METAL ETCHING STATE SUPERFUND SITE
NASSAU COUNTY, FREEPORT, NEW YORK

FINAL ENGINEERING REPORT

NYSDEC Site Number: 130110
Remedial Action Contract D007938

Prepared for:
New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau E
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and
Louis Berger and Associates, P.C.

OCTOBER 2012

CERTIFICATIONS

I, Christopher Canonica, am currently a registered professional engineer licensed by the State of New York, I had primary direct responsibility for implementation of the remedial program activities, and I certify that the remedial design was implemented and that all construction activities were completed in substantial conformance with the Department-approved remedial design.

I certify that the data submitted to the Department with this Final Engineering Report demonstrates that the remediation requirements set forth in the Record of Decision and Basis of Design Report and in all applicable statutes and regulations have been or will be achieved in accordance with the time frames, if any, established in for the remedy.

I certify that all use restrictions, institutional controls, engineering controls, and/or any operation and maintenance requirements applicable to the site are contained in an environmental easement created and recorded pursuant Environmental Conservation Law 71-3605 and that all affected local governments, as defined in Environmental Conservation Law 71-3603, have been notified that such easement has been recorded.

I certify that a Site Management Plan has been submitted for the continual and proper operation, maintenance, and monitoring of all engineering controls employed at the site, including the proper maintenance of all remaining monitoring wells and that such plan has been approved by Department.

I certify that any financial assurance mechanisms required by the Department pursuant to Environmental Conservation Law have been executed.

I certify that all information and statements in this certification form are true. I understand that a false statement made herein is punishable as a Class “A” misdemeanor, pursuant to Section 210.45 of the Penal Law. I, Christopher Canonica, of EA Engineering, P.C., am certifying as Owner’s Designated Site Representative for the site.

NYS Professional Engineer #	Date	Signature

TABLE OF CONTENTS

LIST OF ACRONYMS

Acronym	Definition
AST	Aboveground Storage Tank
AWQS	Ambient Water Quality Standards
BOD	Basis of Design
bgs	Below ground surface
C&D	Construction and Demolition
CAMP	Community Air Monitoring Program
COC	Contaminants of Concern
CQP	Contractor Quality Plan
DAR	Daily Activity Report
EA	EA Engineering, P.C. and its affiliate EA Science and Technology
ER-M	Effect Range-Median
ER-L	Effect Range-Low
HASP	Health and Safety Plan
IPC	International Petroleum Corporation of Delaware
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
PCE	Tetrachloroethene
PCO	Proposed change order
QA	Quality Assurance
QC	Quality Control
RA	Remedial Action
RAO	Remedial Action Objective
RD	Remedial Design
RFI	Request for Information
RI	Remedial Investigation
RMS	Residuals Management Services, Inc.
ROD	Record of Decision
SCGs	Standards, Criteria, and Guidance
TCE	Trichloroethene
UST	Underground Storage Tank
VOCs	Volatile Organic Compound

LIST OF FIGURES

LIST OF TABLES

FINAL ENGINEERING REPORT

1.0 BACKGROUND AND SITE DESCRIPTION

1.1 INTRODUCTION

The New York State Department of Environmental Conservation (NYSDEC) issued a work assignment for EA Engineering, P.C., its affiliate, EA Science and Technology (EA), and its Joint Venture Partner, Louis Berger and Associates, P.C. (Berger) to perform remedial action (RA) management at the Metal Etching Co., Inc. (Metal Etching) state superfund site in the Village of Freeport, Nassau County, New York (Figure 1). The property was remediated to the site-specific standards, criteria, and guidance (SCGs) established in the issued Record of Decision (ROD) (NYSDEC 2007)[(1)].

The remedial design (RD) for this site was based on the ROD[(1)], and the subsequent Basis of Design (BOD) Report dated December 2008 prepared by EA and Berger (Appendix A). The RD is a component of the NYSDEC Contract Documents (Contract), dated August 16, 2010; the three addendums to the Contract are dated September 9, October 1, and October 1, 2010, respectively (Appendix B). A copy of the BOD is included in Appendix A. The design plans and specifications prepared for the remediation of the Metal Etching site are included in the Contract provided in Appendix B. As-built surveys and record drawings completed following site remediation are included in Appendix C.

1.2 SITE DESCRIPTION / SITE HISTORY

The Metal Etching site is currently a Class 2 Site listed on the NYSDEC Registry of Inactive Hazardous Waste Sites (No. 130110). The site is located adjacent to Freeport Creek at 435 South Main Street, Freeport, Nassau County, New York. A site location map is presented in Figure 1. The site is currently owned by Freeport Creek Associates and leased by Main Street Marina, 500 South Main Street, Freeport, New York. The Metal Etching property is designated as Section 62, Block 45; and Lots 144, 145, and 158 on the tax maps. The Metal Etching property is approximately 1.05 acres; however, the area investigated in the remedial investigation (RI) was 2.06 acres. The additional 1.01 acres includes several properties designated as Section 62, Block 45; and Lots 24, 25, 54, 155, and 157. These properties are located immediately to the south and east of the subject property along Freeport Creek. The term “site” collectively includes these additional properties. Figure 2 depicts the site and study area boundaries.

The site is currently used as a boat dealership, marina, and boat storage yard. Operations at the site are conducted in a single 2,400 ft^2 building located on the northeast corner of the property. A smaller 1,200 ft^2 building, located on the western portion of the property, has been restored and is used for office space for the boat dealership. Minor boat restoration activities are performed within the 2,400 ft^2 building and include engine rebuilds, sanding, and

1. NYSDEC. 2007. Record of Decision Metal Etching Co., Inc. Site Freeport, New York Site Number 130110. March

painting/varnishing. Prior to remediation, most areas of the site grounds were concrete or asphalt paved. Portions of the site adjacent to Freeport Creek were covered with gravel. Soil cover was observed on a small stretch of land on the southern property beneath a two-story boat rack.

The former Metal Etching buildings at the site were erected prior to 1954; however, the exact date of construction is unknown. These connected buildings occupied approximately 26,650 ft^2 of the property (approximately 60 percent of the Metal Etching portion of the site). Aside for the 2,400 ft^2 building, which was a portion of the Metal Etching quarters, the Metal Etching buildings were demolished in 2001; however, the concrete slabs and footings of the buildings remained in place at the site. A 6-in. thick concrete slab covering an approximate area of 7,750 ft^2 was the foundation of the Metal Etching plating slab and is visible to the west of the 2,400 ft^2 building. Locations of existing and former buildings at the site are presented in Figure 3.

Prior to 1966, the site operated as Flores Manufacturing, which manufactured handbags. The manufacturing process included decorative plating with nickel, chromium, and cadmium. From 1966 to 1999, Metal Etching Corporation manufactured metal nameplates, instrument panels, rulers, and miscellaneous plated products. All products were etched or printed. The process of etching included anodizing, chromate conversion, and chrome/nickel plating. From 1973 to 1982, Metal Etching operated under the name of Plastic Associates, as a wholly owned subsidiary. From July 1982 to June 1999, Metal Etching Co., Inc. was the entity that operated the site. In later years of operation at Metal Etching Co., Inc., several of the metal coating operations were discontinued (i.e., chromate conversion discontinued in 1997, chrome plating discontinued in 1997, and anodizing discontinued in 1998). All operations terminated in 1999 and Metal Etching Co., Inc. abandoned the premises in September 1999. The facility buildings were demolished around 2001. During the demolition, limited decontamination and/or investigation was performed under the oversight of NYSDEC Resource Conservation and Recovery Act personnel. Two 4,000-gal aboveground storage tanks (ASTs), which formerly contained ferric chloride, were decontaminated and removed from the site during demolition activities.

In summary, historic operations performed at the site included plating, etching, anodizing, degreasing, wastewater treatment, paint/powder coating, photo processing (including ink screening and printing), and metal cutting.

1.3 PRE-DESIGN INVESTIGATION

EA/Berger performed the following pre-design investigation activities from March to June 2008 in order to evaluate existing onsite conditions and further delineate the extent of contamination to support preparation of the RD portion of the Contract:

- Vapor intrusion investigation
- Groundwater sampling
- Sediment sampling
- Onsite soil sampling
- Site survey

- Data validation/determination of usability.

The findings of these pre-design investigation activities are detailed in Section 3 of the BOD (Appendix A).

The results of the 2008 additional site investigation did not significantly alter the nature and extent of the onsite impacts as described in the RI (Environmental Resources Management, 2007)[(2)] and the March 2007 ROD[(1)]. The main categories of contaminants that exceed the associated site specific SCGs at the site are volatile organic compounds (VOCs) (e.g., chlorinated solvents and petroleum hydrocarbons) and inorganics (metals). Metals detected at the site prior to RA included, but were not limited to, chromium, copper, nickel, and zinc, which are related to historical industrial activities.

The results of additional soil investigation indicated soil contamination above SCGs at several locations and depths different from and/or outside of the previously proposed limits of excavation areas as indicated in the ROD[(1)]. These results warranted a revision to the previously proposed excavation depths and limits.

The results of additional groundwater monitoring indicated concentrations of chlorinated solvents and related degradation by-products (e.g., tetrachloroethene [PCE], tricholorethene [TCE], and dichloroethene) at concentrations above the NYSDEC Ambient Water Quality Standards (AWQS) at some monitoring wells (i.e., MW02S, MW02D, and MW07D); however, these concentrations were generally lower than the levels detected during the 2004 investigation. Concentrations of magnesium and copper in groundwater only exceeded the AWQS at some of the monitoring wells, while concentrations of iron, manganese, and sodium were above the AWQS at all of the monitoring wells.

Sediment results were evaluated against low toxic effects concentrations, or the Effects Range-Low (ER-L) during the RI. The ER-L is the concentration below which effects are rarely observed or predicted among biota. The results of additional sediment sampling indicated detections of copper at levels above the ER-L at all three additional sediment samples located in the vicinity of former SED-04 location. Additionally, arsenic, lead, mercury, and zinc were detected above the ER-L at sediment sample location SED-01.

The results of the offsite vapor intrusion investigation did not provide strong evidence of migration and potential vapor intrusion of the site contaminants of concern (COCs) (e.g., PCE, TCE, etc.) to the nearby occupied structures. The results of all sub-slab and indoor air samples were also below the available New York State Department of Health (NYSDOH) Air Guideline Values. In addition, the results of soil vapor sampling along the offsite utility lines indicated the likely presence of an alternative source of VOCs detected in the soil vapor samples in this area.

2 Environmental Resources Management. 2007. Remedial Investigation Report Metal Etching Site, Freeport, New York. NYSDEC Site No. 130110. Work Assignment No. D003970-12. January

The two existing onsite buildings each have sub-slab depressurization systems installed and operating to mitigate potential vapor intrusion. Systems were installed in 2005 and have been running continuously for the duration.

2.0 SUMMARY OF SITE REMEDY

The NYSDEC conducted a RI/Feasibility Study in 2005 which evaluated six alternative remedial technologies. The final selection of the RA was presented in the ROD[(1)] issued by the NYSDEC in March 2007. The selected remedy was *Hot Spot Excavation to Water Table, Surface Cover, Sediment Removal, and Groundwater Monitoring*. The BOD evaluated the appropriateness of the selected remedy using data collected following the issuance of the ROD. A copy of the BOD is included in Appendix A.

2.1 REMEDIAL ACTION OBJECTIVES

Based on the results of the RI, the following RA objectives (RAOs) were identified for this site. The remediation goals for this site were established to eliminate or reduce to the extent possible:

- Exposures of persons at or around the site to VOCs and metals in soil, groundwater, sediment, and indoor air.
- Environmental exposures of flora or fauna to VOCs and metals in soil, groundwater, and sediment.
- The release of contaminants from soil into groundwater that may create exceedances of groundwater quality standards.
- The release of contaminants from soil and groundwater into indoor air through soil vapor.

2.1.1 Groundwater RAOs

RAOs for Public Health Protection

- Monitor groundwater containing contaminant levels exceeding drinking water standards, and evaluate any potential public health issues.
- Prevent contact with, or inhalation of, volatiles emanating from contaminated groundwater.

RAOs for Environmental Protection

- Maintain, to the extent possible, ambient groundwater quality standards by eliminating potential groundwater contamination source(s).
- Prevent the discharge of contaminants to surface water.
- Remove the source of ground or surface water contamination.

2.1.2 Soil RAOs

RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated soil.
- Prevent inhalation of, or exposure to, contaminants volatilizing from contaminated soil.

RAOs for Environmental Protection

- Prevent migration of contaminants that would result in groundwater or surface water contamination.
- Prevent impacts to biota due to ingestion/direct contact with contaminated soil that would cause toxicity or bioaccumulation through the terrestrial food chain.

2.1.3 Surface Water RAOs

There is no surface water concern at the site.

2.1.4 Sediment RAOs

RAOs for Public Health Protection

- Prevent direct contact with contaminated sediments.
- Prevent surface water contamination that may result in fish advisories.

RAOs for Environmental Protection

- Prevent release(s) of contaminant(s) from sediments that would result in surface water levels in excess of (ambient water quality criteria).
- Prevent impacts to biota due to ingestion/direct contact with contaminated sediments that would cause toxicity or bioaccumulation through the marine or aquatic food chain.

2.2 DESCRIPTION OF SELECTED REMEDY

The site was remediated in accordance with the remedy selected by the NYSDEC in the ROD[(1)] issued in March 2007 and the Contract Documents (Contract D007938) included in Appendix B. The major components of the selected remedy are described herein.

The remedy selected in the ROD[(1)] was *Hot Spot Excavation to Water Table, Surface Cover, Sediment Removal, and Groundwater Monitoring*. This alternative consisted of hot-spot

excavation limited to the depth of the groundwater table, installation and maintenance of a surface cover, limited sediment removal from Freeport Creek, monitoring of groundwater, removal of sediment from the onsite storm water system, closure and removal of any underground storage tanks (USTs), continued operation of the sub-slab depressurization systems, and placement of an environmental easement.

The specific elements of this alternative (as presented in the March 2007 ROD[(1)]) are identified below.

- A RD program to provide the details necessary for the construction, operation, maintenance, and monitoring of the remedial program. This program included delineating the boundaries of sediment excavation within Freeport Creek. The design plans and specifications prepared subsequent to the preparation of the BOD are included as part of the Contract in Appendix B.

- Hot spot excavation, to the extent practicable, of VOC and metals contaminated soil to the depth of groundwater table.

- Removal of sediment from the onsite storm water system and disposal at an approved offsite facility.

- Determination of the presence, closure, and removal of USTs onsite in accordance with NYSDEC regulations.

- Areas not previously covered, and where excavation was not practicable, were to receive a cover of asphalt or ballast underlain by a demarcation layer.

- Upon completion of the additional Freeport Creek Study and delineation of site related contamination in the area of SED-04, a limited sediment removal from Freeport Creek was completed.

- A long-term groundwater monitoring program will be implemented to confirm the effectiveness of the remedy.

- An institutional control is being established in the form of an environmental easement that requires (a) limiting the use and development of the property to commercial use, which will also permit industrial use, in conformance of local zoning; (b) compliance with the approved site management plan; (c) restricting the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by NYSDOH; and (d) submission of a periodic certification of institutional and engineering controls to the NYSDEC by the property owner.

- A site management plan will be developed and is described in Section 2.2.1.

- Requirement of the property owner to submit a periodic certification of institutional and engineering controls prepared and submitted by a professional engineer, or such other expert acceptable to the NYSDEC, until the NYSDEC notifies the property owner in writing that this certification is no longer needed. This submittal will (a) contain certification that the institutional controls and engineering controls put in place are still in place and are either unchanged from the previous certification or are compliant with NYSDEC-approved modifications; (b) allow the NYSDEC access to the site; and (c) state that nothing has occurred that will impair the ability of the controls to protect public health or the environment, or constitute a violation or failure to comply with the site management plan unless otherwise approved by the NYSDEC.

2.2.1 Site Management Plan

As required under the 2007 ROD[1], EA/Berger has developed a site management plan that includes the following activities:

- Management of the final cover system to restrict excavation below the soil cover, demarcation layer, pavement, or buildings. Excavated soil will be tested, properly handled to protect the health and safety of workers and the nearby community, and will be properly managed in a manner acceptable to the NYSDEC.

- Continued groundwater and soil vapor monitoring.

- Continued evaluation of the potential for vapor intrusion for any buildings developed on the site, including provision for mitigation of any impacts identified.

- Identification of any use restrictions on the site.

- Provisions for the continued proper operation and maintenance of the components of the remedy.

2.2.2 Environmental Easement

Additionally, EA/Berger is assisting NYSDEC in preparing an environmental easement for the site. The easement has five exhibits, as summarized below.

1. Schedule A—An adequate legal description of the property subject to the environmental easement.

2. Schedule B—The American Land Title Association/American Congress on Surveying and Mapping Survey.

3. Schedule C—A narrative description of the contaminated areas and institutional and/or engineering controls and the monitoring/inspection, maintenance, and reporting requirements.

4. Schedule D—Maps/diagrams of as-built controls.

5. Schedule E—A clean, legible copy of the U.S. Geological Survey Quadrangle map.

The environmental easement was prepared in conjunction with the RD and will be amended as needed following the initiation of the site management plan. The environmental easement is currently being prepared and will be included as an appendix to the Metal Etching Site Management Plan once recorded.

3.0 INTERIM REMEDIAL MEASURES, OPERABLE UNITS, AND REMEDIAL CONTRACTS

The ROD remedy for this site was performed as a single project; no interim remedial measures, operable units, or separate construction contracts were performed.

4.0 DESCRIPTION OF REMEDIAL ACTIONS PERFORMED

Remedial activities completed at the site were conducted in accordance with the remedy selected by the NYSDEC in the ROD(1) issued in March 2007 and the Contract Documents included in Appendix B. A pre-bid meeting was held at the site on September 16, 2010 for all prospective bidders. The Contract was awarded to the low bidder EnviroTrac, by NYSDEC on January 27, 2011. EnviroTrac's bid breakdown is provided in Appendix D. A pre-construction meeting was held on February 15, 2011. Substantial completion was reached on December 23, 2011 and final completion was reached on February 15, 2012. The major components of the selected remedy are described herein. All deviations from the Contract are noted in Section 4.10.

4.1 GOVERNING DOCUMENTS

The Contract provided in Appendix B served as the governing document for the remedial construction at the Metal Etching site. The RD was included as part of this Contract in the form of design plans and specifications. All plans were reviewed against the Contract by the Engineer (EA/Berger) and subsequently revised and/or approved prior to related site activities. Communication between the Contractor and Engineer pertaining to interpretation and clarification of the Contract was addressed by Requests for Information (RFIs). The RFI log and associated RFIs are included in Appendix E. Minor changes to the work as defined by the Contract Documents were issued in the form of Field Orders by the Engineer. These changes did not involve a change in the Contract Price or the Contract Time. The Field Order log and associated Field Orders are included in Appendix F.

The Contractor was required to submit site documents, including plans, material information, analytical results, and all other items as defined by the Contract Documents. The full list of submittals is provided in the Submittal Log in Appendix G. All Contractor submittals are provided in Appendix G and Engineer approvals of submittals are provided in Appendix H. The following sections detail the documents that were required under the Contract to be submitted by EnviroTrac.

4.1.1 Site-Specific Health and Safety Plan

A site-specific Health and Safety Plan (HASP) was prepared by EnviroTrac and approved by the Engineer on October 20, 2010, prior to the initiation of work at the site. The HASP was in compliance with NYSDEC requirements as defined in Section 0003 of the Contract. All remedial work performed under this RA was in full compliance with governmental requirements, including site and worker safety requirements mandated by Federal Occupational Safety and Health Administration.

The HASP was complied with for all remedial and invasive work performed at the site.

4.1.2 Contractor Quality Plan

A Contractor Quality Plan (CQP) was prepared by EnviroTrac and approved by the Engineer on October 19, 2010. The CQP manages performance of the RA tasks through designed and documented QA/QC methodologies applied in the field and in the lab. The CQP provides a detailed description of the observation and testing activities that were used to monitor construction quality and confirm that remedial construction was in conformance with the remediation objectives and specifications.

The CQP defined the quality assurance (QA)/quality control (QC) officer as the individual responsible for QA/QC management during implementation of the RD. The Quality Manager was defined as the individual responsible for ensuring that the requirements of the quality system standards were implemented and maintained.

In accordance with the CQP, the QA/QC officer reviewed all materials needed for construction prior to submittal to the Engineer for approval. The QA/QC officer was responsible for task preparatory inspections, field work inspections, and materials inspections.

Contractor's quality was reviewed during project coordination meetings, which were held on an as-needed basis, as determined by the Department and EA. At a minimum, meetings were held monthly including representatives from EnviroTrac, NYSDEC, EA, and Berger. Meeting sign-in sheets and minutes are provided in Appendix I.

4.1.3 Contractor Work Plan

A Contractor Work Plan was submitted by EnviroTrac and approved by the Engineer on October 25, 2010. The Contractor Work Plan included a description of the major tasks involved in the work, including site preparation, management of contaminated materials, and site restoration. An existing fence was used to prevent the public from entering the site, and temporary fencing was used around open excavations prior to and during excavation work at the site; all underground utilities were identified and marked out in order to prevent an interruption of service.

The Contractor Work Plan stated that soil was to be staged onsite on 40-mil poly sheeting or lined roll-off containers, and surrounded by erosion control measures such as hay bales. Regarding dry site conditions, water would be used to mitigate dust generation. Stockpiles were to remain covered until the material was accepted by an approved disposal facility. Similarly, sediment dredged from Freeport Creek was to be stored in lined roll-off containers or stockpiled and covered. Liquid collected from storage units or stockpiles would be stored and disposed of at an approved facility.

The Contractor Work Plan described site restoration activities which included backfilling the excavations with clean fill material and installing an asphalt or porous pavement cap or rip-rap over the excavation foot prints.

4.1.4 Storm Water Pollution Prevention Plan

The erosion and sediment controls for all remedial construction were performed in conformance with requirements presented in the New York State Guidelines for Urban Erosion and Sediment Control and the site-specific Storm Water Pollution Prevention Plan approved by the Engineer on January 4, 2011.

4.1.5 Community Air Monitoring Plan

Community air monitoring was required during all intrusive activities and activities that risked generating dust. Requirements included real time air monitoring for VOCs and particulates in the work zone and at the perimeter of the work area using a MiniRAE 2000 (VOCs) and three DataRam 4000 particulate monitors. The Community Air Monitoring Plan (CAMP), submitted as part of the HASP, required that particulate monitors record data at 10 minute intervals.

4.2 REMEDIAL PROGRAM ELEMENTS

4.2.1 Contractors and Consultants

EnviroTrac was the main Contractor hired by NYSDEC based on the NYS competitive bidding process for the remediation of the site. EnviroTrac performed all remedial excavation and backfill activities at the site.

As required by the Contract Documents, EnviroTrac made good-faith efforts to subcontract work out to NYS Certified Minority Business Enterprises and Women Business Enterprises. Minority/Women Business Enterprises Quarterly Reports documenting this effort are provided in Appendix J.

Subcontractors hired by EnviroTrac to assist in site activities included the following:

Subcontractors

- ***AARCO Environmental Services Corp., $237,601.36 (17% of contract)—***Performed clean-out of the 12 in. storm drain located in north east portion of the site, pre-excavation characterization sampling**,** dewatering of water contained within excavation EX5, installation of new monitoring wells MW08S/08D, MW09S/09D, and MW10S/10D, development of the newly installed wells. Subcontractor also transported water from excavation dewatering activities, fuel impacted soil from EX1 and EX6 and sediment from Freeport Creek dredging activities to the appropriate disposal/treatment facilities. In addition, AARCO hired the following subcontractors to assist in the associated activities:
    - *Alphonse Pesce Land Surveying—*Performed surveying of sediment dredging area within Freeport Creek (before and after dredging operation)

  - *EarthCare*—Performed dewatering at the site prior to restoration of excavations.
  - *International Petroleum Corporation of Delaware (IPC)*—Accepted oil from USTs 1 and 2 for disposal. Accepted sludge and residuals from cleaning USTs 1–4, oil from USTs 3 and 4, and standing water within EX1 and EX5 for disposal and/or treatment.
  - *Clear Flo Technologies*—Accepted excavation water from dewatering activities for disposal and/or treatment.
  - *Residuals Management Services, Inc.* (*RMS)*—Accepted drummed storm drain sediment for disposal.
  - *Hancock Bulkhead*—Removed and replaced docks obstructing dredging area. Performed dredging of contaminated sediments from delineated target area within Freeport Creek
  - *Trisu Electrical*—Performed disconnection and reconnection of electrical utilities by the dredging area before and after dredging operations.

- ***A&R Materials, $223,901.41 (16% of contract)***—Performed removal of the top 12 in. within ballast covered areas and subsequent installation of demarcation fabric and 6 in. asphalt sub-base, provided and delivered backfill and stone used for restoration on the site, performed installation of slotted drain system, and hired Long Island Transport to transport excavated contaminated soil and non-hazardous / non-regulated fill to disposal/re-use facilities.

- ***Debruin Surveying (M/WBE), $26,842.50 (2% of contract)***—Performed all site surveying required for Contractor payment and as-built plans. This included surveying and marking out excavation limits prior to intrusive activities, surveying bottom of excavation and excavation limits following excavation, surveying documentation sample locations after sampling, surveying top of fill elevation and final grades following backfill and site restoration, and surveying newly installed monitoring wells and storm drains.

- ***X-Ray Locating Services, Inc., $923.31 (<1% of contract)***—Performed utility mark-outs prior to any intrusive activities at the site.

- ***ChemTech (M/WBE), $39,244.25 (3% of contract)***—Laboratory analysis of samples collections for characterization and documentation sampling was performed.

- ***Olson, $8,650.00 (<1% of contract)***—Performed offsite disposal of asphalt and concrete / construction and demolition (C&D) debris. Hired Gershow Disposal Facility to accept cleaned USTs 1–4 for disposal and/or recycling.

- ***110 Sand Landfill, $104,281.47 (7% of contract)***—Accepted non-hazardous soil from excavations, non-regulated ballast material excavated for asphalt cap

installation, sediment removed from the onsite storm drain and dredged from Freeport Creek, and Construction and Demolition Debris from within excavations.

- ***City & County Paving Corp., $203,351.10 (15% of contract)—***Installation of asphalt pavement and porous pavement.

The Engineer responsible for certifying remedial construction activities is EA. Construction inspection was performed by Berger. All Contractors' Applications for Payments with associated Certified Payrolls are provided in Appendix K.

4.2.2 Site Preparation

EnviroTrac initiated mobilization with the delivery of the office trailer on April 28, 2011, but full mobilization was delayed due to the presence of boats onsite. Mobilization was completed on June 13, 2011 with the delivery of excavation equipment, following the relocation of docked boats. Site preparation and mobilization activities were completed according to the following time frames.

- Mark-out of utilities was performed at the site on May 24, 2011.
- Delineation of excavation limits was performed at the site on June 1 and 6, 2011.
- By June 13, 2011, most boats stored within the delineated excavation areas were cleared and intrusive activities could commence.
- The following approvals, permits, and other substantive technical requirements were obtained by the Contractor prior to associated tasks:
    - Waste transporter permits for EarthCare (waste water transporter), International Petroleum Corporation (waste fuel transporter), and Long Island Sound Transport, Inc. (solid waste transporter, including A&R Materials Transport).
    - Solid waste management permits for Clear Flo Technologies (waste water disposal), International Petroleum Corporation (used oil recycling facility), 110 Sand Landfill (non-hazardous fill and demolition debris disposal), and Resource Management Services (sediment disposal).

A pre-construction meeting was held with NYSDEC, the Engineer, and EnviroTrac on Tuesday February 15, 2011.

Documentation of permits required by the Contract is included in Appendix L.

A project sign was erected at the project entrance and remained in place during all phases of the RA.

4.2.3 General Site Controls

The Main Street Marina was able to remain in full operation during the RA. Measures were continuously taken to minimize business disruption and to work with the Owner. General site controls implemented daily are summarized herein.

Site Security

Site entry and exit logs were maintained onsite at all times and are provided as Appendix M. The Contractor determined that no additional site security measures were necessary since the site was already surrounded by an 8-ft high chain link fence around the perimeter with a sliding gate at the entrance, preventing access to the site without authorization. Caution tape and security cones were placed around the limits of work areas including open excavations, soil stockpiles, construction equipment, etc., prior to construction personnel leaving the site.

Job Site Record Keeping

Daily construction inspection was performed by EA/Berger personnel during remedial activities. The onsite inspector submitted field reports to the EA project manager and NYSDEC daily, which consisted of descriptions of daily site activities, photos, site sketches, project issues, concerns, comments, etc. These reports are provided in Appendix N.

Erosion and Sedimentation Controls

At the end of each site work day, hay bales were installed around the limits of work areas (excavation areas, stockpiles, etc.) and polyethylene sheets were used to cover stockpiles to prevent sediment loss.

Stockpiles

Stockpiles of excavated/contaminated soils were placed on polyethylene sheets until the stockpiles were taken offsite for disposal at appropriate facilities.

Decontamination

Equipment decontamination prior to site demobilization was performed.

4.2.4 Nuisance Controls

Nuisance controls were implemented during construction activities and are outlined below.

Truck Wash and Egress Housekeeping

Construction equipment and the site were cleaned prior to equipment (mainly disposal trucks leaving the site) and personnel leaving at the end of the work day. This included hosing down

equipment, sweeping sediments and C&D debris, and other standard end-of-day housekeeping activities.

Dust Control

During the work day, excavation/work areas were sprayed with hose water supplied by the marina, as needed, to prevent dust particles from migrating offsite. Stockpiles were covered during the day to keep dust from excavated soil from migrating offsite due to wind.

Odor Control

No odors were generated during construction.

Truck Routing

A smooth truck route and exit/entrance flow to the site was maintained daily, presenting no issues to the general public or site Owner's personnel.

Complaints

Any feedback provided by the site Owner (Dante Grover) was addressed immediately. On June 21, 2011, Mr. Grover requested that EX-3 be completed following EX-2 and EX-6 so that boats could be stored in the EX-4 and EX-5 areas. On August 8, 2011, EnviroTrac relocated a stockpile and placed clean stone in the area vacated by the stockpile to accommodate marina operations. On August 21, 2011, Mr. Grover requested that additional porous pavement be installed between EX-4 and EX-5 to provide a continuous surface rather than a mix of porous pavement and asphalt patch. No public complaints were made during the RA.

4.2.5 CAMP Results

Community air monitoring took place in accordance with the approved CAMP. The MiniRAE 2000 used at the site logged minimum, maximum, and average parts per million every 10 minutes during excavation activities. The DataRAM 4 particulate meter used at the site logged the real-time concentration by mass ($\mu g/m^3$), ambient temperature and humidity, and the particle size (μm) every 10 minutes during earthwork operations. Downwind average organic vapor levels exceeded 5 ppm twice, on July 20 and July 21, 2011; however, organic vapor levels returned to concentrations less than 5 ppm within four readings, or forty minutes. Downwind particulate levels exceeded 150 $\mu m/m^3$ for three consecutive readings on July 18, 2011 and for two consecutive readings on July 22, 2011. The site was sprayed with hose water to reduce dust generated. Copies of all field data sheets relating to the CAMP are provided in electronic format in Appendix O.

4.2.6 Reporting

Daily Activity Reports (DARs) summarizing construction activities at the site were prepared by EA/Berger. DARs contained the following information:

- Summary of the day's construction activities.
- Summary of onsite equipment, personnel, and visitors onsite.
- Summary of any material (backfill, stone, fabric, etc) delivered to the site during the day.
- Summary of samples collected, if any, during the day. This includes documentation, characterization, sediment samples, etc.
- Summary of any health and safety issues, project schedule issues, budget issues, storm water/erosion/sediment control issues, community air monitoring issues, and any other items of concern noted.
- Any miscellaneous comments on the day's activities.
- Photo log depicting construction photos taken during the day, with captions below each photograph.
- A site plan delineating day's activities.

All daily reports are included in electronic format in Appendix N. The daily reports also include photo logs in electronic format.

4.3 CONTAMINATED MATERIALS REMOVAL

This section summarizes the removal and offsite disposal of contaminated materials. A list of the standards, criteria and guidance (SCGs) for the contaminants of concern for this project is provided in Table 1A. A list of the ER-L and Effects Range-Median (ER-M) for selected metals in sediment is provided in Table 1B.

A figure showing excavation areas is provided as Figure 4.

Table 2 summarizes all offsite disposal activities, including transporter name, approximate weight / volume of material, designated offsite disposal facility, description of materials taken offsite, and manifest / weight ticket numbers associated for each load taken offsite.

4.3.1 Contaminated Soil

Remedial activities at the site consisted of excavation of non-hazardous soil within areas EX1 through EX6 shown on Figure 4 and offsite disposal and defined by Contract Drawing 4. Each

excavation area was defined by a series of boundary points; for example, EX1-1 through EX1-4, define EX1. The excavation boundary survey was completed by Debruin surveying.

Asphalt and concrete top layers within excavation limits were saw cut using walk behind saw equipment, broken up by a CAT 320 excavator, and placed in a dumpster onsite. Remnant foundation walls encountered within excavation areas were removed to the bottom of the excavation limits, broken up, and stored in a dumpster along with other C&D debris removed from excavation areas. Approximately, a total of 240 tons of C&D material was removed from excavation areas.

EX1

Excavation area EX1 was defined by the Contract as a 238 ft^2 × 1-ft deep excavation located southwest of the 2,400 ft^2 site building and west of EX5; however, due to the presence of two USTs within the footprints of EX1 and EX5, the horizontal and vertical limits were extended. USTs 3 and 4 were uncovered during excavation of the western limit of EX5 on August 24, 2011, and extended into EX1. These were removed following the Engineer-approved procedure, as discussed in Section 4.3.3 of this report. The bottom of the USTs were approximately 5 ft below ground surface (bgs), but the excavation extended down an additional 1–2 ft to remove visually impacted soil; thereby, exceeding the contracted 1 ft excavation depth. There were petroleum odors associated with this excavation due to the presence of the USTs and visually impacted soil. A full discussion of UST removal is included in Section 4.3.3 of this report.

Excavation within EX1 coincided with excavation of EX5, and took place on August 24 and 25, 2011. No dewatering was necessary during this excavation. Two endpoint sidewall samples were collected 2.5 ft bgs along the northern and southern side walls prior to laying geotextile and backfilling. Bottom endpoint samples were collected associated with the USTs within the EX1 footprint 5 ft bgs. The final excavation area was 250 ft^2 down to 5 ft bgs; 46 yd^3 of non-hazardous soil, USTs, and C&D material were removed from EX1.

EX2

Excavation area EX2 shared a western boundary with EX6 and the Freeport Electric Right of Way. This area was defined by the Contract as a 1-ft deep, 1,510 ft^2 excavation; however, during remedial activities, fuel-impacted soil was encountered directly to the west of excavation boundary points EX6-7 and EX6-8. Excavation area EX6 was extended an additional 9 ft to the east of boundary points EX6-7 and EX6-8, into EX2. The final excavation area of EX2 was 1,242 ft^2.

Excavation within EX2 coincided with excavation of EX6 and started on June 16, 2011; 46 yd^3 of non-hazardous soil and C&D material were removed from EX2. Excavation dewatering was not necessary during this excavation as groundwater is 3–5 ft bgs in this area. Four bottom endpoint samples were collected 1 ft bgs within this area prior to laying geotextile and backfilling. No sidewall samples were collected due to the shallow depth of the excavation.

EX3

Excavation area EX3 was defined by the Contract as a 3,420 ft^2 area located along the southern and eastern walls of the site brick office building and extending south. Excavation of EX3 to the depth of 5 ft (groundwater level at low tide, as defined by the Contract) was completed over the course of one month, from June 24 to July 27, 2011. Two steel USTs (i.e., USTs 1 and 2) were identified within EX3 east of the brick office building. These were removed following the Engineer-approved procedure, as discussed in Section 4.3.3 of this report. Slight odors were present during the removal of the USTs. A foundation wall was also identified near the east side of the excavation and removed to the bottom of the excavation limits. A total of 690 yd^3 of non-hazardous soil and C&D material was removed from EX3. Seven sidewall samples were collected along the western, southern, eastern, and northern limits at 2.5 ft bgs. Three bottom endpoint samples were collected at 5 ft bgs prior to laying geotextile and backfilling.

EX4

Excavation area EX4 was defined by the Contract as a 758 ft^2 area along the southern and western walls of the warehouse building. The west boundary of EX4 was a former foundation wall that ran parallel to the warehouse building. EX4 was contracted to be excavated to 5 ft bgs. Due to the proximity to an active operations building, the excavation took place within a short time frame, from Friday August 19 to Monday August 22, 2011. Two monitoring wells (i.e., MW-02S and MW-02D) were located within the footprint of EX4 and were decommissioned in accordance with NYSDEC Commissioner's Policy 43 (CP-43). This was done on August 19 using an excavator to pull the casings and PVC out of the ground. The remaining holes were filled with a bentonite grout slurry using a tremmy pipe. The well casings were disposed of offsite to a permitted facility. The monitoring well decommissioning report is provided as Appendix P.

The soil removed from EX4 was disposed of as non-hazardous waste. The former foundation wall was removed and disposed of with other C&D material. No odors were observed during excavation activities. Dewatering was required prior to endpoint sample collection and excavation backfilling due to above average rainfall over the weekend. Three sidewall samples were collected along the northern, western, and southern limits at 2.5 ft bgs; and one bottom endpoint sample was collected from EX4 at 5 ft bgs.

EX5

EX5 was defined by the Contract as a large irregular-shaped area that shared a northern boundary with the existing site warehouse building and part of a western boundary with EX1. The Contract-defined area was 5,720 ft^2 at 5 ft bgs, which was the expected groundwater level at low tide.

Excavation in this area took one month to complete, from August 1 to September 6, 2011 due to the need to decommission four monitoring wells; MW-03S and MW-03D were located in the southern portion of EX5, and MW-07S and MW-07D were located in the northern portion of

EX5. All four wells were decommissioned by the same methods used to decommission MW-02S and MW-02D in EX4.

Dewatering was required during excavation due to frequent rainfall. During excavation, USTs 3 and 4 were uncovered near the border of EX1, as noted in the EX1 discussion above. Some odors were observed while excavating within this area. The final area of EX5 was 5,682 ft^2, for a total of 1,052 yd^3 of non-hazardous soil and C&D material removed from EX5. Twelve sidewall samples were collected along the unshared limits of EX5 from 2.5 ft bgs. Five bottom endpoint samples were collected from 5 ft bgs throughout EX5 following excavation completion.

EX6

Excavation area EX6 was defined by the Contract as two areas separated by a utility right-of-way within the eastern part of the site. The combined Contract area of this excavation was 3,531 ft^2. Excavation of EX6 began on June 14, 2011 and continued until July 29, 2011, though EX2 and EX3 were also completed within this time frame.

During excavation of EX6, stained soil and a petroleum odor were observed within the southern portion of the excavation on the east side. Stained soil was removed from EX6 and extended within the EX2 area, with which EX6 shared a boundary. Visually impacted soil was removed and stockpiled separately for separate characterization on July 20, 2011; though, all soil was disposed of as non-hazardous waste. Dewatering was required due to the proximity of the excavation to the Freeport Creek, as well as a storm drain that directly connected the excavation to the creek.

The final area of EX6 was 4,382 ft^2, for a total volume of 812 yd^3 of soil and C&D material. A total of six sidewall samples were collected from all four limits of the northern portion of EX6, and seven sidewall samples were collected from the unshared limits of the southern portion of EX6 (i.e., those not shared by EX2), all at 2.5 ft bgs. Two bottom samples were collected from the northern portion of EX6 and three bottom samples were collected from the southern portion of EX6, all from 5 ft bgs prior to the placement of geotextile and backfill.

An approximate total of 5,500 tons of non-hazardous soil and C&D materials was excavated from all six excavation areas and disposed offsite.

4.3.2 Dewatering / Groundwater / Rainwater

During excavation activities, dewatering of groundwater and rainwater within open excavations was performed, especially during high tide. August 2011 was a month of above average precipitation, with a major hurricane (Irene) and frequent rain events throughout the month. Dewatering was performed throughout excavation activities as necessary until bottom of excavation depths were achieved (low-tide groundwater elevation, approximately 5 ft bgs), and, if necessary, prior to placement of backfill.

During excavation activities, AARCO and EarthCare tankers mobilized to the site to pump out water from excavations using vacuum/suction methods to maximum 8,000 gal capacity truck mounted tanks. Contaminated water was either transported to IPC or Clear Flo Technologies. Refer to Table 2 for a summary of transporter name, approximate weight / volume of material, designated offsite disposal facility, description of materials taken offsite, and manifest / weight ticket numbers associated for each load taken offsite.

4.3.3 Underground Storage Tanks

During excavation activities, a total of four USTs were encountered and removed from within the excavations, and disposed offsite. UST 1, a 3,000 gal tank, and UST 2, a 550 gal tank, were found within EX3 to the east of the one-story brick office building, at the location shown on Figure 4. During excavation of EX5, UST 3, a 1,000 gal tank, and UST 4, a 2,000 gal tank, were found directly below the area enclosed by points EX5-11, EX5-12, and EX5-13 and were observed to extend within EX1, which was defined by Contract drawing 4 as a 1-ft deep excavation. The approximate locations of USTs 3 and 4 are shown on Figure 4; however, these USTs were not able to be surveyed due to scheduling issues.

Prior to removal, product (e.g., fuel, oil, water, etc) from within the USTs was pumped out by AARCO tankers. USTs 1 and 2 contained a total of 1,332 gal of liquid, and USTs 3 and 4 contained a total of 2,470 gal of petroleum-based product mixed with water. Once the USTs were empty, they were removed from the excavations and placed on poly sheeting for interior and exterior cleaning. Dry ice was placed into each UST and allowed some time to make the interior of the USTs inert. A multi-gas meter was used to screen the USTs prior to cutting them open for cleaning. Speedy-dri was then spread with a broom to absorb residual petroleum, and vacuumed out by AARCO. UST sludge and residuals from cleaning (along with the product pumped out of each UST prior to clearing) were transported offsite for disposal at IPC. Cleaned USTs were then taken offsite for disposal at Gershow. USTs were removed and disposed in accordance with the Contract Documents and NYSDEC guidance documents. A UST closure report is provided in Appendix Q.

4.3.4 Storm Drain Sediment

Sediment within the inlet end of the existing storm drain manhole was sampled for characterization on May 3, 2011 and sent for laboratory analysis prior to the removal and offsite disposal of the storm drain system sediment. The 18-in. reinforced concrete storm pipe located in the east portion of the site was cleaned on May 16, 2011. An AARCO vactor truck (2100 Series DEC 1A-727) mobilized to the site to perform the work.

Storm drain sediment cleanout was performed via hydrojetting. The hydrojet line on the vactor truck was pulled through the storm pipe by means of water pressure pulling the hydrojet line through the pipe toward the outfall end. AARCO personnel then manually pulled the line out of the pipe from the manhole / inlet end. This hydrojet technique allowed sediments within the pipe to be flushed out into the manhole / inlet end. Water and sediments from the manhole at the

storm drain inlet were then cleaned out using the vacuum / extraction equipment on the vactor truck.

No sediment or wash water was observed to flow out of the pipe into Freeport Creek from the outfall end. Following pipe clean out activities, water that had been pumped from the manhole during clean out activities was decanted from the vactor truck back into manhole and then sediment from the vactor truck was loaded into 55 gal drums. Seven drums were packed with sediment and staged onsite until offsite disposal was scheduled. Waste characterization samples determined that sediment was non-hazardous.

4.3.5 Freeport Creek Contaminated Sediment

Dredging of contaminated sediment located in the 40 ft × 60 ft targeted area within Freeport Creek defined as EX7 by Contract Drawing 4 was performed from January 11 to 20, 2012. During the RA, it was determined that limited dock removal would need to take place before dredging of the Contract defined area could take place in order to allow for barge access and mobility during the completion of the work task. A meeting was held with the Engineer, Owner, Contractor, and dredging subcontractor (Hancock Bulkhead) on November 2, 2011 to coordinate dock removal and replacement tasks. The Owner set the schedule for dock removal based on dock use, and instructed the Contractor and dredging subcontractor on the steps necessary for proper dock removal. These steps included disconnection and dismantling of electrical and water supply at multiple boat slips, pier removal, and dock and slip removal. The Contractor and dredging subcontractor worked with the Owner's electrical subcontractor (Trius Electrical) in completing the electrical and plumbing disconnection work prior to dock removal.

Following dock removal, dredging was accomplished using a motorized barge equipped with a hydraulically operated clam shell. The work area was boomed with a floating turbidity barrier and dredged material was removed and placed into a 20 yd^3 container on the barge and dewatered. Once 12-15 yd^3 of material was placed into the container, the container was barged to the boat removal slip and the container was craned onto land to a staging area prior to transportation and disposal done by AARCO. The barge was then mobilized back to the work zone to continue dredging operations until the Contract-defined limits were reached.

Pre- and post-dredging surveys of EX7 were performed by Alphonse Pesce Land Surveying to verify the sediment removal limits and the volume of sediment removed. Approximately 250 tons of dredged non-hazardous sediment was transported and disposed offsite. Following sediment dredging, the docks were installed back in place by Hancock Bulkhead, and electrical and plumbing was reconnected to the satisfaction of the Owner.

4.3.6 Contaminated Soil and Sediment Removal and Disposal

Soil, C&D debris, and sediment excavated or dredged from the site, as well as excavation and purge water, were transported to the approved offsite disposal facilities. Soil and sediment was characterized for acceptance by disposal facilities. Table 2 shows the total quantities of each category of material removed from the site and the disposal locations. Waste characterization

analytical results are included in Appendix R. Letters from Applicants to disposal facility owners and acceptance letters from disposal facility owners are attached in Appendix S.

Manifests and bills of lading are included in electronic format in Appendix T.

4.3.6.1 Disposal Details

Disposal of Contaminated Soil from EX1 through EX6

Prior to intrusive activities, pre-excavation characterization sampling was completed by AARCO. Samples were collected on May 27, 2011, by means of Geoprobe 7822 DT® equipment, by drilling down 5 ft bgs in the 5 ft excavation areas and 1 ft bgs in the 1 ft excavation areas. Samples were collected from the center of the spoon at each sampling location. Three composite samples (one composite sample made of five samples collected from excavation areas EX2 and EX6; one composite sample of eight samples collected from excavation areas EX1, EX4, and EX5; and one composite sample of five grab samples) collected from excavation area EX3 were sent to ChemTech Laboratory for chemical analysis. Analytical results are summarized in Table 3 and included in Appendix R. Sample locations are depicted in DAR No. 5 (included in Appendix N).

Waste characterization analytical results were provided to 110 Sand Landfill for acceptance. Once acceptance was received, disposal of contaminated soil (including fuel impacted soils and C&D material) from within excavations EX1 through EX6 took place between July 12 and October 14, 2011. Approximately 4,250 tons of waste material (151 triaxial loads), which includes approximately 106 tons of fuel impacted soils (6 triaxial loads), and 240 tons of C&D material (13 triaxial loads). Contaminated soil, including fuel impacted soil, was disposed at 110 Sand Landfill. C&D material was disposed at SWR and Olson's.

The majority of the excavated soil was transported offsite by Long Island Sound Transport. Fuel impacted soil from EX1 and EX6 was disposed offsite by AARCO Environmental. Refer to Table 2 for manifest number indications and transporter license numbers for each load taken offsite.

Disposal of Contaminated Sediment from EX7 (Freeport Creek)

Prior to dredging activities, sediment characterization samples SED04 through SED08 were collected on September 21, 2011 using a ponar dredge sampler and sent to ChemTech laboratory for analysis for target analyte list metals.

Disposal of sediment dredged from EX7 within Freeport Creek was performed from January 11 to 20, 2012 simultaneously with dredging operations. Approximately 250 tons of sediment was removed from EX7 and disposed transported to 110 Sand Landfill by AARCO.

Disposal of Non-hazardous / Non-regulated Fill

Disposal of onsite ballast material which was excavated from the top 12 in. for asphalt pavement installation (see Section 4.6) as non-hazardous / non-regulated fill took place between October 28 and November 5, 2011. Approximately 1,215 tons (37 triaxial loads) of material was removed from the site and transported by Long Island Sound Transport to 110 Sand Landfill.

Storm Drain Sediment Disposal

Disposal of sediment removed from the onsite 18 in. diameter storm drain took place on October 3, 2011. Seven 55 gal drums of sediment were transported to the RMS facility by AARCO. Sediment within the inlet end of the storm drain manhole was sampled for characterization on May 3, 2011 and sent to ChemTech Laboratory for analysis prior to sediment removal activities.

4.4 POST-REMEDIAL DOCUMENTATION SAMPLING

Excavations EX1 through EX6

Following excavation of areas EX1 through EX6 (and prior to backfilling excavation areas), documentation samples were collected from the side walls and bottom of the excavations for analysis, as discussed in Section 4.3.1 of this report. Side wall samples were collected at a rate of 1 per 30 linear ft along perimeter of the excavation areas at a depth of approximately half the depth of the excavation (e.g., 2.5 ft bgs for 5 ft excavation areas). Excavation bottom samples were collected at a rate of 1 per 900 ft^2 of footprint area.

Tables and figures summarizing all soil documentation sampling are included in Tables 4A and 4B, and Figures 5-5F. All exceedences of SCGs are highlighted. Documentation sample analytical results are provided in Appendix U.

Freeport Creek Sediment (EX7)

Following the removal of contaminated sediment from the targeted area EX7 within Freeport Creek, five post-dredging grab samples (EX7P1 through EX7P5) were collected from within the dredged area using a mini-ponar dredge sampler on January 27, 2012. Samples were collected from the north center side of excavation, east center side of excavation, south center side of excavation, west center side of excavation, and center of excavation. Samples were sent to ChemTech Laboratory for analysis. QC samples were collected during this sampling event.

Sample results indicate exceedences of the ER-L for arsenic in four of the five samples, copper and mercury in all five samples, and exceedences of zinc in two of the five samples. Sample location EX7P3 reported the most exceedences, including arsenic, cadmium, chromium, copper, lead, mercury, nickel, silver, and zinc. The concentrations of lead, mercury, and silver were detected within EX7P3 exceeding the ER-M. EX7P2 reported copper at a level exceeding the ER-M.

A table and figure summarizing all sediment documentation sampling results exceeding the site-specific ER-L and ER-M are included in Table 5 and Figure 5G. All exceedences of SCGs are highlighted.

4.5 IMPORTED BACKFILL

Following soil removal, documentation sampling, and survey activities at each excavation, disturbed areas were restored to original grades. The bottom of each excavation was lined with a geotextile demarcation fabric. The 5-ft depth excavation areas (i.e., EX1, EX3, and EX4 through EX6) were backfilled with three to four 1-ft lifts of granular backfill, supplied by A&R Materials. Approximately 12.5 in. of reservoir course material (consisting of 1¼-in. clean stone, supplied by A&R Materials) was placed over the granular fill, as part of the porous pavement system provided by Rason Asphalt of Cedarhurst, NY and installed by City and County Paving. Each lift of granular fill and reservoir course was compacted with 4-6 passes of an 8 ton vibratory roller. A 4.5-in. thick porous pavement cover was installed by over the reservoir course. The 1-ft depth excavation area (EX2) and previous ballast-covered areas were restored by installing 6 in. of imported asphalt pavement sub-base material followed by a 6 in. asphalt pavement cover (discussed in Section 4.6).

Approximately 1,828 yd^3 (3,500 tons) of granular fill was imported to the site and used as backfill within EX1, EX3, EX4, EX5, and EX6 excavation areas. Approximately 1,300 tons of 1¼-in. stone material from A&R Materials was imported to the site and used as the 12.5 in. reservoir course layer within EX1, EX3, EX4, EX5, and EX6 excavation areas. Approximately 490 tons of asphalt pavement sub-base from the West Nyack Quarry in Tilcon, NY was imported to the site and placed prior to the installation of the 6-in. thick asphalt pavement supplied by Rason Asphalt and installed by City and County Paving.

A table of all sources of imported backfill with quantities for each source is provided in Table 6. Geotechnical and analytical data for backfill is provided in Appendix V.

4.6 COVER SYSTEM

Exposure to remaining contamination in soil/fill at the site is prevented by a cover system placed over the site from November 4 to 11, 2011. This cover system consists of a 4.5 in. porous pavement layer over reservoir course layer within maximum 5 ft excavation areas, and 6 in. asphalt pavement (3 in. binder course overlain by 3 in. top course) over the 1 ft excavation areas (EX2) and previous ballast covered areas (except for Freeport Electric right-of-way area).

The top 12 in. of ballast material on the east portion of the site was stripped to allow sufficient space for an asphalt cover system to be installed. A geotextile demarcation layer was followed by a 6 in. layer of imported asphalt sub-base and topped with a 6 in. layer of pavement (3 in. binder course over 3 in. top course). Ballast excavation and asphalt sub-base installation was performed by A&R Materials Handling.

Porous pavement and asphalt pavement was installed by City and County Paving Corp. Grading to achieve porous pavement subgrade (i.e., 4.5 in. below final grade) and asphalt pavement subgrade (i.e., 6 in. below final grade) was also performed by City and County Paving Corp. Asphalt and porous pavement covers were constructed in accordance to the requirements of the Contract plans and specifications. Approximately 500 tons of porous asphalt was delivered to the site and installed. Approximately 240 tons of asphalt binder course and 270 tons of asphalt top course was delivered to the site and installed.

Following paving and site restoration activities, monitoring wells MW08S/MW08D, MW09S/MW09D, MW10S/MW10D were installed in accordance with Contract Documents to replace decommissioned wells MW02S/MW02D, MW03S/MW03D, and MW07S/MW07D which were within the excavation areas. Monitoring wells were purged and developed in accordance with Contract specifications. The Monitoring Well Installation Report is included as Appendix W.

Installation of a slotted drain system along the entrance gates (to the east and west of the site), in accordance to Contract drawings and specifications, was originally performed by A&R Materials on December 4 and 5, 2011. Due to crumbling of the concrete around the drain following the initial installation, the concrete was removed and re-poured on January 31, 2012. The intent of the slotted drains is to capture storm water runoff leaving the site and allow percolation into the ground.

Figure 6 shows the as-built site restoration conditions, including cover types, the slotted drain systems, and new monitoring wells.

An Excavation Work Plan, which outlines the procedures required in the event the cap system and/or underlying residual contamination are disturbed, is provided as an appendix of the site management plan.

4.7 CONTAMINATION REMAINING AT THE SITE

As stipulated in the ROD, excavation depth was limited by the low tide groundwater elevation; therefore, known contamination remains at the site. Mirafi® 180N/O non-woven geotextile was installed as a demarcation layer at a depth of 5 ft in excavation areas EX3, EX4, EX5, and EX6; it was installed at a depth of 1 ft in excavation areas EX1 and EX2.

During the RI, VOC and metals contamination was identified in various locations throughout the site deeper than the maximum excavation depth of 5 ft. Concentrations of metals and VOCs exceeded the SCGs at sampling intervals 7-8 ft bgs and 12 ft bgs. VOCs xylene and naphthalene were identified in the western area of the site near excavation area EX3 7-8 ft bgs and 12 ft bgs. Various VOCs including TCE, benzene, toluene, and methyl-tert-butyl-ether were identified in the central area of the site near excavation area EX5 within intervals 7-8 ft bgs and 12 ft bgs. Xylenes were identified 7-8 ft bgs and 12 ft bgs in the northeast area of the site near an existing electrical conduit. Ethylbenzene, xylene, and chlorobenzene were identified 8 ft bgs in the southeast area of the site.

Metals including chromium, copper, nickel and zinc were identified at concentrations exceeding the SCGs in soil within the central portion of the site 7-8 ft bgs and 12 ft bgs. Copper, nickel, and zinc were identified in soil within the east area of the site 7-8 ft bgs and 12 ft bgs. A confining clay layer was identified 31-38 ft bgs across the site.

Documentation soil samples were collected at the excavation boundaries following remediation work as discussed in Section 4.4. Samples from EX1 were collected on August 25, 2011, samples from EX2 were collected on July 21, 2011; samples from EX3 were collected on 19, 21, and July 27, 2011; samples from EX4 were collected on August 22, 2011; samples from EX5 were collected on August 4, 11, 16, and 22, 2011; and September 7, 2011; and samples from EX6 were collected on July 20 and 21, and August 4, 2011. Tables 4A and 4B provide a summary of a limited list of VOCs and metals that exceeded the site-specific SCGs as defined by Table 1 of the 2007 ROD[(1)].

VOCs detected in documentation soil samples with concentrations exceeding the site specific SCGs include xylenes with a maximum concentration of 2,100 µg/kg in EX1SW1 at 2.5 ft bgs, 1,2-dichloroethylene as a combination of *cis*- and *trans*-1,2-dichloroethylene with a maximum concentration of *cis*-1,2-dichloroethylene of 390 µg/kg in EX5B4 at 5 ft bgs, and toluene with a maximum concentration of 1,600 µg/kg in EX5B4 at 5 ft bgs (in the south central area of EX5).

Metals detected in documentation soil samples with concentrations exceeding the site-specific SCGs include chromium, copper, nickel, and zinc. The maximum concentration of chromium was detected in the sample collected at EX5SW7 at 2.5 ft bgs with a concentration of 218 mg/kg. The maximum concentration of copper was detected in the sample collected at EX6SW2 at 2.5 ft bgs with a concentration of 2,430 mg/kg. The maximum concentration of nickel was detected in the sample collected at EX6SW4 at 2.5 ft bgs with a concentration of 596 mg/kg. The maximum concentration of zinc was detected in the sample collected at EX6SW2 at 2.5 ft bgs with a concentration of 558 mg/kg. Documentation samples collected from sample locations EX1SW1, EX2B2, EX2B4, EX5SW7, and EX6SW2 contained all four metals at concentrations in exceedance of the site-specific SCGs.

Of the three documentation samples collected from the bottom of EX3 at 5 ft bgs, only one sample contained zinc at a concentration exceeding the site-specific SCGs, which was EX3B1 at a concentration of 22 mg/kg. Four of the five side wall samples from EX3 collected from 2.5 ft bgs contained zinc at a concentration exceeding the site-specific SCGs as well; the maximum concentration was from EX3SW5 at 59.6 mg/kg.

The bottom sample collected from EX4 at 5 ft bgs contained chromium (78.3 mg/kg), copper (45.8 mg/kg), and zinc (28.2 mg/kg) at concentrations exceeding the SCGs, while only one of the three side wall samples from EX4 at 2.5 ft bgs contained a concentration of zinc (EX4SW1, 63.8 mg/kg) exceeding the site-specific SCG.

Five of the seven bottom samples of EX5 at 5 ft bgs contained a concentration of copper exceeding the site-specific SCG with the maximum concentration at EX5B5 of 953 mg/kg. EX5B5, which is near the center of EX5 also contained chromium at a concentration of 61.3

mg/kg, nickel at a concentration of 56.4 mg/kg, and zinc at a concentration of 345 mg/kg, all exceeding the respective SCG. Eight of 12 side wall samples from EX5 at 2.5 ft bgs contained concentrations of copper and zinc exceeding the site-specific SCGs, with maximum concentrations of 1,190 mg/kg in EX5SW7 and 314 mg/kg in EX5SW2, respectively. Four of 13 samples contained concentrations of nickel exceeding the site-specific SCG, with the maximum concentration of 110 mg/kg in EX5SW7. This location, which is near EX5B5 in the center of EX5, also contained the only chromium exceedence of 218 mg/kg.

Excavation EX6 consisted of a northern and southern portion separated by the utility right-of-way. Both bottom samples in the northern portion and all three of the bottom samples in the southern portion, all collected at 5 ft bgs, contained concentrations of copper and zinc exceeding the site-specific SCGs, with maximum concentrations of 102 mg/kg in EX6NB1 and 280 mg/kg in EX6B1, respectively. One of the northern bottom samples and two of the three southern bottom samples contained nickel at a concentration greater than the site-specific SCG, with a maximum concentration of 45.3 mg/kg in EX6B3. All side wall samples collected from EX6 contained concentrations of zinc exceeding the site-specific SCG with a maximum concentration of 558 mg/kg from EX6SW2 at 2.5 ft bgs. All but two side wall samples from EX6 contained concentrations of copper exceeding the site-specific SCG, with a maximum of 2,430 mg/kg also at EX6SW2, which is located in the center of the southern wall of EX6. All but two of the side wall samples collected from the southern portion of EX6 and one of the side wall samples collected from the northern portion of EX6 (along the northern boundary of the right-of-way) contained nickel at a concentration exceeding the site-specific SCGs, with a maximum concentration of 596 mg/kg in EX6SW4 at 2.5 ft bgs. One side wall sample, EX6SW2, along the southern boundary of EX6 contained a concentration of chromium at a concentration of 86.3 mg/kg, exceeding the site-specific SCG.

Excavation EX7 was a 2 ft excavation within Freeport Creek. Documentation samples collected following dredging activities contained copper and mercury exceeding their respective ER-Ls of 34 mg/Kg and 0.15 mg/Kg. Sample location EX7P2 contained copper at a concentration exceeding the ER-M of 270 mg/Kg with a concentration of 299 mg/Kg. Sample location EX7P3 contained mercury at a concentration exceeding the ER-M of 0.71 mg/Kg with a concentration of 1.86 mg/Kg. Four of the five documentation samples collected from EX7 contained concentrations of arsenic which exceeded the ER-L of 8.2 mg/Kg. Concentrations ranged from 8.48 mg/Kg in EX7P5 to 17.2 mg/Kg in EX7P2.

Tables 4A and 4B, and Figures 5A-F summarize the results of all soil samples remaining at the site after completion of the RA that exceed the site-specific SCGs. Table 5 and Figure 5G summarize the results of all sediment samples remaining at the site after completion of dredging activities that exceed the ER-L and ER-M.

Since contaminated soil and groundwater remain beneath the site after completion of the RA, institutional and engineering controls are required to protect human health and the environment. These engineering and institutional controls are described in the following sections. Long-term management of these engineering and institutional controls, and residual contamination will be performed under the site management plan approved by the NYSDEC.

4.8 OTHER ENGINEERING CONTROLS

The remedy for the site did not require the construction of any other engineering control systems.

Procedures for monitoring, operating, and maintaining the monitored natural attenuation are provided in the operation and maintenance plan in Section 4 of the site management plan. The monitoring plan also addresses inspection procedures that must occur after any severe weather condition has taken place that may affect onsite engineering controls.

4.9 INSTITUTIONAL CONTROLS

The site remedy requires that an environmental easement be placed on the property to (1) implement, maintain, and monitor the engineering controls; (2) prevent future exposure to remaining contamination by controlling disturbances of the subsurface contamination; and, (3) limit the use and development of the site to commercial use only.

The environmental easement for the site is currently being prepared by the Department for filing with the Nassau County Clerk. A recorded copy will be placed into the site management plan for the site.

4.10 DEVIATIONS FROM THE CONTRACT DOCUMENTS

Field conditions required some deviations from the Contract Documents for the Metal Etching site. Deviations and their associated proposed change order (PCO) (included as part of the Change Orders in Appendix X) if applicable include the following.

Additional Health and Safety Days (PCO 1)

Additional health and safety days, as defined by site activities involving open excavations and dust monitoring were required to complete site activities. The Contract Documents estimated 21 days would be required. A total of 26.5 days were used. This resulted in an additional Contract cost of $5,912.50 and no change to the Contract time.

Less Soil Characterized as Hazardous Waste

Soil characterization results indicated that all soil from the excavations defined by the Contract Documents was to be disposed of as non-hazardous waste. The original Hazardous Waste Disposal unit cost item UC-5 was not used for this work. This resulted in a decrease of $56,760 to the Contract cost and no change to the Contract time.

Additional UST Removal (PCO 3)

The RD anticipated the discovery and removal of two total USTs during excavation activities; one UST within EX3 and one UST within EX5/EX1. However, two USTs were found in each

area, resulting in two additional USTs requiring removal. This resulted in an additional Contract cost of $18,886.40 and no change to the Contract time.

Additional Excavation (PCO 6)

Additional excavation took place during construction due to the discovery of two additional USTs, as well as additional soil excavated from EX6 discussed in Section 4.3.1 of this report. Additional excavation resulted in additional granular fill material (PCO 4) required for backfilling extended excavations, additional non-hazardous soil disposal (PCO 2 and PCO 8), and additional demarcation layer (PCO 7) installation. This resulted in an additional $72,504 to the Contract cost for non-hazardous soil disposal, an additional $15,490.75 to the Contract cost for granular fill material, and $15,416 for demarcation layer. There was no change to the Contract time as a result of additional excavation.

Changes to the Porous Pavement and Asphalt Pavement Layer Thickness (PCO 5)

To increase the strength of the porous pavement, the reservoir course layer was reduced by 1.5 in. and the porous pavement layer was increased by 1.5 in. In order to increase the strength of the asphalt, the binder course thickness was reduced by 1 in. and the asphalt top course was increased by 1 in. This resulted in an addition of $60,251.23 for porous pavement and $10,476.16 for asphalt. There was no change to the Contract time due to the change in porous and asphalt pavement layer thickness.

Additional Porous Pavement Area Installed (PCO 10)

Porous pavement and asphalt pavement areas changed slightly from the RD due to changes in the field approved by the Engineer. Area EX1 was restored with porous pavement over reservoir course, rather than the original proposed asphalt pavement, because this area was excavated down to 5 ft bgs due to the discovery of USTs 3 and 4 while excavating EX5 down to 5 ft bgs. Since this area was excavated to 5 ft bgs, it was restored similar to all other 5 ft excavation areas, in accordance with Contract drawings. This resulted in an addition of $19,670 for increased porous pavement and a decrease of $55,420 for decreased asphalt pavement area to the Contract price. There was no change to the Contract time due to the additional porous pavement area.

Stone in Place of Pavement Along Bulkhead, Northeastern Fence Line, and Within the Freeport Electric Right of Way (PCO 11)

The asphalt pavement along the wood timber retaining wall/bulkhead located to the southeast most portion of the site was constructed 5 ft away from bulkhead to avoid sinkholes areas. Sinkholes along the bulkhead were brought to the attention of the Site Engineer and EnviroTrac by the site Owner's yard manager. Also, the two storage containers located in the same area were not relocated by the site Owner; therefore, asphalt pavement was not installed under them. The site Owner explained that relocating temporarily during asphalt pavement installation would be infeasible.

Asphalt pavement was not installed in a small area to the north and northeast portions of the site (to the north of EX6 – north of the Freeport Electric right-of-way) due to discovering unexpected electrical conduits while stripping the top 12 in. of ballast material, approximately 2-3 in. below grade. The asphalt pavement limit was revised in this area to prevent damage to these electrical conduits as shown on the Record Drawings (Appendix C) and Figure 6.

Also, approximately 3-6 in. stone cover was installed within the Freeport Electric right-of-way to raise grades to meet adjacent newly paved areas for the site Owner's convenience.

This resulted in an addition of $11,635.05 to the Contract price and no change to the Contract time.

Additional Rip-Rap Area

The rip-rap area along the southern edge of the site was expanded to cover a space that did not have asphalt cover, as originally indicated in the Contract drawings. An additional 181 yd^2 of rip-rap was installed resulting in an addition of $6,878 to the Contract price. There was no change to the Contract time.

Removal of Docks and Disconnecting of Dock Utilities for Dredging Operations (PCO 9)

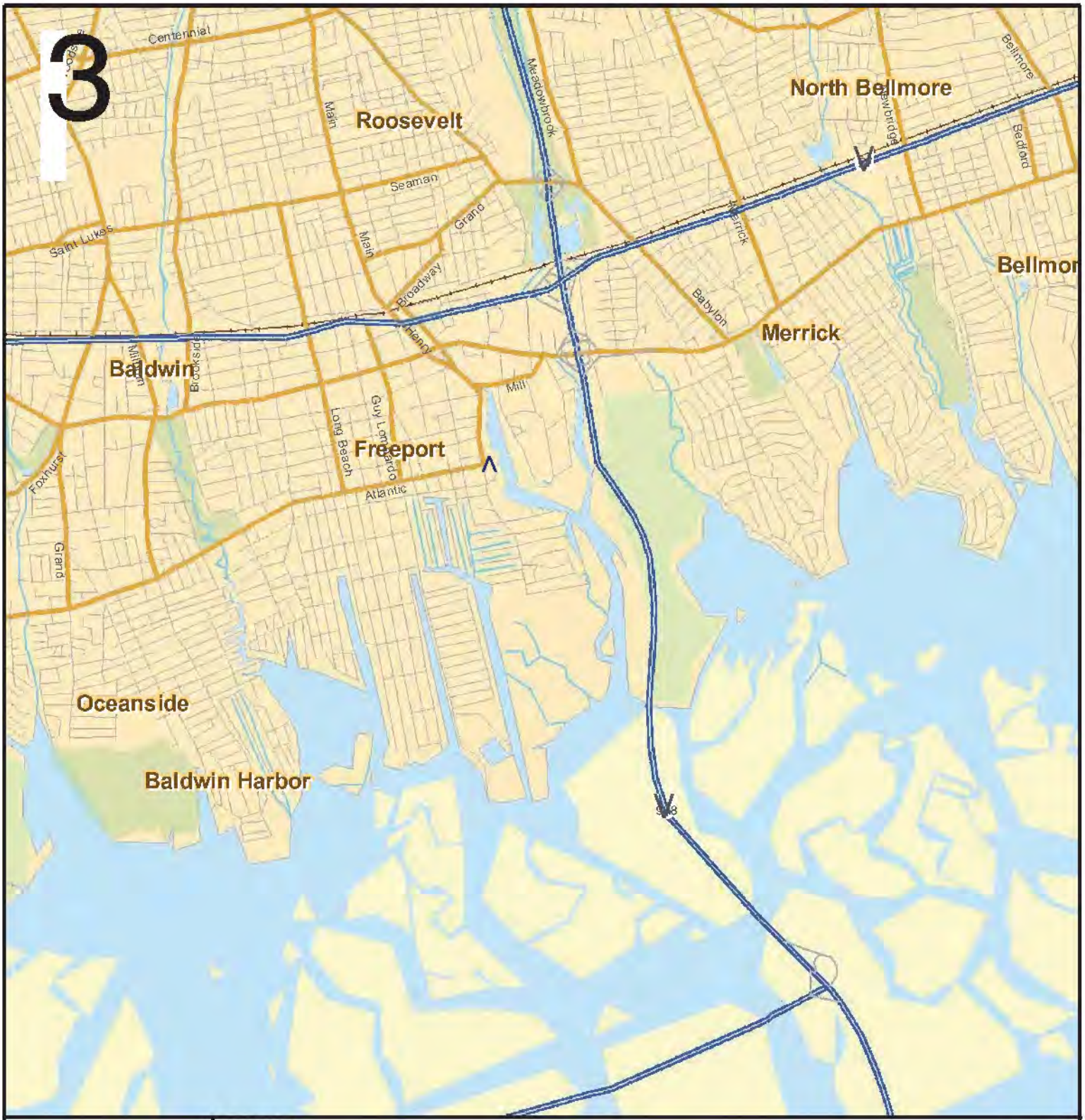
Dock removal and replacement during dredging operations was not included in the original contract under the assumption that the work could be performed without dock removal. It was determined by Hancock Bulkhead that it would be infeasible to accomplish mechanical dredging in EX7 with the dock structures in place. This change resulted in an addition of $88,740 to the Contract price and an addition of 30 days to the Contract time.

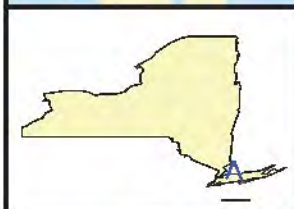
Approved PCOs were incorporated in two project change orders. Change Order #1 was executed on February 29, 2012. Change Order #2 was executed on September 14, 2012. The Change Order and PCO log is provided in Appendix X along with executed Change Orders #1 and 2. Associated PCOs are included as attachments to the change orders.

4.11 PROJECT COMPLETION

Substantial completion was reached on December 23, 2011, based on an inspection conducted by EA on December 19, 2011. A punch list of remaining work was included with the substantial completion certificate included in Appendix Y. Remaining work was completed and final completion was reached on February 15, 2012. The final completion certificate is included in Appendix Z and the final contract quantities are included in Appendix AA.

All analytical data generated as part of this contract was processed through the EQuIS data processor and submitted to NYSDEC following project completion.





LEGEND

^ Site Location

0 0.25 0.5 1 Miles

Source: StreetMap USA

METAL ETCHING SITE (130110)
FINAL ENGINEERING REPORT
FREEPORT, NEW YORK
NASSAU COUNTY

FIGURE 1
Site Location Map

PROJECT MGR:	DESIGNED BY:	CREATED BY:	CHECKED BY:	SCALE:	DATE:	PROJECT NO:	FILE NO:
RSC	CJS	MEM	RSC	AS SHOWN	OCTOBER 2012	14474.37	GIS/PROJECTS/ FIGURE1.MXD

METAL ETCHING SITE (130110)
FINAL ENGINEERING REPORT
FREEPORT, NEW YORK
NASSAU COUNTY

FIGURE 2
Site Boundary Map

0 35 70 140 Feet

Legend

Site Boundary

Source: NYS GIS Clearing House

PROJECT MGR:	DESIGNED BY:	CREATED BY:	CHECKED BY:	PROJECT NO:	DATE:	SCALE:
RSC	MEM	MEM	RSC	14474.37	OCTOBER 2012	AS SHOWN

3

METAL ETCHING SITE (130110)
FINAL ENGINEERING REPORT
FREEPORT, NEW YORK
NASSAU COUNTY

FIGURE 3
Locations of Existing and Former Buildings

0 15 30 60 Feet

Source: NYS GIS Clearing House

Legend

- Existing Buildings
- Approximate Footprint of Former Buildings

PROJECT MGR:	DESIGNED BY:	CREATED BY:	CHECKED BY:	PROJECT NO:	DATE:	SCALE:	FILE NO:
RSC	MEM	MEM	RSC	14474.37	OCTOBER 2012	AS SHOWN	G:\Projects\GIS\FIG3

METAL ETCHING SITE (130110)
FINAL ENGINEERING REPORT
FREEPORT, NEW YORK
NASSAU COUNTY

FIGURE 4
Excavation
Area Boundaries

0 12.525 50 75 100 Feet

Source: NYS GIS Clearing House

Legend

- Pre-Remediation Location of Underground Storage Tanks 1 & 2
- Excavation Area Boundaries
- Approximate Location of Underground Storage Tanks 3 & 4

PROJECT MGR:	DESIGNED BY:	CREATED BY:	CHECKED BY:	PROJECT NO:	DATE:	SCALE:	FILE NO:
RSC	MEM	MEM	RSC	14474.37	OCTOBER 2012	AS SHOWN	G:\Projects\GIS\FIG4

		METAL ETCHING SITE (130110) FINAL ENGINEERING REPORT FREEPORT, NEW YORK NASSAU COUNTY			FIGURE 5 Documentation Sample Locations		0 20 40 80 Feet	Source: NYS GIS Clearing House
		PROJECT MGR: RSC	DESIGNED BY: RSC	CREATED BY: MEM	CHECKED BY: RSC	PROJECT NO: 14474.37	DATE: OCTOBER 2012	SCALE: AS SHOWN	FILE NO: G:\Projects\Fig5

Legend

- Documentation Sample Locations
- Excavation Area Boundaries

METAL ETCHING SITE (130110)
FINAL ENGINEERING REPORT
FREEPORT, NEW YORK
NASSAU COUNTY

FIGURE 5A
Documentation Sample Locations with Exceedances of Site-Specific SCG's
EX1

0 4 8 16 Feet

Source: NYS GIS Clearing House

Legend

- Documentation Sample Locations
- Excavation Area Boundaries

NOTE: All results in mg/kg

PROJECT MGR:	DESIGNED BY:	CREATED BY:	CHECKED BY:	PROJECT NO:	DATE:	SCALE:	FILE NO:
RSC	MEM	MEM	RSC	14474.37	OCTOBER 2012	AS SHOWN	G:\Projects\Fig9B

METAL ETCHING SITE (130110)
FINAL ENGINEERING REPORT
FREEPORT, NEW YORK
NASSAU COUNTY

FIGURE 5B
Documentation Sample Locations with Exceedances of Site-Specific SCG's
EX2

0 5 10 20 Feet

Source: NYS GIS Clearing House

Legend

- Documentation Sample Location
- Excavation Area Boundaries

NOTE: Results in mg/kg

PROJECT MGR:	DESIGNED BY:	CREATED BY:	CHECKED BY:	PROJECT NO:	DATE:	SCALE:	FILE NO:
RSC	MEM	MEM	RSC	14474.37	OCTOBER 2012	AS SHOWN	G:\Projects\Fig9C

METAL ETCHING SITE (130110)
FINAL ENGINEERING REPORT
FREEPORT, NEW YORK
NASSAU COUNTY

FIGURE 5C
Documentation Sample Locations with Exceedences of Site-Specific SCG's EX3

0 12.5 25 50 Feet

Source: NYS GIS Clearing House

Legend

- Documentation Sample Locations
- Excavation Area Boundaries

NOTE: VOC results in ug/kg, Metals results in mg/kg

PROJECT MGR:	DESIGNED BY:	CREATED BY:	CHECKED BY:	PROJECT NO:	DATE:	SCALE:	FILE NO:
RSC	MEM	MEM	RSC	14474.37	OCTOBER 2012	AS SHOWN	G:\Projects\Fig5C

METAL ETCHING SITE (130110)
FINAL ENGINEERING REPORT
FREEPORT, NEW YORK
NASSAU COUNTY

FIGURE 5D
Documentation Sample Locations with Exceedances of Site-Specific SCG's
EX4

PROJECT MGR:	DESIGNED BY:	CREATED BY:	CHECKED BY:	PROJECT NO:	DATE:	SCALE:	FILE NO:
RSC	MEM	MEM	RSC	14474.37	OCTOBER 2012	AS SHOWN	G:\Projects\Fig5D

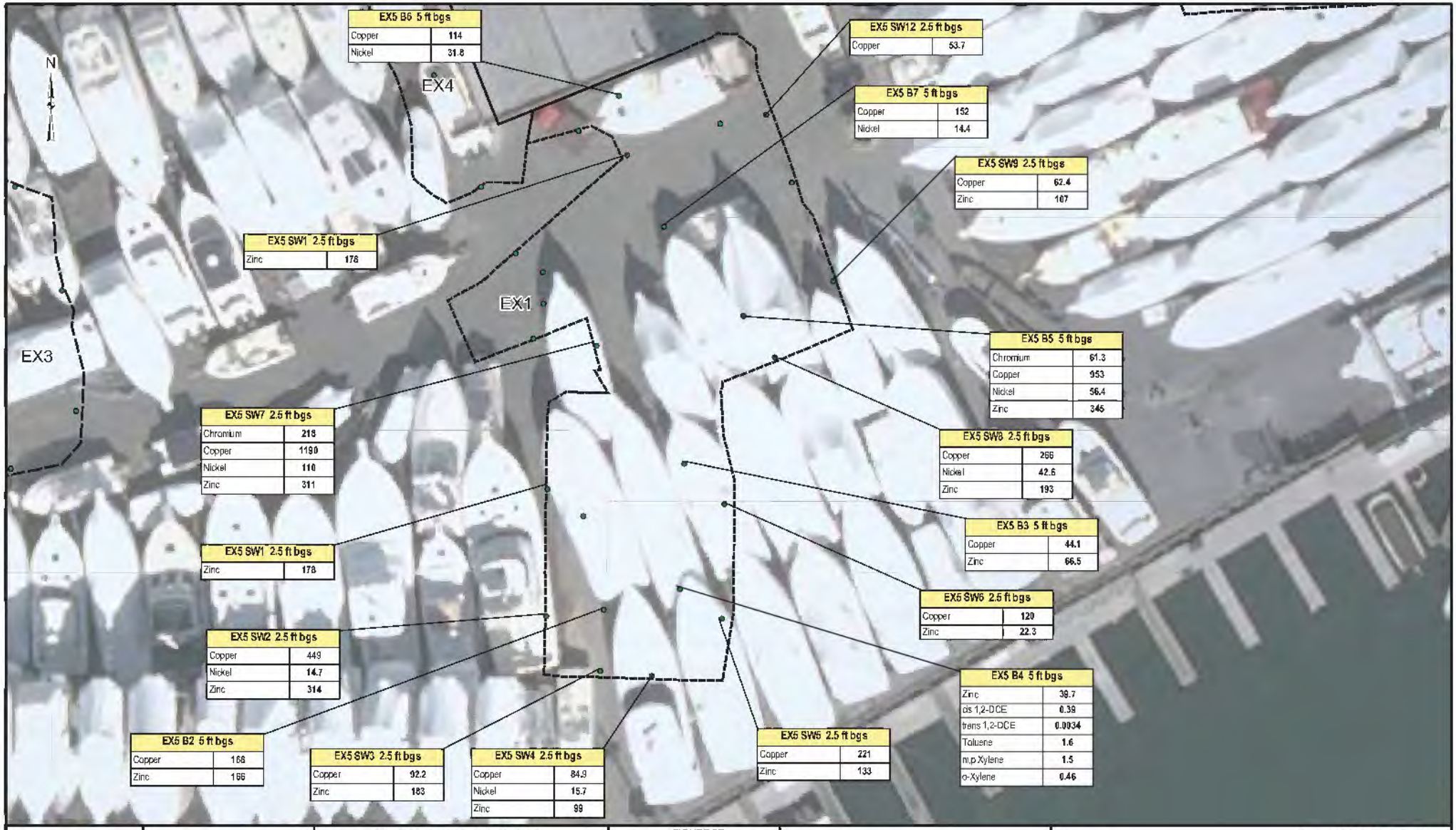
0 5 10 20 Feet

Source: NYS GIS Clearing House

Legend

- Documentation Sample Locations
- Excavation Area Boundaries

NOTE: Results in mg/kg



METAL ETCHING SITE (130110)
FINAL ENGINEERING REPORT
FREEPORT, NEW YORK
NASSAU COUNTY

FIGURE 5E
Documentation Sample Locations with Exceedances of Site-Specific SCG's
EX5

0 10 20 40 Feet

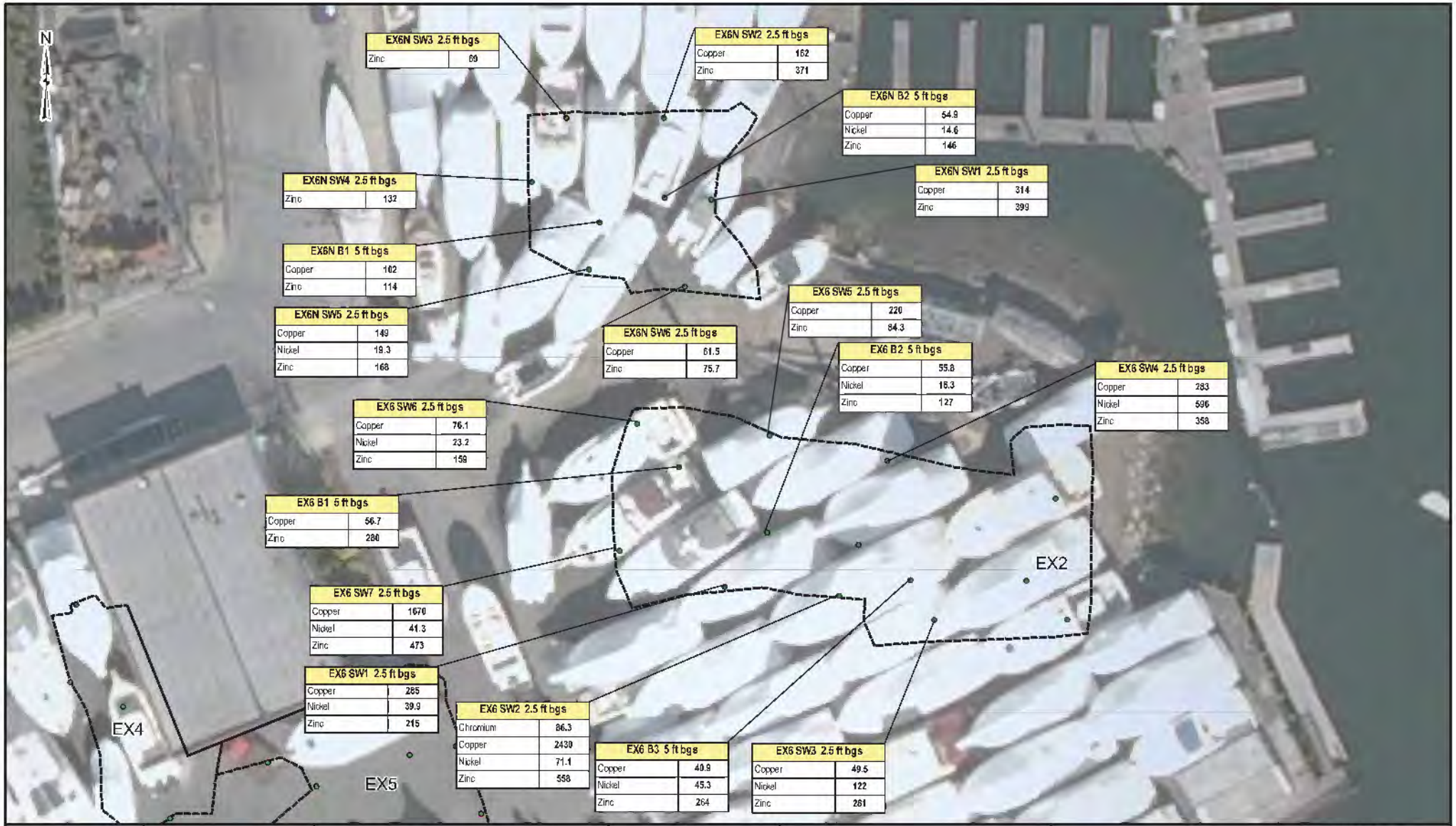
Source: NYS GIS Clearing House

Legend

- Documentation Sample Locations
- Excavation Area Boundaries

NOTE: Results in mg/kg

PROJECT MGR:	DESIGNED BY:	CREATED BY:	CHECKED BY:	PROJECT NO:	DATE:	SCALE:	FILE NO:
RSC	MEM	MEM	RSC	14474.37	OCTOBER 2012	AS SHOWN	G:\Projects\Fig5E



METAL ETCHING SITE (130110)
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FREEPORT, NEW YORK
NASSAU COUNTY

FIGURE 5F
Documentation Sample Locations with Exceedances of Site-Specific SCG's EX6

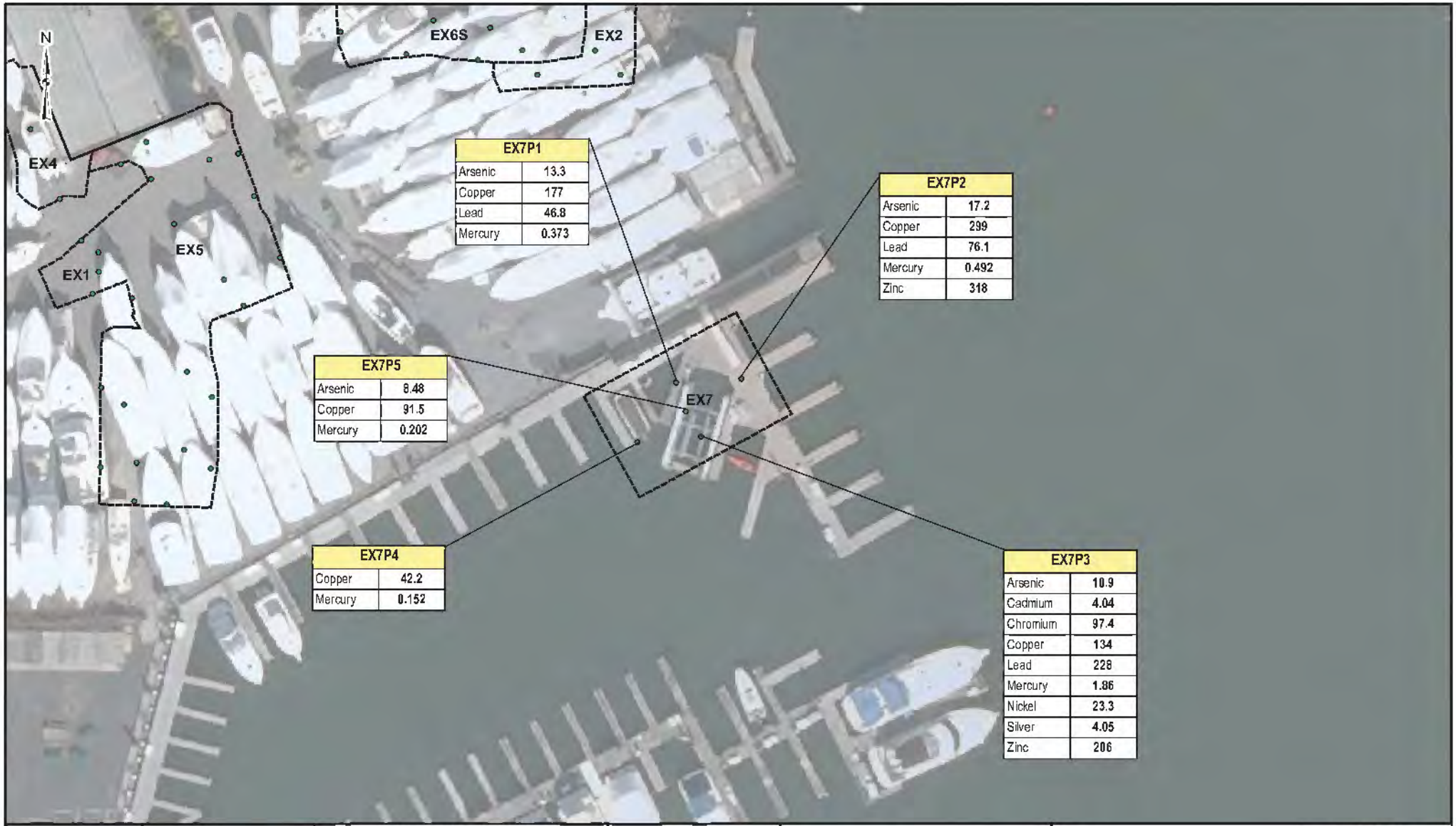
Feet
0 10 20 40

Source: NYS GIS Clearing House

Legend
- Documentation Sample Location
- Excavation Area Boundaries

NOTE: Results in mg/kg

PROJECT MGR:	DESIGNED BY:	CREATED BY:	CHECKED BY:	PROJECT NO:	DATE:	SCALE:	FILE NO:
RSC	MEM	MEM	RSC	14474.37	OCTOBER 2012	AS SHOWN	G:\Projects\Fig5F



METAL ETCHING SITE (130110)
FINAL ENGINEERING REPORT
FREEPORT, NEW YORK
NASSAU COUNTY

FIGURE 5G
Documentation Sample Locations with Exceedences of SCGs in EX7

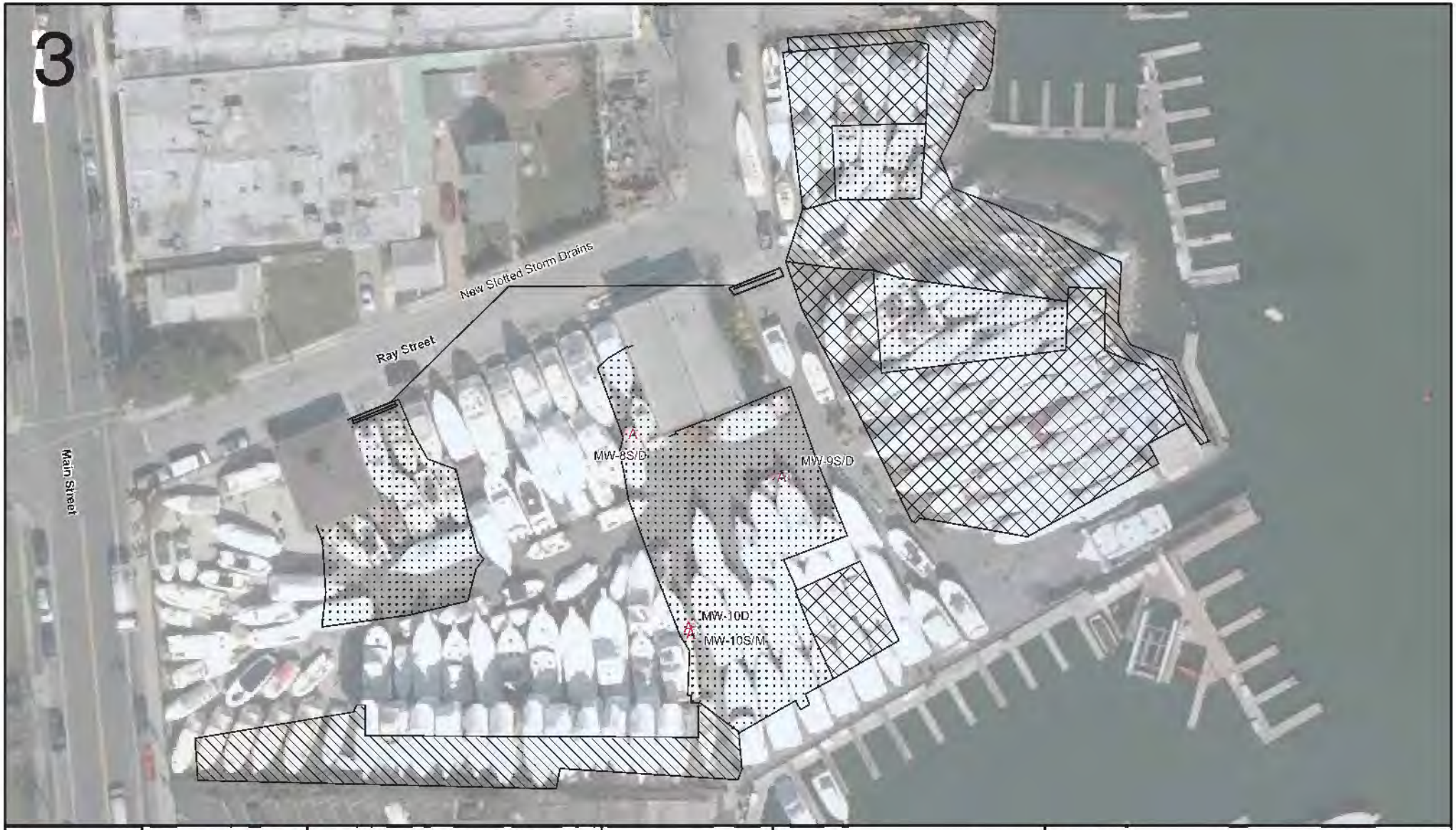
0 15 30 60 Feet

Source: NYS GIS Clearing House

Legend

- Documentation Sample Locations
- Excavation Area Boundaries

PROJECT MGR:	DESIGNED BY:	CREATED BY:	CHECKED BY:	PROJECT NO:	DATE:	SCALE:	FILE NO:
RSC	MEM	MEM	RSC	14474.37	OCTOBER 2012	AS SHOWN	G:\Projects\Fig5G



	METAL ETCHING SITE (130110) FINAL ENGINEERING REPORT FREEPORT, NEW YORK NASSAU COUNTY			FIGURE 6 Site Restoration		0 20 40 80 Feet		
	PROJECT MGR: RSC	DESIGNED BY: MEM	CREATED BY: MEM	CHECKED BY: RSC	PROJECT NO: 14474.37	DATE: OCTOBER 2012	SCALE: AS SHOWN	FILE NO: G:\Projects\Fig6

Legend

A New Monitoring Wells

Asphalt Cover

Porous Pavement Cover

Stone Cover

Source: NYS GIS Clearing House

TABLE 1A CLEANUP OBJECTIVES FOR METAL ETCHING SITE SITE NO 130110 RA CONTRACT D007938

Constituent	Standards, Criteria and Guidance	Units
VOLATILE ORGANIC COMPOUNDS - SOIL		
Tetrachloroethylene (PCE)	1.4	mg/Kg
Trichloroethylene (TCE)	0.7	mg/Kg
1,2-Dichloroethylene (DCE)	0.3	mg/Kg
Vinyl Chloride	0.2	mg/Kg
Benzene	0.06	mg/Kg
Toluene	1.5	mg/Kg
Ethylbenzene	5.5	mg/Kg
Xylene	1.2	mg/Kg
Naphthalene	13	mg/Kg
Chlorobenzene	17	mg/Kg
INORGANICS (METALS) - SOIL		
Chromium	50	mg/Kg
Copper	25	mg/Kg
Nickel	13	mg/Kg
Zinc	20	mg/Kg
VOLATILE ORGANIC COMPOUNDS - GROUNDWATER		
Tetrachloroethylene (PCE)	5	µg/L
Trichloroethylene (TCE)	5	µg/L
1,2-Dichloroethylene (DCE)	5	µg/L
Vinyl Chloride	2	µg/L
Methyl Tert Butyl Ether (MTBE)	10	µg/L
INORGANICS (METALS) - GROUNDWATER		
Chromium	50	µg/L
Copper	200	µg/L
Nickel	100	µg/L
Zinc	2,000	µg/L
NOTE: Soil cleanup objectives developed for 2007 Record of Decision.		

TABLE 1B EFFECTS RANGE-LOW AND EFFECTS RANGE-MEDIAN FOR METAL ETCHING SITE SEDIMENT SITE NO 130110 RA CONTRACT D007938

Constituent	Effects Range-Low	Effects Range-Median	Units
INORGANICS (METALS)			
Arsenic	8.2	70	mg/Kg
Cadmium	1.2	9.6	mg/Kg
Chromium	81	370	mg/Kg
Copper	34	270	mg/Kg
Iron[(a)]	2%	4%	mg/Kg
Lead	46.7	218	mg/Kg
Manganese[(a)]	460	1100	mg/Kg
Mercury	0.15	0.71	mg/Kg
Nickel	20.9	51.6	mg/Kg
Silver	1	3.7	mg/Kg
Zinc	150	410	mg/Kg

(a) Persaud, D., Jaagumagi, R., and A. Hayton, 1992. Guidelines for the Protection and Managament of Aquatic Sediment Quality in Ontario. Ontario Ministry of the Environment, Queen's Printer for Ontario.

TABLE 2 OFFSITE WASTE DISPOSAL VOLUMES AND FACILITIES
SITE NO 130110 RA CONTRACT D007938

Date	Manifest #	Transporter	Designated Facility	Excavation Area	Haz/ Non-Haz	Return Original?	Weigh Ticket #	Scale Weight (T) or Volume	Date Weighed	ARM Ticket #
SOIL FROM CONTRACT SPECIFIED EXCAVATION AREAS										
7/12/2011	1	LI Transport	110 Sand	EX3	non-haz	Y	807224	22.87	7/12/2011	60208
7/12/2011	2	LI Transport	110 Sand	EX6 and EX2	non-haz	Y	807300	23.98	7/12/2011	60209
7/12/2011	3	LI Transport	110 Sand	EX6 and EX2	non-haz	Y	807342	41.32	7/12/2011	52487
7/12/2011	4	LI Transport	110 Sand	EX6 and EX2	non-haz	Y	807346	42.65	7/12/2011	61669
7/12/2011	5	LI Transport	110 Sand	EX6 and EX2	non-haz	Y	807388	24.62	7/12/2011	60210
7/12/2011	6	LI Transport	110 Sand	EX6 and EX2	non-haz	Y	807400	24.48	7/12/2011	65087
7/12/2011	7	LI Transport	110 Sand	EX6 and EX2	non-haz	Y	807413	41.43	7/12/2011	65408
7/12/2011	8	LI Transport	110 Sand	EX6 and EX2	non-haz	Y	807416	41.51	7/12/2011	61670
7/12/2011	9	LI Transport	110 Sand	EX6 and EX2	non-haz	Y	807460	26.05	7/12/2011	60211
7/13/2011	10	LI Transport	110 Sand	EX6 and EX2	non-haz	Y	807641	24.97	7/13/2011	60230
7/13/2011	11	LI Transport	110 Sand	EX6 and EX2	non-haz	Y	807701	43.44	7/13/2011	65305
7/13/2011	12	LI Transport	110 Sand	EX6 and EX2	non-haz	Y	807710	45.97	7/13/2011	61923
7/13/2011	13	LI Transport	110 Sand	EX6 and EX2	non-haz	Y	807709	25.14	7/13/2011	60215
7/13/2011	14	LI Transport	110 Sand	EX6 and EX2	non-haz	Y	807781	42.31	7/13/2011	65312
7/13/2011	15	LI Transport	110 Sand	EX6 and EX2	non-haz	Y	807796	41.25	7/13/2011	61924
7/13/2011	16	LI Transport	110 Sand	EX6 and EX2	non-haz	Y	807797	25.85	7/13/2011	60214
7/13/2011	17	LI Transport	110 Sand	EX6 and EX2	non-haz	Y	807813	24.47	7/13/2011	65091
7/13/2011	18	LI Transport	110 Sand	EX6 and EX2	non-haz	Y	807869	44.05	7/13/2011	52490
7/13/2011	19	LI Transport	110 Sand	EX6 and EX2	non-haz	Y	807874	43.58	7/13/2011	61925
7/13/2011	20	LI Transport	110 Sand	EX6 and EX2	non-haz	Y	807875	25.50	7/13/2011	60213
7/14/2011	21	LI Transport	110 Sand	EX6 and EX2	non-haz	Y	808044	25.04	7/14/2011	60231
7/14/2011	22	LI Transport	110 Sand	EX6 and EX2	non-haz	Y	808054	26.19	7/14/2011	65092
7/14/2011	23	LI Transport	110 Sand	EX6 and EX2	non-haz	Y	808111	25.25	7/14/2011	60232
7/14/2011	24	LI Transport	110 Sand	EX6 and EX2	non-haz	Y	808128	39.40	7/14/2011	61759
7/14/2011	25	LI Transport	110 Sand	EX6 and EX2	non-haz	Y	808170	25.06	7/14/2011	60247
7/14/2011	26	LI Transport	110 Sand	EX6 and EX2	non-haz	Y	808198	24.87	7/14/2011	65094
7/14/2011	27	LI Transport	110 Sand	EX6 and EX2	non-haz	Y	808219	38.90	7/14/2011	61926
7/14/2011	28	LI Transport	110 Sand	EX3	non-haz	Y	808265	43.00	7/14/2011	60292
7/14/2011	29	LI Transport	110 Sand	EX3	non-haz	Y	808255	41.00	7/14/2011	61760
7/14/2011	30	LI Transport	110 Sand	EX3	non-haz	Y	808272	24.98	7/14/2011	60233
7/14/2011	31	LI Transport	110 Sand	EX3	non-haz	Y	808315	38.86	7/14/2011	64657
7/14/2011	32	LI Transport	110 Sand	EX3	non-haz	Y	808305	23.16	7/14/2011	65095
7/15/2011	33	LI Transport	110 Sand	EX3	non-haz	Y	808671	26.98	7/15/2011	60244
7/15/2011	34	LI Transport	110 Sand	EX3	non-haz	Y	808722	30.54	7/15/2011	61762
7/15/2011	35	LI Transport	110 Sand	EX3	non-haz	Y	808708	35.81	7/15/2011	60268
7/18/2011	36	LI Transport	110 Sand	EX3	non-haz	Y	809119	23.11	7/18/2011	63484
7/18/2011	37	LI Transport	110 Sand	EX3	non-haz	Y	809171	40.97	7/18/2011	61672
7/18/2011	38	LI Transport	110 Sand	EX3	non-haz	Y	809189	39.62	7/18/2011	64659
7/18/2011	39	LI Transport	110 Sand	EX3	non-haz	Y	809194	23.61	7/18/2011	63485
7/18/2011	40	LI Transport	110 Sand	EX3	non-haz	Y	809239	43.88	7/18/2011	61673
7/18/2011	41	LI Transport	110 Sand	EX3	non-haz	Y	809243	24.00	7/18/2011	59794
7/18/2011	42	LI Transport	110 Sand	EX3	non-haz	Y	809258	39.41	7/18/2011	64661
7/18/2011	43	LI Transport	110 Sand	EX3	non-haz	Y	809271	22.78	7/18/2011	63487
7/18/2011	44	LI Transport	110 Sand	EX3	non-haz	Y	809286	38.39	7/18/2011	60591
7/18/2011	45	LI Transport	110 Sand	EX3	non-haz	Y	809294	25.38	7/18/2011	60243
7/20/2011	46	LI Transport	110 Sand	EX3	non-haz	Y	809967	42.57	7/20/2011	60592
7/20/2011	47	LI Transport	110 Sand	EX3	non-haz	Y	809974	43.61	7/20/2011	64662
7/20/2011	48	LI Transport	110 Sand	EX3	non-haz	Y	810039	42.39	7/20/2011	63398
7/20/2011	49	LI Transport	110 Sand	EX3	non-haz	Y	810051	40.79	7/20/2011	60594
7/21/2011	50	LI Transport	110 Sand	EX3	non-haz	Y	801207	26.58	7/21/2011	59797
7/21/2011	51	LI Transport	110 Sand	EX6	non-haz	Y	810283	24.45	7/21/2011	59798
7/21/2011	52	LI Transport	110 Sand	EX6	non-haz	Y	810356	26.4	7/21/2011	60242
7/21/2011	53	LI Transport	110 Sand	EX3	non-haz	Y	810418	27.24	7/21/2011	59799
7/21/2011	54	LI Transport	110 Sand	EX3	non-haz	Y	810448	22.56	7/21/2011	61932
8/3/2011	55	LI Transport	110 Sand	EX5	non-haz	Y	813906	22.91	8/3/2011	63527
8/3/2011	56	LI Transport	110 Sand	EX5	non-haz	Y	813908	24.45	8/3/2011	63817
8/3/2011	57	LI Transport	110 Sand	EX5	non-haz	Y	813965	23.28	8/3/2011	63528
8/3/2011	58	LI Transport	110 Sand	EX5	non-haz	Y	813972	25.33	8/3/2011	63820
8/3/2011	59	LI Transport	110 Sand	EX5	non-haz	Y	814016	22.99	8/3/2011	63529
8/3/2011	60	LI Transport	110 Sand	EX5	non-haz	Y	814021	22.73	8/3/2011	63818
8/3/2011	61	LI Transport	110 Sand	EX5	non-haz	Y	814064	23.78	8/3/2011	63538
8/3/2011	62	LI Transport	110 Sand	EX5	non-haz	Y	814077	26.52	8/3/2011	61408
8/4/2011	63	LI Transport	110 Sand	EX6 North of Right of Way	non-haz	Y	814285	32.87	8/4/2011	61409
8/4/2011	64	LI Transport	110 Sand	EX6 North of Right of Way	non-haz	Y	814334	21.71	8/4/2011	63858
8/4/2011	65	LI Transport	110 Sand	EX6 North of Right of Way and EX5	non-haz	Y	814352	22.82	8/4/2011	63822
8/5/2011	66	LI Transport	110 Sand	EX5	non-haz	Y	814559	39.06	8/5/2011	61944
8/5/2011	67	LI Transport	110 Sand	EX5	non-haz	Y	814567	45.26	8/5/2011	
8/5/2011	68	LI Transport	110 Sand	EX5	non-haz	Y	814601	36.72	8/5/2011	63911
8/5/2011	69	LI Transport	110 Sand	EX5	non-haz	Y	814611	40.52	8/5/2011	61695
8/8/2011	70	LI Transport	110 Sand	EX5	non-haz	Y	815131	27.98	8/8/2011	61941
8/10/2011	71	LI Transport	110 Sand	EX5	non-haz	Y	815851	46.28	8/10/2011	62022
8/10/2011	72	LI Transport	110 Sand	EX5	non-haz	Y	815865	41.17	8/10/2011	61699
8/10/2011	73	LI Transport	110 Sand	EX5	non-haz	Y	815899	41.46	8/10/2011	61818
8/11/2011	74	LI Transport	110 Sand	EX5	non-haz	Y	816803	24.03	8/11/2011	63588
8/11/2011	75	LI Transport	110 Sand	EX5	non-haz	Y	816174	41.16	8/11/2011	64889
8/11/2011	76	LI Transport	110 Sand	EX5	non-haz	Y	816191	26.64	8/11/2011	63544

TABLE 2 OFFSITE WASTE DISPOSAL VOLUMES AND FACILITIES
SITE NO 130110 RA CONTRACT D007938

Date	Manifest #	Transporter	Designated Facility	Excavation Area	Haz/ Non-Haz	Return Original?	Weigh Ticket #	Scale Weight (T) or Volume	Date Weighed	ARM Ticket #
SOIL FROM CONTRACT SPECIFIED EXCAVATION AREAS (CONTINUED)										
8/11/2011	77	LI Transport	110 Sand	EX5	non-haz	Y	816201	25.58	8/11/2011	64890
8/12/2011	78	LI Transport	110 Sand	EX5	non-haz	Y	816438	45.95	8/12/2011	62025
8/12/2011	79	LI Transport	110 Sand	EX5	non-haz	Y	816502	42.02	8/12/2011	61412
8/12/2011	80	LI Transport	110 Sand	EX5	non-haz	Y	816535	35.95	8/12/2011	64675
8/16/2011	81	LI Transport	110 Sand	EX5	non-haz	Y	817333	27.08	8/16/2011	63864
8/16/2011	82	LI Transport	110 Sand	EX5	non-haz	Y	817338	24.28	8/16/2011	63865
8/16/2011	83	LI Transport	110 Sand	EX5	non-haz	Y	817387	25.89	8/16/2011	63866
8/16/2011	84	LI Transport	110 Sand	EX5	non-haz	Y	817390	23.5	8/16/2011	65476
8/16/2011	85	LI Transport	110 Sand	EX5	non-haz	Y	817428	25	8/16/2011	63867
8/16/2011	86	LI Transport	110 Sand	EX5	non-haz	Y	817437	27.56	8/16/2011	63931
8/16/2011	87	LI Transport	110 Sand	EX5	non-haz	Y	817471	25.87	8/16/2011	63868
8/17/2011	88	LI Transport	110 Sand	EX5	non-haz	Y	817603	26.19	8/17/2011	63933
8/17/2011	89	LI Transport	110 Sand	EX5	non-haz	Y	817605	26.24	8/17/2011	62111
8/17/2011	90	LI Transport	110 Sand	EX5	non-haz	Y	817657	21.53	8/17/2011	63934
8/17/2011	91	LI Transport	110 Sand	EX5	non-haz	Y	817659	24.5	8/17/2011	62110
8/17/2011	92	LI Transport	110 Sand	EX5	non-haz	Y	817704	24.15	8/17/2011	63936
8/17/2011	93	LI Transport	110 Sand	EX5	non-haz	Y	817708	25.4	8/17/2011	62107
8/17/2011	94	LI Transport	110 Sand	EX5	non-haz	Y	817753	25.64	8/17/2011	63937
8/17/2011	95	LI Transport	110 Sand	EX5	non-haz	Y	817761	26.97	8/17/2011	62113
8/18/2011	96	LI Transport	110 Sand	EX5	non-haz	Y	817856	26.6	8/18/2011	63938
8/18/2011	97	LI Transport	110 Sand	EX5	non-haz	Y	817913	24.43	8/18/2011	62112
8/18/2011	98	LI Transport	110 Sand	EX5	non-haz	Y	817936	24.13	8/18/2011	63877
8/18/2011	99	LI Transport	110 Sand	EX5	non-haz	Y	817988	26.2	8/18/2011	62115
8/23/2011	100	LI Transport	110 Sand	EX4	non-haz	Y	819217	24.18	8/23/2011	64127
8/23/2011	101	LI Transport	110 Sand	EX4	non-haz	Y	819222	24.66	8/23/2011	63947
8/23/2011	102	LI Transport	110 Sand	EX4	non-haz	Y	819307	23.55	8/23/2011	64128
8/23/2011	103	LI Transport	110 Sand	EX4	non-haz	Y	819311	24.56	8/23/2011	63999
8/24/2011	104	LI Transport	110 Sand	EX5	non-haz	Y	819580	19.54	8/24/2011	63574
8/24/2011	105	LI Transport	110 Sand	EX5	non-haz	Y	819598	25.15	8/24/2011	63497
8/24/2011	106	LI Transport	110 Sand	EX5	non-haz	Y	819668	21.87	8/24/2011	63575
8/24/2011	107	LI Transport	110 Sand	EX5	non-haz	Y	819681	21.33	8/24/2011	63887
8/24/2011	108	LI Transport	110 Sand	EX5	non-haz	Y	819694	27.29	8/24/2011	64129
8/24/2011	109	LI Transport	110 Sand	EX5	non-haz	Y	819760	23.99	8/24/2011	66101
8/24/2011	110	LI Transport	110 Sand	EX5	non-haz	Y	819758	24.58	8/24/2011	63888
8/24/2011	111	LI Transport	110 Sand	EX5	non-haz	Y	819791	27.85	8/24/2011	64130
8/25/2011	112	LI Transport	110 Sand	EX4 and EX5	non-haz	Y	819986	25.12	8/25/2011	63995
8/25/2011	113	LI Transport	110 Sand	EX4 and EX5	non-haz	Y	820003	22.82	8/25/2011	63577
8/25/2011	114	LI Transport	110 Sand	EX4 and EX5	non-haz	Y	820013	26.56	8/25/2011	64114
8/25/2011	115	LI Transport	110 Sand	EX4 and EX5	non-haz	Y	820041	25.46	8/25/2011	63893
8/25/2011	116	LI Transport	110 Sand	EX4 and EX5	non-haz	Y	820060	25.05	8/25/2011	63993
8/25/2011	117	LI Transport	110 Sand	EX4 and EX5	non-haz	Y	820125	24.84	8/25/2011	32120
9/2/2011	118	LI Transport	110 Sand	EX5	non-haz	Y	822056	24.41	9/2/2011	63982
9/2/2011	119	LI Transport	110 Sand	EX5	non-haz	Y	822059	23.04	9/2/2011	66505
9/2/2011	120	LI Transport	110 Sand	EX5	non-haz	Y	822105	25.25	9/2/2011	66506
9/2/2011	121	LI Transport	110 Sand	EX5	non-haz	Y	822111	24.02	9/2/2011	63954
9/2/2011	122	LI Transport	110 Sand	EX5	non-haz	Y	822154	25.67	9/2/2011	66508
9/2/2011	123	LI Transport	110 Sand	EX5	non-haz	Y	822174	36.49	9/2/2011	62163
9/2/2011	124	LI Transport	110 Sand	EX5	non-haz	Y	822172	24.58	9/2/2011	63981
9/6/2011	125	LI Transport	110 Sand	EX5	non-haz	Y	822630	25	9/6/2011	62129
9/6/2011	126	LI Transport	110 Sand	EX5	non-haz	Y	822654	24.58	9/6/2011	63960
9/6/2011	127	LI Transport	110 Sand	EX5	non-haz	Y	822673	25.62	9/6/2011	65613
9/6/2011	128	LI Transport	110 Sand	EX5	non-haz	Y	822676	24.47	9/6/2011	63579
9/6/2011	129	LI Transport	110 Sand	EX5	non-haz	Y	822688	29.62	9/6/2011	62130
9/7/2011	130	LI Transport	110 Sand	EX5	non-haz	Y	822857	26.76	9/7/2011	64595
9/7/2011	131	LI Transport	110 Sand	EX5	non-haz	Y	822896	27.72	9/7/2011	62133
9/7/2011	132	LI Transport	110 Sand	EX5	non-haz	Y	822952	25.99	9/7/2011	62134
10/14/2011	133	Aarco	110 Sand	EX1 and EX6 South of Right of Way	non-haz	Y	832799	24.5	10/14/2011	N/A
10/14/2011	134	Aarco	110 Sand	EX1 and EX6 South of Right of Way	non-haz	Y	83277	12.74	10/14/2011	N/A
10/14/2011	135	Aarco	110 Sand	EX1 and EX6 South of Right of Way	non-haz	Y	83290	11.95	10/14/2011	N/A
10/14/2011	136	Aarco	110 Sand	EX1 and EX6 South of Right of Way	non-haz	Y	83295	25.37	10/14/2011	N/A
10/14/2011	137	Aarco	110 Sand	EX1 and EX6 South of Right of Way	non-haz	Y	833041	16.97	10/14/2011	N/A
10/14/2011	138	Aarco	110 Sand	EX1 and EX6 South of Right of Way	non-haz	Y	833040	14.19	10/14/2011	N/A

NOTE: NA Not Available.

TABLE 2 OFFSITE WASTE DISPOSAL VOLUMES AND FACILITIES
SITE NO 130110 RA CONTRACT D007938

Date	Manifest #	Transporter	Designated Facility	Excavation Area	Haz/ Non-Haz	Return Original?	Weigh Ticket #	Scale Weight (T) or Volume	Date Weighed	ARM Ticket #
NON-REGULATED BALLAST MATERIAL EXCAVATED FOR ASPHALT CAP INSTLLATION										
10/28/2011	N/A	LI Transport	110 Sand	Ballast Material	non-reg	Y	836617	38.12	10/28/2011	61491
10/28/2011	N/A	LI Transport	110 Sand	Ballast Material	non-reg	Y	836598	40.12	10/28/2011	62052
10/29/2011	N/A	LI Transport	110 Sand	Ballast Material	non-reg	Y	836712	34.02	10/29/2011	61568
10/29/2011	N/A	LI Transport	110 Sand	Ballast Material	non-reg	Y	836704	38.48	10/29/2011	65743
10/29/2011	N/A	LI Transport	110 Sand	Ballast Material	non-reg	Y	836700	36.25	10/29/2011	61493
10/29/2011	N/A	LI Transport	110 Sand	Ballast Material	non-reg	Y	836649	23.82	10/29/2011	66459
10/29/2011	N/A	LI Transport	110 Sand	Ballast Material	non-reg	Y	836650	25.06	10/29/2011	65249
10/29/2011	N/A	LI Transport	110 Sand	Ballast Material	non-reg	Y	836709	34.49	10/29/2011	62088
10/29/2011	N/A	LI Transport	110 Sand	Ballast Material	non-reg	Y	836715	36.84	10/29/2011	65905
10/29/2011	N/A	LI Transport	110 Sand	Ballast Material	non-reg	Y	836639	21.81	10/29/2011	65577
10/29/2011	N/A	LI Transport	110 Sand	Ballast Material	non-reg	Y	836988	36.44	10/31/2011	61570
10/31/2011	N/A	LI Transport	110 Sand	Ballast Material	non-reg	Y	836961	23.95	10/31/2011	66009
10/31/2011	N/A	LI Transport	110 Sand	Ballast Material	non-reg	Y	836991	39.16	10/31/2011	65907
10/31/2011	N/A	LI Transport	110 Sand	Ballast Material	non-reg	Y	837008	37.37	10/31/2011	65908
10/31/2011	N/A	LI Transport	110 Sand	Ballast Material	non-reg	Y	837093	24.26	11/1/2011	65257
11/1/2011	N/A	LI Transport	110 Sand	Ballast Material	non-reg	Y	837137	42.37	11/1/2011	61900
11/1/2011	N/A	LI Transport	110 Sand	Ballast Material	non-reg	Y	837089	24.5	11/1/2011	66467
11/1/2011	N/A	LI Transport	110 Sand	Ballast Material	non-reg	Y	837618	32.31	11/2/2011	62065
11/2/2011	N/A	LI Transport	110 Sand	Ballast Material	non-reg	Y	837603	24.37	11/2/2011	65912
11/2/2011	N/A	LI Transport	110 Sand	Ballast Material	non-reg	Y	837508	23.74	11/2/2011	66098
11/2/2011	N/A	LI Transport	110 Sand	Ballast Material	non-reg	Y	837422	37.35	11/2/2011	61571
11/2/2011	N/A	LI Transport	110 Sand	Ballast Material	non-reg	Y	837572	37.78	11/2/2011	65910
11/2/2011	N/A	LI Transport	110 Sand	Ballast Material	non-reg	Y	837533	35.36	11/2/2011	65911
11/2/2011	N/A	LI Transport	110 Sand	Ballast Material	non-reg	Y	N/A	23.03	11/2/2011	66100
11/2/2011	N/A	LI Transport	110 Sand	Ballast Material	non-reg	Y	N/A	40.42	11/2/2011	65913
11/2/2011	N/A	LI Transport	110 Sand	Ballast Material	non-reg	Y	N/A	36.84	11/2/2011	61573
11/2/2011	N/A	LI Transport	110 Sand	Ballast Material	non-reg	Y	N/A	39.98	11/2/2011	65909
11/4/2011	N/A	LI Transport	110 Sand	Ballast Material	non-reg	Y	838213	41.38	11/4/2011	65617
11/5/2011	N/A	LI Transport	110 Sand	Ballast Material	non-reg	Y	N/A	31.83	11/5/2011	66083
11/5/2011	N/A	LI Transport	110 Sand	Ballast Material	non-reg	Y	838378	21.46	11/5/2011	66251
11/5/2011	N/A	LI Transport	110 Sand	Ballast Material	non-reg	Y	838336	37.33	11/5/2011	61985
11/5/2011	N/A	LI Transport	110 Sand	Ballast Material	non-reg	Y	838375	24.31	11/5/2011	66250
11/5/2011	N/A	LI Transport	110 Sand	Ballast Material	non-reg	Y	838385	30.67	11/5/2011	61984
11/5/2011	N/A	LI Transport	110 Sand	Ballast Material	non-reg	Y	838361	40.71	11/5/2011	62076
11/5/2011	N/A	LI Transport	110 Sand	Ballast Material	non-reg	Y	838369	23.7	11/5/2011	66249
11/5/2011	N/A	LI Transport	110 Sand	Ballast Material	non-reg	Y	838412	36.1	11/5/2011	66248
11/5/2011	N/A	LI Transport	110 Sand	Ballast Material	non-reg	Y	838332	37.85	11/5/2011	66247
SEDIMENT FROM STORM DRAIN AND FREEPORT CREEK (EX7)										
10/3/2011	N/A	Aareo	RMS	STORM DRAIN	non-haz	N/A	N/A	Seven- 55 gallon drums	10/3/2011	N/A
1/11/2012	51904	Aareo	110 Sand	EX7	non-haz	Y	851266	9.25	1/11/2012	N/A
1/12/2012	51908	Aareo	110 Sand	EX7	non-haz	Y	851370	11.53	1/12/2012	N/A
1/12/2012	51906	Aareo	110 Sand	EX7	non-haz	Y	851469	15.15	1/12/2012	N/A
1/12/2012	51907	Aareo	110 Sand	EX7	non-haz	Y	851525	16.33	1/13/2012	N/A
1/13/2012	51909	Aareo	110 Sand	EX7	non-haz	Y	851618	16.51	1/13/2012	N/A
1/13/2012	50806	Aareo	110 Sand	EX7	non-haz	Y	851681	17.54	1/13/2012	N/A
1/16/2012	50807	Aareo	110 Sand	EX7	non-haz	Y	851850	19.3	1/16/2012	N/A
1/16/2012	50809	Aareo	110 Sand	EX7	non-haz	Y	851910	16.94	1/16/2012	N/A
1/17/2012	50810	Aareo	110 Sand	EX7	non-haz	Y	852002	16.03	1/17/2012	N/A
1/17/2012	50811	Aareo	110 Sand	EX7	non-haz	Y	852078	16.8	1/17/2012	N/A
1/18/2012	50813	Aareo	110 Sand	EX7	non-haz	Y	852191	18.81	1/18/2012	N/A
1/19/2012	50225	Aareo	110 Sand	EX7	non-haz	Y	852297	19.29	1/19/2012	N/A
1/19/2012	50226	Aareo	110 Sand	EX7	non-haz	Y	852405	18.07	1/19/2012	N/A
1/19/2012	50223	Aareo	110 Sand	EX7	non-haz	Y	852472	19.3	1/19/2012	N/A
1/20/2012	50224	Aareo	110 Sand	EX7	non-haz	Y	852693	20.06	1/20/2012	N/A
CONSTRUCTION AND DEMOLITION DEBRIS FROM EXCAVATIONS										
6/27/2011	N/A	SWR	110 Sand	EX2, EX3 and EX6	non-haz	N/A	803034	20	6/27/2011	N/A
6/27/2011	N/A	SWR	110 Sand	EX2, EX3 and EX6	non-haz	N/A	803128	20	6/27/2011	N/A
6/28/2011	N/A	SWR	110 Sand	EX2, EX3 and EX6	non-haz	N/A	803343	20	6/28/2011	N/A
6/29/2011	N/A	SWR	110 Sand	EX2, EX3 and EX6	non-haz	N/A	803776	19.51	6/29/2011	N/A
7/13/2011	N/A	SWR	110 Sand	EX2, EX3 and EX6	non-haz	N/A	807740	19.47	7/13/2011	N/A
7/14/2011	N/A	SWR	110 Sand	EX2, EX3 and EX6	non-haz	N/A	808226	20.55	7/14/2011	N/A
7/20/2011	N/A	SWR	110 Sand	EX2, EX3 and EX6	non-haz	N/A	809990	15.96	7/20/2011	N/A
7/22/2011	N/A	SWR	110 Sand	EX2, EX3 and EX6	non-haz	N/A	810605	15.56	7/22/2011	N/A
8/16/2011	N/A	SWR	110 Sand	C&D	non-haz	Y	818357	22.12	8/16/2011	N/A
8/19/2011	N/A	Olson's	110 Sand	EX4 and EX5	non-haz	N/A	818365	21.57	8/19/2011	N/A
8/23/2011	N/A	Olson's	110 Sand	EX4	non-haz	N/A	819226	13.7	8/23/2011	N/A
8/24/2011	N/A	Olson's	110 Sand	EX4 and EX5	non-haz	N/A	819884	12.3	8/24/2011	N/A
9/7/2011	N/A	Olson's	110 Sand	EX5	non-haz	N/A	822923	15.74	9/7/2011	N/A

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SITE NO 130110 RA CONTRACT D007938

Date	Manifest #	Transporter	Designated Facility	Excavation Area	Haz/ Non-Haz	Return Original?	Weigh Ticket #	Scale Weight (T) or Volume	Date Weighed	ARM Ticket #
UNDERGROUND STORAGE TANK (UST) DISPOSAL QUANTITIES										
7/26/2011	50290	Aarco	International Petroleum Corp. Of Delaware	Oil from UST1 and UST2 and standing water in EX3	non-haz	N/A	N/A	N/A	N/A	N/A
7/27/2011	50281	Aarco	FCC Environmental IPC Facility	UST1 and UST2 sludge and residuals from cleaning	non-haz	N/A	N/A	N/A	N/A	N/A
7/28/2011	N/A	Olson's	Gershow	UST1 from within EX3	non-haz	N/A	N/A	N/A	N/A	N/A
7/28/2011	N/A	Olson's	Gershow	UST1 from within EX3	non-haz	N/A	N/A	N/A	N/A	N/A
8/24/2011	50468	Aarco	FCC Environmental IPC Facility	Oil from UST3 and UST4 and standing water in EX1 and EX5	non-haz	N/A	N/A	N/A	N/A	N/A
8/26/2011	50481	Aarco	FCC Environmental IPC Facility	Standing water within excavation EX1 and EX5 and UST3 / UST4 sludge and residuals from cleaning	non-haz	N/A	N/A	N/A	N/A	N/A
8/26/2011	N/A	Olson's	Gershow	UST3 found within EX1 and other steel debris	non-haz	N/A	N/A	N/A	N/A	N/A
8/26/2011	N/A	Olson's	Gershow	UST4 found within EX1 and other steel debris	non-haz	N/A	N/A	N/A	N/A	N/A
EXCAVATION WATER DISPOSAL QUANTITIES										
8/11/2011	50261	Aarco	FCC Environmental IPC Facility	EX5	non-haz	N/A	N/A	N/A	N/A	N/A
8/16/2011	N/A	EARTHCARE	Clear Flo Technologies	EX5	non-haz	N/A	N/A	N/A	N/A	N/A
8/16/2011	N/A	EARTHCARE	Clear Flo Technologies	EX5	non-haz	N/A	N/A	N/A	N/A	N/A
8/17/2011	N/A	EARTHCARE	Clear Flo Technologies	EX5	non-haz	N/A	N/A	N/A	N/A	N/A
8/22/2011	N/A	EARTHCARE	Clear Flo Technologies	EX4 and EX5	non-haz	N/A	N/A	N/A	N/A	N/A
9/6/2011	N/A	EARTHCARE	Clear Flo Technologies	EX5	non-haz	N/A	N/A	N/A	N/A	N/A
9/6/2011	N/A	EARTHCARE	Clear Flo Technologies	EX5	non-haz	N/A	N/A	N/A	N/A	N/A
9/8/2011	N/A	EARTHCARE	Clear Flo Technologies	EX5	non-haz	N/A	N/A	N/A	N/A	N/A
9/12/2011	N/A	EARTHCARE	Clear Flo Technologies	EX5	non-haz	N/A	N/A	N/A	N/A	N/A
9/12/2011	N/A	EARTHCARE	Clear Flo Technologies	Standing Water within existing ballast covered area to the south of EX6 (south of right-of-way)	non-haz	N/A	N/A	N/A	N/A	N/A

TABLE 3 SUMMARY OF DETECTIONS IN PRE-CHARACTERIZATION SAMPLES
SITE NO 130110 RA CONTRACT D007938

Parameter List	Sample ID	AREA 1		AREA 2		AREA 3		STOCKPILE		CREEKCOMP	
	Lab ID	C2444-01		C2444-02		C2444-03		C3098-02		C4616-02	
	Sample Type	Soil		Soil		Soil		Soil		Sediment	
	Sample Date	5/27/2011		5/27/2011		5/27/2011		7/20/2011		11/14/2011	
VOLATILE ORGANIC COMPOUNDS 8260											
Acetone	(µg/kg)	42			U		U		U		U
Carbon Disulfide	(µg/kg)	8.1		3.8	J		U		U	2.7	J
Methylene Chloride	(µg/kg)	18		7.1		15		3.6	JB		U
cis-1,2-Dichloroethene	(µg/kg)		U	4.1	J		U		U		U
Methylcyclohexane	(µg/kg)	24		77			U		U		U
4-Methyl-2-Pentanone	(µg/kg)	7.3	J		U		U		U		U
Trichloroethene	(µg/kg)		U	1.5	J		U		U		U
Toluene	(µg/kg)	1.7	J		U		U		U		U
Tetrachloroethene	(µg/kg)		U	2.5	J	4.8	J		U		U
Isopropylbenzene	(µg/kg)		U	6.9			U		U		U
n-propylbenzene	(µg/kg)	3.3	J	11			U		U		U
1,3,5-Trimethylbenzene	(µg/kg)	4.7	J	28			U		U		U
tert-Butylbenzene	(µg/kg)	6.5		8.1			U		U		U
1,2,4-Trimethylbenzene	(µg/kg)	12		15			U		U		U
sec-Butylbenzene	(µg/kg)	32		39			U		U		U
n-Butylbenzene	(µg/kg)	7.4		42			U		U		U
1,2-Dichlorobenzene	(µg/kg)		U	15			U		U		U

NOTE: µg/kg = micrograms per kilogram = parts per billion (ppb)
U = Non-detect, detection below the method detection limit.
J = Indicates the reported value was less than the Contract Required Detection Limit, but greater than or equal to the Instrument Detection Limit.
B = Indicates the analyte was found in the associated Method Blank
* = Indicates the value is outside of the Quality Control limits
Data provided by Chemtech Consulting Group.

TABLE 3 SUMMARY OF DETECTIONS IN PRE-CHARACTERIZATION SAMPLES
SITE NO 130110 RA CONTRACT D007938

Parameter List	Sample ID	AREA 1		AREA 2		AREA 3		STOCKPILE		CREEKCOMP	
	Lab ID	C2444-01		C2444-02		C2444-03		C3098-02		C4616-02	
	Sample Type	Soil		Soil		Soil		Soil		Sediment	
	Sample Date	5/27/2011		5/27/2011		5/27/2011		7/20/2011		11/14/2011	
METALS 6010B/7470/9012B/7196A											
Cyanide	(mg/kg)	0.122	J		U	0.048	J	0.648		0.392	J
Hexavalent Chromium	(mg/kg)	0.39	J	0.44	J	0.37	J	0.19	J		U
Trivalent Chromium	(mg/kg)	16.21		58.46		7.39		42.51		71.6	
Mercury	(mg/kg)	0.105		0.084		0.065		0.162	*	0.394	
Aluminum	(mg/kg)	5,500		4,080		4,090		5,410		4,250	
Antimony	(mg/kg)	2.22	J		U		U			1.41	J
Arsenic	(mg/kg)	3.02		2.07		2.01		16		17.9	
Barium	(mg/kg)	110		41.9		23.1		57.6		17.3	
Beryllium	(mg/kg)	0.3	J	0.31	J	0.3		0.23	J	0.34	J
Cadmium	(mg/kg)		U		U		U	0.939		0.58	
Calcium	(mg/kg)	10,500		6,380		7,980		8,300		5,810	
Chromium	(mg/kg)	16.6		58.9		7.76		42.7		71.6	
Cobalt	(mg/kg)	3.57		3.86		2.14		4.92		3.81	
Copper	(mg/kg)	353		123		18.9		655		342	
Iron	(mg/kg)	10,500		12,300		11,700		16,900		15,400	
Lead	(mg/kg)	146		92.8		25.3		102		68.9	
Magnesium	(mg/kg)	2,220		1,670		757		2,510		2,910	
Manganese	(mg/kg)	94.5		149		102		131		89.5	
Nickel	(mg/kg)	15.8		17.9		25.1		143		14.8	
Potassium	(mg/kg)	524		528		241		640		1350	
Selenium	(mg/kg)	1.4		1.37		1.12			U		U
Silver	(mg/kg)	0.43	J		U		U	0.141	J		U
Sodium	(mg/kg)	776		268		163		270		6440	
Vanadium	(mg/kg)	21.8		18.5		9		154			U
Zinc	(mg/kg)	252		148		32.4		467			U

TABLE 3 SUMMARY OF DETECTIONS IN PRE-CHARACTERIZATION SAMPLES
SITE NO 130110 RA CONTRACT D007938

Parameter List	Sample ID	AREA 1		AREA 2		AREA 3		STOCKPILE		CREEKCOMP	
	Lab ID	C2444-01		C2444-02		C2444-03		C3098-02		C4616-02	
	Sample Type	Soil		Soil		Soil		Soil		Sediment	
	Sample Date	5/27/2011		5/27/2011		5/27/2011		7/20/2011		11/14/2011	
TOXICITY CHARACTERISTIC LEACHING PROCEDURE INDUCTIVELY COUPLED PLASMA METALS 6010 ICPS											
Barium	(µg/L)	789	*	946	*	594	*	300	J	742	
Cadmium	(µg/L)	9.63	J		U		U	12.7	J		U
Lead	(µg/L)	1,100		187			U	46	J		U
PESITICIDES 8081											
4,4-DDE	(µg/kg)	4.6			U		U		U		U
4,4-DDD	(µg/kg)	5.2	P		U		U		U		U
4,4-DDT	(µg/kg)	12			U		U		U		U
alpha-Chlordane	(µg/kg)	3.2	P	2.8			U	34	P		U
gamma-Chlordane	(µg/kg)	2.9		3.9			U	37	P		U
POLYCHLORINATED BIPHENYLS 8082											
Aroclor-1254	(µg/kg)		U	130	P		U	110			U
SEMIVOLATILE ORGANIC COMPOUNDS 8270											
Phenol	(µg/kg)		U		U		U	55	J		U
Naphthalene	(µg/kg)		U	130	J		U	380	J		U
2-Methylnaphthalene	(µg/kg)		U	100	J		U	96	J		U
Diethylphthalate	(µg/kg)		U		U	94	J				U
Phenanthrene	(µg/kg)	250	J	150	J		U	230	J		U
Anthracene	(µg/kg)		U		U		U	96	J		U
Di-n-butylphthalate	(µg/kg)		U		U	1100		120	J		U
Fluoranthene	(µg/kg)	350	J	230	J	130	J	1000			U
Pyrene	(µg/kg)	320	J	230	J	140	J	1200			U
Benzo(a)anthracene	(µg/kg)		U	110	J	85	J	550			U
Chrysene	(µg/kg)		U	120	J	94	J	820			U
bis(2-Ethylhexyl)phthalate	(µg/kg)		U	180	J		U	720			U
Benzo(b)fluoranthene	(µg/kg)		U	150	J	110	J	840			U
Benzo(k)fluoranthene	(µg/kg)		U	48	J	49	J	240	J		U
Benzo(a)pyrene	(µg/kg)		U	110	J	87	J	560			U
Indeno(1,2,3-cd)pyrene	(µg/kg)		U	64	J	59	J	250	J		U
Dibenz(a,h)anthracene			U		U		U	74	J		U
Benzo(g,h,i)perylene	(µg/kg)		U	80	J	68	J	280	J		U
PETROLEUM HYDROCARBONS											
Petroleum Hydrocarbons	(µg/kg)	99,745		246,949		77,130		450,478		60,998	

NOTE: * = Duplicate analysis was not within the control limits.
P = There is greater than 25% difference for detected concentrations between the two gas chromatograph columns. The lower is reported.

TABLE 4A SUMMARY OF DETECTED VOLATILE ORGANIC COMPOUNDS IN SOIL DOCUMENTATION SAMPLES
SITE NO 130110 RA CONTRACT D007938

Parameter List EPA Method 8260B	Sample ID	EX1SW1		EX1SW2		T3B1		T4B1		EX2B1		EX2B2		EX2B3		Site Specific Standards, Criteria, and Guidance
	Lab ID	C3524-03		C3524-04		C3524-01		C3524-02		C3109-07		C3109-08		C3109-09		
	Sample Type	Soil		Soil		Soil		Soil		Soil		Soil		Soil		
	Sample Date	8/25/2011		8/25/2011		8/25/2011		8/25/2011		7/21/2011		7/21/2011		7/21/2011		
Benzene	(µg/kg)		U		U		U		U		U		U		U	60
Chlorobenzene	(µg/kg)		U		U		U		U		U		U		U	17,000
cis 1,2- Dichloroethylene	(µg/kg)		U		U		U		U		U		U		U	300[a]
trans 1,2- Dichloroethylene	(µg/kg)		U		U		U		U		U		U		U	300[a]
Ethylbenzene	(µg/kg)	570	D		U		U		U		U		U		U	5,500
Methyl tert-butyl ether	(µg/kg)	2	J		U		U	4	J		U		U		U	120
Naphthalene	(µg/kg)	13,000	D		U		U		U		U		U		U	13,000
Tetrachloroethylene (PCE)	(µg/kg)		U		U		U		U		U		U		U	1,400
Toluene	(µg/kg)	13			U		U		U		U		U		U	1,500
Trichloroethylene (TCE)	(µg/kg)		U		U		U		U		U		U		U	700
Vinyl chloride	(µg/kg)		U		U		U		U		U		U		U	200
m,p- Xylene	(µg/kg)	2,100	D		U		U		U		U		U		U	1,200[b]
o- Xylene	(µg/kg)	1,000	D		U		U		U		U		U		U	1,200[b]

Parameter List EPA Method 8260B	Sample ID	EX2B4		EX3B1		EX3B2		EX3B3		EX3SW1		EX3SW2		EX3SW3		Site Specific Standards, Criteria, and Guidance
	Lab ID	C3109-10		C3068-06		C3068-07		C3109-02		C3068-01		C3068-02		C3068-03		
	Sample Type	Soil		Soil		Soil		Soil		Soil		Soil		Soil		
	Sample Date	7/21/2011		7/19/2011		7/19/2011		7/21/2011		7/19/2011		7/19/2011		7/19/2011		
Benzene	(µg/kg)		U		U		U		U		U		U		U	60
Chlorobenzene	(µg/kg)		U		U		U		U		U		U		U	17,000
cis 1,2- Dichloroethylene	(µg/kg)		U		U		U		U		U		U		U	300[a]
trans 1,2- Dichloroethylene	(µg/kg)		U		U		U		U		U		U		U	300[a]
Ethylbenzene	(µg/kg)		U		U		U		U		U		U		U	5,500
Methyl tert-butyl ether	(µg/kg)		U		U		U		U		U		U		U	120
Naphthalene	(µg/kg)	3	J		U		U		U		U		U		U	13,000
Tetrachloroethylene (PCE)	(µg/kg)		U		U		U		U		U		U	6		1,400
Toluene	(µg/kg)		U		U		U		U		U		U		U	1,500
Trichloroethylene (TCE)	(µg/kg)		U		U		U		U		U		U		U	700
Vinyl chloride	(µg/kg)		U		U		U		U		U		U		U	200
m,p- Xylene	(µg/kg)		U		U		U		U		U		U		U	1,200[b]
o- Xylene	(µg/kg)		U		U		U		U		U		U		U	1,200[b]

(a) Standards, criteria, and guidance are for the sum of cis 1,2-Dichloroethylene and trans 1,2-Dichloroethylene

(b) Standards, criteria, and guidance are for total Xylenes

NOTE: EPA United States Environmental Protection Agency.
µg/kg micrograms per kilogram
U Non-detect, detection below the method detection limit.
D Indicates the reported value was obtained by analysis at a secondary dilution factor.
J Indicates the reported value was less than the Contract Required Detection Limit, but greater than or equal to the Instrument Detection Limit.
Data provided by Chemtech Consulting Group. Only analytes included in Table 1 of the ROD are included
Concentration values in **BOLD** indicate that analyte was detected above the site specific SCGs.

TABLE 4A SUMMARY OF DETECTED VOLATILE ORGANIC COMPOUNDS IN SOIL DOCUMENTATION SAMPLES
SITE NO 130110 RA CONTRACT D007938

Parameter List EPA Method 8260B	Sample ID	EX3SW4		EX3SW5		EX3SW6		EX3SW7		T1B1		T1B2		T1SW1		Site Specific Standards, Criteria, and Guidance
	Lab ID	C3068-04		C3068-05		C3109-01		C3153-06		C3153-01		C3153-02		C3153-05		
	Sample Type	Soil		Soil		Soil		Soil		Soil		Soil		Soil		
	Sample Date	7/19/2011		7/19/2011		7/21/2011		7/27/2011		7/27/2011		7/27/2011		7/27/2011		
Benzene	(µg/kg)		U		U		U		U		U		U		U	60
Chlorobenzene	(µg/kg)		U		U		U		U		U		U		U	17,000
cis 1,2- Dichloroethylene	(µg/kg)		U		U		U		U		U		U		U	300[a]
trans 1,2- Dichloroethylene	(µg/kg)		U		U		U		U		U		U		U	300[a]
Ethylbenzene	(µg/kg)		U		U		U		U		U		U		U	5,500
Methyl tert-butyl ether	(µg/kg)		U		U		U		U		U		U		U	120
Naphthalene	(µg/kg)		U		U		U		U		U		U		U	13,000
Tetrachloroethylene (PCE)	(µg/kg)		U		U		U		U		U		U		U	1,400
Toluene	(µg/kg)		U		U		U		U		U		U		U	1,500
Trichloroethylene (TCE)	(µg/kg)		U		U		U		U		U		U		U	700
Vinyl chloride	(µg/kg)		U		U		U		U		U		U		U	200
m,p- Xylene	(µg/kg)		U		U		U		U		U		U		U	1,200[b]
o- Xylene	(µg/kg)		U		U		U		U		U		U		U	1,200[b]

Parameter List EPA Method 8260B	Sample ID	T2B1		T2B2		EX4B1		EX4SW1		EX4SW2		EX4SW3		EX5B1		Site Specific Standards, Criteria, and Guidance
	Lab ID	C3153-03		C3153-04		C3473-06		C3473-01		C3473-02		C3473-03		C3265-04		
	Sample Type	Soil		Soil		Soil		Soil		Soil		Soil		Soil		
	Sample Date	7/27/2011		7/27/2011		8/22/2011		8/22/2011		8/22/2011		8/22/2011		8/4/2011		
Benzene	(µg/kg)		U		U		U		U		U		U		U	60
Chlorobenzene	(µg/kg)		U		U		U		U		U		U		U	17,000
cis 1,2- Dichloroethylene	(µg/kg)		U		U	1.7	J		U		U		U		U	300[a]
trans 1,2- Dichloroethylene	(µg/kg)		U		U		U		U		U		U		U	300[a]
Ethylbenzene	(µg/kg)		U		U		U		U		U		U		U	5,500
Methyl tert-butyl ether	(µg/kg)		U		U		U		U		U		U		U	120
Naphthalene	(µg/kg)		U	81	J		U		U		U		U		U	13,000
Tetrachloroethylene (PCE)	(µg/kg)		U		U	96	D	3	J		U		U		U	1,400
Toluene	(µg/kg)		U		U		U	1.1	J		U		U		U	1,500
Trichloroethylene (TCE)	(µg/kg)	5.2	J	3.4	J	12			U		U		U		U	700
Vinyl chloride	(µg/kg)		U		U		U		U		U		U		U	200
m,p- Xylene	(µg/kg)		U		U		U	7.2	J		U		U		U	1,200[b]
o- Xylene	(µg/kg)		U	1.4	J		U	1	J		U		U		U	1,200[b]

Parameter List EPA Method 8260B	Sample ID	EX5B2		EX5B3		EX5B4		EX5B5		EX5B6		EX5B7		EX5SW1		Site Specific Standards, Criteria, and Guidance
	Lab ID	C3265-05		C3355-04		C3355-05		C3473-08		C3622-04		C3622-05		C3265-01		
	Sample Type	Soil		Soil		Soil		Soil		Soil		Soil		Soil		
	Sample Date	8/4/2011		8/11/2011		8/11/2011		8/22/2011		9/7/2011		9/7/2011		8/4/2011		
Benzene	(µg/kg)		U		U		U		U		U		U		U	60
Chlorobenzene	(µg/kg)		U		U		U		U		U		U		U	17,000
cis 1,2- Dichloroethylene	(µg/kg)		U	1.4	J	390	JD	22		1.9	J		U		U	300[a]
trans 1,2- Dichloroethylene	(µg/kg)		U		U	3.4	J		U		U		U		U	300[a]
Ethylbenzene	(µg/kg)	430	JD		U	340	JD		U		U		U		U	5,500
Methyl tert-butyl ether	(µg/kg)		U		U		U		U		U		U		U	120
Naphthalene	(µg/kg)	470	JD		U	31	U		U	1.9	J		U		U	13,000
Tetrachloroethylene (PCE)	(µg/kg)		U		U	1.6	J	26			U		U		U	1,400
Toluene	(µg/kg)	2	J		U	1,600	D	2.3	J	1.6	J		U		U	1,500
Trichloroethylene (TCE)	(µg/kg)		U		U		U	36			U		U		U	700
Vinyl chloride	(µg/kg)		U		U	14	U		U		U		U		U	200
m,p- Xylene	(µg/kg)	780	JD		U	1,500	D		U		U		U		U	1,200[b]
o- Xylene	(µg/kg)		U		U	460	JD		U		U		U		U	1,200[b]

TABLE 4A SUMMARY OF DETECTED VOLATILE ORGANIC COMPOUNDS IN SOIL DOCUMENTATION SAMPLES
SITE NO 130110 RA CONTRACT D007938

Parameter List EPA Method 8260B	Sample ID Lab ID Sample Type Sample Date	EX5SW2 C3265-02 Soil 8/4/2011		EX5SW3 C3265-03 Soil 8/4/2011		EX5SW4 C3355-01 Soil 8/11/2011		EX5SW5 C3355-02 Soil 8/11/2011		EX5SW6 C3355-03 Soil 8/11/2011		EX5SW7 C3473-07 Soil 8/22/2011		EX5SW8 C3355-07 Soil 8/16/2011		Site Specific Standards, Criteria, and Guidance
Benzene	(µg/kg)		U		U		U		U		U		U		U	60
Chlorobenzene	(µg/kg)		U		U		U		U		U		U		U	17,000
cis 1,2- Dichloroethylene	(µg/kg)		U		U		U		U		U	33			U	300[a]
trans 1,2- Dichloroethylene	(µg/kg)		U		U		U		U		U	1.9	J		U	300[a]
Ethylbenzene	(µg/kg)	9.2			U		U		U		U		U		U	5,500
Methyl tert-butyl ether	(µg/kg)		U		U		U		U		U		U		U	120
Naphthalene	(µg/kg)	2.9	J		U		U		U	6			U		U	13,000
Tetrachloroethylene (PCE)	(µg/kg)		U		U		U		U		U	2.1	J		U	1,400
Toluene	(µg/kg)		U		U		U		U		U	13			U	1,500
Trichloroethylene (TCE)	(µg/kg)		U		U		U		U		U		U		U	700
Vinyl chloride	(µg/kg)		U		U		U		U		U	8.1			U	200
m,p- Xylene	(µg/kg)	21			U		U		U		U	5.9	J		U	1,200[b]
o- Xylene	(µg/kg)		U		U		U		U		U	2.5	J		U	1,200[b]

Parameter List EPA Method 8260B	Sample ID Lab ID Sample Type Sample Date	EX5SW9 C3355-08 Soil 8/16/2011		EX5SW10 C3622-03 Soil 9/7/2011		EX5SW11 C3622-01 Soil 9/7/2011		EX5SW12 C3622-02 Soil 9/7/2011		EX6B1 C3109-03 Soil 7/21/2011		EX6B2 C3109-04 Soil 7/21/2011		EX6B3 C3109-05 Soil 7/21/2011		Site Specific Standards, Criteria, and Guidance
Benzene	(µg/kg)		U		U		U		U		U		U		U	60
Chlorobenzene	(µg/kg)		U		U		U		U		U		U		U	17,000
cis 1,2- Dichloroethylene	(µg/kg)		U	3.4	J		U		U		U		U		U	300[a]
trans 1,2- Dichloroethylene	(µg/kg)		U		U		U		U		U		U		U	300[a]
Ethylbenzene	(µg/kg)		U		U		U		U		U		U		U	5,500
Methyl tert-butyl ether	(µg/kg)		U		U		U		U		U		U		U	120
Naphthalene	(µg/kg)	3.6	J		U		U	2.4	J		U		U		U	13,000
Tetrachloroethylene (PCE)	(µg/kg)		U		U		U		U		U		U		U	1,400
Toluene	(µg/kg)		U	2.6	J		U		U		U	3.2	J		U	1,500
Trichloroethylene (TCE)	(µg/kg)		U		U		U		U		U		U		U	700
Vinyl chloride	(µg/kg)		U		U		U		U		U		U		U	200
m,p- Xylene	(µg/kg)		U		U		U		U		U		U	3.1	J	1,200[b]
o- Xylene	(µg/kg)		U		U		U		U		U		U		U	1,200[b]

Parameter List EPA Method 8260B	Sample ID Lab ID Sample Type Sample Date	EX6SW1 C3100-01 Soil 7/20/2011		EX6SW2 C3100-02 Soil 7/20/2011		EX6SW3 C3100-03 Soil 7/20/2011		EX6SW4 C3100-04 Soil 7/20/2011		EX6SW5 C3100-05 Soil 7/20/2011		EX6SW6 C3100-06 Soil 7/20/2011		EX6SW7 C3109-06 Soil 7/21/2011		Site Specific Standards, Criteria, and Guidance
Benzene	(µg/kg)		U		U		U		U		U		U		U	60
Chlorobenzene	(µg/kg)		U		U		U		U		U		U		U	17,000
cis 1,2- Dichloroethylene	(µg/kg)		U		U		U		U		U		U		U	300[a]
trans 1,2- Dichloroethylene	(µg/kg)		U		U		U		U		U		U		U	300[a]
Ethylbenzene	(µg/kg)		U		U		U		U		U		U		U	5,500
Methyl tert-butyl ether	(µg/kg)		U		U		U		U		U		U		U	120
Naphthalene	(µg/kg)		U	7.3			U		U		U		U		U	13,000
Tetrachloroethylene (PCE)	(µg/kg)		U		U		U		U		U		U		U	1,400
Toluene	(µg/kg)		U		U		U		U		U		U		U	1,500
Trichloroethylene (TCE)	(µg/kg)		U		U		U		U		U		U		U	700
Vinyl chloride	(µg/kg)		U		U		U		U		U		U		U	200
m,p- Xylene	(µg/kg)		U		U		U		U		U		U		U	1,200[b]
o- Xylene	(µg/kg)		U		U		U		U		U		U		U	1,200[b]

TABLE 4A SUMMARY OF DETECTED VOLATILE ORGANIC COMPOUNDS IN SOIL DOCUMENTATION SAMPLES
SITE NO 130110 RA CONTRACT D007938

Parameter List EPA Method 8260B	Sample ID	EX6NB1		EX6NB2		EX6NSW1		EX6NSW2		EX6NSW3		EX6NSW4		EX6NSW5		Site Specific Standards, Criteria, and Guidance
	Lab ID	C3265-15		C3265-16		C3265-06		C3265-07		C3265-08		C3265-09		C3265-13		
	Sample Type	Soil		Soil		Soil		Soil		Soil		Soil		Soil		
	Sample Date	8/4/2011		8/4/2011		8/4/2011		8/4/2011		8/4/2011		8/4/2011		8/4/2011		
Benzene	(µg/kg)		U		U		U		U		U		U		U	60
Chlorobenzene	(µg/kg)		U		U		U		U		U		U		U	17,000
cis 1,2- Dichloroethylene	(µg/kg)		U		U		U		U		U		U		U	300[a]
trans 1,2- Dichloroethylene	(µg/kg)		U		U		U		U		U		U		U	300[a]
Ethylbenzene	(µg/kg)		U		U		U		U	1.8	J		U		U	5,500
Methyl tert-butyl ether	(µg/kg)		U		U		U		U		U		U		U	120
Naphthalene	(µg/kg)		U		U		U		U	35			U		U	13,000
Tetrachloroethylene (PCE)	(µg/kg)		U		U		U		U		U		U		U	1,400
Toluene	(µg/kg)		U		U		U		U		U		U		U	1,500
Trichloroethylene (TCE)	(µg/kg)		U		U		U		U		U		U		U	700
Vinyl chloride	(µg/kg)		U		U		U		U		U		U		U	200
m,p- Xylene	(µg/kg)		U		U		U		U	20			U		U	1,200[b]
o- Xylene	(µg/kg)		U		U		U		U	2.1	J		U		U	1,200[b]

Parameter List EPA Method 8260B	Sample ID	EX6NSW6		Site Specific Standards, Criteria, and Guidance
	Lab ID	C3265-14		
	Sample Type	Soil		
	Sample Date	8/4/2011		
Benzene	(µg/kg)		U	60
Chlorobenzene	(µg/kg)		U	17,000
cis 1,2- Dichloroethylene	(µg/kg)		U	300[a]
trans 1,2- Dichloroethylene	(µg/kg)		U	300[a]
Ethylbenzene	(µg/kg)		U	5,500
Methyl tert-butyl ether	(µg/kg)		U	120
Naphthalene	(µg/kg)		U	13,000
Tetrachloroethylene (PCE)	(µg/kg)		U	1,400
Toluene	(µg/kg)		U	1,500
Trichloroethylene (TCE)	(µg/kg)		U	700
Vinyl chloride	(µg/kg)		U	200
m,p- Xylene	(µg/kg)		U	1,200[b]
o- Xylene	(µg/kg)		U	1,200[b]

TABLE 4B SUMMARY OF DETECTED METALS IN SOIL DOCUMENTATION SAMPLES
SITE NO 130110 RA CONTRACT D007938

Parameter List EPA Method 6010/7470	Sample ID	EX1SW1	EX1SW2	T3B1	T4B1	EX2B1	EX2B2	EX2B3	Site Specific Standards, Criteria, and Guidance
	Lab ID	C3524-03	C3524-04	C3524-01	C3524-02	C3109-07	C3109-08	C3109-09	
	Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	
	Sample Date	8/25/2011	8/25/2011	8/25/2011	8/25/2011	7/21/2011	7/21/2011	7/21/2011	
Chromium (total)	(mg/kg)	**71.6**	15.8	29.8	12.0	32.4	**91.5**	21.2	50
Copper	(mg/kg)	**107**	**34.3**	**105**	3.700	**482**	**631**	**77.1**	25
Nickel	(mg/kg)	**32.7**	12.3	**28.6**	8.520	**21.2**	**52.4**	12.4	13
Zinc	(mg/kg)	**45.2**	**135**	**103**	**158**	**365**	**442**	**96.5**	20

Parameter List EPA Method 6010/7470	Sample ID	EX2B4	EX3B1	EX3B2	EX3B3	EX3SW1	EX3SW2	EX3SW3	Site Specific Standards, Criteria, and Guidance
	Lab ID	C3109-10	C3068-06	C3068-07	C3109-02	C3068-01	C3068-02	C3068-03	
	Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	
	Sample Date	7/21/2011	7/19/2011	7/19/2011	7/21/2011	7/19/2011	7/19/2011	7/19/2011	
Chromium (total)	(mg/kg)	**60.1**	4.170	5.110	5.850	5.330	4.630	6.970	50
Copper	(mg/kg)	**288**	4.100	2.960	3.810	2.850	5.460	11.4	25
Nickel	(mg/kg)	**244**	3.690	3.510	3.740	3.120	3.230	4.670	13
Zinc	(mg/kg)	**256**	**22.0**	11.8	14.8	**33.0**	16.5	**35.2**	20

Parameter List EPA Method 6010/7470	Sample ID	EX3SW4	EX3SW5	EX3SW6	EX3SW7	T1B1	T1B2	T1SW1	Site Specific Standards, Criteria, and Guidance
	Lab ID	C3068-04	C3068-05	C3109-01	C3153-06	C3153-01	C3153-02	C3153-05	
	Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	
	Sample Date	7/19/2011	7/19/2011	7/21/2011	7/27/2011	7/27/2011	7/27/2011	7/27/2011	
Chromium (total)	(mg/kg)	5.240	3.980	2.500	3.340	6.75	5.35	11.4	50
Copper	(mg/kg)	3.900	6.600	6.870	2.880	10.1	13.6	4.77	25
Nickel	(mg/kg)	3.490	3.430	3.850	3.730	**47.2**	**33**	6.42	13
Zinc	(mg/kg)	**22.8**	**59.6**	11.7	U	**62.1**	**38.6**	17.2	20

Parameter List EPA Method 6010/7470	Sample ID	T2B1	T2B2	EX4B1	EX4SW1	EX4SW2	EX4SW3	EX5B1	Site Specific Standards, Criteria, and Guidance
	Lab ID	C3153-03	C3153-04	C3473-06	C3473-01	C3473-02	C3473-03	C3265-04	
	Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	
	Sample Date	7/27/2011	7/27/2011	8/22/2011	8/22/2011	8/22/2011	8/22/2011	8/4/2011	
Chromium (total)	(mg/kg)	5.05	4.01	**78.3**	9.120	8.190	3.890	U	50
Copper	(mg/kg)	14.1	5.95	**45.8**	22.5	3.100	3.770	73.8	25
Nickel	(mg/kg)	6.12	5.07	5.700	8.160	U	10.8	8.420	13
Zinc	(mg/kg)	**53.9**	**27.3**	**28.2**	63.8	4.380	14.9	62.5	20

Parameter List EPA Method 6010/7470	Sample ID	EX5B2	EX5B3	EX5B4	EX5B5	EX5B6	EX5B7	EX5SW1	Site Specific Standards, Criteria, and Guidance
	Lab ID	C3265-05	C3355-04	C3355-05	C3473-08	C3622-04	C3622-05	C3265-01	
	Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	
	Sample Date	8/4/2011	8/11/2011	8/11/2011	8/22/2011	9/7/2011	9/7/2011	8/4/2011	
Chromium (total)	(mg/kg)	U	10.1	6.300	**61.3**	30.3	34.2	U	50
Copper	(mg/kg)	**168**	**44.1**	18.4	**953**	**114**	**152**	8.230	25
Nickel	(mg/kg)	11.0	5.180	4.770	**56.4**	**31.8**	**14.4**	3.170	13
Zinc	(mg/kg)	**166**	**66.5**	**39.7**	**345**	U	U	**178**	20

NOTE: EPA – United States Environmental Protection Agency.
mg/kg – Milligrams per kilogram.
U – Non-detect, detection below the method detection limit.
Duplicate was collected at MW-09S.
Data provided by Chemtech Consulting Group. Only analytes that were detected in at least one sample are shown.
Concentration values in **BOLD** indicate that analyte was detected above the site specific standards, criteria, and guidance.

TABLE 4B SUMMARY OF DETECTED METALS IN SOIL DOCUMENTATION SAMPLES
SITE NO 130110 RA CONTRACT D007938

Parameter List EPA Method 6010/7470	Sample ID	EX5SW2		EX5SW3		EX5SW4		EX5SW5		EX5SW6		EX5SW7		EX5SW8		Site Specific Standards, Criteria, and Guidance
	Lab ID	C3265-02		C3265-03		C3355-01		C3355-02		C3355-03		C3473-07		C3355-07		
	Sample Type	Soil		Soil		Soil		Soil		Soil		Soil		Soil		
	Sample Date	8/4/2011		8/4/2011		8/11/2011		8/11/2011		8/11/2011		8/22/2011		8/16/2011		
Chromium (total)	(mg/kg)		U		U	27.6		12.6		7.300		**218**		7.240		50
Copper	(mg/kg)	**449**		**92.2**		**84.9**		**221**		**120**		**1190**		**266**		25
Nickel	(mg/kg)	**14.7**		10.4		**15.7**		8.480		4.180		**110**		**42.6**		13
Zinc	(mg/kg)	**314**		**183**		**99.0**		**133**		**22.3**		**311**		**193**		20

Parameter List EPA Method 6010/7470	Sample ID	EX5SW9		EX5SW10		EX5SW11		EX5SW12		EX6B1		EX6B2		EX6B3		Site Specific Standards, Criteria, and Guidance
	Lab ID	C3355-08		C3622-03		C3622-01		C3622-02		C3109-03		C3109-04		C3109-05		
	Sample Type	Soil		Soil		Soil		Soil		Soil		Soil		Soil		
	Sample Date	8/16/2011		9/7/2011		9/7/2011		9/7/2011		7/21/2011		7/21/2011		7/21/2011		
Chromium (total)	(mg/kg)	6.750		15.8		10.8		17.2		6.980		12.1		12.4		50
Copper	(mg/kg)	**62.4**		20.1		**33.9**		**53.7**		**56.7**		**55.8**		**40.9**		25
Nickel	(mg/kg)	10.7		9.550		12.8		11.7		6.450		**16.3**		**45.3**		13
Zinc	(mg/kg)	**107**			U		U		U	**280**		**127**		**264**		20

Parameter List EPA Method 6010/7470	Sample ID	EX6SW1		EX6SW2		EX6SW3		EX6SW4		EX6SW5		EX6SW6		EX6SW7		Site Specific Standards, Criteria, and Guidance
	Lab ID	C3100-01		C3100-02		C3100-03		C3100-04		C3100-05		C3100-06		C3109-06		
	Sample Type	Soil		Soil		Soil		Soil		Soil		Soil		Soil		
	Sample Date	7/20/2011		7/20/2011		7/20/2011		7/20/2011		7/20/2011		7/20/2011		7/21/2011		
Chromium (total)	(mg/kg)	22.0		**86.3**		19.8		16.1		9.090		9.430		18.4		50
Copper	(mg/kg)	**285**		**2430**		**49.5**		**283**		**220**		**76.1**		**1670**		25
Nickel	(mg/kg)	**39.9**		**71.1**		**122**		**596**		11.2		**23.2**		**41.3**		13
Zinc	(mg/kg)	**215**		**558**		**281**		**358**		**84.3**		**159**		**473**		20

Parameter List EPA Method 6010/7470	Sample ID	EX6NB1		EX6NB2		EX6NSW1		EX6NSW2		EX6NSW3		EX6NSW4		EX6NSW5		Site Specific Standards, Criteria, and Guidance
	Lab ID	C3265-15		C3265-16		C3265-06		C3265-07		C3265-08		C3265-09		C3265-13		
	Sample Type	Soil		Soil		Soil		Soil		Soil		Soil		Soil		
	Sample Date	8/4/2011		8/4/2011		8/4/2011		8/4/2011		8/4/2011		8/4/2011		8/4/2011		
Chromium (total)	(mg/kg)		U		U		U		U		U		U		U	50
Copper	(mg/kg)	**102**		**54.9**		**314**		**162**		23.6		13.8		**149**		25
Nickel	(mg/kg)	11.3		**14.6**		10.8		11.5		5.420		7.790		**19.3**		13
Zinc	(mg/kg)	**114**		**146**		**399**		**371**		**69.0**		**132**		**168**		20

Parameter List EPA Method 6010/7470	Sample ID	EX6NSW6		Site Specific Standards, Criteria, and Guidance
	Lab ID	C3265-14		
	Sample Type	Soil		
	Sample Date	8/4/2011		
Chromium (total)	(mg/kg)		U	50
Copper	(mg/kg)	**61.5**		25
Nickel	(mg/kg)	8.060		13
Zinc	(mg/kg)	75.7		20

TABLE 5 SUMMARY OF DETECTED METALS IN SEDIMENT DOCUMENTATION SAMPLES
SITE NO 130110 RA CONTRACT D007938

Parameter List EPA Method 6010/7470	Sample ID	EX7P1		EX7P2		EX7P3		EX7P4		EX7P5		Effect Range-Low (mg/Kg)	Effect Range-High (mg/Kg)
	Lab ID	D1315-01		D1315-02		D1315-03		D1315-04		D1315-05			
	Sample Type	Sediment		Sediment		Sediment		Sediment		Sediment			
	Sample Date	1/27/2012		1/27/2012		1/27/2012		1/27/2012		1/27/2012			
Arsenic	(mg/kg)	**13.3**		**17.2**		**10.9**		3.81		**8.48**		8.2	70
Cadmium	(mg/kg)	0.512		0.981		**4.04**		0.123	J	0.309	J	1.2	9.6
Chromium	(mg/kg)	40.7		55.2		**97.4**		17.4		42.6		81	370
Copper	(mg/kg)	**177**		**299**		**134**		**42.2**		**91.5**		34	270
Iron[a]	(mg/kg)	14000		21100		21900		5630		11900		2%	4%
Lead	(mg/kg)	**46.8**		**76.1**		**228**		24.5		40.9		46.7	218
Manganese[a]	(mg/kg)	66.8		140		124		31.1		64.9		460	1100
Mercury	(mg/kg)	**0.373**		**0.492**		**1.86**		**0.152**		**0.202**		0.15	0.71
Nickel	(mg/kg)	15.8		16.7		**23.3**		5.28		15.3		20.9	51.6
Silver	(mg/kg)	(<0.169)	U	(<0.447)	U	**4.05**		(<0.131)	U	(<0.213)	U	1	3.7
Zinc	(mg/kg)	141		**318**		**206**		44.8		100		150	410

(a) Persaud, D., Jaagumagi, R., and A. Hayton, 1992. Guidelines for the Protection and Managament of Aquatic Sediment Quality in Ontario. Ontario Ministry of the Environment, Queen's Printer for Ontario.

NOTE: EPA = United States Enivronmental Protection Agency.
mg/Kg = milligrams per kilogram = parts per million (ppm).
J = Indicates the reported value was less than the Contract Required Detection Limit, but greater than or equal to the Instrument Detection Limit.
U = Non-detect, detection below the method detection limit.
Data provided by Chemtech Consulting Group. Only analytes included in Table 4-21 of the 2007 RI are included
Concentration values in **BOLD** indicate that analyte was detected above the Effect Range-Low. Concentration values shaded indicate that analyte was detected above the Effect Range-High

TABLE 6 BACKFILL QUANTITIES AND SOURCES
SITE NO 130110 RA CONTRACT D007938

Excavation Area	Survey Volume (yd^3)	Source
GRANULAR FILL		
EX3	481.50	A&R Materials
EX4	117.81	A&R Materials
EX5	777.61	A&R Materials
EX6 and EX2	437.20	A&R Materials
RESERVOIR COURSE		
EX3	176.80	A&R Materials
EX4	45.80	A&R Materials
EX5	301.00	A&R Materials
EX6S	178.50	A&R Materials
EX6N	75.60	A&R Materials