

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT GDT - 7/10/23 17:04 - N:\PROJECTS\2022\N422522\WORKING FILES\LABORATORY-FIELD DATA-BORING LOGS\N422522 ODOT FILE.G

| | | | | | | | | | | | | | | | | | | | | | |
|--|--|--|--------|---------------------------|-----------------|---------------------------------------|-----------|----------------|---------------|------|----|----|----|-----------|----|----|----|-----------------|----------|-------------|---|
| PROJECT: BEL-147-24.65 | | DRILLING FIRM / OPERATOR: TERRACON / FAY | | DRILL RIG: MOBILE B-57 | | STATION / OFFSET: 1368+32, 6' LT. | | EXPLORATION ID | | | | | | | | | | | | | |
| TYPE: LANDSLIDE | | SAMPLING FIRM / LOGGER: TERRACON / SWYCK | | HAMMER: CME AUTOMATIC | | ALIGNMENT: BEL - 147 | | B-001-0-23 | | | | | | | | | | | | | |
| PID: 118147 SFN: N/A | | DRILLING METHOD: 3.25" HSA / NQ2 | | CALIBRATION DATE: 1/26/23 | | ELEVATION: 1293.4 (MSL) EOB: 25.0 ft. | | PAGE | | | | | | | | | | | | | |
| START: 5/4/23 END: 5/4/23 | | SAMPLING METHOD: SPT / NQ2 | | ENERGY RATIO (%): 90 | | LAT / LONG: 39.975584, -80.880162 | | 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 | HOLE SEALED | |
| | | 1293.4 | | | | | | | GR | CS | FS | SI | CL | LL | PL | PI | WC | | | | |
| ASPHALT (24") | | | | | | | | | | | | | | | | | | | | | |
| | | 1291.4 | | 1 | | | | | | | | | | | | | | | | | |
| HARD, BROWN, CLAY, TRACE SAND, TRACE GRAVEL, DAMP | | | | 2 | 14 | 23 | 89 | SS-1A | - | - | - | - | - | - | - | - | - | | | | |
| | | | | 3 | 9 | 6 | | SS-1B | 4.50 | - | - | - | - | - | - | - | 11 | A-7-6 (V) | - | | |
| | | 1289.4 | | 4 | | | | | | | | | | | | | | | | | |
| VERY STIFF TO HARD, BROWN, SILTY CLAY, SOME SAND, LITTLE GRAVEL, MOIST TO DAMP | | | | 5 | 2 | 3 | 8 | 56 | SS-2 | 2.50 | 16 | 18 | 10 | 30 | 26 | 37 | 18 | 19 | 21 | A-6b (8) | - |
| | | | | 6 | | | | | | | | | | | | | | | | | |
| @ 6.5'; REDDISH BROWN | | | | 7 | 4 | | | | | | | | | | | | | | | | |
| | | | | 8 | 9 | 13 | 33 | 67 | SS-3 | 4.50 | - | - | - | - | - | - | - | 17 | A-6b (V) | - | |
| | | | | 9 | | | | | | | | | | | | | | | | | |
| | | | | 10 | 7 | | | | | | | | | | | | | | | | |
| | | | | 11 | 13 | 21 | 51 | 67 | SS-4 | 4.50 | 3 | 0 | 5 | 46 | 46 | 38 | 21 | 17 | 13 | A-6b (11) | - |
| | | 1281.4 | TR | 12 | 27 | 50/5" | - | 91 | SS-5A | - | - | - | - | - | - | - | - | - | Rock (V) | - | |
| SHALE, LIGHT BROWN, SEVERELY WEATHERED, VERY WEAK. | | | | 13 | | | | | | | | | | | | | | | | | |
| | | | | 14 | 50/5" | | - | 100 | SS-6 | - | - | - | - | - | - | - | - | - | Rock (V) | - | |
| | | 1278.4 | | 15 | | | | | | | | | | | | | | | | | |
| SHALE, GRAY AND BROWN, MODERATELY TO HIGHLY WEATHERED, WEAK TO MODERATELY STRONG, FINE GRAINED, THIN TO MEDIUM BEDDED, ARGILLACEOUS; RQD 33%, REC 70%. | | | | 16 | | | | | | | | | | | | | | | | | |
| | | | | 17 | | | | | | | | | | | | | | | | | |
| | | | | 18 | 33 | | 70 | NQ2--1 | | | | | | | | | | | CORE | | |
| | | | | 19 | | | | | | | | | | | | | | | | | |
| | | | | 20 | | | | | | | | | | | | | | | | | |
| | | | | 21 | | | | | | | | | | | | | | | | | |
| | | | | 22 | | | | | | | | | | | | | | | | | |
| | | | | 23 | 14 | | 87 | NQ2--2 | | | | | | | | | | | CORE | | |
| | | | | 24 | | | | | | | | | | | | | | | | | |
| @24'- 24.3'; Sc = 322 psi | | 1268.4 | EOB | | | | | | | | | | | | | | | | | | |
| NOTES: NO FREE WATER ENCOUNTERED IN THIS BORING. BORING LOCATION AND ELEVATION FROM DISTRICT SURVEY. | | | | | | | | | | | | | | | | | | | | | |
| ABANDONMENT METHODS, MATERIALS, QUANTITIES: TREMIED SEALED WITH PORTLAND CEMENT AND BENTONITE GROUT WITH ASPHALT PATCH | | | | | | | | | | | | | | | | | | | | | |

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 7/10/23 17:04 - N:\PROJECTS\2022\N422522\WORKING FILES\LABORATORY-FIELD DATA-BORING LOGS\N422522 ODOT FILE.G

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|--|--|--|--------|--------|----------|---------------------------|---------|-----------|----------|---------------------------------------|----|----|----|----------------|-----------|----|----|----|-----------------|---------|-------------|
| PROJECT: BEL-147-24.65 | | DRILLING FIRM / OPERATOR: TERRACON / FAY | | | | DRILL RIG: MOBILE B-57 | | | | STATION / OFFSET: 1366+24, 5' LT. | | | | EXPLORATION ID | | | | | | | |
| TYPE: LANDSLIDE | | SAMPLING FIRM / LOGGER: TERRACON / SWYCK | | | | HAMMER: CME AUTOMATIC | | | | ALIGNMENT: BEL - 147 | | | | B-002-0-23 | | | | | | | |
| PID: 118147 SFN: N/A | | DRILLING METHOD: 3.25" HSA / NQ2 | | | | CALIBRATION DATE: 1/26/23 | | | | ELEVATION: 1290.7 (MSL) EOB: 30.0 ft. | | | | PAGE | | | | | | | |
| START: 5/4/23 END: 5/4/23 | | SAMPLING METHOD: SPT / NQ2 | | | | ENERGY RATIO (%): 90 | | | | LAT / LONG: 39.975671, -80.879806 | | | | 1 OF 2 | | | | | | | |
| MATERIAL DESCRIPTION AND NOTES | | | ELEV. | DEPTHS | SPT/RQD | N ₆₀ | REC (%) | SAMPLE ID | HP (tsf) | GRADATION (%) | | | | | ATTERBERG | | | | ODOT CLASS (GI) | SO4 ppm | HOLE SEALED |
| | | | 1290.7 | | | | | | | GR | CS | FS | SI | CL | LL | PL | PI | WC | | | |
| ASPHALT (18") | | | | 1 | | | | | | | | | | | | | | | | | |
| | | | 1288.7 | 2 | 5 | | | | | | | | | | | | | | | | |
| HARD, BROWN, SILT AND CLAY, LITTLE SAND, SOME GRAVEL, COBBLES, DAMP | | | | 3 | 4 7 | 17 | 67 | SS-1 | 4.50 | 21 | 9 | 6 | 31 | 33 | 34 | 20 | 14 | 16 | A-6a (7) | - | |
| | | | 1286.2 | 4 | | | | | | | | | | | | | | | | | |
| VERY STIFF TO HARD, BROWN, CLAY, TRACE SAND, TRACE GRAVEL, DAMP | | | | 5 | 4 3 4 | 11 | 61 | SS-2 | 3.50 | - | - | - | - | - | - | - | - | 13 | A-7-6 (V) | - | |
| | | | | 6 | | | | | | | | | | | | | | | | | |
| @ 6.5'; REDDISH BROWN | | | | 7 | 3 6 10 | 24 | 67 | SS-3 | 4.50 | 5 | 0 | 4 | 40 | 51 | 47 | 24 | 23 | 20 | A-7-6 (15) | - | |
| | | | | 8 | | | | | | | | | | | | | | | | | |
| | | | | 9 | | | | | | | | | | | | | | | | | |
| | | | | 10 | 7 13 25 | 57 | 78 | SS-4 | 4.50 | - | - | - | - | - | - | - | - | 11 | A-7-6 (V) | - | |
| | | | | 11 | | | | | | | | | | | | | | | | | |
| SHALE, LIGHT BROWN, SEVERELY WEATHERED, VERY WEAK. | | | 1278.7 | 12 | 26 50/4" | - | 100 | SS-5 | - | - | - | - | - | - | - | - | - | - | Rock (V) | - | |
| | | | | 13 | | | | | | | | | | | | | | | | | |
| | | | | 14 | 21 50/4" | - | 100 | SS-6 | - | - | - | - | - | - | - | - | - | - | Rock (V) | - | |
| | | | | 15 | | | | | | | | | | | | | | | | | |
| | | | | 16 | | | | | | | | | | | | | | | | | |
| | | | | 17 | 50/4" | - | 100 | SS-7 | - | - | - | - | - | - | - | - | - | - | Rock (V) | - | |
| | | | | 18 | | | | | | | | | | | | | | | | | |
| | | | | 19 | 22 50/3" | - | 100 | SS-8 | - | - | - | - | - | - | - | - | - | - | Rock (V) | - | |
| INTERBEDDED SANDSTONE (90%) AND SHALE (10%), RQD 49%, REC. 98%; SANDSTONE, GRAYISH BROWN, SLIGHTLY TO MODERATELY WEATHERED, MODERATELY STRONG TO STRONG, COARSE GRAINED, VERY THIN TO THIN BEDDED, ARGILLACEOUS; SHALE, GRAY, SLIGHTLY WEATHERED, MODERATELY STRONG, FINE GRAINED, VERY THIN BEDDED. | | | 1270.7 | 20 | | | | | | | | | | | | | | | | | |
| | | | | 21 | | | | | | | | | | | | | | | | | |
| | | | | 22 | 49 | | 98 | NQ2-1 | | | | | | | | | | | CORE | | |
| | | | | 23 | | | | | | | | | | | | | | | | | |
| | | | | 24 | | | | | | | | | | | | | | | | | |

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 7/10/23 17:04 - N:\PROJECTS\2022\N4225522\WORKING FILES\LABORATORY-FIELD DATA-BORING LOGS\N4225522 ODOT FILE.G

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|--|----------|------------------------|-----------------------------------|--------|----|-------------|-----------------|---------------|--------------|-------------|---------------|----|----|----|----|-----------|----|----|------|--------------------|------------|----------------|--|--|----|
| PID: 118147 | SFN: N/A | PROJECT: BEL-147-24.65 | STATION / OFFSET: 1366+24, 5' LT. | | | | | START: 5/4/23 | END: 5/4/23 | PG 2 OF 2 | B-002-0-23 | | | | | | | | | | | | | | |
| MATERIAL DESCRIPTION AND NOTES | | | ELEV. 1265.7 | DEPTHS | | SPT/ RQD | N ₆₀ | REC (%) | SAMPLE ID | HP (tsf) | GRADATION (%) | | | | | ATTERBERG | | | WC | ODOT CLASS (GI) | SO4 ppm | HOLE SEALED | | | |
| | | | | | | | | | | | GR | CS | FS | SI | CL | LL | PL | PI | | | | | | | |
| INTERBEDDED SANDSTONE (90%) AND SHALE (10%). RQD 49%, REC. 98%; SANDSTONE, GRAYISH BROWN, SLIGHTLY TO MODERATELY WEATHERED, MODERATELY STRONG TO STRONG, COARSE GRAINED, VERY THIN TO THIN BEDDED, ARGILLACEOUS; SHALE, GRAY, SLIGHTLY WEATHERED, MODERATELY STRONG, FINE GRAINED, VERY THIN BEDDED. (continued) | | | 1260.7 | EOB | 30 | 33 | | 88 | NQ2-2 | | | | | | | | | | CORE | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | 26 |
| | | | | | | | | | | | | | | | | | | | | | | | | | 27 |
| | | | | | | | | | | | | | | | | | | | | | | | | | 28 |
| | | | | | | | | | | | | | | | | | | | | | | | | | 29 |
| | | | | | | | | | | | | | | | | | | | | | | | | | |
| NOTES: NO FREE WATER ENCOUNTERED IN THIS BORING. BORING LOCATION AND ELEVATION FROM DISTRICT SURVEY. | | | | | | | | | | | | | | | | | | | | | | | | | |
| ABANDONMENT METHODS, MATERIALS, QUANTITIES: TREMIED SEALED WITH PORTLAND CEMENT AND BENTONITE GROUT WITH ASPHALT PATCH | | | | | | | | | | | | | | | | | | | | | | | | | |

[illegible]

ABANDONMENT METHODS, MATERIALS, QUANTITIES: TREMIED SEALED WITH PORTLAND CEMENT AND BENTONITE GROUT WITH ASPHALT PATCH



OHIO DEPARTMENT OF TRANSPORTATION
OFFICE OF GEOTECHNICAL ENGINEERING

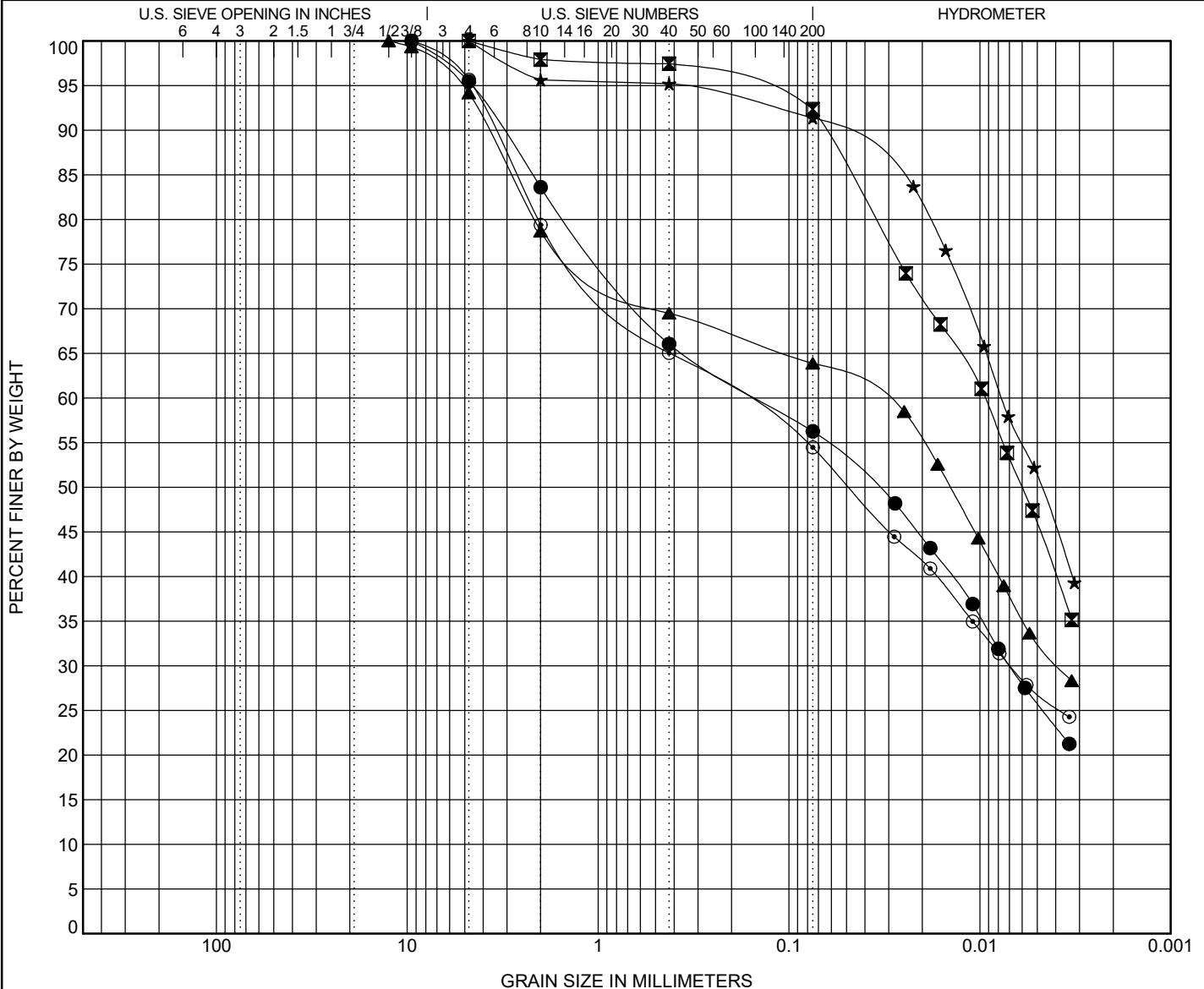
GRAIN SIZE DISTRIBUTION

PROJECT BEL-147-24.65

PID 118147

OGC NUMBER --

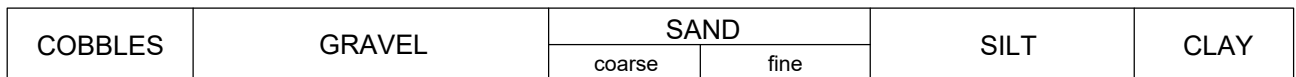
PROJECT TYPE LANDSLIDE



| Specimen Identification | | | ODOT (Modified AASHTO) ~ USCS Classification | | | | | | | | LL | PL | PI |
|-------------------------|------------|-----|--|-------|-------|-----|----|-----|-----|----|----|----|----|
| ● | B-001-0-23 | 4.0 | A-6b ~ SANDY LEAN CLAY(CL) | | | | | | | | 37 | 18 | 19 |
| ☒ | B-001-0-23 | 9.0 | A-6b ~ LEAN CLAY(CL) | | | | | | | | 38 | 21 | 17 |
| ▲ | B-002-0-23 | 2.0 | A-6a ~ SANDY LEAN CLAY(CL) | | | | | | | | 34 | 20 | 14 |
| ★ | B-002-0-23 | 6.5 | A-7-6 ~ LEAN CLAY(CL) | | | | | | | | 47 | 24 | 23 |
| ⊙ | B-003-0-23 | 6.5 | A-6a ~ SANDY LEAN CLAY(CL) | | | | | | | | 34 | 20 | 14 |
| Specimen Identification | | | D90 | D50 | D30 | D10 | %G | %CS | %FS | %M | %C | Cc | Cu |
| ● | B-001-0-23 | 4.0 | 3.189 | 0.035 | 0.007 | | 16 | 18 | 10 | 30 | 26 | | |
| ☒ | B-001-0-23 | 9.0 | 0.065 | 0.006 | | | 3 | 0 | 5 | 46 | 46 | | |
| ▲ | B-002-0-23 | 2.0 | 3.761 | 0.014 | 0.004 | | 21 | 9 | 6 | 31 | 33 | | |
| ★ | B-002-0-23 | 6.5 | 0.06 | 0.005 | | | 5 | 0 | 4 | 40 | 51 | | |
| ⊙ | B-003-0-23 | 6.5 | 3.516 | 0.048 | 0.007 | | 21 | 14 | 11 | 27 | 27 | | |



PROJECT TYPE LANDSLIDE



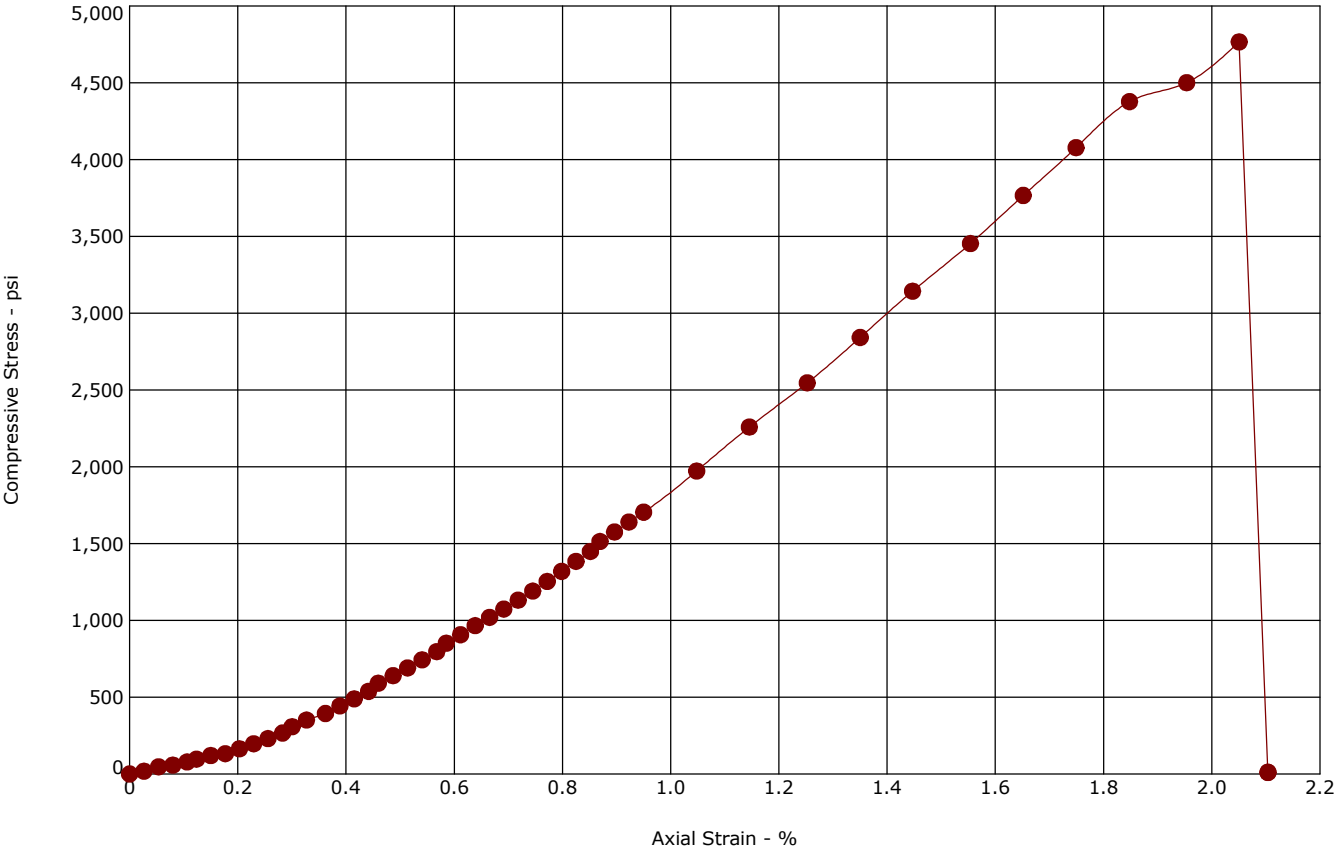
**PROJECT** BEL-147-24.65

OGE NUMBER --


PROJECT TYPE LANDSLIDE

[illegible]

Unconfined Compression Test



| Boring ID | Depth (Ft) | Sample type | LL | PL | PI | Fines (%) | Description |
|------------|------------|-------------|----|----|----|-----------|-------------|
| B-003-0-23 | 25.6 - 26 | NQ2 | | | | | SANDSTONE |

| Specimen Failure Mode | Specimen Test Data |
|---|---|
|  | Moisture Content (%): 2.6 |
| | Dry Density (pcf): 155 |
| | Diameter (in.): 1.97 |
| | Height (in.): 3.99 |
| | Height / Diameter Ratio: 2.02 |
| | Calculated Saturation (%): |
| | Calculated Void Ratio: |
| | Assumed Specific Gravity: |
| | Failure Strain (%): 2.05 |
| | Unconfined Compressive Strength (psi): 4766 |
| | Undrained Shear Strength (psi): 2383 |
| | Strain Rate (in/min): 0.0396 |
| | Remarks: |



Determination of the Point Load
Strength Index of Rock
ASTM D 5731

Laboratory Services Group

750 Corporate Woods Parkway Vernon Hills, IL 60061

Phone: (224) 352-7000

Fax: (224) 352-7024

Client: Ohio Department of Transportation

Project No.: N4225522

Project Name: BEL-147-24.65

Date: 06/12/23

| Boring | Run No. | Depth | Description | Distance Between Platens (mm) (D) | Core Width (mm) AXIAL TEST ONLY | Corrected Dia. (mm) AXIAL TEST ONLY (D _a) | Load (lbs.) | Load (N) | Point Load Index (I _s) | ^a Size Corrected Point Load Index I _{s(50)} | ^b Estimated Compressive Strength (Mpa) | ^b Estimated Compressive Strength (psi) | Orientation |
|------------|---------|-------|-------------|---|--|--|----------------|-------------|--|---|--|--|-------------|
| B-001-0-23 | R-2 | 24.0' | SHALE | 49.400 | | | 49.700 | 221.077 | 0.091 | 0.090 | 2.2 | 322 | Diametral |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | |

Orientation of applied point load: Diametral

- a Point load is corrected to assume a specimen diameter of 50 mm.
- b Estimated compressive strength is determined by multipliing the uncorrected point load index by the strength corversion factor of 24.5.

N4225522 BEL-147-24.65 PID 118147 – Slide Repair

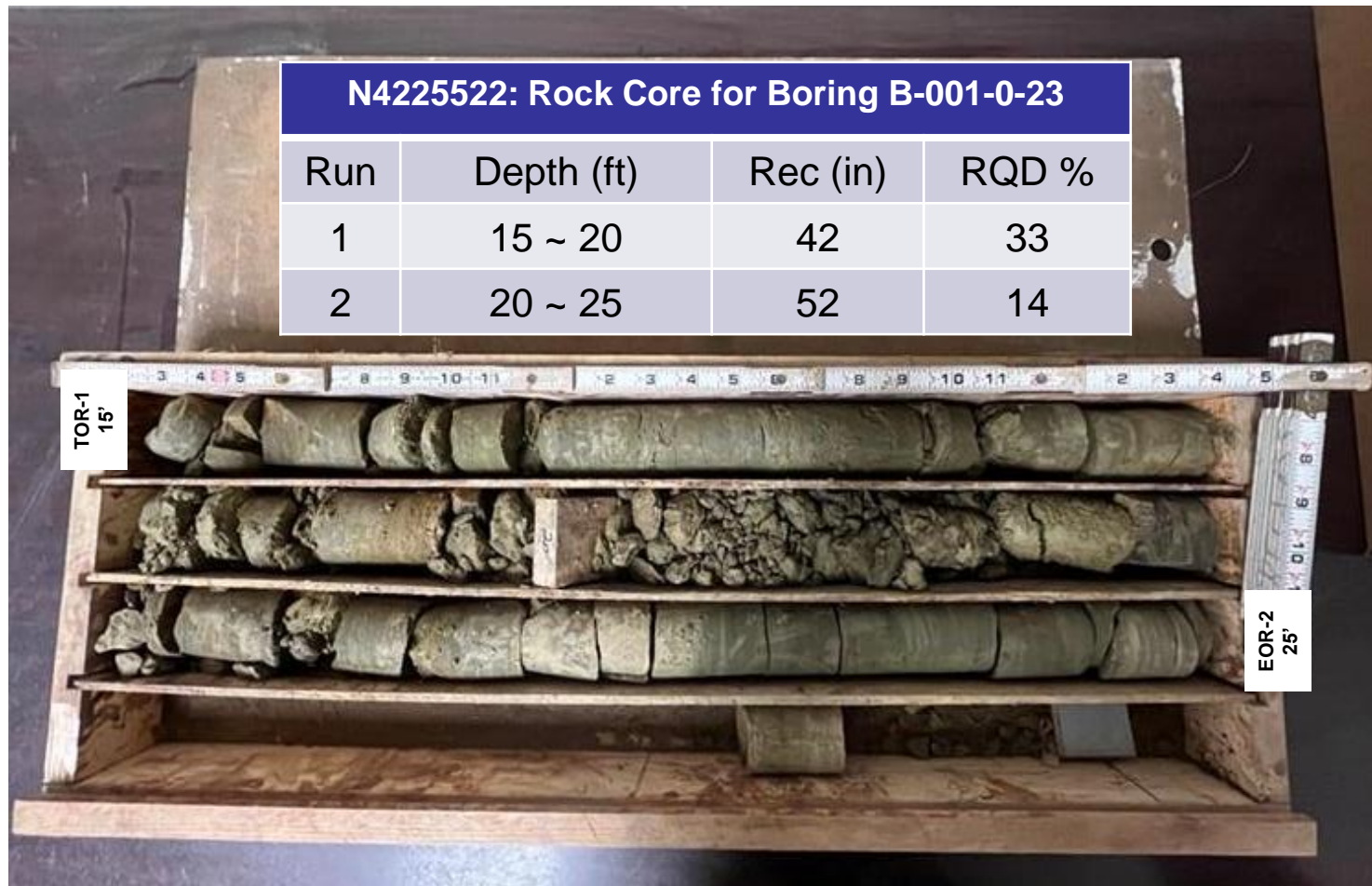




PHOTO 1: ROCK CORE OF BORING B-001-0-23, BOX 1 of 1

| | | | |
|------------------------|-------------------------------|---|--|
| Project Manager: BH | Project No. N4225522 |  <p>800 Morrison Road Columbus, Ohio 43230 PH. (614) 863-3113 FAX. (614) 863-0475</p> | ROCK CORE PHOTO OF BORING B-001-0-23 (Box 1 of 1) |
| Drawn by: IR | Scale: N.T.S. | | |
| Checked by: BH | File Name: Rockcore Photos | | |
| Approved by: KE | Date: 05/09/2023 | | |

N4225522 BEL-147-24.65 PID 118147 – Slide Repair



PHOTO 2: ROCK CORE OF BORING B-002-0-23, BOX 1 of 1

| | | | |
|------------------------|-------------------------------|--|--|
| Project Manager: BH | Project No. N4225522 |  800 Morrison Road Columbus, Ohio 43230 PH. (614) 863-3113 FAX. (614) 863-0475 | ROCK CORE PHOTO OF BORING B-002-0-23 (Box 1 of 1) |
| Drawn by: IR | Scale: N.T.S. | | BEL-147-24.65 PID 118147 - Slide Repair |
| Checked by: BH | File Name: Rockcore Photos | | Geotechnical Investigation |
| Approved by: KE | Date: 05/09/2023 | | Jacobsburg, Belmont County, Ohio |

N4225522 BEL-147-24.65 PID 118147 – Slide Repair

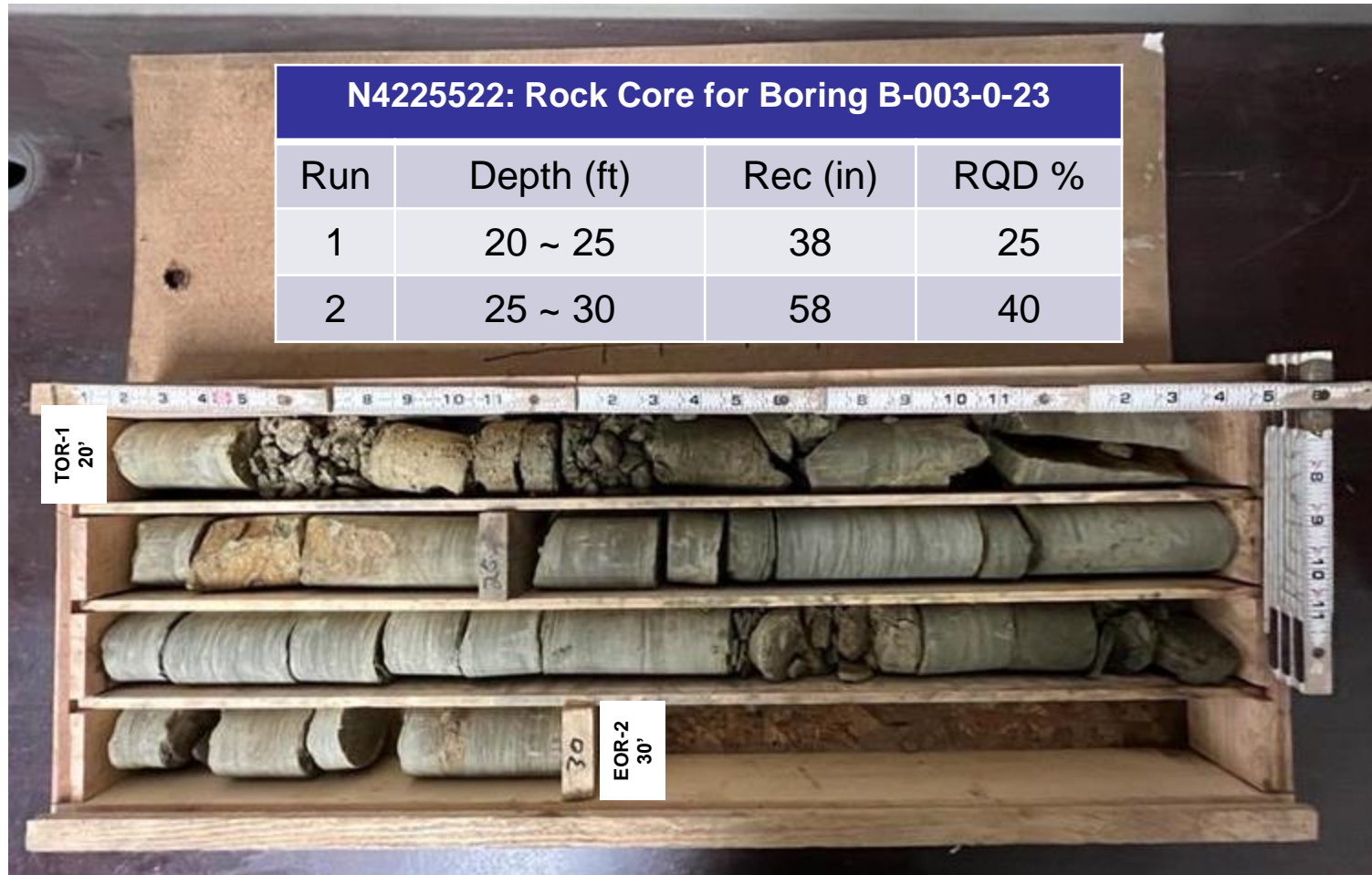



PHOTO 3: ROCK CORE OF BORING B-003-0-23, BOX 1 of 1

| | | | |
|------------------------|-------------------------------|--|---|
| Project Manager: BH | Project No. N4225522 |  800 Morrison Road Columbus, Ohio 43230 PH. (614) 863-3113 FAX. (614) 863-0475 | ROCK CORE PHOTO OF BORING B-003-0-23 (Box 1 of 1) BEL-147-24.65 PID 118147 - Slide Repair Geotechnical Investigation Jacobsburg, Belmont County, Ohio |
| Drawn by: IR | Scale: N.T.S. | | |
| Checked by: BH | File Name: Rockcore Photos | | |
| Approved by: KE | Date: 05/09/2023 | | |