PRELIMINARY GEOTECHNICAL ENGINEERING STUDY

Historic St. Mary's City Boutique Hotel & Conference Center

Mattapany Road and Kohut Way, Lexington Park, St. Mary's County, Maryland

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June 3, 2026

Hanbury
37 West Cross Street, Suite 203
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Attn: Mr. Ross Smith, AIA
(ross.smith@hanbury.design)

Subject: Preliminary Geotechnical Engineering Study, Historic St. Mary's City Boutique Hotel & Conference Center, Mattapany Rd and Kohut Way, Lexington Park, St. Mary's County, Maryland (DWK Contract Number 25054.D)

Dear Mr. Smith:

D.W. Kozera, Inc. is pleased to submit this preliminary geotechnical report containing the results of the subsurface investigation for the proposed development located at the above-referenced address. The scope of services referenced in this report was performed in accordance with our proposal dated March 24, 2025. Soil samples recovered as part of this investigation will be retained in our office for 60 days from the issuance of this report.

This document is not intended, nor will it meet the requirements for submissions for permit applications, agency review, or contract document submission. A comprehensive geotechnical study is required and should be performed once the building locations, loading, and configurations are finalized.

We appreciate the opportunity to be of service to you. Please contact us if you have any questions related to this subsurface investigation report.

Very truly yours,

D.W. KOZERA, INC.



Nicole Honegger, P.E.
State of Maryland No.61257
Expiration: 07-05-2027

I hereby certify that this document was prepared or approved by me, and that I am a duly licensed Professional Engineer under the laws of the State of Maryland, License No. 61257, and Expiration Date: 07/05/2027.

Andrew MacLeod, P.E.
Vice President

Preliminary Geotechnical Engineering Study
Historic St. Mary's City Boutique Hotel & Conference Center
Mattapany Rd and Kohut Way, Lexington Park, St. Mary's County, Maryland
(DWK Contract Number 25054.D)

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1.0 INTRODUCTION

This report contains the results of our preliminary geotechnical investigation and analysis for the proposed development located at Mattapany Road and Kohut Way, Lexington Park, St. Mary's County, Maryland. The report is based on the evaluation of a series of Standard Penetration Test (SPT) borings performed on the project site, available geologic data, and our experience on nearby sites.

This document is not intended, nor will it meet the requirements for submissions for permit applications, agency review, or contract document submission. A comprehensive geotechnical study is required and should be performed once the building locations, loading, and configurations are developed further.

1.1 Purpose and Scope

This study was conducted to characterize the subsurface conditions and to establish engineering properties of the underlying materials in order to prepare preliminary geotechnical recommendations for the proposed development.

The geotechnical investigation was performed in accordance with our proposal dated March 24, 2025. The subsurface investigation was comprised of eight (8) SPT borings with one (1) infiltration test. Our scope of work included:

- Review of our test procedures, results of all testing conducted and available geotechnical and geological data.
- Description of site geologic and groundwater conditions.
- Presentation of subsurface soil stratigraphy with pertinent available physical properties.
- Site specific seismic classification per IBC 2021.
- Preliminary determination as to whether on-site material will be suitable for use in controlled fills, and the extent to which acceptable on-site materials will be available, and if off-site borrows will be required.
- Preliminary slope stability analysis.
- Preliminary recommendations for a foundation system including allowable soil bearing pressure, anticipated settlements, embedment depth for frost, and/or a ground improvement system.
- Preliminary slab-on-grade design recommendations for the facility, including the modulus of subgrade reaction, k, in pounds per square inch to be used to design the concrete slab-on-grade for the buildings.
- Preliminary lateral earth pressure recommendations for proposed retaining walls with unrestricted rotation at the top of the wall.
- Preliminary geotechnical recommendations for flexible and ridged pavement sections.
- Preliminary recommendations for Stormwater Management (SWM) facilities.
- Recommendations for additional geotechnical testing for project development.

1.2 Limitations

This geotechnical study has been prepared in accordance with generally accepted geotechnical engineering practices. It is intended for the exclusive use of Hanbury and the project design team for the design and construction of the proposed development as described herein. This report includes both factual and interpreted information. Factual information is defined as objective data based on direct observations, such as soil samples and laboratory testing results. Interpreted information or geotechnical engineering interpretation is based on the engineering judgment, correlation, or extrapolation from factual information.

This report is preliminary in nature and is intended solely to provide an initial assessment of the subsurface conditions and preliminary geotechnical recommendations for planning purposes. It is not intended for use in final design, permit applications, or construction. The conclusions and recommendations presented herein are based on information provided at the time of this study. No warranties, express or implied, are made with respect to the conclusions or recommendations in this report. D.W. Kozera, Inc. should be given the opportunity to review final project drawings and specifications to confirm or revise these preliminary findings. If there are any changes to the proposed floor elevations, foundation loads, building configuration, or site grading from those described herein, this report shall not be considered valid unless such changes are reviewed and approved in writing by D.W. Kozera, Inc.

Information contained in this report is based on data obtained from limited subsurface exploration that represents the soil conditions only at the specific location and time investigated, and only to the depth penetrated. Subsurface conditions and groundwater levels at other locations or depths may differ from conditions occurring at the investigated locations. An attempt has been made to provide for normal contingencies, but the possibility remains that unexpected conditions may be encountered during construction.

1.3 Site Description

The proposed development is located southwest of the intersection of Mattapany Road and Kohut Way, Lexington Park, St. Mary's County, Maryland. The site is currently occupied by fields on the north, south, and west sides of the site and a heavily wooded area on the east side of the site. The site is bordered by Jamie L. Roberts Stadium to the west, Mattapany Road to the north, Kohut Way to the northeast, and fields to the east and south. The site slopes downward from northeast to southwest at approximate elevations EL 90± to EL 40± feet. Figure 1.3-1 below depicts the site vicinity with an approximate outline of the site shown in red.



Figure 1.3-1: Site Vicinity

1.4 Proposed Construction

Based on the plan titled “Proposed Layout Exhibit” prepared by Site Resources, dated December 22, 2025, and our conversations with the project team, we understand that the proposed development includes the construction of two new buildings, retaining walls, parking lots and driveways, and Stormwater Management (SWM) Facilities.

Because the existing site grades slope from approximate elevations EL 90± to EL 40± feet, we understand that cuts on the order of 20 feet and fills on the order of 10 feet will be needed to reach proposed site grades. Site grading will also consist of constructing new slopes around the proposed building. Two slopes will be cut down from the existing site grade, and one slope will be constructed by placing up to 10 feet of structural fill. The grades of the slopes range from 3H:1V to 7H:1V.

A new Hotel and Conference Center is proposed on the northeast side of the site. We understand that the proposed building will be four stories with no below grade levels. We understand the first floor will step up from approximate elevation EL 60± feet on the south side of the building to approximate elevation EL 72± feet for the rest of the building. Loads for the building have not been provided; however, based on our experience with similar buildings, we have assumed maximum column loads on the order of 300 kips and wall loads on the order of 8 kips/foot for the hotel and conference center.

We understand that a brewery is proposed on the south side of the hotel building. Information for the brewery building has not been provided; however, we assume the building will be one story with maximum column and wall loads on the order of 150 kips and 4 kips/foot, respectively. The proposed finished floor elevation for the brewery building is approximately EL 48± feet.

Figure 1.4-1 below includes a section of the proposed development.

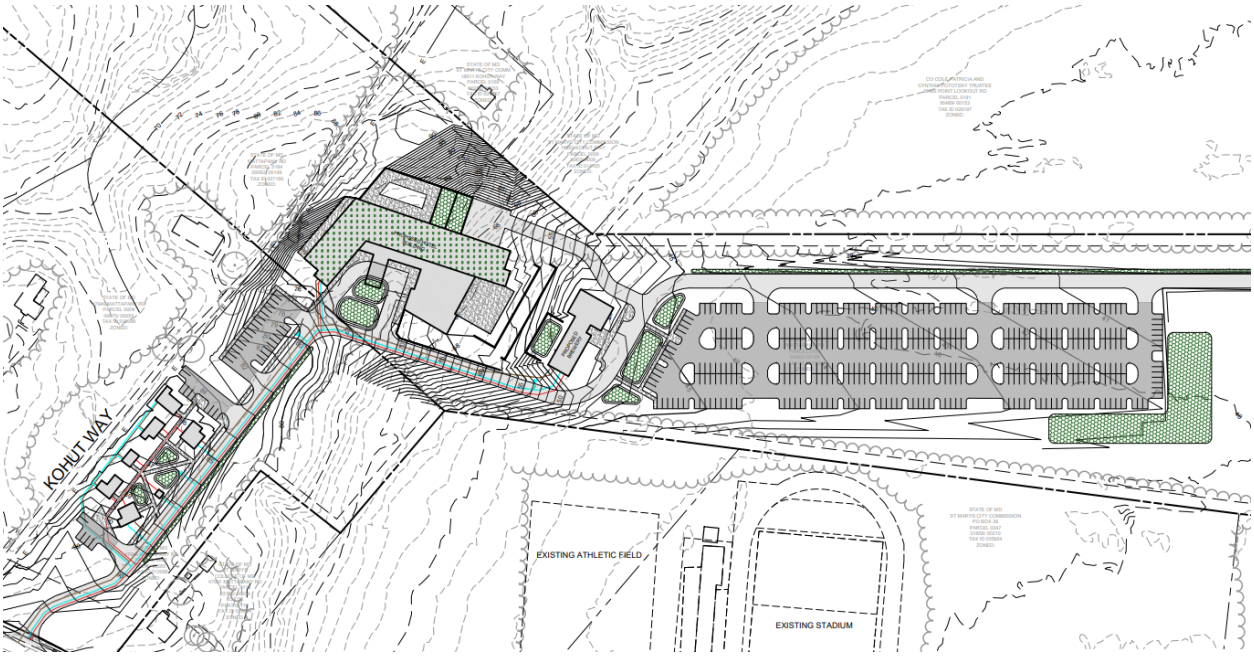


Figure 1.4-1: Proposed Construction

1.5 Regional Geology

The project is located within the Atlantic Coastal Plain Physiographic Province, which is characterized by sequences of marine and terrestrial sedimentary deposits. Many depositional environments existed during the formation of the Coastal Plain. Glacially influenced marine transgressions and regressions, periods of erosion and deposition, fluvial processes, and structural deformations have all played a part in the evolution

of the Coastal Plain. As a result of these varying processes, the presence, thickness, and lateral continuity of geologic formations are highly variable.

According to the Geologic Map of St. Mary's County, Maryland, prepared by Lucy McCartan, published by the Maryland Geological Survey, 1989, the site is mapped in the Omar Formation (Qo) and the Chicamuxen Church Formation (Qc), which are Pleistocene-aged deposits. The Omar Formation is categorized by predominantly medium-gray to dark-gray sandy clay and tan to orange clayey sand found along the Chesapeake Bay and the southern part of the Potomac River shoreline. The Chicamuxen Church Formation is generally interbeeded, well sorted to poorly sorted, fine to coarse gravel and medium-to coarse-grained sand, tan to medium yellow-orange. See Figure 1.5-1 below for an excerpt of the map.

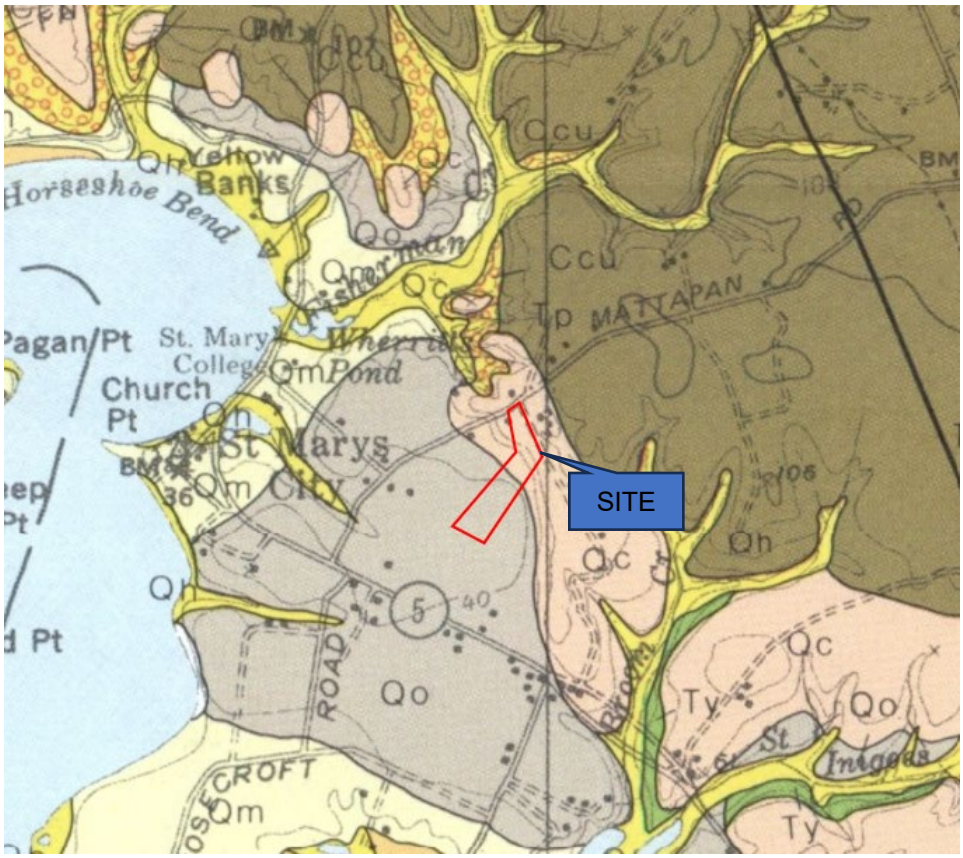


Figure 1.5-1: Site Geology

2.0 SUBSURFACE INVESTIGATION

2.1 Soil Test Borings

Eight SPT test borings, DWK-1 through DWK-4, P-1 through P-3, and SWM-1 were performed from April 6 through April 7, 2026. The borings were advanced using hollow-stem auger (3.25-inch I.D. HSA) techniques and extended to depths ranging from 10 to 30 feet below the existing ground surface. Soil samples were recovered from the boring at selected intervals by driving a 1-3/8-inch ID (2-inch OD) split-spoon sampler in accordance with ASTM D-1586 specifications. SPTs were conducted at changes in strata or at intervals not exceeding five feet. Soils obtained from the sampling device were sealed in glass sample jars and transported to the soils testing laboratory. The recovered soil samples were inspected and classified by a Geotechnical Professional using the USCS Soil Classification System (ASTM D 2488).

Water levels were recorded in the borings during drilling, when the augers were removed, and approximately 24 hours after drilling, prior to backfilling with drilling spoils. A temporary slotted standpipe was installed to facilitate 24-hour groundwater readings in borings DWK-2, P-2, and SWM-1.

Descriptions of the soils and conditions encountered at each test boring location are presented on the Boring Logs and are included in Appendix A. The locations of the soil test borings are shown on the Boring Location Plan in Appendix A.

2.2 Soil Laboratory Testing

Soil samples recovered from the field explorations were transported to the laboratory and selected soil samples were tested to determine additional engineering characteristics of the existing on-site soils. Laboratory tests conducted on the selected soil samples include: Natural Moisture Content (ASTM D2216), Atterberg Limits (ASTM D4318), Sieve Analysis (ASTM D6913), Moisture v. Density Relations (ASTM D698), and California Bearing Ratio (ASTM D1883). Summary and details of the results of these laboratory tests are included in the table below and in Appendix B.

Table 2.2-1: Laboratory Test Summary

Boring No.	Sample No.	Sample Depth (ft.)	Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Maximum Dry Density (lb/ft^3)	Optimum Moisture Content (%)	% Fines	USCS Classification
DWK-1	S-2	2.0-3.5	20.8	43	22	21	--	--	73.6	CL
DWK-3	S-6	13.0-15.0	31.0	23	NP	NP	--	--	27.8	SM
DWK-3	S-8	23.0-25.0	49.0	77	29	48	--	--	98.8	CH
DWK-4	S-3	4.0-6.0	15.3	18	16	2	--	--	43.8	SM
P-2	BS-1	0.0-4.0	12.7	28	18	10	120.9	11.8	39.7	SC

3.0 SUBSURFACE CONDITIONS

3.1 Stratification

The Boring Logs included in Appendix A contain details related to the subsurface conditions encountered at the test boring locations. Stratification lines shown on the Boring Logs and Subsurface Profile in the Appendix represent approximate transitions between material types. Strata changes can occur gradually or at different levels than those shown on the Boring Logs that depict conditions at the specific indicated locations and depths at the time of our subsurface exploration program. Groundwater levels are variable and are influenced by the existing soil conditions, seasonal and climatic changes. The test boring data, visual and laboratory classification of the sampled soils, and our knowledge of local geology was used to separate the soils into one geologic strata below the near surface materials, having the following generalized properties.

3.1.1 Stratum A: Pleistocene Group Soils

Natural Pleistocene Group soils consisting of Fat Clay (CH), Silty Sand (SM), Lean Clay (CL), Poorly Graded Sand (SP), Sandy Silt (ML), and Clayey Sand (SC) were encountered below near surface materials and extended to the boring termination depth. The SPT N-values of the Pleistocene Group soils generally ranged from 3 to 46 blows per foot (bpf).

3.2 Groundwater Conditions

During our investigation, groundwater was encountered in borings DWK-1 through DWK-4 and P-2. The stabilized groundwater readings, typically taken at least 24-hours after drilling, encountered groundwater in borings DWK-2 and DWK-3 at depths of 19.1 feet and 25.4 feet below existing ground surface, respectively. These depths correlate to approximate elevations EL 61± feet and EL 43± feet. The groundwater table appears to slope downward from northeast to southwest with the existing site grades. The groundwater level will fluctuate due to seasonal changes, precipitation, construction activities, etc., and highest groundwater observations are normally encountered in late winter and early spring.

4.0 PRELIMINARY SEISMIC CONSIDERATIONS AND SITE CLASS

This section presents the testing and analysis conducted to evaluate the liquefaction potential of the soils; and the seismic site class for this project site per 2021 International Building Code (IBC).

4.1 Liquefaction Potential

Liquefaction typically occurs in loose cohesionless sands located below the water table. A preliminary liquefaction analysis was performed for the site with the analysis software "LiquifyPro- Liquefaction and Settlement Analysis Software". A maximum horizontal acceleration of 0.06 g and an earthquake magnitude of 7.0 was used for the site. The standard penetration values were used as input in the analysis. The analysis compares the cyclic stress ratio (CSR) with the strength or the cyclic resistance ratio (CRR).

A Factor of Safety was observed to be greater than 1.0 in the analysis made for the site. No liquefaction phenomenon is anticipated for the site.

4.2 IBC 2021 Seismic Site Class and Design Parameters

The Seismic Site Classification influences the determination of the Site Coefficients, the Design Spectral Response Acceleration values, and ultimately the Seismic Design Category. Note that the Seismic Site Classification is based on the characteristics of the upper 100-feet of soils below the site. The IBC requires the use of Standard Penetration Test Resistance (test borings), Shear Wave Velocity (geophysical methods), and/or Undrained Shear Strength (soil laboratory testing) to categorize the Seismic Site Classification. Based on the test borings performed at this site and our interpretation of the geology below the depth of the test borings, the Seismic Site Classification was determined to be **Site Class D**. If a higher site classification is beneficial to the project, we can provide additional testing, such as ReMi or MASW shear wave studies, that may yield more favorable results.

5.0 PRELIMINARY EARTHWORK RECOMMENDATIONS

Because the existing site grades slope from approximate elevations EL 90± to EL 40± feet, we understand that cuts on the order of 20 feet and fills on the order of 10 feet will be needed to reach proposed site grades.

Earthwork operations are expected to be feasible with conventional earth moving equipment. Careful subgrade preparation, including stripping of existing organic layers, and/or soft surface soils, is required to prepare a suitable fill subgrade. Earthwork is recommended to take place in the warmer, drier months between May and October. The use of scarification and drying techniques, or additives such as quick lime or Portland cement may also be useful in expediting fill operations in inclement weather.

5.1 Site Grading and Settlements

The subsurface stratigraphy encountered during our geotechnical exploration includes a Fat Clay (CH) stratum encountered in borings DWK-1 through DWK-3 at an approximate depth of 23 feet below existing ground surface. Standard Penetration Test (SPT) N-values within this clay layer generally ranged from 4 to 6 blows per foot, indicating relatively low in-situ strength and moderate compressibility. Laboratory testing further indicates the material consists of approximately 98.8 percent fines and exhibits a Plasticity Index (PI) of 48, which are characteristics of a highly plastic cohesive soil with a potential for consolidation under additional loading.

As part of the subsequent geotechnical investigation, additional field and laboratory testing is recommended to better define the depth of the clay layer and the engineering properties governing consolidation and settlement behavior. This will facilitate the development of more refined and reliable settlement analyses.

Based on the currently available subsurface information, we anticipate the additional loading imposed by the placement of new fill is expected to induce consolidation of the underlying cohesive soils. In areas where more than 6 feet of compacted structural fill is placed, we anticipate settlement exceeding 1 inch. Placement of 10 feet of compacted structural fill, may induce settlements between 1.5 to 2 inches.

If site structures cannot be designed to accommodate post construction settlements greater than 1 inch, we recommend waiting for the majority of immediate and short-term consolidation settlement to occur before beginning construction in these areas. At this stage of design, a waiting period of approximately one month following completion of structural fill placement is anticipated to reduce post-construction settlements to less than 1 inch.

Settlement plates should be used during the waiting period to evaluate the rate and magnitude of settlement and to confirm that settlement has substantially stabilized prior to construction. The duration of any waiting period should ultimately be confirmed based on observed field performance during settlement monitoring.

We recommend completing rough grading prior to utility installation to allow soil settlement to occur before utilities are placed, minimizing the potential for settlement-related impacts to the utilities.

5.2 Subgrade Preparation

All vegetation and topsoil located below proposed structures and newly placed compacted structural fill should be removed from the subgrade prior to filling. Where site structure subgrades are to consist of compacted structural fill, fill shall be placed at least 5 feet beyond the edge of the structure, where feasible. The supporting slopes of the fill shall be compacted to the same compaction requirements as the fills below the structure. Compacted fill placed below footings should extend a minimum of 12 inches horizontally beyond the edge of the proposed footings.

The subgrade should be proofrolled prior to placement of foundations, slabs, or compacted structural fill. Proofrolling should be performed using a fully loaded 20-ton triaxle dump truck or heaviest accessible equipment under the observation of the Geotechnical Engineer of Record (GER). If the subgrade is found to be unstable, undercuts should be performed under the direction of the GER. Upon achieving stable subgrade, the contractor should replace undercut soils with structural compacted fill in accordance with Section 5.3.

The on-site soils may become unstable in wet weather and under construction traffic. Undercutting of subgrades should be expected if the subgrades are exposed to the above events. The Project Specification should require the contractor be responsible for protecting the subgrades from weather and equipment damage.

5.3 Compacted Structural Fill

Compacted fill in structural areas (building pads, parking lots, behind retaining walls) should consist of satisfactory soils classified as SM or coarser in accordance with the Unified Soil Classification System, ASTM D2487. Soils meeting this requirement are classified as SM, SP, SW, GM, GP, and GW. Unsatisfactory soils are those classified as SC, ML, CL, OL, OH, MH, and CH. Most of the onsite soil is expected to meet this requirement and can be used as backfill.

Compacted fill in non-structural green areas may consist of soils classifying as CL or coarser, which includes soil classified as CL, ML, SC, SM, SP, SW, GM, GP, and GW. If additional import soil is needed to fill the site, the imported soils should classify as SM or coarser.

Soils used for compacted fill should be mineral soils free of unsuitable materials such as topsoil, other organics, rubble, and rocks larger than three inches in diameter. The in-place moisture content of the satisfactory soils material shall be adjusted by the contractor through wetting or drying, to within three percent of the optimum moisture content.

Compacted fill should be placed on subgrades that have first been stripped of vegetation, topsoil, and unsuitable soft areas. Compacted structural fill should be placed in approximately horizontal layers, each layer having a loose thickness of not more than eight inches. All structural fill in the building pads, parking lots, and behind retaining walls, should be compacted to 95 percent of the maximum dry density in accordance with ASTM D698, Standard Proctor. Compacted fill in lawns and unpaved areas may be compacted to 90 percent of the same standard, when placed as indicated above. The contractor should select appropriate compaction equipment to achieve the required compaction.

5.4 Site Drainage

Grades should be designed to provide positive drainage away from permanent site improvements, any excavations throughout construction, and be maintained throughout the life of the building. Allowing water to pond on or near the new structures during construction or throughout the life of the structure may result in undesirable and/or decreased serviceability of the structures.

Landscape irrigation adjacent to the building should be minimized or eliminated. If landscaped areas are constructed within 10-ft. of the building, the areas should be designed to have positive drainage away from the building foundations, and this drainage should not be hindered by landscape edging, grade variations or vegetation.

Upon completion of construction, we recommend that verification of final grading (as-built) be performed to document that positive drainage, as described above, has been achieved.

6.0 PRELIMINARY SLOPE STABILITY ANALYSIS

Based on the plan titled “Proposed Layout Exhibit” prepared by Site Resources, dated December 22, 2025, and our conversations with the project team, we understand three new slopes will be constructed around the proposed building.

The slope to the south of the building will be constructed by placing up to 10 feet of structural fill and will be graded with a slope of approximately 7H:1V. The total height of the slope will be approximately 23 feet.

The slope on the west side of the building will be cut between 2 and 14 feet from the existing site grades and will be graded with a slope of approximately 3H:1V. The total height of the slope will be approximately 15 feet.

The slope to the north of the building will be cut between 4 and 20 feet from the existing site grades and will be graded with a slope of approximately 4H:1V. The total height of the slope will be approximately 30 feet.

It is recommended that permanent slopes have a Factor of Safety of at least 1.5, for long term stability. A preliminary global stability analysis was performed for the three proposed slopes and the Factor of Safety for each slope was greater than the recommended 1.5.

7.0 PRELIMINARY FOUNDATION RECOMMENDATIONS

A new Hotel and Conference Center is proposed on the northeast side of the site. We understand that the proposed building will be four stories with no below grade levels. We understand the first floor will step up from approximate elevation EL 60± feet on the south side of the building to approximate elevation EL 72± feet for the rest of the building. Loads for the building have not been provided; however, based on our experience with similar buildings, we have assumed maximum column loads on the order of 300 kips and wall loads on the order of 8 kips/foot for the hotel and conference center.

We understand that a brewery is proposed on the south side of the hotel building. Information for the brewery building has not been provided; however, we assume the building will be one story with maximum column and wall loads on the order of 150 kips and 4 kips/foot, respectively. The proposed finished floor elevation for the brewery building is approximately EL 48± feet.

7.1 Shallow Foundations on Natural Soils

An allowable soil bearing pressure of 3,000 psf is expected to be feasible for column and wall footings used to support the proposed structures when founded on the firm natural soils of Stratum A or newly placed compacted structural fill.

During excavation for footings, some unsuitable loose natural soils may be encountered, which must be removed by undercutting. Upon completion of the undercut, the footings should be placed directly on the lowered subgrade. Alternatively, the undercut subgrade may be backfilled with lean concrete or compacted structural fill, allowing the footing to be placed at the designed elevation.

We expect that total foundation settlement of less than one inch, and distortional settlement of 0.002 in/in can be expected when spread footings are placed in accordance with the recommendations provided in this report. In order to preclude punching type bearing capacity failures, wall footings shall have minimum widths of 18 inches, and any column footings shall have minimum widths of 30 inches. All footings in non-climate-controlled portions of the structures should be placed at least 30 inches below final grade for frost protection.

8.0 PRELIMINARY FLOOR SLAB RECOMMENDATIONS

Based on the plan titled “Proposed Layout Exhibit” prepared by Site Resources, dated December 22, 2025, the floor slab subgrades are expected to consist of natural Pleistocene Group soils.

Prior to placement of the floor slabs, the suitability of the slab subgrades should be determined by proofrolling. Proofrolling should be performed using a fully loaded 20-ton triaxle dump truck or heaviest accessible equivalent under the observation of the Geotechnical Engineer of Record (GER). Any loose or unsuitable soils found during proofrolling should be removed and replaced with compacted fill as outlined in Section 5.

Floor slabs-on-grades are expected to be designed using a modulus of subgrade reaction, k equal to 120 pci. Groundwater is estimated to be greater than 5 ft. below the proposed finished floor grades and a special under-floor subdrainage system is not considered necessary. A layer of drainage fill, consisting of a minimum of four inches of washed gravel or open graded crushed stone, should be placed below all floor slabs as a capillary break.

On most projects, there exists a significant lag time between the initial grading and the placement of the floor slab. Environmental conditions and construction traffic often disturb the soil subgrade during this lag time. The contractor should make provisions in the construction specifications for the restoration of the subgrade to a stable condition prior to the placement of the floor slab at no additional cost to the owner.

9.0 PRELIMINARY LATERAL EARTH PRESSURES

We understand that retaining walls are planned around the proposed buildings and driveways. Based on the plan titled "Proposed Layout Exhibit" prepared by Site Resources, dated December 22, 2025, we anticipate the tallest retaining wall to be approximately 10 feet in height.

9.1 Retaining Walls

Retaining walls must be designed to resist lateral earth pressures developed from the surrounding soils and any surcharge, such as vehicle traffic. Table 9.1-1 provides recommended parameters for the design of the retaining walls in the cantilevered position. These parameters include earth pressures developed from backfill soil placed behind the walls.

Table 9.1-1: Design Parameters for Retaining Walls

Wall Type	Soil Class	Unit Weight (pcf)	Soil Pressure (psf)	Sliding Resistance (psf)	Friction Angle (Degree)
Braced	SM	120	60H (at-rest)	0.35	30
Cantilevered	SM	120	40H (active)	0.35	30

H=Height of Wall (ft.)

It is expected that the at-rest pressure should be used for walls that are braced at top and bottom, and the active condition can be used if the walls are designed to be cantilevered. The ponding of precipitation behind the walls should be avoided long term and during construction as the parameters do not consider hydrostatic pressure. Conventional foundation subdrainage or weep holes should be used to prevent buildup of hydrostatic pressure behind walls. Any vertical surcharge load from permanent structures, vehicle traffic, or temporary construction equipment should be added to the lateral earth pressure with a rectangular force diagram as indicated in the pressure diagrams in Figure 9.1-1. The surcharge load from temporary construction equipment should be a minimum of 250 psf. A Factor of Safety of at least 1.5 should be used for the evaluation of overturning and sliding of the walls using the parameters indicated on the lateral earth pressure diagrams.

Specific material and compaction requirements for fill against the walls below grade are included in Section 5. Compacted fill behind and in front of the walls should be free of organics and rocks larger than 3 inches in diameter and should consist of soils classifying as Silty Sand (SM) or coarser. A perimeter drain should be installed to collect any water accumulated behind the wall and provided with positive gravity discharge. Compaction equipment exceeding 3,000 pounds in deadweight should not be used within 5-ft. of the walls in order to avoid overloading the walls.

Suitable man-made drainage materials may be used in lieu of the granular backfill, adjacent to the retaining walls. Examples of suitable materials include EnkaDrain or MiraDRAIN. These materials should be covered with a filter fabric having an apparent open size (AOS) consistent with the size of the soil to be retained. The material should be placed in accordance with the manufacturer's recommendations. The lateral earth pressure indicated above is applicable for either granular backfill or the manufactured drainage medium. We recommend that all below-grade levels of the structure be waterproofed and include suitable water stops between the walls and floor slab at the foundation level.

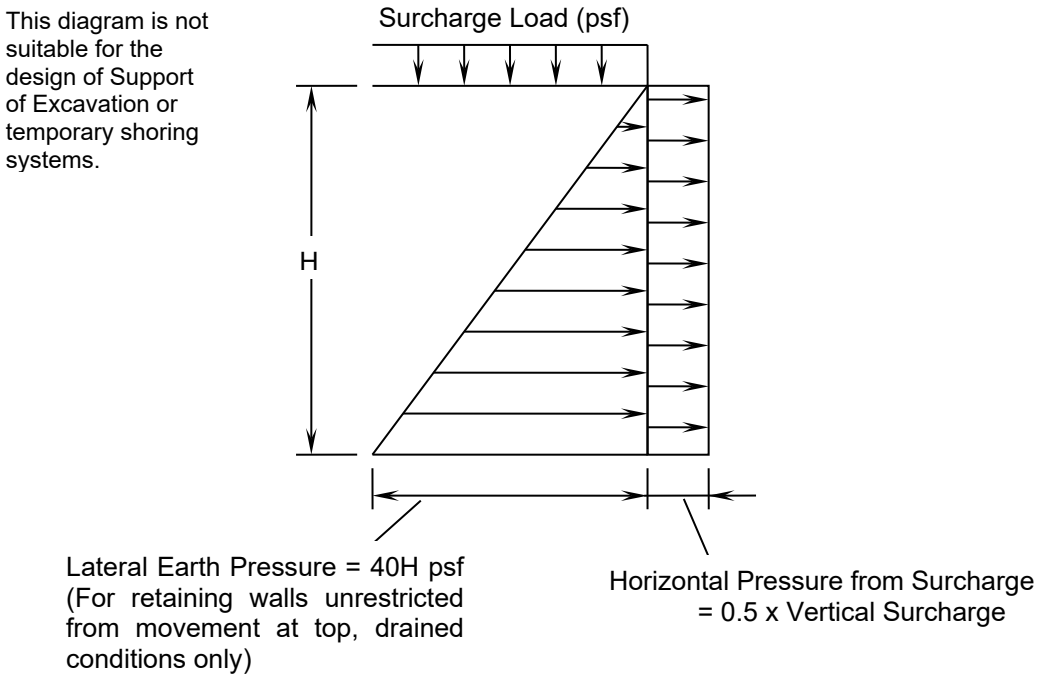


Figure 9.1-1: Lateral Earth Pressures – Cantilevered Walls

9.1.1 Settlement of Retaining Walls

As stated in Section 5.1, a stratum of Fat Clay (CH) was encountered in borings DWK-1 through DWK-3 at an approximate depth of 23 feet below existing ground surface. Preliminary lab test results indicate this material is a highly plastic cohesive soil with a potential for consolidation under additional loading.

Based on the plan titled “Proposed Layout Exhibit” prepared by Site Resources, dated December 22, 2025, we understand that up to 10 feet of soil may be placed behind the retaining wall on the south side of the building. Placement of 10 feet of compacted structural fill, may induce settlement between 1.5 to 2 inches from the underlying soils.

We understand that retaining wall construction will occur simultaneously with fill placement and there will not be a waiting period after fill placement for immediate and short-term consolidation settlement to occur before construction. Therefore, we recommend the retaining wall be designed to accommodate post construction settlements up to 2 inches and distortional settlement of 0.002 in/in.

10.0 PRELIMINARY PAVEMENT DESIGN

The pavement sections presented here are for light-duty (automobile only) and medium-duty sections. Detailed traffic data was not available for this project. However, it is expected that the traffic will consist of passenger vehicles, buses, and light trucks, such as garbage trucks.

The pavement design assumes that a continual maintenance program will be implemented during the service life of the project. This should include crack and surface sealing and patching of deteriorated areas.

10.1 Pavement Subgrade Preparation

All existing vegetation and topsoil should be removed from the subgrade prior to filling. Careful preparation of pavement and fill subgrades as well as proper placement and compaction of structural fill are both necessary to prepare a suitable site for the support of the proposed pavements.

Based on the plan titled “Proposed Layout Exhibit” prepared by Site Resources, dated December 22, 2025, we understand most of the pavement area will be supported by newly placed compacted structural fill.

All subgrades should be proofrolled prior to placement of any compacted structural fill or the pavement section. Proofrolling should be performed using a fully loaded 20-ton triaxle dump truck or equivalent under the observation of the Geotechnical Engineer of Record (GER). If the subgrade is found to be unstable, undercuts should be performed under the direction of the GER. Upon achieving a stable subgrade, the contractor should replace undercut soils with compacted structural fill in accordance with the recommendations outlined in Section 5. The compacted structural fill placed below the pavement section should consist of soils classifying as SM or coarser.

10.2 Flexible Pavement Design/Analysis

Soil laboratory testing for the on-site soils indicated a CBR value of 14.2 for the natural Pleistocene Group soils consisting of Clayey Sand encountered in boring P-2. However, a CBR value of 5 should be used in areas where the pavement subgrades consist of compacted structural fill classifying as SM or coarser. The pavement subgrades should be inspected carefully to determine if the soils meet the soil classification that is used in our analysis and were placed and compacted in accordance with this report.

We assume parking areas and driveways will be used to support automobiles, buses, delivery trucks, and garbage trucks. A light-duty pavement section may be used in areas that will be restricted to being used solely by automobiles. Parking lot access roads and entrances that may be used by heavier vehicles, such as buses, garbage trucks, and delivery trucks, should be designed as a medium-duty section.

Table 10.2-1: Recommended Minimum Flexible Pavement Section

Layers	Light-Duty Pavement 50,000 ESAL	Medium-Duty Pavement 300,000 ESAL
Asphalt Surface Course	1.5” thick	1.5” thick
Asphalt Base Course	2.5” thick	3.5” thick
Stone Base Course	6.0” thick	8.0” thick
Subgrade	Compacted and Approved by the GER	

The bituminous concrete surface and base course material should be selected by the civil engineer to provide a stable and relatively impervious pavement section. However, we recommend the asphalt surface course be MDOT Superpave 9.5-mm, minimum, and the base course be MDOT Superpave 19.5-mm.,

minimum (see State Highway Administration Standard Specifications for Construction and Materials dated July 2008 including revisions and additions for Superpave standards). The pavement gradation should be reviewed by the Geotechnical Engineer of Record prior to installation.

The stone base course should meet the specifications of MDOT Graded Aggregate Base (GAB) and be compacted to at least 97 percent of the maximum dry density per AASHTO T180.

Approved subgrade consists of a firm and unyielding soil subgrade prepared in accordance with this Section.

10.3 Rigid Pavement Design/Analysis

A rigid concrete pavement should be used in areas of concentrated, repeated, heavy wheel loads such as in front of dumpsters, and in areas of tight turning radii and braking, where excessive wheel shearing forces could damage a flexible pavement. Traffic category A-1 with a maximum of one truck (vehicle with at least six wheels) per day was used for this analysis per American Concrete Institute Committee 330 for a 20-year design life. The recommended minimum rigid pavement section is provided in Table 10.3-1.

Table 10.3-1: Recommended Minimum Rigid Pavement Section

Layer	Thickness
Reinforced Portland Cement Concrete (RPCC)	5-in.
Dense Graded Aggregate	6-in.
Subgrade	Compacted and Approved by the Geotechnical Engineer of Record

The concrete should be suitably air entrained with a compressive strength of 5,000 psi. Construction and expansion joints should be based on the final site configuration but should not exceed 15 feet in any horizontal direction.

10.4 Pavements During Construction

Pavements should be placed and compacted under the direction of the Geotechnical Engineer of Record in accordance with the project specifications. If specifications are not provided, the St. Mary's County Road Ordinance and the MSHA Pavement and Geotechnical Design Guide, should be followed.

Rollers should be self-propelled, reversible, and steel wheeled and operated in a manner that does not damage the pavement. The asphalt should be rolled immediately after placement and compacted to the proper in-place density. Rolling should be performed in a manner such that roller marks shall not be visible after rolling operations.

Delivery and placement of the asphalt should be continuous and delivered materials should be placed while the temperature is at least 225 F, or as specified by the manufacturer. No traffic should be permitted on the pavement after rolling until it has cooled to less than 140 F.

In areas where access is limited such as near sidewalks and curbs, the Contractor should expect that handwork needs to be performed to accomplish adequate compaction of pavements. In general, finer aggregate mixes are easier to place in areas where handwork is required and should be considered in these areas.

It is recommended asphalt construction consider the following weather restrictions:

- Final surface asphalt materials should be placed when the ambient air and surface temperatures are at least 40 F.

- Intermediate and base layers should be placed when ambient air and surface temperatures are at least 32 F.
- Polymer-modified surface mixes (if utilized) should be installed when ambient air and surface temperatures are at least 50 F.
- Do not place asphalt on frozen graded aggregate base, regardless of ambient air and surface temperatures.

Typically, the allowable maximum and minimum lift thickness will be governed by the asphalt gradation and nominal aggregate size. Lift thicknesses should be placed in accordance with MDSHA and/or County guidelines, whichever governs.

A tack coat of asphalt should be applied between the asphalt base course and the asphalt surface course to promote bonding between the two courses. Prior to application of the tack coat, the contractor should ensure the surface is dry and clear of all loose and foreign materials. The tack coat should be applied in accordance with the Maryland Asphalt Association, Inc., Hot Mix Asphalt Pavement Design Guide, 10th Edition, dated 2008.

The recommended flexible pavement section is for light duty pavement and is not designed to accommodate construction traffic. It should be expected that damage will occur due to overloading of the pavement sections if they are subjected to construction traffic. This will be prevalent especially if water is allowed to collect on, or in, the pavement subgrades, and if only the base course is placed prior to the completion of the construction.

Provisions should be made to minimize damage to the pavements during construction including the use of subdrainage, temporary swales or berms, the limitation of construction traffic to certain areas, and/or an increased thickness of stone or base asphalt. An allowance should be reserved for the cost of repairs to the base paving prior to completion of the final surface-course of asphalt.

Final acceptance of pavement installation should be based on the analysis of pavement cores collected after the pavement has been allowed to cool, but prior to significant traffic. Nuclear density gauge testing can be utilized for thin-lift installation, however, should only be used as guidance during primary pavement section construction. Regardless of indirect testing results, final acceptance should be based on the testing of collected core samples.

11.0 PRELIMINARY STORMWATER MANAGEMENT RECOMMENDATIONS

D.W. Kozera was requested to perform one (1) boring, SWM-1, with off-set infiltration test for stormwater management design. The infiltration test was performed at a depth of 6 feet below existing ground surface. Infiltration testing was conducted on April 8, 2026, and the infiltration test information is provided in Table 11.2-1 below.

11.1 Stormwater Management Infiltration Recommendations

The Stormwater Management Administration of the Maryland Department of the Environment (MDE) has set particular standards and specifications for the design and construction of stormwater infiltration devices. These regulations include parameters on soil textures, depth of limiting zone, and other considerations, which are described in the publication "Maryland Stormwater Design Manual, 2000".

The MDE publication recommends that a 4-foot distance be provided between the bottom of the infiltration system and any limiting zones. Limiting zones are defined as a seasonal high-water table or bedrock. Founding of infiltration facilities within existing fill soils is also prohibited, in accordance with the 2000 Maryland Stormwater Management Manual. Limiting zones were not encountered during our investigation.

The boring logs included in Appendix A contain details related to the subsurface conditions, as it relates to stormwater management, encountered during our investigation.

11.2 In-situ-Infiltration Test Results and Summary

One (1) in-situ infiltration test was performed for this project in general accordance with Appendix D.1 of the MDE manual. The following table summarizes results of testing and our observations.

Table 11.2-1: Infiltration Test Summary

Test Boring	Existing Ground Elevation (EL±)	Test Boring Depth (ft.)	Ground Water Depth (ft)	Infiltration Test Depth (ft.)	Anticipated SWM Facility Bottom Depth (ft.)	Measured In-Situ Infiltration (in/hr.)
SWM-1	40.0	10.0	Dry	6.0	-	2.50

11.3 Remarks

The 2000 Maryland Stormwater Management Manual recommends a minimum field infiltration rate of 0.52 inches per hour for stormwater management facilities designed without an underdrain system. At the locations and depths tested during this investigation, the measured in-situ infiltration rate in boring SWM-1, meets the MDE requirement.

Generally, infiltration rates of stormwater are expected to be highly variable, based on the classification of the soils, previous compaction, and the presence of existing fills. The actual infiltration rates observed in the completed stormwater structures may differ from those indicated above and will be dependent upon the soil types encountered in the structure subgrades, and the methods used by the contractor to construct the facilities. The installation of these structures should be observed by our personnel during construction to evaluate the soil types encountered. The subgrades should be carefully excavated by the contractor to minimize disturbance of natural conditions. No mechanical compaction of the subgrades will be necessary or allowed for infiltration based SWM devices.

12.0 ADDITIONAL WORK REQUIRED

This report presents preliminary geotechnical recommendations based on the available site data and current understanding of the proposed development. As site and building plans progress and structural layouts, foundation loads, and grading details are further defined, additional geotechnical investigation will be required to support final design and construction.

Based on the current layout, we recommend an additional 3 to 5 SPT borings in the vicinity of the proposed buildings and tallest retaining walls. We recommend some of these borings extend to a depth of 50 or 60 feet below existing ground surface to better define the depth of the clay layer and that Shelby Tube samples are taken in the clay layer for consolidation testing. We also recommend 3 to 5 in-situ test borings, such as Cone Penetration Test (CPT) or Dilatometer Test (DMT), which can help determine the magnitude and rate of settlement of the soil.

We also recommended performing additional borings and infiltration testing in the footprints of proposed SWM facilities that were not tested during this preliminary exploration.

The geotechnical recommendations provided in this report are considered conceptual and should be used to guide preliminary design and budgeting. The design-phase study for the development will better define recommendations for earthwork, foundations, floor slabs, lateral earth pressures, pavements, stormwater management facilities, and construction considerations.

APPENDIX A

Subsurface Investigation Report

APPENDIX A

GENERAL NOTES FOR TEST BORINGS AND TEST PITS
Geotechnical Engineering Study, Historic St. Mary's City Boutique Hotel & Conference Center
Mattapany Rd and Kohut Way, Lexington Park, St. Mary's County, Maryland
(DWK Contract Number 25054.D)

1. Test Borings

Test borings are advanced by hollow stem auger (HSA) and mud rotary methods. HSA methods consist of turning an auger with a center opening of 2-1/4 inches. Cuttings are brought to the surface by the auger flights. Sampling is performed through the center opening in the hollow stem auger by standard methods. No water was introduced into the borings using this procedure. Mud rotary methods consist of using a drilling fluid (i.e. "mud") to maintain the hole, and sampling is performed through the drilling fluid.

1.1. Standard Penetration Tests

Standard Penetration Testing is performed by driving a 2-inch O.D., 1-3/8 inch I.D. sampling spoon through three, 6-inch intervals or as indicated, using a 140-pound hammer falling 30 inches according to ASTM D1586. The number given as the 'N' value is the sum of the blows required to drive the samples for the second and third intervals.

2. Test Pits

Test pits are logged to provide a record for geotechnical evaluation, construction inspection, or other specialized purpose such as building damage investigations, subgrade inspections, etc.

3. Test Procedures

PP, when indicated, denotes the results of tests performed with a Pocket Penetrometer. The numbers indicate the unconfined compressive strength of the undisturbed soils in tsf. DCP, when indicated, denotes the results of tests performed with a Dynamic Cone Penetrometer at an initial seating increment of two-inches, and 1-3/4-inch increments thereafter. The penetrometer is driven by a 15-pound hammer falling 20 inches, and the number of hammer blows per increment is recorded.

4. General

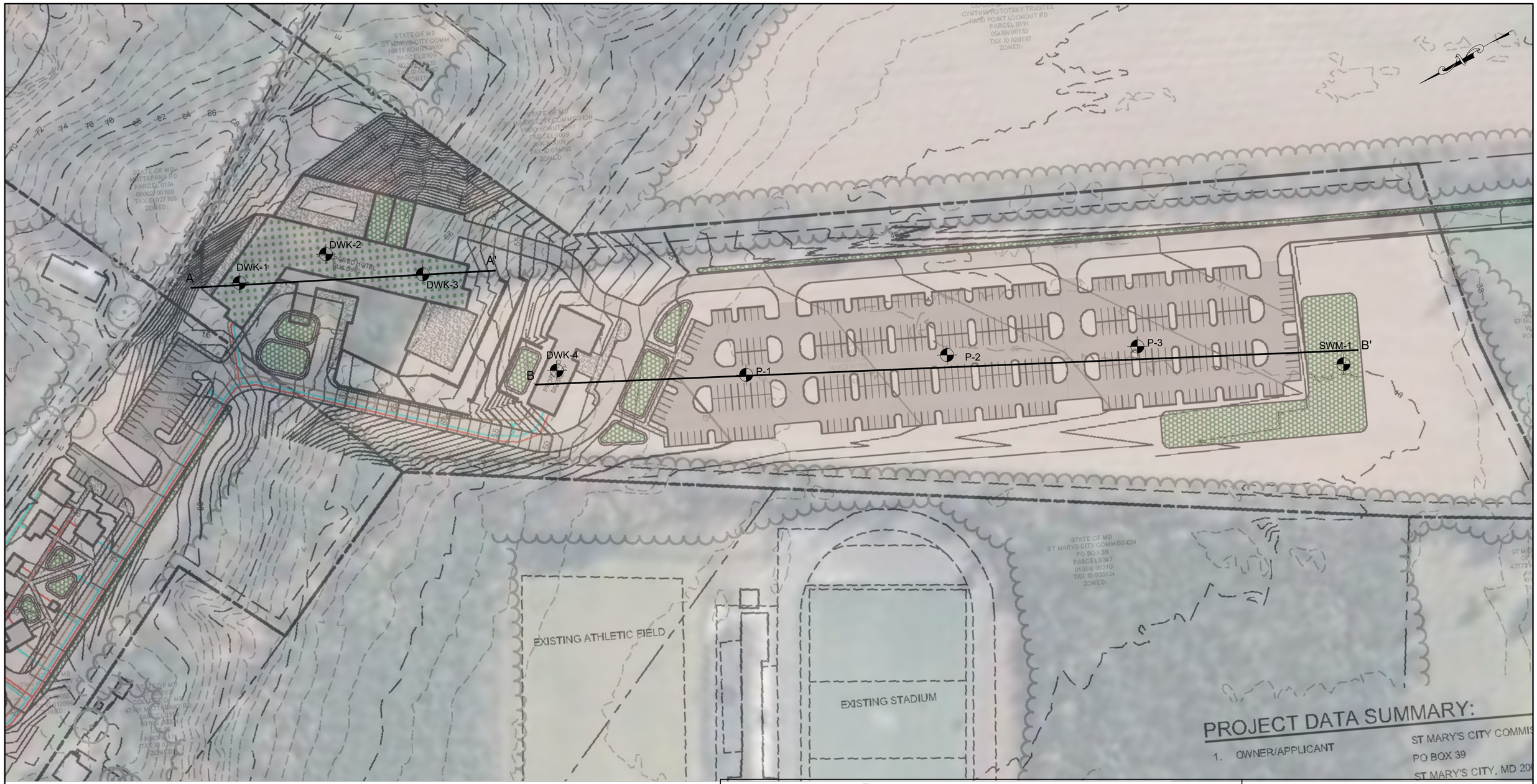
The test boring logs represent subsurface conditions only at the specified location and at the particular time excavated. The passage of time may result in changes in these conditions. Conditions at other locations on the site may differ from conditions occurring at the test pit or test boring location.

The stratification lines represent the approximate boundary line between soil and rock types as observed in the test boring. The soil profile, foundation dimensions, water level observations, and test results presented on the log have been made with reasonable care and accuracy but must be considered only an approximate representation of the subsurface conditions to be encountered at that particular location.

The observed water levels are considered a reliable indication of the groundwater table levels at the time indicated. The groundwater table may be completely dependent on the amount of precipitation at the site during a particular period of time. Fluctuations in the water table should be expected with variations in precipitation, surface run-off, evaporation, construction activity, etc.

5. Locations and Grades

The test borings and test pits were located in the field by D.W. Kozera, Inc. based on drawings provided to us. The ground surface elevations were estimated from the drawings provided.



LEGEND:

DWK-# APPROXIMATE DWK TEST BORING LOCATION

60 0 60 120 180

Scale 1" = 60'

D.W. KOZERA, INC
PROFESSIONAL ENGINEERS AND GEOLOGISTS

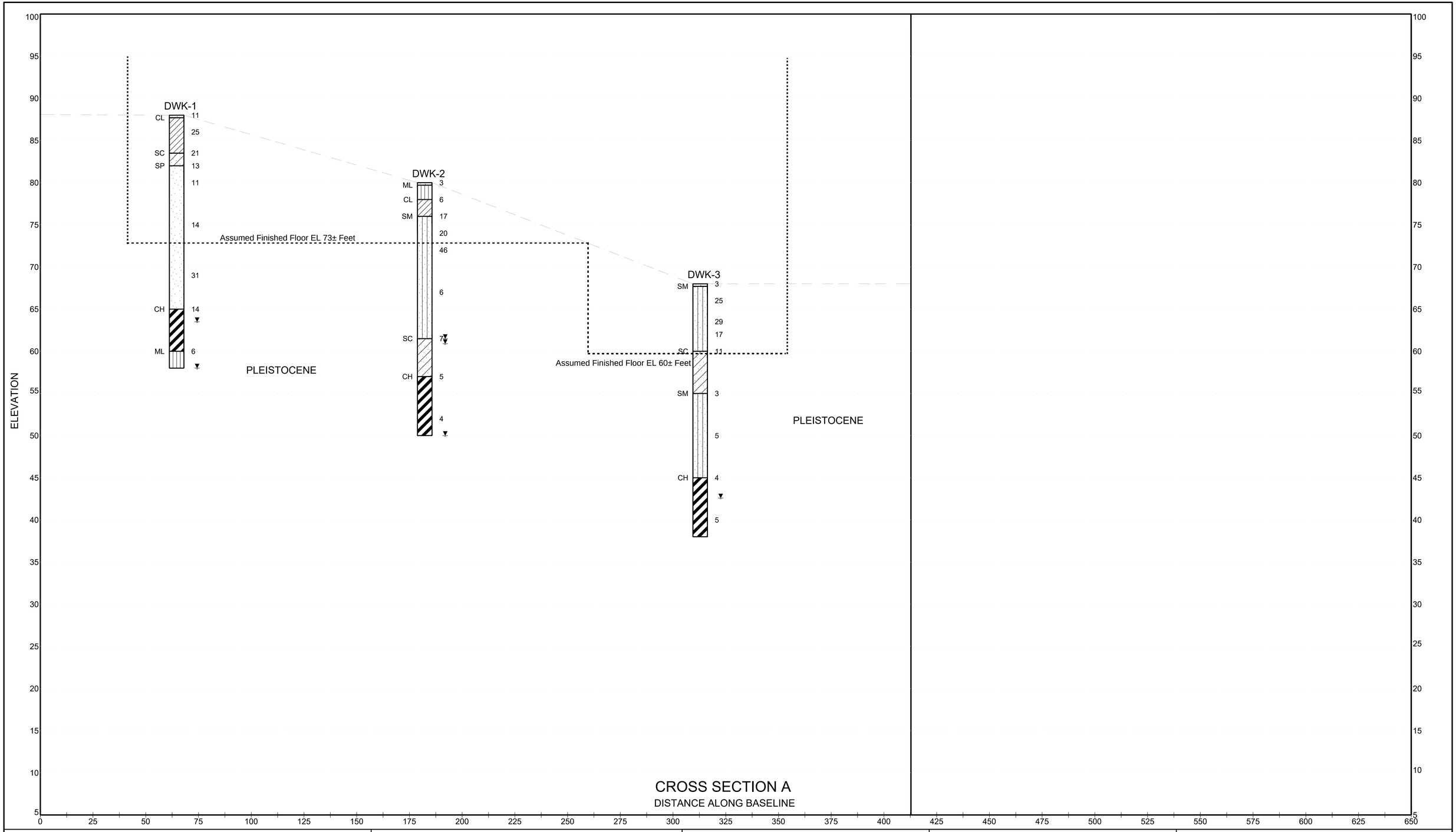
EXPLORATION LOCATION PLAN

PREPARED FOR:
Hanbury

PROJECT:
HSMC Boutique Hotel & Conference Center
Mattapany Rd and Kohut Way, Lexington Park, St. Mary's County, Maryland

DATE:	4/24/2026
PROJECT:	25054.D
DRAWN BY:	N.HONEGGER
REVIEW BY:	A. MACLEOD

SHEET 1 OF 1



D.W. KOZERA, INC
PROFESSIONAL ENGINEERS AND GEOLOGISTS

SUBSURFACE PROFILES

PREPARED FOR:

Hanbury

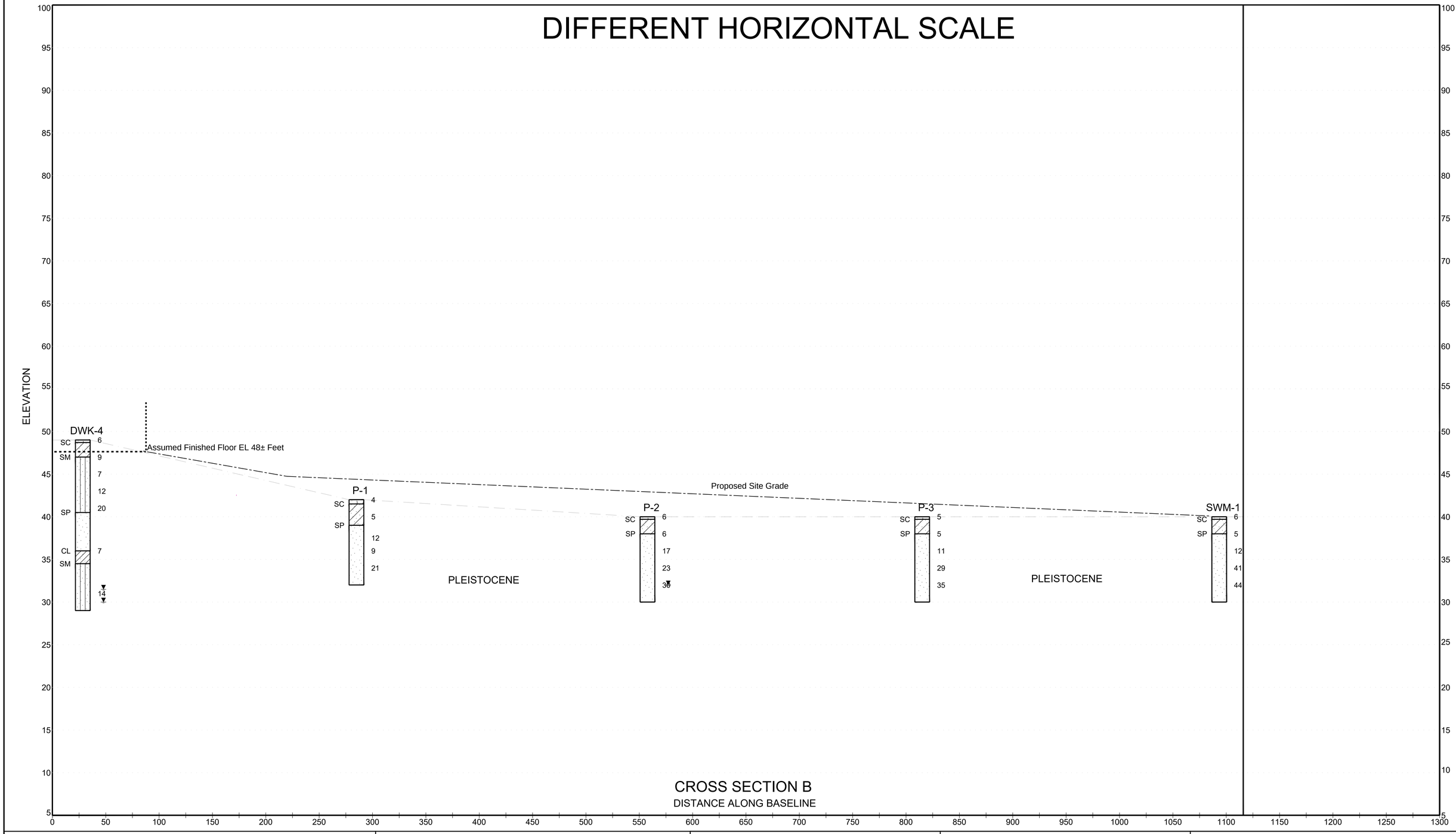
PROJECT:

HSMC Boutique Hotel & Conference Center
Mattapany Rd and Kohut Way, Lexington Park, St. Mary's County, Maryland

DATE:	05/05/2026
PROJECT:	25054.D
DRAWN BY:	C. GREEN
REVIEW BY:	N. HONEGGER

SHEET
1 OF 1

DIFFERENT HORIZONTAL SCALE



D.W. KOZERA, INC
PROFESSIONAL ENGINEERS AND GEOLOGISTS

SUBSURFACE PROFILES

PREPARED FOR:
Hanbury

PROJECT:
HSMC Boutique Hotel & Conference Center
Mattapany Rd and Kohut Way, Lexington Park, St. Mary's County, Maryland

DATE:	05/05/2026
PROJECT:	25054.D
DRAWN BY:	C. GREEN
REVIEW BY:	N. HONEGGER

SHEET 1 OF 1

D. W. KOZERA, INC.
Baltimore, Maryland
PROFESSIONAL ENGINEERS & GEOLOGISTS

TEST BORING LOG

Boring No.: DWK-1
Contract No.: 25054.D
Page: 1 of 1

Project: HSMC Boutique Hotel & Conference Center
Location: Mattapany Rd and Kohut Way, Lexington Park
St. Mary's County, Maryland

Ground Surf. El. (±)	: 88.0
Date Started	: 4-6-26
Date Completed	: 4-6-26
Contractor	: Bob Taylor Engineering
Driller	: Corey
Rig	: CME 750
Drill Method	: HSA 3.25"
Inspector	: N. Honegger

	GROUNDWATER OBSERVATIONS				
	Date	Time	Depth	Casing	Caved
Encountered	4-6	09:50	24.5	30.0	---
Completion	4-6	10:00	30.0	30.0	---
Casing Pulled	4-6	10:15	Dry	---	20.2
24-Hr Reading	4-7	08:00	Dry	---	19.9

Depth (ft)	Surf. Elev. 88.0	Samples	Blow Counts	"N" Value	Water Level	Graphic	USCS	Description	Formation	Stratum	Remarks
0								3-in Topsoil			
		1	3-4-7-10	11				SANDY LEAN CLAY, moist, tan		A	
	85	2	9-11-14	25			CL				
5		3	4-9-12	21			SC	CLAYEY SAND, moist, tan			
		4	6-6-7-6	13				POORLY GRADED SAND, moist, tan			
	80	5	4-5-6-6	11							
10											
	75	6	5-7-7-8	14			SP		Pleistocene		
15											
	70										
20		7	6-13-18	31				with gravel			
	65										
		8	4-7-7-6	14	▽			FAT CLAY, moist, light gray			
25							CH				
	60										
		9	3-3-3-4	6			ML	SILT with sand and clay, moist, dark gray			
30								Bottom of Test Boring at 30 feet			

D. W. KOZERA, INC.
Baltimore, Maryland
PROFESSIONAL ENGINEERS & GEOLOGISTS

TEST BORING LOG

Boring No.: DWK-2
Contract No.: 25054.D
Page: 1 of 1

Project: HSMC Boutique Hotel & Conference Center
Location: Mattapany Rd and Kohut Way, Lexington Park
St. Mary's County, Maryland

Ground Surf. El. (±)	: 80.0
Date Started	: 4-6-26
Date Completed	: 4-6-26
Contractor	: Bob Taylor Engineering
Driller	: Corey
Rig	: CME 750
Drill Method	: HSA 3.25"
Inspector	: N. Honegger

GROUNDWATER OBSERVATIONS

	Date	Time	Depth	Casing	Caved
Encountered	4-6	11:25	18.5	30.0	---
Completion	4-6	11:45	30.0	30.0	---
Casing Pulled	4-6	12:15	Dry	---	Pipe
24-Hr Reading	4-7	08:00	19.1	---	Pipe

Depth (ft)	Surf. Elev. 80.0	Samples	Blow Counts	"N" Value	Water Level	Graphic	USCS	Description	Formation	Stratum	Remarks
0	80	1	1-1-2-3	3			ML	4-in Topsoil SILT with sand, moist, brown	Pleistocene	A	
		2	3-2-4-5	6			CL	LEAN CLAY with sand, moist, brown			
5	75	3	4-6-11-20	17			SM	SILTY SAND, moist, tan			
		4	8-9-11	20							
		5	9-18-28	46				with gravel			
10	70										
		6	2-3-3-4	6							
15	65										
		7	2-3-4	7	▽		SC	CLAYEY SAND, moist, tan and light gray			
20	60										
		8	2-2-3-3	5			CH	FAT CLAY, moist, dark gray			
25	55										
		9	2-2-2-4	4							
30	50							Bottom of Test Boring at 30 feet			

D. W. KOZERA, INC.
Baltimore, Maryland
PROFESSIONAL ENGINEERS & GEOLOGISTS

TEST BORING LOG

Boring No.: DWK-3
Contract No.: 25054.D
Page: 1 of 1

Project: HSMC Boutique Hotel & Conference Center
Location: Mattapany Rd and Kohut Way, Lexington Park
St. Mary's County, Maryland

Ground Surf. El. (±)	: 68.0
Date Started	: 4-6-26
Date Completed	: 4-6-26
Contractor	: Bob Taylor Engineering
Driller	: Corey
Rig	: CME 750
Drill Method	: HSA 3.25"
Inspector	: N. Honegger

	GROUNDWATER OBSERVATIONS				
	Date	Time	Depth	Casing	Caved
Encountered	4-6	12:55	Dry	30.0	---
Completion	4-6	13:20	Dry	30.0	---
Casing Pulled	4-6	13:35	Dry	---	24.5
24-Hr Reading	4-7	08:00	25.4	---	24.5

Depth (ft)	Surf. Elev. 68.0	Samples	Blow Counts	"N" Value	Water Level	Graphic	USCS	Description	Formation	Stratum	Remarks
0								3-in Topsoil			
		1	1-1-2-3	3				SILTY SAND, moist, tan and white		A	
	65	2	6-12-13	25				with gravel			
5		3	7-13-16	29			SM				
		4	20-9-8-10	17							
	60	5	2-5-6-6	11				CLAYEY SAND, moist, tan and light gray			
10							SC				
	55	6	2-2-1-3	3				SILTY SAND, moist, dark gray	Pleistocene		
15											
	50	7	2-2-3-3	5			SM				
20											
	45	8	2-2-2-4	4	▼			FAT CLAY, moist, dark gray			
25							CH				
	40	9	1-2-3-4	5							
30								Bottom of Test Boring at 30 feet			

D. W. KOZERA, INC.
Baltimore, Maryland
PROFESSIONAL ENGINEERS & GEOLOGISTS

TEST BORING LOG

Boring No.: DWK-4
Contract No.: 25054.D
Page: 1 of 1

Project: HSMC Boutique Hotel & Conference Center
Location: Mattapany Rd and Kohut Way, Lexington Park
St. Mary's County, Maryland

Ground Surf. El. (±)	: 49.0
Date Started	: 4-7-26
Date Completed	: 4-7-26
Contractor	: Bob Taylor Engineering
Driller	: Corey
Rig	: CME 750
Drill Method	: HSA 3.25"
Inspector	: N. Honegger

GROUNDWATER OBSERVATIONS

	Date	Time	Depth	Casing	Caved
Encountered	4-7	09:20	19.0	20.0	---
Completion	4-7	09:35	17.5	20.0	---
Casing Pulled	4-7	10:05	Dry	---	14.9
24-Hr Reading	4-8	08:00	Dry	---	14.5

Depth (ft)	Surf. Elev. 49.0	Samples	Blow Counts	"N" Value	Water Level	Graphic	USCS	Description	Formation	Stratum	Remarks
0								3-in Topsoil			
		1	2-3-3-4	6			SC	CLAYEY SAND, moist, brown		A	
		2	3-4-5-7	9				SILTY SAND, moist, tan			
	45										
5		3	4-3-4-5	7			SM				
		4	3-5-7-8	12							
	40	5	5-7-13	20				POORLY GRADED SAND with gravel, moist, gray and tan	Pleistocene		
10							SP				
								SANDY LEAN CLAY, moist, gray			
	35	6	3-3-4-6	7			CL				
15								SILTY SAND, moist, orangish brown			
							SM				
	30	7	5-8-6-4	14	▽						
20								Bottom of Test Boring at 20 feet			

D. W. KOZERA, INC.
Baltimore, Maryland
PROFESSIONAL ENGINEERS & GEOLOGISTS

TEST BORING LOG

Boring No.: P-1
Contract No.: 25054.D
Page: 1 of 1

Project: HSMC Boutique Hotel & Conference Center
Location: Mattapany Rd and Kohut Way, Lexington Park
St. Mary's County, Maryland

Ground Surf. El. (±)	: 42.0
Date Started	: 4-7-26
Date Completed	: 4-7-26
Contractor	: Bob Taylor Engineering
Driller	: Corey
Rig	: CME 750
Drill Method	: HSA 3.25"
Inspector	: N. Honegger

GROUNDWATER OBSERVATIONS

	Date	Time	Depth	Casing	Caved
Encountered	4-7	10:10	Dry	10.0	---
Completion	4-7	10:15	Dry	10.0	---
Casing Pulled	4-7	10:20	Dry	---	6.1
24-Hr Reading	4-8	08:00	Dry	---	6.0

Depth (ft)	Surf. Elev. 42.0	Samples	Blow Counts	"N" Value	Water Level	Graphic	USCS	Description	Formation	Stratum	Remarks
0								6-in Topsoil			
		1	1-2-2-7	4			SC	CLAYEY SAND with gravel, moist, brown		A	
	40	2	4-2-3	5							
								POORLY GRADED SAND, with gravel, moist, tan and gray	Pleistocene		
5		3	5-6-6	12			SP				
	35	4	6-5-4-5	9							
		5	4-6-15-17	21							
10								Bottom of Test Boring at 10 feet			

D. W. KOZERA, INC.
Baltimore, Maryland
PROFESSIONAL ENGINEERS & GEOLOGISTS

TEST BORING LOG

Boring No.: P-2
Contract No.: 25054.D
Page: 1 of 1

Project: HSMC Boutique Hotel & Conference Center
Location: Mattapany Rd and Kohut Way, Lexington Park
St. Mary's County, Maryland

Ground Surf. El. (±)	: 40.0
Date Started	: 4-7-26
Date Completed	: 4-7-26
Contractor	: Bob Taylor Engineering
Driller	: Corey
Rig	: CME 750
Drill Method	: HSA 3.25"
Inspector	: N. Honegger

GROUNDWATER OBSERVATIONS

	Date	Time	Depth	Casing	Caved
Encountered	4-7	10:50	8.0	10.0	---
Completion	4-7	10:55	Dry	10.0	---
Casing Pulled	4-7	11:00	Dry	---	Pipe
24-Hr Reading	4-8	08:00	Dry	---	Pipe

Depth (ft)	Surf. Elev. 40.0	Samples	Blow Counts	"N" Value	Water Level	Graphic	USCS	Description	Formation	Stratum	Remarks
0	40	1	2-3-3-5	6			SC	4-in Topsoil CLAYEY SAND, moist, brown	Pleistocene	A	
		2	2-3-3-4	6				POORLY GRADED SAND with gravel, moist, tan and gray			
5	35	3	4-6-11-12	17			SP				
		4	9-14-19	23	▽						
		5	11-16-14-12	30							
10	30							Bottom of Test Boring at 10 feet			

D. W. KOZERA, INC.
Baltimore, Maryland
PROFESSIONAL ENGINEERS & GEOLOGISTS

TEST BORING LOG

Boring No.: P-3
Contract No.: 25054.D
Page: 1 of 1

Project: HSMC Boutique Hotel & Conference Center
Location: Mattapany Rd and Kohut Way, Lexington Park
St. Mary's County, Maryland

Ground Surf. El. (±)	: 40.0
Date Started	: 4-7-26
Date Completed	: 4-7-26
Contractor	: Bob Taylor Engineering
Driller	: Corey
Rig	: CME 750
Drill Method	: HSA 3.25"
Inspector	: N. Honegger

GROUNDWATER OBSERVATIONS

	Date	Time	Depth	Casing	Caved
Encountered	4-7	11:15	Dry	10.0	---
Completion	4-7	11:20	Dry	10.0	---
Casing Pulled	4-7	11:30	Dry	---	5.8
24-Hr Reading	4-8	08:00	Dry	---	5.5

Depth (ft)	Surf. Elev. 40.0	Samples	Blow Counts	"N" Value	Water Level	Graphic	USCS	Description	Formation	Stratum	Remarks
0	40	1	1-2-3-3	5			SC	4-in Topsoil CLAYEY SAND, moist, brown	Pleistocene	A	
		2	3-3-2-3	5				POORLY GRADED SAND with gravel, moist, tan			
5	35	3	3-5-6-10	11			SP				
		4	6-12-17-22	29							
		5	11-17-18-18	35							
10	30							Bottom of Test Boring at 10 feet			

D. W. KOZERA, INC.
Baltimore, Maryland
PROFESSIONAL ENGINEERS & GEOLOGISTS

TEST BORING LOG

Boring No.: SWM-1
Contract No.: 25054.D
Page: 1 of 1

Project: HSMC Boutique Hotel & Conference Center
Location: Mattapany Rd and Kohut Way, Lexington Park
St. Mary's County, Maryland

Ground Surf. El. (±)	: 40.0
Date Started	: 4-7-26
Date Completed	: 4-7-26
Contractor	: Bob Taylor Engineering
Driller	: Corey
Rig	: CME 750
Drill Method	: HSA 3.25"
Inspector	: N. Honegger

GROUNDWATER OBSERVATIONS

	Date	Time	Depth	Casing	Caved
Encountered	4-7	11:45	Dry	10.0	---
Completion	4-7	12:00	Dry	10.0	---
Casing Pulled	4-7	12:15	Dry	---	Pipe
24-Hr Reading	4-8	08:00	Dry	---	Pipe

Depth (ft)	Surf. Elev. 40.0	Samples	Blow Counts	"N" Value	Water Level	Graphic	USCS	Description	Formation	Stratum	Remarks
0	40	1	2-3-3-3	6			SC	4-in Topsoil CLAYEY SAND, moist, brown	Pleistocene	A	
		2	3-2-3-4	5				POORLY GRADED SAND with gravel, moist, tan and gray			
5	35	3	2-5-7-9	12			SP				
		4	7-17-24	41							
		5	17-20-24-10	44							
10	30							Bottom of Test Boring at 10 feet			

APPENDIX B

Soil Laboratory Test Results

D.W. KOZERA, INC
PROFESSIONAL ENGINEERS AND GEOLOGISTS

Project Name: Historic St. Mary's City Boutique Hotel
Project No.: 25054.D
Location: St. Mary's City, Maryland
Test Date: 4/20-4/23/26
Tested By: J. Hanson

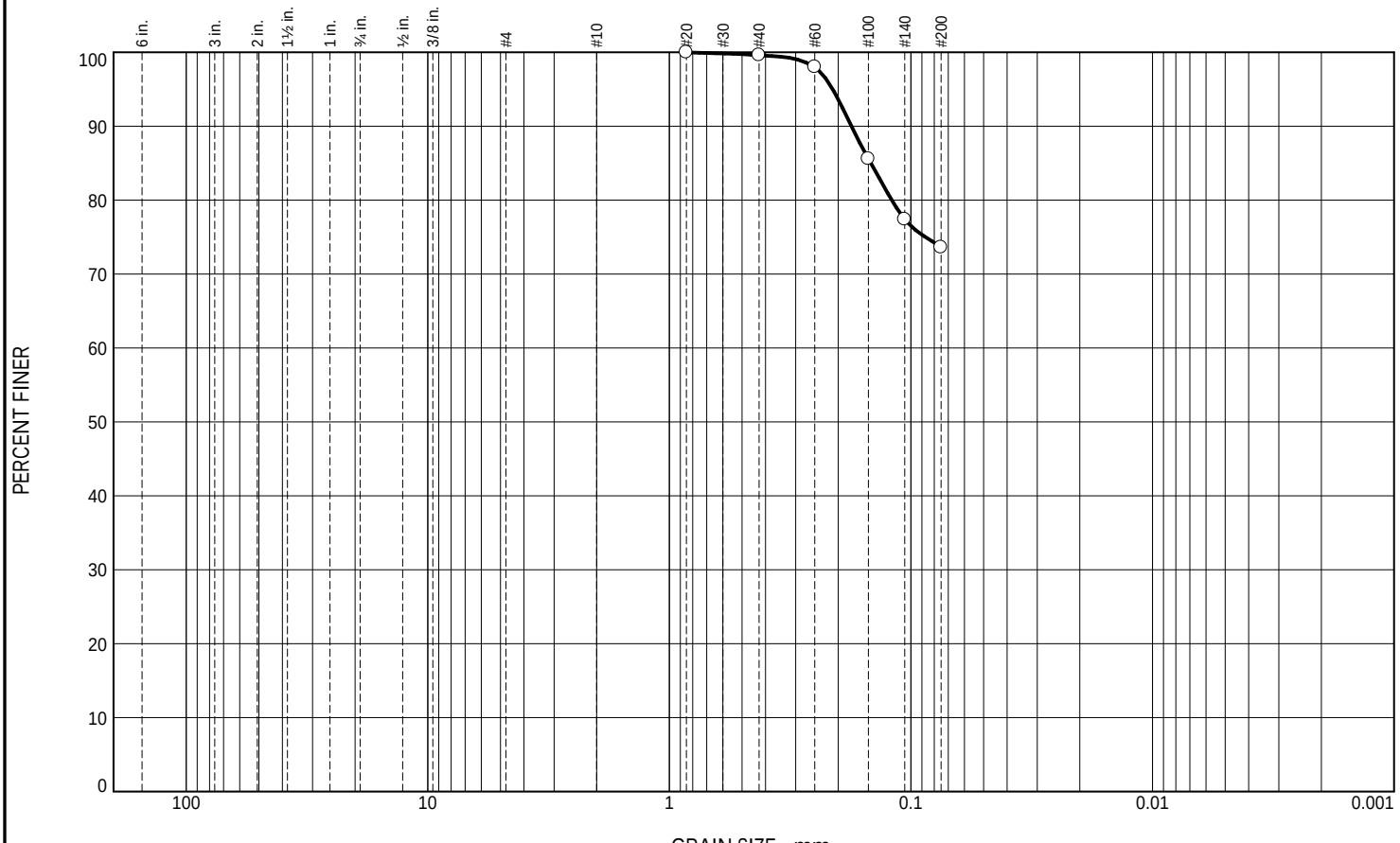
Laboratory Testing Summary

Boring No.	Sample No.	Sample Depth (ft.)	Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Maximum Dry Density (lb/ft^3)	Optimum Moisture Content (%)	% Fines	USCS Classification
DWK-1	S-2	2.0-3.5	20.8	43	22	21			73.6	CL
DWK-3	S-6	13.0-15.0	31.0	23	NP	NP			27.8	SM
DWK-3	S-8	23.0-25.0	49.0	77	29	48			98.8	CH
DWK-4	S-3	4.0-6.0	15.3	18	16	2			43.8	SM
P-2	BS-1	0.0-4.0	12.7	28	18	10	120.9	11.8	39.7	SC

1408 Bare Hills Avenue, Suite 200 Baltimore, MD 21209
Phone: 410.823.1060 Fax: 410.823.1062
D.W. Kozera, Inc. is MDOT/MBE/SBE Certified (No. 23-185)

Particle Size Distribution Report

ASTM D6913 & D1140



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	0.4	26.0	73.6	

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○	43	22	0.1463							

Material Description	Test Date	USCS	NM
○ LEAN CLAY with sand, moist, tan	4/20/26	CL	20.8

Project No. 25054.D Client: Hanbury

Project: Historic St. Mary's City Boutique Hotel & Conference Center

○Source of Sample: DWK-1 Depth: 2.0-3.5 Sample Number: S-2

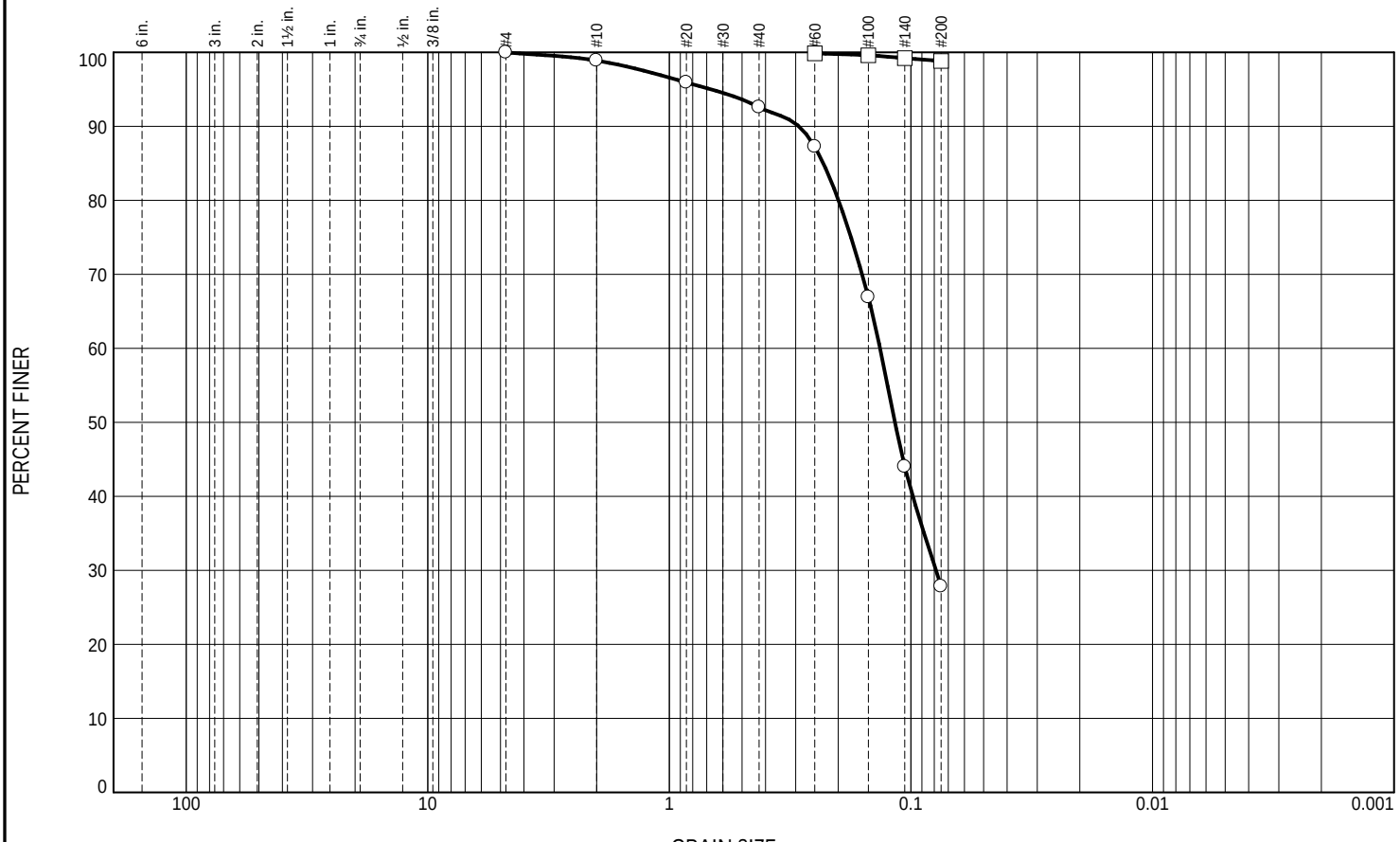
Remarks:

D.W. KOZERA, INC

Tested By: JSH

Particle Size Distribution Report

ASTM D6913 & D1140



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	1.1	6.3	64.8	27.8	
□							98.8	

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○	23	NP	0.2304	0.1342	0.1165	0.0786				
□	77	29								

Material Description	Test Date	USCS	NM
○ SILTY SAND, moist, dark gray	4/20/26	SM	31.0
□ FAT CLAY, moist, dark gray	4/20/26	CH	49.0

Project No. 25054.D Client: Hanbury

Project: Historic St. Mary's City Boutique Hotel & Conference Center

○Source of Sample: DWK-3 Depth: 13.0-15.0 Sample Number: S-6

□Source of Sample: DWK-3 Depth: 23.0-25.0 Sample Number: S-8

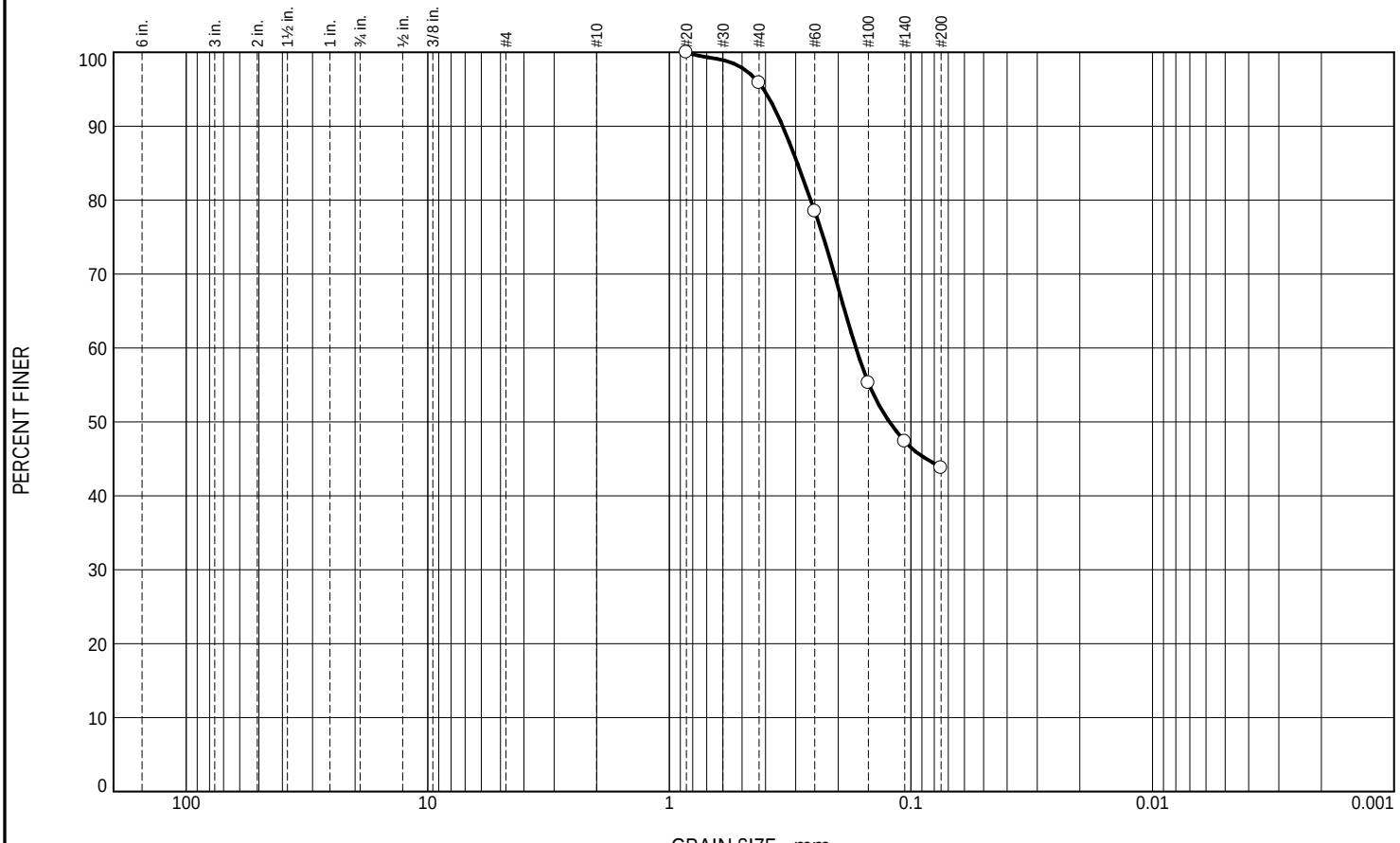
Remarks:

D.W. KOZERA, INC

Tested By: JSH

Particle Size Distribution Report

ASTM D6913 & D1140



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	4.2	52.0	43.8	

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○	18	16	0.2953	0.1688	0.1228					

Material Description	Test Date	USCS	NM
○ SILTY SAND, moist, tan	4/20/26	SM	15.3

Project No. 25054.D Client: Hanbury

Project: Historic St. Mary's City Boutique Hotel & Conference Center

○ Source of Sample: DWK-4 Depth: 4.0-6.0 Sample Number: S-3

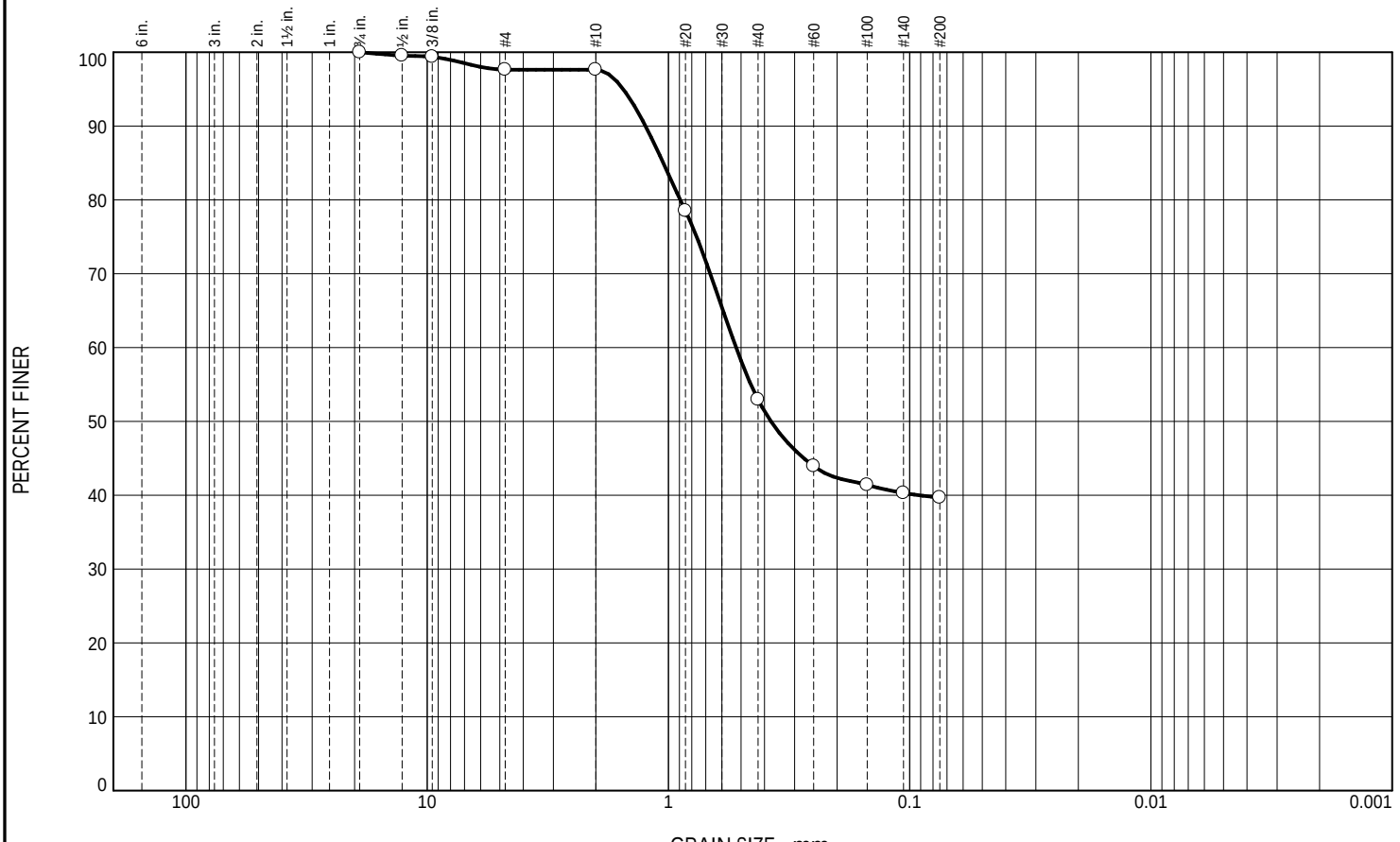
Remarks:

D.W. KOZERA, INC

Tested By: JSH

Particle Size Distribution Report

ASTM D6913 & D1140



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	2.4	0.0	44.6	13.3	39.7	

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○	28	18	1.0503	0.5242	0.3756					

Material Description	Test Date	USCS	NM
○ CLAYEY SAND, moist, brown	4/20/26	SC	12.7

Project No. 25054.D Client: Hanbury

Project: Historic St. Mary's City Boutique Hotel & Conference Center

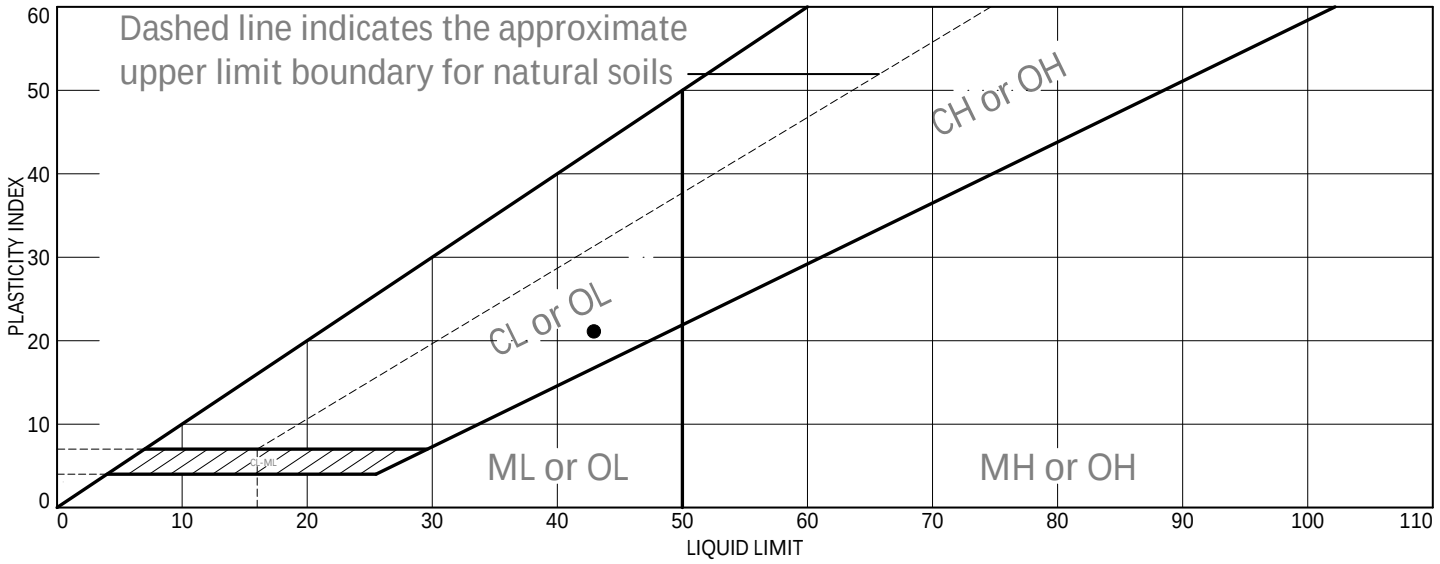
○Source of Sample: P-2 Depth: 0.0-4.0 Sample Number: BS-1

Remarks:

D.W. KOZERA, INC

Tested By: JSH

LIQUID AND PLASTIC LIMITS TEST REPORT



	Sample Identification	Sampled	Received	Tested	Technician
●	Source of Sample: DWK-1 Depth: 2.0-3.5 Sample Number: S-2	4/6/26	4/17/26	4/21/26	JSH

	Material Description	USCS	LL	PL	PI	NM	%<#40
●	LEAN CLAY with sand, moist, tan	CL	43	22	21	20.8	99.6

	PL Rolling Method	LL Device	Grooving Tool	Test Remarks
●	Hand rolled	Manual	Metal	

Project No. 25054.D Client: Hanbury

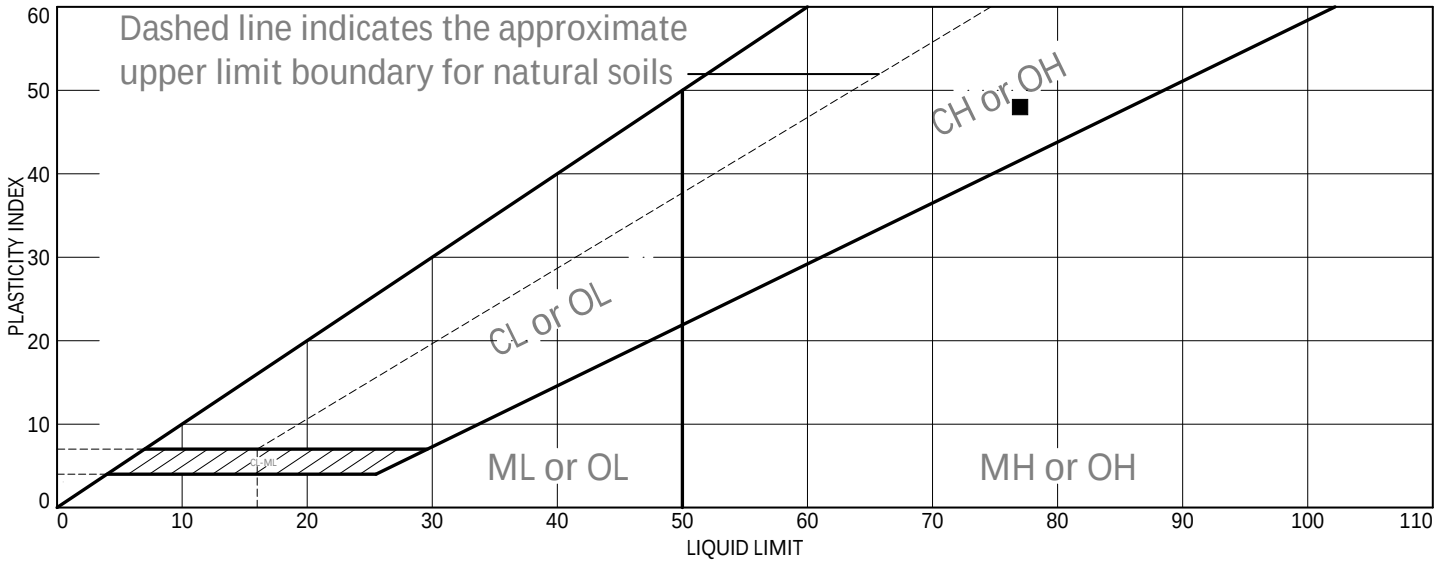
Project: Historic St. Mary's City Boutique Hotel & Conference Center

Checked by:

Title:

D.W. KOZERA, INC

LIQUID AND PLASTIC LIMITS TEST REPORT



	Sample Identification	Sampled	Received	Tested	Technician
●	Source of Sample: DWK-3 Depth: 13.0-15.0 Sample Number: S-6	4/7/26	4/17/26	4/20/26	JSH
■	Source of Sample: DWK-3 Depth: 23.0-25.0 Sample Number: S-8	4/6/26	4/16/26	4/22/26	JSH

	Material Description	USCS	LL	PL	PI	NM	%<#40
●	SILTY SAND, moist, dark gray	SM	23	NP	NP	31.0	92.6
■	FAT CLAY, moist, dark gray	CH	77	29	48	49.0	

	PL Rolling Method	LL Device	Grooving Tool	Test Remarks
●		Manual	Metal	
■	Hand rolled	Manual	Metal	

Project No. 25054.D Client: Hanbury

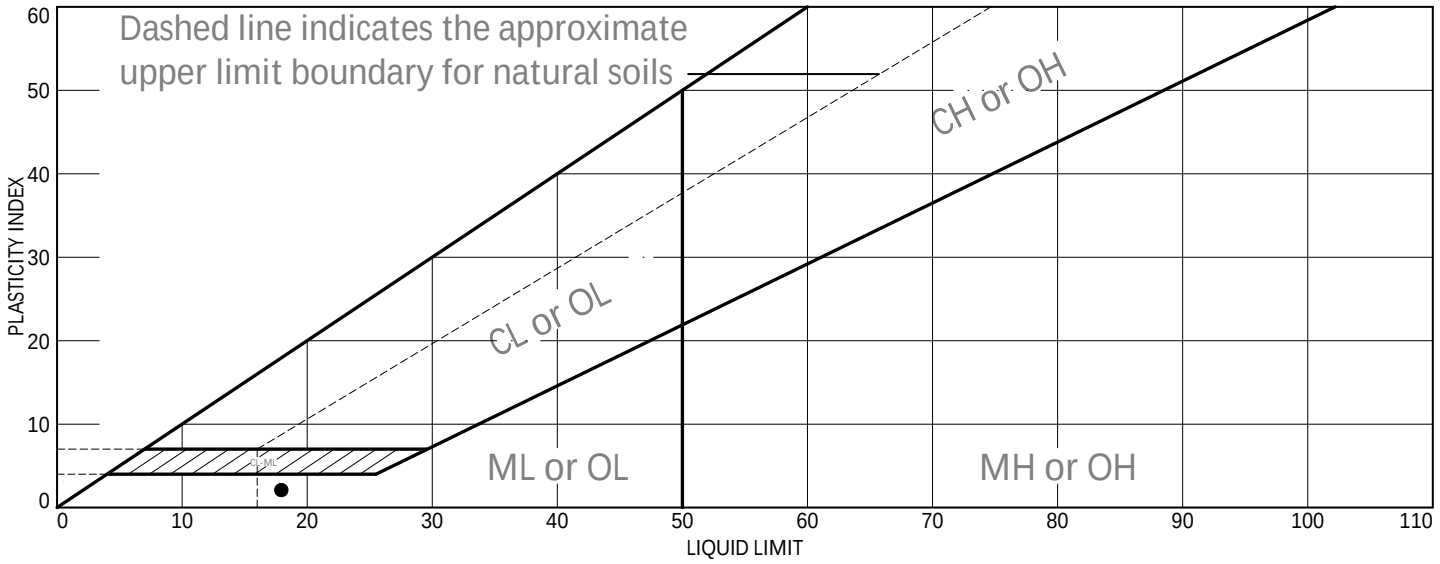
Project: Historic St. Mary's City Boutique Hotel & Conference Center

Checked by:

Title:

D.W. KOZERA, INC

LIQUID AND PLASTIC LIMITS TEST REPORT



	Sample Identification	Sampled	Received	Tested	Technician
●	Source of Sample: DWK-4 Depth: 4.0-6.0 Sample Number: S-3	4/7/26	4/16/26	4/22/26	JSH

	Material Description	USCS	LL	PL	PI	NM	%<#40
●	SILTY SAND, moist, tan	SM	18	16	2	15.3	95.8

	PL Rolling Method	LL Device	Grooving Tool	Test Remarks
●	Hand rolled	Manual	Metal	

Project No. 25054.D Client: Hanbury

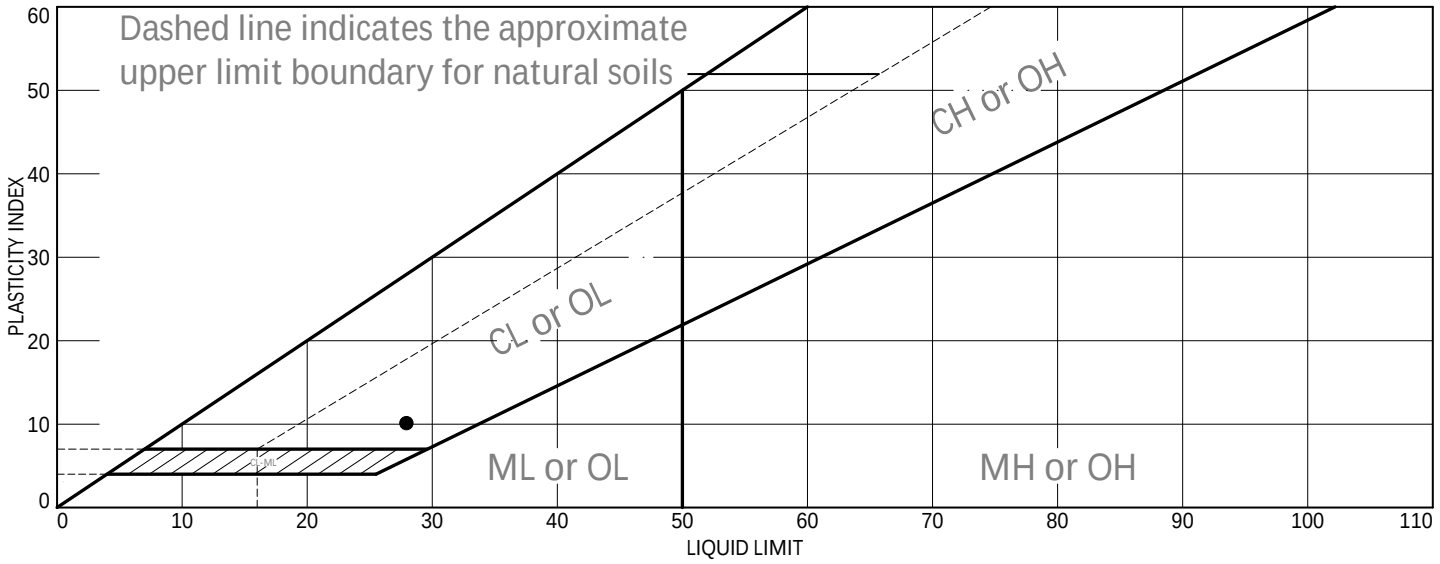
Project: Historic St. Mary's City Boutique Hotel & Conference Center

Checked by:

Title:

D.W. KOZERA, INC

LIQUID AND PLASTIC LIMITS TEST REPORT



	Sample Identification	Sampled	Received	Tested	Technician
●	Source of Sample: P-2 Depth: 0.0-4.0 Sample Number: BS-1	4/7/26	4/16/26	4/21/26	JSH

	Material Description	USCS	LL	PL	PI	NM	%<#40
●	CLAYEY SAND, moist, brown	SC	28	18	10	12.7	53.0

	PL Rolling Method	LL Device	Grooving Tool	Test Remarks
●	Hand rolled	Manual	Metal	

Project No. 25054.D Client: Hanbury

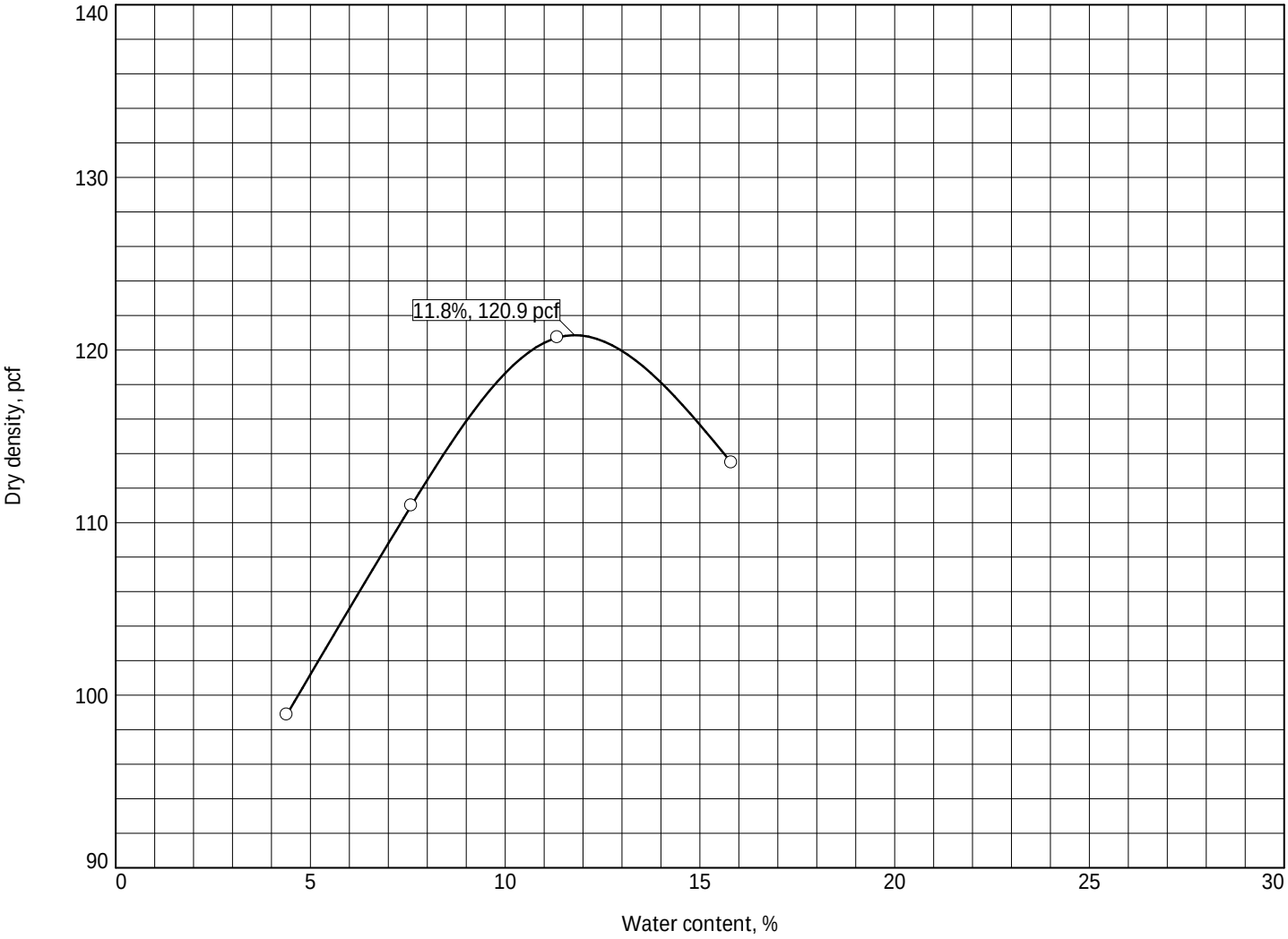
Project: Historic St. Mary's City Boutique Hotel & Conference Center

Checked by:

Title:

D.W. KOZERA, INC

COMPACTION TEST REPORT



Test specification: ASTM D 698-12 Method B Standard

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/8 in.	% < No.200
	USCS	AASHTO						
0.0-4.0	SC	A-4(1)	12.7		28	10	0.6	39.7

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 120.9 pcf Optimum moisture = 11.8 %	CLAYEY SAND, moist, brown

Project No. 25054.D Client: Hanbury

Project: Historic St. Mary's City Boutique Hotel & Conference Center

Date: 4/20/26

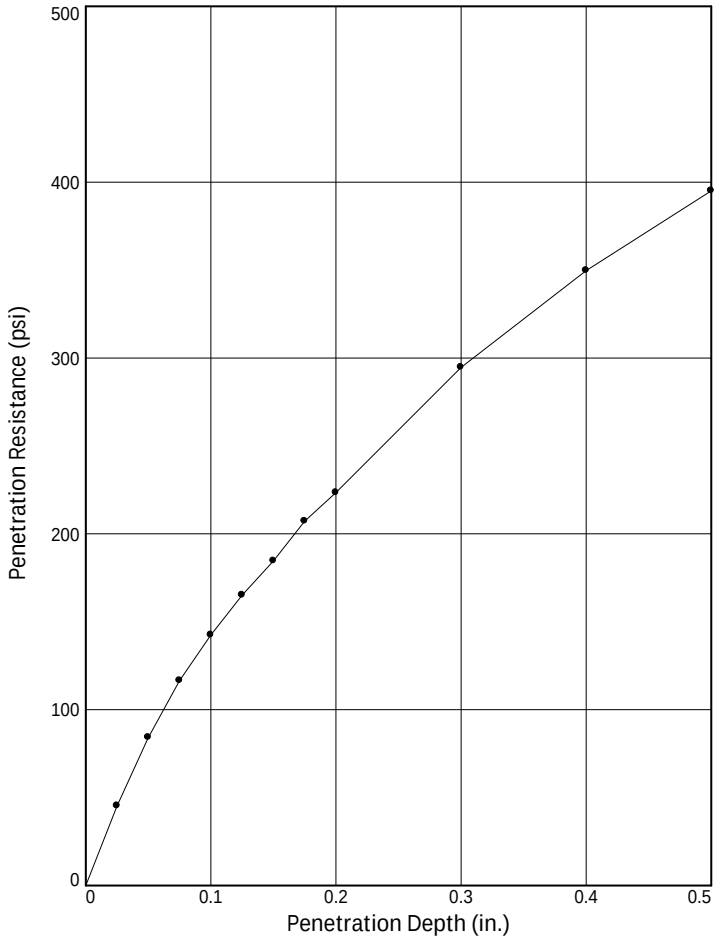
○ Source of Sample: P-2 Sample Number: BS-1

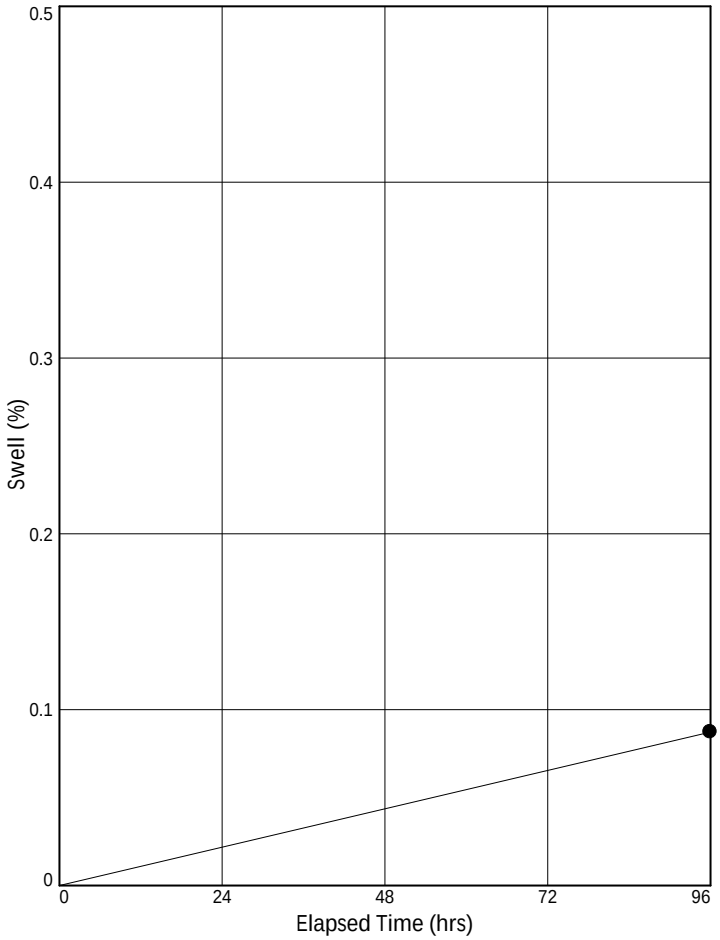
Remarks:

D.W. KOZERA, INC

Tested By: JSH

BEARING RATIO TEST REPORT
ASTM D1883-14





	Molded			Soaked			CBR (%)		Linearity Correction (in.)	Surcharge (lbs.)	Max. Swell (%)
	Density (pcf)	Percent of Max. Dens.	Moisture (%)	Density (pcf)	Percent of Max. Dens.	Moisture (%)	0.10 in.	0.20 in.			
1 ●	120.9	100	11.6	120.8	100	12.7	14.2	14.9	0.000	20	0.1
2 ▲											
3 ■											

Material Description	USCS	Max. Dens. (pcf)	Optimum Moisture (%)	LL	PI
CLAYEY SAND, moist, brown	SC	120.9	11.8	28	10

Project No: 25054.D
Project: Historic St. Mary's City Boutique Hotel & Conference Center
Source of Sample: P-2 Depth: 0.0-4.0
Sample Number: BS-1
Date Sampled: 4/7/26 Date Received: 4/16/26

D.W. KOZERA, INC

Test Remarks:

Tested By: JSH