



**MATERIALS MANAGEMENT PLAN
NATURAL GAS REGULATOR
RECONSTRUCTION ACTIVITIES
FORMER TIDEWATER FACILITY
PAWTUCKET, RHODE ISLAND
RIDEM Case No. 95-022**

PREPARED FOR:

National Grid
Waltham, Massachusetts

PREPARED BY:

GZA GeoEnvironmental, Inc.
Providence, Rhode Island

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1.00 INTRODUCTION



On behalf of The Narragansett Electric Company d/b/a National Grid (National Grid), GZA GeoEnvironmental, Inc. (GZA) has prepared this *Materials Management Plan* (MMP) to establish procedures for the handling of soils and groundwater associated with reconstruction of a natural gas regulator/system interconnection station located at the Former Tidewater facility in Pawtucket, Rhode Island (herein referred to as the “Site”). The Site is a Rhode Island Department of Environmental Management (RIDEM) State-listed site (RIDEM Case # 95-022) under the jurisdiction of RIDEM’s Office of Waste Management (OWM) and subject to the Rules and Regulations for the Investigation and Remediation of Hazardous Materials Releases (Remediation Regulations).

2.00 PROJECT BACKGROUND

The following sections provide a brief description of the Site, its history and environmental conditions, as they relate to the proposed work described herein.

2.10 SITE DESCRIPTION

This Site was the location of the former Tidewater Manufactured Gas Plant (MGP) and the Pawtucket No. 1 Power Station. The majority of the Site is currently vacant with the exception of an active natural gas regulating station, and active switching and electrical substations, both owned and operated by National Grid.

The Site consists of approximately 23 acres located on the western bank of the Seekonk River in Pawtucket, Rhode Island. It consists of four principal areas, based on historical use and operation:

- The Former Gas Plant Area (FGPA) – portions of Plat 54B, Lot 826 and Plat 65B, Lot 662 (8.5 acres);
- The Former Power Plant Area (FPPA) – Plat 65B, Lot 645 (9.5 acres);
- The South Fill Area (SFA) – Plat 65B, Lots 649, 647, portions of Plat 65B Lot 648 and Plat 67B, Lot 11 (2 acres); and
- The North Fill Area (NFA) – portions of Plat 54B, Lot 826 (3 acres).

The proposed earthwork associated with the natural gas regulator/system interconnect station reconstruction activities will be conducted within the southwestern portion of the FGPA. A Site Locus is provided as Figure 1. The location of the existing natural gas regulator station is presented on Figures 2 and 3.

2.20 SITE HISTORY AND GAS REGULATOR STATION ENVIRONMENTAL CONDITIONS



MGP operations began at the FGPA portion of the Site in the early 1880s and were concluded substantially by 1954, although peak shaving operations continued until the late-1960s. The original MGP included Gasholders No. 4 and 5, a large volume (133,000 gallon) oil tank, a retort house for coal carbonization, purifying house, coal sheds, the water gas house and several tar tanks. By 1949 at the peak of production, there were several new gasholders, a meter house, a machine shop, tar separators, a tar boiling tank, a naphthalene tower, a conveyer between the retort house and the No.1 Station and iron purifier tanks. In 1954, the natural gas regulator building was constructed and the MGP was phased out of use. The natural gas regulator building was constructed on the western portion of the FGPA, upgradient of the MGP structures and features previously identified. In the later years of operation (1954 until the late 1960s), the MGP produced gas using oil enhanced at times with propane for peak shaving purposes. Presently, the only structures remaining on the FGPA portion of the Site are the natural gas control station, the former meter room, the former machine shop, and a small portion of the former purifier house. The former meter room, machine shop and purifier house are vacant.

Based on observations made during subsurface explorations, subsurface stratigraphy generally consists of fill materials underlain by stratified gravel, sands, silt and clay, underlain by glacial till and bedrock. The fill materials were generally identified to consist of varying percentages of sand, coal, ash, slag, and former building/structure debris. The thickness of these fill materials have been observed to range from approximately 1 to 2 feet in the northwestern portion of the Site to over 20 feet in the southern portion. Based on observations proximate to proposed work on the regulator building (TP-204, MW-209 and MW-208) and those from more recent sampling investigations completed in the proposed excavation areas (GRS-1 through GRS-26; GRSP-1 through GRSP-13), it is expected that fill materials near the gas regulator station work will range in thickness from approximately 2 to 6 feet below grade. In addition, in the proposed gas regulator excavation areas closest to the former MGP operations (i.e., GRS-1 test pit locations), evidence of blue-stained MGP residuals was noted in subsurface soils at 10 to 36 inches below grade. Although lab results of this material did not confirm the presence of total cyanide (see Table 2, sample GRS-1 10-36 in), visual observations suggest that this material is likely impacted by cyanide and/or purifier box waste residual.

As part of the preconstruction activities for the proposed natural gas regulator station upgrades, investigations were recently completed within the proposed earthwork areas to assess soil quality and conditions. As part of this assessment, soil samples representative of expected soil conditions to be encountered during the reconstruction work were collected (GRS- series locations) and submitted for analytical testing including volatile organic compounds (VOCs), polynuclear aromatic hydrocarbons (PAHs), select metals, total petroleum hydrocarbons (TPH), polychlorinated biphenyls (PCBs) and total organic carbon (TOC). In addition, surface soil samples within the fenced regulator station area were also collected (GRSP- series locations) to characterize PCB concentrations within an area of surface staining stemming from a formerly leaking pipe/valve assembly located in the



southwestern portion of the regulator yard. Figure 4 presents the locations of the GRS- and GRSP- series soil samples. Refer to Tables 1 and 2 for a summary of visual observations for the collected soil samples and analytical lab results, respectively.

Based on the findings of recent investigations completed at the Site and our understanding of typical historic operations on the property, it is likely that soils excavated during the proposed earthwork will consist of fill materials likely exhibiting Method 1 exceedances of inorganics (arsenic and lead), TPH and certain PAHs. One localized area of PCB-impacted surface soil and concrete (>1 mg/kg) has been identified and characterized within the regulator station work area (defined by soil samples locations GRSP-1, GRSP-11, GRSP-13, GRS-14, RB-E/Soil-01 and concrete sample locations RW-3, CS-2, CS-3; refer to Figures 4 and 5 for sample locations). As indicated above, these localized PCB impacts are presumed to be from a leaky valve associated with the process piping in the southwestern portion of the natural gas regulator station area. The valve has been sealed and all PCB impacted material in excess of 1 mg/kg (both soil and concrete) will be removed by others either prior to or during the natural gas regulator station upgrade activities.

Groundwater and/or perched groundwater may be encountered during certain excavation activities associated with the natural gas regulator station upgrade project. Groundwater in this area of the Site has generally been shown to contain benzene, toluene, xylenes, naphthalene and very low concentrations of other VOCs at concentrations below the Method 1 criteria. Based on available Site data, we do not anticipate that non-aqueous phase liquids (NAPLs) will be encountered.

3.00 SCOPE OF WORK

As part of facility maintenance, National Grid intends on completing certain reconstruction activities associated with the natural gas regulator/system interconnect station located along Tidewater Street in the southwest portion of the FGPA. The location of the buildings associated with the on-Site natural gas operations are shown on the attached Figure 2. The proposed reconstruction activities will require limited earthwork to relocate the existing overhead gas line to below grade within Tidewater Street and install new station inlet and outlet piping. Other shallow excavation work will be necessary to complete the proposed scope of work within the fenced natural gas station area to properly abandon existing facilities.

The proposed natural gas regulator/system interconnect station reconstruction work will consist of the relocation of the existing overhead 16-inch gas main to below ground, general renovation of the buildings, and updating of all the equipment including electronic and communication services within the buildings. The relocation of the 16-inch gas main will require excavation of an approximately 50 feet long by 6 feet deep trench. Assuming the



soils are suitable from a geotechnical perspective, National Grid intends to reuse the excavated soil as backfill during the reconstruction activities. It is estimated that less than 100 cubic yards (CY) of excess soil may require additional soil management as a result of these repair activities.

As part of the station reconstruction earthwork, soils excavated during gas line relocation work and miscellaneous shallow excavation activities shall be temporarily placed in a working stockpile on polyethylene liner adjacent to the excavation for reuse. However, at the end of each work day, all excess stockpiled soils shall be relocated to a stockpile lay down area. The location of the stockpile lay down area shall be approved by National Grid and shall be located at least 200-feet distant from the river's edge. Soils shall be stockpiled within the approved National Grid lay down area in piles segregated based on their suitability for reuse as backfill at the natural gas regulator station. Excess materials remaining after completion of this work shall remain stockpiled in this area and will subsequently be managed by others. All materials in the stockpile laydown area shall be placed on and covered with polyethylene sheeting. In addition, the cover sheeting shall be secured and the stockpiles surrounded with sedimentation controls.

Based on the assumed proposed depth of excavation (i.e. 6 feet below ground surface in some locations), it is anticipated that perched and/or actual groundwater may be encountered. In the event that groundwater needs to be managed during the excavation work, the Contractor shall follow the guidelines described in Section 5.10.8.

4.00 EXPOSURE ASSESSMENT

GZA has completed a preliminary exposure assessment based upon our understanding of the physical Site characteristics, the scope of work, and the knowledge of the Site vicinity. The most critical aspect of an exposure assessment is the identification of exposure routes and potential human and environmental receptors.

4.10 POTENTIAL CONTAMINANTS OF CONCERN

Based on analytical results within the natural gas regulator station and proposed excavation areas, it is anticipated that excavated materials will likely exhibit low levels of PAHs, metals, TPH and PCBs. As presented in Table 2, Method 1 exceedances of certain inorganic compounds and select PAHs exist globally within the proposed natural gas regulator work area. Localized exceedances of TPH and PCBs are currently encountered in the vicinity of the leaky pipe/valve assembly in the southwestern portion of the regulator station. Approximate limits of the PCB/TPH impacted area is depicted on Figure 4. As previously indicated, PCB impacted soil and concrete will be addressed by others. The



table below summarizes all compounds that exceeded Method 1 Criteria and the range of concentrations that would be expected in the vicinity of the proposed work based on the recent preconstruction sampling. A summary of the analytical testing associated with the recent sampling investigation is included in Table 2.

Constituent	Surface (< 2 ft)	Subsurface (>2 ft)
	Range (mg/kg)	Range (mg/kg)
Hydrocarbon Content (TPH)	Not Detected – 132,000	Not Detected – 6,850
Arsenic	Not Detected – 4.8	Not Detected – 21.4
Benzo [a] Anthracene	Not Detected – 4.14	Not Detected – 12
Benzo [b] Fluoranthene	Not Detected – 4.44	Not Detected – 14.1
Benzo [a] Pyrene	Not Detected – 3.63	Not Detected – 10.8
Aroclor 1248	Not Detected – 2,870	Not Detected – 0.585
Aroclor 1260	Not Detected – 308	Not Detected – 0.0632

Based on analytical results proximate to the proposed work, it is anticipated that groundwater encountered will likely not exhibit any Method 1 exceedances, however there may be elevated concentrations of VOCs or PAHs. The table below summarizes all compounds that were noted as elevated during historical groundwater sampling as compared to Method 1 Criteria and the range of concentrations that would be expected in the vicinity of the proposed work.

Constituent	Range (µg/l)
Benzene	Not Detected – 93
Toluene	Not Detected – 10.1
Ethylbenzene	Not Detected – 69.7
m&p-Xylene	Not Detected – 44.6
o-Xylene	Not Detected – 57.6
Naphthalene (VOC)	Not Detected – 1,540
Naphthalene (PAH)	Not Detected – 1,627

4.20 EXPOSURE PATHWAYS

Impacts at the Site have been observed in the following media: surface soil (<2 feet), subsurface soil (>2 feet) and groundwater. The risk of direct exposure of humans to contaminated soil is the primary concern associated with this scope of work. Individuals engaged in earthwork activities at the Site may be exposed through incidental ingestion, dermal contact, or inhalation of vapors or entrained soil particles if proper precautions are not taken.

5.00 MATERIALS HANDLING GUIDELINES



The material management guidelines listed below were developed for activities involving soil excavation associated with the natural gas regulator/interconnect station reconstruction work. Prior to the initiation of soil excavation, the selected contractor or any other personnel performing subsurface work at the Site shall contact DigSafe and appropriate utility companies to identify and mark the location of below grade utilities.

5.10 SOIL MANAGEMENT PROCEDURES

The reconstruction activities are scheduled to begin in mid May 2011 and are estimated to take approximately four months to complete. As described above, the work will consist of limited excavation to allow for the installation of a below ground 16-inch gas main and other shallow excavation work within the natural gas regulator station area. To the extent allowable by their geotechnical properties, the excavated soil shall be reused as backfill during the repair work.

5.10.1 Screening/Segregation Requirements

An Environmental Professional will be on-Site during the excavation work to observe and document the soil conditions, including field screening the soils via a handheld photoionization detector (PID) and hydrogen cyanide meter.

As discussed previously, the intent is to reuse, to the extent allowable, suitable excavated soil as backfill. The Contractor shall segregate excavated soils, as needed, into separate stockpiles which shall be moved to the stockpile area at the end of each day. Soils shall be stockpiled in segregated piles depending on its suitability for reuse and degree of impact according to the following guidelines:

- Soils to be used as backfill based on the National Grid's Engineer's decision to reuse the material based on geotechnical properties and GZA's assessment that the soils are not grossly impacted; and
- Soils that are deemed unsuitable for reuse as backfill by the Engineer.

5.10.2 Stockpile Management

Stockpiled soil shall be temporarily placed in working stockpiles adjacent to the excavation and staged in the lay down area approved by National Grid. All temporary stockpiles shall be relocated to the lay down stockpile area at the end of the work day. All stockpiles will be staged on two layers of 6-mil polyethylene sheeting. Stockpiles within the lay down area shall also be covered at the completion of the day with polyethylene sheeting to control the generation of wind-blown dusts and potential sediment migration. Stockpiled materials within the lay down area shall be maintained with appropriate controls to limit the loss of the cover and protect against storm water erosion. This will be achieved via the installation of hay bales, silt fencing and any other appropriate measures



during the entire duration of Site earthwork. Stockpiles shall be inspected daily by the Contractor. Should tears or punctures be observed in either the polyethylene sheeting covering or underlying the piles, repairs shall be made by the Contractor immediately. Daily shutdown procedures shall include the covering and securing of all stockpiled material within the lay down area with polyethylene sheeting.

Best soil management practices shall be employed at all times and impacted soils shall be segregated into separate piles (or cells or containers) as appropriate.

Soil, construction material and/or debris stockpile areas shall not be located on the coastal feature, within 200-feet of the inland edge of the coastal feature or in coastal waters. Stockpiles will be located in an area predesignated by National Grid.

5.10.3 Dust Control

During Site earthwork, dust suppression techniques shall be initiated and maintained during periods when windblown dusts are generated. All reasonable precautions must be taken to prevent the excessive generation of dust during soil excavation, stockpiling, loading, and other soil handling activities. At a minimum, the PM₁₀ dust concentration on Site, as measured with a real-time dust monitor¹, shall not exceed 150 ug/m over a 24-hour period. Dust monitoring shall be performed by the Contractor. Approved temporary methods of stabilization consisting of sprinkling (with approval from National Grid), mulching, or similar methods will be permitted to control dust. Perform dust control as the Work proceeds, and as dust nuisance or hazards occur in accordance with all applicable statutes, regulations, and ordinances. If excessive dust generation occurs and cannot be reasonably controlled, the job will be shut down until dust control is achieved.

5.10.4 Storm Water Controls

To limit the potential for run-off of soils from the excavation areas, the Contractor shall establish staked hay bales around the perimeter of the project area and on the down slope side of disturbed areas of the Site susceptible to erosion.

5.10.5 Security Procedures/Contingency Plan

Access to the excavation areas during construction activities that involve impacted soils will be limited to National Grid, their contractors, and their consultants or other designated representatives. Temporary fencing or equivalent barriers, which provide restrictions to the soil disturbance areas, shall be maintained to prevent unauthorized access to the Site during construction.

¹ Work zone perimeter monitoring to be conducted by GZA utilizing a DustTrak perimeter monitoring system.



If unexpected conditions are encountered during the course of the work, such as encountering unexpected tanks, drums, grossly contaminated soils and/or groundwater, coal-tar impacted soils, etc., the Contractor shall fall back and immediately halt Site work, cordon off the area, notify National Grid or contact GZA at the numbers listed below. If appropriate, GZA may contact RIDEM or otherwise determine an appropriate course of action depending on the nature of materials encountered.

The following provides a listing of points of contacts in the event of an unexpected incident involving soil and/or groundwater.

Firm	Contact	Address	Phone Number
GZA GeoEnvironmental, Inc.	Margaret Kilpatrick	530 Broadway Providence, Rhode Island 02903	401-421-4140 401-524-0576 (cell)
National Grid	Michele Leone	40 Sylvan Road Waltham, Massachusetts 02451-1120	781-907-3651 508-326-1376 (cell)
RIDEM, DEM Project Manager	Joseph Martella	235 Promenade Street Providence, Rhode Island 02903	401-222-2797 x7109

5.10.6 Waste Characterization and Off-Site Transport and Disposal

If soils are to be transported off-Site for disposal/recycling, GZA will collect samples of the excavated soils (either during excavation or from stockpiles) for laboratory testing. The testing program will be adequate to support the data requirements of the anticipated disposal facility, but should consider the following testing program.

Analyte/Parameter	Test Method
Petroleum Hydrocarbons	EPA Method 8100M
Volatile Organic Compounds	EPA Method 8260
Semi-volatile Organic Compounds	EPA Method 8270
Polychlorinated Biphenyls	EPA Method 8082A
Total RCRA Metals	EPA Method 6010 & 7471A
Flashpoint	EPA Method 1010M
Corrosivity (pH)	EPA Method 9045C
Reactivity	EPA Methods SW-846 7.3.3.2/9014 & SW-846 7.3.4.2/376.2

Arrangements for the transportation and disposal of impacted materials destined for RCRA or non-RCRA disposal facilities will be the responsibility of the National Grid. Contractor is responsible for segregating impacted material at the direction of GZA/National Grid. Segregated material shall be placed in a lined roll-off by the Contractor (roll-off to be provided by others). All material will be transported off-Site by others to a licensed receiving facility within 90 days of excavation. A representative of National Grid will sign the manifests.



5.10.7 Decontamination Protocol

At the conclusion of the construction activities or whenever heavy equipment or tools leave the Site, they shall be “decontaminated” on the asphalt pavement or on polyethylene sheeting within the boundaries of the Site. Soil shall be brushed from the equipment and re-used as backfill or placed in stockpiles to be managed on-Site. Vehicles are not to leave the Site, with visible soil residues on the exterior.

All non-disposable equipment used during the soil disturbance activities shall be properly decontaminated as appropriate prior to removal from the Site. All disposable equipment used during the soil disturbance activities shall be properly containerized and disposed of by the Contractor following completion of the work.

5.10.8 Dewatering

In the event that dewatering is required as part of the natural gas regulatory/interconnect station reconstruction earthwork, the Contractor shall implement steps to manage groundwater within the excavation area (i.e., pump groundwater as needed from work area to upgradient portions of the excavation). Groundwater shall not be discharged directly to the ground surface, collection utilities or neighboring water bodies. In the event that groundwater cannot be effectively managed within the excavation, the Contractor shall cease operations and immediately notify National Grid.

5.20 IMPORT MATERIAL

Any clean fill material brought on-Site is required to meet the Department’s Method 1 Residential Direct Exposure Criteria or be designated by an Environmental Professional as Non-Jurisdictional under the Remediation Regulations. All clean fill, including sub-grade material and loam, imported to the Site must be sampled by the Contractor prior to delivery and placement. Laboratory analytical results shall be submitted to National Grid and GZA via fax or email. Written approval (via e-mail, fax or letter) to use the fill shall be received from National Grid prior to the Contractor accepting delivery at the site. Clean fill and loam shall be sampled for arsenic at a minimum frequency of one sample per 500 cubic yards. One-quarter of the total number of compliance samples of clean fill and loam shall be sampled for total petroleum hydrocarbons (TPH), volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs) and the 13 priority pollutant metals.

5.30 MANAGEMENT OF NON-SOIL MATERIALS

Site excavation may unearth solid debris and/or refuse materials such as concrete, brick, rubble, pipe, lumber and other building materials. This material shall be segregated by the Contractor to the extent feasible and stockpiled separately. If the material is not impacted, disposal is not the subject of this plan and shall be handled by the Contractor in a manner consistent with demolition and refuse clearing projects and in accordance with RIDEM Solid Waste Regulations (or state-specific regulations).

5.40 HEALTH AND SAFETY PROCEDURES



It is the sole responsibility of the Contractor to assure safe working conditions for its employees and subcontractor personnel and to develop their own Site Specific Health and Safety Plan. The Contractor shall adhere to the requirements of its Site Specific Health and Safety Plan during all phases of work. At a minimum, the following personal protection equipment (PPE) shall be required for all on-Site workers:

- EH rated safety shoes
- Work gloves
- Safety Glasses
- Hard hat
- FR-rated Traffic Vest
- FR-rated clothing

Based on the type of chemical constituents present at the Site, the potential routes of exposure to on-site excavation or construction workers include dermal contact (absorption) or accidental ingestion of impacted soil, the possibility of contaminants through broken skin and inhalation. Utilization of the appropriate personal protective equipment (PPE) and the general safety guidelines provided below will minimize the potential for worker exposure to impacted media.

Site Operating Procedures/Safety Guidelines

Regardless of the level of Personal Protection Equipment (PPE) necessary to complete work in the project area, the following general health and safety guidelines shall be followed during the performance of any excavation activities.

1. All work conducted on-Site shall be coordinated through National Grid and shall be consistent with the requirements of this SMP (including all health and safety procedures);
2. The location of all utilities in the vicinity of the excavation will be established prior to beginning work;
3. All spectators will remain at a safe distance from the excavation and under no circumstances will approach the excavation without the consent of National Grid;
4. A pre-work meeting shall be conducted at the beginning of each day to discuss the health and safety procedures;
5. Practice contamination avoidance: never sit down or kneel in an excavation; never lay equipment on the ground; avoid obvious sources of contamination such as puddles; and avoid unnecessary contact with objects in an excavation;
6. Be alert to any unusual changes in your physical condition; never ignore warning signs. Notify GZA or National Grid in the event of suspected exposures;
7. All equipment used in an excavation shall be properly cleaned and maintained in good working order. Equipment shall be inspected for signs of defect and/or contamination before use;



8. Eating, drinking, chewing gum, and smoking shall be prohibited in active excavation areas; and
9. The discovery of any condition that would suggest the existence of a situation more hazardous than anticipated shall result in the evacuation of Site personnel from the excavation and the re-evaluation of the hazard and the level of protection.

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TABLES

**TABLE 1
SHALLOW SOIL SAMPLING DATA**

*Gas Regulator Station Upgrade Project
Former Tidewater Facility
Pawtucket, Rhode Island*

Location #	Date Sampled	Sample Depth (ft)	Sample description	Munsell Color	PID TVOC (ppmv)	Olfactory Indicators	Additional Visual Indicators	Note
GRS-1	4/7/2011	0"-3"	Light Brown, coarse to fine (+) SAND, little Gravel, trace Silt	10YR 4/3	ND	None	None	Test Pit Location
	4/7/2011	9"-12"	Light Brown, coarse to fine (+) SAND, little Gravel, trace Silt	10YR 4/3	ND	None	None	Test Pit Location
	4/7/2011	10"-48"	Green modeled Staining mixed with Light Brown, coarse to fine (+) SAND, little Gravel, trace Silt	No Match	ND	None	Green Staining	Test Pit Location
GRS-2	4/6/2011	0"-3"	Dark Brown, coarse to fine SAND, little Gravel, trace (+) Silt, trace (-) Asphalt	10YR 3/3	ND	None	None	Test Pit Location
	4/6/2011	9"-12"	Dark Brown, coarse to fine SAND, little Gravel, trace (+) Silt, trace (-) Asphalt	10YR 3/3	ND	None	None	Test Pit Location
GRS-3	4/6/2011	0"-3"	Dark Brown, coarse to fine SAND, little Gravel, trace (+) Silt, trace (-) Asphalt	10YR 3/3	1.8	None	None	Test Pit Location
	4/6/2011	9"-12"	Dark Brown, coarse to fine SAND, little Gravel, trace (+) Silt, trace (-) Asphalt	10YR 3/3	1.4	None	None	Test Pit Location
	4/6/2011	36"	Dark Brown, coarse to fine SAND, little Gravel, trace (+) Silt	10YR 3/3	ND	None	None	Test Pit Location
GRS-4	4/6/2011	48"	Dark Brown, coarse to fine SAND, little Gravel, trace (+) Silt	10YR 3/3	ND	None	None	Test Pit Location
	4/5/2011	0"-3"	Light Brown, coarse to fine SAND, trace (+) Gravel, trace Silt, trace red brick fragments	10YR 4/4	ND	None	None	Hand Dug Location
GRS-5	4/5/2011	9"-12"	Light Brown, coarse to fine SAND, trace (+) Gravel, trace Silt, trace red brick fragments	10YR 4/4	ND	None	None	Hand Dug Location
	4/5/2011	0"-3"	Light Brown, coarse to fine SAND, trace (+) Gravel, trace Silt, trace red brick fragments	10YR 4/4	ND	None	None	Hand Dug Location
GRS-6	4/5/2011	9"-12"	Light Brown, coarse to fine SAND, trace (+) Gravel, trace Silt, trace red brick fragments	10YR 4/4	ND	None	None	Hand Dug Location
	4/5/2011	12"	Light Brown, coarse to fine SAND, trace (+) Gravel, trace Silt, trace red brick fragments	10YR 4/4	ND	None	None	Hand Dug Location
	4/5/2011	12"-24"	Light Brown, coarse to fine SAND, trace (+) Gravel, trace Silt, trace red brick fragments	10YR 4/4	ND	None	None	Hand Dug Location
GRS-7	4/5/2011	0"-3"	Light Brown, coarse to fine SAND, trace (+) Gravel, trace Silt, trace red brick fragments	10YR 4/4	ND	None	None	Hand Dug Location
	4/5/2011	9"-12"	Dark Brown, coarse to fine SAND, trace (+) Gravel, trace Silt	10YR 3/3	ND	None	None	Hand Dug Location
GRS-8	4/5/2011	9"-12"	Dark Brown, coarse to fine SAND, trace (+) Gravel, trace Silt, turning at 11" to Light Gray, coarse to fine SAND, little Gravel, trace Silt	10YR 3/3 to Gley 1 6/N	ND	None	None	Hand Dug Location
	4/5/2011	0"-3"	Dark Brown, coarse to fine SAND, trace (+) Gravel, trace Silt	10YR 3/3	ND	None	None	Hand Dug Location
GRS-9	4/5/2011	9"-12"	Dark Brown, coarse to fine SAND, trace (+) Gravel, trace Silt, turning at 11" to Light Gray, coarse to fine SAND, little Gravel, trace Silt	10YR 3/3 to Gley 1 6/N	ND	Slight Septic	None	Hand Dug Location
	4/5/2011	12"-24"	Light Gray, coarse to fine SAND, little Gravel, trace Silt	Gley 1 6/N	ND	Slight Septic	None	Hand Dug Location
	4/5/2011	0"-3"	Dark Brown, coarse to fine (+) SAND, little (+) Silt, turning at 1.5" to Light Brown, coarse to fine (+) SAND, little Silt, trace Gravel, trace roots	10 YR 3/3 to 10 YR 4/3	ND	None	None	Hand Dug Location
GRS-10	4/5/2011	9"-12"	Light Brown, coarse to fine (+) SAND, little Silt, trace Gravel	10 YR 4/3	ND	None	None	Hand Dug Location
	4/5/2011	12"-24"	Light Brown, coarse to fine (+) SAND, little Silt, trace Gravel	10 YR 4/3	ND	None	None	Hand Dug Location
	4/5/2011	0"-3"	Dark Brown, coarse to fine (+) SAND, little (+) Silt, turning at 1.5" to Light Brown, coarse to fine (+) SAND, little Silt, trace Gravel, trace roots	10 YR 3/3 to 10 YR 4/3	ND	None	None	Hand Dug Location
GRS-11	4/5/2011	9"-12"	Light Brown, coarse to fine (+) SAND, little Silt, trace Gravel	10 YR 4/3	ND	None	None	Hand Dug Location
	4/5/2011	0"-3"	Brown, coarse to fine (+) SAND, little Silt, trace Gravel	10YR 4/4	ND	None	None	Hand Dug Location
GRS-12	4/5/2011	9"-12"	Light Brown, coarse to fine (+) SAND, little Silt, trace Gravel	10 YR 4/3	ND	None	None	Hand Dug Location
	4/5/2011	0"-3"	Dark Brown to light Brown at 1.5", coarse to fine (+) SAND, little Silt, trace Gravel	10 YR 3/3 to 10 YR 4/3	ND	None	None	Hand Dug Location
GRS-13	4/5/2011	9"-12"	Light Brown, coarse to fine (+) SAND, little Silt, trace Gravel	10 YR 4/3	ND	None	None	Hand Dug Location
	4/5/2011	0"-3"	Dark Brown to light Brown at 1.5", coarse to fine (+) SAND, little Silt, trace Gravel	10 YR 3/3 to 10 YR 4/3	ND	None	None	Hand Dug Location
	4/5/2011	9"-12"	Light Brown, coarse to fine (+) SAND, little Silt, trace Gravel	10 YR 4/3	ND	None	None	Hand Dug Location
GRS-14	4/5/2011	12"	Light Brown, coarse to fine (+) SAND, little Silt, trace Gravel	10 YR 4/3	ND	None	None	Hand Dug Location
	4/5/2011	0"-3"	Dark Brown, coarse to fine (+) SAND, little Silt, trace (-) Gravel	10 YR 3/3	ND	None	None	Hand Dug Location
GRS-15	4/5/2011	9"-12"	Brown, coarse to fine (+) SAND, little Silt, trace (-) Gravel	10 YR 4/3	ND	None	None	Hand Dug Location
	4/5/2011	0"-3"	Light Brown, coarse to fine SAND, little Gravel, trace Silt	10 YR 4/3	ND	None	None	Hand Dug Location
GRS-16	4/5/2011	9"-12"	Light brown, coarse to fine (+) SAND, little silt, trace Gravel	10 YR 4/3	ND	None	None	Hand Dug Location
	4/5/2011	18"	Light brown, coarse to fine (+) SAND, little silt, trace Gravel	10 YR 4/3	ND	None	None	Hand Dug Location
	4/5/2011	0"-3"	Light Brown, coarse to fine SAND, little Gravel, trace Silt, trace roots	10 YR 4/3	ND	None	None	Hand Dug Location
GRS-17	4/5/2011	9"-12"	Light Brown, coarse to fine SAND, little Gravel, trace Silt	10 YR 4/3	ND	None	None	Hand Dug Location
	4/5/2011	0"-3"	Light Brown, coarse to fine SAND, little Gravel, trace Silt, trace roots	10 YR 4/3	ND	None	None	Hand Dug Location
GRS-18	4/5/2011	9"-12"	Light Brown, coarse to fine SAND, little Gravel, trace Silt	10 YR 4/3	ND	None	None	Hand Dug Location
	4/5/2011	0"-3"	Light Brown, coarse to fine SAND, little Gravel, trace Silt, trace roots	10 YR 4/3	ND	None	None	Hand Dug Location
GRS-19	4/5/2011	9"-12"	Light Brown, coarse to fine SAND, little Gravel, trace Silt	10 YR 4/3	ND	None	None	Hand Dug Location
	4/5/2011	12"	Light Brown, coarse to fine SAND, little Gravel, trace Silt	10 YR 4/3	ND	None	None	Hand Dug Location
	4/5/2011	0"-3"	Light Brown, coarse to fine SAND, little Gravel, trace Silt, trace roots	10 YR 4/3	ND	None	None	Hand Dug Location
GRS-20	4/5/2011	9"-12"	Light Brown, coarse to fine SAND, little Gravel, trace Silt	10 YR 4/3	ND	None	None	Hand Dug Location
	4/5/2011	0"-3"	Light Brown, coarse to fine SAND, little Gravel, trace Silt, trace roots	10 YR 4/3	ND	None	None	Hand Dug Location
GRS-21	4/6/2011	9"-12"	Light Brown, coarse to fine SAND, little (-) Gravel, trace Silt, trace asphalt	10 YR 4/3	ND	None	None	Hand Dug Location
	4/6/2011	0"-3"	Light Brown, coarse to fine SAND, little (-) Gravel, trace Silt	10 YR 4/3	ND	None	None	Hand Dug Location
GRS-22	4/6/2011	9"-12"	Light Brown, coarse to fine SAND, little Gravel, trace Silt	10 YR 4/3	ND	None	None	Hand Dug Location
	4/6/2011	0"-3"	Light Brown, coarse to fine SAND, little Gravel, trace Silt	10 YR 4/3	ND	None	None	Hand Dug Location
GRS-23	4/6/2011	9"-12"	Light Brown, coarse to fine (+) SAND, little (-) Silt, trace Gravel	10 YR 4/3	ND	None	None	Hand Dug Location
	4/6/2011	0"-3"	Light Brown, coarse to fine (+) SAND, little (-) Silt, trace Gravel	10 YR 4/3	ND	None	None	Hand Dug Location
GRS-24	4/6/2011	9"-12"	Light Brown, coarse to fine (+) SAND, trace Gravel, trace Silt, trace roots	10 YR 4/3	ND	None	None	Hand Dug Location
	4/6/2011	0"-3"	Light Brown, coarse to fine (+) SAND, little Gravel, trace Silt	10 YR 4/3	ND	None	None	Hand Dug Location
GRS-25	4/6/2011	9"-12"	Brown, coarse to fine (+) SAND, trace Gravel, trace Silt, trace roots	10 YR 4/4	ND	None	None	Hand Dug Location
	4/6/2011	0"-3"	Light Brown, coarse to fine (+) SAND, little Gravel, trace Silt	10 YR 4/3	ND	None	None	Hand Dug Location
GRS-26	4/6/2011	9"-12"	Light Brown, coarse to fine (+) SAND, trace (+) Gravel, trace Silt, trace roots	10 YR 4/3	ND	None	None	Hand Dug Location
	4/6/2011	0"-3"	Light Brown, coarse to fine (+) SAND, little Gravel, trace Silt	10 YR 4/3	ND	None	None	Hand Dug Location

**TABLE 1
SHALLOW SOIL SAMPLING DATA**

*Gas Regulator Station Upgrade Project
Former Tidewater Facility
Pawtucket, Rhode Island*

Location #	Date Sampled	Sample Depth (ft)	Sample description	Munsell Color	PID TVOC (ppmv)	Olfactory Indicators	Additional Visual Indicators	Note
GRSP-1	4/6/2011	0"-3"	Oil stained Leaf Litter at Ground Surface, Dark Brown (Oil Stained) , coarse to fine (+) SAND, little Silt, trace (-) Gravel	10 YR 2/1	ND	None	Oil stained	Hand Dug Location
	4/6/2011	9"-12"	Brown, coarse to fine (+) SAND, little (-) Silt, trace Gravel	10 YR 3/3	ND	None	None	Hand Dug Location
	4/6/2011	24"	Brown, coarse to fine (+) SAND, little (-) Silt, trace Gravel	10 YR 3/3	ND	None	None	Hand Dug Location
	4/21/2011	33"-36"	Brown, coarse to fine SAND, trace Gravel, trace Silt	10 YR 4/3	ND	None	None	Hand Dug Location
	4/21/2011	45"-48"	Brown, coarse to fine SAND, trace Gravel, trace Silt	10 YR 4/3	ND	None	None	Hand Dug Location
GRSP-2	4/6/2011	0"-3"	Light Brown, coarse to fine (+) SAND, little (-) Silt, trace Gravel	10 YR 4/3	ND	None	None	Hand Dug Location
	4/6/2011	9"-12"	Light Brown, coarse to fine (+) SAND, little (-) Silt, trace Gravel	10 YR 4/3	ND	None	None	Hand Dug Location
	4/6/2011	24"	Light Brown, coarse to fine (+) SAND, little (-) Silt, trace Gravel	10 YR 4/3	ND	None	None	Hand Dug Location
GRSP-3	4/6/2011	0"-3"	Light Brown, coarse to fine (+) SAND, little Gravel, trace Silt, trace Asphalt	10 YR 4/3	ND	None	None	Hand Dug Location
	4/6/2011	9"-12"	Light Brown, coarse to fine (+) SAND, little Gravel, trace Silt, trace Asphalt	10 YR 4/3	ND	None	None	Hand Dug Location
	4/6/2011	24"	Light Brown, coarse to fine (+) SAND, little Gravel, trace Silt	10 YR 4/3	ND	None	None	Hand Dug Location
GRSP-4	4/6/2011	0"-3"	Light Brown, coarse to fine (+) SAND, trace Silt, trace Gravel	10 YR 4/3	ND	None	None	Hand Dug Location
	4/6/2011	9"-12"	Light Brown, coarse to fine (+) SAND, trace Silt, trace Gravel	10 YR 4/3	ND	None	None	Hand Dug Location
	4/6/2011	24"	Light Brown, coarse to fine (+) SAND, trace Silt, trace Gravel	10 YR 4/3	ND	None	None	Hand Dug Location
GRSP-5	4/6/2011	0"-3"	Dark Brown to light Brown at 1.5", coarse to fine (+) SAND, little Gravel, trace Silt	10 YR 3/3 to 10 YR 4/3	ND	None	None	Hand Dug Location
	4/6/2011	9"-12"	Light Brown, coarse to fine (+) SAND, little Gravel, trace Silt	10 YR 4/3	ND	None	None	Hand Dug Location
	4/6/2011	24"	Light Brown, coarse to fine (+) SAND, little Gravel, trace Silt	10 YR 4/3	ND	None	None	Hand Dug Location
GRSP-6	4/6/2011	0"-3"	Light Brown, fine SAND, trace (+) Silt, trace (-) Gravel	10 YR 4/3	ND	None	None	Hand Dug Location
	4/6/2011	9"-12"	Light Brown, fine SAND, trace (+) Silt, trace (-) Gravel	10 YR 4/3	ND	None	None	Hand Dug Location
	4/6/2011	24"	Light Brown, fine SAND, trace (+) Silt, trace (-) Gravel	10 YR 4/3	ND	None	None	Hand Dug Location
GRSP-7	4/6/2011	0"-3"	Light Brown, fine SAND, trace (+) Silt, trace (-) Gravel	10 YR 4/3	ND	None	None	Hand Dug Location
	4/6/2011	9"-12"	Light Brown, fine SAND, trace (+) Silt, trace (-) Gravel	10 YR 4/3	ND	None	None	Hand Dug Location
	4/6/2011	24"	Light Brown, fine SAND, trace (+) Silt, trace (-) Gravel	10 YR 4/3	ND	None	None	Hand Dug Location
GRSP-8	4/6/2011	0"-3"	Brown, coarse to fine (+) SAND, trace Gravel, trace Silt	10 YR 4/3	ND	None	None	Hand Dug Location
	4/6/2011	9"-12"	Brown, coarse to fine (+) SAND, trace Gravel, trace Silt	10 YR 4/3	ND	None	None	Hand Dug Location
	4/6/2011	24"	Brown, coarse to fine (+) SAND, trace Gravel, trace Silt	10 YR 4/3	ND	None	None	Hand Dug Location
GRSP-9	4/6/2011	0"-3"	Light Brown, coarse to fine SAND, little (-) Gravel, trace Silt	10 YR 4/3	ND	None	None	Hand Dug Location
	4/6/2011	9"-12"	Light Brown, coarse to fine SAND, little (-) Gravel, trace Silt, trace (-) Asphalt	10 YR 4/3	ND	None	None	Hand Dug Location
	4/6/2011	24"	Light Brown, coarse to fine SAND, little (-) Gravel, trace Silt	10 YR 4/3	ND	None	None	Hand Dug Location
GRSP-10	4/6/2011	0"-3"	Light Brown, coarse to fine SAND, little Gravel, trace Silt, trace (-) Asphalt	10 YR 4/3	ND	None	None	Hand Dug Location
	4/6/2011	9"-12"	Light Brown, coarse to fine SAND, little Gravel, trace Silt, trace (-) Asphalt	10 YR 4/3	ND	None	None	Hand Dug Location
	4/6/2011	24"	Light Brown, coarse to fine SAND, little Gravel, trace Silt, trace (-) Asphalt	10 YR 4/3	ND	None	None	Hand Dug Location
GRSP-11	4/21/2011	9"-12"	Brown, coarse to fine (+) SAND, trace Gravel, trace Silt	10 YR 4/3	ND	None	None	Hand Dug Location
	4/21/2011	21"-24"	Brown, coarse to fine (+) SAND, trace Gravel, trace Silt	10 YR 4/3	ND	None	None	Hand Dug Location
	4/21/2011	33"-36"	Brown, coarse to fine (+) SAND, trace Gravel, trace Silt	10 YR 4/3	ND	None	None	Hand Dug Location
GRSP-12	4/21/2011	9"-12"	Brown, coarse to fine (+) SAND, trace Gravel, trace Silt	10 YR 4/3	ND	None	None	Hand Dug Location
	4/21/2011	21"-24"	Brown, coarse to fine (+) SAND, trace Gravel, trace Silt	10 YR 4/3	ND	None	None	Hand Dug Location
	4/21/2011	33"-36"	Brown, coarse to fine (+) SAND, trace Gravel, trace Silt	10 YR 4/3	ND	None	None	Hand Dug Location
GRSP-13	4/21/2011	9"-12"	Brown, coarse to fine (+) SAND, trace Gravel, trace Silt	10 YR 4/3	ND	None	None	Hand Dug Location
	4/21/2011	21"-24"	Brown, coarse to fine (+) SAND, trace Gravel, trace Silt	10 YR 4/3	ND	None	None	Hand Dug Location
	4/21/2011	33"-36"	Brown, coarse to fine (+) SAND, trace Gravel, trace Silt	10 YR 4/3	ND	None	None	Hand Dug Location

Note:
Olfactory indicators to note petroleum or chemical odors
Additional visual indicators to note visual observations such as staining or solid waste content not noted under sample descriptions

TABLE 2
SUMMARY OF PRECONSTRUCTION SOIL ANALYTICAL
Natural Gas Regulator Station
Former Tidewater Facility
Pawtucket, Rhode Island

	Units	RIDEM GB Leachability Criteria	RIDEM Industrial/Commercial DEC	RIDEM UCL	GRS-1 0-3 in		GRS-1 10-36 in		GRS-1 3 ft		GRS-2 0-3 in		GRS-3 0-3 in		GRS-3 36 in		GRS-4 0-3 in		GRS-5 0-3 in		GRS-5 1 ft		GRS-6 0-3 in		GRS-7 0-3 in		GRS-8 0-3 in		GRS-8 9-12 in			
					Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL
Mod. EPA 8100	TOTAL PETROLEUM HYDROCARBON					NA	NA	<	38.5	154	NR	NA	NA	NA	NA	1520	NR	NA	NA	NA	NA	<	40.1	NA	NA	NA	NA	NA	NA	NA	NA	
	Hydrocarbon Content	mg/kg	2,500	2,500	30,000																											
EPA 6010B	METALS					NA	NA	<	2.5	21.4	NR	NA	NA	NA	NA	5	NR	NA	NA	NA	NA	3.3	NR	NA	NA	NA	NA	NA	NA	NA	NA	
	Arsenic	mg/kg	NE	7	10,000																											
	Cadmium	mg/kg	NE	1,000	10,000	0.54	NR	NA	NA	NA	<	4.6	<	0.46	NA	NA	<	0.37	<	0.51	NA	NA	<	0.5	<	0.45	<	0.59	<	0.45		
	Chromium	mg/kg	NE	10,000	10,000	6.5	NR	NA	NA	NA	7.3	NR	6.5	NR	NA	NA	10.6	NR	8.6	NR	NA	NA	6.2	NR	5.2	NR	8.5	NR	5.9	NR		
	Lead	mg/kg	NE	500	10,000	48.6	NR	<	4.9	39.5	NR	54.1	NR	47.4	NR	73.3	NR	50.5	NR	48.2	NR	21.6	NR	42	NR	20.9	NR	49	NR	13.9	NR	
EPA 8270	PAHS BY GCMS					NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
	2-Methylnaphthalene	µg/kg	NE	10,000,000	10,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
	Acenaphthene	µg/kg	NE	10,000,000	10,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
	Acenaphthylene	µg/kg	NE	10,000,000	10,000,000	NA	NA	<	33.2	<	0.354	NA	NA	NA	NA	<	4380	NA	NA	NA	NA	NA	<	358	NA	NA	NA	NA	NA	NA	NA	NA
	Anthracene	µg/kg	NE	10,000,000	10,000,000	NA	NA	<	33.2	<	0.354	NA	NA	NA	NA	<	4380	NA	NA	NA	NA	NA	<	358	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo [a] Anthracene	µg/kg	NE	7,800	10,000,000	NA	NA	<	33.2	2030	NR	NA	NA	NA	NA	12000	NR	NA	NA	NA	NA	<	358	NA	NA	NA	NA	NA	NA	NA	NA	
	Benzo [a] Pyrene	µg/kg	NE	800	10,000,000	NA	NA	<	167	1490	NR	NA	NA	NA	NA	10800	NR	NA	NA	NA	NA	<	180	NA	NA	NA	NA	NA	NA	NA	NA	
	Benzo [b] Fluoranthene	µg/kg	NE	7,800	10,000,000	NA	NA	<	33.2	2350	NR	NA	NA	NA	NA	14100	NR	NA	NA	NA	NA	<	358	NA	NA	NA	NA	NA	NA	NA	NA	
	Benzo [g,h,i] Perylene	µg/kg	NE	10,000,000	10,000,000	NA	NA	<	33.2	474	NR	NA	NA	NA	NA	7240	NR	NA	NA	NA	NA	<	358	NA	NA	NA	NA	NA	NA	NA	NA	
	Benzo [k] Fluoranthene	µg/kg	NE	78,000	10,000,000	NA	NA	<	33.2	704	NR	NA	NA	NA	NA	<	4380	NA	NA	NA	NA	<	358	NA	NA	NA	NA	NA	NA	NA	NA	
	Chrysene	µg/kg	NE	780,000	10,000,000	NA	NA	<	167	2300	NR	NA	NA	NA	NA	10300	NR	NA	NA	NA	NA	<	180	NA	NA	NA	NA	NA	NA	NA	NA	
	Dibenzo [a,h] Anthracene	µg/kg	NE	800	10,000,000	NA	NA	<	167	180	NR	NA	NA	NA	NA	<	2200	NA	NA	NA	NA	<	180	NA	NA	NA	NA	NA	NA	NA	NA	
	Fluoranthene	µg/kg	NE	10,000,000	10,000,000	NA	NA	<	33.2	3200	NR	NA	NA	NA	NA	17500	NR	NA	NA	NA	NA	<	358	NA	NA	NA	NA	NA	NA	NA	NA	
	Fluorene	µg/kg	NE	10,000,000	10,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
	Indeno [1,2,3-cd] Pyrene	µg/kg	NE	7,800	10,000,000	NA	NA	<	33.2	539	NR	NA	NA	NA	NA	7310	NR	NA	NA	NA	NA	<	358	NA	NA	NA	NA	NA	NA	NA	NA	
	Naphthalene	µg/kg	NE	10,000,000	10,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
	Phenanthrene	µg/kg	NE	10,000,000	10,000,000	NA	NA	<	33.2	2350	NR	NA	NA	NA	NA	9110	NR	NA	NA	NA	NA	<	358	NA	NA	NA	NA	NA	NA	NA	NA	
	Pyrene	µg/kg	NE	10,000,000	10,000,000	NA	NA	<	33.2	3840	NR	NA	NA	NA	NA	27700	NR	NA	NA	NA	NA	<	358	NA	NA	NA	NA	NA	NA	NA	NA	
SW-846 9010A	SUBCONTRACTED ANALYTES					NA	NA	<	1	1.4	NR	NA	NA	NA	NA	<	1.26	NA	NA	NA	NA	<	1.06	NA	NA	NA	NA	NA	NA	NA	NA	
	Total Cyanide	mg/kg	NE	10,000	10,000																											
1311/6000/7000	TCLP Lead	mg/L	NE	NE	NE	NA	NA	NA	NA	NA	<	0.2	0.221	0.2	<	0.2	<	0.2	<	0.2	NA	NA	<	0.2	<	0.2	<	0.2	<	0.2	<	0.2
EPA 8260	VOLATILE ORGANICS					NA	NA	NA	NA	<	32.9	NA	NA	NA	NA	99.5	NR	NA	NA	NA	NA	<	40.6	NA	NA	NA	NA	NA	NA	NA	NA	
	1,2,4-Trimethylbenzene	µg/kg	NE	NE	10,000,000	NA	NA	NA	NA	<	32.9	NA	NA	NA	NA	64.1	NR	NA	NA	NA	NA	<	40.6	NA	NA	NA	NA	NA	NA	NA	NA	
	1,3,5-Trimethylbenzene	µg/kg	NE	NE	10,000,000	NA	NA	NA	NA	20.4	J	NR	NA	NA	NA	103	NR	NA	NA	NA	NA	<	40.6	NA	NA	NA	NA	NA	NA	NA	NA	
	Benzene	µg/kg	4,300	200,000	10,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<	40.6	NA	NA	NA	NA	NA	NA	NA	NA	
	Ethylbenzene	µg/kg	62,000	10,000,000	10,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
	m&p-Xylene	µg/kg	NE	10,000,000	10,000,000	NA	NA	NA	NA	<	32.9	NA	NA	NA	NA	149	NR	NA	NA	NA	NA	<	81.2	NA	NA	NA	NA	NA	NA	NA	NA	
	Naphthalene	µg/kg	NE	10,000,000	10,000,000	NA	NA	NA	NA	<	32.9	NA	NA	NA	NA	1130	NR	NA	NA	NA	NA	<	40.6	NA	NA	NA	NA	NA	NA	NA	NA	
	n-Butylbenzene	µg/kg	NE	NE	10,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
	o-Xylene	µg/kg	NE	10,000,000	10,000,000	NA	NA	NA	NA	<	32.9	NA	NA	NA	NA	72.9	NR	NA	NA	NA	NA	<	40.6	NA	NA	NA	NA	NA	NA	NA	NA	
	sec-Butylbenzene	µg/kg	NE	NE	10,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
	Toluene	µg/kg	54,000	10,000,000	10,000,000	NA	NA	NA	NA	21	J	NR	NA	NA	NA	NA	<	55.3	NA	NA	NA	<	40.6	NA	NA	NA	NA	NA	NA	NA	NA	
Classic Chem.	Total Organic Carbon	mg/kg	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	18500	NR	NA	NA	NA	NA	NA	2350	NR	NA	NA	NA	NA	NA	NA	NA	NA	
EPA 8082	POLYCHLORINATED BIPHENYLS					<	0.0552	NA	NA	NA	NA	<	0.0541	0.0713	NR	<	0.0651	<	0.0544	<	0.054	<	0.0538	<	0.0538	<	0.0556	<	0.0639	<	0.0552	
	Aroclor 1248	mg/kg	10	10	10,000																											
	Aroclor 1260	mg/kg	10	10	10,000																											

Notes
NE = Not Established
NA = Not Analyzed
NR = Not Reported
ALL samples on this table are from the FGPA
Gray shaded cells indicates the concentration exceeds the RIDEM Method 1 Industrial/Commercial Direct Exposure Criteria (I/C-DEC).
Detection limits highlighted in *blue and in italics* exceed the RIDEM Method 1 Criteria.
Concentrations **bolded and underlined** exceed the RIDEM Method 1 GB Leachability Criteria.
A concentration with a bold border exceeds the Upper Concentration Limit.
Any analytes reported from a diluted run of the original analysis have a "D" qualifier.
Any analytes reported as estimated have a "J" qualifier.

TABLE 2
SUMMARY OF PRECONSTRUCTION SOIL ANALYTICAL
Natural Gas Regulator Station
Former Tidewater Facility
Pawtucket, Rhode Island

	Units	RIDEM GB Leachability Criteria	RIDEM Industrial/Commercial DEC	RIDEM UCL	GRS-8 2 ft		GRS-9 0-3 in		GRS-9 2 ft		GRS-10 0-3in		GRS-11 0-3 in		GRS-12 0-3 in		GRS-13 0-3 in		GRS-13 1 ft		GRS-14 0-3 in		GRS-14 9-12 in		GRS-15 0-3 in		GRS-15 1.5 ft		GRS-16 0-3 in			
					Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL
Mod. EPA 8100	TOTAL PETROLEUM HYDROCARBON					117	NR	NA	NA	121	NR	NA	NA	NA	NA	NA	NA	NA	NA	2160	NR	1720	NR	1540	NR	NA	NA	320	NR	NA	NA	
	Hydrocarbon Content	mg/kg	2,500	2,500	30,000																											
EPA 6010B	METALS					<	2.3	NA	NA	<	2.2	NA	NA	NA	NA	NA	NA	NA	NA	2.7	NR	NA	NA	NA	NA	NA	NA	3	NR	NA	NA	
	Arsenic	mg/kg	NE	7	10,000																											
	Cadmium	mg/kg	NE	1,000	10,000	NA	NA	<	0.44	NA	NA	<	0.63	<	0.47	<	0.51	<	0.53	NA	NA	<	0.48	NA	NA	<	0.47	NA	NA	<	0.42	
	Chromium	mg/kg	NE	10,000	10,000	NA	NA	4.3	NR	NA	NA	4	NR	5.1	NR	8.6	NR	16.7	NR	NA	NA	10.7	NR	NA	NA	5.4	NR	NA	NA	6.2	NR	
	Lead	mg/kg	NE	500	10,000	19.5	NR	12	NR	11.9	NR	13	NR	17.2	NR	27.5	NR	66.2	NR	17	NR	56.2	NR	NA	NA	18	NR	29.3	NR	19.7	NR	
EPA 8270	PAHS BY GCMS					NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
	2-Methylnaphthalene	µg/kg	NE	10,000,000	10,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
	Acenaphthene	µg/kg	NE	10,000,000	10,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
	Acenaphthylene	µg/kg	NE	10,000,000	10,000,000	372	NR	NA	NA	<	356	NA	NA	NA	NA	NA	NA	NA	NA	<	368	NA	NA	NA	NA	NA	NA	<	358	NA	NA	
	Anthracene	µg/kg	NE	10,000,000	10,000,000	522	NR	NA	NA	<	356	NA	NA	NA	NA	NA	NA	NA	NA	<	368	NA	NA	NA	NA	NA	NA	<	358	NA	NA	
	Benzo [a] Anthracene	µg/kg	NE	7,800	10,000,000	2810	NR	NA	NA	4140	NR	NA	NA	NA	NA	NA	NA	NA	437	NR	NA	NA	NA	NA	NA	NA	<	358	NA	NA	NA	
	Benzo [a] Pyrene	µg/kg	NE	800	10,000,000	2550	NR	NA	NA	3630	NR	NA	NA	NA	NA	NA	NA	NA	497	NR	NA	NA	NA	NA	NA	NA	370	NR	NA	NA	NA	
	Benzo [b] Fluoranthene	µg/kg	NE	7,800	10,000,000	3520	NR	NA	NA	4440	NR	NA	NA	NA	NA	NA	NA	NA	1060	NR	NA	NA	NA	NA	NA	NA	626	NR	NA	NA	NA	
	Benzo [g,h,i] Perylene	µg/kg	NE	10,000,000	10,000,000	866	NR	NA	NA	1600	NR	NA	NA	NA	NA	NA	NA	NA	<	368	NA	NA	NA	NA	NA	NA	<	358	NA	NA	NA	
	Benzo [k] Fluoranthene	µg/kg	NE	78,000	10,000,000	1530	NR	NA	NA	1790	NR	NA	NA	NA	NA	NA	NA	NA	<	368	NA	NA	NA	NA	NA	NA	<	358	NA	NA	NA	
	Chrysene	µg/kg	NE	780,000	10,000,000	3180	NR	NA	NA	3360	NR	NA	NA	NA	NA	NA	NA	NA	496	NR	NA	NA	NA	NA	NA	NA	314	NR	NA	NA	NA	
	Dibenzo [a,h] Anthracene	µg/kg	NE	800	10,000,000	457	NR	NA	NA	707	NR	NA	NA	NA	NA	NA	NA	NA	<	185	NA	NA	NA	NA	NA	NA	<	180	NA	NA	NA	
	Fluoranthene	µg/kg	NE	10,000,000	10,000,000	6530	NR	NA	NA	7870	NR	NA	NA	NA	NA	NA	NA	NA	961	NR	NA	NA	NA	NA	NA	NA	410	NR	NA	NA	NA	
	Fluorene	µg/kg	NE	10,000,000	10,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
	Indeno [1,2,3-cd] Pyrene	µg/kg	NE	7,800	10,000,000	903	NR	NA	NA	1510	NR	NA	NA	NA	NA	NA	NA	NA	369	NR	NA	NA	NA	NA	NA	NA	<	358	NA	NA	NA	
	Naphthalene	µg/kg	NE	10,000,000	10,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
	Phenanthrene	µg/kg	NE	10,000,000	10,000,000	3290	NR	NA	NA	723	NR	NA	NA	NA	NA	NA	NA	NA	NA	<	368	NA	NA	NA	NA	NA	NA	<	358	NA	NA	NA
	Pyrene	µg/kg	NE	10,000,000	10,000,000	5840	NR	NA	NA	6350	NR	NA	NA	NA	NA	NA	NA	NA	895	NR	NA	NA	NA	NA	NA	NA	513	NR	NA	NA	NA	
SW-846 9010A	SUBCONTRACTED ANALYTES					<	1.08	NA	NA	<	1.08	NA	NA	NA	NA	NA	NA	NA	<	1.07	NA	NA	NA	NA	NA	NA	<	1.07	NA	NA	NA	
	Total Cyanide	mg/kg	NE	10,000	10,000																											
1311/6000/7000	TCLP Lead					NA	NA	<	0.2	NA	NA	<	0.2	<	0.2	<	0.2	<	0.2	NA	NA	<	0.2	NA	NA	<	0.2	NA	NA	<	0.2	
EPA 8260	VOLATILE ORGANICS					<	42.8	NA	NA	<	36.2	NA	NA	NA	NA	NA	NA	NA	<	35.6	NA	NA	NA	NA	NA	NA	<	32.4	NA	NA	NA	
	1,2,4-Trimethylbenzene	µg/kg	NE	NE	10,000,000																											
	1,3,5-Trimethylbenzene	µg/kg	NE	NE	10,000,000	<	42.8	NA	NA	<	36.2	NA	NA	NA	NA	NA	NA	NA	<	35.6	NA	NA	NA	NA	NA	NA	<	32.4	NA	NA	NA	
	Benzene	µg/kg	4,300	200,000	10,000,000	<	42.8	NA	NA	<	36.2	NA	NA	NA	NA	NA	NA	NA	<	35.6	NA	NA	NA	NA	NA	NA	<	32.4	NA	NA	NA	
	Ethylbenzene	µg/kg	62,000	10,000,000	10,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
	m&p-Xylene	µg/kg	NE	10,000,000	10,000,000	<	85.6	NA	NA	<	72.3	NA	NA	NA	NA	NA	NA	NA	<	71.2	NA	NA	NA	NA	NA	NA	<	64.7	NA	NA	NA	
	Naphthalene	µg/kg	NE	10,000,000	10,000,000	<	42.8	NA	NA	<	36.2	NA	NA	NA	NA	NA	NA	NA	<	35.6	NA	NA	NA	NA	NA	NA	<	32.4	NA	NA	NA	
	n-Butylbenzene	µg/kg	NE	NE	10,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
	o-Xylene	µg/kg	NE	10,000,000	10,000,000	<	42.8	NA	NA	<	36.2	NA	NA	NA	NA	NA	NA	NA	<	35.6	NA	NA	NA	NA	NA	NA	<	32.4	NA	NA	NA	
	sec-Butylbenzene	µg/kg	NE	NE	10,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
	Toluene	µg/kg	54,000	10,000,000	10,000,000	<	42.8	NA	NA	<	36.2	NA	NA	NA	NA	NA	NA	NA	<	35.6	NA	NA	NA	NA	NA	NA	<	32.4	NA	NA	NA	
Classic Chem.	Total Organic Carbon					4940	NR	NA	NA	2530	NR	NA	NA	NA	NA	NA	NA	NA	12700	NR	NA	NA	NA	NA	NA	NA	3210	NR	NA	NA	NA	
EPA 8082	POLYCHLORINATED BIPHENYLS					<	0.0543	<	0.0556	<	0.0535	<	0.0685	0.619	NR	0.451	NR	0.293	NR	0.0729	NR	18.4	NR	3.78	NR	<	0.0526	<	0.0535	<	0.0521	
	Aroclor 1248	mg/kg	10	10	10,000																											
	Aroclor 1260	mg/kg	10	10	10,000	<	0.0543	<	0.0556	<	0.0535	<	0.0685	<	0.0541	<	0.0553	<	0.0575	<	0.0552	<	3.05	<	0.0549	<	0.0526	<	0.0535	<	0.0521	

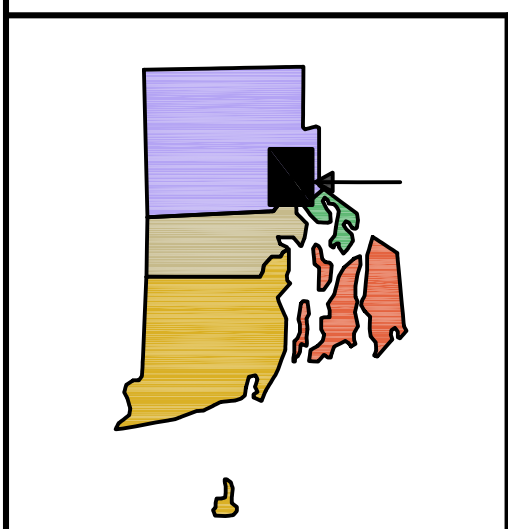
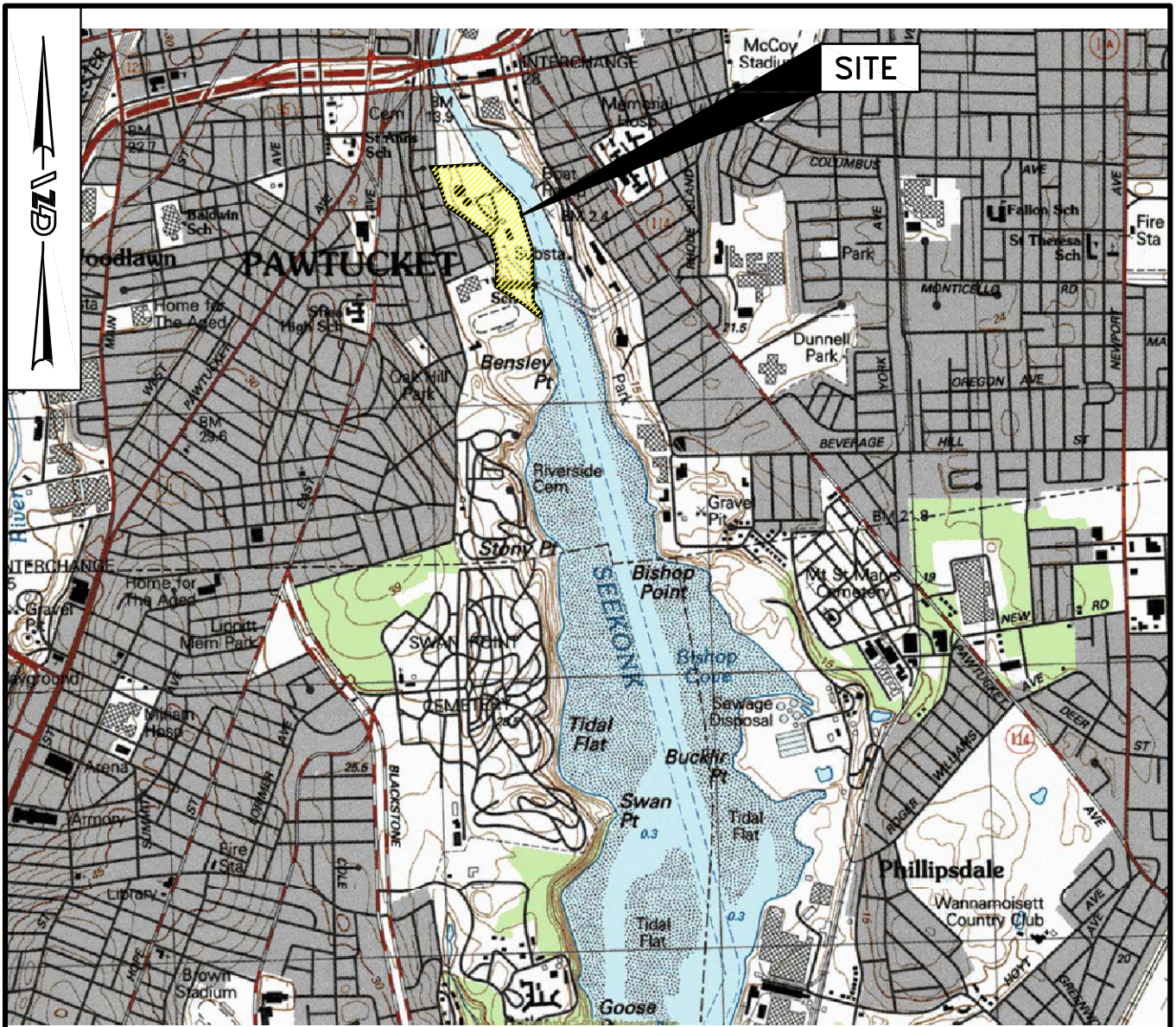
Notes
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Gray shaded cells indicates the concentration exceeds the RIDEM Method 1 Industrial/Commercial Direct Exposure Criteria (I/C-DEC).
Detection limits highlighted in *blue and in italics* exceed the RIDEM Method 1 Criteria.
Concentrations **bolded and underlined** exceed the RIDEM Method 1 GB Leachability Criteria.
A concentration with a bold border exceeds the Upper Concentration Limit.
Any analytes reported from a diluted run of the original analysis have a "D" qualifier.
Any analytes reported as estimated have a "J" qualifier.

TABLE 2
SUMMARY OF PRECONSTRUCTION SOIL ANALYTICAL
Natural Gas Regulator Station
Former Tidewater Facility
Pawtucket, Rhode Island

	Units	RIDEM GB Leachability Criteria	RIDEM Industrial/Commercial DEC	RIDEM UCL	GRS-17 0-3 in		GRS-18 0-3 in		GRS-18 1 ft		GRS-19 0-3 in		GRS-20 0-3 in		GRS-21 0-3 in		GRS-22 0-3 in		GRS-23 0-3 in		GRS-24 0-3 in		GRS-25 0-3 in		GRS-25 1.5 ft		GRS-26 0-3 in		GRSP-1 0-3 in					
					Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL
Mod. EPA 8100	TOTAL PETROLEUM HYDROCARBON																																	
	Hydrocarbon Content	mg/kg	2,500	2,500	30,000	NA	NA	NA	NA	<	39.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<	39.9	NA	NA	123000	NR	
EPA 6010B	METALS																																	
	Arsenic	mg/kg	NE	7	10,000	NA	NA	NA	NA	4.8	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
	Cadmium	mg/kg	NE	1,000	10,000	<	0.41	<	0.46	NA	NA	<	0.48	<	0.52	<	0.53	<	0.4	<	0.47	<	0.52	<	0.52	NA	NA	<	0.48	NA	NA	NA		
	Chromium	mg/kg	NE	10,000	10,000	4.3	NR	9.5	NR	NA	NA	19.9	NR	7.7	NR	6	NR	4.8	NR	12.4	NR	4.5	NR	6.8	NR	NA	NA	4.8	NR	NA	NA	NA		
	Lead	mg/kg	NE	500	10,000	5.7	NR	18.2	NR	5.5	NR	114	NR	36.1	NR	54	NR	30.5	NR	74.6	NR	29	NR	37.2	NR	NA	NA	34.1	NR	NA	NA	NA		
EPA 8270	PAHS BY GC/MS																																	
	2-Methylnaphthalene	ug/kg	NE	10,000,000	10,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
	Acenaphthene	ug/kg	NE	10,000,000	10,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
	Acenaphthylene	ug/kg	NE	10,000,000	10,000,000	NA	NA	NA	NA	<	346	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<	351	NA	NA	NA	NA	
	Anthracene	ug/kg	NE	10,000,000	10,000,000	NA	NA	NA	NA	<	346	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<	351	NA	NA	NA	NA	
	Benzo [a] Anthracene	ug/kg	NE	7,800	10,000,000	NA	NA	NA	NA	<	346	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<	351	NA	NA	NA	NA	
	Benzo [a] Pyrene	ug/kg	NE	800	10,000,000	NA	NA	NA	NA	<	173	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<	176	NA	NA	NA	NA	
	Benzo [b] Fluoranthene	ug/kg	NE	7,800	10,000,000	NA	NA	NA	NA	<	346	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<	351	NA	NA	NA	NA	
	Benzo [g,h,i] Perylene	ug/kg	NE	10,000,000	10,000,000	NA	NA	NA	NA	<	346	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<	351	NA	NA	NA	NA	
	Benzo [k] Fluoranthene	ug/kg	NE	78,000	10,000,000	NA	NA	NA	NA	<	346	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<	351	NA	NA	NA	NA	
	Chrysene	ug/kg	NE	780,000	10,000,000	NA	NA	NA	NA	<	173	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<	176	NA	NA	NA	NA	
	Dibenzo [a,h] Anthracene	ug/kg	NE	800	10,000,000	NA	NA	NA	NA	<	173	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<	176	NA	NA	NA	NA	
	Fluoranthene	ug/kg	NE	10,000,000	10,000,000	NA	NA	NA	NA	<	346	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<	351	NA	NA	NA	NA	
	Fluorene	ug/kg	NE	10,000,000	10,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
	Indeno [1,2,3-cd] Pyrene	ug/kg	NE	7,800	10,000,000	NA	NA	NA	NA	<	346	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<	351	NA	NA	NA	NA	
	Naphthalene	ug/kg	NE	10,000,000	10,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
	Phenanthrene	ug/kg	NE	10,000,000	10,000,000	NA	NA	NA	NA	<	346	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<	351	NA	NA	NA	NA	
	Pyrene	ug/kg	NE	10,000,000	10,000,000	NA	NA	NA	NA	<	346	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<	351	NA	NA	NA	NA	
SW-846 9010A	SUBCONTRACTED ANALYTES																																	
	Total Cyanide	mg/kg	NE	10,000	10,000	NA	NA	NA	NA	<	0.98	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
1311/6000/7000	TCLP Lead	mg/L	NE	NE	NE	<	0.2	<	0.2	NA	NA	<	0.2	<	0.2	<	0.2	<	0.2	<	0.2	<	0.2	<	0.2	<	0.2	<	0.2	NA	NA	<	0.2	NA
EPA 8260	VOLATILE ORGANICS																																	
	1,2,4-Trimethylbenzene	ug/kg	NE	NE	10,000,000	NA	NA	NA	NA	<	30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<	27	NA	NA	NA	NA	
	1,3,5-Trimethylbenzene	ug/kg	NE	NE	10,000,000	NA	NA	NA	NA	<	30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<	27	NA	NA	NA	NA	
	Benzene	ug/kg	4,300	200,000	10,000,000	NA	NA	NA	NA	<	30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<	27	NA	NA	NA	NA	
	Ethylbenzene	ug/kg	62,000	10,000,000	10,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
	m&p-Xylene	ug/kg	NE	10,000,000	10,000,000	NA	NA	NA	NA	<	60.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<	27	NA	NA	NA	NA	
	Naphthalene	ug/kg	NE	10,000,000	10,000,000	NA	NA	NA	NA	<	30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<	27	NA	NA	NA	NA	
	n-Butylbenzene	ug/kg	NE	NE	10,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
	o-Xylene	ug/kg	NE	10,000,000	10,000,000	NA	NA	NA	NA	<	30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<	27	NA	NA	NA	NA	
	sec-Butylbenzene	ug/kg	NE	NE	10,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
	Toluene	ug/kg	54,000	10,000,000	10,000,000	NA	NA	NA	NA	<	30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<	27	NA	NA	NA	NA	
Classic Chem.	Total Organic Carbon				mg/kg	NE	NE	NE	NE	694	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1200	NR	NA	NA	NA	NA	
EPA 8082	POLYCHLORINATED BIPHENYLS																																	
	Aroclor 1248	mg/kg	10	10	10,000	<	0.0526	<	0.0532	<	0.0521	<	0.0535	<	0.0565	<	0.0546	<	0.0527	<	0.0543	<	0.0529	<	0.0568	<	0.0526	<	0.0526	<	0.0526	2.540	NR	
	Aroclor 1260	mg/kg	10	10	10,000	<	0.0526	<	0.0532	<	0.0521	<	0.0535	<	0.0565	<	0.0546	<	0.0527	<	0.0543	<	0.0529	<	0.0568	<	0.0526	<	0.0526	<	0.0526	<	0.0526	3.52

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Any analytes reported as estimated have a "J" qualifier.

FIGURES

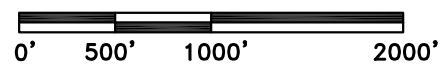


**BASE MAP FROM THE FOLLOWING USGS QUADRANGLE MAP:
PROVIDENCE, RI (2001)**

DIGITAL TOPOGRAPHIC MAPS PROVIDED BY MAPTECH, INC.

CONTOUR ELEVATIONS REFERENCE NGVD 29,
CONTOURS ARE SHOWN IN METERS ABOVE NVGD AT 3 METER INTERVALS

APPROXIMATE SCALE IN FEET



TIDEWATER FACILITY

PAWTUCKET, RHODE ISLAND

LOCUS PLAN

JANUARY 2011

FIGURE NO. 1

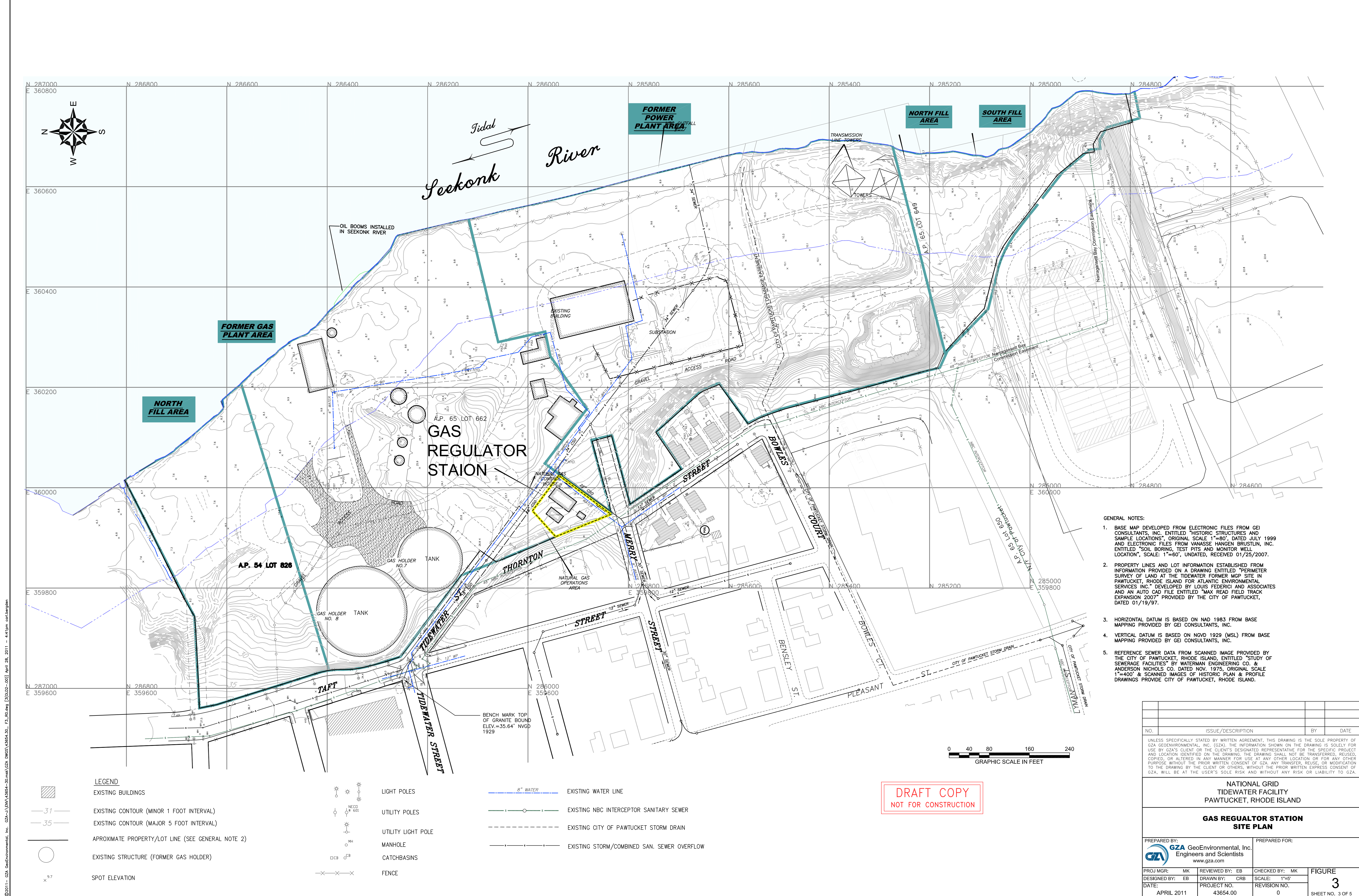


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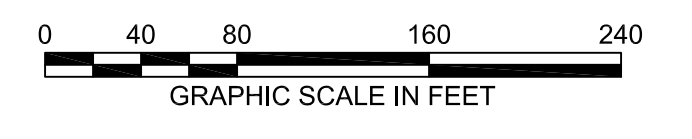
NOTE:
 AERIAL PHOTO FROM GOOGLE EARTH
 PRO. PHOTO DATE APRIL 30, 2010

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NATIONAL GRID TIDEWATER FACILITY PAWTUCKET, RHODE ISLAND			
GAS REGULATOR STATION AERIAL IMAGE			
PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com		PREPARED FOR: nationalgrid	
PROJ MGR: MK DESIGNED BY: EB DATE: APRIL 2011	REVIEWED BY: EB DRAWN BY: CRB PROJECT NO.: 43654.00	CHECKED BY: MK SCALE: NOT TO SCALE REVISION NO.: 0	FIGURE 2 SHEET NO. 2 OF 5



- GENERAL NOTES:**
1. BASE MAP DEVELOPED FROM ELECTRONIC FILES FROM GEI CONSULTANTS, INC. ENTITLED "HISTORIC STRUCTURES AND SAMPLE LOCATIONS" ORIGINAL SCALE 1"=80', DATED JULY 1999 AND ELECTRONIC FILES FROM VANASSE HANGEN BRUSTLIN, INC. ENTITLED "SOIL BORING, TEST PITS AND MONITOR WELL LOCATION", SCALE: 1"=60', UNDATED, RECEIVED 01/25/2007.
 2. PROPERTY LINES AND LOT INFORMATION ESTABLISHED FROM INFORMATION PROVIDED ON A DRAWING ENTITLED "PERIMETER SURVEY OF LAND AT THE TIDEWATER FORMER MOP SITE IN PAWTUCKET, RHODE ISLAND FOR ATLANTIC ENVIRONMENTAL SERVICES INC." DEVELOPED BY LOUIS FEDERICI AND ASSOCIATES AND AN AUTO CAD FILE ENTITLED "MAX READ FIELD TRACK EXPANSION 2007" PROVIDED BY THE CITY OF PAWTUCKET, DATED 01/19/07.
 3. HORIZONTAL DATUM IS BASED ON NAD 1983 FROM BASE MAPPING PROVIDED BY GEI CONSULTANTS, INC.
 4. VERTICAL DATUM IS BASED ON NGVD 1929 (MSL) FROM BASE MAPPING PROVIDED BY GEI CONSULTANTS, INC.
 5. REFERENCE SEWER DATA FROM SCANNED IMAGE PROVIDED BY THE CITY OF PAWTUCKET, RHODE ISLAND, ENTITLED "STUDY OF SEWERAGE FACILITIES" BY WATERMAN ENGINEERING CO. & ANDERSON NICHOLS CO. DATED NOV. 1975, ORIGINAL SCALE 1"=400' & SCANNED IMAGES OF HISTORIC PLAN & PROFILE DRAWINGS PROVIDED CITY OF PAWTUCKET, RHODE ISLAND.

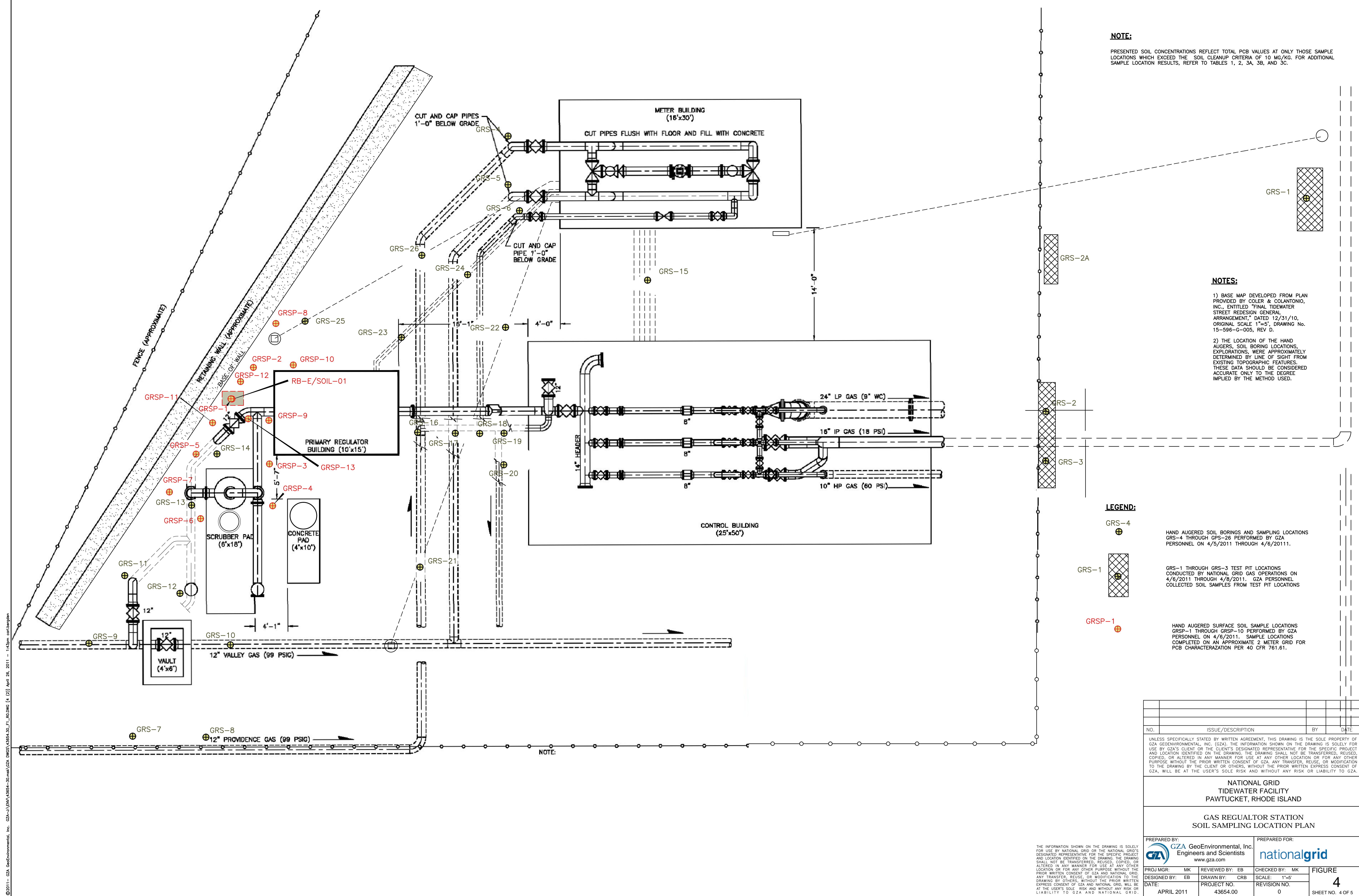


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<p>LEGEND</p> <ul style="list-style-type: none"> EXISTING BUILDINGS EXISTING CONTOUR (MINOR 1 FOOT INTERVAL) EXISTING CONTOUR (MAJOR 5 FOOT INTERVAL) APPROXIMATE PROPERTY/LOT LINE (SEE GENERAL NOTE 2) EXISTING STRUCTURE (FORMER GAS HOLDER) SPOT ELEVATION 	<ul style="list-style-type: none"> LIGHT POLES UTILITY POLES UTILITY LIGHT POLE MANHOLE CATCHBASINS FENCE 	<ul style="list-style-type: none"> 8" WATER EXISTING WATER LINE EXISTING NBC INTERCEPTOR SANITARY SEWER EXISTING CITY OF PAWTUCKET STORM DRAIN EXISTING STORM/COMBINED SAN. SEWER OVERFLOW
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<p>NATIONAL GRID TIDEWATER FACILITY PAWTUCKET, RHODE ISLAND</p>	
<p>GAS REGULATOR STATION SITE PLAN</p>	
<p>PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com</p>	<p>PREPARED FOR:</p>
<p>PROJ MGR: MK REVIEWED BY: EB CHECKED BY: MK DESIGNED BY: EB DRAWN BY: CRB SCALE: 1"=60' DATE: APRIL 2011 PROJECT NO. 43654.00 REVISION NO. 0</p>	<p>FIGURE 3 SHEET NO. 3 OF 5</p>

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NOTE:
 PRESENTED SOIL CONCENTRATIONS REFLECT TOTAL PCB VALUES AT ONLY THOSE SAMPLE LOCATIONS WHICH EXCEED THE SOIL CLEANUP CRITERIA OF 10 MG/KG. FOR ADDITIONAL SAMPLE LOCATION RESULTS, REFER TO TABLES 1, 2, 3A, 3B, AND 3C.

NOTES:
 1) BASE MAP DEVELOPED FROM PLAN PROVIDED BY COLER & COLANTONIO, INC., ENTITLED "FINAL TIDEWATER STREET REDESIGN GENERAL ARRANGEMENT," DATED 12/31/10, ORIGINAL SCALE 1"=5', DRAWING No. 15-596-G-005, REV D.
 2) THE LOCATION OF THE HAND AUGERS, SOIL BORING LOCATIONS, EXPLORATIONS, WERE APPROXIMATELY DETERMINED BY LINE OF SIGHT FROM EXISTING TOPOGRAPHIC FEATURES. THESE DATA SHOULD BE CONSIDERED ACCURATE ONLY TO THE DEGREE IMPLIED BY THE METHOD USED.

LEGEND:
 GRS-4
 GRS-1
 GRSP-1

GRS-4 THROUGH GRS-26 PERFORMED BY GZA PERSONNEL ON 4/5/2011 THROUGH 4/6/2011.

GRS-1 THROUGH GRS-3 TEST PIT LOCATIONS CONDUCTED BY NATIONAL GRID GAS OPERATIONS ON 4/8/2011 THROUGH 4/8/2011. GZA PERSONNEL COLLECTED SOIL SAMPLES FROM TEST PIT LOCATIONS

HAND AUGERED SURFACE SOIL SAMPLE LOCATIONS GRSP-1 THROUGH GRSP-10 PERFORMED BY GZA PERSONNEL ON 4/6/2011. SAMPLE LOCATIONS COMPLETED ON AN APPROXIMATE 2 METER GRID FOR PCB CHARACTERIZATION PER 40 CFR 761.61.

NOTE:

NO.	ISSUE/DESCRIPTION	BY	DATE

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NATIONAL GRID
 TIDEWATER FACILITY
 PAWTUCKET, RHODE ISLAND

GAS REGULATOR STATION
 SOIL SAMPLING LOCATION PLAN

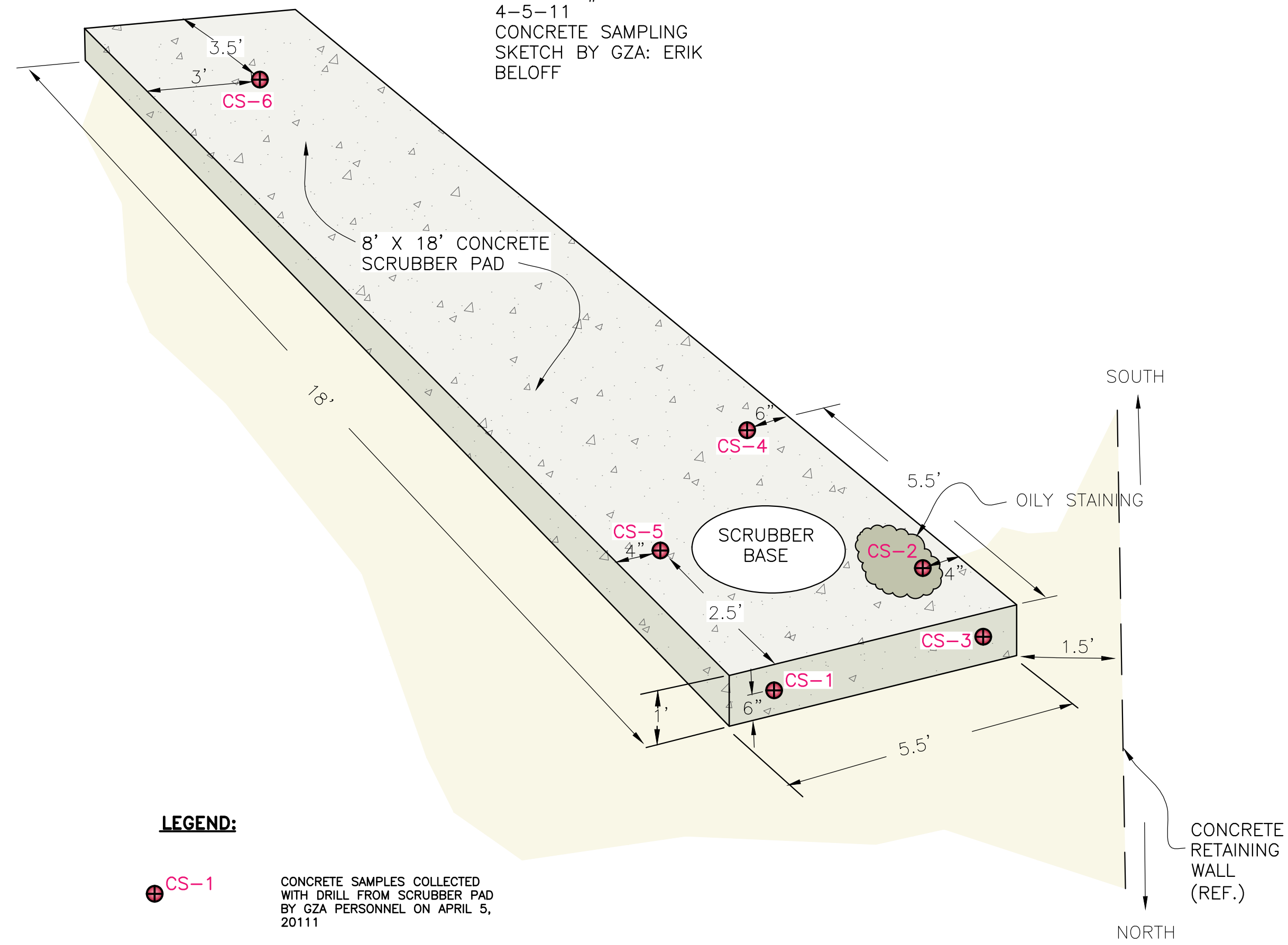
PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com	PREPARED FOR: nationalgrid
PROJ MGR: MK DESIGNED BY: EB DATE: APRIL 2011	CHECKED BY: MK DRAWN BY: CRB PROJECT NO.: 43654.00 REVISION NO.: 0
SCALE: 1"=5'	FIGURE 4 SHEET NO. 4 OF 5

THE INFORMATION SHOWN ON THE DRAWING IS SOLELY FOR USE BY NATIONAL GRID OR THE NATIONAL GRID'S DESIGNATED REPRESENTATIVE FOR THE SPECIFIC PROJECT AND LOCATION IDENTIFIED ON THE DRAWING. THE DRAWING SHALL NOT BE TRANSFERRED, REUSED, COPIED, OR ALTERED IN ANY MANNER FOR USE AT ANY OTHER LOCATION OR FOR ANY OTHER PURPOSE WITHOUT THE PRIOR WRITTEN CONSENT OF GZA AND NATIONAL GRID. WILL BE AT THE USER'S SOLE RISK AND WITHOUT ANY RISK OR LIABILITY TO GZA AND NATIONAL GRID.

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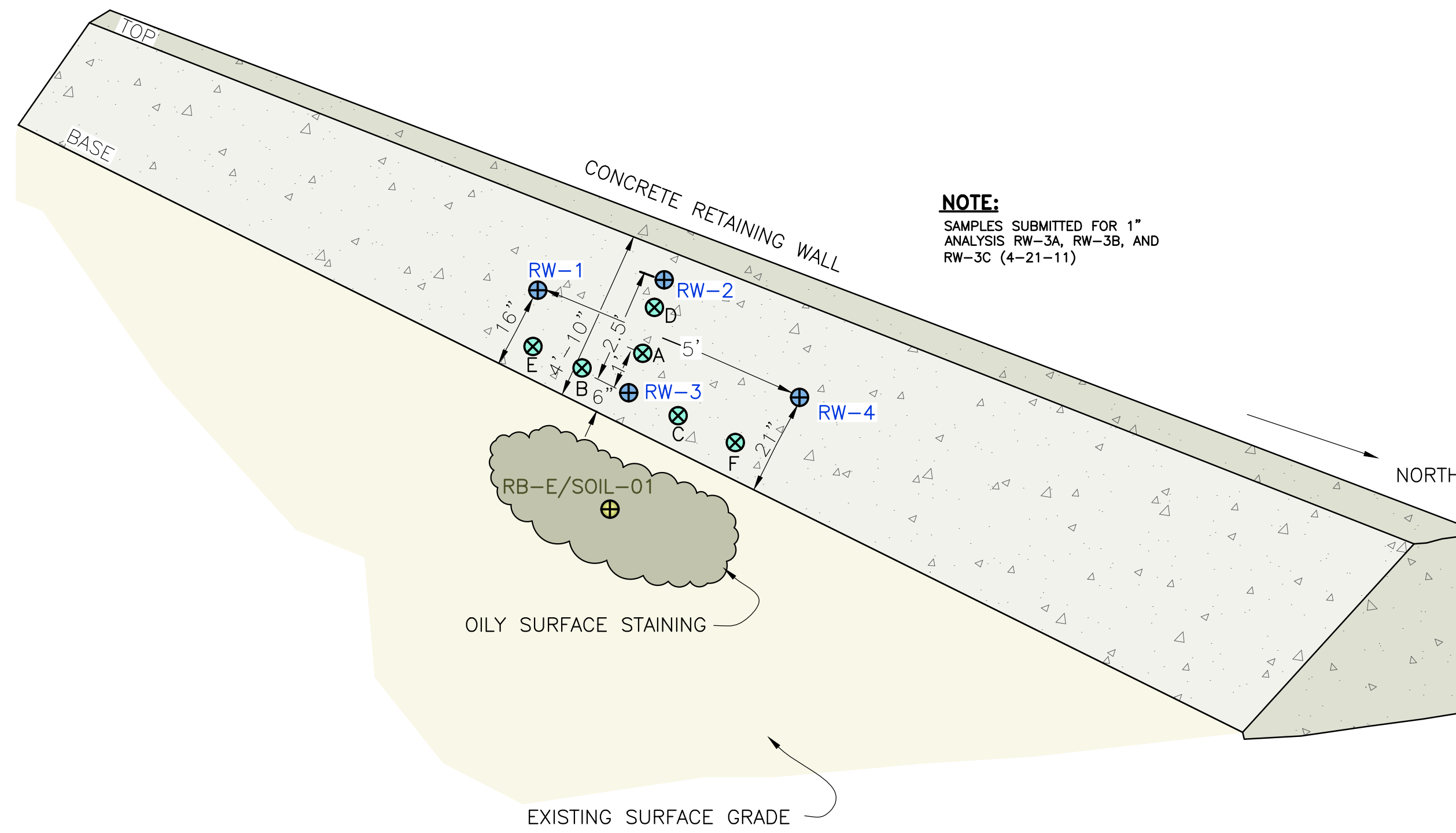
GZA JOB #43654.30
4-5-11
CONCRETE SAMPLING
SKETCH BY GZA: ERIK
BELOFF



LEGEND:

CS-1 ⊕ CONCRETE SAMPLES COLLECTED WITH DRILL FROM SCRUBBER PAD BY GZA PERSONNEL ON APRIL 5, 2011

CONCRETE SLAB DETAIL
NOT TO SCALE



NOTE:
SAMPLES SUBMITTED FOR 1" ANALYSIS RW-3A, RW-3B, AND RW-3C (4-21-11)

LEGEND:

RW-1 ⊕ CONCRETE SAMPLES COLLECTED WITH DRILL FROM RETAINING WALL BY GZA PERSONNEL ON APRIL 5, 2011

A-F ⊗ CONCRETE SAMPLES COLLECTED WITH DRILL FROM RETAINING WALL BY GZA PERSONNEL ON APRIL 5, 2011 (ORIGINAL DEPTHS E, RW-1 THROUGH RW-4) WAS 1"

RETAINING WALL DETAIL
NOT TO SCALE

NOTES:

- 1) CONCRETE SLAB AND RETAINING WALL FIGURES ARE DEVELOPED FROM FIELD SKETCHES BY GZA PERSONNEL TAKEN APRIL 5, 2011. DIMENSIONS SHOWN ARE APPROXIMATE ONLY.
- 2) THE LOCATION OF THE HAND AUGERS, SOIL BORING LOCATIONS, EXPLORATIONS, WERE APPROXIMATELY DETERMINED BY LINE OF SIGHT FROM EXISTING TOPOGRAPHIC FEATURES. THESE DATA SHOULD BE CONSIDERED ACCURATE ONLY TO THE DEGREE IMPLIED BY THE METHOD USED.

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NATIONAL GRID
TIDEWATER FACILITY
PAWTUCKET, RHODE ISLAND

GAS REGULATORY STATION
CONCRETE SAMPLING LOCATION PLAN

PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com	PREPARED FOR: nationalgrid
PROJ MGR: MK DESIGNED BY: EB DATE: APRIL 2011	CHECKED BY: MK DRAWN BY: CRB PROJECT NO.: 43654.00 REVISION NO.: 0
FIGURE 5 SHEET NO. 5 OF 5	

THE INFORMATION SHOWN ON THE DRAWING IS SOLELY FOR USE BY NATIONAL GRID OR THE NATIONAL GRID'S DESIGNATED REPRESENTATIVE FOR THE SPECIFIC PROJECT AND LOCATION IDENTIFIED ON THE DRAWING. THE DRAWING SHALL NOT BE TRANSFERRED, REUSED, COPIED, OR ALTERED IN ANY MANNER FOR USE AT ANY OTHER LOCATION OR FOR ANY OTHER PURPOSE WITHOUT THE PRIOR WRITTEN CONSENT OF GZA AND NATIONAL GRID. ANY TRANSFER, REUSE, OR MODIFICATION TO THE DRAWING BY OTHERS, WITHOUT THE PRIOR WRITTEN EXPRESS CONSENT OF GZA AND NATIONAL GRID, WILL BE AT THE USER'S SOLE RISK AND WITHOUT ANY RISK OR LIABILITY TO GZA AND NATIONAL GRID.