DRAFT

Preliminary Geotechnical Investigation

7564 Tenth Line Road, Mississauga, Ontario

Prepared for:

Prologis Inc.
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Denver, CO USA 80202

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TABLE OF CONTENTS

FIGURES

APPENDICES

1.0 INTRODUCTION AND SCOPE

Pinchin Ltd. (Pinchin) was retained by Prologis Inc. (Client) to conduct a Preliminary Geotechnical Investigation and provide subsequent geotechnical design recommendations as part of due diligence requirements for potential acquisition of 7564 Tenth Line Road, Mississauga, Ontario (Site).

Based on information provided by the Client, the current plans for development consist of three one-storey industrial buildings, with no basement levels, and associated access roadways and parking. Proposed final grades were not know at the time of this report's preparation.

Pinchin's geotechnical comments and recommendations are based on the results of the Preliminary Geotechnical Investigation and our understanding of the project scope.

The purpose of the Preliminary Geotechnical Investigation was to delineate the subsurface conditions and soil engineering characteristics by advancing a total of thirty (30) sampled boreholes (Boreholes BH1 to BH30), at the Site.

Based on a desk top review and the results of the Preliminary Geotechnical Investigation, the following geotechnical data and engineering design recommendations are provided herein:

- A detailed description of the soil and groundwater conditions;
- Site preparation recommendations;
- Open cut excavations;
- Anticipated groundwater management;
- Site service trench design;
- Preliminary foundation design recommendations including soil bearing resistances at Ultimate Limit States (ULS) and Serviceability Limit States (SLS) design;
- Potential total and differential settlements;
- Foundation frost protection and engineered fill specifications and installation;
- Seismic Site classification for seismic Site response;
- Concrete floor slab-on-grade support recommendations; and,
- Potential construction concerns.

Abbreviations terminology and principle symbols commonly used throughout the report, borehole logs and appendices are enclosed in Appendix I.

2.0 SITE DESCRIPTION AND GEOLOGICAL SETTING

The Site is located at 7564 Tenth Line Road in Mississauga, Ontario. The Site is currently undeveloped and used for agricultural purposes. The site is adjacent to Highway 401 right-of-way to the north and industrial buildings to the south.

Data obtained from the Ontario Geological Survey Maps, as published by the Ontario Ministry of Natural Resources, indicates that the Site is located on glaciolacustrine deposits generally comprising silty clay or clay cohesive till. The underlying bedrock at this Site is of the Queenston Formation consisting of shale, limestone, dolostone and siltstone (Ontario Geological Survey Map 1972, published 1978).

3.0 GEOTECHNICAL FIELD INVESTIGATION AND METHODOLOGY

Pinchin completed field investigations at the Site between September 26th and October 2nd , 2024 by advancing a total of thirty (30) sampled boreholes throughout the Site. The boreholes were advanced to depths of approximately 6.4 metres below existing ground surface (mbgs). The approximate spatial locations of the boreholes advanced at the Site are shown on the sketch in Figure 1. A drafted borehole location plan will be provided in the final version of this report.

The boreholes were advanced with the use of a CME 55 track-mounted rotary drill rig which was equipped with standard soil sampling equipment. Soil samples were collected at 0.75 and 1.5 m intervals using a 51 mm outside diameter (OD) split spoon barrel in conjunction with Standard Penetration Tests (SPT) “N” values (ASTM D1586). The SPT “N” values were used to assess the compactness condition of the non-cohesive soils and estimate the consistency of cohesive soils.

Monitoring wells were installed in two boreholes to allow measurement of stabilized groundwater levels . The monitoring wells were constructed using flush-threaded 50 mm diameter Trilock pipe with 3.0 meter long 10-slot well screens, delivered to the Site in pre-cleaned individually sealed plastic bags. The screen and riser pipes were not allowed to come into contact with the ground or drilling equipment prior to installation.

A completed well record was submitted to the property owner and the Ministry of the Environment, Conservation and Parks for Ontario (MECP) as per Ontario Regulation 903, as amended. A licensed well technician must properly decommission the monitoring wells prior to construction according to Regulation 903 of the Ontario Water Resources Act.

Groundwater observations and measurements were obtained from the open boreholes during and upon completion of drilling. Groundwater levels were not measured at the time of the draft version of this report, but will be included in the final report. The groundwater observations and measurements recorded are included on the appended borehole logs.

The borehole locations were not surveyed at the time of the draft version of this report. Surveyed borehole locations and ground surface elevations will be provided in the final version of this report.

The field investigation was monitored by experienced Pinchin personnel. Pinchin logged the drilling operations and identified the soil samples as they were retrieved. The recovered soil samples were sealed into plastic bags and carefully transported to Pinchin's accredited materials testing laboratory for detailed analysis and testing. All soil samples were classified according to visual and index properties by the project engineer.

The field logging of the soil and groundwater conditions was performed to collect geotechnical engineering design information. The borehole logs include textural descriptions of the subsoil in accordance with a modified Unified Soil Classification System (USCS) and indicate the soil boundaries inferred from non-continuous sampling and observations made during the borehole advancement. These boundaries reflect approximate transition zones for the purpose of geotechnical design and should not be interpreted as exact planes of geological change. The modified USCS classification is explained in further detail in Appendix I. Details of the soil and groundwater conditions encountered within the boreholes are included on the Borehole Logs within Appendix II.

Select soil samples collected from the boreholes were submitted to Pinchin's material testing laboratory to determine the grain size distribution and plasticity characteristics of the soil. At the time of writing this report, the laboratory results are not yet available, and will be included in the final version of this report.

4.0 SUBSURFACE CONDITIONS

4.1 Borehole Soil Stratigraphy

In general, the soil stratigraphy at the Site comprises topsoil underlain with a layer of sandy silt, underlain by glacial till deposits. The upper layer of glacial till typically comprises cohesive silty clay or sandy silt and clay, which overlies sandy silt til silty sand till. The appended borehole logs provide detailed soil descriptions and stratigraphies, results of SPTs, moisture content profiles, details of monitoring well installations, and groundwater measurements.

4.1.1 Topsoil

All borehole on site encountered topsoil at surface, ranging in thickness from 100 mm to 300 mm.

4.1.2 Sandy Silt

A 0.4 to 0.6 m thick layer of sandy silt was found beneath the topsoil in most boreholes on site, extending to depths of 0.8 mbgs. This sandy silt layer contained trace gravel, was brown in colour and was described as moist.

SPT 'N'-values within this sandy silt layer ranged between 4 and 10 blows per 0.3 m of penetration, indicating a loose stat of compactness.

4.1.3 Silty Clay to Sandy Silty Clay Till

Underlying the topsoil in all boreholes, a 4.0 to 6.5 m thick deposit of silty clay was encountered, extending to depths between about 4.2 to 6.7 mbgs. Boreholes BH9, BH21, BH27 and BH28 were terminated in this deposit. The silty clay was described as sandy to containing some sand, trace to some gravel and brown in colour. The moisture content of this deposit was generally described as being about the plastic limit (APL) to drier than the plastic limit (DTPL).

SPT 'N'-values within the silty clay deposit ranged between 5 and greater than 50 blows per 0.3 m of penetration, suggesting a firm to hard consistency. The majority of this glacial till deposit more than 1.5 m below existing grade was very stiff to hard.

4.1.4 Sandy Silt to Silty Sand to Silty Sand and Gravel Till

Underlying the upper cohesive glacial till in all boreholes except Boreholes BH9, BH21, BH27 and BH28, a deposit of sandy silt to silty sand to silty sand and gravel till was encountered. This lower non-cohesive glacial till deposit extended to the termination depth of all boreholes in which it was encountered. This non-cohesive deposit was generally described as grey, wet, and containing trace rock fragments.

SPT 'N'-values within this deposit ranged from 13 to greater than 50 blow per 0.3 m of penetration, indicating a compact to very dense state of compactness.

4.2 Groundwater Conditions

Groundwater observations and measurements were obtained in the open boreholes at the completion of drilling and are summarized on the appended borehole logs. Groundwater levels in the open boreholes generally ranged from 5.0 to 6.7 mbgs. Groundwater had not been measured in the monitoring wells installed for this investigation at the time of the draft version of this report.

Typically, the grey colour of the soils noted in the boreholes between 5.0 to 5.5 mbgs is indicative of permanent saturated conditions, and therefore, the fluctuations of the long-term groundwater should not be expected to drop below this depth. Perched groundwater may occur above these depths particularly following heavy rainfall or snowmelt.

Seasonal variations in the water table should be expected, with higher levels occurring during wet weather conditions in the spring and fall and lower levels occurring during dry weather conditions.

5.0 PRELIMINARY GEOTECHNICAL DESIGN RECOMMENDATIONS

5.1 General Information

The recommendations presented in the following sections of this report are based on the information available regarding the proposed construction, the results obtained from the preliminary geotechnical investigation, and Pinchin's experience with similar projects. Since the investigation only represents a portion of the subsurface conditions, it is possible that conditions may be encountered during construction that are substantially different than those encountered during the investigation. If these situations are encountered, adjustments to the design may be necessary. A qualified geotechnical engineer should be on-Site during the foundation preparation to ensure the subsurface conditions are the same/similar to what was observed during the investigation.

It is Pinchin's understanding that the development will consist of a three one-storey slab-on-grade (i.e. no basement level) industrial buildings and associated parking areas and access roadways. Information on proposed finished grades was not available at the time of this report's preparation.

5.2 Site Preparation

The existing topsoil is not considered suitable to remain below the proposed buildings, driveways and parking areas and will need to be removed. In calculating the approximate quantity of topsoil to be stripped, we recommend that the topsoil thicknesses provided on the individual borehole logs be increased by 50 mm to account for variations and some stripping of the mineral soil below.

Pinchin recommends that any engineered fill required at the Site be compacted in accordance with the criteria stated in the following table:

Type of Engineered Fill	Maximum Loose Lift Thickness (mm)	Compaction Requirements	Moisture Content (Percent of Optimum)
Structural fill to support foundations and floor slabs	200	100% SPMDD	Plus 2 to minus 4
Subgrade fill beneath parking lots and access roadways	300	98% SPMDD	Plus 2 to minus 4

Prior to placing any fill material at the Site, the subgrade should be inspected by a qualified geotechnical engineer, and loosened/soft pockets should be sub excavated and replaced with engineered fill.

Engineered structural fill must extend at least 1 m beyond the edge of proposed footings, and then downwards and outwards to competent subgrade at 1 horizontal to 1 vertical. It is also recommended that engineered structural fill be overbuilt at least 300 mm above the design underside of footing elevations.

The native sandy silty clay to silty clay till should be suitable for use as engineered fill and subgrade fill provided the grading work is carried out during periods of time with warmer weather and limited precipitation. Any wet portions of the native soils may need to be placed in thin lifts over large areas and allowed to dry. Placement in thin lifts is also important to ensure that any drier blocky portions of the native soils are properly broken down such that there are no air voids left in the fill. Use of heavy sheepsfoot packers will help to properly compact the fill.

It is recommended that any additional material imported to Site to raise grades below the proposed buildings comprise imported Ontario Provincial Standard Specification (OPSS) 1010 Granular 'B' Type I material. It is noted that Granular 'B' Type I material may consist of up to 100% Reclaimed Concrete Materials (RCM). RCM used as Granular 'B' shall not contain any loose reinforcing material. It is also noted that RCM will tend to increase the pH level of the Site and potentially contain environmental contaminants. The presence of thick RCM fills could affect the environmental conditions of the Site and become an issue in the future should the Site be sold or redeveloped.

If the work is carried out during very dry weather, water may have to be added to the material to improve compaction. Other types of imported soil may be suitable for use on Site but should be approved by a geotechnical engineer prior to import. A qualified geotechnical engineering technician should be on site to observe fill placement operations and perform field density tests at random locations throughout each lift, to indicate the specified compaction is being achieved.

5.3 Open Cut Excavations

It is anticipated that the foundations will be constructed at conventional frost depths, approximately 1.5 metres below finished floor elevation. Excavations for site services are expected at conventional depths of 2 to 3 mbgs.

Based on the subsurface information obtained from within the boreholes, it is anticipated that the excavated material will predominately consist of topsoil, sandy silt and native silty clay material. Groundwater was generally encountered at depths between 5.0 and 6.7 mbgs.

Where workers must enter trench excavations deeper than 1.2 m, the trench excavations should be suitably sloped and/or braced in accordance with the Occupational Health and Safety Act (OHSA), Ontario Regulation 213/91, Construction Projects, July 1, 2011, Part III - Excavations, Section 226. Alternatively, the excavation walls may be supported by either closed shoring, bracing, or trench boxes complying with sections 235 to 239 and 241 under O. Reg. 231/91, s. 234(1). The use of trench boxes can most likely be used for temporary support of vertical side walls. The appropriate trench should be designed/confirmed for use in this soil deposit.

Based on the OHSA, the silty clay soils would be classified as Type 2 soil and temporary excavations in these soils may be cut vertical in the bottom 1.2 m and must be sloped back at an inclination of 1 horizontal to 1 vertical (H to V) above this. The sandy silt soils would be classified as Type 3 soil and temporary excavations in these soils must be sloped back at an inclination of 1 horizontal to 1 vertical (H to V)from the base of the excavation. Excavations extending below the groundwater table would be classified as a Type 4 soil and temporary excavations will have to be sloped back at 3 horizontal to 1 vertical from the base of the excavation. Excavations through more than one soil type must be sloped as per the requirements of the soil type with the highest number.

In addition to compliance with the OHSA, the excavation procedures must also be in compliance to any potential other regulatory authorities, such as federal and municipal safety standards.

Alternatively, the excavation walls may be supported by either closed shoring, or bracing, complying with sections 235 to 239 and 241 under O. Reg. 231/91, s. 234(1). Pinchin would be pleased to provide further recommendations on shoring design once the building plans have been completed.

Seasonal variations in the water table should be expected, with higher levels occurring during wet weather conditions in the spring and fall and lower levels occurring during dry weather conditions. If construction commences during wet periods (typically spring or fall), there is a greater potential that the groundwater elevation could be higher and/or perched groundwater may be present. Any potential precipitation or perched groundwater should be able to be controlled from pumping from filtered sumps.

Prior to commencing excavations, it is critical that all existing surface water and potential surface water is controlled and diverted away from the Site to prevent infiltration and subgrade softening. At no time should excavations be left open for a period of time that will expose them to precipitation and cause subgrade softening.

All collected water is to discharge a sufficient distance away from the excavation to prevent re-entry. Sediment control measures, such as a silt fence should be installed at the discharge point of the dewatering system. The utmost care should be taken to avoid any potential impacts on the environment.

It is the responsibility of the contractor to propose a suitable dewatering system based on the groundwater elevation at the time of construction. The method used should not adversely impact any nearby structures. Excavations to conventional design depths for the building foundations are not expected to require a Permit to Take Water or a submission to the Environmental Activity and Sector Registry (EASR). It is the responsibility of the contractor to make this application if required.

As previously mentioned, above average seasonal variations in the groundwater table should be expected, with higher levels occurring during wet weather conditions in the spring and fall and lower levels occurring during dry weather conditions. As such, depending on the groundwater at the time of the excavation works, a more involved dewatering system may be required.

5.4 Site Servicing

5.4.1 Pipe Bedding and Cover Materials for Flexible and Rigid Pipes

The subgrade soil conditions beneath the site services will likely comprise natural glacial till soils. Any organic or excessively loose/soft soil encountered below the pipe inverts should be removed and replaced with additional pipe bedding. No support problems are anticipated for flexible or rigid pipes founded in the natural mineral soils. It is critical that the pipe subgrade is inspected by a geotechnical engineer prior to placement of pipe bedding material to ensure adequate support is available for the services.

Service pipes require an adequate base to ensure proper pipe connection and positive flow is maintained post construction. As such, pipe bedding should be placed to be of uniform thickness and compactness. The pipe bedding and cover material should conform to OPSD 802.010 and 802.013 specifications for flexible pipes and to OPSD 802.031 to 802.033 with Class “B” bedding for rigid pipes. The pipe bedding material should consist of a minimum thickness of 150 mm Granular “A” (OPSS 1010) below the pipe and extend up the sides to the spring line. However, the bedding thickness may have to be increased depending on the pipe diameter or if wet or weak subgrade conditions are encountered. The pipe cover material from the spring line should consist of a Granular “B” Type I (OPSS 1010) and should extend to a minimum of 300 mm above the top of the pipe. All granular fill material is to be placed in maximum 200 mm thick loose lifts compacted to a minimum of 98% SPMDD.

The bedding material, pipe and cover material should be installed as soon as practically possible after the excavation subgrade is exposed. The longer the excavated subgrade soil remains open to weather conditions and groundwater seepage, the greater the chance for construction problems to occur. Where it is difficult to stabilize the subgrade due to groundwater or the material is higher than the optimum moisture content, a Granular “B” Type II material may be required. Alternatively, if constant groundwater infiltration becomes an issue, then an approximate 150 mm granular pad consisting of 19 mm clear stone gravel (OPSS 1004) wrapped in a non-woven geotextile should be considered to maintain the integrity of the natural subgrade soil.

The clear stone should contain a minimum of 50% crushed particles. Water collected within the stone should be controlled through sumps and filtered pumps.

5.4.2 Trench Backfill

Following placement of the pipe bedding cover the trench shall be backfilled. The on-Site glacial till soils from above the groundwater table will be suitable for use at trench backfill. Portions of the material may be too wet and will require drying prior to placing as backfill. The natural clayey soils will have a blocky/lumpy texture, and a sheepsfoot roller is recommended in order to achieve proper compaction and ensure that all air voids are removed to avoid long term softening and settlement.

The soil should be placed to the design subgrade level, and be compacted in maximum 200 mm thick lifts to 98% SPMDD within 4% of the optimum moisture content for hardscaped areas and 95% SPMDD within 4% of the optimum moisture content for landscaped areas. The natural material must be free of organics or other deleterious material.

All stockpiled material should be protected from deleterious materials, additional moisture and be kept from freezing.

Quality control will be the utmost importance when selecting the material to use as backfill whether natural material or imported granular. The selection of the material should be done as early in the contract as possible to allow sufficient time for gradation and proctor testing on representative samples to ensure it meets the projects specifications.

Where the natural soil will be exposed, adequate compaction may prove difficult if the material becomes wet (i.e., above the optimum moisture content). Depending on the moisture content of the natural materials at the time of construction, they may either require moisture to be added or stockpiled and left to dry to achieve moisture content within plus 2% to minus 4% of optimum.

Depending on weather conditions at the time of construction, an imported material may be required regardless to achieve adequate compaction. If the imported material is not the same/similar to the soil observed on the side walls of the excavation, then a horizontal transition between the materials should be sloped as per frost heave taper OPSD 205.060.

Any natural material is to be placed in maximum 200 mm thick lifts compacted to 98% SPMDD within plus 2% to minus 4% optimum moisture content. Imported material should consist of a Granular “A”, Granular “B” Type I, or Select Subgrade Material (OPSS 1010). Heavy construction equipment and truck traffic should not cross any pipe until at least 1 m of compacted soil is placed above the top of the pipe.

Post compaction settlement of finer grained soil can be expected, even when placed to compaction specifications. As such, fill materials should be installed as far in advance as possible before finishing the roadway in order to mitigate post compaction settlements.

5.5 Foundation Design

5.5.1 Shallow Foundations Bearing on Engineered Fill or Undisturbed Native Soils

The existing glacial till deposits is considered suitable to support the proposed building, provided all of the topsoil and any previously disturbed native material is removed, and the subgrade prepared as above. In the event that design underside of footing elevations are above the level of undisturbed native soils, the engineered structural fill must be placed as described in Section 5.2 of this report.

Conventional shallow strip or spread footings between 0.5 m and 3.0 in width, established on properly placed engineered structural fill or on the upper inorganic undisturbed native soils, may be designed using a bearing resistance for 25 mm of settlement at Serviceability Limit States of 150 kPa, and a factored geotechnical bearing resistance of 225 kPa at Ultimate Limit States (ULS).

Conventional shallow strip or spread footings between 0.5 m and 3.0 in width, established on the inorganic glacial till more than 1.5 m below existing grade, may be designed using a bearing resistance for 25 mm of settlement at Serviceability Limit States of 200 kPa, and a factored geotechnical bearing resistance of 225 kPa at Ultimate Limit States (ULS).

Higher bearing resistances may be available for deeper footings; however, as the actual building designs are unknown, Pinchin should be consulted to confirm the design bearing resistances provided are suitable for the design footing elevations.

As the actual service loads were not known at the time of this report, these should be reviewed by the project structural engineer to determine if SLS or ULS governs the footing design.

It is noted that there is a likelihood of weaker subgrade soil to be encountered between the investigation locations. Pinchin presumes that any areas of weaker subgrade soil will consist of small pockets of soft/loose natural soil which can be compacted to match the density of the remainder of the Site. As such, the material must be compacted to a minimum of 100% Standard Proctor Maximum Dry Density (SPMDD) prior to installing the concrete formwork. Any soft/loose areas which are not able to achieve the recommended 100% SPMDD are to be removed and replaced with a low strength concrete.

Pinchin notes that a qualified geotechnical engineering consultant should be on-Site during the proof roll and foundation preparation activities to verify the recommended level of compaction is achieved and to verify the design assumptions and recommendations. This is especially critical with respect to the recommended soil bearing pressures. If variations occur in the soil conditions between the borehole locations, site verification and site review by Pinchin is recommended to provide appropriate recommendations at that time.

The natural subgrade soil is sensitive to change in moisture content and can become loose/soft if subjected to additional water or precipitation. As well, it could be easily disturbed if travelled on during construction. Once it becomes disturbed it is no longer considered adequate to support the recommended design bearing pressures. It is recommended that a working slab of lean concrete (mud slab) be placed in the footing areas immediately after excavation and inspection to protect the founding soils during placement of formwork and reinforcing steel.

In addition, to ensure and protect the integrity of the subgrade soil during construction operations, the following is recommended:

- Prior to commencing excavations, it is critical that all existing surface water, potential surface water and perched groundwater are controlled and diverted away from the work Site to prevent infiltration and subgrade softening. At no time should excavations be left open for a period of time that will expose them to inclement weather conditions and cause subgrade softening;
- The subgrade should be sloped to a sump outside the excavation to promote surface drainage and the collected water pumped out of the excavation. Any potential precipitation or seepage entering the excavations should be pumped away immediately (not allowed to pond);
- The footing areas should be cleaned of all deleterious materials such as topsoil, organics, fill, disturbed, or caved material;
- Any potential large cobbles or boulders (i.e. greater than 200 mm in diameter) within the subgrade material are to be removed and replaced with a similar soil type not containing particles greater than 200 mm in diameter. It is critical that particles greater than 200 mm in diameter are not in contact with the foundation to prevent point loading and overstressing; and,
- If the excavated subgrade soil remains open to weather conditions and groundwater seepage, sidewall stability and suitability of the subgrade soil will need to be verified prior to construction.

If construction proceeds during freezing weather conditions, adequate temporary frost protection for the footing bases and concrete must be provided and maintained above freezing at all times.

5.5.2 Cast-in-place Concrete Caissons

Bored piles (drilled shafts) may be considered as an alternative for the building foundations. Bored piles typically involve drilling a vertical hole into the ground, and filling the hole with structural concrete and reinforcing steel. Once additional information on proposed grades and proposed building loads is available, further assessment on the potential use of caisson foundations can be provided.

5.5.3 Earth Pressure Parameters

The following parameters (un-factored) should be used for the design of structural elements subject to unbalanced earth pressures.

Soil Layer	Bulk Unit Weight (kN/m^3)	Angle of Internal Friction	Active Earth Pressure Coefficient	At-Rest Earth Pressure Coefficient	Passive Earth Pressure Coefficient
Glacial Till	21	30°	0.33	0.50	3.00

5.5.4 Site Classification for Seismic Site Response & Soil Behaviour

The following information has been provided to assist the building designer from a geotechnical perspective only. These geotechnical seismic design parameters should be reviewed in detail by the structural engineer and be incorporated into the design as required.

The seismic site classification has been based on the 2012 OBC. The parameters for determination of Site Classification for Seismic Site Response are set out in Table 4.1.8.4.A of the OBC. The site classification is based on the average shear wave velocity in the top 30 m of the site stratigraphy. If the average shear wave velocity is not known, the site class can be estimated from energy corrected Standard Penetration Resistance (N60) and/or the average undrained shear strength of the soil in the top 30 m.

The boreholes advanced at this Site extended to approximately 6.4 mbgs and were terminated in the glacial till deposit. SPT “N” values within this soil deposit ranged between 10 and greater than 50 blows per 300 mm. As such, based on Table 4.1.8.4.A of the OBC, this Site has been classified as Class D. A Site Class D has an average shear wave velocity (Vs) of between 180 and 360 m/s. It is recommended that shear wave velocity soundings be completed at the Site once final design and depths of foundations are known as a higher Site Classification may be available for deeper foundations at the Site.

5.5.5 Foundation Transition Zones

Excessive differential settlements can occur where the subgrade support material types differ below the underside of continuous strip footings, (i.e., structural fill to native silty clay). As such, where strip footings transition from one material to another the transition between the materials should be suitably sloped or benched to mitigate differential settlements.

Pinchin also recommends the following transition precautions to mitigate/accommodate potential differential settlements:

- For strip footings, the transition zones should be adequately reinforced with additional reinforced steel lap lengths or widened footings;
- Steel reinforced poured concrete foundation walls; and
- Control joints throughout the transition zone(s).

The above recommendations should be reviewed by the structural engineer and incorporated into the design as necessary.

Where strip footings are founded at different elevations, the subgrade soil is to have a maximum slope of 2 H to 1 V, with the concrete footing having a maximum rise of 600 mm and a minimum run of 600 mm between each step, as detailed in the 2012 Ontario Building Code (OBC). The lower footing should be installed first to mitigate the risk of undermining the upper footing.

Individual spread footings are to be spaced a minimum distance of one and a half times the largest footing width apart from each other to avoid stress bulb interaction between footings. This assumes the footings are at the same elevation.

Foundations may be placed at a higher elevation relative to one another provided that the slope between the outside face of the foundations are separated at a minimum slope of 2H: 1V with an imaginary line drawn from the underside of the foundations. The lower footing should be installed first to mitigate the risk of undermining the upper footing.

5.5.6 Estimated Settlement

All individual spread footings should be founded on uniform subgrade soils, reviewed and approved by a licensed geotechnical engineer.

Foundations installed in accordance with the recommendations outlined in the preceding sections are not expected to exceed total settlements of 25 mm and differential settlements of 19 mm.

All foundations are to be designed and constructed to the minimum widths as detailed in the 2012 OBC.

5.5.7 Building Drainage

To assist in maintaining the buildings dry from surface water seepage, it is recommended that exterior grades around the buildings be sloped away at a 2% gradient or more, for a distance of at least 2.0 m. Roof drains should discharge a minimum of 1.5 m away from the structure to a drainage swale or appropriate storm drainage system.

Exterior perimeter foundations drains are not required, where the finished floor elevation is established a minimum of 150 mm above the exterior final grades or that the exterior gradient is properly sloped to divert surface water away from the buildings.

5.5.8 Shallow Foundations Frost Protection & Foundation Backfill

In the Mississauga, Ontario area, exterior perimeter foundations for heated buildings require a minimum of 1.2 m of soil cover above the underside of the footing to provide soil cover for frost protection.

Where the foundations for heated buildings do not have the minimum 1.2 m of soil cover frost protection, they should be protected from frost with a combination of soil cover and rigid polystyrene insulation, such as Dow Styrofoam or equivalent product. If required, Pinchin can provide appropriate foundation frost protection recommendations as part of the design review.

To minimize potential frost movements from soil frost adhesion, the perimeter foundation backfill should consist of a free draining granular material, such as a Granular 'B' Type I (OPSS 1010) or an approved sand fill, extending a minimum lateral distance of 600 mm beyond the foundation. The existing glacial till soils are not considered suitable for reuse as foundation wall backfill due to poor hydraulic conductivity. Backfill must be brought up evenly on both sides of walls not designed to resist lateral earth pressure. All backfill material is to be placed in maximum 300 mm thick lifts compacted to a minimum of 100% SPMDD below the interior of building and exterior hard landscaping areas; and, 95% SPMDD below exterior soft landscaping areas. It is recommended that inspection and testing be carried out during construction to confirm backfill quality, thickness and to ensure compaction requirements are achieved.

5.6 Floor Slabs

Prior to the installation of the engineered fill material, all organics and deleterious materials should be removed to the underlying organic free in-situ soil. The natural subgrade soil is to be proof roll compacted with a minimum 10 tonne non-vibratory steel drum roller to observe for weak/soft spots. It is noted that some locations will not be accessible by the steel drum roller; as such, these locations can be proof roll compacted with a minimum 450 kg vibratory plate compactor.

The in-situ inorganic glacial till material encountered within the boreholes is considered adequate for the support of the concrete floor slabs provided it is proof roll compacted as outlined above. Any soft area(s) encountered during proof rolling should be excavated and replaced with a similar soil type.

Once the subgrade soil is exposed it is to be inspected and approved by a qualified geotechnical engineering consultant to ensure that the material conforms to the soil type and consistency observed during the subsurface investigation work.

Based on the in-situ soil conditions, it is recommended to establish the concrete floor slab on a minimum 300 mm thick layer of Granular "A" (OPSS 1010) compacted to 100% SPMDD. To create a better draining working pad within the building prior to floor slab placement, consideration can be given to placing a 300 mm thick layer of crusher run Granular 'B' with a maximum particle size of 50 mm, compacted to 100% SPMDD, with an underlying subdrain system Any required up-fill should consist of a Granular "B" Type I or Type II (OPSS 1010).

The installation of a vapour barrier may be required under the floor slab. If required, the vapour barrier should conform to the flooring manufacturer's and designer's requirements. Consideration may be given to carrying out moisture emission and/or relative humidity testing of the slab to determine the concrete condition prior to flooring installation. To minimize the potential for excess moisture in the floor slab, a concrete mixture with a low water-to-cement ratio (i.e. 0.5 to 0.55) should be used.

The following table provides the unfactored modulus of subgrade reaction values:

Material Type	Modulus of Subgrade Reaction (kN/m^3)
Granular A (OPSS 1010)	85,000
Granular "B" Type I (OPSS 1010)	75,000
Granular "B" Type II (OPSS 1010)	85,000
Native Glacial Till or Engineered Fill	20,000

5.7 Asphaltic Concrete Pavement Structure Design for Parking Lot and Driveways

5.7.1 Discussion

Parking areas and driveway access will be constructed around the proposed buildings. The in-situ glacial till deposit is considered a sufficient bearing material for an asphaltic concrete pavement structure provided all organics, deleterious materials and areas of disturbed native soil are removed prior to installing the engineered fill material.

At this time Pinchin is unaware of the proposed final grades for the parking lot and access roadways. As such, provided the pavement structure overlies the in-situ silty clay material, the following pavement structure is recommended.

5.7.2 Pavement Structure

The following table presents the minimum specifications for a flexible asphaltic concrete pavement structure:

Pavement Layer	Compaction Requirements	Parking Areas	Driveways
Surface Course Asphaltic Concrete HL-3 (OPSS 1150)	92% MRD as per OPSS 310	35 mm	35 mm

Pavement Layer	Compaction Requirements	Parking Areas	Driveways
Binder Course Asphaltic Concrete HL-8 (OPSS 1150)	92 % MRD as per OPSS 310	55 mm	80 mm
Base Course: Granular "A" (OPSS 1010)	100% Standard Proctor Maximum Dry Density (ASTM-D698)	150 mm	150 mm
Subbase Course: Granular "B" Type I (OPSS 1010)	100% Standard Proctor Maximum Dry Density (ASTM D698)	400 mm	450 mm

Notes:

I. Prior to placing the pavement structure, the subgrade soil is to be proof rolled with a smooth drum roller without vibration to observe weak spots and the deflection of the soil; and

II. The recommended pavement structure may have to be adjusted according to Region of Peel standards. Also, if construction takes place during times of substantial precipitation and the subgrade soil becomes wet and disturbed, the granular thickness may have to be increased to compensate for the weaker subgrade soil. In addition, the granular fill material thickness may have to be temporarily increased to allow heavy construction equipment access the Site, in order to avoid the subgrade from "pumping" up into the granular material.

III. Performance grade PG 58-28 asphaltic concrete should be specified for Marshall mixes. Consideration should be given to increasing the grade to 64-28 in areas designed for heavy truck traffic.

It is understood that consideration may be given to using asphalt reinforcement or granular reinforcement to optimize the pavement design. It is also understood that the Client has previous experience utilizing FORTA-FI asphalt reinforcement on other projects. As the native subgrade soils at this Site are silty, they may have frost susceptibility. As such, a significant reduction in the overall pavement structure thickness may result in increased potential for pavement distress due to frost heave. As such, it is recommended that the optimization be limited to asphalt reinforcement, subject to reassessment once additional information is available on proposed grades and engineered fill type if the pavement structure will be supported on engineered fill. The following optimized pavement structure utilizing FORTA-FI asphalt reinforcement could be considered:

Pavement Layer	Compaction Requirements	Light Duty Traffic and Parking Areas	Heavy Duty Traffic Areas and Access Roads
Surface Course: Asphaltic Concrete HL-3 (OPSS 1150) FORTA-FI Reinforced	92% MRD as per OPSS.MUNI 310	35 mm	35 mm
Binder Course: Asphaltic Concrete FORTA-FI Reinforced	92% MRD as per OPSS.MUNI 310	45 mm HL-4	55 mm HL-8
Base Course: Granular "A" (OPSS 1010)	100% Standard Proctor Maximum Dry Density (ASTM-D698)	150 mm	150 mm

Pavement Layer	Compaction Requirements	Light Duty Traffic and Parking Areas	Heavy Duty Traffic Areas and Access Roads
Subbase Course: Granular "B" Type II (OPSS 1010)	100% Standard Proctor Maximum Dry Density (ASTM D698)	350 mm	400 mm

Notes:

i) Prior to placing the pavement structure, the subgrade soil is to be proof rolled with a smooth drum roller without vibration to observe weak spots and the deflection of the soil; and

ii) The recommended pavement structure may have to be adjusted according to the Town of Caledon municipal standards. Also, if construction takes place during times of substantial precipitation and the subgrade soil becomes wet and disturbed, the granular thickness may have to be increased to compensate for the weaker subgrade soil. In addition, the granular fill material thickness may have to be temporarily increased to allow heavy construction equipment to access the Site, in order to avoid the subgrade from "pumping" up into the granular material.

iii) Performance grade PG 58-28 asphaltic concrete should be specified for Marshall mixes. Consideration should be given to increasing the grade to 64-28 in areas designed for heavy truck traffic.

The FORTA-FI reinforcement must be introduced into the asphalt mixes as per the manufacturer's instructions, ensuring a homogenous asphalt mix with no clumps of reinforcement fibres. It is understood that the typical dosing of FORTA-Fi reinforcement is 0.5 kg per metric tonne.

It is also noted that there is potential that significant amounts of soil may be imported during site preparation. There may be potential for additional pavement structure optimization for areas where pavement overly fill that has low frost susceptibility, such as imported clean sand or sand and gravel.

It is also noted that the subbase thicknesses provided in these pavement designs are expected to be suitable to support gravel truck traffic (assumed 60 t, five axle gravel trucks) and crane loads (outriggers on 2.1 m by 2.7 m pads with bearing pressures up to 125 kPa), prior to placement of Granular 'A' base and asphalt. Some re-grading and recompaction of the surface of the Granular 'B' may be required, particularly in any areas where trucks have turning movements.

5.7.3 Rigid Pavement Structure

Alternatively, consideration may also be given to the use of Portland cement concrete pavement where there is intense truck use and turning of transport vehicles in conjunction with the waste handling, loading docks or delivery facilities. Dolly pads are also to comprise concrete pavement.

The following table provides the minimum recommended rigid pavement structures:

Pavement Layer	Compaction Requirements	Light Duty Pavement	Heavy Duty Pavement
Portland Cement Concrete, CAN/CSA A23.1- Class C-2	CAN/CSA A23.1	150 mm	200 mm
Base Course, OPSS MUNI 1010 Granular A	100% Standard Proctor Maximum Dry Density (ASTM-D698)	200 mm	200 mm

Note:

I. Prior to installation of the concrete pavement structure, in addition to the granular base course, it is recommended to install a granular subbase consisting of OPSS 1010 Granular "B", with a minimum thickness of 400 mm for the heavy duty apron slab areas. The purpose of the Granular "B" is to provide a stable working base for construction equipment, as well as providing a free-draining layer and added frost protection beneath the concrete.

All concrete pavement and dolly pads at this Site are to be rebar reinforced.

5.7.4 Pavement Structure Subgrade Preparation and Granular up Fill

The proper placement of base and subbase fill materials becomes very important in addressing the proper load distribution to provide a durable pavement structure.

The pavement subgrade materials should be thoroughly proof-rolled prior to placement of the Granular 'B' subbase course. If any unstable areas are noted, then the Granular 'B' thickness may need to be increased to support pavement construction traffic. This should be left as a field decision by a qualified geotechnical engineer at the time of construction, but it is recommended that additional Granular 'B' be carried as a provisional item under the construction contract.

Where fill material is required to increase the grade to the underside of the pavement structure it should consist of Granular 'B' Type I (OPSS 1010). The up fill material is to be placed in maximum 300 mm thick lifts compacted to 98% SPMDD within 4% of the optimum moisture content.

It is noted that as per OPSS.MUNI 1010, Granular 'A' and Granular 'B' Type I may consist of up to 100% Reclaimed Concrete Material (RCM). It is noted that RCM must not include any loose reinforcing materials, and reclaimed materials must be homogeneously blended.

Samples of both the Granular 'A' and Granular 'B' Type I aggregates should be tested for conformance to OPSS 1010 prior to utilization on Site and during construction. All stockpiled material should be protected from deleterious materials, additional moisture and be kept from freezing.

Post compaction settlement of fine grained soil can be expected, even when placed to compaction specifications. As such, fill material should be installed as far in advance as possible before finishing the parking lot and access roadways for best grade integrity.

Where the subgrade material types differ below the underside of the pavement structure, the transition between the materials should be sloped as per frost heave taper OPSD 205.60.

5.7.5 Drainage

Control of surface water is a critical factor in achieving good pavement structure life. The pavement thickness designs are based on a drained pavement subgrade via sub-drains or ditches.

The glacial till soils have poor natural drainage and therefore it is recommended that pavement subdrains be installed in the lower areas and be connected to the catch basins. Subdrains should comprise 150 mm diameter perforated pipe infilter sock, bedded in concrete sand. The upper limit of the concrete sand bedding should be at the lower limit of the pavement subbase, with the subgrade below the subbase sloped towards the subdrain.

The surface of the roadways should be free of depressions and be sloped at a minimum grade of 1% in order to drain to appropriate drainage areas. Subgrade soil should slope a minimum of 3% toward stormwater collection points. Positive slopes are very important for the proper performance of the drainage system. The granular base and subbase materials should extend horizontally to any potential ditches or swales.

In addition, routine maintenance of the drainage systems will assist with the longevity of the pavement structure. Ditches, culverts, sewers and catch basins should be regularly cleared of debris and vegetation.

6.0 SITE SUPERVISION & QUALITY CONTROL

It is recommended that all geotechnical aspects of the project be reviewed and confirmed under the appropriate geotechnical supervision, to routinely check such items. This includes but is not limited to inspection and confirmation of the undisturbed natural subgrade material prior to subgrade preparation, pouring any foundations or footings, backfilling, or engineered fill installation to ensure that the actual conditions are not markedly different than what was observed at the borehole locations and geotechnical components are constructed as per Pinchin's recommendations. Compaction quality control of engineered fill material (full-time monitoring) is recommended as standard practice, as well as regular sampling and testing of aggregates and concrete, to ensure that physical characteristics of materials for compliance during installation and satisfies all specifications presented within this report.

7.0 TERMS AND LIMITATIONS

This Geotechnical Investigation was performed for the exclusive use of Prologis Inc. (Client) in order to evaluate the subsurface conditions at 7564 Tenth Line Road, Mississauga, Ontario. Within the limitations of scope, schedule and budget, our services have been executed in accordance with generally accepted practises in the field of geotechnical engineering for the Site.

Classification and identification of soil, and geologic units have been based upon commonly accepted methods employed in professional geotechnical practice. No warranty or other conditions, expressed or implied, should be understood. Conclusions derived are specific to the immediate area of study and cannot be extrapolated extensively away from sample locations.

Performance of this Geotechnical Investigation to the standards established by Pinchin is intended to reduce, but not eliminate, uncertainty regarding the subgrade soil at the Site, and recognizes reasonable limits on time and cost.

Regardless how exhaustive a Geotechnical Investigation is performed, the investigation cannot identify all the subsurface conditions. Therefore, no warranty is expressed or implied that the entire Site is representative of the subsurface information obtained at the specific locations of our investigation. If during construction, subsurface conditions differ from then what was encountered within our test location and the additional subsurface information provided to us, Pinchin should be contacted to review our recommendations. This report does not alleviate the contractor, owner, or any other parties of their respective responsibilities.

This report has been prepared for the exclusive use of the Client and their authorized agents. Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of the third parties. If additional parties require reliance on this report, written authorization from Pinchin will be required. Pinchin disclaims responsibility of consequential financial effects on transactions or property values, or requirements for follow-up actions and costs. No other warranties are implied or expressed. Furthermore, this report should not be construed as legal advice.

The liability of Pinchin or our officers, directors, shareholders or staff will be limited to the lesser of the fees paid or actual damages incurred by the Client. Pinchin will not be responsible for any consequential or indirect damages. Pinchin will only be liable for damages resulting from the negligence of Pinchin. Pinchin will not be liable for any losses or damage if the Client has failed, within a period of two years following the date upon which the claim is discovered (Claim Period), to commence legal proceedings against Pinchin to recover such losses or damage unless the laws of the jurisdiction which governs the Claim Period which is applicable to such claim provides that the applicable Claim Period is greater than two years and cannot be abridged by the contract between the Client and Pinchin, in which case the Claim Period shall be deemed to be extended by the shortest additional period which results in this provision being legally enforceable.

Pinchin makes no other representations whatsoever, including those concerning the legal significance of its findings, or as to other legal matters touched on in this report, including, but not limited to, ownership of any property, or the application of any law to the facts set forth herein. With respect to regulatory compliance issues, regulatory statutes are subject to interpretation and these interpretations may change over time.

Please refer to Appendix IV, Report Limitations and Guidelines for Use, which pertains to this report.

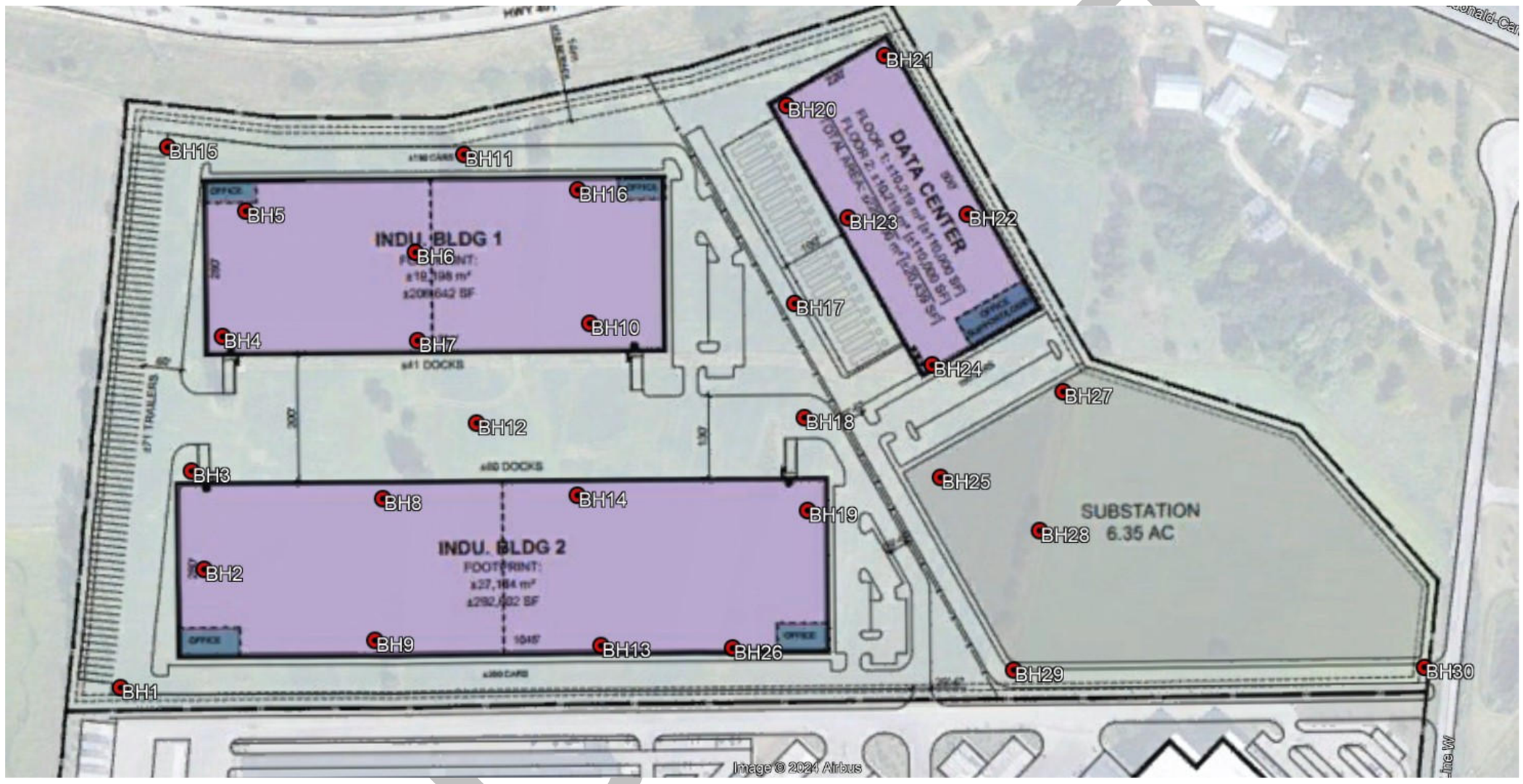
Specific limitations related to the legal and financial and limitations to the scope of the current work are outlined in our proposal, the attached Methodology and the Authorization to Proceed, Limitation of Liability and Terms of Engagement which accompanied the proposal.

Information provided by Pinchin is intended for Client use only. Pinchin will not provide results or information to any party unless disclosure by Pinchin is required by law. Any use by a third party of reports or documents authored by Pinchin or any reliance by a third party on or decisions made by a third party based on the findings described in said documents, is the sole responsibility of such third parties. Pinchin accepts no responsibility for damages suffered by any third party as a result of decisions made or actions conducted. No other warranties are implied or expressed.

342044.001 DRAFT Preliminary Geotechnical Investigation 7564 Tenth Line Mississauga ON Oct 30 2024

Template: Master Geotechnical Investigation Report – Ontario, GEO, September 2, 2021

FIGURES



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N

LEGEND

BOREHOLE

INFERRED GROUNDWATER FLOW DIRECTION

LEGEND IS COLOUR DEPENDENT. NON-COLOUR COPIES MAY ALTER INTERPRETATION.

PINCHIN

PROJECT NAME:
GEOTECHNICAL INVESTIGATION

CLIENT NAME:
PROLOGIS

PROJECT LOCATION:
7564 TENTH LINE ROAD, MISSISSAUGA, ONTARIO

FIGURE NAME:
BOREHOLE LOCATION PLAN

PROJECT NUMBER:	SCALE:
342044.000	
DRAWN BY:	REVIEWED BY:
EN	EN
DATE:	FIGURE NUMBER:
OCT 2024	1

APPENDIX I

Abbreviations, Terminology and Principle Symbols used in Report and Borehole Logs

ABBREVIATIONS, TERMINOLOGY & PRINCIPAL SYMBOLS USED

Sampling Method

AS	Auger Sample	**w**	Washed Sample
SS	Split Spoon Sample	**HQ**	Rock Core (63.5 mm diam.)
ST	Thin Walled Shelby Tube	**NQ**	Rock Core (47.5 mm diam.)
BS	Block Sample	**BQ**	Rock Core (36.5 mm diam.)

In-Situ Soil Testing

Standard Penetration Test (SPT), "N" value is the number of blows required to drive a 51 mm outside diameter spilt barrel sampler into the soil a distance of 300 mm with a 63.5 kg weight free falling a distance of 760 mm after an initial penetration of 150 mm has been achieved. The SPT, "N" value is a qualitative term used to interpret the compactness condition of cohesionless soils and is used only as a very approximation to estimate the consistency and undrained shear strength of cohesive soils.

Dynamic Cone Penetration Test (DCPT) is the number of blows required to drive a cone with a 60 degree apex attached to "A" size drill rods continuously into the soil for each 300 mm penetration with a 63.5 kg weight free falling a distance of 760 mm.

Cone Penetration Test (CPT) is an electronic cone point with a 10 cm2 base area with a 60 degree apex pushed through the soil at a penetration rate of 2 cm/s.

Field Vane Test (FVT) consists of a vane blade, a set of rods and torque measuring apparatus used to determine the undrained shear strength of cohesive soils.

Soil Descriptions

The soil descriptions and classifications are based on an expanded Unified Soil Classification System (USCS). The USCS classifies soils on the basis of engineering properties. The system divides soils into three major categories; coarse grained, fine grained and highly organic soils. The soil is then subdivided based on either gradation or plasticity characteristics. The classification excludes particles larger than 75 mm. To aid in quantifying material amounts by weight within the respective grain size fractions the following terms have been included to expand the USCS:

Soil Classification		Terminology	Proportion
Clay	< 0.002 mm		
Silt	0.002 to 0.06 mm	“trace”, trace sand, etc.	1 to 10%
Sand	0.075 to 4.75 mm	“some”, some sand, etc.	10 to 20%
Gravel	4.75 to 75 mm	Adjective, sandy, gravelly, etc.	20 to 35%
Cobbles	75 to 200 mm	And, and gravel, and silt, etc.	>35%
Boulders	>200 mm	Noun, Sand, Gravel, Silt, etc.	>35% and main fraction

Notes:

- Soil properties, such as strength, gradation, plasticity, structure, etcetera, dictate the soils engineering behaviour over grain size fractions; and
- With the exception of soil samples tested for grain size distribution or plasticity, all soil samples have been classified based on visual and tactile observations. The accuracy of visual and tactile observation is not sufficient to differentiate between changes in soil classification or precise grain size and is therefore an approximate description.

The following table outlines the qualitative terms used to describe the compactness condition of cohesionless soil:

Cohesionless Soil	
Compactness Condition	**SPT N-Index (blows per 300 mm)**
Very Loose	0 to 4
Loose	4 to 10
Compact	10 to 30
Dense	30 to 50
Very Dense	> 50

The following table outlines the qualitative terms used to describe the consistency of cohesive soils related to undrained shear strength and SPT, N-Index:

Cohesive Soil		
Consistency	**Undrained Shear Strength (kPa)**	**SPT N-Index (blows per 300 mm)**
Very Soft	<12	<2
Soft	12 to 25	2 to 4
Firm	25 to 50	4 to 8
Stiff	50 to 100	8 to 15
Very Stiff	100 to 200	15 to 30
Hard	>200	>30

Note: Utilizing the SPT, N-Index value to correlate the consistency and undrained shear strength of cohesive soils is only very approximate and needs to be used with caution.

Soil & Rock Physical Properties

General

W Natural water content or moisture content within soil sample
γ Unit weight
γ' Effective unit weight
γ_d Dry unit weight
γ_{sat} Saturated unit weight
ρ Density
ρ_s Density of solid particles
ρ_w Density of Water
ρ_d Dry density
ρ_{sat} Saturated density e Void ratio
n Porosity
S_r Degree of saturation
E_{50} Strain at 50% maximum stress (cohesive soil)

Consistency

W_L	Liquid limit
W_P	Plastic Limit
I_P	Plasticity Index
W_S	Shrinkage Limit
I_L	Liquidity Index
I_C	Consistency Index
e_{max}	Void ratio in loosest state
e_{min}	Void ratio in densest state
I_D	Density Index (formerly relative density)

Shear Strength

C_u, S_u	Undrained shear strength parameter (total stress)
C'_d	Drained shear strength parameter (effective stress)
r	Remolded shear strength
τ_p	Peak residual shear strength
τ_r	Residual shear strength
ø’	Angle of interface friction, coefficient of friction = tan ø’

Consolidation (One Dimensional)

C_C	Compression index (normally consolidated range)
C_r	Recompression index (over consolidated range)
C_S	Swelling index
m_V	Coefficient of volume change
c_V	Coefficient of consolidation
T_V	Time factor (vertical direction)
U	Degree of consolidation
σ'_O	Overburden pressure
σ'_p	Preconsolidation pressure (most probable)
OCR	Overconsolidation ratio

Permeability

The following table outlines the terms used to describe the degree of permeability of soil and common soil types associated with the permeability rates**:**

Permeability (k cm/s)	Degree of Permeability	Common Associated Soil Type
$> 10^{-1}$	Very High	Clean gravel
10^{-1} to 10^{-3}	High	Clean sand, Clean sand and gravel
10^{-3} to 10^{-5}	Medium	Fine sand to silty sand
10^{-5} to 10^{-7}	Low	Silt and clayey silt (low plasticity)
$>10^{-7}$	Practically Impermeable	Silty clay (medium to high plasticity)

Rock Coring

Rock Quality Designation (RQD) is an indirect measure of the number of fractures within a rock mass, Deere et al. (1967). It is the sum of sound pieces of rock core equal to or greater than 100 mm recovered from the core run, divided by the total length of the core run, expressed as a percentage. If the core section is broken due to mechanical or handling, the pieces are fitted together and if 100 mm or greater included in the total sum**.**

RQD is calculated as follows:

$$\text{RQD (\%)} = \frac{\Sigma \text{ Length of core pieces} > 100 \text{ mm} \times 100}{\text{Total length of core run}}$$

The following is the Classification of Rock with Respect to RQD Value:

RQD Classification	RQD Value (%)
Very poor quality	**<25**
Poor quality	25 to 50
Fair quality	50 to 75
Good quality	75 to 90
Excellent quality	90 to 100

APPENDIX II

Pinchin's Borehole Logs

Log of Borehole: BH2

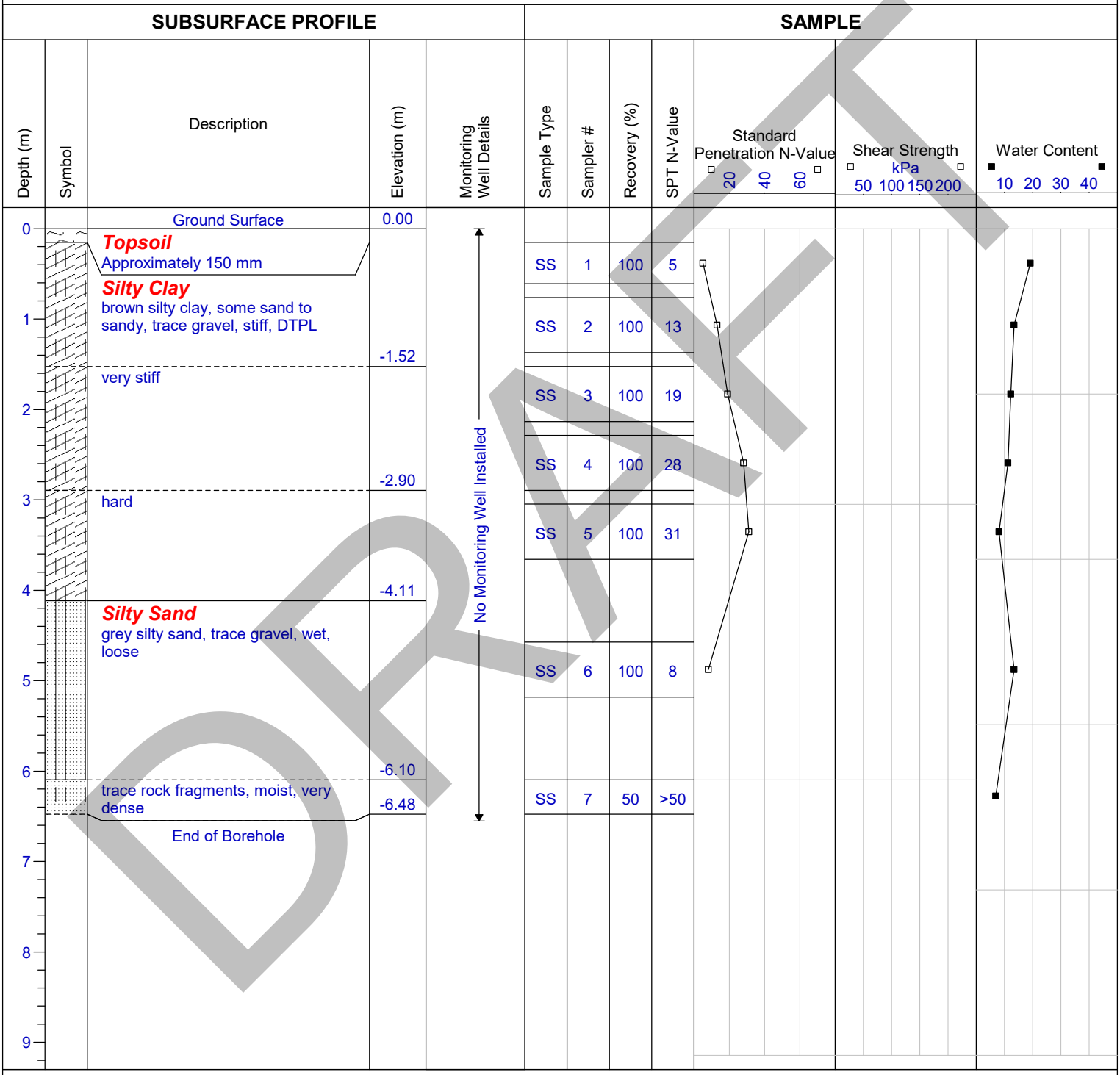
Project #: 342044.000 **Logged By:** CG

Project: Preliminary Geotechnical Investigation

Client: Prologis

Location: 7564 Tenth Line Road, Mississauga

Drill Date: September 26, 2024 **Project Manager:** EN



Contractor: Geo-Environmental **Grade Elevation:** TBD

Drilling Method: 200 mm OD Hollow Stem Augers **Top of Casing Elevation:** N/A

Well Casing Size: N/A **Sheet:** 1 of 1

Log of Borehole: BH3

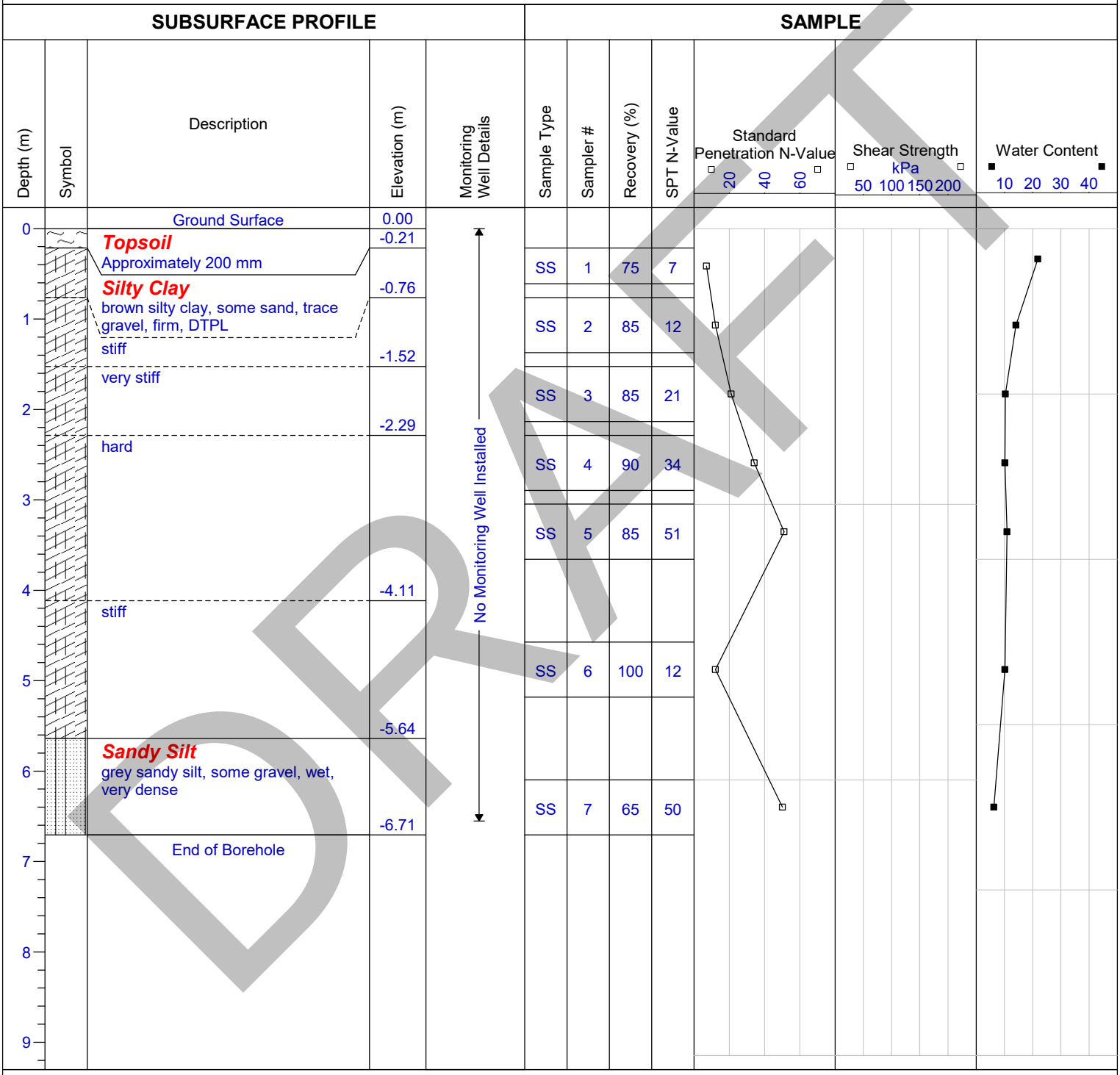
Project #: 342044.000 **Logged By:** CG

Project: Preliminary Geotechnical Investigation

Client: Prologis

Location: 7564 Tenth Line Road, Mississauga

Drill Date: September 26, 2024 **Project Manager:** EN



Contractor: Geo-Environmental **Grade Elevation:** TBD

Drilling Method: 200 mm OD Hollow Stem Augers **Top of Casing Elevation:** N/A

Well Casing Size: N/A **Sheet:** 1 of 1

Log of Borehole: BH4

Project #: 342044.000 **Logged By:** CG

Project: Preliminary Geotechnical Investigation

Client: Prologis

Location: 7564 Tenth Line Road, Mississauga

Drill Date: September 26, 2024 **Project Manager:** EN

Depth (m)	Description	Elevation (m)	Sample Type	Sampler #	Recovery (%)	SPT N-Value
0	Ground Surface	0.00				
	Topsoil Approximately 300 mm	-0.30				
	brown silty clay, some sand to sandy, trace gravel, very stiff, DTPL		SS	1	100	12
1			SS	2	100	22
2			SS	3	100	25
			SS	4	100	29
		-2.90				
3	hard		SS	5	100	35
4		-4.11				
	Sandy Silt grey sandy silt, trace gravel, moist, compact		SS	6	100	22
5						
6		-6.10				
	Silty Sand grey silty sand, trace gravel and rock fragments, moist, very dense	-6.40	SS	7	50	>50
	End of Borehole					
7						
8						
9						

Standard Penetration N-Value: 20, 40, 60

Shear Strength kPa: 50, 100, 150, 200

Water Content: 10, 20, 30, 40

Contractor: Geo-Environmental **Grade Elevation:** TBD

Drilling Method: 200 mm OD Hollow Stem Augers **Top of Casing Elevation:** N/A

Well Casing Size: N/A **Sheet:** 1 of 1

Log of Borehole: BH5

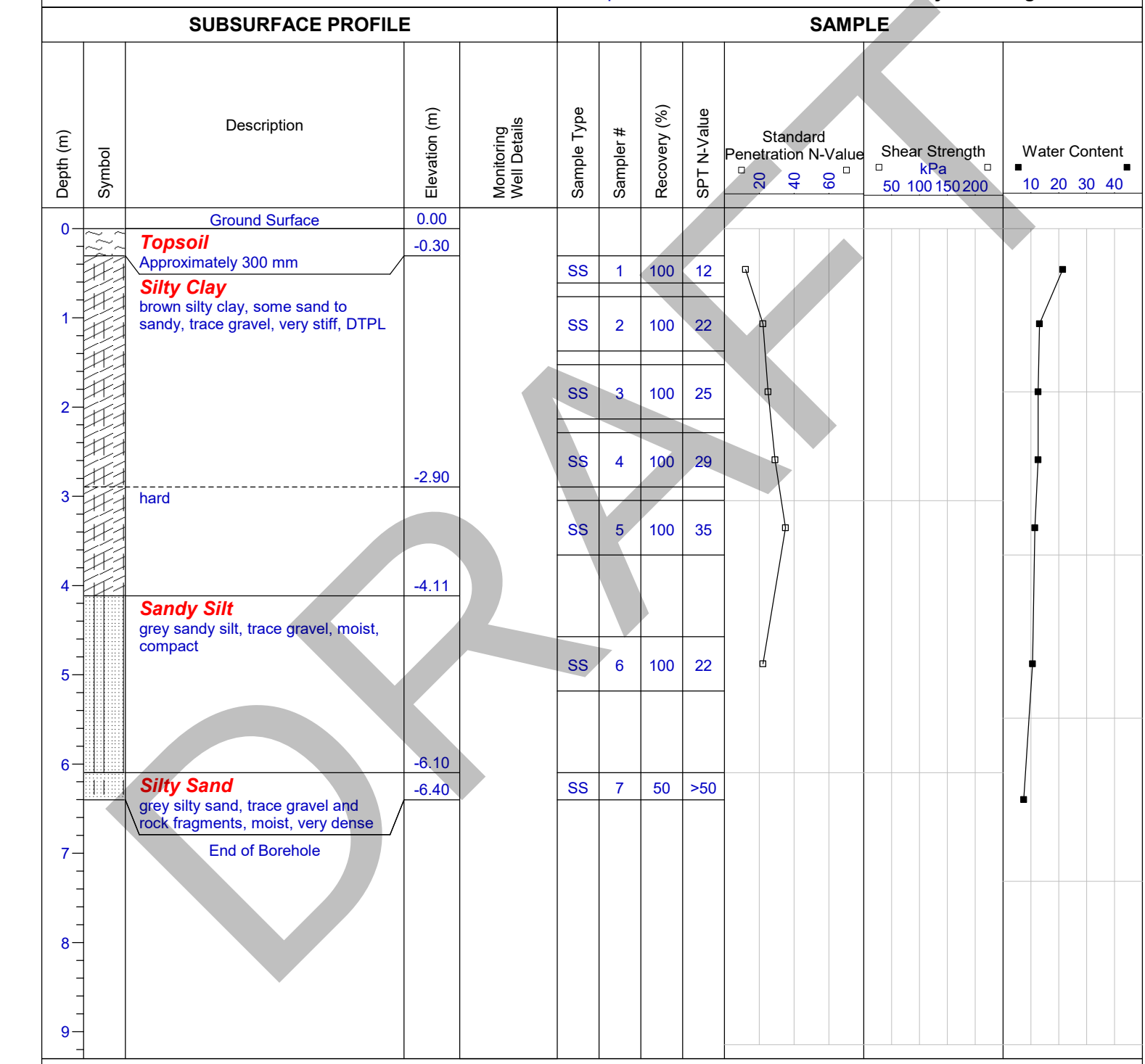
Project #: 342044.000 **Logged By:** EN/TV

Project: Preliminary Geotechnical Investigation

Client: Prologis

Location: 7564 Tenth Line Road, Mississauga

Drill Date: September 27, 2024 **Project Manager:** EN



Contractor: Geo-Environmental **Grade Elevation:** TBD

Drilling Method: 200 mm OD Hollow Stem Augers **Top of Casing Elevation:** N/A

Well Casing Size: N/A **Sheet:** 1 of 1

Log of Borehole: BH6

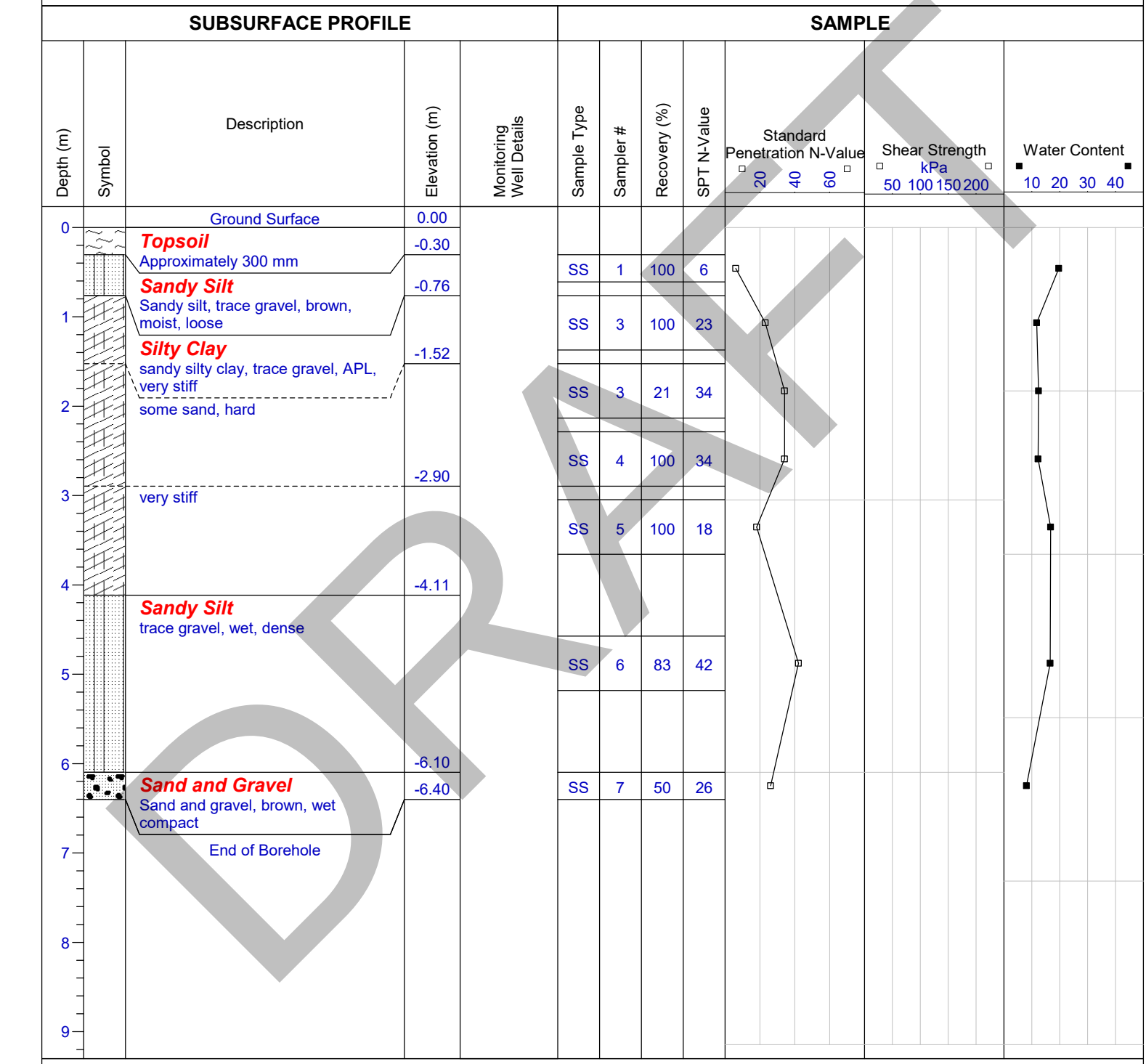
Project #: 342044.000 **Logged By:** TV

Project: Preliminary Geotechnical investigation

Client: Prologis

Location: 7564 Tenth Line Road, Mississauga

Drill Date: Sept 27 , 2024 **Project Manager:** EN



Contractor: GEO-Environmental **Grade Elevation:** TBD

Drilling Method: 200 mm OD Holow Stem Augers **Top of Casing Elevation:** N/A

Well Casing Size: N/A **Sheet:** 1 of 1

Log of Borehole: BH7

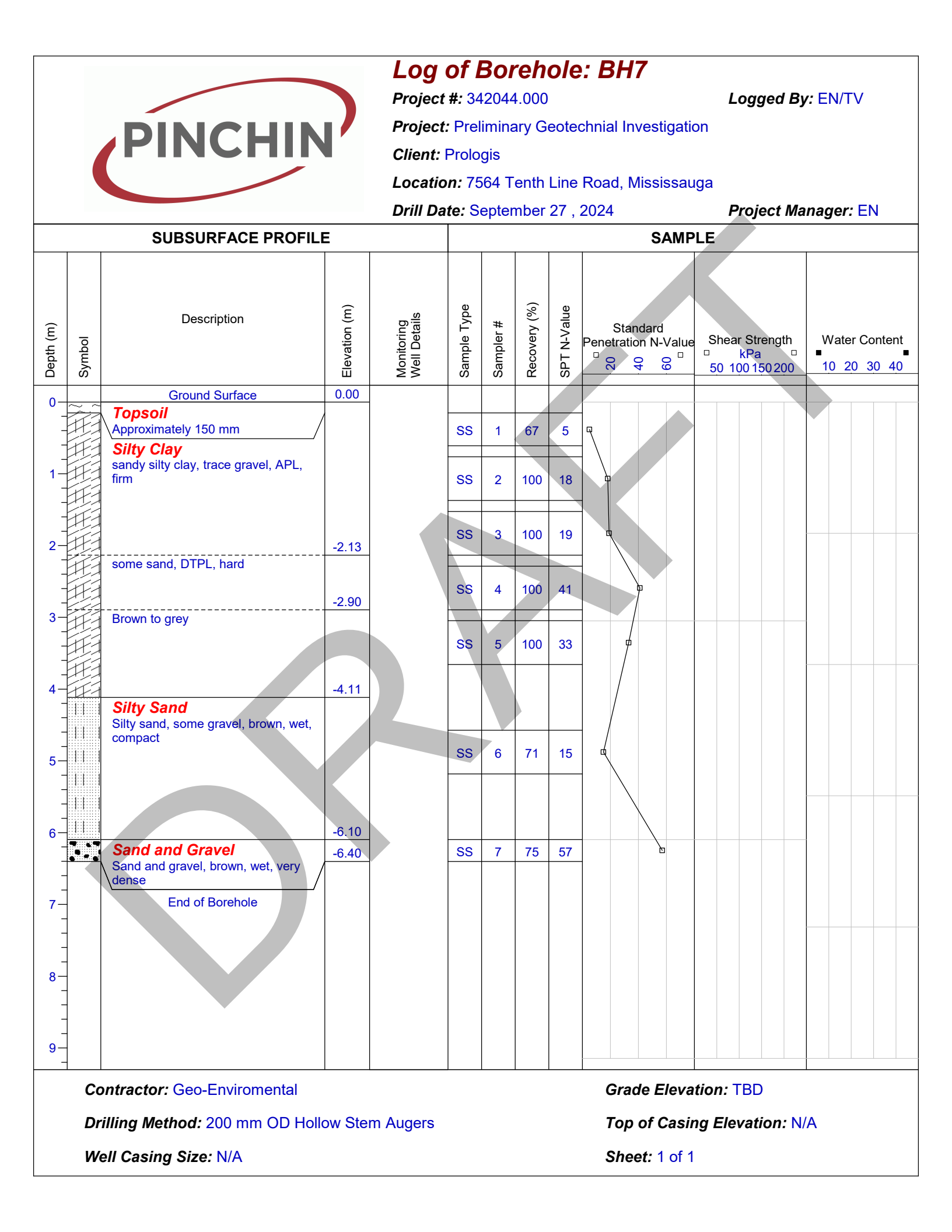
Project #: 342044.000 **Logged By:** EN/TV

Project: Preliminary Geotechnial Investigation

Client: Prologis

Location: 7564 Tenth Line Road, Mississauga

Drill Date: September 27 , 2024 **Project Manager:** EN



Contractor: Geo-Enviromental **Grade Elevation:** TBD

Drilling Method: 200 mm OD Hollow Stem Augers **Top of Casing Elevation:** N/A

Well Casing Size: N/A **Sheet:** 1 of 1

Log of Borehole: BH8

Project #: 342044.00 **Logged By:** TV

Project: Preliminary Geotechnical Investigation

Client: Prologis

Location: 7564 Tenth Line Road, Mississauga

Drill Date: September 27, 2024 **Project Manager:** EN

Depth (m)	Description	Elevation (m)	Sample Type	Sampler #	Recovery (%)	SPT N-Value
0	Ground Surface	0.00				
	Topsoil Approximately 150 mm	-0.30				
	Silty Clay Sandy silty clay, trace gravel, brown, DTPL, firm to very stiff		SS	1	67	6
1			SS	2	100	28
2			SS	3	100	25
	Hard	-2.13				
			SS	4	100	33
3	trace rock fragments	-2.90				
			SS	5	25	58
4		-4.11				
	some sand, brown to grey, APL, stiff					
5			SS	6	83	8
6		-6.10				
	Sandy Silt trace gravel, brown, moist, very dense	-6.40	SS	7	67	79
7	End of Borehole					
8						
9						

Standard Penetration N-Value: 20, 40, 60

Shear Strength kPa: 50, 100, 150, 200

Water Content: 10, 20, 30, 40

Contractor: Geo-Environmental **Grade Elevation:** TBD

Drilling Method: 200 mm OD Hollow Stem Augers **Top of Casing Elevation:** N/A

Well Casing Size: N/A **Sheet:** 1 of 1

Log of Borehole: BH9

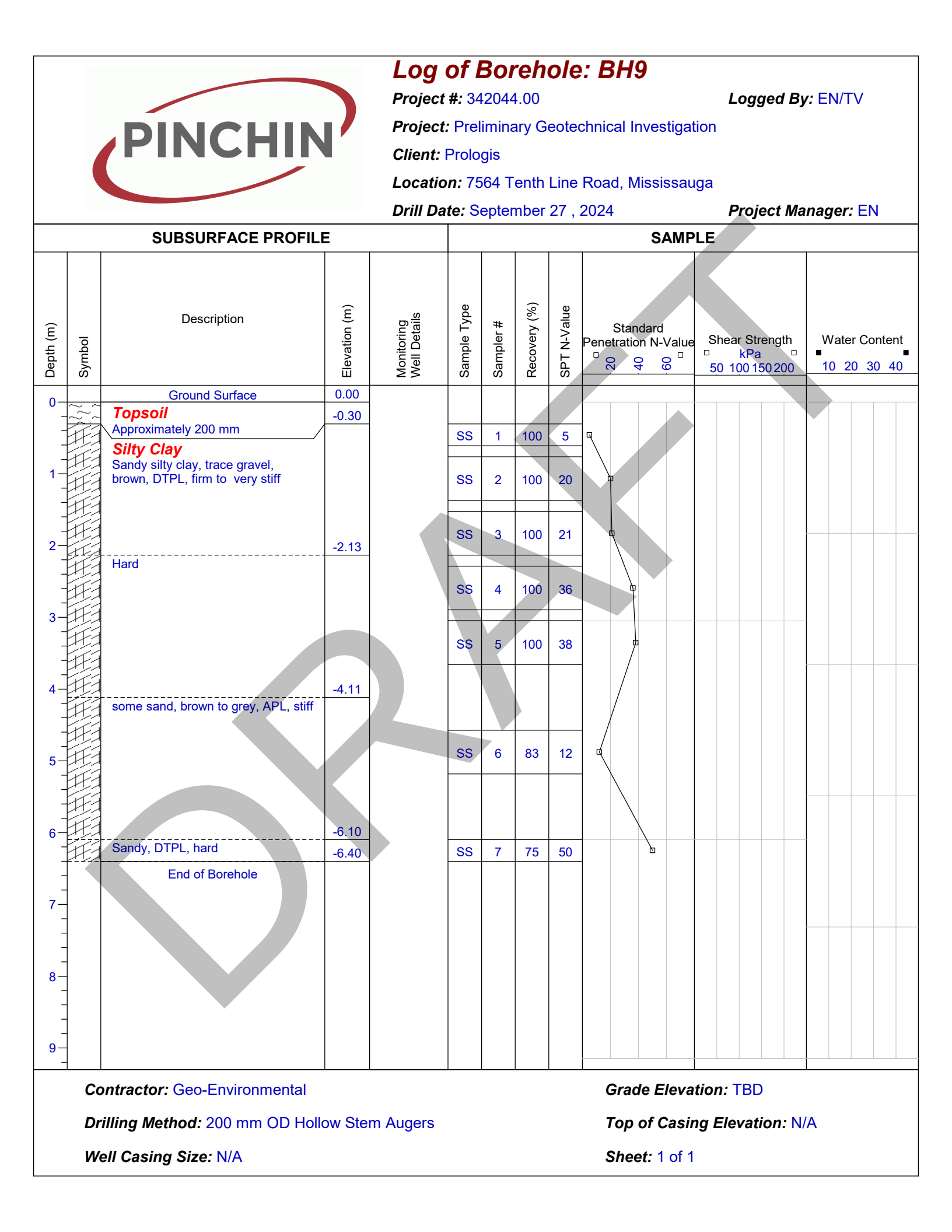
Project #: 342044.00 **Logged By:** EN/TV

Project: Preliminary Geotechnical Investigation

Client: Prologis

Location: 7564 Tenth Line Road, Mississauga

Drill Date: September 27 , 2024 **Project Manager:** EN



Contractor: Geo-Environmental **Grade Elevation:** TBD

Drilling Method: 200 mm OD Hollow Stem Augers **Top of Casing Elevation:** N/A

Well Casing Size: N/A **Sheet:** 1 of 1

Log of Borehole: BH10

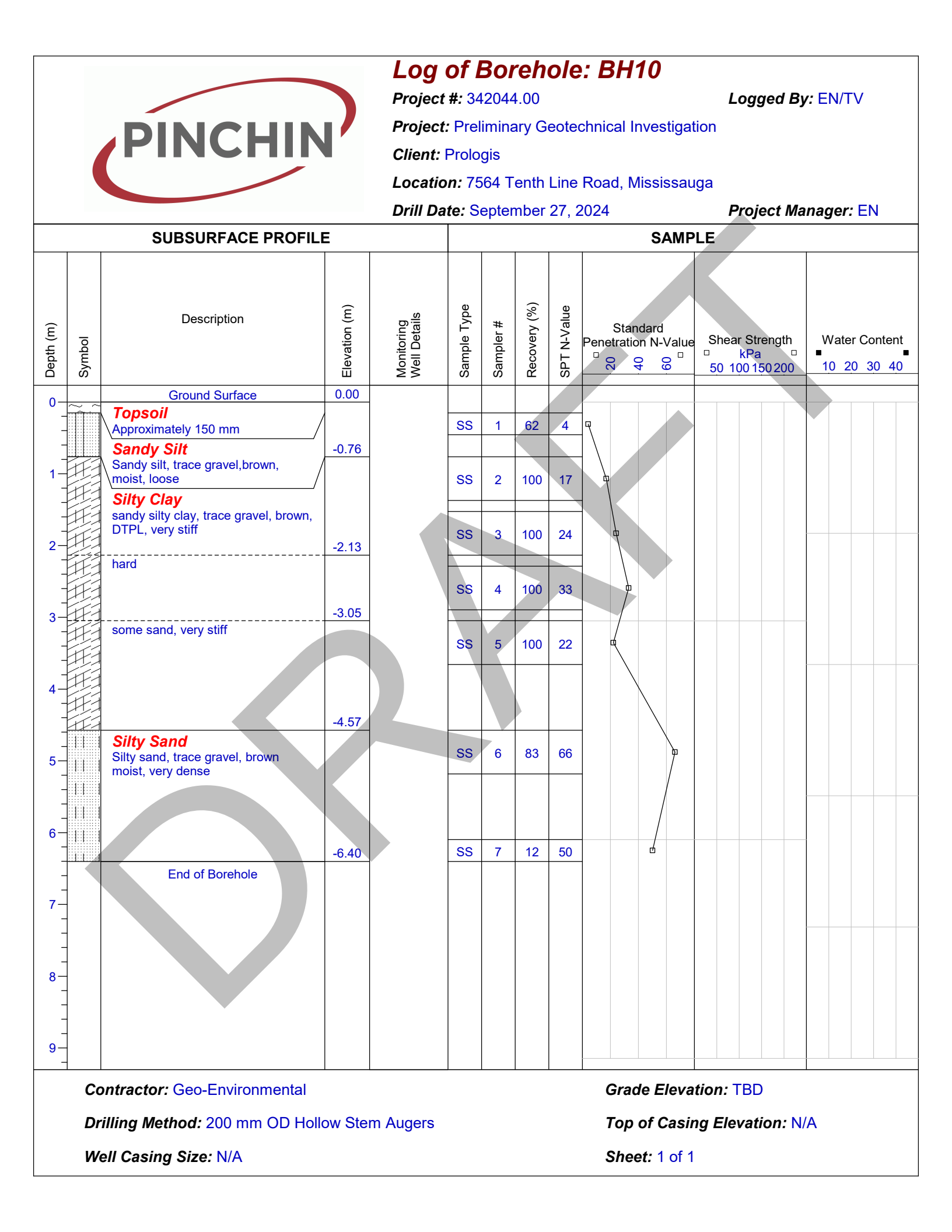
Project #: 342044.00 **Logged By:** EN/TV

Project: Preliminary Geotechnical Investigation

Client: Prologis

Location: 7564 Tenth Line Road, Mississauga

Drill Date: September 27, 2024 **Project Manager:** EN



Contractor: Geo-Environmental **Grade Elevation:** TBD

Drilling Method: 200 mm OD Hollow Stem Augers **Top of Casing Elevation:** N/A

Well Casing Size: N/A **Sheet:** 1 of 1

Log of Borehole: BH11

Project #: 342044.00 **Logged By:** EN/TV

Project: Preliminary Geotechnical Investigation

Client: Prologis

Location: 7564 Tenth Line Road, Mississauga

Drill Date: September 27 , 2024 **Project Manager:** EN

Depth (m)	Description	Elevation (m)	Monitoring Well Details	Sample Type	Sampler #	Recovery (%)	SPT N-Value
0	Ground Surface	0.00					
	Topsoil Approximately 250 mm	-0.30		SS	1	100	7
	Sandy Silt Sandy silt, trace gravel, brown, moist, loose	-0.76					
1				SS	2	92	14
	Silty Clay Sandy silty clay, trace gravel, brown DTPL, stiff	-1.52					
2	very stiff			SS	3	100	24
				SS	4	100	23
3		-3.05					
	stiff			SS	5	100	14
4		-4.57					
	Silty Sand Silty sand, some gravel, brown, wet, very dense			SS	6	50	84
5							
6		-6.10					
	gravelly	-6.40		SS	7	50	93
	End of Borehole						
7	Groundwater in open borehole measured at 5.6 mbgs upon completion of drilling.						
8							
9							

Standard Penetration N-Value: 20, 40, 60

Shear Strength kPa: 50, 100, 150, 200

Water Content: 10, 20, 30, 40

Contractor: Geo-Environmental **Grade Elevation:** TBD

Drilling Method: 200 mm OD Hollow Stem Augers **Top of Casing Elevation:** N/A

Well Casing Size: N/A **Sheet:** 1 of 1

Log of Borehole: BH12

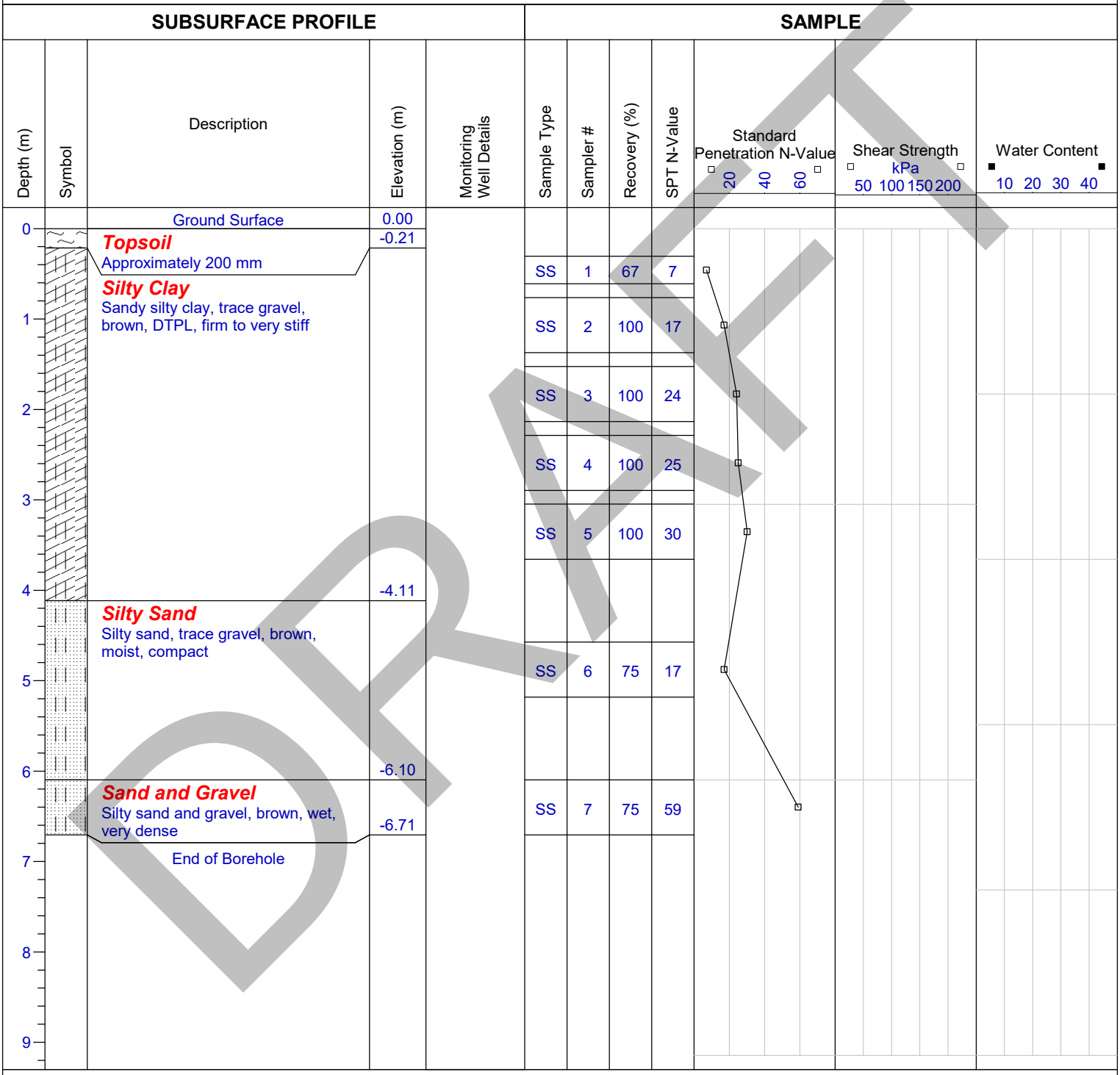
Project #: 342044.00 **Logged By:** EN/TV

Project: Preliminary Geotechnical Investigation

Client: Prologis

Location: 7564 Tenth Line Road, Mississauga

Drill Date: September 27 , 2024 **Project Manager:** EN



Contractor: Geo-Environmental **Grade Elevation:** TBD

Drilling Method: 200 mm OD Hollow Stem Augers **Top of Casing Elevation:** N/A

Well Casing Size: N/A **Sheet:** 1 of 1

Log of Borehole: BH13

Project #: 342044.00 **Logged By:** TV

Project: Preliminary Geotechnical Investigation

Client: Prologis

Location: 7564 Tenth Line Road, Mississauga

Drill Date: September 27 , 2024 **Project Manager:** EN

Depth (m)	Description	Elevation (m)	Sample Type	Sampler #	Recovery (%)	SPT N-Value
0	Ground Surface	0.00				
	Topsoil Approximately 200 mm	-0.30				
	Silty Clay Sandy silty clay, trace gravel, brown, DTPL, firm to very stiff		SS	1	83	6
1			SS	2	96	16
2			SS	3	100	20
			SS	4	100	24
3			SS	5	100	30
4						
5			SS	6	100	19
6		-6.10				
	Silty Sand Silty sand, trace gravel, brown, wet, very dense	-6.40	SS	7	33	50
7	End of Borehole					
8						
9						

Standard Penetration N-Value: 20, 40, 60

Shear Strength kPa: 50, 100, 150, 200

Water Content: 10, 20, 30, 40

Contractor: Geo-Environmental **Grade Elevation:** TBD

Drilling Method: 200 mm OD Hollow Stem Augers **Top of Casing Elevation:** N/A

Well Casing Size: N/A **Sheet:** 1 of 1

Log of Borehole: BH14

Project #: 342044.00 **Logged By:** TV

Project: Preliminary Geotechnical Investigation

Client: Prologis

Location: 7564 Tenth Line Road, Mississauga

Drill Date: September 27 , 2024 **Project Manager:** EN

Depth (m)	Description	Elevation (m)	Sample Type	Sampler #	Recovery (%)	SPT N-Value
0	Ground Surface	0.00				
	Topsoil Approximately 200 mm	-0.30	SS	1	96	6
1	**Silty Clay** Sandy silty clay, trace gravel, brown, DTPL, stiff		SS	2	96	12
	Very stiff	-1.37	SS	3	100	22
2	Hard	-2.13	SS	4	100	36
3			SS	5	100	32
4		-4.11				
	Very stiff		SS	6	100	16
5						
6		-6.10				
	No recovery	-6.40	SS	7	0	10
	End of Borehole					
7	Groundwater level at 4.9 mbgs in open borehole upon completion of drilling.					
8						
9						

Standard Penetration N-Value: 20, 40, 60

Shear Strength kPa: 50, 100, 150, 200

Water Content: 10, 20, 30, 40

Contractor: Geo-Environmental **Grade Elevation:** TBD

Drilling Method: 200 mm OD Hollow Stem Augers **Top of Casing Elevation:** N/A

Well Casing Size: N/A **Sheet:** 1 of 1

Log of Borehole: BH15

Project #: 342044.00 ***Logged By:*** TV

Project: Preliminary Geotechnical Investigation

Client: Prologis

Location: 7564 Tenth Line Road, Mississauga

Drill Date: September 30, 2024 ***Project Manager:*** EN

SUBSURFACE PROFILE | **SAMPLE**

Depth (m)	Symbol	Description	Elevation (m)	Monitoring Well Details	Sample Type	Sampler #	Recovery (%)	SPT N-Value
0		Ground Surface	0.00					
		Topsoil Approximately 150 mm			SS	1	92	7
		Sandy Silt Sandy silt, trace gravel, brown, moist, loose	-0.76		SS	2	92	19
1		***Silty Clay*** Sandy silty clay, trace gravel, brown, DTPL, very stiff			SS	3	100	29
2					SS	4	100	28
			-2.90					
3		Hard			SS	5	100	34
4			-4.11					
		Silty Sand Silty sand, trace gravel, rock fragments, moist, brown, very dense			SS	6	50	68
5								
6			-6.10					
		Wet	-6.40		SS	7	17	50
		End of Borehole						
7								
8								
9								

Standard Penetration N-Value: 20, 40, 60

Shear Strength kPa: 50, 100, 150, 200

Water Content: 10, 20, 30, 40

Contractor: Geo-Environmental

Grade Elevation: TBD

Drilling Method: 200 mm OD Hollow Stem Augers

Top of Casing Elevation: N/A

Well Casing Size: N/A

Sheet: 1 of 1

Log of Borehole: BH16

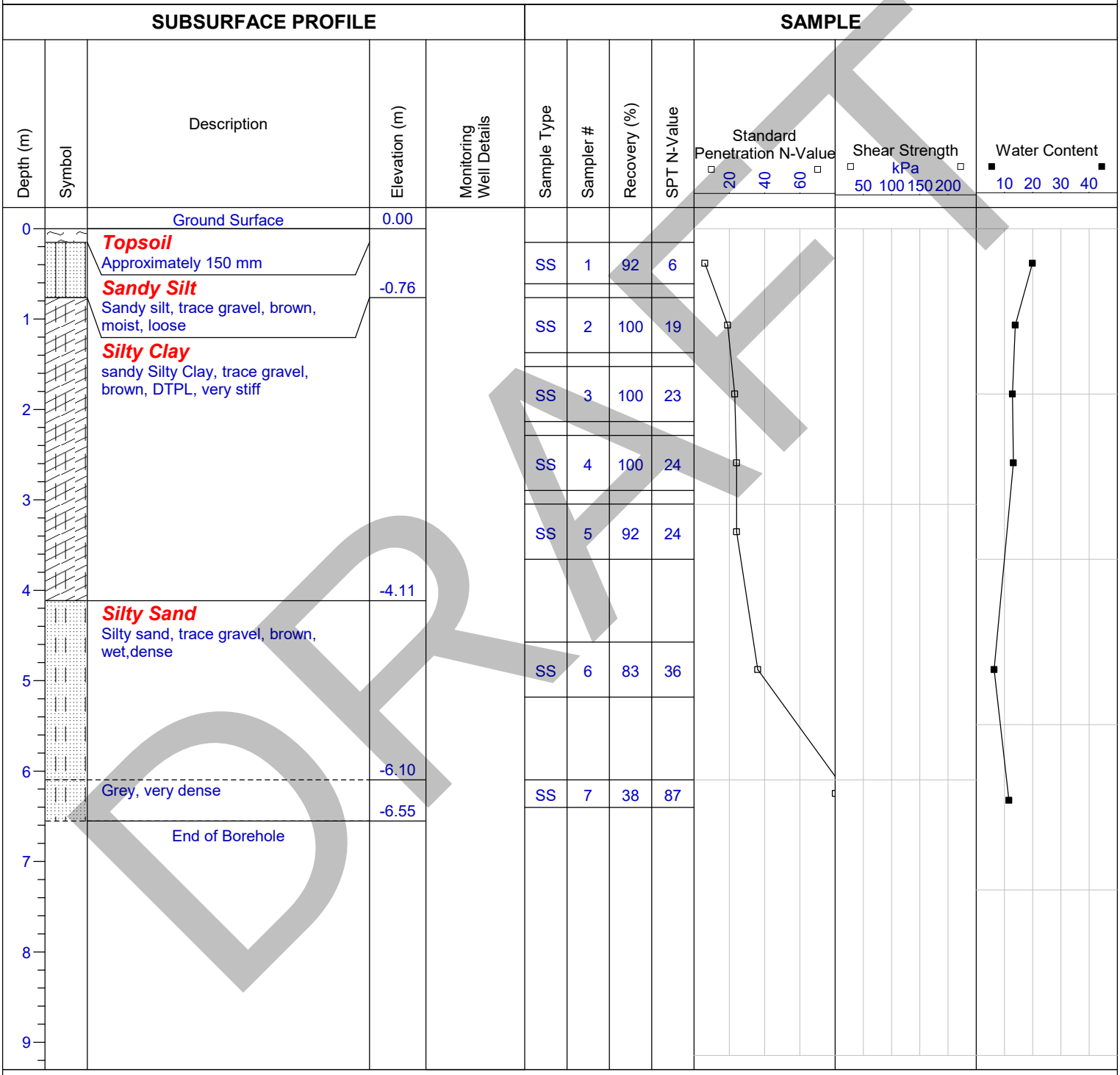
Project #: 342044.00 **Logged By:** TV

Project: Preliminary Geotechnical Investigation

Client: Prologis

Location: 7564 Tenth Line Road, Mississauga

Drill Date: September 30, 2024 **Project Manager:** EN



Contractor: Geo-Environmental **Grade Elevation:** TBD

Drilling Method: 200 mm OD Hollow Stem Augers **Top of Casing Elevation:** N/A

Well Casing Size: N/A **Sheet:** 1 of 1

Log of Borehole: BH17

Project #: 342044.00 **Logged By:** TV

Project: Preliminary Geotechnical Investigation

Client: Prologis

Location: 7564 Tenth Line Road, Mississauga

Drill Date: September 30 , 2024 **Project Manager:** EN

Depth (m)	Description	Elevation (m)	Sample Type	Sampler #	Recovery (%)	SPT N-Value
0	Ground Surface	0.00				
	Topsoil Approximately 150 mm		SS	1	75	5
	Sandy Silt sandy silt, trace gravel, brown, moist, loose	-0.76	SS	2	100	16
1	**Silty Clay** sandy silty clay, trace gravel, DTPL, very stiff		SS	3	100	22
2	Hard	-2.13	SS	4	100	42
3			SS	5	100	42
4		-4.11				
	Sandy Silt Sandy silt, trace gravel, brown to grey, moist, compact		SS	6	100	15
5						
6		-6.10				
	very dense, some rock fragments		SS	7	100	53
		-6.71				
7	End of Borehole					
	Open borehole dry upon completion of drilling.					
8						
9						

Standard Penetration N-Value: 20, 40, 60

Shear Strength kPa: 50, 100, 150, 200

Water Content: 10, 20, 30, 40

Contractor: Geo-Environmental **Grade Elevation:** TBD

Drilling Method: 200 mm OD Hollow Stem Augers **Top of Casing Elevation:** N/A

Well Casing Size: N/A **Sheet:** 1 of 1

Log of Borehole: BH18

Project #: 342044.00 **Logged By:** TV

Project: Preliminary Geotechnical Investigation

Client: Prologis

Location: 7564 Tenth Line Road, Mississauga

Drill Date: September 30 , 2024 **Project Manager:** EN

Depth (m)	Description	Elevation (m)	Monitoring Well Details	Sample Type	Sampler #	Recovery (%)	SPT N-Value
0	Ground Surface	0.00					
	Topsoil Approximately 150 mm			SS	1	92	7
	Sandy Silt sandy silt, trace gravel, brown, moist, loose	-0.76		SS	2	100	16
1	**Silty Clay** Sandy silty clay, trace gravel, brown, DTPL, very stiff			SS	3	200	19
2	hard	-2.13		SS	4	100	35
3	very stiff	-3.05		SS	5	100	29
4	**Sandy Silt** Sandy silt, trace gravel, brown to grey, moist, compact	-4.11		SS	6	100	13
5							
6	Wet, very dense	-6.10		SS	7	75	74
	End of Borehole	-6.55					
7							
8							
9							

Standard Penetration N-Value: 20, 40, 60

Shear Strength kPa: 50, 100, 150, 200

Water Content: 10, 20, 30, 40

Contractor: Geo-Environmental **Grade Elevation:** TBD

Drilling Method: 200 mm OD Hollow Stem Augers **Top of Casing Elevation:** N/A

Well Casing Size: N/A **Sheet:** 1 of 1

Log of Borehole: BH19

Project #: 342044.00 **Logged By:** TV

Project: Preliminary Geotechnical Investigation

Client: Prologis

Location: 7564 Tenth Line Road, Mississauga

Drill Date: September 30, 2024 **Project Manager:** EN

Depth (m)	Description	Elevation (m)	Sample Type	Sampler #	Recovery (%)	SPT N-Value
0	Ground Surface	0.00				
	Topsoil Approximately 150 mm		SS	1	75	5
	Sandy Silt Sandy silt, trace gravel, brown, moist, loose	-0.76	SS	2	100	19
1	**Silty Clay** Sandy silty clay, trace gravel, brown, DTPL, very stiff		SS	3	92	19
2			SS	4	100	26
		-2.90				
3	trace rock fragments, APL		SS	5	42	25
4		-4.11				
	grey, hard		SS	6	75	42
5		-5.49				
	Silty Sand Silty sand, trace gravel, brown, wet, compact		SS	7	100	24
6		-6.71				
7	End of Borehole					
	Groundwater level in open borehole at 5.5 mbgs upon completion of drilling.					
8						
9						

Standard Penetration N-Value: 20, 40, 60

Shear Strength kPa: 50, 100, 150, 200

Water Content: 10, 20, 30, 40

Contractor: Geo-Environmental **Grade Elevation:** TBD

Drilling Method: 200 mm OD Hollow Stem Augers **Top of Casing Elevation:** N/A

Well Casing Size: N/A **Sheet:** 1 of 1

Log of Borehole: BH20

Project #: 342044.00 **Logged By:** TV

Project: Preliminary Geotechnical Investigation

Client: Prologis

Location: 7564 Tenth Line Road, Mississauga

Drill Date: September 30 , 2024 **Project Manager:** EN

Depth (m)	Description	Elevation (m)	Sample Type	Sampler #	Recovery (%)	SPT N-Value
0	Ground Surface	0.00				
	Topsoil Approximately 200 mm	-0.21				
	Sandy Silt Sandy Silt, trace gravel, brown, moist, loose	-0.76	SS	1	92	6
1		-1.37	SS	2	83	14
	Silty Clay Sandy silty clay, trace gravel, brown, DTPL, stiff		SS	3	50	44
2	Hard	-2.13	SS	4	100	30
	Very stiff		SS	5	100	21
3						
4		-4.11				
	Silty Sand Silty sand, trace gravel, brown, moist, dense		SS	6	96	33
5						
6		-6.10		7		50
	No Recovery	-6.86		8		50
7	End of Borehole					
	Open borehole dry upon completion of driling.					
8						
9						

Standard Penetration N-Value: 20, 40, 60

Shear Strength kPa: 50, 100, 150, 200

Water Content: 10, 20, 30, 40

Contractor: Geo-Environmental **Grade Elevation:** TBD

Drilling Method: 200 mm OD Hollow Stem Augers **Top of Casing Elevation:** N/A

Well Casing Size: N/A **Sheet:** 1 of 1

Log of Borehole: BH21

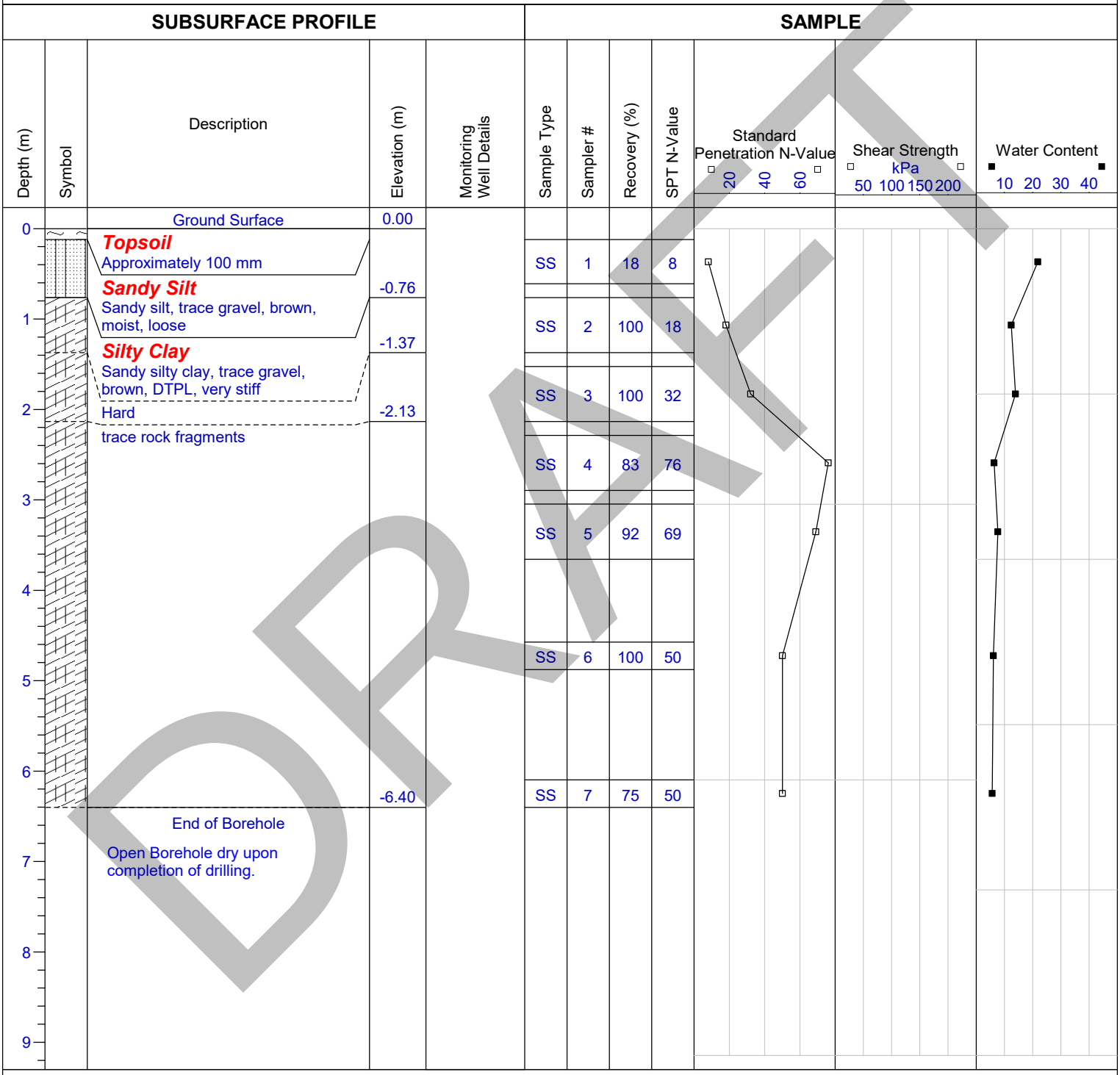
Project #: 342044.00 **Logged By:** TV

Project: Preliminary Geotechnical Investigation

Client: Prologis

Location: 7564 Tenth Line Road, Mississauga

Drill Date: October 1, 2024 **Project Manager:** EN



Contractor: Geo-Environmental **Grade Elevation:** TBD

Drilling Method: 200 mm OD Hollow Stem Augers **Top of Casing Elevation:** N/A

Well Casing Size: N/A **Sheet:** 1 of 1

Log of Borehole: BH22

Project #: 342044.00 **Logged By:** TV

Project: Preliminary Geotechnical Investigation

Client: Prologis

Location: 7564 Tenth Line Road, Mississauga

Drill Date: October 1 , 2024 **Project Manager:** EN

Depth (m)	Description	Elevation (m)	Monitoring Well Details	Sample Type	Sampler #	Recovery (%)	SPT N-Value
0	Ground Surface	0.00					
	Topsoil Approximately 150 mm			SS	1	92	9
	Sandy Silt Sandy Silt, trace gravel, brown, moist, loose	-0.76		SS	2	100	28
1	**Silty Clay** Sandy silty clay, trace gravel, brown, DTPL, very stiff	-1.37		SS	3	62	49
2	trace rock fragments, hard	-2.13		SS	4	42	50
	Silty Sand Silty sand, trace gravel, brown, moist, very dense			SS	5	42	50
3							
4				SS	6	42	50
5							
6	Grey, wet	-6.10		SS	7	58	76
		-6.71					
7	End of Borehole						
	Open borehole dry upon completion of drilling.						
8							
9							

Standard Penetration N-Value: 20, 40, 60

Shear Strength kPa: 50, 100, 150, 200

Water Content: 10, 20, 30, 40

Contractor: Geo-Environmental **Grade Elevation:** TBD

Drilling Method: 200 mm OD Hollow Stem Augers **Top of Casing Elevation:** N/A

Well Casing Size: N/A **Sheet:** 1 of 1

Log of Borehole: BH23

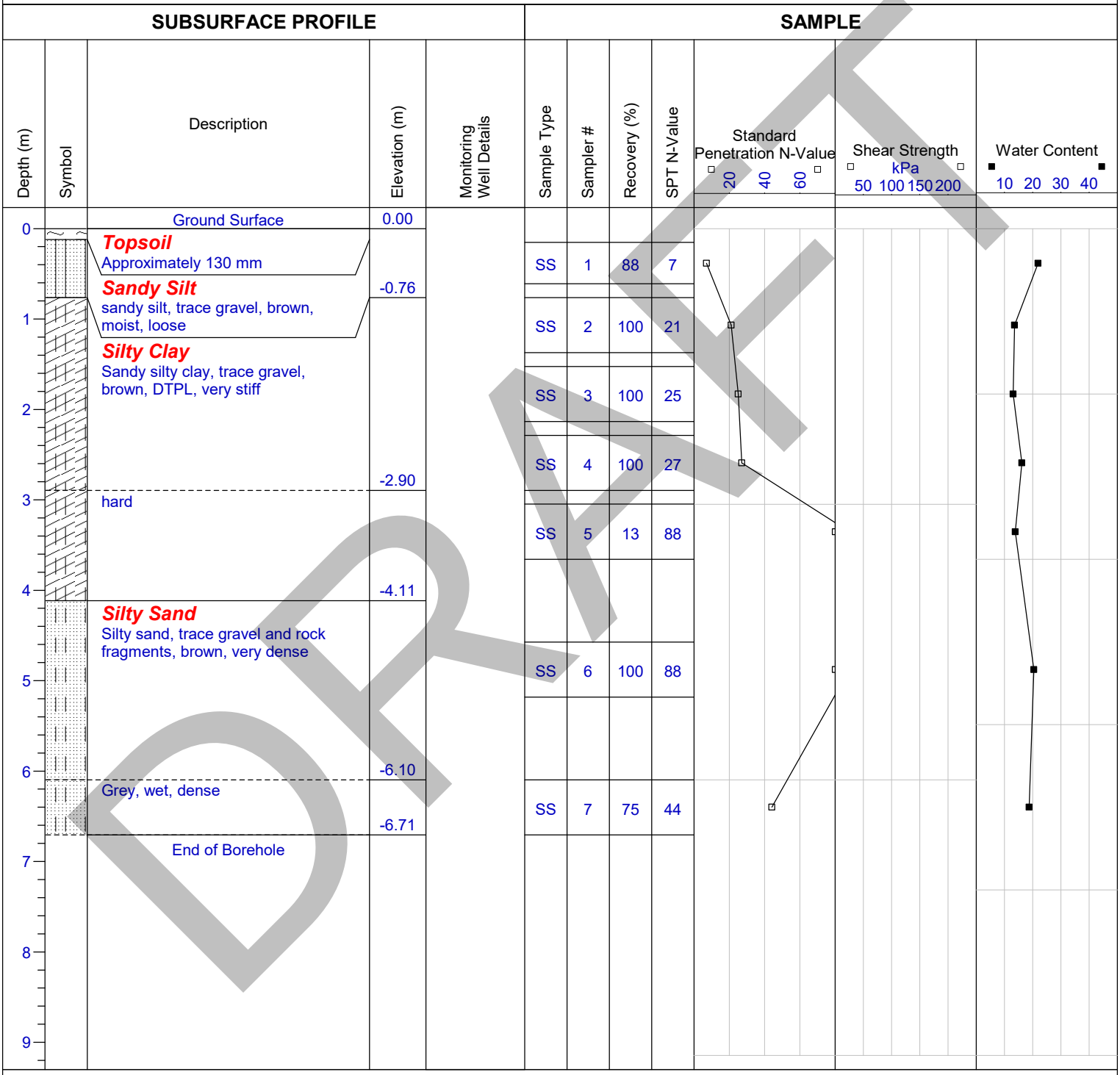
Project #: 342044.00 **Logged By:** TV

Project: Preliminary Geotechnical Investigation

Client: Prologis

Location: 7564 Tenth Line Road, Mississauga

Drill Date: October 1, 2024 **Project Manager:** EN



Contractor: Geo-Environmental **Grade Elevation:** TBD

Drilling Method: 200 mm OD Hollow Stem Augers **Top of Casing Elevation:** N/A

Well Casing Size: N/A **Sheet:** 1 of 1

Log of Borehole: BH24

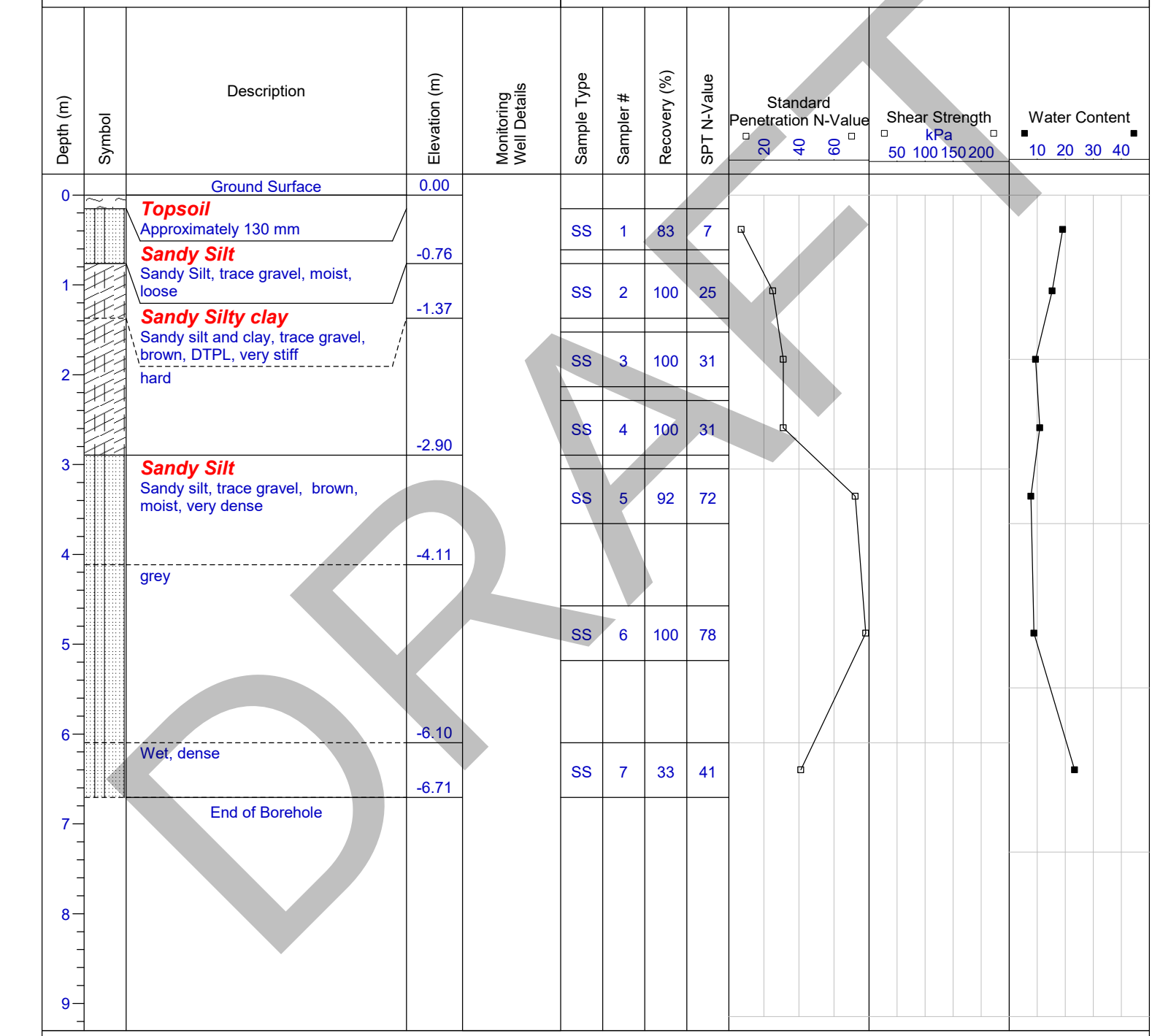
Project #: 342044.00 **Logged By:** TV

Project: Preliminary Geotechnical Investigation

Client: Prologis

Location: 7564 Tenth Line Road, Mississauga

Drill Date: October 1, 2024 **Project Manager:** EN



Contractor: Geo-Environmental **Grade Elevation:** TBD

Drilling Method: 200 mm OD Hollow Stem Augers **Top of Casing Elevation:** N/A

Well Casing Size: N/A **Sheet:** 1 of 1

Log of Borehole: BH25

Project #: 342044.00 ***Logged By:*** TV

Project: Preliminary Geotechnical Investigation

Client: Prologis

Location: 7564 Tenth Line Road, Mississauga

Drill Date: October 1, 2024 ***Project Manager:*** EN

SUBSURFACE PROFILE | **SAMPLE**

Depth (m)	Description	Elevation (m)	Sample Type	Sampler #	Recovery (%)	SPT N-Value
0	Ground Surface	0.00				
	Topsoil Approximately 150 mm		SS	1	92	7
	Sandy Silt Sandy Silt, trace gravel, brown, moist, loose	-0.76	SS	2	100	22
2	***Sandy Silty clay*** Sandy silty clay, trace gravel, brown, DTPL, very stiff		SS	3	100	29
		-2.90	SS	4	100	25
3	Hard		SS	5	88	32
4		-4.11				
	Sandy silt Sandy silt, trace gravel, brown, moist, very dense		SS	6	75	64
6		-6.10				
	Grey, wet, compact		SS	7	92	23
		-6.71				
7	End of Borehole					

Standard Penetration N-Value: 20 40 60

Shear Strength kPa: 50 100 150 200

Water Content: 10 20 30 40

Contractor: Geo-Environmental ***Grade Elevation:*** TBD

Drilling Method: 200 mm OD Hollow Stem Augers ***Top of Casing Elevation:*** N/A

Well Casing Size: N/A ***Sheet:*** 1 of 1

Log of Borehole: BH26

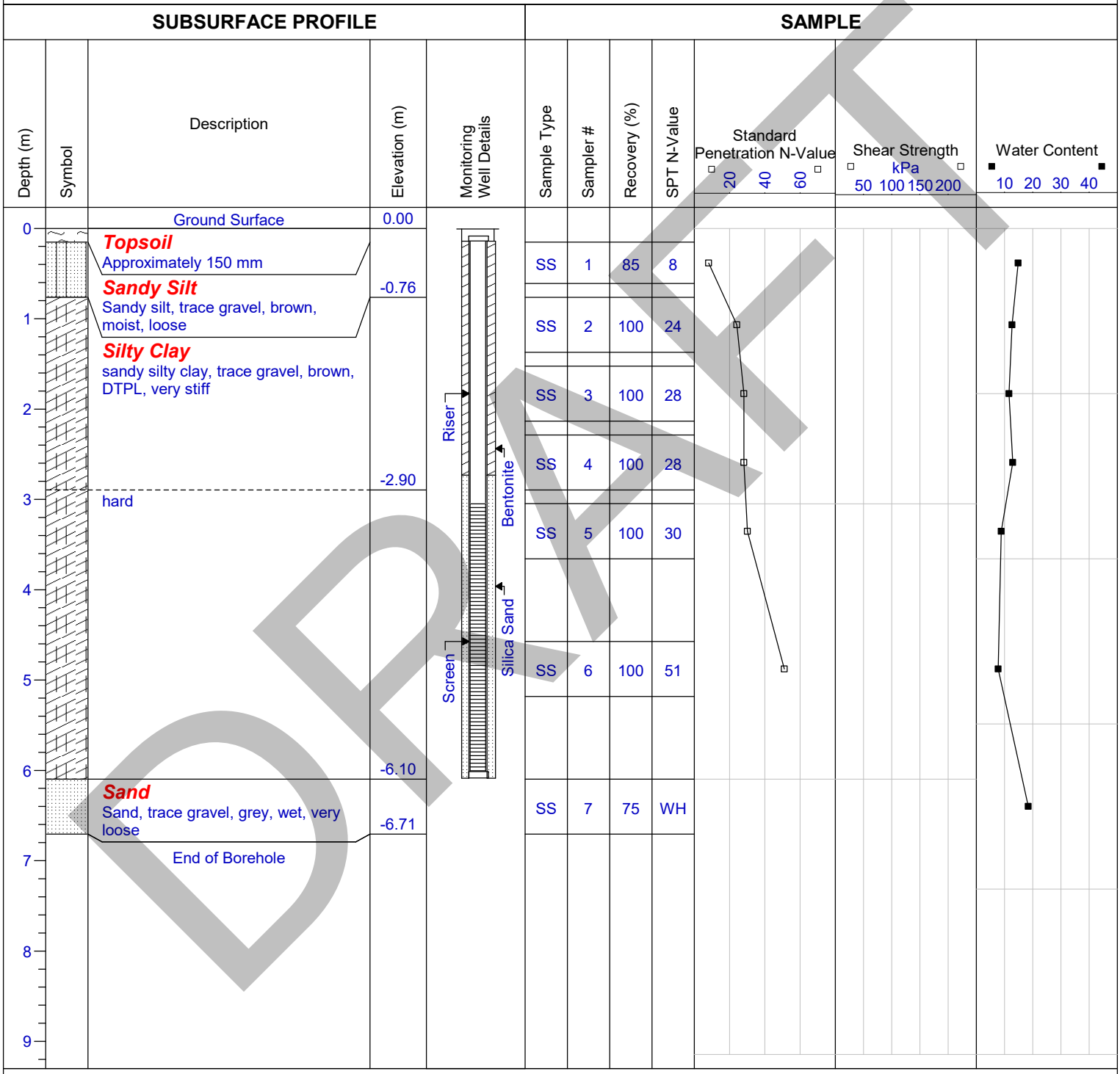
Project #: 342044.00 **Logged By:** EN/TV

Project: Preliminary Geotechnical Investigation

Client: Prologis

Location: 7564 Tenth Line Road, Mississauga

Drill Date: October 1, 2024 **Project Manager:** EN



Contractor: Geo-Environmental **Grade Elevation:** TBD

Drilling Method: 200 mm OD Hollow Stem Augers **Top of Casing Elevation:** N/A

Well Casing Size: N/A **Sheet:** 1 of 1

Log of Borehole: BH27

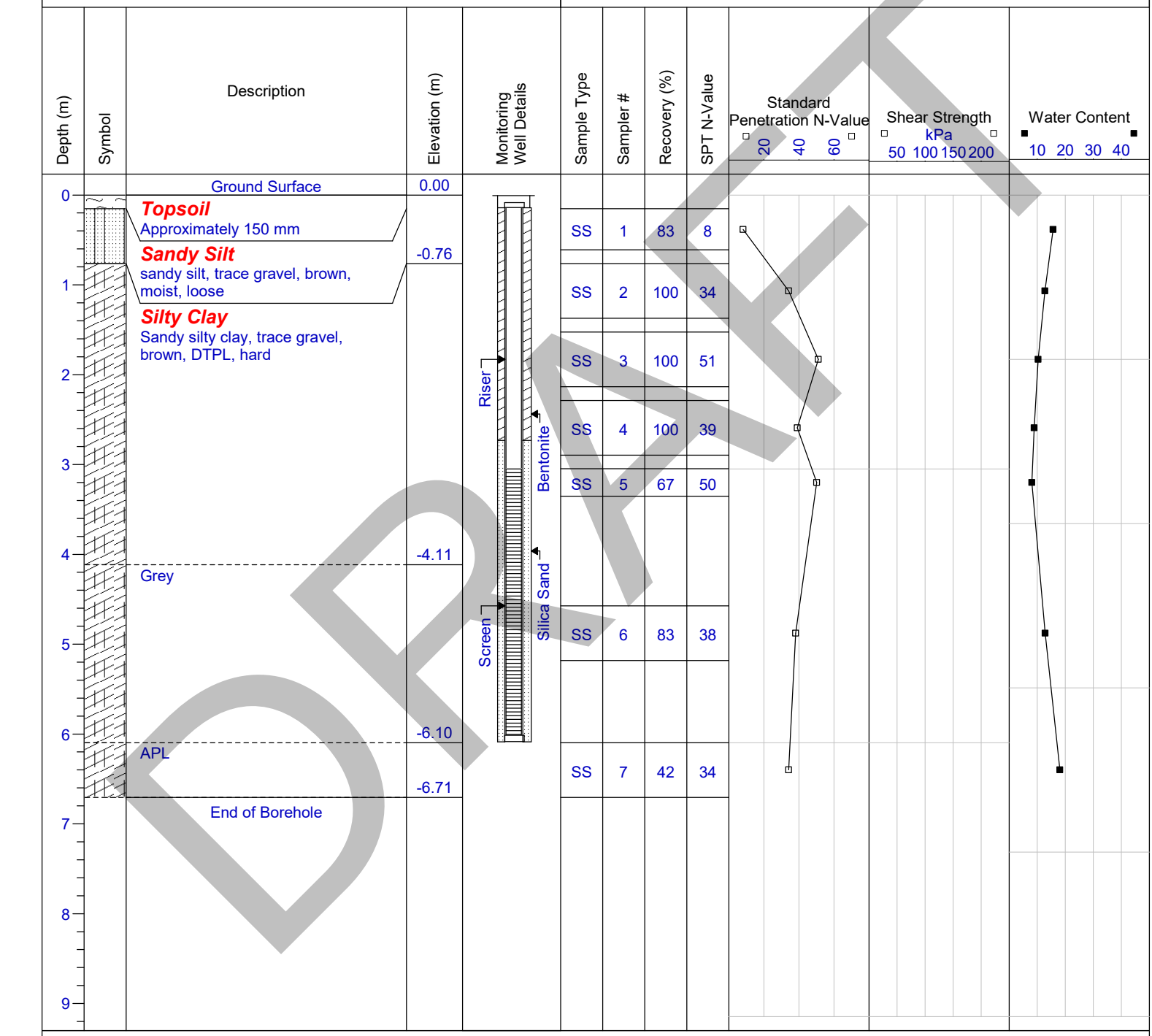
Project #: 342044.00 **Logged By:** TV

Project: Preliminary Geotechnical Investigation

Client: Prologis

Location: 7564 Tenth Line Road, Mississauga

Drill Date: October 2, 2024 **Project Manager:** EN



Contractor: Geo-Environmental **Grade Elevation:** TBD

Drilling Method: 200 mm OD Hollow Stem Augers **Top of Casing Elevation:** N/A

Well Casing Size: N/A **Sheet:** 1 of 1

Log of Borehole: BH28

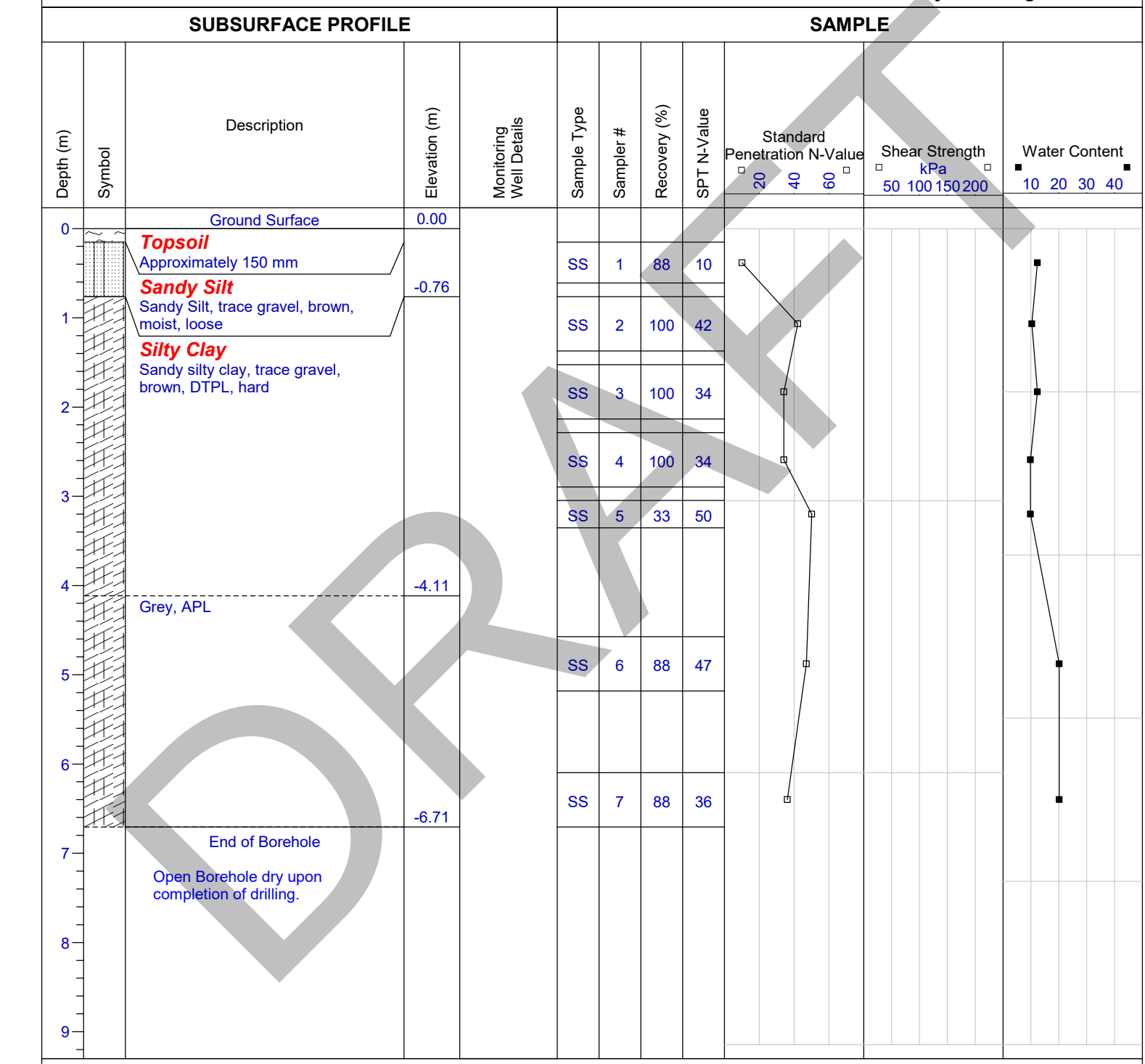
Project #: 342044.00 **Logged By:** EN/TV

Project: Preliminary Geotechnical Investigation

Client: Prologis

Location: 7564 Tenth Line Road, Mississauga

Drill Date: October 2, 2024 **Project Manager:** EN



Contractor: Geo-Environmental **Grade Elevation:** TBD

Drilling Method: 200 mm OD Hollow Stem Augers **Top of Casing Elevation:** N/A

Well Casing Size: N/A **Sheet:** 1 of 1

Log of Borehole: BH29

Project #: 342044.00 **Logged By:** TV

Project: Preliminary Geotechnical Investigation

Client: Prologis

Location: 7564 Tenth Line Road, Mississauga

Drill Date: October 2, 2024 **Project Manager:** EN

Depth (m)	Description	Elevation (m)	Sample Type	Sampler #	Recovery (%)	SPT N-Value
0	Ground Surface	0.00				
	Topsoil Approximately 150 mm		SS	1	67	10
	Sandy Silt Sandy silt, trace gravel, brown, moist, loose	-0.76	SS	2	100	28
	Silty Clay Sandy silty clay, trace gravel, brown, DTPL, very stiff		SS	3	100	22
2	hard	-2.13	SS	4	29	50
			SS	5	100	72
4	**Silty Sand** Silty sand, trace gravel, grey, wet, very dense	-4.11	SS	6	75	68
6		-6.71	SS	7	75	53
7	End of Borehole					

Standard Penetration N-Value: 20, 40, 60

Shear Strength kPa: 50, 100, 150, 200

Water Content: 10, 20, 30, 40

Contractor: Geo-Environmental **Grade Elevation:** TBD

Drilling Method: 200 mm OD Hollow Stem Augers **Top of Casing Elevation:** N/A

Well Casing Size: N/A **Sheet:** 1 of 1

Log of Borehole: BH30

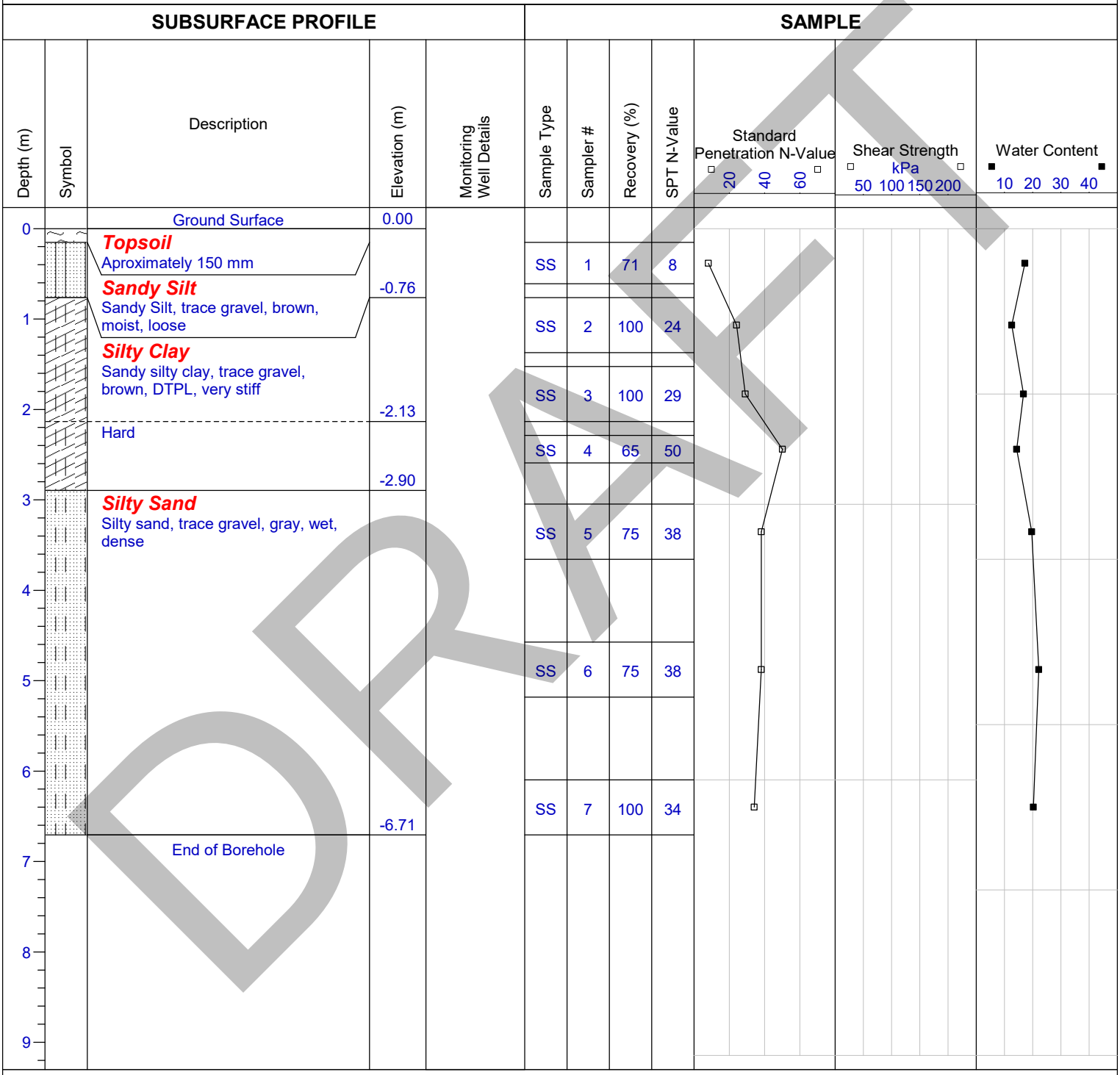
Project #: 342044.00 **Logged By:** TV

Project: Preliminary Geotechnical Investigation

Client: Prologis

Location: 7564 Tenth Line Road, Mississauga

Drill Date: October 2, 2024 **Project Manager:** EN



Contractor: Geo-Environmental **Grade Elevation:** TBD

Drilling Method: 200 mm OD Hollow Stem Augers **Top of Casing Elevation:** N/A

Well Casing Size: N/A **Sheet:** 1 of 1

APPENDIX III

Report Limitations and Guidelines for Use

REPORT LIMITATIONS & GUIDELINES FOR USE

This information has been provided to help manage risks with respect to the use of this report.

GEOTECHNICAL SERVICES ARE PERFORMED FOR SPECIFIC PURPOSES, PERSONS AND PROJECTS

This report was prepared for the exclusive use of the Client and their authorized agents, subject to the conditions and limitations contained within the duly authorized work plan. Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of the third parties. If additional parties require reliance on this report, written authorization from Pinchin will be required. Pinchin disclaims responsibility of consequential financial effects on transactions or property values, or requirements for follow-up actions and costs. No other warranties are implied or expressed. Furthermore, this report should not be construed as legal advice.

SUBSURFACE CONDITIONS CAN CHANGE

This geotechnical report is based on the existing conditions at the time the study was performed, and Pinchin's opinion of soil conditions are strictly based on soil samples collected at specific test hole locations. The findings and conclusions of Pinchin's reports may be affected by the passage of time, by manmade events such as construction on or adjacent to the Site, or by natural events such as floods, earthquakes, slope instability or groundwater fluctuations.

LIMITATIONS TO PROFESSIONAL OPINIONS

Interpretations of subsurface conditions are based on field observations from test holes that were spaced to capture a 'representative' snap shot of subsurface conditions. Site exploration identifies subsurface conditions only at points of sampling. Pinchin reviews field and laboratory data and then applies professional judgment to formulate an opinion of subsurface conditions throughout the Site. Actual subsurface conditions may differ, between sampling locations, from those indicated in this report.

LIMITATIONS OF RECOMMENDATIONS

Subsurface soil conditions should be verified by a qualified geotechnical engineer during construction. Pinchin should be notified if any discrepancies to this report or unusual conditions are found during construction.

Sufficient monitoring, testing and consultation should be provided by Pinchin during construction and/or excavation activities, to confirm that the conditions encountered are consistent with those indicated by the test hole investigation, and to provide recommendations for design changes should the conditions revealed during the work differ from those anticipated. In addition, monitoring, testing and consultation by Pinchin should be completed to evaluate whether or not earthwork activities are completed in

accordance with our recommendations. Retaining Pinchin for construction observation for this project is the most effective method of managing the risks associated with unanticipated conditions. However, please be advised that any construction/excavation observations by Pinchin is over and above the mandate of this geotechnical evaluation and therefore, additional fees would apply.

MISINTERPRETATION OF GEOTECHNICAL ENGINEERING REPORT

Misinterpretation of this report by other design team members can result in costly problems. You could lower that risk by having Pinchin confer with appropriate members of the design team after submitting the report. Also retain Pinchin to review pertinent elements of the design team's plans and specifications. Contractors can also misinterpret a geotechnical engineering or geologic report. Reduce that risk by having Pinchin participate in pre-bid and preconstruction conferences, and by providing construction observation. Please be advised that retaining Pinchin to participation in any 'other' activities associated with this project is over and above the mandate of this geotechnical investigation and therefore, additional fees would apply.

CONTRACTORS RESPONSIBILITY FOR SITE SAFETY

This geotechnical report is not intended to direct the contractor's procedures, methods, schedule or management of the work Site. The contractor is solely responsible for job Site safety and for managing construction operations to minimize risks to on-Site personnel and to adjacent properties. It is ultimately the contractor's responsibility that the Ontario Occupational Health and Safety Act is adhered to, and Site conditions satisfy all 'other' acts, regulations and/or legislation that may be mandated by federal, provincial and/or municipal authorities.

SUBSURFACE SOIL AND/OR GROUNDWATER CONTAMINATION

This report is geotechnical in nature and was not performed in accordance with any environmental guidelines. As such, any environmental comments are very preliminary in nature and based solely on field observations. Accordingly, the scope of services do not include any interpretations, recommendations, findings, or conclusions regarding the, assessment, prevention or abatement of contaminants, and no conclusions or inferences should be drawn regarding contamination, as they may relate to this project. The term "contamination" includes, but is not limited to, molds, fungi, spores, bacteria, viruses, PCBs, petroleum hydrocarbons, inorganics, pesticides/insecticides, volatile organic compounds, polycyclic aromatic hydrocarbons and/or any of their by-products.

Pinchin will not be responsible for any consequential or indirect damages. Pinchin will only be held liable for damages resulting from the negligence of Pinchin. Pinchin will not be liable for any losses or damage if the Client has failed, within a period of two years following the date upon which the claim is discovered within the meaning of the Limitations Act, 2002 (Ontario), to commence legal proceedings against Pinchin to recover such losses or damage.