FINAL

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January 31, 2014
DERM

SOLID WASTE DELINEATION REPORT
Douglas Park
2795 SW 37th Avenue
Miami, Florida

Prepared for
City of Miami
Capital Improvement Programs

By

URS Corporation
January 2014

URS

FINAL

SOLID WASTE DELINEATION REPORT
Douglas Park
2795 SW 37th Avenue
Miami, Florida

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FINAL

SOLID WASTE DELINEATION REPORT

Douglas Park
2795 SW 37th Avenue
Miami, Florida

1.0 INTRODUCTION & BACKGROUND

URS Corporation (URS) has prepared this Solid Waste Delineation Report (Report) for the City of Miami (City) – Capital Improvements Program, in accordance with the Scope of Work approved by the City on December 6, 2013.

Douglas Park (Park) is located at 2795 SW 37th Avenue, Miami, Florida, as shown in **Figure 1.** The park property is identified on the Miami-Dade County Property Appraiser's web site as Folio Number: 01-4116-000-0220 and covers approximately 10 acres. These records also indicate that the property is currently owned by the City. **Figure 2** shows the approximate boundaries of the Park.

The park property was historically known as the Tousey Rock Pit. Per limited historical information made available to URS, the City Commission adopted a resolution on July 13, 1938, setting aside the Tousey Rock Pit Tract for the "municipal purpose of dumping and burning of trash and rubbish." A copy of the minutes of this meeting is provided in **Appendix A.** These minutes also indicate that for more than a year prior to this meeting date, the pit was used by the Division of Shops and Wastes for the dumping of trash and rubbish. In addition, the trash and rubbish was carefully burnt under the direction of the City Fire Department. It is also our understanding that ash from the City's incinerator in Coconut Grove was also deposited on this parcel during subsequent years. A review of limited aerial photographs provided by the City appears to indicate that the park was under development in 1961. These aerials are also included in **Appendix A.**

In a letter dated November 21, 2013, the Miami-Dade County Department of Regulatory and Economic Resources - Division of Environmental Resources Management (DERM) notified the City that as part of their ongoing evaluation of the areas surrounding the former Coconut Grove incinerator, they had inspected and collected samples from the Douglas Park property. A copy of this letter and a second letter showing the sampling locations are included in **Appendix B**. DERM's inspection revealed the presence of solid waste, the physical characteristics of which were similar to the material previously documented at Blanche Park and Merrie Christmas Park. Preliminary laboratory results provided by DERM indicate the presence of antimony, arsenic, barium, copper, iron, and lead above "screening criteria", per DERM.

URS has prepared this Report to identify the lateral and vertical extent of solid waste disposed of on the park property, as requested by DERM.

2.0 OBJECTIVE

The objective of the delineation study is to evaluate the former disposal areas, and delineate the horizontal and vertical extent of the municipal solid waste (MSW) disposed of on the Douglas Park property. The information collected from this study will be used to develop a Sampling Plan to accomplish the delineation of soils contaminated above the Cleanup Target Levels (CTLs) established by DERM.

3.0 FIELD STUDIES

From December 10 through December 20, 2013, URS conducted a field investigation of the Douglas Park property to complete the activities described in the subsections below. Prior to the field activities, URS prepared an OSHA-mandated Health and Safety Plan (HSP) for URS field personnel to outline the physical, chemical, and biological hazards present at the site. In addition, URS subcontracted with GeoView, Inc. to conduct a geophysical survey to investigate the presence of underground utilities, as authorized by the City.

3.1 Geophysical Survey

In order to conduct an initial survey of the subsurface layers and the approximate footprint of the former disposal areas, GeoView, Inc. conducted a geophysical survey. The geophysical investigation was conducted using two methods:

1) Frequency domain electromagnetics (EM-31)

2) Ground Penetrating Radar (GPR)

The EM portion of the geophysical investigation was conducted using a Geonics EM31-MK2 (EM-31). The EM survey was conducted along a series of perpendicular transect lines spaced approximately 25 feet apart. The in-phase response is more sensitive to large metallic objects and is expressed in parts per thousand (ppt). Background response for the in-phase response was calibrated to range from -4 to 2 parts per thousand (ppt). In areas where no metals are present, the in-phase response is within this range. The terrain conductivity response measures the bulk conductivity of soil and groundwater and is expressed in milli-siemens per meter (mS/m). Background terrain conductivity values ranged from 5 to 20 mS/m. Such an instrument response is typical for the type of near surface sediments underlying the project site. Areas with an increase in the terrain conductivity may be indicative of buried metallic debris or changes in the bulk conductivity of the soil or groundwater.

The GPR survey was conducted along transect lines spaced approximately 50 feet apart. Additional lines were conducted across anomalous areas identified by either the EM or GPR data. The GPR data was collected with a Mala radar system. Initial tests were performed with 250 megahertz and 500 megahertz antennas. Based upon these tests, the survey data was collected with a 500 megahertz antenna and a time range setting of 95

nano-seconds. This time range setting provided information to an estimated depth of 6 to 10 feet below ground surface (bgs).

Other specifications for the EM and GPR surveys are included in the full report included in **Appendix C.** The results of the geophysical survey are provided in Section 4.1 below.

3.2 Test Pits

Under the direct supervision of qualified URS personnel, a URS subcontractor, Air, Water & Soil Engineering, Inc. (AWSE) excavated fifteen (15) test pits using a John Deere 410G Combination Backhoe. The trenches were placed in strategic locations based on the findings from Task 3.1 and based on information provided by DERM. The locations of the test pits and characteristics of the material excavated are discussed in Section 4.2 below.

The test pits were advanced to depths ranging from 1 foot to 9 feet below ground surface (bgs), until native limestone was encountered or the operational limits of the equipment (9 feet) were reached. The test pit samples recovered were visually inspected for proper classification and stratification. Information regarding soil classification, type and description of solid waste material, depth, and thickness was properly documented in the field by URS personnel. Upon completion of delineation of the soils and solid waste in the surface and subsurface layers, the test pits were backfilled. Representative photos taken during the field investigation are provided in the photo log included in **Appendix F**.

3.3 Soil Borings

In order to conduct a subsurface exploration of the former solid waste disposal areas, URS sub-contracted with a Florida-licensed well driller, Enviro Drill, Inc. (EDI). Under the direct supervision of qualified URS personnel, EDI installed 20 Standard Penetration Test (SPT) borings. These borings were placed in strategic locations based on the findings from Tasks 3.1 and 3.2 above and information provided by DERM. The locations of the soil borings and the characteristics of the material collected from various depths are discussed in Section 4.3 below.

The test borings were advanced to depths ranging from 5 feet to 22 feet below ground surface (bgs) until the bottom of the municipal solid waste and the native limestone was encountered. The boring samples recovered were visually inspected for proper classification and stratification. Information regarding soil classification, type and description of solid waste material, depth, and thickness was properly documented in the field by URS personnel. Upon completion of delineation of the soils and solid waste in the subsurface layers, each borehole was backfilled and plugged. Representatives photos of taken during the field investigation are provided in the photo log included in **Appendix F.**

4.0 RESULTS

4.1 Geophysical Survey Results

The results of the geophysical survey completed by GeoView, Inc. are presented in Figure 1 of the Geophysical Report prepared by Geoview, Inc., that is included in **Appendix C**. A contour map of the EM-31 in-phase response is presented in **Figure 2** of the same report. Two broad areas of elevated EM-31 in-phase and quadrature response were located within the park boundaries. The anomalies are outlined in the report. It is suspected that these two areas are associated with areas of shallow buried metal debris. Portions of the anomalies are also likely related to metal above ground structures present within the anomaly areas. Smaller, isolated areas of increased EM response are visible outside the anomaly areas. These locations correspond to buildings, fencings or underground utilities and not believed to be indicators of buried debris.

The GPR survey showed five areas of suspected excavation and/or debris within the survey area. The largest area was within the southern portion of the site. The locations of the GPR anomalies do not correlate well with the EM anomalies. This could indicate that the GPR anomalies are areas of nonmetallic debris or former excavation areas. Based on the GPR data, the suspected debris within the GPR anomalies appeared to extend from 1 to 8 feet bgs. The outer boundaries of the GPR anomalies are shown in blue on **Figures 1** through **3**. An example of the GPR data collected at the project site is provided in Appendix 1 of the Geoview Report. Six possible locations within the GPR anomalies and four possible locations within the EM anomalies were marked in the field. These locations are also shown on the figures as GPR1 through GPR6 and EM1 through EM4.

Based on the results of the geophysical survey, URS proceeded with completion of the delineation activities by excavation of test trenches and soil borings.

4.2 Test Pit Results

The locations of the test pits and the estimated percentage of solid waste observed in each pit are shown in **Figure 3.** The test pit samples recovered were visually inspected for proper classification and stratification. Information regarding soil classification, type and description of solid waste material, depth, and thickness was properly documented. The test trench logs providing a detailed description of the waste characteristics observed are provided as **Appendix D.**

The following is a summary of our findings:

- Angular or molten pieces of glass or small solid waste debris were observed in the surficial layer immediately below the grass or topsoil in most of the test pits.
- The estimated quantities of solid waste debris in the test pits varied considerably from about less than 5 percent near the northwest corner of the Park to about 70-90 percent near the eastern boundary and the southeastern portion of the Park.

- The test pits showed significant amount of solid waste debris below the surficial soil layers near existing playgrounds, tennis courts and basketball courts.
- The type of solid waste noted during the excavations generally included angular or molten pieces of glass, construction and demolition debris, partially burnt unrecognizable material, incidental amounts of old tires or remnants of tires, rusted metal, plastic bottles, wood from building or structures, and black residues of material that was burnt.

4.3 Results of Soil Boring Activities

The soil boring logs providing a detailed description of the waste characteristics observed at various intervals are provided in **Appendix E**.

Based on visual observations, URS was able to characterize the subsurface soil layers in the following main classifications:

- A surficial layer made up of top soil or vegetative cover, as shown in **Figure 4;**
- An intermediate layer made of soil and limerock to support the surficial layer mixed with small quantities of solid waste debris, as shown in **Figure 5**; and
- A bottom solid waste debris layer consisting of soil, limerock mixed with significant quantities of trash, construction and demolition debris, unrecognizable burnt material or residues, and municipal solid wastes, as shown in **Figure 6**.

The following is a summary of our findings:

- Angular or molten pieces of glass or small solid waste debris were observed in the surficial layer immediately below the grass or topsoil in most of the soil borings. This layer was generally about 6 inches thick.
- Immediately below the surficial layer, an intermediate layer of soil and limerock that was mixed with solid waste debris or unrecognizable burnt material was noted. The thickness of the intermediate layer varied considerably across the Park from about 6 inches to 5 feet.
- The bottom layer immediately below the intermediate limerock layer contained trash, half burnt or decomposed tires, construction and demolition debris, and unrecognizable burnt material or residues, and other municipal solid wastes. The thickness of the bottom layer varied considerably across the center portion of the Park. The deepest solid waste layer was observed near the southeastern quadrant of the Park with an estimated thickness of 14.5 feet and a depth of approximately 20.5 feet bgs. It is believed that the main entrance to the former rock pit was near the southeastern corner.
- Petroleum type odors were noted in 2 of the 20 soil borings installed. These were located in the southeastern and the northwestern quadrants of the Park.

5.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the results of our field investigation, the following conclusions are offered:

1. The results of the test pit and soil boring data indicate that there is evidence of solid waste disposal in the former Tousey Rock Pit. The exact time frame for these disposal activities could not be ascertained considering no operating records are currently available with the City. However, based on documentation of a City Commission meeting held on July 13, 1938, the Tousey Rock Pit Tract was used for the "municipal purpose of dumping and burning of trash and rubbish." It is also our understanding that ash for the City's incinerator in Coconut Grove was also deposited on this parcel during subsequent years.
2. The data collected by URS provides evidence of trash, half burnt or decomposed tires, construction and demolition debris, unrecognizable burnt material or residues, and other municipal solid waste debris below the surficial and intermediate layers. Incidental amounts of angular and molten pieces of glass were also observed in the surficial layer.
3. The thickest layer of solid waste debris noted from the soil borings was approximately 14.5 feet thick to a depth of 20.5 feet bgs. This was noted in a soil boring in the southeast quadrant immediately to the east of the basketball courts. Significant quantities of solid waste debris were also noted along the eastern boundary and the entrance to the Park to the west of the tennis courts.

URS is offering the following recommendations for consideration:

1. Considering the presence of small pieces of solid waste debris immediately below the top soil or grass cover across the Park, and the laboratory results of soil samples provided by DERM, it is recommended that the Park remain closed with restricted access until a full environmental assessment of the soil and groundwater impacts is conducted. A sampling plan to complete this assessment will be submitted for approval by DERM.
2. Any use of groundwater from wells on the property should be ceased immediately.
3. Considering the widespread presence of solid waste below the ground surface across the Park, a methane gas assessment should be conducted for the presence and migration of methane gas on-site as well as along the Park boundaries.

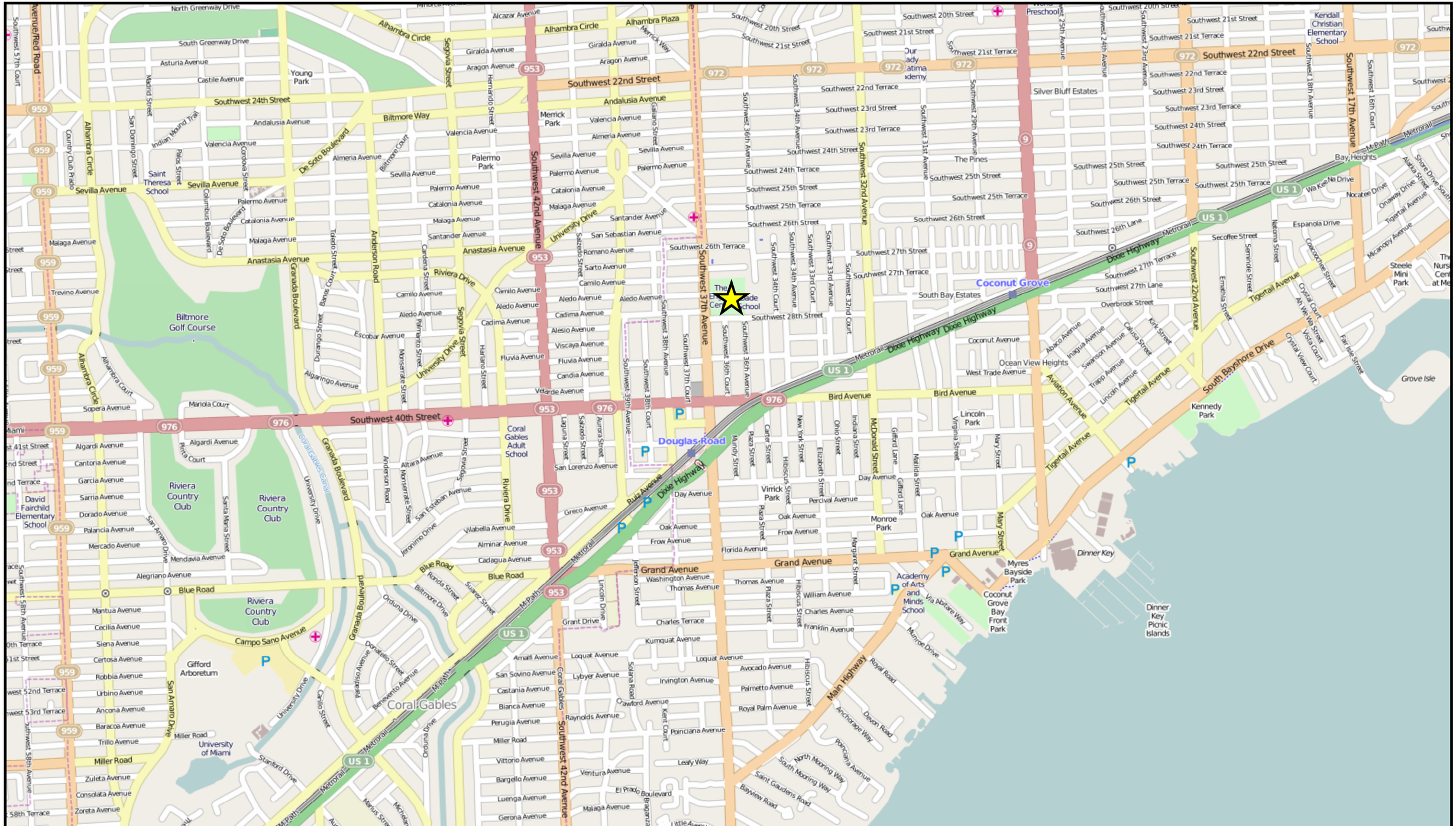
6.0 REFERENCES

1. Miami-Dade County Division of Environmental Resources Management Letter advising the City of Miami of Chapter 24, Miami Dade County Code violations, November 21, 2013.
2. Miami-Dade County Division of Environmental Resources Management Letter advising the City of Miami of their Inspection Findings and Laboratory Results, November 22, 2013.
3. Minutes of July 13, 1938 of the City Commission Agenda, as indicated in Minute Book No. 29, Page 105, provided by the City of Miami, December 12, 2013.
4. Miami-Dade County, Florida, Code of Ordinances, Section 24-44. Clean-up Target Levels (CTLs) and Procedures for Site Rehabilitation Actions (SRAs). (Ord. No. 04-214, §§ 1, 5, 12-2-04; Ord. No. 06-34, §§ 1—8, 3-7-06; Ord. No. 08-55, § 2, 5-6-08)

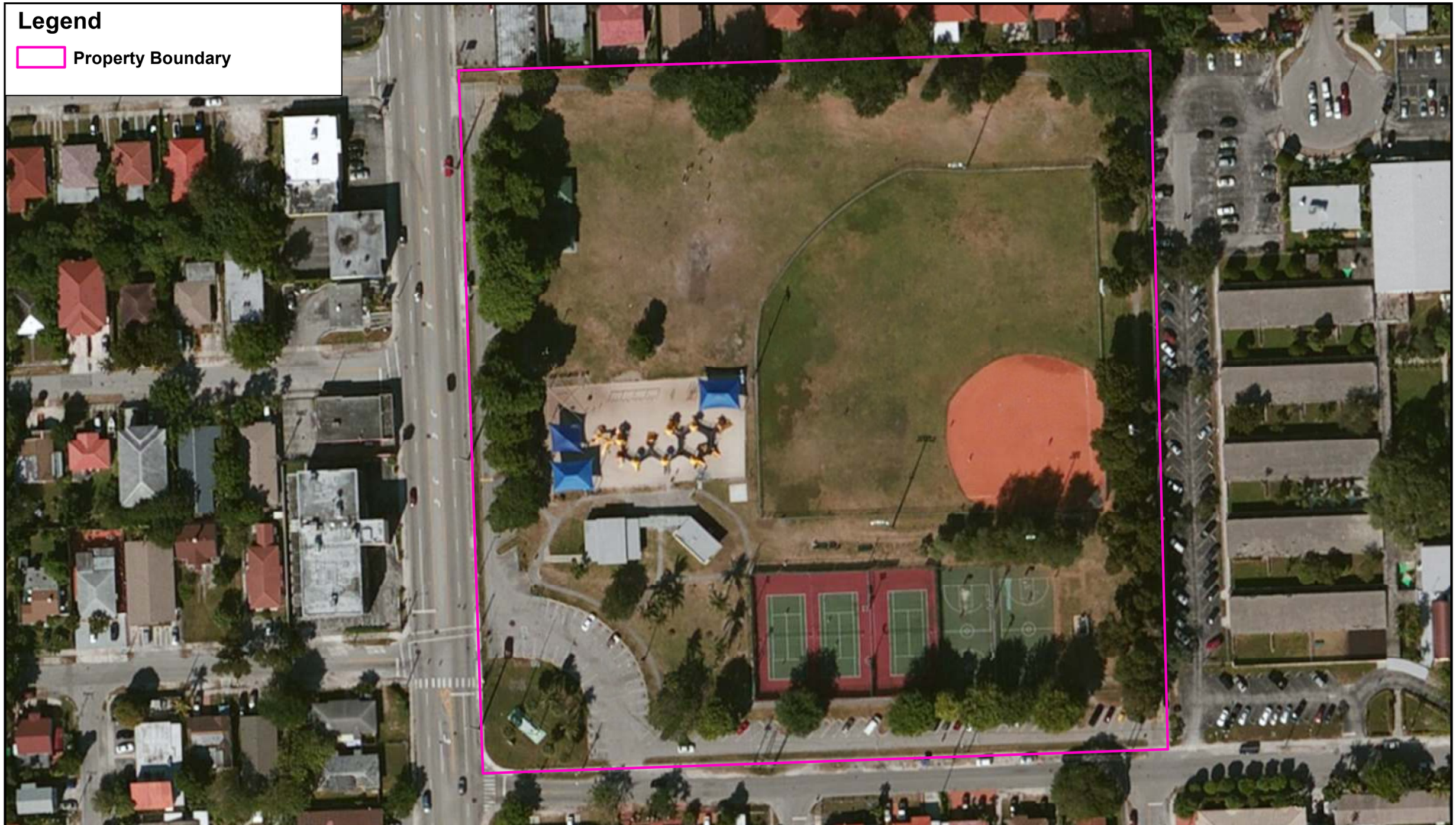
STATEMENT OF LIMITATIONS AND ASSUMPTIONS

1. This report is intended for the sole use of the City of Miami (City). The scope of services performed during this investigation may not be appropriate to satisfy the needs of other users, and any use or re-use of this document or of the findings, conclusions, or recommendations presented herein is at the sole risk of said user.
2. It would be extremely expensive, and perhaps not possible, to conduct an investigation which would ensure the detection of materials at the Park property, which now are, or in the future might be, considered hazardous. It is possible that the investigation may have failed to reveal the presence of hazardous or solid waste material materials at certain locations were samples were not collected. Our failure to discover these materials through a reasonable and mutually agreed-upon limited scope of work does not guarantee that these hazardous or solid waste materials do not exist at the Park property. Therefore, URS cannot insure and cannot certify that the Park is free of environmental contamination. No expressed or implied representation or warranty is included or intended in our report except that our services were performed, within the limits prescribed by our clients, with the customary thoroughness and competence of our profession.
3. URS has completed this project in a reasonable and prudent manner in accordance with the customary standards of care and diligence practiced by firms that conduct services of a similar nature. As with any assessment, this assessment is a "snapshot" of the former landfill operations and conditions based on the locations sampled by URS. Not all possible operating scenarios may be observed during the limited period the assessment team was conducted field activities at the Park property.
4. The assessment was performed based upon information provided by the records and documents provided by the City, direct verbal communication with City employees. Information obtained from these sources is assumed to be correct and complete. URS will not assume any liability for findings or lack of findings based upon misrepresentation of information presented to the URS assessment team or for items not visible, made available, accessible, or present at the site at the time of the investigation.
5. Opinions presented herein apply to the existing and reasonably foreseeable site conditions at the time of our assessment. They cannot apply to site changes of which URS is unaware and has not had the opportunity to review. Changes in the condition of this property may occur with time due to natural processes or works of man at the Park property or on adjacent properties. Changes in applicable standards may also occur as a result of legislation or the broadening of knowledge. Accordingly, the findings of this report may be invalidated, wholly or in part, by changes beyond our control.
6. The distribution of the solid waste was presented based on a model developed by ArcGIS™ Spatial Analyst, and solid waste presented in the areas that were not sampled may not represent the actual field conditions.
7. The sampling was limited to the unpaved areas as shown on the figures included in the report. The subsurface content under the paved areas/tennis courts/recreational facilities was not ascertained as part of this assessment.

FIGURES



URS	CITY OF MIAMI - DOUGLAS PARK 2795 S.W. 37TH AVE MIAMI, FL 33133	0 0.1 0.2 0.4 0.6 0.8 1 Miles Coordinate System: NAD 1983 StatePlane Florida East FIPS 0901 Feet Service Layer Credits: © OpenStreetMap (and) contributors, CC-BY-SA	N	SITE LOCATION MAP	FIGURE # 1	CITY OF MIAMI CAPITAL IMPROVEMENTS PROGRAM ENVIRONMENTAL ASSESSMENT

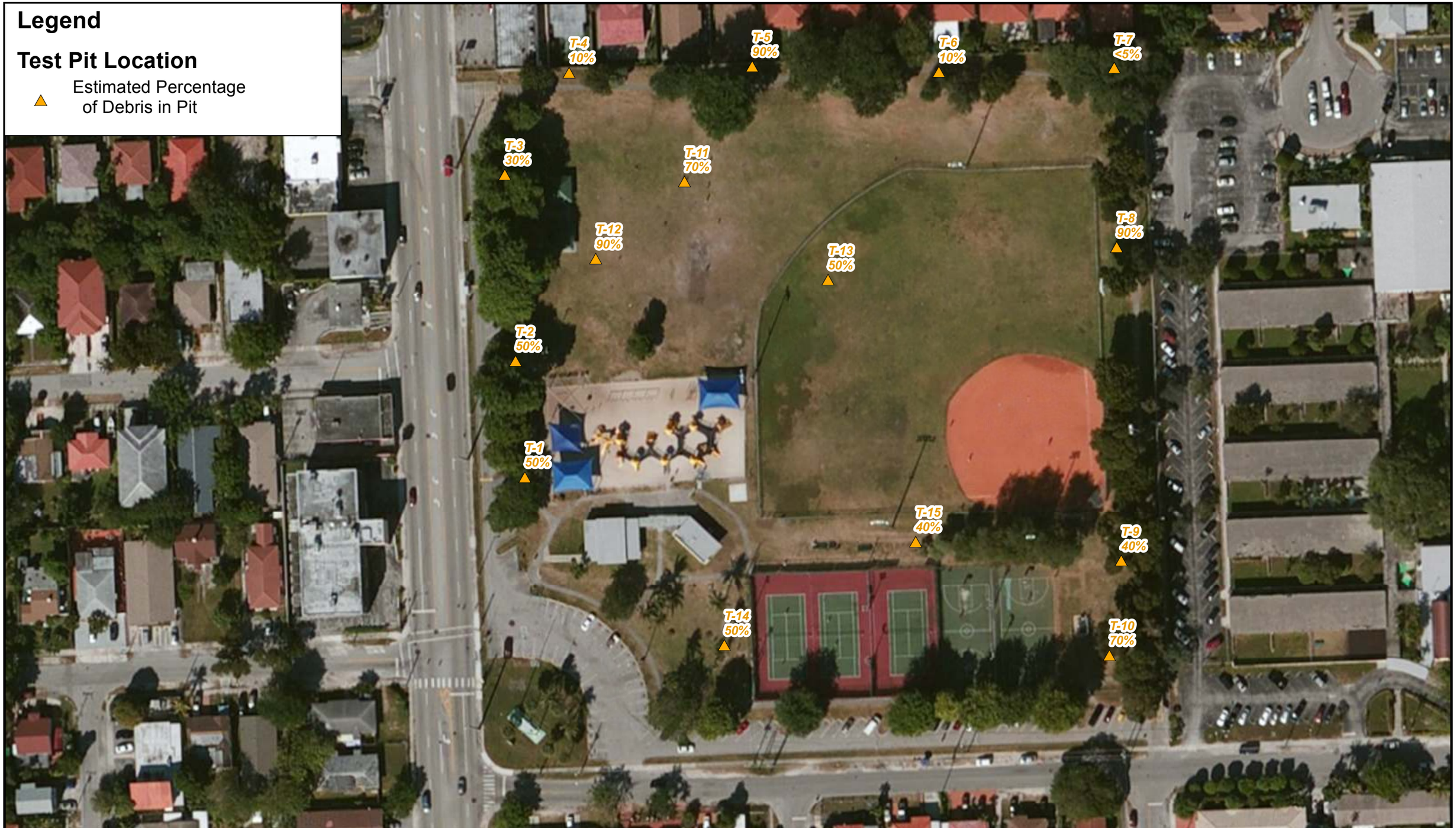


URS	CITY OF MIAMI - DOUGLAS PARK 2795 S.W. 37TH AVE MIAMI, FL 33133	0 25 50 100 150 200 250 300 Feet Coordinate System: NAD 1983 StatePlane Florida East FIPS 0901 Feet Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP,	N	SITE BOUNDARY	FIGURE 2	CITY OF MIAMI CAPITAL IMPROVEMENTS PROGRAM ENVIRONMENTAL ASSESSMENT

Legend

Test Pit Location

▲ Estimated Percentage of Debris in Pit



URS

CITY OF MIAMI - DOUGLAS PARK
2795 S.W. 37TH AVE
MIAMI, FL 33133

0 25 50 100 150 200 250 300 Feet

Coordinate System: NAD 1983 StatePlane Florida East FIPS 0901 Feet

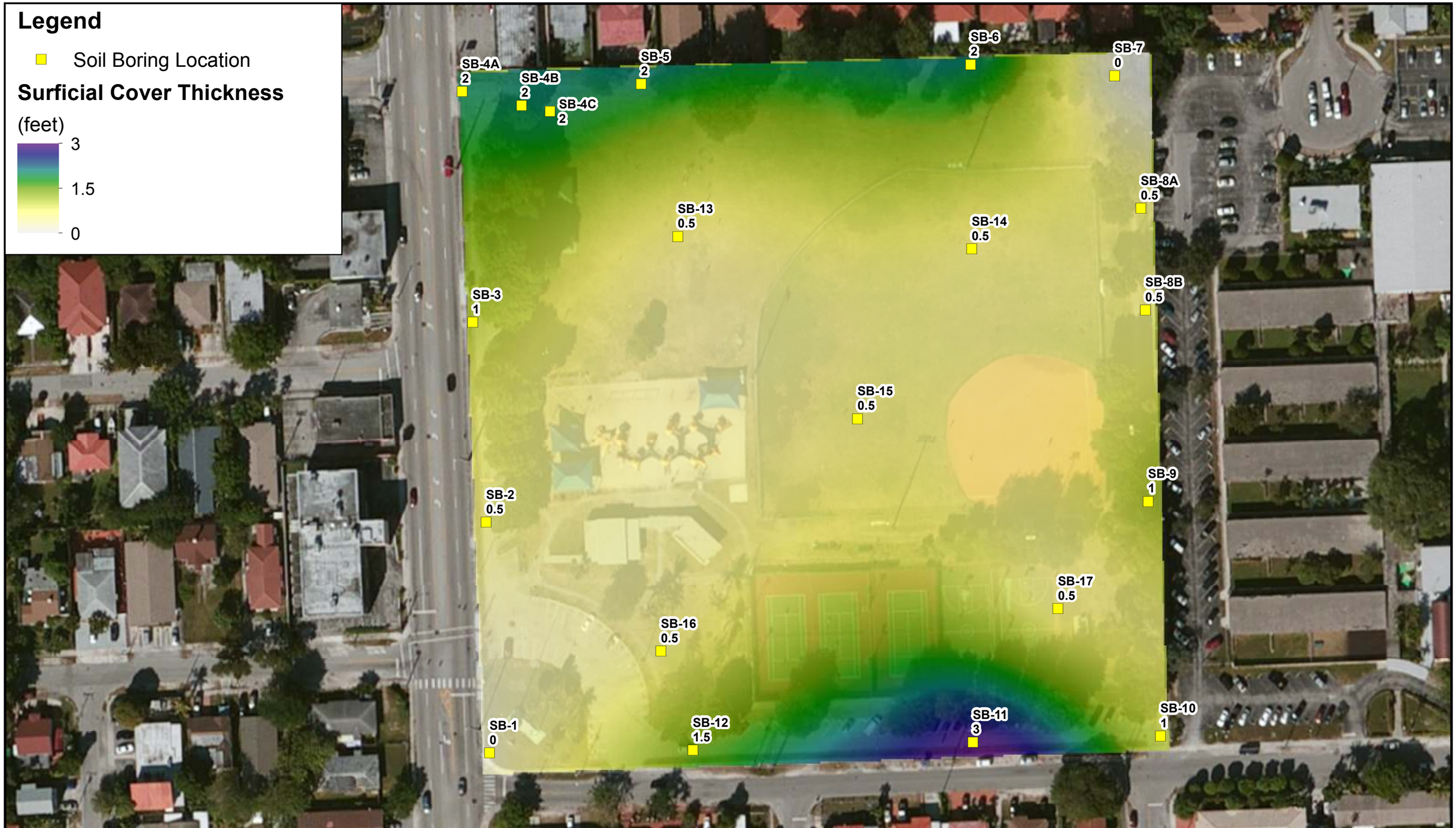
Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP,

N

TEST PIT LOCATIONS

FIGURE 3

CITY OF MIAMI
CAPITAL IMPROVEMENTS PROGRAM
ENVIRONMENTAL ASSESSMENT



URS	CITY OF MIAMI - DOUGLAS PARK 2795 S.W. 37TH AVE MIAMI, FL 33133	0 25 50 100 150 200 250 300 Feet Coordinate System: NAD 1983 StatePlane Florida East FIPS 0901 Feet Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP,	N	SURFICIAL COVER THICKNESS	FIGURE 4	CITY OF MIAMI CAPITAL IMPROVEMENTS PROGRAM ENVIRONMENTAL ASSESSMENT

Legend

Soil Boring Location

Intermediate Layer Thickness

(feet)

5

2.5

0

SB-4A
0

SB-4B
0

SB-4C
0

SB-5
0

SB-6
0

SB-7
1

SB-8A
1

SB-8B
0.5

SB-9
0

SB-10
0.5

SB-11
0

SB-12
0

SB-13
0.5

SB-14
0.5

SB-15
0.5

SB-16
0.5

SB-17
5

SB-1
1

SB-2
1

SB-3
0.5

0 25 50 100 150 200 250 300 Feet

Coordinate System: NAD 1983 StatePlane Florida East FIPS 0901 Feet

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP,

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CITY OF MIAMI - DOUGLAS PARK
2795 S.W. 37TH AVE
MIAMI, FL 33133

INTERMEDIATE LAYER THICKNESS

FIGURE 5

CITY OF MIAMI
CAPITAL IMPROVEMENTS PROGRAM
ENVIRONMENTAL ASSESSMENT

Legend

Soil Boring Location

Solid Waste Layer Thickness

(feet)

14.5

7

0

SB-4A 0

SB-4B 0

SB-4C 0

SB-5 0

SB-6 0

SB-7 8.5

SB-8A 7.5

SB-8B 10

SB-9 8.5

SB-10 0

SB-11 2.5

SB-12 7

SB-13 9

SB-14 8.5

SB-15 9

SB-16 10

SB-17 14.5

SB-1 1

SB-2 5.5

SB-3 0

0 25 50 100 150 200 250 300 Feet

Coordinate System: NAD 1983 StatePlane Florida East FIPS 0901 Feet

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP,

URS

CITY OF MIAMI - DOUGLAS PARK
2795 S.W. 37TH AVE
MIAMI, FL 33133

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SOLID WASTE LAYER THICKNESS

FIGURE 6

CITY OF MIAMI
CAPITAL IMPROVEMENTS PROGRAM
ENVIRONMENTAL ASSESSMENT

APPENDIX A

Minutes of July 13, 1938 of the City Commission Agenda as indicated in Minute Book No. 29, Page 105:

"ROCK PIT:

The following resolution was instroduced by Mr. Gardner, who moved its adoption:

RESOLUTION NO. 14315.

A RESOLUTION SETTING ASIDE THE TOUSEY ROCK PIT TRACT OF APPROXIMATELY 10 ACRES, NORTHEAST CORNER OF SW 37TH AVENUE AND 28TH STREET, FOR THE MUNICIPAL PURPOSE OF DUMPING AND BURNING OF TRASH AND RUBBISH.

WHEREAS, the City of Miami did on June 14, 1937 acquire by Tax Deed a tract of approximately ten (10) acres of land located at the Northeast Corner of SW 37th Avenue and 28th Street, commonly known as the "Tousey Rock Pit"; and

WHEREAS, for more than a year the Division of Shops and Wastes has been using this pit for the dumping of trash and rubbish and its careful burning by permission of and under the direction of the City Fire Department; and

WHEREAS, this area is greatly needed now and will be for many years to come, for this specific Municipal purpose properly to serve the entire Southwest Section;

NOW, THEREFORE, BE IT RESOLVED BY THE COMMISSION OF THE CITY OF MIAMI:

Section 1. That the area of approximately ten (10) acres at the Northeast corner of SW 37th Avenue and 28th Street, commonly known as the "Tousey Rock Pit", and acquired by the City of Miami by Tax Deed on June 14, 1937, be, and the same is hereby, set aside for use by the City of Miami for the dumping and burning of trash and rubbish.

Upon being seconded by Mr. Gardner, the resolution was passed and adopted by the following vote - AYES: Messrs. DuBose, Ferguson, Gardner, Williams. NOES: None."

APPENDIX B

MIAMI-DADE COUNTY
Carlos A. Gimenez, Mayor

Department of Regulatory and Economic Resources
Environmental Resources Management
701 NW 1st Court, 4th Floor
Miami, Florida 33136-3912
T 305-372-6700 F 305-372-6982
miamidade.gov

November 22, 2013

CERTIFIED MAIL NO. 7011 0470 0002 4386 4544
RETURN RECEIPT REQUESTED

Alice Bravo, Assistant City Manager
City of Miami
444 SW 2nd Avenue
Miami, FL 33130

Re: City of Miami (the City), Douglas Road Park (HWR-773) located at, near or in the vicinity of 2795 SW 37 Ave, City of Miami, FL

Dear Ms. Bravo:

To assist the City and as a follow up to our letter dated November 21, 2013, enclosed please find the site map with inspection findings and laboratory results collected and analyzed by the Department of Regulatory and Economic Resources - Division of Environmental Resources Management (DERM) for the Douglas Road Park as part of the ongoing evaluation of the areas surrounding the former Coconut Grove incinerator.

If you have any questions concerning the above contact Lorna Bucknor at bucknl@miamidade.gov or me at mayorw@miamidade.gov or via telephone at (305) 372-6700.

Sincerely

Wilbur Mayorga, P.E. Chief
Environmental Monitoring and Restoration Division

Attachment
ec: Jeovanny Rodriquez, City of Miami - jeovannyrodriguez@miamigov.com
Harry James, City of Miami – hjames@miamigov.com

Approximate areas where melted glass were noted at the surface.

Approximate areas where melted glass were noted at depth during exploratory boring or sampling.

DOUGLAS PARK 2795 Douglas Road
11-21-13 Site Inspection
RER Staff: D.Camacho/S.Edouard

NORTH

***Note that based on the size of the site, the inspection focused on the general recreation areas only (i.e. not all areas of the site were inspected).

GSU

S

MIAMI-DADE COUNTY, FLORIDA

Department of Regulatory and Economic Resources

MIAMI-DADE COUNTY

EPA # FL00025
FL CERT # E46126

LABORATORY ANALYSIS RECORD
ENFORCEMENT

Environmental Resources Management
Office of Laboratory Services
MIAMI, FLORIDA 33130-1510
(305)-375-1851

Site : Douglas Park

Address: 2795 SW 37 ST

Sample # : 295099

Sampler/Section: S. Edouard / C. Nwaokoh / R. Equino / EMS Date : 11/13/2013 Time : 11:48

Deliverer/Section: S. Edouard / C. Nwaokoh / R. Equino / EMS Collection Point :

Return Analysis to/Section: Lorna Bulkner / D. Cumanko / EMS SB-1C (12"-24")

C.C.#: 992511 Permit : _____ Phone : 3/372-6700 Observation/Known Hazards:

Native soil / pieces of glass

13 NOV '13 13:14 — Clock-In Date/Inspector

S. Edouard — Sign By Inspector

A. Nog — *Sign By Lab Custodian

AC09868 Ref # 5 — *Laboratory ID #

Iced? (Y) N

7.6 — *Temp.(° C) upon Rec.

Return For TCLP / SPLP?

Clock-In Date/Inspector — Date Requested _____ — *Laboratory ID # / Fridge # — *Laboratory ID # / Fridge #

15 NOV '13 12:21 — *Take-Out Date/ RER Lab

*Returned-Date/ RER Lab

*Take-Out Date/ RER Lab

*Returned-Date/ RER Lab

For Disposal Date:
See Metal Disposal Log

*Sample Disposal Date

*Extracted By / Date

20 NOV '13 14:26 — *Analyzed By / Date

Requirements: SDWA __ NPDES __ Other __

Matrix: H2O __ (Soil)/Sludge ✓ Product __ Layer __ Sewage __ Other _____

Preservation: None ✓ Acid __ Base __ Thermal : Iced ✓ No Iced __

Sample Bottle Prepared Lot # : _____

Picked-Up Date By Inspector: 11/13/2013

Split Sample? Yes __ No ✓ Consultant/Lab: —

Test(s) Run/Method #	Test(s) Run/Method #
8 RCRA Metals to include	
Hg, Al, Fe, Sb	

Relinquished To: **Contract Lab

Delivered By / Date: LAB RESULTS ATTACHED

Received By / Date: YC 11-22-2013

Extracted By / Date:

Analyzed By / Date:

Returned By / Date:

Comments 8 point composite

* By RER Lab ** By Contract Lab

Office of Laboratory Services

MIAMI-DADE

EPA # FL0002
FL CERT E46126

Sample Analysis Record

Metals

RER

211 W. Flagler St.
Miami, Fl 33130
(305) 375-1851

Site Description : DOUGLAS PARK

Blue Card No : 295099 **Collected :** 11/13/13 11:48
LIMS ID : AC09868 **Received :** 11/13/13 13:14
Sampled By : EDOUAS- **Matrix :** Solid

Metals	Conc.	MDL	Unit	DF	Extracted	Digested	Analyzed	By
1. Arsenic by 6010-3050B	23.9	0.3	mg/Kg	2	n/a	11/15/13	11/18/13	LW
2. Barium by 6010-3050B	951	0.3	mg/Kg	10	n/a	11/15/13	11/18/13	LW
3. Cadmium by 6010-3050B	3.5	0.1	mg/Kg	2	n/a	11/15/13	11/18/13	LW
4. Chromium by 6010-3050B	48.1	0.3	mg/Kg	2	n/a	11/15/13	11/18/13	LW
5. Lead by 6010-3050B	2.34E3	0.3	mg/Kg	10	n/a	11/15/13	11/18/13	LW
6. Selenium by 6010-3050B	U	0.5	mg/Kg	2	n/a	11/15/13	11/18/13	LW
7. Silver by 6010-3050B	5.7	0.2	mg/Kg	2	n/a	11/15/13	11/18/13	LW
8. Mercury by 6010-3050B	U	0.3	mg/Kg		n/a	11/15/13	11/20/13	LW
9. Aluminum by 6010-3050B	4.26E3	30	mg/Kg	10	n/a	11/15/13	11/18/13	LW
10. Iron by 6010-3050B	9.31E4	55	mg/Kg	10	n/a	11/15/13	11/18/13	LW
11. Antimony by 6010-3050B	9	1	mg/Kg	2	n/a	11/15/13	11/18/13	LW

U = Below MDL MDL = Method Detection Limit I = Between MDL and PQL DF = Dilution Factor All analyses are in compliance with NELAC standards.

Date of Issue
11/20/2013

 Note : Multiply MDL by Dilution Factor (1.0, unless noted otherwise.)

All results being reported under this report apply to the samples analyzed.

Results are reported in dry wt. unless otherwise noted.

Yin Chen / *QA Officer*

If you have any questions please contact the QA Officer at 305-375-1851.

GSU

S

MIAMI-DADE COUNTY, FLORIDA

Department of Regulatory and Economic Resources

MIAMI-DADE COUNTY

EPA # FL00025
FL CERT # E46126

Environmental Resources Management
Office of Laboratory Services
MIAMI, FLORIDA 33130-1510
(305)-375-1851

LABORATORY ANALYSIS RECORD
ENFORCEMENT

295098

Site : Douglas Park

Address: 2795 SW 37 ST

Sample # :

Sampler/Section: S. Edward / C. Nwaokoh / R. Equino / EMS Date : 11/13/2013 Time : 11:20

Deliverer/Section: S. Edward / C. Nwaokoh / R. Equino / EMS Collection Point :

Return Analysis to/Section: Lorna Buckner / D. Camacho / EMS SB-1C (6"-12")

C.C.#: 992511 Permit : Phone : 3/377-6200 Observation/Known Hazards:

Metals / broken glass
TIC

13 NOV '13 13:14

AC09869

Clock-In Date/Inspector	Sign By Inspector	*Sign By Lab Custodian	*Laboratory ID #	*Temp.(° C) upon Rec.
	S. Edward	A. Nwaokoh	Ref # S Iced? Y N	7.6

Return For TCLP / SPLP?

Clock-In Date/Inspector	Date Requested	*Laboratory ID # / Fridge #	*Laboratory ID # / Fridge #
15 NOV '13 12:21			

Requirements: SDWA __ NPDES __ Other __

Matrix: H2O __ Soil/Sludge ✓ Product __ Layer __ Sewage __ Other __

Preservation: None ✓ Acid __ Base __ Thermal : Iced ✓ No Iced __

Sample Bottle Prepared Lot # :

Picked-Up Date By Inspector: 11/13/2013

Split Sample? Yes __ No ✓ Consultant/Lab: —

*Take-Out Date/ RER Lab	*Returned-Date/ RER Lab	*Take-Out Date/ RER Lab	*Returned-Date/ RER Lab	*Take-Out Date/ RER Lab
15 NOV '13 12:21				

Test(s) Run/Method #	Test(s) Run/Method #
8 RCRA Metals to include Hg, Al, Fe, Sb	

For Disposal Date:
See Metal Disposal Log

*Disposal Date

Relinquished To: **Contract Lab

Delivered By / Date: LAB RESULTS ATTACHED

Received By / Date: YC 11-22-2013

*Extracted By / Date

Extracted By / Date:

20 NOV '13 14:26

*Analyzed By / Date

Analyzed By / Date:

Returned By / Date:

Comments 10 point composite

* By RER Lab ** By Contract Lab

Office of Laboratory Services

MIAMI-DADE

EPA # FL0002
FL CERT E46126

Sample Analysis Record

Metals

RER
211 W. Flagler St.
Miami, Fl 33130
(305) 375-1851

Site Description : DOUGLAS PARK

Blue Card No : 295098 **Collected :** 11/13/13 11:20
LIMS ID : AC09869 **Received :** 11/13/13 13:14
Sampled By : EDOUAS- **Matrix :** Solid

Metals	Conc.	MDL	Unit	DF	Extracted	Digested	Analyzed	By
1. Arsenic by 6010-3050B	30.7	0.3	mg/Kg	2	n/a	11/15/13	11/18/13	LW
2. Barium by 6010-3050B	1.29E3	0.3	mg/Kg	10	n/a	11/15/13	11/18/13	LW
3. Cadmium by 6010-3050B	5.5	0.1	mg/Kg	2	n/a	11/15/13	11/18/13	LW
4. Chromium by 6010-3050B	82.0	0.3	mg/Kg	2	n/a	11/15/13	11/18/13	LW
5. Lead by 6010-3050B	3.65E3	0.3	mg/Kg	10	n/a	11/15/13	11/18/13	LW
6. Selenium by 6010-3050B	U	0.5	mg/Kg	2	n/a	11/15/13	11/18/13	LW
7. Silver by 6010-3050B	12.1	0.2	mg/Kg	2	n/a	11/15/13	11/18/13	LW
8. Mercury by 6010-3050B	0.3 I	0.3	mg/Kg		n/a	11/15/13	11/20/13	LW
9. Aluminum by 6010-3050B	274	30	mg/Kg	20	n/a	11/15/13	11/18/13	LW
10. Iron by 6010-3050B	7.34E3	55	mg/Kg	20	n/a	11/15/13	11/18/13	LW
11. Antimony by 6010-3050B	21	1	mg/Kg	2	n/a	11/15/13	11/18/13	LW

U = Below MDL MDL = Method Detection Limit I = Between MDL and PQL DF = Dilution Factor All analyses are in compliance with NELAC standards.

Date of Issue
11/20/2013

 Note : Multiply MDL by Dilution Factor (1.0, unless noted otherwise.)

All results being reported under this report apply to the samples analyzed.

Results are reported in dry wt. unless otherwise noted.

Yin Chen / *QA Officer*

If you have any questions please contact the QA Officer at 305-375-1851.

MIAMI-DADE COUNTY
Carlos A. Gimenez, Mayor

Department of Regulatory and Economic Resources
Environmental Resources Management
701 NW 1st Court, 4th Floor
Miami, Florida 33136-3912
T 305-372-6700 F 305-372-6982
miamidade.gov

November 21, 2013

CERTIFIED MAIL NO: 7011 0470 0002 4387 5335
RETURN RECEIPT REQUESTED

Alice Bravo, P.E.
Assistant City Manager - Chief of Infrastructure
City of Miami
444 SW 2nd Avenue
Miami, FL 33130

Re: City of Miami (the City), Douglas Park (HWR-773) located at, near or in the vicinity of 2795 SW 37 Ave, City of Miami, FL

Dear Ms. Bravo:

On October 23 and November 13, 2013, staff from the Department of Regulatory and Economic Resources - Division of Environmental Resources Management (DERM) inspected and sampled the referenced site as a part of the ongoing evaluation of the areas surrounding the former Coconut Grove incinerator. DERM's inspection revealed the presence of solid waste, the physical characteristics of which were similar to the material documented at Blanche Park located 3045 Shipping Ave and Merrie Christmas Park located in the vicinity of SW 42 Avenue and Barbarossa Avenue. Additionally, preliminary laboratory results (received on November 20, 2013) for soil samples obtained on November 13, 2013 indicates the presence of antimony, arsenic, barium, copper, iron, and lead above screening criteria.

Be advised that the above-mentioned soil concentrations constitute violations of the Miami-Dade County Code, specifically, Sections 24-44, 24-27, 24-28, and 24-29. Therefore, DERM requires the City to:

1. Immediately implement measures to eliminate contact with the solid waste and exposure to the contaminated soil.

   To ensure no exposure to the documented solid waste DERM recommends that the park be closed until such time as the assessment required in Item #2 below is completed,

2. Within thirty (30) day of receipt of this correspondence; submit to the DERM for review and approval:

   I. A solid waste delineation report. The report shall provide delineation (accomplished through trenching or the installation of soil borings) of the horizontal and vertical extent of the solid waste. At each trenching or soil boring location, the thickness of solid waste (including depth at which solid waste is first encountered and depth at which solid waste terminates), the

Delivering Excellence Every Day

type(s) of solid waste encountered and the percentage of solid waste present shall be recorded and summarized in tabular format.

II. Based on the solid waste delineation, submit a sampling plan that accomplishes delineation of the soil contamination (degree and extent). The plan shall be developed utilizing a random sampling grid pattern consisting of appropriately sized grids (e.g., 100 feet by 100 feet). The number of grids selected for sampling may be progressively minimized moving away from the footprint of the solid waste area(s). Within each selected sampling grid, a 12 point composite sample shall be collected from the 0-6" and 6"-24" intervals and the sample analyzed for As, Ba, Pb, Al, Cu, Sb and Fe. Based on the metal results, a plan for sampling and analyzing a subset of the grid locations for dioxins, PCBs, Hg, Cr, Cd, Ag and Se shall be submitted to DERM for review and approval. Additionally, a discrete soil boring shall be advanced in the center of each sampling grid and the 0-6", 6"-24" and 24"-48" intervals sampled and analyzed for the parameters listed above (including dioxins and PCBs as appropriate). Additional delineation, including vertical delineation below 48", may be required.

Depending on the thickness of solid waste encountered, the sampling plan shall include a representative number of monitoring wells to allow for groundwater assessment. At a minimum, any irrigation wells present at the site shall be sampled for the parameters listed above, including dioxins and PCBs.

The consultant collecting the samples shall perform field sampling work in accordance with the Standard Operating Procedures provided in Chapter 62-160, Florida Administrative Code (FAC). The laboratory analyzing the samples shall perform laboratory analyses pursuant to the National Environmental Laboratory Accreditation Program (NELAP) certification requirements.

DERM reserves the right to split samples with the consultant as deemed necessary; therefore, DERM shall be notified via email a minimum of three (3) working days prior to the implementation of any sampling or field activities. Email notifications shall be directed to bucknl@miamidade.gov as well as to DERMPCD@miamidade.gov. Please include the DERM file number on all correspondence.

If you have any questions concerning the above contact Lorna Bucknor (bucknl@miamidade.gov) or myself (mayorw@miamidade.gov) or via telephone at (305) 372-6700.

Sincerely,

Wilbur Mayorga, P.E. Chief
Environmental Monitoring and Restoration Division

ec: Jeovanny Rodriquez, City of Miami - jeovannyrodriguez@miamigov.com
Lee Hefty, Director, DERM

APPENDIX C

FINAL REPORT
GEOPHYSICAL INVESTIGATION
DOUGLAS PARK SITE
MIAMI, FLORIDA

Prepared for URS Corporation
Tallahassee, Florida

Prepared by GeoView, Inc.
St. Petersburg, Florida

January 3, 2013

Mr. Vivek Kamath, P.E.
URS Corporation
7650 Corporate Center Drive, Suite 400
Miami, Florida 33126

Subject: Transmittal of Final Report for Geophysical Survey
Douglas Park Site – Miami, Florida
GeoView Project Number 24000

Dear Mr. Kamath,

GeoView, Inc. (GeoView) is pleased to submit the final report which summarizes and presents the results of the geophysical investigation conducted at Douglas Park Site in Miami, Florida. Electromagnetics and ground penetrating radar were used to identify the presence and location areas of buried debris that may be within the boundaries of the project site. GeoView appreciates the opportunity to have assisted you on this project. If you have any questions or comments about the report, please contact us.

GEOVIEW, INC.

Michael J. Wightman, P.G.
President
Florida Professional Geologist
Number 1423

Chris Taylor, P.G.
Vice President
Florida Professional Geologist
Number 2256

1.0 Introduction

The project site was located at 2795 SW 37th Avenue in Miami, Florida. Of concern was the possible presence and location of buried debris and extents of a possible former landfill. The survey was conducted using frequency domain electromagnetics (EM-31) and ground penetrating radar (GPR). The investigation was performed on December 9, 2013.

The accessible portion of the site was approximately 10 acres in size (Figure 1). The majority of the site was a grass field. Playground equipment, buildings, tennis courts, a parking lot and a baseball field were present within the survey area. Objects of potential magnetic interference, which did influence the EM-31 instrument response, were located within the survey area. These objects included the aforementioned structures, utility junctions, parking curbs and fencing.

2.0 Description of Geophysical Investigation

The EM portion of the geophysical investigation was conducted using a Geonics EM31-MK2 (EM-31). The EM survey was conducted along a series of perpendicular transect lines spaced approximately 25 ft apart. The locations of the transect lines were recorded using a Trimble GeoXH Global Positioning System (GPS). A Wide Area Augmentation System (WAAS) was used to augment GPS with additional signals to increase the reliability, integrity, accuracy and availability of the GPS signal. By using WAAS, an accuracy of less than 3 ft in the horizontal dimension can be achieved. Both the inphase and terrain conductivity responses were contoured using Surfer^{tm} contouring software.

The GPR survey was conducted transect lines spaced approximately 50 ft apart. Additional lines were conducted across anomalous areas identified by either the EM or GPR data. The GPR data was collected with a Mala radar system. Initial tests were performed with 250 megahertz and 500 megahertz antennas. Based upon these tests, the survey data was collected with a 500 megahertz antenna and a time range setting of 95 nano-seconds. This time range setting provided information to an estimated depth of 6 to 10 ft below land surface (bls).

A description of the EM and GPR techniques and the methods employed buried debris studies is provided in Appendix 2.

3.0 Survey Results

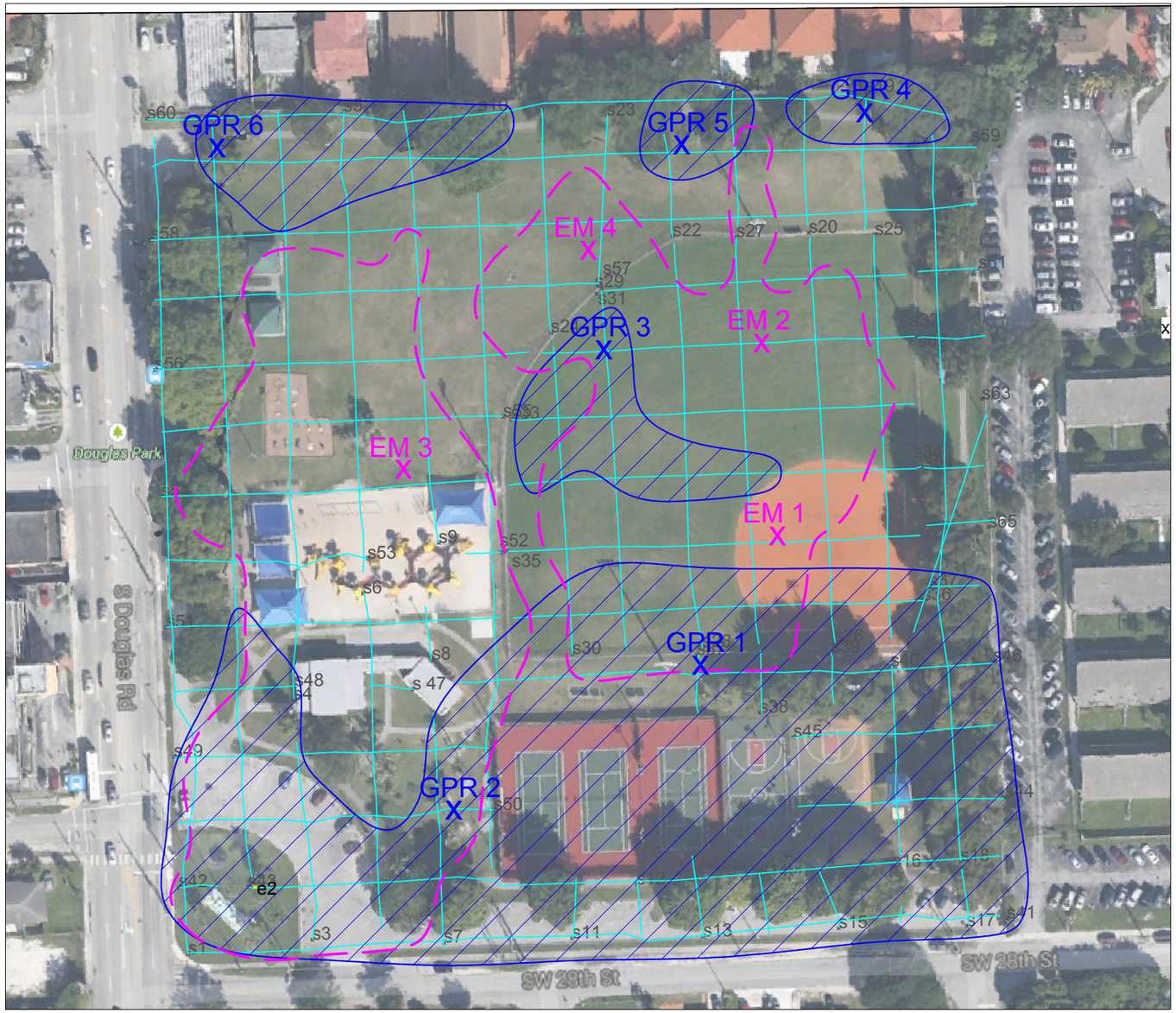
Results of the geophysical survey are presented in Figure 1. A contour map of the EM-31 inphase response is presented in Figure 2. A contour map of the EM-31 terrain conductivity response is presented in Figure 3. The inphase response is more sensitive to large metallic objects and is expressed in parts per thousand (ppt). Background response for the in-phase response was calibrated to range from -4 to 2 parts per thousand (ppt). In areas where no metals are present, the in-phase response is within this range. The terrain conductivity response measures the bulk conductivity of soil and groundwater and is expressed in milli-siemens per meter (mS/m). Background terrain conductivity values ranged from 5 to 20 milli-siemens per meter (mS/m). Such an instrument response is typical for the type of near-surface sediments underlying the project site. Areas with an increase in the terrain conductivity may be indicative of buried metallic debris or changes in the bulk conductivity of the soil or groundwater.

Two broad areas of elevated EM-31 inphase and quadrature response were located within the project site. The anomalies are outlined in magenta on Figures 1 through 3. It is suspected that these two areas are associated with areas of shallow buried metal debris. Portions of the anomalies are also likely related to metal above ground structures present within the anomaly areas. Smaller, isolated areas of increased EM response are visible outside the anomaly areas. However, the locations of these isolated areas correspond to know above ground surface metal (buildings, fencings, etc.) or underground utilities and are not suspected to be indicative of buried debris.

The GPR data also showed five areas of suspected excavation and/or debris within the survey area. The largest area was within the southern portion of the site. The locations of the GPR anomalies do not correlate well with the EM anomalies. This could indicate that the GPR anomalies are areas of nonmetallic debris or former excavation areas. Based on the GPR data, the suspected debris within the GPR anomalies appeared to extend from 1 to 8 ft bls. The outer boundaries of the GPR anomalies are shown in blue on Figures 1 through 3. An example of the GPR data collected at the project site is provided in Appendix 1.

To aid with future testing activities, six possible locations within the GPR anomalies and four possible locations within the EM anomalies were marked in the field. These locations are also shown on the figures as GPR1 through GPR6 and EM1 through EM4.

APPENDIX 1
FIGURES AND EXAMPLE OF GPR DATA



0 100'

SCALE: 1"=100' APPROX.

EXPLANATION

S-1 — LOCATION OF GPR TRANSECT START AND END POINTS

GPR ANOMALY
(AREA OF SUSPECTED FORMER EXCAVATION AND BURIED DEBRIS)

AREA OF ELEVATED EM-31 RESPONSE
(POSSIBLE AREAS OF BURIED SHALLOW METAL OR SURFACE INTERFERENCE)

X GPR-1 — POSSIBLE SAMPLING LOCATION OF GPR ANOMALY

X EM-1 — POSSIBLE SAMPLING LOCATION OF EM31 ANOMALY

Geo View

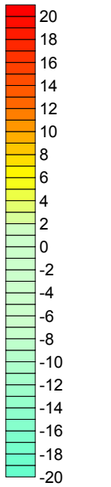
FIGURE 1

SITE MAP
SHOWING RESULTS
GEOPHYSICAL
INVESTIGATION

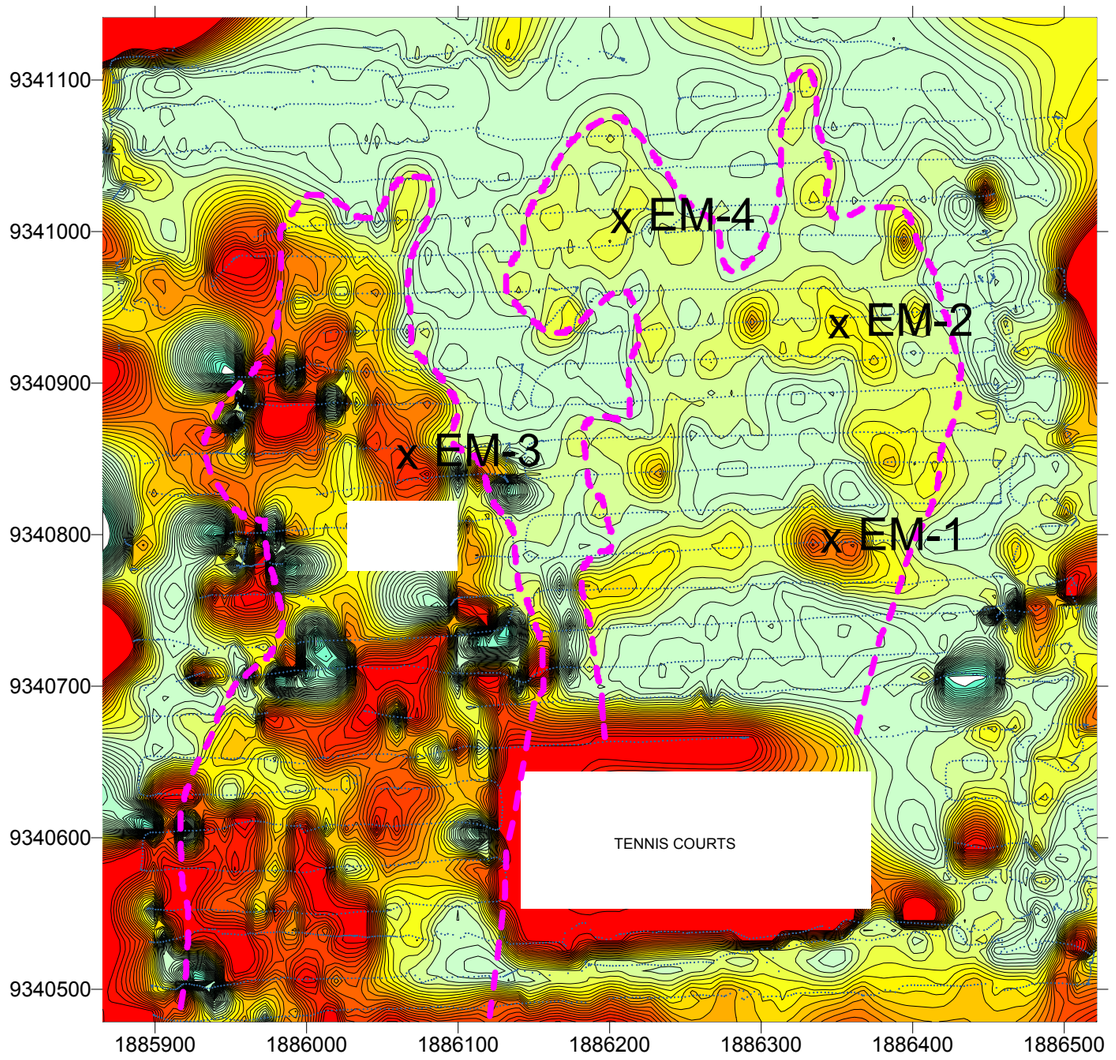
DOUGLAS PARK SITE
MIAMI, FLORIDA

URS CORPORATION
MIAMI, FLORIDA

PROJECT
24000
DATE:
01/03/14



EM-31 CONDUCTIVITY RESPONSE
(IN PARTS PER THOUSAND)



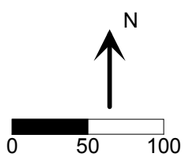
EXPLANATION

CONTOUR OF EM-31 INPHASE RESPONSE

++++++ DATA STATION

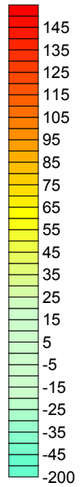
BOUNDARY OF EM-31 ANOMALY AREA

x EM-1 POSSIBLE SAMPLING LOCATION OF EM-31 ANOMALY

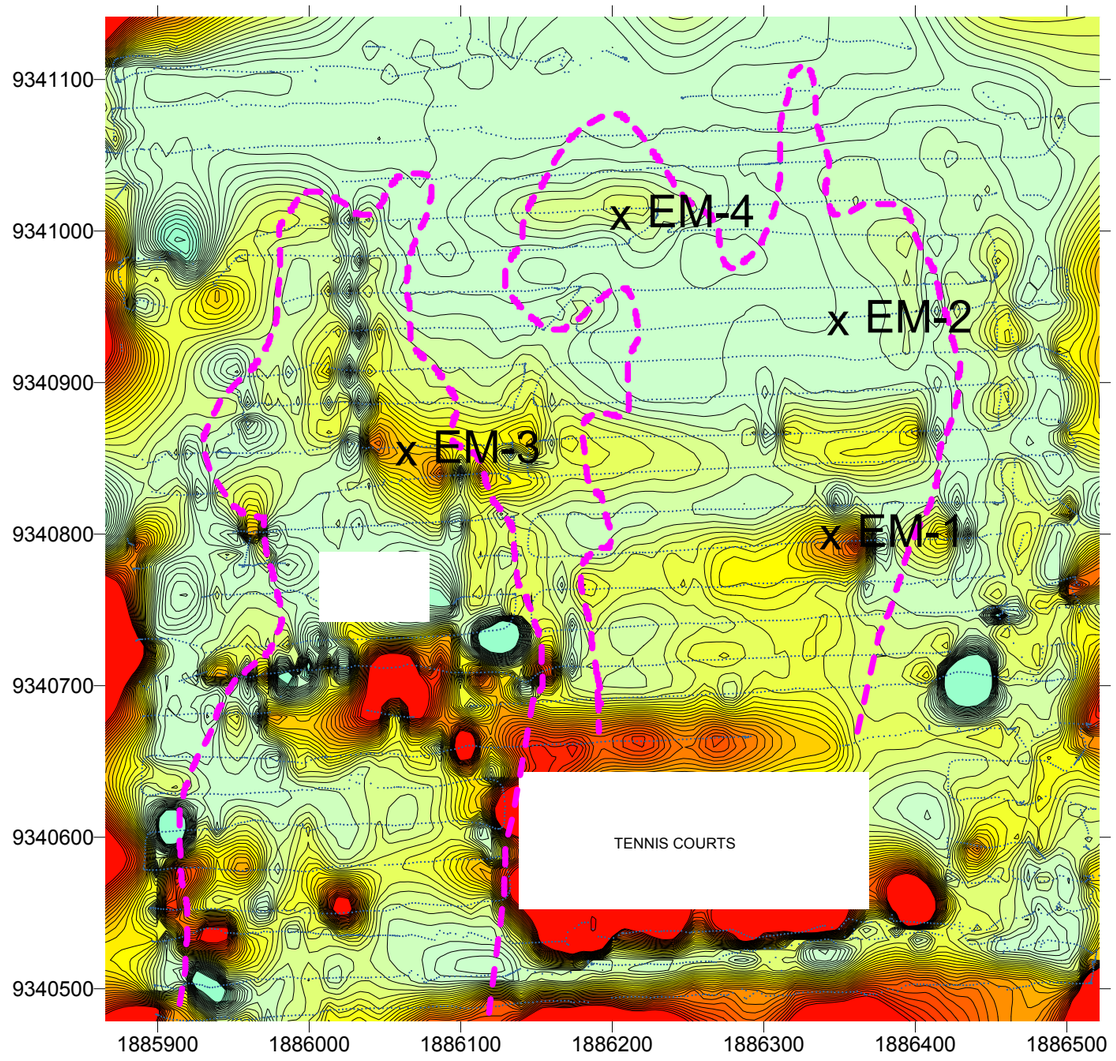


GeoView A geophysical surveys company

FIGURE 2		**DOUGLAS PARK SITE MIAMI, FLORIDA**
COLOR CONTOUR MAP OF EM-31 INPHASE RESPONSE	**URS CORPORATION MIAMI, FLORIDA**	**PROJECT: 24000 DATE: 01/03/14**



EM-31 CONDUCTIVITY RESPONSE
(IN MILLI-SIEMENS PER METER)



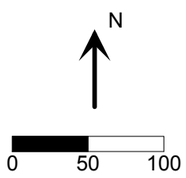
EXPLANATION

CONTOUR OF EM-31 CONDUCTIVITY RESPONSE

++++++ DATA STATION

BOUNDARY OF EM-31 ANOMALY AREA

x EM-1 POSSIBLE SAMPLING LOCATION OF EM-31 ANOMALY

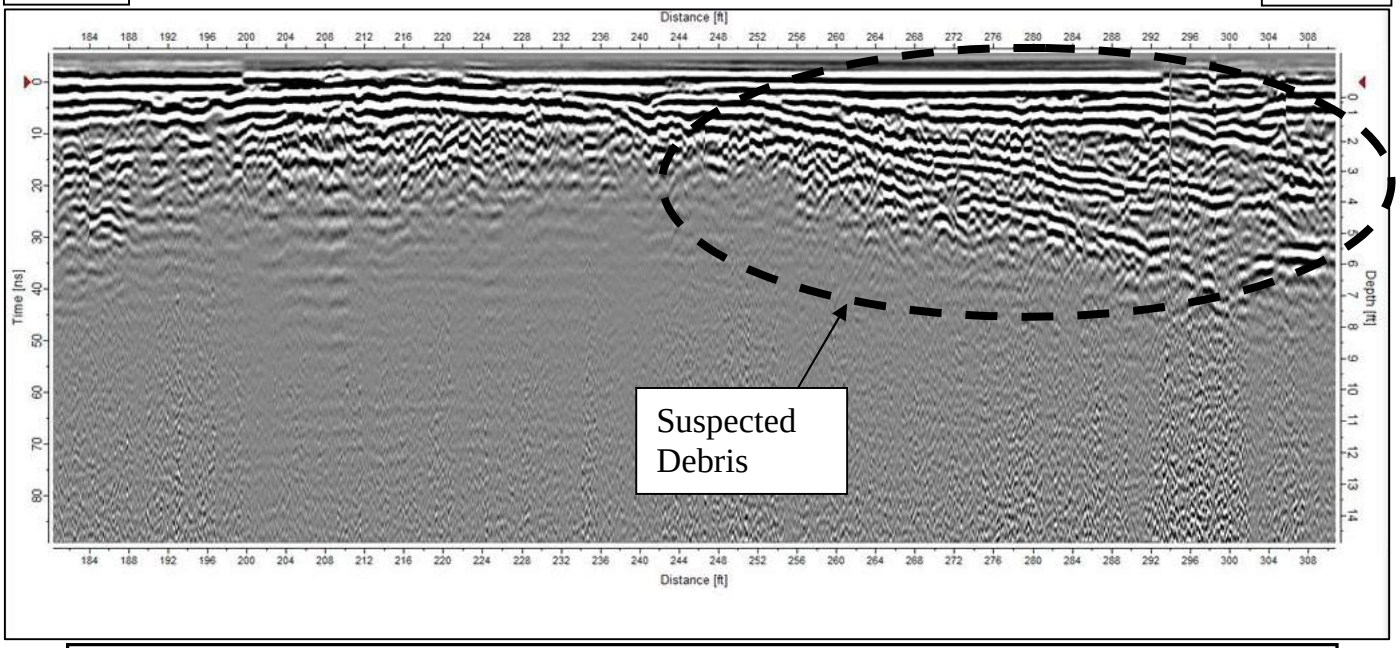


GeoView A geophysical service company

	FIGURE 3	**DOUGLAS PARK SITE MIAMI, FLORIDA**
COLOR CONTOUR MAP OF EM-31 CONDUCTIVITY RESPONSE	**URS CORPORATION MIAMI, FLORIDA**	**PROJECT: 24000 DATE: 01/03/14**

North

South



GPR Profile 27 Collected Showing a Suspected Area of Buried Debris

APPENDIX 2
DESCRIPTION OF GEOPHYSICAL METHODS, SURVEY METHODOLOGIES AND LIMITATIONS

A2.1 Electromagnetics

The EM method is a non-destructive geophysical technique that measures the electrical conductivity of subsurface materials. The conductivity is determined by inducing (from a transmitter) a time-varying magnetic field and measuring (with a receiver) the amplitude and phase shift of an induced secondary magnetic field. The EM survey was conducted using a Geonics EM31-MK2 (EM31). For soil conditions typical to Florida, the EM unit provides a measurement of ground conductivity to a depth of 15 to 20 feet below land surface.

Variations in subsurface conductivity may be caused by the presence of buried metallic objects or by geological changes such as changes in soil type (clay vs. sand) or variations in pore fluid conductivity. Typical applications for the EM method include:

- Location of buried metallic objects
- Mapping conductive contaminant ground water plumes
- Mapping of non-conductive (hydrocarbon) contaminant ground water plumes
- Delineating abandoned trenches or lagoons with fill material different from native soils
- Determining relative concentrations of near-surface conductive soils (clays)
- Delineating bedrock fracture zones
- Identifying large voids or cavities

There are two components of the induced magnetic field measured by the EM31 equipment. The first is the quadrature-phase (out-of-phase) component that measures the bulk conductivity of soil and groundwater. This is referred to as the terrain conductivity response with units that are expressed in milli-siemens per meter (mS/m). The second component is the in-phase response that is relatively more sensitive to large metallic objects such as pipes, drums, large items of buried metallic debris and underground storage tanks. This portion of the instrument response is expressed in parts per thousand (ppt). In areas where no metals are present the in-phase response is zero. By using the in-phase and quadrature-phase components, it is possible to determine whether a change in bulk conductivity is

due to the presence of buried metallic objects or due to changes in either subsurface soil conditions or pore fluid conductivity.

The EM31 survey is performed by walking the instrumentation across the project site along a system of parallel transect lines. The separation distance between transect sites is dictated by the survey requirements. For surveys designed to identify relatively large areas of buried debris (e.g., landfills), a transect spacing of 50 to 100 feet is typical. For surveys designed to identify discrete areas of buried debris, a transect spacing of 10 to 30 feet is used. The EM-31 data is electronically recorded and then downloaded to a computer for processing. EM data is usually presented as either profiles (for an individual transect) or as contour maps. Contour maps are developed using Surfer[tm], a computer contouring program.

Ground Penetrating Radar

Ground Penetrating Radar (GPR) consists of a set of integrated electronic components which transmits high frequency (200 to 1500 megahertz [MHz]) electromagnetic waves into the ground and records the energy reflected back to the ground surface. The GPR system consists of an antenna, which serves as both a transmitter and receiver, and a profiling recorder that both processes the incoming signal and provides a graphic display of the data. The GPR data can be reviewed as both printed hard copy output or recorded on the profiling recorder's hard drive for later review. GeoView uses a Mala GPR system. Geological characterization studies are typically conducted using a 250 MHz antenna.

A GPR survey provides a graphic cross-sectional view of subsurface conditions. This cross-sectional view is created from the reflections of repetitive short-duration electromagnetic (EM) waves which are generated as the antenna is pulled across the ground surface. The reflections occur at the subsurface contacts between materials with differing electrical properties. The electrical property contrast that causes the reflections is the dielectric permittivity which is directly related to conductivity of a material. The GPR method is commonly used to identify such targets as underground utilities, underground storage tanks or drums, buried debris, voids or geological features.

The greater the electrical contrast between the surrounding earth materials and target of interest, the greater the amplitude of the reflected return signal. Unless the buried object is metal, only part of the signal energy will be reflected back to the antenna with the remaining portion of the signal continuing to propagate downward to be reflected by deeper features. If there is little or no

electrical contrast between the target interest and surrounding earth materials it will be very difficult if not impossible to identify the object using GPR.

The depth of penetration of the GPR signal is very site specific and is controlled by two primary factors: subsurface soil conditions and selected antenna frequency. The GPR signal is attenuated (absorbed) as is passes through earth materials. As the energy of the GPR signal is diminished due to attenuation, the energy of the reflected waves is reduced, eventually to the level that the reflections can no longer be detected. The more conductive the earth materials, the greater the GPR signal attenuation, hence a reduction in signal penetration depth. In Florida, the typical soil conditions which severely limit GPR signal penetration are near-surface clays and/or organic materials.

The depth of penetration of the GPR signal is also reduced as the antenna frequency is increased. However, as antenna frequency is increased the resolution of the GPR data is improved. Therefore, when designing a GPR survey a tradeoff is made between the required depth of penetration and desired resolution of the data. As a rule, the highest frequency antenna that will still provide the desired maximum depth of penetration should be used.

For debris identification surveys, the GPR survey is conducted along a set of measured transects. The features observed on GPR data that are most commonly associated with buried debris are:

- High concentrations of small to large diameter hyperbolic-shaped GPR reflectors. Such reflectors appear in a relatively chaotic pattern with little or no lateral continuity between parallel transects.
- Otherwise horizontally continuous sets of GPR reflectors, that represent soil horizons, are severely disturbed or not present in the areas where debris is identified. This typically indicates excavation activity.
- A localized significant increase in the depth of the penetration and/or amplitude of the GPR signal response. This change in GPR signal response is due to the large contrast in electrical properties between the items of buried debris and surrounding soils.

The greater the severity of these features or a combination of these features the greater the likelihood that the identified areas contain buried debris. It is not possible based on the GPR data alone to determine if the identified areas actually contain buried debris or to determine the composition (e.g., concrete blocks vs.

tree limbs) of the suspected debris. Such verification and characterization must be made by performing actual field tests (e.g.; test pits or borings).

Depth of burial estimates for debris are made by dividing the time of travel of the GPR signal from the ground surface to the top and bottom of the suspected buried debris by the velocity of the GPR signal. The velocity of the GPR signal is usually obtained from published tables of velocities for the type and condition (saturated vs. unsaturated) of soils underlying the site. The accuracy of GPR-derived depths typically ranges from 20 to 40 percent of the total depth.

Interpretation and Limitations of GPR data

The analysis and collection of GPR data is both a technical and interpretative skill. The technical aspects of the work are learned from both training and experience. Interpretative skills for buried debris studies are developed by having the opportunity to compare GPR data collected in numerous settings to the results from environmental studies performed at the same locations.

The ability of GPR to collect interpretable information at a project site is limited by the attenuation (absorption) of the GPR signal by underlying soils. Once the GPR signal has been attenuated at a particular depth, information regarding deeper geological conditions will not be obtained. GPR data can only resolve subsurface features which have a sufficient electrical contrast between the feature in question and surrounding earth materials. If an insufficient contrast is present, the subsurface feature will not be identified.

GeoView can make no warranties or representations of geological conditions which may be present beyond the depth of investigation or resolving capability of the GPR equipment or in areas that were not accessible to the geophysical investigation.

APPENDIX D

Douglas Park Investigation
Soil Boring Log

Client:	City of Miami	Project Name:		Douglas Park Investigation	
Project Number:	12639984	Date Started:	12/17/2013	Date Completed:	12/17/2013
Project Location:	2795 SW 37th Avenue, Miami	Contractor:		Air, Water & Soil Engineering, Inc.	
Groundwater Level:	N/A	Trench Equipment:		John Deere 410G/Combination Backhoe	
Logged By: MP	Trench Approximate Dimensions:	Depth: 8' Width: 2' Length: 5'		Trench ID:	T-1

Depth (ft)	MAIN SOIL COMPONENT	ADDITIONAL DESCRIPTION/COMMENTS
0.5 1.0	Debris (approx. 50%)	Top soil (grass and roots) with: Angular glass fragments AA batteries
1.5 2.0 2.5 3.0		Limerock with: Angular glass fragments Intact glass bottles Terracota fragments
3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0 7.5 8.0		Angular glass fragments Intact glass bottles Terracota fragments AA, C and D batteries Building wood Rusted metal Charred plastic bottles Charred car tires
8.5 9.0 9.5 10.0 10.5 11.0 11.5 12.0 12.5 13.0 13.5 14.0 14.5 15.0	Depth limit of trench equipment at this location; did not encounter native limestone	

Douglas Park Investigation
Soil Boring Log

Client:	City of Miami	Project Name:		Douglas Park Investigation	
Project Number:	12639984	Date Started:	12/17/2013	Date Completed:	12/17/2013
Project Location:	2795 SW 37th Avenue, Miami	Contractor:		Air, Water & Soil Engineering, Inc.	
Groundwater Level:	N/A	Trench Equipment:		John Deere 410G/Combination Backhoe	
Logged By: MP	Trench Approximate Dimensions:	Depth: 8' Width: 2' Length: 5'		Trench ID:	T-2

Depth (ft)	MAIN SOIL COMPONENT	ADDITIONAL DESCRIPTION/COMMENTS
0.5 1.0	Top soil (grass and roots)	No visible evidence of solid waste
1.5 2.0	Limerock (approx. 50% debris)	Angular glass fragments Molten glass Intact glass bottles
2.5 3.0 3.5 4.0 4.5 5.0		Angular glass fragments Intact glass bottles Rusted metal
5.5 6.0 6.5 7.0 7.5 8.0	Debris (approx. 50%)	Angular glass fragments Molten glass Intact glass bottles Terracota fragments Building wood Mulch Charred plastic bottles Charred car tires
8.5 9.0 9.5 10.0 10.5 11.0 11.5 12.0 12.5 13.0 13.5 14.0 14.5 15.0	Depth limit of trench equipment at this location; did not encounter native limestone	

Douglas Park Investigation
Soil Boring Log

Client:	City of Miami	Project Name:		Douglas Park Investigation	
Project Number:	12639984	Date Started:	12/17/2013	Date Completed:	12/17/2013
Project Location:	2795 SW 37th Avenue, Miami	Contractor:		Air, Water & Soil Engineering, Inc.	
Groundwater Level:	N/A	Trench Equipment:		John Deere 410G/Combination Backhoe	
Logged By: MP	Trench Approximate Dimensions:	Depth: 8' Width: 2' Length: 5'		Trench ID:	T-3

Depth (ft)	MAIN SOIL COMPONENT	ADDITIONAL DESCRIPTION/COMMENTS
0.5	Loose sand	Unrecognizable miscellaneous debris
1.0 1.5 2.0 2.5 3.0	Limerock (approx. 30% debris)	Unrecognizable miscellaneous debris
3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0 7.5 8.0	Debris (approx. 30%)	Concrete fragments Clay fragments
8.5 9.0 9.5 10.0 10.5 11.0 11.5 12.0 12.5 13.0 13.5 14.0 14.5 15.0	Depth limit of trench equipment at this location; did not encounter native limestone	

Douglas Park Investigation
Soil Boring Log

Client:	City of Miami	Project Name:		Douglas Park Investigation	
Project Number:	12639984	Date Started:	12/18/2013	Date Completed:	12/18/2013
Project Location:	2795 SW 37th Avenue, Miami	Contractor:		Air, Water & Soil Engineering, Inc.	
Groundwater Level:	N/A	Trench Equipment:		John Deere 410G/Combination Backhoe	
Logged By: MP	Trench Approximate Dimensions:	Depth: 3' Width: 2' Length: 5'		Trench ID:	T-4

Depth (ft)	MAIN SOIL COMPONENT	ADDITIONAL DESCRIPTION/COMMENTS
0.5	Loose sand	No visible evidence of solid waste
1.0 1.5 2.0	Loose sand with evidence of solid waste (approx. 10% debris)	Concrete fragments Clay fragments
2.5 3.0	Native Limestone	No evidence of solid waste
3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0 7.5 8.0 8.5 9.0 9.5 10.0 10.5 11.0 11.5 12.0 12.5 13.0 13.5 14.0 14.5 15.0		

Douglas Park Investigation
Soil Boring Log

Client:	City of Miami	Project Name:		Douglas Park Investigation	
Project Number:	12639984	Date Started:	12/18/2013	Date Completed:	12/18/2013
Project Location:	2795 SW 37th Avenue, Miami	Contractor:		Air, Water & Soil Engineering, Inc.	
Groundwater Level:	N/A	Trench Equipment:		John Deere 410G/Combination Backhoe	
Logged By: MP	Trench Approximate Dimensions:	Depth: 8' Width: 2' Length: 5'		Trench ID:	T-5

Depth (ft)	MAIN SOIL COMPONENT	ADDITIONAL DESCRIPTION/COMMENTS
0.5	Loose sand	No visible evidence of solid waste
1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0 7.5 8.0	Debris (approx. 90%)	Unrecognizable charred debris Broken clay pipes Black clay (Possibly Ash)
8.5 9.0 9.5 10.0 10.5 11.0 11.5 12.0 12.5 13.0 13.5 14.0 14.5 15.0	Depth limit of trench equipment at this location; did not encounter native limestone	

Douglas Park Investigation
Soil Boring Log

Client:	City of Miami	Project Name:		Douglas Park Investigation	
Project Number:	12639984	Date Started:	12/18/2013	Date Completed:	12/18/2013
Project Location:	2795 SW 37th Avenue, Miami	Contractor:		Air, Water & Soil Engineering, Inc.	
Groundwater Level:	N/A	Trench Equipment:		John Deere 410G/Combination Backhoe	
Logged By: MP	Trench Approximate Dimensions:	Depth: 2.5' Width: 2' Length: 5'		Trench ID:	T-6

Depth (ft)	MAIN SOIL COMPONENT	ADDITIONAL DESCRIPTION/COMMENTS
0.5	Loose sand	Angular glass fragments
1.0 1.5	Limerock with sand (approx. 10% debris)	Angular glass fragments 1 railroad tie
2.0 2.5	Native Limestone	No evidence of solid waste
3.0 3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0 7.5 8.0		
8.5 9.0 9.5 10.0 10.5 11.0 11.5 12.0 12.5 13.0 13.5 14.0 14.5 15.0	Depth limit of trench equipment at this location; did not encounter native limestone	

Douglas Park Investigation
Soil Boring Log

Client:	City of Miami	Project Name:		Douglas Park Investigation	
Project Number:	12639984	Date Started:	12/18/2013	Date Completed:	12/18/2013
Project Location:	2795 SW 37th Avenue, Miami	Contractor:		Air, Water & Soil Engineering, Inc.	
Groundwater Level:	N/A	Trench Equipment:		John Deere 410G/Combination Backhoe	
Logged By: MP	Trench Approximate Dimensions:	Depth: 2.5' Width: 2' Length: 5'		Trench ID:	T-7

Depth (ft)	MAIN SOIL COMPONENT	ADDITIONAL DESCRIPTION/COMMENTS
0.5	Loose sand	Angular glass fragments
1.0	Native Limestone	No evidence of solid waste
1.5		
2.0		
2.5		
3.0		
3.5		
4.0		
4.5		
5.0		
5.5		
6.0		
6.5		
7.0		
7.5		
8.0		
8.5		
9.0		
9.5		
10.0		
10.5		
11.0		
11.5		
12.0		
12.5		
13.0		
13.5		
14.0		
14.5		
15.0		

Douglas Park Investigation
Soil Boring Log

Client:	City of Miami	Project Name:		Douglas Park Investigation	
Project Number:	12639984	Date Started:	12/18/2013	Date Completed:	12/18/2013
Project Location:	2795 SW 37th Avenue, Miami	Contractor:		Air, Water & Soil Engineering, Inc.	
Groundwater Level:	N/A	Trench Equipment:		John Deere 410G/Combination Backhoe	
Logged By: MP	Trench Approximate Dimensions:	Depth: 8' Width: 2' Length: 5'		Trench ID:	T-8

Depth (ft)	MAIN SOIL COMPONENT	ADDITIONAL DESCRIPTION/COMMENTS
0.5	Top soil	Angular glass fragments
1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0 7.5 8.0	Debris (approx. 90%)	Angular glass fragments Terracota fragments Roof Shingles Building wood Unrecognizable burnt debris
8.5 9.0 9.5 10.0 10.5 11.0 11.5 12.0 12.5 13.0 13.5 14.0 14.5 15.0	Depth limit of trench equipment at this location; did not encounter native limestone	

Douglas Park Investigation
Soil Boring Log

Client:	City of Miami	Project Name:		Douglas Park Investigation	
Project Number:	12639984	Date Started:	12/18/2013	Date Completed:	12/18/2013
Project Location:	2795 SW 37th Avenue, Miami	Contractor:		Air, Water & Soil Engineering, Inc.	
Groundwater Level:	N/A	Trench Equipment:		John Deere 410G/Combination Backhoe	
Logged By: MP	Trench Approximate Dimensions:	Depth: 8' Width: 2' Length: 5'		Trench ID:	T-9

Depth (ft)	MAIN SOIL COMPONENT	ADDITIONAL DESCRIPTION/COMMENTS
0.5	Top soil	Angular glass fragments
1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0 7.5 8.0 8.5 9.0	Debris (approx. 40%)	Limerock mixed with: Sand Glass fragments Concrete fragments Steel fragments Unrecognizable burnt debris
9.5 10.0 10.5 11.0 11.5 12.0 12.5 13.0 13.5 14.0 14.5 15.0	Depth limit of trench equipment at this location; did not encounter native limestone	

Douglas Park Investigation
Soil Boring Log

Client:	City of Miami	Project Name:		Douglas Park Investigation	
Project Number:	12639984	Date Started:	12/18/2013	Date Completed:	12/18/2013
Project Location:	2795 SW 37th Avenue, Miami	Contractor:		Air, Water & Soil Engineering, Inc.	
Groundwater Level:	N/A	Trench Equipment:		John Deere 410G/Combination Backhoe	
Logged By: MP	Trench Approximate Dimensions:	Depth: 9' Width: 2' Length: 5'		Trench ID:	T-10

Depth (ft)	MAIN SOIL COMPONENT	ADDITIONAL DESCRIPTION/COMMENTS
0.5	Top soil (grass and roots)	Angular glass fragments
1.0	Limerock with sand	Unrecognizable charred debris Glass fragments
1.5		Black Clay (possibly ash)
2.0	Debris (approx. 75%)	Limerock mixed with: Sand Unrecognizable burnt debris Glass fragments Concrete fragments
2.5		
3.0		
3.5		
4.0		Unrecognizable burnt debris
4.5		Sand mixed with: Sand Glass fragments Concrete fragments Building wood
5.0		
5.5		
6.0		
6.5		
7.0		
7.5		
8.0		
8.5		
9.0		
9.5	Depth limit of trench equipment at this location; did not encounter native limestone	
10.0		
10.5		
11.0		
11.5		
12.0		
12.5		
13.0		
13.5		
14.0		
14.5		
15.0		

Douglas Park Investigation
Soil Boring Log

Client:	City of Miami	Project Name:		Douglas Park Investigation	
Project Number:	12639984	Date Started:	12/18/2013	Date Completed:	12/20/2013
Project Location:	2795 SW 37th Avenue, Miami	Contractor:		Air, Water & Soil Engineering, Inc.	
Groundwater Level:	N/A	Trench Equipment:		John Deere 410G/Combination Backhoe	
Logged By: EM	Trench Approximate Dimensions:	Depth: 5' Width: 2' Length: 5'		Trench ID:	T-11

Depth (ft)	MAIN SOIL COMPONENT	ADDITIONAL DESCRIPTION/COMMENTS
0.5	Top Soil (grass and roots)	Angular glass fragments
1.0 1.5	Soil	Angular glass fragments
2.0 2.5 3.0 3.5 4.0	Debris (approx. 75%)	Limerock mixed with: Sand Angular glass fragments Lumber wood pieces Tree trunks and branches
4.5 5.0	Limestone	Native Limestone; No evidence of solid waste
5.5 6.0 6.5 7.0 7.5 8.0 8.5 9.0 9.5 10.0 10.5 11.0 11.5 12.0 12.5 13.0 13.5 14.0 14.5 15.0		

Douglas Park Investigation
Soil Boring Log

Client:	City of Miami	Project Name:		Douglas Park Investigation	
Project Number:	12639984	Date Started:	12/18/2013	Date Completed:	12/20/2013
Project Location:	2795 SW 37th Avenue, Miami	Contractor:		Air, Water & Soil Engineering, Inc.	
Groundwater Level:	N/A	Trench Equipment:		John Deere 410G/Combination Backhoe	
Logged By: EM	Trench Approximate Dimensions:	Depth: 9' Width: 2' Length: 5'		Trench ID:	T-12

Depth (ft)	MAIN SOIL COMPONENT	ADDITIONAL DESCRIPTION/COMMENTS
0.5	Top Soil (grass and roots)	Angular glass fragments
1.0 1.5	Sand fill	Angular glass fragments
2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0 7.5 8.0 8.5 9.0	Debris (approx. 90%)	Angular glass fragments Terracota fragments Rusted metal Car tire Lumber wood pieces Tree trunks and branches
9.5 10.0 10.5 11.0 11.5 12.0 12.5 13.0 13.5 14.0 14.5 15.0	Depth limit of trench equipment at this location; did not encounter native limestone	

Douglas Park Investigation
Soil Boring Log

Client:	City of Miami	Project Name:		Douglas Park Investigation	
Project Number:	12639984	Date Started:	12/18/2013	Date Completed:	12/20/2013
Project Location:	2795 SW 37th Avenue, Miami	Contractor:		Air, Water & Soil Engineering, Inc.	
Groundwater Level:	N/A	Trench Equipment:		John Deere 410G/Combination Backhoe	
Logged By: EM	Trench Approximate Dimensions:	Depth: 9' Width: 2' Length: 5'		Trench ID:	T-13

Depth (ft)	MAIN SOIL COMPONENT	ADDITIONAL DESCRIPTION/COMMENTS
0.5	Top Soil (grass and roots)	Angular glass fragments
1.0 1.5 2.0	Sand fill	Angular glass fragments
2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0 7.5 8.0 8.5 9.0	Debris (approx. 50%)	Angular glass fragments Tile fragments Rusted metal Tree trunks and branches
9.5 10.0 10.5 11.0 11.5 12.0 12.5 13.0 13.5 14.0 14.5 15.0	Depth limit of trench equipment, did not encounter native limestone	

Douglas Park Investigation
Soil Boring Log

Client:	City of Miami	Project Name:		Douglas Park Investigation	
Project Number:	12639984	Date Started:	12/18/2013	Date Completed:	12/20/2013
Project Location:	2795 SW 37th Avenue, Miami	Contractor:		Air, Water & Soil Engineering, Inc.	
Groundwater Level:	N/A	Trench Equipment:		John Deere 410G/Combination Backhoe	
Logged By: EM	Trench Approximate Dimensions:	Depth: 9' Width: 2' Length: 5'		Trench ID:	T-14

Depth (ft)	MAIN SOIL COMPONENT	ADDITIONAL DESCRIPTION/COMMENTS
0.5	Top Soil (grass and roots)	No visible evidence of solid waste
1.0 1.5 2.0	Sand fill	No visible evidence of solid waste
2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0 7.5 8.0 8.5 9.0	Debris (approx. 50%)	Angular glass fragments Terracota fragments Rusted metal Car tire Lumber wood pieces Tree trunks and branches
9.5 10.0 10.5 11.0 11.5 12.0 12.5 13.0 13.5 14.0 14.5 15.0	Depth limit of trench equipment, did not encounter native limestone	

Douglas Park Investigation
Soil Boring Log

Client:	City of Miami	Project Name:		Douglas Park Investigation	
Project Number:	12639984	Date Started:	12/20/2013	Date Completed:	12/20/2013
Project Location:	2795 SW 37th Avenue, Miami	Contractor:		Air, Water & Soil Engineering, Inc.	
Groundwater Level:	N/A	Trench Equipment:		John Deere 410G/Combination Backhoe	
Logged By: EM	Trench Approximate Dimensions:	Depth: 9' Width: 2' Length: 5'		Trench ID:	T-15

Depth (ft)	MAIN SOIL COMPONENT	ADDITIONAL DESCRIPTION/COMMENTS
0.5 1.0	Top Soil (grass and roots)	Dark gray/brown sandy silt with organic material
1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0	Soil/Sand (approx. 40% debris)	Brown/light gray sand Fragments of angular glass, terracotta, and concrete Unrecognizable miscellaneous debris
5.5 6.0 6.5 7.0 7.5 8.0 8.5 9.0	Debris (approx. 50%)	Angular glass fragments Terracota fragments Metal wire Lumber wood pieces Tree trunks and branches
9.5 10.0 10.5 11.0 11.5 12.0 12.5 13.0 13.5 14.0 14.5 15.0	Depth limit of trench equipment, did not encounter native limestone	

APPENDIX E

Douglas Park Investigation
Soil Boring Log

Client:	City of Miami		Project Name:		Douglas Park Investigation	
Project Number:	12639984		Date Started:	12/18/2013	Date Completed:	12/18/2013
Project Location:	2795 SW 37th Avenue, Miami		Drilling Contractor:		Enviro Drill, Inc.	
Drilling Method:	Hollow Stem Auger		Sampling Method:		Split Spoon Sampler	
Logged By:	RL	Boring Depth: 8'	Groundwater Level: 4'6''		Boring ID: SB-1	

Depth (ft)	GRAPHIC LOG	MAIN SOIL COMPONENT	ADDITIONAL DESCRIPTION/COMMENTS
0.5		Soil	Top soil mixed with glass fragments
1.0		Limerock	Limerock mixed with glass fragments
1.5 2.0		Land Fill Material (approx. 50%)	Fine black matrix (possible incinerator residue) mixed with glass and metal fragments
2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0 7.5 8.0		Limestone	Sand fill unit; No visible solid waste
8.5 9.0 9.5 10.0 10.5 11.0 11.5 12.0 12.5 13.0 13.5 14.0 14.5 15.0			

Douglas Park Investigation
Soil Boring Log

Client:	City of Miami		Project Name:	Douglas Park Investigation	
Project Number:	12639984		Date Started: 12/18/2013	Date Completed:	12/18/2013
Project Location:	2795 SW 37th Avenue, Miami		Drilling Contractor:	Enviro Drill, Inc.	
Drilling Method:	Hollow Stem Auger		Sampling Method:	Split Spoon Sampler	
Logged By:	RL	Boring Depth: 10'	Groundwater Level: 8' 6''	Boring ID: SB-2	

Depth (ft)	GRAPHIC LOG	MAIN SOIL COMPONENT	ADDITIONAL DESCRIPTION/COMMENTS
0.5		Surface pavement and limerock	Asphalt (0"-3") with limerock base (3"-6")
1.0 1.5		Limerock	Limerock and soil mixed with concrete, glass fragments, and metal pieces
2.0 2.5 3.0 3.5 4.0 4.5		Land Fill Material (approx. 50%)	Limerock, soil mixed concrete, glass fragments, and metal pieces
5.0			Limerock mixed with concrete fragments
5.5 6.0 6.5 7.0			Fine black matrix (possible incinerator residue) mixed with coarse concrete fragments
7.5 8.0 8.5 9.0 9.5 10.0		Limestone	Native limestone (white); No visible solid waste
10.5 11.0 11.5 12.0 12.5 13.0 13.5 14.0 14.5 15.0			

Douglas Park Investigation
Soil Boring Log

Client:	City of Miami		Project Name:		Douglas Park Investigation
Project Number:	12639984		Date Started:	12/18/2013	Date Completed: 12/18/2013
Project Location:	2795 SW 37th Avenue, Miami		Drilling Contractor:		Enviro Drill, Inc.
Drilling Method:	Hollow Stem Auger		Sampling Method:		Split Spoon Sampler
Logged By:	RL	Boring Depth: 6'	Groundwater Level: 4' 6''		Boring ID: SB-3

Depth (ft)	GRAPHIC LOG	MAIN SOIL COMPONENT	ADDITIONAL DESCRIPTION/COMMENTS
0.5		Surface pavement and limerock	Asphalt (0"-4") with limerock base (4"-6")
1.0		Limerock	Limerock (6''-14''); No visible of solid waste
1.5			Limerock (14''-18'') mixed with coarse ceramic fragments
2.0			Limerock in a sand matrix; No visible solid waste
2.5		Limestone	Sand fill unit; No visible solid waste
3.0			
3.5			
4.0			
4.5			
5.0			
5.5			
6.0			
6.5			
7.0			
7.5			
8.0			
8.5			
9.0			
9.5			
10.0			
10.5			
11.0			
11.5			
12.0			
12.5			
13.0			
13.5			
14.0			
14.5			
15.0			

Douglas Park Investigation
Soil Boring Log

Client:	City of Miami		Project Name:		Douglas Park Investigation
Project Number:	12639984		Date Started:	12/18/2013	Date Completed: 12/18/2013
Project Location:	2795 SW 37th Avenue, Miami		Drilling Contractor:		Enviro Drill, Inc.
Drilling Method:	Hollow Stem Auger		Sampling Method:		Split Spoon Sampler
Logged By:	RL	Boring Depth: 5'	Groundwater Level:4'6''		Boring ID: SB-4A

Depth (ft)	GRAPHIC LOG	MAIN SOIL COMPONENT	ADDITIONAL DESCRIPTION/COMMENTS
0.5		Surface pavement and limerock	Asphalt (0"-4") with limerock base (4"-6")
1.0		Limestone	Native limestone (white); No visible solid waste
1.5			
2.0			
2.5			
3.0			
3.5			
4.0			
4.5			
5.0			
5.5			
6.0			
6.5			
7.0			
7.5			
8.0			
8.5			
9.0			
9.5			
10.0			
10.5			
11.0			
11.5			
12.0			
12.5			
13.0			
13.5			
14.0			
14.5			
15.0			

Douglas Park Investigation
Soil Boring Log

Client:	City of Miami		Project Name:		Douglas Park Investigation	
Project Number:	12639984		Date Started:	12/18/2013	Date Completed:	12/18/2013
Project Location:	2795 SW 37th Avenue, Miami		Drilling Contractor:		Enviro Drill, Inc.	
Drilling Method:	Hollow Stem Auger		Sampling Method:		Split Spoon Sampler	
Logged By:	RL	Boring Depth: 11'	Groundwater Level: 8'		Boring ID: SB-4B	

Depth (ft)	GRAPHIC LOG	MAIN SOIL COMPONENT	ADDITIONAL DESCRIPTION/COMMENTS
0.5		Soil	Soil with grass and roots; No visible solid waste
1.0		Limerock	Limerock; No visible solid waste
1.5		Limestone	Native limestone (white); No visible solid waste
2.0			
2.5			
3.0			
3.5			
4.0			
4.5			
5.0			
5.5			
6.0			
6.5			
7.0			
7.5			
8.0			
8.5			
9.0			
9.5			
10.0			
10.5			
11.0			
11.5			
12.0			
12.5			
13.0			
13.5			
14.0			
14.5			
15.0			

Douglas Park Investigation
Soil Boring Log

Client:	City of Miami		Project Name:	Douglas Park Investigation	
Project Number:	12639984		Date Started: 12/18/2013	Date Completed:	12/18/2013
Project Location:	2795 SW 37th Avenue, Miami		Drilling Contractor:	Enviro Drill, Inc.	
Drilling Method:	Hollow Stem Auger		Sampling Method:	Split Spoon Sampler	
Logged By:	RL	Boring Depth: 6'	Groundwater Level: N/A	Boring ID: SB-4C	

Depth (ft)	GRAPHIC LOG	MAIN SOIL COMPONENT	ADDITIONAL DESCRIPTION/COMMENTS
0.5 1.0		Soil	Soil with grass and roots; No visible solid waste
1.5		Limerock	Limerock; No visible solid waste
2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0		Limestone	Limerock in a sand matrix; No visible solid waste
6.5 7.0 7.5 8.0 8.5 9.0 9.5 10.0 10.5 11.0 11.5 12.0 12.5 13.0 13.5 14.0 14.5 15.0			

Douglas Park Investigation
Soil Boring Log

Client:	City of Miami		Project Name:	Douglas Park Investigation	
Project Number:	12639984		Date Started: 12/18/2013	Date Completed:	12/18/2013
Project Location:	2795 SW 37th Avenue, Miami		Drilling Contractor:	Enviro Drill, Inc.	
Drilling Method:	Hollow Stem Auger		Sampling Method:	Split Spoon Sampler	
Logged By:	RL	Boring Depth: 8'	Groundwater Level: 5'	Boring ID: SB-5	

Depth (ft)	GRAPHIC LOG	MAIN SOIL COMPONENT	ADDITIONAL DESCRIPTION/COMMENTS
0.5		Soil	Soil with grass and roots; No visible solid waste
1.0 1.5 2.0		Limerock	Limerock; No visible solid waste
2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0 7.5 8.0		Limestone	Native limestone (white); No visible solid waste
8.5 9.0 9.5 10.0 10.5 11.0 11.5 12.0 12.5 13.0 13.5 14.0 14.5 15.0			

Douglas Park Investigation
Soil Boring Log

Client:	City of Miami		Project Name:	Douglas Park Investigation	
Project Number:	12639984		Date Started: 12/18/2013	Date Completed:	12/18/2013
Project Location:	2795 SW 37th Avenue, Miami		Drilling Contractor:	Enviro Drill, Inc.	
Drilling Method:	Hollow Stem Auger		Sampling Method:	Split Spoon Sampler	
Logged By:	RL	Boring Depth: 8'	Groundwater Level: N/A	Boring ID: SB-6	

Depth (ft)	GRAPHIC LOG	MAIN SOIL COMPONENT	ADDITIONAL DESCRIPTION/COMMENTS
0.5		Soil	Soil with grass and roots; No visible solid waste
1.0 1.5 2.0		Limerock	Limerock; No visible solid waste
2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0 7.5 8.0		Limestone	Sand fill unit; No visible solid waste
8.5 9.0 9.5 10.0 10.5 11.0 11.5 12.0 12.5 13.0 13.5 14.0 14.5 15.0			

Douglas Park Investigation
Soil Boring Log

Client:	City of Miami		Project Name:	Douglas Park Investigation	
Project Number:	12639984		Date Started: 12/18/2013	Date Completed:	12/18/2013
Project Location:	2795 SW 37th Avenue, Miami		Drilling Contractor:	Enviro Drill, Inc.	
Drilling Method:	Hollow Stem Auger		Sampling Method:	Split Spoon Sampler	
Logged By:	RL	Boring Depth: 12'	Groundwater Level: 8'6''	Boring ID: SB-7	

Depth (ft)	GRAPHIC LOG	MAIN SOIL COMPONENT	ADDITIONAL DESCRIPTION/COMMENTS
0.5		Soil	Top soil mixed with glass fragments
1.0		Limerock	Limerock mixed with glass fragments
1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0 7.5 8.0 8.5 9.0 9.5		Land Fill Material (approx. 60%)	Fine black matrix (possible incinerator residue) mixed with charred rubber, wood, metal, and glass fragments
10.0		Limestone	Native limestone; stained gray
10.5 11.0 11.5 12.0			Native limestone (white); No visible solid waste
12.5 13.0 13.5 14.0 14.5 15.0			

Douglas Park Investigation
Soil Boring Log

Client:	City of Miami		Project Name:	Douglas Park Investigation	
Project Number:	12639984		Date Started: 12/18/2013	Date Completed:	12/18/2013
Project Location:	2795 SW 37th Avenue, Miami		Drilling Contractor:	Enviro Drill, Inc.	
Drilling Method:	Hollow Stem Auger		Sampling Method:	Split Spoon Sampler	
Logged By:	RL	Boring Depth: 12'	Groundwater Level: 9'	Boring ID: SB-8A	

Depth (ft)	GRAPHIC LOG	MAIN SOIL COMPONENT	ADDITIONAL DESCRIPTION/COMMENTS
0.5		Soil	Soil with grass and roots; No visible solid waste
1.0			Soil, glass fragments, and a fine black material (possible incinerator residue)
1.5			
2.0		Land Fill Material (approx. 70%)	Limerock, sand, soil, glass fragments, and a fine black material (possible incinerator residue)
2.5			
3.0			
3.5			Limerock, glass fragments, and a fine black material (possible incinerator residue)
4.0			
4.5			Fine black matrix (possible incinerator residue) mixed with charred wood, metal, and glass fragments
5.0			
5.5			
6.0			
6.5			
7.0			
7.5			
8.0			
8.5			
9.0			
9.5		Limestone	Native limestone (white); No visible solid waste
10.0			
10.5			
11.0			
11.5			
12.0			
12.5			
13.0			
13.5			
14.0			
14.5			
15.0			

Douglas Park Investigation
Soil Boring Log

Client:	City of Miami		Project Name:	Douglas Park Investigation	
Project Number:	12639984		Date Started: 12/18/2013	Date Completed:	12/18/2013
Project Location:	2795 SW 37th Avenue, Miami		Drilling Contractor:	Enviro Drill, Inc.	
Drilling Method:	Hollow Stem Auger		Sampling Method:	Split Spoon Sampler	
Logged By:	RL	Boring Depth: 13'	Groundwater Level: 11'	Boring ID: SB-8B	

Depth (ft)	GRAPHIC LOG	MAIN SOIL COMPONENT	ADDITIONAL DESCRIPTION/COMMENTS
0.5		Soil	Soil with grass and roots; No visible solid waste
1.0		Limerock	Limerock mixed with glass fragments
1.5		Land Fill Material (approx. 50%)	Fine black matrix (possible incinerator residue) mixed with glass
2.0			
2.5			
3.0			
3.5			Limerock, sand, soil, glass fragments, and a fine black material (possible incinerator residue)
4.0			
4.5			
5.0			
5.5			
6.0			
6.5			Charred wood, metal, and glass fragments in a fine black matrix (possible incinerator residue) mixed with
7.0			
7.5			
8.0			
8.5			
9.0			
9.5			
10.0			
10.5			
11.0			
11.5		Limestone	Native limestone (white); No visible solid waste
12.0			
12.5			
13.0			
13.5			
14.0			
14.5			
15.0			

Douglas Park Investigation
Soil Boring Log

Client:	City of Miami		Project Name:	Douglas Park Investigation	
Project Number:	12639984		Date Started: 12/18/2013	Date Completed:	12/18/2013
Project Location:	2795 SW 37th Avenue, Miami		Drilling Contractor:	Enviro Drill, Inc.	
Drilling Method:	Hollow Stem Auger		Sampling Method:	Split Spoon Sampler	
Logged By:	RL	Boring Depth: 11'6''	Groundwater Level: 10'	Boring ID: SB-9	

Depth (ft)	GRAPHIC LOG	MAIN SOIL COMPONENT	ADDITIONAL DESCRIPTION/COMMENTS
0.5 1.0		Soil	Soil with grass and roots; No visible solid waste
1.5 2.0 2.5 3.0 3.5 4.0		Limerock	Limerock in a fine black matrix (possible incinerator residue) mixed with charred, wood, metal, and glass fragments
4.5 5.0			Mixed sand fill unit with glass fragments
5.5 6.0 6.5 7.0 7.5 8.0			Limerock; No visible solid waste
8.5 9.0			Limerock with a fine black matrix (possible incinerator residue) mixed with charred, wood, metal, and glass fragments
9.5		Land Fill Material (approx. 60%)	Brown clay mixed with black unrecognizable charred material
10.0 10.5 11.0 11.5		Limestone	Native limestone (white); No visible solid waste
12.0 12.5 13.0 13.5 14.0 14.5 15.0			

Douglas Park Investigation
Soil Boring Log

Client:	City of Miami		Project Name:	Douglas Park Investigation	
Project Number:	12639984		Date Started: 12/19/2013	Date Completed:	12/19/2013
Project Location:	2795 SW 37th Avenue, Miami		Drilling Contractor:	Enviro Drill, Inc.	
Drilling Method:	Hollow Stem Auger		Sampling Method:	Split Spoon Sampler	
Logged By:	PT	Boring Depth: 8'	Groundwater Level: N/A	Boring ID: SB-10	

Depth (ft)	GRAPHIC LOG	MAIN SOIL COMPONENT	ADDITIONAL DESCRIPTION/COMMENTS
0.5		Surface pavement and limerock	Asphalt (0"-1.5") with limerock base (1.5"-6")
1.0		Limerock	Limerock; No visible solid waste
1.5			Limerock (gray) mixed with glass fragments (12" - 14")
2.0			Limerock; No visible solid waste
2.5			
3.0			
3.5			
4.0			
4.5			
5.0			
5.5		Limestone	Brown yellow sands with native limestone
6.0			Native limestone (yellow/white); No visible solid waste
6.5			
7.0			
7.5			
8.0			
8.5			
9.0			
9.5			
10.0			
10.5			
11.0			
11.5			
12.0			
12.5			
13.0			
13.5			
14.0			
14.5			
15.0			

Douglas Park Investigation
Soil Boring Log

Client:	City of Miami		Project Name:	Douglas Park Investigation	
Project Number:	12639984		Date Started: 12/19/2013	Date Completed:	12/19/2013
Project Location:	2795 SW 37th Avenue, Miami		Drilling Contractor:	Enviro Drill, Inc.	
Drilling Method:	Hollow Stem Auger		Sampling Method:	Split Spoon Sampler	
Logged By:	PT	Boring Depth: 8'	Groundwater Level: 7'	Boring ID: SB-11	

Depth (ft)	GRAPHIC LOG	MAIN SOIL COMPONENT	ADDITIONAL DESCRIPTION/COMMENTS
0.5		Surface pavement and limerock	Asphalt (0"-2") with limerock base (2"-6")
1.0		Limerock	Limerock (6" - 18"); No visible solid waste
1.5			
2.0			Limerock and sand fill matrix; No visible solid waste
2.5			Sand fill unit; No visible solid waste
3.0			
3.5		Land Fill Material (approx. 70%)	1 inch alternating layers of black fine material (possibly incinerator residue) and tan sand mixed glass fragments
4.0			
4.5			
5.0			
5.5			
6.0		Limestone	Native limestone (white); No visible solid waste
6.5			
7.0			
7.5			
8.0			
8.5			
9.0			
9.5			
10.0			
10.5			
11.0			
11.5			
12.0			
12.5			
13.0			
13.5			
14.0			
14.5			
15.0			

Douglas Park Investigation
Soil Boring Log

Client:	City of Miami		Project Name:	Douglas Park Investigation	
Project Number:	12639984		Date Started: 12/19/2013	Date Completed:	12/19/2013
Project Location:	2795 SW 37th Avenue, Miami		Drilling Contractor:	Enviro Drill, Inc.	
Drilling Method:	Hollow Stem Auger		Sampling Method:	Split Spoon Sampler	
Logged By:	PT	Boring Depth: 10'	Groundwater Level: 9'	Boring ID: SB-12	

Depth (ft)	GRAPHIC LOG	MAIN SOIL COMPONENT	ADDITIONAL DESCRIPTION/COMMENTS
0.5		Surface pavement and limerock	Asphalt (0"-3") with limerock base (3"-6")
1.0 1.5		Limerock	Limerock mixed (6" - 18")
2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0 7.5 8.0 8.5		Land Fill Material (approx. 70%)	Brick fragments, glass fragments, and limerock (stained gray) in a black fine material
9.0 9.5 10.0		Limestone	Native limestone (white); No visible solid waste
10.5 11.0 11.5 12.0 12.5 13.0 13.5 14.0 14.5 15.0			

Douglas Park Investigation
Soil Boring Log

Client:	City of Miami		Project Name:	Douglas Park Investigation	
Project Number:	12639984		Date Started: 12/18/2013	Date Completed:	12/18/2013
Project Location:	2795 SW 37th Avenue, Miami		Drilling Contractor:	Enviro Drill, Inc.	
Drilling Method:	Hollow Stem Auger		Sampling Method:	Split Spoon Sampler	
Logged By:	RL	Boring Depth: 12'	Groundwater Level: 9'6''	Boring ID: SB-13	

Depth (ft)	GRAPHIC LOG	MAIN SOIL COMPONENT	ADDITIONAL DESCRIPTION/COMMENTS
0.5		Soil	Soil with grass and roots; No visible solid waste
1.0			Soil (sandy) mixed with glass fragments
1.5 – 4.0		Land Fill Material (approx. 50%)	Very fine gray matrix with wood, metal, concrete, glass, and ceramic fragments
4.5 – 10.0			Very fine black matrix (possible incinerator residue) mixed with concrete, ceramic, metal, wood, and glass fragments (Petroleum odor present in wet soils [8']; No OVA readings)
10.5 – 12.0		Limestone	Native limestone (white); No visible solid waste
12.5 – 15.0			

Douglas Park Investigation
Soil Boring Log

Client:	City of Miami		Project Name:	Douglas Park Investigation	
Project Number:	12639984		Date Started: 12/19/2013	Date Completed:	12/19/2013
Project Location:	2795 SW 37th Avenue, Miami		Drilling Contractor:	Enviro Drill, Inc.	
Drilling Method:	Hollow Stem Auger		Sampling Method:	Split Spoon Sampler	
Logged By:	PT	Boring Depth: 12'	Groundwater Level: 10'	Boring ID: SB-14	

Depth (ft)	GRAPHIC LOG	MAIN SOIL COMPONENT	ADDITIONAL DESCRIPTION/COMMENTS
0.5		Soil	Soil with grass and roots; No visible solid waste
1.0		Limerock	Limerock in a fine black matrix (possible incinerator residue)
1.5 – 3.0		Land Fill Material (approx. 50%)	Molten glass and unrecognizable charred material in a brown/black unrecognizable material (possible incinerator residue)
3.5 – 8.0			Very fine black matrix (possible incinerator residue) mixed with concrete, ceramic, metal, wood, and glass fragments
8.5 – 9.0			Limerock
9.5 – 10.0			Charred wood and ceramic fragments
10.5		Limestone	Native limestone (clay/sand; stained gray); No visible solid waste
11.0 – 11.5			Native limestone (stained gray); No visible solid waste
12.0			Native limestone (white); No visible solid waste
12.5 – 15.0			

Douglas Park Investigation
Soil Boring Log

Client:	City of Miami		Project Name:	Douglas Park Investigation	
Project Number:	12639984		Date Started: 12/19/2013	Date Completed:	12/19/2013
Project Location:	2795 SW 37th Avenue, Miami		Drilling Contractor:	Enviro Drill, Inc.	
Drilling Method:	Hollow Stem Auger		Sampling Method:	Split Spoon Sampler	
Logged By:	PT	Boring Depth: 12'	Groundwater Level: 8'6''	Boring ID: SB-15	

Depth (ft)	GRAPHIC LOG	MAIN SOIL COMPONENT	ADDITIONAL DESCRIPTION/COMMENTS
0.5		Soil	Soil (sandy): No visible solid waste
1.0			Brown soil mixed with glass fragments
1.5		Land Fill Material (approx. 70%)	Brown clay mixed with limerock
2.0			Sand fill unit (brown); No visible solid waste
2.5			Mixed burnt material (black) with glass fragments and limerock (stained gray)
3.0			
3.5			
4.0			
4.5			
5.0			
5.5			
6.0			
6.5			Concrete, limerock, wood, and other unrecognizable organic material in a black matrix (possible incinerator residue)
7.0			
7.5			
8.0			
8.5			
9.0			
9.5			(9' - 10') Loose limestone (stained gray)
10.0			
10.5		Limestone	Native limestone (white); No visible solid waste
11.0			
11.5			
12.0			
12.5			
13.0			
13.5			
14.0			
14.5			
15.0			

Douglas Park Investigation
Soil Boring Log

Client:	City of Miami		Project Name:	Douglas Park Investigation	
Project Number:	12639984		Date Started: 12/19/2013	Date Completed:	12/19/2013
Project Location:	2795 SW 37th Avenue, Miami		Drilling Contractor:	Enviro Drill, Inc.	
Drilling Method:	Hollow Stem Auger		Sampling Method:	Split Spoon Sampler	
Logged By:	PT	Boring Depth: 14'	Groundwater Level: 10'6''	Boring ID: SB-16	

Depth (ft)	GRAPHIC LOG	MAIN SOIL COMPONENT	ADDITIONAL DESCRIPTION/COMMENTS
0.5		Soil	Soil (sandy): No visible solid waste
1.0		Limerock	6''-8'' Limerock; No visible solid waste/ 8''-12'' Black fine material
1.5 2.0 2.5 3.0		Land Fill Material (approx. 60%)	Fine black matrix (possible incinerator residue) mixed with glass and brick fragments
3.5 4.0			Limerock (stained gray)
4.5 5.0 5.5 6.0			Black clay (possible incinerator residue) mixed with charred wood logs and glass fragments
6.5 7.0 7.5 8.0			Black clay (possible incinerator residue) mixed with charred rubber pieces, charred wood logs, and glass fragments
8.5 9.0 9.5 10.0 10.5 11.0			Black clay (possible incinerator residue) mixed with charred rubber/plastic, charred wood logs, glass fragments, and metal pieces
11.5		Limestone	Native limestone (stained gray)
12.0 12.5 13.0 13.5 14.0			Native limestone (white); No visible solid waste
14.5 15.0			

Douglas Park Investigation
Soil Boring Log

Client:	City of Miami		Project Name:	Douglas Park Investigation	
Project Number:	12639984		Date Started: 12/18/2013	Date Completed:	12/19/2013
Project Location:	2795 SW 37th Avenue, Miami		Drilling Contractor:	Enviro Drill, Inc.	
Drilling Method:	Hollow Stem Auger		Sampling Method:	Split Spoon Sampler	
Logged By:	PT/RL	Boring Depth: 22'	Groundwater Level: 10'	Boring ID: SB-17	

Depth (ft)	GRAPHIC LOG	MAIN SOIL COMPONENT	ADDITIONAL DESCRIPTION/COMMENTS
0.5		Soil	Soil with grass and roots; No visible solid waste
1.0			Soil mixed with glass fragments
1.5		Limerock	Limerock in a fine gray matrix (possible incinerator residue) mixed with concrete, glass, ceramic, metal, and wood fragments
2.0			
2.5			
3.0			
3.5			
4.0			
4.5			
5.0			
5.5			
6.0		Land Fill Material (approx. 60%)	Fine gray matrix (possible incinerator residue) mixed with wood, metal, concrete, glass, and ceramic fragments
6.5			
7.0			
7.5			
8.0			
8.5			
9.0			
9.5			
10.0			
10.5			
11.0			
11.5			
12.0			
12.5			
13.0			
13.5			
14.0			
14.5			
15.0			
15.5			
16.0			
18.0			Fine black matrix (possible incinerator residue) mixed with concrete, ceramic, metal, wood, and glass fragments (Petroleum odor present in wet soils [19' & 20']; No OVA readings)
18.5			
19.0			
19.5			
20.0			
20.5			
21.0		Limestone	Native limestone (white); No visible solid waste
21.5			
22.0			

APPENDIX F

Photo Album
Test Pits – Douglas Park

Dates: 12/18/2013 and 12/20/13

Test Pits
Douglas Park - Miami

Test Pit 1. Metal debris.

Test Pit 1. Mixed solid waste.

Test Pits
Douglas Park - Miami

Test Pit 1. Shredded tire.

Test Pit 2. Tools and metal debris.

Test Pits
Douglas Park - Miami

Test Pit 3. Bottles, rubber pieces and C+D debris.

Test Pit 4. No debris.

Test Pits
Douglas Park - Miami

Test Pit 5. C+D debris.

Test Pit 5. Burnt material, clay and dark residue.

Test Pits
Douglas Park - Miami

Test Pit 6. Molten and broken glass.

Test Pit 6. C+D debris.

Test Pits
Douglas Park - Miami

Test Pit 7. Molten glass piece.

Test Pit 8. Dark colored soil mixed with limerock.

Test Pits
Douglas Park - Miami

Test Pit 8. Mixed solid waste debris.

Angular glass pieces around tree near TP 8.

Test Pits
Douglas Park - Miami

Test Pit 9. Metallic debris.

Test Pit 10. Broken glass and C+D debris.

Test Pits
Douglas Park - Miami

Test Pit 11.

Test Pit 12. C+D debris.

Test Pits
Douglas Park - Miami

Test Pit 13. C+D debris

Test Pit 14.

Test Pits
Douglas Park - Miami

Test Pit 15 .

Test Pit 15. C+D debris with black residue

Photo Logs
Soil Borings Douglas Park - Miami

Dates: 12/17/13 to 12/19/2013

Soil Borings
Douglas Park – Miami

SB 2. Metal fragments.

SB 13. Metal and glass fragments.

Soil Borings
Douglas Park – Miami

SB 13. Processed wood pieces.

SB 7. Angular glass pieces with black residue.

Soil Borings
Douglas Park – Miami

SB 8a. Glass pieces mixed with black residue.

SB 9. Angular glass fragments.

Soil Borings
Douglas Park – Miami

SB 10. Limerock mixed with glass fragments.

SB 11. Limerock (gray) mixed with glass fragments.

Soil Borings
Douglas Park – Miami

SB 16. Rusted metal pieces mixed with soil (top split spoon).

SB 16. Native limestone (stained gray) in contact with possible incinerator residue.