New York City
Economic Development
Corporation

110 William Street
New York, NY 10038
212.619.5000

www.nycedc.com

December 21, 2011

Mr. Ronnie Lee, P.E.
Remedial Section C
Bureau of Eastern Remedial Action, Room 242
Division of Environmental Remediation
New York State Department of Environmental Conservation
625 Broadway
Albany, New York 12233-1750

Re: Proposed Intrusive Work
Hunts Point Perimeter Site

Dear Mr. Lee:

In accordance with the NYSDEC comments received November 10, 2011, the NYSDEC approved Perimeter Site SMP (Site No. V00641-2), dated December 2006 and the revised Worker/Department Notification Plan submitted to NYSDEC and dated August 2011, the New York City Economic Development Corporation (NYCEDC) is writing this letter to notify NYSDEC of intrusive work planned for Food Center Drive (FCD).

The scope of work consists of direct-push boring installations and exploratory test pits in the area along the length of Food Center Drive. The test pits and borings are being completed as part of the larger Food Center Drive Greenway project. The Greenway Project will include improvements for the redirection of Food Center Drive into a one way street, the installation of storm water structures, the installation of new water line, bike/pedestrian greenway with 16" curb and planting area, and replacement of rails at grade that cross FCD. A separate notification and submission will be made to NYSDEC for the construction of the Greenway Project (this submission is only intended to be a notification for the boring installations and test pit activities).

Copies of the Site Management Plan and Health and Safety Plan have been provided to the contractor who will be performing intrusive work. The project specific Health and Safety Plan developed by the drilling contractor (Zebra Environmental Corp.) is included in this submission for your information. NYCEDC has also instructed our environmental consultant to provide guidance during the boring/subsurface work.

The Boring Location Plan showing the locations of the proposed borings and test pits is additionally enclosed.

Direct Push Borings

Up to 61 soil borings will be advanced using direct-push drilling methods. The borings will be located in the areas of the proposed waterline excavation, the proposed catch basin excavations, the planted area of the Greenway, and in areas near previously discovered coal tar and purifier waste deposits. In general the borings are intended to be located outside of, or adjacent to the previously investigated Perimeter Site. Soil samples will be collected continuously to eight feet below existing grade using a Macrocore sampler and dedicated liners. If Manufactured Gas Plant (MGP) wastes (coal tar or purifier) are discovered in a boring, that boring will be advanced to the bottom limit of waste, to verify the vertical extent of the MGP impacted material.

Logs will be prepared for all borings to document subsurface conditions and the presence of MGP waste. Logs will include material type and composition, color, grain size and distribution, depth to water, visual or olfactory evidence of contamination, and any other distinctive characteristics observed. Additionally, sample intervals retained for laboratory analysis will be documented on the boring logs. Samples will be retained for chemical analysis from representative borings, up to 25% (16) of the boring locations. Chemical analysis will include: total petroleum hydrocarbons (Diesel range organics), benzene, toluene, ethyl benzene and total xylenes, Target Compound List (TCL) base neutral compounds, lead, mercury, cyanide and polychlorinated biphenyls (PCBs). Chemical analysis is intended to characterize materials for health and safety purposed as well as material handling. Samples will be targeted to borings exhibiting visual or olfactory evidence of MGP impacts.

Following completion of each test probe, it will be backfilled 6 inches below grade using drilling cuttings or a combination of bentonite chips and drill cuttings. The remaining interval will be backfilled with asphalt to match existing grade. If significant volumes of MPG waste are encountered during boring activities the waste will be containerized for disposal at an appropriately licensed facility, in accordance with all applicable regulations and the requirements of the Perimeter Site SMP.

Five representative borings will be finished as temporary well points to evaluate the presence and depth to groundwater. These temporary well points are anticipated to be constructed with five-foot long, one-inch diameter, flush threaded PVC well screens (equipped with points) with solid riser extending to the surface. The well points will not penetrate the subsurface clay layer, if encountered. The temporary well points will remain in the ground for a maximum of 24 hours. Once removed the points will be backfilled to 4 to 6 inches below grade using drilling cuttings or a combination of bentonite chips and drill cuttings. The remaining interval will be backfilled with soil or asphalt to match existing grade.

Two borings (SB-18 and SB-23) will be completed as temporary well points for the collection of groundwater grab samples. The points installed for the collection of groundwater grab samples are also anticipated to be constructed with five-foot long, one-inch diameter, flush threaded PVC well screens (equipped with points) with solid riser extending to the surface. The well points will not penetrate the subsurface clay layer, if encountered. Groundwater samples will be collected using a peri-pump with dedicated tubing or dedicated bailers. Chemical analyses of the borings will include benzene, toluene, ethylbenzene and xylenes (BTEX compounds).

All down-hole sampling equipment will be dedicated or decontaminated between borings using cold wash techniques. Prior to starting a new location the sampling equipment will be decontaminated at a designated decontamination area when areas of gross contamination are encountered.

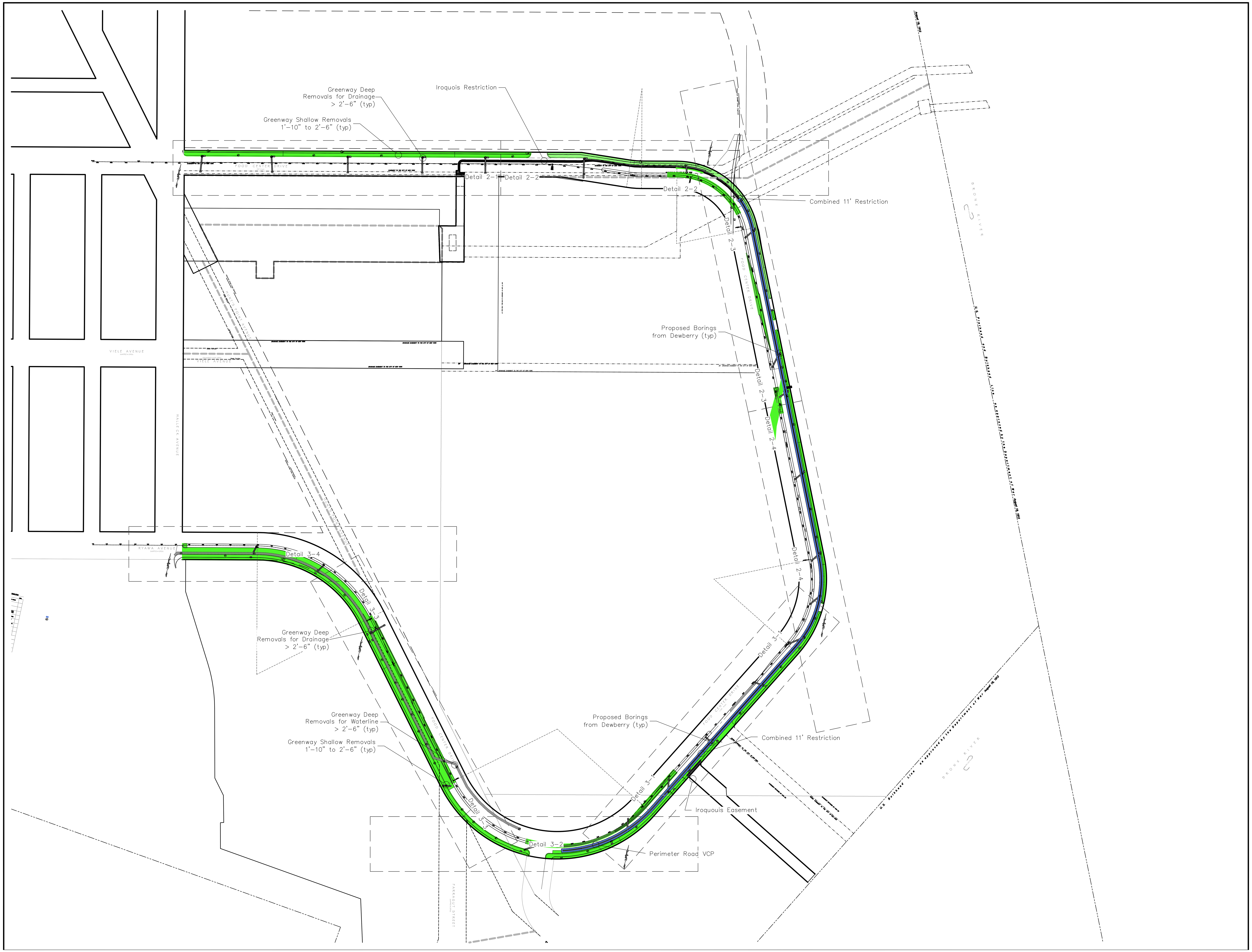
Test Pits

In addition, four test pits will be excavated within the property fence of the Hunts Point Produce Market. The test pits are required to determine the extent of the existing corrugated metal fence foundations along Food Center Drive. The test pits will be backfilled with the materials excavated immediately after inspection and the surface materials will be replaced to match the existing surface.

Should you have any questions, please do not hesitate to contact me at 212-312-3752 or email me at kzias@nycedc.com.

Sincerely,

Kay Zias
Vice President
Planning



175 West 93rd Street
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(212) 504-2602 Fax

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www.mercatorgroup.com
NYS COA#0002514

ISSUES OF DRAWINGS

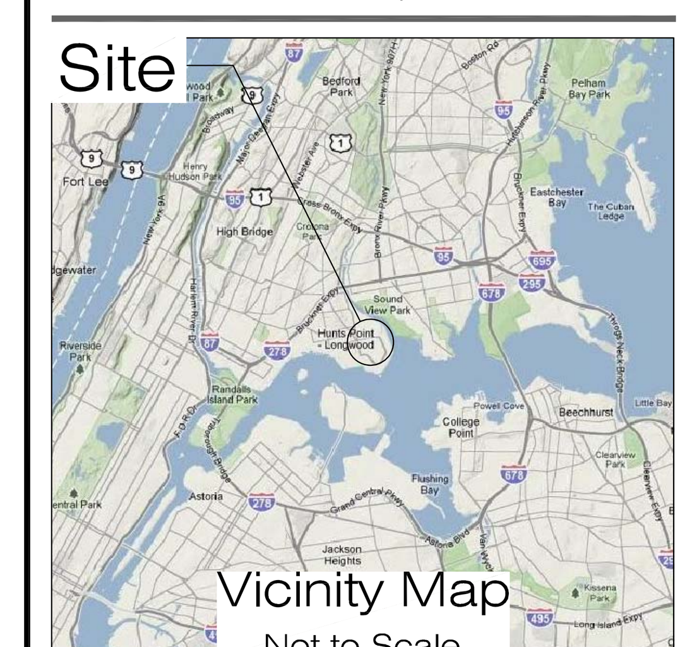
No.	Date	Description
A	12/6/11	Interim Issue of Drawing
B	12/15/11	Revise Iroquois esmt & add removals
C	12/19/11	Revise Iroquois esmt & add removals
D	12/20/11	Add color hatching
E	12/21/11	Add proposed borings

SUBSEQUENT REVISIONS

.

Linetypes

Right–of–Way
Combined Restriction
Orig Iroquois Easement
Shallow Removal
Deep Removal
Combined Restriction
Perimeter Road VCP
(B16) Proposed Borings from Dewberry



Prepared For:

NYC Economic
Development Corporation
110 William Street, New York, NY 10038

Project

Food Center Drive

Easement & VCA Survey
part of Block 2781 Lot 500

Bronx County, State of New York

Date of Survey: Scale: 1" = 150' / 1:1800

Seal & Signature

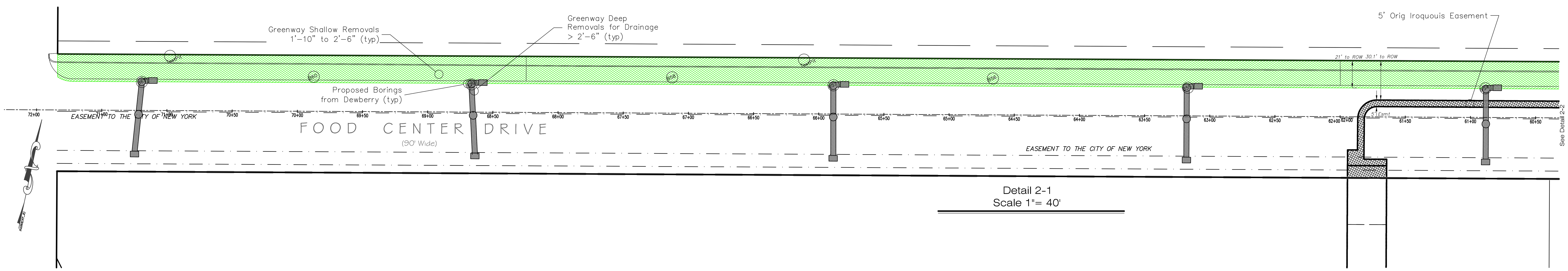
Date:	12/6/11
Project No:	11J139
Drawn:	DL
Checked:	RLM
DWG No	V-138-11

J. R. Lemuel Morrison
NY Lic Surveyor #50404

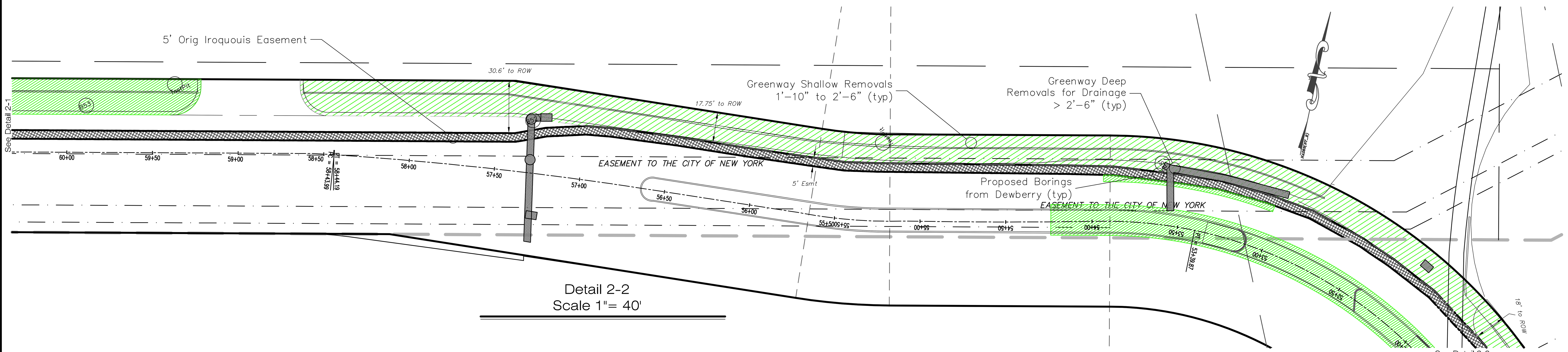
CADD File: V-11J138-11(FCD-Greenw...

1 of 3

Xref: V-08J117-11(Matrix)



Detail 2-1
Scale 1"= 40'



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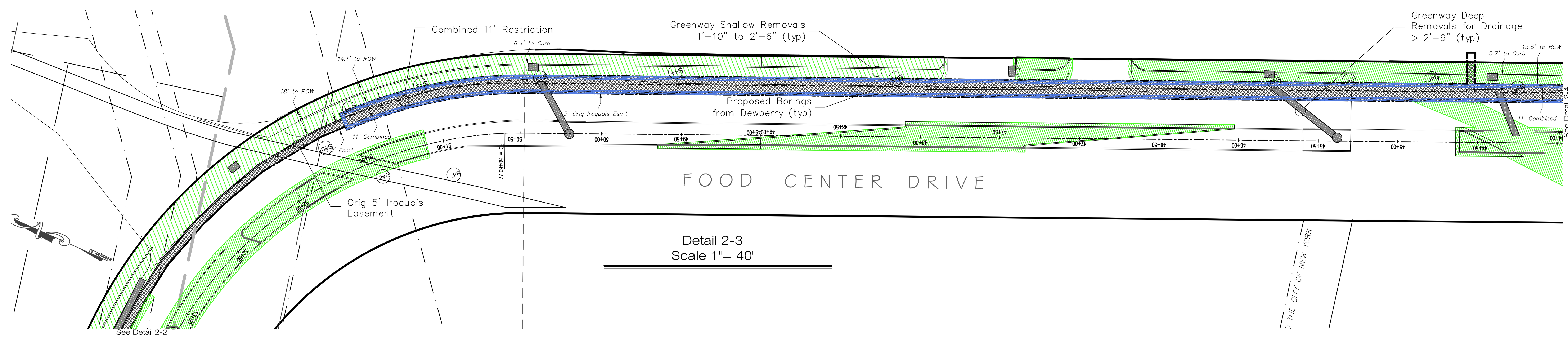

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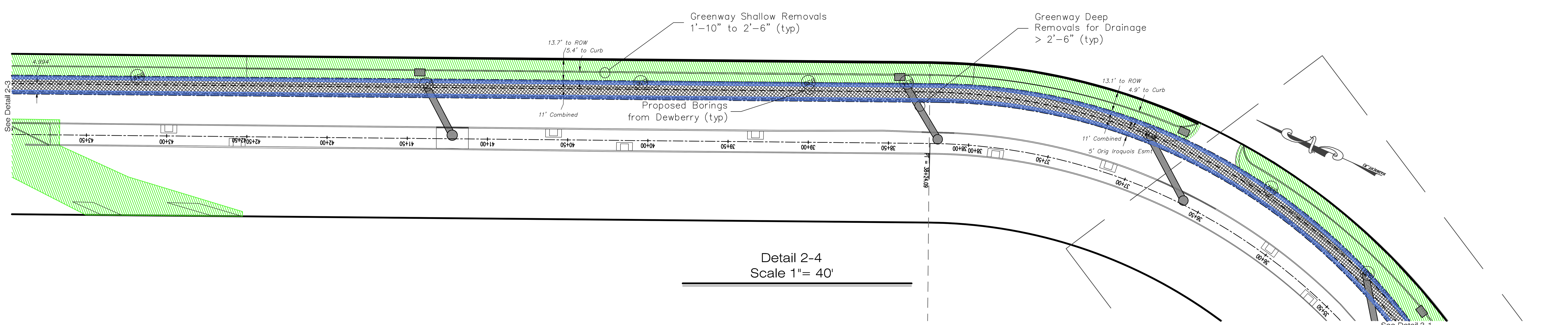

Detail 2-4
Scale 1"= 40'

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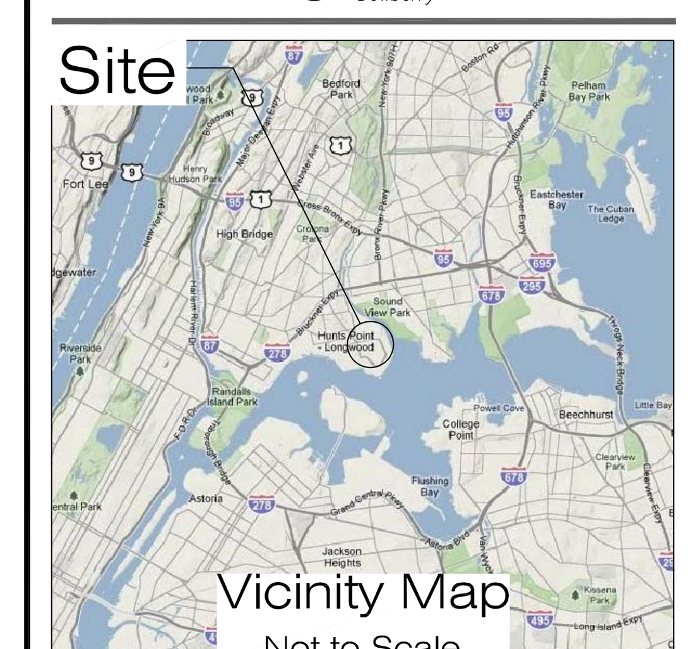
SUBSEQUENT REVISIONS

Linetypes

- Right-of-Way
- Combined Restriction
- Orig Iroquois Easement
- Shallow Removal
- Deep Removal
- Combined Restriction
- Perimeter Road VCP
- Proposed Borings from Dewberry

Site



Vicinity Map
Not to Scale

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110 William Street, New York, NY 10038

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Easement & VCA Survey
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Bronx County, State of New York

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Scale: 1" = 40' / 1:480

Seal & Signature

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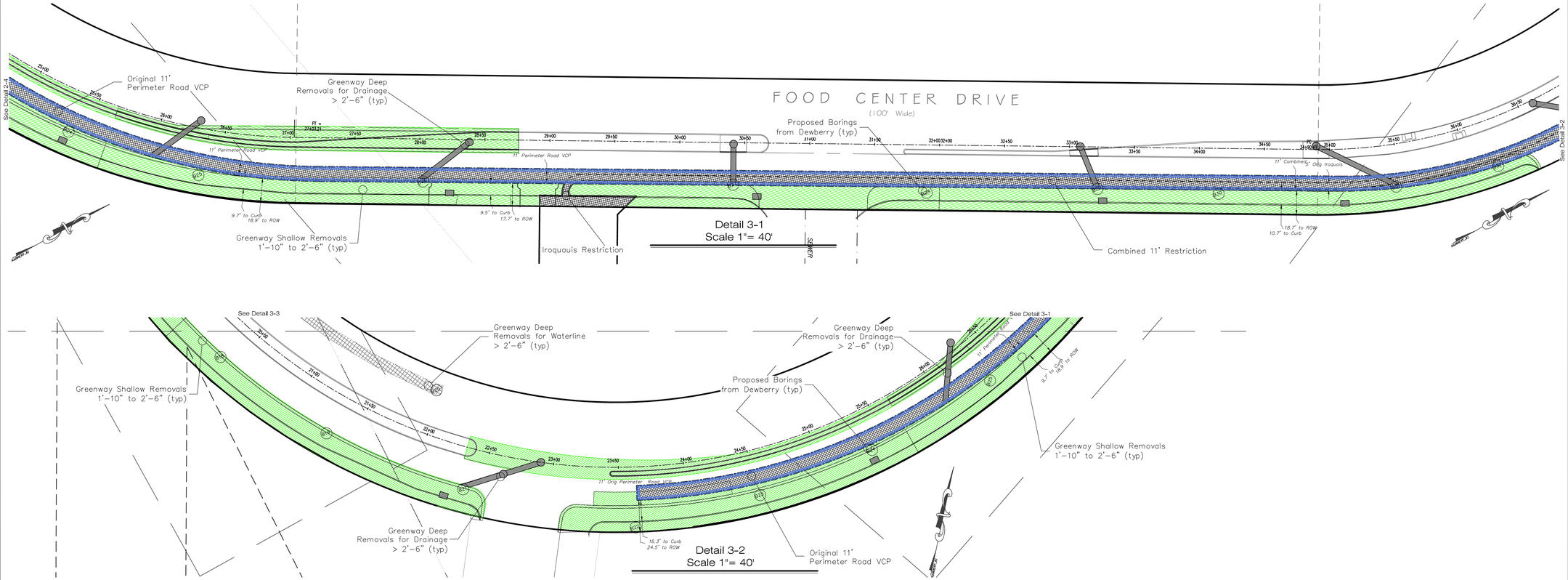
J. R. Lemuel Morrison
NY Lic Surveyor #50404



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CADD File:	V-11J138-11\FCD-Greenway.dgn

Xref: v-08\117-11\Matrix

POST VCP

HEALTH AND SAFETY PLAN

Site Name: Hunts Point Perimeter Site **Site Location:** Bronx, NY

HASP Preparer: David F. Vines **Preparation Date:** 12/21/2011

APPROVALS:

Project Manager: David Vines

CONTRACTOR/ PERSONNEL:

On-Site Coordinator: Charles Green

On-Site Health and Safety Officer: Charles Green

SCOPE OF WORK:

Direct Push Borings

Up to 61 soil borings will be advanced using direct-push drilling methods. The borings will be located in the areas of the proposed waterline excavation, the proposed catch basin excavations, the planted area of the Greenway, and in areas near previously discovered coal tar and purifier waste deposits. Soil samples will be collected continuously to eight feet below existing grade using a Macrocore sampler and dedicated liners. If Manufactured Gas Plant (MGP) wastes (coal tar or purifier) are discovered in a boring, that boring will be advanced to the bottom limit of waste, to verify the vertical extent of the MGP impacted material.

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Test Pits

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required to determine the extent of the existing corrugated metal fence foundations along Food Center Drive. The test pits will be backfilled with the materials excavated immediately after inspection and the surface materials will be replaced to match the existing surface.

HAZARDOUS/SUBSTANCES:

Coal tar and/or purifier waste may be encountered at the site. Coal tar can be a solid or semi-liquid with a strong naphthalene/asphalt like odor. It generally contains a group of semi-volatile organic compounds (SVOC) referred to as polycyclic aromatic hydrocarbons (PAHs). Coal tar may also contain benzene, toluene, ethyl-benzene, and xylene (BTEX) compounds. Purifier waste is known to contain cyanide, other heavy metals, PAHs and BTEX and is often acidic.

HAZARD ASSESSMENT :

<table>
<tr><td colspan="2">WASTE TYPES: (X) Liquid (X) Solid (X) Sludge ( ) Gas ( ) Unknown ( ) Other specify:</td></tr>
<tr><td>WASTE CHARACTERISTICS: Check as many as applicable.

(X) Corrosive ( ) Flammable ( ) Radioactive
(X) Toxic (X) Volatile ( ) Reactive
( ) Inert Gas ( ) Unknown ( ) Other Specify:</td><td>WORK ZONES: Describe how the Exclusion, Contamination Reduction, and Support Zones will be delineated in terms that on-site personnel will recognize. Work zones will be shown on "WORK ZONE MAP PAGE."

1. Exclusion zone will be considered to be within 20 feet of the sampling location</td></tr>
<tr><td>HAZARDS OF CONCERN: Check as many as applicable.
(X) Heat Stress attach guidelines (X) Noise
( ) Cold Stress attach guidelines (X) Inorganic Chemicals
( ) Explosive/Flammable (X) Organic Chemicals
( ) Oxygen Deficient (X) Motorized Traffic
( ) Radiological (X) Heavy Machinery
( ) Biological (X) Slips, Trips & Falls
( ) Other:
(X) Other specify: CONFINED SPACES WILL NOT BE ENTERED.
(If confined spaces are to be entered a specific confined space entry plan will be developed)</td><td>PRINCIPAL DISPOSAL METHODS AND PRACTICES: Summarize Site Specific Conditions Procedures Below:

All waste generated will be re-deposited into the borehole from which it was generated. Purge water will be discharged onto an interior portion of the site away from the immediate area of the well so that it may not run into the parking lot or into storm drains.</td></tr>
</table>

CHEMICALS Amounts/Units:	**SOLIDS Amounts/Units:**	**SLUDGES Amounts/Units:**	**SOLVENTS Amounts/Units:**	**OILS Amounts/Units:**	**OTHER Amounts/Units:**
Acids	Flash	Paint	Halogenated (chloro, bromo) Solvents	Oily Wastes	Laboratory
Pickling Liquors	Asbestos	Pigments	**Hydrocarbons**	Gasoline	Pharmaceutical
Caustics	Milling/Mine Tailings	Metal Sludges	Alcohols	Diesel Oil	Hospital
Pesticides	Ferrous Smelter	POTW Sludge	Ketones	Lubricants	Radiological
Dyes/Inks	Non-ferrous Smelter	Aluminum	Esters	PCBs	Municipal
Cyanides	Metals	Distillation Bottoms	Ethers	**Poly Aromatic Hydrocarbons**	Construction
Phenols	Other:	Other:	**Other:**	Other:	Munitions
Halogens	**Purifier Waste** **Coal Tar** **Slag**		**- VOCs and SVOCs found in Site Soils and Groundwater samples**		Other
Dioxins					Specify:
Other (Specify):					

OVERALL HAZARD EVALUATION: ( ) High **(X) Medium** ( ) Low ( ) Unknown
JUSTIFICATION: Materials and operations on the site pose a moderate threat to site workers.

FIRE/EXPLOSION POTENTIAL: ( ) High ( ) Medium **(X) Low** ( ) Unknown

KNOWN CONTAMINANTS	HIGHEST OBSERVED CONCENTRATION (specify units and media)	PEL/TLV ppm or mg/m^3 (specify)	IDLH ppm or mg/m^3 (specify)	SYMPTOMS/EFFECTS OF ACUTE EXPOSURE	PHOTOION-IZATION POTENTIAL
Coal Tar Pitch VOCs (includes PAHs, coal tar, cresote)	Fluoranthene 560 ppm (soil)	TLV: 0.2 mg/m^3 REL: 0.1 mg/m^3 PEL: 0.2 mg/m^3	80 mg/m^3	Dermatitis, bronchitis	NA
Naphthalene	3,800 ppm (soil) 940 ppb (groundwater)	REL: 10 ppm PEL: 10 ppm	250 ppm	Irritation eyes; headache, confusion, excitement, malaise; nausea, vomiting, abdominal pain; irritated bladder; profuse sweating; jaundice; hemorrhage, renal shutdown; dermal irritation, optical neuritis, corneal damage.	8.12 eV
Carbon Disulfide	16,000 ppb (groundwater)	REL: 5,000 ppm PEL: 5,000 ppm	40,000 ppm	Headache, dizziness, restlessness, paresthesia, dyspnea; sweating; malaise, increased heart rate, increased cardiac output, increased blood pressure; coma; asphyxia; convulsions; frostbite (liq, dry ice)	13.77 eV
Arsenic	47 ppb (groundwater)	TLV: 0.01 mg/m^3 REL: 0.002 mg/m^3 PEL: 0.01 mg/m^3	NA	Irritation skin, possible dermatitis; respiratory distress; diarrhea; kidney damage, muscle tremor; convulsions; poss. GI tract, reproduction effects; possible liver damage	NA
Cyanide	11,300 ppb (groundwater)	(HCn gas) TLV: 4.7 ppm PEL: 10 ppm (Cyanide Salts) TLV, REL, PEL: 5 mg/m^3	50 ppm	Hydrogen Cyanide: Asphyxia; weakness, exhaustion, headaches, confusion; nausea, vomiting; increased rate and depth of respiration or respiration slow & gasping; thyroid, blood changes	13.60 (Hydrogen Cyanide)
Hydrogen Sulfide		TLV: 1 ppm REL: 10 ppm PEL: 20 ppm	100 ppm	Irritation of eyes, respiratory system; apnea, coma, convulsions; conjunctivitis, eye pain, lacrimation, photobia, corneal vesiculation; dizziness, headaches, weakness, exhaustion, irritability, insomnia, GI disturbance	10.46

KNOWN CONTAMINANTS	HIGHEST OBSERVED CONCENTRATION (specify units and media)	PEL/TLV ppm or mg/m^3 (specify)	IDLH ppm or mg/m^3 (specify)	SYMPTOMS/EFFECTS OF ACUTE EXPOSURE	PHOTOIONIZATION POTENTIAL
Methane	< LEL (adjacent property)	PEL: N/A TLV: NA simple asphyxiant	LEL: 5%	Simple asphyxiant	12.98 eV
NA = Not Available S = Soil A = Air	NE = None Established SW = Surface Water GW = Groundwater	U = Unknown T = Tailings SL = Sludge	W = Waste D = Drums	SD = Sediment OFF = Offsite	

Other hazards:

See Appendix A: Zebra Environmental Corp. Health & Safety Plan for Direct Push Services, for general hazards associated with Direct Push Drilling Operations. A job safety analysis and a First Walk document for review are attached as well

SITE WORK ZONES: (designate exclusion zone, contamination reduction zone and support zone)

Support zone – The support zone will consist of an area used to stage support vehicles and equipment.

Contamination reduction zone - Will be located directly adjacent to the probing unit. The zone will be comprised of any area used to decontaminate equipment and personnel. If necessary it will be marked with traffic cones and/or caution tape to limit access.

Exclusion Zone - Will consist of a limited area surrounding the probing unit where work is being performed and safety equipment or precautions are needed (i.e. hard hats, safety shoes, glasses, etc). If necessary it will be marked with traffic cones and/or caution tape to limit access.

SITE ACCESS:

Access to the work areas identified above will be limited to necessary Zebra personnel and the Engineer/Consultant. Work zone boundaries will be marked with traffic cones and/or caution tape if it is deemed necessary by the Site Safety Officer.

MONITORING PROCEDURES

The Contractor will have his Site Safety Officer assess the need for air monitoring such as :A photoionization detector (PID) to monitor for the presence of VOCs. A portable gas monitor (PGM) for the presence of flammable gas concentrations and hydrogen sulfide. The following table provides an example of Monitoring Equipment and Action Guidelines.

MONITORING EQUIPMENT: Specify by task. Indicate type as necessary. Attach additional sheets as necessary.			
INSTRUMENT	TASK	ACTION GUIDELINES	
Combustible Gas Indicator	1 - 2 - **3** - 4	**0-10% LEL** **10-25% LEL** **>25% LEL** **20.9% 02** **<20.5% 02** **<19.5% 02**	**No explosion hazard** **Potential explosion hazard; notify HSO.** **Explosion hazard; interrupt task/evacuate** **Oxygen normal** **Oxygen deficient; notify HSO.** **Interrupt task/evacuate**
Photo ionization Detector ( ) 11.7 ev **(X) 10.6 ev** ( ) 9.8 ev ( ) ___ ev	1 - 2 - **3** - 4	**Specify: If TOTAL VOC's ≥ 5 PPM above background in the breathing zone, sustained for 5 or more minutes, all personnel shall evacuate the site. Contact Project HSO and the site shall be re-evaluated after 30 minutes. The HSO will re-enter the site upwind and monitor with the PID. Once the volatile levels are below 1 PPM, work can continue.**	
Hydrogen Cyanide Meter	1 - 2 - **3** - 4	**Specify: If HCn ≥ 4.7 PPM above background in the breathing zone, sustained for 5 or more minutes, all personnel shall evacuate the site. Contact Project HSO and the site shall be re-evaluated after 30 minutes. The HSO will re-enter the site upwind and monitor with the meter. Once the HCn levels are below 1 PPM, work can continue**	
Dust Monitor	1 - 2 - 3 - 4	Specify:	
Radiation Survey Meter	1 - 2 - 3 - 4	3X Background >2mR/hr	Notify SHSC Interrupt task/evacuate
Other:	1 - 2 - 3 - 4	Specify:	

Medical monitoring procedures:

ZEBRA's project personnel will participate in an on-going medical monitoring program n accordance with 29 CFR 1910.120(f).

Personnel monitoring procedures:

The Site Safety Officer will monitoring the work parties for signs of stress such as cold exposure, heat stress of fatigue.

DECONTAMINATION AND DISPOSAL:

All sampling equipment will be decontaminated using a cold water de-ionized water wash with a non-phosphate detergent. Personnel will wash with soap and water after work is completed. PPE will be decontaminated or disposed of after use.

Disposal Procedures:

Water used for decontamination will be discharged to the ground surface at the site (storm water drains will be protected so as not to receive runoff from site decontamination water). PPE will be disposed of in an appropriate manor.

EMERGENCY PROCEDURES

In event of personnel exposure (skin contact, inhalation, ingestion, specific procedures for specific chemicals):

Skin Contact - Wash with soap and water.

Inhalation - Remove to fresh air, monitor ABCs (Airway, Breathing and Circulation).

Ingestion - Call 911 and monitor ABCs.Skin Contact:

In event of personnel injury:

Check ABCs (Airway, breathing, and circulation). Perform first aid if required.

Contact local ambulance by calling 911 if professional help is required.

In event of potential or actual fire or explosion:

Evacuate to the site entrance. The HSO will account for all personnel before leaving the site.

The fire department will be contacted by calling 911.

In event of potential or actual ionizing radiation exposure:

Not applicable.

In event of environmental accident (spread of contamination outside sites):

Stop the spread of the chemical to the extent possible if the containment of the chemical may be performed safely.

Notify NYSDEC

Contact the fire department

Contact LMS (Jim Morrison, Karen Wright, or John Guzewich)

Additional emergency information is available in Appendix A: Zebra Environmental Corp. Health & Safety Plan for Direct Push Services.

EMERGENCY SERVICES:

Emergency Medical Facility (See attached Map)

	Location	Telephone
Hospital:	St. Barnabus Hospital 1967 Turnbull Avenue Bronx, New York	(718) 409-2633

Directions:

From site in Bronx:

Northwest of Food Center Drive and turn right onto Halleck St.
Go straight onto Edgewater Road.
Turn right onto Bruckner Blvd.
Take I-278 East/Bruckner Exp. towards the Throgs Neck Bridge.
Exit at White Plains Rd/Castle Hill Ave.
Merge onto Bruckner Blvd.
Turn right onto White Plains Rd.
Turn left onto Turnbull Ave.

See Figure 2 for route to Hospital.

Ambulance:	911
Fire Department	911
Police Department	911
Poison Control Center	(800) 336-6997

PERSONNEL POTENTIALLY EXPOSED TO HAZARDOUS SUBSTANCES
(As Applicable)

Personnel Authorized to Enter Site (specific conditions of site would preclude most LMS trained persons from entering site and would allow only certain personnel, list here)

mapquest

Trip to:
1967 Turnbull Ave
Bronx, NY 10473-2519
2.96 miles
7 minutes

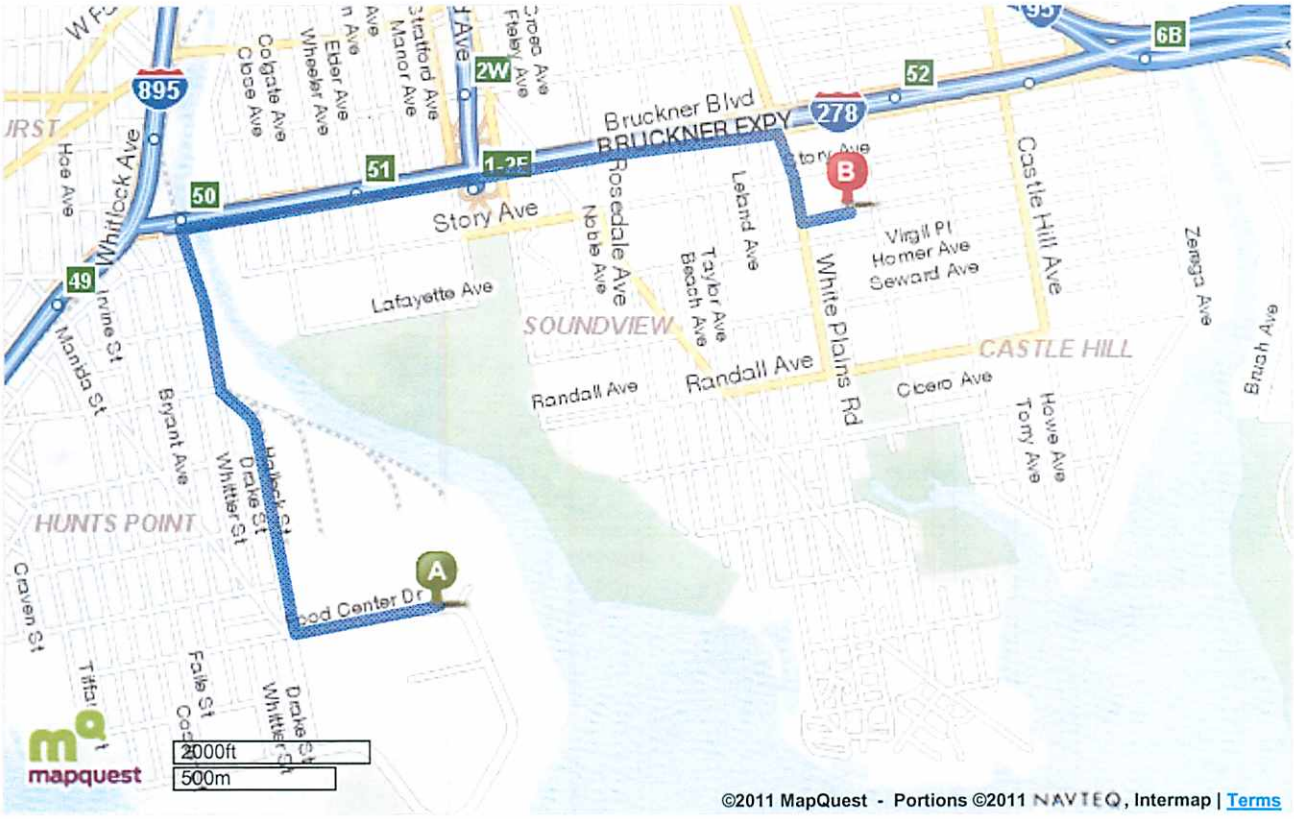
Notes

St. Barnabus Hospital
1967 TUrnbull Ave
Bronx, NY 10473

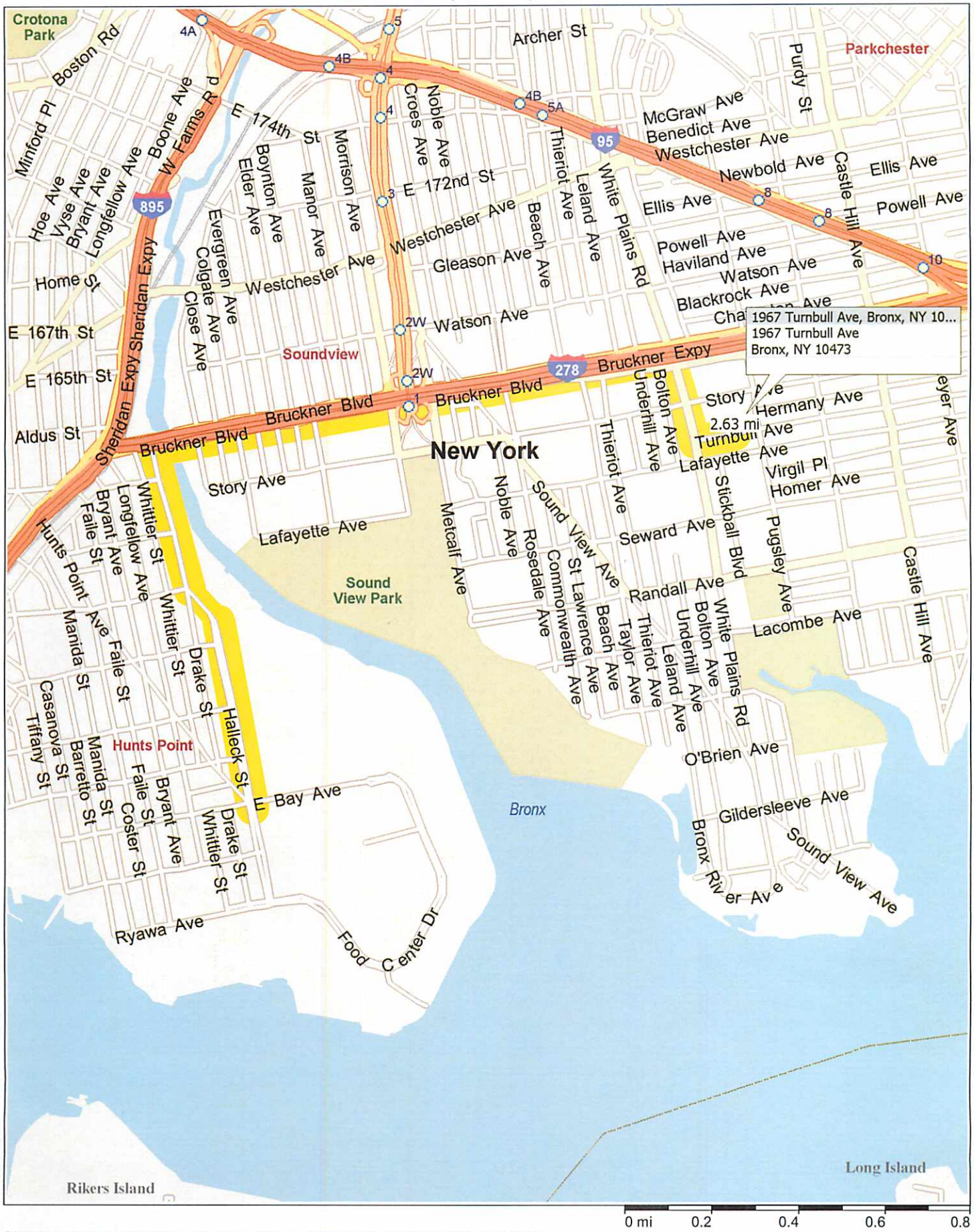
718-409-2633

		Miles Per Section	Miles Driven
A	**[154-198] Food Center Dr** Bronx, NY 10474		
●	1. Start out going **west** on **Food Center Dr** toward **Halleck St**.	**Go 0.3 Mi**	0.3 mi
↱	2. Take the 1st **right** onto **Halleck St**. *Fratelli's Pizza Cafe is on the corner* *If you are on E Bay Ave and reach Hunts Point Ave you've gone a little too far*	**Go 0.5 Mi**	0.8 mi
↑	3. Stay **straight** to go onto **Edgewater Rd**.	**Go 0.5 Mi**	1.3 mi
↱	4. Turn **right** onto **Bruckner Blvd**.	**Go 1.4 Mi**	2.6 mi
↱	5. Turn **right** onto **White Plains Rd**. *White Plains Rd is just past Bolton Ave* *If you reach Pugsley Ave you've gone about 0.1 miles too far*	**Go 0.2 Mi**	2.8 mi
↰	6. Take the 2nd **left** onto **Turnbull Ave**. *Turnbull Ave is 0.1 miles past Story Ave* *If you reach Lafayette Ave you've gone a little too far*	**Go 0.1 Mi**	3.0 mi
■	7. **1967 TURNBULL AVE** is on the **left**. *If you reach Pugsley Ave you've gone a little too far*		3.0 mi
B	**1967 Turnbull Ave** Bronx, NY 10473-2519	**3.0 mi**	**3.0 mi**

Total Travel Estimate: **2.96 miles - about 7 minutes**



Hunts Point, Bronx, New York



Not applicable.

ALTERNATIVE WORK PRACTICES

(Describe alternative work practices or instruments not specified in this form. Indicate work practices specified in the chapter for which proposed alternative work practices will serve as substitute).

Not applicable.

TASK-SPECIFIC LEVEL OF PROTECTION AND ACTION LEVELS

ZEBRA anticipates that the majority of the probing services will be performed in Level D personnel protective equipment (PPE). This equipment shall include:

- leather gloves
- hard hat
- steel toe boots
- safety glasses
- hearing protection

Additional equipment may be recommended based on on-site conditions identified by the Site Safety Officer. This may include Tyvek coveralls and chemical resistant gloves.

The need for upgrade to Level C respiratory protection will be determined by periodic air monitoring. If this determination is made, the ZEBRA project manager will be notified to determine the proper course of action.

Level C PPE will include all Level D PPE and the addition of a full face air purifying respirator. The cartridges will be selected based on site-specific compounds of concern.

Level C PPE will only be available on-site if it was specifically asked for in the project bid specifications.

SITE MAP

See Figure 1. Boring Location Map

TRAINING:

All ZEBRA project personnel will be trained in accordance with the requirements of 29 CFR 1910.120(e). This includes the initial 40-hour HAZWOPER and the annual refresher courses.

AFFIDAVIT

All personnel who enter site must sign attached affidavit. Zebra personnel must also read and comply with Zebra's generic HASP (included as Appendix A).

AFFIDAVIT

I, _____ , (name) of _____

(company name) have read the Health and Safety Plan (HASP) for the _____

(site description and project description). I have also read the LMS generic HASP. I agree to conduct all on-site work in conformity with the requirements of both HASPs. In addition, I acknowledge that failure to comply with the designated procedures in the Health and Safety Plans may lead to my removal from the site.

Signed _____

Date _____

ZEBRA Environmental Corp.

Health & Safety Plan

for

Direct Push Services

ZEBRA Environmental Corp.
Health & Safety Plan

Table of Contents

ZEBRA Environmental Corp.
Health & Safety Plan

Table of Contents (cont'd.)

Health & Safety Plan

for

Direct Push Services

1.0 PURPOSE

The purpose of this Health and Safety Plan (HASP) is to establish a protocol for protecting ZEBRA Environmental Corp. (ZEBRA) field personnel from incidents that may arise while performing field activities during the performance of Direct Push services . This plan establishes personnel protection standards, mandatory operations procedures, and provides contingencies for situations that may arise while field work is being conducted at the site. ZEBRA field personnel will be required to follow these procedures.

This HASP is designed to be a general document that addresses areas of concern for probing activities. Site specific factors and information can be added to this plan as the project work is assigned.

Project personnel will review this document prior to project start-up and sign and date the form contained in Appendix A.

2.0 PROJECT DESCRIPTION

The projects will be assigned to ZEBRA by environmental consulting companies. These projects will be situated in various locations within New York and New England and the scope of work will be determined on a case-by-case basis. ZEBRA will be notified with sufficient lead time so site specific information can be added to the general HASP.

2.1 Scope of Work

The scope of work will be determined by the environmental consulting companies project manager on a case-by-case basis. ZEBRA will be providing personnel and equipment to perform various probing services. This HASP addresses potential hazardous associated with these sites and services. ZEBRA anticipates providing the following services:

- soil gas, soil and groundwater sampling
- installation of monitoring points
- direct sensing soil conductivity logging
- on-site laboratory analysis
- associated decontamination and clean up

2.2 Site Conditions

Site conditions will be determined prior to mobilization based on information provided by the environmental consulting company. Site visits may be necessary to fully evaluate the project site.

2.3 Underground Utilities and Structures

The environmental consulting company is responsible for the marking of all underground utilities and structures. Zebras lead operator will ask the consulting companies on-site representative to sign a form stating that all the necessary steps have been taken by the consulting company to locate and mark all underground utilities and structures prior to beginning any subsurface work.

Upon arrival on site, the ZEBRA SSO will determine if adequate markouts have been performed. If adequate markout information is not available, the ZEBRA project manager will be notified to determine the proper course of action.

ZEBRA will not probe in any location that has not been fully marked out and investigated.

2.4 Hazard Evaluation

Site specific hazards will vary from project site to site. ZEBRA personnel will be made aware of any known site-specific hazard prior to mobilization. Specific plans to address these potential hazards will be designed on a case-by-case basis.

General hazards that are encountered during soil probing activities include the following:

- Potential exposure to hazardous materials (soil gas, soil or groundwater) which may include petroleum products, volatile organics, pesticides, semi-volatiles, base neutrals and unknowns.
- Operation of hydraulic probing equipment.
- Underground utilities and structures.
- High decibel levels.
- Use of hand and power tools.
- Working in heavy traffic areas.
- Sharp objects.
- Heavy lifting.
- Uneven site terrain.

These issues can be discussed and addressed at project start-up and each project day, during a tailgate safety meeting. A general site safety form in contained in Appendix B. ZEBRA personnel must be aware of these hazards and make educated decisions that will keep the work site safe.

Appendix C contains safety cautions for the operation of ZEBRA's Geoprobe units. ZEBRA may request the use of a Geoprobe Technician to assist the Geoprobe Operator on projects that necessitate it. The presence of a second person familiar with the operation of the unit can limit the potential for the operator to encounter an unsafe situation.

3.0 PROJECT PERSONNEL

ZEBRA will be responsible for the safety of its employees assigned to these projects. The ZEBRA project manager will be responsible for providing the project personnel with site-specific information regarding the planned scope of work, site conditions and known contaminants of concern. The project manager will be provide the field crew the site specific health and safety plan prepared by the environmental consulting company that will contain emergency contacts and phone numbers and the route to the nearest emergency care location.

3.1 Education and Training

All ZEBRA project personnel will be trained in accordance with the requirements of 29 CFR 1910.120(e). This includes the initial 40-hour HAZWOPER and the annual refresher courses. ZEBRA's project personnel will also participate in an on-going medical monitoring program n accordance with 29 CFR 1910.120(f).

3.2 Site Safety Officer

A designated individual will perform the function of the ZEBRA Site Safety Officer (SSO). As a minimum, this individual will be responsible for:

1. Conducting an initial site safety meeting for ZEBRA field personnel.

2. Assuring that all personnel protective equipment is available and properly utilized by all ZEBRA field personnel at the site.

3. Assuring that all ZEBRA personnel are familiar with standard operating safety procedures and additional instructions contained in the Health and Safety Plan.

4. Assuring that all ZEBRA personnel are aware of the hazards associated with the field operations.

5. Inspecting the site for hazards before field operations.

6. Determining personal protection levels including clothing and equipment for ZEBRA personnel and periodic inspection of protective clothing and equipment.

7. Monitoring of site conditions prior to initiation of field activities, and at various intervals during on-going operations as deemed necessary for any changes in site hazard conditions.

8. Executing decontamination procedures.

9. Monitoring the work parties for signs of stress such as cold exposure, heat stress of fatigue.

10. Prepare reports pertaining to incidents resulting in physical injuries or exposure to hazardous materials.

4.0 SITE CONTROL

ZEBRA's designated SSO will evaluate the site and determine necessary site control measures.

4.1 Site Work Zone

The work zone will be the area directly adjacent to the probing unit. If necessary, this area will be marked with traffic cones and/or caution tape.

4.2 Decontamination Area

If necessary, the area directly adjacent to the equipment decontamination pad will be marked with traffic cones and/or caution tape.

5.0 AIR MONITORING

Periodic air monitoring will be performed in the work zone by the environmental consulting company. The consulting company will utilize a portable photoionization detector to determine if the concentrations of volatile organic compounds in the breathing zone necessitate the use of respiratory protection.

If the site-specific information determines the need for specialized air monitoring equipment (ie: explosimeter, O_2 Meter, Dräeger Tube or other), ZEBRA will request the consulting company to modify the work request to include these items.

6.0 LEVELS OF PROTECTION

Anyone entering a hazardous waste site must be protected against potential hazards. The purpose of the personal protection clothing and equipment is to minimize exposure to hazards while working on site. Careful selection and use of adequate personal protective equipment (PPE) should protect the respiratory system, skin, eyes, face, hands, feet, head, body and hearing.

The appropriate level of protection is determined prior to the initial entry on site based on available information and preliminary monitoring of the site. Subsequent information may warrant changes in the original level selected. Appropriate equipment to protect personnel

against exposure to known or anticipated chemical hazards has been divided into four categories according to the degree of protection afforded.

6.1 Level D Protection

ZEBRA anticipates that the majority of the probing services will be performed in Level D personnel protective equipment (PPE). This equipment shall include:

- leather gloves
- hard hat
- steel toe boots
- safety glasses
- hearing protection

Additional equipment may be recommended based on site-specific information provided by the consulting company. This may include Tyvek coveralls and chemical resistant gloves.

6.2 Level C Protection

The need for upgrade to Level C respiratory protection will be determined by periodic air monitoring. If this determination is made, the ZEBRA project manager will be notified to determine the proper course of action.

Level C PPE will include all Level D PPE and the addition of a full face air purifying respirator. The cartridges will be selected based on site-specific compounds of concern.

Level C PPE will only be available on-site if it was specifically asked for in the project bid specifications.

6.3 Level B Protection

ZEBRA personnel will not be equipped with Level B PPE. The consulting company project manager should contact ZEBRA management to discuss the need for probing services that may require Level B protection.

7.0 POTENTIAL SITE-SPECIFIC HAZARDS

ZEBRA will review documentation provided by the environmental consulting company project manager regarding each site. The ZEBRA project manager will determine specific safety measures that will needed to be taken, above and beyond normal safe work practices.

Upon arrival on site, the ZEBRA SSO will walk the property with the consulting company project manager to determine specific areas of concern. The SSO will establish where the work area(s) and decontamination area(s) will be located. The routes of travel on site will be reviewed and any site restrictions determined.

If the site walk reveals a previously unknown safety hazard, the ZEBRA SSO will contact the ZEBRA project manager to determine the appropriate course of action.

8.0 CONTINGENCY PLAN

This sub-section shall serve as the investigation contingency plan. It has been developed to identify precautionary measures, possible emergency conditions and emergency procedures. The plan shall be implemented by the Site Safety Officer.

8.1 Emergency Medical Care and Treatment

This section addresses medical care and treatment of field personnel, resulting from possible exposures to toxic substances and injuries due to accidents. The following items will be included in emergency care provisions:

a. Name, address and telephone number of the nearest medical treatment facility will be conspicuously posted. Directions for locating the facility, plus the travel time, will be readily available.

b. Names and telephone numbers of ambulance service, police and fire departments, and procedures for obtaining these services will be conspicuously posted.

c. Procedure for prompt notification of the ZEBRA Site Safety Manager.

d. Emergency eyewash fountains and first aid equipment will be readily available on site and located in the area known to all personnel.

e. Specific procedure for handling personnel with excessive exposure to chemicals or contaminated soil.

f. Readily available fire extinguisher (ABC) dry chemical.

8.2 Off-Site Emergency Medical Care

The Site Safety Officer/project manager shall pre-arrange for access to emergency medical care services at a convenient and readily accessible medical facility and establish emergency routes. The Site Safety Officer/project manager shall establish emergency communications with emergency response services.

8.3 Personnel Accidents

Bodily injuries which occur as a result of an accident during the operation at the site will be handled in the following manner:

a. First aid equipment will be available on site for minor injuries. If the injuries are not considered minor, proceed to the next step.

b. The local first aid squad rescue unit, a paramedic unit, the local hospital and the Site

Safety Officer shall be notified of the nature of the emergency.

c. The injured employee shall be transported by the local emergency vehicle to the local hospital.

d. A written report shall be prepared by the Site Safety Officer detailing the events and actions taken during the emergency within 24 hours of the accident. Appendix D contains an Accident Report Form.

8.4 Personnel Exposure

In the event that any personnel is splashed or otherwise excessively contaminated by chemicals, the following procedure will be undertaken:

a. Disposable clothing contaminated with observable amounts of chemical residue is to be removed and replaced immediately.

b. In the event of direct skin contact in Level D, the affected area is to be washed immediately with soap and water.

c. The Site Safety Officer or other individuals who hold a current first aid certificate will determine the immediate course of action to be undertaken. This may involve using the first aid kit and/or eyewash.

8.4.1 Weather

Adverse weather conditions is an important consideration in planning and conducting site operations. Hot or cold weather can cause physical discomfort, loss of efficiency and personal injury. Of particular importance is heat stress resulting when protective clothing decreases natural body ventilation.

a. Provide plenty of liquids. To replace body fluids (water and electrolytes) lost because of sweating, use a 0.1 percent salt water solution, more heavily salted foods or commercial mixes. The commercial mixes may be preferable for those employees on a low sodium diet.

b. Provide cooling devices to aid natural body ventilation. These devices, however, add weight, and their use should be balanced against worker efficiency. Long cotton underwear help absorb moisture and protect the skin from direct contact with heat absorbing protective clothing. It should be the minimum undergarment worn.

c. Install mobile showers and/or hose down facilities to reduce body temperature and cool protective clothing.

d. In extremely hot weather, conduct non-emergency response operations in the early morning or evening.

e. Ensure that adequate shelter is available to protect personnel against heat, cold, rain, snow, etc.

f. In hot weather, rotate shifts of workers wearing impervious clothing.

8.4.2 - Heat Stress

If field operations are conducted in the warm summer months, heat related fatigue will be closely monitored. Monitoring of personnel wearing impervious clothing should commence when the ambient temperature is 70 degrees Fahrenheit or above. Frequency of monitoring should increase as the ambient temperature increases or as slow recovery rates are indicated. When temperatures exceeds 85 degrees Fahrenheit, workers should be monitored for heat stress after every work period. The following screening mechanism will be used to monitor for heat stress:

> Heart rate will be periodically measured by the radial pulse for 30 second during a resting period. The heart rate should not exceed 110 beats per minute. If the heart rate is higher, the next work period should be shortened by 33 percent. If the pulse rate is 100 beats per minute at the beginning of the next rest period, the following work cycle should be shortened by 33 percent.

Heat-related illnesses range from heat fatigue to heat stroke, the most serious. Heat stroke requires prompt treatment to prevent irreversible damage or death. Protective clothing may have to be cut off. Less serious forms of heat stress require prompt attention or they may lead to a heat stroke. Unless the victim is obviously contaminated, decontamination should be omitted or minimized and treatment begun immediately.

Heat-related problems can be categorized into:

Heat Rash: Caused by continuous exposure to hot and humid air and aggravated by chafing clothes. Decreases ability to tolerate heat as well as being a nuisance.

Heat Cramps: Caused by profuse perspiration with inadequate fluid intake and chemical replacement (especially salts).
Signs: muscle spasm and pain in the extremities and abdomen.

Heat Exhaustion: Caused by increased stress on various organs to meet increased demands to cool the body.
Signs: shallow breathing; pale, cool, moist skin; profuse sweating; dizziness and lassitude.

Heat Stroke: The most severe form of heat stress. The body must be cooled immediately to prevent severe injury and/or death.

Some of the symptoms of heat stress are: hot dry skin, fever, nausea, cramps, red or spotted skin, confusion, lightheadedness, delirium, rapid pulse, convulsions and unconsciousness.

For workers suffering from heat stroke, the following actions should be taken:

1. Remove the victim to a cool area.

2. Loosen clothing.

3. Thoroughly soak the victim in cool water or apply cold compresses.

4. Make sure someone has called for medical assistance.

8.4.3 Cold Stress

If field operations are conducted in the cold winter months, cold stress will be monitored. Two factors influence the development of a cold injury: ambient temperature and the velocity of the wind. Wind chill is used to describe the chilling effect of moving air in combination with low temperature. For instance, 10 degrees Fahrenheit with a wind of 15 miles per hour (mph) is equivalent in chilling effect to still air at -18 degrees Fahrenheit.

As a general rule, the greatest incremental increase in wind chill occurs when a wind of 5 mph increases to 10 mph. Additional, water conducts heat 240 times faster than air. Thus, the body cools suddenly when chemical-protective equipment is removed if the clothing underneath is perspiration soaked.

Local injury resulting from cold is included in the generic term frostbite. There are several degrees of damage. Frostbite of the extremities can be categorized into:

Frost Nip or Incipient Frostbite: Characterized by suddenly blanching or whitening of skin.

Superficial Frostbite: Skin has a waxy or white appearance and is firm to the touch, but tissue beneath is resilient.

Deep Frostbite: Tissues are cold, pale and solid; extremely serious injury.

Hypothermia: Systemic hypothermia is caused by exposure to freezing or rapidly dropping temperatures. Its symptoms are usually exhibited in five stages: (1) shivering; (2) apathy, listlessness, sleepiness, and (sometimes) rapid cooling of the body to less than 95 degrees Fahrenheit; (3) unconsciousness, glassy stare, slow pulse and slow respiratory rate; (4) freezing of the extremities; and finally, (5) death.

8.5 Fire

The telephone number to the local fire department will be posted along with other emergency numbers conspicuously on-site at all times.

In the event of a fire occurring at the site, the following actions will be undertaken by the Site Safety Officer and the designated fire control personnel:

a. Evacuate all unnecessary personnel from the area of the fire and site, if necessary.

b. Contact the local fire and police departments informing them of the fire and any injuries if they have occurred.

c. Notify the local hospital of the possibility of fire victims.

d. Contact the Site Safety Officer and the ZEBRA Site Manager.

9.0 SUMMARY

The Health and Safety Plan establishes practices and procedures to be followed so that the welfare and safety of workers is protected. Adherence to this HASP will minimize the possibility that personnel at the site or the surrounding community will be injured or exposed to site-related contaminants during remedial investigation activities.

It is important that personal equipment and safety requirements be appropriate to protect against the potential or known hazards at a site. Protective equipment will be based upon the type(s), concentration(s), and routes of personal exposure from substances at the site, as well as the potential for hazards due to heavy equipment use, vision impairment, weather, etc. All site operation

planning incorporates an analysis of the hazards involved and procedures for preventing or minimizing the risk to personnel. The following summarizes the rules which must be obeyed:

a. The Health and Safety Plan will be made available to all ZEBRA personnel doing field work on site. All personnel must sign this plan, indicating they have read and understood its terms.

b. All ZEBRA personnel will be familiar with standard operating safety procedures and additional instructions contained in the Health and Safety Plan.

c. All ZEBRA personnel going on site will be adequately trained and thoroughly briefed on anticipated hazards, equipment to be worn, safety practices to be followed, emergency procedures and communications.

d. Any required respiratory protective devices and clothing will be worn by all personnel going into work areas.

e. Prior to commencement of work activities, notification to local police, fire and potential rescue personnel will be made.

APPENDIX A

_____

HEALTH AND SAFETY STATEMENT FORM

SITE WORKER

HEALTH AND SAFETY STATEMENT FORM

I have read the Health and Safety Plan (HASP) and I have reviewed and understand the potential hazards and the precautions/contingencies of each potential hazard.

I agree to abide by the stipulations of this HASP and further agree to hold ZEBRA harmless from, and indemnify against, any accidents which may occur as a result of activities in the Site regardless of whether or not they were covered in the HASP.

Name: _____ Representing:

Print: _____ Date:

Sign:

Name: _____ Representing:

Print: _____ Date:

Sign:

Name: _____ Representing:

Print: _____ Date:

Sign:

Name: _____ Representing:

Print: _____ Date:

Sign:

Name: _____ Representing:

Print: _____ Date:

Sign:

Name: _____ Representing:

Print: _____ Date:

Sign:

Name: _____ Representing:

Print: _____ Date:

Sign:

Name: _____ Representing:

Print: _____ Date:

Sign:

APPENDIX B

_____

TAILGATE SAFETY FORM

TAILGATE FORM

Job Name: _____ Number: _____

Date: _____ Start Time: _____ Completed: _____

Site Location: _____

Type of Work (General(: _____

****

SAFETY ISSUES

Tasks (this shift): _____
_____
Protective Clothing/Equipment: _____
_____
Chemical Hazards: _____
_____
Physical Hazards: _____
_____
Control Methods: _____
_____
_____
Special Equipment/Techniques: _____
_____
Nearest Phone: _____
Hospital Name/Address: _____
Special Topics (incidents, actions taken, etc.): _____
_____
_____

****

ATTENDEES

Print Name	**Sign Name**
_____	_____
_____	_____
_____	_____

_____ _____

Meeting conducted by:_____

APPENDIX C

_____

GEOPROBE OPERATION, SAFETY INSTRUCTIONS

SAFETY INSTRUCTIONS

Operator safety is a chief consideration in the design and testing of all Geoprobe machines. While deliberate measures have been taken to remove the possibility of operator injury, care should be exercised whenever working with the machines. This section lists some important safety cautions.

IMPORTANT: Read all Safety Precautions before attempting to operate any Geoprobe Soil Probing Machine.

IMPORTANT: Untrained personnel should operate Geoprobe machines only when assisted by a qualified instructor.

IMPORTANT: The location of buried or underground utilities and services must be known before starting to drill or probe.

- Operators should wear OSHA-approved steel-toed shoes and keep feet clear of probe foot.

- Operators should wear OSHA-approved safety glasses at all times during the operation of this machine.

- Operators must wear hearing protection. OSHA-approved hearing protection for sound levels exceeding 85 dba is recommended.

- Only one person should operate a Geoprobe machine at one time. This ensures that one person will not accidentally engage the machine controls while another person's hands, fingers, or other appendages are on or around any moving parts.

- Never place hands on top of probe rod while the rod is under probing machine.

- Turn off the hydraulic system at the control panel while changing probe rods, inserting the hammer anvil, or attaching any accessories.

- Never exert downward pressure on the probe rod so as to lift the probe foot over six inches off the ground (two inches with the 4220).

- Always take the Geoprobe carrier vehicle out of gear and set emergency brake before engaging remote ignition.

- Always extend the probe unit out from the vehicle and deploy the foot to clear the vehicle roof line before folding the probe unit out.

- Operators must stand to the control side of the probe machine, clear of the probe foot and derrick, while operating controls.

- Never exert down pressure on the probe rod so as to lift the rear tires of the carrier vehicle off the ground.

- The vehicle catalytic converter is hot and may present a fire hazard when operating over dry grass or combustibles.

- Shut down the hydraulic system and stop the vehicle before attempting to clean or service the equipment.

- Accidental engagement of this machine may cause injury.

- Use caution when carrier vehicle is parked on a loose or soft surface. Do not apply enough force to the probe foot to lighten the load on the carrier vehicle suspension. Reduced weight on the vehicle tires may allow the vehicle to shift or slide on the loose surface.

- Do not wear loose clothing while operating this machine. Severe injury will result if clothing becomes entangled in moving parts.

- Avoid hydraulic fluid leaks. Pressurized fluid may be injected into the skin resulting in serious bodily injury. In the event of an accident, seek medical attention immediately.

- In the event of a problem, the operator should release all control levers. The spring-loaded levers will automatically return to the neutral position and machine operation will cease.

- Geoprobe machines are equipped with a remote starting system. Ensure that everyone is clear of all moving parts before starting the engine.

- Do not make modifications or add attachments to this machine which are not approved by Geoprobe Systems.

APPENDIX D

ACCIDENT REPORT FORM

ACCIDENT REPORT FORM

SUPERVISOR'S REPORT OF ACCIDENT	**DO NOT USE FOR MOTOR VEHICLE OR AIR CRAFT ACCIDENTS**
TO:	FROM: TELEPHONE (include area code):

DATE OF ACCIDENT:	TIME OF ACCIDENT:	EXACT LOCATION OF ACCIDENT:

NARRATIVE DESCRIPTION OF ACCIDENT:

NATURE OF ILLNESS OR INJURY AND PART OF BODY INVOLVED:	LOST TIME: YES _____ NO _____

PROBABLE DISABILITY (check one):

FATAL _____ LOST WORK DAY WITH _____ NO LOST _____ FIRST AID _____

DAYS AWAY FROM WORK _____ DAYS OF RESTRICTED WORK DAY ONLY ACTIVITY _____

CORRECTIVE ACTION TAKEN BY REPORTING UNIT:

CORRECTIVE ACTION WHICH REMAINS TO BE TAKEN (by whom and by when):

NAME OF SUPERVISOR:	TITLE:
	DATE:

C:WP51\BARBARA\H&SAFETY.MGE

ZEBRA Environmental Job Safety Analysis (JSA)

Task: Geoprobe (DPT)	**Date:**
	Project:
Description of work: Sampling and/or DPT well installations	**Site Supervisor:**
	Site Safety Officer:

Task Breakdown	Identify & Analyze the Hazards	Identify Hazard Controls
1. DPT/Geoprobe Rig Inspection	Rig/equipment damage	• Rigs will be inspected daily and documented by the equipment operator. • Wire cables will be inspected daily, and cables with broken strands, weak spots, kinks, or mashed areas will be replaced prior to use. • DPT Operator will inspect thread connections prior to start of fieldwork and weekly thereafter. • The mast and cables must be able to support all equipment and DPT rods. • DPT Operator will inspect for hydraulic leaks.
2. Site Walk – walk site with client to check boring locations and to locate underground utility markouts and overhead utilities.	Traffic	• A reflective safety vest shall be worn at all times • Always pay attention to moving traffic – never assume drivers are looking out for you. • Be aware of all audible alarms, horns, back-up alarms. Stop and verify where they are coming from.

3. Project Site Set up	Vehicle traffic, pedestrians	• Operate vehicles at safe speeds • When backing up, be aware of pedestrians and other vehicles, always use a spotter to guide you back. • Remain aware of factors that influence traffic related hazards and required controls – sun glare, rain, wind, etc. • Set up work area as far from traveled way as possible to avoid creating confusion for drivers. • Work area should be protected by a physical barrier such as cones, caution tape, K-rail or Jersey barrier. • Review traffic control devices to ensure that they are adequate to protect your work area. Traffic control devices should: 1) convey a clear meaning, 2) command respect of road users, and 3) give adequate time for proper traffic response.
4. Operation Conditions	Weather Extremes	• Employees shall be trained in the recognition of heat stress or cold exposure and the appropriate actions to take. • Heat – drink plenty of fluids, apply sunscreen, take breaks when needed • Cold – wear adequate clothing. • Lightning – DO NOT operate equipment while lightning is present • Ice – spread sand to melt ice and/or secure footing.
5. Unloading equipment/materials	Back injury, hand injury	• Proper lifting techniques must be used when lifting any object. • Plan storage and staging to minimize lifting or carrying distances. • Split heavy loads into smaller loads. • Employees should be instructed in safe lifting techniques. Back straight, bend at knees, load close to body, lift smoothly, and do not twist. • Utilize material handling devices such as hand trucks.

		• Manual lifts of over 50 pounds require two people. Employees are encouraged to get help for any lift that appears excessive. • Ensure that the path of travel is clear prior to the lift. • Leather gloves shall be worn when handling sharp, rough, or slippery materials.
6. DPT Probing Operation.		
	6a. Advancement of tooling.	• Only authorized personnel are permitted to operate DPT rig. • Stay clear of areas surrounding DPT System during every startup. • Stay clear of the rotating augers and other rotating components of DPT rigs. • Do not wear loose-fitting clothing or items such as rings or watches that could get caught in moving parts. Long hair should be restrained. • If equipment becomes electrically energized, personnel will be instructed not to touch any part of the equipment or attempt to touch any person who may be in contact with the electrical current. The utility company or appropriate party will be contacted to have line de-energized prior to approaching the equipment. • Smoking around DPT operation is prohibited.
	6b. Potential overexposure to airborne contaminants	• Client is responsible for implementing an air monitoring program for chemical hazards. ZEBRA will comply with all requirements
	6c. Noise, Hearing Damage	• Hearing protection shall be worn when noise levels exceed 85dBA. • Hearing protection will be worn at all times during hammer operation • Personnel will be trained in the proper installation techniques for ear protection that fits in the ear canal. • Hearing protective devices will be kept clean and sanitary between uses.

	6d. DPT Equipment near power lines	• All heavy equipment used in locations where the possibility exists to contact power lines, above or below ground, shall be grounded (within 30 ft).
	6e. Injury to head, feet, hands due to crushing, pinching, being caught between, striking against and being struck by objects	• Wear at all times: hard hats and safety-toed leather workboots. Gloves shall be worn when handling materials with rough, sharp, or slippery surfaces. • Operate all equipment in a safe manner and according to manufacturer specifications. • Make sure all loads are properly secured before moving equipment.
	6f. Injury to eyes from airborne particulates, flying debris and chemical exposure	• Protective eyewear with side shields that meet the ANSI Z-87.1 standard shall be worn at all times. If work conditions warrant, full faceshields, goggles, or chemical goggles must be worn.
	6g. Moving parts or equipment	• Moving parts of equipment (belts, gears, shafts, etc.) to which employees may be exposed shall be provided with guards.
	6h. Foot injury	• Sturdy, leather steel-toed footwear shall be required
7. Refueling of DPT rig	Fire	• Rig will be shut down during refueling operations. • Rig will be refueled using an OSHA compliant portable fuel container. • Personnel performing refueling operations will exercise caution to avoid spillage. • Rigs will contain at least one 20 lb ABC type fire extinguisher. • Fire extinguishers will be fully charged and inspected monthly and recorded on inspection tag.

8. Miscellaneous Electric Tool Usage	Electrical shock from unsafe Electrical installations	• Electrical tools shall be inspected prior to use. • Portable electric tools that are unsafe due to faulty plugs, damaged cords, or other reason shall be removed from service. A Ground Fault Circuit Interrupter (GFCI) device shall protect portable electric tools and all cord and plug-connected equipment. • Extension cords that have faulty plugs, damaged insulation, or are unsafe in any way shall be removed from service. • Cords shall be protected from damage from sharp edges, projections, pinch points (doorways), and vehicular traffic. • Cords shall be suspended with a nonconductive support (rope, plastic ties, etc.). • Cords shall be inspected prior to, during, and after each use.

Day & Date:_____

ZEBRA: First Walk...First Thing, Everyday.

When you arrive at a project site, the first task at the beginning of each day is to walk the site with our client's representative. Taking a few minutes to review the scope of work and discuss site specific safety concerns will ensure a safe and productive work day. Use this form as a checklist to confirm utility markouts, contaminant concerns, and traffic patterns. Be sure to have all participants sign the bottom of the form before you start working for the day.

Z#:_____

Client Site Contact: _____

Company: _____

Cell Phone No.: _____

Site Address/Decription:_____

_____

Actual Work Location □ Private Property □ Public Property □ Both, Public & Private

Markouts Called in by □ ZEBRA □ Client Markout Conf.#'s _____

Markout Visible □ Gas □ Elec. □ Water □ Sewer □Fiber/Phone □ Other_____

Is Private Property Supplied With (Circle For Yes) GAS ELEC. WATER

Has A Private Utility Locating Firm Been Retained? □ YES □ NO If "YES", who? _____

Have Subsurface Utilities Been Marked On Private Property? □ YES □ NO

Are Meters / Shut-off Valves Visible? □ YES □ NO If "YES", which utilities?_____

Does Client/property Owner Have Current "As-built" Drawings? □ YES □ NO

Is Preclearing Required For All Locations? □ YES □ NO Client Initials: _____

How Will Preclearing Be Accomplished? _____

Overhead Hazards: □ None □ Observed - Describe _____

Safety Concerns:

A) Contaminant Concerns _____

B) PPE Level □ D □ Other , Please Describe_____

C) High Traffic Area □ YES □ NO Traffic Control Devices (list): _____

D) Injection Products_____

E) Splash Protection □ YES □ NO - Explain _____

NAME	COMPANY	SIGNATURE	EMAIL
1.			
2.			
3.			
4.			
5.			
6.			

Work SAFE...Home SAFE.

Community Air Monitoring Plan

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) downwind of the designated work area when intrusive activities are in progress. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Action levels and worker protection levels have been addressed in the Site Specific Health and Safety Plan. The intent of this plan is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

Due to the potential to encounter Manufactured Gas Plant (MGP) waste, real-time air monitoring for volatile organic compounds (VOCs) and particulate levels at the downwind perimeter of the work area will be conducted.

Continuous monitoring will be required for all <u>ground intrusive</u> activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be required during <u>non-intrusive</u> activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. "Periodic" monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

<u>VOC Monitoring, Response Levels, and Actions</u>

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a **continuous** basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the

contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

- If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

- If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

- If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

All 15-minute readings must be recorded and be available for State (DEC and DOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

Particulate Monitoring, Response Levels, and Actions

Due to the limited size of the work area, particulate concentrations will be monitored **continuously** at the upwind and downwind perimeter of the exclusion zone. These locations will be adjusted as the work area is shifted to new boring locations. The particulate monitoring will be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

- If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m^3 above the upwind level and provided that no visible dust is migrating from the work area.

- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the upwind level, work must be stopped and a

re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m^3 of the upwind level and in preventing visible dust migration.

All readings must be recorded and be available for State (DEC and DOH) personnel to review.