MIAMI-DADE COUNTY

MIAMI-DADE PUBLIC LIBRARY SYSTEM

ADDENDUM 6

Miami Lakes Library Branch

EXTERIOR IMPROVEMENTS AND COMPREHENSIVE INTERIOR RENOVATIONS

C23-MDPLS-02-ESP

2025

ADDENDUM NO. 6
10-JUL-2025

POJECT:	**Miami Lakes Library Branch** **Exterior Improvements and Comprehensive Interior Renovations** **6699 Windmill Gate Rd.,** **Miami, Florida 33014**
BID DUE DATE:	**6-AUG-2025 - Wednesday**
FROM:	Miami-Dade Public Library System (MDPLS) Capital Program Division 101 West Flager Miami, FL 33130
TO:	Prospective Bidders and Interested Parties

This Addendum forms part of the project solicitation documents and will be incorporated into the Contract Documents, as applicable. Insofar as the Original Contract Documents, Drawings and Specifications are inconsistent, this Addendum shall govern. Please acknowledge receipt of this Addendum, at the time of bid submittal to Miami-Dade County, in the space provided on the "Acknowledgement of Addenda Form" provided with the project solicitation documents. Failure to acknowledge receipt of all addenda may be cause for disqualification.

Miami-Dade County's "Cone of Silence", Section 2-11.1(t) of the Code of Miami-Dade County, approved by the Board of County Commissioners, specifically prohibits communication in regard to this bid solicitation with County staff except as allowed by the Code. The period covered by the "Cone of Silence" is defined in the Code.

Bidders must file a copy of any written communication with the Clerk of the Board, which shall be available to any person upon request. Miami-Dade Public Library System (MDPLS) shall respond in writing and file a copy with the Clerk of the Board, which shall be made available to any person upon request. Written communications for questions, Request for Information (RFI) and addendums may also be in the form of e-mail addressed to Malka Rodriguez at CGA@MDPLS.ORG with copy to the Clerk of the Board at clerk.board@miamidade.gov.

ADDENDUM 6

Please be reminded that access to back of house and restricted areas are not allowed after the mandatory site visit held on 11-JUN-2025. Contractors can visit the Branch without impacting normal operations, requesting access to restricted areas, or damaging the building or any areas.

CHANGES TO BID SUBMITTAL DEADLINE:

1. **Change Bid Due Date from Wednesday, July 30, 2025, to Wednesday, August 6, 2025, time, and place remains unchanged.**

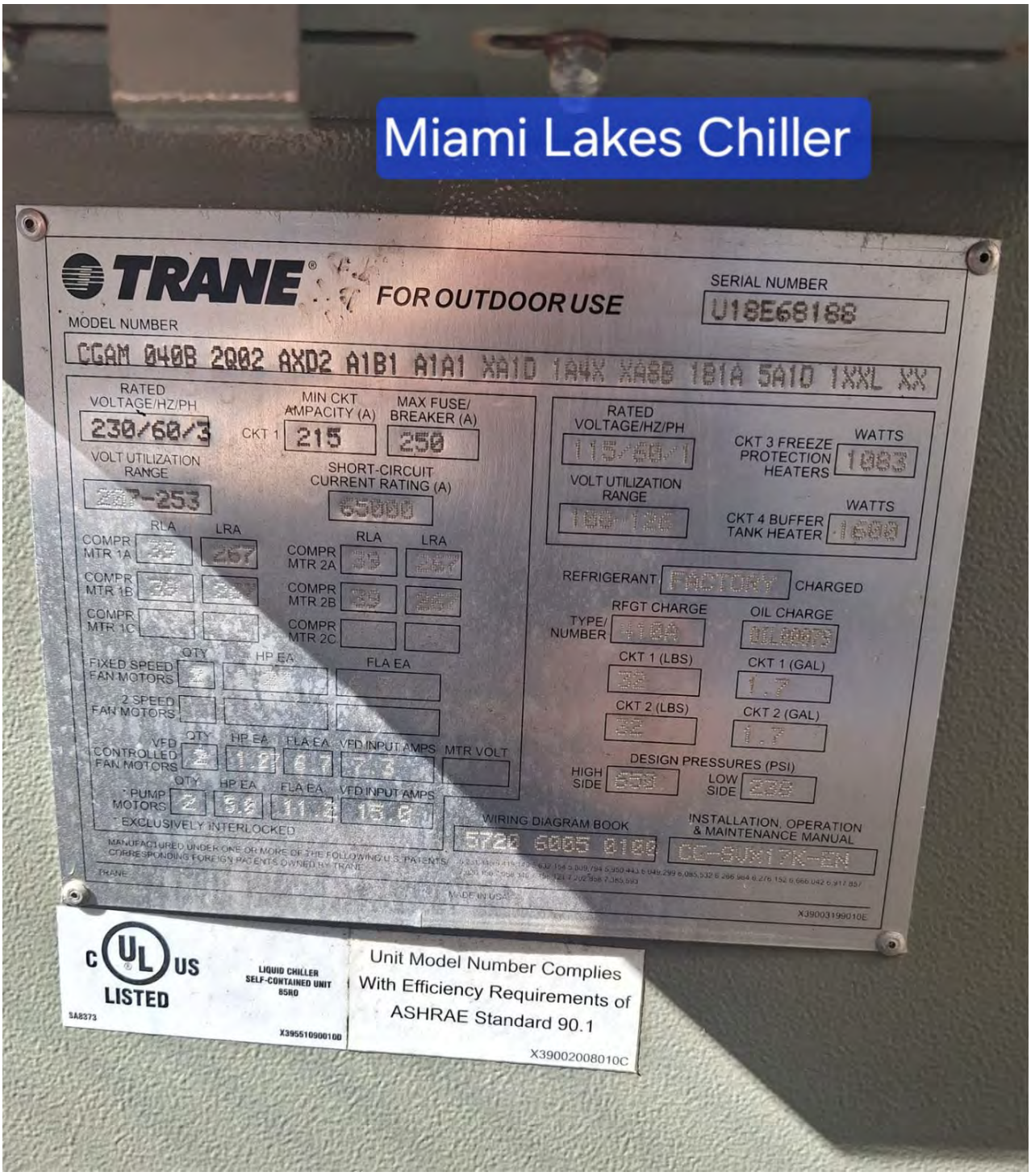
RFI-04:
On 23-JUN-2025 – TGSV Enterprises, Inc. submitted the questions below**:**

Please refrain from using the contract RFI form for RFIs during bidding. RFIs must be submitted via email with company information.

Q.30 Please provide photos of the existing chiller.

A30. Please use the equipment tag for your reference, picture on the next page.

- ***Model # CGAM 040B 2002 AXD2 A1B1 A1A1 XA1D 184X XA88 1B1A 5A1D 1XXL XX***


Miami Lakes Chiller
TRANE
FOR OUTDOOR USE
SERIAL NUMBER
U18E68188
MODEL NUMBER
CGAM 040B 2002 AXD2 A1B1 A1A1 XA1D 1A4X XA8B 1B1A 5A1D 1XXL XX
RATED VOLTAGE/HZ/PH
230/60/3
MIN CKT AMPACITY (A)
CKT 1
215
MAX FUSE/ BREAKER (A)
250
VOLT UTILIZATION RANGE
SHORT-CIRCUIT CURRENT RATING (A)
65000
RLA
LRA
COMPR MTR 1A
COMPR MTR 1B
COMPR MTR 1C
COMPR MTR 2A
COMPR MTR 2B
COMPR MTR 2C
FIXED SPEED FAN MOTORS
2 SPEED FAN MOTORS
VFD CONTROLLED FAN MOTORS
PUMP MOTORS
QTY
HP EA
FLA EA
VFD INPUT AMPS
MTR VOLT
EXCLUSIVELY INTERLOCKED
RATED VOLTAGE/HZ/PH
CKT 3 FREEZE PROTECTION HEATERS
WATTS
1083
VOLT UTILIZATION RANGE
CKT 4 BUFFER TANK HEATER
REFRIGERANT
FACTORY
CHARGED
TYPE/ NUMBER
RFGT CHARGE
OIL CHARGE
CKT 1 (LBS)
CKT 1 (GAL)
1.7
CKT 2 (LBS)
CKT 2 (GAL)
1.7
DESIGN PRESSURES (PSI)
HIGH SIDE
LOW SIDE
WIRING DIAGRAM BOOK
5720 6005 0100
INSTALLATION, OPERATION & MAINTENANCE MANUAL
CG-SVM17K-EN
MANUFACTURED UNDER ONE OR MORE OF THE FOLLOWING U.S. PATENTS
CORRESPONDING FOREIGN PATENTS OWNED BY TRANE
TRANE
MADE IN USA
X39003199010E
c UL us
LISTED
SA8373
LIQUID CHILLER
SELF-CONTAINED UNIT
85RQ
X39551090010D
Unit Model Number Complies
With Efficiency Requirements of
ASHRAE Standard 90.1
X39002008010C

Q.31 Clarify who is responsible for unloading, store, handling, unbox, assemble and install furniture and shelving owner purchased.

A31. MDPLS has an independent vendor providing the new furniture. The contractor is responsible for coordinating access to all areas once the vendor is authorized to start the delivery and installation.

RFI-05:
On June 30, 2025, J.R.T. Construction Co. submitted the following Bid Questions & Clarifications for the above-referenced project:

Q32. Please confirm if the User Access Program (UAP) fees of 2% are NOT applicable to this project.

A32. No UAP in this project.

Q33. Please confirm if the Inspector General (IG) fees of 0.25% are applicable to this project.

A33. No IG in this project.

Q34. Invitation to Bid page 5 of 6 includes a paragraph that calls for "all books and furniture will be removed by MDPLS. However, any furniture left inside the existing building the contractor will be responsible for removing and disposing." We need further clarification on specifically what items will be removed by MDPLS and what is to be left behind, as the number of possible items is enormous. Does the "furniture" portion to be removed by MDPLS include all tables, chairs, bookshelves, wood cabinets, Display cases, computers stations, lockers, appliances, TV screens, projection screens, and any boxes? Please define what is to be left behind that the Contractor needs to remove and dispose of.

A34. MDPLS anticipates leaving 95% of the building contents in the building. The contractor is responsible for the removal and disposal of all building contents left behind include, but not limited to shelving, furniture, TVs, and any other incidentals left inside the building.

Q35. Invitation to Bid "Forms Required for Bid Submittal" is missing the "Bid Bond" Form. It does include a "Bond Certification" form (form 00434) which is different and is not the Bid Form to be executed by the Surety Company. Please provide the missing Bid Bond Form to be used.

A35. The bid bond form 00434 is included as part of the enclosures in this addendum.

Q36. Invitation to Bid mentions the Renovations will follow "LEED" measures, but Documents are not clear what the measures and specific Goals are that we need to follow at the Construction Phase. Is there a Matrix chart showing the goal and the specific construction phase points selected for this project? Please clarify and provide.

A36. Sheet A-0.0, LV4 BD+C, new construction and major renovations certification: "The general contractors and all subcontractors shall review all LEED specifications and requirements throughout the construction documents and coordinate the requirements with their bids. All contractors with scope contributing towards the LEED requirements shall be responsible for incorporating, documenting and executing all activities as directed by section 018113 sustainable design requirements of sheets LD1.0, LD1.1, LD1.2 and LD1.3 from the LEED sheets ("LD") for further information.
An independent commissioning agent has been retained to ensure that this project is completed according to owner's requirements. Commissioned systems shall include HVAC, lighting/lighting control, and domestic hot water. All contractors with scope of these systems shall be responsible for carrying out testing activities directed by the commissioning agent. See the project commissioning plan for further information. All contractors with scope contributing towards the commissioning requirements shall be responsible for documenting and executing all activities as directed by section 019113 commissioning fundamental requirements of sheets LD1.0, LD1.1, LD1.2 and LD1.3 from the LEED sheets ("LD") for further information."

LEED Note

THIS PROJECT IS PURSUING LEEDV4 BD+C: NEW CONSTRUCTION AND MAJOR RENOVATIONS CERTIFICATION. THE GENERAL CONTRACTORS AND ALL SUBCONTRACTORS SHALL REVIEW ALL LEED SPECIFICATIONS AND REQUIREMENTS THROUGHOUT THE CONSTRUCTION DOCUMENTS AND COORDINATE THE REQUIREMENTS WITH THEIR BIDS. ALL CONTRACTORS WITH SCOPE CONTRIBUTING TOWARDS THE LEED REQUIREMENTS SHALL BE RESPONSIBLE FOR INCORPORATING, DOCUMENTING AND EXECUTING ALL ACTIVITIES AS DIRECTED BY SECTION 018113 SUSTAINABLE DESIGN REQUIREMENTS OF SHEETS **LD1.0, LD1.1, LD1.2, AND LD1.3** FROM THE LEED SHEETS ("LD") FOR FURTHER INFORMATION.

AN INDEPENDENT COMMISSIONING AGENT HAS BEEN RETAINED TO ENSURE THAT THIS PROJECT IS COMPLETED ACCORDING TO OWNER REQUIREMENTS. COMMISSIONED SYSTEMS SHALL INCLUDE HVAC, LIGHTING / LIGHTING CONTROL, AND DOMESTIC HOT WATER. ALL CONTRACTORS WITH SCOPE FOR THESE SYSTEMS SHALL BE RESPONSIBLE FOR CARRYING OUT TESTING ACTIVITIES AS DIRECTED BY COMMISSIONING AGENT. SEE THE PROJECT COMMISSIONING PLAN FOR FURTHER INFORMATION. ALL CONTRACTORS WITH SCOPE CONTRIBUTING TOWARDS THE COMMISSIONING REQUIREMENTS SHALL BE RESPONSIBLE FOR DOCUMENTING AND EXECUTING ALL ACTIVITIES AS DIRECTED BY SECTION 019113 COMMISSIONING FUNDAMENTAL REQUIREMENTS OF SHEETS **LD1.0, LD1.1, LD1.2, AND LD1.3** FROM THE LEED SHEETS ("LD") FOR FURTHER INFORMATION.

Q37. Please confirm all Field testing, including all soil testing and concrete testing will be provided by Owner, as indicated in the Standard Contract Conditions Article 7-C-1.

A37. No, the contractor is responsible for coordinating and paying for all testing required for this project. MDPLS does not have any contract allocation available for the testing; however, all soil and concrete testing can be submitted for reimbursement under the dedicated allowance account. Before any expenditures, the contractor must inform the Owner and get preauthorization. The reimbursement will require all back up documentation: copy of the test results, confirmation of payment and preauthorization.

Q38. Special Provision Item 1.14 for Permits describes all the Permit Fees to be reimbursed by the Owner to the Contractor but fails to mention any fees for WASA, due to the new Tap-in and Underground work required. Will any fees from WASA (if any) regarding the project also be reimbursed to GC? Please clarify.

A38. All WASD connection/upfront fees have been paid to date. All permit fees must be submitted for payment with the appropriate original receipts and within the same pay period. MDPLS will not accept any reimbursement for reinspection fees.

Q39. If WASA fees (if any) are not to be reimbursed, please provide the amount of such fees so as to include in our Base Bid.

A.39 Please refer to the previous response (A38).

Q40. If there are FPL fees will those be reimbursed by Owner also? Please clarify.

A40. FPL fees must be included as part of the scope of work under utilities connections.

Q41. Special Provisions Item 1.23 for Temporary Utilities calls for the GC to provide new temporary services for a source of Power and Water, creating the need for hundreds of feet of temporary extension cords and water hoses inside the building. It would be easier to use the existing power for extension cords and water from the locations where services are to remain inside the building, and have the Contractor pay for the consumption of such services. If this is acceptable, please provide a monthly fee that the GC must include in the Base Bid.

A41. MDPLS has confirmed with FPL representative that the account can be transferred to the awarded contractor during the construction phase. Contractor will be responsible for paying directly to FPL. After Final Acceptance, the account can transfer back to MDPLS. The contractor must provide confirmation of payment with all payment applications. For WASD, the contractor will receive a copy of the water and sewer consumption and provide a payment (check) for these services to MDPLS. Please be cognizant that the current occupied consumption may not be the same as during the construction phase:

- ***FPL – average $3,100.00 per month***
- ***WASD – average $350 per month; however, it's billed quarterly.***

Q42. After the progress of the work reaches the interior finishes and after the drywall is installed, we need the existing and new AC systems turn on, as the new finishes need to acclimate to the space and need moisture controlled for the new floorings, cabinets, carpets and other finishes. Will the Owner pay for the power to run the AC systems from that point on? If not, please provide the approximate amount for current monthly power consumption at the building, so we can add it to our Base Bid proposal.

A42. The contractor is responsible for all costs associated with the construction work. Consequently, MDPLS will accept the building after Final Acceptance is achieved with a complete Certificate of Occupancy by AHJ.

Please be advised that MDPLS requires the following conditions for the HVAC equipment:

- ***During demolition: all units must be turned off and breakers removed.***
- ***During start up and when the interior finishes are being acclimated: filters must be changed every 15 days and at 95% complete of the work is completed: filters must be changed every 30 days.***

Q43. Special Provision 1.5 Index of Drawings and Specifications includes "Owner Provided System Information" and lists the Burglar Alarm System and the CCTV requirements as part of the Owner provided systems. This seems to be in conflict with other instructions, making those systems as part of the Design-Build components to be included in the Contract by the GC. Please clarify which instructions prevail.

A43. Please be cognizant that the appendices were provided to ensure the listed equipment is used in the project for the Burglar Alarm and the specifications provided in the CCTV requirements were included for guidance on conduit and wiring sizes, heights, etc. The contractor must use these appendices for their work. Both, Burglar Alarm and CCTV are part of the design-build components.

Q44. Special Provision 1.23-K and Specification section 01520, calls for the Contractor to provide and maintain a field office for the Owner and Owner' representative, with desks, chairs, conference table , etc. Please confirm if Contractor is to include in his Bid amount a separate Construction Trailer for the Owner's Construction Representative.

A44. No separate trailer is required; however, a dedicated area must be designated for project progress meetings with the Owner and Architect.

Q45. Special Provision 1.27 for Inspections calls for all Special Inspections services to be provide by Owner. Please clarify if any Soil Engineers services for the soil operations, visual observations, compaction operations, and for any Foundation Letter of Compliance will be part of the Inspections paid by the Owner.

A45. The Owner will be responsible for these special inspection services. If required, these services may be paid under the dedicated allowance with prior authorization.

Q46. Project Manual is missing the Subsurface Investigation Report (Geotech report) showing the results of the Soil borings with the N- values tabulated and more important the Foundation Recommendations including the suggested Site Preparation instructions. Civil plan C0.04 includes a brief description of the materials encountered, but this is not a substitute for the actual Geotech Report Site Instructions. Please provide missing report.

A46. The subsurface investigation report is provided as part of this addendum enclosures.

Q47. Plan Sheet D1.1 contains a Note calling for the removal of all existing stucco on the exterior walls to remain, requiring extensive sand-blasting for removal. Is this "typical" of all exterior

walls? Please clarify if all Stucco is to be removed down to the CMU wall surfaces on ALL walls to remain.

A47. Yes, existing exterior wall stucco to be removed.

Q48. Plan Sheet D1.1 fails to show the required wood roof trusses and wood roof joist removal on the south portion of the existing roof, including the entry foyer area, multipurpose room, group restrooms and unisex restroom. Please add demolition notes referring to the roof structure removals.

A48. ELM to add note; however, GC shall be responsible to remove elements required to construct the design intent on the drawings.

Q49. Plan Sheet LS1.0 does not show any required Fire Rated Partitions or Fire Rated ceilings in the entire building interior. Please confirm there are no Fire Rated partitions, walls or ceilings required.

A49. Confirmed there are no Fire-rated partitions.

Q50. Plan Sheet A1.1 shows exterior north walls at the new children department (around north windows) to be type E which requires only stucco, but North Building elevation plan A-5.1 indicates ST-2 which includes Dekton panel finish. Please clarify which instruction prevails.

A50. Wall type E refers to the interior furring wall partition. Exterior finish per elevations.

Q51. Plan Sheet A1.1 shows the new Reading porch with decorative pavers flooring, but plans do not provide a section detail or note to clarify if they are “pavers on sand” (as the exterior pavers). Structural Plan S101 calls for 4” concrete slab in the entire Reading Porch area. Please clarify pavers installation details for the Reading Porch.

A51. Pavers at the reading porch and entry shall be on a concrete slab.

Q52. Plan Sheet A1.3 Finish Schedule calls for a flooring “CT-1” at new children’s area restrooms #17 and #18, but there is no item CT-1 listed as flooring in the schedule table. Is the intent *t*o include Polished Concrete PC-1 at those restrooms also? Please clarify flooring type.

A52. Flooring to be polished concrete PC-1.

Q53. Plan Sheet A1.3 Finish Schedule is also missing the VCT tile selection. Please provide selection for the small VCT tile areas.

A53. Janitor Closet #26, Mechanical rooms #27, & #21 existing flooring to remain.

Q54. Plan Sheet Finish Schedule calls for flooring PC-1 as “polished concrete with green speckle aggregate”, but it is not enough information to bid this item. Please provide further details, specifications and color photographs of the required Polished Concrete finish desired.

A54. This polished concrete floor shall achieve a medium gloss finish in compliance with ACI 310.1-20, characterized by a uniform, soft sheen with some visual depth. The final surface must exhibit a 60-degree specular gloss reading between 40 and 69 when tested according to ASTM D523. The polishing process shall include the application

of a liquid chemical densifier to harden and dustproof the surface. The completed floor will be delivered free of defects, with a consistent appearance that matches the approved jobsite mock-up.

Q55. Plan sheet A1.3 calls for adding corner guards at selected building interior corners but does not provided enough information for such corner guards. Size? 3" x 3"? length 3' long? 4' long? Metal color? Stainless steel? Please provide further details for this item.

A55. Per sheet A1.3, provide Acrovyn metal corner guards. Provide self-adhesive, 2.5" Leg Width, extend from top of base to bottom of ceiling, color TBD.

Q56. Plan Sheet A1.4 shows the color selection for the LVT flooring but is missing the required thickness of such flooring. 3.0 mm? or 4.5 mm? Please provide further specs on this item.

A56. All LVT on this project is 4.5mm. See attached plans from the flooring vendor with material names and callouts for the various areas for both Carpet and LVT.

Q57. Plan Sheet A1.5 showing the exterior decorative pavers shows no section for their installation. Please clarify if they are pavers on sand? Rock Base under? Geotextile fabric under? Concrete curbs at open ends (against sod areas)? No sections or details were provided in Civil plans or Architectural plans for the entry Decorative pavers.

A57. Pavers at the reading porch and entry shall be on a concrete slab.

Q58. Plan Sheet A1.6 showing the aluminum trash enclosure does not provide enough information to bid on this item. Louver panel at side? Elevations? Please provide a Basis-for-Design manufacturer and model for this item.

A58. This is a pre-engineered structure purchased and installed by GC.

Q59. Plan Sheet A1.6 showing the concrete slab for the trash enclosure calls to see the civil plans for the slab details, but there were no details for the concrete slab. 6" concrete slab? Reinforcement? Thickened edge? Please clarify.

A59. 6" concrete slab on grade with fiber mesh over compacted subsoil with a 1'-4" deep x 2'-0" wide thickened edge all around the perimeter. Slab to have #4 @ 24" O.C. Coordinate slab design with engineered shop drawings for the enclosure.

Q60. Plan Sheet A2.0 shows a typical detail for the drywall hard ceilings as being hung by USG tees, which is correct for the hanging dropped ceiling areas at restrooms only, but there are no details for the large amount of drywall hard ceilings to be mounted to the bottom of the wood trusses. Section at A5.3 seems to indicate furring hi-hats on bottom of trusses and then drywall. Is this ceiling intended to be a Fire-Rated ceiling? 1-hr rated? Is the bottom of all the wood trusses to be fire protected? Please clarify.

A60. Per the Fire Sprinkler plans, the attic is sprinklered, which provides fire protection for the attic.

Q61. If the hard ceilings need to be Fire Rated, how are the recesses fixtures type L7 and L9 at selected areas such as the vestibule and multipurpose rooms to be protected? Please clarify and provide details.

A61. Per the Fire Sprinkler plans, the attic is sprinklered, which provides fire protection for the attic.

Q62. Plan Sheet A2.0 includes a note calling for the drywall hard ceiling to be ½" drywall (which is NOT fire-rated") with a skim coat. Please clarify if this refers to applying a layer on "skim plaster" on all drywall ceiling areas, or is it a drywall compound skim layer for a level 5 drywall finish? Please clarify.

A62. Per the Fire Sprinkler plans, the attic is sprinklered, which provides fire protection for the attic.

Q63. Plan Sheet A2.0 shows a large amount of acoustical tile areas dropped below the wood trusses. Is the proposed acoustical ceiling to be Fire-Rated ceilings? Or are the wood trusses above it also protected with a fire-rated drywall layer? Please clarify and provide further information with missing ceiling sections and details.

A63. Per the Fire Sprinkler plans, the attic is sprinklered, which provides fire protection for the attic.

Q64. Plan Sheet A3.0 does not have notes on the type of metal roofing materials with enough information as is required. Snap-Clad panel (shown in A0.0 and A3.1) is not enough information. Is the width of panel 16"? or 12"? Color of the panels? What is the Warranty period required for roofing? 20 years? NDL warranty? LEED requirement? Reflectivity index for panels? Need you to provide Specifications and a Basis -of-Design manufacturer, model of panels, thickness and all missing roofing information.

A64. Metal Roof: Snap Clad, Steel, 24 gauge, 16" wide, Provide NDL, 30 yr., Warranty, RI-.32. Color: Burnished Slate. Per manufacturer's specifications.

Q65. Plan Sheet A3.0 does not have notes on the type of roofing materials with enough information as required of the flat roofs. What is the thickness required of the TPO membrane? What is the Warranty period required on roofing? 20 years? NDL warranty? LEED requirement? Reflectivity index(SRI) for TPO? Energy Star listed? Need you to provide Specifications and a Basis -of-Design manufacturer, system, thickness and all missing roofing information.

A65. EverGuard TPO 60 mil single ply, RI-1, SRI-94, Provide NDL, 20 yr. warranties, Color: White. Per manufacturer's specifications.

Q66. Plan Sheet A3.0 does not show the real extent of the flat roofing areas to be replaced, as a lot of the flat roof areas are hiding by the large overhang of the sloped roof above. Please add dotted lines indicating the true areas of the two flat roofs areas to be replaced.

A66. All existing flat and sloped roofing to be removed and replaced. The entire building shall have new roofing.

Q67. Plan Sheet A3.1 shows the new required roof curbs at the perimeter of the upper flat roof areas, to be manufactured out of wood but no details were provided on wood sizes, attachment details to the wood trusses, sheathing in side walls, etc. This is a critical area of the roof structure and requires an engineering design of the same, to certify that the curbs will withstand the wind forces as required by code. Please provide missing specific curbs structural details.

A67. 6" PT wd studs, 5/8" CDX sheathing both sides. Strapped and nailed to trusses-see structural for detail.

Q68. Plan Sheet A3.1 shows the wood fascia required but again no details were provide as to size of wood member, and wood type required. PT wood fascia? Cedar wood? Is facia to be clad with aluminum roofing metal? Please define missing details.

A68. See structural Drawings S301-303. PT WD 2x8

Q69. Plan Sheet A3.0 and A3.1 shows the gutter and rainwater leaders (downspouts) required at the fascia level but again no note with details for gutter and downspouts. Is this an aluminum gutter? Galvanized metal? Thickness of metal? Stainless steel metal? Please further define gutter and downspouts materials required.

A69. .032 Kynar coated steel to match sloped roof color.

Q70. Plan Sheet A3.2 showing the entry trellis shows a detail 4/A3.2 with the CMU wall going higher than the trellis height, but no dimension is shown. Please provide missing dimension.

A70. 15'-0" Tall.

Q71. Plan Sheet A3.2 showing detail 6/A3.2 calls for a "Dark Bronze structural steel column" which does not exist. Is the intent to wrap the column with aluminum break metals? Please clarify intent of the note and provide details if necessary.

A71. Provide break-metal rectangular column enclosure to match footprint of W8 steel column.

Q72. Plan Sheet A4.0 shows the group restroom with toilet partitions but no notes on the toilet partitions required. Are they metal? HDPE plastic? Phenolic panels? Color selection? Please provide Specifications and define a Basis-for-Design with manufacturer and models.

A72. Bobrick Traditional Partitions, DuraLine Series CGL, Standard Privacy, or approved equal, finish TBD. Include barrel hinges, latch and keeper, bracket, coat hook, inswing door hardware and/or outswing door pull, and occupancy indicator.

Q73. Plan Sheet A5.0 with the south elevation shows the new concrete columns (covered in Dekton panels) for the trellis but no height is define in any of the plans for these columns. Please clarify and provide proposed height for columns.

A73. Height- 15'-0"

Q74. Plan Sheet A5.2 shows Building section 1/A5.2 and 2/A5.2 showing the multipurpose extension new room and shows the roof trusses as requiring a "coffered" or vaulted ceiling at that room, but plan A2.0 calls for a flat ceiling, requiring no coffered ceiling bottom trusses. Please clarify discrepancy in sections.

A74. Keep coffered truss as drawn.

Q75. Plan Sheet A5.3 shows the exterior overhangs as having only a painted ¾" CDX plywood sheathing attached to the bottom of the trusses. Painted CDX plywood is not suitable for an exposed finish grade wood and will not provide a good look. Please confirm type of plywood or finishes required at overhangs.

A75. There shall not be any exposed plywood. All soffits, etc. shall receive a paint finish over stucco/lath installation on the plywood.

Q76. Plan Sheet A5.3 shows the exterior overhangs as requiring attic vent openings, but no notes on the type of venting required. Continuous screened vent? Size of opening? Details of opening perimeter? Or aluminum vent panels? Define type and size of venting required, square feet on ventilation, as this is a code compliance issued.

A76. Provide 6" wide continuous screened vent. Locate vent at front edge of soffit. Paint vent to match soffit color.

Q77. Since this is a LEED project, we need to mention that the possible credit for using Forrest Stewardship Council (FSC) wood is not possible in this project, as there are no FSC certified wood truss manufacturers in the state of Florida or in any nearby state. You can recheck this statement with any local wood truss manufacturer/supplier.

A77. This pertains to the "Sourcing of Raw Materials" credit that the project will pursue. Under LEED version 4 (and the more accessible version 4.1, which we will follow due to simplified requirements), there is no specific point awarded solely for using certified wood, unlike in LEED v3. While FSC-certified wood can contribute toward meeting the overall threshold for responsible sourcing, it is not required to earn the credit. The credit requires the use of products from at least three different manufacturers that meet one or more of the following responsible sourcing criteria, for at least 15% (1 point) or 30% (2 points) of the total cost of permanently installed building products:

Products from manufacturers participating in an extended producer responsibility program:

- **Bio-based materials**
- **FSC-certified wood products**
- **Reused materials**
- **Recycled content**
- **Bonus credit for materials both extracted and manufactured within 100 miles of the project.**

We typically rely on recycled content to meet this credit. If the project includes FSC-certified wood, we will include it in the credit calculations, but it is not essential to earn the point(s).

Q78. Plan Sheet A5.3 Detail 5/A5.3 calls for providing a ¾" plywood roof sheathing but Structural Plan S502 calls for providing only a CDX 5/8" plywood roof sheathing. Please clarify which instruction prevails.

A78. Proceed per structural drawings.

Q79. Please confirm roof wood framing members, including bracing wood members, plywood sheathing and overhang plywood sheathing are NOT required to be Fire-Rated wood.

A79. Per the Fire Sprinkler plans the attic is sprinklered, which provides fire protection.

Q80. Plan Sheet A5.5 includes detail 2/A5.5 for the sign low wall at the Reading Porch and a note says, "existing low wall to be re-painted", which is wrong, as this is a new wall and is not existing. Please clarify note.

A80. 2/A5.5 is a new wall with a new paint finish. 3/A5.5 has an existing low wall that is to receive a new paint finish.

Q81. Plan Sheet A6.0 does not contain any notes regarding the storefront and windows glazing required, as far as performance is concerned. Is the glass to be laminated? or insulated laminated? Are these Low-E coating? U-value and SHGC required for exterior glazing? Color of glass? This is an LEED project and requires further specifications about the glass required that seem to be missing from plans.

A81. The basis of design is: Trulite, Series 3100, Aluminum Storefront, with Glazing: 1/4" CLR SB70XL(#2) + 090PVB + 1/4" CLR GLASS, U-Factor 0.93, SHGC 0.32, VLT 0.53, Condensation Resistance 17

Q82. Plan Sheet A7.0 includes the Door Schedule and none of the doors included show any Fire Rating requirements. Please confirm there are no Fire Rated doors required for this project.

A82. Confirmed.

Q83. Plan Sheet A8.0 contains Wall types 3 and type 5 showing stucco finish on the exterior walls but both details have a dotted line along the CMU wall surfaces that sometimes indicate a Waterproofing layer is required before the stucco is applied. But there are no notes on the plan regarding any waterproofing as being required on exterior stucco walls. Please clarify none is required.

A83. Waterproofing is not required at the stucco application. Waterproofing is required as noted where the Dekton is to be applied.

Q84. Plan Sheet A8.0 shows no Fire-Rated partitions are required, but Plan A9.0 contains standard Fireproofing details for walls. Are these not necessary? Please confirm.

A84. There are no fire-rated partitions in the project; however, the building department tends to insist on UL Details being included in project submittals.

Q85. Plan Sheet A8.0 calls for using only a R-4.1 Foil insulation on all exterior CMU walls and a R-19 batt insulation layer on the ceilings. Both insulations seem to have an extremely low R value that is unusual in a LEED certified building, as Energy Efficiency is a high priority to obtain the credits required. Please confirm those are the R values required for the insulation in this project.

A85. If the materials that are being used during construction are more efficient, it is not a problem. They cannot be less efficient though. The following is the inputs used for the model:

- ***Roof Continuous R19 Batt insulation***
- ***Assembly U-factor 0.051***
- ***Roof solar reflectance 0.3***
- ***Roof thermal emittance 0.9***
- ***Above-Grade exterior wall: 6in CMU R4.1 foil insulation inboard***
- ***Assembly U-factor 0.155***
- ***lab-on grade floors: concrete slabs with no insulation with an F-factor of 0.730***
- ***Opaque doors: swinging doors, U-factor 0.70***
- ***Glazing U-factor:1.03, SHGC:0.3, VLT:0.53.***

Q86. Plan Sheets LD1.0 thru LD1.3 shows an LEED listing of possible credits to choose from, but Documents provided are missing the Matrix for the ACTUAL selected credits to obtain for this project to get the LEED certification required. Not only do we need to know which “construction related points” are being seek, but we need you to provide the Specifications Sections related to those points, including the minimum LEED requirement for the selected materials or services. Please provide Matrix showing selected LEED credits and Specifications Sections for the materials involved in the credits selected.

A86. The LEED Scorecard is attached, the construction-related credits are highlighted in orange, with the points that we will be tracking in the green “yes” column.

Q87. Will signed and sealed engineering shop drawings for exterior doors be required?

A87. Yes, typically the submittal for all exterior elements requires an engineered submittal to the Authority Having Jurisdiction.

Q88. Within the Volume I specifications, Division 08 is not included. Could you please confirm if you can provide it? Also, in case it is not available, would it be acceptable to propose an alternate manufacturer for the metal doors equivalent to the basis of design?

A88. All specifications are intended to be in the drawings.

Please be advised that product alternates or substitutions will not be reviewed during the bidding phase. The awarded contractor must follow the requirements as specified in products section 016000 in volume 1. If a product alternate is accepted, the contractor is responsible for any changes to the design, permit fees/revisions, and all impact to the surrounding work. MDPLS reserves the right to request a credit.

Q89. Could you please provide the specs for the bullnose and the cove base for the restrooms?

A89. PT-1 does not have a cove or bullnose. Tile to run continuously to the floor finish. Use the 12" Jolly trim in the matching color for the transition from the tile wall finish to the painted finish.

Q90. Are steel beams and columns in the trellis to be painted or prefinished? There are some uncertainties with the wording. Some are said to be wrapped, and others don't show the "typ" detail. Pages to reference: A3.2, S102, S301.

A90. The trellis is intended to be a prefinished aluminum installation. As a considerable amount of the trellis system is to appear as "floating" there are instances, as indicated on the architectural and structural drawings, where there will be steel members that are wrapped in aluminum to support the system. Other members, although structural to support themselves, are not structural for the support of the entire system. These members can be aluminum only. The GC shall provide engineered shop drawings for the system indicating all members, fasteners, etc.

Q91. The paper towel dispenser model B-36903 has been discontinued, please send us the new model to be installed.

A91. Per our Bobrick representative, the B36903 is still available in the Bobrick line. The Contractor should install per plans. Ensure the stud depth is sufficient for the recessed assembly.

Q92. Please confirm all openings shown on sheet S1.0 are being replaced.

A92. All openings are being replaced.

Q93. The drawing A1.1 refers to 10' mats (entry and walk-off). Could you please provide specs (material, colors, size) for this mats?

A93. Waterhog H-3143 Carpet Mats, 6'x10', 3/8" thick, color TBD by MDPLS.

Q94. Is it expected to have the roofing contractor do a dry-in on the new areas of the roof once the new structure is in place and then proceed to replace the remaining roof?

A94. The facility will be closed during construction and the contractor will have full use of the facility during construction. The scheduling of activities is the responsibility of the contractor as of means of methods for project completion.

Q95. Sheet A3.0 calls for 24 Ga Steel for the metal roof panels but sheet A0.0 calls for Aluminum 0.040" on the NOA list. Please confirm the type of material desired.

A95. Proceed per the NOA on the Cover Sheet A0.0

Q96. What is the minimum thickness of tapered insulation required on flat roofs?

A96. This minimum thickness would be per the manufacturer's warranty and recommendations for installation, as well as maintaining the required insulative value.

A97. Plan Sheet LA2.01 table showing "Miscellaneous" plantings calls for providing only 11,200 square feet of new solid sod areas, but actual areas of solid sod shown in plans provided add to about 19,400 S.F. Please clarify if we need to bid only the areas define in the table or the areas shown in plans.

A.97. The Contractor should consider the 19,400 s.f. of sod number to be the number to use for bidding purposes.

Q98. Plan E0.0 contains General Note #37 that calls for the contractor to provide only infrastructure, conduits with pull strings for the Telecom system, then it further sates that the wiring, devices and final connections are to be by Owner. This seems to be in conflict with other instructions calling for including a Design-Build package for Telecommunications. Please clarify note on plan.

A98. Refer to E-3.2 & refer to E5.0 for directions on fire alarm. If FA contractor confirms the system to be obsolete, MDPLS and the engineer must be notified immediately. All connections for Fire Alarm are part of the scope of work.

Q99. Plan E3.1 shows a large amount of proposed new floor power and data outlets, which will require extensive saw-cutting for all new floor boxes and conduits. Please provide details for repairs required at the existing concrete floor slab, specific for electrical conduits.

A99. Repairs are means & methods. Refer to ED-3.0 demolition notes.

Q100. Can you please confirm the project number that should appear on the bid bond? We noticed that on the addendum #5 it shows as "C23-MDPLS-02-ESP" and on the ITB and bond certification it shows as "C23-MDPLS-02-ML ESP" please advise which should appear on the bid bond form.

A100. This solicitation is Project No. C23-MDPLS-02-ML-ESP.

REMINDER:

Solicitation remains under the Cone of Silence. Please request information via email to: Cga@mdpls.org and copy the Clerk of the Board at clerkbcc@miamidade.gov.

Enclosures:

1. **Geotechnical report**
2. **Bid bond form**

END OF ADDENDUM NO. 6

Cc: Clerk of the Board (clerkbcc@miamidade.gov)
Lisa Thompson
Erik Myers

PROPOSED MIAMI LAKES BRANCH LIBRARY EXPANSION
LOCATED AT 6699 WINDMILL GATE ROAD
TOWN OF MIAMI LAKES, FLORIDA

REPORT OF SUBSURFACE EXPLORATION AND GEOTECHNICAL ENGINEERING EVALUATIONS

PREPARED FOR: ELM ARCH, LLC

PREPARED BY: GEOSOL, INC.

MAY 20, 2021

Elm Arch, LLC
8950 SW 74th Court, Suite 1204
Miami, Florida 33156

May 20, 2021

Attention: Mr. Angel Lopez, LEED AP – Architect

Re: **Report of Subsurface Exploration and Geotechnical Engineering Evaluations**
Proposed Miami Lakes Branch Library Expansion
Located at 6699 Windmill Gate Road
Town of Miami Lakes, Florida
GEOSOL Project No. 221115

Dear Mr. Lopez:

Geosol, Inc. (GEOSOL) has conducted the subsurface exploration program and geotechnical evaluations for the above-referenced project. The services were provided in accordance with our proposal No. P-221129 dated April 20, 2021. Authorization for our services was provided on April 26, 2021.

The results of our field exploration and laboratory testing programs for the proposed Miami Lakes Branch Library expansion as well as our geotechnical engineering evaluations are presented in the accompanying report.

We appreciate the opportunity to work with you on this project. Please do not hesitate to contact the undersigned if you have any questions about the report or if you need additional information.

Sincerely,

GEOSOL, INC.

5/20/21

Oracio Riccobono, P.E.
Chief Geotechnical Engineer / President
Florida License No. 49324

Adnan Ismail, P.E.
Senior Geotechnical Engineer
Florida License No. 76014

Juan C. Gonzalez, P.E.
Project Geotechnical Engineer
Florida License No. 88803

cc: Addressee
File

GEOSOL, Inc.
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Miami Lakes, FL 33014
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APPENDICES

1.0 INTRODUCTION AND PURPOSE

1.1 General

As we understand it, this project includes the expansion of the Miami Lakes Brach Library located at 6699 Windmill Gate Road in Miami Lakes, Florida. As we understand it, the proposed improvements will include three (3) building additions to the existing one (1) story building, restriping and repair of the existing parking lot, new landscaping, new walkways with benches and seating, and drainage improvements. A Site Vicinity Map is presented on Sheet 1 of Appendix "A".

Based on our discussions, geotechnical services were required to explore the subsurface conditions to obtain geotechnical data for use in the design and construction of the proposed improvements, and to perform geotechnical engineering analyses and evaluations to support the design and construction of the proposed improvements.

Geotechnical services were required to explore the subsurface conditions near the proposed improvements site. Specifically, the geotechnical services included the performance of Standard Penetration Test (SPT) boring in the vicinity of the proposed improvements to characterize the subsurface conditions near the proposed improvements. Also, borehole percolation tests were performed to determine the hydraulic conductivity (k) values for use in drainage evaluations and design. The results of the field exploration and laboratory testing programs were used to investigate the subsurface and groundwater conditions and to provide geotechnical engineering analyses and evaluations for the proposed construction. The design of temporary ground support systems for excavation (if required) is not part of our scope of services and we are assuming it will be performed by others.

The geotechnical services for this phase of the project were limited to the performance of field exploration and laboratory testing programs, and the performance of a geotechnical engineering analysis and foundation evaluation for the proposed library expansion.

1.2 Purpose

The purpose of this study was to evaluate the underground conditions (i.e. subsurface and groundwater) in light of the proposed improvements. This report presents the results of our field exploration, laboratory testing, geotechnical engineering evaluations, and considerations for the proposed design and construction.

2.0 SCOPE OF STUDY

In preparation of this geotechnical report we provided the following services:

- Discussing and coordinating with Elm Arch, LLC (EAL) the geotechnical scope of services.
- Obtaining utility clearance notifications from Sunshine State One Call of Florida.
- Performing three (3) Standard Penetration Test (SPT) borings to depths of 25 feet below existing grades for the proposed library building additions (one at each building addition location),
- Performing four (4) borehole percolation tests to depths of 15 feet below existing grades to determine the hydraulic conductivity (k) values for use in drainage evaluations and design.
- Measuring groundwater levels at the test boring location.
- Backfilling the borehole using grout and restoring the site to its original condition.
- Visually examining and classifying all recovered soil samples obtained from the field in the laboratory using the Unified Soil Classification System (USCS) in accordance with ASTM test designation D-2488, titled "Standard Procedure for Description and Identification of Soils (Visual-Manual Procedure)" and ASTM D-2487 titled "Standard Test Method for Classification of Soils for Engineering Purposes".
- Performing laboratory classification testing which consisted of grain-size analysis, percent passing the No. 200 sieve, moisture content, organic content, and environmental classification testing on selected representative samples.
- Evaluating the results of the SPT boring information.
- Providing discussion of critical design or construction considerations based on the subsurface and groundwater conditions developed from the results of the geotechnical investigations.
- Preparing a geotechnical engineering report summarizing the field testing data, subsurface and groundwater conditions, as well as our geotechnical evaluations and recommendations for the site preparation and foundation construction.

3.0 FIELD EXPLORATION

3.1 General

The field exploration program consisted of the performing of SPT borings and borehole percolation testing as follows:

- A total of three (3) SPT borings (B-1 through B-3) to depths of 25 feet below existing grades for the proposed library building additions (one at each building addition location), and

- A total of four (4) borehole percolation tests (P-1 through P-4) to depths of 15 feet below existing grades to determine the hydraulic conductivity (k) values for use in drainage evaluations and design.

The field exploration program was performed between May 7 and 10, 2021.

A summary of the test boring locations is presented in Table 1 of Appendix "A" as well as in plan view on Sheet 4 in Appendix "A". The Report of Core Boring sheet is shown on Sheet 5 in Appendix "A". These sheets present the boring location information, subsurface conditions and groundwater levels encountered at the time of drilling. In addition, these profiles present the results of the laboratory testing on selected representative soil, rock and groundwater samples.

3.2 Field Test Locations

The test boring locations were marked in the field by representatives of GEOSOL utilizing the plans provided by EAL, standard taping procedures and existing landmarks. The locations for each test location were obtained by utilizing a hand-held Global Positioning System (GPS) device and should be considered approximate to within a few feet. The latitude and longitude coordinates obtained with a GPS device (Garmin eTrex 20X) were converted to northing and easting coordinates utilizing the software "Corpscon" developed by the United States Army Corps of Engineers. The ground surface elevation at the test boring location have not been provided to us. All test locations should be considered approximate. The approximate test boring locations are presented in Table 1 and in the Test Location Plan presented in Appendix "A".

3.3 Site Conditions

The site of the proposed structures is located at the northeast corner of the intersection of Windmill Gate Road and NW 67th Avenue in Miami Lakes, Florida. We have appended a site vicinity map and a USDA soil survey map, which identify the location of the study area and soils survey of the area. These maps are presented in Sheets 1 and 2 of Appendix "A".

3.4 Standard Penetration Test (SPT)

The SPT borings performed on land were drilled utilizing a truck-mounted drill rig (Foremost-Mobile model B-53) equipped with a recently calibrated automatic hammer. The SPT boring procedure was conducted in general conformance with ASTM D-1586. After seating the sampler six (6) inches, the number of successive blows required to drive the sampler twelve (12) inches into the soil constitutes the test result commonly referred to as the "N" -value. The "N"-value has been empirically correlated with various soil properties and is considered to be indicative of the relative density of cohesionless soils and the consistency of cohesive soils. The N-value information for each SPT boring is presented in the Report of Core Boring sheet. The recovered split spoon samples from the SPT borings were visually classified in the field with representative portions of the samples placed in jars and transported to our office for review by a Geotechnical Engineer and verification of the field classification.

3.5 Borehole Percolation Testing

The percolation testing was performed in general accordance with the South Florida Water Management District (SFWMD) "Usual Open-Hole" constant head method. The tests were performed to determine the hydraulic conductivity value (k) of the subsurface materials at depths of 15 feet below the existing ground surface. The boreholes were drilled by means of a 6 ¾ -inch diameter tri-cone bit and water. Upon drilling each borehole, a 6-inch diameter perforated PVC pipe was inserted in the ground and used a pump for purging the well prior the start of the test. After completion of the percolation tests, the boreholes were backfilled with grout and the site was restored as required. The hydraulic conductivity values (k) were determined from the results obtained during the field testing. The hydraulic conductivity values are reported in units of cubic feet per second per square foot of seepage area per foot of head (cfs/ft^2-ft.). The test results are presented in Table 4 in Appendix "C".

3.6 Water Level Measurements

Water level depths were obtained during the SPT boring operations. They are noted on the Report of Core Boring sheet presented in Appendix "A". In relatively pervious soils/rocks, such as sandy soils and porous limestone, the indicated depths are reasonably reliable groundwater levels at the time of field investigation. Seasonal variations, temperature, land-use, and recent rainfall conditions may influence the depths of the groundwater.

4.0 LABORATORY TESTING

4.1 General

Representative samples collected from the test boring were visually reviewed in the laboratory by a geotechnical engineer to confirm the field classifications. The soil samples from the borings were then classified using the Unified Soil Classification System (USCS) in general accordance with the American Society of Testing and Materials (ASTM) test designation D-2488, titled "Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)" and ASTM D-2487 titled "Standard Test Method for Classification of Soils for Engineering Purposes". The classification was based on visual observations with the aids of a laboratory testing which consisted of grain-size analysis, moisture content percent passing the #200 sieve, and organic content testing. A summary of the laboratory classification test results are presented in Table 2 of Appendix "B". Also, FDOT environmental classification testing was performed on a water sample obtained from an SPT boring location performed for this project. The environmental classification test results are summarized in Table 3 of Appendix "B".

4.2 Moisture Content

Laboratory moisture content test consists of the determination of the percentage of moisture contents in selected samples in general accordance with FDOT Test Designation FM1-T265 {ASTM Test Designation D-2216, titled "Laboratory Determination of Water (Moisture) Content of Soil, Rock, and Soil-Aggregate Mixtures"}. Briefly, the moisture content is determined by weighing a sample of the selected material and then drying it in a warm oven. Care is taken to use a gentle heat so as not to destroy any organics. The sample is removed from the oven and reweighed. The difference of the two weights is the amount of moisture removed from the sample. The weight of the moisture divided by the weight of the dry soil sample is the percentage by weight of moisture in the sample. The moisture content test results are presented in Appendix "B".

4.3 Grain-Size Analysis

The grain-size analyses were conducted in general accordance with the ASTM Test Designation D-6913, titled "Test Methods for Particle-Size Distribution (Gradation) of Soils Using Sieve Analysis". The grain-size analysis test measures the percentage passing a set of sieves. In this manner, the grain-size distribution of a soil is measured. A summary of these test results are presented on Table 2 in Appendix "B". The grain-size analysis curves are presented in Appendix "B".

4.4 Percent Passing No. 200 Sieve

The grain-size analyses were conducted in general accordance with the FDOT Test Designation FM1-T88 (ASTM Test Designation D-422, titled "Particle-Size Analysis of Soils"). The particle-size analysis test measures the percentage passing the No. 200 Sieve. In this manner, the particle-size amount of a soil is measured. The percentage by weight passing the No. 200 Sieve is the amount of silt and clay sized particles. The test results are presented in Appendix "B".

4.5 Organic Content

Organic content test consists of the determination of the percentage of organic content in selected samples in general accordance with FDOT Test Designation FM1-T267 (ASTM Test Designation D-2974, titled "Moisture, Ash, and Organic Matter of Peat and Other Organic Soils"). Briefly, the organic content is determined by weighing a sample of the selected material and then burning off the organic material in a hot oven. The sample is removed from the oven and re-weighed. The difference of the two weights is the amount of organic material removed from the sample. The weight of the organic material divided by the weight of the dry soil sample is the percentage by weight of organic material in the sample. The organic content test results are presented in Appendix "B".

4.6 Environmental Classification Testing

As requested, GEOSOL performed environmental corrosion testing on water samples collected from SPT boring locations performed for this project. Environmental corrosion tests include parameters such as pH, resistivity, sulfate content and chloride content. The environmental corrosion tests were conducted in general accordance with the FDOT Test Designations FM5-550, 5-551, 5-552, and 5-553. Based on the laboratory test results and the FDOT's "Structures Design Guidelines", Section 1.3, the environment in the vicinity of the proposed improvements can be classified as moderately aggressive for the substructure and as slightly aggressive for any above ground superstructures. The results of the environmental classification testing are presented in Table 3 of Appendix "B".

5.0 GENERALIZED SUBSURFACE CONDITIONS

5.1 Regional Geology

The Miami area of southern Florida is underlain by an alternating sequence of cemented and uncemented Pleistocene sedimentary deposits (Pleistocene Epoch, deposited 10,000 to 2 million years before the present). A near surface Miami Limestone Formation is underlain by a wide variety of loose to dense quartz sands and coarse to fine-grained hard to very hard limestones and sandstones (Fort Thompson Formation). However, in many portions of Miami-Dade, surface sand deposits of the Pamlico Formation and man-made (artificial) fill are encountered. The Pamlico sands and man-made (artificial) fill have a thickness of approximately three (3) to seven (7) feet and overlie the Miami Limestone Formation. In the west part of the county, portions of the Everglades interfingers with the Pamlico sands. The Everglades soils consist of peat organic silt and calcareous silt marl. The Everglades soils also have a thickness of three (3) to seven (7) feet and overlie the Miami Limestone Formation.

Although the Miami Limestone Formation can be very porous and have a sponge-like, open interconnected network of vugs and small voids, large cavities do not exist and there is no potential for sinkhole activity. The rock formations encountered in the Miami area are typically much softer than the "bedrock" formations encountered in other areas of the country. The strength of the limestone as well as its deformation characteristics depends upon the degree of cementation of the formation and its alteration by solutioning and weathering subsequent to deposition. One of the most important characteristics of the limestone encountered in the project area is the degree of erosion. Past surface solutioning of the limestone has resulted in the formation of a "pinnacle rock" surface. In some cases nearly vertical cylindrical-shaped solution cavities are filled with surficial fine sands extending below the groundwater level. The subsurface conditions encountered at the site are presented in the following section.

5.2 Miami-Dade County Soil Survey

The Soil Survey of Miami-Dade County Area, Florida, published by the United States Department of Agriculture (USDA), was reviewed for general near-surface soil information within the general project vicinity. This information indicates that there is one (1) primary mapping unit for this project. The map soil unit encountered is as follows:

- Urban Land, 0 to 2 percent slopes (15)

A reproduction of the USDA Soils Survey map for the project area is illustrated in Sheet 2 of Appendix "A" of this report.

6.0 SITE SUBSURFACE CONDITIONS

6.1 General

The subsurface conditions encountered in the vicinity of the foundation locations are generally consistent with the previously described regional geology. Detailed information is presented in the form of Report of Core Boring Sheets in Appendix "A". The stratification shown is based on visual examination of recovered samples and interpretation of the field logs by a geotechnical engineer. The soil/rock types shown represent observations made in the test borings and may not reflect variations between the borings and beyond the depths explored. Variations may occur within a short distance from the borings. Lines of demarcation represent the approximate boundary between the types of materials encountered, but the transition may be gradual, or not clearly defined. It is to be noted that, whereas the test borings are drilled and sampled by experienced drillers, it is sometimes difficult to record changes in stratification within narrow limits. Table "A" below presents a general description of the materials encountered during our study.

TABLE "A" – SUMMARY OF GENERALIZED SUBSURFACE STRATIGRAPHY

STRATUM No.	DEPTH INTERVAL (FEET)	MATERIAL DESCRIPTION	USCS SYMBOL
1	0 to 0.5	Dark Brown Organic Silty Fine SAND with Grass (Topsoil)	OL
2	0.5 to 5.8	Brown Slightly Silty Fine to Medium SAND with Trace to Some Limerock Fragments (FILL)	SP/SP-SM
3	5.8 to 13.0	Brown Sandy LIMESTONE	N/A
4	8.0 to 25.0	Brown Slightly Silty Fine to Medium SAND with Trace to Some Limestone Fragments	SP/SP-SM

6.2 Groundwater Conditions

The groundwater table was measured at each boring location immediately following completion of drilling operations performed between May 7 and 10, 2021. The borings performed for this phase of the project were done during the dry season. The "static" groundwater table in each test location was measured after a short stabilization period. The groundwater depths encountered ranged from about 5.0 to 6.3 feet below existing grades, with an average of about 5.8 feet. Given the granular nature of the soils and type of limestone formation, we consider the recorded levels to stabilize in a short time and to be reasonably reliable. The Report of Core Boring sheets presented in Appendix "A" show the groundwater table information at each boring location.

In relatively pervious soil/rock, such as granular soils and porous limestone, the indicated depths are reasonably reliable groundwater levels. Fluctuation in the observed groundwater levels should be expected due to rainfall variation, construction activity and other factors.

6.3 Estimated Seasonal High Water Level

The estimated seasonal high water table each year is the level in the August-September period at the end of the rainy season during a year of average (normal) rainfall. The water table elevations associated with a flood would be much higher than the seasonal high water table elevations. The normal high water levels would more approximate the seasonal high water table elevations. The seasonal high water table is affected by a number of factors. The drainage characteristic of the soils, the land surface elevation, relief points such as lakes, canals, swamp areas, etc., and distance to relief points are some of the more important factors influencing the seasonal high water table elevation.

It is to be noted that the test borings for this project were performed during the dry season. Therefore, based on our interpretation of the site conditions using the results of our test boring data, we estimate that the normal seasonal high water table is about 6 to 12 inches above the water levels shown at the boring locations.

7.0 GEOTECHNICAL PARAMETERS FOR FOUNDATION DESIGN

The geotechnical design parameters for this study were obtained on the basis of empirical relationships between the SPT "N"-values and the shear strength of the soil strata, statistical evaluation of the field data, in general accordance with the FDOT's *Soils and Foundations Handbook*, literature review, and our local experience and literature review. Table "B" on the following page presents the recommended soil/rock parameters for use in the design of temporary ground support systems for the excavations at the project site.

TABLE "B"- SUMMARY OF GEOTECHNICAL DESIGN SOIL/ROCK PARAMETERS

General Material Description	Unit Weight γ (pcf)		Friction Angle (ϕ) Degrees	Cohesion (C) PSF	Earth Pressure Coefficients		
	Total	Effective			Active (Ka)	Passive (Kp)	At-Rest (Ko)
Granular Fill (Stratum 2)	115	53	32	-	0.28	4.65	0.47
Natural Limestone (Stratum 3)	120	58	36	-	0.24	5.95	0.41
Natural Sand (Stratum 4)	115	53	32	-	0.28	4.65	0.47

Note: Stratum 1 is the topsoil.

8.0 FOUNDATION ANALYSES AND EVALUATIONS FOR PROPOSED LIBRARY EXPANSION

8.1 General

Based on our review of the information provided to us, we understand that this project includes the design and construction of three (3) building additions to the existing one (1) story Miami Lake Branch Library building.

A total of three (3) SPT borings (B-1 through B-3) were performed for the proposed building additions to depths of 25 feet below existing grades. Results of this study indicate that the site is generally suitable for the construction of the proposed building additions when viewed from a geotechnical engineering perspective.

Geotechnical analysis and evaluations for foundation design and related construction are presented in subsequent sections of this report. Specifically, we have provided design and construction criteria for supporting the proposed community center on conventional shallow foundations. The conventional shallow foundations may bear on compacted select structural fill. Design criteria for the conventional shallow foundations and slab-on-grade are provided in the following section of the report.

8.2 Conventional Shallow Foundations Design and Construction Considerations

8.2.1 Foundation Design

Based on the results of our subsurface exploration and foundation evaluations, conventional shallow foundations are suitable for the support of the proposed community center after proper site preparation.

For footings resting on acceptable compacted structural fill materials, the site preparation recommendation presented in this report must be properly implemented. Additional criteria regarding footing design and construction is presented in the following sections of the report.

8.2.2 Footings Bearing on Compacted Structural Fill Materials

The shallow foundations may bear on the surface of acceptable compacted structural fill. Preparation of the site to receive the new construction should include removal of any existing topsoil, substructures, grass, roots and/or vegetation system. We recommend that the footings bearing on acceptable compacted structural fill be designed using a maximum allowable bearing capacity of 3,000 psf with a minimum footing width of three (3) feet.

We recommend that the footings supporting foundations have a minimum width of three (3) feet and that continuous footings have a minimum width of 18- inches, even if that dimension produces a bearing pressure less than the allowable. The purpose of limiting the minimum footing size is to prevent a "punching" shear failure and to reduce the possibility of bearing on an isolated weak zone. The minimum footing cover required is 24-inches.

Foundations subject to transient lateral loads will resist these forces through a combination of base shearing resistance mobilized at the footing-subgrade interface and earth pressure acting on the vertical faces of the footings at right angles to the direction of applied load. Base shearing resistance should be determined using a friction factor of 0.50. Earth pressure resistance should be computed using an equivalent fluid pressure of 25 pounds per square foot per foot of depth, for granular backfill material. Resistance to sliding determined in accordance with the above should be considered available/ultimate resistance. Accordingly, the design for the sliding should include a factor of safety. We recommend that factor of safety of at least 1.5 be used.

To calculate the resistance of shallow foundations to uplift forces, a prismatic failure block with vertical faces should be assumed above the footing base. The resisting forces will be provided by the combination of footing weight, overburden soil weight in the failure block, and shearing resistance along the faces of the soil block. The weight of the soil above the water table should be taken as 115 pounds per cubic foot (pcf). For submerged soil, a buoyant weight of 53 pcf should be used. The factor of safety against uplift should not be less than 1.5.

8.2.3 Settlement Potential

The amount of settlement that shallow foundations founded on top of acceptable compacted structural fill or compacted existing soils will experience is primarily governed by the compressibility of the acceptable compacted structural fill or compacted existing soils, the sizes and depths of the foundations, and the pressure imposed on the supporting materials. We have compared the data obtained from the SPT borings performed with our foundation design experience with similar structures founded on top of acceptable compacted structural fill or compacted existing soils. Footings designed with the criteria in Sections 8.2.1 and 8.2.2. and constructed in the manner recommended in Section 9.0. are estimated to sustain maximum total settlements in the range of one (1) inch, which corresponds to the maximum allowable bearing pressures of about 3,000 psf. Differential settlements between adjacent footings are expected to be one-half of the total settlement, i.e. ½-inch.

The acceptable compacted structural fill or compacted existing soils which will provide support to the foundations, have low compressibility and any settlement due to pressure applied by the foundations is likely to occur almost immediately upon application of the loads. In this case, nearly all of the settlement of the foundations due to dead loads is expected to take place during construction. The portion of the settlement due to the live loadings of the structure will generally take place soon after the first application of this load.

8.3 Floor Slab

The procedures described in "Site Preparation" section of this report shall be used to prepare the floor slab subgrade. Ground floor slabs can bear directly on acceptable compacted structural fill materials. Slab-on-grade construction may then be employed for ground floors. The floor slabs should be suitably reinforced to make it as rigid as practical. Proper joints should be provided at the junctions of the slabs with the walls and columns so that a small amount of independent movement can occur without causing damage. A modulus of subgrade reaction (k) value of 150 pounds per cubic inch (pci) may be used for slab-on-grade design when lying on structural fill materials that have been compacted to at least 95% of the modified Proctor maximum dry density determined by ASTM D-1557.

If moisture intrusion into the floor slabs is not desired, an impermeable membrane should be installed on the soil subgrade before the slabs are cast. Normally, a 6-mil thick polyethylene film is satisfactory as a subgrade moisture barrier. However, some floor coverings may have a comparatively sensitive tolerance to moisture flux that a thin polyethylene film cannot suppress. Under these conditions, other types of moisture membranes may need to be considered.

9.0 CONSTRUCTION CONSIDERATIONS

9.1 Shallow Foundation Construction

The shallow foundations may bear on the surface on acceptable compacted structural fill or compacted existing soils. For foundations bearing on acceptable compacted structural fill or compacted existing soils, it is recommended that the structural fill or existing soils at the bottoms of the foundations excavations be compacted in-place. These materials should be compacted to achieve no less than 95% of the modified Proctor maximum dry density determined by the ASTM designation D-1557. If the foundation bearing materials become disturbed due to surface water resulting from precipitation and runoff, the disturbed soils should be overexcavated and replaced with structural fill as specified in Section 9.2.8 of this report.

9.2 Site Preparation for Shallow Foundation

We recommend that any existing unsuitable materials such as asphalt/concrete pavement, substructures, topsoil, grass and vegetation system be stripped from the proposed construction areas. In addition, any underground utilities that might exist within the structure footprints should be entirely removed and replaced with structural fill. After stripping is completed, the surface soils at the proposed structure areas should be leveled and densified prior to the placement of the subfloor fill. Where the above site preparation procedures created excavations below the final proposed grade, the excavations should be brought to final grade with structural fill as specified in Section 10.4 of this report.

9.3 In-Situ Densification of Soils

Compaction of the in-place soils should be performed in the proposed construction footprint plus a 5-foot wide perimeter extending beyond the outer lines of the structure/court areas, where practical. Any compaction taking place within a distance of 25 feet from any existing structure or utility should be compacted with a vibratory plate or small walk behind vibratory roller to avoid damage to any existing utility of structure.

Compaction of the bearing surface soils should continue until no further vertical settlement of the surface is visually discernible. Density control should be exercised in the upper 12 inches of the subgrade (if feasible). Soils in this interval should be compacted to 95% of the modified Proctor maximum dry density determined per ASTM D-1557. Addition of moisture by frequent wetting of the subgrade may be necessary during the rolling operations to prevent drying and loosening of the upper 6 to 12 inches of soil.

9.4 Structural Fill and Backfill

Proper control of the placement and compaction of new fills for the project should be exercised by a representative of the Geotechnical Engineer. The fill materials should be placed in lifts not exceeding 12 inches in loose thickness. Each lift should be compacted to a minimum of 95% of the modified Proctor maximum dry density near the optimum moisture content as determined by ASTM D-1557. Fill to be compacted with a vibratory plate or a small walk behind vibratory roller should be placed in lifts not exceeding six (6) inches in loose thickness.

It is imperative that any fill supporting floor slabs be placed, compacted and tested in accordance with the specifications of this report. The tests should be performed by a qualified soils technician working under the supervision of a Geotechnical Engineer in accordance with appropriate ASTM procedures. Any fill indicating less than the recommended relative compaction should be re-compacted until the required density is obtained prior to the placement of subsequent lifts or concrete for the substructure.

The structural fill should be free of organic matter and consist of granular material containing less than 12 percent material passing the No. 200 mesh sieve. The fill material may be composed of either clean sand and/or crushed limerock. The structural fill should have a Unified Soil Classification System (USCS) designation of SP, SW, SP-SM or SW-SM. If crushed limerock fill is used, it should have no particle size in excess of three (3) inches. If structural fill is to be placed below the groundwater, it should consist of crushed limerock and should have a USCS designation of GP or GW.

9.5 Excavation Recommendations

The proposed improvements will likely require excavation of the existing subsurface materials. Temporary excavation side slopes of 1V: 2H in the granular subsurface materials (Strata 2 and 4), and 1V: 1H in the natural limestone (Stratum 3) are stable and have a minimum factor of safety of 1.3. If steeper sides are used, the excavations will require the need of temporary ground support systems in order to maintain the stability of the excavations and for safety reasons. Based on the results of the soil boring, an unsupported vertical cut is not considered stable or safe during construction. An unsupported vertical cut will cause cracks at the grade surface and on the surface of the asphalt-paved roadway because the angle of repose of the granular soils will be exceeded and a failure surface will develop behind the vertical face of the excavation. The existing subsurface materials may be excavated using conventional excavation equipment. It is to be noted that the natural limestone formation may require special equipment to excavate and/or penetrate. The temporary ground support system should be in conformance with the Occupational Safety and Health Administration (OSHA) Standards. The soil/rock parameters presented in Table "B" may be used for design of the temporary ground support system. Materials removed from the excavation should not be stockpiled immediately adjacent to the cut, inasmuch as this load may cause a sudden collapse of the temporary ground support system.

9.6 Ground Water Control

Dewatering may be required during excavation depending on the construction technique used and the time of the year when the construction occurs. Successful removal of the existing subsurface materials may necessitate that the work be performed in-the-dry, thereby requiring temporary lowering of the groundwater table in the proposed excavation areas. De-watering involves lowering the ambient groundwater table below the existing groundwater levels. This may be accomplished through use of a wellpoint system or submersible pump. The water from the on-site dewatering operations should be directed to a suitable discharge point and must be adequate to satisfy any local, state or federal regulatory agency. Any dewatering system shall be designed by a professional engineer registered in the State of Florida.

During foundation construction and initial concrete curing area, water levels should be maintained at least 1 foot below the foundation bearing elevation. It is to be noted that the natural limestone formation maybe difficult to dewater, and that a well point system may be required.

10.0 ON SITE SOIL SUITABILITY

All materials to be used for backfill or compacted fill construction should be evaluated and, if necessary, tested by The Contractor prior to placement to determine if they are suitable for the intended use. In general, based on the boring results, the majority of the on-site granular fill materials can be used as general subgrade fill and backfill in the proposed structures areas, provided that it is free of rubble, clay, rock, roots and organic matter. Suitable structural fill materials should consist of limerock and fine to medium sand with less than twelve (12) percent passing the No. 200 sieve, free of rubble, organics, clay, debris and other unsuitable material. Any off-site materials used as fill should be approved by The Contractor prior to acquisition.

11.0 REPORT LIMITATIONS

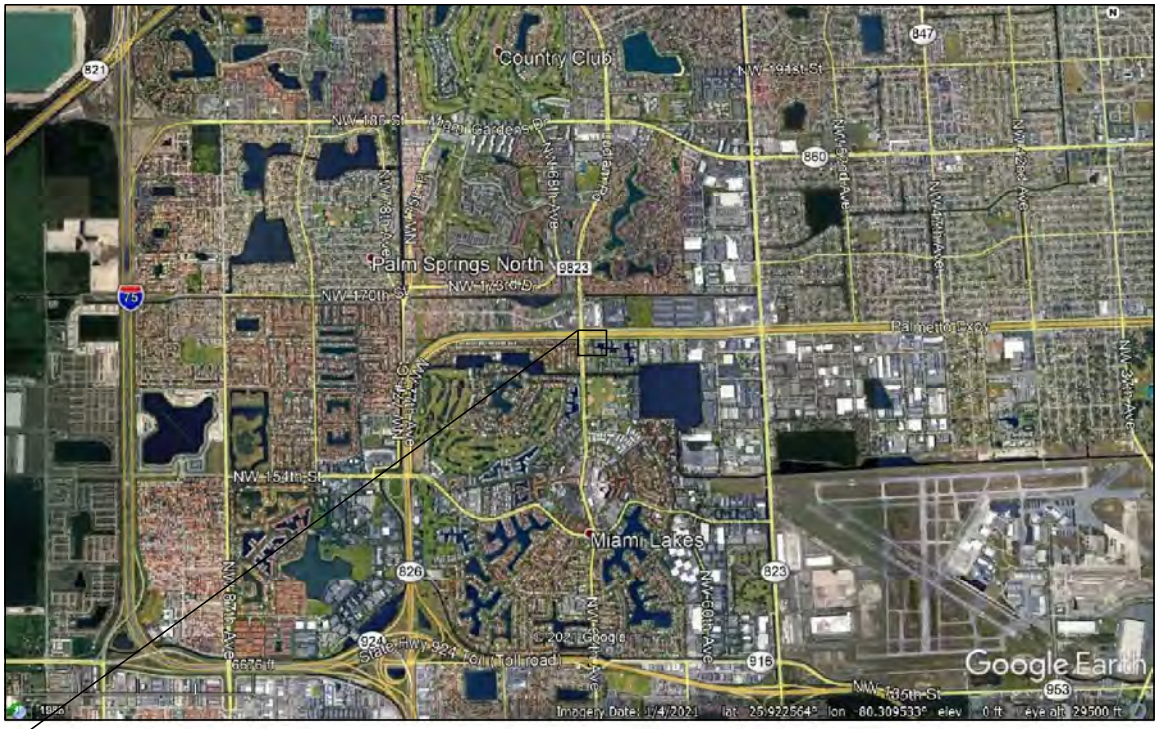
Our professional services have been performed, our findings obtained, and our analyses and evaluations prepared in accordance with generally accepted geotechnical engineering principles and practices. This company is not responsible for the conclusions, opinions or recommendations made by others based on these data. No other warranties are expressed or implied.

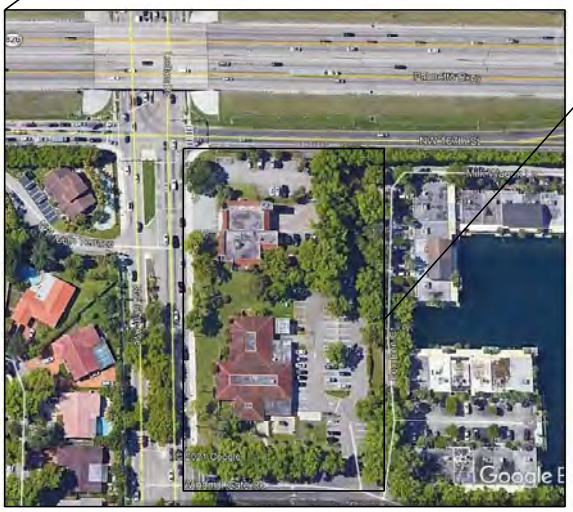
The scope of the investigation was intended to specifically evaluate subsurface conditions within the influence of the proposed project. The analyses and evaluations submitted in this report are based upon the data obtained from the test boring performed at the locations indicated. If any subsoil variations become evident during the course of this project, a re-evaluation of the analyses and evaluations contained in this report will be necessary after we have had an opportunity to observe the characteristics of the conditions encountered. The applicability of the report should also be reviewed in the event significant changes occur in the design.

The scope of our services does not include any environmental assessment or investigation for the presence or absence of hazardous or toxic materials in the soil, groundwater, or surface water within or beyond the site studied. Any statements in this report regarding odors, staining of soils, or other unusual conditions observed are strictly for the information of our client.

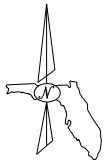
APPENDIX "A"

Sheet 1: Site Vicinity Map
Sheet 2: USDA Soils Survey Map
Sheet 3: USGS Map
Table 1 – Summary of Test Boring Locations
Sheet 4: Test Location Plan
Sheet 5: Report of Core Borings





APPROXIMATE SITE LOCATION



SITE VICINITY MAP

COUNTY: MIAMI-DADE, FLORIDA

REFERENCE: GOOGLE EARTH, 2021

DATE: MAY, 2021

SITE VICINITY MAP

PROPOSED MIAMI LAKES BRANCH LIBRARY EXPANSION
LOCATED AT 6699 WINDMILL GATE ROAD
TOWN OF MIAMI LAKES, FLORIDA

DRAWN	SCALE	PROJ. No.
EM	N.T.S.	22115
CHECKED	DATE	
OR	MAY, 2021	SHEET 1

APPROXIMATE SITE LOCATION

USDA SOILS SURVEY MAP

MAP UNIT	SOIL NAME
15	Urban land, 0 to 2 percent slopes

COUNTY: MIAMI-DADE, FLORIDA

REFERENCE: NRCS WEB SOILS SURVEY, 2020

DATE: MAY, 2021

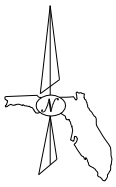
USDA SOILS SURVEY MAP

PROPOSED MIAMI LAKES BRANCH LIBRARY EXPANSION
LOCATED AT 6699 WINDMILL GATE ROAD
TOWN OF MIAMI LAKES, FLORIDA

DRAWN	SCALE	PROJ. No.
EM	N.T.S.	22III5
CHECKED	DATE	SHEET
OR	MAY, 2021	2

APPROXIMATE SITE LOCATION

US GEOLOGIC SURVEY MAP



COUNTY: MIAMI-DADE COUNTY, FLORIDA

REFERENCE: OPA-LOCKA, FL
U.S. GEOLOGIC SURVEY, 2021

DATE: MAY, 2021

US GEOLOGIC SURVEY MAP

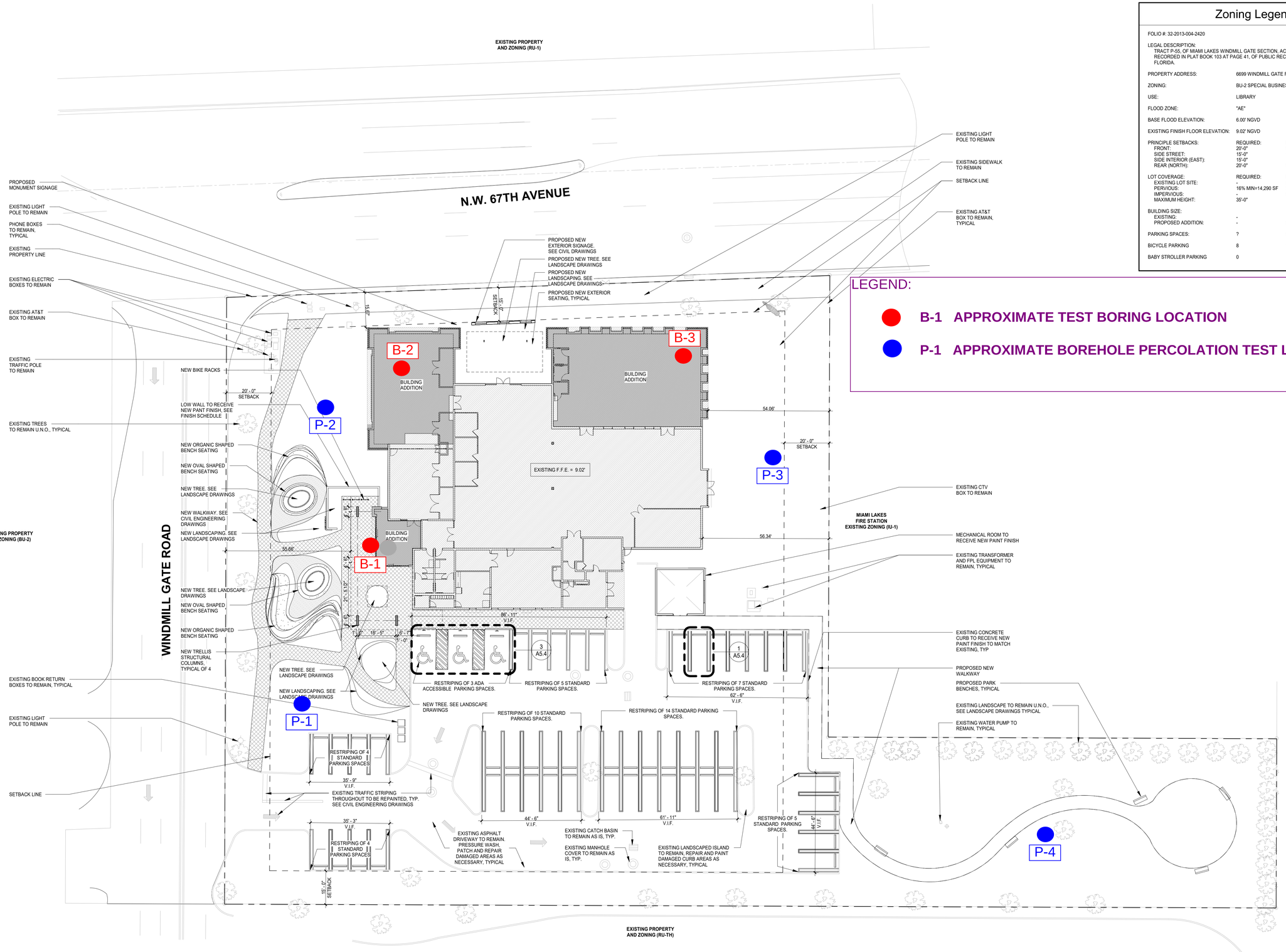
PROPOSED MIAMI LAKES BRANCH LIBRARY EXPANSION
LOCATED AT 6699 WINDMILL GATE ROAD
TOWN OF MIAMI LAKES, FLORIDA

DRAWN	SCALE	PROJ. No.
EM	N.T.S.	22111S
CHECKED	DATE	
OR	MAY, 2021	SHEET 3

PROPOSED MIAMI LAKES BRANCH LIBRARY EXPANSION
LOCATED AT 6699 WINDMILL GATE ROAD
TOWN OF MIAMI LAKES, FLORIDA
GEOSOL Project No. 221115

TABLE 1 - SUMMARY OF TEST BORING LOCATIONS

BORING / TEST No.	APPROXIMATE TEST LOCATION (FEET)				GROUND SURFACE ELEVATION (FEET)
	NORTHING	EASTING	LATITUDE	LONGITUDE	
B-1	578386	883338	25.923226	-80.308812	N/A
B-2	578410	883246	25.923295	-80.309091	N/A
B-3	578548	883240	25.923674	-80.309110	N/A
P-1	578375	883398	25.923195	-80.308630	N/A
P-2	578378	883269	25.923206	-80.309024	N/A
P-3	578583	883290	25.923769	-80.308955	N/A
P-4	578701	883457	25.924093	-80.308446	N/A



1 A0.2 Site Plan
Scale: 1" = 20'-0"

Zoning Legend:

FOLIO #: 32-2013-004-2420

LEGAL DESCRIPTION:
TRACT P-55, OF MIAMI LAKES WINDMILL GATE SECTION, ACCORDING THE PLAT THEREOF AS RECORDED IN PLAT BOOK 103 AT PAGE 41, OF PUBLIC RECORDS OF MIAMI-DADE COUNTY, FLORIDA.

PROPERTY ADDRESS:	6699 WINDMILL GATE RD , MIAMI LAKES, FL 33014	
ZONING:	BU-2 SPECIAL BUSINESS DISTRICT	
USE:	LIBRARY	
FLOOD ZONE:	"AE"	
BASE FLOOD ELEVATION:	6.00' NGVD	
EXISTING FINISH FLOOR ELEVATION:	9.02' NGVD	
PRINCIPLE SETBACKS:	REQUIRED:	PROVIDED:
FRONT:	20'-0"	57.76' PROPOSED
SIDE STREET:	15'-0"	15.76' PROPOSED
SIDE INTERIOR (EAST):	15'-0"	132.10' EXISTING
REAR (NORTH):	20'-0"	51.96' EXISTING
LOT COVERAGE:	REQUIRED:	PROVIDED:
EXISTING LOT SITE:	-	89,311 SF
PERVIOUS:	16% MIN=14,290 SF	39,095 SF
IMPERVIOUS:	-	50,216 SF
MAXIMUM HEIGHT:	35'-0"	
BUILDING SIZE:		
EXISTING:	-	10,661 SF
PROPOSED ADDITION:	-	5,331 SF
PARKING SPACES:	?	52
BICYCLE PARKING	8	11
BABY STROLLER PARKING	0	

LEGEND:

B-1 APPROXIMATE TEST BORING LOCATION

P-1 APPROXIMATE BOREHOLE PERCOLATION TEST LOCATION

ELM ARCH
8950 SW 74TH Court
Suite 1204
Miami, FL 33156
786-391-2646
Qualifier: Erik Lloyd Myers
State of Florida: AR 93574

Sign & Seal: Erik Lloyd Myers
State of Florida: AR 93574

OWNER:

Miami Lakes Branch Library
6699 Windmill Gate Road
Miami Lakes, FL 33014

TITLE: Site Plan

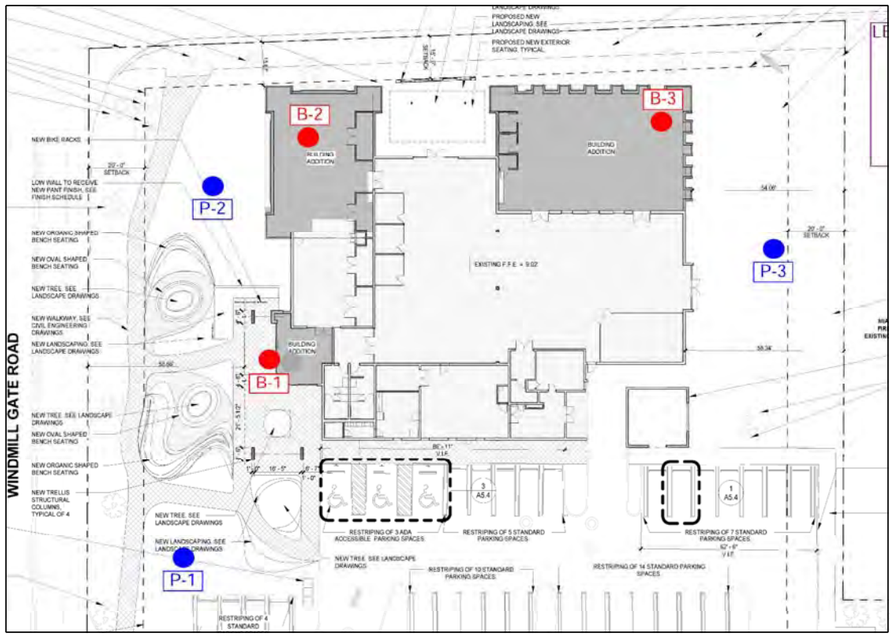
FOR REVIEW ONLY
03-16-21
NOT FOR CONSTRUCTION

REVISION

DATE
03-16-21

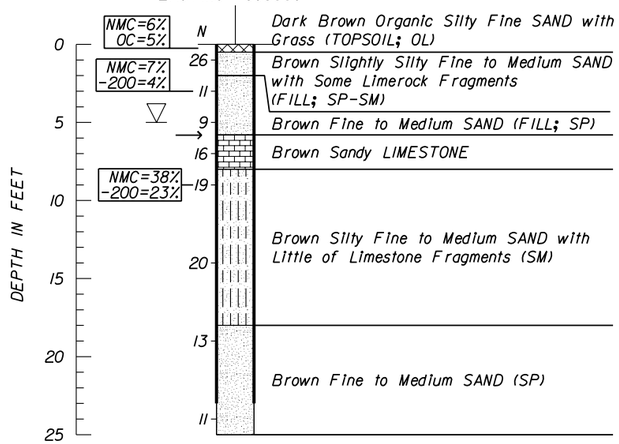
PROJECT NUMBER

SHEET NUMBER
4



BORING LOCATION PLAN

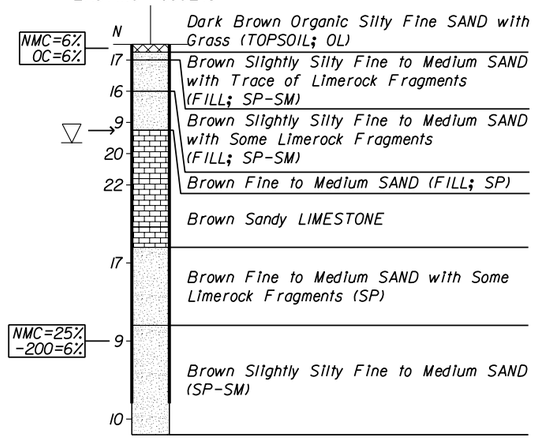
BOR # B-1
ELEV. N/A
DATE 5/7/2021
DRILLER R.Morales
HAMMER B-53
RIG Auto
LATITUDE 25.923226
LONGITUDE -80.308812
NORTHING 578386
EASTING 883338



Boring Terminated at a Depth of 25ft

Casing Length 23ft

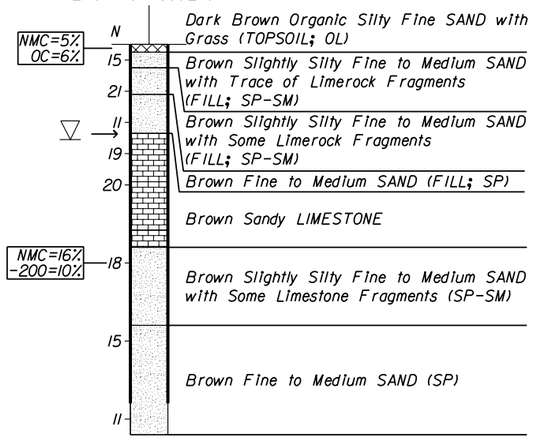
BOR # B-2
ELEV. N/A
DATE 5/10/2021
DRILLER R.Morales
HAMMER B-53
RIG Auto
LATITUDE 25.923295
LONGITUDE -80.309091
NORTHING 578410
EASTING 883246



Boring Terminated at a Depth of 25ft

Casing Length 23ft

BOR # B-3
ELEV. N/A
DATE 5/10/2021
DRILLER R.Morales
HAMMER B-53
RIG Auto
LATITUDE 25.923674
LONGITUDE -80.30911
NORTHING 578548
EASTING 883240



Boring Terminated at a Depth of 25ft

Casing Length 23ft

LEGEND

- TOPSOIL (OL)
- LIMESTONE
- SAND (FILL; SP-SM)
- SAND (SP)
- SILTY SAND (SM)

NOTES:

1) SPT BORINGS PERFORMED PER ASTM D-1586 WITH A HAMMER WEIGHT OF 140 LBS FALLING 30 INCHES.

- WATER TABLE AT TIME OF DRILLING
- CASING USED
- APPROXIMATE SPT BORING LOCATION
- N — NUMBERS TO THE LEFT OF BORING INDICATE SPT VALUE FOR 12" PENETRATION (UNLESS OTHERWISE NOTED)
- NMC — NATURAL MOISTURE CONTENT (%)
- -200 — PERCENT PASSING #200 SIEVE (%)
- OC — ORGANIC CONTENT (%)
- → — PERIODIC TOTAL LOSS OF DRILLING FLUID CIRCULATION (100%)

NOTE FOR EXCAVATION CONSTRUCTION:

1) THE CONTRACTOR IS ADVISED THAT CAVING SOILS AND/OR DENSE TO VERY DENSE SOILS MAY BE ENCOUNTERED DURING THE EXCAVATION.

2) THE STRATA ENCOUNTERED WITHIN THE PROJECT SITE CORRESPOND TO ROCK FORMATIONS THAT OFFER HIGH RESISTANCE TO DRIVING AND EXCAVATION. SPECIAL EQUIPMENT AND BREAKING TOOLS ARE TYPICALLY REQUIRED TO EXCAVATE OR PENETRATE THESE LAYERS. THESE LAYERS ARE ALSO DIFFICULT TO DEWATER DUE TO THEIR HIGH POROSITY AND PERMEABILITY.

3) THE CONTRACTOR IS ADVISED THAT PERIODIC TOTAL LOSS OF CIRCULATION WAS EXPERIENCED DURING THE PERFORMANCE OF THE BORINGS WHICH MAY MAKE IT DIFFICULT TO MAINTAIN THE FLUID LEVEL IN THE EXCAVATION.

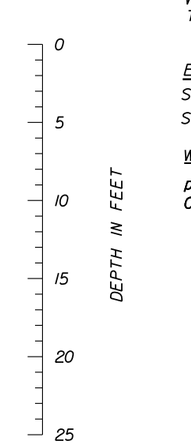
ENVIRONMENTAL CLASSIFICATION:

SUPERSTRUCTURE: SLIGHTLY AGGRESSIVE

SUBSTRUCTURE: MODERATELY AGGRESSIVE

WATER:

pH: 7.7 SULFATE: 6 PPM
CHLORIDE: 49 PPM RESISTIVITY: 1,025 OHM-CM



GRANULAR MATERIALS- RELATIVE DENSITY	AUTOMATIC SPT HAMMER (BLOWS PER FOOT)
VERY LOOSE	LESS THAN 3
LOOSE	3-8
MEDIUM DENSE	8-24
DENSE	24-40
VERY DENSE	GREATER THAN 40
SILTS AND CLAYS CONSISTANCY	**AUTOMATIC SPT HAMMER (BLOWS PER FOOT)**
VERY SOFT	LESS THAN 1
SOFT	1-3
FIRM	3-6
STIFF	6-12
VERY STIFF	12-24
HARD	GREATER THAN 24

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

REVISIONS

DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD:
GEOSOL, INC.
ORACIO RICCOBONO, P.E.
PE LICENSE No. 49324
5795-A NW 151ST STREET
MIAMI LAKES, FL 33014
PHONE: (305) 828-4367

PROPOSED MIAMI LAKES BRANCH LIBRARY EXPANSION
LOCATED AT 6699 WINDMILL GATE ROAD
TOWN OF MIAMI LAKES, FLORIDA

REPORT OF CORE BORINGS

SHEET NO. 5

APPENDIX "B"

Table 2 – Summary of Laboratory Test Results
Table 3 – Summary of Environmental Classification Test Results
Natural Moisture Content Test Results
Percent Passing the No. 200 Sieve Test Results
Grain Size Analysis Test Curves
Organic Content Test Results
Environmental Classification Test Results

TABLE 2 - SUMMARY OF LABORATORY TEST RESULTS
Miami Lakes Library Expansion
Miami-Dade County, Florida
GEOSOL Project No.: 221115

BORING NUMBER	SAMPLE NUMBER	USCS SYMBOL	Sample Depth (FEET)	Sieve Analysis (Percent Passing)									Organic Content (%)	Natural Moisture Content (%)
				1"	3/4"	3/8"	#4	#10	#40	#60	#100	#200		
B-1	1	OL	0.0 - 0.5	-	-	-	-	-	-	-	-	-	5	6
B-1	2	SP	2.0 - 4.0	100	100	100	100	100	95	73	27	4	-	7
B-1	5	SM	8.0 - 10.0	96	92	84	76	70	54	44	31	23	-	38
B-2	1	OL	0.0 - 0.5	-	-	-	-	-	-	-	-	-	6	6
B-2	7	SP-SM	18.0 - 20.0	100	100	100	100	99	94	71	23	6	-	25
B-3	1	OL	0.0 - 0.5	-	-	-	-	-	-	-	-	-	6	5
B-3	6	SP-SM	13.0 - 15.0	100	96	86	78	74	69	57	30	10	-	16

TABLE 3 - SUMMARY OF ENVIRONMENTAL CLASSIFICATION TEST RESULTS
Miami Lakes Library Expansion
Miami-Dade County, Florida
GEOSOL Project No.: 221115

Sample Location	Sample Type	Depth (ft)	pH	Resistivity (ohm-cm)	Chloride (ppm)	Sulfate (ppm)	FDOT ENVIRONMENTAL CLASSIFICATION	
							Steel	Concrete
B-2	Water	6.3	7.7	1,025	49	6	MA	MA

NOTES: (1) The following FDOT laboratory test methods were utilized.

4500H+ (pH)
EPA 120.1 (Equivalent to FM5-551: Resistivity)
EPA-300 (Equivalent to FM5-552: Chlorides)
EPA-300 (Equivalent to FM5-553: Sulfates)

(2) SA: SLIGHTLY AGGRESSIVE
(3) MA: MODERATELY AGGRESSIVE
(4) EA: EXTREMELY AGGRESSIVE

FDOT Criteria for Substructure Environmental Classification (FDOT *Structures Design Guidelines*)

Classification	Environmental Condition	Units	Steel		Concrete	
			Water	Soil	Water	Soil
Extremely Aggressive (If any of these conditions exist)	pH		< 6.0		< 5.0	
	Cl	ppm	> 2000		> 2000	
	SO_4	ppm	N.A.		> 1500	> 2000
	Resistivity	Ohm-cm	< 1000		< 500	
Slightly Aggressive (If all of these conditions exist)	pH		> 7.0		> 6.0	
	Cl	ppm	< 500		< 500	
	SO_4	ppm	N.A.		< 150	< 1000
	Resistivity	Ohm-cm	> 5000		> 3000	
Moderately Aggressive	This classification must be used at all sites not meeting requirements for either slightly aggressive or extremely aggressive environments.					
pH = acidity ($-\log_{10}H^+$; potential of Hydrogen), Cl = chloride content, SO_4 = Sulfate content.						

MOISTURE CONTENT TEST RESULTS (ASTM D-2216)

PROJECT NAME: Miami Lakes Library Expansion
LOCATION: Miami-Dade County, Florida
PROJECT No.: 221115
DATE: 5/13/2021

Boring No.	B-1	B-1	B-2	B-3
Sample No.	1	2	1	1
Sample Depth (Feet)	0-0.5	2-4	0-0.5	0-0.5
Tare No.	4C	4	4I	103
Tare plus wet soil (grams)	78.1	400.0	109.7	124.4
Tare plus dry soil (grams)	73.9	375.9	103.9	118.4
Water Ww (grams)	4.2	24.1	5.8	6.0
Tare (grams)	7.7	7.4	7.6	7.2
Dry soil Ws (grams)	66.2	368.5	96.3	111.2
Water Content w (%)	6.3	6.5	6.0	5.4

Boring No.	B-1	B-3	B-2
Sample No.	5	6	7
Sample Depth (Feet)	8-10	13-15	18-20
Tare No.	101	C-5	941
Tare plus wet soil (grams)	328.3	331.3	223.9
Tare plus dry soil (grams)	239.8	286.7	180.8
Water Ww (grams)	88.5	44.6	43.1
Tare (grams)	7.5	7.6	7.2
Dry soil Ws (grams)	232.3	279.1	173.6
Water Content w (%)	38.1	16.0	24.8

MATERIAL PASSING THE # 200 SIEVE TEST RESULTS (AASHTO T-11)

PROJECT NAME: Miami Lakes Library Expansion
LOCATION: Miami-Dade County, Florida
PROJECT No.: 221115
DATE: 5/13/2021

Boring No.	B-1	B-1	B-3	B-2
Sample No.	2	5	6	7
Sample Depth (Feet)	2-4	8-10	13-15	18-20
Original Dry Weight of Soil (grams)	368.5	232.3	279.1	173.6
Weight of Soil After Washing (grams)	353.5	178.2	252.5	163.4
Weight of Soil Passing 200 Sieve (grams)	15.0	54.1	26.6	10.2
Percent of Soil Passing 200 Sieve (%)	4.1	23.3	9.5	5.9

GRAIN SIZE DATA SHEET

DATE: 5/12/2021

PROJECT NAME: Miami Lakes Library Expansion
GEOSOL PROJECT No. 221115
GENERAL LOCATION: Miami-Dade County, Florida

Boring No. B-1
Sample No. 2
Depth (feet) 2-4

SOIL DESCRIPTION: Brown Fine to Medium SAND (FILL; SP)

Tare #	Dry Soil Wt.
4	368.5

Sieve Size	Sieve Sizes	Cumulative Wt. Retained	% RETAINED	% PASSING	% PASSING TOTAL SAMPLE	WEIGHT RETAINED (Grams)
75	75mm 3"	0.0	0.0	100	100	0.0
50	50mm 2"	0.0	0.0	100	100	0.0
37.5	37.5mm 1.5"	0.0	0.0	100.0	100.0	0.0
25	25mm 1"	0.0	0.0	100.0	100.0	0.0
19	19mm 3/4"	0.0	0.0	100.0	100.0	0.0
9.5	9.5mm 3/8"	0.0	0.0	100.0	100.0	0.0
4.75	4.75mm #4	0.0	0.0	100.0	100.0	0.0
2.36	2 mm #10	0.0	0.0	100.0	100.0	0.0
0.6	425um #40	17.4	4.7	95.3	95.3	17.4
0.3	250um #60	98.7	26.8	73.2	73.2	81.3
0.15	150um #100	268.7	72.9	27.1	27.1	170.0
0.075	75um #200	353.5	95.9	4.1	4.1	84.8
PAN	-	368.5	100.0	0.0	0.0	15.0

NOTES: Percent passing the #200 sieve was determined by the wash method.

ASTM D 2487 Classification of Soil for Engineering Purposes

Coarse Gravel	< 3" and > 3/4"
Fine Gravel	< 3/4" and > #4

Coarse Sand	< #4 and > #10
Medium Sand	< #10 and > #40
Fine Sand	< #40 and > #200

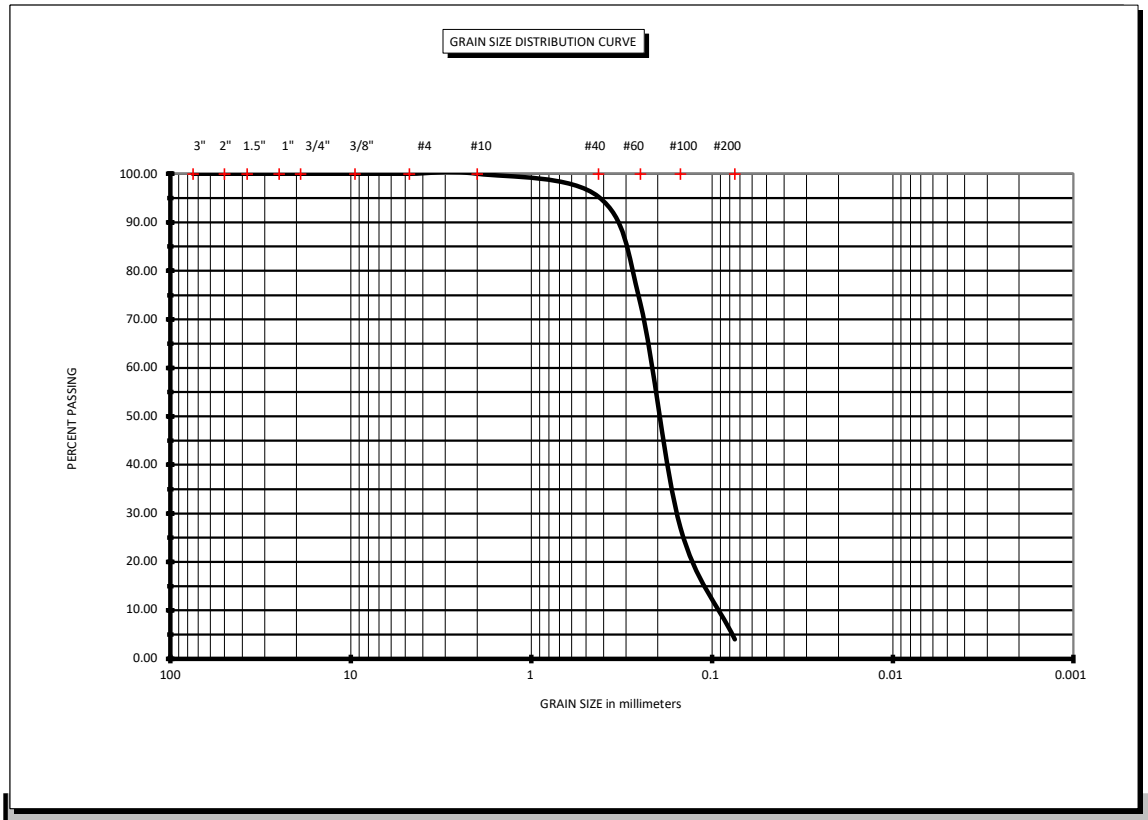
Cu = D60 / D10
Cc = (D30)^2 / (D10 x D60)
1000 um = 1 mm

tested by: J. Manolakis computed by: S. Zhang checked by: O. Riccobono

GRAIN SIZE DATA SHEET

DATE: 5/12/2021

PROJECT NAME: Miami Lakes Library Expansion
GEOSOL PROJECT No. 221115
GENERAL LOCATION: Miami-Dade County, Florida



ASTM D 2487 Classification of Soil for Engineering Purposes			Coarse Sand	< #4 and > #10	Cu = D60 / D10
Coarse Gravel	< 3" and > 3/4"		Medium Sand	< #10 and > #40	Cc = (D30)^2 / (D10 x D60)
Fine Gravel	< 3/4" and > #4		Fine Sand	< #40 and > #200	

BORING # B-1 **SAMPLE #** 2 **Depth (feet)** 2-4

SOIL DESCRIPTION: Brown Fine to Medium SAND (FILL; SP)

Natural Moisture Content: 6.5%

GRAIN SIZE DATA SHEET

DATE: 5/13/2021

PROJECT NAME: Miami Lakes Library Expansion
GEOSOL PROJECT No. 221115
GENERAL LOCATION: Miami-Dade County, Florida

Boring No. B-1
Sample No. 5
Depth (feet) 8-10

SOIL DESCRIPTION: Brown Silty Fine to Medium SAND with Little of Limestone Fragments (SM)

Tare #	Dry Soil Wt.
101	232.3

Sieve Size	Sieve Sizes	Cumulative Wt. Retained	% RETAINED	% PASSING	% PASSING TOTAL SAMPLE	WEIGHT RETAINED (Grams)
75	75mm 3"	0.0	0.0	100	100	0.0
50	50mm 2"	0.0	0.0	100	100	0.0
37.5	37.5mm 1.5"	0.0	0.0	100.0	100.0	0.0
25	25mm 1"	10.0	4.3	95.7	95.7	10.0
19	19mm 3/4"	19.6	8.4	91.6	91.6	9.6
9.5	9.5mm 3/8"	37.7	16.2	83.8	83.8	18.1
4.75	4.75mm #4	56.0	24.1	75.9	75.9	18.3
2.36	2 mm #10	70.2	30.2	69.8	69.8	14.2
0.6	425um #40	106.9	46.0	54.0	54.0	36.7
0.3	250um #60	131.2	56.5	43.5	43.5	24.3
0.15	150um #100	159.8	68.8	31.2	31.2	28.6
0.075	75um #200	178.2	76.7	23.3	23.3	18.4
PAN	-	232.3	100.0	0.0	0.0	54.1

NOTES: Percent passing the #200 sieve was determined by the wash method.

ASTM D 2487 Classification of Soil for Engineering Purposes

Coarse Gravel	< 3" and > 3/4"
Fine Gravel	< 3/4" and > #4

Coarse Sand	< #4 and > #10
Medium Sand	< #10 and > #40
Fine Sand	< #40 and > #200

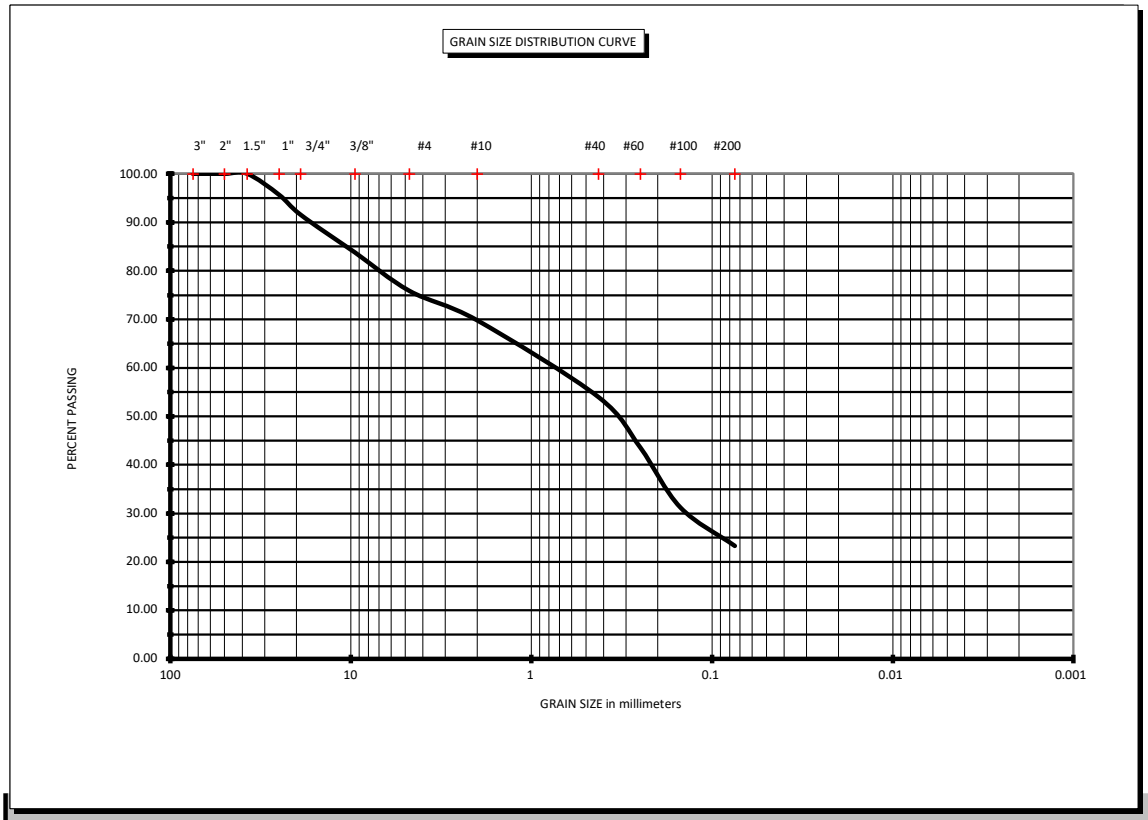
Cu = D60 / D10
Cc = (D30)^2 / (D10 x D60)
1000 um = 1 mm

tested by: J. Manolakis computed by: S. Zhang checked by: O. Riccobono

GRAIN SIZE DATA SHEET

DATE: 5/13/2021

PROJECT NAME: Miami Lakes Library Expansion
GEOSOL PROJECT No. 221115
GENERAL LOCATION: Miami-Dade County, Florida



ASTM D 2487 Classification of Soil for Engineering Purposes			Coarse Sand	< #4 and > #10	Cu = D60 / D10
Coarse Gravel	< 3" and > 3/4"		Medium Sand	< #10 and > #40	Cc = (D30)^2 / (D10 x D60)
Fine Gravel	< 3/4" and > #4		Fine Sand	< #40 and > #200	

BORING # B-1 **SAMPLE #** 5 **Depth (feet)** 8-10

SOIL DESCRIPTION: Brown Silty Fine to Medium SAND with Little of Limestone Fragments (SM)

Natural Moisture Content: 38.1%

GRAIN SIZE DATA SHEET

DATE: 5/13/2021

PROJECT NAME: Miami Lakes Library Expansion
GEOSOL PROJECT No. 221115
GENERAL LOCATION: Miami-Dade County, Florida

Boring No. B-3
Sample No. 6
Depth (feet) 13-15

SOIL DESCRIPTION: Brown Slightly Silty Fine to Medium SAND with Little of Limestone Fragments (SP-SM)

Tare #	Dry Soil Wt.
C-5	279.1

Sieve Size	Sieve Sizes	Cumulative Wt. Retained	% RETAINED	% PASSING	% PASSING TOTAL SAMPLE	WEIGHT RETAINED (Grams)
75	75mm 3"	0.0	0.0	100	100	0.0
50	50mm 2"	0.0	0.0	100	100	0.0
37.5	37.5mm 1.5"	0.0	0.0	100.0	100.0	0.0
25	25mm 1"	0.0	0.0	100.0	100.0	0.0
19	19mm 3/4"	12.0	4.3	95.7	95.7	12.0
9.5	9.5mm 3/8"	39.1	14.0	86.0	86.0	27.1
4.75	4.75mm #4	62.4	22.4	77.6	77.6	23.3
2.36	2 mm #10	72.6	26.0	74.0	74.0	10.2
0.6	425um #40	87.2	31.2	68.8	68.8	14.6
0.3	250um #60	119.8	42.9	57.1	57.1	32.6
0.15	150um #100	195.4	70.0	30.0	30.0	75.6
0.075	75um #200	252.5	90.5	9.5	9.5	57.1
PAN	-	279.1	100.0	0.0	0.0	26.6

NOTES: Percent passing the #200 sieve was determined by the wash method.

ASTM D 2487 Classification of Soil for Engineering Purposes

Coarse Gravel	< 3" and > 3/4"
Fine Gravel	< 3/4" and > #4

Coarse Sand	< #4 and > #10
Medium Sand	< #10 and > #40
Fine Sand	< #40 and > #200

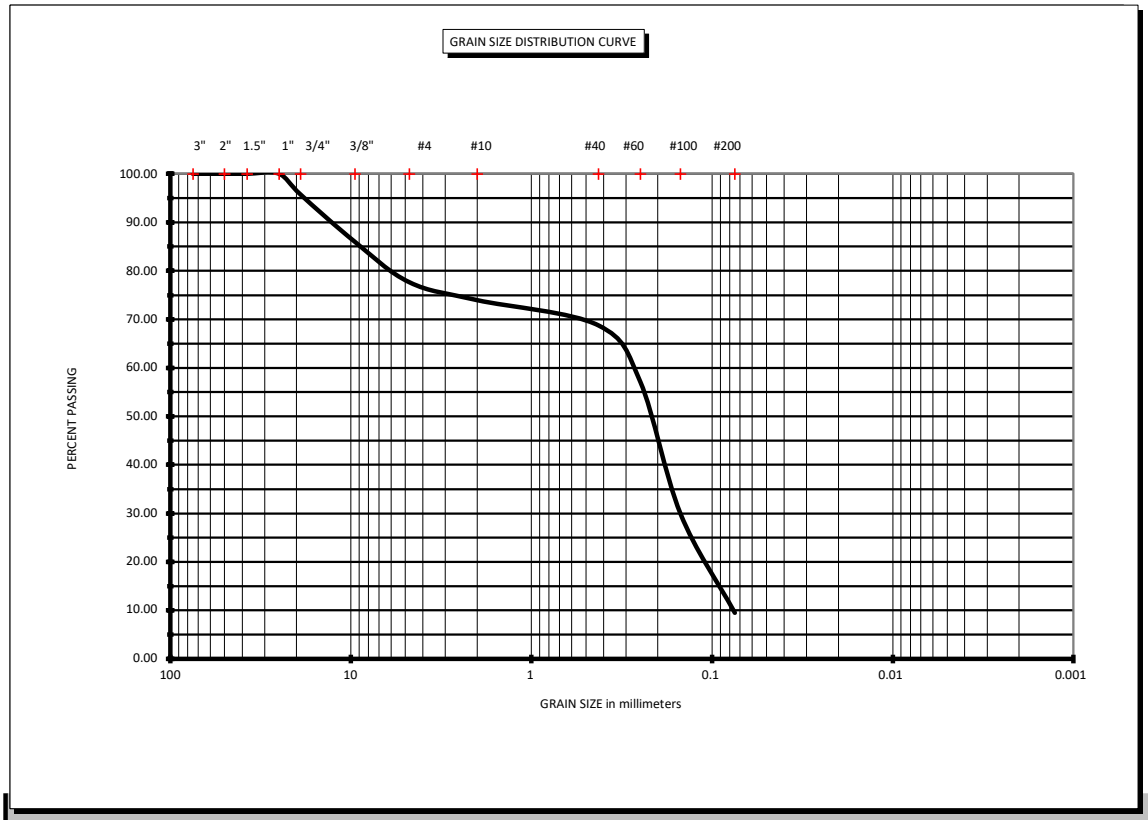
Cu = D60 / D10
Cc = (D30)^2 / (D10 x D60)
1000 um = 1 mm

tested by: J. Manolakis computed by: S. Zhang checked by: O. Riccobono

GRAIN SIZE DATA SHEET

DATE: 5/13/2021

PROJECT NAME: Miami Lakes Library Expansion
GEOSOL PROJECT No. 221115
GENERAL LOCATION: Miami-Dade County, Florida



ASTM D 2487 Classification of Soil for Engineering Purposes			Coarse Sand	< #4 and > #10	Cu = D60 / D10
Coarse Gravel	< 3" and > 3/4"		Medium Sand	< #10 and > #40	Cc = (D30)^2 / (D10 x D60)
Fine Gravel	< 3/4" and > #4		Fine Sand	< #40 and > #200	

BORING # B-3 **SAMPLE #** 6 **Depth (feet)** 13-15

SOIL DESCRIPTION: Brown Slightly Silty Fine to Medium SAND with Little of Limestone Fragments (SP-SM)

Natural Moisture Content: 16.0%

GRAIN SIZE DATA SHEET

DATE: 5/13/2021

PROJECT NAME: Miami Lakes Library Expansion
GEOSOL PROJECT No. 221115
GENERAL LOCATION: Miami-Dade County, Florida

Boring No. B-2
Sample No. 7
Depth (feet) 18-20

SOIL DESCRIPTION: Brown Slightly Silty Fine to Medium SAND (SP-SM)

Tare #	Dry Soil Wt.
941	173.6

Sieve Size	Sieve Sizes	Cumulative Wt. Retained	% RETAINED	% PASSING	% PASSING TOTAL SAMPLE	WEIGHT RETAINED (Grams)
75	75mm 3"	0.0	0.0	100	100	0.0
50	50mm 2"	0.0	0.0	100	100	0.0
37.5	37.5mm 1.5"	0.0	0.0	100.0	100.0	0.0
25	25mm 1"	0.0	0.0	100.0	100.0	0.0
19	19mm 3/4"	0.0	0.0	100.0	100.0	0.0
9.5	9.5mm 3/8"	0.0	0.0	100.0	100.0	0.0
4.75	4.75mm #4	0.7	0.4	99.6	99.6	0.7
2.36	2 mm #10	1.9	1.1	98.9	98.9	1.2
0.6	425um #40	11.2	6.5	93.5	93.5	9.3
0.3	250um #60	50.0	28.8	71.2	71.2	38.8
0.15	150um #100	133.0	76.6	23.4	23.4	83.0
0.075	75um #200	163.4	94.1	5.9	5.9	30.4
PAN	-	173.6	100.0	0.0	0.0	10.2

NOTES: Percent passing the #200 sieve was determined by the wash method.

ASTM D 2487 Classification of Soil for Engineering Purposes

Coarse Gravel	< 3" and > 3/4"
Fine Gravel	< 3/4" and > #4

Coarse Sand	< #4 and > #10
Medium Sand	< #10 and > #40
Fine Sand	< #40 and > #200

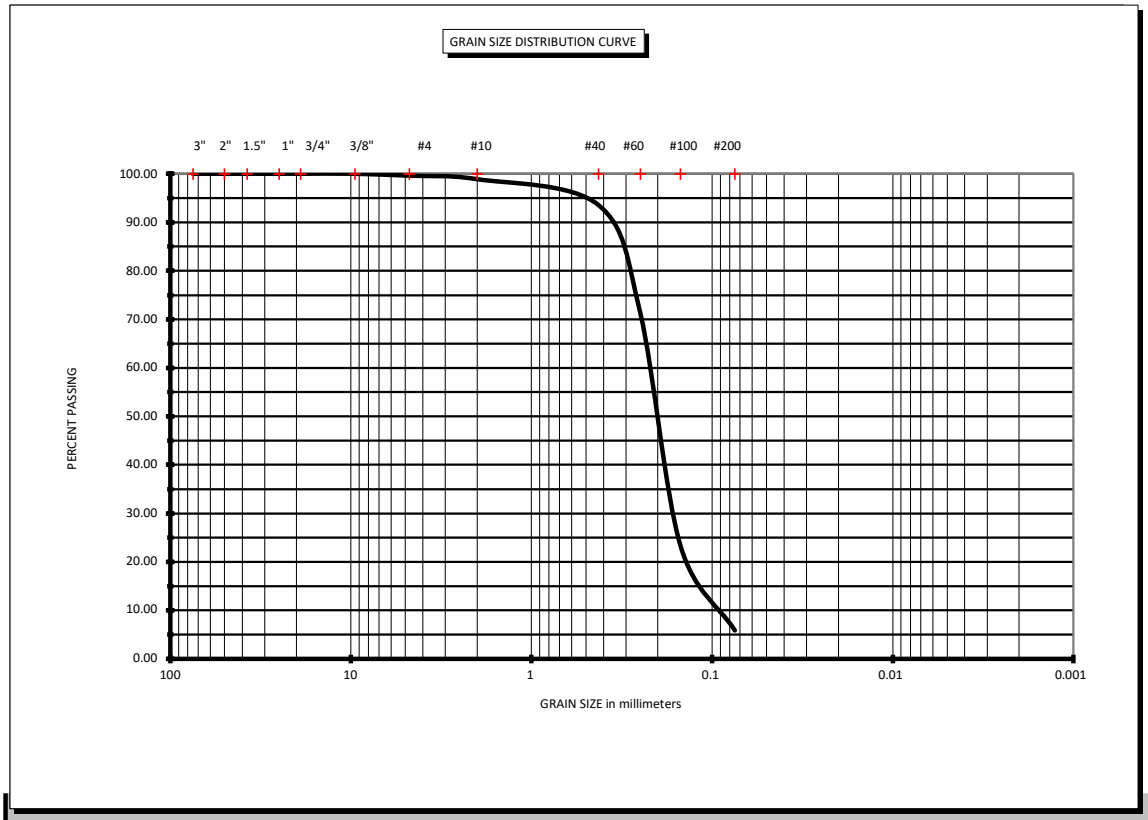
Cu = D60 / D10
Cc = (D30)^2 / (D10 x D60)
1000 um = 1 mm

tested by: J. Manolakis computed by: S. Zhang checked by: O. Riccobono

GRAIN SIZE DATA SHEET

DATE: 5/13/2021

PROJECT NAME: Miami Lakes Library Expansion
GEOSOL PROJECT No. 221115
GENERAL LOCATION: Miami-Dade County, Florida



ASTM D 2487 Classification of Soil for Engineering Purposes			Coarse Sand	< #4 and > #10	Cu = D60 / D10
Coarse Gravel	< 3" and > 3/4"		Medium Sand	< #10 and > #40	Cc = (D30)^2 / (D10 x D60)
Fine Gravel	< 3/4" and > #4		Fine Sand	< #40 and > #200	

BORING # B-2 **SAMPLE #** 7 **Depth (feet)** 18-20

SOIL DESCRIPTION: Brown Slightly Silty Fine to Medium SAND (SP-SM)

Natural Moisture Content: 24.8%

ORGANIC CONTENT TEST RESULTS (ASTM D-2974)

PROJECT NAME: Miami Lakes Library Expansion
LOCATION: Miami-Dade County, Florida
PROJECT No.: 221115
DATE: 5/13/2021

Boring No.	B-1	B-2	B-3
Sample No.	1	1	1
Sample Depth (Feet)	0-0.5	0-0.5	0-0.5
Crucible No.	B5	5	M5
Weight of Crucible and Oven-Dried Sample (grams)	103.4	153.4	178.6
Weight of Crucible and Sample after Ignition (grams)	100.0	147.4	171.7
Weight of Crucible (grams)	37.8	57.3	67.4
Weight of Oven-Dried Soil (grams)	65.6	96.1	111.2
Weight Loss due to Ignition (grams)	3.4	6.0	6.9
Percent Organics (%)	5.2	6.2	6.2

Pace Analytical Services, LLC
3610 Park Central Blvd N
Pompano Beach, FL 33064
(954)582-4300

ANALYTICAL RESULTS

Project: Miami Lakes Library Expansion
Pace Project No.: 35632677

Sample: B-2 **Lab ID: 35632677001** Collected: 05/10/21 17:00 Received: 05/11/21 17:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B Pace Analytical Services - South Florida								
pH at 25 Degrees C	**7.7**	Std. Units	0.10	0.10	1		05/14/21 09:14		Q
Resistivity	Analytical Method: EPA 120.1 Resistivity Pace Analytical Services - South Florida								
Resistivity	**1025**	ohms-cm	0.50	0.50	1		05/14/21 16:56		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Ormond Beach								
Chloride	**49.3**	mg/L	5.0	2.5	1		05/19/21 22:01	16887-00-6	
Sulfate	**6.4**	mg/L	5.0	2.5	1		05/19/21 22:01	14808-79-8	

REPORT OF LABORATORY ANALYSIS

APPENDIX "C"

Table 4 – Summary of Constant Head Percolation Test Results
Schematics of Constant Head Borehole Percolation Testing

TABLE 4 - SUMMARY OF CONSTANT HEAD BOREHOLE PERCOLATION TEST RESULTS

Proposed Miami Lakes Branch Library Expansion
Located at 6699 Windmill Gate Road
Town of Miami Lakes, Florida
GEOSOL Proposal No. 221115

Test No.	Date Performed	Diameter		Depth of Hole	Depth to Groundwater Level Below Ground Surface (Feet)		SATURATED HOLE DEPTH	Corrected Depth of	Average Flow Rate	K, Hydraulic Conductivity
		Casing (Inches)	Hole (Inches)	(Feet)	Prior to Test	During Test	Ds (Feet)	Hole (Feet)	(gpm)	(cfs/ft^2-Ft Head)
P-1	05/07/21	6	6.75	15	5.0	0.00	10.00	15.00	10.7	2.13E-04
P-2	05/10/21	6	6.75	15	6.3	0.00	8.70	15.00	12.3	2.06E-04
P-3	05/10/21	6	6.75	15	6.1	0.00	8.90	15.00	11.8	2.02E-04
P-4	05/07/21	6	6.75	15	4.8	0.00	10.20	15.00	12.4	2.56E-04

NOTES:

(1) The above hydraulic conductivity values are for a French drains installed to the same depth as the borehole test. The values represent an ultimate value. The designer should decide on the required factor of safety.

(2) The hydraulic conductivity values were calculated based on the South Florida Water Management Districts's USUAL OPEN HOLE CONSTANT HEAD exfiltration test procedure as shown on the following page.

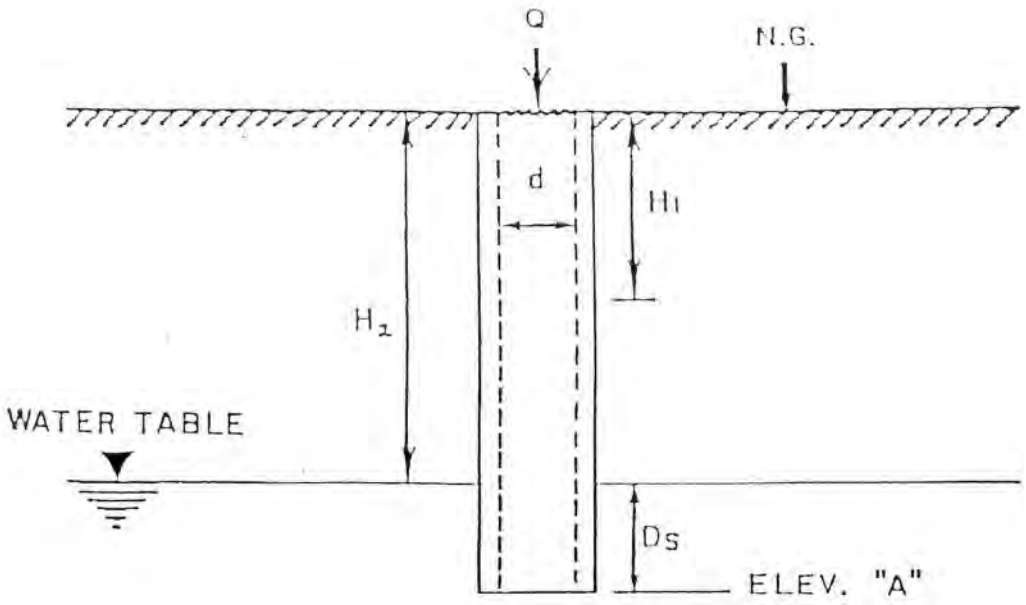
(3) The diameter of the CASING was used in the computation of the hydraulic conductivity values presented in the above table.

(4) Loss of circulation was NOT encountered during the performance of the borehole percolation tests.

SUBSURFACE STRATIFICATION

TEST No.	TEST LOCATION (FEET)		DEPTH (FEET)		GENERAL MATERIAL DESCRIPTION
	LATITUDE	LONGITUDE	FROM	TO	
P-1	25.923195	-80.308630	0.00	0.50	Dark Brown Organic Silty Fine Sand with Grass (TOPSOIL)
			0.50	1.00	Brown Slightly Silty Fine to Medium SAND with Some Limerock Fragments (FILL)
			1.00	6.00	Brown Fine to Medium SAND
			11.00	10.50	Brown Sandy LIMESTONE
			10.50	15.00	Brown Fine to Medium SAND with Some Limerock Fragments
P-2	25.923206	-80.309024	0.00	0.50	Dark Brown Organic Silty Fine Sand with Grass (TOPSOIL)
			0.50	1.00	Brown Slightly Silty Fine to Medium SAND with Trace of Limerock Fragments (FILL)
			1.00	3.00	Brown Slightly Silty Fine to Medium SAND with Some Limerock Fragments (FILL)
			3.00	5.50	Brown Fine to Medium SAND
			5.50	13.00	Brown Sandy LIMESTONE
			13.00	15.00	Brown Fine to Medium SAND with Some Limestone Fragments
P-3	25.923769	-80.308955	0.00	0.50	Dark Brown Organic Silty Fine Sand with Grass (TOPSOIL)
			0.50	1.50	Brown Slightly Silty Fine to Medium SAND with Trace of Limerock Fragments (FILL)
			1.50	3.20	Brown Slightly Silty Fine to Medium SAND with Some Limerock Fragments (FILL)
			3.20	5.70	Brown Fine to Medium SAND
			5.70	13.00	Brown Sandy LIMESTONE
			13.00	15.00	Brown Fine to Medium SAND with Some Limerock Fragments
P-4	25.924093	-80.308446	0.00	0.50	Dark Brown Organic Silty Fine Sand with Grass (TOPSOIL)
			0.50	1.00	Brown Slightly Silty Fine to Medium SAND with Trace of Limerock Fragments (FILL)
			1.00	6.00	Brown Fine to Medium SAND
			11.00	10.50	Brown Sandy LIMESTONE
			10.50	15.00	Brown Fine to Medium SAND with Some Limerock Fragments

USUAL OPEN - HOLE TEST



$$K = \frac{4Q}{\pi d(2H_2^2 + 4H_2 D_S + H_2 d)}$$

K = HYDRAULIC CONDUCTIVITY (CFS/FT.^{2} - FT. HEAD)

Q = "STABILIZED" FLOW RATE (CFS)

d = DIAMETER OF TEST HOLE (FEET)

H_2 = DEPTH TO WATER TABLE (FEET)

D_S = SATURATED HOLE DEPTH (FEET)

ELEV. "A" = PROPOSED TRENCH BOTTOM ELEV.

H_1 = AVERAGE HEAD ON UNSATURATED HOLE SURFACE (FT. HEAD)

Reference: SFWMD Management and Storage of Surface Waters
Permit Information Manual Vol. IV, Figure 3, Page 12.

APPENDIX "D"

Shallow Foundations: Bearing Capacity Evaluations
Shallow Foundations: Settlement Analyses
Derivation of Geotechnical Design Parameters

PROPOSED MIAMI LAKES BRANCH LIBRARY EXPANSION
LOCATED AT 6699 WINDMILL GATE ROAD
TOWN OF MIAMI LAKES, FLORIDA
GEOSOL Project No. 221115

BEARING CAPACITY EVALUATIONS FOR PROPOSED LIBRARY EXPANSION

$Q_{nominal} = [q(N_q)(S_q)(C_{wq}) + ½(\gamma_T)(B)(N_\gamma)(S_\gamma)(C_{w\gamma})]$

Assumptions:

1) Footings **bearing on acceptable compacted structural fill .**
2) Model the footing as a square spread footing with a minimum width of 3 foot
3) Minimum footing embedment below ground, Df = **2** feet
4) Assume groundwater level is at ground surface. Therefore, D_w = **0** feet
5) Total unit weight (γ_T) of foundation soil = **115** pcf
6) Drained friction angle (ϕ) = **32** degrees
8) Bearing Capacity factors are: N_q = 23.2 and N_γ = 30.2
(N_q and N_γ are from AASHTO LRFD Specifications)

B (feet)	L (feet)	Shape Correction Factors		Groundwater Correction Factors		$Q_{nominal}$ (psf)	Safety Factor (FS)	$Q_{allowable}$ (psf)
		S_q	S_γ	C_{wq}	$C_{w\gamma}$			
3	3	2	0.6	0.5	0.5	6000	2	3000

NOTES:

1) Values for N_q, N_γ, S_q, S_γ, C_{wq} and $C_{w\gamma}$ were derived based on AASHTO specifications.

SETTLEMENT ANALYSIS OF SHALLOW FOUNDATIONS
Schmertmann Method

Date	May 20, 2021
Identification	Proposed Miami Lakes Branch Library Expansion
GEOSOL Project:	221115
Boring No.:	General Subsurface Profile - for Foundation Bearing on Fill

Input

Units	E	E or SI
Shape	RE	SQ, CI, CO, or RE
B =	3	ft
L =	3	ft
D =	2	ft
P_{axial} =	28.12	k
Dw =	0	ft
γ_T =	105	lb/ft^3
t =	0.1	yr

Results

$q_{applied}$ =	3000	lb/ft^2
delta =	0.63	in

Depth to Soil Layer Top (ft)	Depth to Soil Layer Bottom (ft)	Es (lb/ft^2)	MATERIAL MODEL	zf (ft)	I epsilon	strain (%)	delta (in)
0.0	2.0						
2.0	3.0	165000	SAND	0.5	0.381	0.6626	0.0795
3.0	4.0	165000	SAND	1.5	0.943	1.6406	0.1969
4.0	5.0	165000	SAND	2.5	0.733	1.2760	0.1531
5.0	6.0	165000	SAND	3.5	0.524	0.9114	0.1094
6.0	7.0	165000	SAND	4.5	0.314	0.5469	0.0656
7.0	8.0	165000	SAND	5.5	0.105	0.1823	0.0219
8.0	9.0	165000	SAND	6.5	0.000	0.0000	0.0000
9.0	10.0	165000	SAND	7.5	0.000	0.0000	0.0000
10.0	11.0	165000	SAND	8.5	0.000	0.0000	0.0000
11.0	12.0	165000	SAND	9.5	0.000	0.0000	0.0000
12.0	13.0	165000	SAND	10.5	0.000	0.0000	0.0000
13.0	14.0	165000	SAND	11.5	0.000	0.0000	0.0000
14.0	15.0	165000	SAND	12.5	0.000	0.0000	0.0000
15.0	16.0	165000	SAND	13.5	0.000	0.0000	0.0000
16.0	17.0	165000	SAND	14.5	0.000	0.0000	0.0000
17.0	18.0	165000	SAND	15.5	0.000	0.0000	0.0000
18.0	19.0	165000	SAND	16.5	0.000	0.0000	0.0000

PROPOSED MIAMI LAKES BRANCH LIBRARY EXPANSION
LOCATED AT 6699 WINDMILL GATE ROAD
TOWN OF MIAMI LAKES, FLORIDA
GEOSOL Project No. 221115

SUMMARY OF N-VALUES AND REDUCTION OF SHEAR STRENGTH VALUES

GRANULAR FILL
GRANULAR SAND

STATISTICAL ANALYSES OF DATA

1. FOR SPT "N" VALUE DATA, CALCULATE MEAN AND STANDARD DEVIATION.

2. NORMALIZE DATA BY EXCLUDING ALL TEST RESULTS WHICH ARE LESS THAN (MEAN - STANDARD DEVIATION) AND WHICH ARE GREATER THAN (MEAN + STANDARD DEVIATION).

3. RECALCULATE THE MEAN OF THE DATA WHICH REMAINS.

STATISTICS OF VALUES

BORING No.	STRATA	N VALUE AUTO. (BPF)	N VALUE SAFETY (BPF)	PHI (DEGREES) PHI = 28+N/4	N VALUE SAFETY (BPF)	PHI (DEGREES) PHI = 28+N/4
B-1	Granular Fill	26	32	36		
	Granular Fill	11	14	32		
	Granular Fill	9	11	31	14	32
B-2	Granular Fill	17	21	33	14	32
	Granular Fill	16	20	33	19	33
	Granular Fill	9	11	31	20	33
B-3	Granular Fill	15	19	33	21	33
	Granular Fill	21	26	35		
	Granular Fill	11	14	32		

MINIMUM	9.0	11	31	MINIMUM	14	32
MAXIMUM	26.0	32	36	MAXIMUM	21	33
AVERAGE	15.0	19	33	AVERAGE	18	32
STA. DEV.	5.4	7	2	STA. DEV.	3	1
AVE-STA. DEV.	9.6	12	31	AVE-STA. DEV.	15	32
AVE+STA. DEV.	20.4	25	34	AVE+STA. DEV.	21	33

FOR DESIGN USE PHI = 32 DEGREES FOR GRANULAR FILL.

PROPOSED MIAMI LAKES BRANCH LIBRARY EXPANSION
LOCATED AT 6699 WINDMILL GATE ROAD
TOWN OF MIAMI LAKES, FLORIDA
GEOSOL Project No. 221115

SUMMARY OF N-VALUES AND REDUCTION OF SHEAR STRENGTH VALUES

GRANULAR FILL
GRANULAR SAND

STATISTICAL ANALYSES OF DATA

1. FOR SPT "N" VALUE DATA, CALCULATE MEAN AND STANDARD DEVIATION.

2. NORMALIZE DATA BY EXCLUDING ALL TEST RESULTS WHICH ARE LESS THAN (MEAN - STANDARD DEVIATION) AND WHICH ARE GREATER THAN (MEAN + STANDARD DEVIATION).

3. RECALCULATE THE MEAN OF THE DATA WHICH REMAINS.

STATISTICS OF VALUES

BORING No.	STRATA	N VALUE AUTO. (BPF)	N VALUE SAFETY (BPF)	PHI (DEGREES) PHI = 33+N/4	N VALUE SAFETY (BPF)	PHI (DEGREES) PHI = 33+N/4
B-1	LIMESTONE	16	20	38		
B-2	LIMESTONE	20	25	39	24	39
	LIMESTONE	22	27	40	25	39
B-3	LIMESTONE	19	24	39	25	39
	LIMESTONE	20	25	39		

MINIMUM	16.0	20	38	MINIMUM	24	39
MAXIMUM	22.0	27	40	MAXIMUM	25	39
AVERAGE	19.4	24	39	AVERAGE	25	39
STA. DEV.	2.0	2	1	STA. DEV.	0	0
AVE-STA. DEV.	17.4	22	38	AVE-STA. DEV.	24	39
AVE+STA. DEV.	21.4	27	40	AVE+STA. DEV.	25	39

FOR DESIGN MODEL LIMESTONE AS GRAVEL AND LIMIT PHI = 36 DEGREES.

PROPOSED MIAMI LAKES BRANCH LIBRARY EXPANSION
LOCATED AT 6699 WINDMILL GATE ROAD
TOWN OF MIAMI LAKES, FLORIDA
GEOSOL Project No. 221115

SUMMARY OF N-VALUES AND REDUCTION OF SHEAR STRENGTH VALUES

GRANULAR FILL
ORGANIC SAND
FT. THOMPSON FORMATION SAND
FT. THOMPSON FORMATION LIMESTONE

STATISTICAL ANALYSES OF DATA

1. FOR SPT "N" VALUE DATA, CALCULATE MEAN AND STANDARD DEVIATION.

2. NORMALIZE DATA BY EXCLUDING ALL TEST RESULTS WHICH ARE LESS THAN (MEAN - STANDARD DEVIATION) AND WHICH ARE GREATER THAN (MEAN + STANDARD DEVIATION).

3. RECALCULATE THE MEAN OF THE DATA WHICH REMAINS.

STATISTICS OF VALUES

BORING No.	STRATUM	N VALUE AUTO. (BPF)	N VALUE SAFETY (BPF)	PHI(DEGREES) PHI = 28+N/4	N VALUE SAFETY (BPF)	PHI(DEGREES) PHI = 28+N/4
B-1	Granular Sand	19	24	34		
	Granular Sand	20	25	34		
	Granular Sand	13	16	32	12	31
	Granular Sand	11	14	32	14	32
B-2	Granular Sand	7	9	30	14	32
	Granular Sand	9	11	31	16	32
	Granular Sand	10	12	31	19	33
B-3	Granular Sand	18	22	34		
	Granular Sand	15	19	33		
	Granular Sand	11	14	32		

MINIMUM	7.0	9	30	MINIMUM	12	31
MAXIMUM	20.0	25	34	MAXIMUM	19	33
AVERAGE	13.3	17	32	AVERAGE	15	32
STA. DEV.	4.3	5	1	STA. DEV.	2	1
AVE-STA. DEV.	9.0	11	31	AVE-STA. DEV.	13	31
AVE+STA. DEV.	17.6	22	33	AVE+STA. DEV.	17	32

FOR DESIGN USE PHI = 32 DEGREES FOR NATURAL SAND.

SURETY BID BOND

By this Bond, we _____, as Principal, whose principal business address is _____, as respondent to the contract offering due _____, 20 ___, for Miami-Dade County construction of _____ Contract No. _____ (herein after referred to as "Contract") the terms of which Contract are incorporated by reference in its entirety into this Bond and _____, a corporation, whose principal business address is _____ as Surety, are bound to Miami-Dade County (hereinafter referred to as "County") in the sum of _____ (U.S. dollars) $_____, for payment of which we bind ourselves, our heirs, personal representatives, successors, and assigns, jointly and severally.

THE CONDITION OF THIS BOND is that Principal:

1. Whose submittal is found to be responsive to the solicitation, offered by a responsible contractor, is the lowest such responsive and responsible bid and is found to be in the best interest of the County shall be recommended for award by the County Manager; and

2. This Notice of Contract Award will be given to the successful respondent by a registered or certified letter to the address stated in the submittal package by the prospective Contractor; and

3. Upon receipt of Notice of Contract Award, the respondent to whom a Contract is awarded will be required to execute, in four (4) counterparts, each of which shall be deemed an original, including but not limited to, the prescribed Contract Document and if applicable, Performance and Payment Bonds within ten (10) calendar days from the date of notice to him that the Contract document is ready for execution. The required Insurance Certificates and Policies, as stated in the General Covenants and Conditions, shall also be delivered within this ten (10) day period.

The Respondent further agrees that, in the event he withdraws his bid, after proper notification of intent to Contract from the County, within one hundred eighty (180) days after the date of the submittal package opening, or fails to comply with all requirements to contract with Miami-Dade County or in the event he fails to comply with the Contract Documents or in the event he fails to enter into a written Contract with Miami-Dade-County, Florida, in accordance with the submittal package as accepted and provide required Bond(s) with good and sufficient surety and provide the necessary Insurance Certificates, as may be required, all within ten (10) days after the prescribed forms are presented to him for signature, the check or Bid Bond accompanying his submittal package , and the monies payable thereon, shall become the property of and be retained and used by Miami-Dade-County as liquidated damages, and not as a penalty; otherwise, the certified check or Bid Bond shall be returned by Miami-Dade-County to the undersigned.

By executing this instrument Surety agrees that its obligation is not impaired by any extension(s) of the time for acceptance of the bid that the Principal may grant to the County. Notice to the Surety of extensions is waived. However, waiver of the notice applies only to extensions aggregating not more than sixty (60) calendar days in addition to the period originally allowed for acceptance of the bid.

Any changes in or under the Contract Documents and compliance or noncompliance with any formalities connected with the Contract or the changes does not affect Surety's obligation under this Bond.

SURETY BID BOND (Cont'd)

IN WITNESS WHEREOF, the above bounden parties have caused this Bond to be executed by their appropriate officials as of the _____ day of _____, 20 __.

CONTRACTOR

_____
(Contractor Name)

BY:

_____
(President) (Managing Partner or Joint Venturer)

(SEAL)

COUNTERSIGNED BY RESIDENT
FLORIDA AGENT OF SURETY:

SURETY:

_____

_____

(Copy of Agent's current
Identification Card as issued by
State of Florida Insurance Commissioner must be attached) By: _____

Attorney-in-Fact

(CORPORATE SEAL)

(Power of Attorney must be attached)