
**DRAFT REPORT
SUBGRADE EXPLORATION REPORT
BEL-70-19.17
BELMONT COUNTY, OHIO
PID#: 107533**

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NEAS PROJECT 24-0010

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EXECUTIVE SUMMARY

The Ohio Department of Transportation (ODOT) has proposed an interstate pavement rehabilitation project (BEL-70-19.17, PID 107533) along Interstate Route 70 (IR-70) and associated ramps within Richland and Pease Township, Belmont County, Ohio. The project limits extend west to east from Straight-Line Mileage (SLM) 19.17 to SLM 23.69. It is our understanding that the overall project objective is to rehabilitate IR-70 within the referenced limits with the proposed rehabilitation consisting of full depth pavement replacement that will maintain the existing horizontal and vertical alignments. The associated ramps located within the project portion of IR-70 will also be rehabbed (i.e., either full-depth replacement or resurfacing). The project ramps planned to undergo full depth pavement replacement include Ramp 5 through Ramp 12.

National Engineering & Architectural Services, Inc. (NEAS) has been contracted to perform geotechnical engineering services for the project. The purpose of the geotechnical engineering services was to perform geotechnical explorations within the project limits to obtain information concerning the subsurface soil and groundwater conditions relevant to the design and construction of the project. Between March 21, 2024 and May 1, 2024, NEAS performed the site reconnaissance and exploration program for the project. The subsequent document presents the results of a subgrade and pavement coring exploration for the project. As part of the rehabilitation project, NEAS advanced a total of 87 borings and pavement cores to be utilized for subgrade characterization and pavement buildup evaluation purposes, respectively.

The subgrade conditions within the project limits are relatively consistent and are generally comprised of: 1) fill soils (i.e., embankment fill); 2) natural soils consisting of gravel, sand and silt, or low to moderately plastic sandy silt and silt/clay combinations; or, 3) bedrock consisting of shale and siltstone. The subgrade soils encountered within the project limits are generally classified as either A-1-a, A-1-b, A-2-4, A-2-6, A-4a, A-4b, A-6a, A-6b or A-7-6 type soils. With respect to sulfate within the subgrade soil, based on the project laboratory testing program, each subgrade soil sample tested was determined to have a sulfate content of less than 5,000 parts per million (ppm) (i.e., the level which ODOT considers high and may prevent the use of chemical stabilization).

Subgrade conditions designated by ODOT's GDM as both "unstable" and "unsuitable" were present at various locations throughout the project. Subgrade materials designated as "unsuitable" consisting of soils classifying as A-4b (Silt) and bedrock were encountered within subgrade depths that require remediation in three (3) borings (B-004-0-23, B-017-0-23 and B-041-0-23) performed along IR-70 Mainline, and one (1) boring (B-069-0-23) performed on Ramp 7. Subgrade soils designated as "unstable" via high moisture content were encountered at the various locations identified in Section 5.1.3. of this report. In general, it is recommended that the subgrade soil of project interstates and associated ramps be stabilized via localized undercut consisting of between 6 and 18 inches of Excavate and Replace (Item 204) with geotextile. Our minimum recommended limits for the indicated project subgrade stabilization are provided in Table 8 of this report. Although, the minimum recommended limits are presented, actual depths and limits of undercuts should be determined in the field by the Project Engineer based on ODOT's Subgrade Compaction and Proof Rolling specifications (Item 204).

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1. INTRODUCTION

1.1. General

National Engineering & Architectural Services, Inc. (NEAS) presents our Subgrade Exploration Report for the interstate pavement rehabilitation project (BEL-70-19.17, PID 107533) along Interstate Route 70 (IR-70) and associated ramps within Richland and Pease Township, Belmont County, Ohio. It is our understanding that the objective of the proposed project is to rehabilitate and replace the existing IR-70 pavement extending from Straight-Line Mileage (SLM) marker 19.17 to SLM marker 23.69. We understand that the proposed pavement replacement will maintain the existing horizontal and vertical alignments. The associated ramps located within the project portion of IR-70 will also be rehabbed (i.e., either full-depth replacement or resurfacing). The project ramps planned to undergo full depth pavement replacement include Ramp 5 through Ramp 12. This report presents a summary of the project encountered surficial and subsurface conditions and our recommendations for subgrade stabilization and pavement design parameters. The roadway analysis performed as part of this report has been performed in accordance with ODOT's Geotechnical Design Manual (GDM) (ODOT, 2024) and *Pavement Design Manual* (PDM) (ODOT, 2022).

The exploration was conducted in general accordance with NEAS's proposal to GPD Group (GPD), dated January 23, 2024, and with the provisions of the January 2024 (ODOT, 2024) revisions of ODOT's *Specifications for Geotechnical Explorations* (SGE).

The scope of work performed by NEAS as part of the referenced project included: a review of published geotechnical information; performing eighty-seven (87) total test borings; obtaining a total of eighty-seven (87) pavement cores that extend through the existing pavement section to top of subgrade; laboratory testing of soil samples in accordance with the SGE; performing geotechnical engineering analysis to assess subgrade and recommended pavement design parameters; and development of this summary report.

2. GEOLOGY AND OBSERVATIONS OF THE PROJECT

2.1. Geology and Physiography

The project site is located within the Little Switzerland Plateau physiographic region. This area is characterized as a highly dissected plateau of high-relief (450 to 750 ft along the Ohio River) comprised of mostly fine-grained rocks with red shales and red soils common. Landslides are common. High-gradient shale-bottomed streams are subject to flash flooding; and there are no remnants of ancient lacustrine clay-filled Teays drainage systems. The geology in this region is described as Pleistocene-age red and brown silty-clay loam and colluvium with landslide deposits over Pennsylvanian-age to Permian-age red and gray shales, and siltstones, sandstones, limestones and coals (ODGS, 1998).

Based on the quaternary geology map of Ohio, the overburden soils are generally made up of colluvium derived from the local bedrock in unglaciated areas including scattered areas of residuum, weathered material, landslides, and bedrock outcrop. (Pavey, et al., 1999).

Based on the Bedrock Geologic Units Map of Ohio (USGS & ODGS, 2006), bedrock within the majority of the project area consists of shale, mudstone and siltstone of the Dunkard Group, while the first 0.1 miles of the project and the last 1.5 miles of the project area consists of shale, siltstone and mudstone of the Monongahela Group. Both groups are comprised of Permian- and/or Pennsylvanian-age bedrock. The Permian- and/or Pennsylvanian-age shale, siltstone and mudstone of these groups can be described clayey

to sandy, non-bedded to thin bedded, and black, red, gray and green in color variegated to red and yellow in southeastern areas of Ohio. The minor rock constituents in this formation consist of sandstone and limestone. The sandstone is described as silty to locally conglomeratic, thin to massive to cross bedded, and greenish-gray in color weathering to shades of yellow-brown. The limestone is described as micritic, clayey to silty, thin to medium bedded, and gray in color (ODGS, 2003). Based on the ODNr bedrock topography map of Ohio, bedrock elevations at the project site can be expected to range from about 700 to 1,050 ft above mean sea level (amsl), putting bedrock at depths of ranging from 560 ft below ground surface (bgs) to out-cropping in areas (i.e., above the ground surface).

The majority of soils directly underlying the project site have been mapped (Web Soil Survey) by the Natural Resources Conservation Service as primarily Udorthents and urban land complex. Udorthents are described as soils that have been disturbed by cutting and or filling, and as such are not rated according to the AASHTO method of soil classification. Urban land complex is similar to Udorthents but are specifically described as soils that have been altered or obscured by urban works and structures. In addition to udorthents and urban land complex, the most significant soils mapped underlying or immediately adjacent to the project area is Lowell-Westmoreland silt loams. Soils in the Lowell series are characterized as deep and very deep, well drained soils formed in limestone residuum interbedded with thin layers of shale. Soils in the Westmoreland series are characterized as mixed fine-grained loamy soils formed from weathered interbedded siltstone, sandstone and limestone bedrock. The Lowell and Westmoreland series are comprised of primarily fine-grained soils and classify as A-4, A-6 and A-7-6 type soils according to the AASHTO method of soil classification (USDA, 2015).

2.2. Hydrology/Hydrogeology

Groundwater at the project site can be expected at an elevation consistent with that of the nearby Aults Run, Wheeling Creek, Kings Run or other associated tributaries as they are the most dominant hydraulic influences in the vicinity of the project's boundaries. However, it should be noted that perched groundwater systems may be existent in areas due to the presence of fine-grained soils making it difficult for groundwater to permeate to the phreatic surface.

The project roadways are not located within a special flood hazard area based on available mapping by the Federal Emergency Management Agency's (FEMA) National Flood Hazard mapping program (FEMA, 2016).

2.3. Mining and Oil/Gas Production

The majority of the project site is underlain by abandoned underground and surface coal mines according to ODNr's Abandoned Underground Mine Locator (ODNR [1], 2016).

Approximately seven (7) actively producing, horizontally drilled oil and/or gas wells are noted on ODNr's Ohio Oil & Gas Locator running underneath the project roadway (ODNR [2], 2016). However, none of the indicated oil and/or gas well heads are located within 1000 ft of the project's boundaries

2.4. Historical Records and Previous Phases of Project Exploration

A historic record search was performed through ODOT's Transportation Information Mapping System (TIMS). Various sets of reports/plans as well as the associated historical geotechnical documents were reviewed, however, the available information was not utilized for our evaluation of the site. The information was not utilized because the subject project is primarily a pavement replacement project and boring information of the previous projects subgrade and pavement buildups have a high probability of change

between various projects and maintenance over the years. Therefore, this historical information are not referenced or presented within this report.

2.5. Field Reconnaissance

A field reconnaissance visit for the overall project area was conducted on March 21 and 22, 2024 along project segments of IR-70 as well as the associated ramps. Site conditions were noted and photographed during the visit. Photographs of notable areas within the project limits were taken and a summary of our observations by roadway segment are provided below.

2.5.1. Land Use and Cover

The land use of the project area consists of a combination of commercial properties, woodland, as well as ODOT Right of Way (ROW).

2.5.2. Interstate Route 70

In general, the pavement condition along the project section of IR-70 was observed to be good with some signs of weathering and surface wear. Frequent low to high severity edge cracking was observed (Photograph 1), as well as occasional low severity longitudinal and transverse cracking (Photograph 2). The project segment of IR-70 passes through a variety of cut and fill sections. Along roadway cut sections, slopes leading upward from the roadway range from approximately 1H:1V (1Horizontal to 1Vertical) to 0.5H:1V with bedrock outcrops in the steeper sections (Photograph 3). Along roadway fill sections, slopes leading downward from the roadway range from approximately 1.5H:1V (Photograph 4) to approximately level with the surrounding terrain. Several portions of the project section of IR-70 are built on a cut and fill hillside which is supported on the downhill side by a concrete retaining structure (Photograph 5). The retaining wall along this segment of IR-70 appeared to be in good condition with no apparent signs of geotechnical distress observed at the time of our visit.

In general, the project segment of IR-70 roadway appeared to drain to drainage ditches adjacent to the outside shoulders of the roadway, which typically discharge into storm drains. Significant ponding or standing water was not observed within the roadway or drainage ditches at the time of our field visit. Signs of seepage from the rock slopes (i.e., icicles and flowing surface water along the rock face) were observed during our visit though water from these locations appeared to drain to the drainage ditches and did not make its way onto the roadway. Furthermore, no significant signs of geotechnical instability were observed along the project segment of IR-70 during our site visit.

Photograph 1: IR-70 Pavement Edge Cracking



Photograph 2: IR-70 Pavement Transverse Cracking



Photograph 3: Rock Outcrops / Cut Slopes



Photograph 4: IR-70 Roadway Embankment Slope



Photograph 5: Retaining Wall Supporting IR-70 Roadway Sidehill Fill



2.5.3. Project Ramps

In general, the pavement condition along the project entrance, exit and interchange ramps was observed to be fair to good. Signs of weathering and surface wear observed included occasional to frequent low to high severity edge cracking (Photograph 6) as well as longitudinal and transverse cracking (Photograph 7). The exception being the pavement condition along Ramp 12 (i.e., IR-490 WB exit ramp to Banfield Rd) which was observed to be in poor to fair condition with frequent, moderate to high severity, edge cracking, map cracking, crack seal deficiencies and pothole patching observed (Photograph 8). Embankment and cut slopes adjacent to the project ramps were generally observed to be in good condition with no apparent signs of instability observed during our visit. The project ramps appeared to be generally well-drained with no signs of ponding within the roadway or shoulder observed during our visit. Additionally, no significant signs of distress due to geotechnical concerns were observed during our site reconnaissance.

Photograph 6: Edge Cracking Along Project Ramps



Photograph 7: Transverse and Longitudinal Cracking Along Project Ramps



Photograph 8: Pavement Condition Along Ramp 12



3. GEOTECHNICAL EXPLORATION

3.1. Exploration Program

The subsurface exploration for the project was conducted by NEAS between April 9, 2024 and May 1, 2024 and included 87 borings drilled to depths between 3.3 and 7.9 ft bgs. The boring locations were selected by NEAS in general accordance with the guidelines contained in the SGE with the intent to evaluate subsurface soil and groundwater conditions. Borings were typically located either within existing pavement areas that are planned to undergo full-depth replacement or within areas where widening and/or realignment is planned. Target boring locations were located in the field by NEAS prior to drilling utilizing handheld GPS equipment. The boring locations were drilled in areas that were not restricted by underground utilities or dictated by terrain (i.e., steep embankment slopes). Each individual project boring log (included within Appendix B) includes the recorded boring latitude and longitude location (based on the surveyed Ohio State Plane South, NAD83, location) and the corresponding ground surface elevation. The boring locations are depicted within the boring location plan provided in Appendix A.

Borings were drilled with a CME 45B truck-mounted drilling rig, utilizing 3.25-inch (inner diameter) hollow stem augers. Soil samples for subgrade borings were typically recovered continuously to a depth of 7.5 ft bgs, each using an 18-inch split spoon sampler (AASHTO T-206 “Standard Method for Penetration Test and Split Barrel Sampling of Soils.”). Borings were typically terminated shallower than 7.5 ft bgs where bedrock or SPT-N refusal (i.e., less than 6 inches of penetration over 50 blows) was encountered. The soil samples obtained from the exploration program were visually observed in the field by the NEAS field representative and preserved for review by a Geologist for possible laboratory testing. Standard penetration tests (SPT) were conducted using a CME auto hammer that had been calibrated to be 79.0% efficient as indicated on the boring logs (Appendix B).

Field boring logs were prepared by drilling personnel and included pavement description (where present), lithological description, SPT results recorded as blows per 6-inch increment of penetration and estimated unconfined shear strength values on specimens exhibiting cohesion (using a hand-penetrometer). Groundwater level observations were recorded both during and after the completion of drilling. These groundwater level observations are included on the individual boring logs (provided in Appendix B). After completing the borings, the boreholes were backfilled with either auger cuttings, bentonite chips, or a combination of these materials and patched accordingly with cold patch asphalt and/or quick-set concrete when drilled through the roadway.

3.2. Pavement Coring Exploration Program

The coring investigation program for this project was conducted by NEAS between April 9, 2024 and May 3, 2024 and included a total of eighty-seven (87) pavement cores. The cores performed were located in close proximity to the project soil borings that were drilled through the existing pavement. Each core location was located in the field by NEAS prior to coring utilizing handheld GPS equipment. Measurements, photographs and other details of each core sample can be found in the Pavement Core Logs included within Appendix C. The approximate location for each core corresponds to the associate boring location as depicted on the Boring Location Plan provided in Appendix A.

Cores were drilled using a portable, truck-mounted, electric powered coring drill with a 4-inch (outer diameter) diamond tipped drill bit and utilizing water as the circulating fluid. Asphalt and concrete thicknesses were measured in the field after the cores were extracted and down-hole measurements were made. Each core sample was then photographed, logged, and placed in a core box for transportation to NEAS’s laboratory. Following field documentation and photographs, the core hole was backfilled to

existing grade with either asphalt patch or quick-set concrete (where appropriate). Once in the laboratory the cores were: 1) re-measured for thickness verification and photographed; 2) checked for composition; and, 3) reviewed for individual layer identification and subsequent measurements.

3.3. Laboratory Testing Program

The laboratory testing program consisted of classification testing, moisture content determinations, and sulfate content testing. Data from the laboratory testing program were incorporated onto the boring logs (Appendix B). Soil samples are retained at the laboratory for 60 days following report submittal, after which time they will be discarded.

3.3.1. Classification Testing

Representative soil samples were selected for index property (Atterberg Limits) and gradation testing for classification purposes on approximately fifty-four percent (54%) of the samples. At each subgrade boring location, the upper two samples obtained below the proposed top of subgrade elevation were generally tested while additional samples were selected for testing with the intent of properly classifying the subsurface soil and groundwater conditions within the planned project limits. Soils not selected for testing were compared to laboratory tested samples/strata and classified visually. Moisture content testing was conducted on all samples. The laboratory testing was performed in general accordance with applicable AASHTO specifications and ODOT Supplements.

Final classification of soil strata in accordance with AASHTO M-145 “Classification of Soils and Soil-Aggregate Mixtures for Highway Construction Purposes,” as modified by ODOT “Classification of Soils” was made once laboratory test results became available. The results of the soil classification are presented on the boring logs in Appendix B.

3.3.2. Standard Penetration Test Results

Standard Penetration Tests (SPT) and split-barrel (commonly known as split-spoon) sampling of soils were performed continuously in the project borings performed. To account for the high efficiency (automatic) hammers used during SPT sampling, field SPT N-values were converted based on the calibrated efficiency (energy ratio) of the specific drill rig's hammer. Field N-values were converted to an equivalent rod energy of 60% (N_{60}) for use in analysis or for correlation purposes. The resulting N_{60} values are shown on the boring logs provided in Appendix B.

3.3.3. Sulfate Testing

Sulfate testing was generally performed on one sample from each subgrade boring performed for pavement/subgrade design purposes. The selected samples were tested in accordance with ODOT Supplement 1122, “Determining Sulfate Content in Soils” dated July 17, 2015. In general, the upper most sample (within 3 ft of the proposed subgrade elevation) from each boring was tested when feasible. Testing results are summarized in Table 1 below, provided in Appendix D and presented on the boring logs within Appendix B.

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Table 1: Sulfate Test Summary by Boring

Boring ID	Sample	Depth (ft)	Average Sulfate Content (ppm)	Boring ID	Sample	Depth (ft)	Average Sulfate Content (ppm)	Boring ID	Sample	Depth (ft)	Average Sulfate Content (ppm)
B-001-0-23	SS-1	1.5-3.0	413	B-031-0-23	SS-1	1.5-3.0	400	B-061-0-23	SS-2	3.0-4.5	193
B-002-0-23	SS-1	1.5-3.0	567	B-032-0-23	SS-2	3.0-4.5	233	B-062-0-23	SS-1	1.5-3.0	220
B-003-0-23	SS-1	1.5-1.9	440	B-033-0-23	SS-1	1.5-2.9	13	B-063-0-23	SS-1	1.5-3.0	113
B-004-0-23	SS-1	1.5-3.0	987	B-034-0-23	SS-1	1.5-3.0	3167	B-064-0-23	SS-2	3.0-4.5	853
B-005-0-23	SS-1	2.0-3.5	827	B-035-0-23	SS-1	1.5-3.0	300	B-065-0-23	SS-1	1.5-3.0	1613
B-006-0-23	SS-1	1.5-3.0	367	B-036-0-23	SS-1	1.5-3.0	693	B-066-0-23	SS-1	1.5-3.0	240
B-007-0-23	SS-1	1.5-2.3	80	B-037-0-23	SS-1	1.5-3.0	120	B-067-0-23	SS-1	1.5-3.0	227
B-008-0-23	SS-1	1.5-3.0	447	B-038-0-23	SS-1	1.5-3.0	333	B-068-0-23	SS-1	1.5-2.4	140
B-009-0-23	SS-1	1.5-3.0	200	B-039-0-23	SS-1	1.5-3.0	53	B-069-0-23	SS-1	1.5-2.1	120
B-010-0-23	SS-3	4.5-6.0	240	B-040-0-23	SS-1	1.5-2.3	60	B-070-0-23	SS-1	1.5-3.0	140
B-011-0-23	SS-1	1.5-2.4	273	B-042-0-23	SS-1	1.5-3.0	220	B-071-0-23	SS-1	1.5-3.0	100
B-012-0-23	SS-1	1.5-3.0	547	B-043-0-23	SS-1	1.5-3.0	173	B-072-0-23	SS-1	1.5-3.0	173
B-013-0-23	SS-1	1.5-3.0	673	B-044-0-23	SS-1	1.5-3.0	400	B-073-0-23	SS-1	1.5-3.0	1960
B-014-0-23	SS-1	1.5-3.0	2333	B-045-0-23	SS-1	1.5-3.0	773	B-074-0-23	SS-1	1.5-1.9	227
B-015-0-23	SS-1	1.5-3.0	373	B-046-0-23	SS-2	3.0-4.5	133	B-075-0-23	SS-1	1.5-3.0	253
B-016-0-23	SS-1	1.5-3.0	140	B-047-0-23	SS-1	1.5-3.0	73	B-076-0-23	SS-1	1.5-3.0	20
B-017-0-23	SS-1	1.5-1.9	207	B-048-0-23	SS-1	1.5-3.0	73	B-077-0-23	SS-1	1.5-3.0	140
B-018-0-23	SS-1	1.5-3.0	200	B-049-0-23	SS-2	3.0-4.3	73	B-078-0-23	SS-1	1.5-3.0	173
B-019-0-23	SS-1	1.5-2.9	40	B-050-0-23	SS-1	1.5-3.0	53	B-079-0-23	SS-1	1.5-2.4	60
B-020-0-23	SS-1	1.5-3.0	160	B-051-0-23	SS-1	1.5-3.0	80	B-080-0-23	SS-1	1.5-3.0	207
B-021-0-23	SS-1	1.5-2.4	320	B-052-0-23	SS-2	3.0-4.5	1787	B-081-0-23	SS-2	3.0-4.5	80
B-022-0-23	SS-1	1.5-3.0	93	B-053-0-23	SS-2	3.0-4.5	1220	B-082-0-23	SS-1	1.5-3.0	93
B-023-0-23	SS-1	1.5-3.0	20	B-054-0-23	SS-2	3.0-4.5	53	B-083-0-23	SS-1	1.5-2.9	0
B-024-0-23	SS-1	1.5-3.0	60	B-055-0-23	SS-1	1.5-3.0	353	B-084-0-23	SS-1	1.5-3.0	127
B-025-0-23	SS-1	1.5-3.0	320	B-056-0-23	SS-1	1.5-3.0	287	B-085-0-23	SS-1	1.5-3.0	273
B-027-0-23	SS-1	1.5-3.0	147	B-057-0-23	SS-2	3.0-4.3	627	B-086-0-23	SS-1	1.5-3.0	87
B-028-0-23	SS-1	1.5-3.0	1427	B-058-0-23	SS-1	1.5-3.0	1480	B-087-0-23	SS-1	1.5-2.4	193
B-029-0-23	SS-1	1.5-3.0	100	B-059-0-23	SS-1	1.5-3.0	200	B-088-0-23	SS-2	3.0-4.5	173
B-030-0-23	SS-1	1.5-3.0	113	B-060-0-23	SS-3	4.5-6.0	127				

4. FINDINGS

The pavement and subsurface conditions encountered during NEAS's explorations are described in the following subsections and/or on each boring log presented in Appendix B. The boring logs represent NEAS's interpretation of the subsurface conditions encountered at each boring location based on our site observations, field logs, visual review of the soil samples by NEAS's geologist, and laboratory test results. The lines designating the interfaces between various soil strata on the boring logs represent the approximate interface location; the actual transition between strata may be gradual and indistinct. The subsurface soil and groundwater characterizations included herein, including summary test data, are based on the subsurface findings from the geotechnical explorations performed by NEAS as part of the referenced project. It should be noted that for the purposes of this report and our analysis the term 'subgrade' has been assumed to represent soils and/or soil conditions from 1.5 ft below proposed final pavement grades to a depth of 7.5 ft below the proposed pavement grades.

4.1. Core Results

The thicknesses of the cores were measured at the indicated core locations shown on the Boring Location Plan provided in Appendix A. A summary of these measurements along with the material encountered is summarized in Table 2. Laboratory photographs and logs of each of the cores are presented in the Pavement Core Logs included within Appendix C.

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Table 2: Pavement Core Summary

Core ID	Proposed Alignment	Asphalt Thickness (in)	Concrete Thickness (in)	Total Thickness (in)	Core ID	Proposed Alignment	Asphalt Thickness (in)	Concrete Thickness (in)	Total Thickness (in)	Core ID	Proposed Alignment	Asphalt Thickness (in)	Concrete Thickness (in)	Total Thickness (in)
X-001	IR-70	11.25	0.00	11.25	X-031	IR-70	12.75	0.00	12.75	X-060	IR-70	10.00	0.00	10.00
X-002	IR-70	12.50	0.00	12.50	X-032	IR-70	8.00	0.00	8.00	X-061	IR-70	4.75	0.00	4.75
X-003	IR-70	13.50	0.00	13.50	X-033	IR-70	8.00	0.00	8.00	X-062	IR-70	6.25	0.00	6.25
X-004	IR-70	12.75	0.00	12.75	X-034	IR-70	8.50	0.00	8.50	X-063	IR-70	8.50	0.00	8.50
X-005	IR-70	10.25	10.00	20.25	X-035	IR-70	11.00	0.00	11.00	X-064	IR-70	12.50	0.00	12.50
X-006	IR-70	11.25	0.00	11.25	X-036	IR-70	9.25	0.00	9.25	X-065	IR-70	4.75	0.00	4.75
X-007	IR-70	11.25	9.25	20.50	X-037	IR-70	10.25	0.00	10.25	X-066	Ramp 5	16.25	0.00	16.25
X-008	IR-70	10.25	0.00	10.25	X-038	IR-70	5.00	0.00	5.00	X-067	Ramp 5	8.50	0.00	8.50
X-009	IR-70	8.50	0.00	8.50	X-039	IR-70	13.25	0.00	13.25	X-068	Ramp 6	11.50	0.00	11.50
X-010	IR-70	9.75	0.00	9.75	X-040	IR-70	6.00	0.00	6.00	X-069	Ramp 7	5.75	9.50	15.25
X-011	IR-70	12.50	0.00	12.50	X-041	IR-70	11.00	0.00	11.00	X-070	Ramp 7	5.25	0.00	5.25
X-012	IR-70	11.50	0.00	11.50	X-042	IR-70	8.75	0.00	8.75	X-071	Ramp 8	11.50	0.00	11.50
X-013	IR-70	11.25	0.00	11.25	X-043	IR-70	9.75	0.00	9.75	X-072	Ramp 8	9.75	0.00	9.75
X-014	IR-70	8.25	0.00	8.25	X-044	IR-70	13.25	0.00	13.25	X-073	Ramp 9	8.50	0.00	8.50
X-015	IR-70	6.00	0.00	6.00	X-045	IR-70	6.00	0.00	6.00	X-074	Ramp 9	7.00	8.50	15.50
X-016	IR-70	7.25	0.00	7.25	X-046	IR-70	8.75	8.50	17.25	X-075	Ramp 10	6.75	0.00	6.75
X-017	IR-70	5.00	0.00	5.00	X-047	IR-70	11.00	0.00	11.00	X-076	Ramp 10	8.50	0.00	8.50
X-018	IR-70	11.75	0.00	11.75	X-048	IR-70	15.75	0.00	15.75	X-077	Ramp 11	14.00	0.00	14.00
X-019	IR-70	9.25	0.00	9.25	X-049	IR-70	11.00	0.00	11.00	X-078	Ramp 11	6.75	9.00	15.75
X-020	IR-70	7.75	0.00	7.75	X-050	IR-70	14.00	0.00	14.00	X-079	Ramp 12	6.75	9.75	16.50
X-021	IR-70	5.25	0.00	5.25	X-051	IR-70	11.50	0.00	11.50	X-080	Ramp 12	6.50	9.00	15.50
X-022	IR-70	7.00	0.00	7.00	X-052	IR-70	14.25	0.00	14.25	X-081	Ramp 12	6.25	9.50	15.75
X-023	IR-70	5.50	0.00	5.50	X-053	IR-70	12.25	0.00	12.25	X-082	Ramp 12	4.00	9.00	13.00
X-024	IR-70	5.50	0.00	5.50	X-054	IR-70	10.50	0.00	10.50	X-083	Ramp 12	7.50	9.50	17.00
X-025	IR-70	12.25	0.00	12.25	X-055	IR-70	11.75	0.00	11.75	X-084	Ramp 12	6.75	9.50	16.25
X-027	IR-70	10.50	0.00	10.50	X-056	IR-70	9.50	0.00	9.50	X-085	Ramp 12	7.00	9.25	16.25
X-028	IR-70	8.25	9.25	17.50	X-057	IR-70	9.50	0.00	9.50	X-086	Ramp 12	7.50	9.00	16.50
X-029	IR-70	12.75	0.00	12.75	X-058	IR-70	6.00	0.00	6.00	X-087	Ramp 12	5.50	0.00	5.50
X-030	IR-70	7.25	0.00	7.25	X-059	IR-70	12.00	0.00	12.00	X-088	Ramp 12	4.00	9.00	13.00

4.2. Subgrade Conditions

The subgrade conditions within the project limits are relatively consistent and are generally comprised of: 1) fill soils (i.e., embankment fill); 2) natural soils consisting of gravel, sand and silt, or low to moderately plastic sandy silt and silt/clay combinations; or, 3) bedrock consisting of shale and siltstone. The subgrade soils encountered within the project limits are generally classified as either A-1-a, A-1-b, A-2-4, A-2-6, A-4a, A-4b, A-6a, A-6b or A-7-6 type soils. With respect to sulfate within the subgrade soil, based on the project laboratory testing program, each subgrade soil sample tested was determined to have a sulfate content of less than 5,000 parts per million (ppm) (i.e., the level which ODOT considers high and may prevent the use of chemical stabilization).

The following subsections present a summary of the subsurface conditions by ramp/roadway segment with problem areas highlighted where present.

4.2.1. Interstate Route 70

Project portions of mainline IR-70 are planned to undergo full depth pavement replacement. The borings performed along this portion of roadway included borings B-001-0-23 through B-065-0-23.

Along mainline IR-70, sixty-two percent (62%) of the soil samples were identified as fine-grained, cohesive soils and were comprised of: 1) cohesive Sandy Silt (A-4a, 6% of samples); 2) Silt (A-4b, 3 samples); 3) Silt

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and Clay (A-6a, 28% of samples); 4) Silty Clay (A-6b, 14% of samples); and, 5) Clay (A-7-6, 12% of samples). With respect to the consistency of the fine-grained soils, the descriptions varied from medium stiff to hard correlating to converted SPT-N values (N_{60}) between 5 blows per foot (bpf) and SPT-N refusal (i.e., less than 6 inches of penetration over 50 blows). Natural moisture contents ranged from 2 to 37 percent. Based on Atterberg Limit tests performed on representative samples of the fine-grained subgrade soils obtained along the project portions of IR-70, the liquid and plastic limits ranged from 26 to 62 percent and from 16 to 25 percent, respectively.

Twenty-six percent (26%) of the samples taken along the proposed IR-70 roadway were classified as coarse- and fine-grained, non-cohesive soils and were comprised of: 1) Gravel (A-1-a, 2% of samples); 2) Gravel and/or Stone Fragments with Sand (A-1-b, 6% of samples); 3) Gravel and/or Stone Fragments with Sand and Silt (A-2-4, 11% of samples); 4) Gravel and/or Stone Fragments with Sand, Silt and Clay (A-2-6, 3% of samples); and, 4) non-cohesive Sandy Silt (A-4a, 4% of samples). With respect to the relative density of the coarse-grained soils, the descriptions varied from loose to very dense correlating to N_{60} values between 7 bpf and SPT-N refusal. Natural moisture contents ranged from 1 to 15 percent.

The remaining twelve percent (12%) of the samples were identified as Rock generally classified as shale and siltstone.

4.2.2. Ramp 5

Ramp 5 consists of the entrance ramp from Banfield Rd to IR-70 eastbound (EB) which is planned for full depth pavement replacement. The borings performed along Ramp 5 include borings B-019-0-23, B-066-0-23 and B-067-0-23.

Eighty percent (80%) of the soil samples taken along the proposed ramp were identified as fine-grained soils and were comprised of cohesive Silt and Clay (A-6a, 1 sample), Silty Clay (A-6b, 4 samples) and Clay (A-7-6, 3 samples). With respect to the consistency of the fine-grained soils, the descriptions varied from stiff to hard correlating to N_{60} values between 12 bpf and SPT-N refusal. Natural moisture contents ranged from 9 to 19 percent. Based on Atterberg Limit tests performed on representative samples of the fine-grained subgrade soils obtained along Ramp 5, the liquid and plastic limits ranged from 34 to 42 percent and from 19 to 21 percent, respectively.

The remaining twenty percent (20%) of the samples were identified as Rock generally classified as siltstone.

4.2.3. Ramp 6

Ramp 6 consists of the interchange ramp from IR-70 EB to IR-470 EB which is planned for full depth pavement replacement. The borings performed along Ramp 6 include borings B-023-0-23 and B-068-0-23.

All but two (2) of the soil samples taken along the proposed ramp were identified as coarse- or fine-grained non-cohesive soils and were comprised of Stone Fragments (A-1-a, 1 sample), Stone Fragments with Sand and Silt (A-2-4, 1 sample) and non-cohesive Sandy Silt (A-4a, 2 samples). With respect to the relative density of the non-cohesive soils, the soils can be described as medium dense to very dense correlating to an N_{60} value of 17 bpf and SPT-N refusal. The natural moisture contents ranged from 4 to 12 percent.

Two (2) samples taken along the indicated ramp were identified as fine-grained, cohesive soils and classified on the log as Silty Clay (A-6b). With respect to the consistency of the fine-grained soils, the descriptions varied from very stiff to hard correlating to N_{60} values between 16 bpf and SPT-N refusal. Natural moisture contents ranged from 13 to 14 percent. Based on Atterberg Limit tests performed on a representative sample of the fine-grained subgrade soils obtained along Ramp 6, the liquid and plastic limits were determined to be 40 percent and 19 percent, respectively.

The remaining two (2) samples taken along Ramp 6 were identified as Rock generally classified as shale

4.2.4. Ramp 7

Ramp 7 consists of the interchange ramp from IR-470 westbound (WB) to IR-70 WB which is planned for full depth pavement replacement. The borings performed along Ramp 7 include borings B-024-0-23, B-025-0-23, B-069-0-23 and B-070-0-23.

Fifty-three percent (53%) of the soil samples taken along the proposed ramp were identified as fine-grained soils and were comprised of cohesive Sandy Silt (A-4a, 1 sample), Silt and Clay (A-6a, 1 sample), Silty Clay (A-6b, 3 samples) and Clay (A-7-6, 3 samples). With respect to the consistency of the fine-grained soils, the descriptions varied from stiff to hard correlating to N_{60} values between 9 and 32 bpf. Natural moisture contents ranged from 10 to 33 percent. Based on Atterberg Limit tests performed on representative samples of the fine-grained subgrade soils obtained along Ramp 7, the liquid and plastic limits ranged from 30 to 41 percent and from 19 to 24 percent, respectively.

Twenty-seven percent (27%) of the samples taken along Ramp 7 were identified as non-cohesive soils and classified on the log as Gravel with Sand (A-1-b, 1 sample) and non-cohesive Sandy Silt (A-4a, 3 samples). With respect to the relative density of the coarse-grained soils, the soil can be described as loose to medium dense correlating to N_{60} values of 7 and 18 bpf. Natural moisture contents of the non-cohesive samples were determined to be 8 and 13 percent.

The remaining twenty percent (20%) of the samples were identified as Rock generally classified as shale.

4.2.5. Ramp 8

Ramp 8 consists of the entrance ramp from National Rd to IR-70 WB which is planned for full depth pavement replacement. The borings performed along Ramp 8 include borings B-031-0-23, B-071-0-23 and B-072-0-23.

Along Ramp 8, fifty percent (50%) of the soil samples were identified as fine-grained, cohesive soils and were comprised of cohesive Sandy Silt (A-4a, 1 sample), Silt and Clay (A-6a, 1 sample) and Silty Clay (A-6b, 4 samples). With respect to the consistency of the fine-grained soils, the descriptions varied from stiff to hard correlating to N_{60} between 14 and 37 bpf. Natural moisture contents ranged from 12 to 20 percent. Based on Atterberg Limit tests performed on representative samples of the fine-grained subgrade soils obtained along Ramp 8, the liquid and plastic limits ranged from 32 to 36 percent and from 18 to 20 percent, respectively.

The remaining fifty percent (50%) of the samples taken along the indicated ramp were classified as coarse-grained, non-cohesive soils and were comprised of Gravel (A-1-a, 1 of samples), Gravel or Stone Fragments with Sand (A-1-b, 2 samples), Gravel and Stone Fragments with Sand and Silt (A-2-4, 1 sample) and Gravel with Sand, Silt and Clay (A-2-6, 2 samples). With respect to the relative density of the coarse-grained soils, the descriptions varied from very loose to dense correlating to N_{60} values between 4 and 32 bpf. Natural moisture contents ranged from 3 to 15 percent.

4.2.1. Ramp 9

Ramp 9 consists of the exit ramp from IR-70 EB to National Rd which is planned for full depth pavement replacement. The borings performed along Ramp 9 include borings B-034-0-23, B-073-0-23 and B-074-0-23.

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Sixty percent (60%) of the soil samples taken along Ramp 9 were identified as fine-grained, cohesive soils and were comprised of cohesive Sandy Silt (A-4a, 1 sample), Silt and Clay (A-6a, 3 samples) and Silty Clay (A-6b, 2 samples). With respect to the consistency of the fine-grained soils, the descriptions varied from very stiff to hard correlating to N_{60} between 20 and 59 bpf. Natural moisture contents ranged from 6 to 12 percent. Based on Atterberg Limit tests performed on representative samples of the fine-grained subgrade soils obtained along Ramp 9, the liquid and plastic limits ranged from 23 to 36 percent and from 15 to 20 percent, respectively.

The remaining forty percent (40%) of the samples taken along the indicated ramp were classified as coarse-grained, non-cohesive soils and were comprised of Gravel and Stone Fragments with Sand (A-1-b, 2 samples) and Stone Fragments with Sand and Silt (A-2-4, 2 samples). With respect to the relative density of the coarse-grained soils, the descriptions varied from medium dense to very dense correlating to N_{60} values between 17 bpf and SPT-N refusal. Natural moisture contents ranged from 8 to 11 percent.

4.2.1. Ramp 10

Ramp 10 consists of the entrance ramp from National Rd to IR-70 EB which is planned for full depth pavement replacement. The borings performed along Ramp 10 include borings B-038-0-23 through B-041-0-23 as well as B-075-0-23 and B-076-0-23.

Forty-four percent (44%) of the soil samples taken along Ramp 10 were identified as fine-grained, cohesive soils and were comprised of cohesive Sandy Silt (A-4a, 1 sample), Silty Clay (A-6b, 4 samples) and Clay (A-7-6, 2 samples). With respect to the consistency of the fine-grained soils, the descriptions varied from stiff to very stiff correlating to N_{60} between 12 and 26 bpf. Natural moisture contents ranged from 12 to 20 percent. Based on Atterberg Limit tests performed on representative samples of the fine-grained subgrade soils obtained along Ramp 10, the liquid limits ranged from 30 to 40 percent while plastic limits were determined to be 20 percent.

Thirty-eight percent (38%) of the samples taken along the indicated ramp were classified as coarse-grained, non-cohesive soils and were comprised of Gravel (A-1-a, 1 sample), Gravel with Sand (A-1-b, 2 samples) and Gravel and Stone Fragments with Sand and Silt (A-2-4, 3 samples). With respect to the relative density of the coarse-grained soils, the descriptions varied from loose to medium dense correlating to N_{60} values between 8 and 20 bpf. Natural moisture contents ranged from 4 to 10 percent.

The remaining nineteen percent (19%) of the samples were identified as Rock generally classified as siltstone.

4.2.1. Ramp 11

Ramp 11 consists of the exit ramp from IR-70 WB to National Rd which is planned for full depth pavement replacement. The borings performed along Ramp 11 include borings B-039-0-23, B-077-0-23 and B-078-0-23.

Seventy-five percent (75%) of the soil samples taken along Ramp 11 were identified as fine-grained, cohesive soils and were comprised of Silt and Clay (A-6a, 3 samples), Silty Clay (A-6b, 4 samples) and Clay (A-7-6, 2 samples). With respect to the consistency of the fine-grained soils, the descriptions varied from medium stiff to very stiff correlating to N_{60} between 7 and 21 bpf. Natural moisture contents ranged from 7 to 22 percent. Based on Atterberg Limit tests performed on representative samples of the fine-grained subgrade soils obtained along Ramp 11, the liquid and plastic limits ranged from 29 to 38 percent and from 18 to 23 percent, respectively.

The remaining twenty-five percent (25%) of the samples taken along the indicated ramp were classified as coarse-grained, non-cohesive soils and were comprised of Gravel (A-1-a, 1 sample), Stone Fragments with Sand and Silt (A-2-4, 1 sample) and Gravel with Sand, Silt and Clay (A-2-6, 1 sample). With respect to the relative density of the coarse-grained soils, the descriptions varied from loose to medium dense correlating to N_{60} values between 5 and 17 bpf. Natural moisture contents ranged from 5 to 12 percent.

4.2.1. Ramp 12

Ramp 12 consists of the exit ramp from IR-470 WB to Banfield Rd which is planned for full depth pavement replacement. The borings performed along Ramp 12 include borings B-069-0-23 and B-079-0-23 through B-088-0-23.

Fifty percent (50%) of the soil samples taken along Ramp 12 were identified as fine-grained, cohesive soils and were comprised of Silt and Clay (A-6a, 25% of samples), Silty Clay (A-6b, 20% of samples) and Clay (A-7-6, 2 samples). With respect to the consistency of the fine-grained soils, the descriptions varied from medium stiff to hard correlating to N_{60} between 8 and 75 bpf. Natural moisture contents ranged from 7 to 31 percent. Based on Atterberg Limit tests performed on representative samples of the fine-grained subgrade soils obtained along Ramp 12, the liquid limits ranged from 29 to 46 percent and from 17 to 22 percent, respectively.

Twenty-three percent (23%) of the samples taken along the indicated ramp were classified as coarse- and fine-grained, non-cohesive soils and were comprised of, Gravel (A-1-a, 1 sample), Gravel with Sand (A-1-b, 1 sample), Gravel and Stone Fragments with Sand and Silt (A-2-4, 13% of samples) and non-cohesive Sandy Silt (A-4a, 2 samples). With respect to the relative density of the coarse-grained soils, the descriptions varied from loose to very dense correlating to N_{60} values between 7 and 20 bpf. Natural moisture contents ranged from 7 to 15 percent.

The remaining twenty-eight percent (28%) of the samples were identified as Rock generally classified as shale and siltstone.

4.2.2. Groundwater

Groundwater measurements were taken during the boring drilling procedures and/or immediately following the completion of each borehole. Groundwater was observed during and/or upon completion of drilling in two (2) of the project borings performed as part of the project exploration (B-059-0-23 and B-077-0-22). With respect to groundwater within subgrade soils, groundwater was encountered within proposed subgrade depths in each of the referenced borings at depths of 4.5 ft bgs and 6.0 ft bgs (elevations 1096.7 ft amsl and 796.7 ft amsl).

It should be noted that groundwater is affected by many hydrologic characteristics in the area and may vary from those measured at the time of the exploration. The specific groundwater readings are included on the individual test boring logs located within Appendix B.

5. ANALYSES AND RECOMMENDATIONS

We understand that reconstruction of a portion of IR-70 mainline freeway as well as the reconstruction of various adjacent ramps are planned as part of the interstate pavement rehabilitation project (BEL-70-19.17, PID 107533). In addition to the mainline freeway segment, full depth pavement replacement of the associated entrance/exit ramps (Ramp 5 through Ramp 12) is also planned. For this purpose, a subgrade exploration and subsequent analysis was completed for the referenced project. The analysis completed for the proposed reconstruction included a subgrade analysis performed in accordance with ODOT's GDM

criteria utilizing the ODOT provided *Subgrade Analysis Spreadsheet* (Version 14.7 dated April 4, 2024). Input information for the spreadsheet was based on the soil characteristics gathered during NEAS's subgrade exploration (i.e., SPT results, laboratory test results, etc.). A subgrade analysis was performed for the entire project as well as for each of the referenced mainline and ramp segments individually.

Based on our evaluation of the subsurface conditions and our geotechnical engineering analyses of the proposed reconstruction, it is our opinion that subgrade conditions are generally satisfactory, and that pavement can be supported by the underlying subsurface material utilizing localized undercut (i.e., Excavate and Replace, Item 204, with geotextile) along certain segments of mainline IR-70, Ramp 11 and Ramp 12 where unsuitable soils were encountered. Further details regarding our subgrade analysis and the recommended remediation are provided in Section 5.1 of this report.

5.1. Subgrade Analysis and Recommendations

A subgrade analysis was performed per ODOT's GDM to identify the method, location, and dimensions (including depth) of required subgrade stabilization for the project. In addition to identifying stabilization recommendations, pavement design parameters are also determined to aid in pavement section design. The subsections below present the results of our subgrade analysis including pavement design parameters and unsuitable subgrade conditions identified within the project limits. ODOT's Subgrade Analysis spreadsheets are provided in Appendix E.

Again, it should be noted that for the purposes of this report and our analysis, the term 'proposed subgrade' has been assumed to represent soils and/or soil conditions from 1.5 ft below proposed final pavement grades to a depth of 7.5 ft below the proposed pavement grades.

5.1.1. Pavement Design Recommendations

It is our understanding that pavement analysis and design is to be performed to determine the proposed pavement sections for the new alignments as well as roadway segments within the project limits to undergo full depth replacement. A subgrade analysis was performed per ODOT's GDM using the subgrade soil data obtained during our field exploration program to evaluate the soil characteristics and develop pavement parameters for use in pavement design. The subgrade parameters recommended for use in pavement design are presented in Table 3 below. Provided in the table are ranges of maximum, minimum and average N_{60L} values for the indicated segments as well as the design CBR value recommended for use in pavement design.

Table 3: Pavement Design Values

Segment	Maximum N_{60L}	Minimum N_{60L}	Average N_{60L}	Average PI Values	Design CBR
Mainline IR-70	30	5	16	16	7
Ramp 5 (Banfield Road to IR-70 EB)	30	12	18	18	6
Ramp 6 (IR-70 EB to IR-470 EB)	26	16	21	21	9
Ramp 7 (IR-470 WB to IR-70 WB)	30	7	17	16	7
Ramp 8 (IR-70 WB to National Road)	22	4	13	14	8
Ramp 9 (IR-70 EB to National Road)	30	17	24	14	8
Ramp 10 (National Road to IR-70 EB)	30	7	14	15	8
Ramp 11 (IR-70 WB to National Road)	9	5	7	14	6
Ramp 12 (IR-470 WB to Banfield Road)	30	7	18	16	8
Entire Project	30	4	16	16	7

5.1.2. Unsuitable Subgrade

Per ODOT's GDM, the presence of select subgrade conditions (i.e., unsuitable) are prohibited within the subgrade zone for new pavement construction. These unsuitable subgrade conditions generally include the presence of rock and specific soil types. With respect to the proposed reconstruction/rehabilitation project these subgrade conditions are further discussed in the following subsections.

5.1.2.1. Unsuitable Soils

Unsuitable soil types per ODOT's GDM, which include A-4b, A-2-5, A-5, A-7-5, A-8a, A-8b, and soils with liquid limits greater than 65, were encountered within the subgrade of the referenced project roadway segments. Soil Type A-4b (Silt) was encountered within one (1) boring performed along the IR-70 alignment. A summary of the prohibited soils encountered and the associated ODOT GDM recommended remediation depths are shown in Table 4 below.

Table 4: Prohibited Soils Location Summary

Boring ID	Prohibited Soil Type	Depth Below Subgrade (ft)	Remediation Depth (inches)	
			Excavate and Replace (Item 204 w/ Geotextile)	Chemical Stabilization (Item 206)
Interstate Route 70				
B-004-0-23	A-4b	1.5 - 3.0	36	14

It should be noted that though A-4b type soils were encountered within the proposed subgrade depths of the referenced alignment, based on: 1) the consistent composition of the subgrade soils encountered throughout the project site (including borings adjacent to B-004-0-22); and, 2) the depth below the proposed subgrade at which the A-4b material was encountered, it is our opinion that the presence of this material at the referenced location will not require the ODOT GDM recommended remediation indicated in Table 4, above. It is our opinion that the proposed IR-70 subgrade soils can be stabilized following the recommendations provided in Section 5.1.4. of this report.

5.1.2.2. Rock

Rock was encountered within the subgrade of twenty-six (26) borings performed within the project roadway limits. In these borings, bedrock was encountered at depths ranging from 0.0 to 4.5 ft below the top of the proposed subgrade elevation (elevations 1253.8 to 798.1 ft amsl). Per ODOT's GDM, if rock is encountered within 6 inches of the bottom of the proposed asphalt or concrete pavement it is to be removed in accordance with 204.05 of the ODOT CMS and replaced with Item 204 Embankment. Of the twenty-six borings in which rock was encountered, remediation is required in one boring (B-041-0-23). A summary of the boring locations where rock was encountered within the proposed subgrade are shown in Table 5 below, per the roadway segment for which they were encountered.

Table 5: Shallow Rock Location Summary

Boring ID	Roadway Segment	Depth Below Proposed Subgrade (ft)	Top of Rock Elevation (ft)
B-009-0-23	IR-70	3.0	1156.6
B-011-0-23	IR-70	1.5	1191.7
B-012-0-23	IR-70	3.0	1199.3
B-017-0-23	IR-70	1.5	1212.4
B-018-0-23	IR-70	4.5	1214.4
B-019-0-23	IR-70	1.5	1214.3
B-022-0-23	IR-70	4.5	1215.6
B-023-0-23	IR-70	3.0	1234.0
B-028-0-23	IR-70	4.5	1249.3
B-033-0-23	IR-70	4.5	1168.2
B-040-0-23	IR-70	1.5	1088.9
B-041-0-23	IR-70	0.0	1079.0
B-042-0-23	IR-70	1.5	1063.9
B-043-0-23	IR-70	1.5	1044.9
B-045-0-23	IR-70	4.5	1007.3
B-048-0-23	IR-70	1.5	959.8
B-057-0-23	IR-70	3.0	806.3
B-058-0-23	IR-70	4.5	798.1
B-069-0-23	Ramp 7	1.5	1248.7
B-070-0-23	Ramp 7	4.5	1251.3
B-079-0-23	Ramp 12	1.5	1253.8
B-081-0-23	Ramp 12	4.5	1244.8
B-082-0-23	Ramp 12	3.0	1234.5
B-083-0-23	Ramp 12	3.0	1219.0
B-085-0-23	Ramp 12	4.5	1200.2
B-087-0-23	Ramp 12	1.5	1226.5

5.1.3. Unstable Soils

The ODOT GDM recommends subgrade stabilization for soils considered unstable in which the N_{60} value of a particular soil sample (SS) at a referenced boring location is less than 12 bpf and in some cases less than 15 bpf (i.e., where moisture content is greater than optimum plus 3 percent). Based on the specific N_{60} value at the subject boring, *Figure 600-1: Subgrade Stabilization* within the ODOT GDM recommends a depth of subgrade stabilization for ODOT standard stabilization methods. Additionally, although a soil sample's N_{60} value may meet the criteria to be considered an unstable soil, the depth in which the unstable soil is encountered in relation to the proposed subgrade is considered when each individual subgrade boring is analyzed. For example, if the ODOT GDM recommends an excavate and replace of 12 inches within a weak soil underlying 18 inches of stable material, it would be unreasonable to recommend the removal of both the stable and unstable material for a total of 30 inches of excavate and replace.

Based on N_{60} values encountered within the project borings, our subgrade analysis suggests the need for 12 to 18 inches of either excavate and replace or chemical stabilization at select locations. A summary of the boring locations where unstable soils were encountered and determined to have a potential impact on subgrade performance are shown in Table 6 below. Also included is the associated ODOT GDM recommended remediation depth at that location.

Table 6: Unstable Soil Locations Summary

Boring ID	Average HP (tsf)	N _{60L} (bpf)	Moisture Above Optimum (%)	Depth Below Subgrade (ft)	Remediation Depth (inches)	
					Chemical Stabilization	Excavate and Replace (Item 204 w Geotextile)
Interstate Route 70						
B-013-0-23	1.5	8	3	0.0 - 6.0	14	12
B-016-0-23	2.75	11	4	0.0 - 6.0	12	12
B-039-0-23	3.0	7	6	0.0 - 6.0	14	15
B-054-0-23	3.0	12	8	0.0 - 6.0	12	12
B-055-0-23	2.5	8	-	0.0 - 1.5	14	12
B-056-0-23	2.0	5	2	0.0 - 1.5	14	18
B-058-0-23	2.75	7	-	0.0 - 1.5	14	15
B-060-0-23	3.0	5	-	0.0 - 1.5	14	18
B-064-0-23	-	9	-	0.0 - 1.5	14	12
Ramp 11						
B-078-0-23	4.5	9	-	0.0 - 1.5	14	12
Ramp 12						
B-085-0-23	2.75	9	12	0.0 - 3.0	14	12

It should be noted that *Figure B - Subgrade Stabilization* does not apply to soil types A-1-a, A-1-b, A-3, or A-3a, nor to soils with N_{60L} values of 15 or more. Per ODOT GDM guidance, *these soils should be reworked to stabilize the subgrade*.

5.1.3.1. High Moisture Content Soils

High moisture content soils are defined by the ODOT GDM as soils that exceed the estimated optimum moisture content (per *Table 600-1: Optimum Moisture Content* within the ODOT GDM) for a given classification by more than 3 percent. Per the ODOT GDM, soils determined to be above the identified moisture content levels are a likely indication of the presence of an unstable subgrade and may require some form of subgrade stabilization. Similar to our analysis of unstable soils, although a soil sample's moisture content may meet the criteria to be considered high, the depth in which the high moisture soil is encountered in relation to the proposed subgrade is considered when each individual subgrade boring is analyzed for stabilization recommendations. Summaries of the boring locations where high moisture content conditions were encountered in the top 3 ft of subgrade within the limits of each proposed roadway segment are shown in Table 7 below.

Table 7: High Moisture Content Soils Location Summary

Boring ID	Moisture Content (%)	Optimum Moisture Content (%)	Depth Below Subgrade (ft)
Interstate Route 70			
B-014-0-23	10	6	0.0 - 3.0
B-024-0-23	23	19	1.5 - 3.0
B-030-0-23	14	10	1.5 - 2.2
B-035-0-23	28	20	1.5 - 3.0
B-049-0-23	14	10	0.0 - 1.5
Ramp 12			
B-081-0-23	15	10	0.0 - 1.5

5.1.4. Subgrade Stabilization Recommendations

Based on the results of our analysis, subgrade soils designated by ODOT's GB1 as "unstable" as well as shallow bedrock conditions were present at various locations throughout the project. Therefore, with respect to stabilization, it is our opinion that areas along the project roadway segments should be stabilized via

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localized undercut consisting of between 6 and 18 inches of Excavate and Replace (Item 204) with geotextile. Actual depths and limits of undercuts should be determined in the field by the Project Engineer based on ODOT's Subgrade Compaction and Proof Rolling specifications (Item 204). Our recommended limits for the indicated project subgrade stabilization are provided in Table 8 below.

Table 8: Stabilization Recommendations

Start Station	End Station	Excavate and Replace w/ Item 204 ⁽¹⁾ (inches)	Chemical Stabilization (inches)	Unsuitable Subgrade Conditions	Borings Considered
IR-70 Mainline					
1057+85	1077+15	12	12	N ₆₀ & MC	B-013-0-23, B-014-0-23, B-015-0-23 & B-016-0-23
1077+15	1081+00	6	-	Shallow Rock	B-017-0-23
1151+50	1161+00	12	14	N ₆₀ & MC	B-037-0-23 & B-039-0-23
1161+00	1166+75	6	-	Shallow Rock	B-040-0-23 & B-041-0-23
1213+50	1240+75	18	14	N ₆₀ & MC	B-054-0-23, B-055-0-23, B-056-0-23, B-058-0-23 & B-060-0-23
1252+50	End Work	12	14	N ₆₀	B-064-0-23 & B-065-0-23
Ramp 11 (IR-70 WB to National Road)					
Begin Work	End Work	12	14	N ₆₀ & MC	B-039-0-23 & B-078-0-23
Ramp 12 (IR-470 WB to Banfield Road)					
1087+00	1091+00	12	14	N ₆₀ & MC	B-085-0-23

6. QUALIFICATIONS

This investigation was performed in accordance with accepted geotechnical engineering practice for the purpose of characterizing the subsurface conditions along the referenced portions of roadways. This report has been prepared for GPD, ODOT and their design consultants to be used solely in evaluating the subgrade soils within the project limits and presenting geotechnical engineering recommendations specific to this project. The assessment of general site environmental conditions or the presence of pollutants in the soil, rock and groundwater of the site was beyond the scope of this geotechnical exploration. Our recommendations are based on the results of our field explorations, laboratory test results from representative soil samples, and geotechnical engineering analyses. The results of the field explorations and laboratory tests, which form the basis of our recommendations, are presented in the appendices as noted. This report does not reflect any variations that may occur between the borings or elsewhere on the site, or variations whose nature and extent may not become evident until a later stage of construction. In the event that any changes occur in the nature, design or location of the proposed reconstruction and rehabilitation work, the conclusions and recommendations contained in this report should not be considered valid until they are reviewed and have been modified or verified in writing by a geotechnical engineer.

It has been a pleasure to be of service to GPD Group in performing this geotechnical exploration for the BEL-70-19.17 project. Please call if there are any questions, or if we can be of further service.

Respectfully Submitted,

Brendan P. Andrews, P.E.
Project Geotechnical Engineer

Kevin C. Arens P.E.
Geotechnical Staff Engineer

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APPENDIX A

BORING LOCATION PLAN

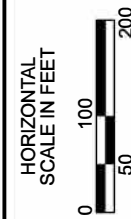


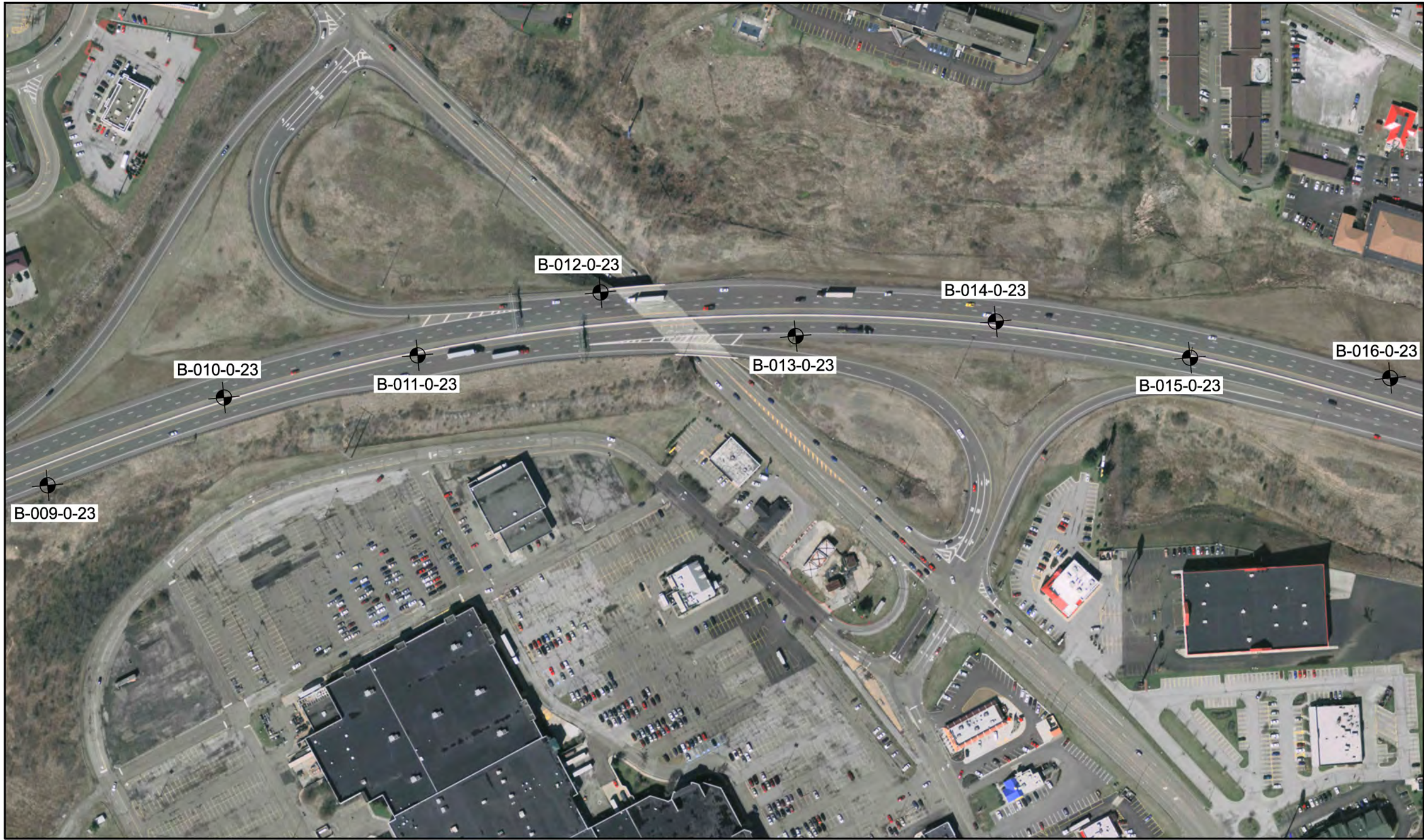
BORING / PAVEMENT CORE LOCATIONS



DESIGNER	KCA
REVIEWER	BPA
PROJECT ID	107533
SHEET	TOTAL
1	8

BORING LOCATION PLAN





BORING / PAVEMENT CORE LOCATIONS



BORING LOCATION PLAN

DESIGN AGENCY	
	
DESIGNER	
KCA	
REVIEWER	
BPA 11-09-23	
PROJECT ID	
107533	
SHEET	TOTAL
2	8

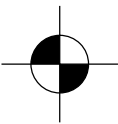
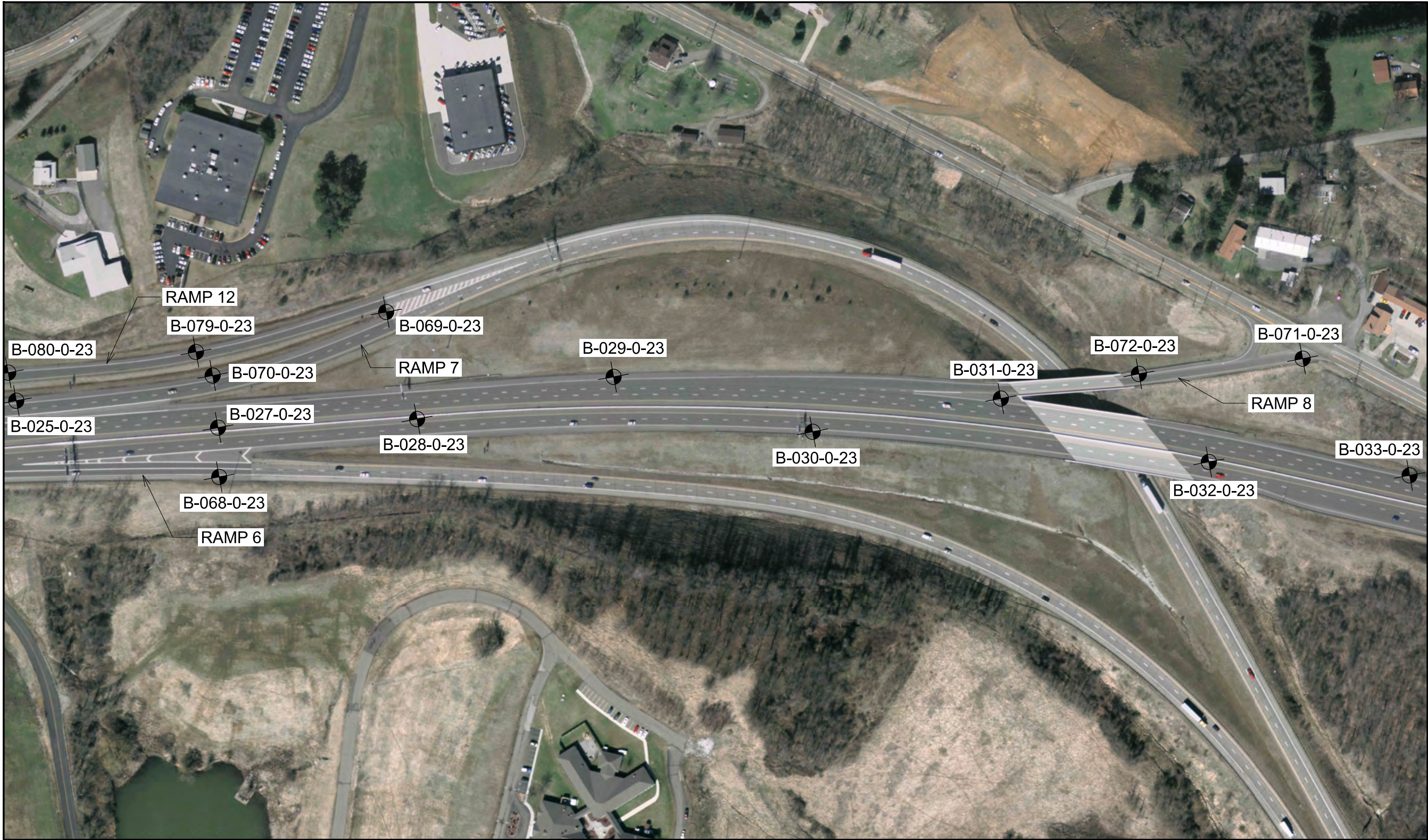


BORING / PAVEMENT CORE LOCATIONS

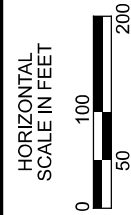


BORING LOCATION PLAN

DESIGN AGENCY	
DESIGNER	
KCA	
REVIEWER	
BPA	11-09-23
PROJECT ID	
107533	
SHEET	TOTAL
3	8



BORING / PAVEMENT CORE LOCATIONS



BORING LOCATION PLAN

DESIGN AGENCY	
	
DESIGNER	
KCA	
REVIEWER	
BPA 11-09-23	
PROJECT ID	
107533	
SHEET	TOTAL
4	8



BORING / PAVEMENT CORE LOCATIONS



BORING LOCATION PLAN

DESIGN AGENCY	
	
DESIGNER	
KCA	
REVIEWER	
BPA 11-09-23	
PROJECT ID	
107533	
SHEET	TOTAL
5	8



BORING / PAVEMENT CORE LOCATIONS



DESIGNER

KCA

REVIEWER

BPA 11-09-23

PROJECT ID

107533

SHEET

6

TOTAL

8

BORING LOCATION PLAN



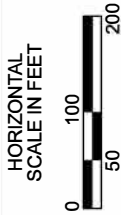


BORING / PAVEMENT CORE LOCATIONS



DESIGNER	KCA
REVIEWER	BPA
PROJECT ID	107533
SHEET	7
TOTAL	8

BORING LOCATION PLAN



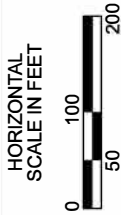


BORING / PAVEMENT CORE LOCATIONS



DESIGNER	KCA
REVIEWER	BPA
PROJECT ID	107533
SHEET	8
TOTAL	8

BORING LOCATION PLAN



APPENDIX B

BORING LOGS AND LABORATORY TEST RESULTS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:41 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19.17\GINT FILES\BEL-70-19.17 5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 1021+10, 50' LT.		EXPLORATION ID B-002-0-23													
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: IR-70															
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 1119.8 (MSL) EOB: 7.5 ft.		PAGE 1 OF 1													
START: 4/23/24 END: 4/23/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.070370, -80.880911															
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL	
		1119.8							GR	CS	FS	SI	CL	LL	PL	PI	WC				
12.0" ASPHALT (DRILLERS DESCRIPTION)		1118.8																			
HARD, BROWN MOTTLED WITH GRAY AND ORANGISH BROWN, SILT AND CLAY, LITTLE TO SOME GRAVEL, LITTLE SAND, IRON STAINING, DAMP			1																		
			2	4	16	56	SS-1	4.50	21	7	11	36	25	34	19	15	13	A-6a (7)	567		
			3	5	7																
			4	6	16	28	SS-2	4.25	19	8	8	35	30	34	19	15	14	A-6a (8)	-		
			5	5	6																
		1113.8																			
MEDIUM DENSE, DARK GRAY, STONE FRAGMENTS WITH SAND AND SILT, DAMP			6	6	11	22	22	SS-3	4.25	-	-	-	-	-	-	-	14	A-6a (V)	-		
			7	6	18	11	SS-4	-	-	-	-	-	-	-	-	-	9	A-2-4 (V)	-		
		1112.3	EOB																		
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE DID NOT CAVE.																					
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																					

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:41 - X:\1\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19.17 5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 1025+02, 40' RT.		EXPLORATION ID B-003-0-23												
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: IR-70														
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 1123.1 (MSL) EOB: 6.2 ft.		PAGE 1 OF 1												
START: 4/18/24 END: 4/18/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.070404, -80.879476														
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL
		1123.1							GR	CS	FS	SI	CL	LL	PL	PI	WC			
13.0" ASPHALT (DRILLERS DESCRIPTION)		1122.0																		
HARD, GRAY, SILT AND CLAY, LITTLE SAND, TRACE TO LITTLE STONE FRAGMENTS, RESIDUAL ROCK, SS-2 THROUGH SS-4 CONTAIN NO INTACT SOIL FOR HP READINGS, DAMP			1																	
			2	50/5"	-	100	SS-1	4.50	4	7	7	43	39	36	21	15	11	A-6a (10)	440	
			3	50/5"	-	100	SS-2	-	-	-	-	-	-	-	-	-	6	A-6a (V)	-	
			4																	
			5	50/4"	-	100	SS-3	-	-	-	-	-	-	-	-	-	7	A-6a (V)	-	
			6	50/2"	-	100	SS-4	-	-	-	-	-	-	-	-	-	7	A-6a (V)	-	
		1116.9	EOB																	
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 3.0'.																				
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																				

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:41 - X:\1\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19.17\5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 1028+77, 52' LT.		EXPLORATION ID B-004-0-23												
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: IR-70														
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 1126.7 (MSL) EOB: 7.5 ft.		PAGE 1 OF 1												
START: 4/15/24 END: 4/15/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.070909, -80.878262														
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL
		1126.7							GR	CS	FS	SI	CL	LL	PL	PI	WC			
13.0" ASPHALT (DRILLERS DESCRIPTION)		1125.6	1																	
MEDIUM DENSE, GRAY, STONE FRAGMENTS WITH SAND AND SILT, TRACE CLAY, DAMP		1123.7	2	10	20	44	SS-1	-	40	19	13	20	8	NP	NP	NP	10	A-2-4 (0)	987	
			3	6	29	62	SS-2	4.50	15	10	10	50	15	28	19	9	7	A-4b (6)	-	
HARD, BROWN AND GRAY, SILT, LITTLE SAND, LITTLE CLAY, LITTLE STONE FRAGMENTS, RESIDUAL ROCK, DAMP			4	18	18	33	SS-3	4.50	-	-	-	-	-	-	-	-	14	A-4b (V)	-	
			5	6	6	8														
			6	6	6	8														
		1119.2	7	6	18	28	SS-4	4.50	-	-	-	-	-	-	-	-	9	A-4b (V)	-	
			EOB	8																
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 2.0'.																				
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																				

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:41 - X:\1\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19.17\GINT FILES\BEL-70-19.17 5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 1032+66, 42' RT.		EXPLORATION ID B-005-0-23												
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: IR-70														
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 1129.7 (MSL) EOB: 7.9 ft.		PAGE 1 OF 1												
START: 4/10/24 END: 4/10/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.070927, -80.876831														
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL
		1129.7							GR	CS	FS	SI	CL	LL	PL	PI	WC			
10.0" ASPHALT AND 10.0" CONCRETE (DRILLERS DESCRIPTION)		1128.0	1																	
DENSE, BROWN AND GRAY, STONE FRAGMENTS WITH SAND AND SILT , LITTLE CLAY, RESIDUAL ROCK, DAMP		1126.2	2	8	42	44	SS-1	-	39	22	13	15	11	NP	NP	NP	6	A-2-4 (0)	827	
DENSE TO VERY DENSE, BROWN AND GRAY, SANDY SILT , SOME STONE FRAGMENTS, LITTLE CLAY, RESIDUAL ROCK, DAMP			3	15 17																
			4	3 8 29	49	22	SS-2	-	24	15	13	32	16	NP	NP	NP	6	A-4a (3)	-	
			5	3																
			6	8 20	37	22	SS-3	-	-	-	-	-	-	-	-	-	5	A-4a (V)	-	
		1121.8	7	8 29 50/5"	-	29	SS-4	-	-	-	-	-	-	-	-	-	8	A-4a (V)	-	
EOB																				
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 2.0'.																				
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																				

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:41 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19.17\GINT FILES\BEL-70-19.17 5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 1036+73, 63' LT.		EXPLORATION ID B-006-0-23												
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: IR-70														
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 1133.4 (MSL) EOB: 7.5 ft.		PAGE 1 OF 1												
START: 4/23/24 END: 4/23/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.071488, -80.875518														
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL
		1133.4							GR	CS	FS	SI	CL	LL	PL	PI	WC			
5.0" ASPHALT (DRILLERS DESCRIPTION)		1133.0	1																	
VERY DENSE, GRAY, SANDY SILT, "AND" STONE FRAGMENTS, TRACE CLAY, RESIDUAL ROCK, DAMP			2	10																
				17	54	67	SS-1	-	48	8	8	26	10	NP	NP	NP	4	A-4a (0)	367	
		1130.4	3	24																
				4																
MEDIUM DENSE TO DENSE, GRAY, STONE FRAGMENTS WITH SAND AND SILT, TRACE CLAY, RESIDUAL ROCK, DAMP			4	15	46	28	SS-2	-	45	11	10	26	8	NP	NP	NP	4	A-2-4 (0)	-	
				20																
			5	3	20	22	SS-3	-	-	-	-	-	-	-	-	-	11	A-2-4 (V)	-	
				12																
		1125.9	6	11																
				9	20	17	SS-4	-	-	-	-	-	-	-	-	-	4	A-2-4 (V)	-	
			7	6																
			EOB																	
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 3.0'.																				
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																				

PROJECT: BEL-70-19.17	DRILLING FIRM / OPERATOR: NEAS / RW	DRILL RIG: CME 45B	STATION / OFFSET: 1040+37, 39' RT.	EXPLORATION ID B-007-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: NEAS / NS	HAMMER: CME AUTOMATIC	ALIGNMENT: IR-70	
PID: 107533 SFN:	DRILLING METHOD: 3.25" HSA	CALIBRATION DATE: 3/8/24	ELEVATION: 1136.5 (MSL) EOB: 6.3 ft.	PAGE
START: 4/17/24 END: 4/17/24	SAMPLING METHOD: SPT	ENERGY RATIO (%): 79	LAT / LONG: 40.071471, -80.874169	1 OF 1

MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS		SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO ₄ ppm	BACK FILL
		1136.5								GR	CS	FS	SI	CL	LL	PL	PI	WC			
12.0" ASPHALT AND 8.0" CONCRETE (DRILLERS DESCRIPTION)		1134.8		1																	
HARD, BROWN, SANDY SILT , SOME STONE FRAGMENTS, LITTLE CLAY, RESIDUAL ROCK, NO INTACT SOIL FOR HP READINGS, DAMP				2	6 50/4"	-	30	SS-1	-	29	20	11	27	13	26	18	8	7	A-4a (1)	80	
		1132.5		3	50/3"	-	33	SS-2	-	-	-	-	-	-	-	-	-	2	A-4a (V)	-	
HARD, BROWN, SILT AND CLAY , SOME SAND, TRACE TO LITTLE STONE FRAGMENTS, RESIDUAL ROCK, DAMP				4																	
		1130.2		5	27 36	97	44	SS-3	4.50	9	10	11	50	20	30	19	11	7	A-6a (7)	-	
			FOR	6	50/4"	-	75	SS-4	4.50	-	-	-	-	-	-	-	-	7	A-6a (V)	-	

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 3.0'.

ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:41 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19.17\5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 1044+36, 78' LT.		EXPLORATION ID B-008-0-23												
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: IR-70														
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 1141.2 (MSL) EOB: 7.5 ft.		PAGE 1 OF 1												
START: 4/15/24 END: 4/15/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.072059, -80.872894														
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL
		1141.2							GR	CS	FS	SI	CL	LL	PL	PI	WC			
11.0" ASPHALT (DRILLERS DESCRIPTION)		1140.3																		
VERY STIFF, DARK BROWN AND ORANGISH BROWN, SILTY CLAY, SOME GRAVEL, LITTLE SAND, DAMP			1																	
			2	2																
				4	12	50	SS-1	3.75	22	10	9	29	30	37	20	17	15	A-6b (8)	447	
		1138.2	3	3																
HARD, BROWN, SILT AND CLAY, LITTLE SAND, LITTLE GRAVEL, DAMP			4	6	18	56	SS-2	4.50	11	10	10	43	26	32	19	13	12	A-6a (8)	-	
				8																
			5	5	14	44	SS-3	4.50	-	-	-	-	-	-	-	-	11	A-6a (V)	-	
			6	5																
				6																
		1133.7	7	10	17	22	SS-4	4.50	-	-	-	-	-	-	-	-	9	A-6a (V)	-	
				3																
			EOB																	
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 2.0'.																				
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																				

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:41 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19.17 5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 1048+27, 41' RT.		EXPLORATION ID B-009-0-23													
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: IR-70															
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 1159.6 (MSL) EOB: 6.2 ft.		PAGE 1 OF 1													
START: 4/23/24 END: 4/23/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.072012, -80.871435															
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL	
		1159.6							GR	CS	FS	SI	CL	LL	PL	PI	WC				
9.0" ASPHALT (DRILLERS DESCRIPTION)		1158.8																			
HARD, DARK GRAY, SANDY SILT, LITTLE TO SOME CLAY, TRACE TO LITTLE STONE FRAGMENTS, RESIDUAL ROCK, DAMP			1																		
			2	3	5	16	33	SS-1	4.50	18	21	18	26	17	29	19	10	13	A-4a (2)	200	
		1156.3	3	50/4"	7	-	100	SS-2	4.50	6	21	19	31	23	29	19	10	10	A-4a (4)	-	
SILTSTONE, GRAY, SLIGHTLY WEATHERED, SLIGHTLY STRONG.			4																		
			5	50/3"			33	SS-3	-	-	-	-	-	-	-	-	-	2	Rock (V)	-	
SS-4 CONTAINS NO RECOVERY		1153.4	6	50/2"			0	SS-4	-	-	-	-	-	-	-	-	-	-	-	-	
			EOB																		
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 3.0'.																					
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																					

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:41 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19.17 5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 1052+20, 49' LT.		EXPLORATION ID B-010-0-23												
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: IR-70														
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 1181.0 (MSL) EOB: 7.5 ft.		PAGE 1 OF 1												
START: 4/23/24 END: 4/23/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.072502, -80.870139														
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL
		1181.0							GR	CS	FS	SI	CL	LL	PL	PI	WC			
10.0" ASPHALT (DRILLERS DESCRIPTION)		1180.2																		
MEDIUM DENSE, DARK GRAY, GRAVEL WITH SAND AND SILT, TRACE CLAY, DAMP			1																	
			2	4	5	14	17	SS-1	-	-	-	-	-	-	-	-	7	A-2-4 (V)	-	
		1178.0	3	7	6															
HARD, BROWN, CLAY, "AND" SILT, LITTLE SAND, TRACE GRAVEL, DAMP			4	10	10	26	6	SS-2	4.25	-	-	-	-	-	-	-	16	A-7-6 (V)	-	
			5	3	8	18	22	SS-3	4.50	9	7	6	36	42	41	21	20	16	A-7-6 (12)	240
		1175.0	6	6	6															
HARD, BROWN, SILTY CLAY, LITTLE SAND, LITTLE GRAVEL, DAMP			7	3	9	22	SS-4	4.50	12	9	6	39	34	38	21	17	18	A-6b (10)	-	
		1173.5		4																
			EOB																	
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 3.0'.																				
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																				

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PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 1055+97, 52' RT.		EXPLORATION ID B-011-0-23												
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: IR-70														
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 1193.2 (MSL) EOB: 6.9 ft.		PAGE 1 OF 1												
START: 4/23/24 END: 4/23/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.072370, -80.868756														
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL
		1193.2							GR	CS	FS	SI	CL	LL	PL	PI	WC			
12.0" ASPHALT (DRILLERS DESCRIPTION)		1192.2																		
HARD, GRAY, SILT AND CLAY, LITTLE SAND, TRACE GRAVEL, DAMP		1190.7	TR	1																
				2	8	-	45	SS-1	4.50	10	7	7	38	38	36	21	15	12	A-6a (10)	273
				3	50/5"															
SHALE, GRAY, HIGHLY WEATHERED, WEAK TO SLIGHTLY STRONG, FISSILE.				4	50/5"	-	20	SS-2	-	-	-	-	-	-	-	-	8	Rock (V)	-	
				5																
				6	17															
					48	112	22	SS-3	-	-	-	-	-	-	-	-	7	Rock (V)	-	
					37															
		1186.3	EOB		15	-	36	SS-4	-	-	-	-	-	-	-	-	7	Rock (V)	-	
					50/5"															
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 4.0'.																				
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																				

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:41 - X:\1\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19.17\GINT FILES\BEL-70-19.17 5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 1059+72, 62' LT.		EXPLORATION ID B-012-0-23													
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: IR-70															
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 1202.3 (MSL) EOB: 6.2 ft.		PAGE 1 OF 1													
START: 4/25/24 END: 4/25/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.072723, -80.867433															
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL	
		1202.3							GR	CS	FS	SI	CL	LL	PL	PI	WC				
12.0" ASPHALT (DRILLERS DESCRIPTION)		1201.3																			
MEDIUM DENSE, BROWN AND GRAY, STONE FRAGMENTS WITH SAND AND SILT , TRACE CLAY, SS-1 CONTAINS ASPHALT FRAGMENTS, DAMP		1199.3	1	9	8	22	17	SS-1	-	41	15	16	18	10	NP	NP	NP	6	A-2-4 (0)	547	
HARD, GRAY, SILT AND CLAY , SOME STONE FRAGMENTS, LITTLE SAND, RESIDUAL ROCK, CONTAINS NO INTACT SOIL FOR HP READINGS, DAMP		1198.3	2	3																	
		1198.3	3	20																	
		1198.3	4	50/3"	-	47	SS-2	-	28	7	6	31	28	33	19	14	10	A-6a (6)	-		
		1198.3	5	50/3"	-	67	SS-3	-	-	-	-	-	-	-	-	-	16	Rock (V)	-		
SILTSTONE , GRAY, SLIGHTLY WEATHERED, SLIGHTLY STRONG.		1196.1	6	50/2"	-	50	SS-4	-	-	-	-	-	-	-	-	-	4	Rock (V)	-		
			EOB																		
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 2.5'.																					
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																					

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:41 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19.17\GINT FILES\BEL-70-19.17 5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 1063+51, 43' RT.		EXPLORATION ID B-013-0-23												
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: IR-70														
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 1196.5 (MSL) EOB: 7.5 ft.		PAGE 1 OF 1												
START: 4/10/24 END: 4/10/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.072376, -80.866100														
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL
		1196.5							GR	CS	FS	SI	CL	LL	PL	PI	WC			
11.5" ASPHALT (DRILLERS DESCRIPTION)		1195.5																		
STIFF, BROWN AND GRAY, SILT AND CLAY, SOME SAND, SOME STONE FRAGMENTS, DAMP			1																	
			2	4	11	33	SS-1	1.50	28	15	18	24	15	28	17	11	16	A-6a (1)	673	
		1193.5	3	1																
MEDIUM DENSE, BROWN AND GRAY, STONE FRAGMENTS WITH SAND, SILT, AND CLAY, 2" STONE FRAGMENT LODGED IN SPOON, DAMP		1192.0	4	4	12	11	SS-2	-	-	-	-	-	-	-	-	-	13	A-2-6 (V)	-	
			5	1																
VERY STIFF, BROWN AND GRAY, SILTY CLAY, LITTLE SAND, TRACE STONE FRAGMENTS, DAMP			6	3	8	17	SS-3	2.75	7	8	8	37	40	38	21	17	16	A-6b (11)	-	
			7	1																
		1189.0		3	11	17	SS-4	2.75	-	-	-	-	-	-	-	-	13	A-6b (V)	-	
				5																
			EOB																	
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 1.5'.																				
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																				

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PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 1071+43, 38' RT.		EXPLORATION ID B-015-0-23												
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: IR-70														
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 1189.3 (MSL) EOB: 7.5 ft.		PAGE 1 OF 1												
START: 4/24/24 END: 4/24/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.071936, -80.863365														
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL
		1189.3							GR	CS	FS	SI	CL	LL	PL	PI	WC			
6.0" ASPHALT (DRILLERS DESCRIPTION)		1188.8																		
MEDIUM DENSE, BROWN AND ORANGISH BROWN, GRAVEL WITH SAND, SILT, AND CLAY, DAMP			1																	
			2	10																
				4	12	33	SS-1	-	40	18	11	16	15	40	23	17	13	A-2-6 (1)	373	
		1186.3	3	4	5															
VERY STIFF TO HARD, GRAY AND BROWN, SILTY CLAY, SOME SAND, LITTLE GRAVEL, DAMP			4	4	13	44	SS-2	4.50	15	11	12	31	31	39	21	18	16	A-6b (9)	-	
				6																
			5	3	12	22	SS-3	4.50	-	-	-	-	-	-	-	-	18	A-6b (V)	-	
			6	4	5															
		1181.8	7	4	11	33	SS-4	3.50	-	-	-	-	-	-	-	-	18	A-6b (V)	-	
			EOB	4																
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 3.0'.																				
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																				

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:41 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19.17 5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 1075+22, 52' LT.		EXPLORATION ID B-016-0-23														
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: IR-70																
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 1201.9 (MSL) EOB: 7.5 ft.		PAGE 1 OF 1														
START: 4/15/24 END: 4/15/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.071804, -80.861983																
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL		
		1201.9							GR	CS	FS	SI	CL	LL	PL	PI	WC					
8.0" ASPHALT (DRILLERS DESCRIPTION)		1201.2																				
VERY STIFF, BROWN AND GRAY, SILTY CLAY, LITTLE TO "AND" GRAVEL, LITTLE TO SOME SAND, DAMP			1																			
			2	6	2	11	33	SS-1	2.75	39	10	10	22	19	39	20	19	17	A-6b (4)	140		
			3	3	4	7	14	44	SS-2	3.00	20	11	10	29	30	38	21	17	20	A-6b (8)	-	
			4																			
			5	3	4	5	12	28	SS-3	3.50	-	-	-	-	-	-	-	-	18	A-6b (V)	-	
		1195.9																				
HARD, BROWN, SILT AND CLAY, SOME SAND, TRACE GRAVEL, DAMP		1194.4																				
			6	4																		
			7	3	5	11	39	SS-4	4.50	-	-	-	-	-	-	-	13	A-6a (V)	-			
			EOB																			
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 2.0'.																						
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																						

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:41 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19-17-5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 1079+13, 53' RT.		EXPLORATION ID B-017-0-23												
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: IR-70														
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 1213.9 (MSL) EOB: 5.0 ft.		PAGE 1 OF 1												
START: 4/27/24 END: 4/27/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.071135, -80.860826														
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL
		1213.9							GR	CS	FS	SI	CL	LL	PL	PI	WC			
8.0" ASPHALT AND 8.0" CONCRETE (DRILLERS DESCRIPTION)		1212.6																		
VERY STIFF, BROWN AND ORANGISH BROWN, SILTY CLAY, SOME GRAVEL, SOME SAND, IRON STAINING, DAMP		1212.0	TR	1																
				2	50/5"	-	80	SS-1	2.50	29	12	10	26	23	36	20	16	16	A-6b (5)	207
				3	50/1"	-	100	SS-2	-	-	-	-	-	-	-	-	1	Rock (V)	-	
SILTSTONE, GRAY, SLIGHTLY WEATHERED, WEAK TO SLIGHTLY STRONG.				4																
		1208.9	EOB	5																
AUGER REFUSAL AT 5.0'																				
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 2.0'. BORING OFFSET 50 YARDS EAST.																				
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																				

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:41 - X:\1\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19.17\5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 1082+83, 58' LT.		EXPLORATION ID B-018-0-23														
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: IR-70																
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 1218.9 (MSL) EOB: 6.7 ft.		PAGE 1 OF 1														
START: 4/18/24 END: 4/18/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.071039, -80.859452																
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL		
		1218.9							GR	CS	FS	SI	CL	LL	PL	PI	WC					
12.0" ASPHALT (DRILLERS DESCRIPTION)		1217.9	1																			
HARD, GRAY AND BROWN, SILT AND CLAY, SOME GRAVEL AND STONE FRAGMENTS, LITTLE SAND, DAMP			2	4	8	13	28	67	SS-1	4.50	30	10	9	29	22	34	20	14	11	A-6a (5)	200	
VERY DENSE, GRAY, GRAVEL AND STONE FRAGMENTS WITH SAND AND SILT, LITTLE CLAY, DAMP TO MOIST		1215.9	3	13																		
			4	37	21		76	44	SS-2	-	47	13	8	18	14	NP	NP	NP	6	A-2-4 (0)	-	
		1213.9	5	13					SS-3	-	-	-	-	-	-	-	-	-	13	A-2-4 (V)	-	
SHALE, GRAY, HIGHLY WEATHERED, WEAK, FISSILE.		1212.2	6	50/3"																		
			EOB	6					SS-4	-	-	-	-	-	-	-	-	-	8	Rock (V)	-	
				50/2"																		
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 3.0'.																						
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																						

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:41 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19-17-5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 1086+98, 85' RT.		EXPLORATION ID B-019-0-23												
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: IR-70														
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 1215.8 (MSL) EOB: 4.7 ft.		PAGE 1 OF 1												
START: 4/9/24 END: 4/9/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.070263, -80.858279														
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL
		1215.8							GR	CS	FS	SI	CL	LL	PL	PI	WC			
9.0" ASPHALT (DRILLERS DESCRIPTION)		1215.0																		
HARD, BROWN, SILT AND CLAY, SOME SAND, LITTLE GRAVEL, DAMP		1213.3	1	5																
			2	7	-	41	SS-1	4.50	12	10	13	34	31	34	19	15	15	A-6a (8)	40	
SILTSTONE, (DRILLERS DESCRIPTION). SS-2 CONTAINS NO RECOVERY			3	50/5"	-	0	SS-2	-	-	-	-	-	-	-	-	-	-			
			4	50/5"																
SS-3 CONTAINS NO RECOVERY		1211.1	EOB	50/2"	-	0	SS-3	-	-	-	-	-	-	-	-	-	-			
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 1.5'. ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																				

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:41 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19.17\5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 1090+91, 64' LT.		EXPLORATION ID B-020-0-23												
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: IR-70														
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 1204.9 (MSL) EOB: 7.5 ft.		PAGE 1 OF 1												
START: 4/15/24 END: 4/15/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.070317, -80.856777														
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL
		1204.9							GR	CS	FS	SI	CL	LL	PL	PI	WC			
8.0" ASPHALT (DRILLERS DESCRIPTION)		1204.2																		
VERY STIFF, BROWN AND GRAY, SILTY CLAY, LITTLE GRAVEL, LITTLE SAND, DAMP			1	3	13	33	SS-1	3.00	20	8	6	33	33	40	21	19	16	A-6b (10)	160	
		1201.9	2	7																
HARD, GRAY AND BROWN, SILT AND CLAY, LITTLE GRAVEL, LITTLE SAND, DAMP			3	1	47	56	SS-2	4.25	19	8	8	40	25	31	18	13	11	A-6a (7)	-	
			4	6																
			5	28	47	22	SS-3	4.50	-	-	-	-	-	-	-	-	18	A-6a (V)	-	
			6	19																
		1197.4	7	9	29	39	SS-4	4.50	-	-	-	-	-	-	-	-	12	A-6a (V)	-	
			EOB	10																
				12																
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 2.0'.																				
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																				

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:41 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19.17 - 5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 1094+84, 65' RT.		EXPLORATION ID B-021-0-23												
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: IR-70														
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 1207.9 (MSL) EOB: 3.3 ft.		PAGE 1 OF 1												
START: 4/10/24 END: 4/10/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.069711, -80.855529														
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL
		1207.9							GR	CS	FS	SI	CL	LL	PL	PI	WC			
6.0" ASPHALT (DRILLERS DESCRIPTION)		1207.4																		
HARD, BROWN AND GRAY, SILT AND CLAY, SOME SAND, SOME STONE FRAGMENTS, DAMP			1																	
			2	50/5"	-	55	SS-1	4.50	21	16	13	24	26	35	20	15	13	A-6a (5)	320	
SS-2 NO RECOVERY		1204.6	3	50/4"	-	0	SS-2	-	-	-	-	-	-	-	-	-	-		-	
			EOB																	
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 1.5'.																				
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																				

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:41 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19.17-5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 1098+60, 67' LT.		EXPLORATION ID B-022-0-23												
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: IR-70														
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 1220.1 (MSL) EOB: 6.2 ft.		PAGE 1 OF 1												
START: 4/20/24 END: 4/20/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.069883, -80.854123														
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL
		1220.1							GR	CS	FS	SI	CL	LL	PL	PI	WC			
7.0" ASPHALT (DRILLERS DESCRIPTION)		1219.5																		
VERY STIFF, BROWN AND GRAY, SILTY CLAY, "AND" GRAVEL AND STONE FRAGMENTS, LITTLE SAND, DAMP			1	3																
			2	8 26	45	50	SS-1	4.00	41	8	6	21	24	37	21	16	12	A-6b (4)	93	
		1217.1	3	11																
VERY STIFF TO HARD, BROWN AND GRAY, SILT AND CLAY, SOME STONE FRAGMENTS, LITTLE SAND, DAMP			4	37 50/4"	-	44	SS-2	3.50	28	8	7	32	25	33	19	14	13	A-6a (6)	-	
		1215.1	5	21 50/4"	-	60	SS-3	4.50	-	-	-	-	-	-	-	-	10	A-6a (V)	-	
SHALE, GRAY AND BROWN, HIGHLY WEATHERED, VERY WEAK TO WEAK, FISSILE.		1213.9	6	50/2"	-	150	SS-4	-	-	-	-	-	-	-	-	-	10	Rock (V)	-	
			EOB																	
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 2.5'.																				
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																				

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:41 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19.17\5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 1102+64, 51' RT.		EXPLORATION ID B-023-0-23												
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: IR-70														
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 1237.0 (MSL) EOB: 6.1 ft.		PAGE 1 OF 1												
START: 4/23/24 END: 4/23/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.069421, -80.852749														
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL
		1237.0							GR	CS	FS	SI	CL	LL	PL	PI	WC			
5.0" ASPHALT (DRILLERS DESCRIPTION)		1236.6																		
MEDIUM DENSE, GRAY, SANDY SILT, SOME GRAVEL, LITTLE CLAY, DAMP			1	3																
			2	4 16	26	22	SS-1	-	23	16	16	33	12	NP	NP	NP	10	A-4a (2)	20	
		1234.0																		
VERY DENSE, GRAY, STONE FRAGMENTS WITH SAND AND SILT, LITTLE CLAY, RESIDUAL ROCK, DAMP		1233.1		13 50/5"	-	73	SS-2	-	43	13	9	22	13	NP	NP	NP	9	A-2-4 (0)	-	
			4																	
SHALE, GRAY, HIGHLY WEATHERED, VERY WEAK TO WEAK, FISSILE.				27 50/1"	-	43	SS-3	-	-	-	-	-	-	-	-	-	5	Rock (V)	-	
SS-4 NO RECOVERY		1230.9																		
			5																	
			6	50/1"	-	0	SS-4	-	-	-	-	-	-	-	-	-	-		-	
			EOB																	
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 3.0'.																				
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																				

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PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 1106+49, 83' LT.		EXPLORATION ID B-024-0-23												
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: IR-70														
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 1248.5 (MSL) EOB: 7.5 ft.		PAGE 1 OF 1												
START: 4/15/24 END: 4/15/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.069652, -80.851324														
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL
		1248.5							GR	CS	FS	SI	CL	LL	PL	PI	WC			
6.0" ASPHALT (DRILLERS DESCRIPTION)		1248.0																		
HARD, ORANGISH BROWN, CLAY, "AND" SILT, LITTLE GRAVEL, TRACE SAND, IRON STAINING, DAMP			1	3																
			2	5	14	33	SS-1	4.25	13	2	2	42	41	41	23	18	19	A-7-6 (11)	60	
		1245.5	3	3																
VERY STIFF, ORANGISH BROWN, SILT AND CLAY, SOME SAND, LITTLE GRAVEL, IRON STAINING, DAMP			4	7	18	56	SS-2	4.00	12	16	7	29	36	39	24	15	23	A-6a (8)	-	
		1244.0	5	3																
STIFF TO VERY STIFF, ORANGISH BROWN, CLAY, SOME SILT, SOME SAND, TRACE GRAVEL, IRON STAINING, MOIST			6	4	11	44	SS-3	1.50	-	-	-	-	-	-	-	-	33	A-7-6 (V)	-	
			7	3																
		1241.0	EOB	4	9	39	SS-4	2.00	-	-	-	-	-	-	-	-	27	A-7-6 (V)	-	
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 2.0'.																				
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																				

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PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 1110+38, 88' LT.		EXPLORATION ID B-025-0-23												
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: IR-70														
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 1255.0 (MSL) EOB: 7.5 ft.		PAGE 1 OF 1												
START: 4/16/24 END: 4/16/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.069533, -80.849942														
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL
		1255.0							GR	CS	FS	SI	CL	LL	PL	PI	WC			
12.0" ASPHALT (DRILLERS DESCRIPTION)		1254.0	1																	
MEDIUM DENSE, GRAY, GRAVEL WITH SAND, LITTLE SILT, LITTLE CLAY, CONTAINS ASPHALT AND CONCRETE FRAGMENTS, DAMP			2	4	5	17	28	SS-1	-	55	15	5	13	12	NP	NP	NP	9	A-1-b (0)	320
(FILL)		1252.0	3	3	5	18	28	SS-2	-	39	9	6	24	22	NP	NP	NP	11	A-4a (2)	-
LOOSE TO MEDIUM DENSE, GRAY, SANDY SILT, "AND" STONE FRAGMENTS, LITTLE TO SOME CLAY, DAMP			4	2	3	8	11	SS-3	-	-	-	-	-	-	-	-	-	8	A-4a (V)	-
			5	3	3															
			6	2	3	7	22	SS-4	-	-	-	-	-	-	-	-	-	13	A-4a (V)	-
		1247.5	7	3	2															
			EOB																	
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 1.5'.																				
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																				

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:41 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19.17\GINT FILES\BEL-70-19.17 5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 1114+24, 51' LT.		EXPLORATION ID B-027-0-23												
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: IR-70														
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 1257.8 (MSL) EOB: 7.5 ft.		PAGE 1 OF 1												
START: 4/16/24 END: 4/16/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.069299, -80.848590														
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL
		1257.8							GR	CS	FS	SI	CL	LL	PL	PI	WC			
11.0" ASPHALT (DRILLERS DESCRIPTION)		1256.9																		
HARD, BROWN, SILT AND CLAY, SOME GRAVEL, SOME SAND, DAMP			1	5	25	56	SS-1	4.50	35	13	13	23	16	30	18	12	10	A-6a (1)	147	
		1254.8	2	6 13																
MEDIUM DENSE TO DENSE, BROWN BECOMING GRAY, STONE FRAGMENTS WITH SAND AND SILT, TRACE CLAY, RESIDUAL ROCK, DAMP TO MOIST			3	6	38	44	SS-2	-	43	15	14	19	9	NP	NP	NP	7	A-2-4 (0)	-	
			4	12 17																
			5	12 7	18	44	SS-3	-	-	-	-	-	-	-	-	-	13	A-2-4 (V)	-	
			6	9 7																
		1250.3	7	6 7	17	39	SS-4	-	-	-	-	-	-	-	-	-	15	A-2-4 (V)	-	
			EOB																	
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 3.0'.																				
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																				

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:41 - X:\1\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19.17\GINT FILES\BEL-70-19.17 5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 1118+23, 38' RT.		EXPLORATION ID B-028-0-23												
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: IR-70														
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 1253.8 (MSL) EOB: 6.2 ft.		PAGE 1 OF 1												
START: 4/20/24 END: 4/20/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.068922, -80.847218														
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL
		1253.8							GR	CS	FS	SI	CL	LL	PL	PI	WC			
8.0" ASPHALT AND 10.0" CONCRETE (DRILLERS DESCRIPTION)		1252.3	1																	
MEDIUM DENSE, BROWN, GRAVEL WITH SAND, LITTLE SILT, TRACE CLAY, CONTAINS ASPHALT FRAGMENTS, DAMP		1250.8	2	6	11	30	72	SS-1	-	46	22	13	12	7	NP	NP	NP	9	A-1-b (0)	1427
HARD, BROWN AND GRAY, SILT AND CLAY, LITTLE SAND, LITTLE GRAVEL, RESIDUAL ROCK, DAMP		1249.3	3	3	10	29	17	SS-2	4.25	13	9	7	39	32	33	19	14	9	A-6a (9)	-
MEDIUM DENSE, BROWN AND GRAY, GRAVEL AND STONE FRAGMENTS WITH SAND AND SILT, TRACE CLAY, RESIDUAL ROCK, DAMP		1247.8	4	3	9	21	11	SS-3	-	-	-	-	-	-	-	-	-	7	A-2-4 (V)	-
SHALE, GRAY, HIGHLY WEATHERED, VERY WEAK, FISSILE.		1247.6	5	7																
			6	50/2"	-	50	SS-4	-	-	-	-	-	-	-	-	-	-	8	Rock (V)	-
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 2.5'. ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																				

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:41 - X:\1\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19\17\GINT FILES\BEL-70-19\17 5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 1122+14, 59' LT.		EXPLORATION ID B-029-0-23													
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: IR-70															
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 1246.1 (MSL) EOB: 7.5 ft.		PAGE 1 OF 1													
START: 4/13/24 END: 4/13/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.069022, -80.845808															
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL	
		1246.1							GR	CS	FS	SI	CL	LL	PL	PI	WC				
13.0" ASPHALT (DRILLERS DESCRIPTION)																					
VERY STIFF TO HARD, BROWN MOTTLED WITH GRAY, SILT AND CLAY, SOME TO "AND" GRAVEL, LITTLE TO SOME SAND, DAMP		1245.0	1																		
			2	12	65	44	SS-1	4.25	41	12	10	18	19	34	19	15	13	A-6a (2)	100		
			3	3																	
			4	10	28	39	SS-2	4.00	27	8	9	30	26	34	19	15	14	A-6a (6)	-		
			5	3	16	56	SS-3	4.25	-	-	-	-	-	-	-	-	19	A-6a (V)	-		
			6	5	7																
			7	3	12	44	SS-4	4.25	-	-	-	-	-	-	-	-	17	A-6a (V)	-		
		1238.6	EOB																		
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 2.0'. ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																					

MATERIAL DESCRIPTION AND NOTES		ELEV. 1214.2	DEPTHS		SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO ₄ ppm	BACK FILL
										GR	CS	FS	SI	CL	LL	PL	PI	WC			
13.0" ASPHALT (DRILLERS DESCRIPTION)		1213.1		1																	
VERY STIFF, GRAY AND BROWN, SILT AND CLAY , SOME SAND, LITTLE GRAVEL, DAMP		1211.2		2	3 6 11	22	44	SS-1	2.25	19	13	13	29	26	32	18	14	13	A-6a (6)	400	
MEDIUM DENSE, BROWN AND BLACK, GRAVEL AND STONE FRAGMENTS WITH SAND AND SILT , LITTLE CLAY, SLIGHTLY ORGANIC, DAMP		1209.7		3	3 6 17	30	56	SS-2	-	37	19	16	15	13	NP	NP	NP	10	A-2-4 (0)	-	
HARD, BROWN AND BLACK, SANDY SILT , LITTLE CLAY, LITTLE GRAVEL, DAMP		1208.2		4	13 13 15	37	22	SS-3	4.25	-	-	-	-	-	-	-	-	12	A-4a (V)	-	
DENSE, BROWN AND GRAY, STONE FRAGMENTS WITH SAND , LITTLE SILT, TRACE CLAY, DAMP		1206.7		5	9 11 16	36	33	SS-4	-	-	-	-	-	-	-	-	-	10	A-1-b (V)	-	

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 2.0'.

ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:41 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19.17\GINT FILES\BEL-70-19.17 5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 1133+99, 39' RT.		EXPLORATION ID B-032-0-23												
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: IR-70														
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 1191.0 (MSL) EOB: 7.5 ft.		PAGE 1 OF 1												
START: 4/22/24 END: 4/22/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.067839, -80.841850														
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL
		1191.0							GR	CS	FS	SI	CL	LL	PL	PI	WC			
8.0" ASPHALT (DRILLERS DESCRIPTION)		1190.4																		
SS-1 IS ENTIRELY ASPHALT FRAGMENTS (CAVINGS) MEDIUM DENSE TO DENSE, GRAY, SANDY SILT, "AND" GRAVEL, LITTLE CLAY, DAMP			1	5																
			2	6	17	6	SS-1	-	-	-	-	-	-	-	-	-	1		-	
			3	7																
			4	10	34	39	SS-2	-	46	7	4	25	18	NP	NP	NP	7	A-4a (2)	233	
		1186.5		16																
HARD, GRAY, SILT AND CLAY, LITTLE SAND, LITTLE GRAVEL, DAMP			5	6																
			6	7	24	28	SS-3	4.50	15	10	8	37	30	32	19	13	11	A-6a (8)	-	
			7	11																
			6	5																
			7	7	21	33	SS-4	4.50	-	-	-	-	-	-	-	-	12	A-6a (V)	-	
		1183.5		9																
			EOB																	
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 2.0'.																				
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																				

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:41 - X:\1\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19.17\GINT FILES\BEL-70-19.17 5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 1138+12, 51' LT.		EXPLORATION ID B-033-0-23												
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: IR-70														
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 1172.7 (MSL) EOB: 6.3 ft.		PAGE 1 OF 1												
START: 4/17/24 END: 4/17/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.067648, -80.840487														
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL
		1172.7							GR	CS	FS	SI	CL	LL	PL	PI	WC			
8.0" ASPHALT (DRILLERS DESCRIPTION)		1172.0																		
HARD, BROWN AND GRAY, SANDY SILT, SOME STONE FRAGMENTS, LITTLE CLAY, RESIDUAL ROCK, CONTAINS NO INTACT SOIL FOR HP READINGS, DAMP			1																	
			2	12 34 50/5"	-	65	SS-1	-	34	11	8	35	12	27	18	9	5	A-4a (2)	13	
		1169.8	3	12																
VERY DENSE, BROWN AND GRAY, STONE FRAGMENTS WITH SAND AND SILT, TRACE CLAY, RESIDUAL ROCK, DAMP			4	33 22	72	39	SS-2	-	48	13	8	23	8	NP	NP	NP	3	A-2-4 (0)	-	
			5	4																
		1166.7	6	13 27	53	22	SS-3	-	-	-	-	-	-	-	-	-	4	A-2-4 (V)	-	
SILTSTONE, GRAY, SLIGHTLY WEATHERED, SLIGHTLY STRONG.		1166.4	TR EOB	50/3"	-	67	SS-4	-	-	-	-	-	-	-	-	-	4	Rock (V)	-	
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 2.0'.																				
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																				

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:41 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19.17 5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 1142+00, 64' RT.		EXPLORATION ID B-034-0-23												
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: IR-70														
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 1155.0 (MSL) EOB: 7.5 ft.		PAGE 1 OF 1												
START: 4/10/24 END: 4/10/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.066959, -80.839352														
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL
		1155.0							GR	CS	FS	SI	CL	LL	PL	PI	WC			
8.0" ASPHALT (DRILLERS DESCRIPTION)		1154.3																		
HARD, BROWN, SILTY CLAY, LITTLE SAND, LITTLE GRAVEL, DAMP			1	3																
			2	7 11	24	39	SS-1	4.50	14	11	8	40	27	36	20	16	12	A-6b (9)	3167	
		1152.0	3	4																
HARD, GRAY, SILT AND CLAY, LITTLE SAND, LITTLE GRAVEL, RESIDUAL ROCK, DAMP			4	11 17	37	44	SS-2	4.50	15	10	8	42	25	35	20	15	10	A-6a (8)	-	
			5	12 16	54	11	SS-3	4.50	-	-	-	-	-	-	-	-	6	A-6a (V)	-	
			6	9 25																
		1147.5	7	17 28	59	6	SS-4	4.50	-	-	-	-	-	-	-	-	8	A-6a (V)	-	
			EOB																	
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 1.5'.																				
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																				

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:41 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19\17\GINT FILES\BEL-70-19\17 5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 1149+80, 41' RT.		EXPLORATION ID B-036-0-23														
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: IR-70																
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 1126.9 (MSL) EOB: 7.5 ft.		PAGE 1 OF 1														
START: 4/17/24 END: 4/17/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.066425, -80.836629																
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL		
		1126.9							GR	CS	FS	SI	CL	LL	PL	PI	WC					
9.0" ASPHALT (DRILLERS DESCRIPTION)		1126.1																				
VERY STIFF TO HARD, BROWN AND GRAY, SILT AND CLAY, SOME SAND, LITTLE TO SOME GRAVEL, DAMP			1																			
			2	8	6	17	44	SS-1	3.50	22	13	10	38	17	31	20	11	12	A-6a (4)	693		
			3	2	3	5	11	28	SS-2	4.00	-	-	-	-	-	-	-	11	A-6a (V)	-		
			4																			
			5	3	5	8	17	28	SS-3	3.00	11	8	13	36	32	34	19	15	15	A-6a (9)	-	
			6	3																		
			7	5	5	13	44	SS-4	4.50	-	-	-	-	-	-	-	-	11	A-6a (V)	-		
		1119.4	EOB																			
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 3.0'.																						
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																						

MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS		SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (Gl)	SO4 ppm	BACK FILL
		1114.8								GR	CS	FS	SI	CL	LL	PL	PI	WC			
10.0" ASPHALT (DRILLERS DESCRIPTION)		1114.0		1																	
VERY STIFF, BROWN, SILT AND CLAY, SOME SAND, LITTLE TO SOME GRAVEL, SS-1 CONTAINS SLAG, DAMP				2	3	6	12	67	SS-1	3.50	21	12	10	28	29	33	19	14	16	A-6a (6)	120
				3	2	3	7	39	SS-2	3.75	16	11	10	34	29	34	20	14	18	A-6a (7)	-
		1110.3		4	3																
				5	1	3	11	39	SS-3	3.50	-	-	-	-	-	-	-	-	22	A-6a (V)	-
VERY STIFF TO HARD, ORANGISH BROWN, SILT AND CLAY, TRACE SAND, TRACE GRAVEL, IRON STAINING, DAMP				6	2	5															
		1107.3		7	4	5	12	33	SS-4	4.25	-	-	-	-	-	-	-	22	A-6a (V)	-	

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 1.5'.

ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:41 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19.17\GINT FILES\BEL-70-19.17 5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 1157+01, 70' RT.		EXPLORATION ID B-038-0-23												
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: IR-70														
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 1102.4 (MSL) EOB: 7.5 ft.		PAGE 1 OF 1												
START: 4/10/24 END: 4/10/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.065960, -80.833911														
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL
		1102.4							GR	CS	FS	SI	CL	LL	PL	PI	WC			
5.0" ASPHALT (DRILLERS DESCRIPTION) LOOSE, BROWN, GRAVEL WITH SAND, LITTLE SILT, TRACE CLAY, DAMP		1102.0	1																	
			2	5																
			3	3	8	6	SS-1	-	17	42	25	12	4	NP	NP	NP	6	A-1-b (0)	333	
		1099.4	4	2																
			5	5	16	11	SS-2	-	-	-	-	-	-	-	-	-	8	A-2-4 (V)	-	
			6	2																
			7	5	20	11	SS-3	-	-	-	-	-	-	-	-	-	10	A-2-4 (V)	-	
				10																
		1094.9	7	2	14	6	SS-4	-	-	-	-	-	-	-	-	-	4	A-2-4 (V)	-	
			EOB	4																
				7																
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 1.5'.																				
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																				

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:41 - X:\1\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19\17\GINT FILES\BEL-70-19\17 5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 1160+89, 67' LT.		EXPLORATION ID B-039-0-23													
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: IR-70															
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 1090.5 (MSL) EOB: 7.5 ft.		PAGE 1 OF 1													
START: 4/16/24 END: 4/16/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.066139, -80.832460															
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL	
		1090.5							GR	CS	FS	SI	CL	LL	PL	PI	WC				
13.0" ASPHALT (DRILLERS DESCRIPTION)		1089.4																			
STIFF TO HARD, BROWN AND GRAY, SILTY CLAY, LITTLE SAND, TRACE TO LITTLE GRAVEL, DAMP TO MOIST			1																		
			2	2	8	44	SS-1	3.00	14	5	6	33	42	38	21	17	21	A-6b (11)	53		
			3	3																	
			4	2	7	56	SS-2	2.25	5	6	7	38	44	37	20	17	22	A-6b (11)	-		
			5	3	7	28	SS-3	2.00	-	-	-	-	-	-	-	-	22	A-6b (V)	-		
			6	2																	
			7	3	11	28	SS-4	4.25	-	-	-	-	-	-	-	-	20	A-6b (V)	-		
		1083.0	EOB																		
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 4.0'.																					
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																					

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:41 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19.17\GINT FILES\BEL-70-19.17 5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 1161+05, 64' RT.		EXPLORATION ID B-040-0-23												
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: IR-70														
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 1090.4 (MSL) EOB: 5.0 ft.		PAGE 1 OF 1												
START: 4/10/24 END: 4/10/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.065779, -80.832488														
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL
		1090.4							GR	CS	FS	SI	CL	LL	PL	PI	WC			
6.0" ASPHALT (DRILLERS DESCRIPTION)		1089.9																		
VERY STIFF, BROWN AND ORANGISH BROWN, SANDY SILT, SOME STONE FRAGMENTS, LITTLE CLAY, IRON STAINING, DAMP		1088.1	TR	1																
				2	7	78	SS-1	4.00	24	13	11	39	13	30	20	10	12	A-4a (3)	60	
SILTSTONE, GRAY, SLIGHTLY WEATHERED, WEAK TO SLIGHTLY STRONG.				3	50/3"															
				4	50/2"	-	100	SS-2	-	-	-	-	-	-	-	-	3	Rock (V)	-	
		1085.4	EOB	5																
AUGER REFUSAL AT 5.0'																				
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 1.5'.																				
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																				

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:41 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19.17 5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 1164+82, 58' RT.		EXPLORATION ID B-041-0-23												
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: IR-70														
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 1079.0 (MSL) EOB: 4.0 ft.		PAGE 1 OF 1												
START: 4/15/24 END: 4/15/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.065609, -80.831158														
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL
		1079.0							GR	CS	FS	SI	CL	LL	PL	PI	WC			
11.0" ASPHALT (DRILLERS DESCRIPTION)		1078.1	TR	1																
SILTSTONE, GRAY, SLIGHTLY WEATHERED, SLIGHTLY STRONG.				2	50/3"	-	33	SS-1	-	-	-	-	-	-	-	-	2	Rock (V)	-	< > < > < > < >
SS-2 NO RECOVERY				3	50/1"	-	0	SS-2	-	-	-	-	-	-	-	-	-		-	< > < > < > < >
AUGER REFUSAL AT 4.0'		1075.0	EOB	4																< > < > < > < >
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 1.0'.																				
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																				

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:41 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19.17 - 5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 1168+73, 52' LT.		EXPLORATION ID B-042-0-23												
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: IR-70														
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 1065.4 (MSL) EOB: 4.0 ft.		PAGE 1 OF 1												
START: 4/16/24 END: 4/16/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.065718, -80.829714														
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL
		1065.4							GR	CS	FS	SI	CL	LL	PL	PI	WC			
9.0" ASPHALT (DRILLERS DESCRIPTION)		1064.6																		
LOOSE, BROWN, GRAVEL AND STONE FRAGMENTS WITH SAND, LITTLE SILT, TRACE CLAY, DAMP			1																	
			2	2																
		1062.4		4	7	28	SS-1	-	57	12	7	14	10	NP	NP	NP	8	A-1-b (0)	220	
SILTSTONE, GRAY, SLIGHTLY WEATHERED, WEAK TO SLIGHTLY STRONG.			3	50/1"	-	100	SS-2	-	-	-	-	-	-	-	-	-	9	Rock (V)	-	
		1061.4	TR																	
AUGER REFUSAL AT 4.0'			EOB	4																
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 2.0'.																				
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																				

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:41 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19.17 5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 1172+62, 45' RT.		EXPLORATION ID B-043-0-23												
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: IR-70														
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 1046.4 (MSL) EOB: 6.2 ft.		PAGE 1 OF 1												
START: 4/27/24 END: 4/27/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.065264, -80.828406														
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL
		1046.4							GR	CS	FS	SI	CL	LL	PL	PI	WC			
10.0" ASPHALT (DRILLERS DESCRIPTION)		1045.6																		
HARD, GRAY, SILT AND CLAY, LITTLE STONE FRAGMENTS, LITTLE SAND, RESIDUAL ROCK, DAMP			1	5																
			2	12 37	65	44	SS-1	4.50	18	10	7	42	23	31	19	12	9	A-6a (7)	173	
		1043.4	TR	39 50/1"	-	43	SS-2	-	-	-	-	-	-	-	-	-	5	Rock (V)	-	
SHALE, GRAY, HIGHLY TO MODERATELY WEATHERED, WEAK, FISSILE.			4	50/4"	-	50	SS-3	-	-	-	-	-	-	-	-	-	9	Rock (V)	-	
		1040.2	EOB	50/2"	-	50	SS-4	-	-	-	-	-	-	-	-	-	5	Rock (V)	-	
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 2.5'.																				
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																				

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:41 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19.17\GINT FILES\BEL-70-19.17 5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 1176+45, 51' LT.		EXPLORATION ID B-044-0-23												
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: IR-70														
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 1027.8 (MSL) EOB: 7.5 ft.		PAGE 1 OF 1												
START: 4/20/24 END: 4/20/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.065335, -80.826998														
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL
		1027.8							GR	CS	FS	SI	CL	LL	PL	PI	WC			
13.0" ASPHALT (DRILLERS DESCRIPTION)		1026.7	1																	
LOOSE TO MEDIUM DENSE, BROWN, GRAVEL, LITTLE TO SOME SAND, TRACE SILT, TRACE CLAY, DAMP (FILL)			2	7	21	22	SS-1	-	70	16	8	5	1	NP	NP	NP	4	A-1-a (0)	400	
			3	14																
			4	9	16	33	SS-2	-	70	9	7	10	4	NP	NP	NP	5	A-1-a (0)	-	
			5	3																
		1021.8	6	3	8	22	SS-3	-	-	-	-	-	-	-	-	-	7	A-1-a (V)	-	
VERY STIFF, GRAY, CLAY, SOME SILT, LITTLE SAND, TRACE GRAVEL, DAMP		1020.3	7	3	8	39	SS-4	2.50	-	-	-	-	-	-	-	-	19	A-7-6 (V)	-	
			EOB	3																
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 3.0'.																				
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																				

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:41 - X:\1\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19.17 5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 1180+54, 35' RT.		EXPLORATION ID B-045-0-23												
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: IR-70														
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 1011.8 (MSL) EOB: 6.4 ft.		PAGE 1 OF 1												
START: 4/19/24 END: 4/19/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.064962, -80.825624														
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL
		1011.8							GR	CS	FS	SI	CL	LL	PL	PI	WC			
6.0" ASPHALT (DRILLERS DESCRIPTION)		1011.3																		
MEDIUM DENSE, BROWN AND DARK BROWN, GRAVEL WITH SAND, LITTLE SILT, TRACE CLAY, DAMP			1	7																
			2	10 13	30	78	SS-1	-	44	18	15	13	10	NP	NP	NP	10	A-1-b (0)	773	
HARD, BROWN AND GRAY, SILT AND CLAY, LITTLE SAND, TRACE GRAVEL, DAMP		1008.8	3	2																
			4	11 32	57	22	SS-2	4.50	6	7	10	40	37	34	19	15	13	A-6a (10)	-	
VERY DENSE, BROWN, GRAVEL WITH SAND, LITTLE SILT, TRACE CLAY, DAMP		1007.3		50/4"	-	50	SS-3	-	-	-	-	-	-	-	-	-	7	A-1-b (V)	-	
		1007.0	TR																	
SILTSTONE, BROWN, MODERATELY WEATHERED, WEAK TO SLIGHTLY STRONG.		1005.4	EOB	50/5"	-	40	SS-4	-	-	-	-	-	-	-	-	-	8	Rock (V)	-	
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE DID NOT CAVE.																				
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																				

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:41 - X:\1\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19-17\7\GINT FILES\BEL-70-19-17 5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 1184+37, 48' LT.		EXPLORATION ID B-046-0-23													
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: IR-70															
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 992.0 (MSL) EOB: 7.5 ft.		PAGE 1 OF 1													
START: 4/17/24 END: 4/17/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.065158, -80.824249															
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL	
		992.0							GR	CS	FS	SI	CL	LL	PL	PI	WC				
9.0" ASPHALT AND 9.0" CONCRETE (DRILLERS DESCRIPTION)		990.5	1																		
MEDIUM DENSE, BROWN AND GRAY, GRAVEL, LITTLE SAND, TRACE SILT, TRACE CLAY, DAMP (FILL)		987.5	2	2	4	13	11	SS-1	-	78	10	4	5	3	NP	NP	NP	4	A-1-a (0)	-	
			3	2	3	11	22	SS-2	-	72	11	7	6	4	NP	NP	NP	7	A-1-a (0)	133	
			4	2	3	11	22	SS-2	-	72	11	7	6	4	NP	NP	NP	7	A-1-a (0)	133	
MEDIUM DENSE, BROWN AND GRAY, GRAVEL WITH SAND, SILT, AND CLAY, MOIST TO DAMP		984.5	5	13	8	25	6	SS-3	-	-	-	-	-	-	-	-	-	13	A-2-6 (V)	-	
			6	10	11	22	28	SS-4	-	-	-	-	-	-	-	-	-	8	A-2-6 (V)	-	
			7	9	8	22	28	SS-4	-	-	-	-	-	-	-	-	-	8	A-2-6 (V)	-	
			EOB																		
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 3.0'.																					
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																					

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:41 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19.17\GINT FILES\BEL-70-19.17 5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 1188+28, 38' RT.		EXPLORATION ID B-047-0-23												
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: IR-70														
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 976.4 (MSL) EOB: 7.5 ft.		PAGE 1 OF 1												
START: 4/15/24 END: 4/15/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.064932, -80.822852														
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL
		976.4							GR	CS	FS	SI	CL	LL	PL	PI	WC			
10.0" ASPHALT (DRILLERS DESCRIPTION)		975.6																		
DENSE, BROWN AND GRAY, SANDY SILT, "AND" GRAVEL, LITTLE CLAY, NO INTACT SOIL FOR HP READINGS, DAMP		973.4	1																	
			2	6	13	34	39	SS-1	-	43	10	7	23	17	28	18	10	10	A-4a (1)	73
VERY STIFF TO HARD, GRAY, SILT AND CLAY, LITTLE TO SOME GRAVEL, LITTLE SAND, DAMP		968.9	3	6	13	29	28	SS-2	4.25	25	12	6	40	17	30	18	12	9	A-6a (5)	-
			4	6	13	9														
			5	5	7	17	28	SS-3	4.00	-	-	-	-	-	-	-	-	11	A-6a (V)	-
			6	7	6															
			7	5	16	33	SS-4	4.00	-	-	-	-	-	-	-	-	13	A-6a (V)	-	
			EOB																	
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 2.0'.																				
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																				

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:41 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19.17\GINT FILES\BEL-70-19.17 5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 1192+11, 47' LT.		EXPLORATION ID B-048-0-23													
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: IR-70															
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 961.3 (MSL) EOB: 7.5 ft.		PAGE 1 OF 1													
START: 4/17/24 END: 4/17/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.065121, -80.821470															
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL	
		961.3							GR	CS	FS	SI	CL	LL	PL	PI	WC				
16.0" ASPHALT (DRILLERS DESCRIPTION)		960.0		1																	
DENSE, GREENISH GRAY, GRAVEL WITH SAND AND SILT, TRACE CLAY, DAMP		958.3	TR	2	3	36	33	SS-1	-	41	18	10	21	10	28	18	10	9	A-2-4 (0)	73	
SILTSTONE, GRAY, SLIGHTLY WEATHERED, WEAK TO SLIGHTLY STRONG.				3	12	-	40	SS-2	-	-	-	-	-	-	-	-	5	Rock (V)	-		
				4	21																
				5	16	33	17	SS-3	-	-	-	-	-	-	-	-	3	Rock (V)	-		
				6	7																
		953.8	EOB	7	6	14	22	SS-4	-	-	-	-	-	-	-	-	3	Rock (V)	-		
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 2.5'.																					
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																					

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:41 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19\17\GINT FILES\BEL-70-19\17 5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 1196+10, 34' RT.		EXPLORATION ID B-049-0-23												
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: IR-70														
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 941.8 (MSL) EOB: 7.5 ft.		PAGE 1 OF 1												
START: 4/22/24 END: 4/22/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.064747, -80.820100														
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL
		941.8							GR	CS	FS	SI	CL	LL	PL	PI	WC			
11.0" ASPHALT (DRILLERS DESCRIPTION)		941.0																		
SS-1: 2.0" ASPHALT FRAGMENT LODGED IN SPOON TIP			1																	
HARD, YELLOWISH BROWN, SANDY SILT, "AND" CLAY, TRACE GRAVEL, DAMP			2	5	6	18	17	SS-1	-	-	-	-	-	-	-	-	14		-	
			3	7	8															
			4	16	20/3"	-	87	SS-2	4.50	0	3	4	39	54	27	18	9	16	A-4a (8)	73
			5	7																
			6	13	15	37	78	SS-3	4.50	1	1	2	37	59	28	18	10	18	A-4a (8)	-
		934.3	7	7	19	41	83	SS-4	4.50	-	-	-	-	-	-	-	18	A-4a (V)	-	
			EOB	12																
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 3.0'.																				
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																				

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:41 - X:\1\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19.17\GINT FILES\BEL-70-19.17 5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 1199+91, 47' LT.		EXPLORATION ID B-050-0-23													
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: IR-70															
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 925.9 (MSL) EOB: 6.2 ft.		PAGE 1 OF 1													
START: 4/22/24 END: 4/22/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.064715, -80.818707															
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL	
		925.9							GR	CS	FS	SI	CL	LL	PL	PI	WC				
14.0" ASPHALT (DRILLERS DESCRIPTION)		924.7	1																		
MEDIUM DENSE, DARK BROWN, GRAVEL WITH SAND AND SILT, LITTLE CLAY, DAMP			2	4	6	13	56	SS-1	-	43	18	10	15	14	28	19	9	4	A-2-4 (0)	53	
		922.9	3	1																	
VERY STIFF, BROWN AND GRAY, SANDY SILT, "AND" GRAVEL AND STONE FRAGMENTS, LITTLE CLAY, DAMP		921.4	4	4	8	16	39	SS-2	2.25	42	11	8	21	18	29	19	10	11	A-4a (1)	-	
MEDIUM DENSE TO VERY DENSE, GRAY, STONE FRAGMENTS WITH SAND, LITTLE SILT, TRACE CLAY, DAMP		919.7	5	2	10	29	22	SS-3	-	-	-	-	-	-	-	-	-	6	A-1-b (V)	-	
SS-4 NO RECOVERY			6	12	60/2"	-	0	SS-4	-	-	-	-	-	-	-	-	-	-	-	-	
ETR3																					
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 3.0'.																					
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																					

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:41 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19\17\GINT FILES\BEL-70-19\17 5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 1203+83, 39' RT.		EXPLORATION ID B-051-0-23													
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: IR-70															
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 908.2 (MSL) EOB: 7.5 ft.		PAGE 1 OF 1													
START: 4/15/24 END: 4/15/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.064207, -80.817436															
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL	
		908.2							GR	CS	FS	SI	CL	LL	PL	PI	WC				
12.0" ASPHALT (DRILLERS DESCRIPTION)		907.2																			
STIFF TO VERY STIFF, BROWN MOTTLED WITH GREENISH GRAY BECOMING BROWN, SILTY CLAY, LITTLE TO SOME GRAVEL, LITTLE SAND, DAMP			1																		
			2	1	3	13	72	SS-1	2.00	13	8	8	32	39	37	20	17	18	A-6b (10)	80	
			3	1	8	25	33	SS-2	2.25	30	8	6	26	30	37	19	18	16	A-6b (7)	-	
			4	11																	
			5	4	11	17	SS-3	3.50	-	-	-	-	-	-	-	-	-	16	A-6b (V)	-	
			6	4																	
			7	3	8	28	SS-4	3.50	-	-	-	-	-	-	-	-	-	13	A-6b (V)	-	
		900.7	EOB	2																	
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 2.0'.																					
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																					

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PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 1207+63, 45' LT.		EXPLORATION ID B-052-0-23															
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: IR-70																	
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 890.5 (MSL) EOB: 7.5 ft.		PAGE 1 OF 1															
START: 4/23/24 END: 4/23/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.064158, -80.816049																	
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL			
		890.5							GR	CS	FS	SI	CL	LL	PL	PI	WC						
14.0" ASPHALT (DRILLERS DESCRIPTION)		889.3		1																			
SS-1 IS ASPHALT CAVINGS VERY STIFF TO HARD, BROWN AND GRAY, CLAY , SOME SILT, LITTLE SAND, LITTLE GRAVEL, DAMP TO MOIST				2	3	4	13	6	SS-1	-	-	-	-	-	-	-	0		-				
				3	2	3	6	12	56	SS-2	2.50	17	10	9	31	33	41	21	20	18	A-7-6 (10)	1787	
				4	3	6																	
				5	3	6	18	28	SS-3	2.75	13	7	8	29	43	47	20	27	21	A-7-6 (15)	-		
				6	4	8																	
				7	7	9	21	33	SS-4	4.25	-	-	-	-	-	-	-	-	21	A-7-6 (V)	-		
			883.0	EOB																			
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 2.5'. ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																							

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:41 - X:\1\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19\17\GINT FILES\BEL-70-19\17 5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 1211+62, 35' RT.		EXPLORATION ID B-053-0-23														
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: IR-70																
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 875.1 (MSL) EOB: 7.5 ft.		PAGE 1 OF 1														
START: 4/23/24 END: 4/23/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.063729, -80.814711																
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL		
		875.1							GR	CS	FS	SI	CL	LL	PL	PI	WC					
12.0" ASPHALT (DRILLERS DESCRIPTION)		874.1																				
HARD, BROWN, SILTY CLAY, LITTLE TO SOME SAND, TRACE GRAVEL, DAMP TO MOIST SS-1 CONTAINS NO RECOVERY			1																			
			2	3	5	13	0	SS-1	-	-	-	-	-	-	-	-	-					
			3	3	5	16	83	SS-2	4.25	3	7	14	35	41	39	20	19	18	A-6b (12)	1220		
			4		7																	
			5	4	6	17	78	SS-3	4.25	0	4	22	36	38	37	20	17	19	A-6b (11)	-		
			6		7																	
			7	3	5	13	83	SS-4	4.25	-	-	-	-	-	-	-	-	21	A-6b (V)	-		
		867.6	EOB	5																		
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 3.0'. ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																						

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:41 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19.17\GINT FILES\BEL-70-19.17 5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 1215+42, 38' LT.		EXPLORATION ID B-054-0-23												
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: IR-70														
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 856.4 (MSL) EOB: 7.5 ft.		PAGE 1 OF 1												
START: 4/16/24 END: 4/16/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.063829, -80.813335														
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL
		856.4							GR	CS	FS	SI	CL	LL	PL	PI	WC			
10.0" ASPHALT (DRILLERS DESCRIPTION)		855.6																		
MEDIUM DENSE, BROWN AND BLACK, GRAVEL WITH SAND, SILT, AND CLAY, CONTAINS COAL FRAGMENTS, DAMP			1																	
			2	4	5	14	22	SS-1	-	-	-	-	-	-	-	-	14	A-2-6 (V)	-	
		853.4	3	3	6															
VERY STIFF, BROWN, SILTY CLAY, SOME GRAVEL, LITTLE SAND, DAMP			4	4	5	12	67	SS-2	3.00	24	6	5	31	34	37	20	17	A-6b (9)	53	
		851.9	5	4	8	16	33	SS-3	3.50	0	2	5	24	69	62	24	38	A-7-6 (20)	-	
VERY STIFF, BROWN MOTTLED WITH ORANGISH BROWN, CLAY, SOME SILT, TRACE SAND, TRACE GRAVEL, IRON STAINING, MOIST			6	4																
		848.9	7	3	7	13	28	SS-4	3.25	-	-	-	-	-	-	-	26	A-7-6 (V)	-	
			EOB																	
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 4.0'.																				
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																				

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:41 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19.17\GINT FILES\BEL-70-19.17 5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 1219+34, 38' RT.		EXPLORATION ID B-055-0-23												
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: IR-70														
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 840.6 (MSL) EOB: 7.5 ft.		PAGE 1 OF 1												
START: 4/17/24 END: 4/17/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.063617, -80.811940														
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL
		840.6							GR	CS	FS	SI	CL	LL	PL	PI	WC			
12.0" ASPHALT (DRILLERS DESCRIPTION)		839.6																		
VERY STIFF, GRAY AND BROWN, CLAY, SOME SILT, LITTLE GRAVEL, LITTLE SAND, DAMP			1	3																
			2	2	8	44	SS-1	2.50	19	6	6	33	36	42	23	19	17	A-7-6 (11)	353	
		837.6	3	2																
HARD, GRAY AND BLACK, CLAY, "AND" SILT, LITTLE SAND, TRACE GRAVEL, SLIGHTLY ORGANIC, DAMP			4	6	18	39	SS-2	4.25	6	6	12	36	40	41	23	18	15	A-7-6 (11)	-	
		836.1	5	10																
HARD, BLACK, SANDY SILT, SOME CLAY, TRACE GRAVEL, SLIGHTLY ORGANIC, HEAVILY IRON STAINED DESSICATION CRACKS, DAMP			6	9	21	28	SS-3	4.50	-	-	-	-	-	-	-	-	13	A-4a (V)	-	
			7	5																
		833.1	7	19	42	22	SS-4	4.50	-	-	-	-	-	-	-	-	14	A-4a (V)	-	
				13																
			EOB																	
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 3.0'.																				
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																				

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PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 1223+25, 33' LT.		EXPLORATION ID B-056-0-23												
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: IR-70														
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 823.1 (MSL) EOB: 7.5 ft.		PAGE 1 OF 1												
START: 4/18/24 END: 4/18/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.063843, -80.810550														
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL
		823.1							GR	CS	FS	SI	CL	LL	PL	PI	WC			
10.0" ASPHALT (DRILLERS DESCRIPTION)		822.3																		
STIFF TO VERY STIFF, BROWN AND ORANGISH BROWN, CLAY , SOME SILT, LITTLE GRAVEL, LITTLE SAND, IRON STAINING, DAMP TO MOIST			1																	
			2	2	1	5	56	SS-1	2.00	18	7	8	30	37	41	20	21	20	A-7-6 (11)	287
			3	3	3															
			4	12	34	17	SS-2	2.25	-	-	-	-	-	-	-	-	21	A-7-6 (V)	-	
		818.6		14																
VERY STIFF, GRAY, SILT AND CLAY , SOME STONE FRAGMENTS, SOME SAND, NO INTACT SOIL FOR HP READINGS, DAMP			5	3	6	20	SS-3	-	32	17	11	18	22	31	19	12	10	A-6a (2)	-	
			6	6	9															
		815.6	7	9	28	33	SS-4	-	-	-	-	-	-	-	-	-	8	A-6a (V)	-	
				12																
			EOB																	
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 2.5'.																				
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																				

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:41 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19.17 - 5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 1227+12, 36' RT.		EXPLORATION ID B-057-0-23												
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: IR-70		PAGE 1 OF 1												
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 809.3 (MSL) EOB: 6.1 ft.														
START: 4/23/24 END: 4/23/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.063684, -80.809160														
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL
		809.3							GR	CS	FS	SI	CL	LL	PL	PI	WC			
10.0" ASPHALT (DRILLERS DESCRIPTION)		808.5																		
MEDIUM DENSE, GRAY, GRAVEL WITH SAND AND SILT, TRACE CLAY, CONTAINS ASPHALT FRAGMENTS, DAMP			1																	
			2	4	17	22	SS-1	-	-	-	-	-	-	-	-	-	13	A-2-4 (V)	-	
		806.3	3	7																
VERY STIFF, BROWN AND GRAY, SILT AND CLAY, SOME SAND, SOME STONE FRAGMENTS, DAMP			4	12	-	56	SS-2	3.00	21	19	10	24	26	31	17	14	13	A-6a (4)	627	
SILTSTONE, GRAY, MODERATELY WEATHERED, SLIGHTLY STRONG.		805.0	5	50/3"	-	67	SS-3	-	-	-	-	-	-	-	-	-	5	Rock (V)	-	
			6																	
SS-4 CONTAINS NO RECOVERY		803.2	EOB	50/1"	-	0	SS-4	-	-	-	-	-	-	-	-	-	-		-	

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 3.0'.

ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:41 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19.17\5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 1231+03, 36' LT.		EXPLORATION ID B-058-0-23												
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: IR-70														
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 802.6 (MSL) EOB: 6.3 ft.		PAGE 1 OF 1												
START: 4/18/24 END: 4/18/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.063912, -80.807770														
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL
		802.6							GR	CS	FS	SI	CL	LL	PL	PI	WC			
5.0" ASPHALT (DRILLERS DESCRIPTION)		802.2																		
VERY STIFF, BROWN AND ORANGISH BROWN, SILTY CLAY, SOME SAND, LITTLE GRAVEL, IRON STAINING, DAMP			1																	
			2	2																
			3	3	7	50	SS-1	2.75	17	13	11	27	32	37	18	19	15	A-6b (8)	1480	
			4	8																
		798.1	5	16	51	56	SS-2	3.00	-	-	-	-	-	-	-	-	5	A-6b (V)	-	
			6	23																
MEDIUM DENSE, GRAY, STONE FRAGMENTS WITH SAND AND SILT, LITTLE CLAY, DAMP		796.6		10																
				10	29	67	SS-3	-	42	18	8	14	18	NP	NP	NP	8	A-2-4 (0)	-	
		796.3		12																
SILTSTONE, GRAY, SLIGHTLY WEATHERED, SLIGHTLY STRONG.			TR EOB	50/4"	-	75	SS-4	-	-	-	-	-	-	-	-	-	5	Rock (V)	-	
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 3.5'.																				
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																				

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:41 - X:\1\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19.17\GINT FILES\BEL-70-19.17 5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 1234+61, 36' RT.		EXPLORATION ID B-059-0-23															
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: IR-70		PAGE 1 OF 1															
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 802.7 (MSL) EOB: 7.5 ft.																	
START: 4/17/24 END: 4/17/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.063739, -80.806486																	
MATERIAL DESCRIPTION AND NOTES			ELEV. 802.7	DEPTHS	SPT/RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL		
12.0" ASPHALT (DRILLERS DESCRIPTION)				801.7																			
MEDIUM DENSE TO VERY DENSE, BROWN AND GRAY, STONE FRAGMENTS WITH SAND , TRACE TO LITTLE CLAY, TRACE SILT, IRON STAINING, DAMP TO MOIST					1																		
					2	4	8	28	33	SS-1	-	52	16	11	10	11	NP	NP	NP	7		A-1-b (0)	200
					3	1	29	55	28	SS-2	-	-	-	-	-	-	-	-	11	A-1-b (V)		-	
					4	13	13																
			796.7	W 796.7																			
				5	1	13	25	22	SS-3	-	56	20	8	8	8	NP	NP	NP	13	A-1-b (0)	-		
				6	1	6																	
STIFF TO VERY STIFF, GRAY AND BLACK, SILTY CLAY , LITTLE SAND, LITTLE GRAVEL, SLIGHTLY ORGANIC, MOIST				795.2																			
				7	1	3	14	28	SS-4	2.00	-	-	-	-	-	-	-	37	A-6b (V)	-			
				EOB																			

NOTES: GROUNDWATER ENCOUNTERED AT 6.0' DURING DRILLING. HOLE CAVED IN AT 3.0'.
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:42 - X:\1\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19.17\GINT FILES\BEL-70-19.17 5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 1238+85, 34' LT.		EXPLORATION ID B-060-0-23												
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: IR-70														
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 811.4 (MSL) EOB: 7.5 ft.		PAGE 1 OF 1												
START: 4/22/24 END: 4/22/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.063963, -80.804976														
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL
		811.4							GR	CS	FS	SI	CL	LL	PL	PI	WC			
10.0" ASPHALT (DRILLERS DESCRIPTION)		810.6																		
VERY STIFF, BROWN AND ORANGISH BROWN, CLAY, SOME SILT, LITTLE SAND, TRACE TO LITTLE GRAVEL, IRON STAINING, DAMP			1																	
SS-1 NO RECOVERY			2	2	5	0	SS-1	-	-	-	-	-	-	-	-	-	-			
SS-2 NO RECOVERY			3	3																
			4	3	12	0	SS-2	-	-	-	-	-	-	-	-	-	-			
			5	2																
		805.4	6	3	13	22	SS-3	3.00	6	7	7	33	47	43	21	22	20	A-7-6 (13)	127	
VERY STIFF, BROWN AND ORANGISH BROWN, SILTY CLAY, LITTLE SAND, TRACE GRAVEL, IRON STAINING, DAMP		803.9	7	6																
				4	12	22	SS-4	4.00	3	8	10	39	40	37	20	17	17	A-6b (11)	-	
			EOB	5																
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 3.0'.																				
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																				

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:42 - X:\1\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19.17\GINT FILES\BEL-70-19.17 5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 1242+72, 34' RT.		EXPLORATION ID B-061-0-23													
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: IR-70															
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 822.0 (MSL) EOB: 7.5 ft.		PAGE 1 OF 1													
START: 4/25/24 END: 4/25/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.063806, -80.803588															
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL	
		822.0							GR	CS	FS	SI	CL	LL	PL	PI	WC				
7.0" ASPHALT AND 9.0" CONCRETE (DRILLERS DESCRIPTION)		820.7		1																	
SS-1 IS ASPHALT CAVINGS VERY STIFF, BROWN AND GRAY, SILT AND CLAY, SOME STONE FRAGMENTS, LITTLE SAND, DAMP				2	3	5	16	6	SS-1	-	-	-	-	-	-	-	-		-		
				3	7	7															
				4	14	27	54	22	SS-2	2.50	32	7	12	25	24	35	20	15	14	A-6a (5)	193
MEDIUM DENSE, GRAY, STONE FRAGMENTS WITH SAND, SILT, AND CLAY, DAMP		817.5		5	13	11	24	28	SS-3	-	46	10	12	18	14	33	21	12	10	A-2-6 (0)	-
				6	2	7															
		814.5		7	6	5	14	22	SS-4	-	-	-	-	-	-	-	-	-	8	A-2-6 (V)	-
			EOB																		
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 3.0'.																					
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																					

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:42 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19-17\GINT FILES\BEL-70-19-17 5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 1246+64, 38' LT.		EXPLORATION ID B-062-0-23												
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: IR-70														
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 832.5 (MSL) EOB: 7.5 ft.		PAGE 1 OF 1												
START: 4/17/24 END: 4/17/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.064035, -80.802198														
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL
		832.5							GR	CS	FS	SI	CL	LL	PL	PI	WC			
7.0" ASPHALT (DRILLERS DESCRIPTION)		831.9																		
VERY STIFF, BROWN AND GRAY AND ORANGISH BROWN, CLAY , SOME SILT, LITTLE GRAVEL, LITTLE SAND, IRON STAINING, DAMP			1																	
			2	2																
			3	4	13	50	SS-1	2.50	17	8	7	29	39	42	22	20	19	A-7-6 (11)	220	
			4	8	24	42	61	SS-2	4.00	-	-	-	-	-	-	-	18	A-7-6 (V)	-	
HARD, GRAY, SILT AND CLAY , "AND" STONE FRAGMENTS, LITTLE SAND, DAMP		828.0	5	9																
			6	10	28	28	SS-3	4.50	42	10	8	19	21	33	19	14	9	A-6a (2)	-	
			7	8																
		825.0	7	9	25	28	SS-4	4.50	-	-	-	-	-	-	-	-	11	A-6a (V)	-	
			EOB	10																
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 3.0'.																				
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																				

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:42 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19.17\GINT FILES\BEL-70-19.17 5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 1254+46, 38' LT.		EXPLORATION ID B-064-0-23												
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: IR-70														
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 855.1 (MSL) EOB: 7.5 ft.		PAGE 1 OF 1												
START: 4/22/24 END: 4/22/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.064129, -80.799408														
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL
		855.1							GR	CS	FS	SI	CL	LL	PL	PI	WC			
13.0" ASPHALT (DRILLERS DESCRIPTION)		854.0																		
VERY STIFF, BROWN AND GRAY, SILTY CLAY, SOME SAND, SOME GRAVEL, DAMP			1	3																
SS-1 NO RECOVERY			2	4	9	0	SS-1	-	-	-	-	-	-	-	-	-	-		-	
			3	5																
		850.6	4	6	16	22	SS-2	2.50	21	14	11	23	31	40	20	20	18	A-6b (8)	853	
			5	9																
VERY STIFF TO HARD, BROWN AND GRAY, CLAY, SOME SILT, SOME GRAVEL, LITTLE SAND, DAMP			6	10	25	33	SS-3	3.25	21	9	10	24	36	43	21	22	16	A-7-6 (10)	-	
			7	7																
		847.6	7	8	20	39	SS-4	4.50	-	-	-	-	-	-	-	-	17	A-7-6 (V)	-	
			EOB	7																
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 3.0'.																				
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																				

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:42 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19.17\GINT FILES\BEL-70-19.17 5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 1256+97, 35' RT.		EXPLORATION ID B-065-0-23												
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: IR-70														
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 862.4 (MSL) EOB: 7.5 ft.		PAGE 1 OF 1												
START: 4/24/24 END: 4/24/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.063963, -80.798501														
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL
		862.4							GR	CS	FS	SI	CL	LL	PL	PI	WC			
5.0" ASPHALT (DRILLERS DESCRIPTION)		862.0																		
LOOSE, DARK GRAY, GRAVEL WITH SAND, LITTLE SILT, TRACE CLAY, DAMP			1																	
			2	3	2	7	SS-1	-	51	21	9	14	5	NP	NP	NP	11	A-1-b (0)	1613	
		859.4	3	3	6	17	SS-2	4.50	17	12	9	39	23	38	25	13	15	A-6a (7)	-	
HARD, GRAY, SILT AND CLAY, SOME SAND, LITTLE GRAVEL, DAMP			4	7	6	17	SS-3	4.50	-	-	-	-	-	-	-	-	10	A-6a (V)	-	
			5	1	6	17	SS-3	4.50	-	-	-	-	-	-	-	-	10	A-6a (V)	-	
			6	1	6	17	SS-3	4.50	-	-	-	-	-	-	-	-	10	A-6a (V)	-	
		854.9	7	3	11	39	SS-4	4.50	-	-	-	-	-	-	-	-	12	A-6a (V)	-	
			EOB	5																
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 3.0'.																				
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																				

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:42 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19-17\GINT FILES\BEL-70-19-17 5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 0+66, 3' RT.		EXPLORATION ID													
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: 5 (RAMP D BANFIELD RD. CR-288)		B-066-0-23													
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 1229.6 (MSL) EOB: 7.5 ft.		PAGE													
START: 4/10/24 END: 4/10/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.070621, -80.860515		1 OF 1													
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL	
		1229.6							GR	CS	FS	SI	CL	LL	PL	PI	WC				
16.0" ASPHALT (DRILLERS DESCRIPTION)		1228.3	1																		
VERY STIFF, GRAY, SILTY CLAY, LITTLE SAND, LITTLE GRAVEL, DAMP			2	2	10	26	44	SS-1	4.00	17	10	10	31	32	38	20	18	18	A-6b (9)	240	
			3	3	10																
			4	6	5	14	11	SS-2	3.75	-	-	-	-	-	-	-	15	A-6b (V)	-		
		1225.1	5	3																	
VERY STIFF TO HARD, GRAY AND MAROONISH BROWN, SILTY CLAY, SOME STONE FRAGMENTS, LITTLE TO SOME SAND, RESIDUAL ROCK STRUCTURE, NO INTACT SOIL FOR HP READINGS, DAMP			6	4	5	12	17	SS-3	-	32	12	8	27	21	35	19	16	9	A-6b (5)	-	
			7	2																	
		1222.1	EOB	19	13	42	56	SS-4	-	-	-	-	-	-	-	-	12	A-6b (V)	-		
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 2.0'.																					
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																					

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:42 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19-17\GINT FILES\BEL-70-19-17 5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 3+64, 6' RT.		EXPLORATION ID												
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: 5 (RAMP D BANFIELD RD. CR-288)		B-067-0-23												
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 1222.7 (MSL) EOB: 6.0 ft.		PAGE												
START: 4/10/24 END: 4/10/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.070520, -80.859461		1 OF 1												
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL
		1222.7							GR	CS	FS	SI	CL	LL	PL	PI	WC			
8.0" ASPHALT (DRILLERS DESCRIPTION)		1222.0																		
VERY STIFF, BROWN, CLAY, SOME SILT, LITTLE SAND, TRACE TO LITTLE GRAVEL, DAMP			1																	
			2	4	14	50	SS-1	3.50	7	6	8	35	44	42	21	21	19	A-7-6 (13)	227	
			3	3																
			4	3	12	44	SS-2	3.50	13	6	6	33	42	42	21	21	18	A-7-6 (13)	-	
			5	50/2"	-	50	SS-3	4.00	-	-	-	-	-	-	-	-	14	A-7-6 (V)	-	
		1216.7	EOB	6																
AUGER REFUSAL AT 6.0'																				
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 2.0'.																				
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																				

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:42 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19.17\GINT FILES\BEL-70-19.17 5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 1116+73, 5' RT.		EXPLORATION ID B-068-0-23												
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: RAMP 6 (I-470 EB)														
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 1256.8 (MSL) EOB: 7.5 ft.		PAGE 1 OF 1												
START: 4/9/24 END: 4/9/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.068915, -80.848654														
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL
		1256.8							GR	CS	FS	SI	CL	LL	PL	PI	WC			
12.0" ASPHALT (DRILLERS DESCRIPTION)		1255.8	1																	
VERY STIFF, BROWN AND GRAY, SILTY CLAY, "AND" GRAVEL, LITTLE SAND, DAMP		1254.4	2	3 50/5"	-	55	SS-1	3.75	39	7	11	21	22	40	19	21	13	A-6b (5)	140	
VERY DENSE, BROWN, STONE FRAGMENTS, LITTLE SAND, TRACE SILT, TRACE CLAY, DAMP			3	50/3"	-	33	SS-2	-	-	-	-	-	-	-	-	-	4	A-1-a (V)	-	
		1252.3	4																	
MEDIUM DENSE, BROWN, SANDY SILT, "AND" STONE FRAGMENTS, LITTLE CLAY, DAMP		1250.8	5	5 4 9	17	22	SS-3	-	48	8	7	17	20	NP	NP	NP	12	A-4a (0)	-	
HARD, BROWN, SILTY CLAY, LITTLE STONE FRAGMENTS, LITTLE SAND, DAMP		1249.3	6	4																
			7	5 7	16	22	SS-4	4.25	-	-	-	-	-	-	-	-	14	A-6b (V)	-	
			EOB																	
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 2.0'.																				
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																				

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:42 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19.17\GINT FILES\BEL-70-19.17 5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 1111+90, 10' LT.		EXPLORATION ID B-069-0-23												
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: RAMP 7 (I-470 WB)														
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 1250.2 (MSL) EOB: 5.0 ft.		PAGE 1 OF 1												
START: 5/1/24 END: 5/1/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.069606, -80.847279														
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL
		1250.2							GR	CS	FS	SI	CL	LL	PL	PI	WC			
8.0" ASPHALT AND 8.0" CONCRETE (DRILLERS DESCRIPTION)		1248.9		1																
HARD, BROWN AND GRAY, SILTY CLAY, LITTLE SAND, LITTLE STONE FRAGMENTS, DAMP		1248.2	TR	2	5	86	SS-1	4.25	18	10	9	30	33	38	19	19	14	A-6b (9)	120	
SHALE, GRAY, HIGHLY WEATHERED, VERY WEAK TO WEAK, FISSILE.				3	12	100	SS-2	-	-	-	-	-	-	-	-	-	10	Rock (V)	-	
				4	50/4"															
SS-3 NO RECOVERY		1245.2	EOB	5	50/1"	0	SS-3	-	-	-	-	-	-	-	-	-	-		-	
AUGER REFUSAL AT 5.0'																				
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 2.0'.																				
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																				

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:42 - X:\1\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19.17\5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 1115+55, 15' LT.		EXPLORATION ID B-070-0-23												
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: RAMP 7 (I-470 WB)														
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 1255.8 (MSL) EOB: 6.1 ft.		PAGE 1 OF 1												
START: 4/23/24 END: 4/23/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.069456, -80.848558														
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL
		1255.8							GR	CS	FS	SI	CL	LL	PL	PI	WC			
5.0" ASPHALT (DRILLERS DESCRIPTION)		1255.4	1	4																
HARD, GRAY AND BROWN, SILTY CLAY, SOME GRAVEL, LITTLE CLAY, DAMP			2	8 13	28	72	SS-1	4.50	33	10	10	24	23	35	19	16	12	A-6b (4)	140	
			3	4																
		1251.3	4	7 10	22	39	SS-2	4.50	-	-	-	-	-	-	-	-	13	A-6b (V)	-	
HARD, GRAY, SANDY SILT, SOME CLAY, LITTLE STONE FRAGMENTS, RESIDUAL ROCK, DAMP			5	10 13																
		1249.8	6	11	32	33	SS-3	4.50	17	9	9	39	26	30	20	10	10	A-4a (6)	-	
SHALE, GRAY, HIGHLY WEATHERED, VERY WEAK, FISSILE.		1249.7	ETR3	60/1"	-	100	SS-4	-	-	-	-	-	-	-	-	-	12	Rock (V)	-	
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 3.0'.																				
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																				

MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS		SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (G)	SO ₄ ppm	BACK FILL	
		1217.2								GR	CS	FS	SI	CL	LL	PL	PI	WC				
12.0" ASPHALT (DRILLERS DESCRIPTION)		1216.2	FOR CORRECTION	1																		
LOOSE, BROWN, GRAVEL , LITTLE SAND, TRACE SILT, TRACE CLAY, DAMP		1214.2		2	6	3	8	17	SS-1	-	73	12	8	5	2	NP	NP	NP	3	A-1-a (0)	100	
LOOSE, GRAY AND BROWN, GRAVEL WITH SAND, SILT, AND CLAY , NO INTACT SOIL FOR HP READINGS, DAMP		1212.7		3	2	2	5	22	SS-2	-	44	13	8	21	14	30	19	11	12	A-2-6 (0)	-	
VERY LOOSE, BROWN, GRAVEL WITH SAND , LITTLE SILT, TRACE CLAY, WET		1211.2		4	2	1	4	11	SS-3	-	-	-	-	-	-	-	-	-	15	A-1-b (V)	-	
MEDIUM DENSE, GRAY AND BROWN, GRAVEL WITH SAND, SILT, AND CLAY , MOIST		1209.7		5	4	6	14	17	SS-4	-	-	-	-	-	-	-	-	-	15	A-2-6 (V)	-	
				6																		

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 2.0'.

ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:42 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19\7\GINT FILES\BEL-70-19\7 5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 23+80, 0' LT.		EXPLORATION ID B-072-0-23												
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: RAMP 8 (RAMP B US-40)														
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 1209.8 (MSL) EOB: 7.5 ft.		PAGE 1 OF 1												
START: 4/15/24 END: 4/15/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.068473, -80.842204														
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL
		1209.8							GR	CS	FS	SI	CL	LL	PL	PI	WC			
10.0" ASPHALT (DRILLERS DESCRIPTION)		1209.0																		
HARD, BROWN AND GRAY, SILTY CLAY, SOME SAND, LITTLE TO SOME GRAVEL, DAMP			1																	
			2	5																
			3	7 8	20	39	SS-1	4.50	26	11	12	28	23	35	19	16	14	A-6b (5)	173	
			4	3 8 10	24	50	SS-2	4.50	18	11	11	33	27	36	20	16	15	A-6b (7)	-	
			5	3 5 6	14	33	SS-3	4.50	-	-	-	-	-	-	-	-	17	A-6b (V)	-	
			6	4 6																
			7	6 5	14	44	SS-4	4.50	-	-	-	-	-	-	-	-	20	A-6b (V)	-	
		1202.3	EOB																	
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 2.0'. ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																				

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:42 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19.17\5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 19+34, 2' RT.		EXPLORATION ID: B-073-0-23												
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: RAMP 9 (RAMP C HIGH RIDGE RD CR-214)														
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 1149.1 (MSL) EOB: 7.5 ft.		PAGE 1 OF 1												
START: 4/10/24 END: 4/10/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.066592, -80.838334														
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL
		1149.1							GR	CS	FS	SI	CL	LL	PL	PI	WC			
8.0" ASPHALT (DRILLERS DESCRIPTION)		1148.4																		
HARD, BROWNISH GRAY, SILTY CLAY, SOME GRAVEL, LITTLE SAND, DAMP			1																	
			2	1	7	20	44	SS-1	4.50	24	12	7	34	23	34	18	16	11	A-6b (7)	1960
		1146.1	3	4	18	50	33	SS-2	-	13	10	37	24	16	23	15	8	10	A-4a (1)	-
HARD, BROWN AND GRAY, SANDY SILT, LITTLE CLAY, LITTLE GRAVEL, NO INTACT SOIL FOR HP READINGS, DAMP		1144.6	4	4	20															
MEDIUM DENSE, GRAY AND BLACK, GRAVEL AND STONE FRAGMENTS WITH SAND, CONTAINS COAL FRAGMENTS, SLIGHTLY ORGANIC, DAMP			5	4	7	20	17	SS-3	-	-	-	-	-	-	-	-	-	8	A-1-b (V)	-
		1141.6	6	3	8															
			7	5	8	17	22	SS-4	-	-	-	-	-	-	-	-	-	11	A-1-b (V)	-
			EOB																	
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 2.0'.																				
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																				

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:42 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19.17 5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 22+14, 4' RT.		EXPLORATION ID B-074-0-23												
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT 9 (RAMP C HIGH RIDGE RD CR-214)														
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 1151.7 (MSL) EOB: 3.5 ft.		PAGE 1 OF 1												
START: 4/10/24 END: 4/10/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.066198, -80.837473														
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL
		1151.7							GR	CS	FS	SI	CL	LL	PL	PI	WC			
6.0" ASPHALT AND 9.0" CONCRETE (DRILLERS DESCRIPTION)		1150.4	1																	
VERY DENSE, BROWN, STONE FRAGMENTS WITH SAND AND SILT, TRACE CLAY, DAMP			2	50/5"	-	100	SS-1	-	40	8	27	15	10	NP	NP	NP	10	A-2-4 (0)	227	
SS-2 NO RECOVERY		1148.2	3	50/2"	-	0	SS-2	-	-	-	-	-	-	-	-	-	-			
AUGER REFUSAL AT 3.5'			EOB																	
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 1.5'. ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																				

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:42 - X:\1\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19\17\GINT FILES\BEL-70-19\17 5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 1+90, 5' RT.		EXPLORATION ID: B-075-0-23												
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: RAMP D HIGH RIDGE RD CR-214														
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 1146.3 (MSL) EOB: 7.5 ft.		PAGE 1 OF 1												
START: 4/10/24 END: 4/10/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.066161, -80.836756														
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL
		1146.3							GR	CS	FS	SI	CL	LL	PL	PI	WC			
7.0" ASPHALT (DRILLERS DESCRIPTION)		1145.7																		
VERY STIFF TO HARD, BROWN, SILTY CLAY, LITTLE TO SOME GRAVEL, LITTLE SAND, DAMP			1																	
			2	3	4	12	39	SS-1	4.25	22	10	10	30	28	36	20	16	14	A-6b (7)	253
			3	3	6	5														
			4	3	6	12	24	SS-2	3.00	25	7	5	30	33	40	20	20	15	A-6b (10)	-
			5	4	5		14	SS-3	3.75	-	-	-	-	-	-	-	-	17	A-6b (V)	-
			6	3	6															
SS-4 NO RECOVERY			7	14	6	26	0	SS-4	-	-	-	-	-	-	-	-	-			
		1138.8																		
			EOB																	
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 2.0'.																				
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																				

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:42 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19.17\GINT FILES\BEL-70-19.17 5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 5+89, 2' RT.		EXPLORATION ID: B-076-0-23												
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: RAMP D HIGH RIDGE RD CR-214														
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 1118.7 (MSL) EOB: 7.5 ft.		PAGE 1 OF 1												
START: 4/11/24 END: 4/11/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.066076, -80.835334														
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL
		1118.7							GR	CS	FS	SI	CL	LL	PL	PI	WC			
9.0" ASPHALT (DRILLERS DESCRIPTION)		1117.9																		
MEDIUM DENSE, BROWN, GRAVEL WITH SAND, TRACE SILT, TRACE CLAY, DAMP (FILL)			1	3																
			2	5	18	44	SS-1	-	39	25	27	6	3	NP	NP	NP	8	A-1-b (0)	20	
		1115.7	3	3																
MEDIUM DENSE, BROWN, GRAVEL, SOME SAND, TRACE SILT, TRACE CLAY, DAMP (FILL)			4	6	14	50	SS-2	-	67	13	11	7	2	NP	NP	NP	5	A-1-a (0)	-	
		1114.2	5	1																
VERY STIFF, BROWN AND GRAY, CLAY, SOME SILT, LITTLE SAND, TRACE GRAVEL, DAMP			6	2	7	11	SS-3	3.00	-	-	-	-	-	-	-	-	16	A-7-6 (V)	-	
			7	3																
		1111.2	EOB	4	12	28	SS-4	2.50	-	-	-	-	-	-	-	-	20	A-7-6 (V)	-	
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 1.5'.																				
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																				

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:42 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19.17\GINT FILES\BEL-70-19.17 5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 4+48, 3' RT.		EXPLORATION ID: B-077-0-23													
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: 11 (RAMP A HIGH RIDGE RD CR-214)															
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 1101.2 (MSL) EOB: 7.5 ft.		PAGE 1 OF 1													
START: 4/18/24 END: 4/18/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.066371, -80.833677															
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL	
		1101.2							GR	CS	FS	SI	CL	LL	PL	PI	WC				
14.0" ASPHALT (DRILLERS DESCRIPTION)		1100.0		1																	
MEDIUM DENSE, BROWN, GRAVEL, SOME SAND, TRACE SILT, TRACE CLAY, DAMP (FILL)		1098.2		2	3	4	14	28	SS-1	-	67	14	9	7	3	NP	NP	NP	6	A-1-a (0)	140
LOOSE, BROWN, GRAVEL WITH SAND, SILT, AND CLAY, CONTAINS BRICK FRAGMENTS, DAMP (FILL)		1096.7	W 1096.7	3	2	3	5	28	SS-2	-	48	10	8	20	14	29	18	11	12	A-2-6 (0)	-
STIFF TO VERY STIFF, BROWN, CLAY, SOME SILT, LITTLE SAND, TRACE GRAVEL, DAMP				4	2	8	17	17	SS-3	2.00	-	-	-	-	-	-	-	16	A-7-6 (V)	-	
		1093.7	EOB	5	4	6	14	33	SS-4	2.25	-	-	-	-	-	-	-	16	A-7-6 (V)	-	
NOTES: GROUNDWATER ENCOUNTERED AT 4.5' DURING DRILLING. HOLE CAVED IN AT 3.0'.																					
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																					

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:42 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19.17\GINT FILES\BEL-70-19.17 5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 8+02, 4' LT.		EXPLORATION ID: B-078-0-23													
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: 11 (RAMP A HIGH RIDGE RD CR-214)															
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 1105.5 (MSL) EOB: 7.5 ft.		PAGE 1 OF 1													
START: 4/17/24 END: 4/17/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.066680, -80.834877															
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL	
		1105.5							GR	CS	FS	SI	CL	LL	PL	PI	WC				
8.0" ASPHALT AND 8.0" CONCRETE (DRILLERS DESCRIPTION)		1104.2	1																		
HARD, BROWN, SILT AND CLAY, LITTLE SAND, LITTLE GRAVEL, DAMP			2	2																	
			3	3	9	33	SS-1	4.50	20	5	7	36	32	36	23	13	14	A-6a (8)	173		
			4	11	9	21	28	SS-2	4.50	11	10	10	41	28	33	20	13	12	A-6a (8)	-	
			5	4	7	14	33	SS-3	4.50	-	-	-	-	-	-	-	-	7	A-6a (V)	-	
MEDIUM DENSE, GRAY, STONE FRAGMENTS WITH SAND AND SILT, TRACE CLAY, DAMP		1099.5	6	5																	
		1098.0	7	6	17	28	SS-4	-	-	-	-	-	-	-	-	-	5	A-2-4 (V)	-		
			EOB	7																	
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 3.0'.																					
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																					

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:42 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19.17\GINT FILES\BEL-70-19.17 5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 1111+74, 5' LT.		EXPLORATION ID													
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: 12 (RAMP A BANFIELD RD. CR-285)		8-079-0-23													
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 1255.3 (MSL) EOB: 6.0 ft.		PAGE													
START: 4/23/24 END: 4/23/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.069610, -80.848638		1 OF 1													
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL	
		1255.3							GR	CS	FS	SI	CL	LL	PL	PI	WC				
6.0" ASPHALT AND 9.0" CONCRETE (DRILLERS DESCRIPTION)		1254.0	TR	1																	
HARD, GRAY, SILT AND CLAY, SOME STONE FRAGMENTS, SOME SAND, RESIDUAL ROCK, NO INTACT SOIL FOR HP READINGS, DAMP		1252.9		2	10 50/5"	-	45	SS-1	-	35	13	9	28	15	30	18	12	7	A-6a (2)	60	
SHALE, GRAY, HIGHLY WEATHERED, VERY WEAK, FISSILE.				3	27 32 45																
				4			101	44	SS-2	-	-	-	-	-	-	-	-	10	Rock (V)	-	
				5	17 50/4"	-	90	SS-3	-	-	-	-	-	-	-	-	-	11	Rock (V)	-	
		1249.3	EOB	6																	
AUGER REFUSAL AT 6.0'																					
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 2.5'.																					
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																					

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:42 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19.17\GINT FILES\BEL-70-19.17 5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 1108+03, 3' LT.		EXPLORATION ID													
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: 12 (RAMP A BANFIELD RD. CR-285)		8-080-0-23													
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 1255.0 (MSL) EOB: 7.5 ft.		PAGE													
START: 4/23/24 END: 4/23/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.069702, -80.849956		1 OF 1													
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL	
		1255.0							GR	CS	FS	SI	CL	LL	PL	PI	WC				
7.0" ASPHALT AND 9.0" CONCRETE (DRILLERS DESCRIPTION)		1253.7	1																		
VERY STIFF TO HARD, GRAY AND BROWN, SILT AND CLAY, SOME SAND, LITTLE GRAVEL, DAMP			2	5	6	14	44	SS-1	4.25	17	11	10	34	28	35	20	15	13	A-6a (7)	207	
			3	1	2	8	28	SS-2	3.00	17	12	9	35	27	34	21	13	15	A-6a (7)	-	
			4	2	4																
			5	3	5	16	22	SS-3	2.75	-	-	-	-	-	-	-	-	18	A-6a (V)	-	
VERY STIFF, BROWN, CLAY, SOME SILT, LITTLE SAND, TRACE GRAVEL, DAMP		1249.0	6	2																	
		1247.5	7	4	11	28	SS-4	3.00	-	-	-	-	-	-	-	-	-	16	A-7-6 (V)	-	
			EOB	4																	
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 2.5'.																					
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																					

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:42 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19-17\GINT FILES\BEL-70-19-17 5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 1104+28, 1' LT.		EXPLORATION ID: 8-081-0-23												
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: 12 (RAMP A BANFIELD RD. CR-285)														
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 1249.3 (MSL) EOB: 6.9 ft.		PAGE 1 OF 1												
START: 4/10/24 END: 4/10/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.069839, -80.851285														
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL
		1249.3							GR	CS	FS	SI	CL	LL	PL	PI	WC			
5.0" ASPHALT AND 10.0" CONCRETE (DRILLERS DESCRIPTION)		1248.0	1																	
MEDIUM DENSE, BROWN AND GRAY, SANDY SILT, "AND" STONE FRAGMENTS, SOME CLAY, DAMP			2	5	9	21	11	SS-1	-	-	-	-	-	-	-	-	15	A-4a (V)	-	
			3	2	6	7														
			4	6	13	25	22	SS-2	-	47	6	4	20	23	NP	NP	NP	13	A-4a (2)	80
HARD, BROWN, SILTY CLAY, SOME STONE FRAGMENTS, LITTLE SAND, DAMP		1244.8		10																
		1244.0	TR	50/4"		60	SS-3	4.25	27	7	5	23	38	37	20	17	16	A-6b (8)	-	
SHALE, BROWN, HIGHLY WEATHERED, VERY WEAK, FISSILE.		1242.4	EOB	3		18	SS-4	-	-	-	-	-	-	-	-	-	17	Rock (V)	-	
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 2.0'.																				
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																				

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:42 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19.17\GINT FILES\BEL-70-19.17 5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 1100+48, 2' LT.		EXPLORATION ID												
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: 12 (RAMP A BANFIELD RD. CR-285)		8-082-0-23												
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 1237.5 (MSL) EOB: 6.3 ft.		PAGE												
START: 4/23/24 END: 4/23/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.069986, -80.852629		1 OF 1												
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL
		1237.5							GR	CS	FS	SI	CL	LL	PL	PI	WC			
3.0" ASPHALT AND 9.0" CONCRETE (DRILLERS DESCRIPTION)		1236.5																		
MEDIUM DENSE, BROWN, GRAVEL WITH SAND, LITTLE SILT, TRACE CLAY, DAMP (FILL)		1234.5	1	6	14	28	SS-1	-	56	15	13	11	5	NP	NP	NP	7	A-1-b (0)	93	
LOOSE, BROWN, GRAVEL, LITTLE SAND, TRACE SILT, TRACE CLAY, DAMP		1233.0	2	2	8	22	SS-2	-	69	11	9	8	3	NP	NP	NP	7	A-1-a (0)	-	
SHALE, GRAY, HIGHLY WEATHERED, VERY WEAK, FISSILE.		1231.2	3	3																
			4	27		40	SS-3	-	-	-	-	-	-	-	-	-	5	Rock (V)	-	
			5	50/4"																
			6	50/3"	-	33	SS-4	-	-	-	-	-	-	-	-	-	4	Rock (V)	-	
			EOB																	
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 2.5'.																				
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																				

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:42 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19.17\GINT FILES\BEL-70-19.17 5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 1096+75, 1' LT.		EXPLORATION ID												
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: 12 (RAMP A BANFIELD RD. CR-285)		8-083-0-23												
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 1222.0 (MSL) EOB: 6.1 ft.		PAGE												
START: 4/23/24 END: 4/23/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.070125, -80.853947		1 OF 1												
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL
		1222.0							GR	CS	FS	SI	CL	LL	PL	PI	WC			
7.5" ASPHALT AND 9.0" CONCRETE (DRILLERS DESCRIPTION)		1220.6	1																	
VERY DENSE, BROWN, GRAVEL AND STONE FRAGMENTS WITH SAND AND SILT, LITTLE CLAY, DAMP		1219.0	2	11 27 50/4"	-	50	SS-1	-	64	4	5	14	13	NP	NP	NP	8	A-2-4 (0)	0	
HARD, BROWN, SILT AND CLAY, SOME STONE FRAGMENTS, SOME SAND, RESIDUAL ROCK, NO INTACT SOIL FOR HP READINGS, DAMP		1218.6	3	50/5"	-	100	SS-2	-	32	13	10	25	20	30	17	13	9	A-6a (3)	-	
SILTSTONE, GRAY, HIGHLY WEATHERED, WEAK TO SLIGHTLY STRONG.		1215.9	4	50/3"	-	67	SS-3	-	-	-	-	-	-	-	-	-	5	Rock (V)	-	
SS-4 NO RECOVERY			5																	
			6	50/1"	-	0	SS-4	-	-	-	-	-	-	-	-	-	-			
			EOB																	
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 3.0'.																				
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																				

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:42 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19.17\GINT FILES\BEL-70-19.17 5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 1092+86, 3' RT.		EXPLORATION ID												
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: 12 (RAMP A BANFIELD RD. CR-285)		8-084-0-23												
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 1207.3 (MSL) EOB: 7.5 ft.		PAGE												
START: 4/23/24 END: 4/23/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.070263, -80.855328		1 OF 1												
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL
		1207.3							GR	CS	FS	SI	CL	LL	PL	PI	WC			
7.0" ASPHALT AND 9.0" CONCRETE (DRILLERS DESCRIPTION)		1206.0	1																	
VERY STIFF, GRAY, SILTY CLAY, LITTLE GRAVEL, LITTLE SAND, DAMP			2	4	5	14	39	SS-1	3.50	20	7	7	37	29	37	19	18	14	A-6b (9)	127
SS-2 NO RECOVERY			3	2	4	13	0	SS-2	-	-	-	-	-	-	-	-	-			
SS-3 STONE FRAGMENT LODGED IN SPOON. NO OTHER RECOVERY			4	4	6															
SS-4 STONE FRAGMENT LODGED IN SPOON. NO OTHER RECOVERY			5	4	5	14	6	SS-3	-	-	-	-	-	-	-	-	1			
			6	3	6															
		1199.8	7	7	6	17	6	SS-4	-	-	-	-	-	-	-	-	1			
			EOB																	
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 3.0'.																				
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																				

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:42 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19.17\GINT FILES\BEL-70-19.17 5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 1089+11, 3' RT.		EXPLORATION ID: 8-085-0-23													
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: 12 (RAMP A BANFIELD RD. CR-285)															
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 1204.7 (MSL) EOB: 6.2 ft.		PAGE 1 OF 1													
START: 4/23/24 END: 4/23/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.070457, -80.856645															
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL	
		1204.7							GR	CS	FS	SI	CL	LL	PL	PI	WC				
7.0" ASPHALT AND 9.0" CONCRETE (DRILLERS DESCRIPTION)		1203.4	1																		
VERY STIFF, BROWN MOTTLED WITH GRAY, CLAY, SOME SILT, LITTLE SAND, TRACE GRAVEL, MOIST		1201.7	2	4	3	9	67	SS-1	3.75	5	6	8	35	46	46	22	24	31	A-7-6 (15)	273	
			3	3	4																
VERY STIFF, BROWN MOTTLED WITH GRAY, SILTY CLAY, LITTLE SAND, TRACE GRAVEL, DAMP			4	4	13	78	SS-2	2.75	9	6	7	41	37	39	20	19	20	A-6b (12)	-		
			5	17																	
		1199.1		30																	
				50/1"																	
SILTSTONE, GRAY, MODERATELY WEATHERED, WEAK TO SLIGHTLY STRONG.		1198.5	6	60/2"	-	100	SS-4	-	-	-	-	-	-	-	-	-	2	Rock (V)	-		
			TR																		
			EOB																		
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 3.0'.																					
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																					

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:42 - X:\1\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19.17\GINT FILES\BEL-70-19.17 5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 1085+67, 2' RT.		EXPLORATION ID												
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: 12 (RAMP A BANFIELD RD. CR-285)		8-086-0-23												
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 1212.6 (MSL) EOB: 7.5 ft.		PAGE												
START: 4/18/24 END: 4/18/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.070749, -80.857812		1 OF 1												
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL
		1212.6							GR	CS	FS	SI	CL	LL	PL	PI	WC			
8.0" ASPHALT AND 9.0" CONCRETE (DRILLERS DESCRIPTION)		1211.2	1																	
VERY STIFF, BROWN AND GRAY, SILT AND CLAY, SOME GRAVEL, TRACE SAND, DAMP		1209.6	2	4	9	26	83	SS-1	3.50	29	5	5	36	25	32	20	12	13	A-6a (6)	87
LOOSE TO MEDIUM DENSE, BROWN AND GRAY, GRAVEL WITH SAND AND SILT, LITTLE CLAY, DAMP TO MOIST			3	3	11															
			4	4	4	11	56	SS-2	-	47	11	8	22	12	NP	NP	NP	9	A-2-4 (0)	-
			5	1	2	7	17	SS-3	-	-	-	-	-	-	-	-	-	10	A-2-4 (V)	-
		1205.1	6	10	3															
			7	11	6	22	22	SS-4	-	-	-	-	-	-	-	-	-	15	A-2-4 (V)	-
			EOB																	
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 3.0'.																				
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																				

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:42 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19.17 5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 1082+11, 0' LT.		EXPLORATION ID: 8-087-0-23												
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: 12 (RAMP A BANFIELD RD. CR-285)														
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 1228.0 (MSL) EOB: 3.3 ft.		PAGE 1 OF 1												
START: 4/10/24 END: 4/10/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.071166, -80.858961														
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL
		1228.0							GR	CS	FS	SI	CL	LL	PL	PI	WC			
6.0" ASPHALT (DRILLERS DESCRIPTION)		1227.5																		
HARD, GRAY, SILT AND CLAY, "AND" STONE FRAGMENTS, SOME SAND, DAMP			1																	
		1225.6	TR	2	12	-	45	SS-1	4.25	38	15	9	20	18	29	17	12	9	A-6a (1)	193
					50/5"															
SHALE, GRAY, MODERATELY WEATHERED, SLIGHTLY STRONG, FISSILE.		1224.7	EOB	3	50/3"	-	33	SS-2	-	-	-	-	-	-	-	-	2	Rock (V)	-	
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 1.0'.																				
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																				

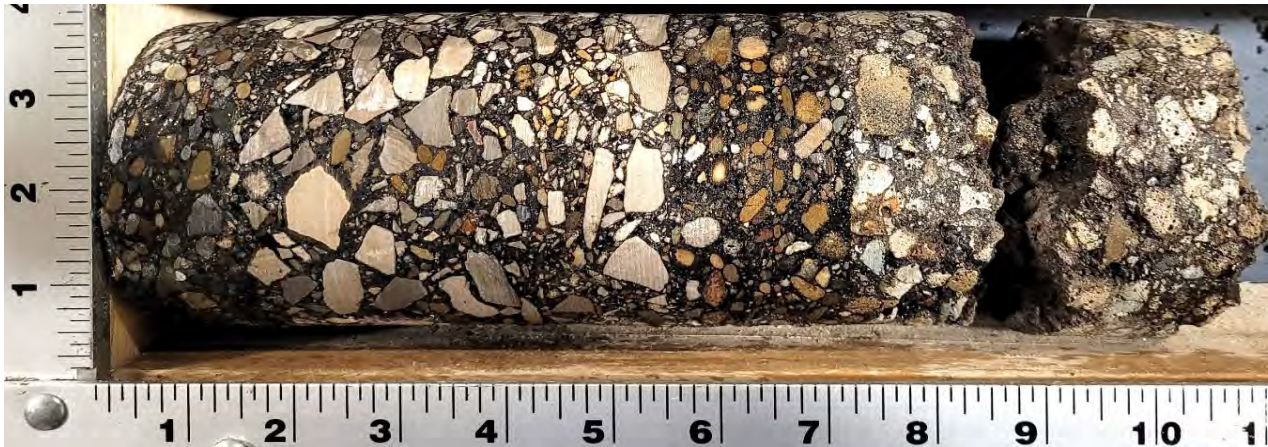
STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/11/24 14:42 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\BEL-70-19.17\GINT FILES\BEL-70-19.17 5-3-24.GPJ

PROJECT: BEL-70-19.17		DRILLING FIRM / OPERATOR: NEAS / RW		DRILL RIG: CME 45B		STATION / OFFSET: 1078+78, 0' LT.		EXPLORATION ID												
TYPE: SUBGRADE		SAMPLING FIRM / LOGGER: NEAS / NS		HAMMER: CME AUTOMATIC		ALIGNMENT: 12 (RAMP A BANFIELD RD. CR-285)		8-088-0-23												
PID: 107533 SFN:		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 3/8/24		ELEVATION: 1241.0 (MSL) EOB: 7.5 ft.		PAGE												
START: 4/10/24 END: 4/10/24		SAMPLING METHOD: SPT		ENERGY RATIO (%): 79		LAT / LONG: 40.071608, -80.860004		1 OF 1												
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	SO4 ppm	BACK FILL
		1241.0							GR	CS	FS	SI	CL	LL	PL	PI	WC			
4.0" ASPHALT AND 5.0" CONCRETE (DRILLERS DESCRIPTION)		1240.2																		
MEDIUM DENSE, BROWN AND GRAY, STONE FRAGMENTS WITH SAND AND SILT, LITTLE CLAY, DAMP		1238.0	1	6																
			2	5	12	22	SS-1	-	-	-	-	-	-	-	-	-	10	A-2-4 (V)	-	
			3	2	4															
HARD, GRAY, SILT AND CLAY, LITTLE SAND, TRACE TO LITTLE GRAVEL, DAMP			4	6	18	67	SS-2	4.50	20	7	9	34	30	36	21	15	15	A-6a (8)	173	
			5	7																
			6	28	75	28	SS-3	4.50	5	7	9	43	36	33	19	14	15	A-6a (10)	-	
			7	5	29															
		1233.5	EOB	38	72	28	SS-4	4.50	-	-	-	-	-	-	-	-	9	A-6a (V)	-	
				17																
NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE CAVED IN AT 1.0'.																				
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS																				

APPENDIX C

PAVEMENT CORING LOGS

Core Photo: X-001-0-23



Core Information				
Core Diameter (in):			3.75	
Core Total Length (in):			11.25	
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.25			Good
2	4.25			Good
3	1.75			Good
4	4			Good
Rebar Encountered	N/A			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010

Date: 5/3/2024

Taken By: LR

Scale: N/A

Core Photo: X-002-0-23



Core Information				
Core Diameter (in):		3.75		
Core Total Length (in):		12.5		
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.5			Good
2	4.25			Good
3	4			Good
4	2.75			Good
Rebar Encountered	N/A			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010

Date: 5/3/2024

Taken By: LR

Scale: N/A

Core Photo: X-003-0-23



Core Information				
Core Diameter (in):		3.75		
Core Total Length (in):		13.5		
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.5			Good
2	4.25			Good
3	7.75			Good
4				
Rebar Encountered	N/A			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

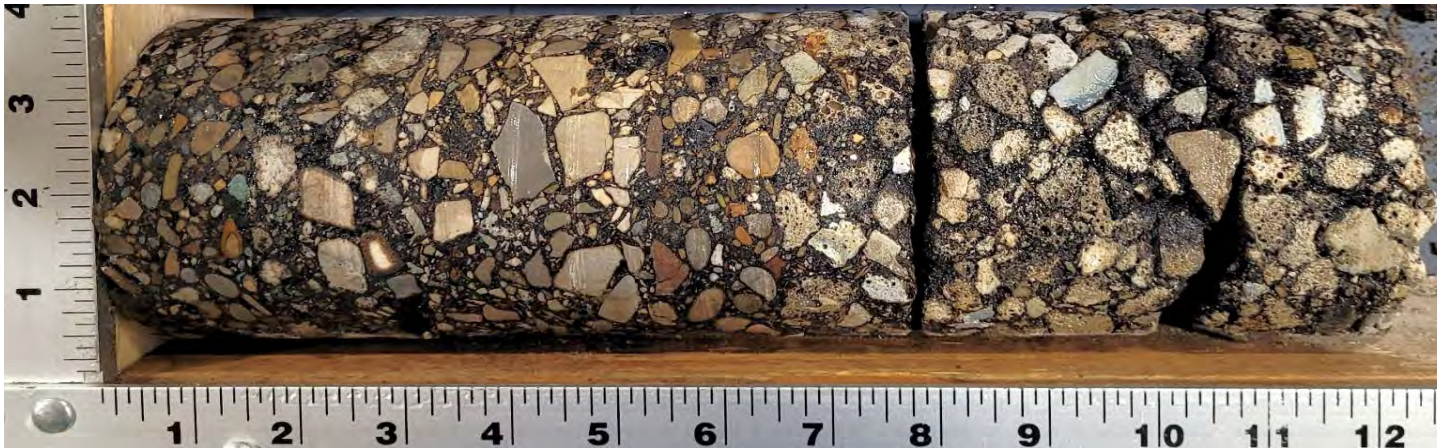
NEAS Project No.: 24-0010

Date: 5/3/2024

Taken By: LR

Scale: N/A

Core Photo: X-004-0-23



Core Information				
Core Diameter (in):			3.75	
Core Total Length (in):			12.75	
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.5			Good
2	6			Good
3	5.25			Good
4				
Rebar Encountered	N/A			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

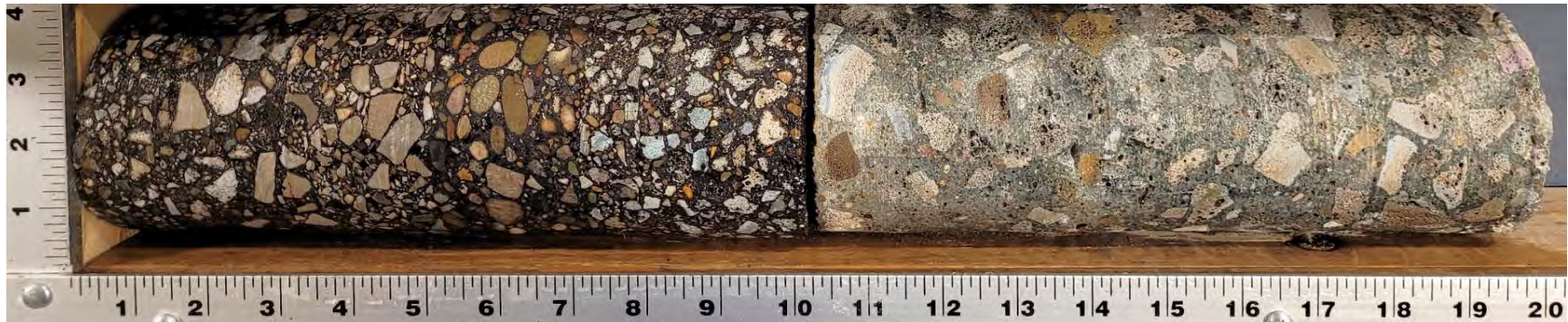
NEAS Project No.: 24-0010

Date: 5/3/2024

Taken By: LR

Scale: N/A

Core Photo: X-005-0-23



Core Information				
Core Diameter (in):		3.75		
Core Total Length (in):		20.25		
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.25			Good
2	4			Good
3	2			Good
4	3			Good
5		10		Good
Rebar Encountered	N/E			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010

Date: 5/3/2024

Taken By: LR

Scale: N/A

Core Photo: X-006-0-23



Core Information				
Core Diameter (in):			3.75	
Core Total Length (in):			11.25	
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.5			Good
2	1.5			Good
3	4.25			Good
4	4			Good
Rebar Encountered	N/A			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010

Date: 5/3/2024

Taken By: LR

Scale: N/A

Core Photo: X-007-0-23



Core Information				
Core Diameter (in):		3.75		
Core Total Length (in):		20.5		
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.25			Good
2	4			Good
3	2.25			Good
4	3.75			Poor
5		9.25		Good
Rebar Encountered	#2 @ 16.5", #3 @ 16"			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010
Date: 5/3/2024
Taken By: LR
Scale: N/A

Core Photo: X-008-0-23



Core Information				
Core Diameter (in):			3.75	
Core Total Length (in):			10.25	
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.25			Good
2	4			Good
3	5			Good
4				
Rebar Encountered	N/A			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

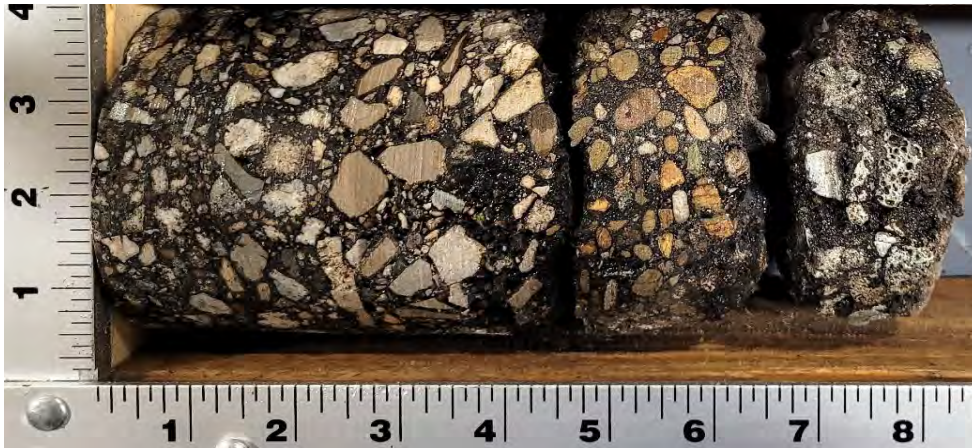
NEAS Project No.: 24-0010

Date: 5/3/2024

Taken By: LR

Scale: N/A

Core Photo: X-009-0-23



Core Information				
Core Diameter (in):			3.75	
Core Total Length (in):			8.5	
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.25			Good
2	3.25			Good
3	2.25			Good
4	1.75			Poor
Rebar Encountered	N/A			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010
Date: 5/3/2024
Taken By: LR
Scale: N/A

Core Photo: X-010-0-23



Core Information				
Core Diameter (in):			3.75	
Core Total Length (in):			9.75	
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.75			Good
2	1.5			Good
3	3			Good
4	3.5			Good
Rebar Encountered	N/A			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010
Date: 5/3/2024
Taken By: LR
Scale: N/A

Core Photo: X-011-0-23



Core Information				
Core Diameter (in):		3.75		
Core Total Length (in):		12.5		
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.5			Good
2	1.5			Good
3	2.5			Good
4	7			Good
Rebar Encountered	N/A			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010

Date: 5/3/2024

Taken By: LR

Scale: N/A

Core Photo: X-012-0-23



Core Information				
Core Diameter (in):			3.75	
Core Total Length (in):			11.5	
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	2			Good
2	1.5			Good
3	3.75			Good
4	4.25			Poor
Rebar Encountered	N/A			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010

Date: 5/3/2024

Taken By: LR

Scale: N/A

Core Photo: X-013-0-23



Core Information				
Core Diameter (in):			3.75	
Core Total Length (in):			11.25	
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	2			Good
2	2			Good
3	1.5			Good
4	5.75			Good
Rebar Encountered	N/A			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010

Date: 5/3/2024

Taken By: LR

Scale: N/A

Core Photo: X-014-0-23



Core Information				
Core Diameter (in):			3.75	
Core Total Length (in):			8.25	
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.75			Good
2	4.25			Good
3	2.25			Good
4				
Rebar Encountered	N/A			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010

Date: 5/3/2024

Taken By: LR

Scale: N/A

Core Photo: X-015-0-23



Core Information				
Core Diameter (in):			3.75	
Core Total Length (in):			6	
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.5			Good
2	3.25			Good
3	1.25			Good
4				
Rebar Encountered	N/A			

Pavement & Core Photo Log

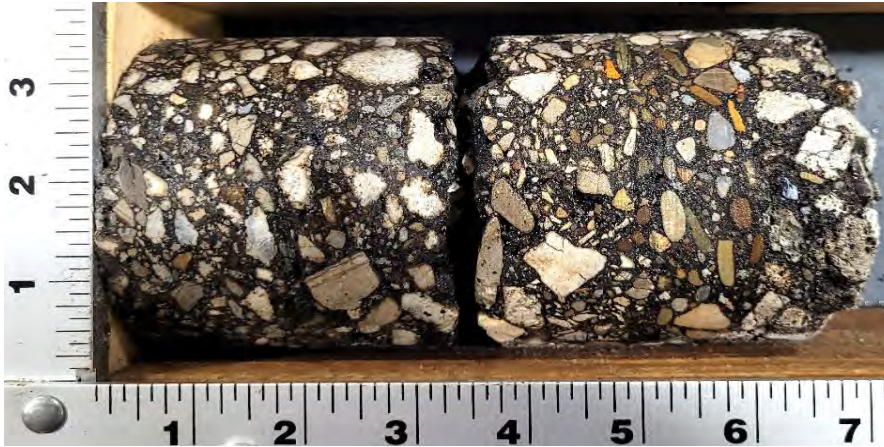


Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010
Date: 5/3/2024
Taken By: LR
Scale: N/A

Core Photo: X-016-0-23



Core Information				
Core Diameter (in):		3.75		
Core Total Length (in):		7.25		
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.75			Good
2	3.5			Good
3	1			Good
4	1			Good
Rebar Encountered	N/A			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010
Date: 5/3/2024
Taken By: LR
Scale: N/A

Core Photo: X-017-0-23



Core Information				
Core Diameter (in):			3.75	
Core Total Length (in):			5	
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	2			Good
2	3			Good
3				
4				
Rebar Encountered	N/A			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010
Date: 5/3/2024
Taken By: LR
Scale: N/A

Core Photo: X-018-0-23



Core Information				
Core Diameter (in):			3.75	
Core Total Length (in):			11.75	
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	2			Good
2	3.25			Good
3	6.5			Good
4				
Rebar Encountered	N/A			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010
Date: 5/3/2024
Taken By: LR
Scale: N/A

Core Photo: X-019-0-23



Core Information				
Core Diameter (in):			3.75	
Core Total Length (in):			9.25	
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.25			Good
2	1.25			Good
3	2.25			Good
4	4.5			Good
Rebar Encountered	N/A			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010
Date: 5/3/2024
Taken By: LR
Scale: N/A

Core Photo: X-020-0-23



Core Information				
Core Diameter (in):		3.75		
Core Total Length (in):		7.75		
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.5			Good
2	4.5			Good
3	1.75			Good
4				
Rebar Encountered	N/A			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010
Date: 5/3/2024
Taken By: LR
Scale: N/A

Core Photo: X-021-0-23



Core Information				
Core Diameter (in):			3.75	
Core Total Length (in):			5.25	
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.75			Good
2	3.5			Good
3				
4				
Rebar Encountered	N/A			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010
Date: 5/3/2024
Taken By: LR
Scale: N/A

Core Photo: X-022-0-23



Core Information				
Core Diameter (in):			3.75	
Core Total Length (in):			7	
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.25			Good
2	3.75			Good
3	2			Good
4				
Rebar Encountered	N/A			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010
Date: 5/3/2024
Taken By: LR
Scale: N/A

Core Photo: X-023-0-23



Core Information				
Core Diameter (in):			3.75	
Core Total Length (in):			5.5	
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.25			Good
2	4.25			Good
3				
4				
Rebar Encountered	N/A			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010
Date: 5/3/2024
Taken By: LR
Scale: N/A

Core Photo: X-024-0-23



Core Information				
Core Diameter (in):			3.75	
Core Total Length (in):			5.5	
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.5			Good
2	1.5			Good
3	2.5			Good
4				
Rebar Encountered	N/A			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010
Date: 5/3/2024
Taken By: LR
Scale: N/A

Core Photo: X-025-0-23



Core Information				
Core Diameter (in):			3.75	
Core Total Length (in):			12.25	
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.75			Good
2	1.5			Good
3	2			Good
4	7			Good
Rebar Encountered	N/A			

Pavement & Core Photo Log

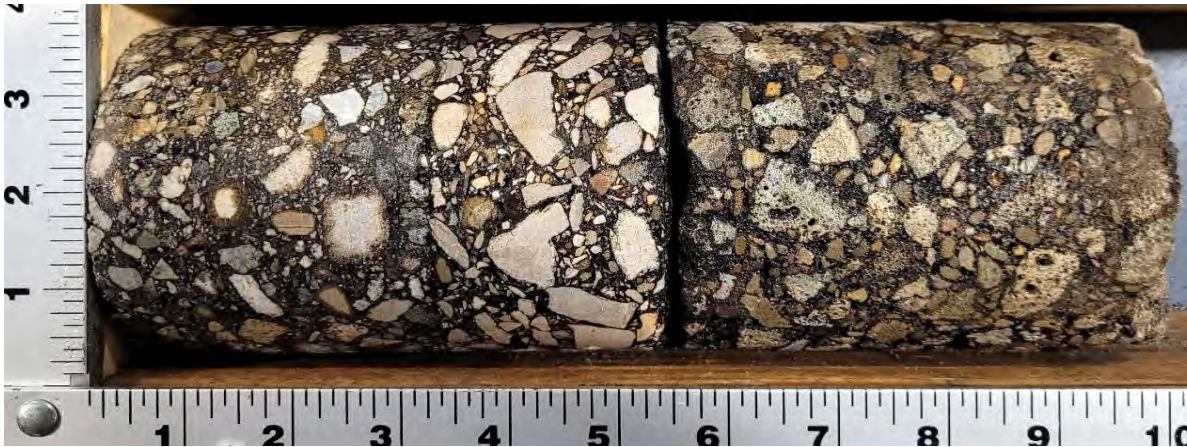


Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010
Date: 5/3/2024
Taken By: LR
Scale: N/A

Core Photo: X-027-0-23



Core Information				
Core Diameter (in):			3.75	
Core Total Length (in):			10.5	
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.25			Good
2	2			Good
3	2.25			Good
4	5			Good
Rebar Encountered	N/A			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010

Date: 5/3/2024

Taken By: LR

Scale: N/A

Core Photo: X-028-0-23



Core Information				
Core Diameter (in):			3.75	
Core Total Length (in):			17.5	
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1			Good
2	2			Good
3	2.5			Good
4	2.75			Good
5		9.25		Good
Rebar Encountered	#2 @ 12.5", #3 @ 12.25"			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010

Date: 5/3/2024

Taken By: LR

Scale: N/A

Core Photo: X-029-0-23



Core Information				
Core Diameter (in):		3.75		
Core Total Length (in):		12.75		
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	2			Good
2	3.5			Good
3	7.25			Good
4				
Rebar Encountered	N/A			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010

Date: 5/3/2024

Taken By: LR

Scale: N/A

Core Photo: X-030-0-23



Core Information				
Core Diameter (in):			3.75	
Core Total Length (in):			7.25	
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.5			Good
2	1.5			Good
3	4.25			Good
4				
Rebar Encountered	N/A			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010
Date: 5/3/2024
Taken By: LR
Scale: N/A

Core Photo: X-031-0-23



Core Information				
Core Diameter (in):		3.75		
Core Total Length (in):		12.75		
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.25			Good
2	2.25			Good
3	3.75			Good
4	5.5			Good
Rebar Encountered	N/A			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010

Date: 5/3/2024

Taken By: LR

Scale: N/A

Core Photo: X-032-0-23



Core Information				
Core Diameter (in):			3.75	
Core Total Length (in):			8	
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.25			Good
2	1.75			Good
3	1.75			Good
4	3.25			Good
Rebar Encountered	N/A			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010
Date: 5/3/2024
Taken By: LR
Scale: N/A

Core Photo: X-033-0-23



Core Information				
Core Diameter (in):			3.75	
Core Total Length (in):			8	
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.25			Good
2	3.25			Good
3	3.5			Good
4				
Rebar Encountered	N/A			

Pavement & Core Photo Log

Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010

Date: 5/3/2024

Taken By: LR

Scale: N/A



Core Photo: X-034-0-23



Core Information				
Core Diameter (in):			3.75	
Core Total Length (in):			8.5	
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.25			Good
2	4.25			Good
3	3			Good
4				
Rebar Encountered	N/A			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010
Date: 5/3/2024
Taken By: LR
Scale: N/A

Core Photo: X-035-0-23



Core Information				
Core Diameter (in):			3.75	
Core Total Length (in):			11	
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.5			Good
2	4.5			Good
3	5			Good
4				
Rebar Encountered	N/A			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010

Date: 5/3/2024

Taken By: LR

Scale: N/A

Core Photo: X-036-0-23



Core Information				
Core Diameter (in):		3.75		
Core Total Length (in):		9.25		
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.5			Good
2	4.5			Good
3	3.25			Poor
4				
Rebar Encountered	N/A			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010
Date: 5/3/2024
Taken By: LR
Scale: N/A

Core Photo: X-037-0-23



Core Information				
Core Diameter (in):			3.75	
Core Total Length (in):			10.25	
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.5			Good
2	3			Good
3	1.5			Good
4	4.25			Good
Rebar Encountered	N/A			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010

Date: 5/3/2024

Taken By: LR

Scale: N/A

Core Photo: X-038-0-23



Core Information				
Core Diameter (in):			3.75	
Core Total Length (in):			5	
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.25			Good
2	3.75			Good
3				
4				
Rebar Encountered	N/A			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010
Date: 5/3/2024
Taken By: LR
Scale: N/A

Core Photo: X-039-0-23



Core Information				
Core Diameter (in):			3.75	
Core Total Length (in):			13.25	
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	2			Good
2	2.5			Good
3	1.5			Good
4	7.25			Good
Rebar Encountered	N/A			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010

Date: 5/3/2024

Taken By: LR

Scale: N/A

Core Photo: X-040-0-23



Core Information				
Core Diameter (in):			3.75	
Core Total Length (in):			6	
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.25			Good
2	3			Good
3	1.75			Good
4				
Rebar Encountered	N/A			

Pavement & Core Photo Log

Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010

Date: 5/3/2024

Taken By: LR

Scale: N/A



Core Photo: X-041-0-23



Core Information				
Core Diameter (in):			3.75	
Core Total Length (in):			11	
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.75			Good
2	4			Good
3	1.75			Good
4	3.5			Good
Rebar Encountered	N/A			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010

Date: 5/3/2024

Taken By: LR

Scale: N/A

Core Photo: X-042-0-23



Core Information				
Core Diameter (in):			3.75	
Core Total Length (in):			8.75	
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	2.25			Good
2	3.75			Good
3	2.75			Good
4				
Rebar Encountered	N/A			

Pavement & Core Photo Log

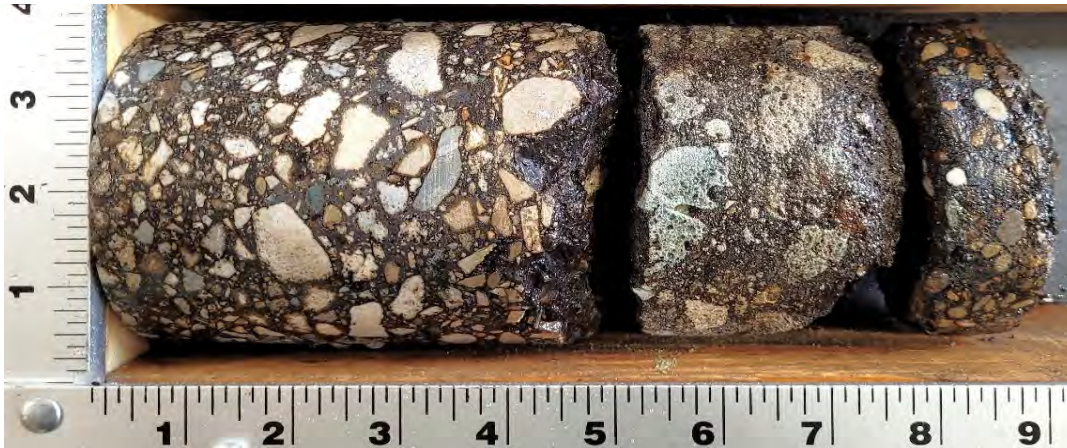


Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010
Date: 5/3/2024
Taken By: LR
Scale: N/A

Core Photo: X-043-0-23



Core Information				
Core Diameter (in):			3.75	
Core Total Length (in):			9.75	
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.5			Good
2	3.5			Good
3	3			Good
4	1.75			Good
Rebar Encountered	N/A			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010
Date: 5/3/2024
Taken By: LR
Scale: N/A

Core Photo: X-044-0-23



Core Information				
Core Diameter (in):		3.75		
Core Total Length (in):		13.25		
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	0.75			Good
2	1.75			Good
3	2			Good
4	8.75			Good
Rebar Encountered	N/A			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010

Date: 5/3/2024

Taken By: LR

Scale: N/A

Core Photo: X-045-0-23



Core Information				
Core Diameter (in):			3.75	
Core Total Length (in):			6	
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.25			Good
2	2			Good
3	2.75			Good
4				
Rebar Encountered	N/A			

Pavement & Core Photo Log

Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010

Date: 5/3/2024

Taken By: LR

Scale: N/A



Core Photo: X-046-0-23



Core Information				
Core Diameter (in):			3.75	
Core Total Length (in):			17.25	
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1			Good
2	4.5			Good
3	1			Good
4	2.25			Good
5		8.5		Good
Rebar Encountered	#2 @ 14"			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010
 Date: 5/3/2024
 Taken By: LR
 Scale: N/A

Core Photo: X-047-0-23



Core Information				
Core Diameter (in):			3.75	
Core Total Length (in):			11	
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.5			Good
2	4			Good
3	1.75			Good
4	3.75			Good
Rebar Encountered	N/A			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010

Date: 5/3/2024

Taken By: LR

Scale: N/A

Core Photo: X-048-0-23



Core Information				
Core Diameter (in):		3.75		
Core Total Length (in):		15.75		
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.5			Good
2	1.5			Good
3	2.75			Good
4	2			Good
5	8			Good
Rebar Encountered	N/A			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010
Date: 5/3/2024
Taken By: LR
Scale: N/A

Core Photo: X-049-0-23



Core Information				
Core Diameter (in):			3.75	
Core Total Length (in):			11	
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.5			Good
2	2.5			Good
3	2			Good
4	5			Good
Rebar Encountered	N/A			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

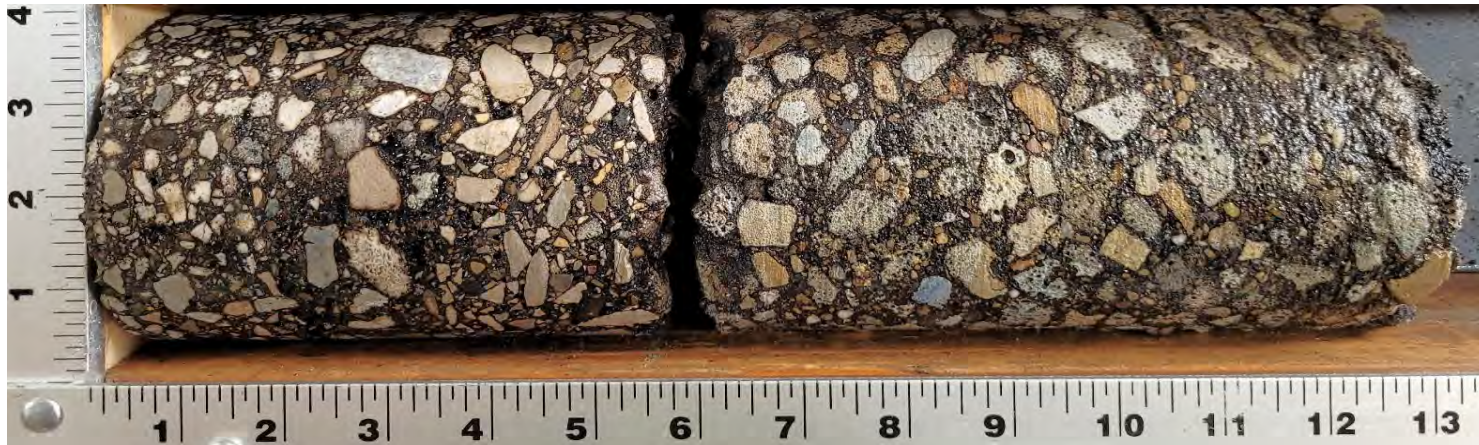
NEAS Project No.: 24-0010

Date: 5/3/2024

Taken By: LR

Scale: N/A

Core Photo: X-050-0-23



Core Information				
Core Diameter (in):			3.75	
Core Total Length (in):			14	
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.75			Good
2	4			Good
3	8.25			Good
4				
Rebar Encountered	N/A			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010

Date: 5/3/2024

Taken By: LR

Scale: N/A

Core Photo: X-051-0-23



Core Information				
Core Diameter (in):			3.75	
Core Total Length (in):			11.5	
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.5			Good
2	4			Good
3	2			Good
4	4			Good
Rebar Encountered	N/A			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

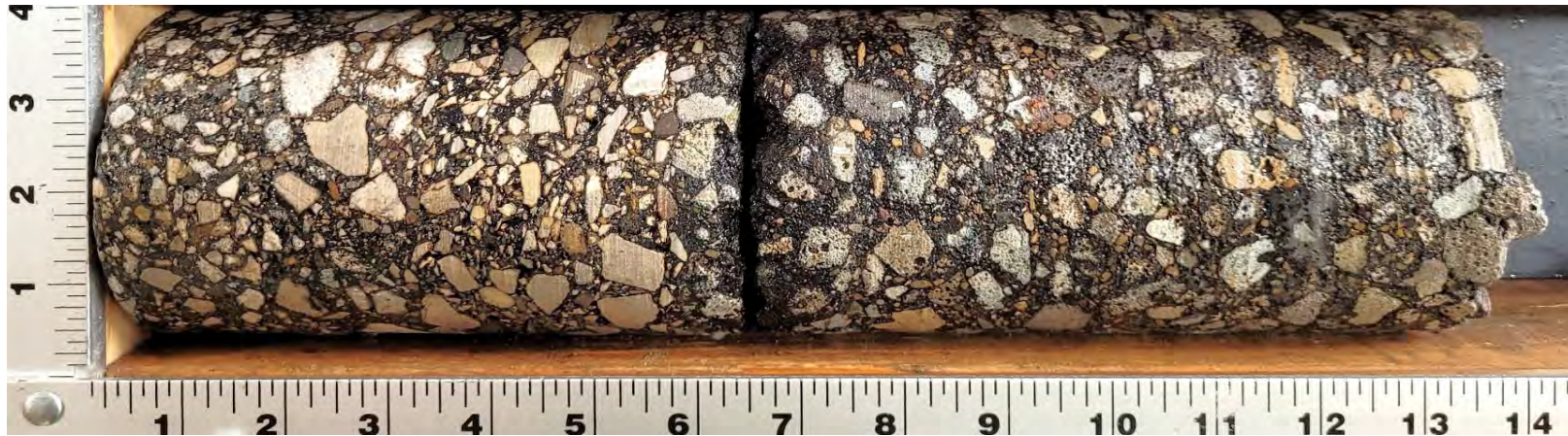
NEAS Project No.: 24-0010

Date: 5/3/2024

Taken By: LR

Scale: N/A

Core Photo: X-052-0-23



Core Information				
Core Diameter (in):			3.75	
Core Total Length (in):			14.25	
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.75			Good
2	4.5			Good
3	8			Good
4				
Rebar Encountered	N/A			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010

Date: 5/3/2024

Taken By: LR

Scale: N/A

Core Photo: X-053-0-23



Core Information				
Core Diameter (in):		3.75		
Core Total Length (in):		12.25		
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.5			Good
2	2			Good
3	2.5			Good
4	6.25			Good
Rebar Encountered	N/A			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010

Date: 5/3/2024

Taken By: LR

Scale: N/A

Core Photo: X-054-0-23



Core Information				
Core Diameter (in):			3.75	
Core Total Length (in):			10.5	
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.25			Good
2	4			Good
3	5.25			Good
4				
Rebar Encountered	N/A			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010

Date: 5/3/2024

Taken By: LR

Scale: N/A

Core Photo: X-055-0-23



Core Information				
Core Diameter (in):			3.75	
Core Total Length (in):			11.75	
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.5			Good
2	4			Good
3	1.75			Good
4	4.5			Good
Rebar Encountered	N/A			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010

Date: 5/3/2024

Taken By: LR

Scale: N/A

Core Photo: X-056-0-23



Core Information				
Core Diameter (in):			3.75	
Core Total Length (in):			9.5	
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1			Good
2	2.25			Good
3	6.25			Good
4				
Rebar Encountered	N/A			

Pavement & Core Photo Log

Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010

Date: 5/3/2024

Taken By: LR

Scale: N/A



Core Photo: X-057-0-23



Core Information				
Core Diameter (in):		3.75		
Core Total Length (in):		9.5		
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.5			Good
2	5			Good
3	3			Good
4				
Rebar Encountered	N/A			

Pavement & Core Photo Log

Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010

Date: 5/3/2024

Taken By: LR

Scale: N/A



Core Photo: X-058-0-23



Core Information				
Core Diameter (in):			3.75	
Core Total Length (in):			6	
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.5			Good
2	1.75			Good
3	2.75			Good
4				
Rebar Encountered	N/A			

Pavement & Core Photo Log

Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010

Date: 5/3/2024

Taken By: LR

Scale: N/A



Core Photo: X-059-0-23



Core Information				
Core Diameter (in):			3.75	
Core Total Length (in):			12	
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.25			Good
2	4.5			Good
3	2.25			Good
4	4			Good
Rebar Encountered	N/A			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010
Date: 5/3/2024
Taken By: LR
Scale: N/A

Core Photo: X-060-0-23



Core Information				
Core Diameter (in):			3.75	
Core Total Length (in):			10	
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.5			Good
2	2.25			Good
3	6.25			Good
4				
Rebar Encountered	N/A			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010

Date: 5/3/2024

Taken By: LR

Scale: N/A

Core Photo: X-061-0-23



Core Information				
Core Diameter (in):		3.75		
Core Total Length (in):		4.75		
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.75			Good
2	3			Good
3				
4				
Rebar Encountered	N/A			

Pavement & Core Photo Log

Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010

Date: 5/3/2024

Taken By: LR

Scale: N/A



Core Photo: X-062-0-23



Core Information				
Core Diameter (in):			3.75	
Core Total Length (in):			6.25	
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.25			Good
2	5			Good
3				
4				
Rebar Encountered	N/A			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010
Date: 5/3/2024
Taken By: LR
Scale: N/A

Core Photo: X-063-0-23



Core Information				
Core Diameter (in):			3.75	
Core Total Length (in):			8.5	
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.25			Good
2	4			Good
3	3.25			Good
4				
Rebar Encountered	N/A			

Pavement & Core Photo Log

Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010

Date: 5/3/2024

Taken By: LR

Scale: N/A



Core Photo: X-064-0-23



Core Information				
Core Diameter (in):			3.75	
Core Total Length (in):			12.5	
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1			Good
2	4.5			Good
3	1			Good
4	6			Good
Rebar Encountered	N/A			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010
Date: 5/3/2024
Taken By: LR
Scale: N/A

Core Photo: X-065-0-23



Core Information				
Core Diameter (in):			3.75	
Core Total Length (in):			4.75	
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.25			Good
2	3.5			Good
3				
4				
Rebar Encountered	N/A			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010
Date: 5/3/2024
Taken By: LR
Scale: N/A

Core Photo: X-066-0-23



Core Information				
Core Diameter (in):			3.75	
Core Total Length (in):			16.25	
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.25			Good
2	1.5			Good
3	2.75			Good
4	10.75			Good
Rebar Encountered	N/A			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010

Date: 5/3/2024

Taken By: LR

Scale: N/A

Core Photo: X-067-0-23



Core Information				
Core Diameter (in):			3.75	
Core Total Length (in):			8.5	
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.25			Good
2	3.75			Good
3	3.5			Good
4				
Rebar Encountered	N/A			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010
Date: 5/3/2024
Taken By: LR
Scale: N/A

Core Photo: X-068-0-23



Core Information				
Core Diameter (in):		3.75		
Core Total Length (in):		11.5		
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.75			Good
2	3.5			Good
3	6.25			Good
4				
Rebar Encountered	N/A			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010
Date: 5/3/2024
Taken By: LR
Scale: N/A

Core Photo: X-069-0-23



Core Information				
Core Diameter (in):			3.75	
Core Total Length (in):			15.25	
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.25			Good
2	3			Good
3	1.5			Good
4		9.5		Good
Rebar Encountered	N/E			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010
Date: 5/3/2024
Taken By: LR
Scale: N/A

Core Photo: X-070-0-23



Core Information				
Core Diameter (in):		3.75		
Core Total Length (in):		5.25		
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	2			Good
2	3.25			Good
3				
4				
Rebar Encountered	N/A			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010
Date: 5/3/2024
Taken By: LR
Scale: N/A

Core Photo: X-071-0-23



Core Information				
Core Diameter (in):			3.75	
Core Total Length (in):			11.5	
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1			Good
2	4.25			Good
3	6.25			Good
4				
Rebar Encountered	N/A			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010

Date: 5/3/2024

Taken By: LR

Scale: N/A

Core Photo: X-072-0-23



Core Information				
Core Diameter (in):			3.75	
Core Total Length (in):			9.75	
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.5			Good
2	3.5			Good
3	4.75			Good
4				
Rebar Encountered	N/A			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010
Date: 5/3/2024
Taken By: LR
Scale: N/A

Core Photo: X-073-0-23



Core Information				
Core Diameter (in):			3.75	
Core Total Length (in):			8.5	
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.25			Good
2	3			Good
3	4.25			Good
4				
Rebar Encountered	N/A			

Pavement & Core Photo Log

Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010

Date: 5/3/2024

Taken By: LR

Scale: N/A



Core Photo: X-074-0-23



Core Information				
Core Diameter (in):			3.75	
Core Total Length (in):			15.5	
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.25			Good
2	3.5			Good
3	2.25			Good
4		8.5		Good
Rebar Encountered	N/E			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010

Date: 5/3/2024

Taken By: LR

Scale: N/A

Core Photo: X-075-0-23



Core Information				
Core Diameter (in):			3.75	
Core Total Length (in):			6.75	
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.25			Good
2	3			Good
3	2.5			Good
4				
Rebar Encountered	N/A			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010
Date: 5/3/2024
Taken By: LR
Scale: N/A

Core Photo: X-076-0-23



Core Information				
Core Diameter (in):			3.75	
Core Total Length (in):			8.5	
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.25			Good
2	3.25			Good
3	4			Good
4				
Rebar Encountered	N/A			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010
Date: 5/3/2024
Taken By: LR
Scale: N/A

Core Photo: X-077-0-23



Core Information				
Core Diameter (in):			3.75	
Core Total Length (in):			14	
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1			Good
2	4			Good
3	3			Good
4	6			Good
Rebar Encountered	N/A			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010

Date: 5/3/2024

Taken By: LR

Scale: N/A

Core Photo: X-078-0-23



Core Information				
Core Diameter (in):			3.75	
Core Total Length (in):			15.75	
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.25			Good
2	4			Good
3	1.5			Good
4		9		Good
Rebar Encountered	#3 bar @ 10"			

Pavement & Core Photo Log

Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010

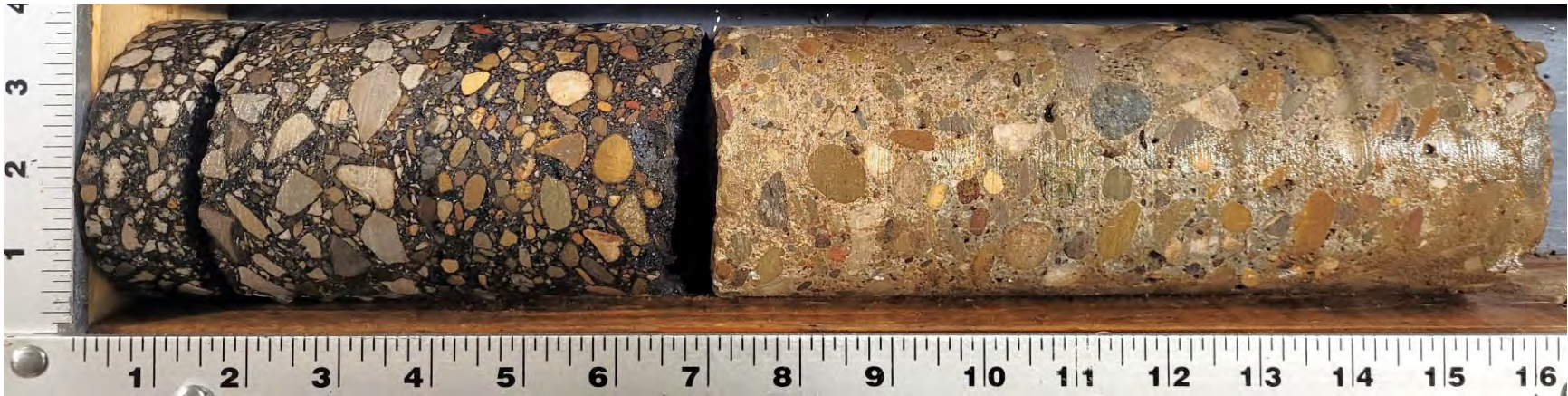
Date: 5/3/2024

Taken By: LR

Scale: N/A



Core Photo: X-079-0-23



Core Information				
Core Diameter (in):		3.75		
Core Total Length (in):		16.5		
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.25			Good
2	2.5			Good
3	3			Good
4		9.75		Good
Rebar Encountered	N/E			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010

Date: 5/3/2024

Taken By: LR

Scale: N/A

Core Photo: X-080-0-23



Core Information				
Core Diameter (in):			3.75	
Core Total Length (in):			15.5	
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.25			Good
2	2.5			Good
3	2.75			Good
4		9		Good
Rebar Encountered	N/E			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010

Date: 5/3/2024

Taken By: LR

Scale: N/A

Core Photo: X-081-0-23



Core Information				
Core Diameter (in):		3.75		
Core Total Length (in):		15.75		
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.5			Poor
2	2.5			Good
3	2.25			Good
4		9.5		Good
Rebar Encountered	N/E			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010

Date: 5/3/2024

Taken By: LR

Scale: N/A

Core Photo: X-082-0-23



Core Information				
Core Diameter (in):			3.75	
Core Total Length (in):			13	
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.5			Poor
2	2.5			Poor
3		9		Poor
4				
Rebar Encountered	N/E			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010

Date: 5/3/2024

Taken By: LR

Scale: N/A

Core Photo: X-083-0-23



Core Information				
Core Diameter (in):			3.75	
Core Total Length (in):			17	
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.5			Good
2	2.5			Good
3	3.5			Good
4		9.5		Good
Rebar Encountered	N/E			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010

Date: 5/3/2024

Taken By: LR

Scale: N/A

Core Photo: X-084-0-23



Core Information				
Core Diameter (in):		3.75		
Core Total Length (in):		16.25		
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.25			Good
2	2.75			Good
3	2.75			Good
4		9.5		Good
Rebar Encountered	N/E			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

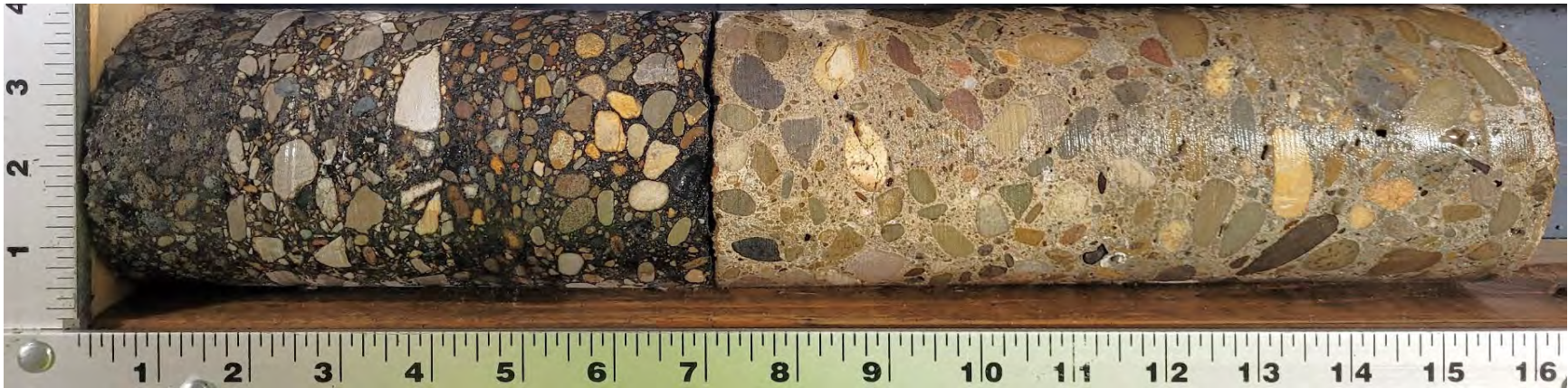
NEAS Project No.: 24-0010

Date: 5/3/2024

Taken By: LR

Scale: N/A

Core Photo: X-085-0-23



Core Information				
Core Diameter (in):			3.75	
Core Total Length (in):			16.25	
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.5			Good
2	2.5			Good
3	3			Good
4		9.25		Good
Rebar Encountered	N/E			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010

Date: 5/3/2024

Taken By: LR

Scale: N/A

Core Photo: X-086-0-23



Core Information				
Core Diameter (in):		3.75		
Core Total Length (in):		16.5		
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.5			Good
2	2.5			Good
3	3.5			Good
4		9		Good
Rebar Encountered	N/E			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010
Date: 5/3/2024
Taken By: LR
Scale: N/A

Core Photo: X-087-0-23



Core Information				
Core Diameter (in):			3.75	
Core Total Length (in):			5.5	
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.5			Poor
2	2.5			Poor
3	1.5			Poor
4				
Rebar Encountered	N/A			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010
Date: 5/3/2024
Taken By: LR
Scale: N/A

Core Photo: X-088-0-23



Core Information				
Core Diameter (in):			3.75	
Core Total Length (in):			13	
Layers	Core Composition & Thickness (in)			Remarks/ Condition
	Asphalt	Concrete	Brick	
1	1.5			Good
2	2.5			Good
3		9		Good
4				
Rebar Encountered	N/E			

Pavement & Core Photo Log



Roadway Project

BEL-70-19.17 (PID#107533)

NEAS Project No.: 24-0010

Date: 5/3/2024

Taken By: LR

Scale: N/A

APPENDIX D

SULFATE TEST DATA REPORT



OHIO DEPARTMENT OF TRANSPORTATION
DETERMINING SULFATE CONTENT IN SOILS
SUPPLEMENT 1122

Project C-R-S: BEL-70-19.17
PID No: 107533
Report Date: 5/24/2024
Consultant: NEAS Inc.
Technician:

Boring ID & Sample #	Station	Offset	Latitude & Longitude or State Plane Coordinates		Elevation	Soaking Time (hr)	Replicate Sample Readings						Sulfate Content (ppm)
							1		2		3		
							Dilution	Reading	Dilution	Reading	Dilution	Reading	
B-001-0-23 SS-1	1017+06	43' RT	40.069842	-80.882223	1121.5	19.0	20	20	20	20	20	22	413
B-002-0-23 SS-1	1021+10	50' LT	40.070370	-80.880911	1119.8	19.0	20	27	20	29	20	29	567
B-003-0-23 SS-1	1025+02	40' RT	40.070404	-80.879476	1123.1	19.1	20	24	20	21	20	21	440
B-004-0-23 SS-1	1028+77	52' LT	40.070909	-80.878262	1126.7	18.9	20	48	20	49	20	51	987
B-005-0-23 SS-1	1032+66	42' RT	40.070927	-80.876831	1129.7	19.0	20	43	20	41	20	40	827
B-006-0-23 SS-1	1036+73	63' LT	40.071488	-80.875518	1133.4	19.0	20	18	20	18	20	19	367
B-007-0-23 SS-1	1040+37	39' RT	40.071471	-80.874169	1136.5	19.1	20	4	20	4	20	4	80
B-008-0-23 SS-1	1044+36	78' LT	40.072059	-80.872894	1141.2	19.1	20	23	20	21	20	23	447
B-009-0-23 SS-1	1048+27	41' RT	40.072012	-80.871435	1159.6	18.9	20	10	20	9	20	11	200
B-010-0-23 SS-3	1052+20	49' LT	40.072502	-80.870139	1181.0	19.0	20	12	20	11	20	13	240
B-011-0-23 SS-1	1055+97	52' RT	40.072370	-80.868756	1193.2	18.7	20	15	20	13	20	13	273
B-012-0-23 SS-1	1059+72	62' LT	40.072723	-80.867433	1202.3	17.4	20	27	20	30	20	25	547
B-013-0-23 SS-1	1063+51	43' RT	40.072376	-80.866100	1196.5	17.6	20	33	20	35	20	33	673
B-014-0-23 SS-1	1067+35	49' LT	40.072458	-80.864693	1190.3	17.5	100	23	100	23	100	24	2333
B-015-0-23 SS-1	1071+43	38' RT	40.071936	-80.863365	1189.3	18.7	20	19	20	19	20	18	373
B-016-0-23 SS-1	1075+22	52' LT	40.071804	-80.861983	1201.9	17.5	20	7	20	7	20	7	140
B-017-0-23 SS-1	1079+13	53' RT	40.071135	-80.860826	1213.9	19.8	20	9	20	11	20	11	207
B-018-0-23 SS-1	1082+83	58' LT	40.071039	-80.859452	1218.9	18.7	20	12	20	9	20	9	200
B-019-0-23 SS-1	1086+98	85' RT	40.070263	-80.858279	1215.8	18.8	20	2	20	2	20	2	40
B-020-0-23 SS-1	1090+91	64' LT	40.070317	-80.856777	1204.9	18.4	20	7	20	8	20	9	160

B-021-0-23 SS-1	1094+84	65' RT	40.069711	-80.855529	1207.9	18.6	20	16	20	15	20	17	320
B-022-0-23 SS-1	1098+60	67' LT	40.069883	-80.854123	1220.1	18.7	20	6	20	4	20	4	93
B-023-0-23 SS-1	1102+64	51' RT	40.069421	-80.852749	1237.0	17.4	20	1	20	1	20	1	20
B-024-0-23 SS-1	1106+49	83' LT	40.069652	-80.851324	1248.5	18.7	20	3	20	3	20	3	60
B-025-0-23 SS-1	1110+38	88' LT	40.069533	-80.849942	1255.0	17.4	20	16	20	16	20	16	320
B-027-0-23 SS-1	1114+24	51' LT	40.069299	-80.848590	1257.8	17.4	20	7	20	7	20	8	147
B-028-0-23 SS-1	1118+23	38' RT	40.068922	-80.847218	1253.8	19.8	20	72	20	69	20	73	1427
B-029-0-23 SS-1	1122+14	59' LT	40.069022	-80.845808	1246.1	18.7	20	6	20	5	20	4	100
B-030-0-23 SS-1	1126+05	42' RT	40.068518	-80.844523	1230.7	17.4	20	6	20	5	20	6	113
B-031-0-23 SS-1	1129+67	54' LT	40.068491	-80.843184	1214.2	17.6	20	20	20	19	20	21	400
B-032-0-23 SS-2	1133+99	39' RT	40.067839	-80.841850	1191.0	18.8	20	12	20	12	20	11	233
B-033-0-23 SS-1	1138+12	51' LT	40.067648	-80.840487	1172.7	17.6	20	1	20	0	20	1	13
B-034-0-23 SS-1	1142+00	64' RT	40.066959	-80.839352	1155.0	19.8	100	35	100	27	100	33	3167
B-035-0-23 SS-1	1145+80	50' LT	40.066935	-80.837935	1138.4	17.6	20	14	20	17	20	14	300
B-036-0-23 SS-1	1149+80	41' RT	40.066425	-80.836629	1126.9	18.7	20	35	20	34	20	35	693
B-037-0-23 SS-1	1153+13	53' LT	40.066481	-80.835198	1114.8	17.5	20	6	20	6	20	6	120
B-038-0-23 SS-1	1157+01	70' RT	40.065960	-80.833911	1102.4	18.4	20	16	20	16	20	18	333
B-039-0-23 SS-1	1160+89	67' LT	40.066139	-80.832460	1090.5	17.4	20	8	20	10	20	8	173
B-040-0-23 SS-1	1161+05	64' RT	40.065779	-80.832488	1090.4	17.4	20	3	20	3	20	3	60
B-042-0-23 SS-1	1168+73	52' LT	40.065718	-80.829714	1065.4	17.4	20	10	20	12	20	11	220
B-043-0-23 SS-1	1172+62	45' RT	40.065264	-80.828406	1046.4	17.4	20	9	20	9	20	8	173
B-044-0-23 SS-1	1176+45	51' LT	40.065335	-80.826998	1027.8	18.7	20	21	20	20	20	19	400
B-045-0-23 SS-1	1180+54	35' RT	40.064962	-80.825624	1011.8	18.7	20	41	20	37	20	38	773
B-046-0-23 SS-2	1184+37	48' LT	40.065158	-80.824249	992.0	18.7	20	6	20	7	20	7	133
B-047-0-23 SS-1	1188+28	38' RT	40.064932	-80.822852	976.4	17.6	20	4	20	3	20	4	73
B-048-0-23 SS-1	1192+11	47' LT	40.065121	-80.821470	961.3	17.6	20	2	20	4	20	5	73
B-049-0-23 SS-2	1196+10	34' RT	40.064747	-80.820100	941.8	18.7	20	5	20	3	20	3	73
B-050-0-23 SS-1	1199+91	47' LT	40.064715	-80.818707	925.9	17.5	20	3	20	2	20	3	53
B-051-0-23 SS-1	1203+83	39' RT	40.064207	-80.817436	908.2	17.4	20	4	20	4	20	4	80
B-052-0-23 SS-2	1207+63	45' LT	40.064158	-80.816049	890.5	18.5	40	44	40	43	40	47	1787
B-053-0-23 SS-2	1211+62	35' RT	40.063729	-80.814711	875.1	18.5	20	62	20	58	20	63	1220
B-054-0-23 SS-2	1215+42	38' LT	40.063829	-80.813335	856.4	16.8	20	3	20	2	20	3	53
B-055-0-23 SS-1	1219+34	38' RT	40.063617	-80.811940	840.6	17.4	20	21	20	18	20	14	353
B-056-0-23 SS-1	1223+25	33' LT	40.063843	-80.810550	823.1	18.7	20	15	20	16	20	12	287

B-057-0-23 SS-2	1227+12	36' RT	40.063684	-80.809160	809.3	18.6	20	31	20	31	20	32	627
B-058-0-23 SS-1	1231+03	36' LT	40.063912	-80.807770	802.6	18.5	40	38	40	34	40	39	1480
B-059-0-23 SS-1	1234+61	36' RT	40.063739	-80.806486	802.7	19.8	20	10	20	10	20	10	200
B-060-0-23 SS-3	1238+85	34' LT	40.063963	-80.804976	811.4	18.5	20	6	20	6	20	7	127
B-061-0-23 SS-2	1242+72	34' RT	40.063806	-80.803588	822.0	18.5	20	9	20	10	20	10	193
B-062-0-23 SS-1	1246+64	38' LT	40.064035	-80.802198	832.5	18.5	20	11	20	10	20	12	220
B-063-0-23 SS-1	1250+53	38' RT	40.063867	-80.800797	844.2	19.8	20	5	20	6	20	6	113
B-064-0-23 SS-2	1254+46	38' LT	40.064129	-80.799408	855.1	18.6	20	42	20	42	20	44	853
B-065-0-23 SS-1	1256+97	35' RT	40.063963	-80.798501	862.4	16.8	40	44	40	38	40	39	1613
B-066-0-23 SS-1	0+66	3' RT	40.070621	-80.860515	1229.6	16.8	20	12	20	11	20	13	240
B-067-0-23 SS-1	3+64	6' RT	40.070520	-80.859461	1222.7	16.8	20	11	20	11	20	12	227
B-068-0-23 SS-1	1116+73	5' RT	40.068915	-80.848654	1256.8	16.7	20	7	20	7	20	7	140
B-069-0-23 SS-1	1111+90	10' LT	40.069606	-80.847279	1250.2	18.5	20	6	20	6	20	6	120
B-070-0-23 SS-1	1115+55	15' LT	40.069456	-80.848558	1255.8	16.7	20	7	20	7	20	7	140
B-071-0-23 SS-1	27+02	14' RT	40.068376	-80.841058	1217.2	18.7	20	5	20	5	20	5	100
B-072-0-23 SS-1	23+80	0' LT	40.068473	-80.842204	1209.8	18.5	20	9	20	8	20	9	173
B-073-0-23 SS-1	19+34	2' RT	40.066592	-80.838334	1149.1	18.5	40	50	40	48	40	49	1960
B-074-0-23 SS-1	22+14	4' RT	40.066198	-80.837473	1151.7	18.5	20	11	20	11	20	12	227
B-075-0-23 SS-1	1+90	5' RT	40.066161	-80.836756	1146.3	18.5	20	13	20	13	20	12	253
B-076-0-23 SS-1	5+89	2' RT	40.066076	-80.835334	1118.7	18.5	20	1	20	1	20	1	20
B-077-0-23 SS-1	4+48	3' RT	40.066371	-80.833677	1101.2	19.8	20	7	20	7	20	7	140
B-078-0-23 SS-1	8+02	4' LT	40.066680	-80.834877	1105.5	19.8	20	9	20	8	20	9	173
B-079-0-23 SS-1	1111+74	5' LT	40.069610	-80.848638	1255.3	18.6	20	3	20	3	20	3	60
B-080-0-23 SS-1	1108+03	3' LT	40.069702	-80.849956	1255.0	16.8	20	11	20	10	20	10	207
B-081-0-23 SS-2	1104+28	1' LT	40.069839	-80.851285	1249.3	18.7	20	4	20	4	20	4	80
B-082-0-23 SS-1	1100+48	2' LT	40.069986	-80.852629	1237.5	18.7	20	4	20	5	20	5	93
B-083-0-23 SS-1	1096+75	1' LT	40.070125	-80.853947	1222.0	18.6	20	0	20	0	20	0	0
B-084-0-23 SS-1	1092+86	3' RT	40.070263	-80.855328	1207.3	16.7	20	6	20	6	20	7	127
B-085-0-23 SS-1	1089+11	3' RT	40.070457	-80.856645	1204.7	16.8	20	14	20	14	20	13	273
B-086-0-23 SS-1	1085+67	2' RT	40.070749	-80.857812	1212.6	16.9	20	4	20	4	20	5	87
B-087-0-23 SS-1	1082+11	0' LT	40.071166	-80.858961	1228.0	19.8	20	10	20	9	20	10	193
B-088-0-23 SS-2	1078+78	0' LT	40.071608	-80.860004	1241.0	19.8	20	9	20	8	20	9	173

APPENDIX E

SUBGRADE ANALYSIS SPREADSHEETS

ENTIRE PROJECT

OHIO DEPARTMENT OF TRANSPORTATION

OFFICE OF GEOTECHNICAL ENGINEERING

PLAN SUBGRADES

Geotechnical Design Manual Section 600

Instructions: Enter data in the shaded cells only.

(Enter state route number, project description, county, consultant's name, prepared by name, and date prepared. This information will be transferred to all other sheets. The date prepared must be entered in the appropriate cell on this sheet to remove these instructions prior to printing.)

BEL-70-19.17
107533

Interstate Route 70 and Ramps from SLM 19.17 to SLM 23.69 in Belmont County, OH

NEAS Inc.

Prepared By: Kevin C. Arens
Date prepared: Tuesday, May 28, 2024

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NO. OF BORINGS: **87**

#	Boring ID	Alignment	Station	Offset	Dir	Drill Rig	ER	Boring EL.	Proposed Subgrade EL	Cut Fill
1	B-001-0-23	IR-70	1017+06	43	RT	CME 45B	79	1121.5	1120.0	1.5 C
2	B-002-0-23	IR-70	1021+10	50	LT	CME 45B	79	1119.8	1118.3	1.5 C
3	B-003-0-23	IR-70	1025+02	40	RT	CME 45B	79	1123.1	1121.6	1.5 C
4	B-004-0-23	IR-70	1028+77	52	LT	CME 45B	79	1126.7	1125.2	1.5 C
5	B-005-0-23	IR-70	1032+66	42	RT	CME 45B	79	1129.7	1128.2	1.5 C
6	B-006-0-23	IR-70	1036+73	63	LT	CME 45B	79	1133.4	1131.9	1.5 C
7	B-007-0-23	IR-70	1040+37	39	RT	CME 45B	79	1136.5	1135.0	1.5 C
8	B-008-0-23	IR-70	1044+36	78	LT	CME 45B	79	1141.2	1139.7	1.5 C
9	B-009-0-23	IR-70	1048+27	41	RT	CME 45B	79	1159.6	1158.1	1.5 C
10	B-010-0-23	IR-70	1052+20	49	LT	CME 45B	79	1181.0	1179.5	1.5 C
11	B-011-0-23	IR-70	1055+97	52	RT	CME 45B	79	1193.2	1191.7	1.5 C
12	B-012-0-23	IR-70	1059+72	62	LT	CME 45B	79	1202.3	1200.8	1.5 C
13	B-013-0-23	IR-70	1063+51	43	RT	CME 45B	79	1196.5	1195.0	1.5 C
14	B-014-0-23	IR-70	1067+35	49	LT	CME 45B	79	1190.3	1188.8	1.5 C
15	B-015-0-23	IR-70	1071+43	38	RT	CME 45B	79	1189.3	1187.8	1.5 C
16	B-016-0-23	IR-70	1075+22	52	LT	CME 45B	79	1201.9	1200.4	1.5 C
17	B-017-0-23	IR-70	1079+13	53	RT	CME 45B	79	1213.9	1212.4	1.5 C
18	B-018-0-23	IR-70	1082+83	58	LT	CME 45B	79	1218.9	1217.4	1.5 C
19	B-019-0-23	IR-70	1086+98	85	RT	CME 45B	79	1215.8	1214.3	1.5 C
20	B-020-0-23	IR-70	1090+91	64	LT	CME 45B	79	1204.9	1203.4	1.5 C
21	B-021-0-23	IR-70	1094+84	65	RT	CME 45B	79	1207.9	1206.4	1.5 C
22	B-022-0-23	IR-70	1098+60	67	LT	CME 45B	79	1220.1	1218.6	1.5 C
23	B-023-0-23	IR-70	1102+64	51	RT	CME 45B	79	1237.0	1235.5	1.5 C
24	B-024-0-23	IR-70	1106+49	83	LT	CME 45B	79	1248.5	1247.0	1.5 C
25	B-025-0-23	IR-70	1110+38	88	LT	CME 45B	79	1255.0	1253.5	1.5 C
26	B-027-0-23	IR-70	1114+24	51	LT	CME 45B	79	1257.8	1256.3	1.5 C
27	B-028-0-23	IR-70	1118+23	38	RT	CME 45B	79	1253.8	1252.3	1.5 C
28	B-029-0-23	IR-70	1122+14	59	LT	CME 45B	79	1246.1	1244.6	1.5 C
29	B-030-0-23	IR-70	1126+05	42	RT	CME 45B	79	1230.7	1229.2	1.5 C
30	B-031-0-23	IR-70	1129+67	54	LT	CME 45B	79	1214.2	1212.7	1.5 C
31	B-032-0-23	IR-70	1133+99	39	RT	CME 45B	79	1191.0	1189.5	1.5 C
32	B-033-0-23	IR-70	1138+12	51	LT	CME 45B	79	1172.7	1171.2	1.5 C
33	B-034-0-23	IR-70	1142+00	64	RT	CME 45B	79	1155.0	1153.5	1.5 C
34	B-035-0-23	IR-70	1145+80	50	LT	CME 45B	79	1138.4	1136.9	1.5 C
35	B-036-0-23	IR-70	1149+80	41	RT	CME 45B	79	1126.9	1125.4	1.5 C
36	B-037-0-23	IR-70	1153+13	53	LT	CME 45B	79	1114.8	1113.3	1.5 C
37	B-038-0-23	IR-70	1157+01	70	RT	CME 45B	79	1102.4	1100.9	1.5 C
38	B-039-0-23	IR-70	1160+89	67	LT	CME 45B	79	1090.5	1089.0	1.5 C
39	B-040-0-23	IR-70	1161+05	64	RT	CME 45B	79	1090.4	1088.9	1.5 C
40	B-041-0-23	IR-70	1164+82	58	RT	CME 45B	79	1079.0	1077.5	1.5 C
41	B-042-0-23	IR-70	1168+73	52	LT	CME 45B	79	1065.4	1063.9	1.5 C
42	B-043-0-23	IR-70	1172+62	45	RT	CME 45B	79	1046.4	1044.9	1.5 C
43	B-044-0-23	IR-70	1176+45	51	LT	CME 45B	79	1027.8	1026.3	1.5 C
44	B-045-0-23	IR-70	1180+54	35	RT	CME 45B	79	1011.8	1010.3	1.5 C
45	B-046-0-23	IR-70	1184+37	48	LT	CME 45B	79	992.0	990.5	1.5 C

#	Boring ID	Alignment	Station	Offset	Dir	Drill Rig	ER	Boring EL.	Proposed Subgrade EL	Cut Fill
46	B-047-0-23	IR-70	1188+28	38	RT	CME 45B	79	976.4	974.9	1.5 C
47	B-048-0-23	IR-70	1192+11	47	LT	CME 45B	79	961.3	959.8	1.5 C
48	B-049-0-23	IR-70	1196+10	34	RT	CME 45B	79	941.8	940.3	1.5 C
49	B-050-0-23	IR-70	1199+91	47	LT	CME 45B	79	925.9	924.4	1.5 C
50	B-051-0-23	IR-70	1203+83	39	RT	CME 45B	79	908.2	906.7	1.5 C
51	B-052-0-23	IR-70	1207+63	45	LT	CME 45B	79	890.5	889.0	1.5 C
52	B-053-0-23	IR-70	1211+62	35	RT	CME 45B	79	875.1	873.6	1.5 C
53	B-054-0-23	IR-70	1215+42	38	LT	CME 45B	79	856.4	854.9	1.5 C
54	B-055-0-23	IR-70	1219+34	38	RT	CME 45B	79	840.6	839.1	1.5 C
55	B-056-0-23	IR-70	1223+29	33	LT	CME 45B	79	823.1	821.6	1.5 C
56	B-057-0-23	IR-70	1227+12	36	RT	CME 45B	79	809.3	807.8	1.5 C
57	B-058-0-23	IR-70	1231+03	36	LT	CME 45B	79	802.6	801.1	1.5 C
58	B-059-0-23	IR-70	1234+61	36	RT	CME 45B	79	802.7	801.2	1.5 C
59	B-060-0-23	IR-70	1238+89	34	LT	CME 45B	79	811.4	809.9	1.5 C
60	B-061-0-23	IR-70	1242+72	34	RT	CME 45B	79	822.0	820.5	1.5 C
61	B-062-0-23	IR-70	1246+64	38	LT	CME 45B	79	832.5	831.0	1.5 C
62	B-063-0-23	IR-70	1250+53	38	RT	CME 45B	79	844.2	842.7	1.5 C
63	B-064-0-23	IR-70	1254+46	38	LT	CME 45B	79	855.1	853.6	1.5 C
64	B-065-0-23	IR-70	1256+97	35	RT	CME 45B	79	862.4	860.9	1.5 C
65	B-066-0-23	Ramp 5	0+66	3	RT	CME 45B	79	1229.6	1228.1	1.5 C
66	B-067-0-23	Ramp 5	3+64	6	RT	CME 45B	79	1222.7	1221.2	1.5 C
67	B-068-0-23	Ramp 6	1116+73	5	RT	CME 45B	79	1256.8	1255.3	1.5 C
68	B-069-0-23	Ramp 7	1111+90	10	LT	CME 45B	79	1250.2	1248.7	1.5 C
69	B-070-0-23	Ramp 7	1115+59	15	LT	CME 45B	79	1255.8	1254.3	1.5 C
70	B-071-0-23	Ramp 8	27+02	14	RT	CME 45B	79	1217.2	1215.7	1.5 C
71	B-072-0-23	Ramp 8	23+80	0	LT	CME 45B	79	1209.8	1208.3	1.5 C
72	B-073-0-23	Ramp 9	19+34	2	RT	CME 45B	79	1149.1	1147.6	1.5 C
73	B-074-0-23	Ramp 9	22+14	4	RT	CME 45B	79	1151.7	1150.2	1.5 C
74	B-075-0-23	Ramp 10	1+90	5	RT	CME 45B	79	1146.3	1144.8	1.5 C
75	B-076-0-23	Ramp 10	5+89	2	RT	CME 45B	79	1118.7	1117.2	1.5 C
76	B-077-0-23	Ramp 11	4+48	3	RT	CME 45B	79	1101.2	1099.7	1.5 C
77	B-078-0-23	Ramp 11	8+02	4	LT	CME 45B	79	1105.5	1104.0	1.5 C
78	B-079-0-23	Ramp 12	1111+74	5	LT	CME 45B	79	1255.3	1253.8	1.5 C
79	B-080-0-23	Ramp 12	1108+03	3	LT	CME 45B	79	1255.0	1253.5	1.5 C
80	B-081-0-23	Ramp 12	1104+28	1	LT	CME 45B	79	1249.3	1247.8	1.5 C
81	B-082-0-23	Ramp 12	1100+48	2	LT	CME 45B	79	1237.5	1236.0	1.5 C
82	B-083-0-23	Ramp 12	1096+79	1	LT	CME 45B	79	1222.0	1220.5	1.5 C
83	B-084-0-23	Ramp 12	1092+86	3	RT	CME 45B	79	1207.3	1205.8	1.5 C
84	B-085-0-23	Ramp 12	1089+11	3	RT	CME 45B	79	1204.7	1203.2	1.5 C
85	B-086-0-23	Ramp 12	1085+67	2	RT	CME 45B	79	1212.6	1211.1	1.5 C
86	B-087-0-23	Ramp 12	1082+11	0	LT	CME 45B	79	1228.0	1226.5	1.5 C
87	B-088-0-23	Ramp 12	1078+78	0	LT	CME 45B	79	1241.0	1239.5	1.5 C

#	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 001-0 23	SS-1	1.5	3.0	0.0	1.5	18	12	4.25	29	16	13	23	21	44	11	14	A-6a	3	413					
		SS-2	3.0	4.5	1.5	3.0	12		4.25	32	18	14	31	31	62	11	14	A-6a	7						
		SS-3	4.5	6.0	3.0	4.5	20		4.25							14	14	A-6a	10						
		SS-4	6.0	7.5	4.5	6.0	20									3	10	A-2-4	0						
2	B 002-0 23	SS-1	1.5	3.0	0.0	1.5	16	16	4.5	34	19	15	36	25	61	13	14	A-6a	7	567					
		SS-2	3.0	4.5	1.5	3.0	16		4.25	34	19	15	35	30	65	14	14	A-6a	8						
		SS-3	4.5	6.0	3.0	4.5	22		4.25							14	14	A-6a	10						
		SS-4	6.0	7.5	4.5	6.0	18									9	10	A-2-4	0						
3	B 003-0 23	SS-1	1.5	1.9	0.0	0.4	30	30	4.5	36	21	15	43	39	82	11	16	A-6a	10	440					
		SS-2	3.0	3.4	1.5	1.9	30									6	14	A-6a	10						
		SS-3	4.5	4.8	3.0	3.3	30									7	14	A-6a	10						
		SS-4	6.0	6.2	4.5	4.7	30									7	14	A-6a	10						
4	B 004-0 23	SS-1	1.5	3.0	0.0	1.5	20	18		NP	NP	NP	20	8	28	10	10	A-2-4	0	987					
		SS-2	3.0	4.5	1.5	3.0	30		4.5	28	19	9	50	15	65	7	14	A-4b	6		A-4b		36"		
		SS-3	4.5	6.0	3.0	4.5	18		4.5							14	10	A-4b	8						
		SS-4	6.0	7.5	4.5	6.0	18		4.5							9	10	A-4b	8						
5	B 005-0 23	SS-1	2.0	3.5	0.5	2.0	30	30		NP	NP	NP	15	11	26	6	10	A-2-4	0	827					
		SS-2	3.5	5.0	2.0	3.5	30			NP	NP	NP	32	16	48	6	11	A-4a	3						
		SS-3	5.0	6.5	3.5	5.0	30									5	10	A-4a	8						
		SS-4	6.5	7.9	5.0	6.4	30									8	10	A-4a	8						
6	B 006-0 23	SS-1	1.5	3.0	0.0	1.5	30	20		NP	NP	NP	26	10	36	4	11	A-4a	0	367					
		SS-2	3.0	4.5	1.5	3.0	30			NP	NP	NP	26	8	34	4	10	A-2-4	0						
		SS-3	4.5	6.0	3.0	4.5	20									11	10	A-2-4	0						
		SS-4	6.0	7.5	4.5	6.0	20									4	10	A-2-4	0						
7	B 007-0 23	SS-1	1.5	2.3	0.0	0.8	30	30		26	18	8	27	13	40	7	13	A-4a	1	80					
		SS-2	3.0	3.3	1.5	1.8	30									2	10	A-4a	8						
		SS-3	4.5	6.0	3.0	4.5	30		4.5	30	19	11	50	20	70	7	14	A-6a	7						
		SS-4	6.0	6.3	4.5	4.8	30		4.5							7	14	A-6a	10						
8	B 008-0 23	SS-1	1.5	3.0	0.0	1.5	12	12	3.75	37	20	17	29	30	59	15	16	A-6b	8	447					
		SS-2	3.0	4.5	1.5	3.0	18		4.5	32	19	13	43	26	69	12	14	A-6a	8						
		SS-3	4.5	6.0	3.0	4.5	14		4.5							11	14	A-6a	10						
		SS-4	6.0	7.5	4.5	6.0	17		4.5							9	14	A-6a	10						
9	B 009-0 23	SS-1	1.5	3.0	0.0	1.5	16	16	4.5	29	19	10	26	17	43	13	14	A-4a	2	200					
		SS-2	3.0	3.3	1.5	1.8			4.5	29	19	10	31	23	54	10	14	A-4a	4			N ₆₀			
		SS-3	4.5	4.8	3.0	3.3										2	0	Rock	0						
		SS-4	6.0	6.2	4.5	4.7											0	Rock	0						

#	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	
10	B 010-0 23	SS-1	1.5	3.0	0.0	1.5	14	9								7	10	A-2-4	0						
		SS-2	3.0	4.5	1.5	3.0	26		4.25							16	18	A-7-6	16						
		SS-3	4.5	6.0	3.0	4.5	18		4.5	41	21	20	36	42	78	16	18	A-7-6	12	240					
		SS-4	6.0	7.5	4.5	6.0	9		4.5	38	21	17	39	34	73	18	16	A-6b	10						
11	B 011-0 23	SS-1	1.5	2.4	0.0	0.9	30	30	4.5	36	21	15	38	38	76	12	16	A-6a	10	273					
		SS-2	3.0	3.4	1.5	1.9									8	0	Rock	0							
		SS-3	4.5	6.0	3.0	4.5									7	0	Rock	0							
		SS-4	6.0	6.9	4.5	5.4									7	0	Rock	0							
12	B 012-0 23	SS-1	1.5	3.0	0.0	1.5	22	22		NP	NP	NP	18	10	28	6	10	A-2-4	0	547					
		SS-2	3.0	4.3	1.5	2.8	30			33	19	14	31	28	59	10	14	A-6a	6						
		SS-3	4.5	4.8	3.0	3.3									16	0	Rock	0							
		SS-4	6.0	6.2	4.5	4.7									4	0	Rock	0							
13	B 013-0 23	SS-1	1.5	3.0	0.0	1.5	11	8	1.5	28	17	11	24	15	39	16	14	A-6a	1	673		HP		12"	
		SS-2	3.0	4.5	1.5	3.0	12								13	10	A-2-6	4		N ₆₀ & Mc					
		SS-3	4.5	6.0	3.0	4.5	8		2.75	38	21	17	37	40	77	16	16	A-6b	11						
		SS-4	6.0	7.5	4.5	6.0	11		2.75							13	16	A-6b	16						
14	B 014-0 23	SS-1	1.5	3.0	0.0	1.5	12	8		NP	NP	NP	12	6	18	10	6	A-1-b	0	2333					
		SS-2	3.0	4.5	1.5	3.0	13		2.5							25	18	A-7-6	16		N ₆₀ & Mc				
		SS-3	4.5	6.0	3.0	4.5	8		2.5	57	24	33	27	64	91	24	21	A-7-6	19						
		SS-4	6.0	7.5	4.5	6.0	9		2.5							25	18	A-7-6	16						
15	B 015-0 23	SS-1	1.5	3.0	0.0	1.5	12	11		40	23	17	16	15	31	13	10	A-2-6	1	373		N ₆₀ & Mc		12"	
		SS-2	3.0	4.5	1.5	3.0	13		4.5	39	21	18	31	31	62	16	16	A-6b	9						
		SS-3	4.5	6.0	3.0	4.5	12		4.5							18	16	A-6b	16						
		SS-4	6.0	7.5	4.5	6.0	11		3.5							18	16	A-6b	16						
16	B 016-0 23	SS-1	1.5	3.0	0.0	1.5	11	11	2.75	39	20	19	22	19	41	17	16	A-6b	4	140		N ₆₀		12"	
		SS-2	3.0	4.5	1.5	3.0	14		3	38	21	17	29	30	59	20	16	A-6b	8		N ₆₀ & Mc				
		SS-3	4.5	6.0	3.0	4.5	12		3.5							18	16	A-6b	16						
		SS-4	6.0	7.5	4.5	6.0	11		4.5							13	14	A-6a	10						
17	B 017-0 23	SS-1	1.5	1.9	0.0	0.4	30	30	2.5	36	20	16	26	23	49	16	16	A-6b	5	207					
		SS-2	3.0	3.1	1.5	1.6									1	0	Rock	0							
18	B 018-0 23	SS-1	1.5	3.0	0.0	1.5	28	28	4.5	34	20	14	29	22	51	11	15	A-6a	5	200					
		SS-2	3.0	4.5	1.5	3.0	30			NP	NP	NP	18	14	32	6	10	A-2-4	0						
		SS-3	4.5	5.3	3.0	3.8	30									13	10	A-2-4	0						
		SS-4	6.0	6.7	4.5	5.2	30									8	0	Rock	0						

#	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
19	B 019-0 23	SS-1	1.5	2.9	0.0	1.4	30	30	4.5	34	19	15	34	31	65	15	14	A-6a	8	40					
		SS-2	3.0	3.4	1.5	1.9										0	Rock	0							
		SS-3	4.5	4.7	3.0	3.2										0	Rock	0							
20	B 020-0 23	SS-1	1.5	3.0	0.0	1.5	13	13	3	40	21	19	33	33	66	16	16	A-6b	10	160					
		SS-2	3.0	4.5	1.5	3.0	30		4.25	31	18	13	40	25	65	11	14	A-6a	7						
		SS-3	4.5	6.0	3.0	4.5	30		4.5							18	14	A-6a	10						
		SS-4	6.0	7.5	4.5	6.0	29		4.5							12	14	A-6a	10						
21	B 021-0 23	SS-1	1.5	1.9	0.0	0.4	30	30	4.5	35	20	15	24	26	50	13	15	A-6a	5	320					
		SS-2	3.0	3.3	1.5	1.8	30									14	A-6a	10							
22	B 022-0 23	SS-1	1.5	3.0	0.0	1.5	30	30	4	37	21	16	21	24	45	12	16	A-6b	4	93					
		SS-2	3.0	4.3	1.5	2.8	30		3.5	33	19	14	32	25	57	13	14	A-6a	6						
		SS-3	4.5	5.3	3.0	3.8			4.5							10	14	A-6a	10						
		SS-4	6.0	6.2	4.5	4.7										10	0	Rock	0						
23	B 023-0 23	SS-1	1.5	3.0	0.0	1.5	26	26		NP	NP	NP	33	12	45	10	11	A-4a	2	20					
		SS-2	3.0	3.9	1.5	2.4	30			NP	NP	NP	22	13	35	9	10	A-2-4	0						
		SS-3	4.5	5.1	3.0	3.6									5	0	Rock	0							
		SS-4	6.0	6.1	4.5	4.6										0	Rock	0							
24	B 024-0 23	SS-1	1.5	3.0	0.0	1.5	14	9	4.25	41	23	18	42	41	83	19	20	A-7-6	11	60					
		SS-2	3.0	4.5	1.5	3.0	18		4	39	24	15	29	36	65	23	19	A-6a	8			Mc			
		SS-3	4.5	6.0	3.0	4.5	11		1.5							33	18	A-7-6	16						
		SS-4	6.0	7.5	4.5	6.0	9		2							27	18	A-7-6	16						
25	B 025-0 23	SS-1	1.5	3.0	0.0	1.5	17	7		NP	NP	NP	13	12	25	9	6	A-1-b	0	320					
		SS-2	3.0	4.5	1.5	3.0	18			NP	NP	NP	24	22	46	11	11	A-4a	2						
		SS-3	4.5	6.0	3.0	4.5	8								8	10	A-4a	8							
		SS-4	6.0	7.5	4.5	6.0	7								13	10	A-4a	8							
26	B 027-0 23	SS-1	1.5	3.0	0.0	1.5	25	17	4.5	30	18	12	23	16	39	10	14	A-6a	1	147					
		SS-2	3.0	4.5	1.5	3.0	30			NP	NP	NP	19	9	28	7	10	A-2-4	0						
		SS-3	4.5	6.0	3.0	4.5	18								13	10	A-2-4	0							
		SS-4	6.0	7.5	4.5	6.0	17								15	10	A-2-4	0							
27	B 028-0 23	SS-1	1.5	3.0	0.0	1.5	30	21		NP	NP	NP	12	7	19	9	6	A-1-b	0	1427					
		SS-2	3.0	4.5	1.5	3.0	29		4.25	33	19	14	39	32	71	9	14	A-6a	9						
		SS-3	4.5	6.0	3.0	4.5	21									7	10	A-2-4	0						
		SS-4	6.0	6.2	4.5	4.7										8	0	Rock	0						

#	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
28	B 029-0 23	SS-1	1.5	3.0	0.0	1.5	30	12	4.25	34	19	15	18	19	37	13	14	A-6a	2	100					
		SS-2	3.0	4.5	1.5	3.0	28		4	34	19	15	30	26	56	14	14	A-6a	6						
		SS-3	4.5	6.0	3.0	4.5	16		4.25							19	14	A-6a	10						
		SS-4	6.0	7.5	4.5	6.0	12		4.25							17	14	A-6a	10						
29	B 030-0 23	SS-1	1.5	3.0	0.0	1.5	13	13	2.25	35	20	15	23	25	48	16	15	A-6a	4	113					
		SS-2	3.0	3.7	1.5	2.2	30									14	10	A-2-6	4		Mc				
		SS-3	4.5	6.0	3.0	4.5	30		3	37	24	13	31	42	73	21	19	A-6a	9						
		SS-4	6.0	7.5	4.5	6.0	26		4.25							21	14	A-6a	10						
30	B 031-0 23	SS-1	1.5	3.0	0.0	1.5	22	22	2.25	32	18	14	29	26	55	13	14	A-6a	6	400					
		SS-2	3.0	4.5	1.5	3.0	30			NP	NP	NP	15	13	28	10	10	A-2-4	0						
		SS-3	4.5	6.0	3.0	4.5	30		4.25							12	10	A-4a	8						
		SS-4	6.0	7.5	4.5	6.0	30									10	6	A-1-b	0						
31	B 032-0 23	SS-1	1.5	3.0	0.0	1.5	17	17								1	10	A-4a	8						
		SS-2	3.0	4.5	1.5	3.0	30			NP	NP	NP	25	18	43	7	11	A-4a	2	233					
		SS-3	4.5	6.0	3.0	4.5	24		4.5	32	19	13	37	30	67	11	14	A-6a	8						
		SS-4	6.0	7.5	4.5	6.0	21		4.5							12	14	A-6a	10						
32	B 033-0 23	SS-1	1.5	2.9	0.0	1.4	30	30		27	18	9	35	12	47	5	13	A-4a	2	13					
		SS-2	3.0	4.5	1.5	3.0	30			NP	NP	NP	23	8	31	3	10	A-2-4	0						
		SS-3	4.5	6.0	3.0	4.5	30									4	10	A-2-4	0						
		SS-4	6.0	6.3	4.5	4.8										4	0	Rock	0						
33	B 034-0 23	SS-1	1.5	3.0	0.0	1.5	24	24	4.5	36	20	16	40	27	67	12	16	A-6b	9	3167					
		SS-2	3.0	4.5	1.5	3.0	30		4.5	35	20	15	42	25	67	10	15	A-6a	8						
		SS-3	4.5	6.0	3.0	4.5	30		4.5							6	14	A-6a	10						
		SS-4	6.0	7.5	4.5	6.0	30		4.5							8	14	A-6a	10						
34	B 035-0 23	SS-1	1.5	3.0	0.0	1.5	14	9	4	36	21	15	36	25	61	15	16	A-6a	7	300					
		SS-2	3.0	4.5	1.5	3.0	9		3.5	46	23	23	53	40	93	28	20	A-7-6	14		N ₆₀ & Mc				
		SS-3	4.5	6.0	3.0	4.5	29		2.5							24	18	A-7-6	16						
		SS-4	6.0	7.5	4.5	6.0	28		1.25							20	16	A-6b	16						
35	B 036-0 23	SS-1	1.5	3.0	0.0	1.5	17	11	3.5	31	20	11	38	17	55	12	15	A-6a	4	693					
		SS-2	3.0	4.5	1.5	3.0	11		4							11	14	A-6a	10		N ₆₀				
		SS-3	4.5	6.0	3.0	4.5	17		3	34	19	15	36	32	68	15	14	A-6a	9						
		SS-4	6.0	7.5	4.5	6.0	13		4.5							11	14	A-6a	10						
36	B 037-0 23	SS-1	1.5	3.0	0.0	1.5	12	7	3.5	33	19	14	28	29	57	16	14	A-6a	6	120					
		SS-2	3.0	4.5	1.5	3.0	7		3.75	34	20	14	34	29	63	18	15	A-6a	7		N ₆₀ & Mc				
		SS-3	4.5	6.0	3.0	4.5	11		3.5							22	14	A-6a	10						
		SS-4	6.0	7.5	4.5	6.0	12		4.25							22	14	A-6a	10						

#	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	
37	B 038-0 23	SS-1	1.5	3.0	0.0	1.5	8	8		NP	NP	NP	12	4	16	6	6	A-1-b	0	333					
		SS-2	3.0	4.5	1.5	3.0	16								8	10	A-2-4	0							
		SS-3	4.5	6.0	3.0	4.5	20								10	10	A-2-4	0							
		SS-4	6.0	7.5	4.5	6.0	14								4	10	A-2-4	0							
38	B 039-0 23	SS-1	1.5	3.0	0.0	1.5	8	7	3	38	21	17	33	42	75	21	16	A-6b	11	53		N ₆₀ & Mc		12"	
		SS-2	3.0	4.5	1.5	3.0	7		2.25	37	20	17	38	44	82	22	16	A-6b	11		N ₆₀ & Mc				
		SS-3	4.5	6.0	3.0	4.5	7		2						22	16	A-6b	16							
		SS-4	6.0	7.5	4.5	6.0	11		4.25						20	16	A-6b	16							
39	B 040-0 23	SS-1	1.5	2.3	0.0	0.8	30	30	4	30	20	10	39	13	52	12	15	A-4a	3	60					
		SS-2	3.0	3.2	1.5	1.7								3	0	Rock	0								
40	B 041-0 23	SS-1	1.5	1.8	0.0	0.3	30								2	0	Rock	0							
		SS-2	3.0	3.1	1.5	1.6									0	Rock	0								
41	B 042-0 23	SS-1	1.5	3.0	0.0	1.5	7	7		NP	NP	NP	14	10	24	8	6	A-1-b	0	220					
		SS-2	3.0	3.1	1.5	1.6								9	0	Rock	0								
42	B 043-0 23	SS-1	1.5	3.0	0.0	1.5	30	30	4.5	31	19	12	42	23	65	9	14	A-6a	7	173					
		SS-2	3.0	3.6	1.5	2.1								5	0	Rock	0								
		SS-3	4.5	4.8	3.0	3.3								9	0	Rock	0								
		SS-4	6.0	6.2	4.5	4.7								5	0	Rock	0								
43	B 044-0 23	SS-1	1.5	3.0	0.0	1.5	21	8		NP	NP	NP	5	1	6	4	6	A-1-a	0	400					
		SS-2	3.0	4.5	1.5	3.0	16			NP	NP	NP	10	4	14	5	6	A-1-a	0						
		SS-3	4.5	6.0	3.0	4.5	8								7	6	A-1-a	0							
		SS-4	6.0	7.5	4.5	6.0	8		2.5						19	18	A-7-6	16							
44	B 045-0 23	SS-1	1.5	3.0	0.0	1.5	30	30		NP	NP	NP	13	10	23	10	6	A-1-b	0	773					
		SS-2	3.0	4.5	1.5	3.0	30		4.5	34	19	15	40	37	77	13	14	A-6a	10						
		SS-3	4.5	4.8	3.0	3.3								7	6	A-1-b	0								
		SS-4	6.0	6.4	4.5	4.9								8	0	Rock	0								
45	B 046-0 23	SS-1	1.5	3.0	0.0	1.5	13	11		NP	NP	NP	5	3	8	4	6	A-1-a	0						
		SS-2	3.0	4.5	1.5	3.0	11			NP	NP	NP	6	4	10	7	6	A-1-a	0	133					
		SS-3	4.5	6.0	3.0	4.5	25								13	10	A-2-6	4							
		SS-4	6.0	7.5	4.5	6.0	22								8	10	A-2-6	4							

#	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		
46	B 047-0 23	SS-1	1.5	3.0	0.0	1.5	30	16		28	18	10	23	17	40	10	13	A-4a	1	73						
		SS-2	3.0	4.5	1.5	3.0	29		4.25	30	18	12	40	17	57	9	14	A-6a	5							
		SS-3	4.5	6.0	3.0	4.5	17		4							11	14	A-6a	10							
		SS-4	6.0	7.5	4.5	6.0	16		4							13	14	A-6a	10							
47	B 048-0 23	SS-1	1.5	3.0	0.0	1.5	30	30		28	18	10	21	10	31	9	10	A-2-4	0	73						
		SS-2	3.0	4.3	1.5	2.8										5	0	Rock	0							
		SS-3	4.5	6.0	3.0	4.5										3	0	Rock	0							
		SS-4	6.0	7.5	4.5	6.0										3	0	Rock	0							
48	B 049-0 23	SS-1	1.5	3.0	0.0	1.5	18	18								14	10	A-4a	8			Mc				
		SS-2	3.0	4.3	1.5	2.8	30		4.5	27	18	9	39	54	93	16	13	A-4a	8	73		Mc				
		SS-3	4.5	6.0	3.0	4.5	30		4.5	28	18	10	37	59	96	18	13	A-4a	8							
		SS-4	6.0	7.5	4.5	6.0	30		4.5							18	10	A-4a	8							
49	B 050-0 23	SS-1	1.5	3.0	0.0	1.5	13	13		28	19	9	15	14	29	4	10	A-2-4	0	53						
		SS-2	3.0	4.5	1.5	3.0	16		2.25	29	19	10	21	18	39	11	14	A-4a	1							
		SS-3	4.5	6.0	3.0	4.5	29									6	6	A-1-b	0							
		SS-4	6.0	6.2	4.5	4.7	30										6	A-1-b	0							
50	B 051-0 23	SS-1	1.5	3.0	0.0	1.5	13	8	2	37	20	17	32	39	71	18	16	A-6b	10	80						
		SS-2	3.0	4.5	1.5	3.0	25		2.25	37	19	18	26	30	56	16	16	A-6b	7							
		SS-3	4.5	6.0	3.0	4.5	11		3.5							16	16	A-6b	16							
		SS-4	6.0	7.5	4.5	6.0	8		3.5							13	16	A-6b	16							
51	B 052-0 23	SS-1	1.5	3.0	0.0	1.5	13	12								0	18	A-7-6	16							
		SS-2	3.0	4.5	1.5	3.0	12		2.5	41	21	20	31	33	64	18	18	A-7-6	10	1787						
		SS-3	4.5	6.0	3.0	4.5	18		2.75	47	20	27	29	43	72	21	18	A-7-6	15							
		SS-4	6.0	7.5	4.5	6.0	21		4.25							21	18	A-7-6	16							
52	B 053-0 23	SS-1	1.5	3.0	0.0	1.5	13	13									16	A-6b	16							
		SS-2	3.0	4.5	1.5	3.0	16		4.25	39	20	19	35	41	76	18	16	A-6b	12	1220						
		SS-3	4.5	6.0	3.0	4.5	17		4.25	37	20	17	36	38	74	19	16	A-6b	11							
		SS-4	6.0	7.5	4.5	6.0	13		4.25							21	16	A-6b	16							
53	B 054-0 23	SS-1	1.5	3.0	0.0	1.5	14	12								14	10	A-2-6	4			N ₆₀ & Mc		12"		
		SS-2	3.0	4.5	1.5	3.0	12		3	37	20	17	31	34	65	17	16	A-6b	9	53						
		SS-3	4.5	6.0	3.0	4.5	16		3.5	62	24	38	24	69	93	27	21	A-7-6	20							
		SS-4	6.0	7.5	4.5	6.0	13		3.25							26	18	A-7-6	16							
54	B 055-0 23	SS-1	1.5	3.0	0.0	1.5	8	8	2.5	42	23	19	33	36	69	17	20	A-7-6	11	353			N ₆₀		12"	
		SS-2	3.0	4.5	1.5	3.0	18		4.25	41	23	18	36	40	76	15	20	A-7-6	11							
		SS-3	4.5	6.0	3.0	4.5	21		4.5							13	10	A-4a	8							
		SS-4	6.0	7.5	4.5	6.0	30		4.5							14	10	A-4a	8							

#	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		
55	B 056-0 23	SS-1	1.5	3.0	0.0	1.5	5	5	2	41	20	21	30	37	67	20	18	A-7-6	11	287		N ₆₀		21"		
		SS-2	3.0	4.5	1.5	3.0	30		2.25							21	18	A-7-6	16			Mc				
		SS-3	4.5	6.0	3.0	4.5	20			31	19	12	18	22	40	10	14	A-6a	2							
		SS-4	6.0	7.5	4.5	6.0	28									8	14	A-6a	10							
56	B 057-0 23	SS-1	1.5	3.0	0.0	1.5	17	17								13	10	A-2-4	0			Mc				
		SS-2	3.0	4.3	1.5	2.8	30		3	31	17	14	24	26	50	13	14	A-6a	4	627						
		SS-3	4.5	4.8	3.0	3.3										5	0	Rock	0							
		SS-4	6.0	6.1	4.5	4.6											0	Rock	0							
57	B 058-0 23	SS-1	1.5	3.0	0.0	1.5	7	7	2.75	37	18	19	27	32	59	15	16	A-6b	8	1480		N ₆₀		15"		
		SS-2	3.0	4.5	1.5	3.0	30		3							5	16	A-6b	16							
		SS-3	4.5	6.0	3.0	4.5	29			NP	NP	NP	14	18	32	8	10	A-2-4	0							
		SS-4	6.0	6.3	4.5	4.8										5	0	Rock	0							
58	B 059-0 23	SS-1	1.5	3.0	0.0	1.5	28	14		NP	NP	NP	10	11	21	7	6	A-1-b	0	200						
		SS-2	3.0	4.5	1.5	3.0	30									11	6	A-1-b	0							
		SS-3	4.5	6.0	3.0	4.5	25			NP	NP	NP	8	8	16	13	6	A-1-b	0							
		SS-4	6.0	7.5	4.5	6.0	14		2							37	16	A-6b	16							
59	B 060-0 23	SS-1	1.5	3.0	0.0	1.5	5	5									18	A-7-6	16			N ₆₀		21"		
		SS-2	3.0	4.5	1.5	3.0	12										18	A-7-6	16							
		SS-3	4.5	6.0	3.0	4.5	13		3	43	21	22	33	47	80	20	18	A-7-6	13	127						
		SS-4	6.0	7.5	4.5	6.0	12		4	37	20	17	39	40	79	17	16	A-6b	11							
60	B 061-0 23	SS-1	1.5	3.0	0.0	1.5	16	14									14	A-6a	10							
		SS-2	3.0	4.5	1.5	3.0	30		2.5	35	20	15	25	24	49	14	15	A-6a	5	193						
		SS-3	4.5	6.0	3.0	4.5	24			33	21	12	18	14	32	10	10	A-2-6	0							
		SS-4	6.0	7.5	4.5	6.0	14									8	10	A-2-6	4							
61	B 062-0 23	SS-1	1.5	3.0	0.0	1.5	13	13	2.5	42	22	20	29	39	68	19	19	A-7-6	11	220						
		SS-2	3.0	4.5	1.5	3.0	30		4							18	18	A-7-6	16							
		SS-3	4.5	6.0	3.0	4.5	28		4.5	33	19	14	19	21	40	9	14	A-6a	2							
		SS-4	6.0	7.5	4.5	6.0	25		4.5							11	14	A-6a	10							
62	B 063-0 23	SS-1	1.5	3.0	0.0	1.5	14	12	2.5	37	20	17	21	25	46	17	16	A-6b	4	113						
		SS-2	3.0	4.5	1.5	3.0	16		3	45	24	21	30	46	76	24	21	A-7-6	13			Mc				
		SS-3	4.5	6.0	3.0	4.5	14		3							22	18	A-7-6	16							
		SS-4	6.0	7.5	4.5	6.0	12									10	10	A-2-4	0							
63	B 064-0 23	SS-1	1.5	3.0	0.0	1.5	9	9									16	A-6b	16			N ₆₀		12"		
		SS-2	3.0	4.5	1.5	3.0	16		2.5	40	20	20	23	31	54	18	16	A-6b	8	853						
		SS-3	4.5	6.0	3.0	4.5	25		3.25	43	21	22	24	36	60	16	18	A-7-6	10							
		SS-4	6.0	7.5	4.5	6.0	20		4.5							17	18	A-7-6	16							

#	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
64	B 065-0 23	SS-1	1.5	3.0	0.0	1.5	7	7		NP	NP	NP	14	5	19	11	6	A-1-b	0	1613					
		SS-2	3.0	4.5	1.5	3.0	17		4.5	38	25	13	39	23	62	15	20	A-6a	7						
		SS-3	4.5	6.0	3.0	4.5	17		4.5						10	14	A-6a	10							
		SS-4	6.0	7.5	4.5	6.0	11		4.5						12	14	A-6a	10							
65	B 066-0 23	SS-1	1.5	3.0	0.0	1.5	26	12	4	38	20	18	31	32	63	18	16	A-6b	9	240					
		SS-2	3.0	4.5	1.5	3.0	14		3.75						15	16	A-6b	16							
		SS-3	4.5	6.0	3.0	4.5	12			35	19	16	27	21	48	9	16	A-6b	5						
		SS-4	6.0	7.5	4.5	6.0	30								12	16	A-6b	16							
66	B 067-0 23	SS-1	1.5	3.0	0.0	1.5	14	12	3.5	42	21	21	35	44	79	19	18	A-7-6	13	227					
		SS-2	3.0	4.5	1.5	3.0	12		3.5	42	21	21	33	42	75	18	18	A-7-6	13						
		SS-3	4.5	4.7	3.0	3.2	30		4						14	18	A-7-6	16							
67	B 068-0 23	SS-1	1.5	2.4	0.0	0.9	30	16	3.75	40	19	21	21	22	43	13	16	A-6b	5	140					
		SS-2	3.0	3.3	1.5	1.8	30								4	6	A-1-a	0							
		SS-3	4.5	6.0	3.0	4.5	17			NP	NP	NP	17	20	37	12	11	A-4a	0						
		SS-4	6.0	7.5	4.5	6.0	16		4.25						14	16	A-6b	16							
68	B 069-0 23	SS-1	1.5	2.1	0.0	0.6	30	30	4.25	38	19	19	30	33	63	14	16	A-6b	9	120					
		SS-2	3.0	3.8	1.5	2.3									10	0	Rock	0							
		SS-3	4.5	4.6	3.0	3.1														N ₆₀					
69	B 070-0 23	SS-1	1.5	3.0	0.0	1.5	28	22	4.5	35	19	16	24	23	47	12	16	A-6b	4	140					
		SS-2	3.0	4.5	1.5	3.0	22		4.5						13	16	A-6b	16							
		SS-3	4.5	6.0	3.0	4.5	30		4.5	30	20	10	39	26	65	10	15	A-4a	6						
		SS-4	6.0	6.1	4.5	4.6									12	0	Rock	0							
70	B 071-0 23	SS-1	1.5	3.0	0.0	1.5	8	4		NP	NP	NP	5	2	7	3	6	A-1-a	0	100					
		SS-2	3.0	4.5	1.5	3.0	5			30	19	11	21	14	35	12	10	A-2-6	0			N ₆₀			
		SS-3	4.5	6.0	3.0	4.5	4								15	6	A-1-b	0							
		SS-4	6.0	7.5	4.5	6.0	14								15	10	A-2-6	4							
71	B 072-0 23	SS-1	1.5	3.0	0.0	1.5	20	14	4.5	35	19	16	28	23	51	14	16	A-6b	5	173					
		SS-2	3.0	4.5	1.5	3.0	24		4.5	36	20	16	33	27	60	15	16	A-6b	7						
		SS-3	4.5	6.0	3.0	4.5	14		4.5						17	16	A-6b	16							
		SS-4	6.0	7.5	4.5	6.0	14		4.5						20	16	A-6b	16							
72	B 073-0 23	SS-1	1.5	3.0	0.0	1.5	20	17	4.5	34	18	16	34	23	57	11	16	A-6b	7	1960					
		SS-2	3.0	4.5	1.5	3.0	30			23	15	8	24	16	40	10	10	A-4a	1						
		SS-3	4.5	6.0	3.0	4.5	20								8	6	A-1-b	0							
		SS-4	6.0	7.5	4.5	6.0	17								11	6	A-1-b	0							

#	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 074-0 23	SS-1	1.5	1.9	0.0	0.4	30	30		NP	NP	NP	15	10	25	10	10	A-2-4	0	227					
		SS-2	3.0	3.2	1.5	1.7	30									10	A-2-4	0							
74	B 075-0 23	SS-1	1.5	3.0	0.0	1.5	12	12	4.25	36	20	16	30	28	58	14	16	A-6b	7	253					
		SS-2	3.0	4.5	1.5	3.0	24		3	40	20	20	30	33	63	15	16	A-6b	10						
		SS-3	4.5	6.0	3.0	4.5	14		3.75							17	16	A-6b	16						
		SS-4	6.0	7.5	4.5	6.0	26									16	A-6b	16							
75	B 076-0 23	SS-1	1.5	3.0	0.0	1.5	18	7		NP	NP	NP	6	3	9	8	6	A-1-b	0	20					
		SS-2	3.0	4.5	1.5	3.0	14			NP	NP	NP	7	2	9	5	6	A-1-a	0						
		SS-3	4.5	6.0	3.0	4.5	7		3							16	18	A-7-6	16						
		SS-4	6.0	7.5	4.5	6.0	12		2.5							20	18	A-7-6	16						
76	B 077-0 23	SS-1	1.5	3.0	0.0	1.5	14	5		NP	NP	NP	7	3	10	6	6	A-1-a	0	140					
		SS-2	3.0	4.5	1.5	3.0	5			29	18	11	20	14	34	12	10	A-2-6	0		N ₆₀				
		SS-3	4.5	6.0	3.0	4.5	17		2							16	18	A-7-6	16						
		SS-4	6.0	7.5	4.5	6.0	14		2.25							16	18	A-7-6	16						
77	B 078-0 23	SS-1	1.5	3.0	0.0	1.5	9	9	4.5	36	23	13	36	32	68	14	18	A-6a	8	173		N ₆₀		12"	
		SS-2	3.0	4.5	1.5	3.0	21		4.5	33	20	13	41	28	69	12	15	A-6a	8						
		SS-3	4.5	6.0	3.0	4.5	14		4.5							7	14	A-6a	10						
		SS-4	6.0	7.5	4.5	6.0	17									5	10	A-2-4	0						
78	B 079-0 23	SS-1	1.5	2.4	0.0	0.9	30	30		30	18	12	28	15	43	7	14	A-6a	2	60					
		SS-2	3.0	4.5	1.5	3.0									10	0	Rock	0							
		SS-3	4.5	5.3	3.0	3.8									11	0	Rock	0							
79	B 080-0 23	SS-1	1.5	3.0	0.0	1.5	14	8	4.25	35	20	15	34	28	62	13	15	A-6a	7	207					
		SS-2	3.0	4.5	1.5	3.0	8		3	34	21	13	35	27	62	15	16	A-6a	7			N ₆₀			
		SS-3	4.5	6.0	3.0	4.5	16		2.75							18	14	A-6a	10						
		SS-4	6.0	7.5	4.5	6.0	11		3							16	18	A-7-6	16						
80	B 081-0 23	SS-1	1.5	3.0	0.0	1.5	21	21								15	10	A-4a	8			Mc			
		SS-2	3.0	4.5	1.5	3.0	25			NP	NP	NP	20	23	43	13	11	A-4a	2	80					
		SS-3	4.5	5.3	3.0	3.8			4.25	37	20	17	23	38	61	16	16	A-6b	8						
		SS-4	6.0	6.9	4.5	5.4										17	0	Rock	0						
81	B 082-0 23	SS-1	1.5	3.0	0.0	1.5	14	8		NP	NP	NP	11	5	16	7	6	A-1-b	0	93					
		SS-2	3.0	4.5	1.5	3.0	8			NP	NP	NP	8	3	11	7	6	A-1-a	0						
		SS-3	4.5	5.3	3.0	3.8										5	0	Rock	0						
		SS-4	6.0	6.3	4.5	4.8										4	0	Rock	0						

#	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	
82	B 083-0 23	SS-1	1.5	2.8	0.0	1.3	30	30		NP	NP	NP	14	13	27	8	10	A-2-4	0	0					
		SS-2	3.0	3.4	1.5	1.9				30	17	13	25	20	45	9	14	A-6a	3			N ₆₀			
		SS-3	4.5	4.8	3.0	3.3									5	0	Rock	0							
83	B 084-0 23	SS-1	1.5	3.0	0.0	1.5	14	13	3.5	37	19	18	37	29	66	14	16	A-6b	9	127					
		SS-2	3.0	4.5	1.5	3.0	13										16	A-6b	16						
		SS-3	4.5	6.0	3.0	4.5	14								1	16	A-6b	16							
		SS-4	6.0	7.5	4.5	6.0	17								1	16	A-6b	16							
84	B 085-0 23	SS-1	1.5	3.0	0.0	1.5	9	9	3.75	46	22	24	35	46	81	31	19	A-7-6	15	273		N ₆₀ & Mc		12"	
		SS-2	3.0	4.5	1.5	3.0	13		2.75	39	20	19	41	37	78	20	16	A-6b	12			N ₆₀ & Mc			
		SS-3	4.5	5.6	3.0	4.1	30		3							20	16	A-6b	16						
		SS-4	6.0	6.2	4.5	4.7									2	0	Rock	0							
85	B 086-0 23	SS-1	1.5	3.0	0.0	1.5	26	7	3.5	32	20	12	36	25	61	13	15	A-6a	6	87					
		SS-2	3.0	4.5	1.5	3.0	11			NP	NP	NP	22	12	34	9	10	A-2-4	0			N ₆₀			
		SS-3	4.5	6.0	3.0	4.5	7								10	10	A-2-4	0							
		SS-4	6.0	7.5	4.5	6.0	22								15	10	A-2-4	0							
86	B 087-0 23	SS-1	1.5	2.4	0.0	0.9	30	30	4.25	29	17	12	20	18	38	9	14	A-6a	1	193					
		SS-2	3.0	3.3	1.5	1.8									2	0	Rock	0							
87	B 088-0 23	SS-1	1.5	3.0	0.0	1.5	12	12								10	10	A-2-4	0						
		SS-2	3.0	4.5	1.5	3.0	18		4.5	36	21	15	34	30	64	15	16	A-6a	8	173					
		SS-3	4.5	6.0	3.0	4.5	30		4.5	33	19	14	43	36	79	15	14	A-6a	10						
		SS-4	6.0	7.5	4.5	6.0	30		4.5							9	14	A-6a	10						

PID: 107533

County-Route-Section: BEL-70-19.17

No. of Borings: 87

Geotechnical Consultant: NEAS Inc.

Prepared By: Kevin C. Arens

Date prepared: 5/28/2024

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

Excavate and Replace Stabilization Options	
Global Geotextile Average(N60L): Average(HP):	12" 0"
Global Geogrid Average(N60L): Average(HP):	0" 0"

Design CBR	7
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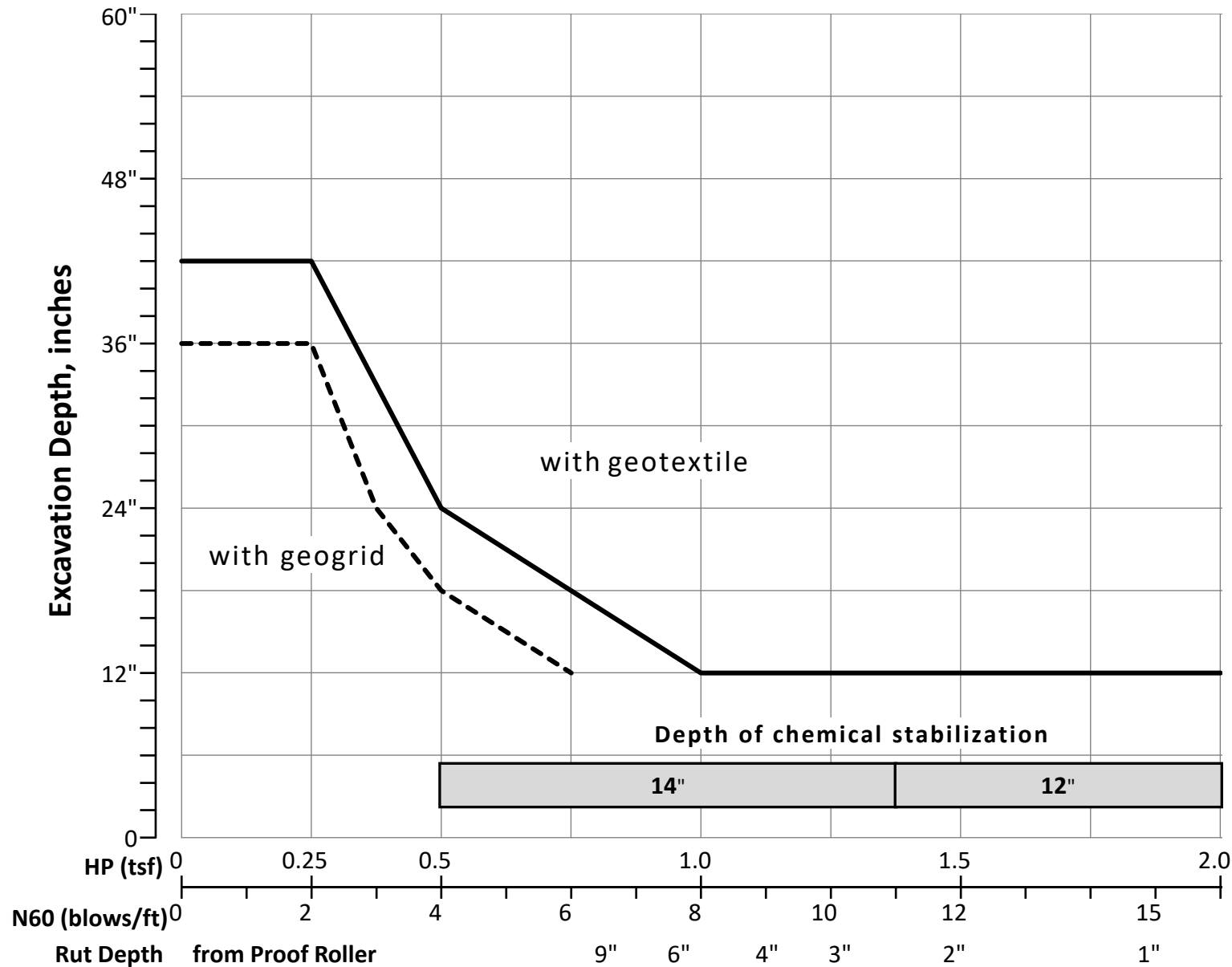
% Samples within 3 feet of subgrade			
$N_{60} \leq 5$	2%	$HP \leq 0.5$	0%
$N_{60} < 12$	11%	$0.5 < HP \leq 1$	0%
$12 \leq N_{60} < 15$	14%	$1 < HP \leq 2$	2%
$N_{60} \geq 20$	33%	$HP > 2$	40%
M+	6%		
Rock	7%		
Unsuitable Soil	100%		

Excavate and Replace at Surface	
Average	0"
Maximum	0"
Minimum	0"

% Proposed Subgrade Surface	
Unstable & Unsuitable	21%
Unstable	20%
Unsuitable (Soil & Rock)	1%

	N_{60}	N_{60L}	HP	LL	PL	PI	Silt	Clay	P 200	M_C	M_{OPT}	GI
Average	20	16	3.71	35	20	16	27	24	52	12	12	6
Maximum	30	30	4.50	62	25	38	53	69	96	37	21	20
Minimum	4	4	1.25	23	15	8	5	1	6	0	0	0

Classification Counts by Sample																				
ODOT Class	UCF	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	40	10	19	35	0	11	0	0	0	30	3	0	81	60	0	39	0	0	328
Percent	0%	12%	3%	6%	11%	0%	3%	0%	0%	0%	9%	1%	0%	25%	18%	0%	12%	0%	0%	100%
% Rock Granular Cohesive	0%	12%	32%									56%								100%
Surface Class Count	0	12	9	11	19	0	6	0	0	0	19	1	0	45	34	0	18	0	0	174
Surface Class Percent	0%	7%	5%	6%	11%	0%	3%	0%	0%	0%	11%	1%	0%	26%	20%	0%	10%	0%	0%	100%

Fig. 600-1 – Subgrade Stabilization

 OVERRIDE TABLE

Calculated Average	New Values	Check to Override
3.71	0.50	☐ HP
16.17	6.00	☐ N60L

Average HP


Average N_{60L}


The subgrade analysis workbook consists of five worksheets. Each worksheet functions independently. In all of the worksheets the fields are color coded as follows:

- Every yellow highlighted field indicates a field to be entered by the user.
- Every salmon field is to indicate a problem/issue.
- Every gray or green field is a heading/informational field.

IMPORTANT: The sequence of filling out the data needs to be followed as outlined below:

1. Cover Sheet: this worksheet is designed for the purpose of entering the project information.
Enter all the following fields:

County-Route-Section	This includes the county, route, section number assigned to the project.
PID	the Project Identification Number
Project Description	See Cover Sheet for list of example details
Geotechnical Consultant	The Geotechnical Consultant performing the analysis.
Prepared By	The preparer of the subgrade analysis
Date prepared	The date the analysis is performed.
Contact Information	Name, address, telephone #, and email address
No. of Borings	Enter the total number of borings within the alignment that is being analyzed.

2. Boring Logs Entry Worksheet: this worksheet has a programming code that will run in the background every time the sheet is activated and will make the sheet unresponsive for less than a minute. The code is designed to read the total number of borings from the cover sheet and generate the needed number of fields.

- a. All yellow highlighted fields are user's entry.
- b. ODOT has developed a text table export from gINT (*GB 1 Borings Log Entry Tab*) that will allow for copy and paste of all highlighted fields with the exception of proposed subgrade elevation. The designer must provide a proposed subgrade elevation in order for the spreadsheet to function properly.
- c. The Cut/Fill field is a calculated field that, based on the difference between the boring elevation and the proposed subgrade elevation, will highlight the cell either gray and adds the letter "C" to the end in a cut situation or highlights the cell in light purple and adds the letter "F" to the end in a fill situation.
- d. Every duplicate boring ID will be highlighted in salmon background and red text.
- e. **IMPORTANT:** After entering all the borings' information, the user must click "Add Subgrade Analysis Entry Fields" button. This will generate all the required fields in the "Subgrade Analysis" Worksheet.

3. Subgrade Analysis Worksheet:

- a. The boring number and boring ID is read from the "Boring Logs Entry Worksheet" excluding every boring that has six feet or more of fill.
- b. All yellow highlighted fields are to be entered by the user and salmon highlighted fields indicates a problem or issue.
- c. Every sample that has a Sulfate Content greater than or equal to 3000 will be highlighted in light salmon background. Every sample that has a Sulfate Content greater than or equal to 8000 will be highlighted in darker salmon background. **Refer to Section 605 of the Geotechnical Design Manual for the latest guidance regarding high sulfate soils.**

d. Unsuitable/Unstable:

- i. Unsuitable samples that are within 3 feet of the top of subgrade will be highlighted with salmon background and the class will be showing in this field.
- ii. Unstable Samples that are within 3 feet of top of subgrade will be highlighted with salmon background and text to indicate the problem as follows:

Criterion	Stabilization Need Check	Text displayed in the field
A-1-a, A-1-b, A-3, or A-3a Soil Class	No Stabilization is needed	
$HP \geq 1.875$	No Stabilization is needed	
$N_{60} \geq 15$	No Stabilization is needed	
$1.875 \geq HP \geq 1.5$ and $M_c \geq \text{Opt. } M_c + 3$	Unstable Subgrade	HP & M_c
$15 \geq N_{60} \geq 12$ and $M_c \geq \text{Opt. } M_c + 3$	Unstable Subgrade	N_{60} & M_c
$HP \leq 1.5$	Unstable Subgrade	HP
$N_{60} \leq 12$	Unstable Subgrade	N_{60}

- iii. The field is formulated to check for HP first and check for N_{60} second.

f. Excavate and Replace (Item 204) is going to be calculated based on the subgrade depth for each sample indicating an unsuitable or unstable problem.

g. Recommendation:

- i. Geotextile Option is calculated and rounded to a multiple of 3 inches based on the subgrade depth for every sample indicating an unsuitable or unstable problem.
- ii. GEOGRID Option is only offered in case of unstable subgrade problem and if the geotextile option indicates the need to excavate greater than 12 inches.

PLEASE NOTE: The Problem, Excavate & Replace, and Recommendation Fields are the responsibility of the Designer. These fields are being enhanced to attempt to capture the ODOT philosophy regarding the subgrade stabilization chart, but are considered still under development. If there are discrepancies between the spreadsheet output and the stabilization chart - the chart governs in conjunction with engineering judgement. Please contact Steve Taliaferro at stephen.taliaferro@dot.ohio.gov if you have any questions.

PLEASE NOTE: It is the Designer's responsibility to identify the most representative data when samples have been separated into multiple specimen (say 1.5 to 2.3 feet and 2.3 to 3.0 feet). The spreadsheet is not capable at this time of addressing this issue within a direct data export from gINT.

4. Results Summary:

All fields in this sheet are password protected and are either calculated or read from the other worksheets.

The spreadsheet calculates the % unstable and % unsuitable soils based on the number of samples encountered within 3.0 feet of the bottom of subgrade (say if 10 samples are taken within 3.0 feet of the bottom of subgrade and two encounter unstable soils and three encounter unsuitable soils, then the spreadsheet will return unstable = 20% and unsuitable = 30% for a combined total of 50%).

5. Graph Worksheet:

This worksheet is designed to read the average N_{60L} and the average HP from the Cover Sheet and plot a blue line for Average HP and orange line for Average N_{60L} on GDM Figure 600-1 – Subgrade Stabilization. The Override Table can be used to enter HP and/or N_{60L} values that are different than the calculated averages. The Override values will change the global undercut recommendation in the Results Summary.

INTERSTATE ROUTE 70

OHIO DEPARTMENT OF TRANSPORTATION

OFFICE OF GEOTECHNICAL ENGINEERING

PLAN SUBGRADES

Geotechnical Design Manual Section 600

Instructions: Enter data in the shaded cells only.

(Enter state route number, project description, county, consultant's name, prepared by name, and date prepared. This information will be transferred to all other sheets. The date prepared must be entered in the appropriate cell on this sheet to remove these instructions prior to printing.)

BEL-70-19.17

107533

Interstate Route 70

Interstate Route 70 and Ramps from SLM 19.17 to SLM 23.69 in Belmont County, OH

NEAS Inc.

Prepared By: Kevin C. Arens
Date prepared: Tuesday, May 28, 2024

Brendan P. Andrews
2800 Corporate Exchange Drive
Suite 240
Columbus, OH 43231
513.337.9823
brendan.andrews@neasinc.com

NO. OF BORINGS: 64

#	Boring ID	Alignment	Station	Offset	Dir	Drill Rig	ER	Boring EL.	Proposed Subgrade EL	Cut Fill
1	B-001-0-23	IR-70	1017+06	43	RT	CME 45B	79	1121.5	1120.0	1.5 C
2	B-002-0-23	IR-70	1021+10	50	LT	CME 45B	79	1119.8	1118.3	1.5 C
3	B-003-0-23	IR-70	1025+02	40	RT	CME 45B	79	1123.1	1121.6	1.5 C
4	B-004-0-23	IR-70	1028+77	52	LT	CME 45B	79	1126.7	1125.2	1.5 C
5	B-005-0-23	IR-70	1032+66	42	RT	CME 45B	79	1129.7	1128.2	1.5 C
6	B-006-0-23	IR-70	1036+73	63	LT	CME 45B	79	1133.4	1131.9	1.5 C
7	B-007-0-23	IR-70	1040+37	39	RT	CME 45B	79	1136.5	1135.0	1.5 C
8	B-008-0-23	IR-70	1044+36	78	LT	CME 45B	79	1141.2	1139.7	1.5 C
9	B-009-0-23	IR-70	1048+27	41	RT	CME 45B	79	1159.6	1158.1	1.5 C
10	B-010-0-23	IR-70	1052+20	49	LT	CME 45B	79	1181.0	1179.5	1.5 C
11	B-011-0-23	IR-70	1055+97	52	RT	CME 45B	79	1193.2	1191.7	1.5 C
12	B-012-0-23	IR-70	1059+72	62	LT	CME 45B	79	1202.3	1200.8	1.5 C
13	B-013-0-23	IR-70	1063+51	43	RT	CME 45B	79	1196.5	1195.0	1.5 C
14	B-014-0-23	IR-70	1067+35	49	LT	CME 45B	79	1190.3	1188.8	1.5 C
15	B-015-0-23	IR-70	1071+43	38	RT	CME 45B	79	1189.3	1187.8	1.5 C
16	B-016-0-23	IR-70	1075+22	52	LT	CME 45B	79	1201.9	1200.4	1.5 C
17	B-017-0-23	IR-70	1079+13	53	RT	CME 45B	79	1213.9	1212.4	1.5 C
18	B-018-0-23	IR-70	1082+83	58	LT	CME 45B	79	1218.9	1217.4	1.5 C
19	B-019-0-23	IR-70	1086+98	85	RT	CME 45B	79	1215.8	1214.3	1.5 C
20	B-020-0-23	IR-70	1090+91	64	LT	CME 45B	79	1204.9	1203.4	1.5 C
21	B-021-0-23	IR-70	1094+84	65	RT	CME 45B	79	1207.9	1206.4	1.5 C
22	B-022-0-23	IR-70	1098+60	67	LT	CME 45B	79	1220.1	1218.6	1.5 C
23	B-023-0-23	IR-70	1102+64	51	RT	CME 45B	79	1237.0	1235.5	1.5 C
24	B-024-0-23	IR-70	1106+49	83	LT	CME 45B	79	1248.5	1247.0	1.5 C
25	B-025-0-23	IR-70	1110+38	88	LT	CME 45B	79	1255.0	1253.5	1.5 C
26	B-027-0-23	IR-70	1114+24	51	LT	CME 45B	79	1257.8	1256.3	1.5 C
27	B-028-0-23	IR-70	1118+23	38	RT	CME 45B	79	1253.8	1252.3	1.5 C
28	B-029-0-23	IR-70	1122+14	59	LT	CME 45B	79	1246.1	1244.6	1.5 C
29	B-030-0-23	IR-70	1126+05	42	RT	CME 45B	79	1230.7	1229.2	1.5 C
30	B-031-0-23	IR-70	1129+67	54	LT	CME 45B	79	1214.2	1212.7	1.5 C
31	B-032-0-23	IR-70	1133+99	39	RT	CME 45B	79	1191.0	1189.5	1.5 C
32	B-033-0-23	IR-70	1138+12	51	LT	CME 45B	79	1172.7	1171.2	1.5 C
33	B-034-0-23	IR-70	1142+00	64	RT	CME 45B	79	1155.0	1153.5	1.5 C
34	B-035-0-23	IR-70	1145+80	50	LT	CME 45B	79	1138.4	1136.9	1.5 C
35	B-036-0-23	IR-70	1149+80	41	RT	CME 45B	79	1126.9	1125.4	1.5 C
36	B-037-0-23	IR-70	1153+13	53	LT	CME 45B	79	1114.8	1113.3	1.5 C
37	B-038-0-23	IR-70	1157+01	70	RT	CME 45B	79	1102.4	1100.9	1.5 C
38	B-039-0-23	IR-70	1160+89	67	LT	CME 45B	79	1090.5	1089.0	1.5 C
39	B-040-0-23	IR-70	1161+05	64	RT	CME 45B	79	1090.4	1088.9	1.5 C
40	B-041-0-23	IR-70	1164+82	58	RT	CME 45B	79	1079.0	1077.5	1.5 C
41	B-042-0-23	IR-70	1168+73	52	LT	CME 45B	79	1065.4	1063.9	1.5 C
42	B-043-0-23	IR-70	1172+62	45	RT	CME 45B	79	1046.4	1044.9	1.5 C
43	B-044-0-23	IR-70	1176+45	51	LT	CME 45B	79	1027.8	1026.3	1.5 C
44	B-045-0-23	IR-70	1180+54	35	RT	CME 45B	79	1011.8	1010.3	1.5 C
45	B-046-0-23	IR-70	1184+37	48	LT	CME 45B	79	992.0	990.5	1.5 C

#	Boring ID	Alignment	Station	Offset	Dir	Drill Rig	ER	Boring EL.	Proposed Subgrade EL.	Cut Fill
46	B-047-0-23	IR-70	1188+28	38	RT	CME 45B	79	976.4	974.9	1.5 C
47	B-048-0-23	IR-70	1192+11	47	LT	CME 45B	79	961.3	959.8	1.5 C
48	B-049-0-23	IR-70	1196+10	34	RT	CME 45B	79	941.8	940.3	1.5 C
49	B-050-0-23	IR-70	1199+91	47	LT	CME 45B	79	925.9	924.4	1.5 C
50	B-051-0-23	IR-70	1203+83	39	RT	CME 45B	79	908.2	906.7	1.5 C
51	B-052-0-23	IR-70	1207+63	45	LT	CME 45B	79	890.5	889.0	1.5 C
52	B-053-0-23	IR-70	1211+62	35	RT	CME 45B	79	875.1	873.6	1.5 C
53	B-054-0-23	IR-70	1215+42	38	LT	CME 45B	79	856.4	854.9	1.5 C
54	B-055-0-23	IR-70	1219+34	38	RT	CME 45B	79	840.6	839.1	1.5 C
55	B-056-0-23	IR-70	1223+25	33	LT	CME 45B	79	823.1	821.6	1.5 C
56	B-057-0-23	IR-70	1227+12	36	RT	CME 45B	79	809.3	807.8	1.5 C
57	B-058-0-23	IR-70	1231+03	36	LT	CME 45B	79	802.6	801.1	1.5 C
58	B-059-0-23	IR-70	1234+61	36	RT	CME 45B	79	802.7	801.2	1.5 C
59	B-060-0-23	IR-70	1238+85	34	LT	CME 45B	79	811.4	809.9	1.5 C
60	B-061-0-23	IR-70	1242+72	34	RT	CME 45B	79	822.0	820.5	1.5 C
61	B-062-0-23	IR-70	1246+64	38	LT	CME 45B	79	832.5	831.0	1.5 C
62	B-063-0-23	IR-70	1250+53	38	RT	CME 45B	79	844.2	842.7	1.5 C
63	B-064-0-23	IR-70	1254+46	38	LT	CME 45B	79	855.1	853.6	1.5 C
64	B-065-0-23	IR-70	1256+97	35	RT	CME 45B	79	862.4	860.9	1.5 C



#	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 001-0 23	SS-1	1.5	3.0	0.0	1.5	18	12	4.25	29	16	13	23	21	44	11	14	A-6a	3	413					
		SS-2	3.0	4.5	1.5	3.0	12		4.25	32	18	14	31	31	62	11	14	A-6a	7						
		SS-3	4.5	6.0	3.0	4.5	20		4.25							14	14	A-6a	10						
		SS-4	6.0	7.5	4.5	6.0	20									3	10	A-2-4	0						
2	B 002-0 23	SS-1	1.5	3.0	0.0	1.5	16	16	4.5	34	19	15	36	25	61	13	14	A-6a	7	567					
		SS-2	3.0	4.5	1.5	3.0	16		4.25	34	19	15	35	30	65	14	14	A-6a	8						
		SS-3	4.5	6.0	3.0	4.5	22		4.25							14	14	A-6a	10						
		SS-4	6.0	7.5	4.5	6.0	18									9	10	A-2-4	0						
3	B 003-0 23	SS-1	1.5	1.9	0.0	0.4	30	30	4.5	36	21	15	43	39	82	11	16	A-6a	10	440					
		SS-2	3.0	3.4	1.5	1.9	30									6	14	A-6a	10						
		SS-3	4.5	4.8	3.0	3.3	30									7	14	A-6a	10						
		SS-4	6.0	6.2	4.5	4.7	30									7	14	A-6a	10						
4	B 004-0 23	SS-1	1.5	3.0	0.0	1.5	20	18		NP	NP	NP	20	8	28	10	10	A-2-4	0	987					
		SS-2	3.0	4.5	1.5	3.0	30		4.5	28	19	9	50	15	65	7	14	A-4b	6		A-4b		36"		
		SS-3	4.5	6.0	3.0	4.5	18		4.5							14	10	A-4b	8						
		SS-4	6.0	7.5	4.5	6.0	18		4.5							9	10	A-4b	8						
5	B 005-0 23	SS-1	2.0	3.5	0.5	2.0	30	30		NP	NP	NP	15	11	26	6	10	A-2-4	0	827					
		SS-2	3.5	5.0	2.0	3.5	30			NP	NP	NP	32	16	48	6	11	A-4a	3						
		SS-3	5.0	6.5	3.5	5.0	30									5	10	A-4a	8						
		SS-4	6.5	7.9	5.0	6.4	30									8	10	A-4a	8						
6	B 006-0 23	SS-1	1.5	3.0	0.0	1.5	30	20		NP	NP	NP	26	10	36	4	11	A-4a	0	367					
		SS-2	3.0	4.5	1.5	3.0	30			NP	NP	NP	26	8	34	4	10	A-2-4	0						
		SS-3	4.5	6.0	3.0	4.5	20									11	10	A-2-4	0						
		SS-4	6.0	7.5	4.5	6.0	20									4	10	A-2-4	0						
7	B 007-0 23	SS-1	1.5	2.3	0.0	0.8	30	30		26	18	8	27	13	40	7	13	A-4a	1	80					
		SS-2	3.0	3.3	1.5	1.8	30									2	10	A-4a	8						
		SS-3	4.5	6.0	3.0	4.5	30		4.5	30	19	11	50	20	70	7	14	A-6a	7						
		SS-4	6.0	6.3	4.5	4.8	30		4.5							7	14	A-6a	10						
8	B 008-0 23	SS-1	1.5	3.0	0.0	1.5	12	12	3.75	37	20	17	29	30	59	15	16	A-6b	8	447					
		SS-2	3.0	4.5	1.5	3.0	18		4.5	32	19	13	43	26	69	12	14	A-6a	8						
		SS-3	4.5	6.0	3.0	4.5	14		4.5							11	14	A-6a	10						
		SS-4	6.0	7.5	4.5	6.0	17		4.5							9	14	A-6a	10						
9	B 009-0 23	SS-1	1.5	3.0	0.0	1.5	16	16	4.5	29	19	10	26	17	43	13	14	A-4a	2	200					
		SS-2	3.0	3.3	1.5	1.8			4.5	29	19	10	31	23	54	10	14	A-4a	4			N ₆₀			
		SS-3	4.5	4.8	3.0	3.3										2	0	Rock	0						
		SS-4	6.0	6.2	4.5	4.7										0	Rock	0							



#	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	
10	B 010-0 23	SS-1	1.5	3.0	0.0	1.5	14	9								7	10	A-2-4	0						
		SS-2	3.0	4.5	1.5	3.0	26		4.25							16	18	A-7-6	16						
		SS-3	4.5	6.0	3.0	4.5	18		4.5	41	21	20	36	42	78	16	18	A-7-6	12	240					
		SS-4	6.0	7.5	4.5	6.0	9		4.5	38	21	17	39	34	73	18	16	A-6b	10						
11	B 011-0 23	SS-1	1.5	2.4	0.0	0.9	30	30	4.5	36	21	15	38	38	76	12	16	A-6a	10	273					
		SS-2	3.0	3.4	1.5	1.9									8	0	Rock	0							
		SS-3	4.5	6.0	3.0	4.5									7	0	Rock	0							
		SS-4	6.0	6.9	4.5	5.4									7	0	Rock	0							
12	B 012-0 23	SS-1	1.5	3.0	0.0	1.5	22	22		NP	NP	NP	18	10	28	6	10	A-2-4	0	547					
		SS-2	3.0	4.3	1.5	2.8	30			33	19	14	31	28	59	10	14	A-6a	6						
		SS-3	4.5	4.8	3.0	3.3									16	0	Rock	0							
		SS-4	6.0	6.2	4.5	4.7									4	0	Rock	0							
13	B 013-0 23	SS-1	1.5	3.0	0.0	1.5	11	8	1.5	28	17	11	24	15	39	16	14	A-6a	1	673		HP		12"	
		SS-2	3.0	4.5	1.5	3.0	12								13	10	A-2-6	4		N ₆₀ & Mc					
		SS-3	4.5	6.0	3.0	4.5	8		2.75	38	21	17	37	40	77	16	16	A-6b	11						
		SS-4	6.0	7.5	4.5	6.0	11		2.75							13	16	A-6b	16						
14	B 014-0 23	SS-1	1.5	3.0	0.0	1.5	12	8		NP	NP	NP	12	6	18	10	6	A-1-b	0	2333					
		SS-2	3.0	4.5	1.5	3.0	13		2.5							25	18	A-7-6	16		N ₆₀ & Mc				
		SS-3	4.5	6.0	3.0	4.5	8		2.5	57	24	33	27	64	91	24	21	A-7-6	19						
		SS-4	6.0	7.5	4.5	6.0	9		2.5							25	18	A-7-6	16						
15	B 015-0 23	SS-1	1.5	3.0	0.0	1.5	12	11		40	23	17	16	15	31	13	10	A-2-6	1	373		N ₆₀ & Mc		12"	
		SS-2	3.0	4.5	1.5	3.0	13		4.5	39	21	18	31	31	62	16	16	A-6b	9						
		SS-3	4.5	6.0	3.0	4.5	12		4.5							18	16	A-6b	16						
		SS-4	6.0	7.5	4.5	6.0	11		3.5							18	16	A-6b	16						
16	B 016-0 23	SS-1	1.5	3.0	0.0	1.5	11	11	2.75	39	20	19	22	19	41	17	16	A-6b	4	140		N ₆₀		12"	
		SS-2	3.0	4.5	1.5	3.0	14		3	38	21	17	29	30	59	20	16	A-6b	8		N ₆₀ & Mc				
		SS-3	4.5	6.0	3.0	4.5	12		3.5							18	16	A-6b	16						
		SS-4	6.0	7.5	4.5	6.0	11		4.5							13	14	A-6a	10						
17	B 017-0 23	SS-1	1.5	1.9	0.0	0.4	30	30	2.5	36	20	16	26	23	49	16	16	A-6b	5	207					
		SS-2	3.0	3.1	1.5	1.6									1	0	Rock	0							
18	B 018-0 23	SS-1	1.5	3.0	0.0	1.5	28	28	4.5	34	20	14	29	22	51	11	15	A-6a	5	200					
		SS-2	3.0	4.5	1.5	3.0	30			NP	NP	NP	18	14	32	6	10	A-2-4	0						
		SS-3	4.5	5.3	3.0	3.8	30									13	10	A-2-4	0						
		SS-4	6.0	6.7	4.5	5.2	30									8	0	Rock	0						



#	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
19	B 019-0 23	SS-1	1.5	2.9	0.0	1.4	30	30	4.5	34	19	15	34	31	65	15	14	A-6a	8	40					
		SS-2	3.0	3.4	1.5	1.9										0	Rock	0							
		SS-3	4.5	4.7	3.0	3.2										0	Rock	0							
20	B 020-0 23	SS-1	1.5	3.0	0.0	1.5	13	13	3	40	21	19	33	33	66	16	16	A-6b	10	160					
		SS-2	3.0	4.5	1.5	3.0	30		4.25	31	18	13	40	25	65	11	14	A-6a	7						
		SS-3	4.5	6.0	3.0	4.5	30		4.5						18	14	A-6a	10							
		SS-4	6.0	7.5	4.5	6.0	29		4.5						12	14	A-6a	10							
21	B 021-0 23	SS-1	1.5	1.9	0.0	0.4	30	30	4.5	35	20	15	24	26	50	13	15	A-6a	5	320					
		SS-2	3.0	3.3	1.5	1.8	30									14	A-6a	10							
22	B 022-0 23	SS-1	1.5	3.0	0.0	1.5	30	30	4	37	21	16	21	24	45	12	16	A-6b	4	93					
		SS-2	3.0	4.3	1.5	2.8	30		3.5	33	19	14	32	25	57	13	14	A-6a	6						
		SS-3	4.5	5.3	3.0	3.8			4.5						10	14	A-6a	10							
		SS-4	6.0	6.2	4.5	4.7									10	0	Rock	0							
23	B 023-0 23	SS-1	1.5	3.0	0.0	1.5	26	26		NP	NP	NP	33	12	45	10	11	A-4a	2	20					
		SS-2	3.0	3.9	1.5	2.4	30			NP	NP	NP	22	13	35	9	10	A-2-4	0						
		SS-3	4.5	5.1	3.0	3.6									5	0	Rock	0							
		SS-4	6.0	6.1	4.5	4.6									0	Rock	0								
24	B 024-0 23	SS-1	1.5	3.0	0.0	1.5	14	9	4.25	41	23	18	42	41	83	19	20	A-7-6	11	60					
		SS-2	3.0	4.5	1.5	3.0	18		4	39	24	15	29	36	65	23	19	A-6a	8		Mc				
		SS-3	4.5	6.0	3.0	4.5	11		1.5							33	18	A-7-6	16						
		SS-4	6.0	7.5	4.5	6.0	9		2							27	18	A-7-6	16						
25	B 025-0 23	SS-1	1.5	3.0	0.0	1.5	17	7		NP	NP	NP	13	12	25	9	6	A-1-b	0	320					
		SS-2	3.0	4.5	1.5	3.0	18			NP	NP	NP	24	22	46	11	11	A-4a	2						
		SS-3	4.5	6.0	3.0	4.5	8								8	10	A-4a	8							
		SS-4	6.0	7.5	4.5	6.0	7								13	10	A-4a	8							
26	B 027-0 23	SS-1	1.5	3.0	0.0	1.5	25	17	4.5	30	18	12	23	16	39	10	14	A-6a	1	147					
		SS-2	3.0	4.5	1.5	3.0	30			NP	NP	NP	19	9	28	7	10	A-2-4	0						
		SS-3	4.5	6.0	3.0	4.5	18								13	10	A-2-4	0							
		SS-4	6.0	7.5	4.5	6.0	17								15	10	A-2-4	0							
27	B 028-0 23	SS-1	1.5	3.0	0.0	1.5	30	21		NP	NP	NP	12	7	19	9	6	A-1-b	0	1427					
		SS-2	3.0	4.5	1.5	3.0	29		4.25	33	19	14	39	32	71	9	14	A-6a	9						
		SS-3	4.5	6.0	3.0	4.5	21									7	10	A-2-4	0						
		SS-4	6.0	6.2	4.5	4.7									8	0	Rock	0							



#	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
28	B 029-0 23	SS-1	1.5	3.0	0.0	1.5	30	12	4.25	34	19	15	18	19	37	13	14	A-6a	2	100					
		SS-2	3.0	4.5	1.5	3.0	28		4	34	19	15	30	26	56	14	14	A-6a	6						
		SS-3	4.5	6.0	3.0	4.5	16		4.25							19	14	A-6a	10						
		SS-4	6.0	7.5	4.5	6.0	12		4.25							17	14	A-6a	10						
29	B 030-0 23	SS-1	1.5	3.0	0.0	1.5	13	13	2.25	35	20	15	23	25	48	16	15	A-6a	4	113					
		SS-2	3.0	3.7	1.5	2.2	30								14	10	A-2-6	4			Mc				
		SS-3	4.5	6.0	3.0	4.5	30		3	37	24	13	31	42	73	21	19	A-6a	9						
		SS-4	6.0	7.5	4.5	6.0	26		4.25							21	14	A-6a	10						
30	B 031-0 23	SS-1	1.5	3.0	0.0	1.5	22	22	2.25	32	18	14	29	26	55	13	14	A-6a	6	400					
		SS-2	3.0	4.5	1.5	3.0	30			NP	NP	NP	15	13	28	10	10	A-2-4	0						
		SS-3	4.5	6.0	3.0	4.5	30		4.25							12	10	A-4a	8						
		SS-4	6.0	7.5	4.5	6.0	30								10	6	A-1-b	0							
31	B 032-0 23	SS-1	1.5	3.0	0.0	1.5	17	17								1	10	A-4a	8						
		SS-2	3.0	4.5	1.5	3.0	30			NP	NP	NP	25	18	43	7	11	A-4a	2	233					
		SS-3	4.5	6.0	3.0	4.5	24		4.5	32	19	13	37	30	67	11	14	A-6a	8						
		SS-4	6.0	7.5	4.5	6.0	21		4.5							12	14	A-6a	10						
32	B 033-0 23	SS-1	1.5	2.9	0.0	1.4	30	30		27	18	9	35	12	47	5	13	A-4a	2	13					
		SS-2	3.0	4.5	1.5	3.0	30			NP	NP	NP	23	8	31	3	10	A-2-4	0						
		SS-3	4.5	6.0	3.0	4.5	30									4	10	A-2-4	0						
		SS-4	6.0	6.3	4.5	4.8									4	0	Rock	0							
33	B 034-0 23	SS-1	1.5	3.0	0.0	1.5	24	24	4.5	36	20	16	40	27	67	12	16	A-6b	9	3167					
		SS-2	3.0	4.5	1.5	3.0	30		4.5	35	20	15	42	25	67	10	15	A-6a	8						
		SS-3	4.5	6.0	3.0	4.5	30		4.5							6	14	A-6a	10						
		SS-4	6.0	7.5	4.5	6.0	30		4.5							8	14	A-6a	10						
34	B 035-0 23	SS-1	1.5	3.0	0.0	1.5	14	9	4	36	21	15	36	25	61	15	16	A-6a	7	300					
		SS-2	3.0	4.5	1.5	3.0	9		3.5	46	23	23	53	40	93	28	20	A-7-6	14			N ₆₀ & Mc			
		SS-3	4.5	6.0	3.0	4.5	29		2.5							24	18	A-7-6	16						
		SS-4	6.0	7.5	4.5	6.0	28		1.25							20	16	A-6b	16						
35	B 036-0 23	SS-1	1.5	3.0	0.0	1.5	17	11	3.5	31	20	11	38	17	55	12	15	A-6a	4	693					
		SS-2	3.0	4.5	1.5	3.0	11		4							11	14	A-6a	10			N ₆₀			
		SS-3	4.5	6.0	3.0	4.5	17		3	34	19	15	36	32	68	15	14	A-6a	9						
		SS-4	6.0	7.5	4.5	6.0	13		4.5							11	14	A-6a	10						
36	B 037-0 23	SS-1	1.5	3.0	0.0	1.5	12	7	3.5	33	19	14	28	29	57	16	14	A-6a	6	120					
		SS-2	3.0	4.5	1.5	3.0	7		3.75	34	20	14	34	29	63	18	15	A-6a	7			N ₆₀ & Mc			
		SS-3	4.5	6.0	3.0	4.5	11		3.5							22	14	A-6a	10						
		SS-4	6.0	7.5	4.5	6.0	12		4.25							22	14	A-6a	10						



#	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
37	B 038-0 23	SS-1	1.5	3.0	0.0	1.5	8	8		NP	NP	NP	12	4	16	6	6	A-1-b	0	333					
		SS-2	3.0	4.5	1.5	3.0	16								8	10	A-2-4	0							
		SS-3	4.5	6.0	3.0	4.5	20								10	10	A-2-4	0							
		SS-4	6.0	7.5	4.5	6.0	14								4	10	A-2-4	0							
38	B 039-0 23	SS-1	1.5	3.0	0.0	1.5	8	7	3	38	21	17	33	42	75	21	16	A-6b	11	53		N ₆₀ & Mc		12"	
		SS-2	3.0	4.5	1.5	3.0	7		2.25	37	20	17	38	44	82	22	16	A-6b	11		N ₆₀ & Mc				
		SS-3	4.5	6.0	3.0	4.5	7		2						22	16	A-6b	16							
		SS-4	6.0	7.5	4.5	6.0	11		4.25						20	16	A-6b	16							
39	B 040-0 23	SS-1	1.5	2.3	0.0	0.8	30	30	4	30	20	10	39	13	52	12	15	A-4a	3	60					
		SS-2	3.0	3.2	1.5	1.7								3	0	Rock	0								
40	B 041-0 23	SS-1	1.5	1.8	0.0	0.3	30								2	0	Rock	0							
		SS-2	3.0	3.1	1.5	1.6									0	Rock	0								
41	B 042-0 23	SS-1	1.5	3.0	0.0	1.5	7	7		NP	NP	NP	14	10	24	8	6	A-1-b	0	220					
		SS-2	3.0	3.1	1.5	1.6								9	0	Rock	0								
42	B 043-0 23	SS-1	1.5	3.0	0.0	1.5	30	30	4.5	31	19	12	42	23	65	9	14	A-6a	7	173					
		SS-2	3.0	3.6	1.5	2.1								5	0	Rock	0								
		SS-3	4.5	4.8	3.0	3.3								9	0	Rock	0								
		SS-4	6.0	6.2	4.5	4.7								5	0	Rock	0								
43	B 044-0 23	SS-1	1.5	3.0	0.0	1.5	21	8		NP	NP	NP	5	1	6	4	6	A-1-a	0	400					
		SS-2	3.0	4.5	1.5	3.0	16			NP	NP	NP	10	4	14	5	6	A-1-a	0						
		SS-3	4.5	6.0	3.0	4.5	8								7	6	A-1-a	0							
		SS-4	6.0	7.5	4.5	6.0	8		2.5						19	18	A-7-6	16							
44	B 045-0 23	SS-1	1.5	3.0	0.0	1.5	30	30		NP	NP	NP	13	10	23	10	6	A-1-b	0	773					
		SS-2	3.0	4.5	1.5	3.0	30		4.5	34	19	15	40	37	77	13	14	A-6a	10						
		SS-3	4.5	4.8	3.0	3.3								7	6	A-1-b	0								
		SS-4	6.0	6.4	4.5	4.9								8	0	Rock	0								
45	B 046-0 23	SS-1	1.5	3.0	0.0	1.5	13	11		NP	NP	NP	5	3	8	4	6	A-1-a	0						
		SS-2	3.0	4.5	1.5	3.0	11			NP	NP	NP	6	4	10	7	6	A-1-a	0	133					
		SS-3	4.5	6.0	3.0	4.5	25								13	10	A-2-6	4							
		SS-4	6.0	7.5	4.5	6.0	22								8	10	A-2-6	4							



#	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	
46	B 047-0 23	SS-1	1.5	3.0	0.0	1.5	30	16		28	18	10	23	17	40	10	13	A-4a	1	73						
		SS-2	3.0	4.5	1.5	3.0	29		4.25	30	18	12	40	17	57	9	14	A-6a	5							
		SS-3	4.5	6.0	3.0	4.5	17		4						11	14	A-6a	10								
		SS-4	6.0	7.5	4.5	6.0	16		4						13	14	A-6a	10								
47	B 048-0 23	SS-1	1.5	3.0	0.0	1.5	30	30		28	18	10	21	10	31	9	10	A-2-4	0	73						
		SS-2	3.0	4.3	1.5	2.8								5	0	Rock	0									
		SS-3	4.5	6.0	3.0	4.5								3	0	Rock	0									
		SS-4	6.0	7.5	4.5	6.0								3	0	Rock	0									
48	B 049-0 23	SS-1	1.5	3.0	0.0	1.5	18	18								14	10	A-4a	8			Mc				
		SS-2	3.0	4.3	1.5	2.8	30		4.5	27	18	9	39	54	93	16	13	A-4a	8	73		Mc				
		SS-3	4.5	6.0	3.0	4.5	30		4.5	28	18	10	37	59	96	18	13	A-4a	8							
		SS-4	6.0	7.5	4.5	6.0	30		4.5							18	10	A-4a	8							
49	B 050-0 23	SS-1	1.5	3.0	0.0	1.5	13	13		28	19	9	15	14	29	4	10	A-2-4	0	53						
		SS-2	3.0	4.5	1.5	3.0	16		2.25	29	19	10	21	18	39	11	14	A-4a	1							
		SS-3	4.5	6.0	3.0	4.5	29								6	6	A-1-b	0								
		SS-4	6.0	6.2	4.5	4.7	30									6	A-1-b	0								
50	B 051-0 23	SS-1	1.5	3.0	0.0	1.5	13	8	2	37	20	17	32	39	71	18	16	A-6b	10	80						
		SS-2	3.0	4.5	1.5	3.0	25		2.25	37	19	18	26	30	56	16	16	A-6b	7							
		SS-3	4.5	6.0	3.0	4.5	11		3.5							16	16	A-6b	16							
		SS-4	6.0	7.5	4.5	6.0	8		3.5							13	16	A-6b	16							
51	B 052-0 23	SS-1	1.5	3.0	0.0	1.5	13	12								0	18	A-7-6	16							
		SS-2	3.0	4.5	1.5	3.0	12		2.5	41	21	20	31	33	64	18	18	A-7-6	10	1787						
		SS-3	4.5	6.0	3.0	4.5	18		2.75	47	20	27	29	43	72	21	18	A-7-6	15							
		SS-4	6.0	7.5	4.5	6.0	21		4.25							21	18	A-7-6	16							
52	B 053-0 23	SS-1	1.5	3.0	0.0	1.5	13	13									16	A-6b	16							
		SS-2	3.0	4.5	1.5	3.0	16		4.25	39	20	19	35	41	76	18	16	A-6b	12	1220						
		SS-3	4.5	6.0	3.0	4.5	17		4.25	37	20	17	36	38	74	19	16	A-6b	11							
		SS-4	6.0	7.5	4.5	6.0	13		4.25							21	16	A-6b	16							
53	B 054-0 23	SS-1	1.5	3.0	0.0	1.5	14	12								14	10	A-2-6	4			N ₆₀ & Mc		12"		
		SS-2	3.0	4.5	1.5	3.0	12		3	37	20	17	31	34	65	17	16	A-6b	9	53						
		SS-3	4.5	6.0	3.0	4.5	16		3.5	62	24	38	24	69	93	27	21	A-7-6	20							
		SS-4	6.0	7.5	4.5	6.0	13		3.25							26	18	A-7-6	16							
54	B 055-0 23	SS-1	1.5	3.0	0.0	1.5	8	8	2.5	42	23	19	33	36	69	17	20	A-7-6	11	353			N ₆₀		12"	
		SS-2	3.0	4.5	1.5	3.0	18		4.25	41	23	18	36	40	76	15	20	A-7-6	11							
		SS-3	4.5	6.0	3.0	4.5	21		4.5							13	10	A-4a	8							
		SS-4	6.0	7.5	4.5	6.0	30		4.5							14	10	A-4a	8							



#	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	
55	B 056-0 23	SS-1	1.5	3.0	0.0	1.5	5	5	2	41	20	21	30	37	67	20	18	A-7-6	11	287		N ₆₀		21"		
		SS-2	3.0	4.5	1.5	3.0	30		2.25							21	18	A-7-6	16			Mc				
		SS-3	4.5	6.0	3.0	4.5	20			31	19	12	18	22	40	10	14	A-6a	2							
		SS-4	6.0	7.5	4.5	6.0	28									8	14	A-6a	10							
56	B 057-0 23	SS-1	1.5	3.0	0.0	1.5	17	17								13	10	A-2-4	0			Mc				
		SS-2	3.0	4.3	1.5	2.8	30		3	31	17	14	24	26	50	13	14	A-6a	4	627						
		SS-3	4.5	4.8	3.0	3.3									5	0	Rock	0								
		SS-4	6.0	6.1	4.5	4.6										0	Rock	0								
57	B 058-0 23	SS-1	1.5	3.0	0.0	1.5	7	7	2.75	37	18	19	27	32	59	15	16	A-6b	8	1480		N ₆₀		15"		
		SS-2	3.0	4.5	1.5	3.0	30		3							5	16	A-6b	16							
		SS-3	4.5	6.0	3.0	4.5	29			NP	NP	NP	14	18	32	8	10	A-2-4	0							
		SS-4	6.0	6.3	4.5	4.8										5	0	Rock	0							
58	B 059-0 23	SS-1	1.5	3.0	0.0	1.5	28	14		NP	NP	NP	10	11	21	7	6	A-1-b	0	200						
		SS-2	3.0	4.5	1.5	3.0	30									11	6	A-1-b	0							
		SS-3	4.5	6.0	3.0	4.5	25			NP	NP	NP	8	8	16	13	6	A-1-b	0							
		SS-4	6.0	7.5	4.5	6.0	14		2							37	16	A-6b	16							
59	B 060-0 23	SS-1	1.5	3.0	0.0	1.5	5	5									18	A-7-6	16			N ₆₀		21"		
		SS-2	3.0	4.5	1.5	3.0	12										18	A-7-6	16							
		SS-3	4.5	6.0	3.0	4.5	13		3	43	21	22	33	47	80	20	18	A-7-6	13	127						
		SS-4	6.0	7.5	4.5	6.0	12		4	37	20	17	39	40	79	17	16	A-6b	11							
60	B 061-0 23	SS-1	1.5	3.0	0.0	1.5	16	14									14	A-6a	10							
		SS-2	3.0	4.5	1.5	3.0	30		2.5	35	20	15	25	24	49	14	15	A-6a	5	193						
		SS-3	4.5	6.0	3.0	4.5	24			33	21	12	18	14	32	10	10	A-2-6	0							
		SS-4	6.0	7.5	4.5	6.0	14									8	10	A-2-6	4							
61	B 062-0 23	SS-1	1.5	3.0	0.0	1.5	13	13	2.5	42	22	20	29	39	68	19	19	A-7-6	11	220						
		SS-2	3.0	4.5	1.5	3.0	30		4							18	18	A-7-6	16							
		SS-3	4.5	6.0	3.0	4.5	28		4.5	33	19	14	19	21	40	9	14	A-6a	2							
		SS-4	6.0	7.5	4.5	6.0	25		4.5							11	14	A-6a	10							
62	B 063-0 23	SS-1	1.5	3.0	0.0	1.5	14	12	2.5	37	20	17	21	25	46	17	16	A-6b	4	113						
		SS-2	3.0	4.5	1.5	3.0	16		3	45	24	21	30	46	76	24	21	A-7-6	13			Mc				
		SS-3	4.5	6.0	3.0	4.5	14		3							22	18	A-7-6	16							
		SS-4	6.0	7.5	4.5	6.0	12									10	10	A-2-4	0							
63	B 064-0 23	SS-1	1.5	3.0	0.0	1.5	9	9									16	A-6b	16			N ₆₀		12"		
		SS-2	3.0	4.5	1.5	3.0	16		2.5	40	20	20	23	31	54	18	16	A-6b	8	853						
		SS-3	4.5	6.0	3.0	4.5	25		3.25	43	21	22	24	36	60	16	18	A-7-6	10							
		SS-4	6.0	7.5	4.5	6.0	20		4.5							17	18	A-7-6	16							



#	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	
64	B 065-0 23	SS-1	1.5	3.0	0.0	1.5	7			NP	NP	NP	14	5	19	11	6	A-1-b	0	1613					
		SS-2	3.0	4.5	1.5	3.0	17	4.5	38	25	13	39	23	62	15	20	A-6a	7							
		SS-3	4.5	6.0	3.0	4.5	17	4.5							10	14	A-6a	10							
		SS-4	6.0	7.5	4.5	6.0	11	4.5							12	14	A-6a	10							

PID: 107533

County-Route-Section: BEL-70-19.17

No. of Borings: 64

Geotechnical Consultant: NEAS Inc.

Prepared By: Kevin C. Arens

Date prepared: 5/28/2024

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

Excavate and Replace Stabilization Options	
Global Geotextile Average(N60L): Average(HP):	12" 0"
Global Geogrid Average(N60L): Average(HP):	0" 0"

Design CBR	7
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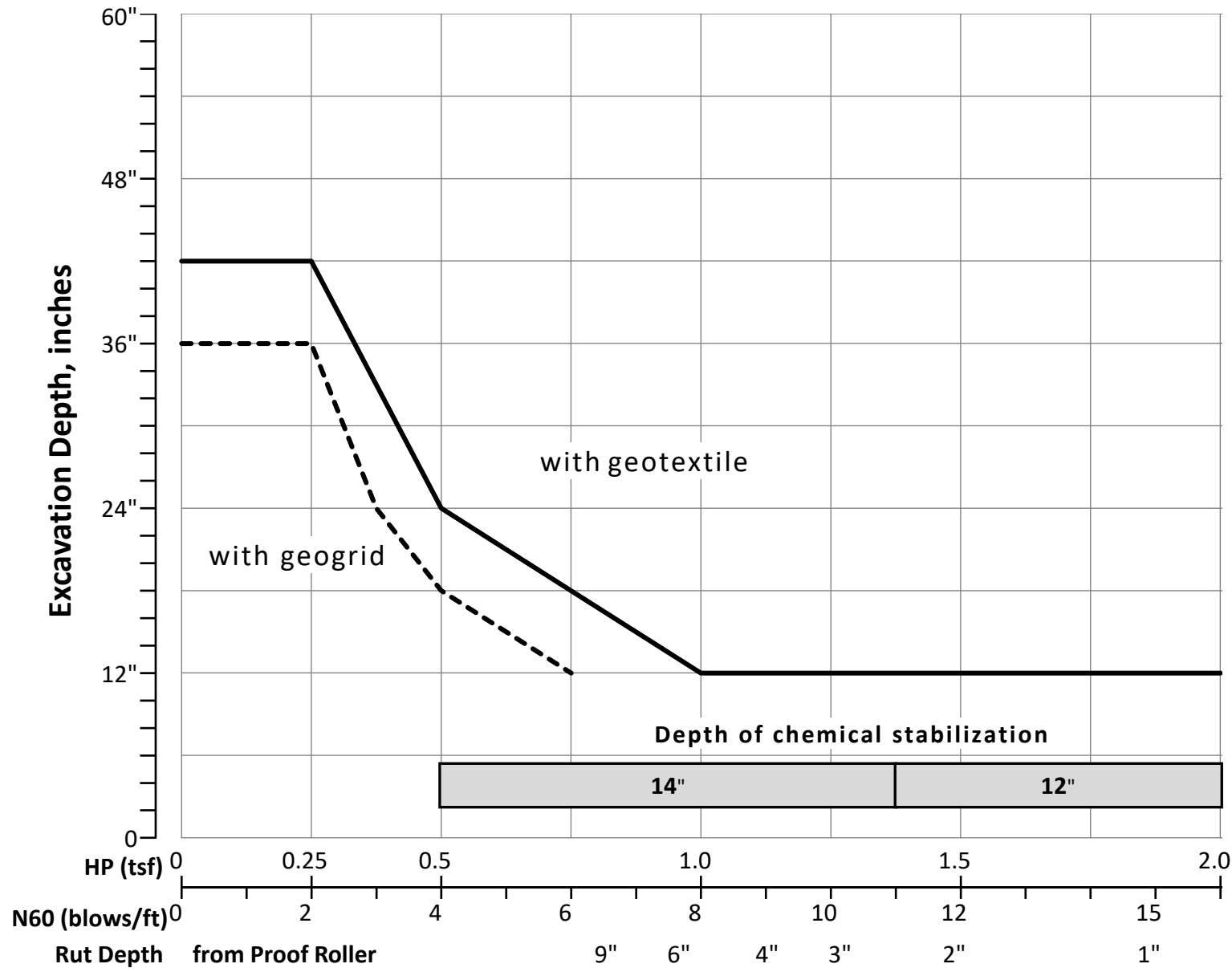
% Samples within 3 feet of subgrade			
$N_{60} \leq 5$	1%	$HP \leq 0.5$	0%
$N_{60} < 12$	10%	$0.5 < HP \leq 1$	0%
$12 \leq N_{60} < 15$	12%	$1 < HP \leq 2$	2%
$N_{60} \geq 20$	34%	$HP > 2$	40%
M+	7%		
Rock	7%		
Unsuitable Soil	100%		

Excavate and Replace at Surface	
Average	0"
Maximum	0"
Minimum	0"

% Proposed Subgrade Surface	
Unstable & Unsuitable	20%
Unstable	20%
Unsuitable (Soil & Rock)	1%

	N_{60}	N_{60L}	HP	LL	PL	PI	Silt	Clay	P 200	M_C	M_{OPT}	GI
Average	20	16	3.68	36	20	16	28	25	53	12	12	6
Maximum	30	30	4.50	62	25	38	53	69	96	37	21	20
Minimum	5	5	1.25	26	16	8	5	1	6	0	0	0

Classification Counts by Sample																				
ODOT Class	UCF	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	30	5	14	27	0	8	0	0	0	25	3	0	68	35	0	30	0	0	245
Percent	0%	12%	2%	6%	11%	0%	3%	0%	0%	0%	10%	1%	0%	28%	14%	0%	12%	0%	0%	100%
% Rock Granular Cohesive	0%	12%	32%									56%								100%
Surface Class Count	0	9	4	9	14	0	4	0	0	0	16	1	0	36	20	0	15	0	0	128
Surface Class Percent	0%	7%	3%	7%	11%	0%	3%	0%	0%	0%	13%	1%	0%	28%	16%	0%	12%	0%	0%	100%

Fig. 600-1 – Subgrade Stabilization

 OVERRIDE TABLE

Calculated Average	New Values	Check to Override
3.68	0.50	☐ HP
16.40	6.00	☐ N60L

Average HP


Average N_{60L}


RAMP 5

OHIO DEPARTMENT OF TRANSPORTATION

OFFICE OF GEOTECHNICAL ENGINEERING

PLAN SUBGRADES

Geotechnical Design Manual Section 600

Instructions: Enter data in the shaded cells only.

(Enter state route number, project description, county, consultant's name, prepared by name, and date prepared. This information will be transferred to all other sheets. The date prepared must be entered in the appropriate cell on this sheet to remove these instructions prior to printing.)

BEL-70-19.17**107533****Ramp 5 (Banfield Road to IR-70 EB)****Interstate Route 70 and Ramps from SLM 19.17 to SLM 23.69 in Belmont County, OH****NEAS Inc.**

Prepared By: Kevin C. Arens
Date prepared: Tuesday, May 28, 2024

Brendan P. Andrews
2800 Corporate Exchange Drive
Suite 240
Columbus, OH 43231
513.337.9823
brendan.andrews@neasinc.com

NO. OF BORINGS: 3

#	Boring ID	Alignment	Station	Offset	Dir	Drill Rig	ER	Boring EL.	Proposed Subgrade EL	Cut Fill
1	B-066-0-23	Ramp 5	0+66	3	RT	CME 45B	79	1229.6	1228.1	1.5 C
2	B-067-0-23	Ramp 5	3+64	6	RT	CME 45B	79	1222.7	1221.2	1.5 C
3	B-019-0-23	IR-70	1086+98	85	RT	CME 45B	79	1215.8	1214.3	1.5 C

[illegible]

PID: 107533

County-Route-Section: BEL-70-19.17

No. of Borings: 3

Geotechnical Consultant: NEAS Inc.

Prepared By: Kevin C. Arens

Date prepared: 5/28/2024

Chemical Stabilization Options

320	Rubblize & Roll	Option
206	Cement Stabilization	Option
	Lime Stabilization	Option
206	Depth	NA

Excavate and Replace
Stabilization Options

Global Geotextile Average(N60L): Average(HP):	0" 0"
Global Geogrid Average(N60L): Average(HP):	0" 0"

Design
CBR

6

% Samples within 3 feet of subgrade

$N_{60} \leq 5$	0%	$HP \leq 0.5$	0%
$N_{60} < 12$	0%	$0.5 < HP \leq 1$	0%
$12 \leq N_{60} < 15$	40%	$1 < HP \leq 2$	0%
$N_{60} \geq 20$	30%	$HP > 2$	60%
M+	0%		
Rock	17%		
Unsuitable Soil	0%		

Excavate and Replace
at Surface

Average	0"
Maximum	0"
Minimum	0"

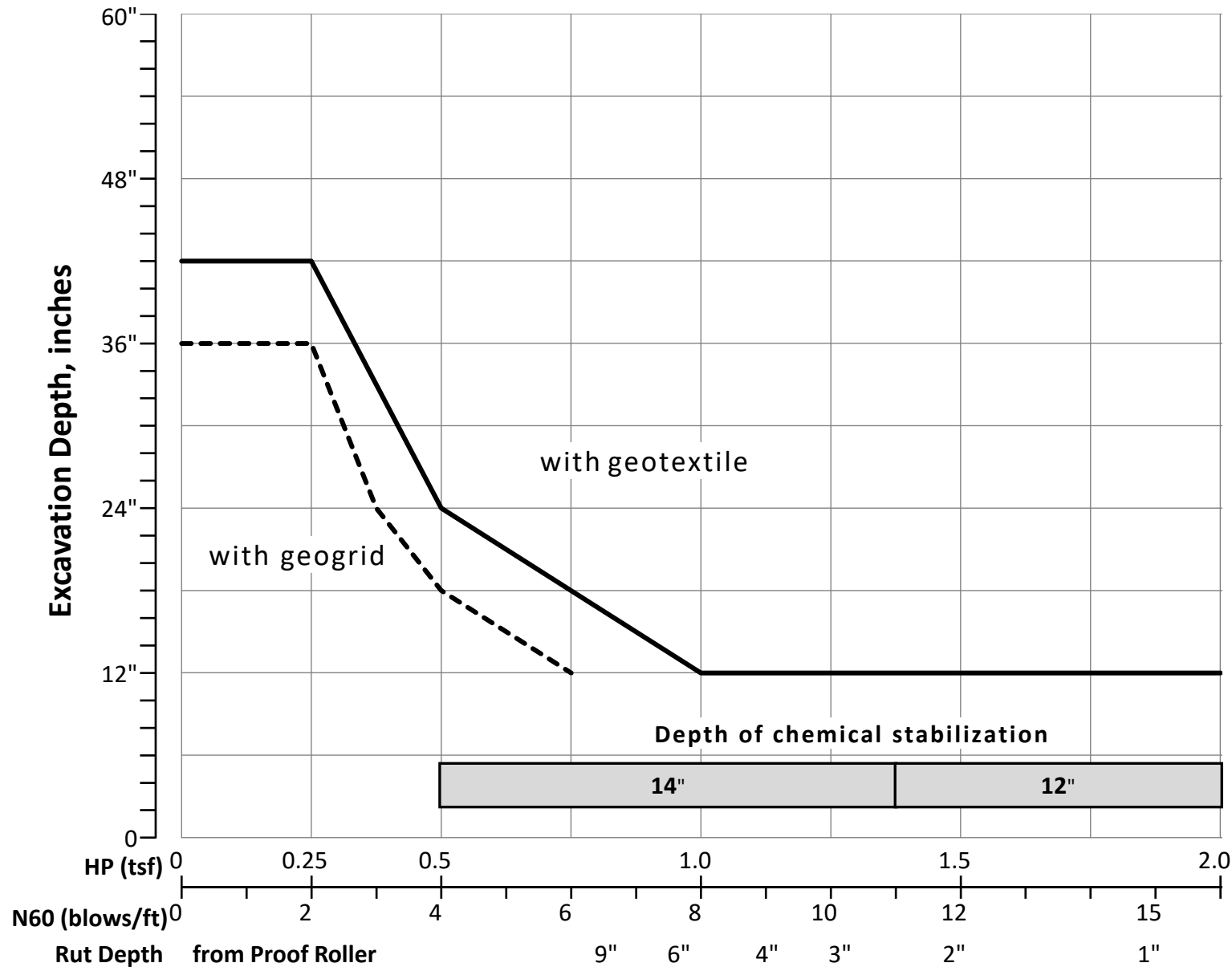
% Proposed Subgrade Surface

Unstable & Unsuitable	0%
Unstable	0%
Unsuitable (Soil & Rock)	0%

	N_{60}	N_{60L}	HP	LL	PL	PI	Silt	Clay	P 200	M_C	M_{OPT}	GI
Average	21	18	3.88	38	20	18	32	34	66	15	13	10
Maximum	30	30	4.50	42	21	21	35	44	79	19	18	16
Minimum	12	12	3.50	34	19	15	27	21	48	9	0	0

Classification Counts by Sample

ODOT Class	UCF	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	2	0	0	0	0	0	0	0	0	0	0	0	1	4	0	3	0	0	10	
Percent	0%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	40%	0%	30%	0%	0%	100%	
% Rock Granular Cohesive	0%	20%	0%									80%									100%
Surface Class Count	0	1	0	0	0	0	0	0	0	0	0	0	0	1	2	0	2	0	0	6	
Surface Class Percent	0%	17%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	17%	33%	0%	33%	0%	0%	100%	

Fig. 600-1 – Subgrade Stabilization

 OVERRIDE TABLE

Calculated Average	New Values	Check to Override
3.88	0.50	☐ HP
18.00	6.00	☐ N60L

Average HP

Average N_{60L}


RAMP 6

OHIO DEPARTMENT OF TRANSPORTATION

OFFICE OF GEOTECHNICAL ENGINEERING

PLAN SUBGRADES

Geotechnical Design Manual Section 600

Instructions: Enter data in the shaded cells only.

(Enter state route number, project description, county, consultant's name, prepared by name, and date prepared. This information will be transferred to all other sheets. The date prepared must be entered in the appropriate cell on this sheet to remove these instructions prior to printing.)

BEL-70-19.17**107533****Ramp 6 (IR-70 EB to IR-470 EB)****Interstate Route 70 and Ramps from SLM 19.17 to SLM 23.69 in Belmont County, OH****NEAS Inc.**

Prepared By: Kevin C. Arens
Date prepared: Tuesday, May 28, 2024

Brendan P. Andrews
2800 Corporate Exchange Drive
Suite 240
Columbus, OH 43231
513.337.9823
brendan.andrews@neasinc.com

NO. OF BORINGS: 2

#	Boring ID	Alignment	Station	Offset	Dir	Drill Rig	ER	Boring EL.	Proposed Subgrade EL	Cut Fill
1	B-023-0-23	IR-70	1102+64	51	RT	CME 45B	79	1237.0	1235.5	1.5 C
2	B-068-0-23	Ramp 6	1116+73	5	RT	CME 45B	79	1256.8	1255.3	1.5 C



#	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 023-0 23	SS-1	1.5	3.0	0.0	1.5	26			NP	NP	NP	33	12	45	10	11	A-4a	2	20					
		SS-2	3.0	3.9	1.5	2.4	30			NP	NP	NP	22	13	35	9	10	A-2-4	0						
		SS-3	4.5	5.1	3.0	3.6									5	0	Rock	0							
		SS-4	6.0	6.1	4.5	4.6			26							0	Rock	0							
2	B 068-0 23	SS-1	1.5	2.4	0.0	0.9	30		3.75	40	19	21	21	22	43	13	16	A-6b	5	140					
		SS-2	3.0	3.3	1.5	1.8	30								4	6	A-1-a	0							
		SS-3	4.5	6.0	3.0	4.5	17			NP	NP	NP	17	20	37	12	11	A-4a	0						
		SS-4	6.0	7.5	4.5	6.0	16		16	4.25						14	16	A-6b	16						

PID: 107533

County-Route-Section: BEL-70-19.17

No. of Borings: 2

Geotechnical Consultant: NEAS Inc.

Prepared By: Kevin C. Arens

Date prepared: 5/28/2024

Chemical Stabilization Options

320	Rubblize & Roll	Option
206	Cement Stabilization	No
	Lime Stabilization	Option
206	Depth	NA

**Excavate and Replace
Stabilization Options**

Global Geotextile Average(N60L): Average(HP):	0" 0"
Global Geogrid Average(N60L): Average(HP):	0" 0"

**Design
CBR**
9
% Samples within 3 feet of subgrade

$N_{60} \leq 5$	0%	$HP \leq 0.5$	0%
$N_{60} < 12$	0%	$0.5 < HP \leq 1$	0%
$12 \leq N_{60} < 15$	0%	$1 < HP \leq 2$	0%
$N_{60} \geq 20$	50%	$HP > 2$	13%
M+	0%		
Rock	0%		
Unsuitable Soil	0%		

**Excavate and Replace
at Surface**

Average	0"
Maximum	0"
Minimum	0"

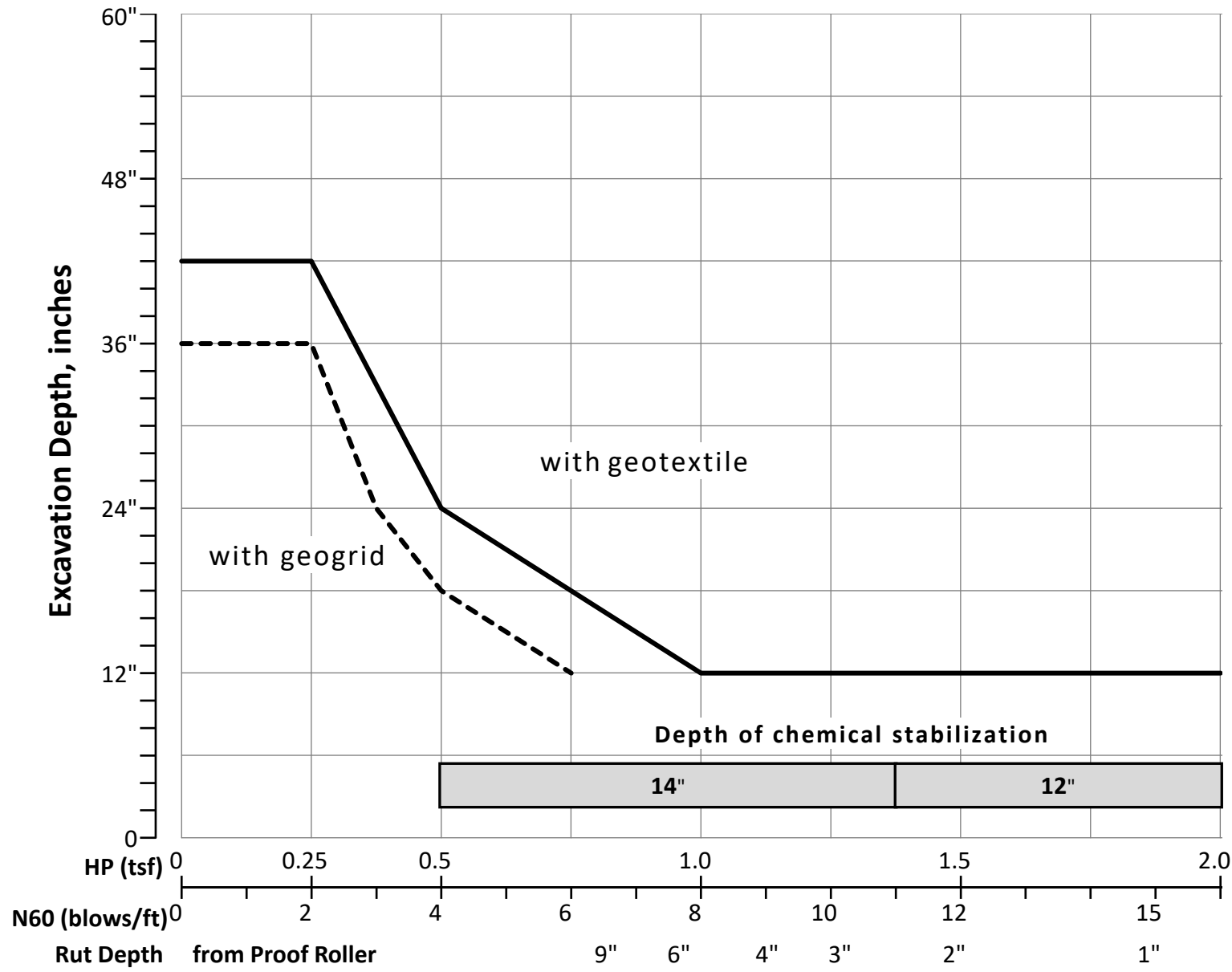
% Proposed Subgrade Surface

Unstable & Unsuitable	0%
Unstable	0%
Unsuitable (Soil & Rock)	0%

	N_{60}	N_{60L}	HP	LL	PL	PI	Silt	Clay	P 200	M_C	M_{OPT}	GI
Average	25	21	4.00	40	19	21	23	17	40	10	9	3
Maximum	30	26	4.25	40	19	21	33	22	45	14	16	16
Minimum	16	16	3.75	40	19	21	17	12	35	4	0	0

Classification Counts by Sample

ODOT Class	UCF	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	2	1	0	1	0	0	0	0	0	2	0	0	0	2	0	0	0	0	8
Percent	0%	25%	13%	0%	13%	0%	0%	0%	0%	0%	25%	0%	0%	0%	25%	0%	0%	0%	0%	100%
% Rock Granular Cohesive	0%	25%	50%									25%								100%
Surface Class Count	0	0	1	0	1	0	0	0	0	0	1	0	0	0	1	0	0	0	0	4
Surface Class Percent	0%	0%	25%	0%	25%	0%	0%	0%	0%	0%	25%	0%	0%	0%	25%	0%	0%	0%	0%	100%

Fig. 600-1 – Subgrade Stabilization

 OVERRIDE TABLE

Calculated Average	New Values	Check to Override
4.00	0.50	☐ HP
21.00	6.00	☐ N60L

Average HP


Average N_{60L}


RAMP 7

OHIO DEPARTMENT OF TRANSPORTATION

OFFICE OF GEOTECHNICAL ENGINEERING

PLAN SUBGRADES

Geotechnical Design Manual Section 600

Instructions: Enter data in the shaded cells only.

(Enter state route number, project description, county, consultant's name, prepared by name, and date prepared. This information will be transferred to all other sheets. The date prepared must be entered in the appropriate cell on this sheet to remove these instructions prior to printing.)

BEL-70-19.17**107533****Ramp 7 (IR-470 WB to IR-70 WB)****Interstate Route 70 and Ramps from SLM 19.17 to SLM 23.69 in Belmont County, OH****NEAS Inc.**

Prepared By: Kevin C. Arens
Date prepared: Tuesday, May 28, 2024

Brendan P. Andrews
2800 Corporate Exchange Drive
Suite 240
Columbus, OH 43231
513.337.9823
brendan.andrews@neasinc.com

NO. OF BORINGS: 4

#	Boring ID	Alignment	Station	Offset	Dir	Drill Rig	ER	Boring EL.	Proposed Subgrade EL	Cut Fill
1	B-069-0-23	Ramp 7	1111+90	10	LT	CME 45B	79	1250.2	1248.7	1.5 C
2	B-070-0-23	Ramp 7	1115+55	15	LT	CME 45B	79	1255.8	1254.3	1.5 C
3	B-025-0-23	IR-70	1110+38	88	LT	CME 45B	79	1255.0	1253.5	1.5 C
4	B-024-0-23	IR-70	1106+49	83	LT	CME 45B	79	1248.5	1247.0	1.5 C

#	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 069-0 23	SS-1	1.5	2.1	0.0	0.6	30	30	4.25	38	19	19	30	33	63	14	16	A-6b	9	120					
		SS-2	3.0	3.8	1.5	2.3									10	0	Rock	0							
		SS-3	4.5	4.6	3.0	3.1																			
2	B 070-0 23	SS-1	1.5	3.0	0.0	1.5	28	22	4.5	35	19	16	24	23	47	12	16	A-6b	4	140					
		SS-2	3.0	4.5	1.5	3.0	22		4.5							13	16	A-6b	16						
		SS-3	4.5	6.0	3.0	4.5	30		4.5	30	20	10	39	26	65	10	15	A-4a	6						
		SS-4	6.0	6.1	4.5	4.6										12	0	Rock	0						
3	B 025-0 23	SS-1	1.5	3.0	0.0	1.5	17	7		NP	NP	NP	13	12	25	9	6	A-1-b	0	320					
		SS-2	3.0	4.5	1.5	3.0	18			NP	NP	NP	24	22	46	11	11	A-4a	2						
		SS-3	4.5	6.0	3.0	4.5	8								8	10	A-4a	8							
		SS-4	6.0	7.5	4.5	6.0	7								13	10	A-4a	8							
4	B 024-0 23	SS-1	1.5	3.0	0.0	1.5	14	9	4.25	41	23	18	42	41	83	19	20	A-7-6	11	60					
		SS-2	3.0	4.5	1.5	3.0	18		4	39	24	15	29	36	65	23	19	A-6a	8			Mc			
		SS-3	4.5	6.0	3.0	4.5	11		1.5							33	18	A-7-6	16						
		SS-4	6.0	7.5	4.5	6.0	9		2							27	18	A-7-6	16						

PID: 107533

County-Route-Section: BEL-70-19.17

No. of Borings: 4

Geotechnical Consultant: NEAS Inc.

Prepared By: Kevin C. Arens

Date prepared: 5/28/2024

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

Excavate and Replace Stabilization Options	
Global Geotextile Average(N60L): Average(HP):	0" 0"
Global Geogrid Average(N60L): Average(HP):	0" 0"

Design CBR	7
------------	---

% Samples within 3 feet of subgrade			
N ₆₀ ≤ 5	0%	HP ≤ 0.5	0%
N ₆₀ < 12	13%	0.5 < HP ≤ 1	0%
12 ≤ N ₆₀ < 15	7%	1 < HP ≤ 2	7%
N ₆₀ ≥ 20	27%	HP > 2	40%
M+	7%		
Rock	13%		
Unsuitable Soil	0%		

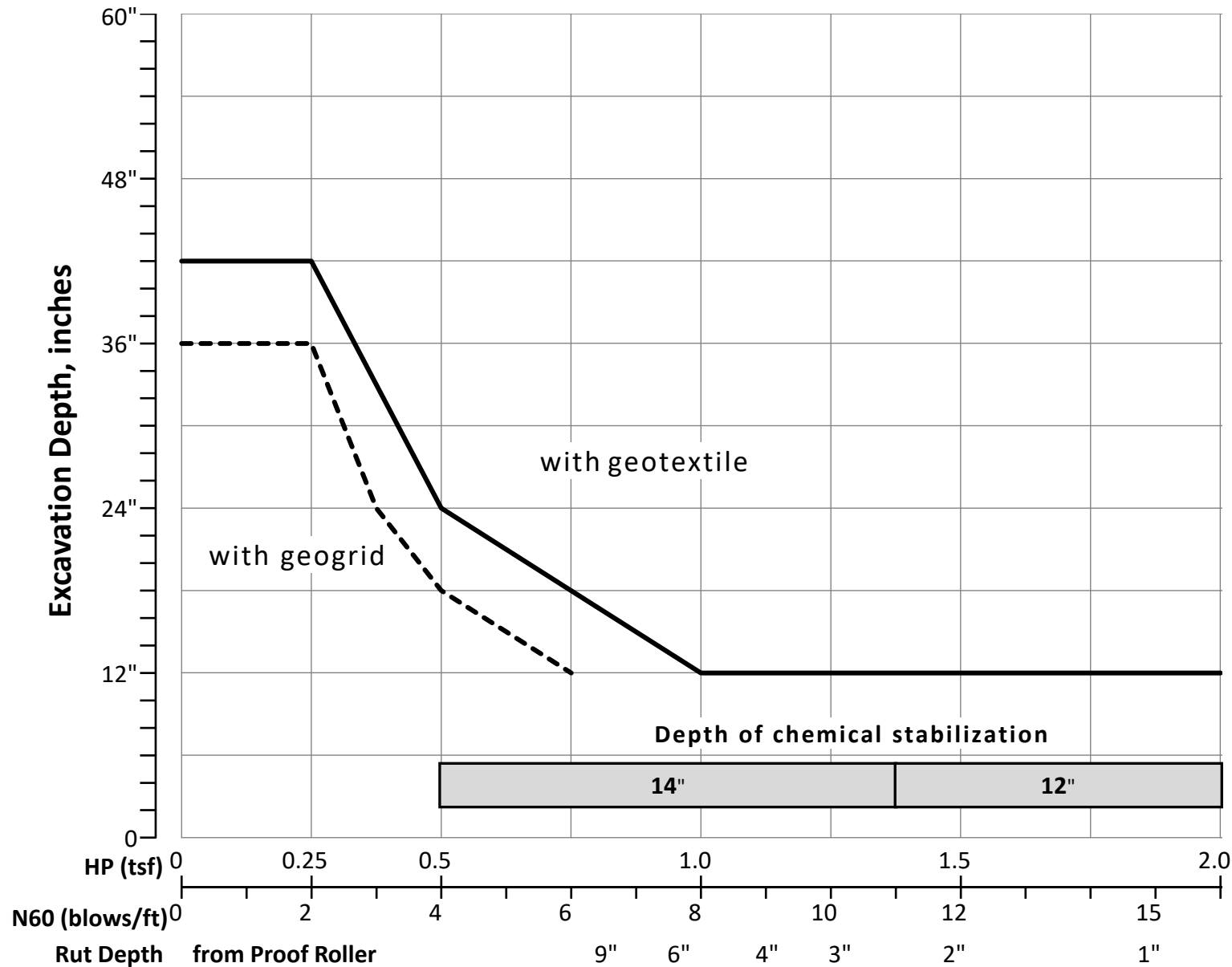
Excavate and Replace at Surface	
Average	0"
Maximum	0"
Minimum	0"

% Proposed Subgrade Surface	
Unstable & Unsuitable	13%
Unstable	13%
Unsuitable (Soil & Rock)	0%

	N ₆₀	N _{60L}	HP	LL	PL	PI	Silt	Clay	P 200	M _C	M _{OPT}	GI
Average	18	17	3.69	37	21	16	29	28	56	15	13	7
Maximum	30	30	4.50	41	24	19	42	41	83	33	20	16
Minimum	7	7	1.50	30	19	10	13	12	25	8	0	0

Classification Counts by Sample																					
ODOT Class	UCF	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	2	0	1	0	0	0	0	0	0	4	0	0	1	3	0	3	0	0	14	
Percent	0%	14%	0%	7%	0%	0%	0%	0%	0%	0%	29%	0%	0%	7%	21%	0%	21%	0%	0%	100%	
% Rock Granular Cohesive	0%	14%	36%									50%									100%
Surface Class Count	0	1	0	1	0	0	0	0	0	0	1	0	0	1	3	0	1	0	0	8	
Surface Class Percent	0%	13%	0%	13%	0%	0%	0%	0%	0%	0%	13%	0%	0%	13%	38%	0%	13%	0%	0%	100%	

Fig. 600-1 – Subgrade Stabilization



OVERRIDE TABLE

Calculated Average	New Values	Check to Override
3.69	0.50	☐ HP
17.00	6.00	☐ N60L

Average HP

Average N_{60L}



RAMP 8

OHIO DEPARTMENT OF TRANSPORTATION

OFFICE OF GEOTECHNICAL ENGINEERING

PLAN SUBGRADES

Geotechnical Design Manual Section 600

Instructions: Enter data in the shaded cells only.

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BEL-70-19.17**107533****Ramp 8 (IR-70 WB to National Road)****Interstate Route 70 and Ramps from SLM 19.17 to SLM 23.69 in Belmont County, OH****NEAS Inc.**

Prepared By: Kevin C. Arens
Date prepared: Tuesday, May 28, 2024

Brendan P. Andrews
2800 Corporate Exchange Drive
Suite 240
Columbus, OH 43231
513.337.9823
brendan.andrews@neasinc.com

NO. OF BORINGS: 3

#	Boring ID	Alignment	Station	Offset	Dir	Drill Rig	ER	Boring EL.	Proposed Subgrade EL	Cut Fill
1	B-071-0-23	Ramp 8	27+02	14	RT	CME 45B	79	1217.2	1215.7	1.5 C
2	B-072-0-23	Ramp 8	23+80	0	LT	CME 45B	79	1209.8	1208.3	1.5 C
3	B-031-0-23	IR-70	1129+67	54	LT	CME 45B	79	1214.2	1212.7	1.5 C

#	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 071-0 23	SS-1	1.5	3.0	0.0	1.5	8	4		NP	NP	NP	5	2	7	3	6	A-1-a	0	100					
		SS-2	3.0	4.5	1.5	3.0	5			30	19	11	21	14	35	12	10	A-2-6	0			N ₆₀			
		SS-3	4.5	6.0	3.0	4.5	4									15	6	A-1-b	0						
		SS-4	6.0	7.5	4.5	6.0	14									15	10	A-2-6	4						
2	B 072-0 23	SS-1	1.5	3.0	0.0	1.5	20	14	4.5	35	19	16	28	23	51	14	16	A-6b	5	173					
		SS-2	3.0	4.5	1.5	3.0	24		4.5	36	20	16	33	27	60	15	16	A-6b	7						
		SS-3	4.5	6.0	3.0	4.5	14		4.5							17	16	A-6b	16						
		SS-4	6.0	7.5	4.5	6.0	14		4.5							20	16	A-6b	16						
3	B 031-0 23	SS-1	1.5	3.0	0.0	1.5	22	22	2.25	32	18	14	29	26	55	13	14	A-6a	6	400					
		SS-2	3.0	4.5	1.5	3.0	30			NP	NP	NP	15	13	28	10	10	A-2-4	0						
		SS-3	4.5	6.0	3.0	4.5	30		4.25							12	10	A-4a	8						
		SS-4	6.0	7.5	4.5	6.0	30									10	6	A-1-b	0						

PID: 107533

County-Route-Section: BEL-70-19.17

No. of Borings: 3

Geotechnical Consultant: NEAS Inc.

Prepared By: Kevin C. Arens

Date prepared: 5/28/2024

Chemical Stabilization Options		
320	Rubblize & Roll	Option
206	Cement Stabilization	Option
	Lime Stabilization	No
206	Depth	12"

Excavate and Replace Stabilization Options	
Global Geotextile Average(N60L): Average(HP):	12" 0"
Global Geogrid Average(N60L): Average(HP):	0" 0"

Design CBR	8
-------------------	----------

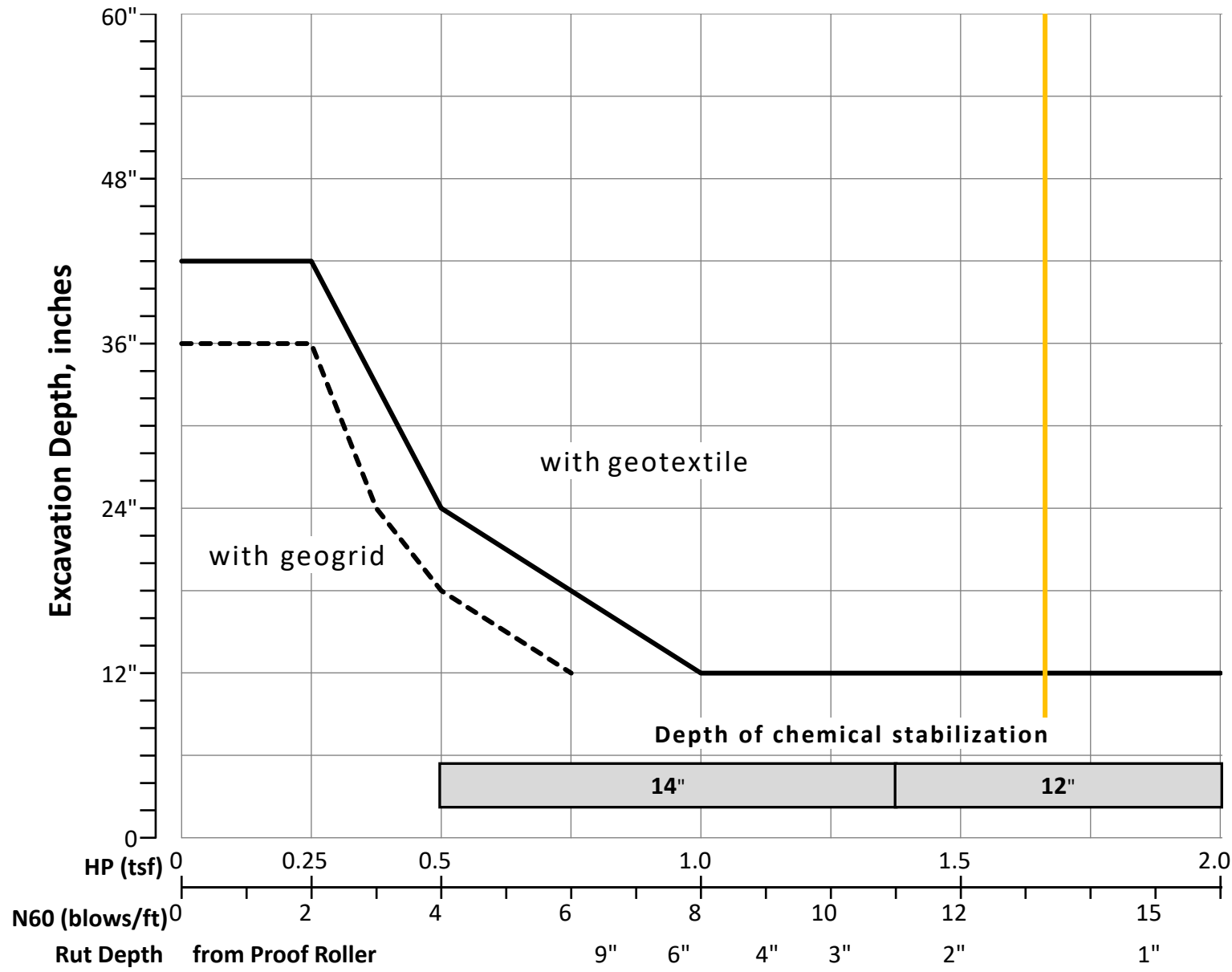
% Samples within 3 feet of subgrade			
N ₆₀ ≤ 5	17%	HP ≤ 0.5	0%
N ₆₀ < 12	25%	0.5 < HP ≤ 1	0%
12 ≤ N ₆₀ < 15	8%	1 < HP ≤ 2	0%
N ₆₀ ≥ 20	42%	HP > 2	42%
M+	0%		
Rock	0%		
Unsuitable Soil	0%		

Excavate and Replace at Surface	
Average	0"
Maximum	0"
Minimum	0"

% Proposed Subgrade Surface	
Unstable & Unsuitable	17%
Unstable	17%
Unsuitable (Soil & Rock)	0%

	N ₆₀	N _{60L}	HP	LL	PL	PI	Silt	Clay	P 200	M _C	M _{OPT}	GI
Average	18	13	4.08	33	19	14	22	18	39	13	11	5
Maximum	30	22	4.50	36	20	16	33	27	60	20	16	16
Minimum	4	4	2.25	30	18	11	5	2	7	3	6	0

Classification Counts by Sample																					
ODOT Class	UCF	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	0	1	2	1	0	2	0	0	0	1	0	0	1	4	0	0	0	0	12	
Percent	0%	0%	8%	17%	8%	0%	17%	0%	0%	0%	8%	0%	0%	8%	33%	0%	0%	0%	0%	100%	
% Rock Granular Cohesive	0%	0%	58%									42%									100%
Surface Class Count	0	0	1	0	1	0	1	0	0	0	0	0	0	1	2	0	0	0	0	6	
Surface Class Percent	0%	0%	17%	0%	17%	0%	17%	0%	0%	0%	0%	0%	0%	17%	33%	0%	0%	0%	0%	100%	

Fig. 600-1 – Subgrade Stabilization

 OVERRIDE TABLE

Calculated Average	New Values	Check to Override
4.08	0.50	☐ HP
13.33	6.00	☐ N60L

Average HP


Average N_{60L}


RAMP 9

OHIO DEPARTMENT OF TRANSPORTATION

OFFICE OF GEOTECHNICAL ENGINEERING

PLAN SUBGRADES

Geotechnical Design Manual Section 600

Instructions: Enter data in the shaded cells only.

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BEL-70-19.17**107533****Ramp 9 (IR-70 EB to National Road)****Interstate Route 70 and Ramps from SLM 19.17 to SLM 23.69 in Belmont County, OH****NEAS Inc.**

Prepared By: Kevin C. Arens
Date prepared: Tuesday, May 28, 2024

Brendan P. Andrews
2800 Corporate Exchange Drive
Suite 240
Columbus, OH 43231
513.337.9823
brendan.andrews@neasinc.com

NO. OF BORINGS: 3

#	Boring ID	Alignment	Station	Offset	Dir	Drill Rig	ER	Boring EL.	Proposed Subgrade EL	Cut Fill
1	B-034-0-23	IR-70	1142+00	64	RT	CME 45B	79	1155.0	1153.5	1.5 C
2	B-073-0-23	Ramp 9	19+34	2	RT	CME 45B	79	1149.1	1147.6	1.5 C
3	B-074-0-23	Ramp 9	22+14	4	RT	CME 45B	79	1151.7	1150.2	1.5 C

[illegible]

PID: 107533

County-Route-Section: BEL-70-19.17

No. of Borings: 3

Geotechnical Consultant: NEAS Inc.

Prepared By: Kevin C. Arens

Date prepared: 5/28/2024

Chemical Stabilization Options

320	Rubblize & Roll	Option
206	Cement Stabilization	Option
	Lime Stabilization	No
206	Depth	NA

Excavate and Replace
Stabilization Options

Global Geotextile Average(N60L): Average(HP):	0" 0"
Global Geogrid Average(N60L): Average(HP):	0" 0"

Design
CBR

8

% Samples within 3 feet of subgrade

$N_{60} \leq 5$	0%	$HP \leq 0.5$	0%
$N_{60} < 12$	0%	$0.5 < HP \leq 1$	0%
$12 \leq N_{60} < 15$	0%	$1 < HP \leq 2$	0%
$N_{60} \geq 20$	80%	$HP > 2$	40%
M+	0%		
Rock	0%		
Unsuitable Soil	0%		

Excavate and Replace
at Surface

Average	0"
Maximum	0"
Minimum	0"

% Proposed Subgrade Surface

Unstable & Unsuitable	0%
Unstable	0%
Unsuitable (Soil & Rock)	0%

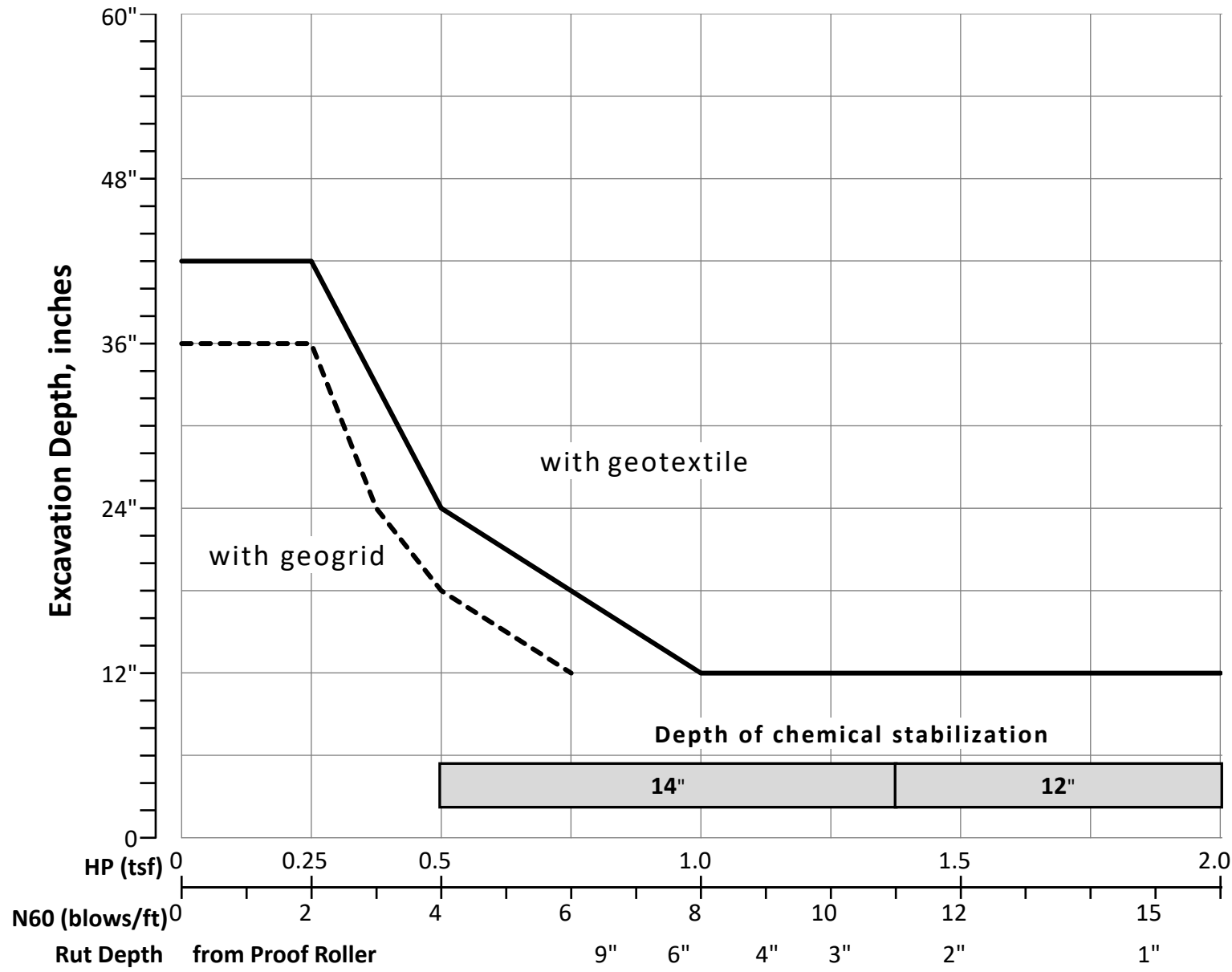
	N_{60}	N_{60L}	HP	LL	PL	PI	Silt	Clay	P 200	M_C	M_{OPT}	GI
Average	26	24	4.50	32	18	14	31	20	51	10	12	5
Maximum	30	30	4.50	36	20	16	42	27	67	12	16	10
Minimum	17	17	4.50	23	15	8	15	10	25	6	6	0

Classification Counts by Sample

ODOT Class	UCF	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	0	0	2	2	0	0	0	0	0	1	0	0	3	2	0	0	0	0	10
Percent	0%	0%	0%	20%	20%	0%	0%	0%	0%	0%	10%	0%	0%	30%	20%	0%	0%	0%	0%	100%
% Rock Granular Cohesive	0%	0%	50%									50%								100%
Surface Class Count	0	0	0	0	2	0	0	0	0	0	1	0	0	1	2	0	0	0	0	6
Surface Class Percent	0%	0%	0%	0%	33%	0%	0%	0%	0%	0%	17%	0%	0%	17%	33%	0%	0%	0%	0%	100%



Fig. 600-1 – Subgrade Stabilization



OVERRIDE TABLE

Calculated Average	New Values	Check to Override
4.50	0.50	☐ HP
23.67	6.00	☐ N60L

Average HP

Average N_{60L}



RAMP 10

OHIO DEPARTMENT OF TRANSPORTATION

OFFICE OF GEOTECHNICAL ENGINEERING

PLAN SUBGRADES

Geotechnical Design Manual Section 600

Instructions: Enter data in the shaded cells only.

(Enter state route number, project description, county, consultant's name, prepared by name, and date prepared. This information will be transferred to all other sheets. The date prepared must be entered in the appropriate cell on this sheet to remove these instructions prior to printing.)

BEL-70-19.17**107533****Ramp 10 (National Road to IR-70 EB)****Interstate Route 70 and Ramps from SLM 19.17 to SLM 23.69 in Belmont County, OH****NEAS Inc.**

Prepared By: Kevin C. Arens
Date prepared: Tuesday, May 28, 2024

Brendan P. Andrews
2800 Corporate Exchange Drive
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Columbus, OH 43231
513.337.9823
brendan.andrews@neasinc.com

NO. OF BORINGS: 5

#	Boring ID	Alignment	Station	Offset	Dir	Drill Rig	ER	Boring EL.	Proposed Subgrade EL	Cut Fill
1	B-075-0-23	Ramp 10	1+90	5	RT	CME 45B	79	1146.3	1144.8	1.5 C
2	B-076-0-23	Ramp 10	5+89	2	RT	CME 45B	79	1118.7	1117.2	1.5 C
3	B-038-0-23	IR-70	1157+01	70	RT	CME 45B	79	1102.4	1100.9	1.5 C
4	B-040-0-23	IR-70	1161+05	64	RT	CME 45B	79	1090.4	1088.9	1.5 C
5	B-041-0-23	IR-70	1164+82	58	RT	CME 45B	79	1079.0	1077.5	1.5 C

[illegible]

PID: 107533

County-Route-Section: BEL-70-19.17

No. of Borings: 5

Geotechnical Consultant: NEAS Inc.

Prepared By: Kevin C. Arens

Date prepared: 5/28/2024

Chemical Stabilization Options		
320	Rubblize & Roll	Option
206	Cement Stabilization	Option
	Lime Stabilization	No
206	Depth	12"

Excavate and Replace Stabilization Options	
Global Geotextile Average(N60L): Average(HP):	12" 0"
Global Geogrid Average(N60L): Average(HP):	0" 0"

Design CBR	8
---------------	---

% Samples within 3 feet of subgrade			
$N_{60} \leq 5$	0%	$HP \leq 0.5$	0%
$N_{60} < 12$	13%	$0.5 < HP \leq 1$	0%
$12 \leq N_{60} < 15$	19%	$1 < HP \leq 2$	0%
$N_{60} \geq 20$	19%	$HP > 2$	31%
M+	0%		
Rock	30%		
Unsuitable Soil	0%		

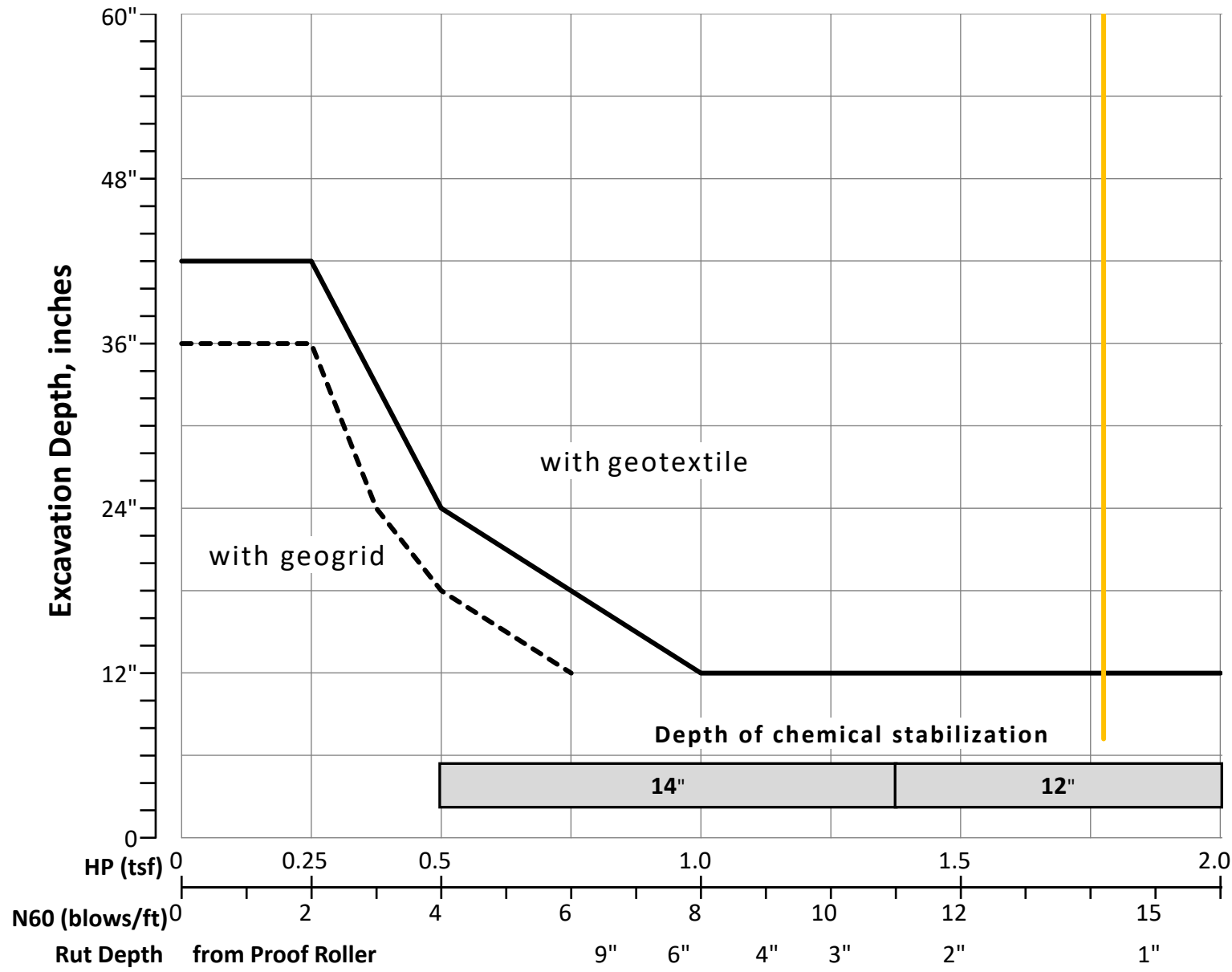
Excavate and Replace at Surface	
Average	0"
Maximum	0"
Minimum	0"

% Proposed Subgrade Surface	
Unstable & Unsuitable	0%
Unstable	0%
Unsuitable (Soil & Rock)	0%

	N_{60}	N_{60L}	HP	LL	PL	PI	Silt	Clay	P 200	M_C	M_{OPT}	GI
Average	17	14	3.42	35	20	15	21	14	35	10	10	5
Maximum	30	30	4.25	40	20	20	39	33	63	20	18	16
Minimum	7	7	2.50	30	20	10	6	2	9	2	0	0

Classification Counts by Sample																				
ODOT Class	UCF	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	3	1	2	3	0	0	0	0	0	1	0	0	0	4	0	2	0	0	16
Percent	0%	19%	6%	13%	19%	0%	0%	0%	0%	0%	6%	0%	0%	0%	25%	0%	13%	0%	0%	100%
% Rock Granular Cohesive	0%	19%	44%									38%								100%
Surface Class Count	0	3	1	2	1	0	0	0	0	0	1	0	0	0	2	0	0	0	0	10
Surface Class Percent	0%	30%	10%	20%	10%	0%	0%	0%	0%	0%	10%	0%	0%	0%	20%	0%	0%	0%	0%	100%

Fig. 600-1 – Subgrade Stabilization



OVERRIDE TABLE

Calculated Average	New Values	Check to Override
3.42	0.50	☐ HP
14.25	6.00	☐ N60L

Average HP

Average N_{60L}



RAMP 11

OHIO DEPARTMENT OF TRANSPORTATION

OFFICE OF GEOTECHNICAL ENGINEERING

PLAN SUBGRADES

Geotechnical Design Manual Section 600

Instructions: Enter data in the shaded cells only.

(Enter state route number, project description, county, consultant's name, prepared by name, and date prepared. This information will be transferred to all other sheets. The date prepared must be entered in the appropriate cell on this sheet to remove these instructions prior to printing.)

BEL-70-19.17**107533****Ramp 11 (IR-70 WB to National Road)****Interstate Route 70 and Ramps from SLM 19.17 to SLM 23.69 in Belmont County, OH****NEAS Inc.**

Prepared By: Kevin C. Arens
Date prepared: Tuesday, May 28, 2024

Brendan P. Andrews
2800 Corporate Exchange Drive
Suite 240
Columbus, OH 43231
513.337.9823
brendan.andrews@neasinc.com

NO. OF BORINGS: 3

#	Boring ID	Alignment	Station	Offset	Dir	Drill Rig	ER	Boring EL.	Proposed Subgrade EL	Cut Fill
1	B-039-0-23	IR-70	1160+89	67	LT	CME 45B	79	1090.5	1089.0	1.5 C
2	B-077-0-23	Ramp 11	4+48	3	RT	CME 45B	79	1101.2	1099.7	1.5 C
3	B-078-0-23	Ramp 11	8+02	4	LT	CME 45B	79	1105.5	1104.0	1.5 C

#	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 039-0 23	SS-1	1.5	3.0	0.0	1.5	8	7	3	38	21	17	33	42	75	21	16	A-6b	11	53		N ₆₀ & M _C		12"	
		SS-2	3.0	4.5	1.5	3.0	7		2.25	37	20	17	38	44	82	22	16	A-6b	11		N ₆₀ & M _C				
		SS-3	4.5	6.0	3.0	4.5	7		2							22	16	A-6b	16						
		SS-4	6.0	7.5	4.5	6.0	11		4.25							20	16	A-6b	16						
2	B 077-0 23	SS-1	1.5	3.0	0.0	1.5	14	5		NP	NP	NP	7	3	10	6	6	A-1-a	0	140					
		SS-2	3.0	4.5	1.5	3.0	5			29	18	11	20	14	34	12	10	A-2-6	0		N ₆₀				
		SS-3	4.5	6.0	3.0	4.5	17		2							16	18	A-7-6	16						
		SS-4	6.0	7.5	4.5	6.0	14		2.25							16	18	A-7-6	16						
3	B 078-0 23	SS-1	1.5	3.0	0.0	1.5	9	9	4.5	36	23	13	36	32	68	14	18	A-6a	8	173		N ₆₀		12"	
		SS-2	3.0	4.5	1.5	3.0	21		4.5	33	20	13	41	28	69	12	15	A-6a	8						
		SS-3	4.5	6.0	3.0	4.5	14		4.5							7	14	A-6a	10						
		SS-4	6.0	7.5	4.5	6.0	17									5	10	A-2-4	0						

PID: 107533

County-Route-Section: BEL-70-19.17

No. of Borings: 3

Geotechnical Consultant: NEAS Inc.

Prepared By: Kevin C. Arens

Date prepared: 5/28/2024

Chemical Stabilization Options

320	Rubblize & Roll	No
206	Cement Stabilization	Option
	Lime Stabilization	No
206	Depth	14"

Excavate and Replace
Stabilization Options

Global Geotextile Average(N60L): Average(HP):	15" 0"
Global Geogrid Average(N60L): Average(HP):	0" 0"

Design
CBR

6

% Samples within 3 feet of subgrade

$N_{60} \leq 5$	8%	$HP \leq 0.5$	0%
$N_{60} < 12$	42%	$0.5 < HP \leq 1$	0%
$12 \leq N_{60} < 15$	17%	$1 < HP \leq 2$	17%
$N_{60} \geq 20$	8%	$HP > 2$	42%
M+	17%		
Rock	0%		
Unsuitable Soil	0%		

Excavate and Replace
at Surface

Average	0"
Maximum	0"
Minimum	0"

% Proposed Subgrade Surface

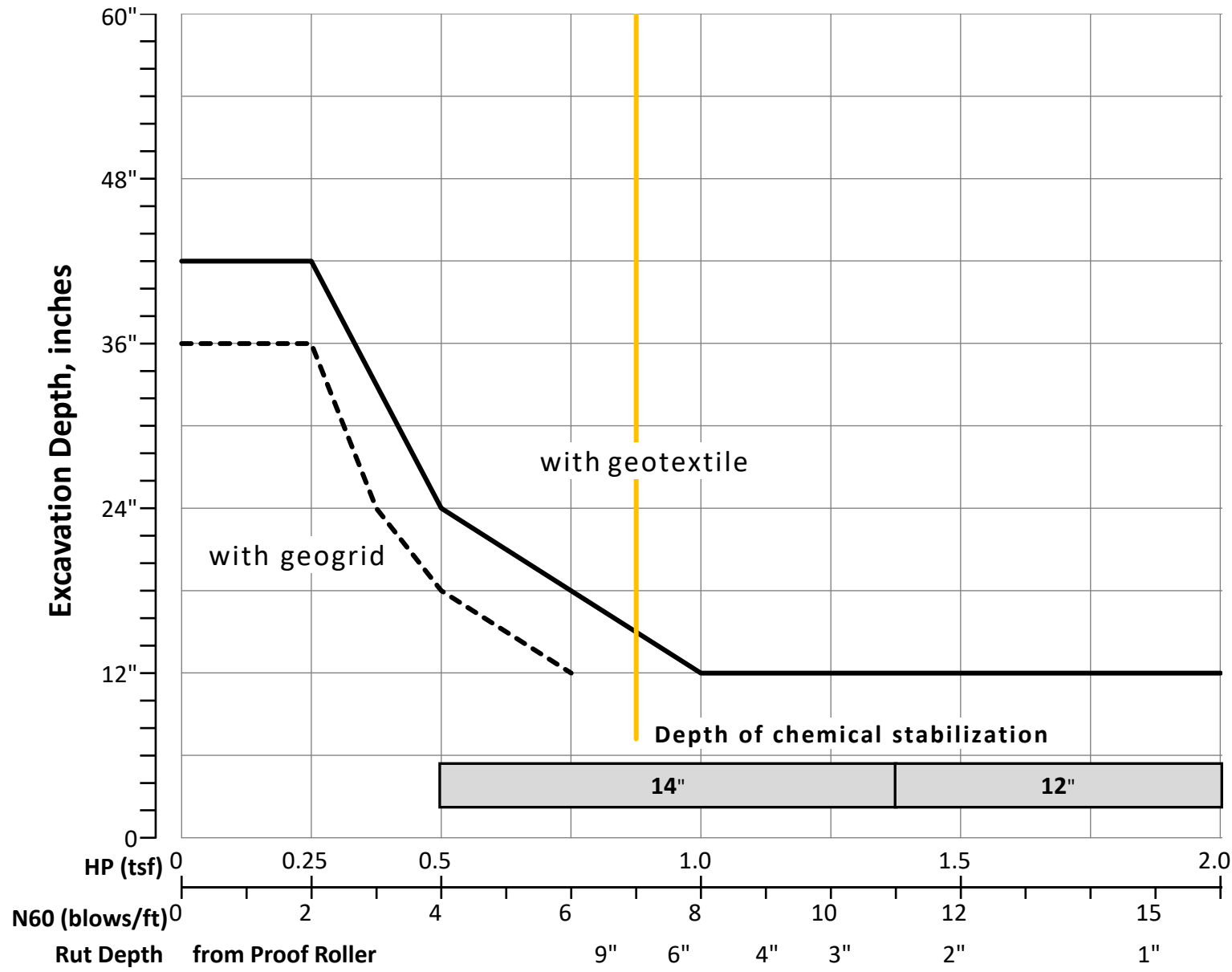
Unstable & Unsuitable	67%
Unstable	67%
Unsuitable (Soil & Rock)	0%

	N_{60}	N_{60L}	HP	LL	PL	PI	Silt	Clay	P 200	M_C	M_{OPT}	GI
Average	12	7	3.25	35	20	14	29	27	56	14	14	9
Maximum	21	9	4.50	38	23	17	41	44	82	22	18	16
Minimum	5	5	2.00	29	18	11	7	3	10	5	6	0

Classification Counts by Sample

ODOT Class	UCF	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	0	1	0	1	0	1	0	0	0	0	0	0	3	4	0	2	0	0	12
Percent	0%	0%	8%	0%	8%	0%	8%	0%	0%	0%	0%	0%	0%	25%	33%	0%	17%	0%	0%	100%
% Rock Granular Cohesive	0%	0%	25%									75%								100%
Surface Class Count	0	0	1	0	0	0	1	0	0	0	0	0	0	2	2	0	0	0	0	6
Surface Class Percent	0%	0%	17%	0%	0%	0%	17%	0%	0%	0%	0%	0%	0%	33%	33%	0%	0%	0%	0%	100%

Fig. 600-1 – Subgrade Stabilization



OVERRIDE TABLE

Calculated Average	New Values	Check to Override
3.25	0.50	☐ HP
7.00	6.00	☐ N60L

Average HP

Average N_{60L}



RAMP 12

OHIO DEPARTMENT OF TRANSPORTATION

OFFICE OF GEOTECHNICAL ENGINEERING

PLAN SUBGRADES

Geotechnical Design Manual Section 600

Instructions: Enter data in the shaded cells only.

(Enter state route number, project description, county, consultant's name, prepared by name, and date prepared. This information will be transferred to all other sheets. The date prepared must be entered in the appropriate cell on this sheet to remove these instructions prior to printing.)

BEL-70-19.17**107533****Ramp 12 (IR-470 WB to Banfield Road)****Interstate Route 70 and Ramps from SLM 19.17 to SLM 23.69 in Belmont County, OH****NEAS Inc.**

Prepared By: Kevin C. Arens
Date prepared: Tuesday, May 28, 2024

Brendan P. Andrews
2800 Corporate Exchange Drive
Suite 240
Columbus, OH 43231
513.337.9823
brendan.andrews@neasinc.com

NO. OF BORINGS: 11

#	Boring ID	Alignment	Station	Offset	Dir	Drill Rig	ER	Boring EL.	Proposed Subgrade EL	Cut Fill
1	B-069-0-23	Ramp 7	1111+90	10	LT	CME 45B	79	1250.2	1248.7	1.5 C
2	B-079-0-23	Ramp 12	1111+74	5	LT	CME 45B	79	1255.3	1253.8	1.5 C
3	B-080-0-23	Ramp 12	1108+03	3	LT	CME 45B	79	1255.0	1253.5	1.5 C
4	B-081-0-23	Ramp 12	1104+28	1	LT	CME 45B	79	1249.3	1247.8	1.5 C
5	B-082-0-23	Ramp 12	1100+48	2	LT	CME 45B	79	1237.5	1236.0	1.5 C
6	B-083-0-23	Ramp 12	1096+75	1	LT	CME 45B	79	1222.0	1220.5	1.5 C
7	B-084-0-23	Ramp 12	1092+86	3	RT	CME 45B	79	1207.3	1205.8	1.5 C
8	B-085-0-23	Ramp 12	1089+11	3	RT	CME 45B	79	1204.7	1203.2	1.5 C
9	B-086-0-23	Ramp 12	1085+67	2	RT	CME 45B	79	1212.6	1211.1	1.5 C
10	B-087-0-23	Ramp 12	1082+11	0	LT	CME 45B	79	1228.0	1226.5	1.5 C
11	B-088-0-23	Ramp 12	1078+78	0	LT	CME 45B	79	1241.0	1239.5	1.5 C

#	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 069-0 23	SS-1	1.5	2.1	0.0	0.6	30	30	4.25	38	19	19	30	33	63	14	16	A-6b	9	120					
		SS-2	3.0	3.8	1.5	2.3									10	0	Rock	0							
		SS-3	4.5	4.6	3.0	3.1																			
2	B 079-0 23	SS-1	1.5	2.4	0.0	0.9	30	30		30	18	12	28	15	43	7	14	A-6a	2	60					
		SS-2	3.0	4.5	1.5	3.0								10	0	Rock	0								
		SS-3	4.5	5.3	3.0	3.8								11	0	Rock	0								
3	B 080-0 23	SS-1	1.5	3.0	0.0	1.5	14	8	4.25	35	20	15	34	28	62	13	15	A-6a	7	207					
		SS-2	3.0	4.5	1.5	3.0	8		3	34	21	13	35	27	62	15	16	A-6a	7			N ₆₀			
		SS-3	4.5	6.0	3.0	4.5	16		2.75						18	14	A-6a	10							
		SS-4	6.0	7.5	4.5	6.0	11		3						16	18	A-7-6	16							
4	B 081-0 23	SS-1	1.5	3.0	0.0	1.5	21	21								15	10	A-4a	8			Mc			
		SS-2	3.0	4.5	1.5	3.0	25			NP	NP	NP	20	23	43	13	11	A-4a	2	80					
		SS-3	4.5	5.3	3.0	3.8			4.25	37	20	17	23	38	61	16	16	A-6b	8						
		SS-4	6.0	6.9	4.5	5.4									17	0	Rock	0							
5	B 082-0 23	SS-1	1.5	3.0	0.0	1.5	14	8		NP	NP	NP	11	5	16	7	6	A-1-b	0	93					
		SS-2	3.0	4.5	1.5	3.0	8			NP	NP	NP	8	3	11	7	6	A-1-a	0						
		SS-3	4.5	5.3	3.0	3.8								5	0	Rock	0								
		SS-4	6.0	6.3	4.5	4.8								4	0	Rock	0								
6	B 083-0 23	SS-1	1.5	2.8	0.0	1.3	30	30		NP	NP	NP	14	13	27	8	10	A-2-4	0	0					
		SS-2	3.0	3.4	1.5	1.9				30	17	13	25	20	45	9	14	A-6a	3			N ₆₀			
		SS-3	4.5	4.8	3.0	3.3								5	0	Rock	0								
7	B 084-0 23	SS-1	1.5	3.0	0.0	1.5	14	13	3.5	37	19	18	37	29	66	14	16	A-6b	9	127					
		SS-2	3.0	4.5	1.5	3.0	13									16	A-6b	16							
		SS-3	4.5	6.0	3.0	4.5	14								1	16	A-6b	16							
		SS-4	6.0	7.5	4.5	6.0	17								1	16	A-6b	16							
8	B 085-0 23	SS-1	1.5	3.0	0.0	1.5	9	9	3.75	46	22	24	35	46	81	31	19	A-7-6	15	273		N ₆₀ & Mc		12"	
		SS-2	3.0	4.5	1.5	3.0	13		2.75	39	20	19	41	37	78	20	16	A-6b	12		N ₆₀ & Mc				
		SS-3	4.5	5.6	3.0	4.1	30		3						20	16	A-6b	16							
		SS-4	6.0	6.2	4.5	4.7									2	0	Rock	0							
9	B 086-0 23	SS-1	1.5	3.0	0.0	1.5	26	7	3.5	32	20	12	36	25	61	13	15	A-6a	6	87					
		SS-2	3.0	4.5	1.5	3.0	11			NP	NP	NP	22	12	34	9	10	A-2-4	0		N ₆₀				
		SS-3	4.5	6.0	3.0	4.5	7								10	10	A-2-4	0							
		SS-4	6.0	7.5	4.5	6.0	22								15	10	A-2-4	0							

#	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	
10	B 087-0 23	SS-1	1.5	2.4	0.0	0.9	30	30	4.25	29	17	12	20	18	38	9	14	A-6a	1	193					
		SS-2	3.0	3.3	1.5	1.8									2	0	Rock	0							
11	B 088-0 23	SS-1	1.5	3.0	0.0	1.5	12	12								10	10	A-2-4	0						
		SS-2	3.0	4.5	1.5	3.0	18		4.5	36	21	15	34	30	64	15	16	A-6a	8	173					
		SS-3	4.5	6.0	3.0	4.5	30		4.5	33	19	14	43	36	79	15	14	A-6a	10						
		SS-4	6.0	7.5	4.5	6.0	30		4.5							9	14	A-6a	10						

PID: 107533

County-Route-Section: BEL-70-19.17

No. of Borings: 11

Geotechnical Consultant: NEAS Inc.

Prepared By: Kevin C. Arens

Date prepared: 5/28/2024

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

Excavate and Replace Stabilization Options	
Global Geotextile Average(N60L): Average(HP):	0" 0"
Global Geogrid Average(N60L): Average(HP):	0" 0"

Design CBR	8
------------	---

% Samples within 3 feet of subgrade			
N ₆₀ ≤ 5	0%	HP ≤ 0.5	0%
N ₆₀ < 12	13%	0.5 < HP ≤ 1	0%
12 ≤ N ₆₀ < 15	18%	1 < HP ≤ 2	0%
N ₆₀ ≥ 20	23%	HP > 2	33%
M+	8%		
Rock	14%		
Unsuitable Soil	0%		

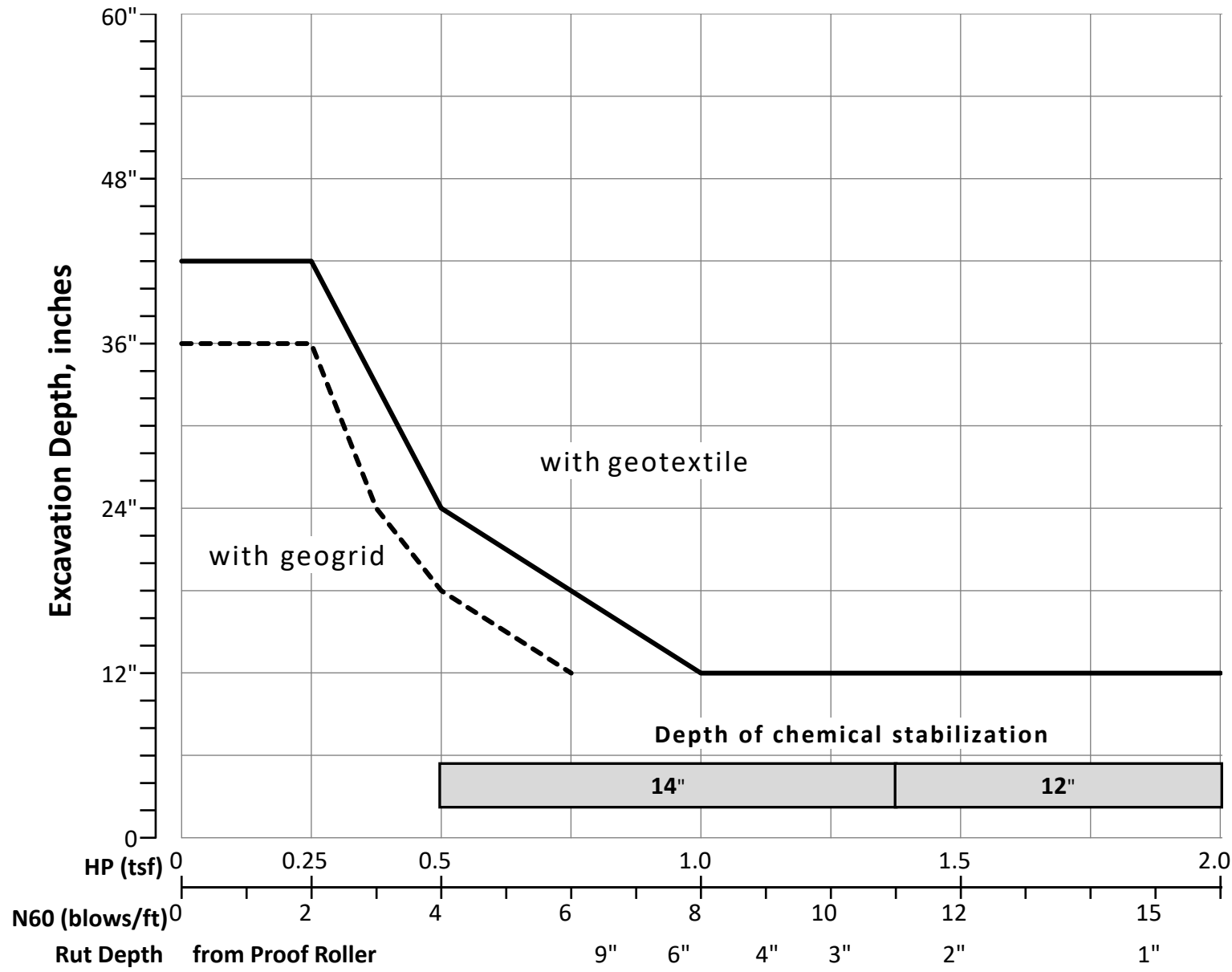
Excavate and Replace at Surface	
Average	0"
Maximum	0"
Minimum	0"

% Proposed Subgrade Surface	
Unstable & Unsuitable	27%
Unstable	27%
Unsuitable (Soil & Rock)	0%

	N ₆₀	N _{60L}	HP	LL	PL	PI	Silt	Clay	P 200	M _C	M _{OPT}	GI
Average	19	18	3.72	35	19	16	28	24	52	11	10	5
Maximum	30	30	4.50	46	22	24	43	46	81	31	19	16
Minimum	7	7	2.75	29	17	12	8	3	11	1	0	0

Classification Counts by Sample																					
ODOT Class	UCF	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	9	1	1	5	0	0	0	0	0	2	0	0	10	8	0	2	0	0	38	
Percent	0%	24%	3%	3%	13%	0%	0%	0%	0%	0%	5%	0%	0%	26%	21%	0%	5%	0%	0%	100%	
% Rock Granular Cohesive	0%	24%	24%									53%									100%
Surface Class Count	0	3	1	1	3	0	0	0	0	0	2	0	0	7	4	0	1	0	0	22	
Surface Class Percent	0%	14%	5%	5%	14%	0%	0%	0%	0%	0%	9%	0%	0%	32%	18%	0%	5%	0%	0%	100%	

Fig. 600-1 – Subgrade Stabilization



OVERRIDE TABLE

Calculated Average	New Values	Check to Override
3.72	0.50	☐ HP
18.00	6.00	☐ N60L

Average HP

Average N_{60L}

