



DEPARTMENT OF THE NAVY  
NAVAL FACILITIES ENGINEERING COMMAND, MID-ATLANTIC  
9742 MARYLAND AVENUE  
NORFOLK, VA 23511-3095

IN REPLY REFER TO:

5090  
Code OPNEEV4/SWC  
24 June 2008

**MEMORANDUM**

**FOR THE MEMBERS OF THE RESTORATION ADVISORY BOARD (RAB) FOR THE  
INSTALLATION RESTORATION PROGRAM AT NAVAL WEAPONS INDUSTRIAL  
RESERVE PLANT (NWIRP) BETHPAGE, NEW YORK**

The Navy would like to announce that a Restoration Advisory Board (RAB) meeting has been scheduled for Wednesday, July 30, 2008. This meeting is open to the general public and will begin at 7:00 PM. The location of the meeting is:

Bethpage Community Center  
103 Grumman Road West

Items that will be discussed during this meeting will include:

- Site 1 Soil Vapor Study
- Offsite Groundwater Investigation
- GM-38 Construction Status

Attached are the minutes from the April 16, 2008 meeting for your review. The Navy requests that you review the meeting minutes and provide comments that you have to wither myself or to the RAB Community Co-Chair, Mr. Jim McBride. These minutes will be discussed and approved at the July 30th meeting. If you need additional information, I am available by telephone, 757-444-0781, or email, [lora.fly@navy.mil](mailto:lora.fly@navy.mil).

Sincerely,

A handwritten signature in cursive script, appearing to read "Lora B. Fly".

LORA B. FLY  
Remedial Project Manager  
By direction of the Commanding Officer

Enclosures: (1) RAB Minutes from the 4/16/08 Meeting

**RESTORATION ADVISORY BOARD MEETING  
NAVAL WEAPONS INDUSTRIAL RESERVE PLANT (NWIRP), BETHPAGE  
BETHPAGE, NEW YORK  
WEDNESDAY, APRIL 16, 2008**

The twentieth meeting of the Restoration Advisory Board (RAB) was held at the Bethpage Community Center. Meeting attendees included representatives from the Navy (Lora Fly and Nina Johnson), New York State Department of Environmental Conservation (Steven Scharf), Town of Bethpage (Anthony Sabino, Matthew Russo, John Sullivan, and Rich Pfaender), RAB community member (Rosemary Styne, Charles Bevilacqua, and Jim McBride), Tetra Tech Inc. (David Brayack, Tim Smith, Tom Riley, Stavros Patselas, John Scaramuzza, and Ed Urbanek), ECOR Solutions, Inc. (Al Taormina), and ARCADIS (David Stern). Six Bethpage residents also attended the meeting. The meeting sign-in sheet is provided as Attachment 1.

**WELCOME AND AGENDA REVIEW**

The Navy representative, Ms. Lora Fly, welcomed everyone to the RAB meeting and introduced herself as Susan Clarke's replacement. Ms. Fly then introduced the meeting agenda. The agenda for the meeting is included as Attachment 2. The presentations for the meeting are included as Attachment 3.

**COMMUNITY UPDATE AND REVIEW AND APPROVAL OF MEETING MINUTES**

Ms. Fly asked whether the RAB members received the November 2007 minutes, which were distributed in March 2008, and asked whether there were questions or comments on the minutes. There were no questions or comments. Ms. Fly then asked if the RAB members could approve the November 2007 meeting minutes along with the outstanding meeting minutes of August 2007, April 2007, November 2006, August 2006, and March 2006. The RAB motioned to approve these meeting minutes, the motion was seconded, and the meeting minutes from November 2007, August 2007, April 2007, November 2006, August 2006, and March 2006 were approved.

**BETHPAGE PROPERTY TRANSFER AND LEASE**

Ms. Fly opened the Technical Progress portion of the meeting with information on the Transfer of property to Nassau County. The property transfer included 96 acres of land with groundwater

use restrictions, dig restriction, and residential development restrictions. The Navy retained 9 acres that includes Site 1, Site 4 and an access road between these sites. As part of the transfer agreement, the Navy retains access rights to access Sites 1 and 4.

### **SITE 1 SOIL VAPOR RESULTS**

Mr. Dave Brayack (Tetra Tech) described the sites that were retained within the 9 acres that were not transferred to Nassau County (pages 7 through 10 of presentation 1). Mr. Brayack continued with a discussion on the Site 1 Soil Gas Investigation conducted in January 2008. The purpose of the investigation was to determine whether there was a potential for offsite migration of soil vapors at Site 1. The investigation included the collection of 23 soil gas and soil vapor samples from 10 sampling locations (4 soil gas samples and 19 soil vapor samples) along the Navy property line. The results found elevated levels of volatile organic compounds at all 10 sampling locations. Mr. Brayack indicated that the term elevated meant that concentrations of constituents exceeded the indoor air guidance numbers for that compound. Mr. Brayack indicated that the results would be provided in an upcoming data report to be published in the near future. A general discussion was held on the need to perform indoor air sampling within residential homes east of Site 1. The conclusion of the discussions indicated that the next step was to collect soil gas samples beyond the Navy property line. If elevated VOC levels were found in the soil at these locations, the need for indoor air samples would be evaluated. Mr. Steve Scharf with the New York State Department of Environmental Conservation indicated that the state conducted a similar indoor air study and found no indoor air issues.

### **SITE 1 DEMOLITION ACTIVITIES**

Mr. Dave Brayack (Tetra Tech) described the proposed demolition activities scheduled for Site 1 (page 12 of presentation 1). There were no comments of concerns raised over the proposed activities.

### **SITE 4 / AOC 22 STATUS**

Mr. Dave Brayack (Tetra Tech) described status of Site 4. The site status review included a summary of historic investigation and pilot studies. Currently Number 6 fuel oil remains at depth (at the water table), but there is no evidence of groundwater being impacted by the tar like fuel oil material. The Navy and the New York Department of Environmental Conservation met in

March of 2008 to discuss options to address the site. Currently in-situ heating with free product recovery and in-situ bioremediation are being evaluated to address deep fuel oil material. A general conversation was held on performing additional pilot studies and the conversation concluded with the indication that evaluations were continuing and the RAB would be kept up to date. A question was asked concerning the volume of Number 6 Fuel Oil currently at the groundwater table and if that volume was quantified. Mr. Brayack indicated that history and existing data indicates that the equivalent of approximately 20,000 gallons of Number 6 Fuel Oil remains in the ground at Site 4.

### **OFFSITE GROUNDWATER INVESTIGATION**

Mr. Dave Brayack (Tetra Tech) discussed the progress on the offsite groundwater investigation (page 14 of presentation 1). A Technical Assistance Committee (TAC) met in March 2008 to discuss the offsite groundwater investigation and the Navy is currently awaiting feedback. Currently the Navy is preparing a Work Plan and arranging property access agreements for well installation. The investigation is scheduled to begin Summer/Fall 2008. General conversation was held regarding the spread of groundwater contamination, and the proposed sampling program. Specifically, the Navy was asked if the current groundwater contaminant concentrations within the Navy property line were known, and if PCBs were in the analytical parameter list for the offsite groundwater investigation. Mr. Brayack indicated that the latest groundwater sampling indicates that TCE is present at approximately 20 parts per billion which is down from 20,000 parts per billion. Mr. Scharf of the NYSDEC indicated that VOCs in groundwater that were not treated by the air sparge system are being captured by a groundwater containment system. Mr. Scharf also indicated that PCBs were not on the analytical parameter list for the offsite groundwater monitoring program. Conversation concluded with the community request to reconsider the inclusion of PCBs within the offsite groundwater investigation analytical analysis list.

### **GM-38 CONSTRUCTION STATUS**

Mr. Stavros Patselas (Tetra Tech) presented the GM-38 Area Groundwater Remediation Project (Attachment 3, presentation 2). The presentation included discussions on the treatment system design, well installations, construction, and schedule. The purpose of the treatment system is to remove volatile organic compounds from the groundwater. The primary treatment process will

be air stripping of pumped groundwater. Secondary treatment for the pumped groundwater will be carbon polishing before discharging the treated water into injection wells. Vapor from the air stripping process will be treated with carbon prior to venting to the atmosphere. Currently the proposed system will include a treatment building, 3 recovery wells, 4 injection well, 12 monitoring wells, and associated piping. Mobilization for system construction is scheduled for Spring 2008, and construction will continue through winter 2008-2009. Plant start-up is scheduled for Spring 2009, and operations are expected to last 10 years. Following the presentation, general conversation was held on the construction and operations of the groundwater treatment system and associated infrastructure. Specifically questions were asked on the following subjects;

- The Bethpage Water Authority was concerned with the use of pumping well 2 and its impact on the Bethpage Water Authority pumping wells.
- The community had concerns over the look of the treatment building and the landscaping around the building.
- The community wanted to know why the project was delayed from its original schedule.
- The community wanted to know more about the operations of the plant once it was up and running.

Mr. Patselas indicated that Well No 2 would not be used since updated modeling results indicated that the operation of the well may affect the Water Authorities drinking water system. Mr. Patselas continued by indicating that the building would be hidden as best as possible with landscaping and that the building plans have been approved by the Town of Bethpage. Mr. Patselas also indicated that the operation and construction delays were the result of acquiring access agreement and that the system would be an automated system that calls a technician when problems arise.

Following the a general conversation and question period, the Town of Bethpage requested that the Navy provide the Bethpage Fire Department with a copy of the Site Health and Safety Plan. Mr. Patselas indicated that Tetra Tech could provide the Fire Department with the requested information.

## **CLOSING REMARKS**

Ms. Fly thanked everyone for coming to the meeting and asked if there were any general questions. One general question was raised concerning the railroad ties in the area and if it was known if the railroad ties contribute contamination to the groundwater. The Bethpage Water Authority answered by indicating that to their knowledge there are no issues with the railroad ties.

With no other questions and no RAB member having closing remarks, the meeting was adjourned at approximately 8:20 pm.



**ATTACHMENT 1**

**APRIL 16, 2008 RAB MEETING SIGN-IN SHEET**



**20<sup>th</sup> RAB Meeting for NWIRP Bethpage**  
**April 16, 2008**  
**Sign-In List**

Name	Address (if interested in being on mailing list)	Organization	How Did You Hear of Meeting?
Stavros Patselas		TTEC	NAVY
John Scaramuzza		TTEC	"
Ed URBANEK		TTEC	NAVY
Dave Brayock		Tetra Tech.	
Timothy Smith		Tetra Tech	
William BRADY		Resident	mail
Anthony Sabino	Bethpage Water		mail
MATTHEW Russo		TODROW	
Steven Scharf		NYSDEC	the usual
DAVID STERN		ARCADIS	NBC
Adele Steiger			community
Rosemary Styne	Bethpage		RAB member

**20<sup>th</sup> RAB Meeting for NWIRP Bethpage  
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Name	Address (if interested in being on mailing list)	Organization	How Did You Hear of Meeting?
Eugene Maggare	-11 Rensselaer Bethpage NY 11714		From Rosemary + Tribune
JOHN R SULLIVAN		BETHPAGE WATER	-
WARREN SIMON	126 N. HERMANN AVE. BETHPAGE, NY 11714		Please add (or update) to mailing list
S. Spooner	36 N. MILLPAGE DRIVE BETHPAGE, N.Y. 11714		
Arthur Spooner	11		
CHARLES BEVILACQUA		RAB MEMBER	
Jim McBride		RAB	
Rich Pfaender		TAB Supervisors office	
Lena Fly		NAVFAC Midlant	
Vina Johnson		NAVFAC Midlant	
AL TAORMINA		ECOR	
Tom Bily		Tetra Tech NUS	

**ATTACHMENT 2**

**APRIL 16, 2008 RAB MEETING AGENDA**



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## **Agenda**

### **Restoration Advisory Board Naval Weapons Industrial Reserve Plant Bethpage**

**April 16, 2008  
Bethpage Community Center, Bethpage, NY  
7:00 p.m.**

**Welcome and Agenda Review**  
Lora Fly, NAVFAC Mid-Atlantic

**Meeting Minutes**  
All Members

### **Technical Progress**

**Bethpage Property Transfer and Lease**  
Lora Fly, NAVFAC Mid-Atlantic

**Site 1 Soil Vapor Results**  
David Brayack, Tetra Tech

**Site 1 Demolition Activities**  
David Brayack

**Site 4/AOC 22 - Status**  
David Brayack

**Offsite Groundwater Investigation**  
David Brayack

**GM-38 Construction Status**  
Stavros Patselas, Tetra Tech

**Closing Remarks**  
Lora Fly

*Presenters will be available after the program for questions.*

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**ATTACHMENT 3**

**NAVY AND TETRA TECH PRESENTATIONS**





# **Restoration Advisory Board (RAB) Meeting**

**Naval Weapons Industrial Reserve  
Plant (NWIRP) Bethpage  
April 16, 2008**

# AGENDA



## Agenda

Restoration Advisory Board  
Naval Weapons Industrial Reserve Plant Bethpage

April 16, 2008  
Bethpage Community Center, Bethpage, NY  
7:00 p.m.

Welcome and Agenda Review  
Lora Fly, NAVFAC Mid-Atlantic

Meeting Minutes  
All Members

### Technical Progress

Bethpage Property Transfer and Lease  
Lora Fly, NAVFAC Mid-Atlantic

Site 1 Soil Vapor Results  
David Brayack, Tetra Tech

Site 1 Demolition Activities  
David Brayack

Site 4/AOC 22 - Status  
David Brayack

Offsite Groundwater Investigation  
David Brayack

GM-38 Construction Status  
Stavros Patselas, Tetra Tech

Closing Remarks  
Lora Fly

*Presenters will be available after the program for questions.*

# WELCOME AND MEETING MINUTES



- Approvals needed for:
  - November 2006
  - April 2007
  - August 2007
  - November 2007

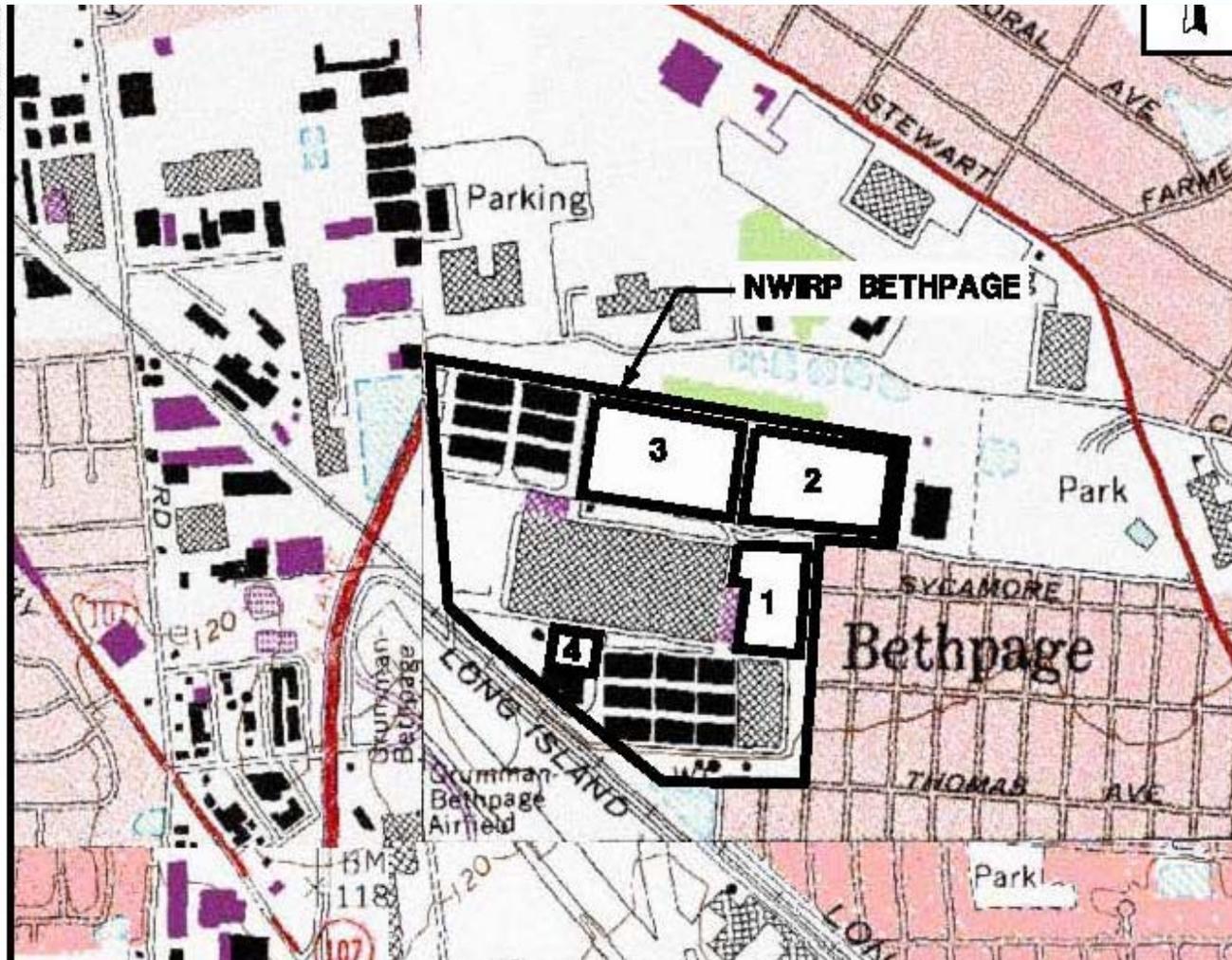
# BETHPAGE PROPERTY TRANSFER



- Property Transfer occurred on April 3, 200
- 96 acres transferred to Nassau County for economic redevelopment.
- 9 acres retained by Navy for environmental cleanup, leased to County for access and limited use (parking and roadways).



# SITE MAP



# SITE 1 SOIL GAS RESULTS



- Site 1 – Former Drum Marshalling Area – wastes from Plant No. 3 were stored prior to offsite disposal (1940s to 1970s).
- Solvents (volatile organic compounds – VOCs) were likely released.
- Solvents in soil and groundwater at Site 1 were treated using air sparging/soil vapor extraction from 1998 to 2001.
- Treatment goal was to eliminate a continuing source of groundwater contamination. System met this goal. Several tons of solvents were removed during treatment and groundwater at site was near cleanup goals (drinking water quality).

# SITE 1 SOIL GAS RESULTS

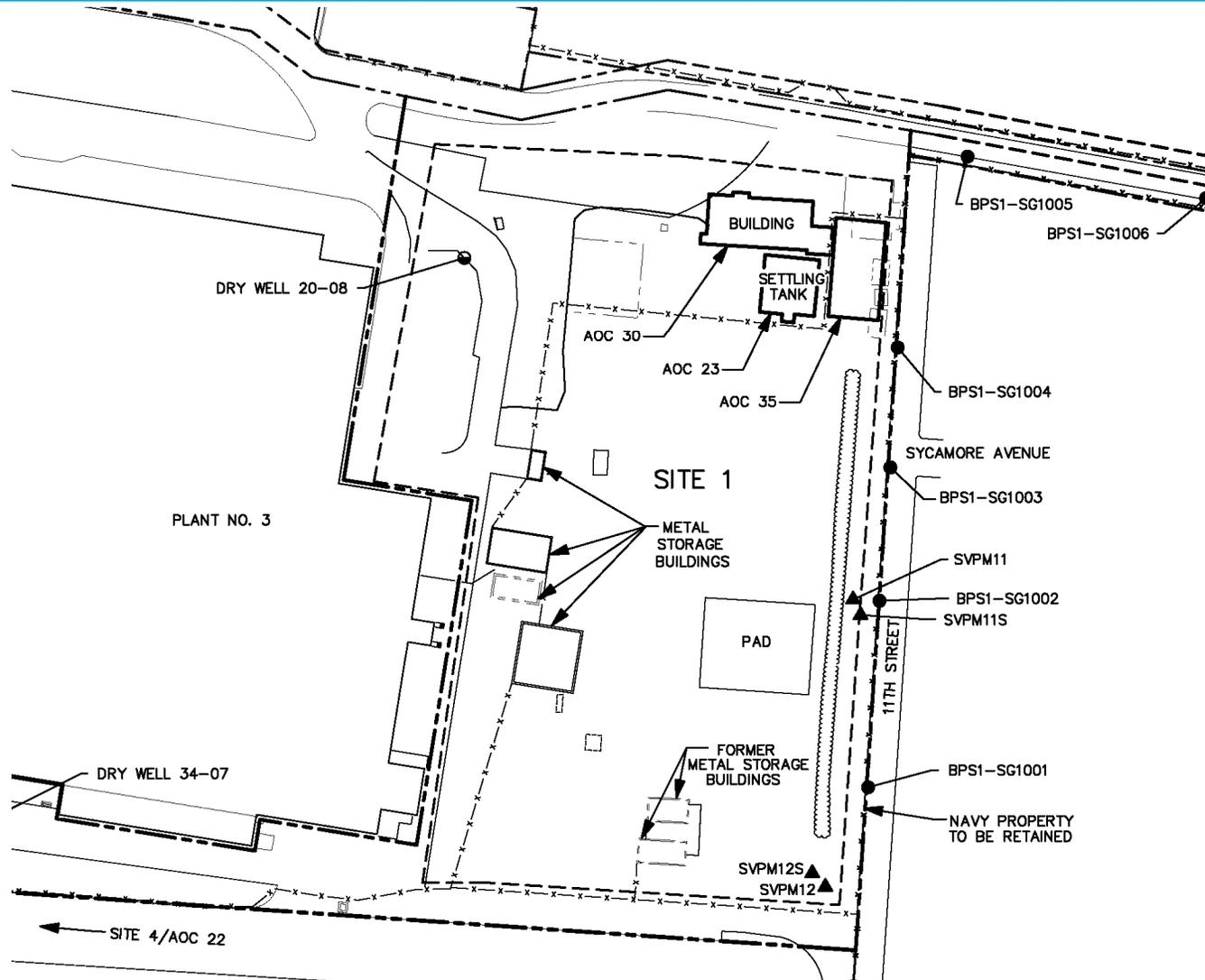


- October 2006 New York State Department of Health issued soil vapor intrusion regulations – identifies soil vapor migration and potential intrusion into buildings as a potential concern.
- January 2008, Navy conducted a soil gas investigation at the eastern fence line of Site 1. Investigation was conducted to determine whether there was a potential for off site migration.
- Results found elevated levels at the fence line.

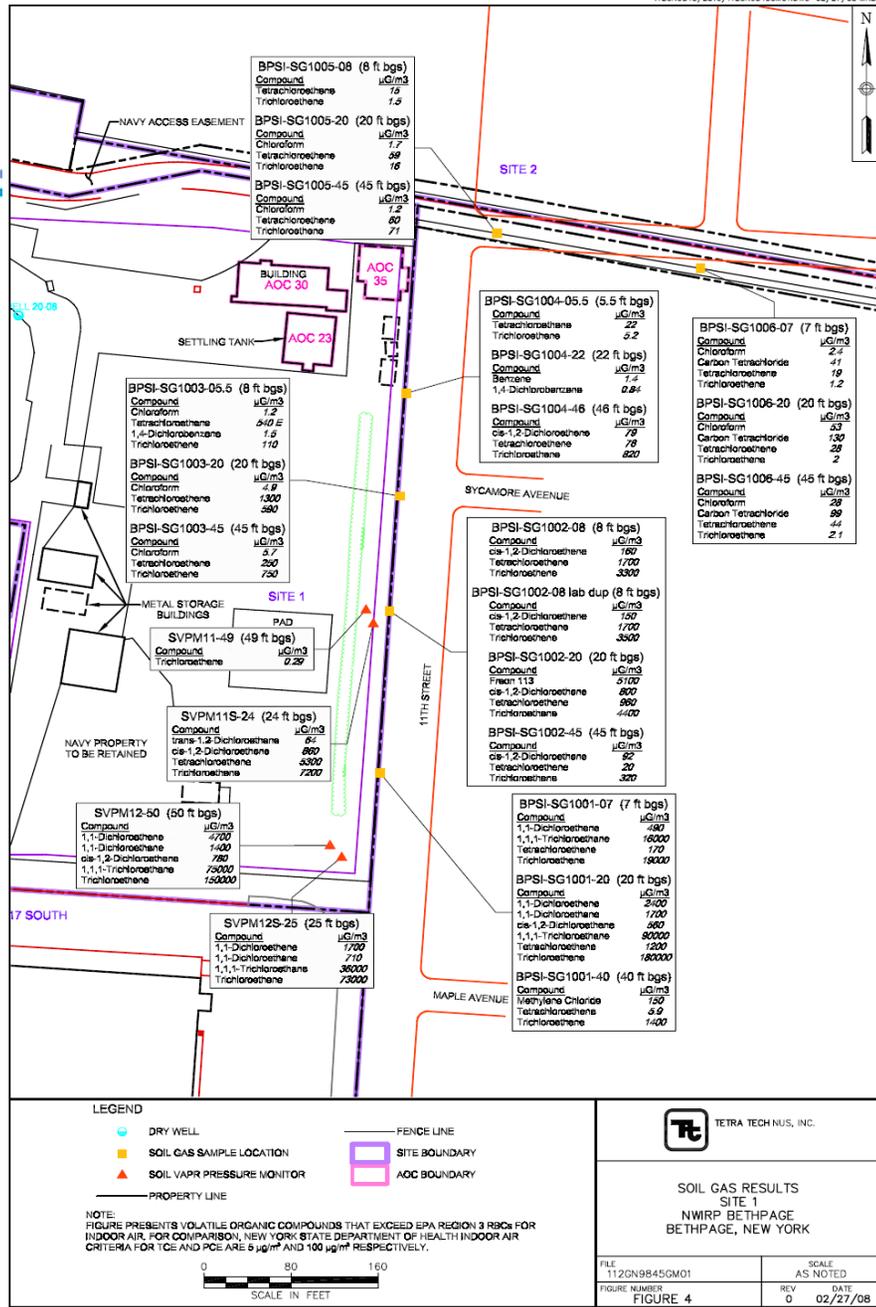
# SITE 1 SOIL GAS RESULTS



# SITE 1 SOIL GAS INVESTIGATION



# SITE 1 SOIL GAS INVESTIGATION





# SITE 4/AOC 22 STATUS



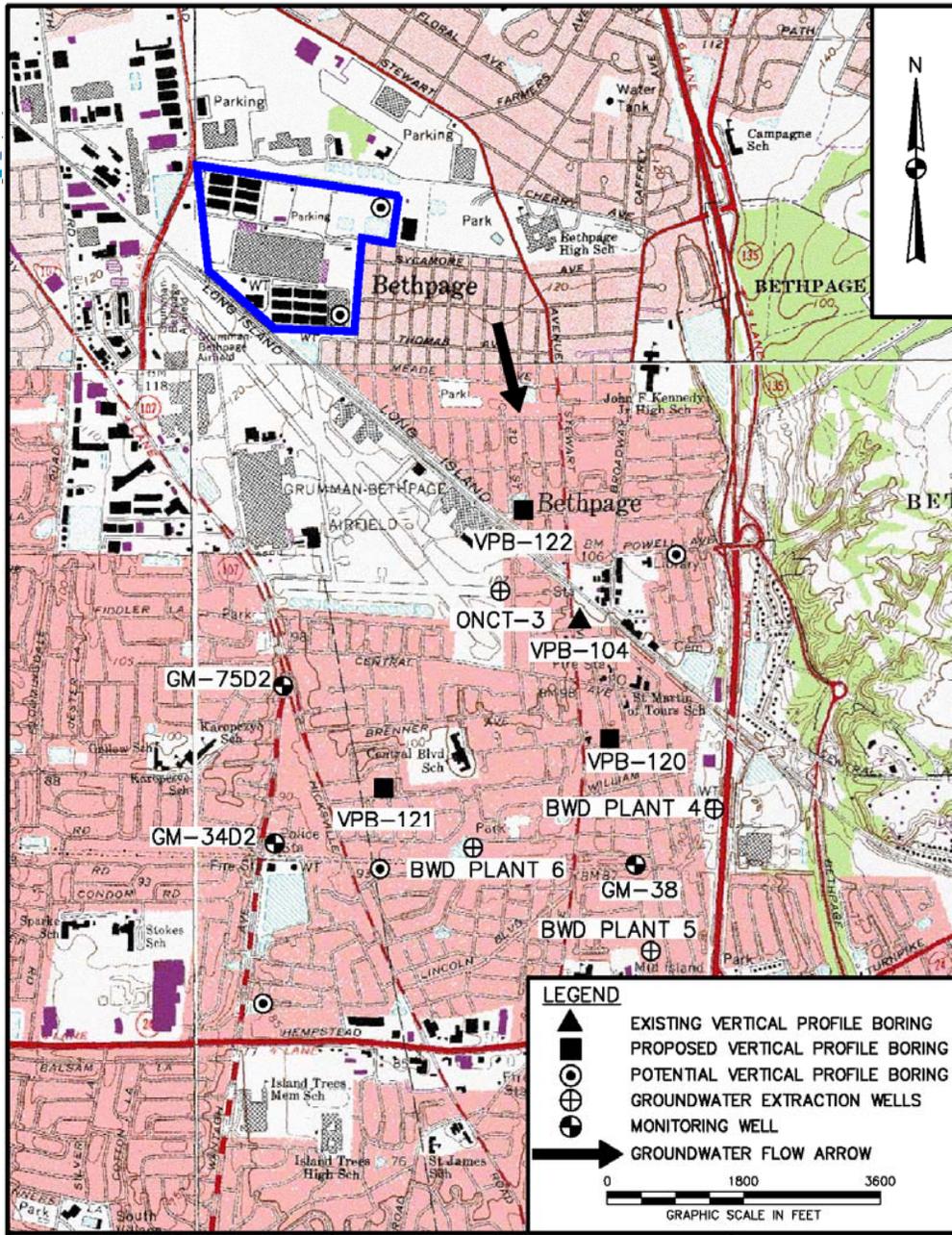
- Pilot scale study completed, tar (No. 6 Fuel Oil) remains at depth at the water table.
- No evidence of groundwater impact.
- Navy/NYSDEC met in March 08 to discuss options for addressing site.
- NYSDEC is suggesting in-situ steam heating with free product recovery.
- Navy is suggesting in-situ bioremediation.
- Evaluations are continuing.

# OFFSITE GROUNDWATER INVESTIGATION



- Met with Technical Assistance Committee (TAC) in March 2008.
- Waiting for feedback on off-site groundwater monitoring needs.
- Prepare Work Plan and arrange property access agreements.
- Start investigations this summer/fall.

# GM-75 PROGRAM







# Groundwater Remediation Project

Naval Weapons Industrial Reserve Plant

Bethpage, NY

GM-38 Area

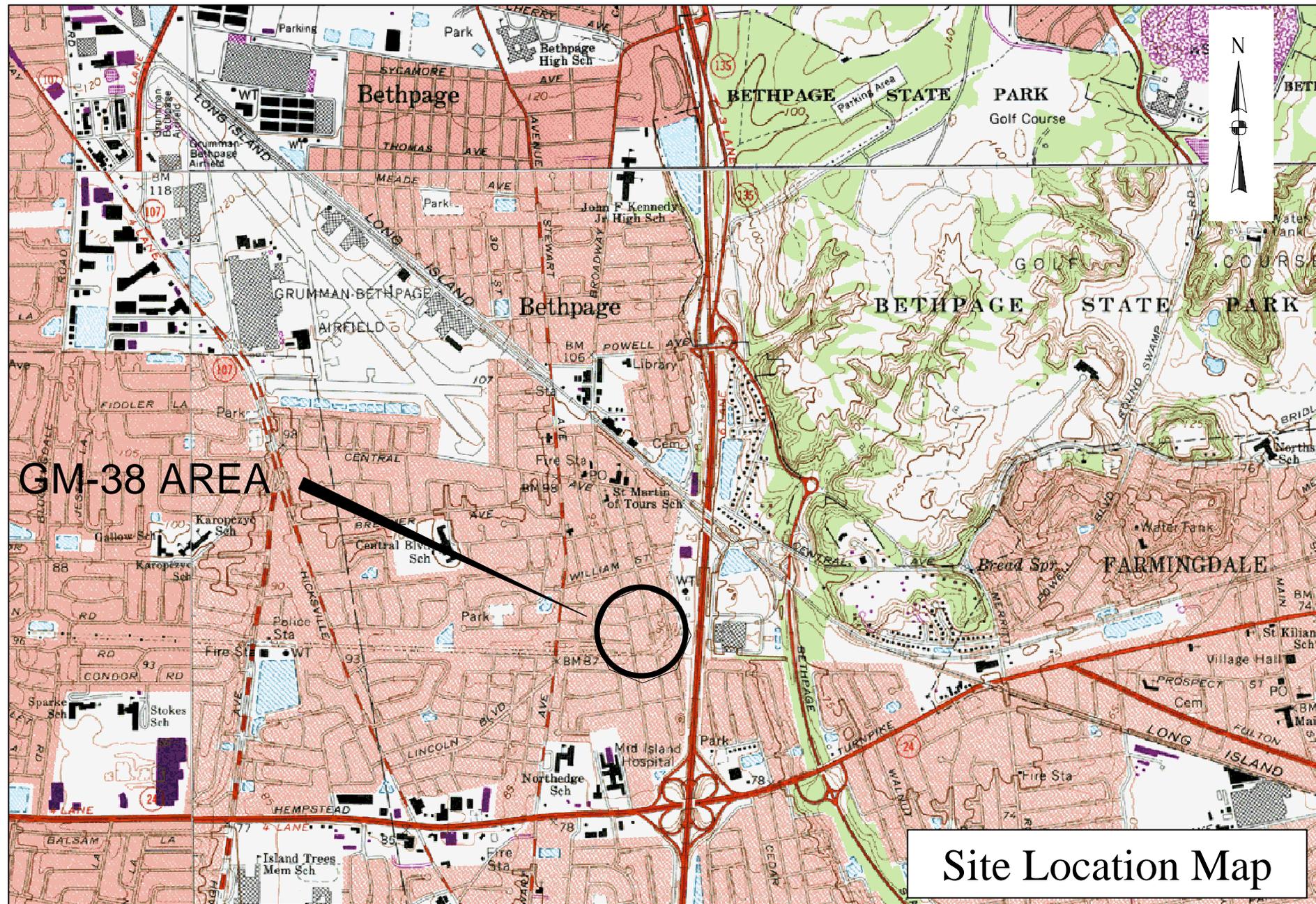
Restoration Advisory Board Meeting

April 16, 2008



TETRA TECH EC, INC.





GM-38 AREA

Site Location Map

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# Groundwater Remediation Project

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- Treatment System Design
- Well Installations
- Construction

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# Groundwater Remediation Project

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- Treatment System Design
- Well Installations
- Construction

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# Treatment System Design

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- Mass Removal of Volatile Organic Compounds (VOC's) from groundwater
- Process Flow Rate = 1,100 gallons per minute (gpm)
- Max. Design Flow Rate = 1,375 gpm
- Pumping from two recovery wells (possibly three in future)

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# Treatment System Design (cont'd)

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- Primary treatment is Air Stripping
- Secondary treatment (polish) is Carbon Media
- Vapors from Air Stripping Treated w/ Carbon Media
- Discharge treated water into injection wells (and possibly an alternate discharge point)

MATCHLINE - SEE DRAWING C-3

N

500 KVA  
TRANSFORMER PAD  
(8' x 8')

13.2kV - 480/277V  
500 KVA  
PADMOUNT  
TRANSFORMER  
(SEE DRAWING E-5)

NEW CHAIN LINK  
FENCE (SEE  
DRAWING C-12)

AIR STRIPPER TOWER  
(10' DIA. BY APPROX.  
40' ABOVE GRADE)

TREATMENT  
PLANT BUILDING (75'x75'x25' HT.)

TERMINATION VAULT  
(SEE NOTE 19)

(3) 2" C#2 CU XLPE  
DIRECT BURIED CABLES  
(MINIMUM DEPTH 30")

2" C - 3#5 & 1#10G  
3" C - 1" IPR #16  
2" C - SPARE  
2" C - IPR #16

RW2-MW-1

RW2-MW-2

NOTE 2

NOTE 3

NOTE 4

LEAK DETECTION  
ACCESS PORT  
(LAP)

TEMPORARY ACCESS ROAD

GEOTEXTILE FABRIC AND  
8 IN. (MIN.) OF COMPRESSED  
CRUSHED MISCELLANEOUS  
BASE

C-6  
D

16" X 16" X 6"  
PULLBOX  
MTD. ON WALL

2" C - 3#2 & 1#8G  
2" C - 2#10 & 1#12G  
2" C - 5PR - #16 } 3-2" C

RW1-MW-1

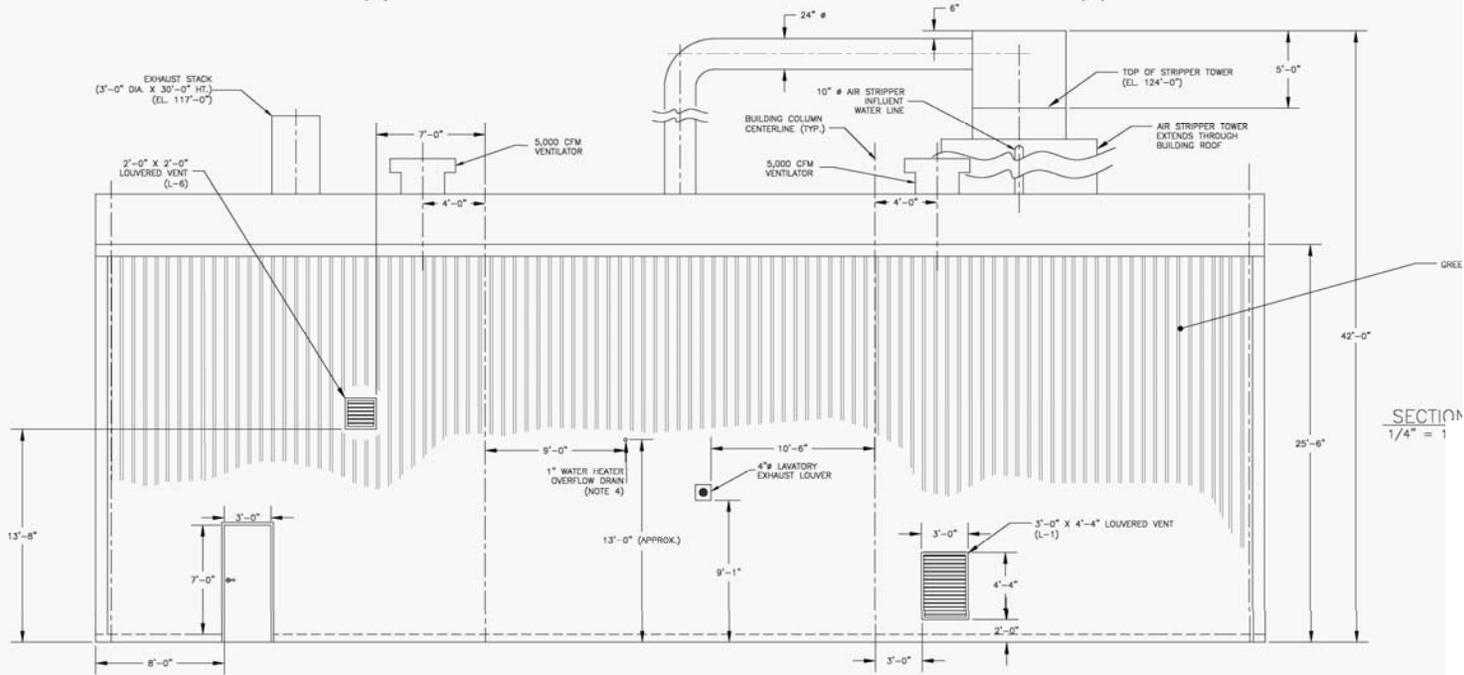
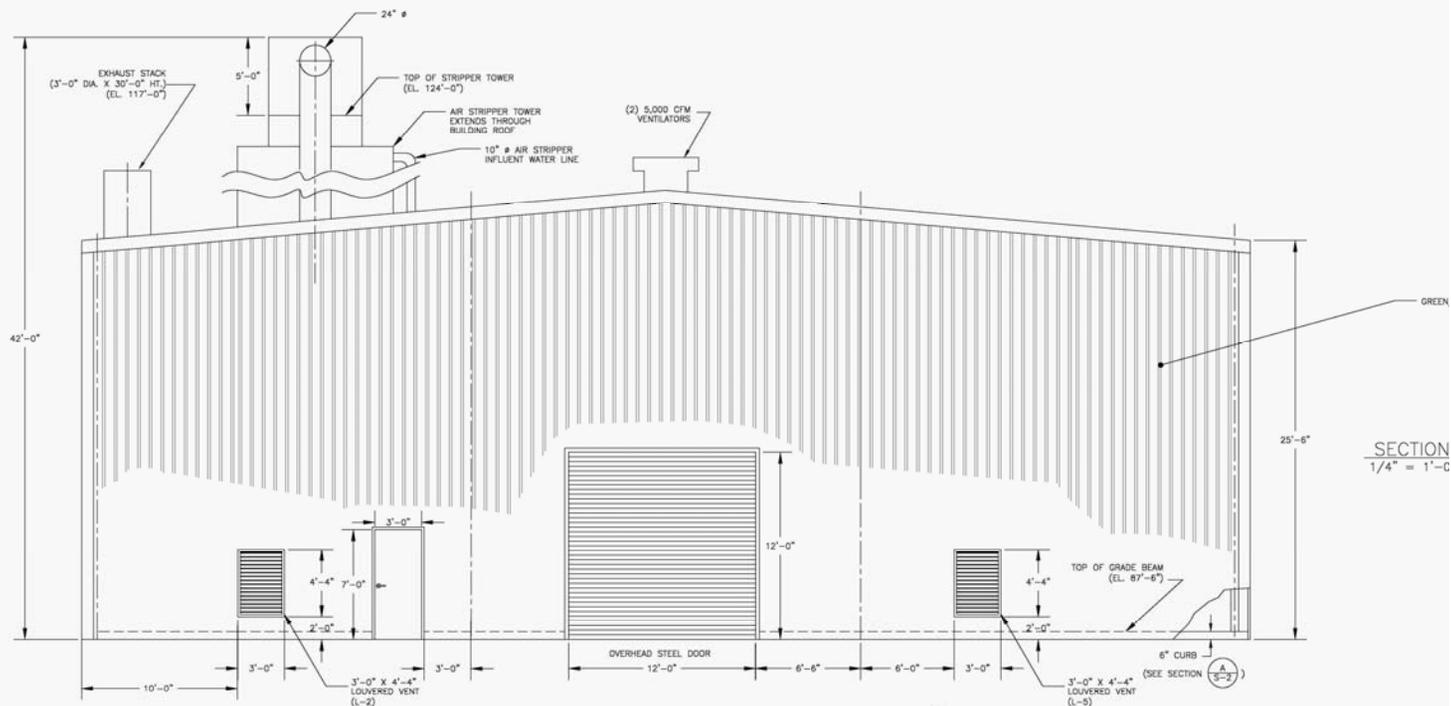
RW1-MW-2

2" C - 3#2 & 1#8G  
2" C - 5PR #16

NOTE 3

MATCHLINE - SEE DRAWING C-5

# Building Location



# Building Views



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# Groundwater Remediation Project

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- Treatment System Design
- Well Installations
- Construction

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# Well Installations

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- Currently installed (Nov 2004 - May 2005)
  - 2 Recovery Wells
  - 1 Injection Well
  - 6 Monitoring Wells
- To be installed during construction
  - 1 Recovery Well (RW-3)
  - 3 Injection Wells (may change)
  - 6 Monitoring Wells (may change)

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# Groundwater Remediation Project

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- Treatment System Design
- Well Installations
- Construction

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# Construction

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- Project Signage and Traffic Controls
- Erosion and Sediment Controls
- Access Roads (construction and permanent)
- Install Building Footers and Foundation
- Trenching to Recovery and Injection Wells
- Utility Tie-in Connections (electric, phone, water, and sanitary sewer)
- Building Floor

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# Construction (cont'd)

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- Set Large Equipment with Crane
- Erect Building Structure
- Interior Piping and Electric
- Install Fire Alarm and Security Systems
- Install and Test Instrumentation
- Test and Balance All Systems
- Site Restoration

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# Esthetic Considerations

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- Excavated soil used to construct berm
- Maintain as many existing trees as possible
- 100 new trees to be planted
- Building exterior to be a natural color
- Exterior building lights are motion activated
- No audible exterior alarms
- Chain link fence with privacy screening

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# Project Status

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- Obtain real estate access agreement from Long Island Railroad
- Obtain all necessary local permits and approvals
- Competitive bidding for all subcontracted work and equipment
- Mobilize and start construction

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# Anticipated Schedule

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<b>Milestones</b>	<b>Date</b>
Project Planning	On-going
Mobilization & Start of Construction	Spring 2008
End of Construction	Winter 2008 - 2009
Plant Start-Up and Shakedown	Spring 2009
Start of Operation & Maintenance	Spring – Summer 2009

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# Wrap-up

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Questions?

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**April 16, 2008**  
**Sign-In List**

Name	Address (if interested in being on mailing list)	Organization	How Did You Hear of Meeting?
Stanros Patselas		TTEC	NAVY
John Scaramuzza		TTEC	"
Ed URBANEK		TTEC	NAVY
Dave Brayock		Tetra Tech.	
Timothy Smith		Tetra Tech	
William BRADY		Resident	mail
Anthony Sabino	Bethpage Water		mail
MATTHEW Russo		TODROW	
Steven Scharf		NYSDEC	the usual
DAVID STERN		ARCADIS	NBC
Adele Steiger			community
Rosemary Styne	Bethpage		RAB member

**20<sup>th</sup> RAB Meeting for NWIRP Bethpage  
 April 16, 2008  
 Sign-In List**

Name	Address (if interested in being on mailing list)	Organization	How Did You Hear of Meeting?
Eugene Maggare	-11 Rensselaer Bethpage NY 11714		From Rosemary + Tribune
JOHN R SULLIVAN		BETHPAGE WATER	-
WARREN SIMON	126 N. HERMANN AVE. BETHPAGE, NY 11714		Please add (or update) to mailing list
S. Spooner	36 N. MILLPAGE DRIVE BETHPAGE, N.Y. 11714		
Arthur Spooner	11		
CHARLES BEVILACQUA		RAB MEMBER	
Jim McBride		RAB	
Rich Pfaender		TOB Supervisors office	
Lena Fly		NAVFAC Midlant	
Vina Johnson		NAVFAC Midlant	
AL TAORMINA		ECOR	
Tom Bily		Tetra Tech NUS	

**ATTACHMENT 2**

**APRIL 16, 2008 RAB MEETING AGENDA**



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## **Agenda**

### **Restoration Advisory Board Naval Weapons Industrial Reserve Plant Bethpage**

**April 16, 2008  
Bethpage Community Center, Bethpage, NY  
7:00 p.m.**

**Welcome and Agenda Review**  
Lora Fly, NAVFAC Mid-Atlantic

**Meeting Minutes**  
All Members

### **Technical Progress**

**Bethpage Property Transfer and Lease**  
Lora Fly, NAVFAC Mid-Atlantic

**Site 1 Soil Vapor Results**  
David Brayack, Tetra Tech

**Site 1 Demolition Activities**  
David Brayack

**Site 4/AOC 22 - Status**  
David Brayack

**Offsite Groundwater Investigation**  
David Brayack

**GM-38 Construction Status**  
Stavros Patselas, Tetra Tech

**Closing Remarks**  
Lora Fly

*Presenters will be available after the program for questions.*

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**ATTACHMENT 3**  
**NAVY AND TETRA TECH PRESENTATIONS**





# **Restoration Advisory Board (RAB) Meeting**

**Naval Weapons Industrial Reserve  
Plant (NWIRP) Bethpage  
April 16, 2008**

# AGENDA



## Agenda

Restoration Advisory Board  
Naval Weapons Industrial Reserve Plant Bethpage

April 16, 2008  
Bethpage Community Center, Bethpage, NY  
7:00 p.m.

Welcome and Agenda Review  
Lora Fly, NAVFAC Mid-Atlantic

Meeting Minutes  
All Members

### Technical Progress

Bethpage Property Transfer and Lease  
Lora Fly, NAVFAC Mid-Atlantic

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David Brayack

Offsite Groundwater Investigation  
David Brayack

GM-38 Construction Status  
Stavros Patselas, Tetra Tech

Closing Remarks  
Lora Fly

*Presenters will be available after the program for questions.*

# WELCOME AND MEETING MINUTES



- Approvals needed for:
  - November 2006
  - April 2007
  - August 2007
  - November 2007

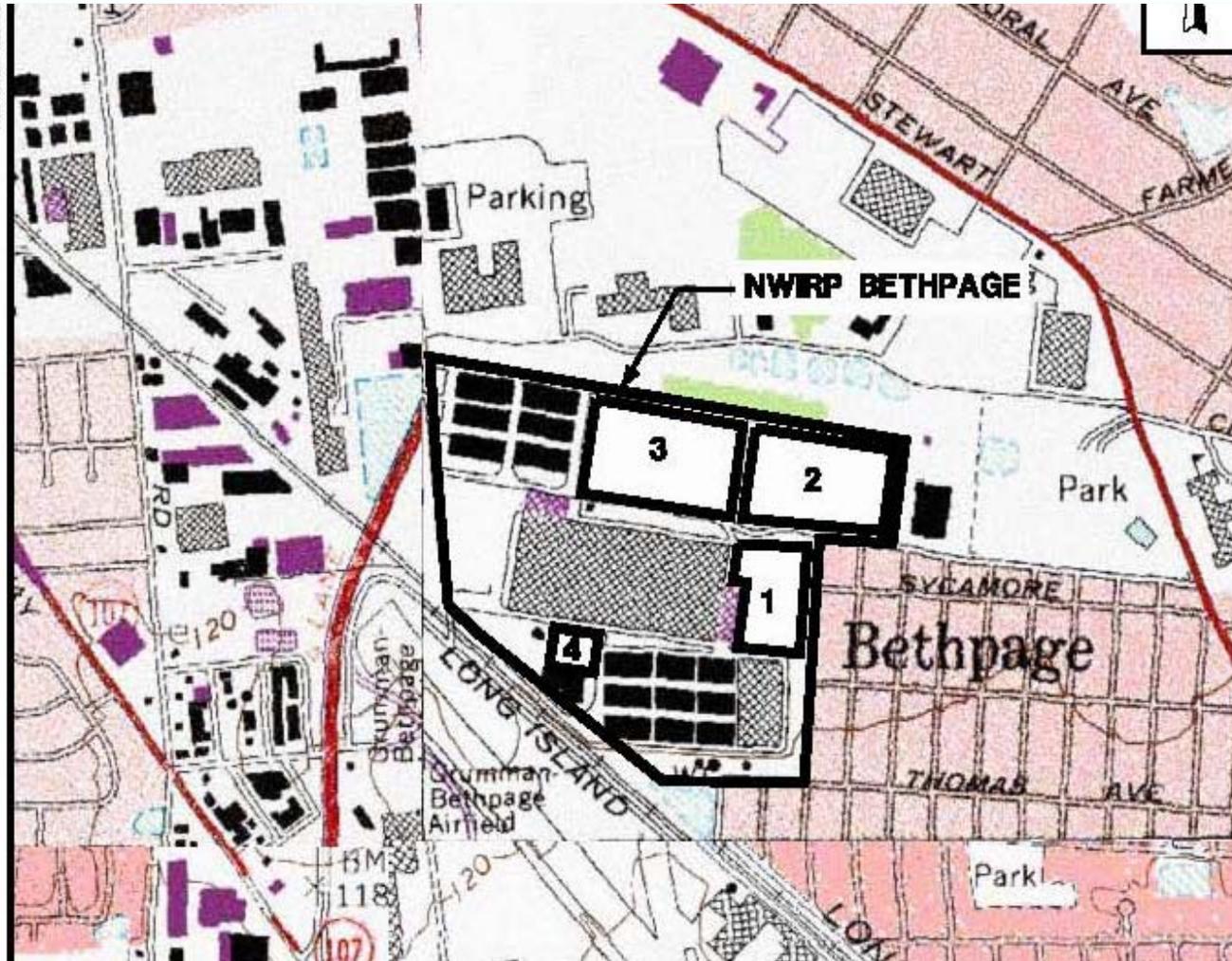
# BETHPAGE PROPERTY TRANSFER



- Property Transfer occurred on April 3, 200
- 96 acres transferred to Nassau County for economic redevelopment.
- 9 acres retained by Navy for environmental cleanup, leased to County for access and limited use (parking and roadways).



# SITE MAP



# SITE 1 SOIL GAS RESULTS



- Site 1 – Former Drum Marshalling Area – wastes from Plant No. 3 were stored prior to offsite disposal (1940s to 1970s).
- Solvents (volatile organic compounds – VOCs) were likely released.
- Solvents in soil and groundwater at Site 1 were treated using air sparging/soil vapor extraction from 1998 to 2001.
- Treatment goal was to eliminate a continuing source of groundwater contamination. System met this goal. Several tons of solvents were removed during treatment and groundwater at site was near cleanup goals (drinking water quality).

# SITE 1 SOIL GAS RESULTS

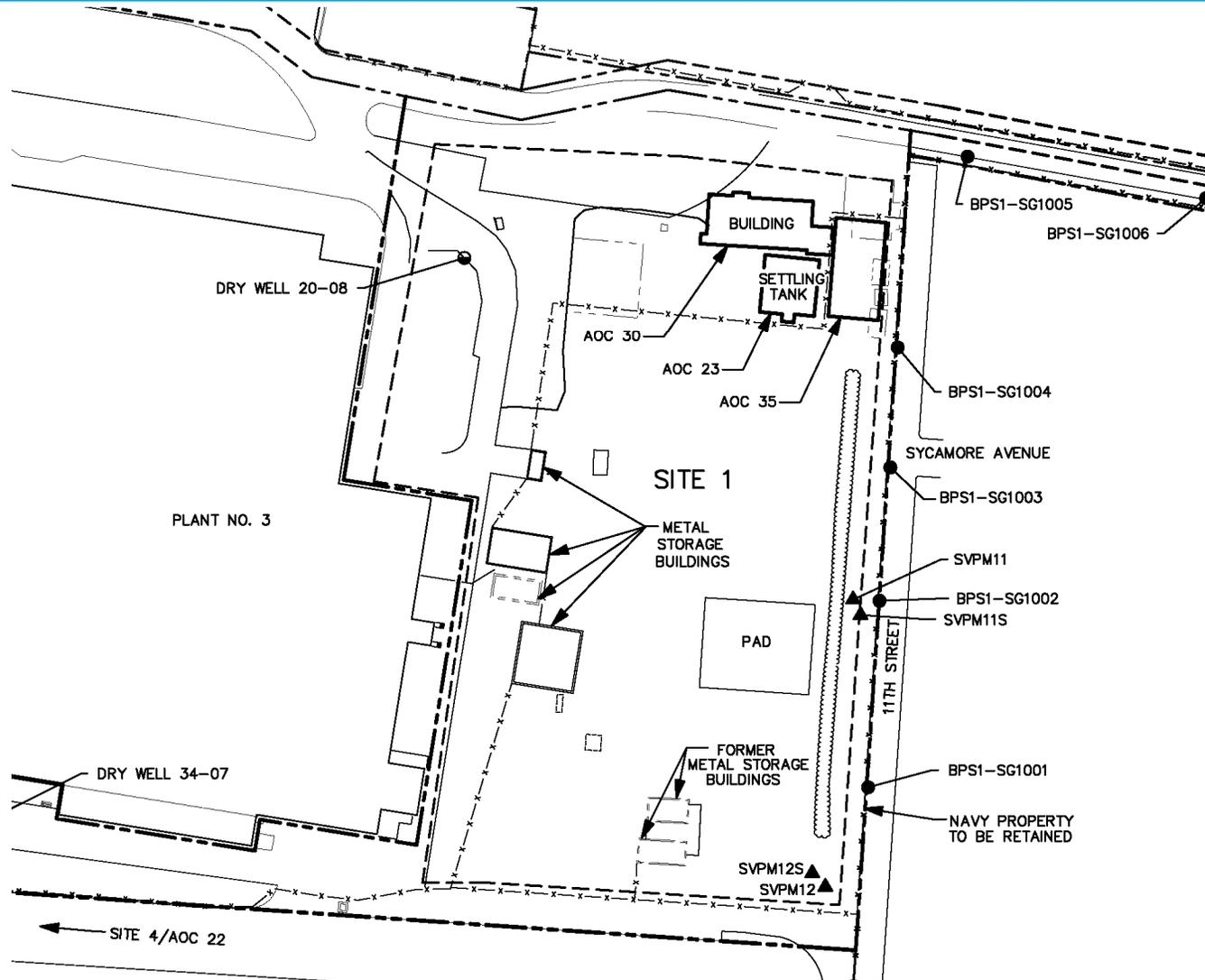


- October 2006 New York State Department of Health issued soil vapor intrusion regulations – identifies soil vapor migration and potential intrusion into buildings as a potential concern.
- January 2008, Navy conducted a soil gas investigation at the eastern fence line of Site 1. Investigation was conducted to determine whether there was a potential for off site migration.
- Results found elevated levels at the fence line.

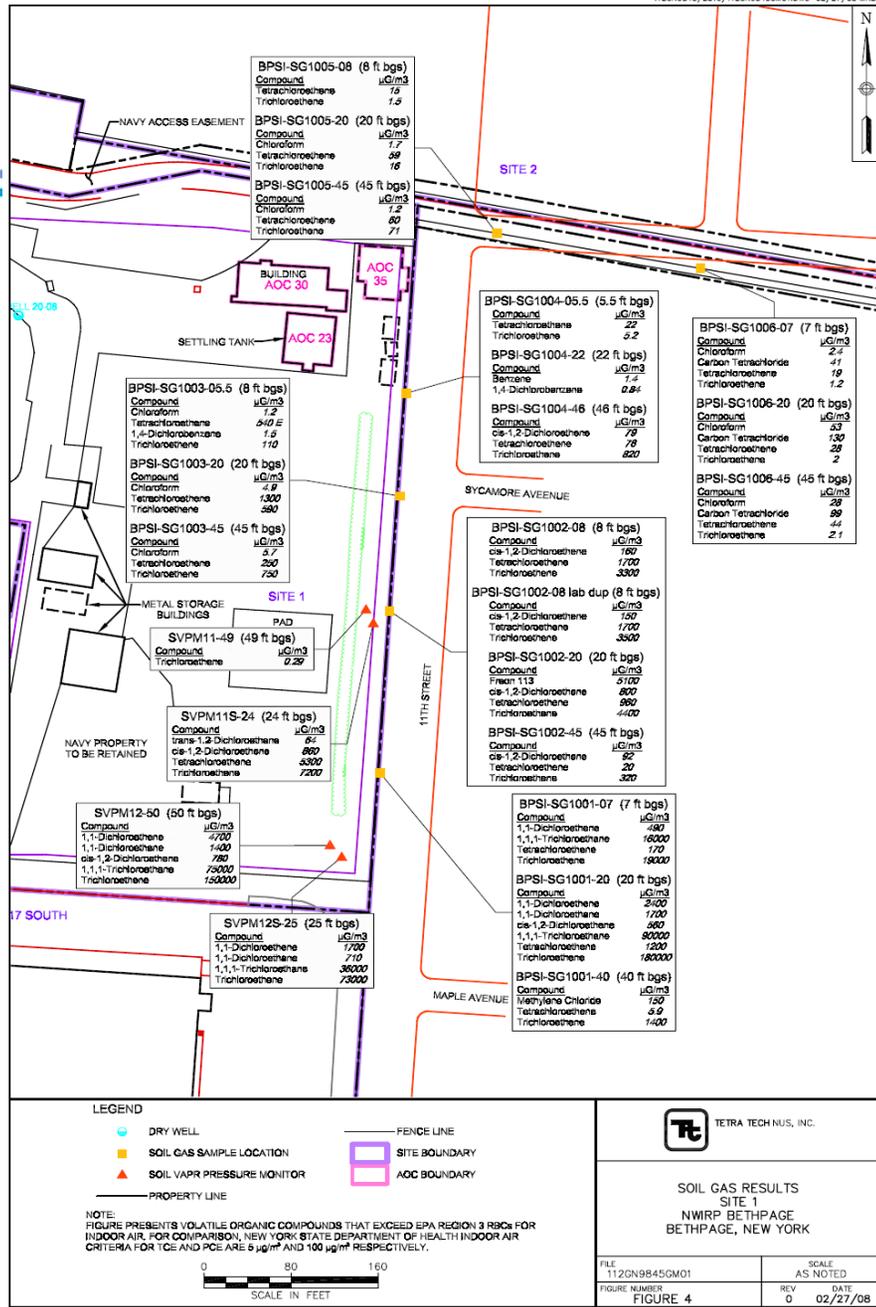
# SITE 1 SOIL GAS RESULTS



# SITE 1 SOIL GAS INVESTIGATION



# SITE 1 SOIL GAS INVESTIGATION





# SITE 4/AOC 22 STATUS



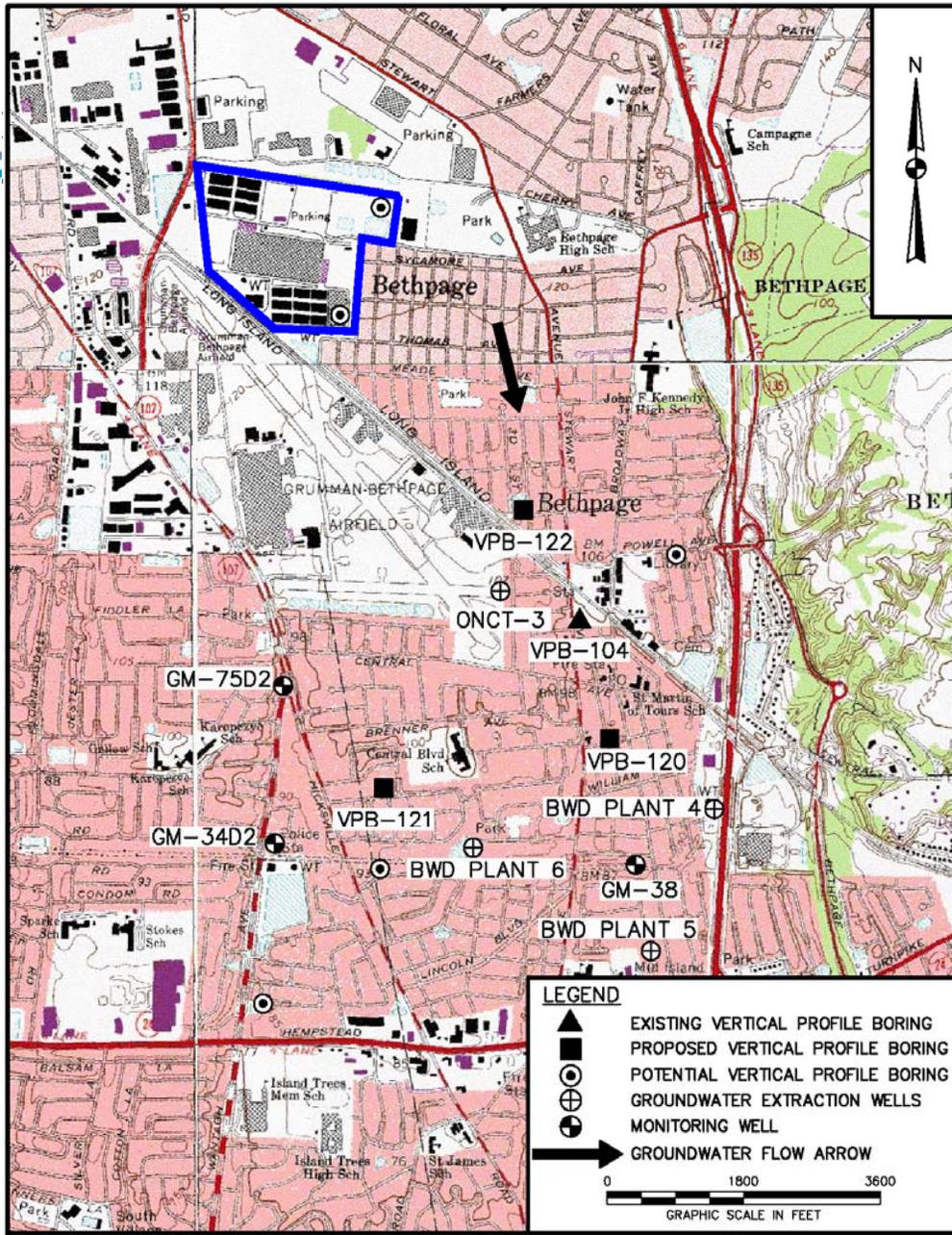
- Pilot scale study completed, tar (No. 6 Fuel Oil) remains at depth at the water table.
- No evidence of groundwater impact.
- Navy/NYSDEC met in March 08 to discuss options for addressing site.
- NYSDEC is suggesting in-situ steam heating with free product recovery.
- Navy is suggesting in-situ biosparging.
- Evaluations are continuing.

# OFFSITE GROUNDWATER INVESTIGATION



- Met with Technical Assistance Committee (TAC) in March 2008.
- Waiting for feedback on off-site groundwater monitoring needs.
- Prepare Work Plan and arrange property access agreements.
- Start investigations this summer/fall.

# GM-75 PROGRAM







# Groundwater Remediation Project

Naval Weapons Industrial Reserve Plant

Bethpage, NY

GM-38 Area

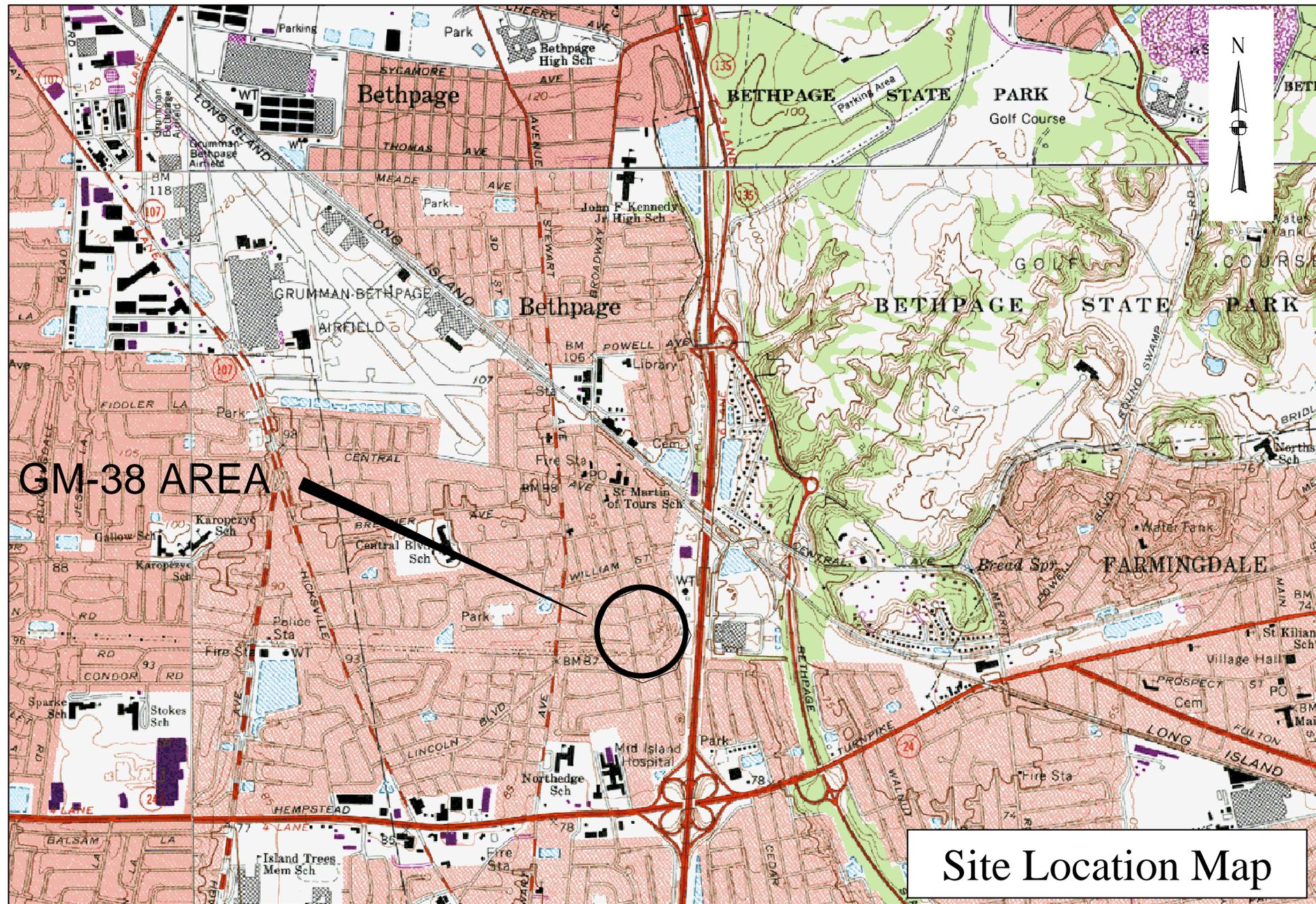
Restoration Advisory Board Meeting

April 16, 2008



TETRA TECH EC, INC.





**GM-38 AREA**

**Site Location Map**

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# Groundwater Remediation Project

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- Treatment System Design
- Well Installations
- Construction

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# Groundwater Remediation Project

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- Treatment System Design
- Well Installations
- Construction

---

# Treatment System Design

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- Mass Removal of Volatile Organic Compounds (VOC's) from groundwater
- Process Flow Rate = 1,100 gallons per minute (gpm)
- Max. Design Flow Rate = 1,375 gpm
- Pumping from two recovery wells (possibly three in future)

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# Treatment System Design (cont'd)

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- Primary treatment is Air Stripping
- Secondary treatment (polish) is Carbon Media
- Vapors from Air Stripping Treated w/ Carbon Media
- Discharge treated water into injection wells (and possibly an alternate discharge point)

MATCHLINE - SEE DRAWING C-3

N

500 KVA  
TRANSFORMER PAD  
(8' x 8')

13.2kV - 480/277V  
500 KVA  
PADMOUNT  
TRANSFORMER  
(SEE DRAWING E-5)

NEW CHAIN LINK  
FENCE (SEE  
DRAWING C-12)

AIR STRIPPER TOWER  
(10' DIA. BY APPROX.  
40' ABOVE GRADE)

TREATMENT  
PLANT BUILDING (75'x75'x25' HT.)

TERMINATION VAULT  
(SEE NOTE 19)

(3) 2" C#2 CU XLPE  
DIRECT BURIED CABLES  
(MINIMUM DEPTH 30")

2" C - 3#5 & 1#10G  
3" C - 1" IPR #16  
2" C - SPARE  
2" C - IPR #16

RW2-MW-1

RW2-MW-2

NOTE 2

NOTE 3

NOTE 4

LEAK DETECTION  
ACCESS PORT  
(LAP)

TEMPORARY ACCESS ROAD

GEOTEXTILE FABRIC AND  
8 IN. (MIN.) OF COMPRESSED  
CRUSHED MISCELLANEOUS  
BASE

C-6  
D

16" X 16" X 6"  
PULLBOX  
MTD. ON WALL

2" C - 3#2 & 1#8G  
2" C - 2#10 & 1#12G } 3-2" C  
2" C - 5PR - #16

RW1-MW-1

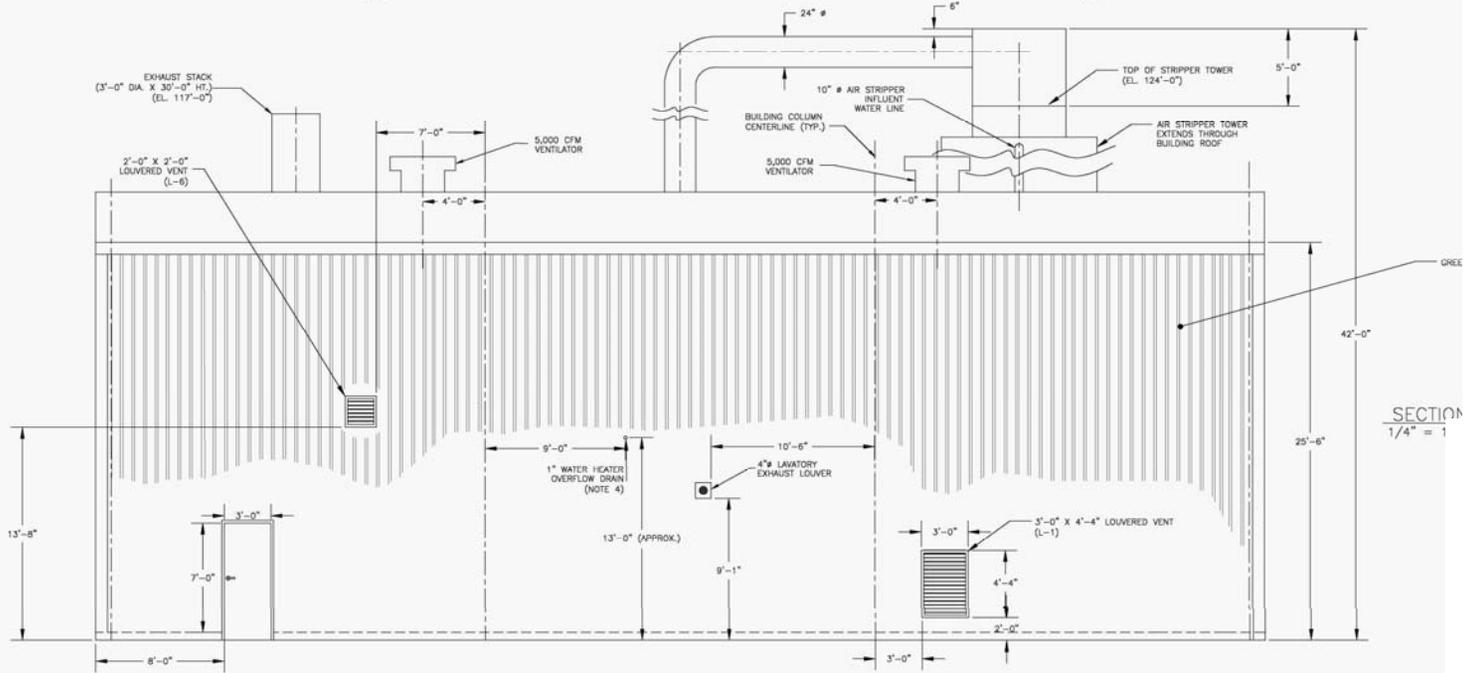
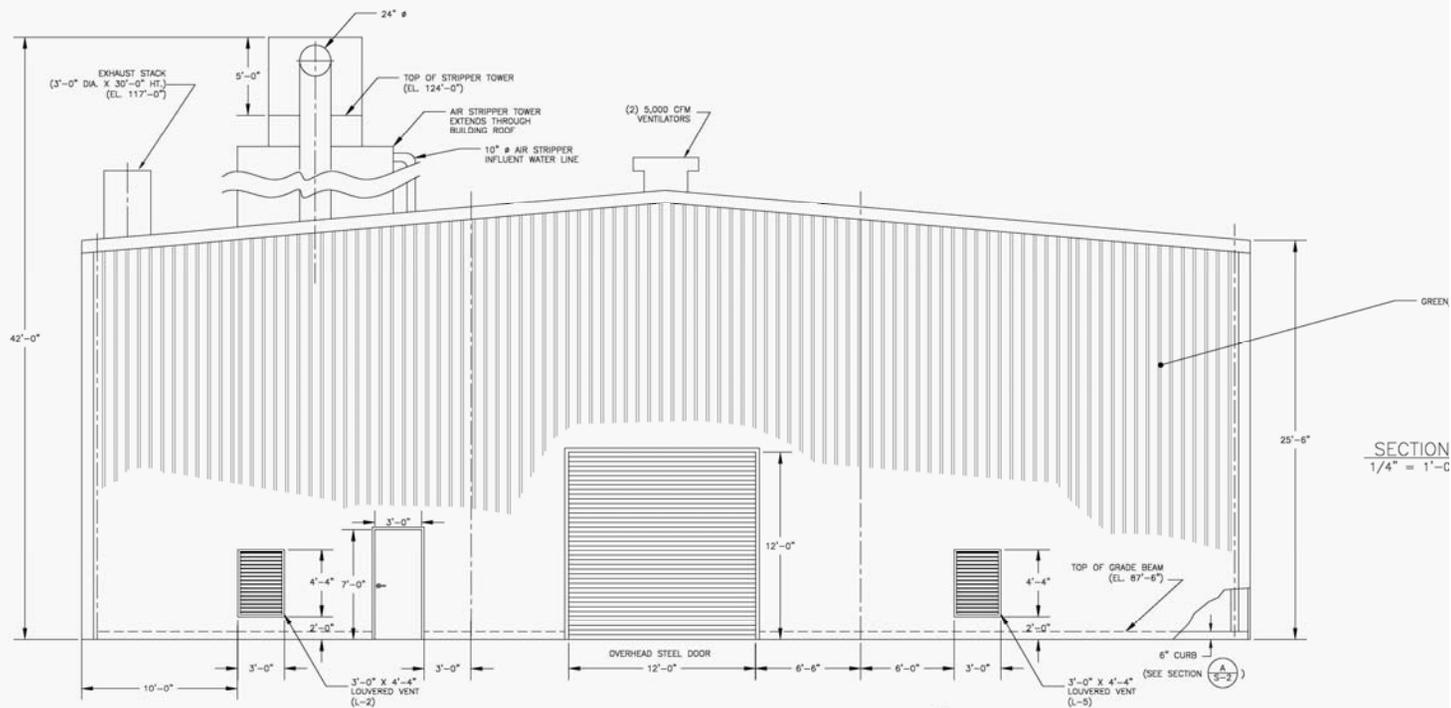
RW1-MW-2

2" C - 3#2 & 1#8G  
2" C - 5PR #16

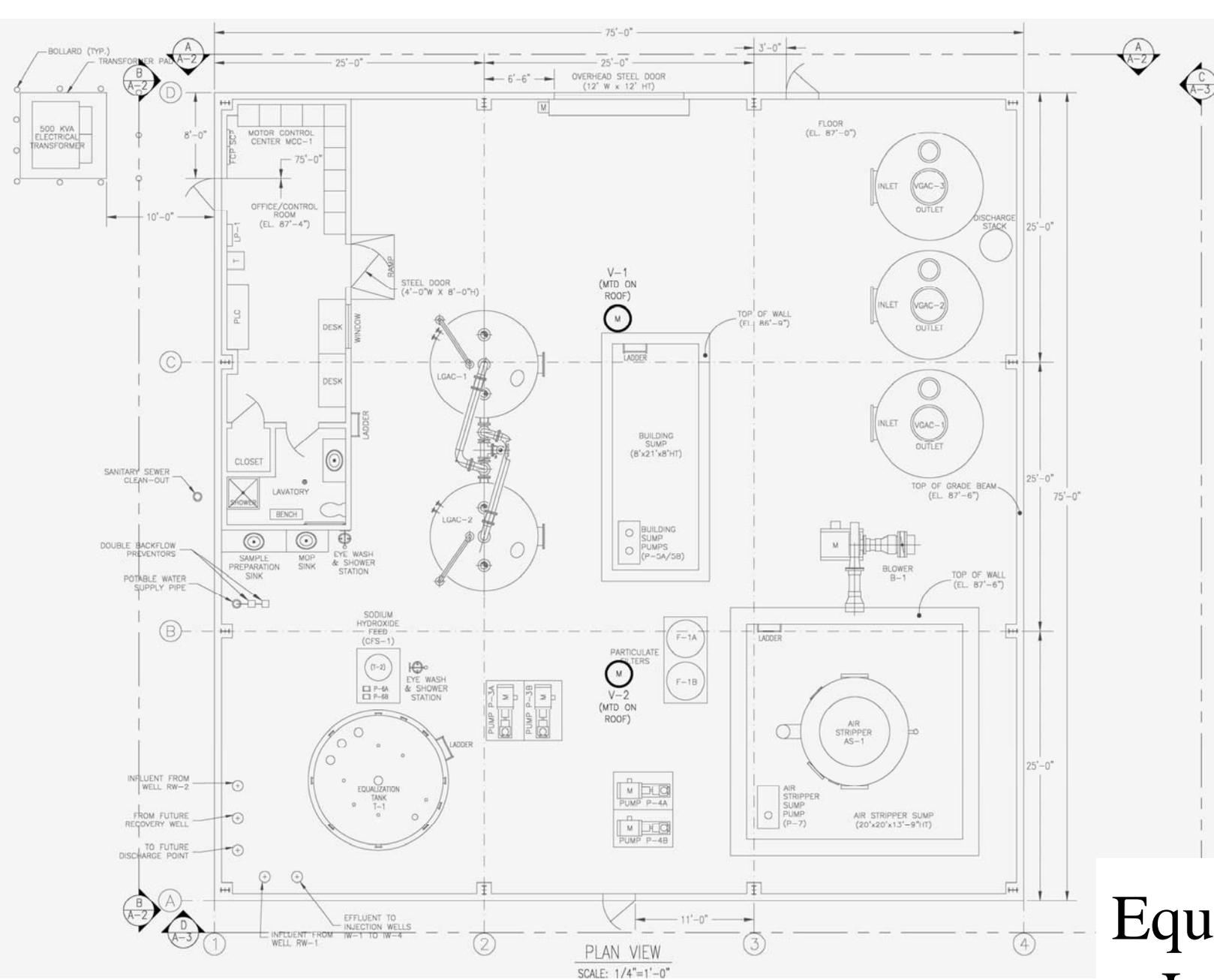
NOTE 3

MATCHLINE - SEE DRAWING C-5

# Building Location



# Building Views



# Equipment Layout

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# Groundwater Remediation Project

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- Treatment System Design
- Well Installations
- Construction

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# Well Installations

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- Currently installed (Nov 2004 - May 2005)
  - 2 Recovery Wells
  - 1 Injection Well
  - 6 Monitoring Wells
- To be installed during construction
  - 1 Recovery Well (RW-3)
  - 3 Injection Wells (may change)
  - 6 Monitoring Wells (may change)

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# Groundwater Remediation Project

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- Treatment System Design
- Well Installations
- Construction

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# Construction

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- Project Signage and Traffic Controls
- Erosion and Sediment Controls
- Access Roads (construction and permanent)
- Install Building Footers and Foundation
- Trenching to Recovery and Injection Wells
- Utility Tie-in Connections (electric, phone, water, and sanitary sewer)
- Building Floor

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# Construction (cont'd)

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- Set Large Equipment with Crane
- Erect Building Structure
- Interior Piping and Electric
- Install Fire Alarm and Security Systems
- Install and Test Instrumentation
- Test and Balance All Systems
- Site Restoration

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# Esthetic Considerations

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- Excavated soil used to construct berm
- Maintain as many existing trees as possible
- 100 new trees to be planted
- Building exterior to be a natural color
- Exterior building lights are motion activated
- No audible exterior alarms
- Chain link fence with privacy screening

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# Project Status

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- Obtain real estate access agreement from Long Island Railroad
- Obtain all necessary local permits and approvals
- Competitive bidding for all subcontracted work and equipment
- Mobilize and start construction

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# Anticipated Schedule

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<b>Milestones</b>	<b>Date</b>
Project Planning	On-going
Mobilization & Start of Construction	Spring 2008
End of Construction	Winter 2008 - 2009
Plant Start-Up and Shakedown	Spring 2009
Start of Operation & Maintenance	Spring – Summer 2009

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# Wrap-up

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Questions?