 11973-16 - PID Number 75177
U.S. Route 20, Lake County, Ohio

Boring No. B-4 Station & Offset SLM 20.2, Westbound, Right Lane Surface Elev.

Elev. (ft)	Depth (ft)	Std. Pen./ RQD	Rec. (in)	Qp (tsf)	Sample No.	Description	Physical Characteristics % Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	ODOT Class
	0														
		--			CORE-1	3.6" ASPHALT Concrete									
						6.9" CONCRETE									
		3-1-3-4	12.0		SS-2	Loose to Medium Dense, Reddish Brown, Moist, Sandy SILT, Trace Clay and Stone Fragments	18.0	28.0	18.0	33.0	3.0	20	1	14	A-4a
		3-5-7-5	18.0		SS-3									14	
	5	6-7-5-6	6.0		SS-4	Medium Dense, Brown, Moist, GRAVEL and/or Stone Fragments With Sand and Silt, Trace Clay								13	A-2-4*

End of Boring - 6.9'

* ODOT Classification based on Visual Description

Particle Sizes: Agg => 2.00mm, Coarse Sand = 2.00-0.42mm, Fine Sand = 0.42-0.074mm, Silt = 0.074-0.005mm, Clay =< 0.005mm.

Form TE-151 Revised 9/94

State of Ohio
Department of Transportation
Division of Highways
Testing Laboratory

LOG OF BORING

B-005-0-06

Date Started 9/25/06 Sampler: Type 2.25" HSA Dia. 2" Water Elev. None Project Identification 142-65091 - CUY-GEA-LAK
Date Completed 9/25/06 Casing: Length 2.0ft Dia. 2" Ohio Department of Transportation
Task Order 11973-16 - PID Number 75177
Boring No. B-5 Station & Offset SLM 20.8, Eastbound, Right Lane Surface Elev. U.S. Route 20, Lake County, Ohio

Elev. (ft)	Depth (ft)	Std. Pen./ RQD	Rec. (in)	Qp (tsf)	Sample No.	Description	Physical Characteristics								ODOT Class
							% Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	
	0														
		--			CORE-1	3.1" ASPHALT Concrete									
						7.5" CONCRETE									
		6-2-7-7	5.0		SS-2	Medium Dense, Brown, Moist, Coarse and Fine SAND, Trace to Little Silt, Clay and Stone Fragments	7.0	28.0	46.0	16.0	3.0	NP	NP	14	A-3a
		6-8-8-5	10.0		SS-3									8	
	5	6-7-5-6	15.0		SS-4	Medium Dense, Brown, Very Moist, Fine SAND, Trace to Little Silt								13	A-3*

End of Boring - 6.9'

* ODOT Classification based on Visual Description

Particle Sizes: Agg => 2.00mm, Coarse Sand = 2.00-0.42mm, Fine Sand = 0.42-0.074mm, Silt = 0.074-0.005mm, Clay =< 0.005mm.

State of Ohio
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Division of Highways
Testing Laboratory

LOG OF BORING

B-006-0-06

Date Started 9/25/06 Sampler: Type 2.25" HSA Dia. 2" Water Elev. None Project Identification: 142-65091 - CUY-GEA-LAK
Date Completed 9/25/06 Casing: Length 2.0ft Dia. 2" Ohio Department of Transportation
Task Order 11973-16 - PID Number 75177
Boring No. B-6 Station & Offset SLM 21.2, Westbound, Right Lane Surface Elev. U.S. Route 20, Lake County, Ohio

Elev. (ft)	Depth (ft)	Std. Pen./ RQD	Rec. (in)	Qp (tsf)	Sample No.	Description	Physical Characteristics								ODOT Class
							% Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	
	0														
		--			CORE-1	3" ASPHALT Concrete									
						7.8" CONCRETE									
		6-5-4-5	15.0		SS-2	Loose to Medium, Dense, Reddish Brown, Moist, Coarse and Fine SAND, Trace to Little Silt, Trace Clay and Stone Fragments	1.0	12.0	65.0	19.0	3.0	NP	NP	9	A-3a
						** Brown and Fine to Medium @ 2.5'									
		7-8-2-4	10.0		SS-3									6	
	5	4-5-6-7	19.0		SS-4									8	

End of Boring - 6.9'

* ODOT Classification based on Visual Description

Particle Sizes: Agg => 2.00mm, Coarse Sand = 2.00-0.42mm, Fine Sand = 0.42-0.074mm, Silt = 0.074-0.005mm, Clay =< 0.005mm.

State of Ohio
Department of Transportation
Division of Highways
Testing Laboratory

B-007-0-06

LOG OF BORING

Date Started 9/25/06 Sampler: Type 2.25" HSA Dia. 2" Water Elev. None Project Identification 142-65091 - CUY-GEA-LAK
Date Completed 9/25/06 Casing: Length 2.0ft Dia. 2"
Ohio Department of Transportation
Task Order 11973-16 - PID Number 75177
Boring No. B-7 Station & Offset SLM 21.7, Eastbound, Left Lane Surface Elev.
U.S. Route 20, Lake County, Ohio

Elev. (ft)	Depth (ft)	Std. Pen./ RQD	Rec. (in)	Qp (tsf)	Sample No.	Description	Physical Characteristics								ODOT Class
							% Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	
	0														
		--			CORE-1	5.7" ASPHALT Concrete									
						4" Red BRICKS									
						3.9" CONCRETE									
		4-3-3-5	15.5		SS-2	Loose, Brown, Moist, GRAVEL and/or Stone Fragments With Sand, Trace Silt and Clay	27.0	24.0	28.0	18.0	3.0	NP	NP	10	A-1-b
		6-4-3-4	14.5		SS-3	Loose, Brown, Moist, Coarse and Fine SAND, Trace Silt, Trace Gravel								8	A-3a*
	5														
		5-5-4-3	6.0		SS-4									8	

End of Boring - 7.1'

* ODOT Classification based on Visual Description

Particle Sizes: Agg => 2.00mm, Coarse Sand = 2.00-0.42mm, Fine Sand = 0.42-0.074mm, Silt = 0.074-0.005mm, Clay =< 0.005mm.

State of Ohio
Department of Transportation
Division of Highways
Testing Laboratory

LOG OF BORING

B-008-0-06

Date Started 9/25/06 Sampler: Type 2.25" HSA Dia. 2" Water Elev. None Project Identification: 142-65091 - CUY-GEA-LAK
Date Completed 9/25/06 Casing: Length 2.0ft Dia. 2" Ohio Department of Transportation
Task Order 11973-16 - PID Number 75177
Boring No. B-8 Station & Offset SLM 22.0, Westbound, Right Lane Surface Elev. U.S. Route 20, Lake County, Ohio

Elev. (ft)	Depth (ft)	Std. Pen./ RQD	Rec. (in)	Qp (tsf)	Sample No.	Description	Physical Characteristics								ODOT Class
							% Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	
	0														
		--			CORE-1	10.8" ASPHALT Concrete									
		6-3-3-3	12.0		SS-2	Loose, Reddish Brown, Moist, Coarse and Fine SAND, Little Silt and Clay	0.0	8.0	79.0	12.0	1.0	NP	NP	8	A-3a
		2-1-3-4	13.0		SS-3									6	
	5					** Brown @ 4.5'									
		5-5-5-5	19.0		SS-4									6	

End of Boring - 6.9'

* ODOT Classification based on Visual Description

Particle Sizes: Agg => 2.00mm, Coarse Sand = 2.00-0.42mm, Fine Sand = 0.42-0.074mm, Silt = 0.074-0.005mm, Clay =< 0.005mm.

Form TE-151 Revised 9/94

State of Ohio
Department of Transportation
Division of Highways
Testing Laboratory

B-009-0-06

LOG OF BORING

Date Started 9/25/06 Sampler: Type 2.25" HSA Dia. 2" Water Elev. None
Date Completed 9/25/06 Casing: Length 2.0ft Dia. 2"

Project Identification: 142-65091 - CUY-GEA-LAK
Ohio Department of Transportation
Task Order 11973-16 - PID Number 75177
U.S. Route 20, Lake County, Ohio

Boring No. B-9 Station & Offset SLM 22.5, Eastbound, Right Lane Surface Elev.

Elev. (ft)	Depth (ft)	Std. Pen./ RQD	Rec. (in)	Qp (tsf)	Sample No.	Description	Physical Characteristics								ODOT Class
							% Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	
	0														
		--			CORE-1	4" ASPHALT Concrete									
						6.5" CONCRETE									
		6-7-5-5	15.0		SS-2	Loose, Brown, Moist, Fine SAND, Trace Coarse Sand, Silt, Clay and Stone Fragments	5.0	6.0	80.0	8.0	1.0	NP	NP	10	A-3
		6-3-3-3	12.0		SS-3									7	
	5	5-4-5-10	14.0		SS-4	Loose, Brown, Moist, Coarse and Fine SAND, Trace Silt, Clay and Stone Fragments								8	A-3a*

End of Boring - 6.9'

* ODOT Classification based on Visual Description

Particle Sizes: Agg => 2.00mm, Coarse Sand = 2.00-0.42mm, Fine Sand = 0.42-0.074mm, Silt = 0.074-0.005mm, Clay =< 0.005mm.

State of Ohio
Department of Transportation
Division of Highways
Testing Laboratory

LOG OF BORING

B-010-0-06

Date Started 9/22/06 Sampler: Type 2.25" HSA Dia. 2" Water Elev. None
Date Completed 9/22/06 Casing: Length 2.0ft Dia. 2"

Project Identification: 142-65091 - CUY-GEA-LAK
Ohio Department of Transportation
Task Order 11973-16 - PID NO. 75177
U.S. Route 20, Lake County, Ohio

Boring No. B-10 Station & Offset SLM 22.9, Westbound, Right Lane Surface Elev.

Elev. (ft)	Depth (ft)	Std. Pen./ RQD	Rec. (in)	Qp (tsf)	Sample No.	Description	Physical Characteristics								ODOT Class
							% Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	
	0														
		--			CORE-1	1.5" ASPHALT Concrete 7.3" CONCRETE									
		6-11-10-12	16.0		SS-2	Medium, Wet, Brown/Black, Coarse and Fine SAND, Trace Silt, Clay, Stone Fragments and Organics	9.0	21.0	59.0	10.0	1.0	NP	NP	12	A-3a(Fill)
		15-19-27-20	20.0		SS-3									7	
						Medium, Moist, Brown, GRAVEL and/or Stone Fragments With Sand, Trace Silt and Clay									A-1-b(Fill)*
	5	12-12-11-18	19.0		SS-4									7	

End of Boring - 6.8'

* ODOT Classification based on Visual Description

Particle Sizes: Agg => 2.00mm, Coarse Sand = 2.00-0.42mm, Fine Sand = 0.42-0.074mm, Silt = 0.074-0.005mm, Clay =< 0.005mm.

Form TE-151 Revised 9/94

State of Ohio
Department of Transportation
Division of Highways
Testing Laboratory

B-0011-0-06

LOG OF BORING

Date Started 9/26/06 Sampler: Type 2.25" HSA Dia. 2" Water Elev. Induced to Core Project Identification: 142-65091 - CUY-GEA-LAK
Date Completed 9/26/06 Casing: Length 2.0ft Dia. 2"
Ohio Department of Transportation
Task Order 11973-16 - PID NO. 75177
Boring No. B-11 Station & Offset SLM 23.6, Eastbound, Left Lane Surface Elev.
U.S. Route 20, Lake County, Ohio

Elev. (ft)	Depth (ft)	Std. Pen./ RQD	Rec. (in)	Qp (tsf)	Sample No.	Description	Physical Characteristics								ODOT Class
							% Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	
	0														
		--			CORE-1	5.4" ASPHALT Concrete									
						4" Red BRICKS									
						5.5" CONCRETE									
		5-6-3-4	18.0		SS-2	Loose, Brown and Reddish Brown, Moist, Coarse and Fine SAND, Trace Silt, Clay and Stone Fragments	7.0	31.0	41.0	18.0	3.0	NP	NP	10	A-3a
		2-3-2-3	12.0		SS-3									7	
	5														
		3-2-3-3	19.0		SS-4									6	

End of Boring - 7.2'

* ODOT Classification based on Visual Description

Particle Sizes: Agg => 2.00mm, Coarse Sand = 2.00-0.42mm, Fine Sand = 0.42-0.074mm, Silt = 0.074-0.005mm, Clay =< 0.005mm.

State Ohio
Department of Transportation
Division of Highways
Testing Laboratory

B-012-0-06

LOG OF BORING

Date Started 9/22/06 Sampler: Type 2.25" HSA Dia. 2" Water Elev. None Project Identification: 142-65091 - CUY-GEA-LAK
Date Completed 9/22/06 Casing: Length 2.0ft Dia. 2" Ohio Department of Transportation
Task Order 11973-16 - PID NO. 75177
Boring No. B-12 Station & Offset SLM 24.3, Westbound, Right Lane Surface Elev. U.S. Route 20, Lake County, Ohio

Elev. (ft)	Depth (ft)	Std. Pen./ RQD	Rec. (in)	Qp (tsf)	Sample No.	Description	Physical Characteristics								ODOT Class
							% Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	
	0														
		--			CORE-1	2.1" ASPHALT Concrete 7.3" CONCRETE									
		6-5-7-6	13.0		SS-2	Medium, Moist, Brown, Fine SAND, Trace Coarse Sand, Silt, Clay and Stone Fragments	1.0	8.0	82.0	8.0	1.0	NP	NP	7	A-3
		5-3-3-4	17.0		SS-3									7	
	5	5-4-4-5	22.0		SS-4									10	

End of Boring - 6.8'

* ODOT Classification based on Visual Description

Particle Sizes: Agg => 2.00mm, Coarse Sand = 2.00-0.42mm, Fine Sand = 0.42-0.074mm, Silt = 0.074-0.005mm, Clay =< 0.005mm.

State of Ohio
Department of Transportation
Division of Highways
Testing Laboratory

B-0013-0-06

LOG OF BORING

Date Started 9/26/06 Sampler: Type 2.25" HSA Dia. 2" Water Elev. Induced to Core Project Identification 142-65091 - CUY-GEA-LAK
Date Completed 9/25/06 Casing: Length 2.0ft Dia. 2" Ohio Department of Transportation
Task Order 11973-16 - PID NO. 75177
Boring No. B-13 Station & Offset SLM 24.8, Eastbound, Right Lane Surface Elev. U.S. Route 20, Lake County, Ohio

Elev. (ft)	Depth (ft)	Std. Pen./ RQD	Rec. (in)	Qp (tsf)	Sample No.	Description	Physical Characteristics % Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	ODOT Class
	0														
		--			CORE-1	3.6" ASPHALT Concrete									
						7.2" CONCRETE									
		5-7-10-8	14.0		SS-2	Medium Dense, Brown, Moist, Fine SAND, Trace Coarse Sand and Silt	0.0	2.0	93.0	5.0	0.0	NP	NP	3	A-3
		6-5-6-5	14.0		SS-3									3	
	5	6-5-6-10	18.0		SS-4									4	

End of Boring - 6.9'

* ODOT Classification based on Visual Description

Particle Sizes: Agg => 2.00mm, Coarse Sand = 2.00-0.42mm, Fine Sand = 0.42-0.074mm, Silt = 0.074-0.005mm, Clay =< 0.005mm.

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Testing Laboratory

B-014-0-06

LOG OF BORING

Date Started 9/22/06 Sampler: Type 2.25" HSA Dia. 2" Water Elev. None Project Identification: 142-65091 - CUY-GEA-LAK
Date Completed 9/22/06 Casing: Length 2.0ft Dia. 2" Ohio Department of Transportation
Task Order 11973-16 - PID NO. 75177
Boring No. B-14 Station & Offset SLM 25.3, Westbound, Left Lane Surface Elev. U.S. Route 20, Lake County, Ohio

Elev. (ft)	Depth (ft)	Std. Pen./ RQD	Rec. (in)	Qp (tsf)	Sample No.	Description	Physical Characteristics								ODOT Class
							% Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	
	0														
		--			CORE-1	6.3" ASPHALT Concrete									
						3.8" Red BRICK									
						6.0" CONCRETE									
		3-4-4-5	18.0		SS-2	Loose to Medium, Moist, Brown, Fine SAND, Trace Coarse SAND and Silt	0.0	1.0	93.0	6.0	0.0	NP	NP	4	A-3
		6-4-4-5	20.0		SS-3									4	
	5														
		7-4-5-5	17.0		SS-4									6	

End of Boring - 7.3'

* ODOT Classification based on Visual Description

Particle Sizes: Agg => 2.00mm, Coarse Sand = 2.00-0.42mm, Fine Sand = 0.42-0.074mm, Silt = 0.074-0.005mm, Clay =< 0.005mm.

State of Ohio
Department of Transportation
Division of Highways
Testing Laboratory

LOG OF BORING

B-015-0-06

Date Started 9/26/06 Sampler: Type 2.25" HSA Dia. 2" Water Elev. Induced to Core Project Identification: 142-65091 - CUY-GEA-LAK
Date Completed 9/26/06 Casing: Length 2.0ft Dia. 2"
Ohio Department of Transportation
Task Order 11973-16 - PID NO. 75177
U.S. Route 20, Lake County, Ohio

Boring No. B-15 Station & Offset SLM 25.6, Eastbound, Right Lane Surface Elev.

Elev. (ft)	Depth (ft)	Std. Pen./ RQD	Rec. (in)	Qp (tsf)	Sample No.	Description	Physical Characteristics								ODOT Class
							% Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	
	0	--			CORE-1	4.8" ASPHALT Concrete									
						7.1" CONCRETE									
		4-4-2-4	18.0		SS-2	Loose, Grayish Brown, Moist, Fine SAND, Trace Coarse Sand and Silt, Some Organics	0.0	8.0	83.0	9.0	0.0	NP	NP	21	A-3(Fill)
						Loose to Medium, Brown and Reddish Brown, Moist, Coarse and Fine SAND, Trace Silt, Clay and Stone Fragments	4.0	19.0	55.0	19.0	3.0	NP	NP	18	A-3a
	5	5-5-6-6	19.0		SS-3									11	
		4-4-4-6	16.0		SS-4	Loose, Brown, Moist, Fine SAND, Little Silt, Trace Gravel								17	A-3*

End of Boring - 7.0'

* ODOT Classification based on Visual Description

Particle Sizes: Agg => 2.00mm, Coarse Sand = 2.00-0.42mm, Fine Sand = 0.42-0.074mm, Silt = 0.074-0.005mm, Clay =< 0.005mm.

Form TE-151 Revised 9/94

State of Ohio
Department of Transportation
Division of Highways
Testing Laboratory

LOG OF BORING

B-016-0-06

Date Started 9/22/06 Sampler: Type 2.25" HSA Dia. 2" Water Elev. None Project Identification: 142-65091 - CUY-GEA-LAK
Date Completed 9/22/06 Casing: Length 2.0ft Dia. 2" Ohio Department of Transportation
Task Order 11973-16 - PID NO. 75177
Boring No. B-16 Station & Offset SLM 26.0, Westbound, Right Lane Surface Elev. U.S. Route 20, Lake County, Ohio

Elev. (ft)	Depth (ft)	Std. Pen./ RQD	Rec. (in)	Qp (tsf)	Sample No.	Description	Physical Characteristics								ODOT Class
							% Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	
	0	--			CORE-1	4.3" ASPHALT Concrete									
						7.0" CONCRETE									
		9-10-14-15	15.0		SS-2	Medium, Wet, Brown/Black, Coarse and Fine SAND, Trace Silt, Clay, Stone Fragments and Brick Fragments	16.0	17.0	56.0	10.0	1.0	NP	NP	7	A-3a(Fill)
		9-6-6-8	23.0		SS-3	Medium to Loose, Wet, Brown, Fine SAND, Trace Coarse Sand, Silt and Stone Fragments	3.0	28.0	62.0	7.0	0.0	NP	NP	6	A-3
	5	4-3-3-3	18.0		SS-4									8	

End of Boring - 6.9'

* ODOT Classification based on Visual Description

Particle Sizes: Agg => 2.00mm, Coarse Sand = 2.00-0.42mm, Fine Sand = 0.42-0.074mm, Silt = 0.074-0.005mm, Clay =< 0.005mm.

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State of Ohio
Department of Transportation
Division of Highways
Testing Laboratory

B-017-0-06

LOG OF BORING

Date Started 9/26/06 Sampler: Type 2.25" HSA Dia. 2" Water Elev. Induced to Core Project Identification: 142-65091 - CUY-GEA-LAK
Date Completed 9/26/06 Casing: Length 2.0ft Dia. 2" Ohio Department of Transportation
Task Order 11973-16 - PID NO. 75177
Boring No. B-17 Station & Offset SLM 26.5, Eastbound, Right Lane Surface Elev. U.S. Route 20, Lake County, Ohio

Elev. (ft)	Depth (ft)	Std. Pen./ RQD	Rec. (in)	Qp (tsf)	Sample No.	Description	Physical Characteristics								ODOT Class
							% Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	
	0														
		--			CORE-1	2.5" ASPHALT Concrete									
						6.1" CONCRETE									
		7-5-6-9	15.0		SS-2	Medium Dense to Loose, Reddish Brown to Brown, Moist, Coarse and Fine SAND, Trace Silt, Clay and Stone Fragments	6.0	7.0	69.0	16.0	2.0	NP	NP	16	A-3a
		5-4-4-4	18.0		SS-3									7	
	5	4-4-4-7	18.0		SS-4	Medium Dense, Brown, Moist, Fine SAND, Trace Gravel								9	A-3*
						Medium, Dense, Brown, Moist, Coarse and Fine SAND, Little Gravel								8	A-3a*

End of Boring - 6.7'

* ODOT Classification based on Visual Description

Particle Sizes: Agg => 2.00mm, Coarse Sand = 2.00-0.42mm, Fine Sand = 0.42-0.074mm, Silt = 0.074-0.005mm, Clay =< 0.005mm.

State of Ohio
Department of Transportation
Division of Highways
Testing Laboratory

B-018-0-06

LOG OF BORING

Date Started 9/22/06 Sampler: Type 2.25" HSA Dia. 2" Water Elev. None Project Identification: 142-65091 - CUY-GEA-LAK
Date Completed 9/22/06 Casing: Length 2.0ft Dia. 2" Ohio Department of Transportation
Task Order 11973-16 - PID NO. 75177
Boring No. B-18 Station & Offset SLM 26.9, Westbound, Right Lane Surface Elev. U.S. Route 20, Lake County, Ohio

Elev. (ft)	Depth (ft)	Std. Pen./ RQD	Rec. (in)	Qp (tsf)	Sample No.	Description	Physical Characteristics								ODOT Class
							% Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	
	0	--			CORE-1	3.1" ASPHALT Concrete									
						7.5" CONCRETE									
		4-6-5-5	16.0		SS-2	Medium, Moist, Brown/Dark Brown, Fine SAND, Trace Coarse Sand, Silt and Stone Fragments	8.0	5.0	80.0	7.0	0.0	NP	NP	7	A-3(Fill)
		4-3-1-1	24.0		SS-3									13	
						Very Loose, Moist, Brown, Fine SAND, Some to Trace Silt, Trace Stone Fragments									A-3*
	5	2-1-2-1	17.0		SS-4									10	

End of Boring - 6.9'

* ODOT Classification based on Visual Description

Particle Sizes: Agg => 2.00mm, Coarse Sand = 2.00-0.42mm, Fine Sand = 0.42-0.074mm, Silt = 0.074-0.005mm, Clay =< 0.005mm.

State of Ohio
Department of Transportation
Division of Highways
Testing Laboratory

LOG OF BORING

B-0019-0-06

Date Started 9/26/06 Sampler: Type 2.25" HSA Dia. 2" Water Elev. Induced to Core Project Identification: 142-65091 - CUY-GEA-LAK
Date Completed 9/26/06 Casing: Length 2.0ft Dia. 2"
Ohio Department of Transportation
Task Order 11973-16 - PID NO. 75177
Boring No. B-19 Station & Offset SLM 27.4, Eastbound, Left Lane Surface Elev.
U.S. Route 20, Lake County, Ohio

Elev. (ft)	Depth (ft)	Std. Pen./ RQD	Rec. (in)	Qp (tsf)	Sample No.	Description	Physical Characteristics								ODOT Class
							% Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	
	0	--			CORE-1	13.0" ASPHALT Concrete									
		9-7-4-3	13.0		SS-2	Loose, Reddish Brown to Brown, Moist, Coarse and Fine SAND, Trace Coarse Sand, Silt, Clay and Stone Fragments	1.0	8.0	69.0	20.0	2.0	NP	NP	11	A-3a
		3-4-4-6	20.0		SS-3									6	
	5	5-3-5-5	16.0		SS-4									5	

End of Boring - 7.1'

* ODOT Classification based on Visual Description

Particle Sizes: Agg => 2.00mm, Coarse Sand = 2.00-0.42mm, Fine Sand = 0.42-0.074mm, Silt = 0.074-0.005mm, Clay =< 0.005mm.

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LOG OF BORING

B-020-0-06

Date Started 9/22/06 Sampler: Type 2.25" HSA Dia. 2" Water Elev. None Project Identification 142-65091 - CUY-GEA-LAK
Date Completed 9/22/06 Casing: Length 2.0ft Dia. 2" Ohio Department of Transportation
Task Order 11973-16 - PID NO. 75177
Boring No. B-20 Station & Offset SLM 27.9, Westbound, Right Lane Surface Elev. U.S. Route 20, Lake County, Ohio

Elev. (ft)	Depth (ft)	Std. Pen./ RQD	Rec. (in)	Qp (tsf)	Sample No.	Description	Physical Characteristics								ODOT Class
							% Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	
	0														
		--			CORE-1	3.9" ASPHALT Concrete									
						7.3" CONCRETE									
		4-3-3-2	17.0		SS-2	Loose, Moist, Brown, Fine SAND, Trace Coarse Sand, Silt, Clay and Stone Fragments	22.0	20.0	48.0	9.0	1.0	NP	NP	10	A-3(Fill)
		6-5-5-6	14.0		SS-3	Loose, Moist, Brown/Gray, GRAVEL and/or Stone Fragments with Sand, Trace Silt and Clay								6	A-1-b*
	5	5-5-6-6	15.0		SS-4									6	

End of Boring - 6.9'

* ODOT Classification based on Visual Description

Particle Sizes: Agg => 2.00mm, Coarse Sand = 2.00-0.42mm, Fine Sand = 0.42-0.074mm, Silt = 0.074-0.005mm, Clay =< 0.005mm.

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