



LUIS O. GARCIA & ASSOCIATES
GEOTECHNICAL ENGINEERING CONSULTANTS

**REPORT ON
GEOTECHNICAL INVESTIGATION AND
FOUNDATION RECOMMENDATIONS FOR
MIRADORES DE PARQUE ESCORIAL II PROJECT
CAROLINA, PUERTO RICO**

**January 24, 2021
Geo Cim Project No. 5421**



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1.0 INTRODUCTION

This report presents the results of a geotechnical investigation performed to evaluate subsoil conditions at the site of the proposed Miradores de Parque Escorial II residential development in Carolina, PR. The study was conducted at the request and authorization of Engineer Oberto Marini, Principal of HT Holdings, LLC, project developer. Eng. Roberto López is designing the site grading and civil design for the project.

2.0 PROJECT DESCRIPTION AND SETTING

The site location of the proposed Miradores the Parque Escorial II residential development is shown in a Google Earth image in Figure 1a. The project encompasses the design and construction of an urbanization consisting of 58 single-family residential units and 27 walk-up units in 7 row house structures to be located on a roughly 55 Cuerdas parcel (Lot Q-1) located along the western portion of the crest of the Los Cerros del Comandante Ridge in San Antón Ward of the Municipality of Carolina. Figure 1b shows the project site and general topography of the area in a Google Earth image with the topographical contours superimposed. Figure 2 shows the site plan with lot distribution along the crest of the ridge. The ridge, which rises over 100 meters above the relatively flat coastal plain to the north and gently rolling terrain to the south, has an asymmetric profile. South-facing slopes have net inclinations in the range of approximately 15° to

60°, with near vertical segments occurring in areas of previous quarry activity, most notably below the central portion of the project parcel. In contrast, north-facing slopes average between roughly 10 to 35° inclination.

The geologic maps of the Carolina and San Juan quadrangles published by the U. S. Geological Survey (USGS) show that the Cerros del Comandante are underlain by well stratified, laminar to thick-bedded siltstone, mudstone, and sandstone of the Río Piedras Siltstone (RPS) Formation of Eocene/Paleocene age (around 55 million years old). The RPS strata are shown to dip northward at angles that are usually in the range of 20 to 40 degrees, an orientation that is reflected in the topography of the ridge. The gentler northern slopes reflect the dip of the strata that form the slope surface; steeper north-facing slopes are unstable as the strata tend to slip along the bedding surfaces when they are undercut. The inclination and gross shape of the steeper south-facing ridge backslope is controlled by the bulk strength of the layered rock and by joints and fractures in the rock (typically inclined more steeply than the bedding). The south ridge slopes were also steepened by quarry activities during the 1960s to 1980s (the 1982 edition of the Carolina topographic quadrangle published by the USGS shows 6 quarries on these slopes, including one that operated south of the central part of the Miradores de Parque Escorial II project). The geologic maps do not show any geologic faults within the project area.

The grading of the site will involve both cut slopes and fill slopes to develop the layout of the lots. These will be discussed in the Earthwork recommendations section of this report.

3.0 GEOTECHNICAL INVESTIGATION

The subsoil investigation was conducted by Geo Cim, Inc. (PSC) (GeoCim), our geotechnical testing services firm. It consisted of 19 exploratory borings (numbered B-01 to B-19), all but one of which reached depths of 20 feet, with the exception (Boring B-10) encountering refusal to further penetration at a depth of 7 feet (total drilling footage of 367 feet). The boring locations are shown on Figure 3. We also conducted a walk-through visual reconnaissance of the project area. The borings were staked out in the field by a Surveyor contracted directly by the project developer. The boring coordinate locations and ground surface elevations are presented in Table 2 of this report. In addition, they are included in each boring log.

The borings were drilled with a CME-55 drill rig in accordance with the “hollow stem auger-dry sample” method of drilling (ASTM D1452). Subsurface soil samples were collected with a split-spoon sampler driven into the ground ahead of the advancing auger using a safety hammer during the performance of the Standard Penetration Test (SPT; ASTM D1586). The number of blows required to drive the split-spoon sampler 18 inches into the soil were recorded in the field and the N-value (the number of blows required to drive the last 12 inches of sampler) was calculated from the data¹.

The collected samples were placed in tightly closed plastic bottles and transported to the Geo Cim, Inc. laboratory in Guaynabo for unconfined compression testing (using a spring tester and/or pocket penetrometer), natural moisture content determinations, and visual/manual soil descriptions following standard laboratory procedures; rock materials were described in accordance with Table 1. Additionally, 19 representative soil samples (one from each boring) were selected for classification testing including grain size analysis (ASTM D1140) and plasticity characteristics (ASTM D4318, 3-Point Method) to further characterize the engineering properties of the soil materials. Results of the field operations and laboratory testing are documented in the boring logs included in Appendix A along with detailed descriptions of the soils encountered at each boring. The classification test results are also included in Appendix A. Appendix B provides a detailed description of the GeoCim drilling, sampling, and testing procedures.

4.0 SUBSOIL CONDITIONS

The site reconnaissance and exploratory borings show that the property is underlain by thin- to thick beds of variably weathered Río Piedras Siltstone (RPS) strata that are in places mantled by variable thicknesses of man-made fill. Detailed descriptions of the subsurface profile observed at each boring location are provided in the boring logs included in Appendix A of this report.

Fill was sampled in 13 of the 19 borings with fill thickness ranging from two to five feet in Borings B-05, B-07, B-08, B-10, B-15, and B-16, eight to ten feet in B-09, B-13, and B-19, and

¹ The N-value is an empirical measure of granular soil density and cohesive soil consistency. For this study, the sampler was driven into the ground using an automatic SPT hammer, which has a 90% energy efficiency compared to 60% efficiency for the manual safety hammers used to establish the N-value correlations. N-values obtained using automatic hammers are therefore lower (by about 50%) than what would be obtained using manual hammers.

seventeen to twenty+ feet in Borings B-11, B-12, B-17, and B-18. The thicker fill masses generally occur in the northeast portion of the project. The fill consists of varying mixtures of clay to gravel-sized rock fragments with some horizons containing plant debris, including wood fragments, and man-made materials such as concrete, glass, plastics, and rubber. N-values recorded during sampling varied from 3 to 30 bpf indicative of a soft to hard consistency. The large variability in composition and N-values and the presence of non-soil materials confirm the information we were provided that uncontrolled fill was placed at some locations of the site from the clearing and excavations made at other projects and were placed at this site without engineering control.

The RPS strata are dominated by thin- to medium-bedded siltstone with occasional thin- to medium mudstone-claystone and medium to thick sandstone beds that exhibit northerly dips. A few of these strata were sampled as residual clay, silt, or silty sand-sandy silt, but most were sampled as gravel-sized siltstone fragments with varying amounts of sand, silt, and clay (note that the clay fraction present in many of the samples exhibits high plasticity). Many of the gravel-sized rock fragments are bounded by planar, oxidized surfaces that represent bedding plane or joint surfaces (joints are typically oriented approximately perpendicular to bedding). The individual fragments are mostly highly weathered and friable to weak (Table 1), with occasional moderately weathered, moderately strong fragments. N-values recorded during sampling of the RPS strata typically exceeded 20 blows per foot (bpf) of sampler penetration. Boring B-10 encountered a layer of moderately weathered, moderately strong to strong sandstone at a depth of 3.5 feet; drilling/sampling continued in this horizon to a depth of 7 feet (N-values >100 bpf) at which point the auger met refusal to further penetration. Finally, beginning at a depth of about 5 feet, Boring B-14 encountered about 13 feet of very stiff to hard clay (N = 17 to 34 bpf) that may represent thoroughly weathered intrusive igneous rock that occurs in dikes and sills that intruded the RPS strata, a unit not shown on the geologic map but that has been previously identified in scattered outcrops throughout the ridge.

The laboratory soil classification test results are presented in summary form in Table 3, and graphically in Appendix A, after the boring logs. These show that the clayey/silty portion of the earthfill mass consists mostly of high plasticity clays and silts that classify as CH soils (11 of 19 tests).

No groundwater was observed in the borings.

5.0 CONCLUSIONS, ANALYSIS, EARTHWORK AND FOUNDATION RECOMMENDATIONS

The foundation material for most of the Miradores de Parque Escorial II residential development consists of north-dipping, weathered Río Piedras Siltstone strata that are exposed along access trails that traverse the area. These will provide adequate bearing support for the single-family and low-rise residential structures that are planned for the site. The dip of the strata, however, which ranges between about 15° to 35°, presents the potential for slope instability if the strata were to be exposed in north-facing cuts that may be required for site grading. The preliminary grading plans prepared by Eng. Roberto López are included in the report as Figure 4 and the cut/fill sections in Figure 5.

A second set of geotechnical limitations relate to the presence of a relatively large mass of non-engineered fill in the northeastern portion of the project site, encompassing the area wherein Borings B-09, B-11 to B-13, B-15, and B-17 to B-19 are located. This fill, which ranges between about 8 to 20+ feet in thickness, appears to consist of waste soil-rock materials from other Escorial property developments located in the lower portion of the ridge and adjacent lowland to the north (RPS fragments are common in the fill); we reviewed available Google Earth imagery (dating from 1994 to the present) but are unable to determine the time of fill placement. As shown in the boring logs in Appendix A, the fill exhibits considerable variability in terms of composition (that in places includes a variety of undesirable materials such as wood and garbage) and competence (the latter as reflected by the N-values of the SPT recorded during subsurface sample collection), so the potential for differential settlement in structures constructed on the fill is high.

Additionally, the dominant fill component consists of clayey soil that laboratory tests and visual-manual observation indicate exhibits high plasticity. High plasticity soils often experience large volume changes in response to moisture content variations, expanding (swelling) with moisture intake and shrinking as they dry up. These so-called expansive soils can cause severe cracking in buildings whose foundations undergo large differential shrink-swell motion. Of greater concern, however, is the potential for the development of landslides wherein a mass of fill slips along the contact between the fill and the original ground surface, which most probably was not conditioned to prevent such an occurrence at the time the fill was placed (this requires clearing and grubbing with the excavation of a series of steps or keys into the in-situ soil/rock above which

the fill is then placed and compacted; see below). **We recommend that the non-engineered fill be removed and replaced by compacted fill placed in accordance with the specifications provided below as needed to attain final project grades.**

Additional geotechnical recommendations for the design and construction of the project are provided below.

5.1 Earthwork Recommendations

1. Prior to commencing construction, the site shall be cleared and grubbed of vegetation cover, topsoil, and non-engineered fill that may exist at the ground surface. Topsoil may be stockpiled for later use during site landscaping. After clearing and grubbing, and after any required cut excavations are performed, the exposed surfaces shall then be proof-rolled with several passes of a heavy vibratory roller to detect any soft soil spot that may have to be removed and to densify any surface soil that may have been disturbed during the clearing and grubbing, and/or cut excavation operations.
- 2- The bulk of any required excavation into the existing subsurface materials can be performed to the depths explored by the borings using conventional excavating equipment, including bulldozers. It is important to note, however, that Boring B-10 was only able to penetrate about 3 feet into a sandstone stratum it encountered at shallow depth (refusal at a depth of 7 feet). Deeper excavation in the general boring area (and possibly elsewhere) may require the use of rock excavation methods such as drilling and blasting and/or the use of heavy-duty impact hammers. Figure 5 presents cross sections of cut and fill slopes throughout the project in Sections A, B, C, D, E, F, G, and H. In each section we have indicated the most relevant recommendations applying to the section. These shall be reviewed in detail, and in some cases, there are recommendations for modifying the preliminary cross section to a more suitable section, in both cut and fill areas.
- 3- Cut material may be used for earthfill, however, the soil classifications must be checked to avoid using potentially expansive clayey soils. If earthfill is imported from outside of the project site, it shall classify as a non-expansive A-2-6 soil (with PI less than 15, and 15% or less passing minus #200 sieve) or better, in accordance with the AASHTO

- (American Association of State Highway and Transportation Officials) soil classification system. All fill shall be placed as engineered compacted fill in 8 to 10-inch-thick layers with each layer compacted to a minimum of 95% of the Maximum Dry Density as obtained in the Modified Proctor Test (ASTM D-1557).
- 4- The inclination of fill slopes constructed at the site should not exceed 2.0(H):1.0(V) (26.56°). If grading calls for steeper fill slopes such as 1.5(H):1(V) (33.7°), then they will have to be designed as reinforced earth slopes with geogrids typically at 3 ft height intervals or less. Stable cut slope inclinations will vary depending on the slope orientation relative to the orientation of the RPS strata. Cuts that face in the direction of bedding inclination should not exceed this inclination (such that the strata do not daylight on the cut slope) whereas those facing away from this dip direction can be excavated to a maximum inclination of 1.0(H):1.0(V). Figure 5 presents cross sections of cut and fill slopes throughout the project in Sections A, B, C, D, E, F, G, and H. In each section we have indicated the most relevant recommendations applying to the section. These shall be reviewed in detail, and in some cases, there are recommendations for modifying the preliminary cross section to a more suitable section, in both cut and fill areas.
 - 5- Fill placed on sloping surfaces shall be keyed into the existing in-situ soil/rock to prevent the development of a preferred surface of sliding along the contact between the in-situ soil and the engineered compacted fill. Keys shall consist of 1 m high steps at the end of each lift.
 - 6- Fill slopes should be promptly planted with appropriate vegetation that will grow quickly and cover the surface so as to minimize soil erosion that could lead to slope instability. Otherwise, the fill slope surfaces may be covered with erosion protection blankets to provide protection until natural vegetation grows on the slope. A recommended erosion control blanket is East Coast Erosion ECP-2.
 - 7- Runoff from surfaces above cut or fill slopes shall be collected by the project storm drainage system and not be allowed to flow down the slopes.
 - 8- Although not expected, any springs encountered during site grading or other construction activities shall be provided with adequate drainage outlets (French drains

or other appropriate measures) to prevent the buildup of excess pore pressures in the soil. Under no circumstance should a spring area be covered with soil or paved over without previously having constructed a drainage outlet. The project should be provided with adequate surface drainage measures to collect and conduct runoff to the project storm water system. Under no circumstance should water be allowed to accumulate anywhere within the project.

5.2 Non-Engineered Fill Removal and Reinforced Earth Slope

1. The non-engineered fill present in the northeast portion of the parcel shall be removed and replaced by a geogrid-reinforced fill mass with a 1.5H:1.0V outer slope. The excavated material can be used to construct the reinforced fill mass but, any plastic soil and non-soil materials excavated should be removed and discarded elsewhere.
2. The fill shall be removed to expose the in-situ, weathered RPS strata or residual soil and the exposed surface shall be compacted to produce a firm base for the reinforced fill. The fill shall be keyed into the existing in-situ soil/weathered rock as specified in Item 5.1.5 above to prevent the development of a preferred surface of sliding along the contact between the in-situ soil and the compacted fill.
3. The fill shall be placed in accordance with Section 5.1: Earthwork Recommendations above.
4. As a general guideline for the design of reinforced earthfill slopes, and to be designed in detail once we evaluate the grading plans, the typical geogrid reinforcement shall be MIRAGRID 3XT Geogrid (or equivalent) with a 1-m vertical spacing and extending at least a horizontal distance at each placement equal to the height of the fill slope, with an intermediate reinforcement a minimum of 2 m into the fill slope being placed; an **erosion control blanket (ECP-2)** shall be placed on the outside slope surface after it is built all the way up. The geogrid shall be placed to lay flat on the compacted fill surface and perpendicular to the slope face and tensioned until taut and free of wrinkles, then secured in place with staples, pins, or other means as required. Adjacent geogrid panels shall be placed side by side with a minimum 4-inch overlap to ensure 100

percent coverage. Detailed sections of this reinforced earthfill slope design shall be presented in an Addendum to this report.

5. It is essential that we be allowed to observe the construction of the reinforced soil slope and perform density testing to assure that the geogrids are placed correctly and the earthfill is placed and compacted according to specifications.

5.3 Foundation Recommendations

- 1- The single-family residential structures and low rise buildings can be supported on shallow foundations that may consist of independent or continuous spread footings bearing on engineered compacted fill or the in-situ residual soils or weathered rock at a minimum depth of 2 feet below final grade. An allowable bearing pressure, q_{all} , of $q_{all} = 3,000$ pounds per square foot (psf) may be used to proportion the footings. This allowable bearing pressure may be increased by 30 percent for short duration and transient loading such as wind and earthquake loads. Where building design includes significant uplift forces, the depth of the footings may have to be increased to develop the necessary uplift resistance. The ground floor slabs may be designed as conventional slabs on grade. Another foundation solution is to design the wall footings and slab on grade to be cast monolithically, similar to a flexible mat foundation, for which a modulus of subgrade reaction of $K_s = 150$ kips per cubic foot may be used.
- 2- For the row houses, the structures may be supported by “flexible” mat foundations bearing on engineered compacted fill or the in-situ materials. The mats may be designed using a Modulus of Subgrade Reaction (K_s) of $K_s = 150$ kips per cubic feet (kcf) for buildings on fill, residual soil, or weathered rock. A concrete apron shall be constructed around the perimeter of the mat extending to a minimum depth of 18 inches below final design grades.

6.0 CLOSURE –

The above-stated conclusions and recommendations are based on engineering analysis and evaluation of a limited number of soil samples obtained from widely spaced subsurface explorations and observation of existing surface conditions at the site. Although the evaluation approaches used in this study are consistent with those used in ordinary geotechnical engineering studies, unexpected conditions may be encountered during construction. The nature and extent of variations between the explored locations may not become evident until construction of the project is underway. Subsurface conditions different from those anticipated on the basis of this investigation may necessitate re-evaluation of these recommendations and adjustments in project design. It is advised that Geo Cim be retained to observe geologic/geotechnical conditions during construction in order to help confirm that our assumptions and recommendations are valid, to verify general compliance with design concepts and recommendations, and to assist in the development of design changes should subsurface conditions differ from those anticipated prior to the start of construction.

This Report has been prepared for use in the design of the proposed Miradores de Parque Escorial II residential development project. In the event that any changes are planned in the nature, design, or location of the proposed development, the conclusions and recommendations contained in this report should not be considered valid unless the changes are reviewed and the conclusions of this report are modified in writing by Geo Cim. Geo Cim is not responsible for any claims, damages, or liability associated with interpretation of subsurface data or reuse of the subsurface data or engineering analysis contained herein without the express written authorization of Geo Cim, PSC.

We request to be kept informed on the progress of the design of this project and to be consulted if there are any questions as to the intent and general purpose of our recommendations. Likewise, we request to be informed of any changes in the scope of this project that may require a revision of these recommendations or necessitate additional recommendations.

Miradores de Parque Escorial II, Carolina, Puerto Rico
January 24, 2021

Respectfully Submitted,

GEO CIM, INC. (PSC) – LUIS O. GARCIA & ASSOCIATES



Luis O. García, PE



<https://d.docs.live.net/3734b9e3a49994be/Documents/001-GEO CIM PROJECTS/5421-Miradores Parque Escorial II - Marini/Miradores Parque Escorial II-Carolina - FINAL REPORT TEXT 1-24-2021.docx>

TABLE 1 – ROCK DESCRIPTIONS

Table 1: Descriptive Terminology Used to Describe the Physical Properties of Rock for Engineering Purposes

WEATHERING CLASSIFICATION

| | |
|--------------------|---|
| Fresh | No visible sign of weathering |
| Faintly Weathered | Weathering limited to surface of major discontinuities |
| Slightly Weathered | Penetrative weathering developed on open discontinuity surfaces, but only slight |
| Moderately | Weathering extends through the rock mass, but rock is not friable |
| Highly Weathered | Weathering extends through the rock mass and rock is partly friable |
| Thoroughly | Rock is wholly decomposed and friable, retains rock structure and texture |
| Saprolite | Soil that retains the original rock texture and structure |
| Residual Soil | Soil with the original rock texture, structure and composition completely destroyed |

FRACTURE SPACING

| Fracturing | Size Range of Rock Fragments |
|----------------------|-------------------------------------|
| Crushed | Less than 1.5 cm |
| Intensely fractured | 1.5 - 3.0 cm |
| Closely fractured | 3.0 – 15 cm |
| Moderately fractured | 15 – 30 cm |
| Little fractured | 30 cm – 1 m |
| Massive | Greater than 1 m |

HARDNESS

| | |
|-----------------|---|
| Soft | Plastic material |
| Friable | Easily crumbled or powdered by fingers |
| Low hardness | Can be gouged deeply or carved with a knife |
| Moderately hard | Can be readily scratched by a knife blade; scratch leave heavy trace of dust |
| Hard | Can be scratched with difficulty; scratch produces little powder and is faintly visible |
| Very hard | Cannot be scratched with a knife blade |

STRENGTH

| | |
|-------------------|--|
| Plastic | Easily deformable with finger pressure |
| Friable | Crumbles by rubbing with fingers |
| Weak | Unfractured outcrop crumbles under light hammer blows |
| Moderately strong | Outcrop withstands a few strong blows before breaking |
| Strong | Outcrop would withstand a few heavy ringing hammer blows, but will yield large fragments |
| Very strong | Outcrop would resist heavy ringing hammer blows and yield dust and small fragments with difficulty |

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| TABLE 2 - BORING COORDINATES | | | | |
|--------------------------------|---------------|---------------|-----------|--------|
| MIRADORES DE PARQUE ESCORIAL 2 | | | | |
| | EAST | NORTH | ELEVATION | |
| | | | mts. | ft. |
| B-1 | X = 245723.06 | Y = 261094.49 | 117.21 | 384.54 |
| B-2 | X = 245726.71 | Y = 261165.14 | 112.24 | 368.24 |
| B-3 | X = 245798.98 | Y = 261135.63 | 120.07 | 393.93 |
| B-4 | X = 245832.93 | Y = 261156.78 | 118.56 | 388.97 |
| B-5 | X = 245862.76 | Y = 261120.83 | 119.46 | 391.92 |
| B-6 | X = 245912.09 | Y = 261093.47 | 132.14 | 433.52 |
| B-7 | X = 245947.51 | Y = 261123.69 | 124.59 | 408.75 |
| B-8 | X = 245990.61 | Y = 261086.19 | 129.21 | 423.91 |
| B-9 | X = 246005.32 | Y = 261118.81 | 124.61 | 408.82 |
| B-10 | X = 246115.82 | Y = 261152.84 | 98.62 | 323.55 |
| B-11 | X = 246074.62 | Y = 261191.81 | 92.9 | 304.79 |
| B-12 | X = 246121.32 | Y = 261246.65 | 93.28 | 306.03 |
| B-13 | X = 246145.22 | Y = 261198.13 | 96.45 | 316.43 |
| B-14 | X = 246168.40 | Y = 261230.40 | 100.48 | 329.65 |
| B-15 | X = 246213.22 | Y = 261270.61 | 117.68 | 386.08 |
| B-16 | X = 246252.65 | Y = 261276.62 | 117.82 | 386.54 |
| B-17 | X = 246155.45 | Y = 261334.53 | 106.34 | 348.88 |
| B-18 | X = 246231.50 | Y = 261321.92 | 110.46 | 362.40 |
| B-19 | X = 246306.89 | Y = 261327.37 | 101.99 | 334.61 |

Miradores de Parque Escorial II, Carolina, Puerto Rico
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TABLE 3 - LABORATORY TEST RESULTS
 MIRADORES DE PARQUE ESCORIAL 2

| BORING NO. | DEPTH SAMPLED (ft.) | SOIL CLASSIFICATIONS | | | | | REMARKS |
|------------|---------------------|-------------------------|------|---------------|------|-----------|--|
| | | Liquid & Plastic Limits | | %Passing #200 | USCS | AASHTO | |
| | | LL | PI | | | | |
| B-1 | 7.5 | 124.0 | 81.0 | 72.6 | CH | A-7-5(65) | High Plasticity Clay, little gravel and sand |
| B-2 | 10.0 | 61.0 | 30.0 | 50.7 | CH | A-7-5(12) | High Plasticity Clay, some sand, little gravel |
| B-3 | 5.0 | 66.0 | 34.0 | 83.1 | CH | A-7-5(32) | High Plasticity Clay, little sand. |
| B-4 | 15.0 | 77.0 | 46.0 | 61.6 | CH | A-7-5(27) | High Plasticity Clay, some sand, trace gravel. |
| B-5 | 15.0 | 45.0 | 17.0 | 24.9 | GM | A-2-7(1) | Gravel, some silt and sand. |
| B-6 | 15.0 | 42.0 | 14.0 | 34.8 | SM | A-2-7(1) | Silt, some sand and gravel. |
| B-7 | 7.5 | 49.0 | 19.0 | 62.3 | ML | A-7-5(11) | Silt, some sand and gravel. |
| B-8 | 2.5 | 60.0 | 32.0 | 72.5 | CH | A-7-6(24) | High Plasticity Clay, little sand, trace gravel. |
| B-9 | 15.0 | 85.0 | 51.0 | 60.2 | CH | A-7-5(29) | High Plasticity Clay, some gravel, little sand. |
| B-10 | 2.5 | 38.0 | 22.0 | 39.7 | SC | A-6(4) | Clayey sand, trace gravel. |
| B-11 | 19.0 | 78.0 | 48.0 | 88.3 | CH | A-7-5(48) | High Plasticity Clay, little sand, trace gravel. |
| B-12 | 10.0 | 53.0 | 33.0 | 49.9 | SC | A-7-6(12) | Clay, some sand, little gravel. |
| B-13 | 10.0 | 57.0 | 29.0 | 61.3 | CH | A-7-6(16) | High Plasticity Sandy Clay, trace gravel. |
| B-14 | 10.0 | 69.0 | 38.0 | 79.6 | CH | A-7-5(34) | High Plasticity Clay, little sand, trace gravel. |
| B-15 | 10.0 | 92.0 | 56.0 | 59.3 | CH | A-7-5(31) | High Plasticity Clay, some sand, little gravel. |
| B-16 | 7.5 | 57.0 | 37.0 | 40.0 | GC | A-7-6(8) | Clay, some gravel, and sand. |
| B-17 | 10.0 | 43.0 | 13.0 | 38.3 | GM | A-7-5(1) | Silt, some gravel and sand. |
| B-18 | 7.5 | 65.0 | 35.0 | 86.2 | CH | A-7-5(34) | High Plasticity Clay, trace gravel and sand. |
| B-19 | 7.5 | 51.0 | 22.0 | 44.2 | GM | A-7-6(6) | Silt, some gravel and sand. |

FIGURE 1 - MIRADORES DE PARQUE ESCORIAL II, CAROLINA, PR

SITE LOCATION



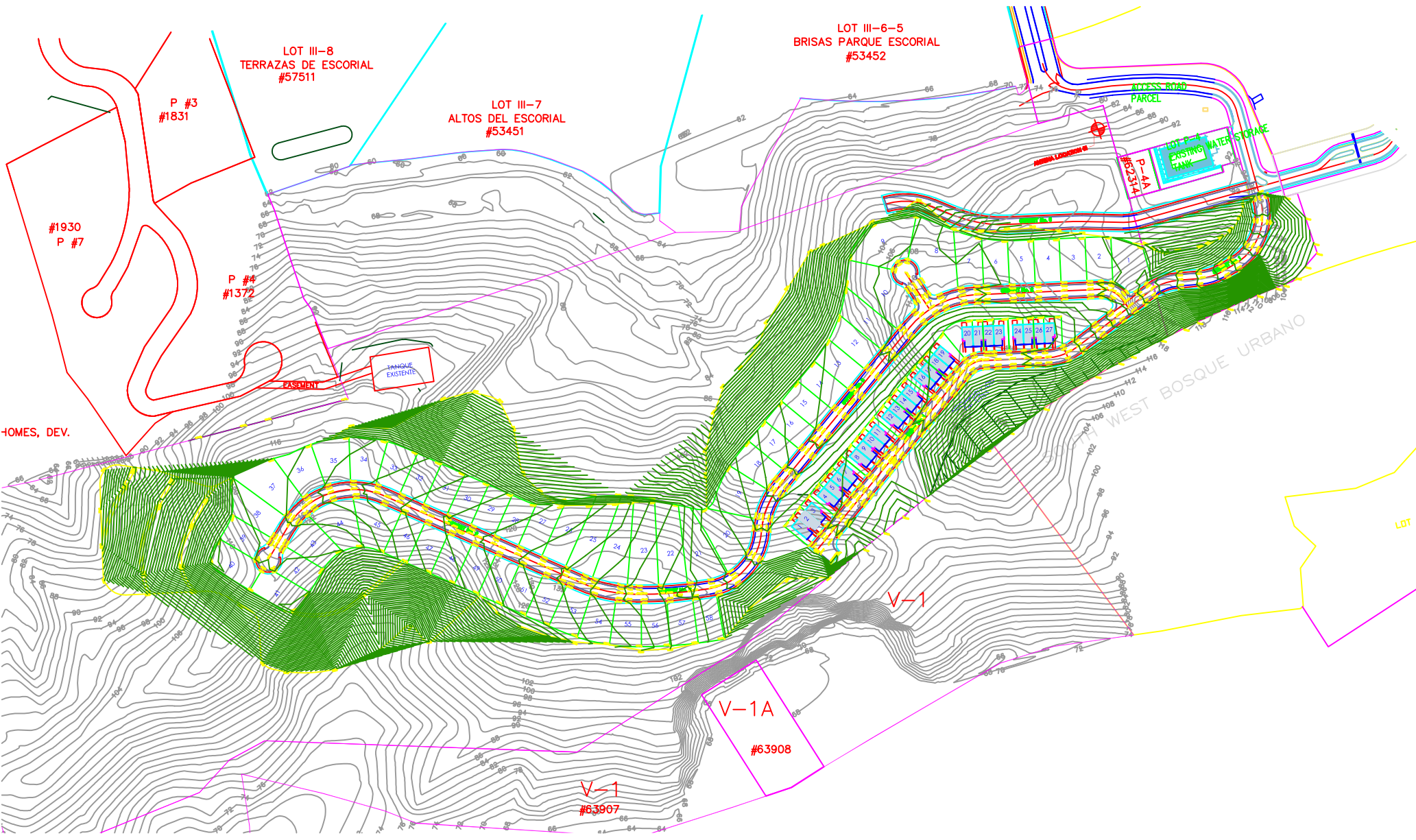
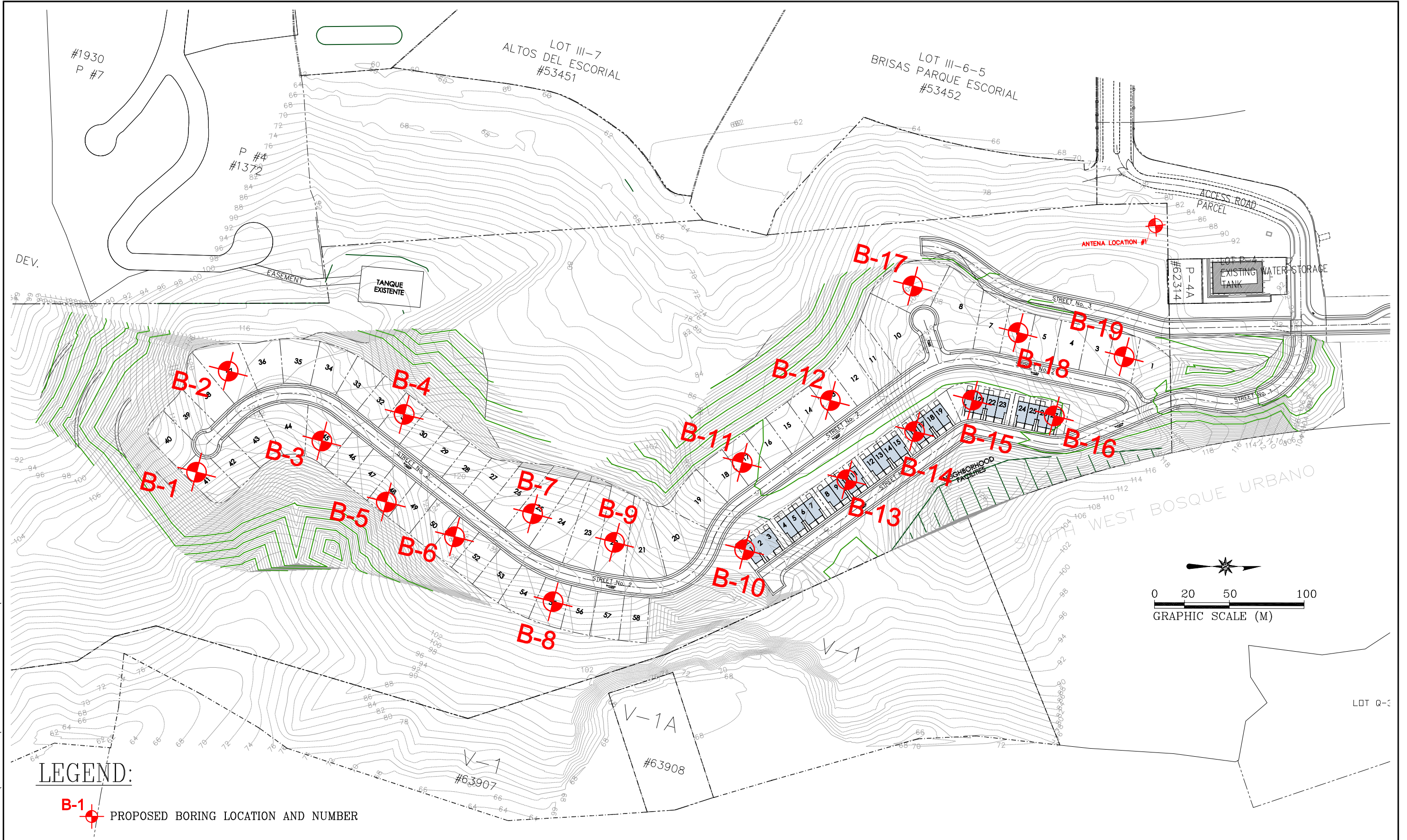


FIGURE 2 - PROJECT SITE LAYOUT PLAN

Giovanni: N:\PROPOSAL \ MIRADORES DE PARQUE 2 \ BORING LOCATION



LEGEND:

B-1 PROPOSED BORING LOCATION AND NUMBER



LUIS O. GARCIA & ASSOCIATES
GEOTECHNICAL ENGINEERING CONSULTANTS
AMELIA DISTRIBUTION CENTER LOT. 26 A EMMA ST.
GUAYNABO, PUERTO RICO 00968-8007

BORING LOCATION PLAN

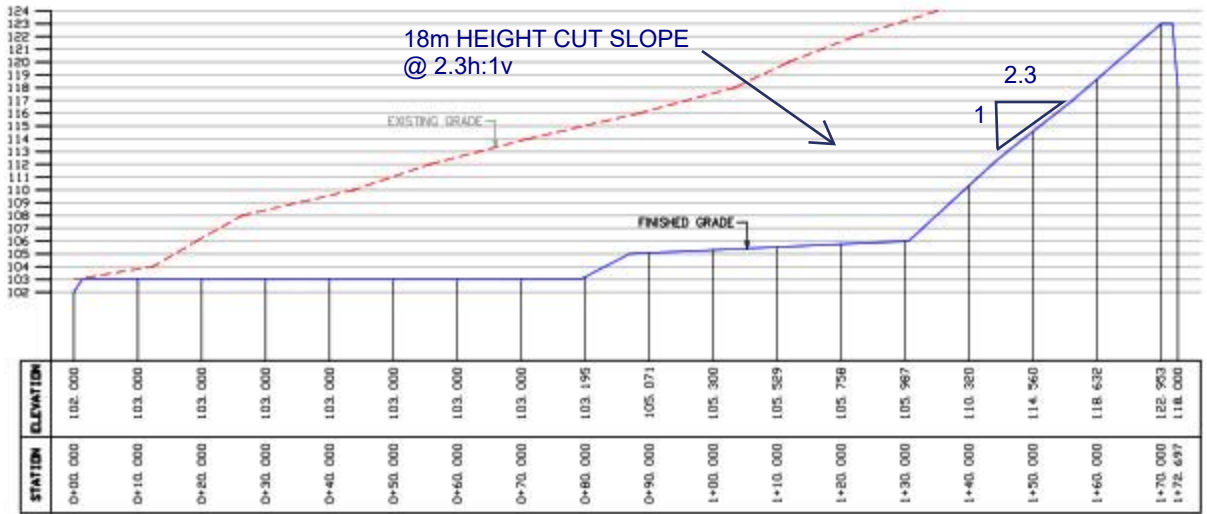
Miradores de Parque Escorial II
Carolina, P.R.

| | | | |
|----------------|-----------|-----------------|---------------|
| DATE: 07/29/20 | JOB NO: . | CKD. BY: L.O.G. | SCALE: N.T.S. |
|----------------|-----------|-----------------|---------------|

| |
|------------------------|
| DRW. BY: G.O.G. |
| FIGURE NO: 3 |



FIGURE 4 - PRELIMINARY GRADING PLAN AND TRANSVERSAL SECTIONS

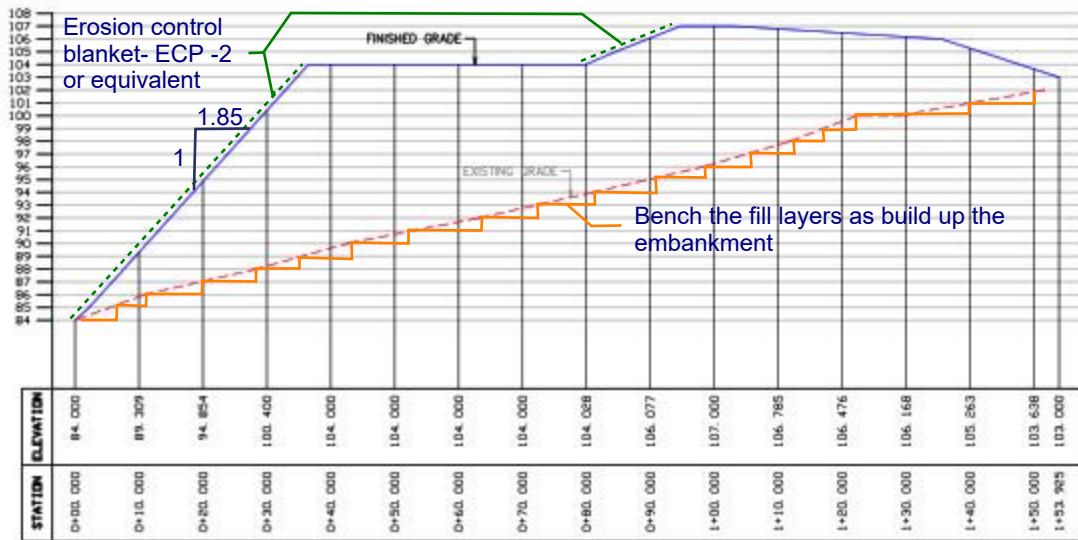


LONGITUDINAL PROFILE: A

HORIZONTAL SCALE=1:500.00
 VERTICAL SCALE=1:250.00

FIGURES 5A TO 5H - PROFILES - GRADING CROSS SECTIONS - AND RECOMMENDATIONS FOR CUT AND FILL SLOPES

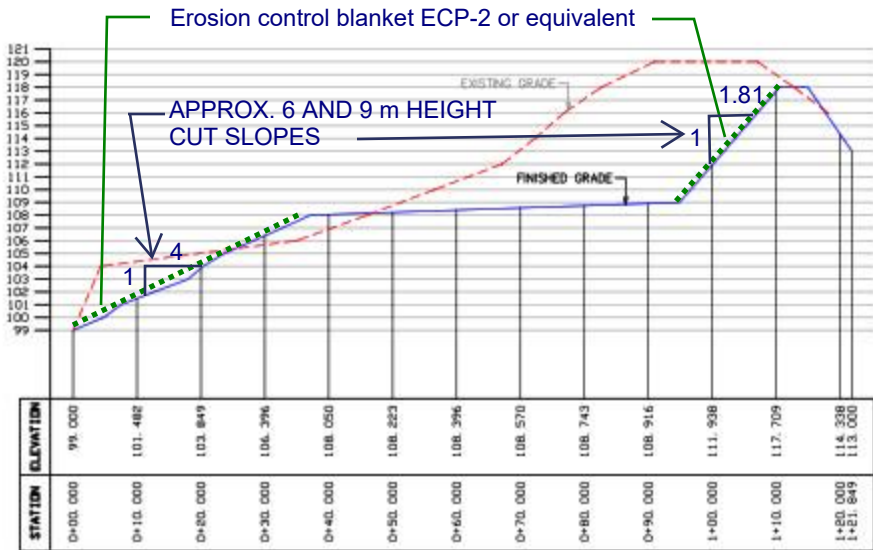
20 m Height Fill Slope - to be built with strict compaction control as per specifications, and testing



LONGITUDINAL PROFILE: B

HORIZONTAL SCALE=1:500.00

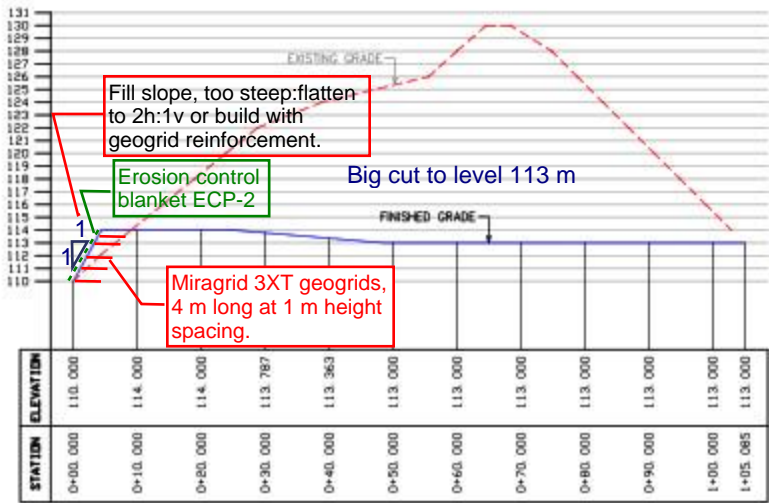
VERTICAL SCALE=1:250.00



LONGITUDINAL PROFILE: C

HORIZONTAL SCALE=1: 500.00

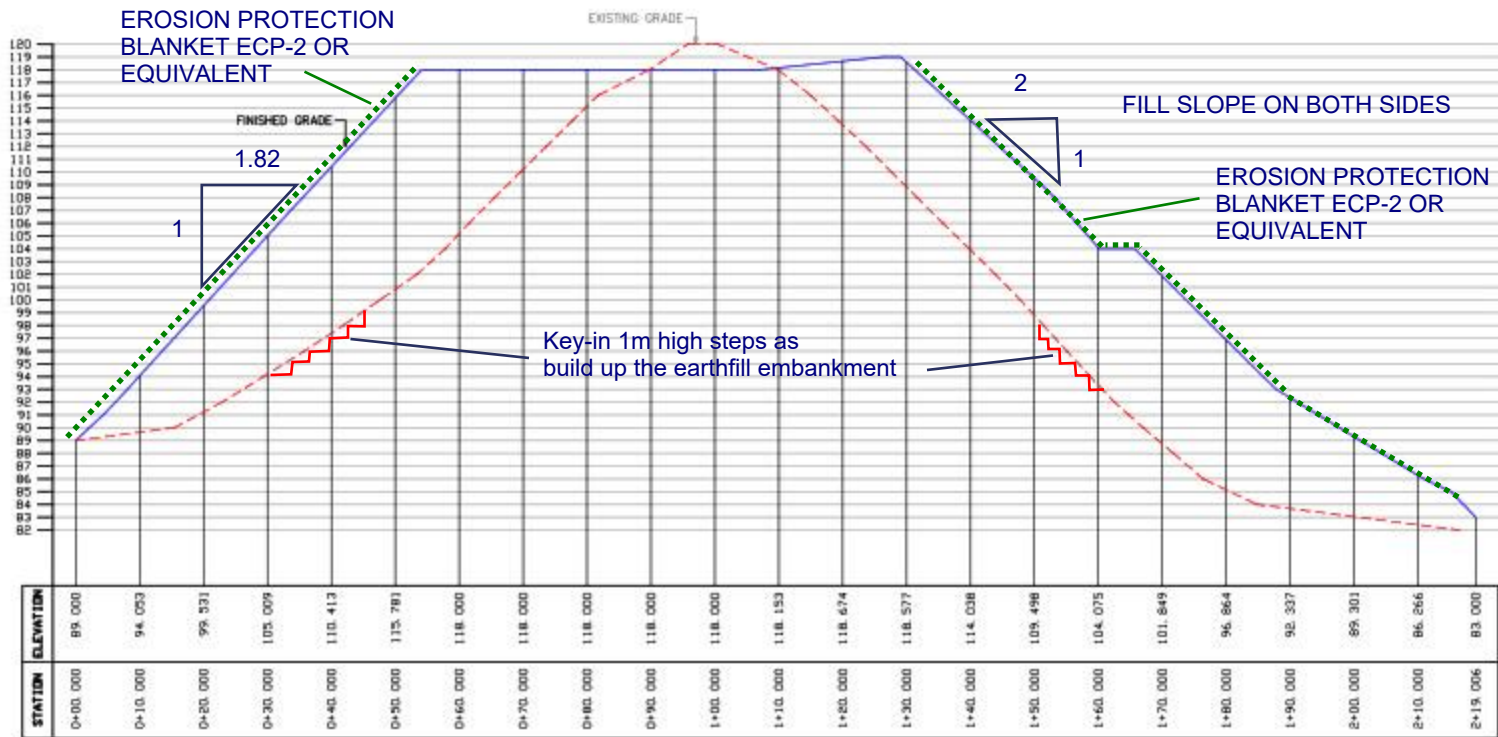
VERTICAL SCALE=1: 250.00



LONGITUDINAL PROFILE: D

HORIZONTAL SCALE=1: 500.00

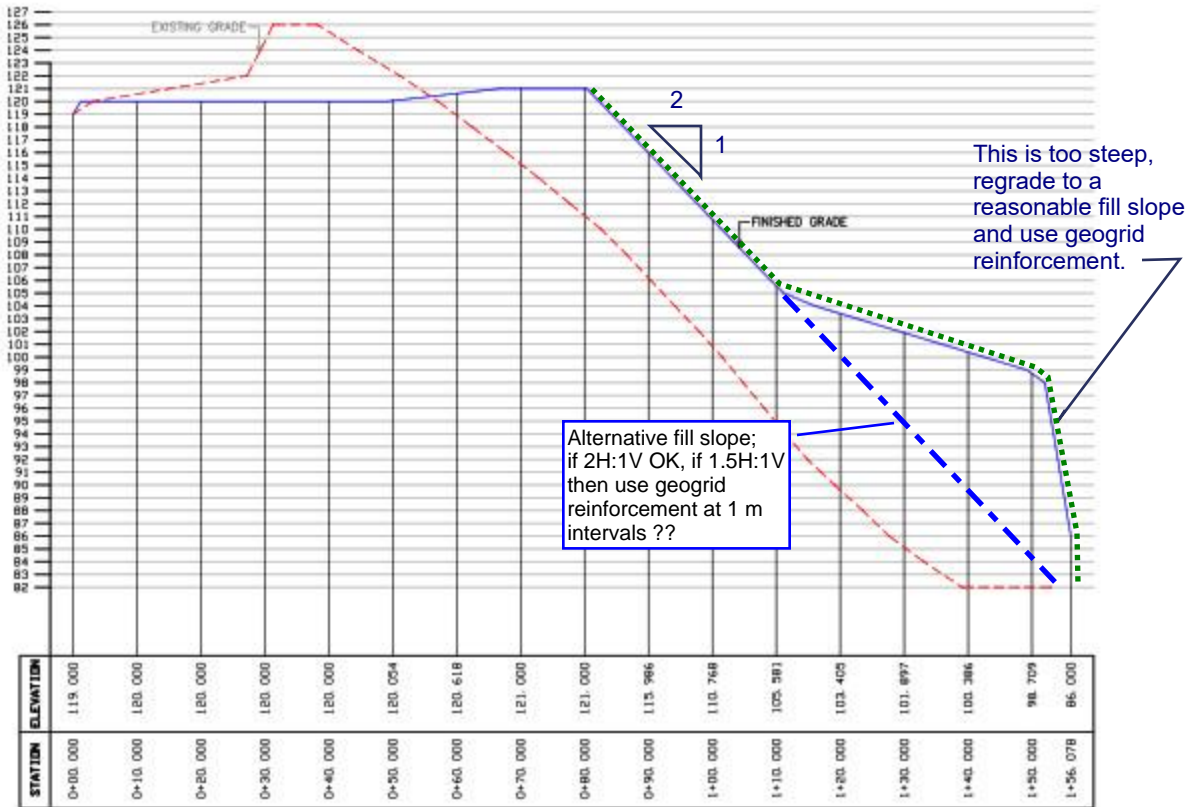
VERTICAL SCALE=1: 250.00



LONGITUDINAL PROFILE: E

HORIZONTAL SCALE=1: 500.00

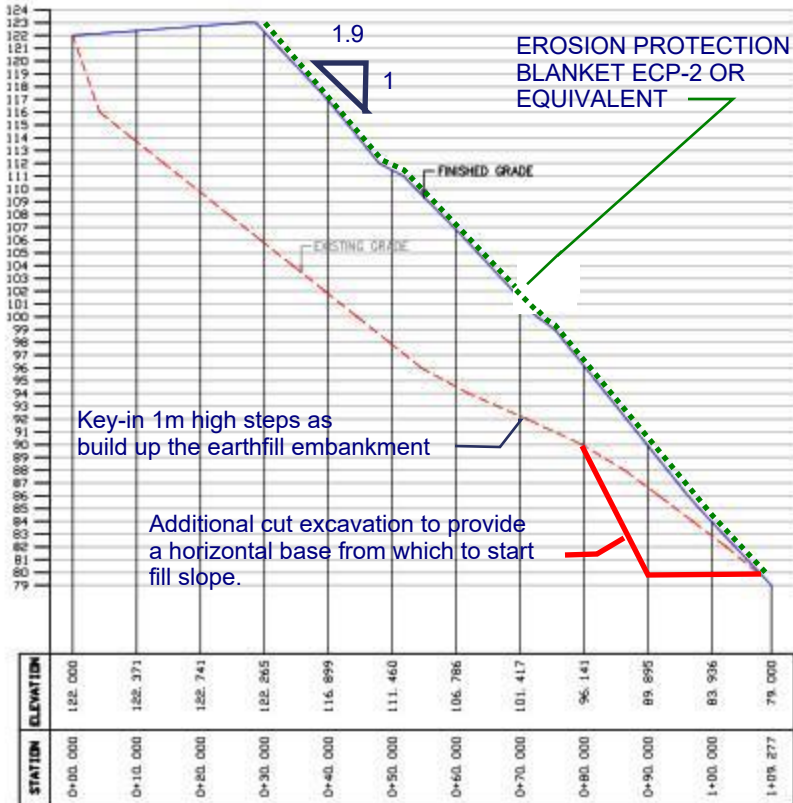
VERTICAL SCALE=1: 250.00



LONGITUDINAL PROFILE: F

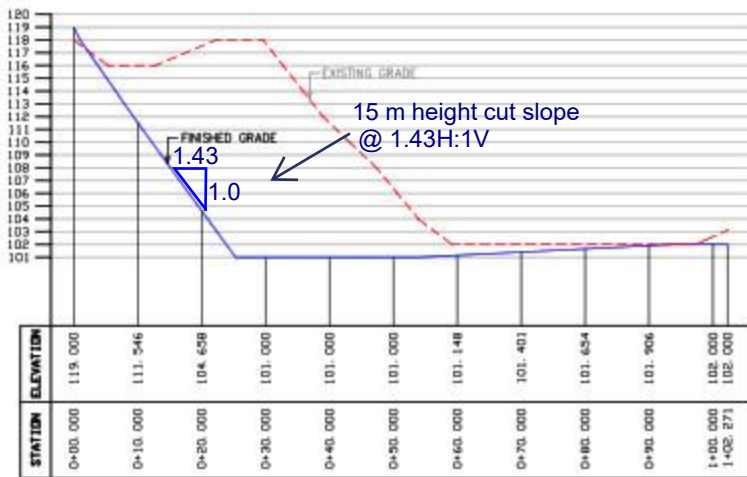
HORIZONTAL SCALE=1:500.00
VERTICAL SCALE=1:250.00

LARGE FILL EMBANKMENT OF 40 M HEIGHT



LONGITUDINAL PROFILE: G

HORIZONTAL SCALE=1: 500.00
 VERTICAL SCALE=1: 250.00



LONGITUDINAL PROFILE: H


HORIZONTAL SCALE=1: 500.00

VERTICAL SCALE=1: 250.00

APPENDIX A
BORING LOGS
AND
SOIL CLASSIFICATION TESTS

| DEPTH M FT | BLOWS ON SAMPLER | N | q _u | w _n | LL | PI | Symbol | DESCRIPTION | q _u | | | | |
|---|------------------------|-----------|----------------|----------------|------|------|---------|--|----------------|----|----|----|----|
| | | | | | | | | | 1 | 2 | 3 | 4 | 5 |
| | | | | | | | | | w ● 10 | 20 | 30 | 40 | 50 |
| | | | | | | | | | N ⊗ 10 | 20 | 30 | 40 | 50 |
| 5 | 5-11-12 | 23 | | 27.2 | | | x x x x | Weathered siltstone, sampled as: Silt, little friable siltstone fragments and sand, very stiff, yellow, pale yellow, weak red. | | | | | |
| | 16-26-32 | 58 (4.5+) | | 21.9 | | | x x x x | -sampled as: Silt, trace to little friable siltstone fragments, trace sand, hard, yellow, pale yellow brown. | | | | | |
| | 19-32-37 | 69 | | 22.6 | | | x x x x | -sampled as friable to weak siltstone fragments, little silt and sand, very dense, yellow, pale yellow, dark brown (oxidized streaks). | | | | | |
| 10 | 10-8-33 | 41 | 4.5 | 45.8 | 24.0 | 81.0 | ▨ | Clay with high plasticity, little siltstone fragments and sand, hard, red, weak red, pale yellow. (%passing #200 = 72.6) (CH) | | | | | |
| | 14-32-32 | 64 (4.5+) | | 26.5 | | | x x x x | Weathered siltstone, sampled as: Silt, little friable siltstone fragments and sand, very dense, yellowish red, yellow, pale yellow. | | | | | |
| 15 | 35-50/1" | 100 | | 20.4 | | | x x x x | Friable to weak siltstone fragments, little silt and sand, very dense, weak red, pale yellow. | | | | | |
| | 45-50/2" | 100 | | 13.0 | | | x x x x | -little to some sand, trace silt, oxidized dark brown surfaces. | | | | | |
| END OF BORING NO. B-01 AT 19.67 FEET DEPTH. Note: Groundwater not encountered during drilling. | | | | | | | | | | | | | |

| | | | | |
|-------------------------|--------------------------------------|--------------------|-----------|-----------------------|
| DATE HOLE | STARTED | 9-18-20 | COMPLETED | 9-18-20 |
| ELEVATION TOP OF HOLE | | | | |
| 384.54 (117.21 mts.) | | | | |
| ELEVATION GROUND WATER | | | | |
| LOCATION | | | | |
| N 261,094.5 E 245,723.1 | | | | |
| NAME OF DRILLER | | DRILLING EQUIPMENT | | METHOD |
| A. Ferrer | | CME-55 | | SPT |
| w _n | WATER CONTENT IN % | | | q _u |
| N | BLOWS FROM S. P. T. (ASTM D-1586) | | | () PENETROMETER, TSF |
| q _u | UNCONFINED COMPRESSIVE STRENGTH, TSF | | | LL |
| Y | WATER TABLE OR PHREATIC LEVEL | | | PL |
| | | | | PI |
| | | | | PLASTICITY INDEX IN % |




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MIRADORES PARQUE ESCORIAL II, CAROLINA, PR

| | | |
|----------|-------------------------|-------------|
| APPROVED | PROJECT No. 5421 | BORING No. |
| | 1 OF 1 SHEETS | B-01 |

| DEPTH M FT | BLOWS ON SAMPLER | N | q _u | w _n | LL | PI | Symbol | DESCRIPTION | q _u | | | | |
|---------------|------------------------|------------|----------------|----------------|------|------|--------|--|----------------|----|----|----|----|
| | | | | | | | | | 1 | 2 | 3 | 4 | 5 |
| | | | | | | | | | w ● 10 | 20 | 30 | 40 | 50 |
| | | | | | | | | | N ⊗ 10 | 20 | 30 | 40 | 50 |
| 5 | 4-5-20 | 25 | | 24.0 | | | | Weathered siltstone, sampled as: Clay with high plasticity, little friable to mod. strong siltstone fragments, little sand, trace roots; yellowish red, yellow. | | | | | |
| | 28-50/5" | 100 (4.0) | | 21.7 | | | | -little silt and sand, very dense, no roots; yellowish red, yellow. | | | | | |
| | 26-50/3" | 100 (4.5+) | | 25.0 | | | | -red, weak red. | | | | | |
| | 40-50/3" | 100 (4.0) | | 21.0 | | | | -trace to little silt, oxidized dark brown surfaces. | | | | | |
| 10 | 17-28-50 | 78 (4.5+) | | 27.2 | 61.0 | 30.0 | | -some sand, little siltstone fragments, (%passing #200 =50.7) (CH) | | | | | |
| 15 | 20-50/5" | 100 | | 26.0 | | | | -red, weak red. | | | | | |
| 20 | 22-35-52 | 87 (2.25) | | 20.8 | | | | | | | | | |
| | | | | | | | | END OF BORING NO. B-02 AT 20.5 FEET DEPTH. Note: Groundwater not encountered during drilling. | | | | | |

| | | | | |
|-------------------------|--------------------------------------|--------------------|-----------|-----------------------|
| DATE HOLE | STARTED | 9-19-20 | COMPLETED | 9-19-20 |
| ELEVATION TOP OF HOLE | | | | |
| 368.24 (112.24 mts.) | | | | |
| ELEVATION GROUND WATER | | | | |
| LOCATION | | | | |
| N 261,165.1 E 245,726.7 | | | | |
| NAME OF DRILLER | | DRILLING EQUIPMENT | | METHOD |
| A. Ferrer | | CME-55 | | SPT |
| w _n | WATER CONTENT IN % | | | q _u |
| N | BLOWS FROM S. P. T. (ASTM D-1586) | | | () PENETROMETER, TSF |
| q _u | UNCONIFIED COMPRESSIVE STRENGTH, TSF | | | LL |
| Y | WATER TABLE OR PHREATIC LEVEL | | | PL |
| | | | | PI |
| | | | | PLASTICITY INDEX IN % |



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| | | |
|----------|-------------------------|-------------|
| APPROVED | PROJECT No. 5421 | BORING No. |
| | 1 OF 1 SHEETS | B-02 |

| DEPTH M FT | BLOWS ON SAMPLER | N | q _u | w _n | LL | PI | Symbol | DESCRIPTION | q _u | | | | |
|---------------|------------------------|------------|----------------|----------------|------|------|--------|---|----------------|----|----|----|----|
| | | | | | | | | | 1 | 2 | 3 | 4 | 5 |
| | | | | | | | | | w ● 10 | 20 | 30 | 40 | 50 |
| | | | | | | | | | N ⊗ 10 | 20 | 30 | 40 | 50 |
| | 4-15-18 | 33 | | 20.7 | | | | Weathered siltstone, sampled as silt and angular gravel (weak), trace sand, dense, red, brown, white, yellow. | | | | | |
| | 19-13-12 | 25 (4.5+) | | 30.8 | | | | -little gravel, trace to little sand and clay; yellow, brown, white, pale yellow. | | | | | |
| 5 | 7-9-15 | 24 (4.5+) | | 37.6 | 66.0 | 34.0 | | Clay with high plasticity, little sand, very stiff to hard, yellow, pale yellow. (%passing #200 = 83.1) (CH) | | | | | |
| | 14-23-30 | 53 (4.5+) | | 22.4 | | | | -sampled as silt, little to some sand, trace clay and gravel (weak); red, yellow. | | | | | |
| 10 | 17-17-18 | 35 (1.75) | | 25.1 | | | | -little sand and gravel (weak to mod. strong); yellow and brown. | | | | | |
| | 10-20-16 | 36 (3.5) | | 36.1 | | | | -sampled as clayey silt, little sand, trace gravel; orange brown, brown, reddish brown. | | | | | |
| | 75/4" | 100 (4.25) | | 19.3 | | | | -little gravel (weak); red, brown; pale yellow. | | | | | |
| | | | | | | | | END OF BORING NO. B-03 AT 19.33 FEET DEPTH. Note: Groundwater not encountered during drilling. | | | | | |

| | | | | |
|-------------------------|--------------------------------------|--------------------|-----------|-----------------------|
| DATE HOLE | STARTED | 9-19-20 | COMPLETED | 9-19-20 |
| ELEVATION TOP OF HOLE | | | | |
| 393.93 (120.07 mts.) | | | | |
| ELEVATION GROUND WATER | | | | |
| LOCATION | | | | |
| N 261,135.6 E 245,799.0 | | | | |
| NAME OF DRILLER | | DRILLING EQUIPMENT | | METHOD |
| A. Ferrer | | CME-55 | | SPT |
| w _n | WATER CONTENT IN % | | | q _u |
| N | BLOWS FROM S. P. T. (ASTM D-1586) | | | () PENETROMETER, TSF |
| q _u | UNCONFINED COMPRESSIVE STRENGTH, TSF | | | LL |
| ▼ | WATER TABLE OR PHREATIC LEVEL | | | PL |
| | | | | PI |
| | | | | PLASTICITY INDEX IN % |




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| | | |
|----------|-------------------------|-------------|
| APPROVED | PROJECT No. 5421 | BORING No. |
| | 1 OF 1 SHEETS | B-03 |

| DEPTH M FT | BLOWS ON SAMPLER | N | q _u | w _n | LL | PI | Symbol | DESCRIPTION | q _u | | | | |
|--|------------------------|----|----------------|----------------|------|------|---------|---|----------------|----|----|----|----|
| | | | | | | | | | 1 | 2 | 3 | 4 | 5 |
| | | | | | | | | | w ● 10 | 20 | 30 | 40 | 50 |
| | | | | | | | | | N ⊗ 10 | 20 | 30 | 40 | 50 |
| 5 | 10-11-13 | 24 | | 23.2 | | | x x x x | Weathered siltstone, sampled as: Silt, little sand and siltstone fragments (weak); very stiff, yellow, pale yellow. | | | | | |
| | 7-10-14 | 24 | | 26.2 | | | x x x x | -sampled as clayey silt, little to some siltstone fragments, some with oxidized faces. | | | | | |
| | 10-19-19 | 38 | | 19.2 | | | x x x x | -trace siltstone frags. (weak to mod. strong). | | | | | |
| | 17-30-19 | 49 | | 16.1 | | | x x x x | Weathered siltstone, sampled as silt, little sand and gravel (as above), trace clay; yellow, pale yellow. | | | | | |
| 10 | 16-18-19 | 37 | | 21.2 | | | x x x x | -little to some gravel. | | | | | |
| 15 | 10-22-31 | 53 | | 29.1 | 77.0 | 46.0 | ▨ | Clay with high plasticity, little to some sand, trace to siltstone fragments, hard, brown, pale yellow. (%passing #200 = 61.6) (CH) | | | | | |
| 20 | 19-33-44 | 77 | | 15.0 | | | x x x x | Weathered siltstone, sampled as angular gravel (friable to mod. strong); yellow, pale yellow. | | | | | |
| END OF BORING NO. B-04 AT 20.5 FEET DEPTH. Note: Groundwater not encountered during drilling. | | | | | | | | | | | | | |

| | | |
|--------------------------------|--------------------------------------|-----------------------|
| DATE HOLE | STARTED | COMPLETED |
| | 9-19-20 | 9-19-20 |
| ELEVATION TOP OF HOLE | | |
| 388.97 (118.56 mts.) | | |
| ELEVATION GROUND WATER | | |
| LOCATION | | |
| N 261,156.8 E 245,832.9 | | |
| (Coordinates or Station) | | |
| NAME OF DRILLER | DRILLING EQUIPMENT | METHOD |
| A.Ferrer | CME-55 | SPT |
| w _n | WATER CONTENT IN % | q _u |
| N | BLOWS FROM S. P. T. (ASTM D-1586) | () PENETROMETER, TSF |
| q _u | UNCONFINED COMPRESSIVE STRENGTH, TSF | LL |
| ∇ | WATER TABLE OR PHREATIC LEVEL | PL |
| | | PI |
| | | PLASTICITY INDEX IN % |




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| | | |
|----------|-------------------------|-------------|
| APPROVED | PROJECT No. 5421 | BORING No. |
| | 1 OF 1 SHEETS | B-04 |

| DEPTH M FT | BLOWS ON SAMPLER | N | q _u | w _n | LL | PI | Symbol | DESCRIPTION | q _u ■ 1 2 3 4 5 | | | | |
|---|------------------------|-------|----------------|----------------|------|----|--------|---|----------------------------|--------------------|--|--|--|
| | | | | | | | | | w ● 10 20 30 40 50 | N ⊗ 10 20 30 40 50 | | | |
| 1-3-5 | 8 | (4.0) | 30.8 | | | | | Fill: Silt, little siltstone fragments, trace sand, stiff, red, brown, pale yellow. | | | | | |
| 8-13-14 | 27 | | 27.6 | | | | | Weathered siltstone, sampled as silt and gravel (weak), trace to little sand, trace clay, red, weak red, white. | | | | | |
| 14-16-16 | 32 | (4.0) | 28.4 | | | | | -little gravel, trace to little clay; yellow, red, pale yellow. | | | | | |
| 4-40-50/5" | 100 | (3.5) | 26.7 | | | | | -sampled as silt, little clay and gravel; red; weak red. | | | | | |
| 19-15-18 | 33 | | 23.6 | | | | | -little to some gravel (weak to mod. strong). | | | | | |
| 14-16-14 | 30 | | 20.2 | 45.0 | 17.0 | | | Siltstone fragments, some silt and sand, dense, red, brown, brown streaks. (%passing #200 = 24.9) (GM) | | | | | |
| 44-50/4" | 100 | | 19.5 | | | | | Siltstone, weak, locally mod. strong; red, pale yellow, dark brown, oxidized layers. | | | | | |
| END OF BORING NO. B-05 AT 19.83 FEET DEPTH. Note: Groundwater not encountered during drilling. | | | | | | | | | | | | | |

| | | |
|---|--------------------------------------|-----------|
| DATE HOLE | STARTED | COMPLETED |
| | 9-19-20 | 9-19-20 |
| ELEVATION TOP OF HOLE | 391.92 (119.46 mts) | |
| ELEVATION GROUND WATER | | |
| LOCATION (Coordinates or Station) | N 261,120.8 E 245,862.8 | |
| NAME OF DRILLER | DRILLING EQUIPMENT | METHOD |
| A. Ferrer | CME-55 | SPT |
| w _n WATER CONTENT IN % | q _u () PENETROMETER, TSF | |
| N BLOWS FROM S. P. T. (ASTM D-1586) | LL LIQUID LIMIT IN % | |
| q _u UNCONFINED COMPRESSIVE STRENGTH, TSF | PL PLASTIC LIMIT IN % | |
| WATER TABLE OR PHREATIC LEVEL | PI PLASTICITY INDEX IN % | |



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MIRADORES PARQUE ESCORIAL II, CAROLINA, PR

| | | |
|----------|-------------------------|-------------|
| APPROVED | PROJECT No. 5421 | BORING No. |
| | 1 OF 1 SHEETS | B-05 |

| DEPTH M FT | BLOWS ON SAMPLER | N | q _u | w _n | LL | PI | Symbol | DESCRIPTION | q _u | | | | |
|---|------------------------|---|----------------|----------------|------|----|--------|---|----------------|----|----|----|------|
| | | | | | | | | | 1 | 2 | 3 | 4 | 5 |
| | | | | | | | | | w ● 10 | 20 | 30 | 40 | 50 |
| | | | | | | | | | N ⊗ 10 | 20 | 30 | 40 | 50 |
| 5-18-19 | 37 | | 21.6 | | | | xxxxx | Weathered siltstone, sampled as gravel (friable to mod. strong); little sand, trace to little silt, dense, yellow, red. | | | | | |
| 15-50/5" | 100 | | 20.6 | | | | xxxxx | -little to some sand, little silt, weak red, yellow, brown streaks. | | | | | >> ⊗ |
| 25-39-50/5" | 100 | | 19.8 | | | | xxxxx | -red, yellow, white. | | | | | >> ⊗ |
| 19-20-22 | 42 | | 23.9 | | | | xxxxx | -weathered siltstone, sampled as gravel (weak to mod. strong), little silt and sand, trace clay; dark brown streaks; red, pale yellow, brown. | | | | | ⊗ |
| 11-13-16 | 29 | | 24.1 | | | | xxxxx | -little to some silt; yellow, weak red. | | | | | ⊗ |
| 15-20-21 | 41 | | 18.1 | 42.0 | 14.0 | | | Silt, some sand and siltstone fragments, hard, yellow, weak red. (%passing #200 = 34.8) (SM) | | | | | ⊗ |
| 21-30-40 | 70 | | 27.3 | | | | | -weak red, red. | | | | | >> ⊗ |
| END OF BORING NO. B-06 AT 20.5 FEET DEPTH. | | | | | | | | | | | | | |
| Note: Groundwater not encountered during drilling. | | | | | | | | | | | | | |

| | | |
|---|--------------------------------------|----------------|
| DATE HOLE | STARTED | COMPLETED |
| | 9-21-20 | 9-21-20 |
| ELEVATION TOP OF HOLE | 433.52 (132.14 mts) | |
| ELEVATION GROUND WATER | | |
| LOCATION (Coordinates or Station) | N 261,093.5 E 245,912.1 | |
| NAME OF DRILLER | DRILLING EQUIPMENT | METHOD |
| A. Ferrer | CME-55 | SPT |
| w _n WATER CONTENT IN % | q _u () PENETROMETER, TSF | |
| N BLOWS FROM S. P. T. (ASTM D-1586) | LL LIQUID LIMIT IN % | |
| q _u UNCONFINED COMPRESSIVE STRENGTH, TSF | PL PLASTIC LIMIT IN % | |
| ¥ WATER TABLE OR PHREATIC LEVEL | PI PLASTICITY INDEX IN % | |




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MIRADORES PARQUE ESCORIAL II, CAROLINA, PR

| | | |
|----------|-------------------------|-------------|
| APPROVED | PROJECT No. 5421 | BORING No. |
| | 1 OF 1 SHEETS | B-06 |

| DEPTH M FT | BLOWS ON SAMPLER | N | q _u | w _n | LL | PI | Symbol | DESCRIPTION | q _u | | | | |
|---------------|------------------------|-----------|----------------|----------------|------|------|--------|--|----------------|---|---|---|---|
| | | | | | | | | | 1 | 2 | 3 | 4 | 5 |
| | 3-4-4 | 8 | | 28.5 | | | | Fill: gravel and clayey silt, little sand, loose, med. stiff, red, yellow pale yellow. | ● | ● | ● | ● | ● |
| | 5-3-5 | 8 | | 24.0 | | | | Weathered siltstone, sampled as silty clay and gravel (weak to mod. strong), little sand, red, weak red. | ● | ● | ● | ● | ● |
| 5 | 7-13-16 | 29 | | 23.6 | | | | -trace roots; red, yellow, brown, pale yellow. | ● | ● | ● | ● | ● |
| | 8-9-27 | 36 | | 29.9 | 49.0 | 19.0 | | Silt, some sand, trace siltstone fragments, no roots, hard, red, yellow, pale yellow, brown streaks. (%passing #200 = 62.3) (ML) | ● | ● | ● | ● | ● |
| 10 | 19-19-25 | 44 (2.75) | | 29.4 | | | | -sampled as sandy silt, some gravel (friable to weak), little silt. | ● | ● | ● | ● | ● |
| | 16-27-40 | 67 | | 26.2 | | | | -sampled as clayey silt, little sand, trace gravel; red. | ● | ● | ● | ● | ● |
| 15 | | | | | | | | | ● | ● | ● | ● | ● |
| | 16-30-50/4" | 100 | | 24.8 | | | | -little gravel, brown streaks. | ● | ● | ● | ● | ● |
| 20 | | | | | | | | | ● | ● | ● | ● | ● |
| | | | | | | | | END OF BORING NO. B-07 AT 20.33 FEET DEPTH. Note: Groundwater not encountered during drilling. | | | | | |

| | | | | |
|--------------------------|--------------------------------------|-------------------------|-----------------------|---------|
| DATE HOLE | STARTED | 9-19-20 | COMPLETED | 9-19-20 |
| ELEVATION TOP OF HOLE | | 408.75 (124.59 mts) | | |
| ELEVATION GROUND WATER | | | | |
| LOCATION | | N 261,123.7 E 245,947.5 | | |
| (Coordinates or Station) | | | | |
| NAME OF DRILLER | DRILLING EQUIPMENT | METHOD | | |
| A. Ferrer | CME-55 | SPT | | |
| w _n | WATER CONTENT IN % | q _u | () PENETROMETER, TSF | |
| N | BLOWS FROM S. P. T. (ASTM D-1586) | LL | LIQUID LIMIT IN % | |
| q _u | UNCONIFIED COMPRESSIVE STRENGTH, TSF | PL | PLASTIC LIMIT IN % | |
| Y | WATER TABLE OR PHREATIC LEVEL | PI | PLASTICITY INDEX IN % | |




GEOTECNIA Y CIMENTOS
GEOTECHNICAL TESTING SERVICES
 AMELIA DISTRIBUTION CENTER, EMMA ST. 26A, GUAYNABO, PR 00968

MIRADORES PARQUE ESCORIAL II, CAROLINA, PR

| | | |
|----------|-------------------------|-------------|
| APPROVED | PROJECT No. 5421 | BORING No. |
| | 1 OF 1 SHEETS | B-07 |

| DEPTH M FT | BLOWS ON SAMPLER | N | q _u | w _n | LL | PI | Symbol | DESCRIPTION | q _u | | | | |
|---|------------------------|-----|----------------|----------------|------|------|--------|---|----------------|----|----|----|----|
| | | | | | | | | | 1 | 2 | 3 | 4 | 5 |
| | 4-5-6 | 11 | | 23.2 | | | | Fill: clayey silt, little sand and angular gravel; stiff; yellow, red, brown. | 10 | 20 | 30 | 40 | 50 |
| | 12-9-8 | 17 | (4.5) | 22.5 | 60.0 | 32.0 | | Weathered siltstone, sampled as: Clay with high plasticity, little sand, trace siltstone fragments, very stiff to hard, yellow, red, brown. | 10 | 20 | 30 | 40 | 50 |
| 5 | 6-42-50/5" | 100 | | 18.9 | | | | Weathered siltstone, sampled as gravel, little to some sand, little clay and silt, yellow, red. -trace to little silt and clay. | 10 | 20 | 30 | 40 | 50 |
| | 24-50/5" | 100 | | 14.5 | | | | | 10 | 20 | 30 | 40 | 50 |
| 10 | 50/6" | 100 | | 13.7 | | | | | 10 | 20 | 30 | 40 | 50 |
| | 50/3" | 100 | | 13.9 | | | | Siltstone, moderately weathered, weak to mod. strong; yellowish brown. | 10 | 20 | 30 | 40 | 50 |
| 15 | 50/4" | 100 | | 9.8 | | | | | 10 | 20 | 30 | 40 | 50 |
| END OF BORING NO. B-08 AT 19.33 FEET DEPTH. | | | | | | | | | | | | | |
| Note: Groundwater not encountered during drilling. | | | | | | | | | | | | | |

| | | | | |
|-------------------------|--------------------------------------|--------------------|-----------|-----------------------|
| DATE HOLE | STARTED | 9-21-20 | COMPLETED | 9-21-20 |
| ELEVATION TOP OF HOLE | | | | |
| 423.91 (129.21 mts) | | | | |
| ELEVATION GROUND WATER | | | | |
| LOCATION | | | | |
| N 261,086.2 E 245,990.6 | | | | |
| NAME OF DRILLER | | DRILLING EQUIPMENT | | METHOD |
| A. Ferrer | | CME-55 | | SPT |
| w _n | WATER CONTENT IN % | | | q _u |
| N | BLOWS FROM S. P. T. (ASTM D-1586) | | | () PENETROMETER, TSF |
| q _u | UNCONFINED COMPRESSIVE STRENGTH, TSF | | | LL |
| Y | WATER TABLE OR PHREATIC LEVEL | | | LL |
| | | | PL | LIQUID LIMIT IN % |
| | | | PI | PLASTIC LIMIT IN % |




GEOTECNIA Y CIMENTOS
GEOTECHNICAL TESTING SERVICES
 AMELIA DISTRIBUTION CENTER, EMMA ST. 26A, GUAYNABO, PR 00968

MIRADORES PARQUE ESCORIAL II, CAROLINA, PR

| | | |
|----------|-------------------------|-------------|
| APPROVED | PROJECT No. 5421 | BORING No. |
| | 1 OF 1 SHEETS | B-08 |

| DEPTH M FT | BLOWS ON SAMPLER | N | q _u | w _n | LL | PI | Symbol | DESCRIPTION | q _u | | | | |
|---|------------------------|----|----------------|----------------|------|------|--------|---|----------------|----|----|----|----|
| | | | | | | | | | 1 | 2 | 3 | 4 | 5 |
| | | | | | | | | | w ● 10 | 20 | 30 | 40 | 50 |
| | | | | | | | | | N ⊗ 10 | 20 | 30 | 40 | 50 |
| 5 | 4-4-8 | 12 | | 23.7 | | | | Fill: silty gravel, little sand, trace clay; trace roots; medium dense, red, pale yellow, yellow. | | | | | |
| | 9-7-5 | 12 | | 26.7 | | | | Gravelly clay, little sand and silt; stiff, reddish brown. | | | | | |
| | 7-9-5 | 14 | | 28.3 | | | | Clayey silt, trace to little sand, little gravel; stiff; reddish brown. | | | | | |
| | 5-6-9 | 15 | | 21.9 | | | | Gravelly silt, little sand, trace clay and roots; stiff; red, brown, yellow, pale yellow. | | | | | |
| 10 | 12-15-20 | 35 | | 19.9 | | | | Weathered siltstone, friable to mod. strong; reddish brown, light yellowish brown. | | | | | |
| 15 | 7-9-14 | 23 | (3.5) | 25.9 | 85.0 | 51.0 | | Weathered siltstone, sampled as: Clay with high plasticity, trace sand, red, yellow, pale yellow. (%passing #200 = 60.2) (CH) | | | | | |
| 20 | 9-13-15 | 28 | | 24.9 | | | | Weathered siltstone; friable to mod. strong; red, yellow. | | | | | |
| END OF BORING NO. B-09 AT 20.5 FEET DEPTH. | | | | | | | | | | | | | |
| Note: Groundwater not encountered during drilling. | | | | | | | | | | | | | |

| | | | | |
|-------------------------|--------------------------------------|--------------------|-----------|-----------------------|
| DATE HOLE | STARTED | 9-19-20 | COMPLETED | 9-19-20 |
| ELEVATION TOP OF HOLE | | | | |
| 408.82 (124.61 mts) | | | | |
| ELEVATION GROUND WATER | | | | |
| LOCATION | | | | |
| N 261,118.8 E 246,005.3 | | | | |
| NAME OF DRILLER | | DRILLING EQUIPMENT | | METHOD |
| A. Ferrer | | CME-55 | | SPT |
| w _n | WATER CONTENT IN % | | | q _u |
| N | BLOWS FROM S. P. T. (ASTM D-1586) | | | () PENETROMETER, TSF |
| q _u | UNCONFINED COMPRESSIVE STRENGTH, TSF | | | LL |
| ∇ | WATER TABLE OR PHREATIC LEVEL | | | PL |
| | | | | PI |
| | | | | PLASTICITY INDEX IN % |



GEOTECNIA Y CIMENTOS
GEOTECHNICAL TESTING SERVICES
 AMELIA DISTRIBUTION CENTER, EMMA ST. 26A, GUAYNABO, PR 00968

MIRADORES PARQUE ESCORIAL II, CAROLINA, PR

| | | |
|----------|-------------------------|-------------|
| APPROVED | PROJECT No. 5421 | BORING No. |
| | 1 OF 1 SHEETS | B-09 |

| DEPTH M FT | BLOWS ON SAMPLER | N | q _u | w _n | LL | PI | Symbol | DESCRIPTION | q _u | | | | |
|---|------------------------|-----|----------------|----------------|------|------|--------|---|----------------|----|----|----|----|
| | | | | | | | | | 1 | 2 | 3 | 4 | 5 |
| | 6-9-9 | 18 | | 21.1 | | | | Fill: Silt, trace to little sand and gravel (dark rock fragments), very stiff, yellow, gray. | 10 | 20 | 30 | 40 | 50 |
| | 8-26-50/5" | 100 | | 11.8 | 38.0 | 22.0 | | Clayey sand, trace siltstone fragments, very stiff, light olive gray. (%passing #200 = 39.7) (SC) | | | | | |
| 5 | 22-50/2" | 100 | | 8.7 | | | | Sandstone, mod. weathered, mod. strong to strong; greenish gray. | | | | | |
| | 75/0" | 100 | | | | | | No Recovery. | | | | | |
| END OF BORING NO. B-10 AT 7.0 FEET DEPTH. | | | | | | | | | | | | | |
| Note: 1- Refusal, hard to penetration, augers did not go beyond 7.0 ft depth. 2- Groundwater not encountered during drilling. | | | | | | | | | | | | | |

| | | | | |
|-------------------------|--------------------------------------|--------------------|-----------|----------------|
| DATE HOLE | STARTED | 9-21-20 | COMPLETED | 9-21-20 |
| ELEVATION TOP OF HOLE | | | | |
| 323.55 (98.62 mts) | | | | |
| ELEVATION GROUND WATER | | | | |
| LOCATION | | | | |
| N 261,152.8 E 246,115.8 | | | | |
| NAME OF DRILLER | | DRILLING EQUIPMENT | | METHOD |
| A. Ferrer | | CME-55 | | SPT |
| w _n | WATER CONTENT IN % | | | q _u |
| N | BLOWS FROM S. P. T. (ASTM D-1586) | | | LL |
| q _u | UNCONFINED COMPRESSIVE STRENGTH, TSF | | | PL |
| Y | WATER TABLE OR PHREATIC LEVEL | | | PI |



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MIRADORES PARQUE ESCORIAL II, CAROLINA, PR

| | | |
|----------|-------------------------|-------------|
| APPROVED | PROJECT No. 5421 | BORING No. |
| | 1 OF 1 SHEETS | B-10 |

| DEPTH M FT | BLOWS ON SAMPLER | N | q _u | w _n | LL | PI | Symbol | DESCRIPTION | q _u | | | | |
|---------------|------------------------|-----------|----------------|----------------|------|------|--------|---|----------------|----|----|----|----|
| | | | | | | | | | 1 | 2 | 3 | 4 | 5 |
| | | | | | | | | | w ● 10 | 20 | 30 | 40 | 50 |
| | | | | | | | | | N ⊗ 10 | 20 | 30 | 40 | 50 |
| 5 | 2-3-3 | 6 | | 25.2 | | | | Fill: Clay, trace to little gravel, trace sand and silt, medium stiff, brown, yellow. | | | | | |
| | 2-3-2 | 5 | | 26.7 | | | | -trace glass fragments. | | | | | |
| | 1-WH-3 | 3 | | 65.0 | | | | -trace plant debris; no glass, gray, brown, weak red, black, yellow. | | | | | |
| 10 | 2-2-2 | 4 | | 44.5 | | | | Fill: Clay, little silt, trace sand and organic debris; soft, dark olive, black, brown. | | | | | |
| | 0-3-3 | 6 | | 46.4 | | | | -medium stiff. | | | | | |
| 15 | 3-4-8 | 12 (1.75) | | 34.0 | | | | Fill: Clay, plastic; little silt, trace sand and gravel, stiff, yellow, brown, red, dark brown, pale yellow. | | | | | |
| 20 | 11-10-16 | 26 | 4.90 | 29.5 | 78.0 | 48.0 | | Clay with high plasticity, little sand, trace siltstone fragments, very stiff, olive, red, brown, light gray. (%passing #200 = 88.3) (CH) END OF BORING B-11 AT 20.5 FEET DEPTH. | | | | | |

Note:
Groundwater not encountered during drilling.

| | | |
|---|--------------------------------------|----------------|
| DATE HOLE | STARTED | COMPLETED |
| | 9-15-20 | 9-15-20 |
| ELEVATION TOP OF HOLE | 304.79 (92.9 mts) | |
| ELEVATION GROUND WATER | | |
| LOCATION (Coordinates or Station) | N 261,191.8 E 246,074.6 | |
| NAME OF DRILLER | DRILLING EQUIPMENT | METHOD |
| R. Ferrer | CME-55 | SPT |
| w _n WATER CONTENT IN % | q _u () PENETROMETER, TSF | |
| N BLOWS FROM S. P. T. (ASTM D-1586) | LL LIQUID LIMIT IN % | |
| q _u UNCONFINED COMPRESSIVE STRENGTH, TSF | PL PLASTIC LIMIT IN % | |
| WATER TABLE OR PHREATIC LEVEL | PI PLASTICITY INDEX IN % | |




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 AMELIA DISTRIBUTION CENTER, EMMA ST. 26A, GUAYNABO, PR 00968

MIRADORES PARQUE ESCORIAL II, CAROLINA, PR

| | | |
|----------|-------------------------|-------------|
| APPROVED | PROJECT No. 5421 | BORING No. |
| | 1 OF 1 SHEETS | B-11 |

| DEPTH M FT | BLOWS ON SAMPLER | N | q _u | w _n | LL | PI | Symbol | DESCRIPTION | q _u | | | | |
|--|------------------------|----|----------------|----------------|------|------|--------|--|----------------|---|---|---|---|
| | | | | | | | | | 1 | 2 | 3 | 4 | 5 |
| | 3-4-8 | 12 | | 22.7 | | | | Fill: Clay, trace siltstone fragments and sand, trace silt, stiff, brown, yellow, red. | ● | ● | ● | ● | ● |
| | 2-2-5 | 7 | | 28.4 | | | | -little gravel and sand; trace wood; medium stiff. | ● | ● | ● | ● | ● |
| 5 | 2-1-4 | 5 | | 35.3 | | | | Fill: Clay, plastic, little silt, trace sand and gravel, trace wood and plant debris; medium stiff, brown. | ● | ● | ● | ● | ● |
| | 8-7-10 | 17 | (3.0) | 23.9 | | | | -no plant debris evident; very stiff; red, pale yellow. | ● | ● | ● | ● | ● |
| 10 | 2-3-3 | 6 | (2.25) | 24.5 | 53.0 | 33.0 | | -some sand, little gravel, med. stiff. (% passing #200 = 49.9) (SC) | ● | ● | ● | ● | ● |
| | 17-4-4 | 8 | (1.5) | 31.7 | | | | -trace garbage (rubber). | ● | ● | ● | ● | ● |
| 15 | | | | | | | | | | | | | |
| 20 | 6-9-11 | 20 | (1.5) | 18.7 | | | | Clay, little siltstone, gravel, trace to little sand, trace silt and wood; very stiff, brown, light gray, red, yellow. | ● | ● | ● | ● | ● |
| <p>END OF BORING B-12 AT 120.5 FEET DEPTH.</p> <p>Note: Groundwater not encountered during drilling.</p> | | | | | | | | | | | | | |

| | | | | | |
|-------------------------|-------------------------------------|---------|-----------|----------------|-----------------------|
| DATE HOLE | STARTED | 9-15-20 | COMPLETED | 9-15-20 | |
| ELEVATION TOP OF HOLE | | | | | |
| 306.03 (93.28 mts) | | | | | |
| ELEVATION GROUND WATER | | | | | |
| LOCATION | | | | | |
| N 261,246.7 E 246,121.3 | | | | | |
| NAME OF DRILLER | | | | | |
| R. Ferrer | | | | | |
| DRILLING EQUIPMENT | | | | | |
| CME-55 | | | | | |
| METHOD | | | | | |
| SPT | | | | | |
| w _n | WATER CONTENT IN % | | | q _u | () PENETROMETER, TSF |
| N | BLOWS FROM S. P. T. (ASTM D-1586) | | | LL | LIQUID LIMIT IN % |
| q _u | UNCONFIED COMPRESSIVE STRENGTH, TSF | | | PL | PLASTIC LIMIT IN % |
| ∇ | WATER TABLE OR PHREATIC LEVEL | | | PI | PLASTICITY INDEX IN % |




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 AMELIA DISTRIBUTION CENTER, EMMA ST. 26A, GUAYNABO, PR 00968

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| | | |
|----------|-------------------------|-------------|
| APPROVED | PROJECT No. 5421 | BORING No. |
| | 1 OF 1 SHEETS | B-12 |

| DEPTH M FT | BLOWS ON SAMPLER | N | q _u | w _n | LL | PI | Symbol | DESCRIPTION | q _u | | | | |
|---|------------------------|-------|----------------|----------------|------|------|--------|--|----------------|----|----|----|----|
| | | | | | | | | | 1 | 2 | 3 | 4 | 5 |
| | | | | | | | | | w ● 10 | 20 | 30 | 40 | 50 |
| | | | | | | | | | N ⊗ 10 | 20 | 30 | 40 | 50 |
| 2-4-6 | 10 | (1.5) | 29.5 | | | | | Fill: Clay, little gravel (siltstone) and silt, trace sand and roots, stiff, brown, yellow. | | | | | |
| 3-1-3 | 4 | | 57.1 | | | | | -little to some fine organic debris; soft. | | | | | |
| 5 | 1-1-2 | 3 | (0.5) | 104.5 | | | | Fill: Silt, little to some organic matter, trace to little sand, soft, olive, dark brown. | | | | | |
| | 2-1-2 | 3 | (1.5) | 42.5 | | | | -little garbage (plastic), little organic matter. | | | | | |
| 10 | 3-4-8 | 12 | (1.5) | 48.8 | 57.0 | 29.0 | | Silt, little clay, trace siltstone fragments, stiff, light olive dark brown, red, brown. | | | | | |
| | | | | | | | | Sandy Clay, trace siltstone fragments, stiff, light olive, yellow. (%passing #200=61.3) (CH) | | | | | |
| 15 | 4-6-12 | 18 | (2.5) | 45.1 | | | | Fine sandy silt, very stiff, bluish gray, grayish green. | | | | | |
| 20 | 7-21-27 | 48 | (2.5) | 20.0 | | | | Silty fine sand, dense, light olive. | | | | | |
| END OF BORING B-13 AT 20.5 FEET DEPTH. | | | | | | | | | | | | | |
| Note: Groundwater not encountered during drilling. | | | | | | | | | | | | | |

| | | |
|---|--------------------------------------|----------------|
| DATE HOLE | STARTED | COMPLETED |
| | 9-15-20 | 9-15-20 |
| ELEVATION TOP OF HOLE | 316.43 (96.45 mts) | |
| ELEVATION GROUND WATER | | |
| LOCATION (Coordinates or Station) | N 261,198.1 E 246,145.2 | |
| NAME OF DRILLER | DRILLING EQUIPMENT | METHOD |
| R. Ferrer | CME-55 | SPT |
| w _n WATER CONTENT IN % | q _u () PENETROMETER, TSF | |
| N BLOWS FROM S. P. T. (ASTM D-1586) | LL LIQUID LIMIT IN % | |
| q _u UNCONFINED COMPRESSIVE STRENGTH, TSF | PL PLASTIC LIMIT IN % | |
| WATER TABLE OR PHREATIC LEVEL | PI PLASTICITY INDEX IN % | |




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 AMELIA DISTRIBUTION CENTER, EMMA ST. 26A, GUAYNABO, PR 00968

MIRADORES PARQUE ESCORIAL II, CAROLINA, PR

| | | |
|----------|-------------------------|-------------|
| APPROVED | PROJECT No. 5421 | BORING No. |
| | 1 OF 1 SHEETS | B-13 |

| DEPTH M FT | BLOWS ON SAMPLER | N | q _u | w _n | LL | PI | Symbol | DESCRIPTION | q _u | | | | |
|---|------------------------|---|----------------|----------------|------|----|---------|---|----------------|----|----|----|----|
| | | | | | | | | | 1 | 2 | 3 | 4 | 5 |
| | | | | | | | | | w ● 10 | 20 | 30 | 40 | 50 |
| | | | | | | | | | N ⊗ 10 | 20 | 30 | 40 | 50 |
| 7-9-10 | 19 | | 21.3 | | | | x x x x | Weathered siltstone, sampled as clayey silt, little sand and gravel; very stiff, red, weak red, yellow. | | | | | |
| 12-15-17 | 32 | | 24.2 | | | | x x x x | -trace gravel; | | | | | |
| 5 6-13-17 | 30 | | 26.8 | | | | | Clay, little silt, trace to little sand and siltstone fragments, trace roots; hard, red. | | | | | |
| 9-11-14 | 25 | | 26.7 | | | | | -little siltstone fragments; very stiff. | | | | | |
| 10 9-16-18 | 34 | | 22.4 | 69.0 | 38.0 | | | -little sand, trace siltstone fragments (% passing #200 = 79.6) (CH) | | | | | |
| 15 7-8-9 | 17 | | 30.5 | | | | | -very stiff. | | | | | |
| 20 15-20-24 | 44 | | 15.4 | | | | x x x x | Weathered siltstone, sampled as silt, little to some sand, little clay and gravel; weak red, red. | | | | | |
| <p>END OF BORING NO. B-14 AT 20.5 FEET DEPTH.</p> <p>Note: Groundwater not encountered during drilling.</p> | | | | | | | | | | | | | |

| | | |
|---|--------------------------------------|----------------|
| DATE HOLE | STARTED | COMPLETED |
| | 9-21-20 | 9-21-20 |
| ELEVATION TOP OF HOLE | 329.65 (100.48 mts) | |
| ELEVATION GROUND WATER | | |
| LOCATION (Coordinates or Station) | N 261,230.4 E 246,168.4 | |
| NAME OF DRILLER | DRILLING EQUIPMENT | METHOD |
| R Ferrer | CME-55 | SPT |
| w _n WATER CONTENT IN % | q _u () PENETROMETER, TSF | |
| N BLOWS FROM S. P. T. (ASTM D-1586) | LL LIQUID LIMIT IN % | |
| q _u UNCONFINED COMPRESSIVE STRENGTH, TSF | PL PLASTIC LIMIT IN % | |
| WATER TABLE OR PHREATIC LEVEL | PI PLASTICITY INDEX IN % | |



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MIRADORES PARQUE ESCORIAL II, CAROLINA, PR

| | | |
|----------|-------------------------|-------------|
| APPROVED | PROJECT No. 5421 | BORING No. |
| | 1 OF 1 SHEETS | B-14 |

| DEPTH M FT | BLOWS ON SAMPLER | N | q _u | w _n | LL | PI | Symbol | DESCRIPTION | q _u | | | | |
|---------------|------------------------|------------|----------------|----------------|------|------|--------|---|----------------|----|----|----|----|
| | | | | | | | | | 1 | 2 | 3 | 4 | 5 |
| | 3-5-8 | 13 | | 23.5 | | | | Fill: Clay, little gravel (siltstone), trace to little cement fragments, trace sand, stiff, red, brown light gray. | 10 | 20 | 30 | 40 | 50 |
| | 6-12-18 | 30 | | 24.9 | | | | Fill: Silt, little to some gravel (siltstone), little sand, hard, yellow, red, pale yellow. | 10 | 20 | 30 | 40 | 50 |
| 5 | 17-46-50/3" | 100 (4.5+) | | 19.0 | | | | Weathered siltstone, sampled as silt, little sand and gravel, very dense, yellow, weak red. | 10 | 20 | 30 | 40 | 50 |
| | 24-36-50/2" | 100 | | 21.1 | | | | -sampled as: Silt, little siltstone fragments, trace to little sand, hard, red, weak red, yellow (oxidized surfaces). | 10 | 20 | 30 | 40 | 50 |
| 10 | 21-29-50/4" | 100 (2.75) | | 52.4 | 92.0 | 56.0 | | Clay, some sand, little siltstone fragments, hard, red, weak red, yellow (oxidized surfaces) (% passing #200 = 59.3) (CH) | 10 | 20 | 30 | 40 | 50 |
| | 28-50/4" | 100 (4.0) | | 20.6 | | | | -trace silt. | 10 | 20 | 30 | 40 | 50 |
| 15 | | | | | | | | | 10 | 20 | 30 | 40 | 50 |
| | 45-50/2" | 100 (4.5+) | | 35.5 | | | | -trace to little silt, oxidized streaks, red, yellow, black, weak red. | 10 | 20 | 30 | 40 | 50 |
| 20 | | | | | | | | END OF BORING B-15 AT 19.67 FEET DEPTH. | 10 | 20 | 30 | 40 | 50 |

Note:
Groundwater not encountered during drilling.

| | | |
|--------------------------|--------------------------------------|-----------------------|
| DATE HOLE | STARTED | COMPLETED |
| | 9-15-20 | 9-15-20 |
| ELEVATION TOP OF HOLE | 386.08 (117.68 mts) | |
| ELEVATION GROUND WATER | | |
| LOCATION | N 261,270.6 E 246,213.2 | |
| (Coordinates or Station) | | |
| NAME OF DRILLER | DRILLING EQUIPMENT | METHOD |
| Ruedly Ferrer | CME55 | SPT |
| w _n | WATER CONTENT IN % | |
| N | BLOWS FROM S. P. T. (ASTM D-1586) | |
| q _u | UNCONFINED COMPRESSIVE STRENGTH, TSF | |
| Y | WATER TABLE OR PHREATIC LEVEL | |
| | q _u | () PENETROMETER, TSF |
| | LL | LIQUID LIMIT IN % |
| | PL | PLASTIC LIMIT IN % |
| | PI | PLASTICITY INDEX IN % |



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 AMELIA DISTRIBUTION CENTER, EMMA ST. 26A, GUAYNABO, PR 00968

MIRADORES PARQUE ESCORIAL II, CAROLINA, PR

| | | |
|----------|-------------------------|-------------|
| APPROVED | PROJECT No. 5421 | BORING No. |
| | 1 OF 1 SHEETS | B-15 |

| DEPTH M FT | BLOWS ON SAMPLER | N | q _u | w _n | LL | PI | Symbol | DESCRIPTION | q _u | | | | |
|---|------------------------|-----|----------------|----------------|------|------|--------|---|----------------|----|----|----|----|
| | | | | | | | | | 1 | 2 | 3 | 4 | 5 |
| | | | | | | | | | w ● 10 | 20 | 30 | 40 | 50 |
| | | | | | | | | | N ⊗ 10 | 20 | 30 | 40 | 50 |
| 5-8 | 7 | 15 | | 20.3 | | | | Fill: Silt, some siltstone gravel, trace to little sand, very stiff, yellow, brown, red. | | | | | |
| 3-4 | 4 | 8 | | 24.1 | | | | Clay, little silt and siltstone, trace to little sand, stiff, red, yellow, brown. | | | | | |
| 8-14 | 15 | 29 | | 21.3 | | | | Siltstone fragments (mod. strong); little to some clay, trace silt and sand, very stiff, yellow, pale yellow, red. | | | | | |
| 8-9 | 9 | 18 | | 13.0 | 57.0 | 37.0 | | Clay, some siltstone fragments and sand, very stiff to stiff, yellow, pale yellow, red. (%passing #200 = 40.0) (GC) | | | | | |
| 11-9 | 5 | 14 | | 19.2 | | | | -little silt. | | | | | |
| 50/4" | | 100 | | 19.0 | | | | Siltstone, mod. weathered, mod. strong; little sand, trace silt, brownish yellow, brown, oxidized surfaces. | | | | | |
| 50/5" | | 100 | | 13.8 | | | | -trace to little clay. | | | | | |
| END OF BORING B-16 AT 19.42 FEET DEPTH. | | | | | | | | | | | | | |
| Note: Groundwater not encountered during drilling. | | | | | | | | | | | | | |

| | | | | |
|--------------------------|--------------------------------------|-------------------------|-----------------------|---------|
| DATE HOLE | STARTED | 9-14-20 | COMPLETED | 9-14-20 |
| ELEVATION TOP OF HOLE | | 386.54 (117.82 mts) | | |
| ELEVATION GROUND WATER | | | | |
| LOCATION | | N 261,276.6 E 246,252.7 | | |
| (Coordinates or Station) | | | | |
| NAME OF DRILLER | DRILLING EQUIPMENT | METHOD | | |
| Ruedly Ferrer | CME55 | SPT | | |
| w _n | WATER CONTENT IN % | q _u | () PENETROMETER, TSF | |
| N | BLOWS FROM S. P. T. (ASTM D-1586) | LL | LIQUID LIMIT IN % | |
| q _u | UNCONFINED COMPRESSIVE STRENGTH, TSF | PL | PLASTIC LIMIT IN % | |
| ∇ | WATER TABLE OR PHREATIC LEVEL | PI | PLASTICITY INDEX IN % | |

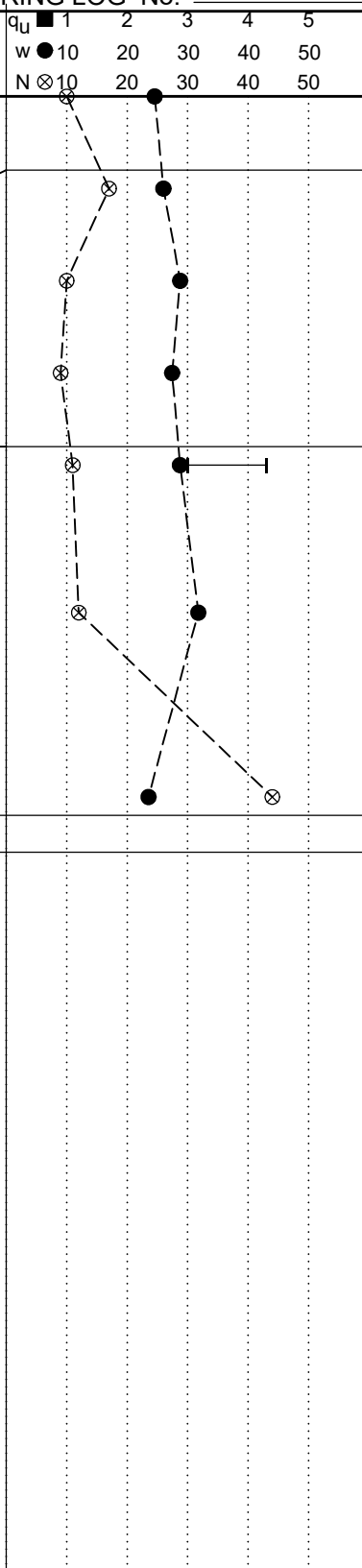


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MIRADORES PARQUE ESCORIAL II, CAROLINA, PR

| | | |
|----------|-------------------------|-------------|
| APPROVED | PROJECT No. 5421 | BORING No. |
| | 1 OF 1 SHEETS | B-16 |

| DEPTH M FT | BLOWS ON SAMPLER | N | q _u | w _n | LL | PI | Symbol | DESCRIPTION | q _u | | | | |
|---------------|------------------------|----|----------------|----------------|------|------|--------|---|----------------|----|----|----|----|
| | | | | | | | | | 1 | 2 | 3 | 4 | 5 |
| | | | | | | | | | w ● 10 | 20 | 30 | 40 | 50 |
| | | | | | | | | | N ⊗ 10 | 20 | 30 | 40 | 50 |
| 5 | 4-5-5 | 10 | (4.5) | 24.5 | | | | Fill: Silt, little to some gravel (siltstone fragments), trace sand and roots; stiff, brown, red, weak red. | | | | | |
| | 8-8-9 | 17 | (4.5) | 26.0 | | | | Fill: Clay, trace to little gravel (siltstone), trace sand, very stiff, brown, yellow, weak red. | | | | | |
| | 3-4-6 | 10 | (4.5+) | 28.8 | | | | -trace to little silt, trace roots and organic debris; stiff. | | | | | |
| | 5-4-5 | 9 | | 27.4 | | | | -some gravel (siltstone), little wood fragments. | | | | | |
| 10 | 5-4-7 | 11 | (1.0) | 28.7 | 43.0 | 13.0 | | Fill: Silt, some gravel (siltstone fragments), and silt and roots, stiff, brown, red. (% passing #200 = 38.3) (GM) | | | | | |
| 15 | 12-6-6 | 12 | | 31.8 | | | | -large wood fragments, trace roots and gravel. | | | | | |
| 20 | 14-19-25 | 44 | (4.5) | 23.5 | | | | -large wood fragment. | | | | | |
| | | | | | | | | Silt, little to some siltstone fragment, little sand, hard to dense, red, weak red. END OF BORING B-17 AT 20.5 FEET DEPTH. | | | | | |



| | | |
|---|--------------------------------------|-------------------------|
| DATE HOLE | STARTED | COMPLETED |
| | 9-15-20 | 9-15-20 |
| ELEVATION TOP OF HOLE | 348.88 (106.34 mts) | |
| ELEVATION GROUND WATER | | |
| LOCATION (Coordinates or Station) | N 261,334.5 E 246,155.5 | |
| NAME OF DRILLER Ruedly Ferrer | DRILLING EQUIPMENT CME55 | METHOD SPT |
| w _n WATER CONTENT IN % | q _u () PENETROMETER, TSF | APPROVED |
| N BLOWS FROM S. P. T. (ASTM D-1586) | LL LIQUID LIMIT IN % | PROJECT No. 5421 |
| q _u UNCONFINED COMPRESSIVE STRENGTH, TSF | PL PLASTIC LIMIT IN % | BORING No. |
| WATER TABLE OR PHREATIC LEVEL | PI PLASTICITY INDEX IN % | 1 OF 1 SHEETS |

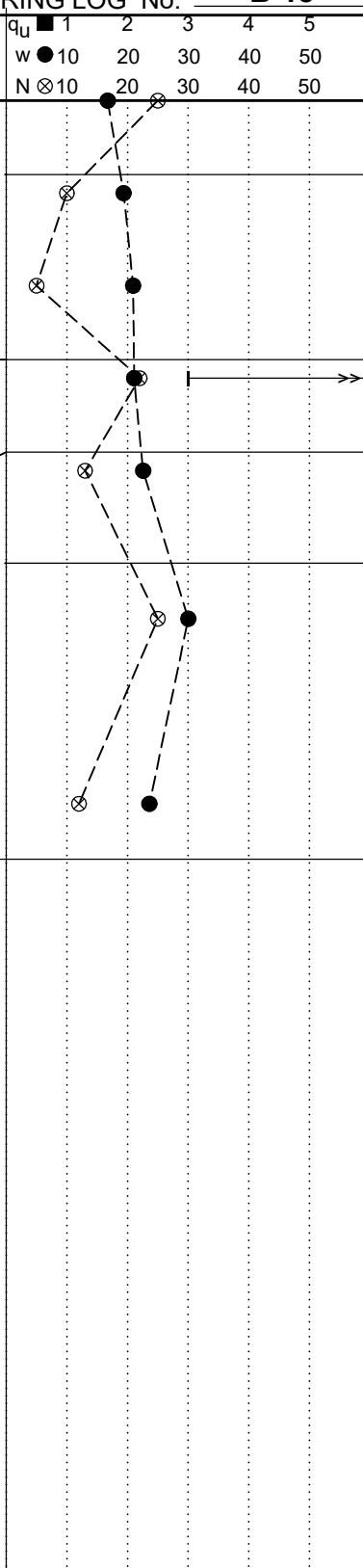


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MIRADORES PARQUE ESCORIAL II, CAROLINA, PR

B-17

| DEPTH M FT | BLOWS ON SAMPLER | N | q _u | w _n | LL | PI | Symbol | DESCRIPTION | q _u | | | | |
|---|------------------------|----|----------------|----------------|------|------|--------|---|----------------|----|----|----|----|
| | | | | | | | | | 1 | 2 | 3 | 4 | 5 |
| | | | | | | | | | w ● 10 | 20 | 30 | 40 | 50 |
| | | | | | | | | | N ⊗ 10 | 20 | 30 | 40 | 50 |
| 5 | 7-10-15 | 25 | | 16.7 | | | | Silt, trace to little sand and siltstone fragments, very stiff, yellowish brown, brown. | | | | | |
| | 6-6-4 | 10 | | 19.4 | | | | Silt, little sand and siltstone fragments, stiff, reddish brown, brown. | | | | | |
| | 2-2-3 | 5 | | 20.9 | | | | -little to some siltstone fragments, little clay; med. stiff. | | | | | |
| 10 | 7-8-14 | 22 | 6.87 | 21.1 | 65.0 | 35.0 | | Clay, trace gravel (siltstone), trace sand, very stiff, brown, red, yellow, light gray. (% passing #200 = 86.2) (CH) | | | | | |
| | 9-7-6 | 13 | | 22.6 | | | | Clayey silt, some siltstone fragments, trace sand, stiff, reddish yellow, yellowish brown. | | | | | |
| 15 | 7-10-15 | 25 | | 30.0 | | | | Clay, little siltstone fragments and silt, trace to little organic debris including wood; very stiff, dark brown, black, yellow, red. | | | | | |
| 20 | 6-6-6 | 12 | | 23.6 | | | | -no wood; brown, weak red, dark brown, yellow. | | | | | |
| END OF BORING B-18 AT 20.5 FEET DEPTH. | | | | | | | | | | | | | |
| Note: Groundwater not encountered during drilling. | | | | | | | | | | | | | |



| | | | | |
|--|--------------------------------------|--------------------|-----------|-----------------------|
| DATE HOLE | STARTED | 9-15-20 | COMPLETED | 9-15-20 |
| ELEVATION TOP OF HOLE | | | | |
| 362.40 (110.46 mts) | | | | |
| ELEVATION GROUND WATER | | | | |
| LOCATION | | | | |
| (Coordinates or Station) N 261,321.9 E 246,231.5 | | | | |
| NAME OF DRILLER | | DRILLING EQUIPMENT | | METHOD |
| R. Ferrer | | CME55 | | SPT |
| w _n | WATER CONTENT IN % | | | q _u |
| N | BLOWS FROM S. P. T. (ASTM D-1586) | | | () PENETROMETER, TSF |
| q _u | UNCONFINED COMPRESSIVE STRENGTH, TSF | | | LL |
| ▼ | WATER TABLE OR PHREATIC LEVEL | | | PL |
| | | | | PI |
| | | | | PLASTICITY INDEX IN % |




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MIRADORES PARQUE ESCORIAL II, CAROLINA, PR

| | | |
|----------|-------------------------|-------------|
| APPROVED | PROJECT No. 5421 | BORING No. |
| | 1 OF 1 SHEETS | B-18 |

| DEPTH M FT | BLOWS ON SAMPLER | N | q _u | w _n | LL | PI | Symbol | DESCRIPTION | q _u | | | | |
|---------------|------------------------|----|----------------|----------------|------|------|--------|--|----------------|----|----|----|----|
| | | | | | | | | | 1 | 2 | 3 | 4 | 5 |
| | | | | | | | | | w ● 10 | 20 | 30 | 40 | 50 |
| | | | | | | | | | N ⊗ 10 | 20 | 30 | 40 | 50 |
| 5 | 4-5-5 | 10 | | 23.9 | | | | Fill: Clay, some siltstone fragments, trace sand and silt, stiff, brown, red, yellow. | | | | | |
| | 7-6-4 | 10 | | 27.0 | | | | | | | | | |
| | 6-7-7 | 14 | | 22.3 | | | | | | | | | |
| 10 | 6-6-7 | 13 | | 32.5 | 51.0 | 22.0 | | Fill: Silt, some gravel (siltstone), and sand, trace to little roots, trace organic debris, stiff, brown, red, yellow. (%passing #200 = 44.2) (GM) | | | | | |
| | 6-10-10 | 20 | | 23.8 | | | | Weathered siltstone, sampled as angular gravel (weak to mod. strong) and silt, little sand and clay; red, pale yellow, brown, white. | | | | | |
| 15 | 6-7-9 | 16 | | 21.2 | | | | -little to some clay; very stiff. | | | | | |
| 20 | 11-15-17 | 32 | | 18.4 | | | | -some clay; hard. | | | | | |
| | | | | | | | | END OF BORING NO. B-19 AT 20.5 FEET DEPTH. | | | | | |
| | | | | | | | | Note: Groundwater not encountered during drilling. | | | | | |

| | | |
|---|--------------------------------------|----------------|
| DATE HOLE | STARTED | COMPLETED |
| | 9-21-20 | 9-21-20 |
| ELEVATION TOP OF HOLE | 334.61 (101.99 mts) | |
| ELEVATION GROUND WATER | | |
| LOCATION (Coordinates or Station) | N 261,327.4 E 246,306.9 | |
| NAME OF DRILLER | DRILLING EQUIPMENT | METHOD |
| R Ferrer | CME-55 | SPT |
| w _n WATER CONTENT IN % | q _u () PENETROMETER, TSF | |
| N BLOWS FROM S. P. T. (ASTM D-1586) | LL LIQUID LIMIT IN % | |
| q _u UNCONFINED COMPRESSIVE STRENGTH, TSF | PL PLASTIC LIMIT IN % | |
| WATER TABLE OR PHREATIC LEVEL | PI PLASTICITY INDEX IN % | |

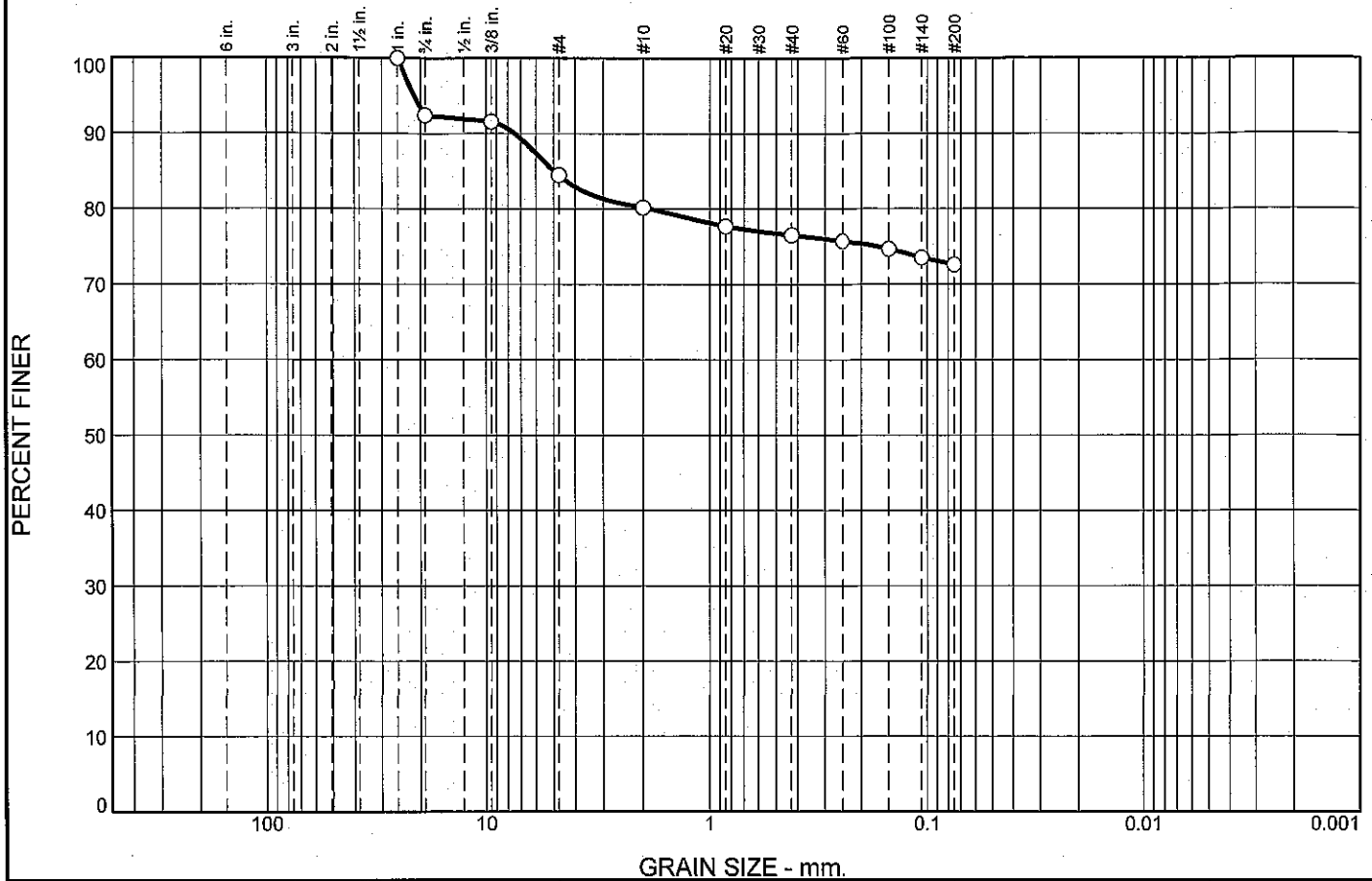


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 AMELIA DISTRIBUTION CENTER, EMMA ST. 26A, GUAYNABO, PR 00968

MIRADORES PARQUE ESCORIAL II, CAROLINA, PR

| | | |
|----------|-------------------------|-------------|
| APPROVED | PROJECT No. 5421 | BORING No. |
| | 1 OF 1 SHEETS | B-19 |

Particle Size Distribution Report



| | | | | |
|-------|----------|--------|--------|--------|
| % +3" | % Gravel | % Sand | % Silt | % Clay |
| 0.0 | 15.5 | 11.9 | 72.6 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| I | 100.0 | | |
| .75 | 92.4 | | |
| .375 | 91.6 | | |
| #4 | 84.5 | | |
| #10 | 80.2 | | |
| #20 | 77.7 | | |
| #40 | 76.5 | | |
| #60 | 75.7 | | |
| #100 | 74.7 | | |
| #140 | 73.5 | | |
| #200 | 72.6 | | |

Material Description

Red Clay, little gravel and little sand.

Atterberg Limits

PL= 43 LL= 124 PI= 81

Coefficients

D₉₀= 7.4693 D₈₅= 4.9807 D₆₀=
D₅₀= D₃₀= D₁₅=
D₁₀= C_u= C_c=

Classification

USCS= CH AASHTO= A-7-5(65)

Remarks

* (no specification provided)

Source of Sample: Boring No. 1 Depth: 7'-6" - 9'
Sample Number: 4

Date: 10/2/2020



Client: HT HOLDINGS, LLC
Project: MIRADORES PARQUE ESCORIAL II
CAROLINA, PR
Project No: 5421

Tested By: N.Orengo Checked By: _____

GRAIN SIZE DISTRIBUTION TEST DATA

10/2/2020

Client: HT HOLDINGS, LLC
Project: MIRADORES PARQUE ESCORIAL II
 CAROLINA, PR

Project Number: 5421

Location: Boring No. 1

Depth: 7'-6" - 9'

Sample Number: 4

Material Description: Red Clay, little gravel and little sand.

Date: 10/2/2020

PL: 43

LL: 124

PI: 81

USCS Classification: CH

AASHTO Classification: A-7-5(65)

Tested by: N.Orengo

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 386.89
 Tare Wt. = 343.70
 Minus #200 from wash = 72.4%

| Dry Sample and Tare (grams) | Tare (grams) | Sieve Opening Size | Weight Retained (grams) | Sieve Weight (grams) | Percent Finer |
|-----------------------------|--------------|--------------------|-------------------------|----------------------|---------------|
| 500.20 | 343.70 | 1 | 0.00 | 0.00 | 100.0 |
| | | .75 | 11.86 | 0.00 | 92.4 |
| | | .375 | 1.36 | 0.00 | 91.6 |
| | | #4 | 11.09 | 0.00 | 84.5 |
| | | #10 | 6.71 | 0.00 | 80.2 |
| | | #20 | 3.87 | 0.00 | 77.7 |
| | | #40 | 1.84 | 0.00 | 76.5 |
| | | #60 | 1.24 | 0.00 | 75.7 |
| | | #100 | 1.68 | 0.00 | 74.7 |
| | | #140 | 1.77 | 0.00 | 73.5 |
| | | #200 | 1.42 | 0.00 | 72.6 |

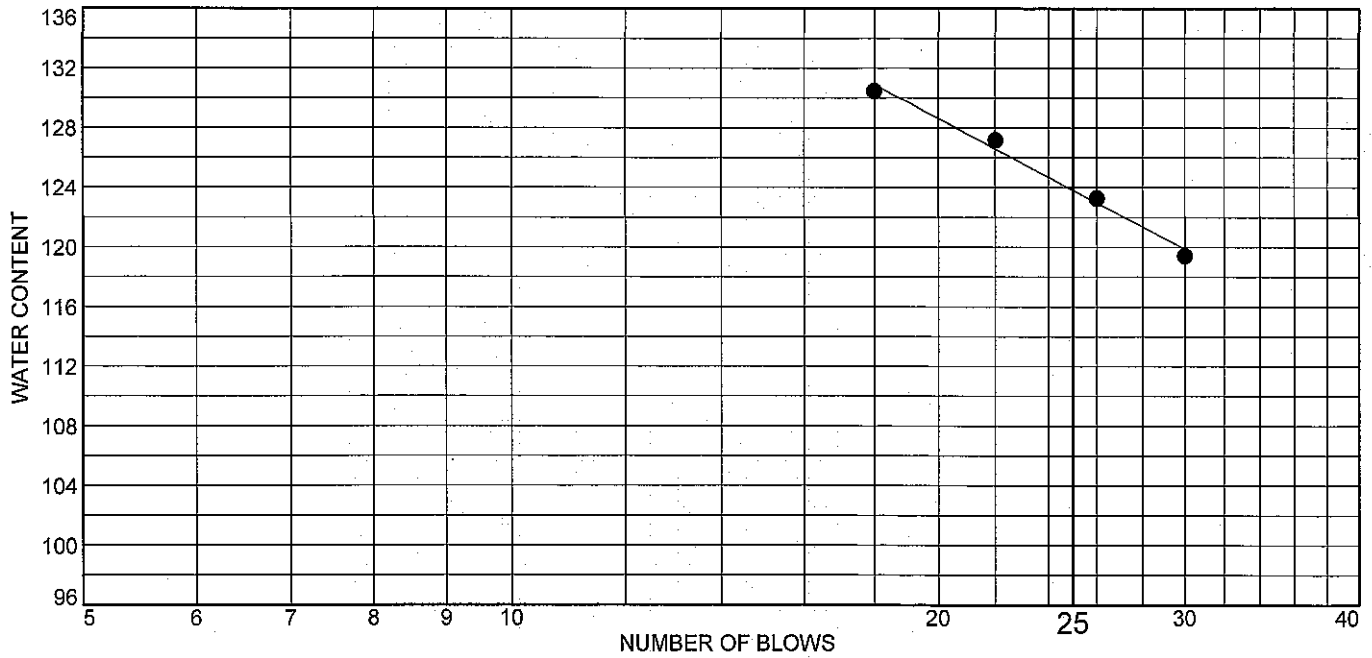
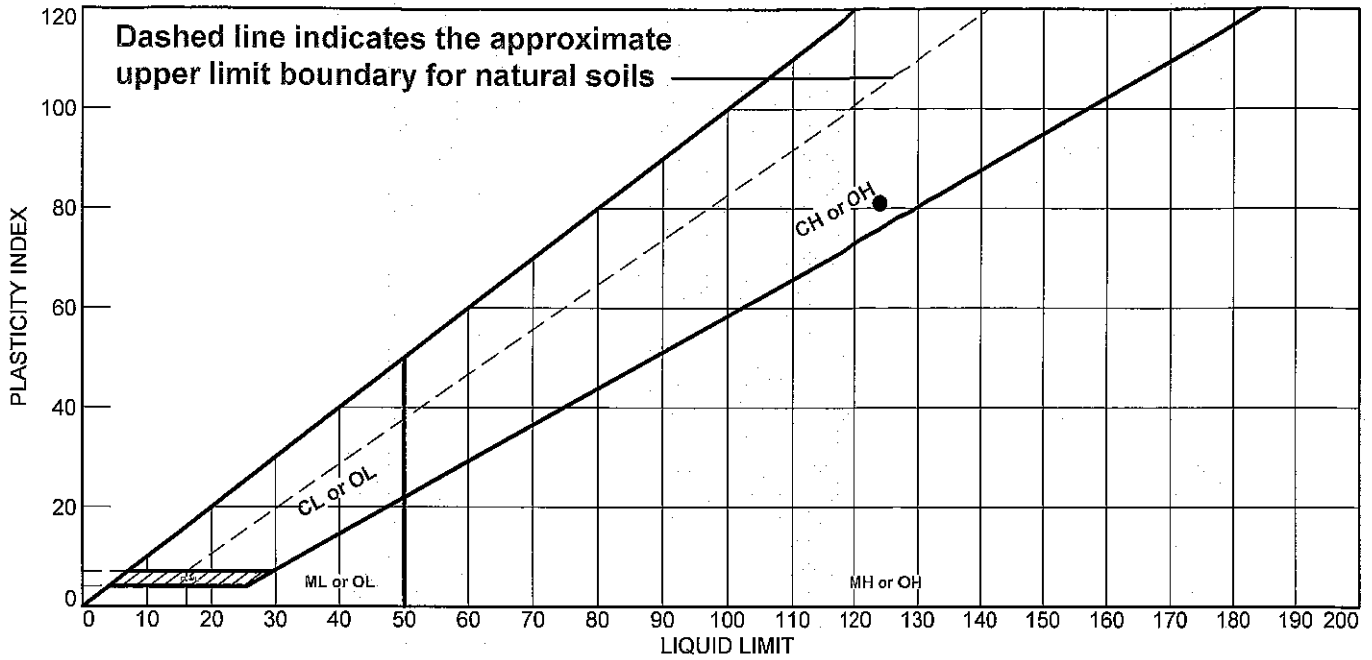
Fractional Components

| Cobbles | Gravel | Sand | Silt | Clay |
|---------|--------|------|------|------|
| 0.0 | 15.5 | 11.9 | | |

| D ₅ | D ₁₀ | D ₁₅ | D ₂₀ | D ₃₀ | D ₄₀ | D ₅₀ | D ₆₀ | D ₈₀ | D ₈₅ | D ₉₀ | D ₉₅ |
|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | | | | | | | | 1.8708 | 4.9807 | 7.4693 | 21.4089 |

| |
|-------------------------|
| Fineness Modulus |
| 1.45 |

LIQUID AND PLASTIC LIMITS TEST REPORT



| MATERIAL DESCRIPTION | LL | PL | PI | %<#40 | %<#200 | USCS |
|--|-----|----|----|-------|--------|------|
| • Red Clay, little gravel and little sand. | 124 | 43 | 81 | 76.5 | 72.6 | CH |

Project No. 5421 Client: HT HOLDINGS, LLC

Project: MIRADORES PARQUE ESCORIAL II

CAROLINA, PR

Source of Sample: Boring No. 1 Depth: 7'-6" - 9"

Sample Number: 4

Remarks:



Tested By: N.Poventud Checked By: _____

LIQUID AND PLASTIC LIMIT TEST DATA

10/2/2020

Client: HT HOLDINGS, LLC
 Project: MIRADORES PARQUE ESCORIAL II
 CAROLINA, PR

Project Number: 5421

Location: Boring No. 1

Depth: 7'-6" - 9'

Sample Number: 4

Material Description: Red Clay, little gravel and little sand.

%<#40: 76.5

%<#200: 72.6

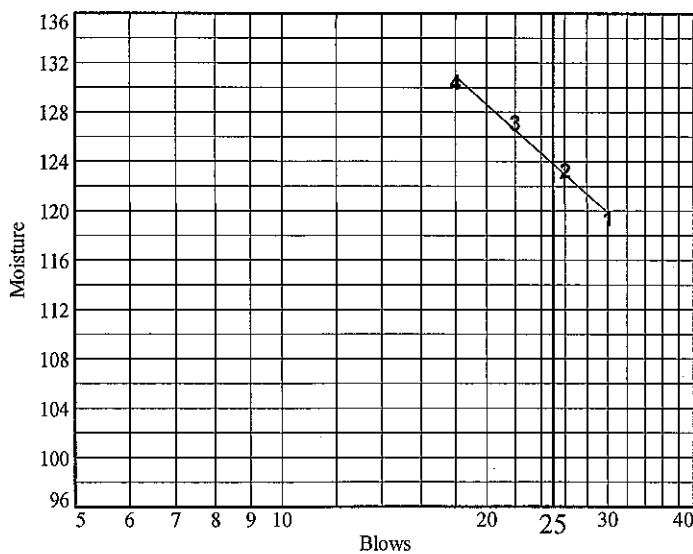
USCS: CH

AASHTO: A-7-5(65)

Tested by: N.Poventud

Liquid Limit Data

| Run No. | 1 | 2 | 3 | 4 | 5 | 6 |
|----------|-------|-------|-------|-------|---|---|
| Wet+Tare | 21.77 | 21.83 | 21.45 | 21.47 | | |
| Dry+Tare | 17.28 | 17.17 | 16.91 | 16.93 | | |
| Tare | 13.52 | 13.39 | 13.34 | 13.45 | | |
| # Blows | 30 | 26 | 22 | 18 | | |
| Moisture | 119.4 | 123.3 | 127.2 | 130.5 | | |

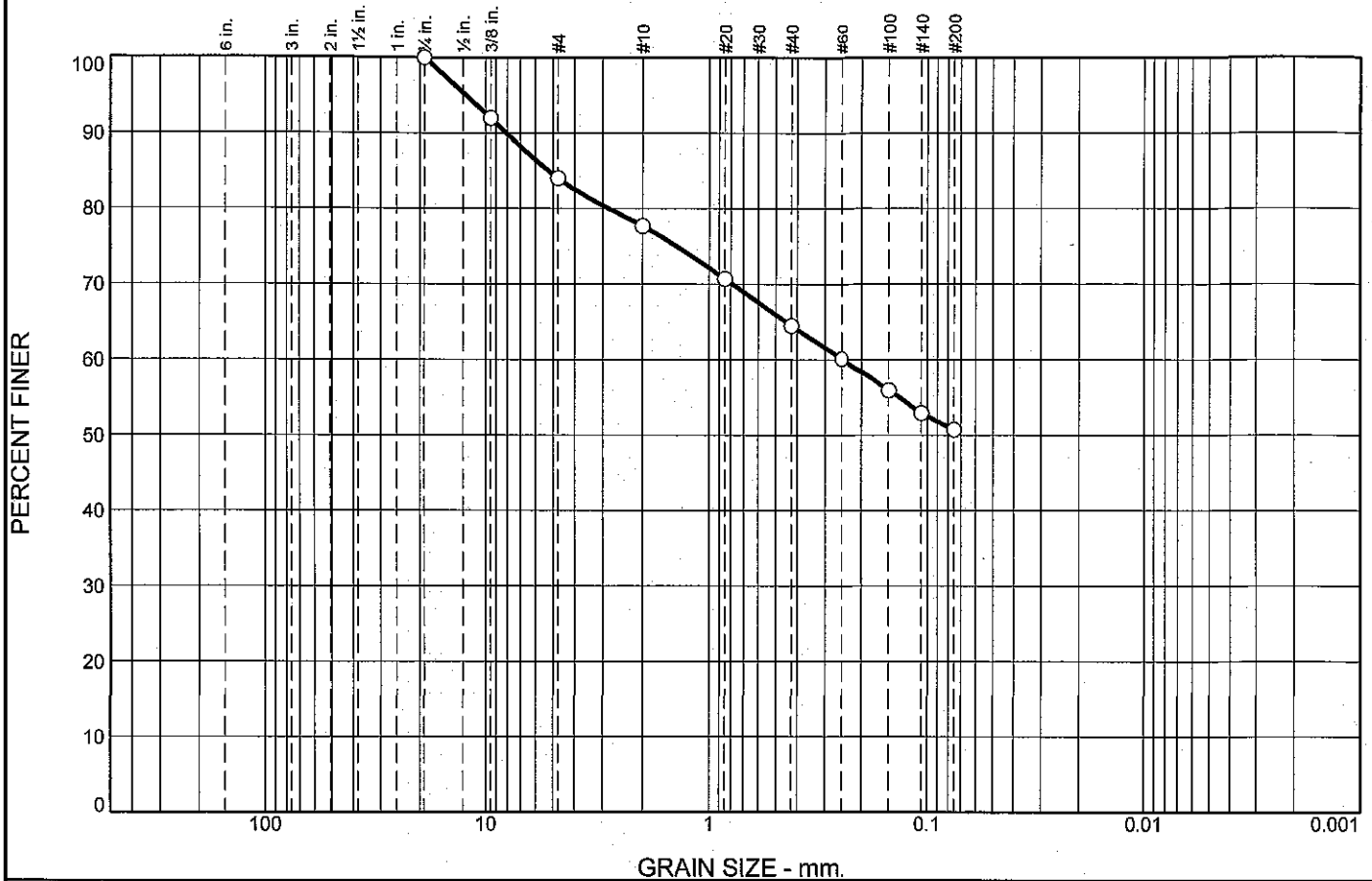


Liquid Limit= 124
 Plastic Limit= 43
 Plasticity Index= 81

Plastic Limit Data

| Run No. | 1 | 2 | 3 | 4 |
|----------|-------|-------|---|---|
| Wet+Tare | 21.96 | 21.14 | | |
| Dry+Tare | 19.38 | 18.87 | | |
| Tare | 13.40 | 13.47 | | |
| Moisture | 43.1 | 42.0 | | |

Particle Size Distribution Report



GRAIN SIZE - mm.

| | | | | |
|-------|----------|--------|--------|--------|
| % +3" | % Gravel | % Sand | % Silt | % Clay |
| 0.0 | 16.0 | 33.3 | 50.7 | 50.7 |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .75 | 100.0 | | |
| .375 | 92.0 | | |
| #4 | 84.0 | | |
| #10 | 77.7 | | |
| #20 | 70.7 | | |
| #40 | 64.5 | | |
| #60 | 60.1 | | |
| #100 | 55.9 | | |
| #140 | 52.9 | | |
| #200 | 50.7 | | |

Material Description

Red Clay, some sand, little gravel.

Atterberg Limits

PL= 31 LL= 61 PI= 30

Coefficients

D₉₀= 8.1109 D₈₅= 5.2480 D₆₀= 0.2466
 D₅₀= D₃₀= D₁₅=
 D₁₀= C_u= C_c=

Classification

USCS= CH AASHTO= A-7-5(12)

Remarks

* (no specification provided)

Source of Sample: Boring No. 2
 Sample Number: 5

Depth: 10' - 11'-6"

Date: 10/2/2020



Client: HT HOLDINGS, LLC
 Project: MIRADORES PARQUE ESCORIAL II
 CAROLINA, PR
 Project No: 5421

Tested By: N.Orengo

Checked By: _____

GRAIN SIZE DISTRIBUTION TEST DATA

10/8/2020

Client: HT HOLDINGS, LLC

Project: MIRADORES PARQUE ESCORIAL II
CAROLINA, PR

Project Number: 5421

Location: Boring No. 2

Depth: 10' - 11'-6"

Sample Number: 5

Material Description: Red Clay, some sand, little gravel.

Date: 10/2/2020

PL: 31

LL: 61

PI: 30

USCS Classification: CH

AASHTO Classification: A-7-5(12)

Tested by: N.Orengo

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 635.91
Tare Wt. = 556.13
Minus #200 from wash = 50.2%

| Dry Sample and Tare (grams) | Tare (grams) | Sieve Opening Size | Weight Retained (grams) | Sieve Weight (grams) | Percent Finer |
|-----------------------------|--------------|--------------------|-------------------------|----------------------|---------------|
| 716.27 | 556.13 | .75 | 0.00 | 0.00 | 100.0 |
| | | .375 | 12.89 | 0.00 | 92.0 |
| | | #4 | 12.71 | 0.00 | 84.0 |
| | | #10 | 10.09 | 0.00 | 77.7 |
| | | #20 | 11.24 | 0.00 | 70.7 |
| | | #40 | 9.89 | 0.00 | 64.5 |
| | | #60 | 7.06 | 0.00 | 60.1 |
| | | #100 | 6.67 | 0.00 | 55.9 |
| | | #140 | 4.82 | 0.00 | 52.9 |
| | | #200 | 3.55 | 0.00 | 50.7 |

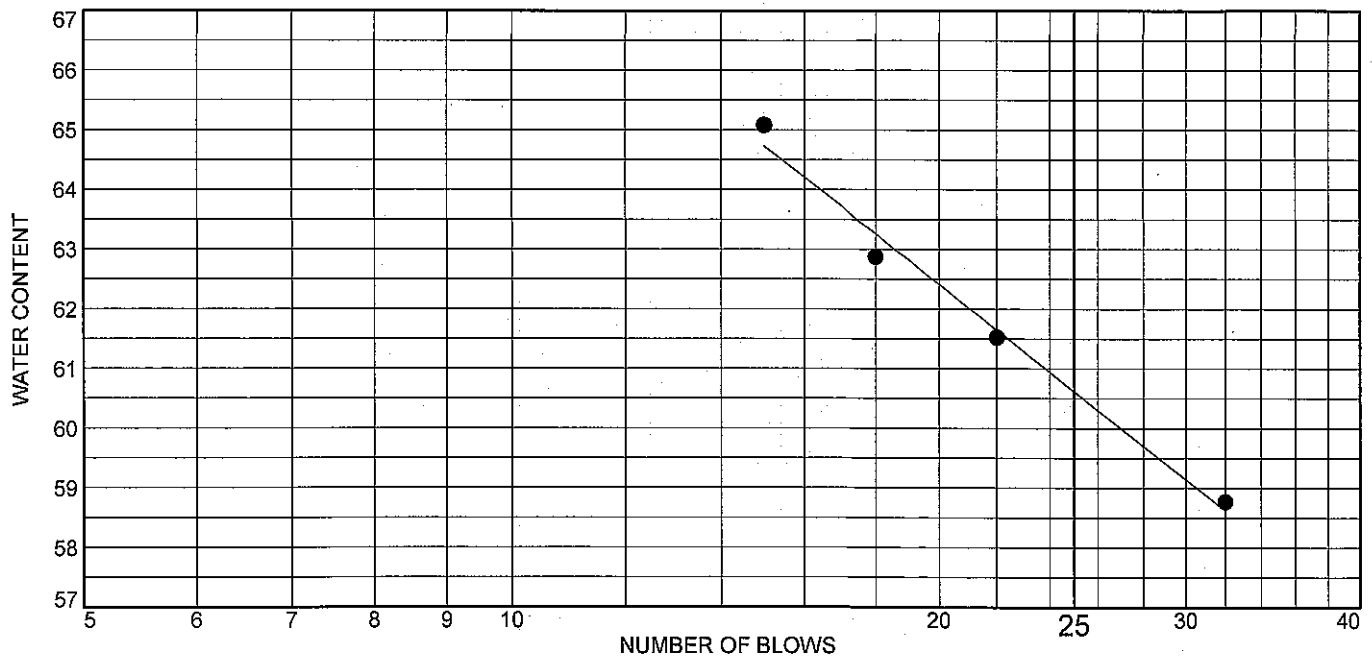
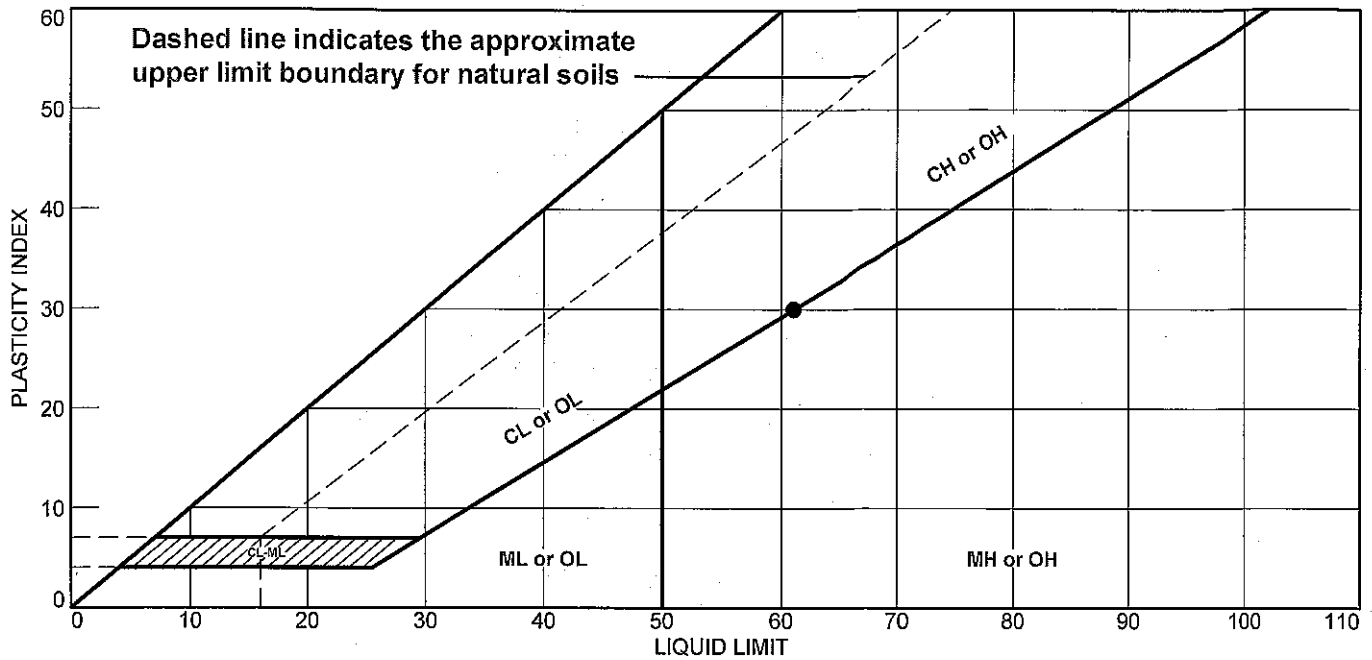
Fractional Components

| Cobbles | Gravel | Sand | Silt | Clay |
|---------|--------|------|------|------|
| 0.0 | 16.0 | 33.3 | | |

| D5 | D10 | D15 | D20 | D30 | D40 | D50 | D60 | D80 | D85 | D90 | D95 |
|----|-----|-----|-----|-----|-----|-----|--------|--------|--------|--------|---------|
| | | | | | | | 0.2466 | 2.8175 | 5.2480 | 8.1109 | 12.3232 |

| |
|-------------------------|
| Fineness Modulus |
| 1.87 |

LIQUID AND PLASTIC LIMITS TEST REPORT



| MATERIAL DESCRIPTION | LL | PL | PI | %<#40 | %<#200 | USCS |
|---------------------------------------|----|----|----|-------|--------|------|
| • Red Clay, some sand, little gravel. | 61 | 31 | 30 | 64.5 | 50.7 | CH |

Project No. 5421 **Client:** HT HOLDINGS, LLC
Project: MIRADORES PARQUE ESCORIAL II
 CAROLINA, PR
Source of Sample: Boring No. 2 **Depth:** 10' - 11'-6"
Sample Number: 5

GeoCim
GEOTECHNICAL TESTING SERVICES

Remarks:

Tested By: N.Poventud **Checked By:** _____

LIQUID AND PLASTIC LIMIT TEST DATA

10/8/2020

Client: HT HOLDINGS, LLC
 Project: MIRADORES PARQUE ESCORIAL II
 CAROLINA, PR

Project Number: 5421

Location: Boring No. 2

Depth: 10' - 11'-6"

Sample Number: 5

Material Description: Red Clay, some sand, little gravel.

%<#40: 64.5

%<#200: 50.7

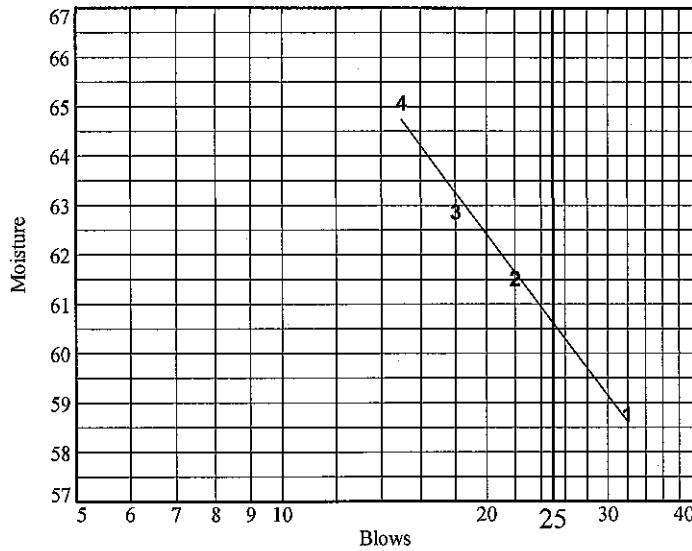
USCS: CH

AASHTO: A-7-5(12)

Tested by: N.Poventud

Liquid Limit Data

| Run No. | 1 | 2 | 3 | 4 | 5 | 6 |
|----------|-------|-------|-------|-------|---|---|
| Wet+Tare | 22.41 | 22.53 | 22.01 | 22.51 | | |
| Dry+Tare | 19.06 | 19.06 | 18.69 | 18.95 | | |
| Tare | 13.36 | 13.42 | 13.41 | 13.48 | | |
| # Blows | 32 | 22 | 18 | 15 | | |
| Moisture | 58.8 | 61.5 | 62.9 | 65.1 | | |

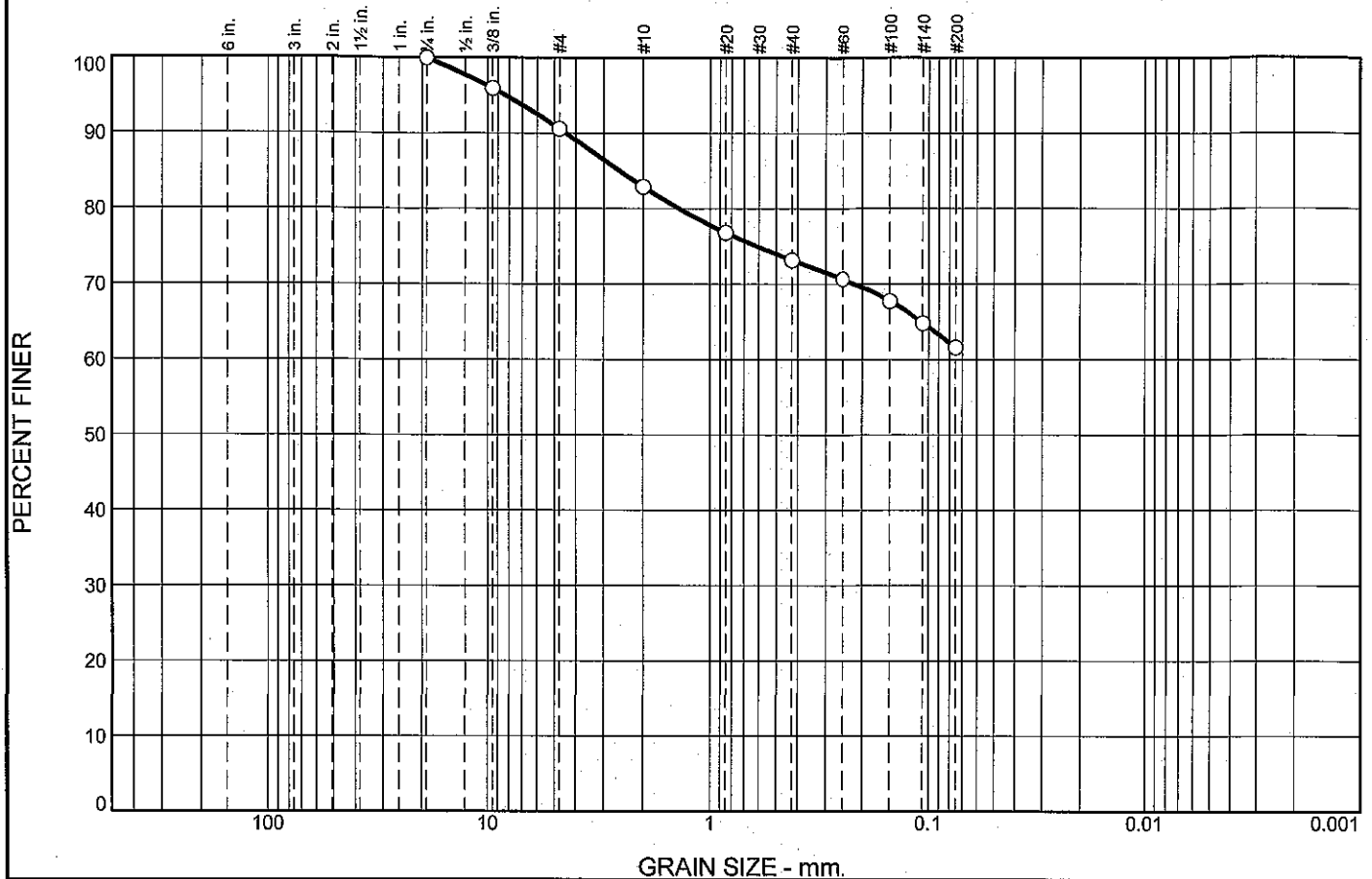


Liquid Limit= 61
 Plastic Limit= 31
 Plasticity Index= 30

Plastic Limit Data

| Run No. | 1 | 2 | 3 | 4 |
|----------|-------|-------|---|---|
| Wet+Tare | 22.08 | 22.34 | | |
| Dry+Tare | 20.00 | 20.21 | | |
| Tare | 13.43 | 13.37 | | |
| Moisture | 31.7 | 31.1 | | |

Particle Size Distribution Report



| % +3" | % Gravel | % Sand | % Silt | % Clay |
|-------|----------|--------|--------|--------|
| 0.0 | 9.4 | 29.0 | 61.6 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .75 | 100.0 | | |
| .375 | 95.9 | | |
| #4 | 90.6 | | |
| #10 | 82.9 | | |
| #20 | 76.8 | | |
| #40 | 73.2 | | |
| #60 | 70.7 | | |
| #100 | 67.7 | | |
| #140 | 64.8 | | |
| #200 | 61.6 | | |

Material Description

Yellowish red Clay, some sand, trace gravel.

Atterberg Limits

PL= 31 LL= 77 PI= 46

Coefficients

D₉₀= 4.4449 D₈₅= 2.5436 D₆₀=
 D₅₀= D₃₀= D₁₅=
 D₁₀= C_u= C_c=

Classification

USCS= CH AASHTO= A-7-5(27)

Remarks

* (no specification provided)

Source of Sample: Boring No. 4
 Sample Number: 6

Depth: 14' - 15'-6"

Date: 10/6/2020



Client: HT HOLDINGS, LLC
 Project: MIRADORES PARQUE ESCORIAL II
 CAROLINA, PR
 Project No: 5421

Tested By: N. Orengo Checked By: _____

GRAIN SIZE DISTRIBUTION TEST DATA

10/6/2020

Client: HT HOLDINGS, LLC

Project: MIRADORES PARQUE ESCORIAL II
CAROLINA, PR

Project Number: 5421

Location: Boring No. 4

Depth: 14' - 15'-6"

Sample Number: 6

Material Description: Yellowish red Clay, some sand, trace gravel.

Date: 10/6/2020

PL: 31

LL: 77

PI: 46

USCS Classification: CH

AASHTO Classification: A-7-5(27)

Tested by: N.Orengo

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 559.70
Tare Wt. = 476.40
Minus #200 from wash = 59.7%

| Dry Sample and Tare (grams) | Tare (grams) | Sieve Opening Size | Weight Retained (grams) | Sieve Weight (grams) | Percent Finer |
|-----------------------------|--------------|--------------------|-------------------------|----------------------|---------------|
| 683.12 | 476.40 | .75 | 0.00 | 0.00 | 100.0 |
| | | .375 | 8.40 | 0.00 | 95.9 |
| | | #4 | 11.08 | 0.00 | 90.6 |
| | | #10 | 15.82 | 0.00 | 82.9 |
| | | #20 | 12.62 | 0.00 | 76.8 |
| | | #40 | 7.47 | 0.00 | 73.2 |
| | | #60 | 5.25 | 0.00 | 70.7 |
| | | #100 | 6.04 | 0.00 | 67.7 |
| | | #140 | 6.09 | 0.00 | 64.8 |
| | | #200 | 6.61 | 0.00 | 61.6 |

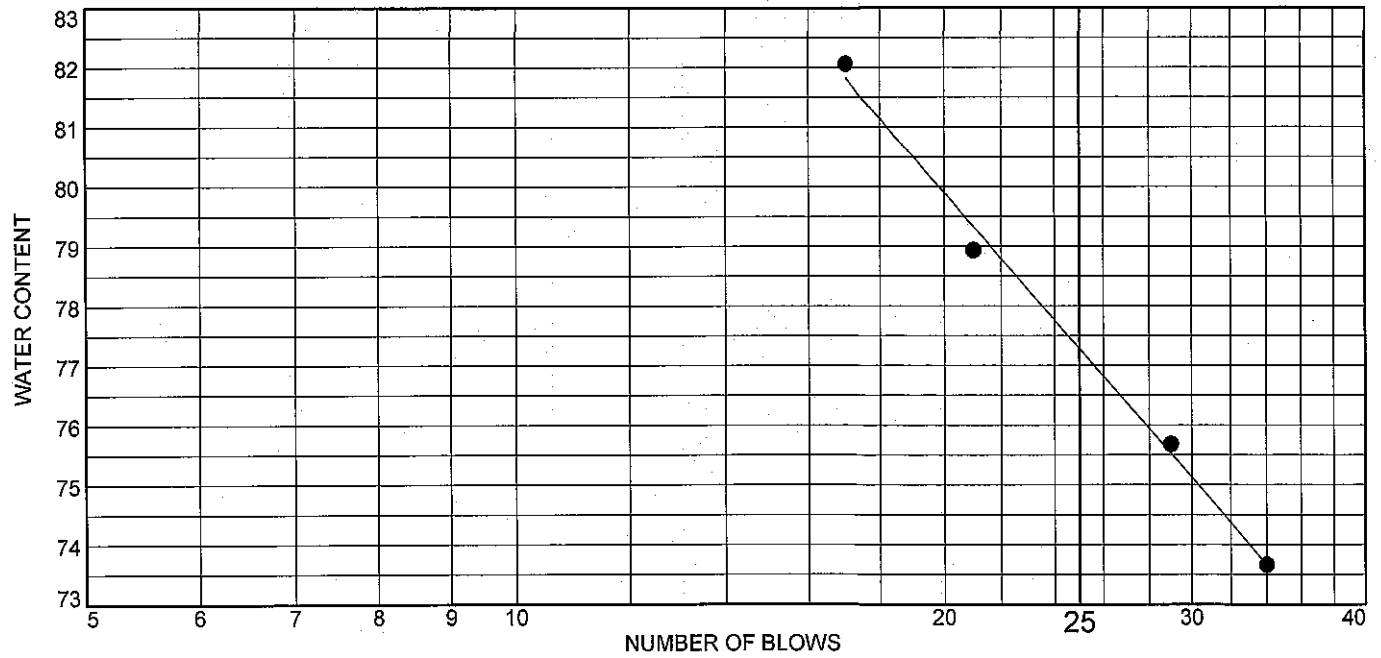
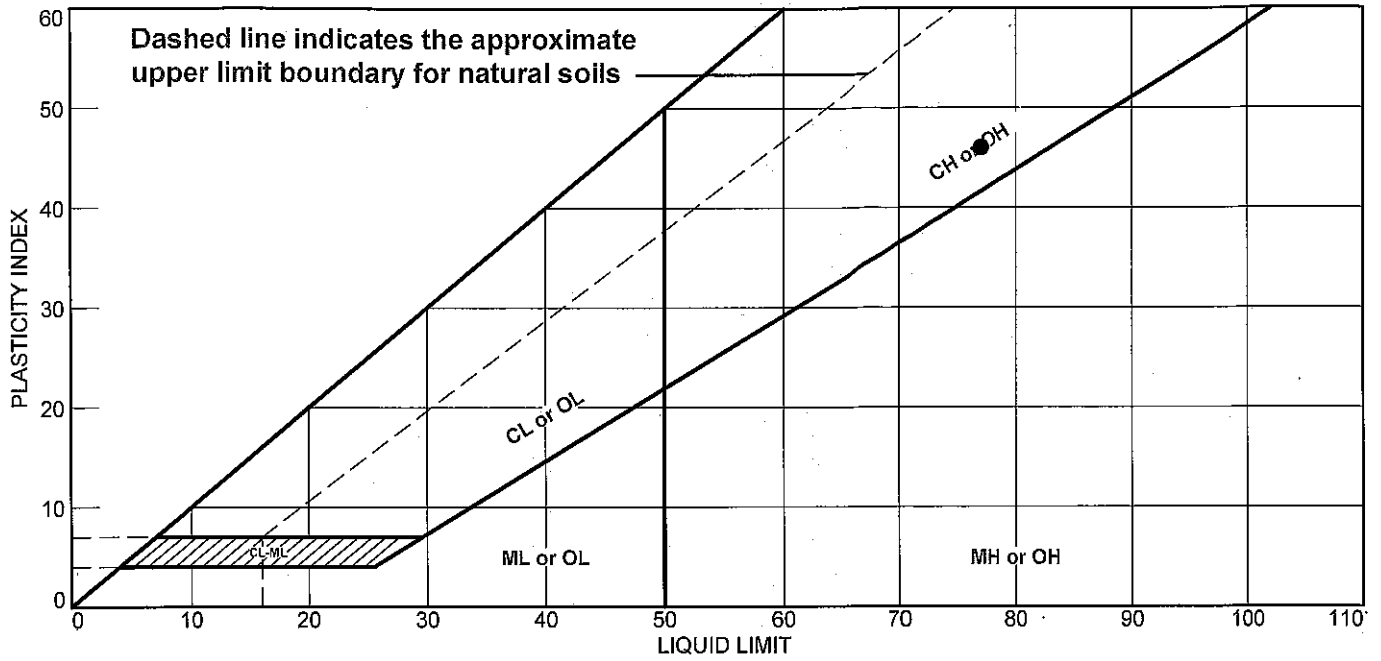
Fractional Components

| Cobbles | Gravel | Sand | Silt | Clay |
|---------|--------|------|------|------|
| 0.0 | 9.4 | 29.0 | | |

| D ₅ | D ₁₀ | D ₁₅ | D ₂₀ | D ₃₀ | D ₄₀ | D ₅₀ | D ₆₀ | D ₈₀ | D ₈₅ | D ₉₀ | D ₉₅ |
|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | | | | | | | | 1.3761 | 2.5436 | 4.4449 | 8.3128 |


| |
|-------------------------|
| Fineness Modulus |
| 1.36 |

LIQUID AND PLASTIC LIMITS TEST REPORT



| MATERIAL DESCRIPTION | LL | PL | PI | %<#40 | %<#200 | USCS |
|--|----|----|----|-------|--------|------|
| • Yellowish red Clay, some sand, trace gravel. | 77 | 31 | 46 | 73.2 | 61.6 | CH |

Project No. 5421 **Client:** HT HOLDINGS, LLC
Project: MIRADORES PARQUE ESCORIAL II
 CAROLINA, PR
Source of Sample: Boring No. 4 **Depth:** 14' - 15'-6"
Sample Number: 6



Remarks:

Tested By: N.Poventud **Checked By:** _____

LIQUID AND PLASTIC LIMIT TEST DATA

10/7/2020

Client: HT HOLDINGS, LLC

Project: MIRADORES PARQUE ESCORIAL II
CAROLINA, PR

Project Number: 5421

Location: Boring No. 4

Depth: 14' - 15'-6"

Sample Number: 6

Material Description: Yellowish red Clay, some sand, trace gravel.

%<#40: 73.2

%<#200: 61.6

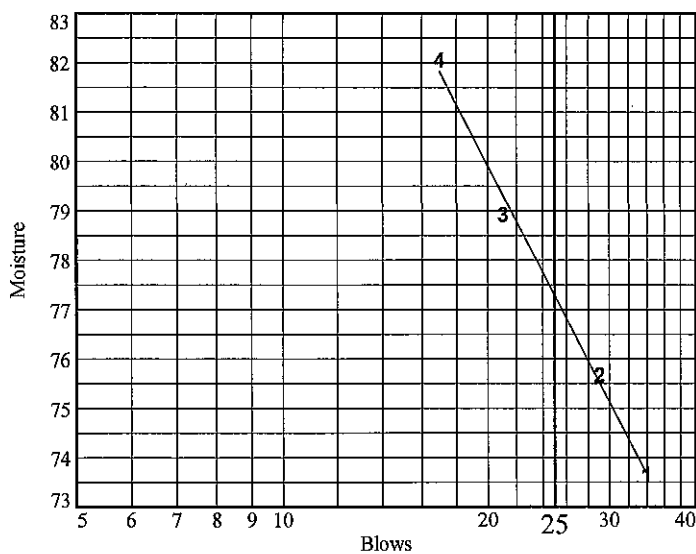
USCS: CH

AASHTO: A-7-5(27)

Tested by: N.Poventud

Liquid Limit Data

| Run No. | 1 | 2 | 3 | 4 | 5 | 6 |
|----------|-------|-------|-------|-------|---|---|
| Wet+Tare | 22.21 | 22.41 | 22.35 | 22.10 | | |
| Dry+Tare | 18.49 | 18.52 | 18.49 | 18.21 | | |
| Tare | 13.44 | 13.38 | 13.60 | 13.47 | | |
| # Blows | 34 | 29 | 21 | 17 | | |
| Moisture | 73.7 | 75.7 | 78.9 | 82.1 | | |

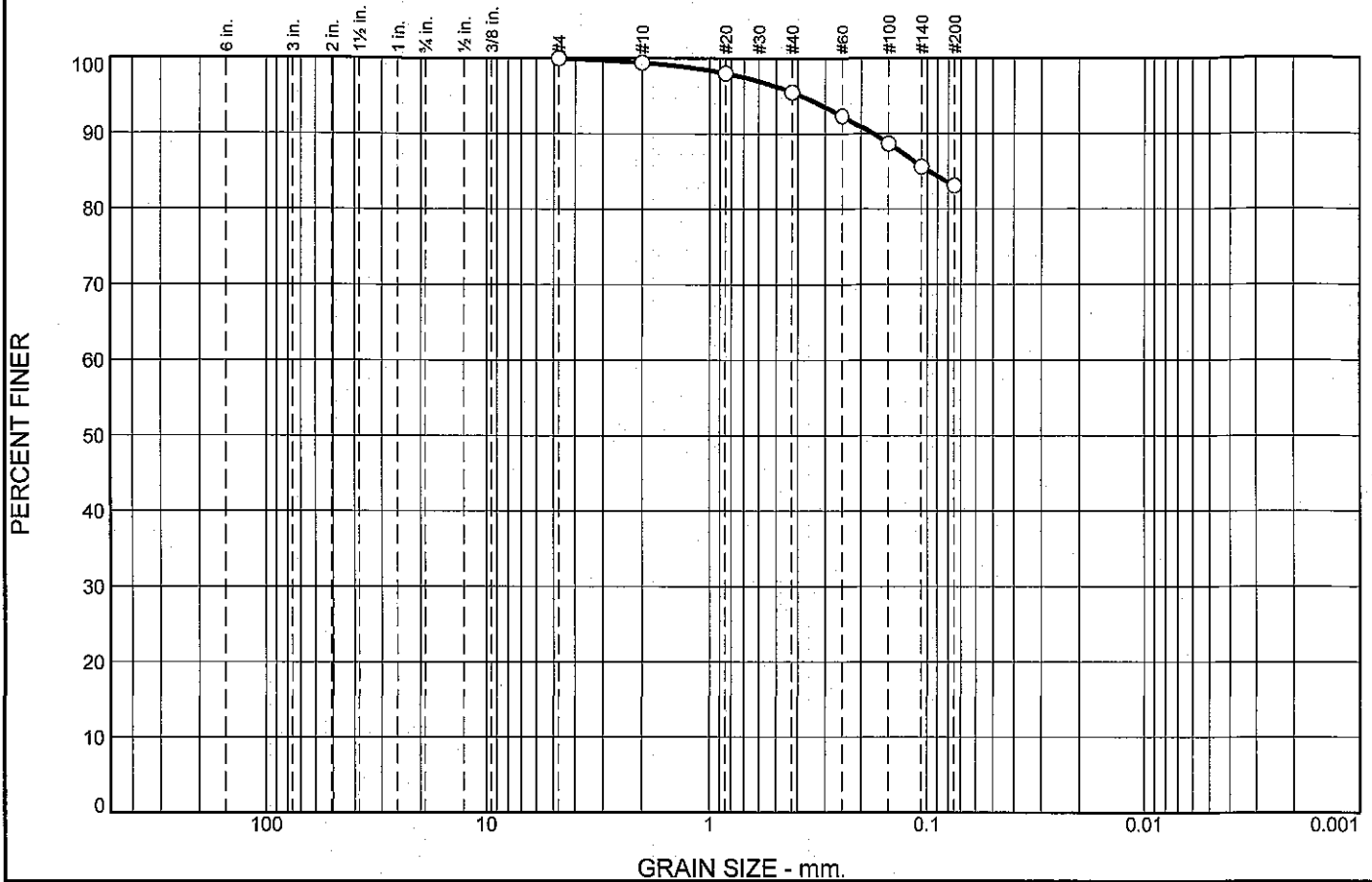


Liquid Limit= 77
 Plastic Limit= 31
 Plasticity Index= 46

Plastic Limit Data

| Run No. | 1 | 2 | 3 | 4 |
|----------|-------|-------|---|---|
| Wet+Tare | 22.12 | 21.82 | | |
| Dry+Tare | 20.04 | 20.04 | | |
| Tare | 13.41 | 14.18 | | |
| Moisture | 31.4 | 30.4 | | |

Particle Size Distribution Report



| | | | | |
|-------|----------|--------|--------|--------|
| % +3" | % Gravel | % Sand | % Silt | % Clay |
| 0.0 | 0.0 | 16.9 | 83.1 | 83.1 |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| #4 | 100.0 | | |
| #10 | 99.4 | | |
| #20 | 98.0 | | |
| #40 | 95.5 | | |
| #60 | 92.3 | | |
| #100 | 88.7 | | |
| #140 | 85.6 | | |
| #200 | 83.1 | | |

Material Description

Strong brown Clay, little sand.

Atterberg Limits

PL= 32 LL= 66 PI= 34

Coefficients

D₉₀= 0.1776 D₈₅= 0.0985 D₆₀=
D₅₀= D₃₀= D₁₅=
D₁₀= C_u= C_c=


Classification

USCS= CH AASHTO= A-7-5(32)

Remarks

* (no specification provided)

Source of Sample: Boring No. 3 Depth: 5' - 6'-6" Date: 10/2/2020
Sample Number: 3

| | |
|---|---|
|  | <p>Client: HT HOLDINGS, LLC</p> <p>Project: MIRADORES PARQUE ESCORIAL II CAROLINA, PR</p> <p>Project No: 5421</p> |
|---|---|

Tested By: N. Orenge Checked By: _____

GRAIN SIZE DISTRIBUTION TEST DATA

10/2/2020

Client: HT HOLDINGS, LLC
Project: MIRADORES PARQUE ESCORIAL II
 CAROLINA, PR

Project Number: 5421

Location: Boring No. 3

Depth: 5' - 6'-6"

Sample Number: 3

Material Description: Strong brown Clay, little sand.

Date: 10/2/2020

PL: 32

LL: 66

PI: 34

USCS Classification: CH

AASHTO Classification: A-7-5(32)

Tested by: N.Orengo

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 580.72
 Tare Wt. = 556.67
 Minus #200 from wash = 82.5%

| Dry Sample and Tare (grams) | Tare (grams) | Sieve Opening Size | Weight Retained (grams) | Sieve Weight (grams) | Percent Finer |
|-----------------------------|--------------|--------------------|-------------------------|----------------------|---------------|
| 694.27 | 556.67 | #4 | 0.00 | 0.00 | 100.0 |
| | | #10 | 0.82 | 0.00 | 99.4 |
| | | #20 | 1.94 | 0.00 | 98.0 |
| | | #40 | 3.46 | 0.00 | 95.5 |
| | | #60 | 4.32 | 0.00 | 92.3 |
| | | #100 | 5.07 | 0.00 | 88.7 |
| | | #140 | 4.23 | 0.00 | 85.6 |
| | | #200 | 3.41 | 0.00 | 83.1 |

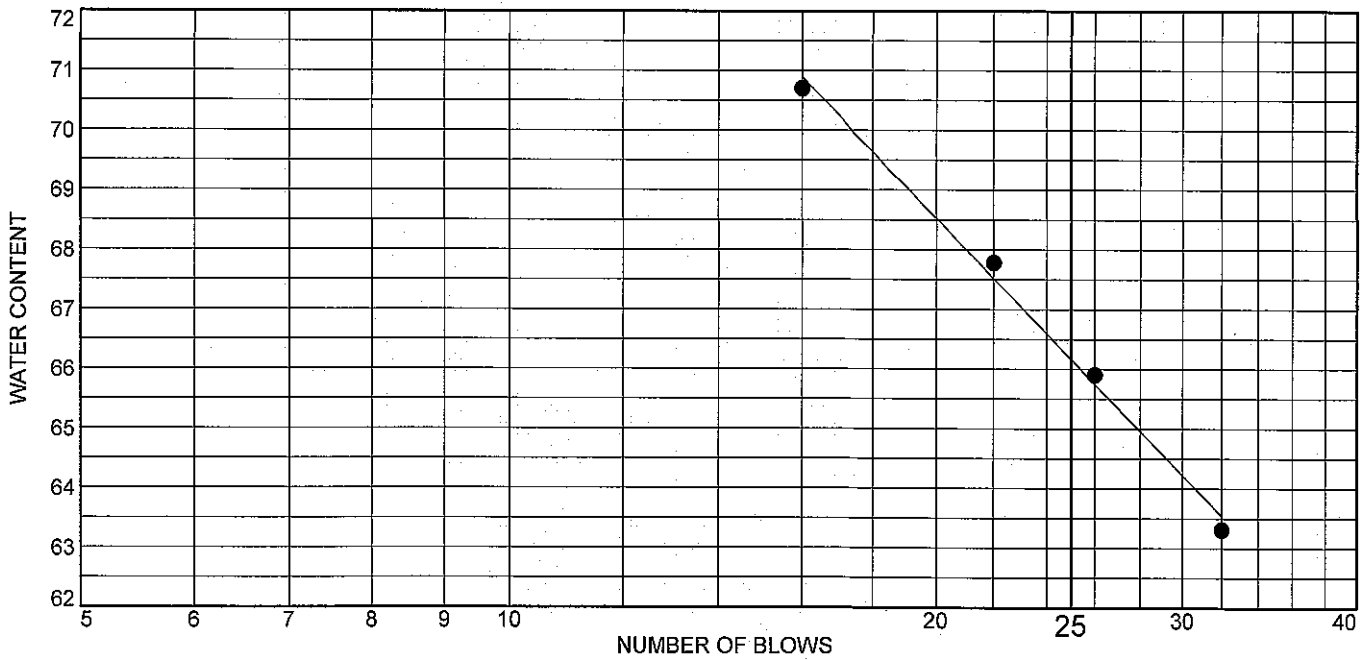
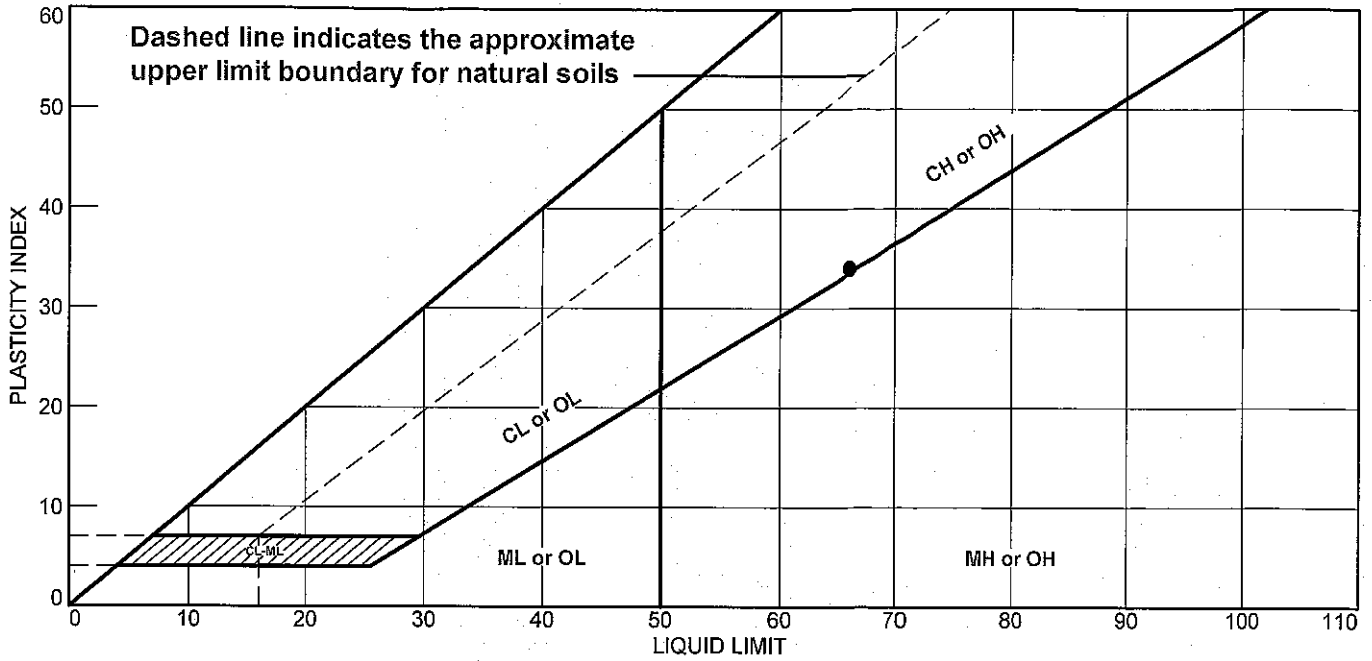
Fractional Components

| Cobbles | Gravel | Sand | Silt | Clay |
|---------|--------|------|------|------|
| 0.0 | 0.0 | 16.9 | | |

| D ₅ | D ₁₀ | D ₁₅ | D ₂₀ | D ₃₀ | D ₄₀ | D ₅₀ | D ₆₀ | D ₈₀ | D ₈₅ | D ₉₀ | D ₉₅ |
|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | | | | | | | | | 0.0985 | 0.1776 | 0.3877 |

| |
|-------------------------|
| Fineness Modulus |
| 0.23 |

LIQUID AND PLASTIC LIMITS TEST REPORT



| MATERIAL DESCRIPTION | LL | PL | PI | %<#40 | %<#200 | USCS |
|-----------------------------------|----|----|----|-------|--------|------|
| • Strong brown Clay, little sand. | 66 | 32 | 34 | 95.5 | 83.1 | CH |

Project No. 5421 **Client:** HT HOLDINGS, LLC
Project: MIRADORES PARQUE ESCORIAL II
 CAROLINA, PR
Source of Sample: Boring No. 3 **Depth:** 5' - 6'-6"
Sample Number: 3

GeoCim
GEOTECHNICAL TESTING SERVICES

Remarks:

Tested By: N. Poventud **Checked By:** _____

LIQUID AND PLASTIC LIMIT TEST DATA

10/2/2020

Client: HT HOLDINGS, LLC
 Project: MIRADORES PARQUE ESCORIAL II
 CAROLINA, PR

Project Number: 5421

Location: Boring No. 3

Depth: 5' - 6'-6"

Sample Number: 3

Material Description: Strong brown Clay, little sand.

%<#40: 95.5

%<#200: 83.1

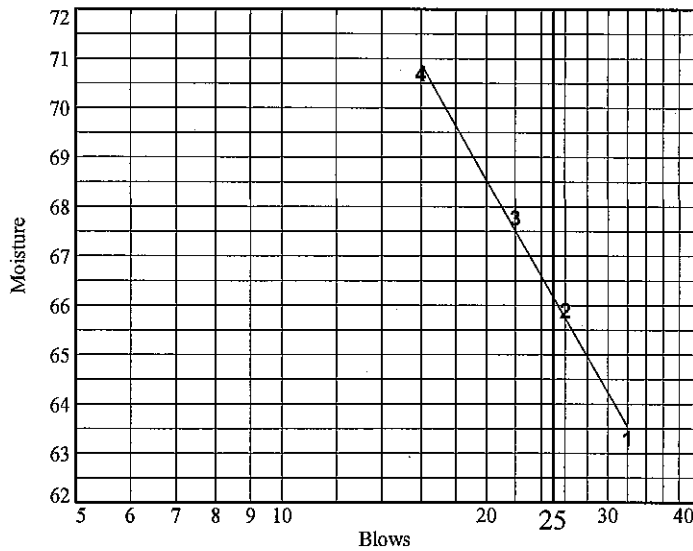
USCS: CH

AASHTO: A-7-5(32)

Tested by: N.Poventud

Liquid Limit Data

| Run No. | 1 | 2 | 3 | 4 | 5 | 6 |
|----------|-------|-------|-------|-------|---|---|
| Wet+Tare | 22.60 | 23.61 | 23.08 | 22.87 | | |
| Dry+Tare | 19.08 | 19.59 | 19.23 | 18.96 | | |
| Tare | 13.52 | 13.49 | 13.55 | 13.43 | | |
| # Blows | 32 | 26 | 22 | 16 | | |
| Moisture | 63.3 | 65.9 | 67.8 | 70.7 | | |

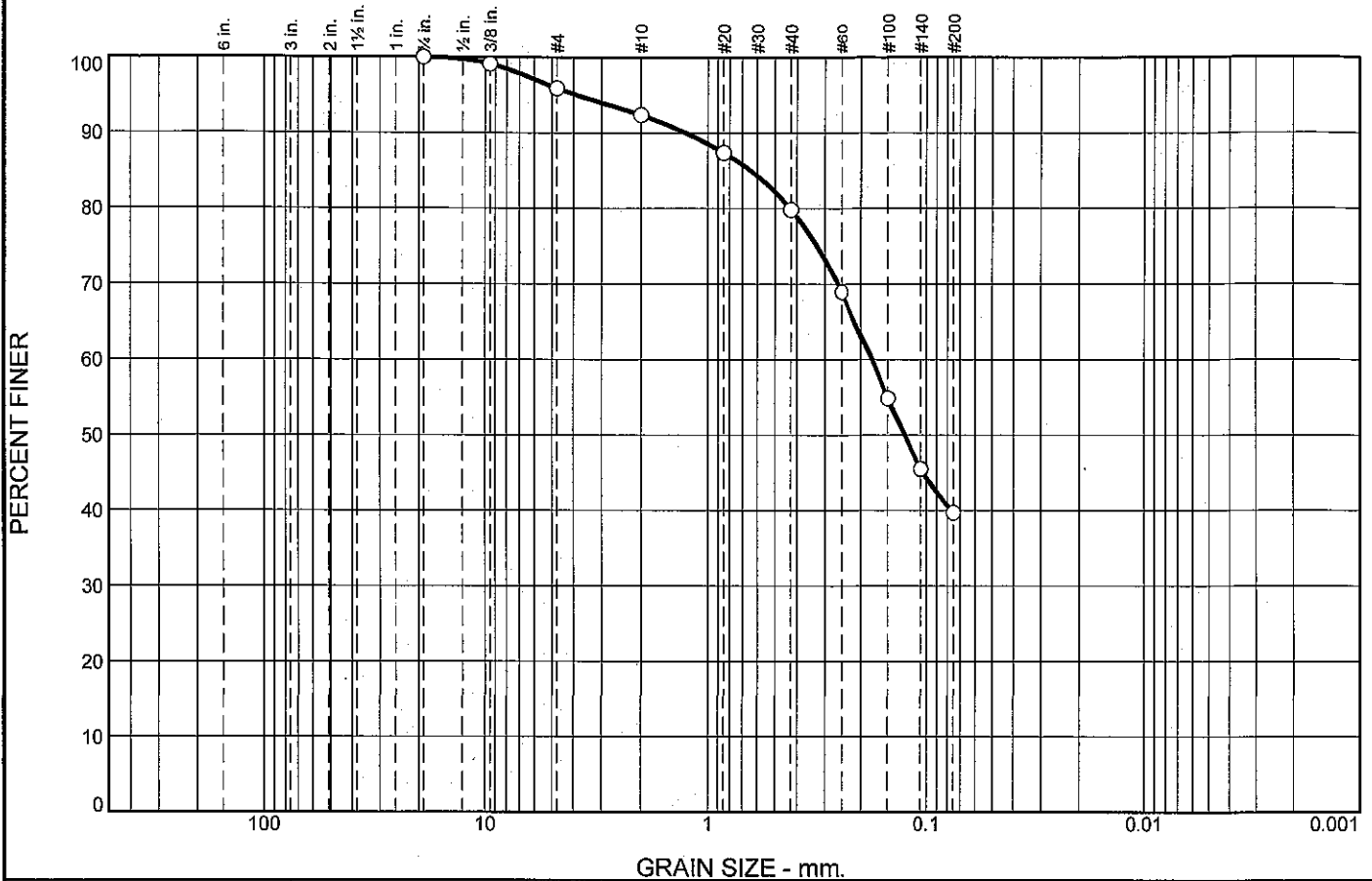


Liquid Limit= 66
 Plastic Limit= 32
 Plasticity Index= 34

Plastic Limit Data

| Run No. | 1 | 2 | 3 | 4 |
|----------|-------|-------|---|---|
| Wet+Tare | 21.43 | 22.25 | | |
| Dry+Tare | 19.46 | 20.07 | | |
| Tare | 13.36 | 13.38 | | |
| Moisture | 32.3 | 32.6 | | |

Particle Size Distribution Report



| % +3" | % Gravel | % Sand | % Silt | % Clay |
|-------|----------|--------|--------|--------|
| 0.0 | 4.1 | 56.2 | 39.7 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .75 | 100.0 | | |
| .375 | 99.1 | | |
| #4 | 95.9 | | |
| #10 | 92.4 | | |
| #20 | 87.4 | | |
| #40 | 79.9 | | |
| #60 | 69.0 | | |
| #100 | 54.9 | | |
| #140 | 45.5 | | |
| #200 | 39.7 | | |

Material Description

Olive gray Clayey sand, trace gravel.

Atterberg Limits

PL= 16 LL= 38 PI= 22

Coefficients

D₉₀= 1.2593 D₈₅= 0.6425 D₆₀= 0.1791
 D₅₀= 0.1267 D₃₀= D₁₅=
 D₁₀= C_u= C_c=

Classification

USCS= SC AASHTO= A-6(4)

Remarks

(no specification provided)

Source of Sample: Boring No. 10 Depth: 2'-6" - 4'
 Sample Number: 2

Date: 10/7/2020



Client: HT HOLDINGS, LLC
 Project: MIRADORES PARQUE ESCORIAL II
 CAROLINA, PR
 Project No: 5421

Tested By: N.Orengo Checked By: _____

GRAIN SIZE DISTRIBUTION TEST DATA

10/7/2020

Client: HT HOLDINGS, LLC
 Project: MIRADORES PARQUE ESCORIAL II
 CAROLINA, PR

Project Number: 5421

Location: Boring No. 10

Depth: 2'-6" - 4'

Sample Number: 2

Material Description: Olive gray Clayey sand, trace gravel.

Date: 10/7/2020

PL: 16

LL: 38

PI: 22

USCS Classification: SC

AASHTO Classification: A-6(4)

Tested by: N.Orengo

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 498.30
 Tare Wt. = 332.39
 Minus #200 from wash = 37.4%

| Dry Sample and Tare (grams) | Tare (grams) | Sieve Opening Size | Weight Retained (grams) | Sieve Weight (grams) | Percent Finer |
|-----------------------------|--------------|--------------------|-------------------------|----------------------|---------------|
| 597.40 | 332.39 | .75 | 0.00 | 0.00 | 100.0 |
| | | .375 | 2.28 | 0.00 | 99.1 |
| | | #4 | 8.58 | 0.00 | 95.9 |
| | | #10 | 9.36 | 0.00 | 92.4 |
| | | #20 | 13.27 | 0.00 | 87.4 |
| | | #40 | 19.87 | 0.00 | 79.9 |
| | | #60 | 28.92 | 0.00 | 69.0 |
| | | #100 | 37.30 | 0.00 | 54.9 |
| | | #140 | 24.83 | 0.00 | 45.5 |
| | | #200 | 15.39 | 0.00 | 39.7 |

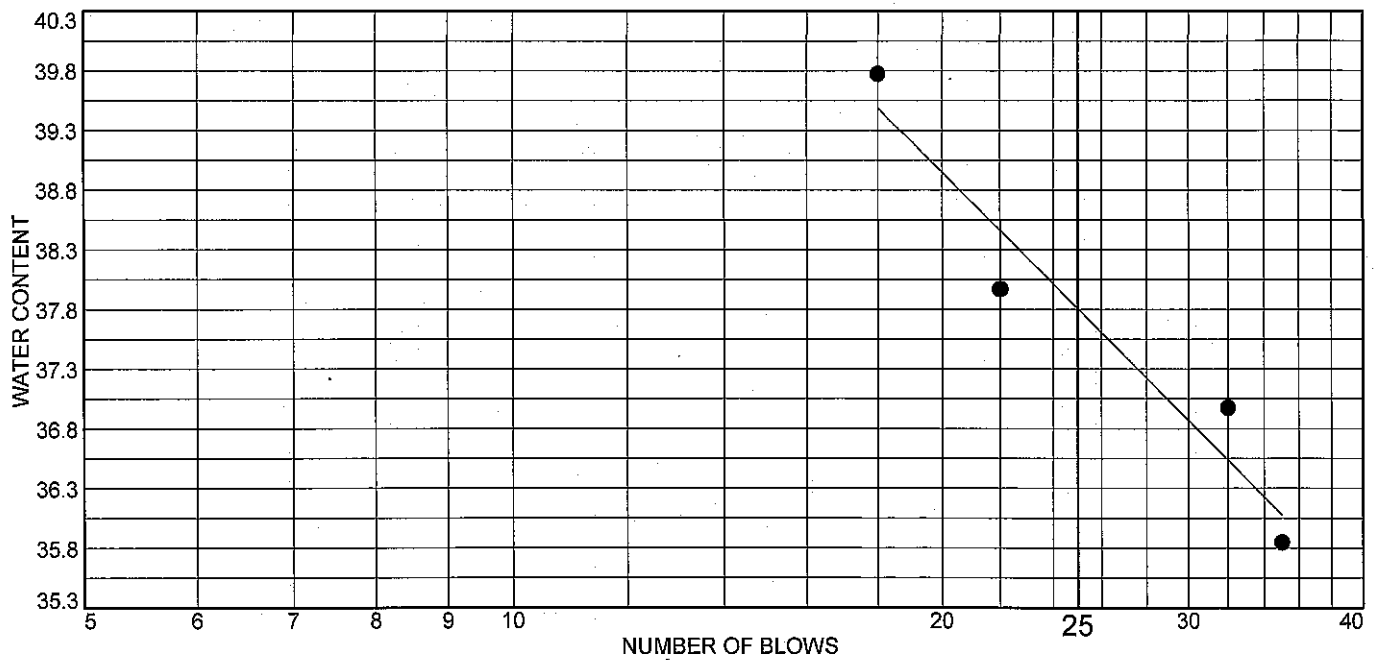
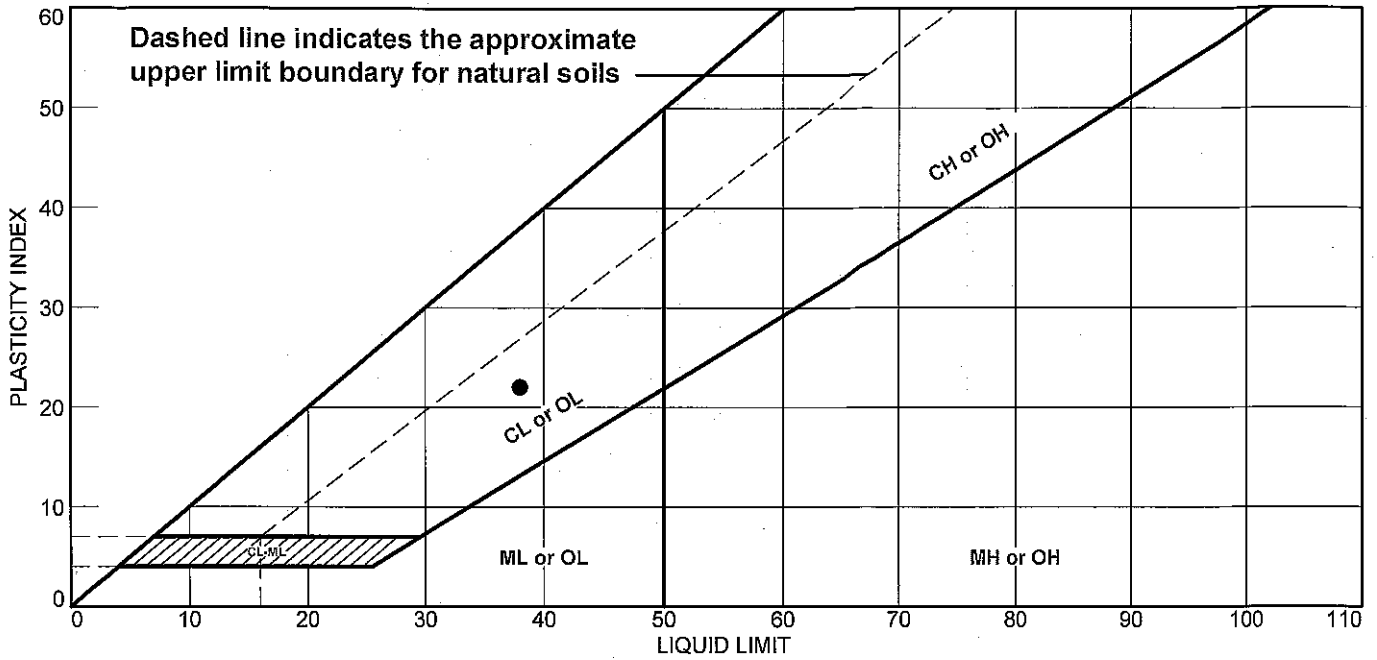
Fractional Components

| Cobbles | Gravel | Sand | Silt | Clay |
|---------|--------|------|------|------|
| 0.0 | 4.1 | 56.2 | | |

| D ₅ | D ₁₀ | D ₁₅ | D ₂₀ | D ₃₀ | D ₄₀ | D ₅₀ | D ₆₀ | D ₈₀ | D ₈₅ | D ₉₀ | D ₉₅ |
|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | | | | | 0.0766 | 0.1267 | 0.1791 | 0.4287 | 0.6425 | 1.2593 | 3.8723 |

| |
|-------------------------|
| Fineness Modulus |
| 1.10 |

LIQUID AND PLASTIC LIMITS TEST REPORT



| MATERIAL DESCRIPTION | LL | PL | PI | %<#40 | %<#200 | USCS |
|---|----|----|----|-------|--------|------|
| • Olive gray Clayey sand, trace gravel. | 38 | 16 | 22 | 79.9 | 39.7 | SC |

Project No. 5421 **Client:** HT HOLDINGS, LLC
Project: MIRADORES PARQUE ESCORIAL II
 CAROLINA, PR
Source of Sample: Boring No. 10 **Depth:** 2'-6" - 4'
Sample Number: 2

Remarks:



Tested By: N.Poventud **Checked By:** _____

LIQUID AND PLASTIC LIMIT TEST DATA

10/7/2020

Client: HT HOLDINGS, LLC
Project: MIRADORES PARQUE ESCORIAL II
 CAROLINA, PR

Project Number: 5421

Location: Boring No. 10

Depth: 2'-6" - 4'

Sample Number: 2

Material Description: Olive gray Clayey sand, trace gravel.

%<#40: 79.9

%<#200: 39.7

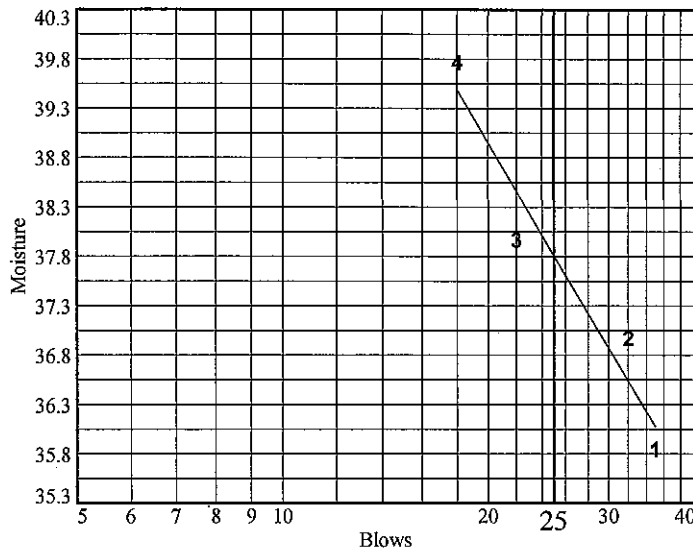
USCS: SC

AASHTO: A-6(4)

Tested by: N.Poventud

Liquid Limit Data

| Run No. | 1 | 2 | 3 | 4 | 5 | 6 |
|----------|-------|-------|-------|-------|---|---|
| Wet+Tare | 22.79 | 22.51 | 23.01 | 23.27 | | |
| Dry+Tare | 20.32 | 20.04 | 20.39 | 20.47 | | |
| Tare | 13.43 | 13.36 | 13.49 | 13.43 | | |
| # Blows | 35 | 32 | 22 | 18 | | |
| Moisture | 35.8 | 37.0 | 38.0 | 39.8 | | |

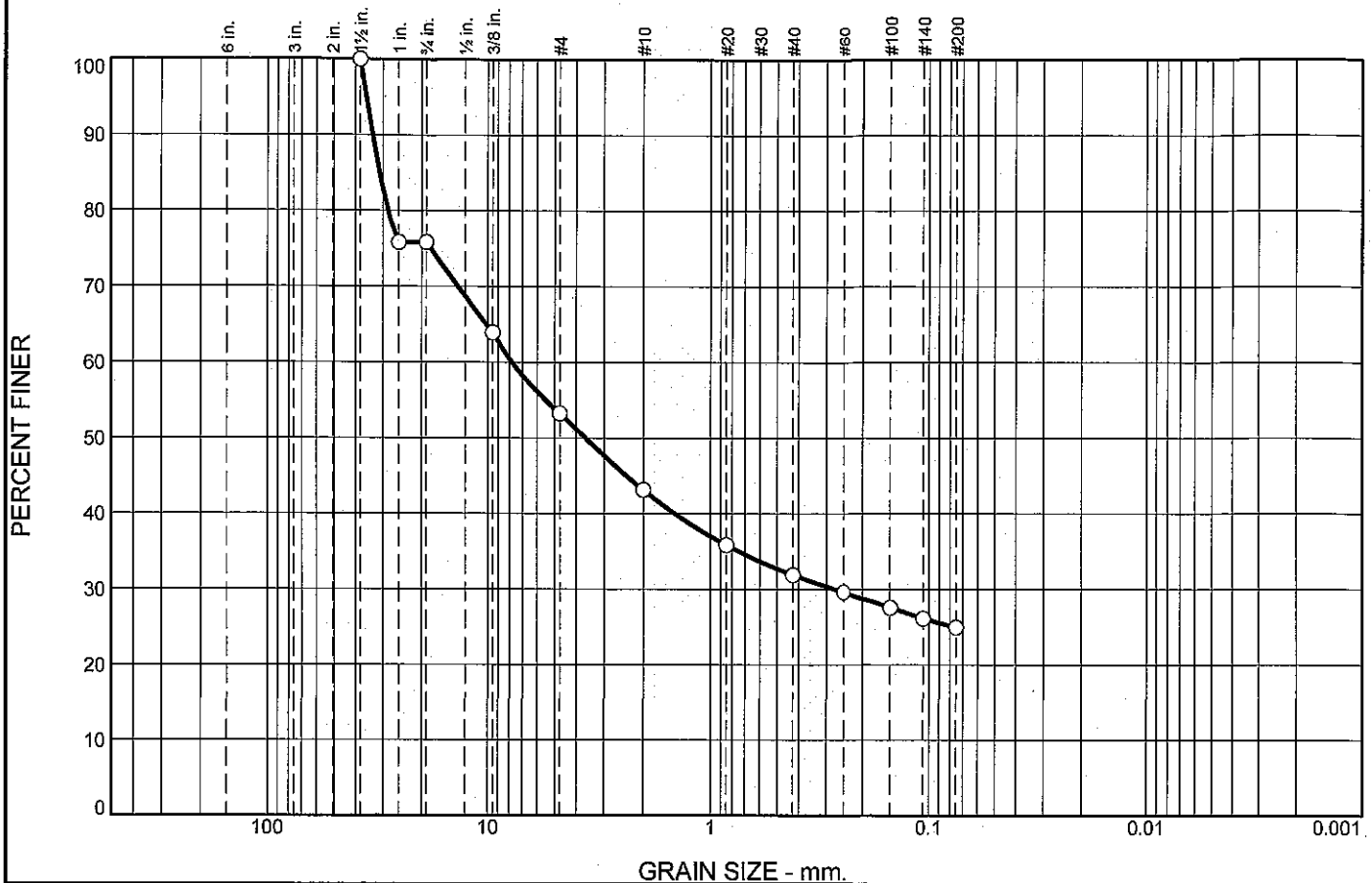


Liquid Limit= 38
 Plastic Limit= 16
 Plasticity Index= 22

Plastic Limit Data

| Run No. | 1 | 2 | 3 | 4 |
|----------|-------|-------|---|---|
| Wet+Tare | 21.31 | 22.31 | | |
| Dry+Tare | 20.26 | 21.10 | | |
| Tare | 13.47 | 13.38 | | |
| Moisture | 15.5 | 15.7 | | |

Particle Size Distribution Report



| | | | | |
|-------|----------|--------|--------|--------|
| % +3" | % Gravel | % Sand | % Silt | % Clay |
| 0.0 | 46.8 | 28.3 | 24.9 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1.5 | 100.0 | | |
| 1 | 75.8 | | |
| .75 | 75.8 | | |
| .375 | 63.9 | | |
| #4 | 53.2 | | |
| #10 | 43.2 | | |
| #20 | 35.9 | | |
| #40 | 31.9 | | |
| #60 | 29.6 | | |
| #100 | 27.6 | | |
| #140 | 26.1 | | |
| #200 | 24.9 | | |

Material Description

Yellowish red Gravel, some silt and some sand.

Atterberg Limits

PL= 28 LL= 45 PI= 17

Coefficients

D₉₀= 33.4364 D₈₅= 31.0921 D₆₀= 7.7877
D₅₀= 3.6394 D₃₀= 0.2755 D₁₅=
D₁₀= C_u= C_c=

Classification

USCS= GM AASHTO= A-2-7(1)


Remarks

* (no specification provided)

Source of Sample: Boring No. 5
Sample Number: 6

Depth: 14' - 15'-6"

Date: 10/6/2020

| | |
|---|--|
|  | <p>Client: HT HOLDINGS, LLC</p> <p>Project: MIRADORES PARQUE ESCORIAL II CAROLINA, PR</p> <p>Project No: 5421</p> |
|---|--|

Tested By: N. Orengo

Checked By: _____

GRAIN SIZE DISTRIBUTION TEST DATA

10/6/2020

Client: HT HOLDINGS, LLC

Project: MIRADORES PARQUE ESCORIAL II
CAROLINA, PR

Project Number: 5421

Location: Boring No. 5

Depth: 14' - 15'-6"

Sample Number: 6

Material Description: Yellowish red Gravel, some silt and some sand.

Date: 10/6/2020

PL: 28

LL: 45

PI: 17

USCS Classification: GM

AASHTO Classification: A-2-7(1)

Tested by: N.Orengo

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 483.60
Tare Wt. = 329.27
Minus #200 from wash = 24.4%

| Dry Sample and Tare (grams) | Tare (grams) | Sieve Opening Size | Weight Retained (grams) | Sieve Weight (grams) | Percent Finer |
|-----------------------------|--------------|--------------------|-------------------------|----------------------|---------------|
| 533.46 | 329.27 | 1.5 | 0.00 | 0.00 | 100.0 |
| | | 1 | 49.38 | 0.00 | 75.8 |
| | | .75 | 0.00 | 0.00 | 75.8 |
| | | .375 | 24.27 | 0.00 | 63.9 |
| | | #4 | 21.85 | 0.00 | 53.2 |
| | | #10 | 20.57 | 0.00 | 43.2 |
| | | #20 | 14.88 | 0.00 | 35.9 |
| | | #40 | 8.09 | 0.00 | 31.9 |
| | | #60 | 4.69 | 0.00 | 29.6 |
| | | #100 | 4.15 | 0.00 | 27.6 |
| | | #140 | 2.99 | 0.00 | 26.1 |
| | | #200 | 2.38 | 0.00 | 24.9 |

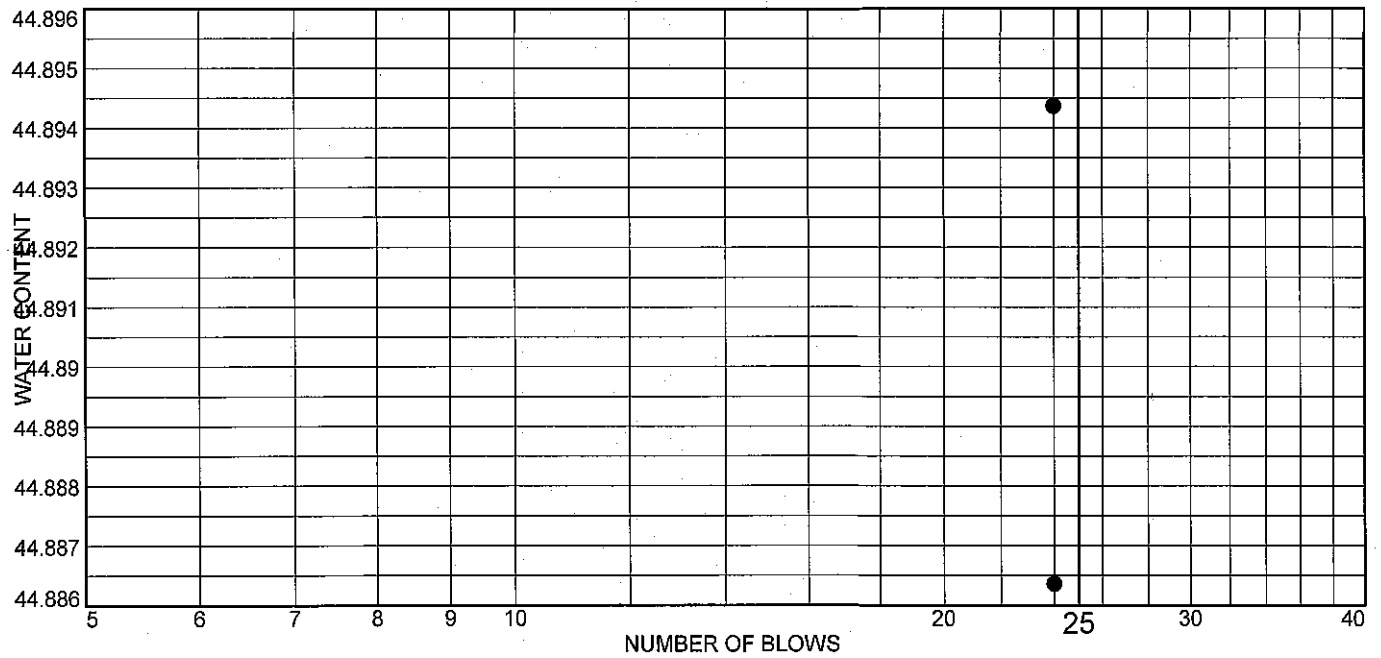
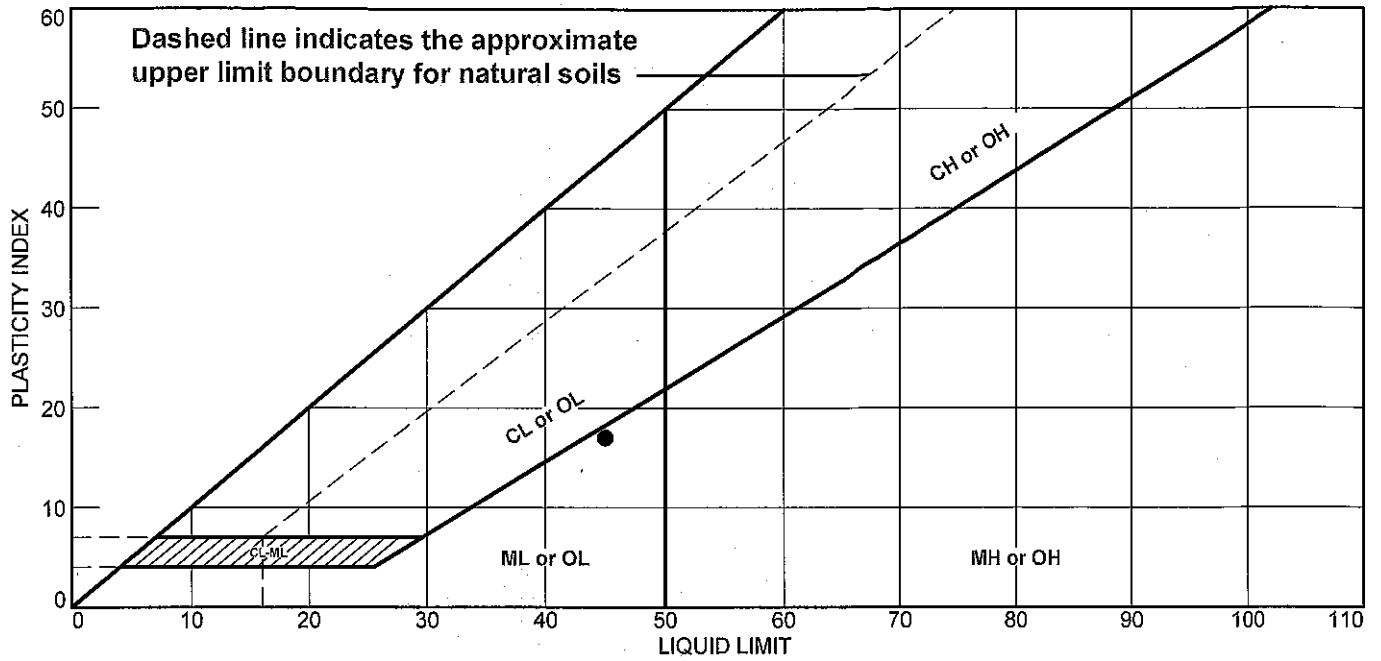
Fractional Components

| Cobbles | Gravel | Sand | Silt | Clay |
|---------|--------|------|------|------|
| 0.0 | 46.8 | 28.3 | | |


| D ₅ | D ₁₀ | D ₁₅ | D ₂₀ | D ₃₀ | D ₄₀ | D ₅₀ | D ₆₀ | D ₈₀ | D ₈₅ | D ₉₀ | D ₉₅ |
|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | | | | 0.2755 | 1.4414 | 3.6394 | 7.7877 | 28.4941 | 31.0921 | 33.4364 | 35.7366 |

| |
|-------------------------|
| Fineness Modulus |
| 4.32 |

LIQUID AND PLASTIC LIMITS TEST REPORT



| MATERIAL DESCRIPTION | LL | PL | PI | %<#40 | %<#200 | USCS |
|--|----|----|----|-------|--------|------|
| ● Yellowish red Gravel, some silt and some sand. | 45 | 28 | 17 | 31.9 | 24.9 | GM |

| | |
|--|------------------------|
| <p>Project No. 5421 Client: HT HOLDINGS, LLC</p> <p>Project: MIRADORES PARQUE ESCORIAL II</p> <p>CAROLINA, PR</p> <p>Source of Sample: Boring No. 5 Depth: 14' - 15'-6"</p> <p>Sample Number: 6</p> <div style="text-align: center;">  GEOTECHNICAL TESTING SERVICES </div> | <p>Remarks:</p> |
|--|------------------------|

Tested By: N.Poventud **Checked By:** _____

LIQUID AND PLASTIC LIMIT TEST DATA

10/7/2020

Client: HT HOLDINGS, LLC

Project: MIRADORES PARQUE ESCORIAL II
CAROLINA, PR

Project Number: 5421

Location: Boring No. 5

Depth: 14' - 15'-6"

Sample Number: 6

Material Description: Yellowish red Gravel, some silt and some sand.

%<#40: 31.9

%<#200: 24.9

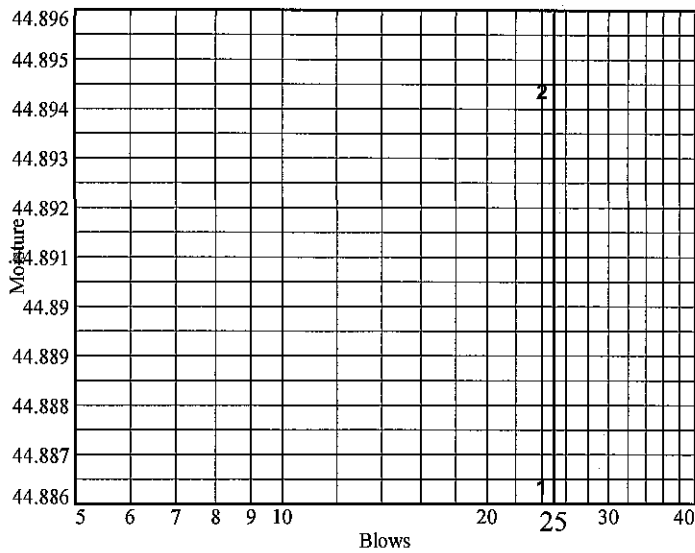
USCS: GM

AASHTO: A-2-7(1)

Tested by: N.Poventud

Liquid Limit Data

| Run No. | 1 | 2 | 3 | 4 | 5 | 6 |
|-----------------|-------|-------|---|---|---|---|
| Wet+Tare | 21.02 | 21.65 | | | | |
| Dry+Tare | 18.65 | 19.10 | | | | |
| Tare | 13.37 | 13.42 | | | | |
| # Blows | 24 | 24 | | | | |
| Moisture | 44.9 | 44.9 | | | | |

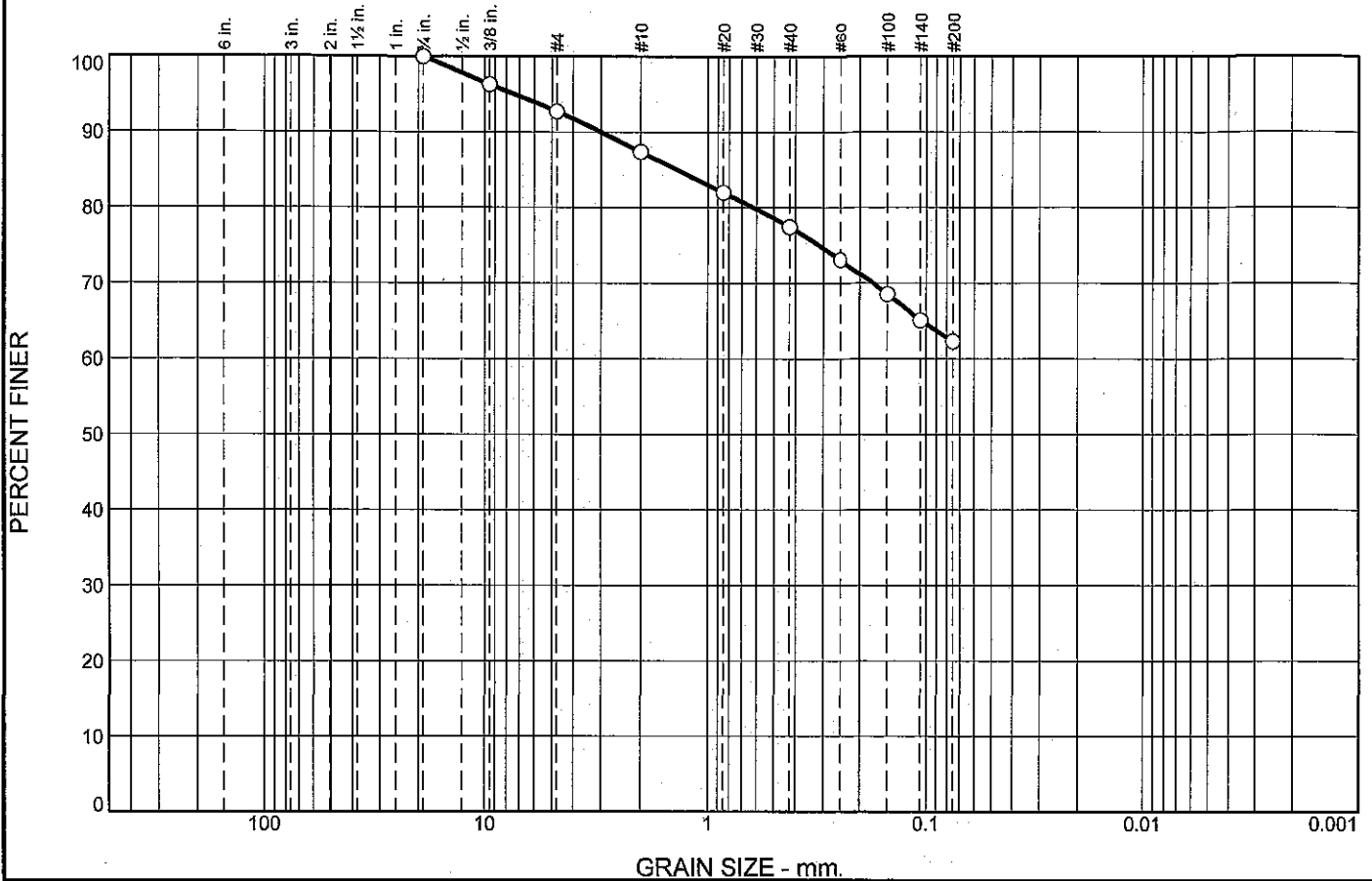


Liquid Limit= 45
Plastic Limit= 28
Plasticity Index= 17

Plastic Limit Data

| Run No. | 1 | 2 | 3 | 4 |
|-----------------|-------|-------|---|---|
| Wet+Tare | 24.24 | 21.59 | | |
| Dry+Tare | 22.08 | 19.80 | | |
| Tare | 14.38 | 13.46 | | |
| Moisture | 28.1 | 28.2 | | |

Particle Size Distribution Report



| % +3" | % Gravel | % Sand | % Silt | % Clay |
|-------|----------|--------|--------|--------|
| 0.0 | 7.3 | 30.4 | 62.3 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .75 | 100.0 | | |
| .375 | 96.3 | | |
| #4 | 92.7 | | |
| #10 | 87.4 | | |
| #20 | 82.0 | | |
| #40 | 77.4 | | |
| #60 | 73.1 | | |
| #100 | 68.6 | | |
| #140 | 65.1 | | |
| #200 | 62.3 | | |

Material Description

Red Silt, some sand, trace gravel.

Atterberg Limits

PL= 30 LL= 49 PI= 19

Coefficients

D₉₀= 3.0087 D₈₅= 1.3767 D₆₀=
D₅₀= D₃₀= D₁₅=
D₁₀= C_u= C_c=

Classification

USCS= ML AASHTO= A-7-5(11)

Remarks

* (no specification provided)

Source of Sample: Boring No. 7 Depth: 7'-6" - 9'
Sample Number: 4

Date: 10/6/2020



Client: HT HOLDINGS, LLC
Project: MIRADORES PARQUE ESCORIAL II
CAROLINA, PR
Project No: 5421

Tested By: N.Orengo Checked By: _____

GRAIN SIZE DISTRIBUTION TEST DATA

10/7/2020

Client: HT HOLDINGS, LLC
 Project: MIRADORES PARQUE ESCORIAL II
 CAROLINA, PR

Project Number: 5421

Location: Boring No. 7

Depth: 7'-6" - 9'

Sample Number: 4

Material Description: Red Silt, some sand, trace gravel.

Date: 10/6/2020

PL: 30

LL: 49

PI: 19

USCS Classification: ML

AASHTO Classification: A-7-5(11)

Tested by: N.Orengo

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 389.25
 Tare Wt. = 329.77
 Minus #200 from wash = 61.4%

| Dry Sample and Tare (grams) | Tare (grams) | Sieve Opening Size | Weight Retained (grams) | Sieve Weight (grams) | Percent Finer |
|-----------------------------|--------------|--------------------|-------------------------|----------------------|---------------|
| 483.96 | 329.77 | .75 | 0.00 | 0.00 | 100.0 |
| | | .375 | 5.76 | 0.00 | 96.3 |
| | | #4 | 5.47 | 0.00 | 92.7 |
| | | #10 | 8.22 | 0.00 | 87.4 |
| | | #20 | 8.33 | 0.00 | 82.0 |
| | | #40 | 7.02 | 0.00 | 77.4 |
| | | #60 | 6.69 | 0.00 | 73.1 |
| | | #100 | 6.99 | 0.00 | 68.6 |
| | | #140 | 5.36 | 0.00 | 65.1 |
| | | #200 | 4.26 | 0.00 | 62.3 |

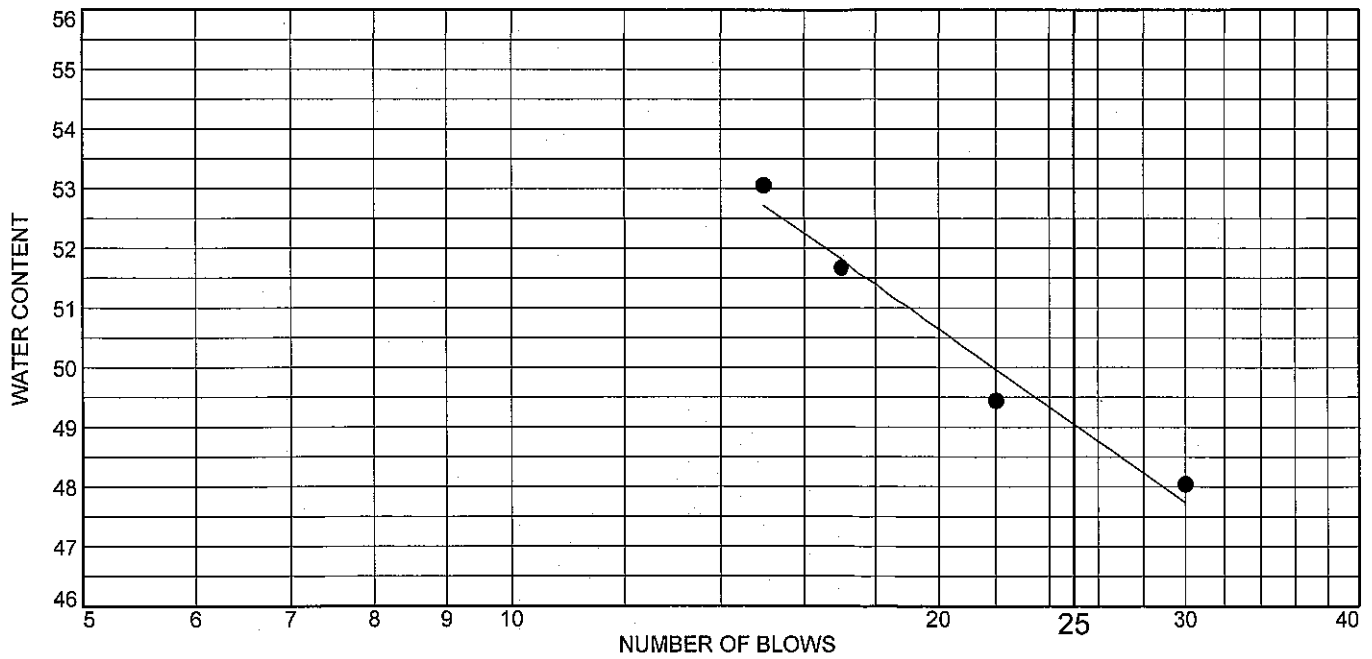
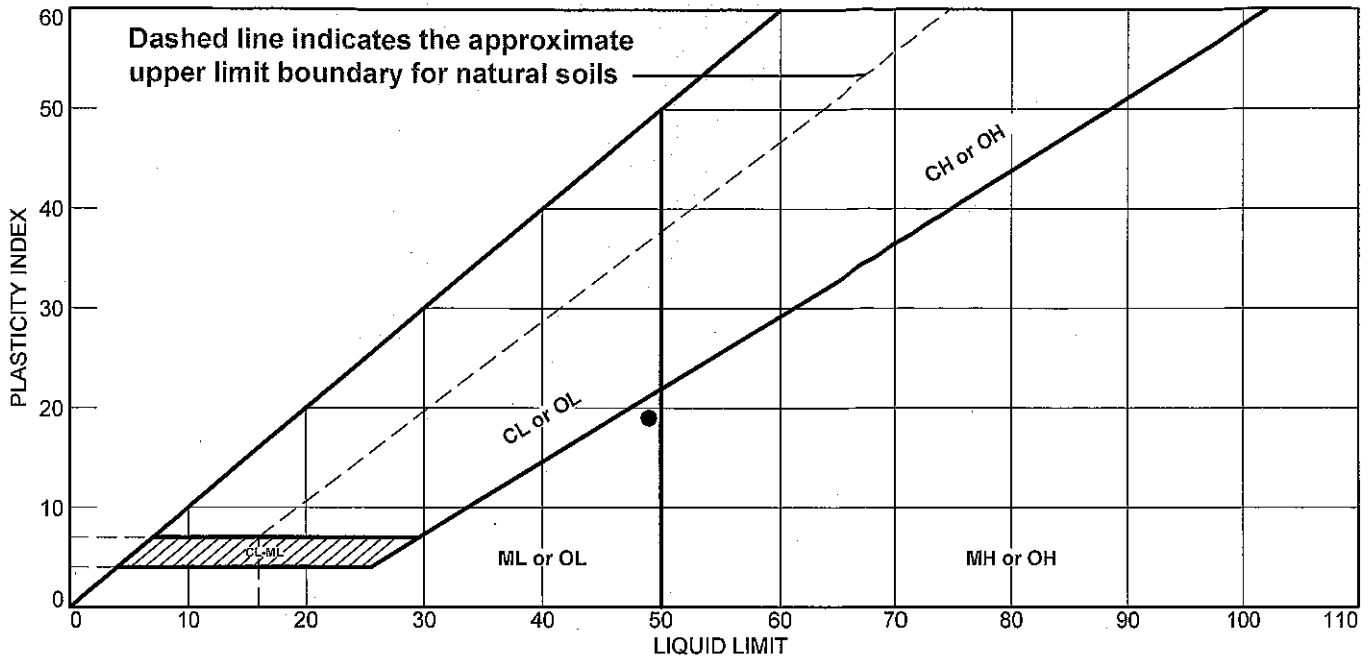
Fractional Components

| Cobbles | Gravel | Sand | Silt | Clay |
|---------|--------|------|------|------|
| 0.0 | 7.3 | 30.4 | | |

| D ₅ | D ₁₀ | D ₁₅ | D ₂₀ | D ₃₀ | D ₄₀ | D ₅₀ | D ₆₀ | D ₈₀ | D ₈₅ | D ₉₀ | D ₉₅ |
|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | | | | | | | | 0.6181 | 1.3767 | 3.0087 | 7.3993 |

| |
|-------------------------|
| Fineness Modulus |
| 1.16 |

LIQUID AND PLASTIC LIMITS TEST REPORT



| MATERIAL DESCRIPTION | LL | PL | PI | %<#40 | %<#200 | USCS |
|--------------------------------------|----|----|----|-------|--------|------|
| • Red Silt, some sand, trace gravel. | 49 | 30 | 19 | 77.4 | 62.3 | ML |

Project No. 5421 **Client:** HT HOLDINGS, LLC
Project: MIRADORES PARQUE ESCORIAL II
 CAROLINA, PR
Source of Sample: Boring No. 7 **Depth:** 7'-6" - 9"
Sample Number: 4

Remarks:



Tested By: N.Poventud **Checked By:** _____

LIQUID AND PLASTIC LIMIT TEST DATA

10/7/2020

Client: HT HOLDINGS, LLC
 Project: MIRADORES PARQUE ESCORIAL II
 CAROLINA, PR

Project Number: 5421

Location: Boring No. 7

Depth: 7'-6" - 9'

Sample Number: 4

Material Description: Red Silt, some sand, trace gravel.

%<#40: 77.4

%<#200: 62.3

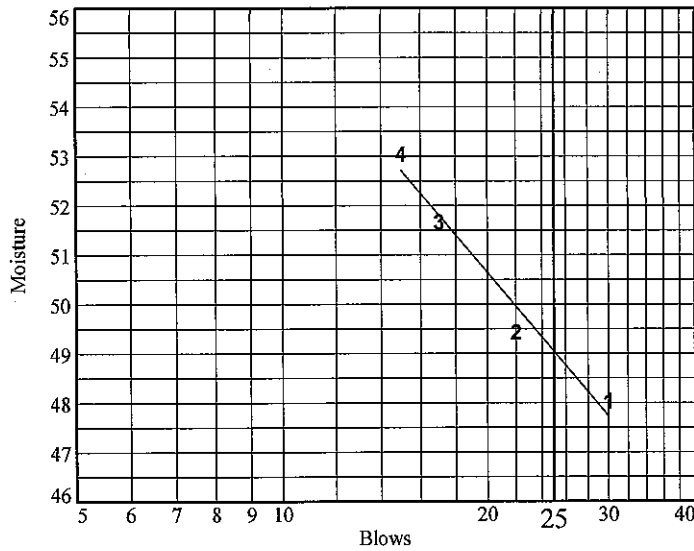
USCS: ML

AASHTO: A-7-5(11)

Tested by: N.Poventud

Liquid Limit Data

| Run No. | 1 | 2 | 3 | 4 | 5 | 6 |
|----------|-------|-------|-------|-------|---|---|
| Wet+Tare | 21.75 | 22.86 | 22.94 | 22.78 | | |
| Dry+Tare | 19.05 | 19.76 | 19.70 | 19.57 | | |
| Tare | 13.43 | 13.49 | 13.43 | 13.52 | | |
| # Blows | 30 | 22 | 17 | 15 | | |
| Moisture | 48.0 | 49.4 | 51.7 | 53.1 | | |

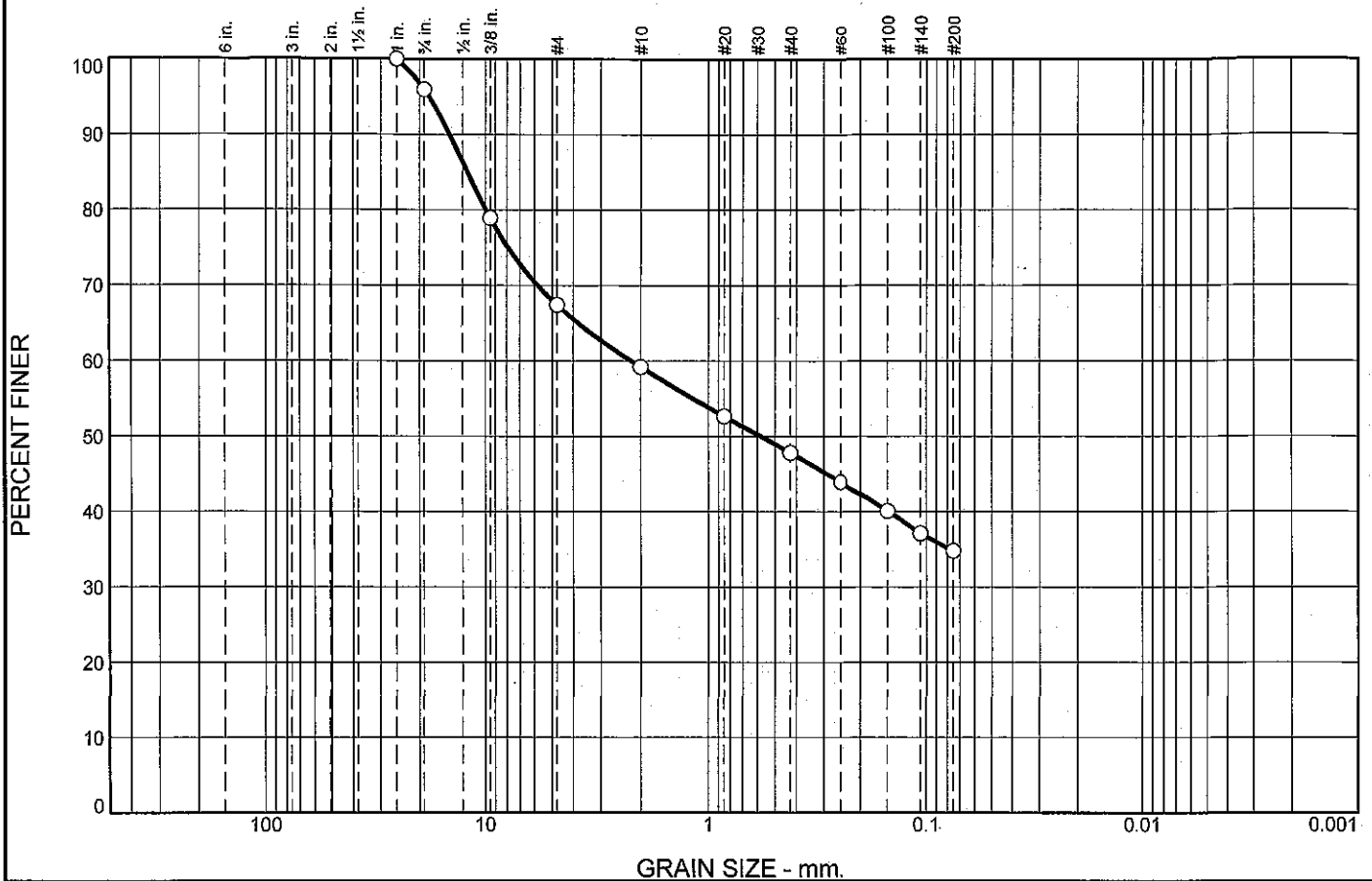


Liquid Limit= 49
 Plastic Limit= 30
 Plasticity Index= 19

Plastic Limit Data

| Run No. | 1 | 2 | 3 | 4 |
|----------|-------|-------|---|---|
| Wet+Tare | 21.93 | 23.19 | | |
| Dry+Tare | 19.96 | 20.89 | | |
| Tare | 13.36 | 13.41 | | |
| Moisture | 29.8 | 30.7 | | |

Particle Size Distribution Report



| % +3" | % Gravel | % Sand | % Silt | % Clay |
|-------|----------|--------|--------|--------|
| 0.0 | 32.5 | 32.7 | | 34.8 |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 96.0 | | |
| .375 | 78.9 | | |
| #4 | 67.5 | | |
| #10 | 59.2 | | |
| #20 | 52.7 | | |
| #40 | 47.8 | | |
| #60 | 43.9 | | |
| #100 | 40.1 | | |
| #140 | 37.1 | | |
| #200 | 34.8 | | |

Material Description

Red Silt, some sand and gravel.

Atterberg Limits

PL= 28 LL= 42 PI= 14

Coefficients

D₉₀= 14.5751 D₈₅= 12.0728 D₆₀= 2.1979
D₅₀= 0.5792 D₃₀= D₁₅=
D₁₀= C_u= C_c=

Classification

USCS= SM AASHTO= A-2-7(1)

Remarks

* (no specification provided)

Source of Sample: Boring No. 6
Sample Number: 6

Depth: 14' - 15'-6"

Date: 10/6/2020



Client: HT HOLDINGS, LLC
Project: MIRADORES PARQUE ESCORIAL II
CAROLINA, PR
Project No: 5421

Tested By: N.Orengo Checked By: _____

GRAIN SIZE DISTRIBUTION TEST DATA

10/7/2020

Client: HT HOLDINGS, LLC
Project: MIRADORES PARQUE ESCORIAL II
 CAROLINA, PR

Project Number: 5421

Location: Boring No. 6

Depth: 14' - 15'-6"

Sample Number: 6

Material Description: Red Silt, some sand and gravel.

Date: 10/6/2020

PL: 28

LL: 42

PI: 14

USCS Classification: SM

AASHTO Classification: A-2-7(1)

Tested by: N.Orengo

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 458.20
 Tare Wt. = 345.31
 Minus #200 from wash = 34.2%

| Dry Sample and Tare (grams) | Tare (grams) | Sieve Opening Size | Weight Retained (grams) | Sieve Weight (grams) | Percent Finer |
|-----------------------------|--------------|--------------------|-------------------------|----------------------|---------------|
| 516.81 | 345.31 | 1 | 0.00 | 0.00 | 100.0 |
| | | .75 | 6.87 | 0.00 | 96.0 |
| | | .375 | 29.26 | 0.00 | 78.9 |
| | | #4 | 19.69 | 0.00 | 67.5 |
| | | #10 | 14.11 | 0.00 | 59.2 |
| | | #20 | 11.25 | 0.00 | 52.7 |
| | | #40 | 8.29 | 0.00 | 47.8 |
| | | #60 | 6.70 | 0.00 | 43.9 |
| | | #100 | 6.58 | 0.00 | 40.1 |
| | | #140 | 5.11 | 0.00 | 37.1 |
| | | #200 | 3.98 | 0.00 | 34.8 |

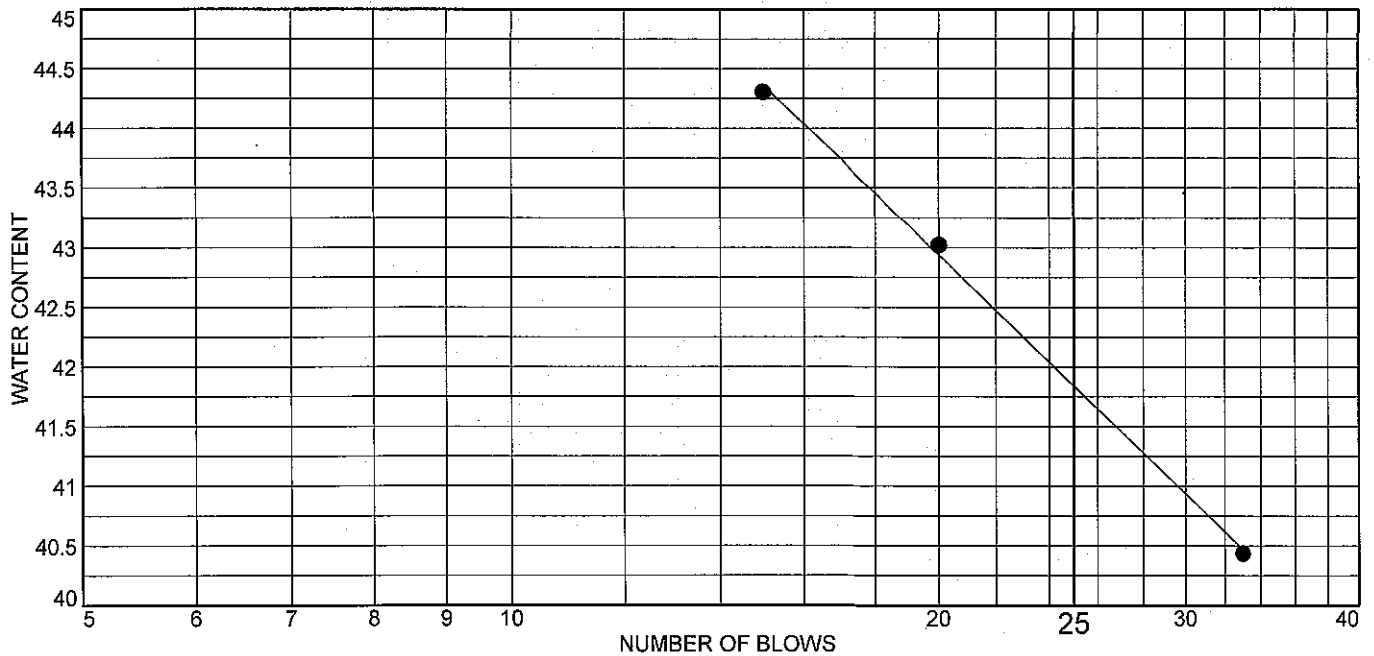
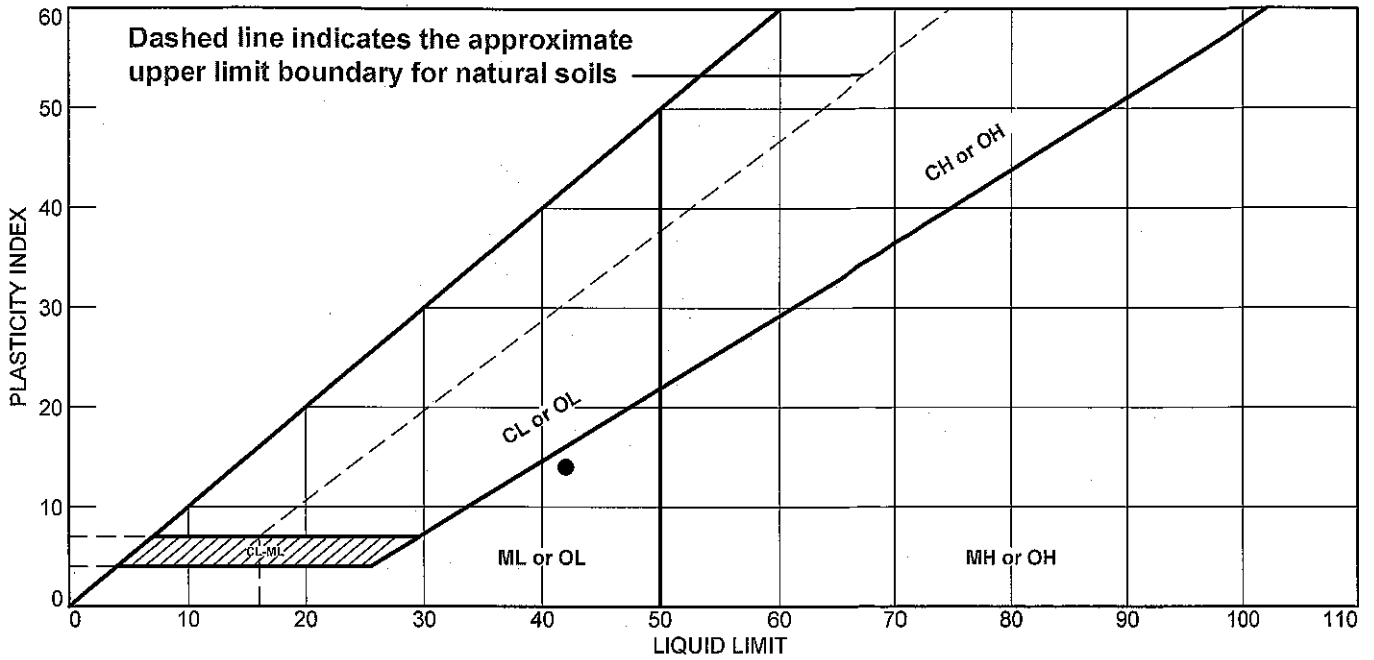
Fractional Components

| Cobbles | Gravel | Sand | Silt | Clay |
|---------|--------|------|------|------|
| 0.0 | 32.5 | 32.7 | | |

| D5 | D10 | D15 | D20 | D30 | D40 | D50 | D60 | D80 | D85 | D90 | D95 |
|----|-----|-----|-----|-----|--------|--------|--------|--------|---------|---------|---------|
| | | | | | 0.1485 | 0.5792 | 2.1979 | 9.9587 | 12.0728 | 14.5751 | 18.0788 |

| |
|-------------------------|
| Fineness Modulus |
| 3.06 |

LIQUID AND PLASTIC LIMITS TEST REPORT



| MATERIAL DESCRIPTION | LL | PL | PI | %<#40 | %<#200 | USCS |
|-----------------------------------|----|----|----|-------|--------|------|
| • Red Silt, some sand and gravel. | 42 | 28 | 14 | 47.8 | 34.8 | SM |

Project No. 5421 **Client:** HT HOLDINGS, LLC
Project: MIRADORES PARQUE ESCORIAL II
 CAROLINA, PR
Source of Sample: Boring No. 6 **Depth:** 14' - 15'-6"
Sample Number: 6

Remarks:



Tested By: N.Poventud **Checked By:** _____

LIQUID AND PLASTIC LIMIT TEST DATA

10/7/2020

Client: HT HOLDINGS, LLC

Project: MIRADORES PARQUE ESCORIAL II

CAROLINA, PR

Project Number: 5421

Location: Boring No. 6

Depth: 14' - 15'-6"

Sample Number: 6

Material Description: Red Silt, some sand and gravel.

%<#40: 47.8

%<#200: 34.8

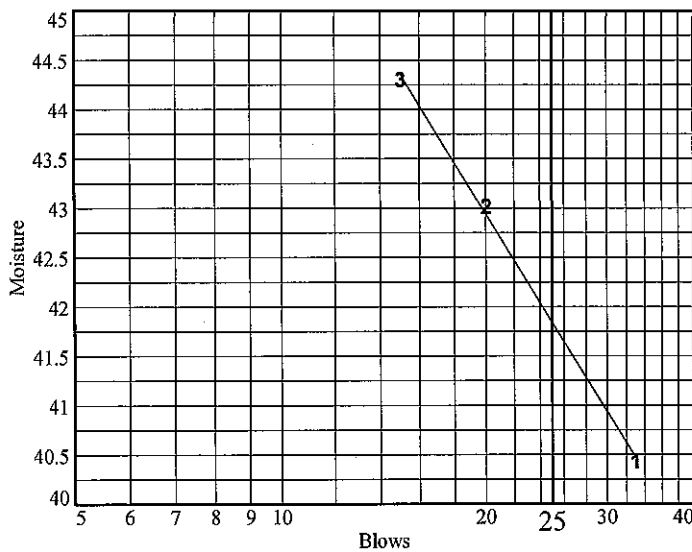
USCS: SM

AASHTO: A-2-7(1)

Tested by: N.Poventud

Liquid Limit Data

| Run No. | 1 | 2 | 3 | 4 | 5 | 6 |
|----------|-------|-------|-------|---|---|---|
| Wet+Tare | 21.09 | 22.26 | 22.74 | | | |
| Dry+Tare | 18.87 | 19.64 | 19.86 | | | |
| Tare | 13.38 | 13.55 | 13.36 | | | |
| # Blows | 33 | 20 | 15 | | | |
| Moisture | 40.4 | 43.0 | 44.3 | | | |

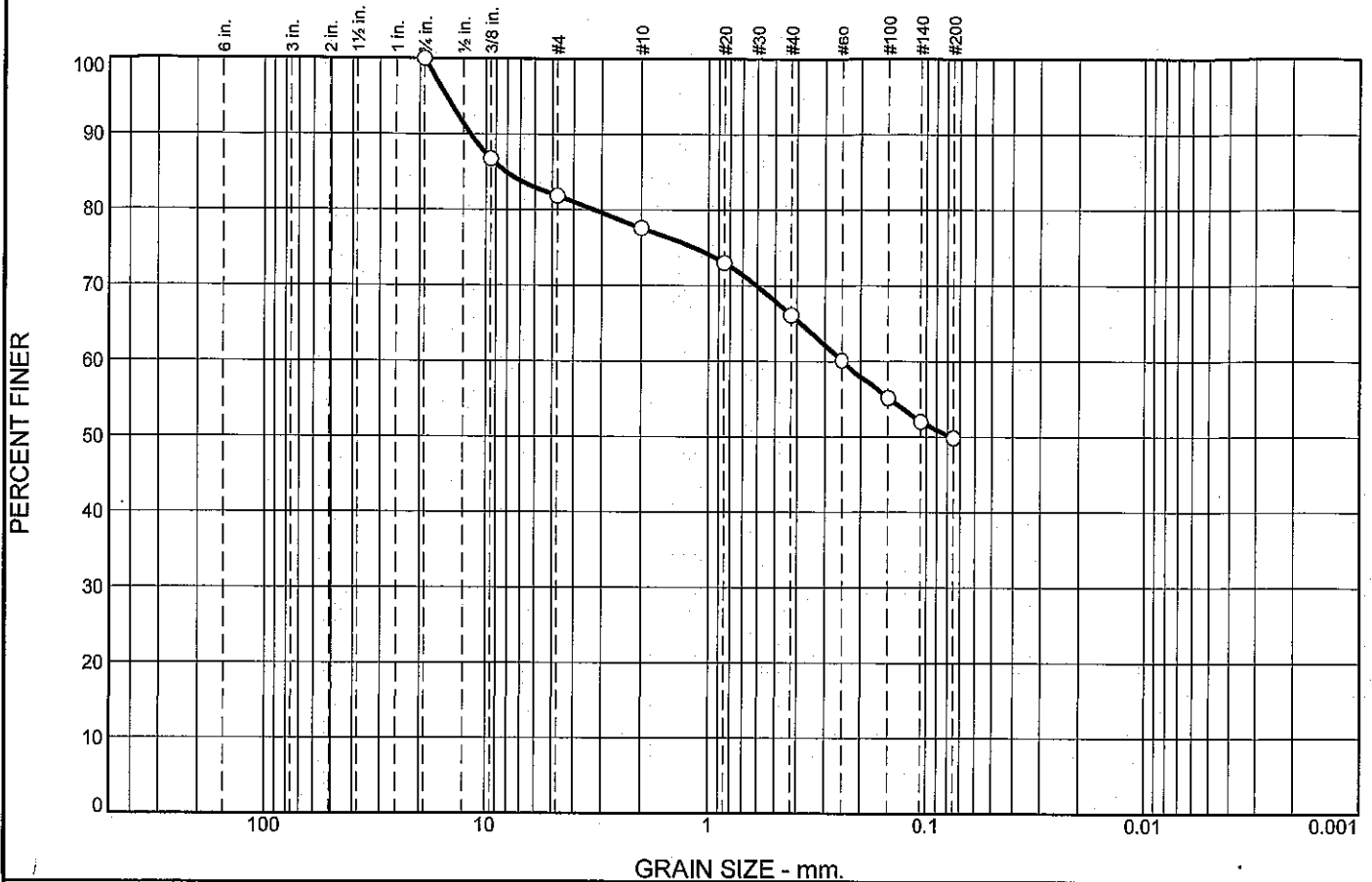


Liquid Limit= 42
Plastic Limit= 28
Plasticity Index= 14

Plastic Limit Data

| Run No. | 1 | 2 | 3 | 4 |
|----------|-------|-------|---|---|
| Wet+Tare | 22.89 | 21.24 | | |
| Dry+Tare | 20.84 | 19.55 | | |
| Tare | 13.47 | 13.37 | | |
| Moisture | 27.8 | 27.3 | | |

Particle Size Distribution Report



| % +3" | % Gravel | % Sand | % Silt | % Clay |
|-------|----------|--------|--------|--------|
| 0.0 | 18.1 | 32.0 | | 49.9 |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .75 | 100.0 | | |
| .375 | 86.8 | | |
| #4 | 81.9 | | |
| #10 | 77.6 | | |
| #20 | 73.0 | | |
| #40 | 66.1 | | |
| #60 | 60.1 | | |
| #100 | 55.1 | | |
| #140 | 52.0 | | |
| #200 | 49.9 | | |

Material Description

Dark grayish brown Clay, some sand, little gravel.

Atterberg Limits

PL= 20 LL= 53 PI= 33

Coefficients

D₉₀= 11.7513 D₈₅= 8.1183 D₆₀= 0.2471
D₅₀= 0.0770 D₃₀= D₁₅=
D₁₀= C_u= C_c=

Classification

USCS= SC AASHTO= A-7-6(12)


Remarks

* (no specification provided)

Source of Sample: Boring No. 12
Sample Number: 8

Depth: 10' - 11'-6"

Date: 10/9/2020

| | |
|---|---|
|  | <p>Client: HT HOLDINGS, LLC</p> <p>Project: MIRADORES PARQUE ESCORIAL II CAROLINA, PR</p> <p>Project No: 5421</p> |
|---|---|

Tested By: N. Orengo

Checked By: _____

GRAIN SIZE DISTRIBUTION TEST DATA

10/9/2020

Client: HT HOLDINGS, LLC

Project: MIRADORES PARQUE ESCORIAL II
CAROLINA, PR

Project Number: 5421

Location: Boring No. 12

Depth: 10' - 11'-6"

Sample Number: 8

Material Description: Dark grayish brown Clay, some sand, little gravel.

Date: 10/9/2020

PL: 20

LL: 53

PI: 33

USCS Classification: SC

AASHTO Classification: A-7-6(12)

Tested by: N.Orengo

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 645.50
Tare Wt. = 558.20
Minus #200 from wash = 49.5%

| Dry Sample and Tare (grams) | Tare (grams) | Sieve Opening Size | Weight Retained (grams) | Sieve Weight (grams) | Percent Finer |
|-----------------------------|--------------|--------------------|-------------------------|----------------------|---------------|
| 731.00 | 558.20 | .75 | 0.00 | 0.00 | 100.0 |
| | | .375 | 22.89 | 0.00 | 86.8 |
| | | #4 | 8.44 | 0.00 | 81.9 |
| | | #10 | 7.36 | 0.00 | 77.6 |
| | | #20 | 7.94 | 0.00 | 73.0 |
| | | #40 | 11.92 | 0.00 | 66.1 |
| | | #60 | 10.36 | 0.00 | 60.1 |
| | | #100 | 8.61 | 0.00 | 55.1 |
| | | #140 | 5.40 | 0.00 | 52.0 |
| | | #200 | 3.73 | 0.00 | 49.9 |

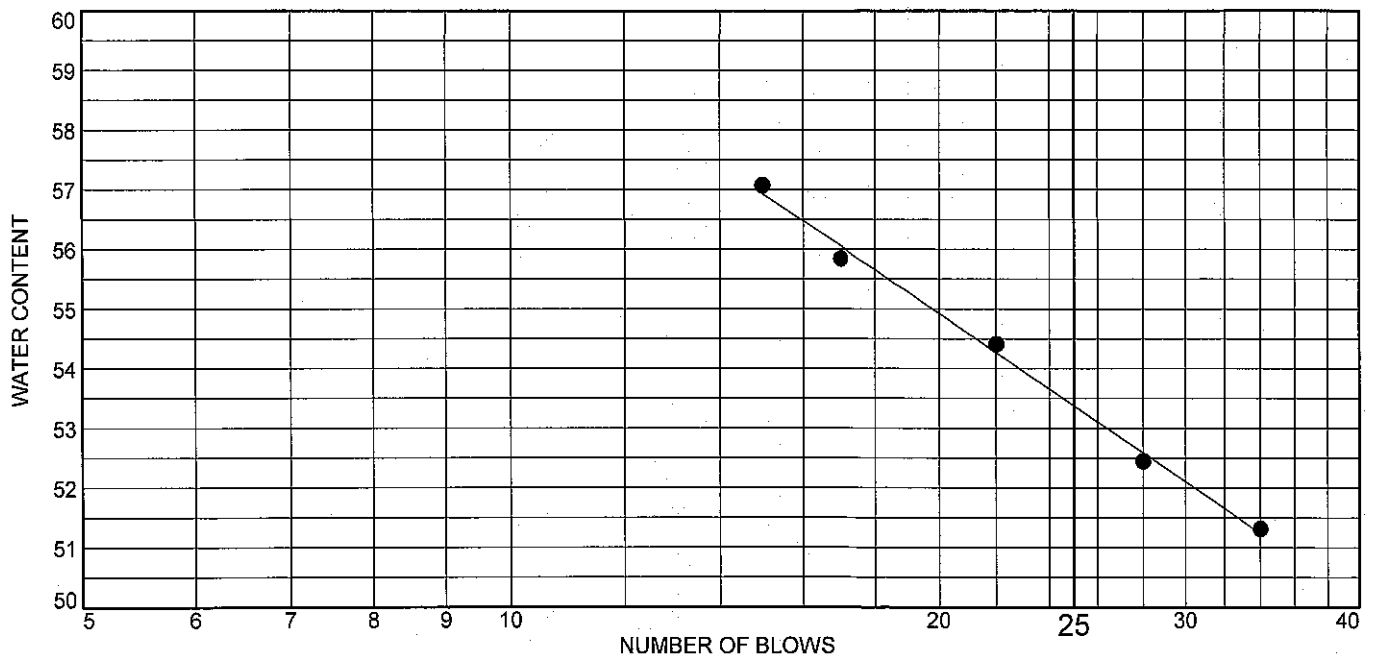
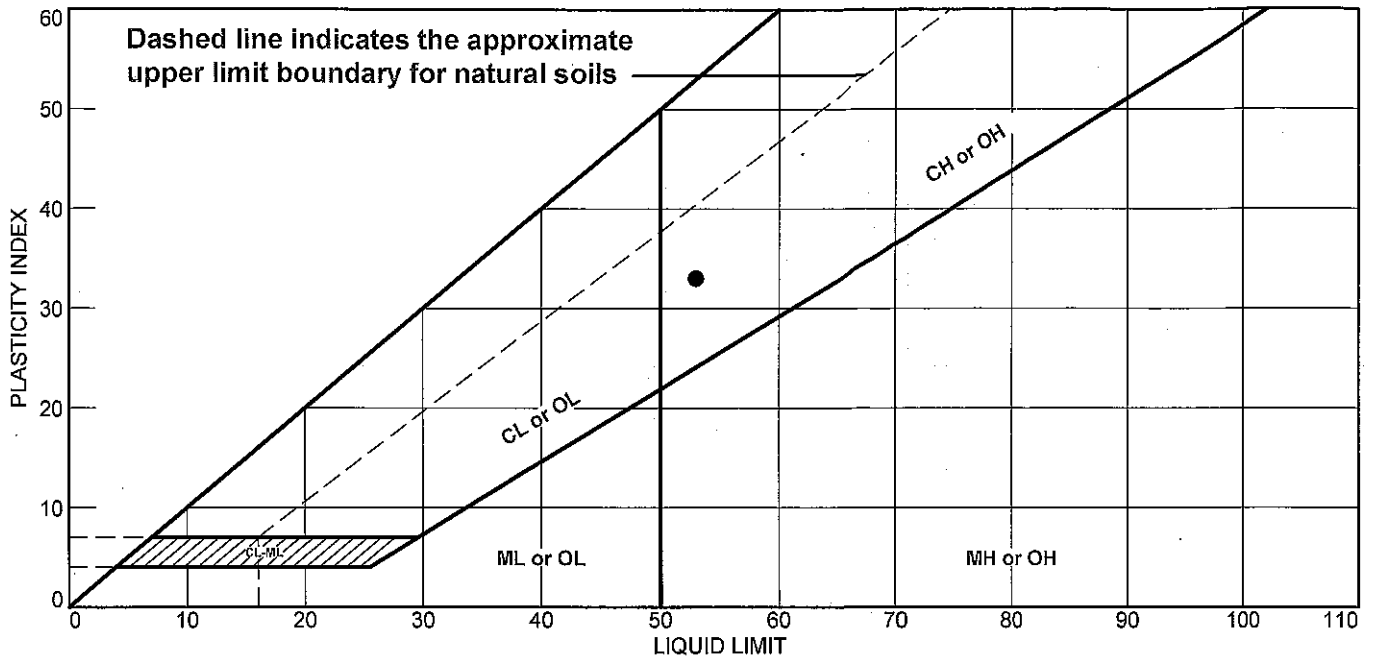
Fractional Components

| Cobbles | Gravel | Sand | Silt | Clay |
|---------|--------|------|------|------|
| 0.0 | 18.1 | 32.0 | | |

| D ₅ | D ₁₀ | D ₁₅ | D ₂₀ | D ₃₀ | D ₄₀ | D ₅₀ | D ₆₀ | D ₈₀ | D ₈₅ | D ₉₀ | D ₉₅ |
|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | | | | | | 0.0770 | 0.2471 | 3.2319 | 8.1183 | 11.7513 | 15.1558 |

| |
|-------------------------|
| Fineness Modulus |
| 1.91 |

LIQUID AND PLASTIC LIMITS TEST REPORT



| MATERIAL DESCRIPTION | LL | PL | PI | %<#40 | %<#200 | USCS |
|--|----|----|----|-------|--------|------|
| • Dark grayish brown Clay, some sand, little gravel. | 53 | 20 | 33 | 66.1 | 49.9 | SC |

Project No. 5421 **Client:** HT HOLDINGS, LLC
Project: MIRADORES PARQUE ESCORIAL II
 CAROLINA, PR
Source of Sample: Boring No. 12 **Depth:** 10' - 11'-6"
Sample Number: 8

Remarks:



Tested By: N.Poventud

Checked By: _____

LIQUID AND PLASTIC LIMIT TEST DATA

10/13/2020

Client: HT HOLDINGS, LLC
 Project: MIRADORES PARQUE ESCORIAL II
 CAROLINA, PR

Project Number: 5421

Location: Boring No. 12

Depth: 10' - 11'-6"

Sample Number: 8

Material Description: Dark grayish brown Clay, some sand, little gravel.

%<#40: 66.1

%<#200: 49.9

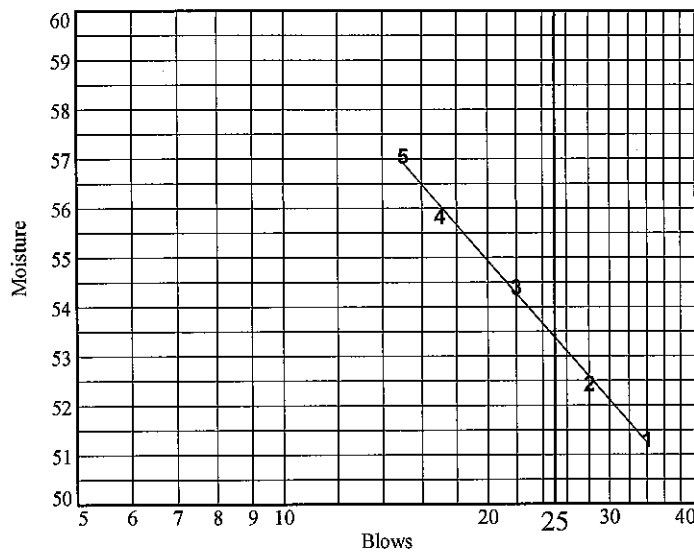
USCS: SC

AASHTO: A-7-6(12)

Tested by: N.Poventud

Liquid Limit Data

| Run No. | 1 | 2 | 3 | 4 | 5 | 6 |
|----------|-------|-------|-------|-------|-------|---|
| Wet+Tare | 20.96 | 22.41 | 22.47 | 21.95 | 22.60 | |
| Dry+Tare | 18.42 | 19.30 | 19.26 | 18.94 | 19.29 | |
| Tare | 13.47 | 13.37 | 13.36 | 13.55 | 13.49 | |
| # Blows | 34 | 28 | 22 | 17 | 15 | |
| Moisture | 51.3 | 52.4 | 54.4 | 55.8 | 57.1 | |

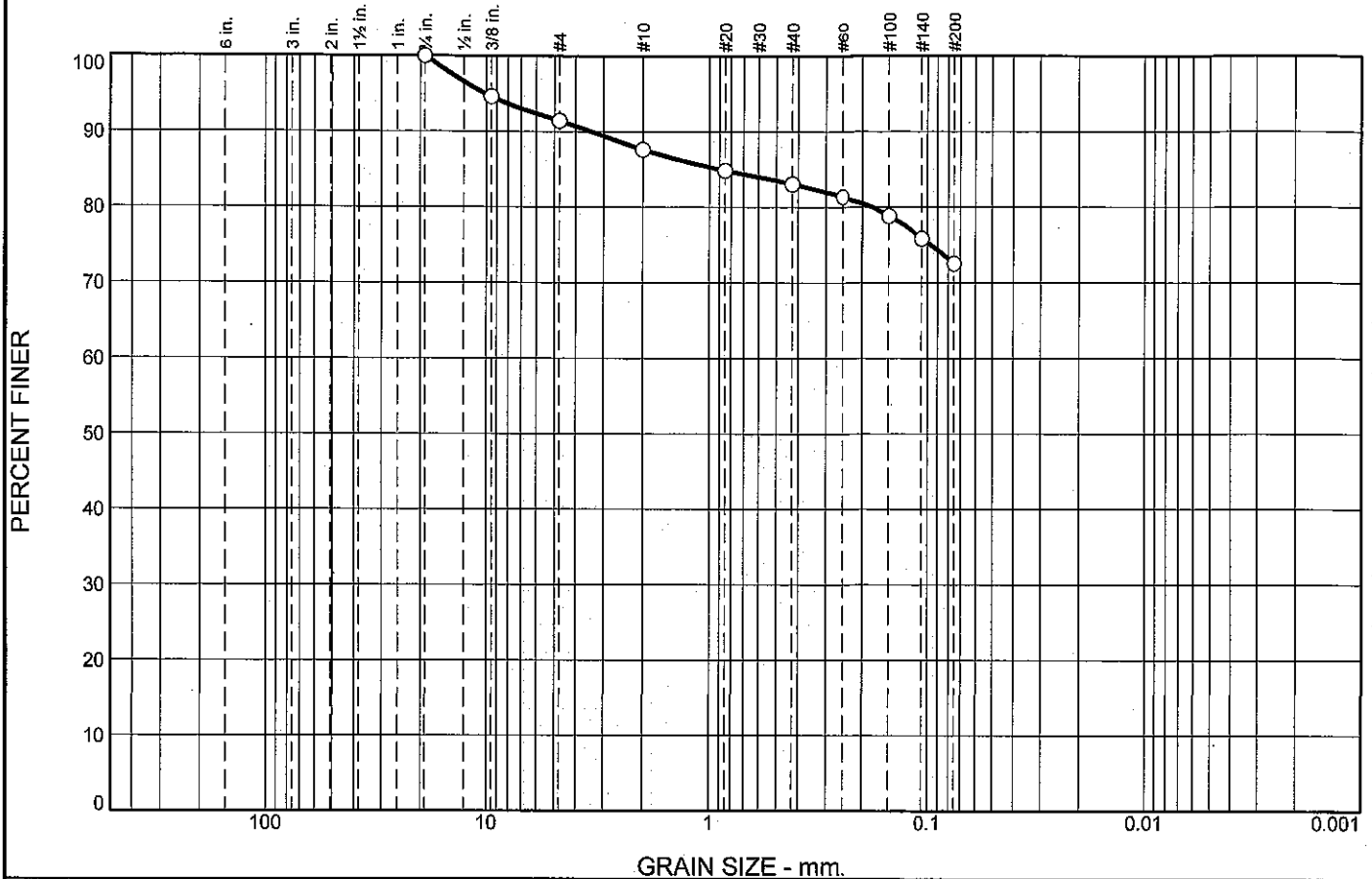


Liquid Limit= 53
 Plastic Limit= 20
 Plasticity Index= 33

Plastic Limit Data

| Run No. | 1 | 2 | 3 | 4 |
|----------|-------|-------|---|---|
| Wet+Tare | 21.83 | 21.27 | | |
| Dry+Tare | 20.45 | 19.98 | | |
| Tare | 13.48 | 13.44 | | |
| Moisture | 19.8 | 19.7 | | |

Particle Size Distribution Report



| | | | | |
|-------|----------|--------|--------|--------|
| % +3" | % Gravel | % Sand | % Silt | % Clay |
| 0.0 | 8.6 | 18.9 | 72.5 | 72.5 |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .75 | 100.0 | | |
| .375 | 94.6 | | |
| #4 | 91.4 | | |
| #10 | 87.6 | | |
| #20 | 84.9 | | |
| #40 | 83.1 | | |
| #60 | 81.4 | | |
| #100 | 78.8 | | |
| #140 | 75.8 | | |
| #200 | 72.5 | | |

Material Description

Strong brown Clay, little sand, trace gravel.

Atterberg Limits

PL= 28 LL= 60 PI= 32

Coefficients

D₉₀= 3.4242 D₈₅= 0.8926 D₆₀=
D₅₀= D₃₀= D₁₅=
D₁₀= C_u= C_c=

Classification

USCS= CH AASHTO= A-7-6(24)

Remarks

* (no specification provided)

Source of Sample: Boring No. 8
Sample Number: 2

Depth: 2'-6" - 4'

Date: 10/7/2020



Client: HT HOLDINGS, LLC
Project: MIRADORES PARQUE ESCORIAL II
CAROLINA, PR
Project No: 5421

Tested By: N.Orengo

Checked By: _____

GRAIN SIZE DISTRIBUTION TEST DATA

10/7/2020

Client: HT HOLDINGS, LLC
 Project: MIRADORES PARQUE ESCORIAL II
 CAROLINA, PR

Project Number: 5421

Location: Boring No. 8

Depth: 2'-6" - 4'

Sample Number: 2

Material Description: Strong brown Clay, little sand, trace gravel.

Date: 10/7/2020

PL: 28

LL: 60

PI: 32

USCS Classification: CH

AASHTO Classification: A-7-6(24)

Tested by: N.Orengo

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 384.26
 Tare Wt. = 343.55
 Minus #200 from wash = 71.6%

| Dry Sample and Tare (grams) | Tare (grams) | Sieve Opening Size | Weight Retained (grams) | Sieve Weight (grams) | Percent Finer |
|-----------------------------|--------------|--------------------|-------------------------|----------------------|---------------|
| 486.90 | 343.55 | .75 | 0.00 | 0.00 | 100.0 |
| | | .375 | 7.74 | 0.00 | 94.6 |
| | | #4 | 4.54 | 0.00 | 91.4 |
| | | #10 | 5.44 | 0.00 | 87.6 |
| | | #20 | 3.97 | 0.00 | 84.9 |
| | | #40 | 2.58 | 0.00 | 83.1 |
| | | #60 | 2.44 | 0.00 | 81.4 |
| | | #100 | 3.64 | 0.00 | 78.8 |
| | | #140 | 4.28 | 0.00 | 75.8 |
| | | #200 | 4.76 | 0.00 | 72.5 |

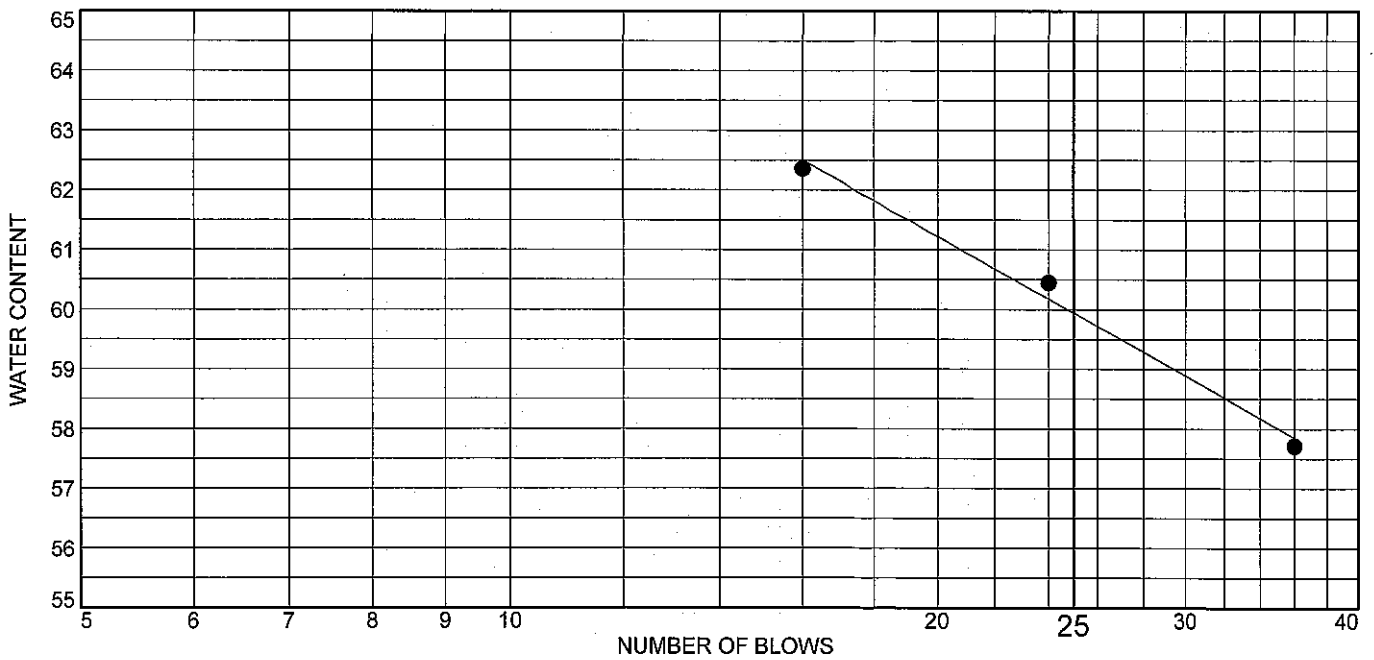
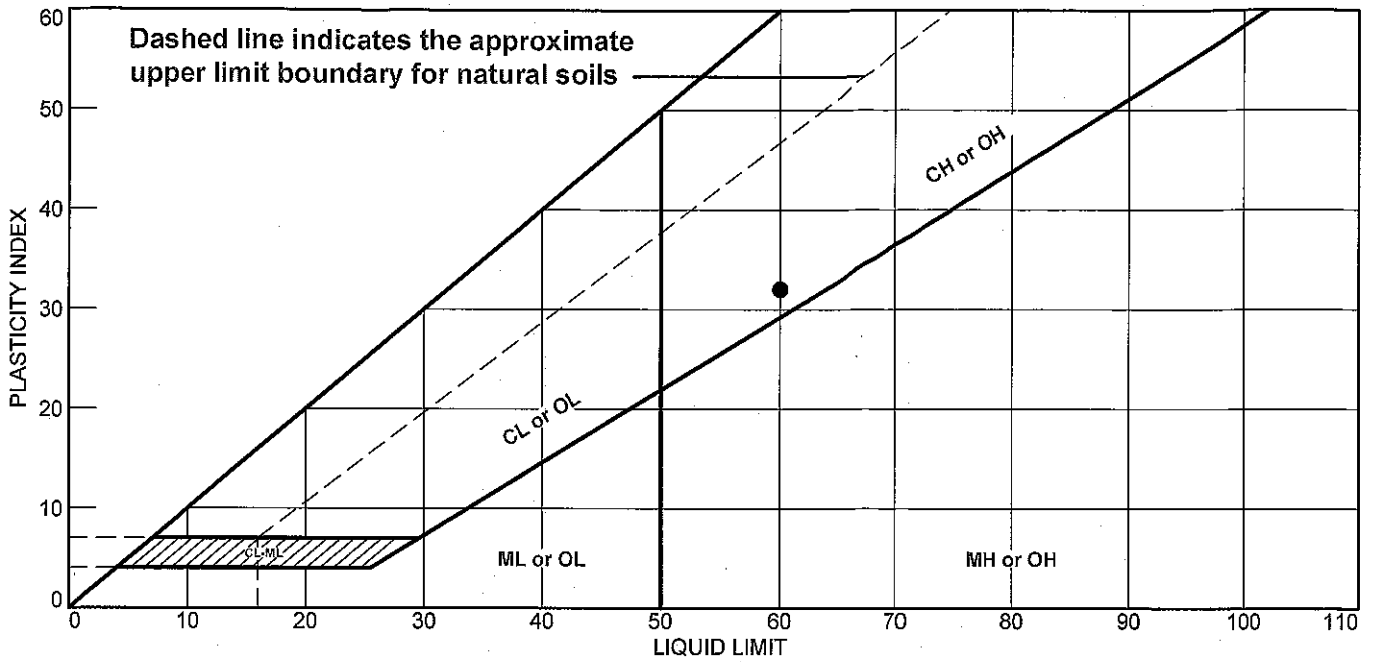
Fractional Components

| Cobbles | Gravel | Sand | Silt | Clay |
|---------|--------|------|------|------|
| 0.0 | 8.6 | 18.9 | | |

| D5 | D10 | D15 | D20 | D30 | D40 | D50 | D60 | D80 | D85 | D90 | D95 |
|----|-----|-----|-----|-----|-----|-----|-----|--------|--------|--------|---------|
| | | | | | | | | 0.1816 | 0.8926 | 3.4242 | 10.1494 |

| |
|-------------------------|
| Fineness Modulus |
| 0.95 |

LIQUID AND PLASTIC LIMITS TEST REPORT



| MATERIAL DESCRIPTION | LL | PL | PI | %<#40 | %<#200 | USCS |
|---|----|----|----|-------|--------|------|
| • Strong brown Clay, little sand, trace gravel. | 60 | 28 | 32 | 83.1 | 72.5 | CH |

Project No. 5421 **Client:** HT HOLDINGS, LLC
Project: MIRADORES PARQUE ESCORIAL II
 CAROLINA, PR
Source of Sample: Boring No. 8 **Depth:** 2'-6" - 4'
Sample Number: 2

Remarks:



Tested By: N.Poventud **Checked By:** _____

LIQUID AND PLASTIC LIMIT TEST DATA

10/7/2020

Client: HT HOLDINGS, LLC

Project: MIRADORES PARQUE ESCORIAL II
CAROLINA, PR

Project Number: 5421

Location: Boring No. 8

Depth: 2'-6" - 4'

Sample Number: 2

Material Description: Strong brown Clay, little sand, trace gravel.

%<#40: 83.1

%<#200: 72.5

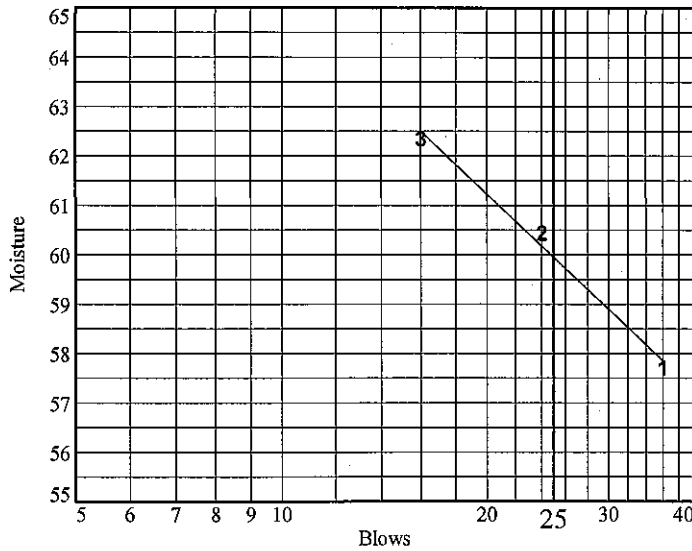
USCS: CH

AASHTO: A-7-6(24)

Tested by: N.Poventud

Liquid Limit Data

| Run No. | 1 | 2 | 3 | 4 | 5 | 6 |
|-----------------|-------|-------|-------|---|---|---|
| Wet+Tare | 22.11 | 22.00 | 22.25 | | | |
| Dry+Tare | 18.93 | 18.76 | 18.87 | | | |
| Tare | 13.42 | 13.40 | 13.45 | | | |
| # Blows | 36 | 24 | 16 | | | |
| Moisture | 57.7 | 60.4 | 62.4 | | | |

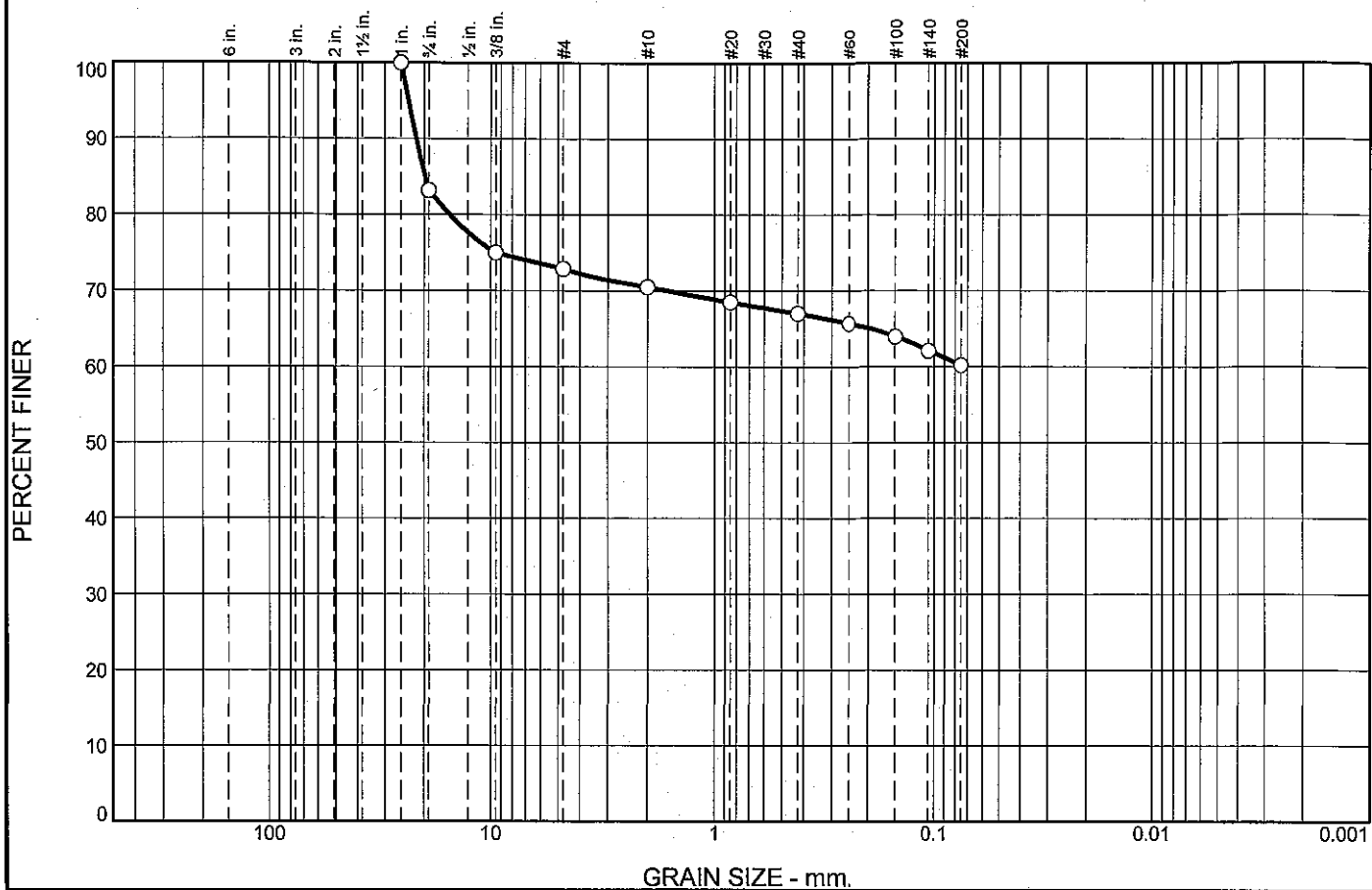


Liquid Limit= 60
Plastic Limit= 28
Plasticity Index= 32

Plastic Limit Data

| Run No. | 1 | 2 | 3 | 4 |
|-----------------|-------|-------|---|---|
| Wet+Tare | 21.55 | 21.50 | | |
| Dry+Tare | 19.78 | 19.73 | | |
| Tare | 13.48 | 13.34 | | |
| Moisture | 28.1 | 27.7 | | |

Particle Size Distribution Report



| % +3" | % Gravel | % Sand | % Silt | % Clay |
|-------|----------|--------|--------|--------|
| 0.0 | 27.1 | 12.7 | 60.2 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 83.2 | | |
| .375 | 75.0 | | |
| #4 | 72.9 | | |
| #10 | 70.5 | | |
| #20 | 68.5 | | |
| #40 | 67.0 | | |
| #60 | 65.7 | | |
| #100 | 64.0 | | |
| #140 | 62.1 | | |
| #200 | 60.2 | | |

Material Description

Red Clay, some gravel, little sand.

Atterberg Limits

PL= 34 LL= 85 PI= 51

Coefficients

D₉₀= 21.6992 D₈₅= 19.8044 D₆₀=
D₅₀= D₃₀= D₁₅=
D₁₀= C_u= C_c=

Classification

USCS= CH AASHTO= A-7-5(29)

Remarks

* (no specification provided)

Source of Sample: Boring No. 9 Depth: 14' - 15'-6" Date: 10/7/2020
Sample Number: 6



Client: HT HOLDINGS, LLC
Project: MIRADORES PARQUE ESCORIAL II
CAROLINA, PR
Project No: 5421

Tested By: N.Orengo Checked By: _____

GRAIN SIZE DISTRIBUTION TEST DATA

10/7/2020

Client: HT HOLDINGS, LLC
Project: MIRADORES PARQUE ESCORIAL II
 CAROLINA, PR

Project Number: 5421

Location: Boring No. 9

Depth: 14' - 15'-6"

Sample Number: 6

Material Description: Red Clay, some gravel, little sand.

Date: 10/7/2020

PL: 34

LL: 85

PI: 51

USCS Classification: CH

AASHTO Classification: A-7-5(29)

Tested by: N.Orengo

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 545.40
 Tare Wt. = 476.10
 Minus #200 from wash = 59.5%

| Dry Sample and Tare (grams) | Tare (grams) | Sieve Opening Size | Weight Retained (grams) | Sieve Weight (grams) | Percent Finer |
|-----------------------------|--------------|--------------------|-------------------------|----------------------|---------------|
| 647.20 | 476.10 | 1 | 0.00 | 0.00 | 100.0 |
| | | .75 | 28.78 | 0.00 | 83.2 |
| | | .375 | 13.95 | 0.00 | 75.0 |
| | | #4 | 3.63 | 0.00 | 72.9 |
| | | #10 | 4.14 | 0.00 | 70.5 |
| | | #20 | 3.41 | 0.00 | 68.5 |
| | | #40 | 2.53 | 0.00 | 67.0 |
| | | #60 | 2.22 | 0.00 | 65.7 |
| | | #100 | 3.00 | 0.00 | 64.0 |
| | | #140 | 3.16 | 0.00 | 62.1 |
| | | #200 | 3.31 | 0.00 | 60.2 |

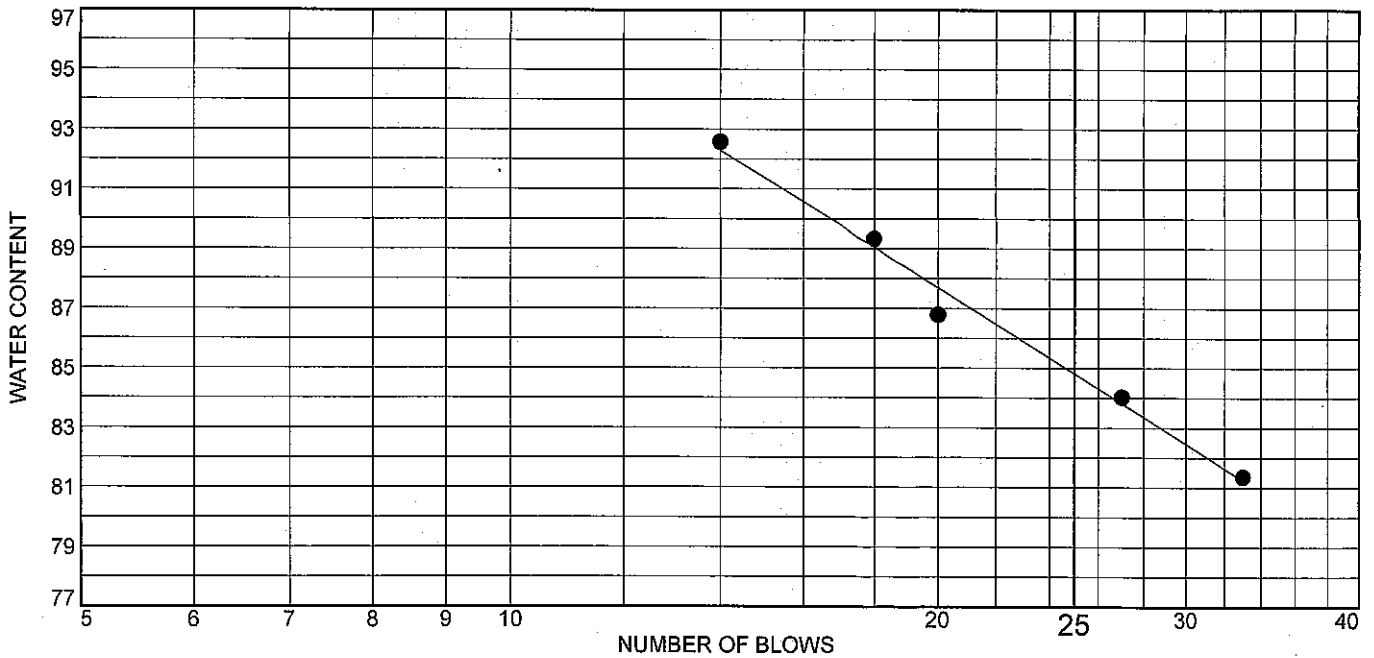
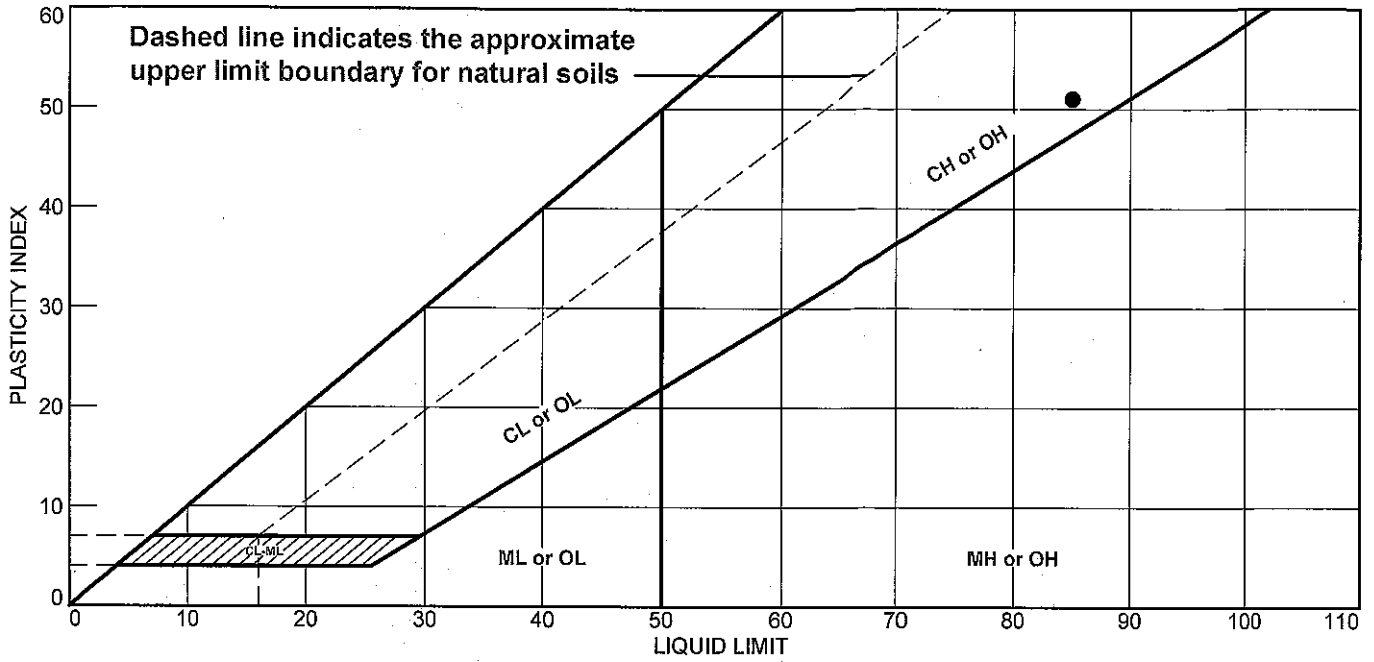
Fractional Components

| Cobbles | Gravel | Sand | Silt | Clay |
|---------|--------|------|------|------|
| 0.0 | 27.1 | 12.7 | | |

| D5 | D10 | D15 | D20 | D30 | D40 | D50 | D60 | D80 | D85 | D90 | D95 |
|----|-----|-----|-----|-----|-----|-----|-----|---------|---------|---------|---------|
| | | | | | | | | 15.3582 | 19.8044 | 21.6992 | 23.5234 |

| |
|-------------------------|
| Fineness Modulus |
| 2.31 |

LIQUID AND PLASTIC LIMITS TEST REPORT



| MATERIAL DESCRIPTION | LL | PL | PI | %<#40 | %<#200 | USCS |
|---------------------------------------|----|----|----|-------|--------|------|
| • Red Clay, some gravel, little sand. | 85 | 34 | 51 | 67.0 | 60.2 | CH |

Project No. 5421 **Client:** HT HOLDINGS, LLC
Project: MIRADORES PARQUE ESCORIAL II
 CAROLINA, PR
Source of Sample: Boring No. 9 **Depth:** 14' - 15'-6"
Sample Number: 6

Remarks:



Tested By: N.Poventud **Checked By:** _____

LIQUID AND PLASTIC LIMIT TEST DATA

10/7/2020

Client: HT HOLDINGS, LLC
Project: MIRADORES PARQUE ESCORIAL II
 CAROLINA, PR

Project Number: 5421

Location: Boring No. 9

Depth: 14' - 15'-6"

Sample Number: 6

Material Description: Red Clay, some gravel, little sand.

%<#40: 67.0

%<#200: 60.2

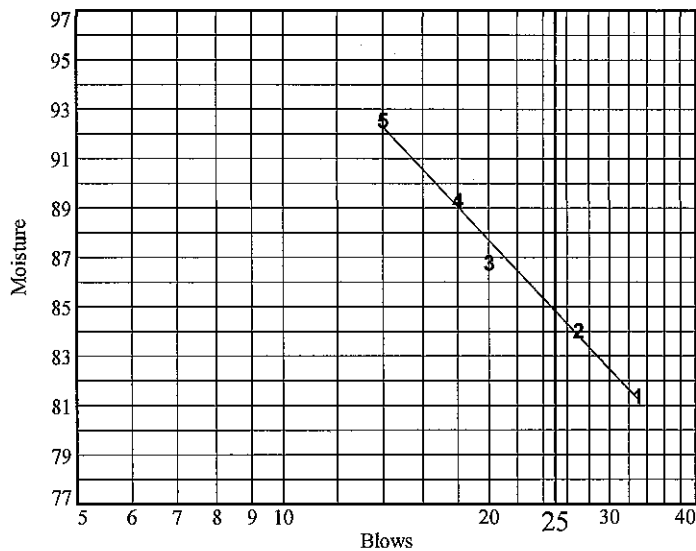
USCS: CH

AASHTO: A-7-5(29)

Tested by: N.Poventud

Liquid Limit Data

| Run No. | 1 | 2 | 3 | 4 | 5 | 6 |
|----------|-------|-------|-------|-------|-------|---|
| Wet+Tare | 21.14 | 21.82 | 22.02 | 21.73 | 22.68 | |
| Dry+Tare | 17.69 | 18.03 | 18.01 | 17.88 | 18.69 | |
| Tare | 13.45 | 13.52 | 13.39 | 13.57 | 14.38 | |
| # Blows | 33 | 27 | 20 | 18 | 14 | |
| Moisture | 81.4 | 84.0 | 86.8 | 89.3 | 92.6 | |

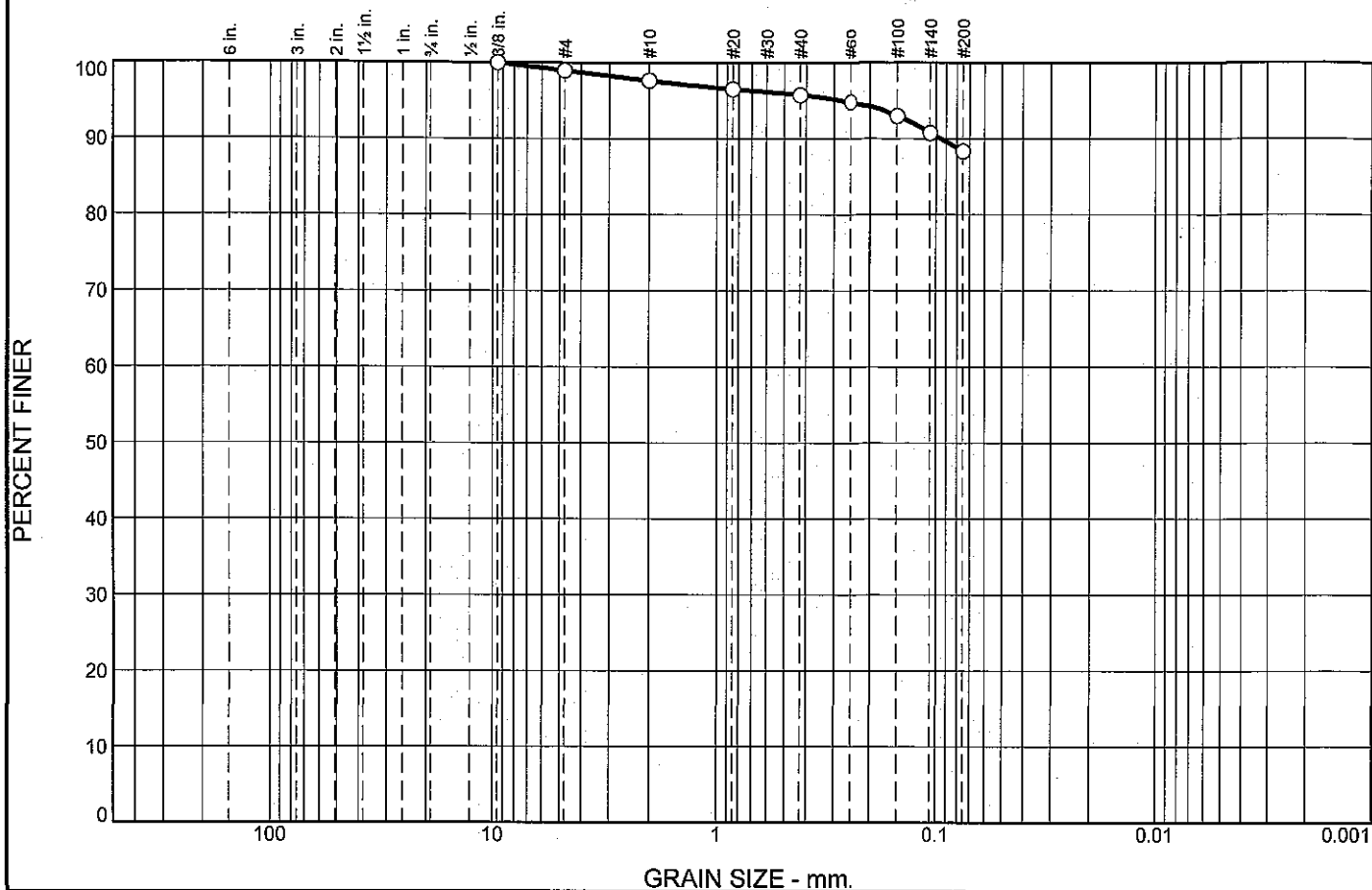


Liquid Limit= 85
 Plastic Limit= 34
 Plasticity Index= 51

Plastic Limit Data

| Run No. | 1 | 2 | 3 | 4 |
|----------|-------|-------|---|---|
| Wet+Tare | 21.98 | 20.83 | | |
| Dry+Tare | 19.81 | 18.96 | | |
| Tare | 13.52 | 13.41 | | |
| Moisture | 34.5 | 33.7 | | |

Particle Size Distribution Report



| % +3" | % Gravel | % Sand | % Silt | % Clay |
|-------|----------|--------|--------|--------|
| 0.0 | 1.0 | 10.7 | 88.3 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 99.0 | | |
| #10 | 97.6 | | |
| #20 | 96.5 | | |
| #40 | 95.7 | | |
| #60 | 94.8 | | |
| #100 | 93.0 | | |
| #140 | 90.7 | | |
| #200 | 88.3 | | |

Material Description

Yellowish red Clay, little sand, trace gravel.

Atterberg Limits

PL= 30 LL= 78 PI= 48

Coefficients

D₉₀= 0.0953 D₈₅= D₆₀=
D₅₀= D₃₀= D₁₅=
D₁₀= C_u= C_c=

Classification

USCS= CH AASHTO= A-7-5(48)

Remarks

* (no specification provided)

Source of Sample: Boring No. 11
Sample Number: 7

Depth: 19' - 20'-6"

Date: 10/7/2020



Client: HT HOLDINGS, LLC
Project: MIRADORES PARQUE ESCORIAL II
CAROLINA, PR
Project No: 5421

Tested By: N.Orengo

Checked By: _____

GRAIN SIZE DISTRIBUTION TEST DATA

10/7/2020

Client: HT HOLDINGS, LLC
 Project: MIRADORES PARQUE ESCORIAL II
 CAROLINA, PR

Project Number: 5421

Location: Boring No. 11

Depth: 19' - 20'-6"

Sample Number: 7

Material Description: Yellowish red Clay, little sand, trace gravel.

Date: 10/7/2020

PL: 30

LL: 78

PI: 48

USCS Classification: CH

AASHTO Classification: A-7-5(48)

Tested by: N.Orengo

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 250.74
 Tare Wt. = 232.07
 Minus #200 from wash = 87.6%

| Dry Sample and Tare (grams) | Tare (grams) | Sieve Opening Size | Weight Retained (grams) | Sieve Weight (grams) | Percent Finer |
|-----------------------------|--------------|--------------------|-------------------------|----------------------|---------------|
| 382.33 | 232.07 | .375 | 0.00 | 0.00 | 100.0 |
| | | #4 | 1.56 | 0.00 | 99.0 |
| | | #10 | 2.01 | 0.00 | 97.6 |
| | | #20 | 1.65 | 0.00 | 96.5 |
| | | #40 | 1.17 | 0.00 | 95.7 |
| | | #60 | 1.42 | 0.00 | 94.8 |
| | | #100 | 2.75 | 0.00 | 93.0 |
| | | #140 | 3.36 | 0.00 | 90.7 |
| | | #200 | 3.60 | 0.00 | 88.3 |

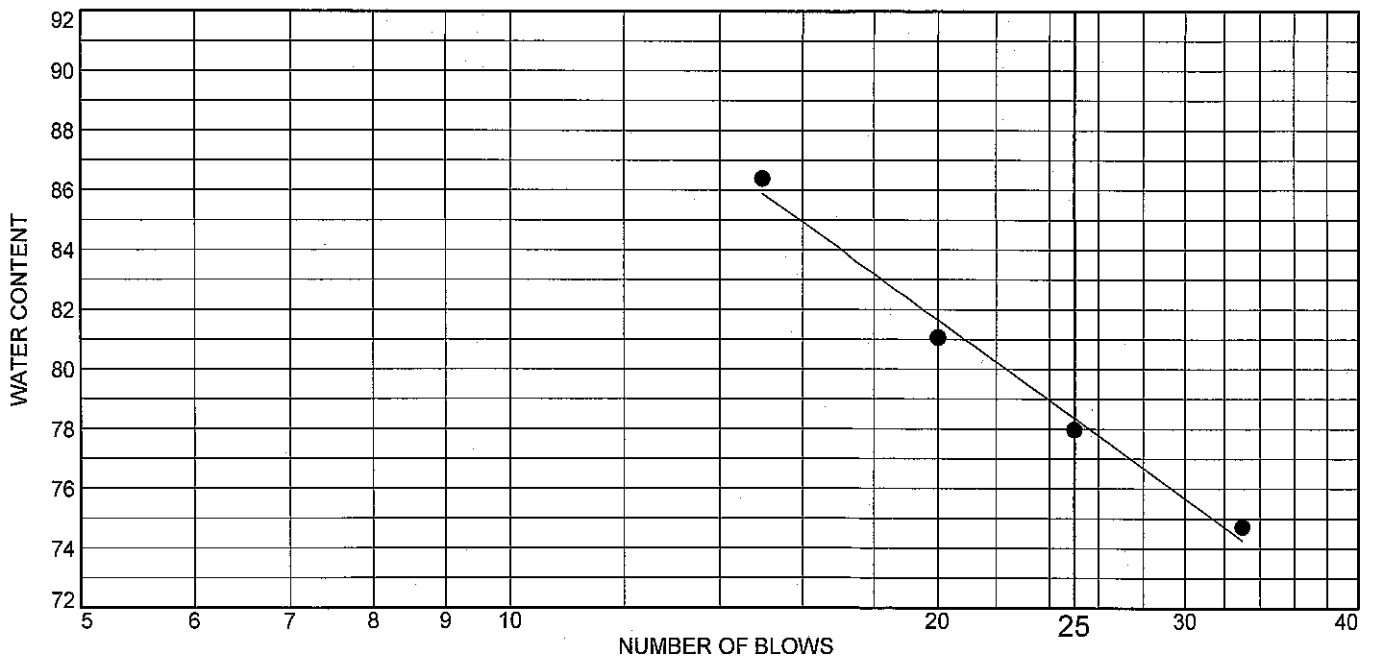
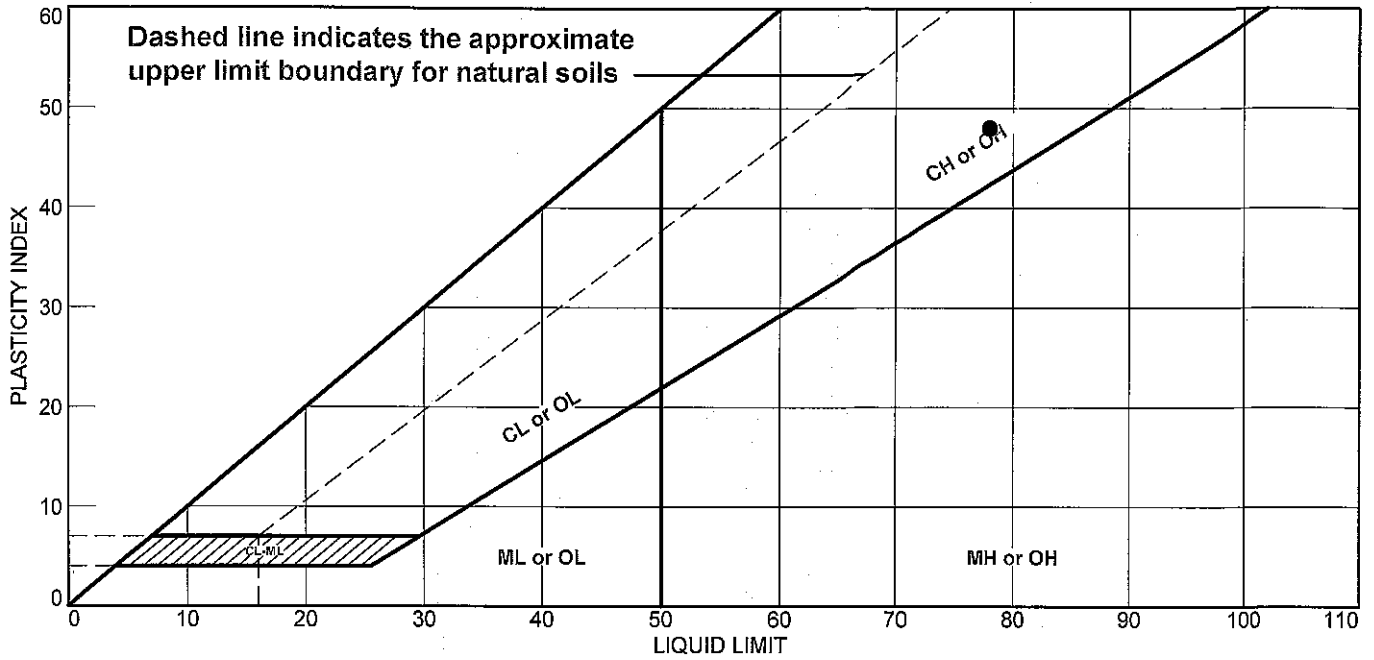
Fractional Components

| Cobbles | Gravel | Sand | Silt | Clay |
|---------|--------|------|------|------|
| 0.0 | 1.0 | 10.7 | | |

| D ₅ | D ₁₀ | D ₁₅ | D ₂₀ | D ₃₀ | D ₄₀ | D ₅₀ | D ₆₀ | D ₈₀ | D ₈₅ | D ₉₀ | D ₉₅ |
|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | | | | | | | | | | 0.0953 | 0.2731 |

| |
|-------------------------|
| Fineness Modulus |
| 0.22 |

LIQUID AND PLASTIC LIMITS TEST REPORT



| MATERIAL DESCRIPTION | LL | PL | PI | %<#40 | %<#200 | USCS |
|--|----|----|----|-------|--------|------|
| ● Yellowish red Clay, little sand, trace gravel. | 78 | 30 | 48 | 95.7 | 88.3 | CH |

Project No. 5421 **Client:** HT HOLDINGS, LLC
Project: MIRADORES PARQUE ESCORIAL II
 CAROLINA, PR
Source of Sample: Boring No. 11 **Depth:** 19' - 20'-6"
Sample Number: 7

Remarks:



Tested By: N.Poventud **Checked By:** _____

LIQUID AND PLASTIC LIMIT TEST DATA

10/7/2020

Client: HT HOLDINGS, LLC
Project: MIRADORES PARQUE ESCORIAL II
 CAROLINA, PR

Project Number: 5421

Location: Boring No. 11

Depth: 19' - 20'-6"

Sample Number: 7

Material Description: Yellowish red Clay, little sand, trace gravel.

%<#40: 95.7

%<#200: 88.3

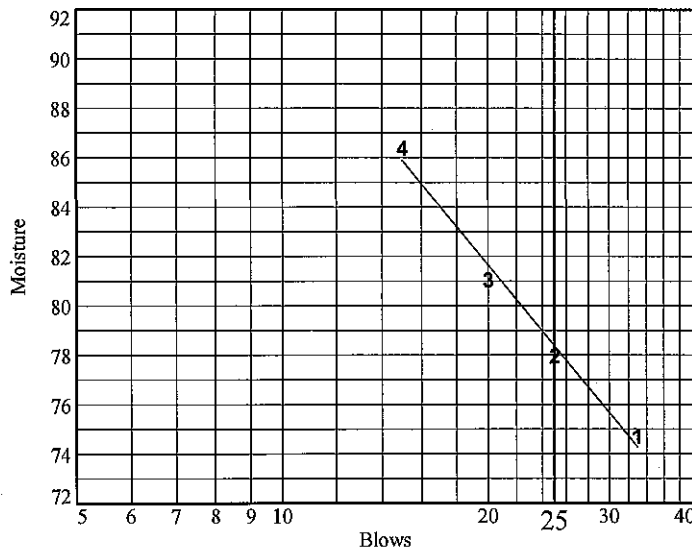
USCS: CH

AASHTO: A-7-5(48)

Tested by: N.Poventud

Liquid Limit Data

| Run No. | 1 | 2 | 3 | 4 | 5 | 6 |
|----------|-------|-------|-------|-------|---|---|
| Wet+Tare | 21.52 | 22.23 | 21.97 | 22.45 | | |
| Dry+Tare | 18.06 | 18.37 | 18.16 | 18.26 | | |
| Tare | 13.43 | 13.42 | 13.46 | 13.41 | | |
| # Blows | 33 | 25 | 20 | 15 | | |
| Moisture | 74.7 | 78.0 | 81.1 | 86.4 | | |

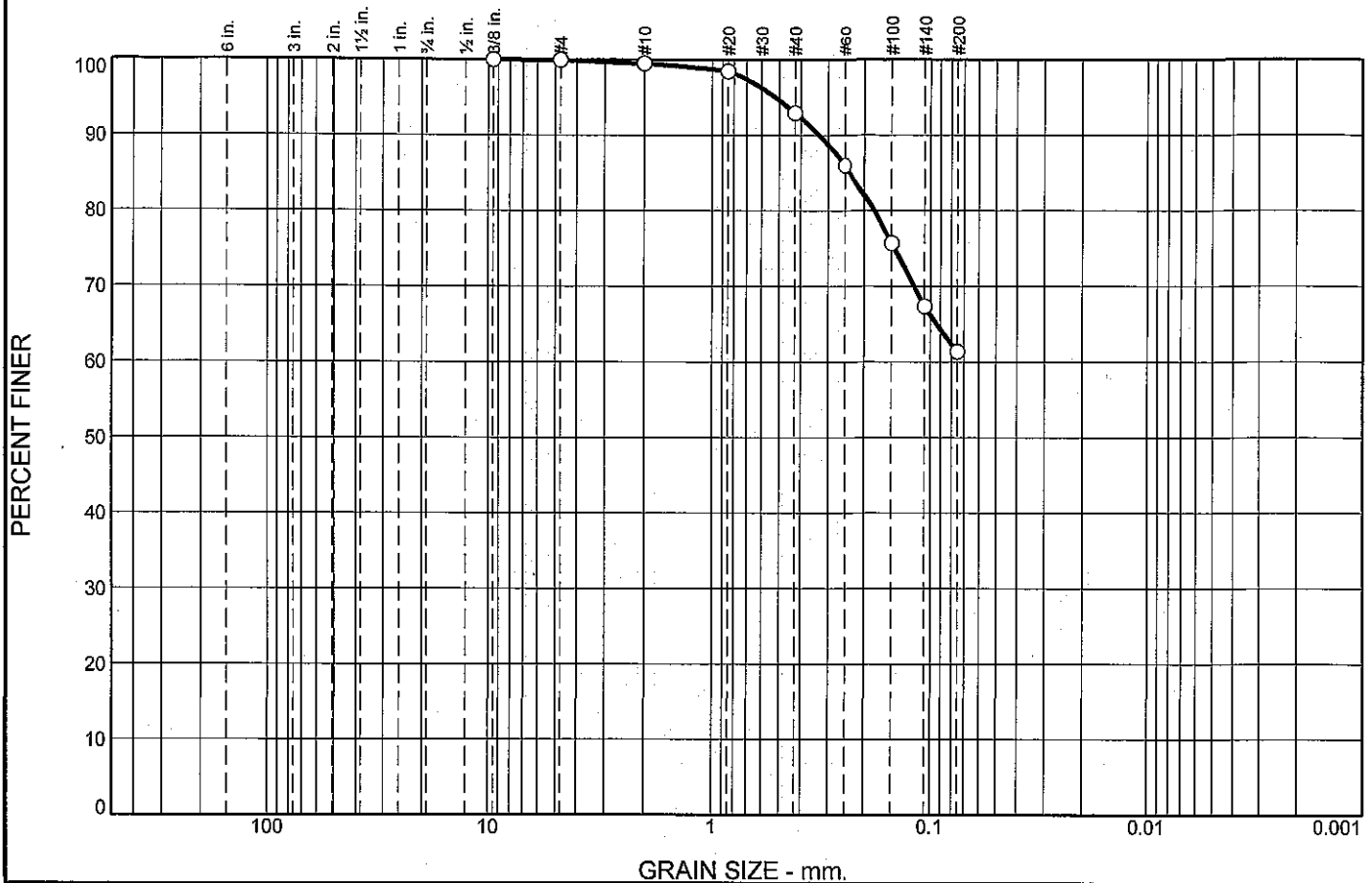


Liquid Limit= 78
 Plastic Limit= 30
 Plasticity Index= 48

Plastic Limit Data

| Run No. | 1 | 2 | 3 | 4 |
|----------|-------|-------|---|---|
| Wet+Tare | 21.04 | 22.72 | | |
| Dry+Tare | 19.29 | 20.75 | | |
| Tare | 13.38 | 14.18 | | |
| Moisture | 29.6 | 30.0 | | |

Particle Size Distribution Report



| | | | |
|-------|----------|--------|--------|
| % +3" | % Gravel | % Sand | % Silt |
| 0.0 | 0.1 | 38.6 | 61.3 |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 99.9 | | |
| #10 | 99.5 | | |
| #20 | 98.5 | | |
| #40 | 93.0 | | |
| #60 | 86.0 | | |
| #100 | 75.7 | | |
| #140 | 67.3 | | |
| #200 | 61.3 | | |

Material Description

Olive gray Sandy Clay, trace gravel.

Atterberg Limits

PL= 28 LL= 57 PI= 29

Coefficients

D₉₀= 0.3297 D₈₅= 0.2353 D₆₀=
 D₅₀= D₃₀= D₁₅=
 D₁₀= C_u= C_c=

Classification

USCS= CH AASHTO= A-7-6(16)

Remarks

* (no specification provided)

Source of Sample: Boring No. 13 Depth: 10' - 11'-6" Date: 10/9/2020
 Sample Number: 5

| | |
|---|---|
|  | Client: HT HOLDINGS, LLC Project: MIRADORES PARQUE ESCORIAL II CAROLINA, PR Project No: 5421 |
|---|---|

Tested By: N. Orengo Checked By: _____

GRAIN SIZE DISTRIBUTION TEST DATA

10/9/2020

Client: HT HOLDINGS, LLC
Project: MIRADORES PARQUE ESCORIAL II
 CAROLINA, PR

Project Number: 5421

Location: Boring No. 13

Depth: 10' - 11'-6"

Sample Number: 5

Material Description: Olive gray Sandy Clay, trace gravel.

Date: 10/9/2020

PL: 28

LL: 57

PI: 29

USCS Classification: CH

AASHTO Classification: A-7-6(16)

Tested by: N.Orengo

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 329.41
 Tare Wt. = 274.79
 Minus #200 from wash = 59.5%

| Dry Sample and Tare (grams) | Tare (grams) | Sieve Opening Size | Weight Retained (grams) | Sieve Weight (grams) | Percent Finer |
|-----------------------------|--------------|--------------------|-------------------------|----------------------|---------------|
| 409.70 | 274.79 | .375 | 0.00 | 0.00 | 100.0 |
| | | #4 | 0.09 | 0.00 | 99.9 |
| | | #10 | 0.60 | 0.00 | 99.5 |
| | | #20 | 1.37 | 0.00 | 98.5 |
| | | #40 | 7.44 | 0.00 | 93.0 |
| | | #60 | 9.37 | 0.00 | 86.0 |
| | | #100 | 13.92 | 0.00 | 75.7 |
| | | #140 | 11.27 | 0.00 | 67.3 |
| | | #200 | 8.10 | 0.00 | 61.3 |

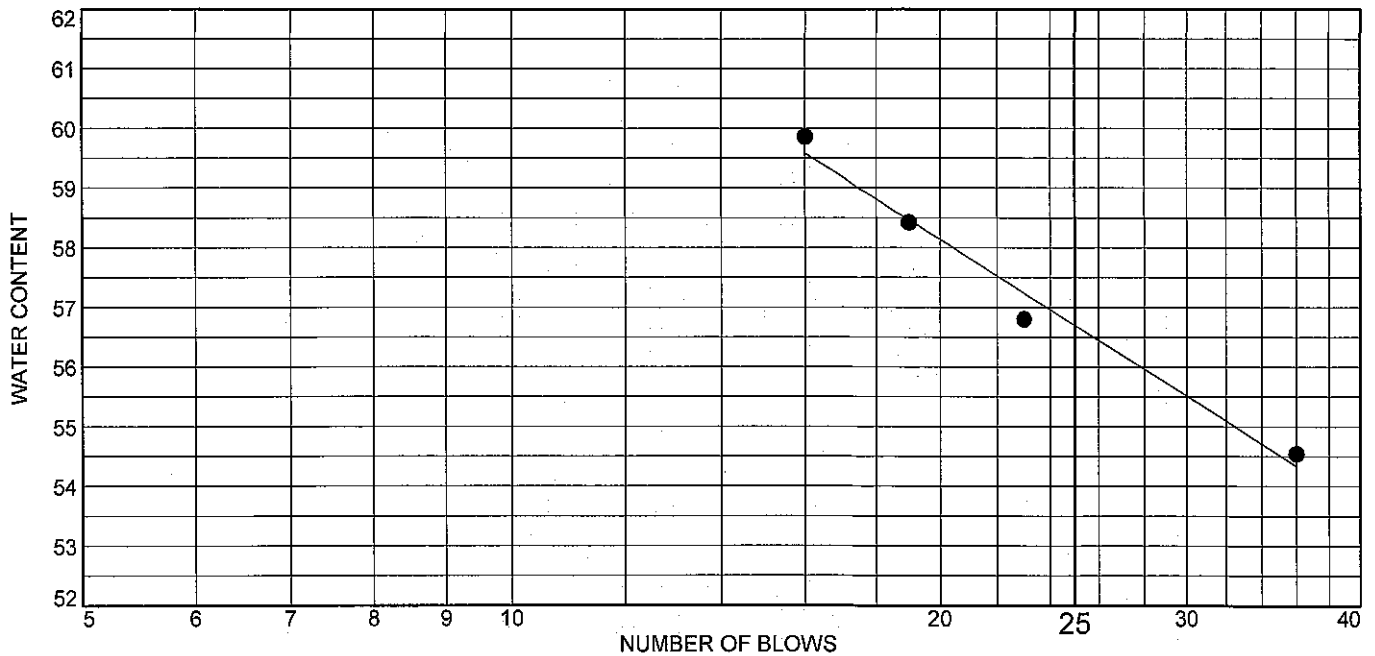
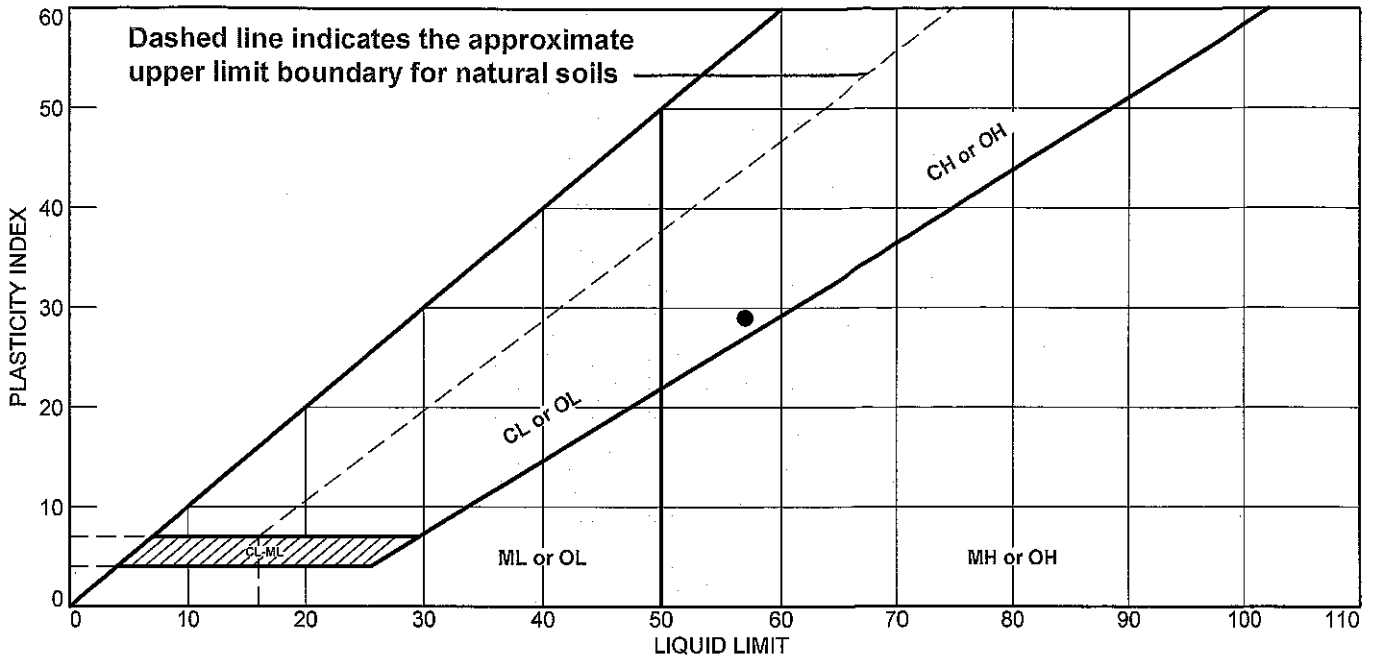
Fractional Components

| Cobbles | Gravel | Sand | Silt | Clay |
|---------|--------|------|------|------|
| 0.0 | 0.1 | 38.6 | | |

| D5 | D10 | D15 | D20 | D30 | D40 | D50 | D60 | D80 | D85 | D90 | D95 |
|----|-----|-----|-----|-----|-----|-----|-----|--------|--------|--------|--------|
| | | | | | | | | 0.1814 | 0.2353 | 0.3297 | 0.5205 |


| |
|-------------------------|
| Fineness Modulus |
| 0.41 |

LIQUID AND PLASTIC LIMITS TEST REPORT



| MATERIAL DESCRIPTION | LL | PL | PI | %<#40 | %<#200 | USCS |
|--|----|----|----|-------|--------|------|
| • Olive gray Sandy Clay, trace gravel. | 57 | 28 | 29 | 93.0 | 61.3 | CH |

Project No. 5421 **Client:** HT HOLDINGS, LLC
Project: MIRADORES PARQUE ESCORIAL II
 CAROLINA, PR
Source of Sample: Boring No. 13 **Depth:** 10' - 11'-6"
Sample Number: 5


GEOTECHNICAL TESTING SERVICES

Remarks:

Tested By: N.Poventud **Checked By:** _____

LIQUID AND PLASTIC LIMIT TEST DATA

10/13/2020

Client: HT HOLDINGS, LLC
 Project: MIRADORES PARQUE ESCORIAL II
 CAROLINA, PR

Project Number: 5421

Location: Boring No. 13

Depth: 10' - 11'-6"

Sample Number: 5

Material Description: Olive gray Sandy Clay, trace gravel.

%<#40: 93.0

%<#200: 61.3

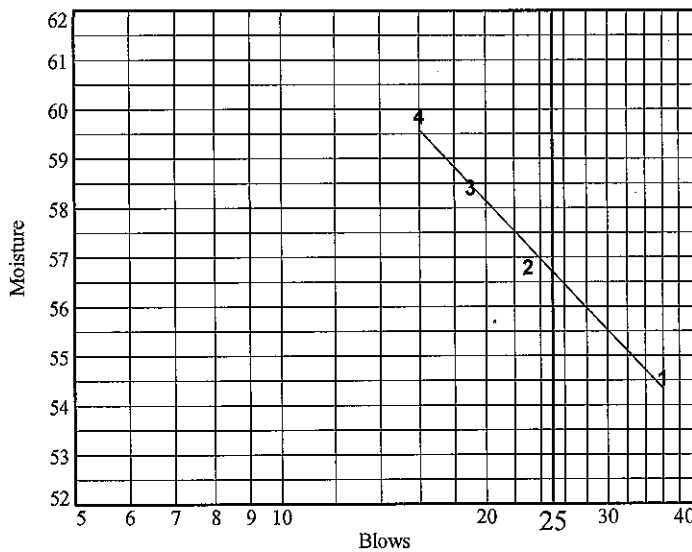
USCS: CH

AASHTO: A-7-6(16)

Tested by: N.Poventud

Liquid Limit Data

| Run No. | 1 | 2 | 3 | 4 | 5 | 6 |
|----------|-------|-------|-------|-------|---|---|
| Wet+Tare | 23.38 | 22.47 | 22.22 | 22.75 | | |
| Dry+Tare | 19.90 | 19.17 | 18.96 | 19.26 | | |
| Tare | 13.52 | 13.36 | 13.38 | 13.43 | | |
| # Blows | 36 | 23 | 19 | 16 | | |
| Moisture | 54.5 | 56.8 | 58.4 | 59.9 | | |

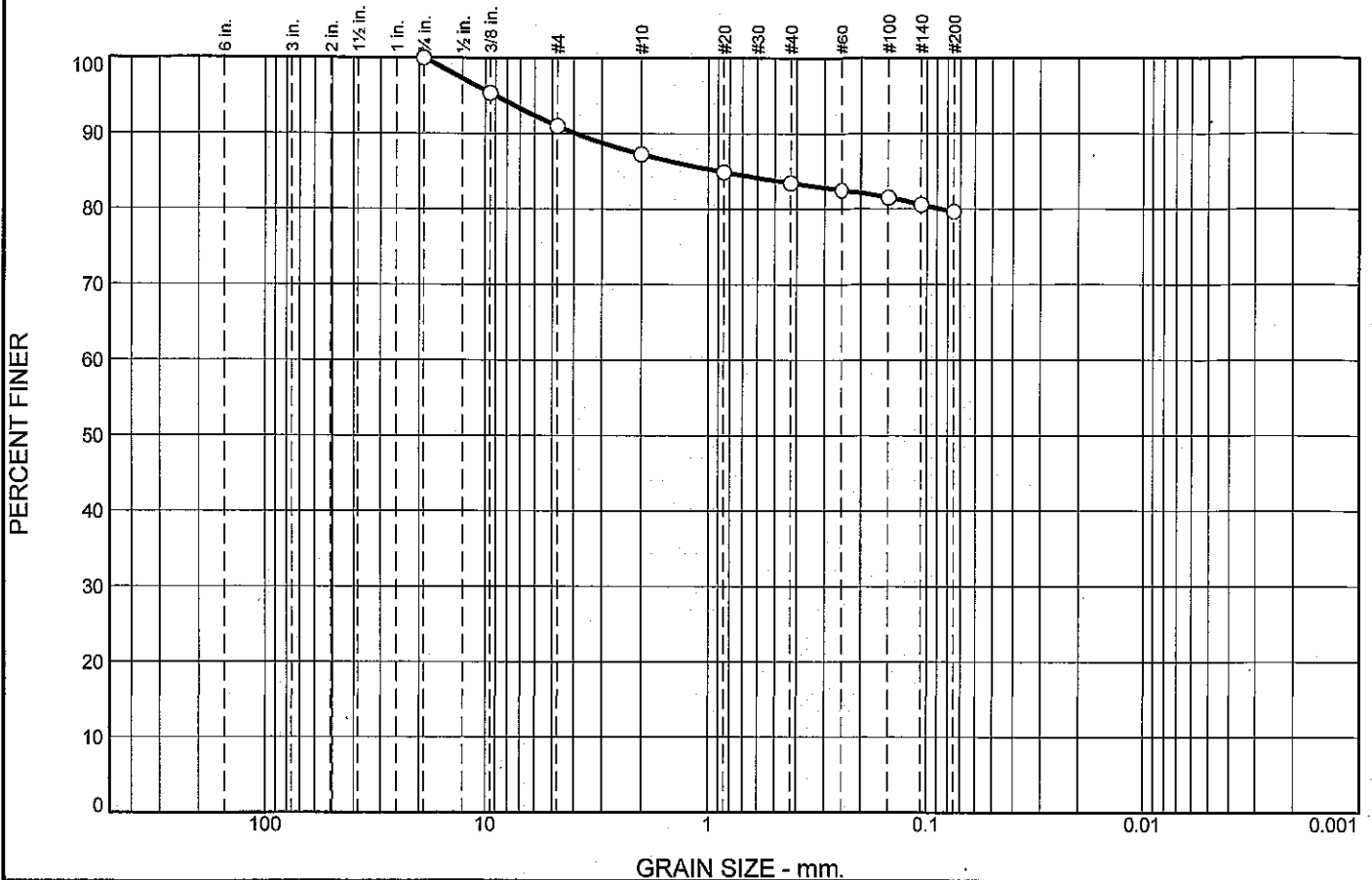


Liquid Limit= 57
 Plastic Limit= 28
 Plasticity Index= 29

Plastic Limit Data

| Run No. | 1 | 2 | 3 | 4 |
|----------|-------|-------|---|---|
| Wet+Tare | 21.04 | 22.51 | | |
| Dry+Tare | 19.42 | 20.69 | | |
| Tare | 13.59 | 14.18 | | |
| Moisture | 27.8 | 28.0 | | |

Particle Size Distribution Report



| | | | | |
|-------|----------|--------|--------|--------|
| % +3" | % Gravel | % Sand | % Silt | % Clay |
| 0.0 | 9.0 | 11.4 | 79.6 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .75 | 100.0 | | |
| .375 | 95.3 | | |
| #4 | 91.0 | | |
| #10 | 87.3 | | |
| #20 | 84.9 | | |
| #40 | 83.5 | | |
| #60 | 82.5 | | |
| #100 | 81.5 | | |
| #140 | 80.5 | | |
| #200 | 79.6 | | |

Material Description

Red Clay, little sand, trace gravel.

Atterberg Limits

PL= 31 LL= 69 PI= 38

Coefficients

D₉₀= 3.9322 D₈₅= 0.8844 D₆₀=
D₅₀= D₃₀= D₁₅=
D₁₀= C_u= C_c=

Classification

USCS= CH AASHTO= A-7-5(34)

Remarks

* (no specification provided)

Source of Sample: Boring No. 14
Sample Number: 5

Depth: 10' - 11'-6"

Date: 10/9/2020



Client: HT HOLDINGS, LLC
Project: MIRADORES PARQUE ESCORIAL II
CAROLINA, PR
Project No: 5421

Tested By: N.Orengo

Checked By: _____

GRAIN SIZE DISTRIBUTION TEST DATA

10/9/2020

Client: HT HOLDINGS, LLC
Project: MIRADORES PARQUE ESCORIAL II
 CAROLINA, PR

Project Number: 5421

Location: Boring No. 14

Depth: 10' - 11'-6"

Sample Number: 5

Material Description: Red Clay, little sand, trace gravel.

Date: 10/9/2020

PL: 31

LL: 69

PI: 38

USCS Classification: CH

AASHTO Classification: A-7-5(34)

Tested by: N.Orengo

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 590.30
 Tare Wt. = 555.40
 Minus #200 from wash = 79.3%

| Dry Sample and Tare (grams) | Tare (grams) | Sieve Opening Size | Weight Retained (grams) | Sieve Weight (grams) | Percent Finer |
|-----------------------------|--------------|--------------------|-------------------------|----------------------|---------------|
| 723.70 | 555.40 | .75 | 0.00 | 0.00 | 100.0 |
| | | .375 | 7.83 | 0.00 | 95.3 |
| | | #4 | 7.35 | 0.00 | 91.0 |
| | | #10 | 6.25 | 0.00 | 87.3 |
| | | #20 | 3.97 | 0.00 | 84.9 |
| | | #40 | 2.43 | 0.00 | 83.5 |
| | | #60 | 1.61 | 0.00 | 82.5 |
| | | #100 | 1.67 | 0.00 | 81.5 |
| | | #140 | 1.64 | 0.00 | 80.5 |
| | | #200 | 1.53 | 0.00 | 79.6 |

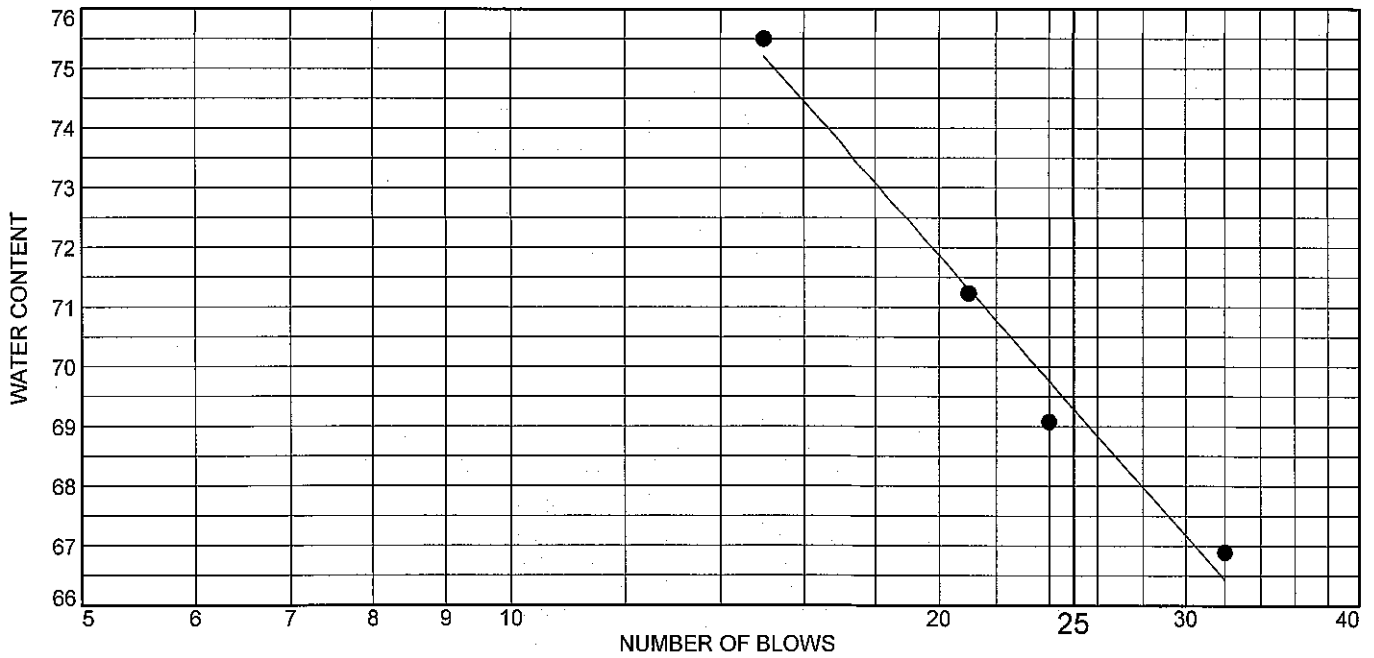
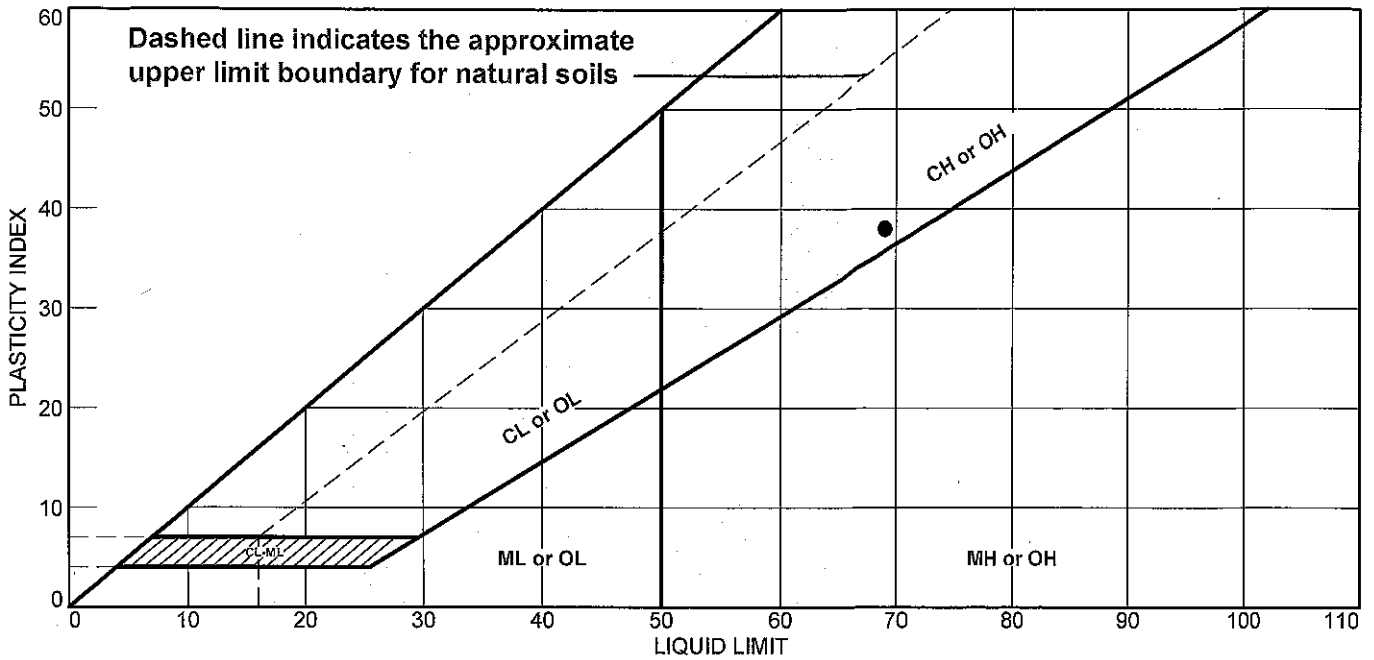
Fractional Components

| Cobbles | Gravel | Sand | Silt | Clay |
|---------|--------|------|------|------|
| 0.0 | 9.0 | 11.4 | | |

| D5 | D10 | D15 | D20 | D30 | D40 | D50 | D60 | D80 | D85 | D90 | D95 |
|----|-----|-----|-----|-----|-----|-----|-----|--------|--------|--------|--------|
| | | | | | | | | 0.0867 | 0.8844 | 3.9322 | 9.0422 |

| |
|-------------------------|
| Fineness Modulus |
| 0.92 |

LIQUID AND PLASTIC LIMITS TEST REPORT



| MATERIAL DESCRIPTION | LL | PL | PI | %<#40 | %<#200 | USCS |
|--|----|----|----|-------|--------|------|
| • Red Clay, little sand, trace gravel. | 69 | 31 | 38 | 83.5 | 79.6 | CH |

Project No. 5421 **Client:** HT HOLDINGS, LLC
Project: MIRADORES PARQUE ESCORIAL II
 CAROLINA, PR
Source of Sample: Boring No. 14 **Depth:** 10' - 11'-6"
Sample Number: 5

Remarks:

Tested By: N.Poventud **Checked By:** _____

LIQUID AND PLASTIC LIMIT TEST DATA

10/13/2020

Client: HT HOLDINGS, LLC
 Project: MIRADORES PARQUE ESCORIAL II
 CAROLINA, PR

Project Number: 5421

Location: Boring No. 14

Depth: 10' - 11'-6"

Sample Number: 5

Material Description: Red Clay, little sand, trace gravel.

%<#40: 83.5

%<#200: 79.6

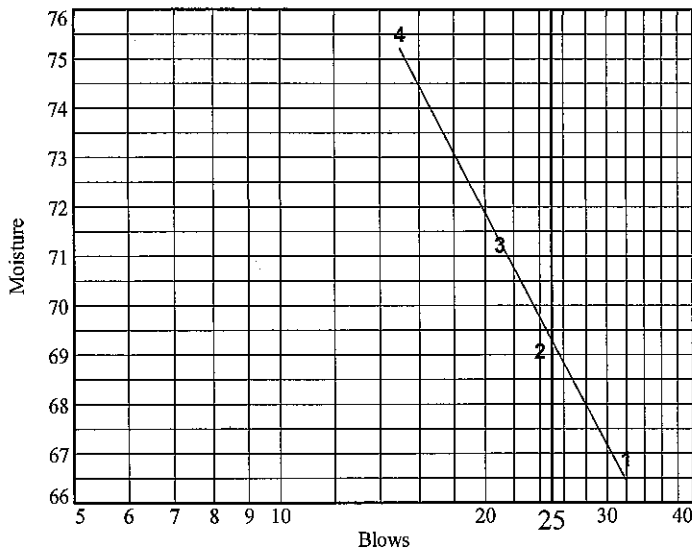
USCS: CH

AASHTO: A-7-5(34)

Tested by: N.Poventud

Liquid Limit Data

| Run No. | 1 | 2 | 3 | 4 | 5 | 6 |
|----------|-------|-------|-------|-------|---|---|
| Wet+Tare | 21.06 | 22.05 | 22.27 | 22.01 | | |
| Dry+Tare | 18.07 | 18.52 | 18.58 | 18.28 | | |
| Tare | 13.60 | 13.41 | 13.40 | 13.34 | | |
| # Blows | 32 | 24 | 21 | 15 | | |
| Moisture | 66.9 | 69.1 | 71.2 | 75.5 | | |

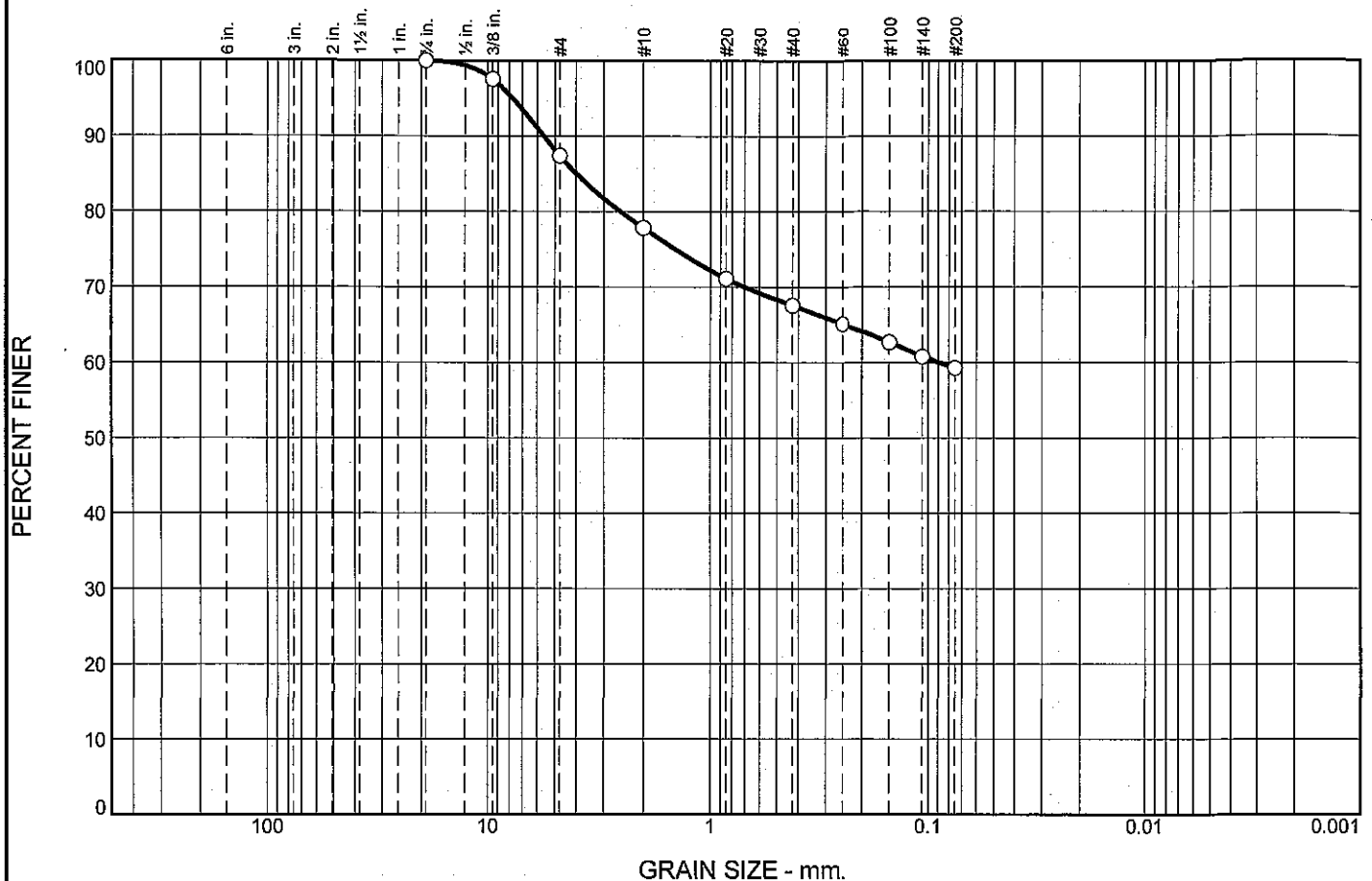


Liquid Limit= 69
 Plastic Limit= 31
 Plasticity Index= 38

Plastic Limit Data

| Run No. | 1 | 2 | 3 | 4 |
|----------|-------|-------|---|---|
| Wet+Tare | 22.97 | 20.80 | | |
| Dry+Tare | 20.67 | 19.06 | | |
| Tare | 13.42 | 13.45 | | |
| Moisture | 31.7 | 31.0 | | |

Particle Size Distribution Report



| | | | | |
|-------|----------|--------|--------|--------|
| % +3" | % Gravel | % Sand | % Silt | % Clay |
| 0.0 | 12.6 | 28.1 | 59.3 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .75 | 100.0 | | |
| .375 | 97.5 | | |
| #4 | 87.4 | | |
| #10 | 77.9 | | |
| #20 | 71.1 | | |
| #40 | 67.6 | | |
| #60 | 65.1 | | |
| #100 | 62.7 | | |
| #140 | 60.8 | | |
| #200 | 59.3 | | |

Material Description
Red Clay, some sand, little gravel.

Atterberg Limits
 PL= 36 LL= 92 PI= 56

Coefficients
 D₉₀= 5.6106 D₈₅= 3.9859 D₆₀= 0.0896
 D₅₀= D₃₀= D₁₅=
 D₁₀= C_u= C_c=

Classification
 USCS= CH AASHTO= A-7-5(31)

Remarks

* (no specification provided)

Source of Sample: Boring No. 15 Depth: 10' - 15' Date: 10/9/2020
 Sample Number: 5

| | |
|--|---|
| | Client: HT HOLDINGS, LLC Project: MIRADORES PARQUE ESCORIAL II CAROLINA, PR Project No: 5421 |
|--|---|

Tested By: N.Orengo Checked By: _____

GRAIN SIZE DISTRIBUTION TEST DATA

10/9/2020

Client: HT HOLDINGS, LLC
Project: MIRADORES PARQUE ESCORIAL II
 CAROLINA, PR

Project Number: 5421

Location: Boring No. 15

Depth: 10' - 15'

Sample Number: 5

Material Description: Red Clay, some sand, little gravel.

Date: 10/9/2020

PL: 36

LL: 92

PI: 56

USCS Classification: CH

AASHTO Classification: A-7-5(31)

Tested by: N.Orengo

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 644.10
 Tare Wt. = 555.90
 Minus #200 from wash = 59.0%

| Dry Sample and Tare (grams) | Tare (grams) | Sieve Opening Size | Weight Retained (grams) | Sieve Weight (grams) | Percent Finer |
|-----------------------------|--------------|--------------------|-------------------------|----------------------|---------------|
| 771.00 | 555.90 | .75 | 0.00 | 0.00 | 100.0 |
| | | .375 | 5.30 | 0.00 | 97.5 |
| | | #4 | 21.78 | 0.00 | 87.4 |
| | | #10 | 20.51 | 0.00 | 77.9 |
| | | #20 | 14.53 | 0.00 | 71.1 |
| | | #40 | 7.62 | 0.00 | 67.6 |
| | | #60 | 5.32 | 0.00 | 65.1 |
| | | #100 | 5.22 | 0.00 | 62.7 |
| | | #140 | 4.08 | 0.00 | 60.8 |
| | | #200 | 3.26 | 0.00 | 59.3 |

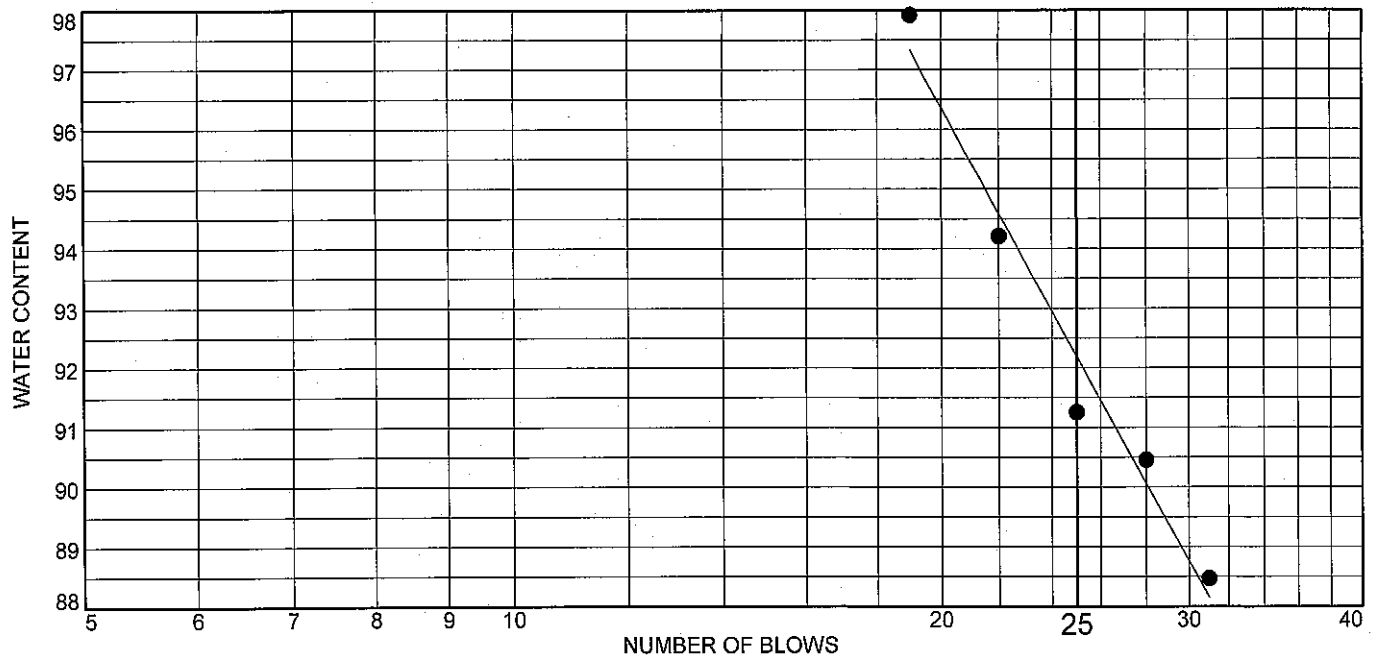
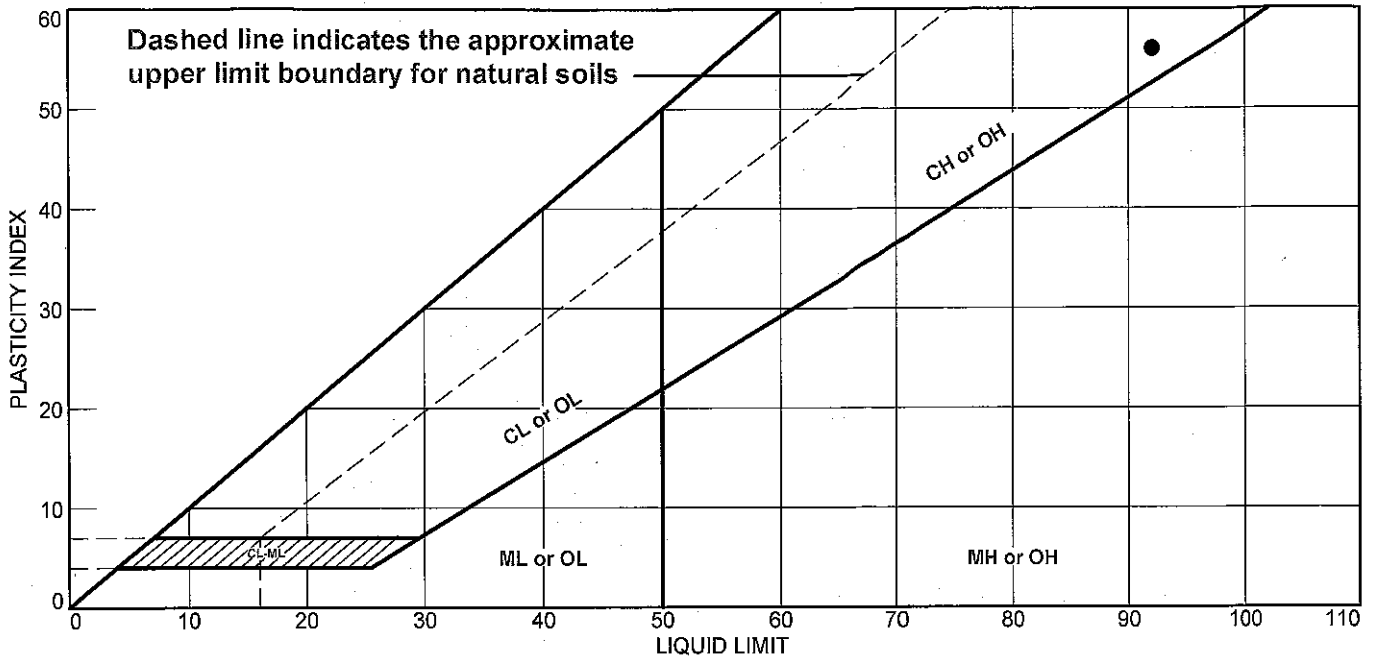
Fractional Components

| Cobbles | Gravel | Sand | Silt | Clay |
|---------|--------|------|------|------|
| 0.0 | 12.6 | 28.1 | | |

| D ₅ | D ₁₀ | D ₁₅ | D ₂₀ | D ₃₀ | D ₄₀ | D ₅₀ | D ₆₀ | D ₈₀ | D ₈₅ | D ₉₀ | D ₉₅ |
|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | | | | | | | 0.0896 | 2.5217 | 3.9859 | 5.6106 | 7.7320 |

| |
|-------------------------|
| Fineness Modulus |
| 1.64 |

LIQUID AND PLASTIC LIMITS TEST REPORT



| MATERIAL DESCRIPTION | LL | PL | PI | %<#40 | %<#200 | USCS |
|-------------------------------------|----|----|----|-------|--------|------|
| Red Clay, some sand, little gravel. | 92 | 36 | 56 | 67.6 | 59.3 | CH |

Project No. 5421 **Client:** HT HOLDINGS, LLC
Project: MIRADORES PARQUE ESCORIAL II
 CAROLINA, PR
Source of Sample: Boring No. 15 **Depth:** 10' - 15'
Sample Number: 5

Remarks:



Tested By: N.Poventud **Checked By:** _____

LIQUID AND PLASTIC LIMIT TEST DATA

10/13/2020

Client: HT HOLDINGS, LLC
 Project: MIRADORES PARQUE ESCORIAL II
 CAROLINA, PR
 Project Number: 5421
 Location: Boring No. 15
 Depth: 10' - 15'
 Material Description: Red Clay, some sand, little gravel.
 %<#40: 67.6 %<#200: 59.3
 Tested by: N.Poventud

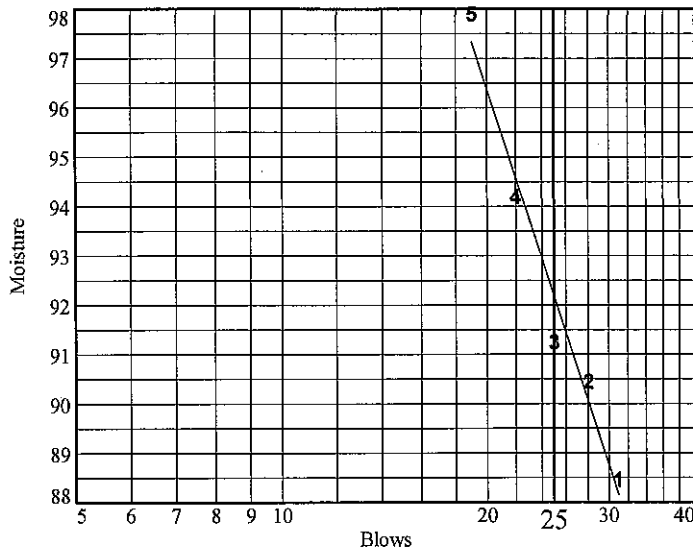
Sample Number: 5

USCS: CH

AASHTO: A-7-5(31)

Liquid Limit Data

| Run No. | 1 | 2 | 3 | 4 | 5 | 6 |
|----------|-------|-------|-------|-------|-------|---|
| Wet+Tare | 21.98 | 21.81 | 22.35 | 22.07 | 21.97 | |
| Dry+Tare | 17.99 | 17.83 | 18.07 | 17.84 | 17.74 | |
| Tare | 13.48 | 13.43 | 13.38 | 13.35 | 13.42 | |
| # Blows | 31 | 28 | 25 | 22 | 19 | |
| Moisture | 88.5 | 90.5 | 91.3 | 94.2 | 97.9 | |

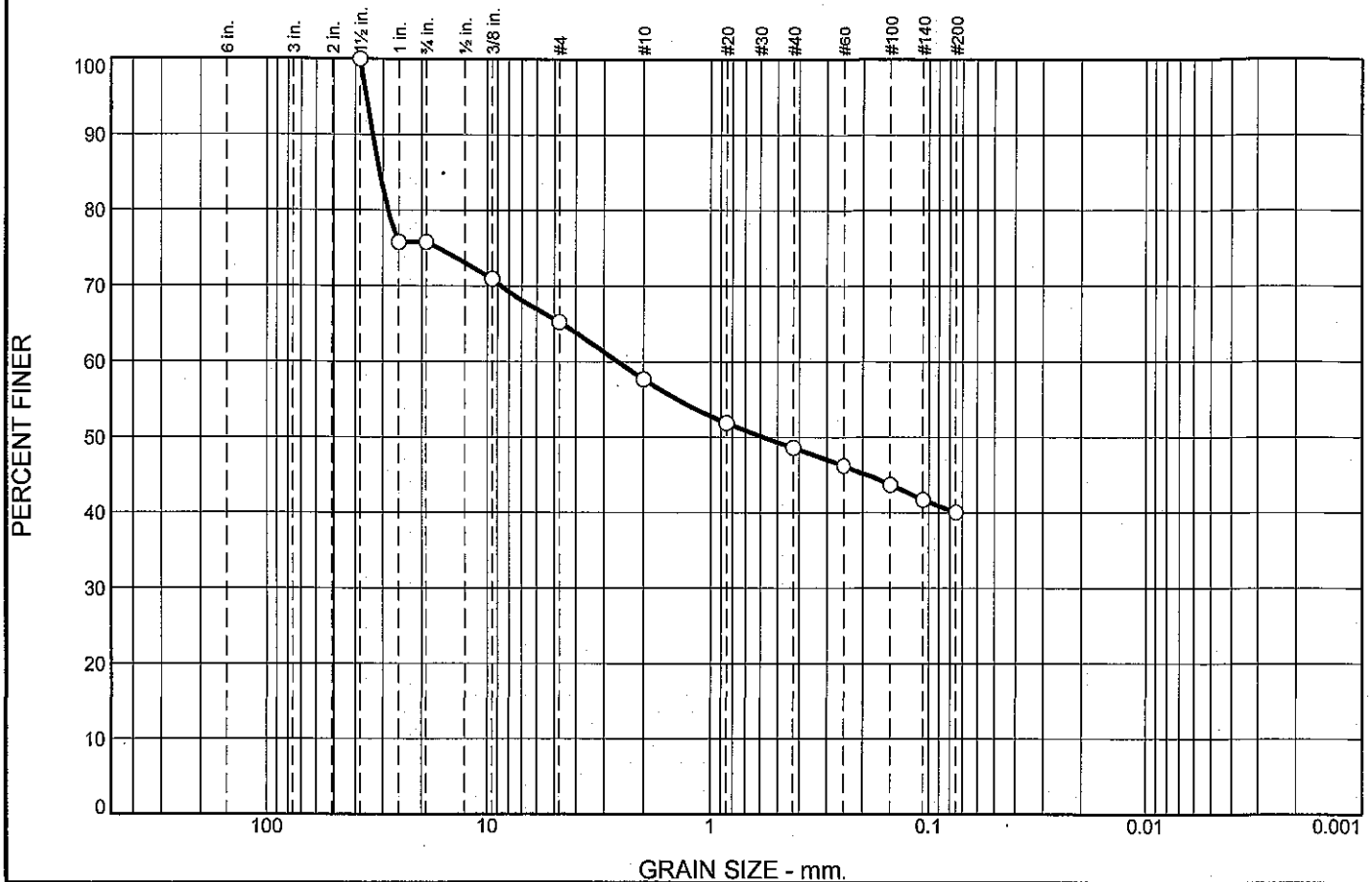


Liquid Limit= 92
 Plastic Limit= 36
 Plasticity Index= 56

Plastic Limit Data

| Run No. | 1 | 2 | 3 | 4 |
|----------|-------|-------|---|---|
| Wet+Tare | 21.74 | 21.03 | | |
| Dry+Tare | 19.54 | 19.04 | | |
| Tare | 13.49 | 13.46 | | |
| Moisture | 36.4 | 35.7 | | |

Particle Size Distribution Report



| | | | | |
|-------|----------|--------|--------|--------|
| % +3" | % Gravel | % Sand | % Silt | % Clay |
| 0.0 | 34.8 | 25.2 | 40.0 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1.5 | 100.0 | | |
| 1 | 75.8 | | |
| .75 | 75.8 | | |
| .375 | 71.0 | | |
| #4 | 65.2 | | |
| #10 | 57.7 | | |
| #20 | 51.9 | | |
| #40 | 48.6 | | |
| #60 | 46.2 | | |
| #100 | 43.7 | | |
| #140 | 41.7 | | |
| #200 | 40.0 | | |

Material Description

Strong brown Clay, some gravel and sand.

Atterberg Limits

PL= 20 LL= 57 PI= 37

Coefficients

D₉₀= 33.4126 D₈₅= 31.0607 D₆₀= 2.6055
D₅₀= 0.5801 D₃₀= D₁₅=
D₁₀= C_u= C_c=

Classification

USCS= GC AASHTO= A-7-6(8)

Remarks

* (no specification provided)

Source of Sample: Boring No. 16
Sample Number: 4

Depth: 7'-6" - 9'

Date: 10/9/2020



Client: HT HOLDINGS, LLC
Project: MIRADORES PARQUE ESCORIAL II
CAROLINA, PR
Project No: 5421

Tested By: N. Oregno

Checked By: _____

GRAIN SIZE DISTRIBUTION TEST DATA

10/9/2020

Client: HT HOLDINGS, LLC
Project: MIRADORES PARQUE ESCORIAL II
 CAROLINA, PR

Project Number: 5421

Location: Boring No. 16

Depth: 7'-6" - 9'

Sample Number: 4

Material Description: Strong brown Clay, some gravel and sand.

Date: 10/9/2020

PL: 20

LL: 57

PI: 37

USCS Classification: GC

AASHTO Classification: A-7-6(8)

Tested by: N.Orengo

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 610.60
 Tare Wt. = 479.00
 Minus #200 from wash = 39.6%

| Dry Sample and Tare (grams) | Tare (grams) | Sieve Opening Size | Weight Retained (grams) | Sieve Weight (grams) | Percent Finer |
|-----------------------------|--------------|--------------------|-------------------------|----------------------|---------------|
| 696.90 | 479.00 | 1.5 | 0.00 | 0.00 | 100.0 |
| | | 1 | 52.75 | 0.00 | 75.8 |
| | | .75 | 0.00 | 0.00 | 75.8 |
| | | .375 | 10.50 | 0.00 | 71.0 |
| | | #4 | 12.52 | 0.00 | 65.2 |
| | | #10 | 16.43 | 0.00 | 57.7 |
| | | #20 | 12.66 | 0.00 | 51.9 |
| | | #40 | 7.13 | 0.00 | 48.6 |
| | | #60 | 5.24 | 0.00 | 46.2 |
| | | #100 | 5.44 | 0.00 | 43.7 |
| | | #140 | 4.39 | 0.00 | 41.7 |
| | | #200 | 3.61 | 0.00 | 40.0 |

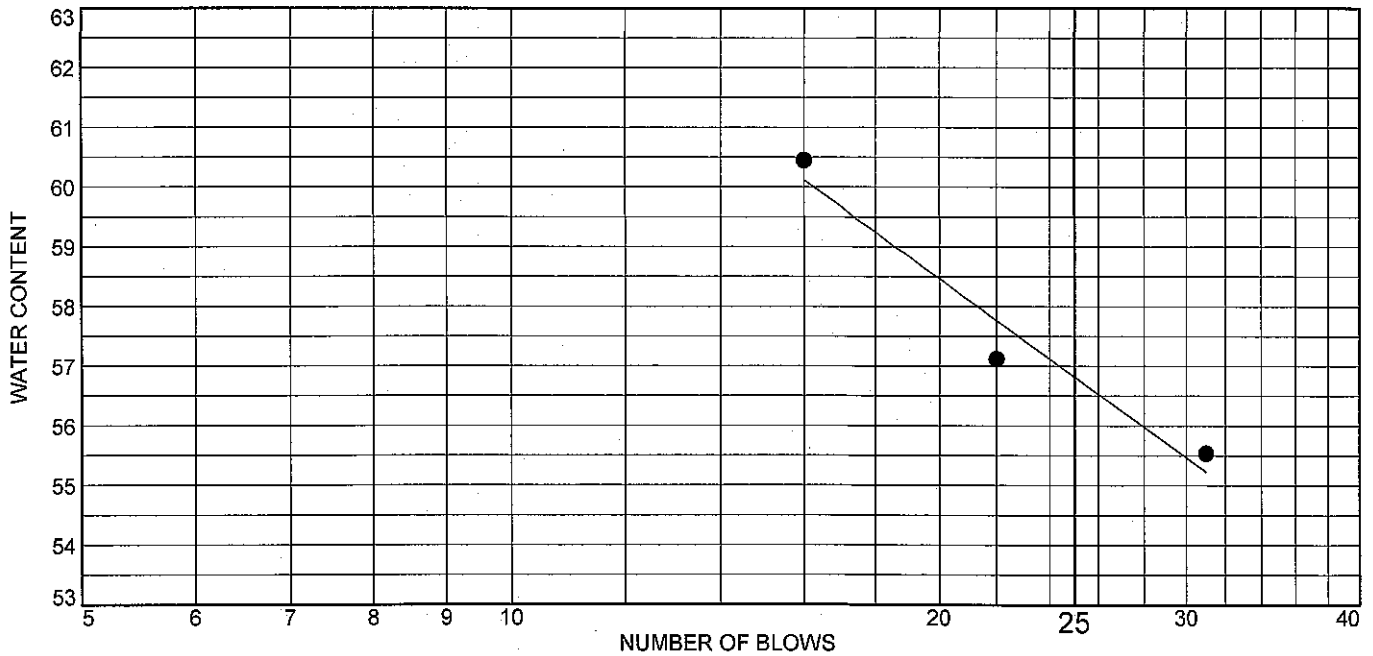
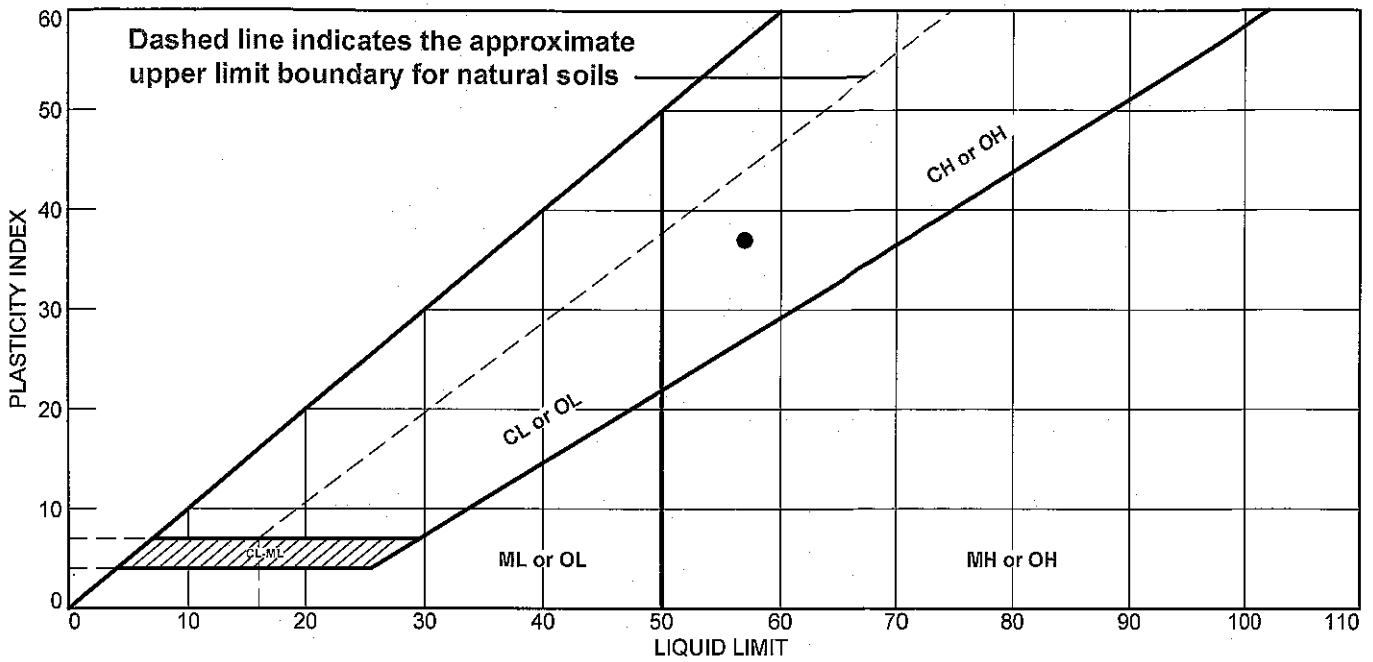
Fractional Components

| Cobbles | Gravel | Sand | Silt | Clay |
|---------|--------|------|------|------|
| 0.0 | 34.8 | 25.2 | | |

| D ₅ | D ₁₀ | D ₁₅ | D ₂₀ | D ₃₀ | D ₄₀ | D ₅₀ | D ₆₀ | D ₈₀ | D ₈₅ | D ₉₀ | D ₉₅ |
|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | | | | | | 0.5801 | 2.6055 | 28.4631 | 31.0607 | 33.4126 | 35.7236 |

| |
|-------------------------|
| Fineness Modulus |
| 3.34 |

LIQUID AND PLASTIC LIMITS TEST REPORT



| MATERIAL DESCRIPTION | LL | PL | PI | %<#40 | %<#200 | USCS |
|--|----|----|----|-------|--------|------|
| • Strong brown Clay, some gravel and sand. | 57 | 20 | 37 | 48.6 | 40.0 | GC |

Project No. 5421 **Client:** HT HOLDINGS, LLC
Project: MIRADORES PARQUE ESCORIAL II
 CAROLINA, PR
Source of Sample: Boring No. 16 **Depth:** 7'-6" - 9"
Sample Number: 4

GeoCim
GEOTECHNICAL TESTING SERVICES

Remarks:

Tested By: N.Poventud **Checked By:** _____

LIQUID AND PLASTIC LIMIT TEST DATA

10/13/2020

Client: HT HOLDINGS, LLC

Project: MIRADORES PARQUE ESCORIAL II
CAROLINA, PR

Project Number: 5421

Location: Boring No. 16

Depth: 7'-6" - 9'

Sample Number: 4

Material Description: Strong brown Clay, some gravel and sand.

%<#40: 48.6

%<#200: 40.0

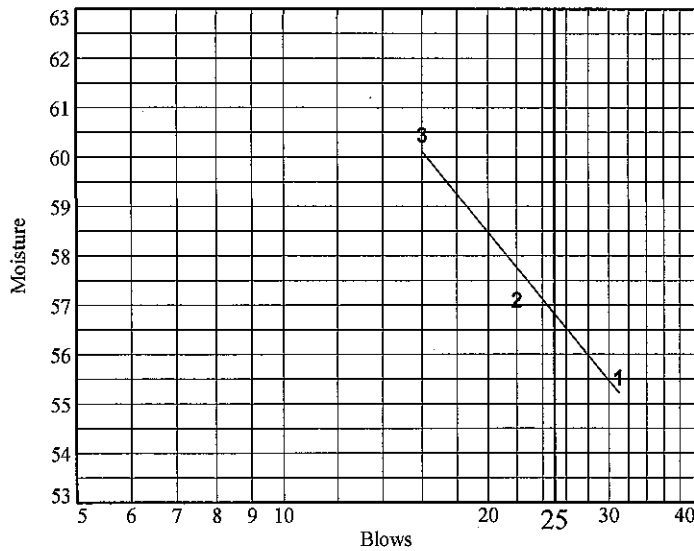
USCS: GC

AASHTO: A-7-6(8)

Tested by: N.Poventud

Liquid Limit Data

| Run No. | 1 | 2 | 3 | 4 | 5 | 6 |
|----------|-------|-------|-------|---|---|---|
| Wet+Tare | 22.92 | 22.46 | 22.62 | | | |
| Dry+Tare | 19.51 | 19.21 | 19.15 | | | |
| Tare | 13.37 | 13.52 | 13.41 | | | |
| # Blows | 31 | 22 | 16 | | | |
| Moisture | 55.5 | 57.1 | 60.5 | | | |

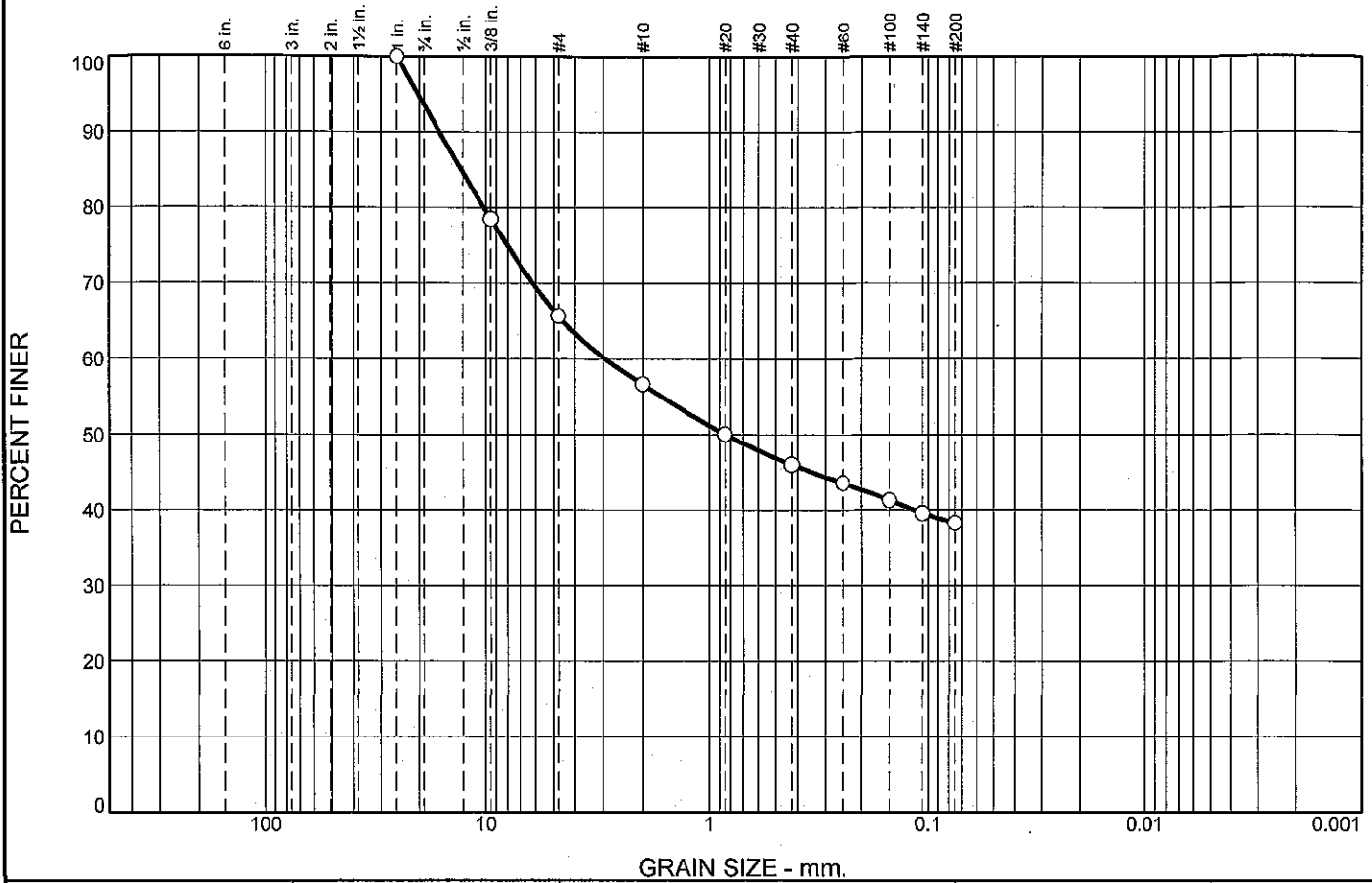


Liquid Limit= 57
 Plastic Limit= 20
 Plasticity Index= 37

Plastic Limit Data

| Run No. | 1 | 2 | 3 | 4 |
|----------|-------|-------|---|---|
| Wet+Tare | 21.45 | 21.28 | | |
| Dry+Tare | 20.13 | 19.99 | | |
| Tare | 13.39 | 13.41 | | |
| Moisture | 19.6 | 19.6 | | |

Particle Size Distribution Report



| % +3" | % Gravel | % Sand | % Silt | % Clay |
|-------|----------|--------|--------|--------|
| 0.0 | 34.3 | 27.4 | 38.3 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .375 | 78.5 | | |
| #4 | 65.7 | | |
| #10 | 56.7 | | |
| #20 | 50.1 | | |
| #40 | 46.1 | | |
| #60 | 43.6 | | |
| #100 | 41.3 | | |
| #140 | 39.6 | | |
| #200 | 38.3 | | |

Material Description

Dark brown Silt, some gravel and sand.

Atterberg Limits

PL= 30 LL= 43 PI= 13

Coefficients

D₉₀= 16.2276 D₈₅= 12.9163 D₆₀= 2.9345
D₅₀= 0.8414 D₃₀= D₁₅=
D₁₀= C_u= C_c=


Classification

USCS= GM AASHTO= A-7-5(1)

Remarks

* (no specification provided)

Source of Sample: Boring No. 17 Depth: 10' - 11'-6" Date: 10/9/2020
Sample Number: 5

| | |
|---|---|
|  | Client: HT HOLDINGS, LLC Project: MIRADORES PARQUE ESCORIAL II CAROLINA, PR Project No: 5421 |
|---|---|

Tested By: N.Orengo Checked By: _____

GRAIN SIZE DISTRIBUTION TEST DATA

10/12/2020

Client: HT HOLDINGS, LLC
 Project: MIRADORES PARQUE ESCORIAL II
 CAROLINA, PR

Project Number: 5421

Location: Boring No. 17

Depth: 10' - 11'-6"

Sample Number: 5

Material Description: Dark brown Silt, some gravel and sand.

Date: 10/9/2020

PL: 30

LL: 43

PI: 13

USCS Classification: GM

AASHTO Classification: A-7-5(1)

Tested by: N.Orengo

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 222.88
 Tare Wt. = 109.87
 Minus #200 from wash = 38.1%

| Dry Sample and Tare (grams) | Tare (grams) | Sieve Opening Size | Weight Retained (grams) | Sieve Weight (grams) | Percent Finer |
|-----------------------------|--------------|--------------------|-------------------------|----------------------|---------------|
| 292.30 | 109.87 | 1 | 0.00 | 0.00 | 100.0 |
| | | .375 | 39.20 | 0.00 | 78.5 |
| | | #4 | 23.40 | 0.00 | 65.7 |
| | | #10 | 16.46 | 0.00 | 56.7 |
| | | #20 | 12.03 | 0.00 | 50.1 |
| | | #40 | 7.33 | 0.00 | 46.1 |
| | | #60 | 4.46 | 0.00 | 43.6 |
| | | #100 | 4.20 | 0.00 | 41.3 |
| | | #140 | 3.12 | 0.00 | 39.6 |
| | | #200 | 2.32 | 0.00 | 38.3 |

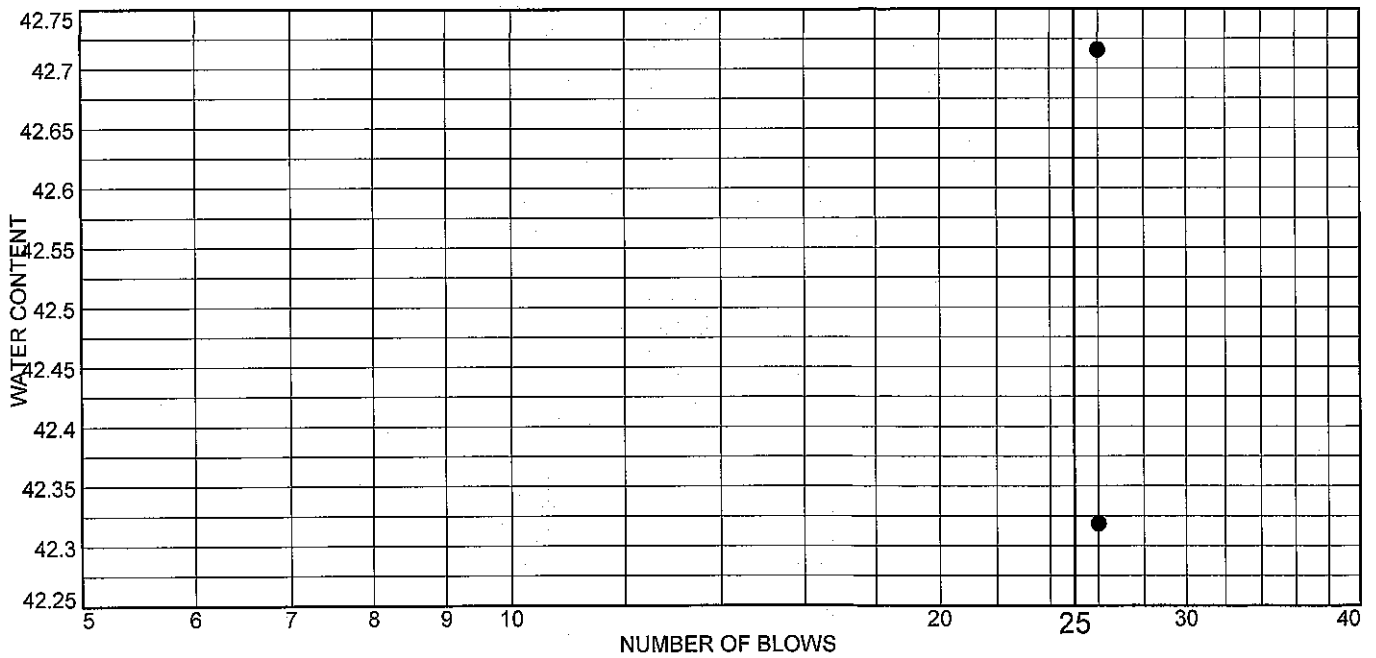
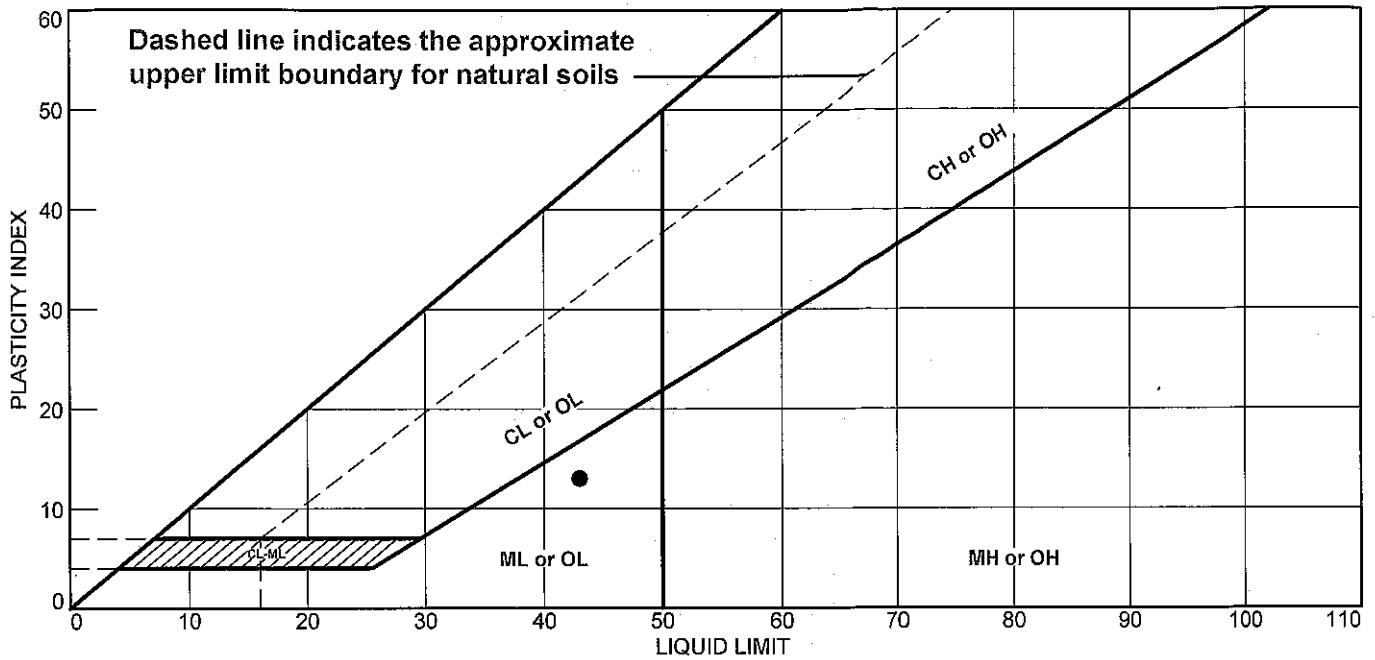
Fractional Components

| Cobbles | Gravel | Sand | Silt | Clay |
|---------|--------|------|------|------|
| 0.0 | 34.3 | 27.4 | | |

| D ₅ | D ₁₀ | D ₁₅ | D ₂₀ | D ₃₀ | D ₄₀ | D ₅₀ | D ₆₀ | D ₈₀ | D ₈₅ | D ₉₀ | D ₉₅ |
|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | | | | | 0.1158 | 0.8414 | 2.9345 | 10.2251 | 12.9163 | 16.2276 | 20.3188 |

| |
|-------------------------|
| Fineness Modulus |
| 3.18 |

LIQUID AND PLASTIC LIMITS TEST REPORT



| MATERIAL DESCRIPTION | LL | PL | PI | %<#40 | %<#200 | USCS |
|--|----|----|----|-------|--------|------|
| • Dark brown Silt, some gravel and sand. | 43 | 30 | 13 | 46.1 | 38.3 | GM |

Project No. 5421 **Client:** HT HOLDINGS, LLC
Project: MIRADORES PARQUE ESCORIAL II
 CAROLINA, PR
Source of Sample: Boring No. 17 **Depth:** 10' - 11'-6"
Sample Number: 5

Remarks:



Tested By: N.Poventud **Checked By:** _____

LIQUID AND PLASTIC LIMIT TEST DATA

10/13/2020

Client: HT HOLDINGS, LLC
 Project: MIRADORES PARQUE ESCORIAL II
 CAROLINA, PR

Project Number: 5421

Location: Boring No. 17

Depth: 10' - 11'-6"

Sample Number: 5

Material Description: Dark brown Silt, some gravel and sand.

%<#40: 46.1

%<#200: 38.3

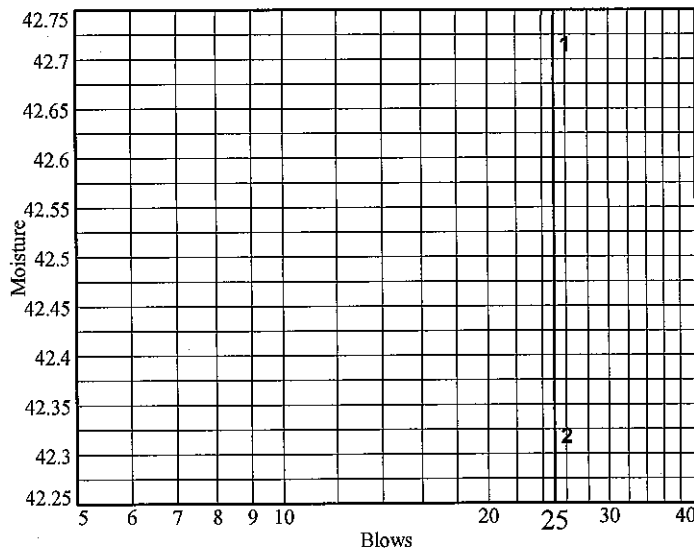
USCS: GM

AASHTO: A-7-5(1)

Tested by: N.Poventud

Liquid Limit Data

| Run No. | 1 | 2 | 3 | 4 | 5 | 6 |
|----------|-------|-------|---|---|---|---|
| Wet+Tare | 23.66 | 23.62 | | | | |
| Dry+Tare | 20.64 | 20.59 | | | | |
| Tare | 13.57 | 13.43 | | | | |
| # Blows | 26 | 26 | | | | |
| Moisture | 42.7 | 42.3 | | | | |

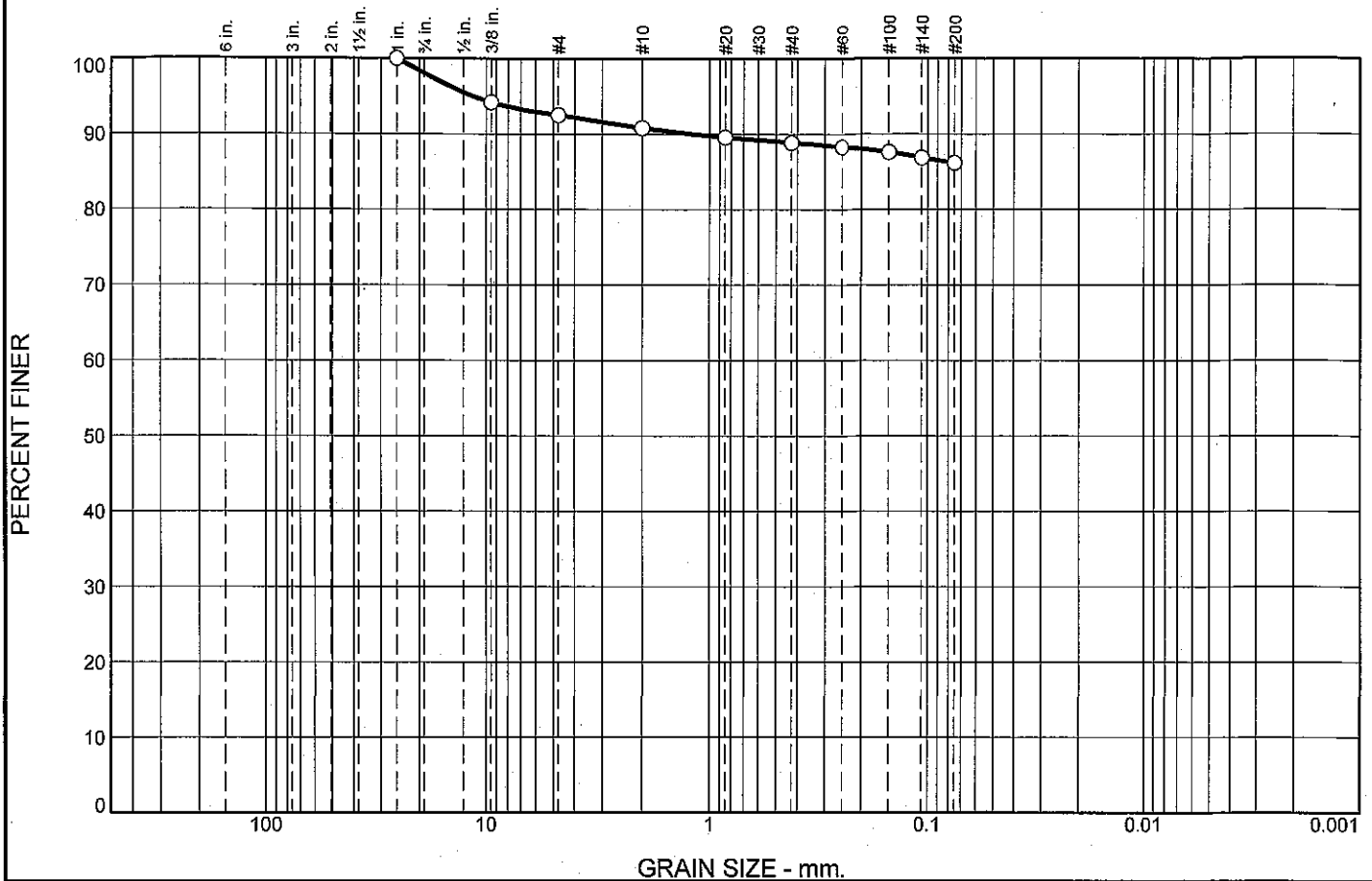


Liquid Limit= 43
 Plastic Limit= 30
 Plasticity Index= 13

Plastic Limit Data

| Run No. | 1 | 2 | 3 | 4 |
|----------|-------|-------|---|---|
| Wet+Tare | 22.72 | 21.90 | | |
| Dry+Tare | 20.56 | 20.16 | | |
| Tare | 13.45 | 14.38 | | |
| Moisture | 30.4 | 30.1 | | |

Particle Size Distribution Report



| % +3" | % Gravel | % Sand | % Silt | % Clay |
|-------|----------|--------|--------|--------|
| 0.0 | 7.5 | 6.3 | 86.2 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .375 | 94.2 | | |
| #4 | 92.5 | | |
| #10 | 90.8 | | |
| #20 | 89.6 | | |
| #40 | 88.9 | | |
| #60 | 88.3 | | |
| #100 | 87.6 | | |
| #140 | 86.8 | | |
| #200 | 86.2 | | |

Material Description

Dark reddish brown Clay, trace gravel and sand.

Atterberg Limits
 PL= 30 LL= 65 PI= 35

Coefficients
 D₉₀= 1.1887 D₈₅= D₆₀=
 D₅₀= D₃₀= D₁₅=
 D₁₀= C_u= C_c=

Classification
 USCS= CH AASHTO= A-7-5(34)


Remarks

* (no specification provided)

Source of Sample: Boring No. 18
 Sample Number: 4

Depth: 7'-6" - 9'

Date: 10/12/2020

| | |
|---|---|
|  | Client: HT HOLDINGS, LLC Project: MIRADORES PARQUE ESCORIAL II CAROLINA, PR Project No: 5421 |
|---|---|

Tested By: N.Orengo Checked By: _____

GRAIN SIZE DISTRIBUTION TEST DATA

10/12/2020

Client: HT HOLDINGS, LLC
Project: MIRADORES PARQUE ESCORIAL II
 CAROLINA, PR

Project Number: 5421

Location: Boring No. 18

Depth: 7'-6" - 9'

Sample Number: 4

Material Description: Dark reddish brown Clay, trace gravel and sand.

Date: 10/12/2020

PL: 30

LL: 65

PI: 35

USCS Classification: CH

AASHTO Classification: A-7-5(34)

Tested by: N.Orengo

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 296.27
 Tare Wt. = 276.80
 Minus #200 from wash = 86.1%

| Dry Sample and Tare (grams) | Tare (grams) | Sieve Opening Size | Weight Retained (grams) | Sieve Weight (grams) | Percent Finer |
|-----------------------------|--------------|--------------------|-------------------------|----------------------|---------------|
| 416.43 | 276.80 | 1 | 0.00 | 0.00 | 100.0 |
| | | .375 | 8.11 | 0.00 | 94.2 |
| | | #4 | 2.36 | 0.00 | 92.5 |
| | | #10 | 2.34 | 0.00 | 90.8 |
| | | #20 | 1.74 | 0.00 | 89.6 |
| | | #40 | 0.98 | 0.00 | 88.9 |
| | | #60 | 0.82 | 0.00 | 88.3 |
| | | #100 | 0.98 | 0.00 | 87.6 |
| | | #140 | 1.04 | 0.00 | 86.8 |
| | | #200 | 0.93 | 0.00 | 86.2 |

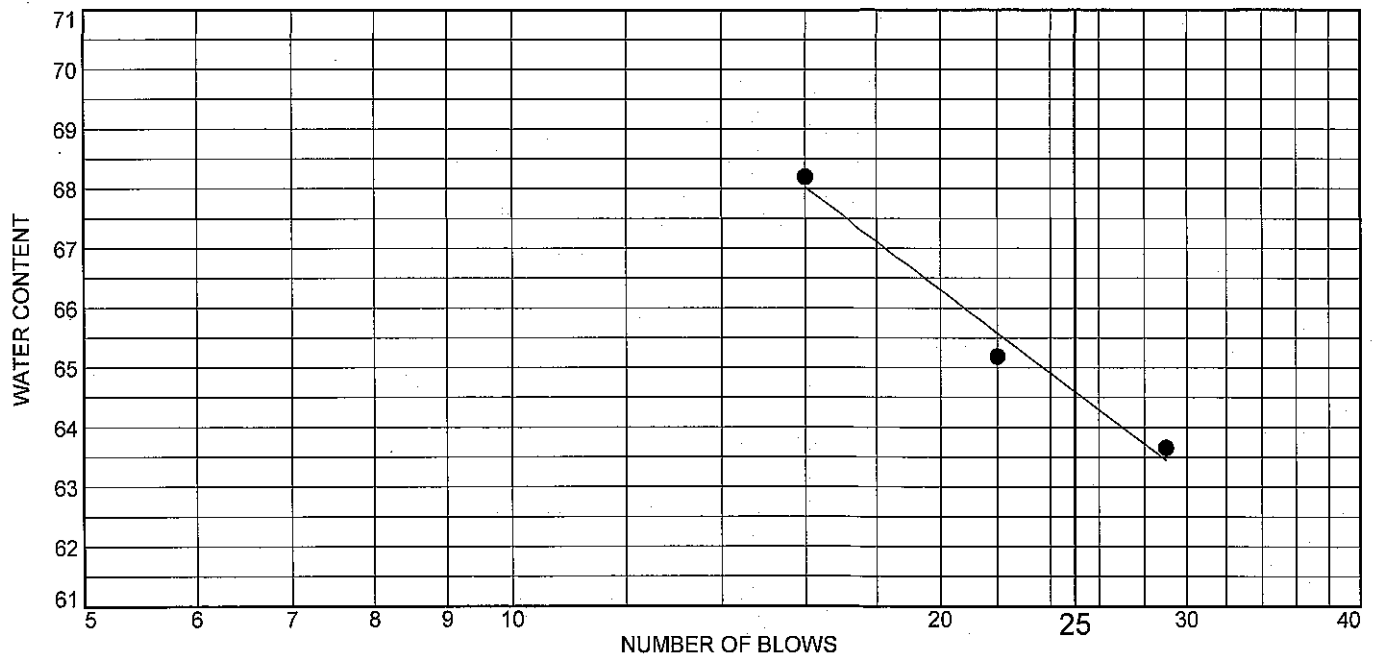
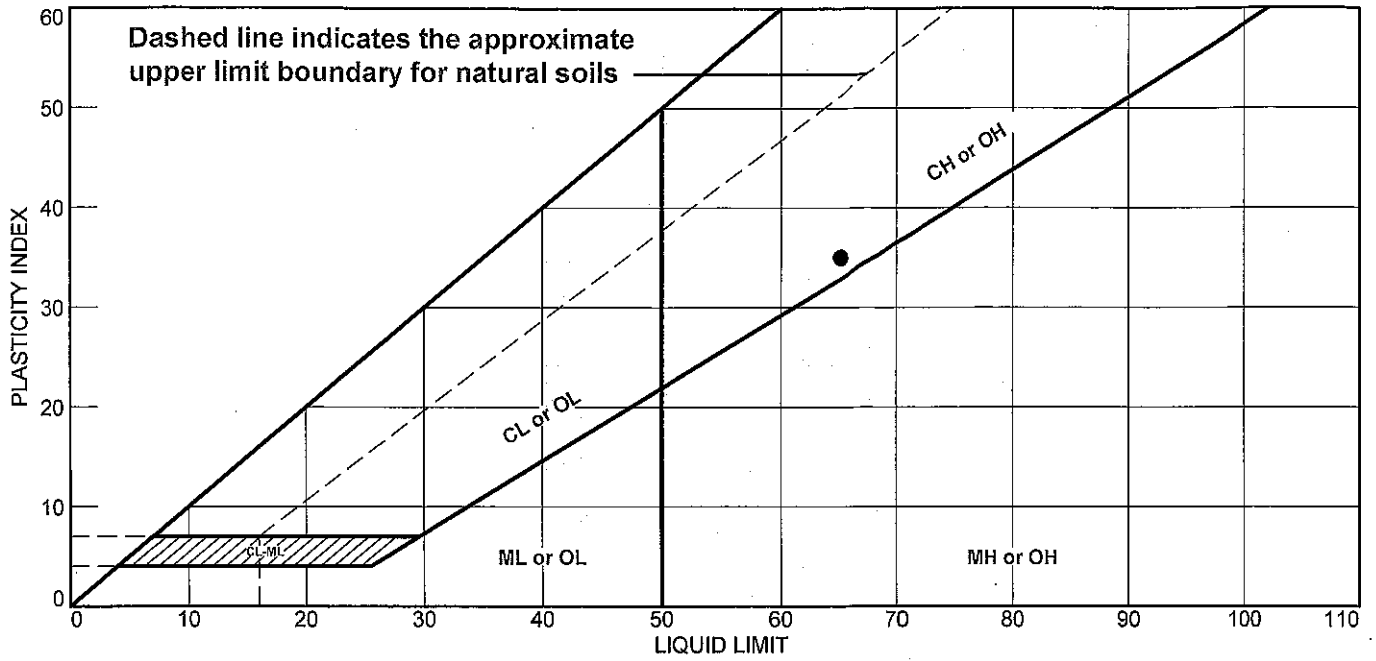
Fractional Components

| Cobbles | Gravel | Sand | Silt | Clay |
|---------|--------|------|------|------|
| 0.0 | 7.5 | 6.3 | | |

| D ₅ | D ₁₀ | D ₁₅ | D ₂₀ | D ₃₀ | D ₄₀ | D ₅₀ | D ₆₀ | D ₈₀ | D ₈₅ | D ₉₀ | D ₉₅ |
|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | | | | | | | | | | 1.1887 | 11.4537 |

| |
|-------------------------|
| Fineness Modulus |
| 0.69 |

LIQUID AND PLASTIC LIMITS TEST REPORT



| MATERIAL DESCRIPTION | LL | PL | PI | %<#40 | %<#200 | USCS |
|---|----|----|----|-------|--------|------|
| • Dark reddish brown Clay, trace gravel and sand. | 65 | 30 | 35 | 88.9 | 86.2 | CH |

Project No. 5421 Client: HT HOLDINGS, LLC
 Project: MIRADORES PARQUE ESCORIAL II
 CAROLINA, PR
 Source of Sample: Boring No. 18 Depth: 7'-6" - 9'
 Sample Number: 4

Remarks:



Tested By: N.Poventud Checked By: _____

LIQUID AND PLASTIC LIMIT TEST DATA

10/13/2020

Client: HT HOLDINGS, LLC

Project: MIRADORES PARQUE ESCORIAL II
CAROLINA, PR

Project Number: 5421

Location: Boring No. 18

Depth: 7'-6" - 9'

Sample Number: 4

Material Description: Dark reddish brown Clay, trace gravel and sand.

%<#40: 88.9

%<#200: 86.2

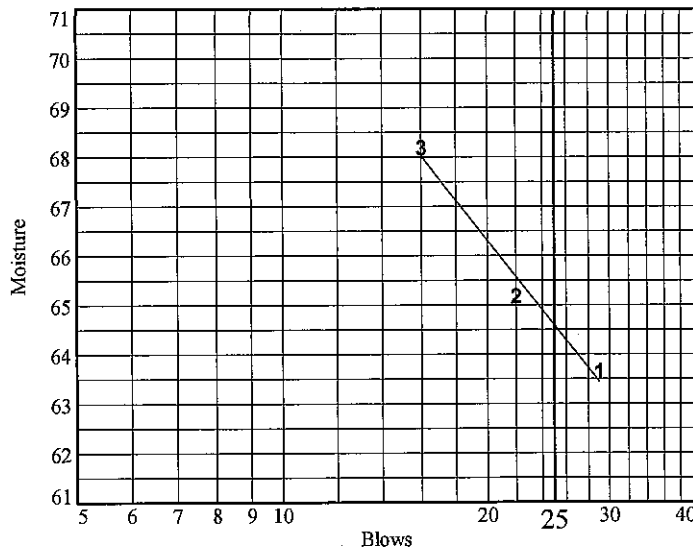
USCS: CH

AASHTO: A-7-5(34)

Tested by: N.Poventud

Liquid Limit Data

| Run No. | 1 | 2 | 3 | 4 | 5 | 6 |
|----------|-------|-------|-------|---|---|---|
| Wet+Tare | 21.07 | 20.79 | 21.90 | | | |
| Dry+Tare | 18.39 | 17.85 | 18.49 | | | |
| Tare | 14.18 | 13.34 | 13.49 | | | |
| # Blows | 29 | 22 | 16 | | | |
| Moisture | 63.7 | 65.2 | 68.2 | | | |

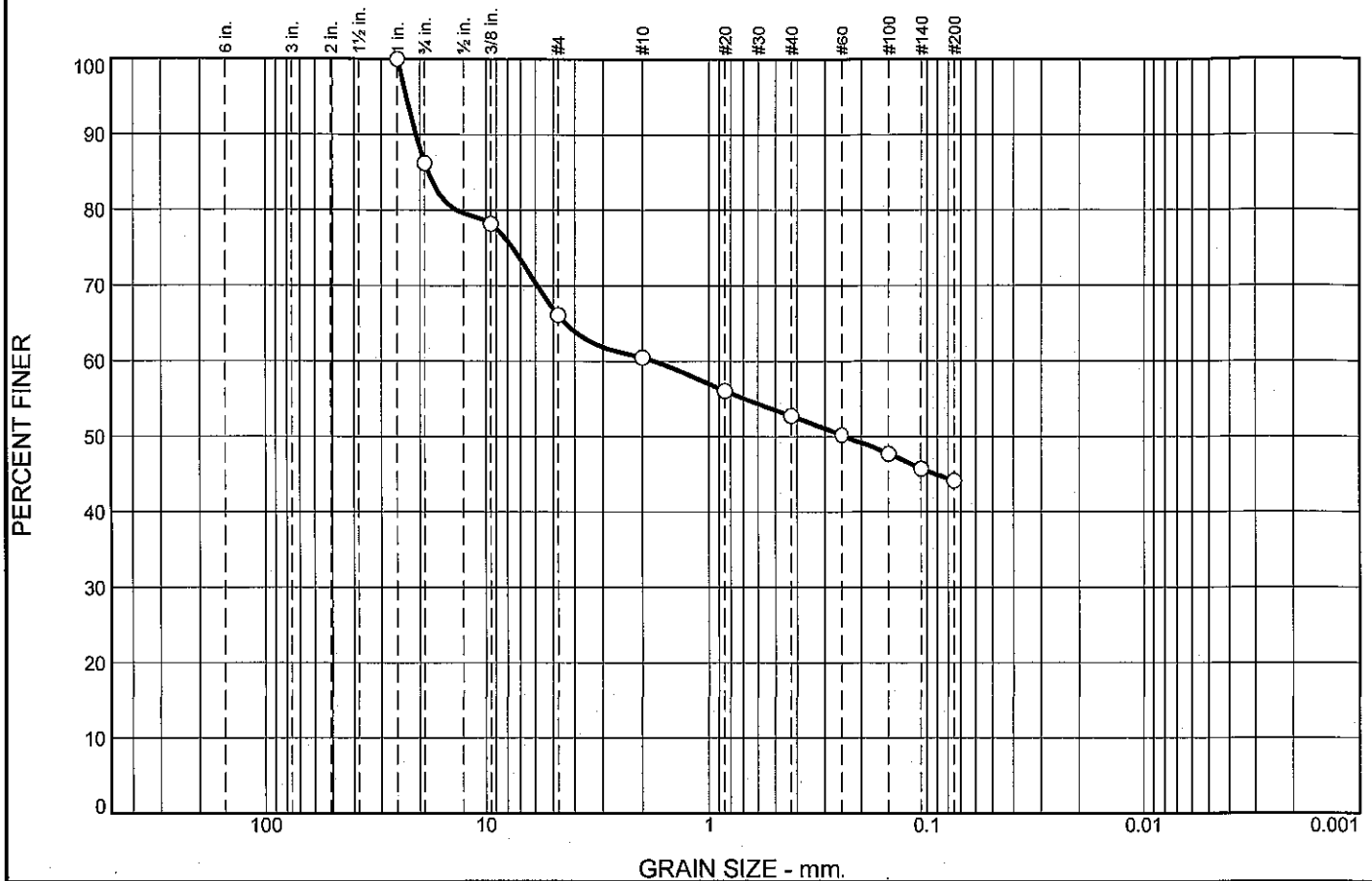


Liquid Limit= 65
Plastic Limit= 30
Plasticity Index= 35

Plastic Limit Data

| Run No. | 1 | 2 | 3 | 4 |
|----------|-------|-------|---|---|
| Wet+Tare | 21.86 | 21.19 | | |
| Dry+Tare | 19.92 | 19.41 | | |
| Tare | 13.41 | 13.43 | | |
| Moisture | 29.8 | 29.8 | | |

Particle Size Distribution Report



| % +3" | % Gravel | % Sand | % Silt | % Clay |
|-------|----------|--------|--------|--------|
| 0.0 | 33.9 | 21.9 | 44.2 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 86.2 | | |
| .375 | 78.2 | | |
| #4 | 66.1 | | |
| #10 | 60.5 | | |
| #20 | 56.1 | | |
| #40 | 52.7 | | |
| #60 | 50.2 | | |
| #100 | 47.7 | | |
| #140 | 45.7 | | |
| #200 | 44.2 | | |

Material Description
Strong brown Silt, some gravel and sand.

Atterberg Limits
 PL= 29 LL= 51 PI= 22

Coefficients
 D₉₀= 20.8997 D₈₅= 18.3617 D₆₀= 1.7696
 D₅₀= 0.2387 D₃₀= D₁₅=
 D₁₀= C_u= C_c=

Classification
 USCS= GM AASHTO= A-7-6(6)

Remarks

* (no specification provided)

Source of Sample: Boring No. 19
Sample Number: 4

Depth: 7'-6" - 9'

Date: 10/9/2020



Client: HT HOLDINGS, LLC
 Project: MIRADORES PARQUE ESCORIAL II
 CAROLINA, PR
 Project No: 5421

Tested By: N.Orengo Checked By: _____

GRAIN SIZE DISTRIBUTION TEST DATA

10/12/2020

Client: HT HOLDINGS, LLC
Project: MIRADORES PARQUE ESCORIAL II
 CAROLINA, PR

Project Number: 5421

Location: Boring No. 19

Depth: 7'-6" - 9'

Sample Number: 4

Material Description: Strong brown Silt, some gravel and sand.

Date: 10/9/2020

PL: 29

LL: 51

PI: 22

USCS Classification: GM

AASHTO Classification: A-7-6(6)

Tested by: N.Orengo

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 431.60
 Tare Wt. = 344.09
 Minus #200 from wash = 43.8%

| Dry Sample and Tare (grams) | Tare (grams) | Sieve Opening Size | Weight Retained (grams) | Sieve Weight (grams) | Percent Finer |
|-----------------------------|--------------|--------------------|-------------------------|----------------------|---------------|
| 499.80 | 344.09 | 1 | 0.00 | 0.00 | 100.0 |
| | | .75 | 21.46 | 0.00 | 86.2 |
| | | .375 | 12.49 | 0.00 | 78.2 |
| | | #4 | 18.80 | 0.00 | 66.1 |
| | | #10 | 8.78 | 0.00 | 60.5 |
| | | #20 | 6.88 | 0.00 | 56.1 |
| | | #40 | 5.18 | 0.00 | 52.7 |
| | | #60 | 3.93 | 0.00 | 50.2 |
| | | #100 | 3.90 | 0.00 | 47.7 |
| | | #140 | 3.09 | 0.00 | 45.7 |
| | | #200 | 2.45 | 0.00 | 44.2 |

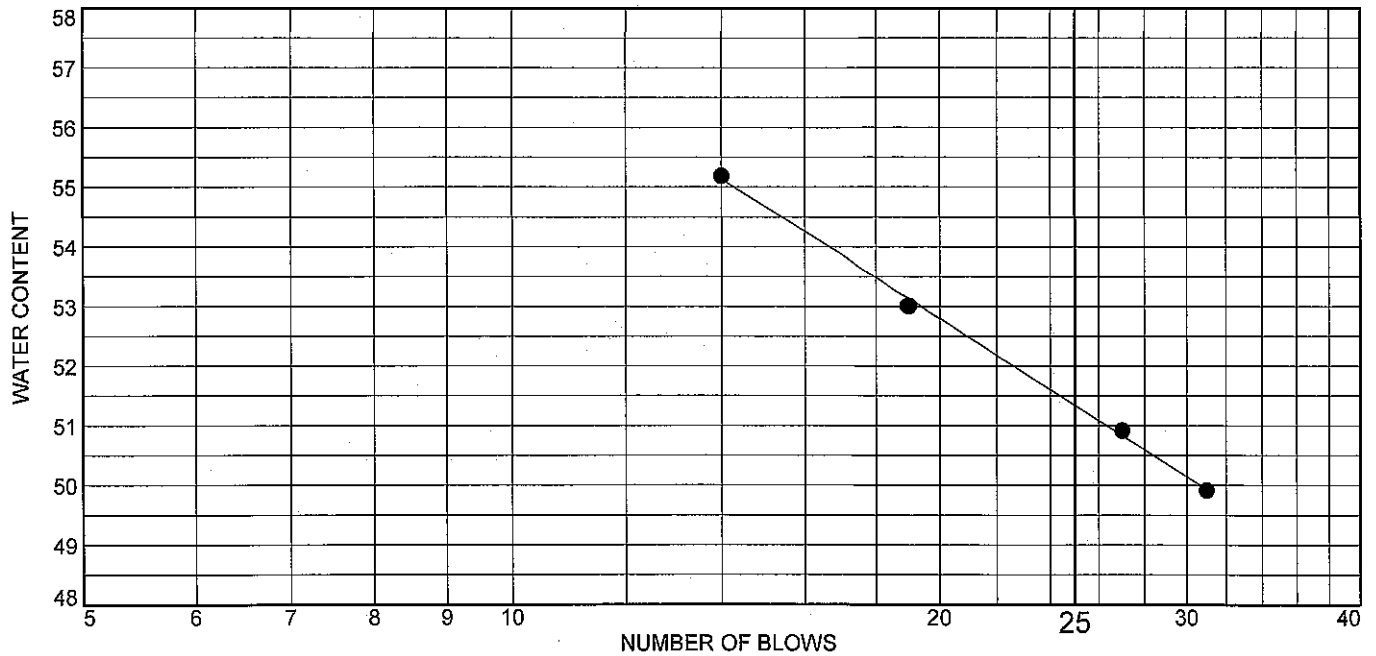
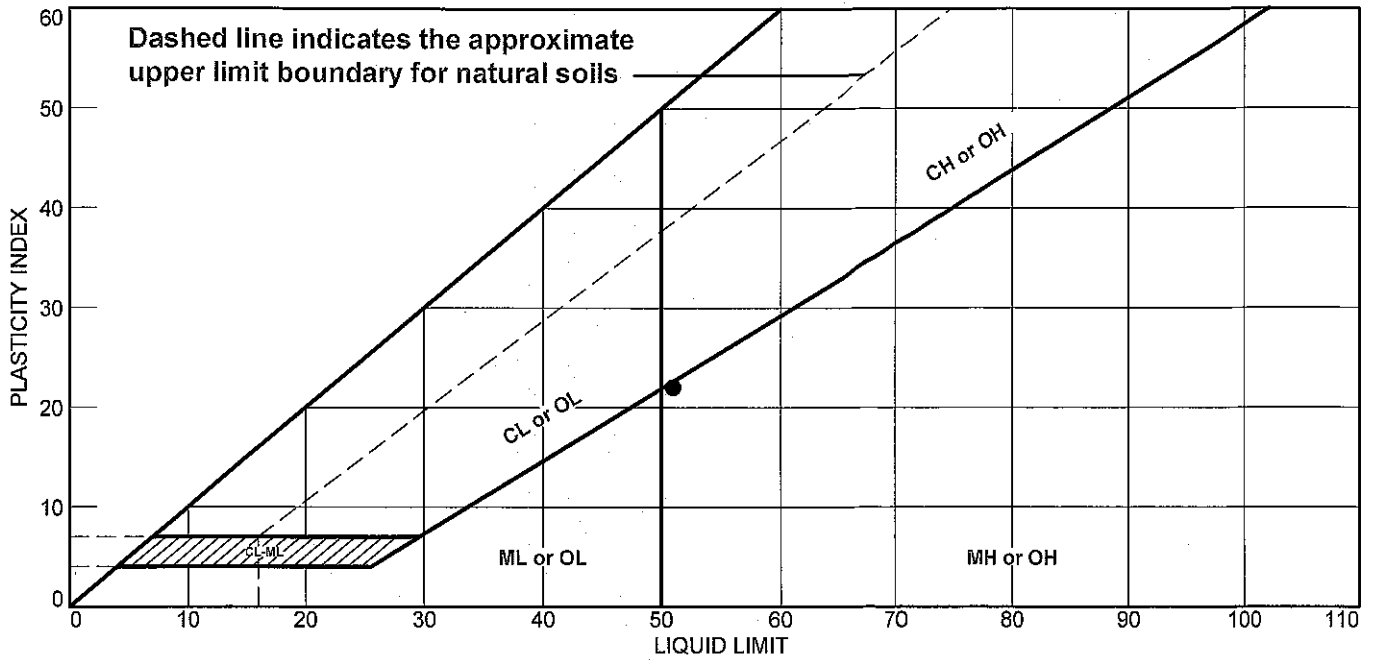
Fractional Components

| Cobbles | Gravel | Sand | Silt | Clay |
|---------|--------|------|------|------|
| 0.0 | 33.9 | 21.9 | | |

| D5 | D10 | D15 | D20 | D30 | D40 | D50 | D60 | D80 | D85 | D90 | D95 |
|----|-----|-----|-----|-----|-----|--------|--------|---------|---------|---------|---------|
| | | | | | | 0.2387 | 1.7696 | 13.6533 | 18.3617 | 20.8997 | 23.1332 |

| |
|-------------------------|
| Fineness Modulus |
| 2.97 |

LIQUID AND PLASTIC LIMITS TEST REPORT



| MATERIAL DESCRIPTION | LL | PL | PI | %<#40 | %<#200 | USCS |
|--|----|----|----|-------|--------|------|
| • Strong brown Silt, some gravel and sand. | 51 | 29 | 22 | 52.7 | 44.2 | GM |

Project No. 5421 **Client:** HT HOLDINGS, LLC
Project: MIRADORES PARQUE ESCORIAL II
 CAROLINA, PR
Source of Sample: Boring No. 19 **Depth:** 7'-6" - 9'
Sample Number: 4

GeoCim
GEOTECHNICAL TESTING SERVICES

Remarks:

Tested By: N.Poventud **Checked By:** _____

LIQUID AND PLASTIC LIMIT TEST DATA

10/13/2020

Client: HT HOLDINGS, LLC
 Project: MIRADORES PARQUE ESCORIAL II
 CAROLINA, PR

Project Number: 5421

Location: Boring No. 19

Depth: 7'-6" - 9'

Sample Number: 4

Material Description: Strong brown Silt, some gravel and sand.

%<#40: 52.7

%<#200: 44.2

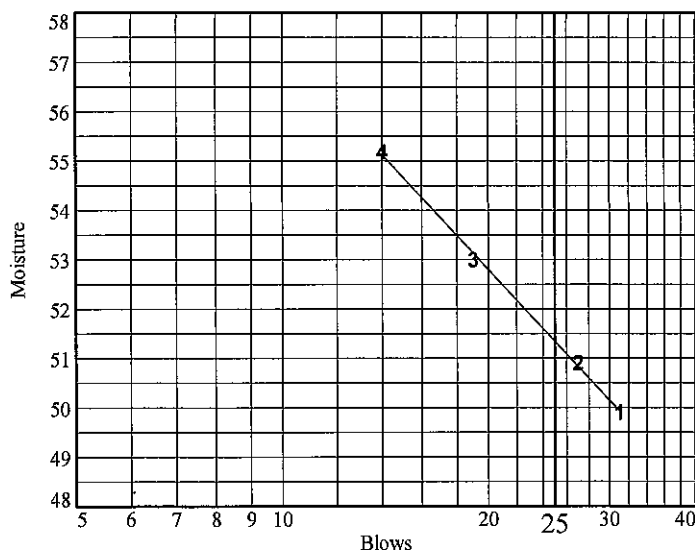
USCS: GM

AASHTO: A-7-6(6)

Tested by: N.Poventud

Liquid Limit Data

| Run No. | 1 | 2 | 3 | 4 | 5 | 6 |
|----------|-------|-------|-------|-------|---|---|
| Wet+Tare | 22.15 | 21.57 | 22.93 | 24.36 | | |
| Dry+Tare | 19.26 | 18.80 | 19.67 | 20.48 | | |
| Tare | 13.47 | 13.36 | 13.52 | 13.45 | | |
| # Blows | 31 | 27 | 19 | 14 | | |
| Moisture | 49.9 | 50.9 | 53.0 | 55.2 | | |



Liquid Limit= 51
 Plastic Limit= 29
 Plasticity Index= 22

Plastic Limit Data

| Run No. | 1 | 2 | 3 | 4 |
|----------|-------|-------|---|---|
| Wet+Tare | 22.08 | 22.63 | | |
| Dry+Tare | 20.20 | 20.56 | | |
| Tare | 13.60 | 13.37 | | |
| Moisture | 28.5 | 28.8 | | |

APPENDIX B

FIELD AND LABORATORY

SOIL TESTING PROCEDURES

Appendix B

Field and Laboratory Soil Testing Procedures

I. DRILLING METHODS

A. Hollow Stem Auger Boring - Dry Sample method (ASTM-D-1452)

In the auger method, borings are advanced by turning a hydraulic powered auger into the ground in 5 feet increments or less. As the auger penetrates the cuttings rise to the surface on the spirals. The depth from which the material comes, however, cannot be accurately determined. Therefore, soil samples are not taken from the spiral augers. With the use of a hollow stem auger, a sampling apparatus may be inserted in the hollow stem to the bottom of the auger, eliminating the need for casings. The sampling procedures are described in the following paragraphs. Geo Cim, Inc. normally uses CME (Central Mining Equipment) drilling rigs which are trailer mounted and pulled with a 4x4 wheel drive F-350 or equivalent truck. The drilling rigs are either CME-45 or CME-55 models.

B. Wash Boring - Dry Sample Method

For inaccessible locations, a portable drilling unit is used which consists of a tripod mounted motorized cathead which is used to drive casings and sampling rods to conduct this method of drilling. Borings are advanced into the ground by the wash-boring-dry sample method. The borings are normally cased through most of this length by the drop of either a 350 or 140 lbs. hammer from a height of 30 inches. The casing diameter is 2-1/2 inches. The number of blows for every foot of penetration the casing advanced is recorded and is reported in the boring logs. When driving of the casing becomes too difficult due to the hardness of the soils encountered, and the hole does not cave-in, the boring may be advanced without casing by continuous washing out of the soils with the drill rods. The color and nature of the soils washed out (gravel, sand, silts or clay) is examined and recorded in order to determine the extent of each soil strata this is complemented with the sampling operations which are regularly made every five feet.

C. Core Borings (ASTM-D-2113)

Core Borings are used when necessary to penetrate into rock and obtain a continuous rock sample. The sample is obtained by means of a core barrel which is attached to the drill rods. At the end of the core barrel is a special bit studded with industrial diamonds which cuts into the rock. The drill rod, and hence the core barrel and diamond bit are rotated as downward pressure is applied. As the bit cuts into the rock, the rock core is free to move into the inner core barrel head, which is suspended on a swivel and therefore does not follow the motion of the outer core barrel with its bit. Cooling water or bentonite slurry is circulated through the drill rod and the core barrel. Penetration depends on the length of the core barrel and the quality of the rock

(number of joints or fractures). Rock discontinuities such as joints and fractures affect the length of penetration in a given core run. The runs are longer as the rock quality increases. As the core barrel is withdrawn, the core lifter, located inside the diamond bit, wedges itself around the bottom of the rock core and thus permits it to be pulled free from the underlying rock. The two most common core sizes are NWM which produces a core of 2.15 inches diameter and HWM which produces a core 3.00 inches in diameter.

II. SAMPLING IN SOILS

A. Standard Penetration Test (ASTM-D-1586)

The standard penetration tests are made with a split-spoon sampler 2.0 inches/O.D. diameter, 1.375 inches I.D. diameter, 18 inches long. The sampler is driven into the ground by the drop of a 140 pounds hammer from a height of 30 inches. The number of blows from the three consecutive six inches of penetration of the sampler is recorded and the number of blows for the last foot of penetration is reported as the N-value. The samples are stored and sealed in glass jars for future classification tests in the laboratory.

The standard penetration test has been correlated with the consistency of fine-grained soils and with the angle of internal friction or the relative density of sands. Such correlations can be used for preliminary estimates and to aid in the stratigraphic classification of the soil strata at a given site.

In the case of fine grained soils, the correlations of the SPT with the undrained shear strength of medium and stiff silts and clays of low sensitivity have been found to be fairly good; however, in the case of the soft silts and clays the SPT gives poor estimates of the undrained shear strength. Testing in undisturbed samples and vane shear tests are recommended in such cases.

B. Undisturbed Sampling

Undisturbed Samples are obtained using thin wall brass or zinc coated steel shelly tubes 2" to 3" O.D. by 24" to 30" long. The sampler is forced to penetrate the soil by static force or downward pressure and is pulled out also using static pull. The samplers are sealed in the field and shipped to the laboratory where the samples are extruded at the time of testing by pushing in the same direction that the sample penetrated the sampler. Special care is taken in packing and handling these samples to avoid disturbance.

III. LABORATORY TESTING

A. Atterberg Limits (ASTM-D-2166)

The Atterberg limits and related indices are very commonly used in soil mechanics works

mainly for soil identification and classification purposes. They are also used in connection with some semi-empirical methods of design for preliminary estimates.

B. Unconfined Compression Test (ASTM-D-2166)

The best quality samples recovered in the split-spoon sampler are subjected to unconfined compression to failure. These samples cannot be regarded as “undisturbed” and the strengths obtained are lower than the “true” in-situ value due to the effect of disturbances and sensitivity of the soil. Furthermore, increased brittleness or friability of the soil structure results in strength values lower than the in-situ undrained strength. Therefore, the unconfined strength values measured in the split-spoon samples are used only as an index property for classification and identification purposes. When more accurate values of strength are needed, undisturbed samples from thin wall Shelby tubes are used.

C. Natural Moisture Content (ASTM-D-2216)

The natural moisture content is the water content of the soil in-situ. The soil sample is obtained from the SPT sampler or Shelby tubes. Approximately 40 gms. of soil are weighed and then placed in an oven for 24 hours at a temperature of 105°C - 110°C. The natural moisture content, “W_n” is obtained from the difference between the weights in the natural state and after oven drying, divided by the dry weight of the sample, and expressed in percentage.

IV. SOIL DESCRIPTION (ASTM-D-2488)

The description of the soils includes the type (gravel, sand, silt, clay, organic), consistency (if a fine-grained soil), size and roundness (if a coarse-grained soil), color, and some other special characteristic which can aid in the identification and classification of the soil such as presence of rubbish, organic matter, shells and fossils, stratification and structure, cementation, mineral composition, relict structures, stains and others.

To aid in the preparation of these descriptions some simple tests are made such as those recommended by the Unified Soil Classification system for field classification (dilatancy, dry strength, shine, toughness). To approximate the consistency of fine grained soils (soft, medium, stiff, hard), a simple test is performed with the hand: a hard fine grained soil is difficult to indent with the thumbnail, stiff soils are readily indented with the thumb, medium soils can be penetrated by moderate thumb pressure and soft soils are easily penetrated with the thumb.

The description of coarse-grained soils (sands and gravel) includes size (fine, medium coarse) and roundness (angular, sub-angular, sub-rounded, rounded, and well-rounded).

The relative amount of coarse fractions in fine grained soils is estimated by placing a representative sample or some 50 gms. in a graduated cylinder filled with water. The mix is shaken and allowed to settle. Particles of a size larger than a fine sand are visible to the naked eye while silts and clays are not. In this manner, estimates of the relative amounts of the coarse

fraction are made and reported as:

| | | |
|-----------------------------------|----|-----|
| Trace | 1 | 10% |
| Little | 10 | 20% |
| Some | 20 | 35% |
| Sandy, gravelly, silty, or clayey | 35 | 50% |

The relative density of sands has been correlated with the results of the Standard Penetration Test, as follows:

| For Granular Soils | |
|--------------------|-------------------------|
| <u>N-Blows/ft.</u> | <u>Relative Density</u> |
| 0 – 4 | Very loose |
| 4 – 10 | Loose |
| 10 – 30 | Medium |
| 30 – 50 | Dense |
| over 50 | Very dense |

These are very approximate correlations which vary with, among other factors, overburden pressure (Gibbs and Holtz, 1957, and Peck and Bazaraa, 1967). These correlations are meaningless in soils with a significant amount of gravel or cobbles.

The relative amounts of the fine-grained soils are estimated based on the reaction of the soils to the dilatancy, shine, dry strength and toughness tests, with adjective indicating the less active fraction i.e. a sandy clay behaves more like a clay than a sand.

The consistency of cohesive soils has also been correlated to the results of the Standard Penetration Test, as shown below. The correlation, however, is greatly affected by the clay structure and factors such as sensitivity.

| For Cohesive Soils | | |
|---|--------------------|--------------------|
| <u>Unconfined Compressive Strength (T.S.F.)</u> | <u>N-Blows/Ft.</u> | <u>Consistency</u> |
| Less than 0.25 | Less than 2 | Very soft |
| 0.25 – 0.50 | 2 – 4 | Soft |
| 0.50 – 1.00 | 4 – 8 | Medium |
| 1.00 – 2.00 | 8 – 15 | Stiff |
| 2.00 – 4.00 | 15 – 30 | Very stiff |
| More than 4.00 | More than 30 | Hard |

Once the soil samples have been tested, they are stored for three months after the date of our final report, and then destroyed, unless required in writing by the client to store them for a longer period.