APPENDIX 2

METES AND BOUNDS DESCRIPTION

First American Title Insurance Company of New York

Title No.: 3008-234603

EXHIBIT A

The subject tract of land with respect to which the foregoing parties are the parties in interest as aforesaid, is known as Tax Lot Number(s) **21, 38, 12, 15, 17 and 18** in Block(s) **28** as shown on the Tax Map of the City of New York, Queens County and more particularly described as follows:

AS TO LOTS 21 AND 38:

ALL THAT CERTAIN PLOT, PIECE OR PARCEL OF LAND, SITUATE, LYING AND BEING IN THE BOROUGH AND COUNTY OF QUEENS, CITY AND STATE OF NEW YORK, BOUNDED AND DESCRIBED AS FOLLOWS:-

BEGINNING AT THE CORNER BY THE INTERSECTION OF THE SOUTHERLY SIDE OF 46TH ROAD (W. NINTH STREET), 60 FEET WIDE, AND THE EASTERLY SIDE OF 5TH STREET (WEST AVENUE, 60 FEET WIDE);

RUNNING THENCE SOUTHERLY ALONG THE EASTERLY SIDE OF 5TH STREET 200 FEET 0 INCHES TO THE CORNER FORMED BY THE INTERSECTION OF THE EASTERLY SIDE OF 5TH STREET AND THE NORTHERLY SIDE OF 47TH AVENUE (W. EIGHT STREET), 60 FEET WIDE;

THENCE EASTERLY ALONG THE NORTHERLY SIDE OF 47TH AVENUE; 100 FEET 0 INCHES;

THENCE NORTHERLY AT RIGHT ANGLES TO THE NORTHERLY SIDE OF 47TH AVENUE, 100 FEET 0 INCHES;

THENCE EASTERLY AT RIGHT ANGLES TO THE LAST MENTIONED COURSE 264 FEET 11-1/8 INCHES TO A POINT;

THENCE NORTHERLY AT RIGHT ANGLES TO THE LAST MENTIONED COURSE, 100 FEET TO THE SOUTHERLY SIDE OF 46TH ROAD;

THENCE WESTERLY ALONG THE SOUTHERLY SIDE OF 46TH ROAD, 364 FEET 11-1/8 INCHES TO THE CORNER FIRST ABOVE MENTIONED TO THE POINT OR PLACE OF BEGINNING.

AS TO LOT 12:

ALL THAT CERTAIN PLOT, PIECE OR PARCEL OF LAND, SITUATE, LYING AND BEING IN THE BOROUGH AND COUNTY OF QUEENS, CITY AND STATE OF NEW YORK, BOUNDED AND DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT ON THE NORTHERLY SIDE OF 47TH AVENUE (F/K/A EIGHTH STREET), DISTANT 297.30 FEET WESTERLY FROM THE CORNER FORMED BY THE INTERSECTION OF THE NORTHERLY SIDE OF 47TH AVENUE (F/K/A EIGHTH STREET) AND THE WESTERLY SIDE OF VERNON BOULEVARD (F/K/A VERNON AVENUE);

RUNNING THENCE NORTHERLY PARALLEL WITH VERNON BOULEVARD, 100 FEET;

THENCE WESTERLY PARALLEL WITH 47TH AVENUE 40.76 FEET;

THENCE SOUTHERLY AND AGAIN PARALLEL WITH VERNON BOULEVARD 100 FEET TO THE NORTHERLY SIDE OF 47TH AVENUE; AND

THENCE EASTERLY ALONG THE NORTHERLY SIDE OF 47TH AVENUE 40.76 FEET TO THE POINT OR PLACE OF BEGINNING.

AS TO LOT 15:

ALL THAT CERTAIN PLOT, PIECE OR PARCEL OF LAND, SITUATE, LYING AND BEING AT LONG ISLAND CITY, IN THE BOROUGH OF AND COUNTY OF QUEENS, CITY AND STATE OF NEW YORK, COMPRISING ALL OF LOT 15 AND THE WESTERLY 12 FEET 8 1/4 INCHES OF LOT 14, IN BLOCK 17, AS SAID LOTS ARE SHOWN AND DESIGNATED ON A CERTAIN MAP ENTITLED "MAP OF THE HUNTER AND VAN ALST FARMS MADE BY PETER G. VAN ALST, DATED AUGUST 17, 1861", AND MORE PARTICULARLY BOUNDED AND DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT ON THE NORTHERLY SIDE OF 47TH AVENUE (FORMERLY) WEST EIGHTH STREET DISTANT EASTERLY 225.01 FEET FROM THE CORNER FORMED BY THE INTERSECTION OF THE NORTHERLY SIDE OF 47TH AVENUE WITH THE EASTERLY SIDE OF 5TH STREET;

RUNNING THENCE NORTHERLY AT RIGHT ANGLES TO 47TH AVENUE 99.99 FEET;

THENCE EASTERLY AND PARALLEL WITH 47TH AVENUE 37.69 FEET;

THENCE SOUTHERLY AND AGAIN AT RIGHT ANGLES TO 47TH AVENUE 99.99 FEET TO THE NORTHERLY SIDE OF 47TH AVENUE;

THENCE WESTERLY ALONG THE NORTHERLY SIDE OF 47TH AVENUE 37.69 FEET TO THE POINT OR PLACE OF BEGINNING.

AS TO LOT 17:

ALL THAT CERTAIN LOT, PIECE OR PARCEL OF LAND, SITUATE, LYING AND BEING AT LONG ISLAND CITY IN THE FIRST WARD OF THE BOROUGH OF QUEENS, CITY OF NEW YORK, COUNTY OF QUEENS AND STATE OF NEW YORK, BOUNDED AND DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT ON THE NORTHERLY SIDE OF 47TH AVENUE, FORMERLY EIGHTH STREET, DISTANT 174.98 FEET EASTERLY FROM THE CORNER FORMED BY THE INTERSECTION OF SAID NORTHERLY SIDE OF 47TH AVENUE WITH THE EASTERLY SIDE OF FIFTH STREET, FORMERLY WEST AVENUE;

RUNNING THENCE NORTHERLY PARALLEL WITH FIFTH STREET, 100 FEET;

THENCE EASTERLY PARALLEL WITH 47TH AVENUE, 50.02 FEET;

THENCE SOUTHERLY PARALLEL WITH FIFTH STREET, 100 FEET TO THE NORTHERLY SIDE OF 47TH AVENUE; AND

THENCE WESTERLY ALONG SAID SIDE OF 47TH AVENUE, 50.02 FEET TO THE POINT OR PLACE OF BEGINNING.

AS TO LOT 18:

ALL THAT CERTAIN PLOT, PIECE OR PARCEL OF LAND, SITUATE, LYING AND BEING IN THE BOROUGH AND COUNTY OF QUEENS, CITY AND STATE OF NEW YORK, BOUNDED AND DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT ON THE NORTHERLY SIDE OF 47TH AVENUE, FORMERLY 8TH STREET, DISTANT 100 FEET EASTERLY FROM THE CORNER FORMED BY THE INTERSECTION OF THE NORTHERLY SIDE OF 47TH AVENUE WITH THE EASTERLY SIDE OF 5TH STREET, FORMERLY WEST AVENUE;

APPENDIX 3

ENVIRONMENTAL EASEMENT

FINANCE
NEW • YORK
THE CITY OF NEW YORK
DEPARTMENT OF FINANCE

October 28, 2010

SIVE, PAGET & RIESEL
460 PARK AVE
10TH FLOOR
NEW YORK, NY 10022

RE: Submitted Transaction Successfully Recorded

Dear SIVE, PAGET & RIESEL:

Document Identification Number 2010101501040001 which was submitted for Recording on 10/26/2010, was successfully recorded on 10/26/2010 at 5:10 PM.

Below summarizes the status of these documents.

Documents and Recording & Endorsement Cover Pages Enclosed Herewith

2010101501040001

If you have any questions or require further information, please email me at acrishelp@finance.nyc.gov and a member of my staff will get back to you, or contact one of the offices below.

Thank you very much.

Sincerely,

Annette Hill
City Register

NYC DEPARTMENT OF FINANCE
OFFICE OF THE CITY REGISTER

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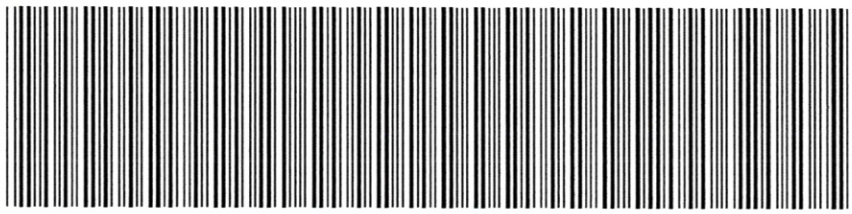

2010101501040001004EE7EF

RECORDING AND ENDORSEMENT COVER PAGE **PAGE 1 OF 10**

Document ID: 2010101501040001 Document Date: 09-01-2010 Preparation Date: 10-22-2010
Document Type: EASEMENT
Document Page Count: 9

PRESENTER:
SIVE, PAGET & RIESEL, P.C.
460 PARK AVENUE
10TH FLOOR
NEW YORK, NY 10022
212-421-2150
mbogin@sprlaw.com

RETURN TO:
SIVE, PAGET & RIESEL
460 PARK AVE
10TH FLOOR
NEW YORK, NY 10022
212-421-2150
mbogin@sprlaw.com

PROPERTY DATA

Borough	Block	Lot		Unit	Address
QUEENS	28	21	Entire Lot		5-20 46TH ROAD
Property Type: NON-RESIDENTIAL VACANT LAND Easement					
Borough	**Block**	**Lot**		**Unit**	**Address**
QUEENS	28	38	Entire Lot		N/A 46TH ROAD
Property Type: NON-RESIDENTIAL VACANT LAND					

CROSS REFERENCE DATA

CRFN_____ *or* Document ID_____ *or* _____ Year____ Reel ___ Page ____ *or* File Number_____

PARTIES

GRANTOR/SELLER:
OCA LONG ISLAND CITY, LLC
5-20 46TH ROAD
LONG ISLAND CITY, NY 11101

GRANTEE/BUYER:
STATE OF NEW YORK DEC
625 BROADWAY
ALBANY, NY 12233

FEES AND TAXES

Mortgage		
Mortgage Amount:	$	0.00
Taxable Mortgage Amount:	$	0.00
Exemption:		
TAXES: County (Basic):	$	0.00
City (Additional):	$	0.00
Spec (Additional):	$	0.00
TASF:	$	0.00
MTA:	$	0.00
NYCTA:	$	0.00
Additional MRT:	$	0.00
TOTAL:	$	0.00
Recording Fee:	$	85.00
Affidavit Fee:	$	0.00

Filing Fee: $ 100.00
NYC Real Property Transfer Tax: $ 0.00
NYS Real Estate Transfer Tax: $ 0.00

RECORDED OR FILED IN THE OFFICE OF THE CITY REGISTER OF THE CITY OF NEW YORK
Recorded/Filed 10-26-2010 17:10
City Register File No.(CRFN):
2010000358498

City Register Official Signature

NYC DEPARTMENT OF FINANCE
OFFICE OF THE CITY REGISTER

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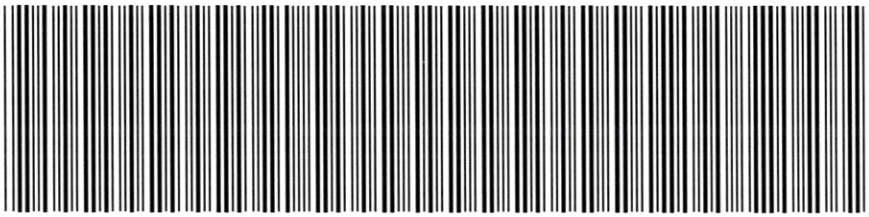


2010101501040001004EE7EF

RECORDING AND ENDORSEMENT COVER PAGE **PAGE 1 OF 10**

Document ID: 2010101501040001 Document Date: 09-01-2010 Preparation Date: 10-22-2010
Document Type: EASEMENT
Document Page Count: 9

PRESENTER:	**RETURN TO:**
SIVE, PAGET & RIESEL, P.C. 460 PARK AVENUE 10TH FLOOR NEW YORK, NY 10022 212-421-2150 mbogin@sprlaw.com	SIVE, PAGET & RIESEL 460 PARK AVE 10TH FLOOR NEW YORK, NY 10022 212-421-2150 mbogin@sprlaw.com

PROPERTY DATA

Borough	Block	Lot		Unit	Address
QUEENS	28	21	Entire Lot		5-20 46TH ROAD
Property Type:	NON-RESIDENTIAL VACANT LAND				Easement
Borough	**Block**	**Lot**		**Unit**	**Address**
QUEENS	28	38	Entire Lot		N/A 46TH ROAD
Property Type:	NON-RESIDENTIAL VACANT LAND				

CROSS REFERENCE DATA

CRFN_____ *or* Document ID_____ *or* _____ Year____ Reel ___ Page ____ *or* File Number_____

PARTIES

GRANTOR/SELLER:	**GRANTEE/BUYER:**
OCA LONG ISLAND CITY, LLC 5-20 46TH ROAD LONG ISLAND CITY, NY 11101	STATE OF NEW YORK DEC 625 BROADWAY ALBANY, NY 12233

FEES AND TAXES

Mortgage		
Mortgage Amount:	$	0.00
Taxable Mortgage Amount:	$	0.00
Exemption:		
TAXES: County (Basic):	$	0.00
City (Additional):	$	0.00
Spec (Additional):	$	0.00
TASF:	$	0.00
MTA:	$	0.00
NYCTA:	$	0.00
Additional MRT:	$	0.00
TOTAL:	$	0.00
Recording Fee:	$	85.00
Affidavit Fee:	$	0.00

Filing Fee:		
	$	100.00
NYC Real Property Transfer Tax:		
	$	0.00
NYS Real Estate Transfer Tax:		
	$	0.00

ENVIRONMENTAL EASEMENT GRANTED PURSUANT TO ARTICLE 71, TITLE 36 OF THE NEW YORK STATE ENVIRONMENTAL CONSERVATION LAW

THIS INDENTURE made this 1st day of September, 2010, between Owner(s) OCA Long Island City, LLC, having an office at 535 Madison Avenue, 23rd floor, New York, 10022, County of New York, State of New York (the "Grantor"), and The People of the State of New York (the "Grantee."), acting through their Commissioner of the Department of Environmental Conservation (the "Commissioner", or "NYSDEC" or "Department" as the context requires) with its headquarters located at 625 Broadway, Albany, New York 12233,

WHEREAS, the Legislature of the State of New York has declared that it is in the public interest to encourage the remediation of abandoned and likely contaminated properties ("sites") that threaten the health and vitality of the communities they burden while at the same time ensuring the protection of public health and the environment; and

WHEREAS, the Legislature of the State of New York has declared that it is in the public interest to establish within the Department a statutory environmental remediation program that includes the use of Environmental Easements as an enforceable means of ensuring the performance of operation, maintenance, and/or monitoring requirements and the restriction of future uses of the land, when an environmental remediation project leaves residual contamination at levels that have been determined to be safe for a specific use, but not all uses, or which includes engineered structures that must be maintained or protected against damage to perform properly and be effective, or which requires groundwater use or soil management restrictions; and

WHEREAS, the Legislature of the State of New York has declared that Environmental Easement shall mean an interest in real property, created under and subject to the provisions of Article 71, Title 36 of the New York State Environmental Conservation Law ("ECL") which contains a use restriction and/or a prohibition on the use of land in a manner inconsistent with engineering controls which are intended to ensure the long term effectiveness of a site remedial program or eliminate potential exposure pathways to hazardous waste or petroleum; and

WHEREAS, Grantor, is the owner of real property located at the address of 5-20 46th Road in the City of Long Island City, County of Queens and State of New York, known and designated on the tax map of the County Clerk of Queens as tax map parcel numbers: Section 4 Block 28 Lot 21 and 38, commonly known as the OCA-LIC Fifth Street Mixed-Use Housing Project, being the same as that property conveyed to Grantor by deed dated December 22, 2006 and recorded in the City Register of the City of New York in Instrument No. or CRFN No. 2007000017486, comprising approximately 1 ± acres, and hereinafter more fully described in the Land Title Survey dated April 22, 2010 prepared by Montrose Surveying Co., LLP, City and Land Surveyors, which will be attached to the Site Management Plan. The property description (the "Controlled Property") is set forth in and attached hereto as Schedule A; and

WHEREAS, the Department accepts this Environmental Easement in order to ensure the protection of human health and the environment and to achieve the requirements for remediation established for the Controlled Property until such time as this Environmental Easement is extinguished pursuant to ECL Article 71, Title 36; and

NOW THEREFORE, in consideration of the mutual covenants contained herein and the

terms and conditions of BCA Index No.: A2 – 0584 - 0307, Grantor conveys to Grantee a permanent Environmental Easement pursuant to ECL Article 71, Title 36 in, on, over, under, and upon the Controlled Property as more fully described herein ("Environmental Easement")

1. Purposes. Grantor and Grantee acknowledge that the Purposes of this Environmental Easement are: to convey to Grantee real property rights and interests that will run with the land in perpetuity in order to provide an effective and enforceable means of encouraging the reuse and redevelopment of this Controlled Property at a level that has been determined to be safe for a specific use while ensuring the performance of operation, maintenance, and/or monitoring requirements; and to ensure the restriction of future uses of the land that are inconsistent with the above-stated purpose.

2. Institutional and Engineering Controls. The controls and requirements listed in the Department approved Site Management Plan ("SMP") including any and all Department approved amendments to the SMP are incorporated into and made part of this Environmental Easement. These controls and requirements apply to the use of the Controlled Property, run with the land, are binding on the Grantor and the Grantor's successors and assigns, and are enforceable in law or equity against any owner of the Controlled Property, any lessees and any person using the Controlled Property.

A. (1) The Controlled Property may be used for:

Restricted Residential as described in 6 NYCRR Part 375-1.8(g)(2)(ii), Commercial as described in 6 NYCRR Part 375-1.8(g)(2)(iii) and Industrial as described in 6 NYCRR Part 375-1.8(g)(2)(iv)

(2) All Engineering Controls must be operated and maintained as specified in the Site Management Plan (SMP);

(3) All Engineering Controls must be inspected at a frequency and in a manner defined in the SMP.

(4) Groundwater and other environmental or public health monitoring must be performed as defined in the SMP;

(5) Data and information pertinent to Site Management of the Controlled Property must be reported at the frequency and in a manner defined in the SMP;

(6) All future activities on the property that will disturb remaining contaminated material must be conducted in accordance with the SMP;

(7) Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in the SMP.

(8) Operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical components of the remedy shall be performed as defined in the SMP.

(9) Access to the site must be provided to agents, employees or other representatives of the State of New York with reasonable prior notice to the property owner to assure compliance with the restrictions identified by this Environmental Easement.

B. The Controlled Property shall not be used for raising livestock or producing animal products for human consumption, and the above-stated engineering controls may not be discontinued without an amendment or extinguishment of this Environmental Easement.

C. The SMP describes obligations that the Grantor assumes on behalf of Grantor, its successors and assigns. The Grantor's assumption of the obligations contained in the SMP which may include sampling, monitoring, and/or operating a treatment system, and providing certified reports to the NYSDEC, is and remains a fundamental element of the Department's determination that the Controlled Property is safe for a specific use, but not all uses. The SMP may be modified in accordance with the Department's statutory and regulatory authority. The Grantor and all successors and assigns, assume the burden of complying with the SMP and obtaining an up-to-date version of the SMP from:

Regional Remediation Engineer
NYSDEC – Region 2
Division of Environmental Remediation
One Hunter's Point Plaza, 47- 40 21st Street
Long Island City, NY 11101-5407,
Phone: (718) 482 - 4900

or

Site Control Section
Division of Environmental Remediation
NYSDEC
625 Broadway
Albany, New York 12233
Phone: (518) 402-9553

D. Grantor must provide all persons who acquire any interest in the Controlled Property a true and complete copy of the SMP that the Department approves for the Controlled Property and all Department-approved amendments to that SMP.

E. Grantor covenants and agrees that until such time as the Environmental Easement is extinguished in accordance with the requirements of ECL Article 71, Title 36 of the ECL, the property deed and all subsequent instruments of conveyance relating to the Controlled Property shall state in at least fifteen-point bold-faced type:

This property is subject to an Environmental Easement held by the New York State Department of Environmental Conservation pursuant to Title 36 of Article 71 of the Environmental Conservation Law.

F. Grantor covenants and agrees that this Environmental Easement shall be incorporated in full or by reference in any leases, licenses, or other instruments granting a right to use the Controlled Property.

G. Grantor covenants and agrees that it shall annually, or such time as NYSDEC may allow, submit to NYSDEC a written statement by an expert the NYSDEC may find acceptable certifying under penalty of perjury, in such form and manner as the Department may require, that:

(1) the inspection of the site to confirm the effectiveness of the institutional and engineering controls required by the remedial program was performed under the direction of the individual set forth at 6 NYCRR Part 375-1.8(h)(3).

(2) the institutional controls and/or engineering controls employed at such site:

(i) are in-place;

(ii) are unchanged from the previous certification, or that any identified changes to the controls employed were approved b the NYSDEC and that all controls are in the Department-approved format; and

(iii) that nothing has occurred that would impair the ability of such control to protect the public health and environment;

(3) the owner will continue to allow access to such real property to evaluate the continued maintenance of such controls;

(4) nothing has occurred that would constitute a violation or failure to comply with any site management plan for such controls;

(5 the report and all attachments were prepared under the direction of, and reviewed by, the party making the certification;

(6) to the best of his/her knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial program, and generally accepted engineering practices; and

(7) the information presented is accurate and complete.

3. Right to Enter and Inspect. Grantee, its agents, employees, or other representatives of the State may enter and inspect the Controlled Property in a reasonable manner and at reasonable times to assure compliance with the above-stated restrictions.

4. Reserved Grantor's Rights. Grantor reserves for itself, its assigns, representatives, and successors in interest with respect to the Property, all rights as fee owner of the Property, including:

A. Use of the Controlled Property for all purposes not inconsistent with, or limited by the terms of this Environmental Easement;

B. The right to give, sell, assign, or otherwise transfer part or all of the underlying fee interest to the Controlled Property, subject and subordinate to this Environmental Easement;

5. Enforcement

A. This Environmental Easement is enforceable in law or equity in perpetuity by Grantor, Grantee, or any affected local government, as defined in ECL Section 71-3603, against the owner of the Property, any lessees, and any person using the land. Enforcement shall not be defeated because of any subsequent adverse possession, laches, estoppel, or waiver. It is not a

defense in any action to enforce this Environmental Easement that: it is not appurtenant to an interest in real property; it is not of a character that has been recognized traditionally at common law; it imposes a negative burden; it imposes affirmative obligations upon the owner of any interest in the burdened property; the benefit does not touch or concern real property; there is no privity of estate or of contract; or it imposes an unreasonable restraint on alienation.

B. If any person violates this Environmental Easement, the Grantee may revoke the Certificate of Completion with respect to the Controlled Property.

C. Grantee shall notify Grantor of a breach or suspected breach of any of the terms of this Environmental Easement. Such notice shall set forth how Grantor can cure such breach or suspected breach and give Grantor a reasonable amount of time from the date of receipt of notice in which to cure. At the expiration of such period of time to cure, or any extensions granted by Grantee, the Grantee shall notify Grantor of any failure to adequately cure the breach or suspected breach, and Grantee may take any other appropriate action reasonably necessary to remedy any breach of this Environmental Easement, including the commencement of any proceedings in accordance with applicable law.

D. The failure of Grantee to enforce any of the terms contained herein shall not be deemed a waiver of any such term nor bar any enforcement rights.

6. Notice. Whenever notice to the Grantee (other than the annual certification) or approval from the Grantee is required, the Party providing such notice or seeking such approval shall identify the Controlled Property by referencing the following information:

County, NYSDEC Site Number, NYSDEC Brownfield Cleanup Agreement, State Assistance Contract or Order Number, and the County tax map number or the Liber and Page or computerized system identification number.

Parties shall address correspondence to:

Site Number: C 241098
Office of General Counsel
NYSDEC
625 Broadway
Albany New York 12233-5500

With a copy to:

Site Control Section
Division of Environmental Remediation
NYSDEC
625 Broadway
Albany, NY 12233

All notices and correspondence shall be delivered by hand, by registered mail or by Certified mail and return receipt requested. The Parties may provide for other means of receiving and communicating notices and responses to requests for approval.

7. Recordation. Grantor shall record this instrument, within thirty (30) days of execution of this instrument by the Commissioner or her/his authorized representative in the office of the recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

8. Amendment. Any amendment to this Environmental Easement may only be executed by the Commissioner of the New York State Department of Environmental Conservation or the Commissioner's Designee, and filed with the office of the recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

9. Extinguishment. This Environmental Easement may be extinguished only by a release by the Commissioner of the New York State Department of Environmental Conservation, or the Commissioner's Designee, and filed with the office of the recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

10. Joint Obligation. If there are two or more parties identified as Grantor herein, the obligations imposed by this instrument upon them shall be joint and several.

IN WITNESS WHEREOF, Grantor has caused this instrument to be signed in its name.

OCA Long Island City, LLC

BY: OCA LIC Member, LLC, a Delaware limited liability company, its sole member

BY: O'Connor Associates, L.P,, a Delaware limited partnership, its sole member

J.W. O'Connor & Co., Incorporated, a Delaware corporation, its general partner

By: _____

William Q. O'Connor

Title: Senior Vice President Date: 8/24/2010

THIS ENVIRONMENTAL EASEMENT IS HEREBY ACCEPTED BY THE PEOPLE OF THE STATE OF NEW YORK, Acting By and Through the Department of Environmental Conservation as Designee of the Commissioner,

By: _____

Dale A. Desnoyers, Director
Division of Remediation

Grantor's Acknowledgment

STATE OF NEW YORK)
) ss:
COUNTY OF)

On the 24th day of August, in the year 2010 before me, the undersigned, personally appeared William O'Connor personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

Notary Public - State of New York

CATHERINE AKERS
Notary Public, State of New York
No. 01AK6183163
Qualified in Westchester County
Certificate Filed in New York County
Term Expires March 10, 2012

SEAL

Grantee's Acknowledgment

STATE OF NEW YORK)
) ss:
COUNTY OF Albany)

On the 1ST day of September, in the year 2 010 before me, the undersigned, personally appeared Dale Desnoyers, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/ executed the same in his/her/ capacity as Designee of the Commissioner of the State of New York Department of Environmental Conservation, and that by his/her/ signature on the instrument, the individual, or the person upon behalf of which the individual acted, executed the instrument.

Notary Public - State of New York

David J. Chiusano
Notary Public, State of New York
No. 01CH5032146
Qualified in Schenectady County
Commission Expires August 22, 2014

SEAL

SCHEDULE "A" PROPERTY DESCRIPTION

5-20 46th Road
Long Island City, NY
Block 28 Lot 21 and 38

ALL that certain plot, piece or parcel of land situate, lying and being in the Borough and County of Queens, City and State of New York, bounded and described as follows:

BEGINNING at the corner formed by the intersection of the easterly side of 5th Street (60 feet wide) with the southerly side of 46th Road (60 feet wide);

RUNNING THENCE easterly, along the southerly side of 46th Road, 364.93 feet to a point;

RUNNING THENCE southerly, at right angles to the southerly side of 46th Road, 100 feet to a point;

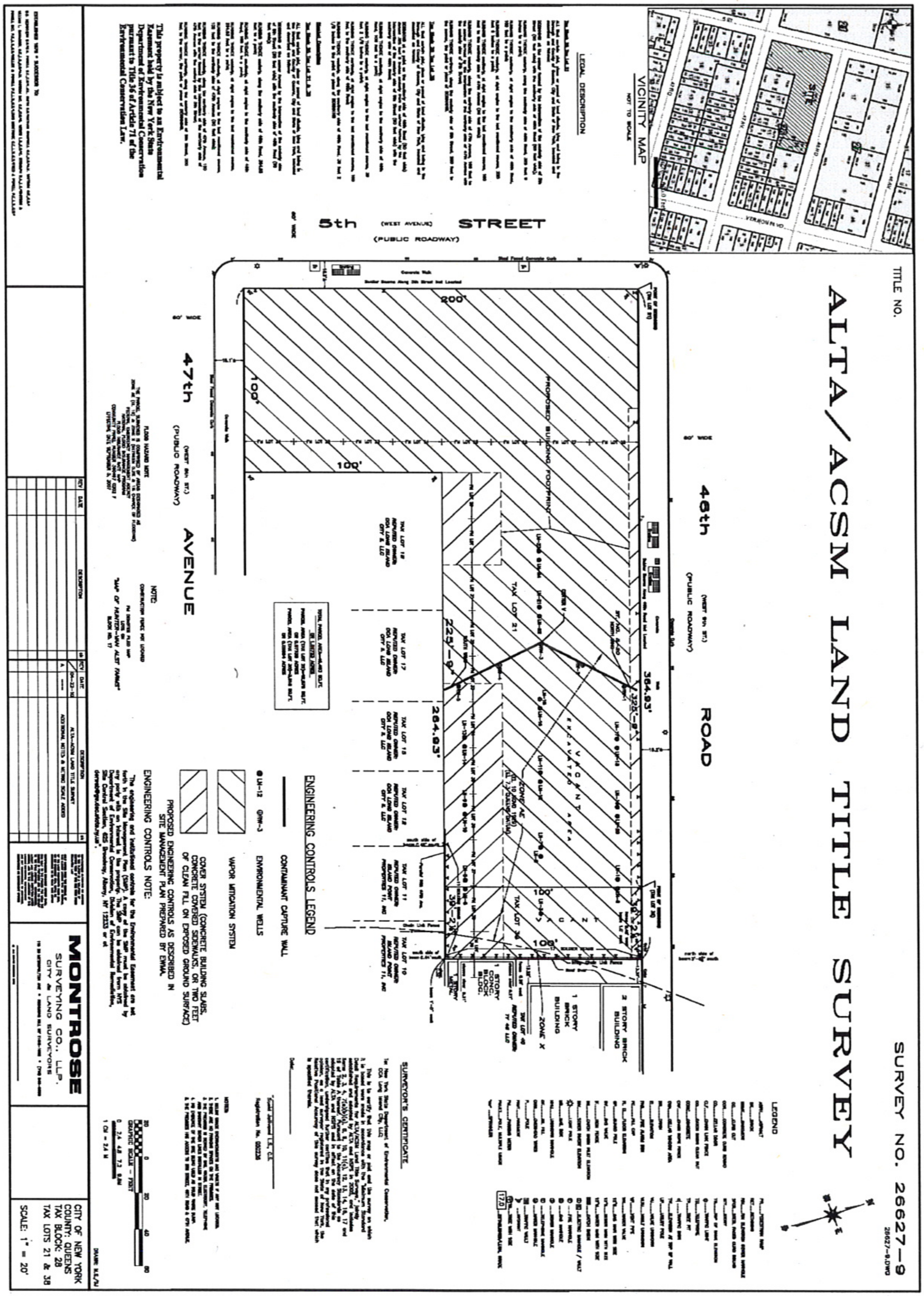
RUNNING THENCE westerly, at right angles to the last mentioned course, 264.93 feet to a point;

RUNNING THENCE southerly, at right angles to the last mentioned course, 100 feet to the northerly side of 47th Avenue (60 feet wide);

RUNNING THENCE westerly, along the northerly side of 47th Avenue, 100 feet to the corner formed by the intersection of the northerly side of 47th Avenue with the easterly side of 5th Street;

RUNNING THENCE northerly, along the easterly side of 5th Street, 200 feet to the corner , the point or place of BEGINNING.

SURVEY


ALTA/ACSM LAND TITLE SURVEY
TITLE NO.
SURVEY NO. 26627-9
VICINITY MAP
NOT TO SCALE
LEGAL DESCRIPTION
This property is subject to an Environmental Easement held by the New York State Department of Environmental Conservation pursuant to Title 36 of Article 71 of the Environmental Conservation Law.
5th STREET
(WEST AVENUE)
(PUBLIC ROADWAY)
60' WIDE
47th AVENUE
(WEST 8th ST.)
(PUBLIC ROADWAY)
46th ROAD
(WEST 9th ST.)
(PUBLIC ROADWAY)
200'
100'
100'
384.93'
264.93'
225'-9"
PROPOSED BUILDING FOOTPRINT
TAX LOT 21
TAX LOT 38
ZONE AE
ZONE X
2 STORY BRICK BUILDING
1 STORY BRICK BUILDING
ENGINEERING CONTROLS LEGEND
CONTAMINANT CAPTURE WALL
ENVIRONMENTAL WELLS
VAPOR MITIGATION SYSTEM
COVER SYSTEM (CONCRETE BUILDING SLABS, CONCRETE COVERED SIDEWALKS, OR TWO FEET OF CLEAN FILL ON EXPOSED GROUND SURFACE)
PROPOSED ENGINEERING CONTROLS AS DESCRIBED IN SITE MANAGEMENT PLAN PREPARED BY EMNA.
ENGINEERING CONTROLS NOTE:
SURVEYOR'S CERTIFICATE
LEGEND
MONTROSE SURVEYING CO., LLP.
CITY & LAND SURVEYORS
CITY OF NEW YORK
COUNTY: QUEENS
TAX BLOCK: 28
TAX LOTS 21 & 38
SCALE: 1" = 20'

APPENDIX 4

HEALTH AND SAFETY PLAN

FORMER ACCURATE ASSOCIATES RCRA SITE
5-20 46TH ROAD
LONG ISLAND CITY, NY 11101
Job # 205490

Health & Safety Plan

Scope of Service:	**Soil Excavation** **Permanent well installation and sampling** **LNAPL Product Recovery** **Sheet Pile Installation**
Contaminants of Concern:	**Soil results indicate the following:** **VOCs, BNAs, Metals, Pesticides, PCBs** **Ground water results indicate the following:** **VOCs, BNAs, Metals**
Approved On:	December 9, 2009

Prepared by

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ATTACHMENTS

SECTION 1.0
PROJECT IDENTIFICATION

CLIENT NAME:	OCA Long Island City, LLC
CLIENT ADDRESS:	535 Madison Avenue, 23rd Floor New York, NY 10022
CLIENT CODE:	20OC010
EWMA PROJECT No.:	205490
PROJECT NAME:	Former Accurate Associates RCRA Site
LOCATION/ADDRESS:	5-20 46th Road Long Island City, NY 11101
EWMA PROJECT MANAGER:	Sharon McSwieney
EWMA SITE MANAGER:	Sharon McSwieney
EWMA SITE SAFETY OFFICER:	Daniel DiRocco
PLAN VALID FROM: REVISED:	March 19, 2007 May 20, 2008 January 14, 2009 March 31, 2009 December 9, 2009
PLAN EXPIRES:	**Plan shall be revised periodically upon discovery of new contaminants of concern or significant increases in health or safety hazards**

- End of Section -

SECTION 2.0
INTRODUCTION

The purpose of this Health and Safety Plan (HASP) is to identify, evaluate and control health and safety hazards, and to provide for emergency response during field activities. All employees of Environmental Waste Management Associates, LLC (EWMA), as well as its contractors and subcontractors who have agreed to abide by this HASP and who are involved in field activities on this project will be bound by these provisions. Contractors and subcontractors who abide by this HASP, but whose work activities are not covered by this HASP must develop and follow their own site specific HASP. As an example, tank removal and cleaning as well as confined space entry work will be performed by subcontractors. As such, these tasks are not specifically covered by this HASP, and the subcontractors performing these tasks must develop and follow their own site specific HASP

This site-specific HASP is based on a review and evaluation of the potential hazards and risks associated with this project. It outlines the health and safety procedures, and the equipment required, needed to minimize the potential for harm to field personnel and site visitors. Since work activities, site conditions and exposures to various combinations of contaminants which may be present are variable, the potential for adverse health effects associated with field activities on this site cannot be predicted with confidence.

2.1 SITE DESCRIPTION & HISTORY

The property was initially developed prior to 1898 for use as an ink factory and a varnish works. Other previous building occupants and uses identified at the subject property included: George L. Fenner (ink factory), Toch Bros. (Manufacturer of paints & varnishs), Thibaut & Walker Co. (varnish works), I. Wohl Inc. (cleaners and dryers), a dry cleaning and spotting facility and Accurate Metal Casting Co. Inc. These identified building occupants and uses are types of businesses that would be expected to involve the storage and use of significant quantities of toxic or hazardous materials, and generate significant quantities of toxic or hazardous wastes in conjunction with daily operations, including, but not limited to, industrial solvents, lubricating and cutting oils, metal polishing materials, plating bath solutions, paint and painting products, and dye products. Pursuant to the Order, the owner undertook certain removal, investigative and remedial activities at the premises. The remedial activities took the form of encapsulation of the contaminated soil beneath portions of the building floor and encapsulation of contaminates located in portions of the concrete floor and walls. Lead, arsenic and selenium are encapsulated beneath portions of the floor and within portions of the walls of the premiums. Remedial excavation from December 2009-May 2010 has removed these materials to a depth of 7' bsg.

See the List of Attachments for a site location map, and a street map identifying the location and possible routes to the nearest hospital.

2.2 KEY PERSONNEL

2.2.1 EWMA Project Manager: Sharon McSwieney

The EWMA Project Manager has the following responsibilities:

- To provide the EWMA Health and Safety Officer with project-related health and safety information.
- To have a site-specific Health & Safety Plan (HASP) prepared.
- To implement the HASP.
- To see that the project is performed in a manner consistent with applicable local, state and federal regulations..
- To monitor compliance with the HASP.

The EWMA Project Manager has the authority to take the following actions:

- To suspend field activities, if the health and safety of field personnel are endangered, pending further consideration by the EWMA Health and Safety Officer.
- To suspend an individual from field activities for infractions of the HASP, pending further consideration by the EWMA Health and Safety Officer.

2.2.2 EWMA Health and Safety Officer: Daniel DiRocco

The EWMA Health and Safety Officer has the following responsibilities:

- To consult with the EWMA Project Manager in project-related matters of health and safety.
- To monitor compliance with the HASP.
- To assist the EWMA Project Manager in complying with the terms of this HASP, and applicable regulations.
- To verify that on-site personnel are properly trained and medically qualified to carry out their duties.

The EWMA Health and Safety Officer has the authority to take the following actions:

- To suspend work or otherwise limit personnel exposure if a HASP appears to be unsuitable or inadequate.
- To direct personnel to modify any work practices that are deemed to be hazardous to health and safety.
- To remove field personnel from the project if their physical actions or mental condition endangers their own health and safety, or that of their coworkers.

2.2.3 EWMA Site Safety Officer: Daniel DiRocco

The EWMA Site Safety Officer (EWMA SSO) and EWMA Alternate Site Safety Officer(s) (Alternate EWMA SSO) have the following responsibilities:

- To direct on-site health and safety activities as they relate to EWMA's project responsibilities.
- To report safety-related incidents to the EWMA Project Manager and EWMA Health and Safety Officer.
- To assist the EWMA Project Manager in all aspects of implementing the HASP.

- To maintain an adequate supply of health and safety equipment on-site, as specified in the HASP.
- To observe on-site health and safety activities, as specified in the HASP, and report results to the EWMA Project Manager and the EWMA Health and Safety Officer.

The EWMA SSO has the authority to take the following actions:

- To suspend field activities, if the health and safety of field personnel are endangered, pending further consideration by the EWMA Health and Safety Officer.

- To suspend an individual from field activities for infractions of the HASP, pending further consideration by the EWMA Health and Safety Officer.

- End of Section -

3.1 PERSONNEL MEDICAL CLEARANCE

Prior to working at this site, EWMA assigned employees must: 1) have been certified by a licensed, EWMA-approved physician as being physically able to perform their assigned field work, and to use the Personal Protective Equipment (PPE) which will be required for this project, in accordance with the provisions of OSHA Regulation 29 CFR 1910.120(f)(2) have successfully completed an EWMA 40-hour basic health and safety training course (Level C) for field personnel or its equivalent, and 3) passed a Qualitative Respirator Fit Test. Site managers and supervisors must have successfully completed an 8-hour managers' health and safety course, in addition to the other clearance requirements.

EWMA subcontractor employees must also have similar medical, training, and respirator fit clearances and they will be required to provide proof of clearance before beginning work.

3.2 HAZARD TRAINING

All personnel working on-site who have potential exposures to health or safety hazards shall be thoroughly trained as specified in OSHA Regulations 29 CFR 1910.120(e). This training will include: (1) Attendance at an initial 40-hour basic health and safety training course off the Site; (2) At least three days of actual field experience under the direct supervision of a trained, experienced supervisor; (3) On-site, site-specific training; and (4) an 8-hour annual update in the basic health and safety training course. EWMA personnel may also receive specific topic training throughout the year. This training may include blood-borne pathogen training, low-level radioactivity safety, ergonomics updates, and newsletters/bulletins with pertinent or applicable information.

In addition to the above, on-site Managers and supervisors who are directly responsible for, or who supervise employees engaged in hazardous waste operations must also receive: (1) 8-hours of site supervisor training; and (2) additional training at the time of job assignment on such topics as, but not limited to, the company's safety and health program and the associated employee training program; personal protective equipment program; spill containment program; air quality monitoring; emergency response; monitoring equipment usage and calibration; and, health hazard monitoring procedures and techniques, as per 1910.120(e)(4.

At the time of job assignment, special training will be provided to on-site personnel who may be exposed to unique or special hazards not covered by the initial 40-hour basic health and safety course. If unique or special hazards are unexpectedly encountered, specialized training will be provided before work proceeds.

3.3 INCIDENT REPORTING

An EWMA Health & Safety Incident Report will be filed for any incident involving personnel working at this Site. Situations covered by this policy include, but are not limited to, fires, explosions, illnesses, injuries and motor vehicle collisions. These reports must be sent to the EWMA Health and Safety Officer within 24 hours of the incident. Worker's Compensation Insurance reports for EWMA employees must be filed within 48 hours of each incident or illness which results from work-related activities and requires medical attention. See the Attachment List for a copy of the EWMA Health & Safety Incident Report. The EWMA SSO or Project Manager will complete this form if needed.

3.4 ILLUMINATION, SANITATION AND CONFINED SPACE ENTRY

3.4.1 Illumination

All major work tasks are expected to occur during daylight hours. The illumination requirements set forth by OSHA Regulations 29 CFR 1910.120 (m) will be met.

3.4.2 Sanitation

The sanitation requirements regarding potable and non-potable waters, toilet facilities and washing facilities will be followed as set forth in OSHA Regulations 29 CFR 1910.120(n).

3.4.3 Confined Space Entry

Confined Space Entries are not anticipated.

3.5 RESPIRATOR MAINTENANCE, FITTING AND DECONTAMINATION

Respirators, if used, will be cleaned daily according to procedures described below. Cartridges will be replaced either daily or if breakthrough is detected at any time while in use. The following checks will be performed daily, in addition to the above:

- Exhalation valve - pull off plastic cover and check valve for debris or for tears in the neoprene valve, which could cause leakage.
- Inhalation valves - screw off both cartridges and visually inspect neoprene valves for tears. Make sure that the inhalation valves and cartridge receptacle gaskets are in place.
- Make sure a protective lens cover is in place.
- Make sure you have the correct cartridges.
- Make sure that the facepiece harness is not damaged. The serrated portion of the harness can fragment which will prevent proper face seal adjustment.
- Make sure the speaking diaphragm retainer ring is hand tight.

NOTE: <u>The respirator MUST be Leak-Tested before each use</u>.

Test the respirator for leakage by using both the positive- and the negative-pressure method. Lightly place your palm over the exhalation valve cover. Exhale gently. The body of the respirator should bulge slightly outward from your face. If any leakage is detected around the face seal, readjust the head harness straps and repeat the test until there is no leakage. If leakage is detected other than in the face seal, the condition must be investigated and corrected before another test is made. The negative pressure test must also be made. Lightly place your palms or some impervious material, like Saran Wrap® over the cartridges or filter holders. Inhale gently. The face-piece should collapse against the face. The respirator must pass these two tightness tests before the respirator is used. The respirator will not furnish protection unless all inhaled air is drawn through suitable cartridges or filters. **NOTE: Respirators provide no protection in oxygen-deficient atmospheres! But only air purifying features.**

After use, follow these steps to clean your respirator:

- Wash with Alconox® solution and brush gently. (This step will remove any soil/solid particulate matter that may have been collected on the respirator during field activities.)
- Rinse with distilled/de-ionized water, making sure that the inhalation and exhalation valves are clean and unobstructed.
- Rinse with distilled/de-ionized water.
- Wipe with sanitizing solution. (This step will assure the sterility of the respirator.)
- Allow your respirator to air dry.
- Place the respirator inside a sealed bag or a clean area away from extreme heat or extreme cold.

3.6 EWMA PROJECT MANAGER NOTIFICATION

All field personnel must inform the EWMA SSO or the Alternate EWMA SSO before entering the Site.

IF ANY PREVIOUSLY UNIDENTIFIED POTENTIAL HAZARDS ARE DISCOVERED DURING ANY FIELD WORK, LEAVE THAT AREA OF THE SITE IMMEDIATELY AND CONTACT THE EWMA SSO FOR FURTHER INSTRUCTIONS.

3.7 OSHA INFORMATION AND STATE WAGE AND INFORMATION POSTERS

In accordance with the Occupational Safety and Health Act of 1970, a copy of the OSHA information poster must be present at the Site. It will be posted at full size (11" x 17") in a permanent structure or temporary field office, or be distributed to on-site personnel by way of this HASP. Appropriate state of New Jersey wage and employment posters will also be posted in accordance with state laws.

3.8 PROHIBITIONS

Smoking, eating, drinking, chewing tobacco or toothpicks, applying cosmetics, storing food or food containers, and having open fires will be permitted only in designated areas that will be established by the EWMA SSO. Under no circumstances will any of the above activities be permitted within the Exclusion or Contamination Reduction Zones. Good personal hygiene should be practiced by field personnel to avoid ingesting contaminants.

3.9 INITIAL SITE SAFETY MEETING AND SIGNING THE HEALTH AND SAFETY PLAN COMPLIANCE AGREEMENT

The EWMA SSO will hold an initial site safety meeting with EWMA, subcontractor and contractor field personnel before work activities begin at the Site. At this meeting, it will be verified that all personnel have been provided with or have reviewed a HASP for the work activities to be performed at this Site. For EWMA personnel, its subcontractor's personnel, and contractor personnel whose employer(s) have adopted this HASP, the HASP shall be reviewed, discussed and questions will be answered. Signed Health and Safety Plan Compliance Agreement Forms of personnel who will be following this HASP will be collected by the EWMA SSO and filed. Individuals refusing to sign the Form will not be allowed to work on the Site.

3.10 DAILY SITE SAFETY BRIEFINGS

During field operations, site safety briefings will be held at the start of each day by the EWMA SSO to review and plan specific health and safety aspects of scheduled work. All field personnel who are following this HASP are required to attend these briefings. These meetings and their content shall be documented by the EWMA SSO or Project Manager. Potential subjects that may be discussed are presented below:

1. Preliminary
   - Medical clearances.
   - Training requirements.
   - Written HASP availability.
   - Designation of responsibilities for on-site personnel.
   - Identification of on-site personnel trained and certified to administer First Aid.
2. Training topics

   Review of HASP including: types of hazards; pathways of exposure; levels of protection; contamination avoidance; prohibitions; work procedures; confined space entry; work zones; emergency response procedures; and, specific on-site area/work tasks of concern.

   Decontamination.

   Personnel Protective Equipment.

   Air Quality Monitoring Program

   Air sampling with hands on use and calibration of direct reading instruments such as a PID, and pDR-

1000 dust monitors, and LEL,H2S,O2/CO-4-gas monitors. Questions and Answers

3.11 UNDERGROUND STRUCTURES

Caution will be exercised whenever the possibility of encountering subsurface obstructions exists. Before beginning intrusive activities, all available sources of information (such as site utility drawings, public utility drawings, construction drawings, and discussions with former employees) will be reviewed. If underground obstructions are unexpectedly encountered, the area will be excavated using manual equipment until the nature of the obstruction is discerned.

- End of Section -

An assessment of the known or suspected chemical, physical and biological hazards have been made for each of the activities specified below.

4.1 APPROVED WORK ACTIVITIES

Work activities which may be performed under this HASP are limited to the following:

1. **Soil Excavation**
2. **Permanent well installation and sampling**
3. **LNAPL Product Recovery**
4. **Sheet Pile Installation**

This HASP does not cover any site activities beyond those specifically listed above. Work activities not described above may be conducted only after an appropriate Addendum to this HASP has been issued by the EWMA Health and Safety Officer.

4.2 HAZARDS

4.2.1 Chemical Agents

The following chemical hazards have been identified, based on documented prior site uses and/or initial site investigations.

Soil results indicate the following:
VOCs, BNAs, Metals, Pesticides, PCBs

Ground water results indicate the following:
VOCs, BNAs, Metals

4.2.1.1 Chemical Exposure Controls

Contaminants usually enter the body through the mouth (ingestion), the lung (inhalation) or by absorption through the skin and mucous membranes. Chemical exposure through these routes will be controlled by limiting eating, drinking, and smoking to uncontaminated areas; through the use of hygiene practices and decontamination procedures; and by the use of appropriate engineering controls and personal protective equipment (PPE). There are four levels of personal protection (Levels A, B, C, and D), according to the degree of protection they afford, with Level A providing the greatest degree of protection. The initial level of personal protective equipment to be used while performing activities at the Site will be based on the hazard assessment performed for this project.

Initially, Level D will be used while sampling the environment to determine what hazards are present, and in what quantities, EWMA employees will need to upgrade to Level C if the results of initial sampling (first few minutes of direct read measurements) suggests it is appropriate to do so.

4.2.2 Physical Agents

Physical agents include noise, electro-magnetic fields, ionizing and non-ionizing radiation, and thermal stress. There is also a risk of physical injury when working in the field with sampling tools, and when near heavy equipment, operating machinery and vehicular traffic. Field personnel should be able to recognize these hazards and take steps to avoid injurious contact with them.

Noise Exposure

Work at the site may be conducted with high noise levels from equipment such as excavators, pumps and drill rigs. EWMA standards require that hearing protection be used when noise levels exceed 85 dBA, averaged over an 8-hour day. Hearing protection will be required at this site for noise exposures greater than 85 dBA for **any** length of time. In the absence of a noise meter, an appropriate rule of thumb is that when normal conversation is difficult to hear or understand at a distance of three feet, hearing protection is required. EWMA and subcontractor personnel shall have hearing protection on-site and available for use at all times.

Thermal Stress

Depending on the altitude, geographic location and the season, the use of required PPE may cause heat or cold related stress on the wearer. The Heat Stress Casualty Prevention Plan as specified in Attachment-F will be referred to for dealing with this health hazard during warm weather. The Plan outlines heat stress identification, treatment, prevention and monitoring. Fluids will be provided at all times during work periods, in order to maintain adequate body fluid levels for field personnel. Attachment-F also contains the Cold Exposure Casualty Prevention Plan for this project.

4.2.2.1 Controls for Physical Agents

No physical hazards known or believed to be present. Buried and over-head power lines. Be sure minimum clearance of 10-feet is maintained for drill rig to over-head power lines.

4.2.3 Biological Agents

Biological agents may be viral, fungal, bacterial, or of higher orders: insects (including ticks and stinging insects), wild animals (especially snakes) and domesticated animals. Any mammal encountered on-site should be considered potentially rabid. In many parts of the northeast United States, tick-borne diseases pose a significant health risk during warm months. (see Attachment-J, Ticks and Tick-Borne Diseases). Field personnel are encouraged to use insect repellents before donning PPE. To avoid snake bites, check for snakes before walking through grassy or debris strewn areas. The presence of medical waste suggests the possibility that pathogenic micro-organisms may be present. A fully-stocked first aid kit, insect and tick repellent must be available for use in the field.

4.2.3.1 Biological Agent Controls

No Biological Agent controls to be used.

4.2.4 Safety Hazards

The hazards and appropriate safety procedures associated with drilling and excavation activities are discussed in Attachment-I, Safety Guidelines for Excavations. The physical hazards associated with performing field sampling are described in the safety procedures listed in Attachment-H.

Use of safety-toed work boots, safety glasses or goggles, and hard hats will be required when in an Exclusion Zone. Personnel should be aware that when PPE such as respirators, gloves, and protective clothing are worn, visibility, hearing, and manual dexterity are impaired.

4.2.4.1 Drilling, Pile Driving and Excavation

The hazards involved with the use of drill rigs and excavation equipment are significant and include pinch points, entrapment in machinery, impact from moving parts, electrocution from contact with overhead wires or buried utilities, and improper operations. Use of hand tools, moving the rigs/equipment, and conducting required repairs can increase physical risks. Working with and around a drill rig can involve a high risk of serious injury or death. In order to reduce the risk, proper safety precautions must be observed at all times. Safety procedures are included in Attachment-H.

4.2.4.2 Excavated Drums

a. During the course of excavation activities, a potential exists for buried drums or other types of containers to be uncovered. If, because of labels, the appearance of chemical materials, the size and shape of the container, or for any other reason, there is a likelihood that a hazardous material container has been uncovered, immediately cease operations in the area and inform the Site Safety Officer.

b. Activities may not resume until the container's contents have been sufficiently identified to determine the hazard it poses and to provide the controls necessary to remove or significantly reduce the identified risks.

4.2.4.3 Odors

During the course of excavation, odorous gases may escape from the ground. Most hazardous and/or foul-smelling gases can be controlled or eliminated with an enzyme product available from Nature Plus, 555 Lordship Blvd., Stratford, CT 06497 (203/380-0316): Don Mitchell. The Site Safety Officer will determine the most effective means of applying this material, when needed. An initial supply shall be on hand whenever a project may entail the probable release of noxious gases.

4.2.5 Contaminated Dust

Contaminated surface soils may become a source of dust. Inhaling contaminated dust may result in adverse health effects from exposure to the contaminant(s) on the dust particles.

The M.I.E. company's miniRAM dust monitor may be used to estimate the contaminant concentration in air, by measuring the total dust level.

Soil samples are reported as mg contaminant per kilogram of soil. The miniRAM reads mg of dust per cubic meter of air. To convert from kilograms of soil (dust) to milligrams of dust (from soil), divide kilograms by 1 million (1,000,000 or 10^{-6}). In order to maintain proportions, milligrams of contaminant must also be divided by 1 million (resulting in milligrams of contaminant times 10^{-6} per mg soil (dust).

As an example, assume that soil sampling shows 750 mg aluminum per kilogram of soil. Dust, generated from this soil, was measured to be 3 mg dust (total) per cubic meter of air. Dividing by 1 million, we have 0.00075 mg aluminum for each milligram of dust. Since we have 3 mg dust in each cubic meter of air, we have 3 x 0.00075 mg or 0.00225 mg aluminum per cubic meter of air. The OSHA Time-Weighted Average, Permissible Exposure Limit

is 10 mg/m3 micrograms of Aluminum dust per cubic meter of air. Therefore, a sustained, full-shift exposure to this aluminum -contaminated soil will not produce an unacceptable exposure to Aluminum dust.

Appendix I (attached) provides relevant information concerning dust contaminants.

- End of Section -

SECTION 5.0
AIR QUALITY MONITORING AND MEASURES
FOR THE CONTROL OF EMISSIONS

5.1 AIR QUALITY MONITORING INSTRUMENTATION

Air quality will be measured to determine exposure potentials prior to the start of work, and at various times during the course of the project. Instruments which may be used to monitor air quality are discussed below:

- **Photoionization Detector**

  The HNu Systems Model PI-101 Photoionization Detector (PID) or equivalent will be used to detect trace concentrations of certain organic gases and a few inorganic gases in the air. Methane, ethane, and the major components of air are not detected by the HNu PID. PID readings reflect total (readable) vapors in the air. PID readings must be given as "PID units", rather than "ppm". The PID detects mixtures of compounds simultaneously. PID readings do not measure concentrations of any individual compound when a mixture of compounds is present.

  The PID will be calibrated twice each day (before start of work and after the conclusion of work) using an isobutylene standard (molecular weight = 56.2) for calibration. Calibrations will be logged. PID readings should be measured in the breathing zone of the most highly exposed worker (i.e., the person who is closest to the source of known or suspected contamination) at least hourly.

- **Combustible Gas Indicator/Oxygen/Hydrogen Sulfide Meter**

  An approved Combustible Gas Indicator/Oxygen Meter, which may have a separate hydrogen sulfide detector, may be used, at the discretion of the EWMA SSO, to measure the concentration of flammable vapors and gases, oxygen, and hydrogen sulfide in the air during field activities. Flammable gas concentrations are measured as percentages of the Lower Explosive Limit (LEL). Oxygen content is measured as a percentage of air. Hydrogen sulfide concentration (which includes sulfur dioxide) is measured in parts per million.

- **Aerosol/Particulate Air Monitoring**

  An approved real-time aerosol monitor will be used by the EWMA SSO, to measure mass concentrations of airborne dust, smoke, mist, haze, and fume in the air during field activities. The monitor will be equipped with an onboard datlogger to maintain a record of the data for future analysis. Aerosol readings should be measured in the breathing zone of the most highly exposed worker (i.e., the person who is closest to the source of known or suspected contamination) at least hourly. The monitor will be zeroed each morning using an air-tight bag. The aerosol monitor readings do not measure concentrations of any individual compounds within the particulate when a mixture of compounds are present at the site.

5.2 AIR QUALITY RESPONSE LEVELS

The EWMA Site Safety Officer will decide when EWMA personnel will change protection levels in response to air monitoring results. The EWMA Health & Safety Officer will be notified of any upgrades from initial protection levels, as soon as is practical. EWMA Action Levels for this project are described in detail in Table 5-1, at the end of this Section. These Action (Response) Levels apply to the work activities covered by this HASP.

5.3 MONITORING GUIDELINES

5.3.1 Background Organic Vapor Monitoring

Background organic vapor and combustible gas readings (when applicable) will be taken at least twice daily: before the start, and after the conclusion of, work activities. Background levels will be taken at a location which is unaffected by on-site work. Once work at the Site begins, reselection of the original background location may be required.

5.3.2 Air Monitoring Protocol

During intrusive work activities (i.e. drilling, excavation), at least one series (series=Organic Vapor, Toxic gas, Combustible gas, and Oxygen) of readings will be taken every 30 minutes. During non-intrusive work activities, one series will be performed at the start of work, one series at some point during the work, and one near the conclusion of the work. This will be in addition to the background monitoring described in the previous section.

5.3.3 Documenting Monitoring Results

A calibration log will be kept for each of the monitoring instruments used, which describes the calibration method(s) used, and the readouts obtained. Should work at the Site require respiratory protection, the need for a personal exposure monitoring program will be evaluated by the EWMA Health and Safety Officer. Details of this program and any monitoring equipment required for its implementation will be specified in an Addendum to this HASP prepared by the EWMA Health and Safety Officer. Records of exposure measurements will be maintained in the Health and Safety file for this project.

5.4 EMISSION CONTROL MEASURES

Vapor or dust emissions resulting from field operations do not usually exceed either regulatory or EWMA action levels. If the action levels are significantly exceeded, measures to suppress the responsible emissions should be investigated. Appropriate measures would include cessation of operations until the exact cause of the emission is identified and corrected. Vapor control may include the use of vapor suppression foams, covering exposed soil piles with plastic sheeting and/or spraying exposed soil piles and drilling sites with water or enzyme solutions. Fugitive dust emission control may require water spraying. In addition, calcium chloride may be needed.

TABLE 5-1

EWMA RESPONSE ACTIONS

EWMA Air Quality Measurements and Response Actions

Air Quality Measurement[1,2,3,4]	
The contaminants of concern are SVOCs, BNAs, Metals, Pesticides, PCBs in the soil. VOCs, BNAs, Metals in the ground water. They can possibly be released during any one of the following work tasks: Concrete removal, soil and underground storage tank excavation (Test Pits, Trenching), Soil boring installations and sampling, temporary ground water location installation and sampling , permanent well installation/ sampling & LNAPL product recovery & sheet pile installation. Soil and ground water contaminants are present & many exceed current NYSDEC applicable standards. Therefore, be conservative and treat airborne dust as less than 3 mg/m^3 per ACGIH dust level. Use benzene as reference as less than 0.87 ppm representing the varied SVOCs and VOCs.	1. Level D Protection ensemble or Modified above background (averaged over 15 minutes and/or 8 Hr. TWA) 2. No respirator needed
PID reading greater than background (averaged over one minute) but greater than 0.87 ppm as PID equivalents CGI reading less than 10% LEL Oxygen meter reading between 19.5% and 23.5% Greater than 1 mg/m3 of dust over background (Change as per verbal from Gary Schwartz on November 17, 2009 at 15:30)	Level C Protection level ensemble, ½ face-piece up to 8.7 ppm and 30 mg/m^3 , then full face-piece with a combination OVA/P100 up to 43.50 ppm PID equivalents and 150 mg/m^3. ½ face respirator has a OSHA assigned protection factor of 10 and full face piece is 50
PID reading is greater than 43.5 ppm PID equivalents CGI reading greater than 10% LEL Oxygen meter reading less than 19.5% Greater than 3 mg/m3 of dust (Change per Gary Schwartz e-mail December 7, 2009 based on lead, arsenic, cadmium and PAHs in dust contamination)	Suspend all work activities in immediate work zone and notify EWMA Site Health & Safety Officer and EWMA Project Manager. Continue air monitoring until readings are below noted air quality threshold levels.

(1) All Air Quality Measurements, with the exception of CGI measurements for flammable vapors and gases, should be made in the breathing zone of personnel who, in the opinion of the EWMA SSO, are most exposed to airborne contaminants. Measurements of flammable vapor and gas levels should be made in the vicinity of the nearest ignition source. (2) The ACGIH denotes American Conference of Governmental Industrial Hygienists (ACGIH) which serves to characterize 8 hour time weighted averages as a threshold level value, short term exposure limits and ceiling limits. The values are based on the most current edition of the ACGIH TLV booklet and OSHA PELs. (3) Be aware that these airborne concentration guidelines are based on assuming with uncertainty that the soil or ground water contaminants are at high concentrations. This is the case unless it is known about the

soil or ground water concentration profile in advance. [4] Multiply the reading of the PID by 0.57 to convert the reading to PPM when the PID was calibrated with 100 PPM isobutylene. Record the readings as "PPM equivalents.

PLEASE HEED GOOD HYGIENE PRACTICES AS THE IDENTIFIED COMPOUNDS ARE HIGHLY TOXIC AT HIGH INHALATION EXPOSURE CONCENTRATIONS OR IF ACCIDENTALLY INGESTED.

6.1 DESCRIPTION OF LEVELS OF PROTECTION

The personal protection equipment specified in this HASP will be available to all field personnel. EWMA contractors and sub-contractors are required to provide the specified equipment (or its equivalent) to all of their exposed employees. The following requirements will also be met, in accordance with OSHA regulations:

1. Facial hair may not interfere with the proper fit of respirators;
2. Contact lenses will not be worn on-site; without exception.
3. Eyeglasses that interfere with the proper fit of full-face respirators will not be worn; and,
4. No eating, drinking or smoking will be allowed in any area where respiratory protection is required.

Level D Personal Protective Equipment

- Hard hat
- Safety glasses or goggles
- Safety-toed leather or rubber work boots

Modified Level D Personal Protective Equipment

- Hard hat
- Safety glasses or goggles
- Safety-toed leather work boots
- Rubber overboots, safety-toed rubber boots, or disposable "booties"
- Butly rubber outer gloves for protection against MEK in soil dermal exposure
- Nitrile surgical gloves (to be work underneath outer gloves)
- Polyethylene coated or Saranex impregnated Tyvek coveralls(1) (taped at cuffs)

  (1) Optional, at the discretion of EWMA SSO.

Level C Personal Protective Equipment

- Hard hat
- Half-face Air-Purifying Respirator with applicable chemical cartridge combined with a P-100 filter
- Safety-toed leather work boots
- Rubber overboots, safety-toed rubber boots, or disposable "booties"
- Nitrile-butadiene rubber outer gloves
- Nitrile surgical gloves (to be worn underneath outer gloves)
- Polyethylene coated or Saranex impregnated Tyvek coveralls (taped at cuffs)

Level B Personal Protective Equipment

- Hard hat
- Full-face respirator mask with either a Self Contained Breathing Apparatus (SCBA) or Supplied Air
- Safety-toed leather work boots
- Rubber overboots, safety-toed rubber boots, or disposable "booties"
- Nitrile-butadiene rubber outer gloves
- Nitrile surgical gloves (to be worn underneath outer gloves)
- Appropriate protective clothing such as coated or impregnated Tyvek coveralls, PVC coveralls, or Level-B Suit. Level B PPE will not be used without proper training and preparation. If airborne contaminant levels indicate Level B PPE is necessary, site work will be suspended until supplemental training and preparation are complete. Contact EWMA Health & Safety Officer for more information.

A first aid kit, multi-purpose dry chemical UL Class 10A-10B-C fire extinguisher, eye wash station, appropriate barricades and alarm horns will be present and maintained at the Site.

Selection of the PPE specified for this project is based on a review of known or suspected hazards, routes of potential exposure (inhalation, skin absorption, ingestion, and skin or eye contact) and the effectiveness of personal protective equipment in providing a barrier to these hazards. In addition, PPE has been selected to match the work requirements and task-specific conditions of the job, and to provide adequate protection without causing unnecessary discomfort or physical impairment to the worker.

6.2 INITIAL PPE LEVELS FOR SPECIFIC WORK TASKS

The selection of Initial Levels-of-Protection takes into consideration the physical, biological and chemical hazards posed by the site as well as those posed by the various pieces of personnel protective clothing. Initial Levels-of-Protection are established so as to obtain acceptable levels of protection while not imposing an unacceptable level of physical stress on the wearer.

The following initial PPE levels have been established for the tasks described in Section 4.1, Approved Work Activities:

Work Activity	Level of Protection
1. Soil Excavation into fill below 7'bsg	Level-C*
2. Permanent well installation and sampling	Level D
3. LNAPL Product Recovery	Level D
4. Sheet Pile Installation	Level D

- **End of Section –**

SECTION 7.0
DESIGNATION OF WORK ZONES

This section of the Health & Safety Plan applies to excavation projects where contaminated soils are exposed and may release their contaminants to the air, or come in contact with field personnel. To minimize the migration of contaminants from the Site to uncontaminated areas, three work zones will be set up:

Zone 1: Exclusion Zone
Zone 2: Contamination Reduction Zone
Zone 3: Support Zone

The Exclusion Zone is the area where contamination occurs or could occur. Initially, the Exclusion Zone should extend a distance of 25 ft from the edge of intrusive activity unless conditions at the Site warrant either a larger or smaller distance as determined by the EWMA SSO. All persons entering the Exclusion Zone must wear the applicable level of protection as set forth in Section 6.1, Personal Protective Equipment and Section 6.2, Initial PPE Levels for Specific Work Tasks. It is anticipated that work zones will be established at each individual area of intrusive work rather than encompass the entire Site.

The Support Zone is the area of the Site where significant exposure to contamination is not expected to occur during non-intrusive activities. The Support Zone is considered to be the "clean area" of the Site.

Between the Exclusion Zone and Support Zone is the Contamination Reduction Zone, which provides a transition zone between the contaminated and clean areas of the Site. The Contamination Reduction Zone will be located directly outside of the Exclusion Zone. All personnel must decontaminate when leaving the Exclusion Zone. A Contamination Reduction Zone (decontamination area) will be established adjacent to each individual area of intrusive work.

For a detailed map identifying the various work zones, see Attachment A.

- End of Section -

SECTION 8.0
DECONTAMINATION PROCEDURES

Personnel who have been in contact with contaminated materials will decontaminate themselves in the following manner:

- Deposit contaminated equipment on plastic drop cloths.
- Stand in wash tub containing Alconox® and water, wash boots and outer gloves with long handled brush.
- Rinse boots and outer gloves with long handled brush in a wash tub containing clear water or use a sprayer to rinse off boots and gloves.
- Remove ankle and wrist tapes; place in disposal drum.
- Remove outer gloves and place in disposal drum.
- Remove Tyvek® suit and place in disposal drum.
- Remove respirator and place on table to be decontaminated.
- Remove inner gloves and place in disposal drum.
- Wash hands and face.

All tools or equipment which have been in contact with contaminated materials, must be decontaminated after leaving the Exclusion Zone. This decontamination is to be performed using a high pressure/hot water "steam type" cleaner or a spray/rinse decontamination sequence as described in Section 3.6, Respirator Maintenance, Fitting and Decontamination, as appropriate.

Contaminated liquids from the decontamination area and contaminated clothing should be disposed of in accordance with site protocols.

- End of Section -

9.0 EMERGENCY RESPONSE

Emergencies addressed by this plan include:

- Fire;
- Chemical over-exposures; and,
- Physical injuries to site personnel.

The EWMA Health & Safety Officer and Project Manager must be notified as soon as possible of any on-site emergency or potential emergency including fire, explosive conditions or OSHA-recordable physical injury.

9.1 EMERGENCY RECOGNITION AND PREVENTION

9.1.1 Fires

Fires are possible whenever oxygen and flammable gases or vapors are mixed together in proper proportions and an ignition source is present. Construction equipment provides an ignition source. To prevent fires and explosions, a CGI as specified in Section 5.0 will be used to detect flammable or explosive atmospheres. Ignition and other sources which produce electrical sparks will be turned off and the area evacuated if vapors or gases reach 10% of the Lower Explosion Limit (LEL) as measured by the CGI. Work will not resume until the EWMA SSO observes CGI readings below 10% of the LEL for at least 5 consecutive minutes.

9.1.2 Chemical Exposures

Work should always be performed in a manner that minimizes exposure to contaminants through skin or eye contact, inhalation or ingestion. Work practices to reduce the risk of chemical exposure include:

- PPE, as specified in Section 6.0, will be used by all field personnel covered by this HASP. A formal revision to the HASP must be made by the EWMA Health and Safety Officer to modify the PPE specifications.
- Keep hands away from the face during work activities to avoid ingestion.
- Minimize all skin and eye contact with contaminants.

Early recognition of the signs and symptoms of chemical exposure is essential for the prevention of serious chemical exposure incidents. Symptoms of exposure to the compounds present at the Site include the following: fatigue, weakness; eye, nose, and/or throat irritation; dizziness; nausea; vomiting; malaise; tremors; aggressive confusion; cyanosis (blue color to skin); anemia; and muscle spasms. If a person experiences any of these symptoms, or recognizes any of them in a fellow worker, the person experiencing the symptoms will stop work immediately and report to the EWMA SSO. If the symptoms persist or affect performance in any way, the EWMA SSO will arrange for medical treatment. If the symptoms are serious, or affect several people, work activities in the exposure area will

be discontinued until more is known about the cause(s). Incident reporting procedures as specified in Section 3.3 will be initiated.

9.1.3 Physical Injuries

Site personnel should be on the lookout for potential safety hazards such as holes or ditches; improperly positioned objects, such as drums or equipment that may fall; sharp objects, such as nails, metal shards, and broken glass; protruding objects at eye or head level; slippery surfaces; steep grades; unshored steep entrenchments, uneven terrain or unstable surfaces, such as walls that may cave in or flooring that may give way. Site personnel should inform the EWMA SSO of any potential hazards observed so that corrective action can be taken.

9.2 EMERGENCY ALERTING PROCEDURES

The EWMA SSO will alert the appropriate work groups when an emergency occurs. The communication method(s) will be established by the SSO with the approval of the Project Manager. The EWMA SSO and any isolated work group will carry radios if direct contact cannot be maintained. If direct contact cannot be maintained, an air horn will be used to signal workers to stop work and assemble in the Contamination Reduction Zone. If evacuation of the Site is necessary, a pre-arranged signal from the air horn will be sounded.

9.3 EVACUATION PROCEDURES AND ROUTES

Normally, personnel should evacuate through the Contamination Reduction Zone, and from there, to the Support Zone. Evacuation from the Contamination Reduction Zone will proceed in an upwind direction from the emergency. If evacuation to the Support Zone does not provide sufficient protection from the emergency, personnel will be advised to evacuate the Site proper.

9.4 TELEPHONE NUMBERS FOR EMERGENCY SERVICES

The telephone numbers of local emergency services are given below:

Emergency Service	**Telephone Number**
Ambulance	911
Fire Department **10-40 47th Avenue, Long Island City, NY**	**911 or (718) 847-6600**
Long Island Police Department **547 50th Avenue, Long Island City, NY**	**911 or (718) 784-5411**
New York University Medical Center **560 1st Avenue, NY, NY 10016**	**911 or (212) 263-7300**
Poison Control Center	(800) 962-1253
USEPA National Response Center	(800) 438-2427
EWMA Project Manager/Sharon McSwieney	**862-881-6286**

These telephone numbers must be verified by the EWMA SSO before the start of field work.

9.5 EMERGENCY RESPONSE PERSONNEL

The EWMA SSO will have the primary role in responding to all emergencies at the Site. The EWMA SSO, or the Alternate EWMA SSO, will be present at the Site during all work activities. If any emergency such as a fire, chemical exposure, or physical injury occurs, the EWMA SSO shall be notified immediately. The EWMA SSO will direct all site personnel in cases of emergency.

After an emergency has occurred at the Site, the causes and responses to that emergency shall be thoroughly investigated, reviewed and documented by the EWMA Project Manager and EWMA SSO; this documentation is to be submitted to the EWMA Health and Safety Officer within 48 hours of the incident.

9.6 DECONTAMINATION PROCEDURES DURING AN EMERGENCY

Decontamination of an injured or exposed worker or during a site emergency shall be performed only if decontamination does not interfere with essential treatment or evacuation.

If a worker has been injured or exposed and decontamination can be done: Wash, rinse, and/or cut off protective clothing and equipment.

If a worker has been injured or exposed and cannot be decontaminated:

- Wrap the victim in blankets, plastic or rubber to reduce contamination of other personnel;
- Alert emergency and off-site medical personnel to potential contamination; and,
- Have the EWMA SSO or other personnel familiar with the incident and contaminants at the Site accompany the victim to the hospital. If possible, send a copy of the appropriate MSDS(s) with the victim. Refer to Appendix K for site specific MSDS sheets.

9.7 EMERGENCY MEDICAL TREATMENT AND FIRST AID PROCEDURES

Emergency medical treatment or First Aid may be administered at the Site by the EWMA SSO or other personnel who have been certified in First Aid.

General emergency medical and First Aid procedures are as follows:

- Remove the injured or exposed person(s) from immediate danger.

- Render First Aid as needed; decontaminate affected personnel, if necessary.

- Call an ambulance for transport to local hospital immediately. <u>This procedure shall be followed even if there is no apparent serious injury.</u>

- Evacuate other personnel at the Site to safe places until the EWMA SSO determines that it is safe for work to resume.

- Report the accident to the EWMA Health and Safety Officer immediately.

Emergency Medical Treatment and First Aid Procedures are presented in Attachment-G.

9.8 DIRECTIONS TO THE HOSPITAL FROM SITE

The route and/or directions to the hospital from the Site are in Attachment-B.
The directions to the hospital from the Site must be verified by the EWMA SSO prior to the start of field work.

- End of Section -

10.1 PROJECT PERSONNEL

EWMA personnel authorized to enter the Site and work on this project, subject to compliance with provisions of the HASP, are:

EWMA Project Manager	Sharon McSwieney
EWMA Site Manager	Sharon McSwieney
EWMA Site Safety Officer	Daniel DiRocco
EWMA Health and Safety Officer	Daniel DiRocco

Other personnel who meet HASP requirements, including training and participation in a medical surveillance program, may enter and work on the Site subject to compliance with provisions of the HASP.

10.2 PROJECT SAFETY RESPONSIBILITIES

Personnel responsible for implementing this Health and Safety Plan are the EWMA Project Manager and the EWMA Site Safety Officer. Their specific responsibilities and authority are described in the EWMA Health and Safety Manual.

- End of Section -

SECTION 11.0
HEALTH AND SAFETY PLAN APPROVALS

The authorized signatures below verify that this Health and Safety Plan has been read and approved for the work to be performed at the subject site:

EWMA Case Name: Former Accurate Associates/5-20 46th Road, Long Island City, NY

EWMA Case Number: 205490

Sharon McSwieney
EWMA Project Manager

Gary Schwartz

Gary Schwartz, CIH, CSP
Health and Safety Officer

December 9, 2009

Date

SECTION 12.0

HEALTH AND SAFETY PLAN COMPLIANCE AGREEMENT

I have reviewed a copy of the Health and Safety Plan for Former Accurate Associates/5-20 46th Road, Long Island City, NY dated December 9, 2009. I have read the HASP, understand it, and agree to comply with all of its provisions. I understand that I could be prohibited from working on the project for violating any of the safety requirements specified in the Health and Safety Plan.

Name	Company
Signature	Date
Name	Company
Signature	Date
Name	Company
Signature	Date
Name	Company
Signature	Date
Name	Company
Signature	Date

APPENDIX I

DETERMINING EXPOSURE TO AIRBORNE DUST CONTAMINANTS FROM SOIL DATA

1. Assume the following hypothetical:

   a) Lead (Pb) is found in soil samples to be 18,000 ppm (mg Pb/kg soil).

   b) Dusty conditions will prevail.

   c) 18,000 mg Pb/kg soil = 0.018 mg Pb

   d) The miniRAM reads mg (soil/dust)/m^3 air. Each mg of soil/dust detected will contain 0.018 mg Pb/m^3 air

      Thus, 1mg/m^3 total dust as read by miniRAM represents 0.018 mg Pb/m^3

      The current OSHA PEL is 0.050 mg Pb/m^3 air, as an 8-HR TIME WEIGHTED AVERAGE (TWA-8)

2. Example: 18,000 mg Pb per kilogram of soil

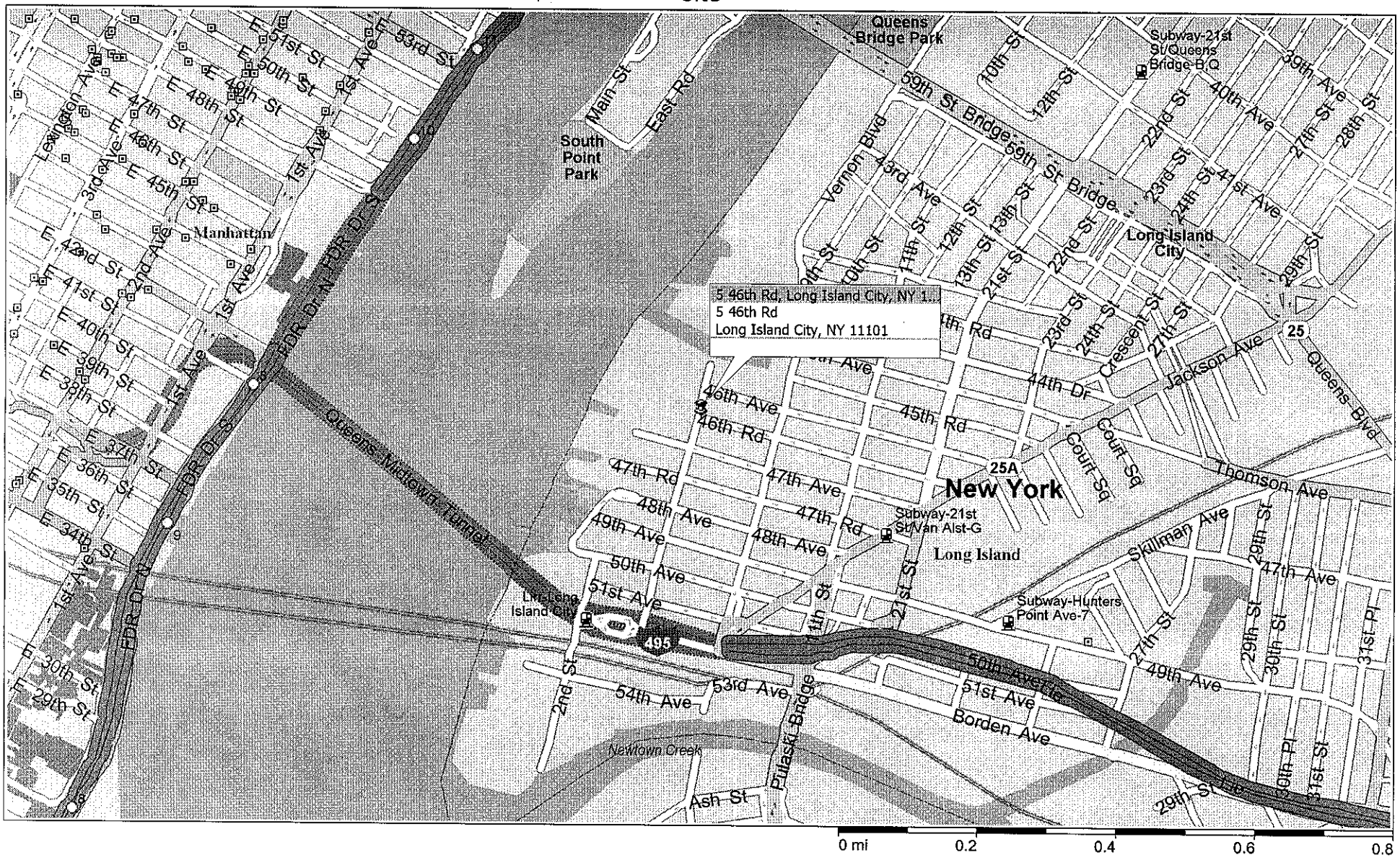
   a) 18,000 mg Pb/kg soil = 0.018 mg Pb/mg soil

   b) miniRAM reads 4.0 mg dust (soil)/m^3 air

   c) $\frac{0.018 \text{ mg Pb}}{\text{mg soil}} \times \frac{4.0 \text{ mg dust (soil)}}{m^3 \text{ air}} = \frac{0.072 \text{ mg Pb}}{m^3 \text{ air}}$

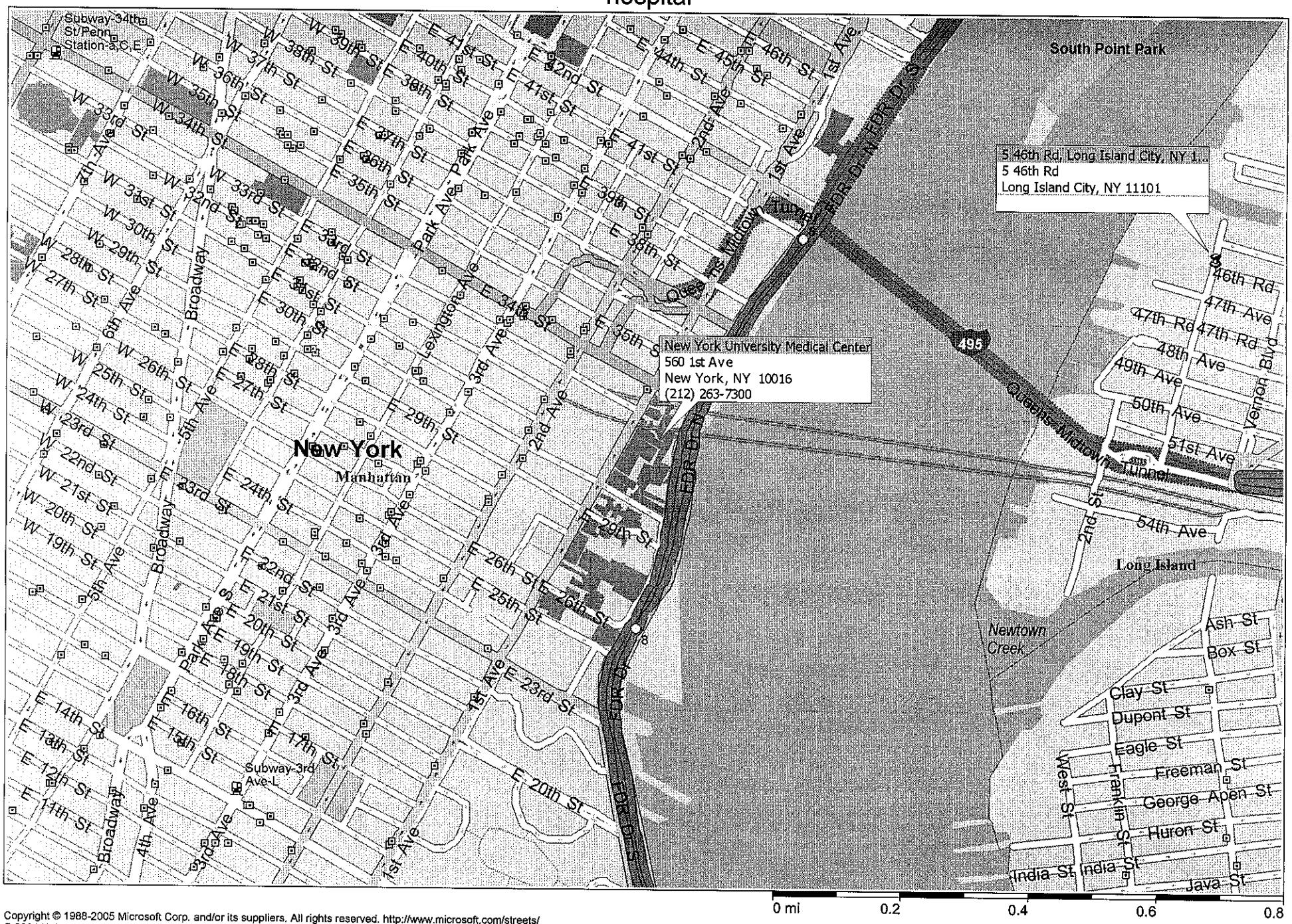
SITE LOCATION MAP

site



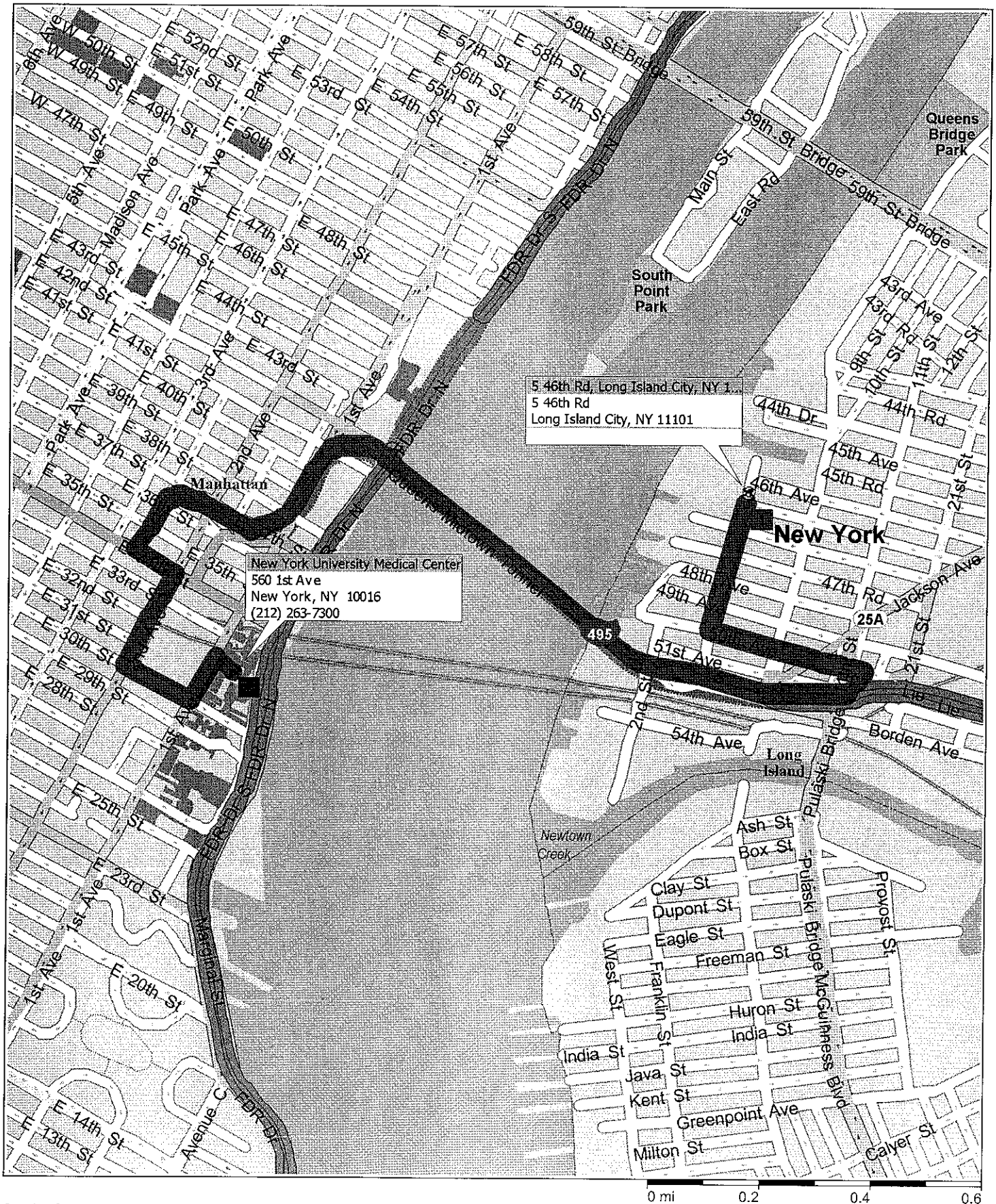
EMERGENCY ROUTE MAP

hospital



site-hospital

2.8 miles; 6 minutes



9:00 AM	0.0 mi	Depart 5 46th Rd, Long Island City, NY 11101 on 5th St (South) for 0.2 mi
9:00 AM	0.2 mi	Turn LEFT (East) onto 50th Ave for 0.3 mi
9:01 AM	0.5 mi	Take Ramp (RIGHT) onto I-495 [Queens Midtown Tunnel Plaza] for 1.4 mi towards Queens Midtown Tunnel
9:03 AM	1.9 mi	Turn off onto Ramp for 0.1 mi
9:03 AM	2.0 mi	Keep LEFT to stay on Ramp for 0.1 mi towards 35 St / 34 St / Downtown
9:03 AM	2.2 mi	Bear RIGHT (South-West) onto Queens Midtown Tunnel Exit [Tunnel Exit St], then immediately turn LEFT (East) onto E 34th St for 0.1 mi
9:04 AM	2.3 mi	Turn RIGHT (South) onto 2nd Ave for 0.2 mi
9:04 AM	2.5 mi	Turn LEFT (East) onto E 30th St for 0.1 mi
9:05 AM	2.6 mi	Turn LEFT (North) onto 1st Ave for 174 yds
9:05 AM	2.7 mi	Turn RIGHT (South-East) onto Local road(s) for 87 yds
9:06 AM	2.8 mi	Arrive New York University Medical Center [560 1st Ave, New York, NY 10016, (212) 263-7300]

ATTACHMENT C

EWMA HEALTH & SAFETY INCIDENT REPORT

EWMA
HEALTH AND SAFETY INCIDENT REPORT FORM

HEALTH AND SAFETY INCIDENT REPORT

Date of Incident: ____/____/____ Time of Incident: _hrs

Location Of Incident_____

DESCRIPTION OF INCIDENT:

Reported by:

_____	_____	_____
Site Safety Officer	Signature	Date

Reviewed by:

_____	_____	_____
Field Supervisor	Signature	Date

Distribution:

___	Project Manager	_____
___	Superintendent	_____
___	Project CIH	_____
___	Owner Representative	_____

HEALTH AND SAFETY INCIDENT REPORT

DESCRIPTION OF INCIDENT (continued):

Anyone Injured? If yes, give names, address and social security #'s of all individuals below:

Full Name	Address	Phone	SS#

Of the above, anyone taken to hospital, If yes, where? Who? Diagnosis?

Actions Taken:

What Follow-Up Actions are recommended?

What will be done to prevent this type of incident from happening again (if possible)?

Samples Collected?

Type: ( ) Air; ( ) Soil; ( ) Water ( ) Other

Analysis of samples; what were samples analyzed for?

Laboratory Used: Name/Address

When are results expected:

Results attached? ( ) Yes ( ) No ( ) Pending due on / /

WITNESSES TO INCIDENT, INCLUDE ALL WITNESSES

Name	Address	Phone#

Prepared By:_____ Date:_____

Signature:_____

Witness to Preparer:_____ Date:_____

Signature:_____

Notary: Signed and sealed this_____ day of _____,

SS:

COPY TO PROJECT FILE, MAIN OFFICE, EMPLOYER OF AFFECTED EMPLOYEES

ATTACH MORE PAGES AS NEEDED. ATTACH LAB REPORTS, DOCTORS REPORTS, EMERGENCY ROOM REPORTS AS APPROPRIATE

ATTACHMENT D

EWMA PROJECT SAFETY LOG

ENVIRONMENTAL WASTE MANAGEMENT ASSOCIATES, LLC

PROJECT SAFETY LOG

Form HS-106

EWMA SSO: _____ **Date:** _____

Weather: _____

Personnel:

Personnel Present	Affiliation:

Work Activities	Level of Protection

PID (ppm)

reading	time	reading	time	reading	time	reading	time

CGI/O_2 (%LEL)

reading	time	reading	time	reading	time	reading	time

CGI/O_2 (O_2%)

reading	time	reading	time	reading	time	reading	time

Colormetric Tubes (ppm)

reading	time	reading	time	reading	time	reading	time

MiniRam (mg/m³)

reading	time	reading	time	reading	time	reading	time

Notes and Comments: _____

OSHA POSTER

JOB SAFETY & HEALTH PROTECTION

The Occupational Safety and Health Act of 1970 provides job safety and health protection for workers by promoting safe and healthful working conditions throughout the Nation. Provisions of the Act include the following:

Employers

All employers must furnish to employees employment and a place of employment free from recognized hazards that are causing or are likely to cause death or serious harm to employees. Employers must comply with occupational safety and health standards issued under the Act.

Employees

Employees must comply with all occupational safety and health standards, rules, regulations and orders issued under the Act that apply to their own actions and conduct on the job.

The Occupational Safety and Health Administration (OSHA) of the U.S. Department of Labor has the primary responsibility for administering the Act. OSHA issues occupational safety and health standards and its Compliance Safety and Health Officers conduct jobsite inspections to help ensure compliance with the Act.

Inspection

The Act requires that a representative of the employer and a representative authorized by the employees be given an opportunity to accompany the OSHA inspector for the purpose of aiding the inspection.

Where there is no authorized employee representative, the OSHA Compliance Officer must consult with a reasonable number of employees concerning safety and health conditions in the workplace.

Complaint

Employees or their representatives have the right to file a complaint with the nearest OSHA office requesting an inspection if they believe unsafe or unhealthful conditions exist in their workplace. OSHA will withhold, on request, names of employees complaining.

The Act provides that employees may not be discharged or discriminated against in any way for filing safety and health complaints or for otherwise exercising their rights under the Act.

Employees who believe they have been discriminated against may file a complaint with their nearest OSHA office within 30 days of the alleged discriminatory action.

Citation

If, upon inspection, OSHA believes an employer has violated the Act, a citation alleging such violations will be issued to the employer. Each citation will specify a time period within which the alleged violation must be corrected.

The OSHA citation must be prominently displayed at or near the place of alleged violation for three days, or until it is corrected, whichever is later, to warn employees of dangers that may exist there.

Proposed Penalty

The Act provides for mandatory civil penalties against employers of up to $7,000 for each serious violation and for optional penalties of up to $7,000 for each nonserious violation. Penalties of up to $7,000 per day may be proposed for failure to correct violations within the proposed time period and for each day the violation continues beyond the prescribed abatement date. Also, any employer who willfully or repeatedly violates the Act may be assessed penalties of up to $70,000 for each such violation. A minimum penalty of $5,000 may be imposed for each willful violation. A violation of posting requirements can bring a penalty of up to $7,000.

There are also provisions for criminal penalties. Any willful violation resulting in the death of any employee, upon conviction, is punishable by a fine of up to $250,000 (or $500,000 if the employer is a corporation), or by imprisonment for up to six months, or both. A second conviction of an employer doubles the possible term of imprisonment. Falsifying records, reports, or applications is punishable by a fine of $10,000 or up to six months in jail or both.

Voluntary Activity

While providing penalties for violations, the Act also encourages efforts by labor and management, before an OSHA inspection, to reduce workplace hazards voluntarily and to develop and improve safety and health programs in all workplaces and industries. OSHA's Voluntary Protection Programs recognize outstanding efforts of this nature.

OSHA has published Safety and Health Program Management Guidelines to assist employers in establishing or perfecting programs to prevent or control employee exposure to workplace hazards. There are many public and private organizations that can provide information and assistance in this effort, if requested. Also, your local OSHA office can provide considerable help and advice on solving safety and health problems or can refer you to other sources for help such as training.

Consultation

Free assistance in identifying and correcting hazards and in improving safety and health management is available to employers, without citation or penalty, through OSHA-supported programs in each State. These programs are usually administered by the State Labor or Health department or a State university.

Posting Instructions

Employers in States operating OSHA approved State Plans should obtain and post the State's equivalent poster.

Under provisions of Title 29, Code of Federal Regulations, Part 1903.2(a)(1) employers must post this notice (or facsimile) in a conspicuous place where notices to employees are customarily posted.

More Information

Additional information and copies of the Act, specific OSHA safety and health standards, and other applicable regulations may be obtained from your employer or from the nearest OSHA Regional Office in the following locations:

Atlanta, GA	(404) 347-3573
Boston, MA	(617) 565-7164
Chicago, IL	(312) 353-2220
Dallas, TX	(214) 767-4731
Denver, CO	(303) 391-5858
Kansas City, MO	(816) 426-5861
New York, NY	(212) 337-2378
Philadelphia, PA	(215) 596-1201
San Francisco, CA	(415) 744-6670
Seattle, WA	(206) 553-5930

To report suspected fire hazards, imminent danger safety and health hazards in the workplace, or other job safety and health emergencies, such as toxic waste in the workplace, call OSHA's 24-hour hotline: 1-800-321-OSHA.

Robert B. Reich, Secretary of Labor

U.S. Department of Labor

Occupational Safety and Health Administration

Washington, DC
1995 (Reprinted)
OSHA 2203

This information will be made available to sensory impaired individuals upon request. Voice phone: (202) 219-8615; TDD message referral phone: 1-800-326-2577

GPO : 1995 O - 163-097 QL 3

THERMAL STRESS GUIDELINES

COLD EXPOSURE CASUALTY PREVENTION PLAN

Persons working outdoors in temperatures at or below freezing may be frostbitten. Extreme cold for a short time may cause severe injury to the surface of the body, or result in profound generalized cooling, causing death. Areas of the body which have high surface area-to-volume ratio such as fingers, toes, and ear, are the most susceptible.

EFFECTS OF COLD EXPOSURE

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 mile 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. Additionally, 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 severe 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.

To administer first aid for frostbite, bring the victim indoors and rewarm the areas quickly in water between 102 degrees Fahrenheit and 105 degrees Fahrenheit. Give a warm drink not coffee, tea or alcohol. The victim should not smoke. Keep the frozen parts in warm water or covered with warm clothes for 30 minutes, even though the tissue will be very painful as it thaws. Then elevate the injured area and protect it from injury. Do not allow blisters to be broken. Use sterile, soft, dry material to cover the injured areas. Keep victim warm and get immediate medical care.

After thawing, the victim should try to move the injured areas a little, but no more than can be done alone, without help.

- Do not rub the frostbitten part (this may cause gangrene).
- Do not use ice, snow, gasoline or anything cold on frostbite.

- Do not use heat lamps or hot water bottles to rewarm the part.

- Do not place the part near a hot stove.

Systemic hypothermia is caused by exposure to freezing or rapidly dropping temperature, it 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.

As a general rule, field activities should be curtailed if equivalent chill temperature (degrees Fahrenheit) is below zero unless the activity is of an emergency nature. The ultimate responsibility for proposing on delaying work at a site due to inclement weather rests with the EWMA Site Safety Officer.

HEAT STRESS CASUALTY PREVENTION PLAN

Due to the increase in ambient air temperatures and the effects of protective outer wear decreasing body ventilation, there exists an increase in the potential for injury, specifically, heat casualties. Site personnel will be instructed in the identification of a heat stress victim, the first-aid treatment procedures for the victim and the prevention of heat stress casualties.

IDENTIFICATION AND TREATMENT

- **Heat Exhaustion**

  Symptoms: Usually begins with muscular weakness, dizziness, nausea, and a staggering gait. Vomiting is frequent. The bowels may move involuntarily. The victim is very pale, skin is clammy, and may perspire profusely. The pulse is weak and fast, breathing is shallow. The victim may faint unless victim lies down. This may pass, but sometimes it remains and death could occur.

  First Aid: Immediately remove the victim to the Contamination Reduction Zone in a shady or cool area with good air circulation. Remove all protective outer wear. Call a physician. Treat the victim for shock. (Make victim lie down, raise feet 6 to 12 inches and keep victim warm but loosen all clothing). If the victim is conscious, it may be helpful to ingest sips of a salt water solution (1 teaspoon of salt to 1 glass of water). Transport victim to a medical facility as soon as possible.

- **Heat Stroke**

  Symptoms: This is the most serious of heat casualties due to the fact that the body excessively overheats. Body temperatures often are between 107 degrees Fahrenheit to 110 degrees Fahrenheit. First there is often pain in the head, dizziness, nausea, oppression, and the skin is dry, red and hot. Unconsciousness follows quickly and death is imminent if exposure continues. The attack will usually occur suddenly.

  First Aid: Immediately evacuate the victim to a cool and shady area in the Contamination Reduction Zone. Remove all protective outer wear and all personal clothing. Lay victim on back with the head and shoulders slightly elevated. It is imperative that the body temperature be lowered immediately. This can be accomplished by applying cold wet towels, ice bags, etc., to the head. Sponge off the bare skin with cool water or rubbing alcohol, if available, or even place victim in a tub of cool water. The main objective is to cool victim without chilling. Give no stimulants. Transport the victim to a medical facility as soon as possible.

PREVENTION OF HEAT STRESS

- One of the major causes of heat casualties is the depletion of body fluids. On the site there will be plenty of fluids available. Personnel should replace water and salts loss from sweating. Salts can be replaced by either a 0.1% salt solution, more heavily salted foods, or commercial mixes such as Gatorade. The commercial mixes are advised for personnel on low sodium diets.

- A work schedule should be established so that the majority of the work day will be during the morning hours of the day before ambient air temperature levels reach their highs.

- A work/rest guideline will be implemented for personnel required to wear Level B protection. This guideline is as follows:

Ambient Temperatures	Maximum Wearing Time
Above 90°F	1/2 hour
80° to 90°F	1 hour
70° to 80°F	2 hours
60° to 70°F	3 hours
<60°F	4 hours

A sufficient period will be allowed for personnel to "cool down." This may require shifts of workers during operations.

HEAT STRESS MONITORING

For monitoring the body's recuperative ability to excess heat, one or more of the following techniques should be used as a screening mechanism. Monitoring of personnel wearing protective clothing should commence when the ambient temperature is 70 degrees Fahrenheit or above. Frequency of monitoring should increase as the ambient temperature increases or if slow recovery rates are indicated. When temperatures exceed 80 degrees Fahrenheit, workers must be monitored for heat stress after every work period.

- Heart rate (HR) should be measured by the radial pulse for 30 seconds as early as possible in the resting period. The HR at the beginning of the rest period should not exceed 110 beats per minute. If the HR is higher, the next work period should be shortened by 10 minutes (or 33%), while the length of the rest period stays the same. 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%.

- Body temperature should be measured orally with a clinical thermometer as early as possible in the resting period. Oral temperature (OT) at the beginning of the rest period should not exceed 99 degrees Fahrenheit. If it does, the next work period should be shortened by 10 minutes (or 33%), while the length of the rest period stays the same. However, if the OT exceeds 99.7 degrees Fahrenheit at the beginning of the next period, the following work cycle should be further shortened by 33%. OT should be measured again at the end of the rest period to make sure that it has dropped below 99 degrees Fahrenheit.

- Body water loss (BWL) due to sweating should be measured by weighing the worker in the morning and in the evening. The clothing worn should be similar at both weighings; preferably the worker should be nude. The scale should be accurate to plus or minus 1/4 pound. BWL should not exceed 1.5% of the total body weight. If it does, workers should be instructed to increase their daily intake of fluids by the weight lost.

Ideally, body fluids should be maintained at a constant level during the work day. This requires replacement of salt lost in sweat as well.

Good hygienic standards must be maintained by frequent change of clothing and daily showering. Clothing should be permitted to dry during rest periods. Persons who notice skin problems should immediately consult medical personnel.

TABLE 202-1

WINDCHILL INDEX[1]

Wind Speed in MPH	ACTUAL THERMOMETER READING (degrees F)									
	50	40	30	20	10	0	-10	-20	-30	-40
	EQUIVALENT TEMPERATURE (degrees F)									
calm	50	40	30	20	10	0	-10	-20	-30	-40
5	48	37	27	16	6	-5	-15	-26	-36	-47
10	40	28	16	4	-9	-21	-33	-46	-58	-70
15	36	22	9	-5	-18	-36	-45	-58	-72	-85
20	32	18	4	-10	-25	-39	-53	-67	-82	-96
25	30	16	0	-15	-29	-44	-59	-74	-88	-104
30	28	13	-2	-18	-33	-48	-63	-79	-94	-109
35	27	11	-4	-20	-35	-49	-67	-82	-98	-113
40	26	10	-6	-21	-37	-53	-69	-85	-100	-116
over 40 (little added effect)	Little Danger (for properly clothed person)				Increasing Danger (Danger from freezing of exposed flesh)			Great Danger		

[1] Source: Fundementals of Industrial Hygiene, Third Edition, National Safety Council

EMERGENCY PROCEDURES

EMERGENCY MEDICAL TREATMENT AND FIRST AID PROCEDURES

If an employee working at the Site is physically injured, emergency medical treatment and/or First Aid procedures will be followed. Depending on the severity of the injury, emergency medical response may be sought. If the employee can be moved, they will be taken to the edge of the work area (on a stretcher, if needed) where contaminated clothing will be removed (if possible), emergency first aid administered, and transportation to local emergency medical facility awaited.

If the injury to the worker is chemical in nature (e.g., overexposure), the following procedures are to be instituted as soon as possible:

- Eye Exposure - If contaminated solid or liquid gets into the eyes, wash eyes immediately at the emergency eyewash stations using large amounts of water and lifting the lower and upper lids occasionally. Obtain medical attention immediately. (Contact lenses are not permitted in the Exclusion Areas.)

- Skin Exposure - If contaminated solid or liquid gets on the skin, promptly wash contaminated skin using soap or mild detergent and water. If solids or liquid penetrate through the clothing, remove the clothing immediately and wash the skin using soap or mild detergent and water. Obtain medical attention immediately if symptoms warrant.

- Breathing - If a person breathes in large amounts of organic vapor, move the exposed person to fresh air at once. If breathing has stopped, perform artificial respiration. Keep the affected person warm and at rest. Obtain medical attention as soon as possible.

- Swallowing - If contaminated solid or liquid has been swallowed and the person is conscious, feed the person large quantities of salt water immediately and induce vomiting (unless the person is unconscious). Obtain medical attention immediately.

First Aid Procedures

- Remove the injured or exposed person(s) from immediate danger.

- Render first aid if necessary, decontaminate affected personnel, if necessary.

- Call an ambulance for transport to local hospital immediately. This procedure should be followed even if there is no apparent serious injury.

- Evacuate other personnel on-site to a safe place until the EWMA Site Safety Officer determines that it is safe for work to resume.

- Report the accident to the EWMA Director of Health and Safety immediately.

SAFETY GUIDELINES FOR DRILLING

ATTACHMENT H

SAFETY GUIDELINES FOR DRILLING

Drill rig maintenance and safety is the responsibility of the drill rig operator. The following is provided as a general guideline for safe drilling practices on-site.

OFF-ROAD MOVEMENT OF DRILL RIGS

The following safety guidelines related to off-road movement:

- Before moving a drill rig, first walk the route of travel, inspecting for depressions, slumps, gullys, ruts and similar obstacles.
- Always check the brakes of a drill rig carrier before traveling, particularly on rough, uneven or hilly ground.
- Discharge all passengers before moving a drill rig on rough or hilly terrain.
- Engage the front axle (for 4x4, 6x6, etc., vehicles or carriers) when traveling off highway on hilly terrain.
- Use caution when traveling side-hill. Conservatively evaluate side-hill capability of drill rigs, because the arbitrary addition of drilling tools may raise the center of mass. When possible, travel directly uphill or downhill.
- Attempt to cross obstacles such as small logs and small erosion channel or ditches squarely, not at an angle.
- Use the assistance of someone on the ground as a guide when lateral or overhead clearance is close.
- After the drill rig has been moved to a new drilling site, set all brakes and/or locks. When grades are steep, block the wheels.
- Never travel off-road with the mast (derrick) of the drill rig in the raised or partially raised position.
- Tie down loads on the drill rig and support trucks during transport.

OVERHEAD AND BURIED UTILITIES

The use of a drill rig near electrical power lines and other utilities requires that special precautions be taken by both supervisors and members of the exploration crew. electricity can shock, it can burn, and it can cause death.

Overhead and buried utilities should be located, noted and emphasized on all boring location plans and boring assignment sheets.

Before raising the drill rig mast (derrick) on a site in the vicinity of power lines, walk completely around the drill rig. Determine what the minimum distance from any point on the drill rig to the nearest power line will be when the mast is raised and/or being raised. In general, the distance between the overhead power line and the boom should be no less than the height of the boom.

Keep in mind that both hoist and overhead power lines can be moved toward each other by the wind.
Keep in mind that electricity from high-voltage lines can "arc" to the rig, completing a circuit.
Keep in mind that rubber tires may not fully insulate the rig.
Keep in mind that the drill itself, and the metal outriggers used to balance the truck, may complete a circuit.

Drilling personnel should double-check any side underground electrical and piping drawings prior to initiating drilling. If an obstruction is encountered during drilling, proceed with extreme caution until the possibility of an exposed electrical line or combustible product pipeline is excluded.

CLEARING THE WORK AREA

Prior to drilling, adequate site cleaning and leveling should be performed to accommodate the drill rig and supplies and provide a safe working area. Drilling should not be commenced when tree limbs, protruding objects, unstable ground or site obstructions or debris cause unsafe tool handling conditions and/or limited, awkward work spaces. An area clear of obstructions or debris should be maintained 180 degrees around the drilling or sampling activities, where practical.

NOTE: In coordination with the drilling crew, the Site Safety Officer will review the precautions taken to insure that the drill rig is leveled and stabilized.

HOUSEKEEPING ON AND AROUND THE DRILL RIG

The first requirement for safe field operations is that the drilling crew safety supervisor understands and fulfills the responsibility for maintenance and "housekeeping" on and the drill rig.

Suitable storage locations should be provided for all tools, materials and supplies so that they can be conveniently and safety handled without hitting or falling on a member of the drill crew or a visitor, without creating tripping hazards, and without protruding at eye or head level.

Avoid storing or transporting tools, materials or supplies within or on the mast (derrick) of the drill rig.

Pipe, drill rods, bit casings, augers and similar drilling tools should be orderly stacked on racks or sills to prevent spreading, rolling or sliding.

Penetration of other driving hammers should be placed at a safe location on the ground or be secured to prevent movement when not in use.

Work areas, platforms, walkways, scaffolding and other access ways should be kept free of materials, obstructions and substances such as ice, excess grease or oil that could cause a surface to become slick or otherwise hazardous.

Keep all controls, control linkages, warning and operation lights and lenses free of oil, grease and/or ice.
Do not store gasoline in any portable container other than a non-sparking, red container with a flame arrester in the fill spout and having the word "gasoline" easily visible.

Welding gas cylinders should be stored in an upright position to avoid gas leaks.

SAFE USE OF HAND TOOLS

There are almost an infinite number of hand tools that can be used on or around a drill rig. "Use the tool for its intended purpose" is the most important rule. The following are a few specific and some general suggestions which apply to safe use of several hand tools that are often used on and around drill rigs.

- When a tool becomes damaged, either repair it before using it again or get rid of it.

- When using a hammer, any kind of hammer, for any purpose, wear safety glasses and require all others near you to wear safety glasses.

- When using a chisel, any kind of chisel, for any purpose, wear safety glasses and require all others around you to wear safety glasses.

- Keep all tools cleaned and orderly stored when not in use.

- Replace hook and heel jaws when they become visibly worn.

- When breaking tool joints on the ground or on a drilling platform, position your hands so that your fingers will not be smashed between the wrench handle and the ground or the platform, should the wrench slip or the joint suddenly let go.

SAFE USE OF WIRE LINE HOISTS, WIRE ROPE AND HOISTING HARDWARE

The use of wire line hoists, wire rope and hoisting hardware should be as stipulated by the American Iron and Steel Institute's Wire Rope User's Manual.

All wire ropes and fittings should be visually inspected during use and thoroughly inspected at least once a week for: abrasion, broken wires, wear, reduction in rope diameter, reduction in wire diameter, fatigue, corrosion, damage from heat, improper weaving, jamming, crushing, bird caging, kinking, core protrusion and damage to lifting hardware and any other feature that would lead to failure. Wire ropes should be replaced when inspection indicates excessive damage according to the wire rope users manual.

If a ball-bearing type hoisting swivel is used to hoist drill rods, swivel bearings should be inspected and lubricated daily to assure that the swivel freely rotates under load.

If a rod slipping device is used to hoist drill rods, do not drill through or rotate drill rods through the slipping device, do not hoist more than 1 ft of the drill rod column above the top of the mast (derrick), do not hoist a rod column with loose tool joints and do not make up, tighten or loosen tool joints while the rod column is being supported by a slipping device. If drill rods should slip back into the borehole, do not attempt to brake the fall of the rods with your hands.

Most sheaves on drill rigs are stationary with a single part line. The number of parts of line should not ever be increased without first consulting with the manufacturer of the drill rig. Wire ropes must be properly matched with each sheave.

The following procedures and precautions must be understood and implemented for safe use of wire ropes and rigging hardware.

Use tool handling hoists only for vertical lifting of tools (except when angle hole drilling). Do not use tool handling hoists to pull on objects away from the drill rig; however, drills may be moved using the main hoist as the wire rope is pulled through proper sheaves according to the manufacturer's recommendations.

When stuck tools or similar loads cannot be raised with a hoist, disconnect the hoist line and connect the stuck tools directly to the feed mechanisms of the drill. Do not use hydraulic leveling jacks for added pull to the hoist line or the feed mechanisms of the drill.
When attempting to pull out a mired down vehicle or drill rig carrier, only use a winch or the front or rear of the vehicle or drill rig carrier and stay as far as possible away from the wire rope. Do not attempt to use tool hoists to pull out a mired down vehicle or drill rig carrier.

Minimize shock loading of a wire rope - apply loads smoothly and steadily.

- Protect wire rope from sharp corners or edges.

- Replace faulty guides and rollers.
- Replace worn sheaves or worn sheave bearings.
- Replace damaged safety latches on safety hooks before using.
- Know the safe working load of the equipment and tackle being used. Never exceed this limit.
- Clutches and brakes of hoists should be periodically inspected and tested.
- Know and do not exceed the rated capacity of hooks, rings, links, swivels, shackles and other lifting aids.
- Always wear gloves when handling wire ropes.
- Do not guide wire ropes or hoist drums with your hands.
- Follow the installation of a new wire rope, first lift a light load to allow the wire rope to adjust.
- Never carry out any hoisting operations when the weather conditions are such that hazards to personnel, the public, or property are created.
- Never leave a load suspended in the air when the hoist is unattended.
- Keep your hands away from hoists, wire rope, hoisting hooks, sheaves and pinch points as slack is being taken up and when the load is being hoisted.
- Safety rules described in OSHA Regulations 29 CFR 1926.552 and guidelines contained in the Wire Rope User's Manual published by the American Iron and Steel Institute shall be used whenever wire line hoists, wire rope, or hoisting hardware are used.
- Never hoist loads over anyone's head.
- The operator and tool handler should establish a system of responsibility for the series of various activities required for auger drilling, such as connecting and disconnecting auger sections, and inserting and removing the auger fork. The operator must insure that the tool handler is well away from the auger column and that the auger fork is removed before starting rotation.
- Only use the manufacturer's recommended method of securing the auger to the power coupling. Do not touch the coupling or the auger with your hands, a wrench or any other tool during rotation.
- Whenever possible, use tool hoists to handle auger sections.
- Never place hands or fingers under the bottom of an auger section when hoisting the auger over the top of the auger section in the ground or other hard surfaces such as the drill rig platform.
- Never allow feet to get under the auger section that is being hoisted.
- When rotating augers, stay clear of the rotating auger and other rotating components of the drill rig. Never reach behind or around a rotating auger for any reason whatsoever.
- Never place your hands between the drill rig and an auger, even when attempting to free a damaged or bound Shelby tube from the auger.

- Never use your hands or feet to move cuttings away from the auger.

- Augers should be cleaned only when the drill rig is in neutral and the augers are stopped from rotating.

SAFETY DURING ROTARY AND CORE DRILLING

Rotary drilling tools should be safety checked prior to drilling:

- Water swivels and hoisting plugs should be lubricated and checked for "frozen" bearings before use.

- Drill rod chuck jaws should be checked periodically and replaced when necessary.

- The capacities of hoists and sheaves should be checked against the anticipated weight of the drill rod string plus other expected hoisting loads. All cables should be inspected daily.

Special precautions that should be taken for safety rotary or core drilling involve chucking, joint break, hoisting and lowering of drill rods:

- Drill rods should not be braked during lowering into the hole with drill rod chuck jaws.

- Drill rods should not be held or lowered into the hole with pipe wrenches.

- If a string of drill rods are accidentally or inadvertently released into the hole, do not attempt to grab the falling rods with your hands or a wrench.

- In the event of a plugged bit or other circulations blockage, the high pressure in the piping and hose between the pump and the obstruction should be relieved or bled down before breaking the first tool joint.

- When drill rods are hoisted from the hole, they should be cleaned for safe handling with a rubber or other suitable rod wiper. Do not use your hands to clean drilling fluids from drill rods.

- If work must progress over a portable drilling fluid (mud) pit, do not attempt to stand on narrow sides or cross members. The mud pit should be equipped with a rough surface, fitted cover panels of adequate strength to hold drill rig personnel.

- Drill rods should not be lifted and leaned unsecured against the mast. Either provide some method of securing the upper ends of the drill rod sections for safe vertical storage or lay the rods down.

- All hydraulic lines should be periodically inspected for integrity and replaced as needed.

START UP

All drill rig personnel and visitors should be instructed to "stand clear" of the drill rig immediately prior to and during starting of an engine.

Make sure all gear boxes are in neutral, all hoist levers are disengaged, all hydraulic levers are in the correct non-actuating positions and the cathead rope is not on the cathead before starting a drill rig engine.

GENERAL SAFETY DURING DRILLING OPERATIONS

Safety requires the attention and cooperation of every worker and site visitor.

Do not drive the drill rig from hole to hole with the mast (derrick) in the raised position.

Before raising the mast (derrick) look up to check for overhead obstructions. (Refer to previous Section on overhead and buried utilities).

Before raising the mast (derrick), all drill rig personnel and visitors (with exception of the operator) should be cleared from the areas immediately to the rear and the sides of the mast. All drill rig personnel and visitors should be informed that the mast is being raised prior to raising it.

Before the mast (derrick) of a drill rig is raised and drilling is commenced, the drill rig must be first leveled and stabilized with leveling jacks and/or solid cribbing. The drill rig should be re-leveled if it settles after initial set up. Lower the mast (derrick) only when leveling jacks are down and do not raise the leveling jack pads until the mast (derrick) is lowered completely.

Before starting drilling operations, secure and/or lock the mast (derrick) if required according to the drill manufacturer's recommendations.

The operator of a drill rig should only operate a drill rig from the position of the controls. The operator should shut down the drill engine before leaving the vicinity of the drill rig.

Do not consume alcoholic beverages or other depressants or chemical stimulants prior to starting work on a drill rig or while on the job.

Watch for slippery ground when mounting and dismounting from the platform.

All unattended boreholes must be adequately covered or otherwise protected to prevent drill rig personnel, site visitors or animals from stepping or falling into the hole. All open boreholes should be covered, protected or backfilled adequately and according to local or state regulations on completion of the drilling project.

"Horsing around" within the vicinity of the drill rig and tool and supply storage areas should never be allowed, even when the drill rig is shut down.

Be careful when lifting heavy objects. Before lifting a relatively heavy object, approach the object by bending at the knees, keeping your back vertical and unarched while obtaining a firm footing. Grasp the object firmly with both hands and stand slowly and squarely while keeping your back vertical and unarched. In other words, perform the lifting with the muscles in your legs, not the muscles in your lower back.

Drilling operations should be terminated during an electrical storm.

The minimum number of personnel necessary to achieve the objectives shall be within 25 ft of the drilling or sampling activity. Back-up personnel should remain at least 25 ft from the drilling or sampling activity, where practical.

Hardhats and steel boots are to be worn by all personnel in the vicinity of the drilling activities. Drilling personnel should not wear loose-fitting or baggy clothing which may be awkward or get caught on equipment. Jewelry, including rings and necklaces, should not be worn around electrical wires or rotating equipment.

SAFETY GUIDELINES FOR EXCAVATIONS

SAFETY GUIDELINES FOR EXCAVATIONS

This procedure contains general safety requirements for excavating and trenching operations and work performed therein. The requirements are consistent with standards established by the Occupational Safety and Health Administration (OSHA) and described in OSHA Regulations 29 CFR 1926, Subpart P. The latter should be consulted for additional information.

RESPONSIBILITY AND APPLICABILITY

The EWMA Project Manager is responsible for ensuring that employees of EWMA and of firms contracted by EWMA comply with these requirements.

These procedures are applicable to all EWMA projects in which trenching or other excavating operations, exclusive of borings, are performed by firms under contract to EWMA. It is also applicable to EWMA projects requiring EWMA personnel or firms under contract to EWMA to enter trenches and other types of excavations.

REQUIREMENTS

When planning any excavating operation, obtain a permit, if required, from the proper authority.

Before digging, determine if underground installations, such as sewer, water, fuel, or electrical lines may be encountered and, if so, determine the exact locations of the lines. Information can be obtained by contacting Underground Service Alert (consult local telephone directory for toll-free number), local utility companies and the owner of the property on which the excavating operations are planned.

Trees, boulders, and other surface encumbrances, located so as to pose a potential hazard to employees must be removed or made safe before the operation begins.

Excavated materials must be placed at least 2 ft from the edge of the excavation and precautions must be taken to prevent the materials from falling into the excavation.

SHORING AND SLOPING

Excavations in which personnel are required to work must be shored or sloped to an angle of repose if the depth of the excavation is 5 ft or more. When a shoring system is used, it shall consist of hydraulic shores or the equivalent, with sheathing or sheet piling as needed. The shoring system must be properly designed and installed to sustain all existing and expected loads. For details on shoring and sloping, consult OSHA Regulations 29 CFR, Subpart P, Section 1926.650 to 1926.653.

ACCESS

When work is to be performed in an excavation, safe access to the excavation must be provided by means of ladders, stairs, or ramps. Trenches greater than 4 ft in depth must have ladders spaced no less than 25 ft apart, and the ladders must extend at least 3 ft above the ground surface.

HAZARDOUS ATMOSPHERES

At sites where oxygen deficiency or hazardous concentrations of flammable or toxic vapors or gases may be encountered in excavations, the atmosphere in the excavations must be tested by the EWMA Site Safety Officer or other qualified person before work in the excavation begins and at appropriate intervals afterward.

INSPECTION OF EXCAVATIONS

Excavations must be inspected daily by the EWMA Site Manager or EWMA Site Safety Officer. If evidence of potential caveins or slides is observed, all work in the excavation must be suspended until necessary steps have been taken to safeguard employees.

OPERATION OF VEHICLES NEAR EXCAVATIONS

When vehicles or heavy equipment must operate near an excavation, the sides of the excavation must be shored or braced as necessary to withstand forces exerted by the superimposed load. Stop logs or other types of secure barriers must be installed at the edges of the excavations.

BARRICADES AND FENCES

Excavated areas must be completely guarded on all sides with barricades or fences, as appropriate. If barricades are used, they must be spaced no more than 20 ft apart and shall not be less than 3 ft high when erected. A yellow or yellow and black tape, at least 1 inch wide, shall be stretched between the barricades.

BACKFILLING

Excavated areas must be backfilled and all associated equipment must be removed from the area as soon as practical after work is completed.

TICKS AND TICK-BORNE DISEASES

TICKS AND TICK-BORNE DISEASES

Field personnel should be aware of an increased occurrence of tick-borne disease in the United States. In the northeast, the most likely carriers are the whitefooted mouse and the white-tailed deer. These animals are most prevalent in areas where suburban environments about open fields or woodlands. Although exposure is increased in these areas, other carriers, such as dogs and horses, can be found in a variety of environments.

All field personnel should take proper precautions to limit exposure to ticks and tick-borne diseases. These include:

- Cinching and taping clothing at the ankles and wrists, especially the ankles. Ticks lie low on grass blades and shrubs. They encounter your feet, ankles or lower legs and then crawl upward.

- Wear light-colored clothing to facilitate spotting the ticks, and check your clothing periodically. Be especially careful in terrain with tall grass, bushes or woods.

- Use a tick repellant on skin or clothing. Always read the labels before using. Clothing repellents should never be used on the skin.

- Recognize the signs of a bite or an infection. It takes several hours for a tick to attach and feed; removing it promptly lessens the chance of being infected.

Pregnant women should be particularly careful since the effects of the most common tick-borne disease in the northeast, Lyme disease, upon the fetus is unknown.

If a tick is discovered on the skin, it is important to remove the entire insect as soon as possible. The most effective method is to grasp the tick as close as possible to the mouth with tweezers or thin, curved forceps. Then, without jerking, pull it upward steadily (a small amount of skin may be removed in the process).

After removing the tick, disinfect the bite with rubbing alcohol or povidone iodine (Betadine). Don't handle the tick; spirochetes could enter the body through breaks in the skin. Dispose of it in alcohol or flush it down the drain. And check the bite occasionally for at least two weeks to see if a rash forms. If it does, you've been infected and should seek treatment promptly.

The rash appears at the bite location from two days to a few weeks after the bite. It usually starts as a small red spot that expands as the spirochetes spread beyond the bite. Most commonly, the rash develops into a reddish circle or oval about two to three inches in diameter. It fades with or without treatment after a few weeks.

Much larger rashes - anywhere from 6 to 20 inches in diameter - may also occur, especially on the back. Despite their size, large rashes may be easy to miss because they're often very faint.

Other variants include a rash with a red perimeter and a clear center and the so-called bull's-eye rash, which consists of several concentric red rings. Rashes may vary in shape, depending on where they occur on the body. Frequent sites are the thigh, groin, and armpits. People often develop a rash in more than one place.

Early symptoms may include profound fatigue, a stiff neck, and flu-like symptoms such as headache, chills, fever, and muscle aches. Since tick bites don't always produce a rash, those symptoms alone may warrant a medical check for possible Lyme infection - especially if they occur in summer and you live in an area that is endemic for Lyme disease.

Without treatment, the spirochetes usually multiply and the disease progressively worsens. The second stage, occurring within weeks to months of the bite, may affect the heart and nervous system. Third is the chronic arthritic stage, which begins up to a year or more after the bite.

APPENDIX 5

COMMUNITY AIR MONITORING PLAN

COMMUNITY AIR MONITORING PLAN FOR INSTALLATION OF LNAPL REMEDIATION UTILITIES

Property Known As:

OCA LIC Fifth Street Mixed-Use Housing
5-20 46th Road
Long Island City, Queens County, New York 11101
BCP Site #C241098

Prepared for:

OCA Long Island City, LLC
c/o O'Connor Capital Partners
535 Madison Avenue, 23rd Floor
New York, NY 10022

April 2010

Submitted by:

EWMA
P. O. Box 5430
Parsippany, New Jersey 07054
EWMA Case No. 205490

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APPENDICES

1.0 INTRODUCTION AND PURPOSE

EWMA has prepared this Community Air Monitoring Plan (CAMP) for implementation during intrusive activities that will consist of the installation of LNAPL remediation utilities (capture wall, recovery and extraction wells, monitoring wells) that are proposed in the March 2010 Remedial Design Work Plan (RDWP) for Lower Sand Unit LNAPL Remediation for the property known as the Former Accurate Associates Site, which is located at 5-20 46th Road, Long Island City, New York (subject property and site). EWMA was retained by OCA Long Island City, LLC (OCA) to prepare and implement the RDWP to support compliance with Brownfield Cleanup Program (BCP) requirements.

The purpose of this CAMP is to provide a measure of protection to the surrounding community including residences, businesses, and on site employees from potential airborne releases as a direct result of the intrusive activities that will consist of the installation of LNAPL remediation utilities at the site. This plan is not intended for use in establishing action levels for worker exposure protection, as this is addressed in the site-specific Health and Safety Plan (HASP).

During the implementation of remedial Phase I-IV, soil was excavated to 7' below surface grade (bsg), geotechnical stabilization and warning fabric was placed on the excavation floor, and the fabric was covered with certified clean imported quarry process fill. This barrier will minimize any potential release of dust and odors during the planned installation work. In addition, and if necessary, dust and odor suppression measures including but not limited to use of polyethylene sheeting, Biosolve foam, water sprays, etc. will be implemented during the work. Automated CAMP air monitoring stations will be setup and in place during the installation work to provide continuous monitoring of dust and organic vapors within the immediate work area and at designated stations at the down wind side of the property. One upwind station will be set up to monitor any dust and organic vapors coming from offsite sources upwind.

2.0 WORK AREA AIR MONITORING PLAN

The work area (i.e. exclusion zone) will be monitored for volatile compounds as outlined in the site specific HASP.

Real-time air monitoring for volatile compounds and particulate levels at the perimeter of the exclusion zone (i.e. immediate work area) will be performed during intrusive activities to protect the surrounding community including residences, businesses, and on site employees from potential airborne releases as a direct result of the intrusive remedial utility installation work on the site. Volatile compounds will be monitored utilizing

properly calibrated photoionization detectors (PIDs). The particulate levels will be monitored using direct read dust monitors. The volatile organic compound and particulate monitoring programs are discussed in detail below in Sections 2.1 and 2.2. A figure depicting the CAMP locations has been enclosed as **Appendix 1**.

2.1 Volatile Organic Compound Monitoring

Volatile organic compounds will be monitored at the downwind perimeter of the work area on a continuous basis. If total organic vapor levels exceed 5 parts per million (ppm) above background, work activities will be halted and monitoring continued under the provisions of the Vapor Emission Response Plan (see Section 3.0). All readings will be recorded and be available for state (NYSDEC and NYSDOH) personnel to review.

2.2 Particulate Monitoring

Visual observations will be made during all work activities to monitor for dispersion outside the immediate work area. Dust suppression techniques may include applying water or water with hygroscopic salts to the disturbed soil, reducing the volume and speed of on-site vehicles, and wet sweeping paved areas. All readings will be recorded and be available for state (NYSDEC and NYSDOH) personnel to review.

3.0 VAPOR EMISSION RESPONSE PLAN

If the ambient air concentration of organic vapors exceeds 5 ppm above background at the perimeter of the work area, activities will be halted and monitoring continued. If the organic vapor level decreases below 5 ppm above background, work activities will resume. If the organic vapor levels are greater than 5 ppm over background but less than 25 ppm over background at the perimeter of the work area, activities will resume provided:

- The organic vapor level 200 feet downwind of the perimeter of the work area, or half the distance to the nearest residential or commercial structure, whichever is less, is below 5 ppm over background.

If the organic vapor level is above 25 ppm at the perimeter of the work area, activities will be shutdown. When work shutdown occurs, downwind air monitoring as directed by the Safety Officer will be implemented to ensure that vapor emissions do not impact the nearest residential or commercial structure at levels exceeding those specified in the Major Vapor Emission section.

4.0 MAJOR VAPOR EMISSION MONITORING

If any organic levels greater than 5 ppm over background are identified 200 feet downwind from the perimeter of the work area, or half the distance to the nearest residential or commercial property, whichever is less, all work activities will be halted.

If, following the cessation of the work activities, or as the result of an emergency, organic levels persist above 5 ppm above background 200 feet downwind or half the distance to the nearest residential or commercial property from the work area, then the air quality will be monitored within 20 feet of the perimeter of the nearest residential or commercial structure (20 Foot Zone).

If efforts to abate the emission source are unsuccessful and if organic vapor levels are approaching 5 ppm above background for more than 30 minutes in the 20 Foot Zone, then the Major Vapor Emission Response Plan shall automatically be placed into effect.

However, the Major Vapor Emission Response Plan shall be immediately placed into effect if organic vapor levels are greater than 10 ppm above background, 200 feet downwind or half the distance to the nearest residential/commercial property.

5.0 MAJOR VAPOR EMISSION RESPONSE PLAN

Upon activation, the following activities will be undertaken:

1. All Emergency Response Contacts, as listed in the Health and Safety Plan (Appendix 9 of the RAWP), will go into effect.

2. The local police authorities will immediately be contacted by the Safety Officer and advised of the situation.

3. Frequent air monitoring will be conducted at 30 minutes intervals within the 20 Foot Zone. If two successive readings below action levels are measured, air monitoring may be halted or modified by the Safety Officer.

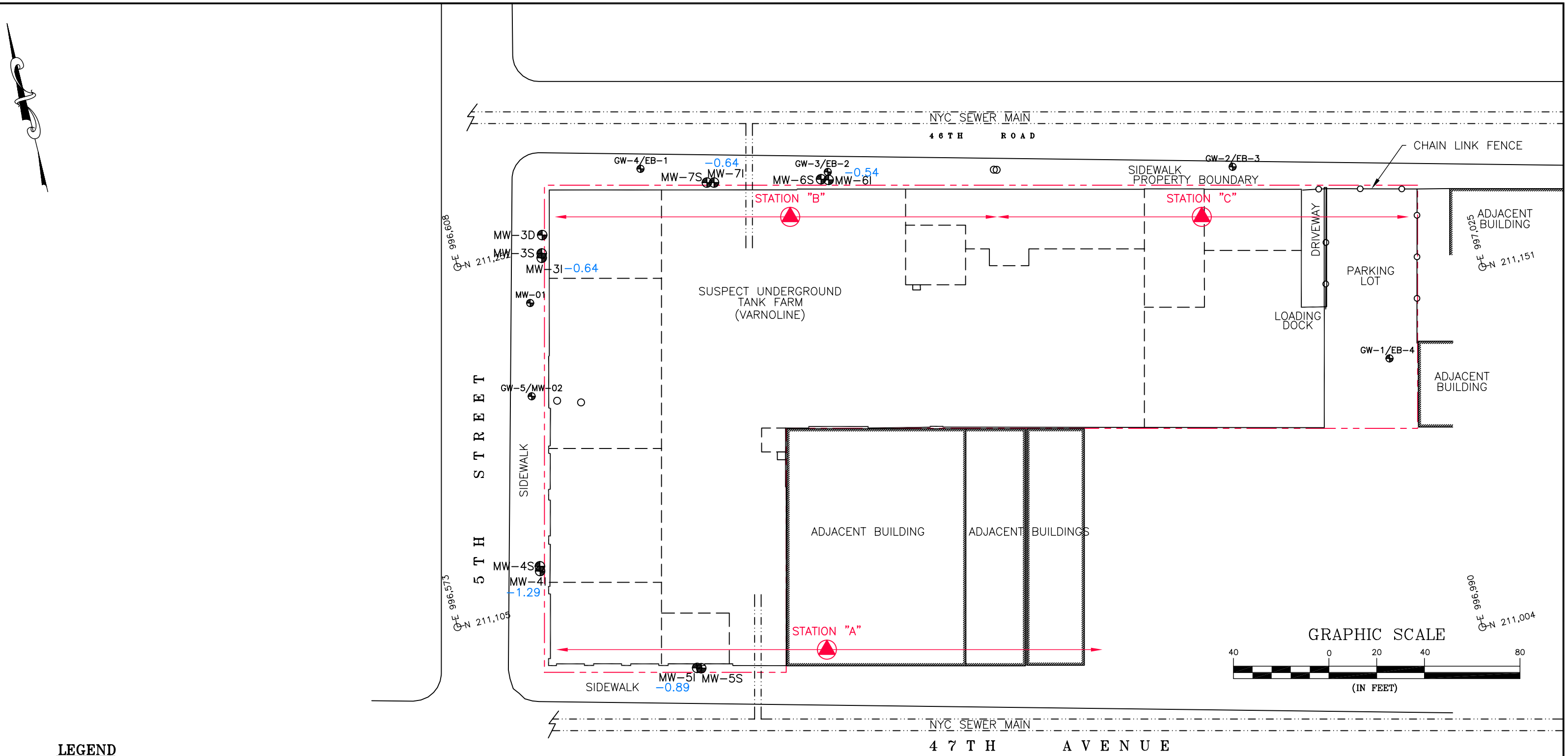
4. In addition, an attempt to identify the point source of the elevated vapor emission will be made. If identified, suppression activities, i.e. containing or covering the source with a vapor impermeable material, will be carried out to minimize the on-going vapor emission event prior to restarting the work activities.

6.0 AIRBORNE PARTICULATE RESPONSE PLAN

If excessive visible dust is observed leaving the work area, then dust suppression methods will be employed. The methods that may be utilized are listed in Section 3.2 above. Work may continue with dust suppression methods as long as no visible dust leaves the work area.

7.0 MAJOR AIRBORNE PARTICULATE RESPONSE PLAN

If the downwind airborne particulate concentration exceeds the background concentration by more than 0.15 mg/m^3, then work will cease and both the work activity and dust suppression techniques re-evaluated to reduce further particulate dispersion. Work will only resume after the downwind airborne particulate concentration is reduced to below 0.15 mg/m^3 against the background level and no visible dust is observed leaving the work area.



LEGEND

STATION "A" — AIR MONITORING STATION

PROPERTY BOUNDARY

BUILDING OUTER WALL

BUILDING INTERIOR WALL/MULTIPLE STORY WALL

SOURCE: "MONITORING WELL LOCATION PLAN", DPK CONSULTING, LLC, MIDDLESEX, NJ – 4/28/08

Environmental Waste Management Associates, LLC P.O. Box 5430 Parsippany, NJ 07054 Tel: (973) 560-1400	SCALE: AS SHOWN DATE: 6/25/08 DRAWN BY: JM/JS CHECKED BY: DD FILE: k:\drawings\205000\205490\2008JUNE\RAWP\205490f2 11x17.dwg	PROJECT# 205490
COMMUNITY AIR MONITORING STATION LOCATION PLAN OCA LIC FIFTH STREET MIXED-USE HOUSING 5-20 46TH ROAD LONG ISLAND CITY, NEW YORK		APPENDIX# 2

APPENDIX 6

STORMWATER POLLUTION PREVENTION PLAN

5-20 46th ROAD
SOIL REMEDIATION
LONG ISLAND CITY, QUEENS COUNTY, NY 11101
BLOCK 28, LOTS 12,15,17,18,21&28
STORM WATER POLLUTION PREVENTION PLAN
6/12/09

PREPARED BY:
DEWBERRY-GOODKIND, INC.
15 EAST 26TH STREET, 7TH FLOOR
NY, NY 10010

NARRATIVE

The OCA LIC Fifth Street Mixed-Use Housing Soil Remediation Project is located within an old industrial portion of Long Island City, Queens County, New York. Historically, the entire Property (except for a small parking area at the east end) was covered with buildings. As of June 2008, all the buildings on the property have been demolished to street grade. The site is bordered by Fifth Street to the West, 46th Road to the North, 47th Ave to the South and properties owned by others to the East. The total area of the remediation site is 66,838 sf (1.534 acres). The East River is the closest water body located approximately ¼-mile west of the subject Property. The soils on site are designation number 101 (Pavement and Buildings- wet substratum-Laguardia-Ebbets complex 0%-8% slope), of the New York City Soil and Water Conservation District Soil Survey Map. The complex is nearly level to gently sloping urbanized areas filled with a mixture of natural soil materials and construction debris over swamp, tidal marsh, or water; a mixture of anthropogenic soils which vary in coarse fragment content, with up to 80 percent impervious pavement and buildings covering the surface. The Soil is designated Hydrologic Soil Group "B". (New York City Reconnaissance Soil Survey) Surface drainage from the site will enter a combined sewer system owned by the City Of New York. For a description of the soil remediation site work see the Remedial Action Work Plan prepared by, Environmental Waste Management Associates, LLC of west Windsor, NJ.

An erosion and sediment control plan will be implemented during the soil remediation/construction phase. The plan entails enclosing the entire site limits with silt fence, stabilized construction entrances at the exit/entrance to the site and inlet protection on existing catch basins. Silt fence, stabilized construction entrances and inlet protection shall be installed in accordance with the Erosion and Sediment Control Plan and the New York Standards and Specifications for Erosion and Sediment Controls (August, 2005). Post construction storm water management controls are not required for this project.

LOCATION MAP

LOCATION MAP
1"=500'

Dewberry	DATE 6/12/09	TITLE SITE LOCATION MAP	SHEET NO.
	PROJ. NO. 50022213	PROJECT OCA LIC FITH STREET MIXED USE HOUSING	

Q:\50022213\CAD\Civil\C-EROSION & SEDIMENT CONTROL(rev 6-9-09).dwg, 6/10/2009 10:24:26 AM

NOTICE OF INTENT

3358554733

NOTICE OF INTENT

New York State Department of Environmental Conservation
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505

NYR ☐☐☐☐☐☐
(for DEC use only)

Stormwater Discharges Associated with Construction Activity Under State Pollutant Discharge Elimination System (SPDES) General Permit # GP-0-08-001

All sections must be completed unless otherwise noted. Failure to complete all items may result in this form being returned to you, thereby delaying your coverage under this General Permit. Applicants must read and understand the conditions of the permit and prepare a Stormwater Pollution Prevention Plan prior to submitting this NOI. Applicants are responsible for identifying and obtaining other DEC permits that may be required.

-IMPORTANT-

RETURN THIS FORM TO THE ADDRESS ABOVE

OWNER/OPERATOR MUST SIGN FORM

Owner/Operator Information

Owner/Operator (Company Name/Private Owner Name/Municipality Name)
OCA Long Island City, LLC

Owner/Operator Contact Person Last Name (NOT CONSULTANT)
Reddy

Owner/Operator Contact Person First Name
Ravi

Owner/Operator Mailing Address
535 Madison Ave 23rd Floor

City
New York

State: NY Zip: 10022-

Phone (Owner/Operator): 212-546-0832 Fax (Owner/Operator): ---

Email (Owner/Operator)
rreddy@citistructure.com

FED TAX ID
20-5904763 (not required for individuals)

Project Site Information

Project/Site Name

OCA LIC Fith Street Mixed Use Housing

Street Address (NOT P.O. BOX)

5-20 46th Road

Side of Street

○ **North** ● **South** ○ **East** ○ **West**

City/Town/Village (THAT ISSUES BUILDING PERMIT)

New York

State Zip

NY 11101-

County

Queens

DEC Region

2

Name of Nearest Cross Street

5th

Distance to Nearest Cross Street (Feet)

0

Project In Relation to Cross Street

○ **North** ○ **South** ● **East** ○ **West**

Tax Map Numbers
Section-Block-Parcel

28 12

Tax Map Numbers

15 17 18 21 38

1. Provide the Geographic Coordinates for the project site in NYTM Units. To do this you **must** go to the NYSDEC Stormwater Interactive Map on the DEC website at:

www.dec.ny.gov/imsmaps/stormwater/viewer.htm

Zoom into your Project Location such that you can accurately click on the centroid of your site. Once you have located your project site go to the dropdown menu on the left and choose "Get Coordinates". Click on the center of your site and a small window containing the X, Y coordinates in UTM will pop up. Transcribe these coordinates into the boxes below. For problems with the interactive map use the help function.

X Coordinates (Easting)

588248

Y Coordinates (Northing)

4511112

2. What is the nature of this construction project?

○ **New Construction**

○ **Redevelopment with increase in imperviousness**

● **Redevelopment with no increase in imperviousness**

3. Select the predominant land use for both pre and post development conditions.
SELECT ONLY ONE CHOICE FOR EACH

Pre-Development Existing Land Use

- ○ FOREST
- ○ PASTURE/OPEN LAND
- ○ CULTIVATED LAND
- ○ SINGLE FAMILY HOME
- ○ SINGLE FAMILY SUBDIVISION
- ○ TOWN HOME RESIDENTIAL
- ○ MULTIFAMILY RESIDENTIAL
- ○ INSTITUTIONAL/SCHOOL
- ○ INDUSTRIAL
- ○ COMMERCIAL
- ○ ROAD/HIGHWAY
- ○ RECREATIONAL/SPORTS FIELD
- ○ BIKE PATH/TRAIL
- ○ LINEAR UTILITY
- ○ PARKING LOT
- ○ OTHER

Mixed Use

Post-Development Future Land Use

- ○ SINGLE FAMILY HOME
- ○ SINGLE FAMILY SUBDIVISION

Number of Lots

- ○ TOWN HOME RESIDENTIAL
- ○ MULTIFAMILY RESIDENTIAL
- ○ INSTITUTIONAL/SCHOOL
- ○ INDUSTRIAL
- ○ COMMERCIAL
- ○ MUNICIPAL
- ○ ROAD/HIGHWAY
- ○ RECREATIONAL/SPORTS FIELD
- ○ BIKE PATH/TRAIL
- ○ LINEAR UTILITY (water, sewer, gas, etc.)
- ○ PARKING LOT
- ○ CLEARING/GRADING ONLY
- ○ DEMOLITION, NO REDEVELOPMENT
- ○ OTHER

Mixed Use

4. Will future use of this site be an agricultural property as defined by the NYS Agriculture and Markets Law ? ○ **Yes** ● **No**

5. Is this a project which does not require coverage under the General Permit (e.g. Project done under an Individual SPDES Permit, or department approved remediation)? ● **Yes** ○ **No**

6. Is this property owned by a state authority, state agency or local government? ○ **Yes** ● **No**

7. In accordance with the larger common plan of development or sale, enter the total project site acreage, the acreage to be disturbed and the future impervious area (acreage)within the disturbed area. Round to the nearest tenth of an acre.

Total Site Acreage	**Acreage To Be Disturbed**	**Existing Impervious Area Within Disturbed**	**Future Impervious Area Within Disturbed**
1.5	1.5	1.5	1.5

8. Do you plan to disturb more than 5 acres of soil at any one time? ○ **Yes** ○ **No**

9. Indicate the percentage of each Hydrologic Soil Group(HSG) at the site.

A	**B**	**C**	**D**
%	100 %	%	%

10. Is this a phased project? ○ Yes ● No

11. Enter the planned start and end dates of the disturbance activities. **Start Date** 07/15/2009 - **End Date** 10/15/2009

12. Identify the nearest, natural, surface waterbody(ies) to which construction site runoff will discharge.

Name: Site will discharge to a city owned combined sewer system

12a. Type of waterbody identified in Question 12?

- ○ Wetland / State Jurisdiction On Site (Answer 12b)
- ○ Wetland / State Jurisdiction Off Site
- ○ Wetland / Federal Jurisdiction On Site (Answer 12b)
- ○ Wetland / Federal Jurisdiction Off Site
- ○ Stream / Creek On Site
- ○ Stream / Creek Off Site
- ○ River On Site
- ○ River Off Site
- ○ Lake On Site
- ○ Lake Off Site
- ○ Other Type On Site
- ● Other Type Off Site: Sewer system

12b. How was the wetland identified?

- ○ Regulatory Map
- ○ Delineated by Consultant
- ○ Delineated by Army Corps of Engineers
- ○ Other (identify)

13. Has the surface waterbody(ies) in question 12 been identified as a 303(d) segment in Appendix E of GP-0-08-001? ○ Yes ● No

14. Is this project located in one of the Watersheds identified in Appendix C of GP-0-08-001? ○ Yes ● No

15. Is the project located in one of the watershed areas associated with AA and AA-S classified waters? **If no, skip question 16.** ○ Yes ● No

16. Does this construction activity disturb land with no existing impervious cover and where the Soil Slope Phase is identified as an E or F on the USDA Soil Survey? ○ Yes ● No
If Yes, what is the acreage to be disturbed?
[ ][ ][ ][ ].[ ]

17. Will the project disturb soils within a State regulated wetland or the protected 100 foot adjacent area? ○ Yes ● No

18. Does the site runoff enter a separate storm sewer system (including roadside drains, swales, ditches, culverts, etc)? ● Yes ○ No ○ Unknown
(If No, skip question 19)

19. What is the name of the municipality/entity that owns the separate storm sewer system?
New York City

20. Does any runoff from the site enter a sewer classified as a Combined Sewer? ● Yes ○ No ○ Unknown

21. Has the required Erosion and Sediment Control component of the SWPPP been developed in conformance with the current NYS Standards and Specifications for Erosion and Sediment Control (aka Blue Book) ? ● Yes ○ No

22. Does this construction activity require the development of a SWPPP that includes Water Quality and Quantity Control components (Post-Construction Stormwater Management Practices) ○ Yes ● No
(If No, skip questions 23 and 27-35)

23. Have the Water Quality and Quantity Control components of the SWPPP been developed in comformance with the current NYS Stormwater Management Design Manual ? ○ Yes ○ No

24. The Stormwater Pollution Prevention Plan (SWPPP) was prepared by:

- ● **Professional Engineer (P.E.)**
- ○ **Soil and Water Conservation District (SWCD)**
- ○ **Registered Landscape Architect (R.L.A)**
- ○ **Certified Professional in Erosion and Sediment Control (CPESC)**
- ○ **Owner/Operator**
- ○ **Other**

SWPPP Preparer: Dewberry Goodkind Inc.

Contact Name (Last, Space, First): John Miller PE

Mailing Address: 15 East 26 street 7th Floor

City: New York

State: NY Zip: 10010-

Phone: 212-685-0900 Fax: 212-685-2340

Email: jmiller@dewberry.com

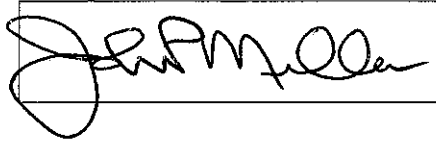
SWPPP Preparer Certification

I hereby certify that the Stormwater Pollution Prevention Plan (SWPPP) for this project has been prepared in accordance with the terms and conditions of the GP-0-08-001. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of this permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

First Name John **MI**

Last Name Miller PE

Signature



Date 06/11/2009

25. Has a construction sequence schedule for the planned management practices been prepared? ● Yes ○ No

26. Select **all** of the erosion and sediment control practices that will be employed on the project site:

Temporary Structural

- ○ Check Dams
- ○ Construction Road Stabilization
- ○ Dust Control
- ○ Earth Dike
- ○ Level Spreader
- ○ Perimeter Dike/Swale
- ○ Pipe Slope Drain
- ○ Portable Sediment Tank
- ○ Rock Dam
- ○ Sediment Basin
- ○ Sediment Traps
- ● Silt Fence
- ● Stabilized Construction Entrance
- ● Storm Drain Inlet Protection
- ○ Straw/Hay Bale Dike
- ○ Temporary Access Waterway Crossing
- ○ Temporary Stormdrain Diversion
- ○ Temporary Swale
- ○ Turbidity Curtain
- ○ Water bars

Biotechnical

- ○ Brush Matting
- ○ Wattling

Vegetative Measures

- ○ Brush Matting
- ○ Dune Stabilization
- ○ Grassed Waterway
- ○ Mulching
- ○ Protecting Vegetation
- ○ Recreation Area Improvement
- ○ Seeding
- ○ Sodding
- ○ Straw/Hay Bale Dike
- ○ Streambank Protection
- ○ Temporary Swale
- ○ Topsoiling
- ○ Vegetating Waterways

Permanent Structural

- ○ Debris Basin
- ○ Diversion
- ○ Grade Stabilization Structure
- ○ Land Grading
- ○ Lined Waterway (Rock)
- ○ Paved Channel (Concrete)
- ○ Paved Flume
- ○ Retaining Wall
- ○ Riprap Slope Protection
- ○ Rock Outlet Protection
- ○ Streambank Protection

Other

Water Quality and Quantity Control

Important: Completion of Questions 27-35 is not required if response to Question 22 is No.

Post-Construction Stormwater Management Practices

27. Indicate **all** Stormwater Management Practice(s) that will be installed/constructed on this site:

Ponds
- ○ Micropool Extended Detention (P-1)
- ○ Wet Pond (P-2)
- ○ Wet Extended Detention (P-3)
- ○ Multiple Pond System (P-4)
- ○ Pocket Pond (P-5)

Filtering
- ○ Surface Sand Filter (F-1)
- ○ Underground Sand Filter (F-2)
- ○ Perimeter Sand Filter (F-3)
- ○ Organic Filter (F-4)
- ○ Bioretention (F-5)
- ○ Other

Alternative Practice
- ○ Rain Garden
- ○ Cistern
- ○ Green Roof
- ○ Stormwater Planters
- ○ Permeable Paving (Modular Block)

Wetlands
- ○ Shallow Wetland (W-1)
- ○ Extended Detention Wetland (W-2)
- ○ Pond/Wetland System (W-3)
- ○ Pocket Wetland (W-4)

Infiltration
- ○ Infiltration Trench (I-1)
- ○ Infiltration Basin (I-2)
- ○ Dry Well (I-3)
- ○ Underground Infiltration System

Open Channels
- ○ Dry Swale (O-1)
- ○ Wet Swale (O-2)

Verified Proprietary Practice
- ○ Hydrodynamic
- ○ Wet Vault
- ○ Media Filter

28. Describe other stormwater management practices not listed above or explain any deviations from the technical standards.

29. Has a long term Operation and Maintenance Plan for the post-construction stormwater management practice(s) been developed? ○ Yes ○ No

If Yes, Identify the entity responsible for the long term Operation and Maintenance

30. Provide the total water quality volume required and the total provided for the site.

WQv Required ☐☐☐.☐☐☐ **acre-feet**

WQv Provided ☐☐☐.☐☐☐ **acre-feet**

31. Provide the following Unified Stormwater Sizing Criteria for the site.

Total Channel Protection Storage Volume (CPv) - Extended detention of post-developed 1 year, 24 hour storm event

CPv Required ☐☐☐.☐☐☐ **acre-feet**

CPv Provided ☐☐☐.☐☐☐ **acre-feet**

31a. The need to provide for channel protection has been waived because:

○ **Site discharges directly to fourth order stream or larger**

Total Overbank Flood Control Criteria (Qp) - Peak discharge rate for the 10 year storm

Pre-Development ☐☐☐.☐☐☐ **CFS**

Post-development ☐☐☐.☐☐☐ **CFS**

Total Extreme Flood Control Criteria (Qf) - Peak discharge rate for the 100 year storm

Pre-Development ☐☐☐.☐☐☐ **CFS**

Post-development ☐☐☐.☐☐☐ **CFS**

31b. The need to provide for flood control has been waived because:

○ **Site discharges directly to fourth order stream or larger**

○ **Downstream analysis reveals that flood control is not required**

IMPORTANT: For questions 31 and 32, impervious area should be calculated considering the project site and all offsite areas that drain to the post-construction stormwater management practice(s). (Total Drainage Area = Project Site + Offsite areas)

32. Pre-Construction Impervious Area - As a percent of the Total Drainage Area enter the percentage of the existing impervious areas before construction begins. ☐☐☐ %

33. Post-Construction Impervious Area - As a percent of the Total Drainage Area, enter the percentage of the future impervious areas that will be created/remain on the site after completion of construction. ☐☐☐ %

34. Indicate the total number of post-construction stormwater management practices to be installed/constructed. ☐☐

35. Provide the total number of stormwater discharge points from the site. (include discharges to either surface waters or to separate storm sewer systems) ☐☐

36. Identify other DEC permits that are required for this project.

DEC Permits

○ Air Pollution Control	○ Navigable Waters Protection / Article 15
○ Coastal Erosion	○ Water Quality Certificate
○ Hazardous Waste	○ Dam Safety
○ Long Island Wells	○ Water Supply
○ Mined Land Reclamation	○ Freshwater Wetlands/Article 24
○ Other SPDES	○ Tidal Wetlands
○ Solid Waste	○ Wild, Scenic and Recreational Rivers
● None	○ Stream Bed or Bank Protection / Article 15
○ Other	

37. Does this project require a US Army Corps of Engineers Wetland Permit? ○ Yes ● No
If Yes, Indicate Size of Impact. [ ]

38. Is this project subject to the requirements of a regulated, traditional land use control MS4? ○ Yes ● No
(If No, skip question 39)

39. Has the "MS4 SWPPP Acceptance" form been signed by the principal executive officer or ranking elected official and submitted along with this NOI? ○ Yes ● No

40. If this NOI is being submitted for the purpose of continuing coverage under a general permit for stormwater runoff from construction activities, please indicate the former SPDES number assigned. [N Y R]

Owner/Operator Certification

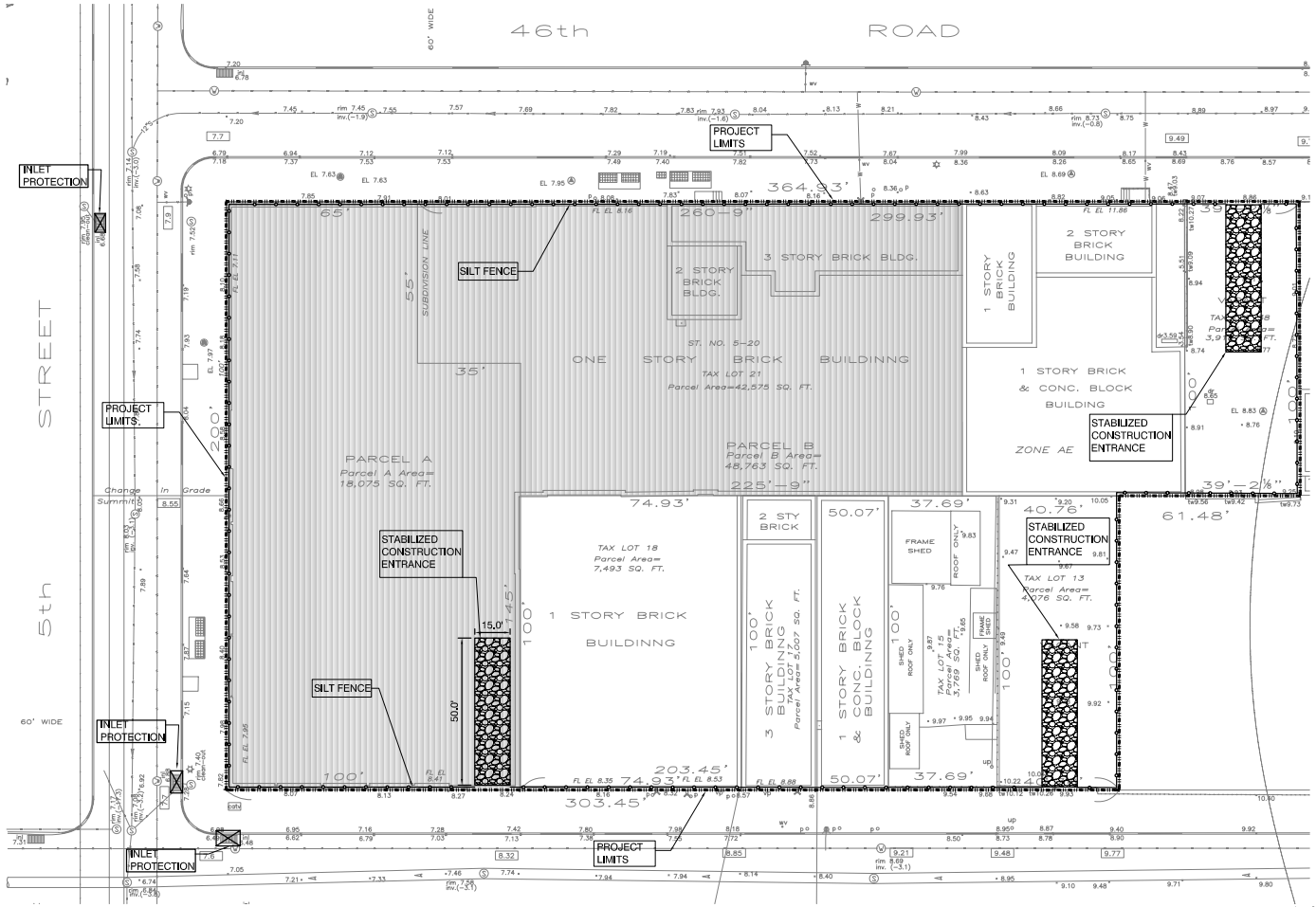
I have read or been advised of the permit conditions and believe that I understand them. I also understand that, under the terms of the permit, there may be reporting requirements. I hereby certify that this document and the corresponding documents were prepared under my direction or supervision. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further understand that coverage under the general permit will be identified in the acknowledgment that I will receive as a result of submitting this NOI and can be as long as sixty (60) business days as provided for in the general permit. I also understand that, by submitting this NOI, I am acknowledging that the SWPPP has been developed and will be implemented as the first element of construction, and agreeing to comply with all the terms and conditions of the general permit for which this NOI is being submitted.

Print First Name WILLIAM **MI** Q

Print Last Name O'CONNOR

Owner/Operator Signature [signature]

Date 06/25/2009

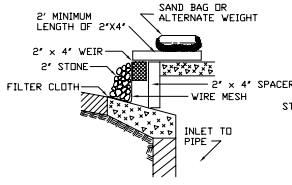


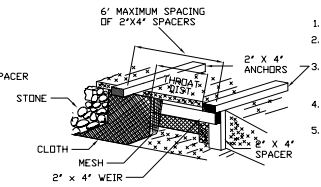
1 EROSION AND SEDIMENT CONTROL

SCALE: 1" = 20'-0"

NOTES:

1. BARRIERS AND HAY BALE CHECKS WILL BE INSTALLED AND INSPECTED ONCE A WEEK AND AFTER EVERY STORM EVENT. RESULTS OF INSPECTIONS WILL BE RECORDED IN A LOGBOOK AND MAINTAINED AT THE SITE AND AVAILABLE FOR INSPECTION BY NYSDEC. ALL NECESSARY REPAIRS SHALL BE MADE IMMEDIATELY.
2. ACCUMULATED SEDIMENTS WILL BE REMOVED AS REQUIRED TO KEEP THE BARRIER AND HAY BALE CHECK FUNCTIONAL. ALL UNDERCUTTING OR EROSION OF THE SILT FENCE TOE ANCHOR SHALL BE REPAIRED IMMEDIATELY WITH APPROPRIATE BACKFILL MATERIALS.
3. MANUFACTURERS RECOMMENDATIONS WILL BE FOLLOWED FOR REPLACING SILT FENCING DAMAGED DUE TO WEATHERING.
4. EROSION AND SEDIMENT CONTROL MEASURES IDENTIFIED ON THE PLAN SHALL BE OBSERVED TO ENSURE THAT THEY ARE OPERATING CORRECTLY. WHERE DISCHARGE LOCATIONS OR POINTS ARE ACCESSIBLE, THEY SHALL BE INSPECTED TO ASCERTAIN WHETHER EROSION CONTROL MEASURES ARE EFFECTIVE IN PREVENTING SIGNIFICANT IMPACTS TO RECEIVING STORM SEWER SYSTEM
5. SILT FENCING WILL BE INSTALLED AROUND THE ENTIRE PERIMETER OF THE REMEDIAL CONSTRUCTION AREA.





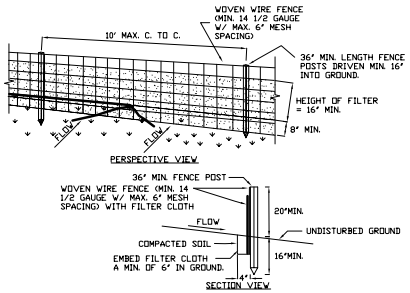
4 INLET PROTECTION

NTS

CONSTRUCTION SPECIFICATIONS

1. FILTER FABRIC SHALL HAVE AN EOS OF 40-85.
2. WOODEN FRAME SHALL BE CONSTRUCTED OF 2" x 4" CONSTRUCTION GRADE LUMBER.
3. WIRE MESH ACROSS THROAT SHALL BE A CONTINUOUS PIECE 30 INCH MINIMUM WIDTH WITH A LENGTH 4 FEET LONGER THAN THE THROAT. IT SHALL BE SHAPED AND SECURELY NAILED TO A 2" x 4" WEIR.
4. THE WEIR SHALL BE SECURELY NAILED TO 2" x 4" SPACERS 9 INCHES LONG SPACED NO MORE THAN 6 FEET APART.
5. THE ASSEMBLY SHALL BE PLACED AGAINST THE INLET AND SECURED BY 2" x 4" ANCHORS 2 FEET LONG EXTENDING ACROSS THE TOP OF THE INLET AND HELD IN PLACE BY SANDBAGS OR ALTERNATE WEIGHTS.

MAXIMUM DRAINAGE AREA 1 ACRE

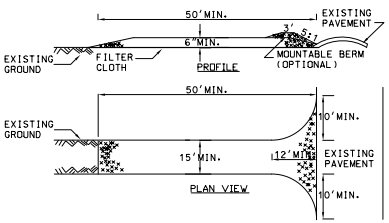


CONSTRUCTION SPECIFICATIONS

1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. POSTS SHALL BE STEEL EITHER "T" OR "U" TYPE OR HARDWOOD.
2. FILTER CLOTH TO BE TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION. FENCE SHALL BE WOVEN WIRE, 12 1/2 GAUGE, 6" MAXIMUM MESH OPENING.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI 100X, STABILINKA T140N, OR APPROVED EQUIVALENT.
4. PREFABRICATED UNITS SHALL BE GEOFAB, ENVIROFENCE, OR APPROVED EQUIVALENT.
5. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

2 SILT FENCE

NTS



CONSTRUCTION SPECIFICATIONS

1. STONE SIZE - USE 2" STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH - NOT LESS THAN 50 FEET
3. THICKNESS - NOT LESS THAN SIX (6) INCHES.
4. WIDTH - FIFTEEN (15) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.
5. FILTER CLOTH - WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACTED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
8. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

3 STABILIZED CONSTRUCTION ENTRANCE

NTS

STUDIO V

PROJECT NO.
50012433

5-20 46TH ROAD

OWNER / CLIENT
OCA LIC II-V
535 Madison Ave, 23rd Fl
New York, NY 10022
T: 212.546.0832
F: 212.546.0831

ARCHITECT
Studio V Architecture
44 E 32nd St New York, NY 10016
T: 212.779.2268
F: 212.689.1325

ENGINEER
DEWBERRY
15 E 26th St New York, NY 10010
T: 212.685.0900
F: 212.685.2340

ISSUE	DATE

SEAL

DATE	DRAWN	CHECKED
6/12/09	MMS	JM

SCALE

SHEET TITLE
EROSION AND SEDIMENT CONTROL PLAN

DRAWING NO.
ESC-001

APPENDIX 7

QUALITY ASSURANCE PROJECT PLAN

FIELD SAMPLING PROCEDURES PLAN

Toll Free: (800) 969-3159
Phone: (973) 560-1400
Fax: (973) 560-0400
An Environmental Consulting & Remediation Firm
www.ewma.com

QUALITY ASSURANCE PROJECT PLAN (QAPP)

Property Known As:

OCA LIC Fifth Street Mixed-Use Housing
5-20 46th Road
City of New York, Queens County, New York 11101
BCP Site No C241098

Prepared for:

OCA Long Island City, LLC
c/o O'Connor Capital Partners
535 Madison Avenue, 23rd Floor
New York, NY 10022

December 2008
Updated June 2009

Submitted by:

Environmental Waste Management Associates, LLC
P. O. Box 5430
Parsippany, New Jersey 07054
EWMA Case No. 205490

TABLE OF CONTENTS

ATTACHMENTS

1.0 PROJECT SCOPE

This Quality Assurance Project Plan (QAPP) document was prepared in accordance with the New York State Department of Environmental Conservation (NYSDEC) December 2002 *Draft DER-10 Technical Guidance for Site Investigation and Remediation* and applies to the investigation of soils, and ground water. The following activities are proposed as part of this investigation:

Soils Investigation

(1) Soil samples will be collected to document the soil quality at the vertical and horizontal extent of the excavation.

Ground Water Investigation

(1) EWMA will gauge sample permanent monitoring wells to further investigate ground water and light non-aqueous phase liquid (LNAPL) at the property.

Vapor Intrusion Investigation

(1) EWMA will collect soil-gas and sub-slab vapor samples to investigate the potential for vapor intrusion at the site and assess the possible remedial programs and/or engineering designs appropriate to address vapor intrusion hazards. An ambient air sample will also be collected as a comparative background sample during each sampling event.

This QAPP provides directions in implementing the activities that would generate data of known and defensible quality. It complies with the September 1992 NYSDEC Division of Water Sampling Guidelines and Protocols ("NYSDEC DWSGP") and the October 2006 New York State Department of Health (NYSDOH) *Guidance for Evaluating Soil Vapor Intrusion in the State of New York* (GESVI).

2.0 DATA QUALITY OBJECTIVES

Collection of samples will be performed as described within this document and the NYSDEC DWSGP and NYSDOH GESVI. Soil and ground water samples collected for volatile organic compounds and a forward library search (VO+10) will be analyzed via EPA Method 8260+10. Soil samples collected for semi-volatile organic compounds and a forward library search (BN+20) will be analyzed via EPA Method 8270+20. Soil samples collected for priority pollutant metals (PPM) will be analyzed via EPA Method series SW-846 for the full Inorganic Target Analyte List (23 metals plus total cyanide). Ground water samples collected for BN+20 will be analyzed via EPA Method 625+20. Ground water samples obtained for PPM analysis will be analyzed via EPA 610A Series for the full Inorganic Target Analyte List (23 metals plus total cyanide). Semi-volatiles soil and water analyses by 8270 will include 20 tentatively

identified compounds. Soil-gas and sub-slab vapor sample obtained for VO+10 will be analyzed via EPA TO-15.

Data quality objectives include but are not limited to:

- Defining physical and chemical characteristics of contaminant sources
- Volume and extent of contamination, potential receptors and associated exposure pathways
- Fate and transport of contaminants
- Development and evaluation of remedial alternatives
- Identifying Standards, Criteria and Guidance (SCGs)
- Identifying the need for treatability studies
- Supporting future enforcement or cost recovery activities.

3.0 ANALYTICAL LABORATORY

All soil and ground water samples will be analyzed by the following NYSDOH CLP-Tier ELAP certified laboratory:

Integrated Analytical Laboratories (IAL)
273 Franklin Road
Randolph, NJ 07869
New York Lab ID No. 11402
NYSDOH Certification Serial No. 32868

All air samples will be analyzed by the following NYSDOH ELAP certified laboratory for the air samples TO-15 analysis:

Integrated Analytical Laboratories (IAL)
273 Franklin Road
Randolph, NJ 07869
New York Lab ID No. 11402
NYSDOH Certification Serial No. 32868

Laboratory certifications are provided as **Attachment 1** of this QAPP.

4.0 PROJECT COORDINATION

Overall Project Management: Sharon McSwieney, Project Manager, EWMA, (609) 799-7300

Sampling Activities Field Manager: Daniel DiRocco, Environmental Scientist, EWMA

Quality Assurance Officer: Margaret Halasnik, Compliance Services Director, EWMA

Data Validator Margaret Halasnik, Compliance Services Director, EWMA

Laboratory Activities: The personnel will be identified in the laboratory analytical report.

The personnel listed above are subject to change. The Health and Safety Plan will document the actual field personnel that complete the activities at the site.

5.0 ANALYTICAL METHODS / QUALITY ASSURANCE SUMMARY

The Analytical Methods / Quality Assurance Summary table is included as **Attachment 2** of this document.

Collection of samples from the site will be performed following the NYSDEC DWSGP and NYSDOH GESVI. In general, the samples will be collected as described in the January 2008 Field Sampling Procedures Plan (FSPP) included as **Attachment 5**.

Trip blanks and field blanks will be collected for all ground water sampling locations requiring VO+10 analysis as per EPA Method 8260+10. Duplicate samples will be collected during each daily sampling event at a rate of one duplicate sample for each media sampled on that day.

All QA/QC will be consistent with NYSDEC ASP July 2005. Holding times are calculated from the verified time of sample of receipt at the laboratory (except for ambient air sample for which sample Holding Time is calculated from the time of sampling). The sample holding times given in the table included as **Attachment 2** are consistent with the holding times given in NYSDEC ASP Exhibit I.

All air samples will be collected as per Section 2 of the NYSDOH GESVI. In addition to the proposed sub-slab and soil-gas samples, at least one (1) outdoor air sample will be collected during each air sampling event in order to provide ambient or background data.

All activities related to the soil vapor intrusion investigation, including the laboratory analysis and reporting of the data will be conducted in accordance with the referenced NYSDOH GESVI document.

In general, appropriate QAPP will be followed during all aspects of sample collection and analysis to ensure that sampling error is minimized and high quality data are obtained. Sampling team members will avoid actions (e.g., fueling vehicles, using permanent marking pens, wearing freshly dry-cleaned clothing or personal fragrances, etc.) which can cause sample interference in the field. Portable air monitoring equipment or field instrumentation will be properly maintained, calibrated and tested to ensure validity of measurements. Air sampling equipment will be stored,

transported and between samples decontaminated in a manner consistent with the best environmental consulting practices to minimize problems such as field contamination and cross-contamination. Samples will be collected using certified clean sample devices. Steps will be taken to ensure that the gas used by the laboratory to clean the sample device is different from the gas used as a tracer during sampling (e.g., helium). Samples will meet sample holding times and temperatures, and will be delivered to the analytical laboratory as soon as possible after collection. In addition, laboratory accession procedures will be followed, including field documentation (sample collection information and locations), chain of custody, field blanks, field sample duplicates and laboratory duplicates, as appropriate. A Data Usability Summary Report (DUSR) will be required to determine whether or not the data, as presented, meets the site or project specific criteria for data quality and data use. All samples that will be used to make decisions on appropriate actions to address exposures and environmental contamination will be analyzed by IAL, an ELAP-certified laboratory.

6.0 FIELD INSTRUMENTATION

Photo-Ionization Detector Standard Operating Procedure:

The Photovac MicroTIP photoionization detector (PID) must be calibrated in order to display concentration in units equivalent to ppm. First a supply of Zero Gas, which contains no ionizable gases or vapors, is used to set MicroTIP's zero point. Then, Span Gas, containing a known concentration of an ionizable gas or vapor, is used to set the sensitivity. Usually clean outdoor air will be suitable as Zero Gas. If there is any doubt, use a commercial source of Zero Grade Gas and a second sampling bag. A supply of Span Gas of the desired compound and concentration must be obtained for calibration. Observe proper handling techniques for all gases.

Isobutylene at 100 ppm in air is recommended as Span Gas. To calibrate the instrument use the Calibration Kit as follows:

1) Connect the supplied regulator to the Span Gas cylinder. Hand tighten the fittings.

2) Open the valve on the gas bag by turning the valve stem fully counterclockwise.

3) Attach gas bag adapter nut to the regulator. Hand tighten the fittings.

4) Turn the regulator knob counterclockwise about half a turn to start the flow of gas.

5) Fill the gas bag about half full and then close the regulator fully clockwise to turn off the flow of gas.

6) Disconnect the bag from the adapter and empty it. Flush the bag a few times with the Span Gas and then fill it.

7) Close the bag by turn the valve clockwise.

8) Press SETUP and select the desired Cal Memory with the arrow keys and press ENTER. Press EXIT to leave setup.

9) Press CAL and expose MicroTIP to Zero Gas. Press ENTER and MicroTIP sets its zero point.

10) MicroTIP then asks for the Span Gas concentration. Enter the known Span Gas concentration and then connect the Span Gas adapter to the inlet.

11) Press ENTER and MicroTIP sets its sensitivity.

12) When MicroTIP's display reverts to normal, MicroTIP is calibrated and ready for use. Remove the Span Gas bag from the inlet.

The AIM 600 Detector/Combustible Gas Indicator must be calibrated to ensure the safe operation of your detector. Calibration involves showing your detector a clean air atmosphere as a zero reference, and then showing your detector a known gas concentration. For maximum safety, it is recommended that calibration verification be performed each time you use your detector, particularly when an application is critical.

There are, however, a number of very specific conditions that cause at least the need for calibration verification, and a likely re-calibration. They are:

1. Sensor age. Sensors will expire over time. This means that as the sensor ages, it will not put out as much signal in proportion to a given amount of gas. Also, the sensor's output will decrease more rapidly if it is exposed to extremely high levels of gases.

   The act of calibration adjusts the decreasing output of sensors over time. At some point, the sensor output will not be adequate to give a reliable reading. Each sensor has an expected life span to which its reaction or response to known gases is predictable within specified tolerances.

2. Sensor operating conditions. Recalibration, or at least calibration verification, is recommended should your detector display and sense any error conditions for any of the sensors in your detector. They are:

   *ZERO, where a sensor has indicated a zero value during calibration that is out of the desired range for that sensor.

   *SPAN, where a sensor has indicated a span value during calibration that is out of the desired range for that sensor.

   *RNG, where a specific sensor's response range has been exceeded or has been saturated with a gas concentration.

   *CAL, where a sensor' drift or response is showing a concentration lower than the zero value recorded for that sensor. This indicates the need for a calibration adjustment, specifically re-zeroing the sensor.

*TEMP, where the sensor's operating temperature or acceptable range has been exceeded, which may affect or has already affected the response.

*FAULT, where a sensor's electrical connections have been compromised and the detector is showing no signal.

7.0 CHAIN OF CUSTODY

Generally, a Chain of Custody (COC) is generated to track the samples from the time of collection and delivery to the laboratory.

Refer to **Attachment 3** for a copy of the field Chain of Custody forms that will be used for the samples. The COC utilized by the analytical laboratory analyzing the samples will be included with the analytical data report.

8.0 LABORATORY STORAGE

Laboratory storage of collected samples will be in accordance with approved procedures as required for certified laboratories as described in the NYSDEC ASP.

9.0 LABORATORY DELIVERABLE FORMAT

Laboratory deliverables will be completed in the format recommended in Appendix A of the NYSDEC DWSGP and Section 2.8 of the NYSDOH GESVI.

A NYSDEC ASP Category B Data Deliverable will be submitted for the sample data. A Data Usability Summary Report (DUSR) as described in DER-10 Appendix 2B will be prepared from the ASP Category B Data Deliverable. The Data Validator Qualifications are attached as **Attachment 4**.

Attachment 1

Laboratory Certifications

STATE OF NEW YORK
DEPARTMENT OF HEALTH

Wadsworth Center The Governor Nelson A. Rockefeller Empire State Plaza P.O. BOX 509 Albany, New York 12201-0509

RICHARD F. DAINES, M.D.
Commissioner

WENDY E. SAUNDERS
Executive Deputy Commissioner

LAB ID: 11402

April 01, 2009

DR. MICHAEL H. LEFTIN
INTEGRATED ANALYTICAL LABS
273 FRANKLIN ROAD
RANDOLPH, NJ 07869

Dear Dr. Leftin,

A new certificate has been generated because of the following change(s):

AppCat	Analyte Name Method Name	Comments	Date
NW - NELAC	Phenols EPA 420.2	Dropped from Approved	03/27/2009
PW - NELAC	Hydrogen Ion (pH) EPA 150.1	Dropped from Approved	03/27/2009

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER
RICHARD F. DAINES, M.D.

Expires 12:01 AM April 01, 2010
Issued April 01, 2009

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

DR. MICHAEL H. LEFTIN
INTEGRATED ANALYTICAL LABS
273 FRANKLIN ROAD
RANDOLPH, NJ 07869

NY Lab Id No: 11402
EPA Lab Code: NJ00438

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards for the category ENVIRONMENTAL ANALYSES POTABLE WATER
All approved analytes are listed below:

Drinking Water Trihalomethanes	
Dibromochloromethane	EPA 524.2
Volatile Aromatics	
1,2,3-Trichlorobenzene	EPA 524.2
1,2,4-Trichlorobenzene	EPA 524.2
1,2,4-Trimethylbenzene	EPA 524.2
1,2-Dichlorobenzene	EPA 524.2
1,3,5-Trimethylbenzene	EPA 524.2
1,3-Dichlorobenzene	EPA 524.2
1,4-Dichlorobenzene	EPA 524.2
2-Chlorotoluene	EPA 524.2
4-Chlorotoluene	EPA 524.2
Benzene	EPA 524.2
Bromobenzene	EPA 524.2
Chlorobenzene	EPA 524.2
Ethyl benzene	EPA 524.2
Hexachlorobutadiene	EPA 524.2
Isopropylbenzene	EPA 524.2
n-Butylbenzene	EPA 524.2
n-Propylbenzene	EPA 524.2
p-Isopropyltoluene (P-Cymene)	EPA 524.2
sec-Butylbenzene	EPA 524.2
Styrene	EPA 524.2
tert-Butylbenzene	EPA 524.2
Toluene	EPA 524.2
Total Xylenes	EPA 524.2
Volatile Halocarbons	
1,1,1,2-Tetrachloroethane	EPA 524.2

Volatile Halocarbons	
1,1,1-Trichloroethane	EPA 524.2
1,1,2,2-Tetrachloroethane	EPA 524.2
1,1,2-Trichloroethane	EPA 524.2
1,1-Dichloroethane	EPA 524.2
1,1-Dichloroethene	EPA 524.2
1,1-Dichloropropene	EPA 524.2
1,2,3-Trichloropropane	EPA 524.2
1,2-Dichloroethane	EPA 524.2
1,2-Dichloropropane	EPA 524.2
1,3-Dichloropropane	EPA 524.2
2,2-Dichloropropane	EPA 524.2
Bromochloromethane	EPA 524.2
Bromomethane	EPA 524.2
Carbon tetrachloride	EPA 524.2
Chloroethane	EPA 524.2
Chloromethane	EPA 524.2
cis-1,2-Dichloroethene	EPA 524.2
cis-1,3-Dichloropropene	EPA 524.2
Dibromomethane	EPA 524.2
Dichlorodifluoromethane	EPA 524.2
Methylene chloride	EPA 524.2
Tetrachloroethene	EPA 524.2
trans-1,2-Dichloroethene	EPA 524.2
trans-1,3-Dichloropropene	EPA 524.2
Trichloroethene	EPA 524.2
Trichlorofluoromethane	EPA 524.2
Vinyl chloride	EPA 524.2

Serial No.: 39349

Property of the New York State Department of Health. Valid only at the address shown. Must be conspicuously posted. Valid certificates have a raised seal. Continued accreditation depends on successful ongoing participation in the Program. Consumers are urged to call (518) 485-5570 to verify laboratory's accreditation status.

NELAP Recognized

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER
RICHARD F. DAINES, M.D.

Expires 12:01 AM April 01, 2010
Issued April 01, 2009

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273 FRANKLIN ROAD
RANDOLPH, NJ 07869

NY Lab Id No: 11402
EPA Lab Code: NJ00438

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards for the category ENVIRONMENTAL ANALYSES NON POTABLE WATER
All approved analytes are listed below:

Demand	
Carbonaceous BOD	SM 18-20 5210B (01)
Chemical Oxygen Demand	HACH 8000
Haloethers	
4-Bromophenylphenyl ether	EPA 625
4-Chlorophenylphenyl ether	EPA 625
Bis (2-chloroisopropyl) ether	EPA 625
Bis(2-chloroethoxy)methane	EPA 625
Bis(2-chloroethyl)ether	EPA 625
Low Level Polynuclear Aromatics	
Benzo(a)anthracene	EPA 8270C
Benzo(a)pyrene	EPA 8270C
Benzo(b)fluoranthene	EPA 8270C
Benzo(k)fluoroanthene	EPA 8270C
Indeno(1,2,3-cd)pyrene	EPA 8270C
Mineral	
Acidity	SM 18-20 2310B.4a (97)
Alkalinity	SM 18-21 2320B (97)
Chloride	SM 18-20 4500-Cl- C
	SM 18-20 4500-Cl- E (97)
Fluoride, Total	SM 18-21 4500-F C (97)
Hardness, Total	SM 18-20 2340B (97)
	SM 18-20 2340C (97)
Sulfate (as SO4)	SM 15 426 C
Nitroaromatics and Isophorone	
2,4-Dinitrotoluene	EPA 625
2,6-Dinitrotoluene	EPA 625
Nitroaromatics and Isophorone	
Isophorone	EPA 625
Nitrobenzene	EPA 625
Nitrosoamines	
N-Nitrosodimethylamine	EPA 625
N-Nitrosodiphenylamine	EPA 625
Nutrient	
Ammonia (as N)	SM 18 4500-NH3 C
	SM 19-20 4500 NH3-C (97)
	SM 19-20 4500-NH3 G (97)
Kjeldahl Nitrogen, Total	EPA 351.2 Rev. 2.0
Nitrate (as N)	SM 18-21 4500-NO3 F (00)
Nitrite (as N)	SM 18-21 4500-NO2 B (00)
	USGS I-4540-85
Orthophosphate (as P)	SM 18-21 4500-P E
Phthalate Esters	
Benzyl butyl phthalate	EPA 625
Bis(2-ethylhexyl) phthalate	EPA 625
Diethyl phthalate	EPA 625
Dimethyl phthalate	EPA 625
Di-n-butyl phthalate	EPA 625
Di-n-octyl phthalate	EPA 625
Polychlorinated Biphenyls	
PCB-1016	EPA 608
PCB-1221	EPA 608
PCB-1232	EPA 608
PCB-1242	EPA 608

Serial No.: 39350

NELAP Recognized

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER
RICHARD F. DAINES, M.D.

Expires 12:01 AM April 01, 2010
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RANDOLPH, NJ 07869

NY Lab Id No: 11402
EPA Lab Code: NJ00438

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards for the category ENVIRONMENTAL ANALYSES NON POTABLE WATER
All approved analytes are listed below:

Purgeable Halocarbons

1,1,2,2-Tetrachloroethane	EPA 624
1,1,2-Trichloroethane	EPA 624
1,1-Dichloroethane	EPA 624
1,1-Dichloroethene	EPA 624
1,2-Dichloroethane	EPA 624
1,2-Dichloropropane	EPA 624
2-Chloroethylvinyl ether	EPA 624
Bromodichloromethane	EPA 624
Bromoform	EPA 624
Bromomethane	EPA 624
Carbon tetrachloride	EPA 624
Chloroethane	EPA 624
Chloroform	EPA 624
Chloromethane	EPA 624
cis-1,3-Dichloropropene	EPA 624
Dibromochloromethane	EPA 624
Dichlorodifluoromethane	EPA 624
Methylene chloride	EPA 624
Tetrachloroethene	EPA 624
trans-1,3-Dichloropropene	EPA 624
Trichloroethene	EPA 624
Trichlorofluoromethane	EPA 624
Vinyl chloride	EPA 624

Residue

Settleable Solids	SM 18-20 2540 F
Solids, Total	SM 18-20 2540B (97)
Solids, Total Dissolved	SM 18-21 2540C (97)
Solids, Total Suspended	SM 18-20 2540D (97)

Wastewater Metals I

Barium, Total	EPA 200.8 Rev. 5.4
Cadmium, Total	EPA 200.8 Rev. 5.4
Calcium, Total	EPA 200.7 Rev. 4.4
Chromium, Total	EPA 200.8 Rev. 5.4
Copper, Total	EPA 200.8 Rev. 5.4
Iron, Total	EPA 200.7 Rev. 4.4
Lead, Total	EPA 200.8 Rev. 5.4
Magnesium, Total	EPA 200.7 Rev. 4.4
Manganese, Total	EPA 200.8 Rev. 5.4
Nickel, Total	EPA 200.8 Rev. 5.4
Potassium, Total	EPA 200.7 Rev. 4.4
Silver, Total	EPA 200.8 Rev. 5.4
Sodium, Total	EPA 200.7 Rev. 4.4

Wastewater Metals II

Aluminum, Total	EPA 200.8 Rev. 5.4
Antimony, Total	EPA 200.8 Rev. 5.4
Arsenic, Total	EPA 200.8 Rev. 5.4
Beryllium, Total	EPA 200.8 Rev. 5.4
Chromium VI	SM 18-19 3500-Cr D
Mercury, Total	EPA 245.1 Rev. 3.0
Selenium, Total	EPA 200.8 Rev. 5.4
Vanadium, Total	EPA 200.8 Rev. 5.4
Zinc, Total	EPA 200.8 Rev. 5.4

Wastewater Metals III

Cobalt, Total	EPA 200.8 Rev. 5.4
Molybdenum, Total	EPA 200.8 Rev. 5.4
Thallium, Total	EPA 200.8 Rev. 5.4

Serial No.: 39350

NELAP Recognized

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER
RICHARD F. DAINES, M.D.

Expires 12:01 AM April 01, 2010
Issued April 01, 2009

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

DR. MICHAEL H. LEFTIN
INTEGRATED ANALYTICAL LABS
273 FRANKLIN ROAD
RANDOLPH, NJ 07869

NY Lab Id No: 11402
EPA Lab Code: NJ00438

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards for the category ENVIRONMENTAL ANALYSES SOLID AND HAZARDOUS WASTE
All approved analytes are listed below:

Acrylates	
Acrolein (Propenal)	EPA 8260B
Acrylonitrile	EPA 8260B
Amines	
2-Nitroaniline	EPA 8270C
3-Nitroaniline	EPA 8270C
4-Chloroaniline	EPA 8270C
4-Nitroaniline	EPA 8270C
Carbazole	EPA 8270C
Diphenylamine	EPA 8270C
Benzidines	
3,3'-Dichlorobenzidine	EPA 8270C
Characteristic Testing	
Corrosivity	EPA 9040B
Ignitability	EPA 1010
	EPA 1030
Chlorinated Hydrocarbon Pesticides	
4,4'-DDD	EPA 8081A
4,4'-DDE	EPA 8081A
4,4'-DDT	EPA 8081A
Aldrin	EPA 8081A
alpha-BHC	EPA 8081A
alpha-Chlordane	EPA 8081A
beta-BHC	EPA 8081A
Chlordane Total	EPA 8081A
delta-BHC	EPA 8081A
Dieldrin	EPA 8081A

Chlorinated Hydrocarbon Pesticides	
Endosulfan I	EPA 8081A
Endosulfan II	EPA 8081A
Endosulfan sulfate	EPA 8081A
Endrin	EPA 8081A
Endrin aldehyde	EPA 8081A
Endrin Ketone	EPA 8081A
gamma-Chlordane	EPA 8081A
Heptachlor	EPA 8081A
Heptachlor epoxide	EPA 8081A
Lindane	EPA 8081A
Methoxychlor	EPA 8081A
Toxaphene	EPA 8081A
Chlorinated Hydrocarbons	
1,2,4-Trichlorobenzene	EPA 8260B
	EPA 8270C
2-Chloronaphthalene	EPA 8270C
Hexachlorobenzene	EPA 8270C
Hexachlorobutadiene	EPA 8260B
	EPA 8270C
Hexachlorocyclopentadiene	EPA 8270C
Hexachloroethane	EPA 8270C
Chlorophenoxy Acid Pesticides	
2,4,5-T	EPA 8151A
2,4,5-TP (Silvex)	EPA 8151A
2,4-D	EPA 8151A
Dalapon	EPA 8151A
Dicamba	EPA 8151A

Serial No.: 39351

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All approved analytes are listed below:

Petroleum Hydrocarbons	
Diesel Range Organics	EPA 8015 B
Gasoline Range Organics	EPA 8015 B
Phthalate Esters	
Benzyl butyl phthalate	EPA 8270C
Bis(2-ethylhexyl) phthalate	EPA 8270C
Diethyl phthalate	EPA 8270C
Dimethyl phthalate	EPA 8270C
Di-n-butyl phthalate	EPA 8270C
Di-n-octyl phthalate	EPA 8270C
Polychlorinated Biphenyls	
PCB-1016	EPA 8082
PCB-1221	EPA 8082
PCB-1232	EPA 8082
PCB-1242	EPA 8082
PCB-1248	EPA 8082
PCB-1254	EPA 8082
PCB-1260	EPA 8082
Polynuclear Aromatic Hydrocarbons	
Acenaphthene	EPA 8100
	EPA 8270C
Acenaphthylene	EPA 8100
	EPA 8270C
Anthracene	EPA 8100
	EPA 8270C
Benzo(a)anthracene	EPA 8100
	EPA 8270C
Polynuclear Aromatic Hydrocarbons	
Benzo(a)pyrene	EPA 8100
	EPA 8270C
Benzo(b)fluoranthene	EPA 8100
	EPA 8270C
Benzo(ghi)perylene	EPA 8100
	EPA 8270C
Benzo(k)fluoranthene	EPA 8100
	EPA 8270C
Chrysene	EPA 8100
Dibenzo(a,h)anthracene	EPA 8100
	EPA 8270C
Fluoranthene	EPA 8100
	EPA 8270C
Fluorene	EPA 8100
	EPA 8270C
Indeno(1,2,3-cd)pyrene	EPA 8100
	EPA 8270C
Naphthalene	EPA 8100
	EPA 8260B
	EPA 8270C
Phenanthrene	EPA 8100
	EPA 8270C
Pyrene	EPA 8270C
Priority Pollutant Phenols	
2,4,5-Trichlorophenol	EPA 8270C
2,4,6-Trichlorophenol	EPA 8270C
2,4-Dichlorophenol	EPA 8270C
2,4-Dimethylphenol	EPA 8270C

Serial No.: 39351

Property of the New York State Department of Health. Valid only at the address shown. Must be conspicuously posted. Valid certificates have a raised seal. Continued accreditation depends on successful ongoing participation in the Program. Consumers are urged to call (518) 485-5570 to verify laboratory's accreditation status.

NELAP Recognized

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER
RICHARD F. DAINES, M.D.

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EPA Lab Code: NJ00438

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All approved analytes are listed below:

Purgeable Organics	
Carbon Disulfide	EPA 8260B
Isobutyl alcohol	EPA 8015 B
Methyl tert-butyl ether	EPA 8260B
Semi-Volatile Organics	
Dibenzofuran	EPA 8270C
Sample Preparation Methods	
	EPA 1310
	EPA 1311
	EPA 3050B
	EPA 3060A
	EPA 3540C
	EPA 3545
	EPA 3550B
	EPA 3580
	EPA 5035
	EPA 9010B

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RANDOLPH, NJ 07869

NY Lab Id No: 11402
EPA Lab Code: NJ00438

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All approved analytes are listed below:

Chlorinated Hydrocarbons	
1,2,4-Trichlorobenzene	EPA TO-15
Hexachlorobutadiene	EPA TO-15
Miscellaneous Air	
Formaldehyde	EPA TO-11A
Purgeable Aromatics	
1,2,4-Trimethylbenzene	EPA TO-15
1,2-Dichlorobenzene	EPA TO-15
1,3,5-Trimethylbenzene	EPA TO-15
1,3-Dichlorobenzene	EPA TO-15
1,4-Dichlorobenzene	EPA TO-15
Benzene	EPA TO-15
Chlorobenzene	EPA TO-15
Ethyl benzene	EPA TO-15
m/p-Xylenes	EPA TO-15
o-Xylene	EPA TO-15
Styrene	EPA TO-15
Toluene	EPA TO-15
Total Xylenes	EPA TO-15
Purgeable Halocarbons	
1,1,1-Trichloroethane	EPA TO-15
1,1,2,2-Tetrachloroethane	EPA TO-15
1,1,2-Trichloroethane	EPA TO-15
1,1,2-Trifluoro-1,2,2-Trichloroethane	EPA TO-15
1,1-Dichloroethane	EPA TO-15
1,1-Dichloroethene	EPA TO-15
1,2-Dibromoethane	EPA TO-15

Purgeable Halocarbons	
1,2-Dichloroethane	EPA TO-15
1,2-Dichloropropane	EPA TO-15
Bromodichloromethane	EPA TO-15
Bromoform	EPA TO-15
Bromomethane	EPA TO-15
Carbon tetrachloride	EPA TO-15
Chloroethane	EPA TO-15
Chloroform	EPA TO-15
Chloromethane	EPA TO-15
cis-1,2-Dichloroethene	EPA TO-15
cis-1,3-Dichloropropene	EPA TO-15
Dibromochloromethane	EPA TO-15
Dichlorodifluoromethane	EPA TO-15
Methylene chloride	EPA TO-15
Tetrachloroethene	EPA TO-15
trans-1,2-Dichloroethene	EPA TO-15
trans-1,3-Dichloropropene	EPA TO-15
Trichloroethene	EPA TO-15
Trichlorofluoromethane	EPA TO-15
Vinyl bromide	EPA TO-15
Vinyl chloride	EPA TO-15
Volatile Chlorinated Organics	
Benzyl chloride	EPA TO-15
Volatile Organics	
1,2-Dichlorotetrafluoroethane	EPA TO-15
1,3-Butadiene	EPA TO-15
1,4-Dioxane	EPA TO-15

Serial No.: 39353

NELAP Recognized

205490

New York State Department of Environmental Conservation
Division of Environmental Remediation
Bureau of Technical Support, 11th Floor
625 Broadway, Albany, New York 12233-7020
Phone: (518) 402-9543 • **FAX:** (518) 402-9547
Website: www.dec.ny.gov

Alexander B. Grannis
Commissioner

March 3, 2009

DR. MICHAEL H. LEFTIN
INTEGRATED ANALYTICAL LABS
273 FRANKLIN ROAD
RANDOLPH, NJ 07869

To Whom It May Concern:

As you may be aware, the New York State Department of Health (DOH) Environmental Laboratory Approval Program (ELAP) is discontinuing approval for the Contract Laboratory Protocol (CLP) tier category effective April 1, 2009. DOH ELAP is currently notifying CLP approved labs, as well as labs seeking CLP approval of this change. The Division of Environmental Remediation has received a number of inquiries relative to how this change affects DER's requirements. The purpose of this correspondence is to make our responses known to all ELAP laboratories.

ELAP CLP tier approval is no longer required by the Division of Environmental Remediation (DER). DER guidance documents will be revised to reflect this change. Future analytical contracts will not contain the CLP accreditation requirement. However, the Public Health Law still requires that all laboratories that provide environmental data to DER be ELAP accredited in the appropriate category (i.e., Air and Emissions, Non Potable Water, Potable Water, Solid and Hazardous Waste, (TCLP). Further, all data deliverables must be submitted in conformance with the July 2005 Analytical Services Protocol (i.e., Category A, Category Spills, Category B) as required by the DER Project Manager. When a Data Usability Summary Report (DUSR) is required, a full analytical data deliverable (e.g. ASP Category B) is needed.

If you have any questions on the discontinuation of CLP tier approval relevant to work performed for the DER, please contact Tim LeBarron at 518-402-9761 or tllebarr@gw.dec.state.ny.us.

Sincerely,

Timothy L. LeBarron

Timothy L. LeBarron
Quality Assurance Officer
Bureau of Technical Support

Attachment 2

Analytical Methods / Quality Assurance Summary Table

Analytical Methods/Quality Assurance Summary Table

Parameter	Matrix	Sample Container & Volume	Sample Preservation	Maximum Allowable Holding Time from VTSR	Field Duplicate	Analytical Method
Volatiles	Soils	2 oz. glass container with Teflon lined caps	cool, 4°C, dark	14 days	One per matrix	SW846 Test Method 8260B
SemiVolatile	Soils	8oz. glass container with Teflon lined caps	cool, 4°C, dark	14 days extraction, 40 days analysis	One per matrix	SW846 Test Method 8270C
Metals	Soils	2 oz glass continers with Teflon lined caps	cool, 4°C, dark	180 days/Mercury 28 days/Cr^{+6} 1 day	One per matrix	EPA Method 6010B
PCBs	Soils	8oz. glass container with Teflon lined caps	cool, 4°C, dark	5 days extraction, 40 days analysis	One per matrix	EPA Method 8280
Volatiles	Ground Water	2x40ml glass container	cool, 4°C, dark	14 days	One per matrix	SW846 Test Method 8260B
SemiVolatile	Ground Water	2x950ml Amber glass container	cool, 4°C, dark	7 days extraction, 40 days analysis	One per matrix	SW846 Test Method 8270C
Metals	Ground Water	250ml plastic jar	cool, 4°C, dark	180 days/Mercury 26 days/Cr^{+6} 1 day	One per matrix	EPA Method 200.8/245.1
PCBs	Ground Water	2x950ml Amber glass container Teflon lined caps	cool, 4°C, dark	5 days extraction, 40 days analysis	One per matrix	EPA Method 8082
Volatiles	Soil Vapor	6 L Summa Canisters	none	30 days*	One per matrix	EPA Method TO 15

Notes:
VTSR - Verified Time of Sample Receipt
* Ambient air samples holding time is calculated from the time of sampling
New York State Department of Conservation 2005 Analytical Services Protocol (ASP), July 2005 Revisions, Albany, NY.
MS/MSD indicates matrix spike/matrix spike duplicate sample.
PCBs indicate polychlorinated biphenyls that are listed with pesticides in Table 8-4B.

Attachment 3

Chain of Custody (Blank)

Phone # (973) 361-4252
Fax # (973) 989-5288

INTEGRATED ANALYTICAL LABORATORIES
CHAIN OF CUSTODY

273 Franklin Rd
Randolph, NJ 07869

CUSTOMER INFO	
Company:	
Address:	
Telephone #:	
Fax #:	
Project Manager:	
Sampler:	
Project Name:	
Project Location (State):	
Bottle Order #:	
Quote # :	

REPORTING INFO	
REPORT TO:	
Address:	
Attn:	
FAX #	
INVOICE TO:	
Address:	
Attn:	
PO #	

Turnaround Time (starts the following day if samples rec'd at lab > 5PM)

*Lab notification is required for RUSH TAT prior to sample arrival. RUSH TAT IS NOT GUARANTEED WITHOUT LAB APPROVAL. **RUSH SURCHARGES WILL APPLY IF ABLE TO ACCOMMODATE

PHC - MUST CHOOSE

DRO (3-5 day TAT) QAM025 (5 day TAT min.)

SEE BELOW (under comments section for explanation)

Verbal/Fax 2 wk/Std Results needed by:

24 hr* 48 hr* 72 hr* 1 wk*

Hard Copy 3 wk/Std

Other * call for price

Rush TAT Charge **

24 hr - 100%...
48 hr - 75%....
72 hr - 50%....
96 hr - 35%....
5 day - 25%....
6-9 day 10%

Report Format	DISKETTE
Results Only	SRP.dbf format
Reduced	SRP.wk1 format
Regulatory - 15% Surcharge applies	lab approved custom EDD
Other (describe)	NO DISK/CD REQ'D

Cooler Temp _____ °C

SAMPLE INFORMATION

Sample Matrix

DW - Drinking Water AQ - Aqueous WW - Waste Water
OI - Oil LIQ - Liquid (Specify) OT - Other (Specify)
S - Soil SL - Sludge SOL - Solid W - Wipe

ANALYTICAL PARAMETERS

BOTTLES & PRESERVATIVES

Client ID	Depth (ft only)	Sampling Date	Sampling Time	Matrix	# container	IAL #	HCl	NaOH	HNO3	H2SO4	MeOH	Other	None	Encore

Known Hazard: Yes or No Describe:

Conc. Expected: Low Med High

Please print legibly and fill out completely. Samples cannot be processed and the turnaround time will not start until any ambiguities have been resolved.

MDL Req. Old GWQS - 11/05 GWQS - SCC - OTHER (SEE COMMENTS)

Signature/Company	Date	Time	Signature/Company
Relinquished by:			Received by:
Relinquished by:			Received by:
Relinquished by:			Received by:
Relinquished by:			Received by:
Relinquished by:			Received by:

Comments:

DRO (8015B) - used for: Fuel Oil #2/Home Heating Oil #1/#2
QAM-025 (OQA-QAM025) - used for: all other fuel oil and unknown contaminants.

Lab Case #

PAGE: of

LAB COPIES - WHITE & YELLOW; CLIENT COPY - PINK

01/2007 rev

Attachment 4

Data Validator Qualifications

Environmental Waste Management Associates

PROFESSIONAL PROFILE

MARGARET HALASNIK
DIRECTOR-COMPLIANCE SERVICES

QUALIFICATIONS
Ms. Halasnik has extensive experience as a Project Manager for Phase I Environmental Site Assessments and Environmental, Health and Safety (EHS) Regulatory Compliance Assessments for law firms, commercial and industrial clients and financial institutions throughout the United States for both single sites and multi-site portfolios. Ms. Halasnik is a certified USEPA AHERA Asbestos Building Inspector and Management Planner and is a licensed Asbestos Building Inspector and Management Planner in the State of New York.

EDUCATION
- Bachelor of Science, Biology, St. Michael's College, Colchester, VT

CAREER POSITIONS
- Environmental Waste Management Associates, LLC, Director-Compliance Services
- URS Corporation, Senior Environmental Scientist/Project Manager
- PMK Group, Laboratory Manager
- Dames & Moore, Project Manager/Laboratory Manager
- US Testing Company, Assistant Laboratory Manager

RELATED QUALIFICATIONS AND SPECIAL ACHIEVEMENTS
- USEPA – AHERA Accredited Asbestos Inspector
- USEPA – AHERA Accredited Management Planner
- NYS Certified Asbestos Inspector
- NYS Certified Asbestos Management Planner
- 40-Hour Health and Safety Training for Hazardous Waste Operations and Emergency Response
- 8-Hour Supervisor for Hazardous Waste Operations and Emergency Response

PROFESSIONAL AFFILIATIONS AND INTERESTS

- American Society of Safety Engineers. 2004 - present.

KEY PROJECTS

USACE, Kansas City District – Chemical Data Quality Evaluator

Chemical Data Quality Evaluator for a 5-year USEPA superfund project assignment for the Kansas City District US Army Corps of Engineers (USACE) in Central New Jersey. Data quality was evaluated following the project Quality Assurance Project Plan (QAPP), USACE Kansas City District data evaluation guidance, and USEPA Region II Data Validation Guidelines. Developed project QAPP in accordance with USACE Engineer Manual EM-200-1-3, *Requirements for the Preparation of Sampling and Analysis Plans* (USACE 1994), USACE Engineer Manual EM-200-1-2, *Technical Project Planning* (USACE 1998), *EPA Requirements for Quality Assurance Project Plans for Environmental Data Operations* (1999a), and *EPA Guidance for Quality Assurance Project Plans* (1998b). Performed data validation/quality assurance reviews to determine data usability of organic and inorganic laboratory analyses of field-collected soil and groundwater samples. Responsibilities included data evaluation, report preparation, ensuring laboratory compliance with project QAPP, client and laboratory contact and comment resolution.

American Airlines, JFK Airport, Jamaica, New York

Senior Chemical Data Evaluator for a 10+ years remediation/design/build project at JFK Airport, Jamaica, New York. Directed data validation and quality assurance reviews of soil and groundwater analytical data to assess data usability and compliance with the modified NYSDEC Category A Data Deliverable format requirements. Provided peer review of data evaluation reports by staff chemists. Guidance for the evaluation of laboratory data was obtained from the standard operating procedures for the validation of volatile organic and semi-volatile organic data using USEPA Region II SW-846 Method 8260B, SOP HW-24, Rev. 1 and Method 8270C, SOP HW-22, Rev. 2, respectively. Responsibilities included data evaluation, report preparation, peer review of client and laboratory contact, and comment resolution.

Active Asphalt Refinery/Tank Terminal Facility

Project health and safety officer and data validation project manager for an active asphalt refinery. Developed and reviewed site-specific project health & safety programs to support RCRA remedial investigation and construction activities. Chemical hazards included volatile and semi-volatile organic compounds, tetraethyl lead, hydrogen sulfide, ammonia, and metals. Served as Senior Chemical Data Evaluator for ongoing soil and groundwater sampling activities to evaluate data usability of organic and inorganic laboratory analyses.

Phase II Environmental Site Investigation Program

Project Manager and Quality Assurance Coordinator for a $1M Phase II Environmental Site Investigation project involving eight sites in the United States (Florida, Illinois [2], Rhode Island [2], Texas) and Europe (United Kingdom and Czech Republic) for an electronics equipment manufacturer. Developed Phase II work plans, ensured that project activities were conducted consistent with project-specific Standard Operating Procedures (SOPs) and QAPP, performed QA audit during on-site activities, monitored laboratory QA activities, prepared and reviewed results reports, performed QA reviews of soil and groundwater analytical data using USEPA National Functional Guidelines for Organic and Inorganic Data, primary client contact, and tracked project and approved budgets. Supplemental Phase II Investigation work awarded at three sites with reporting to regulatory agencies, development of remedial action work plans and implementation of remedial response measures ongoing.

3- Year Chemical Data Validation Program

Project Manager for a three-year contract performing organic and inorganic data validation/quality assurance reviews to evaluate data usability with respect to client-provided data validation specification and USEPA Region 3 modifications to the National Functional Guidelines for organic and inorganic analyses of soil and groundwater samples. Responsibilities included data evaluation, report preparation, primary client contact, and comment resolution.

Organics & Inorganic Data Review (Various Public/Private Sector Clients)

Chemical data evaluator. Performed data validation/quality assurance reviews to determine data usability with respect to USEPA National Functional Guidelines for Organic and Inorganic Data review. Obtained guidance using USEPA Regions I, II and III, (modifications), New Jersey Department of Environmental Protection (NJDEP), New York State Department of Environmental Conservation (NYSDEC) and Pennsylvania Department of Environmental Protection (PADEP) regulations for organic and inorganic laboratory analyses of environmental soil and groundwater samples. Responsibilities included data evaluation, report preparation and review, client contact and laboratory analytical contact and coordinator.

Attachment 5

Field Sampling Procedures Plan

FIELD SAMPLING PROCEDURES PLAN (FSPP)

Property Known As:

OCA LIC Fifth Street Mixed-Use Housing
5-20 46th Road
City of New York, Queens County, New York 11101
BCP Site No C241098

Prepared for:

OCA Long Island City, LLC
c/o O'Connor Capital Partners
535 Madison Avenue, 23rd Floor
New York, NY 10022

January 2008

Submitted by:

Environmental Waste Management Associates, LLC
P. O. Box 5430
Parsippany, New Jersey 07054
EWMA Case No. 205490

TABLE OF CONTENTS

ATTACHMENTS

1.0 PROJECT SCOPE

This Field Sampling Procedures Plan (FSPP) document was prepared by Environmental Waste Management Associates, LLC (EWMA) for use in the remedial investigation of OCA LIC Fifth Street Mixed-Use Housing located at 5-20 46th Road, City of New York, Queens County, New York (subject Property and Site).

The standard operating procedures for the following investigation activities are described:

SUBSURFACE UTILITY CLEARING

All sampling locations within the exterior sidewalk at the site will be hand-cleared down to a depth of five (5) feet utilizing a Utilivac tool. All sampling locations within the interior portions of the site will be cleared using a ground penetrating radar (GPR) and magnetometer subsequent to the demolition and removal of the concrete slab. This procedure will avoid complications from subsurface utilities and ensure the safety of all onsite personal before any subsurface investigation takes place.

SUBSURFACE SOIL INVESTIGATION

Soil borings will be installed to delineate impacted soils and to confirm through field observations and/or the analytical results of soil samples the findings collected during past investigation activities. Test Pits will be installed to investigate through field observations the suspected location of Underground Storage Tanks (USTs).

GROUND WATER INVESTIGATION

EWMA will install and sample temporary and permanent monitoring wells, and sample existing permanent monitoring wells to further investigate ground water at the property.

VAPOR INTRUSION INVESTIGATION

EWMA will collect sub-slab vapor and soil-gas samples to investigate the potential for vapor intrusion at the site and assess the possible remedial programs and/or engineering designs appropriate to address potential vapor intrusion hazards. An ambient air sample will also be collected as a comparative background sample during each sampling event.

This FSPP complies with the September 1992 NYSDEC Division of Water Sampling Guidelines and Protocols ("NYSDEC DWSGP") and the October 2006 New York State Department of Health (NYSDOH) *Guidance for Evaluating Soil Vapor Intrusion in the State of New York* (GESVI).

2.0 SUBSURFACE UTILITY CLEARING

2.1 Utili-Vac/Hand Clearing

1. All personnel will wear the proper personal protective equipment (goggles, gloves and helmets);
2. Sample locations will be located using appropriate measurements assuring so that if re-sampling for further investigation is necessary, the sample locations can be identified at a later date;

3. Using a wet-coring machine for concrete slab or a jack-hammer for sidewalk, the overlaying slab will be removed;

4. A 5' long pipe connected via flexible rubber hose to a vac-truck will be inserted into the exposed soil;

5. As the soil is removed care will be taken to observe any signs of subsurface utilities;

6. If the soils are too compact to effectively utilize the vacuum or small boulders are present, the vacuum pipe and/or a shovel may be carefully used to dislodge recalcitrant materials;

7. If further progress is found to be impossible, the hole will be filled and a new spot in close proximity to the original location will be chosen and the hand clearing will be re-attempted until the nature of the blockage (possible UST or subsurface utility) is revealed or hand clearing is achieved;

8. If hand clearing is not possible due to the presence of a subsurface obstruction, a soil boring in a different location that still fulfills the requirements for the specific AOC may be chosen;

9. Once an area has been hand cleared to five feet a location directly adjacent to the cleared area will be used for the soil boring or monitoring well installation. This ensures safety while allowing proper soil screening and boring/well logging techniques.

2.2 Ground Penetrating Radar (GPR) and Magnetometer Clearing

1. All personal will wear the proper personnel protective equipment (goggles, gloves and hard-hats);

2. Sample locations will be located using appropriate measurements assuring so that if re-sampling for further investigation is necessary, the sample locations can be identified at a later date;

3. The sample locations will be inspected to ensure that the overlying slab has been removed by the demolition contractor prior to investigation (except in areas as noted in the work plan);

4. All inconsequential surface debris (e.g., vegetation, rocks, etc.) will be cleared;

5. A GSSI SIR 2000 GPR unit with 200 megaHertz (mHz) and 400 mHz antennae or other appropriate GPR/Magnetometer will be used by a properly trained technician;

6. Any subsurface anomalies identified will be traced to confirm if they are currently in-use subsurface utilities, out-of-service subsurface utilities, feed-lines, vent-lines, or USTs;

7. Intrusive subsurface investigation in all areas with potential subsurface utilities will be avoided;

8. Larger subsurface anomalies will be further investigated with a test pit or exploratory boring to identify the nature of the anomaly (UST, scrap metal, underground vault, etc);

9. Where necessary the overlaying slab will be replaced and repaired after clearing and subsurface investigation.

3.0 SUBSURFACE SOIL INVESTIGATION

3.1 Soil Boring Installation and Sampling

1. Soil boring installation will take place only after a location has been hand-cleared (required for exterior sidewalk locations) or GPR/Magnetometer cleared;

2. All personnel will wear the proper personal protective equipment (goggles, gloves and hard-hats);

3. Soil borings will be installed either by hand, truck/track mounted Geoprobe Direct-Push), jack-hammer auger, or hand auger;

4. Sample locations will be located using appropriate measurements assuring so that if re-sampling for further investigation is necessary, the sample locations can be identified at a later date;

5. All inconsequential surface debris (e.g., vegetation, rocks, etc.) will be cleared;

6. All down-hole devices will be thoroughly decontaminated;

7. All soil borings located within the exterior side-walk will be hand cleared down to five feet. Soil borings located within the interior of the property will be cleared using Ground Penetrating Radar (GPR) and/or a magnetometer. If a clear geophysical signal is not available the location will be hand cleared down to five feet;

8. Once the desired depth is reached (the lower of 10' below the water table or 10' below the proposed development), a decontaminated sampling device (e.g., split spoon or Shelby tube) will be advanced by the drill rig in accordance with ASTM #D1586-84 for disturbed (split spoon) samples, or, ASTM #D1586-83 for undisturbed (Shelby tube) samples;

9. Upon retrieval the split spoon will be opened, its contents logged, and then, proceeding in the appropriate manner, the sample will be transferred into a sample bottle using a dedicated, disposable, polyethylene scoop;

10. When using a split spoon sampling device, the retaining basket will be in place, preventing the representative interval contained within the spoon from falling back into the bore hole while mechanically raising the spoon to the surface;

11. Once retrieved, the drive shoe and drive head will be removed and the spoon will be struck to open (being cautious to retain all soil in only one split barrel). The volatile fraction will be immediately collected from a discrete six-inch interval;

12. A PID will be used to record the presence of any volatiles. To obtain the most representative monitor reading, a dedicated, disposable, polyethylene scoop will be used to make a cross sectional slice(s) of the soil core to expose a porous surface. Simultaneously the PID probe will be placed into the opened area (being careful not to touch the sample);

13. In addition to soil classification logs, accurate field logs will be prepared for each sampling point. Field logs will include the following: date/time/weather; sampler/geologist/soil scientist name(s); sample point identification (same number used in sampling plan summary table); sketch showing the sampling point location (including reference distances); depth to water and/or bedrock (refusal) when encountered; soil profile with Unified Soil Classification System (USCS), Burmeister or USDA classification system textual classification and blow counts; sample recovery (and portion submitted for analysis); sampling equipment used; field measurements of any monitoring devices, their calibration, and settings; and general comments (e.g., odor, staining, etc.). A sample soil boring log form is provided as **Attachment 1**;

14. When sampling is completed, the tailings from the unused portion of the sample will be placed back down the borehole. Bore holes which extend at or near the water table will be sealed with non-shrinking impermeable material. All bore holes installed through

concrete or asphalt will be sealed and capped with either concrete or asphalt, where appropriate;

15. In all cases, samples will be initially collected in discrete six-inch increments. If more or less than a six-inch increment is collected because of poor sample recovery or other field logistical problems, an explanation will be provided in the soil log;

16. Care will be taken in collecting and handling the sample for volatile analysis. The sample will be transferred into the sample bottle as quickly as possible, without mixing and only with the aid of dedicated, disposable polyethylene scoops. This will assure that the volatile fraction is not lost or compromised. Soil samples collected for volatile organics analysis will be placed within wide mouth bottles (4 ounce). The sample will be packed tightly, but not at the risk of creating more volatile loss than necessary. Small rocks or vegetation will be avoided to the extent most practical.

3.2 Test Pit Installation and Sampling

1. Test pit installation will take place at appropriate locations based on the results of the GPR/Magnetometer survey to further investigate suspect USTs;

2. All personnel will wear the proper personal protective equipment (goggles, gloves and hard-hats);

3. A rubber tire back hoe or track excavator will be used to install the test pits;

4. Test pit locations will be located using appropriate measurements assuring so that if for further investigation is necessary, the test pit locations can be identified at a later date;

5. Next, at the desired location, all inconsequential surface debris (e.g., vegetation, rocks, etc.) will be cleared;

6. The back hoe bucket will be thoroughly decontaminated;

7. Field notes and photographs will be taken during excavation activities;

8. Soils will be continuously screened as they are removed from the test pit. A dedicated, disposable, polyethylene scoop will be used to expose the inner soils in the bucket, and simultaneously the PID probe will be placed into the opened area (being careful not to touch the sample);

9. In addition to soil classification logs, accurate field logs will be prepared for each sampling point. Field logs will include the following: date/time/weather; sampler/geologist/soil scientist name(s); sample point identification (same number used

in sampling plan summary table); sketch showing the sampling point location (including reference distances); depth to water and/or bedrock (refusal) when encountered; soil profile with Unified Soil Classification System (USCS), Burmeister or USDA classification system textual classification; field measurements of any monitoring devices, their calibration, and settings; and general comments (e.g., odor, staining, etc.);

10. In suspected UST areas extreme care will be taken so as to prevent accidental damage to the UST. If any resistance or suspected USTs are encountered then the excavation will be hand cleared using shovels or appropriate equipment;

11. The UST will be uncovered while ensuring that the UST is not damaged during excavation activities;

12. Photos of the UST condition and measurements of the UST size will be recorded;

13. Any accessible fill or vent port will be used to record product/liquid depth in the tank;

14. A product sample will be collected using a bailer for fingerprint identification;

15. Any impacts to surrounding soil will be noted and if possible excavated and staged on thick plastic for future classification and disposal. If a spill is detected, the spill notification to NYSDEC will be made and appropriate measures will be taken;

16. When test pit excavations are completed, the excavated soils will be returned to the excavation and compacted in place, unless a leaking UST or other conditions make refilling the excavation impossible. If such an event occurs, appropriate barriers and signs will be installed around the excavation area to clearly notify any personnel in the area of the excavation and prevent accidents.

4.0 GROUND WATER INVESTIGATION

4.1 Temporary Monitoring Well Installation Using an SP-16 Sampler

1. Temporary monitoring well installation will take place only after a location has been hand-cleared (required for sidewalk locations) or GPR/Magnetometer cleared;

2. All personnel will wear the proper personal protective equipment (goggles, gloves and hard-hats);

3. SP-16 samplers will be installed either by truck/track mounted Geoprobe, or manually using a slide hammer and retrieval jack;

4. The SP-16 sampler utilizes a stainless-steel screen which is encased in an alloy steel sampler sheath. An expendable drive point is placed in the lower end of the sheath while a drive head is attached to the top. O-rings on the drive head and expendable point provide a watertight sheath which keeps contaminants out of the system as the sampler is driven to depth;

5. All sampler parts will be thoroughly cleaned before and after each use. All metal parts will be scrubbed using a stiff brush and a non-phosphate soap solution and then rinsed with distilled water and allowed to air-dry before assembly;

6. An O-ring will be placed on a steel expendable drive point. The expendable point will be firmly placed in the necked end of a sampler sheath;

7. A PE Grout Plug will be installed in the bottom end of a Wire-wound Stainless Steel Screen and an O-ring will be placed in the groove on the top end of the screen;

8. The screen will be placed inside of the sampler sheath with the grout plug toward the bottom of the sampler;

9. A bottom O-ring will be installed on a Drive Head. The drive head will be threaded into the sampler sheath using an adjustable wrench if necessary to ensure complete engagement of the threads. A Drive Cap will be attached to the top of the drive head;

10. The probe derrick will be extended a little over halfway out of the carrier vehicle when positioning for operation in order to provide adequate room for screen deployment with the Rod Grip Pull System;

11. The assembled sampler will be placed in the driving position beneath the hydraulic hammer of the direct push machine;

12. The sampler will be advanced with the throttle control at slow speed for the first few feet to ensure that the sampler is aligned properly. The sampler will be switched to fast speed for the remainder of the probe stroke;

13. The hammer assembly will be completely raised and the drive cap will be removed. An O-ring will be placed in the top groove of the drive head. Distilled water will be used to lubricate the O-ring if needed. A probe rod (length to be determined by operator) will be added and the drive cap will be reattached to the rod string. The sampler will be driven the entire length of the new rod with the throttle control at fast speed;

14. Step 13 will be repeated until the desired sampling interval is reached;

15. Approximately 12 inches (305 mm) of the last probe rod will extend above the ground surface to allow attachment of the puller assembly. A 12-inch (305 mm) rod may be added if the tool string is over-driven;

16. The drive cap will be removed and the probe derrick will be retracted away from the tool string;

17. A screen push adapter will be threaded on an extension rod of suitable length;

18. A threaded coupler will be attached to the other end of the extension rod. The extension rod will be lowered inside of the probe rod. An extension rod jig may be used to hold the rods;

19. Extension rods will be added until the adapter contacts the bottom of the screen;

20. At least 48 inches (1219 mm) of extension rod will protrude from the probe rod. An extension rod handle will be threaded on the top extension rod;

21. The probe assembly will be maneuvered into position for pulling;

22. The tool string will be raised (pulled) while the screen will be physically held in place with the extension rods. A slight knock with the extension rod string will help to dislodge the expendable point and start the screen moving inside the sheath;

23. The hammer and tool string will be raised about 44 inches (1118 cm). At this point the screen head will contact the necked portion of the sampler sheath and the extension rods will rise with the probe rods;

24. The rod grip handle will be removed, the hammer assembly will be lowered, and the probe derrick retracted. The top extension rod (with handle) and top probe rod will be removed and all extension rods will be extracted;

25. Ground water samples can now be collected with a bladder pump following the ground water sampling from temporary wells with a mechanical bladder pump procedure.

4.2 Ground Water Sampling from Temporary Wells with a Mechanical Bladder Pump

The USEPA Low Flow Purging and Sampling (LFPS) Ground Water Sampling Procedure (**Attachment 3**) will be used as a guide for ground water sampling from temporary monitoring wells. A mechanical bladder pump will be used with PE tubing. The pump will be lowered to the mid-point of the screened interval in each well.

1. Monitoring well sampling will begin at the least contaminated well based on available information. This strategy will minimize cross-contamination;

2. The well headspace will be screened using a PID;

3. Ground water field data will be collected before sampling the well. Any equipment making contact with the ground water and used to obtain data will be decontaminated prior to and after each use. A copy of a blank Monitoring Well LFPS Information is included as **Attachment 4**. It lists the parameters that will be collected in the field;

4. If any product is detected the depth of product will be recorded and a product sample will be collected for fingerprint analysis;

5. Data collected in the field will be recorded in a Field Log Book. Deviation from the sampling protocol and observed events that could affect the samples will be noted in the log book;

6. A mechanical bladder pump will be used at low pressure and flow rates (500 ml/min or less);

7. Parameters (pH, conductivity, redox potential, dissolved oxygen, turbidity, temperature) will be recorded every five minutes by a properly calibrated Horiba water lab;

8. After all parameters have stabilized (+/-0.1 for pH, +/-3% for conductivity, +/-10mv for redox potential, +/-10% for dissolved oxygen and turbidity, a minimum of 15 minutes and three parameter observation events) a sample will be collected at a flow rate between 100 and 250 ml/min;

9. Following the NYSDEC guidance "Policy Regarding Alteration of Ground Water Sample Collected for Metals Analysis (TAGM-4015)" included as **Attachment 5** and as per NYSDEC concurrence, if turbidity is repeatedly (three attempts) detected above 50 NTU an additional field filtered sample will be collected and field preserved from each permanent monitoring well for dissolved metals analysis and semivolatile analysis;

10. The water level will be checked before and after sampling to ensure that drawdown is less than 0.3 feet;

11. The pump will be properly decontaminated in between each monitoring well sampled;

12. The sample jar will be labeled: job/site name, sample ID, sample date, sample time, preservation used, and sampler name/affiliation. It will be stored in a cooler with ice;

13. A Chain of Custody (COC) will be completed for the collected samples. Refer to Attachment 3 of the Quality Assurance Project Plan (QAPP, Appendix 7 of the revised Remedial Investigation Work Plan) for a copy of the COC;

14. The samples will be delivered to the designated laboratory within 48 hours and analyzed within the appropriate holding time (detailed in Attachment 2 of the QAPP).

4.3 Permanent Ground Water Monitoring Well Installation

1. Permanent monitoring well installation will take place only after a location has been hand-cleared (required for sidewalk locations) or GPR/Magnetometer cleared;

2. All personal will wear the proper personnel protective equipment (goggles, gloves and helmets);

3. Monitoring wells will be advanced through the use of hollow-stem auger drill rig using 4.25-inch hollow stem augers;
4. Once the desired well depth has been achieved, 5 feet of 2-inch diameter machine slotted PVC well screen (0.020 inch slot size) will be installed in each borehole;
5. Solid PVC riser will complete the upper portion of each well. The connections between the screen and the riser will be flush-joint screw type with no adhesive required;
6. The wells will be filter packed with clean sand pack from the bottom of each borehole to approximately 2 feet above the top of the screen level;
7. The remainder of the annular space around the upper portion of each well will be grouted using Benseal and cement;
8. Monitoring wells will be completed to grade with locking caps and flushmount manholes.

4.4 Permanent Monitoring Well Ground Water Sampling with a Bladder Pump

The USEPA Low Flow Purging and Sampling (LFPS) Ground Water Sampling Procedure (**Attachment 2**) will be used as a guide for ground water sampling from permanent monitoring wells. A bladder pump will be used with dedicated Teflon tubing. The pump will be lowered to the mid-point of the screened interval in each well.

1. Permanent wells will be sampled no less than one (1) week after installation, to allow the monitoring well to develop naturally;

2. Monitoring well sampling will begin at the least contaminated well based on available information. This strategy will minimize cross-contamination;

3. For the permanent monitoring wells, before removal of the cap, the area directly outside of the well cap will be screened using a PID;

4. Upon removal of the cap, the well headspace will be screened using a PID;

5. Ground water field data will be collected before sampling the well. Any equipment making contact with the ground water and used to obtain data will be decontaminated prior to and after each use. A copy of a blank Monitoring Well LFPS Information is included as **Attachment 3**. It lists the parameters that will be collected in the field;

6. If any product is detected the depth of product will be recorded and a product sample will be collected for fingerprint analysis;

7. Data collected in the field will be recorded in a Field Log Book. Deviation from the sampling protocol and observed events that could affect the samples will be noted in the log book;

8. Low-flow Purging and Sampling (LFPS) procedures will be used in order to minimize inaccuracies in ground water sampling results from sediment perturbations. The EPA March 16, 1998 GW Sampling Standard Operating Procedure (SOP) will be used as a guideline for the LFPS procedure;

9. A bladder pump will be used at low pressure and flow rates to ensure that drawdown is less than 0.3 feet;

10. Dedicated Teflon tubing will be used at each monitoring well;

11. Parameters (pH, conductivity, redox potential, dissolved oxygen, turbidity, temperature) will be recorded every five minutes by a properly calibrated Horiba water lab;

12. After all parameters have stabilized (+/-0.1 for pH, +/-3% for conductivity, +/-10mv for redox potential, +/-10% for dissolved oxygen and turbidity, a minimum of 15 minutes and three parameter observation events) a sample will be collected at a flow rate between 100 and 250 ml/min;

13. Following the NYSDEC guidance "Policy Regarding Alteration of Ground Water Sample Collected for Metals Analysis (TAGM-4015)" included as **Attachment 5** and as per NYSDEC concurrence, if turbidity is repeatedly (three attempts) detected above 50 NTU an additional field filtered sample will be collected and field preserved from each permanent monitoring well for dissolved metals analysis and semivolatile analysis. Prior to the filtered sample collection, the monitoring well will be inspected for proper installation and any damage since the installation;

14. The water level will be checked before and after sampling to ensure that drawdown is less than 0.3 feet;

15. The pump will be properly decontaminated in between each monitoring well sampled;

16. The sample jar will be labeled: job/site name, sample ID, sample date, sample time, preservation used, and sampler name/affiliation. It will be stored in a cooler with ice;

15. A Chain of Custody (COC) will be completed for the collected samples. Refer to Attachment 3 of the Quality Assurance Project Plan (QAPP, Appendix 7 of the revised Remedial Investigation Work Plan) for a copy of the COC;

16. The samples will be delivered to the designated laboratory within 48 hours and analyzed within the appropriate holding time (detailed in Attachment 2 of the QAPP).

4.5 Decontamination Procedures for Non-Dedicated Equipment

Non-disposable sampling equipment, including the pump and support cable and electrical wires which contact the sample, will be decontaminated thoroughly each day before use ("daily decon") and after each well is sampled ("between-well decon"). Dedicated, in-place pumps and tubing will be thoroughly decontaminated using "daily decon" procedures prior to their initial use. All non-dedicated sampling equipment (pumps, tubing, etc.) will be decontaminated after each well is sampled. Soil sampling equipment will be decontaminated using the "Between-Well Decon Procedure".

Daily Decon Procedure:

1. Pre-rinse: Operate pump in a deep basin containing 8 to 10 gallons of potable water for 5 minutes and flush other equipment with potable water for 5 minutes;
2. Wash: Operate pump in a deep basin containing 8 to 10 gallons of a non-phosphate detergent solution, such as Alconox, for 5 minutes and flush other equipment with fresh detergent solution for 5 minutes. Use the detergent sparingly;
3. Rinse: Operate pump in a deep basin of potable water for 5 minutes and flush other equipment with potable water for 5 minutes;
4. Disassemble pump;
5. Wash pump parts: Place the disassembled parts of the pump into a deep basin containing 8 to 10 gallons of non-phosphate detergent solution;
6. Scrub all pump parts with a test tube brush;
7. Rinse pump parts with potable water;
8. Rinse the following pump parts with distilled/ deionized water: inlet screen, the shaft, the suction interconnector, the motor lead assembly, and the stator housing;
9. Place impeller assembly in a large glass beaker and rinse with 1% nitric acid (HNO3);

10. Rinse impeller assembly with potable water;
11. Place impeller assembly in a large glass bleaker and rinse with isopropanol;
12. Rinse impeller assembly with distilled/deionized water.

Between-Well Decon Procedure:

1. Pre-rinse: Operate pump in a deep basin containing 8 to 10 gallons of potable water for 5 minutes and flush other equipment with potable water for 5 minutes;
2. Wash: Operate pump in a deep basin containing 8 to 10 gallons of a non-phosphate detergent solution, such as Alconox, for 5 minutes and flush other equipment with fresh detergent solution for 5 minutes. Use the detergent sparingly;
3. Rinse: Operate pump in a deep basin of potable water for 5 minutes and flush other equipment with potable water for 5 minutes;
4. Final Rinse: Operate pump in a deep basin of distilled/deionized water to pump out 1 to 2 gallons of this final rinse water.

5.0 VAPOR SAMPLING

5.1 Sub-Slab Vapor Sampling

1. Prior to installation of the sub-slab vapor probe, the building floor will be inspected and any penetrations (cracks, floor drains, utility perforations, sumps, etc.) will be noted and recorded;
2. Probes will be installed at locations where the potential for ambient air infiltration via floor penetrations is minimal;
3. Sub-slab implants or probes will be constructed in the same manner at all sampling locations to minimize possible discrepancies;
4. If necessary, a hole in the concrete or asphalt will be drilled;
5. Temporary probes will be constructed with polyethylene tubing (1/4inch diameter). Tubing will not extend further than 2 inches into the sub-slab material;
6. The implant will be sealed to the surface with non-VOC-containing grout;
7. After installation of the probes, one to three volumes (i.e., the volume of the sample probe and tube) will be purged prior to collecting the samples to ensure samples collected are representative;
8. Samples will be collected in 6-Liter steel Summa® canisters (for analysis by using EPA Method TO-15);

9. Flow rates for both purging and collecting will not exceed 0.2 liters per minute to minimize ambient air infiltration during sampling;
10. Samples will be collected over the same period of time as concurrent outdoor air sample (approximately 60 minutes for 6-Liter Summa® canister samples);
11. Detailed field notes will be recorded during the sampling. Historic and current storage and uses of volatile chemicals will be identified. The existence and use of heating or air conditioning systems during sampling will be noted. Floor plan sketches will be drawn that include the floor layout with sampling locations, chemical storage areas, garages, doorways, stairways, location of basement sumps or subsurface drains and utility perforations through building foundations, HVAC system air supply and return registers, compass orientation (north), footings that create separate foundation sections, and any other pertinent information will be completed. Outdoor plot sketches will be drawn that include the building site, area streets, outdoor air sampling locations (if applicable), compass orientation (north), and paved areas. Weather conditions (e.g., precipitation and indoor and outdoor temperature) and ventilation conditions (e.g., heating system active and windows closed) will be reported. Any pertinent observations, such as spills, floor stains, smoke tube results, odors and readings from field instrumentation (e.g., vapors via PID, ppb RAE), will be recorded;
12. The field sampling team will maintain a sample log sheet summarizing the following:
    a. sample identification,
    b. date and time of sample collection,
    c. sampling depth,
    d. identity of samplers,
    e. sampling methods and devices,
    f. soil vapor purge volumes,
    g. volume of soil vapor extracted,
    h. vacuum of canisters before and after samples collected,
    i. apparent moisture content (dry, moist, saturated, etc.) of the sampling zone, and
    j. chain of custody protocols and records used to track samples from sampling point to analysis.

5.2 Soil-gas Sampling

A soil vapor intrusion assessment at the subject Site as per the NYSDOH *Guidance for Evaluating Soil Vapor Intrusion in the State of New York*, dated October 2006 (NYSDOH Guidance) is proposed. All air samples will be collected as per Section 2 of the NYSDOH Guidance.

All activities related to the soil vapor intrusion investigation, including the laboratory analysis and reporting of the data will be conducted in accordance with the referenced NYSDOH Guidance document.

1. Measures will be taken to ensure that an adequate surface seal is created to prevent outdoor air infiltration and a tracer gas will be used at every sampling location;
2. Soil vapor implants or probes will be constructed in the same manner at all sampling locations to minimize possible discrepancies;
3. An appropriate method based on site conditions will be used. An AMS Manual Soil-gas Vapor Probe (SGVP), which is a hollow, all-stainless steel probe with a penetrable tip, will be hammered into the ground to the desired depth (3 to 4 feet below the bottom of the impermeable surface);
4. The probe base is attached to a 3 feet probe extension, a second 3 feet probe extension will be necessary to achieve the desired depth;
5. A barbed adapter will be attached to a Teflon sampling tube (1/4 inch) through its threaded end;
6. The other end of the barbed adapter, attached to the Teflon tubing will be inserted to the bottom of the AMS SGVP, and rotated in order to thread the barbed adapter into the bottom of the AMS SGVP;
7. An extra 2 feet of extension Teflon tubing will be cut above the probe in order to connect to an evacuated 6-Liter Summa® Canister used for air sampling;
8. The AMS SGVP probe will be pulled upward, thereby exposing a screen within the probe tip from which the soil-gas sample will pass through;
9. One to three implant volumes (the volume of the sample probe and tube) will be purged prior to collecting the samples;
10. The flow rates for both purging and collecting will not exceed 0.2 liters per minute;
11. The valve on the Summa® Canister will be opened in order to collect the soil-gas sample. The Summa® Canister will be equipped with an appropriate flow controller and vacuum gauge and will be filled until the vacuum drops from -30 inches of mercury to about -5 inches of mercury. This may take approximately 60 minutes for the soil-gas sample collection;
12. The air samples collected in the Summa® Canisters will be analyzed using the USEPA Method TO-15;
13. A tracer gas (helium) will be used when collecting soil vapor samples to verify that adequate sampling techniques are being implemented (i.e., to verify infiltration of outdoor air is not occurring);
14. The immediate vicinity of the area where the probe intersects the ground surface will be enriched with the tracer gas, and a vapor sample from the probe will be measured for the presence of high concentrations (>10%) of the tracer;

15. A portable monitoring device will be used to analyze a sample of soil vapor for the tracer prior to and after sampling for the compounds of concern. (the tracer gas samples can be collected via syringe);
16. Care will be taken to avoid excessive purging prior to sample collection. Care will also be taken to prevent pressure build-up in the enclosure during introduction of the tracer gas;
17. If high concentrations (> 10%) of tracer gas are observed in a sample, the probe seal will be enhanced to reduce the infiltration of outdoor air;
18. Tracer gas will be used at every sampling location, every time;
19. Detailed field notes will be recorded during the sampling. Uses of volatile chemicals during normal operations of the facility will be identified, outdoor plot sketches will be drawn that include the site, area streets, neighboring commercial or industrial facilities (with estimated distance to the site), outdoor air sampling locations (if applicable), and compass orientation (north), weather conditions (e.g., precipitation and outdoor temperature) will be noted for the past 24 to 48 hours, and any pertinent observations will be recorded, such as odors and readings from field instrumentation;
20. The field sampling team will maintain a sample log sheet summarizing the following:

    a. sample identification,
    b. date and time of sample collection,
    c. sampling depth,
    d. identity of samplers,
    e. sampling methods and devices,
    f. purge volumes,
    g. volume of soil vapor extracted,
    h. if canisters are used, the vacuum before and after samples were collected,
    i. apparent moisture content (dry, moist, saturated, etc.) of the sampling zone, and
    j. chain of custody protocols and records used to track samples from sampling point to analysis.

5.3 Outdoor Air Sampling

In addition to the proposed sub-slab and soil-gas samples, at least one (1) outdoor air sample will be collected during each air sampling event in order to provide ambient or background data.

1. To ensure that air is representative of the locations sampled and to avoid undue influence from sampling personnel, samples will be collected for at least 1 hour;
2. Sample will be collected along the upwind perimeter of the property based on the field determined wind direction on the day of the sampling;
3. Personnel will avoid lingering in the immediate area of the sampling device while samples are being collected;

4. Sample flow rates will conform to the specifications in the sample collection method will be consistent with the flow rates for concurrent outdoor air and sub-slab samples;
5. Samples will be collected, using conventional sampling methods, in a Summa® canisters to be analyzed by using EPA Method TO-15);
6. Outdoor plot sketches will be drawn that include the building site, area streets, outdoor air sampling locations, the location of potential interferences (e.g., gasoline stations, factories, lawn movers, etc.), compass orientation (north), and paved areas. Weather conditions (e.g., precipitation and outdoor temperature) will be reported and any pertinent observations, such as odors, readings from field instrumentation, and significant activities in the vicinity (e.g., operation of heavy equipment or dry cleaners) will be recorded. Any pertinent observations, such as spills, floor stains, smoke tube results, odors and readings from field instrumentation (e.g., vapors via PID, ppbRAE, Jerome Mercury Vapor Analyzer, etc.), will be recorded;
7. The field sampling team will maintain a sample log sheet summarizing the following:

   a. sample identification,
   b. date and time of sample collection,
   c. sampling height,
   d. identity of samplers,
   e. sampling methods and devices,
   f. depending upon the method, volume of air sampled,
   g. vacuum of canisters before and after samples collected, and
   h. chain of custody protocols and records used to track samples from sampling point to analysis.

Attachment 1

Sample Soil Boring Log Form

Environmental Waste Management Associates, LLC
PO Box 5430, Parsippany, NJ, 07054
Phone: (973) 560-1400 Fax:(973) 560-0400

EWMA Job #:	
Boring #:	
Install Date:	

Site Name:			
Site Location:			
Completion Date:			
Geologist:		Drilling Co.:	
Driller:		Drill Rig:	
Bit:	Hammer Wt:	Drop:	Total Depth:
Sampler Type:		G.W. Encountered:	
		G.W. Stabilized:	

BORING LOCATION SKETCH (N.T.S)

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0"	RECOVERY (INCHES)	SOIL TYPE	SOIL/GEOLOGICAL DESCRIPTION	DEPTH (FT.)
1							1
2							2
3							3
4							4
5							5
6							6
7							7
8							8
9							9
10							10
11							11
12							12
13							13
14							14
15							15
16							16
17							17
18							18
19							19
20							20
21							21
22							22
23							23
24							24

Attachment 2

Sample Well Log

Environmental Waste Management Associates, LLC
PO Box 5430, Parsippany, NJ, 07054
Phone: (973) 560-1400 Fax:(973) 560-0400

EWMA Job #:	
Well #:	
Start Date:	

Site:	Well Permit #:
	Completion Date:
Geologist:	Drilling Co.:
Driller/Helper:	Drill Rig:
Drilling Method:	Type of Bit:

WELL LOCATION SKETCH (N.T.S)

Sampler Type:			Solid Riser:	
G.W. Encountered:	G.W. Stabilized:	Well Depth:	Screen Interval/Screen Type:	
Depth to Rim:	Borehole Diameter:	Well Diameter:	Grout:	Sand Pack/Open Borehole:

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	SOIL/GEOLOGICAL DESCRIPTION	DEPTH (FT.)	WELL CONSTRUCTION DIAGRAM (N.T.S)
1							1	
2							2	
3							3	
4							4	
5							5	
6							6	
7							7	
8							8	
9							9	
10							10	
11							11	
12							12	
13							13	
14							14	
15							15	
16							16	
17							17	
18							18	
19							19	
20							20	
21							21	
22							22	
23							23	
24							24	

Attachment 3

EPA Low-Flow Purging and Sampling (LFPS) Procedure

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION II

GROUND WATER SAMPLING PROCEDURE
LOW STRESS (Low Flow) PURGING AND SAMPLING

I. SCOPE & APPLICATION

This Low Stress (or Low-Flow) Purging and Sampling Procedure is the EPA Region II standard method for collecting low stress (low flow) ground water samples from monitoring wells. Low stress Purging and Sampling results in collection of ground water samples from monitoring wells that are representative of ground water conditions in the geological formation. This is accomplished by minimizing stress on the geological formation and minimizing disturbance of sediment that has collected in the well. The procedure applies to monitoring wells that have an inner casing with a diameter of 2.0 inches or greater, and maximum screened intervals of ten feet unless multiple intervals are sampled. The procedure is appropriate for collection of ground water samples that will be analyzed for volatile and semi-volatile organic compounds (VOCs and SVOCs), pesticides, polychlorinated biphenyls (PCBs), metals, and microbiological and other contaminants in association with all EPA programs.

This procedure does not address the collection of light or dense non-aqueous phase liquids (LNAPL or DNAPL) samples, and should be used for aqueous samples only. For sampling NAPLs, the reader is referred to the following EPA publications: DNAPL Site Evaluation (Cohen & Mercer, 1993) and the RCRA Ground-Water Monitoring: Draft Technical Guidance (EPA/530-R-93-001), and references therein.

II. METHOD SUMMARY

The purpose of the low stress purging and sampling procedure is to collect ground water samples from monitoring wells that are representative of ground water conditions in the geological formation. This is accomplished by setting the intake velocity of the sampling pump to a flow rate that limits drawdown inside the well casing.

Sampling at the prescribed (low) flow rate has three primary benefits. First, it minimizes disturbance of sediment in the bottom of the well, thereby producing a sample with low turbidity (i.e., low concentration

of suspended particles). Typically, this saves time and analytical costs by eliminating the need for collecting and analyzing an additional filtered sample from the same well. Second, this procedure minimizes aeration of the ground water during sample collection, which improves the sample quality for VOC analysis. Third, in most cases the procedure significantly reduces the volume of ground water purged from a well and the costs associated with its proper treatment and disposal.

III. ADDRESSING POTENTIAL PROBLEMS

Problems that may be encountered using this technique include a) difficulty in sampling wells with insufficient yield; b) failure of one or more key indicator parameters to stabilize; c) cascading of water and/or formation of air bubbles in the tubing; and d) cross-contamination between wells.

Insufficient Yield

Wells with insufficient yield (i.e., low recharge rate of the well) may dewater during purging. Care should be taken to avoid loss of pressure in the tubing line due to dewatering of the well below the level of the pump's intake. Purging should be interrupted before the water level in the well drops below the top of the pump, as this may induce cascading of the sand pack. Pumping the well dry should therefore be avoided to the extent possible in all cases. Sampling should commence as soon as the volume in the well has recovered sufficiently to allow collection of samples. Alternatively, ground water samples may be obtained with techniques designed for the unsaturated zone, such as lysimeters.

Failure to Stabilize Key Indicator Parameters

If one or more key indicator parameters fails to stabilize after 4 hours, one of four options should be considered: a) continue purging in an attempt to achieve stabilization; b) discontinue purging, do not collect samples, and document attempts to reach stabilization in the log book; c) discontinue purging, collect samples, and document attempts to reach stabilization in the log book; or d) Secure the well, purge and collect samples the next day (preferred). The key indicator parameter for samples to be analyzed for VOCs is dissolved oxygen. The key indicator parameter for all other samples is turbidity.

Cascading

To prevent cascading and/or air bubble formation in the tubing, care should be taken to ensure that the flow rate is sufficient to maintain pump suction. Minimize the length and diameter of tubing (i.e., 1/4 or 3/8 inch ID) to ensure that the tubing remains filled with ground water during sampling.

Cross-Contamination

To prevent cross-contamination between wells, it is strongly recommended that dedicated, in-place pumps be used. As an alternative, the potential for cross-contamination can be reduced by performing the more thorough "daily" decontamination procedures between sampling of each well in addition to the start of each sampling day (see Section VII, below).

Equipment Failure

Adequate equipment should be on-hand so that equipment failures do not adversely impact sampling activities.

IV. PLANNING DOCUMENTATION AND EQUIPMENT

- Approved site-specific Field Sampling Plan/Quality Assurance Project Plan (QAPP). This plan must specify the type of pump and other equipment to be used. The QAPP must also specify the depth to which the pump intake should be lowered in each well. Generally, the target depth will correspond to the mid-point of the most permeable zone in the screened interval. Borehole geologic and geophysical logs can be used to help select the most permeable zone. However, in some cases, other criteria may be used to select the target depth for the pump intake. In all cases, the target depth must be approved by the EPA hydrogeologist or EPA project scientist.

- Well construction data, location map, field data from last sampling event.

- Polyethylene sheeting.

- Flame Ionization Detector (FID) and Photo Ionization Detector (PID).

- Adjustable rate, positive displacement ground water sampling pump (e.g., centrifugal or bladder pumps constructed of stainless steel or Teflon). A peristaltic pump may only be used for inorganic sample collection.

- Interface probe or equivalent device for determining the presence or absence of NAPL.

- Teflon or Teflon-lined polyethylene tubing to collect samples for organic analysis. Teflon or Teflon-lined polyethylene, PVC, Tygon or polyethylene tubing to collect samples for inorganic analysis. Sufficient tubing of the appropriate material must be available so that each well has dedicated tubing.

- Water level measuring device, minimum 0.01 foot accuracy, (electronic preferred for tracking water level drawdown during all pumping operations).

- Flow measurement supplies (e.g., graduated cylinder and stop watch or in-line flow meter).

- Power source (generator, nitrogen tank, etc.).
- Monitoring instruments for indicator parameters. Eh and dissolved oxygen must be monitored in-line using an instrument with a continuous readout display. Specific conductance, pH, and temperature may be monitored either in-line or using separate probes. A nephalometer is used to measure turbidity.

- Decontamination supplies (see Section VII, below).

- Logbook (see Section VIII, below).

- Sample bottles.

- Sample preservation supplies (as required by the analytical methods).

- Sample tags or labels, chain of custody.

V. SAMPLING PROCEDURES

Pre-Sampling Activities

1. Start at the well known or believed to have the least contaminated ground water and proceed systematically to the well with the most contaminated ground water. Check the well, the lock, and the locking cap for damage or evidence of tampering. Record observations.

2. Lay out sheet of polyethylene for placement of monitoring and sampling equipment.

3. Measure VOCs at the rim of the unopened well with a PID and FID instrument and record the reading in the field log book.

4. Remove well cap.

5. Measure VOCs at the rim of the opened well with a PID and an FID instrument and record the reading in the field log book.

6. If the well casing does not have a reference point (usually a V-cut or indelible mark in the well casing), make one. Note that the reference point should be surveyed for correction of ground water elevations to the mean geodesic datum (MSL).

7. Measure and record the depth to water (to 0.01 ft) in all wells to be sampled prior to purging. Care should be taken to minimize disturbance in the water column and dislodging of any particulate matter attached to the sides or settled at the bottom of the well.

8. If desired, measure and record the depth of any NAPLs using an interface probe. Care should be taken to minimize disturbance of any sediment that has accumulated at the bottom of the well. Record the observations in the log book. If LNAPLs and/or DNAPLs are detected, install the pump at this time, as described in step 9, below. Allow the well to sit for several days between the measurement or sampling of any DNAPLs and the low-stress purging and sampling of the ground water.

Sampling Procedures

9. Install Pump: Slowly lower the pump, safety cable, tubing and electrical lines into the well to the depth specified for that well in the EPA-approved QAPP or a depth otherwise approved by the EPA hydrogeologist or EPA project scientist. The pump intake must be kept at least two (2) feet above the bottom of the well

to prevent disturbance and resuspension of any sediment or NAPL present in the bottom of the well. Record the depth to which the pump is lowered.

10. Measure Water Level: Before starting the pump, measure the water level again with the pump in the well. Leave the water level measuring device in the well.

11. Purge Well: Start pumping the well at 200 to 500 milliliters per minute (ml/min). The water level should be monitored approximately every five minutes. Ideally, a steady flow rate should be maintained that results in a stabilized water level (drawdown of 0.3 ft or less). Pumping rates should, if needed, be reduced to the minimum capabilities of the pump to ensure stabilization of the water level. As noted above, care should be taken to maintain pump suction and to avoid entrainment of air in the tubing. Record each adjustment made to the pumping rate and the water level measured immediately after each adjustment.

12. Monitor Indicator Parameters: During purging of the well, monitor and record the field indicator parameters (turbidity, temperature, specific conductance, pH, Eh, and DO) approximately every five minutes. The well is considered stabilized and ready for sample collection when the indicator parameters have stabilized for three consecutive readings as follows (Puls and Barcelona, 1996):

    ±0.1 for pH
    ±3% for specific conductance (conductivity)
    ±10 mv for redox potential
    ±10% for DO and turbidity

    Dissolved oxygen and turbidity usually require the longest time to achieve stabilization. The pump must not be removed from the well between purging and sampling.

13. Collect Samples: Collect samples at a flow rate between 100 and 250 ml/min and such that drawdown of the water level within the well does not exceed the maximum allowable drawdown of 0.3 ft. VOC samples must be collected first and directly into sample containers. All sample containers should be filled with minimal turbulence by allowing the ground water to flow from the tubing gently down the inside of the container.

Ground water samples to be analyzed for volatile organic compounds (VOCs) require pH adjustment. The appropriate EPA Program Guidance should be consulted to determine whether pH adjustment is necessary. If pH adjustment is necessary for VOC sample preservation, the amount of acid to be added to each sample vial prior to sampling should be determined, drop by drop, on a separate and equal volume of water (e.g., 40 ml). Ground water purged from the well prior to sampling can be used for this purpose.

14. Remove Pump and Tubing: After collection of the samples, the tubing, unless permanently installed, must be properly discarded or dedicated to the well for resampling by hanging the tubing inside the well.

15. Measure and record well depth.

16. Close and lock the well.

VI. FIELD QUALITY CONTROL SAMPLES

Quality control samples must be collected to determine if sample collection and handling procedures have adversely affected the quality of the ground water samples. The appropriate EPA Program Guidance should be consulted in preparing the field QC sample requirements of the site-specific QAPP.

All field quality control samples must be prepared exactly as regular investigation samples with regard to sample volume, containers, and preservation. The following quality control samples should be collected during the sampling event:

- Field duplicates
- Trip blanks for VOCs only
- Equipment blank (not necessary if equipment is dedicated to the well)

As noted above, ground water samples should be collected systematically from wells with the lowest level of contamination through to wells with highest level of contamination. The equipment blank should be collected after sampling from the most contaminated well.

VII. DECONTAMINATION

Non-disposable sampling equipment, including the pump and support cable and electrical wires which contact the sample, must be decontaminated thoroughly each day before use ("daily decon") and after each well is sampled ("between-well decon"). Dedicated, in-place pumps and tubing must be thoroughly decontaminated using "daily decon" procedures (see #17, below) prior to their initial use. For centrifugal pumps, it is strongly recommended that non-disposable sampling equipment, including the pump and support cable and electrical wires in contact with the sample, be decontaminated thoroughly each day before use ("daily decon").

EPA's field experience indicates that the life of centrifugal pumps may be extended by removing entrained grit. This also permits inspection and replacement of the cooling water in centrifugal pumps. All non-dedicated sampling equipment (pumps, tubing, etc.) must be decontaminated after each well is sampled ("between-well decon," see #18 below).

17. **Daily Decon**

A) Pre-rinse: Operate pump in a deep basin containing 8 to 10 gallons of potable water for 5 minutes and flush other equipment with potable water for 5 minutes.

B) Wash: Operate pump in a deep basin containing 8 to 10 gallons of a non-phosphate detergent solution, such as Alconox, for 5 minutes and flush other equipment with fresh detergent solution for 5 minutes. Use the detergent sparingly.

C) Rinse: Operate pump in a deep basin of potable water for 5 minutes and flush other equipment with potable water for 5 minutes.

D) Disassemble pump.

E) Wash pump parts: Place the disassembled parts of the pump into a deep basin containing 8 to 10 gallons of non-phosphate detergent solution. Scrub all pump parts with a test tube brush.

F) Rinse pump parts with potable water.

G) Rinse the following pump parts with distilled/ deionized water: inlet screen, the shaft, the suction interconnector, the motor lead assembly, and the stator housing.

H) Place impeller assembly in a large glass beaker and rinse with 1% nitric acid (HNO_3).

I) Rinse impeller assembly with potable water.

J) Place impeller assembly in a large glass bleaker and rinse with isopropanol.

K) Rinse impeller assembly with distilled/deionized water.

18. **Between-Well Decon**

A) Pre-rinse: Operate pump in a deep basin containing 8 to 10 gallons of potable water for 5 minutes and flush other equipment with potable water for 5 minutes.

B) Wash: Operate pump in a deep basin containing 8 to 10 gallons of a non-phosphate detergent solution, such as Alconox, for 5 minutes and flush other equipment with fresh detergent solution for 5 minutes. Use the detergent sparingly.

C) Rinse: Operate pump in a deep basin of potable water for 5 minutes and flush other equipment with potable water for 5 minutes.

D) Final Rinse: Operate pump in a deep basin of distilled/deionized water to pump out 1 to 2 gallons of this final rinse water.

VIII. FIELD LOG BOOK

A field log book must be kept each time ground water monitoring activities are conducted in the field. The field log book should document the following:

- Well identification number and physical condition.
- Well depth, and measurement technique.
- Static water level depth, date, time, and measurement technique.
- Presence and thickness of immiscible liquid layers and detection method.

- Collection method for immiscible liquid layers.
- Pumping rate, drawdown, indicator parameters values, and clock time, at three to five minute intervals; calculate or measure total volume pumped.
- Well sampling sequence and time of sample collection.
- Types of sample bottles used and sample identification numbers.
- Preservatives used.
- Parameters requested for analysis.
- Field observations of sampling event.
- Name of sample collector(s).
- Weather conditions.
- QA/QC data for field instruments.

IX. REFERENCES

Cohen, R.M. and J.W. Mercer, 1993, DNAPL Site Evaluation, C.K. Smoley Press, Boca Raton, Florida.

Puls, R.W. and M.J. Barcelona, 1996, Low-Flow (Minimal Drawdown) Groundwater Sampling Procedures, EPA/540/S-95/504.

U.S. EPA, 1993, RCRA Ground-Water Monitoring: Draft Technical Guidance, EPA/530-R-93-001.

U.S. EPA Region II, 1989, CERCLA Quality Assurance Manual.

Attachment 4

Monitoring Well LFPS Information (Blank Form)

Project Name:
Project Location:
Project Number:
EWMA Personnel:
Weather:
Date:

Water Quality Parameters

		Time 24 Hour	PH	Cond. us / cm	Turbidity NTU	Diss. Ox mg / L	Temp. oC	ORP mv
Depth to Water (initial)								
Depth to Water (final)								
Depth of Well (ft)								
Well Diameter (in)								
Screen Length (ft)								
Casing Type								
PID (initial)								
PID (final)								
Pump Type								
Tubing Type								
Max. Drawdown (ft)								
Purge Start Time								
Purge End / Sample Time								
Purge Rate (LPM)								
Purge Volume (L)								
Depth To Product								
Odor								
Comments:								

Water Quality Parameters

		Time 24 Hour	PH	Cond. us / cm	Turbidity NTU	Diss. Ox mg / L	Temp. oC	ORP mv
Depth to Water (initial)								
Depth to Water (final)								
Depth of Well (ft)								
Well Diameter (in)								
Screen Length (ft)								
Casing Type								
PID (initial)								
PID (final)								
Pump Type								
Tubing Type								
Max. Drawdown (ft)								
Purge Start Time								
Purge End / Sample Time								
Purge Rate (LPM)								
Purge Volume (L)								
Depth To Product								
Odor	None							
Comments:								

Attachment 5

NYSDEC Guidance "Policy Regarding Alteration of Ground Water Sample Collected for Metals Analysis (TAGM-4014)"

NEW YORK STATE
DEPARTMENT OF
ENVIRONMENTAL CONSERVATION

Policy Regarding Alteration Of Groundwater Samples Collected For Metals Analysis (TAGM - 4015)

Issuing Authority: Michael J. O'Toole, Jr.
Title: Director, Division of Environmental Remediation
Date Issued: September 30, 1988

A. Objective

The purpose of this Technical and Administrative Guidance Memorandum (TAGM) is to clarify the New York State Department of Environmental Conservation's (NYSDEC) Division of Hazardous Waste Remediation's policy of non-alteration of groundwater samples collected for metals analysis, as well as provide guidance for situations where the policy may be amended. This TAGM has been developed for the most commonly encountered form of a alteration (as defined in Section B), which is filtration (as defined in Section B), but the policy applies to all forms of groundwater sample alteration which may be encountered.

(*Note: This guidance is for situations involving groundwater samples collected for metals analysis only. It does not apply to surface water, waste or samples at active sites or State Pollution Discharge Elimination System discharges where the proper handling of samples may be dictated by other guidance or protocols.

Department policy regarding water samples collected for the analysis of organic compounds is expressly stated, in an Executive Memorandum dated May 3, 1985, from Commissioner Williams to Executive Staff, Division Directors, and Regional Directors, as follows: "Water samples utilized in the assessment, investigation, remedy, study, construction, monitoring or any other activity shall not be altered prior to analysis.")

B. Definitions

"Alteration" - changing the sample in any way other than adding a preservative, such as nitric acid, to lower pH. Examples of alternation include, but are not limited to: filtering, settling and decanting, centrifuging and decanting, and acid extracting.

"Filtration" - the filtering of a groundwater sample collected for metals analysis, through any membrane, fabric, paper or other filter medium irrespective of pore size, in order to remove

particulates from suspension; it is to be done in the field, at time of collection, prior to preservation.

"Preservation" - the preserving or "fixing" of metal ion constituents in a groundwater sample, so as to avoid precipitation, biodegradation, or loss of the ions from the sample. Methods utilized are as listed in the New York State Contract Laboratory Protocol (NYSCLP). Generally they involve the reduction of sample pH to <2 with HNO3 (nitric acid).

"Well Development" - the application of energy to a newly installed groundwater monitoring well in order to allow the natural hydraulic properties of the screened formation to return, thus allowing water to flow more freely to the well. It may also allow the removal of any formation material that may have infiltrated the sandpack and/or well during installation.

"NTU" - nephelometric turbidity unit; this is the unit by which turbidity is measured and discussed.

"50 NTU maximum" - target turbidity level for development and sampling of groundwater monitoring wells; any higher and the sample may be considered unacceptable. This is the level above which laboratory analysis problems may occur.

"Split Sample" - a single sample divided into aliquots.

"ARAR's" - Applicable or Relevant and Appropriate Requirements, as defined by the Superfund Amendments and Re-authorization Act of 1986 (Section 121).

"RCRA" - Resource Conservation and Recovery Act.

C. Existing Guidance

In accordance with 40 CFR 136, Guidelines Establishing Test Procedures for the Analysis of Pollutants Under the Clean Water Act; Final Rule and Interim Final Rule and Proposed Rule, Section 40 CFR Part 136.3, Table IB, Note 3, states a sample collected "for the determination of total metals... is not filtered before processing," whereas Section 40 CFR Part 136.3, Table II, Note 7, states for samples collected for dissolved metals analysis "should be filtered immediately on-site before adding preservative...".

Information provided in the RCRA Groundwater Monitoring Technical Enforcement Guidance Document, 1986, USEPA-OWPE, OSWER-9950.1, P. 114, is as follows:

"Metallic ions that migrate through the unsaturated (vadose) and saturated zones and arrive at a groundwater monitoring well may be in the well. Particles (e.g., silt, clay), which may be present in the well even after well evacuation procedures, may absorb or adsorb various ionic

species to effectively lower the dissolved metal content in the well water. Groundwater samples on which metals analysis will be conducted should be split into two portions. One portion should be filtered through a 0.45-micron membrane filter, transferred to a bottle, preserved with nitric acid to a pH less than two, and analyzed for dissolved metals. The remaining portion should be transferred to a bottle, preserved with nitric acid, and analyzed for total metals. Any difference in concentrations between the total and dissolved fraction may be attributed to the original metallic ion content of the particles and any sorption of ions to the particles."

Information provided in the RCRA Comprehensive Groundwater Monitoring Evaluation Document, March 1988, USEPA-OWPE, Directive 9950.2, p.22, is as follows:

"Metals

1. Samples collected for metals analysis should be split into two samples. One portion filtered through a 0.45 micron filter for dissolved metals and the second portion remaining unfiltered for total metals analysis. Samples should be filtered as soon as possible to minimize the impacts of pH and Eh changes."

Present Division guidance on filtering of groundwater samples collected for metals analysis consists of memorandum from N. Nosenchuck, Director, Division of Solid and Hazardous Waste, to P. Buechi, Region 9 Solid Waste Engineer, dated January 21, 1987, in response to a memorandum from P. Buechi to N. Nosenchuck dated December 4, 1986, in which Mr. Buechi inquired about the policy of the Division regarding the filtration of samples collected for metals analysis. The response memorandum stated the Division policy as follows:

"The Division of Solid and Hazardous Waste guidance is that samples submitted for metals analysis not be filtered prior to analysis. This general guidance, however, can be amended on a case-by-case basis, when it can be shown that a compelling reason exists for sample filtration. Such reasons could include the modeling of water treatment processes or the determination and/or elucidation of adsorptive distribution phenomena. Ground and surface water samples collected for the purpose of generating monitoring data or for site investigation must be analyzed whole."

D. Discussion

1) Goals of Site Investigations (Remedial Investigation/Phase II)

Generally, for the State Superfund program, the reasons for taking a groundwater sample at an inactive hazardous waste disposal site are:

1

1. to determine whether or not a significant threat to health or the environment exists;
   to characterize the site from the point of view of past history, present situation and any fu
1. actions that may be necessary;
1. to determine the nature and extent of contamination; and
1. to obtain sufficient data to support the choice of a remedy in the feasibility study.

2) Obtaining These Goals

First, to accomplish the above goals, the results of the sample analysis are compared with standards, guidelines and other ARAR's, as one element of determining whether or not a significant threat to human health or the environment exists. Because Part 703 groundwater standards and the State Health Department's drinking water standards are all based on samples that are not altered, samples from sites must be analyzed in their unaltered state so that a valid comparison can be made.

Second, characterization of the site, determination of the extent of contamination, and preparation of feasibility studies involve broadening the scope of work to include past and future conditions. Groundwater may be used in the future for drinking or irrigation purposes, or it may travel through the ground and intercept a well being used for potable water. Consequently, samples must be analyzed with these possibilities in mind. In order to investigate the significance of future use of groundwater at a site, groundwater monitoring wells must mimic such future use. Since groundwater is almost never filtered before being consumed or otherwise utilized, samples for site characterization must not be filtered as a standard procedure. In other words, analytical results obtained from filtered samples may not be representative of future use of the groundwater resource, and thus would not be particularly useful for evaluating the potential future toxicological impact of site contamination.

A counter-argument that has been raised is that the particulate matter in groundwater travels little distance, if at all, and therefore should not be evaluated as part of the groundwater resource that could be pumped out of the ground. The following is a rebuttal to such a counter-argument:

   desorption caused by a change in water chemistry, and sometimes caused merely by ch
   in the concentrations of constituents, can allow metals on particles to move through
1. groundwater even though particles themselves are remaining stationary; and
   there is recent circumstantial evidence that fine (colloid-size) particles are moving throug
   pores of coarse-grained (sand and gravel) deposits allowing the movement of sorbed
1. contaminants (EPA document number CERI-87-45, "Seminar on Transport and Fate of

1. Contaminants in the Subsurface").

In addition, wells which produce water via secondary permeability (i.e. fractures in bedrock) might produce water which may have substantial suspended sediment within it. This material is not to be filtered out.

E. General Guidance for Alteration of Samples

Non-alteration of groundwater samples collected for metals analysis shall be the standar operating procedure for the Division. It is never to be assumed or written into Phase II or

1. Remedial Investigation workplans that alteration of samples is or will be allowed or expe

In cases where turbidity of water samples collected for metals analysis exceeds the max allowable level for analysis, as allowed by the Division (50 NTU), NYSDEC will review th circumstances to determine the course of action. Samples have a turbidity greater than 5 NTU's are not to be filtered as a standard procedure. Samples below 50 NTU's are neve filtered. The rationale for any proposed filtration must be reviewed and approved by a

1. NYSDEC QA/QC officer prior to it being effected.

When unacceptably turbid groundwater samples are produced from a well, filtration is nc considered unless Division technical staff are certain the well was properly designed, ins constructed, developed, maintained, and samples. Filtration is never to be the "cure" for improperly built/developed wells which produce turbid samples. Attempts should be mad repurge and/or redevelop, or replace, the well as necessary (see: Decision Flow Chart, F 1), and to confirm, with documentation, proper well construction and installation. The Div technical staff who are involved must utilize best professional judgement in such cases t determine if the monitoring well has proper integrity.
(See RCRA TEGD, pp. 93-4, for discussion.) If, after a best effort at continuous developr (as agreed to by NYSDEC), it is apparent the 50 NTU's is unattainable in particular well, decision shall be made on a case-by-case basis to:

install a new well at the same location (this would be based on the conclusion tha assembly, filter pack, seals, and/or grout could be reinstalled so as to significantly

1. turbidity);
1. install a new well in a different (either vertically or horizontally) location; or

1. 1. accept the present well as the best well attainable by reasonable means.

F. Requirements For Allowing Filtration

FIGURE 1 - Decision Flow Chart for Filtration of Groundwater Samples Collected for Metals Analysis

Filtration of properly produced groundwater samples on which analysis for metals is to be performed will be allowed only if samples of unacceptably high turbidity are unavoidable. In this case, the following protocol must be followed:

Filtration as discussed in this context involves filtering as defined in Section B of this TAC should be performed consistent with the methods in the November, 1986, Environmental Protection Agency document entitled "Test Methods for Evaluating Solid Waste " (EPA-

1. SW846).

At no time are filtered samples to be collected without an accompanying unfiltered sampl Groundwater samples are to be collected using a minimally disturbing method (i.e. low ra bladder or peristaltic pumping, bailing, etc.). Two samples will be collected, the first of wh will be preserved immediately in an unaltered state, the second being filtered and preser immediately. The turbidity of the samples should be recorded at the time of collection. If s

1. samples are required, then both the filtered and unfiltered samples should be split.

Due to the relatively long holding time allowed for most metals, the following is recomme

1. Analyze the unfiltered sample first.
1. If the unfiltered sample exceeds ARAR's, analyze the filtered sample.

1. 1. If the unfiltered sample meets ARAR's, there is no need to analyze the filtered sar

Filtration methodology must be such that changes in water chemistry of the sample are minimized. Any precipitates which may form upon removal of the sample from the well (e iron floc) must not be filtered out, but redissolved by acidification/preservation. The methodology to be used must be reviewed and approved by a NYSDEC QA/QC officer p

1. implementation.

Thorough documentation of the procedure(s) used is required, so that analytical results r

1. be properly interpreted.

It may be necessary to design the analytical program to be able to answer the question whether metal contaminants are naturally occurring, or whether they were introduced thr man-made activities, by analyzing upgradient and background wells by this same metho best possible effort should be made for obtaining a "clean" or uncontaminated sample of horizon which is being screened, so as to allow a comparison of contaminant data to nat occurring metal ion concentrations in the aquifer matrix. This may be of critical importanc considering the potentially wide concentration ranges of various elements in native soils

1. (Dragun, 1988).

G. Related Issues

1. Goals Determination

The goals for, and the type of information desired from, the groundwater sampling progra must be determined prior to the commencement of any field work. If well integrity is foun exist, and turbidity is less than 50 NTU, then filtration is not considered. When considerir filtration, adsorptive phenomena must also be taken into account for a proper perspectiv when making this decision. It must not be assumed that the groundwater and aquifer ma are in equilibrium. The reactions between solid, liquid, and solution phases are complex, defined by reduction-oxidation reactions and pH as they affect solubility and exchange reactions (Trela, 1985, Lindsay, 1979). These relationships may be altered by removal o sample from the well, and subsequent exposure to the atmosphere (Stolzenburg and Nic

1. 1985).

Well Development

After allowing sufficient time for well seals and grouts to set (usually 24 hours), wells sho developed as soon as possible because:

if there is a problem with the well warranting replacement, every effort should be r

1. identify this need before the drill rig leaves the site; and

it is faster and easier to develop a well before silts and clays have begun to harde

1. 1. bottom of the screen.

Laboratory Handling

If turbid samples are to be analyzed, the issue of how the laboratory is to prepare the sa must be resolved beforehand. Laboratory procedures should be outlined, with review an

1. approval by a NYSDEC QA/QC officer.

FIGURE 1 - Decision Flow Chart for Filtration of Groundwater Samples Collected for Metals Analysis

References and Additional Reading

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APPENDIX 8

BORING LOGS/MONITORING WELL CONSTRUCTION DIAGRAMS

Environmental Waste Management Associates, LLC
PO Box 5430, Parsippany, NJ, 07054
Phone: (973) 560-1400 Fax:(973) 560-0400

EWMA Job #:	
Well #:	
Start Date:	

Site: 5-11 47th Avenue, Long Island City, NY	**Well Permit #:**
	Completion Date:
Geologist:	**Drilling Co.:**
Driller/Helper: Jeremy & Mark	**Drill Rig:** Bobble 312 Auger Rig
Drilling Method:	**Type of Bit:**

WELL LOCATION SKETCH (N.T.S)

Sampler Type: Split Spoon			**Solid Riser:**	
G.W. Encountered:	**G.W. Stabilized:**	**Well Depth:**	**Screen Interval/Screen Type:**	
Depth to Rim:	**Borehole Diameter:**	**Well Diameter:**	**Grout:**	**Sand Pack/Open Borehole:**

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	SOIL/GEOLOGICAL DESCRIPTION	DEPTH (FT.)	WELL CONSTRUCTION DIAGRAM (N.T.S)
1							1	
2							2	
3							3	
4							4	
5							5	
6							6	
7							7	
8							8	
9							9	
10							10	
11							11	
12							12	
13							13	
14							14	
15							15	
16							16	
17							17	
18							18	
19							19	
20							20	
21							21	
22							22	
23							23	
24							24	

APPENDIX 9

GROUND WATER SAMPLING LOG

Project Name:
Project Location: Long Island City, NY
Project Number: 207266
EWMA Personnel:
Weather:
Date:

Water Quality Parameters

MW-19S		Time 24 Hour	PH	Cond. us / cm	Turbidity NTU	Diss. Ox mg / L	Temp. oC	ORP mv
Depth to Water (initial)								
Depth to Water (final)								
Depth of Well (ft)								
Well Diameter (in)								
Screen Length (ft)								
Casing Type								
PID (initial)								
PID (final)								
Pump Type								
Tubing Type								
Max. Drawdown (ft)								
Purge Start Time								
Purge End / Sample Time								
Purge Rate (LPM)								
Purge Volume (L)								
Depth To Product								
Odor								
Comments:	ND = Not Detected							

Water Quality Parameters

MW-2		Time 24 Hour	PH	Cond. us / cm	Turbidity NTU	Diss. Ox mg / L	Temp. oC	ORP mv
Depth to Water (initial)								
Depth to Water (final)								
Depth of Well (ft)								
Well Diameter (in)								
Screen Length (ft)								
Casing Type								
PID (initial)								
PID (final)								
Pump Type								
Tubing Type								
Max. Drawdown (ft)								
Purge Start Time								
Purge End / Sample Time								
Purge Rate (LPM)								
Purge Volume (L)								
Depth To Product								
Odor								
Comments:	ND = Not Detected							

Water Quality Parameters

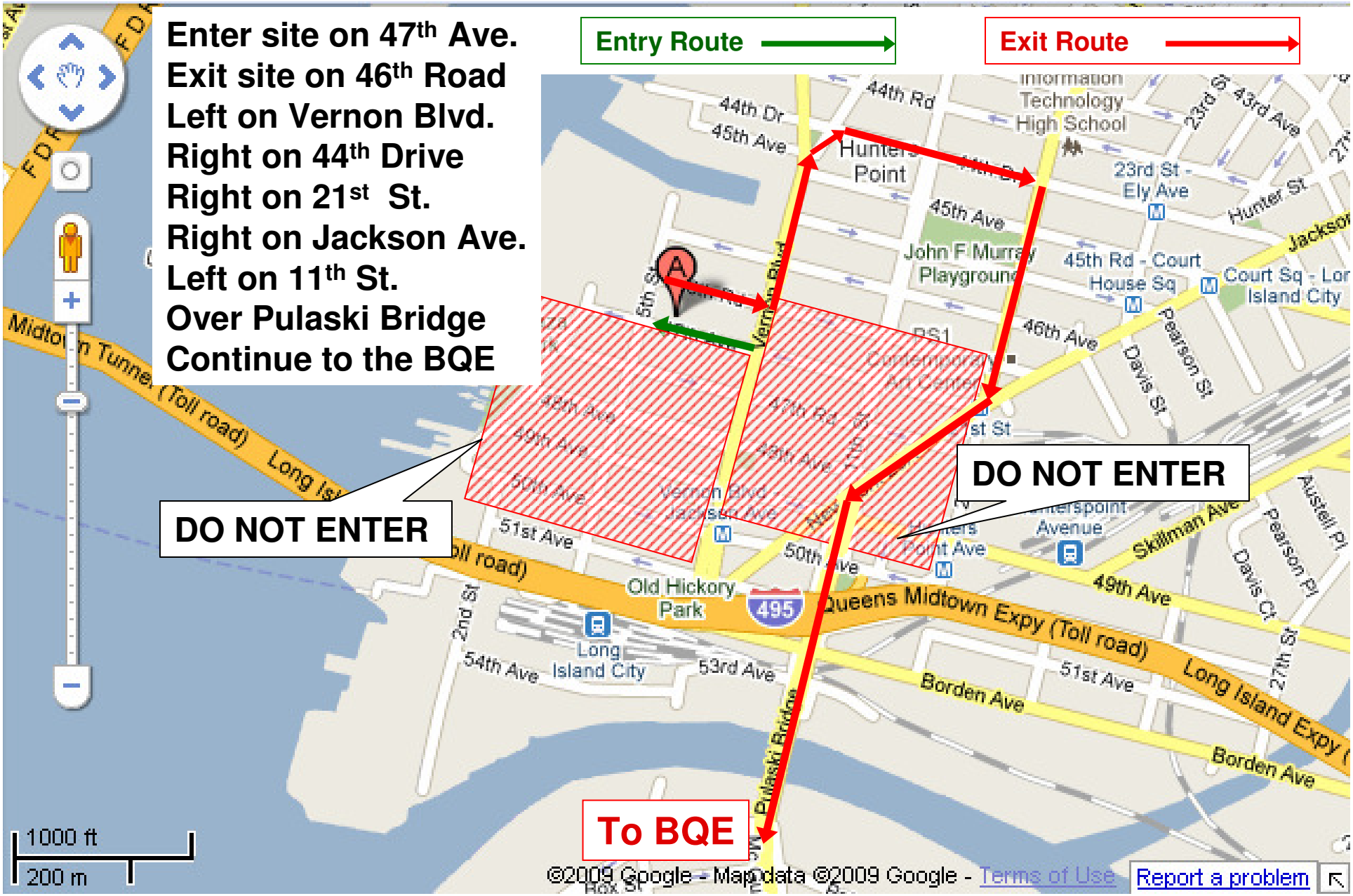
MW-3		Time 24 Hour	PH	Cond. us / cm	Turbidity NTU	Diss. Ox mg / L	Temp. oC	ORP mv
Depth to Water (initial)								
Depth to Water (final)								
Depth of Well (ft)								
Well Diameter (in)								
Screen Length (ft)								
Casing Type								
PID (initial)								
PID (final)								
Pump Type								
Tubing Type								
Max. Drawdown (ft)								
Purge Start Time								
Purge End / Sample Time								
Purge Rate (LPM)								
Purge Volume (L)								
Depth To Product								
Odor								
Comments:	ND = Not Detected							

APPENDIX 10

TRUCK ROUTE

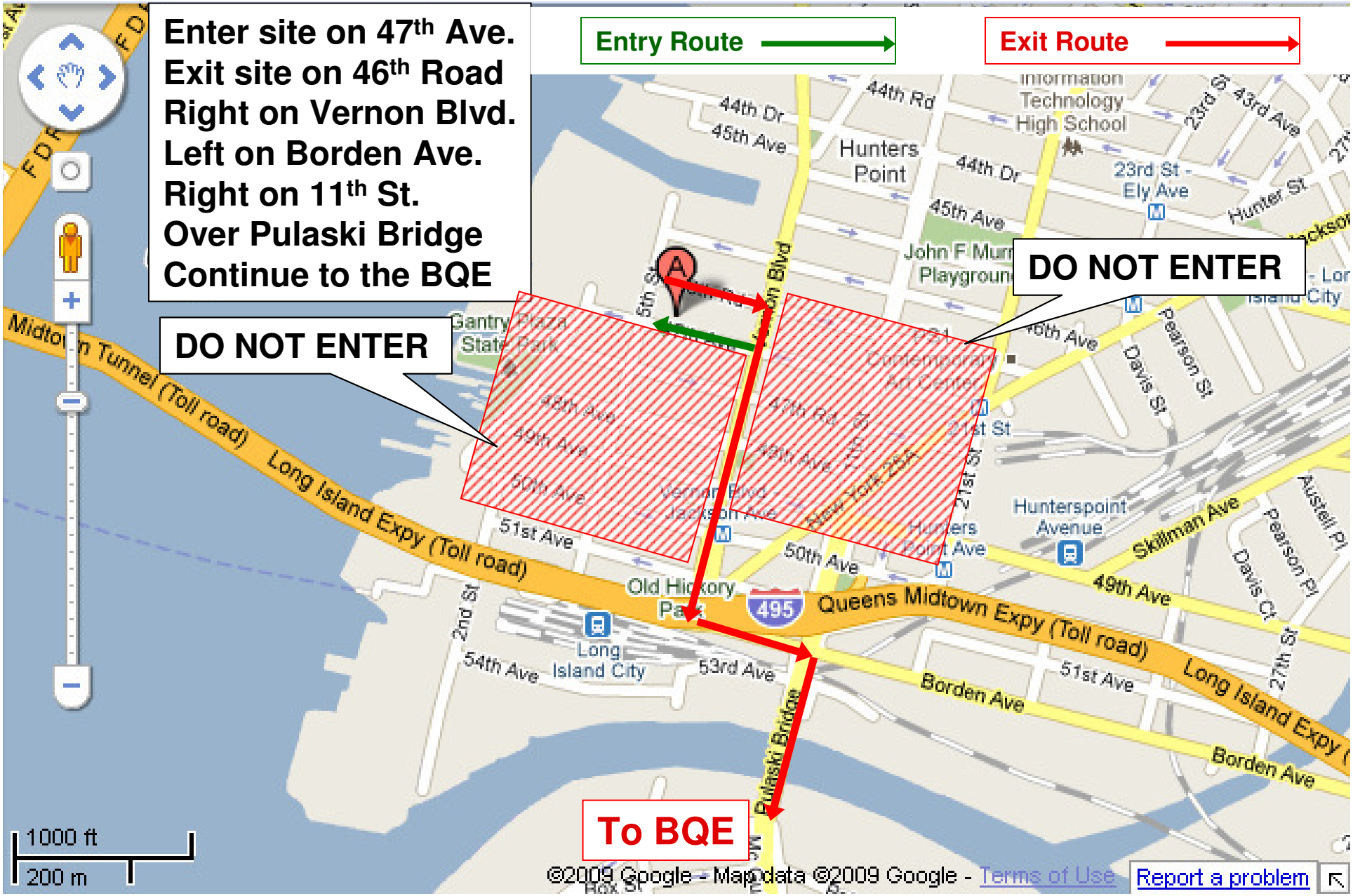
CS
CitiStructure

Truck Traffic Control Plan – Primary Route



CS
CitiStructure

Truck Traffic Control Plan – Secondary Route



APPENDIX 11

NOISE CONTROL PLAN

THE CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Bureau of Environmental Compliance
59-17 Junction Boulevard, 8th Floor, Flushing, New York 11373-5108

Emily Lloyd,
Commissioner

Robert C. Avaltroni,
Deputy Commissioner

ALTERNATIVE/NOISE MITIGATION PLAN CONTACT SHEET

LOCATION: 5-11 47th Avenue, LIC, NY

CONTACT PERSON: Ravi Reddy @ (201) 798-4470

PROJECT: _____

CHECK APPLICABLE BOX:
☒ NOISE MITIGATION PLAN
OR
☐ ALTERNATIVE NOISE MITIGATION PLAN

FROM 7AM TO 6PM THE PLAN IS AVAILABLE AT:
Construction Site Trailer

IF AN AFTER HOURS VARIANCE WAS APPROVED, THE PLAN IS AVAILABLE AT Same as above
OR BY CONTACTING _____
AT PHONE NUMBER _____

Construction Noise Mitigation Plan
FORM
REVISED July 22, 2008*

It is not necessary to file this document with DEP however, it must be accessible to inspectors.
The responsible party shall be liable for the accuracy of the document and compliance with all applicable rules in 15 RCNY Chapter 28.

I Contact Information

Name of Responsible Party as defined in 15 RCNY §28-109 Ravi Reddy / Citistructure LLC

Work Site Location with Borough BLOCK/LOT/Address 28 / 12 thru 28 / 5-11 47th Avenue

Contact Phone Number of Responsible Party 201-798-4470

Approximate Distance To Closest Receptor (defined in §28-109 of Title 15 of the Rules of the City of New York(RCNY)) 50 **feet.**

Demolition Construction Work is Taking Place from: Month Sept **Year** 2008 **to Month** March **Year** 2009.

Excavation Construction Work is Taking Place from: Month July **Year** 2009 **to Month** Sept **Year** 2009.

Foundation Construction Work is Taking Place from: Month Oct **Year** 2009 **to Month** March **Year** 2010.

Superstructure Construction Work is Taking Place from: Month March **Year** 2010 **to Month** Oct **Year** 2010.

Finishing Construction Work is Taking Place from: Month Aug **Year** 2010 **to Month** June **Year** 2011.

Other Construction Work is Taking Place from: Month May **Year** 2010 **to Month** July **Year** 2011.

Normal Work Hours (as defined in §24-222 of the Ad. Code) 7AM to 6PM.

Dept. of Transportation Permit number(s) see attached permits

Dept. of Buildings Permit number(s)____ see attached permits

II Construction Devices

Check applicable boxes below:
List of §102 construction devices to be used at the site.

When the additional devices listed below each category are utilized, the use of barriers as set forth in section IV herein is not required unless the Dept. of Environmental Protection receives complaints as set forth in §28-102(C) of Title 15 of the RCNY for each device. If however, the specific devices listed below each main category of devices are not checked, and you are using any of the main devices listed below, then the use of barriers set forth in Section IV herein shall be utilized. However, if you specified "other" in a category, you shall be required to utilize barriers as set forth in Section IV herein.

☒ **PILE DRIVERS** Granda 20M Impact Hammer
- ☒ Vibratory Pile Driver or Hydraulic Impact Pile Driver as defined in 102(a)(1)(B)(ii)
- ☐ Noise Bellows as defined in 102(a)(1)(B)(viii)
- ☐ No;

☒ **JACKHAMMERS** See Sunbelt Rental Spec
- ☒ Quieter makes and models as defined in 102(a)(2)(B)(i)
- ☐ No;

☐ **HOE RAMS**
- ☐ Quieter makes and models as defined in 102(a)(3)(B)(i)
- ☐ Noise Shroud as defined in 102(a)(3)(B)(iii
- ☒ No;

☐ **BLASTING**

☐ **VACUUM EXCAVATORS**
- ☐ Smaller Capacity vac-truck as defined in 102(b)(1)(B)(i)
- ☐ Silencer as defined in 102(b)(1)(B)(iii)
- ☒ No;

☒ **DUMP TRUCKS**
- ☒ US Made European Environmental Label equipment or equivalent as defined in 102(c)(1)(B)(iii)
- ☐ No;

☒ **CRANES**
- ☒ Modern Hydraulic Crane as defined in 102(d)(1)(B)(ii)
- ☐ US Made European Environmental Label equipment or equivalent as defined in 102(d)(B)(1)(iii)
- ☐ No;

☒ **CONCRETE SAWS**

☐ **SANDBLASTING**

☐**AUGER DRILL RIGS**.
☒**OTHER**
Excavator CAT325D & CAT319D
_____
_____
_____
_____

III Additional Construction Devices

List of additional applicable construction devices to be used at the site:
☒GENERATORS, ☒COMPRESSORS, ☒STREET PLATES, ☒BACKUP ALARMS
☒ PUMPS

Note: DEP will utilize the Federal Highway Administration Roadway Construction Model as a means of identifying equipment either in Section II or III, that may be the cause of a noise complaint, *see* §28-101(a) of Title 15 of the RCNY for compliance options.

IV Mitigation Barriers

Noise Mitigation Barriers Utilized: If required as set forth in §28-101(g) of Title 15 of the RCNY.
Required to use Perimeter barrier /DOB construction fence or temporary/moveable barrier ☐yes ☐no?

PILE DRIVERS
☒Perimeter barrier/DOB Construction Fence or ☐Temporary barrier ☐Moveable barrier

JACKHAMMERS
☒Perimeter barrier/DOB Construction Fence or ☐Temporary barrier ☐Moveable barrier

HOE RAMS
☒Perimeter barrier/DOB Construction Fence or ☐Temporary barrier ☐Moveable barrier

BLASTING
☐Perimeter barrier/DOB Construction Fence or ☐Temporary barrier ☐Moveable barrier

VACUUM EXCAVATORS
☒Perimeter barrier/DOB Construction Fence or ☐Temporary barrier ☐Moveable barrier

DUMP TRUCKS
☒Perimeter barrier/DOB Construction Fence or ☐Temporary barrier ☐Moveable barrier

CRANES
☒Perimeter barrier/DOB Construction Fence or ☐Temporary barrier ☐Moveable barrier

AUGER DRILL RIGS
☐Perimeter barrier/DOB Construction Fence or ☐Temporary barrier ☐Moveable barrier

STREET PLATES
☐Perimeter barrier/DOB Construction Fence or ☒Temporary barrier ☒Moveable barrier

BACKUP ALARMS
☒Perimeter barrier/DOB Construction Fence or ☐Temporary barrier ☐Moveable barrier

CONCRETE SAWS
☒Perimeter barrier/DOB Construction Fence or ☐Temporary barrier ☐Moveable barrier

*Use latest version of the plan which can be found on the DEP Website at www.nyc.gov/dep/html/airnoise.html.

I Name of Responsible Party of the Company hereby certify the information contained in this form is true and accurate.

Signature Date

_____
NOTARY PUBLIC

APPENDIX 12

SITE WIDE INSPECTION FORM

An Environmental Consulting & Remediation Firm

Phone: (609) 799-7300
Fax: (609) 799-0108
www.ewma.com

OCA LIC SITE-WIDE INSPECTION FORM

To: Project Manager
From: Environmental Observer
Cc: Remediation Engineer
Date: ...

RE: Results of OCA LIC Site-Wide Inspection on Recorded Date

In-Out Times:
Communication Summary:
Weather:
Personnel at Sites:
Development Status:
Ongoing Construction Activities:

Specific Inspection Findings:

- Overall Site Conditions;
- Composite Cover Conditions;
- Groundwater Monitoring Network Conditions;
- LNAPL Remediation System Conditions;
- Vapor Instrusion Control System Conditions.

Needed Responses to Encountered Conditions:

- Responses Conducted During Site Visit;
- Responses Requiring Additional Support;
- Immediate Response Requirements.

On-site or Neighborhood Complaints/Concerns:

- Complaints/Concerns from Site Personnel;
- Complaints/Concerns from Regulators;
- Complains/Concerns from the Public.

APPENDIX 13

USEPA DEED NOTICE LETTER

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 2
290 BROADWAY
NEW YORK, NY 10007-1866

MAR 29 2007

Mr. Dan C. Walsh
Division of Environmental Remediation
New York State Department of Environmental Conservation, Region 2
47-40 21st Street
Long Island City, New York 11101-5407

Re: 5-20 46th Road, Long Island City, New York
RCRA Section 7003 Administrative Order,
Docket No. II-RCRA-7003-91-0201

Dear Mr. Walsh:

The U.S. Environmental Protection Agency ("EPA") has been notified by the New York State Department of Environmental Conservation ("NYSDEC") that the above-referenced property is included in an application to the Brownfields Cleanup Program ("BCP") administered by NYSDEC (Site No. C241098). The subject property represents approximately fifteen percent of the total area to be developed. The applicant developer, OCA Long Island City LLC, proposes to demolish the existing building at the above-referenced address, and in doing so, to remove any hazardous waste from the building site, in accordance with BCP requirements under NYSDEC supervision.

Pursuant to the above referenced RCRA Section 7003 Administrative Order for the property, effective May 29, 1991, the Order's Respondents filed a Notice in Deed in the Queens County City Register on July 14, 1993, No. 47605. The Notice in Deed stated that lead, arsenic and selenium are encapsulated beneath portions of the floor and walls at the premises, and that the RCRA Section 7003 Order required that the encapsulation be maintained. The Notice in Deed was the final action required by Respondents pursuant to the RCRA Section 7003 Order, as all other removal and remediation actions were satisfactorily performed. Accordingly, aside from the Notice in Deed, EPA does not consider the RCRA Section 7003 Order to be an ongoing enforcement action.

The property demolition will be carried out under NYSDEC supervision, pursuant to the proposed BCP Agreement. EPA therefore consents to the suspension of the Notice in Deed, No. 47605, and the termination of that Notice in Deed upon completion of the remedial program carried out pursuant to the BCP. The suspension and termination are contingent upon the Brownfields Cleanup Agreement being filed in the same place and manner as the Notice in Deed, No. 47605, upon execution of the Agreement, together with a copy of this letter.

If for any reason the BCP development project is terminated prior to the demolition of the property at 5-20 46th Road, please advise this office as soon as practicable so that EPA may take such further action as may be warranted.

Please call Leonard Grossman, of my staff, at (212)637-4153, if you have any questions regarding this matter.

Sincerely,

Dore LaPosta, Director
Division of Enforcement and Compliance Assistance

NOTICE IN DEED

The property located at 5-20 46th Road, Long Island City, City of New York, Borough of Queens, County of Queens, Block 28, Lot 21, ("Premises")* was the subject of an Administrative Order, Docket No. II RCRA-7003-91-0201 ("Order") dated May 24, 1991, issued by the United States Environmental Protection Agency ("EPA") pursuant to the Resource Conservation and Recovery Act ("RCRA"), Section 7003.

Pursuant to the Order, the owner undertook certain removal, investigative and remedial activities at the premises. The remedial activities were undertaken by the owner with EPA's approval.

The remedial activities took the form of encapsulation of the contaminated soil beneath portions of the building floor and encapsulation of contaminants located in portions of the concrete floor and walls. Let all who read this be on notice that lead, arsenic and selenium are encapsulated beneath portions of the floor and within portions of the walls of the premises. Any and all renovations at the premises must be undertaken with care so that the integrity of the encapsulation is maintained. Furthermore, any and all operating leases affecting the premises must advise of these same conditions.

*This notice applies to that portion of the premises which is referenced in the survey attached hereto.

The EPA is satisfied with the work undertaken at the premises, provided the encapsulation is maintained and inspected periodically to verify its integrity. The United States Environmental Protection Agency considers that all required activities pursuant to the above-referenced Administrative Order are completed.

By: Accurate Associates

Milton Brodsky

Pres.

Accurate Associates
5-36 46th Road
Long Island City, NY

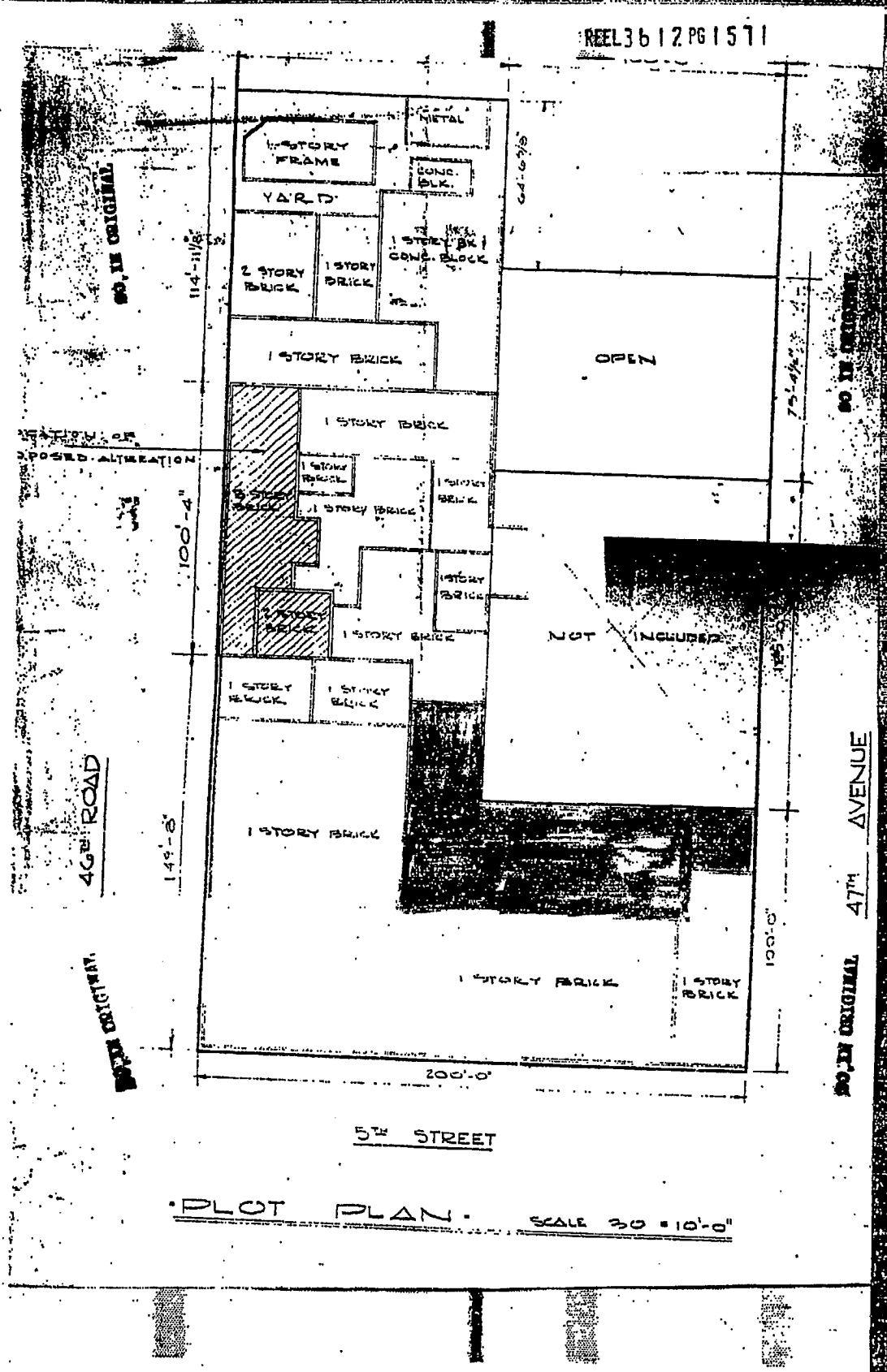
STATE OF NEW YORK)
: SS.:
COUNTY OF QUEENS)

On the 2 day of JULY, 1993, before me personally came MILTON BRODSKY to me known, who, being by me duly sworn, did depose and say that he resides at _____; that he is a partner in the partnership known as Accurate Associates; the entity described in and which executed the foregoing instrument; and that he signed his name thereto by authority of that partnership.

John S. Vitello
Notary Public

JOHN S. VITELLO
Notary Public, State of New York
No. 43-464-1042
Qualified in Richmond County
Commission Expires 4/30/93

REEL 3612 PG 1571



PLOT PLAN. SCALE 30 = 10'-0"

47605

1323

07-14-93 Q-03 O-CONV 810523
PAID O-CONV $23.00

RECORDED IN QUEENS COUNTY

1993 JUL 14 P 3:16

LEASE PROVISION

The premises was the subject of an Administrative Order Docket No. II RCRA-7003-91-0201, dated May 24, 1991, issued by the United States Environmental Protection Agency ("EPA") pursuant to the Resource Conservation and Recovery Act ("RCRA"), Section 7003. In accordance with EPA's Order, the landlord undertook certain removal, investigative and remedial activities at the premises. The remedial activities were undertaken by the landlord with EPA's approval. The remedial activities took the form of encapsulation of contaminated soil beneath portions of the building floor and encapsulation of contaminants located in portions of the concrete floor and walls.

THEREFORE, the tenant shall not undertake any renovations or other activities which may breach the floor surface or otherwise jeopardize the integrity of the floor. Tenant shall immediately notify landlord if protective encapsulation of the floor and/or walls wears away, becomes damaged or loses its protective quality in any way. Tenant shall not use acids or strong abrasives for cleaning of floors and walls nor use heavy vibrating machinery. Tenant shall periodically inspect the floors and walls to evaluate the condition of the coating.

F:\DMS\VILLANI.DIR\0379083.WP

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION II
JACOB K. JAVITS FEDERAL BUILDING
NEW YORK, NEW YORK 10278-0012

05 NOV 1993

Ms. Miriam E. Villani, Esq.
Rifkin, Radler & Kremer
EAB Plaza
Uniondale, New York 11556-0111

Re: Accurate Associates
Docket No. II RCRA-7003-91-0201

Dear Ms. Villani:

This letter will confirm your notice to EPA by letter dated July 21, 1993, that Accurate Associates has filed the agreed upon Notice In Deed with the Queens County City Register. Such filing occurred on July 14, 1993, and was assigned serial number 47605. In addition, you have confirmed that any and all operating leases signed by Accurate Associates will include the lease provision as agreed.

These activities conclude respondent Accurate Associates' activities under the above-referenced § 7003 Order. Please note, however, that Accurate has an ongoing obligation to protect the encapsulation of the hazardous material at the facility and to insure that lessees do so as well.

Sincerely,

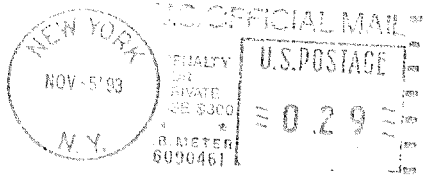
Betsy Donovan
Environmental Scientist

cc: R. Hazen, ORC

UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION II
JACOB K. JAVITS FEDERAL BUILDING
NEW YORK, NEW YORK 10278

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, $300

AN EQUAL OPPORTUNITY EMPLOYER



Ms. Miriam E. Villani, Esq.
Rifkin, Radler & Kremer
EAB Plaza
Uniondale, New York 11556-0111

APPENDIX 14

VAPOR INTRUSION CONTROL

APPENDIX 14 – VAPOR INTRUSION CONTROL SYSTEM

SUMMARY TABLE OF CONTENTS

1.0 INTRODUCTION AND DESCRIPTION

1.1 Introduction

This Appendix provides operating, maintenance, and monitoring information for the planned vapor intrusion control systems that will be installed beneath building enclosures at the site. Detailed architectural and engineering designs for the planned site development are not yet finalized. Upon building design finalization, detailed vapor intrusion control system plans and specifications will be prepared by the Building Design Engineers and Architects (BDEA), and the vapor intrusion controls will be installed under the direction of the Remedial Engineer in

accordance with those requirements. Accordingly, vapor intrusion control guidance is provided in Section 2.2.1.2 of the SMP, and operating, maintenance and monitoring information is provided in this Appendix to the SMP.

1.2 Background

Based on the requirements of the RAWP and Decision Document, vapor intrusion control systems will be installed beneath all occupied buildings at the site. Building slabs will be either above the seasonal high water table, or at/below the seasonal high water table. The vapor intrusion controls systems will be installed to address those two conditions as set forth in the SMP.

1.3 Objectives

The objectives of this Appendix are to:

1. provide operating, maintenance, and monitoring information for the planned vapor intrusion control systems that will be installed beneath building enclosures at the site; and
2. provide information for BDEA and the Remedial Engineer to utilize in preparing final, detailed design plans and specifications for installation of the vapor intrusion control systems based on the finalized architectural and engineering plans.

2.0 SUMMARY OF SAMPLING RESULTS

The RI sampling results indicate the presence of VOCs in soil vapor at the Site. When compared to the NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York (Oct. 2006), the results suggest that a potential for soil vapor intrusion exists at the Site. This potential has already been mitigated in part by excavation of contaminated soil at the Site. Further mitigation will be accomplished by installation of vapor intrusion control systems beneath all occupied buildings to be constructed on the Site.

3.0 DESCRIPTION OF THE REMEDIAL ACTION

Future development plans include buildings with foundation slabs constructed either above the seasonal high water table with vapor barriers suitable for vapor intrusion control, or at/below the seasonal high water table with heavier waterproof vapor barriers suitable for prevention of water infiltration and vapor intrusion control. In accordance with the requirements of the SMP, vapor intrusion control features will be installed during the construction of all occupied buildings and will be in continuous operation after the completion of construction and prior to building occupancy. The vapor intrusion control features are described below.

A layer of geotechnical fabric for prevention of sub-grade soil infiltration into the overlying clean crushed stone layer will be placed on level, compacted sub-grade at a depth of six inches below designed bottom of all slabs, with minimum two foot overlaps of individual fabric sheets; ¾-inch clean crushed stone will then be placed on the geotechnical fabric and leveled and compacted to a minimum layer thickness of six inches;

Porous or slotted pipe laterals will be installed within the vertical center of the ¾-inch clean crushed stone layer with the offset openings down if porous pipe is used to prevent stone infiltration into the pipe. These laterals will be installed from front to back of each building at spacings to be determined during final design, and will be supported by slabs using pipe hangars to prevent pipe damage in the event of post-construction soil settlement beneath the buildings. Each lateral will be capped at one end and connected to either a vent header/manifold or directly to vent riser piping at the other end;

A vapor barrier will be placed over the ¾-inch stone layer and installed as a continuous liner that is sealed/bonded to the bottom surface of all slabs on grade. Overlaps of liner material will be provided at all exterior edges of slabs, and the vapor barrier will be sealed/bonded to exterior wall liner material to provide a continuous liner that extends from bottom surface of slabs to exterior surface of exterior walls;

A similar vapor barrier will be installed as a continuous liner that is sealed/bonded to the exterior surface of all below grade exterior walls;

The sub-slab piping will be connected to riser piping that will transition through the vapor barrier and building slab or through the building frost wall to locations that are above top of slab in the building or above grade exterior to the building. These locations will be as determined in final design;

The riser piping will be above top of slab or above grade, depending on whether the riser piping is installed within or exterior to building, and will be routed through an accessible control box where the piping will be fitted with a sampling and measurement port and with a balancing valve as called for in the final design;

From the control box the piping will be routed to an electrically powered suction fan(s) and then on to riser piping that will terminate above the roof-line with tee fitting(s) at top. The exhaust system will be fitted with an alarm system that will provide alarm within the maintenance manager's office in the event of deficient vacuum pressure;

For system testing at start-up, interior building slabs will be fitted with four small monitoring points near the building corners. The monitoring points will be installed through and sealed in the building slab, will be screened in the crushed stone layer beneath the slab, and will be completed safe for personnel traffic flush with top of slab using a flush mount fitting with accessible plug for periodic measurement use during initial start-up during re-starts as may be needed subsequent to system repairs.

4.0 GENERAL REMEDIATION SYSTEM INFORMATION

The primary components of the VIC System, from top to bottom, are described below (see the SMP and Figure 15 if further clarification is needed):

1. A layer of geotechnical fabric for prevention of sub-grade soil infiltration into the overlying clean crushed stone layer;
2. ¾-inch clean crushed stone placed on the geotechnical fabric and leveled and compacted to a minimum layer thickness of six inches;
3. Porous or slotted pipe laterals installed within the vertical center of the ¾-inch clean crushed stone layer;
4. Vent header/manifold or direct vent riser piping connected to the lateral piping and then to vent riser piping for transition from the sub-slab to the above slab area;
5. Sub-slab vapor barrier placed over the ¾-inch stone layer and installed as a continuous liner that is sealed/bonded to the bottom surface of all slabs on grade;

6. Exterior wall vapor barrier installed as a continuous liner that is sealed/bonded to the exterior surface of all below grade exterior walls;
7. Vent riser piping transitioning from the sub-slab area up through the vapor barrier and building slab or out through the building frost wall;
8. Accessible control box where riser piping controls and measurement ports are located including a balancing valve as called for in the final design;
9. Accessible suction fan with riser piping connected to influent end and running from effluent end up toward the roof-line;
10. Alarm system with telemetry if needed to provide alarm within the maintenance managers office in the event of deficient vacuum pressure;
11. Monitoring points within the building interior to support sub-slab vacuum testing at start-up and as needed during re-starts after system repair work.

All of these components are readily available, known to BDEA and Remedial Engineer practitioners, and practical for use in the planned development construction.

5.0 STARTUP AND CONTINGENT SYSTEM OPERATIONS

After start-up of the SSDS in a given building, the interior monitoring points will be subjected to sub-slab vacuum measurement to demonstrate a sub-slab differential pressure (with respect to building interior ambient pressure) of –0.002 inches of water across the entire sub-slab area. Alarms for each vent riser pipe with suction fan will then be installed in a central location (i.e., building maintenance office). The alarm will be activated if any of the following occur: if the water level in the horizontal piping prevents suction; if a circuit blows on any of the vacuum blowers and causes it to cease operation; and/or, if any of the suction fans malfunction and cease operating. Should the alarm trigger, onsite personnel will contact the Remedial Engineer to address the situation. As a contingency, if the planned building will not have a full-time on-site maintenance person who will notice the alarm condition, then a telemetry system will be installed to dial out a notification to the Remedial Engineer.

If the installed suction fans do not provide sufficient vacuum pressure across the entire sub-slab area, then, as a contingency, they will be upgraded or replaced with a vacuum manifold system and central, more powerful vacuum blowers that will provide the required vacuum levels.

6.0 OPERATIONAL CONTROLS AND REQUIREMENTS

The operations control plans that will be in effect during the performance of the work are documented in the Operation and Maintenance Plan (Chapter 4.0 of the SMP), and are listed below:

- Health and Safety Plan;
- Community Air Monitoring Plan;
- Quality Assurance Project Plan/Field Sampling Procedures Plan;

The site specific health & safety plan (HASP) for this project is provided in Appendix 4 of the SMP. The HASP will be applied during the installation work based upon potential for contact and characterization of work tasks.

The site-specific Community Air Monitoring Plan (CAMP) that is included in Appendix 5 of the SMP will be followed during all intrusive work. During work which is not intrusive and does not disturb the sub-grade, the CAMP requirements are not applicable. However, daily interior and perimeter monitoring of vapor and dust levels will be performed and mitigation measures will be performed in the unlikely event that vapor or dust levels exceed site applicable standards.

The site QAPP (Appendix 7 of the SMP) will be applied to any sampling which may be needed to support the installation of the vapor intrusion control system, although no sampling and analysis work is currently anticipated for that purpose.

7.0 SYSTEM OPERATIONS AND MAINTENANCE

Annual inspections will be performed by trained staff under the supervision of the Remedial Engineer and will include visual examination of vent riser piping, control boxes, and exhaust fans. The results of the annual inspection will be documented the annual Site Management Report.

In the event that any deficiencies are noted, the deficiency will be reported to NYSDEC and the property owner, and corrective action shall be taken in the form of repair or rehabilitation as needed to restore system operation. The Remedial Engineer will be responsible to ensure that any corrective actions are completed in accordance with this SMP.

Subsequent to the completion of any SSDS repair work the system will be re-started and it will be necessary to verify a sub-slab differential pressure (with respect to building interior ambient pressure) of –0.002 inches of water. To achieve this goal, the following actions will be performed during re-startup of the SSDS.

1. Shortly after re-start, the sub-slab pressure at each monitoring point will be measured utilizing an appropriate hand-held instrument. If necessary, sub-slab vacuum will be adjusted to achieve –0.002 inches of water at each monitoring point. The control box controlling the vacuum to the sub-slab lateral piping will be utilized to balance the sub-slab pressure;
2. The operation of the warning device for exhaust fan malfunction will be confirmed. If a concern is noted, it will be addressed until the appropriate level of vacuum is achieved before the building can be certified for occupancy;
3. The results of the start-up and testing will be reported to the NYSDEC in the annual Site Management Report.

Routine maintenance and inspection will be conducted to ensure that the active components of the VIC are operating properly and will continue until NYSDEC and NYSDOH have determined there is no need for such a system. The operation of the SSDS will not be discontinued without written approval from the NYSDEC. On a monthly basis, qualified building personnel will confirm that the suction fan and warning device are working properly.

On an annual basis, the following will performed:

1. Conduct a visual inspection of the complete system;
2. Inspect the exhaust fan(s) for bearing failures or signs of other abnormal operations, and repair or replace if required;
3. Inspect the discharge location of the vent pipe to ensure that no air intake or operable window is located nearby;

4. Determine, through discussions with building management, if any HVAC system modifications have occurred that might affect the performance of the SSDS; and
5. Inspect the floor slab and foundation walls for evidence of cracks and/or holes, and repair of cracks and/or holes, if required.

Non-routine maintenance would typically occur when the warning device indicates the system is not working properly, or the system becomes damaged. The scope of non-routine maintenance will vary depending upon the situation. In general, the following actions will be taken as part of non-routine maintenance:

- Examine the building for structural or HVAC system changes, or other changes that may affect the performance of the SSDS (e.g., new combustion appliances or deterioration of the concrete slab);
- Examine and address the operation of the warning device and the suction fan, and measure the sub-slab pressure at monitoring points; and
- Repair or adjust the SSDS as appropriate. If necessary, the SSDS should be redesigned and restarted (see Section 4.2.1.2 for system startup).

8.0 MONITORING. DOCUMENTATION AND REPORTING

Maintenance reports and any other information generated during regular operations at the site will be kept on-file at the site. All reports, forms, and other relevant information generated will be available to the NYSDEC upon request and submitted as part of the annual Site Management Report, as specified in Section 5 of this SMP.

The Inspection Checklist will be completed during each routine maintenance event. Checklists and forms will include but not be limited to the following information:

- Date;
- Name, Company, and position of person(s) conducting maintenance activities;
- Maintenance activities conducted;
- Any modifications to the system;

- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents noted (included either on the checklist/form or on an attached sheet) and;

- Other documentation such as copies of invoices for maintenance work, receipts for replacement equipment, etc. (attached to the checklist/form).

During each non-routine maintenance event, a form will be completed which will include, but not be limited to, the following information:

- Date;

- Name, company, and position of person(s) conducting non-routine maintenance/repair activities;

- Presence of leaks;

- Date of leak repair;

- Other repairs or adjustments made to the system;

- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents (included either on the form or on an attached sheet); and,

- Other documentation such as copies of invoices for repair work, receipts for replacement equipment, etc. (attached to the checklist/form).

All inspections will be conducted at the frequency specified in the schedules provided in Section 3 Monitoring Plan and Section 4 Operation and Maintenance Plan of this SMP. At a minimum, a site-wide inspection will be conducted annually. Inspections of remedial components will also be conducted when a breakdown of any SSDS component has occurred or whenever a severe condition has taken place, such as an erosion or flooding event that may affect the SSDS.

All inspections and monitoring events will be recorded. Additionally, a general site-wide inspection form will be completed during the site-wide inspection (see **Appendix 12).** These forms are subject to NYSDEC revision.

All applicable inspection forms and other records, including all media sampling data and system maintenance reports, generated for the site during the reporting period will be provided in electronic format in the annual Site Management Report.

The results of the inspection and site monitoring data will be evaluated as part of the EC/IC certification to confirm that the:

- EC/ICs are in place, are performing properly, and remain effective;
- The Monitoring Plan is being implemented;
- Operation and maintenance activities are being conducted properly; and, based on the above items,
- The site remedy continues to be protective of public health and the environment and is performing as designed in the RAWP and FER.

9.0 PROPOSED SCHEDULE

The following schedule is provided for implementation of the VIC System:

- VIC System Design — Concurrent with building design
- VIC System Installation with RE oversight — Concurrent with slab installation
- VIC System Inspection with RE oversight — During and after system installation
- Verification of Sub-Slab Vacuum Levels — After system startup
- Annual Inspections — Annually before SMP report

APPENDIX 15

LOWER SAND UNIT LNAPL REMEDIATION SYSTEM

APPENDIX 15 – LOWER SAND UNIT LNAPL REMEDIATION SYSTEM

SUMMARY TABLE OF CONTENTS

1.0 INTRODUCTION AND DESCRIPTION

1.1 Introduction

The Remedial Investigation Report dated March 2009 indicated that LNAPL was detected in the lower sand unit in the eastern sector of the site. As addressed in the July 2009 RAWP and in the May 2010 RDR, provision was made for remediation of LNAPL in the lower sand unit at the site. This remediation work is described in the SMP and is underway.

1.2 Background

The LNAPL encountered in the lower sand unit during the RI was found in a semi-round plume area of about 5,000 square feet area, and the LNAPL was found consistently across the plume area with thicknesses measured in-wells ranging from 0.1 to 8.5 feet.

1.3 Objectives

The objectives of the lower sand unit LNAPL remediation system O&M plans are:

- Prepare for Site development by supporting the required LNAPL remediation;
- Provide operations/procedure manual for the lower sand unit LNAPL remediation system.

2.0 SUMMARY OF SAMPLING RESULTS

The lower sand unit LNAPL area has been subjected to investigation during the RI work and to subsequent investigation during installation of LNAPL recovery and monitoring wells. The LNAPL was identified and tied to an off-site up-gradient petroleum fuel source by GC fingerprinting and evaluation of the RI data.

3.0 DESCRIPTION OF THE REMEDIAL ACTION

Ten 4-inch recovery/monitoring wells were installed with top of 5-foot screens set directly beneath the bottom of a clayey peat confining layer and within the area of plume concern. Ten 4-inch recovery/monitoring wells were installed with top of 5-foot screens typically set about 10-feet beneath the bottom of the clayey peat layer and below the plume to provide means of monitoring the groundwater quality beneath the plume and to provide treatment utilities if needed in the future. A sheet pile capture wall was installed down-gradient of the plume area, with five 6-inch diameter recovery wells installed directly up-gradient of the capture wall with screens set from bottom of clayey peat layer to bottom of capture wall to provide means of recovering LNAPL trapped by the wall. Four [4]-inch monitoring wells were also installed as two couplets down-gradient of the capture wall to provide a means of monitoring lower sand unit LNAPL presence and groundwater quality downgradient of the capture wall in the same manner as will be monitored by the twenty 4-inch wells upgradient of the wall in the plume area. The screens for these wells were set in the same manner as the

screens for the ten well couplets upgradient of the capture wall in the area of plume concern. Finally, nine perimeter recovery/monitoring wells were installed around the site perimeter for contingent recovery of LNAPL at the site perimeter and for monitoring the LNAPL and groundwater conditions around the site perimeter in the lower sand unit.

The remediation system was subjected to a one-week performance test and remediation was implemented and is ongoing at a frequency of one recovery event every two weeks.

The recovery work is being performed with use of pumping and/or vacuum enhanced fluid extraction methods using the 4-inch recovery wells within the plume area and 6-inch recovery wells immediately upgradient of the capture wall. The effort is targeted to wells that contain measurable LNAPL (i.e., greater than 0.02-feet in thickness).

During implementation of the LNAPL recovery activities, the standard protocols and rules for waste management and disposal are being followed, on-site storage of waste liquids is within tank wagons or in drums provided with secondary containment shelter. Quarterly reports will be submitted to the NYSDEC project manager during the operation of the LNAPL recovery system which will include a summary of the field data collected (depth to water, LNAPL thickness at the start and the end of the recovery event, quarterly groundwater monitoring results, etc.).

4.0 GENERAL REMEDIATION SYSTEM INFORMATION

The primary components of the lower sand unit LNAPL System are described below:

1. Twenty-five recovery/monitoring wells have been installed in the plume area in the eastern sector of the site, screened with 10-slot screen below the clayey peat unit that acts as an overlying confining layer for the LNAPL;
2. A sheet pile capture wall has been installed down-gradient of the identified LNAPL plume area;
3. Four monitoring wells have been installed down-gradient of the capture wall to monitor the conditions in that portion of the site;
4. Nine recovery/monitoring wells have been installed around the perimeter of the site;
5. A vacuum tanker with various hoses, fittings and controls, is brought in and utilized at the site periodically and sent off-site for disposal during one day of operations. The advantage of the vacuum tanker operations, especially during winter weather, is that the extracted LNAPL/water mix is conveyed directly into the tanker without

concern for on-site freezing or damage to equipment. In addition, the vacuum tanker is able to exert substantive extraction force on the extraction wells and is capable of providing vacuum enhanced fluid extraction services which is likely to become the most optimal form of extraction given the site conditions. When the vac truck is used for vacuum enhanced fluid extraction, it will be used with a downwell stinger tube that will be set near the bottom of screen in the targeted well, with a wellhead seal provided above. In this way, the extaction effort will mobilize both vacuum forces and water table drawdown effects to pull an oily water mixture into the well for conveyance up into the vac truck. This is an extremely efficient means of accomplishing LNAPL removal and is particularly useful during winter months when the vac truck will be on site anyway for the perched unit LNAPL remediation work.

6. To date, a Spill Buddy has been the primary tool used to support the LNAPL removal operations. This piece of equipment is a portable down-well skimming system that has previously been documented in the LNAPL Remedial Design Report. It is a compact, manual, free product skimming system, designed to be operated on site to skim quantities of product. The Spill Buddy's operation is based on sensors in the probe that detect the interface between the product and the water. An audible feedback signals the user to keep the pump positioned in the product layer, and allows product skimming with virtually no water pumped. A catalog cut sheet is included with this Appendix;
7. Storage equipment consists of either the vacuum tanker if used for removal purposes or a secondary containment shed manufactured by New Pig that is used to store DOT rated 55 gallon steel drums in which the extracted product will be stored prior to off-site disposal. A catalog cut sheet is included as an attachment to this Appendix;
8. Measurement equipment includes a Solinst interface probe that will be used to measure the thickness of the LNAPL. A catalog cut sheet is included with this Appendix. A catalog cut sheet is included with this Appendix.

5.0 CONTINGENT SYSTEM OPERATIONS

Under the SMP, the system performance will be evaluated and optimized. In the unlikely event that enhanced extraction techniques with desorbing agents are needed to facilitate the LNAPL removal, then an evaluation of the best treatment agents will be made based on field data and bench scale studies. The trigger for this will be a performance evaluation by the

Remedial Engineer. If, in the opinion of the Remedial Engineer, enhanced extraction techniques with desorbing agents is needed, then a pilot test workplan for this activity will be proposed to NYSDEC and will be subject to approval by NYSDEC.

If groundwater treatment is necessary, then an evaluation of the best treatment methods will be made based on the field data and field pilot testing. Possible treatment approaches may be the oxygenation by injection of ORC slurry to the deeper lying wells in the lower sand unit beneath the LNAPL plume, or by isco injection or by bioventing techniques.

6.0 OPERATIONAL CONTROLS AND REQUIREMENTS

The operations control plans that will be in effect as applicable during the performance of the work are documented in the SMP, are provided as appendices to the SMP, and are listed below:

- Health and Safety Plan;
- Community Air Monitoring Plan;
- Stormwater Pollution Prevention Plan;
- Quality Assurance Project Plan/Field Sampling Procedures Plan;
- Noise Control Plan;

Site security practices, traffic control measures, work hours, and noise control measures will remain in effect. BCP signage will continue to be displayed. Odor, dust, and other nuisance control measures will remain in effect.

The site specific health & safety plan (HASP) for this project is the same as the HASP used for work performed under the NYSDEC approved RAWP dated July 2009. The HASP will be applied during the installation work based upon potential for contact and characterization of work tasks.

The site-specific Community Air Monitoring Plan (CAMP) that is included in the SMP will be followed during all chemically enhanced injection and extraction activities. During extraction-only events, the requirements of the NYSDOH Generic CAMP (see DER-10, Appendix 1A) will be followed:

> "Periodic monitoring for VOCs will be required during non-intrusive 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."

During the non-intrusive extraction events, daily interior and perimeter monitoring of vapor levels will be performed, and mitigation measures will be performed in the event that vapor levels exceed site applicable standards as identified in the site HASP included as Appendix 4 of the SMP. As indicated in Section 5.0 of the site HASP, mitigation measures for elevated vapors may include covering emissions area with plastic sheeting, spraying with vapor suppression foams, etc.

The Contractor's Site Operations Plan will be utilized for performance of the LNAPL Remediation work.

The site QAPP will be applied to any sampling and analysis that may be needed to support the LNAPL remediation.

7.0 SYSTEM OPERATIONS AND MAINTENANCE

The primary O&M task needed for the operation of this system is the extraction task. This task was performed daily during a one week test after installation of the lower sand unit LNAPL remediation utilities, and subsequent has been performed every two week. After the SMP is active this task will be performed at least once per month and perhaps more frequently if beneficial with equipment mobilization for the perched unit LNAPL remediation that will be running concurrently.

The O&M scope for the LNAPL System will be performed by trained, competent, responsible individual under the supervision of the Remedial Engineer in order to:

- perform annual inspections;
- obtain as required periodic measurements of water level and LNAPL thickness in the wells
- visually examine the wells and storage unit
- visually examine the water level device, interface probe, and Spill Buddy
- extract LNAPL from the wells using a vacuum tanker or Spill Buddy and storage unit; and

- report system results to the Remedial Engineer to be documented in weekly and monthly update reports to be submitted to NYSDEC along with the annual Site Management Report.

In the event that any deficiencies are noted, the deficiency shall be reported to NYSDEC and the property owner, and corrective action shall be taken in the form of repair or rehabilitation to restore system operation. The Remedial Engineer will be responsible to ensure that any corrective actions are completed in accordance with this SMP. If there are technical questions regarding the inspection results, then the Remedial Engineer shall be contacted for technical support.

The LNAPL System startup and testing activity is completed. The system does not require warning devices or an operating manual because it is not a mechanical system.

There are no routine operating procedures for this system. The system collects LNAPL that is extracted from the wells and conveyed to a vacuum tanker for off-site disposal or interim stored in 55-gallon drums with a secondary contained storage unit.

The extraction/injection wells and system piping do not require routine maintenance, but there are three components that are likely to need maintenance. These are the water level device, interface probe, and Spill Buddy. These will be cleaned regularly, checked for effective operation and accurate measurement, and kept in a protective case free from dust or other adverse. In the event the repair or maintenance is needed, the Remedial Engineer shall be notified and shall determine whether or not on-Site repair is possible or whether the instrument should be returned to the manufacturer or rental firm for repair or maintenance.

The non routine equipment maintenance situations that are anticipated for the LNAPL System are possible damage to the wells, equipment or instruments. In the event of damage to any of these components they shall be repaired or replaced in kind in conformance with the provisions of this SMP and certified by the Remedial Engineer. In the event that LNAPL yield decreases significantly, the Remedial Engineer shall notify NYSDEC and will take steps to address the concern including possible well redevelopment by a qualified driller.

8.0 MONITORING. DOCUMENTATION AND REPORTING

The LNAPL System has previously been described in detail, does not require remote monitoring, and requires no monitoring of mechanical function other than periodic annual inspection that is primarily intended to identify damage to wells, storage unit, or spill buddy extractor.

The previously presented SMP monitoring schedule provides for annual inspection of the wells, storage unit and spill buddy extractor.

It should be noted that the inspection frequency is subject to change with the approval of the NYSDEC. Unscheduled inspections and/or sampling may take place when a suspected failure of the System has been reported or when an emergency has occurred that is deemed likely to affect the system operation.

Other than the wells, storage unit and spill buddy extractor there is no equipment to monitor and these components are subject to annual inspection. Therefore no additional monitoring is planned.

A visual inspection of the visible portions of the complete system will be conducted during each inspection event, and the wells, storage unit, and spill buddy will be visually examined during those events. The Inspection Checklist is included with this Appendix.

The LNAPL System as engineered does not require monitoring devices and alarms. It is a very simple, passively operating system whose only mechanically operating components are the spill buddy, and those components are portable units that are easily repaired.

Assessment of the LNAPL recovery efforts will be made if the yield is found to drop significantly. This will included an assessment of possible clogging of the extraction well screen or other factors that may affect the function of the extraction wells. If this assessment concludes that well re-development is needed then that activity will be performed by a qualified driller. If the assessment concludes that the volume of recoverable LNAPL is significantly reduced then a request for chang in the frequency or method of extraction may be submitted to NYSDEC for approval.

The LNAPL System requires groundwater quality sampling from the lower sand unit wells. Refer to Table C and Table D of the SMP for wells to be sampled, frequency and analytical parameters. The system performance evaluation will be based on measurements of water level and LNAPL thickness with a water level device and interface probe. Refer to Table C and Table D of the SMP for the frequency for the fluid levels measurements.

Maintenance reports and any other information generated during regular operations at the site will be kept on-file at the site. All reports, forms, and other relevant information generated will be available to the NYSDEC upon request and submitted as part of the Periodic Review Report, as specified in Section 5 of the SMP.

Checklists and forms will be completed during each routine maintenance event. Checklists and forms will include but not be limited to the following information:

- Date;
- Name, Company, and position of person(s) conducting maintenance activities;
- Maintenance activities conducted;
- Any modifications to the system;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents noted (included either on the checklist/form or on an attached sheet) and;
- Other documentation such as copies of invoices for maintenance work, receipts for replacement equipment, etc. (attached to the checklist/form).

During each non-routine maintenance event, a form will be completed which will include, but not be limited to, the following information:

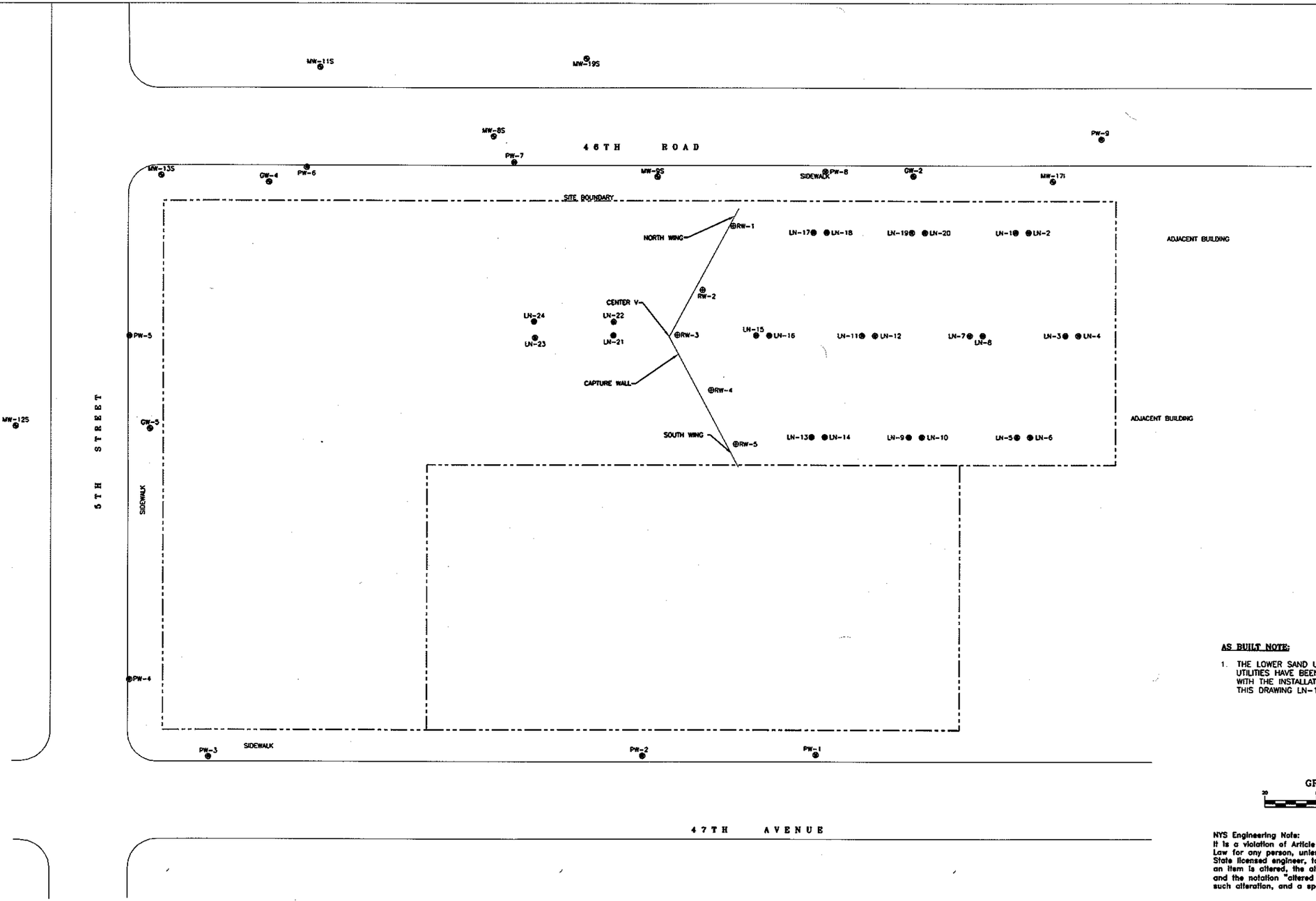
- Date;
- Name, company, and position of person(s) conducting non-routine maintenance/repair activities;
- Presence of leaks;
- Date of leak repair;
- Other repairs or adjustments made to the system;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents (included either on the form or on an attached sheet); and,
- Other documentation such as copies of invoices for repair work, receipts for replacement equipment, etc. (attached to the checklist/form).

9.0 SCHEDULE FOR IMPLEMENTATION

The following schedule is provided for implementation of the NAPL Remediation System.

- Injection & Extraction Well Installation Completed
- Field Pilot Testing Completed

• Initiate Remedial Operations	Completed
• Twice Monthly Extraction Operations	End December 31, 2010
• Monthly Extraction Operations	During 2011
• Quarterly groundwater sampling minimum	Through January 2012,
• Evaluation and adjustment of Operations	January 2012



AS BUILT NOTE:

1. THE LOWER SAND UNIT LNAPL REMEDIATION UTILITIES HAVE BEEN INSTALLED IN ACCORDANCE WITH THE INSTALLATION DETAILS PRESENTED ON THIS DRAWING LN-1 AS-BUILT.

GRAPHIC SCALE

20 0 10 20 40

(IN FEET)

NYS Engineering Note:
It is a violation of Article 145 Section 7209(2) of New York State Education Law for any person, unless he is acting under the direction of a New York State licensed engineer, to alter an item of this document in any way. If an item is altered, the altering engineer shall affix to the item his seal and the notation "altered by" followed by his signature and the date of such alteration, and a specific description of the alteration.

LEGEND

- RW-3 — EWMA RECOVERY WELL LOCATION ADJACENT TO CAPTURE WALL – 2010
- PW-5 — EWMA PERIMETER MONITORING AND RECOVERY WELL LOCATION – 2010
- LN-2 — EWMA INTERIOR MONITORING AND RECOVERY WELL LOCATION – 2010
- GW-1 — EEA, INC. MONITORING WELL LOCATION – 2006
- MW-3S — EWMA MONITORING WELL LOCATION (SHALLOW) – 2008/2009
- MW-3I — EWMA MONITORING WELL LOCATION (INTERMEDIATE) – 2008/2009
- SITE BOUNDARY
- CAPTURE WALL

SOURCE: MONTROSE SURVEYING CO., LLP., RICHMOND HILL, N.Y.

EWMA ENGINEERING SERVICES, LLL – NYS ENG. CERT # 0005216

RICHARD ARNOLD — STATE OF NEW YORK — LICENSED PROFESSIONAL ENGINEER — 12/16/2010 — 076202

NYS PE # 076202

REVISIONS	
No./ID	DATE

An Environmental Consulting & Remediation Firm
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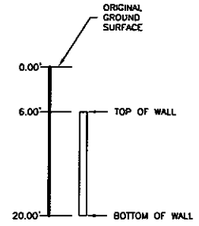
P.O. Box 5430
Parsippany, NJ 07054

SCALE: AS SHOWN
DATE: 11/29/10
PROJECT# 207266
DRAWN BY: RR
CHECKED BY: RA
FILE: b:\drawings\207000\207266\2010 DEC\207266 LN-1 11x17.dwg

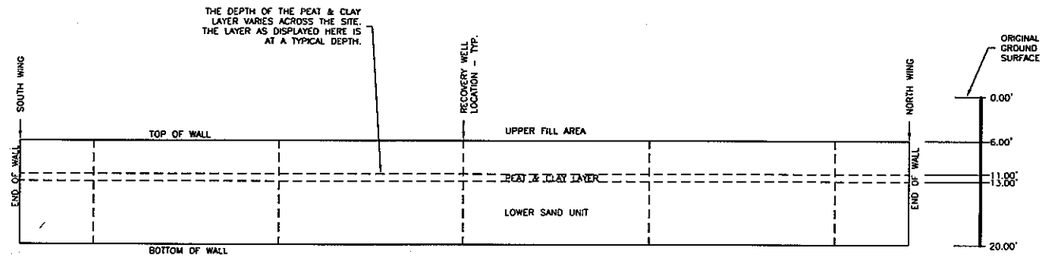
AS-BUILT EXISITNG WELL LOCATION PLAN WITH CAPTURE WALL

OCA LIC FIFTH STREET MIXED-USE HOUSING
5-20 46TH ROAD
LONG ISLAND CITY, NEW YORK

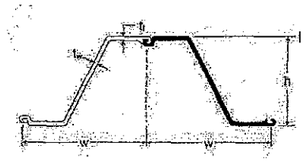
FIGURE# LN-1



SECTION OF CAPTURE WALL
SCALE: 1" = 10'



PROFILE OF CAPTURE WALL ALLIGNMENT
SCALE: 1" = 10'



SECTION	WIDTH (W) in (mm)	HEIGHT (H) in (mm)	THICKNESS FLANGE (t_1) in (mm)	THICKNESS WEB (t_w) in (mm)	CROSS SECTIONAL AREA in²/ft (cm²/m)	WEIGHT PILE lb/ft (kg/m)	WEIGHT WALL lb/ft (kg/m²)	SECTION MODULUS in³/ft (cm³/m)	MOMENT OF INERTIA in⁴/ft (cm⁴/m)	COATING AREA BOTH SIDES ft²/ft OF SINGLE (m²/m)	COATING AREA WALL SURFACE ft²/ft² OF WALL (m²/m²)
AZ 12	26.38 (670)	11.89 (302.0)	0.335 (8.50)	0.335 (8.50)	5.94 (125.7)	44.42 (66.10)	20.22 (98.76)	22.3 (1200)	132.8 (18140)	5.45 (1.66)	1.23 (1.23)
AZ 13	26.38 (670)	11.93 (303.0)	0.375 (9.50)	0.375 (9.50)	6.47 (136.9)	48.38 (72.00)	22.05 (107.50)	24.2 (1300)	144.2 (19700)	5.45 (1.66)	1.23 (1.23)
(AZ 14)	26.38 (670)	11.97 (304.0)	0.413 (10.50)	0.413 (10.50)	7.03 (148.9)	52.82 (78.30)	23.94 (116.90)	25.0 (1400)	156.0 (21300)	5.45 (1.66)	1.23 (1.23)

VERTICAL AND HORIZONTAL DATUM

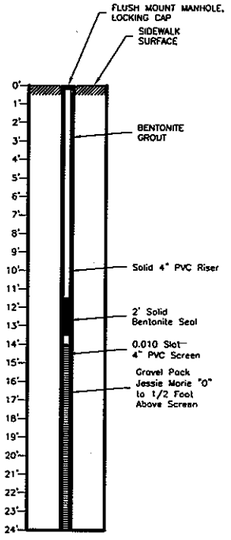
1. HORIZONTAL DATUM: FOR THE PURPOSES OF THIS PROJECT, TO PROVIDE EASE IN LOCATION CONFIRMATION DURING SITE WORK, THE LOCATIONS PRESENTED ON DRAWINGS LN-1 AND LN-2 ARE TO SCALE AND ARE TO BE VERIFIED IN THE FIELD BY TAPED MEASUREMENTS FROM THE SHORING SYSTEM THAT IS LOCATED DIRECTLY ALONG THE SITE PROPERTY LINE ON ALL SIDES OF THE BCP SITE AREA;
2. VERTICAL DATUM: FOR THE PURPOSES OF THIS PROJECT, TO TIE VERTICAL INSTALLATION WORK DIRECTLY INTO THE INVESTIGATION FINDINGS AND TO PROVIDE DIRECT CORRELATION OF VERTICAL LOCATIONS WITH RESPECT TO THE COMPLETED EXCAVATION FLOOR, ORIGINAL GROUND SURFACE REFERENCES ON DRAWINGS LN-1 AND LN-2 ARE SET AT 0.00'. THEREFORE, ACTUAL DEPTHS BELOW ORIGINAL GROUND SURFACE ARE USED FOR RECORD MEASUREMENTS OF TOP AND BOTTOM OF PEAT & CLAY LAYER DURING WELL INSTALLATIONS AND FOR USE IN SETTING SCREEN DEPTHS AND CAPTURE WALL DRIVE DEPTHS;

AS BUILT NOTE:

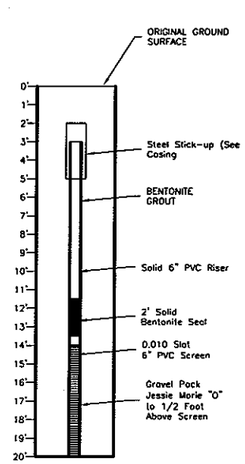
1. THE LOWER SAND UNIT LNAPL REMEDIATION UTILITIES HAVE BEEN INSTALLED IN ACCORDANCE WITH THE INSTALLATION DETAILS PRESENTED AND SPECIFIED ON THIS DRAWING LN-2 AS BUILT.

MONITORING/REMEDIATION/RECOVERY WELL SPECIFICATION

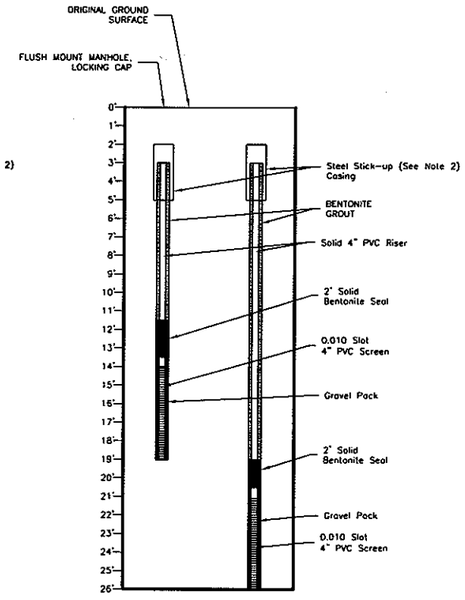
1. WELL INSTALLATION METHODS: EACH WELL SHALL BE INSTALLED WITH AUGER DRILLING METHODS. IN A BOREHOLE WITH A 2-INCH ANNULAR SPACE BETWEEN OUTER SURFACE OF WELL SCREEN OR RISER MATERIAL AND INNER SURFACE OF THE WELL BORE. THE WELLS SHALL BE INSTALLED PLUMB AND TRUE AND IN ACCORDANCE WITH NYS REGULATIONS AND GOOD AUGER DRILLING PRACTICES AND WELL INSTALLATION PRACTICES THAT ARE WELL ACCEPTED IN THE DRILLING INDUSTRY;
2. WELL COMPLETION METHODS: EACH WELL WITHIN THE INTERIOR OF THE SITE SHALL BE FINAL COMPLETED AT THE TIME OF INSTALLATION WITH A STEEL PIPE STICK-UP COMPLETION AND LOCKAGE WELL CAP. EACH PERIMETER WELL SHALL BE FINAL COMPLETED WITH A FLUSH MOUNT WELL SUMP THAT SHALL BE INSTALLED FLUSH WITH THE FINAL DEVELOPED PAVEMENT SURFACE AT EACH GIVEN LOCATION. AT THE TIME OF DEVELOPMENT CONSTRUCTION, EACH INTERIOR WELL SHALL BE RE-WORKED FOR FINAL COMPLETION WITH A FLUSH MOUNT WELL SUMP THAT SHALL BE INSTALLED FLUSH WITH THE FINAL DEVELOPED PAVEMENT SURFACE AT EACH GIVEN LOCATION. THE FLUSH MOUNT WELL SUMPS SHALL BE 8-INCH DIAMETER TRAFFIC RATED SUMPS WITH O-RING SEALABLE AND LOCKABLE CAST IRON COVERS.
3. VERIFICATION OF EFFECTIVENESS: UPON COMPLETION, EACH WELL SHALL BE CAREFULLY MEASURED TO VERIFY INSTALLED DIMENSIONS, SHALL BE THOROUGHLY DEVELOPED BY PUMPING AND ALSO BY SURGE BLOCK METHODS IF REQUIRED IN ACCORDANCE WITH GOOD WELL DEVELOPMENT PRACTICES UNTIL TURBIDITY LEVELS ARE MINIMIZED AND WITHIN SUITABLE LIMITS. AT CESSATION OF PUMPING, THE RECOVERY RATE IN EACH WELL SHALL BE MEASURED TO VERIFY FUNCTIONALITY AND ADDITIONAL DEVELOPMENT SHALL BE PERFORMED IF NEEDED;
4. CONFIRMATION OF SCREEN DEPTH: DURING AUGER ADVANCEMENT, STANDARD SPLIT SPOONS SHALL BE ADVANCED IN ACCORDANCE WITH GOOD DRILLING PRACTICES AND SAMPLES OBTAINED FOR FIELD EXAMINATION TO IDENTIFY THE ACTUAL BOTTOM OF PEAT & CLAY LAYER AND BOTTOM OF LOWER SAND UNIT AT EACH WELL LOCATION. SCREEN DEPTHS AND SPECIFIC WELL CONSTRUCTION DETAIL FOR EACH WELL SHALL THEN BE BASED UPON THIS FIELD FINDING;
5. PERIMETER MONITORING/REMEDIATION WELLS (9): THESE WELLS SHALL BE 4-INCH DIAMETER PVC MONITORING AND REMEDIATION WELLS, INSTALLED WITH BLANK RISER PIPE, O-MORIE GRAVEL PACKS, AND 10-SLOT SCREENS. THE WELL SCREENS SHALL BE INSTALLED FROM NEAR BOTTOM OF THE LOWER SAND UNIT (ASSUMED TO BE ABOUT 24-FEET BGS), UP TO ½-FOOT BELOW BOTTOM OF PEAT & CLAY LAYER. BLANK RISER PIPE SHALL BE INSTALLED FROM TOP OF SCREEN UP INTO EACH WELL SUMP. GRAVEL PACKS SHALL BE INSTALLED IN THE ANNULAR SPACE AROUND EACH SCREEN FROM BOTTOM OF SCREEN UP TO BOTTOM OF PEAT & CLAY LAYER. A SOLID 2-FOOT THICK BENTONITE SEAL SHALL BE INSTALLED FROM ABOVE THE TOP OF GRAVEL PACK AND UP THROUGH THE PEAT & CLAY LAYER. AN EXPANSIVE BENTONITE GROUT SHALL THEN BE INSTALLED FROM ABOVE THE TOP OF SOLID BENTONITE SEAL AND UP TO BOTTOM OF FLUSH MOUNT WELL SUMP.
6. CAPTURE WALL MONITORING/RECOVERY WELLS (5): THESE WELLS SHALL BE 6-INCH DIAMETER PVC MONITORING AND RECOVERY WELLS, INSTALLED WITH BLANK RISER PIPE, O-MORIE GRAVEL PACKS AND 10-SLOT SCREENS. THE WELL SCREENS SHALL BE INSTALLED FROM BOTTOM OF CAPTURE WALL (20-FEET BGS) UP TO ½-FOOT BELOW BOTTOM OF PEAT & CLAY LAYER. BLANK RISER PIPE SHALL BE INSTALLED FROM TOP OF SCREEN UP TO ABOUT 3-FEET BGS. GRAVEL PACKS SHALL BE INSTALLED IN THE ANNULAR SPACE AROUND EACH SCREEN FROM BOTTOM OF SCREEN UP TO BOTTOM OF PEAT & CLAY LAYER. A SOLID 2-FOOT THICK BENTONITE SEAL SHALL BE INSTALLED FROM ABOVE THE TOP OF GRAVEL PACK AND UP THROUGH THE PEAT & CLAY LAYER. AN EXPANSIVE BENTONITE GROUT SHALL THEN BE INSTALLED FROM ABOVE THE TOP OF SOLID BENTONITE SEAL AND UP TO THE WELL COMPLETION THAT SHALL INITIALLY BE A STEEL PIPE STICK-UP COMPLETION WITH LOCKABLE WELL CAP.
7. MONITORING/REMEDIATION WELL COUPLETS (12): TWO COUPLETS SHALL BE INSTALLED DOWN-GRADIENT OF THE CAPTURE WALL AND TEN COUPLETS SHALL BE INSTALLED UPGRADIENT OF THE CAPTURE WALL AS SHOWN ON DRAWING LN-1. EACH COUPLET SHALL CONSIST OF AN UPPER WELL AND A LOWER WELL INSTALLED AT A HORIZONTAL DISTANCE OF ABOUT 5-FEET FROM EACH OTHER. UPPER AND LOWER WELLS SHALL BE 4-INCH DIAMETER PVC MONITORING/REMEDIATION WELLS INSTALLED WITH BLANK RISER PIPE, O-MORRIE GRAVEL PACKS AND 10-SLOT SCREENS. THE UPPER WELLS SHALL TYPICALLY BE INSTALLED WITH 5-FEET OF WELL SCREEN EXTENDING FROM ½-FOOT BENEATH THE BOTTOM OF PEAT & CLAY LAYER AND DOWN INTO THE LOWER SAND UNIT. BLANK RISER PIPE SHALL BE INSTALLED FROM TOP OF SCREEN UP TO EACH WELL COMPLETION AT ABOUT 3-FEET BGS. GRAVEL PACKS SHALL BE INSTALLED IN THE ANNULAR SPACE AROUND EACH WELL SCREEN FROM BOTTOM OF SCREEN UP TO BOTTOM OF PEAT & CLAY LAYER. A 2-FOOT THICK SOLID BENTONITE SEAL SHALL BE INSTALLED ABOVE THE GRAVEL PACK THROUGH THE PEAT & CLAY LAYER. AN EXPANSIVE BENTONITE GROUT SHALL THEN BE INSTALLED FROM ABOVE THE TOP OF SOLID BENTONITE SEAL AND UP TO THE WELL COMPLETION THAT SHALL INITIALLY BE A STEEL PIPE STICK-UP COMPLETION WITH LOCKABLE WELL CAP. THE LOWER WELLS SHALL TYPICALLY BE INSTALLED WITH 5-FEET OF WELL SCREEN EXTENDING FROM NEAR BOTTOM OF LOWER SAND UNIT AND UP INTO THE UNIT. BLANK RISER PIPE SHALL BE INSTALLED FROM TOP OF SCREEN UP TO EACH WELL COMPLETION AT ABOUT 3-FEET BGS. GRAVEL PACKS SHALL BE INSTALLED IN THE ANNULAR SPACE AROUND EACH WELL SCREEN FROM BOTTOM OF SCREEN UP TO ABOUT ½-FOOT FOOT ABOVE TOP OF SCREEN. A 2-FOOT THICK SOLID BENTONITE SEAL SHALL BE INSTALLED ABOVE THE GRAVEL PACK AND THROUGH A SILTY PORTION OF THE LOWER SAND UNIT. AN EXPANSIVE BENTONITE GROUT SHALL THEN BE INSTALLED FROM ABOVE THE TOP OF SOLID BENTONITE SEAL AND UP TO THE WELL COMPLETION THAT SHALL INITIALLY BE A STEEL PIPE STICK-UP COMPLETION WITH LOCKABLE WELL CAP.



PERIMETER MONITORING/REMEDIATION WELL
SCALE: 1" = 4'



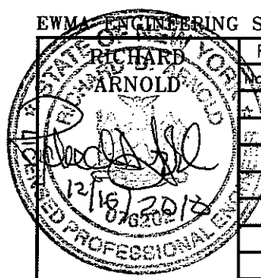
CAPTURE WALL MONITORING/RECOVERY WELL
SCALE: 1" = 4'



MONITORING/REMEDIATION WELL COUPLET
SCALE: 1" = 4'

NYS Engineering Note:
It is a violation of Article 145 Section 7209(2) of New York State Education Law for any person, unless he is acting under the direction of a New York State licensed engineer, to alter an item of this document in any way. If an item is altered, the altering engineer shall affix to the item his seal and the notation "altered by" followed by his signature and the date of such alteration, and a specific description of the alteration.

EWMA ENGINEERING SERVICES, LLL - NYS ENG. CERT # 0005216



NYS PE # 076202

REVISIONS No./ID	DATE
1	7/7/10
2	9/28/10

EWMA An Environmental Consulting & Remediation Firm
100 Misty Lane
P.O. Box 5430
Parsippany, NJ 07054

SCALE: AS SHOWN
PROJECT# 205490
DATE: 9/29/10
DRAWN BY: RR
CHECKED BY: RA
FILE: k:\drawings\207000\207266\2010 DEC\\207266 LN-2 11x17.dwg

DETAIL PLAN - AS BUILT (SEE NOTE)

OCA LIC FIFTH STREET MIXED-USE HOUSING
5-20 46TH ROAD
LONG ISLAND CITY, NEW YORK

FIGURE# LN-2

APPENDIX 16

PERCHED UNIT LNAPL REMEDIATION SYSTEM

APPENDIX 16 – PERCHED UNIT LNAPL REMEDIATION SYSTEM

SUMMARY TABLE OF CONTENTS

1.0 INTRODUCTION AND DESCRIPTION

1.1 Introduction

In accordance with NYSDEC request, and as previously discussed in Section 1.4.2.3 of the SMP, a post-remedial investigation of the perched unit was performed. During this investigation work, a brownish LNAPL with a specific gravity slightly less than that of groundwater was encountered and delineated in the perched unit above the clayey peat layer in the Northwest quadrant of the site.

1.2 Background

The LNAPL encountered during the NYSDEC required investigation was found in an oblong shaped plume area of roughly 2,500 square feet area. The average thickness of the plume based on interface probe measurements was found to be about 1/2-inch and the LNAPL presence was found to be intermittent within the plume area.

As requested by NYSDEC, a conceptual remedial approach for remediation of the LNAPL plume was submitted, approved, and implemented.

1.3 Objectives

The objectives of the perched unit LNAPL remediation system O&M plans are:

- Prepare for Site development by supporting the required NAPL remediation;
- Provide operations and maintenance guidelines and information needed to facilitate the perched unit LNAPL remediation system.

2.0 SUMMARY OF SAMPLING RESULTS

The perched unit has been subjected to post-remedial investigation and the investigation results and the LNAPL plume delineation results have been reported in the FER. The LNAPL plume was delineated under the FER and the plume boundaries are displayed on the as-built drawing that is included in this Appendix.

3.0 DESCRIPTION OF THE REMEDIAL ACTION

The plume area was gridded out with a staggered 10-foot on center grid. Twenty-four 4-inch extraction/monitoring wells and fourteen 1-inch contingent injection/monitoring wells were installed across the grid area. Extraction wells were carefully sited around the perimeter of the plume area. Pump testing was performed and vacuum enhance fluid extraction testing was performed using a vacuum tanker. The testing was successful, and perched unit LNAPL remediation was implemented under the RAWP. Initial extraction events were performed daily with durations of 6-hours, and subsequent extraction events were weekly with durations of 6-hours. The weekly events are anticipated for 3 months. After three months the frequency will be re-evaluated. An as-built drawing of the installed LNAPL remediation system was provided in the FER and is included in this Appendix 16 of the SMP.

Under the SMP, the remedial grid will be expanded if necessary to cover the LNAPL resident area based on observation of the presence of LNAPL in the grid wells. The controlling parameter for measurement, remediation, and completion verification will be the presence of LNAPL in the wells;

The extraction will be performed with use of pumping and/or vacuum enhanced fluid extraction methods using primarily the 4-inch wells but also the 1-inch wells. During early phases of the remediation, the effort will focus on the entire grid area. During subsequent phases of the remedial effort, the remediation is anticipated to focus on those portions of the grid where remediation is least complete.

During all of the remediation activity, the standard protocols and rules for waste management and disposal will be followed, on-site storage of waste liquids will be within tank wagons or in drums provided with secondary containment shelter. Weekly monthly update reports will be provided to NYSDEC during the first three months of operation. Depending on the outcome of the first three months of operation, the reporting frequency may be changed to monthly or quarterly subject to approval from NYSDEC.

4.0 GENERAL REMEDIATION SYSTEM INFORMATION

The primary components of the LNAPL System are described below:

1. Extraction wells have been installed by a qualified drilling firm and screened with 10-slot screen in the range of about 8.2 to 13.2 feet below surface grade, with Jessie Morie #1 sand packs around and slightly up above the screens, grout above the sand packs, and with NPT pipe couplings at top of each well riser;
2. A vacuum tanker that is fitted with various hoses and fittings and controls, is brought in and utilized at the site and sent off-site for disposal for one day during each week of the first three months of operation. The advantage of the vacuum tanker operations, especially during winter weather, is that the extracted LNAPL/water mix is conveyed directly into the tanker without concern for on-site freezing or damage to equipment. In addition, the vacuum tanker is able to exert substantive extraction force on the extraction wells and is capable of providing vacuum enhance fluid extraction services. After three months of operation and based on the outcome at that

time, the use of the vacuum tanker will be re-evaluated and modified, if appropriate, subject to approval by NYSDEC.

3. Storage equipment will consist of either the vacuum tanker if used for removal purposes or a secondary containment shed manufactured by New Pig® that is used to store DOT rated 55 gallon steel drums in which the extracted product will be stored prior to off-site disposal. A catalog cut sheet is included with this Appendix;
4. Measurement equipment will include a Solinst interface probe that will be used to measure the thickness of the LNAPL. A catalog cut sheet is included with this Appendix. In addition, a Solinst water level device will be used to measure water levels in the treatment area as part of the monitoring and control process. A catalog cut sheet is included with this Appendix.

5.0 CONTINGENT SYSTEM OPERATIONS

After three months of operation using a vacuum tanker as the primary means of extraction, the use of the vacuum tanker will be re-evaluated and other extraction tools will be considered. At that time, the Spill Buddy and portable down-well pumps such as standard bladder pumps or Grundfos® pumps, and wicking systems such as standard petro-traps and vertical sorbent booms will be evaluated for use at the site. If appropriate, and subject to approval by NYSDEC, one or more of these extraction tools may then be substituted for the vacuum tanker.

After three months of operation under the SMP, the system performance will be evaluated and optimized by contingent activity if necessary. Use of the contingency will be triggered subject to approval by NYSDEC if the Remedial Engineer determines that enhancement of the LNAPL removal system is necessary based on schedule constraints or evaluation of removal efficiency. Use of the contingency will also be triggered if NYSDEC determines that enhancement of the LNAPL removal system is necessary based on the available LNAPL recovery data. In the event that enhanced extraction techniques and/or treatment agents are to be utilized, an evaluation of the best treatment agents and enhanced extraction methods will be made based on field data and bench scale studies. The selected treatment agents, injection methods, and extraction methods will be provided to NYSDEC in the form of a Pilot Testing Work Plan for review and approval.

If perched unit groundwater treatment is necessary following the completion of LNAPL recovery, an evaluation of the best treatment methods will be made based on the field data and

field pilot testing. Possible treatments include the injection of ORC slurry using the contingent injection wells, or oxygenation of the perched water using alternate oxygenation methods. The treatment agents selected based on the pilot test will be provided to NYSDEC for review and approval.

6.0 OPERATIONAL CONTROLS AND REQUIREMENTS

The operations control plans that will be in effect as applicable during the performance of the work are documented in the SMP, are provided as appendices to the SMP, and are listed below:

- Health and Safety Plan;
- Community Air Monitoring Plan;
- Stormwater Pollution Prevention Plan;
- Quality Assurance Project Plan/Field Sampling Procedures Plan;
- Noise Control Plan;

Site security practices, traffic control measures, work hours, and noise control measures will remain in effect. BCP signage will continue to be displayed. Odor, dust, and other nuisance control measures will remain in effect.

The site specific health & safety plan (HASP) for this project is the same as the HASP used for work performed under the NYSDEC approved RAWP dated July 2009. The HASP will be applied during the installation work based upon potential for contact and characterization of work tasks.

The site-specific Community Air Monitoring Plan (CAMP) that is included in the SMP will be followed during all chemically enhanced injection and extraction activities. During extraction-only events, the requirements of the NYSDOH Generic CAMP (see DER-10, Appendix 1A) will be followed:

> "Periodic monitoring for VOCs will be required during non-intrusive 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."

During the non-intrusive extraction events, daily interior and perimeter monitoring of vapor levels will be performed, and mitigation measures will be performed in the event that vapor levels exceed site applicable standards as identified in the site HASP included as Appendix 4 of the SMP. As indicated in Section 5.0 of the site HASP, mitigation measures for elevated vapors may include covering emissions area with plastic sheeting, spraying with vapor suppression foams, etc.

The Contractor's Site Operations Plan will be utilized for performance of the LNAPL Remediation work.

The site QAPP will be applied to any sampling and analysis that may be needed to support the LNAPL remediation.

7.0 SYSTEM OPERATIONS AND MAINTENANCE

The primary O&M task needed for the operation of this system is the extraction task. This task was performed daily for the first week following well installation, and is to be performed once weekly for a duration of 6-hours during the first three months of system operation.

The O&M scope for the LNAPL System will be performed by trained, competent, responsible individual under the supervision of the Remedial Engineer in order to:

- perform annual inspections;
- obtain as required periodic measurements of water level and LNAPL thickness in the wells
- visually examine the wells and storage unit
- visually examine the water level device, interface probe, and Spill Buddy
- extract LNAPL from the wells using a vacuum tanker or Spill Buddy and storage unit; and
- report system results to the Remedial Engineer to be documented in weekly and monthly update reports to be submitted to NYSDEC along with the annual Site Management Report.

In the event that any deficiencies are noted, the deficiency shall be reported to NYSDEC and the property owner, and corrective action shall be taken in the form of repair or rehabilitation

to restore system operation. The Remedial Engineer will be responsible to ensure that any corrective actions are completed in accordance with this SMP. If there are technical questions regarding the inspection results, then the Remedial Engineer shall be contacted for technical support.

The LNAPL System startup and testing activity is completed. The system does not require warning devices or an operating manual because it is not a mechanical system.

There are no routine operating procedures for this system. The system passively collects LNAPL that is extracted from the wells and conveyed to a vacuum tanker for off-site disposal or interim stored in 55-gallon drums with a secondary contained storage unit.

The extraction/injection wells and system piping do not require routine maintenance, but there are three components that are likely to need maintenance. These are the water level device, interface probe, and Spill Buddy. These will be cleaned regularly, checked for effective operation and accurate measurement, and kept in a protective case free from dust or other adverse. In the event the repair or maintenance is needed, the Remedial Engineer shall be notified and shall determine whether or not on-Site repair is possible or whether the instrument should be returned to the manufacturer or rental firm for repair or maintenance.

The non routine equipment maintenance situations that are anticipated for the LNAPL System are possible damage to the wells, equipment or instruments. In the event of damage to any of these components they shall be repaired or replaced in kind in conformance with the provisions of this SMP and certified by the Remedial Engineer. In the event that LNAPL yield decreases significantly, the Remedial Engineer shall notify NYSDEC and will take steps to address the concern including possible well redevelopment by a qualified driller.

8.0 MONITORING. DOCUMENTATION AND REPORTING

The LNAPL System has previously been described in detail, does not require remote monitoring, and requires no monitoring of mechanical function other than periodic annual inspection that is primarily intended to identify damage to wells, storage unit, or spill buddy extractor.

The previously presented SMP monitoring schedule provides for annual inspection of the wells, storage unit and spill buddy extractor.

It should be noted that the inspection frequency is subject to change with the approval of the NYSDEC. Unscheduled inspections and/or sampling may take place when a suspected

failure of the System has been reported or when an emergency has occurred that is deemed likely to affect the system operation.

Other than the wells, storage unit and spill buddy extractor there is no equipment to monitor and these components are subject to annual inspection. Therefore, no additional monitoring is planned.

A visual inspection of the visible portions of the complete system will be conducted during each inspection event, and the wells, storage unit, and spill buddy will be visually examined during those events. The Inspection Checklist is included with this Appendix.

The LNAPL System as engineered does not require monitoring devices and alarms. It is a very simple, passively operating system whose only mechanically operating components are the spill buddy, and those components are portable units that are easily repaired.

Assessment of the LNAPL recovery efforts will be made if the yield is found to drop significantly. This will include an assessment of possible clogging of the extraction well screen or other factors that may affect the function of the extraction wells. If this assessment concludes that well re-development is needed then that activity will be performed by a qualified driller. If the assessment concludes that the volume of recoverable LNAPL is significantly reduced then a request for change in the frequency or method of extraction may be submitted to NYSDEC for approval.

The LNAPL System will require groundwater quality and other sampling. Refer to Table C and D in the SMP for type and frequency of sampling/monitoring. The system performance evaluation will be based on measurements of water level and LNAPL thickness with a water level device and interface probe.

Maintenance reports and any other information generated during regular operations at the site will be kept on-file at the site. All reports, forms, and other relevant information generated will be available to the NYSDEC upon request and submitted as part of the Periodic Review Report, as specified in Section 5 of the SMP.

Checklists and forms will be completed during each routine maintenance event. Checklists and forms will include but not be limited to the following information:

- Date;
- Name, Company, and position of person(s) conducting maintenance activities;
- Maintenance activities conducted;

- Any modifications to the system;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents noted (included either on the checklist/form or on an attached sheet) and;
- Other documentation such as copies of invoices for maintenance work, receipts for replacement equipment, etc. (attached to the checklist/form).

During each non-routine maintenance event, a form will be completed which will include, but not be limited to, the following information:

- Date;
- Name, company, and position of person(s) conducting non-routine maintenance/repair activities;
- Presence of leaks;
- Date of leak repair;
- Other repairs or adjustments made to the system;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents (included either on the form or on an attached sheet); and,
- Other documentation such as copies of invoices for repair work, receipts for replacement equipment, etc. (attached to the checklist/form).

9.0 SCHEDULE FOR IMPLEMENTATION OF PERCHED UNIT LNAPL REMEDIATION SYSTEM

The following schedule is provided for implementation of the LNAPL Remediation System. The contingency for chemically enhanced removal will be triggered by the Remedial Engineer's decision that enhanced removal is necessary, or by a request for enhanced removal by NYSDEC. In the event of either trigger, a Pilot Testing Work Plan for chemically enhanced removal will be prepared and submitted to NYSDEC for approval within 30-days subsequent to the triggering event. This work plan will include a schedule for implementation of the pilot test and eventual use of chemical desorbing agents subject to approval by NYSDEC.

- Initiate Injection & Extraction Well Installation December 6, 2010

• Initiate Remedial Operations	December 10, 2010
• Complete Three Months of Operations	March 10, 2011
• Submit Pilot Test Work Plan	30 Days After Trigger
• Continue Extraction Operations	With Evaluation/Approval

EQUIPMENT MOBILIZATION CHECKLIST FOR OCA PERCHED UNIT LNAPL REMEDIATION
Injection, Extraction, Measurement and Safety Equipment

Date:			
Name, Company, Title:			
Injection Equipment	check	remarks	
injection system			
desorbing agent			
generator - gas			
hoses-couplings			
Extraction Equipment			
spill buddy			
misc pumps			
vacuum tanker			
hoses - couplings			
Measurement Equipment			
camp instruments			
pid and miniram			
water level device			
interface probe			
Safety Equipment			
ppe			
working gear			
boots and gloves			
headgear			
Documentation Tools			
logbook			
field forms			
health&safety plan			
site location plan			

FIELD OPERATIONS CHECKLIST FOR OCA PERCHED UNIT LNAPL REMEDIATION
Routine and Non-Routine Maintenance Activities

Date:
Name, Company, Title:
Visitors to Site:
Weather Conditions:
Maintenance Activities Conducted:
Modifications to the System:
Photographs and Sketches:
Problems, Malfunctions, Incidents:
Repairs or Replacements:
Associated Documentation:

REMEDIATION O&M DATA FOR PERCHED UNIT LNAPL REMEDIATION									
EXTRACTION WELL DATA					DATE WEEK ENDING OF INJECTION OR EXTRACTION EVENT				
Well ID	Diameter	Depth BSG	Screen	Remarks	Well ID	Date	Ext Volume	Problems	Remarks
EM-1									
EM-2									
IM-1									
IM-2									

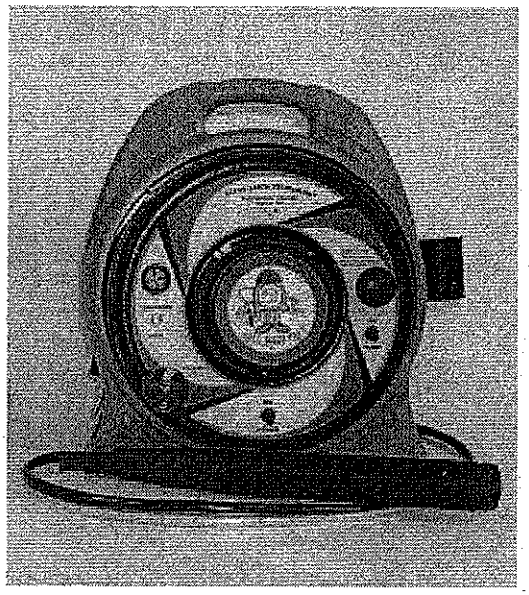
Perched Unit LNAPL Well and Extraction Data						DATE: Tue 12/14/10			
Well ID	DOW	Diam (in)	Screen Length (ft)	Screen depth below QP grade	Install Date	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Liquid Extracted ~tot (gal)
EM-1	13.22	4	5.0	2.5 - 7.5	12/9/2010	ND	5.55		
EM-2	13.22	4	5.0	2.5 - 7.5	12/9/2010	ND	5.12		
EM-3	13.22	4	5.0	2.5 - 7.5	12/10/2010	ND	5.69		
EM-3A	12.22	4	3.0	3.5 - 6.5	12/6/2010	4.77	4.85	0.08	
EM-4	13.22	4	5.0	2.5 - 7.5	12/7/2010	ND	5.12		
EM-5	13.22	4	5.0	2.5 - 7.5	12/8/2010	ND	5.82		
EM-6	13.22	4	5.0	2.5 - 7.5	12/13/2010	ND	5.48		
EM-7	13.22	4	5.0	2.5 - 7.5	12/7/2010	ND	5.17		
EM-8	13.22	4	5.0	2.5 - 7.5	12/7/2010	6.04	6.27	0.23	110
EM-9	13.22	4	5.0	2.5 - 7.5	12/9/2010	ND	5.61		
EM-10	13.22	4	5.0	2.5 - 7.5	12/7/2010	ND	5.27		
EM-11	13.22	4	5.0	2.5 - 7.5	12/8/2010	ND	5.26		
EM-12	13.22	4	5.0	2.5 - 7.5	12/13/2010	4.85	4.90	0.05	
EM-13	13.22	4	5.0	2.5 - 7.5	12/13/2010	4.38	4.50	0.12	
EM-14	13.22	4	5.0	2.5 - 7.5	12/10/2010	ND	5.17		
EM-15	13.22	4	5.0	2.5 - 7.5	12/9/2010	ND	5.32		
EM-16	13.22	4	5.0	2.5 - 7.5	12/10/2010	ND	5.05		
EM-17	13.22	4	5.0	2.5 - 7.5	12/9/2010	ND	2.93		
EM-18	13.22	4	5.0	2.5 - 7.5	12/9/2010	ND	4.31		
EM-19	13.22	4	5.0	2.5 - 7.5	12/10/2010	ND	4.45		
EM-20	13.22	4	5.0	2.5 - 7.5	12/9/2010	ND	4.57		
EM-21	13.22	4	5.0	2.5 - 7.5	12/10/2010	ND	5.06		
EM-22	13.22	4	5.0	2.5 - 7.5	12/10/2010	ND	5.36		
EM-23	13.22	4	5.0	2.5 - 7.5	12/10/2010	ND	5.16		
IM-1	13.22	1	2.5	5.5 - 7.5	12/9/2010	ND	5.62		
IM-2	13.22	1	2.5	5.5 - 7.5	12/7/2010	ND	6.14		
IM-3	13.22	1	2.5	5.5 - 7.5	12/13/2010	ND	5.98		
IM-4	13.22	1	2.5	5.5 - 7.5	12/8/2010	ND	5.95		
IM-5	13.22	1	2.5	5.5 - 7.5	12/7/2010	ND	5.41		
IM-6	13.22	1	2.5	5.5 - 7.5	12/8/2010	ND	5.48		
IM-7	13.22	1	2.5	5.5 - 7.5	12/13/2010	ND	6.40		
IM-8	13.22	1	2.5	5.5 - 7.5	12/10/2010	ND	5.30		
IM-9	13.22	1	2.5	5.5 - 7.5	12/8/2010	ND	5.47		
IM-10	13.22	1	2.5	5.5 - 7.5	12/9/2010	ND	5.12		
IM-11	13.22	1	2.5	5.5 - 7.5	12/10/2010	ND	4.97		
IM-12	13.22	1	2.5	5.5 - 7.5	12/9/2010	ND	4.98		
IM-13	13.22	1	2.5	5.5 - 7.5	12/10/2010	ND	5.55		
IM-14	13.22	1	2.5	5.5 - 7.5	12/10/2010	ND	5.35		

Note all depths (start at 0) taken from approx 5 foot bgs QP grade.

All wells constructed with 10-slot screen; 0- morie gravel packs, bentonite and grout

C.E.T. SPILL BUDDY
FEATURES

The Spill Buddy™ features:



- Portable pump with water interface detector for product-only recovery.
- For use in 2-inch and larger wells.
- Standard Unit goes 50 feet deep, optional 100 feet deep unit.
- Operated by self-contained rechargeable battery for easy portability.
- Battery provides one hour of continuous use per charge, equivalent to 40 gallons of product.
- Pumps 1 foot of product in a 2" well in 14 seconds at a 50 foot depth.
- Pumps 1 foot of product in a 4" well in 54 seconds at a 50 foot depth.
- Battery can be charged by wall transformer or optional cigarette lighter jack for charging between sites.

The Spill Buddy Pro™ features:

- Portable pump with water interface and product surface detectors.
- Measurement tape reads out in tenths and hundredths of feet. Metric tapes available also.
- For use in 2-inch and larger wells.
- Standard English unit goes 50 feet deep. Standard metric unit goes 15 meters deep.
- Operated by self-contained rechargeable battery for easy portability.
- Battery provides one hour of operation equivalent to 40 gallons of product.

SPILL BUDDY SPECIFICATIONS *Go to the Spill Buddy specifications*

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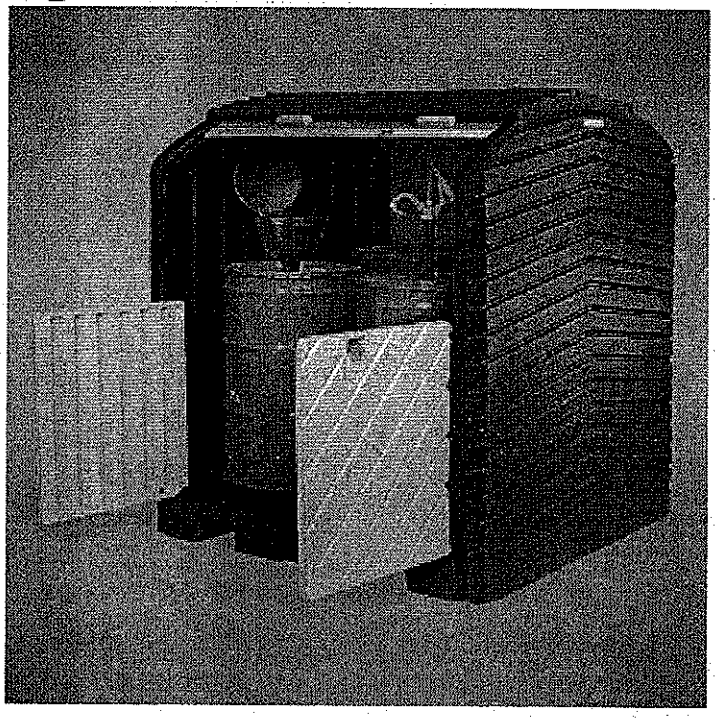
NewPig



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- 
- 

PIG® Roll Top Hardcover #PAK901

Sold as: 1 each

Securely store drums indoors or out, with pumps and funnels in place. PIG® Roll Top Hardcover catches leaks, drips and spills to help you comply with containment and stormwater regulations.

Share

Interface Meter

Model 122

Solinst Oil/Water Interface Meters give clear and accurate measurements of product level and thickness in wells and tanks.

Determination of both light (floating) non-aqueous phase liquids (LNAPL) and dense (sinking) non-aqueous phase liquids (DNAPL) is quick and easy. The factory-sealed probes are pressure proof and tapes are available in a range of lengths from 65 - 1000 ft. (20 - 300 m).

The 5/8" (16 mm) diameter P1 Probe allows easy access through tight spaces and into narrow wells. The Probe is designed for use in various monitoring applications.

Hazardous Locations Use

The Model 122 Interface Meter has been approved by the Canadian Standards Association (CSA) for use in explosive environments. It is suitable for use in hazardous locations Class I, Groups C&D.

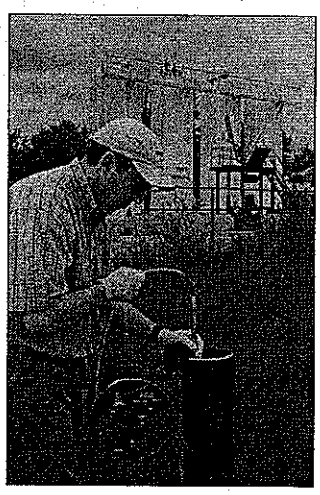
The grounding strap is a safety essential when the meter is used in potentially explosive environments. It also ensures that the electronics are properly protected.

Operating Principles

Product (Non-conductive liquid) = Steady light and tone

Water (Conductive liquid) = Intermittent light and tone

To detect liquids, Solinst Interface Meters use an infra-red beam and detector. When the probe enters a liquid the beam is refracted away from the detector which activates an audible tone and light. If the liquid is a non-conductive oil/product the signals are steady. If the liquid is water (conductive liquid greater than 50 µS/cm), the conductivity of the water completes a conductivity circuit. This overrides the infra-red circuit, and the tone and light are intermittent.



Both sensors use exactly the same zero point, giving accuracy as good as 1/200 ft. or 1.0 mm. The high accuracy enables the sensors to detect the slightest sheen of oil on the surface of the water; this is indicated by a rapid intermittent tone.

Accurate, Reliable, Robust

- Designed for rugged field use
- Stable electronics with automatic circuitry testing
- Tape uses stranded stainless steel conductors:
  - non-stretch; does not corrode
  - resists kinking and breaks
  - easy to repair and splice
- Sturdy free-standing reel with carrying handle

High Quality Design

The state-of-the-art electronics include automatic circuitry testing when the 'On' button is used; 120 hours of on-time battery life; clear signals; and high accuracy.

Infra-red refraction is used to detect liquids and conductivity to distinguish water. Both optical and electronic sensors are precisely aligned at the same zero point. A steady light and tone indicate product. Water is indicated by intermittent signals.

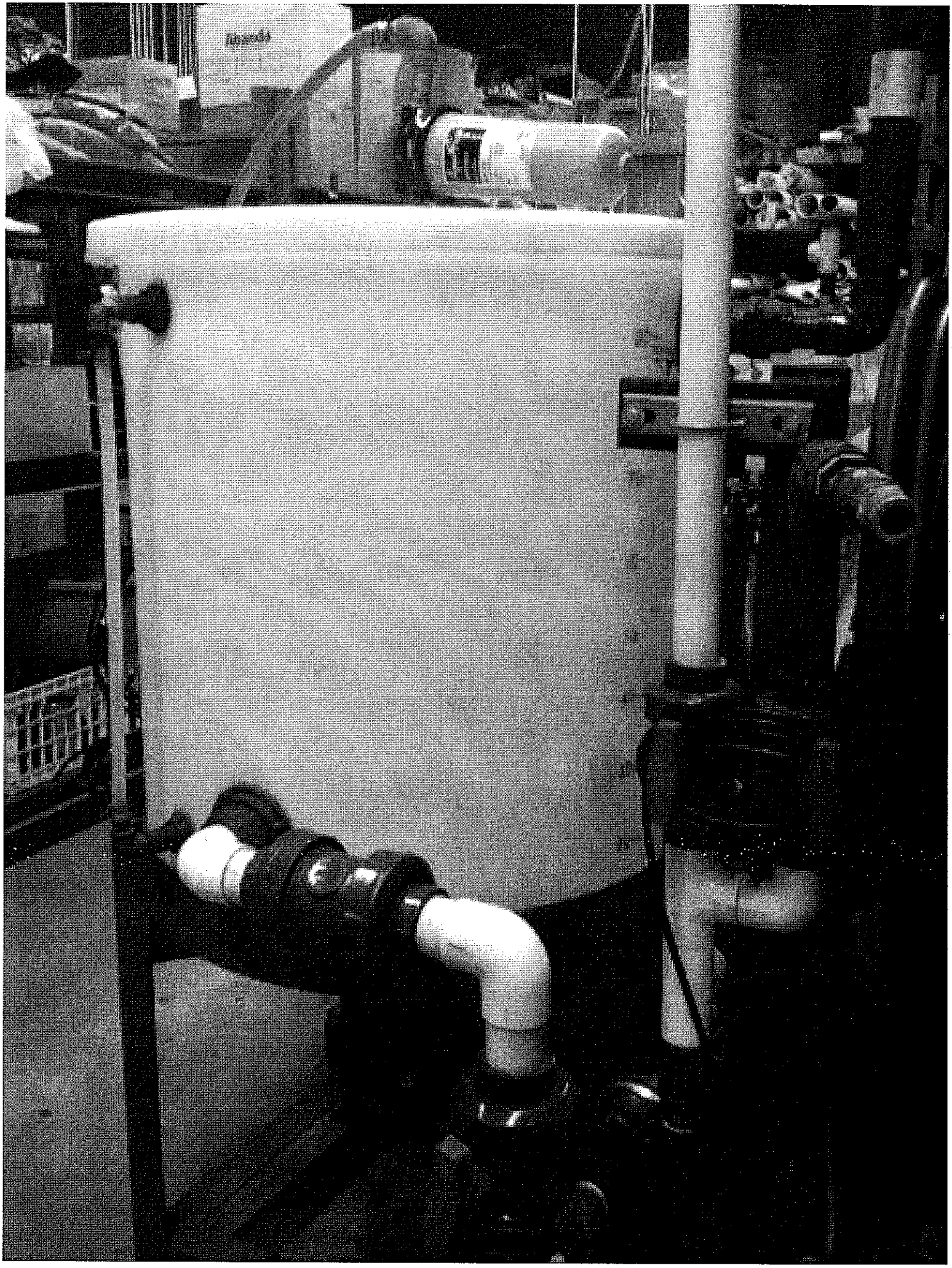
The factory sealed probe does not need to be accessed by the user. An integral stainless steel shield protects the sensors. It is set permanently into place, yet allows for easy cleaning.

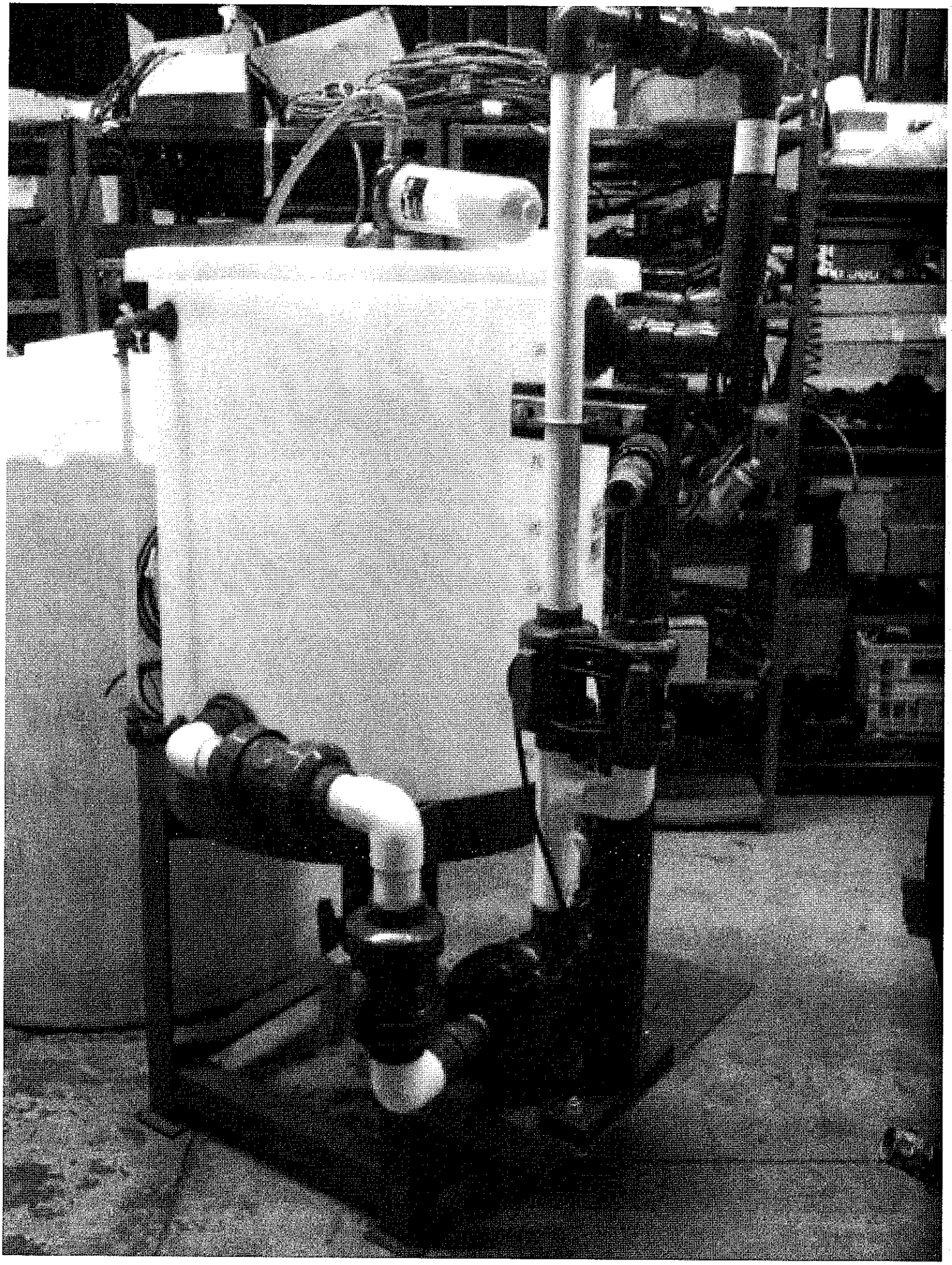
The circuits are powered by 2 standard 9V batteries which are housed in easy-access drawers in the faceplate of the reel.

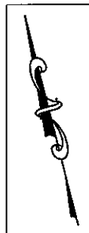
Features

- Sensor accuracy to 1/200 ft. or 1.0 mm
- Certified intrinsically safe
- 5/8" (16 mm) diameter probe
- Easy access batteries: minimum 120 hours of life
- Automatic shut off after 10 minutes
- Inexpensive, simple repairs
- 3 year warranty

Model 122 & 122M are CSA approved for use in hazardous locations Class I, Groups C&D



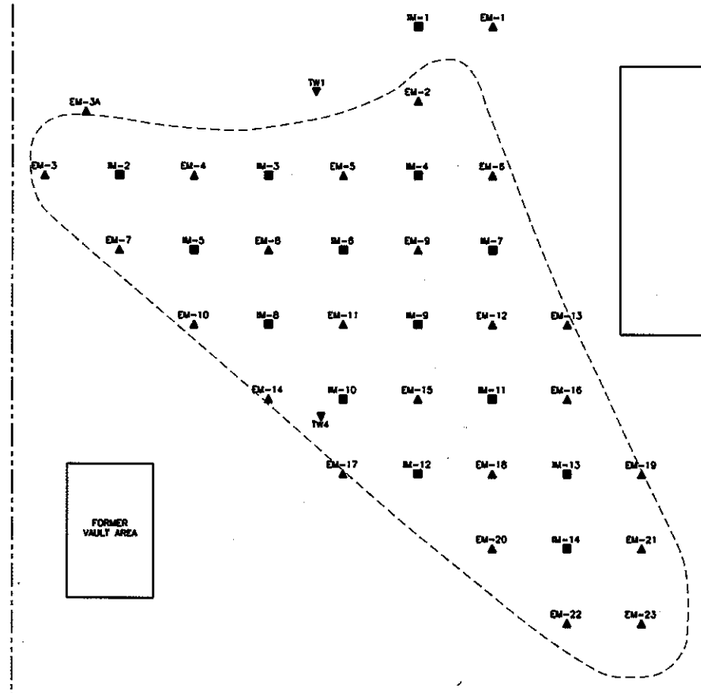




46TH ROAD

5TH STREET

SIDEWALK



FORMER VAULT AREA

FORMER VAULT AREA

AS BUILT NOTE:

1. THE PERCHED UNIT LNAPL REMEDIATION UTILITIES HAVE BEEN INSTALLED IN ACCORDANCE WITH THE INSTALLATION DETAILS PRESENTED ON THIS DRAWING

LEGEND

- ■ EM-8 4-INCH DIAMETER EXTRACTION/MONITORING WELL - TYP (TOTAL OF 24 WELLS)
- ▲ IM-9 1-INCH DIAMETER INJECTION/MONITORING WELL - TYP (TOTAL OF 14 WELLS)
- TW4 ORIGINAL TEMPORARY WELL SAMPLING LOCATION
- APPROXIMATE BOUNDARY OF UNKNOWN AMBER VISCOUS NAPL IN PERCHED WATER AROUND TW4
- SITE BOUNDARY
- CURB LINES
- TANK VAULT BOUNDARY

SOURCE: "ARCHITECTURAL SURVEY" MONTROSE SURVEYING CO., LLP., RICHMOND HILL, N.Y. 4/2/07

GRAPHIC SCALE
10 0 5 10 20
(IN FEET)

EWMA ENGINEERING SERVICES, LLL - NYS ENG. CERT # 0005216

RICHARD ARNOLD
12/16/2010
NYS PE # 076202

REVISIONS	
NO./ID	DATE

An Environmental Consulting & Remediation Firm
100 Misty Lane
P.O. Box 5430
Parsippany, NJ 07054

SCALE: AS SHOWN
DATE: 11/30/10
PROJECT# 207266
DRAWN BY: RR
CHECKED BY: RA
FILE: b:\drawings\207000\207266\2010 DEC SUB\207266f14 11x17.dwg

AS-BUILT PERCHED UNIT LNAPL REMEDIATION LOCATIONS

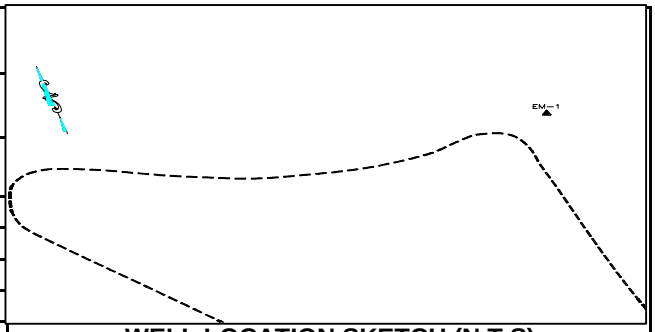
OCA LIC FIFTH STREET MIXED-USE HOUSING
5-20 46TH ROAD
LONG ISLAND CITY, NEW YORK

FIGURE# 16-1

APPENDIX 17
WELL CONSTRUCTION DIAGRAMS

Environmental Waste Management Associates, LLC
PO Box 5430, Parsippany, NJ, 07054
Phone: (973) 560-1400 Fax:(973) 560-0400

EWMA Job #:	207266
Well #:	EM-1
Start Date:	12/06/10

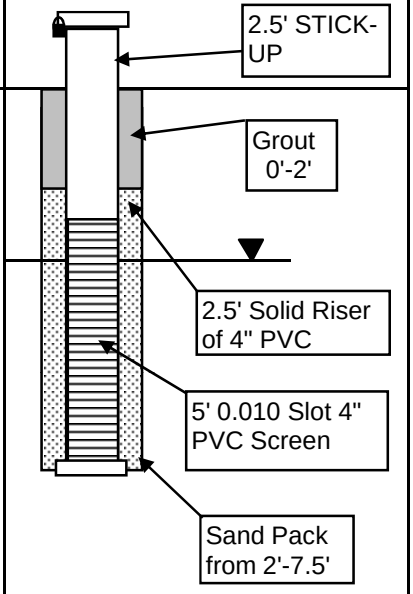


WELL LOCATION SKETCH (N.T.S)

Site: OCA-LIC, 5-11 47th Ave., Queens, NY		**Well Permit #:**	
		Completion Date:	12/14/10
Geologist: Daniel D & Jacob Strauss		**Drilling Co.:**	Zebra Drilling
Driller/Helper: Evan/Carl		**Drill Rig:**	7720dt
Drilling Method: Auger		**Type of Bit:**	6-1/8" and 4-1/8"
Sampler Type: Direct Push liner		**Solid Riser:**	0-2.5'
G.W. Encountered: 3.5	**G.W. Stabilized:** 3.5	**Well Depth:**	7.5"
Screen Interval/Screen Type:	2.5-7.5'		
Depth to Rim: NA	**Borehole Diameter:** 6"	**Well Diameter:**	4"
Grout: 0-2'	**Sand Pack/Open Borehole:**	2-7.5'	

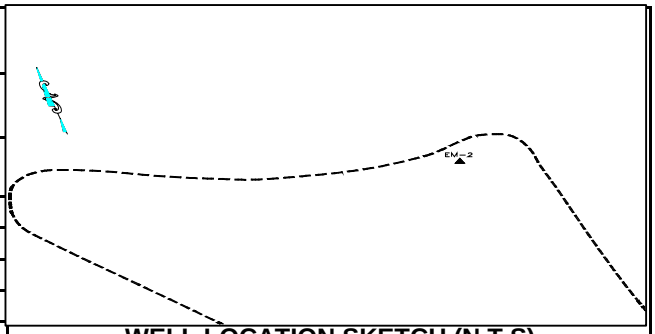
DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	SOIL/GEOLOGICAL DESCRIPTION
1–24						**0'-2.0' Imported virgin Quarry Process from Tilcon underlain by orange filter fabric, moist**
						2' - 5' Mixed Fill Material (silty SAND with gravel, moist
						5' - 7.5' Gray-black silty SAND and GRAVEL, wet
						END OF WELL

WELL CONSTRUCTION DIAGRAM (N.T.S)



Environmental Waste Management Associates, LLC
PO Box 5430, Parsippany, NJ, 07054
Phone: (973) 560-1400 Fax:(973) 560-0400

EWMA Job #:	207266
Well #:	EM-2
Start Date:	12/06/10



WELL LOCATION SKETCH (N.T.S)

Site: OCA-LIC, 5-11 47th Ave., Queens, NY		**Well Permit #:**	
		Completion Date:	12/14/10
Geologist: Daniel D & Jacob Strauss		**Drilling Co.:**	Zebra Drilling
Driller/Helper: Evan/Carl		**Drill Rig:**	7720dt
Drilling Method: Auger		**Type of Bit:**	6-1/8" and 4-1/8"
Sampler Type: Direct Push liner			
G.W. Encountered: 3.5	**G.W. Stabilized:** 3.5	**Well Depth:**	7.5"
Depth to Rim: NA	**Borehole Diameter:** 6"	**Well Diameter:**	4"

Solid Riser: 0-2.5'
Screen Interval/Screen Type: 2.5-7.5'
Grout: 0-2'
Sand Pack/Open Borehole: 2-7.5'

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	SOIL/GEOLOGICAL DESCRIPTION
1						**0'-2.0' Imported virgin Quarry Process from Tilcon underlain by orange filter fabric, moist**
2						2' - 5' Mixed Fill Material (silty SAND with gravel), moist
3						
4						5' - 7.5' Gray-black silty SAND and GRAVEL, wet varnish-like odor,
5						
6						
7						
8						**END OF WELL**
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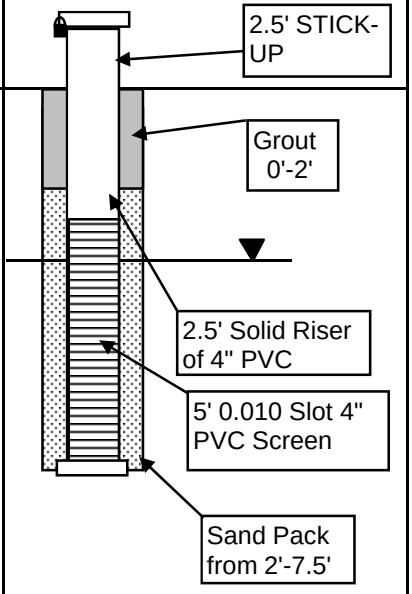
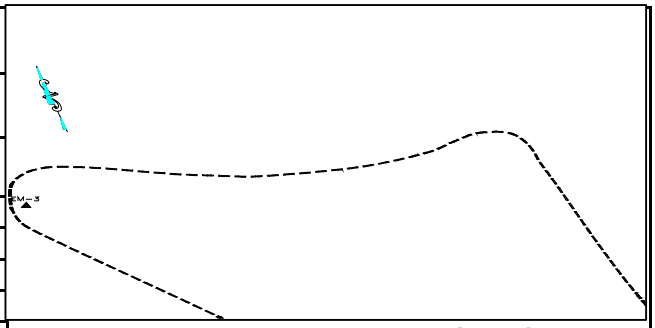
WELL CONSTRUCTION DIAGRAM (N.T.S)



Environmental Waste Management Associates, LLC
PO Box 5430, Parsippany, NJ, 07054
Phone: (973) 560-1400 Fax:(973) 560-0400

EWMA Job #:	207266
Well #:	EM-3
Start Date:	12/06/10

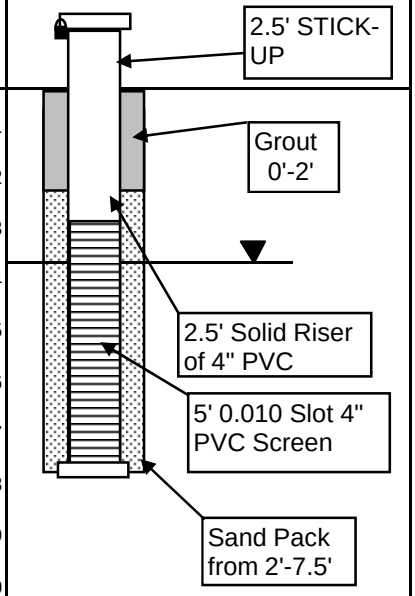


WELL LOCATION SKETCH (N.T.S)

Site: OCA-LIC, 5-11 47th Ave., Queens, NY		**Well Permit #:**	
		Completion Date:	12/14/10
Geologist: Daniel D & Jacob Strauss		**Drilling Co.:**	Zebra Drilling
Driller/Helper: Evan/Carl		**Drill Rig:**	7720dt
Drilling Method: Auger		**Type of Bit:**	6-1/8" and 4-1/8"
Sampler Type: Direct Push liner		**Solid Riser:**	0-2.5'
G.W. Encountered: 3.5	**G.W. Stabilized:** 3.5	**Well Depth:**	7.5"
Screen Interval/Screen Type:	2.5-7.5'		
Depth to Rim: NA	**Borehole Diameter:** 6"	**Well Diameter:**	4"
Grout: 0-2'	**Sand Pack/Open Borehole:**	2-7.5'	

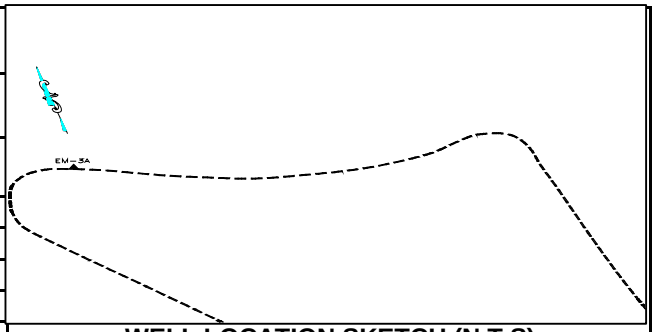
DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	SOIL/GEOLOGICAL DESCRIPTION
1–24						**0'-2.0' Imported virgin Quarry Process from Tilcon underlain by orange filter fabric, moist** 2' - 5' Mixed Fill Material (silty SAND with gravel), moist 5' - 7.5' Gray-black silty SAND and GRAVEL, wet varnish-like odor, **END OF WELL**

WELL CONSTRUCTION DIAGRAM (N.T.S)



Environmental Waste Management Associates, LLC
PO Box 5430, Parsippany, NJ, 07054
Phone: (973) 560-1400 Fax:(973) 560-0400

EWMA Job #:	207266
Well #:	EM-3A
Start Date:	12/06/10



WELL LOCATION SKETCH (N.T.S)

Site: OCA-LIC, 5-11 47th Ave., Queens, NY		**Well Permit #:**	
		Completion Date:	12/14/10
Geologist: Daniel D & Jacob Strauss		**Drilling Co.:**	Zebra Drilling
Driller/Helper: Evan/Carl		**Drill Rig:**	7720dt
Drilling Method: Auger		**Type of Bit:**	6-1/8" and 4-1/8"
Sampler Type: Direct Push liner			
G.W. Encountered: 3.5	**G.W. Stabilized:** 3.5	**Well Depth:**	6.5"
Depth to Rim: NA	**Borehole Diameter:** 6"	**Well Diameter:**	4"

Solid Riser: 0-3.5
Screen Interval/Screen Type: 3.5-6.5
Grout: 0-2.5 **Sand Pack/Open Borehole:** 2.5-6.5

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	SOIL/GEOLOGICAL DESCRIPTION
1						**0'-2.0' Imported virgin Quarry Process from Tilcon underlain by orange filter fabric, moist**
2						2' - 5' Mixed Fill Material (silty SAND with gravel), moist
3						
4						5' - 6.5' Gray-black silty SAND and GRAVEL, wet varnish-like odor,
5						
6						
7						**END OF WELL**
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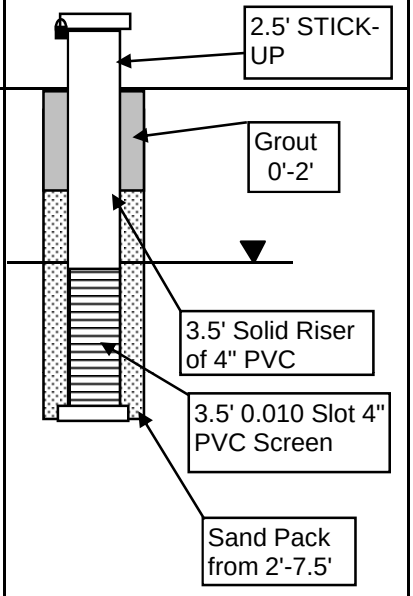
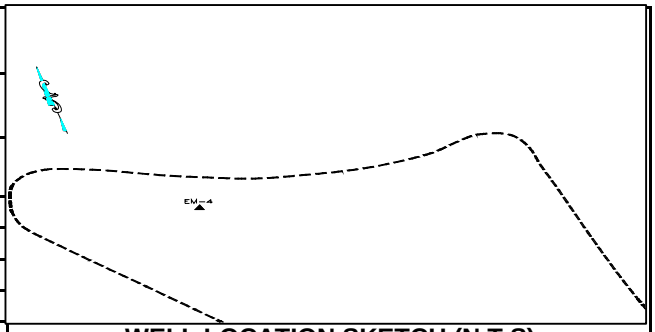
WELL CONSTRUCTION DIAGRAM (N.T.S)



Environmental Waste Management Associates, LLC
PO Box 5430, Parsippany, NJ, 07054
Phone: (973) 560-1400 Fax:(973) 560-0400

EWMA Job #:	207266
Well #:	EM-4
Start Date:	12/06/10



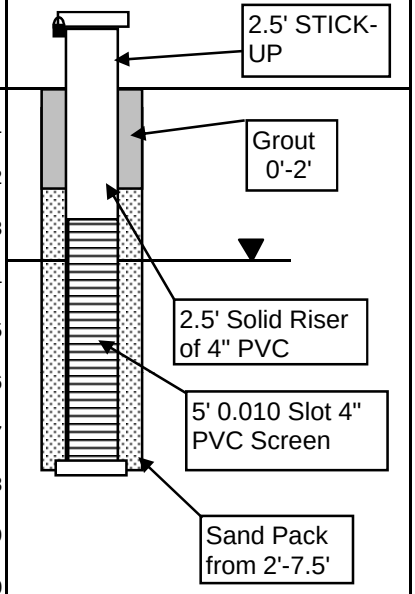
WELL LOCATION SKETCH (N.T.S)

Site: OCA-LIC, 5-11 47th Ave., Queens, NY		**Well Permit #:**	
		Completion Date:	12/14/10
Geologist: Daniel D & Jacob Strauss		**Drilling Co.:**	Zebra Drilling
Driller/Helper: Evan/Carl		**Drill Rig:**	7720dt
Drilling Method: Auger		**Type of Bit:**	6-1/8" and 4-1/8"
Sampler Type: Direct Push liner			
G.W. Encountered: 3.5	**G.W. Stabilized:** 3.5	**Well Depth:**	7.5"
Depth to Rim: NA	**Borehole Diameter:** 6"	**Well Diameter:**	4"

Solid Riser: 0-2.5'
Screen Interval/Screen Type: 2.5-7.5'
Grout: 0-2'
Sand Pack/Open Borehole: 2-7.5'

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	SOIL/GEOLOGICAL DESCRIPTION
1–24						**0'-2.0' Imported virgin Quarry Process from Tilcon underlain by orange filter fabric, moist** 2' - 5' Mixed Fill Material (silty SAND with gravel), moist 5' - 7.5' Gray-black silty SAND and GRAVEL, wet varnish-like odor, **END OF WELL**

WELL CONSTRUCTION DIAGRAM (N.T.S)



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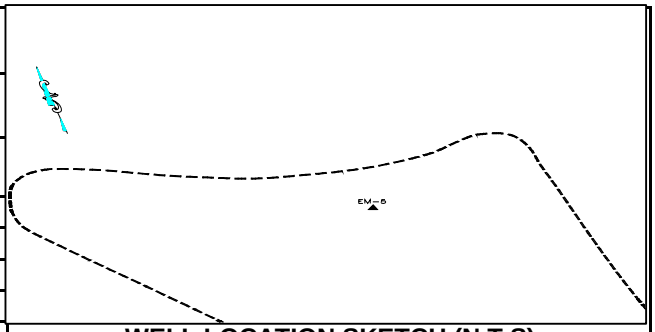
EWMA Job #:	207266
Well #:	EM-5
Start Date:	12/06/10



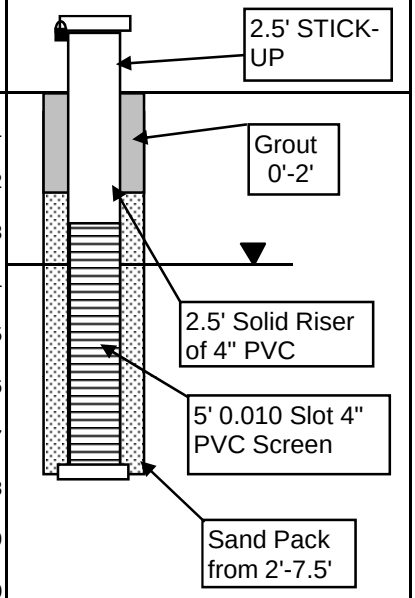
WELL LOCATION SKETCH (N.T.S)

Site: OCA-LIC, 5-11 47th Ave., Queens, NY		**Well Permit #:**	
		Completion Date:	12/14/10
Geologist: Daniel D & Jacob Strauss		**Drilling Co.:**	Zebra Drilling
Driller/Helper: Evan/Carl		**Drill Rig:**	7720dt
Drilling Method: Auger		**Type of Bit:**	6-1/8" and 4-1/8"
Sampler Type: Direct Push liner			
G.W. Encountered: 3.5	**G.W. Stabilized:** 3.5	**Well Depth:**	7.5"
Depth to Rim: NA	**Borehole Diameter:** 6"	**Well Diameter:**	4"

Solid Riser: 0-2.5'
Screen Interval/Screen Type: 2.5-7.5'
Grout: 0-2'
Sand Pack/Open Borehole: 2-7.5'

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	SOIL/GEOLOGICAL DESCRIPTION
1–24						**0'-2.0' Imported virgin Quarry Process from Tilcon underlain by orange filter fabric, moist** 2' - 5' Mixed Fill Material (silty SAND with gravel), moist 5' - 7.5' Gray-black silty SAND and GRAVEL, wet varnish-like odor, **END OF WELL**

WELL CONSTRUCTION DIAGRAM (N.T.S)



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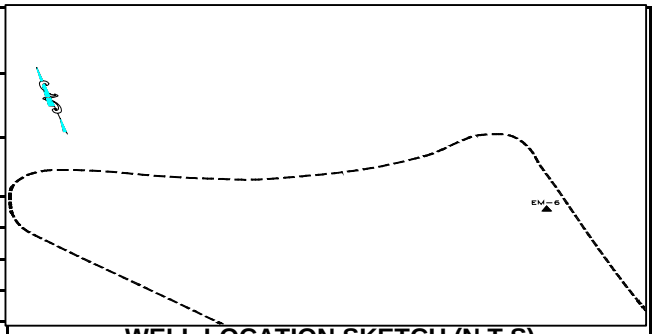
EWMA Job #:	207266
Well #:	EM-6
Start Date:	12/06/10



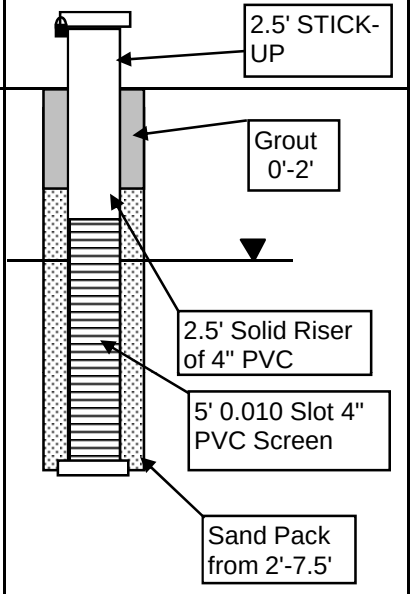
WELL LOCATION SKETCH (N.T.S)

Site: OCA-LIC, 5-11 47th Ave., Queens, NY		**Well Permit #:**	
		Completion Date:	12/14/10
Geologist: Daniel D & Jacob Strauss		**Drilling Co.:**	Zebra Drilling
Driller/Helper: Evan/Carl		**Drill Rig:**	7720dt
Drilling Method: Auger		**Type of Bit:**	6-1/8" and 4-1/8"
Sampler Type: Direct Push liner			
G.W. Encountered: 3.5	**G.W. Stabilized:** 3.5	**Well Depth:**	7.5"
Depth to Rim: NA	**Borehole Diameter:** 6"	**Well Diameter:**	4"

Solid Riser: 0-2.5'
Screen Interval/Screen Type: 2.5-7.5'
Grout: 0-2'
Sand Pack/Open Borehole: 2-7.5'

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	SOIL/GEOLOGICAL DESCRIPTION
1–24						**0'-2.0' Imported virgin Quarry Process from Tilcon underlain by orange filter fabric, moist** 2' - 5' Mixed Fill Material (silty SAND with gravel), moist 5' - 7.5' Gray-black silty SAND and GRAVEL, wet varnish-like odor, **END OF WELL**

WELL CONSTRUCTION DIAGRAM (N.T.S)



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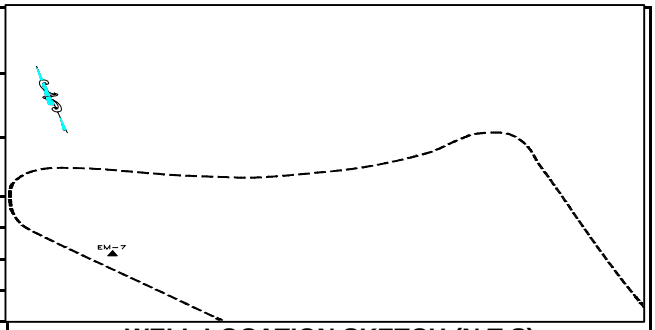
EWMA Job #:	207266
Well #:	EM-7
Start Date:	12/06/10



WELL LOCATION SKETCH (N.T.S)

Site: OCA-LIC, 5-11 47th Ave., Queens, NY		**Well Permit #:**	
		Completion Date:	12/14/10
Geologist: Daniel D & Jacob Strauss		**Drilling Co.:**	Zebra Drilling
Driller/Helper: Evan/Carl		**Drill Rig:**	7720dt
Drilling Method: Auger		**Type of Bit:**	6-1/8" and 4-1/8"
Sampler Type: Direct Push liner			
G.W. Encountered: 3.5	**G.W. Stabilized:** 3.5	**Well Depth:**	7.5"
Depth to Rim: NA	**Borehole Diameter:** 6"	**Well Diameter:**	4"

Solid Riser: 0-2.5'
Screen Interval/Screen Type: 2.5-7.5'
Grout: 0-2'
Sand Pack/Open Borehole: 2-7.5'

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	SOIL/GEOLOGICAL DESCRIPTION
1						**0'-2.0' Imported virgin Quarry Process from Tilcon underlain by orange filter fabric, moist**
2						2' - 5' Mixed Fill Material (silty SAND with gravel), moist
3						
4						5' - 7.5' Gray-black silty SAND and GRAVEL, wet varnish-like odor,
5						
6						
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8						**END OF WELL**
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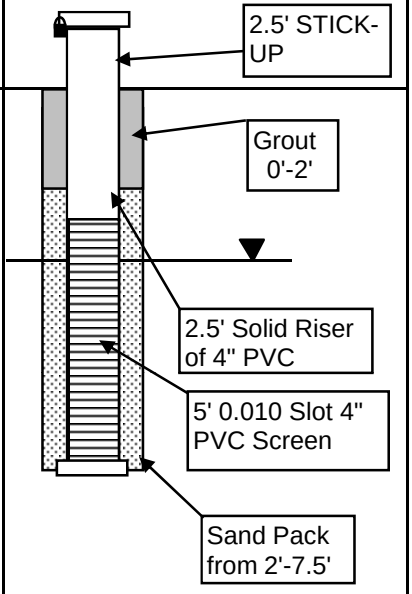
WELL CONSTRUCTION DIAGRAM (N.T.S)



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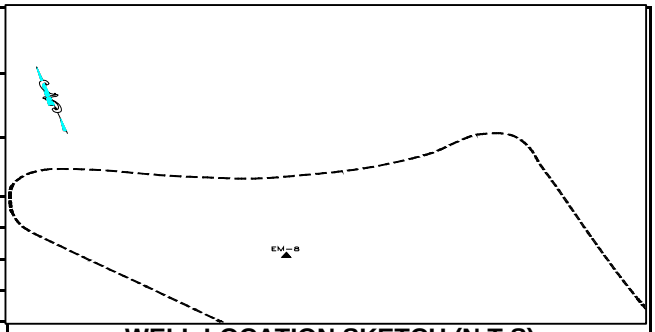
EWMA Job #:	207266
Well #:	EM-8
Start Date:	12/06/10



WELL LOCATION SKETCH (N.T.S)

Site: OCA-LIC, 5-11 47th Ave., Queens, NY		**Well Permit #:**	
		Completion Date:	12/14/10
Geologist: Daniel D & Jacob Strauss		**Drilling Co.:**	Zebra Drilling
Driller/Helper: Evan/Carl		**Drill Rig:**	7720dt
Drilling Method: Auger		**Type of Bit:**	6-1/8" and 4-1/8"
Sampler Type: Direct Push liner			
G.W. Encountered: 3.5	**G.W. Stabilized:** 3.5	**Well Depth:**	7.5"
Depth to Rim: NA	**Borehole Diameter:** 6"	**Well Diameter:**	4"

Solid Riser: 0-2.5'
Screen Interval/Screen Type: 2.5-7.5'
Grout: 0-2'
Sand Pack/Open Borehole: 2-7.5'

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	SOIL/GEOLOGICAL DESCRIPTION
1						**0'-2.0' Imported virgin Quarry Process from Tilcon underlain by orange filter fabric, moist**
2						2' - 5' Mixed Fill Material (silty SAND with gravel), moist
3						
4						5' - 7.5' Gray-black silty SAND and GRAVEL, wet varnish-like odor,
5						
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8						**END OF WELL**
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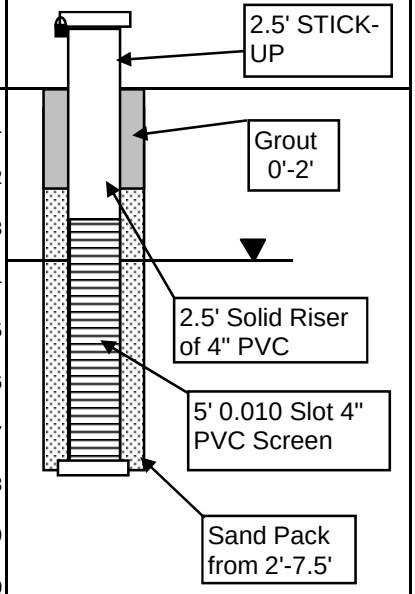
WELL CONSTRUCTION DIAGRAM (N.T.S)



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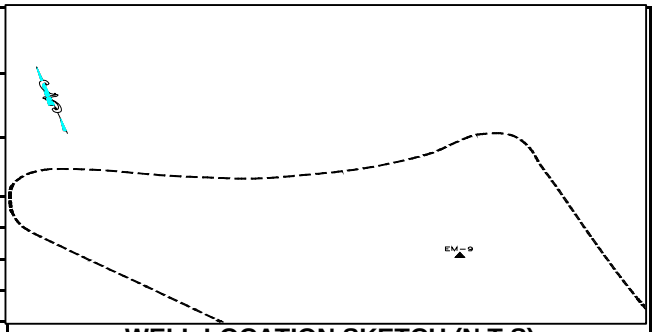
Phone: (973) 560-1400 Fax:(973) 560-0400

EWMA Job #:	207266
Well #:	EM-9
Start Date:	12/06/10



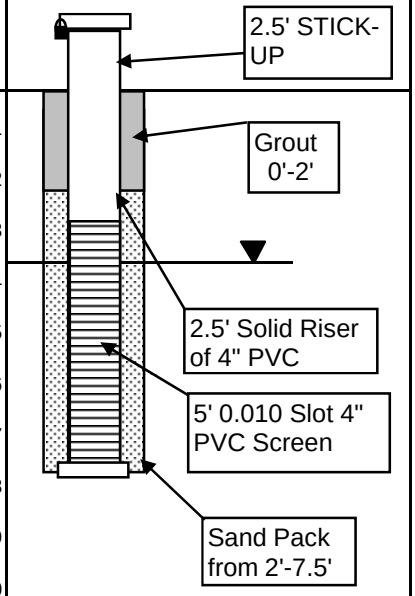
WELL LOCATION SKETCH (N.T.S)

Site: OCA-LIC, 5-11 47th Ave., Queens, NY		**Well Permit #:**	
		Completion Date:	12/14/10
Geologist: Daniel D & Jacob Strauss		**Drilling Co.:**	Zebra Drilling
Driller/Helper: Evan/Carl		**Drill Rig:**	7720dt
Drilling Method: Auger		**Type of Bit:**	6-1/8" and 4-1/8"
Sampler Type: Direct Push liner			
G.W. Encountered: 3.5	**G.W. Stabilized:** 3.5	**Well Depth:**	7.5"
Depth to Rim: NA	**Borehole Diameter:** 6"	**Well Diameter:**	4"

Solid Riser: 0-2.5'
Screen Interval/Screen Type: 2.5-7.5'
Grout: 0-2'
Sand Pack/Open Borehole: 2-7.5'

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	SOIL/GEOLOGICAL DESCRIPTION
1–24						**0'-2.0' Imported virgin Quarry Process from Tilcon underlain by orange filter fabric, moist** 2' - 5' Mixed Fill Material (silty SAND with gravel), moist 5' - 7.5' Gray-black silty SAND and GRAVEL, wet varnish-like odor, **END OF WELL**

WELL CONSTRUCTION DIAGRAM (N.T.S)



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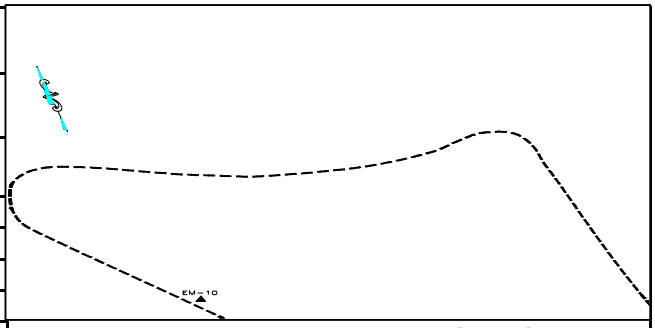
EWMA Job #:	207266
Well #:	EM-10
Start Date:	12/06/10



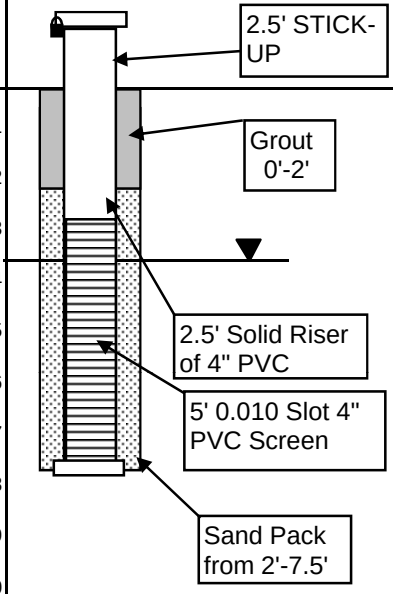
WELL LOCATION SKETCH (N.T.S)

Site: OCA-LIC, 5-11 47th Ave., Queens, NY		**Well Permit #:**	
		Completion Date:	12/14/10
Geologist: Daniel D & Jacob Strauss		**Drilling Co.:**	Zebra Drilling
Driller/Helper: Evan/Carl		**Drill Rig:**	7720dt
Drilling Method: Auger		**Type of Bit:**	6-1/8" and 4-1/8"
Sampler Type: Direct Push liner			
G.W. Encountered: 3.5	**G.W. Stabilized:** 3.5	**Well Depth:**	7.5"
Depth to Rim: NA	**Borehole Diameter:** 6"	**Well Diameter:**	4"

Solid Riser: 0-2.5'
Screen Interval/Screen Type: 2.5-7.5'
Grout: 0-2'
Sand Pack/Open Borehole: 2-7.5'

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	SOIL/GEOLOGICAL DESCRIPTION
1–24						**0'-2.0' Imported virgin Quarry Process from Tilcon underlain by orange filter fabric, moist**
						2' - 5' Mixed Fill Material (silty SAND with gravel), moist
						5' - 7.5' Gray-black silty SAND and GRAVEL, wet varnish-like odor,
						END OF WELL

WELL CONSTRUCTION DIAGRAM (N.T.S)



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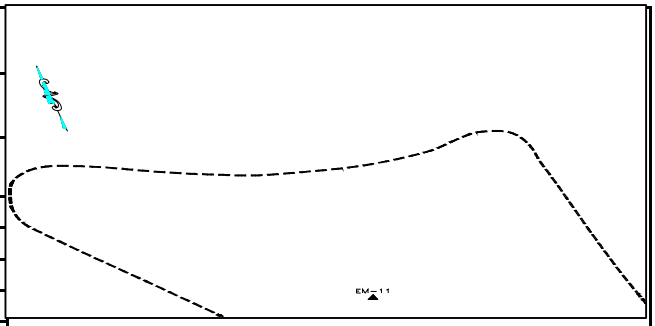
EWMA Job #:	207266
Well #:	EM-11
Start Date:	12/06/10



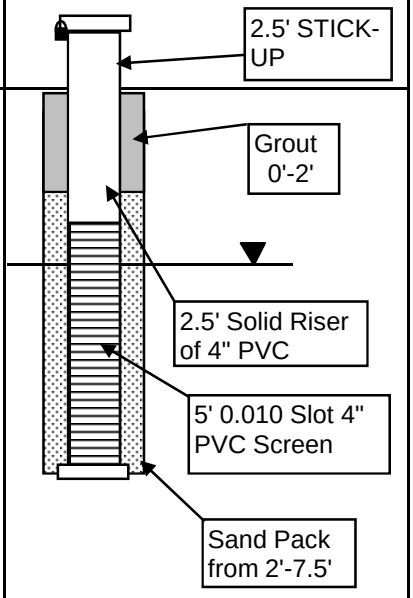
WELL LOCATION SKETCH (N.T.S)

Site: OCA-LIC, 5-11 47th Ave., Queens, NY		**Well Permit #:**	
		Completion Date:	12/14/10
Geologist: Daniel D & Jacob Strauss		**Drilling Co.:**	Zebra Drilling
Driller/Helper: Evan/Carl		**Drill Rig:**	7720dt
Drilling Method: Auger		**Type of Bit:**	6-1/8" and 4-1/8"
Sampler Type: Direct Push liner			
G.W. Encountered: 3.5	**G.W. Stabilized:** 3.5	**Well Depth:**	7.5"
Depth to Rim: NA	**Borehole Diameter:** 6"	**Well Diameter:**	4"

Solid Riser: 0-2.5'
Screen Interval/Screen Type: 2.5-7.5'
Grout: 0-2'
Sand Pack/Open Borehole: 2-7.5'

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	SOIL/GEOLOGICAL DESCRIPTION
1–24						**0'-2.0' Imported virgin Quarry Process from Tilcon underlain by orange filter fabric, moist** 2' - 5' Mixed Fill Material (silty SAND with gravel), moist 5' - 7.5' Gray-black silty SAND and GRAVEL, wet varnish-like odor, **END OF WELL**

WELL CONSTRUCTION DIAGRAM (N.T.S)



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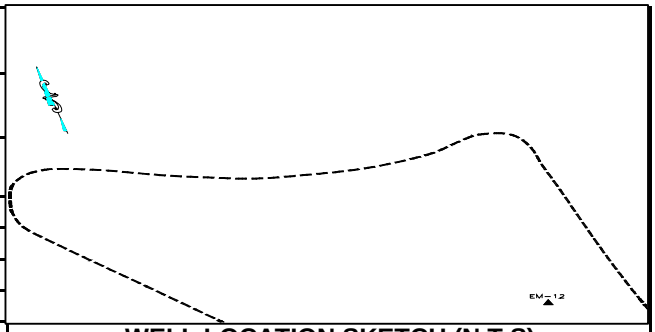
Phone: (973) 560-1400 Fax:(973) 560-0400

EWMA Job #:	207266
Well #:	EM-12
Start Date:	12/06/10



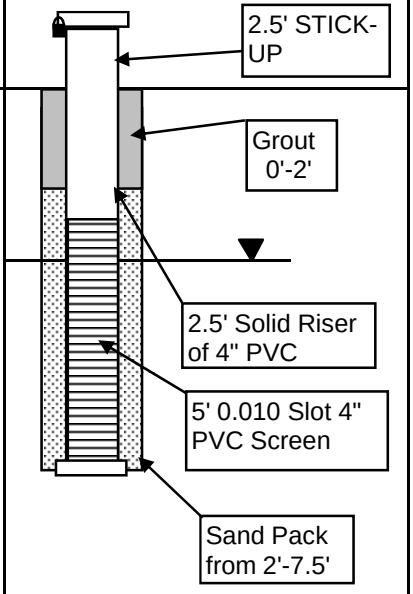
WELL LOCATION SKETCH (N.T.S)

Site: OCA-LIC, 5-11 47th Ave., Queens, NY		**Well Permit #:**	
		Completion Date:	12/14/10
Geologist: Daniel D & Jacob Strauss		**Drilling Co.:**	Zebra Drilling
Driller/Helper: Evan/Carl		**Drill Rig:**	7720dt
Drilling Method: Auger		**Type of Bit:**	6-1/8" and 4-1/8"
Sampler Type: Direct Push liner			
G.W. Encountered: 3.5	**G.W. Stabilized:** 3.5	**Well Depth:**	7.5"
Depth to Rim: NA	**Borehole Diameter:** 6"	**Well Diameter:**	4"

Solid Riser: 0-2.5'
Screen Interval/Screen Type: 2.5-7.5'
Grout: 0-2'
Sand Pack/Open Borehole: 2-7.5'

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	SOIL/GEOLOGICAL DESCRIPTION
1–24						**0'-2.0' Imported virgin Quarry Process from Tilcon underlain by orange filter fabric, moist** 2' - 5' Mixed Fill Material (silty SAND with gravel), moist 5' - 7.5' Gray-black silty SAND and GRAVEL, wet varnish-like odor, **END OF WELL**

WELL CONSTRUCTION DIAGRAM (N.T.S)



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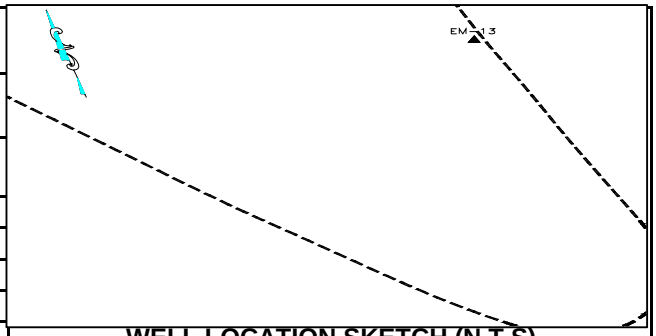
Phone: (973) 560-1400 Fax:(973) 560-0400

EWMA Job #:	207266
Well #:	EM-13
Start Date:	12/06/10



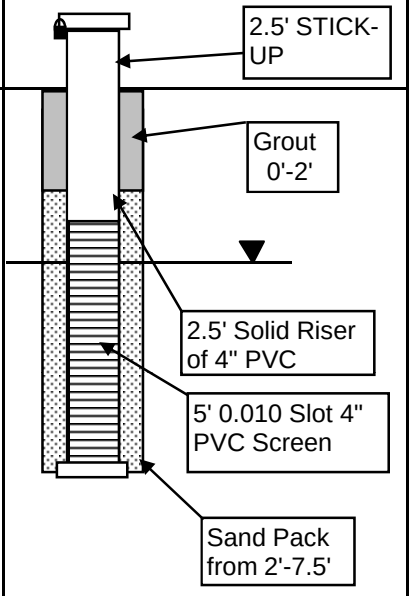
WELL LOCATION SKETCH (N.T.S)

Site: OCA-LIC, 5-11 47th Ave., Queens, NY		**Well Permit #:**	
		Completion Date:	12/14/10
Geologist: Daniel D & Jacob Strauss		**Drilling Co.:**	Zebra Drilling
Driller/Helper: Evan/Carl		**Drill Rig:**	7720dt
Drilling Method: Auger		**Type of Bit:**	6-1/8" and 4-1/8"
Sampler Type: Direct Push liner		**Solid Riser:**	0-2.5'
G.W. Encountered: 3.5	**G.W. Stabilized:** 3.5	**Well Depth:**	7.5"
Screen Interval/Screen Type:	2.5-7.5'		
Depth to Rim: NA	**Borehole Diameter:** 6"	**Well Diameter:**	4"
Grout: 0-2'	**Sand Pack/Open Borehole:**	2-7.5'	

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	SOIL/GEOLOGICAL DESCRIPTION
1–24						**0'-2.0' Imported virgin Quarry Process from Tilcon underlain by orange filter fabric, moist** 2' - 5' Mixed Fill Material (silty SAND with gravel), moist 5' - 7.5' Gray-black silty SAND and GRAVEL, wet varnish-like odor, **END OF WELL**

DEPTH (FT.) 1–24

WELL CONSTRUCTION DIAGRAM (N.T.S)



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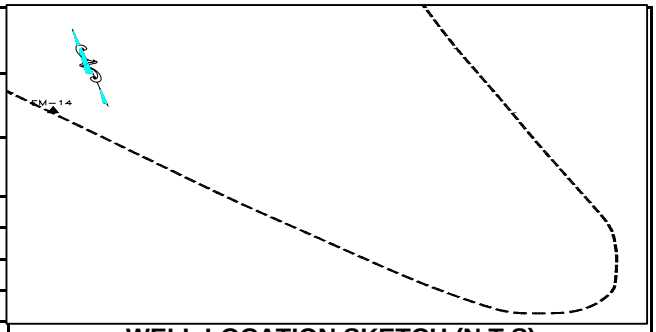
Phone: (973) 560-1400 Fax:(973) 560-0400

EWMA Job #:	207266
Well #:	EM-14
Start Date:	12/06/10

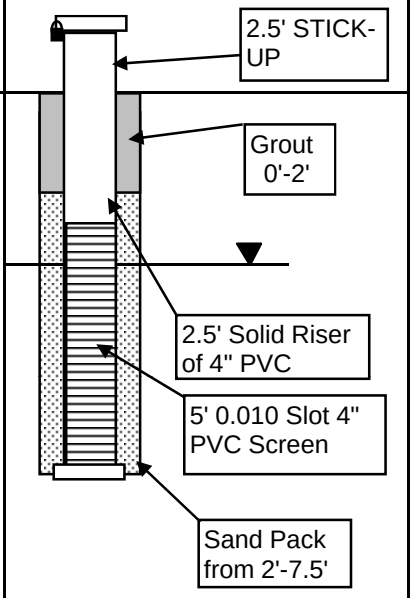


WELL LOCATION SKETCH (N.T.S)

Site: OCA-LIC, 5-11 47th Ave., Queens, NY		**Well Permit #:**	
		Completion Date:	12/14/10
Geologist: Daniel D & Jacob Strauss		**Drilling Co.:**	Zebra Drilling
Driller/Helper: Evan/Carl		**Drill Rig:**	7720dt
Drilling Method: Auger		**Type of Bit:**	6-1/8" and 4-1/8"
Sampler Type: Direct Push liner		**Solid Riser:**	0-2.5'
G.W. Encountered: 3.5	**G.W. Stabilized:** 3.5	**Well Depth:**	7.5"
Screen Interval/Screen Type:	2.5-7.5'		
Depth to Rim: NA	**Borehole Diameter:** 6"	**Well Diameter:**	4"
Grout: 0-2'	**Sand Pack/Open Borehole:**	2-7.5'	

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	SOIL/GEOLOGICAL DESCRIPTION
1–24						**0'-2.0' Imported virgin Quarry Process from Tilcon underlain by orange filter fabric, moist**
						2' - 5' Mixed Fill Material (silty SAND with gravel), moist
						5' - 7.5' Gray-black silty SAND and GRAVEL, wet varnish-like odor,
						END OF WELL

WELL CONSTRUCTION DIAGRAM (N.T.S)



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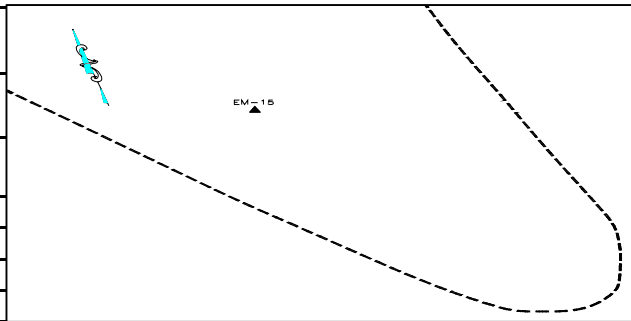
Phone: (973) 560-1400 Fax:(973) 560-0400

EWMA Job #:	207266
Well #:	EM-15
Start Date:	12/06/10

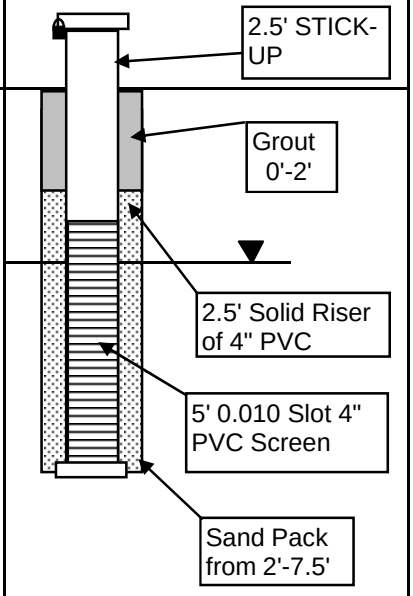


WELL LOCATION SKETCH (N.T.S)

Site: OCA-LIC, 5-11 47th Ave., Queens, NY		**Well Permit #:**	
		Completion Date:	12/14/10
Geologist:	Daniel D & Jacob Strauss	**Drilling Co.:**	Zebra Drilling
Driller/Helper:	Evan/Carl	**Drill Rig:**	7720dt
Drilling Method:	Auger	**Type of Bit:**	6-1/8" and 4-1/8"
Sampler Type:	Direct Push liner	**Solid Riser:**	0-2.5'
G.W. Encountered:	3.5	**G.W. Stabilized:**	3.5
Well Depth:	7.5"	**Screen Interval/Screen Type:**	2.5-7.5'
Depth to Rim:	NA	**Borehole Diameter:**	6"
Well Diameter:	4"	**Grout:** 0-2'	**Sand Pack/Open Borehole:** 2-7.5'

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	SOIL/GEOLOGICAL DESCRIPTION
1–24						**0'-2.0' Imported virgin Quarry Process from Tilcon underlain by orange filter fabric, moist**
						2' - 5' Mixed Fill Material (silty SAND with gravel), moist
						5' - 7.5' Gray-black silty SAND and GRAVEL, wet varnish-like odor,
						END OF WELL

WELL CONSTRUCTION DIAGRAM (N.T.S)



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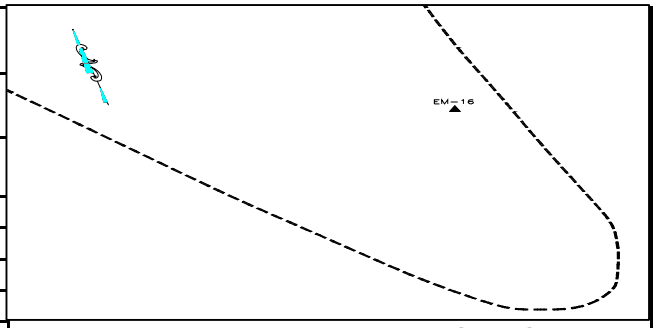
Phone: (973) 560-1400 Fax:(973) 560-0400

EWMA Job #:	207266
Well #:	EM-16
Start Date:	12/06/10

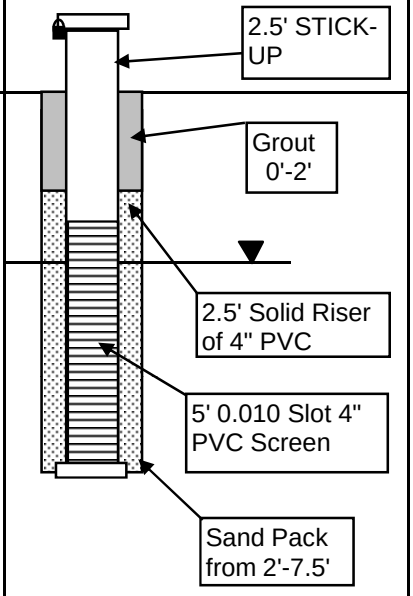


WELL LOCATION SKETCH (N.T.S)

Site: OCA-LIC, 5-11 47th Ave., Queens, NY		**Well Permit #:**	
		Completion Date:	12/14/10
Geologist: Daniel D & Jacob Strauss		**Drilling Co.:**	Zebra Drilling
Driller/Helper: Evan/Carl		**Drill Rig:**	7720dt
Drilling Method: Auger		**Type of Bit:**	6-1/8" and 4-1/8"
Sampler Type: Direct Push liner		**Solid Riser:**	0-2.5'
G.W. Encountered: 3.5	**G.W. Stabilized:** 3.5	**Well Depth:**	7.5"
Screen Interval/Screen Type:	2.5-7.5'		
Depth to Rim: NA	**Borehole Diameter:** 6"	**Well Diameter:**	4"
Grout: 0-2'	**Sand Pack/Open Borehole:**	2-7.5'	

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	SOIL/GEOLOGICAL DESCRIPTION
1–24						**0'-2.0' Imported virgin Quarry Process from Tilcon underlain by orange filter fabric, moist**
						2' - 5' Mixed Fill Material (silty SAND with gravel), moist
						5' - 7.5' Gray-black silty SAND and GRAVEL, wet varnish-like odor,
						END OF WELL

WELL CONSTRUCTION DIAGRAM (N.T.S)



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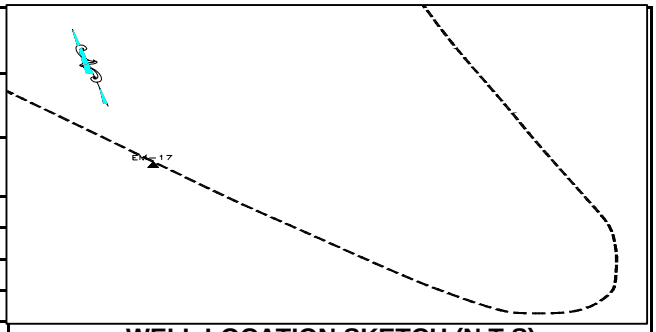
Phone: (973) 560-1400 Fax:(973) 560-0400

EWMA Job #:	207266
Well #:	EM-17
Start Date:	12/06/10



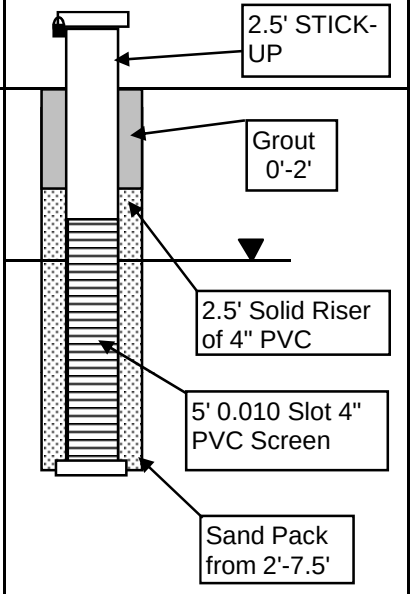
WELL LOCATION SKETCH (N.T.S)

Site: OCA-LIC, 5-11 47th Ave., Queens, NY		**Well Permit #:**	
		Completion Date:	12/14/10
Geologist: Daniel D & Jacob Strauss		**Drilling Co.:**	Zebra Drilling
Driller/Helper: Evan/Carl		**Drill Rig:**	7720dt
Drilling Method: Auger		**Type of Bit:**	6-1/8" and 4-1/8"
Sampler Type: Direct Push liner			
G.W. Encountered: 3.5	**G.W. Stabilized:** 3.5	**Well Depth:**	7.5"
Depth to Rim: NA	**Borehole Diameter:** 6"	**Well Diameter:**	4"

Solid Riser: 0-2.5'
Screen Interval/Screen Type: 2.5-7.5'
Grout: 0-2'
Sand Pack/Open Borehole: 2-7.5'

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	SOIL/GEOLOGICAL DESCRIPTION
1–24						**0'-2.0' Imported virgin Quarry Process from Tilcon underlain by orange filter fabric, moist** 2' - 5' Mixed Fill Material (silty SAND with gravel), moist 5' - 7.5' Gray-black silty SAND and GRAVEL, wet varnish-like odor, **END OF WELL**

WELL CONSTRUCTION DIAGRAM (N.T.S)



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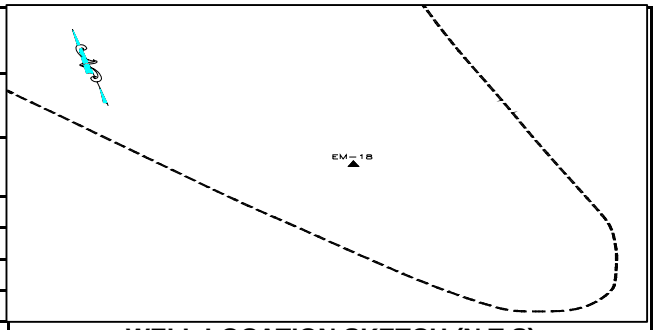
Phone: (973) 560-1400 Fax:(973) 560-0400

EWMA Job #:	207266
Well #:	EM-18
Start Date:	12/06/10

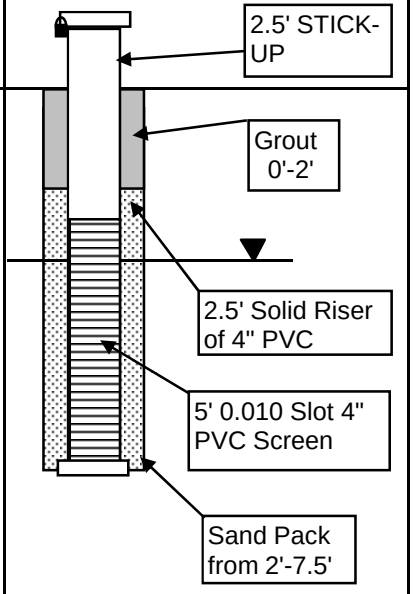


WELL LOCATION SKETCH (N.T.S)

Site: OCA-LIC, 5-11 47th Ave., Queens, NY	**Well Permit #:**		
	Completion Date: 12/14/10		
Geologist: Daniel D & Jacob Strauss	**Drilling Co.:** Zebra Drilling		
Driller/Helper: Evan/Carl	**Drill Rig:** 7720dt		
Drilling Method: Auger	**Type of Bit:** 6-1/8" and 4-1/8"		
Sampler Type: Direct Push liner		**Solid Riser:** 0-2.5'	
G.W. Encountered: 3.5	**G.W. Stabilized:** 3.5	**Well Depth:** 7.5"	**Screen Interval/Screen Type:** 2.5-7.5'
Depth to Rim: NA	**Borehole Diameter:** 6"	**Well Diameter:** 4"	**Grout:** 0-2' / **Sand Pack/Open Borehole:** 2-7.5'

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	SOIL/GEOLOGICAL DESCRIPTION
1-24						**0'-2.0' Imported virgin Quarry Process from Tilcon underlain by orange filter fabric, moist** 2' - 5' Mixed Fill Material (silty SAND with gravel), moist 5' - 7.5' Gray-black silty SAND and GRAVEL, wet varnish-like odor, **END OF WELL**

WELL CONSTRUCTION DIAGRAM (N.T.S)



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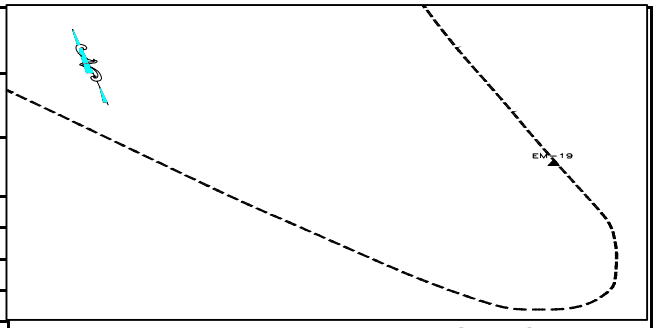
Phone: (973) 560-1400 Fax:(973) 560-0400

EWMA Job #:	207266
Well #:	EM-19
Start Date:	12/06/10

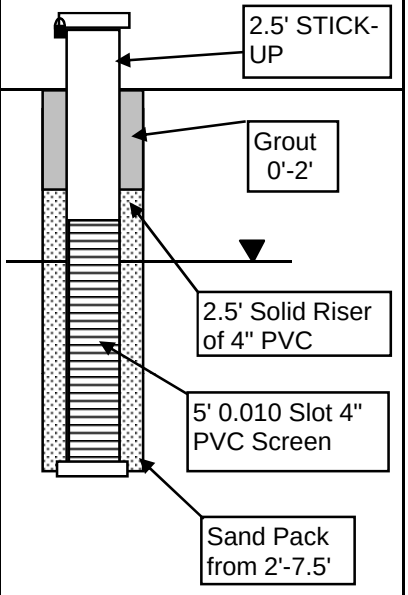


WELL LOCATION SKETCH (N.T.S)

Site: OCA-LIC, 5-11 47th Ave., Queens, NY		**Well Permit #:**	
		Completion Date:	12/14/10
Geologist: Daniel D & Jacob Strauss		**Drilling Co.:**	Zebra Drilling
Driller/Helper: Evan/Carl		**Drill Rig:**	7720dt
Drilling Method: Auger		**Type of Bit:**	6-1/8" and 4-1/8"
Sampler Type: Direct Push liner		**Solid Riser:**	0-2.5'
G.W. Encountered: 3.5	**G.W. Stabilized:** 3.5	**Well Depth:**	7.5"
Screen Interval/Screen Type:	2.5-7.5'		
Depth to Rim: NA	**Borehole Diameter:** 6"	**Well Diameter:**	4"
Grout: 0-2'	**Sand Pack/Open Borehole:**	2-7.5'	

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	SOIL/GEOLOGICAL DESCRIPTION
1–24						**0'-2.0' Imported virgin Quarry Process from Tilcon underlain by orange filter fabric, moist**
						2' - 5' Mixed Fill Material (silty SAND with gravel), moist
						5' - 7.5' Gray-black silty SAND and GRAVEL, wet varnish-like odor,
						END OF WELL

WELL CONSTRUCTION DIAGRAM (N.T.S)



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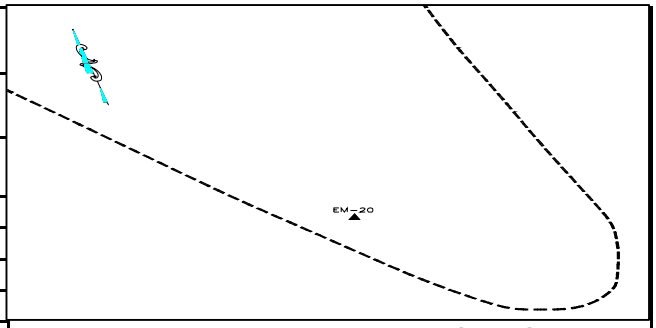
Phone: (973) 560-1400 Fax:(973) 560-0400

EWMA Job #:	207266
Well #:	EM-20
Start Date:	12/06/10

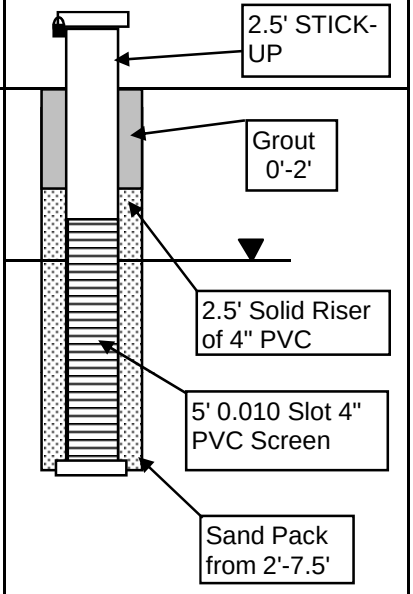


WELL LOCATION SKETCH (N.T.S)

Site: OCA-LIC, 5-11 47th Ave., Queens, NY		**Well Permit #:**	
		Completion Date:	12/14/10
Geologist: Daniel D & Jacob Strauss		**Drilling Co.:**	Zebra Drilling
Driller/Helper: Evan/Carl		**Drill Rig:**	7720dt
Drilling Method: Auger		**Type of Bit:**	6-1/8" and 4-1/8"
Sampler Type: Direct Push liner		**Solid Riser:**	0-2.5'
G.W. Encountered: 3.5	**G.W. Stabilized:** 3.5	**Well Depth:**	7.5"
Screen Interval/Screen Type:	2.5-7.5'		
Depth to Rim: NA	**Borehole Diameter:** 6"	**Well Diameter:**	4"
Grout: 0-2'	**Sand Pack/Open Borehole:**	2-7.5'	

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	SOIL/GEOLOGICAL DESCRIPTION
1–24						**0'-2.0' Imported virgin Quarry Process from Tilcon underlain by orange filter fabric, moist**
						2' - 5' Mixed Fill Material (silty SAND with gravel), moist
						5' - 7.5' Gray-black silty SAND and GRAVEL, wet varnish-like odor,
						END OF WELL

WELL CONSTRUCTION DIAGRAM (N.T.S)



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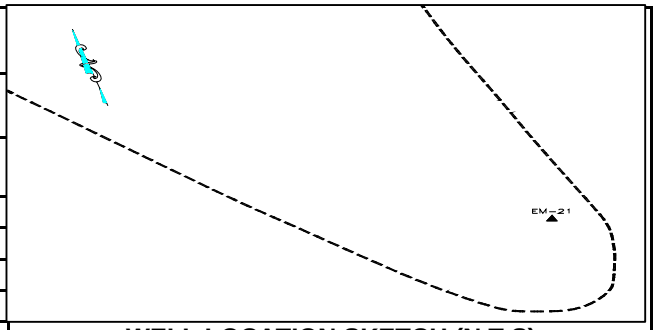
Phone: (973) 560-1400 Fax:(973) 560-0400

EWMA Job #:	207266
Well #:	EM-21
Start Date:	12/06/10

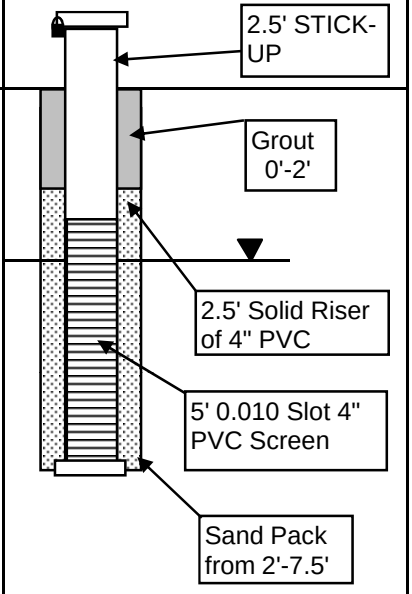


WELL LOCATION SKETCH (N.T.S)

Site: OCA-LIC, 5-11 47th Ave., Queens, NY		**Well Permit #:**	
		Completion Date:	12/14/10
Geologist: Daniel D & Jacob Strauss		**Drilling Co.:**	Zebra Drilling
Driller/Helper: Evan/Carl		**Drill Rig:**	7720dt
Drilling Method: Auger		**Type of Bit:**	6-1/8" and 4-1/8"
Sampler Type: Direct Push liner		**Solid Riser:**	0-2.5'
G.W. Encountered: 3.5	**G.W. Stabilized:** 3.5	**Well Depth:**	7.5"
Screen Interval/Screen Type:	2.5-7.5'		
Depth to Rim: NA	**Borehole Diameter:** 6"	**Well Diameter:**	4"
Grout: 0-2'	**Sand Pack/Open Borehole:**	2-7.5'	

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	SOIL/GEOLOGICAL DESCRIPTION
1–24						**0'-2.0' Imported virgin Quarry Process from Tilcon underlain by orange filter fabric, moist** 2' - 5' Mixed Fill Material (silty SAND with gravel), moist 5' - 7.5' Gray-black silty SAND and GRAVEL, wet varnish-like odor, **END OF WELL**

WELL CONSTRUCTION DIAGRAM (N.T.S)



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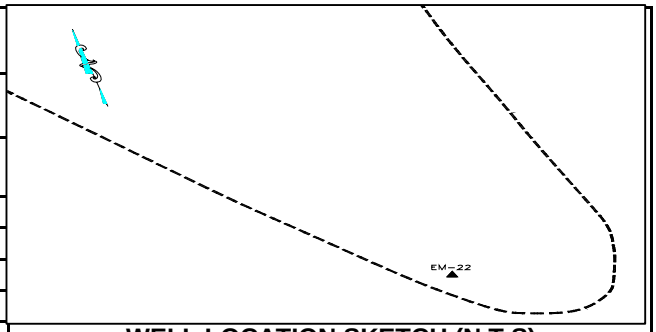
EWMA Job #:	207266
Well #:	EM-22
Start Date:	12/06/10



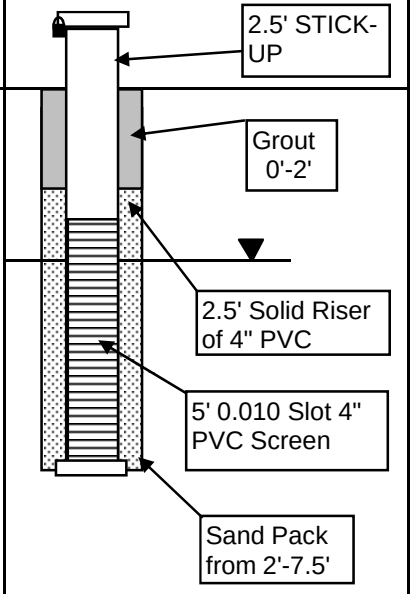
WELL LOCATION SKETCH (N.T.S)

Site: OCA-LIC, 5-11 47th Ave., Queens, NY		**Well Permit #:**	
		Completion Date:	12/14/10
Geologist: Daniel D & Jacob Strauss		**Drilling Co.:**	Zebra Drilling
Driller/Helper: Evan/Carl		**Drill Rig:**	7720dt
Drilling Method: Auger		**Type of Bit:**	6-1/8" and 4-1/8"
Sampler Type: Direct Push liner			
G.W. Encountered: 3.5	**G.W. Stabilized:** 3.5	**Well Depth:**	7.5"
Depth to Rim: NA	**Borehole Diameter:** 6"	**Well Diameter:**	4"

Solid Riser: 0-2.5'
Screen Interval/Screen Type: 2.5-7.5'
Grout: 0-2'
Sand Pack/Open Borehole: 2-7.5'

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	SOIL/GEOLOGICAL DESCRIPTION
1–24						**0'-2.0' Imported virgin Quarry Process from Tilcon underlain by orange filter fabric, moist** 2' - 5' Mixed Fill Material (silty SAND with gravel), moist 5' - 7.5' Gray-black silty SAND and GRAVEL, wet varnish-like odor, **END OF WELL**

WELL CONSTRUCTION DIAGRAM (N.T.S)



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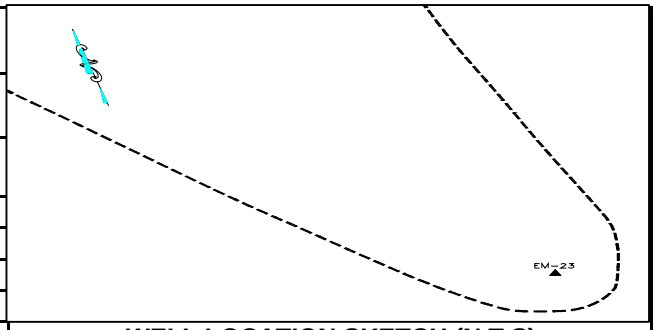
Phone: (973) 560-1400 Fax:(973) 560-0400

EWMA Job #:	207266
Well #:	EM-23
Start Date:	12/06/10

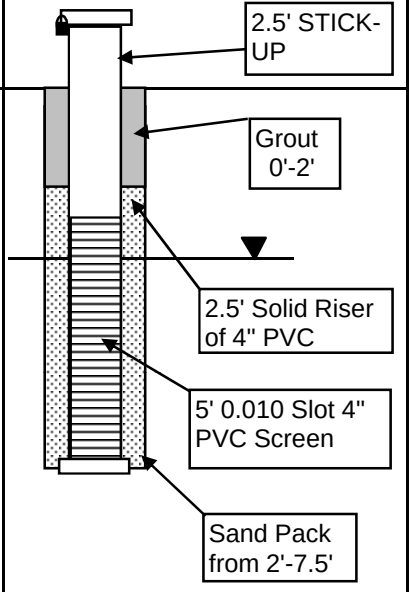


WELL LOCATION SKETCH (N.T.S)

Site: OCA-LIC, 5-11 47th Ave., Queens, NY	**Well Permit #:**		
	Completion Date: 12/14/10		
Geologist: Daniel D & Jacob Strauss	**Drilling Co.:** Zebra Drilling		
Driller/Helper: Evan/Carl	**Drill Rig:** 7720dt		
Drilling Method: Auger	**Type of Bit:** 6-1/8" and 4-1/8"		
Sampler Type: Direct Push liner		**Solid Riser:** 0-2.5'	
G.W. Encountered: 3.5	**G.W. Stabilized:** 3.5	**Well Depth:** 7.5"	**Screen Interval/Screen Type:** 2.5-7.5'
Depth to Rim: NA	**Borehole Diameter:** 6"	**Well Diameter:** 4"	**Grout:** 0-2' / **Sand Pack/Open Borehole:** 2-7.5'

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	SOIL/GEOLOGICAL DESCRIPTION
1–24						**0'-2.0' Imported virgin Quarry Process from Tilcon underlain by orange filter fabric, moist** 2' - 5' Mixed Fill Material (silty SAND with gravel), moist 5' - 7.5' Gray-black silty SAND and GRAVEL, wet varnish-like odor, **END OF WELL**

WELL CONSTRUCTION DIAGRAM (N.T.S)



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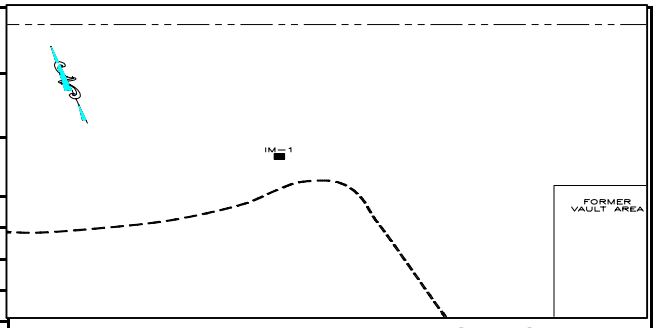
Phone: (973) 560-1400 Fax:(973) 560-0400

EWMA Job #:	2070266
Well #:	IM-1
Start Date:	12/06/10

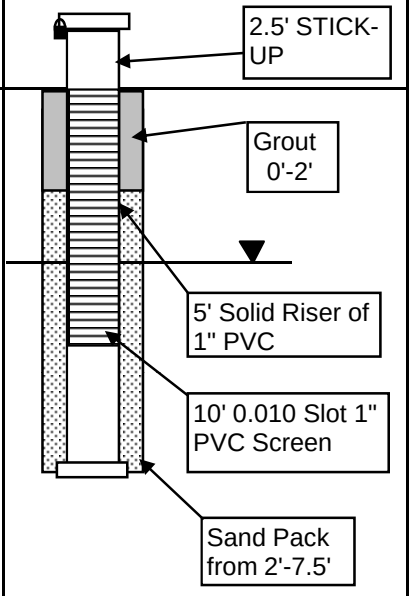


WELL LOCATION SKETCH (N.T.S)

Site: OCA-LIC		**Well Permit #:**	
		Completion Date:	12/14/10
Geologist: Jacob Strauss/Daniel DiRocco		**Drilling Co.:**	Zebra Drilling Co
Driller/Helper: Evan/Carl		**Drill Rig:**	Geoprobe 7720
Drilling Method: Auger		**Type of Bit:**	4'
Sampler Type: Drill Cuttings		**Solid Riser:**	5' rise
G.W. Encountered: 3.5	**G.W. Stabilized:** 3.5	**Well Depth:** 7.5	**Screen Interval/Screen Type:** 5' screen
Depth to Rim: NA	**Borehole Diameter:** 4"	**Well Diameter:** 1"	**Grout:** 0 - 2' / **Sand Pack/Open Borehole:** 7.5-2.0'

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	..	DEPTH (FT.)
1		0.0				**0'-2.0' Imported virgin Quarry Process from Tilcon underlain by orange filter fabric, moist**	1
2		0.0					2
3		0.0				2' - 5' Mixed Fill Material (silty SAND with graveland cobbles, moi	3
4							4
5							5
6						5' - 7.5' Gray-black silty SAND and GRAVEL, wet Varnish-like odor	6
7							7
8						**End of Well**	8
9							9
10							10
11							11
12							12
13							13
14							14
15							15
16							16
17							17
18							18
19							19
20							20
21							21
22							22
23							23
24							24

WELL CONSTRUCTION DIAGRAM (N.T.S)



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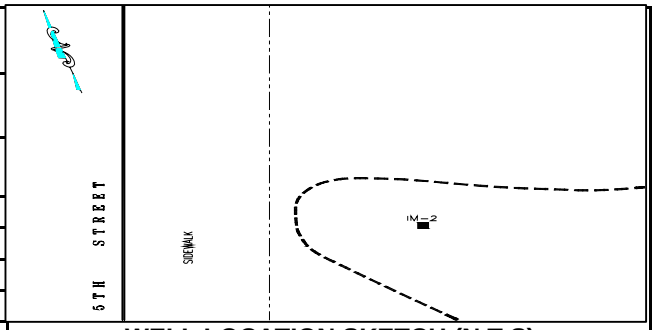
Phone: (973) 560-1400 Fax:(973) 560-0400

EWMA Job #:	2070266
Well #:	IM-2
Start Date:	12/06/10

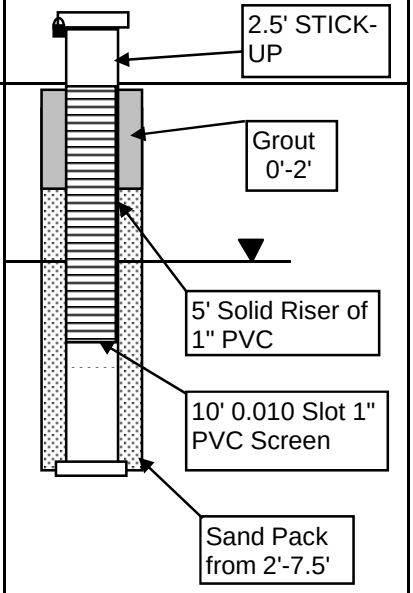


WELL LOCATION SKETCH (N.T.S)

Site: OCA-LIC	**Well Permit #:**		
	Completion Date: 12/14/10		
Geologist: Jacob Strauss/Daniel DiRocco	**Drilling Co.:** Zebra Drilling Co		
Driller/Helper: Evan/Carl	**Drill Rig:** Geoprobe 7720		
Drilling Method: Auger	**Type of Bit:**		
Sampler Type: Drill Cuttings		**Solid Riser:** 5' rise	
G.W. Encountered: 2.5	**G.W. Stabilized:** 2.5	**Well Depth:** 7.5	**Screen Interval/Screen Type:** 5' screen
Depth to Rim: NA	**Borehole Diameter:** 4"	**Well Diameter:** 1"	**Grout:** 0 - 2' / **Sand Pack/Open Borehole:** 7.5-2.0'

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	..	DEPTH (FT.)
1		0.0				**0'-2.0' Imported virgin Quarry Process from Tilcon underlain by orange filter fabric, moist**	1
2		0.0					2
3		0.0				2' - 5' Mixed Fill Material (silty SAND with graveland cobbles, moi	3
4							4
5							5
6						5' - 7.5' Gray-black silty SAND and GRAVEL, wet varnish-like odor	6
7							7
8						**End of Well**	8
9							9
10							10
11							11
12							12
13							13
14							14
15							15
16							16
17							17
18							18
19							19
20							20
21							21
22							22
23							23
24							24

WELL CONSTRUCTION DIAGRAM (N.T.S)



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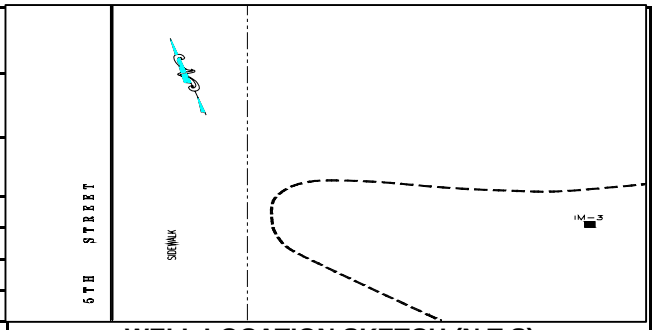
EWMA Job #:	2070266
Well #:	IM-3
Start Date:	12/06/10

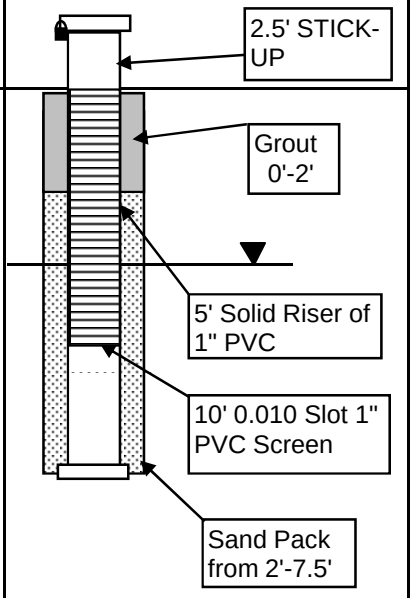


WELL LOCATION SKETCH (N.T.S)

Site: OCA-LIC	**Well Permit #:**		
	Completion Date: 12/14/10		
Geologist: Jacob Strauss/Daniel DiRocco	**Drilling Co.:** Zebra Drilling Co		
Driller/Helper: Evan/Carl	**Drill Rig:** Geoprobe 7720		
Drilling Method: Auger	**Type of Bit:**		
Sampler Type: Drill Cuttings		**Solid Riser:** 5' rise	
G.W. Encountered: 2.5	**G.W. Stabilized:** 2.5	**Well Depth:** 7.5	**Screen Interval/Screen Type:** 5' screen
Depth to Rim: NA	**Borehole Diameter:** 4"	**Well Diameter:** 1"	**Grout:** 0 - 2' **Sand Pack/Open Borehole:** 7.5-2.0'

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	..	DEPTH (FT.)
1		0.0				**0'-2.0' Imported virgin Quarry Process from Tilcon underlain by orange filter fabric, moist**	1
2		0.0					2
3		0.0				2' - 5' Mixed Fill Material (silty SAND with graveland cobbles, moi	3
4							4
5							5
6						5' - 7.5' Gray-black silty SAND and GRAVEL, wet Varnish-like odor	6
7							7
8						**End of Well**	8
9							9
10							10
11							11
12							12
13							13
14							14
15							15
16							16
17							17
18							18
19							19
20							20
21							21
22							22
23							23
24							24

WELL CONSTRUCTION DIAGRAM (N.T.S)



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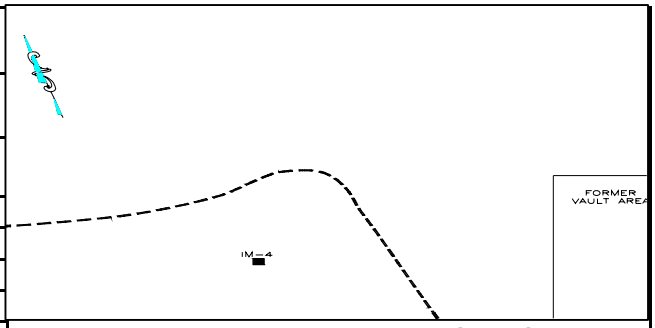
EWMA Job #:	2070266
Well #:	IM-4
Start Date:	12/06/10



WELL LOCATION SKETCH (N.T.S)

Site: OCA-LIC	**Well Permit #:**		
	Completion Date: 12/14/10		
Geologist: Jacob Strauss/Daniel DiRocco	**Drilling Co.:** Zebra Drilling Co		
Driller/Helper: Evan/Carl	**Drill Rig:** Geoprobe 7720		
Drilling Method: Auger	**Type of Bit:**		
Sampler Type: Drill Cuttings		**Solid Riser:** 5' rise	
G.W. Encountered: 2.5	**G.W. Stabilized:** 2.5	**Well Depth:** 7.5	**Screen Interval/Screen Type:** 5' screen
Depth to Rim: NA	**Borehole Diameter:** 4"	**Well Diameter:** 1"	**Grout:** 0 - 2' / **Sand Pack/Open Borehole:** 7.5-2.0'

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	..	DEPTH (FT.)
1		0.0				**0'-2.0' Imported virgin Quarry Process from Tilcon underlain by orange filter fabric, moist**	1
2		0.0					2
3		0.0				2' - 5' Mixed Fill Material (silty SAND with graveland cobbles, moi	3
4							4
5							5
6						5' - 7.5' Gray-black silty SAND and GRAVEL, wet Varnish-like odor	6
7							7
8						**End of Well**	8
9							9
10							10
11							11
12							12
13							13
14							14
15							15
16							16
17							17
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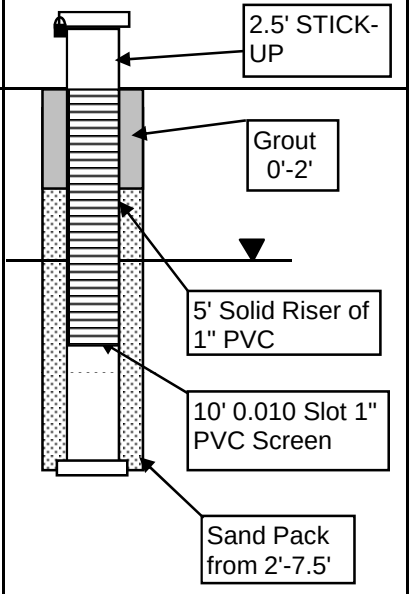
20							20
21							21
22							22
23							23
24							24

WELL CONSTRUCTION DIAGRAM (N.T.S)



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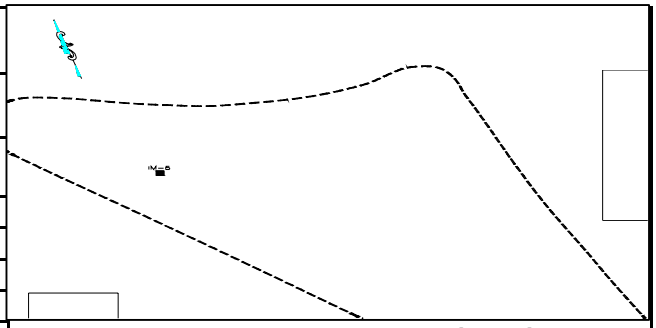
Phone: (973) 560-1400 Fax:(973) 560-0400

EWMA Job #:	2070266
Well #:	IM-5
Start Date:	12/06/10



WELL LOCATION SKETCH (N.T.S)

Site: OCA-LIC		**Well Permit #:**	
		Completion Date:	12/14/10
Geologist: Jacob Strauss/Daniel DiRocco		**Drilling Co.:**	Zebra Drilling Co
Driller/Helper: Evan/Carl		**Drill Rig:**	Geoprobe 7720
Drilling Method: Auger		**Type of Bit:**	
Sampler Type: Drill Cuttings		**Solid Riser:**	5' rise
G.W. Encountered: 2.5	**G.W. Stabilized:** 2.5	**Well Depth:**	7.5
Screen Interval/Screen Type:	5' screen		
Depth to Rim: NA	**Borehole Diameter:** 4"	**Well Diameter:**	1"
Grout: 0 - 2'	**Sand Pack/Open Borehole:**	7.5-2.0'	

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	.. '
1		0.0				**0'-2.0' Imported virgin Quarry Process from Tilcon underlain by orange filter fabric, moist**
2		0.0				
3		0.0				2' - 5' Mixed Fill Material (silty SAND with graveland cobbles, moi
4						
5						
6						5' - 7.5' Gray-black silty SAND and GRAVEL, wet Varnish-likeodor
7						
8						**End of Well**
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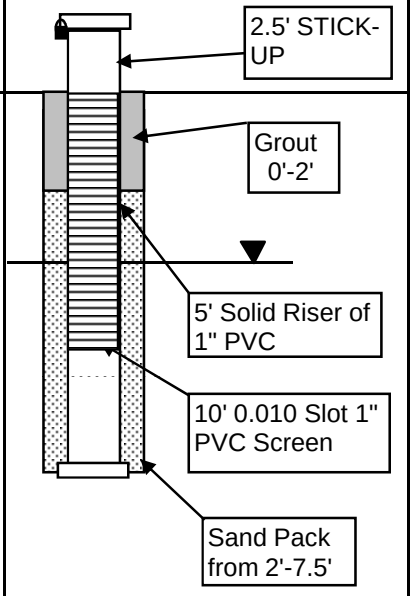
WELL CONSTRUCTION DIAGRAM (N.T.S)



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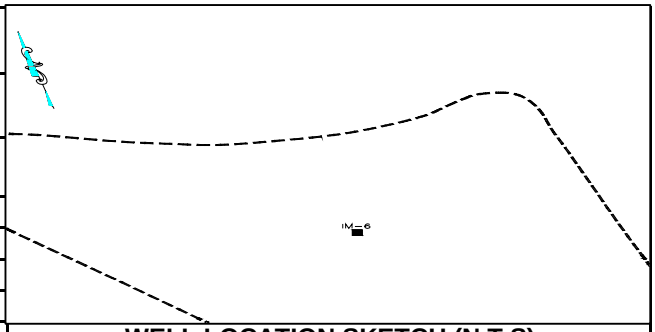
EWMA Job #: 2070266
Well #: IM-6
Start Date: 12/06/10

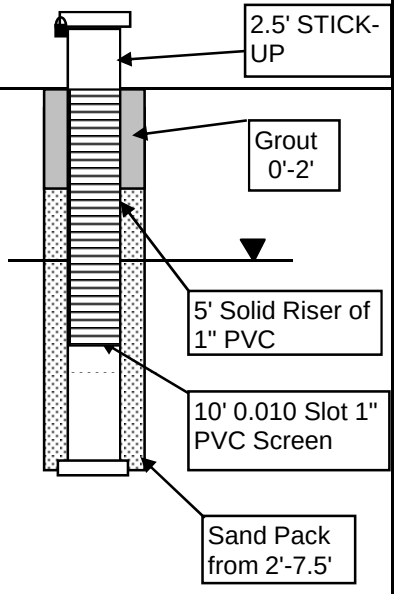


WELL LOCATION SKETCH (N.T.S)

Site: OCA-LIC		**Well Permit #:**	
		Completion Date: 12/14/10	
Geologist: Jacob Strauss/Daniel DiRocco		**Drilling Co.:** Zebra Drilling Co	
Driller/Helper: Evan/Carl		**Drill Rig:** Geoprobe 7720	
Drilling Method: Auger		**Type of Bit:**	
Sampler Type: Drill Cuttings			**Solid Riser:** 5' rise
G.W. Encountered: 2.5	**G.W. Stabilized:** 2.5	**Well Depth:** 7.5	**Screen Interval/Screen Type:** 5' screen
Depth to Rim: NA	**Borehole Diameter:** 4"	**Well Diameter:** 1"	**Grout:** 0 - 2' / **Sand Pack/Open Borehole:** 7.5-2.0'

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	..	DEPTH (FT.)
1		0.0				**0'-2.0' Imported virgin Quarry Process from Tilcon underlain by orange filter fabric, moist**	1
2		0.0					2
3		0.0				2' - 5' Mixed Fill Material (silty SAND with graveland cobbles, moi	3
4							4
5							5
6						5' - 7.5' Gray-black silty SAND and GRAVEL, wet Varnish-like odor	6
7							7
8						**End of Well**	8
9							9
10							10
11							11
12							12
13							13
14							14
15							15
16							16
17							17
18							18
19							19
20							20
21							21
22							22
23							23
24							24

WELL CONSTRUCTION DIAGRAM (N.T.S)



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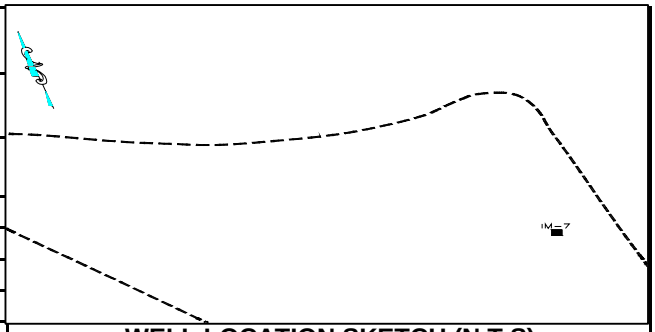
EWMA Job #:	2070266
Well #:	IM-7
Start Date:	12/06/10

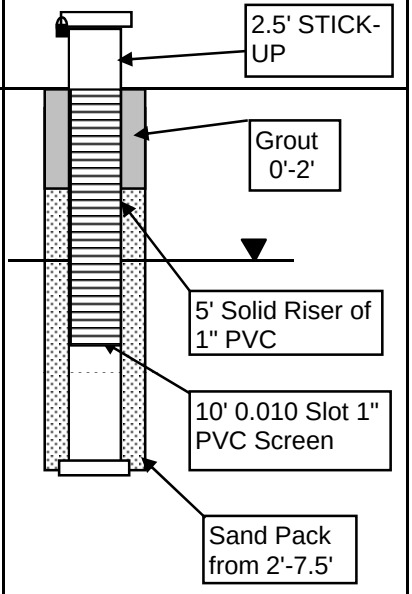


WELL LOCATION SKETCH (N.T.S)

Site: OCA-LIC	**Well Permit #:**		
	Completion Date: 12/14/10		
Geologist: Jacob Strauss/Daniel DiRocco	**Drilling Co.:** Zebra Drilling Co		
Driller/Helper: Evan/Carl	**Drill Rig:** Geoprobe 7720		
Drilling Method: Auger	**Type of Bit:**		
Sampler Type: Drill Cuttings		**Solid Riser:** 5' rise	
G.W. Encountered: 2.5	**G.W. Stabilized:** 2.5	**Well Depth:** 7.5	**Screen Interval/Screen Type:** 5' screen
Depth to Rim: NA	**Borehole Diameter:** 4"	**Well Diameter:** 1"	**Grout:** 0 - 2' / **Sand Pack/Open Borehole:** 7.5-2.0'

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	..	DEPTH (FT.)
1		0.0				**0'-2.0' Imported virgin Quarry Process from Tilcon underlain by orange filter fabric, moist**	1
2		0.0					2
3		0.0				2' - 5' Mixed Fill Material (silty SAND with graveland cobbles, moi	3
4							4
5							5
6						5' - 7.5' Gray-black silty SAND and GRAVEL, wet Varnish-like odor	6
7							7
8						**End of Well**	8
9							9
10							10
11							11
12							12
13							13
14							14
15							15
16							16
17							17
18							18
19							19
20							20
21							21
22							22
23							23
24							24

WELL CONSTRUCTION DIAGRAM (N.T.S)



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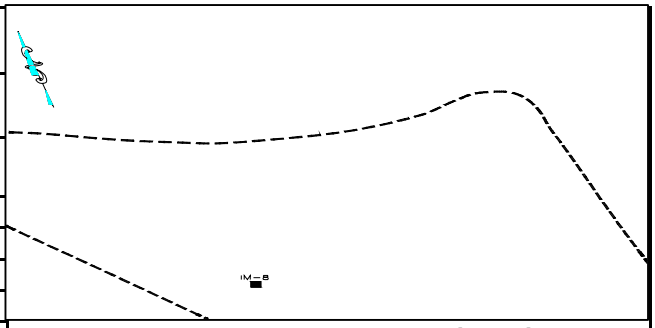
EWMA Job #:	2070266
Well #:	IM-8
Start Date:	12/06/10



WELL LOCATION SKETCH (N.T.S)

Site: OCA-LIC	**Well Permit #:**		
	Completion Date: 12/14/10		
Geologist: Jacob Strauss/Daniel DiRocco	**Drilling Co.:** Zebra Drilling Co		
Driller/Helper: Evan/Carl	**Drill Rig:** Geoprobe 7720		
Drilling Method: Auger	**Type of Bit:**		
Sampler Type: Drill Cuttings		**Solid Riser:** 5' rise	
G.W. Encountered: 2.5	**G.W. Stabilized:** 2.5	**Well Depth:** 7.5	**Screen Interval/Screen Type:** 5' screen
Depth to Rim: NA	**Borehole Diameter:** 4"	**Well Diameter:** 1"	**Grout:** 0 - 2' / **Sand Pack/Open Borehole:** 7.5-2.0'

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	..	DEPTH (FT.)
1		0.0				**0'-2.0' Imported virgin Quarry Process from Tilcon underlain by orange filter fabric, moist**	1
2		0.0					2
3		0.0				2' - 5' Mixed Fill Material (silty SAND with graveland cobbles, moi	3
4							4
5							5
6						5' - 7.5' Gray-black silty SAND and GRAVEL, wet Varnish-like odor	6
7							7
8						**End of Well**	8
9							9
10							10
11							11
12							12
13							13
14							14
15							15
16							16
17							17
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22							22
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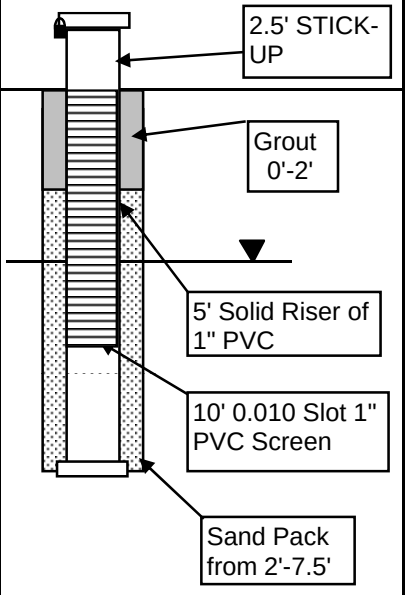
24							24

WELL CONSTRUCTION DIAGRAM (N.T.S)



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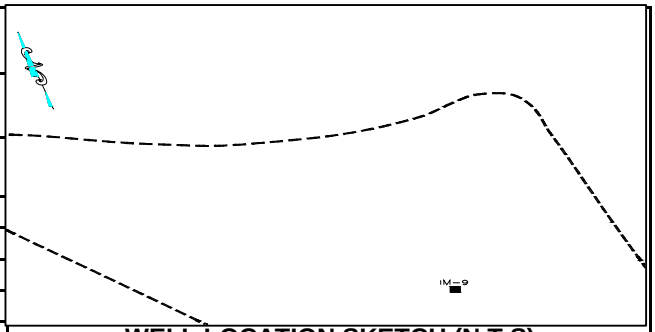
Phone: (973) 560-1400 Fax:(973) 560-0400

EWMA Job #:	2070266
Well #:	IM-9
Start Date:	12/06/10



WELL LOCATION SKETCH (N.T.S)

Site: OCA-LIC	**Well Permit #:**		
	Completion Date: 12/14/10		
Geologist: Jacob Strauss/Daniel DiRocco	**Drilling Co.:** Zebra Drilling Co		
Driller/Helper: Evan/Carl	**Drill Rig:** Geoprobe 7720		
Drilling Method: Auger	**Type of Bit:**		
Sampler Type: Drill Cuttings		**Solid Riser:** 5' rise	
G.W. Encountered: 2.5	**G.W. Stabilized:** 2.5	**Well Depth:** 7.5	**Screen Interval/Screen Type:** 5' screen
Depth to Rim: NA	**Borehole Diameter:** 4"	**Well Diameter:** 1"	**Grout:** 0 - 2' / **Sand Pack/Open Borehole:** 7.5-2.0'

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	..	DEPTH (FT.)
1		0.0				**0'-2.0' Imported virgin Quarry Process from Tilcon underlain by orange filter fabric, moist**	1
2		0.0					2
3		0.0				2' - 5' Mixed Fill Material (silty SAND with graveland cobbles, moi	3
4							4
5							5
6						5' - 7.5' Gray-black silty SAND and GRAVEL, wet Varnish-like odor	6
7							7
8						**End of Well**	8
9							9
10							10
11							11
12							12
13							13
14							14
15							15
16							16
17							17
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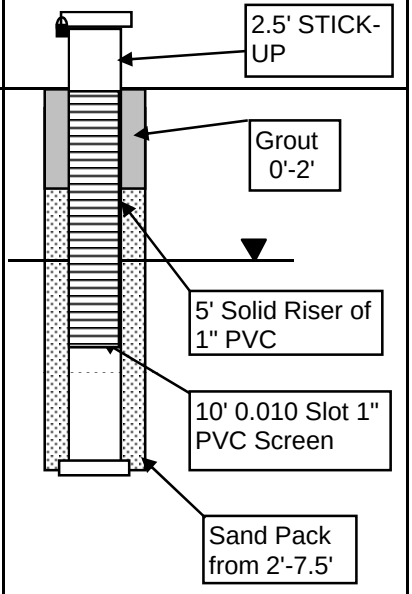
WELL CONSTRUCTION DIAGRAM (N.T.S)



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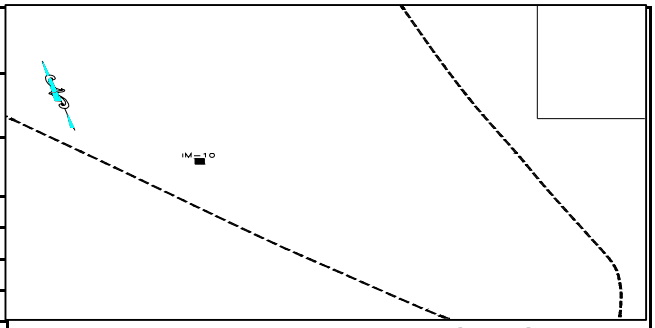
Phone: (973) 560-1400 Fax:(973) 560-0400

EWMA Job #:	2070266
Well #:	IM-10
Start Date:	12/06/10



WELL LOCATION SKETCH (N.T.S)

Site: OCA-LIC		**Well Permit #:**	
		Completion Date:	12/14/10
Geologist: Jacob Strauss/Daniel DiRocco		**Drilling Co.:**	Zebra Drilling Co
Driller/Helper: Evan/Carl		**Drill Rig:**	Geoprobe 7720
Drilling Method: Auger		**Type of Bit:**	
Sampler Type: Drill Cuttings			
G.W. Encountered: 2.5	**G.W. Stabilized:** 2.5	**Well Depth:**	7.5
Depth to Rim: NA	**Borehole Diameter:** 4"	**Well Diameter:**	1"

Solid Riser: 5' rise
Screen Interval/Screen Type: 5' screen
Grout: 0 - 2'
Sand Pack/Open Borehole: 7.5-2.0'

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	.. '
1		0.0				**0'-2.0' Imported virgin Quarry Process from Tilcon underlain by orange filter fabric, moist**
2		0.0				
3		0.0				2' - 5' Mixed Fill Material (silty SAND with graveland cobbles, moi
4						
5						
6						5' - 7.5' Gray-black silty SAND and GRAVEL, wet Varnish-like odor
7						
8						**End of Well**
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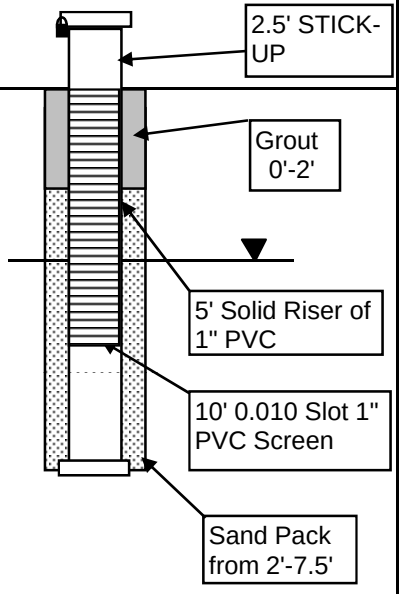
WELL CONSTRUCTION DIAGRAM (N.T.S)



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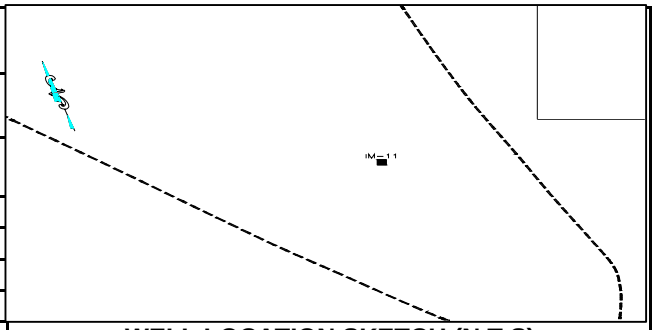
Phone: (973) 560-1400 Fax:(973) 560-0400

EWMA Job #:	2070266
Well #:	IM-11
Start Date:	12/06/10



WELL LOCATION SKETCH (N.T.S)

Site: OCA-LIC	**Well Permit #:**		
	Completion Date: 12/14/10		
Geologist: Jacob Strauss/Daniel DiRocco	**Drilling Co.:** Zebra Drilling Co		
Driller/Helper: Evan/Carl	**Drill Rig:** Geoprobe 7720		
Drilling Method: Auger	**Type of Bit:**		
Sampler Type: Drill Cuttings		**Solid Riser:** 5' rise	
G.W. Encountered: 2.5	**G.W. Stabilized:** 2.5	**Well Depth:** 7.5	**Screen Interval/Screen Type:** 5' screen
Depth to Rim: NA	**Borehole Diameter:** 4"	**Well Diameter:** 1"	**Grout:** 0 - 2' / **Sand Pack/Open Borehole:** 7.5-2.0'

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	..	DEPTH (FT.)
1		0.0				**0'-2.0' Imported virgin Quarry Process from Tilcon underlain by orange filter fabric, moist**	1
2		0.0					2
3		0.0				2' - 5' Mixed Fill Material (silty SAND with graveland cobbles, moi	3
4							4
5							5
6						5' - 7.5' Gray-black silty SAND and GRAVEL, wet Varnish-like odor	6
7							7
8						**End of Well**	8
9							9
10							10
11							11
12							12
13							13
14							14
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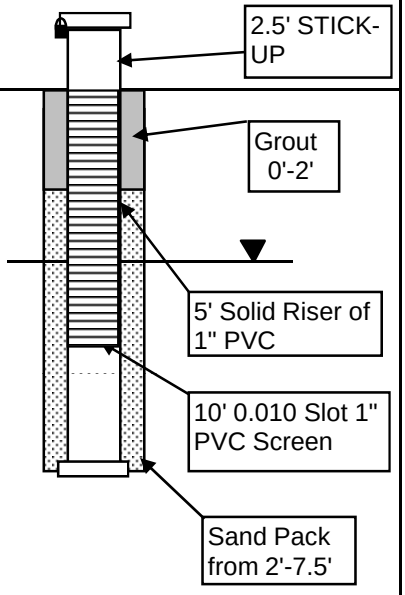
16							16
17							17
18							18
19							19
20							20
21							21
22							22
23							23
24							24

WELL CONSTRUCTION DIAGRAM (N.T.S)



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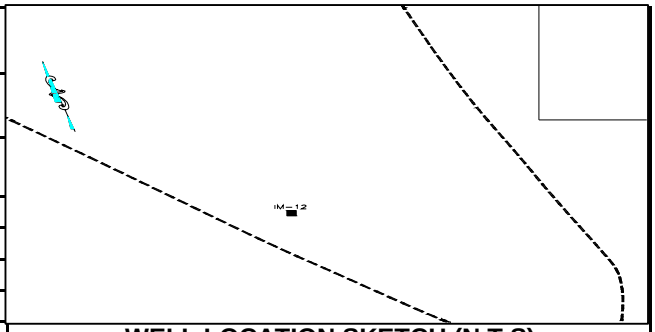
EWMA Job #:	2070266
Well #:	IM-12
Start Date:	12/06/10



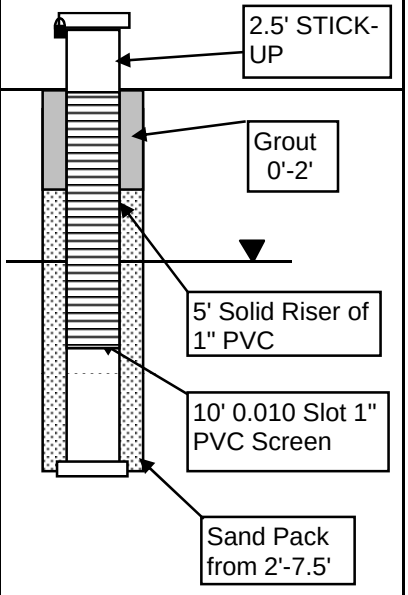
WELL LOCATION SKETCH (N.T.S)

Site: OCA-LIC		**Well Permit #:**	
		Completion Date:	12/14/10
Geologist: Jacob Strauss/Daniel DiRocco		**Drilling Co.:**	Zebra Drilling Co
Driller/Helper: Evan/Carl		**Drill Rig:**	Geoprobe 7720
Drilling Method: Auger		**Type of Bit:**	
Sampler Type: Drill Cuttings			
G.W. Encountered: 2.5	**G.W. Stabilized:** 2.5	**Well Depth:**	7.5
Depth to Rim: NA	**Borehole Diameter:** 4"	**Well Diameter:**	1"

Solid Riser: 5' rise
Screen Interval/Screen Type: 5' screen
Grout: 0 - 2'
Sand Pack/Open Borehole: 7.5-2.0'

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	.. '	DEPTH (FT.)
1		0.0				**0'-2.0' Imported virgin Quarry Process from Tilcon underlain by orange filter fabric, moist**	1
2		0.0					2
3		0.0				2' - 5' Mixed Fill Material (silty SAND with graveland cobbles, moi	3
4							4
5							5
6						5' - 7.5' Gray-black silty SAND and GRAVEL, wet Varnish-like odor	6
7							7
8						**End of Well**	8
9							9
10							10
11							11
12							12
13							13
14							14
15							15
16							16
17							17
18							18
19							19
20							20
21							21
22							22
23							23
24							24

WELL CONSTRUCTION DIAGRAM (N.T.S)



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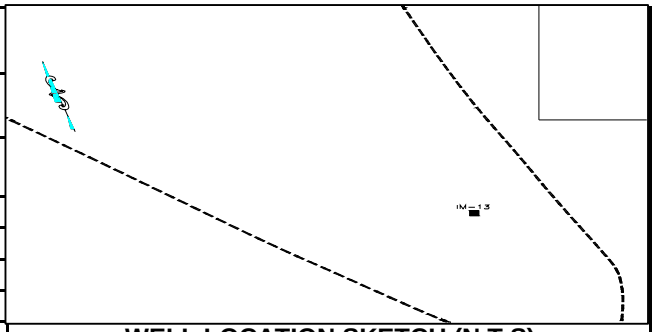
EWMA Job #:	2070266
Well #:	IM-13
Start Date:	12/06/10

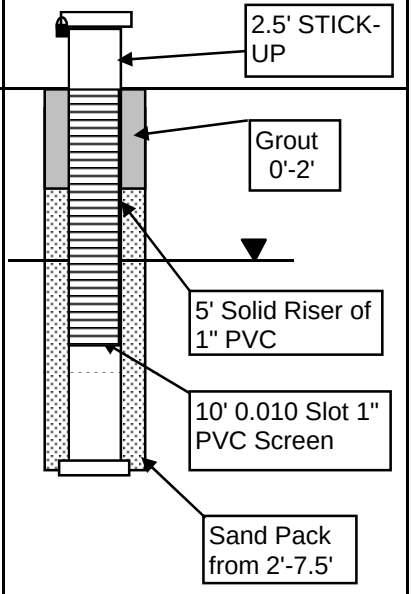


WELL LOCATION SKETCH (N.T.S)

Site: OCA-LIC	**Well Permit #:**		
	Completion Date: 12/14/10		
Geologist: Jacob Strauss/Daniel DiRocco	**Drilling Co.:** Zebra Drilling Co		
Driller/Helper: Evan/Carl	**Drill Rig:** Geoprobe 7720		
Drilling Method: Auger	**Type of Bit:**		
Sampler Type: Drill Cuttings		**Solid Riser:** 5' rise	
G.W. Encountered: 2.5	**G.W. Stabilized:** 2.5	**Well Depth:** 7.5	**Screen Interval/Screen Type:** 5' screen
Depth to Rim: NA	**Borehole Diameter:** 4"	**Well Diameter:** 1"	**Grout:** 0 - 2' / **Sand Pack/Open Borehole:** 7.5-2.0'

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	..	DEPTH (FT.)
1		0.0				**0'-2.0' Imported virgin Quarry Process from Tilcon underlain by orange filter fabric, moist**	1
2		0.0					2
3		0.0				2' - 5' Mixed Fill Material (silty SAND with graveland cobbles, moi	3
4							4
5							5
6						5' - 7.5' Gray-black silty SAND and GRAVEL, wet Varnish-like odor	6
7							7
8						**End of Well**	8
9							9
10							10
11							11
12							12
13							13
14							14
15							15
16							16
17							17
18							18
19							19
20							20
21							21
22							22
23							23
24							24

WELL CONSTRUCTION DIAGRAM (N.T.S)



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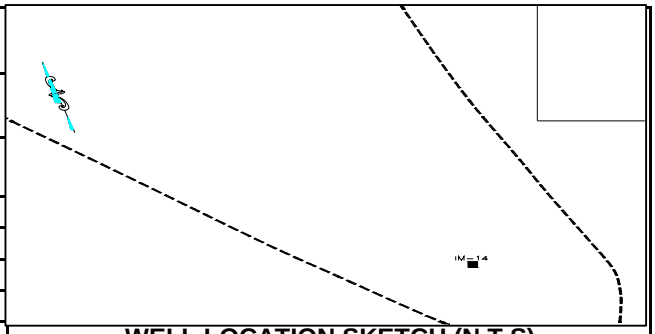
EWMA Job #:	2070266
Well #:	IM-14
Start Date:	12/06/10



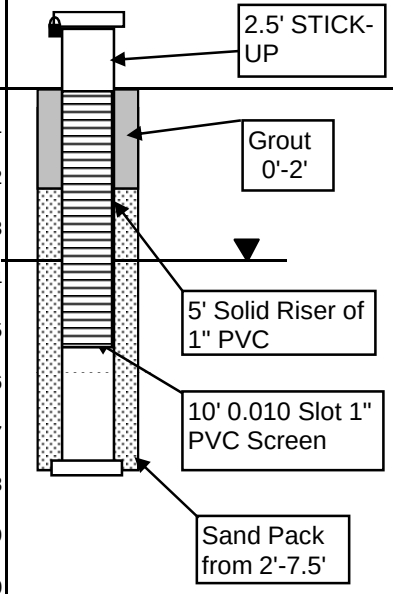
WELL LOCATION SKETCH (N.T.S)

Site: OCA-LIC		**Well Permit #:**	
		Completion Date:	12/14/10
Geologist: Jacob Strauss/Daniel DiRocco		**Drilling Co.:**	Zebra Drilling Co
Driller/Helper: Evan/Carl		**Drill Rig:**	Geoprobe 7720
Drilling Method: Auger		**Type of Bit:**	
Sampler Type: Drill Cuttings			
G.W. Encountered: 2.5	**G.W. Stabilized:** 2.5	**Well Depth:**	7.5
Depth to Rim: NA	**Borehole Diameter:** 4"	**Well Diameter:**	1"

Solid Riser: 5' rise
Screen Interval/Screen Type: 5' screen
Grout: 0 - 2'
Sand Pack/Open Borehole: 7.5-2.0'

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	..	DEPTH (FT.)
1		0.0				**0'-2.0' Imported virgin Quarry Process from Tilcon underlain by orange filter fabric, moist**	1
2		0.0					2
3		0.0				2' - 5' Mixed Fill Material (silty SAND with graveland cobbles, moi	3
4							4
5							5
6						5' - 7.5' Gray-black silty SAND and GRAVEL, wet Varnish-like odor	6
7							7
8						**End of Well**	8
9							9
10							10
11							11
12							12
13							13
14							14
15							15
16							16
17							17
18							18
19							19
20							20
21							21
22							22
23							23
24							24

WELL CONSTRUCTION DIAGRAM (N.T.S)



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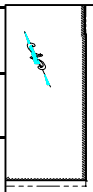
EWMA Job #: 207266
Well #: PW-1
Start Date: 05/10/10



Site: OCA - LIC
Well Permit #:
Completion Date: 05/10/10
Geologist: Dan Dirocco
Drilling Co.: Summit
Driller/Helper: Jeremy
Drill Rig: Auger
Drilling Method: Auger
Type of Bit: 6"
Sampler Type: Split Spoon/cuttings
Solid Riser: 1-12'
G.W. Encountered:
G.W. Stabilized:
Well Depth:
Screen Interval/Screen Type: 12-22'
Depth to Rim:
Borehole Diameter:
Well Diameter:
Grout:
Sand Pack/Open Borehole: 12-22'

WELL LOCATION SKETCH (N.T.S)

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	SOIL/GEOLOGICAL DESCRIPTION	DEPTH (FT.)	WELL CONSTRUCTION DIAGRAM (N.T.S)
1-8						FILL & SILTY SAND w/Gravel	1-8	
9-10			3 1 1 1	NR			9-10	
11-12			3 2 4 4	8"		6" PEAT 2" Fine SAND	11-12	
13-14			3 5 9 15	6"		Brown Fine SAND w/trace Silt (moist)	13-14	
15-16			4 7 11 14	17"		2" Brown SILT 15" Brown Fine SAND w/trace Silt (wet)	15-16	
17-18			6 7 14 6	23"		Fine Brown SAND w/trace Silt (wet)	17-18	
19-20			5 20 12 20	1"		Fine SAND (wet) Refusal at 20'	19-20	
21-24							21-24	

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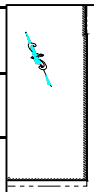
EWMA Job #:	207266
Well #:	PW-2
Start Date:	05/11/10



WELL LOCATION SKETCH (N.T.S)

Site: OCA - LIC	**Well Permit #:**		
	Completion Date: 05/11/10		
Geologist: Dan Dirocco	**Drilling Co.:** Summit		
Driller/Helper: Jeremy/Mark	**Drill Rig:** Bobble		
Drilling Method: Auger	**Type of Bit:** 12"		
Sampler Type: Split Spoon		**Solid Riser:** 0.25-14'	
G.W. Encountered: 7'	**G.W. Stabilized:**	**Well Depth:** 24'	**Screen Interval/Screen Type:** 14-24'
Depth to Rim:	**Borehole Diameter:** 10"	**Well Diameter:** 4"	**Grout:** 1-11' **Sand Pack/Open Borehole:** 0-14'

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	SOIL/GEOLOGICAL DESCRIPTION	DEPTH (FT.)	WELL CONSTRUCTION DIAGRAM (N.T.S)
1				Drill Cuttings		6" CONCRETE 6"-8' Brown SILTY SANDS with Gravel & Fill	1	
2							2	
3							3	
4							4	
5							5	
6							6	
7							7	
8							8	
9			WH WH			Brown SILTY SAND & FILL (wet)	9	
10			1 1	5"			10	
11			WH 1			7" Brown SANDY SILT (moist) 6" PEAT	11	
12				13"			12	
13			2 3 5			12" PEAT 3" Brown ORGANIC CLAYEY SILT 6" Brown-Grey Fine SAND	13	
14			4	21"			14	
15			4 9 8			No Recovery	15	
16			5	NR			16	
17			6 4 8			Brown-Grey Fine SAND (moist)	17	
18			12	24"			18	
19			4 1 5			Brown-Grey Fine SAND (moist)	19	
20			6	24"			20	
21			6 5 6			Brown-Grey Fine SAND with Trace Silt (moist)	21	
22			6	12"			22	
23			6 4 5			4" Fine SAND with Trace Silt (wet) 8" Yellow-Brown SILT 4" Medium-Fine SAND with Silt (moist)	23	
24			6	16"			24	

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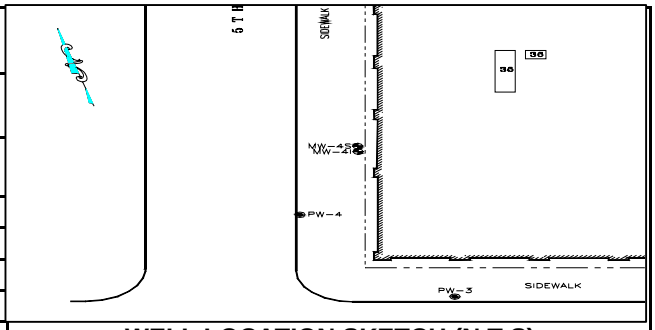
EWMA Job #:	207266
Well #:	PW-3
Start Date:	05/12/10



WELL LOCATION SKETCH (N.T.S)

Site: OCA - LIC	**Well Permit #:**		
	Completion Date: 05/12/10		
Geologist: Dan Dirocco	**Drilling Co.:** Summit		
Driller/Helper: Jeremy	**Drill Rig:** Auger		
Drilling Method: Auger	**Type of Bit:** 6"		
Sampler Type: Split Spoon/cuttings		**Solid Riser:**	
G.W. Encountered:	**G.W. Stabilized:**	**Well Depth:**	**Screen Interval/Screen Type:**
Depth to Rim:	**Borehole Diameter:**	**Well Diameter:**	**Grout:** / **Sand Pack/Open Borehole:**

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	SOIL/GEOLOGICAL DESCRIPTION	DEPTH (FT.)	WELL CONSTRUCTION DIAGRAM (N.T.S)
1–8				Drill Cuttings		FILL	1–8	
9–10			1 1	NR			9–10	
11–12			2 2 3 4	24"		4" FILL 12" PEAT 6" ORGANIC SILT 2" Fine SAND	11–12	
13–14			5 6 8 11	7"		Fine SAND	13–14	
15–16			1 7 3 6	24"		Brown Fine SAND w/trace Silt	15–16	
17–18			6 6 6 8			Fine SAND	17–18	
19–20			7 2			Medium-Fine SAND	19–20	
21–24							21–24	

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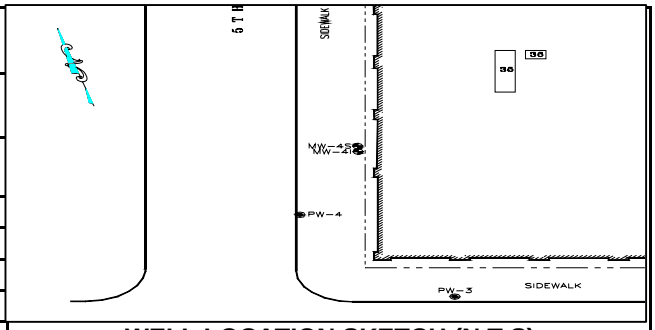
EWMA Job #:	207266
Well #:	PW-4
Start Date:	05/06/10



Site: OCA - LIC	**Well Permit #:**	
	Completion Date: 05/06/10	
Geologist: Dan Dirocco	**Drilling Co.:** Summit	
Driller/Helper: Jeremy	**Drill Rig:** Auger	
Drilling Method: Auger	**Type of Bit:** 6"	**WELL LOCATION SKETCH (N.T.S)**
Sampler Type: Split Spoon/cuttings		**Solid Riser:** 1-14'
G.W. Encountered:	**G.W. Stabilized:**	**Well Depth:**
Depth to Rim:	**Borehole Diameter:**	**Well Diameter:**

Screen Interval/Screen Type: 14-24'
Grout: 1-14' **Sand Pack/Open Borehole:** 14-24'

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	SOIL/GEOLOGICAL DESCRIPTION	DEPTH (FT.)	WELL CONSTRUCTION DIAGRAM (N.T.S)
1-8				Drill Cuttings		Silty SAND & GRAVEL, Fill	1-8	
9-10			1 1 1 1	0		No Recovery	9-10	
11-12			4 4 2 2	18"		FILL, Silty SAND (wet) 6" PEAT	11-12	
13-14			4 6 4 2	24"		13" PEAT 8" Organic Clayey SILT 3" Fine SAND with trace Silt	13-14	
15-16			5 4 7 7	17"		Brown-Grey Fine SAND with trace Silt (moist)	15-16	
17-18			7 8 5 5	19"		SAA	17-18	
19-20			6 6 4 5	14"		SAA	19-20	
21-22			9 8 11 14	12"		Brown Fine SAND with trace Silt 2" Brown Medium Fine SAND with SILT	21-22	
23-24			10 9 12 9	11"		Brown Medium Fine SAND with trace Silt	23-24	

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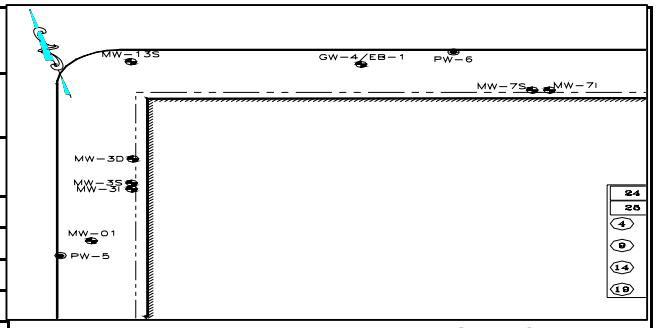
EWMA Job #:	207266
Well #:	PW-5
Start Date:	05/07/10



WELL LOCATION SKETCH (N.T.S)

Site: OCA - LIC	**Well Permit #:**		
	Completion Date: 05/07/10		
Geologist: Dan Dirocco	**Drilling Co.:** Summit		
Driller/Helper: Jeremy	**Drill Rig:** Auger		
Drilling Method: Auger	**Type of Bit:** 6"		
Sampler Type: Split Spoon/cuttings		**Solid Riser:** 1-14.5'	
G.W. Encountered:	**G.W. Stabilized:**	**Well Depth:**	**Screen Interval/Screen Type:** 14.5-24.5'
Depth to Rim:	**Borehole Diameter:**	**Well Diameter:**	**Grout:** 1-12' **Sand Pack/Open Borehole:** 14.5-24.5'

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	SOIL/GEOLOGICAL DESCRIPTION	DEPTH (FT.)	WELL CONSTRUCTION DIAGRAM (N.T.S)
1–8				Drill Cuttings		Silty SAND & FILL	1–8	
9–10			1 3 7 9	3"		FILL	9–10	
11–12			1 3 3 2	8"		FILL	11–12	
13–14			4 4 6 7	20"		PEAT & ORGANIC SILT	13–14	
15–16			5 3 3 4	16"		Fine SAND w/trace Silt (moist)	15–16	
17–18			5 3 8 5	8"		Fine SAND, w/trace Silt (wet)	17–18	
19–20			7 4 6 14	NR		Wet	19–20	
21–22			11 9 7 8	24"		Medium-Fine SAND w/trace Silt (moist) 3" Medium-Fine SAND w/Silt (moist)	21–22	
23–24			7 10 9 10	18"		Medium-Fine SAND w/some Silt 16-17" Black SILTY layer	23–24	

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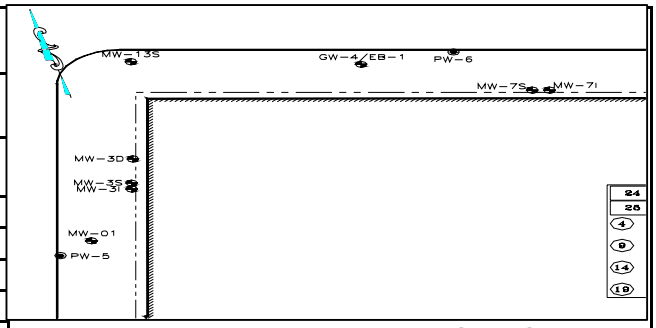
EWMA Job #:	207266
Well #:	PW-6
Start Date:	05/03/10



WELL LOCATION SKETCH (N.T.S)

Site: OCA - LIC	**Well Permit #:**		
	Completion Date: 05/03/10		
Geologist: Dan Dirocco	**Drilling Co.:** Summit		
Driller/Helper: Jeremy	**Drill Rig:** Auger		
Drilling Method: Auger	**Type of Bit:** 6"		
Sampler Type: Split Spoon/cuttings		**Solid Riser:** 1-12.5	
G.W. Encountered:	**G.W. Stabilized:**	**Well Depth:**	**Screen Interval/Screen Type:** 12.5-22.5'
Depth to Rim:	**Borehole Diameter:**	**Well Diameter:**	**Grout:** 1-10' **Sand Pack/Open Borehole:** 12.5-22.5'

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	SOIL/GEOLOGICAL DESCRIPTION
1-5						FILL
6-7			4 4 8 9	17"		Brown SILTY SAND & FILL
8-9			11 9 5 4	14"		Brown SILTY SAND & FILL
10-11			1 1 5 3	12"		2" FILL 10" PEAT
12-13			4 4 3 2	6"		PEAT & CLAYEY ORGANIC SILT
14-15				10"		4" Medium-Fine SAND w/trace Silt 6" Fine SAND w/trace Silt (moist)
16-17				17"		Fine SAND w/trace Silt (wet)
18-24						

DEPTH (FT.)	WELL CONSTRUCTION DIAGRAM (N.T.S)
1-24	

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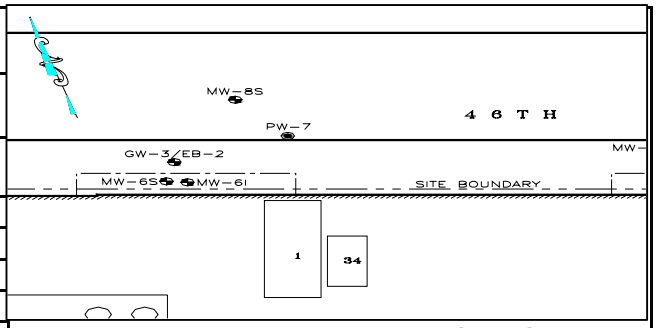
EWMA Job #:	207266
Well #:	PW-7
Start Date:	05/04/10



WELL LOCATION SKETCH (N.T.S)

Site: OCA - LIC	**Well Permit #:**		
	Completion Date: 05/04/10		
Geologist: Dan Dirocco	**Drilling Co.:** Summit		
Driller/Helper: Jeremy	**Drill Rig:** Auger		
Drilling Method: Auger	**Type of Bit:** 6"		
Sampler Type: Split Spoon/cuttings		**Solid Riser:** 1-12.5'	
G.W. Encountered:	**G.W. Stabilized:**	**Well Depth:**	**Screen Interval/Screen Type:** 12.5-22.5'
Depth to Rim:	**Borehole Diameter:**	**Well Diameter:**	**Grout:** 1-10' **Sand Pack/Open Borehole:** 12.5-22.5'

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	SOIL/GEOLOGICAL DESCRIPTION	DEPTH (FT.)	WELL CONSTRUCTION DIAGRAM (N.T.S)
1-8				Drill Cuttings		FILL & SILTY SANDS	1-8	
9-10			2 2 3 2	3"		Brown Coarse Medium-Fine SAND w/ Silt (wet)	9-10	
11-12			2 3 3 6	5"		1" GRAVEL (wet) 4" PEAT (moist)	11-12	
13-14			5 7 7 7	9"		ORGANIC SILT (moist)	13-14	
15-16			3 3 3 3	12"		7" ORGANIC SILT (moist) 5" Fine SAND w/trace Silt	15-16	
17-18				24"		Fine SAND w/trace Silt (moist)	17-18	
19-20				10"		2" CLAYEY SILT (greenish, blue) 8" Medium-Fine SAND w/trace Silt (wet)	19-20	
21-22				8"		Medium-Fine SAND w/trace Silt (wet)	21-22	
23-24							23-24	

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Phone: (973) 560-1400 Fax:(973) 560-0400

EWMA Job #:	207266
Well #:	PW-8
Start Date:	05/05/10

WELL LOCATION SKETCH (N.T.S)

Site: OCA - LIC	**Well Permit #:**		
	Completion Date: 05/05/10		
Geologist: Dan Dirocco	**Drilling Co.:** Summit		
Driller/Helper: Jeremy	**Drill Rig:** Auger		
Drilling Method: Auger	**Type of Bit:** 6"		
Sampler Type: Split Spoon/cuttings		**Solid Riser:** 1-14.5'	
G.W. Encountered:	**G.W. Stabilized:**	**Well Depth:**	**Screen Interval/Screen Type:** 14.5-24.5'
Depth to Rim:	**Borehole Diameter:**	**Well Diameter:**	**Grout:** 0-14' **Sand Pack/Open Borehole:** 14-24.5'

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	SOIL/GEOLOGICAL DESCRIPTION	DEPTH (FT.)	WELL CONSTRUCTION DIAGRAM (N.T.S)
1–8				Drill Cuttings		FILL & SILTY SAND w/Gravel	1–8	
9–10			5 3 8 3	4"		Brown SILTY SAND w/Gravel	9–10	
11–12			2 3 3 2	6"		Brown SILTY SAND w/Gravel 2" Gravel	11–12	
13–14			3 2 3 5	16"		3" GRAVEL 13" PEAT	13–14	
15–16			2 3 4 4	13"		4" Grey-Brown ORGANIC SILT 9" Grey-Brown Fine SAND w/trace Silt	15–16	
17–18			5 4 6 8	24"		Grey-Brown SAND w/tracer Silt	17–18	
19–20			3 3 2 5	22"		2" CLAYEY SILT 20" Medium-Fine SAND (wet)	19–20	
21–22			5 9 11 15	24"		Medium-Fine SAND w/trace Silt (moist)	21–22	
23–24							23–24	

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EWMA Job #:	207266
Well #:	PW-9
Start Date:	05/04/10

WELL LOCATION SKETCH (N.T.S)

Site: OCA - LIC	**Well Permit #:**		
	Completion Date: 05/04/10		
Geologist: Dan Dirocco	**Drilling Co.:** Summit		
Driller/Helper: Jeremy	**Drill Rig:** Auger		
Drilling Method: Auger	**Type of Bit:** 6"		
Sampler Type: Split Spoon/cuttings		**Solid Riser:** 1-12.5'	
G.W. Encountered:	**G.W. Stabilized:**	**Well Depth:**	**Screen Interval/Screen Type:** 12.5-22.5'
Depth to Rim:	**Borehole Diameter:**	**Well Diameter:**	**Grout:** 1-10' **Sand Pack/Open Borehole:** 12.5-22.5'

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	SOIL/GEOLOGICAL DESCRIPTION
1-8				Drill Cuttings		Brown SILTY SAND & GRAVEL w/ Fill
9-10			1 2 4 5	1"		FILL
11-12			6 1 2 2	18"		16" PEAT 2" ORGANIC SILT
13-14			2 5 1 5	14"		2" ORGANIC SILT 12" Fine SAND
15-16			6 6 5 4	9"		Brown-Grey Fine SAND w/some Silt
17-18			5 5 6 9	24"		Light Brown Fine SAND w/Silt
19-24						

WELL CONSTRUCTION DIAGRAM (N.T.S)

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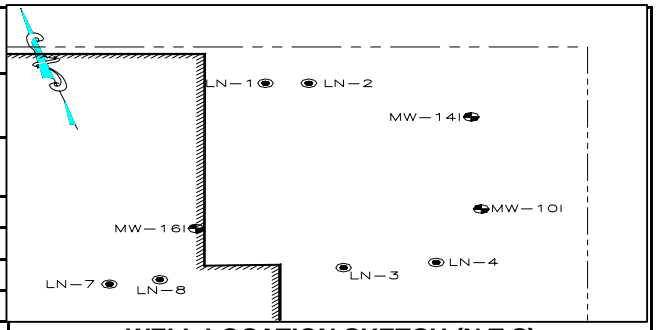
EWMA Job #:	207266
Well #:	LN-1
Start Date:	04/21/10

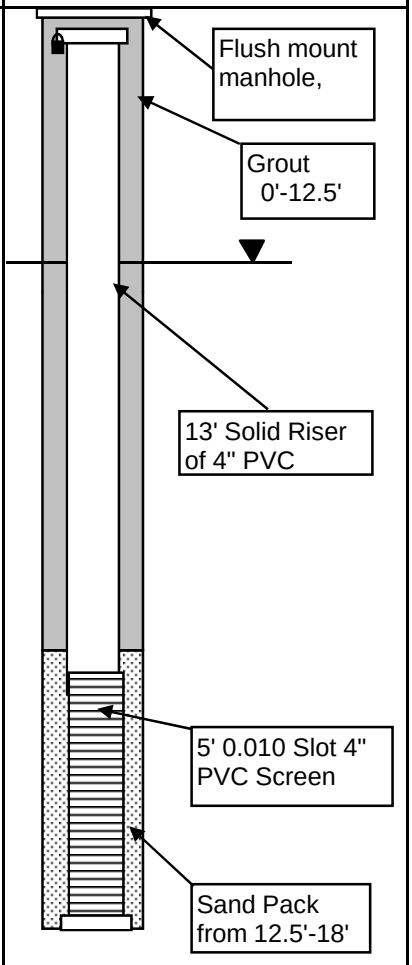


WELL LOCATION SKETCH (N.T.S)

Site: OCA - LIC	**Well Permit #:**		
	Completion Date: 04/22/10		
Geologist: Dan Dirocco	**Drilling Co.:** Summit		
Driller/Helper: Jeremy	**Drill Rig:** Auger		
Drilling Method: Auger	**Type of Bit:** 6"		
Sampler Type: Split Spoon/cuttings		**Solid Riser:** 0-13	
G.W. Encountered: 3	**G.W. Stabilized:** 5	**Well Depth:** 18	**Screen Interval/Screen Type:** 13-18
Depth to Rim:	**Borehole Diameter:** 6	**Well Diameter:** 4"	**Grout:** 0-12.5 **Sand Pack/Open Borehole:** 12.5-18

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	SOIL/GEOLOGICAL DESCRIPTION
1			6 7 6 6	8"		QP & URBAN FILL
3			6 10 4 5	14"		8" SILTY SAND & GRAVEL (wet) 6" PEAT
5			3 4 7 10	24"		9" Backfill from above 15" PEAT ~8" & Grey-Brown Very Fine SANDY SILT (wet) (Petro Odors)
7			9 12 11 9	8"		Grey-Brown Very Fine SAND & SILT (wet)
9			13 11 13 18	NR		No Recovery (Petro Odors & Sheen)
11			7 4 3 5	9"		2" Grey-Brown Fine SAND with Silt (moist) 7" Brown Silty CLAY, Organic Bottom bottom 1" Clayey Silt
13			NA	NA		Grey brown silty SAND,wet.(drill cutting)
						End of Drilling **Well set at ~18 feet bgs**

WELL CONSTRUCTION DIAGRAM (N.T.S)



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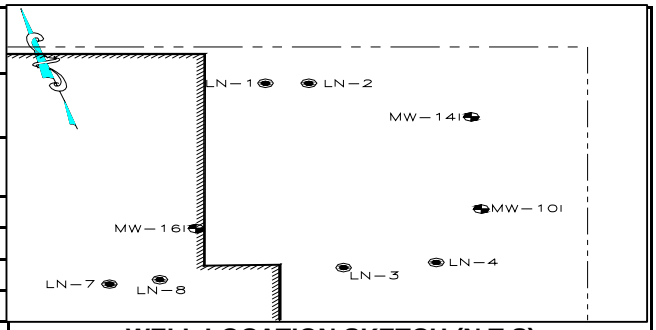
EWMA Job #:	207266
Well #:	LN-2
Start Date:	04/21/10

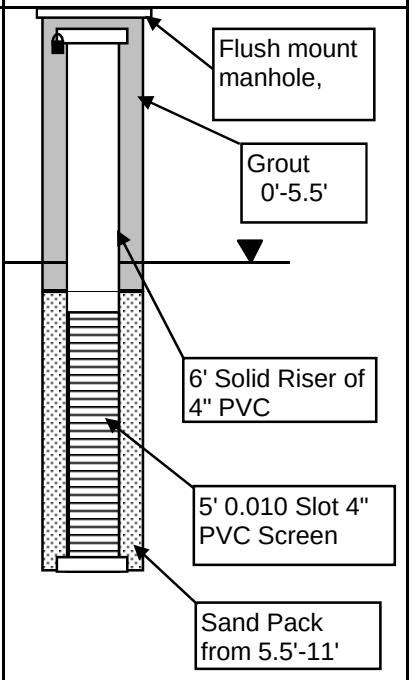


WELL LOCATION SKETCH (N.T.S)

Site: OCA - LIC	**Well Permit #:**		
	Completion Date: 04/22/10		
Geologist: Dan Dirocco	**Drilling Co.:** Summit		
Driller/Helper: Jeremy	**Drill Rig:** Auger		
Drilling Method: Auger	**Type of Bit:** 6"		
Sampler Type: Split Spoon/cuttings		**Solid Riser:** 0-6'	
G.W. Encountered: 3	**G.W. Stabilized:** 5	**Well Depth:** 11	**Screen Interval/Screen Type:** 6-11
Depth to Rim:	**Borehole Diameter:** 6"	**Well Diameter:** 4	**Grout:** 0-5.5' **Sand Pack/Open Borehole:** 5.5-11

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	SOIL/GEOLOGICAL DESCRIPTION
1			6 7 6 6	8"		QP & URBAN FILL
2						
3			6 10 4 5	14"		8" SILTY SAND & GRAVEL (wet) 6" PEAT
4						
5			3 4 7 10	24"		9" Backfill from above 15" PEAT ~8" & Grey-Brown Very Fine SANDY SILT (wet) (Petro Odors)
6						
7			9 12 11 9	8"		Grey-Brown Very Fine SAND & SILT (wet)
8						
9			13 11 13 18	NR		No Recovery (Petro Odors & Sheen)
10						
11			7 4 3 5	9"		2" Grey-Brown Fine SAND with Silt (moist) 7" Brown Silty CLAY, Organic Bottom bottom 1" Clayey Silt
12						
13						**Well Constructed to 11' bgs**
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						

WELL CONSTRUCTION DIAGRAM (N.T.S)



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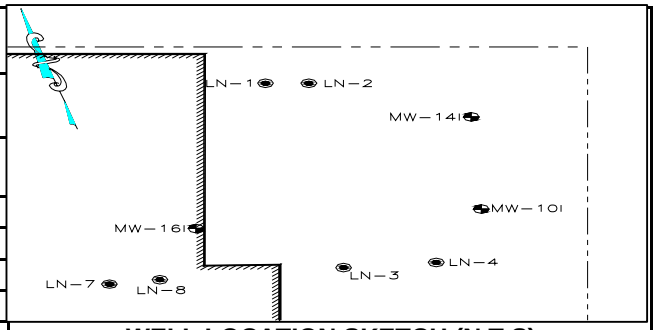
EWMA Job #:	207266
Well #:	LN-3
Start Date:	04/22/10

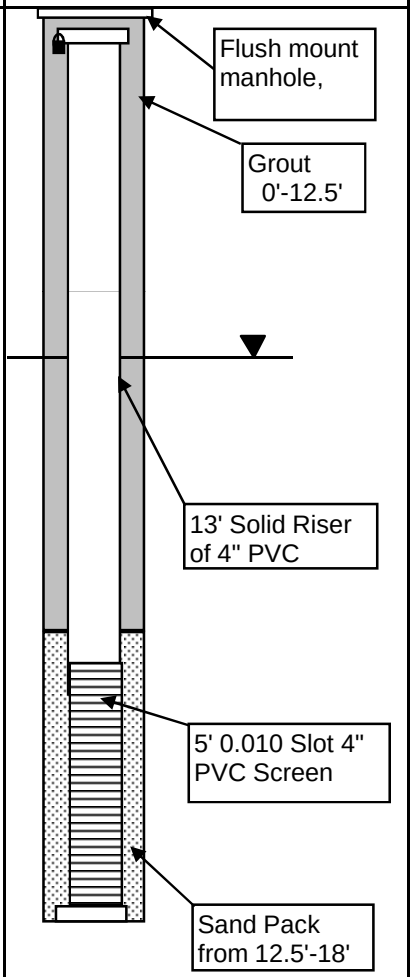


WELL LOCATION SKETCH (N.T.S)

Site: OCA - LIC	**Well Permit #:**		
	Completion Date: 04/22/10		
Geologist: Dan Dirocco	**Drilling Co.:** Summit		
Driller/Helper: Jeremy	**Drill Rig:** Auger		
Drilling Method: Auger	**Type of Bit:** 6"		
Sampler Type: Split Spoon/cuttings		**Solid Riser:** 0-13	
G.W. Encountered: 3	**G.W. Stabilized:** 7	**Well Depth:** 18	**Screen Interval/Screen Type:** 13-18
Depth to Rim:	**Borehole Diameter:** 6	**Well Diameter:** 4	**Grout:** 0-12.5 **Sand Pack/Open Borehole:** 12.5-18

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	SOIL/GEOLOGICAL DESCRIPTION
1			6 7 6 6	8"		QP & URBAN FILL
2						
3			6 10 4 5	14"		8" silty SAND & GRAVEL (wet) 6" PEAT
4						
5			3 4 7 10	24"		9" Backfill from above 15" PEAT ~8" & Grey-Brown Very Fine SANDY SILT (wet) (Petro-like Odors)
6						
7			9 12 11 9	8"		Grey-Brown Very Fine SAND & SILT (wet)
8						
9			13 11 13 18	NR		No Recovery (Petro Odors & Sheen)
10						
11			7 4 3 5	9"		2" Grey-Brown Fine SAND with Silt (moist) 7" Brown Silty CLAY, Organic Bottom bottom 1" Clayey Silt
12						
13						
14						
15						
16						
17						
18						End of Drilling Well set at ~18 feet bgs
19						
20						
21						
22						
23						
24						

WELL CONSTRUCTION DIAGRAM (N.T.S)



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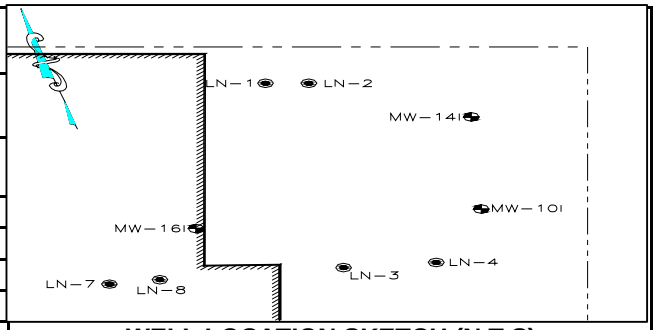
EWMA Job #:	207266
Well #:	LN-4
Start Date:	04/23/10

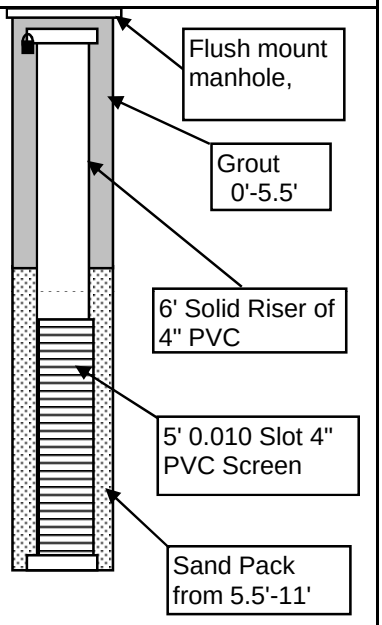


WELL LOCATION SKETCH (N.T.S)

Site: OCA - LIC	**Well Permit #:**		
	Completion Date: 04/23/10		
Geologist: Dan Dirocco	**Drilling Co.:** Summit		
Driller/Helper: Jeremy	**Drill Rig:** Auger		
Drilling Method: Auger	**Type of Bit:** 6"		
Sampler Type: Split Spoon/cuttings		**Solid Riser:** 0-6	
G.W. Encountered:	**G.W. Stabilized:**	**Well Depth:** 11	**Screen Interval/Screen Type:** 6-11
Depth to Rim:	**Borehole Diameter:** 6	**Well Diameter:** 4	**Grout:** 0-5.5 **Sand Pack/Open Borehole:** 5.5-11

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	SOIL/GEOLOGICAL DESCRIPTION
1			6 7 6 6	8"		QP & URBAN FILL
3			6 10 4 5	14"		8" SILTY SAND & GRAVEL (wet) 6" PEAT
5			3 4 7 10	24"		9" Backfill from above 15" PEAT ~8" & Grey-Brown Very Fine SANDY SILT (wet) (Petro Odors)
7			9 12 11 9	8"		Grey-Brown Very Fine SAND & SILT (wet)
9			13 11 13 18	NR		No Recovery (Petro Odors & Sheen)
11			7 4 3 5	9"		2" Grey-Brown Fine SAND with Silt (moist) 7" Brown Silty CLAY, Organic Bottom bottom 1" Clayey Silt **Well installed to 11 fbgs**

WELL CONSTRUCTION DIAGRAM (N.T.S)



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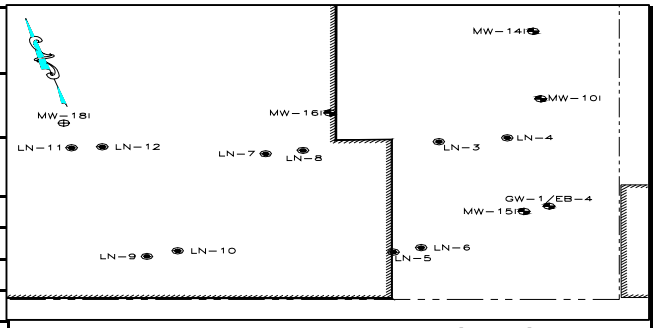
EWMA Job #:	207266
Well #:	LN-5
Start Date:	04/23/10

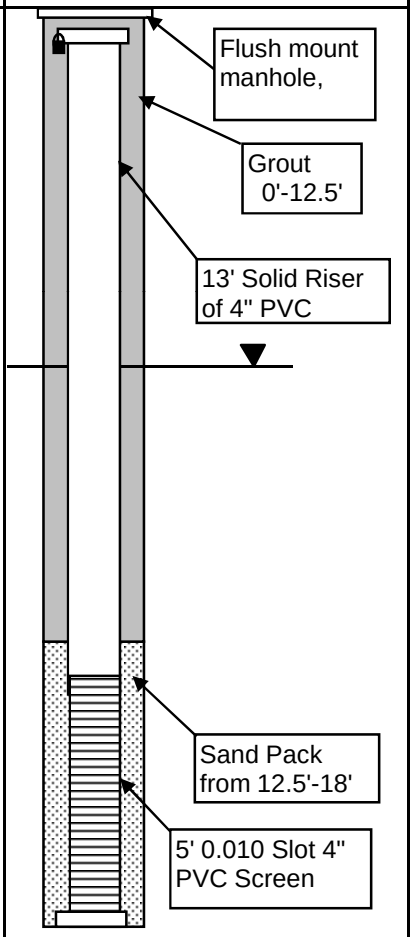


WELL LOCATION SKETCH (N.T.S)

Site: OCA - LIC	**Well Permit #:**		
	Completion Date: 04/23/10		
Geologist: Dan Dirocco	**Drilling Co.:** Summit		
Driller/Helper: Jeremy	**Drill Rig:** Auger		
Drilling Method: Auger	**Type of Bit:** 6"		
Sampler Type: Split Spoon/cuttings		**Solid Riser:** 0-13	
G.W. Encountered: 3	**G.W. Stabilized:** 7	**Well Depth:** 18	**Screen Interval/Screen Type:** 13-18'
Depth to Rim:	**Borehole Diameter:** 6	**Well Diameter:** 4	**Grout:** 0-12.5 **Sand Pack/Open Borehole:** 12.5-18

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	SOIL/GEOLOGICAL DESCRIPTION
1			11 13 6 5	2"		QP & FILL
2						
3			3 2 2 3	17"		5" Urban FILL, Brown-Grey Silty Sand with Gravel 2" Dark Grey-Brown ORGANIC CLAYEY SILT 10" PEAT
4						
5			5 1 2 4	0"		Brown Fine SAND (wet)
6						
7			11 11 10 12	9"		Brown Fine SAND & SILT (wet)
8						
9			7 5 6 8	3"		Brown Fine SAND with Trace Silt
10						
11			3 4 4 7	20"		9" Brown Fine SAND with Trace Silt 11" Dark Brown-Green CLAYEY SILT
12						
13						
14						
15						
16						
17						
18						
19						**End of Drilling** **Well set at ~18 feet bgs**
20						
21						
22						
23						
24						

WELL CONSTRUCTION DIAGRAM (N.T.S)



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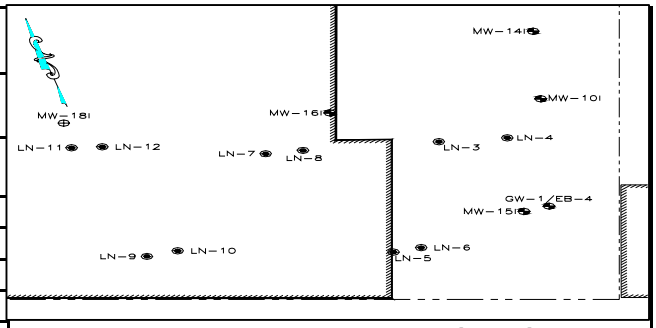
EWMA Job #:	207266
Well #:	LN-6
Start Date:	04/23/10

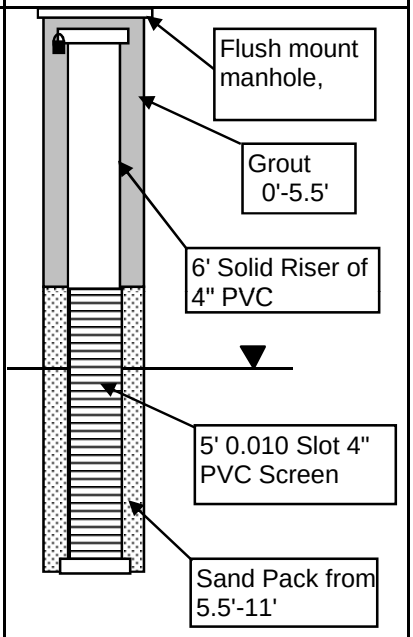


WELL LOCATION SKETCH (N.T.S)

Site: OCA - LIC	**Well Permit #:**		
	Completion Date: 04/23/10		
Geologist: Dan Dirocco	**Drilling Co.:** Summit		
Driller/Helper: Jeremy	**Drill Rig:** Auger		
Drilling Method: Auger	**Type of Bit:** 6"		
Sampler Type: Split Spoon/cuttings		**Solid Riser:** 0-6	
G.W. Encountered: 3	**G.W. Stabilized:** 7	**Well Depth:** 11	**Screen Interval/Screen Type:** 6-11'
Depth to Rim:	**Borehole Diameter:** 6	**Well Diameter:** 4	**Grout:** 0-5.5 **Sand Pack/Open Borehole:** 5.5-1

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	SOIL/GEOLOGICAL DESCRIPTION
1			11 13 6 5	2"		QP & FILL
2						
3			3 2 2 3	17"		5" Urban FILL, Brown-Grey Silty Sand with Gravel 2" Dark Grey-Brown ORGANIC CLAYEY SILT 10" PEAT
4						
5			5 1 2 4	0"		Brown Fine SAND (wet)
6						
7			11 11 10 12	9"		Brown Fine SAND & SILT (wet)
8						
9			7 5 6 8	3"		Brown Fine SAND with Trace Silt
10						
11			3 4 4 7	20"		9" Brown Fine SAND with Trace Silt 11" Dark Brown-Green CLAYEY SILT **Well installed to 11 fbgs**
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						

WELL CONSTRUCTION DIAGRAM (N.T.S)



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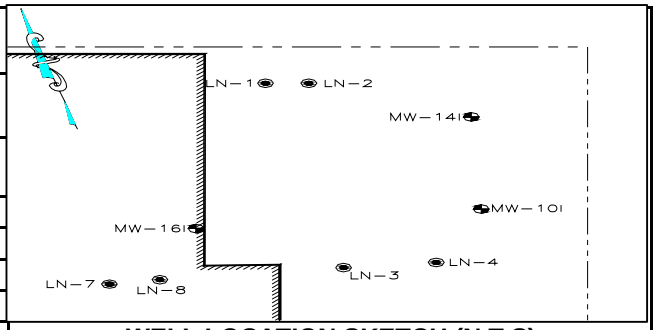
EWMA Job #:	207266
Well #:	LN-7
Start Date:	04/26/10

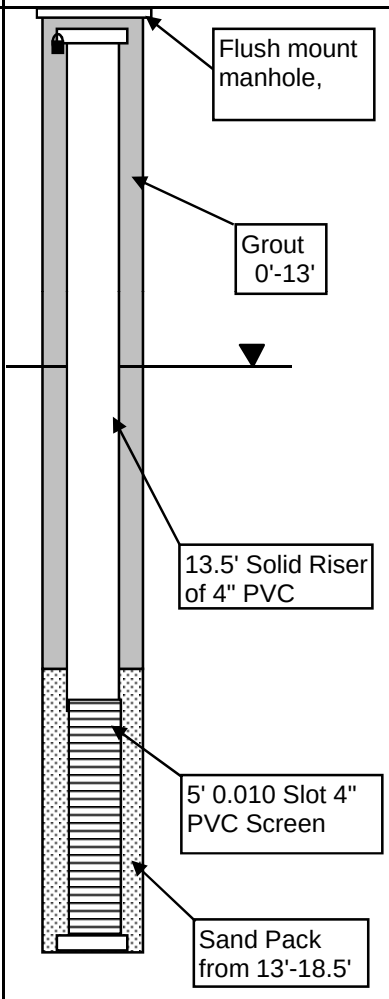


WELL LOCATION SKETCH (N.T.S)

Site: OCA - LIC	**Well Permit #:**		
	Completion Date: 04/26/10		
Geologist: Dan Dirocco	**Drilling Co.:** Summit		
Driller/Helper: Jeremy	**Drill Rig:** Auger		
Drilling Method: Auger	**Type of Bit:** 6"		
Sampler Type: Split Spoon/cuttings		**Solid Riser:** 0-13.5	
G.W. Encountered: 3	**G.W. Stabilized:** 7	**Well Depth:** 18.5	**Screen Interval/Screen Type:** 13.5-18.5'
Depth to Rim:	**Borehole Diameter:** 6	**Well Diameter:** 4	**Grout:** 0-13 **Sand Pack/Open Borehole:** 13-18.5

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	SOIL/GEOLOGICAL DESCRIPTION
1			5 6 5 6	12"		QP & URBAN FILL
3			6 7 5 6	3"		FILL & Brown SILTY SANDS with Gravel
5			2 2 4 4	16"		15" PEAT 1" ORGANIC Brown-Grey SILT
7			4 9 10 10	24"		Brown-Grey ORGANIC Fine SAND & SILT
9			1 1 3 3	10"		Brown-Grey ORGANIC Fine SAND with Trace Silt
11			3 5 5 7	16"		14" Brown-Grey Fine SAND with Trace Silt 2" Brown Fine SAND

WELL CONSTRUCTION DIAGRAM (N.T.S)



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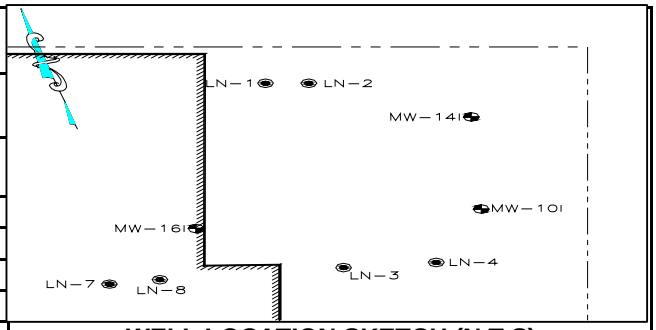
Phone: (973) 560-1400 Fax:(973) 560-0400

EWMA Job #:	207266
Well #:	LN-8
Start Date:	04/26/10

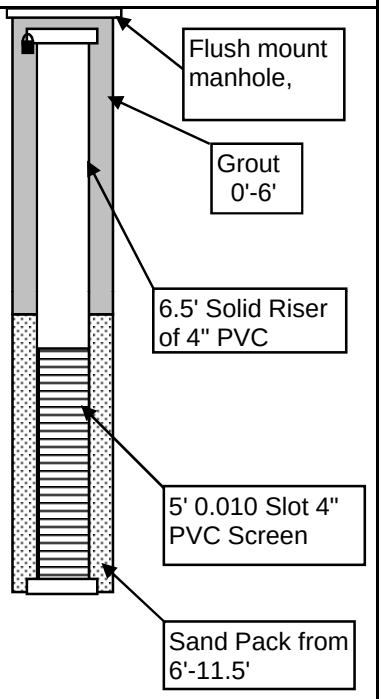


WELL LOCATION SKETCH (N.T.S)

Site: OCA - LIC	**Well Permit #:**		
	Completion Date: 04/26/10		
Geologist: Dan Dirocco	**Drilling Co.:** Summit		
Driller/Helper: Jeremy	**Drill Rig:** Auger		
Drilling Method: Auger	**Type of Bit:** 6"		
Sampler Type: Split Spoon/cuttings		**Solid Riser:** 0-6.5	
G.W. Encountered: 3	**G.W. Stabilized:**	**Well Depth:** 11.5	**Screen Interval/Screen Type:** 6.5-11.5
Depth to Rim:	**Borehole Diameter:** 6	**Well Diameter:** 4	**Grout:** 0-6' **Sand Pack/Open Borehole:** 6-11.5

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	SOIL/GEOLOGICAL DESCRIPTION
1			5 6 5 6	12"		QP & URBAN FILL
2						
3			6 7 5 6	3"		FILL & Brown SILTY SANDS with Gravel
4						
5			2 2 4 4	16"		15" PEAT 1" ORGANIC Brown-Grey SILT
6						
7			4 9 10 10	24"		Brown-Grey ORGANIC Fine SAND & SILT
8						
9			1 1 3 3	10"		Brown-Grey ORGANIC Fine SAND with Trace Silt
10						
11			3 5 5 7	16"		14" Brown-Grey Fine SAND with Trace Silt 2" Brown Fine SAND **Well installed to 11.5 fbgs**
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						

WELL CONSTRUCTION DIAGRAM (N.T.S)



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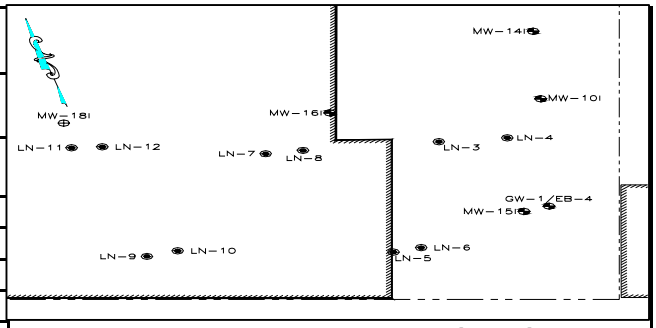
Phone: (973) 560-1400 Fax:(973) 560-0400

EWMA Job #:	207266
Well #:	LN-9
Start Date:	07/16/10

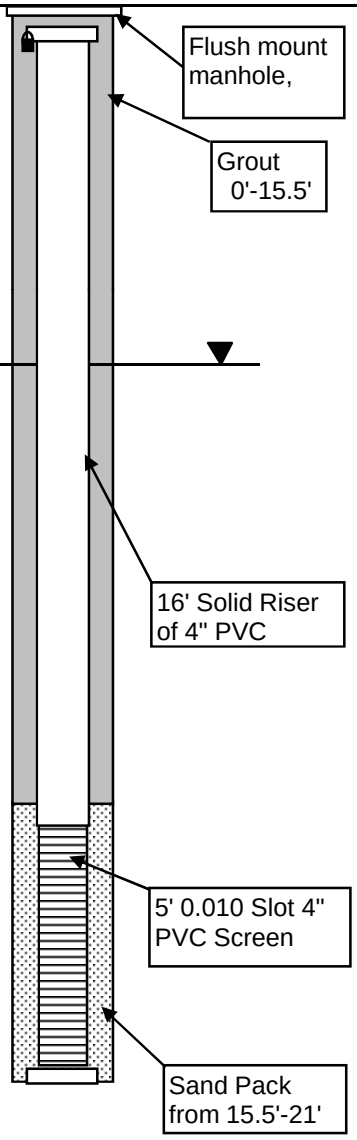


WELL LOCATION SKETCH (N.T.S)

Site: OCA - LIC	**Well Permit #:**		
	Completion Date: 07/16/10		
Geologist: Dan Dirocco	**Drilling Co.:** Summit		
Driller/Helper: Jeremy	**Drill Rig:** Auger		
Drilling Method: Auger	**Type of Bit:** 6"		
Sampler Type: Split Spoon/cuttings		**Solid Riser:** 0-16	
G.W. Encountered: 3	**G.W. Stabilized:** 7	**Well Depth:** 21	**Screen Interval/Screen Type:** 16-21
Depth to Rim:	**Borehole Diameter:** 6	**Well Diameter:** 4	**Grout:** 0-15.5 **Sand Pack/Open Borehole:** 15.5-21

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	SOIL/GEOLOGICAL DESCRIPTION
1			5 6 5 6	12"		QP & URBAN FILL
3			6 7 5 6	3"		FILL & Brown SILTY SANDS with Gravel
5			2 2 4 4	16"		15" PEAT 1" ORGANIC Brown-Grey SILT
7			4 9 10 10	24"		Brown-Grey ORGANIC Fine SAND & SILT
9			1 1 3 3	10"		Brown-Grey ORGANIC Fine SAND with Trace Silt
11			3 5 5 7	16"		14" Brown-Grey Fine SAND with Trace Silt 2" Brown Fine SAND
						Well installed to 21 fbgs

WELL CONSTRUCTION DIAGRAM (N.T.S)



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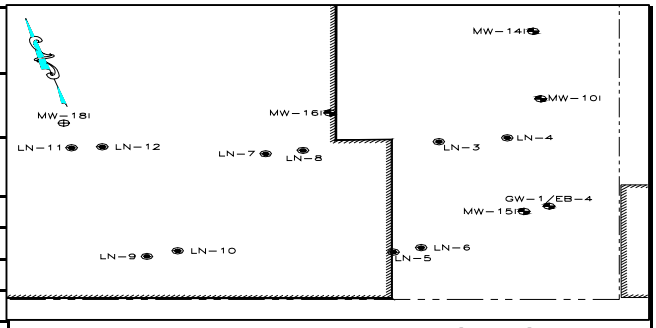
EWMA Job #:	207266
Well #:	LN-10
Start Date:	07/16/10

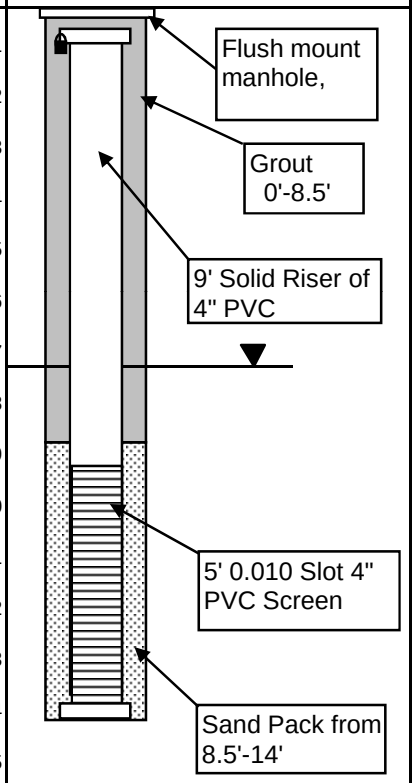


WELL LOCATION SKETCH (N.T.S)

Site: OCA - LIC	**Well Permit #:**		
	Completion Date: 07/16/10		
Geologist: Dan Dirocco	**Drilling Co.:** Summit		
Driller/Helper: Jeremy	**Drill Rig:** Auger		
Drilling Method: Auger	**Type of Bit:** 6"		
Sampler Type: Split Spoon/cuttings		**Solid Riser:** 0-9	
G.W. Encountered: 3	**G.W. Stabilized:** 7	**Well Depth:** 14	**Screen Interval/Screen Type:** 9-14
Depth to Rim:	**Borehole Diameter:** 6	**Well Diameter:** 4	**Grout:** 0-8.5 **Sand Pack/Open Borehole:** 8.5-14

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	SOIL/GEOLOGICAL DESCRIPTION
1			5 6 5 6	12"		QP & URBAN FILL
2						
3			6 7 5 6	3"		FILL & Brown SILTY SANDS with Gravel
4						
5			2 2 4 4	16"		15" PEAT 1" ORGANIC Brown-Grey SILT
6						
7			4 9 10 10	24"		Brown-Grey ORGANIC Fine SAND & SILT
8						
9			1 1 3 3	10"		Brown-Grey ORGANIC Fine SAND with Trace Silt
10						
11			3 5 5 7	16"		14" Brown-Grey Fine SAND with Trace Silt 2" Brown Fine SAND
12						
13						
14						**Well installed to 14 fbgs**
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						

WELL CONSTRUCTION DIAGRAM (N.T.S)



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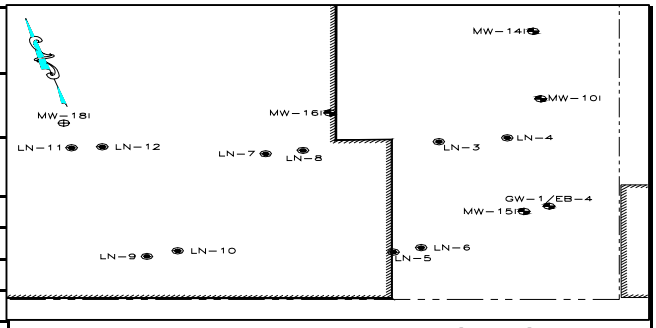
Phone: (973) 560-1400 Fax:(973) 560-0400

EWMA Job #:	207266
Well #:	LN-11
Start Date:	07/14/10

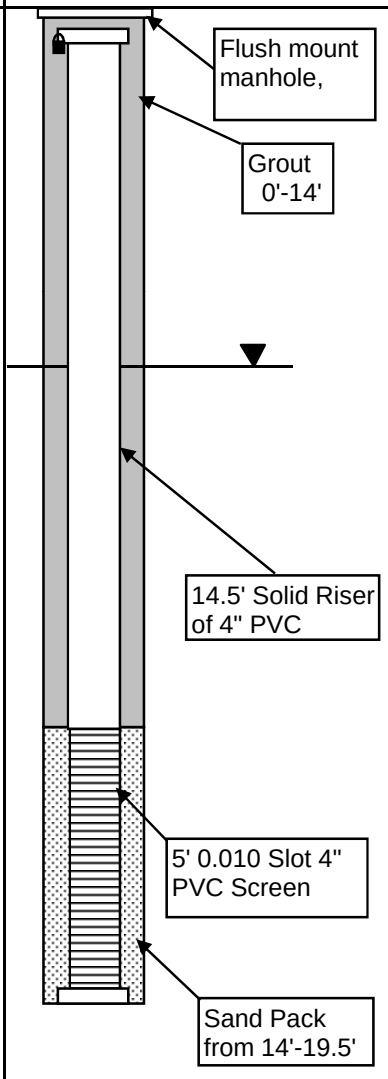


WELL LOCATION SKETCH (N.T.S)

Site: OCA - LIC	**Well Permit #:**		
	Completion Date: 07/14/10		
Geologist: Dan Dirocco	**Drilling Co.:** Summit		
Driller/Helper: Jeremy	**Drill Rig:** Auger		
Drilling Method: Auger	**Type of Bit:** 6"		
Sampler Type: Split Spoon/cuttings		**Solid Riser:** 0-14.5	
G.W. Encountered: 3	**G.W. Stabilized:** 7	**Well Depth:** 19.5	**Screen Interval/Screen Type:** 14.5-19.5
Depth to Rim:	**Borehole Diameter:** 6	**Well Diameter:** 4	**Grout:** 0-14 **Sand Pack/Open Borehole:** 14-19.5

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	SOIL/GEOLOGICAL DESCRIPTION
1			5	12"		QP & URBAN FILL
2			6			
			5			
			6			
3			6	3"		FILL & Brown SILTY SANDS with Gravel
4			7			
			5			
			6			
5			2	16"		15" PEAT
			2			1" ORGANIC Brown-Grey SILT
6			4			
			4			
7			4	24"		Brown-Grey ORGANIC Fine SAND & SILT
			9			
8			10			
			10			
9			1	10"		Brown-Grey ORGANIC Fine SAND with Trace Silt
			1			
10			3			
			3			
11			3	16"		14" Brown-Grey Fine SAND with Trace Silt
			5			2" Brown Fine SAND
			5			
12			7			
13						
14						
15						
16						
17						
18						
19						**Well installed to 19.5 fbgs**
20						
21						
22						
23						
24						

WELL CONSTRUCTION DIAGRAM (N.T.S)



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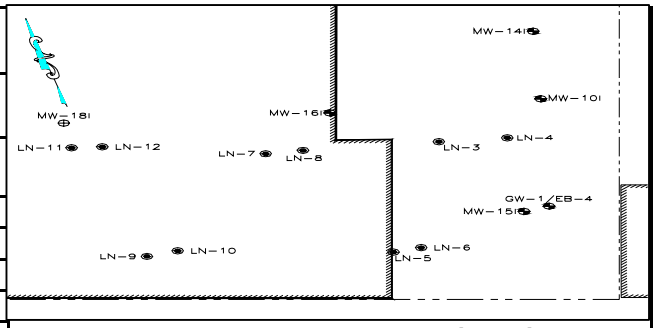
EWMA Job #:	207266
Well #:	LN-12
Start Date:	07/15/10

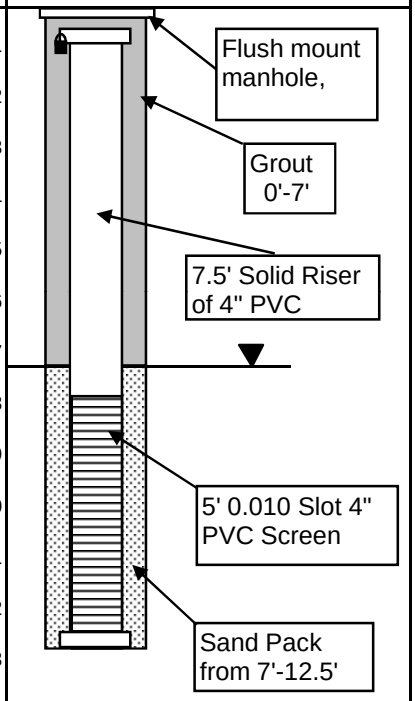


WELL LOCATION SKETCH (N.T.S)

Site: OCA - LIC	**Well Permit #:**		
	Completion Date: 07/15/10		
Geologist: Dan Dirocco	**Drilling Co.:** Summit		
Driller/Helper: Jeremy	**Drill Rig:** Auger		
Drilling Method: Auger	**Type of Bit:** 6"		
Sampler Type: Split Spoon/cuttings		**Solid Riser:** 0-7.5	
G.W. Encountered: 3	**G.W. Stabilized:** 7	**Well Depth:** 12.5	**Screen Interval/Screen Type:** 7.5-12.5
Depth to Rim:	**Borehole Diameter:** 6	**Well Diameter:** 4	**Grout:** 0-7 **Sand Pack/Open Borehole:** 7-12.5

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	SOIL/GEOLOGICAL DESCRIPTION
1			5 6 5 6	12"		QP & URBAN FILL
3			6 7 5 6	3"		FILL & Brown SILTY SANDS with Gravel
5			2 2 4 4	16"		15" PEAT 1" ORGANIC Brown-Grey SILT
7			4 9 10 10	24"		Brown-Grey ORGANIC Fine SAND & SILT
9			1 1 3 3	10"		Brown-Grey ORGANIC Fine SAND with Trace Silt
11			3 5 5 7	16"		14" Brown-Grey Fine SAND with Trace Silt 2" Brown Fine SAND
						Well installed to 12.5 fbgs

WELL CONSTRUCTION DIAGRAM (N.T.S)



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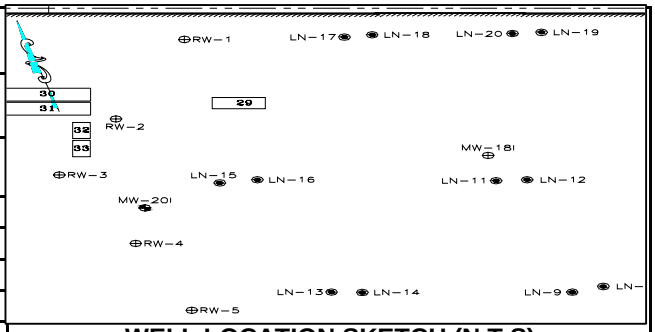
EWMA Job #:	207266
Well #:	LN-13
Start Date:	07/12/10

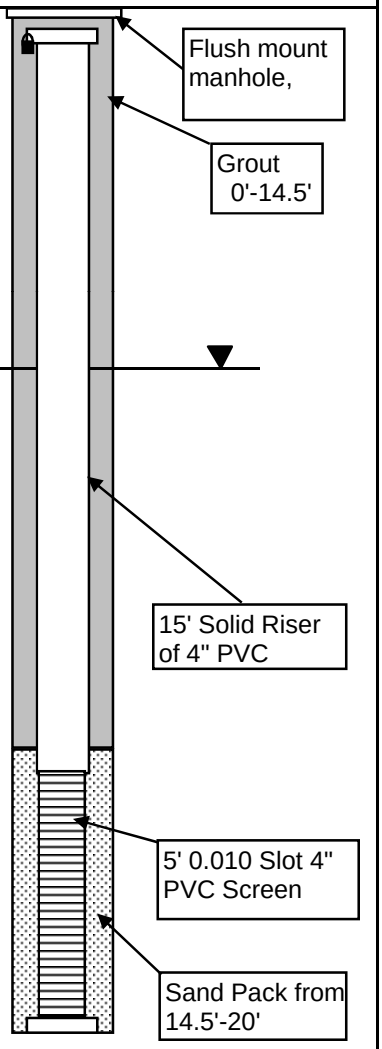


WELL LOCATION SKETCH (N.T.S)

Site: OCA - LIC	**Well Permit #:**		
	Completion Date: 07/12/10		
Geologist: Dan Dirocco	**Drilling Co.:** Summit		
Driller/Helper: Jeremy	**Drill Rig:** Auger		
Drilling Method: Auger	**Type of Bit:** 6"		
Sampler Type: Split Spoon/cuttings		**Solid Riser:** 0-15	
G.W. Encountered: 3	**G.W. Stabilized:** 7	**Well Depth:** 20	**Screen Interval/Screen Type:** 15-20
Depth to Rim:	**Borehole Diameter:**	**Well Diameter:**	**Grout:** 0-14.5 **Sand Pack/Open Borehole:** 14.5-20

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	SOIL/GEOLOGICAL DESCRIPTION
1			5 6 5 6	12"		QP & URBAN FILL
3			6 7 5 6	3"		FILL & Brown SILTY SANDS with Gravel
5			2 2 4 4	16"		15" PEAT 1" ORGANIC Brown-Grey SILT
7			4 9 10 10	24"		Brown-Grey ORGANIC Fine SAND & SILT
9			1 1 3 3	10"		Brown-Grey ORGANIC Fine SAND with Trace Silt
11			3 5 5 7	16"		14" Brown-Grey Fine SAND with Trace Silt 2" Brown Fine SAND
20						Well installed to 20 fbgs

WELL CONSTRUCTION DIAGRAM (N.T.S)



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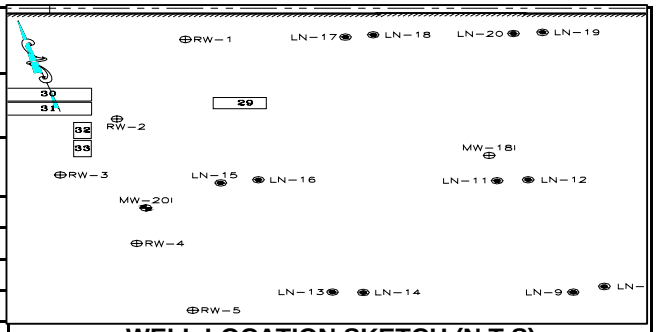
Phone: (973) 560-1400 Fax:(973) 560-0400

EWMA Job #:	207266
Well #:	LN-14
Start Date:	07/12/10

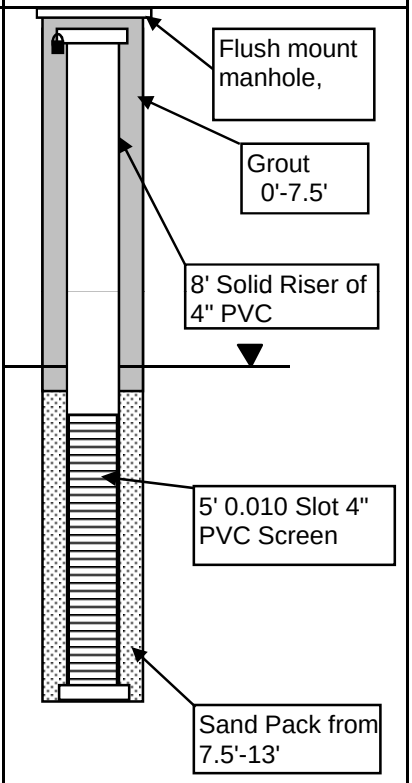


WELL LOCATION SKETCH (N.T.S)

Site: OCA - LIC	**Well Permit #:**		
	Completion Date: 07/12/10		
Geologist: Dan Dirocco	**Drilling Co.:** Summit		
Driller/Helper: Jeremy	**Drill Rig:** Auger		
Drilling Method: Auger	**Type of Bit:** 6"		
Sampler Type: Split Spoon/cuttings		**Solid Riser:** 0-8	
G.W. Encountered: 3	**G.W. Stabilized:** 7	**Well Depth:** 13	**Screen Interval/Screen Type:** 8-13
Depth to Rim:	**Borehole Diameter:** 6	**Well Diameter:** 4	**Grout:** 0-7.5 **Sand Pack/Open Borehole:** 7.5-13

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	SOIL/GEOLOGICAL DESCRIPTION
1			5 6 5 6	12"		QP & URBAN FILL
3			6 7 5 6	3"		FILL & Brown SILTY SANDS with Gravel
5			2 2 4 4	16"		15" PEAT 1" ORGANIC Brown-Grey SILT
7			4 9 10 10	24"		Brown-Grey ORGANIC Fine SAND & SILT
9			1 1 3 3	10"		Brown-Grey ORGANIC Fine SAND with Trace Silt
11			3 5 5 7	16"		14" Brown-Grey Fine SAND with Trace Silt 2" Brown Fine SAND

WELL CONSTRUCTION DIAGRAM (N.T.S)



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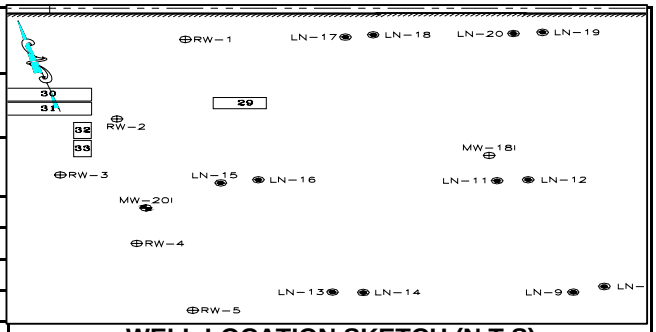
EWMA Job #:	207266
Well #:	LN-15
Start Date:	07/09/10



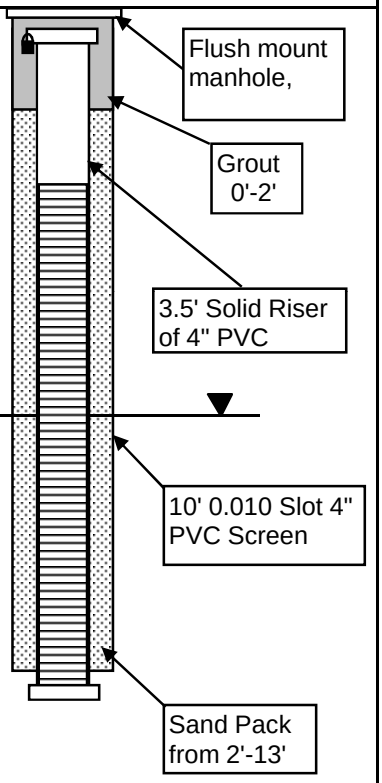
WELL LOCATION SKETCH (N.T.S)

Site: OCA - LIC		**Well Permit #:**	
		Completion Date:	07/09/10
Geologist:	Dan Dirocco	**Drilling Co.:**	Summit
Driller/Helper:	Jeremy	**Drill Rig:**	Auger
Drilling Method:	Auger	**Type of Bit:**	6"
Sampler Type:	Split Spoon/cuttings		
G.W. Encountered:	3	**G.W. Stabilized:**	7
Depth to Rim:		**Borehole Diameter:**	6

Well Depth:	21
Well Diameter:	4

Solid Riser:	0-16
Screen Interval/Screen Type:	16-21
Grout: 0-15.5	**Sand Pack/Open Borehole:** 15.5-21

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	SOIL/GEOLOGICAL DESCRIPTION
1			5	12"		QP & URBAN FILL
2			6			
			5			
			6			
3			6	3"		FILL & Brown SILTY SANDS with Gravel
4			7			
			5			
			6			
5			2	16"		15" PEAT
			2			1" ORGANIC Brown-Grey SILT
6			4			
			4			
7			4	24"		Brown-Grey ORGANIC Fine SAND & SILT
			9			
8			10			
			10			
9			1	10"		Brown-Grey ORGANIC Fine SAND with Trace Silt
			1			
10			3			
			3			
11			3	16"		14" Brown-Grey Fine SAND with Trace Silt
			5			2" Brown Fine SAND
			5			
12			7			
13						
14						
15						
16						
17						
18						
19						
20						
21						**Well installed to 21 fbgs**
22						
23						
24						



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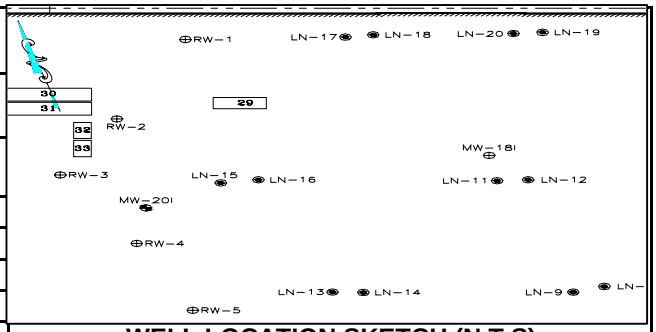
EWMA Job #:	207266
Well #:	LN-16
Start Date:	07/09/10



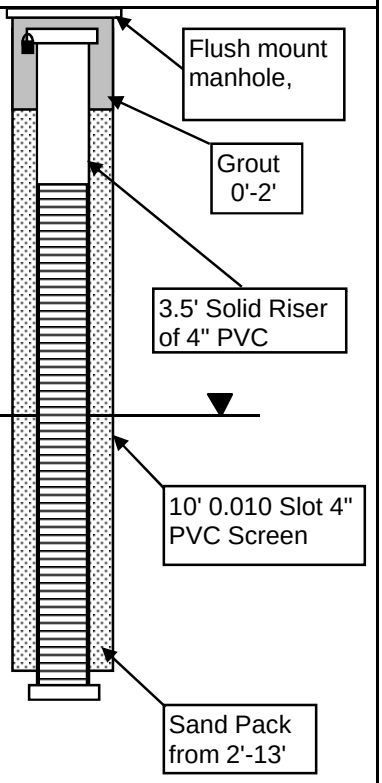
WELL LOCATION SKETCH (N.T.S)

Site: OCA - LIC		**Well Permit #:**	
		Completion Date:	07/09/10
Geologist: Dan Dirocco		**Drilling Co.:**	Summit
Driller/Helper: Jeremy		**Drill Rig:**	Auger
Drilling Method: Auger		**Type of Bit:**	6"
Sampler Type: Split Spoon/cuttings			
G.W. Encountered: 3	**G.W. Stabilized:** 7	**Well Depth:**	14
Depth to Rim:	**Borehole Diameter:** 6	**Well Diameter:**	4

Solid Riser: 0-9
Screen Interval/Screen Type: 9-14
Grout: 0-8.5
Sand Pack/Open Borehole: 8.5-14

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	SOIL/GEOLOGICAL DESCRIPTION
1			5	12"		QP & URBAN FILL
2			6			
			5			
			6			
3			6	3"		FILL & Brown SILTY SANDS with Gravel
4			7			
			5			
			6			
5			2	16"		15" PEAT
			2			1" ORGANIC Brown-Grey SILT
6			4			
			4			
7			4	24"		Brown-Grey ORGANIC Fine SAND & SILT
			9			
8			10			
			10			
9			1	10"		Brown-Grey ORGANIC Fine SAND with Trace Silt
			1			
10			3			
			3			
11			3	16"		14" Brown-Grey Fine SAND with Trace Silt
			5			2" Brown Fine SAND
			5			
12			7			
13						
14						Well Installed to 14 fbgs
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						

WELL CONSTRUCTION DIAGRAM (N.T.S)



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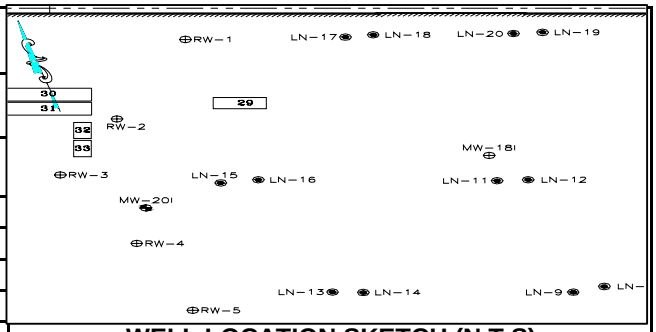
EWMA Job #:	207266
Well #:	LN-17
Start Date:	07/08/10



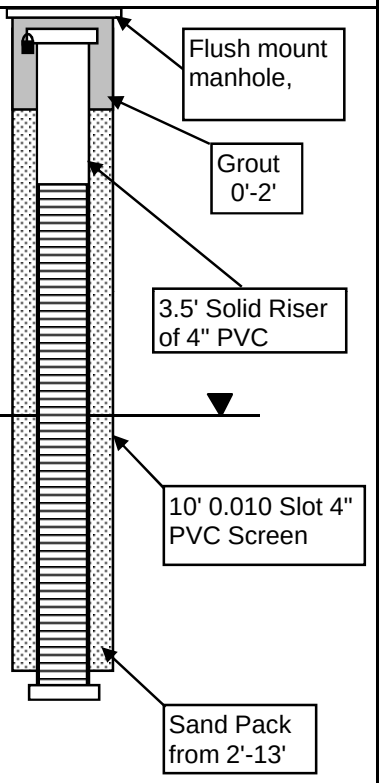
WELL LOCATION SKETCH (N.T.S)

Site: OCA - LIC		**Well Permit #:**	
		Completion Date:	07/08/10
Geologist:	Dan Dirocco	**Drilling Co.:**	Summit
Driller/Helper:	Jeremy	**Drill Rig:**	Auger
Drilling Method:	Auger	**Type of Bit:**	6"
Sampler Type:	Split Spoon/cuttings		
G.W. Encountered:	3	**G.W. Stabilized:**	7
Depth to Rim:		**Borehole Diameter:**	6

Solid Riser:	0-14.5
Screen Interval/Screen Type:	14.5-19.5
Well Depth:	19.5
Well Diameter:	4
Grout:	0-14
Sand Pack/Open Borehole:	14-19.5

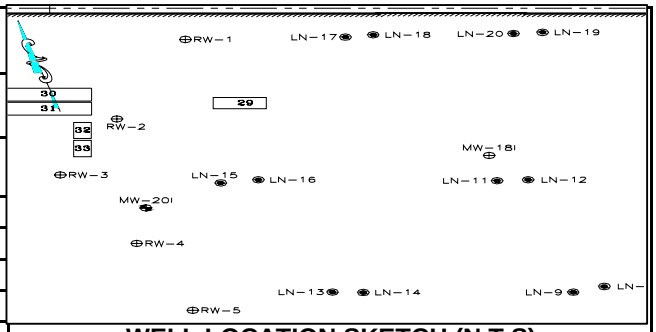
DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	SOIL/GEOLOGICAL DESCRIPTION
1			5	12"		QP & URBAN FILL
2			6			
			5			
			6			
3			6	3"		FILL & Brown SILTY SANDS with Gravel
4			7			
			5			
			6			
5			2	16"		15" PEAT
			2			1" ORGANIC Brown-Grey SILT
6			4			
			4			
7			4	24"		Brown-Grey ORGANIC Fine SAND & SILT
			9			
8			10			
			10			
9			1	10"		Brown-Grey ORGANIC Fine SAND with Trace Silt
			1			
10			3			
			3			
11			3	16"		14" Brown-Grey Fine SAND with Trace Silt
			5			2" Brown Fine SAND
			5			
12			7			
13						
14						
15						
16						
17						
18						
19						
20						**Well Installed to 19.5 fbgs**
21						
22						
23						
24						

WELL CONSTRUCTION DIAGRAM (N.T.S)



Environmental Waste Management Associates, LLC
PO Box 5430, Parsippany, NJ, 07054
Phone: (973) 560-1400 Fax:(973) 560-0400

EWMA Job #:	207266
Well #:	LN-18
Start Date:	07/08/10

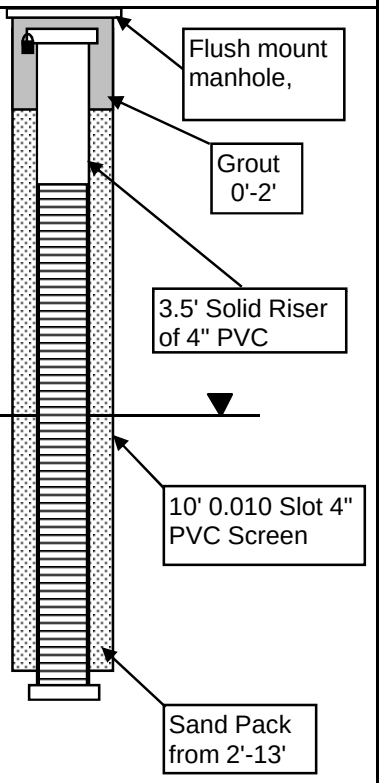


WELL LOCATION SKETCH (N.T.S)

Site: OCA - LIC	**Well Permit #:**		
	Completion Date: 07/08/10		
Geologist: Dan Dirocco	**Drilling Co.:** Summit		
Driller/Helper: Jeremy	**Drill Rig:** Auger		
Drilling Method: Auger	**Type of Bit:** 6"		
Sampler Type: Split Spoon/cuttings		**Solid Riser:** 0-7.5	
G.W. Encountered: 3	**G.W. Stabilized:** 7	**Well Depth:** 12.5	**Screen Interval/Screen Type:** 7.5-12.5
Depth to Rim:	**Borehole Diameter:** 6	**Well Diameter:** 4	**Grout:** 0-7 **Sand Pack/Open Borehole:** 7-12.5

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	SOIL/GEOLOGICAL DESCRIPTION
1			5 6 5 6	12"		QP & URBAN FILL
2						
3			6 7 5 6	3"		FILL & Brown SILTY SANDS with Gravel
4						
5			2 2 4 4	16"		15" PEAT 1" ORGANIC Brown-Grey SILT
6						
7			4 9 10 10	24"		Brown-Grey ORGANIC Fine SAND & SILT
8						
9			1 1 3 3	10"		Brown-Grey ORGANIC Fine SAND with Trace Silt
10						
11			3 5 5 7	16"		14" Brown-Grey Fine SAND with Trace Silt 2" Brown Fine SAND
12						
13						**Well Set to 12.5 fbgs**
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						

WELL CONSTRUCTION DIAGRAM (N.T.S)



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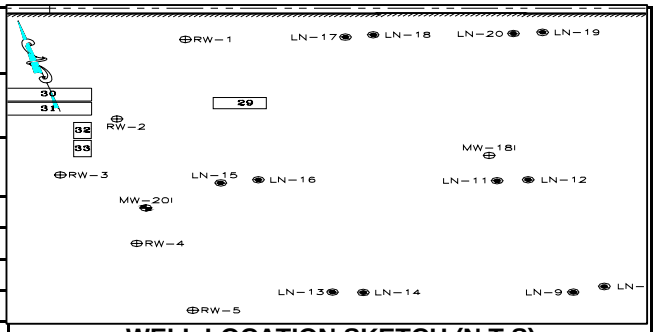
EWMA Job #:	207266
Well #:	LN-19
Start Date:	07/07/10

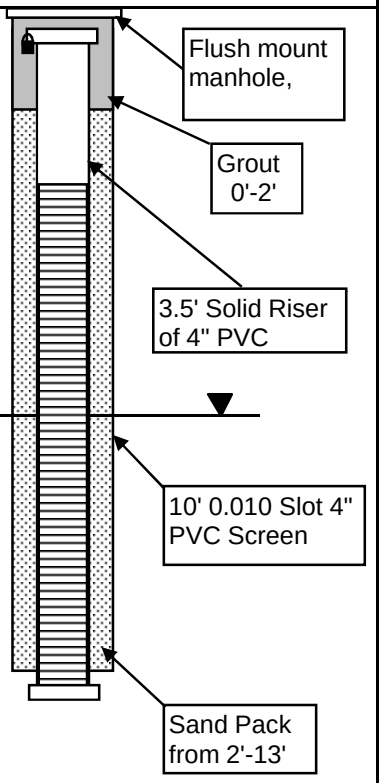


WELL LOCATION SKETCH (N.T.S)

Site: OCA - LIC	**Well Permit #:**		
	Completion Date: 07/07/10		
Geologist: Dan Dirocco	**Drilling Co.:** Summit		
Driller/Helper: Jeremy	**Drill Rig:** Auger		
Drilling Method: Auger	**Type of Bit:** 6"		
Sampler Type: Split Spoon/cuttings		**Solid Riser:** 0-14.5	
G.W. Encountered: 3	**G.W. Stabilized:** 7	**Well Depth:** 19.5	**Screen Interval/Screen Type:** 14.5-19.5
Depth to Rim:	**Borehole Diameter:** 6	**Well Diameter:** 4	**Grout:** 0-14 **Sand Pack/Open Borehole:** 14-19.5

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	SOIL/GEOLOGICAL DESCRIPTION
1			5 6 5 6	12"		QP & URBAN FILL
2						
3			6 7 5 6	3"		FILL & Brown SILTY SANDS with Gravel
4						
5			2 2 4 4	16"		15" PEAT 1" ORGANIC Brown-Grey SILT
6						
7			4 9 10 10	24"		Brown-Grey ORGANIC Fine SAND & SILT
8						
9			1 1 3 3	10"		Brown-Grey ORGANIC Fine SAND with Trace Silt
10						
11			3 5 5 7	16"		14" Brown-Grey Fine SAND with Trace Silt 2" Brown Fine SAND
12						
13						
14						
15						
16						
17						
18						
19						
20						Well set to depth of 19.5 fbgs
21						
22						
23						
24						

WELL CONSTRUCTION DIAGRAM (N.T.S)



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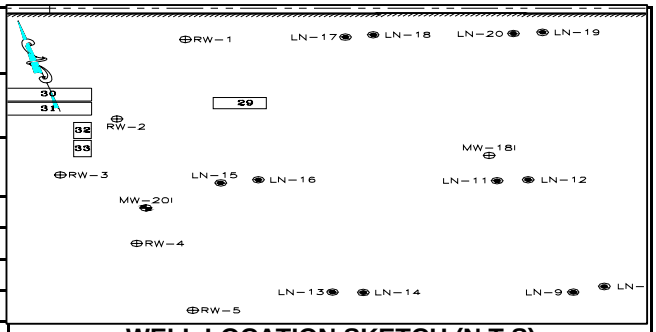
EWMA Job #:	207266
Well #:	LN-20
Start Date:	07/07/10

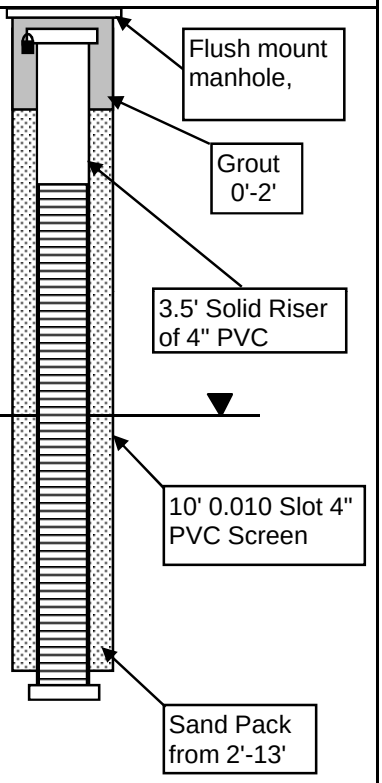


WELL LOCATION SKETCH (N.T.S)

Site: OCA - LIC	**Well Permit #:**		
	Completion Date: 07/07/10		
Geologist: Dan Dirocco	**Drilling Co.:** Summit		
Driller/Helper: Jeremy	**Drill Rig:** Auger		
Drilling Method: Auger	**Type of Bit:** 6"		
Sampler Type: Split Spoon/cuttings		**Solid Riser:** 0-7.5	
G.W. Encountered: 3	**G.W. Stabilized:** 7	**Well Depth:** 12.5	**Screen Interval/Screen Type:** 7.5-12.5
Depth to Rim:	**Borehole Diameter:** 6	**Well Diameter:** 4	**Grout:** 0-7 **Sand Pack/Open Borehole:** 7-12.5

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	SOIL/GEOLOGICAL DESCRIPTION
1			5 6 5 6	12"		QP & URBAN FILL
2						
3			6 7 5 6	3"		FILL & Brown SILTY SANDS with Gravel
4						
5			2 2 4 4	16"		15" PEAT 1" ORGANIC Brown-Grey SILT
6						
7			4 9 10 10	24"		Brown-Grey ORGANIC Fine SAND & SILT
8						
9			1 1 3 3	10"		Brown-Grey ORGANIC Fine SAND with Trace Silt
10						
11			3 5 5 7	16"		14" Brown-Grey Fine SAND with Trace Silt 2" Brown Fine SAND
12						
13						**Well set at 12.5 fbgs**
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						

WELL CONSTRUCTION DIAGRAM (N.T.S)



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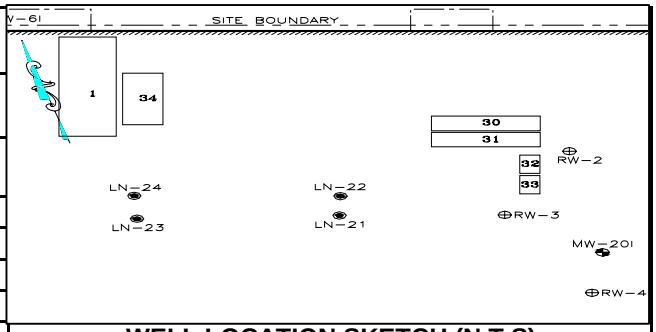
Phone: (973) 560-1400 Fax:(973) 560-0400

EWMA Job #:	207266
Well #:	LN-21
Start Date:	07/09/10

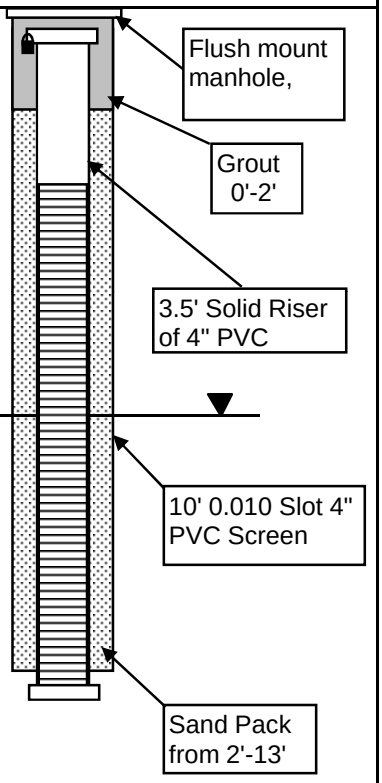


WELL LOCATION SKETCH (N.T.S)

Site: OCA - LIC	**Well Permit #:**		
	Completion Date: 07/06/10		
Geologist: Dan Dirocco	**Drilling Co.:** Summit		
Driller/Helper: Jeremy	**Drill Rig:** Auger		
Drilling Method: Auger	**Type of Bit:** 6"		
Sampler Type: Split Spoon/cuttings		**Solid Riser:** 0-14.5	
G.W. Encountered: 3	**G.W. Stabilized:** 7	**Well Depth:** 19.5	**Screen Interval/Screen Type:** 14.5-19.5
Depth to Rim:	**Borehole Diameter:** 6	**Well Diameter:** 4	**Grout:** 0-14 **Sand Pack/Open Borehole:** 14-19.5

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	SOIL/GEOLOGICAL DESCRIPTION
1			5	12"		QP & URBAN FILL
2			6			
			5			
			6			
3			6	3"		FILL & Brown SILTY SANDS with Gravel
4			7			
			5			
			6			
5			2	16"		15" PEAT
			2			1" ORGANIC Brown-Grey SILT
6			4			
			4			
7			4	24"		Brown-Grey ORGANIC Fine SAND & SILT
			9			
8			10			
			10			
9			1	10"		Brown-Grey ORGANIC Fine SAND with Trace Silt
			1			
10			3			
			3			
11			3	16"		14" Brown-Grey Fine SAND with Trace Silt
			5			2" Brown Fine SAND
			5			
12			7			
13						
14						
15						
16						
17						
18						
19						
20						**Well set at 19.5 fbgs**
21						
22						
23						
24						

WELL CONSTRUCTION DIAGRAM (N.T.S)



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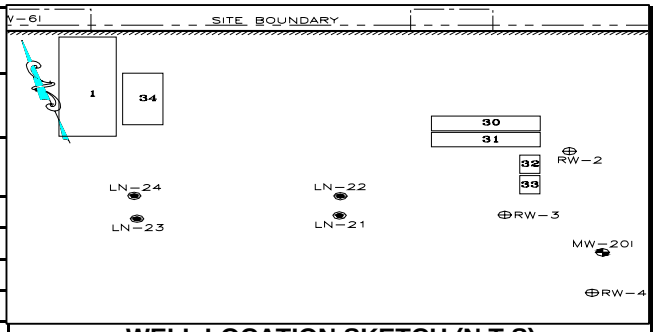
EWMA Job #:	207266
Well #:	LN-22
Start Date:	07/06/10

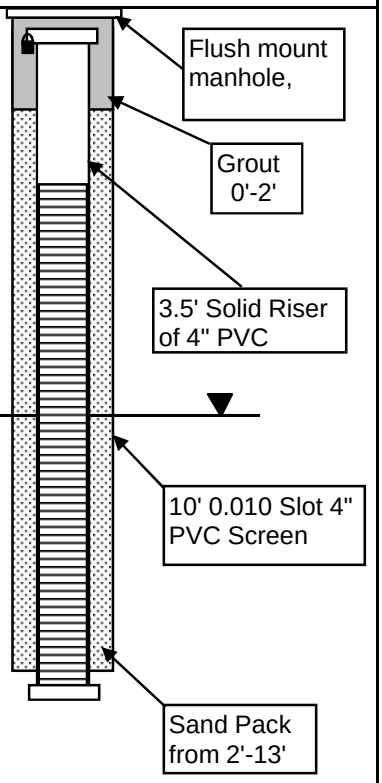


WELL LOCATION SKETCH (N.T.S)

Site: OCA - LIC	**Well Permit #:**		
	Completion Date: 07/06/10		
Geologist: Dan Dirocco	**Drilling Co.:** Summit		
Driller/Helper: Jeremy	**Drill Rig:** Auger		
Drilling Method: Auger	**Type of Bit:** 6"		
Sampler Type: Split Spoon/cuttings		**Solid Riser:** 0-7.5	
G.W. Encountered: 3	**G.W. Stabilized:** 7	**Well Depth:** 12.5	**Screen Interval/Screen Type:** 7.5-12.5
Depth to Rim:	**Borehole Diameter:** 6	**Well Diameter:** 4	**Grout:** 0-7 **Sand Pack/Open Borehole:** 7-12.5

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	SOIL/GEOLOGICAL DESCRIPTION
1			5 6 5 6	12"		QP & URBAN FILL
2						
3			6 7 5 6	3"		FILL & Brown SILTY SANDS with Gravel
4						
5			2 2 4 4	16"		15" PEAT 1" ORGANIC Brown-Grey SILT
6						
7			4 9 10 10	24"		Brown-Grey ORGANIC Fine SAND & SILT
8						
9			1 1 3 3	10"		Brown-Grey ORGANIC Fine SAND with Trace Silt
10						
11			3 5 5 7	16"		14" Brown-Grey Fine SAND with Trace Silt 2" Brown Fine SAND
12						
13						**Well set at 12.5 fbgs**
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						

WELL CONSTRUCTION DIAGRAM (N.T.S)



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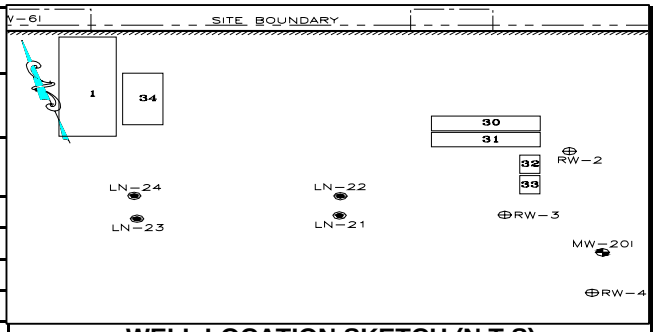
EWMA Job #:	207266
Well #:	LN-23
Start Date:	04/28/10

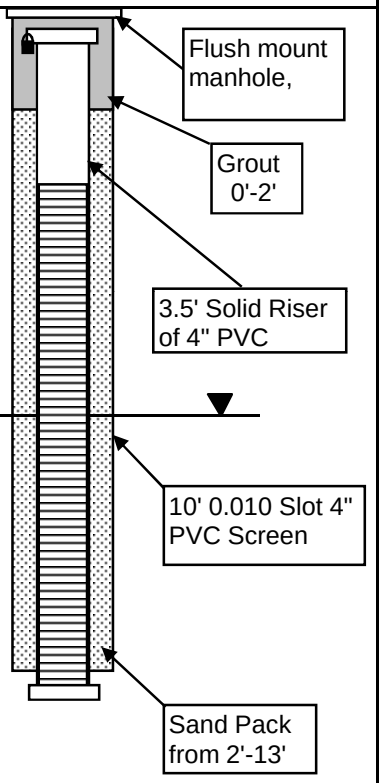


WELL LOCATION SKETCH (N.T.S)

Site: OCA - LIC	**Well Permit #:**		
	Completion Date: 04/28/10		
Geologist: Dan Dirocco	**Drilling Co.:** Summit		
Driller/Helper: Jeremy	**Drill Rig:** Auger		
Drilling Method: Auger	**Type of Bit:** 6"		
Sampler Type: Split Spoon/cuttings		**Solid Riser:** 0-15.5	
G.W. Encountered: 3	**G.W. Stabilized:** 7	**Well Depth:** 20.5	**Screen Interval/Screen Type:** 15.5-20.5'
Depth to Rim:	**Borehole Diameter:** 6	**Well Diameter:** 4	**Grout:** 0-15 **Sand Pack/Open Borehole:** 15-20.5

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	SOIL/GEOLOGICAL DESCRIPTION
1			3 5 9 12	11"		10" QP 1" FILL
3			23 9 8 7	16"		Brown SILTY SAND & GRAVEL
5			11 9 5 5	NR		SAA Residue
7			4 3 3 4	12"		10" PEAT 2" Brown-Grey CLAYEY SILT
9			3 5 7 9	19"		3" Brown-Grey CLAYEY SILT 16" Brown-Grey Fine SAND with Trace Silt (moist)
11			6 7 10 9	12"		Brown-Grey Fine SAND with Trace Silt (moist)
13			7 4 3 3	11"		Brown-Grey Fine SAND with Some Silt
15			6 7 7 9	21"		Brown-Grey Fine SAND with Trace Silt
17			2 2 4 4	19"		Brown-Grey Fine SAND with Trace Silt
19			28 20 19 26	24"		Brown-Grey Medium-Fine SAND with Trace Silt Rock at bottom
21						Well set at 20.5 fbgs
22						
23						
24						

WELL CONSTRUCTION DIAGRAM (N.T.S)



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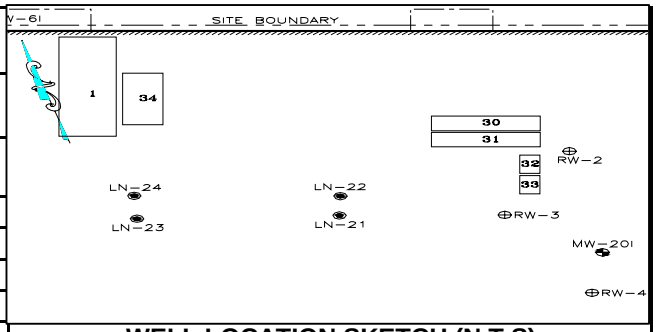
EWMA Job #:	207266
Well #:	LN-24
Start Date:	04/28/10

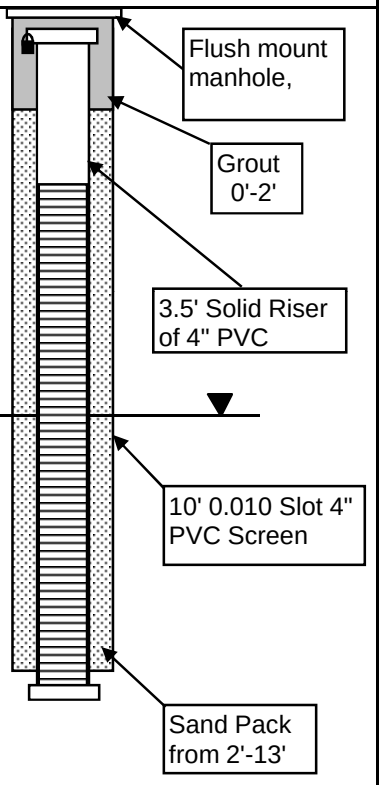


WELL LOCATION SKETCH (N.T.S)

Site: OCA - LIC	**Well Permit #:**		
	Completion Date: 04/28/10		
Geologist: Dan Dirocco	**Drilling Co.:** Summit		
Driller/Helper: Jeremy	**Drill Rig:** Auger		
Drilling Method: Auger	**Type of Bit:** 6"		
Sampler Type: Split Spoon/cuttings		**Solid Riser:** 0-8.5	
G.W. Encountered: 3	**G.W. Stabilized:** 7	**Well Depth:** 13.5	**Screen Interval/Screen Type:** 8.5-13.5'
Depth to Rim:	**Borehole Diameter:** 6	**Well Diameter:** 4	**Grout:** 0-8 **Sand Pack/Open Borehole:** 8-13.5

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	SOIL/GEOLOGICAL DESCRIPTION
1			3 5 9			10" QP 1" FILL
2			12	11"		
3			23 9 8			Brown SILTY SAND & GRAVEL
4			7	16"		
5			11 9 5			SAA Residue
6			5	NR		
7			4 3 3			10" PEAT 2" Brown-Grey CLAYEY SILT
8			4	12"		
9			3 5 7			3" Brown-Grey CLAYEY SILT 16" Brown-Grey Fine SAND with Trace Silt (moist)
10			9	19"		
11			6 7 10			Brown-Grey Fine SAND with Trace Silt (moist)
12			9	12"		
13			7 4 3			Brown-Grey Fine SAND with Some Silt
14			3	11"		
15			6 7 7			Brown-Grey Fine SAND with Trace Silt
16			9	21"		
17			2 2 4			Brown-Grey Fine SAND with Trace Silt
18			4	19"		
19			28 20 19			Brown-Grey Medium-Fine SAND with Trace Silt Rock at bottom
20			26	24"		
21						
22						
23						
24						

WELL CONSTRUCTION DIAGRAM (N.T.S)



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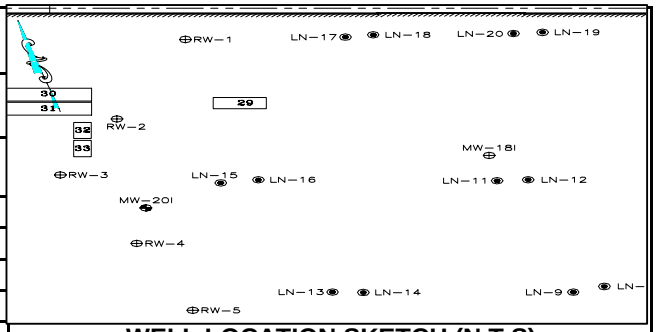
EWMA Job #:	207266
Well #:	RW-1
Start Date:	07/13/10



WELL LOCATION SKETCH (N.T.S)

Site: OCA - LIC		**Well Permit #:**	
		Completion Date:	07/15/10
Geologist: Dan Dirocco		**Drilling Co.:**	Summit
Driller/Helper: Jeremy		**Drill Rig:**	Auger
Drilling Method: Auger		**Type of Bit:**	6"
Sampler Type: Split Spoon/cuttings			
G.W. Encountered: 3	**G.W. Stabilized:** 7	**Well Depth:**	15
Depth to Rim:	**Borehole Diameter:** 10	**Well Diameter:**	6

Solid Riser: 0-9.5
Screen Interval/Screen Type: 9.5-415
Grout: 0-9
Sand Pack/Open Borehole: 9-15

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	SOIL/GEOLOGICAL DESCRIPTION	DEPTH (FT.)
1			6 7 6 6	8"		QP & URBAN FILL	1
2							2
3			6 10 4 5	14"		8" silty SAND & GRAVEL (wet) 6" PEAT	3
4							4
5			3 4 7 10	24"		9" Backfill from above 15" PEAT ~8" & Grey-Brown Very Fine SANDY SILT (wet) (Petro-like Odors)	5
6							6
7			9 12 11 9	8"		Grey-Brown Very Fine SAND & SILT (wet)	7
8							8
9			13 11 13 18	NR		No Recovery (Petro Odors & Sheen)	9
10							10
11			7 4 3 5	9"		2" Grey-Brown Fine SAND with Silt (moist) 7" Brown Silty CLAY, Organic Bottom bottom 1" Clayey Silt	11
12							12
13							13
14							14
15							15
16						**Well set at 15 feet bgs**	16
17							17
18							18
19							19
20							20
21							21
22							22
23							23
24							24

WELL CONSTRUCTION DIAGRAM (N.T.S)

Environmental Waste Management Associates, LLC
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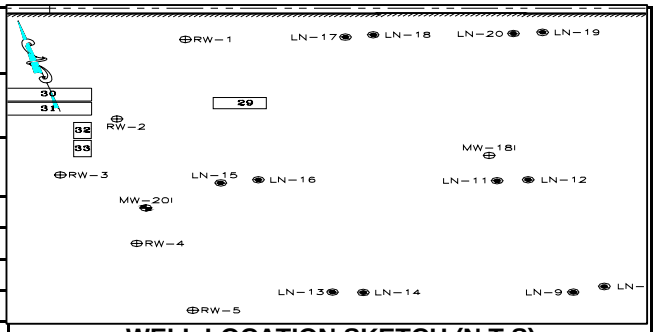
Phone: (973) 560-1400 Fax:(973) 560-0400

EWMA Job #:	207266
Well #:	RW-2
Start Date:	07/13/10



WELL LOCATION SKETCH (N.T.S)

Site: OCA - LIC		**Well Permit #:**	
		Completion Date:	07/15/10
Geologist: Dan Dirocco		**Drilling Co.:**	Summit
Driller/Helper: Jeremy		**Drill Rig:**	Auger
Drilling Method: Auger		**Type of Bit:**	6"
Sampler Type: Split Spoon/cuttings			
G.W. Encountered: 3	**G.W. Stabilized:** 6	**Well Depth:**	15
Depth to Rim:	**Borehole Diameter:** 10	**Well Diameter:**	6

Solid Riser: 0-8
Screen Interval/Screen Type: 8-15
Grout: 0-7.5
Sand Pack/Open Borehole: 7.5-15

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	SOIL/GEOLOGICAL DESCRIPTION
1			6 7 6 6	8"		QP & URBAN FILL
2						
3			6 10 4 5	14"		8" SILTY SAND & GRAVEL (wet) 6" PEAT
4						
5			3 4 7 10	24"		9" Backfill from above 15" PEAT ~8" & Grey-Brown Very Fine SANDY SILT (wet) (Petro Odors)
6						
7			9 12 11 9	8"		Grey-Brown Very Fine SAND & SILT (wet)
8						
9			13 11 13 18	NR		No Recovery (Petro Odors & Sheen)
10						
11			7 4 3 5	9"		2" Grey-Brown Fine SAND with Silt (moist) 7" Brown Silty CLAY, Organic Bottom bottom 1" Clayey Silt
12						
13						
14						
15						**Well set at 15 feet bgs**
16						
17						
18						
19						
20						
21						
22						
23						
24						

WELL CONSTRUCTION DIAGRAM (N.T.S)

Environmental Waste Management Associates, LLC
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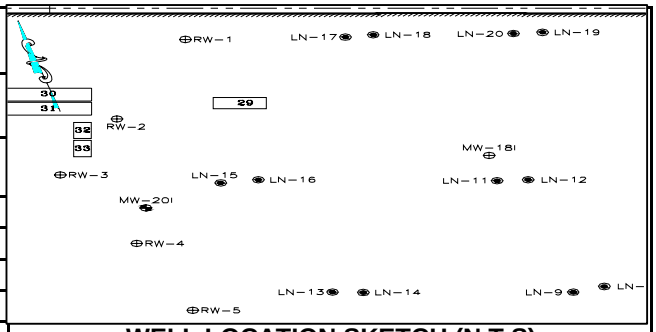
Phone: (973) 560-1400 Fax:(973) 560-0400

EWMA Job #:	207266
Well #:	RW-3
Start Date:	07/14/10



WELL LOCATION SKETCH (N.T.S)

Site: OCA - LIC		**Well Permit #:**	
		Completion Date:	07/15/10
Geologist: Dan Dirocco		**Drilling Co.:**	Summit
Driller/Helper: Jeremy		**Drill Rig:**	Auger
Drilling Method: Auger		**Type of Bit:**	6"
Sampler Type: Split Spoon/cuttings			
G.W. Encountered: 3	**G.W. Stabilized:** 6	**Well Depth:**	15
Depth to Rim:	**Borehole Diameter:** 10	**Well Diameter:**	6

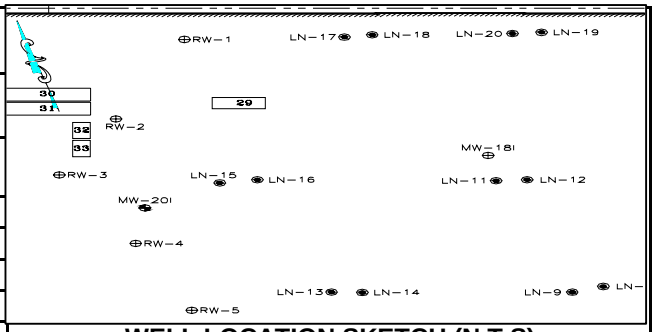
Solid Riser: 0-10
Screen Interval/Screen Type: 10-15
Grout: 0-9.5 **Sand Pack/Open Borehole:** 9.5-15

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	SOIL/GEOLOGICAL DESCRIPTION
1			11	2"		QP & FILL
2			13			
			6			
			5			
3			3	17"		5" Urban FILL, Brown-Grey Silty Sand with Gravel
			2			2" Dark Grey-Brown ORGANIC CLAYEY SILT
4			2			10" PEAT
			3			
5			5	0"		Brown Fine SAND (wet)
			1			
6			2			
			4			
7			11	9"		Brown Fine SAND & SILT (wet)
			11			
8			10			
			12			
9			7	3"		Brown Fine SAND with Trace Silt
			5			
10			6			
			8			
11			3	20"		9" Brown Fine SAND with Trace Silt
			4			11" Dark Brown-Green CLAYEY SILT
			4			
12			7			
13						
14						
15						**Well set at 15 feet bgs**
16						
17						
18						
19						
20						
21						
22						
23						
24						

WELL CONSTRUCTION DIAGRAM (N.T.S)

Environmental Waste Management Associates, LLC
PO Box 5430, Parsippany, NJ, 07054
Phone: (973) 560-1400 Fax:(973) 560-0400

EWMA Job #:	207266
Well #:	RW_4
Start Date:	07/15/10



WELL LOCATION SKETCH (N.T.S)

Site: OCA - LIC		**Well Permit #:**	
		Completion Date:	07/15/10
Geologist: Dan Dirocco		**Drilling Co.:**	Summit
Driller/Helper: Jeremy		**Drill Rig:**	Auger
Drilling Method: Auger		**Type of Bit:**	6"
Sampler Type: Split Spoon/cuttings			
G.W. Encountered: 3	**G.W. Stabilized:** 6	**Well Depth:**	15
Depth to Rim:	**Borehole Diameter:** 10	**Well Diameter:**	6

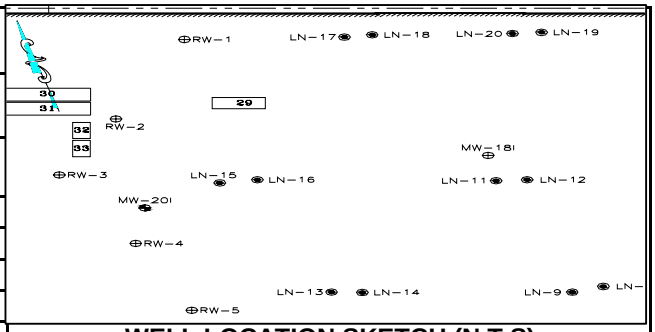
Solid Riser: 0-10
Screen Interval/Screen Type: 10-15
Grout: 0-9.5 **Sand Pack/Open Borehole:** 9.5-15

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	SOIL/GEOLOGICAL DESCRIPTION
1			11 13 6 5	2"		QP & FILL
2						
3			3 2 2 3	17"		5" Urban FILL, Brown-Grey Silty Sand with Gravel 2" Dark Grey-Brown ORGANIC CLAYEY SILT 10" PEAT
4						
5			5 1 2 4	0"		Brown Fine SAND (wet)
6						
7			11 11 10 12	9"		Brown Fine SAND & SILT (wet)
8						
9			7 5 6 8	3"		Brown Fine SAND with Trace Silt
10						
11			3 4 4 7	20"		9" Brown Fine SAND with Trace Silt 11" Dark Brown-Green CLAYEY SILT
12						
13						
14						
15						**Well set at 15 feet bgs**
16						
17						
18						
19						
20						
21						
22						
23						
24						

WELL CONSTRUCTION DIAGRAM (N.T.S)

Environmental Waste Management Associates, LLC
PO Box 5430, Parsippany, NJ, 07054
Phone: (973) 560-1400 Fax:(973) 560-0400

EWMA Job #:	207266
Well #:	RW-5
Start Date:	07/15/10



WELL LOCATION SKETCH (N.T.S)

Site: OCA - LIC		**Well Permit #:**	
		Completion Date:	07/15/10
Geologist: Dan Dirocco		**Drilling Co.:**	Summit
Driller/Helper: Jeremy		**Drill Rig:**	Auger
Drilling Method: Auger		**Type of Bit:**	6"
Sampler Type: Split Spoon/cuttings			
G.W. Encountered: 3	**G.W. Stabilized:** 6	**Well Depth:**	15
Depth to Rim:	**Borehole Diameter:** 10	**Well Diameter:**	6

Solid Riser: 0-10
Screen Interval/Screen Type: 10-15
Grout: 0-9.5 **Sand Pack/Open Borehole:** 9.5-15

DEPTH (FT.)	SAMPLE ID AND DEPTH	PID/FID/OUA (METER UNITS)	BLOWS/6.0	RECOVERY (INCHES)	SOIL TYPE	SOIL/GEOLOGICAL DESCRIPTION
1			5 6 5 6	12"		QP & URBAN FILL
3			6 7 5 6	3"		FILL & Brown SILTY SANDS with Gravel
5			2 2 4 4	16"		15" PEAT 1" ORGANIC Brown-Grey SILT
7			4 9 10 10	24"		Brown-Grey ORGANIC Fine SAND & SILT
9			1 1 3 3	10"		Brown-Grey ORGANIC Fine SAND with Trace Silt
11			3 5 5 7	16"		14" Brown-Grey Fine SAND with Trace Silt 2" Brown Fine SAND
15						**Well set at 15 feet bgs**

WELL CONSTRUCTION DIAGRAM (N.T.S)