October 16, 2023

Mr. Jordon Cheifet
**Cummins|Cederberg**
7550 Red Road, Suite 217
South Miami, Florida 33143

Re: Report of Subsurface Exploration and Geotechnical Engineering
**Proposed City of Hollywood Tidal Flooding Mitigation – Phase 1, 2 &3**
City of Hollywood
Hollywood, Florida
NV5 Project No.: 16959

Dear Mr. Cheifet:

NV5, Inc. submits this report in fulfillment of the scope of services described in our Proposal Nos. 20-00331Rev3 and 20-0331Rev4 dated April 18, 2022 and August 11, 2022. The work was authorized by acceptance of our Proposal Service Agreement. This report describes our understanding of the project, presents our evaluations, and provides our professional opinions and recommendations for foundation design and construction for the project.

NV5 previously performed a geotechnical study for Phase I of the project and presented the result in a geotechnical report titled *Report of Subsurface Exploration and Geotechnical Engineering Study, Proposed City of Hollywood Tidal Flooding Mitigation – Phase 1, City of Hollywood, Florida, NV5 Project No.:16870,* dated May 18, 2022.

This report should be read in its entirety. The user of this report is encouraged to contact NV5 to discuss our findings and to ensure clarity regarding the evaluations and recommendations contained herein.

Sincerely,
**NV5, Inc.**

Qingyi Qian
Digitally signed by Qingyi Qian
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Reason: I am the author of this document
Date: 2023.10.17 11:54:25-04'00'

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## 1.0 SITE AND PROJECT INFORMATION

The project site covers the entire coastline along the North and South Lake from Adam Street to Holland Park, in Hollywood, Florida. A site vicinity map is presented as Drawing 1. The area currently houses a mixture of residential buildings, municipal streets, boat docks, Holland Park, and North and South Lake. No site grade or bathymetric information was provided. We estimate site grades to be on the order of +3 to +5 feet relative to the 1988 North American Vertical Datum (NAVD).

We understand that due to tidal flooding, the City of Hollywood will carry out mitigation measures to control or prevent the erosions of the coastline along the North and South Lake, the Intracoastal Waterway, Holland Park, and the Hollywood Marina due to flooding in the short term and adaptation to future sea level rise along the water's edge. This will include the design and construction of 22 segments of resilient public shorelines totaling approximately 13,600 linear feet. A variety of tidal barrier typologies, including living shorelines, hybrid green-grey solutions, riprap revetments, mangrove shorelines, seawalls, berms and banks, and biological forms will also be included and constructed along parallel tracks to ensure timely and efficient project completion. Project scope includes public shorelines along North Lake and South Lake, the Intracoastal Waterway, Holland Park, and the Hollywood Marina.

We understand that it is desired by the project team to support the floating docks with 12- and 14-inch square precast, prestressed concrete (PPC) piles and with timber piles. No other structural loading information was provided. We assume that surface surcharges behind the seawall will be less than 200 pounds per square foot (psf) and passenger and service vehicles will be lightly loaded. We assume also, ground level slabs will have loads up to 200 pounds per square foot.

## 2.0 PURPOSE AND SCOPE OF WORK

The purpose of our services on this project is to explore the subsurface conditions and perform engineering analyses in order to provide recommendations for foundation design and construction. Specifically, this report provides:

- Drawings showing boring locations, a graphic summary of the generalized subsurface conditions, and boring logs with detailed descriptions of the materials encountered.
- Discussion of generalized subsurface conditions at the site including groundwater levels and hydraulic conductivity.
- Discussion of feasible foundation type(s) for the proposed construction.
- Design parameters for the recommended foundation types, including vertical and lateral load resistance.
- Geotechnical parameters for the wall design.
- Estimates of foundation settlements.
- Recommendations for site preparation and grading, including the re-use of site-excavated materials for fill, fill placement and compaction, and slab subgrade preparation.
- Construction considerations including excavation support and dewatering, and impacts for adjacent structures.

# 3.0 FIELD EXPLORATION

NV5 performed a field exploration program comprising borings and field permeability testing as described below. The test locations depicted on Drawing 1 were marked and identified in the field by NV5. It should be noted that the test locations shown are approximate. If accurate as-built test locations are required, they should be surveyed. The test data reported herein reflect our interpretation of conditions at the specific test locations only, and at the time the tests were performed.

## 3.1 BORINGS

The subsurface conditions at the site were explored with a total of 30 engineering test borings drilled to depths of approximately 30 and 50 feet below grade. The borings were drilled with a truck-mounted drill rig utilizing the rotary wash method. Samples of the subsurface materials were recovered at roughly 2-foot intervals within the upper 16 feet of the borings and at approximately 5-foot intervals thereafter using a Standard Penetration Test split-spoon sampler (SPT) in general accordance with ASTM D-1586, "Standard Test Method for Standard Penetration Test and Split-Barrel Sampling of Soils." This test procedure drives a 1.4-inch-inner-diameter split-tube sampler into the subsurface using a 140-pound hammer falling 30 inches. The total number of blows required to drive the sampler the second and third six-inch increments is the SPT N-value, in blows per foot (bpf), and is an indication of material strength. Upon completion of the borings, the boreholes were backfilled with soil cuttings and the upper few feet closed with cement grout.

The soil/rock samples recovered from the borings were initially classified in the field. The collected samples were later re-examined in the laboratory to confirm field classifications. Visual soil classifications were made in accordance with ASTM D2487 and ASTM D2488. The results of the classification and consequent generalized stratification of the borings are shown in Drawing 2, the boring summary sheet, and in the records of test borings in Appendix A (sheets A-1 through A-40). Strata contacts shown on these drawings are approximate. The boring data reflect conditions at the specific test locations only, and at the time that the borings were drilled.

## 3.2 FIELD PERMEABILITY TESTS

In addition to the borings, NV5 performed also 13 field permeability tests to 15 feet below the existing grade at the locations shown on Drawing 1. The tests were performed in general accordance with the South Florida Water Management District's *Usual Open Hole Procedure*. Test results are presented in Section 5 and Appendix B (sheets B-1 through B-13).

# 4.0 LOCAL GEOLOGY AND GEOLOGIC HAZARDS

## 4.1 LOCAL GEOLOGY

Broward County is located on the southern flank of a stable carbonate platform on which thick deposits of limestones, dolomites and evaporites have accumulated. The upper two hundred feet of the subsurface profile is composed predominantly of limestone and quartz sand. These sediments

were deposited during several glacial and interglacial stages when the ocean was at elevations higher than present.

In many portions of Broward County, surface sand deposits of the Pamlico Formation are encountered. The Pamlico sands overlie the Miami Limestone. In western Broward County, portions of the Everglades Region interfinger with the Pamlico sand. The Everglades soil consists of peat and calcareous silt (marl).

The Miami Limestone is a soft to moderately hard, white, porous to very porous, sometimes sandy, oolitic calcareous cemented grainstone. The formation outcrops in portions of Miami-Dade County. The Miami Limestone has a maximum thickness of about 35 feet along the Atlantic Coastal Ridge and thins sharply near the coastline and more gradually in a westerly direction. The Miami Limestone was formed about 130,000 years ago at a time when the sea level was twenty-five feet higher than it is today. This environment facilitated formation of concentrically layered sand sized carbonate grains called oolites. These grains formed by repeated precipitation of calcium carbonate around the nucleus of a sand or shell grain.

The Miami Limestone can be separated into two facies: the barrier bar oolitic facies and the tidal shoal limestone facies. The barrier bar facies is characterized by lenses of oolitic limestone separated by intermittent, 1-inch thick or less, uncemented sand layers (cross-bedded limestone). Zones of higher porosity are characteristic and parallel the bedding planes of the cross-bedded limestone. The tidal shoal limestone facies is characterized by a distinct lack of bedding planes. In addition, burrowing organisms have churned previously deposited sediments, which have resulted in high porosity channels in the rock. These ancient channels give the rock an appearance of a hardened sponge in some areas.

The Fort Thompson Formation underlies the Miami Limestone, and includes sand, sandstone, and limestone. The upper zones of the Fort Thompson Formation consist of sand having a thickness ranging from five (5) to 35 feet. The remainder of the formation consists of coralline limestone, quartz sandstone, sandy limestone and freshwater limestone. The type of soils within the formation and the degree of cementation vary with lateral extent and depth.

The Fort Thompson Formation is underlain by the Tamiami Formation. The Tamiami Formation consists of sands, silts, clays, and sometime fossiliferous limestone. The upper portions of the Tamiami Formation are permeable and make up the lower reaches of the Biscayne Aquifer. This formation ranges in thickness from zero (0) to 300 feet in South Florida.

## 4.2 GEOLOGIC HAZARDS

The South Florida area is relatively free of geologic hazards. The region is not considered seismically active. Consequently hazards such as ground shaking, liquefaction, lateral spreading, and ground rupture that are normally associated with earthquakes and other seismic activity are generally not a factor for the design of structure foundations in South Florida. Based on the 2021 International Building Code, a Site Class D classification is considered appropriate for this site.

Karst topography that is associated with the formation of sinkholes and other underground discontinuities in carbonate rock formations in the central and northern portions of Florida is generally not found in South Florida. Any discontinuities in the limestone due to solutioning of the

rock are typically very limited in vertical and lateral extent and are usually not considered a factor in the design of foundations in the local practice.

## 5.0 SUBSURFACE CONDITIONS

### 5.1 BORINGS

In general, the subsurface conditions encountered in our borings are consistent with the geology described above. The detailed subsurface conditions are presented graphically in the attached boring summary sheets (Drawings 2 and 3) and in more detail on the records of test boring sheets in Appendix A. We note that boring top elevations shown on the drawings have been estimated. If accurate elevations are required, the boring locations should be surveyed. The subsurface conditions disclosed by the borings can be generalized as described below.

Layer 1 – Sand, Limestone Fragments, Silt, Silty Sand, Peat and Organic Silt:
This layer consists of a complex layer of light brown-to-dark brown, and light gray-to-dark gray sand, limestone fragments, silt, silty sand, peat, and organic silt that is about four (4) to 18 feet thick in the borings. Topsoil with thickness of one (1) to 12 inches was encountered in majority of the borings. In borings B-2, B-4, B-5, B-6, B-8, B-11, B-12, B-13, B-15, and B-18 asphalt with a thickness of four (4) inches or less was encountered at the ground surface.

Peat and organic silt with thicknesses of two (2) to five (5) feet was encountered in borings B-11, B-12, B-19, B-20, B-21, and B-28.

SPT N-values recorded in this layer range from less than one (1) to greater than 50 blows per foot (bpf), with an average value of 10 bpf, indicating the layer typically varies from very loose to medium dense.

Layer 2 – Limestone/Sandstone with Sandy Zones:
This layer comprises light brown, light gray to gray limestone/sandstone with sandy zones, and extends to the maximum termination depth of the borings at 50 feet below grade.

The average of the SPT N-values recorded in the stratum is at least 21 bpf and the stratum varies from very soft to very hard with recorded SPT N-values ranging from less than one (1) to greater than 50 bpf. The lower SPT N-values generally correspond to the sandier zones within the rock.

Groundwater
Groundwater was encountered in the borings at depths of approximately 1.2 to 4.5 feet below the existing ground surface. It should be noted that groundwater readings during field testing might not represent stabilized groundwater levels. Stabilized water levels would be best obtained by installing groundwater-monitoring devices and taking readings over an extended period. NV5 can provide these services if they are of interest to the project development team.

These depths correspond approximately to Elevations between 0 and +1 feet NAVD. On average, groundwater levels in the general vicinity of the project are expected to vary between elevations -1.5 to +2.5 feet NAVD, the variations being primarily because of seasonal rainfall and tidal fluctuation in the nearby water bodies. Storm and hurricane

events and construction activities also result in variations in the groundwater levels. Notwithstanding the variations acknowledged, we anticipate that groundwater at the site will generally be encountered within the upper five (5) feet of the existing ground surface.

## 5.2 FIELD PERMEABILITY

The results of the open-hole field permeability tests performed to 15 feet below existing ground surface at the site are presented in the table below:

TABLE 1 – SUMMARY OF FIELD PERMEABILITY TEST RESULTS

| Test ID | Hydraulic Conductivity (cfs/ft²-ft. head) |
|---|---|
| P-1 | $2.67 \times 10^{-4}$ |
| P-2 | $1.66 \times 10^{-4}$ |
| P-3 | $3.58 \times 10^{-4}$ |
| P-4 | $1.85 \times 10^{-4}$ |
| P-5 | $2.67 \times 10^{-4}$ |
| P-6 | $2.82 \times 10^{-4}$ |
| P-7 | $8.70 \times 10^{-5}$ |
| P-8 | $1.28 \times 10^{-5}$ |
| P-9 | $5.67 \times 10^{-4}$ |
| P-10 | $2.48 \times 10^{-4}$ |
| P-11 | $1.42 \times 10^{-5}$ |
| P-12 | $2.34 \times 10^{-4}$ |
| P-13 | $4.28 \times 10^{-5}$ |

It should be noted that the above results are un-factored and represent the conditions at the test locations at the time of the tests. To account for potential variations in hydraulic conductivity across the site the designer should apply an appropriate safety factor to the reported values. The permeability tests data are presented in Appendix B (B-1 through B-13).

# 6.0 EVALUATION AND DISCUSSION

## 6.1 FOUNDATION SUPPORT

We consider the site suitable for the proposed project from a geotechnical perspective. The primary concern for foundation design and construction includes support of the proposed new structure loads without unacceptable settlement and lateral displacement, and minimizing adverse impacts to adjacent structures and properties. Foundation design for the structures is evaluated below, and detailed foundation design and construction recommendations including sizes, lengths, and axial and lateral load capacities are presented in the recommendations section of this report.

PPCP, timber, and sheet piles will be driven into the Layer II limestone to support the floating docks and seawall. Hard zones within the limestone could present difficulty for driving piles and installing sheet piles and could require pre-punching of the rock prior to driving of these piles.

Recommended foundation design and design parameters are presented in Section 7 below.

## 6.2 ESTIMATED SETTLEMENT

We estimate that foundations that are properly designed and constructed as recommended herein will experience total settlements of one (1) inch or less and maximum differential settlements of ½ inch. Given the granular nature of the subsurface materials in which the foundation will bear, we predict settlement will occur coincidental with the application of the docks dead and live loads and for a short time after. The above settlement estimates are for foundations that are designed and constructed as recommended herein.

## 6.3 GROUND FLOOR SLABS & PAVEMENTS

We understand that the site could be raised for ground level slabs, parking and driveways. Placing such fill over the compressible peat/silty materials in Layer 1 could lead to undesirable settlement performance of the ground floor slabs and pavements. The most positive measure of addressing potential settlement issues is to remove these materials and replace them with suitable fill.

If the materials will not be removed, then one option to reduce potential adverse impacts is to place the fill early so it can act as a preload. This would require monitoring the fill to assess when settlement has stopped and slab on grade and pavement construction can begin. As an added level of insurance, a reinforcing geogrid material could be incorporated into the pavement section to reduce the potential for differential settlements beneath the pavement. These pavements can be expected to have increased maintenance requirements.

## 6.4 IMPACT OF PEAT, SILTS & SILTY SAND

It is noteworthy that the borings encountered near-surface peat, silts, organic silt, and silty sand materials. These materials are weak and therefore compressible. Stresses due to new fill could reach the compressible materials and cause settlement, especially where the materials are closer to the ground surface. Such settlement could cause downdrag loads on adjacent pile foundations, and could adversely impact any pavements, pavers, or miscellaneous structures not supported on piles over these fills. Depending on the importance of the structures that could be potentially impacted by these settlements, it may be prudent to consider pile support of such structures.

## 6.5 MISCELLANEOUS ENVIRONMENTAL IMPACTS

Environmental forces consist of sinkholes, freeze thaw damage, shrinking and swelling soils, and hurricane scour can affect the performance of a foundation system. Sinkholes, freeze-thaw, and shrinking/swelling soils are generally not of concern in the South Florida area. While a detailed study of hurricane scour was outside the scope of this study, it is nonetheless our opinion that the foundation systems recommended herein when properly designed and constructed, will resist hurricane scour forces. It is therefore our opinion that these specific environmental forces have a low risk (on a scale of low, moderate, high) of adversely affecting deep foundation performance at this site provided the foundation system is designed and constructed as recommended herein.

# 7.0 RECOMMENDATIONS

Our recommendations for geotechnical design and construction of the proposed project are provided below in the following sections.

## 7.1 SITE PREPARATION AND GRADING

1. Geotechnical site preparation for construction should consist of removal of all existing structures, foundations, pavements, underground utilities, and other deleterious materials within proposed structure and pavement footprints plus a five-foot perimeter. Any voids created by the removal of these deleterious materials should be properly backfilled as described in the paragraphs below.

   We are not aware of the development history of the site beyond its current condition. If old subsurface structures are encountered, they should be removed and replaced with compacted fill if they interfere with new foundations or utilities. It will likely not be practical to remove existing piles, and the new foundations should be designed around existing piles. If the old foundations do not interfere with new construction they could be left in place. Backfilling of old foundation excavations should be performed in accordance with the recommendations provided in this report.

   After preparation as described above, areas for structures that will have slabs on grade or pavements should be densified with at least five overlapping passes of a 20-ton roller as it operates at its maximum vibrational frequency, and a travel speed of not more than two feet per second. Proof-rolling should include planned development footprints plus a five-foot perimeter. The densification should be observed by NV5 to identify and mitigate any weak subgrade conditions evidenced by yielding or rutting at the wheels of the roller.

2. In general, fill soils should consist of either inorganic, non-plastic sand having less than 10 percent material passing the No. 200 sieve, or crushed limestone with a maximum rock size of six (6) inches. In particular, fill soils placed within the upper 12 inches of the subgrade of building slabs on grade should consist of either sand with less than 10 percent passing the number 200 sieve, or crushed limestone with a maximum particle size of three (3) inches.

   Based on our boring data the majority of the near-surface granular materials should satisfy the fill criteria, but might require localized sorting and moisture-conditioning prior to re-use. The peat, organic and silty materials should not be used for fill. In any event, representative samples of the fill soils should be collected for classification and compaction testing. The maximum dry density, optimum moisture content, gradation, and plasticity should be determined. These tests are needed for quality control of the compacted fill.

3. Fill soils should be placed with loose lift thicknesses of not more than 12-inches, moisture-conditioned to within two (2) percent of the optimum moisture content based on ASTM D-1557, and compacted to a minimum 95 percent relative compaction[1]. One test should be performed for each 2,500 square feet of fill area per lift of fill soils. If during the compaction

[1] Relative compaction refers to the in-place dry unit weight of a material expressed as a percentage of the maximum dry unit weight of the same material as determined in the laboratory using the Modified Proctor procedure (ASTM D1557).

process fill shows evidence of yielding under the weight of the roller, it should be removed and replaced with properly compacted granular fill as described herein. Fill particles exceeding one (1) inch in size should not be allowed to nest within the fill.

*The vibrations produced by the operation of the compactor should be monitored for potential adverse effect on adjacent existing structures, pavements, and utilities*. If nearby structures will be affected by the vibration of the compactor, the compaction procedure may require modification as approved by the geotechnical engineer.

## 7.2 FOUNDATION SUPPORT

### 7.2.1 Precast Prestressed Concrete & Timber Piles

1. Our recommended pile tip elevations and allowable pile axial capacities for the proposed pile types are presented in the table below.

TABLE 2 - SUMMARY OF PILE ALLOWABLE CAPACITIES

| Pile Size (in)/ Type | Min. Pile Tip Elevation (ft., NAVD) | Allowable Compression (kips) | Allowable Tension (kips) | Allowable Lateral Load (kips) | Minimum Embedment into Rock (feet) |
|---|---|---|---|---|---|
| 12-inch-diameter Timber | -22 | 25 | 5 | 1 | 12 |
| 12x12 PPCP | -22 | 30 | 15 | 2 | 12 |
| 14x14 PPCP | -22 | 50 | 25 | 5 | 12 |

*Notes:*
- *a) Minimum tip elevation based on an average site grade of +3 feet NAVD at the time of the borings.*
- *b) Pile capacities are based on a pile stickup of 9 feet*
- c) *Lateral capacity is based on an allowable pile head displacement of 1 to 1.5 inch.*

2. Foundations should be designed so that a minimum center-to-center pile spacing of three pile diameters is maintained.

3. We note that the borings encountered zones of hard rock at the site. These are indicated on the borings as material with refusal type SPT N-values typically exceeding 50 bpf. The contractor must mobilize the appropriate equipment in order to penetrate this hard rock and achieve the tip elevations recommended herein.

4. Piles should be installed within three inches of specified plan location, and within two percent of vertical or batter line.

5. All pile driving should be done in accordance with Florida Department of Transportation (FDOT) Standard Specifications for Road and Bridge Construction, Section 455 Structures Foundations.

6. Pile driving should be terminated where refusal criteria of 20 blows per inch and a minimum embedment of 12 feet into the rock is satisfied.

7. The pile contractor should be prepared to pre-punch or predrill within some locations in order to drive the pile to achieve the minimum embedment into the limestone layer.

8. If piles holes are preformed, the piles should be driven for the final five (5) feet of embedment.

9. The FDOT PPCP and timber piles can be installed on a battered angle of 1:4.

### 7.2.2 Wall Design Parameters

1. Our recommended geotechnical parameters for the design of the new seawall are presented in the Table 3 below. We note that the top of limestone could vary along the seawall alignment.

TABLE 3 - SUMMARY OF GEOTECHNICAL PARAMETERS

| Layer ID | Description | Depth (ft.) | Angle of Internal Friction (degrees) | Coefficient of Active Earth Pressure, $k_a$ | Coefficient of Passive Earth Pressure, $k_p$ | Total Unit Weight (pcf) |
|---|---|---|---|---|---|---|
| 1 | Sand, Limestone Fragments, Silty Sand, Silt, Organic Silt, Peat | 0 – 18 | 28 | 0.36 | 2.77 | 105 |
| 2 | Limestone/Sandstone with Interbedded Sand and Sandy Zones | 18 - 50 | 40 | 0.22 | 4.60 | 125 |

2. We note that the borings encountered zones of hard rock at the site. These are indicated on the generalized subsurface profiles shown as material with refusal type SPT N-values typically exceeding 50 bpf. The contractor must mobilize the appropriate equipment in the event it is necessary to install the sheet piles through this hard rock to achieve the tip elevation recommended by others.

### 7.2.3 Miscellaneous Structures

1. Miscellaneous structures such as guard huts, planters, water features, property walls and small (non-marine) retaining walls that are not sensitive to settlement may be designed using an allowable bearing pressure of **1,200 psf** assuming the site has been properly prepared as recommended herein. Footings must bear at a minimum depth of 12 inches below lowest adjacent grade. Continuous footings should be at least 16 inches wide and isolated footings should be at least 24 inches wide.

2. Lateral forces may be resisted by passive earth pressure acting on the vertical foundation faces and by friction acting between the bottoms of foundations and the supporting subgrade. We recommend using an equivalent fluid weight of 180 pounds per cubic foot (pcf) to compute passive resistance for moist soil above the water table, and 80 pcf to compute passive resistance in submerged soil. Passive resistance in the upper 12 inches of soil should be neglected unless it is confined by a slab or pavement. Frictional resistance may be computed using a factor of 0.30 times the sustained dead loads.

   The above values include a factor of safety of at least 1.5. These values of resistance assume that the foundations are: 1) surrounded by in-situ soil densified by compaction, clean fill that is compacted to at least 95 percent relative compaction, and 2) able to withstand horizontal movement on the order of ¼ to 3/8 inch.

3. With the shallow footing bearing pressure recommended above, we expect settlement of such footings for lightly loaded structures will be less than one (1) inch, with differential settlement one the order of ½ inch or less.

## 7.3 GROUND LEVEL SLABS AND WALKWAYS

1. Ground floor slabs could be subject to settlement due to consolidation of the Layer II silty materials and peat, particularly where such slabs are placed over fill. If such settlement is objectionable, the slabs should be structurally supported or the ground beneath them improved by preloading. The subgrades for any slabs-on-grade should be prepared as recommended under Section 7.1 *Site Preparation and Grading* above.

2. Slabs on grade may be designed using a modulus of subgrade reaction of 150 pounds per cubic inch.

3. Slabs should be reinforced for the loads that they will sustain and construction joints should be provided at frequent intervals.

4. Slabs in contact with soil are subject to movement of moisture from the soil upward through the slab. To prevent such moisture vapor transmission, a moisture barrier should be placed on the slab subgrade, and should be protected from damage during construction. Construction joints should be provided with water stops in any permanently submerged areas.

## 7.4 EXCAVATION AND DEWATERING

1. Shallow excavations into the near-surface materials will likely stand vertical for short periods of time only. The excavation sides will unravel over time as they are exposed to weather and construction traffic. In general, the Layer II limestone/sandstone is expected to stand vertically unsupported if excavated. However, localized weaker sandy zones within this layer could become loose if unsupported. Deeper excavations, especially those that extend below the groundwater table, as well as excavations that will remain open for longer periods will require support in the form of temporary shoring or sliding trench boxes to prevent instability of excavation walls and to protect workers from injury. All excavations should comply with Occupational Safety and Health Administration (OSHA) design and safety requirements. Shoring designs should be signed and sealed by a Florida-licensed professional engineer,

and should be provided for the Owner's review.

Particular attention should be paid to any deep excavations such as for deeper utilities and appurtenances, and the potential impacts these could have on adjacent structures, especially where such excavations are close to project property lines.

2. Average groundwater elevation is expected to be approximately between Elevation -1.5 and +2.5 feet NAVD for this site. As stated above, groundwater levels outside of these seasonal averages could be encountered during construction. Some dewatering could be required for foundation and underground utility excavations. We judge that if required, localized dewatering can be accomplished using pumps and sumps. Dewatering of larger excavations and larger volumes could require the installation of well points or other dewatering systems.

   It should be noted there are two components to the dewatering process. The first is extracting the water from the subsurface and the requirement of the project to maintain a dry excavation to allow construction to proceed. The other component is the ability to discharge the volume of water extracted. The contractor must ensure this capability exists for the site such that all dewatering and consequent effluent discharge will meet the requirements of the local jurisdictional agencies including Broward County, Florida Department of Environmental Protection (FDEP), Florida Department of Transportation, and South Florida Water Management District (SFWMD) as appropriate. This study did not include specific testing or analysis to determine if dewatering is feasible or if adequate discharge is available.

   Ultimately, dewatering of the site to facilitate construction is the contractor's responsibility.

   During dewatering, the adjacent properties must be monitored for adverse impacts from dewatering drawdown.

   The dewatering subcontractor should submit a proposed design for dewatering operations to the owner for review and approval prior to commencing work.

## 7.5 OTHER RECOMMENDATIONS

1. NV5 should participate in the design development phases of this project in order to modify the recommendations provided above as changes occur during the design development process.

2. Vibrations from construction activities could have an adverse impact on adjacent structures. We recommend that structures that are sensitive to vibrations be monitored during driven and sheet pile installation activities.

3. NV5 should participate in the evaluation of field problems as they arise and recommend solutions. We should also be involved with site work activities so we can address needed changes to the foundation recommendations if site conditions different from those described herein are encountered. NV5 should observe and test the foundation installation to satisfy the requirements of the Florida Building Code and municipal agencies.

## 8.0 REPORT LIMITATIONS

This report has been prepared pursuant to our April 18, 2022 and August 11, 2022 Proposals approved by client-provided General Conditions for Subconsultant Services Agreement executed March 3, 2023 and in general accordance with the standard of care ordinarily practiced by members of Consultant's profession performing similar services on similar projects in similar localities; no other warranty is expressed or implied. The report should be read in its entirety. NV5 is not responsible for misinterpretations arising from reading sections of the report only.

This report has been prepared for the exclusive use of the Owner and other members of the design/construction team for the specific site(s) and project(s) discussed in this report. The report should not be used for any other site(s) or project(s) without express written permission from NV5.

The evaluation and recommendations submitted in this report are based in part upon the data collected from the field exploration. These data were collected at specific locations and describe subsurface conditions encountered at those specific locations at the time(s) the field explorations were made. Further, the plan area of the field test locations is relatively small as compared to the total site area. Consequently, subsurface conditions could be different at site locations other than those tested. The nature or extent of variations throughout the subsurface may not become evident until the time of construction. If variations later become evident, it may be necessary for NV5 to revisit the recommendations provided in this report. In the event changes are made in the nature, design, or location(s) of the proposed project construction, the conclusions and recommendations contained in this report cannot not be relied upon unless the changes are reviewed by NV5, and the conclusions and recommendations herein are either verified or modified as needed in writing by NV5.

Therefore, NV5 must be informed of any such changes if those changes are not addressed in this report. The scope of services performed by NV5 did not include any environmental assessment or investigation for the presence or absence of wetlands, sinkholes, chemically hazardous or toxic materials in the surface water, groundwater or air, on or below or around the site.

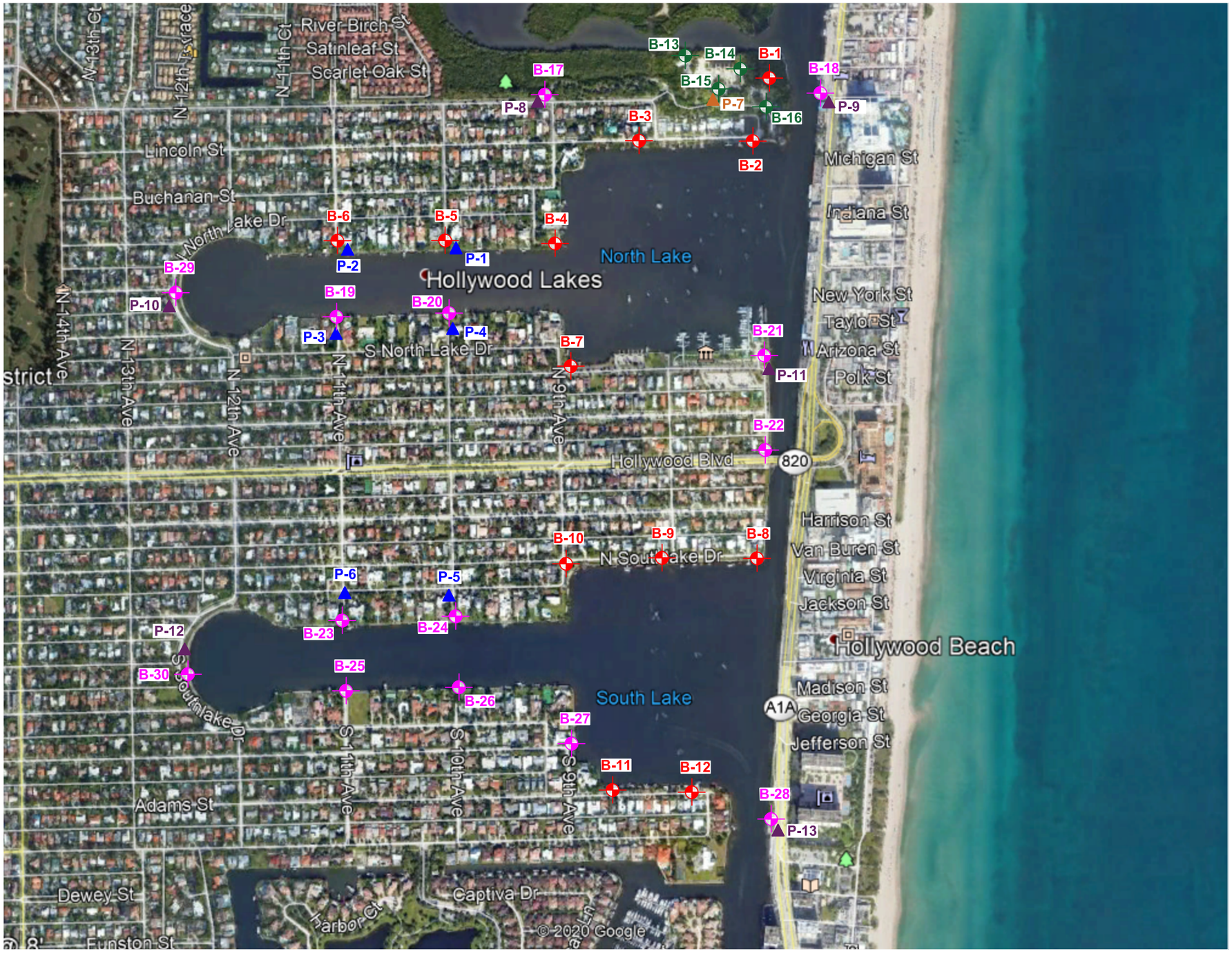
NV5 should be retained to provide consultation to the ownership and design team during the design development phase of the project, to review final foundation specifications and review foundation design drawings in order to ascertain that its recommendations have been properly interpreted and implemented. Furthermore, NV5 should be retained to provide inspections during geotechnical construction. If NV5 is not afforded the opportunity to participate in foundation installation as recommended in this report, CumminsCederberg agrees that NV5 has no responsibility for the interpretation of the recommendations made in this report or for foundation performance.

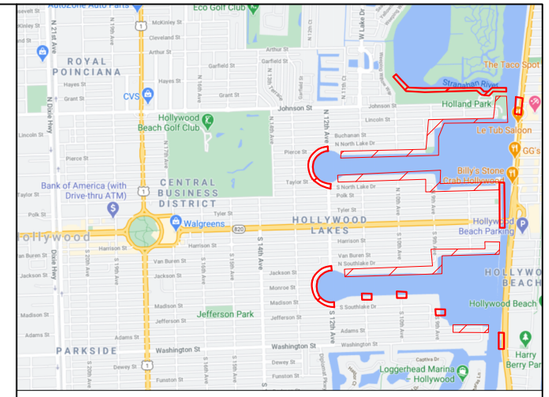
## 9.0 CLOSURE

We appreciate the opportunity to provide specialized engineering services on this project and look forward to an opportunity to participate in construction related aspects of the development. If you have questions about information contained in this report contact the writer at 305.901-1886.

**********

# DRAWINGS




**Site Vicinity Map**

0 750

**Approximate Scale in Feet**

**LEGEND:**

**B-1** - Number & Approximate Location of Test Boring (2021).

**B-13** - Number & Approximate Location of Test Boring (2022).

**B-17** - Number & Approximate Location of Test Boring (2023).

**P-1** - Number & Approximate Location of Percolation Test (2021).

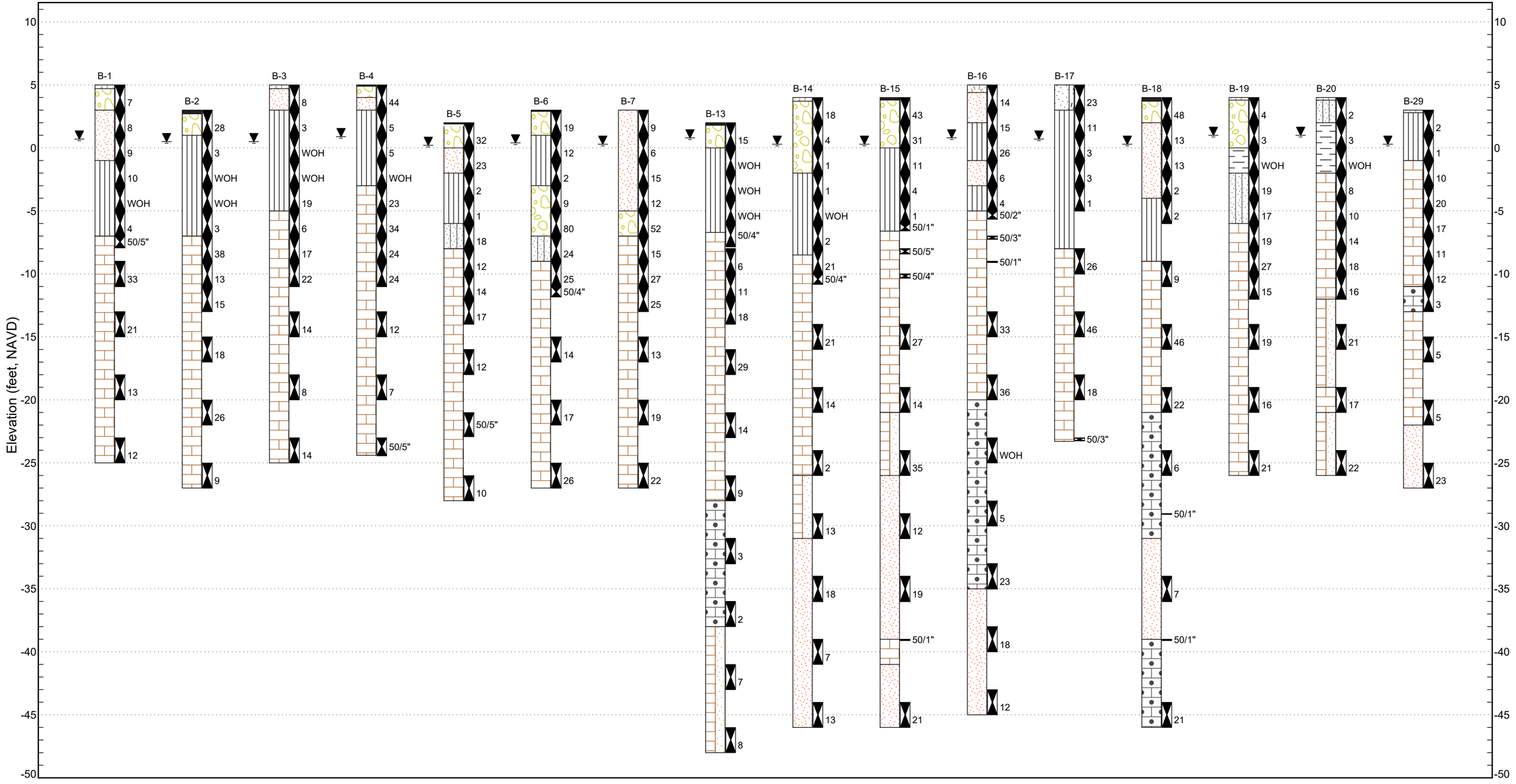
**P-7** - Number & Approximate Location of Percolation Test (2022).

**P-8** - Number & Approximate Location of Percolation Test (2023).

**NOTES:**

1. Test locations shown are approximate.
2. Test location symbols are not to scale.
3. Base drawing was taken from Aerial View, Google Earth, 2023.

| | | | | | |
|---|---|---|---|---|---|
| NV5 | **DRAWING TITLE:** *Site Vicinity Map & Test Location Plan* | | | | **DWN BY:** CR |
| | **PROJECT NAME:** *City of Hollywood Tidal Flood Mitigation - Phase 2 & 3* | | | | **CKD BY:** CLG |
| | **PROJECT LOCATION:** *City of Hollywood, Hollywood, Florida* | **PROJECT NO:** *18146* | **DATE:** *09/11/2023* | **DWG NO:** *1* | **APD BY** |




# BORING SUMMARY SHEET - NORTH LAKE

**PROJECT NAME:** City of Hollywood Tidal Flood Mitigation - Phase 2 & 3

**PROJECT LOCATION:** City of Hollywood, Hollywood, Florida

**PROJECT NUMBER:** 18146

**DATE:** 09/11/2023

**DRAWN BY:** CR

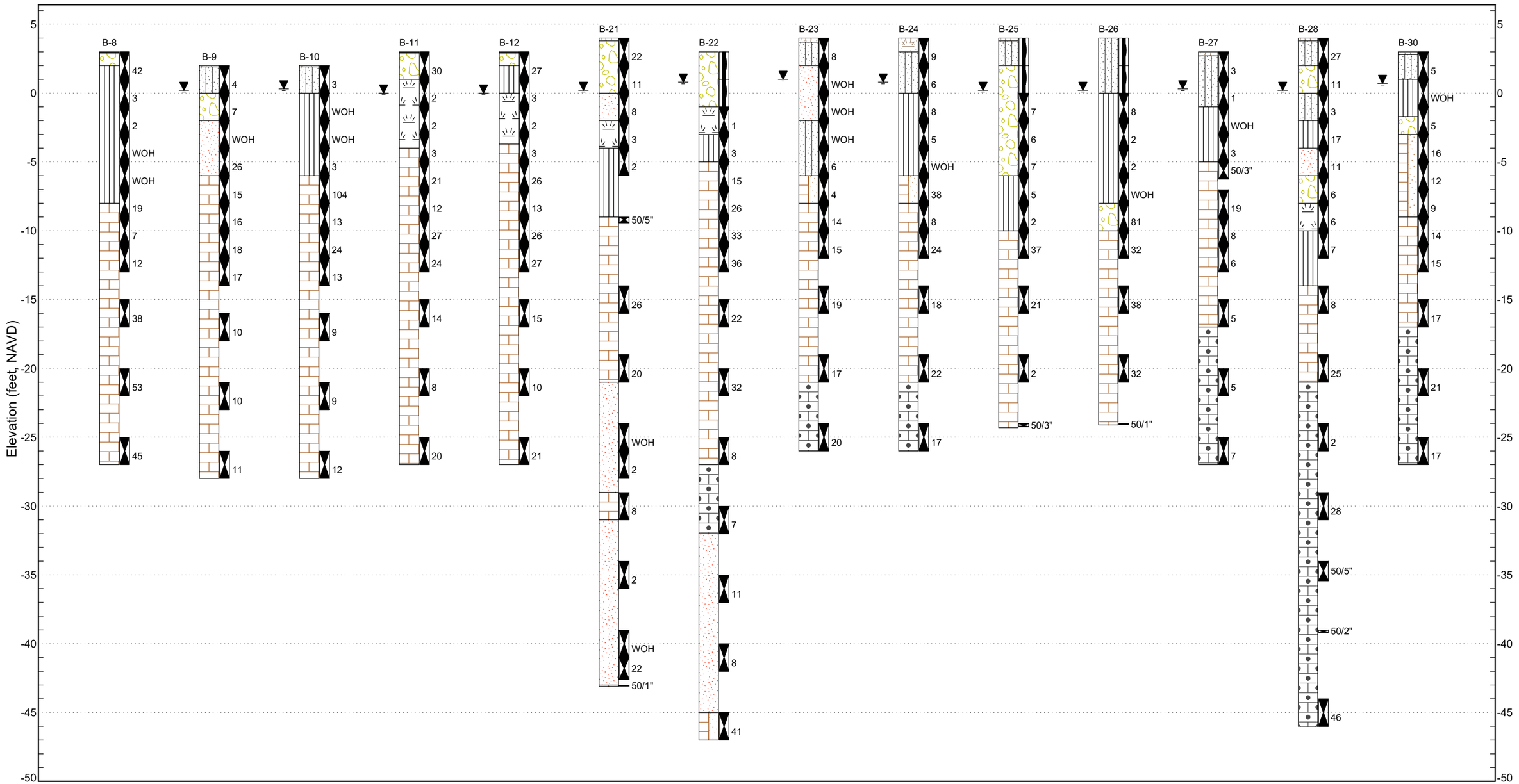
**CHECKED BY:** CLG

**DRAWING NO:** 2

**LEGEND**

- Silt
- Sandstone
- Limestone Fragments
- Asphalt
- Limestone
- Organic Silt
- Auger Cuttings
- Standard Penetration Test & SPT N-value
- Water Level

Note: Boring top elevations have been estimated




# BORING SUMMARY SHEET - SOUTH LAKE

**PROJECT NAME:** City of Hollywood Tidal Flood Mitigation - Phase 2 & 3

**PROJECT LOCATION:** City of Hollywood, Hollywood, Florida

**PROJECT NUMBER:** 18146

**DATE:** 09/11/2023

**DRAWN BY:** CR

**CHECKED BY:** CLG

**DRAWING NO:** 3

**LEGEND**

- Peat
- Silt
- Limestone Fragments
- Asphalt
- Limestone
- Sandstone
- Auger Cuttings
- Standard Penetration Test & SPT N-value
- Water Level

Note: Boring top elevations have been estimated

# APPENDIX A

# BORING LOG DATA

# BORING NUMBER B-1

**PROJECT NAME** City of Hollywood Tidal Flood Mitigation - Phase 2 & 3

**PROJECT NUMBER** 18146 **PROJECT LOCATION** City of Hollywood, Hollywood, Florida

**DATE STARTED** 2/3/21 **COMPLETED** 2/3/21 **GROUND ELEVATION** 5 ft NAVD, est. **HOLE SIZE** 3 inches

**DRILLING CONTRACTOR** NV5 **GROUND WATER LEVELS:** 4.3 ft / Elev 0.7 ft

**DRILLING METHOD** Rotary drill with mud, wash & casing

**LOGGED BY** D. Correa/ Y. Parada **CHECKED BY** N.Vieira

**NOTES**

| DEPTH (ft) | SAMPLE TYPE NUMBER | BLOW COUNTS (N VALUE) | U.S.C.S. | GRAPHIC LOG | MATERIAL DESCRIPTION | ELEVATION (ft., NAVD) |
|---|---|---|---|---|---|---|
| 0 | | | | | | 5 |
| | SPT | 2-3-4-4 (7) | SM / GP | | 0.3 4" of Topsoil | 4.7 |
| | | | | | 2.0 LIMESTONE FRAGMENTS, loose, light brown, with sand | 3.0 |
| | SPT | 2-4-4-11 (8) | SP | | SAND, loose, fine, gray, with limestone fragments and silt | |
| 5 | SPT | 3-3-6-7 (9) | | | ▼ | 0 |
| | | | | | 6.0 ORGANIC SAND, loose, fine, gray, with limestone fragments and silt | -1.0 |
| | SPT | 11-7-3-3 (10) | ML | | SILT, stiff, dark gray | |
| | SPT | WOH-WOH-WOH-WOH (WOH) | | | SILT, very soft, dark gray | |
| 10 | | | | | | -5 |
| | SPT | WOH-WOH-4-2 (4) | | | SILT, soft, dark gray | |
| | | | | | 12.0 | -7.0 |
| | SPT | 6-50/5" (100) | LS | | LIMESTONE, hard, light brown | |
| 15 | SPT | 18-4-29-11 (33) | | | LIMESTONE, medium hard, light brown | -10 |
| | | | | | | |
| | SPT | 7-11-10-12 (21) | | | LIMESTONE, soft, light brown | |
| 20 | | | | | | -15 |
| | | | | | | |
| | SPT | 11-7-6-7 (13) | | | LIMESTONE, very soft, light brown | |
| 25 | | | | | | -20 |
| | | | | | | |
| | SPT | 7-5-7-6 (12) | | | LIMESTONE, very soft, light brown | |
| 30 | | | | | 30.0 | -25 25.0 |

Boring terminated at 30.0 feet.

# BORING NUMBER B-2

**PROJECT NAME** City of Hollywood Tidal Flood Mitigation - Phase 2 & 3

**PROJECT NUMBER** 18146 **PROJECT LOCATION** City of Hollywood, Hollywood, Florida

**DATE STARTED** 1/21/21 **COMPLETED** 1/21/21 **GROUND ELEVATION** 3 ft NAVD, est. **HOLE SIZE** 3 inches

**DRILLING CONTRACTOR** NV5 **GROUND WATER LEVELS:** 2.5 ft / Elev 0.5 ft

**DRILLING METHOD** Rotary drill with mud, wash & casing

**LOGGED BY** D. Correa/ Y. Parada **CHECKED BY** N.Vieira

**NOTES**

| DEPTH (ft) | SAMPLE TYPE NUMBER | BLOW COUNTS (N VALUE) | U.S.C.S. | GRAPHIC LOG | MATERIAL DESCRIPTION | ELEVATION (ft., NAVD) |
|---|---|---|---|---|---|---|
| 0 | | | | | | |
| | SPT | 17-11-10 (28) | GP | | 0.3 4" of Asphalt | 2.7 |
| | | | | | 2.0 LIMESTONE FRAGMENTS, medium dense, light brown, with sand | 1.0 |
| | SPT | 6-2-1-1 (3) | ML | | SILT, soft, dark gray, with organics | 0 |
| 5 | SPT | WOH-WOH-WOH-WOH (WOH) | | | SILT, very soft, dark gray, with organics | |
| | SPT | | | | SILT, very soft, dark gray | -5 |
| | SPT | WOH-WOH-WOH-WOH (WOH) | | | | |
| 10 | | | | | 10.0 SILT, soft, dark gray | -7.0 |
| | SPT | WOH-1-2-14 (3) | LS | | LIMESTONE, medium hard, light brown | |
| | SPT | 20-15-23-27 (38) | | | LIMESTONE, very soft, light brown | -10 |
| | | 14-8-5-4 (13) | | | | |
| 15 | SPT | 3-5-10-12 (15) | | | LIMESTONE, very soft, light brown | |
| | | | | | | -15 |
| | SPT | 11-11-7-10 (18) | | | LIMESTONE, very soft, light brown | |
| 20 | | | | | | |
| | | | | | | -20 |
| | SPT | 8-12-14-11 (26) | | | LIMESTONE, soft, light brown | |
| 25 | | | | | | |
| | | | | | | -25 |
| | SPT | 10-4-5-7 (9) | | | | |
| 30 | | | | | 30.0 LIMESTONE, very soft, light brown | -27.0 |

Boring terminated at 30.0 feet.

# BORING NUMBER B-3

**PROJECT NAME** City of Hollywood Tidal Flood Mitigation - Phase 2 & 3

**PROJECT NUMBER** 18146 **PROJECT LOCATION** City of Hollywood, Hollywood, Florida

**DATE STARTED** 1/21/21 **COMPLETED** 1/21/21 **GROUND ELEVATION** 5 ft NAVD, est. **HOLE SIZE** 3 inches

**DRILLING CONTRACTOR** NV5 **GROUND WATER LEVELS:** 4.5 ft / Elev 0.5 ft

**DRILLING METHOD** Rotary drill with mud, wash & casing

**LOGGED BY** D. Correa/ Y. Parada **CHECKED BY** N.Vieira

**NOTES**

| DEPTH (ft) | SAMPLE TYPE NUMBER | BLOW COUNTS (N VALUE) | U.S.C.S. | GRAPHIC LOG | MATERIAL DESCRIPTION | ELEVATION (ft., NAVD) |
|---|---|---|---|---|---|---|
| 0 | | | | | | 5 |
| | SPT | 2-4-4-6 (8) | SM / SP | 0.3 / 2.0 | 4" of Topsoil / SAND, loose, fine, light brown, with sand | 4.7 / 3.0 |
| | SPT | 5-2-1-1 (3) | ML | | SILT, soft, dark gray, with organics | |
| 5 | SPT | 1-WOH-WOH-WOH (WOH) | | | SILT, very soft, dark gray, with organics | 0 |
| | SPT | WOH-WOH-WOH-1 (WOH) | | | SILT, very soft, dark gray | |
| | SPT | 2-7-12-10 (19) | | | SILT, very stiff, dark gray, with a trace of limestone fragments | |
| 10 | | | | 10.0 | | -5 -5.0 |
| | SPT | 3-3-3-6 (6) | LS | | SANDY LIMESTONE, very soft, light brown | |
| | SPT | 4-7-10-11 (17) | | | LIMESTONE, very soft, light brown | |
| 15 | SPT | 10-13-9-11 (22) | | | LIMESTONE, soft, light brown | -10 |
| | | | | | | |
| | SPT | 10-8-6-8 (14) | | | LIMESTONE, very soft, light brown | |
| 20 | | | | | | -15 |
| | | | | | | |
| | SPT | 10-4-4-2 (8) | | | LIMESTONE, very soft, light brown | |
| 25 | | | | | | -20 |
| | | | | | | |
| | SPT | 3-9-5-3 (14) | | | LIMESTONE, very soft, light brown | |
| 30 | | | | 30.0 | | -25 -25.0 |

Boring terminated at 30.0 feet.

# BORING NUMBER B-4

**PROJECT NAME** City of Hollywood Tidal Flood Mitigation - Phase 2 & 3

**PROJECT NUMBER** 18146 **PROJECT LOCATION** City of Hollywood, Hollywood, Florida

**DATE STARTED** 1/29/21 **COMPLETED** 1/29/21 **GROUND ELEVATION** 5 ft NAVD, est. **HOLE SIZE** 3 inches

**DRILLING CONTRACTOR** NV5 **GROUND WATER LEVELS:** 4.1 ft / Elev 0.9 ft

**DRILLING METHOD** Rotary drill with mud, wash & casing

**LOGGED BY** D. Correa/ Y. Parada **CHECKED BY** N.Vieira

**NOTES**

| DEPTH (ft) | SAMPLE TYPE NUMBER | BLOW COUNTS (N VALUE) | U.S.C.S. | GRAPHIC LOG | MATERIAL DESCRIPTION | ELEVATION (ft., NAVD) |
|---|---|---|---|---|---|---|
| 0 | | | | | | 5 |
| | SPT | 31-32-12-9 (44) | GP | | 0.1 1" of Asphalt | 4.9 |
| | | | SP | | 1.0 LIMESTONE FRAGMENTS, dense, light brown, with sand | 4.0 |
| | | | | | 2.0 SAND, dense, fine, brown | 3.0 |
| | SPT | 2-2-3-2 (5) | | | SILT, medium stiff, dark gray | |
| 5 | SPT | 2-3-2-1 (5) | ML | | SILT, medium stiff, dark gray | 0 |
| | SPT | WOH-WOH-WOH-WOH (WOH) | | | SILT, very soft, dark gray | |
| | | | | | 8.0 | -3.0 |
| | SPT | 7-8-15-6 (23) | | | LIMESTONE, soft, light brown | |
| 10 | | | | | | -5 |
| | SPT | 13-17-17-14 (34) | | | LIMESTONE, medium hard, light brown | |
| | SPT | 12-12-12-16 (24) | | | LIMESTONE, soft, light brown | |
| 15 | SPT | 10-13-11-11 (24) | | | LIMESTONE, soft, light brown | -10 |
| | SPT | 6-5-7-6 (12) | LS | | LIMESTONE, very soft, light brown | |
| 20 | | | | | | -15 |
| | SPT | 2-5-2-5 (7) | | | LIMESTONE, very soft, light brown | |
| 25 | | | | | | -20 |
| | SPT | 22-29-50/5" (100) | | | | |
| | | | | | 29.4 LIMESTONE, hard, light brown | -24.4 |

Boring terminated at 29.4 feet.

# BORING NUMBER B-5

**PROJECT NAME** City of Hollywood Tidal Flood Mitigation - Phase 2 & 3

**PROJECT NUMBER** 18146 **PROJECT LOCATION** City of Hollywood, Hollywood, Florida

**DATE STARTED** 2/3/21 **COMPLETED** 2/3/21 **GROUND ELEVATION** 2 ft NAVD, est. **HOLE SIZE** 3 inches

**DRILLING CONTRACTOR** NV5 **GROUND WATER LEVELS:** 1.8 ft / Elev 0.2 ft

**DRILLING METHOD** Rotary drill with mud, wash & casing

**LOGGED BY** D. Correa / H. Morales **CHECKED BY** N.Vieira

**NOTES**

| DEPTH (ft) | SAMPLE TYPE NUMBER | BLOW COUNTS (N VALUE) | U.S.C.S. | GRAPHIC LOG | MATERIAL DESCRIPTION | ELEVATION (ft., NAVD) |
|---|---|---|---|---|---|---|
| 0 | | | | | | |
| | SPT | 23-13-19-26 (32) | GP | | 0.1 1" of Asphalt | 1.9 |
| | | | | | 2.0 LIMESTONE FRAGMENTS, dense, light brown, with sand | 0 0.0 |
| | SPT | 8-13-10-3 (23) | SP | | 4.0 SAND, medium dense, fine, gray | -2.0 |
| 5 | SPT | 1-1-1-1 (2) | ML | | SILT, very soft, dark gray | |
| | SPT | 1-WOH-1-1 (1) | | | SILT, very soft, dark gray | -5 |
| | | | | | 8.0 | -6.0 |
| 10 | SPT | 11-10-8-12 (18) | SM | | 10.0 SILTY SAND, medium dense, gray, with limestone fragments | -8.0 |
| | SPT | 7-5-7-11 (12) | LS | | LIMESTONE, very soft, light brown | -10 |
| | SPT | 6-9-5-8 (14) | | | SANDY LIMESTONE, very soft, light brown | |
| 15 | SPT | 10-9-8-8 (17) | | | SANDY LIMESTONE, very soft, light brown | |
| | | | | | | -15 |
| | SPT | 5-6-6-6 (12) | | | SANDY LIMESTONE, very soft, light brown | |
| 20 | | | | | | -20 |
| | SPT | 24-24-45-50/5" (69) | | | LIMESTONE, hard, light brown | |
| 25 | | | | | | -25 |
| | SPT | 3-5-5-18 (10) | | | LIMESTONE, very soft, light brown | |
| 30 | | | | | 30.0 | -28.0 |

Boring terminated at 30.0 feet.

# BORING NUMBER B-6

**PROJECT NAME** City of Hollywood Tidal Flood Mitigation - Phase 2 & 3

**PROJECT NUMBER** 18146 **PROJECT LOCATION** City of Hollywood, Hollywood, Florida

**DATE STARTED** 2/4/21 **COMPLETED** 2/4/21 **GROUND ELEVATION** 3 ft NAVD, est. **HOLE SIZE** 3 inches

**DRILLING CONTRACTOR** NV5 **GROUND WATER LEVELS:** 2.6 ft / Elev 0.4 ft

**DRILLING METHOD** Rotary drill with mud, wash & casing

**LOGGED BY** D. Correa/ Y. Parada **CHECKED BY** N.Vieira

**NOTES**

| DEPTH (ft) | SAMPLE TYPE NUMBER | BLOW COUNTS (N VALUE) | U.S.C.S. | GRAPHIC LOG | MATERIAL DESCRIPTION | ELEVATION (ft., NAVD) |
|---|---|---|---|---|---|---|
| 0 | | | | | | |
| | SPT | 19-10-9-9 (19) | GP | | 0.1 1" of Asphalt | 2.9 |
| | | | | | 2.0 LIMESTONE FRAGMENTS, medium dense, light brown, with sand | 1.0 |
| | SPT | 10-9-3-4 (12) | ML | | SILT, stiff, dark gray, with limestone fragments | 0 |
| 5 | SPT | 2-1-1-1 (2) | | | 6.0 SILT, very soft, dark gray, with organics | -3.0 |
| | SPT | WOH-WOH-9-7 (9) | GP | | LIMESTONE FRAGMENTS, loose, dark brown, with sand and organics | -5 |
| 10 | SPT | 12-38-42-39 (80) | | | 10.0 LIMESTONE FRAGMENTS, very dense, dark brown, with sand | -7.0 |
| | SPT | 40-12-12-10 (24) | SM | | 12.0 SILTY SAND, medium dense, light brown, with limestone fragments | -9.0 |
| | SPT | 7-7-18-24 (25) | LS | | LIMESTONE, soft, light brown | -10 |
| 15 | SPT | 49-50/4" (100) | | | LIMESTONE, hard, light brown | -15 |
| 20 | SPT | 11-6-8-8 (14) | | | LIMESTONE, very soft, light brown | |
| 25 | SPT | 10-11-6-5 (17) | | | LIMESTONE, very soft, light brown | -20 |
| | | | | | | -25 |
| 30 | SPT | 8-10-16-25 (26) | | | 30.0 LIMESTONE, soft, light brown | -27.0 |

Boring terminated at 30.0 feet.

# BORING NUMBER B-7

**PROJECT NAME** City of Hollywood Tidal Flood Mitigation - Phase 2 & 3

**PROJECT NUMBER** 18146 **PROJECT LOCATION** City of Hollywood, Hollywood, Florida

**DATE STARTED** 2/5/21 **COMPLETED** 2/5/21 **GROUND ELEVATION** 3 ft NAVD, est. **HOLE SIZE** 3 inches

**DRILLING CONTRACTOR** NV5 **GROUND WATER LEVELS:** 2.7 ft / Elev 0.3 ft

**DRILLING METHOD** Rotary drill with mud, wash & casing

**LOGGED BY** D. Correa/ Y. Parada **CHECKED BY** N.Vieira

**NOTES**

| DEPTH (ft) | SAMPLE TYPE NUMBER | BLOW COUNTS (N VALUE) | U.S.C.S. | GRAPHIC LOG | MATERIAL DESCRIPTION | ELEVATION (ft., NAVD) |
|---|---|---|---|---|---|---|
| 0 | SPT | 6-5-4-6 (9) | SP | | SAND, loose, fine, gray, with a trace limestone fragments and roots | |
| | SPT | 2-3-3-4 (6) | | | SAND, loose, fine, gray, with a trace of limestone fragments | 0 |
| 5 | SPT | 6-5-10-8 (15) | | | SAND, medium dense, fine, brown to gray, with a trace of limestone fragments | |
| | SPT | 3-5-7-21 (12) | | | SAND, medium dense, fine, brown to gray, with a trace of limestone fragments | -5 |
| | | | | 8.0 | | -5.0 |
| 10 | SPT | 22-40-12-8 (52) | GP | | LIMESTONE FRAGMENTS, very dense, dark brown, with sand | |
| | | | | 10.0 | | -7.0 |
| | SPT | 5-8-7-7 (15) | LS | | LIMESTONE, very soft, light brown | |
| | SPT | 19-17-10-10 (27) | | | LIMESTONE, soft, light brown | -10 |
| 15 | SPT | 15-13-12-12 (25) | | | LIMESTONE, soft, light brown | |
| | | | | | | -15 |
| 20 | SPT | 10-8-5-7 (13) | | | LIMESTONE, very soft, light brown | |
| | | | | | | -20 |
| 25 | SPT | 6-10-9-11 (19) | | | LIMESTONE, very soft, light brown | |
| | | | | | | -25 |
| 30 | SPT | 15-12-10-7 (22) | | | LIMESTONE, soft, light brown | |
| | | | | 30.0 | | -27.0 |

Boring terminated at 30.0 feet.

# BORING NUMBER B-8

**PROJECT NAME** City of Hollywood Tidal Flood Mitigation - Phase 2 & 3

**PROJECT NUMBER** 18146 **PROJECT LOCATION** City of Hollywood, Hollywood, Florida

**DATE STARTED** 1/28/21 **COMPLETED** 1/28/21 **GROUND ELEVATION** 3 ft NAVD, est. **HOLE SIZE** 3 inches

**DRILLING CONTRACTOR** NV5 **GROUND WATER LEVELS:** --- Not Recorded

**DRILLING METHOD** Rotary drill with mud, wash & casing

**LOGGED BY** D. Correa/ Y. Parada **CHECKED BY** N.Vieira

**NOTES**

| DEPTH (ft) | SAMPLE TYPE NUMBER | BLOW COUNTS (N VALUE) | U.S.C.S. | GRAPHIC LOG | MATERIAL DESCRIPTION | ELEVATION (ft., NAVD) |
|---|---|---|---|---|---|---|
| 0 | | | | | | |
| | SPT | 36-21-21-5 (42) | GP | | 0.1 1" of Asphalt | 2.9 |
| | | | | | 1.0 LIMESTONE FRAGMENTS, dense, light gray, with sand | 2.0 |
| | | | | | SILT, hard, dark gray | |
| | SPT | 4-2-1-1 (3) | | | SILT, soft, dark gray | 0 |
| 5 | SPT | 1-1-1-1 (2) | | | SILT, very soft, dark gray | |
| | SPT | WOH-WOH-WOH-WOH (WOH) | ML | | SILT, very soft, dark gray | -5 |
| | SPT | WOH-WOH-WOH-WOH (WOH) | | | SILT, very soft, dark gray, with organics | |
| 10 | SPT | | | | 11.0 SILT, very soft, dark gray | -8.0 |
| | | | | | LIMESTONE, very soft, light brown | |
| | SPT | 1-10-9-11 (19) | | | | -10 |
| | | 3-4-3-6 (7) | | | LIMESTONE, very soft, light brown | |
| 15 | SPT | 8-7-5-6 (12) | | | LIMESTONE, very soft, light brown | |
| | | | | | | -15 |
| | SPT | 11-21-17-14 (38) | | | LIMESTONE, medium hard, light brown | |
| 20 | | | LS | | | |
| | | | | | | -20 |
| | SPT | 17-28-25-34 (53) | | | LIMESTONE, moderately hard, light brown | |
| 25 | | | | | | |
| | | | | | | -25 |
| | SPT | 13-25-20-28 (45) | | | LIMESTONE, medium hard, light brown | |
| 30 | | | | | 30.0 | -27.0 |

Boring terminated at 30.0 feet.

# BORING NUMBER B-9

**PROJECT NAME** City of Hollywood Tidal Flood Mitigation - Phase 2 & 3

**PROJECT NUMBER** 18146 **PROJECT LOCATION** City of Hollywood, Hollywood, Florida

**DATE STARTED** 2/2/21 **COMPLETED** 2/2/21 **GROUND ELEVATION** 2 ft NAVD, est. **HOLE SIZE** 3 inches

**DRILLING CONTRACTOR** NV5 **GROUND WATER LEVELS:** 1.8 ft / Elev 0.2 ft

**DRILLING METHOD** Rotary drill with mud, wash & casing

**LOGGED BY** T. Carson/ R. Jimenez **CHECKED BY** N.Vieira

**NOTES**

| DEPTH (ft) | SAMPLE TYPE NUMBER | BLOW COUNTS (N VALUE) | U.S.C.S. | GRAPHIC LOG | MATERIAL DESCRIPTION | ELEVATION (ft., NAVD) |
|---|---|---|---|---|---|---|
| 0 | SPT | 2-2-2-3 (4) | SM | | 0.1 1" of Topsoil | 1.9 |
| | | | SM | | 2.0 SILTY SAND, very loose, gray, | 0 0.0 |
| | SPT | 3-4-3-2 (7) | GP | | 4.0 LIMESTONE FRAGMENTS, loose, fine, gray, with sand and organics | -2.0 |
| 5 | SPT | WOH-WOH-WOH-WOH (WOH) | SP | | SAND, very loose, fine, brown, with limestone fragments | |
| | SPT | 10-14-12-13 (26) | | | SAND, medium dense, fine, brown, with limestone fragments | -5 -6.0 |
| | SPT | 10-8-7-12 (15) | LS | | LIMESTONE, very soft, light brown | |
| 10 | SPT | 8-6-10-17 (16) | | | LIMESTONE, very soft, light brown | -10 |
| | SPT | 6-8-10-10 (18) | | | LIMESTONE, very soft, light brown | |
| 15 | SPT | 7-9-8-10 (17) | | | LIMESTONE, very soft, light brown | |
| | | | | | | -15 |
| 20 | SPT | 3-4-6-5 (10) | | | LIMESTONE, very soft, light brown | |
| | | | | | | -20 |
| 25 | SPT | 6-5-5-10 (10) | | | LIMESTONE, very soft, light brown | |
| | | | | | | -25 |
| 30 | SPT | 8-5-6-19 (11) | | | 30.0 LIMESTONE, very soft, light brown | -28.0 |

Boring terminated at 30.0 feet.

# BORING NUMBER B-10

**PROJECT NAME** City of Hollywood Tidal Flood Mitigation - Phase 2 & 3

**PROJECT NUMBER** 18146 **PROJECT LOCATION** City of Hollywood, Hollywood, Florida

**DATE STARTED** 2/1/21 **COMPLETED** 2/1/21 **GROUND ELEVATION** 2 ft NAVD, est. **HOLE SIZE** 3 inches

**DRILLING CONTRACTOR** NV5 **GROUND WATER LEVELS:** 1.7 ft / Elev 0.3 ft

**DRILLING METHOD** Rotary drill with mud, wash & casing

**LOGGED BY** T. Carson/ R. Jimenez **CHECKED BY** N.Vieira

**NOTES**

| DEPTH (ft) | SAMPLE TYPE NUMBER | BLOW COUNTS (N VALUE) | U.S.C.S. | GRAPHIC LOG | MATERIAL DESCRIPTION | ELEVATION (ft., NAVD) |
|---|---|---|---|---|---|---|
| 0 | | | SM | | 0.1 2" of Topsoil | 1.9 |
| | SPT | 3-2-1-1 (3) | SM | | 2.0 SILTY SAND, very loose, gray | 0 0.0 |
| | SPT | WOH-WOH-WOH-WOH (WOH) | ML | | SILT, very soft, dark gray | |
| 5 | SPT | WOH-WOH-WOH-WOH (WOH) | | | SILT, very soft, dark gray | |
| | SPT | WOH-WOH-WOH-WOH (WOH) | | | SILT, soft, dark gray, with a trace of limestone fragments and organics | -5 |
| | | | | | 8.0 | -6.0 |
| | SPT | WOH-WOH-3-22 (3) | LS | | SILTY LIMESTONE, hard, light brown | |
| 10 | SPT | 28-51-53-19 (104) | | | LIMESTONE, very soft, light brown | -10 |
| | SPT | 7-5-8-26 (13) 7-14-10-11 (24) | | | LIMESTONE, soft, light brown | |
| 15 | SPT | 8-7-6-11 (13) | | | LIMESTONE, very soft, light brown | |
| | | | | | | -15 |
| 20 | SPT | 4-5-4-8 (9) | | | LIMESTONE, very soft, light brown | |
| | | | | | | -20 |
| 25 | SPT | 5-5-4-7 (9) | | | LIMESTONE, very soft, light brown | |
| | | | | | | -25 |
| 30 | SPT | 9-7-5-15 (12) | | | 30.0 LIMESTONE, very soft, light brown | -28.0 |

Boring terminated at 30.0 feet.

# BORING NUMBER B-11

**PROJECT NAME** City of Hollywood Tidal Flood Mitigation - Phase 2 & 3

**PROJECT NUMBER** 18146 **PROJECT LOCATION** City of Hollywood, Hollywood, Florida

**DATE STARTED** 1/27/21 **COMPLETED** 1/27/21 **GROUND ELEVATION** 3 ft NAVD, est. **HOLE SIZE** 3 inches

**DRILLING CONTRACTOR** NV5 **GROUND WATER LEVELS:** 3.0 ft / Elev 0.0 ft

**DRILLING METHOD** Rotary drill with mud, wash & casing

**LOGGED BY** D. Correa/ Y. Parada **CHECKED BY** N.Vieira

**NOTES**

| DEPTH (ft) | SAMPLE TYPE NUMBER | BLOW COUNTS (N VALUE) | U.S.C.S. | GRAPHIC LOG | MATERIAL DESCRIPTION | ELEVATION (ft., NAVD) |
|---|---|---|---|---|---|---|
| 0 | | | | | | |
| | SPT | 30-19-11-11 (30) | GP | | 0.1 1" of Asphalt | 2.9 |
| | | | | | 2.0 LIMESTONE FRAGMENTS, medium dense, light gray, with a trace of organics | 1.0 |
| | SPT | 1-1-1-1 (2) | PT | | PEAT, very soft, dark brown | 0 |
| 5 | SPT | 1-1-1-1 (2) | | | PEAT, very soft, dark brown | |
| | SPT | 1-2-1-38 (3) | | | 7.0 PEAT, soft, dark brown | -4.0 |
| | | | | | LIMESTONE, very soft, light brown | -5 |
| | SPT | 10-19-2-5 (21) | LS | | LIMESTONE, soft, light brown | |
| 10 | SPT | 6-8-4-7 (12) | | | LIMESTONE, very soft, light brown | |
| | SPT | 12-14-13-15 (27) | | | LIMESTONE, soft, light brown | -10 |
| 15 | SPT | 11-12-12-11 (24) | | | LIMESTONE, soft, light brown | |
| | | | | | | -15 |
| | SPT | 6-6-8-7 (14) | | | LIMESTONE, very soft, light brown | |
| 20 | | | | | | |
| | | | | | | -20 |
| | SPT | 3-4-4-5 (8) | | | LIMESTONE, very soft, light brown | |
| 25 | | | | | | |
| | | | | | | -25 |
| | SPT | 8-10-10-7 (20) | | | LIMESTONE, very soft, light brown | |
| 30 | | | | | 30.0 | -27.0 |

Boring terminated at 30.0 feet.

# BORING NUMBER B-12

**PROJECT NAME** City of Hollywood Tidal Flood Mitigation - Phase 2 & 3

**PROJECT NUMBER** 18146 **PROJECT LOCATION** City of Hollywood, Hollywood, Florida

**DATE STARTED** 1/27/21 **COMPLETED** 1/27/21 **GROUND ELEVATION** 3 ft NAVD, est. **HOLE SIZE** 3 inches

**DRILLING CONTRACTOR** NV5 **GROUND WATER LEVELS:** 3.0 ft / Elev 0.0 ft

**DRILLING METHOD** Rotary drill with mud, wash & casing

**LOGGED BY** D. Correa/ Y. Parada **CHECKED BY** N.Vieira

**NOTES**

| DEPTH (ft) | SAMPLE TYPE NUMBER | BLOW COUNTS (N VALUE) | U.S.C.S. | GRAPHIC LOG | MATERIAL DESCRIPTION | ELEVATION (ft., NAVD) |
|---|---|---|---|---|---|---|
| 0 | SPT | 28-16-11-10 (27) | GP | 0.1 | 1" of Asphalt | 2.9 |
| | | | | 1.0 | LIMESTONE FRAGMENTS, medium dense, light gray, with a trace of organics | 2.0 |
| | SPT | 4-2-1-1 (3) | ML | | SILT, very stiff, dark gray<br>SILT, soft, dark gray | |
| | | | | 3.0 | ▼ | 0 0.0 |
| 5 | SPT | 1-1-1-1 (2) | PT | | PEAT, soft, dark brown<br>PEAT, very soft, dark brown | |
| | SPT | 1-1-2-70 (3) | | 6.7 | PEAT, soft, dark brown | -3.7 |
| | SPT | 7-22-4-4 (26) | | | LIMESTONE, very soft, light brown<br>LIMESTONE, soft, light brown | -5 |
| 10 | SPT | 4-5-8-9 (13) | | | LIMESTONE, very soft, light brown | |
| | SPT | 7-13-13-19 (26) | | | LIMESTONE, soft, light brown | -10 |
| 15 | SPT | 10-13-14-10 (27) | | | LIMESTONE, soft, light brown | |
| | | | | | | -15 |
| 20 | SPT | 7-8-7-8 (15) | LS | | LIMESTONE, very soft, light brown | |
| | | | | | | -20 |
| 25 | SPT | 4-5-5-4 (10) | | | LIMESTONE, very soft, light brown | |
| | | | | | | -25 |
| 30 | SPT | 10-12-9-8 (21) | | 30.0 | LIMESTONE, soft, light brown | -27.0 |

Boring terminated at 30.0 feet.

# BORING NUMBER B-13

**PROJECT NAME** City of Hollywood Tidal Flood Mitigation - Phase 2 & 3

**PROJECT NUMBER** 18146 **PROJECT LOCATION** City of Hollywood, Hollywood, Florida

**DATE STARTED** 9/30/22 **COMPLETED** 9/30/22 **GROUND ELEVATION** 2 ft NAVD, est. **HOLE SIZE** 3 inches

**DRILLING CONTRACTOR** NV5 **GROUND WATER LEVELS:** 1.2 ft / Elev 0.8 ft

**DRILLING METHOD** Rotary drill with mud, wash & casing

**LOGGED BY** D. Correa / J. Gonzalez **CHECKED BY** C. Rausseo

**NOTES**

| DEPTH (ft) | SAMPLE TYPE NUMBER | RECOVERY % | BLOW COUNTS (N VALUE) | U.S.C.S. | GRAPHIC LOG | MATERIAL DESCRIPTION | ELEVATION (ft., NAVD) |
|---|---|---|---|---|---|---|---|
| 0 | | | | | | | |
| | SPT | 17 | 7-10-5-2 (15) | GP | | 0.2 2" of Asphalt | 1.8 |
| | | | | | | 2.0 LIMESTONE FRAGMENTS, medium dense, brown to dark brown, with a trace of sand | 0 0.0 |
| | SPT | 29 | WOH-WOH-WOH-WOH (WOH) | | | SILT, very soft, greenish gray, with a trace of limestone fragments | |
| 5 | SPT | 21 | WOH-WOH-WOH-WOH (WOH) | ML | | SILT, very soft, dark gray, with a trace of roots | -5 |
| | SPT | 75 | | | | SILT, very soft, dark gray, with peat | |
| | SPT | 59 | | | | 8.7 SILT, very stiff, dark gray to greenish gray, with a trace of limestone fragments | -6.7 |
| 10 | | | | | | SANDY LIMESTONE, soft, greenish gray, with silt | |
| | SPT | 58 | WOH-WOH-23-50/4" (23) | | | LIMESTONE, very soft, gray to light gray, with a trace of sand and silt | -10 |
| | SPT | 79 | | | | LIMESTONE, very soft, light gray, with a trace of sand | |
| 15 | SPT | 83 | 28-4-2-2 (6) 5-5-6-12 (11) 12-10-8-9 (18) | | | LIMESTONE, very soft, light gray, , with a trace of sand | -15 |
| 20 | SPT | 71 | 10-15-14-10 (29) | LS | | LIMESTONE, soft, light brown | -20 |
| 25 | SPT | 50 | 5-6-8-4 (14) | | | LIMESTONE, very soft, light brown to light gray, with a trace of sand | -25 |
| 30 | SPT | 38 | 2-3-6-5 (9) | | | 30.0 LIMESTONE, very soft, light brown, with sand | -28.0 |
| | | | | SS | | | -30 |
| 35 | SPT | 25 | 4-2-1-3 (3) | | | SANDSTONE, very soft, gray, | |

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# BORING NUMBER B-13

**PROJECT NAME** City of Hollywood Tidal Flood Mitigation - Phase 2 & 3

**PROJECT NUMBER** 18146 **PROJECT LOCATION** City of Hollywood, Hollywood, Florida

| DEPTH (ft) | SAMPLE TYPE NUMBER | RECOVERY % | BLOW COUNTS (N VALUE) | U.S.C.S. | GRAPHIC LOG | MATERIAL DESCRIPTION | ELEVATION (ft., NAVD) |
|---|---|---|---|---|---|---|---|
| 35 | | | | | | | -35 |
| 40 | SPT | 42 | 1-1-1-1 (2) | SS | | SANDSTONE, very soft, gray, | -38.0 |
| | | | | | 40.0 | | |
| | | | | | | | -40 |
| 45 | SPT | 42 | 2-2-5-1 (7) | LS | | LIMESTONE AND SAND, very soft, gray | |
| | | | | | | | -45 |
| 50 | SPT | 25 | 1-2-6-18 (8) | | | LIMESTONE AND SAND, very soft, gray | -48.0 |
| | | | | | 50.0 | | |

Boring terminated at 50.0 feet.

# BORING NUMBER B-14

**PROJECT NAME** City of Hollywood Tidal Flood Mitigation - Phase 2 & 3

**PROJECT NUMBER** 18146 **PROJECT LOCATION** City of Hollywood, Hollywood, Florida

**DATE STARTED** 9/30/22 **COMPLETED** 9/30/22 **GROUND ELEVATION** 4 ft NAVD, est. **HOLE SIZE** 3 inches

**DRILLING CONTRACTOR** NV5 **GROUND WATER LEVELS:** 3.7 ft / Elev 0.3 ft

**DRILLING METHOD** Rotary drill with mud, wash & casing

**LOGGED BY** D. Correa / J. Gonzalez **CHECKED BY** C. Rausseo

**NOTES**

| DEPTH (ft) | SAMPLE TYPE NUMBER | RECOVERY % | BLOW COUNTS (N VALUE) | U.S.C.S. | GRAPHIC LOG | MATERIAL DESCRIPTION | ELEVATION (ft., NAVD) |
|---|---|---|---|---|---|---|---|
| 0 | | | | SM | | 0.3 3" of Topsoil | 3.7 |
| | SPT | 38 | 8-9-9-6 (18) | | | LIMESTONE FRAGMENTS, medium dense, brown, with a trace of sand | |
| | SPT | 13 | 4-3-1-1 (4) | GP | | LIMESTONE FRAGMENTS, very loose, light brown, with a trace of sand | 0 |
| 5 | SPT | 8 | 1-WOH-1-1 (1) | | | LIMESTONE FRAGMENTS, very loose, light brown, with a trace of sand and silt | |
| | | | | | | 6.0 | -2.0 |
| | SPT | 67 | WOH-WOH-1-1 (1) | ML | | SILT, very soft, light brown, with limestone fragments<br>SILT, very soft, dark gray, with a trace of roots | |
| | SPT | 75 | 1-WOH-WOH-1 (WOH) | | | SILT, very soft, dark gray, with peat | -5 |
| 10 | SPT | 58 | 1-1-1-1 (2) | | | SILT, very soft, greenish gray | |
| | | | | | | 12.5 | -8.5 |
| | SPT | 67 | 1-3-18-26 (21) | LS | | SILT, very stiff, dark gray to light brown, with a trace of organic<br>SILTY LIMESTONE, soft, light brown | -10 |
| 15 | SPT | 90 | 30-50/4" (100) | | | SILTY LIMESTONE, hard, light gray | |
| 20 | SPT | 100 | 11-12-9-10 (21) | | | LIMESTONE, soft, light gray to light brown, with a trace of sand | -15 |
| 25 | SPT | 79 | 9-9-5-7 (14) | | | LIMESTONE, very soft, light brown, with sand | -20 |
| 30 | SPT | 8 | 1-1-1-1 (2) | | | LIMESTONE, very soft, light brown, with a trace of sand | -25 |
| | | | | | | 30.0 | -26.0 |
| | | | | LS | | | |
| 35 | SPT | 75 | 7-6-7-7 (13) | | | LIMESTONE AND SAND, very soft, light brown | -30 |
| | | | | | | 35.0 | -31.0 |

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# BORING NUMBER B-14

**PROJECT NAME** City of Hollywood Tidal Flood Mitigation - Phase 2 & 3

**PROJECT NUMBER** 18146 **PROJECT LOCATION** City of Hollywood, Hollywood, Florida

| DEPTH (ft) | SAMPLE TYPE NUMBER | RECOVERY % | BLOW COUNTS (N VALUE) | U.S.C.S. | GRAPHIC LOG | MATERIAL DESCRIPTION | ELEVATION (ft., NAVD) |
|---|---|---|---|---|---|---|---|
| 35 | | | | | | | |
| 40 | SPT | 83 | 33-8-10-8 (18) | SP | | SAND, medium dense, fine to medium, light brown, with limestone fragments | -35 |
| 45 | SPT | 29 | 4-4-3-4 (7) | | | SAND, loose, fine, brown | -40 |
| 50 | SPT | 67 | 6-7-6-6 (13) | | | SAND, medium dense, fine, brown, with limestone fragments | -45 |
| | | | | | 50.0 | Boring terminated at 50.0 feet. | -46.0 |

# BORING NUMBER B-15

**PROJECT NAME** City of Hollywood Tidal Flood Mitigation - Phase 2 & 3

**PROJECT NUMBER** 18146 **PROJECT LOCATION** City of Hollywood, Hollywood, Florida

**DATE STARTED** 10/3/22 **COMPLETED** 10/3/22 **GROUND ELEVATION** 4 ft NAVD, est. **HOLE SIZE** 3 inches

**DRILLING CONTRACTOR** NV5 **GROUND WATER LEVELS:** 3.7 ft / Elev 0.3 ft

**DRILLING METHOD** Rotary drill with mud, wash & casing

**LOGGED BY** J. Rivera / O. Pacho **CHECKED BY** C. Rausseo

**NOTES**

| DEPTH (ft) | SAMPLE TYPE NUMBER | RECOVERY % | BLOW COUNTS (N VALUE) | U.S.C.S. | GRAPHIC LOG | MATERIAL DESCRIPTION | ELEVATION (ft., NAVD) |
|---|---|---|---|---|---|---|---|
| 0 | | | | | | 0.2 2 1/2" of Asphalt | 3.8 |
| | SPT | 67 | 18-25-18-22 (43) | GP | | LIMESTONE FRAGMENTS, dense, light brown to dark brown, with sand, traces of silt | |
| | SPT | 71 | 13-13-18-20 (31) | | | 4.0 LIMESTONE FRAGMENTS, dense, brown, with sand, traces of silt | 0 0.0 |
| 5 | SPT | 42 | 7-9-2-1 (11) | ML | | SILT, stiff, brown to dark gray, with peat | |
| | SPT | 67 | 1-1-3-3 (4) | | | SILT, soft, gray to dark gray, with peat | |
| | SPT | 25 | 1-WOH-1-4 (1) | | | SILT, soft, greenish gray | -5 |
| 10 | SPT | 100 | 18-50/1" (100) | | | SILT, very soft, greenish gray, with a trace of limestone fragments | |
| | | | | | | 10.6 SILT, hard, light gray, with limestone fragments | -6.6 |
| | SPT | 100 | 50/5" (100) | LS | | LIMESTONE, very hard, light gray, with a trace of silt | |
| | | | | | | LIMESTONE, hard, gray | -10 |
| 15 | SPT | 100 | 50/4" (100) | | | LIMESTONE, hard, gray, with sand | |
| 20 | SPT | 88 | 14-13-14-11 (27) | | | LIMESTONE, soft, light brown, with a trace of sand | -15 |
| 25 | SPT | 100 | 7-8-6-4 (14) | | | LIMESTONE, very soft, light brown, with sand | -20 |
| | | | | | | 25.0 | -21.0 |
| 30 | SPT | 83 | 2-4-31-43 (35) | LS | | LIMESTONE, medium hard, light gray | -25 |
| | | | | | | 30.0 | -26.0 |
| 35 | SPT | 38 | 4-6-6-8 (12) | SP | | SAND, medium dense, fine, gray, with a trace of limestone fragments | -30 |

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# BORING NUMBER B-15

**PROJECT NAME** City of Hollywood Tidal Flood Mitigation - Phase 2 & 3

**PROJECT NUMBER** 18146 **PROJECT LOCATION** City of Hollywood, Hollywood, Florida

| DEPTH (ft) | SAMPLE TYPE NUMBER | RECOVERY % | BLOW COUNTS (N VALUE) | U.S.C.S. | GRAPHIC LOG | MATERIAL DESCRIPTION | ELEVATION (ft., NAVD) |
|---|---|---|---|---|---|---|---|
| 35 | | | | | | | |
| 40 | SPT | 88 | 31-11-8-15 (19) | SP | | SAND, medium dense, fine to medium, light brown, with a trace of limestone fragments | -35 |
| | | | | | | 43.0 | -39.0 |
| 45 | SPT | 100 | 50/1" (100) | LS | | LIMESTONE, very hard, light brown | -40 |
| | | | | | | 45.0 | -41.0 |
| 50 | SPT | 38 | 10-11-10-10 (21) | SP | | SAND, medium dense, fine, light gray, with a trace of limestone fragments | -45 |
| | | | | | | 50.0 | -46.0 |

Boring terminated at 50.0 feet.

# BORING NUMBER B-16

**PROJECT NAME** City of Hollywood Tidal Flood Mitigation - Phase 2 & 3

**PROJECT NUMBER** 18146 **PROJECT LOCATION** City of Hollywood, Hollywood, Florida

**DATE STARTED** 10/4/22 **COMPLETED** 10/4/22 **GROUND ELEVATION** 5 ft NAVD, est. **HOLE SIZE** 3 inches

**DRILLING CONTRACTOR** NV5 **GROUND WATER LEVELS:** 4.2 ft / Elev 0.8 ft

**DRILLING METHOD** Rotary drill with mud, wash & casing

**LOGGED BY** J. Rivera / O. Pacho **CHECKED BY** C. Rausseo

**NOTES**

| DEPTH (ft) | SAMPLE TYPE NUMBER | RECOVERY % | BLOW COUNTS (N VALUE) | U.S.C.S. | GRAPHIC LOG | MATERIAL DESCRIPTION | ELEVATION (ft., NAVD) |
|---|---|---|---|---|---|---|---|
| 0 | | | | | | | 5 |
| | SPT | 75 | 2-5-9-10 (14) | SM | | 0.6 7" of Topsoil | 4.4 |
| | SPT | 79 | 8-7-8-14 (15) | SP | | SAND, medium dense, fine, light brown | |
| | | | | | | 3.0 SAND, medium dense, fine, light brown | 2.0 |
| 5 | SPT | 83 | 17-17-9-7 (26) | ML | | SILT, stiff, dark gray to dark brown, with a trace of peat | 0 |
| | | | | | | 6.0 SILT, very stiff, dark gray to dark brown, with peat | -1.0 |
| | SPT | 63 | 4-4-2-2 (6) | SP | | 8.0 SAND, loose, fine, brown to light brown, with limestone fragments | -3.0 |
| 10 | SPT | 100 | 1-WOH-4-4 (4) | ML | | 10.0 SILT, soft, gray to dark brown, with a trace of peat and limestone fragments | -5 -5.0 |
| | SPT | 88 | 27-50/2" (100) | LS | | LIMESTONE, hard, dark gray, with a trace of silt | |
| | SPT | 100 | 50/3" (100) | | | LIMESTONE, hard, light gray | |
| 15 | SPT | 100 | 50/1" (100) | | | LIMESTONE, very hard, gray to light gray | -10 |
| 20 | SPT | 83 | 12-12-21-13 (33) | | | LIMESTONE, medium hard, gray, with a trace of shells and sand | -15 |
| 25 | SPT | 63 | 8-18-18-21 (36) | | | 25.0 LIMESTONE, medium hard, light brown | -20 20.0 |
| 30 | SPT | 42 | WOH-WOH-WOH-2 (WOH) | SS | | SANDSTONE, very soft, light gray, with sand | -25 |
| 35 | SPT | 46 | 2-2-3-3 (5) | | | SANDSTONE, very soft, light gray, with sand | -30 |

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# BORING NUMBER B-16

**PROJECT NAME** City of Hollywood Tidal Flood Mitigation - Phase 2 & 3

**PROJECT NUMBER** 18146 **PROJECT LOCATION** City of Hollywood, Hollywood, Florida

| DEPTH (ft) | SAMPLE TYPE NUMBER | RECOVERY % | BLOW COUNTS (N VALUE) | U.S.C.S. | GRAPHIC LOG | MATERIAL DESCRIPTION | ELEVATION (ft., NAVD) |
|---|---|---|---|---|---|---|---|
| 35 | | | | | | | -30 |
| 40 | SPT | 46 | 14-14-9-6 (23) | SS | | SANDSTONE, soft, light gray, with sand | -35 |
| | | | | | | 40.0 | 35.0 |
| 45 | SPT | 63 | 6-7-11-38 (18) | SP | | SAND, medium dense, fine, light gray, with a trace of sandstone fragments | -40 |
| 50 | SPT | 38 | 7-7-5-5 (12) | | | SAND, medium dense, fine, light gray, with a trace of sandstone fragments | -45 |
| | | | | | | 50.0 | 45.0 |
| | | | | | | Boring terminated at 50.0 feet. | |

# BORING NUMBER B-17

**PROJECT NAME** City of Hollywood Tidal Flood Mitigation - Phase 2 & 3

**PROJECT NUMBER** 18146 **PROJECT LOCATION** City of Hollywood, Hollywood, Florida

**DATE STARTED** 9/1/23 **COMPLETED** 9/1/23 **GROUND ELEVATION** 5 ft NAVD, est. **HOLE SIZE** 3 inches

**DRILLING CONTRACTOR** NV5 **GROUND WATER LEVELS:** 4.3 ft / Elev 0.7 ft

**DRILLING METHOD** Rotary drill with mud, wash & casing

**LOGGED BY** J. Rivera / O. Pacho **CHECKED BY** C. Rausseo

**NOTES**

| DEPTH (ft) | SAMPLE TYPE NUMBER | RECOVERY % | BLOW COUNTS (N VALUE) | U.S.C.S. | GRAPHIC LOG | MATERIAL DESCRIPTION | ELEVATION (ft., NAVD) |
|---|---|---|---|---|---|---|---|
| 0 | | | | | | | 5 |
| | SPT | 42 | 5-16-7-5 (23) | SP | | SAND WITH ORGANICS, medium dense, fine, gray to dark brown, with wood and roots, trace of silt | |
| 2.0 | | | | | | | 3.0 |
| | SPT | 29 | 3-6-5-3 (11) | ML | | SILT, stiff, gray, with a trace of organic | |
| 5 | SPT | 38 | 2-2-1-1 (3) | | | SILT, soft, gray, with a trace of organic | 0 |
| | SPT | 42 | 3-2-1-1 (3) | | | SILT, soft, gray, with a trace of organic | |
| | SPT | 46 | 1-WOH-1-WOH (1) | | | SILT, very soft, gray, with a trace of organic<br>ORGANIC SILT, dark brown to gray | |
| 10 | | | | | | | -5 |
| 13.0 | | | | | | | -8.0 |
| 15 | SPT | 88 | 13-14-12-9 (26) | LS | | LIMESTONE, soft, light brown | -10 |
| 20 | SPT | 83 | 18-25-21-25 (46) | | | LIMESTONE, moderately hard, light brown | -15 |
| 25 | SPT | 67 | 9-10-8-10 (18) | | | LIMESTONE, very soft, light gray to gray, with sand, trace of silt | -20 |
| 28.3 | SPT | 100 | 50/3" (100) | | | LIMESTONE, hard, gray | -23.3 |

Boring terminated at 28.3 feet.

# BORING NUMBER B-18

**PROJECT NAME** City of Hollywood Tidal Flood Mitigation - Phase 2 & 3

**PROJECT NUMBER** 18146 **PROJECT LOCATION** City of Hollywood, Hollywood, Florida

**DATE STARTED** 9/7/23 **COMPLETED** 9/7/23 **GROUND ELEVATION** 4 ft NAVD, est. **HOLE SIZE** 3 inches

**DRILLING CONTRACTOR** NV5 **GROUND WATER LEVELS:** 3.8 ft / Elev 0.2 ft

**DRILLING METHOD** Rotary drill with mud, wash & casing

**LOGGED BY** J. Rivera / O. Pacho **CHECKED BY** C. Rausseo

**NOTES**

| DEPTH (ft) | SAMPLE TYPE NUMBER | RECOVERY % | BLOW COUNTS (N VALUE) | U.S.C.S. | GRAPHIC LOG | MATERIAL DESCRIPTION | ELEVATION (ft., NAVD) |
|---|---|---|---|---|---|---|---|
| 0 | | | | | | | |
| | SPT | 54 | 15-30-18-15 (48) | GP | | 0.3 4" of Asphalt | 3.7 |
| | | | | | | 2.0 LIMESTONE FRAGMENTS, dense, brown to light brown, with sand | 2.0 |
| | SPT | 50 | 12-6-7-9 (13) | SP | | SAND, medium dense, fine, gray, with a trace of limestone fragments and organics | 0 |
| 5 | SPT | 58 | 7-6-7-4 (13) | | | SAND, medium dense, fine, dark gray, with a trace of limestone fragments, silt and organics | |
| | SPT | 54 | 1-1-1-1 (2) | | | SAND, very loose, fine, dark gray, with a trace of limestone fragments and organics | |
| | | | | | | 8.0 | -4.0 |
| | SPT | 46 | 1-1-1-1 (2) | ML | | SILT, very soft, gray, with a trace of organic | -5 |
| 10 | | | | | | | |
| | | | | | | 13.0 | -9.0 |
| | SPT | 38 | 37-5-4-4 (9) | LS | | LIMESTONE, very soft, gray, with a trace of silt | -10 |
| 15 | | | | | | | |
| | | | | | | | |
| | SPT | 83 | 23-27-19-22 (46) | | | LIMESTONE, moderately hard, light gray | -15 |
| 20 | | | | | | | |
| | | | | | | | |
| | SPT | 79 | 39-15-7-12 (22) | | | LIMESTONE, soft, light gray | -20 |
| 25 | | | | | | 25.0 | -21.0 |
| | | | | SS | | | |
| | SPT | 42 | 8-5-1-1 (6) | | | SANDSTONE, very soft, light gray, with a trace of sand | -25 |
| 30 | | | | | | | |
| | | | | | | | |
| | SPT | 100 | 50/1" (100) | | | SANDSTONE, very hard, light gray | -30 |
| 35 | | | | | | 35.0 | -31.0 |

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# BORING NUMBER B-18

**PROJECT NAME** City of Hollywood Tidal Flood Mitigation - Phase 2 & 3

**PROJECT NUMBER** 18146 **PROJECT LOCATION** City of Hollywood, Hollywood, Florida

| DEPTH (ft) | SAMPLE TYPE NUMBER | RECOVERY % | BLOW COUNTS (N VALUE) | U.S.C.S. | GRAPHIC LOG | MATERIAL DESCRIPTION | ELEVATION (ft., NAVD) |
|---|---|---|---|---|---|---|---|
| 35 | | | | | | | |
| 40 | SPT | 46 | 4-3-4-5 (7) | SP | | SAND, loose, fine to medium, light gray, with shells, trace of limestone fragments | -35 |
| | | | | | | 43.0 | -39.0 |
| | SPT | 100 | 50/1" (100) | SS | | SANDSTONE, very hard, light gray | -40 |
| 45 | | | | | | | |
| 50 | SPT | 54 | 20-11-10-11 (21) | | | SANDSTONE, soft, gray, with sand | -45 |
| | | | | | | 50.0 | -46.0 |

Boring terminated at 50.0 feet.

# BORING NUMBER B-19

**PROJECT NAME** City of Hollywood Tidal Flood Mitigation - Phase 2 & 3

**PROJECT NUMBER** 18146 **PROJECT LOCATION** City of Hollywood, Hollywood, Florida

**DATE STARTED** 7/28/23 **COMPLETED** 7/28/23 **GROUND ELEVATION** 4 ft NAVD, est. **HOLE SIZE** 3 inches

**DRILLING CONTRACTOR** FGD **GROUND WATER LEVELS:** 3.0 ft / Elev 1.0 ft

**DRILLING METHOD** Rotary drill with mud, wash & casing

**LOGGED BY** FGD **CHECKED BY** C. Rausseo

**NOTES**

| DEPTH (ft) | SAMPLE TYPE NUMBER | RECOVERY % | BLOW COUNTS (N VALUE) | U.S.C.S. | GRAPHIC LOG | MATERIAL DESCRIPTION | ELEVATION (ft., NAVD) |
|---|---|---|---|---|---|---|---|
| 0 | | | | SM | | 0.2 2" of Topsoil | 3.8 |
| | SPT | 42 | 2-2-2-3 (4) | GP | | LIMESTONE FRAGMENTS, very loose, dark gray, with sand | |
| | SPT | 42 | 1-1-2-2 (3) | | | SILTY LIMESTONE FRAGMENTS, very loose, light brown to brown, with sand 4.0 | 0 0.0 |
| 5 | SPT | 58 | WOH-WOH-WOH-1 (WOH) | OL | | ORGANIC SILT, very soft, brown, with limestone fragments 6.0 | -2.0 |
| | SPT | 50 | 7-13-6-10 (19) | SM | | SILTY SAND, medium dense, fine, light brown, with limestone fragments | |
| 10 | SPT | 50 | 8-8-9-8 (17) | | | SILTY SAND, medium dense, fine, light brown, with limestone fragments 10.0 | -5 -6.0 |
| | SPT | 50 | 4-7-12-16 (19) | LS | | LIMESTONE, very soft, light gray, with a trace of sand | |
| | SPT | 58 | 12-12-15-13 (27) | | | LIMESTONE, soft, light gray | -10 |
| 15 | SPT | 67 | 6-7-8-10 (15) | | | LIMESTONE, very soft, light gray | |
| 20 | SPT | 50 | 7-10-9-9 (19) | | | LIMESTONE, very soft, light brown | -15 |
| 25 | SPT | 46 | 9-8-8-10 (16) | | | LIMESTONE, very soft, light brown | -20 |
| 30 | SPT | 50 | 9-13-8-8 (21) | | | LIMESTONE, soft, light brown, with sand 30.0 | -25 -26.0 |

Boring terminated at 30.0 feet.

# BORING NUMBER B-20

**PROJECT NAME** City of Hollywood Tidal Flood Mitigation - Phase 2 & 3

**PROJECT NUMBER** 18146 **PROJECT LOCATION** City of Hollywood, Hollywood, Florida

**DATE STARTED** 7/28/23 **COMPLETED** 7/28/23 **GROUND ELEVATION** 4 ft NAVD, est. **HOLE SIZE** 3 inches

**DRILLING CONTRACTOR** FGD **GROUND WATER LEVELS:** 3.0 ft / Elev 1.0 ft

**DRILLING METHOD** Rotary drill with mud, wash & casing

**LOGGED BY** FGD **CHECKED BY** C. Rausseo

**NOTES**

| DEPTH (ft) | SAMPLE TYPE NUMBER | RECOVERY % | BLOW COUNTS (N VALUE) | U.S.C.S. | GRAPHIC LOG | MATERIAL DESCRIPTION | ELEVATION (ft., NAVD) |
|---|---|---|---|---|---|---|---|
| 0 | | | | SM | | 0.2 2" of Topsoil | 3.8 |
| | SPT | 8 | 1-1-1-1 (2) | SM | | 2.0 SILTY SAND, very loose, dark brown | 2.0 |
| | SPT | 50 | 1-2-1-1 (3) | OL | | ORGANIC SILT, soft, dark brown to brown, with limestone fragments | 0 |
| 5 | SPT | 33 | WOH-WOH-WOH-WOH (WOH) | | | ORGANIC SILT, very soft, dark brown, with a trace of limestone fragments 6.0 | -2.0 |
| | SPT | 50 | 4-3-5-4 (8) | | | LIMESTONE, very soft, light brown, with a trace of sand and silt | |
| | SPT | 50 | 4-5-5-6 (10) | | | SILTY LIMESTONE, very soft, light brown | -5 |
| 10 | SPT | 50 | 6-7-7-6 (14) | LS | | LIMESTONE, very soft, light brown, with a trace of sand | |
| | SPT | 46 | 10-9-9-9 (18) | | | LIMESTONE, very soft, light brown, with a trace of sand | -10 |
| 15 | SPT | 50 | 7-8-8-10 (16) | | | LIMESTONE, very soft, light brown, with a trace of sand 16.0 | -12.0 |
| | | | | LS | | | |
| 20 | SPT | 58 | 9-11-10-9 (21) | | | LIMESTONE AND SAND, soft, light brown | -15 |
| | | | | | | 23.0 | -19.0 |
| 25 | SPT | 46 | 8-8-9-8 (17) | LS | | LIMESTONE, very soft, light brown 25.0 | -20 -21.0 |
| | | | | LS | | | |
| 30 | SPT | 58 | 11-12-10-10 (22) | | | LIMESTONE AND SAND, soft, light brown 30.0 | -25 -26.0 |

Boring terminated at 30.0 feet.

# BORING NUMBER B-21

**PROJECT NAME** City of Hollywood Tidal Flood Mitigation - Phase 2 & 3

**PROJECT NUMBER** 18146 **PROJECT LOCATION** City of Hollywood, Hollywood, Florida

**DATE STARTED** 9/1/23 **COMPLETED** 9/1/23 **GROUND ELEVATION** 4 ft NAVD, est. **HOLE SIZE** 3 inches

**DRILLING CONTRACTOR** NV5 **GROUND WATER LEVELS:** 3.8 ft / Elev 0.2 ft

**DRILLING METHOD** Rotary drill with mud, wash & casing

**LOGGED BY** J. Rivera / O. Pacho **CHECKED BY** C. Rausseo

**NOTES**

| DEPTH (ft) | SAMPLE TYPE NUMBER | RECOVERY % | BLOW COUNTS (N VALUE) | U.S.C.S. | GRAPHIC LOG | MATERIAL DESCRIPTION | ELEVATION (ft., NAVD) |
|---|---|---|---|---|---|---|---|
| 0 | | | | | | 0.2 2" of Topsoil | 3.8 |
| | SPT | 42 | 4-7-15-8 (22) | GP | | LIMESTONE FRAGMENTS, medium dense, dark brown to light brown, with sand | |
| | SPT | 46 | 6-3-8-20 (11) | | | 4.0 LIMESTONE FRAGMENTS, medium dense, brown to gray, with sand, trace of silt | 0 0.0 |
| 5 | SPT | 38 | 18-6-2-2 (8) | SP | | 6.0 SAND, loose, fine, gray, with limestone fragments | -2.0 |
| | SPT | 33 | 1-1-2-2 (3) | PT | | 8.0 FIBROUS PEAT, soft, dark brown | -4.0 |
| 10 | SPT | 33 | 1-1-1-2 (2) | ML | | SILT, very soft, dark brown, with peat | -5 |
| | | | | | | 13.0 | -9.0 |
| 15 | SPT | 100 | 50/5" (100) | LS | | LIMESTONE, hard, gray | -10 |
| 20 | SPT | 79 | 7-9-17-10 (26) | | | LIMESTONE, soft, light gray, with sand | -15 |
| 25 | SPT | 75 | 10-10-10-11 (20) | | | LIMESTONE, very soft, light brown, with a trace of sand | -20 |
| | | | | | | 25.0 | -21.0 |
| 30 | SPT | 21 | 1-WOH-WOH-WOH (WOH) | SP | | SAND, very loose, fine, light brown, with a trace of limestone fragments | -25 |
| | SPT | 21 | 1-WOH-2-1 (2) | | | SAND, very loose, fine, light brown | |
| | | | | | | 33.0 | -29.0 |
| 35 | SPT | 29 | 1-3-5-4 (8) | LS | | LIMESTONE, very soft, light brown, with a trace of sand | -30 |
| | | | | | | 35.0 | -31.0 |

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# BORING NUMBER B-21

**PROJECT NAME** City of Hollywood Tidal Flood Mitigation - Phase 2 & 3

**PROJECT NUMBER** 18146 **PROJECT LOCATION** City of Hollywood, Hollywood, Florida

| DEPTH (ft) | SAMPLE TYPE NUMBER | RECOVERY % | BLOW COUNTS (N VALUE) | U.S.C.S. | GRAPHIC LOG | MATERIAL DESCRIPTION | ELEVATION (ft., NAVD) |
|---|---|---|---|---|---|---|---|
| 35 | | | | | | | |
| | | | | | | | -35 |
| 40 | SPT | 33 | WOH-WOH-2-3 (2) | SP | | SAND, very loose, fine, gray, with limestone fragments, trace of silt | |
| | | | | | | | -40 |
| 45 | SPT | 29 | WOH-WOH-WOH-WOH (WOH) | | | SAND, very loose, fine, gray, with a trace of limestone fragments | |
| | SPT | 53 | 2-4-18-50/1" (22) | | | SAND, medium dense, fine, gray, with limestone fragments | |
| | | | | | 47.0 | | -43.0 |
| | SPT | 100 | 50/1" (100) | LS | 47.1 | LIMESTONE, very hard, dark gray | -43.1 |
| | | | | | | Boring terminated at 47.1 feet. | |

# BORING NUMBER B-22

**PROJECT NAME** City of Hollywood Tidal Flood Mitigation - Phase 2 & 3

**PROJECT NUMBER** 18146 **PROJECT LOCATION** City of Hollywood, Hollywood, Florida

**DATE STARTED** 7/20/23 **COMPLETED** 7/20/23 **GROUND ELEVATION** 3 ft NAVD, est. **HOLE SIZE** 3 inches

**DRILLING CONTRACTOR** NV5 **GROUND WATER LEVELS:** 2.2 ft / Elev 0.8 ft

**DRILLING METHOD** Rotary drill with mud, wash & casing

**LOGGED BY** J. Rivera / O. Pacho **CHECKED BY** C. Rausseo

**NOTES**

| DEPTH (ft) | SAMPLE TYPE NUMBER | RECOVERY % | BLOW COUNTS (N VALUE) | U.S.C.S. | GRAPHIC LOG | MATERIAL DESCRIPTION | ELEVATION (ft., NAVD) |
|---|---|---|---|---|---|---|---|
| 0 | AU | 100 | | GP | | SILTY LIMESTONE FRAGMENTS, very loose, dark brown | 0 |
| | AU | 100 | | | | LIMESTONE FRAGMENTS, very loose, dark brown, with sand and silt | |
| | | | | | | 4.0 | -1.0 |
| 5 | SPT | 17 | 4-WOH-1-2 (1) | PT | | FIBROUS PEAT, very soft, dark brown | |
| | | | | | | 6.0 | -3.0 |
| | SPT | 21 | 2-1-2-1 (3) | ML | | SILT, soft, dark gray, with peat | -5 |
| | | | | | | 8.0 | -5.0 |
| | SPT | 71 | 1-4-11-9 (15) | LS | | LIMESTONE, very soft, light brown to light gray, with sand | |
| 10 | SPT | 75 | 9-12-14-22 (26) | | | LIMESTONE, soft, light gray, with sand | |
| | SPT | 83 | 19-17-16-23 (33) | | | LIMESTONE, medium hard, light gray to gray, with sand | -10 |
| 15 | SPT | 79 | 21-16-20-19 (36) | | | LIMESTONE, medium hard, gray to light gray, with sand | |
| | | | | | | | -15 |
| 20 | SPT | 83 | 18-11-11-13 (22) | | | LIMESTONE, soft, light gray, with a trace of sand | |
| | | | | | | | -20 |
| 25 | SPT | 71 | 22-15-17-8 (32) | | | LIMESTONE, medium hard, light brown, with a trace of sand | |
| | | | | | | | -25 |
| 30 | SPT | 29 | 8-5-3-3 (8) | | | LIMESTONE, very soft, light brown, with a trace of sand | |
| | | | | | | 30.0 | -27.0 |
| | | | | SS | | | -30 |
| 35 | SPT | 54 | 5-4-3-10 (7) | | | SANDSTONE, very soft, light gray, with sand | |
| | | | | | | 35.0 | -32.0 |

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# BORING NUMBER B-22

**PROJECT NAME** City of Hollywood Tidal Flood Mitigation - Phase 2 & 3

**PROJECT NUMBER** 18146 **PROJECT LOCATION** City of Hollywood, Hollywood, Florida

| DEPTH (ft) | SAMPLE TYPE NUMBER | RECOVERY % | BLOW COUNTS (N VALUE) | U.S.C.S. | GRAPHIC LOG | MATERIAL DESCRIPTION | ELEVATION (ft., NAVD) |
|---|---|---|---|---|---|---|---|
| 35 | | | | | | | -35 |
| 40 | SPT | 58 | 10-5-6-6 (11) | SP | | SAND, medium dense, fine, gray, with a trace of sandstone fragments | -40 |
| 45 | SPT | 54 | 7-4-4-5 (8) | | | SAND, loose, fine, light gray, with a trace of shells | -45 |
| | | | | | | 48.0 | -45.0 |
| 50 | SPT | 38 | 27-16-25-50 (41) | LS | | LIMESTONE AND SAND, medium hard, gray | |
| | | | | | | 50.0 | -47.0 |

Boring terminated at 50.0 feet.

# BORING NUMBER B-23

**PROJECT NAME** City of Hollywood Tidal Flood Mitigation - Phase 2 & 3

**PROJECT NUMBER** 18146 **PROJECT LOCATION** City of Hollywood, Hollywood, Florida

**DATE STARTED** 7/21/23 **COMPLETED** 7/21/23 **GROUND ELEVATION** 4 ft NAVD, est. **HOLE SIZE** 3 inches

**DRILLING CONTRACTOR** NV5 **GROUND WATER LEVELS:** 3.0 ft / Elev 1.0 ft

**DRILLING METHOD** Rotary drill with mud, wash & casing

**LOGGED BY** Y. Parada / A. Valdespino **CHECKED BY** C. Rausseo

**NOTES**

| DEPTH (ft) | SAMPLE TYPE NUMBER | RECOVERY % | BLOW COUNTS (N VALUE) | U.S.C.S. | GRAPHIC LOG | MATERIAL DESCRIPTION | ELEVATION (ft., NAVD) |
|---|---|---|---|---|---|---|---|
| 0 | | | | SM | | 0.3 4" of Topsoil | 3.7 |
| | SPT | 17 | 2-5-3-3 (8) | SM | | 2.0 SILTY SAND, loose, fine, dark brown | 2.0 |
| | SPT | 8 | WOH-WOH-WOH-WOH (WOH) | SP | | SAND, very loose, fine, gray, with a trace of limestone fragments | 0 |
| 5 | SPT | 8 | WOH-WOH-WOH-WOH (WOH) | | | SAND, very loose, fine, gray, with limestone fragments | |
| | SPT | 25 | WOH-WOH-WOH-WOH (WOH) | SM | | 6.0 SILTY SAND, very loose, gray to dark brown, with organics, trace of limestone fragments | -2.0 |
| | SPT | 50 | WOH-WOH-WOH-2 (WOH) | | | SILTY SAND, loose, gray to dark brown, with limestone fragments, trace of organics | -5 |
| 10 | | | | | | 10.0 | -6.0 |
| | SPT | 42 | 1-3-3-4 (6) | LS | | 12.0 LIMESTONE AND SAND, very soft, light gray, with a trace of silt | -8.0 |
| | SPT | 50 | 2-2-2-3 (4) | | | LIMESTONE, very soft, light gray, with sand, trace of silt | -10 |
| | SPT | 58 | 3-4-10-14 (14) | | | LIMESTONE, very soft, light brown, with sand | |
| 15 | | | 9-8-7-10 (15) | | | | |
| | | | | | | | |
| | SPT | 79 | 5-10-9-9 (19) | LS | | LIMESTONE, very soft, light brown, with sand | -15 |
| 20 | | | | | | | |
| | | | | | | | |
| | SPT | 67 | 18-8-9-4 (17) | | | LIMESTONE, very soft, light brown, with sand | -20 |
| 25 | | | | | | 25.0 | -21.0 |
| | | | | SS | | | |
| | SPT | 54 | 12-5-15-17 (20) | | | SANDSTONE, very soft, light gray, with sand | -25 |
| 30 | | | | | | 30.0 | -26.0 |

Boring terminated at 30.0 feet.

# BORING NUMBER B-24

**PROJECT NAME** City of Hollywood Tidal Flood Mitigation - Phase 2 & 3

**PROJECT NUMBER** 18146 **PROJECT LOCATION** City of Hollywood, Hollywood, Florida

**DATE STARTED** 7/21/23 **COMPLETED** 7/21/23 **GROUND ELEVATION** 4 ft NAVD, est. **HOLE SIZE** 3 inches

**DRILLING CONTRACTOR** NV5 **GROUND WATER LEVELS:** 3.2 ft / Elev 0.8 ft

**DRILLING METHOD** Rotary drill with mud, wash & casing

**LOGGED BY** Y. Parada / A. Valdespino **CHECKED BY** C. Rausseo

**NOTES**

| DEPTH (ft) | SAMPLE TYPE NUMBER | RECOVERY % | BLOW COUNTS (N VALUE) | U.S.C.S. | GRAPHIC LOG | MATERIAL DESCRIPTION | ELEVATION (ft., NAVD) |
|---|---|---|---|---|---|---|---|
| 0 | | | | | | | |
| | SPT | 50 | 3-3-6-4 (9) | SM | | 12" of Topsoil | 3.0 |
| | SPT | 21 | 4-4-2-1 (6) | SM | | SILTY SAND, loose, gray to dark brown, with limestone fragments | |
| | | | | | | SILTY SAND, loose, dark brown, with roots, trace of limestone fragments | 0 |
| 4.0 | | | | | | | 0.0 |
| 5 | SPT | 33 | 4-6-2-1 (8) | ML | | SILT, medium stiff, gray, with a trace of organics | |
| | SPT | 38 | 2-2-3-4 (5) | | | SILT, medium stiff, gray, with organics | |
| | SPT | 33 | WOH-WOH-WOH-1 (WOH) | | | SILT, very soft, gray, with a trace of limestone fragments | -5 |
| 10 | | | | | | | -6.0 |
| 10.0 | SPT | 67 | 9-8-30-25 (38) | LS | | LIMESTONE AND SAND, medium hard, light gray to gray, with a trace of silt | -8.0 |
| | SPT | 50 | 5-4-4-8 (8) | LS | | LIMESTONE, very soft, light gray, with sand | -10 |
| 15 | SPT | 67 | 11-9-15-10 (24) | | | LIMESTONE, soft, light gray, with sand | |
| | | | | | | | |
| | SPT | 50 | 6-10-8-12 (18) | | | LIMESTONE, very soft, light brown, with sand | -15 |
| 20 | | | | | | | |
| | | | | | | | |
| | SPT | 50 | 16-12-10-8 (22) | | | | -20 |
| 25 | | | | | | LIMESTONE, soft, light brown, with sand | -21.0 |
| 25.0 | | | | SS | | | |
| | SPT | 42 | 9-7-10-12 (17) | | | SANDSTONE, very soft, light gray, with sand | -25 |
| 30 | | | | | | | -26.0 |

Boring terminated at 30.0 feet.

# BORING NUMBER B-25

**PROJECT NAME** City of Hollywood Tidal Flood Mitigation - Phase 2 & 3

**PROJECT NUMBER** 18146 **PROJECT LOCATION** City of Hollywood, Hollywood, Florida

**DATE STARTED** 7/25/23 **COMPLETED** 7/25/23 **GROUND ELEVATION** 4 ft NAVD, est. **HOLE SIZE** 3 inches

**DRILLING CONTRACTOR** NV5 **GROUND WATER LEVELS:** 3.8 ft / Elev 0.2 ft

**DRILLING METHOD** Rotary drill with mud, wash & casing

**LOGGED BY** J. Rivera / O. Pacho **CHECKED BY** C. Rausseo

**NOTES**

| DEPTH (ft) | SAMPLE TYPE NUMBER | RECOVERY % | BLOW COUNTS (N VALUE) | U.S.C.S. | GRAPHIC LOG | MATERIAL DESCRIPTION | ELEVATION (ft., NAVD) |
|---|---|---|---|---|---|---|---|
| 0 | | | | SM | | 0.2 2" of Topsoil | 3.8 |
| | AU | 100 | | SM | | 2.0 SILTY SAND, dark brown to gray, with limestone fragments | 2.0 |
| | AU | 100 | | GP | | LIMESTONE FRAGMENTS, gray to brown, with sand | 0 |
| 5 | SPT | 38 | 8-5-2-2 (7) | | | LIMESTONE FRAGMENTS, loose, light brown to gray, with sand | |
| | SPT | 42 | 3-3-3-3 (6) | | | LIMESTONE FRAGMENTS, loose, light brown, with sand | |
| | SPT | 50 | 3-3-4-4 (7) | | | LIMESTONE FRAGMENTS, loose, light brown to gray, with sand | -5 |
| 10 | | | | | | 10.0 | -6.0 |
| | SPT | 38 | 4-2-3-2 (5) | ML | | SILT, medium stiff, light gray to dark gray, with a trace of limestone fragments | |
| | SPT | 33 | 1-1-1-1 (2) | | | SILT, very soft, dark gray, with peat | -10 |
| | | | | | | 14.0 | 10.0 |
| 15 | SPT | 83 | 14-23-14-28 (37) | LS | | LIMESTONE, medium hard, light brown, with sand | |
| | | | | | | | |
| | SPT | 79 | 12-11-10-10 (21) | | | LIMESTONE, soft, light brown, with sand | -15 |
| 20 | | | | | | | |
| | | | | | | | |
| | SPT | 25 | 6-1-1-28 (2) | | | LIMESTONE, very soft, light gray, with sand | -20 |
| 25 | | | | | | | |
| | SPT | 100 | 50/3" (100) | | | 28.3 LIMESTONE, hard, light brown to light gray | -24.3 |

Boring terminated at 28.3 feet.

# BORING NUMBER B-26

**PROJECT NAME** City of Hollywood Tidal Flood Mitigation - Phase 2 & 3

**PROJECT NUMBER** 18146 **PROJECT LOCATION** City of Hollywood, Hollywood, Florida

**DATE STARTED** 7/20/23 **COMPLETED** 7/20/23 **GROUND ELEVATION** 4 ft NAVD, est. **HOLE SIZE** 3 inches

**DRILLING CONTRACTOR** NV5 **GROUND WATER LEVELS:** 3.8 ft / Elev 0.2 ft

**DRILLING METHOD** Rotary drill with mud, wash & casing

**LOGGED BY** J. Rivera / O. Pacho **CHECKED BY** C. Rausseo

**NOTES**

| DEPTH (ft) | SAMPLE TYPE NUMBER | RECOVERY % | BLOW COUNTS (N VALUE) | U.S.C.S. | GRAPHIC LOG | MATERIAL DESCRIPTION | ELEVATION (ft., NAVD) |
|---|---|---|---|---|---|---|---|
| 0 | AU | 100 | | SM | | SILTY SAND, dark gray, with limestone fragments | |
| | AU | 100 | | | | SILTY SAND, dark gray to gray, with a trace of limestone fragments | 0 |
| 4.0 | | | | | | | 0.0 |
| 5 | SPT | 17 | 2-6-2-2 (8) | ML | | SILT, medium stiff, gray | |
| | SPT | 13 | 2-1-1-1 (2) | | | SILT, very soft, gray | |
| | SPT | 46 | 1-1-1-2 (2) | | | SILT, very soft, gray, with a trace of peat | -5 |
| 10 | SPT | 25 | 1-WOH-WOH-1 (WOH) | | | SILT, very soft, gray, with peat | |
| 12.0 | | | | | | | -8.0 |
| | SPT | 38 | 15-37-44-34 (81) | GP | | LIMESTONE FRAGMENTS, very dense, gray, with sand, trace of silt | |
| 14.0 | | | | | | | -10 10.0 |
| 15 | SPT | 83 | 19-17-15-20 (32) | LS | | LIMESTONE, medium hard, light gray, with sand | |
| | | | | | | | |
| | SPT | 58 | 22-17-21-24 (38) | | | LIMESTONE, medium hard, light brown, with sand | -15 |
| 20 | | | | | | | |
| | | | | | | | |
| | SPT | 63 | 18-15-17-13 (32) | | | LIMESTONE, medium hard, light brown, with a trace of sand | -20 |
| 25 | | | | | | | |
| | | | | | | | |
| | SPT | 100 | 50/1" (100) | | | LIMESTONE, very hard, light brown to gray | |
| 28.1 | | | | | | Boring terminated at 28.1 feet. | -24.1 |

# BORING NUMBER B-27

**PROJECT NAME** City of Hollywood Tidal Flood Mitigation - Phase 2 & 3

**PROJECT NUMBER** 18146 **PROJECT LOCATION** City of Hollywood, Hollywood, Florida

**DATE STARTED** 7/21/23 **COMPLETED** 7/21/23 **GROUND ELEVATION** 3 ft NAVD, est. **HOLE SIZE** 3 inches

**DRILLING CONTRACTOR** NV5 **GROUND WATER LEVELS:** 2.7 ft / Elev 0.3 ft

**DRILLING METHOD** Rotary drill with mud, wash & casing

**LOGGED BY** Y. Parada / A. Valdespino **CHECKED BY** C. Rausseo

**NOTES**

| DEPTH (ft) | SAMPLE TYPE NUMBER | RECOVERY % | BLOW COUNTS (N VALUE) | U.S.C.S. | GRAPHIC LOG | MATERIAL DESCRIPTION | ELEVATION (ft., NAVD) |
|---|---|---|---|---|---|---|---|
| 0 | | | | SM | | 0.3 4" of Topsoil | 2.7 |
| | SPT | 25 | 2-2-1-1 (3) | SM | | SILTY SAND, very loose, dark brown, with a trace of limestone fragments | |
| | SPT | 17 | 2-1-WOH-WOH (1) | | | SILTY SAND, very loose, dark brown to gray, with a trace of limestone fragments | 0 |
| | | | | | | 4.0 | -1.0 |
| 5 | SPT | 29 | WOH-WOH-WOH-WOH (WOH) | ML | | SILT, very soft, dark gray | |
| | SPT | 17 | 2-2-1-1 (3) | | | SILT, soft, gray, with organics | -5 |
| | | | | | | 8.0 | -5.0 |
| | SPT | 67 | 19-46-50/3" (100) | LS | | LIMESTONE, hard, light gray, with sand, trace of silt | |
| 10 | | | | | | | |
| | SPT | 79 | 18-9-10-12 (19) | | | LIMESTONE, very soft, light gray, with sand | |
| | SPT | 67 | 5-4-4-6 (8) | | | LIMESTONE, very soft, light brown, with sand | -10 |
| 15 | SPT | 38 | 4-4-2-3 (6) | | | LIMESTONE, very soft, light brown, with a trace of sand | |
| | | | | | | | -15 |
| 20 | SPT | 25 | 2-3-2-2 (5) | | | LIMESTONE, very soft, light gray, with a trace of sand | |
| | | | | | | 20.0 | -17.0 |
| | | | | SS | | | -20 |
| 25 | SPT | 42 | 4-3-2-1 (5) | | | SANDSTONE, very soft, light gray, with sand | |
| | | | | | | | -25 |
| 30 | SPT | 33 | 5-4-3-3 (7) | | | SANDSTONE, very soft, light gray | |
| | | | | | | 30.0 | -27.0 |

Boring terminated at 30.0 feet.

# BORING NUMBER B-28

**PROJECT NAME** City of Hollywood Tidal Flood Mitigation - Phase 2 & 3

**PROJECT NUMBER** 18146 **PROJECT LOCATION** City of Hollywood, Hollywood, Florida

**DATE STARTED** 7/25/23 **COMPLETED** 7/25/23 **GROUND ELEVATION** 4 ft NAVD, est. **HOLE SIZE** 3 inches

**DRILLING CONTRACTOR** NV5 **GROUND WATER LEVELS:** 3.8 ft / Elev 0.2 ft

**DRILLING METHOD** Rotary drill with mud, wash & casing

**LOGGED BY** J. Rivera / O. Pacho **CHECKED BY** C. Rausseo

**NOTES**

| DEPTH (ft) | SAMPLE TYPE NUMBER | RECOVERY % | BLOW COUNTS (N VALUE) | U.S.C.S. | GRAPHIC LOG | MATERIAL DESCRIPTION | ELEVATION (ft., NAVD) |
|---|---|---|---|---|---|---|---|
| 0 | | | | SM | | 0.2 2" of Topsoil | 3.8 |
| | SPT | 54 | 6-14-13-10 (27) | SM | | 2.0 SILTY SAND, medium dense, brown to gray, with a trace of limestone fragments | 2.0 |
| | SPT | 46 | 9-6-5-7 (11) | GP | | 4.0 LIMESTONE FRAGMENTS, medium dense, brown to gray, with sand | 0 0.0 |
| 5 | SPT | 42 | 3-1-2-3 (3) | SM | | 6.0 SILTY SAND, very loose, brown to gray, with limestone fragments | -2.0 |
| | SPT | 83 | 2-7-10-10 (17) | ML | | 8.0 SILT, very stiff, dark gray, with limestone fragments | -4.0 |
| 10 | SPT | 71 | 5-7-4-7 (11) | SP | | 10.0 SAND, medium dense, fine to medium, gray, with limestone fragments, trace of silt | -5 -6.0 |
| | SPT | 42 | 8-3-3-1 (6) | GP | | 12.0 LIMESTONE FRAGMENTS, loose, gray, with sand | -8.0 |
| | SPT | 21 | 2-3-3-4 (6) | PT | | 14.0 FIBROUS PEAT, medium stiff, dark brown | -10 10.0 |
| 15 | SPT | 58 | 7-3-4-7 (7) | ML | | 18.0 SILT, medium stiff, gray to light gray, with limestone fragments | -14.0 |
| 20 | SPT | 50 | 4-4-4-2 (8) | LS | | LIMESTONE, very soft, light gray, with sand | -15 |
| 25 | SPT | 79 | 13-12-13-15 (25) | | | 25.0 LIMESTONE, soft, light gray, with sand | -20 -21.0 |
| 30 | SPT | 63 | 6-1-1-1 (2) | SS | | SANDSTONE, very soft, light gray to light brown | -25 |
| 35 | SPT | 75 | 13-12-16-17 (28) | | | SANDSTONE, soft, gray | -30 |

*(Continued Next Page)*

# BORING NUMBER B-28

**PROJECT NAME** City of Hollywood Tidal Flood Mitigation - Phase 2 & 3

**PROJECT NUMBER** 18146 **PROJECT LOCATION** City of Hollywood, Hollywood, Florida

| DEPTH (ft) | SAMPLE TYPE NUMBER | RECOVERY % | BLOW COUNTS (N VALUE) | U.S.C.S. | GRAPHIC LOG | MATERIAL DESCRIPTION | ELEVATION (ft., NAVD) |
|---|---|---|---|---|---|---|---|
| 35 | | | | SS | | | |
| 40 | SPT | 65 | 17-21-50/5" (100) | | | SANDSTONE, hard, gray | -35 |
| 45 | SPT | 100 | 50/2" (100) | | | SANDSTONE, hard, gray | -40 |
| 50 | SPT | 54 | 10-30-16-5 (46) | | | SANDSTONE, moderately hard, gray, with sand | -45 |
| | | | | | 50.0 | Boring terminated at 50.0 feet. | -46.0 |

# BORING NUMBER B-29

**PROJECT NAME** City of Hollywood Tidal Flood Mitigation - Phase 2 & 3

**PROJECT NUMBER** 18146 **PROJECT LOCATION** City of Hollywood, Hollywood, Florida

**DATE STARTED** 7/20/23 **COMPLETED** 7/20/23 **GROUND ELEVATION** 3 ft NAVD, est. **HOLE SIZE** 3 inches

**DRILLING CONTRACTOR** NV5 **GROUND WATER LEVELS:** 2.7 ft / Elev 0.3 ft

**DRILLING METHOD** Rotary drill with mud, wash & casing

**LOGGED BY** Y. Parad / J. Gonzalez **CHECKED BY** C. Rausseo

**NOTES**

| DEPTH (ft) | SAMPLE TYPE NUMBER | RECOVERY % | BLOW COUNTS (N VALUE) | U.S.C.S. | GRAPHIC LOG | MATERIAL DESCRIPTION | ELEVATION (ft., NAVD) |
|---|---|---|---|---|---|---|---|
| 0 | | | | SM | | 0.2 2" of Topsoil | 2.8 |
| | SPT | 58 | 2-1-1-1 (2) | ML | | SILT, very soft, gray | |
| | SPT | 100 | WOH-WOH-1-1 (1) | | | SILT, very soft, gray to dark brown, with a trace of peat | 0 |
| | | | | | | 4.0 | -1.0 |
| 5 | SPT | 100 | 2-4-6-8 (10) | LS | | LIMESTONE, very soft, light brown, with sand | |
| | SPT | 63 | 8-10-10-12 (20) | | | LIMESTONE, very soft, light brown, with sand | -5 |
| 10 | SPT | 50 | 11-9-8-7 (17) | | | LIMESTONE, very soft, light brown, with sand | |
| | SPT | 50 | 6-5-6-6 (11) | | | LIMESTONE, very soft, light brown, with a trace of sand | |
| | SPT | 42 | 8-6-6-5 (12) | | | LIMESTONE, very soft, light brown, with a trace of sand | -10 |
| | | | | | | 14.0 | -11.0 |
| 15 | SPT | 79 | 7-2-1-2 (3) | SS | | SANDSTONE, very soft, gray | |
| | | | | | | 16.0 | -13.0 |
| | | | | LS | | | -15 |
| 20 | SPT | 29 | 3-2-3-2 (5) | | | LIMESTONE, very soft, light gray, with sand | |
| | | | | | | | -20 |
| 25 | SPT | 50 | 9-3-2-2 (5) | | | LIMESTONE, very soft, light gray, with a trace of sand | |
| | | | | | | 25.0 | -22.0 |
| | | | | SP | | | -25 |
| 30 | SPT | 54 | 49-12-11-3 (23) | | | SAND, medium dense, fine, gray, with sandstone fragments | |
| | | | | | | 30.0 | -27.0 |

Boring terminated at 30.0 feet.

# BORING NUMBER B-30

**PROJECT NAME** City of Hollywood Tidal Flood Mitigation - Phase 2 & 3

**PROJECT NUMBER** 18146 **PROJECT LOCATION** City of Hollywood, Hollywood, Florida

**DATE STARTED** 7/20/23 **COMPLETED** 7/20/23 **GROUND ELEVATION** 3 ft NAVD, est. **HOLE SIZE** 3 inches

**DRILLING CONTRACTOR** NV5 **GROUND WATER LEVELS:** 2.3 ft / Elev 0.7 ft

**DRILLING METHOD** Rotary drill with mud, wash & casing

**LOGGED BY** Y. Parad / J. Gonzalez **CHECKED BY** C. Rausseo

**NOTES**

| DEPTH (ft) | SAMPLE TYPE NUMBER | RECOVERY % | BLOW COUNTS (N VALUE) | U.S.C.S. | GRAPHIC LOG | MATERIAL DESCRIPTION | ELEVATION (ft., NAVD) |
|---|---|---|---|---|---|---|---|
| 0 | | | | SM | | 0.2 2" of Topsoil | 2.8 |
| | SPT | 83 | 2-2-3-1 (5) | SM | | 2.0 SILTY SAND, loose, light gray, with a trace of limestone fragments | 1.0 |
| | SPT | 79 | WOH-WOH-WOH-WOH (WOH) | ML | | SILT, very soft, dark gray to dark brown, with a trace of peat | 0 |
| 5 | SPT | 50 | 2-2-3-6 (5) | GP | | 4.7 6.0 LIMESTONE FRAGMENTS, loose, gray, with silt | -1.7 -3.0 |
| | SPT | 42 | 10-7-9-11 (16) | LS | | LIMESTONE AND SAND, very soft, light gray | -5 |
| 10 | SPT | 63 | 8-7-5-7 (12) | | | LIMESTONE AND SAND, very soft, light brown | |
| | SPT | 75 | 5-4-5-14 (9) | | | 12.0 LIMESTONE AND SAND, very soft, light brown | -9.0 |
| | SPT | 58 | 10-8-6-7 (14) | LS | | LIMESTONE, very soft, light brown, with sand | -10 |
| 15 | SPT | 71 | 4-8-7-7 (15) | | | LIMESTONE, very soft, light brown, with a trace of sand | -15 |
| 20 | SPT | 58 | 9-10-7-8 (17) | | | 20.0 LIMESTONE, very soft, light brown, with a trace of sand | -17.0 |
| | | | | SS | | | -20 |
| 25 | SPT | 50 | 10-12-9-11 (21) | | | SANDSTONE, soft, gray | |
| | | | | | | | -25 |
| 30 | SPT | 58 | 12-8-9-10 (17) | | | 30.0 SANDSTONE, very soft, gray, with sand | -27.0 |

Boring terminated at 30.0 feet.

# KEY TO SYMBOLS

Symbol Description

## Strata symbols

 Limestone Fragments

 Concrete

 Topsoil

 Silty sand

 Asphalt

 Limestone and Sand

 Limestone

 Sandstone

 Sand with Organics

 Sand

 Clay

 Organic Siltlay

 Peat

 Silt

## Misc. Symbols

 Groundwater level measured at boring completion. The date checked is indicated.

 Boring continues

 End of Boring

## Soil Samplers

 SPT Standard Penetration Test. 140 lb. hammer dropped 30"

 AU Auger Cuttings

 RC Rock Core

## Notes:

1. Exploratory borings were drilled between 01/21/2021 and 02/04/2021, from 09/30/2022 to 10/04/2022 and betweed 07/20/2023 and 09/07/2023 using a 3-inch-diameter rotary drill with mud, wash and casing.
2. Groundwater was encountered at 1.2 and 4.5 feet below grade upon boring completion.
3. These logs are subject to the limitations, conclusions, and recommendations in this report.
4. Results of tests conducted on samples recovered are reported on the logs.

# NOTES RELATED TO RECORDS OF TEST BORING AND GENERALIZED SUBSURFACE PROFILE

1. Groundwater level was encountered and recorded (if shown) following the completion of the soil test boring on the date indicated. Fluctuations in groundwater levels are common; consult report text for a discussion.

2. The boring location was identified in the field by offsetting from existing reference marks and using a cloth tape and survey wheel.

3. The borehole was backfilled to site grade following boring completion, and patched with asphalt cold patch mix when pavement was encountered.

4. The Record of Test Boring represents our interpretation of field conditions based on engineering examination of the soil samples.

5. The Record of Test Boring is subject to the limitations, conclusions and recommendations presented in the report text.

6. "Field Test Data" shown on the Record of Test Boring indicated as 11/6 refers to the Standard Penetration Test (SPT) and means 11 hammer blows drove the sampler 6 inches. SPT uses a 140-pound hammer falling 30 inches.

7. The N-value from the SPT is the sum of the hammer blows required to drive the sampler the second and third 6-inch increments.

8. The soil/rock strata interfaces shown on the Record of Test Boring are approximate and may vary from those shown. The soil/rock conditions shown on the Record of Test Boring refer to conditions at the specific location tested; soil/rock conditions may vary between test locations.

9. Relative density for sands/gravels and consistency for silts/clays and limestone are described as follows:

| SPT Blows/ Foot | Sands/Gravels Relative Density | SPT Blows/Foot | Silt/Clay Relative Consistency | SPT Blows/ Foot | Limestone Relative Consistency |
|---|---|---|---|---|---|
| 0-4 | Very loose | 0-2 | Very Soft | 0-20 | Very Soft |
| 5-10 | Loose | 3-4 | Soft | 21-30 | Soft |
| 11-30 | Medium Dense | 5-8 | Medium Stiff | 31-45 | Medium Hard |
| 31-50 | Dense | 9-15 | Stiff | 46-60 | Moderately Hard |
| Over 50 | Very Dense | 16-30 | Very Stiff | 61-50/2" | Hard |
| | | Over 30 | Hard | Over 50/2" | Very Hard |

10. Grain size descriptions are as follows:

| NAME | SIZE LIMITS |
|---|---|
| Boulder | 12 inches or more |
| Cobbles | 3 to 12 inches |
| Coarse Gravel | 3/4 to 3 inches |
| Fine Gravel | No. 4 sieve to 3/4 inch |
| Coarse Sand | No. 10 to No. 4 sieve |
| Medium Sand | No. 40 to No. 10 sieve |
| Fine Sand | No. 200 to No. 40 sieve |
| Fines | Smaller than No. 200 sieve |

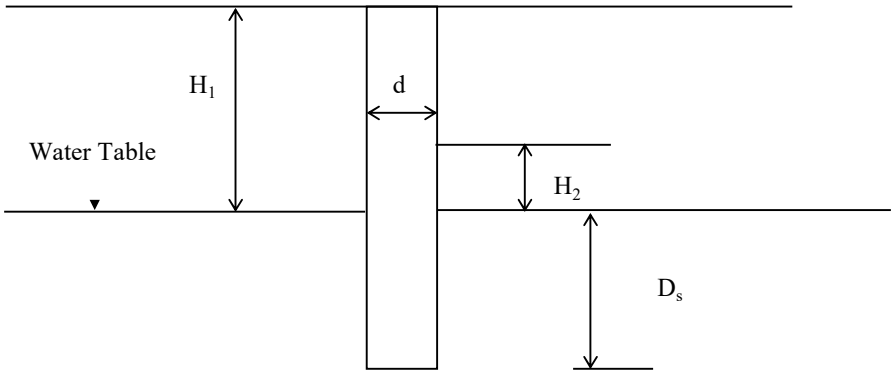
11. Definitions related to adjectives used in soil/rock descriptions:

| PROPORTION | ADJECTIVE | APPROXIMATE ROOT DIAMETER | ADJECTIVE |
|---|---|---|---|
| About 5% | with a trace | Less than 1/32" | Fine roots |
| About 5% to 12% | with | 1/32" to 1/4" | Small roots |
| About ≥ 12% | silty, sandy, etc. | 1/4" top 1" | Medium roots |
| | | Greater than 1" | Large roots |

# APPENDIX B

# FIELD PERMEABILITY TEST DATA

# SOUTH FLORIDA WATER MANAGEMENT DISTRICT
## " USUAL OPEN - HOLE TEST "




## HYDRAULIC CONDUCTIVITY

K = Hydraulic Conductivity = $4Q/[\pi d(2H_2^2 + 4H_2Ds + H_2d)]$

**2.67E-04 CFS/FT$^2$-FT HEAD**

| Time (Min.) | Flow (GPM) |
|---|---|
| 1 | 6.00 |
| 2 | 2.00 |
| 3 | 2.00 |
| 4 | 2.00 |
| 5 | 2.00 |
| 6 | 2.00 |
| 7 | 2.00 |
| 8 | 2.00 |
| 9 | 2.00 |
| 10 | 2.00 |

| | | | |
|---|---|---|---|
| Q = | Average Flow Rate = | 0.005347 | CFS |
| d = | Diameter of Test Hole = | 3.0 | inches |
| $H_2$ = | Head on Water Table = | 1.8 | feet |
| $D_s$ = | Depth below Ground Water Table = | 13.2 | feet |

| | | |
|---|---|---|
| TEST LOCATION : | | See Drawing No. 1 |
| TEST ELEVATION : | +2.0' | NAVD (Estimated) |
| DEPTH TO WATER TABLE $H_1$: | 1.8' | Below Existing Grade |
| DEPTH OF TEST HOLE : | 15.0' | Below Existing Grade |
| AVERAGE FLOW RATE: | 2.40 | GPM |

SOIL PROFILE :

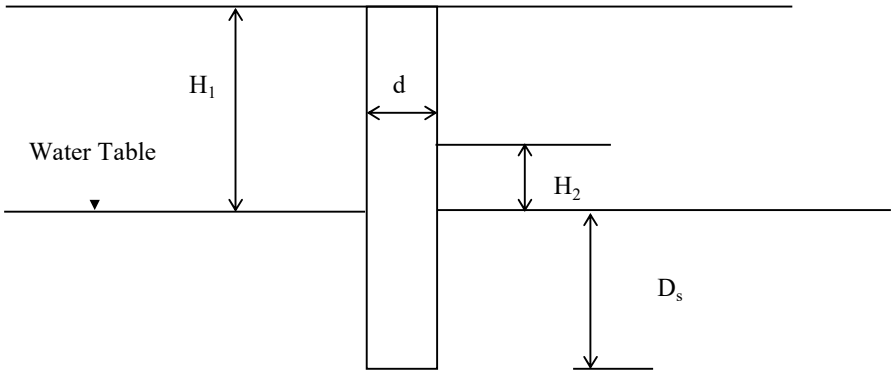
| | |
|---|---|
| 0.0' - 1.0' | 6" of Asphalt over Light gray Limestone Fragments with sand |
| 1.0'-4.0' | Brown Sand with organics |
| 4.0'-8.0' | Dark gray Silt |
| 8.0'-9.0' | Gray Silty Sand |
| 9.0'-15.0' | Light brown Limestone with sand |

NOTES: 1) The subsurface profile is determined by cuttings & should not be relied upon as an accurate record of material type or for transition zones.
2) K value calculated using PVC diameter of 3 inches

## PERCOLATION TEST

| | | |
|---|---|---|
| **PROJECT NAME:** City of Hollywood Tidal Flooding Mitigation – Phase 1_Priority 1 | | |
| **PROJECT LOCATION:** City of Hollywood, Hollywood, Florida | | |
| **PROJECT NO:** 16959 | **TEST DATE:** 02/03/2021 | **TEST NO:** P-1 |
| **TESTED BY:** T. Carson / H. Morales | | **CHECKED BY:** CLG |

# SOUTH FLORIDA WATER MANAGEMENT DISTRICT
## " USUAL OPEN - HOLE TEST "




## HYDRAULIC CONDUCTIVITY

K = Hydraulic Conductivity = $4Q/[\pi d(2H_2^2 + 4H_2Ds + H_2d)]$

**1.66E-04 CFS/FT$^2$-FT HEAD**

| Time (Min.) | Flow (GPM) |
|---|---|
| 1 | 2.50 |
| 2 | 2.50 |
| 3 | 2.00 |
| 4 | 2.00 |
| 5 | 2.00 |
| 6 | 2.00 |
| 7 | 2.00 |
| 8 | 2.00 |
| 9 | 2.00 |
| 10 | 2.00 |

Q = Average Flow Rate = 0.004679 CFS

d = Diameter of Test Hole = 3.0 inches

$H_2$ = Head on Water Table = 2.6 feet

$D_s$ = Depth below Ground Water Table = 12.4 feet

| | | |
|---|---|---|
| TEST LOCATION : | | See Drawing No. 1 |
| TEST ELEVATION : | +2.0' | NAVD (Estimated) |
| DEPTH TO WATER TABLE $H_1$: | 2.6' | Below Existing Grade |
| DEPTH OF TEST HOLE : | 15.0' | Below Existing Grade |
| AVERAGE FLOW RATE: | 2.10 | GPM |

SOIL PROFILE :

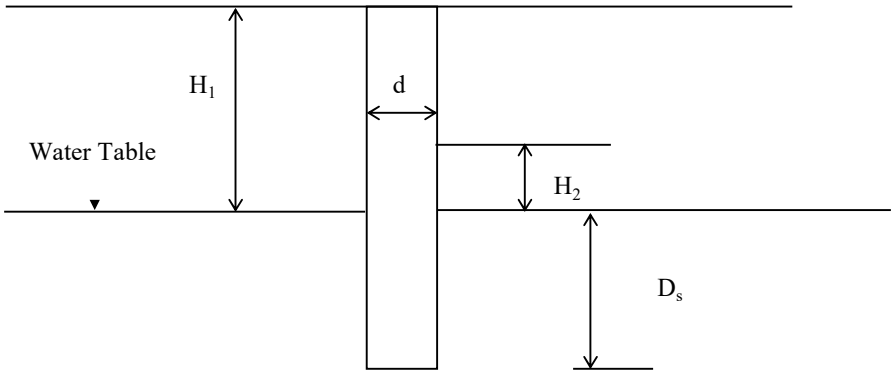
| | |
|---|---|
| 0.0' - 2.0' | 6" of Asphalt over Light gray Limestone Fragments with sand |
| 2.0'-6.0' | Dark gray Silt with limestone fragments and organics |
| 6.0'-10.0' | Light gray Limestone Fragments with sand |
| 10.0'-12.0' | Light brown Silty Sand |
| 12.0'-15.0' | Light brown Limestone with sand |

NOTES: 1) The subsurface profile is determined by cuttings & should not be relied upon as an accurate record of material type or for transition zones.
2) K value calculated using PVC diameter of 3 inches

## PERCOLATION TEST

| | | |
|---|---|---|
| **PROJECT NAME:** City of Hollywood Tidal Flooding Mitigation – Phase 1_Priority 1 | | |
| **PROJECT LOCATION:** City of Hollywood, Hollywood, Florida | | |
| **PROJECT NO:** 16959 | **TEST DATE:** 02/03/2021 | **TEST NO:** P-2 |
| **TESTED BY:** D. Correa / Y. Parada | | **CHECKED BY:** CLG |

# SOUTH FLORIDA WATER MANAGEMENT DISTRICT
## " USUAL OPEN - HOLE TEST "




## HYDRAULIC CONDUCTIVITY

K = Hydraulic Conductivity = $4Q/[\pi d(2H_2^2 + 4H_2Ds + H_2d)]$

**3.58E-04 CFS/FT$^2$-FT HEAD**

| Time (Min.) | Flow (GPM) |
|---|---|
| 1 | 3.00 |
| 2 | 3.00 |
| 3 | 3.00 |
| 4 | 2.80 |
| 5 | 2.80 |
| 6 | 2.50 |
| 7 | 2.50 |
| 8 | 2.50 |
| 9 | 2.50 |
| 10 | 2.50 |

| | | | |
|---|---|---|---|
| Q = | Average Flow Rate = | 0.006038 | CFS |
| d = | Diameter of Test Hole = | 3.0 | inches |
| $H_2$ = | Head on Water Table = | 1.5 | feet |
| $D_s$ = | Depth below Ground Water Table = | 13.5 | feet |

| | | |
|---|---|---|
| TEST LOCATION : | | See Drawing No. 1 |
| TEST ELEVATION : | +2.0' | NAVD (Estimated) |
| DEPTH TO WATER TABLE $H_1$: | 1.5' | Below Existing Grade |
| DEPTH OF TEST HOLE : | 15.0' | Below Existing Grade |
| AVERAGE FLOW RATE: | 2.71 | GPM |

SOIL PROFILE :

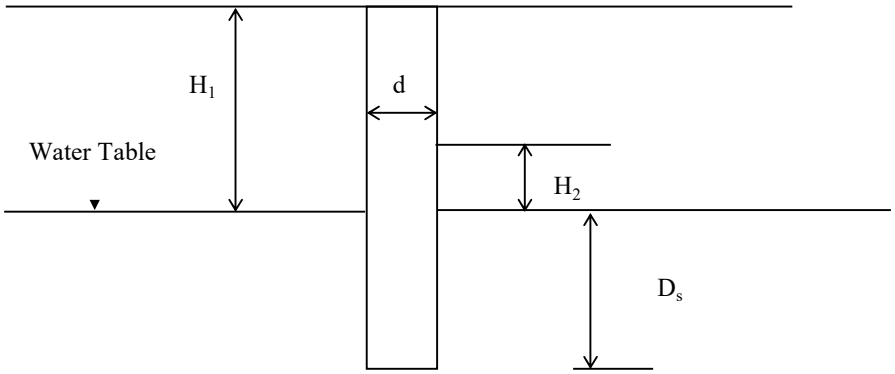
| | |
|---|---|
| 0.0' - 1.0' | 2" of Asphalt over Light gray Limestone Fragments with sand |
| 1.0'-1.5' | Brown Silty Sand |
| 1.5'-5.0' | Gray Sand |
| 5.0'-15.0' | Light gray Sand with limestone fragments and shells |

NOTES: 1) The subsurface profile is determined by cuttings & should not be relied upon as an accurate record of material type or for transition zones.
2) K value calculated using PVC diameter of 3 inches

## PERCOLATION TEST

| | | |
|---|---|---|
| **PROJECT NAME:** City of Hollywood Tidal Flooding Mitigation – Phase 1_Priority 1 | | |
| **PROJECT LOCATION:** City of Hollywood, Hollywood, Florida | | |
| **PROJECT NO:** 16959 | **TEST DATE:** 02/03/2021 | **TEST NO:** P-3 |
| **TESTED BY:** D. Correa / Y. Parada | | **CHECKED BY:** CLG |

# SOUTH FLORIDA WATER MANAGEMENT DISTRICT
## " USUAL OPEN - HOLE TEST "




## HYDRAULIC CONDUCTIVITY

K = Hydraulic Conductivity = $4Q/[\pi d(2H_2^2 + 4H_2Ds + H_2d)]$

**1.85E-04 CFS/FT$^2$-FT HEAD**

| Time (Min.) | Flow (GPM) |
|---|---|
| 1 | 2.00 |
| 2 | 2.00 |
| 3 | 2.00 |
| 4 | 2.00 |
| 5 | 2.00 |
| 6 | 2.00 |
| 7 | 2.00 |
| 8 | 2.00 |
| 9 | 2.00 |
| 10 | 2.00 |

Q = Average Flow Rate = 0.004456 CFS

d = Diameter of Test Hole = 3.0 inches

$H_2$ = Head on Water Table = 2.2 feet

$D_s$ = Depth below Ground Water Table = 12.8 feet

| | | |
|---|---|---|
| TEST LOCATION : | | See Drawing No. 1 |
| TEST ELEVATION : | +2.0' | NAVD (Estimated) |
| DEPTH TO WATER TABLE $H_1$: | 2.2' | Below Existing Grade |
| DEPTH OF TEST HOLE : | 15.0' | Below Existing Grade |
| AVERAGE FLOW RATE: | 2.00 | GPM |

SOIL PROFILE :

| | |
|---|---|
| 0.0' - 3.0' | Gray to Light gray Limestone Fragments with sand |
| 3.0'-13.0' | Gray to light gray Sand with a trace of limestone fragments |
| 13.0'-15.0' | Light brown Limestone with sand |

NOTES: 1) The subsurface profile is determined by cuttings & should not be relied upon as an accurate record of material type or for transition zones.
2) K value calculated using PVC diameter of 3 inches

## PERCOLATION TEST

N|V|5

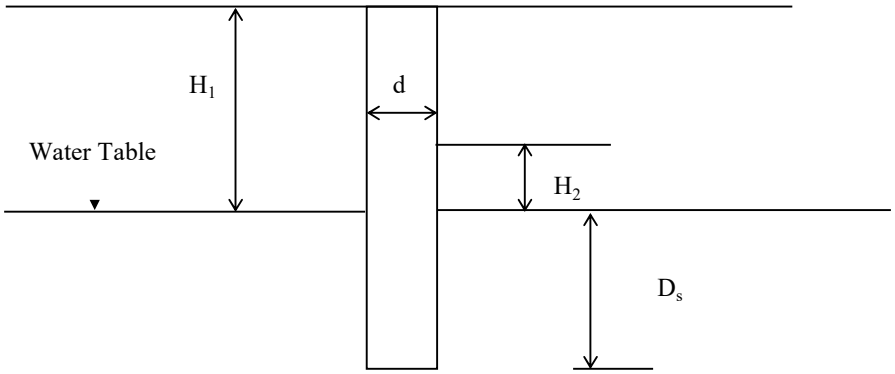
**PROJECT NAME:** City of Hollywood Tidal Flooding Mitigation – Phase 1_Priority 1

**PROJECT LOCATION:** City of Hollywood, Hollywood, Florida

**PROJECT NO:** 16959 | **TEST DATE:** 02/03/2021 | **TEST NO:** P-4

**TESTED BY:** D. Correa / Y. Parada | **CHECKED BY:** CLG

# SOUTH FLORIDA WATER MANAGEMENT DISTRICT
## " USUAL OPEN - HOLE TEST "




## HYDRAULIC CONDUCTIVITY

K = Hydraulic Conductivity = $4Q/[\pi d(2H_2^2 + 4H_2Ds + H_2d)]$

**2.67E-04 CFS/FT$^2$-FT HEAD**

| Time (Min.) | Flow (GPM) |
|---|---|
| 1 | 6.00 |
| 2 | 2.00 |
| 3 | 2.00 |
| 4 | 2.00 |
| 5 | 2.00 |
| 6 | 2.00 |
| 7 | 2.00 |
| 8 | 2.00 |
| 9 | 2.00 |
| 10 | 2.00 |

Q = Average Flow Rate = 0.005347 CFS

d = Diameter of Test Hole = 3.0 inches

$H_2$ = Head on Water Table = 1.8 feet

$D_s$ = Depth below Ground Water Table = 13.2 feet

| | | |
|---|---|---|
| TEST LOCATION : | | See Drawing No. 1 |
| TEST ELEVATION : | +2.0' | NAVD (Estimated) |
| DEPTH TO WATER TABLE $H_1$: | 1.8' | Below Existing Grade |
| DEPTH OF TEST HOLE : | 15.0' | Below Existing Grade |
| AVERAGE FLOW RATE: | 2.40 | GPM |

SOIL PROFILE :

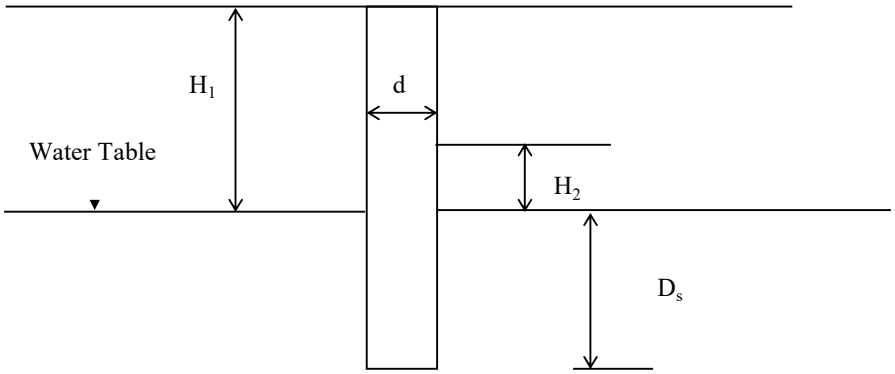
| | |
|---|---|
| 0.0' - 1.0' | 6" of Asphalt over Light gray Limestone Fragments with sand |
| 1.0'-4.0' | Brown Sand with organics |
| 4.0'-8.0' | Dark gray Silt |
| 8.0'-9.0' | Gray Silty Sand |
| 9.0'-15.0' | Light brown Limestone with sand |

NOTES: 1) The subsurface profile is determined by cuttings & should not be relied upon as an accurate record of material type or for transition zones.
2) K value calculated using PVC diameter of 3 inches

## PERCOLATION TEST

| | | |
|---|---|---|
| **PROJECT NAME:** City of Hollywood Tidal Flooding Mitigation – Phase 1_Priority 1 | | |
| **PROJECT LOCATION:** City of Hollywood, Hollywood, Florida | | |
| **PROJECT NO:** 16959 | **TEST DATE:** 02/01/2021 | **TEST NO:** P-5 |
| **TESTED BY:** T. Carson / H. Morales | | **CHECKED BY:** CLG |

# SOUTH FLORIDA WATER MANAGEMENT DISTRICT
## " USUAL OPEN - HOLE TEST "




## HYDRAULIC CONDUCTIVITY

K = Hydraulic Conductivity = $4Q/[\pi d(2H_2^2 + 4H_2Ds + H_2d)]$

**2.82E-04 CFS/FT$^2$-FT HEAD**

| Time (Min.) | Flow (GPM) |
|---|---|
| 1 | 5.00 |
| 2 | 2.00 |
| 3 | 2.00 |
| 4 | 3.00 |
| 5 | 2.00 |
| 6 | 2.00 |
| 7 | 2.00 |
| 8 | 2.00 |
| 9 | 2.00 |
| 10 | 2.00 |

Q = Average Flow Rate = 0.005347 CFS

d = Diameter of Test Hole = 3.0 inches

$H_2$ = Head on Water Table = 1.7 feet

$D_s$ = Depth below Ground Water Table = 13.3 feet

| | | |
|---|---|---|
| TEST LOCATION : | | See Drawing No. 1 |
| TEST ELEVATION : | +2.0' | NAVD (Estimated) |
| DEPTH TO WATER TABLE $H_1$: | 1.7' | Below Existing Grade |
| DEPTH OF TEST HOLE : | 15.0' | Below Existing Grade |
| AVERAGE FLOW RATE: | 2.40 | GPM |

SOIL PROFILE :

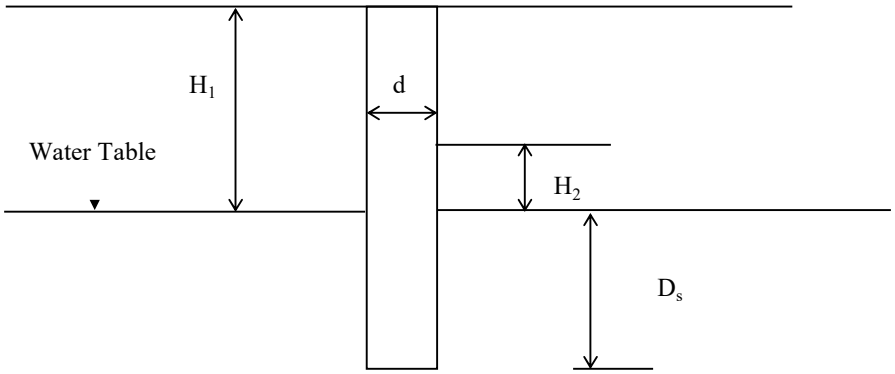
| | |
|---|---|
| 0.0' - 0.6' | 6" of Asphalt over Light gray Limestone Fragments with sand |
| 0.6'-8.5' | Brown Sand with organics |
| 8.5'-15.0' | Light brown Limestone with sand |

NOTES: 1) The subsurface profile is determined by cuttings & should not be relied upon as an accurate record of material type or for transition zones.
2) K value calculated using PVC diameter of 3 inches

## PERCOLATION TEST

| | | |
|---|---|---|
| **PROJECT NAME:** City of Hollywood Tidal Flooding Mitigation – Phase 1_Priority 1 | | |
| **PROJECT LOCATION:** City of Hollywood, Hollywood, Florida | | |
| **PROJECT NO:** 16959 | **TEST DATE:** 02/01/2021 | **TEST NO:** P-6 |
| **TESTED BY:** T. Carson / H. Morales | | **CHECKED BY:** CLG |

# SOUTH FLORIDA WATER MANAGEMENT DISTRICT
## " USUAL OPEN - HOLE TEST "




## HYDRAULIC CONDUCTIVITY

K = Hydraulic Conductivity = $4Q/[\pi d(2H_2^2 + 4H_2Ds + H_2d)]$

**8.70E-05 CFS/FT$^2$-FT HEAD**

| Time (Min.) | Flow (GPM) |
|---|---|
| 1 | 1.50 |
| 2 | 1.50 |
| 3 | 1.50 |
| 4 | 1.50 |
| 5 | 1.50 |
| 6 | 1.50 |
| 7 | 1.50 |
| 8 | 1.50 |
| 9 | 1.50 |
| 10 | 1.50 |

| | | | |
|---|---|---|---|
| Q = | Average Flow Rate = | 0.003342 | CFS |
| d = | Diameter of Test Hole = | 3.0 | inches |
| $H_2$ = | Head on Water Table = | 3.7 | feet |
| $D_s$ = | Depth below Ground Water Table = | 11.3 | feet |

| | | |
|---|---|---|
| TEST LOCATION : | | See Drawing No. 1 |
| TEST ELEVATION : | +4.0' | NAVD (Estimated) |
| DEPTH TO WATER TABLE $H_1$: | 3.7' | Below Existing Grade |
| DEPTH OF TEST HOLE : | 15.0' | Below Existing Grade |
| AVERAGE FLOW RATE: | 1.50 | GPM |

SOIL PROFILE :

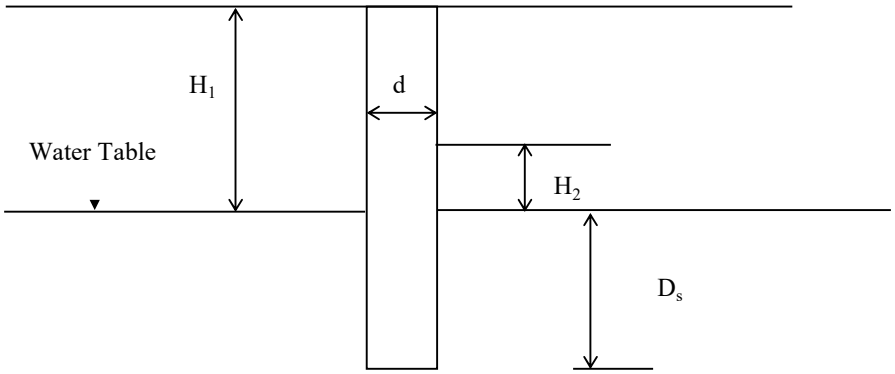
| | |
|---|---|
| 0.0' - 4.0' | 2 1/2" of Asphalt over light brown to brown Limestone Fragments with sand , traces of silt |
| 4.0'-8.0' | Brown to gray Silt with peat |
| 8.0'-10.0' | Greenish gray Silt with a trace of limestone fragments |
| 10.0'-10.6' | Light gray Silt with limestone fragments |
| 10.6'-15.0' | Light gray to gray Limestone with sand |

NOTES: 1) The subsurface profile is determined by cuttings & should not be relied upon as an accurate record of material type or for transition zones.
2) K value calculated using PVC diameter of 3 inches

## PERCOLATION TEST

| | | |
|---|---|---|
| **PROJECT NAME:** City of Hollywood Tidal Flooding Mitigation – Phase 2 & 3 – Holland Park | | |
| **PROJECT LOCATION:** City of Hollywood, Hollywood, Florida | | |
| **PROJECT NO:** 17943 | **TEST DATE:** 10/03/2022 | **TEST NO:** P-7 |
| **TESTED BY:** J. Rivera / O. Pacho | | **CHECKED BY:** CLG |

# SOUTH FLORIDA WATER MANAGEMENT DISTRICT
## " USUAL OPEN - HOLE TEST "




## HYDRAULIC CONDUCTIVITY

K = Hydraulic Conductivity = $4Q/[\pi d(2H_2^2 + 4H_2Ds + H_2d)]$

**1.28E-05 CFS/FT$^2$-FT HEAD**

| Time (Min.) | Flow (GPM) |
|---|---|
| 1 | 0.25 |
| 2 | 0.25 |
| 3 | 0.25 |
| 4 | 0.25 |
| 5 | 0.25 |
| 6 | 0.25 |
| 7 | 0.25 |
| 8 | 0.25 |
| 9 | 0.25 |
| 10 | 0.25 |

| | | |
|---|---|---|
| Q = | Average Flow Rate = | 0.000557 CFS |
| d = | Diameter of Test Hole = | 3.0 inches |
| $H_2$ = | Head on Water Table = | 4.3 feet |
| $D_s$ = | Depth below Ground Water Table = | 10.7 feet |

| | | |
|---|---|---|
| TEST LOCATION : | | See Drawing No. 1 |
| TEST ELEVATION : | +5.0' | NAVD (Estimated) |
| DEPTH TO WATER TABLE $H_1$: | 4.3' | Below Existing Grade |
| DEPTH OF TEST HOLE : | 15.0' | Below Existing Grade |
| AVERAGE FLOW RATE: | 0.25 | GPM |

SOIL PROFILE :

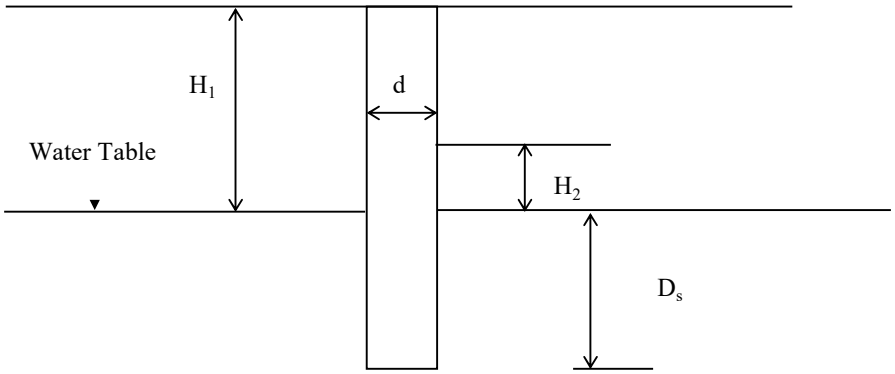
| | |
|---|---|
| 0.0' -2.0' | Gray to dark brown Sand with Organics with wood, roots and trace of silt |
| 2.0'-8.0' | Gray Sil with a trace of organics |
| 8.0'-13.0' | Dark brown to gray Organic Silt |
| 13.0'-15.0' | Light brown Limestone |

NOTES: 1) The subsurface profile is determined by cuttings & should not be relied upon as an accurate record of material type or for transition zones.
2) K value calculated using PVC diameter of 3 inches

## PERCOLATION TEST

| | | |
|---|---|---|
| **PROJECT NAME:** City of Hollywood Tidal Flooding Mitigation – Phase 2 & 3 | | |
| **PROJECT LOCATION:** City of Hollywood, Hollywood, Florida | | |
| **PROJECT NO:** 18146 | **TEST DATE:** 09/06/2023 | **TEST NO:** P-8 |
| **TESTED BY:** J. Rivera / O. Pacho | | **CHECKED BY:** CLG |

# SOUTH FLORIDA WATER MANAGEMENT DISTRICT
## " USUAL OPEN - HOLE TEST "




## HYDRAULIC CONDUCTIVITY

K = Hydraulic Conductivity = $4Q/[\pi d(2H_2^2 + 4H_2Ds + H_2d)]$

**5.67E-04 CFS/FT$^2$-FT HEAD**

| Time (Min.) | Flow (GPM) |
|---|---|
| 1 | 10.00 |
| 2 | 10.00 |
| 3 | 10.00 |
| 4 | 10.00 |
| 5 | 10.00 |
| 6 | 10.00 |
| 7 | 10.00 |
| 8 | 10.00 |
| 9 | 10.00 |
| 10 | 10.00 |

Q = Average Flow Rate = 0.022280 CFS

d = Diameter of Test Hole = 3.0 inches

$H_2$ = Head on Water Table = 3.8 feet

$D_s$ = Depth below Ground Water Table = 11.2 feet

| | | |
|---|---|---|
| TEST LOCATION : | | See Drawing No. 1 |
| TEST ELEVATION : | +4.0' | NAVD (Estimated) |
| DEPTH TO WATER TABLE $H_1$: | 3.8' | Below Existing Grade |
| DEPTH OF TEST HOLE : | 15.0' | Below Existing Grade |
| AVERAGE FLOW RATE: | 10.00 | GPM |

SOIL PROFILE :

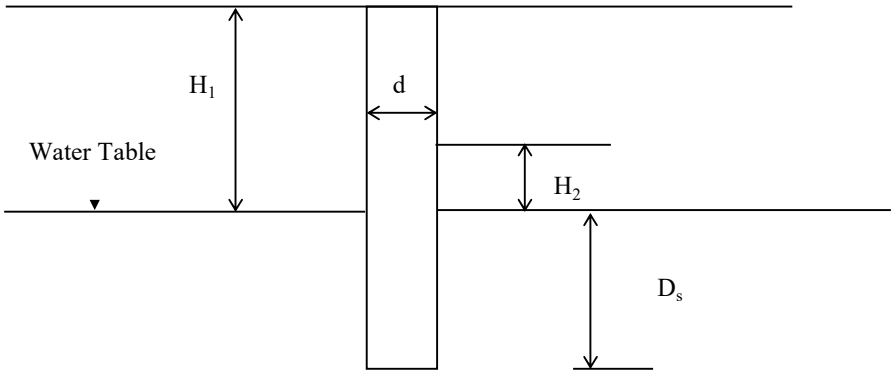
| | |
|---|---|
| 0.0' -2.0' | 4" of Asphalt over brown to light brown Limestone Fragments with sand |
| 2.0'-8.0' | Gray to dark Sand with a trace of limestone fragments and organics |
| 8.0'-13.0' | Gray Silt with a trace of organics |
| 13.0'-15.0' | Gray Limestone with a trace of silt |

NOTES: 1) The subsurface profile is determined by cuttings & should not be relied upon as an accurate record of material type or for transition zones.
2) K value calculated using PVC diameter of 3 inches

## PERCOLATION TEST

| | | |
|---|---|---|
| **PROJECT NAME:** City of Hollywood Tidal Flooding Mitigation – Phase 2 & 3 | | |
| **PROJECT LOCATION:** City of Hollywood, Hollywood, Florida | | |
| **PROJECT NO:** 18146 | **TEST DATE:** 09/07/2023 | **TEST NO:** P-9 |
| **TESTED BY:** J. Rivera / O. Pacho | | **CHECKED BY:** CLG |

# SOUTH FLORIDA WATER MANAGEMENT DISTRICT
## " USUAL OPEN - HOLE TEST "




## HYDRAULIC CONDUCTIVITY

$K$ = Hydraulic Conductivity = $4Q/[\pi d(2H_2^2 + 4H_2Ds + H_2d)]$

**2.48E-04 CFS/FT$^2$-FT HEAD**

| Time (Min.) | Flow (GPM) |
|---|---|
| 1 | 2.00 |
| 2 | 2.00 |
| 3 | 2.00 |
| 4 | 2.00 |
| 5 | 2.00 |
| 6 | 2.00 |
| 7 | 2.00 |
| 8 | 2.00 |
| 9 | 2.00 |
| 10 | 2.00 |

Q = Average Flow Rate = 0.004456 CFS

d = Diameter of Test Hole = 2.0 inches

$H_2$ = Head on Water Table = 2.5 feet

$D_s$ = Depth below Ground Water Table = 12.5 feet

| | | |
|---|---|---|
| TEST LOCATION : | | See Drawing No. 1 |
| TEST ELEVATION : | +3.0' | NAVD (Estimated) |
| DEPTH TO WATER TABLE $H_1$: | 2.5' | Below Existing Grade |
| DEPTH OF TEST HOLE : | 15.0' | Below Existing Grade |
| AVERAGE FLOW RATE: | 2.00 | GPM |

SOIL PROFILE :

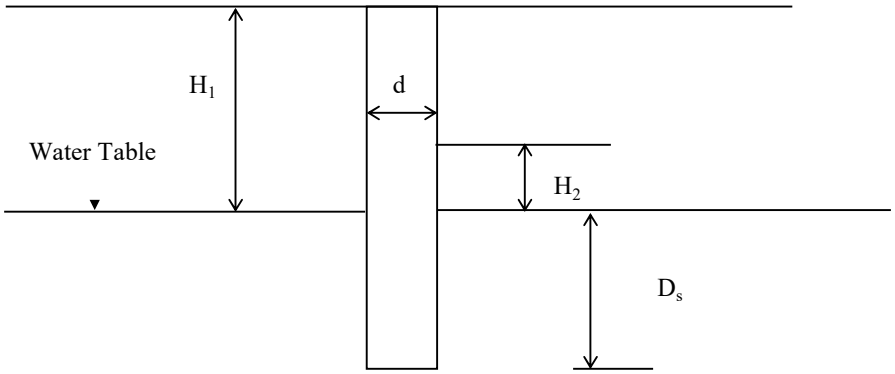
| | |
|---|---|
| 0.0' - 0.2' | 2" of Topsoil |
| 0.2' - 4.0' | Gray to dark brown Silt with a trace of peat |
| 4.0'-15.0' | Light brown Limestone with sand |

NOTES: 1) The subsurface profile is determined by cuttings & should not be relied upon as an accurate record of material type or for transition zones.
2) K value calculated using PVC diameter of 2 inches

## PERCOLATION TEST

| | | |
|---|---|---|
| **PROJECT NAME:** City of Hollywood Tidal Flooding Mitigation – Phase 2 & 3 | | |
| **PROJECT LOCATION:** City of Hollywood, Hollywood, Florida | | |
| **PROJECT NO:** 18146 | **TEST DATE:** 07/20/2023 | **TEST NO:** P-10 |
| **TESTED BY:** Y. Parad / J. Gonzalez | | **CHECKED BY:** CLG |

# SOUTH FLORIDA WATER MANAGEMENT DISTRICT
## " USUAL OPEN - HOLE TEST "




## HYDRAULIC CONDUCTIVITY

K = Hydraulic Conductivity = $4Q/[\pi d(2H_2^2 + 4H_2Ds + H_2d)]$

**1.42E-05 CFS/FT$^2$-FT HEAD**

| Time (Min.) | Flow (GPM) |
|---|---|
| 1 | 0.25 |
| 2 | 0.25 |
| 3 | 0.25 |
| 4 | 0.25 |
| 5 | 0.25 |
| 6 | 0.25 |
| 7 | 0.25 |
| 8 | 0.25 |
| 9 | 0.25 |
| 10 | 0.25 |

| | | | |
|---|---|---|---|
| Q = | Average Flow Rate = | 0.000557 | CFS |
| d = | Diameter of Test Hole = | 3.0 | inches |
| $H_2$ = | Head on Water Table = | 3.8 | feet |
| $D_s$ = | Depth below Ground Water Table = | 11.2 | feet |

| | | |
|---|---|---|
| TEST LOCATION : | | See Drawing No. 1 |
| TEST ELEVATION : | +4.0' | NAVD (Estimated) |
| DEPTH TO WATER TABLE $H_1$: | 3.8' | Below Existing Grade |
| DEPTH OF TEST HOLE : | 15.0' | Below Existing Grade |
| AVERAGE FLOW RATE: | 0.25 | GPM |

SOIL PROFILE :

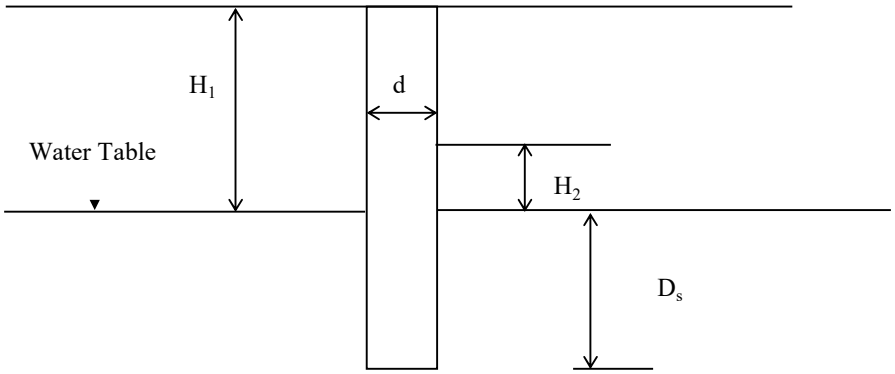
| | |
|---|---|
| 0.0' - 0.2' | 2" of Topsoil |
| 0.2'-4.0' | Dark brown to gray Limestone Fragments with sand |
| 4.0'-6.0' | Gray Sand with limestone fragments |
| 6.0'-8.0' | Dark brown Peat |
| 8.0'-13.0' | Dark brown Silt with peat |
| 13.0'-15.0' | Gray Limestone |

NOTES:
1) The subsurface profile is determined by cuttings & should not be relied upon as an accurate record of material type or for transition zones.
2) K value calculated using PVC diameter of 3 inches

## PERCOLATION TEST

| | | |
|---|---|---|
| **PROJECT NAME:** City of Hollywood Tidal Flooding Mitigation – Phase 2 & 3 | | |
| **PROJECT LOCATION:** City of Hollywood, Hollywood, Florida | | |
| **PROJECT NO:** 18146 | **TEST DATE:** 09/01/2023 | **TEST NO:** P-11 |
| **TESTED BY:** J. Rivera / O. Pacho | | **CHECKED BY:** CLG |

# SOUTH FLORIDA WATER MANAGEMENT DISTRICT
## " USUAL OPEN - HOLE TEST "




## HYDRAULIC CONDUCTIVITY

$K$ = Hydraulic Conductivity = $4Q/[\pi d(2H_2^2 + 4H_2Ds + H_2d)]$

**2.34E-04 CFS/FT$^2$-FT HEAD**

| Time (Min.) | Flow (GPM) |
|---|---|
| 1 | 2.00 |
| 2 | 2.00 |
| 3 | 2.00 |
| 4 | 2.00 |
| 5 | 2.00 |
| 6 | 1.50 |
| 7 | 1.50 |
| 8 | 1.50 |
| 9 | 1.50 |
| 10 | 1.50 |

Q = Average Flow Rate = 0.003899 CFS

d = Diameter of Test Hole = 2.0 inches

$H_2$ = Head on Water Table = 2.3 feet

$D_s$ = Depth below Ground Water Table = 12.7 feet

| | | |
|---|---|---|
| TEST LOCATION : | | See Drawing No. 1 |
| TEST ELEVATION : | +3.0' | NAVD (Estimated) |
| DEPTH TO WATER TABLE $H_1$: | 2.3' | Below Existing Grade |
| DEPTH OF TEST HOLE : | 15.0' | Below Existing Grade |
| AVERAGE FLOW RATE: | 1.75 | GPM |

SOIL PROFILE :

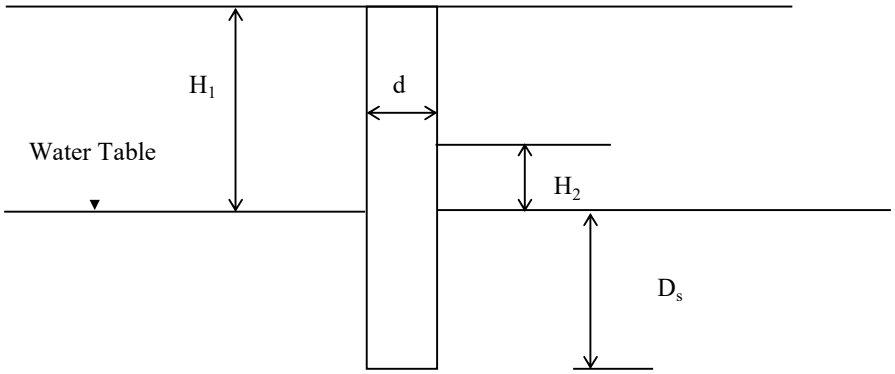
| | |
|---|---|
| 0.0' - 0.2' | 2" of Topsoil |
| 0.2'-2.0' | Light gray Silty Sand with a trace of limesone fragments |
| 2.0'-4.7' | Dark gray to dark brown Silt with a trace of peat |
| 4.7'-6.0' | Gray Limestone Fragments with silt |
| 6.0'-12.0' | Light gray to light brown Limestone |
| 12.0'-15.0' | Light brown Limestone with a trace of sand |

NOTES:
1) The subsurface profile is determined by cuttings & should not be relied upon as an accurate record of material type or for transition zones.
2) K value calculated using PVC diameter of 2 inches

## PERCOLATION TEST

| | | |
|---|---|---|
| **PROJECT NAME:** City of Hollywood Tidal Flooding Mitigation – Phase 2 & 3 | | |
| **PROJECT LOCATION:** City of Hollywood, Hollywood, Florida | | |
| **PROJECT NO:** 18146 | **TEST DATE:** 07/20/2023 | **TEST NO:** P-12 |
| **TESTED BY:** Y. Parad / J. Gonzalez | | **CHECKED BY:** CLG |

# SOUTH FLORIDA WATER MANAGEMENT DISTRICT
## " USUAL OPEN - HOLE TEST "




## HYDRAULIC CONDUCTIVITY

K = Hydraulic Conductivity = $4Q/[\pi d(2H_2^2 + 4H_2Ds + H_2d)]$

**4.28E-05 CFS/FT$^2$-FT HEAD**

| Time (Min.) | Flow (GPM) |
|---|---|
| 1 | 0.50 |
| 2 | 0.50 |
| 3 | 0.50 |
| 4 | 0.50 |
| 5 | 0.50 |
| 6 | 0.50 |
| 7 | 0.50 |
| 8 | 0.50 |
| 9 | 0.50 |
| 10 | 0.50 |

| | | | |
|---|---|---|---|
| Q = | Average Flow Rate = | 0.001114 | CFS |
| d = | Diameter of Test Hole = | 2.0 | inches |
| $H_2$ = | Head on Water Table = | 3.8 | feet |
| $D_s$ = | Depth below Ground Water Table = | 11.2 | feet |

| | | |
|---|---|---|
| TEST LOCATION : | | See Drawing No. 1 |
| TEST ELEVATION : | +4.0' | NAVD (Estimated) |
| DEPTH TO WATER TABLE $H_1$: | 3.8' | Below Existing Grade |
| DEPTH OF TEST HOLE : | 15.0' | Below Existing Grade |
| AVERAGE FLOW RATE: | 0.50 | GPM |

SOIL PROFILE :

| | |
|---|---|
| 0.0' -4.0' | 2" of Topsoil over brown to gray Silty Sand with of limestone fragments |
| 4.0'-6.0' | Brown to gray Silty Sand with limestone fragments |
| 6.0'-8.0' | Dark gray Silt with limestone fragments |
| 8.0'-12.0' | Gray Sand with limestone fragments |
| 12.0'-14.0' | Dark brown Fibrous Peat with a trace limestone fragments |
| 14.0'-15.0' | Gray to light gray Silt with limestone fragments |

NOTES:
1) The subsurface profile is determined by cuttings & should not be relied upon as an accurate record of material type or for transition zones.
2) K value calculated using PVC diameter of 2 inches

## PERCOLATION TEST

| | | |
|---|---|---|
| **PROJECT NAME:** City of Hollywood Tidal Flooding Mitigation – Phase 2 & 3 | | |
| **PROJECT LOCATION:** City of Hollywood, Hollywood, Florida | | |
| **PROJECT NO:** 18146 | **TEST DATE:** 07/25/2023 | **TEST NO:** P-13 |
| **TESTED BY:** J. Rivera / O. Pacho | | **CHECKED BY:** CLG |