July 29, 2026
PG8011-LET.01 Revision 5

**Forum Investment and Development Corporation**
181 Bay Street
East Podium – 2nd Floor
Toronto, Ontario
M5J 2T3

**Attention:** **Stuart Cooper**

**Subject:** **Geotechnical Desktop Slope Stability Assessment**
Proposed Residential Development
530 Brisebois Cres. & Part of 265 Centrum Blvd.
Ottawa, Ontario

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Geotechnical Engineering
Environmental Engineering
Hydrogeology
Materials Testing
Building Science
Rural Development Design
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Noise and Vibration Studies

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Dear Stuart,

Further to your request and authorization, Paterson Group (Paterson) prepared this letter report to provide our geotechnical desktop slope stability assessment of the existing escarpment slope south of St. Joseph Boulevard, in support of the proposed residential development at the subject site. In particular, the primary purpose of the geotechnical review is to assess the stability of the existing slope at the subject site in relation to the proposed shoreline rehabilitation works to be completed along the northeastern property boundary.

## 1.0 Background Information

The desktop slope stability analysis described in the present report was undertaken in response to the April 2026 Guidance letter (referred to as “Guidance letter” in this report) provided by the City of Ottawa outlining requirements for assessing the presence of clay soils susceptible to retrogressive landslides within the nearby escarpment slope. The present report was prepared to investigate the potential exemption for escarpment slopes, particularly the existing escarpment slope located along the southern side of St. Joseph Boulevard, approximately 180 m south of the proposed residential development.

In summary, the Guidance letter recommends that the following criteria be determined prior to confirming whether an escarpment slope may be deemed exempt from the minimum field and laboratory requirements outlined in the Guidance letter: *demonstrates that the escarpment slope meets the minimum factors of safety as follows:*

- ❑ ≥ 1.5 under static conditions
- ❑ ≥ 1.1 under seismic conditions
- ❑ ≥ 1.3 under post-seismic conditions

The following sections present the methodologies, assumptions, and existing data used in the analysis, along with a summary and discussion of the results of the desktop slope stability analysis completed by Paterson. The assessment was prepared based on the methodology outlined in the Guidance letter and based on consultations with the City of Ottawa Development Review and Rideau Valley Conservation Authority (RVCA) staff.

# 2.0 Proposed Development

Based on our review of available reports and site plan documents, it is understood that the proposed development will consist of a multi-storey community centre building and several mid- and high-rise residential buildings. It is understood that the proposed buildings will be provided with one level of underground parking. The approximate site location is shown in the attached Figure 1 – Key Plan.

# 3.0 Existing Geotechnical Information

## 3.1 Surface Conditions and Topography

**Escarpment Slope – South Side of St. Joseph Boulevard**

Paterson field personnel completed a walkthrough and visual assessment of the subject escarpment slope along the south side of St. Joseph Boulevard on April 28, 2026. At the time of the site visit, the escarpment slope profile was observed to generally contain dense, mature, medium-sized trees, with some fallen trees noted throughout the area. The trees were generally observed to extend vertically from the existing ground surface with no evidence of curving or bending at their bases. Such curvature is commonly associated with gradual slope movement or instability, where trees tilt as the slope slowly displaces and subsequently correct their vertical growth, resulting in a curved trunk base. Gravel pedestrian pathways were noted throughout, providing access from the roadways located at the top of escarpment slope to St. Joseph Boulevard below.

Several segmental block retaining walls were noted at the base of the escarpment slope, while a stacked armor stone retaining wall was noted further up the slope along the south side of Prestone Drive. It should be noted that the majority of the segmental block retaining wall located at the base of the escarpment slope between Vieux-Silo Street and Tenth Line Road was noted to be founded over a limestone bedrock outcrop. The limestone bedrock outcrop was observed extending eastward through and beyond the intersection of Tenth Line Road and St. Joseph Boulevard.

Paterson completed a review of the general topography of the subject escarpment slope based on available LiDAR topographic data (2015). The steepest sections of the subject escarpment slope were noted to generally extend from top of slope to bottom of slope geodetic elevation 86 m to a bottom of slope geodetic elevation 72 m. The inclination was generally noted to range between 9° and 16.5° (16% and 30%) throughout the unsupported sections of the escarpment slope.

The existing average ground surface elevation across the top of the escarpment slope was noted to be relatively flat and at-grade with the surrounding areas and streets, ranging between approximate geodetic elevations 87 to 88 m. The ground surface elevation across the bottom of the escarpment slope was noted to slope gently east to west along St. Joseph Boulevard between approximate geodetic elevations 75 to 70 m, respectively.

**North of Escarpment Slope – North Side of St. Joseph Boulevard & Subject Site**

The existing average ground surface elevation north of the subject escarpment slope (towards and including the subject site), were noted to downwards slope gently northward from St. Joseph Boulevard between approximate geodetic elevations 72 to 65 m. The properties to the north of the subject escarpment slope were noted to include one- and two-storey commercial buildings, multi storey residential and municipal buildings, parking lots, and landscaped areas.

The subject site parcels, 530 Brisebois Crescent and Part of 265 Centrum Boulevard, were noted to be vacant. The 530 Brisebois Crescent parcel as noted to consist of vacant grassed land with the southern half of the parcel containing dense medium sized trees, and was noted to border Highway 174 to the immediate north. The Part of 265 Centrum Boulevard parcel was noted to consist of grassed land with several medium to large sized trees sparsely placed throughout.

## 3.2 Escarpment Slope Subsurface Conditions

**Overburden**

Paterson completed a review of several borehole log reports completed historically by Paterson and by others that were previously advanced within the top side of the subject escarpment slope (south of St. Joseph Boulevard). Further, Paterson completed a review of the borehole log reports advanced by others north of the escarpment slope and within the subject site boundary. Generally, based on our review and our knowledge of the area, the subsurface soil profile typically consists of topsoil underlain by a layer of desiccated brown silty clay crust, further underlain by a layer of unweathered grey silty clay, further underlain by a glacial till deposit and underlying bedrock formation.

**Bedrock**

Based on available geological mapping, the bedrock below the subject escarpment slope consists of limestone of the Bobcaygeon formation with an approximate overburden drift thickness ranging between 0 to 15 m. *It should be noted that geological mapping is approximate and published data may vary from in-situ conditions.* Further, it should be noted that the slope stability analysis presented herein does not rely on the bedrock depths from the above-noted available geological mapping. Reference should be made to the slope stability section of this report for more information and clarification.

### Groundwater

Groundwater levels were previously measured in piezometers and monitoring wells within the boreholes from the surrounding investigations completed at nearby properties along the high side of the subject escarpment slope. The long-term groundwater level can also be estimated based on moisture levels, consistency, and coloring of the recovered samples. Based on the existing groundwater information and our knowledge of the groundwater within the nearby properties, the long-term groundwater level is estimated to be between **3 and 5 m** below the existing ground surface. However, for slope stability analysis purposes, the long-term groundwater level has been conservatively considered to be **1.5 m** below the existing ground surface. Reference should be made to the slope stability analysis section of the present report.

# 4.0 Geotechnical Desktop Slope Stability Analysis

## 4.1 Considerations and Assumptions

### Background Information

The revised slope stability analysis presented herein was completed following discussions with the RVCA, during which the technical review comments and report contents were discussed in further detail. The revised analysis considers the feedback provided by each party with respect to the relevant discussion items.

### Existing Slope Profile Topography

The slope stability analysis was completed using the existing slope topography derived from available LiDAR topographic data (2015). To verify the accuracy and suitability of the LiDAR data for the assessment, Paterson completed topographic survey shots during our site visit on April 29, 2026, using a high-precision GPS unit. The field survey observations and spot check survey shots generally confirmed the accuracy of the LiDAR-derived slope profile relied upon in the analysis.

### Subsurface Information

The slope stability analysis was completed using available nearby and surrounding subsurface investigation data, including historical borehole logs and in-situ shear strength testing results, to assess the anticipated stratigraphy, soil strength parameters, and bedrock profile along the analyzed slope cross-section. As intrusive field investigations were not completed at the exact analyzed location, the subsurface profile and associated soil strength parameters incorporated into the analysis were selected conservatively to provide a reasonable worst-case assessment of slope stability conditions.

Paterson completed a review of several historical borehole investigation reports from test holes previously advanced south of the high side of the subject escarpment slope. The reviewed borehole data generally demonstrated consistent subsurface conditions and soil strength characteristics throughout the local silty clay deposit, with no significant stratigraphic discontinuities identified between investigation locations. Based on this consistency, Paterson considers the available nearby subsurface information to be representative and suitable for desktop slope stability assessment purposes.

The analysis approach adopted herein incorporates conservative assumptions regarding both soil strength and bedrock geometry to account for the limitations associated with the absence of site-specific intrusive investigations at the analyzed cross-section. Reference should be made to Drawings *PG8011-1 – Test Hole Location Plan* and *PG8011-2 Extrapolated Borehole Data Cross-Section* attached to the present report for the approximate borehole locations considered in our assessment.

**Subsoil Stratigraphy**

*Brown Silty Clay*

Based on the reviewed nearby borehole data, the upper brown silty clay crust was noted to exhibit a hard to very stiff consistency, with Standard Penetration Test (SPT) N-values generally ranging from approximately 12 to 16 blows per 300 mm and undrained shear strength values ranging between approximately 100 and 240 kPa. This layer was noted to generally extend from the existing ground surface to an approximate depth of 2 m below the existing ground surface. Beneath the crust, a transitional very stiff to stiff brown silty clay layer was noted, generally characterized by SPT N-values below 10 and undrained shear strength values ranging between approximately 50 and 210 kPa. This layer was noted to extend from approximately 2 to 3 m below the existing ground surface.

*Grey Silty Clay*

The underlying grey silty clay deposit was noted to exhibit a stiff to firm consistency with undrained shear strength values generally ranging between approximately 25 and 97 kPa. This layer was noted to extend from approximately 3 to 5 m below the existing ground surface. Beneath this layer, a firm grey silty clay was noted, generally characterized by undrained shear strength values ranging between approximately 22 and 52 kPa. This layer was noted to extend from approximately 5 to 11 m below the existing ground surface.

*Glacial Till and Bedrock*

Glacial till deposits were identified within portions of the reviewed historical test hole and well record datasets and were intentionally omitted from the modeled stratigraphy to maintain a conservative approach and to avoid incorporating additional stabilizing benefit associated with the presence of higher-strength materials.

**Strength Parameter Selection Background Information**

The soil strength parameter selection was completed conservatively to reflect potential variability in subsurface conditions across the subject silty clay deposit. The undrained shear strength profile was developed by grouping the undrained shear strength testing results into geologically consistent layers based on the observed changes in physical characteristics and measured shear strength values. For each layer, the average undrained shear strength was determined from the available nearby field vane data.

To provide a conservative approach that reflects the observed variability within each layer, the design undrained shear strength was selected by subtracting the standard deviation from the calculated mean strength for each layer. Further, given the absence of undrained shear strength values deeper than 11 m, the undrained shear strength of the grey silty clay below 11 m was assumed to not increase with depth but rather was assigned the same value as the deepest available undrained shear strength data (i.e. the same as the firm grey silty clay layer). This approach provides a representative lower-bound estimate of the available undrained shear strength data while accounting for potential variability throughout the deposit.

The post-seismic slope stability assessment was completed using a strain-softened undrained shear strength approach to account for the potential cyclic degradation of the silty clay soils following seismic loading. The assessment methodology considers the post-cyclic degradation approach presented by Ajmera (2015)[1], while considering its applicability based on published cyclic loading studies and literature on sensitive Champlain Sea clays in eastern Ontario and Quebec, including Mitchell and King (1977)[2] and LeBoeuf et al. (2016)[3].

The Canadian Foundation Engineering Manual (CFEM) (2023) criterion regarding the potential use of remoulded shear strength was also considered. Although the subject clay exhibits high sensitivity, remoulded shear strength represents a fully de-structured soil condition associated with large strain deformation and substantial breakdown of the natural clay fabric. The available Canadian-based literature indicates that cyclic degradation of Champlain Sea clay is progressive and governed by stress level, pore pressure response, and the accumulation of cyclic strains, rather than an immediate transition to a fully remoulded condition.

Of particular relevance, LeBoeuf et al. (2016) reported that Rigaud clay (located roughly 100km east of Ottawa within the historical Champlain Sea) subjected to approximately 150 loading cycles at a cyclic deviatoric stress equal to approximately 80% of the sample's undrained shear strength did not exhibit a significant reduction in subsequent peak undrained shear strength.

[1] Ajmera, Beena. (2015). Factors Influencing the Post-Earthquake Shear Strength.
[2] Mitchell and King. (1977). Cyclic loading of an Ottawa area Champlain Sea Clay.
[3] LeBoeuf, Denis. (1977). Cyclic Softening and Failures in Sensitive Clays and Silts.

Considering the available cyclic loading research, the limited number of significant stress cycles anticipated during a design earthquake in eastern Ontario, and the calculated seismic factor of safety exceeding 1.1 (as discussed in subsequent sections of the present report), widespread deformation and the large strains required to fully de-structure the clay deposit are not anticipated. As such, the use of fully remoulded shear strength for the post-seismic assessment is not considered representative of the anticipated in-situ response for the subject escarpment slope.

Accordingly, a post-seismic degradation ratio of $\delta = 0.67$ was adopted and was considered to provide a conservative representation of a degraded, but not fully remoulded, undrained shear strength condition for the post-seismic slope stability assessment.

**Strength Parameters**

The soil strength parameters presented in Table 1, 2 and 3 were considered for the slope stability analysis under Static, Seismic, and Post-Seismic conditions, respectively.

**Table 1 – Effective Stress Soil Parameters (Static Analysis)**

| Soil Layer | Unit Weight ($kN/m^3$) | Friction Angle (degrees) | Cohesion (kPa) |
|---|---|---|---|
| Brown Silty Clay Crust | 17 | 33 | 5 |
| Brown Silty Clay | 17 | 33 | 5 |
| Stiff to Firm Grey Silty Clay | 16 | 33 | 10 |
| Firm Grey Silty Clay | 16 | 33 | 10 |
| Bedrock | 21 | - | - |

**Table 2 – Total Stress Soil Parameters (Seismic Analysis)**

| Soil Layer | Unit Weight ($kN/m^3$) | Friction Angle (degrees) | Cohesion (kPa) |
|---|---|---|---|
| Brown Silty Clay Crust | 17 | 0 | 157 |
| Brown Silty Clay | 17 | 0 | 75 |
| Stiff to Firm Grey Silty Clay | 16 | 0 | 32 |
| Firm Grey Silty Clay | 16 | 0 | 28 |
| Bedrock | 21 | - | - |

| Table 3 – Residual Total Stress Soil Parameters (Post-Seismic Analysis) | | | |
|---|---|---|---|
| **Soil Layer** | **Unit Weight ($kN/m^3$)** | **Friction Angle (degrees)** | **Cohesion (kPa)** |
| Brown Silty Clay Crust | 17 | 0 | 105 |
| Brown Silty Clay | 17 | 0 | 50 |
| Stiff to Firm Grey Silty Clay | 16 | 0 | 22 |
| Firm Grey Silty Clay | 16 | 0 | 19 |
| Bedrock | 21 | - | - |

## Bedrock Profile

The slope stability analysis considers a bedrock surface elevation tapering from north to south between approximate elevation 66.9 m beyond the toe of slope (towards the north), and 56.6 m beyond the top of slope (towards the south). These interpolated bedrock surface elevations are based on nearby borehole rock coring data obtained from borehole BH25-08 completed by others at 265 Centrum Boulevard (located within the subject site to the north of the subject escarpment slope toe) and nearby Dynamic Cone Penetration Testing (DCPT) refusal obtained from borehole BH 5-23 previously completed to the south of the subject escarpment slope by Paterson. Nearby Ontario Well Record data was reviewed as to confirm the general bedrock surface depth to support the suitability of the DCPT refusal depth.

It should be noted that evidence of localized upward undulations in the bedrock surface is present based on visible bedrock outcrops along St. Joseph Boulevard between Vieux-Silo Road and Tenth Line Road, as well as south of the St. Joseph Boulevard and Tenth Line Road intersection along Tenth Line Road. Similar indications of shallower bedrock conditions were also identified within nearby Ontario Geological Survey (OGS) borehole 804200 located east of the analyzed escarpment near the intersection of Tenth Line Road and St. Joseph Boulevard.

Despite these observations, a relatively uniform and deeper bedrock profile was assumed within the analysis to maintain a conservative assessment and eliminate any potential benefit associated with shallower bedrock conditions. Visible bedrock outcrops and well records locations considered in the analysis are presented on Drawing PG8011-1 – Test Hole Location Plan attached to the present report.

## Groundwater

The groundwater table depth incorporated into the slope stability analysis was assigned a depth limited by foundation drainage systems and hardscaping and considered as **1.5 m** below the existing ground surface, which is considered the minimum founding depth below ground surface for heated occupied structures to be founded below the local depth of frost migration.

## 4.2 Slope Stability Analysis

### Analysis Methodology

One (1) cross-section (Section A) was studied as a worst-case scenario. The location of Section A was selected to model the slope in its unsupported state rather than relying on the potential stability increase that the various existing retaining walls along the subject escarpment slope toe would provide. The cross-section location is presented on Drawing PG8011-1 – Test Hole Location Plan, attached to the present report.

The slope stability analysis was carried out using SLIDE, a computer program which permits a two-dimensional slope stability analysis using several methods including Bishop's method, which is a widely used and accepted analysis method. The program calculates a factor of safety, which represents the ratio of the forces resisting failure to those favoring failure.

Theoretically, a factor of safety of 1.0 represents a condition where the slope is stable. However, due to intrinsic limitations of the calculation methods and variability of the subsoil and groundwater conditions, a factor or safety greater than one is usually required to ascertain the risks of failure is acceptable. A minimum factor of safety of 1.5 is generally recommended under static conditions where the failure of the slope would endanger permanent structures. A factor of safety of 1.1 is considered to be satisfactory for stability analysis considering seismic loading.

### Analysis Results

*Static Loading*

The results of the existing escarpment slope under static loading conditions at Section A are shown in Figure 1A attached to the present report. The overall slope stability factor of safety for the subject section was found to be greater than 1.5. As such, a stable slope allowance setback is not required for the subject escarpment slope under static conditions.

*Seismic Loading*

An analysis considering seismic loading was also completed as part of the slope stability analysis. A horizontal seismic loading acceleration, Kh, of 0.2g was considered for the analyzed section. The results of the existing escarpment slope under seismic loading conditions at Section A are shown in Figure 1B attached to the present report. The overall slope stability factor of safety for the subject section was found to be greater than 1.1. As such, a stable slope allowance setback is not required for the subject escarpment slope under seismic conditions.

*Post-Seismic Loading*

An analysis considering post-seismic loading was also completed as part of the slope stability analysis. Reduced undrained shear strength values were considered for the analyzed section, as discussed in previous sections of the present report. The results of the existing escarpment slope under post-seismic loading conditions at Section A are shown in Figure 1C attached to the present report. The overall slope stability factor of safety for the subject section was found to be greater than 1.3. As such, a stable slope allowance setback is not required for the subject escarpment slope under post-seismic conditions.

**Sensitivity Analysis**

A series of sensitivity analyses were completed as part of the revised slope stability assessment to evaluate the influence of uncertainty associated with the interpreted subsurface conditions, groundwater levels and adopted undrained shear strength parameters. These analyses were completed to support the conservative approach of the slope stability model, recognizing that subsurface conditions were interpolated from the available borehole data in the vicinity of the analyzed cross-section.

*High-Groundwater Scenario*

A high groundwater sensitivity analysis was completed with the groundwater table placed at the existing ground surface to assess the potential influence of adverse groundwater conditions that may occur during periods of significant snowmelt or precipitation. The results of the analyses completed using both groundwater conditions indicated that the calculated factors of safety remained above the minimum values required by the Guidance letter. The results of the high-groundwater scenario analysis yielded factors of safety of 1.63, 1.27, and 1.43 under static, seismic, and post-seismic loading conditions, respectively. Reference should be made to Figures 2A to 2C attached to the present report.

*Undrained Shear Strength*

Sensitivity analyses were also completed to assess the influence of the adopted undrained shear strength profile. As mentioned in previous sections of this report, the undrained shear strength values were developed from a statistical interpretation of the available field vane test data and were conservatively selected as the mean value less one standard deviation for each interpreted layer of the deposit. To further assess the reliability of the stability results, an additional sensitivity analysis was completed using an additional 10% reduction in the already conservatively selected undrained shear strength values for the seismic and post-seismic loading conditions.

The results of the reduced undrained shear strength analysis yielded factors of safety of 1.14 and 1.32 under seismic and post-seismic conditions, respectively. Both results are greater than the minimum values required by the Guidance letter under seismic and post-seismic conditions. Reference should be made to Figures 3A to 3B attached to the present report.

**Concluding Remarks**

Based on our review and analysis, the subject escarpment slope was found to satisfy and exceed the minimum factors of safety of 1.5, 1.1, and 1.3 under static, seismic, and post-seismic conditions, respectively. Based on the results of the assessment, a stable slope allowance setback is not considered necessary for the subject escarpment slope. Furthermore, given the absence of an active watercourse or evidence of significant toe erosion processes at the base of the slope, neither toe erosion nor erosion access setbacks are considered warranted for the subject site.

The sensitivity analyses demonstrate that the conclusions of the slope stability assessment are not significantly affected by reasonable variations in the interpreted groundwater conditions or undrained shear strength parameters. The results further support that the adopted subsurface model and input parameters provide a conservative assessment of the stability of the subject escarpment slope.

Based on the above, Paterson considers the subject escarpment slope exempt from the minimum field investigation and laboratory testing requirements outlined within the aforementioned Guidance letter. Accordingly, Paterson finds the subject site parcels located north of the escarpment slope suitable for the proposed development from a geotechnical and slope stability perspective.

## 5.0 Statement of Limitations

The recommendations made in this report are in accordance with our present understanding of the project. A desktop investigation is a limited investigation of a site. Should any conditions at the site be encountered which differ from those at the test locations, we request that we be notified immediately in order to permit reassessment of our recommendations.

The present report applies only to the project described in this document. Use of this report for purposes other than those described herein or by person(s) other than Forum Investment and Development Corporation or their agents, without review by this firm for the applicability of our recommendations to the altered use of the report.

We trust that the current submission meets your immediate requirements.

Best Regards,

**Paterson Group Inc**.


Nicholas F. R. Versolato, P.Eng., ing.

Drew Petahtegoose, P.Eng.

**Attachments:**

- ❑ Soil Profile and Test Data Sheets.
- ❑ Atterberg Limits Results.
- ❑ Well Records.
- ❑ Figure 1 – Key Plan.
- ❑ Figures 1A to 3B – Slope Stability Analysis.
- ❑ Drawing PG8011-1 – Test Hole Location Plan.
- ❑ Drawing PG8011-2 - Extrapolated Borehole Data Cross-Section.

**Report Distribution**

- ❑ Forum Investment and Development Corporation (e-mail copy)
- ❑ Paterson Group (1 copy)

# Log of Borehole BH 25-08

Project No: OTT-22022218-A0

Project: High-Rise Commercial And Residential Development

Location: 530 Brisebois Cres. Part of 265 Centrum Blvd. (Forum Lands), Ottawa, ON

Figure No. 10

Page. 1 of 1

Date Drilled: 'August 14, 2025

Drill Type: CME-55LC Rubber Track Mounted Drill Rig

Datum: Geodetic Elevation

Logged by: MZ Checked by: SMP

Split Spoon Sample ⊠ | Auger Sample ◧ | SPT (N) Value ○ | Dynamic Cone Test —— | Shelby Tube ■ | Shear Strength by Vane Test +S

Combustible Vapour Reading □ | Natural Moisture Content × | Atterberg Limits —○— | Undrained Triaxial at % Strain at Failure ⊕ | Shear Strength by Penetrometer Test ▲

| GWL | SYMBOL | SOIL DESCRIPTION | Geodetic Elevation m | Depth |
|---|---|---|---|---|
| | | **TOPSOIL** ~ 50 mm thick | 69.52 | 0 |
| | | **FILL** | 69.5 | |
| | | Mixture of silty sand and gravel, cobbles and boulders, trace clay, brown and grey, damp, no odours, no stains, (compact to very dense) | | 1 |
| | | Auger grinding on possible cobbles and boulders from ground suface to 2.3 m depth | | 2 |
| | | **HIGHLY WEATHERED LIMESTONE BEDROCK** | 67.2 | |
| | | Grey | 66.9 | |
| | | **LIMESTONE BEDROCK** | | 3 |
| | | With shale partings, grey, fair to excellent quality | | 4 |
| | | With clay seams from 3.0 m to 4.5 m depths | | 5 |
| | | | 63.72 | 6 |
| | | **Borehole Terminated at 6.2 m Depth** | 63.3 | |

Standard Penetration Test N Value: 20 40 60 80 — Shear Strength kPa: 50 100 150 200

Combustible Vapour Reading (ppm): 250 500 750 — Natural Moisture Content % Atterberg Limits (% Dry Weight): 20 40 60

22 | 60 | 36 | 15 the 50 for 125 mm

| SAMPLES | Natural Unit Wt. kN/m³ |
|---|---|
| SS1 | |
| SS2 | |
| SS3 | |
| SS4 | |
| RUN1 | |
| RUN2 | |
| RUN3 | |

LOG OF BOREHOLE BH-LOGS - 265 CENTRUM BLVD.GPJ TROW OTTAWA.GDT 12/2/25

NOTES:

1. Borehole data requires interpretation by EXP before use by others
2. A 19 mm diameter standpipe was installed to 6.2 m.
3. Field work was supervised by an EXP representative.
4. See Notes on Sample Descriptions
5. Log to be read with EXP Report OTT-22022218-A0

WATER LEVEL RECORDS

| Date | Water Level (m) | Hole Open To (m) |
|---|---|---|
| 'September 26, 2025 | 5.8 | |

CORE DRILLING RECORD

| Run No. | Depth (m) | % Rec. | RQD % |
|---|---|---|---|
| 1 | 2.6 - 3 | 93 | 93 |
| 2 | 3 - 4.5 | 85 | 56 |
| 3 | 4.5 - 6.2 | 95 | 70 |

# SOIL PROFILE AND TEST DATA

## GEOTECHNICAL INVESTIGATION

1445 rue Duford, Orléans, Ontario

**DATUM:** Geodetic **EASTING:** 382392.361 **NORTHING:** 5037474.207 **ELEVATION:** 87.13 m

**PROJECT:** Proposed Modular Classroom Addition - La Source School

**BORINGS BY:** CME 55 Low Clearance Power Auger

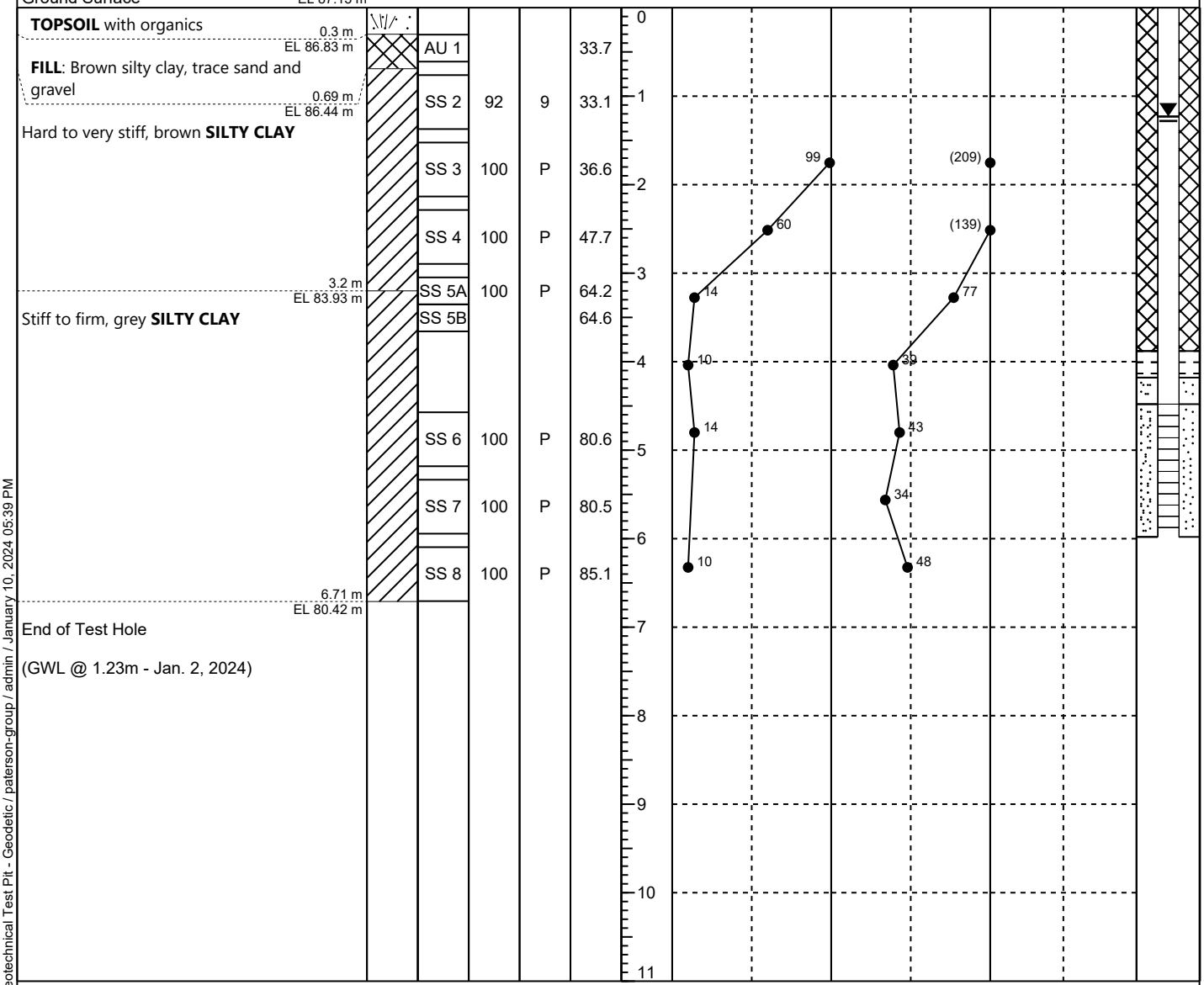
**REMARKS:**

**DATE:** December 20, 2023

**FILE NO.** **PG6942**

**HOLE NO.** BH 1-23

| SAMPLE DESCRIPTION | STRATA PLOT | Sample No. | SAMPLE % RECOVERY | N VALUE or RQD | WATER CONTENT % | DEPTH (m) |
|---|---|---|---|---|---|---|
| Ground Surface EL 87.13 m | | | | | | 0 |
| **TOPSOIL** with organics 0.3 m EL 86.83 m | | AU 1 | | | 33.7 | |
| **FILL**: Brown silty clay, trace sand and gravel 0.69 m EL 86.44 m | | SS 2 | 92 | 9 | 33.1 | 1 |
| Hard to very stiff, brown **SILTY CLAY** | | SS 3 | 100 | P | 36.6 | 2 |
| | | SS 4 | 100 | P | 47.7 | |
| 3.2 m EL 83.93 m | | SS 5A | 100 | P | 64.2 | 3 |
| Stiff to firm, grey **SILTY CLAY** | | SS 5B | | | 64.6 | |
| | | SS 6 | 100 | P | 80.6 | 4 5 |
| | | SS 7 | 100 | P | 80.5 | 6 |
| | | SS 8 | 100 | P | 85.1 | 7 8 9 10 |
| 6.71 m EL 80.42 m | | | | | | 11 |
| End of Test Hole | | | | | | |
| (GWL @ 1.23m - Jan. 2, 2024) | | | | | | |



# SOIL PROFILE AND TEST DATA

## GEOTECHNICAL INVESTIGATION

1445 rue Duford, Orléans, Ontario

**DATUM:** Geodetic **EASTING:** 382396.669 **NORTHING:** 5037462.085 **ELEVATION:** 87.06 m

**PROJECT:** Proposed Modular Classroom Addition - La Source School

**BORINGS BY:** CME 55 Low Clearance Power Auger

**REMARKS:**

**DATE:** December 20, 2023

**FILE NO.** **PG6942**

**HOLE NO.** BH 2-23

| SAMPLE DESCRIPTION | STRATA PLOT | Sample No. | SAMPLE % RECOVERY | N VALUE or RQD | WATER CONTENT % | DEPTH (m) | Remoulded Shear Strength (kPa) | Peak Shear Strength (kPa) | Pen. Resist. Blows/0.3m (50 mm Dia. Cone) | Piezometer Construction |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 0 50 100 | 0 50 100 | 0 50 100 | |
| Ground Surface EL 87.06 m | | | | | | | | | | |
| **TOPSOIL** with organics 0.28 m EL 86.78 m | | AU 1 | | | 40.7 | 0 | | | | |
| **FILL**: Brown silty clay, trace sand and gravel 0.69 m EL 86.37 m | | SS 2 | 92 | 11 | 36.2 | 1 | | | | |
| Hard to stiff, brown **SILTY CLAY** | | SS 3 | 100 | P | 36.1 | 2 | 99 | (229) | | |
| - Stiff by 2.3m depth | | SS 4 | 100 | P | 52.6 | 3 | 20 10 10 10 10 12 | 99 39 43 43 43 51 | | |
| 2.97 m EL 84.09 m | | | | | | | | | | |
| Firm to stiff, grey **SILTY CLAY** | | SS 5 | 100 | P | 71.5 | 4 | | | | |
| | | SS 6 | 100 | P | 69.5 | 5 | | | | |
| | | SS 7 | 100 | P | 77.3 | 6 | | | | |
| | | SS 8 | 100 | P | 87 | 7 | | | | |
| 6.71 m EL 80.35 m | | | | | | 8 | | | | |
| End of Test Hole | | | | | | 9 | | | | |
| (GWL @ 1.59m - Jan. 2, 2024) | | | | | | 10 | | | | |
| | | | | | | 11 | | | | |

# SOIL PROFILE AND TEST DATA

## GEOTECHNICAL INVESTIGATION

1445 rue Duford, Orléans, Ontario

**DATUM:** Geodetic **EASTING:** 382377.116 **NORTHING:** 5037454.197 **ELEVATION:** 87.25 m

**PROJECT:** Proposed Modular Classroom Addition - La Source School

**BORINGS BY:** CME 55 Low Clearance Power Auger

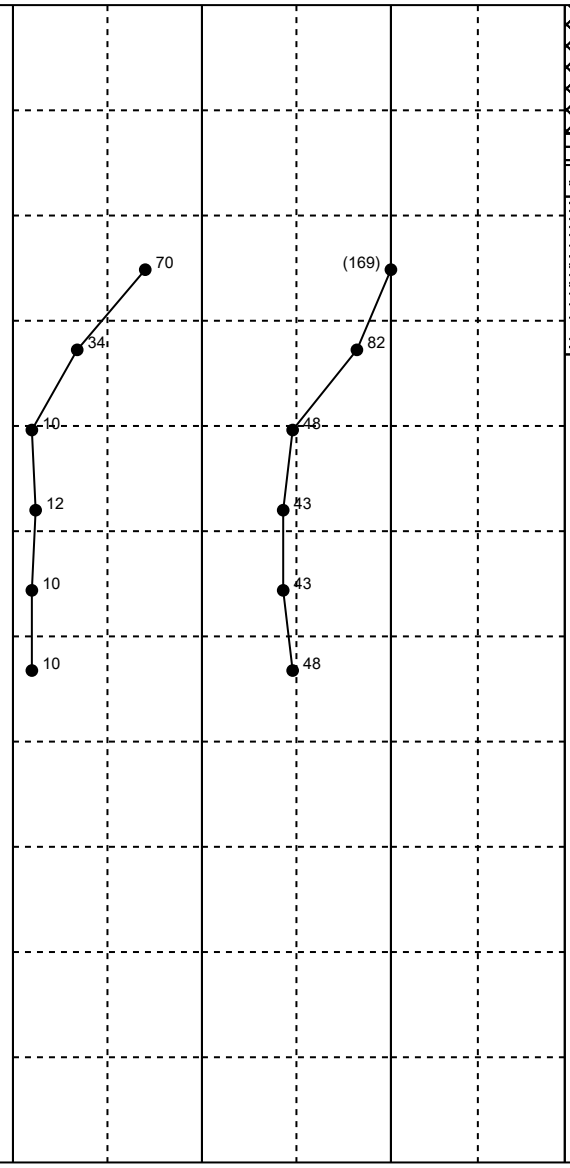
**REMARKS:**

**DATE:** December 20, 2023

**FILE NO.** **PG6942**

**HOLE NO.** BH 3-23

| SAMPLE DESCRIPTION | STRATA PLOT | Sample No. | SAMPLE % RECOVERY | N VALUE or RQD | WATER CONTENT % | DEPTH (m) |
|---|---|---|---|---|---|---|
| Ground Surface EL 87.25 m | | | | | | 0 |
| **Asphaltic concrete** 0.04 m EL 87.21 m | | AU 1 | | | 3.6 | |
| **FILL**: Brown silty sand with gravel and crushed stones 0.69 m EL 86.56 m | | SS 2 | 92 | 12 | 33.7 | 1 |
| Hard to very stiff, brown **SILTY CLAY** | | SS 3 | 92 | 11 | 34.9 | |
| - stiff by 3.0m depth | | SS 4 | 100 | P | 38.4 | 2 |
| 3.35 m EL 83.9 m | | SS 5A | 100 | P | 45 | 3 |
| Firm, grey **SILTY CLAY**, some sand seams | | SS 5B | | | 68.6 | |
| | | G 6 | | | 73.9 | 4 |
| | | SS 7 | 100 | P | 77.2 | 5 |
| | | | | | | 6 |
| | | SS 8 | 100 | P | 85.2 | |
| 6.71 m EL 80.54 m | | | | | | 7 |
| End of Test Hole | | | | | | 8 |
| (GWL @ 1.28m - Jan. 2, 2024) | | | | | | 9 |
| | | | | | | 10 |
| | | | | | | 11 |



# SOIL PROFILE AND TEST DATA

## GEOTECHNICAL INVESTIGATION

1445 rue Duford, Orléans, Ontario

**DATUM:** Geodetic **EASTING:** 382372.19 **NORTHING:** 5037465.851 **ELEVATION:** 87.34 m

**PROJECT:** Proposed Modular Classroom Addition - La Source School

**BORINGS BY:** CME 55 Low Clearance Power Auger

**REMARKS:**

**DATE:** December 20, 2023

**FILE NO.** **PG6942**

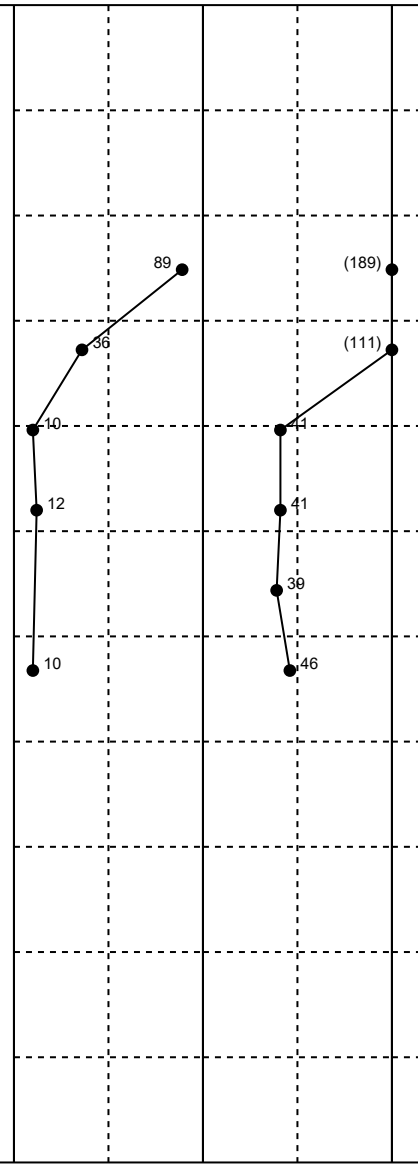
**HOLE NO.** BH 4-23

| SAMPLE DESCRIPTION | STRATA PLOT | Sample No. | SAMPLE % RECOVERY | N VALUE or RQD | WATER CONTENT % | DEPTH (m) |
|---|---|---|---|---|---|---|
| Ground Surface EL 87.34 m | | | | | | 0 |
| **Asphaltic concrete** 0.03 m EL 87.31 m | | AU 1 | | | 5 | |
| **FILL**: Brown silty sand with gravel and crushed stones 0.69 m EL 86.65 m | | SS 2 | 83 | 11 | 35.6 | 1 |
| Hard to very stiff, brown **SILTY CLAY** | | SS 3 | 92 | 11 | 34.2 | 2 |
| | | SS 4 | 100 | P | 35.8 | 3 |
| | | SS 5 | 100 | P | 45.5 | |
| 3.73 m EL 83.61 m | | | | | | 4 |
| Firm, grey **SILTY CLAY** | | SS 6 | 100 | P | 76.5 | |
| | | SS 7 | 100 | P | 68.4 | 5 |
| | | G 8 | | | 77.3 | |
| | | SS 9 | 100 | P | 81.1 | 6 |
| 6.71 m EL 80.63 m | | | | | | 7 |
| End of Test Hole | | | | | | 8 |
| (GWL @ 1.83m - Jan. 2, 2024) | | | | | | 9 |
| | | | | | | 10 |
| | | | | | | 11 |

Remoulded Shear Strength (kPa): 0 50 100

Peak Shear Strength (kPa): 0 50 100

Pen. Resist. Blows/0.3m (50 mm Dia. Cone): 0 50 100




Piezometer Construction

# SOIL PROFILE AND TEST DATA

## GEOTECHNICAL INVESTIGATION

1445 rue Duford, Orléans, Ontario

**DATUM:** Geodetic **EASTING:** 382383.793 **NORTHING:** 5037464.073 **ELEVATION:** 87.05 m

**PROJECT:** Proposed Modular Classroom Addition - La Source School

**BORINGS BY:** CME 55 Low Clearance Power Auger

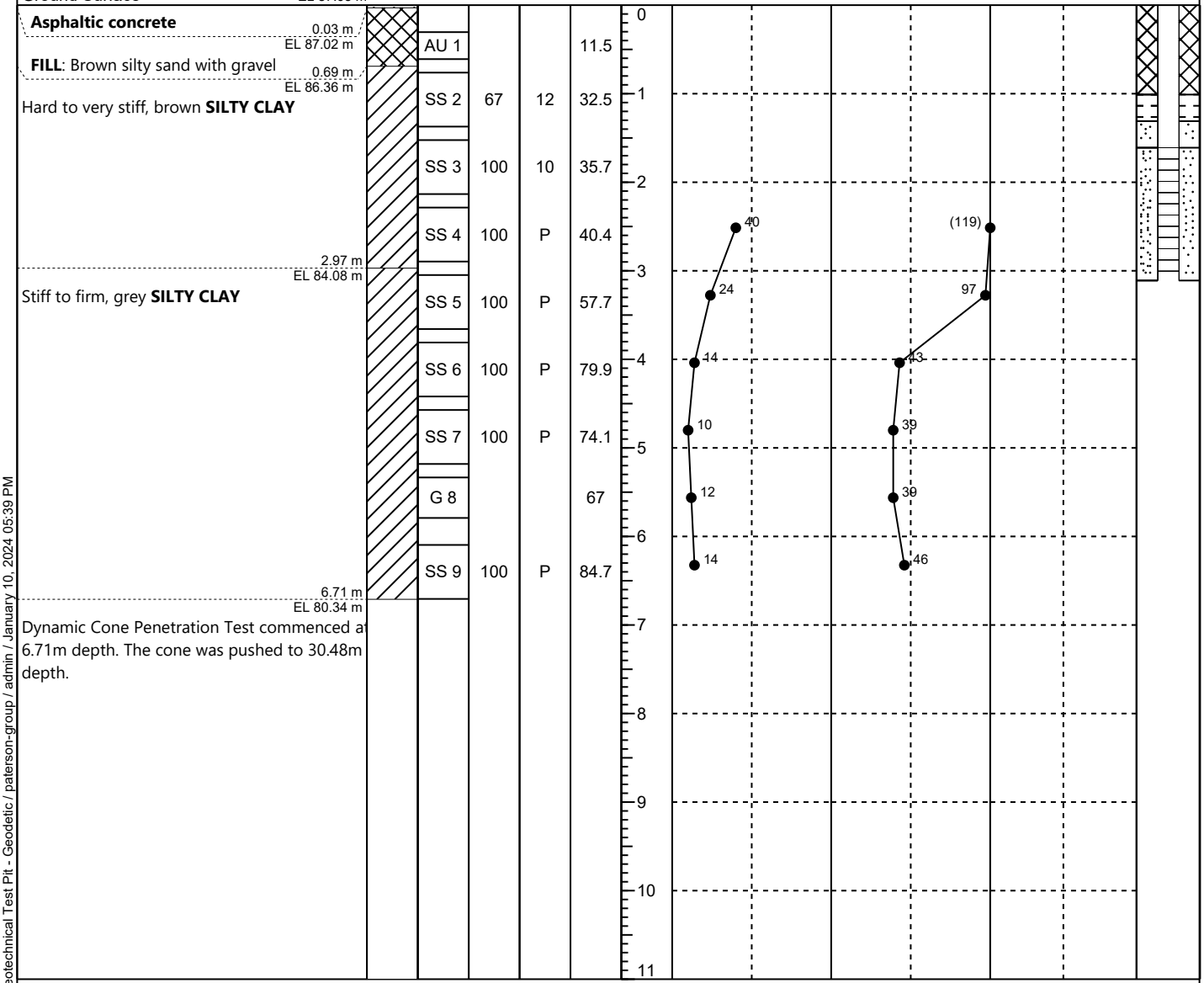
**REMARKS:**

**DATE:** December 20, 2023

**FILE NO.** **PG6942**

**HOLE NO.** BH 5-23

| SAMPLE DESCRIPTION | STRATA PLOT | Sample No. | SAMPLE % RECOVERY | N VALUE or RQD | WATER CONTENT % |
|---|---|---|---|---|---|
| Ground Surface EL 87.05 m | | | | | |
| **Asphaltic concrete** 0.03 m EL 87.02 m | | AU 1 | | | 11.5 |
| **FILL**: Brown silty sand with gravel 0.69 m EL 86.36 m | | SS 2 | 67 | 12 | 32.5 |
| Hard to very stiff, brown **SILTY CLAY** | | SS 3 | 100 | 10 | 35.7 |
| | | SS 4 | 100 | P | 40.4 |
| 2.97 m EL 84.08 m | | | | | |
| Stiff to firm, grey **SILTY CLAY** | | SS 5 | 100 | P | 57.7 |
| | | SS 6 | 100 | P | 79.9 |
| | | SS 7 | 100 | P | 74.1 |
| | | G 8 | | | 67 |
| | | SS 9 | 100 | P | 84.7 |
| 6.71 m EL 80.34 m | | | | | |
| Dynamic Cone Penetration Test commenced at 6.71m depth. The cone was pushed to 30.48m depth. | | | | | |



# SOIL PROFILE AND TEST DATA

## GEOTECHNICAL INVESTIGATION

1445 rue Duford, Orléans, Ontario

**DATUM:** Geodetic **EASTING:** 382383.793 **NORTHING:** 5037464.073 **ELEVATION:** 87.05 m

**PROJECT:** Proposed Modular Classroom Addition - La Source School

**BORINGS BY:** CME 55 Low Clearance Power Auger

**REMARKS:**

**DATE:** December 20, 2023

**FILE NO.** **PG6942**

**HOLE NO.** BH 5-23

| SAMPLE DESCRIPTION | STRATA PLOT | Sample No. | SAMPLE % RECOVERY | N VALUE or RQD | WATER CONTENT % | DEPTH (m) | Remoulded Shear Strength (kPa) 0 50 100 | Peak Shear Strength (kPa) 0 50 100 | Pen. Resist. Blows/0.3m (50 mm Dia. Cone) 0 50 100 | Piezometer Construction |
|---|---|---|---|---|---|---|---|---|---|---|
| *(continued)*<br>Dynamic Cone Penetration Test commenced at 6.71m depth. The cone was pushed to 30.48m depth. | | | | | | 11<br>12<br>13<br>14<br>15<br>16<br>17<br>18<br>19<br>20<br>21<br>22 | | | | |

# SOIL PROFILE AND TEST DATA

## GEOTECHNICAL INVESTIGATION

1445 rue Duford, Orléans, Ontario

**DATUM:** Geodetic **EASTING:** 382383.793 **NORTHING:** 5037464.073 **ELEVATION:** 87.05 m

**PROJECT:** Proposed Modular Classroom Addition - La Source School

**BORINGS BY:** CME 55 Low Clearance Power Auger

**REMARKS:**

**DATE:** December 20, 2023

**FILE NO.** **PG6942**

**HOLE NO.** BH 5-23

| SAMPLE DESCRIPTION | STRATA PLOT | Sample No. | SAMPLE % RECOVERY | N VALUE or RQD | WATER CONTENT % | DEPTH (m) | Remoulded Shear Strength (kPa) 0 50 100 | Peak Shear Strength (kPa) 0 50 100 | Pen. Resist. Blows/0.3m (50 mm Dia. Cone) 0 50 100 | Piezometer Construction |
|---|---|---|---|---|---|---|---|---|---|---|
| *(continued)*<br>Dynamic Cone Penetration Test commenced at 6.71m depth. The cone was pushed to 30.48m depth. | | | | | | 22<br>23<br>24<br>25<br>26<br>27<br>28<br>29<br>30<br>31<br>32<br>33 | | | | |
| 30.48 m<br>EL 56.57 m<br>End of Test Hole<br>DCPT terminated at 30.48m depth<br>(Borehole blocked - Jan. 2, 2024) | | | | | | | | | | |

# Log of Borehole: MW1

**Project #:** 296551.001 **Logged By:** WT

**Project:** Geotechnical Investigation

**Client:** United Property Resource Corporation

**Location:** 360 Kennedy Line East, Orleans, Ontario

**Drill Date:** September 8, 2021 **Project Manager:** WT

| Depth (m) | Description | Elevation (m) |
|---|---|---|
| 0 | Ground Surface | 87.43 |
| | **Organics** ~ 100 mm | |
| | **Clayey Silt** Grey clayey silt, trace sand, stiff, damp | 86.67 |
| 1 | Very stiff | 85.90 |
| | Firm | |
| 2 | | 85.14 |
| | Soft, moist | |
| 3 | | |
| 4 | | 82.86 |
| | Very soft, wet | |
| 5 | | |
| 6 | | 80.72 |
| 7 | End of Borehole | |
| | Borehole terminated at 6.7 mbgs in very soft clayey silt. | |
| 8 | | |
| 9 | | |

Monitoring Well Details: Riser; Bentonite; Silica Sand; Screen

Groundwater level = 2.09 mbgs, as measured on October 27, 2021.

| Sample Type | Sampler # | Recovery (%) | SPT N-values |
|---|---|---|---|
| SS | 1 | 30 | 9 |
| SS | 2 | 100 | 18 |
| SS | 3 | 80 | 7 |
| SS | 4 | 80 | 3 |
| SS | 5 | 100 | 3 |
| SS | 6 | 100 | 1 |
| FV | 1 | N/A | N/A |
| SS | 7 | 100 | 0 |

SPT N-values: 20, 40, 60

Shear Strength kPa: 50, 100, 150, 200

Lab Analysis | Moisture (%) | Plasticity Index

**Contractor:** Marathon Underground

**Drilling Method:** Hollow Stem Augers / Split Spoon

**Well Casing Size:** 5.08 cm

**Grade Elevation:** 87.43 m

**Top of Casing Elevation:** 88.32 m

**Sheet:** 1 of 1

# Log of Borehole: BH2

**Project #:** 296551.001 **Logged By:** WT

**Project:** Geotechnical Investigation

**Client:** United Property Resource Corporation

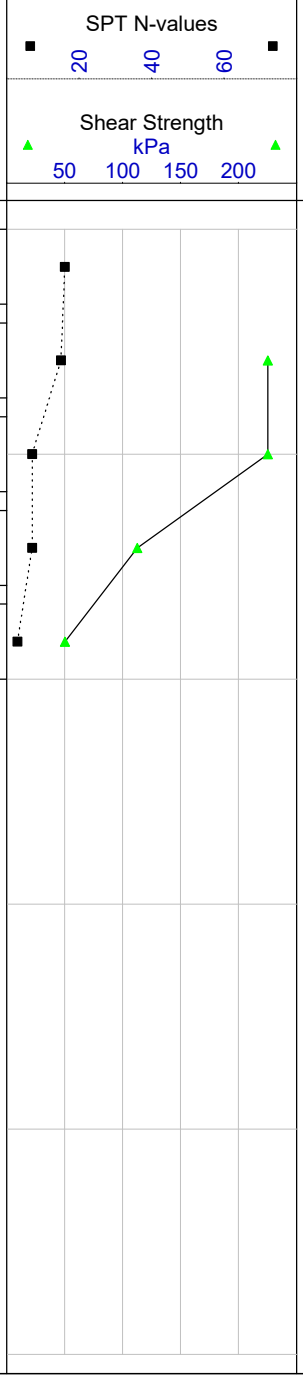
**Location:** 360 Kennedy Line East, Orleans, Ontario

**Drill Date:** September 8, 2021 **Project Manager:** WT

| Depth (m) | Description | Elevation (m) |
|---|---|---|
| 0 | Ground Surface | 87.59 |
| | **Organics** ~ 100 mm | |
| | **Clayey Silt** Grey clayey silt, very stiff, damp Hard | 86.83 |
| 2 | | 85.30 |
| | Firm | |
| 3 | | 84.54 |
| | Soft, moist | |
| | | 83.93 |
| | End of Borehole | |
| 4 | Borehole terminated at 3.7 mbgs in soft clayey silt. At drilling completion, no free groundwater was encountered. | |

Monitoring Well Details: No Monitoring Well Installed

| Sample Type | Sampler # | Recovery (%) | SPT N-values |
|---|---|---|---|
| SS | 1 | 60 | 9 |
| SS | 2 | 80 | 18 |
| SS | 3 | 80 | 7 |
| SS | 4 | 80 | 3 |
| SS | 5 | 100 | 3 |




Lab Analysis | Moisture (%) | Plasticity Index

**Contractor:** Marathon Underground

**Grade Elevation:** 87.59 m

**Drilling Method:** Hollow Stem Augers / Split Spoon

**Top of Casing Elevation:** N/A

**Well Casing Size:** N/A

**Sheet:** 1 of 1

# Log of Borehole: MW3

**Project #:** 296551.001 **Logged By:** WT

**Project:** Geotechnical Investigation

**Client:** United Property Resource Corporation

**Location:** 360 Kennedy Line East, Orleans, Ontario

**Drill Date:** September 8, 2021 **Project Manager:** WT

**SUBSURFACE PROFILE** | **SAMPLE**

| Depth (m) | Description | Elevation (m) | Sample Type | Sampler # | Recovery (%) | SPT N-values |
|---|---|---|---|---|---|---|
| 0 | Ground Surface | 87.87 | | | | |
| | **Organics** ~ 100 mm | | SS | 1 | 50 | 25 |
| | **Clayey Silt** Grey clayey silt, very stiff, damp Stiff | 87.11 | SS | 2 | 100 | 13 |
| 1 | | | | | | |
| 2 | | | SS | 3 | 100 | 12 |
| 3 | | | FV | 1 | N/A | N/A |
| | | | FV | 2 | N/A | N/A |
| 4 | | 83.30 | | | | |
| | Very soft, moist | | SS | 4 | 100 | 2 |
| 5 | | | FV | 3 | N/A | N/A |
| 6 | | 81.77 | | | | |
| | Wet | | SS | 5 | 100 | 0 |
| | | 81.17 | | | | |
| 7 | End of Borehole | | | | | |
| 8 | Borehole terminated at 6.7 mbgs in very soft clayey silt. | | | | | |
| 9 | | | | | | |

Monitoring Well Details: Riser, Bentonite, Silica Sand, Screen

Groundwater level = 3.13 mbgs, as measured on October 27, 2021.

SPT N-values: 20, 40, 60

Shear Strength kPa: 50, 100, 150, 200

Lab Analysis | Moisture (%) | Plasticity Index

**Contractor:** Marathon Underground

**Drilling Method:** Hollow Stem Augers / Split Spoon

**Well Casing Size:** 5.08 cm

**Grade Elevation:** 87.87 m

**Top of Casing Elevation:** 88.75 m

**Sheet:** 1 of 1

# Log of Borehole: MW4

**Project #:** 296551.001 **Logged By:** WT

**Project:** Geotechnical Investigation

**Client:** United Property Resource Corporation

**Location:** 360 Kennedy Line East, Orleans, Ontario

**Drill Date:** September 9, 2021 **Project Manager:** WT

| Depth (m) | Description | Elevation (m) |
|---|---|---|
| 0 | Ground Surface | 87.62 |
| | **Organics** ~ 100 mm | 86.86 |
| 1 | **Clayey Silt** Grey clayey silt, trace gravel, trace sand, very stiff, damp | 86.10 |
| | Hard No sand or gravel | 85.33 |
| 2 | Stiff | 84.57 |
| 3 | Firm | 83.81 |
| 4 | Soft | 83.05 |
| 5 | Very soft | 77.87 |
| 10 | End of Borehole Borehole terminated at 9.8 mbgs in very soft clayey silt. | |

Monitoring Well Details: Riser, Bentonite, Screen, Silica Sand

Groundwater level = 4.09 mbgs, as measured on Ocotber 27, 2021.

| Sample Type | Sampler # | Recovery (%) | SPT N-values |
|---|---|---|---|
| SS | 1 | 60 | 20 |
| SS | 2 | 80 | 15 |
| SS | 3 | 100 | 15 |
| SS | 4 | 100 | 16 |
| SS | 5 | 100 | 6 |
| SS | 6 | 100 | 4 |
| SS | 7 | N/A | 0 |
| FV | 2 | N/A | N/A |
| FV | 3 | N/A | N/A |
| SS | 8 | 100 | 0 |

SPT N-values: 20, 40, 60

Shear Strength kPa: 50, 100, 150, 200

Lab Analysis | Moisture (%) | Plasticity Index

**Contractor:** Marathon Underground

**Drilling Method:** Hollow Stem Augers / Split Spoon

**Well Casing Size:** 5.08 cm

**Grade Elevation:** 87.62 m

**Top of Casing Elevation:** 88.48 m

**Sheet:** 1 of 1

# Log of Borehole: MW5

**Project #:** 296551.001 **Logged By:** WT

**Project:** Geotechnical Investigation

**Client:** United Property Resource Corporation

**Location:** 360 Kennedy Line East, Orleans, Ontario

**Drill Date:** September 9, 2021 **Project Manager:** WT

| Depth (m) | Description | Elevation (m) |
|---|---|---|
| 0 | Ground Surface | 86.80 |
| | **Organics** ~ 100 mm | 86.04 |
| 1 | **Clayey Silt** Grey clayey silt, stiff, damp Hard | |
| 2 | | 84.51 |
| | Stiff, moist | |
| 3 | | 83.75 |
| | Soft | |
| | | 82.99 |
| 4 | Wet | |
| 5 | | |
| 6 | | |
| 7 | | |
| 8 | | |
| 9 | | |
| | | 77.05 |
| 10 | End of Borehole | |
| | Borehole terminated at 9.8 mbgs in very soft clayey silt. | |
| 11 | | |
| 12 | | |

Monitoring Well Details: Riser, Bentonite, Screen, Silica Sand

Groundwater level = 1.68 mbgs, as measured on October 27, 2021.

| Sample Type | Sampler # | Recovery (%) | SPT N-values |
|---|---|---|---|
| SS | 1 | 80 | 11 |
| SS | 2 | 100 | 15 |
| SS | 3 | 100 | 11 |
| SS | 4 | 100 | 9 |
| SS | 5 | 100 | 4 |
| SS | 6 | 100 | 2 |
| FV | 1 | N/A | N/A |
| FV | 2 | N/A | N/A |
| FV | 3 | N/A | N/A |
| FV | 4 | N/A | N/A |

SPT N-values: 20, 40, 60

Shear Strength kPa: 50, 100, 150, 200

Lab Analysis | Moisture (%) | Plasticity Index

**Contractor:** Marathon Underground

**Grade Elevation:** 86.80 m

**Drilling Method:** Hollow Stem Augers / Split Spoon

**Top of Casing Elevation:** 87.55 m

**Well Casing Size:** 5.08 cm

**Sheet:** 1 of 1

# Log of Borehole: MW6

**Project #:** 296551.001 **Logged By:** WT

**Project:** Geotechnical Investigation

**Client:** United Property Resource Corporation

**Location:** 360 Kennedy Line East, Orleans, Ontario

**Drill Date:** September 9, 2021 **Project Manager:** WT

| Depth (m) | Description | Elevation (m) |
|---|---|---|
| 0 | Ground Surface | 88.00 |
| | **Organics** ~ 100 mm | |
| | **Clayey Silt** Grey clayey silt, stiff, damp Hard | 87.24 |
| 2 | | 85.71 |
| | Stiff | |
| 3 | | 84.95 |
| | Moist | |
| 6 | | 81.90 |
| | Very soft | |
| | | 81.29 |
| 7 | End of Borehole | |
| | Borehole terminated at 6.7 mbgs in very soft clayey silt. | |

Monitoring Well Details: Riser, Bentonite, Silica Sand, Screen

Groundwater level = 1.54 mbgs, as measured on October 27, 2021.

| Sample Type | Sampler # | Recovery (%) | SPT N-values |
|---|---|---|---|
| SS | 1 | 60 | 11 |
| SS | 2 | 80 | 17 |
| SS | 3 | 100 | 17 |
| SS | 4 | 100 | 11 |
| SS | 5 | 100 | 9 |
| FV | 1 | N/A | N/A |
| SS | 6 | 100 | 0 |

SPT N-values: 20, 40, 60

Shear Strength kPa: 50, 100, 150, 200

Lab Analysis | Moisture (%) | Plasticity Index

**Contractor:** Marathon Underground

**Drilling Method:** Hollow Stem Augers / Split Spoon

**Well Casing Size:** 5.08 cm

**Grade Elevation:** 88.00 m

**Top of Casing Elevation:** 88.72 m

**Sheet:** 1 of 1

# Log of Borehole: MW7

**Project #:** 296551.001 **Logged By:** WT

**Project:** Geotechnical Investigation

**Client:** United Property Resource Corporation

**Location:** 360 Kennedy Line East, Orleans, Ontario

**Drill Date:** September 9, 2021 **Project Manager:** WT

| SUBSURFACE PROFILE | | | | | SAMPLE | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Depth (m) | Symbol | Description | Elevation (m) | Monitoring Well Details | Sample Type | Sampler # | Recovery (%) | SPT N-values | SPT N-values / Shear Strength kPa | Lab Analysis | Moisture (%) | Plasticity Index |
| 0 | | Ground Surface | 87.78 | | | | | | | | | |
| | | **Organics** ~ 100 mm | | | SS | 1 | 60 | 14 | | | | |
| | | **Clayey Silt** Grey clayey silt, stiff, damp | 87.02 | | SS | 2 | 80 | 15 | | | | |
| 1 | | Hard | | | | | | | | | | |
| | | | | | SS | 3 | 100 | 21 | | | | |
| 2 | | | 85.49 | Riser | | | | | | | | |
| | | Stiff | | | SS | 4 | 100 | 11 | | | | |
| 3 | | | | Bentonite | SS | 5 | 100 | 9 | | | | |
| 4 | | | | | | | | | | | | |
| 5 | | | | Screen / Silica Sand | FV | 1 | N/A | N/A | | | | |
| 6 | | | | | | | | | | | | |
| | | | 81.07 | | FV | 2 | N/A | N/A | | | | |
| 7 | | End of Borehole | | Groundwater level = 2.08 mbgs, as measured on October 27, 2021. | | | | | | | | |
| | | Borehole terminated at 6.7 mbgs in very soft clayey silt. | | | | | | | | | | |
| 8 | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | |

SPT N-values: 20, 40, 60

Shear Strength kPa: 50, 100, 150, 200

**Contractor:** Marathon Underground

**Grade Elevation:** 87.78 m

**Drilling Method:** Hollow Stem Augers / Split Spoon

**Top of Casing Elevation:** 88.52 m

**Well Casing Size:** 5.08 cm

**Sheet:** 1 of 1

| JOHN D. PATERSON & ASSOCIATES LTD.<br>Consulting Engineers & Geologists<br>1479 LAPERRIERE AVE. OTTAWA, CANADA K1Z7S8 | SOIL PROFILE & TEST DATA<br>Proposed Residential Development,<br>Prestone Drive and Kennedy Lane,<br>Township of Cumberland |
|---|---|

**Datum** T.B.M: Top of manhole southeast of borehole one. (Elev. 87.50 m) **Sheet no.** 1 **of** 5

**Remarks** **Hole no.** BH 1

**Borings by** CME 55 Power Auger **Date** March 19, 1984

| SOIL DESCRIPTION | STRAT. | SAMPLE TYPE | SAMPLE NO. | N | DEPTH (m) | ELEV. (m) |
|---|---|---|---|---|---|---|
| Ground Surface | | | | | 0.00 | 87.09 |
| FILL: Grey silty clay with traces of gravel and sand. | | G | 1 | | | |
| | | SS | 2 | 6 | 1.00 | |
| | | SS | 3 | 2 | | |
| | | SS | 4 | 3 | 2.00 | 85.09 |
| | | SS | 5 | 2 | | |
| | | SS | 6 | 3 | 3.00 | |
| | | SS | 7 | 3 | 4.00 | 83.09 |
| | | SS | 8 | 1 | | |
| | | SS | 9 | 1 | 5.00 | |
| | | SS | 10 | 1 | 6.00 | 81.09 |
| | | SS | 11 | 2 | | |
| | | SS | 12 | 3 | 7.00 | |
| 7.39 | | | | | | |
| FILL: Brown sand-gravel. | | SS | 13 | 5 | | |
| | | SS | 14 | 8 | 8.00 | 79.09 |
| | | SS | 15 | 4 | | |
| | | SS | 16 | 5 | 9.00 | |
| 9.75 | | | | | | |
| Firm grey SILTY CLAY. | | SS | 17 | 1 | 10.00 | 77.09 |
| | | TW | 18 | | | |
| 10.36 | | | | | | |
| Borehole terminated in clay. | | | | | 11.00 | |
| | | | | | 12.00 | 75.09 |

Penetration Resistance Blows/.3m
50 mm Diameter Cone

Moisture Content %

20 40 60 80 100

Dry on 6.1 metres 6/4/84

Poly Tubing

Bentonite Seal

Piez-ometer

Screen

40 80 120

Shear Strength (kPa)

▲ Undisturbed △ Remolded

| JOHN D. PATERSON & ASSOCIATES LTD.<br>Consulting Engineers & Geologists<br>1479 LAPERRIERE AVE. OTTAWA, CANADA K1Z7S8 | SOIL PROFILE & TEST DATA<br>Proposed Residential Development, Prestone Drive and Kennedy Lane, Township of Cumberland |
|---|---|

**Datum** T.B.M: Top of manhole southeast of borehole one. (Elev. 87.50 m) **Sheet no.** 3 **of** 5

**Remarks**

**Hole no.** BH 3

**Borings by** CME 55 Power Auger **Date** March 20, 1984

| SOIL DESCRIPTION | STRAT. | SAMPLE TYPE | SAMPLE NO. | N | DEPTH (m) | ELEV. (m) |
|---|---|---|---|---|---|---|
| Ground Surface | | | | | 0 | 87.07 |
| FILL: Grey silty clay. | | | | | | |
| 0.51 | | | | | | |
| Compact brown FINE SAND | | SS | 26 | 12 | 1.00 | |
| | | SS | 27 | 14 | | |
| Very stiff to stiff olive grey SILTY CLAY. | | SS | 28 | 16 | 2.00 | 85.07 |
| | | SS | 29 | 6 | | |
| | | | | | 3.00 | |
| | | TW | 30 | | | |
| 3.65 | | | | | | |
| | | TW | 31 | | 4.00 | 83.07 |
| | | TW | 32 | | | |
| | | TW | 33 | | 5.00 | |
| Firm grey SILTY CLAY. | | TW | 34 | | 6.00 | 81.07 |
| | | TW | 35 | | | |
| | | TW | 36 | | 7.00 | |
| | | TW | 37 | | | |
| 7.92 | | | | | | |
| Borehole terminated in clay. | | | | | 8.00 | 79.07 |

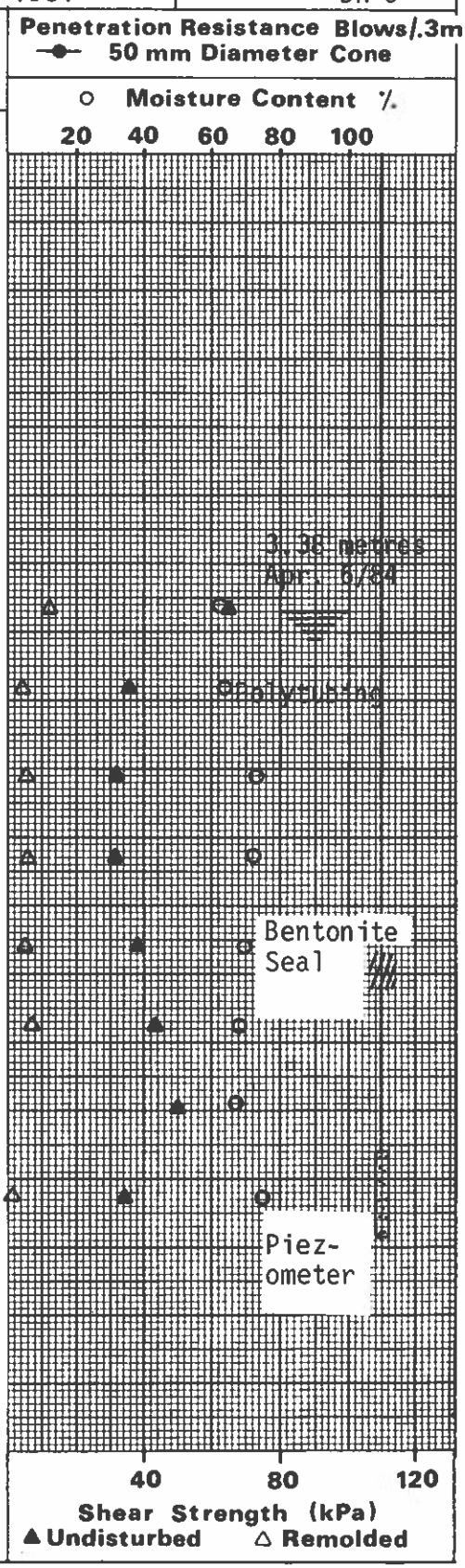


TABLE 2

SUMMARY OF LABORATORY TEST DATA

PRESTONE DRIVE AND KENNEDY LANE

TOWNSHIP OF CUMBERLAND

| Hole No. | Sample No. | Depth (m) | | Shear Strength (kPa) | | % Water Content | Unit Weight ($KN/m^3$) |
|---|---|---|---|---|---|---|---|
| | | From | To | Undisturbed | Remoulded | | |
| 1 | TW 18 | 10.36 | 10.97 | 41.1 | 16.3 | 69.1 | 15.8 |
| 3 | TW 30 | 3.05 | 3.66 | 65.5 | 11.6 | 63.5 | 15.9 |
| | TW 31 | 3.66 | 4.27 | 35.8 | 4.3 | 63.8 | 15.9 |
| | TW 32 | 4.27 | 4.88 | 30.6 | 6.3 | 72.6 | 15.5 |
| | TW 33 | 4.88 | 5.49 | 30.7 | 6.3 | 70.9 | 15.8 |
| | TW 34 | 5.49 | 6.10 | 39.0 | 5.1 | 70.0 | 16.2 |
| | TW 35 | 6.10 | 6.71 | 43.7 | 7.5 | 68.6 | 15.8 |
| | TW 36 | 6.71 | 7.32 | 49.9 | - | 67.8 | 15.8 |
| | TW 37 | 7.32 | 7.93 | 32 | 1.2 | 75.0 | 16.6 |

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**ATTERBERG LIMITS**
**LS-703/704**

| | | | |
|---|---|---|---|
| CLIENT: | Pinchin | FILE NO.: | PM41784 |
| PROJECT: | 296551.001 | DATE SAMPLED: | 18-Oct-21 |
| LOCATION: | BH1 @ 5' - 7' | DATE REPORTED: | 26-Oct-21 |

**LIQUID LIMIT DETERMINATION**

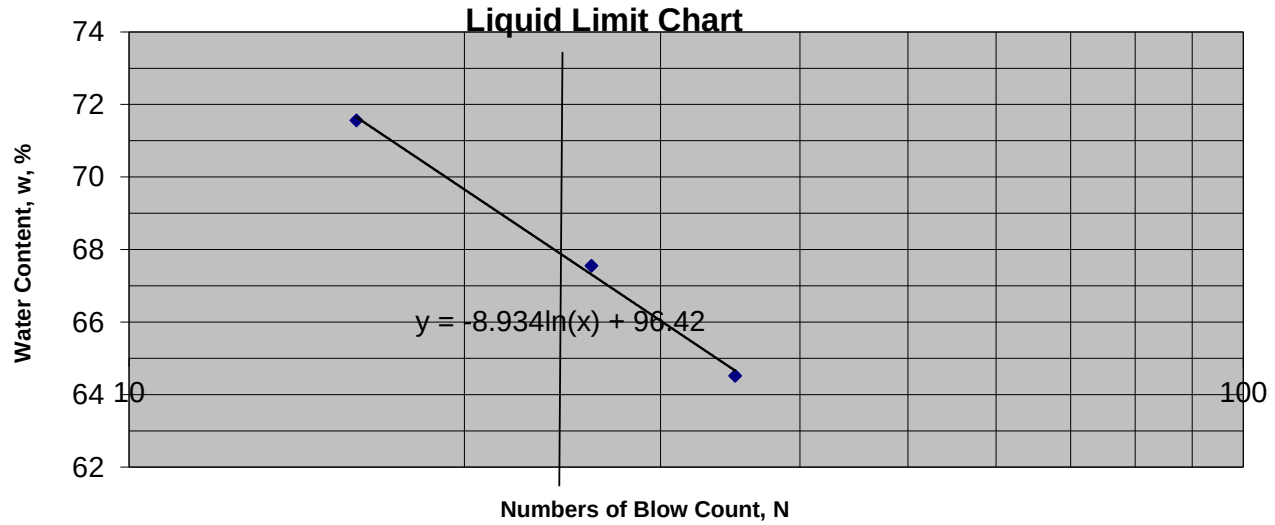
| CAN NO. | 2 | 3 | 4 | | | | |
|---|---|---|---|---|---|---|---|
| WT. OF CAN | 8.67 | 8.67 | 8.68 | | | | |
| WT. OF SOIL & CAN | 23.51 | 20.65 | 19.85 | | | | |
| WT. OF DRY SOIL & CAN | 17.32 | 15.82 | 15.47 | | | | |
| WT. OF MOISTURE | 6.19 | 4.83 | 4.38 | | | | |
| WT. OF DRY SOIL & CAN | 8.65 | 7.15 | 6.79 | | | | |
| WATER CONTENT, w, % | **71.56** | **67.55** | **64.51** | | | | |
| NO. OF BLOWS, N | 16 | 26 | 35 | | | | |

**PLASTIC LIMIT DETERMINATION**

| CAN NO. | 10 | 11 |
|---|---|---|
| WT. OF CAN | 19.81 | 20.01 |
| WT. OF SOIL & CAN | 26.75 | 27.01 |
| WT. OF DRY SOIL & CAN | 25.14 | 25.38 |
| WT. OF MOISTURE | 1.61 | 1.63 |
| WT. OF DRY SOIL & CAN | 5.33 | 5.37 |
| WATER CONTENT, w, % | **30.21** | **30.35** |

**RESULTS**

| | |
|---|---|
| LIQUID LIMIT | **68** |
| PLASTIC LIMIT | **30** |
| PLASTICITY INDEX | **38** |




| TECHNICIAN:CS | REVIEWED BY: | C. Beadow | J. Forsyth, P. Eng. |
|---|---|---|---|

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**ATTERBERG LIMITS**
**LS-703/704**

| | | | |
|---|---|---|---|
| CLIENT: | Pinchin | FILE NO.: | PM4184 |
| PROJECT: | 296551.001 | DATE SAMPLED: | 18-Oct-21 |
| LOCATION: | BH3 @ 20' - 22' | DATE REPORTED: | 26-Oct-21 |

**LIQUID LIMIT DETERMINATION**

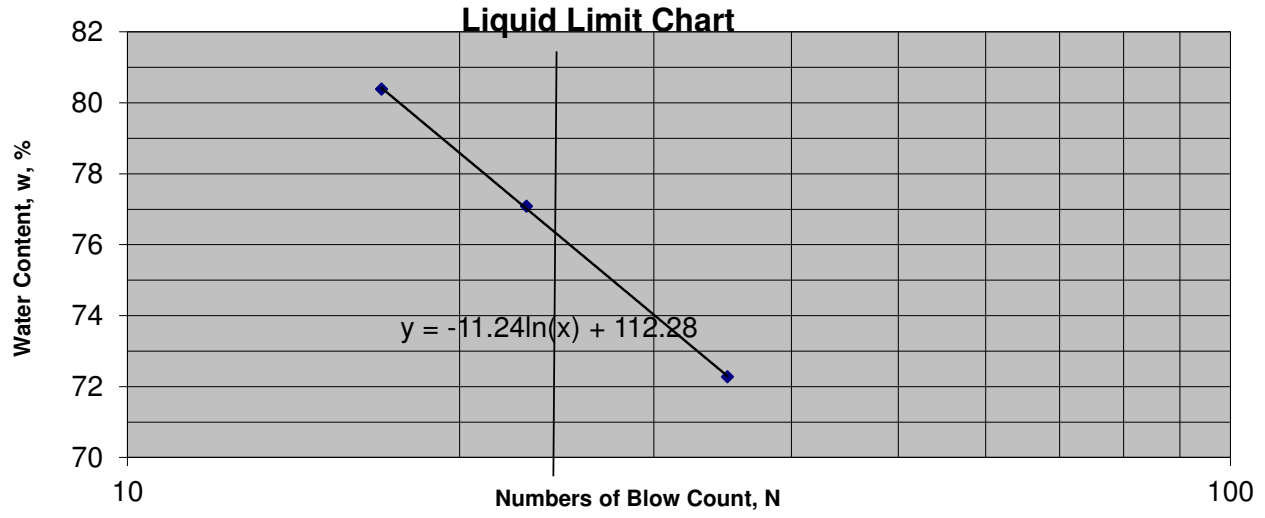
| CAN NO. | 33 | 34 | 35 | | | | |
|---|---|---|---|---|---|---|---|
| WT. OF CAN | 4.36 | 4.36 | 4.42 | | | | |
| WT. OF SOIL & CAN | 12.82 | 13.71 | 13.24 | | | | |
| WT. OF DRY SOIL & CAN | 9.05 | 9.64 | 9.54 | | | | |
| WT. OF MOISTURE | 3.77 | 4.07 | 3.70 | | | | |
| WT. OF DRY SOIL & CAN | 4.69 | 5.28 | 5.12 | | | | |
| WATER CONTENT, w, % | **80.38** | **77.08** | **72.27** | | | | |
| NO. OF BLOWS, N | 17 | 23 | 35 | | | | |

**PLASTIC LIMIT DETERMINATION**

| CAN NO. | 1 | 2 |
|---|---|---|
| WT. OF CAN | 19.86 | 19.96 |
| WT. OF SOIL & CAN | 26.59 | 26.78 |
| WT. OF DRY SOIL & CAN | 25.10 | 25.24 |
| WT. OF MOISTURE | 1.49 | 1.54 |
| WT. OF DRY SOIL & CAN | 5.24 | 5.28 |
| WATER CONTENT, w, % | **28.44** | **29.17** |

**RESULTS**

| | |
|---|---|
| LIQUID LIMIT | **77** |
| PLASTIC LIMIT | **29** |
| PLASTICITY INDEX | **48** |




| TECHNICIAN:CS | REVIEWED BY: | C. Beadow | J. Forsyth, P. Eng. |
|---|---|---|---|

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**ATTERBERG LIMITS**
**LS-703/704**

| | | | |
|---|---|---|---|
| CLIENT: | Pinchin | FILE NO.: | PM4184 |
| PROJECT: | 296551.001 | DATE SAMPLED: | 18-Oct-21 |
| LOCATION: | BH5 @ 12.5' - 14.5' | DATE REPORTED: | 16-Oct-21 |

**LIQUID LIMIT DETERMINATION**

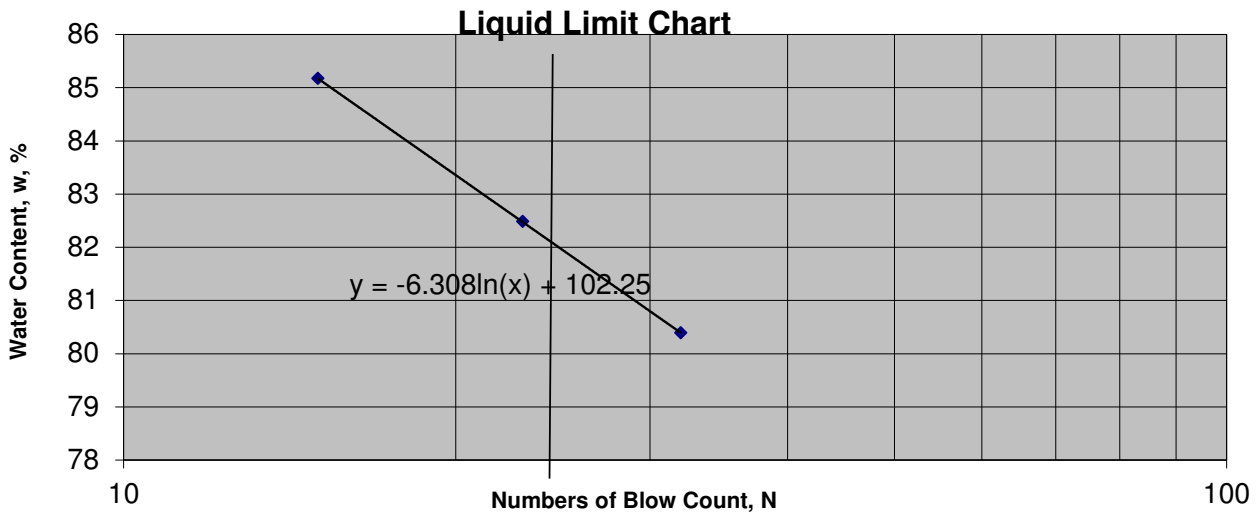
| CAN NO. | **30** | **31** | **32** | | | | |
|---|---|---|---|---|---|---|---|
| WT. OF CAN | 4.37 | 4.35 | 4.40 | | | | |
| WT. OF SOIL & CAN | 15.61 | 14.66 | 14.61 | | | | |
| WT. OF DRY SOIL & CAN | 10.44 | 10.00 | 10.06 | | | | |
| WT. OF MOISTURE | 5.17 | 4.66 | 4.55 | | | | |
| WT. OF DRY SOIL & CAN | 6.07 | 5.65 | 5.66 | | | | |
| WATER CONTENT, w, % | **85.17** | **82.48** | **80.39** | | | | |
| NO. OF BLOWS, N | 15 | 23 | 32 | | | | |

**PLASTIC LIMIT DETERMINATION**

| CAN NO. | **14** | **15** |
|---|---|---|
| WT. OF CAN | 20.08 | 19.91 |
| WT. OF SOIL & CAN | 27.47 | 27.30 |
| WT. OF DRY SOIL & CAN | 25.62 | 25.43 |
| WT. OF MOISTURE | 1.85 | 1.87 |
| WT. OF DRY SOIL & CAN | 5.54 | 5.52 |
| WATER CONTENT, w, % | **33.39** | **33.88** |

**RESULTS**

| | |
|---|---|
| LIQUID LIMIT | **83** |
| PLASTIC LIMIT | **34** |
| PLASTICITY INDEX | **49** |




| TECHNICIAN:CS | REVIEWED BY: | C. Beadow | J. Forsyth, P. Eng. |
|---|---|---|---|

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**ATTERBERG LIMITS**
**LS-703/704**

| | | | |
|---|---|---|---|
| CLIENT: | Pinchin | FILE NO.: | PM4184 |
| PROJECT: | 296551.001 | DATE SAMPLED: | 18-Oct-21 |
| LOCATION: | BH7 @ 10' - 12' | DATE REPORTED: | 26-Oct-21 |

**LIQUID LIMIT DETERMINATION**

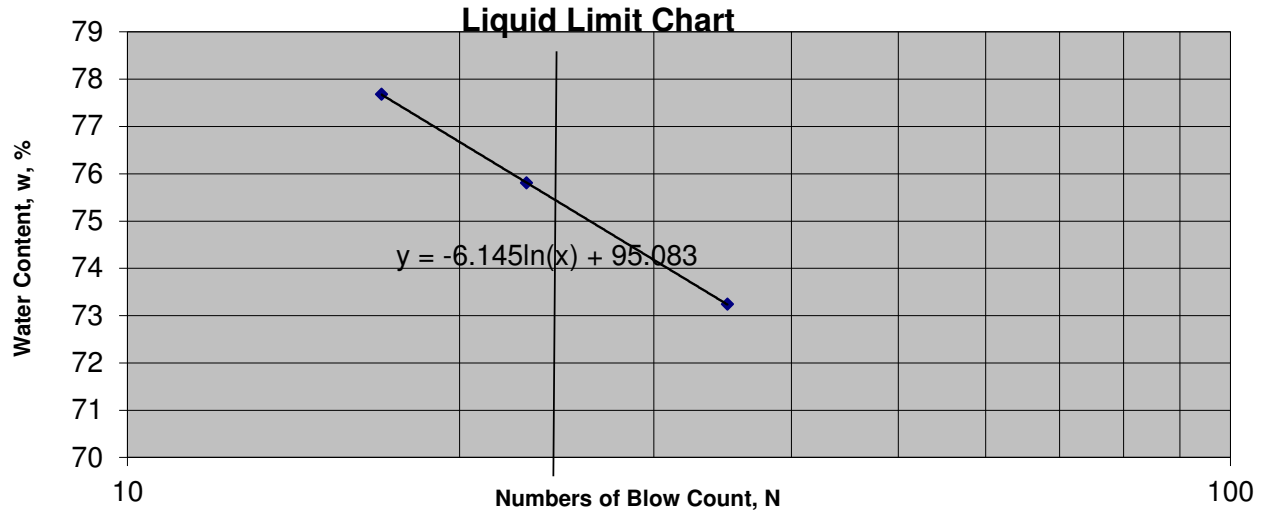
| CAN NO. | **67** | **70** | **87** | | | | |
|---|---|---|---|---|---|---|---|
| WT. OF CAN | 7.27 | 7.15 | 7.24 | | | | |
| WT. OF SOIL & CAN | 17.7 | 17.54 | 17.34 | | | | |
| WT. OF DRY SOIL & CAN | 13.14 | 13.06 | 13.07 | | | | |
| WT. OF MOISTURE | 4.56 | 4.48 | 4.27 | | | | |
| WT. OF DRY SOIL & CAN | 5.87 | 5.91 | 5.83 | | | | |
| WATER CONTENT, w, % | **77.68** | **75.8** | **73.24** | | | | |
| NO. OF BLOWS, N | 17 | 23 | 35 | | | | |

**PLASTIC LIMIT DETERMINATION**

| CAN NO. | **9** | **18** |
|---|---|---|
| WT. OF CAN | 19.35 | 20.01 |
| WT. OF SOIL & CAN | 26.59 | 26.88 |
| WT. OF DRY SOIL & CAN | 24.90 | 25.32 |
| WT. OF MOISTURE | 1.69 | 1.56 |
| WT. OF DRY SOIL & CAN | 5.55 | 5.31 |
| WATER CONTENT, w, % | **30.45** | **29.38** |

**RESULTS**

| | |
|---|---|
| LIQUID LIMIT | **76** |
| PLASTIC LIMIT | **30** |
| PLASTICITY INDEX | **46** |




| TECHNICIAN:CS | REVIEWED BY: | C. Beadow | J. Forsyth, P. Eng. |
|---|---|---|---|

Ministry of the Environment
Ontario

The Ontario Water Resources Act

# WATER WELL RECORD

1. PRINT ONLY IN SPACES PROVIDED
2. CHECK ☒ CORRECT BOX WHERE APPLICABLE

11 — 1525946 — MUNICIP 1501 — CON. CON

| COUNTY OR DISTRICT | TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE | CON. BLOCK, TRACT, SURVEY, ETC. | LOT |
|---|---|---|---|
| Ottawa-Carleton | Cumberland | conc. 11 | pt. lot C |

[redacted]
Tenth Line Rd. Cumberland, K1E 1H7

DATE COMPLETED: DAY 24 MO 09 YR 91

G — RC — ELEVATION — RC — BASIN CODE (I, II, III, IV)

## LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

| GENERAL COLOUR | MOST COMMON MATERIAL | OTHER MATERIALS | GENERAL DESCRIPTION | DEPTH - FEET FROM | DEPTH - FEET TO |
|---|---|---|---|---|---|
| yellow | clay | | | 0 | 10 |
| blue | clay | | | 10 | 90 |
| grey | limestone | | | 90 | 98 |

31
32

## 41 WATER RECORD

| WATER FOUND AT - FEET | KIND OF WATER |
|---|---|
| 93 | 1 ☐ FRESH 2 ☐ SALTY 3 ☒ SULPHUR 4 ☐ MINERALS 6 ☐ GAS |
| 96 | 1 ☐ FRESH 2 ☐ SALTY 3 ☒ SULPHUR 4 ☐ MINERALS 6 ☐ GAS |
| | 1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS |
| | 1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS |
| | 1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS |

## 51 CASING & OPEN HOLE RECORD

| INSIDE DIAM INCHES | MATERIAL | WALL THICKNESS INCHES | DEPTH - FEET FROM | DEPTH - FEET TO |
|---|---|---|---|---|
| 6 1/4" | 1 ☐ STEEL 2 ☒ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC | 188 | +1 | 92 |
| 5 3/4" | 1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☒ OPEN HOLE 5 ☐ PLASTIC | --- | 92 | 98 |
| | 1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC | | | |

## SCREEN

| SIZE(S) OF OPENING (SLOT NO.) | DIAMETER (INCHES) | LENGTH (FEET) |
|---|---|---|
| | | |

MATERIAL AND TYPE — DEPTH TO TOP OF SCREEN (FEET)

## 61 PLUGGING & SEALING RECORD

| DEPTH SET AT - FEET FROM | DEPTH SET AT - FEET TO | MATERIAL AND TYPE (CEMENT GROUT LEAD PACKER, ETC.) |
|---|---|---|
| | | |
| | | |
| | | |

## 71 PUMPING TEST

| PUMPING TEST METHOD | PUMPING RATE | DURATION OF PUMPING |
|---|---|---|
| 1 ☐ PUMP 2 ☒ BAILER air | 150 GPM | 1 HOURS ___ MINS |

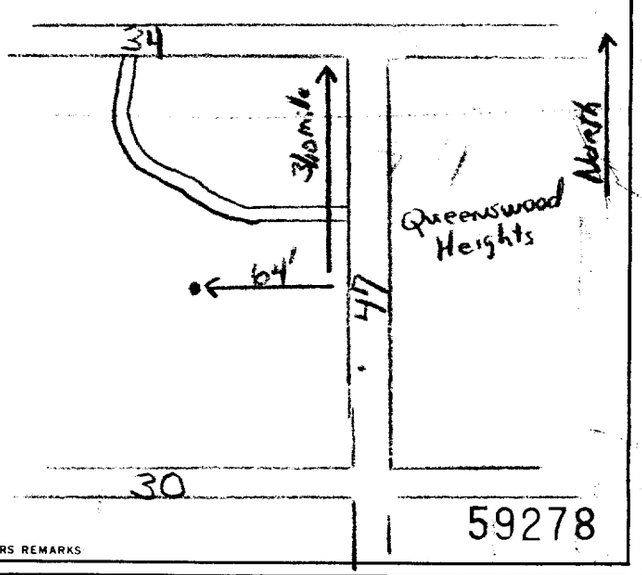
| STATIC LEVEL | WATER LEVEL END OF PUMPING | WATER LEVELS DURING | 15 MINUTES | 30 MINUTES | 45 MINUTES | 60 MINUTES |
|---|---|---|---|---|---|---|
| 26 FEET | 30 FEET | 1 ☐ PUMPING 2 ☐ RECOVERY | 26 FEET | 26 FEET | 26 FEET | 26 FEET |

| IF FLOWING GIVE RATE | PUMP INTAKE SET AT | WATER AT END OF TEST |
|---|---|---|
| 0 GPM | 30 FEET | 1 ☒ CLEAR 2 ☐ CLOUDY |

| RECOMMENDED PUMP TYPE | RECOMMENDED PUMP SETTING | RECOMMENDED PUMPING RATE |
|---|---|---|
| ☒ SHALLOW ☐ DEEP | 30 FEET | 30 GPM |

## LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE. INDICATE NORTH BY ARROW.




59278

DRILLERS REMARKS

## FINAL STATUS OF WELL

1 ☒ WATER SUPPLY; 2 ☐ OBSERVATION WELL; 3 ☐ TEST HOLE; 4 ☐ RECHARGE WELL; 5 ☐ ABANDONED, INSUFFICIENT SUPPLY; 6 ☐ ABANDONED, POOR QUALITY; 7 ☐ UNFINISHED; ☐ DEWATERING

## WATER USE

1 ☒ DOMESTIC; 2 ☐ STOCK; 3 ☐ IRRIGATION; 4 ☐ INDUSTRIAL; ☐ OTHER; 5 ☐ COMMERCIAL; 6 ☐ MUNICIPAL; 7 ☐ PUBLIC SUPPLY; 8 ☐ COOLING OR AIR CONDITIONING; 9 ☐ NOT USED

## METHOD OF CONSTRUCTION

1 ☐ CABLE TOOL; 2 ☐ ROTARY (CONVENTIONAL); 3 ☐ ROTARY (REVERSE); 4 ☐ ROTARY (AIR); 5 ☒ AIR PERCUSSION; 6 ☐ BORING; 7 ☐ DIAMOND; 8 ☐ JETTING; 9 ☐ DRIVING; ☐ DIGGING; ☐ OTHER

## CONTRACTOR

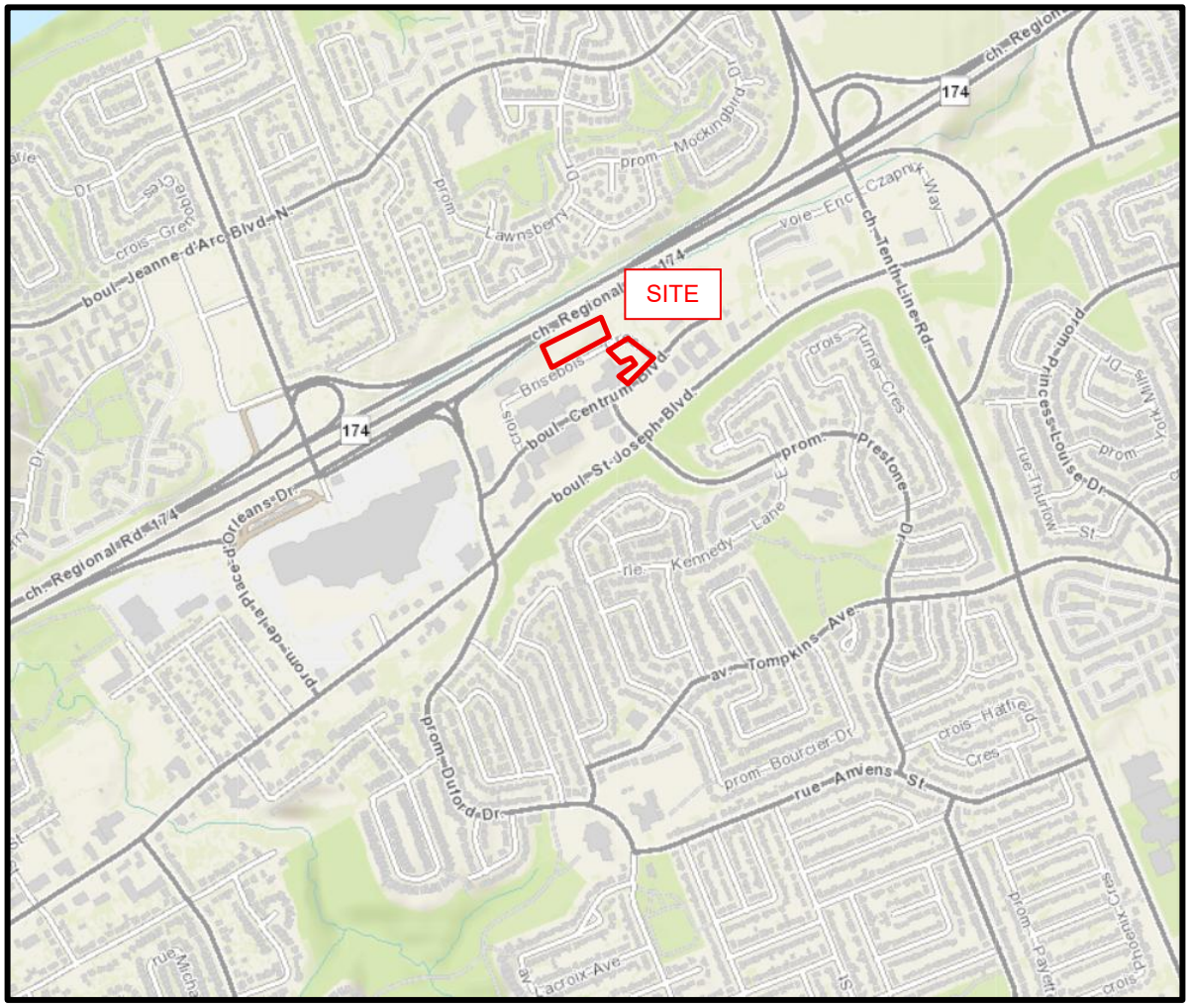
NAME OF WELL CONTRACTOR: G. Charbonneau + Son Drilling, LTD
WELL CONTRACTOR'S LICENCE NUMBER: 1504
ADDRESS: 3719 St-Joseph Blvd R.R.2, Box 194, Orleans, Ont. K1C 1T1
NAME OF WELL TECHNICIAN: Raymond Charbonneau
WELL TECHNICIAN'S LICENCE NUMBER: T-0458
SIGNATURE OF TECHNICIAN/CONTRACTOR
SUBMISSION DATE: DAY 24 MO 09 YR 91

## OFFICE USE ONLY

DATA SOURCE
CONTRACTOR: 1504
DATE RECEIVED: DEC 30 1991
DATE OF INSPECTION
INSPECTOR
REMARKS

MINISTRY OF THE ENVIRONMENT COPY

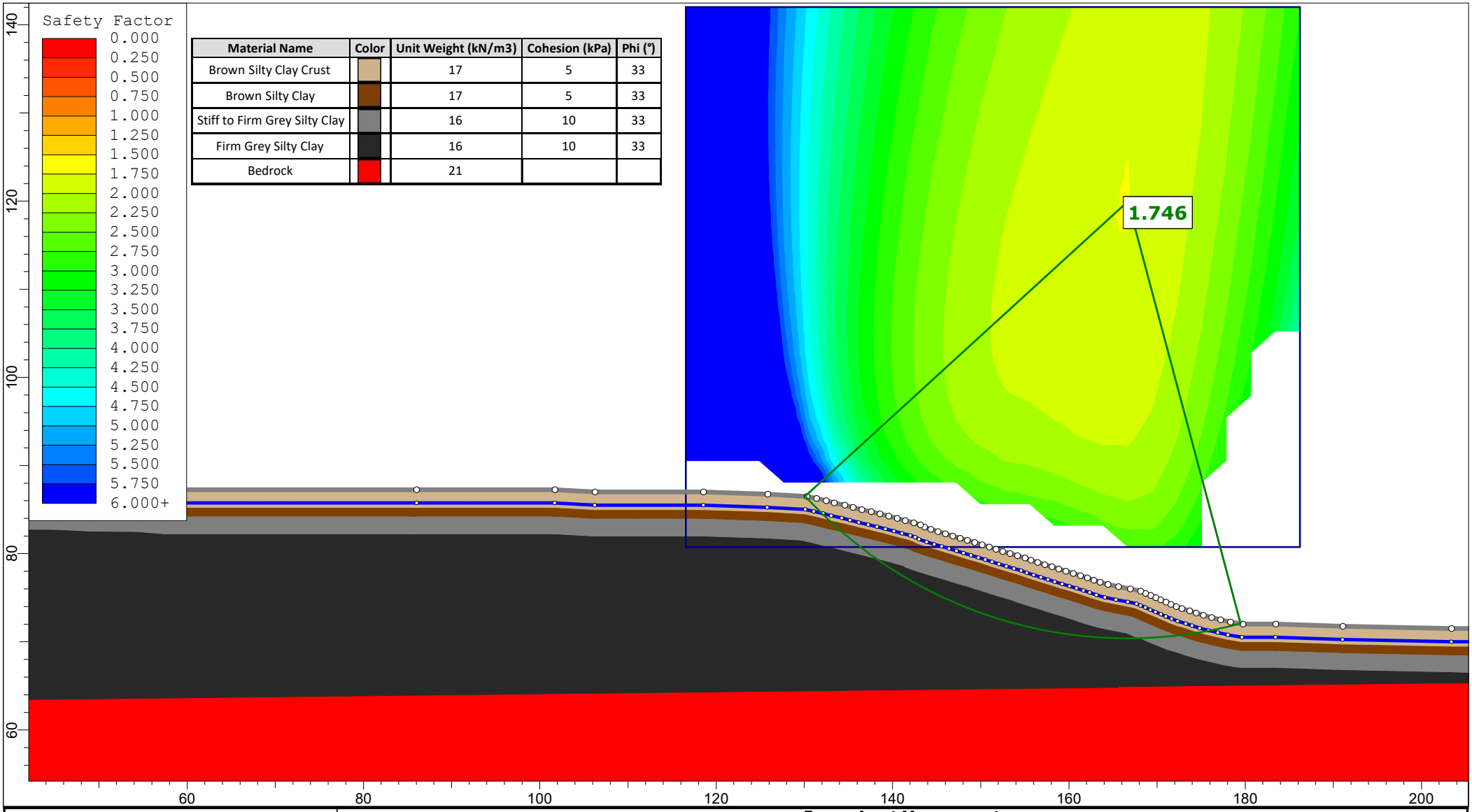
FORM NO. 0506 (11/86) FORM 9




# FIGURE 1

## KEY PLAN

PATERSON GROUP

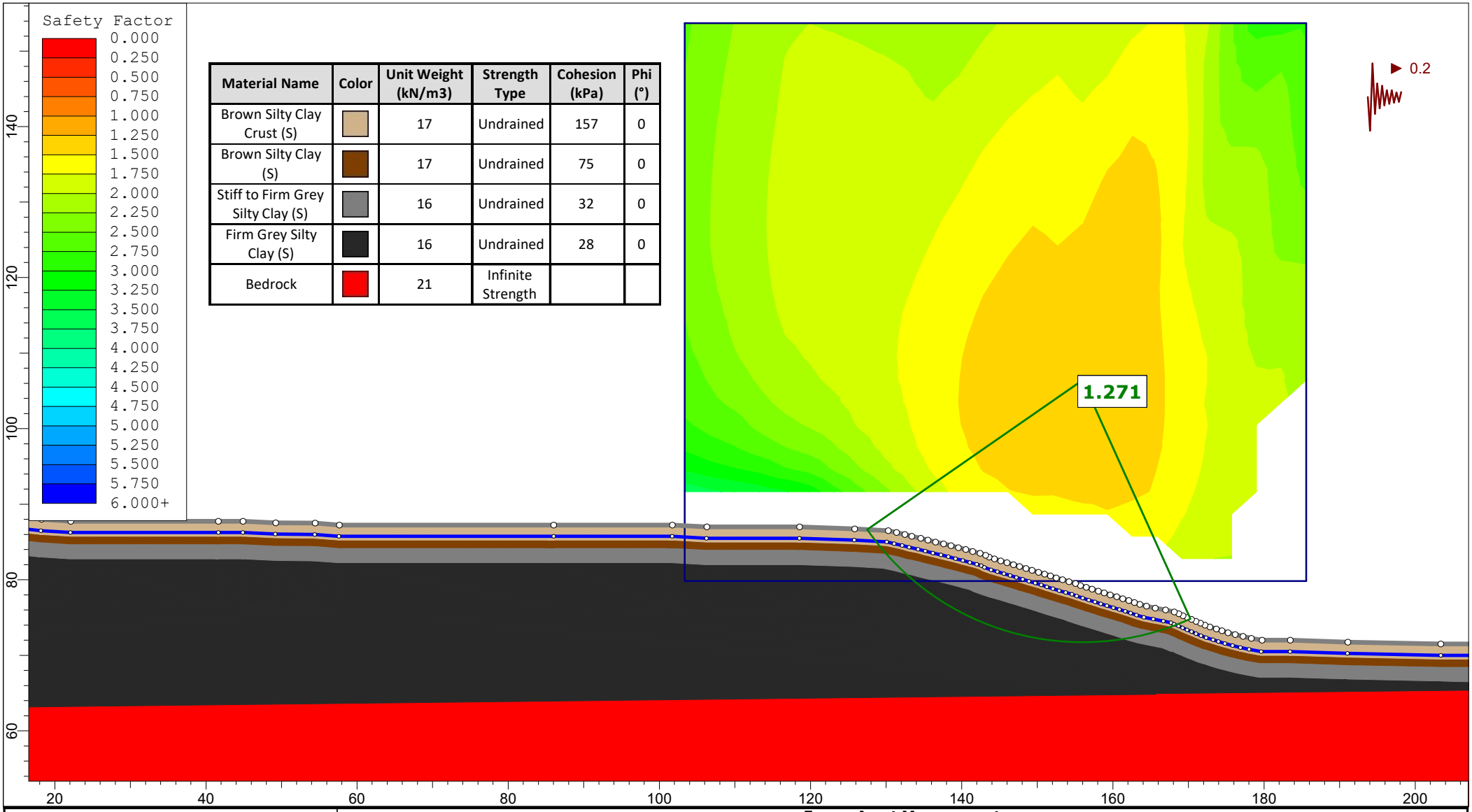



| Material Name | Color | Unit Weight (kN/m3) | Cohesion (kPa) | Phi (°) |
|---|---|---|---|---|
| Brown Silty Clay Crust | | 17 | 5 | 33 |
| Brown Silty Clay | | 17 | 5 | 33 |
| Stiff to Firm Grey Silty Clay | | 16 | 10 | 33 |
| Firm Grey Silty Clay | | 16 | 10 | 33 |
| Bedrock | | 21 | | |

PATERSON GROUP

SLIDEINTERPRET 9.036

| | |
|---|---|
| *Project No.:* | **Forum Asset Management**<br>**Slope Stability Analysis**<br>**530 Brisebois Cres. & Part of 265 Centrum Blvd., Ottawa, Ontario** |
| *Drawing No.:* | **Figure 1A - Section A - Static Loading** |
| *Prepared By:* NFRV | *File No.* PG8011 |




| Material Name | Color | Unit Weight (kN/m3) | Strength Type | Cohesion (kPa) | Phi (°) |
|---|---|---|---|---|---|
| Brown Silty Clay Crust (S) | | 17 | Undrained | 157 | 0 |
| Brown Silty Clay (S) | | 17 | Undrained | 75 | 0 |
| Stiff to Firm Grey Silty Clay (S) | | 16 | Undrained | 32 | 0 |
| Firm Grey Silty Clay (S) | | 16 | Undrained | 28 | 0 |
| Bedrock | | 21 | Infinite Strength | | |

PATERSON GROUP

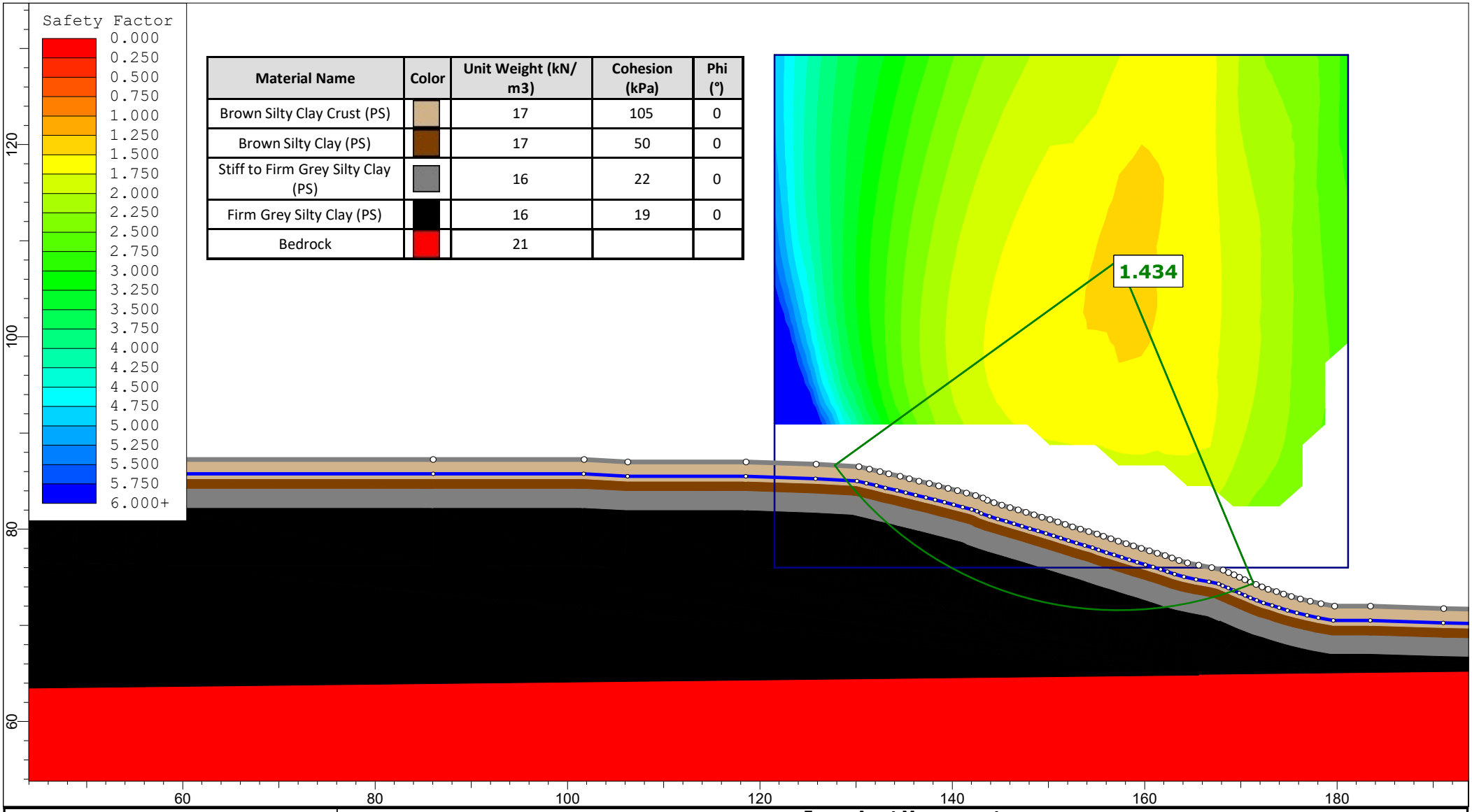
SLIDEINTERPRET 9.036

*Project No.:* **Forum Asset Management**
**Slope Stability Analysis**
**530 Brisebois Cres. & Part of 265 Centrum Blvd., Ottawa, Ontario**

*Drawing No.:* **Figure 1B - Section A - Seismic Loading**

*Prepared By:* NFRV

*File No.* PG8011




| Material Name | Color | Unit Weight (kN/m3) | Cohesion (kPa) | Phi (°) |
|---|---|---|---|---|
| Brown Silty Clay Crust (PS) | | 17 | 105 | 0 |
| Brown Silty Clay (PS) | | 17 | 50 | 0 |
| Stiff to Firm Grey Silty Clay (PS) | | 16 | 22 | 0 |
| Firm Grey Silty Clay (PS) | | 16 | 19 | 0 |
| Bedrock | | 21 | | |

PATERSON GROUP

SLIDEINTERPRET 9.036

*Project No.:*

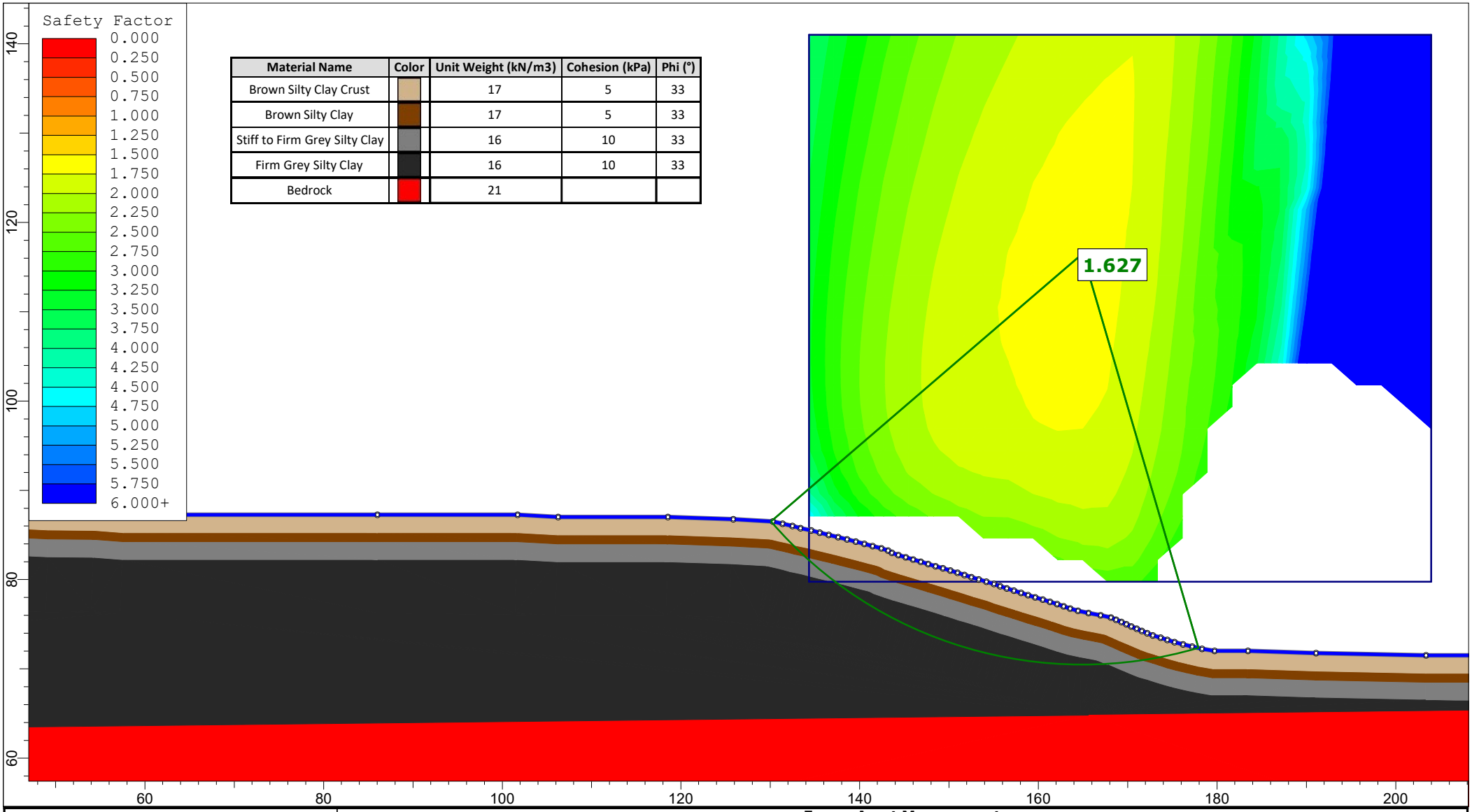
**Forum Asset Management**
**Slope Stability Analysis**
**530 Brisebois Cres. & Part of 265 Centrum Blvd., Ottawa, Ontario**

*Drawing No.:*

**Figure 1C - Section A - Post-Seismic Loading**

*Prepared By:* NFRV

*File No.* PG8011




| Material Name | Color | Unit Weight (kN/m3) | Cohesion (kPa) | Phi (°) |
|---|---|---|---|---|
| Brown Silty Clay Crust | | 17 | 5 | 33 |
| Brown Silty Clay | | 17 | 5 | 33 |
| Stiff to Firm Grey Silty Clay | | 16 | 10 | 33 |
| Firm Grey Silty Clay | | 16 | 10 | 33 |
| Bedrock | | 21 | | |

PATERSON GROUP

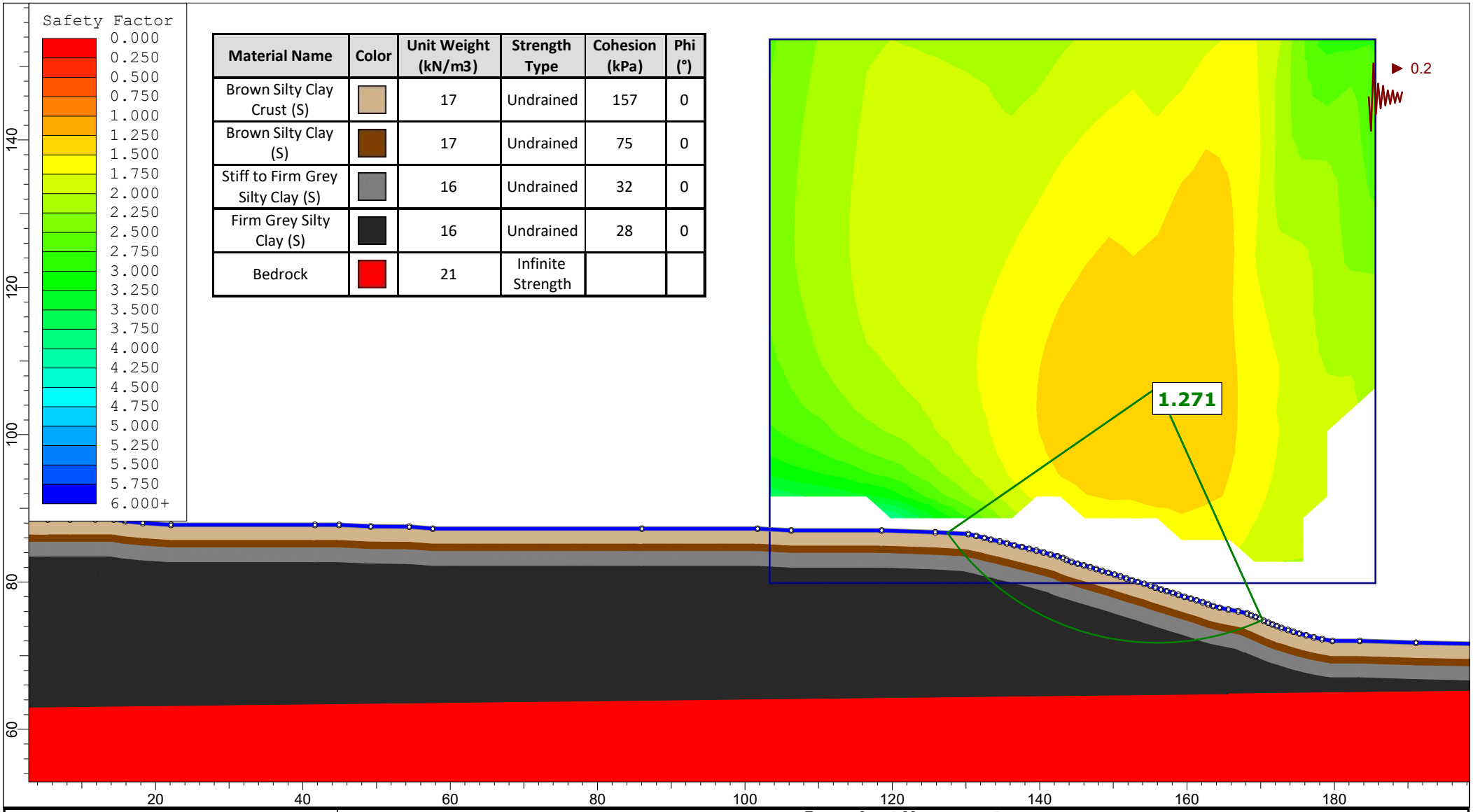
SLIDEINTERPRET 9.036

*Project No.:* **Forum Asset Management**
**Slope Stability Analysis**
**530 Brisebois Cres. & Part of 265 Centrum Blvd., Ottawa, Ontario**

*Drawing No.:* **Figure 2A - Section A - Static Loading**

*Prepared By:* NFRV

*File No.* PG8011




| Material Name | Color | Unit Weight (kN/m3) | Strength Type | Cohesion (kPa) | Phi (°) |
|---|---|---|---|---|---|
| Brown Silty Clay Crust (S) | | 17 | Undrained | 157 | 0 |
| Brown Silty Clay (S) | | 17 | Undrained | 75 | 0 |
| Stiff to Firm Grey Silty Clay (S) | | 16 | Undrained | 32 | 0 |
| Firm Grey Silty Clay (S) | | 16 | Undrained | 28 | 0 |
| Bedrock | | 21 | Infinite Strength | | |

PATERSON GROUP

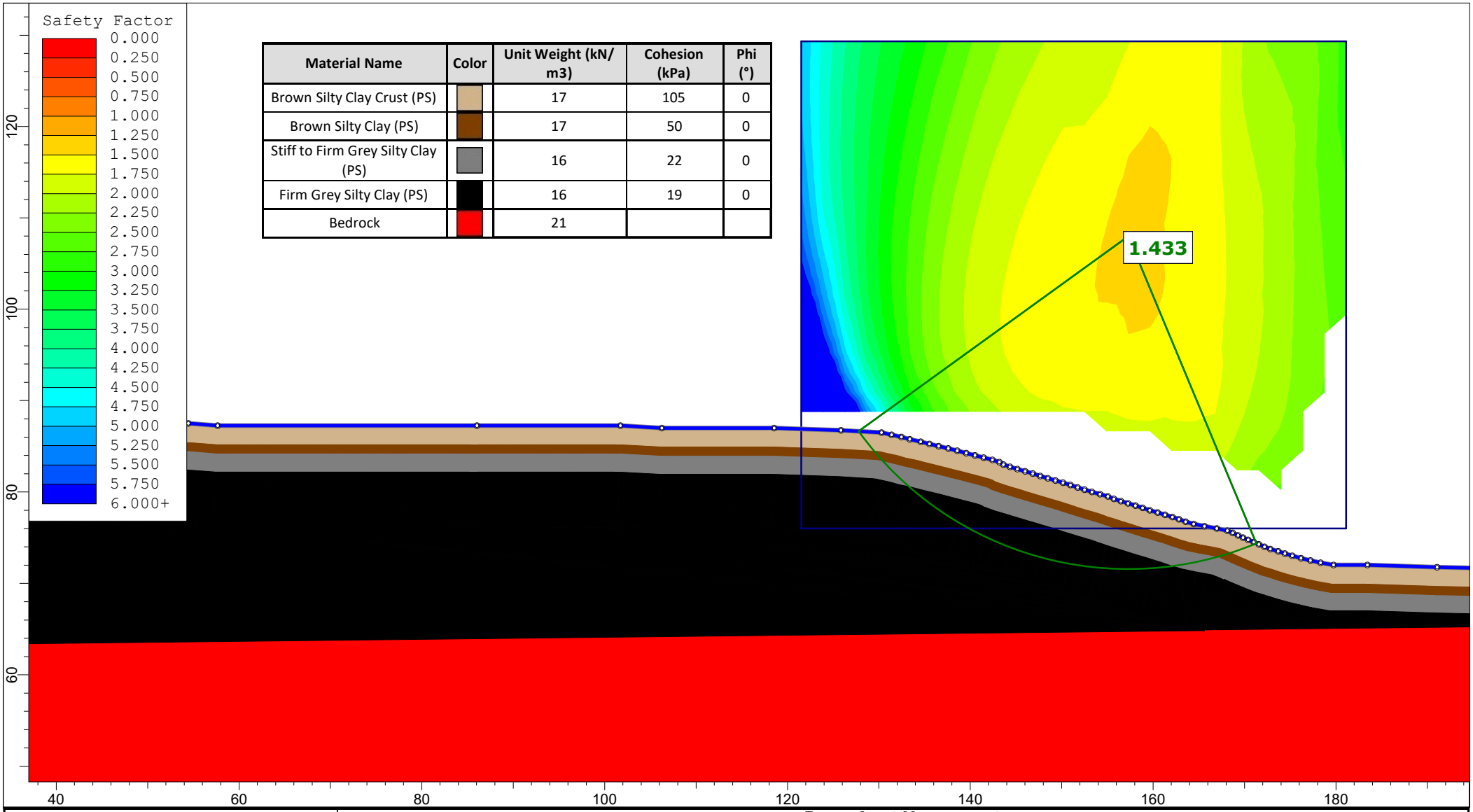
SLIDEINTERPRET 9.036

*Project No.:* **Forum Asset Management**
**Slope Stability Analysis**
**530 Brisebois Cres. & Part of 265 Centrum Blvd., Ottawa, Ontario**

*Drawing No.:* **Figure 2B - Section A - Seismic Loading**

*Prepared By:* NFRV

*File No.* PG8011




| Material Name | Color | Unit Weight (kN/m3) | Cohesion (kPa) | Phi (°) |
|---|---|---|---|---|
| Brown Silty Clay Crust (PS) | | 17 | 105 | 0 |
| Brown Silty Clay (PS) | | 17 | 50 | 0 |
| Stiff to Firm Grey Silty Clay (PS) | | 16 | 22 | 0 |
| Firm Grey Silty Clay (PS) | | 16 | 19 | 0 |
| Bedrock | | 21 | | |

PATERSON GROUP

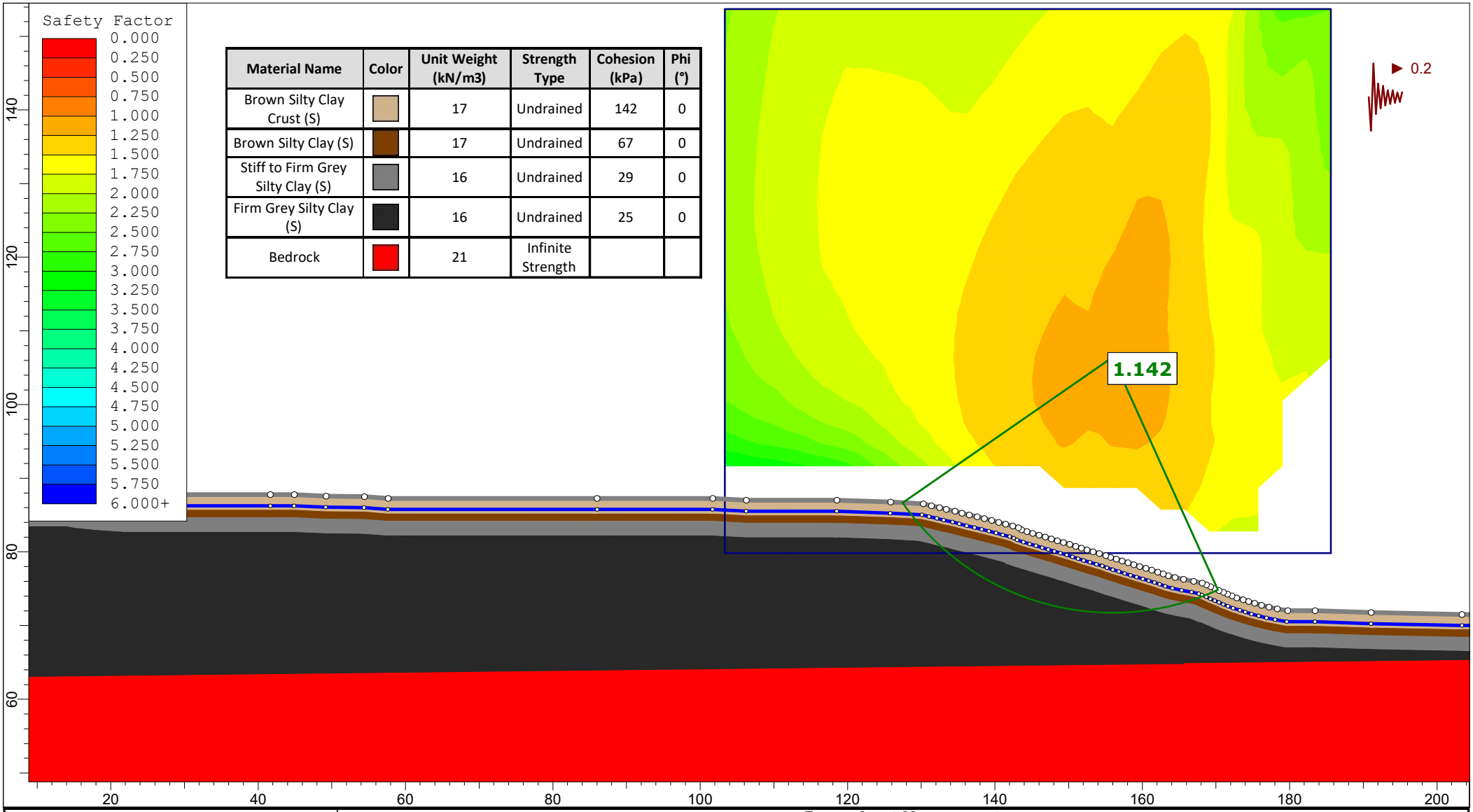
SLIDEINTERPRET 9.036

*Project No.:* **Forum Asset Management**
**Slope Stability Analysis**
**530 Brisebois Cres. & Part of 265 Centrum Blvd., Ottawa, Ontario**

*Drawing No.:* **Figure 2C - Section A - Post-Seismic Loading**

*Prepared By:* NFRV

*File No.* PG8011




| Material Name | Color | Unit Weight (kN/m3) | Strength Type | Cohesion (kPa) | Phi (°) |
|---|---|---|---|---|---|
| Brown Silty Clay Crust (S) | | 17 | Undrained | 142 | 0 |
| Brown Silty Clay (S) | | 17 | Undrained | 67 | 0 |
| Stiff to Firm Grey Silty Clay (S) | | 16 | Undrained | 29 | 0 |
| Firm Grey Silty Clay (S) | | 16 | Undrained | 25 | 0 |
| Bedrock | | 21 | Infinite Strength | | |

PATERSON GROUP

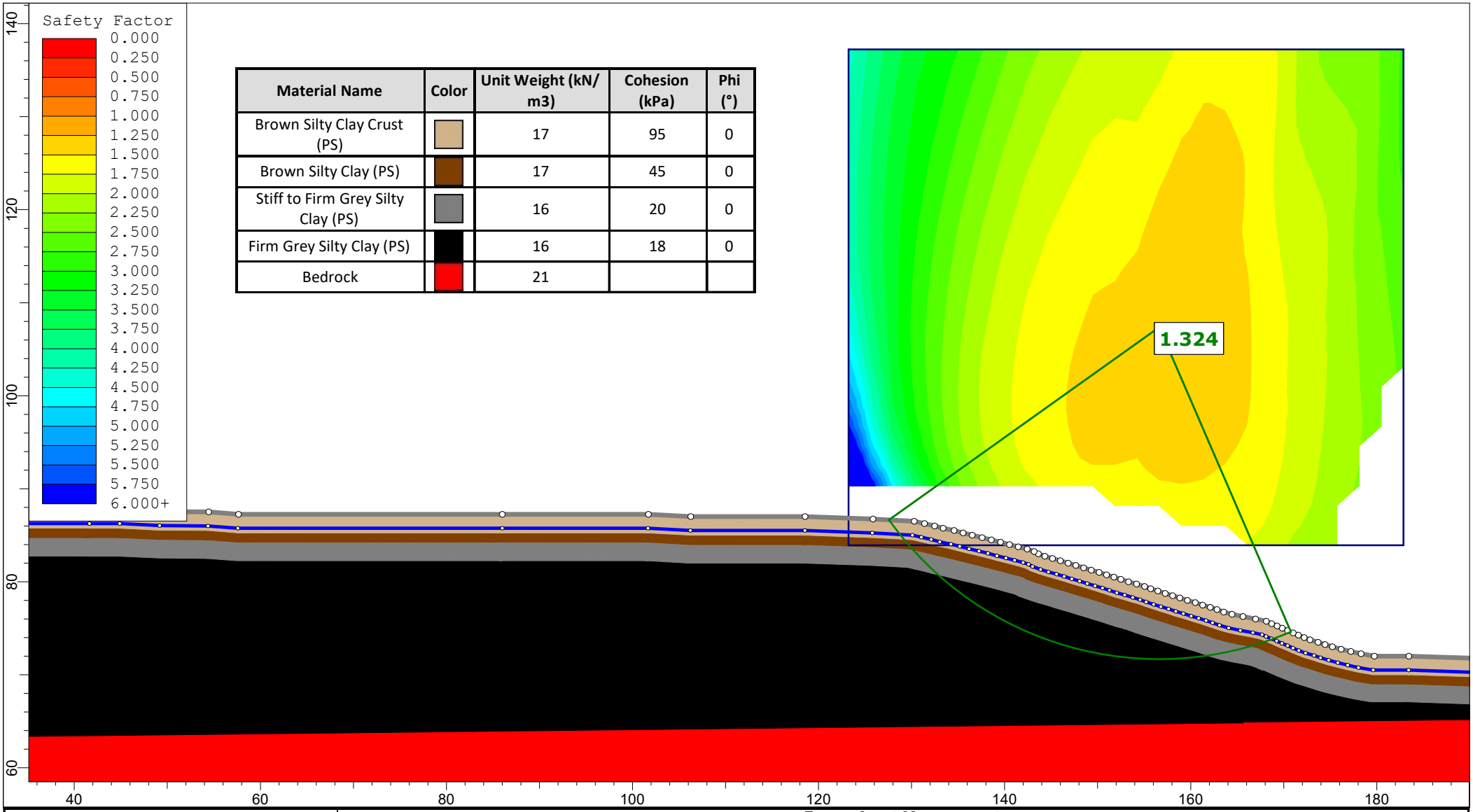
SLIDEINTERPRET 9.036

*Project No.:* **Forum Asset Management**
**Slope Stability Analysis**
**530 Brisebois Cres. & Part of 265 Centrum Blvd., Ottawa, Ontario**

*Drawing No.:* **Figure 3A - Section A - Seismic Loading**

*Prepared By:* NFRV

*File No.* PG8011




| Material Name | Color | Unit Weight (kN/m3) | Cohesion (kPa) | Phi (°) |
|---|---|---|---|---|
| Brown Silty Clay Crust (PS) | | 17 | 95 | 0 |
| Brown Silty Clay (PS) | | 17 | 45 | 0 |
| Stiff to Firm Grey Silty Clay (PS) | | 16 | 20 | 0 |
| Firm Grey Silty Clay (PS) | | 16 | 18 | 0 |
| Bedrock | | 21 | | |

PATERSON GROUP

SLIDEINTERPRET 9.036

*Project No.:* **Forum Asset Management**
**Slope Stability Analysis**
**530 Brisebois Cres. & Part of 265 Centrum Blvd., Ottawa, Ontario**

*Drawing No.:* **Figure 3B - Section A - Post-Seismic Loading**

*Prepared By:* NFRV

*File No.* PG8011

HIGHWAY 174

VIEUX-SILO STREET

TENTH LINE ROAD

#530 BRISEBOIS CRESCENT

PART OF #265 CENTRUM BLVD.

BRISEBOIS CRESCENT

FORUM BOULEVARD

CENTRUM BOULEVARD

ST. JOSEPH BOULEVARD

PRESTONE DRIVE

KENNEDY LANE

BH25-08

BH3

BH1

MW3

BH2

MW4

MW1

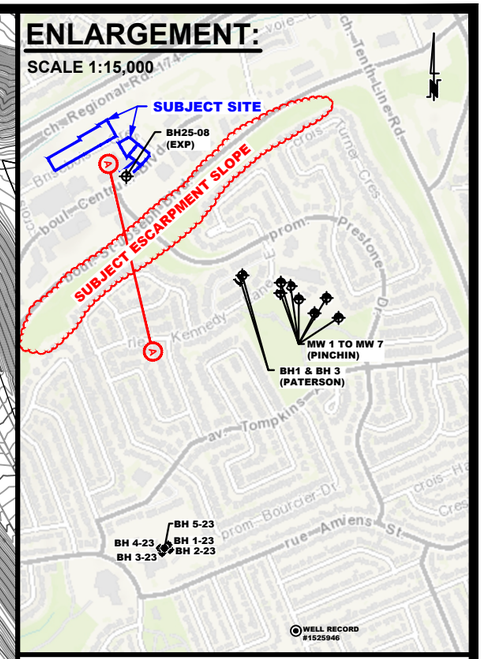
MW6

MW7

MW5

## ENLARGEMENT:

SCALE 1:15,000




LEGEND:

- EXISTING BOREHOLE LOCATION BY OTHERS (EXP, 2025)
- EXISTING BOREHOLE LOCATION (PATERSON GROUP, 2023)
- EXISTING BOREHOLE LOCATION BY OTHERS (PINCHIN, 2021)
- EXISTING BOREHOLE LOCATION (PATERSON GROUP, 1984)
- WELL RECORD BORING LOCATION
- SLOPE STABILITY CROSS-SECTION LOCATION
- EXISTING RETAINING WALL
- BEDROCK OUTCROP
- SUBJECT SITE BOUNDARY

NOTE: TOPOGRAPHIC CONTOUR DATA DEPICTED HEREIN ARE BASED ON 1:1000 SCALE LiDAR DIGITAL MAPPING DATA (2015)

SCALE: 1:3000

0 25 50 75 100 125 150 200m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OTTAWA, ON
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TEL: (613) 226-7381


| NO. | REVISIONS | DD/MM/YYYY | INITIAL |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| 1 | AS PER ADDITIONAL BOREHOLE COVERAGE | 29/06/2026 | NFRV |

FORUM INVESTMENT AND DEVELOPMENT CORPORATION

# GEOTECHNICAL DESKTOP SLOPE STABILITY ASSESSMENT
# 530 BRISEBOIS CRES. & PART OF 265 FORUM BLVD.

OTTAWA, ONTARIO

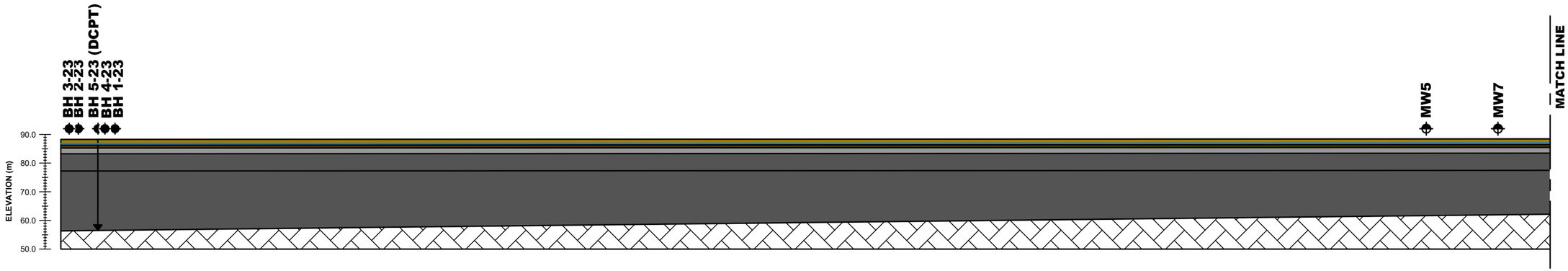
Title:

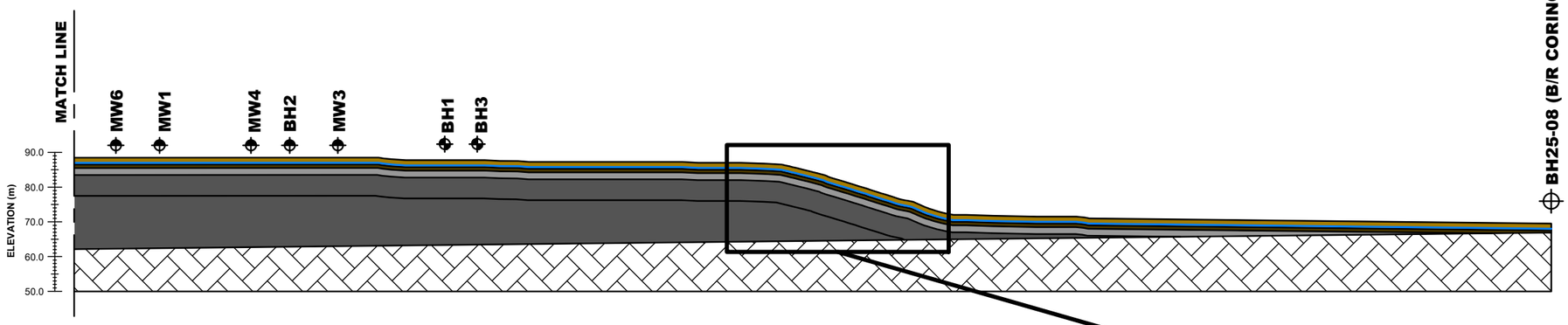
# TEST HOLE LOCATION PLAN

| | |
|---|---|
| Scale: 1:3000 | Date: 05/2026 |
| Drawn by: NFRV | Report No.: PG8011-LET.01 |
| Checked by: NFRV | Dwg. No.: PG8011-1 |
| Approved by: DP | Revision No.: 1 |

11x17

p:\autocad drawings\geotechnical\pg80xx\pg8011\pg8011-1 thlp (revision 1).dwg



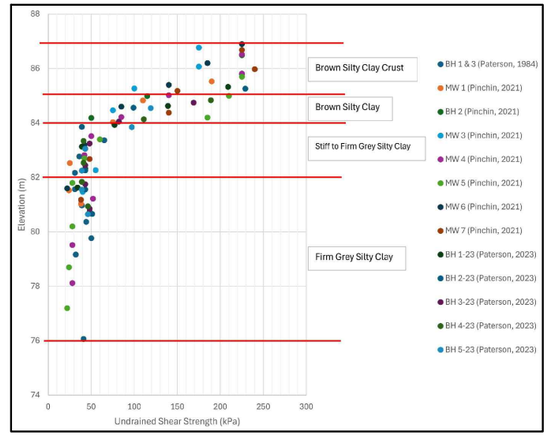




**FIGURE 1: UNDRAINED SHEAR STRENGTH vs. ELEVATION**

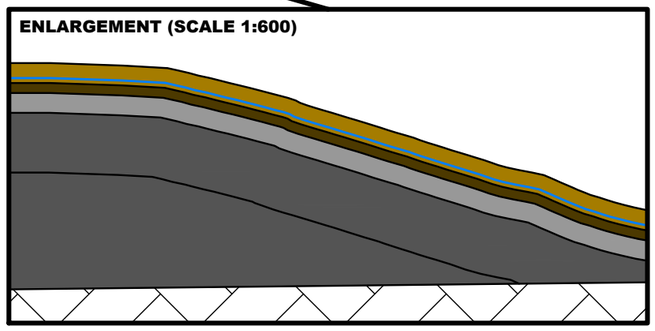
LEGEND:

- EXISTING BOREHOLE LOCATION BY OTHERS (EXP, 2025)
- EXISTING BOREHOLE LOCATION (PATERSON GROUP, 2023)
- EXISTING BOREHOLE LOCATION BY OTHERS (PINCHIN, 2021)
- EXISTING BOREHOLE LOCATION (PATERSON GROUP, 1984)
- BROWN SILTY CLAY CRUST
- BROWN SILTY CLAY
- STIFF TO FIRM GREY SILTY CLAY
- FIRM GREY SILTY CLAY
- BEDROCK
- LONG-TERM GROUNDWATER TABLE (1.5m DEEP)

SCALE: 1:1500

0 25 50 75 100m

**ENLARGEMENT (SCALE 1:600)**



GENERAL NOTES:

1. THE GRAPHICAL REPRESENTATION ABOVE OF THE UNDRAINED SHEAR STRENGTH VALUES (Su) RECOVERED THROUGHOUT THE LOCAL SILTY CLAY DEPOSIT WAS CONSIDERED WHEN EXTRAPOLATING THE SUBSURFACE CONDITIONS.
2. THE GROUNDWATER TABLE WAS CONSIDERED AT A DEPTH OF 1.5m FROM THE EXISTING GROUND SURFACE BASED ON THE SHALLOWEST RECOVERED GROUNWATER LEVEL MEASUREMENT (PINCHIN, MW6, 2021).
3. THE BEDROCK SURFACE WAS EXTRAPOLATED CONSIDERING THE BEDROCK CORING DATA PROVIDED FROM BH25-08 (EXP) AND THE REFUSAL TO DCPT FROM BH 5-26 (PATERSON)

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| NO. | REVISIONS | DD/MM/YYYY | INITIAL |
|---|---|---|---|
| 1 | AS PER ADDITIONAL BOREHOLE COVERAGE | 29/06/2026 | NFRV |

FORUM INVESTMENT AND DEVELOPMENT CORPORATION

GEOTECHNICAL DESKTOP SLOPE STABILITY ASSESSMENT
530 BRISEBOIS CRES. & PART OF 265 FORUM BLVD.

OTTAWA, ONTARIO

Title:
# EXTRAPOLATED BOREHOLE DATA CROSS-SECTION

| | |
|---|---|
| Scale: 1:1500 | Date: 06/2026 |
| Drawn by: NFRV | Report No.: PG8011-LET.01 |
| Checked by: NFRV | Dwg. No.: PG8011-2 |
| Approved by: DP | Revision No.: 1 |

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