

CONE PENETRATION TEST SOUNDINGS REPORT

Office of Geotechnical Engineering Division of Engineering

Project: MIA-718-7.62

PID: 116494

Date: November 22, 2024

Number of Soundings: 4

Equipment: A.P. van den Berg, 23 Ton Crawler, Hyson 200kN

Sounding ID	Completion Date	Probe SN	Calibration Date	Elevation	Latitude	Longitude	Surface Material	Depth (ft.)
C-001-0-24	11/12/24	201039	08/11/23	933.1	40.042240	-84.275613	Topsoil (7")	17.9
C-001-1-24	11/12/24	090304	08/09/23	932.7	40.042242	-84.275596	Topsoil (8")	19.1
C-002-0-24	11/12/24	090304	08/09/23	932.7	40.042060	-84.275493	Topsoil (6")	16.6
C-002-1-24	11/12/24	200723	01/17/24	933.1	40.042048	-84.275487	Topsoil (7")	16.1

Project Information

Four soundings were completed for this project. Two soundings were initially planned, but due to shallow termination offset soundings were completed to confirm conditions. All soundings were completed off road near the proposed headwall locations. All four soundings were terminated due to excessive tip resistance and hydraulic down pressure. The static water levels reported on the attached logs were determined from the measured pore pressure response of each sounding. The latitude and longitude values are from a Juniper Geode GNS3 GPS Receiver and elevation values are from the USGS 3DEP map service. The exploration locations are shown on the attached exploration plan.

The included CPT logs are for informational purposes only. The CPT logs have been filtered for negative values, corrected for inclination at depth, and filtered for data spikes. Additionally, for each sounding, the measured values of qc and fs were shifted relative to one another with a cross-correlation function. The raw CPT data is available upon request.

Cone Penetration Test Data and Interpretation

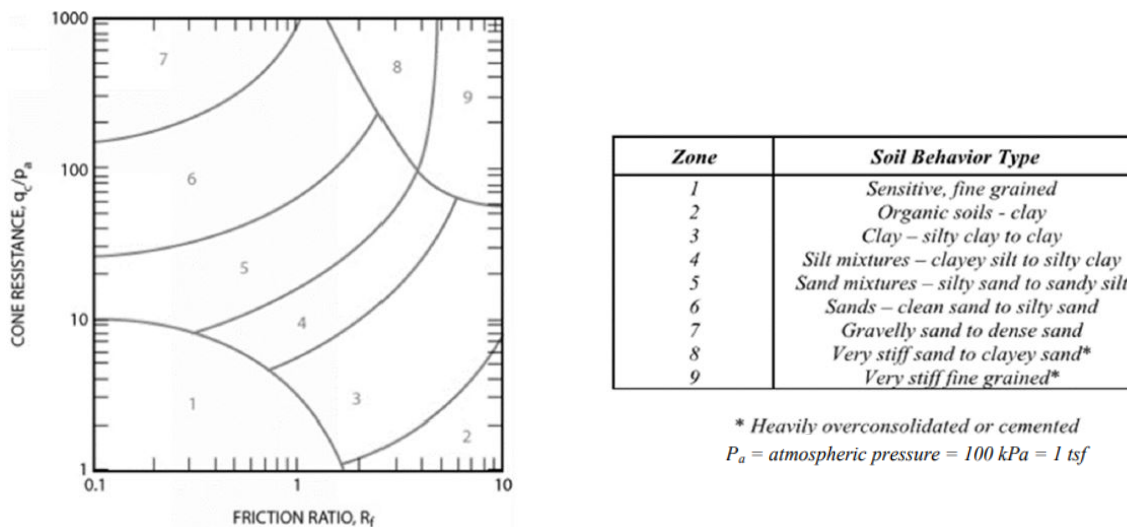
These Cone Penetration Test (CPT) Soundings follow ASTM D 5778 and were made by ordinary and conventional methods and with care deemed adequate for the Department's design purposes. The CPT data collected are presented as graphical plots in the report, generated by CPeT-IT software. The plots include interpreted Soil Behavior Type (SBT) based on the method described by Robertson (2010) & equivalent SPT N₆₀, described by



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Jefferies and Davies (1993) and presented in Robertson (2022). The interpretations are presented only as a guide for geotechnical use and should be carefully reviewed.

The department does not warrant the correctness or the applicability of any of the geotechnical parameters interpreted by the software and does not assume any liability for use of the results in any design or review. The user should be fully aware of the techniques and limitations of any method used in the software. Furthermore, the Department will not be responsible for any interpretations, assumptions, projections, or interpolations made by the contractor, or other users of this report. While the Department believes that the information as to the condition and materials reported is accurate, it does not warrant that the information is necessarily complete. Water pressure measurements and subsequent interpreted water levels shown in this report should be used with discretion since they represent dynamic conditions. Dynamic pore water pressure measurements may deviate substantially from hydrostatic conditions, especially in cohesive soils.



Non-normalized CPT Soil Behavior Type (SBT) chart
(Robertson et al., 1986, updated by Robertson, 2022)

$$\frac{(q_t/p_a)}{N_{60}} = 8.5 \left(1 - \frac{I_c}{4.6} \right)$$

q_t = Cone resistance I_c = SBTn Index
CPT Equivalent SPT N_{60} Correlation
(Robertson, 2022)

References

- Robertson, P.K. and Cabal, K.L, 2022. *Guide to Cone Penetration Testing for Geotechnical Engineering, 7th Edition*. Signal Hill, California: 29, 38.
<https://www.greggdrilling.com/wp-content/uploads/2022/11/CPT-Guide-7th-Final-sm.pdf>
Accessed June 20, 2024
- Jefferies, M.G. and Davies, M.P, “Use of CPTu to Estimate Equivalent SPT N_{60} ,” *Geotechnical Testing Journal*. GTJODJ. Vol. 16, No. 4. December 1993. pp. 458-468.
<https://insitusoil.com/wp-content/uploads/2021/06/CPTU-for-Ic-SPT-N60-and-fines-content.pdf>
Accessed July 1, 2024



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Legend

 2024 CPT Soundings

C-001-0-24

C-001-1-24

C-002-0-24

C-002-1-24

State Route 718

718

718

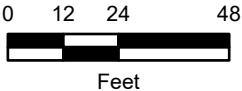
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Maxar, Microsoft, Esri Community Maps Contributors, © OpenStreetMap,
Microsoft, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/
NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS



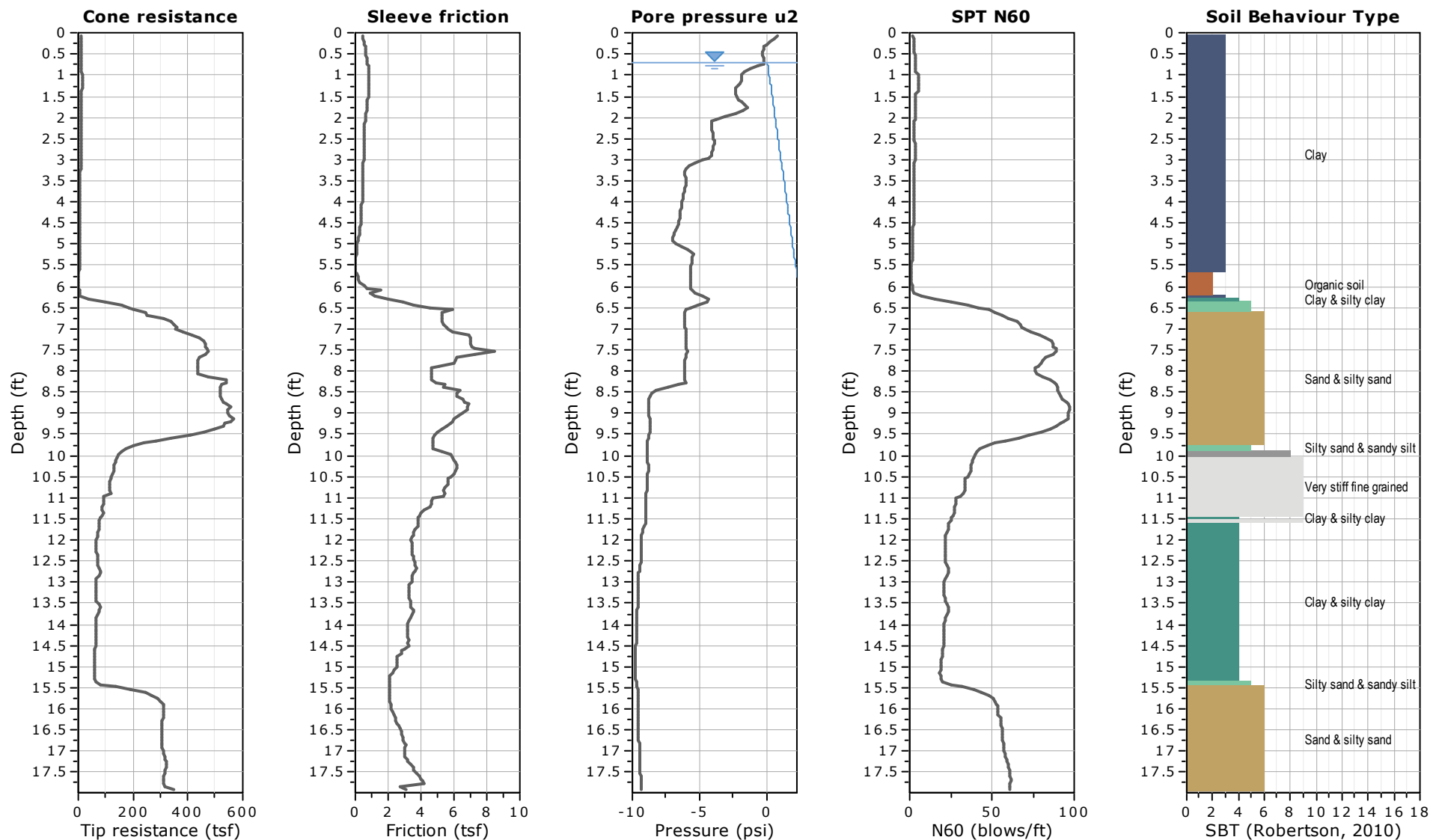
MIA-718-7.62
Exploration Plan





Project: MIA-718-7.62

Location: Miami County





Office of Geotechnical Engineering

Geology, Exploration and Laboratory Section

<https://www.transportation.ohio.gov/working/engineering/geotechnical>

CPT: C-001-1-24

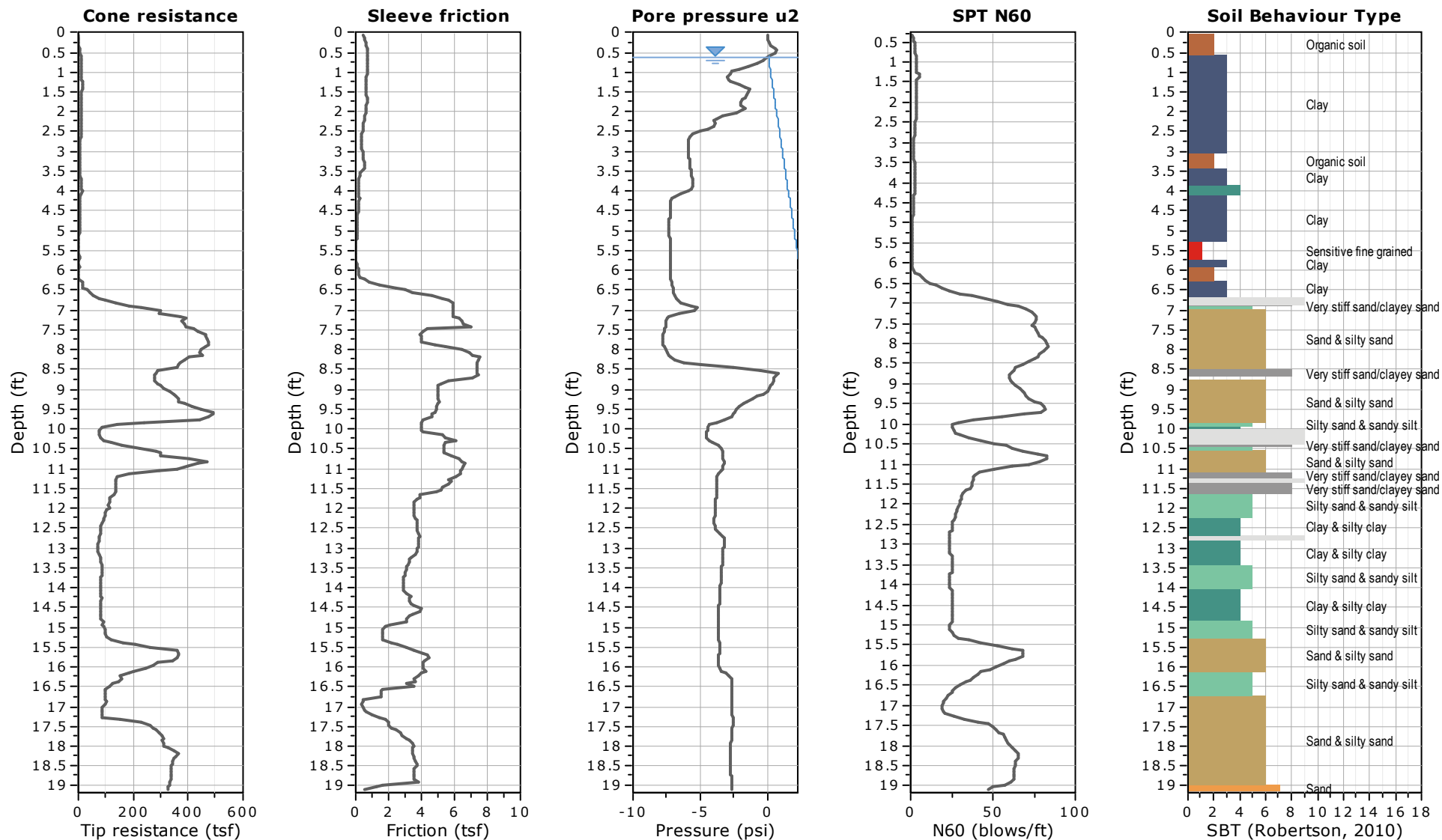
Total depth: 19.10 ft, Date: 11/12/2024

Surface Elevation: 932.73 ft

Coords: lat 40.042242° lon -84.275596°

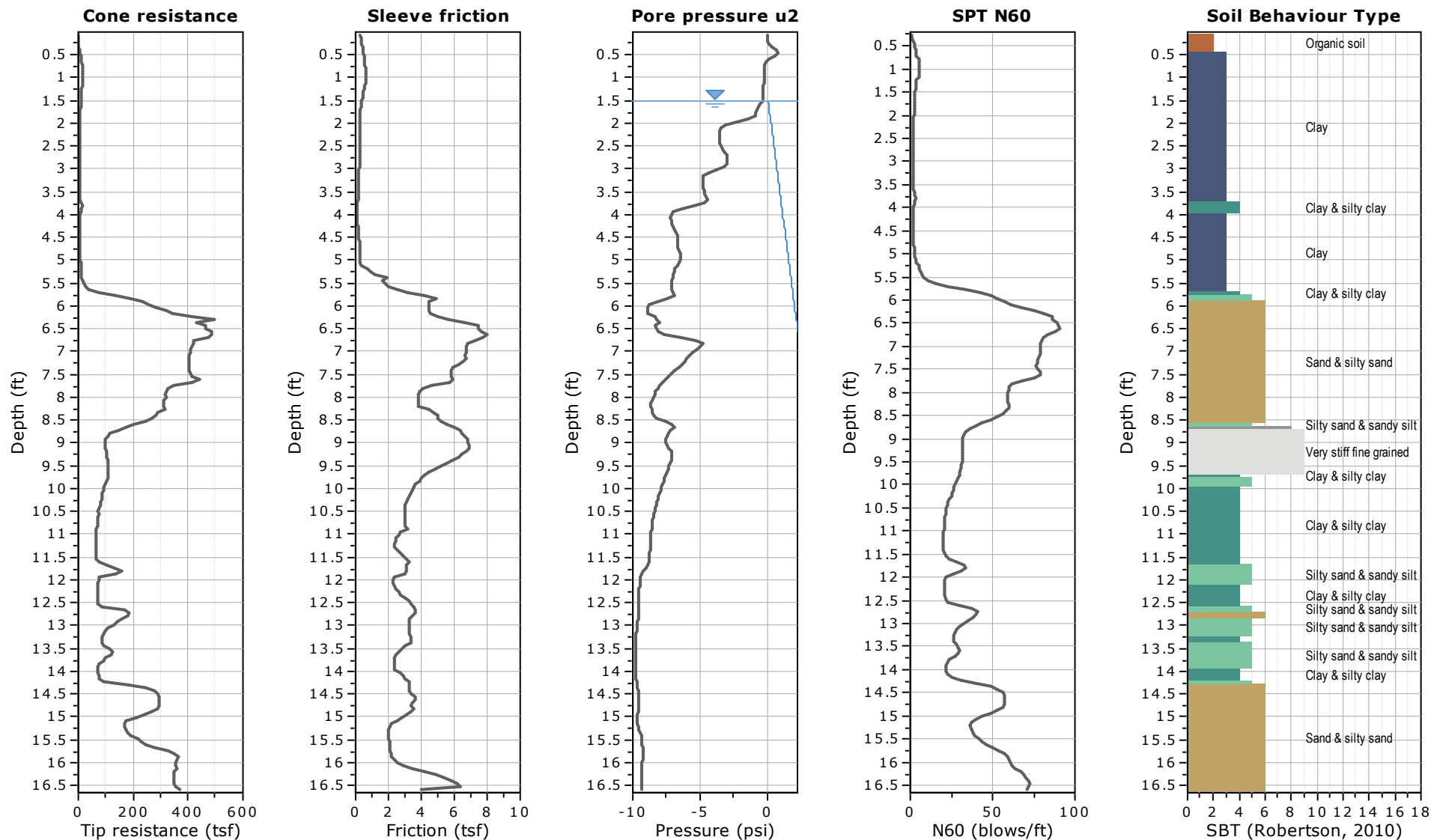
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CPT: C-002-1-24

Total depth: 16.07 ft, Date: 11/12/2024

Surface Elevation: 933.06 ft

Coords: lat 40.042048° lon -84.275487°

Project: MIA-718-7.62

Location: Miami County

