



# ***Soil Engineers Ltd.***

CONSULTING ENGINEERS

GEOTECHNICAL • ENVIRONMENTAL • HYDROGEOLOGICAL • BUILDING SCIENCE

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August 9, 2024

Reference No. 2403-S066

Page 1 of 5

The Sarjeant Company Ltd.  
15 Sarjeant Drive  
Barrie, Ontario  
L4N 4V9

Attention: Mr. Michael MacMillan

**Re: A Slope Stability Assessment for  
Proposed Ready-Mix Plant Development  
1029 Brebeuf Road  
Town of Midland**

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Dear Sir:

According to the written authorization dated March 10, 2024, Soil Engineers Ltd. (SEL) has completed a slope stability assessment for the subject development.

## **SITE AND PROJECT DESCRIPTIONS**

The subject site is located on the east side of Brebeuf Road, approximately 250 m south of Heritage Drive in the Town of Midland. At the time of investigation, the site was a vacant lot with two abandoned structures. Majority of the site was heavily treed and vegetative.

According to the preliminary site grading plan, prepared by The Jones Consulting Group Ltd. dated in October 2023, it is understood that the abandoned structures will be demolished and the site will be subexcavated to El. 209.0 m with a slope gradient of 2 Horizontal (H): 1 Vertical (V) along the northern, eastern and southern site boundaries, for the development of a ready-mix plant. The objective of this slope stability analysis is to verify the feasibility and the long-term stability of the excavated slopes under a proposed condition.

## **FIELD WORK**

The field work, consisting of 6 boreholes to various depths ranging from 6.4 to 20.0 m, was performed between April 11 and 16, 2023.



The boreholes were advanced at intervals to the sampling depths by a track-mounted machine using solid stem augers and equipped with split spoon sampler for soil sampling. Standard Penetration Tests, using the procedures described on the enclosed “List of Abbreviations and Terms”, were performed at the sampling depths. The test results are recorded as the Standard Penetration Resistance (or ‘N’ values) of the subsoil. The relative density of the cohesionless strata and the consistency of the cohesive strata are inferred from the ‘N’ values. Split-spoon samples were recovered for soil classification and laboratory testing. The field work was supervised and the findings were recorded by a Geotechnical Technician.

Upon the completion of borehole drilling and soil sampling, monitoring wells were installed within or adjacent to all boreholes to facilitate groundwater monitoring for the slope analysis. Two (2) pairs of nested wells were installed at Boreholes 1 and 2. A suffix of ‘S’ or ‘D’, representing the shallow and deep wells, was used to differentiate the well depths at the nested well location. Details of the monitoring wells are included in the corresponding borehole logs.

The borehole and monitoring well locations are shown on the Plan, Drawing No. 1. The ground elevation at each borehole location was interpolated from the contour lines of the reviewed site grading plan.

### **SUBSURFACE CONDITIONS**

The borehole findings indicate that the site is underlain by a stratum of gravelly sand, embedded with occasional silt and/or clay seams. Detailed descriptions of the encountered subsurface conditions are presented on the Borehole Logs, comprising Figures 1 to 8, inclusive.

#### **Sand/Gravelly Sand**

Native sand/gravelly sand predominates the soil stratigraphy within the depth of investigation. The sand stratum appears to be fine to medium grained near the ground surface and become gravelly and well graded.

The obtained ‘N’ values of the fine to medium sand stratum range from 2 to 23, with a median of 13 blows per 30 cm of penetration, indicating a very loose to compact, generally compact in relative density. While the obtained ‘N’ values of the gravelly sand stratum range from 4 to over 100, with a median of 44 blows per 30 cm of penetration, indicating a very loose to very dense, generally dense in relative density. Grain size analyses were performed on two representative samples and the results are plotted on Figure 7, enclosed.



Soil stratum with relatively lower 'N' values was observed near the ground surface due to weathering process. In addition, hard resistance was encountered occasionally during augering, indicating the presence of cobbles and boulders in places.

The natural water content values of the sand samples range from 6% to 40%, with a median of 12%, indicating a generally very moist to wet condition. The relatively high moisture content may also indicates the presence of clay/silt layers within the sand deposit.

### **Groundwater Condition**

Upon completion of monitoring well installation, the project Hydrogeologist carried out the groundwater monitoring program. The groundwater level data collected between April 22, 2024, and July 19, 2024, were provided for our review and the readings were presented in Appendix.

Based on the groundwater records, the highest groundwater reading was recorded in April. There appeared to be an upper perched water and a lower perched water table. The upper perched water table is between El. 223.71 m and El. 226.64 m; the lower perched water table is between El. 215.44 m and El. 215.97 m. The recorded water level may represent the local groundwater regime, which may be subject to seasonal fluctuation.

### **SLOPE STABILITY ASSESSMENT**

A slope stability assessment was carried out to determine the stability of the proposed side slopes along the northern, eastern and southern site boundaries.

The proposed side slopes have an overall height ranging from 18 to 21 m, with a proposed gradient of 2H:1V or flatter. In addition, along the top of the excavated slope, a topsoil berm, approximately 3 m in height with a side gradient of 3H:1V, will be constructed.

Three (3) cross-sections, Cross-Sections A-A, B-B and C-C, were selected as representative profiles of the slopes; the locations of these cross-sections are shown on Drawing No. 1. The slope profiles at the cross-sections were interpreted from the proposed grading plan. The subsurface profile at both cross-sections was interpreted from samples obtained from the boreholes.

The highest recorded groundwater levels from the monitoring wells have been incorporated into the analysis, as phreatic surfaces at the cross-sections.

The slope stability at the cross-section was analysed using the Bishop Method with the soil strength parameters shown in the following table.



| Soil Type                | Unit Weight<br>$\gamma'$ (kN/m <sup>3</sup> ) | Cohesion<br>$c'$ (kPa) | Internal Friction<br>Angle $\phi'$ |
|--------------------------|-----------------------------------------------|------------------------|------------------------------------|
| Compact to dense Sand    | 20.0                                          | 0                      | 37°                                |
| Dense to very dense Sand | 20.0                                          | 0                      | 34°                                |
| Topsoil Fill             | 18.0                                          | 0                      | 24°                                |

The results of the analysis are presented on Drawing Nos. 2 to 4, and summarized in the table below.

| Cross-Section | FOS  | Drawing No. |
|---------------|------|-------------|
| A-A           | 1.43 | 2           |
| B-B           | 1.37 | 3           |
| C-C           | 1.51 | 4           |

The analytical results at Cross-Sections A-A, B-B and C-C, under the proposed condition, yield Factor of Safety (FOS) values higher than 1.30, which meets MNR guideline requirement for active land use, and is considered stable for the intended use.



### **LIMITATIONS OF REPORT**

This report was prepared by Soil Engineers Ltd. for the account of The Sarjeant Company Ltd., and for review by the designated consultants, financial institutions and government agencies. The material in the report reflects the judgement of Daric Yangs, P.Eng., and Kin Fung Li, P.Eng., in light of the information available to it at the time of preparation.

Use of the report is subject to the conditions and limitations of the contractual agreement. Any use which a Third Party makes of this report, or any reliance on decisions to be made based on it, are the responsibility of such Third Parties. Soil Engineers Ltd. accepts no responsibility for damages, if any, suffered by any Third Party as a result of decisions made or actions based on this report.

We trust this letter satisfies your present requirements; however, should any queries arise please feel free to contact this office.

Yours truly,  
**SOIL ENGINEERS LTD.**

  
Daric Yang, P.Eng.



  
Kin Fung Li, P.Eng.  
DY/KFL:dd



### **ENCLOSURES**

|                                                  |                     |
|--------------------------------------------------|---------------------|
| Borehole Logs .....                              | Figures 1 to 8      |
| Borehole and Monitoring Well Location Plan ..... | Drawing No. 1       |
| Slope Stability Analyses .....                   | Drawing Nos. 2 to 4 |
| Groundwater Level Records .....                  | Appendix            |

# LIST OF ABBREVIATIONS AND DESCRIPTION OF TERMS

The abbreviations and terms commonly employed on the borehole logs and figures, and in the text of the report, are as follows:

## SAMPLE TYPES

|    |                                               |
|----|-----------------------------------------------|
| AS | Auger sample                                  |
| CS | Chunk sample                                  |
| DO | Drive open (split spoon)                      |
| DS | Denison type sample                           |
| FS | Foil sample                                   |
| RC | Rock core (with size and percentage recovery) |
| ST | Slotted tube                                  |
| TO | Thin-walled, open                             |
| TP | Thin-walled, piston                           |
| WS | Wash sample                                   |

## PENETRATION RESISTANCE

Standard Penetration Resistance or 'N' Value:

The number of blows of a 63.5 kg hammer falling from a height of 76 cm required to advance a 51 mm outer diameter drive open sampler 30 cm into undisturbed soil, after an initial penetration of 15 cm.

Plotted as '○'

Dynamic Cone Penetration Resistance:

A continuous profile showing the number of blows per each 30 cm of penetration of a 51 mm diameter, 90° point cone driven by a 63.5 kg hammer falling from a height of 76 cm.

Plotted as '—●—'

|    |                                        |
|----|----------------------------------------|
| WH | Sampler advanced by static weight      |
| PH | Sampler advanced by hydraulic pressure |
| PM | Sampler advanced by manual pressure    |
| NP | No penetration                         |

## SOIL DESCRIPTION

Cohesionless Soils:

| 'N' (blows/30 cm) | Relative Density |
|-------------------|------------------|
| 0 to 4            | very loose       |
| 4 to 10           | loose            |
| 10 to 30          | compact          |
| 30 to 50          | dense            |
| >50               | very dense       |

Cohesive Soils:

| Undrained Shear Strength (kPa) | 'N' (blows/30 cm) | Consistency |
|--------------------------------|-------------------|-------------|
| <12                            | <2                | very soft   |
| 12 to <25                      | 2 to <4           | soft        |
| 25 to <50                      | 4 to <8           | firm        |
| 50 to <100                     | 8 to <15          | stiff       |
| 100 to 200                     | 15 to 30          | very stiff  |
| >200                           | >30               | hard        |

Method of Determination of Undrained Shear Strength of Cohesive Soils:

x 0.0 Field vane test in borehole; the number denotes the sensitivity to remoulding

△ Laboratory vane test

## METRIC CONVERSION FACTORS

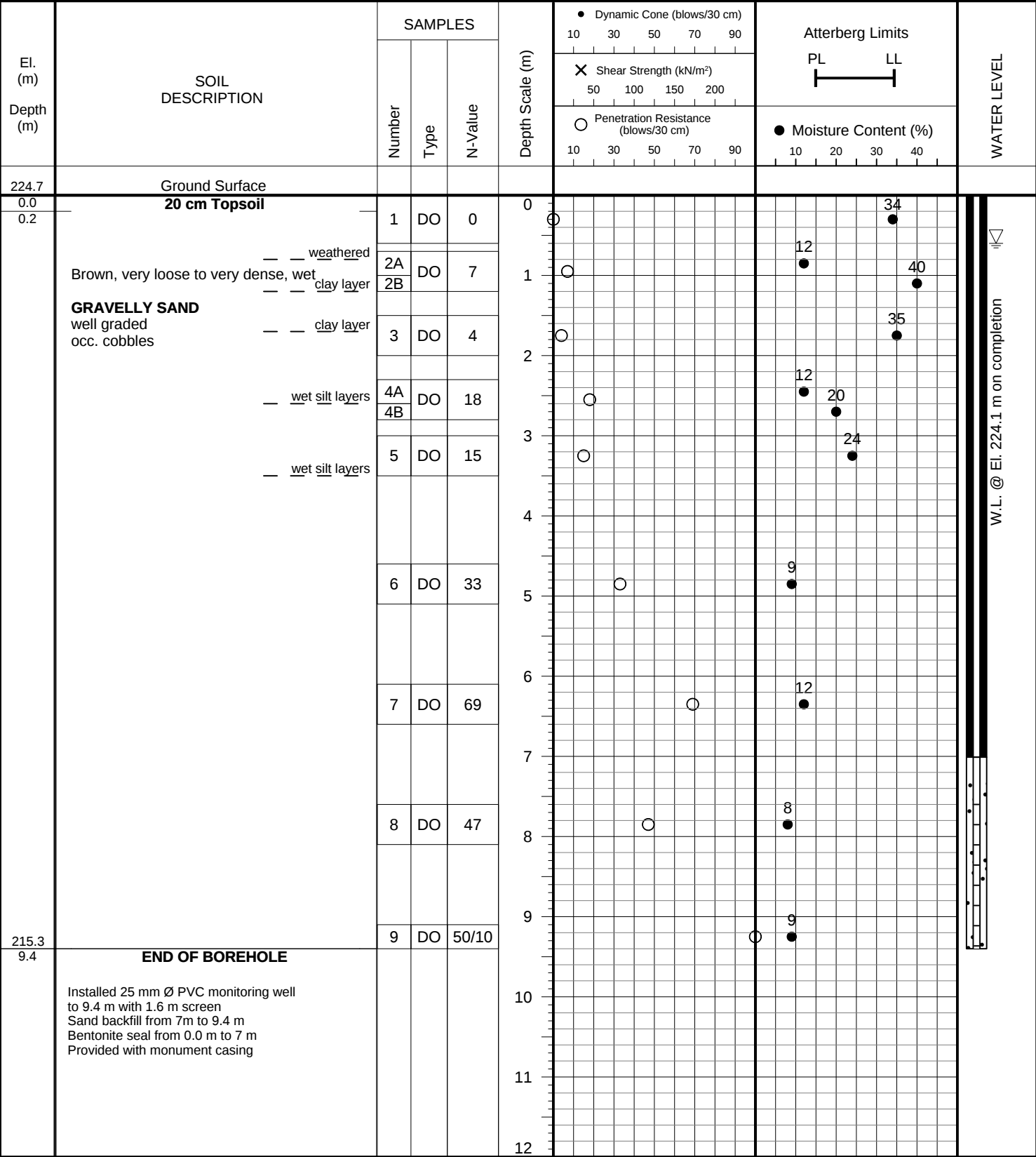
|        |             |
|--------|-------------|
| 1 ft   | = 0.3048 m  |
| 1 inch | = 25.4 mm   |
| 1 lb   | = 0.454 kg  |
| 1 ksf  | = 47.88 kPa |



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| El.<br>(m)<br><br>Depth<br>(m) | SOIL<br>DESCRIPTION                             | SAMPLES         |      |         | Depth Scale (m) | Dynamic Cone (blows/30 cm) |    | Atterberg Limits     |  | WATER LEVEL |  |
|--------------------------------|-------------------------------------------------|-----------------|------|---------|-----------------|----------------------------|----|----------------------|--|-------------|--|
|                                |                                                 | Number          | Type | N-Value |                 | Shear Strength (kN/m²)     |    | Moisture Content (%) |  |             |  |
|                                |                                                 |                 |      |         |                 | PL                         | LL |                      |  |             |  |
| 224.7                          | Ground Surface                                  |                 |      |         |                 |                            |    |                      |  |             |  |
| 0.0                            | Straight Auger for Monitoirng Well Installation |                 |      |         | 0               |                            |    |                      |  |             |  |
|                                |                                                 |                 |      |         | 1               |                            |    |                      |  |             |  |
|                                |                                                 |                 |      |         | 2               |                            |    |                      |  |             |  |
|                                |                                                 |                 |      |         | 3               |                            |    |                      |  |             |  |
|                                |                                                 |                 |      |         | 4               |                            |    |                      |  |             |  |
|                                |                                                 |                 |      |         | 5               |                            |    |                      |  |             |  |
|                                |                                                 |                 |      |         | 6               |                            |    |                      |  |             |  |
| 218.6                          |                                                 | END OF BOREHOLE |      |         |                 | 7                          |    |                      |  |             |  |
| 6.1                            |                                                 |                 |      |         |                 | 8                          |    |                      |  |             |  |
|                                |                                                 |                 |      |         |                 | 9                          |    |                      |  |             |  |
|                                |                                                 |                 |      |         |                 | 10                         |    |                      |  |             |  |
|                                |                                                 |                 |      |         |                 | 11                         |    |                      |  |             |  |
|                                |                                                 |                 |      |         | 12              |                            |    |                      |  |             |  |

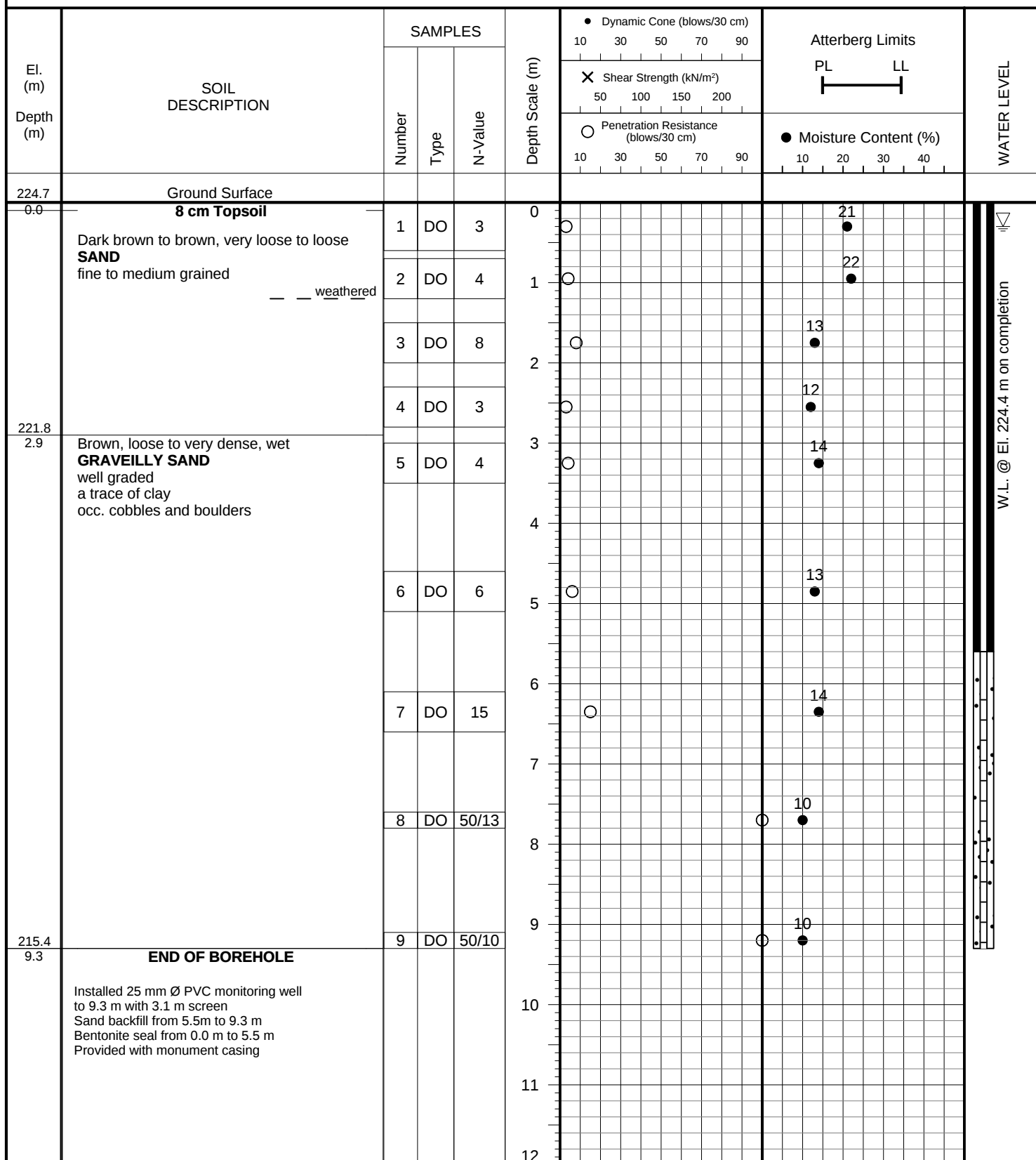


**PROJECT DESCRIPTION:** Proposed Land Development

**METHOD OF BORING:** Hollow Stem with Mud Drilling

**PROJECT LOCATION:** 1029 Brebeuf Road, Town of Midland

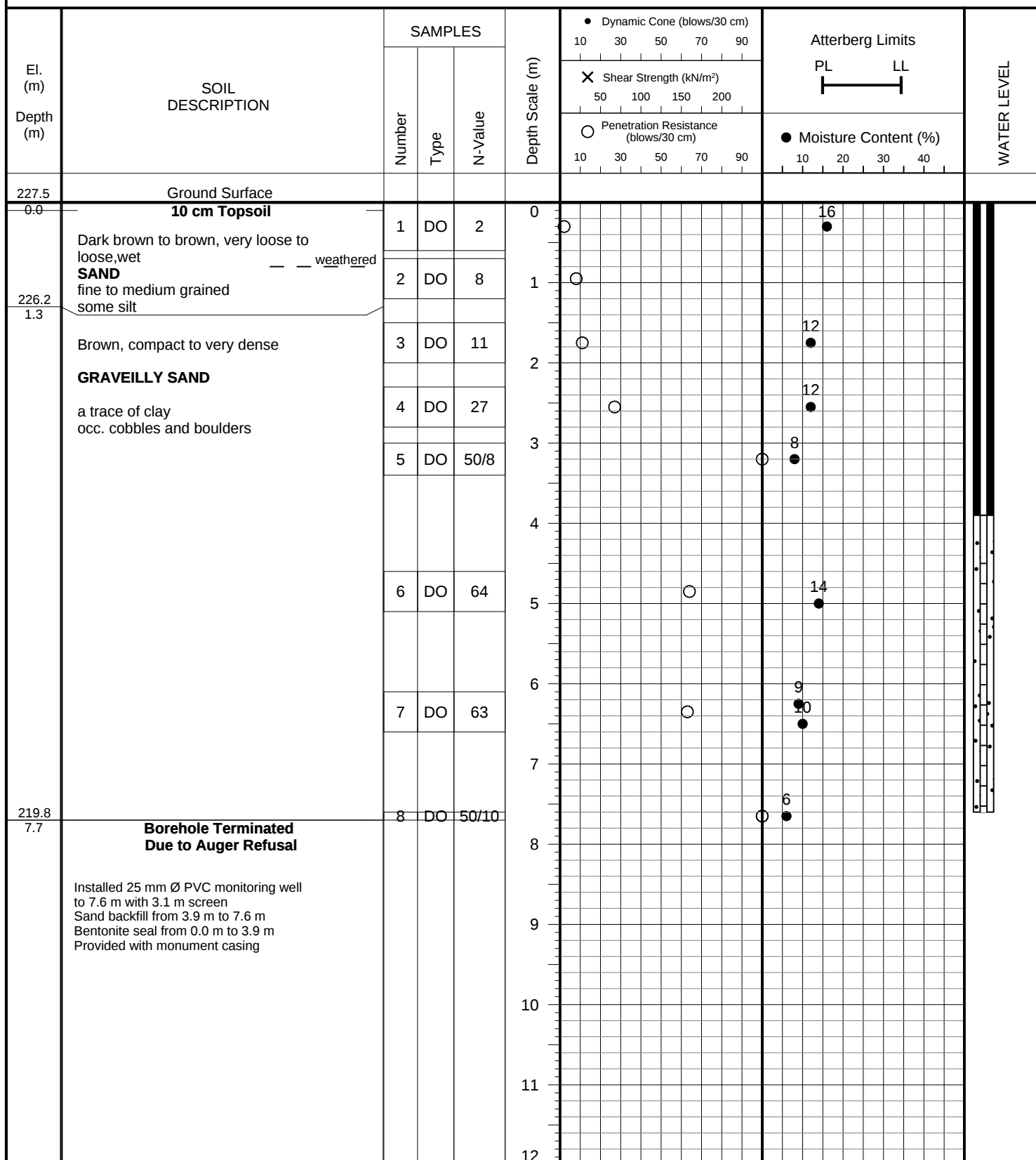
**DRILLING DATE:** April 16, 2024

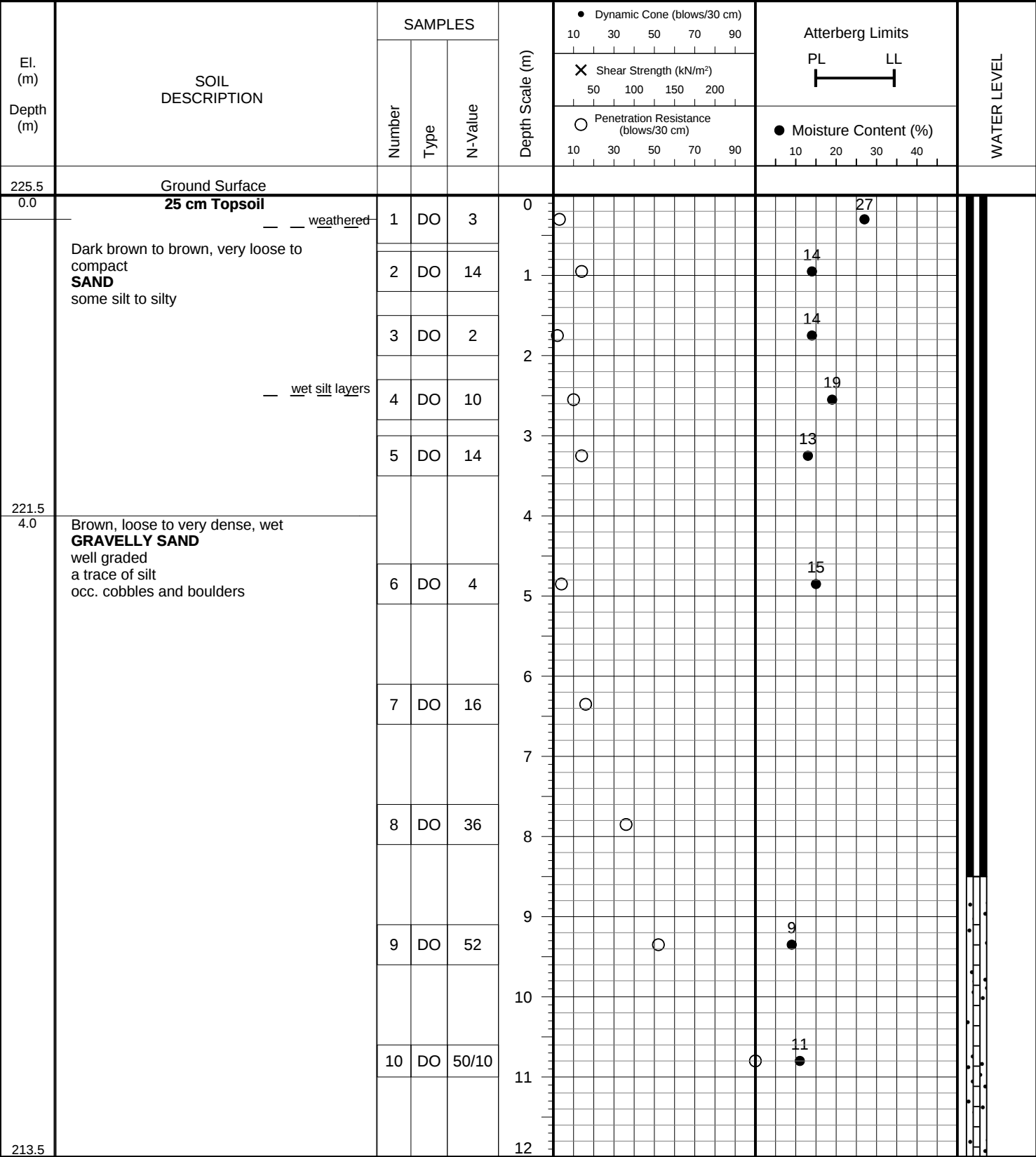


| El.<br>(m)<br><br>Depth<br>(m) | SOIL<br>DESCRIPTION                             | SAMPLES         |      |         | Depth<br>Scale (m) | Dynamic Cone (blows/30 cm) |             | Atterberg Limits     |  | WATER LEVEL |  |
|--------------------------------|-------------------------------------------------|-----------------|------|---------|--------------------|----------------------------|-------------|----------------------|--|-------------|--|
|                                |                                                 | Number          | Type | N-Value |                    | X Shear Strength (kN/m²)   |             | Moisture Content (%) |  |             |  |
| 10 30 50 70 90                 |                                                 |                 |      |         | 50 100 150 200     |                            | 10 20 30 40 |                      |  |             |  |
| 224.7                          | Ground Surface                                  |                 |      |         |                    |                            |             |                      |  |             |  |
| 0.0                            | Straight Auger for Monitoirng Well Installation |                 |      |         | 0                  |                            |             |                      |  |             |  |
|                                |                                                 |                 |      |         | 1                  |                            |             |                      |  |             |  |
|                                |                                                 |                 |      |         | 2                  |                            |             |                      |  |             |  |
|                                |                                                 |                 |      |         | 3                  |                            |             |                      |  |             |  |
|                                |                                                 |                 |      |         | 4                  |                            |             |                      |  |             |  |
|                                |                                                 |                 |      |         | 5                  |                            |             |                      |  |             |  |
|                                |                                                 |                 |      |         | 6                  |                            |             |                      |  |             |  |
| 218.6                          |                                                 | END OF BOREHOLE |      |         |                    | 7                          |             |                      |  |             |  |
| 6.1                            |                                                 |                 |      |         |                    | 8                          |             |                      |  |             |  |
|                                |                                                 |                 |      |         |                    | 9                          |             |                      |  |             |  |
|                                |                                                 |                 |      |         |                    | 10                         |             |                      |  |             |  |
|                                |                                                 |                 |      |         |                    | 11                         |             |                      |  |             |  |
|                                |                                                 |                 |      |         | 12                 |                            |             |                      |  |             |  |

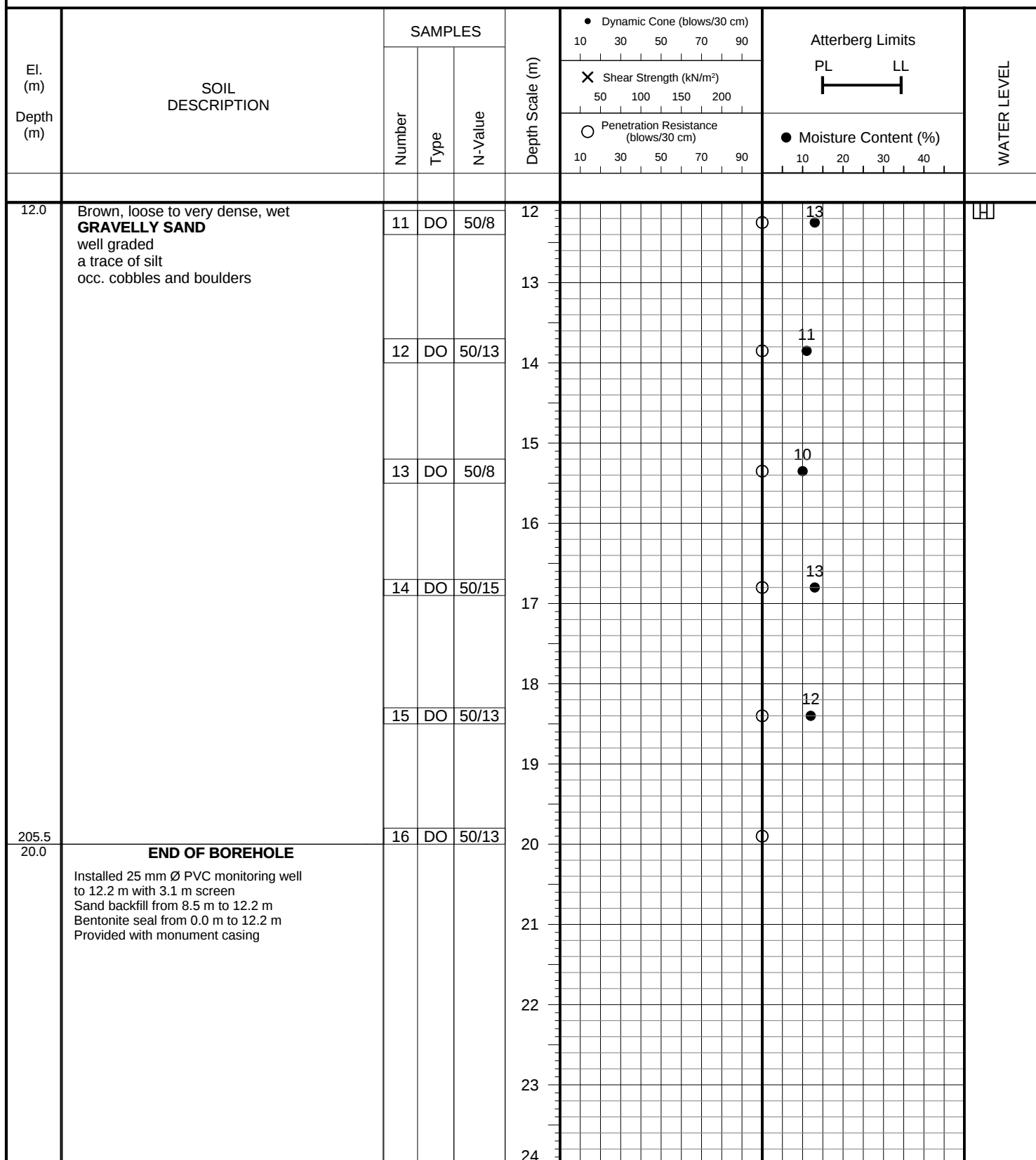


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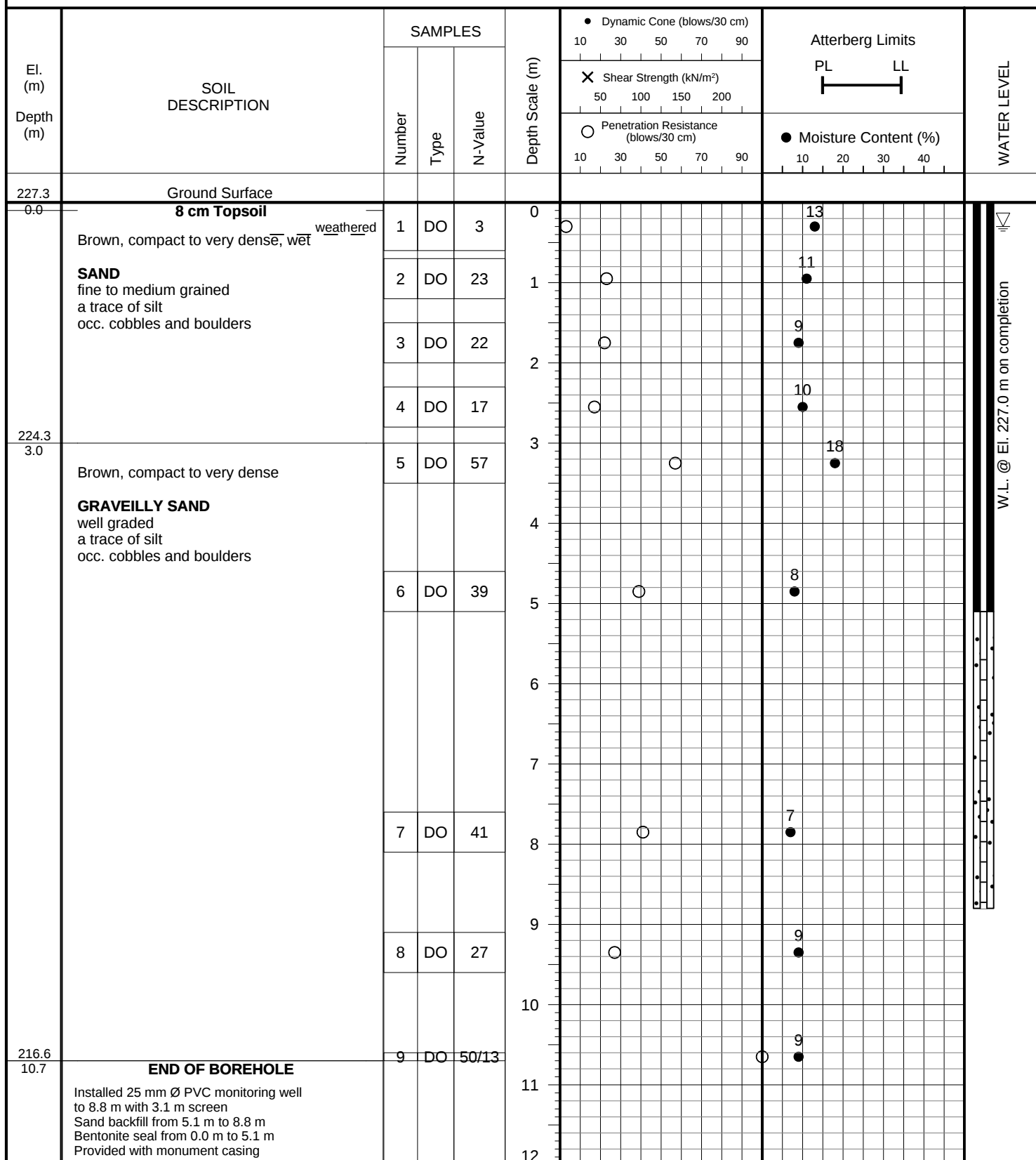
**LOG OF BOREHOLE:****3****FIGURE NO.: 5****PROJECT DESCRIPTION:** Proposed Land Development**METHOD OF BORING:** Hollow Stem with Mud Drilling**PROJECT LOCATION:** 1029 Brebeuf Road, Town of Midland**DRILLING DATE:** April 11, 2024**Soil Engineers Ltd.**



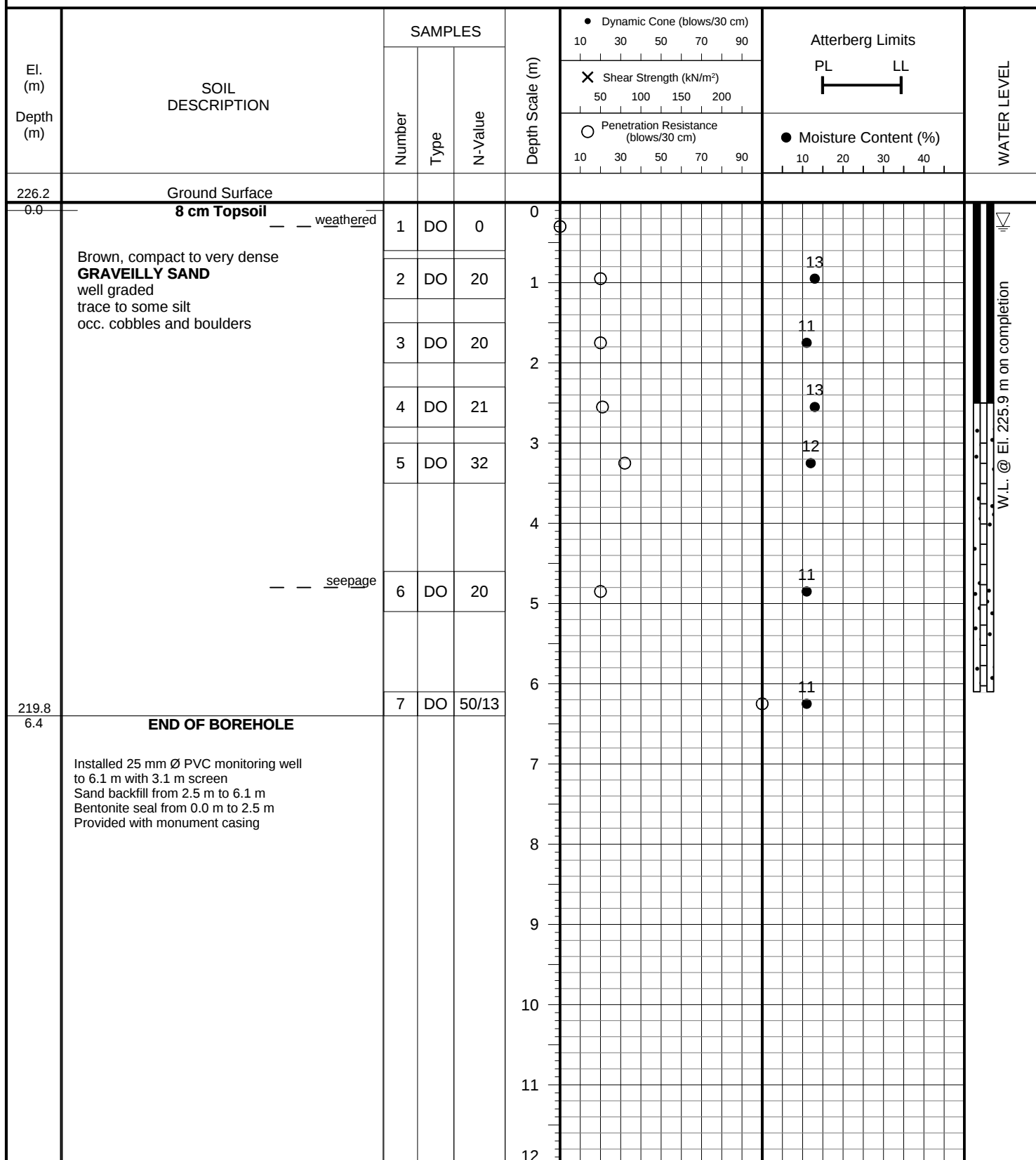
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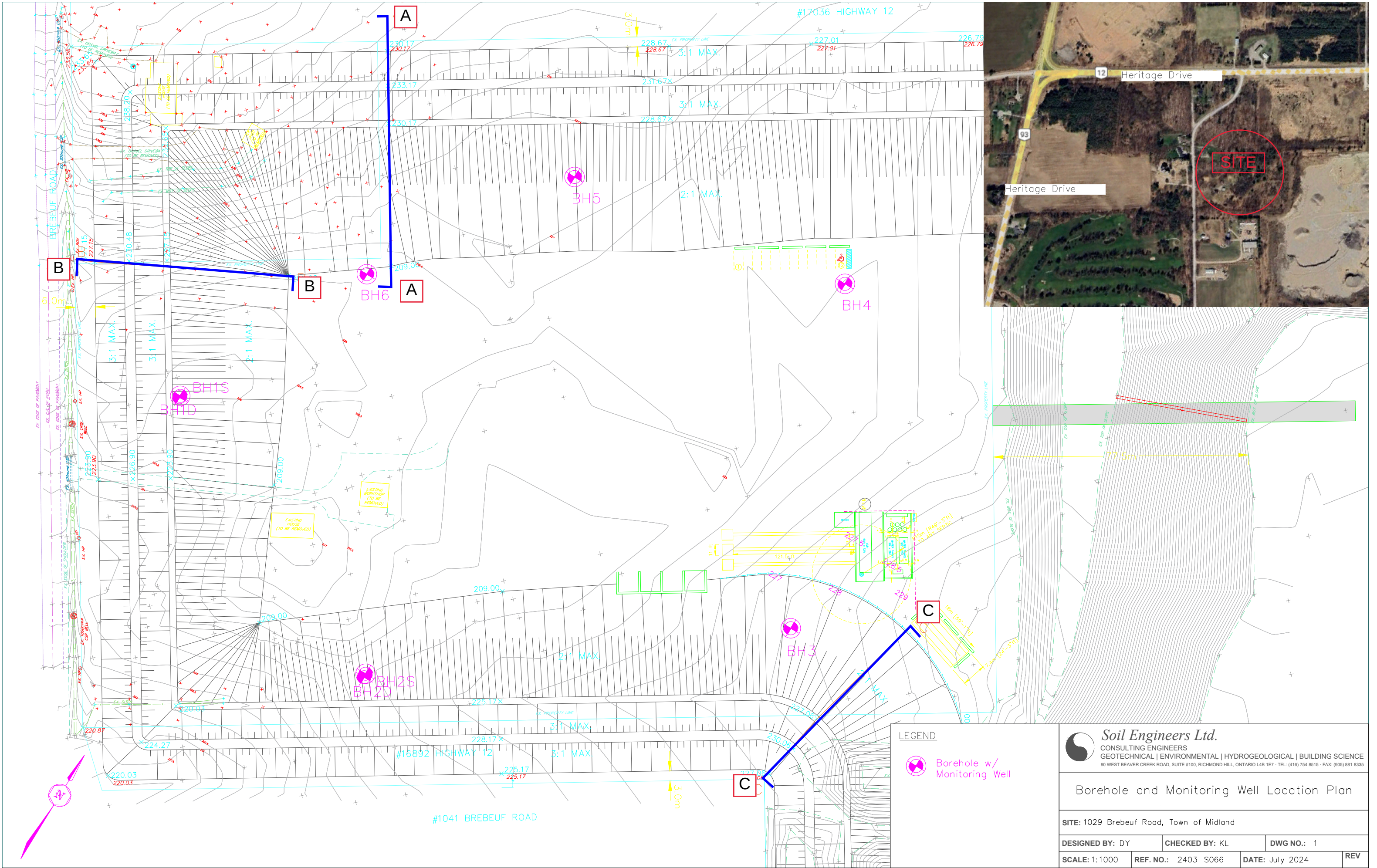
**LOG OF BOREHOLE:****4****FIGURE NO.: 6****PROJECT DESCRIPTION:** Proposed Land Development**METHOD OF BORING:** Hollow Stem with Mud Drilling**PROJECT LOCATION:** 1029 Brebeuf Road, Town of Midland**DRILLING DATE:** April 12, 2024**Soil Engineers Ltd.**

JOB NO.: 2403-S066

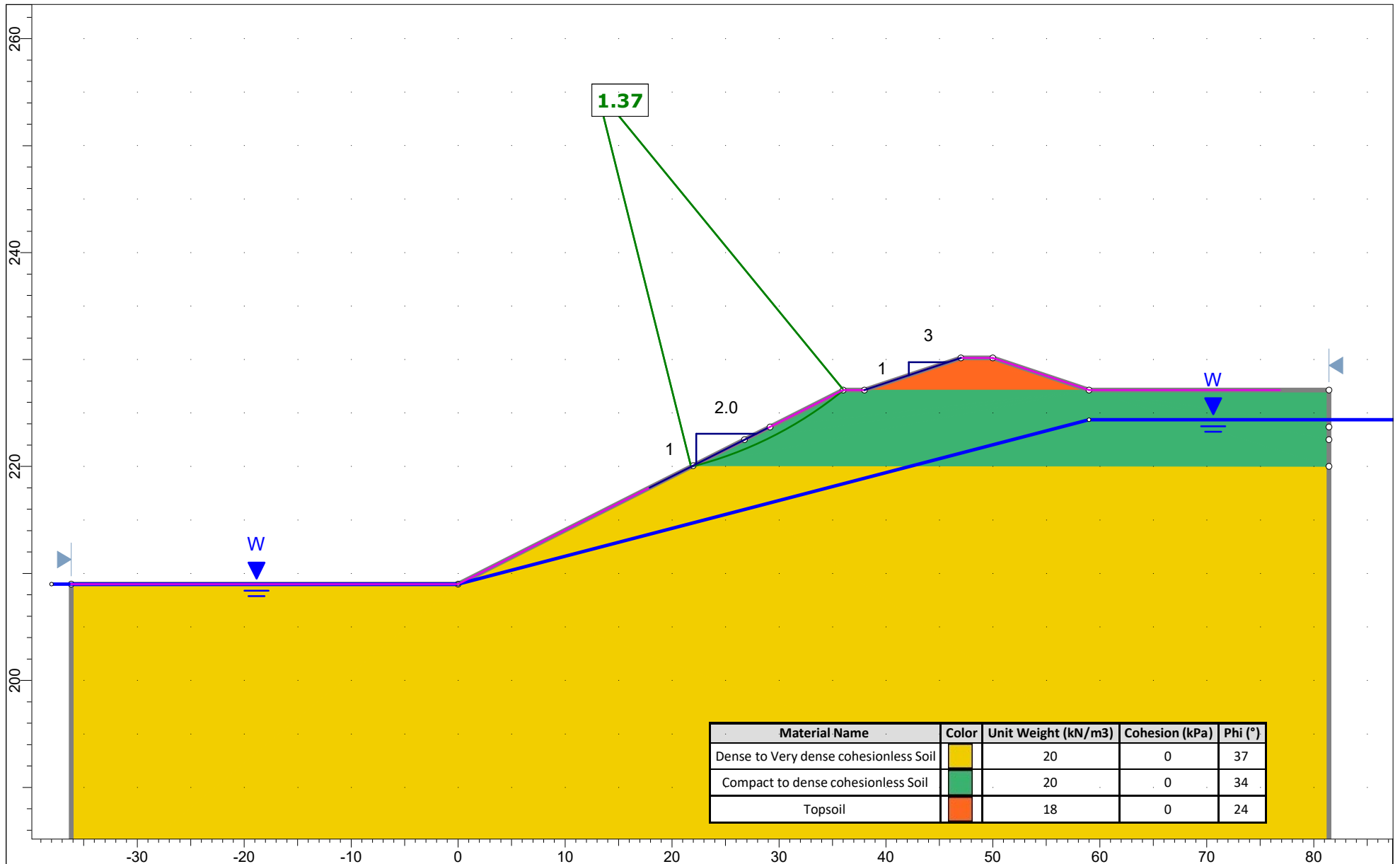
**LOG OF BOREHOLE:****5****FIGURE NO.: 7****PROJECT DESCRIPTION:** Proposed Land Development**METHOD OF BORING:** Solid Stem Auger**PROJECT LOCATION:** 1029 Brebeuf Road, Town of Midland**DRILLING DATE:** April 15, 2024**Soil Engineers Ltd.**

JOB NO.: 2403-S066

**LOG OF BOREHOLE:****6****FIGURE NO.: 8****PROJECT DESCRIPTION:** Proposed Land Development**METHOD OF BORING:** Solid Stem Auger**PROJECT LOCATION:** 1029 Brebeuf Road, Town of Midland**DRILLING DATE:** April 16, 2024**Soil Engineers Ltd.**







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Project Title

Slope Stability Analysis

Load Case

Cross Section B-B (Proposed Condition)

Location

1029 Brebeuf Road, Town of Midland

Drawn By

DY

Checked By

KL

Scale

1:500

Revision

Date

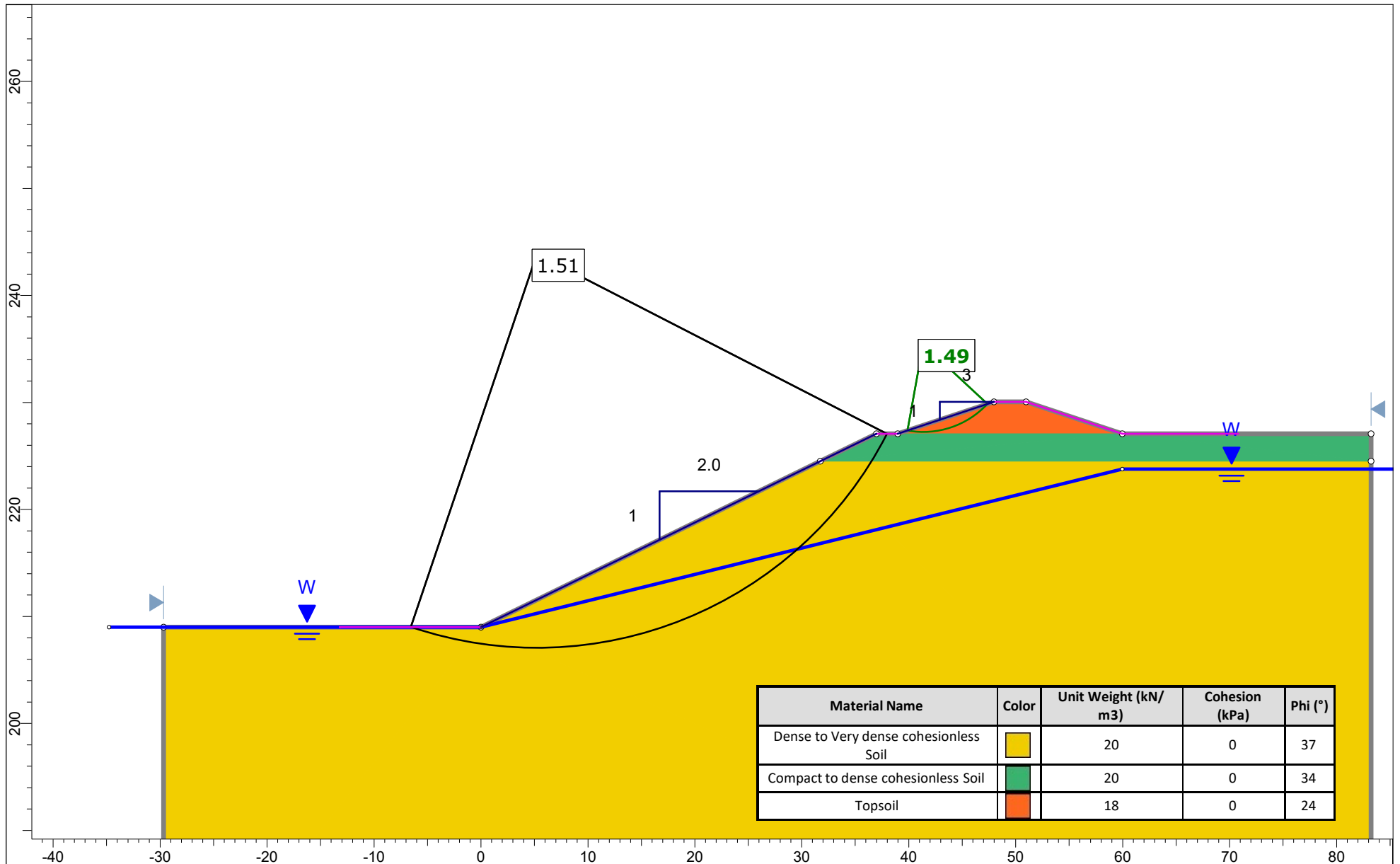
July 2024

Reference No.

2403-S066

Drawing No.

3



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|               |           |                                    |           |                                        |       |
|---------------|-----------|------------------------------------|-----------|----------------------------------------|-------|
| Project Title |           | Slope Stability Analysis           |           | Load Case                              |       |
| Location      |           | 1029 Brebeuf Road, Town of Midland |           | Cross Section C-C (Proposed Condition) |       |
| Drawn By      | DY        | Checked By                         | KL        | Scale                                  | 1:500 |
| Date          | July 2024 | Reference No.                      | 2403-S066 | Revision                               |       |
|               |           |                                    |           | Drawing No.                            | 4     |



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|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| <b>BARRIE</b>       | <b>MISSISSAUGA</b>  | <b>OSHAWA</b>       | <b>NEWMARKET</b>    | <b>MUSKOKA</b>      | <b>HAMILTON</b>     |
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| FAX: (705) 721-7864 | FAX: (905) 542-2769 | FAX: (905) 725-1315 | FAX: (905) 881-8335 | FAX: (705) 721-7864 | FAX: (905) 542-2769 |

REFERENCE NO. 2403-S066

APPENDIX

GROUNDWATER LEVEL DATA

**APPENDIX D**  
**Table D-1: Well Construction Details**

1017/1029 Brebeuf Road  
Midland, Ontario  
Hydrogeological Assessment

| Location              | Installation     | Well Construction Details |                    |         |                |                |                    |               |        |        |               |                      |                   |
|-----------------------|------------------|---------------------------|--------------------|---------|----------------|----------------|--------------------|---------------|--------|--------|---------------|----------------------|-------------------|
|                       |                  | Ground Surface*           | Top of Well Casing | Stickup | Bottom of Well |                |                    | Top of Screen |        |        | Screen Length | Well Inside Diameter | Borehole Diameter |
|                       |                  | (masl)                    | (masl)             | (m)     | (mbtoc)        | (mbgs)         | (masl)             | (mbtoc)       | (mbgs) | (masl) | (m)           | (m)                  | (m)               |
| Pit Wells             |                  |                           |                    |         |                |                |                    |               |        |        |               |                      |                   |
| MW3                   | Landshark (2017) | 209.10                    | 209.80             | 0.70    | 20.58          | 19.88          | 189.22             | 17.53         | 16.83  | 192.27 | 3.05          | 0.051                | 0.910             |
| MW10 (PW-1)           | Snider (1978)    | 208.85                    | 209.93             | 1.08    | 47.00          | 45.92          | 162.93             | 44.56         | 43.48  | 165.37 | 2.44          | 0.152                | 0.910             |
| Dug Wells             |                  |                           |                    |         |                |                |                    |               |        |        |               |                      |                   |
| Onsite Dug Well       | Unknown          | 226.30                    | 226.70             | 0.40    | 3.90           | 3.50           | 222.80             | 0.90          | 0.50   | 225.80 | 3.00          | 0.910                | 0.910             |
| Ditch Concrete Well   | Unknown          | 223.87                    | 224.58             | 0.71    | 4.66           | 3.95           | 219.92             | 0.66          | -0.05  | 223.92 | 4.00          | 0.910                | 0.910             |
| Ditch Corrugated Well | Unknown          | 221.91                    | 223.04             | 1.13    | 3.76           | 2.63           | 219.28             | 0.76          | -0.37  | 222.28 | 3.00          | 0.910                | 0.910             |
| Monitoring Wells      |                  |                           |                    |         |                |                |                    |               |        |        |               |                      |                   |
| BH1S                  | SoilEng (2024)   | 224.65                    | 225.64             | 0.99    | 5.45           | 4.46           | 220.19             | 2.40          | 1.41   | 223.24 | 3.05          | 0.051                | 0.152             |
| BH1D                  | SoilEng (2024)   | 224.65                    | 225.44             | 0.79    | 9.91           | 9.12           | 215.53             | 8.39          | 7.60   | 217.05 | 1.52          | 0.051                | 0.216             |
| BH2S                  | SoilEng (2024)   | 224.64                    | 225.68             | 1.04    | 6.90           | 5.86           | 218.78             | 3.85          | 2.81   | 221.83 | 3.05          | 0.051                | 0.152             |
| BH2D                  | SoilEng (2024)   | 224.71                    | 225.80             | 1.09    | 10.21          | 9.12           | 215.59             | 7.16          | 6.07   | 218.64 | 3.05          | 0.051                | 0.216             |
| BH3                   | SoilEng (2024)   | 227.54                    | 228.55             | 1.01    | 8.40           | 7.39           | 220.15             | 5.35          | 4.34   | 223.20 | 3.05          | 0.051                | 0.216             |
| BH4                   | SoilEng (2024)   | 225.50                    | 226.72             | 1.22    | 13.21          | 11.99          | 213.51             | 10.16         | 8.94   | 216.56 | 3.05          | 0.051                | 0.216             |
| BH5                   | SoilEng (2024)   | 227.80                    | 228.91             | 1.11    | 9.92<br>(5.21) | 8.80<br>(4.09) | 219.00<br>(223.71) | 6.87          | 5.76   | 222.04 | 3.05          | 0.051                | 0.216             |
| BH6                   | SoilEng (2024)   | 226.20                    | 227.17             | 0.97    | 6.93           | 5.96           | 220.24             | 3.88          | 2.91   | 223.29 | 3.05          | 0.051                | 0.152             |
| Piezometers           |                  |                           |                    |         |                |                |                    |               |        |        |               |                      |                   |
| DP1D                  | Harden (2024)    | 224.18                    | 225.15             | 0.97    | 3.18           | 2.21           | 221.97             | 2.95          | 1.98   | 222.20 | 0.23          | 0.025                | 0.025             |
| DP1S                  | Harden (2024)    | 224.18                    | 224.86             | 0.68    | 1.64           | 0.96           | 223.22             | 1.41          | 0.73   | 223.45 | 0.23          | 0.025                | 0.025             |
| DP2                   | Harden (2024)    | 226.22                    | 227.17             | 0.95    | 1.96           | 1.01           | 225.21             | 1.73          | 0.78   | 225.44 | 0.23          | 0.025                | 0.025             |

Notes:

masl = metres above mean sea level

mbgs = metres below ground surface

mbtoc = metres below top of well casing

\* Ground surface elevations from SoilEng, 2024

*italicized* = measured well depth; MW5 presumed damaged at this depth

| Location              | Groundwater Levels |        |        |            |        |        |             |        |        |             |            |              |             |            |              |             |            |              |             |             |              |             |             |              |
|-----------------------|--------------------|--------|--------|------------|--------|--------|-------------|--------|--------|-------------|------------|--------------|-------------|------------|--------------|-------------|------------|--------------|-------------|-------------|--------------|-------------|-------------|--------------|
|                       | 2023-Nov-7         |        |        | 2023-Dec-6 |        |        | 2024-Apr-11 |        |        | 2024-Apr-22 |            |              | 2024-May-23 |            |              | 2024-Jun-05 |            |              | 2024-Jul-04 |             |              | 2024-Jul-19 |             |              |
|                       | (mbtoc)            | (mbgs) | (masl) | (mbtoc)    | (mbgs) | (masl) | (mbtoc)     | (mbgs) | (masl) | (mbtoc)     | (mbgs)     | (masl)       | (mbtoc)     | (mbgs)     | (masl)       | (mbtoc)     | (mbgs)     | (masl)       | (mbtoc)     | (mbgs)      | (masl)       | (mbtoc)     | (mbgs)      | (masl)       |
| Pit Wells             |                    |        |        |            |        |        |             |        |        |             |            |              |             |            |              |             |            |              |             |             |              |             |             |              |
| MW3                   | -                  | -      | -      | 19.29      | 18.59  | 190.51 | -           | -      | -      | -           | -          | -            | -           | -          | -            | 19.17       | 18.47      | 190.63       | 19.11       | 18.41       | 190.69       | 19.07       | 18.37       | 190.73       |
| MW10 (PW-1)           | -                  | -      | -      | 19.74      | 18.66  | 190.19 | -           | -      | -      | -           | -          | -            | -           | -          | -            | 19.60       | 18.52      | 190.33       | 19.55       | 18.47       | 190.38       | 19.55       | 18.47       | 190.38       |
| Dug Wells             |                    |        |        |            |        |        |             |        |        |             |            |              |             |            |              |             |            |              |             |             |              |             |             |              |
| Onsite Dug Well       | -                  | -      | -      |            | -      | -      | 0.93        | 0.53   | 225.77 | 0.67        | 0.27       | 226.03       | 1.11        | 0.71       | 225.59       | 1.33        | 0.93       | 225.37       | -           | -           | -            | 1.61        | 1.21        | 225.09       |
| Ditch Concrete Well   | 2.47               | 1.76   | 222.11 | 2.13       | 1.42   | 222.45 | 1.36        | 0.65   | 223.22 | 0.98        | 0.27       | 223.60       | 1.56        | 0.85       | 223.02       | 1.81        | 1.10       | 222.77       | -           | -           | -            | 2.24        | 1.53        | 222.34       |
| Ditch Corrugated Well | 1.81               | 0.68   | 221.23 | 1.61       | 0.48   | 221.43 | 1.22        | 0.09   | 221.82 | 1.15        | 0.02       | 221.89       | -           | -          | -            | 1.42        | 0.29       | 221.62       | -           | -           | -            | 1.76        | 0.63        | 221.28       |
| Monitoring Wells      |                    |        |        |            |        |        |             |        |        |             |            |              |             |            |              |             |            |              |             |             |              |             |             |              |
| BH1S                  | -                  | -      | -      | -          | -      | -      | -           | -      | -      | 1.30        | 0.31       | 224.34       | 1.81        | 0.82       | 223.83       | 2.12        | 1.13       | 223.52       | 2.63        | 1.64        | 223.01       | 2.74        | 1.75        | 222.90       |
| BH1D                  | -                  | -      | -      | -          | -      | -      | -           | -      | -      | DRY @ 9.73  | DRY @ 8.94 | DRY @ 215.71 | DRY @ 9.88  | DRY @ 9.09 | DRY @ 215.56 | DRY @ 9.87  | DRY @ 9.08 | DRY @ 215.57 | DRY @ 9.87  | DRY @ 9.08  | DRY @ 215.57 | DRY @ 9.90  | DRY @ 9.11  | DRY @ 215.54 |
| BH2S                  | -                  | -      | -      | -          | -      | -      | -           | -      | -      | 1.95        | 0.91       | 223.73       | 4.51        | 3.47       | 221.17       | 4.54        | 3.50       | 221.14       | 5.11        | 4.07        | 220.57       | 5.56        | 4.52        | 220.12       |
| BH2D                  | -                  | -      | -      | -          | -      | -      | -           | -      | -      | 9.78        | 8.69       | 216.02       | DRY @ 10.21 | DRY @ 9.17 | DRY @ 215.54 | DRY @ 10.21 | DRY @ 9.17 | DRY @ 215.54 | DRY @ 10.21 | DRY @ 9.17  | DRY @ 215.54 | DRY @ 10.16 | DRY @ 9.12  | DRY @ 215.59 |
| BH3                   | -                  | -      | -      | -          | -      | -      | -           | -      | -      | -           | -          | -            | -           | -          | -            | DRY @ 8.40  | DRY @ 7.37 | DRY @ 220.17 | DRY @ 8.33  | DRY @ 7.30  | DRY @ 220.24 | DRY @ 8.40  | DRY @ 7.37  | DRY @ 220.17 |
| BH4                   | -                  | -      | -      | -          | -      | -      | -           | -      | -      | -           | -          | -            | 11.29       | 10.07      | 215.43       | 11.63       | 10.41      | 215.09       | DRY @ 13.11 | DRY @ 11.88 | DRY @ 213.62 | DRY @ 13.09 | DRY @ 11.86 | DRY @ 213.64 |
| BH5                   | -                  | -      | -      | -          | -      | -      | -           | -      | -      | -           | -          | -            | 2.28        | 1.17       | 226.63       | 2.37        | 1.26       | 226.54       | 3.69        | 2.58        | 225.22       | 3.85        | 2.74        | 225.06       |
| BH6                   | -                  | -      | -      | -          | -      | -      | -           | -      | -      | 3.23        | 2.26       | 223.94       | 3.51        | 2.54       | 223.66       | 3.75        | 2.78       | 223.42       | 4.09        | 3.12        | 223.08       | 4.42        | 3.45        | 222.75       |
| Piezometers           |                    |        |        |            |        |        |             |        |        |             |            |              |             |            |              |             |            |              |             |             |              |             |             |              |
| DP1D                  | -                  | -      | -      | -          | -      | -      | -           | -      | -      | 0.63        | -0.34      | 224.52       | 2.38        | 1.41       | 222.77       | 2.47        | 1.50       | 222.68       | 2.77        | 1.80        | 222.38       | 2.83        | 1.86        | 222.32       |
| DP1D-SW               | -                  | -      | -      | -          | -      | -      | -           | -      | -      | 0.63        | -0.35      | 224.52       | DRY @ 0.97  | DRY @ 0.00 | DRY @ 224.18 | DRY @ 0.97  | DRY @ 0.00 | DRY @ 224.18 | DRY @ 0.97  | DRY @ 0.00  | DRY @ 224.18 | DRY @ 0.97  | DRY @ 0.00  | DRY @ 224.18 |
| DP1S                  | -                  | -      | -      | -          | -      | -      | -           | -      | -      | 0.35        | -0.33      | 224.51       | -           | -          | -            | DRY @ 1.64  | DRY @ 0.96 | DRY @ 223.22 | DRY @ 1.64  | DRY @ 0.96  | DRY @ 223.22 | DRY @ 1.64  | DRY @ 0.96  | DRY @ 223.22 |
| DP1S-SW               | -                  | -      | -      | -          | -      | -      | -           | -      | -      | 0.36        | -0.33      | 224.50       | DRY @ 0.68  | DRY @ 0.00 | DRY @ 224.18 | DRY @ 0.68  | DRY @ 0.00 | DRY @ 224.18 | DRY @ 0.68  | DRY @ 0.00  | DRY @ 224.18 | DRY @ 0.68  | DRY @ 0.00  | DRY @ 224.18 |
| DP2                   | -                  | -      | -      | -          | -      | -      | -           | -      | -      | 0.86        | -0.10      | 226.32       | 0.94        | -0.01      | 226.23       | 1.38        | 0.43       | 225.79       | 1.91        | 0.96        | 225.26       | DRY @ 1.96  | DRY @ 1.01  | DRY @ 225.21 |
| DP2-SW                | -                  | -      | -      | -          | -      | -      | -           | -      | -      | 0.87        | -0.08      | 226.30       | 0.91        | -0.04      | 226.26       | DRY @ 0.95  | DRY @ 0.00 | DRY @ 226.22 | DRY @ 0.95  | DRY @ 0.00  | DRY @ 226.22 | DRY @ 0.95  | DRY @ 0.00  | DRY @ 226.22 |

Notes:  
masl = metres above mean sea level  
mbgs = metres below ground surface  
mbtoc = metres below top of well casing  
'-' = data not available