

**DRAFT CONTAMINATION SCREENING EVALUATION REPORT**  
**Florida Department of Transportation**  
**District 6**  
**VENETIAN CAUSEWAY**  
**(Venetian Way)**  
**Project Development and Environment (PD&E) Study**  
**from North Bayshore Drive to Purdy Avenue**  
**Miami-Dade County, Florida**  
**FM No. 422713-2-22-01**  
**Efficient Transportation Decision Making (ETDM): 12756**

The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried out by FDOT pursuant to 23 U.S.C. § 327 and a Memorandum of Understanding dated December 14, 2016 and executed by FHWA and FDOT.

December 14, 2018

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## 1.0 PROJECT SUMMARY

The Florida Department of Transportation (FDOT) District 6 has conducted a Project Development & Environment (PD&E) Study to address identified structural and functional deficiencies of the 12 existing bridges that comprise the Venetian Causeway. The Causeway is owned by Miami-Dade County (County). Potential alternatives include replacement or rehabilitation of the bridges.

The purpose of this report is to present the findings of a contamination screening evaluation for Venetian Causeway. This report identifies and evaluates known or potential contamination problems, issues, presents testing or remedial recommendations concerning these problems, and discusses possible project impacts or impacts to the proposed project.

### 1.1 Project Background

The Venetian Causeway is classified as an urban minor arterial road in Miami-Dade County, and is a significant transportation route connecting the City of Miami with the City of Miami Beach in Miami-Dade County, Florida. The current Causeway follows the original route of the Collins Bridge, a wooden structure built in 1913. The bridges along the causeway were originally built in 1926 with an anticipated design life of 50 years.

Between 1996 and 1999, the twelve causeway bridges underwent major rehabilitation that included the concrete arched beams, decks, foundations and the full replacement of all sidewalks and railings. The rehabilitation and repairs to the concrete elements were anticipated to last for ten years. As part of the rehabilitation, the east bascule bridge (Bridge 10) movable span and machinery was replaced. Spans 17 through 41 of the west bascule bridge (Bridge 1), including the bascule span, were replaced with a higher profile and wider channel to accommodate navigational traffic.

As a result of the continued deterioration of the bridges, in 2004 the FDOT authorized Miami-Dade County to post load restrictions on the bridges. Between 2009 and 2011, the County conducted another major rehabilitation project to repair the causeway's bridges. The scope of work for this rehabilitation included major repairs to the bridge support beams, diaphragms, deck undersides, and support piers. In 2011 FDOT in partnership with Miami-Dade County initiated the PD&E Study. Between 2015 and 2016 the Venetian Causeway underwent an Emergency Repair to replace the remaining original spans of Bridge 1 (spans 1 to 16). The bridges are continuously being repaired to maintain them operational.

The deteriorated condition of the bridges, deck geometry, and load carrying capacity of the bridges, affects the ability of the bridges to adequately serve traffic demand; as such, Bridges 2 thru 12 have been classified as functionally obsolete. Bridge 1 has been replaced in phases and is not considered to be functionally obsolete.

Due to the accelerated state of deterioration, inspection dates were increased from biennial inspections (every other year) required by Federal Highway Administration (FHWA) to biannual inspections (every 6 months).

## 1.2 Project Description

The Venetian Causeway is approximately 2.5 miles long and is primarily a two-lane undivided facility that provides a major link between the City of Miami and the City of Miami Beach in Miami-Dade County, Florida. The causeway includes ten fixed span bridges and two bascule leaf span bridges over the Intracoastal Waterway (bridge numbers 874459, 874460, 874461, 874463, 874465, 874466, 874471, 874472, 874473, 874474, 874477, and 874481) extending from North Bayshore Drive (City of Miami) to Purdy Avenue (City of Miami Beach). The purpose of the proposed project is to address identified structural and functional deficiencies of the twelve existing bridges through potential alternatives such as replacement or rehabilitation.

The bridges were originally built in 1926 and have been designated as historic landmarks by the City of Miami and City of Miami Beach; they are also listed on the National Register of Historic Places (NRHP). The project will take this historic designation into consideration and ensure that any decisions on improvements are coordinated through the County and a Task Force of representatives that reflect the local, state and federal interests of historic preservation. Given the historicity of the bridge, rehabilitation options will also be explored as part of the potential alternatives during the PD&E Study.

The causeway bridges are mainly short span reinforced concrete arch beam bridges. Each bridge section consists of two 12-foot travel lanes with 4-foot bike lanes and 4-foot sidewalks on each side. In 1996, the bridges underwent a major rehabilitation consisting of gunite repairs to the superstructure arch beams and full replacement of all sidewalks and railings. The western bascule bridge (Bridge 1) and its spans 17 through 41 were also replaced. Presently, the bridges exhibit severe deterioration because of their proximity to the very aggressive marine environment. Due to new design codes, these bridges do not meet current design and safety requirements.

The corridor is tolled, and is owned and operated by Miami-Dade County. A Project Location Map is included as **Figure 1-1**.



**Figure 1-1 Project Location Map**

### 1.3 Purpose and Need

The purpose of the proposed project is to address identified structural and functional deficiencies of the twelve existing bridges (ten low-level fixed spans and two movable bascules) through potential alternatives such as replacement or rehabilitation. The improvements are anticipated to meet the following identified needs:

#### 1.3.1 Structural and Functional Deficiencies

The Venetian Causeway is classified as an urban minor arterial in Miami-Dade County and is a significant transportation route connecting the City of Miami with the City of Miami Beach. The bridges along the Venetian Causeway were originally built in 1926 with an anticipated design life of 50 years. The bridges have exceeded their design life by over 30 years and, in some cases, have been classified as functionally obsolete. A bridge is considered functionally obsolete if it has deck geometry, load carrying capacity, clearance or approach roadway alignment that no longer meet criteria for the system which the bridge is a part. Functionally obsolete bridges do not have adequate lane widths, shoulder widths or vertical clearances to serve the traffic demand, or may occasionally flood. Due to the accelerated state of deterioration, inspection dates were increased from the biennial minimum required by FHWA to biannual

inspections. Bridge Inspection Reports (conducted in October 2018) yielded sufficiency ratings between 27.4 and 67.6 on a scale of 100.0 for the various bridges. According to the FHWA policy, bridges with a sufficiency rating of less than 50 are eligible for replacement. The sufficiency rating of each bridge is shown in **Table 1-1**.

The superstructure of each of these bridges displays advanced corrosion with section loss of several members that is significant enough to warrant supplemental supports and/or load restrictions. The bridge inspection reports also cite:

- Under-deck cracks,
- Failure of compression joints,
- Delamination and cracks on pier walls and abutments,
- Corrosion and section loss of substructure members,
- Major deficiencies in the bridge tender's facility,
- Major deck pavement deterioration,
- Substandard signing,
- Pavement marking and signalization, and
- Major Americans with Disabilities Act (ADA) deficiencies on both sidewalks along the bridges.

Once initiated, corrosion cannot be remedied, and sufficiency ratings are only expected to decrease further over time.

**Table 1-1 Venetian Causeway Bridge Inventory Ratings**

Bridge No.	FDOT Bridge No.	2018 Sufficiency Rating	Deficiency
1	874459	67.6	
2	874460	50.0	Functionally Obsolete
3	874461	38.9	Functionally Obsolete
4	874463	38.9	Functionally Obsolete
5	874465	38.9	Functionally Obsolete
6	874466	40.1	Functionally Obsolete
7	874471	37.6	Functionally Obsolete
8	874472	23.6	Functionally Obsolete
9	874473	27.4	Functionally Obsolete
10	874474	32.2	Functionally Obsolete
11	874477	34.3	Functionally Obsolete
12	874481	34.7	Functionally Obsolete

### **1.3.2 Transportation Plan Consistency**

The Venetian Causeway Bridge project is identified in the Miami-Dade Metropolitan Planning Organizations 2040 Long Range Transportation Plan (LRTP) as a Priority I Priority II project. In other words, the Planning and Design phases for this project will be funded in 2015-2020 (Priority I), and the Construction phase will be funded in 2021-2025 (Priority II). The project, described as a bridge replacement, is also shown on Table 6-7, Safety Projects of the LRTP. Additionally, the Adopted 2012-2016 FDOT Five-Year Work Program shows the Venetian Causeway Bridge project with funding in the amount of \$1,770,000 for the PD&E/EMO Study in FY 2012.

### **1.3.3 Modal Interrelationships**

Sidewalks and bicycle lanes exist on both sides of the Venetian Causeway along the entire corridor. Both the City of Miami and the City of Miami Beach Bicycle Master Plans identify Venetian Causeway as a significant bicycle corridor as it serves as one of the County's most well-traveled recreational and commuter bicycle routes. Pedestrian facilities will additionally be studied for opportunities to enhance safety and connectivity. Pedestrian and bicycle mobility is anticipated to be improved as a result of this project.

It should be noted that a Miami-Dade Transit bus route also operates along the causeway corridor, Route 101, Route A. This route connects the Omni Metromover/Bus Terminal adjacent to the Performing Arts Center to Lincoln Road in South Beach. Bus operation will be maintained on the corridor.

### **1.3.4 Emergency Evacuation**

The Venetian Causeway not only serves west/east travel between the City of Miami and the City of Miami Beach, but it also serves regional travel as it is one of only two routes leading from south Miami Beach that provides hurricane evacuation capabilities.

## **1.4 Alternatives Considered**

Alternatives evaluated during the PD&E Study include the No-Action Alternative, the Transportation Systems Management, and Operations (TSM&O) alternative, and two build alternatives as described below. Alternatives were developed and evaluated based on the ability to meet the project needs. The No-Action Alternatives will remain viable until after the Public Hearing. For additional information relating to the Alternatives Analysis, please see the Preliminary Engineering Report (PER) on file at the District.

### **1.4.1 No-Action Alternative**

The No-Action Alternative maintains the existing bridges and roadway approaches in their current condition. No improvements would be made on the structures, except for routine maintenance. This alternative is used as a basis to evaluate the other project alternatives.

As a result of the bridge inspections dated October 26, 2017 through January 17, 2018, all the bridges in the causeway were classified as "functionally obsolete". Sufficiency ratings for bridges 2-12 are all at 50 or below out of a possible 100 based on the FHWA Sufficiency Rating Evaluation. According to the FHWA policy, bridges with a sufficiency rating of less than 50 are eligible for replacement.

The No-Action Alternative includes only routine maintenance performed as needed to keep the bridges open to traffic until safety issues, such as reduced capacity due to ongoing deterioration, would require them to be closed. Repair or replacement could be considered at a later date. This alternative does not include modification or improvements to the existing bridges or approach roadway. Existing geometric features and other deficiencies, including substandard lane width and curbs would remain. No changes to the existing horizontal and vertical navigational clearances would occur. The routine maintenance that would be performed on the structures would include:

- Spall repairs;
- Structural steel cleaning and painting;
- Steel repairs; and
- Mechanical and Electrical maintenance repairs.

The bridges are vulnerable to coastal storms and are below the 100-year Peak Storm Surge elevation of 11.6 feet NAVD88. Storm surge heights range from 7.7 feet (FEMA) to 11.6 feet for the 100-year storm. Wave crest is storm surge plus 70% of the maximum wave height. The Causeway fixed bridges would be inundated in the 100-year storm event. The bridges are also scour susceptible. The 100-year base flood event is predicted to result in scour to an elevation of (-)20.9 feet, which is below average existing pile tip elevation of (-)19.0 feet. This would result in bridge failure.

The No-Action Alternative would preserve the historic character of the Venetian Causeway, and does not appear to be an adverse effect to the significant resources under Section 106. There are also no impacts to noise and air quality and no potential for contamination involvement with the no-action alternative. However, the alternative was deemed to be neither feasible nor prudent as it does not correct the bridges' structural and functional deficiencies. In addition, the lack of appropriate treatment of stormwater runoff will continue to degrade the natural habitat of Biscayne Bay. Over time, continued deterioration of structural elements will pose safety hazards to the public or place intolerable restrictions on travel.

#### **1.4.2 Transportation Systems Management & Operations (TSM&O)**

The objective of Transportation Systems Management & Operations (TSM&O) multi-modal improvements is to identify strategies that reduce existing traffic congestion and prevent its occurrence in areas that are currently not congested. These strategies are designed to modify travel behavior and increase system efficiency without costly infrastructure improvements. TSM&O strategies are implemented when one or more of the following occurs:

- Insufficient funds available to meet system improvement needs;
- Increased construction costs for new roadways and transit facilities;
- Increased need to improve operational efficiency; or
- Changes in travel patterns.

TSM&O options generally include traffic signal and intersection improvements, access management and transit improvements. The TSM&O Alternative includes those types of activities designed to maximize the utilization and efficiency of the present system. The alternative components that were considered include the following:

- Traffic signal optimization;
- Traffic operational improvements to include signing and pavement marking improvements;
- Enhanced bus service;
- Facilitated pedestrian and bicyclist measures; and
- Limited repairs on the existing bridges to improve operation.

Similar to the No-Action Alternative, the TSM&O Alternative would preserve the historic character of the bridges and does not appear to be an adverse effect to the significant resources under Section 106, but maintains the existing bridges in their current condition. There are no impacts to noise and air quality and no potential for contamination involvement. The alternative provides some transportation operation improvements on the corridor, but was deemed to be neither feasible nor prudent as it does not correct the bridges' structural and functional deficiencies. In addition, the lack of appropriate treatment of stormwater runoff will continue to degrade the natural habitat of Biscayne Bay. Over time, continued deterioration of structural elements will pose safety hazards to the public or place restrictions on travel.

### 1.4.3 Build Alternative - Rehabilitation

#### **Stormwater Management System**

Existing stormwater management systems in the residential islands and proposed systems on the spoil islands will be utilized to collect runoff from the bridges since scuppers will be eliminated with the replacement of the existing bridge deck. These systems will provide water quality and attenuation. The stormwater management approach will be coordinated through pre-application meetings with DERM, the local-environmental agency, and SFWMD, the regional water management district as well as the maintaining agencies, such as the City of Miami and the City of Miami Beach.

For Bridge 12, half of the stormwater runoff will drain toward the City of Miami Beach's stormwater management system along Dade Boulevard and Sunset Harbour Drive. Dade boulevard has completed reconstruction and the proposed stormwater management approach will be coordinated with the City of Miami Beach to ensure there is sufficient capacity to handle the stormwater runoff.

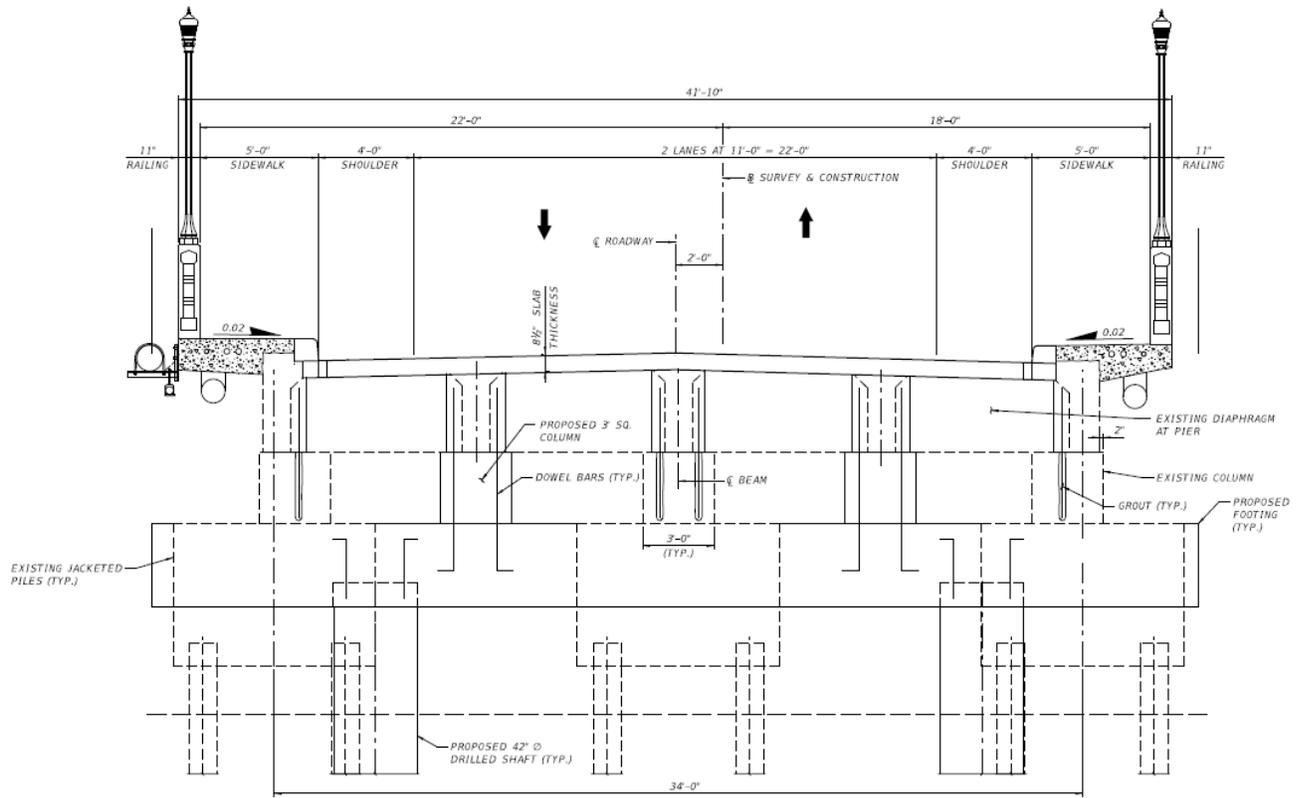
#### **Rehabilitation Alternative 4: Fixed Bridge Rehabilitation with Beam Strengthening**

Rehabilitation Alternative 4 would correct physical and design criteria deficiencies of the existing bridges to extend their service life. Considering the historical significance of the existing causeway, all efforts were made to protect and preserve the bridges as a historic resource. This rehabilitation alternative includes deck replacement, beam strengthening and foundation strengthening. This alternative was developed in order to maintain the existing bridges in their location without major changes, and to extend service life by 25 years.

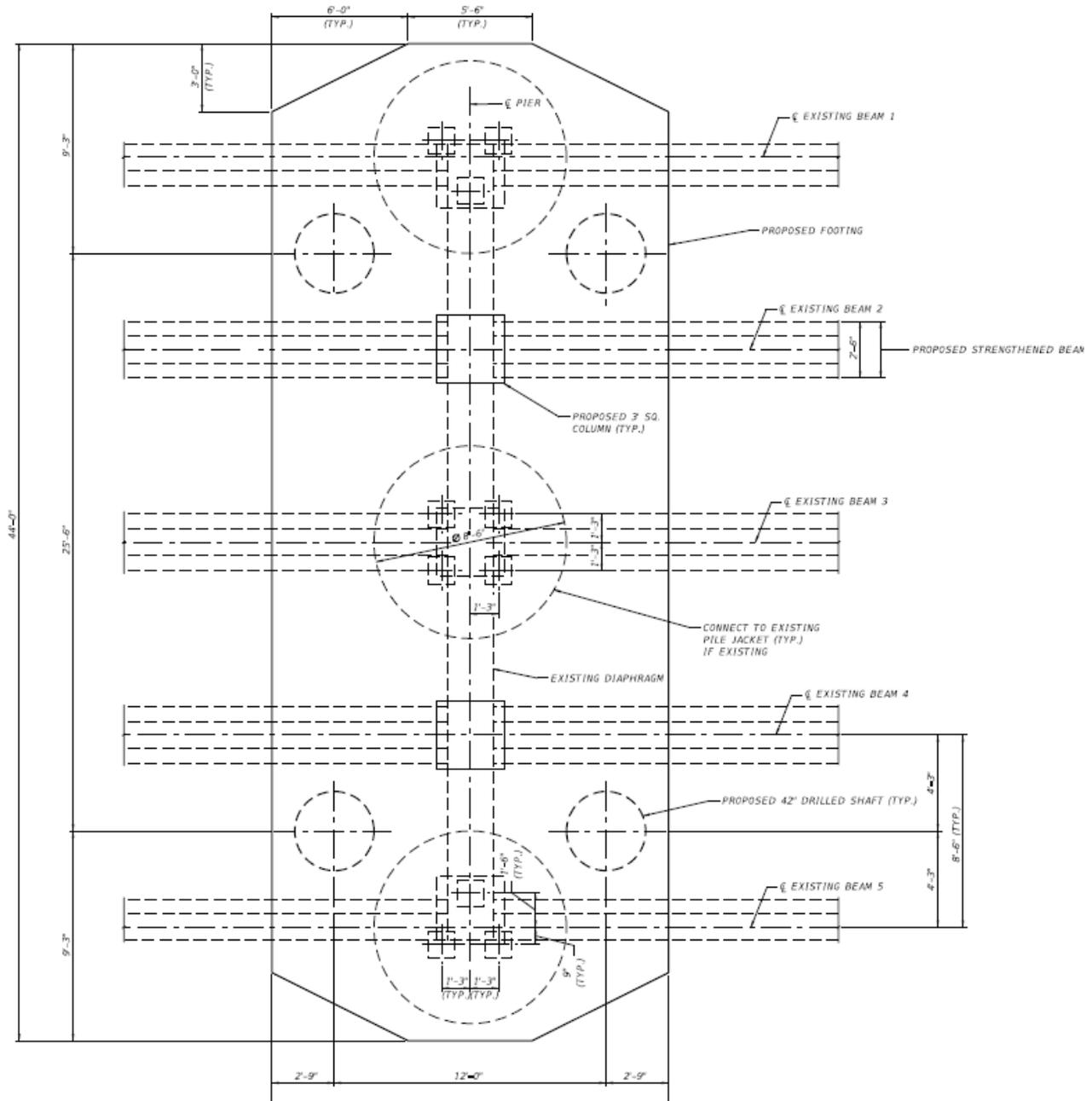
This alternative achieves the established rehabilitation criteria and includes the following:

- Replace the existing 6.5-inch deck with a new higher strength concrete 8.5-inch deck;
- Strengthen the existing foundations by installing new drilled shafts (Figures 1-2 and 1-3);
- Foundations designed to resist wave force vulnerability;

- Encase existing and new footings to strengthen the foundations;
- Repair concrete spalls and cracks in the beams and diaphragms;
- Repair jacketed piles;
- Strengthen interior beams by widening by 8-inches on both sides and strengthening exterior beams by widening by 8-inches on the inside face.
- Strengthened beams, cast-in-place deck and strengthened foundation would provide adequate resistance to meet current FDOT/American Association of State Highway Transportation Officials (AASHTO) live load requirements.
- Strengthened foundation to meet the standards for scour resistance, wave force resistance (classified as Extremely Critical) and vessel impact resistance (classified as Critical). Refer to the Bridge Hydraulics/ Design Scour Report dated May 27, 2016.
- Cathodic protection impressed current system for the beams and diaphragms. Refer to Conceptual Cathodic Protection Design for Bridge Superstructure and Substructure Components dated June 15, 2015.
- Bridges would be closed one at a time during construction, and detours would be provided.
- Utility services would be maintained on the bridge during its construction time.



**Figure 1-2 Rehabilitation Alternative 4: Beam and Foundation Strengthening Concept**



**Figure 1-3 Rehabilitation Drilled Shaft Foundation Strengthening**

**Estimated ROW Acquisition:** None

**Anticipated Cost:** \$43 Million

**Rehabilitation Alternative M1: Bascule Bridge Rehabilitation**

The rehabilitation of the movable span bridge 10 includes modifications to the existing bridge to improve safety aspects and eliminate structural, mechanical and electrical deficiencies. The rehabilitation would be designed to extend the life of the bridge for a minimum of 25 years with routine maintenance and

periodic repairs. This rehabilitation alternative would not include changes in the horizontal or vertical clearance. The bridge would not be widened; therefore, the existing sidewalks and lane configurations would remain the same.

The following scope of work is recommended for the Rehabilitation Alternatives:

**Bridge 1 (West Bascule – 874459)**

The easternmost spans of this bridge were partially replaced in 1999 and then the westernmost spans were replaced in 2016 in the Emergency Repair Project. As such, the bridge is in good condition. The following repairs should only be considered as part of any future rehabilitation to extend the life of the bridge. These costs were not included in the cost estimates for the project.

**Structural:**

- Recondition Bascule Span Superstructure (Reduce Maintenance):
  - Replace Steel Coating System
    - Use Metalized Primer for Enhanced Corrosion Resistance
  - Replace Bolts
    - Use Mechanically Galvanized Structural Bolts for Enhanced Corrosion Resistance
    - Use Stainless Steel (Type 316) Fasteners for Miscellaneous Components
- Modify Bascule Span Superstructure (Improve Functionality/Maintenance):
  - Replace Sidewalk Plates and Install New Curb Assembly (5-foot Wide Sidewalk)
  - Install Machinery Room Access Platforms
  - Modify Bridge Railing to Accept Railing Mounted Span Locks
- Repair Bascule Pier Concrete (Extend Concrete Service Life):
  - Clean and Seal Cracks
  - Replace Class 5 Applied Finish Coating
- Recondition Fender System (Reduce Maintenance):
  - Replace Timber Components with Plastic Marine Lumber
  - Replace Hardware with Stainless Steel (Type 316) Hardware
  - Replace Access Ladders and Cages

**Mechanical:**

- Recondition Hydraulic Cylinder Drive System (Improve Reliability/Reduce Maintenance):
  - Recondition Hydraulic Cylinders
    - New Seals, Rod Bearings
    - Clean and Polish Rods
    - Replace Lubrication Fittings
    - Flush and Clean Clevis Assemblies
    - Replace Flexible Hosing and Fittings
    - Recondition Hydraulic Power Units
    - Replace Motors and Pumps
    - Replace Seals
    - Replace Valves
    - Replace Electronic Controls
    - Replace Flexible Hosing and Fittings
    - Replace Fluid, Clean and Flush System

- Recondition Trunnion Assemblies
  - Clean and Polish Journal Surfaces
  - Replace Lubrication Ports, Flush and Clean bearings
- Properly Balance Spans
- Adjust Live Load Shoes
  - Replace Shims and Hardware
- Replace Span Lock Assemblies
  - Mount in Modified Bridge Railings with Access from Sidewalks

Electrical:

- Replace Electrical Power Distribution System (Improve Reliability/Reduce Maintenance):
  - New Conduit, Wiring, Junction Boxes, Receptacles, Pier Lighting
    - Use Improved Materials for Enhanced Corrosion Resistance
  - Recondition Motor Control Center
  - New Service Entrance
  - Recondition Standby Generator and Automatic Transfer Switch
  - New Grounding and Surge Suppression System
  - New Submarine Cable Installed in Permanent Duct
- Replace Electrical Control System (Improve Reliability/Reduce Maintenance):
  - Recondition Control Desk, Control Panels, Relays/PLC
  - New Limit Switches
- Replace Navigation Lighting (Improve Reliability/Reduce Maintenance)
- Replace Warning Gates and Signals (Improve Reliability/Reduce Maintenance)

Architectural:

- Renovate Control House
  - Replace Windows and Doors
  - Install Closed Circuit Television (CCTV) Camera System
  - Clean and Paint Interior
  - Replace Flooring

**Bridge 10 (East Bascule – 874474)**

This bridge was completely rehabilitated in 1999 to include new electrical and mechanical systems as well as new bascule leaves. In 2016, there was also a structural, mechanical, and electrical rehabilitation to improve existing conditions. This rehabilitation would extend the life of the bridge by 25 years.

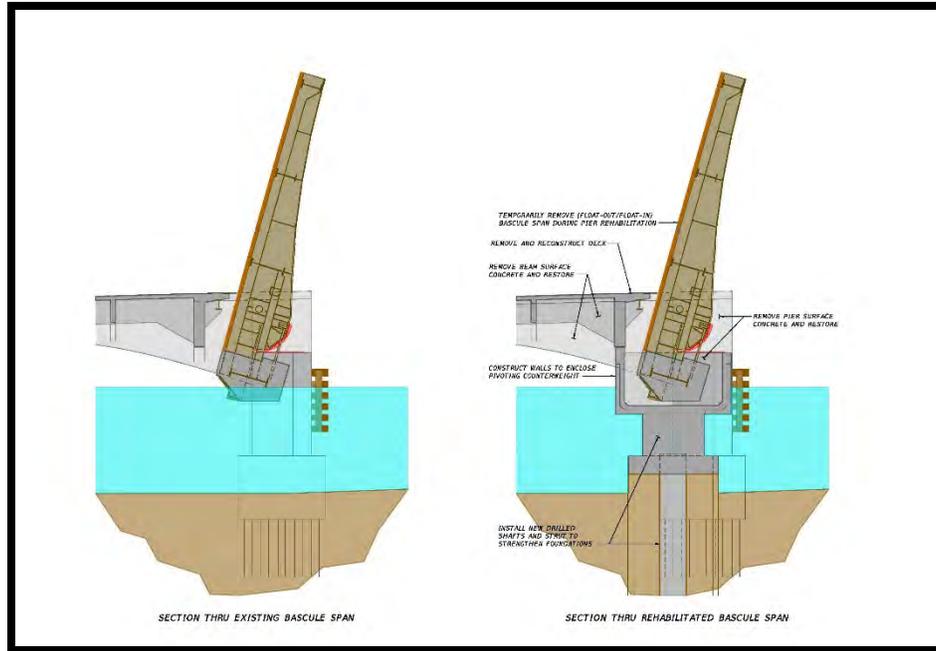
Structural:

- Recondition Bascule Span Superstructure (Reduce Maintenance):
  - Replace Bolts. Use Mechanically Galvanized Structural Bolts for Enhanced Corrosion Resistance
  - Use Stainless Steel (Type 316) Fasteners for Miscellaneous Components
- Modify Bascule Span Superstructure (Improve Functionality/Maintenance):
  - Replace Sidewalk Plates and Install New Curb Assembly (5-foot Wide Sidewalk)
  - Install Machinery Room Access Platforms
- Repair Bascule Pier Concrete (Extend Concrete Service Life):
  - Remove Surface Concrete to Depth of Reinforcing

- Removes Unsound and Contaminated Material
  - Supplement Deteriorated Reinforcing Steel (as Required)
  - Install Cathodic Protection System
  - Use Corrosion Resistant concrete
  - Replace Class 5 Applied Finish Coating
- Strengthen Bascule Pier Foundations (Resist Wave Loading):
  - Remove Bascule Pier Deck and Deck Joints between Curbs
  - Remove Live Load Support Beams and Concrete Brackets
  - Temporarily Remove Bascule Leaves
    - Float-out on Barges
  - Install Drilled Shafts or Driven Concrete Piles between Footings
  - Install Steel Sheet Pile Cofferdam with Tremie Concrete Seal and Dewater
    - Facilitates Construction in the Dry
  - Install Reinforcing Steel and Anchor to Pier Footings
  - Form and Pour Concrete Strut between Pier Footings
  - Cut-off or Remove Steel Sheet Piles
- Construct Counterweight Enclosure (Prevent Submersion of Counterweight/Improve Protection)
  - Construct Precast Enclosure Slab/Walls
  - Install Precast between Pier Columns and Seal with Supplemental Forms
  - Install Tremie Concrete Seal and Dewater
    - Facilitates Construction in the Dry
  - Install Reinforcing Steel and Anchor to Pier Columns, Beams and Diaphragms
  - Form and Pour Concrete Slab and Walls
  - Reinstall Bascule Leaves
    - Float-in on Barges
  - Reconstruct Live Load Shoe Support Beams and Concrete Bracket
- Reconstruct Bascule Pier Deck between Curbs
- Install Galvanized Steel Screen and Gate along Front Wall (Prevent Unauthorized Access)
- Recondition Fender System (Reduce Maintenance):
  - Replace Timber Components with Plastic Marine Lumber
  - Replace Hardware with Stainless Steel (Type 316) Hardware
  - Replace Access Ladders

Mechanical:

- Recondition Drive Train (Improve Reliability/Reduce Maintenance):
  - Replace Steel Coating System
    - Use Metalized Primer for Enhanced Corrosion Resistance
  - Recondition Gear Boxes
    - Replace Gaskets, Breathers, and Sight Glasses
  - Recondition Bearings
    - Clean and Polish Surfaces
    - Replace Lubrication Ports, Flush and Clean



**Figure 1-4 Bridge 10 Bascule Leaf Rehabilitation Concept**

Electrical:

- Replace Electrical Power Distribution System (Improve Reliability and Reduce Maintenance):
  - New Conduit, Wiring, Junction Boxes, Receptacles, Pier Lighting
    - Use Improved Materials for Enhanced Corrosion Resistance
  - New Motor Control Center
  - New Service Entrance
  - New Standby Generator and Automatic Transfer Switch
  - New Grounding and Surge Suppression System
  - New Submarine Cable Installed in Permanent Duct
- Replace Navigation Lighting (Improve Reliability/Reduce Maintenance)
- Replace Warning Gates and Signals (Improve Reliability/Reduce Maintenance)

Architectural:

- Renovate Control House
  - Replace Windows and Doors
  - Install CCTV Camera System
  - Clean and Paint Interior
  - Replace Flooring

**Anticipated Cost:** \$9 Million

#### 1.4.4 Build Alternative - Replacement

##### **Stormwater Management System**

Similar to the rehabilitation approach, the existing stormwater management systems in the residential islands and proposed systems on the spoil islands will be utilized to collect runoff from the bridges since scuppers will be eliminated. These systems will provide water quality and attenuation. The stormwater management approach will be coordinated through pre-application meetings with DERM, the local environmental agency, and SFWMD, the regional water management district as well as the maintaining agencies, such as the City of Miami and the City of Miami Beach.

For Bridge 12, half of the stormwater runoff will drain toward the City of Miami Beach's stormwater management system along Dade Boulevard and Sunset Harbour Drive. Dade Boulevard has completed reconstruction and the proposed stormwater management approach will be coordinated with the City of Miami Beach to ensure there is sufficient capacity to handle the stormwater runoff.

##### **Replacement Alternative T1: Venetian Railing**

Bridge railings are required for the protection of traffic and pedestrians from drop offs and other obstacles and must function to contain and redirect errant vehicles using the structure. Bridge railings are designed to satisfy requirements provided by AASHTO's Guide Specification for Bridge Railings. AASHTO requires railings to have performance characteristics based on a number of factors such as: roadway classification, design speed, average daily traffic, percentage of truck traffic, alignments and bridge conditions.

The T1 alternative maintains the existing Venetian Railing at the coping, and maintains the historical character of the causeway (Figure 1-5). The existing Venetian Railing is different from the original Venetian Railing. During the 1996 to 1999 Rehabilitation Project, the original railings were replaced with heavier railings designed for vehicular impact consistent with the AASHTO requirements at the time, but not the geometric requirements. The provision of a curbed sidewalk in front of the railing was introduced on both sides of the bridge to mitigate for any geometric deficiencies. The existing Venetian Railing was also used in the 2016 Emergency Repair Project for Bridge 1. The existing Venetian Railing maintains the historic appearance of the causeway. The railing will not comply with all the geometric requirements of AASHTO's Guide Specification for Bridge Railings, so a variation or exception will be required.

## T1 – Venetian Railing



**Figure 1-5 Replacement Alternative T1: Typical Section**

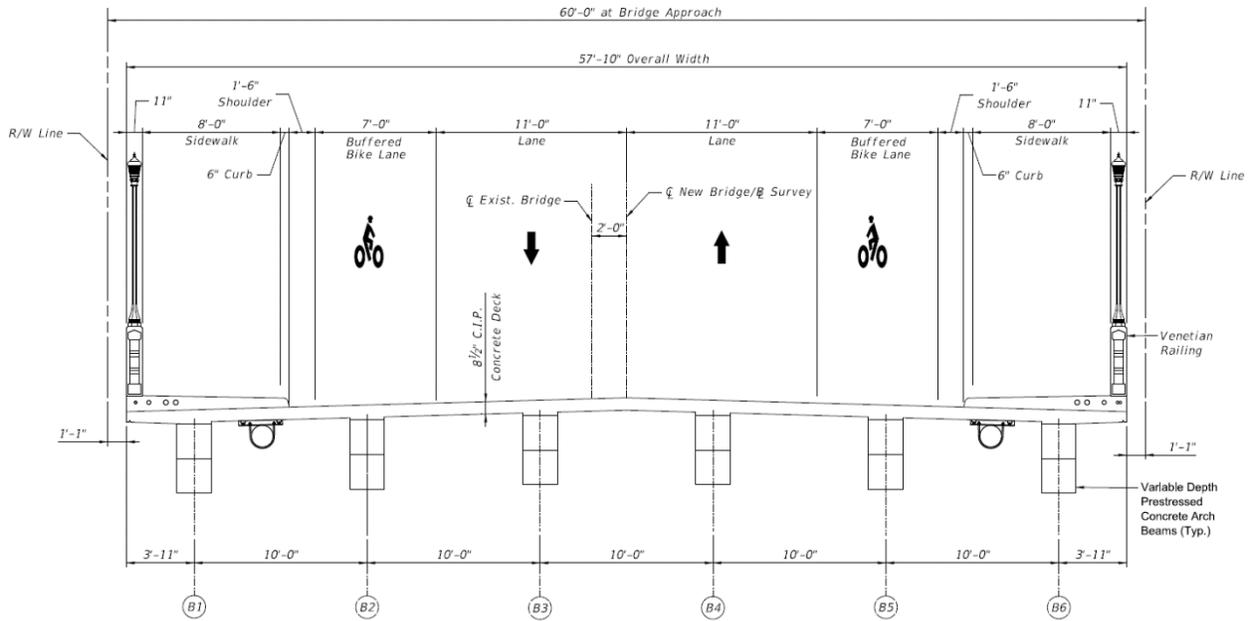
## Replacement Alternative 7: Arched Beams

The Arched Beam superstructure replacement alternative supports the required AASHTO HL-93 load. The HL-93 truck consists of a “design truck plus design lane load” or “design tandem plus design lane load”, whichever is the worst case. The design truck is a 3-axle HS20 truck with weight limit of 36 tons, the design tandem is a military truck with twin axles of 12.5 tons each, and the design lane load consist of a 9.3KN/m uniformly distributed in the longitudinal direction. The structural system mimics the dimensions and appearance of the original structure. The superstructure consists of variable depth arched beams. The variable depth beams are approximately 2 feet deep at midspan and 4 feet deep at beam ends (See Figure 1-6).



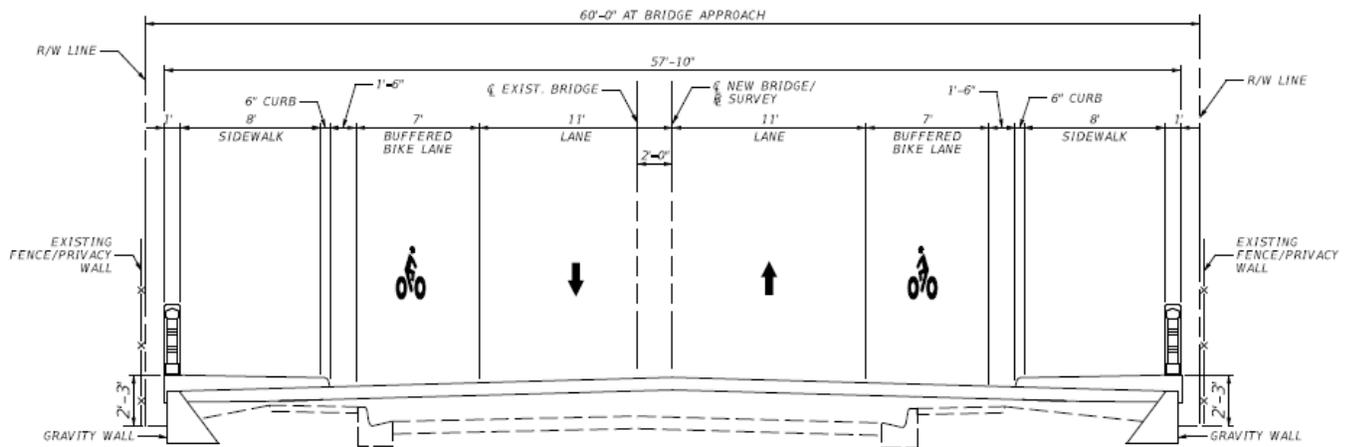
**Figure 1-6 Replacement Alternative 7: Arched Beam Elevation View**

The proposed approach span bridge section would be increased 16 feet from the existing 41-foot 10-inch wide section. The 57-foot 10-inch-wide bridge section includes two 8-foot sidewalks, two 1-foot 6-inch shoulders, two 7-foot. buffered bicycle lanes and two 11-foot travel lanes (See Figure 1-7).



**Figure 1-7 Replacement Alternative 7: Arched Beam Typical Section**

Bridge height affects the extent of potential impacts to right-of-way and connecting streets. The vertical alignment of the new fixed bridges would be raised a minimum of 1 foot above the existing clearance to Biscayne Bay. The raised bridge profile will require modifications to the roadway approaches. (See Figure 1-8)



**Figure 1-8 Replacement Alternative 7: Raised Bridge Profile**

## **Substructure**

Two foundation types were considered for the replacement alternatives:

- 24-inch Square Prestressed Concrete Piles
- 48-inch Drilled Shafts

Deep foundations with piles consist of a footing or pile cap supported by precast, prestressed concrete square piles. Piles are slender members that support the foundation loads when the soil is not capable of doing so. The piles resist and transfer the vertical and horizontal bridge loads to the soil or rock.

Advantages of piles include:

- Elimination of need for cofferdams and dewatering if pile caps are used;
- Fewer environmental impacts would be incurred; and
- Piles are less prone to scour and erosion.

Disadvantages of piles include:

- Driving piles may incur impacts to adjacent bridges and homes in close proximity;
- Piles are more susceptible to marine collision damage especially if they are exposed when pile caps are used; and
- Piles would require more specialized testing and inspection.

Deep foundations with drilled shafts are cast-in-place reinforced concrete piles. They are larger than driven piles, therefore they can take larger loads than piles as well as resist more vertical loads and moments. Drilled shafts are constructed by drilling to the required depth, cleaned, inspected, reinforced with a reinforcing steel cage, and concrete placed in the hole. The construction process is not environmentally friendly due to the drilling operation; however, noise impact would be greatly reduced for this alternative.

Despite the high cost of drilled shafts, they are recommended for this project to reduce noise impacts. Additionally, drilled shafts were proven to be effective during the partial Bridge 1 replacement in 1999 and 2016.

***Estimated ROW Acquisition:*** None

***Anticipated Cost:*** \$47 Million

### **Replacement Alternative M4: Double Leaf Bascule Bridge**

This alternative would replace the existing Bridge 10 movable bridge with a new double leaf bascule bridge 10. Advantages to the double leaf bascule bridges include:

- Unlimited vertical clearance in the raised position;
- The design can be laid out in a symmetrical arrangement which is an advantage when an “arched” look is desired; and
- They provide natural barriers to vehicular traffic when in the open position.

The existing bascule span provides 6 feet of minimum vertical clearance above mean high water at the face of fenders and 10 feet at the center of the navigation channel with the span lowered. The existing

horizontal clearance is 56 feet between fenders. There are no established official US Coast Guard (USCG) vertical or horizontal guide clearances for this waterway crossing. However, a USCG Bridge Permit will be required for the replacement bridge and the USCG will make a determination concerning acceptable vertical and horizontal clearances for the proposed replacement bridge. For reference, the bridges at the east end of Julia Tuttle Causeway (I-195) to the north and MacArthur Causeway (SR A1A) to the south are high-level bridges with fixed spans over the navigation channel that provide 35 feet of minimum vertical clearance above mean high water. They both provide 75 feet of horizontal clearance between fenders.

A 75-foot horizontal clearance between fenders is proposed for the movable span replacement option. This provides improved safety at the Venetian Causeway site and is consistent with bridges located to the north and south of the causeway. In order to span the proposed 75-foot wide navigation channel, the bascule span will require a minimum overall structure depth (controlled by the depth of the main girders) of approximately 10 feet at the face of the fenders (See Figure 1-9).



**Figure 1-9 Replacement Alternative M4: Double Leaf Bascule Bridge**

For a movable span bridge, the vertical clearance in the closed position affects the number of bridge openings and traffic flow. Higher vertical clearance in the closed position would require fewer bridge openings. The existing bridge provides only 6 feet of minimum vertical clearance at mean high water over the Intracoastal Waterway (ICWW) at the fenders in the closed position. Unlimited clearance is provided in the open position. The vessel height survey conducted on this bridge indicated the bridge would see less openings if the vertical clearance of the bridge was raised. The raising of the bridge must take into consideration the impacts to the spoil islands and residential islands as well as the historic appearance of the causeway. The bridge vertical clearance alternatives considered for Bridge 10 include:

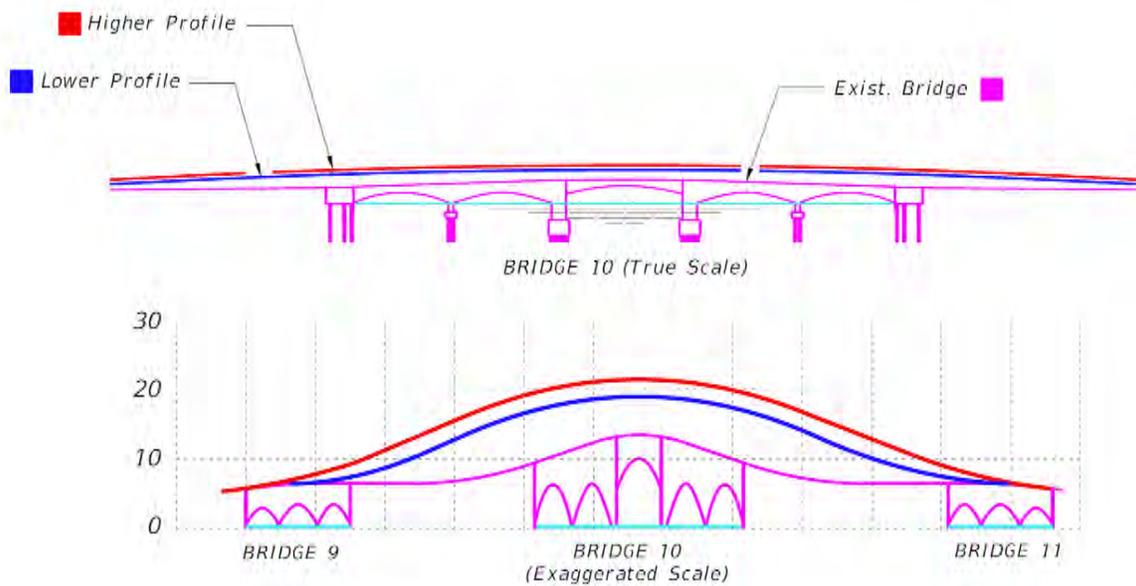
- 10.5 feet of vertical clearance at the fender and 13.5 feet of vertical clearance at centerline of channel. This profile maintains the drive machinery above the 100-year flood elevation. Although

the bascule piers will flood during a storm event, the mechanical and electrical systems of the bridge will remain above the flood elevation. The spoil islands will have retaining walls. A ramp could be provided for pedestrian access to the islands.

- 13.0 feet of vertical clearance at the fender and 16.0 feet of vertical clearance at centerline of channel. This profile would maximize the height of the bridge by raising the profile beginning at the point where bridges 9 and 11 connect to the residential islands. The spoil islands will have retaining walls. A ramp could be provided for pedestrian access to the islands.

The lower profile bridge with 10.5 feet of vertical clearance at the fender and 13.5 feet of vertical clearance at the centerline of the channel was requested by the public at the Alternatives Public Workshop, in order for the bridge to remain as low as possible and preserve its existing appearance.

Vertical profiles were prepared for the above alternatives to determine where each alternative would tie back into existing grade on the approach roadways. Both proposed profiles have a maximum vertical grade of five percent to meet ADA requirements for pedestrians (Figure 1-10).



NAVIGATION CLEARANCE POINT	VERT. CLEAR. (ABOVE MEAN HIGH WATER)		
	EXISTING	HIGHER	LOWER
at Fender	6.0'	13.0'	10.5'
at Center	10.0'	16.0'	13.5'
DECK ELEVATION AT PEAK	13.45'	21.45'	18.96'

**BRIDGE 10 - VERTICAL PROFILE ALTERNATIVES**

**Figure 1-10 Bridge 10 Vertical Profile**

A bridge profile with 10.5 feet of vertical clearance at the fender and 13.5 feet of vertical clearance at centerline of channel is proposed. This profile has the following benefits:

- Least impacts to the appearance of the causeway
- Reduces the need to raise bridges 9 and 11
- Minimizes the use of retaining walls
- Maintains pedestrian access to the spoil islands from the roadway
- Has the least impacts to the aesthetics and view shed of the causeway

***Anticipated Cost:*** \$43 Million

### **1.5 Recommended Alternative**

(To be completed after the public hearing.)

## 2.0 LAND USE

The existing land uses within the project area were determined through the interpretation and review of the 2008 South Florida Water Management District (SFWMD) Florida Land Use and Cover Geographical Information Systems (GIS) layer, and the more detailed Miami-Dade County LUMA land use GIS layer. Land uses identified within the proposed right of way (ROW) limits and adjacent to the corridor are shown in **Appendix A**. The land use map includes acreage totals per land use and type.

The majority of land within and adjacent to the existing ROW is urban and built-up. The land use within the ROW is primarily transportation and exists as either roads or bridges. Within 500 feet of the existing ROW the land uses are predominantly medium density single family and high density multi-family residential and commercial lodging exists adjacent to the east and west sides of the project corridor. Recreational land (public parks) and open space can be observed from the ROW.

## 3.0 HYDROLOGY

### 3.1 Regional Geology

In the project area within Miami-Dade County, the surficial aquifer is composed of sediments from the Pleistocene Epoch. The geological units from the land surface down include the Pamlico Sands, Miami Oolite, Anastasia Formation, Key Largo Limestone, Fort Thompson Formation, Caloosahatchee Marl, and the Tamiami Formation. The above stratigraphic sequence does, however, vary depending on the area. The geology within the project area consists primarily of sandstone, limestone on the western end of the causeway and shelly sand and clay underlying the causeway moving eastward toward Miami Beach.

### 3.2 Regional Hydrogeology

#### Biscayne Bay

The project area is within Biscayne Bay, a shallow estuary where freshwater from the mainland mixes with salt water from the sea within the Atlantic Coastal Ridge of Florida. As described by the National Park Service, the bay serves as a nursery for marine species, with seagrass beds providing habitat as well as food for sea life. Many fish, crustaceans and shellfish spend part of their lives in the bay. The bay is one of the most productive ecosystems in the greater Biscayne National Park. Fresh water flow brings nutrients from inland areas, and plants combine nutrients with energy from the sun, carbon dioxide and water to produce food. The Venetian Islands and non-bridge portions of the Venetian Causeway were created from dredge materials which came from the bay. The Venetian Causeway follows the original route of the Collins Bridge, a wooden structure built in 1913 by John S. Collins and Carl G. Fisher which opened up the barrier island for development.

#### Biscayne Aquifer

The shallow aquifer system (groundwater source) in Miami-Dade County is a water table aquifer commonly referred to as the Biscayne Aquifer. The Biscayne Aquifer is a hydrologic system that crosses stratigraphic contacts and is limited by the hydraulic properties of the rock units it contains. The wedge-

shaped aquifer is thickest along the coastline where it may exceed 400 feet in some areas. In the project area, the wedge-shaped aquifer is approximately 300 feet thick and thickens towards the east. In this area, the regional groundwater flow is towards the east and the water table generally lies approximately six to 10 feet below land surface. The Biscayne Aquifer is classified by the State of Florida as a G-II aquifer, which is groundwater characterized as having potable water source potential.

### 3.3 Water Supplies

The proximity of the project corridor to public wellfields and surface water bodies was investigated. According to the Miami-Dade County Existing Wellfield Protection Zone Map (1998), no public wells are located within a one-quarter mile of the project corridor. The nearest public wellfield is located approximately 5 miles to the west of the project corridor, to the north of the Miami International Airport.

### 4.0 SOILS

As illustrated in the Soils Map in **Appendix B**, and according to the Natural Resources Conservation Service (NRCS), the project corridor is dominated by *Urban Land* and are generally poorly drained, compacted fill materials. As the fill islands of Venetian Causeway were constructed with dredge materials from the bay, the composition is primarily shelly sand and clay of Pleistocene age.

### 5.0 METHODOLOGY

A preliminary evaluation of Venetian Causeway was conducted to determine potential contamination issues within the proposed project limits from properties or operations located within the vicinity of the project. This evaluation consisted of the following tasks:

1. Field surveys conducted in June 2016 and January 2017 to identify potential contamination concerns within and adjacent to the project corridor. Site visits were conducted throughout the contamination evaluation to verify information obtained from the public records and to identify additional potential contamination sites not addressed in the public records. Copies of site photographs are presented in **Appendix C**.
2. A study of historical aerials obtained from the FDOT, University of Florida and Google databases including the years of 1951, 1968, 1973, 1985, 1991, and 2015 to evaluate the corridor's progression of development and to identify any potential contamination sites predating or unrecorded in available agency records. A data gap exists in the aerial photography records between 1991 and 2015 as none of the available aerial photograph databases reviewed contained aerials in this interval. Copies of the aerial photographs reviewed are presented in **Appendix D**.
3. The identification of facilities permitted to handle, store, or generate hazardous substances and sites with documented hazardous substance discharges within 500 feet of the project corridor, solid waste facilities within one-quarter mile, and Superfund/Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) sites within one mile of the project were identified through the review of the GIS databases of various Federal, State and Local enforcement agencies. The GIS layers reviewed include, but were not limited to: The U.S. Environmental Protection Agency (USEPA) Resource Conservation and Recovery Act Regulated (RCRA) Facilities; USEPA Toxic Release Inventory System (TRIS); USEPA Superfund/National Priority List (NPL) Sites; Florida Department of Environmental Protection

(FDEP) State Funded Hazardous Waste Cleanup Sites; FDEP Dry Cleaning Program Sites; FDEP Petroleum Contamination Monitoring Sites; FDEP Large Quantity Generators of Hazardous Waste; FDEP Brownfield Areas; FDEP Storage Tank Contamination Monitoring (STCM) sites; FDEP Solid Waste Facilities; FDEP Treatment, Storage, and Disposal (TSD) facilities of Hazardous Waste; Miami-Dade County Contaminated Sites; and Miami-Dade County Landfills. Data collection from the GIS databases provided basic facility information including addresses, permit/discharge identification numbers, cleanup status, distance from ROW, etc.

4. Site history investigations for each facility identified as a potential contamination concern were done by reviewing documentation available within Federal, State, and local agency online databases including Miami-Dade County Department of Environmental Management (DERM) files. The online databases reviewed include the USEPA Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS), which includes all sites listed or being considered for listing on the NPL; and the FDEP OCULUS and Map Direct data management systems. The site histories were last updated in July 2017.

5. Where applicable, further site history data collection and review was conducted through other agencies, such as: the SFWMD; the U.S. Department of Agriculture (USDA); the NRCS; the U.S. Geological Survey (USGS); or other agencies or firms with pertinent information.

6. This report provides the results of a Level I evaluation of the project corridor and defines the potential for contamination impacts. A Level II investigation, which includes soil and groundwater sampling or other means to verify the type and extent of contamination present (that may have the potential to impact the project), will be conducted during the Final Design phase, as necessary.

An evaluation of all data collected for each site to determine the site's potential degree of risk (No, Low, Medium, High) for contamination involvement with the proposed project. Risk ratings were assigned in accordance with Part 2, Chapter 20, Section 2.3.2 (June 14, 2017 revision) of the FDOT PD&E Manual. The contamination rating system is divided into four degrees of risk: No, Low, Medium and High. This system expresses the degree of likelihood for potential contamination problems that may impact project construction. Known problems may not necessarily present a high cause for concern if the regulatory agencies are aware of the situation and actions, where necessary, are either complete or are underway, and these actions will not have an adverse impact on the proposed project.:

**No** - A review of available information on the property and a review of the conceptual or design plans indicates there is no potential contamination impact to the project. It is possible that contaminants had been handled on the property. However, findings from the contamination screening evaluation or sampling and testing results indicate that contamination impacts are not expected.

**Low** - A review of available information indicates that former or current activities on the property have an ongoing contamination issue, has a hazardous waste generator identification (ID) number, or handles hazardous materials in some capacity. However, based on the review of conceptual or design plans and/or findings from the contamination screening evaluation or sampling and testing results, it is not likely that there would be any contamination impacts to the project.

**Medium** - After a review of conceptual or design plans and findings from a contamination screening evaluation or sampling and testing results, a potential contamination impact to the project has been

identified. If there is insufficient information (such as regulatory records or site historical documents) to make a determination as to the potential for contamination impact, and there is reasonable suspicion that contamination may exist, the property should be rated at least as a “Medium”. Properties used historically as gasoline stations and which have not been evaluated or assessed by regulatory agencies, sites with abandoned in place underground petroleum storage tanks or currently operating gasoline stations should receive this rating.

**High** - After a review of all available information and conceptual or design plans, there is appropriate analytical data that shows contamination will substantially impact construction activities, have implications to ROW acquisition or have other potential transfer of contamination related liability to the FDOT.

## 6.0 PROJECT IMPACTS & REGULATORY STATUS OF SITES

The project was reviewed through the FDOT’S Efficient Transportation Decisions Making (ETDM) process where members of the Environmental Technical Advisory Team (ETAT) provide input/comments. The ETDM Screening Summary Report (No. 12756) is on file at the District. The USEPA and FDEP assigned a Minimal degree of effect for contaminated sites, recommending evaluation of subsurface contamination potential at a RCRA site (Texaco # 240210718) identified within 100 feet of the project, as well as the petroleum tank sites and RCRA regulated sites within 500 feet of the project. Consistent with EPA’s recommendations, during this evaluation, attention was paid to historical land uses such as solid waste disposal (see sections **7.1 Historic Aerial Review** and **7.2 Site History** below) that may have an effect on the proposed project.

The FDEP further commented that the Contamination Screening Evaluation Report should outline specific procedures that would be followed in the event that drums, wastes, tank, or potentially contaminated soils are encountered during construction. These provisions will be provided in the proposed project’s construction contract documents (see section **8.0 Recommendations**).

### 6.1 Historical Aerial Review

Available historical aerial photography from 1951 to the present was reviewed to identify previous and current land uses which may have the potential to adversely impact implementation of the recommended build alternative. **Table 6-1** contains a summary of the historical aerial review and **Appendix D** contains aerial photographs of the project study area. As described in Section 6.2 regarding Site 5, Maurice Gibb Memorial Park, prior to 1969, at least two facilities (Gulf Oil Company on Dade Boulevard and Amber Oil Company on Purdy Avenue) stored products on the property. The Gulf Oil Company station may have included an underground storage tank, as historical aerials show a small paved area in the southwest corner of the current park grounds. Historically, Gulf Oil Company also operated a gas station across Purdy Avenue at 1403 Dade Boulevard (see Chevron Property, Site 4), which was monitored until a No Further Action Proposal (NFAP) was accepted and the site was administratively closed in 1997. No historical aerials were available from 1991-2015. However, a review of Google Earth® showed changes between 2014 and 2016. During this time, Miami Herald Publishing (Site 13) located on the south side of the western project terminus, was demolished and cleared.

**Table 6-1 Historic Aerial Review Summary**

1951	1968	1973	1985	1991	2015
<p>The Venetian Causeway is present and the areas to the west of the causeway, as well as the islands along the causeway, have been developed. A multi-story building is present at the northwest approach to the causeway and a parking lot is present to the southwest. Biscayne Island is under development with residential homes under construction on the north side of the causeway. A narrow beach is present along the southwest side of Biscayne Island. On the southeast side of Biscayne Island are two multi-story residential developments, one with six buildings, and one farther east with five buildings. No aerial photographs showing the causeway east of Biscayne Island were available for this year.</p>	<p>The south side of Biscayne Island has been filled to expand the beach southward. The residential islands of San Marco, San Marino, Di Lido, Rivo Alto, and Belle have been developed. Belle Island Park appears as vacant land. The area to the north of the eastern approach to the causeway has been developed with a building and parking lot. To the north of this building is another rectangular configuration of buildings with docks to the west. The area to the north of these buildings is cleared and undeveloped. There is a canal to the south of the eastern approach to the causeway.</p>	<p>The recreational space on the south side of Biscayne Island has been further developed to include vehicle access. There is a cleared area that appears to be used for parking within Belle Island Park. The structures on the north side of the eastern approach to the causeway have been razed and the docks have been removed. The parcel now exists as vacant vegetated land.</p>	<p>The north side of the western approach to the causeway now has multiple residential towers present. The recreational space on the south side of Biscayne Island has been completed. The six building development on the south side of Biscayne Island has been redeveloped with two towers replacing the previous buildings. The cleared space in Belle Island Park is no longer present and vehicles are parked around the perimeter. The north side of the eastern approach to the causeway has been cleared and paved parking spaces and a path have been added.</p>	<p>No significant change from previous.</p>	<p>There is a building to the south of the toll plaza within the recreational area on Biscayne Island. The central portion of San Marco Island has been developed with two residential homes. Maurice Gibb Memorial Park has been completed on the north side of the eastern approach to the causeway. Between 2014 and 2015 the Miami Herald Publishing (Site 13) was demolished and cleared. This building was on the southern side of the western project terminus.</p>

## 6.2 Asbestos and Lead-Based Paint

Asbestos and lead-based paint surveys were conducted for Bridge 1 in 2014 which was replaced by Miami-Dade County between 2015 and 2016 (see **Appendix G**). No asbestos containing materials or lead-based paint were identified during the surveys. Surveys for the remaining bridges will be conducted during the design phase, once a recommended alternative has been selected, as each of the proposed build alternatives will require a different level of testing of the existing bridge materials. Based on the results, the District will determine the appropriate controls and disposal methods to be employed during construction.

## 6.3 Site History

The potential contamination sites located within 500 feet of the project are identified in **Appendix F** and summarized in **Tables 6-2 and 6-3**. The Potential Contamination Sites Table provides a summary of the evaluation for each site and the risk rating assignments. Additionally, solid waste facilities within one-quarter mile, and Superfund/CERCLA sites within one mile of the project were identified. No solid waste or Superfund sites were identified. This evaluation revealed zero No risk sites, thirteen Low risk sites, three Medium Sites, and one High site (discussed below). Low risk sites do not hold an active industrial waste or storage tank permit or the permit file contains no indication of current or prior contamination issues. Please see **Appendix G** for regulatory files for sites which are assigned a Medium risk rating, and Site No. 5, which is assigned a High risk rating.

Project Alternative	Table 6-2 Contamination Risk			
	No	Low	Medium	High
Rehabilitation 4 and M1	0	13	4	1
Reconstruction 7 and M-4	0	13	4	1

### Site 1

Auto Parts 2002 Corp. / DBA US1 Auto Parts  
 Facility # 24750  
 1720 Bay Road  
 Miami 33170  
 Low Risk

According to County records, this facility disposes of approximately 76 pounds of Lead-acid batteries and 38 lbs. of used oils and lubricants per month. No history of contamination or regulatory violations was found in the files for this site, therefore a **LOW** risk rating is assigned for all build alternatives.

#### Site 2

Bay Road Animal Clinic of Miami

Facility # 144276

1730 Bay Road

Miami Beach 33139

Low Risk

This veterinary hospital facility is listed by the County as a Conditionally Exempt Small Quantity Generator, disposing of approximately 52 lbs. of photographic waste per month. No history of contamination or regulatory violations was found in the files for this site, therefore a **LOW** risk rating is assigned for all build alternatives.

#### Site 3

Beach Auto Center, Inc. / Giant Motors

Facility# 26352 / 25128

1750 Bay Road

Miami Beach 33139

Low Risk

Beach Auto Center, Inc., an automotive repair shop, is listed by the County as a Small Quantity Generator, disposing of used antifreeze, lead-acid batteries, mineral spirits, absorbents contaminated with oil, used oils and lubricants, and used oil filters. Giant Motors, an automotive service, repair, and paint shop, is listed as a Conditionally Exempt Small Quantity Generator that disposes of approximately 105 lbs. of used paint thinner per month. No history of contamination or regulatory violations was found in the files for this site, therefore a **LOW** risk rating is assigned for all build alternatives.

#### Site 4

Chevron Station / BP #0036736 / Chevron Property (former Gulf facility)

Facility # 9046846 / 9100478 / 9046870

1403 Dade Blvd.

Miami Beach 33139

Medium Risk

The Chevron Station facility was reported to the FDEP as closed in 1990 and the former station building has been demolished. According to County files, three 10,000 gallon and one 550 gallon capacity tanks, and associated lines were removed in 1984. Site assessment was conducted in 1990 and the site was determined to be eligible for state-funded cleanup in 1991. A Remedial Action Plan was developed and approved by the County in 1993. In 1993 and 1994, a remediation system was installed at the site to conduct groundwater recovery and treatment. Installation was completed in 1995. A Contamination Assessment Report (CAR) was prepared for the facility in 1996 and a Site Rehabilitation Completion Order (SRCO) stipulating no further cleanup actions are required was issued in 1997. A 2002 scoring checklist for participation in state-funded cleanup assigned this facility a low priority score of 9. However, contamination assessment is ongoing at the property which is now Maurice Gibb Memorial Park site (see Site 5). The source of the contamination at the park site has been associated with this Chevron facility. Due to the historic usage of this property as a fuel station and the historic presence of petroleum contamination, this site is assigned a **MEDIUM** risk rating for all build alternatives.

## Site 5

Maurice Gibb Park – Formerly Island View Park

FDEP Facility # 9813745

18<sup>th</sup> Avenue and Purdy Avenue, near 1700 Purdy Avenue

Miami Beach 33139

High Risk

This site was established as a City park in 1969. Prior to 1969, at least two facilities (Gulf Oil Company on Dade Boulevard and Amber Oil Company on Purdy Avenue) stored products on the property. The Gulf Oil Company station may have included an underground storage tank, as historical aerials show a small paved area in the southwest corner of the current park grounds. Historically, Gulf Oil Company also operated a gas station across Purdy Avenue at 1403 Dade Boulevard (see Chevron Property, Site 4), which was monitored until a NFAP was accepted and the site was administratively closed in 1997.

In a letter from the County, dated July 25, 1984, the Gulf Oil Company was ordered to develop a plan to determine the extent of site contamination, stop the discharges, and remove all discharged material from the site. Monitoring wells were installed on August 16, 1984, including four monitoring wells. Contamination was detected in one well within the park property in 1991. The ownership of Site 4 (Dade Boulevard) was transferred from Gulf Oil Company to Chevron U.S.A. Inc. in July 1989. A NFAP was granted by the FDEP Division of Waste Management and DERM Waste Management Division on February 14, 1997.

The County notified the City of Miami Beach on August 6, 1997 that petroleum contamination had been found at the Maurice Gibb Park property. However, clean-up efforts were not initiated at that time. On October 19, 2012, during construction of the Sunset Harbour Pump Station Retrofit project, an odor and sheen was identified during excavation work. The County requested that the City collect a groundwater sample from a storm water injection well near the location where possible contaminated soil was discovered. Results of the investigation conducted in 2013 confirmed that soil with concentrations of contaminants above the FDEP residential and commercial/industrial soil cleanup target levels (SCTL) were present near the Pump Station Retrofit Project. Soil and groundwater assessment activities are currently ongoing. In July 2017, Ms. Margarita Wells at the City of Miami Beach stated via email that the City is currently finalizing a Site Assessment and the last addendum of an April 2017 Remedial Action Plan (RAP). A review of DERM files revealed that the RAP will address soil impacts and free floating product in monitoring wells MW-18R and MW-21, on the south and southeastern portions of the site, respectively. DERM has recommended the excavation of impacted soils within a 20-foot radius of MW-18R and MW-21 to a minimum of 2 feet below the water table and infilling of the excavations with clean fill in correspondence dated May 2017. The RAP recommends capping the park with two feet of clean fill when the park is redesigned, tentatively anticipated to occur in 2018. Based on the presence of documented contamination at this facility, this site is assigned a risk rating of **HIGH** for all build alternatives.

#### Site 6

Larry's Service Center

EPA Handler # FLR000152389

1769 Purdy Avenue

Miami Beach 33139

Low Risk

Larry's Service Center, which closed in 2009, operated as an automotive repair shop. The facility was listed by the County as a Small Quantity Generator since 1998, disposing of used oil (stored in two 250-gallon used oil containers), batteries, used rags, oil filters, and used antifreeze. No history of contamination or regulatory violations was found in the files for this site, therefore a **LOW** risk rating is assigned for all build alternatives.

#### Site 7

Belle Plaza

FDEP Facility# 9805361

201 Island Avenue

Miami Beach 33139

Low Risk

This closed facility existed within a residential development and has a registered 550-gallon capacity fuel storage tank, registered in 2002. No history of contamination or regulatory violations was found in the files for this site, therefore a **LOW** risk rating is assigned for all build alternatives.

#### Site 8

Miami Beach City Pump Station #10

FDEP Facility# 9401221

28 Venetian Way, Belle Isle

Miami Beach 33139

Low Risk

This facility utilizes one aboveground storage tank containing fuel oil. The facility was noted as out of compliance during the most recent FDEP Storage Tank Facility Annual Compliance Site Inspection, conducted in February 2016, due to no financial responsibility documentation, no release detection device testing annual results, no tank test data records, non-operational fuel level gauge, and corrosion on the top of the tank. No history of contamination was found in the files for this site, therefore a **LOW** risk rating is assigned for all build alternatives.

#### Site 9

9 Island Condominium

FDEP Facility# 9803130

9 Island Avenue, Belle Isle

Miami Beach 33139

Low Risk

This facility exists within a residential development and has one registered 550-gallon capacity aboveground fuel storage tank and one 1,000 gallon capacity underground storage tank installed in 2000. No history of contamination or regulatory violations was found in the files for this site, therefore a **LOW** risk rating is assigned for all build alternatives.

#### Site 10

Terrance Towers

FDEP Facility# 9806404

3 Island Avenue

Miami Beach 33139

Medium Risk

This closed facility existed within a residential development and had a 1,000-gallon capacity diesel underground storage tank used to fuel an emergency generator. A discharge was reported at this facility in 2003 after petroleum product was discovered in soil during a Tank Closure Assessment. The FDEP assigned this site a low priority score of 10 for state-funded cleanup. Assessment and Source Removal activities were conducted in 2005. A SRCO stipulating no further remedial action was necessary was issued in 2010, after additional site assessment showed contamination concentrations had been reduced. Based on the history of contamination at this site, a **MEDIUM** risk rating is assigned for all build alternatives.

#### Site 11

Lido Spa Hotel Health Resort

FDEP Facility# 9803801

40 Island Avenue

Miami Beach 33139

Medium Risk

This facility exists as a resort and has two 250-gallon capacity heating oil aboveground storage tanks used to fuel a heating system within the spa. A discharge was reported at this facility in 2001 after petroleum product was discovered to be leaking from a corroded pipe to soil at the site. A Source Removal and Tank Closure Assessment were conducted in 2001. In 2002, the FDEP assigned this site a low priority score of 9 for state-funded cleanup. Site Assessment activities were conducted in 2002 and a Monitoring Only Plan was approved. After one year of groundwater monitoring, the site qualified for No Further Remedial Action. A SRCO was issued in 2003. Based on the history of contamination at this site, a **MEDIUM** risk rating is assigned for all build alternatives.

#### Site 12

Texaco #240210718 (vacant parcel to the south of current 555 NE 15<sup>th</sup> Street and Venetian Way)

EPA Facility# FLD984172908

555 NE 15<sup>th</sup> Street

Miami 33132

Low Risk

This facility currently exists a public parking lot and was formerly an automotive maintenance facility, registered as a Small Quantity Generator in 1990. This facility was closed in 2011. No history of contamination or regulatory violations was found in the files for this site, therefore a **LOW** risk rating is assigned for all build alternatives.

#### Site 13

Miami Herald Publishing Co.

EPA Handler # FLD980565899

FDEP Facility# 8622094

1 Herald Plaza

Miami 33132

Low Risk

This facility has been demolished, but formerly utilized eight storage tanks and was listed as a Small Quantity Generator of hazardous waste including used oil, silver filter canisters, and pressure wash waste. Four of the tanks were fiberglass construction and installed underground in 1981 (three 10,000 gallon capacity gasoline, one 4,000 gallon capacity diesel, and one 2,000 capacity diesel). The other three single-wall steel 5,000 gallon capacity tanks were installed aboveground within concrete secondary containment in 1962 and contained emergency generator fuel. The underground petroleum storage tanks were removed by 2015, and the facility was found to be in compliance during the FDEP Storage Tank Facility Closure Site Inspection conducted in March 2015. The tanks were de-commissioned and the soil within their concrete containments was disposed of. No evidence of contamination was noted by the FDEP. A Limited Tank Closure Assessment was conducted and approved by the County in 2015. No history of contamination or regulatory violations was found in the files for this site, therefore a **LOW** risk rating is assigned for all build alternatives.

#### Site 14

Venetia Condo Crescent Heights

FDEP Facility# 9300721

555 NE 15<sup>th</sup> Street

Miami 33132

Low Risk

This facility exists within a residential development and has one registered 1,000-gallon capacity aboveground fuel storage tank installed in 1999. Prior to this tank, the facility utilized a 3,000 gallon capacity underground storage tank that was installed in 1979. No history of contamination or regulatory violations was found in the files for this site, therefore a **LOW** risk rating is assigned for all build alternatives.

#### Site 15

Marriott Hotel and Marina Biscayne

FDEP Facility# 8628874

1633 N. Bayshore Drive

Miami 33132

Medium Risk

This marine fueling facility is closed, but formerly utilized three 1,000 gallon capacity gasoline underground storage tanks and one 2,000 gallon capacity diesel underground storage tank installed in 1982. A discharge was reported at this site in 1992 involving overfill of unleaded gasoline storage tanks, and assessment was conducted in 2001. The site was assigned a low priority score of 10 for state-funded cleanup through the Petroleum Liability and Restoration Insurance Program (PLIRP) in 2007. The site became eligible for state-funded contamination assessment in September 2015. No assessment files are currently available for the site and it is listed by the FDEP as contaminated with ongoing cleanup. Based on the presence of documented contamination at this facility, this site is assigned a risk rating of **MEDIUM** for all build alternatives.

#### Site 16

Grand Condo Association, Inc.

FDEP Facility# 9300119

1717 N. Bayshore Drive

Miami 33132

Low Risk

This facility exists within a residential development and had one registered 2,000 gallon capacity underground fuel storage tank installed in 1974. A Site Assessment was conducted for this site in 1990 and Contamination Assessment was conducted in 1991. Based on these assessments, it was determined that cleanup was not required. In 2010, new piping was installed for an existing underground storage tank fueling an onsite emergency generator and the FDEP inspection report at that time noted no violations. A history of potential contamination was found in the files for this site, however, no violations or recent discharges have occurred, therefore a **LOW** risk rating is assigned for all build alternatives.

#### Site 17

1000 Venetian Way Condos

FDEP Facility# 9812031

1000 Venetian Way

Miami 33139

Low Risk

This facility exists within a residential development and had one registered 1,000 gallon capacity underground fuel storage tank. A new storage tank was installed in 2010 and a Tank Closure assessment was conducted and approved by the County in 2010. The Tank Closure Assessment revealed no evidence of discharges or leaks and the facility was found to be in compliance during FDEP Closure and Installation inspections conducted in 2010. No history of contamination or regulatory violations was found in the files for this site, therefore a **LOW** risk rating is assigned.

Site 18

Resorts World Miami Brownfield Site

1410, 1420, and 1431 N. Bayshore Drive;

360 NE 14<sup>th</sup> Terrace;

425 and 435 NE 13<sup>th</sup> Street;

1401 Biscayne Boulevard; and 1 Herald Plaza

Miami

Low Risk

Brownfield sites contain abandoned, idled, or underused industrial and commercial properties where expansion or redevelopment is complicated by real or perceived environmental contamination. This site was designated as a Brownfield by the City of Miami in 1998 and encompasses the area of the Miami Herald Publishing Co. and Texaco #240210718 sites. A Brownfield Site Rehabilitation Agreement was entered into for this site in December 2012. The agreement, which is between Miami-Dade County and Resorts World Miami LLC, designates Resorts World Miami, LLC as the Person Responsible for Brownfield Site Rehabilitation of this site, and stipulates that rehabilitation must be achieved in a timely manner. Both of these are closed facilities with no current sources of contamination on file, therefore an overall **LOW** risk rating is assigned.

**Table 6-3 Potential Contamination Sites**

MAP ID	Name	Address	Contamination Type	Contaminants of Concern/Location	Site ID	Risk Rating	
						Rehabilitation	Reconstruction
1	Auto Parts 2002 Corp. / DBA US1 Auto Parts	1720 Bay Road Miami 33170	County Small Quantity Generator	Petroleum, Waste Oil, Lubricants, Batteries/NA	Facility # 24750	Low	Low
2	Bay Road Animal Clinic of Miami	1730 Bay Road Miami Beach 33139	County Small Quantity Generator	Solvents/NA	Facility # 144276	Low	Low
3	Beach Auto Center, Inc. / Giant Motors	1750 Bay Road Miami Beach 33139	County Small Quantity Generator	Petroleum, Waste Oil, Lubricants, Batteries/NA	Facility# 26352 / 25128	Low	Low
4	Chevron Station / BP #0036736 / Chevron Property (former Gulf facility)	1403 Dade Blvd. Miami Beach 33139	FDEP Petroleum Storage Tank Site	Petroleum/Groundwater	Facility # 9046846 / 9100478 / 9046870	Medium	Medium
5	Maurice Gibb Park – Formerly Island View Park	18 <sup>th</sup> Avenue and Purdy Avenue, near 1700 Purdy Avenue Miami Beach 33139	FDEP Petroleum Contaminated Site	Petroleum/Groundwater & Soil	FDEP Facility # 9813745	High	High
6	Larry's Service Center	1769 Purdy Avenue Miami Beach 33139	EPA regulated RCRA site	Petroleum, Waste Oil, Lubricants, Batteries/NA	EPA Handler # FLR000152389	Low	Low
7	Belle Plaza	201 Island Avenue Miami Beach 33139	FDEP Petroleum Storage Tank Site	Petroleum/NA	FDEP Facility# 9805361	Low	Low
8	Miami Beach City Pump Station #10	28 Venetian Way, Belle Isle Miami Beach 33139	FDEP Petroleum Storage Tank Site	Petroleum/NA	FDEP Facility# 9401221	Low	Low
MAP ID	Name	Address	Contamination Type	Contaminants of Concern/Location	Site ID	Rehabilitation	Reconstruction

9	9 Island Condominium	9 Island Avenue, Belle Isle Miami Beach 33139	FDEP Petroleum Storage Tank Site	Petroleum/NA	FDEP Facility# 9803130	Low	Low
10	Terrance Towers	3 Island Avenue Miami Beach 33139	FDEP Petroleum Storage Tank Contamination Site	Petroleum/Soil	FDEP Facility# 9806404	Medium	Medium
11	Lido Spa Hotel Health Resort	40 Island Avenue Miami Beach 33139	FDEP Petroleum Storage Tank Site	Petroleum/Groundwater & Soil	FDEP Facility# 9803801	Medium	Medium
12	Texaco #240210718	555 NE 15 <sup>th</sup> Street Miami 33132	Former Petroleum Storage Tanks Site	Petroleum/NA	EPA Facility# FLD984172908	Low	Low
13	Miami Herald Publishing Co.	1 Herald Plaza Miami 33132	Former hazardous materials handler and storer; former storage tank site	Petroleum, Solid Waste/NA	EPA Handler # FLD980565899 FDEP Facility# 8622094	Low	Low
14	Venetia Condo Crescent Heights	555 NE 15 <sup>th</sup> Street Miami 33132	FDEP Petroleum Storage Tank Site	Petroleum/NA	FDEP Facility# 9300721	Low	Low
15	Marriott Hotel and Marina Biscayne	1633 N. Bayshore Drive Miami 33132	FDEP Petroleum Storage Tank Contamination Site	Petroleum/Groundwater & Soil	FDEP Facility# 8628874	Medium	Medium
16	Grand Condo Association, Inc. Miami 33132	1717 N. Bayshore Drive	FDEP Petroleum Storage Tank Site	Petroleum/NA	FDEP Facility# 9300119	Low	Low
17	1000 Venetian Way Condos	1000 Venetian Way Miami 33139	FDEP Petroleum Storage Tank Site	Petroleum/NA	FDEP Facility# 9812031	Low	Low
18	Resorts World Miami Brownfield Site	1410, 1420, and 1431 N. Bayshore Drive; 360 NE 14 <sup>th</sup> Terrace; 425 and 435 NE 13 <sup>th</sup> Street; 1401 Biscayne Boulevard; and 1 Herald Plaza Miami	Brownfield	Petroleum/NA	N/A	Low	Low

## 7.0 CONCLUSIONS AND RECOMMENDATIONS

Potential contamination sites located within 500 feet of the project corridor, solid waste facilities within one-quarter mile, and Superfund/Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) sites within one mile of the project were evaluated for soil and groundwater contamination. Five of the sites were determined to have a High or Medium risk of potential contamination involvement with the project. The potential contamination types at the facilities reviewed include petroleum hydrocarbons, pesticides/herbicides, metals, corrosive/caustic materials and a variety of industry specific regulated compounds. Most of the potential contamination sources are adjacent to either the east or west approaches to the causeway. The potential for contamination involvement is equivalent for all build alternatives studied as construction near contamination risk sites will be required for bridge approaches for both rehabilitation and reconstruction alternatives.

The majority of potential contamination sites within 500 feet of the project are considered to present Low risk based on their current and historical permit(s), site use, and regulatory status. This includes those sites which have no records of industrial or storage tank permits, no documented contamination events or have an agency approved SRCO/NFAP status as the result of successful remedial actions (other than petroleum contaminated sites). Sites are also assigned a Low rating based on their proximity to the project corridor if they held or currently hold a USEPA Hazardous Waste Generator permit (allowing for a business to handle, store, and properly dispose of hazardous substances), even if contamination concerns were not discovered in the records review.

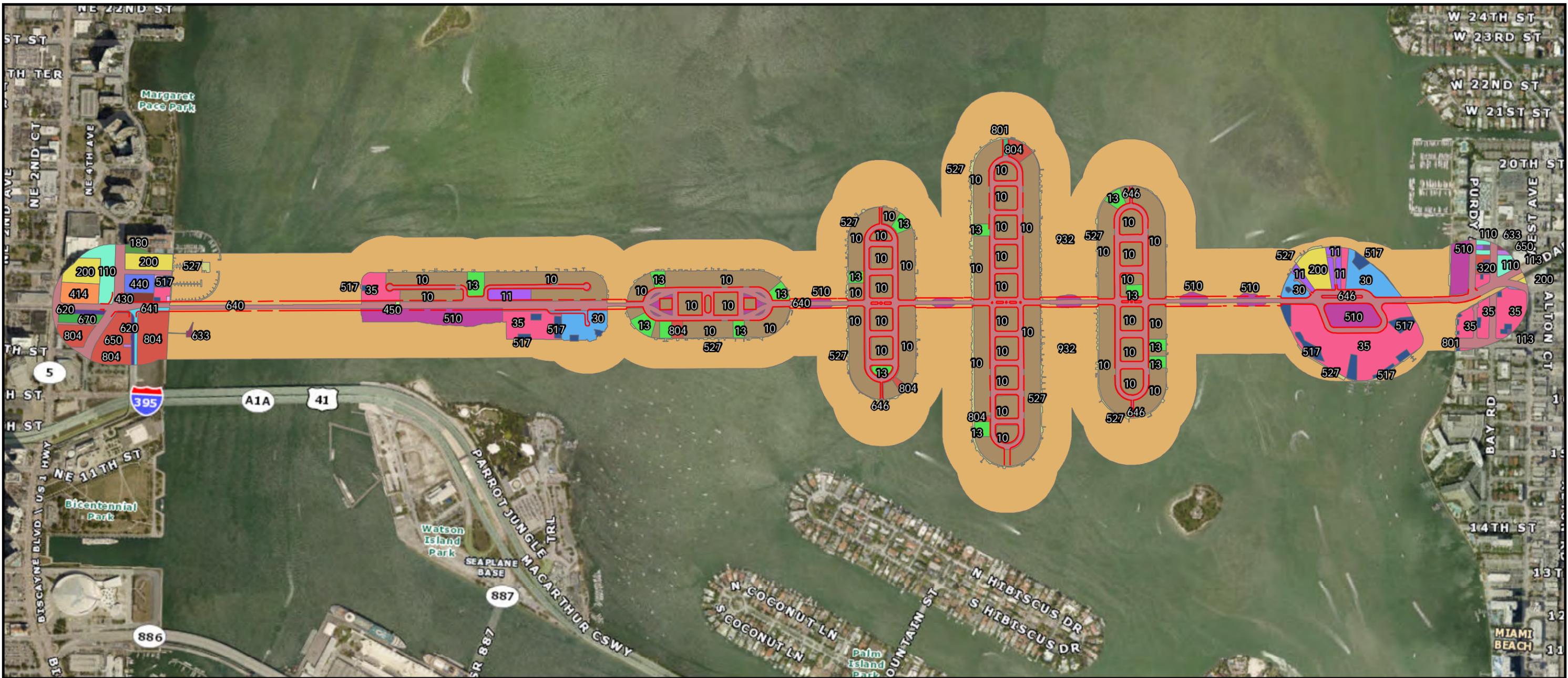
No ROW acquisition is anticipated at this time. However, the project will be reevaluated during design to determine if any new contamination-related risks are present and to evaluate potential dewatering concerns. Level II Contamination Assessment investigations will be completed for any areas that have proposed dewatering or subsurface work activities (e.g. pole foundations, drainage features) occurring adjacent to or at any of these sites. In addition, the DCIC will coordinate with the District Structures Engineer, District Structures Maintenance Engineer, or District Facilities Engineer, as appropriate, regarding asbestos containing material or metal based coatings surveys for structure/bridges within the project.

If dewatering will be necessary during construction, a SFWMD Water Use Permit will be required. The contractor will be held responsible for ensuring compliance with any necessary dewatering permit(s). Any dewatering operations in the vicinity of potentially contaminated areas shall be limited to low-flow and short-term. A dewatering plan may be necessary to avoid potential contamination plume exacerbation. All permits will be obtained in accordance with Federal, State, and local laws and regulations.

Additionally, the contractor shall follow applicable FDOT *Standard Specifications for Road and Bridge Construction* for areas of unforeseen contamination. These specifications require that in the event any hazardous material or suspected contamination is encountered during construction, or any spills are caused by construction-related activities, the Contractor shall be instructed to stop work immediately and notify the FDOT Construction Project Manager.

# APPENDIX A

## Land Use Figure



Land Use ID	Description	Acres
10	Single-Family, Med.-Density (2-5 DU/Gross Acre)	108.69 ac
11	Single-Family, High Density (Over 5 DU/Gross Acre)	2.89 ac
13	Single-Family, Low-Density (Under 2 DU/Gross Acre)	8.87 ac
30	Multi-Family, Low-Density (Under 25 DU/Gross Acre)	7.11 ac
35	Multi-Family, High Density (Over 25 DU/Gross Acre)	24.66 ac
110	Sales and Services	3.64 ac
113	Office Building	0.67 ac
180	Multi-floor Residential with Commercial Use	0.35 ac
200	Transient Residential	6.48 ac
320	Industrial	0.17 ac
412	Private Schools	0.13 ac
414	Colleges and Universities	1.94 ac
430	Hospitals, Nursing Homes and Adult Congregate Living Quarters	0.51 ac
440	Houses of Worship and Religious	1.37 ac
450	Governmental/Public Administration	6.81 ac
510	Municipal Operated Parks	13.53 ac
517	Private Recreational Facilities	5.15 ac
527	Marina complexes	8.22 ac
620	Railroads - Terminals, Trackage, and Yards.	0.98 ac
633	Communications	0.22 ac
640	Streets and Roads	61.87 ac
641	Paved Highways, Expressways and Ramps	0.88 ac
646	Street Right-of-Way and Entrance Features	0.52 ac
650	Parking - Public and Private Garages and Lots	0.20 ac
670	Road Maintenance and Storage Yards, and Motor Pools	0.92 ac
801	Vacant Government	0.25 ac
804	Vacant, Non-Protected, Privately-Owned	11.21 ac
932	Coastal Water (Bay only) within the Biscayne Bay Urban Aquatic Preserve	332.66 ac



Notes:  
 1. Coordinate System: NAD 1983 StatePlane Florida East FIPS 0901 Feet  
 2. Source data: FDEP / FDOT  
 3. Imagery: Miami-Dade County GIS

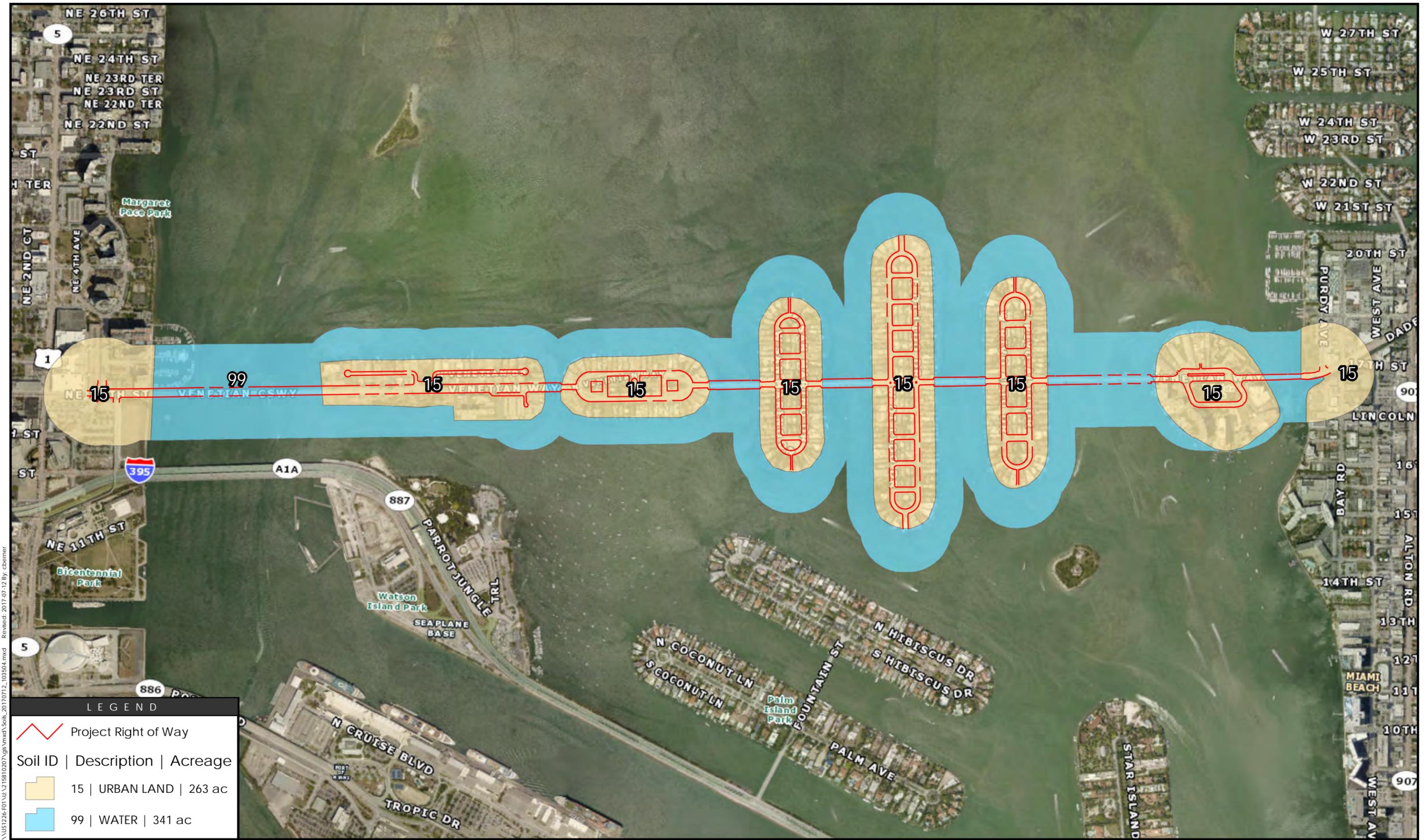
### Venetian Causeway Land Use Map August 2017

Florida Department of Transportation  
 1000 N.W. 111th Ave.  
 Miami, FL 33172



# APPENDIX B

## Soil Map



\\US1226-F01\U:\2\15810207\96\mxd\Soils\_2017\0712\_103504.mxd Revised: 2017-07-12 By: cberner

LEGEND		
	Project Right of Way	
Soil ID	Description	Acreage
	15   URBAN LAND	263 ac
	99   WATER	341 ac

Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.

**Venetian Causeway**  
 NRCs Soils Map  
 July 2017

Stantec Consulting Services Inc.  
 5801 Pelican Bay Blvd, Suite 300  
 Naples, FL 34108  
 tel 239.649.4040  
 fax 239.263.6449



Prepared by: C.J.B. 07/12/17

# APPENDIX C

## Site Photographs



Site #4, Chevron property, facing southeast from Site #5. The fenced-off work area in Site #5 Maurice Gibb Park, is visible in the foreground.



Site #5 Maurice Gibb Park facing south



Site #5 Maurice Gibb Park facing west showing lift station and fenced-off work area in the background (right-hand side of photograph)



Site #10, approximate former location of Terrance Towers storage tank area.



Site #15, Marriot Hotel and Marina Biscayne



Site #11, Lido Spa Hotel, facing north.



Site #18, Resorts World Miami Brownfield location, facing northeast. Site #16, Marriott Hotel and Marina Biscayne is visible in the background on the left-hand side of the photograph.

## **APPENDIX D**

### Historical Aerial Photographs

1951 – West side of Causeway (east side not available)



1973



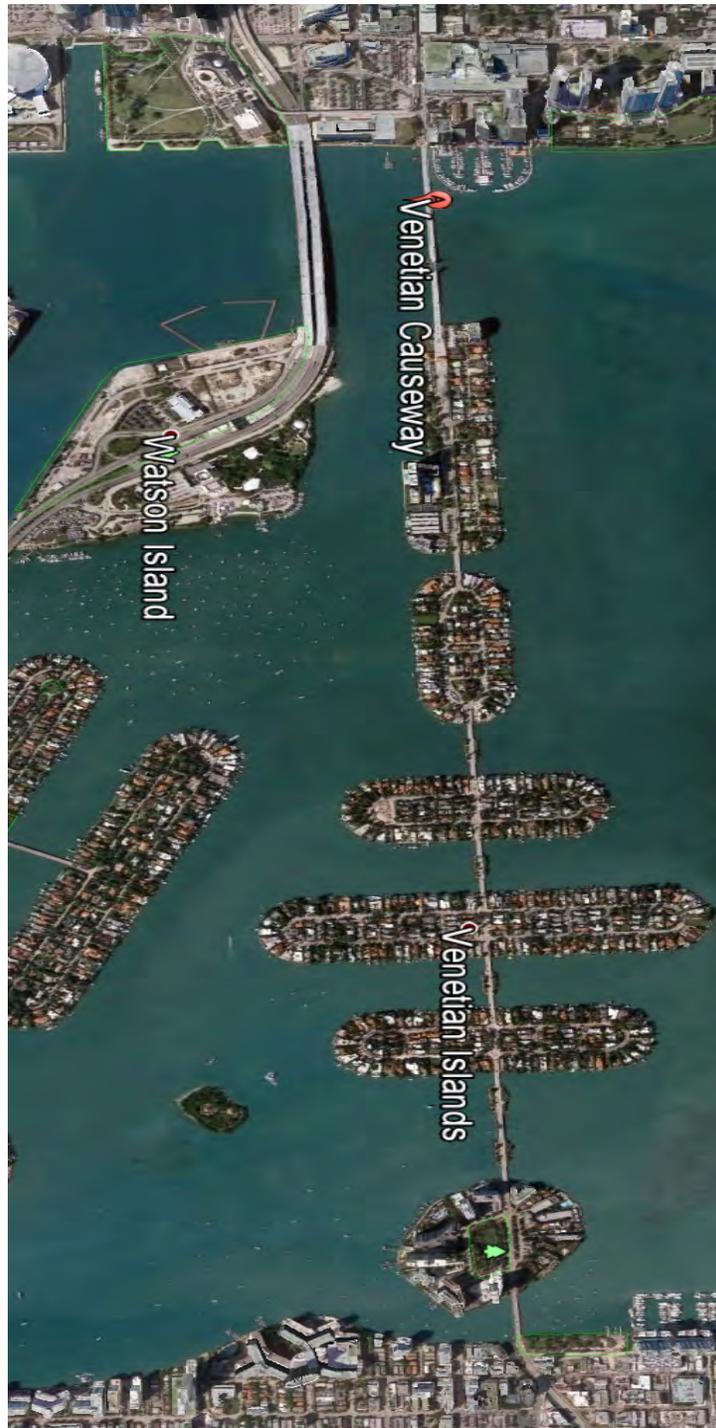
1991-East side of Causeway



1991 – West side of Causeway



2015



# APPENDIX E

## Potential Contamination Sites



**LEGEND**

- Project Right of Way
- Miami-Dade Parcel Boundary

**Site Contamination Risk**

- Low
- Medium
- High

**Note: Corridor alignment is the same for the Rehabilitation and Replacement Build Alternatives.**

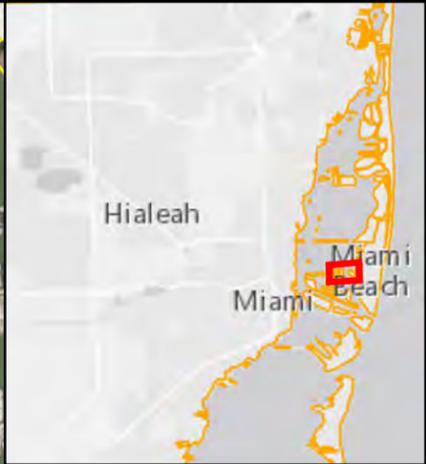


Notes:  
 1. Coordinate System: NAD 1983 StatePlane Florida East FIPS 0901 Feet  
 2. Source data: FDEP / FDOT  
 3. Imagery: Miami-Dade County GIS

Venetian Causeway  
 Potential Contamination Site Map  
 August 2017

Florida Department of Transportation  
 1000 N.W. 111th Ave.  
 Miami, FL 33172





Note: Corridor alignment is the same for the Rehabilitation and Replacement Build Alternatives.

**LEGEND**

- Project Right of Way
- Miami-Dade Parcel Boundary

**Site Contamination Risk**

- Low
- Medium
- High

# Appendix F

## Regulatory Files

# Site 4

Chevron Station / BP #0036736 / Chevron Property

FDEP Facility # 9046846 / 9100478 / 9046780

# SCANNED DOCUMENT

## SCORE TRACKING SHEET

Facility ID 139046846 Discharge Date 7/18/88  
 Site Name Chewon Station Old Score B  
 Type File : Score \_\_\_\_\_ Rescore \_\_\_\_\_ Requested By: melizho

	Date	Initials		STB Discharge #
1	10/11/02	AS	Scoring Packet Received by STB	1
2	10/11/02	AS	Well Survey Checked/Requested	

Owner Verification Needed? :  Yes  No, go to # 8

3			Written Request to DEP for courthouse check
4			Written Approval received from DEP
5			Assigned to STB Field Office for Owner Verification Branch Location _____
6			Verification Received from STB Field Office
7			DEP Database Updated with Correct Owner Information
8	11/22/02	AS	All Information Received for Scoring
9	11/22/02	AS	Scored with PCT Updated & Letter Printed
10	1/22/02	AS	Letter Mailed & Packet sent to STB Scanning

**Letter Type (Circle One)**  
 A = Low Score, No CDF  
 B = High Score, CDF Requested  
 C = PCPP High, CDF Requested

New Score 9

(Date CDF requested must be transferred to CDF list)

11			Scanned
12			Indexed

Number of Pages: 3

13 \_\_\_\_\_

NOTES

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### Site Priority Ranking Sheet

Facility #: 139046846  
 Site Name: Chevron Station  
 Site Address: 1403 Pude Blvd  
 Latitude: 25 47 36, Longitude: 80 08 30 *Shell 00*  
 Discharge Date: 7/18/88 *11/22/02*

<u>Criteria:</u>	<u>Yes</u>	<u>No</u>	<u>Points</u>
<b><u>Fire/Explosion Hazard:</u></b>			
1. Free product or volatilized petroleum products at or above 20% of the Lower Explosive Limit (LEL) in existing utility conduits or vaults, buildings or other inhabited confined spaces (60 points).	_____	<u>X</u>	<u>0</u>
2. Ignitable free product on surface waters or impoundments (60 points).	_____	<u>X</u>	<u>0</u>
<b><u>Threat to Uncontaminated Drinking Water Supplies:</u></b>			
1. Uncontaminated municipal or community well fields of greater than 100,000 gallons per day permitted capacity with a well within 1/2 mile of the site (30 points).	_____	<u>X</u>	<u>0</u>
SI	DWDB	HRS	
	<u>N</u>	<u>N</u>	
		<u>11/5/02</u>	
Additionally:			<u>0</u>
a. If the well field's 1 foot draw down contour is known to encompass the site regardless of the well field's distance from the site (20 points).	_____	<u>X</u>	<u>0</u>
or			
b. If the well field is located down gradient of the site (15 points).	_____	<u>X</u>	<u>0</u>
2. Uncontaminated private wells constructed prior to date of contamination discovery, or uncontaminated public water system well field with less than 100,000 gallons per day permitted capacity with a well within 1/4 mile of the site (20 points).	_____	<u>X</u>	<u>0</u>
SI	DWDB	HRS	
	<u>N</u>	<u>N</u>	
Additionally:			<u>0</u>
a. If the well field's 1 foot draw down contour is known to encompass the site regardless of the well field's distance from the site (10 points).	_____	<u>X</u>	<u>0</u>
or			
b. If the well field is located down gradient of the site (5 points).	_____	<u>X</u>	<u>0</u>
3. Uncontaminated surface water body used as a public water system supply within 1/2 mile of the site (10 points).	_____	<u>X</u>	<u>0</u>

Yes

No

Points

**Migration Potential:**

**1. Source Characteristics (select only one)**

a. Recent spills or free product found in wells/  
boreholes (4 points) except free product of 2  
inches or more in 2 or more wells/boreholes (6 points).

\_\_\_\_\_ ~~\_\_\_\_\_~~ 0

b. Recent product loss or wells/groundwater  
contaminated but no free product (2 points).

\_\_\_\_\_ 2

**2. Product Type (select only one):**

a. Light petroleum product (kerosene, gasoline,  
aviation fuel and similar petroleum products) with  
water soluble additives or enhancers (MTBE, ethanol  
and similar substances) (3 points).

\_\_\_\_\_ ~~\_\_\_\_\_~~ 0

b. Light petroleum product with no additives or  
enhancers (2 points).

\_\_\_\_\_ ~~\_\_\_\_\_~~ 0

c. Heavy petroleum product (fuel oil, diesel and  
similar petroleum products) (1 point).

\_\_\_\_\_ 1

**Environmental Setting:**

1. Site located in G-1 aquifer (4 points).

\_\_\_\_\_ ~~\_\_\_\_\_~~ 0

2. Site located in a G-2 aquifer (2 points).

\_\_\_\_\_ 2

3. Site located in high recharge/permeability geological  
area (4 points).

\_\_\_\_\_ 4

4. Site located within 1/2 mile of an Outstanding Florida  
Water (1 point).

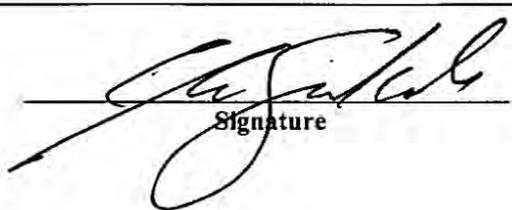
\_\_\_\_\_ ~~\_\_\_\_\_~~ 0

**Total Points:**

9

**Comments:** \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

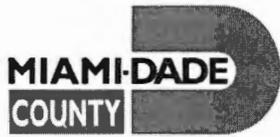
  
Signature

11/22/02  
Date

# Site 5

Maurice Gibb Park

FDEP Facility #9813745



Carlos A. Gimenez, Mayor

May 4, 2017

CERTIFIED MAIL NO. 7014 1200 0002 0826 2221  
RETURN RECEIPT REQUESTED

Susy Torriente, Assistant City Manager  
City of Miami Beach  
1700 Convention Center Drive  
Miami Beach, FL 33139

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

Site 5

Re: Site Assessment Report (SAR) addressing both the Non-Petroleum Site Wide discharge and the January 13, 1997 Petroleum Discharge (FDEP 139813745) and dated April 10, 2017 and prepared by Atkins for the City of Miami Beach Maurice Gibb Park (UT-5443/File-15745/DEP-139813745) located at, near, or in the vicinity of 1700 Purdy Ave, Miami Beach, Miami-Dade County, Florida.

Dear Ms. Torriente:

The Department of Regulatory and Economic Resources-Division of Environmental Resources Management (DERM) has reviewed the above-referenced document received April 20, 2017. The following comments are provided:

1. The report indicates that a 2' layer of clean fill will be utilized at the park and will serve as both an engineering control and to raise surface elevation. Be advised that the addition of a surface cap will eliminate direct exposure to contaminated soils. Therefore, since an engineering control will be applied, the partial removal of the contaminated soils based on direct exposure is not required. However, DERM does not object to the removal of those recommended areas of higher soil concentrations if elected by the City. Please also note that this is not a commercial site and the commercial Soil Cleanup Target Levels (SCTLs) are not applicable.

However, DERM does concur that the soil removal should focus on improving groundwater conditions in areas with groundwater impacts such as the two areas of free-floating product (FFP) at MW-18R and MW-21. Based on monitoring well spacing, areas of FFP identified in monitoring wells MW-18R and MW-21 may extend as much as 50' or more away from these locations due to the lack of a more refined FFP delineation. Please note the following:

- Based on the abutting residential and open air establishments, it is recommended that the excavations to address the FFP do not remain open subsequent to the remediation as proposed to avoid potential nuisance and odor conditions.
- Soil excavations shall extend a minimum of a 20' radius around each monitoring well containing FFP and to a minimum of 2' below the water table. Based on the tidal influence at the site, areas of FFP and stained soils or stained saturated soils may extend well beyond the monitoring wells containing FFP. Therefore, the soil excavation in the FFP locations shall extend vertically and horizontally in all directions until no further FFP or stained soils above and below the water table are identified plus an additional 5' feet beyond this point.
- Visually stained vadose zone and saturated soils shall be removed and disposed as soon as feasible. It is recommended that these soils not be staged and stored on-site to avoid the previously described potential nuisance conditions. Any run-off from saturated soil removal

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- shall be contained and properly disposed. FFP on the water table shall be pumped out and properly disposed.
- A replacement monitoring well plan in support of evaluating FFP removal and groundwater monitoring in support of NFAC shall be proposed following the report on the corrective action and based on the observed conditions.
  - Any areas of soil staining or observation of FFP identified from previous utility excavation work and former monitoring wells shall be depicted on the site diagram and addressed with the Corrective Action Plan for potential FFP.
2. A Corrective Action Plan (CAP) further detailing the soil capping at the park will be necessary. This shall include:
    - A Health and Safety Plan.
    - A contingency shall be in place to address any nuisance or odor conditions that may arise.
    - Provide clarification if the park will remain open and accessible during any of the soil corrective action plan implementation.
    - A site elevation survey prior to work at the park along with a projected elevation map clearly depicting that the park elevation will be raised with 2' of clean fill in its entirety. Be advised that if re-grading the site will occur prior to placing the clean fill, it will be necessary to track the movement of contaminated soil and any change in site elevation from the baseline to ensure the placement of the 2' of clean fill.
    - Provide an Engineering Control Maintenance plan which includes periodic inspections to ensure the cap remains in place along with a procedure for conducting repairs and maintenance as needed.
  3. Install one additional monitoring well on the north end of the park just prior to the Marine Patrol building and sample and analyze the well for VOAs, PAHs, and FL PRO. At this location, also sample and analyze the soil for PAHs and FL PRO from the 0-6" and 6"-2' interval. Furthermore, a round of groundwater samples from all site monitoring wells shall be obtained prior to the soil corrective action plan implementation. Any significant changes in groundwater data shall be considered in the CAP.
  4. A site map detailing the site features and layout along with the GPR anomalies and trenches shall be provided. Label each location with the type, depth, and percentage of debris identified.
  5. The sampling summary tables shall be updated to include all chemicals of concern analyzed and their results. Furthermore, the analytical tables shall be revised in accordance with the Florida Department of Environmental Protection's (FDEP) rule requirements. All analytes that were not detected shall be summarized in the analytical table as "MDL(U)" for all the data collected after May 2007. Please refer to the May 14, 2007 Quality Assurance Memorandum from FDEP ([http://www.dep.state.fl.us/labs/docs/bpss\\_qarelated.pdf](http://www.dep.state.fl.us/labs/docs/bpss_qarelated.pdf)). The tables shall list all contaminants detected with their corresponding CTLs.
  6. All monitoring well sampling logs shall be included in the report.

Ms. Torriente  
Maurice Gibb Park  
UT-5443/File-15745/DEP-139813745  
May 4, 2017  
Page 3 of 3

DERM has the option to split any samples deemed necessary with the consultant or laboratory at the subject site. 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), as amended. The laboratory analyzing the samples shall perform laboratory analyses pursuant to the National Environmental Laboratory Accreditation Program (NELAP) certification requirements. If the data submitted exhibits a substantial variance from DERM split sample analysis, a complete resampling using two independent certified laboratories will be required.

DERM shall be notified in writing a minimum of three (3) working days prior to the implementation of any sampling or field activities. Email notifications shall be directed to [DERMPCD@miamidade.gov](mailto:DERMPCD@miamidade.gov). Please include the DERM file number on all correspondence.

Therefore, within sixty (60) days upon receipt of this letter, submit a Supplemental SAR and CAP for all areas of the site (petroleum and non-petroleum), prepared in accordance with Chapter 62-780, FAC. And Chapter 24, Code of Miami-Dade County and addressing the above comments.

Failure to adhere to the items and timeframes stipulated above may result in enforcement action for this site.

If you have any questions concerning the above, please contact Thomas Kux, P.G. ([Kuxt@miamidade.gov](mailto:Kuxt@miamidade.gov)) of the DERM at (305) 372-6700.

Sincerely,



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

TK

ec: FDEP file  
Margarita Wells, City of Miami Beach, [MargaritaWells@miamibeachfl.gov](mailto:MargaritaWells@miamibeachfl.gov)  
W. Mark Henry, Atkins, [mark.henry@atkinsglobal.com](mailto:mark.henry@atkinsglobal.com)



800 Brickell Avenue, Suite 500  
Miami, Florida 33131  
tel: 305-372-7171  
fax: 305-372-9167



August 19, 2013

Mr. Wilbur Mayorga, P.E.  
Miami-Dade County Department of Regulatory and Economic Resources  
Environmental Monitoring and Restoration Division  
Pollution Remediation Section  
701 NW 1<sup>st</sup> Court, 4<sup>th</sup> Floor  
Miami, Florida 33136-3912

Subject: Maurice Gibb Park (Former Island View Park) Soil Investigation Report,  
UT 5443/File 15745/FDEP Facility ID No. 9813745

Dear Mr. Mayorga:

On behalf of the City of Miami Beach, CDM Smith Inc. (CDM Smith) is pleased to provide the following letter report summarizing the Maurice Gibb Park soil investigation. The soil investigation was conducted in accordance with the June 17, 2013 letter from the Miami-Dade County Department of Regulatory and Economic Resources (RER), Environmental Monitoring and Restoration Division, Pollution Remediation Section (PRS) and the provisions of Chapter 62-780, to evaluate soil contamination at Maurice Gibb Park (former Island View Park). A site location map is included as **Figure 1 (Attachment A)**.

### Background Information

The Miami-Dade County Department of Regulatory and Economic Resources, formerly the Department of Environmental Resources Management (DERM), notified the City on August 6, 1997 that petroleum contamination had been found at the Maurice Gibb Park property (former Island View Park), 1700 Purdy Avenue. However, clean-up efforts were not initiated at that time. On October 19, 2012, during construction of the Sunset Harbour Pump Station Retrofit project an odor and sheen commonly associated with petroleum contamination was identified during excavation work.

On October 25, 2012 RER issued a memorandum that documented their review of the file with respect to the reported contamination and outlined procedures to address the possible contamination at Maurice Gibb Park during construction. In their memorandum, RER requested that a groundwater sample be collected from a stormwater injection well near the location where possible contamination in soil was discovered, and that confirmation soil sampling be completed to confirm or deny the presence of soil contamination.

In February 2013, CDM Smith, under contract to the City of Miami Beach collected the soil and groundwater samples as requested by RER. A report summarizing the findings of the initial investigation was submitted to RER on March 19, 2013. Results of the investigation confirmed that soil with concentrations of benzo-a-pyrene (BAP) equivalents above the Florida Department of





Mr. Wilbur Mayorga, P.E.

August 19, 2013

Page 2

Environmental Protection (FDEP) residential and commercial/industrial soil cleanup target levels (SCTL) established in Chapter 62-777, F.A.C. was present in the vicinity of the Pump Station Retrofit Project. A letter acknowledging the initial findings and providing requirements for addressing contaminated soil during construction was provided by RER, dated April 24, 2013.

RER subsequently issued a letter, dated June 17, 2013, requesting additional soil and groundwater assessment and possible remedial action. RER required that a soil investigation be initiated within 30 days, and a soil investigation report be provided within 60 days, of receipt of the letter. This letter is submitted in response to RER's request and meets the requirement of Chapter 62-780.600(3)(b), F.A.C. for soil.

### Results of Soil Investigation

Soil sampling was performed on July 9 and 11, 2013. Soil screening samples were collected from a total of 20 locations (S-01 through S-20) at depths of 0.5 foot and 2.0 feet below land surface (bls). The soil screening locations are shown on **Figure 2** (Attachment A). The water table was encountered at approximately two feet bls, although tidal fluctuations in excess of one foot were observed at the site. At locations S-01, S-08, and S-15 auger refusal was identified between 1.2 and 2.0 feet bls. The nature and extent of the obstruction was not definitively identified but is likely buried concrete.

Screening samples were collected by advancing a decontaminated stainless-steel hand auger to the sample depth. Screening samples were collected in glass jars and immediately sealed with aluminum foil. All samples were then screened using an organic vapor analyzer photo-ionization detector (OVA-PID). Results of the soil screening are provided as **Table 1 (Attachment B)**. OVA-PID responses varied from no response up to a value of 132 parts per million calibration gas equivalents (ppm) at S-01. In general, higher OVA-PID responses also correlated well to petroleum odors, as noted in Table 1. Five soil samples were analyzed for polycyclic aromatic hydrocarbons (PAHs) using EPA Method 8270. Soil sampling locations were selected based on OVA-PID responses, and were intended to represent high, medium, and low responses for correlation to analytical results, in accordance with Chapter 62-780.600(4)(f), F.A.C. All soil samples were collected in accordance with procedures described in FDEP Standard Operating Procedure (SOP) FS 3000. All samples were analyzed by Accutest Laboratories, Inc. (Accutest).

Results of all of the soil samples analyzed for PAHs are summarized in **Table 2** (Attachment B). The residential SCTL for BAP equivalents of 100 ug/kg was exceeded at 2.0 feet bls at locations S-01, S-02, S-08, S-13, and S-16 with concentrations of 850, 390, 4,700, 130, and 110 ug/kg, respectively. The commercial/industrial SCTL of 700 ug/kg was exceeded at S-01 and S-08. Additionally, the leachability SCTL for benzo-a-anthracene (800 ug/kg) and benzo-b-fluoranthene (2,400 ug/kg) were exceeded at S-08 with concentrations of 4,000 and 4,520 ug/kg, respectively. The results include the samples collected during the February 2013 sampling event. Soil screening location S-01 was collected from the location of soil sample IVP-SB collected in February 2013.



Mr. Wilbur Mayorga, P.E.  
August 19, 2013  
Page 3

A scatter plot illustrating the distribution of soil screening results versus soil analytical results is provided as **Figure 3** (Attachment A). In general, there is a correlation between OVA-PID readings and analytical results. However, one exception was identified in regards to sample location S-08, where the analytical results were much higher than would be indicated by the OVA-PID results. According to the linear regression, OVA-PID results above 10.2 ppm equate to the BAP equivalent of 100 micrograms per kilogram (ug/kg), or the residential SCTL. However, the sample collected from S-13 had an OVA-PID response of 1.7 ppm and a BAP equivalent concentration of 130 ug/kg, and S-16 which had an OVA-PID response of 0.7 ppm and a BAP equivalent concentration of 110 ug/kg. These data indicate that a conservative OVA-PID concentration of 1.0 ppm should be used to define the approximate limits of PAH concentrations that exceed the residential SCTL. Based on this, the distribution of BAP equivalents in soil in concentrations that exceed the residential SCTL is shown on Figure 2 (Attachment A). Copies of analytical reports and chain-of-custody forms are in **Attachment C**. Copies of the boring logs for the soil borings are in **Attachment D**.

#### Conclusion and Recommendation

Based on results of the soil contamination investigation of this site, the extents of PAH soil contamination above the water table has been defined. An interim source removal is recommended to remove soil contaminated with PAHs in concentrations that exceed the residential SCTL for BAP equivalents. Alternatively, the area of soil that contains concentrations of PAHs that exceed the residential exposure SCTL may be capped to prevent exposure. Groundwater testing in the vicinity of S-08 after the completion of soil remediation is also recommended to confirm the presence or absence of groundwater contamination as required by RER and Chapter 62-780, F.A.C.

If you have any additional questions or comments, please do not hesitate to contact me at 407-660-6354 or [turnerss@cdmsmith.com](mailto:turnerss@cdmsmith.com).

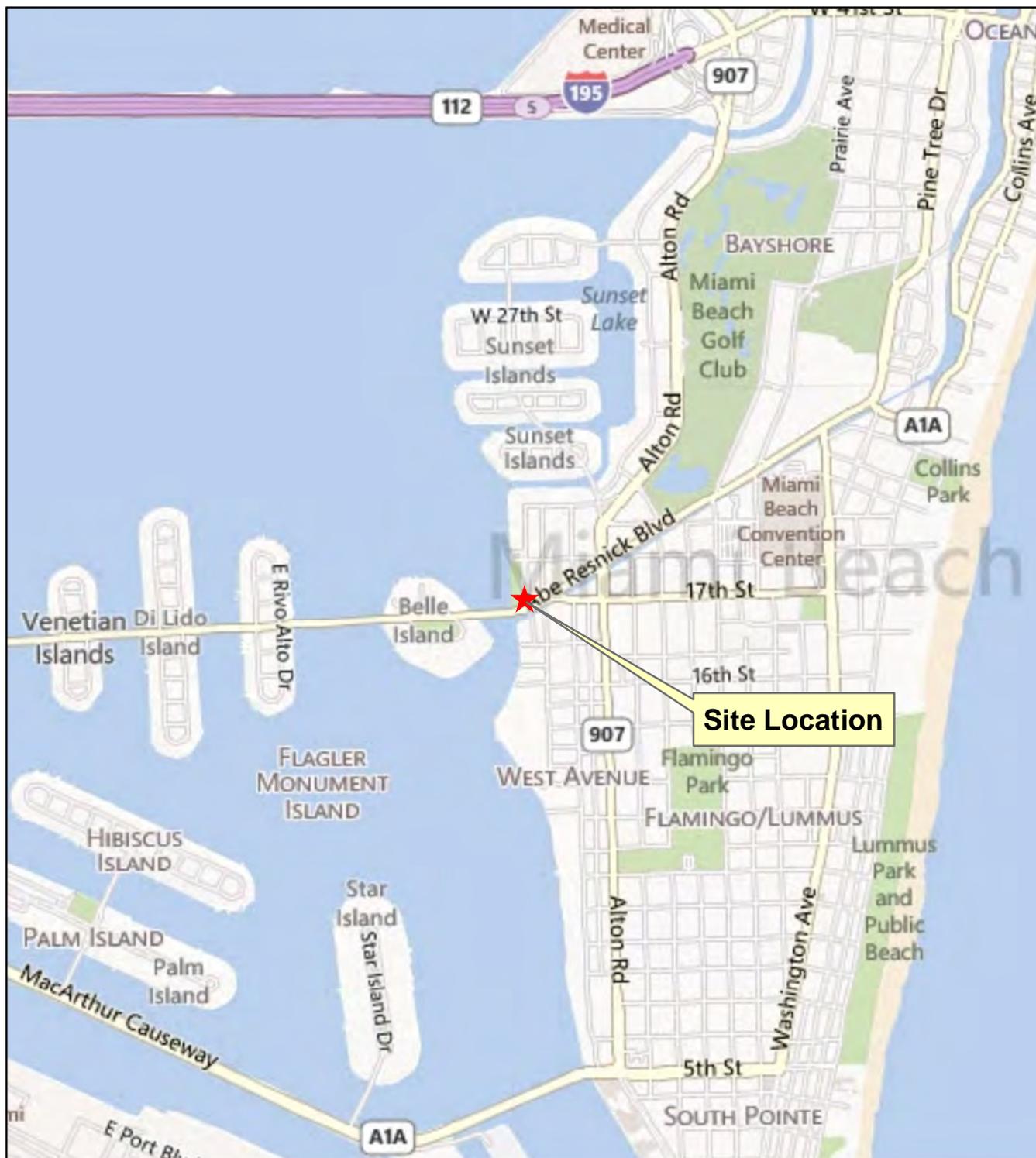
Sincerely,



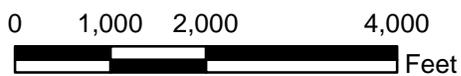
8/19/2013

S. Shawn Turner, P.G.  
Principal Geologist  
CDM Smith Inc.

cc: Margarita Wells, Miami Beach Public Works Department  
Hermes Diaz, P.E., Miami Beach Public Works Department



Note: Bing Aerial Photograph 2010.



**Figure 1**  
**Site Location Map**  
**Maurice Gibb Park**  
**(Former Island View Park)**  
**City of Miami Beach, FL**



Note: Bing Aerial Photograph 2010.

**Figure 2**  
**Distribution of Benzo(a)pyrene in Soil above SCTLs**  
**Maurice Gibb Park**  
**(Former Island View Park)**  
**City of Miami Beach, FL**

**Table 1 - Summary of OVA-PID Results - Soil Sampling**  
**Maurice Gibb Park (Former Island View Park)**  
**City of Miami Beach, Florida**

Sample ID	Depth Interval of Sample Collection (ft bls)	Date PID Reading Collected	OVA-PID Reading (ppm)	Total Benzo(a)pyrene Equivalents (ug/kg)	Odor
S-01-0.5	0.5	7/9/13 (2/13/2013)	<b>43.6</b>	<b>900</b>	Strong Odor
S-01-2.0	2.0	7/9/13 (2/13/2013)	<b>132</b>	<b>850</b>	Strong Odor
S-02-0.5	0.5	07/09/13	<b>33.1</b>	na	Strong Odor
S-02-2.0	2.0	07/09/13	<b>39.4</b>	<b>390</b>	Strong Odor
S-03-0.5	0.5	07/09/13	<b>32.2</b>	na	Odor
S-03-2.0	2.0	07/09/13	<b>27.5</b>	na	Odor
S-04-0.5	0.5	07/09/13	0.0	na	None
S-04-2.0	2.0	07/09/13	0.0	na	None
S-05-0.5	0.5	07/09/13	0.0	na	None
S-05-2.0	2.0	07/09/13	<b>0.3</b>	na	None
S-06-0.5	0.5	07/09/13	<b>5.6</b>	na	None
S-06-2.0	2.0	07/09/13	<b>9.4</b>	<b>100</b>	None
S-07-0.5	0.5	07/09/13	<b>4.4</b>	na	None
S-07-2.0	2.0	07/09/13	<b>9.1</b>	na	None
S-08-0.5	0.5	07/09/13	<b>4.5</b>	na	Slight Odor
S-08-1.2	1.2	07/09/13	<b>8.1</b>	<b>4,700</b>	Slight Odor
S-09-0.5	0.5	07/09/13	<b>23.7</b>	na	Strong Odor
S-09-2.0	2.0	07/09/13	<b>31.8</b>	na	Strong Odor
S-10-0.5	0.5	07/09/13	<b>0.4</b>	na	None
S-10-2.0	2.0	07/09/13	<b>1.3</b>	na	None
S-11-0.5	0.5	07/09/13	<b>0.8</b>	na	None
S-11-2.0	2.0	07/09/13	<b>1.4</b>	na	None
S-12-0.5	0.5	07/09/13	0.0	na	None
S-12-2.0	2.0	07/09/13	<b>12.7</b>	na	None
S-13-0.5	0.5	07/11/13	<b>0.6</b>	na	Slight Odor
S-13-2.0	2.0	07/11/13	<b>1.7</b>	<b>130</b>	Slight Odor
S-14-0.5	0.5	07/11/13	<b>0.3</b>	na	None
S-14-2.0	2.0	07/11/13	<b>0.5</b>	na	None
S-15-0.5	0.5	07/11/13	<b>0.2</b>	na	None
S-15-2.0	2.0	07/11/13	<b>0.8</b>	na	None
S-16-0.5	0.5	07/11/13	0.0	na	Slight Odor
S-16-2.0	2.0	07/11/13	<b>0.7</b>	<b>110</b>	Slight Odor
S-17-0.5	0.5	07/11/13	<b>0.3</b>	na	None
S-17-2.0	2.0	07/11/13	<b>0.8</b>	na	None
S-18-0.5	0.5	07/11/13	0.0	na	None
S-18-2.0	2.0	07/11/13	0.0	na	None
S-19-0.5	0.5	07/11/13	0.0	na	None
S-19-2.0	2.0	07/11/13	<b>0.4</b>	na	None
S-20-0.5	0.5	07/11/13	<b>0.2</b>	na	None
S-20-2.0	2.0	07/11/13	<b>0.4</b>	na	None

Notes:

Bold values indicated parameter detected.

Highlighted cell indicates parameter exceeds SCTL.

na indicates no analytical sample was collected

**Table 2 - Summary of Analytical Results - Soil Sampling**  
**Maurice Gibb Park (Former Island View Park)**  
**City of Miami Beach, Florida**

Sample ID	Depth Interval of Sample Collection (ft bls)	Date Sample Collected	PID Reading (PPM)	Analyte Concentration $\mu\text{g}/\text{kg}$																							
				TRPH (by FL-PRO Method)	BTEX by EPA Method 8260				Polynuclear Aromatic Hydrocarbons (PAH) by EPA Method 8270*																Total Benzo(a)pyrene Equivalents		
					Benzene	Toluene	Ethyl Benzene	Xylenes	1-Methylnaphthalene	2-Methylnaphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(ghi)perylene	Benzo(k)fluoranthene	Chrysene	Dibenzo(a,h)anthracene	Fluoranthene	Fluorene	Ideno(1,2,3-cd)pyrene	Naphthalene		Phenanthrene	Pyrene
	Commercial/ Industrial SCTL	NA	27,000	1,700	60,000,000	9,200,000	700,000	1,800,000	2,100,000	20,000,000	20,000,000	300,000,000	#	700	#	52,000,000	#	#	#	59,000,000	33,000,000	#	300,000	36,000,000	45,000,000	700	
	Residential SCTL	NA	460	1,200	7,500,000	1,500,000	130,000	200,000	210,000	2,400,000	1,800,000	21,000,000	#	100	#	2,500,000	#	#	#	3,200,000	2,600,000	#	55,000	2,200,000	2,400,000	100	
	Leachability SCTL	NA	340	7	500	600	200	3,100	8,500	2,100	27,000	2,500,000	800	8,000	2,400	32,000,000	24,000	77,000	700	1,200,000	160,000	6,600	1,200	250,000	880,000	8,000	
IVP-SB-0.5 (S-01-0.5)	0.5	02/13/13	43.6	297	1.3 U	1.3 U	1.4 U	4.0 U	158 I	74 U	74 U	74 U	101 I	514	620	704	439	543	711	98.1	1,300	82.0 I	497	74 U	622	1,020	900
IVP-SB-2.0 (S-01-2.0)	2.0	02/13/13	132	128	1.2 U	1.2 U	1.3 U	3.7 U	65 U	65 U	65 U	65 U	164	575	599	580	434	492	578	78.3	1,210	65.0 U	484	65 U	704	946	850
S-02-2.0	2.0	07/11/13	39.4	1.95	0.97 U	0.97 U	1.1 U	3.0 U	66 U	66 U	66 U	100 I	55.4 I	320	276	437	87.6	179	309	21.1 I	782	66 U	122	66 U	191	596	390
S-06-2.0	2.0	07/11/13	9.4	NA	NA	NA	NA	NA	71 U	71 U	71 U	71 U	45 U	71.2	75.0	110	27.2 I	38.2	63.5	8.9 U	171 I	71 U	29.9 I	71 U	86.6 I	110 I	100
S-08-1.2	1.2	07/11/13	8.1	NA	NA	NA	NA	NA	75 U	75 U	359	75 U	865	4,000	3,320	4,520	1,050	1,740	2,900	336	6,820	361	1,510	75 U	3,350	5,110	4,700
S-13-2.0	2.0	07/11/13	1.7	NA	NA	NA	NA	NA	75 U	75 U	75 U	75 U	47 U	76.2	94.2	135	44.0	48.3	101	11.4 I	185 I	75 U	49.4	75 U	64.7 I	131 I	130
S-16-2.0	2.0	07/11/13	0.7	NA	NA	NA	NA	NA	79 U	79 U	79 U	79 U	50 U	70.6	79.7	131	34.5 I	38.6 I	106	9.9 U	233	79 U	43.3	79 U	80.7 I	156 I	110

Notes:  
(1) FDEP Chapter 62-777, Soil Cleanup Target Levels (SCTL), 4-17-05.  
\* See Lab Report for additional analyte results.  
Bold values indicated parameter detected.  
U indicates below detection limit  
I indicates that the result is greater than the Method Detection Limit but less than the Practical Quantitation Limit  
# indicates that each concentration must be converted to Benzo(a)pyrene equivalent  
Highlighted cell indicates parameter exceeds SCTL.

April 17, 2014

*Sent Via Email*

Wilbur Mayorga, P.E., Chief  
Environmental Monitoring and Restoration Division  
Miami-Dade County Department of Regulatory and Economic Resources  
Overtown Transit Village  
701 NW 1<sup>st</sup> Ct  
Miami, FL 33136



**Re:** Soil and Groundwater Sampling Plan  
Maurice Gibb Memorial Park  
1700 Purdy Avenue  
Miami Beach, Florida 33139  
UT-5443/File-15745/DEP-139813745

Mr. Mayorga,

The City of Miami Beach (City) is in receipt of your letter correspondence dated August 28, 2013 with comments on the Soil Investigation Report dated August 19, 2013 submitted for the Maurice Gibb Memorial Park. The City intends to conduct an additional assessment of soil and groundwater conditions at the site in response to the comments received and submit a summary of the findings to the Department. On behalf of its client, Atkins is submitting the following sampling plan for the additional assessment.

#### Site History

Maurice Gibb Memorial Park, originally known as Island View Park, was established by the City circa 1969 and is located at the northwest corner of the intersection of Dade Boulevard and Purdy Avenue on Miami Beach. Prior to 1969, at least two facilities (Gulf Oil Company on Dade Boulevard and Amber Oil Company on Purdy Avenue) stored hydrocarbons on the property. The Gulf Oil Company station may have included an underground storage tank, as historical aerials show a small paved area in the southwest corner of the current park grounds. Historically, Gulf Oil Company also operated a gas station across Purdy Avenue at 1403 Dade Boulevard, which was monitored until a No Further Action Proposal (NFAP) was accepted and the site was administratively closed in 1997.

#### Historical Assessments

The first reports of contamination in the vicinity of Maurice Gibb Memorial Park date to July 1984, when a Southern Bell worker fainted due to gas fumes while working in a manhole at the intersection of Dade Boulevard and Purdy Avenue. A City inspector visited the area 10 days later and found a 2-3 inch black, sludge-like layer of hydrocarbons in the manhole. Upon inspecting the Gulf Oil Company property at 1403 Dade Boulevard, the inspector noted no vent lines or filler cap indicating the former gas station had been properly abandoned. In a letter from the former Miami-Dade Department of

Environmental Resources Management (DERM), now the Department of Regulatory and Economic Resources (RER), dated July 25, 1984, the Gulf Oil Company was ordered to develop a plan to determine the extent of site contamination, stop the discharges, and remove all discharged material from the site. Monitoring wells were installed on August 16, 1984, including four monitoring wells in what was then Island View Park (See Figure 1 for Site Location Map). Contamination was detected in one well within the park property, MW-18, in 1991. The ownership of the 1403 Dade Boulevard site was transferred from Gulf Oil Company to Chevron U.S.A. Inc. in July 1989. A NFAP was granted by the Florida Department of Environmental Protection (FDEP) Division of Waste Management and DERM Waste Management Division on February 14, 1997 after which the site was administratively closed.

Petroleum contamination was discovered at Island View Park during an inspection by DERM's Pollution Prevention Division in June 1997. DERM notified the City of this contamination in a letter dated August 6, 1997. However, clean-up efforts were not initiated at that time. On October 19, 2012, during construction of the Sunset Harbour Pump Station Retrofit project, an odor and sheen commonly associated with petroleum contamination was identified during excavation work and reported to RER. The firm of CDM Smith was contracted by the City to conduct soil and groundwater sampling in the vicinity of the excavation in February 2013. Per the summary of initial findings submitted to RER on March 19, 2013, soil with concentrations of benzo-a-pyrene (BAP) equivalents above FDEP residential and commercial/industrial soil cleanup target level (SCTL) were identified in the area.

In a letter dated June 17, 2013, RER requested additional soil and groundwater sampling at Maurice Gibb Memorial Park. On July 9 and 11, 2013, soil samples were collected at a depth of 6 inches at one location and 24 inches from 20 locations. An organic vapor analyzer-photo-ionization detector (OVA-PID) was used to screen for petroleum vapors. Five soil samples were analyzed for polyaromatic hydrocarbons (PAHs) using EPA Method 8270. However, in a letter dated August 28, 2013, RER requested more extensive sampling to fully delineate the contamination plume, including a full laboratory analysis of all samples rather than using an OVA-PID field analysis, and sample analysis for volatile organic aromatics (VOAs), total recoverable petroleum hydrocarbons (TRPHs), and PAHs.

#### Proposed Sampling Plan – Soil Investigation

Atkins proposes to advance six soil borings around the known contamination locations to identify the outer limits of the plume. See Figure 2 for the proposed boring locations. Two soil samples will be taken from each soil boring location: one from the 0-6 inch interval and the second from the 6-24 inch interval. Soil samples will be sent under chain of custody to a certified National Environmental Laboratory Accreditation Program (NELAP) laboratory and analyzed for PAH via EPA Method 8270C, VOA via EPA Method 8260C, and TRPH via FL PRO Method. Sampling activities will be conducted in accordance with the FDEP Standard Operating Procedures for Field Activities (DEP-SOP-001/01).

#### Proposed Sampling Plan – Groundwater Investigation

Two shallow groundwater monitoring wells will initially be installed, one at the former Gulf Oil Company location and one at the former Amber Oil Company location to investigate

current groundwater quality at these two locations. See Figure 2 for the proposed monitoring well locations. If petroleum contamination is identified and further investigation is needed to define the extent of a groundwater contamination plume, additional wells will be installed after completion of any source removal activities that are required for this property. Groundwater samples will be sent under chain of custody to a certified NELAP laboratory and analyzed for PAH via EPA Method 8270C, VOA via EPA Method 8260C, and TRPH via FL PRO Method. Sampling activities will be conducted in accordance with the FDEP Standard Operating Procedures for Field Activities (DEP-SOP-001/01).

Please contact the undersigned at (305) 514-3485 or [mark.henry@atkinsglobal.com](mailto:mark.henry@atkinsglobal.com) if you have any questions or comments on the proposed sampling plan.

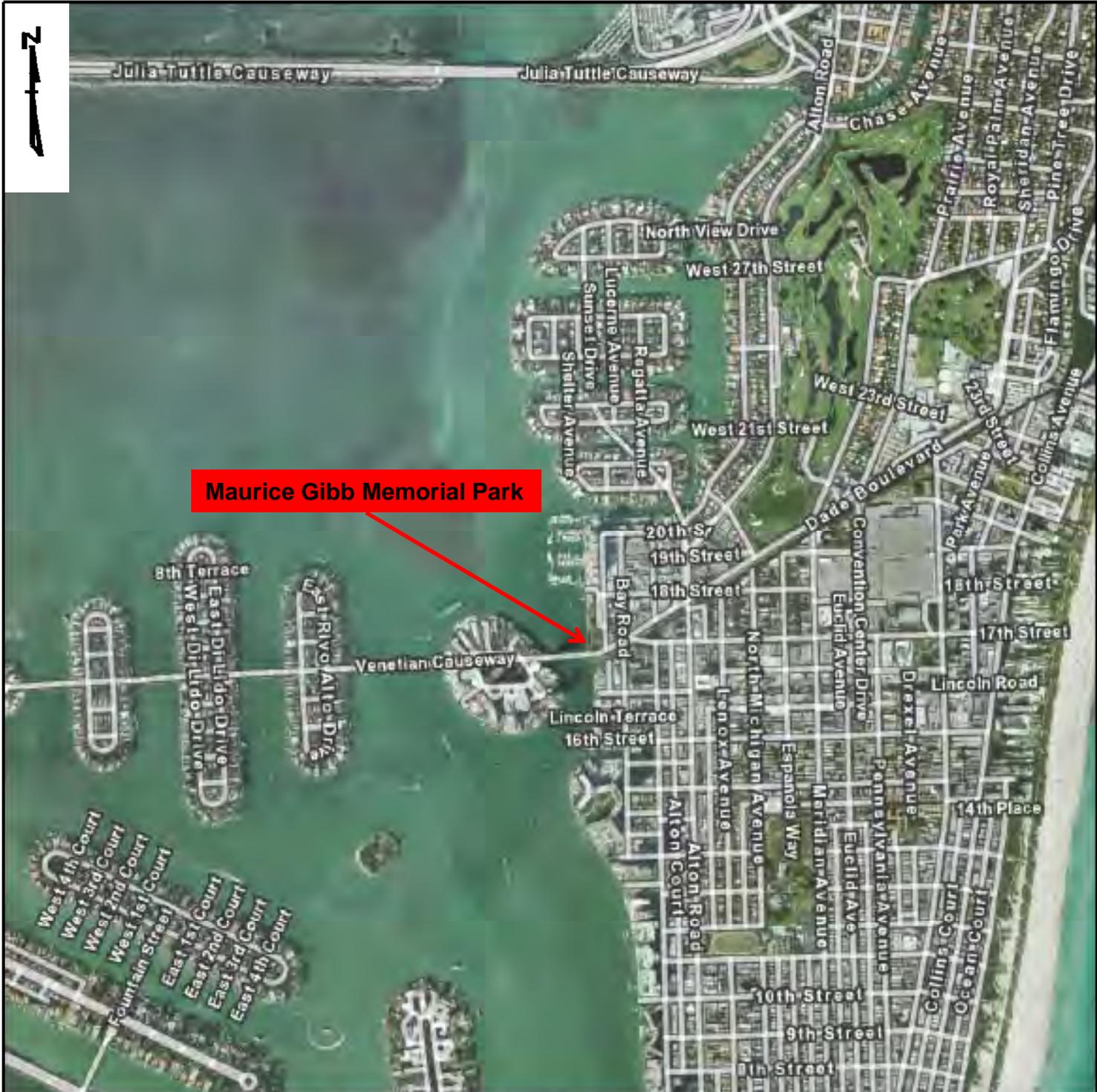
Sincerely,  
Atkins



W. Mark Henry  
Senior Scientist

Attch: Figures

Cc: Kevin Slapp, RER  
Elizabeth Wheaton, City of Miami Beach  
Margarita Wells, City of Miami Beach



**Maurice Gibb Memorial Park**

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Maurice Gibb Memorial Park  
1700 Purdy Avenue  
Miami Beach, FL 33139



**City of Miami Beach**  
  
1700 Convention Center Dr.  
Miami Beach, FL 33139

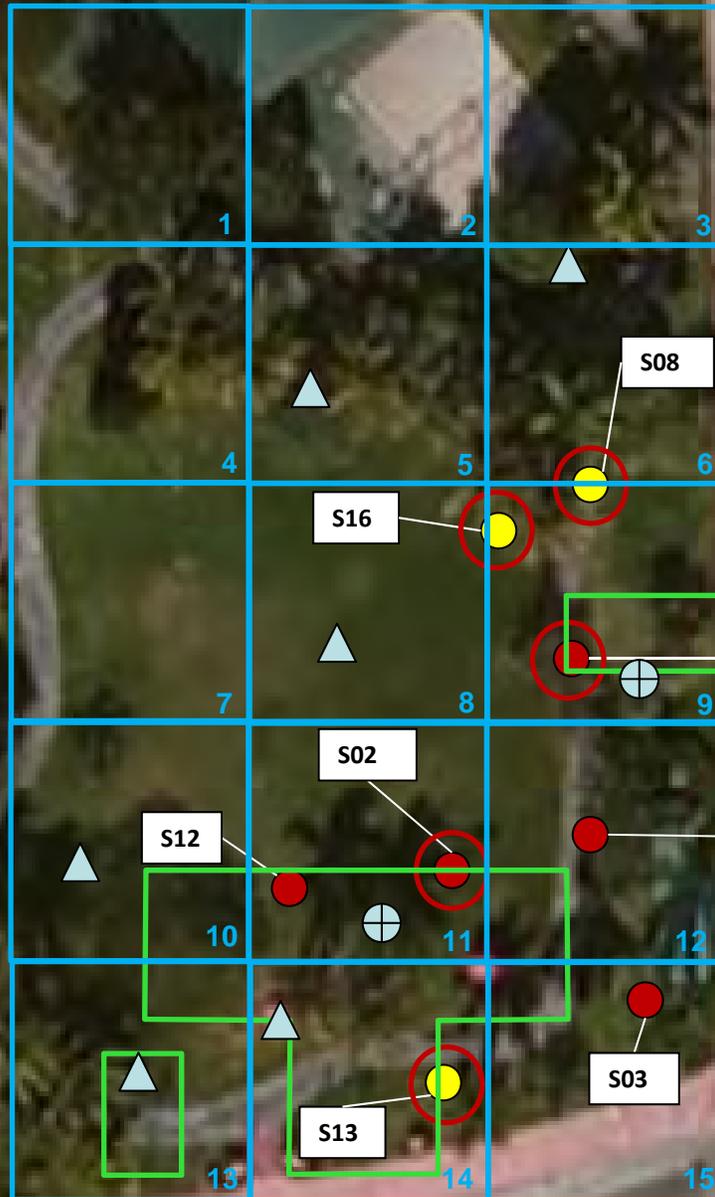
**Figure 1**  
  
ATKINS 2001 NW 107 AVENUE  
DORAL, FLORIDA 33172

DESIGNED BY: SMT	DATE: April 1, 2014
MODIFIED BY:	DATE:
CHECKED BY: WMH	

Maurice Gibb Memorial Park  
Contamination Assessment  
  
Project Location Map



Purdy Ave



Dade Blvd

**Legend**

50 ft x 50 ft Sampling Grids

Approximate Location of Previous Oil Properties/Structures

Previous Soil Boring

PAH Exceeds Soil Cleanup Target Level

OVA-PID Exceeded Soil Cleanup Target Level

Proposed Soil Boring (0-6" and 6-24" samples)

Proposed Monitoring Well



**City of Miami Beach**

1700 Convention Center Dr.  
Miami Beach, FL 33139

**Figure 2**

**ATKINS** 2001 NW 107 AVENUE  
DORAL, FLORIDA 33172

DESIGNED BY: LDM	DATE: March 24, 2014
MODIFIED BY:	DATE:
CHECKED BY: WMH	

Maurice Gibb Memorial Park  
Contamination Assessment

Proposed Soil Boring and Monitoring  
Well Location Map

January 27, 2015

Kevin Slapp, P.G., Manager  
Miami-Dade County Department of Regulatory  
and Economic Resources  
Division of Environmental Resources Management  
701 NW 1st CT, Miami, FL 33136



**SUBJECT: Initial Site Assessment and Proposed Continued Assessment Plan  
Maurice Gibb Memorial Park, City of Miami Beach, Florida  
UT-5443/File-15745/DEP-139813745**

Dear Mr. Slapp:

On behalf of the City of Miami Beach (City), Atkins is submitting the attached report for the above referenced project. An electronic copy was submitted to you via email on January 26, 2015, and the review fee will be submitted under separate cover by the City.

If you have any questions, please contact the undersigned at (305) 514-3485 or Ms. Margarita Wells with the City at (305) 673-7000.

Sincerely,

ATKINS

A handwritten signature in blue ink that reads "W. Mark Henry".

W. Mark Henry  
Senior Scientist

Encl.

Cc: Margarita Wells, City  
Elizabeth Wheaton, City  
Bradley Bayne, Atkins

*Handwritten initials*

**ATKINS**

# Initial Site Assessment Report and SAR Sampling Plan

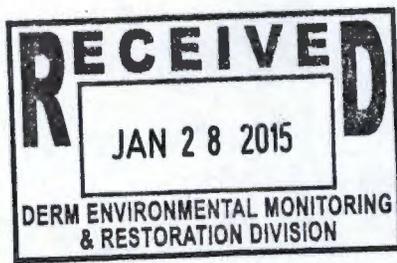
Maurice Gibb Memorial Park, Miami Beach, Florida

UT-5443/File-15745/DEP-139813745

For:



City of Miami Beach



January 23, 2015

Plan Design Enable

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# 1. Introduction

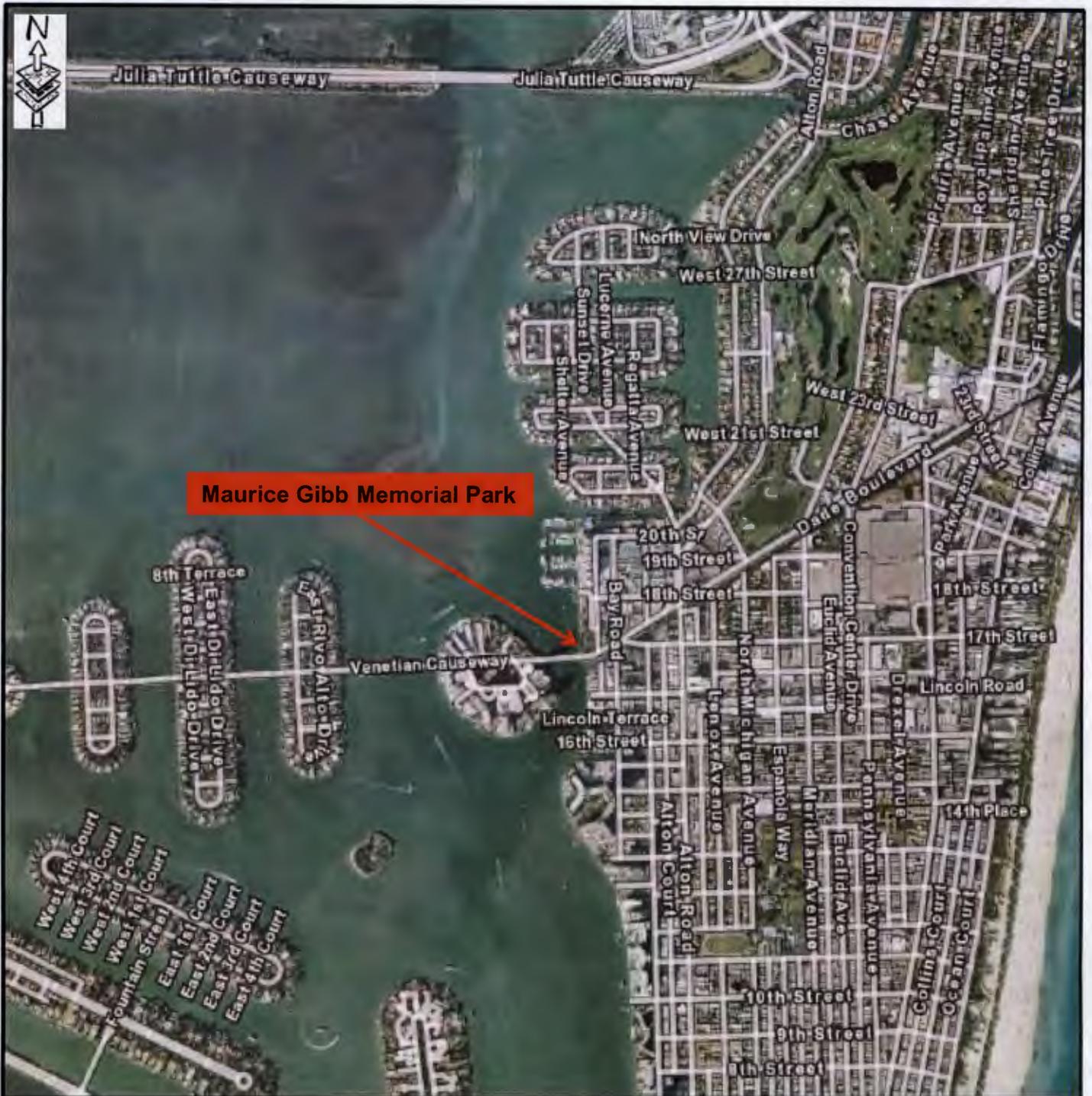
The City of Miami Beach (City) is conducting a contamination site assessment at the Maurice Gibb Memorial Park (Park) as it prepares to submit a Site Assessment Report (SAR) to the Miami-Dade Department of Regulatory and Economic Resources-Division of Environmental Resources Management (DERM). The assessment is currently in the initial phases as it seeks to determine the extent of petroleum, and possibly other contaminants, present at the Park as a result of past uses of the property. Soil investigations were previously conducted in July 2013 at which time soil samples were collected primarily from the eastern portions of the site. DERM responded to the 2013 assessment results in an August 28, 2013 correspondence requesting an initial site assessment be conducted with more extensive soil sampling across the site. On behalf of the City, Atkins conducted the initial site assessment in October 2014 to determine the horizontal extent of soil contamination across the site in the 0 – 6 inch interval. The following report summarizes the methodologies, field effort, and analytical results of the initial site assessment. The City intends to conduct additional assessment of soil and groundwater conditions at the Park as it prepares to complete the SAR.

## 1.1. Site History

Maurice Gibb Memorial Park, formerly known as Island View Park, was established by the City circa 1969 and is located at the northwest corner of the intersection of Dade Boulevard and Purdy Avenue on Miami Beach. A Project Location Map is provided as Figure 1. Prior to 1969, at least two facilities (Gulf Oil Company on Dade Boulevard and Amber Oil Company on Purdy Avenue) stored hydrocarbons on the property. The Gulf Oil Company station may have included an underground storage tank, as historical aeriels show a small paved area in the southwest corner of the current site. Historically, Gulf Oil Company also operated a gas station across Purdy Avenue at 1403 Dade Boulevard, which was monitored until a No Further Action Proposal (NFAP) was accepted and the site was administratively closed in 1997. In addition to the two properties with documented hydrocarbon storage and handling, a larger structure (possibly a warehouse) was historically located on the northern portion of the site. The activities conducted at that facility are not known. An aerial map of the site depicting the approximate locations of the former structures is provided as Figure 2.

## 1.2. Historical Assessments

The first reports of contamination in the vicinity of the Park date to July 1984, when a Southern Bell worker fainted as a result of exposure to gasoline fumes while working in a manhole at the intersection of Dade Boulevard and Purdy Avenue. A City inspector visited the area 10 days later and found a 2-3 inch black, sludge-like layer of hydrocarbons in the manhole. Upon inspecting the Gulf Oil Company property at 1403 Dade Boulevard, the inspector noted no vent lines or filler cap, indicating the former gas station had been properly abandoned. In a letter from the former Miami-Dade Department of Environmental Resources Management, now the Department of Regulatory and Economic Resources (RER), dated July 25, 1984, the Gulf Oil Company was ordered to develop a plan to determine the extent of site contamination, stop the discharges, and remove all discharged material from the site. Monitoring wells were installed on August 16, 1984, including four monitoring wells on the Park property. In 1991, petroleum contamination was detected in samples from one well located on the south-central portion of the site (MW-18). In July 1989, ownership of the 1403 Dade Boulevard site was transferred from Gulf Oil Company to Chevron U.S.A. Inc. A NFAP was granted to the 1403 Dade Boulevard site by the Florida Department of Environmental Protection (FDEP) Division of Waste Management and RER Waste Management Division on February 14, 1997, after which that site was administratively closed.



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Maurice Gibb Memorial Park  
1700 Purdy Avenue  
Miami Beach, FL 33139



**City of Miami Beach**

1700 Convention Center Dr.  
Miami Beach, FL 33139

**Figure 1**

**ATKINS** 2001 NW 107 AVENUE  
DORAL, FLORIDA 33172

DESIGNED BY: SMT	DATE: November 12, 2014
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Maurice Gibb Memorial Park  
Contamination Assessment

Project Location Map



**Legend**



50 ft x 50 ft Sampling Grid



October 2014 Soil Boring (0-6") Table D Parameters



Approximate Location of Previous Oil Properties/Structures



October 2014 Soil Boring (0-6") Table C Parameters



5-Point Composite Soil Sampling



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**Figure 2**

ATKINS 2001 NW 107 AVENUE  
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**Maurice Gibb Memorial Park  
Contamination Assessment**

Aerial Site Map

## 2. Initial Site Assessment

In the letter August 28, 2013 letter, DERM requested that the City conduct an initial site assessment to determine the horizontal extent of contamination within the top 6 inches of the soil in the portion of the Park determined to be the assessment area (the site). This information would also assist the City in estimating the volume of material that may require excavation from the site for offsite disposal. As contaminated soil exceeding regulatory guidance criteria had been previously identified in the south eastern portion of the site during the 2013 assessment, this initial site assessment was conducted to further delineate the horizontal extent of the contamination.

During the initial site assessment, a 50 ft x 50 ft sampling grid was established over the assessment area suspected of having contamination concerns (Figure 2). It was anticipated that the sampling grid would be sufficient to cover the needs for this initial site assessment, as well as future assessment needs. The sampling grid contained 24 individual areas. For those sample locations within a grid area that was not directly within a specific source area (i.e., dispenser, UST farm, chemical storage area, or existing soil sample locations S01 and S08 from the July 2013 assessment), one 5-point composite soil sample from the 0-6 inch interval was collected. For all remaining grid areas, excluding the ones with S01 and S08, a single soil sample from the 0-6 inch interval was collected. Soil samples were not collected in grid areas 12 and 16 where the previous 2013 assessment indicated contaminant concentrations above regulatory levels (it is currently anticipated that soil removal will occur at these locations in a site cleanup effort). See Figure 2 for an aerial site map depicting the sampling grid and the 22 soil sampling locations.

### 2.1. Soil Investigation

Atkins advanced 34 soil borings at 22 sampling locations on the site on October 14 and 15, 2014. Figure 2 shows the positions of each soil sampling location. The borings were advanced using a hand auger to approximately 6 inches below land surface (bls) at each boring location. One soil sample was taken from each soil boring location at the 0-6 inch interval. One discrete soil sample was collected at 19 of the 22 sampling locations, and 5-point composite soil samples were collected at the remaining three locations. For the 5-point composite soil samples, one soil boring was advanced at the center sampling point and one additional boring advanced approximately 10 feet away in each of the four compass directions. The materials from each of the five borings were placed into a stainless steel bowl and mixed with a stainless steel spoon into a single homogenised sample. All soil samples were sent under chain of custody to a certified National Environmental Laboratory Accreditation Program (NELAP) laboratory and analyzed for those parameters in Table D or Table C of Chapter 62-770, Florida Administrative Code (FAC), in accordance with the DERM-approved sampling plan dated September 5, 2014 (prepared by Atkins). See Table 1 for the list of sampling locations (by grid area) and sampling parameters. All sampling activities were conducted in general accordance with the FDEP Standard Operating Procedures for Field Activities (DEP-SOP-001/01).

**Table 1. Soil Sampling Parameters**

Grid Area ID#	Sampling Parameters
2, 7, 8, 9, 11, 15, 18, 19, 20, 22, 23, 24	Table D - Volatile Organic Aromatics (BTEX and MTBE, EPA 8021 compounds), Volatile Organic Halocarbons (EPA 8021 compounds), Priority Pollutant Volatiles (EPA 8260), PAHs (by EPA 8270), Priority Pollutant Extractable Organics (by EPA 8270), Metals (As, Cd, Cr, Pb by EPA 6010), Polychlorinated Biphenyls (PCBs by EPA 8082), and TRPH (by FL-PRO)
1, 3, 4, 5, 6, 10, 13, 14, 17, 21	Table C - Volatile Organic Aromatics (BTEX and MTBE, EPA 8021 compounds), PAHs (by 8270), TRPH (by FL-PRO), plus metals (As and Pb)
12, 16	No Sampling

Initial Site Assessment Report and SAR Sampling Plan  
Maurice Gibb Memorial Park, Miami Beach, Florida

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In June 1997, petroleum contamination was discovered at the Park during an inspection by RER's Pollution Prevention Division. RER notified the City of this contamination in a letter dated August 6, 1997; however, clean-up efforts were not initiated at that time. On October 19, 2012, during construction of the Sunset Harbour Pump Station Retrofit project, an odor and sheen commonly associated with petroleum contamination were identified during excavation work and reported to RER. The City conducted soil and groundwater sampling in the vicinity of the excavation in February 2013. Per the summary of initial findings submitted to RER on March 19, 2013, soil with concentrations of benzo(a)pyrene (BaP) equivalents above the FDEP residential and commercial/industrial soil cleanup target level (SCTL) were identified.

In a letter dated June 17, 2013, DERM requested the City conduct additional soil and groundwater sampling at the site. On July 9 and 11, 2013, soil samples were collected at a depth of 6 inches at one location and 24 inches at 20 additional locations. An organic vapor analyzer-photo-ionization detector (OVA-PID) was used to screen for petroleum vapors. Five soil samples were analyzed for polycyclic aromatic hydrocarbons (PAHs) using EPA Method 8270 and results were submitted to DERM. In a letter dated August 28, 2013, DERM requested more extensive soil sampling to fully delineate the extent of the soil contamination. DERM also requested a full laboratory analysis of all soil samples, including analysis for volatile organic aromatics (VOAs), total recoverable petroleum hydrocarbons (TRPHs), and PAHs.

### 3. Initial Site Assessment Results

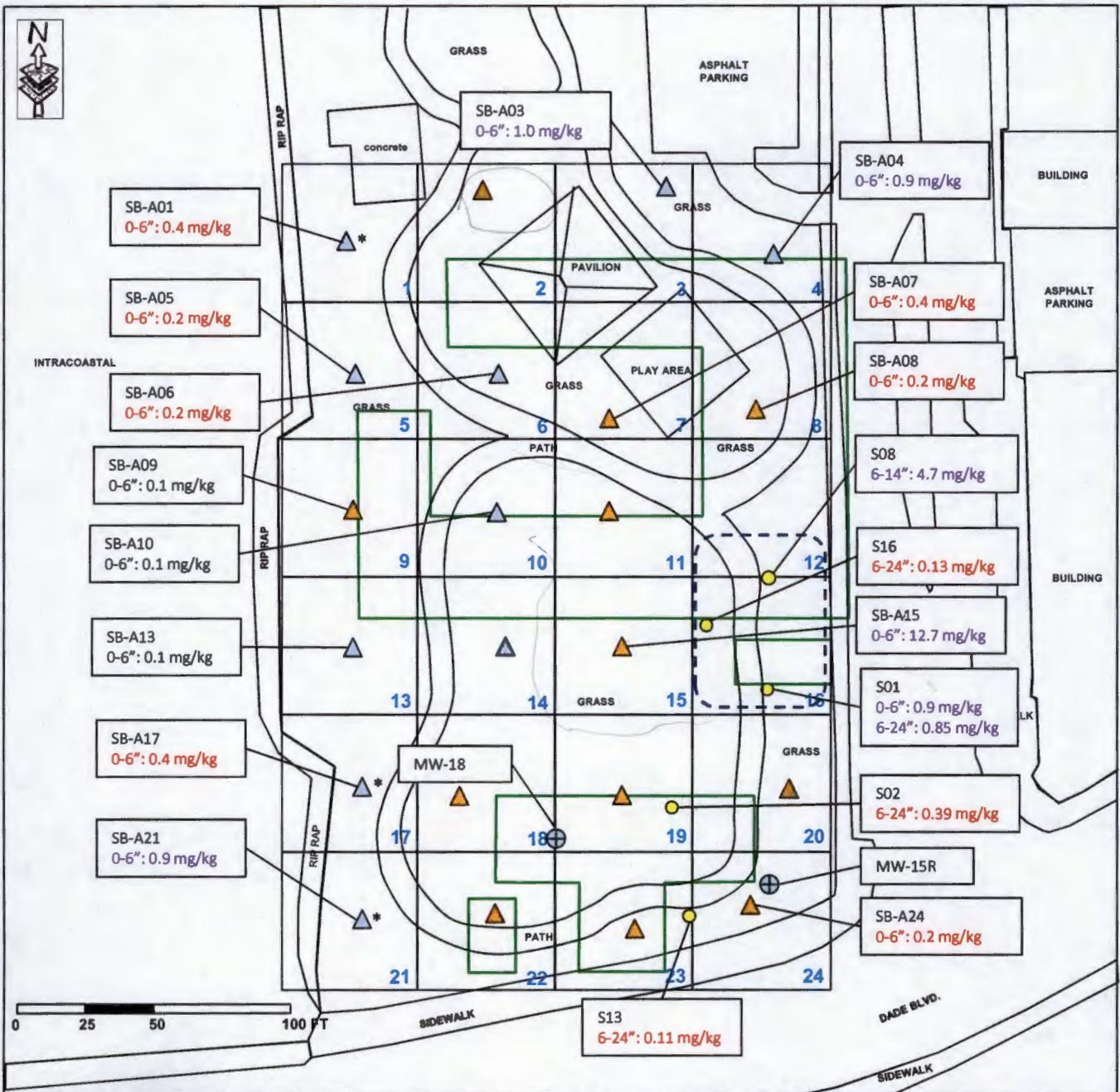
Table 2 in Appendix A provides a summary of the soil analytical results. The table lists primarily those parameters that were detected, and compares the results to the FDEP SCTL. Contaminant concentrations greater than its residential SCTL and, in some cases, the commercial/industrial SCTL were detected for BaP, the BaP equivalent, TRPH, and arsenic. The soil analytical laboratory reports and chain-of-custody forms are provided in Appendix B.

As shown on Table 2, BaP (PAH constituent) was detected at concentrations greater than its residential SCTL of 0.1 mg/Kg in samples collected from eight of the 22 soil samples: SB-A03 (0.7 mg/Kg), SB-A04 (0.58 mg/Kg), SB-A05 (0.11 mg/Kg), SB-A07 (0.29 mg/Kg), SB-A08 (0.13 mg/Kg), SB-A17 (0.25 mg/Kg), SB-A21 (0.61 mg/Kg), and SB-A24 (0.14 mg/Kg). The sample from SB-A15 (8.5 mg/Kg) exceeded its BaP commercial/industrial SCTL of 0.7 mg/Kg. BaP equivalent concentrations were greater than its residential SCTL in samples collected from seven of the 22 soil samples: SB-A01 (0.4 mg/Kg), SB-A05 (0.2 mg/Kg), SB-A06 (0.2 mg/Kg), SB-A07 (0.4 mg/Kg), SB-A08 (0.2 mg/Kg), SB-A17 (0.4 mg/Kg), and SB-A24 (0.2 mg/Kg). The samples from four of the 22 soil samples also exceeded the BaP equivalent commercial/industrial SCTL: SB-A3, SB-A4, SB-A15, and SB-A21 at 1.0 mg/Kg, 0.9 mg/Kg, 12.7 mg/Kg, and 0.9 mg/Kg, respectively. Figure 3 shows the detected BaP equivalent soil results for sample locations that exceeded residential and industrial SCTLs. BaP conversion tables for each soil sample are included in Appendix C.

TRPH was detected at concentrations greater than its residential SCTL of 460 mg/Kg in samples collected from three of the 22 soil samples: SB-A13 (960 mg/Kg), SB-A15 (670 mg/Kg), and SB-A22 (520 mg/Kg). These concentrations were less than the commercial/industrial SCTL (2,700 mg/kg). Figure 4 shows the detected TRPH soil results for sample locations that exceeded the residential SCTL.

Elevated concentrations of arsenic were detected in 18 of the 22 soil samples collected: SB-A01 (3.9 mg/Kg), SB-A02 (4.8 mg/Kg), SB-A03 (2.8 mg/Kg), SB-A04 (3.7 mg/Kg), SB-A05 (6.6 mg/Kg), SB-A06 (3.1 mg/Kg), SB-A09 (3.2 mg/Kg), SB-A10 (4.1 mg/Kg), SB-A013 (3.2 mg/Kg), SB-A14 (2.6 mg/Kg), SB-A15 (5.1 mg/Kg), SB-A17 (2.4 mg/Kg), SB-A18 (4.2 mg/Kg), SB-A19 (2.3 mg/Kg), SB-A20 (2.9 mg/Kg), SB-A21 (2.7 mg/Kg), SB-A22 (3.5 mg/Kg), and SB-A23 (2.1 mg/Kg). The arsenic concentrations detected were all greater than the residential SCTL (2.1 mg/kg), but below the commercial/industrial SCTL (12 mg/kg). Figure 5 shows the detected arsenic soil results for sample locations that exceeded the residential SCTL.

PCBs, other PAH constituents, TRPH, and the metals cadmium, chromium, and lead were detected in soil samples at concentrations either below the residential SCTL or between the laboratory method detection limit and the laboratory practical quantitation limit (See Table 2).



**Legend**

- 50 ft x 50 ft Sampling Grid
- Approximate Location of Previous Oil Properties/Structures
- July 2013 Sample Location
- Temporary Fence (May 1, 2014)
- \* 5-Point Composite Soil Sampling
- October 2014 Soil Boring (0-6") Table D Parameters
- October 2014 Soil Boring (0-6") Table C Parameters
- + Existing Groundwater Monitoring Well
- Red type Total Benzo(a)Pyrene Equivalent Exceeds RCTL of 0.1 mg/kg
- Purple type Total Benzo(a)Pyrene Equivalent Exceeds ICTL of 0.7 mg/kg

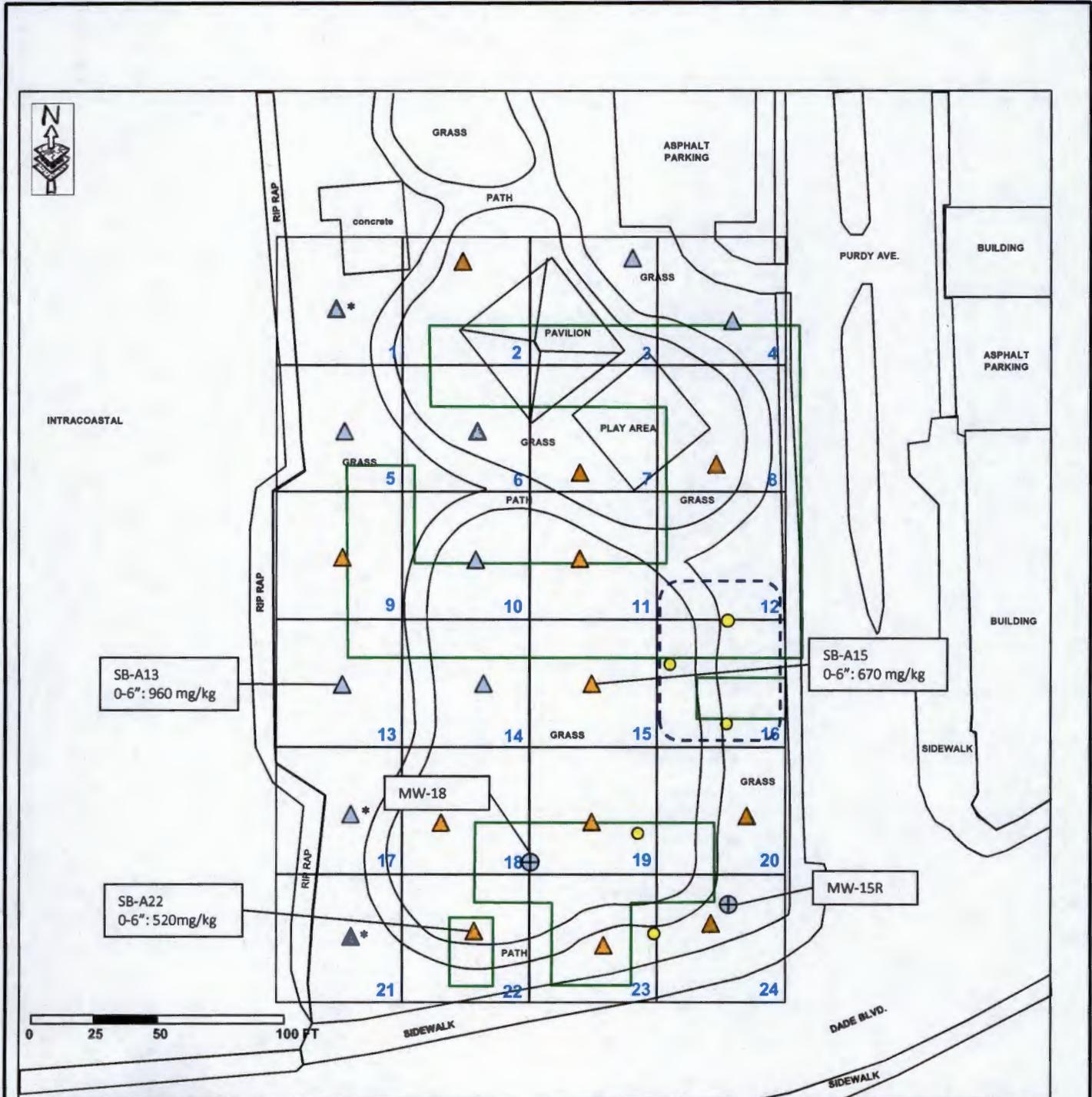


**City of Miami Beach**  
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 Miami Beach, FL 33139

**Figure 3**  
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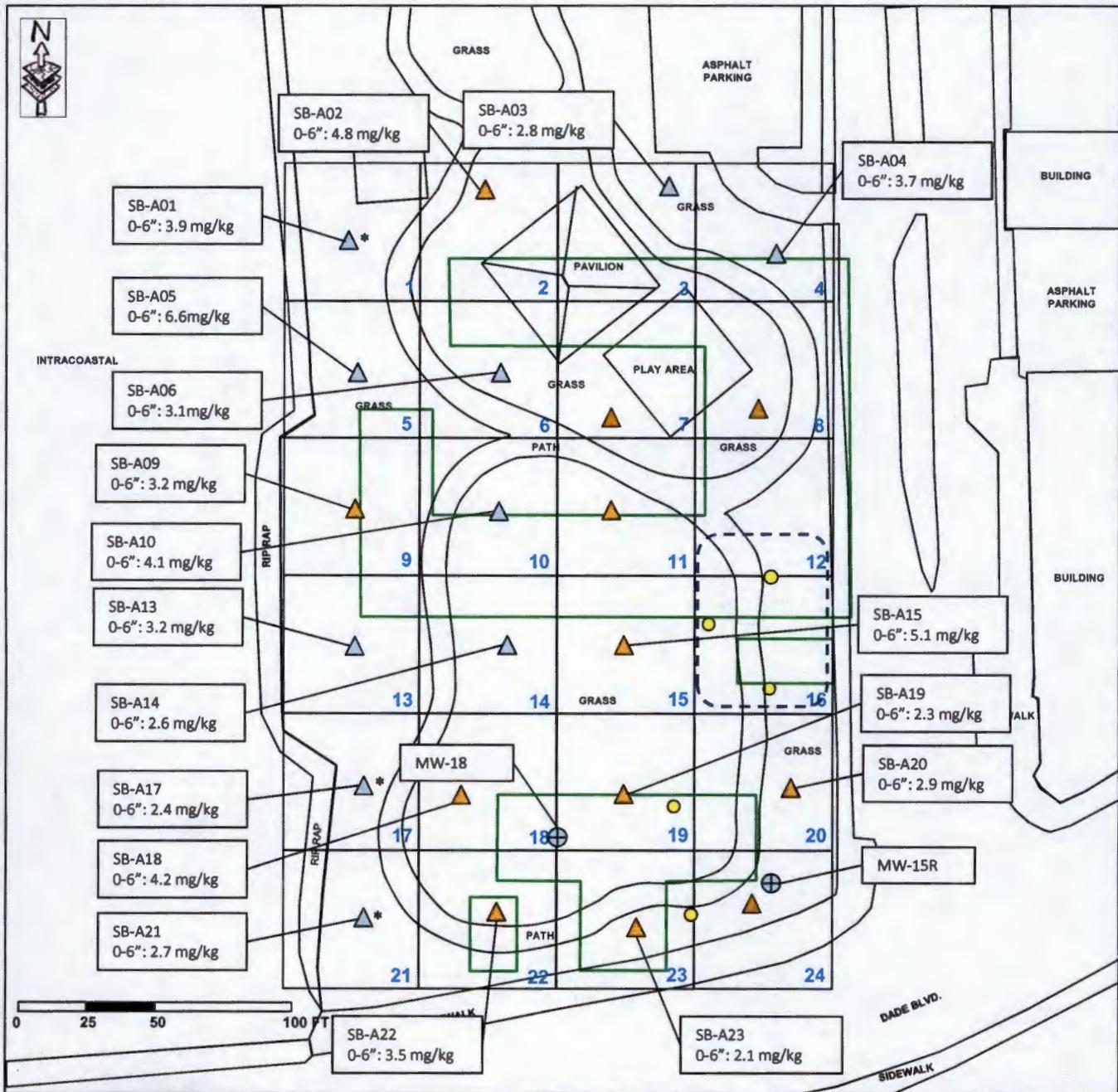
**Maurice Gibb Memorial Park  
 Contamination Assessment**  
 Initial soil Sampling Results Map  
 Total Benzo(a)Pyrene Equivalent



**Legend**

	50 ft x 50 ft Sampling Grid		October 2014 Soil Boring (0-6") Table D Parameters
	Approximate Location of Previous Oil Properties/Structures		October 2014 Soil Boring (0-6") Table C Parameters
	July 2013 Sample Location		Existing Groundwater Monitoring Well
	Temporary Fence (May 1, 2014)		Results Shown Exceed RSCTL of 460 mg/kg
	5-Point Composite Soil Sampling		

<p><b>City of Miami Beach</b> 1700 Convention Center Dr. Miami Beach, FL 33139</p>	<p><b>Figure 4</b></p> <p>ATKINS 2001 NW 107 AVENUE DORAL, FLORIDA 33172</p>	DESIGNED BY: WMH MODIFIED BY:	DATE: November 12, 2014 DATE:	<p><b>Maurice Gibb Memorial Park Contamination Assessment</b></p> <p>Initial soil Sampling Results Map TRPH RSCTL Exceedances</p>
		CHECKED BY: BB		



**Legend**

	50 ft x 50 ft Sampling Grid		October 2014 Soil Boring (0-6") Table D Parameters
	Approximate Location of Previous Oil Properties/Structures		October 2014 Soil Boring (0-6") Table C Parameters
	July 2013 Sample Location		Existing Groundwater Monitoring Well
	Temporary Fence (May 1, 2014)		Results Shown Exceed RSCTL of 2.1 mg/kg
	5-Point Composite Soil Sampling		



<p><b>City of Miami Beach</b> 1700 Convention Center Dr. Miami Beach, FL 33139</p>	<p><b>Figure 5</b></p> <p>ATKINS 2001 NW 107 AVENUE DORAL, FLORIDA 33172</p>	DESIGNED BY: WMH DATE: November 12, 2014	<p><b>Maurice Gibb Memorial Park Contamination Assessment</b></p> <p>Initial soil Sampling Results Map Arsenic RSCTL Exceedances</p>
		MODIFIED BY: DATE:	

## 4. Discussion

### 4.1. Soil Investigation Summary

At the request of DERM, this initial assessment was conducted to delineate the extent of the soil contamination at the site. Atkins advanced 34 soil borings at 22 sampling locations on the site on October 14 and 15, 2014. One soil sample was taken at each sample location from the 0-6 inch interval and analyzed for those parameters in Table D or Table C of Chapter 62-770, FAC, in accordance with the DERM-approved sampling plan dated September 5, 2014.

Contaminant concentrations greater than its residential SCTL and, in some cases, the commercial/industrial SCTL were detected for BaP, the BaP equivalent, TRPH, and arsenic. Figures 3, 4, and 5 show the BaP equivalents, TRPH, and arsenic soil results for sample locations that exceeded respective SCTLs.

Based on the results of the initial site assessment, Atkins has prepared a proposed sampling plan which includes groundwater sampling and additional soil sampling to further investigate site conditions. The proposed sampling plan is presented in Section 6 of this document.

#### 4.1.1. BaP Equivalent

BaP was detected at concentrations above the residential (0.1 mg/Kg) and industrial (0.7 mg/Kg) SCTLs at nine of the 22 sampling locations across the assessment area. Seven samples exceeded the residential SCTL (SB-A04, SB-A05, SB-A07, SB-A08, SB-A017, SB-A21, and SB-A24) and two exceeded the industrial SCTL (SB-A03, SB-A15). Concentrations greater than the BaP industrial SCTL were detected mostly along the eastern portion of the site.

Currently the FDEP accepted "recreational" alternative SCTL for BaP equivalents is 0.4 mg/Kg. A copy of a November 23, 2011 letter from FDEP is provided in Appendix D stating the position of the agency on the alternative SCTL for BaP equivalents (see Item 2). Using this alternative SCTL for BaP equivalents, only four sampling locations were in exceedance; SB-A03 (1.0 mg/Kg), SB-A04 (0.9 mg/Kg), SB-A15 (12.7 mg/Kg), and SB-A21 (0.9 mg/Kg) (Figure 3). Note, the BaP equivalent concentrations observed in two soil samples collected during the July 2013 assessment also exceeded the alternative SCTL; S01 (0-6 inches) and S08 (6-14 inches) at 0.9 mg/Kg and 4.7 mg/Kg, respectively (Figure 3).

#### 4.1.2. TRPH

TRPH concentrations greater than its residential SCTL were exhibited at three sample locations in the southern portion of the site (SB-A13, SB-A15 and SB-A22). Only one sample, SB-A15 in grid area 15, exceeded the SCTLs for both TRPH and the BaP equivalent.

#### 4.1.3. Arsenic

Arsenic was also detected at concentrations above the residential SCTL at 18 of the 22 sampling locations across the assessment area. The arsenic concentrations exhibited in the soil during this initial soil sampling assessment demonstrate that current arsenic concentrations within the site are typical of background levels found in Miami Beach. Currently the FDEP accepted "recreational" alternative SCTL for arsenic is 5.5 mg/Kg (November 23, 2011 FDEP letter [Item 2], Appendix D). Using this alternative, SCTL only one sampling location was in exceedance; SB-A05 (6.6 mg/Kg).

### 4.2. Temporary Fencing

Based on the results of the initial site assessment soil sampling, and at the request of DERM, the City has extended the temporary engineering control (fence) to restrict public access to the areas of the site which exhibited higher contamination concentrations above industrial SCTLs. On December 26, 2014 the temporary fence was extended to include the grid area of SB-A15, with the boundary extending

approximately to the next delineated soil sample in each direction. See Figure 6 for a photograph of the temporary fenced off area, and Figure 7 for an aerial view.

**Figure 6. Extended Engineering Controls**



### **4.3. Closure Alternatives**

This City is currently evaluating alternatives for addressing the further site investigation requirements as they relate to obtaining closure for the petroleum contamination issue and future uses of the Park. Per resident requests, the City is considering developing a master plan that will include complete redevelopment of the Park and the surrounding area. To maximize resources and eliminate redundancies, further site investigation protocols will aim to satisfy the SAR and closure requirements, while keeping in mind the potential Park redevelopments. The City expects that a more concrete schedule for the development of the master plan will be available later this year.

Based on the results of the initial site assessment and the potential end uses of the Park, closure alternatives under consideration are:

- Removing the contaminated source materials above the recreational alternative SCTLs down to one-foot below grade, and capping the entire site with an additional one foot of clean fill.
- Removing the contaminated source materials above the recreational alternative SCTLs down to the vadose zone and bringing the site back to the existing grade with clean fill.
- Capping the entire site with two feet of clean fill with no source removal.

Capping the Park with clean fill above the existing grade would limit potential exposure of contaminated soils to the general public. Planned developments in the neighborhoods adjacent to the Park include raising the

elevations of the streets in response to sea level rise concerns. The Park may need to be raised in conjunction with the streets to avoid it becoming a low point for stormwater runoff collection.

## 5. Groundwater Assessment Activities

### 5.1. Groundwater Sampling

In support of another ongoing project, Atkins recently installed one new groundwater monitoring well at the Park. Groundwater samples were collected from the new well and an existing onsite well to assist with obtaining a dewatering permit from DERM for a pump station construction project.

On August 15, 2014, one permanent shallow groundwater monitoring well was installed in the southeast corner of the Park. This well, designated as MW-15R, was installed in an area where free-phase petroleum product had historically been observed. The well replaced MW-15 previously located in the vicinity that was closed circa 1991. MW-15R was originally constructed of one four-foot section of a two-inch diameter PVC Schedule 40 riser (with completed with a locking cap), a ten-foot section of 0.010 PVC Schedule 40 well screen, and a 2-inch PVC well point at the bottom. 20-30 silica sand was placed into the annulus of the borehole as a filter pack from the bottom of the borehole to a depth of 1- foot below grade. A Portland cement seal was used to complete the well to the surface then capped off with a 2-foot square concrete pad and an 8-inch bolt-down manhole assembly. On September 3, 2014 MW-15R was modified by removing two feet of the four-foot section of a two-inch diameter PVC Schedule 40 riser.

Between August 18 and 22, 2014, representative groundwater samples were collected from MW-15R and MW-18 (the existing onsite monitoring well) and sent under chain of custody to a NELAP laboratory and analyzed for those Miami-Dade County sanitary sewer discharge limitations and pretreatment standard parameters request by the DERM for the dewatering permit application. MW-15R was re-sampled on September 4, 2014 after the well was modified. See Figure 7 for the locations of MW-15R and MW-18. In addition to the parameters analyzed for the dewatering permit, petroleum related parameters were also analyzed for to acquire preliminary groundwater data to assist with the SAR. See Table 3 for a list of the groundwater sampling parameters associated with recent investigation.

**Table 3. Recent Groundwater Sampling Parameters**

MW ID#	Sampling Parameters
MW-15R	Table D - Volatile Organic Aromatics (BTEX and MTBE, EPA 8260 compounds), PAHs (by 8270), Priority Pollutant Volatile Organic Halocarbons (VOH, EPA 8260 compounds), EDB (EPA 504), TRPH (by FL-PRO), metals (As, Cd, Cr and Pb, EPA 6010), Polychlorinated Biphenyls (PCBs by EPA 8082), Nonpriority Pollutant Organics (by 8270), plus Oil and Grease.
MW-18	Table D - Volatile Organic Aromatics (BTEX and MTBE, EPA 8260 compounds), PAHs (by 8270), Priority Pollutant Volatile Organic Halocarbons (VOH, EPA 8260 compounds), EDB (EPA 504), TRPH (by FL-PRO), metals (As, Cd, Cr and Pb, EPA 6010), Polychlorinated Biphenyls (PCBs by EPA 8082), Nonpriority Pollutant Organics (by 8270), plus Oil and Grease.

Table 4 in Appendix E provides a summary of the groundwater analytical results. The table lists primarily those parameters that were detected, and compares the results to the FDEP GCTL per Chapter 62-550 or Chapter 62-777 FAC. A contaminant concentration greater than its GCTL was only detected for arsenic in the sample from MW-18 at 0.011 mg/L. The GCTL for arsenic is 0.01 mg/L. The groundwater analytical laboratory reports and chain-of-custody forms are provided in Appendix F. The City is not proposing to re-sample these two wells as part of the SAR.

## 6. SAR Sampling Plan

Based on the results of the initial site assessment and historical site information, Atkins has prepared a groundwater and soil sampling plan to further investigate petroleum contamination on the site.

### 6.1. Proposed Groundwater Sampling

Based on the petroleum contamination detected in the soil during the initial site assessment, along with the documented past uses of the site property (former storage/use of petroleum based products), the City proposes to conduct groundwater quality investigations on the site. The groundwater investigations will take place in the vicinity of areas with documented soil petroleum contamination and historical use of petroleum based products. The groundwater sampling will help to determine if past activities had a negative effect on groundwater quality at the site.

Utilizing the 50 ft x 50 ft sampling grid established over the site, the groundwater investigations will focus on areas in the vicinity of the highest BaP soil contamination levels documented during the initial site assessment and the July 2013 assessment event. Contaminated soil exceeding the BaP residential and industrial SCTLs was identified in soil samples from the east-central portion of the site, especially in grid areas 12, 15 and 16 (see Figure 7). These areas are also in close proximity to the locations of the historical Gulf Oil Company and Amber Oil Company sites. Contaminated soil exceeding the BaP industrial SCTL was also identified in soil samples from the north eastern portion of the site in grid areas 3 and 4 (see Figure 7).

The City proposes to install three permanent, shallow groundwater monitoring wells at the site. Two of the proposed well locations are in the vicinity of SB-A15 (grid areas 14 and 16), which had the highest soil BaP levels documented during the initial site assessment. The third proposed well is located in the north eastern portion of the site in between SB-A03 and SB-A04 (grid areas 3 and 4), which both had elevated soil BaP levels during the initial site assessment. See Figure 7 for a site sketch depicting the sampling grid and the proposed groundwater sampling locations.

The proposed groundwater monitoring wells will be installed with a truck-mounted hollow-stem auger rig equipped with split spoon sample collection capability. The wells will be installed to a depth of approximately 12 feet below land surface. Each monitoring well will consist of a two-foot section of a PVC Schedule 40 riser, a ten-foot section of 0.010 PVC Schedule 40 well screen, and a 2-inch PVC well point at the bottom. Each borehole will have 20-30 silica sand placed into the annulus as a filter pack from the bottom of the borehole to a depth of 1 foot below grade. A Portland cement seal will be used to complete the well to the surface. Each of the new monitoring wells will be completed with a locking cap and a flush-mounted steel cover in a two-foot by two-foot concrete slab. The well installation equipment will be steam cleaned after installation of each monitoring well. The monitoring wells will be developed for approximately 30- 60 minutes or until the water produced by the well is relatively clear, with minimal turbidity. The wells will be allowed approximately 24 hours to stabilize prior to sampling.

Representative groundwater samples will be collected from these three new wells and sent under chain of custody to a certified NELAP laboratory and analyzed for those parameters in Table C of Chapter 62-770, FAC. See Table 5 for the list of sampling locations (by grid) and sampling parameters. MW-15R and MW-18 will not be re-sampled during this investigation. Sampling activities will be conducted in general accordance with the FDEP Standard Operating Procedures for Field Activities (DEP-SOP-001/01). If petroleum contamination is identified and further investigation is needed to define the extent of a groundwater contamination plume, additional wells will be installed after completion of any source removal activities that are required for this site.

**Table 5. Groundwater Sampling Parameters**

Grid Area ID#	Sampling Parameters
4, 14, 16	Table C - Volatile Organic Aromatics (BTEX and MTBE, EPA 8260 compounds), PAHs (by 8270), Priority Pollutant Volatile Organic Halocarbons (VOH, EPA 8260 compounds), EDB (EPA 504), TRPH (by FL-PRO), plus metals (As and Pb, EPA 6010)

## 6.2. Soil Sampling

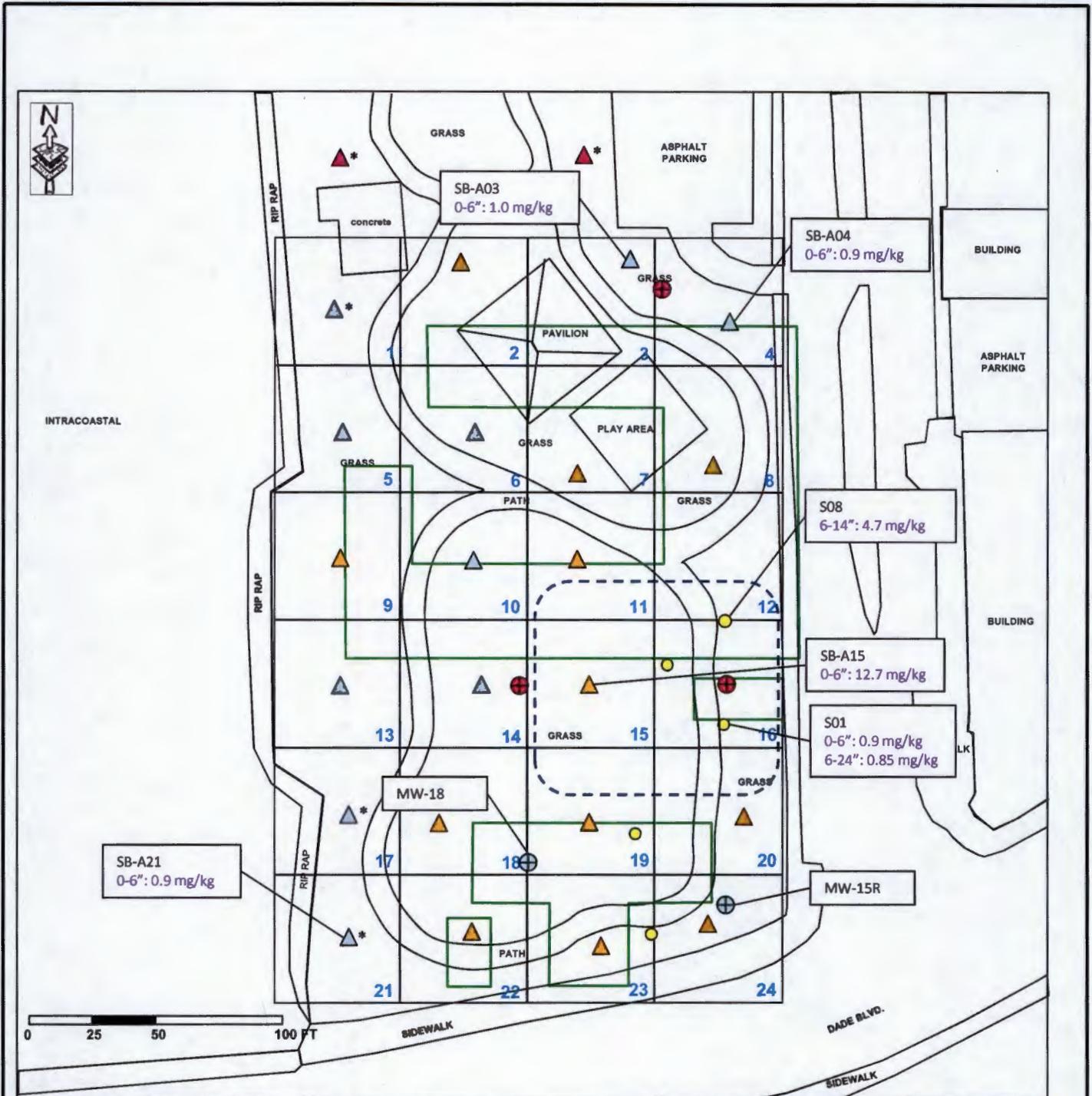
BaP contamination was documented above the FDEP accepted alternative SCTL for BaP equivalents in soil samples from the north eastern, eastern and south western portions of the site (i.e., grid areas 3, 4, 12, 15, 16 and 21). The City proposes to advance two additional soil borings across the previously un-assessed area north of the current 50 ft x 50 ft sampling grid to identify the outer limits of the area of vadose zone soil impacts. These soil borings will allow the City to determine whether BaP soil contamination extends north of the existing sampling grid. The proposed soil boring locations are shown on Figure 7.

As the proposed sampling locations are not in a sampling grid directly within a specific source area (such as a dispenser, a UST farm, a chemical storage area), one 5-point composite soil sample from the 0-6 inch interval will be collected at each location. Soil samples will be sent under chain of custody to a certified NELAP laboratory and analyzed for those parameters in Table C of Chapter 62-770, FAC (see Table 6 for a list of the soil sampling parameter associated with Table C). All sampling activities will be conducted in general accordance with the FDEP Standard Operating Procedures for Field Activities (DEP-SOP-001/01).

**Table 6. Proposed Soil Sampling Parameters**

Grid Area ID#	Sampling Parameters
North of 1, North of 3	Table C - Volatile Organic Aromatics (BTEX and MTBE, EPA 8021 compounds), PAHs (by 8270), TRPH (by FL-PRO), plus metals (As and Pb)

The City is not proposing to sample the soil below the six inch interval for this SAR as future site cleanup and redevelopment activities under consideration include removal of the contaminated materials above the recreational alternative SCTLs, and/or capping the entire site with clean fill.



Legend	
	50 ft x 50 ft Sampling Grid
	Approximate Location of Previous Oil Properties/Structures
	July 2013 Sample Location
	Temporary Fence (December 26, 2014)
	5-Point Composite Soil Sampling
	October 2014 Soil Boring (0-6") Table D Parameters
	October 2014 Soil Boring (0-6") Table C Parameters
	Proposed Soil Boring (0-6") Table C Parameters
	Existing Groundwater Monitoring Well
	Proposed Groundwater Monitoring Well
<b>Red type</b>	<b>Total Benzo (a) Pyrene Equivalent Exceeds RCTL of 0.1 mg/kg</b>
<b>Purple type</b>	<b>Total Benzo (a) Pyrene Equivalent Exceeds ICTL of 0.7 mg/kg</b>



**City of Miami Beach**  
 1700 Convention Center Dr.  
 Miami Beach, FL 33139

**Figure 7**  
 ATKINS 2001 NW 107 AVENUE  
 DORAL, FLORIDA 33172

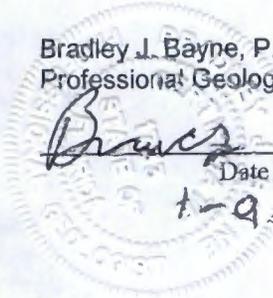
DESIGNED BY: WMH	DATE: December 24, 2014
MODIFIED BY:	DATE:
CHECKED BY: BB	

**Maurice Gibb Memorial Park  
 Contamination Assessment**  
 Proposed Groundwater and Soil  
 Sampling Plan

# 7. Professional Geologist Signature Page

The hydrogeological evaluations and interpretations contained in the Initial Site Assessment Report and SAR Sampling Plan, dated January 9, 2015, were prepared by, or reviewed by, a Registered Professional Geologist in the State of Florida.

Bradley J. Bayne, P.G.  
Professional Geologist #1733



*Bradley J. Bayne*  
Date  
1-9-15

W. Mark Henry  
Senior Scientist

*W. Mark Henry*

# Appendices

# **Appendix A. Soil Analytical Results Summary Table (Table 2)**

Analyte	SB-A01	SB-A02	SB-A03	SB-A04	SB-A22	SB-A23	SB-A24	Soil Residential Criteria	Soil Industrial Criteria	Soil Leachability Criteria
Sample depth	0.5 feet									
Sampling date	10/15/2014	10/14/2014	10/15/2014	10/15/2014	10/14/2014	10/14/2014	10/14/2014			
PCBs	U	U	U	U	U	U	U	0.5	2.6	17
PAHs										
2-Methylnaphthalene	0.50 U	0.50 U	0.008 I	0.50 U	0.50 U	0.50 U	0.50 U	210	2,100	8.5
Acenaphthene	0.48 U	0.48 U	0.067	0.48 U	0.48 U	0.48 U	0.48 U	2,400	20,000	2.1
Acenaphthylene	0.38 U	0.38 U	0.014 I	0.38 U	0.38 U	0.38 U	0.38 U	1,800	20,000	27
Anthracene	0.023 I	0.37 U	0.02	0.037 I	0.37 U	0.37 U	0.37 U	21,000	300,000	2,500
Benzo(a)anthracene	0.22	0.39 U	0.74	0.46	0.39 U	0.39 U	0.11 I	#	#	0.8
Benzo(a)pyrene	0.49 U	0.49 U	0.7	0.58	0.49 U	0.49 U	0.14 I	0.1	0.7	8
Benzo(b)fluoranthene	0.5	0.43 U	1.3	1.2	0.43 U	0.43 U	0.26 I	#	#	2.4
Benzo(k)fluoranthene	0.14	0.27 U	0.25	0.29	0.27 U	0.27 U	0.14 I	2,500	52,000	32,000
Benzo(k)fluoranthene	0.21	0.43 U	0.48	0.45	0.43 U	0.43 U	0.092 I	#	#	24
Bis(2-ethylhexyl) phthalate	0.58 U	1.7 V	72	390	3,600					
Chrysene	0.35	0.45 U	0.91	0.78	0.45 U	0.45 U	0.17 I	#	#	77
Dibenz(a,h)anthracene	0.04	0.39 U	0.087	0.085	0.39 U	0.39 U	0.39 U	#	#	0.7
Di-n-butyl phthalate	0.44 U									
Fluoranthene	0.58	0.37 U	1.7	1.4	0.37 U	0.37 U	0.30 I	3,200	59,000	1,200
Flourene	0.011 I	0.54 U	0.06	0.022 I	0.54 U	0.54 U	0.54 U	2,600	33,000	160
Indeno(1,2,3-cd)perylene	0.17	0.35 U	0.32	0.35	0.35 U	0.35 U	0.13 I	#	#	6.6
Naphthalene	0.40 U	0.40 U	0.014 I	0.40 U	0.40 U	0.40 U	0.40 U	55	300	1.2
Phenanthrene	0.14	0.31 U	0.8	0.36	0.31 U	0.31 U	0.083 I	2,200	36,000	250
Pyrene	0.39	0.32 U	1.2	0.95	0.32 U	0.32 U	0.22 I	2,400	45,000	880
Benzo(a)pyrene Equivalent	0.4	0	1.8	0.9	0	0	0.2	0.1	0.7	
Volatile Organics	U	U	U	U	U	U	U			
TRPH (FL-PRO)	160	310 V	130.0	240.0	20.0	75.0	130.0	460	2,700	340
Metals										
Arsenic	3.9	4.6	2.8	3.7	3.5	2.1	1.6	2.1	12	***
Cadmium	NA	0.20 I	NA	NA	0.10 I	0.16 I	0.20 I	82	1,700	8
Chromium	NA	8.7	NA	NA	4.4	8.4	5.9	210	470	38
Lead	19	31	13	14	5.7	27	6.4	400	1,400	***
								26,000	630,000	***

Notes: All results in Milligrams per kilogram (mg/Kg)  
 shaded results indicate exceedence of Residential criteria  
 Shaded and Bold results indicate exceedence of Residential and Industrial criteria  
 Soil Residential, Industrial, and Leachability Criteria = Chapter 62-777 FAC  
 \*\* = Arsenic and lead leachability values based on SPLP test  
 # = Residential/Industrial criteria based on calculation of benzo(a)pyrene equivalents (see C  
 I = Result is between method detection limit (MDL) and practical quantitation limit  
 U = Undetected  
 V = Analyte was detected at or above the method detection limit in both the sample and the  
 NA = Not Applicable

# Appendix D. November 23, 2011 FDEP Letter



# Florida Department of Environmental Protection

Southwest District  
13051 North Telecom Parkway  
Temple Terrace, Florida 33637-0926  
Telephone: 813-632-7600

Rick Scott  
Governor

Jennifer Carroll  
Lt. Governor

Herschel T. Vinyard Jr.  
Secretary

November 23, 2011

VIA EMAIL ONLY: [atusing@palmettofl.org](mailto:atusing@palmettofl.org)

Mr. Allen Tusing  
Director  
Public Works Department  
The City of Palmetto  
600 17<sup>th</sup> Street West  
Palmetto, FL 34221

Re: Site Assessment Report Addendum (SARA), dated June 8, 2010  
Edenfield Property  
505 5<sup>th</sup> Street West  
Palmetto, Manatee County, Florida  
FDEP Site #COM\_151357//FDEP Project #202469

Dear Mr. Tusing:

The Florida Department of Environmental Protection (Department) Technical Review section reviewed the above referenced plan, received June 9, 2010, submitted by PBS&J. The comments provided herein may be revised or added to, if the Department is provided with, obtains or reviews additional information that would warrant revisions or additions to these comments. The Department offers the following comments regarding the level of remediation needed, if this parcel is incorporated into the City's parks and trails system:

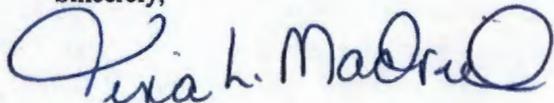
1. Deed restrictions would be required on the property. Additional delineation of arsenic to the Residential Soil Cleanup Target Level (SCTL) will be needed. However, if it were proposed to use an alternative SCTL for recreational use, only soils exceeding the alternative SCTL would need to be managed.
2. Currently the accepted alternative SCTL of arsenic in soil on properties for recreational usage is 5.5 mg/Kg. The current accepted recreational alternative SCTL for benzo(a)pyrene (B(a)P) equivalents is 0.4 mg/Kg.
3. Because both contaminants of concern are co-located, apportioning would be required if the soils are to remain in place. Apportioning can be accomplished by different methods as long as the total residual risk equals 1E-06. If the B(a)P is removed to background levels, a larger concentration of arsenic may remain on site. The residual risk would be distributed unequally among the remaining chemicals, but still apportioned to meet the target risk of 1E-06. If you chose to apportion the risk equally to both B(a)P and arsenic, the risk would be divided by 2. Therefore, this would bring the alternative SCTL for arsenic to 2.5 mg/Kg and B(a)P equivalents to 0.2 mg/Kg – almost back to the original residential SCTLs.

Mr. Allen Tusing  
November 22, 2011  
Page 2 of 2

4. As the area of B(a)Ps is smaller than the arsenic, the City of Palmetto may want to excavate this area until arsenic is the remaining contaminant in soil that would have to be managed. Delineation of B(a)Ps could be conducted prior to excavation, and the excavation completed to known soil locations that did not exceed the SCTLs. An alternative would be to begin excavation, and to collect confirmatory soil samples at the edges of the excavation. All soil samples, whether for delineation or confirmatory sampling purposes should be collected in the intervals of 0-0.5 ft bls, 0.5-2 ft bls, 2-4 ft bls, and in two foot intervals until the water table is reached, or until soil samples no longer exceed the SCTLs.
5. If the area of B(a)Ps were to be capped (i.e. parking lot, tennis courts, etc.), the risk would still be apportioned; however, the risk from contaminants under the cap would equal 0, so the apportioned arsenic concentration would be 5.5 mg/Kg, as 100% of the residual risk would be from the arsenic.

If further discussion or clarification is needed, a teleconference with Tallahassee Technical Support Section could be arranged. In the meantime, as discussed in the meeting held in February, please submit an Interim Source Removal Plan or an update on how the City would like to proceed within **60 days** receipt of this letter or by **January 25, 2012**. If you have any questions regarding this site, please contact me by telephone at (813) 632-7600, ext. #474 or by email to [tina.madrid@dep.state.fl.us](mailto:tina.madrid@dep.state.fl.us). For future submittals, please reference the FDEP Site #COM\_151357/FDEP Project #202469.

Sincerely,



Tina L. Madrid  
Environmental Specialist III  
Waste Cleanup Section

cc: Mr. Frank Woodard II, Deputy Director – Public Works Department, The City of Palmetto  
(via email: [fwoodard@palmettofl.org](mailto:fwoodard@palmettofl.org))  
Mr. George Thomas, Senior Scientist III – PBS&J (via email: [grthomas@pbsj.com](mailto:grthomas@pbsj.com))

# **Appendix E. Groundwater Analytical Results Summary Table (Table 4)**

**TABLE 4**  
**SUMMARY OF GROUNDWATER ANALYTICAL DATA - TRPH, Metals, and Volatile Organics**  
**MAURICE GIBB PARK**

	Well:				
			MW-15R	MW-15R	MW-18
	Date of Sampling:		8/18 & 20/14	9/4/14	8/22/14
	Standard <sup>(1)</sup>	Units			
<b>Inorganics</b>					
Arsenic	0.01	mg/l	0.010 U	NS	0.011 I
Oil & Grease	100 <sup>(2)</sup>	mg/l	3.7	2.9	1.5 I
<b>Organics</b>					
Xylenes	10,000	ug/l <sup>*</sup>	0.91 I	NS	0.20 U
1-Methylnaphthalene	28	ug/l	1.8	NS	NS
Acenaphthene	20	ug/l	0.12 I	NS	NS
Fluoranthene	280	ug/l	0.037 I	NS	NS
Phenanthrene	210	ug/l	0.32	NS	NS
FL-PRO (TRPH)	5	mg/l	0.75	1.0 J3	0.094 U

Notes:

<sup>(1)</sup> Maximum Contaminant Level (MCL) or Secondary Drinking Water Standard (SDWS), per Chapter 62-550 or Chapter 62-777.

<sup>(2)</sup> Miami-Dade sanitary sewer discharge limitations and pretreatment standard

Shaded data indicates an exceedence of either the MCL or SDWS

U = Not detected

NS = Not sampled for that parameter

I = Between Method Detection Limit and Practical Quantitation Limit

J3 = Estimated value; value may not be accurate. Spike recovery or RPD outside of criteria

# Site 10

Terrance Towers

FDEP Facility #9806404



# Florida Department of Environmental Protection

Bob Martinez Center  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

Charlie Crist  
Governor

Jeff Kottkamp  
Lt. Governor

Michael W. Sole  
Secretary

July 23, 2010

**CERTIFIED MAIL #7000 0520 0020 9373 7090**  
**RETURN RECEIPT REQUESTED**

Site 10

Mr. Paul Bernstein  
Belle Isle Apartment Corporation  
3 Island Avenue  
Miami Beach, Florida 33139

Subject: Site Rehabilitation Completion Order  
Terrace Towers  
3 Island Avenue  
Miami Beach, Miami-Dade County  
(UT-6443/File-20886)  
FDEP Facility ID# 139806404  
Discharge Date: December 18, 2003 (Non-program)

Dear Mr. Bernstein:

The Miami-Dade County Department of Environmental Resources Management (DERM), on behalf of the Florida Department of Environmental Protection (Department), has reviewed the Site Assessment Report (SAR) and Addenda and No Further Action Proposal (NFAP) dated February 24, 2005, and December 8, 2009 and April 19, 2010 (received March 4, 2005, and December 17, 2009 and June 4, 2010), prepared and submitted by EE&G Environmental Services, LLC (EE&G) for the petroleum product discharge referenced above. All the documents submitted to date are adequate to meet the site assessment requirements of Rule 62-770.600, Florida Administrative Code (F.A.C.). In addition, documentation submitted with the SARs/NFAP confirms that criteria set forth in Subsection 62-770.680(1), F.A.C., have been met. Please refer to the attached maps of the source property and analytical summary tables. The SARs/NFAP is hereby incorporated by reference in this Site Rehabilitation Completion Order (Order). Therefore, you are released from any further obligation to conduct site rehabilitation at the facility for petroleum product contamination associated with the discharge referenced above, except as set forth below.

- (1) In the event concentrations of petroleum products' contaminants of concern increase above the levels approved in this Order, or if a subsequent discharge of petroleum or petroleum product occurs at the facility, the Department may require site rehabilitation to reduce concentrations of petroleum products' contaminants of concern to the levels approved in the SARs/NFAP or otherwise allowed by Chapter 62-770, F.A.C.
- (2) Additionally, you are required to properly abandon all monitoring wells, except compliance wells utilized to meet the release detection requirements of Chapter 62-761 or 62-762, F.A.C., within 60 days of receipt of this Order. The monitoring

*"More Protection, Less Process"*

[www.dep.state.fl.us/waste/categories/pcp/default.htm](http://www.dep.state.fl.us/waste/categories/pcp/default.htm)

wells must be plugged and abandoned in accordance with the requirements of Subsection 62-532.500(4), F.A.C.

### Legal Issues

The Department's Order shall become final unless a timely petition for an administrative hearing is filed under Sections 120.569 and 120.57, Florida Statutes (F.S.), within 21 days of receipt of this Order. The procedures for petitioning for an administrative hearing are set forth below.

Persons affected by this Order have the following options:

- (A) If you choose to accept the Department's decision regarding the SARs/NFAP you do not have to do anything. This Order is final and effective on the date filed with the Clerk of the Department, which is indicated on the last page of this Order.
- (B) If you choose to challenge the decision, you may do the following:
  - (1) File a request for an extension of time to file a petition for an administrative hearing with the Department's Agency Clerk in the Office of General Counsel within 21 days of receipt of this Order; such a request should be made if you wish to meet with the Department in an attempt to informally resolve any disputes without first filing a petition for an administrative hearing; or
  - (2) File a petition for an administrative hearing with the Department's Agency Clerk in the Office of General Counsel within 21 days of receipt of this Order.

Please be advised that mediation of this decision pursuant to Section 120.573, F.S., is not available.

### How to Request an Extension of Time to File a Petition for an Administrative Hearing

For good cause shown, pursuant to Subsection 62-110.106(4), F.A.C., the Department may grant a request for an extension of time to file a petition for an administrative hearing. Such a request must be filed (received) by the Department's Agency Clerk in the Office of General Counsel at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida, 32399-3000, within 21 days of receipt of this Order. Petitioner, if different from Belle Isle Apartment Corporation, shall mail a copy of the request to Belle Isle Apartment Corporation at the time of filing. Timely filing a request for an extension of time tolls the time period within which a petition for an administrative hearing must be made.

### How to File a Petition for an Administrative Hearing

A person whose substantial interests are affected by this Order may petition for an administrative hearing under Sections 120.569 and 120.57, F.S. The petition must contain the information set forth below and must be filed (received) by the Department's Agency Clerk in the Office of General Counsel at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida, 32399-3000, within 21 days of receipt of this Order. Petitioner, if different from Belle Isle Apartment Corporation, shall mail a copy of the petition to Belle Isle Apartment Corporation

at the time of filing. Failure to file a petition within this time period shall waive the right of anyone who may request an administrative hearing under Sections 120.569 and 120.57, F.S.

Pursuant to Subsection 120.569(2), F.S. and Rule 28-106.201, F.A.C., a petition for an administrative hearing shall contain the following information:

- (a) The name, address, and telephone number of each petitioner; the name, address, and telephone number of the petitioner's representative, if any; the facility owner's name and address, if different from the petitioner; the FDEP facility number, and the name and address of the facility;
- (b) A statement of when and how each petitioner received notice of the Department's action or proposed action;
- (c) An explanation of how each petitioner's substantial interests are or will be affected by the Department's action or proposed action;
- (d) A statement of the disputed issues of material fact, or a statement that there are no disputed facts;
- (e) A statement of the ultimate facts alleged, including a statement of the specific facts the petitioner contends warrant reversal or modification of the Department's action or proposed action;
- (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the Department's action or proposed action; and
- (g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the Department to take with respect to the Department's action or proposed action.

This Order is final and effective on the date filed with the Clerk of the Department, which is indicated on the last page of this Order. Timely filing a petition for an administrative hearing postpones the date this Order takes effect until the Department issues either a final order pursuant to an administrative hearing or an Order Responding to Supplemental Information provided to the Department pursuant to meetings with the Department.

#### Judicial Review

Any party to this Order has the right to seek judicial review of it under Section 120.68, F.S., by filing a notice of appeal under Rule 9.110 of the Florida Rules of Appellate Procedure with the Department's Agency Clerk in the Office of General Counsel at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida, 32399-3000, and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate district court of appeal. The notice of appeal must be filed within 30 days after this Order is filed with the Department's clerk (see below).

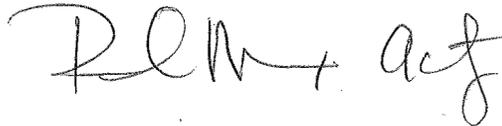
#### Questions

Any questions regarding DERM's review of your SARs/NFAP should be directed to Vishal Katoch, P.G. at (305) 372-6700. Questions regarding legal issues should be referred to the Department's Office of General Counsel at (850) 245-2242. Contact with any of the above does not constitute a petition for an administrative hearing or a request for an extension of time to file a petition for an administrative hearing.

Mr. Paul Bernstein  
FDEP Facility ID# 139806404  
July 23, 2010  
Page four

The FDEP Facility Number for this facility is 139806404. Please use this identification on all future correspondence with the Department or DERM.

Sincerely,

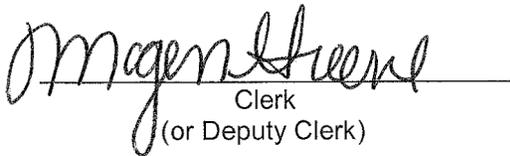


Michael E. Ashe, Chief  
Bureau of Petroleum Storage Systems

MEA/vk  
Attachments

ec: Stephen E. Brown, FDEP Southeast - Stephen.E.Brown@dep.state.fl.us  
Wilbur Mayorga, P.E. - Miami-Dade County DERM - MayorW@miamidade.gov  
Craig C. Clevenger, P.G. - EE&G - cclevenger@eeandg.com  
cc: File

FILING AND ACKNOWLEDGMENT  
FILED, on this date, pursuant to  
§120.52 Florida Statutes, with the  
designated Department Clerk, receipt  
of which is hereby acknowledged.

  
Clerk  
(or Deputy Clerk)

  
Date

P.G. CERTIFICATION

Site Assessment Report Addendum and No Further Action Proposal dated April 19, 2010 (received June 4, 2010), for Terrace Towers, located at 3 Island Avenue, Miami Beach, FDEP Facility ID# 139806404, DERM UT-6443/File#20886.

I hereby certify that in my professional judgment, the components of this Site Assessment Report Addendum and No Further Action Proposal along with the previously submitted Site Assessment Report dated February 24, 2005 and Site Assessment Report Addendum dated December 8, 2009 prepared for the December 18, 2003 petroleum product discharge discovered at the above-referenced facility satisfy the requirements set forth in Chapter 62-770, Florida Administrative Code (F.A.C.), and that the conclusions in this report provide reasonable assurances that the site rehabilitation objectives stated in Chapter 62-770, F.A.C., have been met.

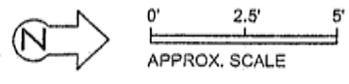
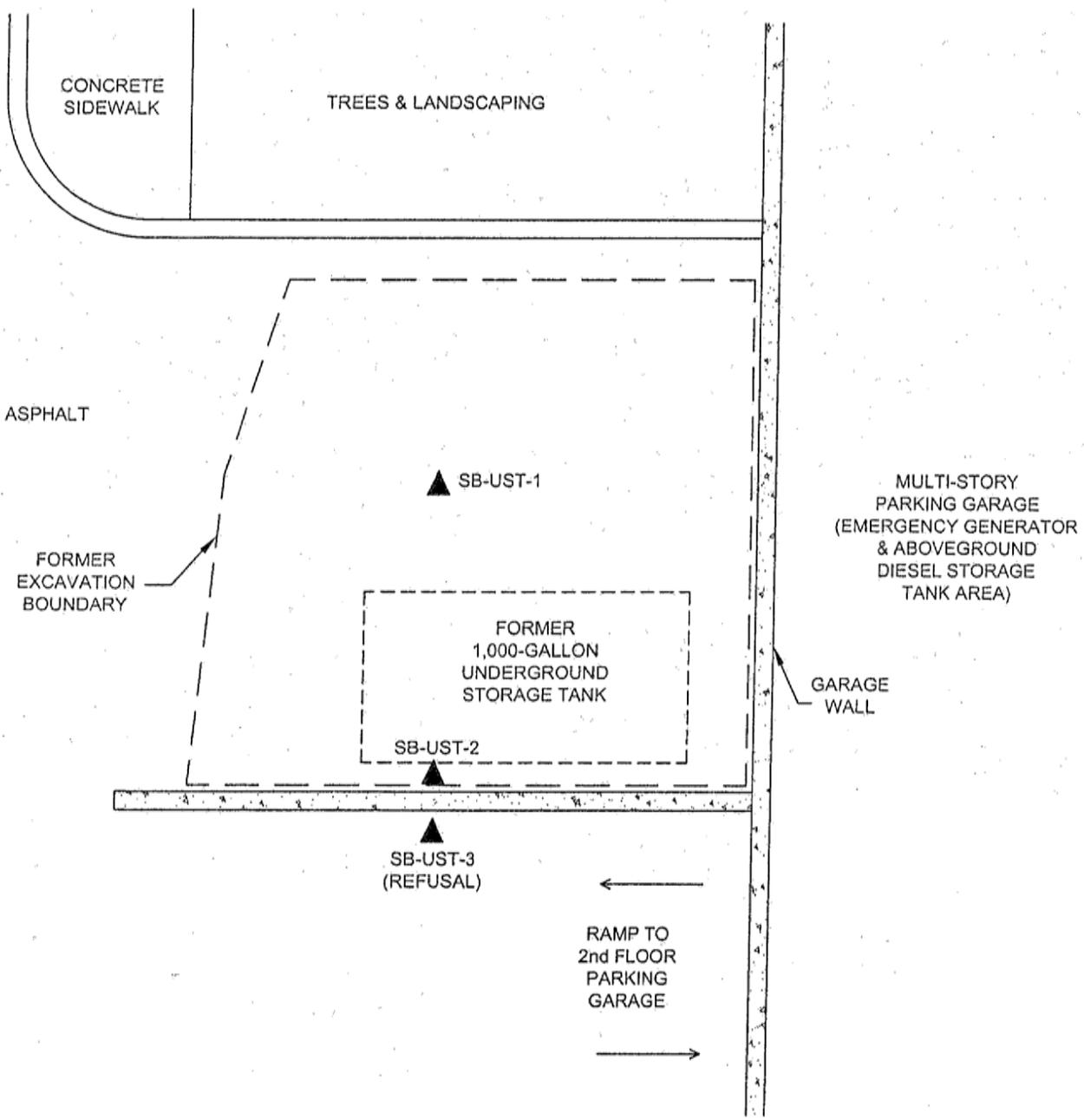
I personally completed this review.

This review was conducted by Vishal Katoch, P.G. working under my direct supervision.



\_\_\_\_\_  
Thomas Kux, P.G.  
Professional Geologist #2247

7/9/10  
\_\_\_\_\_  
Date



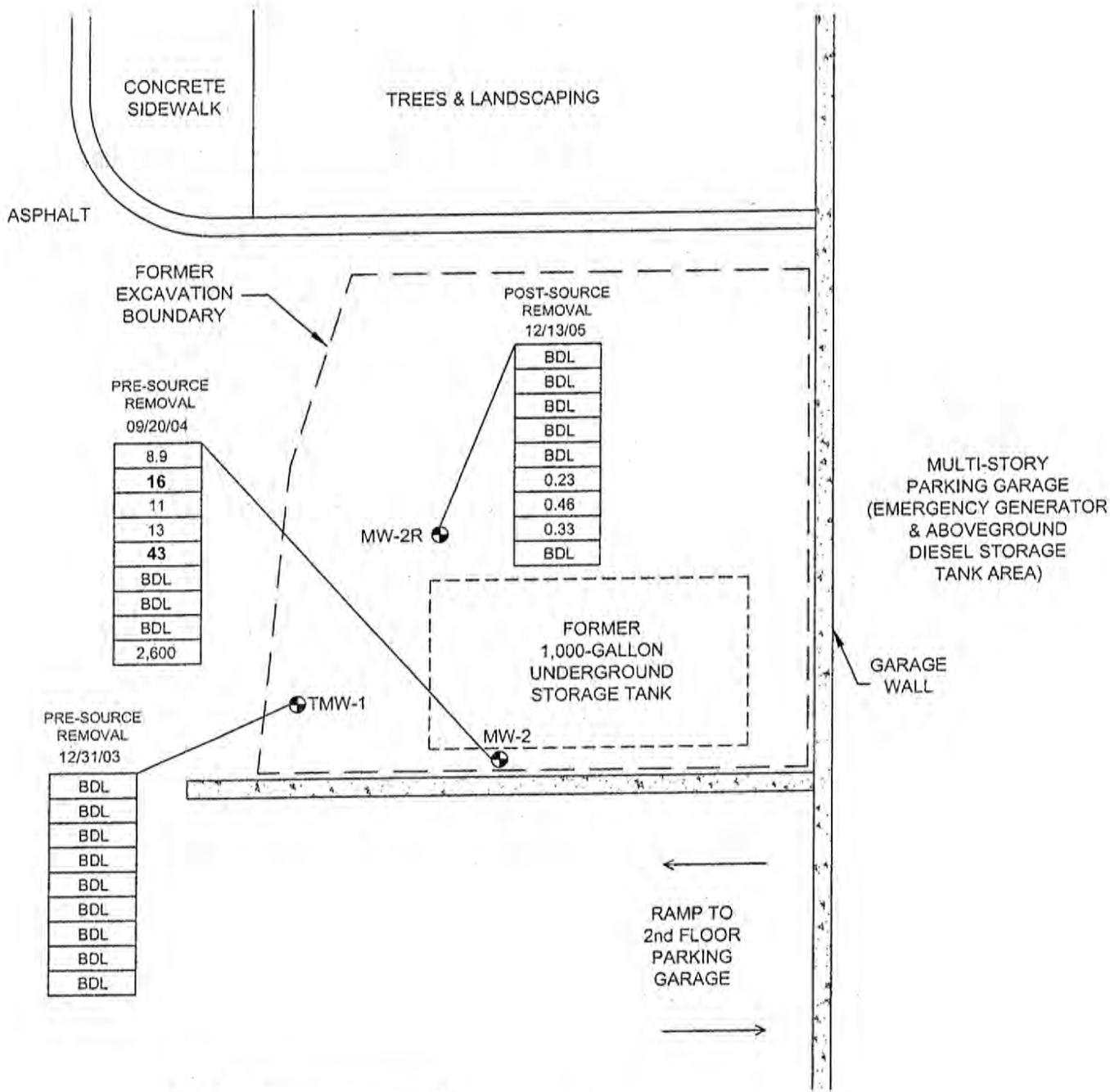
ENVIRONMENTAL SERVICES, LLC  
 14505 COMMERCE WAY, SUITE 400  
 MIAMI LAKES, FLORIDA 33016  
 (305) 374-8300  
 (305) 374-9004 FAX

TERRACE TOWERS CONDOMINIUM  
 3 ISLAND AVENUE WEST  
 MIAMI BEACH, FL

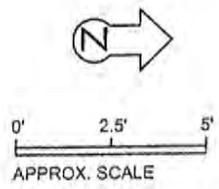
APRIL 09, 2010  
 SOIL BORING MAP

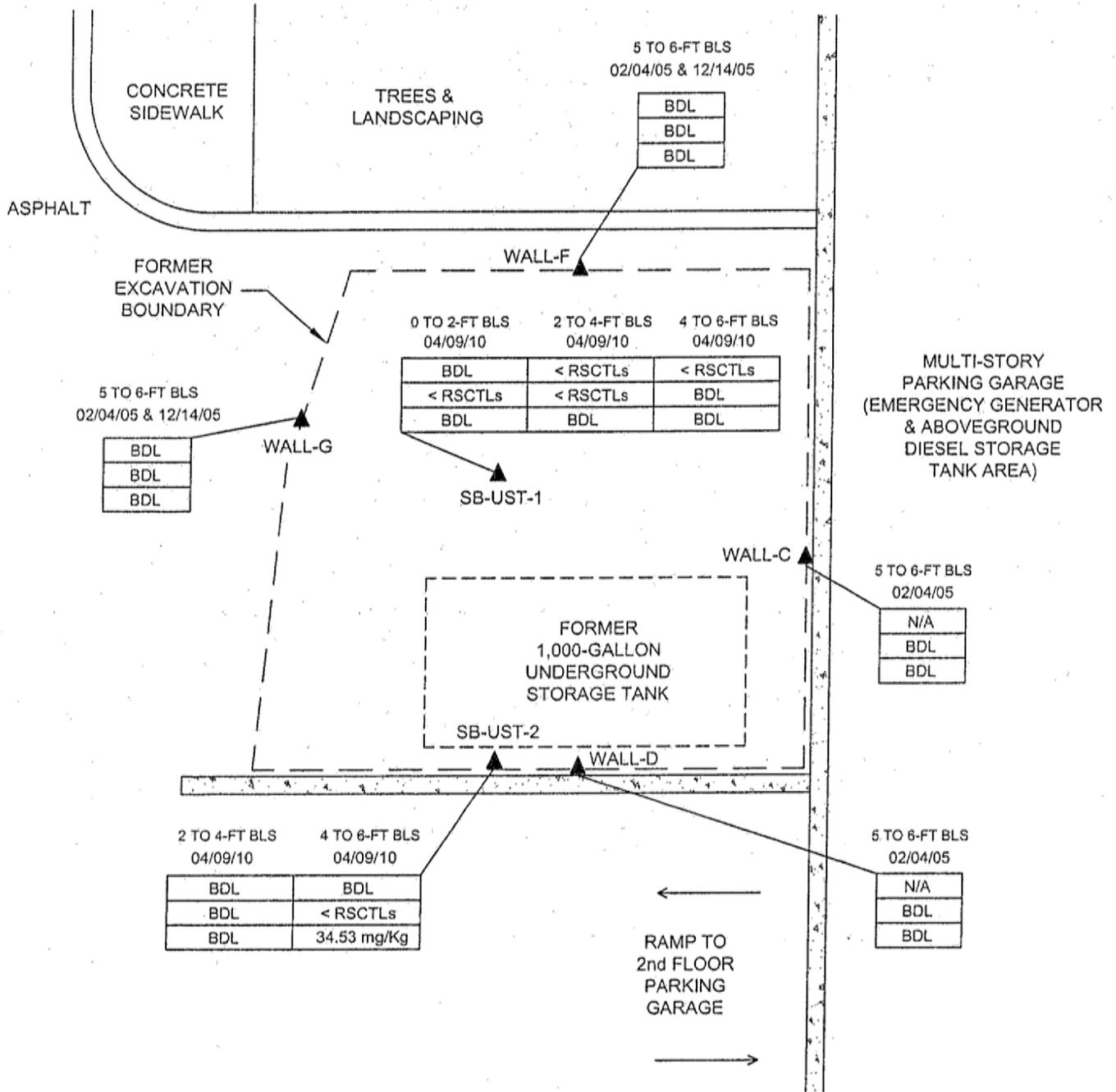
Date: 04/19/10  
 Project #: 2010-3090  
 Drawn by: 1A  
 Cad File: FIG2  
 Scale: As Noted

FIGURE  
 2



1	MTBE
2	BENZENE
3	TOLUENE
4	ETHYLBENZENE
5	XYLENES
6	NAPHTHALENE
7	1-METHYLNAPHTHALENE
8	2-METHYLNAPHTHALENE
9	TPH



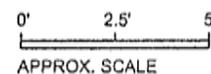


**LEGEND:**

VOA
PAH
TPH

RSCTL = RESIDENTIAL SOIL CLEANUP TARGET LEVELS

BDL = BELOW LABORATORY REPORT LIMITS & RSCTL



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TERRACE TOWERS CONDOMINIUM  
3 ISLAND AVENUE WEST  
MIAMI BEACH, FL

NFAP MAP  
SOILS

Date: 04/20/10
Project # 2010-3090
Drawn by: IA
Cad File: FIGB
Scale: As Noted

FIGURE  
B

**TABLE A**  
**NFAP SUMMARY OF GROUNDWATER ANALYTICAL RESULTS**  
**TERRACE TOWER CONDO**  
**3 ISLAND AVENUE, MIAMI BEACH, FLORIDA**

Parameter	GCTL *	NADSC *	Sample Designation		
			TMW-1 12/31/03	MW-2 09/20/04	MW-2R 12/13/05
<b>VOC</b>					
Benzene	1	100	< 1.0	16	< 1.0
Toluene	40	400	< 1.0	11	< 1.0
Ethylbenzene	700	7,000	< 1.0	13	< 1.0
Total Xylenes	20	200	< 1.0	43	< 1.0
Methyl-Tert-Butyl Ether	20	200	< 1.0	8.9	< 1.0
<b>PAH</b>	**	**			
Naphthalene	14	140	< 0.10	< 0.10	0.23
1-Methylnaphthalene	28	280	< 0.10	< 0.10	0.46
2-Methylnaphthalene	28	280	< 0.10	< 0.10	0.33
Acenaphthene	20	200	< 0.10	< 0.10	0.96
Fluorene	280	2,800	< 0.10	< 0.10	< 0.10
Fluoranthene	280	2,800	< 0.10	< 0.10	< 0.10
Phenanthrene	210	2,100	< 0.10	< 0.10	0.34
<b>TPH by FL-PRO</b>	5,000	50,000	< 400	2,600	< 650

**Notes:**

Results are in micrograms per liter (ug/L)

**Bold =** Indicates value in excess of cleanup criteria

**U -** Analytical result below the laboratory method reporting limit.

**VOAs =** Volatile Organic Aromatics

**PAH =** Polynuclear Aromatic Hydrocarbons

**TPH =** Total Petroleum Hydrocarbon

Groundwater Cleanup Target Level (GCTL)  
 Natural Attenuation Default Source Concentration (NADSC).  
 NS = No Cleanup Standards

*All Data Taken From Previous FEE Reports  
 EE&G did not collect or report this data &  
 cannot be responsible for the accuracy of the data*

**TABLE B**  
**NFAP SUMMARY**  
**POST-SOURCE REMOVAL**  
**SOIL ANALYTICAL RESULTS**  
**TERRACE TOWERS CONDO**  
**3 ISLAND DRIVE, MIAMI BEACH, MIAMI-DADE COUNTY, FLORIDA**

Parameter	Soil Cleanup Target Levels			Sample Designation Date Collected Interval Sampled (ft)	Wall C 2/4/05 5 - 6-ft BLS	Wall D 2/4/05 5 - 6-ft BLS	Wall F 2/4/05 5 - 6-ft BLS	Wall G 2/4/05 5 - 6-ft BLS	SB-UST-1 4/9/10 0 - 2 ft BLS	SB-UST-1 4/9/10 2 - 4 ft BLS	SB-UST-1 4/9/10 4 - 6 ft BLS	SB-UST-2 4/9/10 2 - 4 ft BLS	SB-UST-2 4/9/10 4 - 6 ft BLS
	Residential 460	Commercial 2,500	Leachability 340										
TPHs - FL-PRO (mg/Kg)	Varies Per Compounds				< 31	< 32	< 25	< 25	< 0.01	< 0.01	< 0.01	< 0.01	34.53
VOAs - 8260B (mg/Kg)	Varies Per Compounds						(VOA - 12/14/05)	(VOA - 12/14/05)					
Benzene	1.2	1.7	0.007		N/A	N/A	< 0.0012	< 0.0019	< 0.00049	< 0.00047	< 0.00038	< 0.00044	< 0.00049
Toluene	7,500	60,000	0.5		N/A	N/A	< 0.00026	< 0.0048	< 0.00057	< 0.00054	< 0.00044	< 0.00051	< 0.00057
Ethyl Benzene	1,500	9,200	0.6		N/A	N/A	< 0.00033	< 0.0048	< 0.00119	< 0.00113	< 0.00092	< 0.00107	< 0.00119
Total Xylenes	130	700	0.2		N/A	N/A	< 0.0011	< 0.0048	< 0.00387	< 0.00364	< 0.00298	< 0.00352	< 0.00387
MTBE	4,400	24,000	0.09		N/A	N/A	< 0.00032	< 0.048	< 0.00072	0.001489	0.001495	0.000968	< 0.00072
Other VOA Compounds	Varies Per Compounds				N/A	N/A	BDL	BDL	BDL	BDL	BDL	BDL	BDL
PAHs - 8270D (mg/Kg)	Varies Per Compounds												
Naphthalene	55	300	1.2		< 0.15	< 0.16	< 0.12	< 0.12	< 0.00137	< 0.00137	< 0.00137	< 0.00137	< 0.00137
1-Methylnaphthalene	200	1,800	3.1		< 0.15	< 0.16	< 0.12	< 0.12	< 0.00045	< 0.00045	< 0.00045	< 0.00045	< 0.00045
2-Methylnaphthalene	210	2,100	8.5		< 0.31	< 0.16	< 0.12	< 0.12	< 0.00066	< 0.00066	< 0.00066	< 0.00066	< 0.00066
Benzol(a)pyrene	0.1	0.7	8.0		< 0.092	< 0.097	< 0.074	< 0.074	0.011368	< 0.00048	< 0.00048	< 0.00048	< 0.00066
Benzol(a)anthracene	#	#	0.8		< 0.15	< 0.16	< 0.12	< 0.12	0.006337	< 0.00048	< 0.00048	< 0.00048	0.006535
Benzol(b)fluoranthene	#	#	2.4		< 0.15	< 0.16	< 0.12	< 0.12	0.019158	< 0.00053	< 0.00053	< 0.00053	0.018832
Benzol(k)fluoranthene	#	#	24		< 0.15	< 0.16	< 0.12	< 0.12	0.005663	< 0.00056	< 0.00056	< 0.00056	0.00651
Chrysene	#	#	77		< 0.15	< 0.16	< 0.12	< 0.12	0.007916	< 0.00054	< 0.00054	< 0.00054	0.007054
Dibenzol(a,h)anthracene	#	#	0.7		< 0.092	< 0.097	< 0.074	< 0.074	< 0.00066	< 0.00066	< 0.00066	< 0.00066	< 0.00066
Indenol(1,2,3-cd)pyrene	#	#	6.6		< 0.15	< 0.16	< 0.12	< 0.12	0.007653	< 0.00047	< 0.00047	< 0.00047	< 0.00047
Phenanthrene	2,200	3,600	250		< 0.15	< 0.16	< 0.12	< 0.12	0.008968	0.002203	< 0.00052	< 0.00052	< 0.00047
Fluoranthene	3,200	59,000	1,200		< 0.15	< 0.16	< 0.12	< 0.12	0.016211	0.002246	< 0.00051	< 0.00051	0.007698
Anthracene	21,000	300,000	2,500		< 0.15	< 0.16	< 0.12	< 0.12	0.001421	< 0.00036	< 0.00036	< 0.00036	0.018936
Pyrene	2,400	45,000	880		< 0.15	< 0.16	< 0.12	< 0.12	0.013283	0.001728	< 0.00043	< 0.00043	< 0.00036
Other PAH Compounds	Varies Per Compounds				BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
BAP Equivalent Concentrations	0.1	0.7	N/A		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1

Notes:  
 All values reported in milligrams per kilogram (mg/Kg)  
 Soil cleanup target levels as established in Chapter 62-777, FAC  
 BDL = Detected value in excess of cleanup criteria  
 # = Below laboratory method reporting limits (and SCTLs)  
 # = Must be converted to benzo(a) pyrene equivalent

Results for Wall C, D, F & G were taken from previous FEE reports  
 FEE&G cannot be responsible for the accuracy of that data  
 FEE&G collected samples SB-UST-1 and SB-UST-2

**SOURCE REMOVAL & ASSESSMENT REPORT**

**Terrace Towers Condominiums  
3 Island Avenue, Miami Beach, FL. 33139  
FDEP#139806404/UT-6443/F-20886**

F.E.E. PROJECT # 24231IRA

DATE: February 24, 2005

SUBMITTED BY:

FLORIDA ENVIRONMENTAL ENGINEERING, INC.  
1301 WEST COPANS ROAD #G3  
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PHONE: (954) 972-3223  
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PREPARED BY:

  
ANDRO M. DECKER  
SR. PROJECT MANAGER

I Wayne A. Terwilliger, P.E. (# 49160) certify that I currently hold an active license in the State of Florida and am competent through education and experience to provide the engineering service contained in this report. I further certify that in my professional judgment this report meets the requirements of section 62-770 for initial remedial action, and was prepared under my responsible charge. Moreover, I certify that Florida Environmental Engineering Inc. hold an active certificate of authorization #6574 to provide engineering service.

  
WAYNE A. TERWILLIGER, P.E., REPA #3006, CHMM #5048, CFEA #56  
ENVIRONMENTAL ENGINEER

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## 1.0 INTRODUCTION

Based on the findings made during the Tank Closure Assessment Report (TCAR) prepared for the Terrace Towers Condominium facility (subject site) located at 3 Island Avenue, Miami Beach, Florida. A Site Location Map based on the United States Geological Survey Topographic 7.5 Minute Series is provided as **Figure 1**. FEE prepared the TCAR dated January 19, 2004. Following review of the TCAR by Miami-Dade County Environmental Resources Management (DERM), additional assessment was required in the area of the formerly abandoned 1,000-gallon underground petroleum/diesel fuel storage tank (UST). A copy of DERM correspondence is included as **Appendix A**.

Subsequently, FEE performed Limited Site Assessment Report (LSAR) in the abandoned UST area of the subject site. LSAR activities confirmed the presence of Petroleum Products' Contaminants of Concern (COCs) at concentrations exceeding the Florida Department of Environmental Protection's (FDEP) Soil & Groundwater Cleanup Target Levels (SCTLs & GCTLs). Petroleum-contaminated soil and groundwater were identified in the area of the abandoned UST. Site maps depicting the subject abandoned UST area, LSAR soil and groundwater laboratory analytical results are provided as **Figure 2** and **Figure 3**, respectively.

Due to the findings made, verbal notification and a proposed/recommended course of action were discussed with DERM. FEE recommended remediation of readily accessible contaminated source material (soil). Since contaminated soil has been identified in the immediate proximity (to within feet of the east side) of the abandoned UST, the most cost-effective and logical approach to soil remediation was determined to be source removal and disposal/recycle of the abandoned UST and concrete; followed by contaminated soil excavation, transport, and disposal/recycle; and post-excavation source area closure assessment. The scope-of-work was formulated to meet the applicable requirements of Chapter 62-770 F.A.C. FEE was subsequently authorized by DERM to conduct source removal activities in response to the referenced discharge.

The attached tables and figure (**Tables 1 thru 4 and Figures 2 & 3**) summarize the laboratory analytical results from the soil and groundwater samples and locations collected during the LSAR. The FDEP SCTLs & GCTLs are included in the tables for comparison with the analytical results. COC concentrations exceeding their respective SCTLs and GCTLs are indicated in "**Bold**" type in the analytical summary tables.

## **2.0 SOURCE REMOVAL AND ASSESSMENT**

### **2.1 UNDERGROUND STORAGE TANK**

Source removal and assessment (SRA) activities were conducted from January 28, 2005 to February 4, 2005. The source removal scope-of-work included excavation, removal, and recycle/disposal of the abandoned underground storage tank (UST) and petroleum impacted soils. FEE was the designated tank removal contractor Pollutant Storage Systems Specialty Contractor (PSSSC) license #053988.

According to the Tank Closure Assessment report prepared by Florida Environmental Engineering, Inc. (FEE), the UST had been previously cut open, pressure cleaned, filled with concrete, and abandoned in place in December 2003. The abandoned UST was a 1,000-gallon steel tank that formerly stored diesel fuel for the facility's emergency generator. The bottom of the tank was found to be at approximately 6-feet below land surface (bls).

The abandoned UST was excavated, removed, and cut open and divided into manageable pieces. The UST was found to have significant pitting and visual evidence of petroleum leakage/sweating was noticeable. See **Photographs** included in **Appendix B**. The concrete was removed in this process and was segregated for separate handling. The UST steel was transported off-site to M&P Track Parts & Scrap Iron at 3680/4150 S.W. 47<sup>th</sup> Avenue, Fort Lauderdale, Florida for recycling. The receiving facility material receipt is included in **Appendix C**.

### **2.2 SOIL CONTAMINATION DELINEATION, REMOVAL AND DISPOSAL**

#### **2.2.1 EXCAVATION AND ORGANIC VAPOR SCREENING**

The source area excavation was limited to approximately 17' x 16' x 10' depth. The excavation was limited to the extent allowable by existing structures and water table depth encountered during excavation. The limits of the excavation and structures in the area are shown in the Soil Excavation Plan Map, **Figure 4**. Specifically, the excavation was limited in the northern direction by the multi-story parking garage, in the eastern direction by the parking garage access ramp, in the western direction by the parking area curb and landscaped area (containing a large tree), and in the southern direction by the facility's main access driveway.

Soils were screened continuously during the excavation using a Heath-tech Porta-FID II and Organic Vapor Analyzer equipped with a Flame Ionization Detector. Soils (OVA) were split into two 16 oz. glass jars and were sealed for a minimum five-minute stabilization period prior to screening for organic vapors. Correction for methane vapor content was

accomplished using in-line charcoal filter units. Any detected methane concentrations are then subtracted from the total unfiltered vapor concentration deriving the "net" organic vapor concentration attributable to petroleum hydrocarbon vapors. Soil Organic Vapor Analysis (OVA) screening sample exploration locations are depicted on **Figure 4**. Soil Organic Vapor Analysis (OVA) field screening/Soil Boring Logs are included as **Appendix D** and are summarized in the following table.

**Table 1**  
**ORGANIC VAPOR ANALYSIS RESULTS**

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT)	SAMPLE TYPE	UN-FILTERED READING (PPM)**	FILTERED READING (PPM)**	CORRECT FID
Wall A	1	2	See Explorations of Wall A2	0	--	0
"	2	4	"	100	20	80
"	3	6	"	2400	600	1800
"	4	8	"	4200	1000	3200
"	5	10	"	1200	200	1000
Wall B	6	2	See Explorations of Wall B2	0	--	0
"	7	4	"	0	--	0
"	8	6	"	650	200	450
"	9	8	"	800	300	500
"	10	10	"	3300	1000	2300
Wall C	11	2	Concrete Garage Footer	--	--	--
"	12	4	Concrete Garage Footer	--	--	--
"	13	6	Brown medium-fine sand	1500	400	1100
"	14	8	Gray medium-fine sand w/silt	2500	1000	1500
"	15	10	Organic layer (Peat)	>5000	1500	>3500
Wall D	16	6	Brown medium-fine sand	>5000	1000	>4000

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT)	SAMPLE TYPE	UN-FILTERED READING (PPM)**	FILTERED READING (PPM)**	CORRECT FID
"	17	8	Gray medium-fine sand w/silt	2000	200	1800
"	18	10	Organic layer (Peat)	>5000	3000	>2000
Pit Center	19	9	Gray medium-fine sand w/silt	250	50	200
"	20	10	Organic layer (Peat)	1000	200	800
Wall A2	1a	2	Tan fine sand	0	--	0
"	2a	4	"	0	--	0
"	3a	6	Brown medium-fine sand	2000	500	1500
"	4a	8	Gray medium-fine Sand w/silt	3800	1000	2800
"	5a	10	Organic layer (Peat)	1000	300	700
Wall B2	6a	2	Same as Wall A2	0	--	0
"	7a	4	"	0	--	0
"	8a	6	"	400	100	300
"	9a	8	"	500	200	300
"	10a	10	"	2500	1000	1500
Wall E	21	2	Tan fine sand	0	--	0
"	22	4	"	0	--	0
"	23	6	Brown medium-fine sand	2000	200	1800
"	24	8	Gray medium-fine Sand w/silt	>5000	500	>4500
"	25	10	Organic layer (Peat)	Too Wet --	--	--
Wall F	26	2	Same as Wall E	0	--	0
"	27	4	"	0	--	0
"	28	6	"	3000	1500	1500

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT)	SAMPLE TYPE	UN-FILTERED READING (PPM)**	FILTERED READING (PPM)**	CORRECT FID
"	29	8	"	>5000	500	>4500
"	30	10	"	Too Wet --	--	--
Wall G	31	2	Tan fine sand	0	--	0
"	32	4	"	0	--	0
"	33	6	Brown medium-fine sand	1700	200	1500
"	34	8	Gray medium-fine Sand w/silt	4500	500	3000
"	35	10	Organic layer (Peat)	Too Wet --	--	--
Wall H	36	2	Same as Wall G	0	--	0
"	37	4	"	0	--	0
"	38	6	"	1600	500	1100
"	39	8	"	3200	1000	2200
"	40	10	"	Too Wet --	--	--

-- = Not Applicable/Not Sampled/Not Analyzed

Following UST removal and handling, soils were then excavated from the land surface grade to a total depth of approximately 10' across the source area. During source removal activities, the asphalt surface pavement and concrete tank slab were broken into manageable pieces using a jackhammer and segregated separately.

During FEE's initial excavation activities it was determined that the water table at the site is effected by a tidal flux of approximately 4 ft. from between 6' bls to 10' bls. Due to this flux FEE was able to excavate smear zone/saturated zone soils to a total depth of 10' bls. Once the abandoned tank was removed, it was determined that the bottom was in contact with the water table during high tide events at approximately 6' bls. Based on this observation and field OVA screening, no vadose zone soils were found to be impacted by the former discharge.

Field OVA screening yielded a relatively high ratio of methane response compared to "net" organic vapors attributable to petroleum hydrocarbon vapors. Due to the presence of

significant concentrations of petroleum hydrocarbon vapors and methane, OVA screening data did not correlate well with the majority of laboratory analytical results.

The overburden clean soil was OVA screened, excavated, and segregated where possible for use as supplemental backfill material. No petroleum product saturated soil or free-floating product was identified during source removal activities. During excavation activities some soil material from the sidewalls caved into the bottom of the excavation. This required some additional excavation from the bottom and sidewalls be conducted to the limits of accessibility. The petroleum-impacted soil was excavated, placed on and covered with Visqueen plastic sheeting containment for subsequent loading and transport off-site. See **Photographs** included in **Appendix B**.

Soils were excavated to a maximum depth of ten (10) feet at which depth the water table was encountered initially. Based on observations within the excavation, it was subsequently determined that the water table fluctuates from approximately 6' to 10' below land surface (bls) at this location on the site. Subsurface soils from beneath the asphalt layer (~3 - 5-inches) were found to consist of crushed limerock road base followed by light brown/tan fine sand to 6' bls. Brown medium-fine sand was identified from 6' to 8' bls, followed by gray medium-fined sand with silt to a depth of 9' where a layer of organic "peat" was encountered from between 9 and 10' bls. Some roots of the nearby tree were also encountered. Care was taken not to damage larger taproots of the tree found in the northwest corner area of the excavation.

Both existing groundwater monitoring wells (TMW-1 & MW-2) required removal during excavation activities. A monitoring well located centrally within the excavation is recommended for post-source removal groundwater sampling and laboratory analysis. Based on groundwater analytical results additional monitoring wells may be required.

### **2.2.2 TRANSPORT AND DISPOSAL**

A representative composite soil sample was collected from the excavated soil stockpile and laboratory analyzed for the required waste characterization parameters. All sampling was performed in accordance with State of Florida Department of Environmental Protection (FDEP) Standard Operating Procedures DEP (SOP-001 April 2002). The soil analytical results indicated the contaminated soil was acceptable for transport and receipt at the Waste Management, Inc. facility located at 3000 NW 48<sup>th</sup> Street, Pompano Beach, Florida.

A total of 73.38 tons of petroleum-impacted soil, concrete and asphalt were excavated, removed and transported off-site to the receiving facility for disposal. Adonis Sanchez, Inc., a Florida licensed trucking company, transported the waste materials to the receiving facility. The soil disposal manifests and facility weigh tickets are included as **Appendix E**.

### **2.2.3 LABORATORY CONFIRMATION ANALYSIS**

Soil confirmation verification samples were retrieved at approximately 6' bls from the north, south, east and west sidewalls and the bottom of the excavation at approximately 10' bls for verification. Samples were analyzed for diesel fuel related contaminants of concern by the following parameters: EPA Method 8270 for Polynuclear Aromatic Hydrocarbons (PAHs) and FL-PRO for Total Recoverable Petroleum Hydrocarbons (TRPH).

The soil sample locations and summary of analytical results are shown on **Figure 5**. Soil laboratory analyses confirmed the sidewall limits of excavation and removal of petroleum-contaminated materials (above the water table to 6' bls and smear zone to 10' bls). No COCs were detected in sidewall samples at concentrations in excess of SCTLs. All sidewall sample results were reported as "BDL" or less than their respective constituent reportable limits. TRPH was detected in the excavation bottom sample (Pit Center @10') at a concentration in excess of the FDEP SCTL. Although laboratory analysis of the Pit Center @10' soil confirmation sample yielded TRPH at a concentration in excess of SCTLs, it is FEE's opinion that the sample is more likely representative of the saturated zone and dissolved-phase contaminant levels vs. unsaturated soil. This sample was not be speciated for TRPH, due to an expired laboratory sample holding time. Based on FEE's experience, it is likely that speciation analysis of TRPH would have yielded concentrations less than SCTLs.

Soil analytical results are summarized in **Tables 1 thru 4** (soil and groundwater summary includes only samples with detectable levels of contaminants). Copies of the laboratory chain-of-custodies and analytical reports from the LSAR and SRAR activities are included in **Appendix F**.

### **2.3 SITE RESTORATION**

Following completion of source removal and assessment activities, the excavation was backfilled with clean lake-sand (tan medium grained sand) and compacted in approximate 12" lifts. The area was then backfilled with clean crushed limerock and compacted in 6" lifts to just below grade. The area was then re-surfaced with asphalt and compacted. The area was restored for use as parking space(s) upon completion.

### **3.0 CONCLUSIONS**

1. The formerly abandoned 1,000-gallon steel tank has been removed and transported to a receiving facility for proper recycling as scrap metal.
2. Source removal activities excavated a total of 73.38 tons of material including petroleum-contaminated soils, asphalt and concrete. The excavated materials were removed and transported to a State-certified waste management facility for proper handling. The excavated area was backfilled with clean fill and compacted, resurfaced with asphalt and returned to use as parking space.
3. No free-floating product was identified during source removal activities.
4. Soil laboratory analyses confirmed the sidewall limits of excavation and removal of petroleum-contaminated materials. No COCs were detected in sidewall samples at concentrations in excess of SCTLs. TRPH was detected in the excavation bottom (Pit Center @10') sample at a concentration in excess of the FDEP SCTL. Although laboratory analysis of the Pit Center @10' soil confirmation sample yielded TRPH at a concentration in excess of SCTLs, it is FEE's opinion that the sample is more likely representative of the saturated zone and dissolved-phase contaminant levels vs. unsaturated soil. Further, based on FEE's experience, it is likely that speciation analysis of TRPH would have yielded concentrations less than SCTLs.
5. Based on the results of source removal and assessment activities, and in consideration of site excavation constraints, it is FEE's opinion that the petroleum contaminant source mass in soils at the capillary fringe of the water table (~6' bls) and within the smear zone (~6' to 10' bls) of the former abandoned tank location has been remediated to the extent feasible.

### **4.0 RECOMMENDATIONS**

1. Based on the previous groundwater concentrations detected at levels in excess of GCTLs and the saturated zone soil sample indicating the presence of TRPH at a concentration in excess of SCTLs. A monitoring well should be installed within the center of the former UST area of excavation and a groundwater sample should be collected. The groundwater sample should be submitted for laboratory analysis for diesel fuel contaminants of concern including EPA Method 8270 Polynuclear Aromatic Hydrocarbons (PAHs) and FL-PRO for Total Recoverable Petroleum Hydrocarbons (TRPH).

**TABLES**

**TABLE 1: SOIL CONCENTRATION SUMMARY  
VOLATILE ORGANIC AROMATICS**

Facility Name: Terrace Towers Condominiums

Address: 3 Island Avenue, Miami Beach, Florida

Facility ID#: N/A

-- = Not Applicable/ Not Sample / Not Analyzed

All concentrations mg/kg

Well / Location ID	Date	Benzene	Ethylbenzene	Toulene	Total Xylenes
SCTLs <sup>1</sup>	08/05/99	0.007	0.6	0.5	0.2
SCTLs <sup>2</sup>	08/05/99	1.1	1,100	380	5,900
SB-1 (4'-6')	12/18/03	<0.12	<0.12	<0.12	<0.12
SB-5 (5'-6')	09/17/04	<b>0.0086</b>	<b>0.61</b>	0.2	<b>2.3</b>
Pit Center (10')	<b>02/01/05</b>	--	--	--	--

<sup>1</sup> SCTLs - Florida Department of Environmental Protection (FDEP) - Soil Cleanup Target Levels (SCTLs) for Leachability-Groundwater Criteria per Chapter 62-777, F.A.C. (effective August 5, 1999).

<sup>2</sup> SCTLs - Florida Department of Environmental Protection (FDEP) - Soil Cleanup Target Levels (SCTLs) for Direct Exposure Residential per Chapter 62-777, F.A.C. (effective August 5, 1999).

**BOLD** value indicates concentration exceeds either SCTL.

**TABLE 2: SOIL CONCENTRATION SUMMARY  
POLYNUCLEAR AROMATIC HYDROCARBONS & TRPH**

Facility Name: Terrace Towers Condominiums  
Address: 3 Island Avenue, Miami Beach, Florida  
Facility ID#: N/A

All concentrations mg/kg

-- = Not Applicable / Not Sampled / Not Analyzed

Location ID	Date	Acenaphthene	Acenaphthylene	Anthracene	Chrysene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	1-Methylnaphthalene	2-Methylnaphthalene	Naphthalene	Phenanthrene	Pyrene	TRPH C10-C28	TRPH Speciation Class			
															Aromatic C12-C16	Aliphatic C10-C12	Aliphatic C12-C16	Aliphatic C16-C35
SCTLs <sup>1</sup>	08/05/99	2.1	27	2,500	77	1,200	160	28	2.2	6.1	1.7	250	880	340	1,000	1,300	2,300	32,000
SCTLs <sup>2</sup>	08/05/99	1,900	1,100	18,000	140	2,900	2,200	1.5	68	80	40	2,000	2,200	340	1,200	51,000	1,000,000	1,000,000
SB-1 (4'-6')	12/18/03	0.74	2.10	<0.0033	0.63	7.20	0.76	<0.0033	0.87	0.53	0.10	1.70	1.30	<b>8,000</b>	<320	<b>1,300</b>	<b>7,800</b>	<b>11,000</b>
SB-5 (5'-6')	09/17/04	<b>2.3</b>	1.2	1.4	0.41	12	2.6	0.012	18	<b>9.9</b>	<b>2.5</b>	7.1	<0.0033	<b>370</b>	420	400	1,200	600
Pit Center (10')	02/01/05	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	0.26	<0.26	<0.13	0.25	<0.13	<b>450</b>	Lab "Hold" time exceeded, parameters could not be analyzed.			

<sup>1</sup> SCTLs - Florida Department of Environmental Protection (FDEP) - Soil Cleanup Target Levels (SCTLs) for Leachability Groundwater Criteria per Chapter 62-777, F.A.C. (effective August 5, 1999)

<sup>2</sup> SCTLs - Florida Department of Environmental Protection (FDEP) - Soil Cleanup Target Levels (SCTLs) for Direct Exposure Residential per Chapter 62-777, F.A.C. (effective August 5, 1999)

**BOLD** value indicates concentration exceeds either SCTL

### TABLE 3: GROUNDWATER CONCENTRATION SUMMARY VOLATILE ORGANIC COMPOUNDS

Facility Name: Terrace Towers Condominiums

Address: 3 Island Avenue, Miami Beach, Florida

Facility ID#: N/A

- - = Not Applicable / Not Analyzed

All concentrations  $\mu\text{g/L}$

Well / Location ID	Date	Benzene	Ethylbenzene	Toluene	Total Xylenes	MTBE
GCTLs <sup>1</sup>	08/05/99	1	30	40	20	50
TMW-1	12/31/03	<1.0	<1.0	<1.0	<1.0	<1.0
MW-2	<b>09/20/04</b>	<b>16</b>	13	11	<b>43</b>	8.9

<sup>1</sup> GCTLs - Florida Department of Environmental Protection (FDEP), Groundwater Criteria - Groundwater Cleanup Target Levels (GCTLs) per Chapter 62-777, F.A.C. (effective August 5, 1999).

**BOLD** value indicates concentration exceeds GCTLs.

## TABLE 4: GROUNDWATER CONCENTRATION SUMMARY POLYNUCLEAR AROMATIC HYDROCARBONS & TRPH

Facility Name: Terrace Towers Condominiums

Address: 3 Island Avenue, Miami Beach, Florida

Facility ID#: N/A

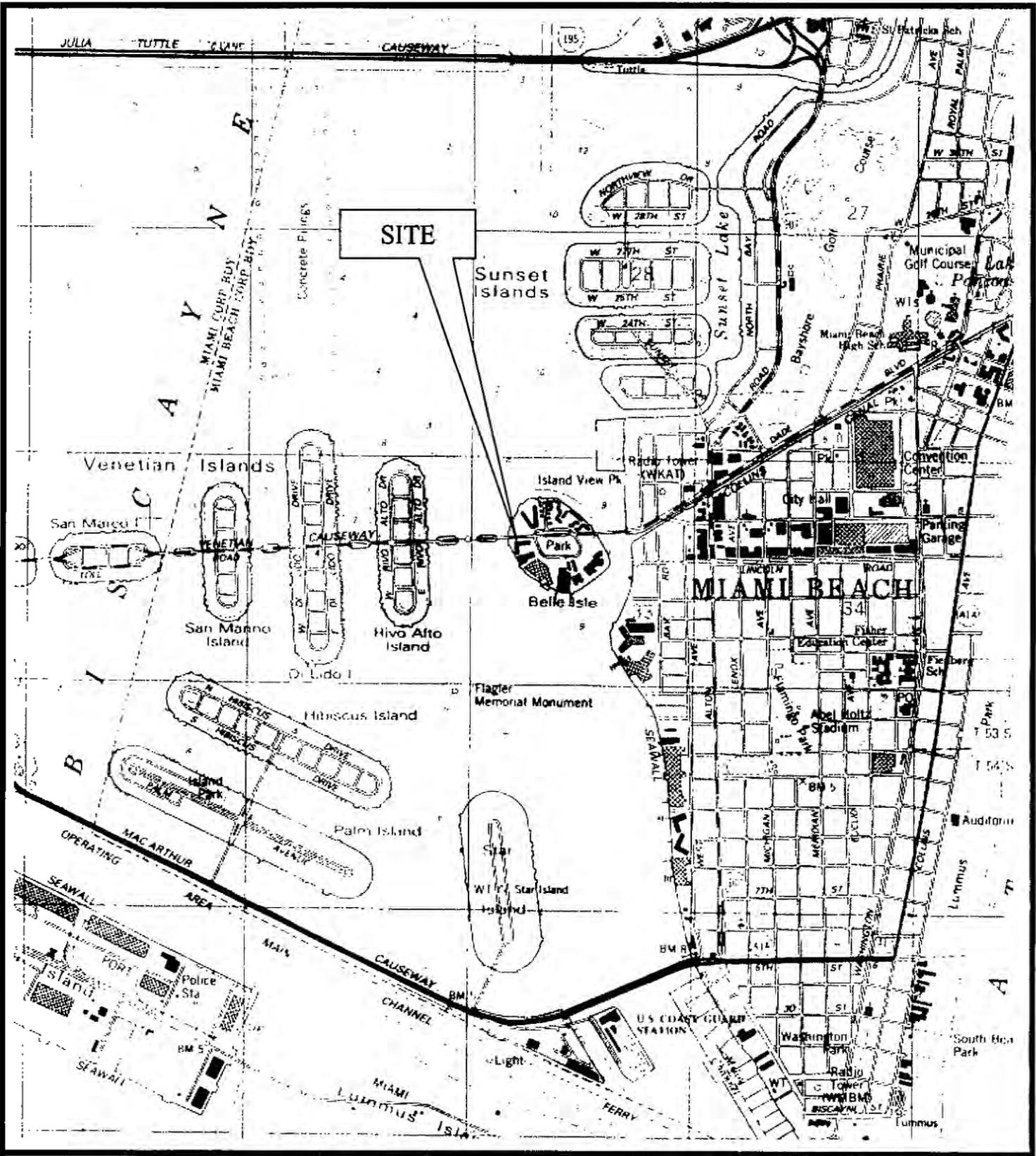
-- = Not Applicable / Not Analyzed

All concentrations  $\mu\text{g/L}$

Well / Location ID	Date	Acenaphthene	Fluoranthene	Fluorene	1-Methylnaphthalene	2-Methylnaphthalene	Naphthalene	Phenanthrene	TRPH
GCTLs <sup>1</sup>	08/05/99	20	280	280	20	20	20	210	5,000
TMW-1	12/31/03	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<400
MW-2	<b>09/20/04</b>	0.0044	0.0034	0.003	0.01	0.014	0.041	0.005	2,600

<sup>1</sup> GCTLs - Florida Department of Environmental Protection (FDEP), Groundwater Criteria - Groundwater Cleanup Target Levels (GCTLs) per Chapter 62-777, F.A.C. (effective August 5, 1999)

**BOLD** value indicates concentration exceeds GCTLs.



**FLORIDA ENVIRONMENTAL ENGINEERING, INC.**

1301 W. Copans Road, Suite G-3  
 Pompano Beach, Florida 33064  
 Phone: (954)-972-3223 Fax: (954) 972-2027



**NORTH**

**SCALE**

1 : 24,000

Source: USGS 7.5 Minute Series  
 Topographic Maps Miami Beach Quadrangle

**SITE LOCATION**

**Terrace Towers Condominiums**  
 3 Island Ave  
 Miami Beach, Florida

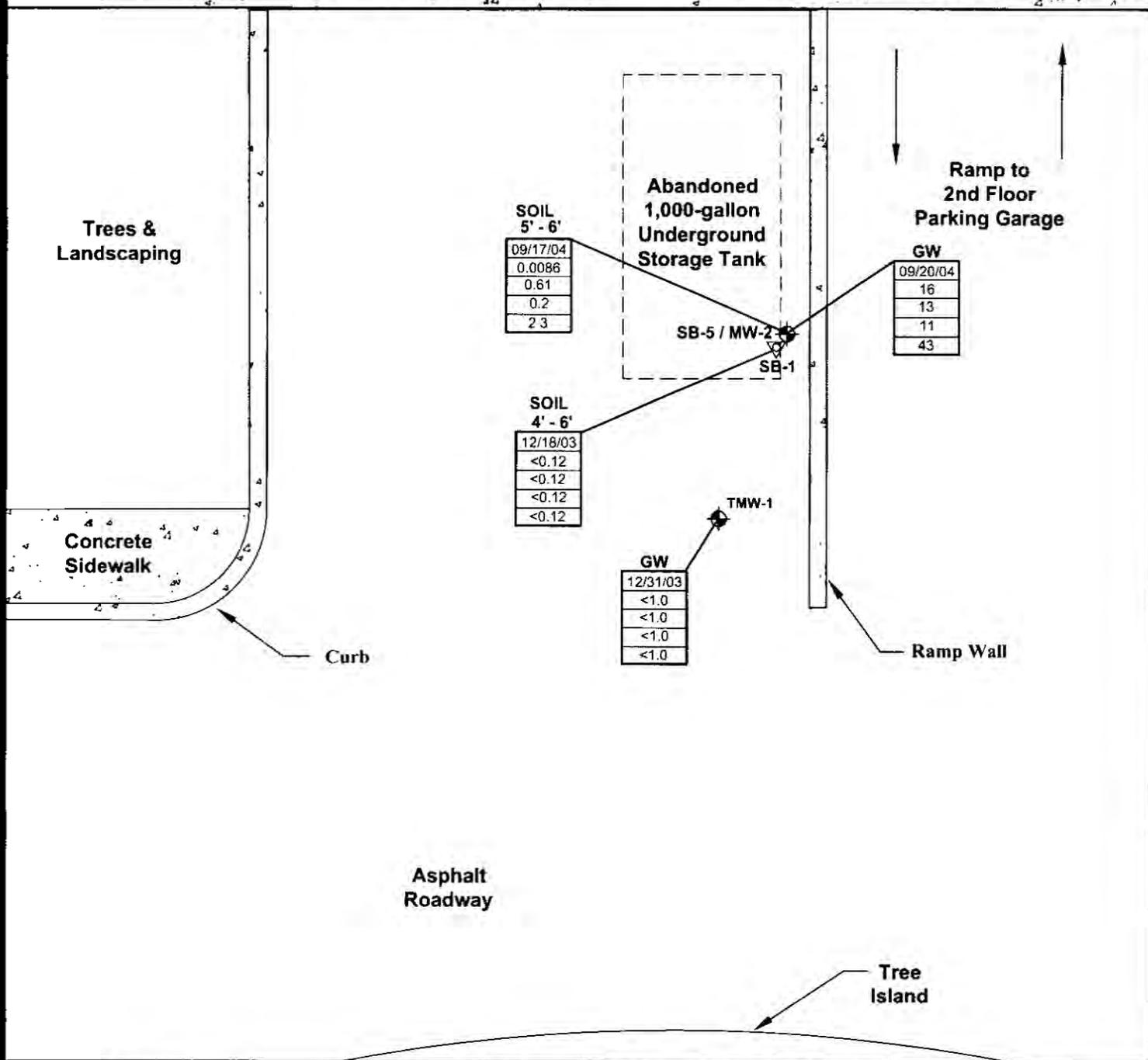
**FIGURE**

**1**

**MULTI-STORY PARKING GARAGE**

EMERGENCY GENERATOR & ABOVEGROUND  
DIESEL STORAGE TANK AREA

Garage Wall



**SOIL**  
5' - 6'

09/17/04
0.0086
0.61
0.2
2.3

**SOIL**  
4' - 6'

12/18/03
<0.12
<0.12
<0.12
<0.12

**GW**

12/31/03
<1.0
<1.0
<1.0
<1.0

**GW**

09/20/04
16
13
11
43

**LEGEND**

**SB-10**

- Soil Boring

**MW-1**

- Monitoring Well

06/04/04	Soil Concentration, mg/kg
0.007	- Benzene (SCTL)
0.6	- Ethylbenzene (SCTL)
0.5	- Toluene (SCTL)
0.2	- Total Xylenes (SCTL)

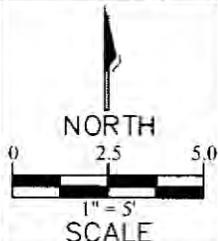
06/04/04	GW Concentration, µg/kg
1	- Benzene (GCTL)
30	- Ethylbenzene (GCTL)
40	- Toluene (GCTL)
20	- Total Xylenes (GCTL)



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Pompano Beach, Florida 33064

Phone: (954) 972-3223 Fax: (954) 972-2027



**LSAR - SOIL & GW ANALYTICAL RESULTS**  
**BTEX**

**Terrace Towers Condominiums**  
**3 Island Avenue**  
**Miami Beach, Florida**

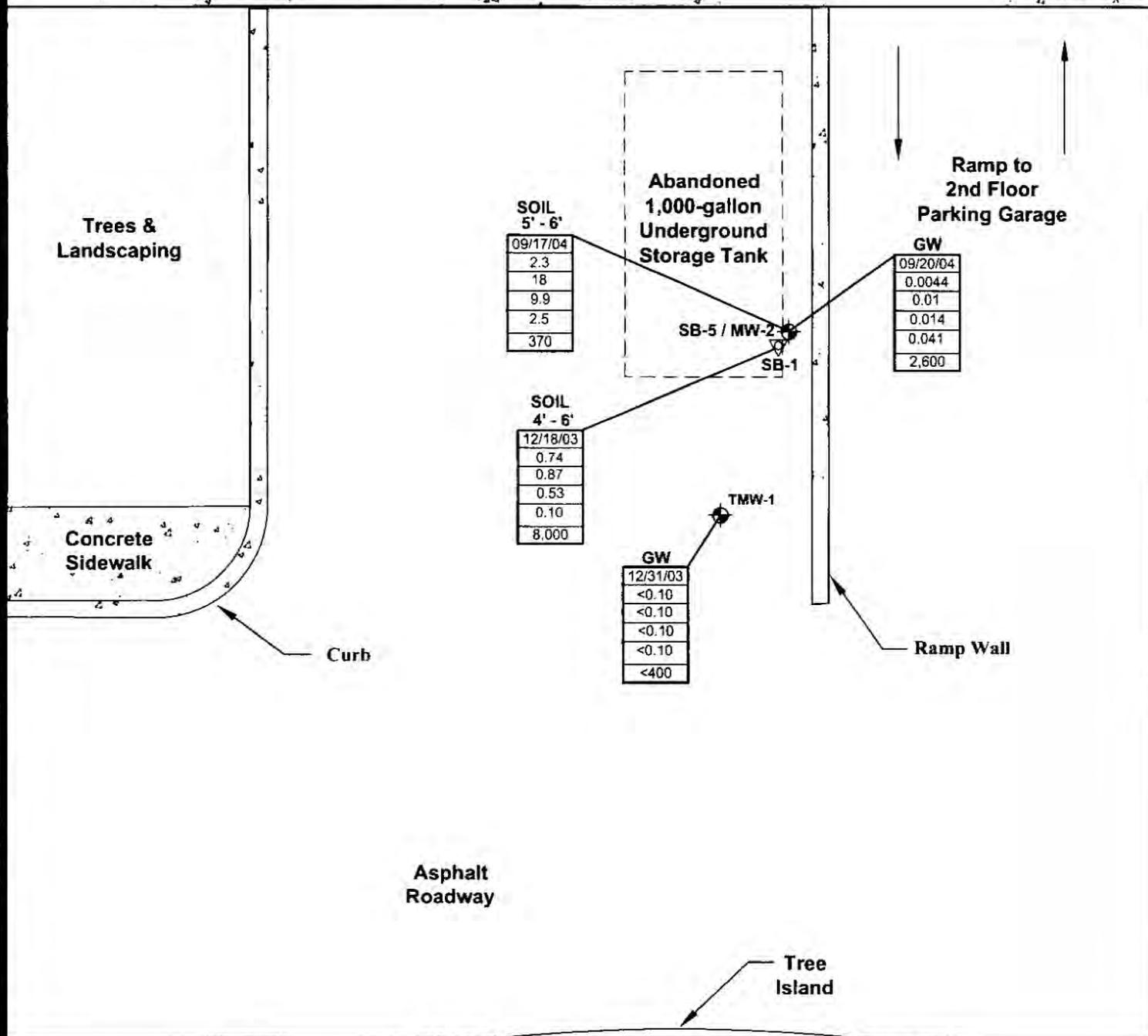
**DATE**  
**02/28/04**

**FIGURE**  
**2**

**MULTI-STORY PARKING GARAGE**

EMERGENCY GENERATOR & ABOVEGROUND  
DIESEL STORAGE TANK AREA

Garage Wall



**SOIL**  
5' - 6'

09/17/04
2.3
18
9.9
2.5
370

**SOIL**  
4' - 6'

12/18/03
0.74
0.87
0.53
0.10
8.000

**GW**

12/31/03
<0.10
<0.10
<0.10
<0.10
<400

**GW**

09/20/04
0.0044
0.01
0.014
0.041
2,600

**LEGEND**

SB-10

Soil Boring

MW-1

Monitoring Well

06/04/04	Soil Concentration, mg/kg
2.1	- Acenaphthene (SCTL)
2.2	- 1-Methylnaphthalene (SCTL)
6.1	- 2-Methylnaphthalene (SCTL)
1.7	- Naphthalene (SCTL)
340	- TRPH (SCTL)

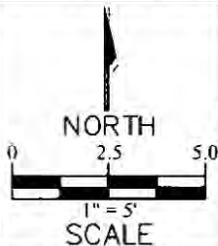
06/04/04	GW Concentration, µg/kg
20	- Acenaphthene (GCTL)
20	- 1-Methylnaphthalene (GCTL)
20	- 2-Methylnaphthalene (GCTL)
20	- Naphthalene (GCTL)
5,000	- TRPH (GCTL)



**FLORIDA ENVIRONMENTAL ENGINEERING, INC.**

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Pompano Beach, Florida 33064

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**LSAR - SOIL & GW ANALYTICAL RESULTS  
PAHs & TRPH**

**DATE**  
02/28/04

**Terrace Towers Condominiums  
3 Island Avenue  
Miami Beach, Florida**

**FIGURE**  
**3**

**MULTI-STORY PARKING GARAGE**

EMERGENCY GENERATOR & ABOVEGROUND  
DIESEL STORAGE TANK AREA

Concrete Block Garage Wall  
(extends down to 4 ft. bls)

Trees & Landscaping

16.0'

PIT CENTER

Abandoned  
1,000-gallon  
UST Pit

Ramp to  
2nd Floor  
Parking Garage

Concrete  
Sidewalk

Curb

17.0'

Concrete Block Ramp Wall  
(extends down to 4 ft. bls)

Asphalt  
Roadway

Tree  
Island

**LEGEND**

△ - Excavation Reference Point

○ - Soil Sample Number

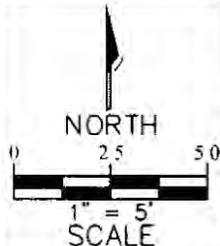
For sample depths and corresponding OVA results refer to Table 1 in the report text.



**FLORIDA  
ENVIRONMENTAL  
ENGINEERING, INC.**

1301 Copans Road, Suite G-3  
Pompano Beach, Florida 33064

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**EXCAVATION PLAN AND SOIL  
ORGANIC VAPOR SAMPLE LOCATIONS**

DATE  
02-25-05

**Terrace Towers Condominiums  
3 Island Avenue  
Miami Beach, Florida**

**FIGURE  
4**

**MULTI-STORY PARKING GARAGE**

EMERGENCY GENERATOR & ABOVEGROUND  
DIESEL STORAGE TANK AREA

02/01/05
<0.15
<0.15
<31

Wall C @ 6'

13

PIT  
CENTER @ 10'

20

02/01/05
0.26
0.25
450

Wall D @ 6'

16

02/01/05
<0.16
<0.16
<32

Ramp to  
2nd Floor  
Parking Garage

02/04/05
<0.12
<0.12
<25

Wall F @ 6'

28

Trees &  
Landscaping

Concrete  
Sidewalk

Curb

Wall G @ 6'

33

02/04/05
<0.12
<0.12
<25

Asphalt  
Roadway

Tree  
Island

**LEGEND**

△ - Excavation Reference Point  
Wall G @ 6'- Lab Sample ID

① - Soil Sample Number  
For corresponding detail of lab results refer to Appendix F.

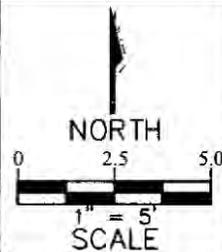
02/01/05	Concentration, $\mu\text{g}/\text{kg}$
2.2	- 1-Methylnaphthalene, SCTL
250	- Phenanthrene, SCTL
340	- TRPH, SCTL



**FLORIDA  
ENVIRONMENTAL  
ENGINEERING, INC.**

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Pompano Beach, Florida 33064

Phone: (954) 972-3223 Fax: (954) 972-2027



**SOIL LABORATORY CONFIRMATION  
SAMPLES & ANALYTICAL RESULTS**

**DATE**  
02-25-05

**Terrace Towers Condominiums  
3 Island Avenue  
Miami Beach, Florida**

**FIGURE**  
**5**

RECEIVED 11 11 2004

MIAMI-DADE COUNTY, FLORIDA



ENVIRONMENTAL RESOURCES MANAGEMENT  
POLLUTION CONTROL DIVISION  
33 S.W. 2nd AVENUE  
SUITE 800  
MIAMI, FLORIDA 33130-1540  
(305) 372-6817

February 25, 2004

Steve Gutierrez, Manager  
Terrance Towers Condominium Association  
3 Island Avenue  
Miami Beach, Fl 33139

CERTIFIED MAIL NO. 7001 0320 0003 8096 8111  
RETURN RECEIPT REQUESTED

Re: Tank Closure Assessment Report (TCAR) dated January 19, 2004, and prepared by Florida Environmental Engineering, Inc. for the Terrance Towers Condominium (UT-6443/F-20886/FDEP 139806404) located at, near, or in the vicinity of 3 Island Avenue, Miami, Miami-Dade County, Florida.

Dear Mr. Gutierrez:

The Department of Environmental Resources Management (DERM) has reviewed the above referenced document received January 26, 2004 pertaining to the abandonment of 1-1000 gallon diesel underground storage tank on December 17, 2003 and has determined that this TCAR meets the requirements of Chapter 62-761.800, Florida Administrative Code (FAC). Therefore, the report has been placed on file with other pertinent material regarding the subject site.

Be advised that the soil analytical results submitted in this report for SB-1 exceeds the residential soil cleanup target levels for TRPH (i.e., class C12-C16: 7800 mg/kg vs 2300 mg/kg soil cleanup target level) and constitutes a violation of Chapter 24, Code of Miami-Dade County (the Code), specifically, Sections 24-11.1(1), 24-54, and 24-55 of the Code.

Analytical results must meet the best achievable practice quantitation limits (PQL) or be less than or equal to the applicable cleanup target levels (CTLs). Supporting technical documentation must be provided if practical quantitation limits at or below the CTLs are not achieved. A list of applicable PQLs may be found at the FDEP's web site: <http://www/dep.state.fl.us/labs/pqltables.htm>. Note that the SB-1 PQL for benzene and 1,2-dichloroethane were above the applicable CTL of 0.007 mg/kg and 0.01 mg/kg. Please note for future sampling, that results will not be accepted if the proper PQL limits are not used.

Based on the above, and pursuant to Sections 24-5(15) and 24-5(29) of the Code, you are hereby ordered to submit to this office for review, within two hundred seventy (270) days of receipt of this letter, an approvable Site Assessment Report (SAR) prepared in accordance with Chapter 62-770, Florida Administrative Code (FAC).

Mr. Steve Guttierrez  
Terrance Towers Condominium Association  
February 25, 2004  
Page 2 of 2

Be advised that failure to comply with the above may result in this case being prepared for further enforcement action up to and including being referred to the Office of the County Attorney for formal enforcement action in a court of competent jurisdiction.

If you have any questions concerning the above, please contact Diana Camaiani of the Pollution Remediation Section at (305) 372-6700.

Sincerely,



Wilbur Mayorga, P.E., Chief  
Pollution Remediation Section

dc  
pc:

Grace Rivera - FDEP  
Wayne A. Terrwilliger – Florida Environmental Engineering, Inc., 3195 N. Powerline Road, Suite  
105E, Pompano Beach, Florida 33069

021405

**Client #:** FTL-14-100105  
**Address:** Florida Environmental Engineering,  
 1301 W. Copans Rd.  
 Suite G3  
 Pompano Beach, FL 33069  
 Attn: Andro M. Decker

**Page:** Page 1 of 2  
**Date:** 02/09/2005  
**Log #:** L105546-2

**Sample Description:**

Terrace Towers  
 Proj.#: 24231IRA

**Analytical Report:** Pit Center @10'  
**Date Sampled:** 02/01/2005  
**Time Sampled:** 14:50  
**Date Received:** 02/02/2005  
**Collected By:** Client

Parameter	Results	Units	Method	Reportable Limit	Extr. Date	Anly. Date	Analyst
<b>Polynuclear Aromatic Hydrocarbons</b>							
Naphthalene	BDL	mg/kg (dw)	3550/8270	0.13	02/07	02/08	LN
2-Methylnaphthalene	BDL	mg/kg (dw)	3550/8270	0.26	02/07	02/08	LN
1-Methylnaphthalene	0.26	mg/kg (dw)	3550/8270	0.13	02/07	02/08	LN
Acenaphthylene	BDL	mg/kg (dw)	3550/8270	0.13	02/07	02/08	LN
Acenaphthene	BDL	mg/kg (dw)	3550/8270	0.13	02/07	02/08	LN
Fluorene	BDL	mg/kg (dw)	3550/8270	0.13	02/07	02/08	LN
Phenanthrene	0.25	mg/kg (dw)	3550/8270	0.13	02/07	02/08	LN
Anthracene	BDL	mg/kg (dw)	3550/8270	0.13	02/07	02/08	LN
Fluoranthene	BDL	mg/kg (dw)	3550/8270	0.13	02/07	02/08	LN
Pyrene	BDL	mg/kg (dw)	3550/8270	0.13	02/07	02/08	LN
Benzo (a) anthracene	BDL	mg/kg (dw)	3550/8270	0.13	02/07	02/08	LN
Chrysene	BDL	mg/kg (dw)	3550/8270	0.13	02/07	02/08	LN
Benzo (b) fluoranthene	BDL	mg/kg (dw)	3550/8270	0.13	02/07	02/08	LN
Benzo (k) fluoranthene	BDL	mg/kg (dw)	3550/8270	0.13	02/07	02/08	LN
Benzo (a) pyrene	BDL	mg/kg (dw)	3550/8270	0.078	02/07	02/08	LN
Indeno (1, 2, 3-c, d) pyrene	BDL	mg/kg (dw)	3550/8270	0.13	02/07	02/08	LN
Dibenzo (a, h) Anthracene	BDL	mg/kg (dw)	3550/8270	0.078	02/07	02/08	LN
Benzo (g, h, i) perylene	BDL	mg/kg (dw)	3550/8270	0.13	02/07	02/08	LN
Dilution Factor	1.0		3550/8270		02/07	02/08	LN
<b>Surrogate Recoveries:</b>							
Nitrobenzene-d5	67	%	3550/8270	15-121	02/07	02/08	LN
2-Fluorobiphenyl	45	%	3550/8270	42-111	02/07	02/08	LN
Terphenyl-d14	52	%	3550/8270	37-143	02/07	02/08	LN
<b>Florida Petroleum Range Organics</b>							
TPH (C8-C40)	450	mg/kg (dw)	FLPRO	26	02/07	02/08	RR
Dilution Factor	1.0		FLPRO		02/07	02/08	RR
<b>Surrogate Recoveries:</b>							
o-Terphenyl	74	%	FLPRO	62-109	02/07	02/08	RR

Client #: FTL-14-100105  
 Address: Florida Environmental Engineering,  
 1301 W. Copans Rd.  
 Suite G3  
 Pompano Beach, FL 33069  
 Attn: Andro M. Decker

Page: Page 2 of 2  
 Date: 02/09/2005  
 Log #: L105546-2

**Sample Description:**

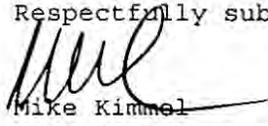
Terrace Towers  
 Proj.#: 24231IRA

**Analytical Report:** Pit Center @10'  
 Date Sampled: 02/01/2005  
 Time Sampled: 14:50  
 Date Received: 02/02/2005  
 Collected By: Client

Parameter	Results	Units	Method	Reportable	Extr.	Anly.	Analyst
				Limit	Date	Date	
<b>Florida Petroleum Range Organics (continued)</b>							
Pentatriacontane	29	%	FLPRO	10-171	02/07	02/08	RR
<b>Percent Solids</b>							
Percent Solid	77	%	160.3	0.10	02/02	02/02	MG

All analyses were performed using EPA, ASTM, NIOSH, USGS, or Standard Methods and certified to meet NELAC requirements.  
 Flags: BDL or U-below reporting limit; DL-diluted out; IL-meets internal lab limits; MI-matrix interference; NA-not appl.  
 Flags: CFR-Pb/Cu rule; ND-non detect (RL estimated); NFL-no free liquids; dw-dry wt; ww-wet wt; C(#)-see attached USB code  
 FLDEP Flags: J(#)-estimated 1:surr. fail 2:no known QC req. 3:QC fail %R or %RPD; 4:matrix int. 5:improper fld. protocol  
 FLDEP Flags: L-exceeds calibration; Q-holding time exceeded; T-value < MDL; V-present in blank  
 FLDEP Flags: Y-improper preservation; B-colonies exceed range; I-result between MDL and PQL

FLDOH/NELAC# E86240	KS/NELAC# E-10360
NC CERT# 444	ADEM ID# 40850
SC CERT# 96031001	TN CERT# 02985
IL/NELAC CERT# 200020	GA CERT# 917
VA CERT# 00395	USDA Soil Permit# S-35240

Respectfully submitted,  
  
 Mike Kimmel  
 Senior Project Manager

Client #: FTL-14-100105  
 Address: Florida Environmental Engineering,  
 1301 W. Copans Rd.  
 Suite G3  
 Pompano Beach, FL 33069  
 Attn: Andro M. Decker

Page: Page 1 of 2  
 Date: 02/09/2005  
 Log #: L105546-3

*AM*

**Sample Description:**

Terrace Towers  
 Proj.#: 24231IRA

Analytical Report: Well C @6'  
 Date Sampled: 02/01/2005  
 Time Sampled: 14:50  
 Date Received: 02/02/2005  
 Collected By: Client

Parameter	Results	Units	Method	Reportable Limit	Extr. Date	Anly. Date	Analyst
<b>Polynuclear Aromatic Hydrocarbons</b>							
Naphthalene	BDL	mg/kg (dw)	3550/8270	0.15	02/04	02/04	LN
2-Methylnaphthalene	BDL	mg/kg (dw)	3550/8270	0.31	02/04	02/04	LN
1-Methylnaphthalene	BDL	mg/kg (dw)	3550/8270	0.15	02/04	02/04	LN
Acenaphthylene	BDL	mg/kg (dw)	3550/8270	0.15	02/04	02/04	LN
Acenaphthene	BDL	mg/kg (dw)	3550/8270	0.15	02/04	02/04	LN
Fluorene	BDL	mg/kg (dw)	3550/8270	0.15	02/04	02/04	LN
Phenanthrene	BDL	mg/kg (dw)	3550/8270	0.15	02/04	02/04	LN
Anthracene	BDL	mg/kg (dw)	3550/8270	0.15	02/04	02/04	LN
Fluoranthene	BDL	mg/kg (dw)	3550/8270	0.15	02/04	02/04	LN
Pyrene	BDL	mg/kg (dw)	3550/8270	0.15	02/04	02/04	LN
Benzo (a) anthracene	BDL	mg/kg (dw)	3550/8270	0.15	02/04	02/04	LN
Chrysene	BDL	mg/kg (dw)	3550/8270	0.15	02/04	02/04	LN
Benzo (b) fluoranthene	BDL	mg/kg (dw)	3550/8270	0.15	02/04	02/04	LN
Benzo (k) fluoranthene	BDL	mg/kg (dw)	3550/8270	0.15	02/04	02/04	LN
Benzo (a) pyrene	BDL	mg/kg (dw)	3550/8270	0.092	02/04	02/04	LN
Indeno (1, 2, 3-c, d) pyrene	BDL	mg/kg (dw)	3550/8270	0.15	02/04	02/04	LN
Dibenzo (a, h) Anthracene	BDL	mg/kg (dw)	3550/8270	0.092	02/04	02/04	LN
Benzo (g, h, i) perylene	BDL	mg/kg (dw)	3550/8270	0.15	02/04	02/04	LN
Dilution Factor	1.0		3550/8270		02/04	02/04	LN
<b>Surrogate Recoveries:</b>							
Nitrobenzene-d5	49	%	3550/8270	15-121	02/04	02/04	LN
2-Fluorobiphenyl	64	%	3550/8270	42-111	02/04	02/04	LN
Terphenyl-d14	74	%	3550/8270	37-143	02/04	02/04	LN
<b>Florida Petroleum Range Organics</b>							
TPH (C8-C40)	BDL	mg/kg (dw)	FLPRO	31	02/03	02/04	RR
Dilution Factor	1.0		FLPRO		02/03	02/04	RR
<b>Surrogate Recoveries:</b>							
o-Terphenyl	63	%	FLPRO	62-109	02/03	02/04	RR

Client #: FTL-14-100105  
Address: Florida Environmental Engineering,  
1301 W. Copans Rd.  
Suite G3  
Pompano Beach, FL 33069  
Attn: Andro M. Decker

Page: Page 2 of 2  
Date: 02/09/2005  
Log #: L105546-3

Sample Description:

Terrace Towers  
Proj.#: 24231IRA

A  
Analytical Report: Well C @6'  
Date Sampled: 02/01/2005  
Time Sampled: 14:50  
Date Received: 02/02/2005  
Collected By: Client

Parameter	Results	Units	Method	Reportable Limit	Extr. Date	Anly. Date	Analyst
<b>Florida Petroleum Range Organics (continued)</b>							
Pentatriacontane	54	%	FLPRO	10-171	02/03	02/04	RR
<b>Percent Solids</b>							
Percent Solid	65	%	160.3	0.10	02/02	02/02	MG

All analyses were performed using EPA, ASTM, NIOSH, USGS, or Standard Methods and certified to meet NELAC requirements.  
Flags: BDL or U-below reporting limit; DL-diluted out; IL-meets internal lab limits; MI-matrix interference; NA-not appl.  
Flags: CFR-Pb/Cu rule; ND-non detect (RL estimated); NFL-no free liquids; dw-dry wt; ww-wet wt; C(#)-see attached USB code  
FLDEP Flags: J(#)-estimated 1:surr. fail 2:no known QC req. 3:QC fail %R or %RPD; 4:matrix int. 5:improper fld. protocol  
FLDEP Flags: L-exceeds calibration; Q-holding time exceeded; T-value < MDL; V-present in blank  
FLDEP Flags: Y-improper preservation; B-colonies exceed range; I-result between MDL and POL

FLDOH/NELAC# E86240      KS/NELAC# E-10360  
NC CERT# 444              ADEM ID# 40850  
SC CERT# 96031001        TN CERT# 02985  
IL/NELAC CERT# 200020     GA CERT# 917  
VA CERT# 00395            USDA Soil Permit# S-35240

Respectfully submitted,  
  
Mike Kimmel  
Senior Project Manager

Client #: FTL-14-100105  
 Address: Florida Environmental Engineering,  
 1301 W. Copans Rd.  
 Suite G3  
 Pompano Beach, FL 33069  
 Attn: Andro M. Decker

Page: Page 1 of 2  
 Date: 02/09/2005  
 Log #: L105546-4

**Sample Description:**

Terrace Towers  
 Proj.#: 24231IRA

**Analytical Report:** Well D @6'  
 Date Sampled: 02/01/2005  
 Time Sampled: 14:50  
 Date Received: 02/02/2005  
 Collected By: Client

Parameter	Results	Units	Method	Reportable Limit	Extr. Date	Anly. Date	Analyst
<b>Polynuclear Aromatic Hydrocarbons</b>							
Naphthalene	BDL	mg/kg (dw)	3550/8270	0.16	02/04	02/04	LN
2-Methylnaphthalene	BDL	mg/kg (dw)	3550/8270	0.32	02/04	02/04	LN
1-Methylnaphthalene	BDL	mg/kg (dw)	3550/8270	0.16	02/04	02/04	LN
Acenaphthylene	BDL	mg/kg (dw)	3550/8270	0.16	02/04	02/04	LN
Acenaphthene	BDL	mg/kg (dw)	3550/8270	0.16	02/04	02/04	LN
Fluorene	BDL	mg/kg (dw)	3550/8270	0.16	02/04	02/04	LN
Phenanthrene	BDL	mg/kg (dw)	3550/8270	0.16	02/04	02/04	LN
Anthracene	BDL	mg/kg (dw)	3550/8270	0.16	02/04	02/04	LN
Fluoranthene	BDL	mg/kg (dw)	3550/8270	0.16	02/04	02/04	LN
Pyrene	BDL	mg/kg (dw)	3550/8270	0.16	02/04	02/04	LN
Benzo(a)anthracene	BDL	mg/kg (dw)	3550/8270	0.16	02/04	02/04	LN
Chrysene	BDL	mg/kg (dw)	3550/8270	0.16	02/04	02/04	LN
Benzo(b)fluoranthene	BDL	mg/kg (dw)	3550/8270	0.16	02/04	02/04	LN
Benzo(k)fluoranthene	BDL	mg/kg (dw)	3550/8270	0.16	02/04	02/04	LN
Benzo(a)pyrene	BDL	mg/kg (dw)	3550/8270	0.097	02/04	02/04	LN
Indeno(1,2,3-c,d)pyrene	BDL	mg/kg (dw)	3550/8270	0.16	02/04	02/04	LN
Dibenzo(a,h)Anthracene	BDL	mg/kg (dw)	3550/8270	0.097	02/04	02/04	LN
Benzo(g,h,i)perylene	BDL	mg/kg (dw)	3550/8270	0.16	02/04	02/04	LN
Dilution Factor	1.0		3550/8270		02/04	02/04	LN
<b>Surrogate Recoveries:</b>							
Nitrobenzene-d5	53	%	3550/8270	15-121	02/04	02/04	LN
2-Fluorobiphenyl	53	%	3550/8270	42-111	02/04	02/04	LN
Terphenyl-d14	55	%	3550/8270	37-143	02/04	02/04	LN
<b>Florida Petroleum Range Organics</b>							
TPH(C8-C40)	BDL	mg/kg (dw)	FLPRO	32	02/03	02/04	RR
Dilution Factor	1.0		FLPRO		02/03	02/04	RR
<b>Surrogate Recoveries:</b>							
o-Terphenyl	72	%	FLPRO	62-109	02/03	02/04	RR

Client #: FTL-14-100105  
 Address: Florida Environmental Engineering,  
 1301 W. Copans Rd.  
 Suite G3  
 Pompano Beach, FL 33069  
 Attn: Andro M. Decker

Page: Page 2 of 2  
 Date: 02/09/2005  
 Log #: L105546-4

**Sample Description:**

Terrace Towers  
 Proj.#: 24231IRA

**Analytical Report:** Well D @6'  
 Date Sampled: 02/01/2005  
 Time Sampled: 14:50  
 Date Received: 02/02/2005  
 Collected By: Client

Parameter	Results	Units	Method	Reportable Extr.		Anly.		Analyst
				Limit	Date	Date		
<b>Florida Petroleum Range Organics (continued)</b>								
Pentatriacontane	104	%	FLPRO	10-171	02/03	02/04		RR
<b>Percent Solids</b>								
Percent Solid	62	%	160.3	0.10	02/02	02/02		MG

All analyses were performed using EPA, ASTM, NIOSH, USGS, or Standard Methods and certified to meet NELAC requirements.  
 Flags: BDL or U-below reporting limit; DL-diluted out; IL-meets internal lab limits; MI-matrix interference; NA-not appl.  
 Flags: CFR-Pb/Cu rule; ND-non detect(RL estimated); NFL-no free liquids; dw-dry wt; ww-wet wt; C(#)-see attached USB code  
 FLDEP Flags: J(#)-estimated 1:surr. fail 2:no known QC req. 3:QC fail %R or %RPD; 4:matrix int. 5:improper fld. protocol  
 FLDEP Flags: L-exceeds calibration; Q-holding time exceeded; T-value < MDL; V-present in blank  
 FLDEP Flags: Y-improper preservation; B-colonies exceed range; I-result between MDL and POL

FLDOH/NELAC# E86240                      KS/NELAC# E-10360  
 NC CERT# 444                                ADEM ID# 40850  
 SC CERT# 96031001                        TN CERT# 02985  
 IL/NELAC CERT# 200020                    GA CERT# 917  
 VA CERT# 00395                            USDA Soil Permit# S-35240

Respectfully submitted,  
  
 Mike Kimmel  
 Senior Project Manager

021805

Client #: FTL-14-100105  
 Address: Florida Environmental Engineering,  
 1301 W. Copans Rd.  
 Suite G3  
 Pompano Beach, FL 33069  
 Attn: Andro M. Decker

Page: Page 1 of 2  
 Date: 02/15/2005  
 Log #: L105826-1

**Sample Description:**

Terrace Towers Condominiums  
 Proj.#: 24231IRA

**Analytical Report: Wall F @ 6'**

Date Sampled: 02/04/2005  
 Time Sampled: 08:50  
 Date Received: 02/08/2005  
 Collected By: Client

Parameter	Results	Units	Method	Reportable Limit	Extr. Date	Anly. Date	Analys
<b>Polynuclear Aromatic Hydrocarbons</b>							
Naphthalene	BDL	mg/kg (dw)	3550/8270	0.12	02/11	02/12	LN
2-Methylnaphthalene	BDL	mg/kg (dw)	3550/8270	0.25	02/11	02/12	LN
1-Methylnaphthalene	BDL	mg/kg (dw)	3550/8270	0.12	02/11	02/12	LN
Acenaphthylene	BDL	mg/kg (dw)	3550/8270	0.12	02/11	02/12	LN
Acenaphthene	BDL	mg/kg (dw)	3550/8270	0.12	02/11	02/12	LN
Fluorene	BDL	mg/kg (dw)	3550/8270	0.12	02/11	02/12	LN
Phenanthrene	BDL	mg/kg (dw)	3550/8270	0.12	02/11	02/12	LN
Anthracene	BDL	mg/kg (dw)	3550/8270	0.12	02/11	02/12	LN
Fluoranthene	BDL	mg/kg (dw)	3550/8270	0.12	02/11	02/12	LN
Pyrene	BDL	mg/kg (dw)	3550/8270	0.12	02/11	02/12	LN
Benzo(a)anthracene	BDL	mg/kg (dw)	3550/8270	0.12	02/11	02/12	LN
Chrysene	BDL	mg/kg (dw)	3550/8270	0.12	02/11	02/12	LN
Benzo(b)fluoranthene	BDL	mg/kg (dw)	3550/8270	0.12	02/11	02/12	LN
Benzo(k)fluoranthene	BDL	mg/kg (dw)	3550/8270	0.12	02/11	02/12	LN
Benzo(a)pyrene	BDL	mg/kg (dw)	3550/8270	0.074	02/11	02/12	LN
Indeno(1,2,3-c,d)pyrene	BDL	mg/kg (dw)	3550/8270	0.12	02/11	02/12	LN
Dibenzo(a,h)Anthracene	BDL	mg/kg (dw)	3550/8270	0.074	02/11	02/12	LN
Benzo(g,h,i)perylene	BDL	mg/kg (dw)	3550/8270	0.12	02/11	02/12	LN
Dilution Factor	1.0		3550/8270		02/11	02/12	LN
<b>Surrogate Recoveries:</b>							
Nitrobenzene-d5	75	%	3550/8270	15-121	02/11	02/12	LN
2-Fluorobiphenyl	72	%	3550/8270	42-111	02/11	02/12	LN
Terphenyl-d14	87	%	3550/8270	37-143	02/11	02/12	LN
<b>Florida Petroleum Range Organics</b>							
TPH(C8-C40)	BDL	mg/kg (dw)	FLPRO	25	02/10	02/11	RR
Dilution Factor	1.0		FLPRO		02/10	02/11	RR
<b>Surrogate Recoveries:</b>							
o-Terphenyl	68	%	FLPRO	62-109	02/10	02/11	RR

Client #: FTL-14-100105  
 Address: Florida Environmental Engineering,  
 1301 W. Copans Rd.  
 Suite G3  
 Pompano Beach, FL 33069  
 Attn: Andro M. Decker

Page: Page 2 of 2  
 Date: 02/15/2005  
 Log #: L105826-1

Sample Description:

Terrace Towers Condominiums  
 Proj.#: 24231IRA

Analytical Report: Wall F @ 6'  
 Date Sampled: 02/04/2005  
 Time Sampled: 08:50  
 Date Received: 02/08/2005  
 Collected By: Client

Parameter	Results	Units	Method	Reportable Limit	Extr. Date	Anly. Date	Analys
<b>Florida Petroleum Range Organics (continued)</b>							
Pentatriacontane	69	%	FLPRO	10-171	02/10	02/11	RR
<b>Percent Solids</b>							
Percent Solid	81	%	160.3	0.10	02/08	02/08	MG

All analyses were performed using EPA, ASTM, NIOSH, USGS, or Standard Methods and certified to meet NELAC requirements.  
 Flags: BDL or U-below reporting limit; DL-diluted out; IL-meets internal lab limits; MI-matrix interference, NA-not appl.  
 Flags. CFR-Pb/Cu rule; ND-non detect (RL estimated); NFL-no free liquids; dw-dry wt; ww-wet wt; C(#)-see attached USB code  
 FLDEP Flags: J(#)-estimated 1:surr fail 2:no known QC req 3:QC fail %R or %RPD; 4:matrix int. 5:improper fld. protocol  
 FLDEP Flags: L-exceeds calibration; Q-holding time exceeded; T-value < MDL; V-present in blank  
 FLDEP Flags: Y-improper preservation; B-colonies exceed range; I-result between MDL and PQL

FLDOH/NELAC# E86240      KS/NELAC# E-10360  
 NC CERT# 444              ADEM ID# 40850  
 SC CERT# 96031001        TN CERT# 02985  
 IL/NELAC CERT# 200020    GA CERT# 917  
 VA CERT# 00395            USDA Soil Permit# S-35240

Respectfully submitted,

*John Love*  
 for Mike Kimmel  
 Senior Project Manager

Client #: FTL-14-100105  
 Address: Florida Environmental Engineering,  
 1301 W. Copans Rd.  
 Suite G3  
 Pompano Beach, FL 33069  
 Attn: Andro M. Decker

Page: Page 1 of 2  
 Date: 02/15/2005  
 Log #: L105826-2

**Sample Description:**

Terrace Towers Condominiums  
 Proj.#: 24231IRA

**Analytical Report: Wall G @ 6'**

Date Sampled: 02/04/2005  
 Time Sampled: 09:18  
 Date Received: 02/08/2005  
 Collected By: Client

Parameter	Results	Units	Method	Reportable Limit	Extr. Date	Anly. Date	Analys
<b>Polynuclear Aromatic Hydrocarbons</b>							
Naphthalene	BDL	mg/kg (dw)	3550/8270	0.12	02/11	02/12	LN
2-Methylnaphthalene	BDL	mg/kg (dw)	3550/8270	0.25	02/11	02/12	LN
1-Methylnaphthalene	BDL	mg/kg (dw)	3550/8270	0.12	02/11	02/12	LN
Acenaphthylene	BDL	mg/kg (dw)	3550/8270	0.12	02/11	02/12	LN
Acenaphthene	BDL	mg/kg (dw)	3550/8270	0.12	02/11	02/12	LN
Fluorene	BDL	mg/kg (dw)	3550/8270	0.12	02/11	02/12	LN
Phenanthrene	BDL	mg/kg (dw)	3550/8270	0.12	02/11	02/12	LN
Anthracene	BDL	mg/kg (dw)	3550/8270	0.12	02/11	02/12	LN
Fluoranthene	BDL	mg/kg (dw)	3550/8270	0.12	02/11	02/12	LN
Pyrene	BDL	mg/kg (dw)	3550/8270	0.12	02/11	02/12	LN
Benzo(a)anthracene	BDL	mg/kg (dw)	3550/8270	0.12	02/11	02/12	LN
Chrysene	BDL	mg/kg (dw)	3550/8270	0.12	02/11	02/12	LN
Benzo(b)fluoranthene	BDL	mg/kg (dw)	3550/8270	0.12	02/11	02/12	LN
Benzo(k)fluoranthene	BDL	mg/kg (dw)	3550/8270	0.12	02/11	02/12	LN
Benzo(a)pyrene	BDL	mg/kg (dw)	3550/8270	0.074	02/11	02/12	LN
Indeno(1,2,3-c,d)pyrene	BDL	mg/kg (dw)	3550/8270	0.12	02/11	02/12	LN
Dibenzo(a,h)Anthracene	BDL	mg/kg (dw)	3550/8270	0.074	02/11	02/12	LN
Benzo(g,h,i)perylene	BDL	mg/kg (dw)	3550/8270	0.12	02/11	02/12	LN
Dilution Factor	1.0		3550/8270		02/11	02/12	LN
<b>Surrogate Recoveries:</b>							
Nitrobenzene-d5	75	%	3550/8270	15-121	02/11	02/12	LN
2-Fluorobiphenyl	71	%	3550/8270	42-111	02/11	02/12	LN
Terphenyl-d14	78	%	3550/8270	37-143	02/11	02/12	LN
<b>Florida Petroleum Range Organics</b>							
TPH(C8-C40)	BDL	mg/kg (dw)	FLPRO	25	02/10	02/11	RR
Dilution Factor	1.0		FLPRO		02/10	02/11	RR
<b>Surrogate Recoveries:</b>							
o-Terphenyl	78	%	FLPRO	62-109	02/10	02/11	RR

Client #: FTL-14-100105  
 Address: Florida Environmental Engineering,  
 1301 W. Copans Rd.  
 Suite G3  
 Pompano Beach, FL 33069  
 Attn: Andro M. Decker

Page: Page 2 of 2  
 Date: 02/15/2005  
 Log #: L105826-2

Sample Description:

Terrace Towers Condominiums  
 Proj.#: 24231IRA

Analytical Report: Wall G @ 6'  
 Date Sampled: 02/04/2005  
 Time Sampled: 09:18  
 Date Received: 02/08/2005  
 Collected By: Client

Parameter	Results	Units	Method	Reportable Limit	Extr. Date	Anly. Date	Analyst
<b>Florida Petroleum Range Organics (continued)</b>							
Pentatriacontane	64	%	FLPRO	10-171	02/10	02/11	RR
<b>Percent Solids</b>							
Percent Solid	81	%	160.3	0.10	02/08	02/08	MG

All analyses were performed using EPA, ASTM, NIOSH, USGS, or Standard Methods and certified to meet NELAC requirements.  
 Flags: BDL or U-below reporting limit; DL-diluted out; IL-meets internal lab limits; MI-matrix interference; NA-not appl.  
 Flags: CFR-Pb/Cu rule; ND-non detect (RL estimated); NFL-no free liquids; dw-dry wt; ww-wet wt; C(#)-see attached USB code  
 FLDEP Flags: J(#)-estimated 1:surr. fail 2:no known QC req. 3:QC fail %R or %RPD; 4:matrix int. 5:improper fld. protocol  
 FLDEP Flags: L-exceeds calibration; Q-holding time exceeded; T-value < MDL; V-present in blank  
 FLDEP Flags: Y-improper preservation; B-colonies exceed range; I-result between MDL and PQL

FLDOH/NELAC# EB6240	KS/NELAC# E-10360
NC CERT# 444	ADEM ID# 40850
SC CERT# 96031001	TN CERT# 02985
IL/NELAC CERT# 200020	GA CERT# 917
VA CERT# 00395	USDA Soil Permit# S-35240

Respectfully submitted,

*John Love*  
 Mike Kimmel  
 Senior Project Manager

# Site 11

Lido Spa Hotel Health Resort

FDEP Facility #9803801



# Department of Environmental Protection

Jeb Bush  
Governor

Twin Towers Office Building  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

David B. Struhs  
Secretary

JUN 13 2003

**CERTIFIED MAIL**  
**RETURN RECEIPT REQUESTED**

Bernard S. Edelstein,  
Aaron J. Edelstein, & S. Gruss  
Lido Spa Hotel  
40 Island Avenue  
Miami Beach, FL 33139

Subject: Site Rehabilitation Completion Order  
Lido Spa Hotel  
40 Island Avenue  
Miami Beach, Miami-Dade County  
(UT-6155/File-18392)  
FDEP Facility ID #139803801.  
Discharge Date: January 24, 2001 (Non-program)  
Discharge Score: 9

Dear Messrs. Edelstein and Gruss:

The Miami-Dade County Department of Environmental Resources Management (DERM) has reviewed the Site Rehabilitation Completion Report (SRCR) dated April 29, 2003 (received May 6, 2003), prepared and submitted by Handex of Florida for this site. Documentation submitted with the SRCR confirms that criteria set forth in Rule 62-770.680(1), Florida Administrative Code (F.A.C.), have been met. The SRCR is hereby incorporated by reference in this Site Rehabilitation Completion Order (Order). Therefore, you are released from any further obligation to conduct site rehabilitation at the site for petroleum product contamination associated with the discharge listed above, except as set forth below.

- (1) In the event concentrations of petroleum products' contaminants of concern increase above the levels approved in this Order, or if a subsequent discharge of petroleum or petroleum product occurs at the site, the Florida Department of Environmental Protection (Department) may require site rehabilitation to reduce concentrations of petroleum products' contaminants of concern to the levels approved in the SRCR or otherwise allowed by Chapter 62-770, F.A.C.
- (2) Additionally, you are required to properly abandon all monitoring wells, except compliance wells required by Chapter 62-761, F.A.C., for release detection, within

"More Protection, Less Process"

Visit Our Internet Site At: [www.dep.state.fl.us/waste/categories/pcp/default.htm](http://www.dep.state.fl.us/waste/categories/pcp/default.htm)

Printed on recycled paper.

60 days of receipt of this Order. The monitoring wells must be plugged and abandoned in accordance with the requirements of Rule 62-532.500(4), F.A.C.

### Legal Issues

The Department's Order shall become final unless a timely petition for an administrative proceeding (hearing) is filed under Sections 120.569 and 120.57, Florida Statutes (F.S.), within 21 days of receipt of this Order. The procedures for petitioning for a hearing are set forth below.

Persons affected by this Order have the following options:

If you choose to accept the above decision by the Department about the SRCR you do not have to do anything. This Order is final and effective as of the date on the top of the first page of this Order.

If you disagree with the decision, you may do one of the following:

- (1) File a petition for administrative hearing with the Department's Office of General Counsel within 21 days of receipt of this Order; or
- (2) File a request for an extension of time to file a petition for hearing with the Department's Office of General Counsel within 21 days of receipt of this Order. Such a request should be made if you wish to meet with the Department in an attempt to informally resolve any disputes without first filing a petition for hearing.

Please be advised that mediation of this decision pursuant to Section 120.573, F.S., is not available.

### How to Request an Extension of Time to File a Petition for Hearing

For good cause shown, pursuant to Rule 62-110.106(4), F.A.C., the Department may grant a request for an extension of time to file a petition for hearing. Such a request must be filed (received) in the Department's Office of General Counsel at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000, within 21 days of receipt of this Order. Petitioner, if different from Bernard S. Edelstein, Aaron J. Edelstein, & S. Gruss of the Lido Spa Hotel, shall mail a copy of the request to Bernard S. Edelstein, Aaron J. Edelstein, & S. Gruss of the Lido Spa Hotel at the time of filing. Timely filing a request for an extension of time tolls the time period within which a petition for administrative hearing must be made.

### How to File a Petition for Administrative Hearing

A person whose substantial interests are affected by this Order may petition for an administrative hearing under Sections 120.569 and 120.57, F.S. The petition must contain the information set forth below and must be filed (received) in the Department's Office of General

Counsel at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000, within 21 days of receipt of this Order. Petitioner, if different from Bernard S. Edelstein, Aaron J. Edelstein, & S. Gruss of the Lido Spa Hotel, shall mail a copy of the request to Bernard S. Edelstein, Aaron J. Edelstein, & S. Gruss of the Lido Spa Hotel at the time of filing. Failure to file a petition within this time period shall waive the right of anyone who may request an administrative hearing under Sections 120.569 and 120.57, F.S.

Pursuant to Section 120.54(5)(b)4.a., F.S., and Rule 28-106.201, F.A.C., a petition for administrative hearing shall contain the following information:

- (a) The name, address, and telephone number of each petitioner, the name, address, and telephone number of the petitioner's representative, if any, the site owner's name and address, if different from the petitioner, the FDEP facility number, and the name and address of the facility;
- (b) A statement of how and when each petitioner received notice of the Department's action or proposed action;
- (c) An explanation of how each petitioner's substantial interests are or will be affected by the Department's action or proposed action;
- (d) A statement of the material facts disputed by the petitioner, or a statement that there are no disputed facts;
- (e) A statement of the ultimate facts alleged, including a statement of the specific facts the petitioner contends warrant reversal or modification of the Department's action or proposed action;
- (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the Department's action or proposed action; and
- (g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the Department to take with respect to the Department's action or proposed action.

This Order is final and effective as of the date on the top of the first page of this Order. Timely filing a petition for administrative hearing postpones the date this Order takes effect until the Department issues either a final order pursuant to an administrative hearing or an order responding to supplemental information provided pursuant to meetings with the Department.

#### Judicial Review

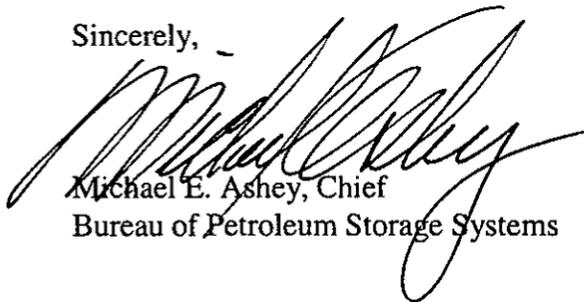
Any party to this Order has the right to seek judicial review of it under Section 120.68, F.S., by filing a notice of appeal under Rule 9.110 of the Florida Rules of Appellate Procedure with the clerk of the Department in the Office of General Counsel, 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000, and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate district court of appeal. The notice of appeal must be filed within 30 days after this Order is filed with the clerk of the Department (see below).

The FDEP Facility Number for this site is 139803801. Please use this identification on all future correspondence with the Department or DERM.

Questions

Any questions regarding DERM's review of your SRCR should be directed to David B. Shapiro, P.G. at (305) 372-6700. Questions regarding legal issues should be referred to the Department's Office of General Counsel at (850) 245-2242. Contact with any of the above does not constitute a petition for administrative hearing or request for an extension of time to file a petition for administrative hearing.

Sincerely,



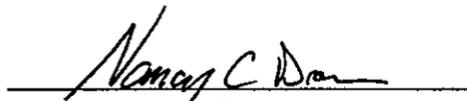
Michael E. Ashe, Chief  
Bureau of Petroleum Storage Systems

MEA/dbs

cc: Teresa Rahrig, FDEP Southeast District  
Grace Rivera, FDEP – BPSS  
Wilbur Mayorga, P.E. – Miami-Dade County DERM  
John C. Baeringer, P.G. – Handex, Inc., 2055 S. Congress Avenue, Delray Beach, Florida  
33445  
File

**FILING AND ACKNOWLEDGMENT**

FILED, on this date, pursuant to  
§120.52 Florida Statutes, with the  
designated Department Clerk, receipt  
of which is hereby acknowledged.

  
\_\_\_\_\_  
Clerk  
(or Deputy Clerk)

6-13-2003  
Date

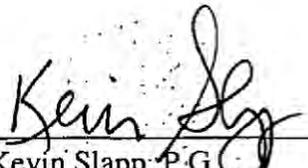
P.G. CERTIFICATION

Site Rehabilitation Completion Report for the Lido Spa Hotel, located at 40 Island Avenue,  
Miami Beach UT-6155/File-18392, FDEP Facility ID #139803801.

I hereby certify that in my professional judgment, the components of this Site Rehabilitation  
Completion Report satisfy the requirements set forth in Chapter 62-770, Florida Administrative  
Code (F.A.C.), and that the conclusions in this report provide reasonable assurances that the  
objectives stated in Chapter 62-770, F.A.C., have been met.

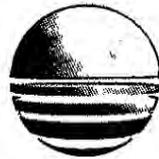
I personally completed this review.

This review was conducted by David B. Shapiro, P.G.  
working under my direct supervision.

  
\_\_\_\_\_  
Kevin Slapp, P.G.  
Professional Geologist #1418

5-23-03  
Date

DBS



# HANDEX<sup>®</sup>

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Site 11

April 29, 2003

Mr. Wilbur Mayorga  
Miami-Dade County  
Department of Environmental Resources Management  
33 SW 2nd Avenue  
Miami, Florida 33130

RECEIVED

MAY 06 2003

DERM  
POLLUTION CONTROL  
DIVISION

RE: **Natural Attenuation Monitoring - Quarterly Status Report  
Year 1, Quarter 4/ Site Rehabilitation Completion Report**  
Lido Spa Hotel/Health Resort  
40 Island Avenue  
Miami Beach, Florida 33139  
UT-6155/File-18392 / FDEP Facility ID No. 139803801

Dear Mr. Mayorga:

Handex of Florida, Inc. (Handex), on behalf of Lido Spa Hotel, is pleased to provide this Quarterly Status Report (QSR) summarizing the groundwater sampling activities for Natural Attenuation Monitoring performed at the above referenced site pursuant to the Miami-Dade County Department of Environmental Resources Management (DERM) correspondence dated May 15, 2002. A copy of the correspondence is included as **Appendix A**. A site plan is included as **Figure 1**.

### Groundwater Analysis

On April 3, 2003, Handex collected depth to water measurements and groundwater samples from the above referenced site. Groundwater samples from two monitoring wells (MW-1 and MW-3) were collected and analyzed for volatile organic aromatics (VOAs) including methyl-tert-butyl-ether (MTBE) by Environmental Protection Agency (EPA) Method 8021B, polynuclear aromatic hydrocarbons (PAHs) by EPA Method 8270C, and total recoverable petroleum hydrocarbons (TRPH) by Method FL-PRO. All field procedures were performed in accordance with Handex's FDEP-approved Comprehensive Quality Assurance Plan (CompQAP #870217G) and revised Chapter 62-160, F.A.C. that became effective on April 10, 2002, and incorporates by reference the current FDEP Standard Operating Procedures (SOP) for Field Activities. The groundwater samples were placed on ice and shipped to Severn Trent Laboratories - Miami, an FDEP-certified environmental laboratory. Depth to water measurements collected from four monitoring wells (MW-1 through MW-4) are summarized in **Table 1**. A groundwater elevation map, indicating a northeast groundwater flow direction, is included as **Figure 2**.

Results of the analysis of the groundwater samples collected during the April 3, 2003 sampling event indicated dissolved hydrocarbon concentrations to be either below method detection limits or below Chapter 62-777 F.A.C. Table I Groundwater and Surface Water Cleanup Target Levels (Table I Target Levels). A summary of the groundwater analysis is presented in **Table 2** and **Table 3** and illustrated in **Figure 3** and **Figure 4**. The groundwater sampling logs are included in **Appendix B**. The laboratory analytical report and chain-of-custody documentation for this sampling event is included in **Appendix C**.

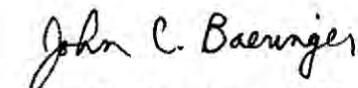
As per the May 15, 2002 DERM correspondence, based on the fact that two consecutive quarterly sampling events have returned results below Table I Target Levels, Handex, on behalf of Lido Spa, requests a No Further Action (NFA) determination for the site.

If you have any questions or require further information, please contact John C. Baeringer at (561) 243-9551, ext. 122.

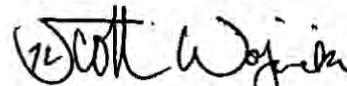
Respectfully submitted,  
**HANDEX OF FLORIDA, INC.**



Basith Mohammed  
Staff Hydrogeologist



John C. Baeringer, P.G.  
Project Manager



Scott Wojcicki  
Project Manager

cc: Mr. Chuck Edelstein, Lido Spa Hotel, 40 Island Avenue, Miami Beach, FL  
Ms. Teri Sonn, Leopold, Korn, & Leopold, P.A., 20801 Biscayne Blvd, Suite 501, Aventura, FL 33180  
Ms. Stacey Rowe, 1221 Birckell Avenue, Miami, FL 33131

5/1/03

**Table 1**

**GROUNDWATER ELEVATION TABLE**

Facility Name: LIDO SPA

Facility ID#: 139803801

All Measurements = Feet  
No Data = Blank

Well No.	MW-1	MW-2	MW-3	MW-4		
Diameter (inches)	2	2	2	2		
Well Depth	11.80	11.74	11.72	12.06		
Screen Interval	1.8 to 11.8	1.74 to 11.74	1.72 to 11.72	2.06 to 12.06		
TOC Elevation	8.77	8.51	8.29	8.39		

DATE	ELEV	DTW	FP	ELEV	DTW	FP	ELEV	DTW	FP									
07/15/2002	6.50	2.27	0.00	6.37	2.14	0.00	6.14	2.15	0.00	6.18	2.21	0.00						
10/16/2002	6.69	2.08	0.00	8.21	1.77	0.00	6.10	2.19	0.00	6.28	2.11	0.00						
01/17/2003	5.59	3.18	0.00	5.42	3.09	0.00	5.35	2.94	0.00	5.47	2.92	0.00						
04/03/2003	5.77	3.00	0.00	5.63	2.88	0.00	5.48	2.81	0.00	5.48	2.91	0.00						

**Table 2**  
**SUMMARY OF GROUNDWATER ANALYSES**  
 BTEX + MTBE by EPA Method 8260 B

LIDO SPA  
 40 ISLAND AVE. VENETIAN CAUSEWAY  
 MIAMI BEACH, FLORIDA

Sample Location	Date	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE
Table I Target Level		1	40	30	20	50
Table V Source Concentration		100	400	300	200	500
MW-1	07/15/02	3.38	<1.000	1.25	<1.000	<1.000
	10/16/02	4.94	<1.000	1.92	<1.000	<1.000
	01/17/03	<1.000	<1.000	<1.000	<1.000	<1.000
	04/03/03	<1.000	<1.000	2.07	<1.000	<1.000
MW-3	07/15/02	<1.000	<1.000	<1.000	1.17	<1.000
	10/16/02	<1.000	<1.000	<1.000	<1.000	<1.000
	01/17/03	<1.000	<1.000	<1.000	<1.000	<1.000
	04/03/03	<1.000	<1.000	<1.000	<1.000	<1.000

NOTE: All results reported in micrograms per liter (ug/l). "NS" denotes not sampled. "MTBE" denotes methyl tertiary butyl ether. "Table I" refers to Table I, Groundwater and Surface Water Target Levels (Groundwater Criteria) of FDEP Chapter 62-777 F.A.C. "Table V" refers to Table V, Natural Attenuation Default Concentrations (Source) of FDEP Chapter 62-777 F.A.C.

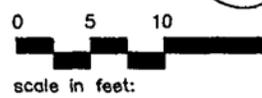
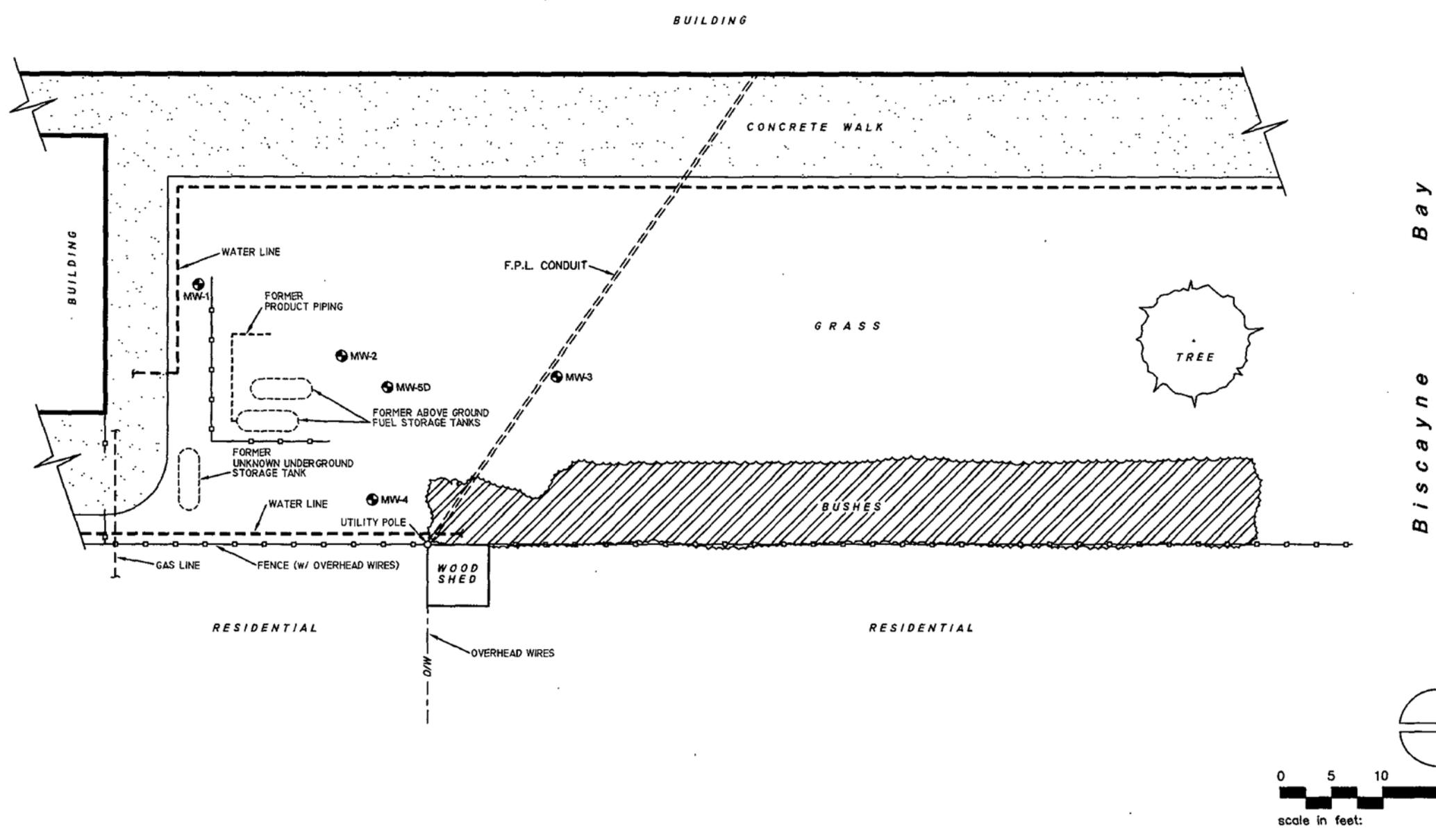
**TABLE 3**  
**SUMMARY OF GROUNDWATER ANALYSES**  
 PAHs by EPA Method 810 or 8310  
 PRO's by FL PRO

LIDO SPA  
 40 ISLAND AVE. VENETIAN CAUSEWAY  
 MIAMI BEACH, FLORIDA

Sample Location	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)Anthracene	Benzo(a)Pyrene	Benzo(b)Fluoranthene	Benzo(g,h,i)Perylene	Benzo(k)Fluoranthene	Chrysene	Dibenz(a,h)Anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)Pyrene	1-Methyl Naphthalene	2-Methyl Naphthalene	Naphthalene	Phenanthrene	Pyrene	TRPH
Table I Target Level		20	210	2100	0.2	0.2	0.2	210	0.5	4.8	0.2	280	280	0.2	20	20	20	210	210	5000
Table V Source Conc.		200	2100	21000	20	20	20	2500	50	480	20	2800	2800	20	200	200	200	2100	2100	50000
MW-1	07/15/02	<3.000	<3.000	<0	<0	<0	<0	<0	<1.000	<1.000	<0	<0	<5.000	<0	18.9	12.1	15.8	<5	<0	530
	10/16/02	<3.000	<3.000	<0	<0	<0	<0	<0	<1.000	<1.000	<0	<0	<5.000	<0	25.5	20	21.1	<5	<0	1130
	01/17/03	<3.000	<3.000	<0.300	<0.200	<0.200	<0.200	<0.200	<0.500	<1.000	<0.200	<0.300	<5.000	<0.200	5.31	<5.000	8.61	<5.000	<0.300	804
	04/03/03	<3.000	<3.000	<0.300	<0.200	<0.200	<0.200	<0.200	<0.500	<1.000	<0.200	<0.300	<5.000	<0.200	15.5	9.66	19.5	<5.000	<0.300	872
MW-3	07/15/02	<3.000	<3.000	<0	<0	<0	<0	<0	<1.000	<1.000	<0	<0	<5.000	<0	10.8	10.5	5.95	<5.000	<0	<1.000
	10/16/02	<3.000	<3.000	<0	<0	<0	<0	<0	<1.000	<1.000	<0	<0	<5.000	<0	<5.000	<5.000	<5.000	<5.000	<0	<1.000
	01/17/03	<3.000	<3.000	<0.300	<0.200	<0.200	<0.200	<0.200	<0.500	<1.000	<0.200	<0.300	<5.000	<0.200	<5.000	<5.000	<5.000	<5.000	<0.300	<500
	04/03/03	<3.000	<3.000	<0.300	<0.200	<0.200	<0.200	<0.200	<0.500	<1.000	<0.200	<0.300	<5.000	<0.200	<5.000	<5.000	<5.000	<5.000	<0.300	<500

NOTE: All results reported in micrograms per liter (ug/l). NS denotes not sampled. PAHs denotes Polynuclear Aromatic Hydrocarbons. TRPH refers to Total Recoverable Petroleum Hydrocarbons. Table I, refers to Table I, Groundwater and Surface Water Target Levels (Groundwater Criteria) of FDEP Chapter 62-777 F.A.C. Table V, refers to Table V, Natural Attenuation Default Concentrations (Source) of FDEP Chapter 62-777 F.A.C.

**LEGEND:**  
 MW-1 ⊕ = MONITOR WELL  
 ("D" INDICATES D)



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HANDEX OF FLORIDA  
 2055 S. CONGRESS AVENUE  
 DELRAY BEACH, FLORIDA 33445  
 Phone: 561.243.9551  
 Fax: 561.243.8707

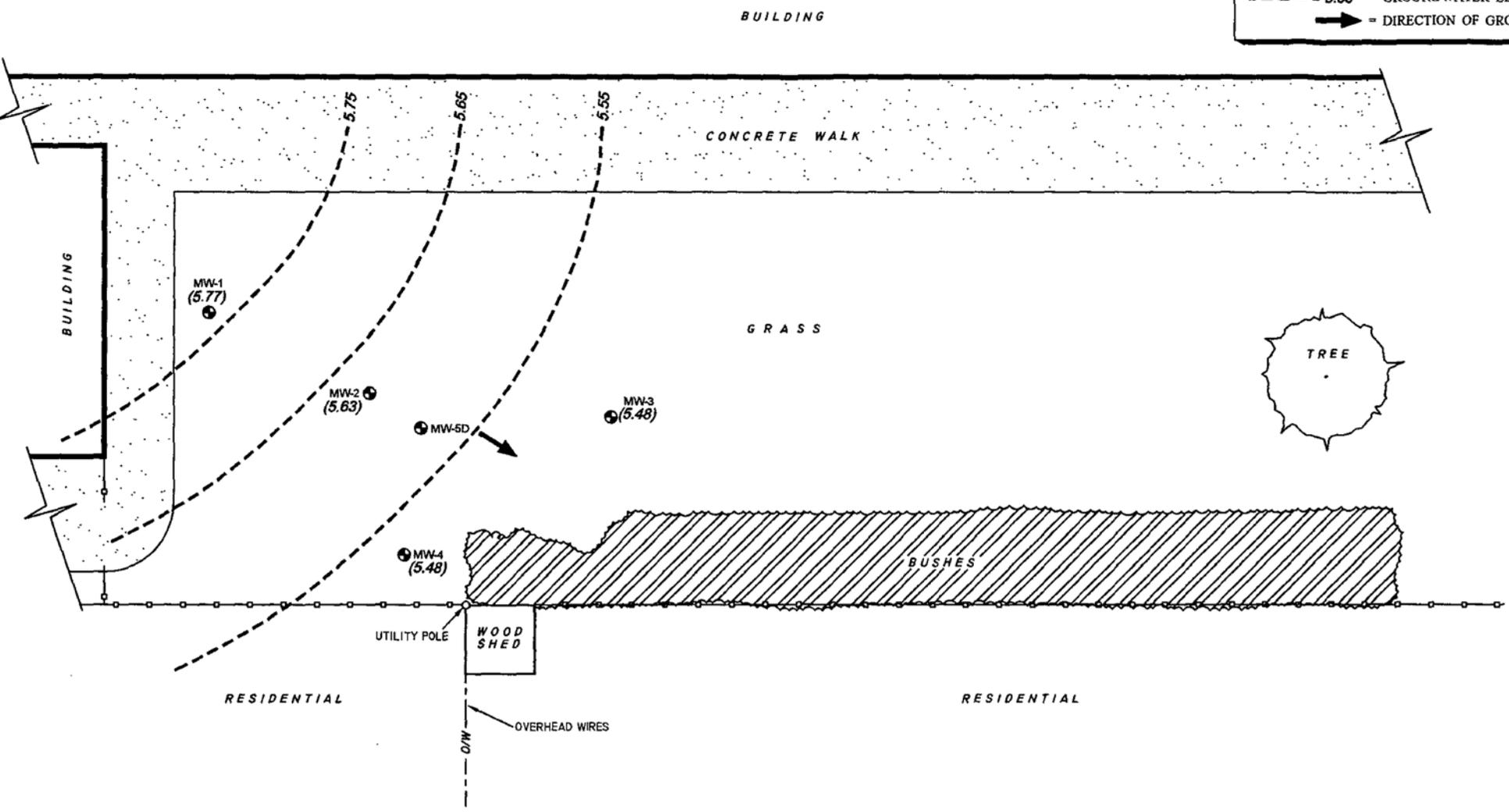
DRAWN BY:	H.G.
REVISED BY:	
APPROVED BY:	R.W.
DATE:	JULY 31, 2002
SCALE:	1" = 10'

LIDO SPA HOTEL / HEALTH RESORT  
 40 Island Avenue  
 Miami Beach, Florida

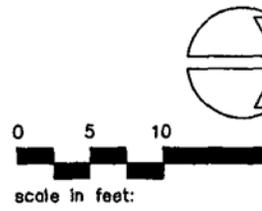
SITE PLAN

**LEGEND:**

- MW-1 (5.77) = MONITOR WELL ("D" INDICATES DEEP)
- (5.35) = GROUNDWATER ELEVATION (In Feet)
- - - 5.55 = GROUNDWATER ELEVATION CONTOUR
- = DIRECTION OF GROUNDWATER FLOW



Biscayne Bay



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 DELRAY BEACH, FLORIDA 33445  
 Phone: 561.243.9551  
 Fax: 561.243.8707

DRAWN BY:	H.G.
REVISED BY:	
APPROVED BY:	R.W.
DATE:	MAY 1, 2003
SCALE:	1" = 10'

**LIDO SPA HOTEL / HEALTH RESORT**  
 40 Island Avenue  
 Miami Beach, Florida

**GROUNDWATER ELEVATION MAP**  
 April 3, 2003

**LEGEND:**

MW-1 (with symbol) = MONITOR WELL  
 ("D" INDICATES DEEP)  
 BDL = BELOW DETECTION LIMIT

1-17-03	= DATE SAMPLED
1	= BENZENE IN ug/L
40	= TOLUENE IN ug/L
30	= ETHYLBENZENE IN ug/L
20	= TOTAL XYLENES IN ug/L
50	= MTBE IN ug/L

BUILDING

CONCRETE WALK

7-15-02	10-16-02	1-17-03	4-3-03
3	5	BDL	BDL
BDL	BDL	BDL	BDL
1	2	BDL	2
BDL	BDL	BDL	BDL
BDL	BDL	BDL	BDL

7-15-02	10-16-02	1-17-03	4-3-03
BDL	BDL	BDL	BDL
BDL	BDL	BDL	BDL
BDL	BDL	BDL	BDL
1	BDL	BDL	BDL
BDL	BDL	BDL	BDL

GRASS

TREE

MW-2

MW-5D

MW-3

MW-4

BUSHES

WOOD SHED

OVERHEAD WIRES

RESIDENTIAL

RESIDENTIAL

M/W

0 5 10

scale in feet:

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 2055 S. CONGRESS AVENUE  
 DELRAY BEACH, FLORIDA 33445  
 Phone: 561.243.9551  
 Fax: 561.243.8707

DRAWN BY: H.G.  
 REVISED BY:  
 APPROVED BY: R.W.  
 DATE: MAY 3, 2003  
 SCALE: 1" = 10'

LIDO SPA HOTEL / HEALTH RESORT  
 40 Island Avenue  
 Miami Beach, Florida

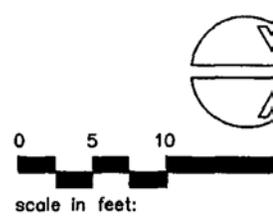
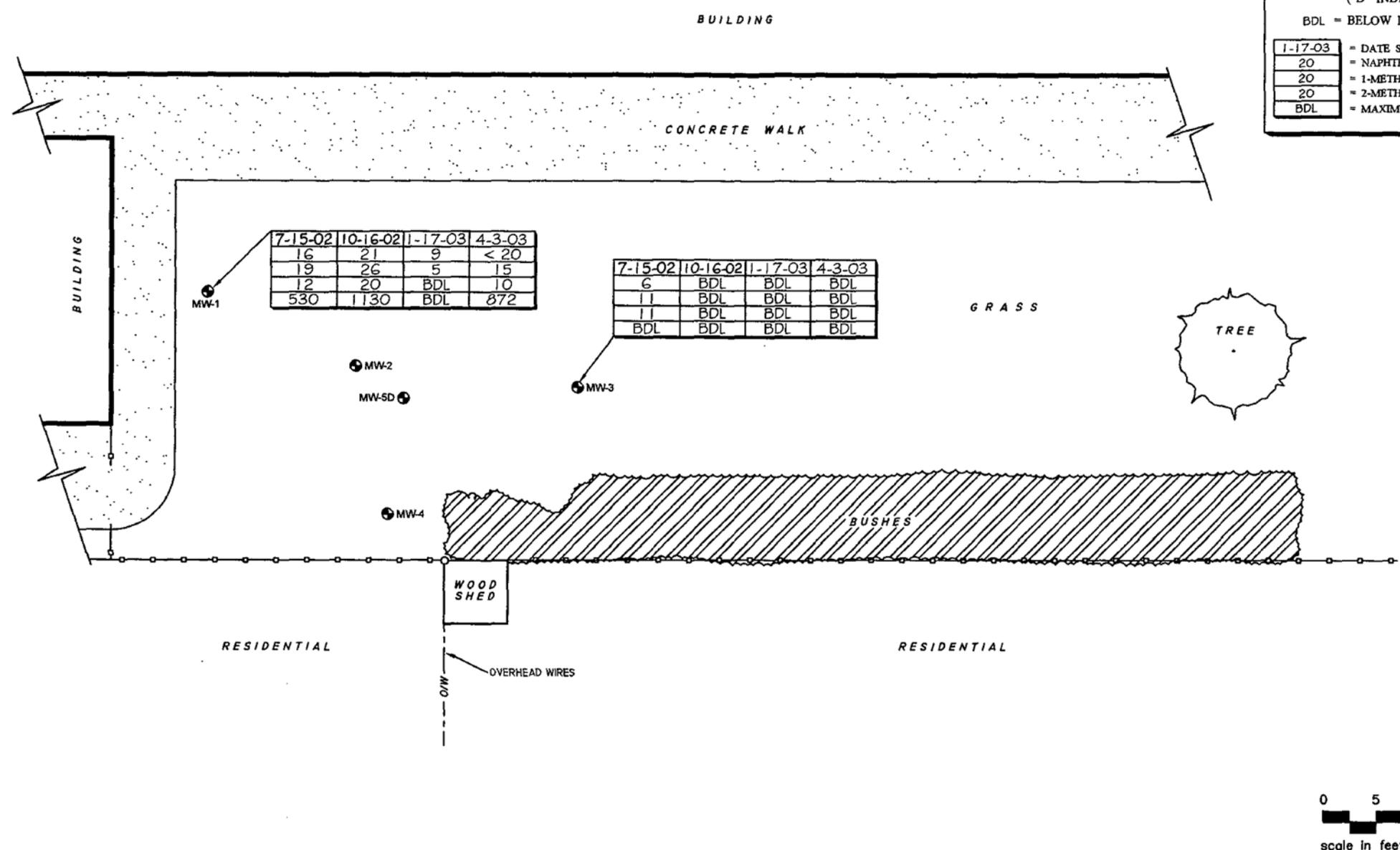
DISTRIBUTION OF  
 BTEX and MTBE IN GROUNDWATER  
 April 3, 2003

**LEGEND:**

MW-1 ⊕ = MONITOR WELL  
("D" INDICATES DEEP)

BDL = BELOW DETECTION LIMIT

1-17-03	= DATE SAMPLED
20	= NAPHTHALENE IN ug/L
20	= 1-METHYLNAPHTHALENE IN ug/L
20	= 2-METHYLNAPHTHALENE IN ug/L
BDL	= MAXIMUM TRPH IN ug/L



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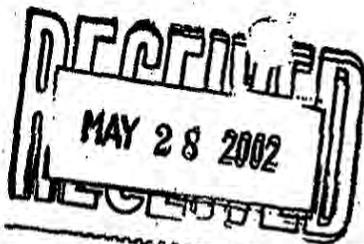
HANDEX OF FLORIDA  
2055 S. CONGRESS AVENUE  
DELRAY BEACH, FLORIDA 33445  
Phone: 561.243.9551  
Fax: 561.243.8707

DRAWN BY: H.G.  
REVISED BY:  
APPROVED BY: R.W.  
DATE: MAY 1, 2003  
SCALE: 1" = 10'

LIDO SPA HOTEL / HEALTH RESORT  
40 Island Avenue  
Miami Beach, Florida

DISTRIBUTION OF NAPHTHALENE,  
1-METHYLNAPHTHALENE, 2-METHYLNAPHTHALENE  
AND MAXIMUM TRPH IN GROUNDWATER  
April 3, 2003

MIAMI-DADE COUNTY, FLORIDA



ENVIRONMENTAL RESOURCES MANAGEMENT  
POLLUTION CONTROL DIVISION  
33 S.W. 2nd AVENUE  
SUITE 800  
MIAMI, FLORIDA 33130-1540  
(305) 372-8817

May 15, 2002

CERTIFIED MAIL NO. 70010320000338131536

RETURN RECEIPT REQUESTED

Bernard S. Edelstein,  
Aaron J. Edelstein, & S. Gruss  
Lido Spa  
40 Island Avenue  
Miami Beach, FL 33139

Subject: Monitoring Only Plan Approval  
Lido Spa Hotel/Health Resort  
40 Island Drive  
Miami Beach, Miami-Dade County  
UT-6155/File-18392  
FDEP Facility ID# 139803801

Dear Messrs. Edelstein and Gruss:

The Department of Environmental Resources Management (DERM) has completed the review of the Site Assessment Report Addendum and Monitoring Only Proposal for Natural Attenuation dated April 18, 2002 (received April 22, 2002) prepared and submitted by Handex, Inc. for the discharge discovered on January 24, 2001 at this site. Pursuant to Rule 62-770.690, Florida Administrative Code (F.A.C.), the Department approves the Site Assessment Report Addendum and Monitoring Only Proposal. Water-level measurements should be made immediately prior to each sampling event. The analytical results (laboratory report), chain of custody, cumulative summary table of the analytical results, site map(s) illustrating the most recent analytical results, and the water-level elevation information (cumulative summary table and most recent flow interpretation map), should be submitted to the Department within 60 days of sample collection.

The monitoring wells to be sampled, the sampling parameters, and the sampling frequency are as follows:

<u>Monitoring Wells</u>	<u>Parameters</u>	<u>Frequency</u>
MW-1 and MW-3	VOA, PAH and TRPH	Quarterly

The sampling frequency will be evaluated following the submittal of the first annual report. If monitoring is expected to last more than two years, it may be prudent to establish a different sampling frequency (semiannual or annual sampling). If there are enough data to estimate the monitoring period necessary to achieve the applicable No Further Action criteria set forth in Rule 62-770.680, F.A.C., then that time period should be established and annual "milestone" objectives calculated.

Messrs. Edelstein and Gruss

UT-6155/File #18392

May 15, 2002

Page 2

If concentrations of chemicals of concern in any of the designated wells increase above the levels listed in Table V of Chapter 62-777, FAC, then the resampling described in Rule 62-770.690(7), F.A.C. should be performed no later than 30 days after the initial positive results are known. If the results of the resampling confirm the initial sampling results, then a summary report which includes a proposal as described in Rule 62-770.690(7)(f) F.A.C., should be submitted.

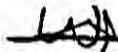
If the applicable No Further Action criteria in Rule 62-770.680, F.A.C., are achieved during the monitoring period for at least two consecutive sampling events, the final deliverable report will serve as the Site Rehabilitation Completion Report required in Rule 62-770.690(8), F.A.C. If the applicable No Further Action criteria in Rule 62-770.680, F.A.C., are not achieved following one year of monitoring, then the final deliverable report should include a recommendation for the next course of action, as described in Rule 62-770.690(7)(g), F.A.C.

Therefore, within ninety (90) days of receipt of this letter, submit to this office for review two (2) copies of a Quarterly Status Report (QSR) prepared in accordance with Chapter 62-770, F.A.C. Subsequent quarterly reports must be submitted in ninety (90) day intervals for the remainder of the approved monitoring period.

Be advised that failure to comply with the above may result in enforcement action for this site.

If you should have any questions concerning this review, please contact Rodolfo Rego at (305) 372-6700.

Sincerely,



Wilbur Mayorga, P.E., Chief  
Pollution Remediation Section

RR

pc: Grace Rivera, FDEP  
John C. Baeringer, P.G., Project Manager, Handex of Florida, Inc., 2055 S. Congress Avenue, Delray Beach, FL 33445

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POLLUTION REMEDIATION  
SECTION

**SITE ASSESSMENT REPORT**

**Lido Spa Hotel/Health Resort  
40 Island Avenue  
Miami Beach, Florida 33139  
FDEP FACILITY NO. 139803801**

Prepared for:  
Miami-Dade County  
Department of Environmental Resources Management  
33 SW 2<sup>nd</sup> Avenue,  
Miami, Florida 33130

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DEPARTMENT OF  
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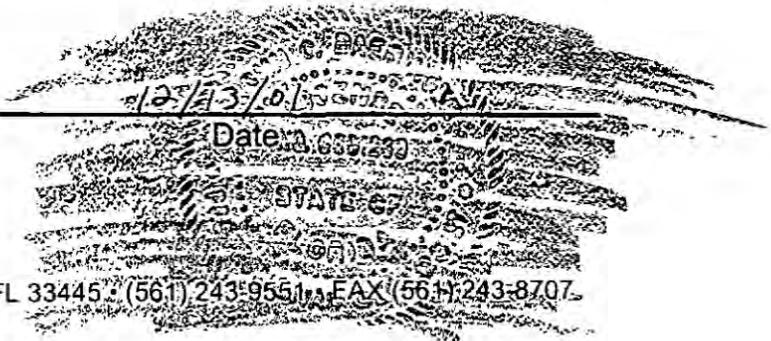
Prepared by:  
**HANDEX OF FLORIDA, INC.**  
2055 S. Congress Avenue  
Delray Beach, Florida 33445  
(561) 243-9551

Basith Mohammed  
Hydrogeologist

12/13/01

Date

John C. Baeringer, P.G.  
Project Manager



## TABLE OF CONTENTS

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## 1.0 INTRODUCTION

Handex of Florida, Inc. (Handex) was retained by Lido Spa Hotel and Health Resort (Lido Spa) to prepare a Site Assessment Report (SAR) for the facility located at 40 Island Avenue, Miami Beach, Miami-Dade County, Florida. A topographic map showing the site location is included as **Figure 1**. The purpose of this report was to determine the current soil and groundwater conditions resulting after tank closure and source removal activities on the site.

## 2.0 SITE DESCRIPTION AND ADJACENT LAND USE

Lido Spa is located on the USGS "Miami Beach, FLA" quadrangle map (**Figure 1**). Lido Spa is a relatively flat waterfront property located on a small barrier island in a primarily residential area of Miami Beach. The elevation of the site is approximately 7 feet above National Geodetic Vertical Datum (NGVD). Residential property surrounds the immediate vicinity of the resort. It is bordered to the north by the Biscayne Bay, to the east and west by residential property, and to the south by a parking lot followed by Island Avenue and Presidential Condominiums (residential property). A site location map is included as **Figure 2**.

## 3.0 SITE HISTORY AND SOURCE REMOVAL

Lido Spa is an operating resort facility. A Discharge Reporting Form was filed with the Miami-Dade County Department of Environmental Resources Management (DERM) on January 25, 2001 reporting the release of an unknown amount of fuel oil from the product transfer piping system supplying the Lido Spa boiler. The fuel oil was discharged onto pervious soil inside a fenced compound area that contained two (2) 350-gallon above ground storage tanks (ASTs). Liquid Phase Hydrocarbons (LPH) free product was recovered by clay absorbents and soil excavation followed by containment of contaminated soil in four 55-gallon drums. A corroded connection on the product transfer piping was believed to be the source of the discharge. The elbow was replaced and the system was placed back on-line.

Subsequently, a slight sheen of fuel oil discharge was observed on the water surface of the Biscayne Bay, approximately 300 feet from the discharge area. The source of this sheen appeared to be fuel oil from a terra cotta pipe that ran from the seawall back to the discharge area. The sheen was contained using absorbent booms and by plugging the terra cotta pipe.

On June 4, 2001, Cliff Berry Incorporated (CBI) removed two 350-gallon ASTs located on top of the previously documented hydrocarbon impacted soil. On June 6, 2001, during the soil excavation, an abandoned 750-gallon steel underground tank was discovered on site and removed by Handex with the permission of DERM.

The source removal activities continued through June 8, 2001 during which Handex conducted field screening of soil samples and also collected soil samples for laboratory analyses. Vertically, hydrocarbon impacted soil was excavated to the water table. Horizontally, hydrocarbon impacted soil was removed until acceptable Organic Vapor Analyzer (OVA) readings were obtained or until structures were encountered that prevented further Source Removal. A total of 197 tons of hydrocarbon impacted soil was removed from the site by CBI and transported to CSR Rinker Environmental Services for proper disposal.

After the completion of the Source Removal, Handex collected five confirmation soil samples (SS-4, SS-8, SS-15, SS-19, and SS-25) for laboratory analysis for BTEX + MTBE by EPA Method 8021B, PAHs by EPA Method 8270C, and TRPHs by FDEP Method FL PRO.

Results of the laboratory analysis for soil samples collected from SS-4, SS-15, and SS-25 revealed the presence of select analyzed hydrocarbon constituents above the applicable Chapter 62-777 F.A.C. Table II Soil Cleanup Target Levels, Leachability based on Groundwater Criteria.

A Source Removal and Tank Closure Assessment Report was prepared by Handex and submitted to DERM on August 7, 2001. After review of the report, DERM responded with a correspondence dated September 21, 2001 (see **Appendix A**). The correspondence requested the submittal of an approvable SAR prepared in accordance with Chapter 62-770 F.A.C.

#### **4.0 LOCAL RECEPTOR SURVEY**

##### **4.1 WATER WELL SURVEY**

A public potable well survey was conducted within a 0.50-mile radius of the site and a private potable/irrigation well survey within a 0.25-mile radius of the site to identify public and private water supplies which might be impacted by petroleum hydrocarbons as a result of a release originating at the Lido Spa site. The survey was conducted by reviewing the FDEP's Drinking Water Database, Water Use Permits at the South Florida Water Management District, Miami-Dade Wellfield Protection Areas Map, and by conducting a windshield survey of the area. The FDEP well search data obtained during this investigation is included in **Appendix B**.

There were no irrigation or drinking water wells identified in the ¼-mile and ½-mile radii of the Lido Spa Site. In addition, the site is not located within a wellfield protection zone. The site and surrounding properties are connected to city water provided by the Preston Hialeah Wellfield, which is located on the mainland approximately seven miles to the northwest of the site.

## 4.2 SURFACE WATER

The closest surface water feature is the Biscayne Bay, which is located approximately 300 feet north of the subject site.

## 4.3 UTILITIES

An underground utility inspection was conducted at this site to identify potential avenues for preferential flow of petroleum vapors or petroleum impacted groundwater. Sunshine State One, the utility locating service, was contacted to locate the underground utilities on the site. The aboveground and underground utilities identified are shown in **Figure 2**. Based on the soil and groundwater assessment results, it does not appear that these utilities caused preferential migration of hydrocarbons in the soil or groundwater.

## 5.0 SITE ASSESSMENT METHODOLOGY

### 5.1 SOIL SAMPLING METHODOLOGY AND RATIONALE

On October 12, 2001, 15 soil borings designated SB-21 through SB-35 were advanced to evaluate soil quality conditions at the site. **Figure 3** illustrates the locations of the soil borings. The soil borings were performed in the vicinity of the previous soil confirmation samples that exceeded Chapter 62-777 F.A.C. Table II Target Levels. Soil borings were also performed at 50 ft. intervals along the terra cotta pipe as required by the DERM correspondence dated September 21, 2001. The 50 ft. spacing was verbally approved by Mr. Tomas Fonte of DERM. The soil borings were performed with a stainless steel hand auger, which was properly cleaned between each soil sample collected.

Soil samples were collected for field screening at 2-foot intervals to a depth of 0.5 to 2.0 feet BLS (below land surface). The soil borings were terminated at two feet BLS because saturated soil associated with the water table was present below this depth. The water table was encountered at approximately 2.0 feet BLS.

Two 16-ounce glass jars were half-filled with soil from each soil sample location, covered with aluminum foil, and allowed to equilibrate. The headspace of each sample was analyzed in the field using an organic vapor analyzer (OVA), equipped with a flame ionization detector. The OVA used was a Foxboro Model #108. Prior to analysis, the OVA was calibrated to a methane standard as recommended by the manufacturer. One of the readings was obtained with the use of an activated charcoal filter, unless the unfiltered reading was non-detect. The total corrected hydrocarbon measurement was determined by subtracting the filtered reading from the unfiltered reading.

On October 12, 2001, Handex representatives also collected one soil sample from the vadose zone for laboratory analysis. This sample was collected from the SB-35 soil boring location, which was located approximately 2 feet east of the subject property and exhibited the highest net OVA reading. This sample was analyzed for BTEX + MTBE by EPA Method 8021B, polynuclear aromatic hydrocarbons (PAHs) by EPA Method 8270C, and total recoverable petroleum hydrocarbons (TRPHs) by FDEP Method FL PRO.

## **5.2 MONITORING WELL INSTALLATION**

On October 12, 2001, Handex supervised the installation of four new single-cased shallow monitoring wells (MW-1, MW-2, MW-3, and MW-4) and one deep well (MW-5D) to assess the horizontal and vertical extent of dissolved hydrocarbons in groundwater at the site. The monitoring well locations are depicted in **Figure 2**.

The monitoring wells were installed by US Drilling, Inc. (US Drilling), a licensed State of Florida Water Well Contractor. Due to limited access to the assessment area, US Drilling used a tripod-mounted drilling rig to install four shallow two-inch diameter wells with Schedule 40 PVC casing, including 10 feet of well screen (0.020-inch slot) and 2 feet of solid riser. The shallow monitoring wells were installed to a total depth (TD) of 12 feet BLS.

The tripod-mounted drilling rig was used to drive 3.25-inch I.D. steel casing with a PVC end plug (steam cleaned prior to use). The PVC well casing was installed inside of the steel casing, the end plug was knocked out, and the steel casing was removed. The annulus for the wells was sand-packed with "6/20" silica sand from 12 feet BLS to approximately one foot above the well screen. The sand packs were sealed with a layer (approximately three inches thick) of bentonite; the remainders of the borehole/casing annuli were filled with neat cement to the land surface. The top of each casing was sealed with a lockable expansion cap. The monitoring wells were developed by overpumping until the groundwater was clear.

The deep well construction for MW-5D was similar to the shallow wells with the exception that the screen length was 2 feet and the solid riser length was 16 feet. The well completion reports and field boring logs summarizing the well construction details are included in **Appendix C**.

## **5.3 GROUNDWATER SAMPLING METHODOLOGY**

On October 22, 2001, groundwater samples were collected for laboratory analyses from four newly installed monitoring wells (MW-1, MW-2, MW-4 and MW-5D). In order to collect representative groundwater samples, all wells were purged of five well volumes of water before sampling. Monitoring well MW-3 was covered by surface water during the October 22, 2001 sampling event; therefore,

MW-3 was sampled on October 25, 2001. All sampling procedures were conducted in accordance with Handex's approved Comprehensive Quality Assurance Plan (CompQAP) #870217G.

The shallow and deep monitoring well groundwater samples were analyzed for BTEX + MTBE by EPA Method 8021B, PAHs by EPA Method 8270C, and TRPHs by FDEP Method FL PRO. In addition, the groundwater sample from MW-2 was analyzed for the remainder of the Kerosene Analytical Group. These analyses include volatile organic halocarbons (VOHs) by EPA Method 8021, ethylene dibromide (EDB) by EPA Method 8011, and total lead by EPA Method 6010.

## **6.0 HYDROGEOLOGIC SETTING**

### **6.1 SITE SPECIFIC GEOLOGY**

Handex determined the shallow surficial lithology during this initial site investigation. The site-specific geology was interpreted from the drilling cuttings brought to the surface by the hollow stem augers during the installation of the shallow and deep monitoring wells. In general the lithology consisted of very fine to fine-grained silty sand, with variable amounts of limestone pebbles and shell fragments to 6 feet BLS. A thin layer of clayey silt was encountered from 5.5 to 6 feet BLS, followed by peat with a trace of clayey silt to a depth of 12 feet BLS. Very fine to medium-grained sand with a trace of silt and shell fragments was present from 12 to 18 feet BLS.

**Appendix C** contains the well construction boring logs and the soil boring logs that describe the site-specific lithology.

### **6.2 GROUNDWATER ELEVATION AND FLOW DIRECTION**

On October 11, 2001, Handex representatives surveyed the monitoring well top-of-casing elevations of MW-1 through MW-4 to evaluate the groundwater flow direction beneath the subject site. A groundwater elevation contour map depicting the groundwater flow direction of the surficial water table was constructed based on water level measurements collected on October 11, 2001. **Table 1** summarizes the groundwater elevation data collected from this site on this date. As shown in **Figure 4**, the surficial groundwater was calculated to be flowing to the northeast, towards Biscayne Bay.

### **6.3 HYDRAULIC GRADIENT**

The average horizontal hydraulic gradient of the surficial water table was evaluated by plotting the water level measurements on a base map and dividing the difference in hydraulic head by the distance between the monitoring wells

MW-1 and MW-3. Based on the data collected on October 11, 2001, an average hydraulic gradient of 0.01 feet per foot (ft/ft) was calculated for the water table beneath the site.

## **7.0 SITE ASSESSMENT RESULTS**

### **7.1 SOIL ASSESSMENT**

Soil samples from SB-21 to SB-35 were used to assess the extent of volatile organics in the soil. Field screening of soil samples was performed using an organic vapor analyzer. The results of the field screening indicated OVA readings ranging from zero parts per million (ppm) to 9 ppm. The highest OVA reading was found to be 9 ppm in the SB-35 location.

**Table 2** summarizes the OVA data collected from the subject site as part of this limited site assessment. **Figure 3** depicts the net OVA readings from the soil samples screened at 0.5 and 1-2 feet BLS, respectively. Boring logs for the soil borings are included in **Appendix C**.

Results of the analyses of confirmation soil sample SB-35 (1-2') were below laboratory detection limits (BDL) or below Chapter 62-777 F.A.C. Table II Target Levels.

A summary of soil analytical results is represented in **Tables 3** and **4**. A copy of soil analytical report is included in **Appendix D**. **Figure 5** illustrates the soil analytical results.

### **7.2 HORIZONTAL EXTENT OF DISSOLVED HYDROCARBONS IN GROUNDWATER**

On October 22 and October 25, 2001 groundwater samples were collected from shallow monitoring wells MW-1 through MW-4. A summary of all groundwater analyses performed is presented as **Tables 5** and **6**.

Groundwater analytical results for MW-1 and MW-3 indicated PAH concentrations above the Chapter 62-777 F.A.C. Table I Groundwater and Surface Water Cleanup Target Levels (Table I Target Levels) but below the Table V Natural Attenuation Levels. Additionally, TRPH concentrations in the MW-1 groundwater sample were above the Table I Target Levels but below the Table V Natural Attenuation Levels. The horizontal extent of dissolved hydrocarbons in groundwater was localized in the areas surrounding the MW-1 and MW-3 monitoring well locations.

The remainder of the analytical results for PAHs, TRPH, BTEX + MTBE, VOHs, EDB, and total lead were either below laboratory detection levels or below

applicable Chapter 62-777 F.A.C. Table I Groundwater and Surface Water Cleanup Target Levels.

The results of the BTEX + MTBE analyses are summarized in **Table 5** and the results of PAH, TRPH, EDB, and total lead analyses are summarized in **Table 6**. A map showing the distribution of BTEX and MTBE is included as **Figure 6** and a map showing the distribution of naphthalene, 1-methylnaphthalene, 2-methylnaphthalene, and TRPH is included as **Figure 7**. The laboratory analytical reports and chain of custody documentation are included as **Appendix D**.

### **7.3 VERTICAL EXTENT OF DISSOLVED HYDROCARBONS IN GROUNDWATER**

On October 22, 2001, Handex personnel sampled deep monitoring well MW-5D. The groundwater sample collected from MW-5D revealed concentrations of BTEX + MTBE, PAHs, and TRPH to be either below laboratory detection levels or below applicable Chapter 62-777 F.A.C. Table I Groundwater and Surface Water Cleanup Target Levels. Results indicate that the vertical extent of dissolved hydrocarbons does not exceed a depth of 16 feet BLS. The results of analyses are represented in **Tables 5 and 6** and in **Figures 6 and 7**.

## **8.0 CONCLUSIONS**

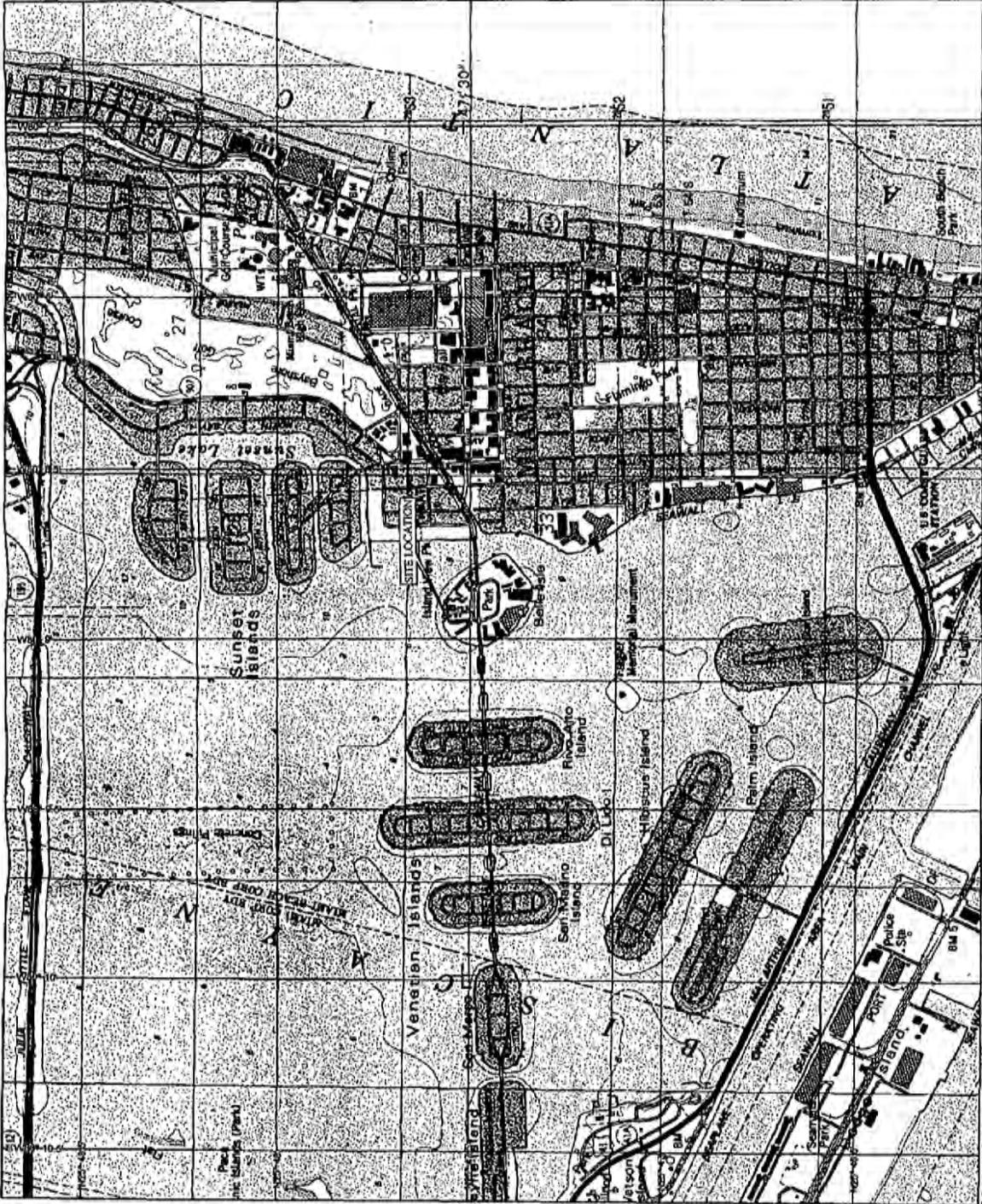
- A total of 15 soil borings were performed at the site. The soil borings were performed in the vicinity of the previous soil confirmation samples that exceeded Chapter 62-777 F.A.C. Table II Target Levels. Soil borings were also performed at 50 ft. intervals along the terra cotta pipe as required by the DERM correspondence dated September 21, 2001.
- Field screening of soil samples with an organic vapor analyzer indicated OVA readings ranging from zero parts per million (ppm) to 9 ppm. The highest OVA reading was found at the SB-35 soil boring location. Laboratory analytical results of the SB-35 (1-2') soil sample were below laboratory detection limits (BDL) or below Chapter 62-777 F.A.C. Table II Target Levels.
- A total of four (4) shallow monitoring wells were installed on the site as a part of this assessment. Groundwater analytical results for MW-1 and MW-3 indicated PAH concentrations above the Chapter 62-777 F.A.C. Table I Groundwater and Surface Water Cleanup Target Levels (Table I Target Levels) but below the Table V Natural Attenuation Levels. Additionally, TRPH concentrations in the MW-1 groundwater sample were above the Table I Target Levels but below the Table V Natural Attenuation Levels. The horizontal extent of dissolved hydrocarbons in groundwater was localized in the areas surrounding the MW-1 and MW-3 monitoring well locations.

- The groundwater sample collected from deep monitoring well MW-5D revealed concentrations of BTEX + MTBE, PAHs, and TRPH to be either below laboratory detection levels or below applicable Target Levels indicating that the vertical extent of dissolved hydrocarbons does not exceed a depth of 16 feet BLS.
- According to local receptor survey, no irrigation drinking water wells were identified in the ¼-mile and ½-mile radii of the Lido Spa site.
- According to a survey of the existing well top-of-casing elevations of MW-1 through MW-4, the surficial groundwater flow direction was to the northeast.
- The underlying geology of the site consists of very fine to fine-grained silty sand, with variable amounts of limestone pebbles and shell fragments to 6 feet BLS. A thin layer of clayey silt was encountered from 5.5 to 6 feet BLS, followed by peat with a trace of clayey silt to a depth of 12 feet BLS. Very fine to medium-grained sand with a trace of silt and shell fragments was present from 12 to 18 feet BLS.
- The average observed depth to groundwater at the site was 2 feet. An average hydraulic gradient of 0.01 ft/ft was calculated for the water table beneath the site.

## **9.0 RECOMMENDATIONS**

Based on the soil and groundwater conditions identified during the site assessment activities at the subject site, Handex recommends implementing a Monitoring Only Plan (MOP) focusing on monitoring wells MW-1 and MW-3. Groundwater analytical results for MW-1 and MW-3 indicated PAH concentrations above the Chapter 62-777 F.A.C. Table I Groundwater and Surface Water Cleanup Target Levels (Table I Target Levels) but below the Table V Natural Attenuation Levels. Additionally, TRPH concentrations in the MW-1 groundwater sample were above the Table I Target Levels but below the Table V Natural Attenuation Levels.

The MOP is recommended because the site assessment did not identify liquid phase hydrocarbons or hydrocarbon-impacted soil exceeding Table II Target Levels. Monitoring wells MW-1 and MW-3 should be sampled on a quarterly basis for BTEX + MTBE by EPA Method 8021B, PAHs by EPA Method 8270C, and TRPHs by FDEP Method FL PRO.



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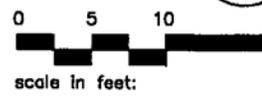
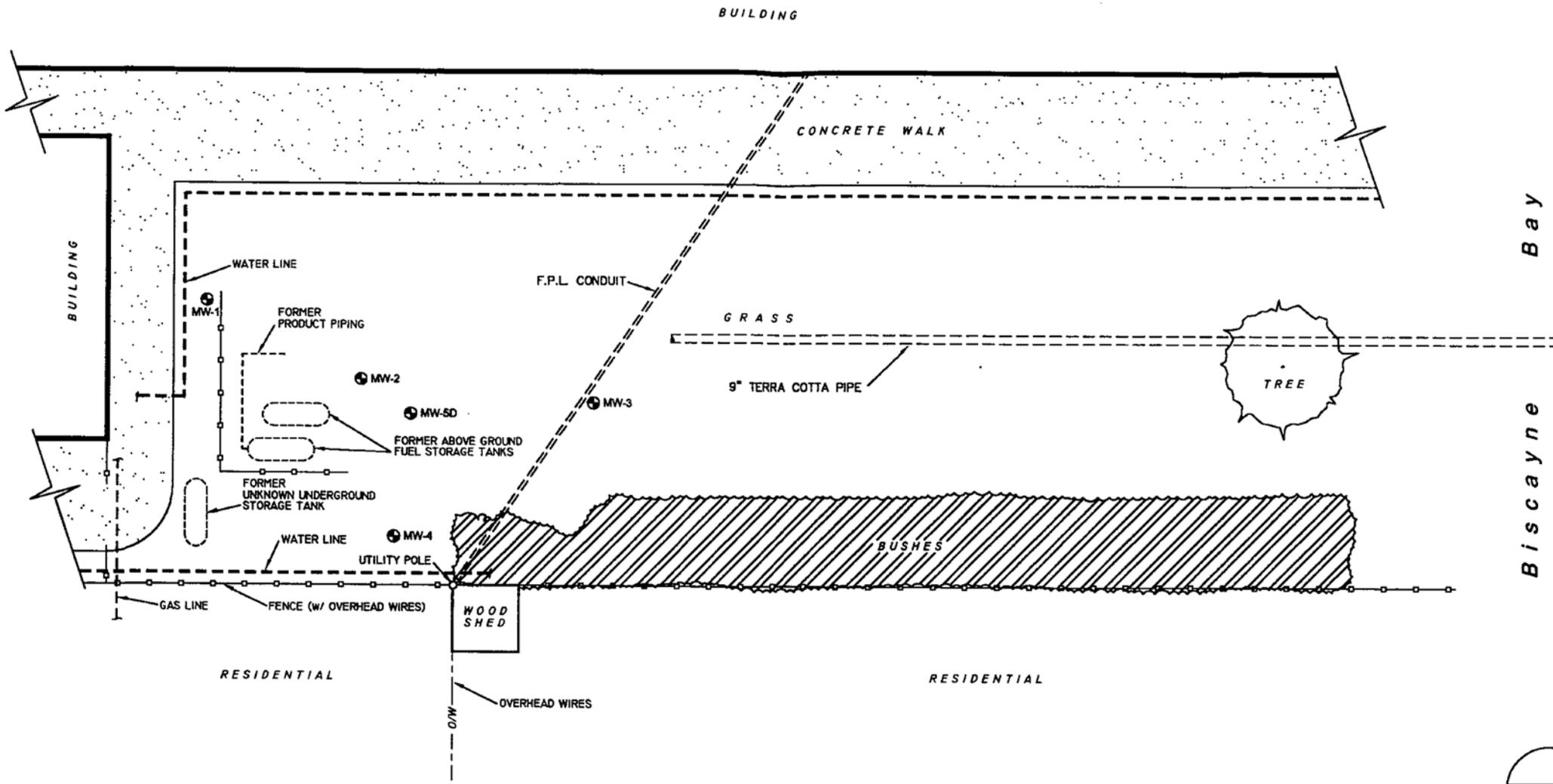
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 APPROVED BY: R.W.  
 DATE: NOVEMBER 27, 2001  
 SCALE: 1" = 24,000'

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TOPOGRAPHIC SITE LOCATION

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**LEGEND:**  
 MW-1 ⊕ = MONITOR WELL  
 ("D" INDICATES D)



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SITE PLAN

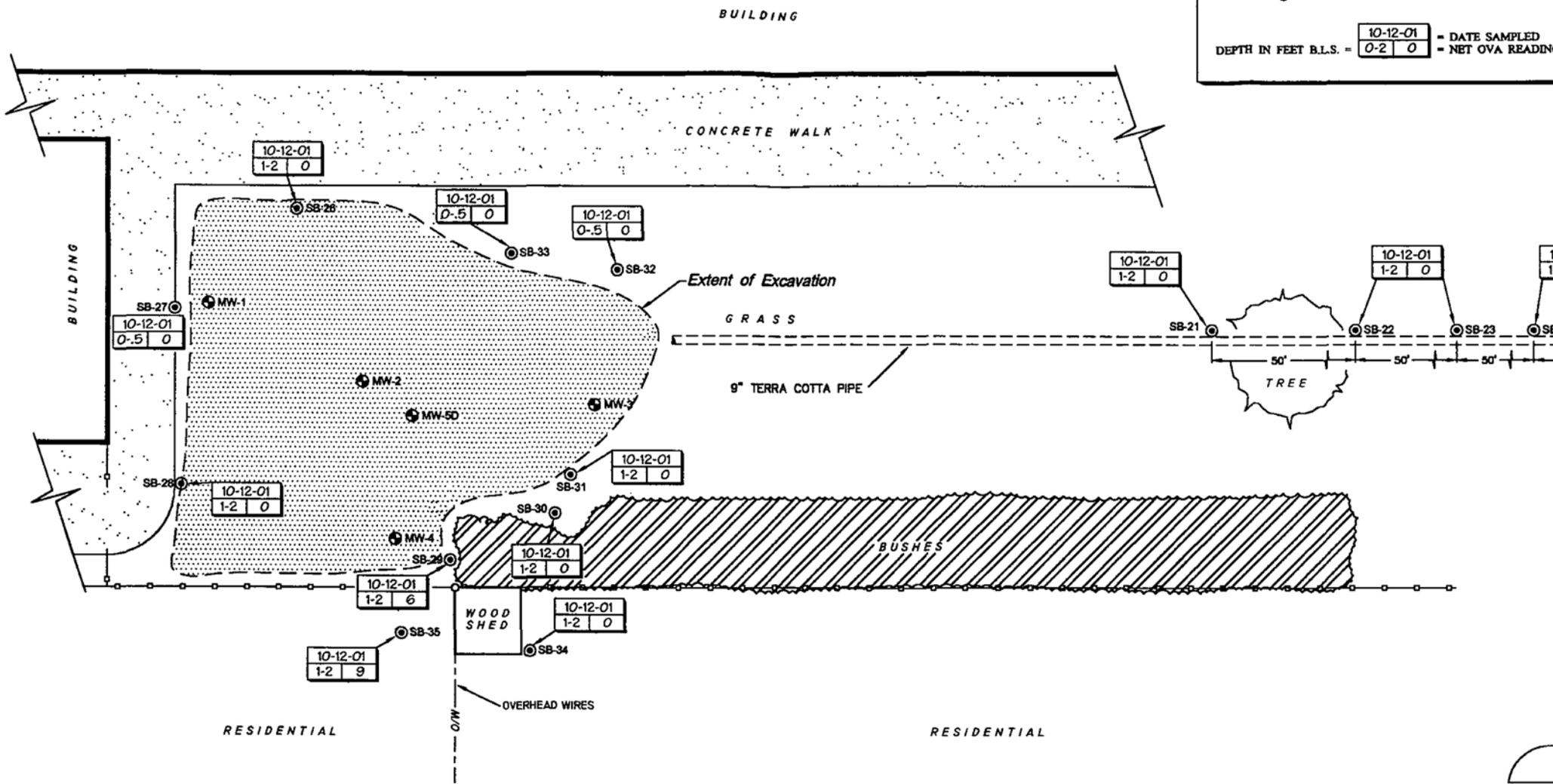
**LEGEND:**

MW-1 (with circle and dot symbol) = MONITOR WELL  
 ("D" INDICATES DEEP)

SB-21 (with circle and dot symbol) = SOIL BORING

DEPTH IN FEET B.L.S. = 

10-12-01	= DATE SAMPLED
0-2   0	= NET OVA READING



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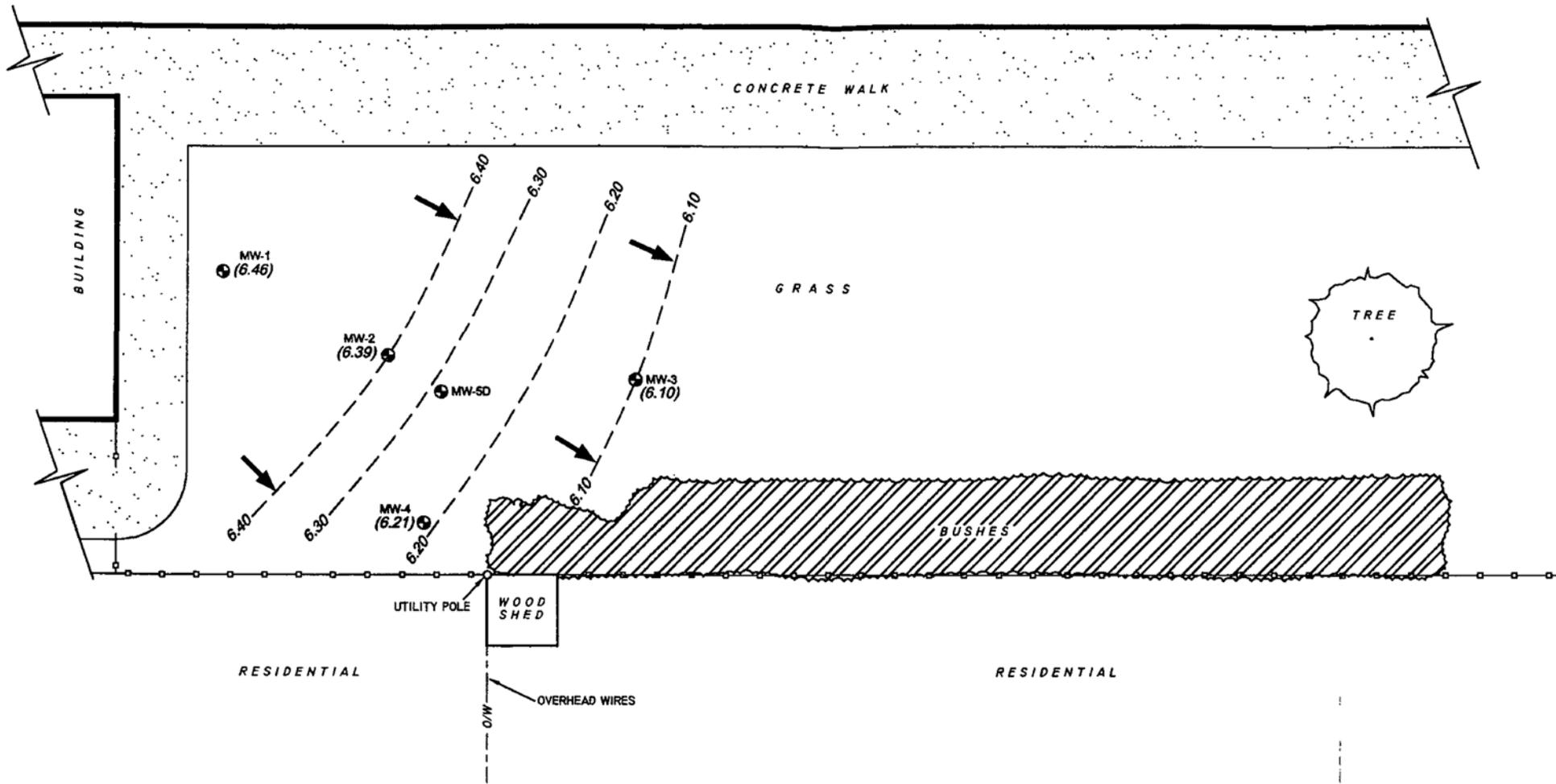
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NET OVA READINGS IN SOIL  
 October 12, 2001

**LEGEND:**

- MW-1 (6.46) = MONITOR WELL ("D" INDICATES DEEP)
- (6.46) = GROUNDWATER ELEVATION (In Feet)
- - - 6.40 = GROUNDWATER ELEVATION CONTOUR
- ➔ = GENERAL DIRECTION OF GROUNDWATER FLOW



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GROUNDWATER ELEVATION MAP  
 October 12, 2001

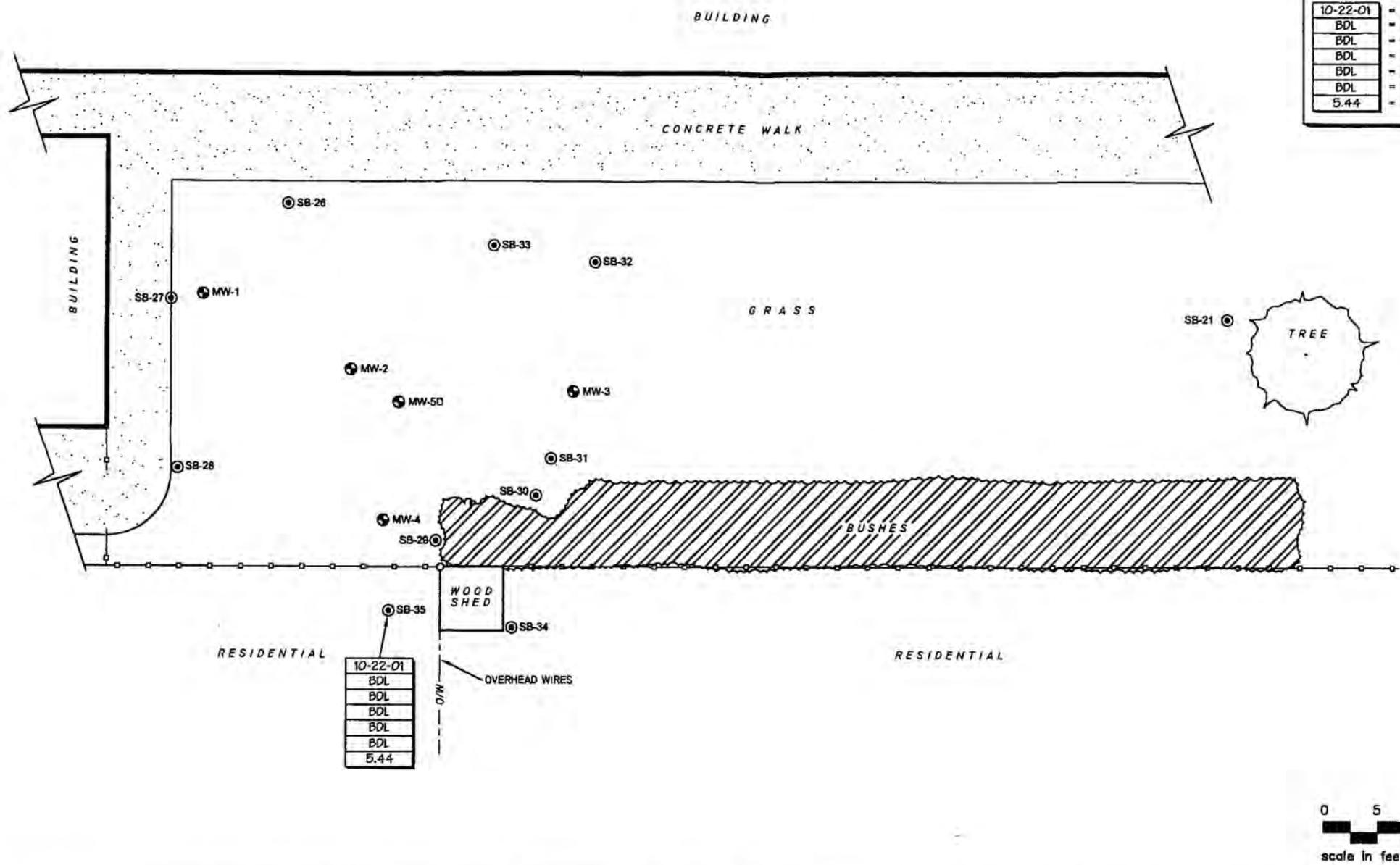
Biscayne Bay

**LEGEND:**

MW-1 (D) = MONITOR WELL  
("D" INDICATES DEEP)

SB-21 (C) = SOIL BORING

10-22-01	= DATE SAMPLED
BDL	= BENZENE IN ug/L
BDL	= TOLUENE IN ug/L
BDL	= ETHYLBENZENE IN ug/L
BDL	= TOTAL XYLENES IN ug/L
BDL	= MTBE IN ug/L
5.44	= TRPH IN ug/L



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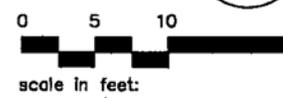
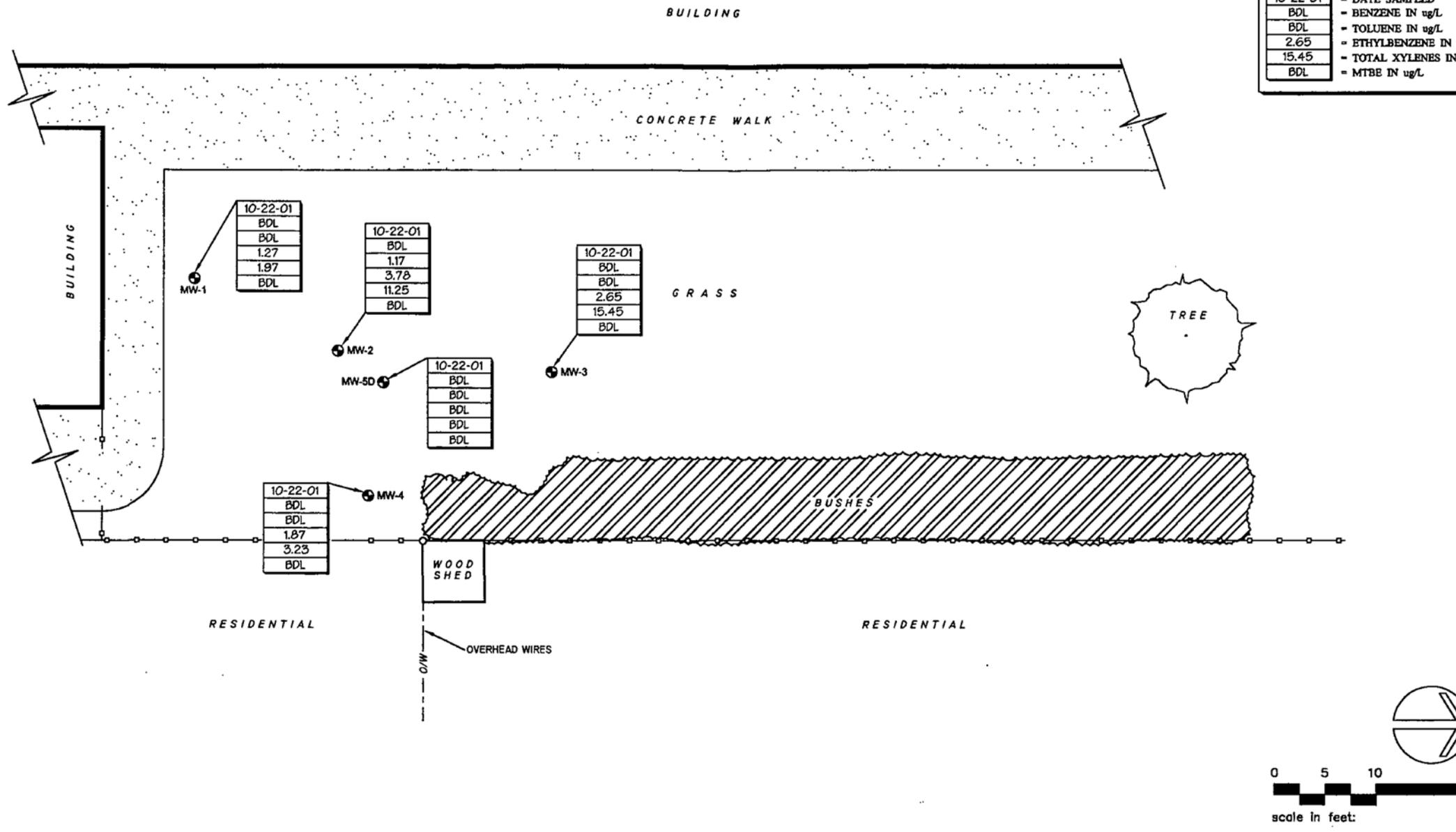
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DISTRIBUTION OF BTEX, MTBE AND  
TRPH IN CONFIRMATION SOIL SAMPLE  
October 12, 2001

FI

**LEGEND:**

- MW-1 = MONITOR WELL  
 ("D" INDICATES DEEP)
- |          |                         |
|----------|-------------------------|
| 10-22-01 | = DATE SAMPLED          |
| BDL      | = BENZENE IN ug/L       |
| BDL      | = TOLUENE IN ug/L       |
| 2.65     | = ETHYLBENZENE IN ug/L  |
| 15.45    | = TOTAL XYLENES IN ug/L |
| BDL      | = MTBE IN ug/L          |



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DISTRIBUTION OF BTEX AND  
 MTBE IN GROUNDWATER  
 October 12, 2001

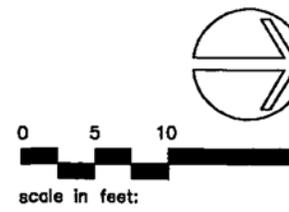
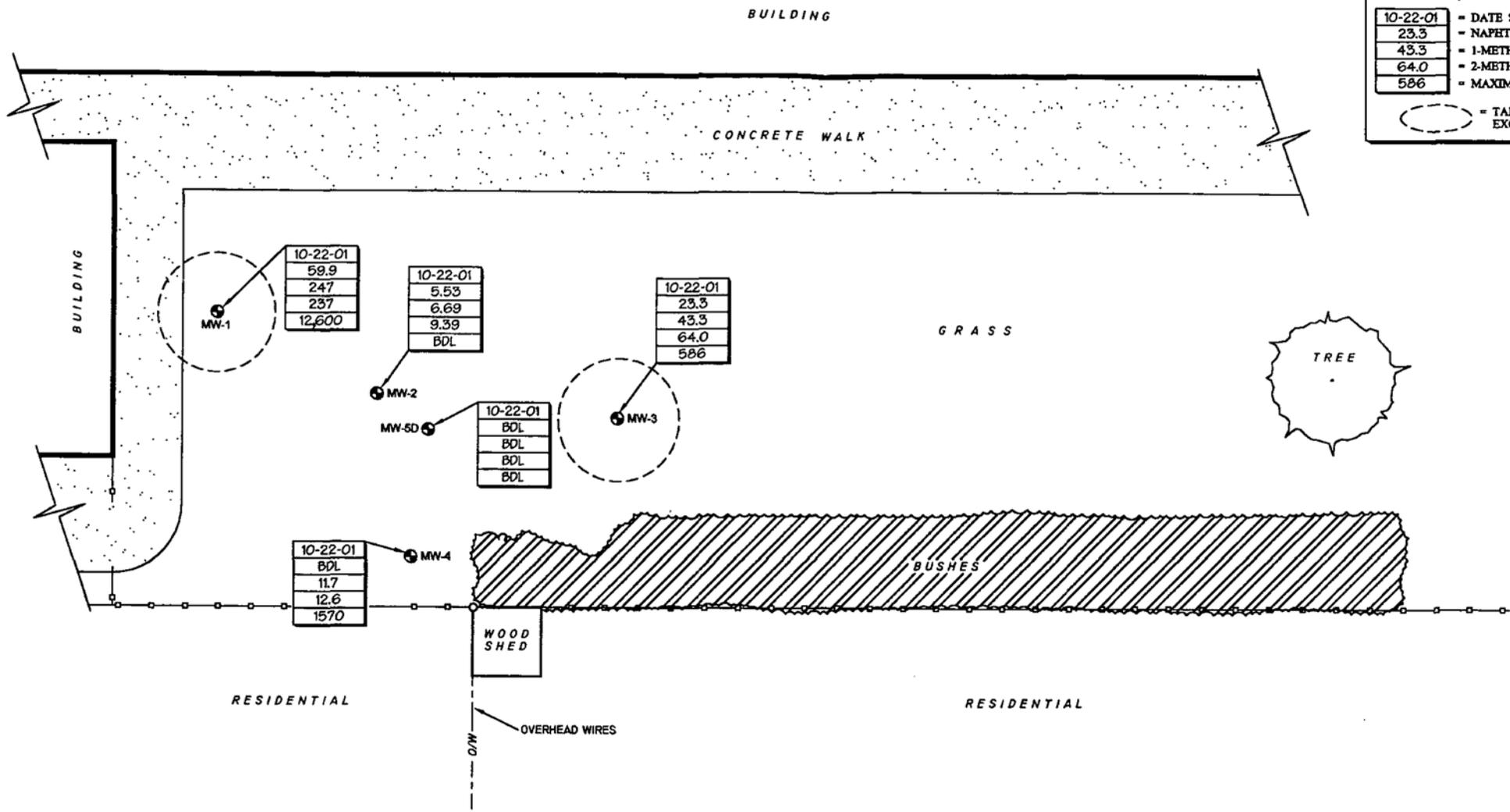
FIG.

**LEGEND:**

MW-1 (D) = MONITOR WELL  
("D" INDICATES DEEP)

10-22-01	= DATE SAMPLED
23.3	= NAPHTHALENE IN ug/L
43.3	= 1-METHYLNAPHTHALENE IN
64.0	= 2-METHYLNAPHTHALENE IN
586	= MAXIMUM TRPH IN ug/L

(Dashed Circle) = TABLE I TARGET LEVEL EXCEEDANCE CONTOUR



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**DISTRIBUTION OF NAPHTHALENE,  
1-METHYLNAPHTHALENE, 2-METHYLNAPHTHALENE  
AND MAXIMUM TRPH IN GROUNDWATER**  
October 12, 2001

FI

**Table 1**

**GROUNDWATER ELEVATION DATA**

**Lido Spa  
40 Island Avenue  
Miami Beach, Florida**

**FDEP FACILITY NO. 139803801**

WELL NO.	MW-1	MW-2	MW-3	MW-4
DIAMETER	2 in.	2 in.	2 in.	2 in.
WELL DEPTH	11.80 feet	11.74 feet	11.72 feet	12.06 feet
SCREEN INTERVAL	10.00 feet	10.00 feet	10.00 feet	10.00 feet
TOC ELEVATION	8.77 feet	8.51 feet	8.29 feet	8.39 feet

DATE	ELEV	DTW	FP									
10/11/2001	6.46	2.31	0.00	6.39	2.12	0.00	6.10	2.19	0.00	6.21	2.18	0.00

Note: "FP" denotes free product. "DTW" denotes depth to water. "TOC" denotes top of casing. "Elev" denotes elevation. "In" denotes inches.  
All elevations measured to an arbitrary benchmark.



Table 2

Summary of Soil Organic Vapor Analysis

Lido Spa  
40 Island Avenue  
Miami Beach, Florida

FDEP FACILITY NO. 139803801

Soil Boring Number	Depth Interval (feet)	Unfiltered OVA Reading (ppm)	Filtered OVA Reading (ppm)	Net Hydrocarbon Concentration (ppm)	Retained for Analysis
SB-21	1-2	0	0	0	
SB-22	1-2	0	0	0	
SB-23	1-2	0	0	0	
SB-24	1-2	0	0	0	
SB-25	1-2	0	0	0	
SB-26	1	0	0	0	
SB-27	0.5	0	0	0	
SB-28	1	0	0	0	
SB-29	1-2	6	0	6	
SB-30	1-2	0	0	0	
SB-31	1	0	0	0	
SB-32	0.5	0	0	0	
SB-33	0.5	0	0	0	
SB-34	1-2	0	0	0	
SB-35	1-2	9	0	9	

ppm = parts per million

**TABLE 3  
SUMMARY OF SOIL ANALYSES  
BTEX + MTBE by EPA Method 8021**

**Lido Spa  
40 Island Avenue  
Miami Beach, Florida**

**FDEP FACILITY NO. 139803801**

Sample	Location	Date	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE
	Direct Exposure Residential		1.1	380	1100	5900	3200
	Direct Exposure Commercial/Industrial		1.6	2600	8400	40000	22000
	Leachability based on groundwater criteria		0.007	0.5	0.6	0.2	0.2
<b>SB-35 (0-1')</b>		10/12/2001	BDL	BDL	BDL	BDL	BDL

NOTE: All results reported in milligrams per kilogram (mg/kg). BDL denotes below laboratory detection limit for each individual sample. VOAs denotes volatile organic aromatics. MTBE denotes methyl-tert-butyl ether.

Direct Exposure Residential refers to Chapter 62-777 F.A.C. Table II Soil Cleanup Target Levels, Direct Exposure Residential Target Levels.

Direct Exposure Commercial refers to Chapter 62-777 F.A.C. Table II Soil Cleanup Target Levels, Direct Exposure Commercial Target Levels.

Leachability Based on Groundwater Criteria refers to Chapter 62-777 F.A.C. Table II Soil Cleanup Target Levels, Leachability Based on Groundwater Criteria Target Levels.

**TABLE 4  
SUMMARY OF SOIL ANALYSES  
PAH's by EPA Method 8270 and TRPH by FL-PRO**

**Lido Spa  
40 Island Avenue  
Miami Beach, Florida**

**FDEP FACILITY NO. 139803801**

Sample Location	Date	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a) Anthracene	Benzo(a) Pyrene	Benzo(b) Fluoranthene	Benzo(g,h,i) Perylene	Benzo(k) Fluoranthene	Chrysene	Dibenzo(a,h) Anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d) Pyrene	1-Methyl-naphthalene	2-Methyl-naphthalene	Naphthalene	Phenanthrene	Pyrene	TRPH
Direct Exposure Residential		1900	1100	18000	1.4	0.1	1.4	2300	15	140	0.1	2900	2200	1.5	88	80	40	2000	2200	340
Direct Exposure Commercial/Industrial		18000	11000	260000	5	0.5	4.8	41000	52	250	0.5	48000	28000	5.3	470	580	270	30000	37000	2500
Leachability based on Groundwater Criteria		2.1	27	2500	3.2	0.8	10	32000	25	77	30	1200	180	28	2.2	6.1	1.7	250	880	340
SB-35 (0-1')	10/12/2001	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	5.44

NOTE: All results reported in milligrams per kilogram (mg/kg). BDL denotes below laboratory detection limit for each individual sample. PAHs denotes Polynuclear Aromatic Hydrocarbons.  
 Direct Exposure Residential refers to Chapter 62-777 F.A.C. Table II Soil Cleanup Target Levels, Direct Exposure Residential Target Levels.  
 Direct Exposure Commercial refers to Chapter 62-777 F.A.C. Table II Soil Cleanup Target Levels, Direct Exposure Commercial Target Levels.  
 Leachability Based on Groundwater Criteria refers to Chapter 62-777 F.A.C. Table II Soil Cleanup Target Levels, eachability Based on Groundwater Criteria Target Levels.

TABLE 5

SUMMARY OF GROUNDWATER ANALYSES  
VOA's and MTBE by EPA Method 8021 B

Lido Spa  
40 Island Avenue  
Miami Beach, Florida

FDEP FACILITY NO. 139803801

Sample		Benzene	Toluene	Ethyl Benzene	Total Xylenes	MTBE
Location	Date					
Table I target level			40	30	20	50
Table V natural attenuation		100	400	300	200	500
MW-1	10/22/2001	BDL	BDL	1.27	1.97	BDL
MW-2	10/22/2001	BDL	1.17	3.78	11.25	BDL
MW-3	10/25/2001	BDL	BDL	2.65	15.45	BDL
MW-4	10/22/2001	BDL	BDL	1.87	3.23	BDL
MW-5D	10/22/2001	BDL	BDL	BDL	BDL	BDL

NOTE: All results reported in micrograms per liter (ug/l). BDL denotes below laboratory detection limit for each individual sample.

VOAs denotes volatile organic aromatics. MTBE denotes methyl-tert-butyl-ether.

Table I refers to Table I, Chapter 62-777 F.A.C. Groundwater and Surface Water Cleanup Target Levels.

Table V refers to Table V, Chapter 62-777 F.A.C. Natural Attenuation Default Concentrations.

**TABLE 6**  
**SUMMARY OF GROUNDWATER ANALYSES**  
 PAHs by EPA Method 8270, TRPH by FL-PRO Method  
 Lead by EPA Method 239.2, EDB by EPA Method 8011

Lido Spa  
 40 Island Avenue  
 Miami Beach, Florida

FDEP FACILITY NO. 139803801

Sample Location	Date	Acenaph-thene	Acenaph-ylene	Anthra-cene	Benzo(a)-Anthracene	Benzo(a)-Pyrene	Benzo(b)-Fluoranthene	Benzo(g,h,i)-Perylene	Benzo(k)-Fluoranthene	Chrysene	Dibenzo(a,h)-Anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)Pyrene	1-Methyl Naphthalene	2-Methyl Naphthalene	Naphthalene	Phenanthrene	Pyrene	TRPH	Lead	EDB	
Table I target level		20	210	2100	0.2	0.2	0.2	210	0.5	5	0.2	280	280	0.2	20	20	20	210	210	5000	15	0.02	
Table V natural attenuation		200	2100	21000	20	20	20	2100	50	500	20	2800	2800	20	200	200	200	2100	2100	50000	150	0.2	
MW-1	10/22/2001	32.2	18.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	63.4	BDL	247	237	59.9	104	15.0	12,600	NA	NA	
MW-2	10/22/2001	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	6.69	9.39	5.53	BDL	BDL	BDL	BDL	BDL	
MW-3	10/25/2001	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	43.3	64.0	23.3	BDL	BDL	586	NA	NA	
MW-4	10/22/2001	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	11.7	12.6	BDL	BDL	BDL	1,570	NA	NA	
MW-5D	10/22/2001	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NA	NA

NOTE: All results reported in micrograms per liter (ug/l) unless specified. BDL denotes below laboratory detection limit for each individual sample. Table I refers to Table I, Chapter 62-777 F.A.C. Groundwater and Surface Water Cleanup Target Levels. Table V refers to Table V, Chapter 62-777 F.A.C. Natural Attenuation Default Concentrations. "EDB" = Ethylene Dibromide. "TRPH" = Total recoverable petroleum hydrocarbons. NA = not analyzed.



ENVIRONMENTAL RESOURCES MANAGEMENT  
POLLUTION CONTROL DIVISION  
33 S.W. 2nd AVENUE  
SUITE 800  
MIAMI, FLORIDA 33130-1540  
(305) 372-6817

September 21, 2001

Bernard S. Edelstein,  
Aaron J. Edelstein & S. Gruss  
Lido Spa  
40 Island Avenue  
Miami Beach, FL 33139

CERTIFIED MAIL NO. 7000 0600 0026 0728 4497  
RETURN RECEIPT REQUESTED

Re: Tank Closure Report (TCR)/Source Removal Report (SRR)/Site Assessment Report Addendum (SARA) dated August 7, 2001 and prepared by HANDEX, Inc. for the Lido Spa Hotel/Health Resort facility (UT-6155/DERM# 18392/FDEP # 139803801) located at, near, or in the vicinity of 40 Island Avenue, Miami Beach, Miami-Dade County, Florida.

Dear Messrs. Edelstein and Gruss:

The Department of Environmental Resources Management (DERM) has reviewed the above referenced document received August 10, 2001, pertaining to the removal of 1-550 gallon steel underground single-walled and 2-275 gallon steel aboveground single-walled heating fuel storage tanks on June 6, 2001 and has the following comments:

Tank Closure Report

The report meets the requirements of Chapter 62-761.800, Florida Administrative Code (FAC). Therefore, the report has been placed on file with other pertinent material regarding the subject site.

Source Removal Report

The report complies with the applicable portions of the Florida Administrative Code Rule 62-770.300, and the May 1998 issue of the Florida Department of Environmental Protection (FDEP) "Guidelines for Assessment and Remediation of Petroleum Contaminated Soil". The DERM has determined that the 131.17 cubic yards (196.76 tons) of soil have been properly identified as contaminated and disposed.

Site Assessment Report Addendum

The report does not constitute an approvable SAR as stipulated in Rule 62-770.600, F.A.C. As per Comment #1 of DERM's SAR disapproval letter dated May 17, 2001, groundwater assessment was required in the source area to include sampling for VOA, PAH, and TRPH. The document does not provide the required groundwater sampling.

Additionally, since the Terra Cotta pipe acted as a conduit for petroleum products, the entire length of piping would have to be assessed and soil analytical sampling would be required.

Messrs. Edelstein and Gruss

UT-6155/DERM# 18392

September 21, 2001

Page 2

The text portion of this document identifies three soil borings (i.e., SS-27, 28, and 29) taken near this pipe but the site plan does not provide the location of such, nor does it identify the entire run (i.e., length) of piping with soil boring locations and sampling analytical results.

Soil sample results indicate that the TRPH results exceed applicable direct exposure and/or leachability goals. Therefore, these soils must be addressed. However, you have the option to speciate the soil sample to develop an alternate soil cleanup criteria. Soil speciation must be conducted by the TRPH Criteria Working Group Method or the Massachusetts Department of Environmental Protection TRPH Speciation Method. Specific guidance can be found in the Technical Report: Development of Soil Cleanup Target Levels (SCTLs) for Chapter 62-777, F.A.C. The most appropriate alternative must be selected based on site conditions.

In order to receive a closure with alternate levels, you must comply with the requirements specified in Rule 62-770.680(2), Florida Administrative Code (F.A.C.). One of the requirements for a No Further Action with Conditions is the enactment of an institutional control. This will require that a restrictive covenant be recorded with the property to prevent an adverse affect on human health and the environment. A sample copy of a restrictive covenant and instructions for completing it can be downloaded from the Florida Department of Environmental Protection (FDEP) website <http://www.dep.state.us/dwm/programs/csf/icpg.pdf>. A completed copy must be submitted for review and comments to and approved by both the FDEP and DERM prior to recording.

Pursuant to the above, you are hereby required to:

Within sixty (60) days of receipt of this letter submit to this office for review two (2) copies of an approvable SAR prepared in accordance with Chapter 62-770, FAC.

Be advised that failure to comply with the above may result in enforcement action for this site.

If you have any questions concerning the above, please contact Tomas Fonte of the Pollution Remediation Section at (305) 372-6700.

Sincerely,



Wilbur Mayorga, P.E., Chief  
Pollution Remediation Section

Tff

pc: Betty Sellers - FDEP

John Baeringer - HANDEX, Inc. - 2055 S. Congress Avenue, Delray Beach, FL 3344

COPY TO FDEP

FDEP # 13980380

Site 11



**HANDEX**<sup>®</sup>

Practical Environmental Solutions

**INITIAL ASSESSMENT REPORT**

**Lido Spa Hotel/Health Resort  
40 Island Avenue  
Miami Beach, FL 33139**

REC'D

APR 19 2001

DEKIM  
POLLUTION REMEDIATION  
SECTION

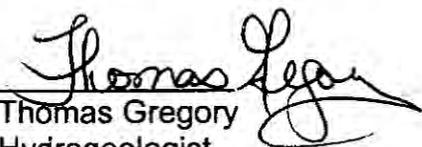
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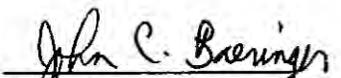
Submitted to:

Miami-Dade County  
Department of Environmental Resources Management  
33 SW 2<sup>nd</sup> Avenue  
Miami, FL 33130

Prepared by:

**HANDEX OF FLORIDA, INC.**  
2170 West Atlantic Avenue  
Delray Beach, Florida 33445  
(561) 243-9551

  
Thomas Gregory  
Hydrogeologist

  
John C. Baeringer, P.G.  
Project Manager  
License No. 0001208

3/26/01  
Date



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3.0	SOIL SAMPLE COLLECTION AND ANALYSES .....	2
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1	Site Plan
2	Net OVA Readings (March 2, 2001)
3	Extent of Excessively Impacted Soil (March 2, 2001)

## LIST OF APPENDICES

APPENDIX	TITLE
A	Discharge Report Form
B	Field Boring Log Documentation

## INITIAL ASSESSMENT REPORT

LIDO SPA HOTEL/HEALTH RESORT  
40 Island Avenue  
Miami Beach, FL 33139

### 1.0 INTRODUCTION

Handex of Florida, Inc. (Handex) was authorized by Lido Spa Hotel and Health Resort (Lido Spa) to perform an Initial Site Assessment for the resort, which is located at 40 Island Avenue, Miami Beach, Miami-Dade County, Florida. The Initial Site Assessment was performed to determine the extent of hydrocarbon impacted soils in the vicinity of two (2) 250-gallon above ground storage tanks (ASTs), located on the eastern side of the property. The soils were impacted by a release of heating oil (number two fuel oil) from a leaking pipe supplying the Lido Spa heating system. A site plan showing the site layout is included as **Figure 1**.

### 2.0 SITE HISTORY

Lido Spa is an operating resort facility. A Discharge Reporting Form (DRF) was submitted to Miami-Dade County Department of Environmental Resources Management (DERM) on January 25, 2001 reporting the release of an unknown amount of fuel oil from the product transfer piping system supplying the Lido Spa boiler. A copy of the discharge report form is included as **Appendix A**.

The fuel oil discharged into pervious soil located inside of a fenced compound area containing two (2) 250-gallon AST's. Cliff Berry Incorporated provided the initial response to the release. Clay absorbent was placed on the ground surface to recover free product. The absorbent material and a relatively small amount of soil was excavated from inside the compound area and containerized in four 55-gallon drums.

A corroded connection (elbow) on the product transfer piping was believed to be the source of the discharge. The elbow was replaced and the system was placed back on-line.

Subsequent to the fuel oil discharge, a slight sheen was observed on the water surface of Biscayne Bay, approximately 300 feet from the source discharge area. The source of the sheen appeared to be a terra cotta pipe that ran towards the discharge area. Absorbent booms were placed in the water to contain and absorb the sheen. The terra cotta pipe was then plugged, which limited the petroleum seepage into the bay.

Ms. Laura Kennedy, an Environmental Specialist with the Enforcement Division of DERM and Mr. Mario Porcelli, an Environmental Specialist with the Storage Tank Section of DERM, inspected the fuel oil discharge area and the surface water sheen area on-site.

Prior to performing a Source Removal of hydrocarbon impacted soil at the site, it was decided that a soil assessment should be conducted to determine the extent of impacted soil. Handex was retained to perform this soil assessment. The methodology and results of the assessment are provided below.

### **3.0 SOIL SAMPLE COLLECTION AND ANALYSES**

In order to assess soil quality in areas around the AST's, above-ground piping, and underground piping, a total of 22 soil borings were completed on March 2, 2001. All field activities were conducted in accordance with Handex's FDEP-approved Comprehensive Quality Assurance Plan (CompQAP #870217G). The locations of the soil borings (SB-1 through SB-22) are depicted in **Figure 2**. Based upon the depth of the water table, the soil borings were each completed manually to a total depth of approximately six feet below land surface (BLS), with the exceptions of SB-1, SB-14, and SB-20, which were completed to a depth of two feet BLS, four feet BLS, and two feet BLS, respectively, due to hand auger refusal. The soil borings were performed with posthole excavators or stainless steel hand augers, which were properly cleaned between the collection of each sample.

Soil samples were collected from each boring at two foot intervals [zero to two feet (0-2' BLS), two to four feet (2-4' BLS), and four to six feet (4-6' BLS)] for field screening analyses with an organic vapor analyzer (OVA) following the protocol outlined in Chapter 62-770.200(8) F.A.C.

The results of the analyses indicated OVA readings in the vadose zone of the soil ranging from zero parts per million (ppm) to 750 ppm. The results of the analyses indicated OVA readings in the smear zone of the soil ranging from two ppm to 320 ppm. Results of the OVA analyses are included in **Table 1**. A map of the OVA readings with 10 ppm and 50 ppm contour lines is provided in **Figure 2**. The extent of excessively impacted soil (OVA readings greater than 50 ppm or the presence of liquid phase hydrocarbons) is depicted in **Figure 3**.

Liquid Phase Hydrocarbons (LPH's) were found in soil borings SB-6, SB-7, and SB-18. The thickness of the LPH's could not be ascertained during soil boring activities. Also, all soil borings, with the exception of SB-1, SB-16, and SB-20, exhibited at least a slight petroleum odor. Soil boring logs can be found in **Appendix B**.

#### 4.0 CONCLUSIONS AND RECOMMENDATIONS

- A discharge of an unknown quantity of heating oil was reported on January 25, 2001 from the elbow of the product transfer piping system connected to an AST. Limited source removal activities were conducted in the immediate area of the discharge. Fuel saturated soil and absorbent clay was excavated and placed into four 55-gallon drums. Handex was contracted to assess soil contamination around the discharge area.
- A slight hydrocarbon sheen was observed on the bay water approximately 300 feet from the discharge area. This sheen was contained and recovered with absorbent booms. The sheen appeared to emanate from a terra cotta pipe, which was subsequently plugged. The plug limited the petroleum seepage into the bay. Handex recommends that the area be visually inspected on a periodic basis to ensure that the sheen does not re-appear. Handex also recommends that during the source removal activities in the discharge area, steps should be taken to locate the terra cotta pipe and remove any petroleum found within.
- Soil sampling commenced on March 2, 2001 to determine the extent of soil contamination. A total of 22 soil borings were completed in order to assess contamination.
- The assessment activities indicated an area of hydrocarbon impacted soil of approximately 1,260 square feet in an area around the AST's. Additionally, LPH's were found in soil borings located as much as 21 feet from the discharge point. Handex recommends that the 1,260 square feet of hydrocarbon impacted soil be removed from the site, as shown in **Figure 3**. This area includes the zone of hydrocarbon impacted soils exhibiting OVA readings above 50 ppm, and also includes soils containing LPH's. The soil should be removed approximately one foot into the water table.
- In most areas, the upper two feet of soil did not exhibit OVA readings. During Source Removal, this soil can be stripped off and separated from the impacted soil to decrease the costs for soil disposal.

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TABLE I, PAGE I of 2

ORGANIC VAPOR ANALYSES RESULTS

Lido Spa Hotel/Health Resort  
 40 Island Avenue  
 Miami Beach, Florida 33139

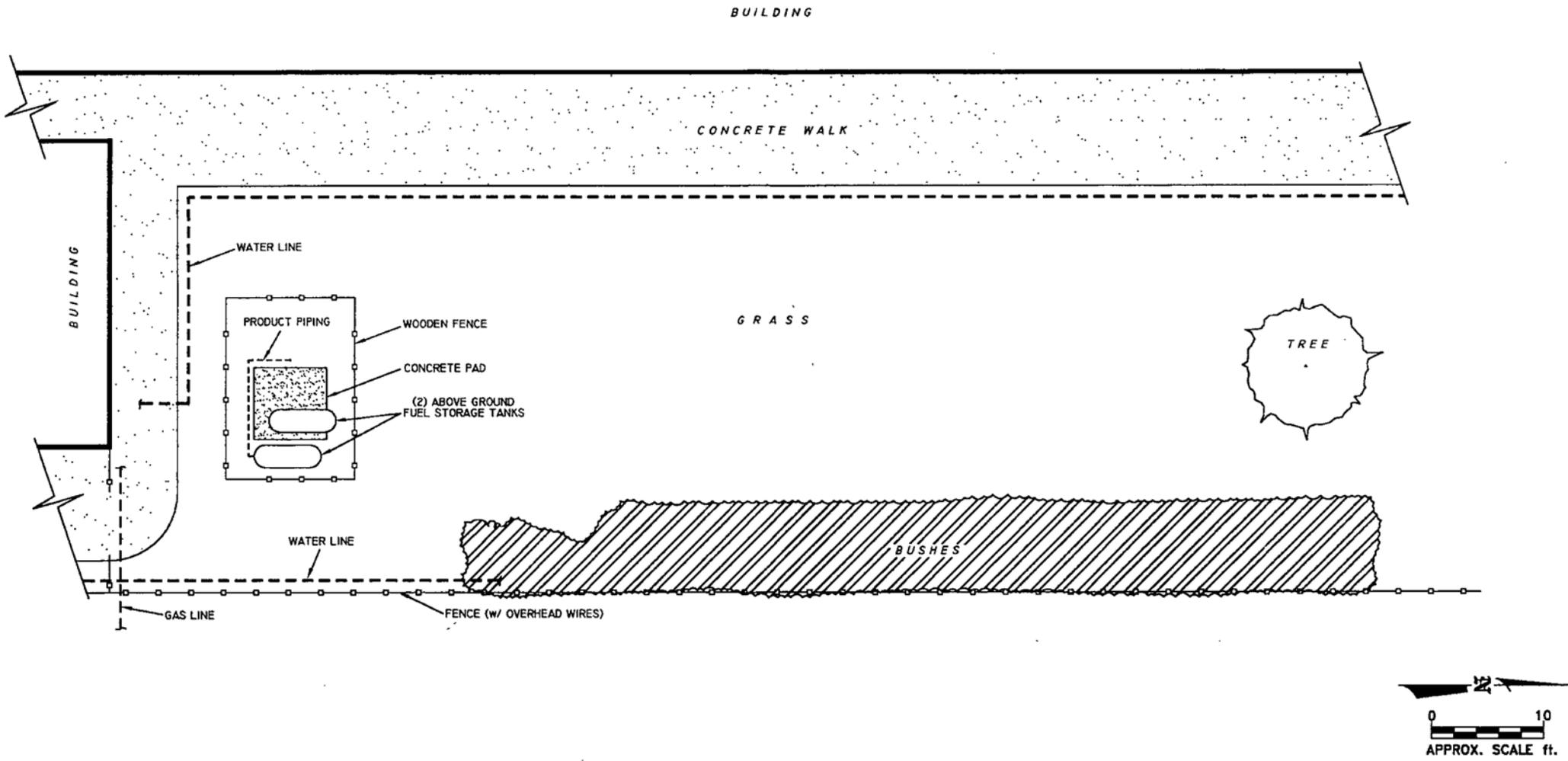
SAMPLE ID	DATE	DEPTH (feet)	UNFILTERED (ppm)	FILTERED (ppm)	NET (ppm)
SB-1	3/02/2001	0-2	0	0	0
		2-4	NS	NS	NS
		4-6	NS	NS	NS
SB-2	3/02/2001	0-2	0	0	0
		2-4	20	10	10
		4-6	50	18	32
SB-3	3/02/2001	0-2	0	0	0
		2-4	100	35	65
		4-6	60	25	35
SB-4	3/02/2001	0-2	18	0	18
		2-4	120	60	60
		4-6	30	15	15
SB-5	3/02/2001	0-2	80	40	40
		2-4	1100	250	750
		4-6	1500	1200	300
SB-6	3/02/2001	0-2	25	15	10
		2-4	150	90	60
		4-6	500	200	300
SB-7	3/02/2001	0-2	20	0	20
		2-4	100	20	80
		4-6	350	30	320
SB-8	3/02/2001	0-2	0	0	0
		2-4	90	25	65
		4-6	300	120	180
SB-9	3/02/2001	0-2	0	0	0
		2-4	25	15	10
		4-6	90	25	65
SB-10	3/02/2001	0-2	0	0	0
		2-4	150	90	60
		4-6	90	35	55
SB-11	3/02/2001	0-2	0	0	0
		2-4	15	10	5
		4-6	110	60	50
SB-12	3/02/2001	0-2	0	0	0
		2-4	60	15	35
		4-6	90	70	20
SB-13	3/02/2001	0-2	0	0	0
		2-4	30	0	30
		4-6	60	12	48

## ORGANIC VAPOR ANALYSIS RESULTS

Lido Spa Hotel/Health Resort  
40 Island Avenue  
Miami Beach, Florida 33139

SAMPLE ID	DATE	DEPTH (feet)	UNFILTERED (ppm)	FILTERED (ppm)	NET
SB-14	3/02/2001	0-2	0	0	0
		2-4	40	25	15
		4-6	NS	NS	NS
SB-15	3/02/2001	0-2	0	0	0
		2-4	15	0	15
		4-6	40	25	15
SB-16	3/02/2001	0-2	0	0	0
		2-4	0	0	0
		4-6	12	10	2
SB-17	3/02/2001	0-2	0	0	0
		2-4	25	0	25
		4-6	45	18	22
SB-18	3/02/2001	0-2	20	15	5
		2-4	35	18	17
		4-6	90	35	65
SB-19	3/02/2001	0-2	0	0	0
		2-4	60	40	20
		4-6	45	30	15
SB-20	3/02/2001	0-2	0	0	0
		2-4	NS	NS	NS
		4-6	NS	NS	NS
SB-21	3/02/2001	0-2	20	0	20
		2-4	40	0	40
		4-6	30	0	30
SB-22	3/02/2001	0-2	0	0	0
		2-4	50	10	40
		4-6	40	0	40

Note: ppm denotes "parts per million"; NS denotes "Not Sampled."

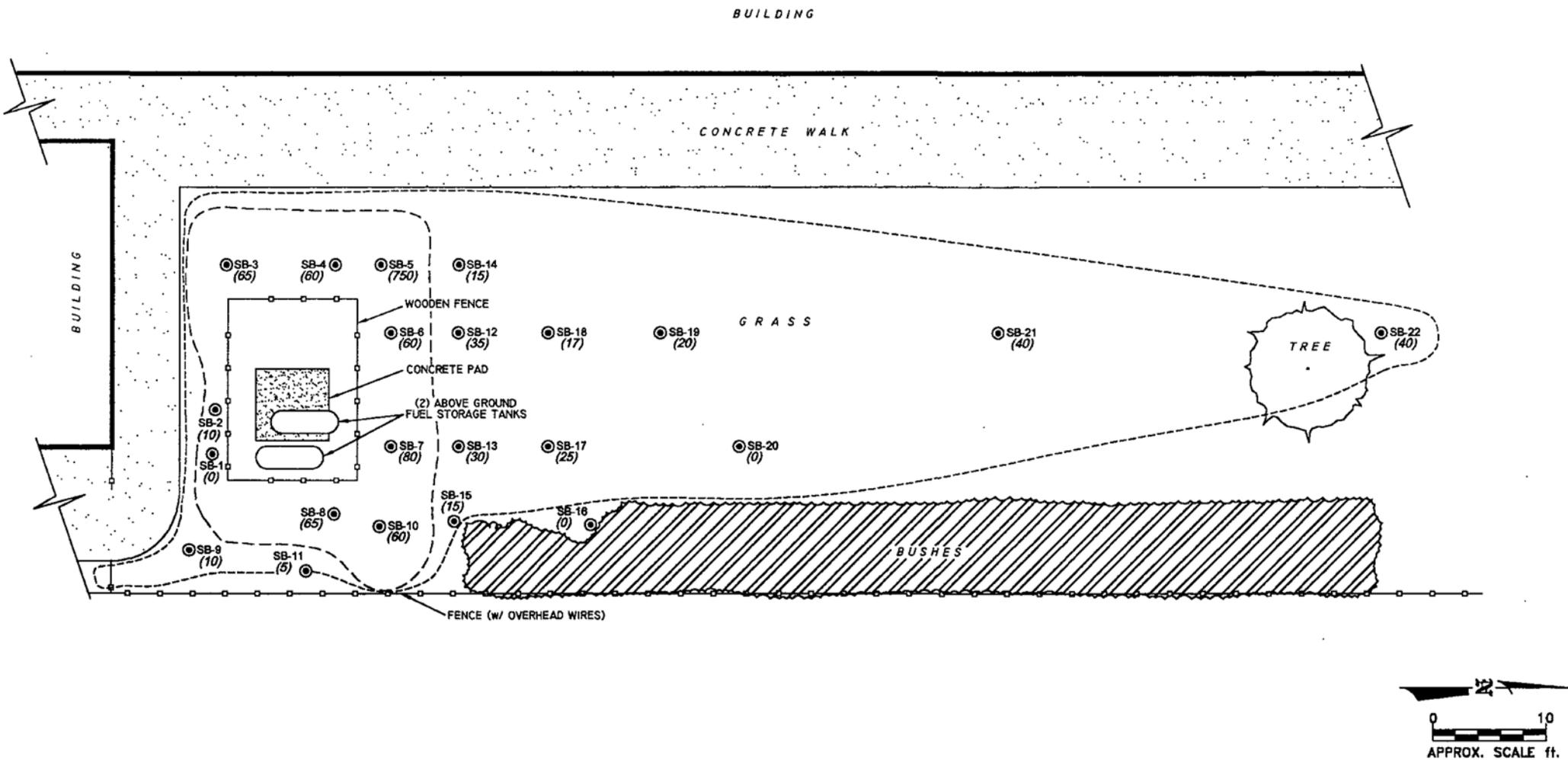


LIDO SPA HOTEL / HEALTH RESORT  
 40 ISLAND AVENUE  
 MIAMI BEACH, FLORIDA

FIGURE  
 SITE

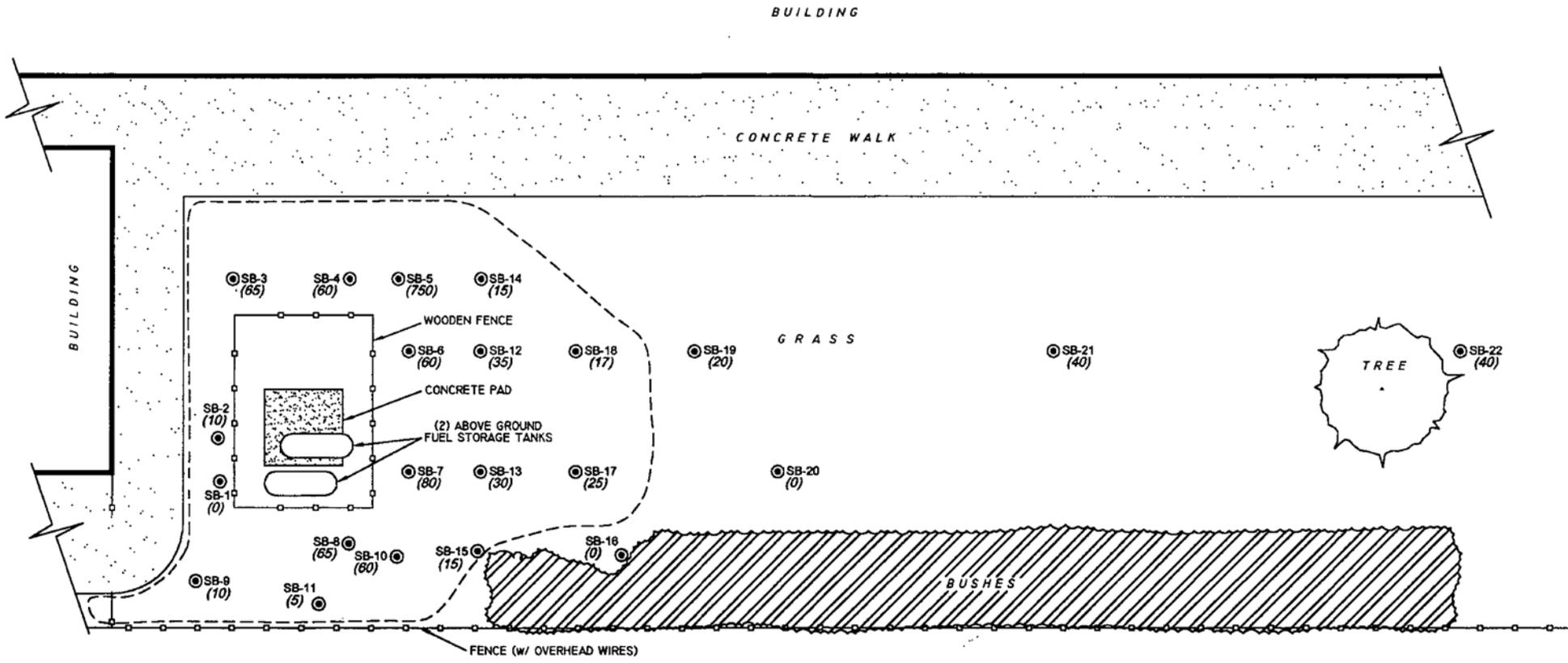
**LEGEND:**

- SB-1⊙ = SOIL BORING
- (10) = HIGHEST UNSATURATED SOIL SAMPLE OVA READING (PPM)
- = 50 PPM CONTOUR LINE
- = 10 PPM CONTOUR LINE



**LEGEND:**

- SB-1⊙ = SOIL BORING
- (10) = HIGHEST UNSATURATED SOIL SAMPLE OVA READING (PPM)
- ⊖ = EXCESSIVELY IMPACTED SOIL



# Site 15

Marriot Hotel and Marina Biscayne

FDEP Facility #8628874

## Score Tracking Sheet

Facility ID: 13 8628874

Site Name: Marriott Hotel & Marina Biscayne

Well Survey Requested: 06/22/2007

Rescore Requested by: Dade County Area II

Date Scored & PCT Updated: 9/18/2007

Old Score: 13

New Score: 10

---

Reviewer: Alan Sakole

Date: Tuesday, September 18, 2007

Notes:

### Discharges Scored Information

#### 1<sup>ST</sup> DISCHARGE

DISCHARGE DATE: 07/24/89  
PROGRAM: PLRIP  
ELIGIBLE: ELIGIBLE  
ELIGIBILITY DATE: 02/06/92

#### 2<sup>ND</sup> DISCHARGE

DISCHARGE DATE:  
PROGRAM:  
ELIGIBLE:  
ELIGIBILITY DATE:

#### 3<sup>RD</sup> DISCHARGE

DISCHARGE DATE:  
PROGRAM:  
ELIGIBLE:  
ELIGIBILITY DATE:

#### 4th DISCHARGE

DISCHARGE DATE:  
PROGRAM:  
ELIGIBLE:  
ELIGIBILITY DATE:

#### 5th DISCHARGE

DISCHARGE DATE:  
PROGRAM:  
ELIGIBLE:  
ELIGIBILITY DATE:

#### 6<sup>th</sup> DISCHARGE

DISCHARGE DATE:  
PROGRAM:  
ELIGIBLE:  
ELIGIBILITY DATE:

## FDEP Site Priority Score Sheet

Facility ID#: 13 8628874 Site Name: Marriott Hotel & Marina Biscayne  
 Site Address: 1633 N Bayshore Drive, Miami, FL 33122  
 Latitude: 25 47 27 Longitude: 80 11 8

Criteria: Yes No Points

Fire/Explosion Hazard:

- |  |       |          |                |
|--|-------|----------|----------------|
| 1. Free product or volatilized petroleum products at or above 20% of the Lower Explosive Limit (LEL) in existing utility conduits or vaults, buildings or other inhabited confined spaces (60 points). | _____ | <u>X</u> | _____ <u>0</u> |
| 2. Ignitable free product on surface waters or impoundments (60 points).   | _____ | <u>X</u> | _____ <u>0</u> |

Threat to Uncontaminated Drinking Water Supplies:

- |  |       |          |                |
|--|-------|----------|----------------|
| 1. Uncontaminated municipal or community well fields of greater than 100,000 gallons per day permitted capacity with a well within 1/2 mile of the site (30 points). | _____ | <u>X</u> | _____ <u>0</u> |
|--|-------|----------|----------------|

Additionally: SI DWDB HRS  
N N

- |   |       |          |                |
|---|-------|----------|----------------|
| a. If the well field's 1 foot draw down contour is known to encompass the site regardless of the well field's distance from the site (20 points). | _____ | <u>X</u> | _____ <u>0</u> |
|---|-------|----------|----------------|

Or

- |  |       |          |                |
|--|-------|----------|----------------|
| b. If the well field is located down gradient of the site (15 points). | _____ | <u>X</u> | _____ <u>0</u> |
|--|-------|----------|----------------|

- |   |       |          |                |
|---|-------|----------|----------------|
| 2. Uncontaminated private wells constructed prior to date of contamination discovery, or uncontaminated public water system well field with less than 100,000 gallons per day permitted capacity with a well within 1/4 mile of the site (20 points). | _____ | <u>X</u> | _____ <u>0</u> |
|---|-------|----------|----------------|

Additionally: SI DWDB HRS  
N N

- |   |       |          |                |
|---|-------|----------|----------------|
| a. If the well field's 1 foot draw down contour is known to encompass the site regardless of the well field's distance from the site (10 points). | _____ | <u>X</u> | _____ <u>0</u> |
|---|-------|----------|----------------|

Or

- |   |       |          |                |
|---|-------|----------|----------------|
| b. If the well field is located down gradient of the site (5 points). | _____ | <u>X</u> | _____ <u>0</u> |
|---|-------|----------|----------------|

- |  |       |          |                |
|--|-------|----------|----------------|
| 3. Uncontaminated surface water body used as a public water system supply within 1/2 mile of the site (10 points). | _____ | <u>X</u> | _____ <u>0</u> |
|--|-------|----------|----------------|

	<u>Yes</u>	<u>No</u>	<u>Points</u>
<b><u>Migration Potential:</u></b>			
<b>1. Source Characteristics (select only one)</b>			
a. Recent spills or free product found in wells/boreholes (4 points) <b>except</b> free product of 2 inches or more in 2 or more wells/boreholes (6 points).	_____	X _____	0 _____
b. Recent product loss or wells/groundwater contaminated but no free product (2 points).	X _____	_____	2 _____
<b>2. Product Type (select only one):</b>			
a. Light petroleum product (kerosene, gasoline, aviation fuel and similar petroleum products) with water soluble additives or enhancers (MTBE, ethanol and similar substances) (3 points).	_____	X _____	0 _____
b. Light petroleum product with no additives or enhancers (2 points).	_____	X _____	0 _____
c. Heavy petroleum product (fuel oil, diesel and similar petroleum products) (1 point).	X _____	_____	1 _____

<b><u>Environmental Setting:</u></b>			
1. Site located in G-1 aquifer (4 points).	_____	X _____	0 _____
2. Site located in a G-2 aquifer (2 points).	X _____	_____	2 _____
3. Site located in high recharge/permeability geological area (4 points).	X _____	_____	4 _____
4. Site located within 1/2 mile of an Outstanding Florida Water (1 point).	X _____	_____	1 _____
		<b>Total Points:</b>	10 _____

Comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Signature 

Date 9/21/07



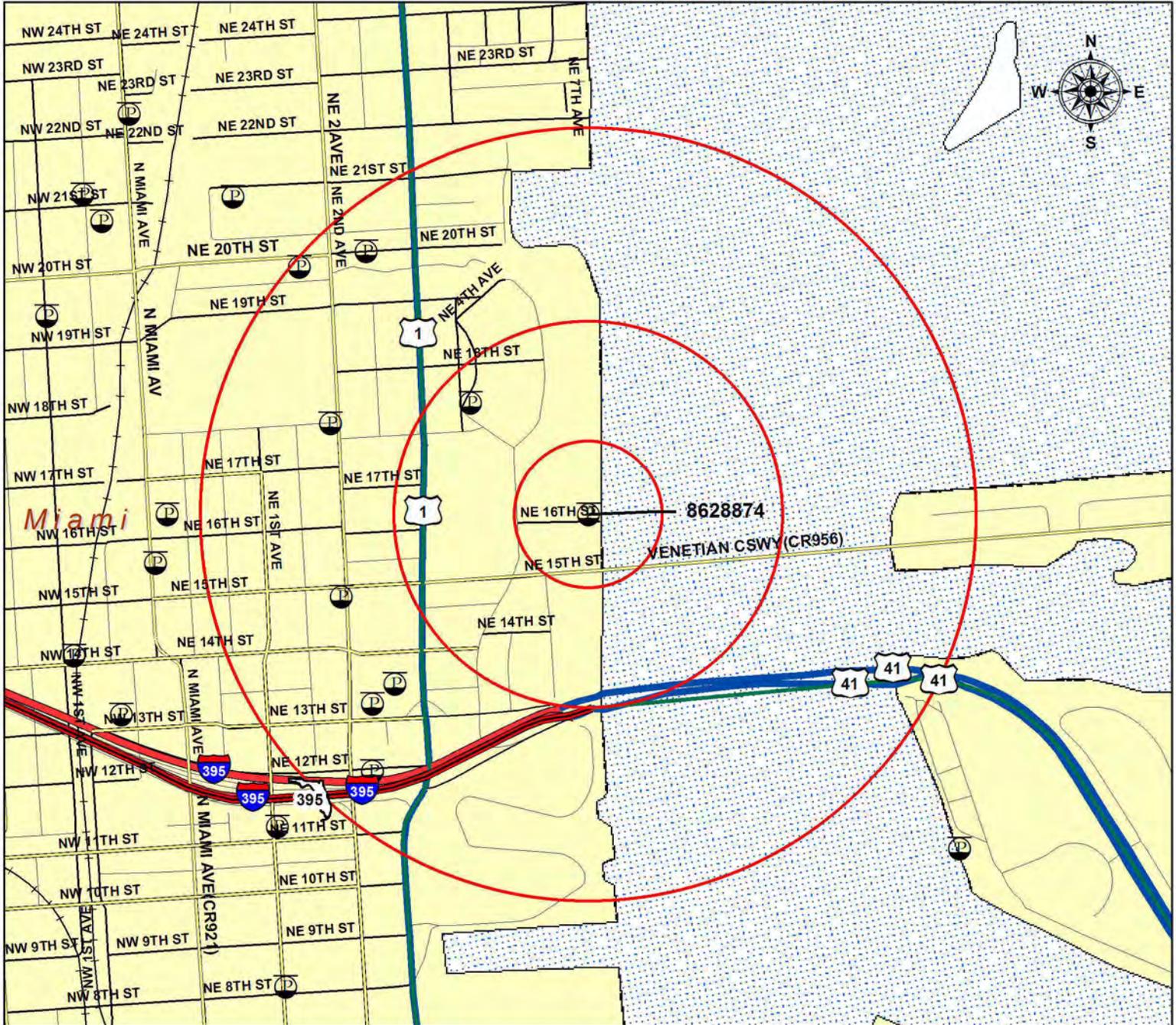
# Potable Well Survey

Florida Department of Health Bureau of Water Programs

Facility ID: **8628874** County: GPS Date / Method: 7/27/2007 DGPS OFFS  
Request: 42711 DADE Decimal Degrees: 25.790728 -80.185605  
Name: MARRIOTT HOTEL AND MARINE Deg Min Sec: 25 47 26.6208 80 11 8.17799  
Address: 1633 N BAYSHORE DR  
MIAMI, FL 33122  
Large (>100,000 gpd) Public Supply Wells within 1/2 mile: 0  
Small potable wells within 1/4 mile: 0  
Sent to CHD: 6/26/2007 Comment:  
Received: 8/8/2007 **APPROVED**

8628874  
 MARRIOTT HOTEL AND MARINE  
 1633 N BAYSHORE DR  
 MIAMI, FL 33122

Latitude/Longitude: 25.790728 -80.185605  
 DDMSS: 25 47 26.6208 80 11 8.178  
 Number of large public well (>100,000 gpd) within the 1/2 mile: 0  
 Number of small public and private wells within the 1/4 mile: 0



**Sample Results--Petroleum\***



- ★ >1/2 MCL/HAL
  - <1/2 MCL/HAL
  - <1/4 MCL/HAL
  - ▲ Sampled, no detect
  - ⌄ Not sampled within last year for this analysis
  - ⊕ No sample found for this analysis
- SDWA PWS Wells**
- PS <100,000 gpd
  - P100 >100,000 gpd

- Facility Type**
- Ⓟ Petroleum
  - Ⓟ Proximity Threat
  - Ⓟ Drycleaner
  - Ⓟ Toxics
  - Ⓟ Other
  - Ⓞ Cattle Dip Vat



**Florida Department of Health  
 Bureau of Water Programs  
 Potable Well Survey**

Disclaimer  
 This product is for reference purposes only and is not to be construed as a legal document. Any reliance on the information contained herein is at the user's own risk. The Florida Department of Health and its agents assume no responsibility for any use of the information contained herein or any loss resulting therefrom.

Signature: \_\_\_\_\_

VJ Lopez, PhD

8/10/2007  
 LittlesLX  
 DADE

\* The following chemicals were used for the Petroleum Indicator analysis: Benzene, Ethylbenzene, Toluene, Xylenes (Total), Napthalene, and Methyl-Tert-Butyl-Ether (MTBE)

## APPENDIX G

### Asbestos and Lead-Based Paint Survey Reports for Bridge 1

**ASBESTOS SURVEY REPORT**

**VENETIAN CAUSEWAY BRIDGE  
BRIDGE NO. 874459  
MIAMI-DADE COUNTY, FLORIDA**

**MIAMI-DADE COUNTY PROJECT #: 20140075  
AIRQUEST CONTRACT #: E12-PWWM-02  
AIRQUEST PROJECT #: 14-01-8194**

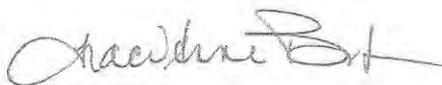
**MARCOS R. REDONDO, P.E.  
SECTION HEAD, BRIDGE ENGINEERING  
HIGHWAY DIVISION  
MIAMI-DADE PUBLIC WORKS AND WASTE MANAGEMENT  
DEPARTMENT  
111 NORTHWEST 1ST STREET, SUITE 1510  
MIAMI, FLORIDA 33128-1970**

**JUNE 2014**

## ASBESTOS SURVEY AND ASSESSMENT REPORT

**BRIDGE NUMBER:** 874459  
**BRIDGE NAME:** VENETIAN CAUSEWAY BRIDGE  
**BRIDGE ADDRESS (SR):** WESTERNMOST BASCULE BRIDGE  
OVER INTRACOASTAL WATERWAY ON  
VENETIAN CAUSEWAY  
**COUNTY:** MIAMI-DADE  
**AGENCY NAME & ADDRESS:** MIAMI-DADE PUBLIC WORKS AND  
WASTE MANAGEMENT DEPARTMENT  
111 NORTHWEST 1ST STREET, SUITE  
1510  
MIAMI, FLORIDA 33128-1970

**DATES OF SURVEY:** JUNE 10, 11 & 12, 2014  
**CONSULTANT NAME:** AIRQUEST ENVIRONMENTAL, INC.  
**CONSULTANT ADDRESS:** 6851 SOUTHWEST 45<sup>TH</sup> STREET  
FORT LAUDERDALE, FLORIDA 33314  
**CONSULTANT TELEPHONE:** 954-792-4549  
**CONSULTANT FACSIMILE:** 954/792-2221



TRACI-ANNE BOYLE, CIH, CSP  
FLORIDA LICENSED ASBESTOS CONSULTANT AX-60  
ASBESTOS CONSULTING BUSINESS ZA-304



PAUL LEBLANC  
AHERA INSPECTOR #14443

## EXECUTIVE SUMMARY

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AirQuest Environmental, Inc. ("AirQuest") was contracted to conduct an asbestos survey on Bridge 874459, located over the Intracoastal Waterway on Venetian Causeway, Miami-Dade County ("the site").

The purpose of this survey was to identify asbestos-containing materials within accessible areas of the site including:

- Bridge Equipment Materials (gaskets, packings, linings, insulation, etc.)
- Beam/Deck Bearing Pads
- Asbestos-cement pipes (scuppers, etc.)
- Troweled-on Decorative Coatings
- Sprayed-on Decorative Coatings
- Roadway Paint
- Mastics
- Concrete Structural Members

All suspect materials that were identified in the scope of work were sampled and analyzed. The results of the asbestos survey did not identify asbestos containing materials within the samples collected at the site.

Any suspect materials not identified in this survey should be treated as asbestos-containing materials and not disturbed until identified as non-asbestos containing material through sampling and laboratory analysis.

Prior to any planned renovations or demolition activities, the owner must abide by the notification requirements (10 business work-day notification) set forth in 40 CFR 61 U.S. EPA NESHAP (National Emission Standards for Hazardous Air Pollutants). The owner/operator of the facility is responsible to submit the notification.

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## **APPENDICES**

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**Appendix I – Laboratory Report and Chain of Custody Record**

**Appendix II – Inspector Certifications (Asbestos Survey Report Form 3)**

**Appendix III – Sample Location Map**

**Appendix IV - Site Photographs**

# **1 INTRODUCTION**

AirQuest Environmental, Inc. (“AirQuest”) conducted a survey for asbestos-containing materials (ACM) on Bridge 874459, located over the Intracoastal Waterway on Venetian Causeway, Miami-Dade County (“the site”). The survey was performed on June 10, 11 & 12, 2014, by a certified Asbestos Hazard Emergency Response Act (AHERA) asbestos inspector.

The purpose of this survey was to identify asbestos-containing materials within accessible areas of the bridge.

## **1.1 BRIDGE DESCRIPTION**

Asbestos Inspection Form 1 is provided in Section 1.3 and provides details on the bridge construction. The scope of the inspection was limited to the central and western portions of the bridge. The area measured approximately 730 feet in length and crossed over the Intracoastal Waterway.

The bridge was constructed of a concrete and asphalt deck with concrete wing walls. The horizontal and vertical supports as well as the bridge footings and bent caps were also constructed of concrete.

Expansion material was observed at the bridge spans and west end bent seams. Mastic was observed at the lane reflectors. Yellow and white striping paints were present on the bridge deck. No bearing pads were observed at the time of the inspection.

## **1.2 FILE REVIEW AND PROVIDED DOCUMENTS**

A file review of the bridge documents was not conducted as part of this report preparation.

### 1.3 ASBESTOS INSPECTION FORM 1

#### Bridge Identification

County:	Miami-Dade	Facility:	Florida Department of Transportation District 6
Agency:	Florida Department of Transportation District 6		
Bridge Name:	Venetian Causeway		
Bridge Number:	874459		
Address and/or Geographic Location:	Westernmost Bascule Bridge over Intracoastal Waterway on Venetian Causeway		

#### Survey Identification

Survey Dates:	June 10, 11 & 12, 2014	Report Date:	June 2014
Consultant's Name:	Traci-Anne Boyle, CIH, CSP	License Number:	AX-60
Name of Firm:	AirQuest Environmental, Inc.		
Address:	6851 Southwest 45 <sup>th</sup> Street, Fort Lauderdale, Florida 33314		
Telephone Number:	954-792-4549		

#### Bridge Information

Year of Construction:	1927			
Renovation Dates:	Unknown			
Building Documents/Drawings Available/Consulted				
Types:	Plans (Y/N):	N	Specifications (Y/N):	N
Location:	NA			
Asbestos Documents (Y/N):	N	Location:	NA	

#### Structural Data:

##### Bridge

Vertical Supports:	Concrete	Horizontal Supports:	Concrete
Decking:	Concrete & Asphalt	Spans:	Concrete
Gaskets:	None Observed	Bearing Pads (Y/N):	None Observed
Wingwall:	Concrete		

## **2 PROCEDURES**

The purpose of this survey was to identify asbestos-containing materials within accessible areas of the bridge including:

- Bridge Equipment Materials (gaskets, packings, linings, insulation, etc.)
- Beam/Deck Bearing Pads
- Asbestos-cement pipes (scuppers, etc.)
- Troweled-on Decorative Coatings
- Sprayed-on Decorative Coatings
- Roadway Paint
- Mastics
- Concrete Structural Members

In order to identify asbestos containing materials at the site, the various structural members and finishes were grouped into homogenous areas, representative samples were collected and submitted for laboratory analysis. The results of the sampling and analysis were tabulated and presented in this comprehensive report.

### **2.1 CLASS 5 FINISH**

All concrete samples that were collected as part of this asbestos survey are intended to include any Class 5 finish that may have been used on the bridge.

### **2.2 HOMOGENOUS AREAS**

The bulk sampling procedure utilized for the collection of samples suspected of being Asbestos Containing Building Materials (ACBM) required the establishment of homogeneous sampling areas. A homogeneous sampling area is defined as an area of friable or non-friable material of similar type that appeared to be applied or constructed during the same general period of time. This is the most acceptable and cost-effective method for the sampling of suspect ACBM.

Intermediate piles and pile caps, including various bearing pad materials and assemblies, roofing felt paper, class 5 finish, etc., were not accessible at the time of sampling.

### **2.3 SAMPLING STRATEGY**

The sampling protocol used in this asbestos survey are those detailed in Title 40, Code of Federal Regulations (CFR), Part 763.86 for the sampling of friable surfacing materials, thermal systems insulation and miscellaneous materials (i.e. ceiling tiles). The Environmental Protection Agency (EPA) regulations require that sample locations be randomly selected. Suspect ACBM were identified and samples of each different type of material were obtained.

Samples of suspect materials were collected from predetermined homogeneous sampling areas and the location of each sample was recorded. Samples were labeled and transported to the laboratory for analysis, using polarized light microscopy coupled with dispersion staining. The samples were analyzed in accordance with Title 61 Code of Federal Regulations.

## **2.4 LABORATORY ANALYSIS**

Polarized light microscopy (PLM) is a method of analysis that utilizes the unique optical crystallographic properties of the various crystalline forms in the samples. These properties, such as refractive indices, birefringence, sign of elongation and extinction angle, are unique to crystalline asbestos forms and therefore can be used to identify the type of asbestos mineral as chrysotile, amosite, crocidolite, anthophyllite, tremolite, or actinolite. Each type of asbestos displays unique characteristics when subjected to these tests. Percentages of the identified types of asbestos are determined by visual estimation. Any material containing over one percent (1%) by weight is considered by the U.S. Environmental Protection Agency (EPA) to be an asbestos containing material and if disturbed must be handled according to specific local, state and federal regulations.

## **2.5 ASBESTOS CONTAINING MATERIALS**

The Asbestos Survey and Assessment Form 2 is included in Section 3.1 and includes a summary of all suspect asbestos containing materials sampled and the results of the sampling.

## **2.6 NON-ASBESTOS CONTAINING MATERIALS**

The Asbestos Survey and Assessment Form 2 is included in Section 3.1 and includes a summary of all suspect asbestos containing materials sampled and the results of the sampling.

## **2.7 INACCESSIBLE AREAS AND LIMITATIONS**

Because of the hidden nature of many bridge components it may be impossible to determine if all of the suspect bridge materials have been located and subsequently tested. Destructive testing in some instances is not a viable option. We cannot, therefore, guarantee that all potential ACM has been located. For the same reasons, estimates of quantities and/or conditions are subject to readily apparent situations, and our findings reflect this condition. We do warrant, however, that the investigations and methodology reflect the prevailing standard of care in the environmental industry.

Any materials found during construction activities not addressed in this survey report should be assumed to be ACM until sampling and analysis documents otherwise.

### **3 RESULTS**

Fourteen (14) homogeneous areas (HA) of suspect material were identified and fifty (50) samples were collected. For quality control purposes, three (3) samples were split and analyzed by a separate laboratory.

Hazard assessment factors, sample descriptions and laboratory results are summarized on Asbestos Survey and Assessment Form 2 (Section 3.1). A copy of the laboratory report and chain of custody record are included in Appendix I. Inspector and laboratory accreditations and certifications are included in Appendix II. Sample locations and photographs are included in Appendix III and Appendix IV, respectively.

The results of the asbestos survey did not identify asbestos containing materials within the samples collected at the site.

Any suspect materials not identified in this survey should be treated as asbestos-containing materials and not disturbed until identified as non-asbestos containing material through sampling and laboratory analysis.

Prior to any planned renovations or demolition activities, the owner must abide by the notification requirements (10 business work-day notification) set forth in 40 CFR 61 U.S. EPA NESHAP (National Emission Standards for Hazardous Air Pollutants). The owner/operator of the facility is responsible to submit the notification.



### 3.1 Asbestos Survey and Assessment Form 2

Inspection & Assessment Date: June 10-12, 2014

Consultant:  
Agency:

AirQuest Environmental, Inc.  
Miami-Dade Public Works and Waste Management Department

Room Number	Sample Number	Material Type	Homogen Area	Functional Space	Salient Area	Quantity SF or LF	Friable Y or N	Asbestos Type & %	Condition G.F.P.	Damage Potential	Hazard Assessment	Response Priority	Air Monitor Results	Response Costs (\$)	Air Monitor Costs (\$)	Replacement Costs (\$)	Reason Not Sampled or Comments
West Area Deck-Westbound Lane	874459-19	Yellow Lane Delineation Paint	5	Bridge	NA	1,460 LF	N	ND	Good	Low							
West Area Deck-Eastbound Lane	874459-20	White Lane Delineation Paint	6	Bridge	NA	1,460 LF	N	ND	Good	Low							
Central Area Deck-Eastbound Lane	874459-21	White Lane Delineation Paint	6	Bridge	NA	1,460 LF	N	ND	Good	Low							
West Area Deck-Westbound Lane	874459-22	White Lane Delineation Paint	6	Bridge	NA	1,460 LF	N	ND	Good	Low							
West Area Deck-Eastbound Lane	874459-23	Roadway Reflector Mastic (RPM Mastic)	7	Bridge	NA	20 SF	N	ND	Good	Low							
Central Area Deck-Eastbound Lane	874459-24	Roadway Reflector Mastic (RPM Mastic)	7	Bridge	NA	20 SF	N	ND	Good	Low							
West Area Deck-Westbound Lane	874459-25	Roadway Reflector Mastic (RPM Mastic)	7	Bridge	NA	20 SF	N	ND	Good	Low							
West Area below Bridge	874459-26	Concrete Girder/Lower Deck and Black Sealant Mastic	8	Bridge	NA	30,000 SF	N	ND	Good	Low							QAQC Sample
West Area below Bridge	874459-26	Concrete Girder/Lower Deck and Black Sealant Mastic	8	Bridge	NA	30,000 SF	N	ND	Good	Low							
West Area below Bridge	874459-27	Concrete Girder/Lower Deck and Black Sealant Mastic	8	Bridge	NA	30,000 SF	N	ND	Good	Low							
West Area below Bridge	874459-28	Concrete Girder/Lower Deck and Black Sealant Mastic	8	Bridge	NA	30,000 SF	N	ND	Good	Low							
West Area below Bridge	874459-29	Finish Girder/Lower Deck	9	Bridge	NA	30,000 SF	N	ND	Good	Low							
West Area below Bridge	874459-30	Finish Girder/Lower Deck	9	Bridge	NA	30,000 SF	N	ND	Good	Low							
West Area below Bridge	874459-31	Finish Girder/Lower Deck	9	Bridge	NA	30,000 SF	N	ND	Good	Low							
West Area below Bridge	874459-32	Finish Girder/Lower Deck	9	Bridge	NA	30,000 SF	N	ND	Good	Low							
West Area below Bridge	874459-33	Finish Girder/Lower Deck	9	Bridge	NA	30,000 SF	N	ND	Good	Low							
West Area below Bridge	874459-34	Finish Girder/Lower Deck	9	Bridge	NA	30,000 SF	N	ND	Good	Low							
West Area below Bridge	874459-35	Finish Girder/Lower Deck	9	Bridge	NA	30,000 SF	N	ND	Good	Low							

### 3.1 Asbestos Survey and Assessment Form 2

Inspection & Assessment Date: June 10-12, 2014

Consultant:  
Agency:

AirQuest Environmental, Inc.  
Miami-Dade Public Works and Waste Management Department

Room Number	Sample Number	Material Type	Homogen Area	Functional Space	Salient Area	Quantity SF or LF	Friable Y or N	Asbestos Type & %	Condition G.F.P	Damage Potential	Hazard Assessment	Response Priority	Air Monitor Results	Response Costs (\$)	Air Monitor Costs (\$)	Replacement Costs (\$)	Reason Not Sampled or Comments
Southwest Area West Bent	874459-36	Particle Expansion Material at West Bent	10	Bridge	NA	70 SF	N	ND	Good	Low							
Southwest Area West Bent	874459-37	Particle Expansion Material at West Bent	10	Bridge	NA	70 SF	N	ND	Good	Low							
Northwest Area West Bent	874459-38	Particle Expansion Material at West Bent	10	Bridge	NA	70 SF	N	ND	Good	Low							
Central Area Deck-Eastbound Lane	874459-39	Elastomeric Expansion Material at Deck Span	11	Bridge	NA	30 LF	N	ND	Good	Low							
Central Area Deck-Eastbound Lane	874459-40	Elastomeric Expansion Material at Deck Span	11	Bridge	NA	30 LF	N	ND	Good	Low							
Central Area Deck-Westbound Lane	874459-41	Elastomeric Expansion Material at Deck Span	11	Bridge	NA	30 LF	N	ND	Good	Low							
South Area	874459-42	Concrete at West Bulk Wall	12	Bridge	NA	700 SF	N	ND	Good	Low							
South Area	874459-43	Concrete at West Bulk Wall	12	Bridge	NA	700 SF	N	ND	Good	Low							
South Area	874459-44	Concrete at West Bulk Wall	12	Bridge	NA	700 SF	N	ND	Good	Low							
Wall South Area	874459-45	Concrete Utility Shed NW Area off Bridge)	13	Bridge	NA	120 SF	N	ND	Good	Low							
Wall West Area	874459-46	Concrete Utility Shed NW Area off Bridge)	13	Bridge	NA	120 SF	N	ND	Good	Low							
Wall North Area	874459-47	Concrete Utility Shed NW Area off Bridge)	13	Bridge	NA	120 SF	N	ND	Good	Low							
West Door	874459-48	Door Caulk on Utility Shed	14	Bridge	NA	17 LF	N	ND	Good	Low							
West Door	874459-49	Door Caulk on Utility Shed	14	Bridge	NA	17 LF	N	ND	Good	Low							
West Door	874459-50	Door Caulk on Utility Shed	14	Bridge	NA	17 LF	N	ND	Good	Low							



### 3.1 Asbestos Survey and Assessment Form 2

#### Acronyms

ACBM	Asbestos Containing Building Material
ACM	Asbestos Containing Material
ACT	Acoustical Ceiling Tile
LF	Linear Feet
NA	Not Applicable
ND	Not Detected
SF	Square Feet
VFC	Vinyl Floor Covings & Mastic
VFT	Vinyl Floor Tile & Mastic
WB/JC	Wallboard and Joint Compound

#### Hazard Classification

- 1 Fair or poor condition thermal system insulation ACM
- 2 Fair condition friable surfacing ACM
- 3 Poor condition friable surfacing ACM
- 4 Fair or Poor condition miscellaneous ACM
- 5 ACBM with potential for damage
- 6 ACBM with potential for significant damage
- 7 Any remaining friable ACBM or friable suspected ACBM
- 8 All other non-friable ACBM

Definitions - The following definitions apply to the characteristics of the material and are not indicative of the asbestos content (if any).

- Friable - A material that can be crushed under hand pressure (e.g. insulation).
- Non-friable - A material that cannot be crushed under hand pressure (e.g. floor tile).
- Condition - Good (G) - The building material is not damaged.
- Condition - Fair (F) - The building material is damaged.
- Condition - Poor (P) - The building material is significantly damaged.
- Damage Potential (Low) - The material has a low potential for damage from contact, erosion, vibration, etc.
- Damage Potential (Moderate) - The material has a moderate potential for damage from contact, erosion, vibration, etc.
- Damage Potential (High) - The material has a high potential for damage from contact, erosion, vibration, etc.

#### **4 CONCLUSIONS AND RECOMMENDATIONS**

All suspect materials that were identified in the scope of work were sampled and analyzed. The results of the asbestos survey did not identify asbestos containing materials within the samples collected at the site.

Any suspect materials not identified in this survey should be treated as asbestos-containing materials and not disturbed until identified as non-asbestos containing material through sampling and laboratory analysis.

Prior to any planned renovations or demolition activities, the owner must abide by the notification requirements (10 business work-day notification) set forth in 40 CFR 61 U.S. EPA NESHAP (National Emission Standards for Hazardous Air Pollutants). The owner/operator of the facility is responsible to submit the notification.

**APPENDIX I**

**LABORATORY REPORT AND  
CHAIN OF CUSTODY RECORD**

**EMSL Analytical, Inc.**

200 Route 130 North, Cinnaminson, NJ 08077  
 Phone/Fax: (800) 220-3675 / (856) 786-5974  
<http://www.EMSL.com> [cinnaslab@EMSL.com](mailto:cinnaslab@EMSL.com)

EMSL Order: 041417002  
 CustomerID: AQE63  
 CustomerPO:  
 ProjectID:

Attn: **Lab Results**  
**AirQuest Environmental, Inc.**  
**6851 Southwest 45th Street**  
**Fort Lauderdale, FL 33314**

Phone: (954) 792-4549  
 Fax: (954) 792-2221  
 Received: 06/17/14 9:50 AM  
 Analysis Date: 6/17/2014  
 Collected: 6/11/2014

Project: 8194 / Venetian Causway

### Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	%	Non-Asbestos		Asbestos
				Fibrous	Non-Fibrous	% Type
874459-01 041417002-0001	West Area Deck Eastbound Lane - Upper Deck (concrete below asphalt)	Gray Non-Fibrous Homogeneous		100%	Non-fibrous (other)	None Detected
HA: 1						
874459-02 041417002-0002	Central Area Deck Eastbound Lane - Upper Deck (concrete below asphalt)	Gray Non-Fibrous Homogeneous		100%	Non-fibrous (other)	None Detected
HA: 1						
874459-03 041417002-0003	West Area Deck Westbound Lane - Upper Deck (concrete below asphalt)	Gray Non-Fibrous Homogeneous		100%	Non-fibrous (other)	None Detected
HA: 1						
874459-04 041417002-0004	West Area Deck Eastbound Lane - Concrete Sidewalk	Gray Non-Fibrous Homogeneous		100%	Non-fibrous (other)	None Detected
HA: 2						
874459-05 041417002-0005	Central Area Deck Eastbound Lane - Concrete Sidewalk	Gray Non-Fibrous Homogeneous		100%	Non-fibrous (other)	None Detected
HA: 2						

## Analyst(s)

Brett Poulton (38)  
Naadira Carter (15)

Stephen Siegel, CIH, Laboratory Manager  
 or other approved signatory

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Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NVLAP Lab Code 101048-0, AIHA-LAP, LLC-IHLAP Lab 100194, NYS ELAP 10872, NJ DEP 03036, PA ID# 68-00367

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**AirQuest Environmental, Inc.**  
**6851 Southwest 45th Street**  
**Fort Lauderdale, FL 33314**

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Project: **8194 / Venetian Causway**

### Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
874459-06 041417002-0006	West Area Deck Westbound Lane - Concrete Sidewalk	Gray Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
HA: 2					
874459-07 041417002-0007	West Area Deck Eastbound Lane - Concrete Sidewalk Rails	Gray Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
HA: 3					
874459-08 041417002-0008	Central Area Deck Eastbound Lane - Concrete Sidewalk Rails	Gray Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
HA: 3					
874459-09 041417002-0009	West Area Deck Westbound Lane - Concrete Sidewalk Rails	Gray Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
HA: 3					
874459-10 041417002-0010	SW Area Concrete Rail - Concrete Rail Finish	White Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
HA: 4					
874459-11 041417002-0011	SW Area Concrete Rail - Concrete Rail Finish	White Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
HA: 4					

Analyst(s)

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Project: 8194 / Venetian Causway

### Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
874459-12 041417002-0012	South Area Concrete Rail - Concrete Rail Finish	White Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
HA: 4					
874459-13 041417002-0013	North Area Concrete Rail - Concrete Rail Finish	White Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
HA: 4					
874459-14 041417002-0014	North Area Concrete Rail - Concrete Rail Finish	White Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
HA: 4					
874459-15 041417002-0015	NW Area Concrete Rail - Concrete Rail Finish	White Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
HA: 4					
874459-16 041417002-0016	NW Area Concrete Rail - Concrete Rail Finish	White Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
HA: 4					
874459-17 041417002-0017	West Area Deck Eastbound Lane - Yellow Lane Delineation Paint	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
HA: 5					

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Project: 8194 / Venetian Causway

### Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
874459-18 041417002-0018	Central Area Deck Eastbound Lane - Yellow Lane Delineation Paint	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
HA: 5					
874459-19 041417002-0019	West Area Deck Westbound Lane - Yellow Lane Delineation Paint	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
HA: 5					
874459-20 041417002-0020	West Area Deck Eastbound Lane - White Lane Delineation Paint	White Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
HA: 6					
874459-21 041417002-0021	Central Area Deck Eastbound Lane - White Lane Delineation Paint	White Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
HA: 6					
874459-22 041417002-0022	West Area Deck Westbound Lane - White Lane Delineation Paint	White Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
HA: 6					

Analyst(s)

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Project: **8194 / Venetian Causway**

### Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
874459-23 041417002-0023	West Area Deck Eastbound Lane - RPM Mastic	Black Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
			HA: 7		
874459-24 041417002-0024	Central Area Deck Eastbound Lane - RPM Mastic	Black Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
			HA: 7		
874459-25 041417002-0025	West Area Deck Westbound Lane - RPM Mastic	Black Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
			HA: 7		
874459-26-Concrete 041417002-0026	West Area Below Bridge - Concret Girder/ Lower Deck & Black Sealant Mastic	Tan Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
			HA: 8		
874459-26-Mastic 041417002-0026A	West Area Below Bridge - Concret Girder/ Lower Deck & Black Sealant Mastic	Black Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
			HA: 8		

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### Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
874459-27- Concrete <i>041417002-0027</i>	West Area Below Bridge - Concret Girder/ Lower Deck & Black Sealant Mastic	Tan Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
HA: 8					
874459-27-Mastic <i>041417002-0027A</i>	West Area Below Bridge - Concret Girder/ Lower Deck & Black Sealant Mastic	Black Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
HA: 8					
874459-28- Concrete <i>041417002-0028</i>	West Area Below Bridge - Concret Girder/ Lower Deck & Black Sealant Mastic	Gray Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
HA: 8					
874459-28-Mastic <i>041417002-0028A</i>	West Area Below Bridge - Concret Girder/ Lower Deck & Black Sealant Mastic	Black Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
HA: 8					
874459-29 <i>041417002-0029</i>	West Area Below Bridge - Finish Girder/ Lower Deck	Gray Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
HA: 9					

**Analyst(s)**

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*Naadira Carter (15)*

Stephen Siegel, CIH, Laboratory Manager  
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### Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
874459-30 041417002-0030	West Area Below Bridge - Finish Girder/ Lower Deck	Gray Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
			HA: 9		
874459-31 041417002-0031	West Area Below Bridge - Finish Girder/ Lower Deck	Gray Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
			HA: 9		
874459-32 041417002-0032	West Area Below Bridge - Finish Girder/ Lower Deck	Gray Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
			HA: 9		
874459-33 041417002-0033	West Area Below Bridge - Finish Girder/ Lower Deck	Gray Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
			HA: 9		
874459-34 041417002-0034	West Area Below Bridge - Finish Girder/ Lower Deck	Gray Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
			HA: 9		
874459-35 041417002-0035	West Area Below Bridge - Finish Girder/ Lower Deck	Gray Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
			HA: 9		

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Project: **8194 / Venetian Causway**

### Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
874459-36 041417002-0036	SW Area West Bent - Particle Expansion Material @ West Bent	Brown Non-Fibrous Homogeneous	15% Cellulose	85% Non-fibrous (other)	None Detected
			HA: 10		
874459-37 041417002-0037	SW Area West Bent - Particle Expansion Material @ West Bent	Brown Fibrous Homogeneous	15% Cellulose	85% Non-fibrous (other)	None Detected
			HA: 10		
874459-38 041417002-0038	NW Area West Bent - Particle Expansion Material @ West Bent	Black Fibrous Homogeneous	30% Cellulose	70% Non-fibrous (other)	None Detected
			HA: 10		
874459-39 041417002-0039	Central Area Deck Eastbound Lane - Elastomeric Expansion Material @ Deck Span	Black Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
			HA: 11		

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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
874459-40 041417002-0040	Central Area Deck Eastbound Lane - Elastomeric Expansion Material @ Deck Span	Black Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
HA: 11					
874459-41 041417002-0041	Central Area Deck Westbound Lane - Elastomeric Expansion Material @ Deck Span	Black Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
HA: 11					
874459-42 041417002-0042	South Area - Concrete @ West Bulk Wall	White Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
HA: 12					
874459-43 041417002-0043	South Area - Concrete @ West Bulk Wall	White Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
HA: 12					
874459-44 041417002-0044	North Area - Concrete @ West Bulk Wall	White Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
HA: 12					

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<http://www.EMSL.com> [cinnaslab@EMSL.com](mailto:cinnaslab@EMSL.com)

EMSL Order: 041417002  
 CustomerID: AQE63  
 CustomerPO:  
 ProjectID:

Attn: **Lab Results**  
**AirQuest Environmental, Inc.**  
**6851 Southwest 45th Street**  
**Fort Lauderdale, FL 33314**

Phone: (954) 792-4549  
 Fax: (954) 792-2221  
 Received: 06/17/14 9:50 AM  
 Analysis Date: 6/17/2014  
 Collected: 6/11/2014

Project: 8194 / Venetian Causway

### Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
874459-45 041417002-0045	Wall South Area - Concrete Utility Shed (NW Area off Bridge)	Gray Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
HA: 13					
874459-46 041417002-0046	Wall West Area - Concrete Utility Shed (NW Area off Bridge)	White Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
HA: 13					
874459-47 041417002-0047	Wall North Area - Concrete Utility Shed (NW Area off Bridge)	Gray/White Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
HA: 13					
874459-48 041417002-0048	West Door - Door Caulk Utility Shed (NW Area off Bridge)	Gray/White Non-Fibrous Homogeneous	5% Fibrous (other)	95% Non-fibrous (other)	None Detected
HA: 14 Recommend TEM.					
874459-49 041417002-0049	West Door - Door Caulk Utility Shed (NW Area off Bridge)	Gray/White Non-Fibrous Homogeneous	5% Fibrous (other)	95% Non-fibrous (other)	None Detected
HA: 14 Recommend TEM.					

Analyst(s)

*Brett Poulton (38)*  
*Naadira Carter (15)*

Stephen Siegel, CIH, Laboratory Manager  
 or other approved signatory

EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the federal government. Non-friable organically bound materials present a problem matrix and therefore EMSL recommends gravimetric reduction prior to analysis. Samples received in good condition unless otherwise noted. Estimated accuracy, precision and uncertainty data available upon request. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample. Reporting limit is 1%

Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NVLAP Lab Code 101048-0, AIHA-LAP, LLC-IHLAP Lab 100194, NYS ELAP 10872, NJ DEP 03036, PA ID# 68-00367

Initial report from 06/17/2014 21:39:20

**EMSL Analytical, Inc.**

200 Route 130 North, Cinnaminson, NJ 08077  
 Phone/Fax: (800) 220-3675 / (856) 786-5974  
<http://www.EMSL.com> [cinnaslab@EMSL.com](mailto:cinnaslab@EMSL.com)

EMSL Order: 041417002  
 CustomerID: AQE63  
 CustomerPO:  
 ProjectID:

Attn: **Lab Results**  
**AirQuest Environmental, Inc.**  
**6851 Southwest 45th Street**  
**Fort Lauderdale, FL 33314**

Phone: (954) 792-4549  
 Fax: (954) 792-2221  
 Received: 06/17/14 9:50 AM  
 Analysis Date: 6/17/2014  
 Collected: 6/11/2014

Project: **8194 / Venetian Causway**

### Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
874459-50	West Door - Door	Gray/White	3% Fibrous (other)	97% Non-fibrous (other)	<b>None Detected</b>
041417002-0050	Caulk Utility Shed (NW Area off Bridge)	Non-Fibrous Homogeneous			

HA: 14  
Recommend TEM.

Analyst(s)

*Brett Poulton (38)*  
*Naadira Carter (15)*

Stephen Siegel, CIH, Laboratory Manager  
 or other approved signatory

EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the federal government. Non-friable organically bound materials present a problem matrix and therefore EMSL recommends gravimetric reduction prior to analysis. Samples received in good condition unless otherwise noted. Estimated accuracy, precision and uncertainty data available upon request. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample. Reporting limit is 1%  
 Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NVLAP Lab Code 101048-0, AIHA-LAP, LLC-IHLAP Lab 100194, NYS ELAP 10872, NJ DEP 03036, PA ID# 68-00367

Initial report from 06/17/2014 21:39:20

041417002

Daily Bulk Sample Log & Chain of Custody



6851 SW 45th Street  
Davie, Florida 33314

Sample Date: 6/11/2014

Fax: (866) 461-2791

Project Number: 8194

Toll Free: (877) 247-8146

Project Name: Venetian Causway

Email: labresults@airquestinc.com

Surveyor: Paul LeBlanc

Turnaround RUSH XX 24 Hour Standard

Signature \_\_\_\_\_

Homo Area	Sample Number	Material Type	Sample Location	Analysis Requested	Quantity SF or LF	Friable Y or N	Condition G.F.P	Damage Potential	Comments
1	874459-01	Upper Deck (Concrete Below Asphalt)	West Area Deck Eastbound Lane	PLM	21,000 SF	No	Good	Low	
1	874459-02	Upper Deck (Concrete Below Asphalt)	Central Area Deck Eastbound Lane	PLM	21,000 SF	No	Good	Low	
1	874459-03	Upper Deck (Concrete Below Asphalt)	West Area Deck Westbound Lane	PLM	21,000 SF	No	Good	Low	
2	874459-04	Concrete Sidewalk	West Area Deck Eastbound Lane	PLM	7,300 SF	No	Good	Low	
2	874459-05	Concrete Sidewalk	Central Area Deck Eastbound Lane	PLM	7,300 SF	No	Good	Low	
2	874459-06	Concrete Sidewalk	West Area Deck Westbound Lane	PLM	7,300 SF	No	Good	Low	
3	874459-07	Concrete Sidewalk Rails	West Area Deck Eastbound Lane	PLM	7,300 SF	No	Good	Low	
3	874459-08	Concrete Sidewalk Rails	Central Area Deck Eastbound Lane	PLM	7,300 SF	No	Good	Low	
3	874459-09	Concrete Sidewalk Rails	West Area Deck Westbound Lane	PLM	7,300 SF	No	Good	Low	
4	874459-10	Concrete Rail Finish	Sw Area Concrete Rail	PLM	7,300 SF	No	Good	Low	
4	874459-11	Concrete Rail Finish	Sw Area Concrete Rail	PLM	7,300 SF	No	Good	Low	
4	874459-12	Concrete Rail Finish	South Area Concrete Rail	PLM	7,300 SF	Yes	Good	Low	

ENCL  
CINNAMINSON, NJ  
14 JUN 17 AM 11:25

Relinquished by: *[Signature]* Date/Time: 6-14-14 3:00p  
 Received by: *AK FX* Date/Time: 6/17/14 0950  
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 Received by: \_\_\_\_\_ Date/Time: \_\_\_\_\_

50

Daily Bulk Sample Log & Chain of Custody

041417002



6851 SW 45th Street  
Davie, Florida 33314

Sample Date: 6/11/2014

Fax: (866) 461-2791

Project Number: 8194

Toll Free: (877) 247-8146

Project Name: Venetian Causway

Email: labresults@airquestinc.com

Surveyor: Paul LeBlanc

Turnaround   RUSH     XX     24   Hour   Standard  

Signature

Homo Area	Sample Number	Material Type	Sample Location	Analysis Requested	Quantity SF or LF	Friable Y or N	Condition G.F.P.	Damage Potential	Comments
4	874459-13	Concrete Rail Finish	North Area Concrete Rail	PLM	7,300 SF	Yes	Good	Low	
4	874459-14	Concrete Rail Finish	North Area Concrete Rail	PLM	7,300 SF	Yes	Good	Low	
4	874459-15	Concrete Rail Finish	Nw Area Concrete Rail	PLM	7,300 SF	No	Good	Low	
4	874459-16	Concrete Rail Finish	Nw Area Concrete Rail	PLM	7,300 SF	No	Good	Low	
5	874459-17	Yellow Lane Delineation Paint	West Area Deck Eastbound Lane	PLM	1,460 LF	No	Good	Low	
5	874459-18	Yellow Lane Delineation Paint	Central Area Deck Eastbound Lane	PLM	1,460 LF	No	Good	Low	
5	874459-19	Yellow Lane Delineation Paint	West Area Deck Westbound Lane	PLM	1,460 LF	No	Good	Low	
6	874459-20	White Lane Delineation Paint	West Area Deck Eastbound Lane	PLM	1,460 LF	No	Good	Low	
6	874459-21	White Lane Delineation Paint	Central Area Deck Eastbound Lane	PLM	1,460 LF	No	Good	Low	
6	874459-22	White Lane Delineation Paint	West Area Deck Westbound Lane	PLM	1,460 LF	No	Good	Low	
7	874459-23	RPM Mastic	West Area Deck Eastbound Lane	PLM	20 SF	No	Good	Low	
7	874459-24	RPM Mastic	West Area Deck Westbound Lane	PLM	20 SF	No	Good	Low	
7	874459-25	RPM Mastic	West Area Deck Westbound Lane	PLM	20 SF	No	Good	Low	
8	874459-26	Concrete Girder/ Lower Deck and Black Sealant Mastic	West Area Below Bridge	PLM	30,000 SF	No	Good	Low	
8	874459-27	Concrete Girder/ Lower Deck and Black Sealant Mastic	West Area Below Bridge	PLM	30,000 SF	No	Good	Low	
8	874459-28	Concrete Girder/ Lower Deck and Black Sealant Mastic	West Area Below Bridge	PLM	30,000 SF	No	Good	Low	

LAB  
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16 JUN 17 AM 11:25

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 Relinquished by: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
 Received by: \_\_\_\_\_ Date/Time: \_\_\_\_\_

041417002

Daily Bulk Sample Log & Chain of Custody



Environmental, Inc.  
6851 SW 45th Street  
Davie, Florida 33314

Sample Date: 6/11/2014  
Project Number: 8194  
Project Name: Venetian Causway  
Surveyor: Paul LeBlanc

Fax: (866) 461-2791  
Toll Free: (877) 247-8146  
Email: labresults@airquestinc.com

Turnaround RUSH XX 24 Hour Standard

Signature

Homo Area	Sample Number	Material Type	Sample Location	Analysis Requested	Quantity SF or LF	Friable Y or N	Condition G,F,P	Damage Potential	Comments
9	874459-29	Finish Girder/ Lower Deck	West Area Below Bridge	PLM	30,000 SF	Yes	Good	Low	
9	874459-30	Finish Girder/ Lower Deck	West Area Below Bridge	PLM	30,000 SF	Yes	Good	Low	
9	874459-31	Finish Girder/ Lower Deck	West Area Below Bridge	PLM	30,000 SF	Yes	Good	Low	
9	874459-32	Finish Girder/ Lower Deck	West Area Below Bridge	PLM	30,000 SF	Yes	Good	Low	
9	874459-33	Finish Girder/ Lower Deck	West Area Below Bridge	PLM	30,000 SF	Yes	Good	Low	
9	874459-34	Finish Girder/ Lower Deck	West Area Below Bridge	PLM	30,000 SF	Yes	Good	Low	
9	874459-35	Finish Girder/ Lower Deck	West Area Below Bridge	PLM	30,000 SF	Yes	Good	Low	
10	874459-36	Particle Expansion Material At West Bent	SW Area West Bent	PLM	70 SF	Yes	Poor	High	
10	874459-37	Particle Expansion Material At West Bent	SW Area West Bent	PLM	70 SF	Yes	Poor	High	
10	874459-38	Particle Expansion Material At West Bent	NW Area West Bent	PLM	70 SF	Yes	Poor	High	
11	874459-39	Elastomeric Expansion Material At Deck Span	Central Area Deck Eastbound Lane	PLM	30 LF	No	Good	Low	
11	874459-40	Elastomeric Expansion Material At Deck Span	Central Area Deck Eastbound Lane	PLM	30 LF	No	Good	Low	
11	874459-41	Elastomeric Expansion Material At Deck Span	Central Area Deck Westbound Lane	PLM	30 LF	No	Good	Low	
12	874459-42	Concrete At West Bulk Wall	South Area	PLM	700 SF	No	Good	Low	
12	874459-43	Concrete At West Bulk Wall	South Area	PLM	700 SF	No	Good	Low	
12	874459-44	Concrete At West Bulk Wall	North Area	PLM	700 SF	No	Good	Low	
13	874459-45	Concrete Utility Shed (NW Area Off Bridge)	Wall South Area	PLM	120 SF	No	Good	Low	
13	874459-46	Concrete Utility Shed (NW Area Off Bridge)	Wall West Area	PLM	120 SF	No	Good	Low	
13	874459-47	Concrete Utility Shed (NW Area Off Bridge)	Wall North Area	PLM	120 SF	No	Good	Low	

16 JUN 17 AM 11:25  
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Relinquished by: Date/Time: 6-14-14 3:00p  
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Relinquished by: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
Received by: \_\_\_\_\_ Date/Time: \_\_\_\_\_

041417002

Daily Bulk Sample Log & Chain of Custody



Environmental, Inc.  
6851 SW 45th Street  
Davie, Florida 33314

Sample Date: 6/11/2014  
Project Number: 8194  
Project Name: Venetian Causway  
Surveyor: Paul LeBlanc

Fax: (866) 461-2791  
Toll Free: (877) 247-8146  
Email: labresults@airquestinc.com

Turnaround    RUSH    XX    24 Hour    Standard    Signature   

Homo Area	Sample Number	Material Type	Sample Location	Analysis Requested	Quantity SF or LF	Friable Y or N	Condition G.F.P	Damage Potential	Comments
14	874459-48	Door Caulk Utility Shed (NW Area Off Bridge)	West Door	PLM	17 LF	Yes	Good	Low	
14	874459-49	Door Caulk Utility Shed (NW Area Off Bridge)	West Door	PLM	17 LF	Yes	Good	Low	
14	874459-50	Door Caulk Utility Shed (NW Area Off Bridge)	West Door	PLM	17 LF	Yes	Good	Low	

EMSL  
CINNAMINSON, NJ  
14 JUN 17 AM 11:25

Relinquished by:  Date/Time: 6-14-14 3:00pm  
 Received by: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
 Relinquished by: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
 Received by: \_\_\_\_\_ Date/Time: \_\_\_\_\_



Report for:

**Mr. Paul LeBlanc**  
**AirQuest Environmental, Inc.**  
5799 Orange Drive  
Fort Lauderdale, FL 33314

---

Regarding: Project: 8194; Venetian Causway  
EML ID: 1221884

Approved by:

Approved Signatory  
Baluswamy Krishnan

Dates of Analysis:  
Asbestos-EPA Method 600/R-93/116: 06-18-2014

Service SOPs: Asbestos-EPA Method 600/R-93/116 (EPA-600/M4-82-020 (SOP 01267))

---

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. The results relate only to the items tested. The results include an inherent uncertainty of measurement associated with estimating percentages by polarized light microscopy. Measurement uncertainty data for sample results with >1% asbestos concentration can be provided when requested.

EMLab P&K ("the Company") shall have no liability to the client or the client's customer with respect to decisions or recommendations made, actions taken or courses of conduct implemented by either the client or the client's customer as a result of or based upon the Test Results. In no event shall the Company be liable to the client with respect to the Test Results except for the Company's own willful misconduct or gross negligence nor shall the Company be liable for incidental or consequential damages or lost profits or revenues to the fullest extent such liability may be disclaimed by law, even if the Company has been advised of the possibility of such damages, lost profits or lost revenues. In no event shall the Company's liability with respect to the Test Results exceed the amount paid to the Company by the client therefor.

**EMLab P&K**6301 NW 5th Way, Suite 2850, Ft. Lauderdale, FL 33309  
(877) 711-8400 Fax (954) 776-8485 www.emlab.comClient: AirQuest Environmental, Inc.  
C/O: Mr. Paul LeBlanc  
Re: 8194; Venetian CauswayDate of Sampling: 06-11-2014  
Date of Receipt: 06-17-2014  
Date of Report: 06-18-2014**ASBESTOS PLM REPORT: EPA-600/M4-82-020 & EPA METHOD 600/R-93-116****Total Samples Submitted:** 3**Total Samples Analysed:** 3**Total Samples with Layer Asbestos Content > 1%:** 0**Location: 3-874459-08, Concrete Sidewalk Rails**

Lab ID-Version‡: 5558249-1

Sample Layers	Asbestos Content
Gray Concrete	ND
<b>Sample Composite Homogeneity:</b>	Moderate

**Location: 5-874459-18, Yellow Lane Delineation Paint**

Lab ID-Version‡: 5558250-1

Sample Layers	Asbestos Content
Yellow Paint	ND
<b>Sample Composite Homogeneity:</b>	Good

**Location: 8-874459-26, Concrete Girder/ Lower Deck and Black Sealant Mastic**

Lab ID-Version‡: 5558251-1

Sample Layers	Asbestos Content
Brown Concrete	ND
Black Mastic	ND
<b>Sample Composite Homogeneity:</b>	Good

The test report shall not be reproduced except in full, without written approval of the laboratory. The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. EMLab P&K reserves the right to dispose of all samples after a period of thirty (30) days, according to all state and federal guidelines, unless otherwise specified.

Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.

‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Daily Bulk Sample Log & Chain of Custody

**Air Quest**  
 Environmental, Inc.  
 6851 SW 45th Street  
 Davie, Florida 33314

Fax: (866) 461-2791  
 Toll Free: (877) 247-8146  
 Email: labresults@airquest

Turnaround  RUSH   XX  24 Hour  St

Home Area	Sample Number	Material Type	Sample Location	Analysis Requested	Quantity SF or LF
3	874459-08	Concrete Sidewalk Rails	Central Area Deck Eastbound Lane	PLM	7,300 SF
5	874459-18	Yellow Lane Delineation Paint	Central Area Deck Eastbound Lane	PLM	1,460 LF
8	874459-26	Concrete Girder/ Lower Deck and Black Sealant Mastic	West Area Below Bridge	PLM	30,000 SF

Relinquished by:  [Signature]  Date/Time:  6-14-14 3:00pm   
 Received by:  [Signature]  Date/Time:  6-17-14 10:20am   
 Relinquished by: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
 Received by: \_\_\_\_\_ Date/Time: \_\_\_\_\_

803130110630



001221884

Sample Date: 6/11/2014

Project Number: 8194

Project Name: Venetian Causway

inc.com Surveyor: Paul LeBlanc

Standard

Signature \_\_\_\_\_

Friable Y or N	Condition G,F,P	Damage Potential	Comments
No	Good	Low	
No	Good	Low	
No	Good	Low	

**APPENDIX II**

**INSPECTOR CERTIFICATIONS  
(ASBESTOS SURVEY REPORT FORM 3)**

**Asbestos Survey Report - Form 3  
Personnel Summary**

**Bridge:** 874459  
**Bridge Name:** Westernmost Bascule Bridge over Intracoastal Waterway on Venetian Causeway  
**Date of Survey:** June 10-12, 2014

Name	Address	Task Performed	License/ Certification #
Traci-Anne Boyle, CIH	6851 SW 45th Street, Fort Lauderdale, FL 33314	Licensed Consultant	AX-60
Paul LeBlanc	6851 SW 45th Street, Fort Lauderdale, FL 33314	Inspector	14443
EMSL Analytical	19501 NE 10th Avenue, Bay A, North Miami Beach, Florida 33179	Analysis	NVLAP 200204-0
EMLab P&K Laboratories	6301 NW 5th Way, Suite 2850 Fort Lauderdale, Florida 33309	Analysis	NVLAP 200738-0



STATE OF FLORIDA

DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION

ASBESTOS LICENSING UNIT  
1940 NORTH MONROE STREET  
TALLAHASSEE FL 32399-0783

(850) 487-1395

BOYLE, TRACI-ANNE  
AIRQUEST ENVIRONMENTAL INC  
5150 SW 48TH WAY  
STE 610  
DAVIE FL 33314

Congratulations! With this license you become one of the nearly one million Floridians licensed by the Department of Business and Professional Regulation. Our professionals and businesses range from architects to yacht brokers, from boxers to barbeque restaurants, and they keep Florida's economy strong.

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STATE OF FLORIDA AC# 6336762  
DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION

AX60 09/04/12 128069000

ASBESTOS CONSULTANT  
BOYLE, TRACI-ANNE  
AIRQUEST ENVIRONMENTAL INC

IS LICENSED under the provisions of Ch. 469 FS.  
Expiration date: NOV 30, 2014 L12090403221

DETACH HERE

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AC# 6336762

STATE OF FLORIDA

DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION  
ASBESTOS LICENSING UNIT

SEQ# L12090403221

DATE	BATCH NUMBER	LICENSE NBR
09/04/2012	128069000	AX60

The ASBESTOS CONSULTANT  
Named below IS LICENSED  
Under the provisions of Chapter 469 FS.  
Expiration date: NOV 30, 2014

BOYLE, TRACI-ANNE  
AIRQUEST ENVIRONMENTAL INC  
5150 SW 48TH WAY  
STE 610  
DAVIE FL 33314

RICK SCOTT  
GOVERNOR

KEN LAWSON  
SECRETARY

DISPLAY AS REQUIRED BY LAW

**The Environmental Institute**

***Paul Leonard LeBlanc***

Social Security Number - XXX-XX-4297

Air Quest Environmental - 6851 Southwest 45th Street - Ft. Lauderdale, Florida 33314

*Has completed coursework and satisfactorily passed  
an examination that meets all criteria required for  
EPA/AHERA/ASHARA (TSCA Title II) Approved Reaccreditation*

*Asbestos in Buildings: Inspector Refresher*

June 3, 2014

Course Date

14443

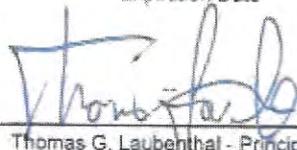
Certificate Number

June 3, 2014

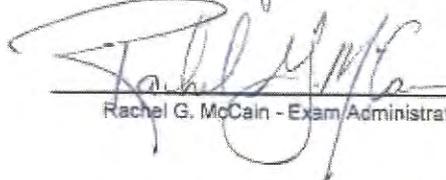
Examination Date

June 2, 2015

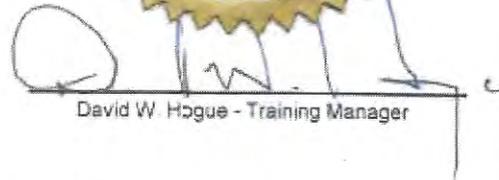
Expiration Date



Thomas G. Laubenthal - Principal Instructor



Rachel G. McCain - Exam Administrator



David W. Hogue - Training Manager

Training Location: 2670 East Sunrise Blvd. - Ft. Lauderdale, FL 33304

(Approved by the ABIH Certification Maintenance Committee for 1/2 CM point - Approval #11-577)

(Florida Provider Registration Number FL49-0001342 - Course #FL49-0002805)

TEI - 1841 West Oak Parkway, Suite F - Marietta, Georgia 30062 - (770) 427-3600 - [www.tei-atl.com](http://www.tei-atl.com)

**APPENDIX III**

**SAMPLE LOCATION MAP**



Prepared For:

Miami-Dade Public Works and Waste  
Management Department  
111 Northwest 1st Street, Suite 1510  
Miami, Florida 33128-1970

**LEGEND**

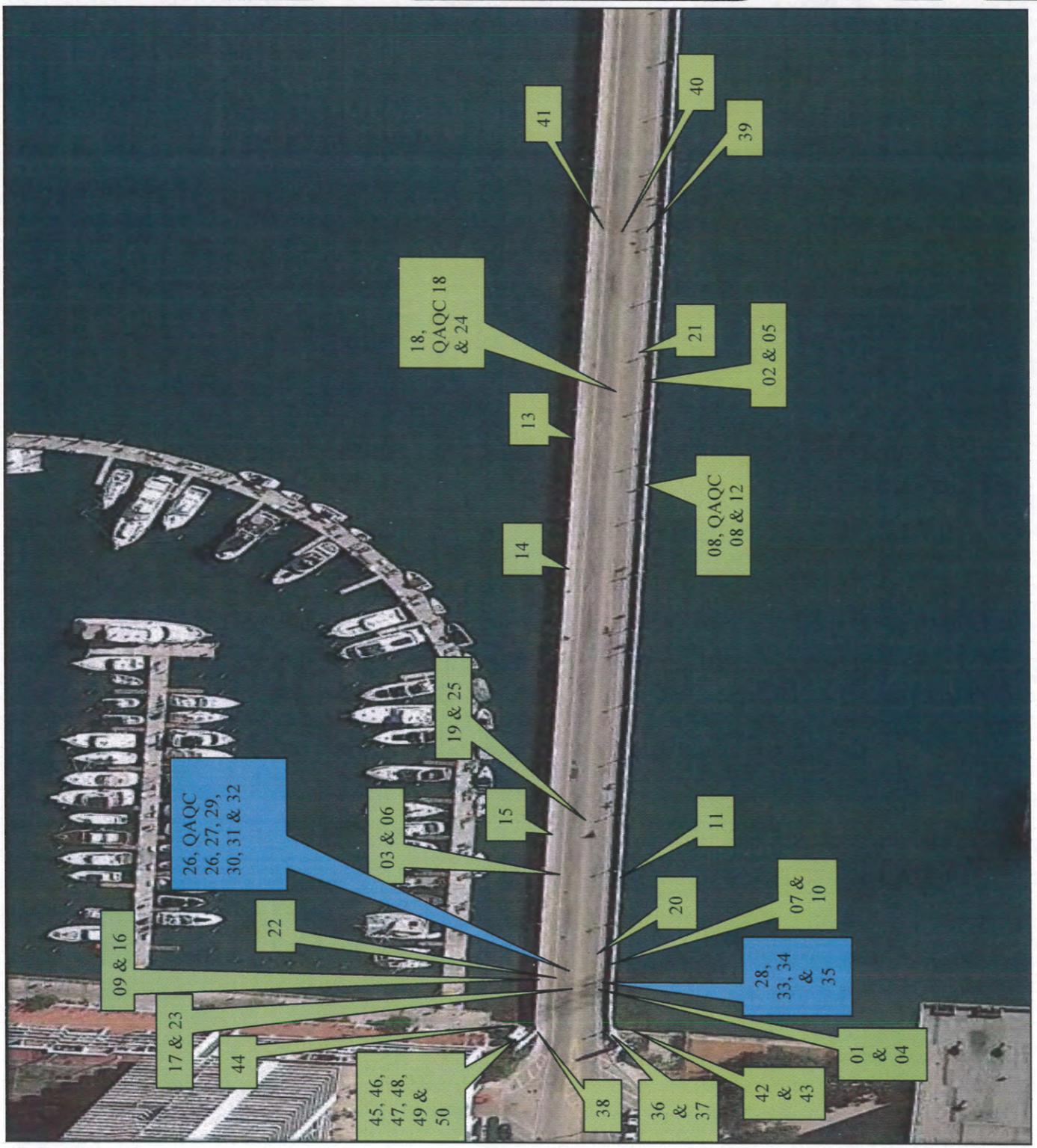
- Non-Asbestos  
Containing Material  
Top Side Bridge  
Sample Locations
- Non-Asbestos  
Containing Material  
Bottom Side Bridge  
Sample Locations

DATE: 6/10/2014-  
6/12/2014  
PROJECT #: 8194



Sample Location Map

Bridge: 874459  
Westernmost Bascule Bridge over  
Intracoastal Waterway on Venetian  
Causeway



**APPENDIX IV**

**SITE PHOTOGRAPHS**

Bridge #874459  
Sample Location Photos



Bridge #874459



Bridge #874459

Bridge #874459  
Sample Location Photos



Bridge #874459



Bridge #874459

Bridge #874459  
Sample Location Photos

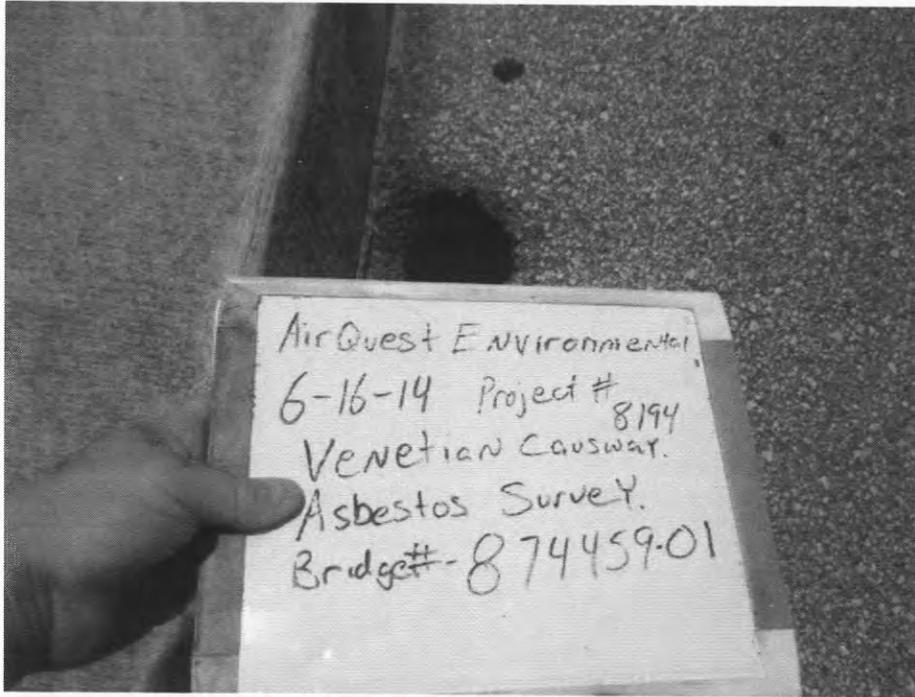


Bridge #874459

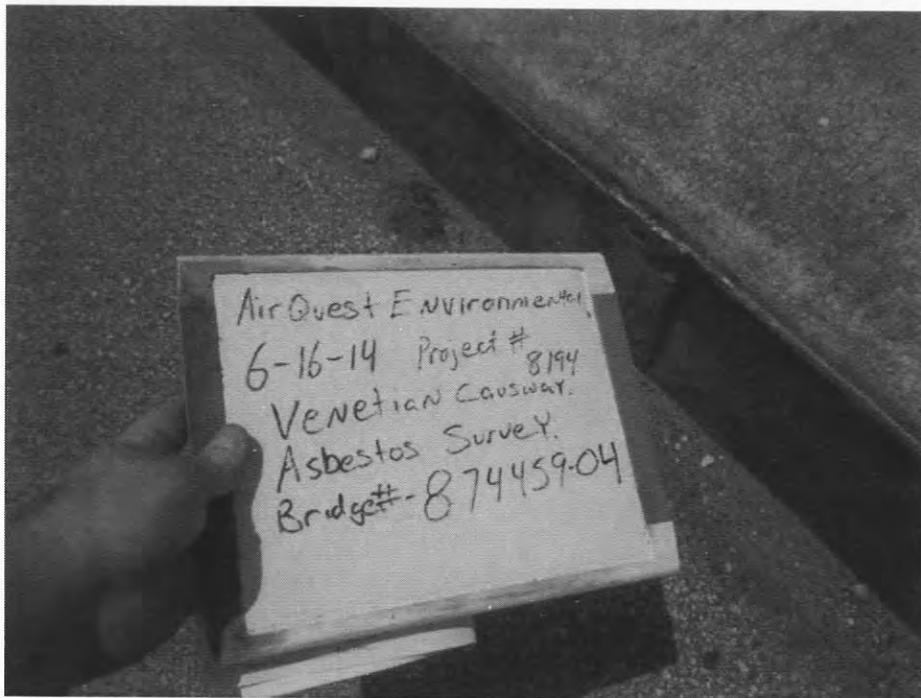
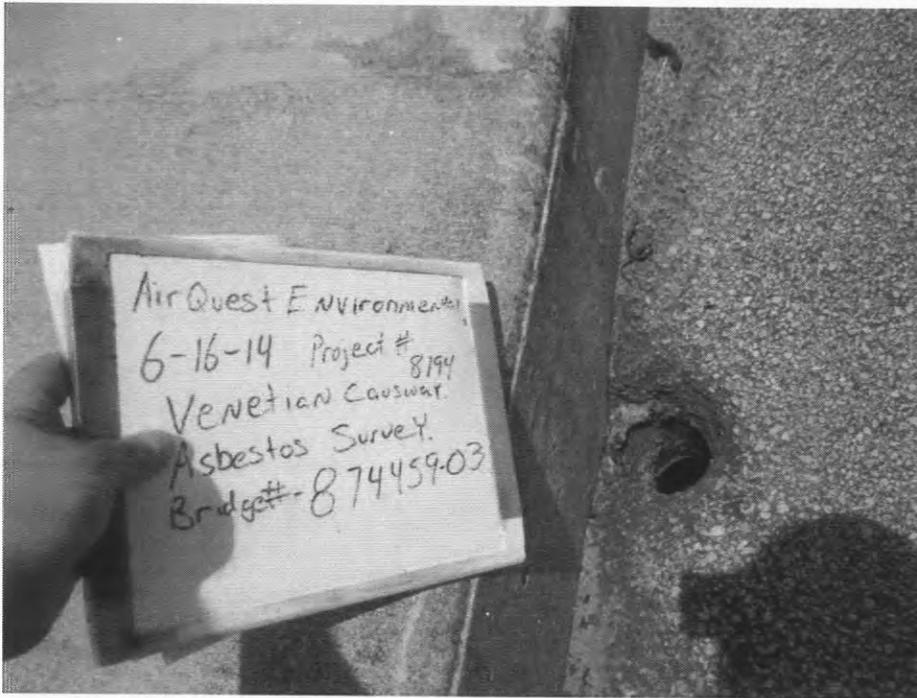


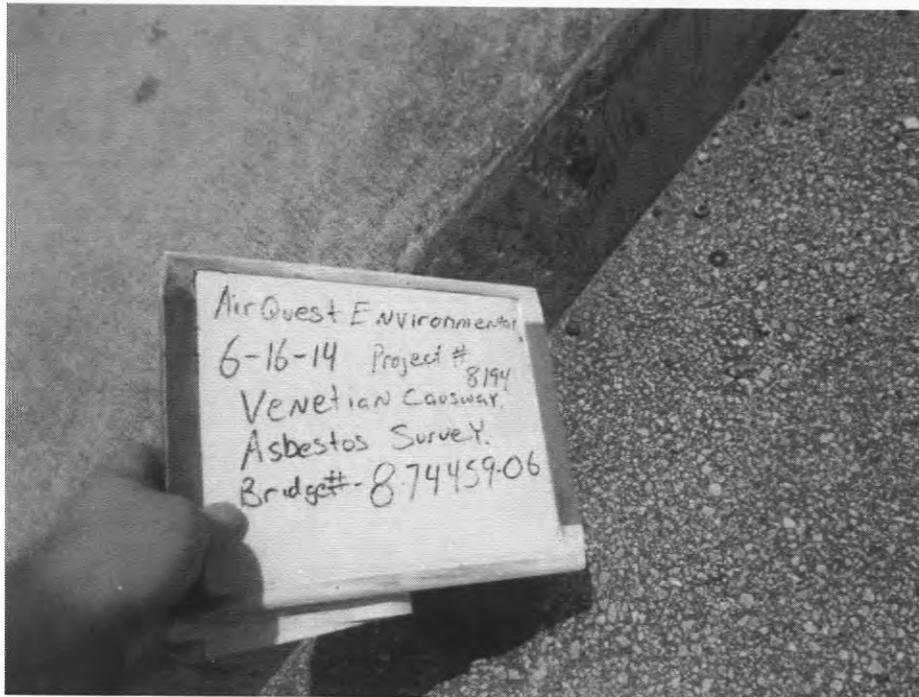
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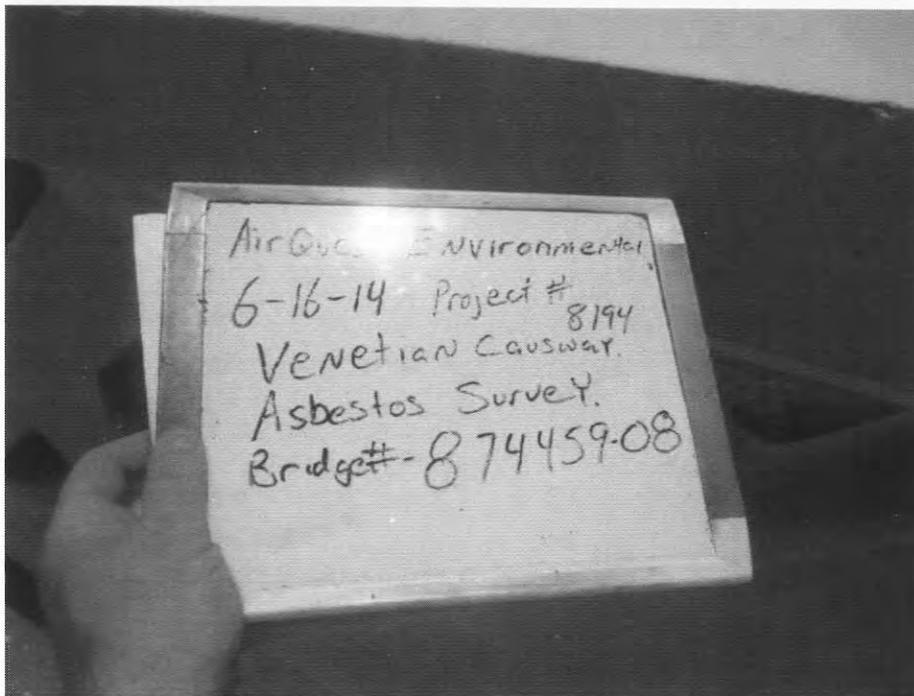
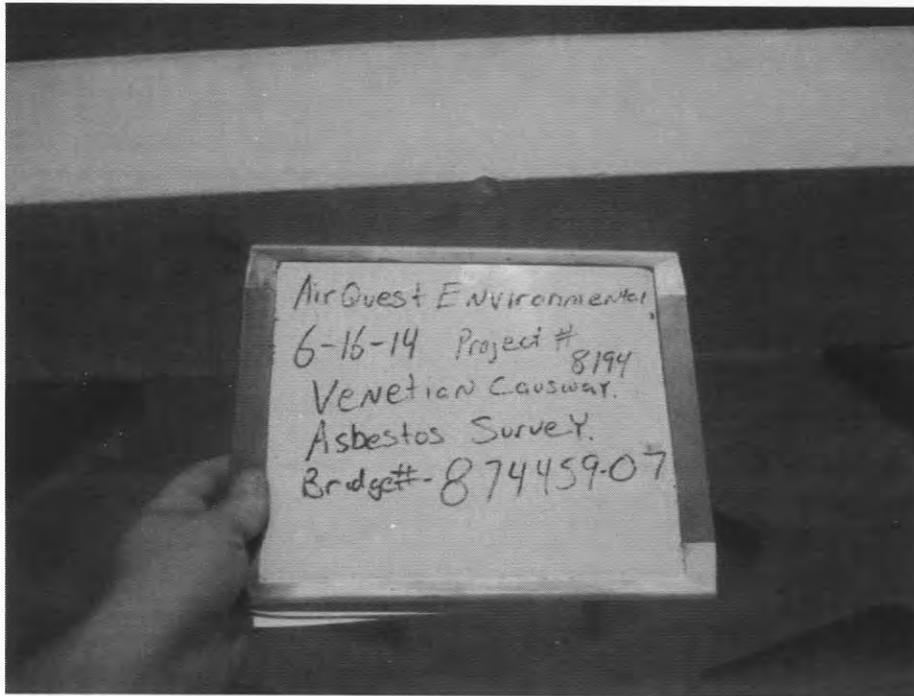
Bridge #874459  
Sample Location Photos

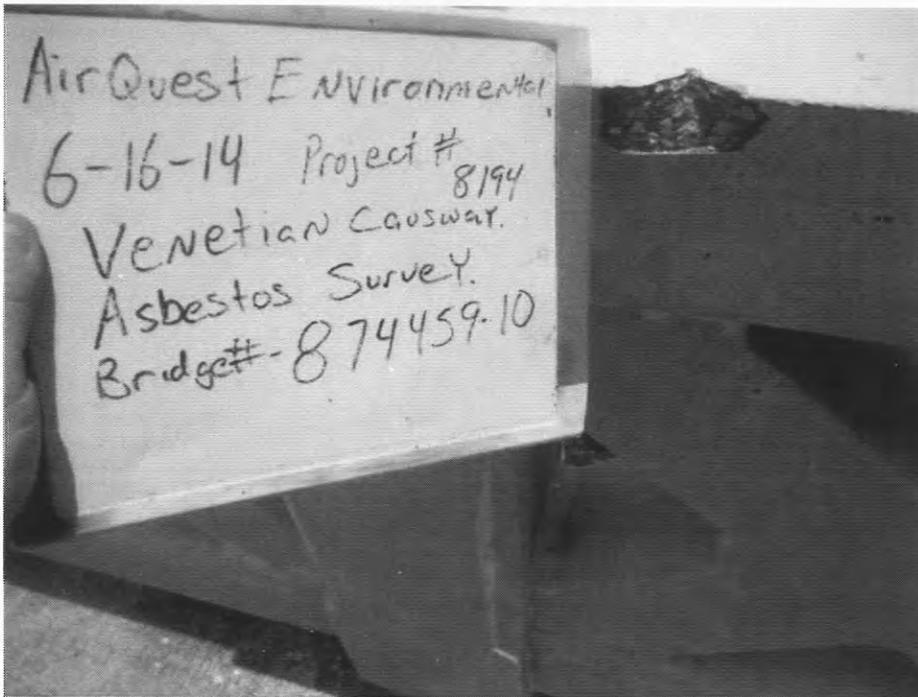
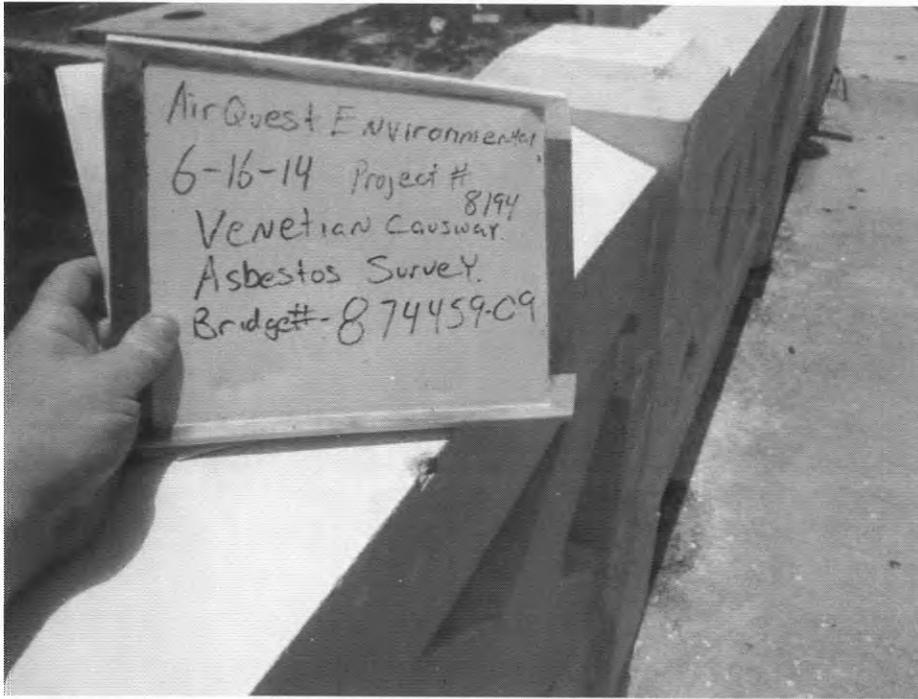


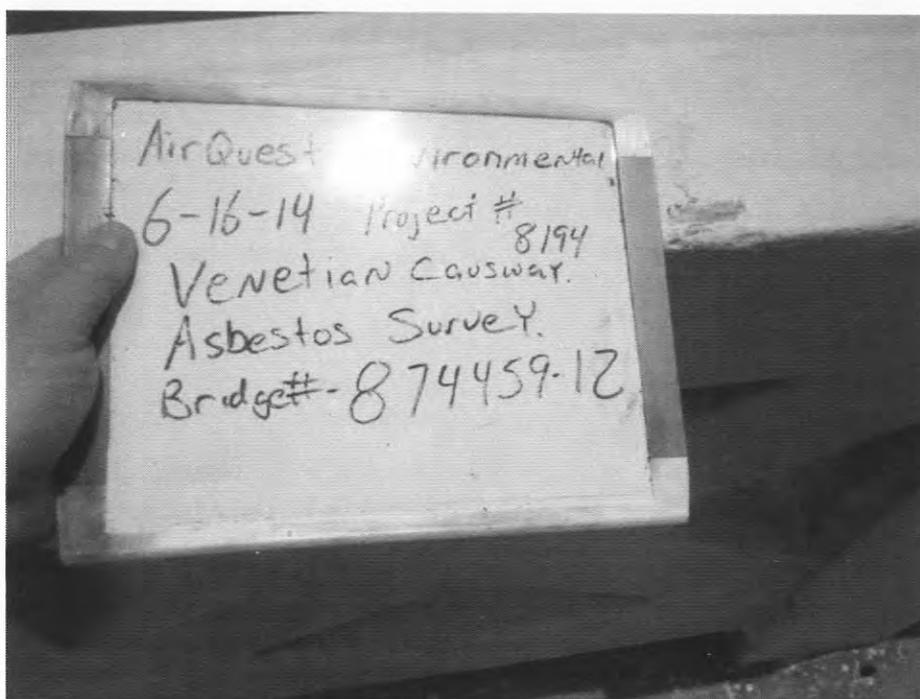
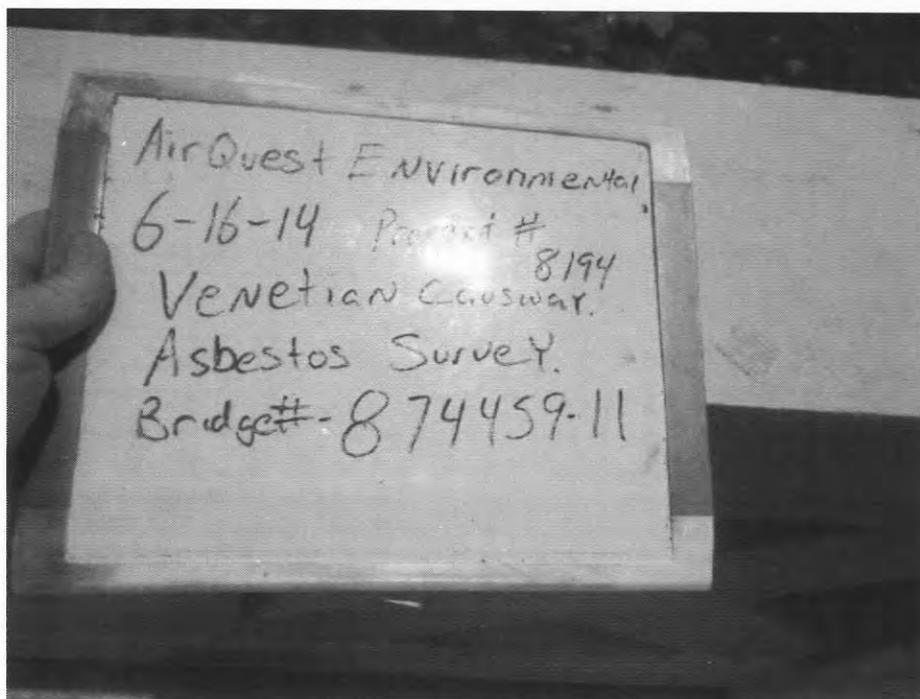
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Sample Location Photos

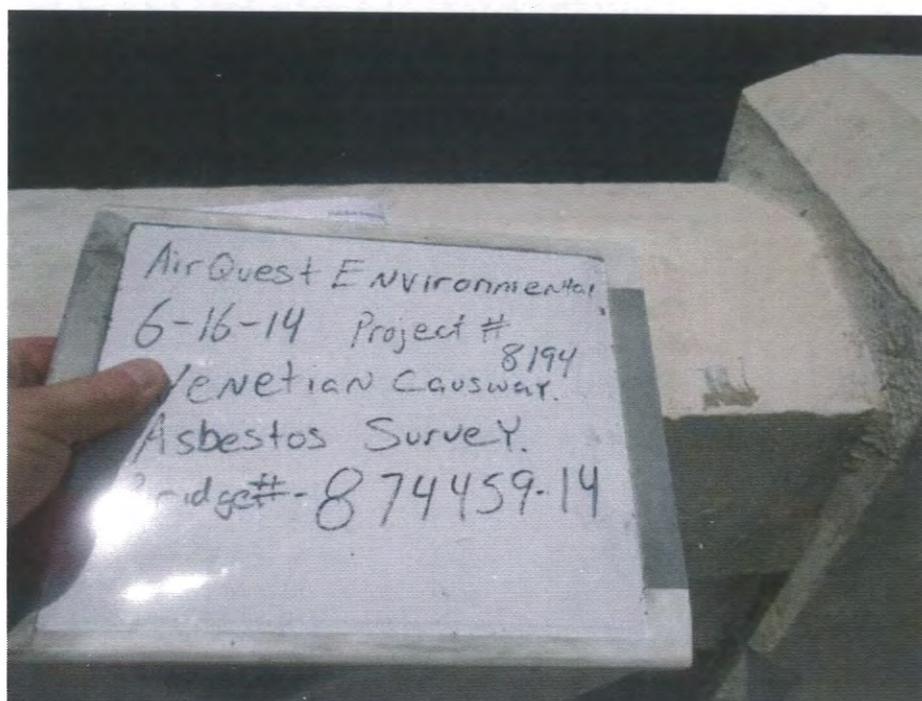
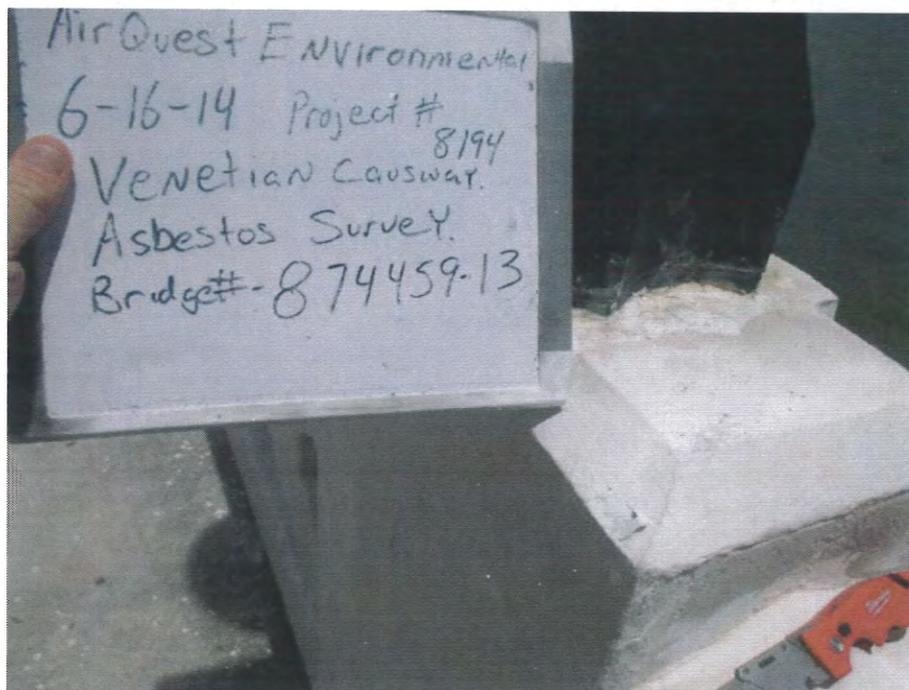


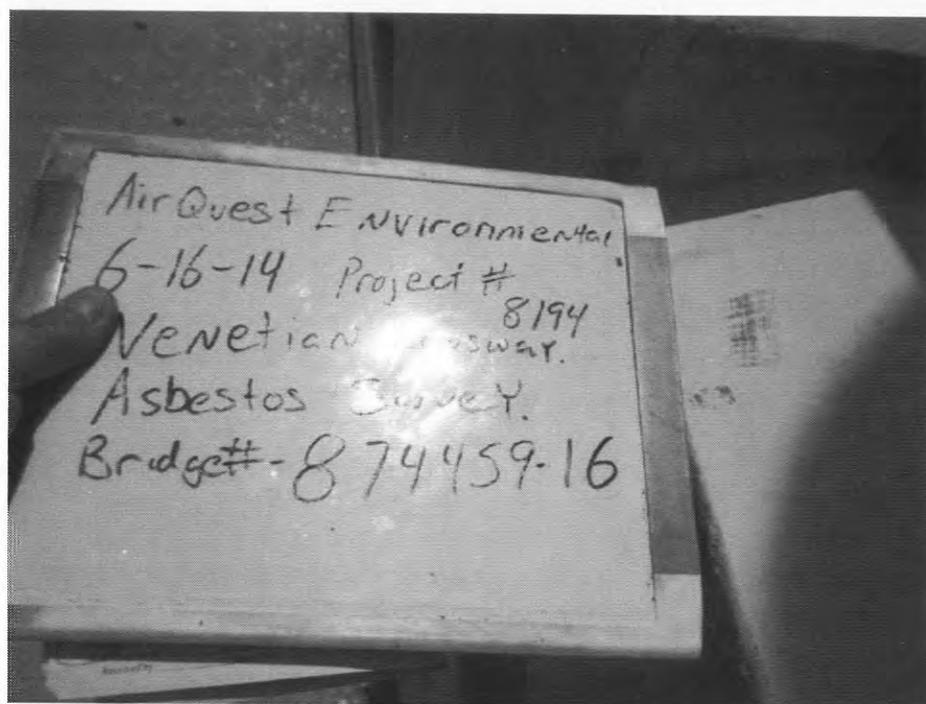
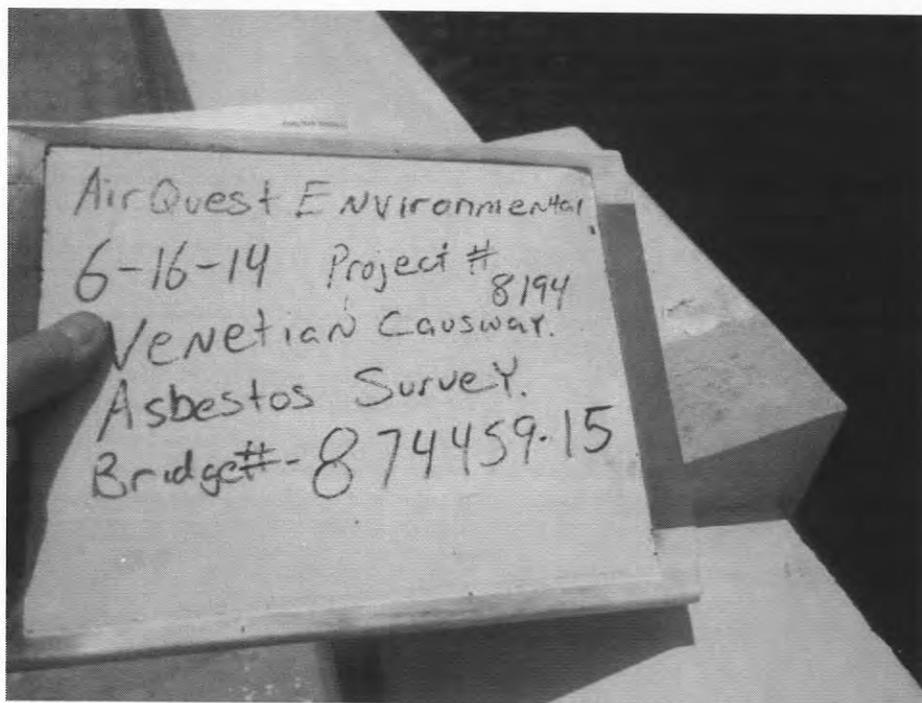




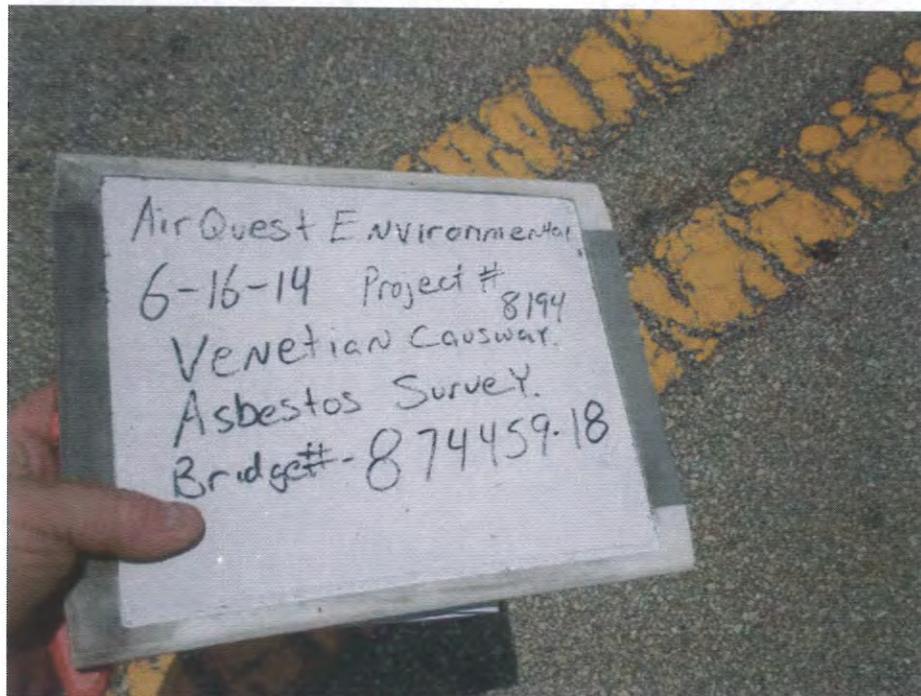


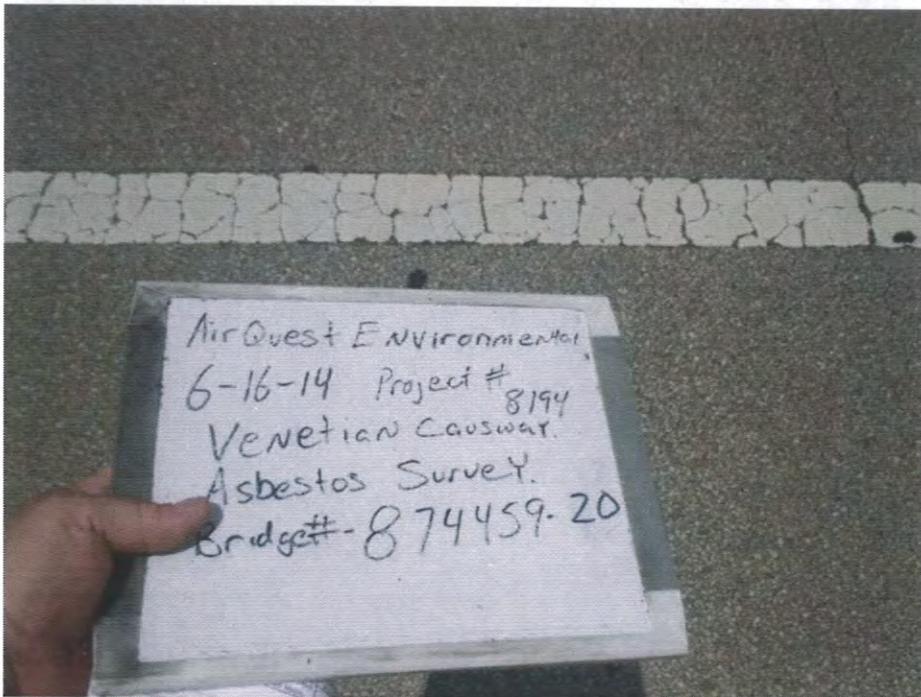
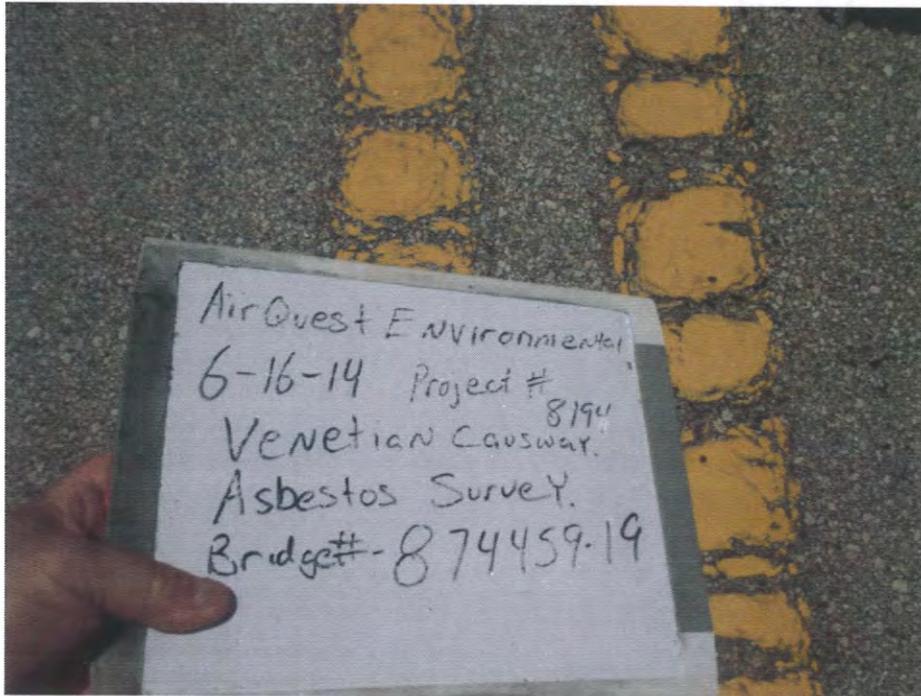




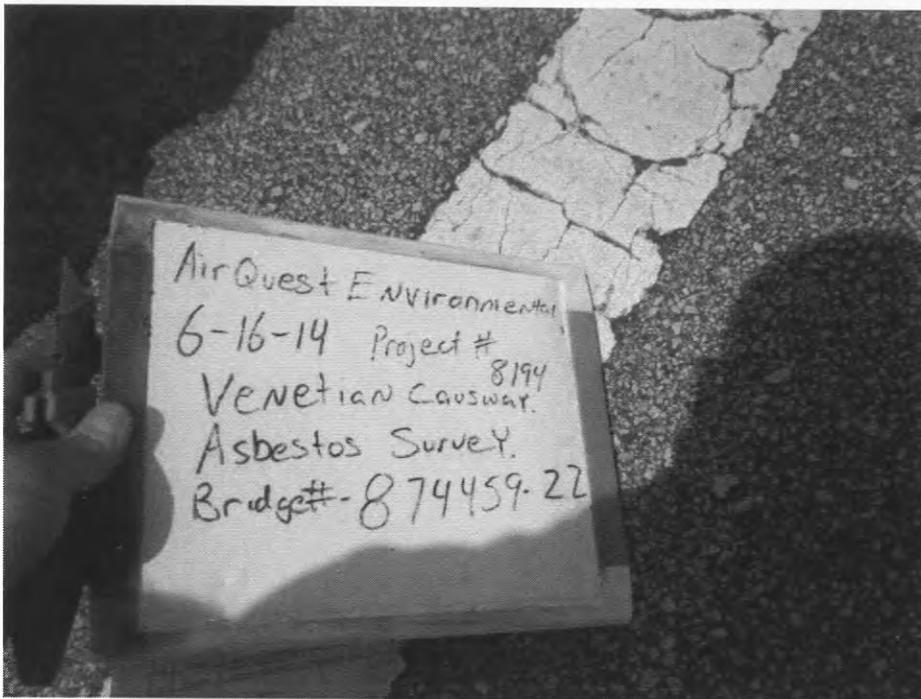


Bridge #874459  
Sample Location Photos

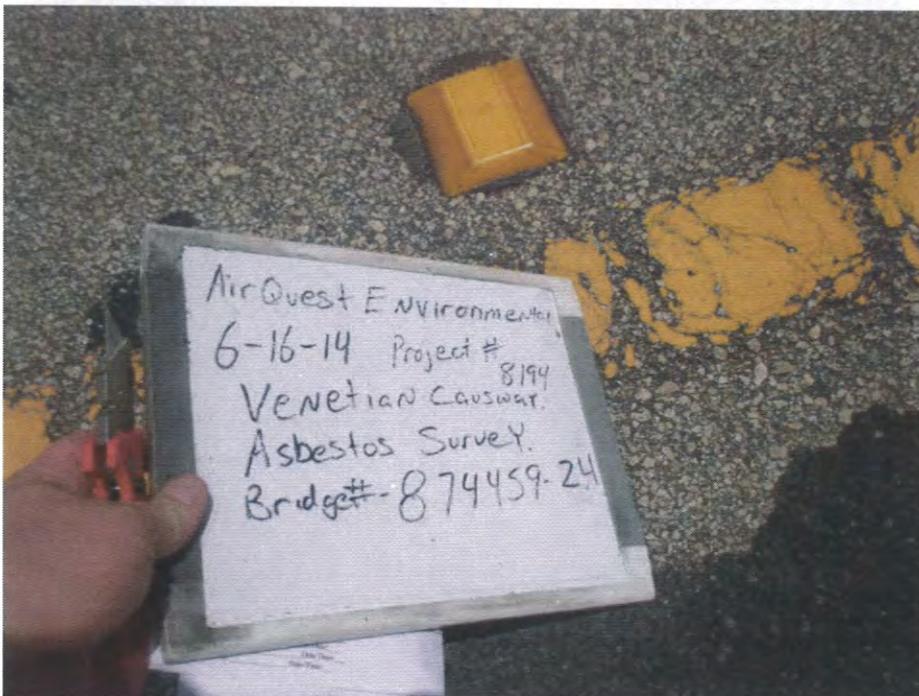


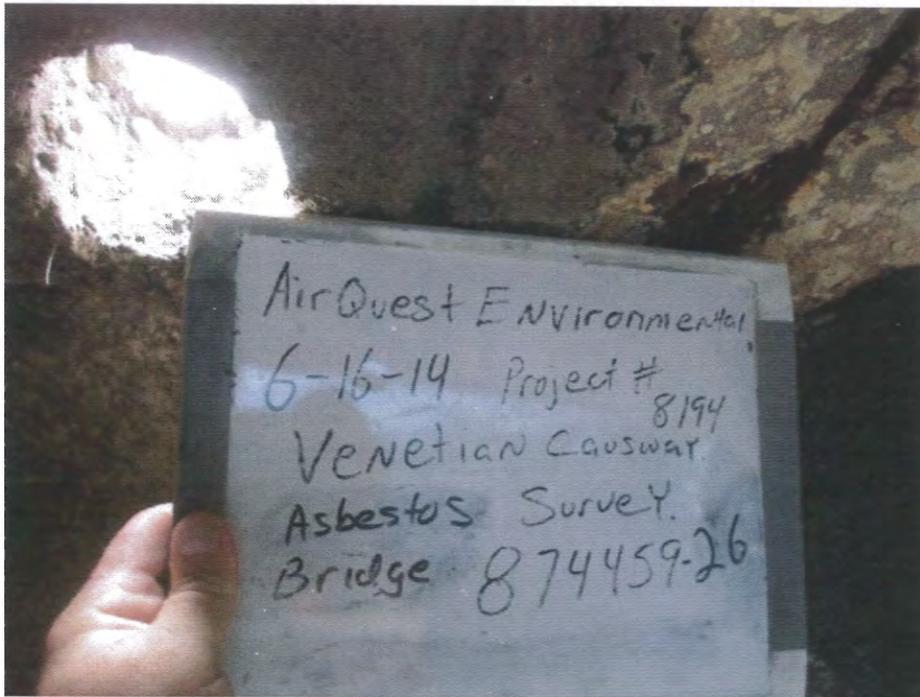


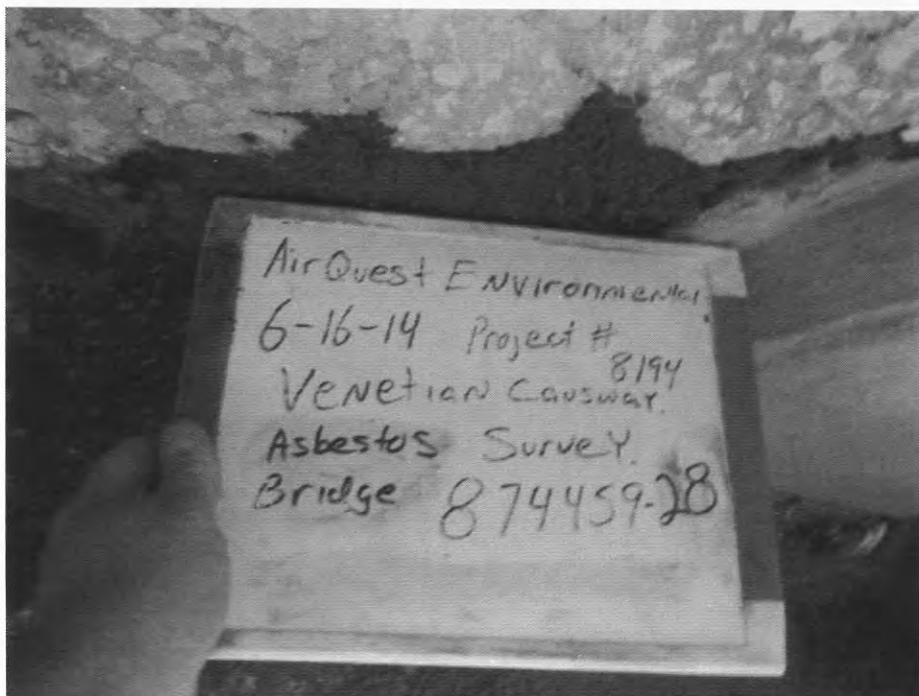
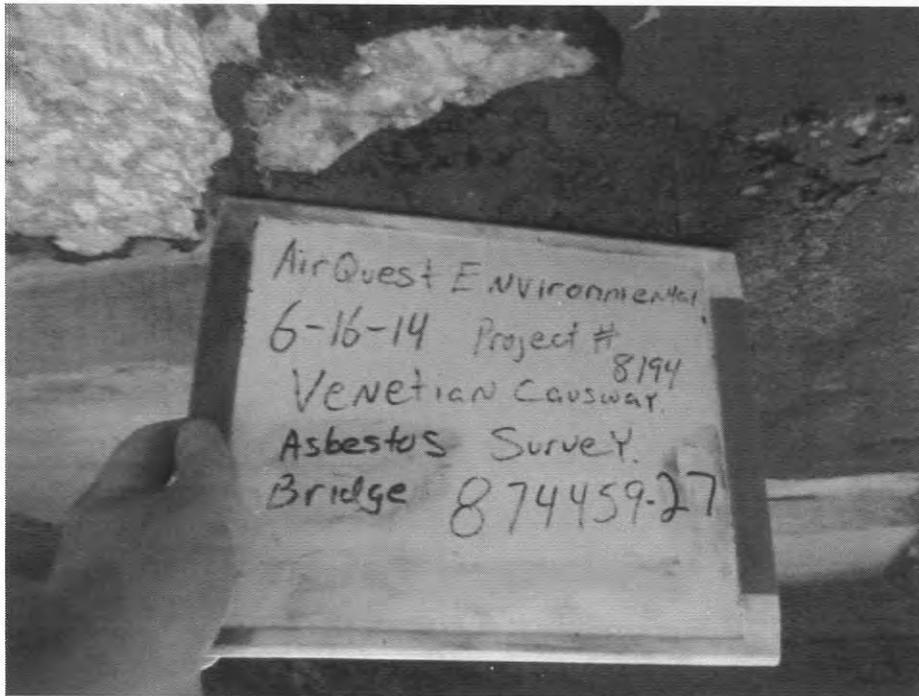
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Sample Location Photos

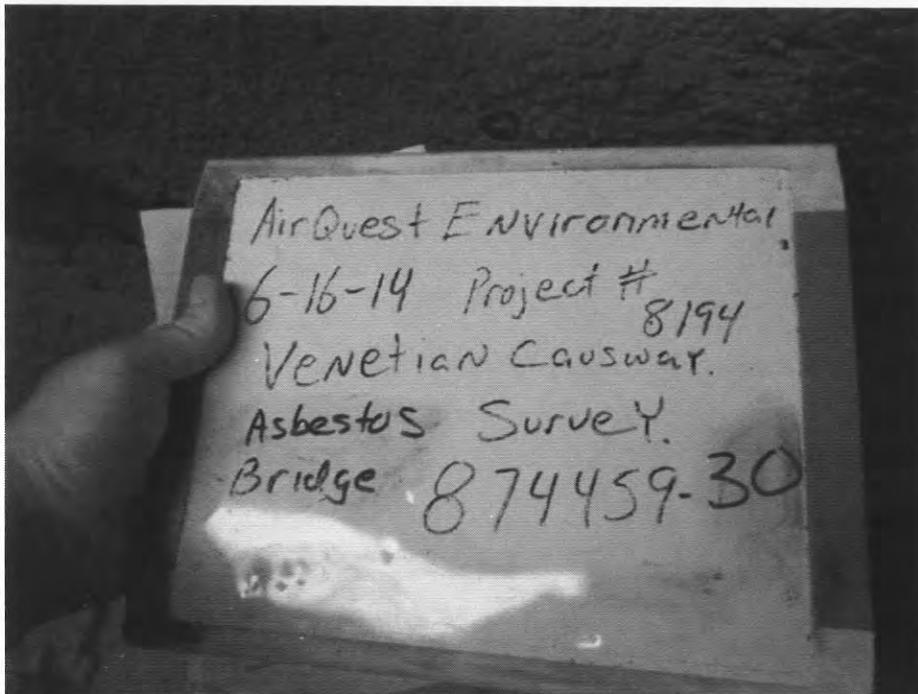
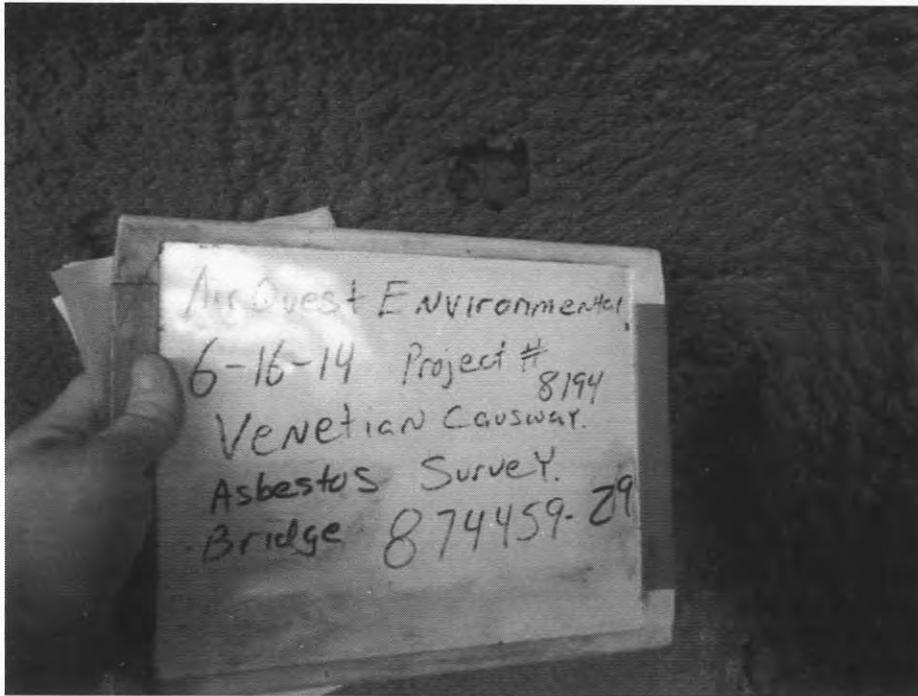


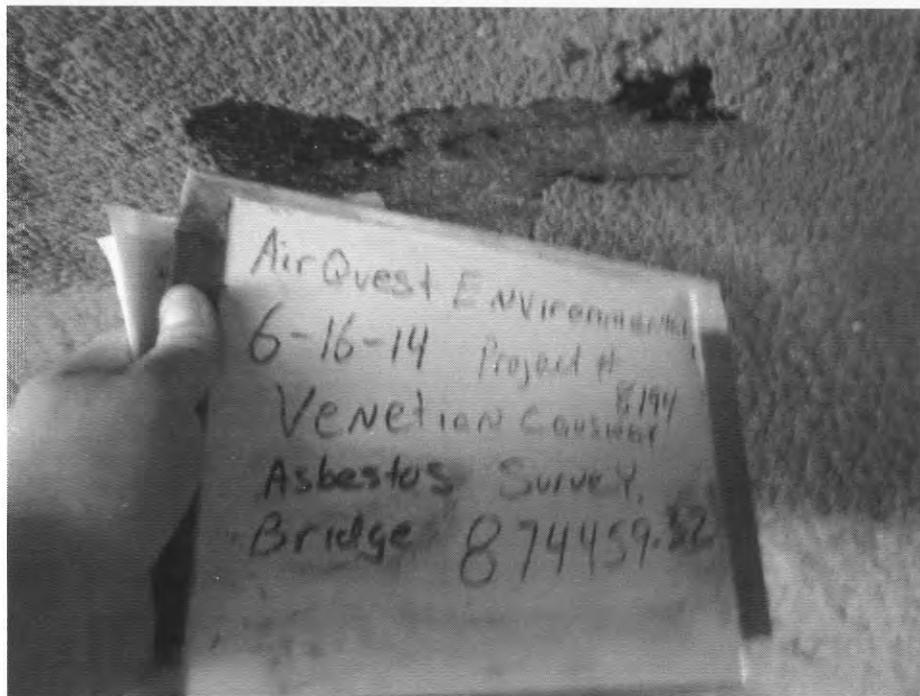
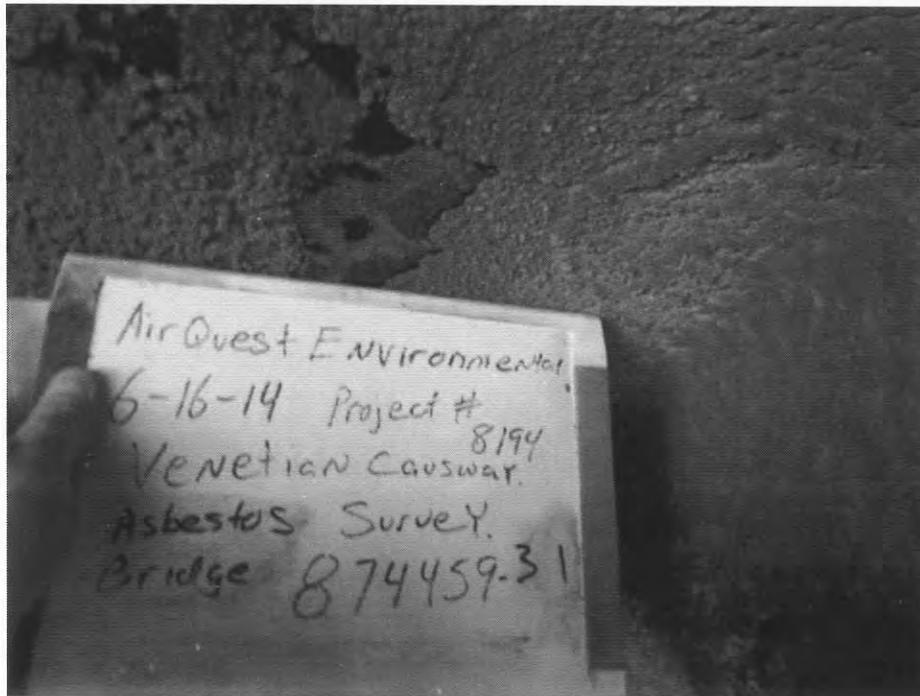
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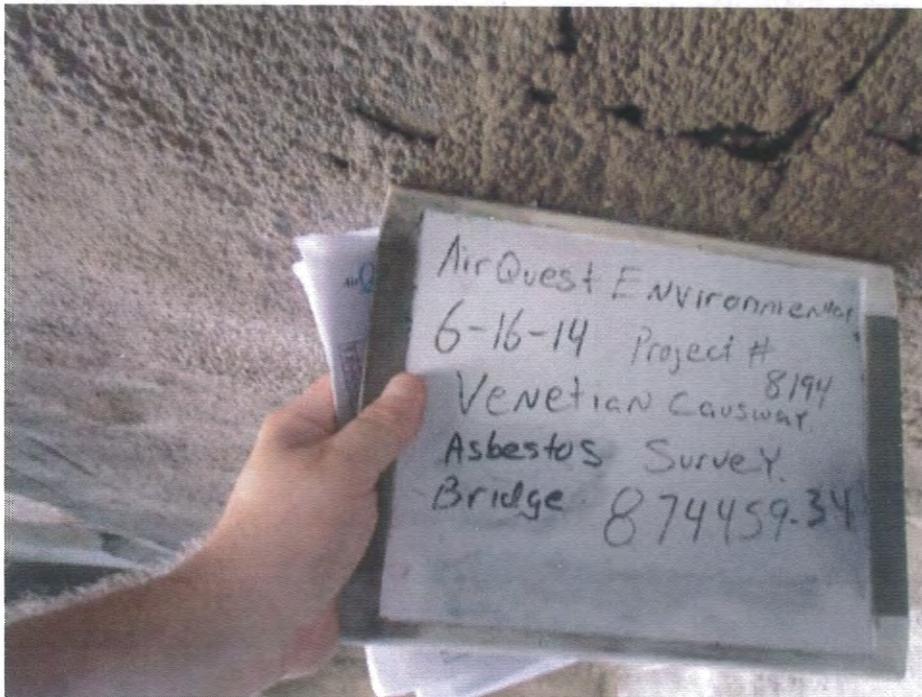
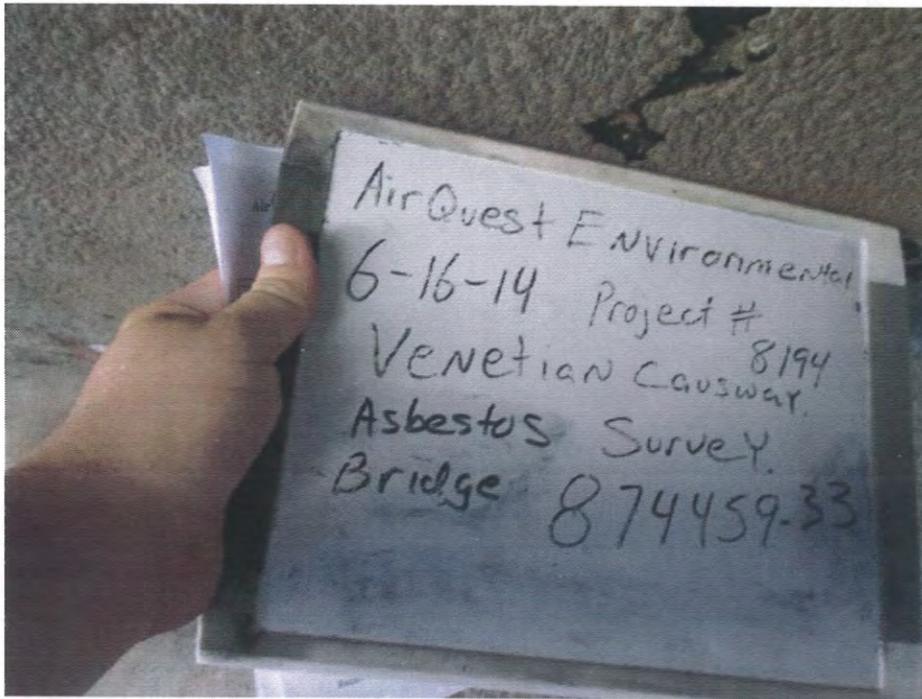


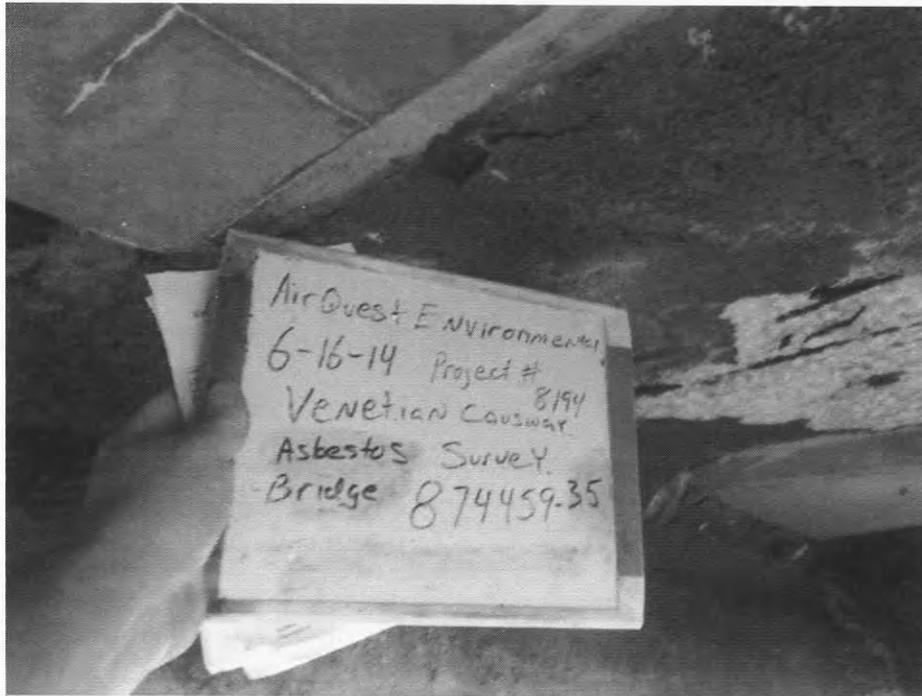


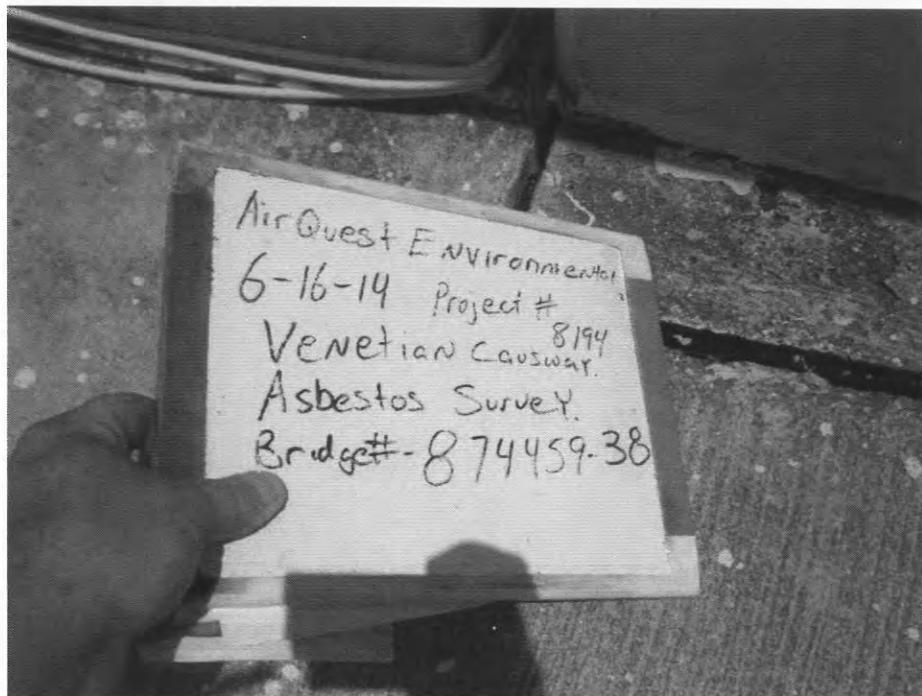


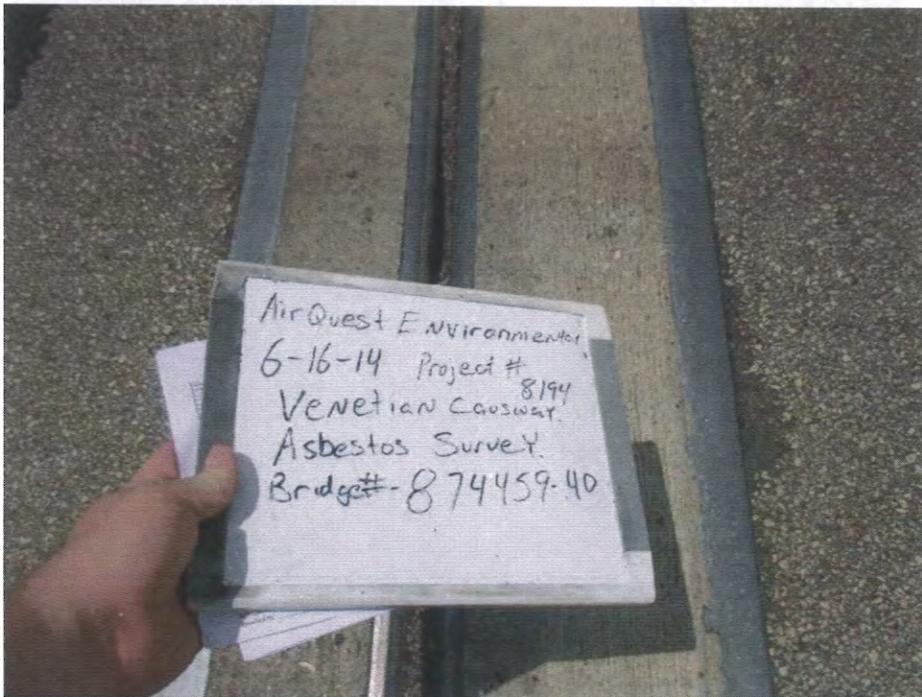
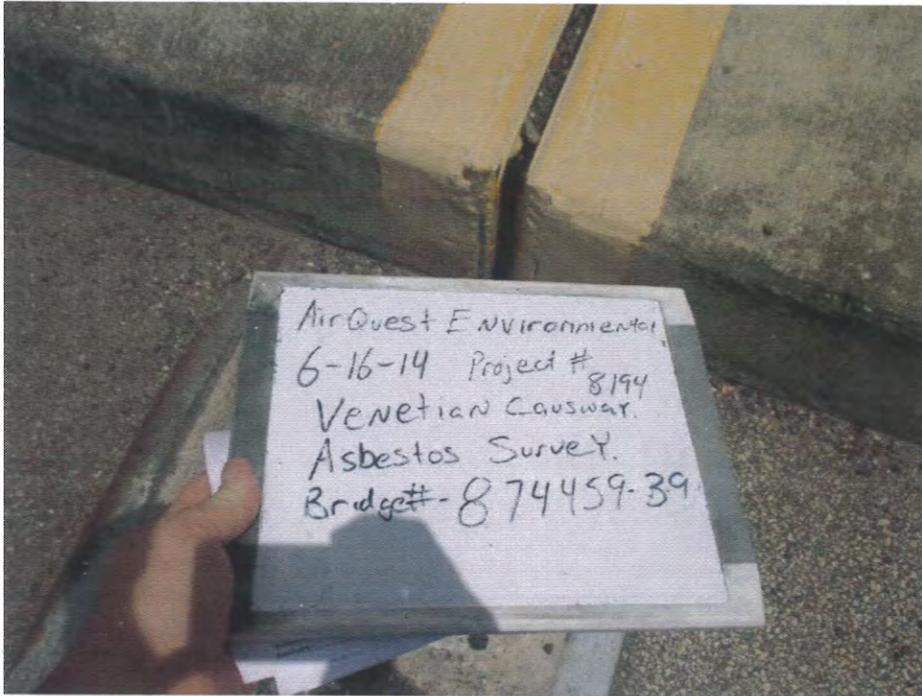


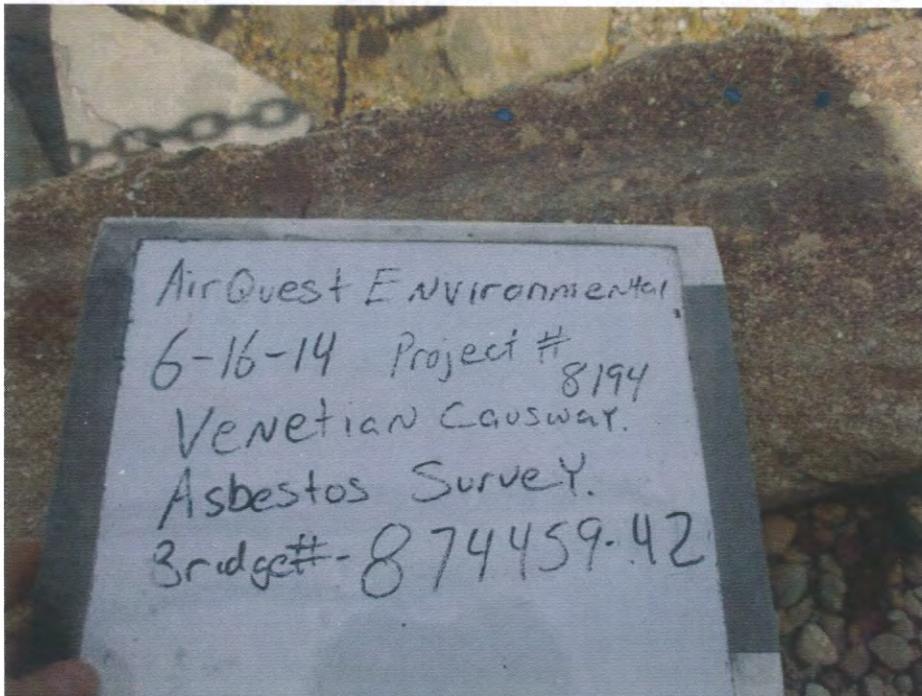
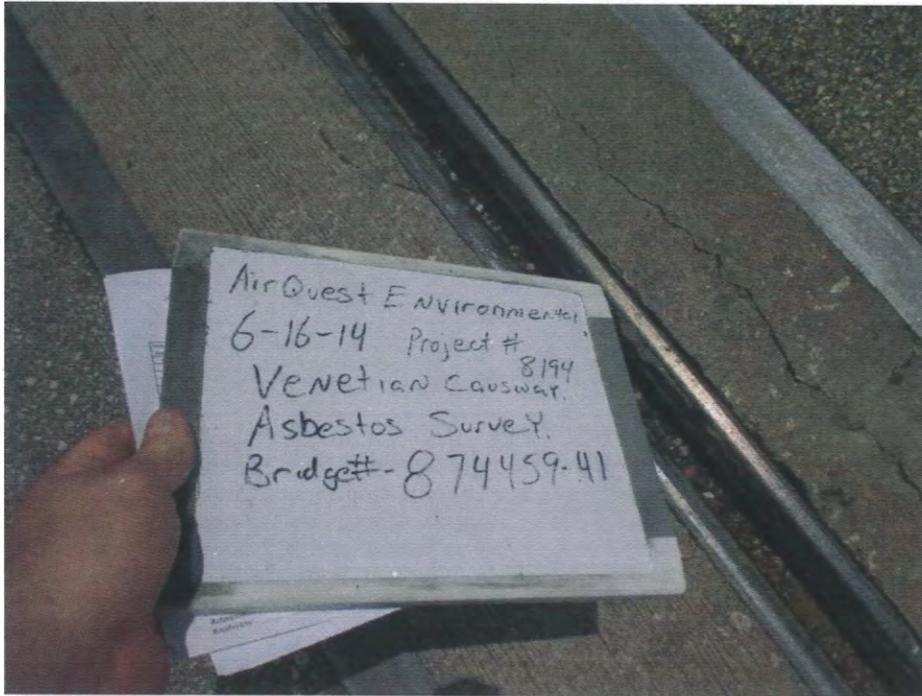


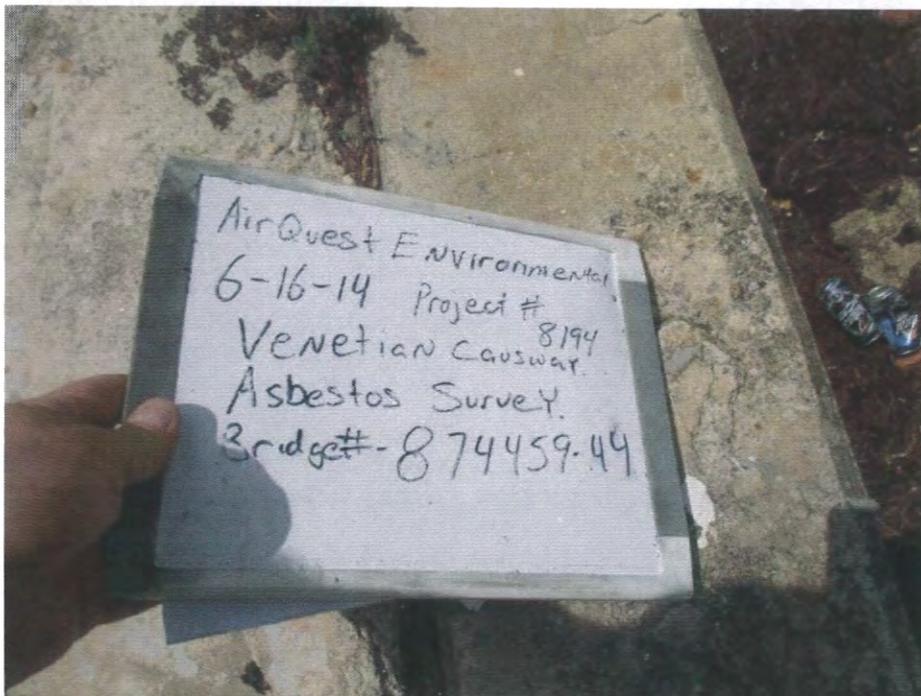
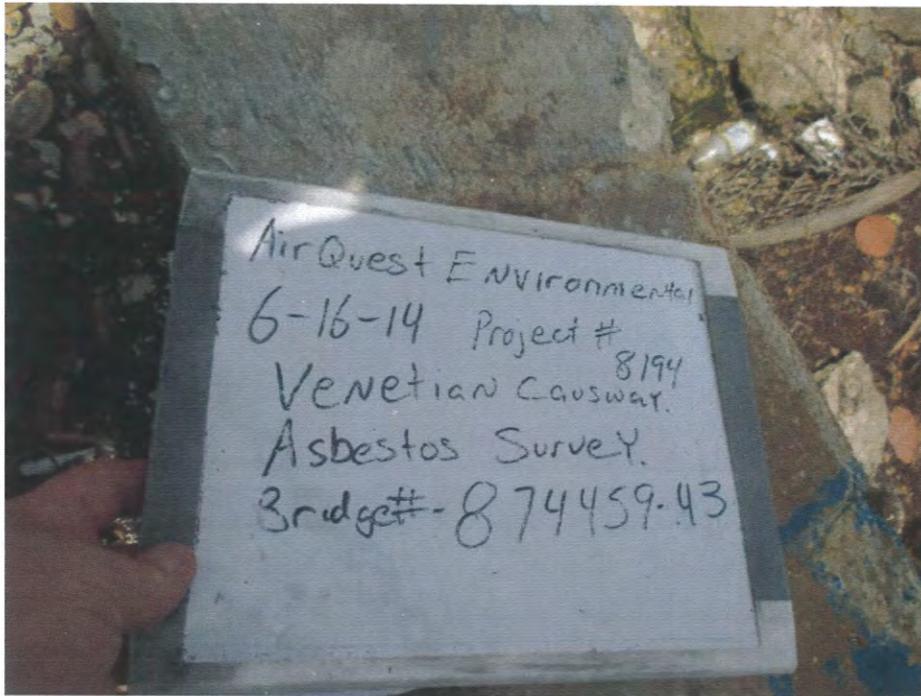




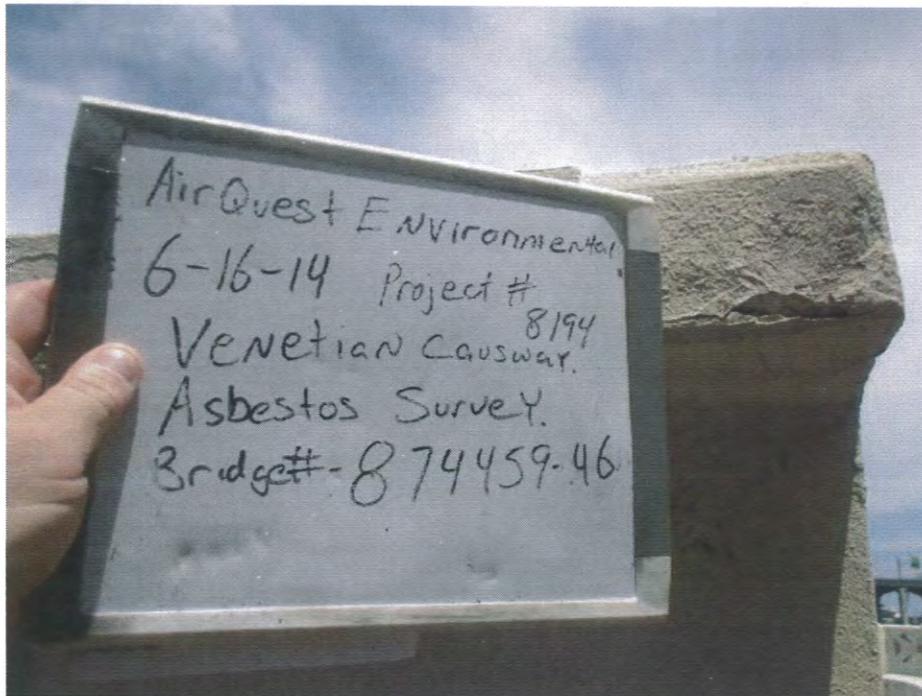


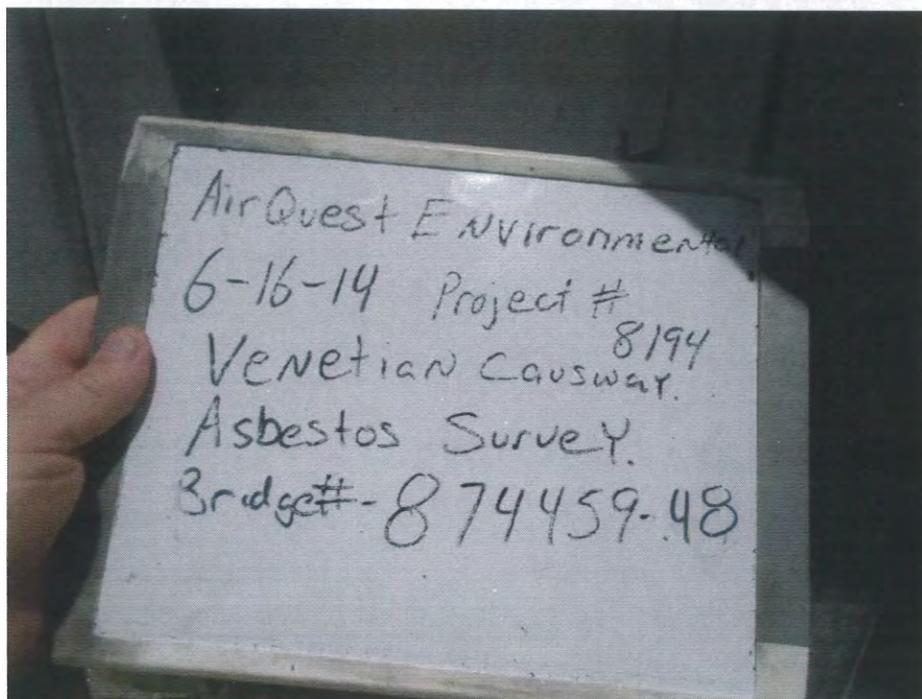
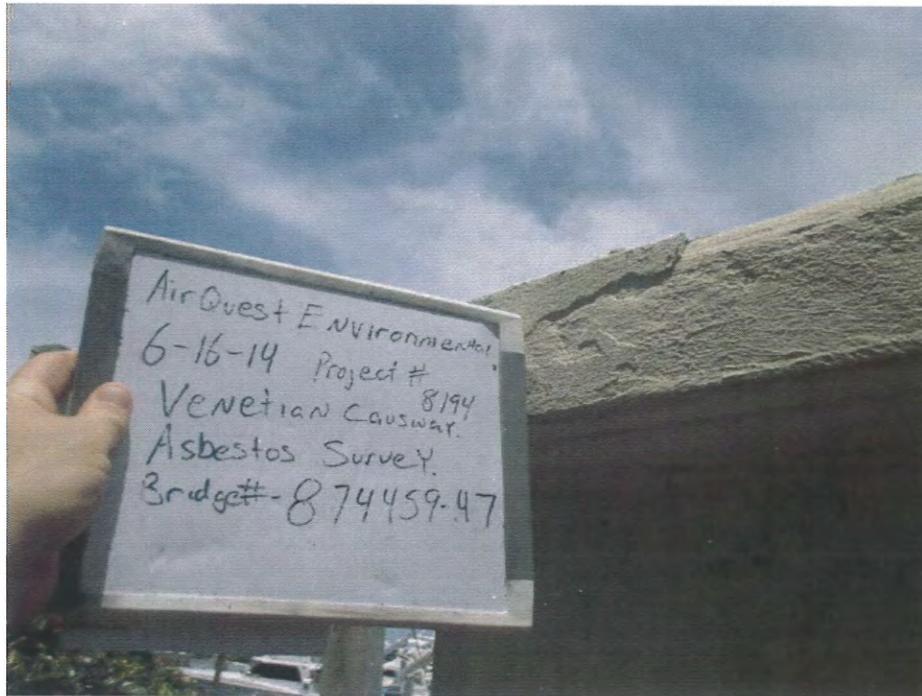


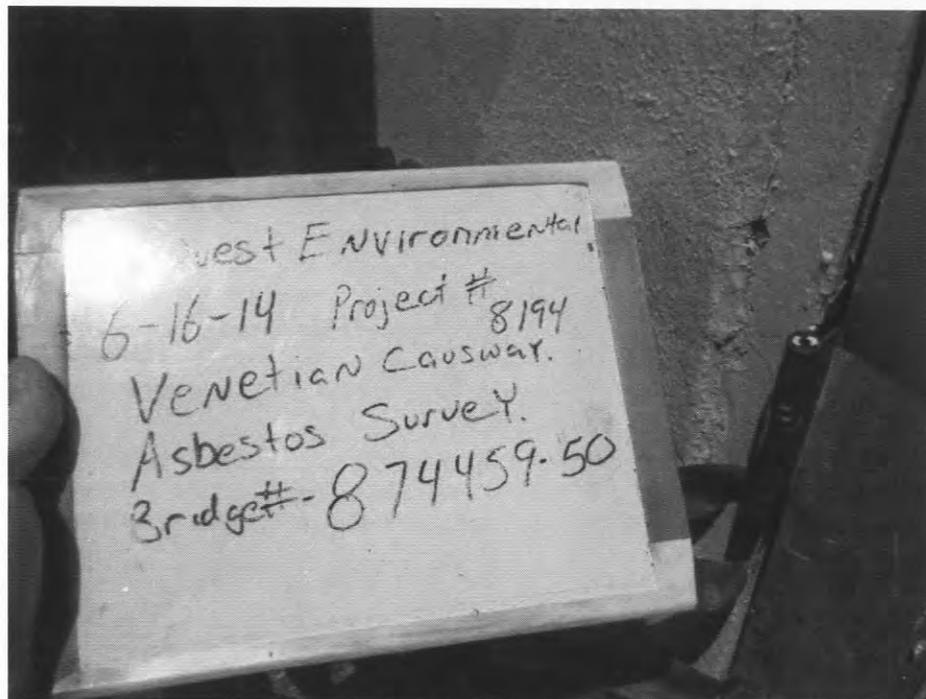
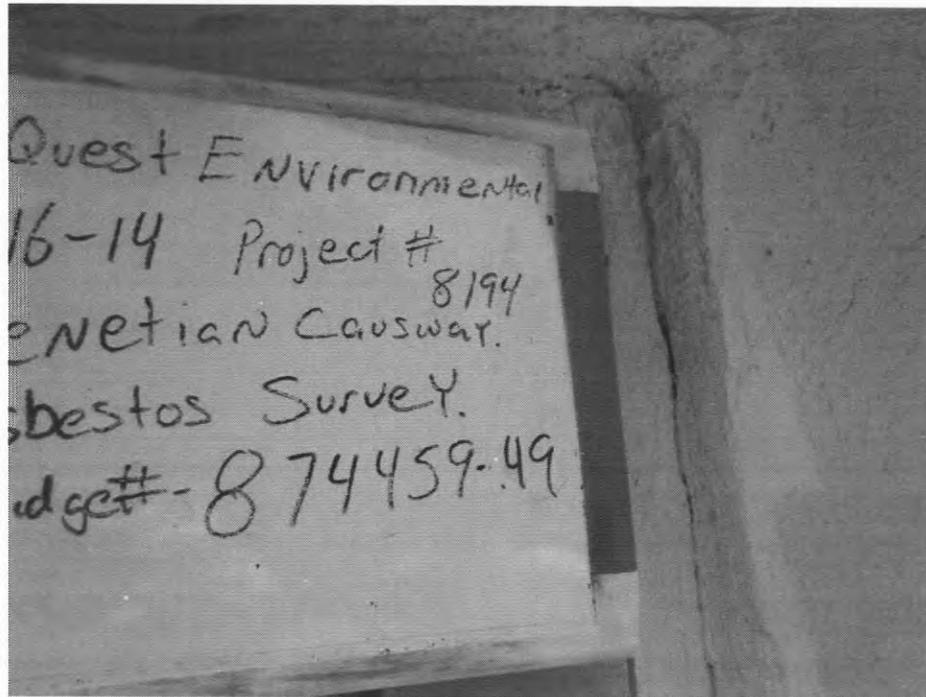




Bridge #874459  
Sample Location Photos







**LEAD-BASED PAINT INSPECTION**

**VENETIAN CAUSEWAY BRIDGE  
BRIDGE NO. 874459  
MIAMI-DADE COUNTY, FLORIDA**

**MIAMI-DADE COUNTY PROJECT #: 20140075  
AIRQUEST CONTRACT #: E12-PWWM-02  
AIRQUEST PROJECT #: 14-15-8194**

**MARCOS R. REDONDO, P.E.  
SECTION HEAD, BRIDGE ENGINEERING  
HIGHWAY DIVISION  
MIAMI-DADE PUBLIC WORKS AND WASTE MANAGEMENT  
DEPARTMENT  
111 NORTHWEST 1ST STREET, SUITE 1510  
MIAMI, FLORIDA 33128-1970**

**JUNE 2014**

## LEAD-BASED PAINT INSPECTION

**BRIDGE NUMBER:** 874459  
**BRIDGE NAME:** VENETIAN CAUSEWAY BRIDGE  
**BRIDGE ADDRESS (SR):** WESTERNMOST BASCULE BRIDGE  
OVER INTRACOASTAL WATERWAY ON  
VENETIAN CAUSEWAY  
**COUNTY:** MIAMI-DADE  
**AGENCY NAME & ADDRESS:** MIAMI-DADE PUBLIC WORKS AND  
WASTE MANAGEMENT DEPARTMENT  
111 NORTHWEST 1ST STREET, SUITE  
1510  
MIAMI, FLORIDA 33128-1970  
**DATES OF SURVEY:** JUNE 11, 2014  
**CONSULTANT NAME:** AIRQUEST ENVIRONMENTAL, INC.  
**CONSULTANT ADDRESS:** 6851 SOUTHWEST 45<sup>TH</sup> STREET  
FORT LAUDERDALE, FLORIDA 33314  
**CONSULTANT TELEPHONE:** 954-792-4549  
**CONSULTANT FACSIMILE:** 954/792-2221

JUNE 2014



Pedro Rodas

Lead Inspector #FL-I-121629-1

## EXECUTIVE SUMMARY

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AirQuest Environmental, Inc. ("AirQuest") performed a lead-based paint (LBP) inspection to identify surfaces coated with LBP and their general locations on Bridge #874459, Westernmost Bascule Bridge over Intracoastal Waterway on Venetian Causeway in Miami-Dade County, Florida ("the site"). The inspection was performed by Mr. Pedro Rodas, a US Environmental Protection Agency (EPA) certified LBP inspector.

The inspection was conducted to determine the presence of LBP within accessible areas of the bridge prior to renovation activities.

The LBP inspection was conducted using an x-ray fluorescence (XRF) instrument and laboratory analysis for any painted surfaces that tested within the inconclusive range of the instrument. LBP was defined as any paint containing more than 1.0 milligrams per square centimeter ( $\text{mg}/\text{cm}^2$ ) lead as indicated on the XRF or that contained more than 0.50% lead by weight when analyzed by Flame Atomic Absorption (FAA).

Based on the results of this LBP inspection, none of the recorded XRF readings was equal to or above the current US Department of Housing and Urban Development (HUD) regulatory limit of  $1.0 \text{ mg}/\text{cm}^2$ . A complete report of the XRF results is presented in Table 2.

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- Appendix I – Copies of Certifications**
- Appendix II- Laboratory Report and Chain of Custody Record**
- Appendix III-Photographs**
- Appendix IV- Performance Characteristic Sheet**

# 1 INTRODUCTION AND FACILITY DESCRIPTION

On June 11, 2014, a lead-based paint (LBP) inspection was conducted by Mr. Pedro Rodas of AirQuest Environmental, Inc. (“AirQuest”) on Bridge #874459, Westernmost Bascule Bridge over Intracoastal Waterway on Venetian Causeway in Miami-Dade County, Florida (“the site”). Mr. Rodas is an Environmental Protection Agency (EPA) certified LBP inspector (see Appendix I).

The inspection was conducted to determine the presence of LBP within accessible areas of the bridge prior to renovation activities. The report was prepared in general accordance with “*Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing*” 2012 revision published by HUD.

A summary of the building materials associated with the facility investigated is presented below in Table 1.

**Table 1- Facility Description**

Each of the following building components was tested if paint was present.

Facility Type:	Bascule Bridge
Date of Construction:	1927
Date of Renovation:	Unknown
Deck:	Concrete, Asphalt, Yellow and White Delineation Paint
Horizontal Support:	Concrete
Vertical Support:	Concrete

## **2 LEAD-BASED PAINT SURVEY PROCEDURES**

According to the EPA and HUD, all painted surfaces or components located in or on buildings constructed prior to 1978, are suspected to contain LBP. This assumption can be rebutted if a survey of each suspect painted surface or component has been conducted, and a minimum of one sample of each has been collected and proven not to contain LBP in quantities of greater than 0.5 percent by Atomic Absorption analysis or 1.0 mg/cm<sup>2</sup> by a direct reading X-Ray Fluorescence (XRF) testing device. In addition, EPA regulations require that LBP be abated prior to undertaking any type of renovations, which could potentially disturb these materials.

The LBP inspection was performed by observing and sampling accessible painted surfaces on the exterior of the building as per the survey methodology established by HUD. The inspector assigned A, B, C or D to the walls based on main entrance side as A, then rotating clockwise. A different visible color does not by itself result in a separate testing combination.

Testing of the samples was performed using the Innov-X A6500 (Serial #10862). The XRF is a screening method currently recommended by HUD for analysis of lead levels in paint. The exact number of testing locations per area may vary depending on existing conditions. The XRF instrument exposes the painted surface to gamma radiation, causing the irradiated substance to emit a spectrum of characteristic frequencies. The frequencies which are characteristic of lead are singled out and measured by the instrument and converted into a number representing the amount of lead in the paint per unit area. At least three (3) calibration check readings were performed prior to the inspection. Additional calibration check readings were made every four (4) hours or after the inspection work was completed for the day, or according to the manufacturer's instructions, whichever was the most frequent. Calibration checks were performed before the instrument is turned off and again after it has warmed up.

If a sample is collected and the reading falls within the inconclusive range for the Innov-X A6500 (0.6 to 1.1 mg/cm<sup>2</sup>) then a paint chip sample was submitted to a certified laboratory for analysis of lead (see Section 3).

### **3 LEAD-BASED PAINT RESULTS**

Each of the painted surfaces was first tested with the XRF: Paint chip samples were then collected when the overall results for a component type were within the inconclusive range of the instrument (0.6 to 1.1 mg/cm<sup>2</sup>).

One (1) paint chip sample was collected and submitted under chain custody to EMSL Analytical, Inc. (EMSL), an EPA National Lead Laboratory Accreditation Program (NLLAP) laboratory for analysis of lead by Flame Atomic Absorption (FAA) in accordance with ASTM Method SW846-7000B. A copy of the laboratory report and chain-of-custody record is included in Appendix II. Photographs of each sample location are included in Appendix III.

The results of the LBP inspection are presented in Table 2. The XRF sample results are reported in mg/cm<sup>2</sup>.

LBP was defined as any paint containing more than 1.0 mg/cm<sup>2</sup> lead as indicated on the XRF or that contained more than 0.50% lead by weight when analyzed by FAA.

Based on the results of this LBP inspection, none of the recorded XRF readings was equal to or above the current HUD regulatory limit of 1.0 mg/cm<sup>2</sup>.

**Table 2 – XRF Results**

Sample	Results (mg/cm <sup>2</sup> )	Wall	Location	Structure	Component	Color	Condition	Substrate	Comments
LBP874459-01	0.97		Calibration						
LBP874459-02	1.00		Calibration						
LBP874459-03	1.00		Calibration						
LBP874459-04	0.00	NA	West Bent Area	Pillars		White	Intact	Concrete	
LBP874459-05	0.00	NA	West Bent Area	Pillars		White	Intact	Concrete	
LBP874459-06	0.03	NA	West Bent Area	Pillars		White	Intact	Concrete	
LBP874459-07	0.00	NA	West Bent Area	Pillars		White	Intact	Concrete	
LBP874459-08	0.00	NA	West Bent Area	1/2 Wall		White	Intact	Concrete	
LBP874459-09	0.00	NA	West Bent Area	1/2 Wall		White	Intact	Concrete	
LBP874459-10	0.00	NA	West Bent Area	1/2 Wall		White	Intact	Concrete	
LBP874459-11	0.00	NA	West Bent Area	1/2 Wall		White	Intact	Concrete	
LBP874459-12	0.01	A	West Bent Area	Utility Shed	Wall	White	Intact	Concrete	
LBP874459-13	0.00	B	West Bent Area	Utility Shed	Wall	White	Intact	Concrete	
LBP874459-14	0.02	C	West Bent Area	Utility Shed	Wall	White	Intact	Concrete	
LBP874459-15	0.00	D	West Bent Area	Utility Shed	Wall	White	Intact	Concrete	
LBP874459-16	0.00	NA	West Bent Area	Utility Shed	Roof	White	Intact	Concrete	
LBP874459-17	0.01	NA	West Bent Area	Utility Shed	Roof	White	Intact	Concrete	
LBP874459-18	0.00	NA	West Bent Area	Utility Box		Green	Intact	Metal	
LBP874459-19	0.00	NA	West Bent Area	Utility Box		Green	Intact	Metal	
LBP874459-20	0.00	NA	North Sidewalk	Concrete Railing		White	Intact	Concrete	
LBP874459-21	0.04	NA	North Sidewalk	Concrete Railing		White	Intact	Concrete	
LBP874459-22	0.00	NA	North Sidewalk	Concrete Railing		White	Intact	Concrete	
LBP874459-23	0.01	NA	North Sidewalk	Concrete Railing		White	Intact	Concrete	

Sample	Results (mg/cm <sup>2</sup> )	Wall	Location	Structure	Component	Color	Condition	Substrate	Comments
LBP874459-24	0.00	NA	North Sidewalk	Concrete Railing		White	Intact	Concrete	
LBP874459-25	0.00	NA	North Sidewalk	Concrete Railing		White	Intact	Concrete	
LBP874459-26	1.00	NA	North Sidewalk	Lamp Post		Black	Poor	Metal	Paint chip sample of like structure collected (<0.010%)
LBP874459-27	0.17	NA	North Sidewalk	Lamp Post		Black	Poor	Metal	
LBP874459-28	0.11	NA	North Sidewalk	Lamp Post		Black	Poor	Metal	
LBP874459-29	1.00	NA	North Sidewalk	Lamp Post		Black	Poor	Metal	Paint chip sample of like structure collected (<0.010%)
LBP874459-30	0.00	NA	South Sidewalk	Concrete Railing		White	Intact	Concrete	
LBP874459-31	0.00	NA	South Sidewalk	Concrete Railing		White	Intact	Concrete	
LBP874459-32	0.00	NA	South Sidewalk	Concrete Railing		White	Intact	Concrete	
LBP874459-33	0.00	NA	South Sidewalk	Concrete Railing		White	Intact	Concrete	
LBP874459-34	0.00	NA	South Sidewalk	Concrete Railing		White	Intact	Concrete	
LBP874459-35	0.00	NA	South Sidewalk	Concrete Railing		White	Intact	Concrete	

Sample	Results (mg/cm <sup>2</sup> )	Wall	Location	Structure	Component	Color	Condition	Substrate	Comments
LBP874459-36	1.00	NA	South Sidewalk	Lamp Post		Black	Poor	Concrete	Paint chip sample of like structure collected (<0.010%)
LBP874459-37	1.00	NA	South Sidewalk	Lamp Post		Black	Poor	Concrete	Paint chip sample of like structure collected (<0.010%)
LBP874459-38	0.03	NA	South Sidewalk	Lamp Post		Black	Poor	Concrete	
LBP874459-39	1.00	NA	Southwest Sidewalk	Lamp Post		Black	Poor	Concrete	Paint Chip Sample Collected (<0.010%)
LBP874459-40	0.14	NA	Eastbound Lane	Lane Delineation Stripe		White	Intact	Concrete	
LBP874459-41	0.04	NA	Eastbound Lane	Lane Delineation Stripe		White	Intact	Concrete	
LBP874459-42	0.11	NA	Eastbound Lane	Lane Delineation Stripe		Yellow	Intact	Asphalt	
LBP874459-43	0.19	NA	Eastbound Lane	Lane Delineation Stripe		Yellow	Intact	Asphalt	

Sample	Results (mg/cm <sup>2</sup> )	Wall	Location	Structure	Component	Color	Condition	Substrate	Comments
LBP874459-44	0.00	NA	Westbound Lane	Lane Delineation Stripe		White	Intact	Asphalt	
LBP874459-45	0.10	NA	Westbound Lane	Lane Delineation Stripe		White	Intact	Asphalt	
LBP874459-46	0.05	NA	Westbound Lane	Lane Delineation Stripe		Yellow	Intact	Asphalt	
LBP874459-47	0.09	NA	Westbound Lane	Lane Delineation Stripe		Yellow	Intact	Asphalt	
LBP874459-48	1.00		Calibration						
LBP874459-49	1.10		Calibration						
LBP874459-50	1.00		Calibration						

Mg/cm<sup>2</sup> - Milligrams per square centimeter

## 4 CONCLUSIONS AND RECOMMENDATIONS

Based on the results of this LBP inspection, none of the recorded XRF readings was equal to or above the current HUD regulatory limit of 1.0 mg/cm<sup>2</sup>.

### OSHA Information for Contractors

Under the present OSHA lead construction standard, all identified lead-containing materials affected by construction activities falls under the requirements of 29 CFR 1926. There are no current government guidelines defining a lead-based paint (LBP) or lead concentration that creates a hazardous atmosphere when disturbed. Based on current Occupational Safety and Health Administration (OSHA) guidelines, for those employees who will be disturbing lead-containing paint, their employer must make an initial determination by monitoring employee exposure if any employee is exposed to lead at or above 30 micrograms per cubic meter for an eight hour time weighted average (30 µg/m<sup>3</sup> 8-hour time weighted average). The employer must implement OSHA prescribed protective measures until they can demonstrate that the employee exposure is not in excess of the action level.

In general, relatively low levels of lead were detected in the various coated surfaces surveyed. Depending on the degree and type of disturbance of these surfaces (i.e. sanding, cutting, or demolishing), employers may be required to implement varying degrees of OSHA prescribed protective measures. These protective measures must be maintained until it can be demonstrated that employee exposures do not exceed the action level. The employer should also implement and maintain a written compliance program detailing the protective measures they will utilize to control lead exposure during renovation activities.

### Disposal Considerations

Lead containing materials may be subject to disposal restrictions. Prior to disposal, the contractor should characterize all wastes so that they are properly disposed in accordance with all local, state and federal regulations.

## **5 LIMITATIONS**

Due to the inaccessibility of some building elements, it is conceivable that all potential LBP may not have been located and identified. The investigations and methodology reflect our best efforts based upon the prevailing standard of care in the environmental industry.

**APPENDIX I**

**PERSONNEL CERTIFICATIONS**

# United States Environmental Protection Agency

This is to certify that

Pedro Rolando Rodas

has fulfilled the requirements of the Toxic Substances Control Act (TSCA) Section 402, and has received certification to conduct lead-based paint activities pursuant to 40 CFR Part 745.226 as a:

Inspector

In the Jurisdiction of:

Florida

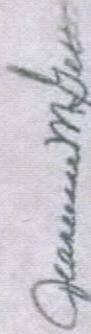
This certification is valid from the date of issuance and expires June 22, 2015

FL-I-121629-1

Certification #

JUL 11 2012

Issued On



Jeanneanne M. Gettle, Chief

Pesticides and Toxic Substances Branch



**APPENDIX II**

**LABORATORY REPORT AND CHAIN OF CUSTODY RECORD**



**EMSL Analytical, Inc.**

200 Route 130 North, Cinnaminson, NJ 08077  
Phone/Fax: (856) 303-2500 / (856) 786-5974  
<http://www.EMSL.com> [cinnaminsonleadlab@emsl.com](mailto:cinnaminsonleadlab@emsl.com)

EMSL Order: 201408567  
CustomerID: AQE63  
CustomerPO:  
ProjectID:

Attn: **Paul LeBlanc**  
**AirQuest Environmental, Inc.**  
**6851 Southwest 45th Street**  
**Fort Lauderdale, FL 33314**

Phone: (954) 792-4549  
Fax: (954) 792-2221  
Received: 06/17/14 11:00 AM  
Collected: 6/11/2014

Project: 8194 / Venetian Causway

**Test Report: Lead in Paint Chips by Flame AAS (SW 846 3050B/7000B)\***

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
8194-01	0001	6/11/2014	6/17/2014	<0.010 % wt
Site: Venetian Causway, Miami/SW Light Pole				

Julie Smith - Laboratory Director  
NJ-NELAP Accredited:03036  
or other approved signatory

\*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements established by the AIHA-LAP, unless specifically indicated otherwise.

Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NELAP Certifications: NJ 03036, NY 10872, PA 68-00367, AIHA-LAP, LLC ELLAP 100194, A2LA 2845.01

Initial report from 06/18/2014 11:40:58

Daily Bulk Sample Log & Chain of Custody

201508567

**Air Quest**  
 Environmental, Inc.  
 6851 sw 45th street  
 Davie, Florida 33314

Sample Date: 6/11/2014

Fax: (866) 461-2791  
 Toll Free: (877) 247-8146  
 Email: labresults@airquestinc.com

Project Number: 8194

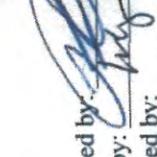
Project Name: Venetian Causway

Surveyor: Paul LeBlanc

Signature

Turnaround RUSH XX 24 Hour Standard

Item	Sample Number	Address Sampled	Sample Location	Analysis Requested	Media	Area Sampled	Lab Result	Comments
1	8194-01	Venetian Causway, Miami	SW Light Pole	Atomic Flame	Paint Chip	Approx 5"x5"		Pole was 1.0 By XRF

Relinquished by:  Date/Time: 6-14-14 4:00p  
 Received by:  Date/Time: 6-11-14 11:14 PM  
 Relinquished by: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
 Received by: \_\_\_\_\_ Date/Time: \_\_\_\_\_

**APPENDIX III**

**PHOTOGRAPHS**

Bridge #874459  
Reading Location Photos



Bridge #874459



Bridge #874459

Bridge #874459  
Reading Location Photos



Bridge #874459



Bridge #874459

Bridge #874459  
Reading Location Photos

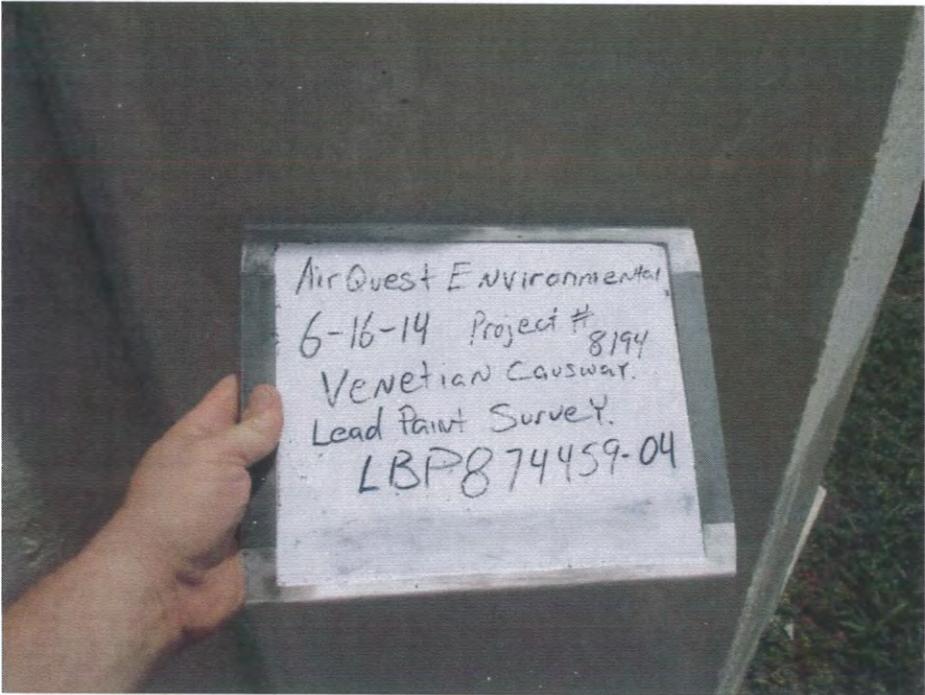


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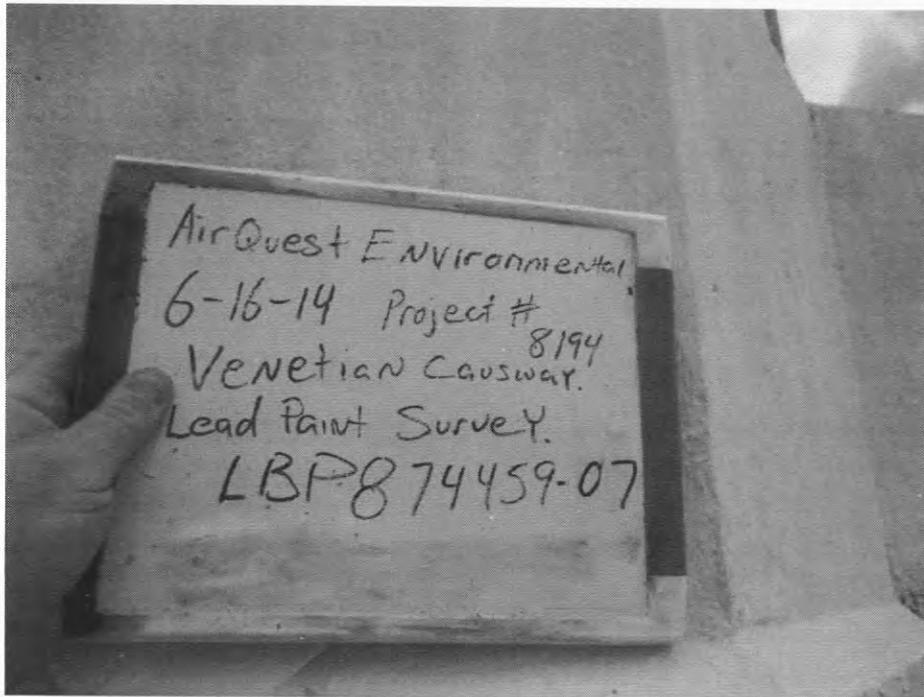
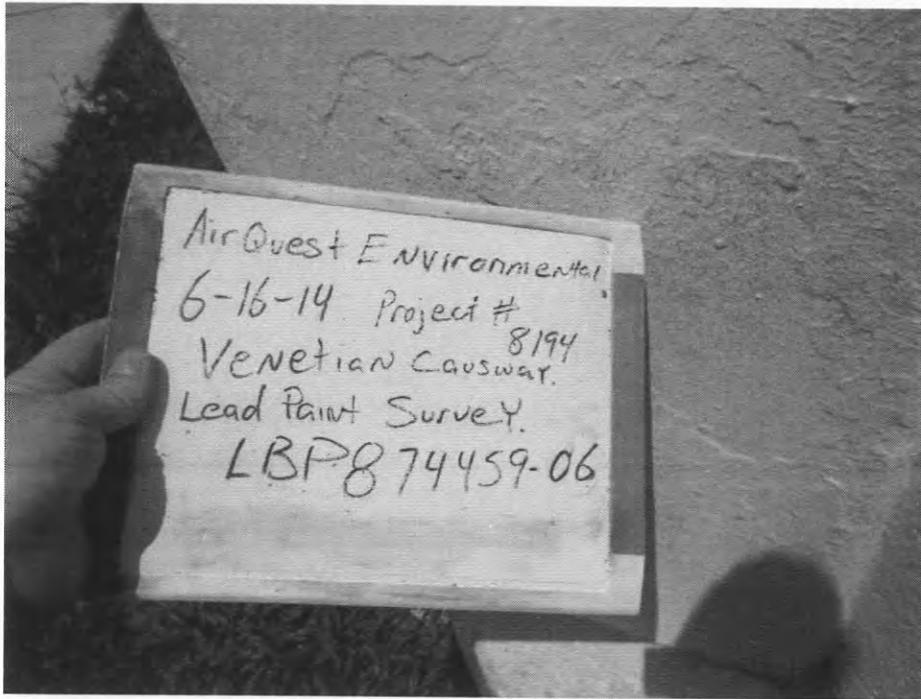


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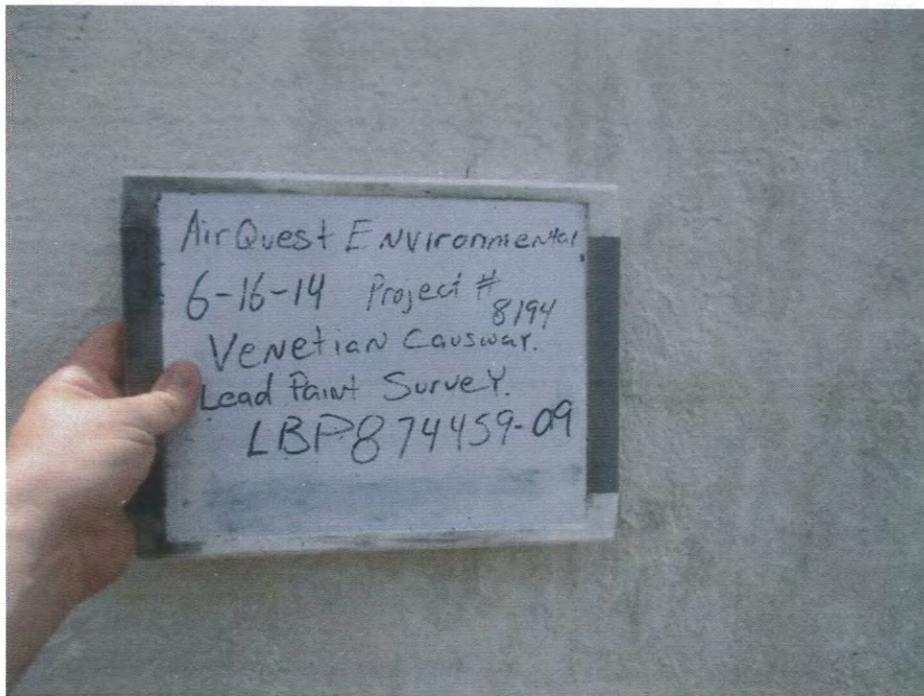
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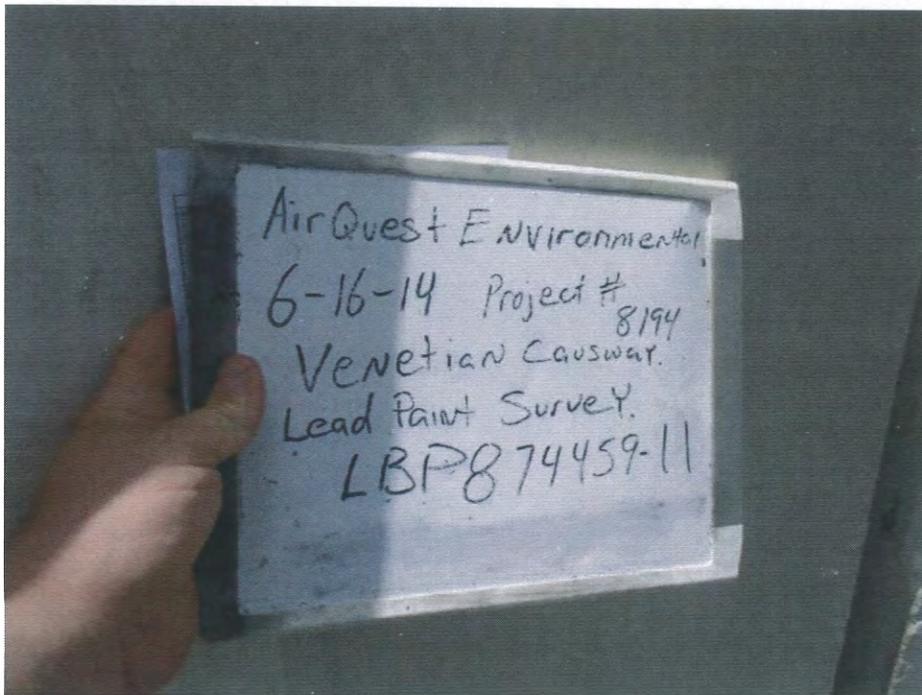
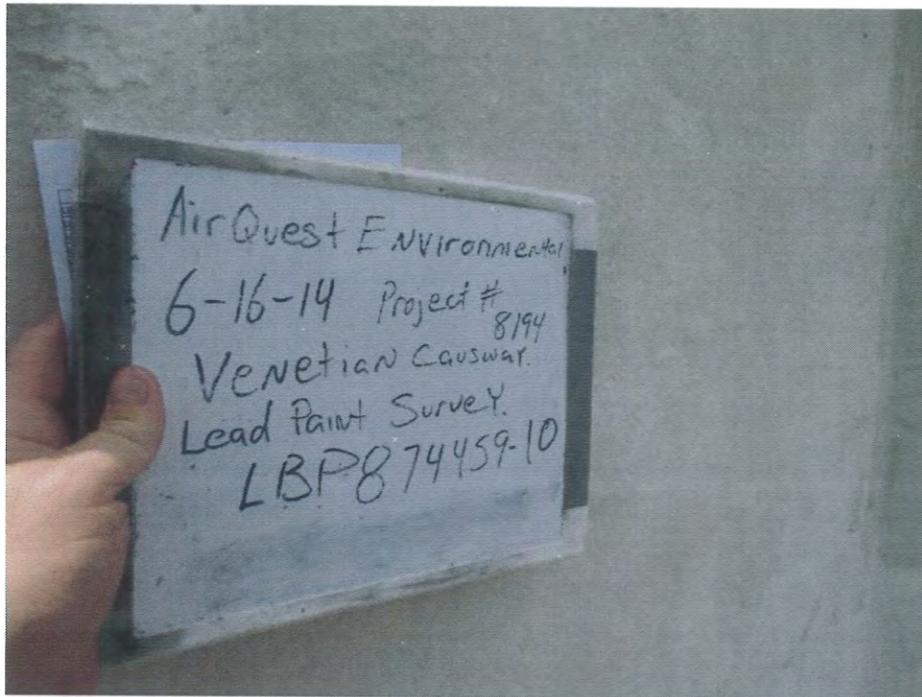


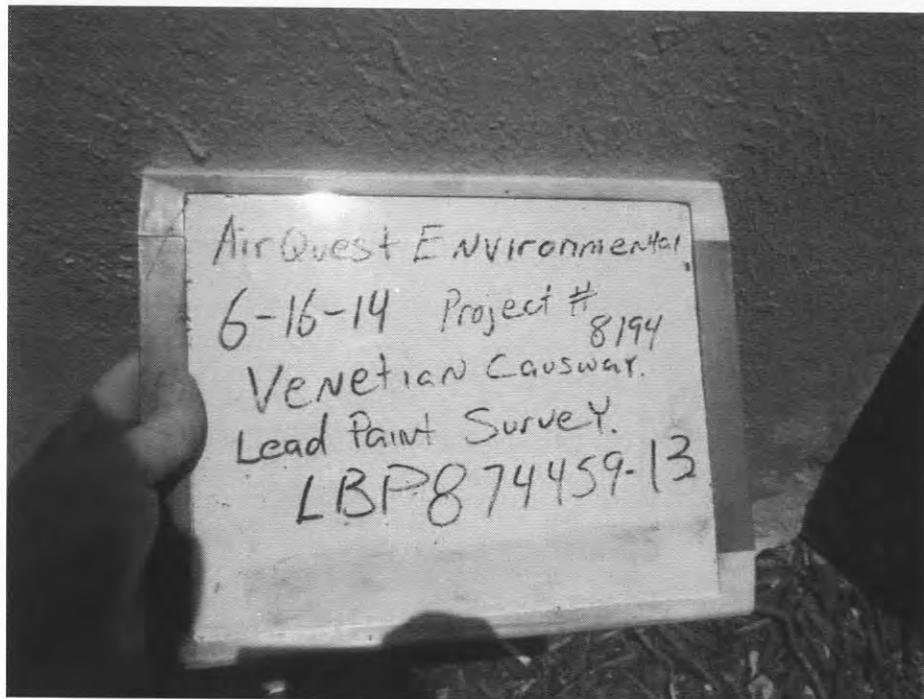
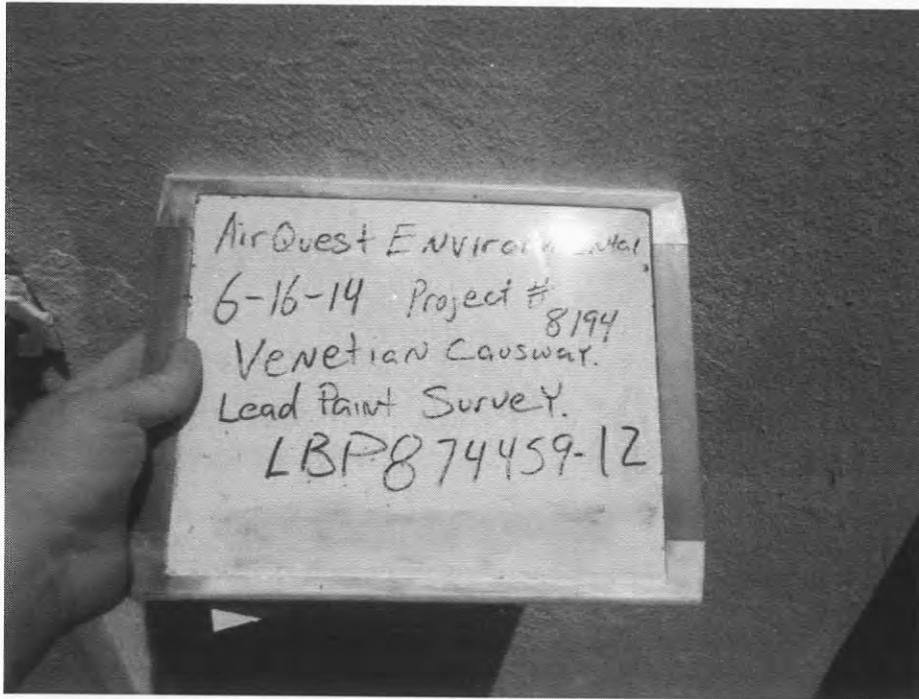
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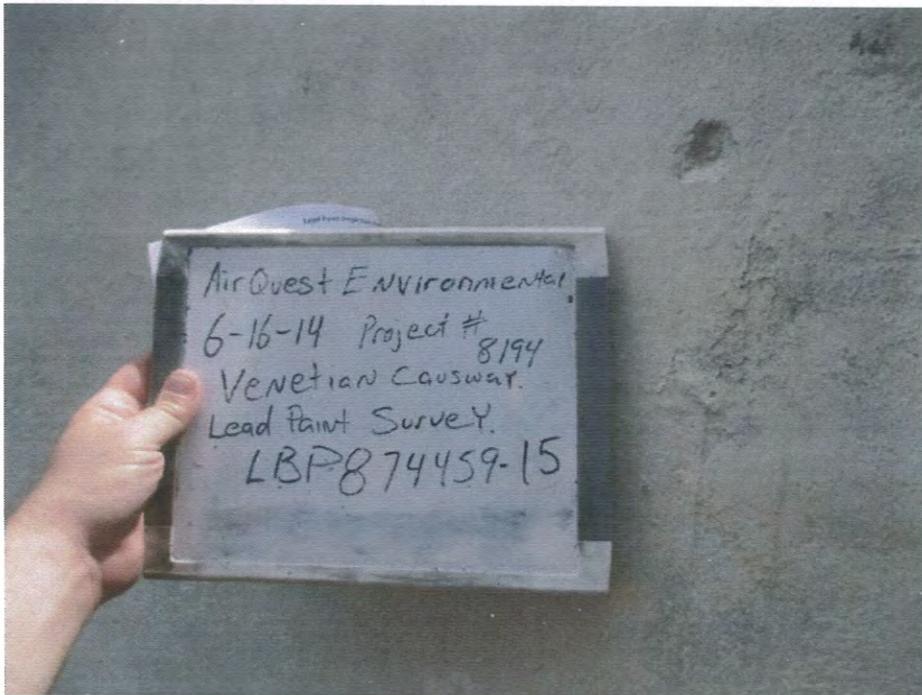
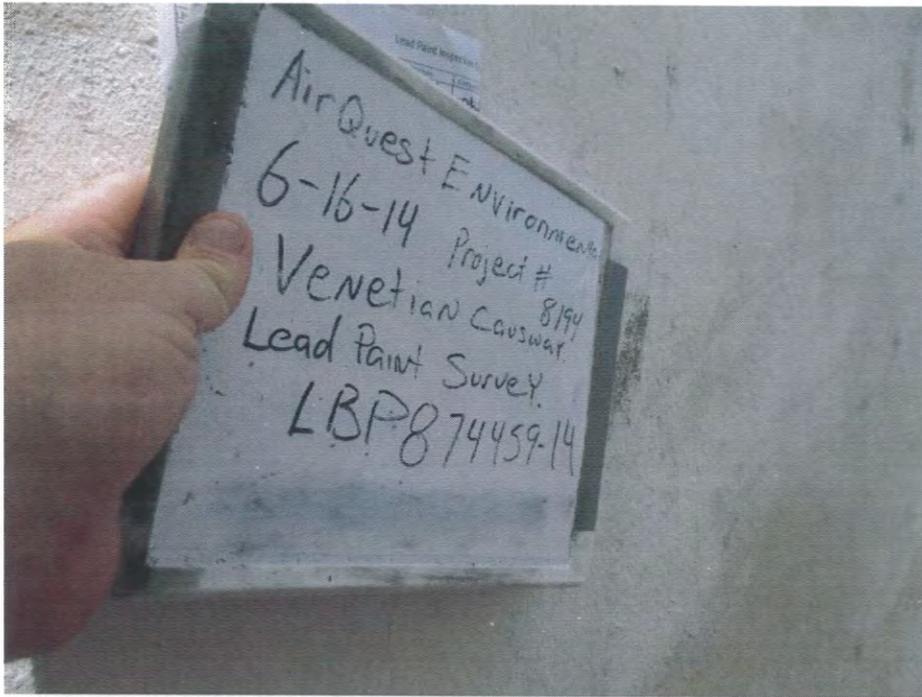
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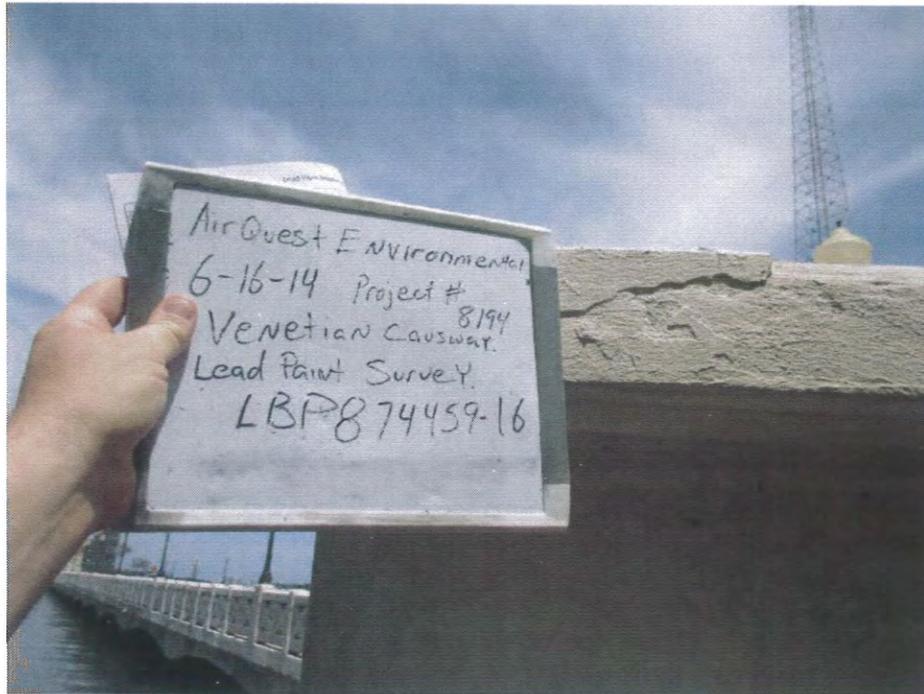


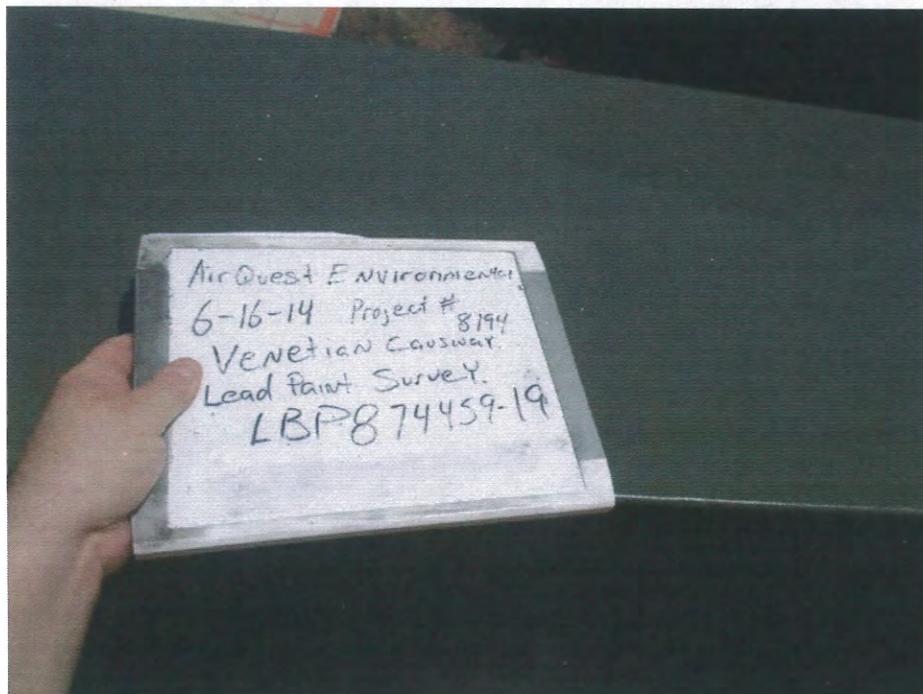
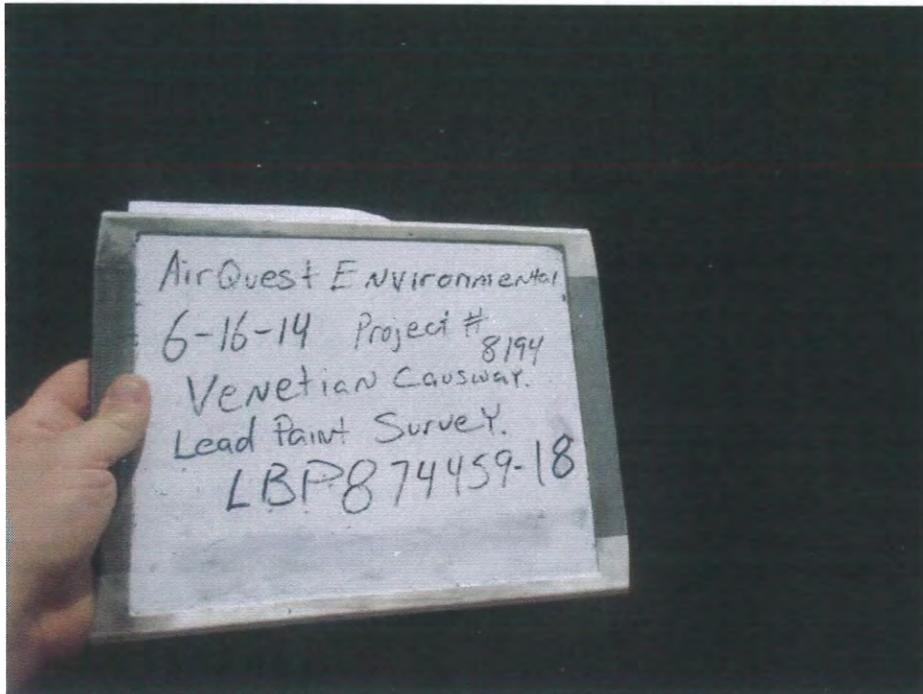


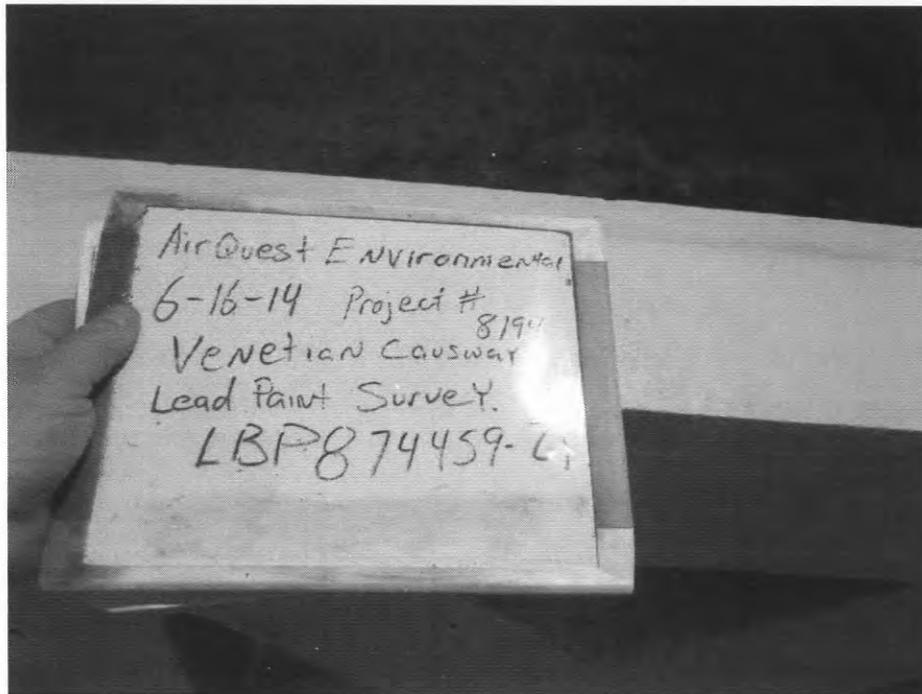
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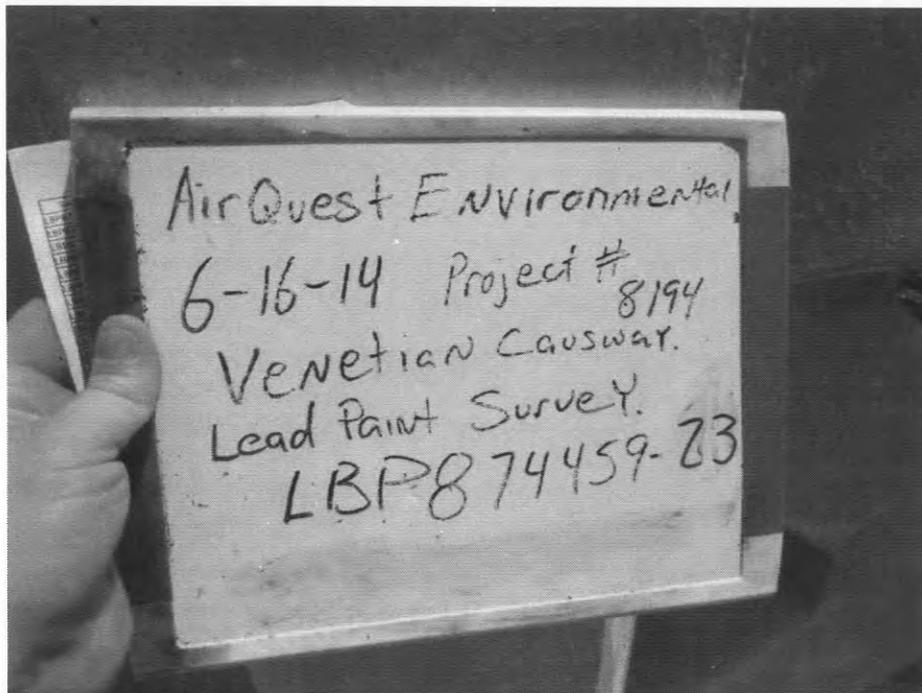
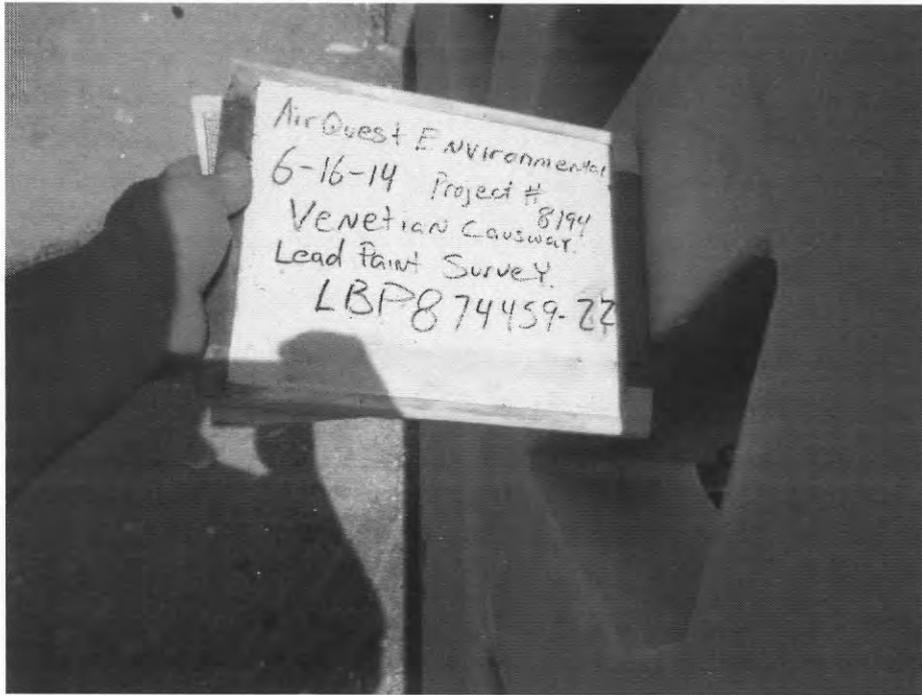


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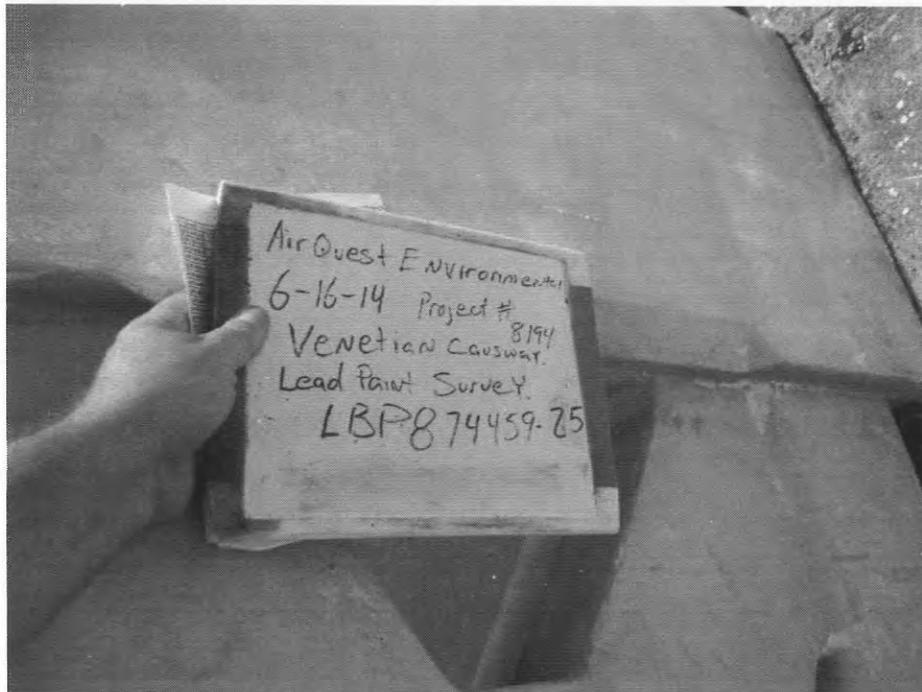




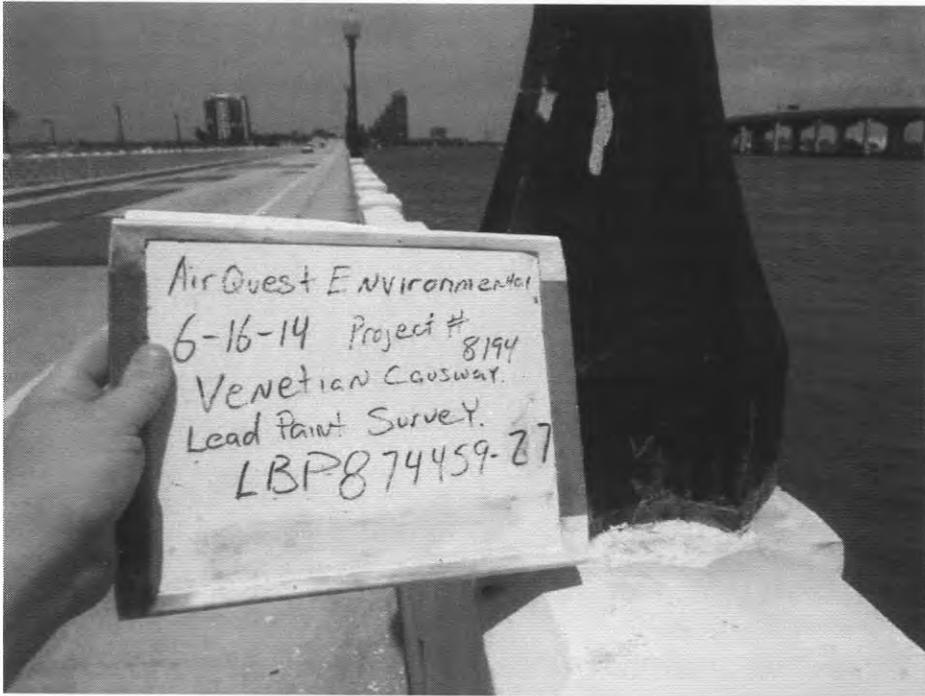




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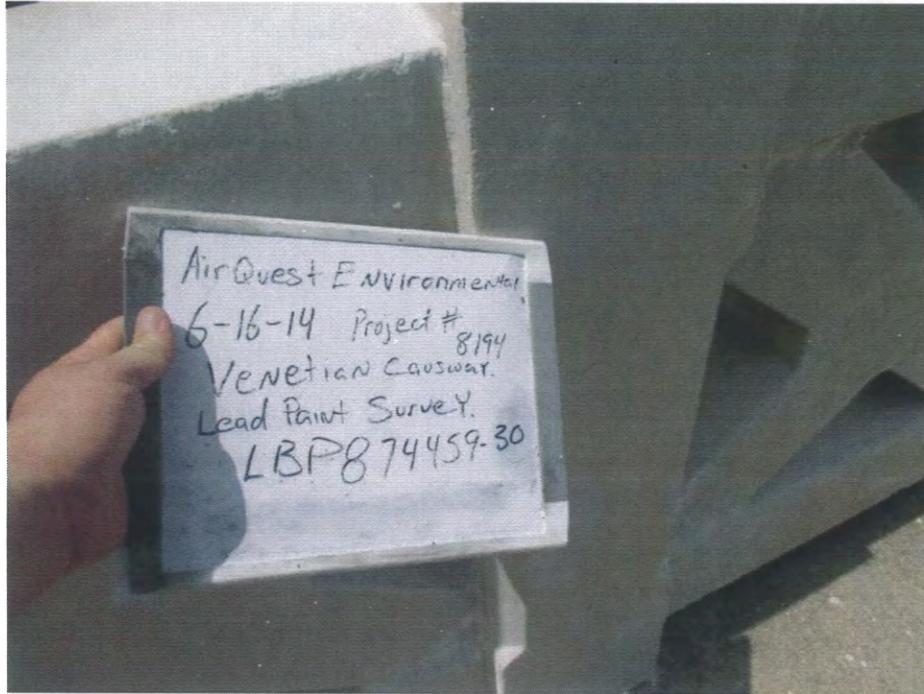
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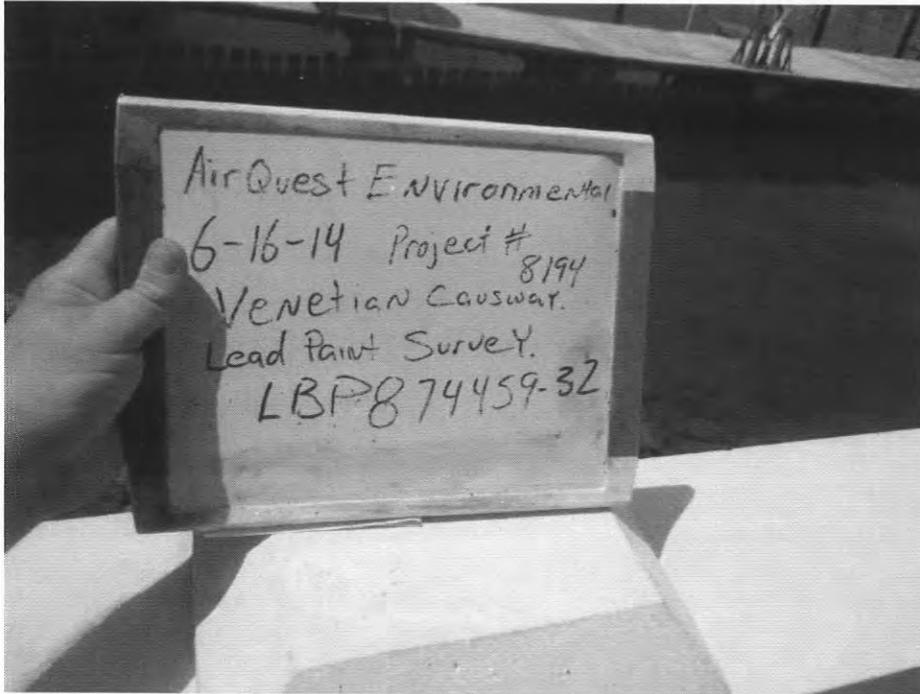


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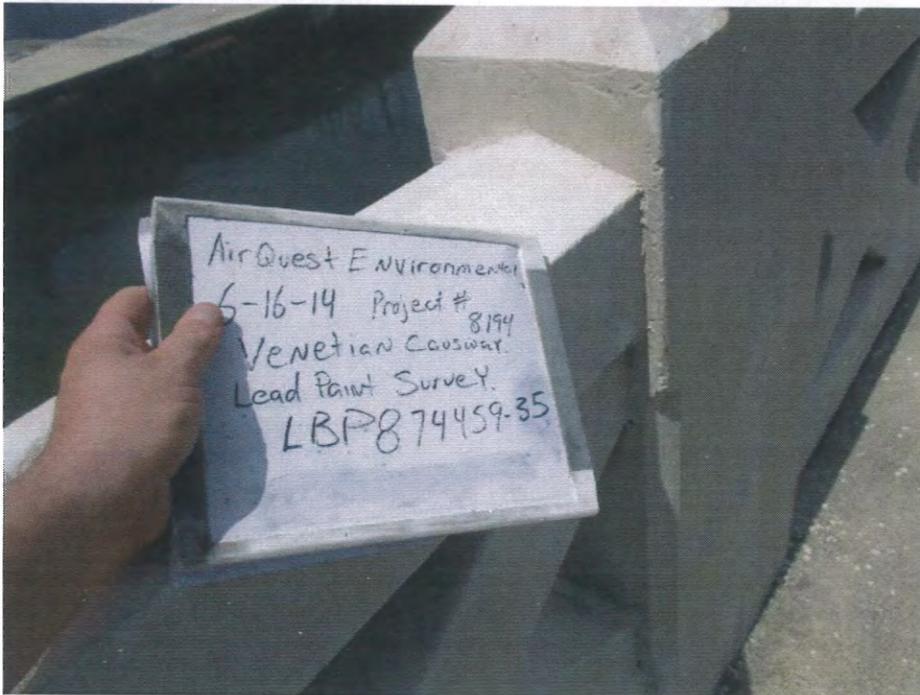
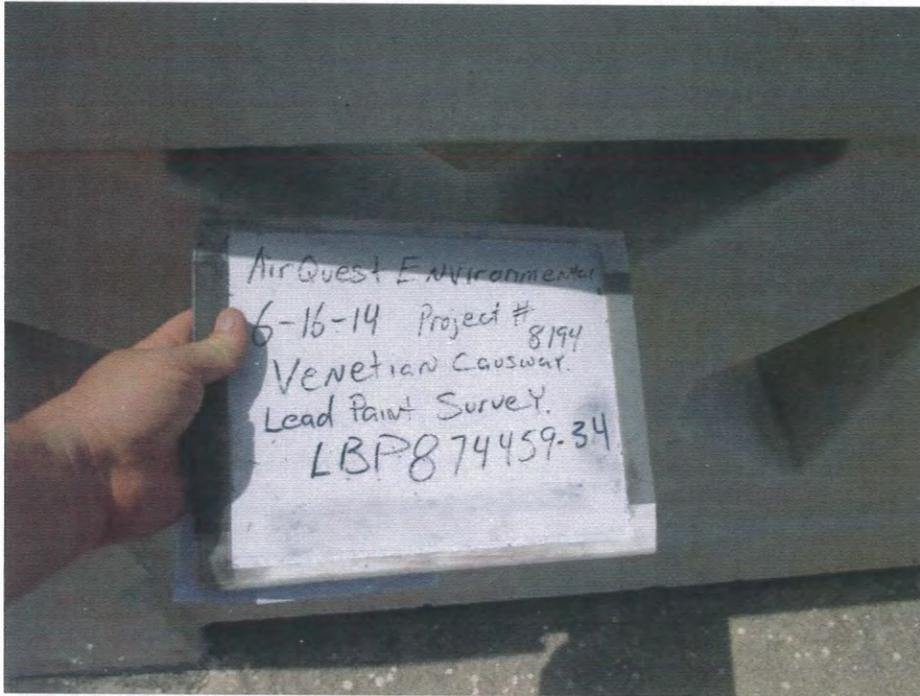


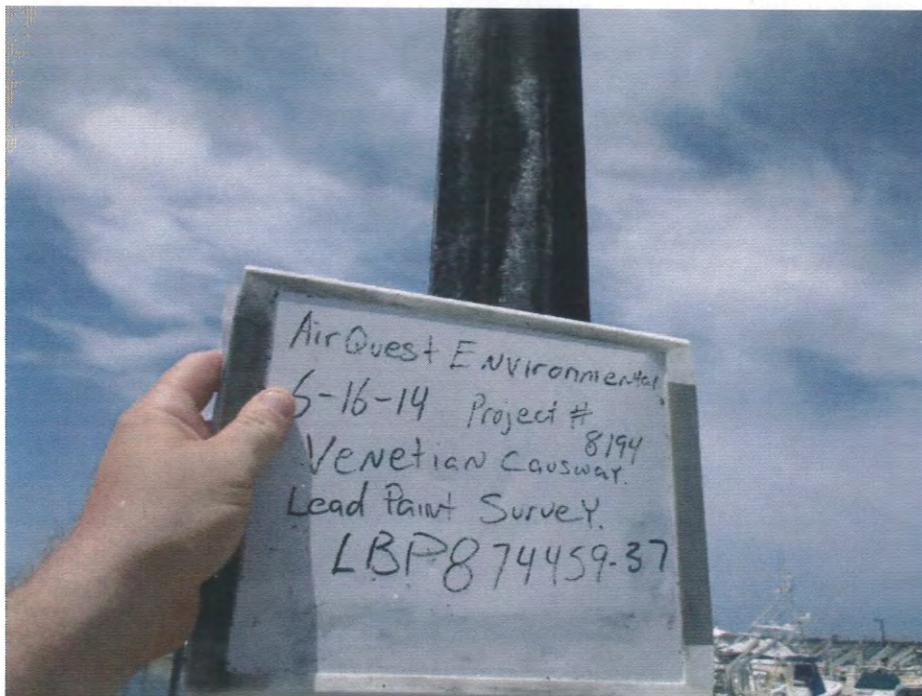
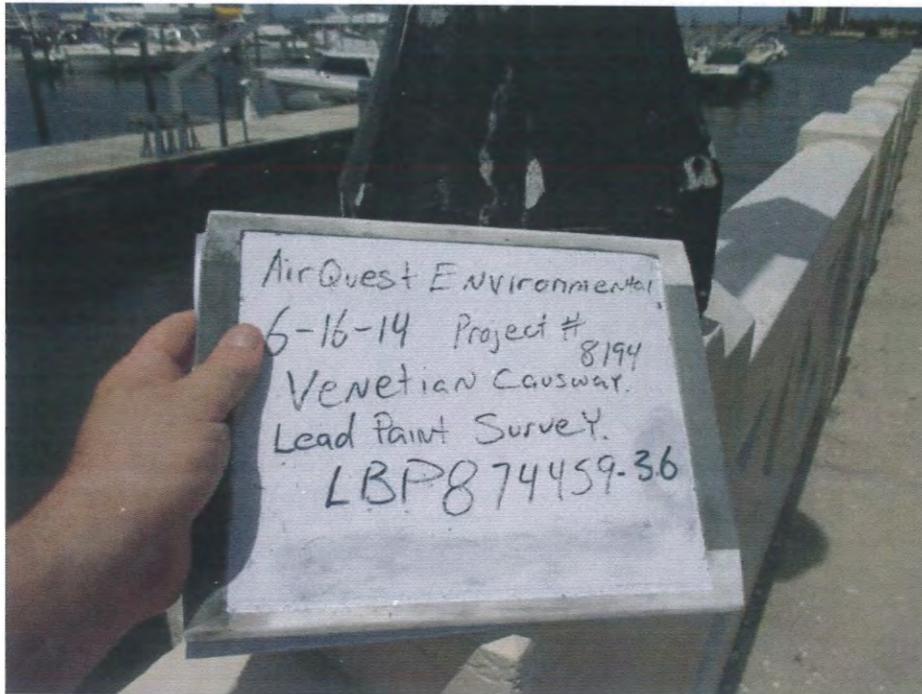
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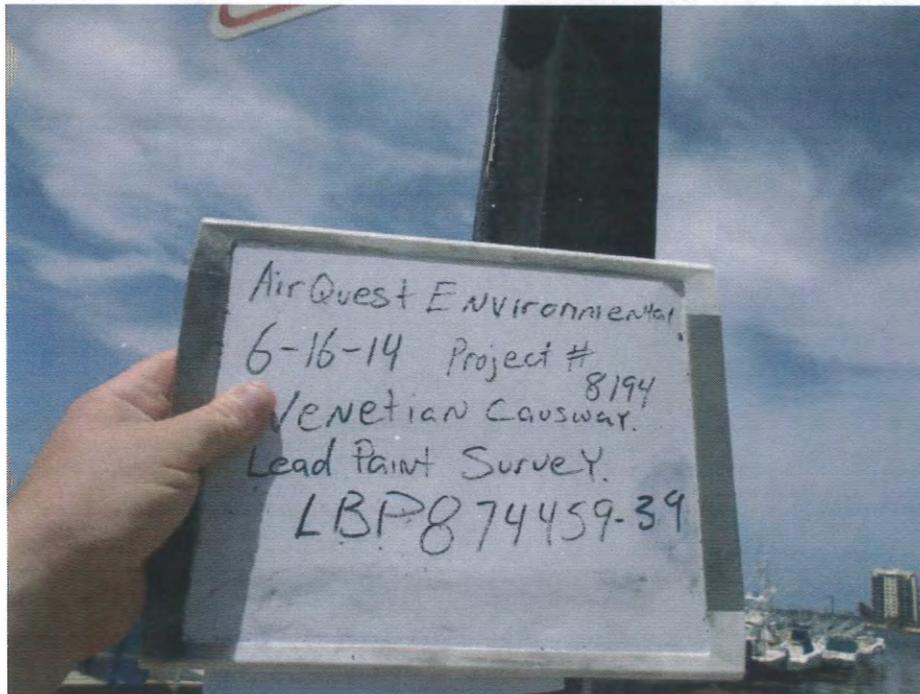
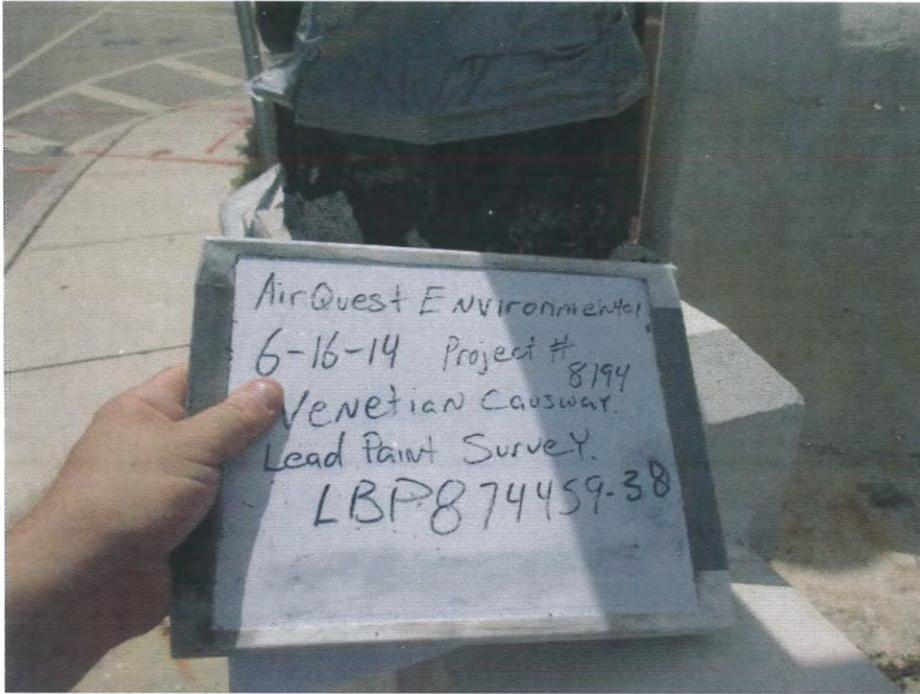




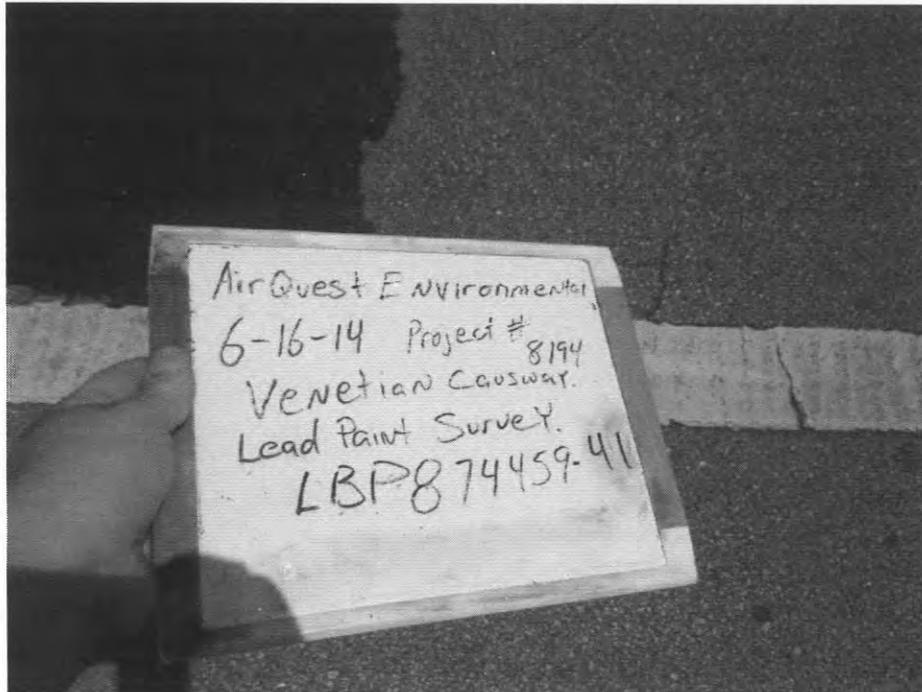
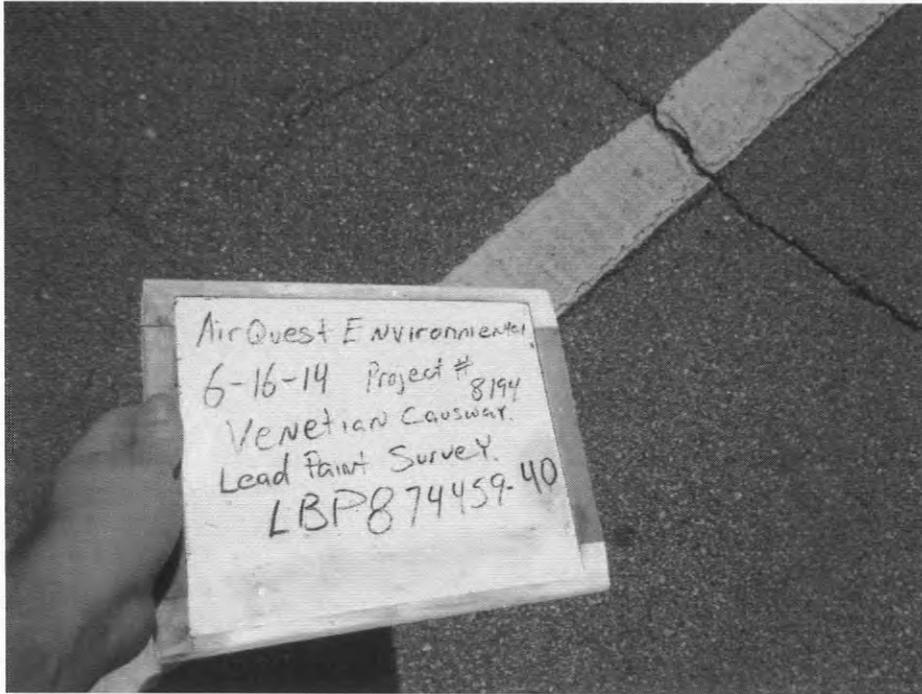
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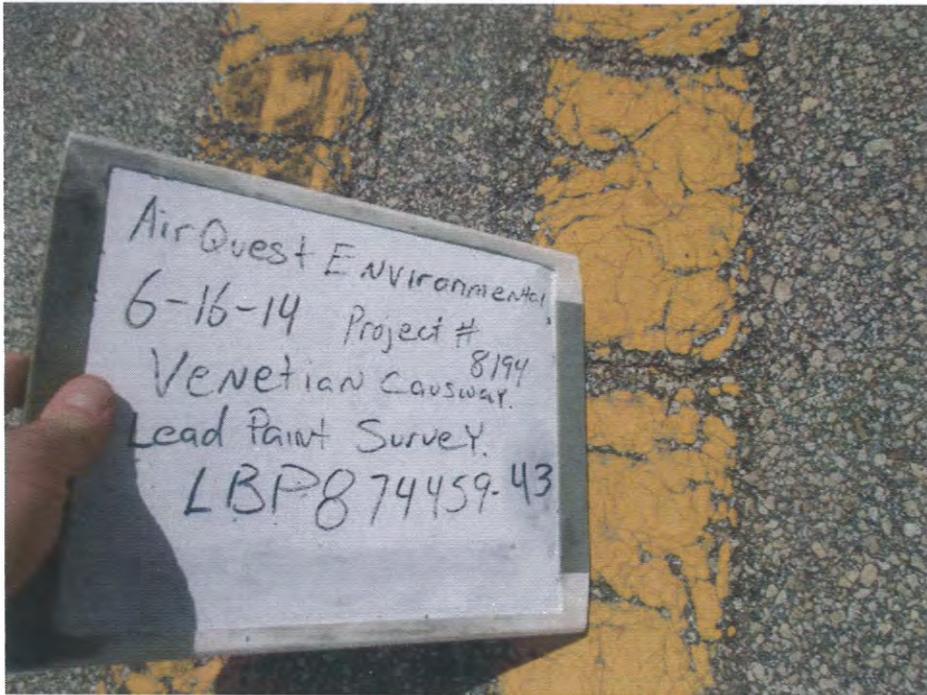
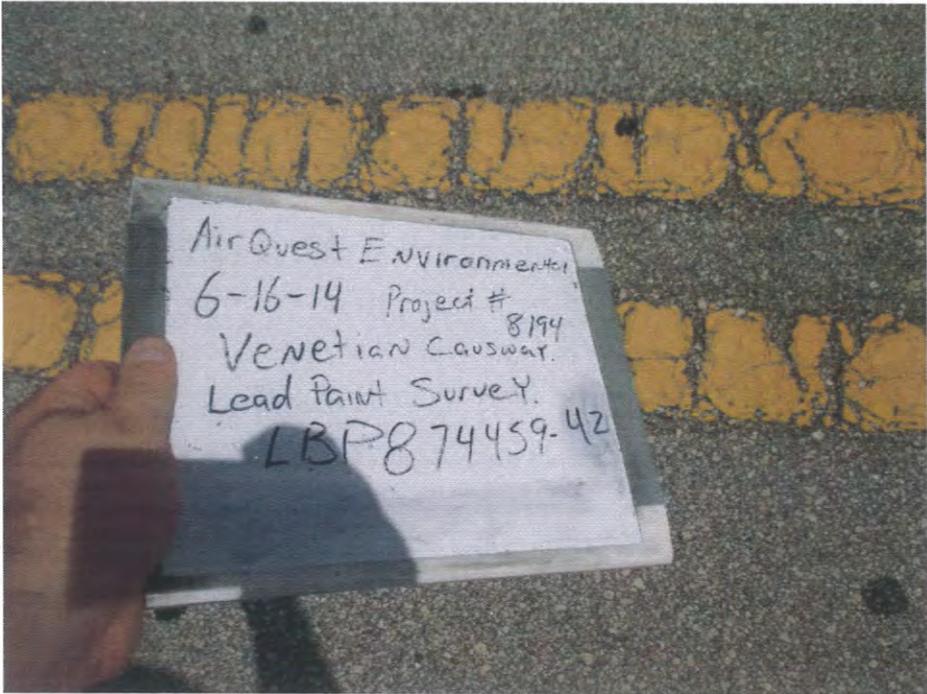




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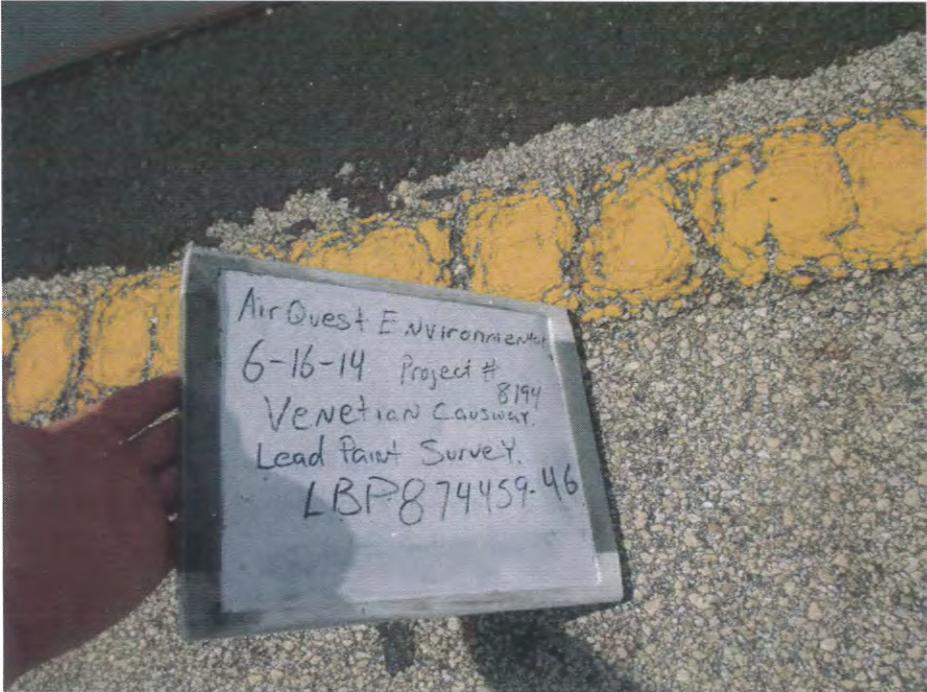
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Bridge #874459  
Reading Location Photos



**APPENDIX IV**

**PERFORMANCE CHARACTERISTIC SHEET**

## Performance Characteristic Sheet

EFFECTIVE DATE: December 1, 2006

EDITION NO.: 1

### MANUFACTURER AND MODEL:

Make: *Innov-X Systems, Inc.*  
Models: *LBP4000 with software version 1.4 and higher*  
Source: *X-ray tube*

### FIELD OPERATION GUIDANCE

#### OPERATING PARAMETERS:

Inspection mode, variable reading time.

#### XRF CALIBRATION CHECK LIMITS:

1.0 to 1.1 mg/cm<sup>2</sup> (inclusive)

#### SUBSTRATE CORRECTION:

Not applicable

#### INCONCLUSIVE RANGE OR THRESHOLD:

INSPECTION MODE READING DESCRIPTION	SUBSTRATE	INCONCLUSIVE RANGE (mg/cm <sup>2</sup> )
Results not corrected for substrate bias on any substrate	Brick	0.6 to 1.1
	Concrete	0.6 to 1.1
	Drywall	0.6 to 1.1
	Metal	0.6 to 1.1
	Plaster	0.6 to 1.1
	Wood	0.6 to 1.1

### BACKGROUND INFORMATION

#### EVALUATION DATA SOURCE AND DATE:

This sheet is supplemental information to be used in conjunction with Chapter 7 of the HUD *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing* ("HUD Guidelines"). Performance parameters shown on this sheet are calculated from the EPA/HUD evaluation using archived building components. Testing was conducted on 146 test locations, with two separate instruments, in December 2005.

### OPERATING PARAMETERS:

Performance parameters shown in this sheet are applicable only when properly operating the instrument using the manufacturer's instructions and procedures described in Chapter 7 of the HUD Guidelines.

### XRF CALIBRATION CHECK:

The calibration of the XRF instrument should be checked using the paint film nearest 1.0 mg/cm<sup>2</sup> in the NIST Standard Reference Material (SRM) used (e.g., for NIST SRM 2579, use the 1.02 mg/cm<sup>2</sup> film).

If the average (rounded to 1 decimal place) of three readings is outside the acceptable calibration check range, follow the manufacturer's instructions to bring the instrument into control before XRF testing proceeds.

### SUBSTRATE CORRECTION VALUE COMPUTATION:

Chapter 7 of the HUD Guidelines provides guidance on correcting XRF results for substrate bias. Supplemental guidance for using the paint film nearest 1.0 mg/cm<sup>2</sup> for substrate correction is provided:

XRF results are corrected for substrate bias by subtracting from each XRF result a correction value determined separately in each house for single-family housing or in each development for multifamily housing, for each substrate. The correction value is an average of XRF readings taken over the NIST SRM paint film nearest to 1.0 mg/cm<sup>2</sup> at test locations that have been scraped bare of their paint covering. Compute the correction values as follows:

Using the same XRF instrument, take three readings on a bare substrate area covered with the NIST SRM paint film nearest 1 mg/cm<sup>2</sup>. Repeat this procedure by taking three more readings on a second bare substrate area of the same substrate covered with the NIST SRM.

Compute the correction value for each substrate type where XRF readings indicate substrate correction is needed by computing the average of all six readings as shown below.

For each substrate type (the 1.02 mg/cm<sup>2</sup> NIST SRM is shown in this example; use the actual lead loading of the NIST SRM used for substrate correction):

$$\text{Correction value} = (1\text{st} + 2\text{nd} + 3\text{rd} + 4\text{th} + 5\text{th} + 6\text{th Reading}) / 6 - 1.02 \text{ mg/cm}^2$$

Repeat this procedure for each substrate requiring substrate correction in the house or housing development.

### EVALUATING THE QUALITY OF XRF TESTING:

Randomly select ten testing combinations for retesting from each house or from two randomly selected units in multifamily housing.

Conduct XRF re-testing at the ten testing combinations selected for retesting.

Determine if the XRF testing in the units or house passed or failed the test by applying the steps below.

Compute the Retest Tolerance Limit by the following steps:

Determine XRF results for the original and retest XRF readings. Do not correct the original or retest results for substrate bias. In single-family and multi-family housing, a result is defined as a single reading. Therefore, there will be ten original and ten retest XRF results for each house or for the two selected units.

Calculate the average of the original XRF result and the retest XRF result for each testing combination.

Square the average for each testing combination.

Add the ten squared averages together. Call this quantity C.

Multiply the number C by 0.0072. Call this quantity D.

Add the number 0.032 to D. Call this quantity E.

Take the square root of E. Call this quantity F.

Multiply F by 1.645. The result is the Retest Tolerance Limit.

Compute the average of all ten original XRF readings.

Compute the average of all ten re-test XRF readings.

Find the absolute difference of the two averages.

If the difference is less than the Retest Tolerance Limit, the inspection has passed the retest. If the difference of the overall averages equals or exceeds the Retest Tolerance Limit, this procedure should be repeated with ten new testing combinations. If the difference of the overall averages is equal to or greater than the Retest Tolerance Limit a second time, then the inspection should be considered deficient.

Use of this procedure is estimated to produce a spurious result approximately 1% of the time. That is, results of this procedure will call for further examination when no examination is warranted in approximately 1 out of 100 dwelling units tested.

**TESTING TIMES:**

For the variable-time inspection paint test mode, the instrument continues to read until it has determined whether the result is positive or negative (with respect to the 1.0 mg/cm<sup>2</sup> Federal standard), with 95% confidence. The following table provides testing time information for this testing mode.

Testing Times Using Variable Reading Time Inspection Mode (Seconds)						
Substrate	All Data			Median for laboratory-measured lead levels (mg/cm <sup>2</sup> )		
	25 <sup>th</sup> Percentile	Median	75 <sup>th</sup> Percentile	Pb < 0.25	0.25 ≤ Pb < 1.0	1.0 ≤ Pb
Wood, Drywall	2.1	2.3	5.4	2.2	5.4	2.2
Metal	2.6	3.2	5.3	2.7	5.1	5.1
Brick, Concrete, Plaster	3.1	4.0	5.7	3.2	4.0	5.9

**CLASSIFICATION OF RESULTS:**

When an inconclusive range is specified on the *Performance Characteristic Sheet*, XRF results are classified as positive if they are greater than the upper boundary of the inconclusive range, negative if they are less than the lower boundary of the inconclusive range, or inconclusive if in between. The inconclusive range includes both its upper and lower bounds. If the instrument reads "> x mg/cm<sup>2</sup>", the value "x" should be used for classification purposes, ignoring the ">". For example, a reading reported as ">1.0 mg/cm<sup>2</sup>" is classified as 1.0 mg/cm<sup>2</sup>, or inconclusive. When the inconclusive range reported in this PCS is used to classify the readings obtained in the EPA/HUD evaluation, the following False Positive, False Negative and Inconclusive rates are obtained:

- FALSE POSITIVE RATE: 2.5% (2/80)
- FALSE NEGATIVE RATE: 1.9% (4/212)
- INCONCLUSIVE RATE: 16.4% (48/212)

**DOCUMENTATION:**

A document titled *Methodology for XRF Performance Characteristic Sheets* provides an explanation of the statistical methodology used to construct the data in the sheets, and provides empirical results from using the recommended inconclusive ranges or thresholds for specific XRF instruments. For a copy of this document call the National Lead Information Center Clearinghouse at 1-800-424-LEAD.

This XRF Performance Characteristic Sheet was developed by the Midwest Research Institute (MRI) and QuanTech, Inc., under a contract between MRI and the XRF manufacturer. XRF Performance Characteristic Sheets were originally developed by the MRI under a grant from the U. S. Environmental Protection Agency and the U.S. Department of Housing and Urban Development. HUD has determined that the information provided here is acceptable when used as guidance in conjunction with Chapter 7, Lead-Based Paint Inspection, of HUD's *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing*.