DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

RCRA Corrective Action
Environmental Indicator (EI) RCRAInfo code (CA750)
Migration of Contaminated Groundwater Under Control

Facility Name: **NWIRP Calverton**
Facility Address: **Grumman Boulevard, Calverton NY 11933**
Facility EPA ID#: **NYD003995198**

1. Has **all** available relevant/significant information on known and reasonably suspected releases to the groundwater media, subject to RCRA Corrective Action (e.g., from Solid Waste Management Units (SWMU), Regulated Units (RU), and Areas of Concern (AOC)), been **considered** in this EI determination?

   X If yes - check here and continue with #2 below.

   _____ If no - re-evaluate existing data, or

   _____ if data are not available, skip to #8 and enter"IN" (more information needed) status code.

BACKGROUND

Definition of Environmental Indicators (for the RCRA Corrective Action)

Environmental Indicators (EI) are measures being used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EI developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

Definition of "Migration of Contaminated Groundwater Under Control" EI

A positive "Migration of Contaminated Groundwater Under Control" EI determination ("YE" status code) indicates that the migration of "contaminated" groundwater has stabilized, and that monitoring will be conducted to confirm that contaminated groundwater remains within the original "area of contaminated groundwater" (for all groundwater "contamination" subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

Relationship of EI to Final Remedies

While Final remedies remain the long-term objective of the RCRA Corrective Action program the EI are near-term objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993, GPRA). The "Migration of Contaminated Groundwater Under Control" EI pertains ONLY to the physical migration (i.e., further spread) of contaminated ground water and contaminants within groundwater (e.g., non-aqueous phase liquids or NAPLs). Achieving this EI does not substitute for achieving other stabilization or final remedy requirements and expectations associated with sources of contamination and the need to restore, wherever practicable, contaminated groundwater to be suitable for its designated current and future uses.

Duration / Applicability of EI Determinations

EI Determinations status codes should remain in RCRAInfo national database ONLY as long as they remain true (i.e., RCRAInfo status codes must be changed when the regulatory authorities become aware of contrary information).

2. Is **groundwater** known or reasonably suspected to be **"contaminated"**[1] above appropriately protective "levels" (i.e., applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action, anywhere at, or from, the facility?

__X__ If yes - continue after identifying key contaminants, citing appropriate "levels," and referencing supporting documentation.

_____ If no - skip to #8 and enter "YE" status code, after citing appropriate "levels," and referencing supporting documentation to demonstrate that groundwater is not "contaminated."

_____ If unknown - skip to #8 and enter "IN" status code.

Rationale:

SITE DESCRIPTION

Location

The Naval Weapons Industrial Reserve Program facility in Calverton, New York (NWIRP Calverton) is located in Suffolk County on Long Island, New York, approximately 70 miles from New York City. The facility originally covered approximately 6,000 acres, 3,000 of which are enclosed by a fence. The site location is shown as Figure 1. A portion of the facility is located in the Town of Brookhaven. The majority is in the Town of Riverhead.

The facility is bordered by: Middle Country Road (Route 25), the Calverton National Cemetery and mixed use land to the north; agricultural land and a golf course to the east; River Road, a golf course and a rod and gun club to the south; and Wading River Road to the west. Two paved runways are located on the facility. Runway 5-23 is located on the western half of the facility and oriented southwest to northeast. Runway 32-14 is located on the eastern half of the property, and is oriented southeast to northwest. The site plan is provided in Figure 2.

Operations History

[1] "Contamination" and "contaminated" describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriate "levels" (appropriate for the protection of the groundwater resource and its beneficial uses).

NWIRP Calverton was a Government-Owned Contractor-Operated (GOCO) facility, operated by Northrop Grumman Corporation (aka Grumman Corporation) until February 1996. The facility was constructed by the US Navy in the early 1950s. Work at the site included assembly, testing, refitting and retrofitting naval combat aircraft, to support aircraft design and production at the Grumman's Bethpage Facility, in Nassau County, Long Island New York.

Most of the industrial activity was confined to the developed area in the center and south of the center of the site. Hazardous waste was generated by various activities at the site including metal cleaning and electroplating, maintenance, temporary hazardous waste storage, fueling and training.

In September 1998, the majority of the land within the developed section of the facility was transferred to the Town of Riverhead for redevelopment. In 1999, approximately 3,000 acres of undeveloped land was transferred to the Veterans Administration and the New York State Department of Environmental Conservation (NYSDEC). The Navy retained several parcels of land in the developed section for further investigation and potential remedial activities. These parcels and associated Navy facilities/remedial areas are listed below, and shown on Figure 2. These include:

- **Parcel A** (32 acres)
  Site 2 - Fire Training Area

- **Parcel B1** (40 acres)
  Site 6A - Fuel Calibration Area
  Site 10B - Engine Test House

- **Parcel B2** (131 acres)
  Southern Area

- **Parcel C** (10 acres)
  Site 7 - Fuel Depot
  Site 10A - Jet Fuel Systems Laboratory

- **Parcel D** (145 acres)
  Site 1 - Northeast Pond Disposal Area
  Site 9 Electronic Countermeasures (ECM) Area

- **Miscellaneous**
  Agricultural Outlease Area

More detailed descriptions of these areas and activities can be found in the positive Environmental Indicator **Current Human Exposures Under Control (CA725)** for this facility dated September 31, 2004.

The facility's 6NYCRR Part 373 Hazardous Waste Permit for storage was modified and reissued for Corrective Action in April 2000 when all storage areas were closed.

Soils and Geology

NWIRP Calverton, and all of Long Island, is in the Atlantic Coast Plain, and is underlain by an extremely thick sequence of unconsolidated deposits. Ground surface elevations of Long Island's post-glacial surface topography range from sea level to approximately 400' above sea level. The two most prominent topographic features are the Ronkonkoma terminal moraine and the Harbor Hill end moraine. NWIRP Calverton occupies a relatively flat area between these two moraines.

NWIRP Calverton is underlain by approximately 1,300 feet of unconsolidated sediments containing four distinct geological units. From top to bottom these are: the Upper Glacial Formation, the Magothy Formation, the Raritan Clay Member of the Raritan Formation, and the Lloyd Sand Member of the Raritan Formation. The glacial sediments that make up the ground surface at NWIRP Calverton (Upper Glacial Formation) are approximately 250 feet thick and contain both glacial till and outwash deposits.

Surface Water Hydrology

The majority of NWIRP Calverton is located within the Peconic River drainage basin. The Peconic River is located approximately, 1,300 feet south of the facility at its closest point. The river discharges to the Peconic Bay, 8.5 stream miles west of the facility. Surface water in the northeastern quadrant of the site drains to the north and ultimately, to the Long Island Sound. No contaminated parcels are within this quadrant.

Major surface water features on the site include McKay Lake and the Northeast Pond. McKay Lake is a man-made groundwater recharge basin located north of River Road, midway along the southern site border. Several small drainage basins (Runway Ponds) exist near the Fuel Calibration Area**.** The location of these surface water features and the basin divide are shown on figures 3 and 4. These surface water features are generally land-locked except McKay Lake, which has an intermittent discharge to Swan Pond. In addition, flooding and overland flow periodically occur between the drainage basins and the Peconic River.

Surface Water Quality

Surface Water data collected under the ongoing site-wide remedial investigation have not shown contaminant levels above Part 703 New York State Surface Water Quality Standards. Potential impacts to the Northeast Pond were eliminated by removing the landfill and contaminated sediment. No impacts have been seen to date in the Peconic River.

References:

- Tetra Tech Nus, February 2001. Draft Phase 2 Remedial Investigation and for Site 2 - Fire Training Area, Naval Weapons Industrial Reserve Plant, Calverton, New York.
- Tetra Tech Nus, July 2001. Phase 2 Remedial Investigation for Site 6A - Fuel Calibration Area, Site 10B - Engine Test House, Southern Area, Naval Weapons Industrial Reserve Plant, Calverton, New York.
- Tetra Tech Nus, February 2002. Phase 2 Extended Site Investigation for Site 9 - Electronic Countermeasures (ECM) Area. Naval Weapons Industrial Reserve Plant, Calverton, New York.
- Tetra Tech Nus, February 2002. Phase 2 Remedial Investigation and Focused Feasibility Study for Site 1 - Northeast Pond Disposal Area. Naval Weapons Industrial Reserve Plant, Calverton, New York.
- Tetra Tech Nus, February 2002. Phase 2 Remedial Investigation/Focused Feasibility Study for Site 7 - Fuel Depot, Naval Weapons Industrial Reserve Plant, Calverton, New York.
- Tetra Tech Nus, October 2001. Site Investigation at the Agricultural Outlease in Zone II Southeast Buffer Zone for Naval Weapons Industrial Reserve Plant, Calverton, New York.

- Tetra Tech Nus, September 2005. Data Summary Report for Site 6A - Fuel Calibration and Southern Area. Naval Weapons Industrial Reserve Plant, Calverton, New York.

Groundwater Hydrogeology

The unconsolidated sediments that underlie NWIRP Calverton are generally medium to coarse-grained sand with high porosities and permeabilities. These sediments create aquifers with high yields and transmissivities.

NWIRP Calverton straddles a regional groundwater divide. Shallow groundwater beneath the northern half of the facility flows to the northeast and, ultimately, into the Long Island Sound. (See figure 4) Shallow groundwater beneath the southern half of the facility flows to the southeast with the Peconic River basin is the likely discharge point. Groundwater on the fluctuating divide flows generally to the east.

Groundwater Quality

Groundwater quality at the site varies from parcel to parcel. In addition, for those parcels where remedial activities have already been undertaken, water quality often shows a marked improvement for parameters of concern. Table 1 shows monitoring data on those parameters detected at levels that exceeded Part 703 New York State Groundwater Quality Standards. For those parcels where remedial activities have been undertaken, the table also shows the water quality after these activities. As can be seen, remedial activities have significantly reduced the concentrations of several contaminants. In some cases, mostly for Volatile Organic Compounds (VOCs), this reduction has been several orders of magnitude. For example 1,1,1- trichloroethane at the fuel calibration area was reduced from 15,000 ppb before remedial activities to 24 ppb. Similarly, Toluene at the Fuel Calibration Area went from 330 ppb before remedial activities, to 2.6 ppb afterwards.

The groundwater quality and offsite migration are well characterized at this time.

The nature and of contamination in each area is described more fully in the discussion of Groundwater Corrective Actions in the response to Question #3.

References:

- Tetra Tech Nus, February 2001. Phase 2 Remedial Investigation and for Site 2 - Fire Training Area, Naval Weapons Industrial Reserve Plant, Calverton, New York..
- Tetra Tech Nus, July 2001. Phase 2 Remedial Investigation for Site 6A - Fuel Calibration Area, Site 10B - Engine Test House, Southern Area, Naval Weapons Industrial Reserve Plant, Calverton, New York..
- Tetra Tech Nus, February 2002, Phase 2 Extended Site Investigation for Site 9 - Electronic Countermeasures (ECM) Area. Naval Weapons Industrial Reserve Plant, Calverton, New York.
- Tetra Tech Nus, February 2002. Phase 2 Remedial Investigation and Focused Feasibility Study for Site 1 - Northeast Pond Disposal Area. Naval Weapons Industrial Reserve Plant, Calverton, New York..
- Tetra Tech Nus, February 2002. Phase 2 Remedial Investigation/Focused Feasibility Study for Site 7 - Fuel Depot, Naval Weapons Industrial Reserve Plant, Calverton, New York.

- Tetra Tech Nus, October 2001, Site Investigation at the Agricultural Outlease in Zone II Southeast Buffer Zone for Naval Weapons Industrial Reserve Plant, Calverton, New York.

- Tetra Tech Nus, September 2005. Data Summary Report for Site 6A - Fuel Calibration and Southern Area. Naval Weapons Industrial Reserve Plant, Calverton, New York.

Table 1 - Maximum Concentration Detected in Groundwater prior and during Remedial Activities

	Parcel A Fire Training Area		**Parcel B1** Fuel Calibration Area		**Parcel B1** Engine Test House		**Parcel B2** Southern Area		**Parcel C** Fuel Depot Area		**Parcel C** Jet Fuel Systems Laboratory		**Parcel D** Northeast Pond Landfill		Part 703 New York State Groundwater Quality Standards Groundwater
Contaminant	Maximum Concentration Detected in Groundwater														
	Prior	During[1]	Prior	During[2]	Prior	During[2]	Prior	During[2]	Prior	During[3]	Prior	During[3]	Prior	During[4]	
	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
Benzene	8	ND							17	52D	17	NT		ND	0.7
2-butanone	140	100												ND	50
chloroethane	1,100	40	430	26	152	NT	7	7.9						ND	5
1,1-dichloroethane		69	5800	41			220	292					5.9	ND	5
1,1-dichloroethene	1,200	ND	380	1.9				19.1							
Freon									100	210E	1100	NT			5
1,1,1-trichloroethane	120	29	15000	24	188	NT	21	21.1			140	NT	5.9	ND	5
tetrachloroethene	140	37	6		166	NT	19								5
ethyl benzene			27		1084	NT			480	580D	8	NT			5
toluene	320	94	330	2.6	337	NT			710	85	710	NT			5
xylenes	230	140	780	15	196	NT			2400	4040D	99	NT			5
Naphthalene			120						150	150					10
2-Methylnaphathalene			74						78	140					50
Total PAHs	94	94								NA					NA
Total PCBs	18	20													1
Lead	30.80								25		45.3	NT			15
Hexavalent Chromium											76.0	NT			50
Copper															200
Iron											14,500	NT			300**
Manganese											1,720	NT			300**
Mercury											4.1	NT			0.7
Thallium											6.7	NT			0.5

** 500 Applies to the sum of these substances; also see individual standards for "Iron" and Manganese
ND - Non- Detected

NA - Not Applicable
NT - Not Tested
D- Dilution
1- Pilot-scale air sparging/soil vapor extraction (AS/SVE) was installed in 1995, it ran from 1995 to 2000. GW was collected 1997.
2- Groundwater data was collected in 2005.
3- Groundwater data was collected 2002/2003 as part of the Pilot AS/SVE study.
4- Landfill was excavated and removed. Groundwater collected in 2002/2003.

3. Has the **migration** of contaminated groundwater **stabilized** (such that contaminated groundwater is expected to remain within "existing area of contaminated groundwater"[2] as defined by the monitoring locations designated at the time of this determination)?

__X__ If yes - continue, after presenting or referencing the physical evidence (e.g., groundwater sampling/measurement/migration barrier data) and rationale why contaminated groundwater is expected to remain within the (horizontal or vertical) dimensions of the "existing area of groundwater contamination"[2]).

_____ If no (contaminated groundwater is observed or expected to migrate beyond the designated locations defining the "existing area of groundwater contamination"[2]) - skip to #8 and enter "NO" status code, after providing an explanation.

_____ If unknown - skip to #8 and enter "IN" status code.

Rationale and Reference(s):

GROUNDWATER CORRECTIVE ACTION

Parcel A : Site 2 - Fire Training Area

Groundwater remedial activities at the Fire Training Area in 1987, included both active and passive recovery in the area outside the fire training ring. The active recovery included a groundwater pumping well, an oil recovery well, and an oil water separator tank. The passive recovery used hydrophobic filters in the shallow wells. The active recovery program was concluded in 1993. Free product recovery from the shallow monitoring wells using hand bailers continued until 1993. By December 1993, 270 gallons of petroleum product had been removed from the site.

A Remedial Feasibility Investigation (RFI) conducted in 1994 and 1995 documented the level of contaminants remaining at the site after groundwater recovery was completed. Figure 5 shows location and contaminant levels of the groundwater samples exceeding Part 703 New York State Groundwater Quality Standards during the 1994/ 1995 RFI.

In 1995, a pilot-scale air sparging/soil vapor extraction (AS/SVE) was installed to address this remaining contamination, as an Interim Corrective Measure (ICM). Groundwater samples collected throughout this pilot study are shown in Table 2. The values in this table are for samples taken from the most contaminated well in the Fire Training Area; monitoring well FT-MW-02. In total, the testing demonstrated that the concentration of chlorinated and non-chlorinated VOCs on the site decreased by approximately 90% and 60%, respectively during the operation of the trial. One month after the system was shutdown (1/23/96), the concentration of chlorinated and non-chlorinated VOCs rebounded, with an ultimate increase of 140% and 36% over the time when the AS/SVE system was shut off in December of 1995. This rebound can be seen in Table 2 where the

[2]"existing area of contaminated groundwater" is an area (with horizontal and vertical dimensions) that has been verifiably demonstrated to contain all relevant groundwater contamination for this determination, and is defined by designated (monitoring) locations proximate to the outer perimeter of "contamination" that can and will be sampled/tested in the future to physically verify that all "contaminated" groundwater remains within this area, and that the further migration of "contaminated" groundwater is not occurring. Reasonable allowances in the proximity of the monitoring locations are permissible to incorporate formal remedy decisions (i.e., including public participation) allowing a limited area for natural attenuation.

contaminant levels in most of the samples taken in January of 1996 are higher than those levels seen in November of 1995.

Figure 6 shows the final levels of chlorinated and non-chlorinated VOCs in temporary wells installed and sampled in 1997 as part of the 2nd phase RFI for the Fire Training area.

The AS/SVE was run from 1995 to 1996 and from 1997 to 2000. As of 2000, approximately 80 pounds of target VOCs had been removed. Since startup in 1995, this system has contributed to the biodegradiation of approximately 50,000 pounds of hydrocarbons (as C), which is equivalent to approximately 8,400 gallons of diesel fuel (through December 2000).

The horizontal and vertical extent of groundwater contamination originating in the Fire Training Area has been adequately characterized. Based on the available data, the groundwater contamination has migrated towards the down-gradient fence line, but it has not passed the facility boundaries. This is corroborated by sampling of an off-site irrigation well near the Golf Course Club house. Where VOCs were not detected.

In 2006, the Navy plans to excavate the concrete fire training ring and the shallow contaminated soil and debris remaining at the site.

Table 2
Select Groundwater Results from FT-MW-02S
Demonstrating the Effect of AS/SVE at the Fire Training Area

Sample Date	MDLs	8/16/95	9/28/95	10/26/95	11/21/95	12/19/95	1/23/96
2-Butanone	3	140	40		3 J	-	100
Chloroethane	3	420 D	21	20	17	-	40 J
1,1-Dichloroethane	2	200	39	36	24	-	69
cis 1',2-Dichloroethene	2	220	18	21	14	-	53
1,1,1-Trichioroethane	1	59	20	41	26	-	29 J
Toluene	2	250	78	75	62	-	94
Total Xylenes	1	110	120	120	100	-	140
Total Chlorinated VOCs		948	103	137	95	-	228
Total Non Chlorinated VOCs"		411	254	264	172	-	234
Total Semivolatile VOCs		440	242	167	357	153	252
PCB-1260	1	26	10	9	6	2.6 J	20

- Sample not collected
Blank Chemical not detected above Method Detection Limit(MDL)
J Estimated value
D Analysis of a diluted sample
Totals do not include acetone and 2-butanone, which are likely to be laboratory contaminants.

Parcel B

Parcel B is divided into two areas:

- **Parcel B1:**Site 6A - Fuel Calibration Area and Site 10B - Engine Test House
- **Parcel B2:** Southern Area

The location of these sites are shown on Figure 7.

Table 3 shows the maximum concentration in each area of contaminants that exceeded Part 703 New York State Groundwater Quality Standards in the 2nd phase RFI in 1997 and the Supplemental Groundwater Investigation in 2000.

Table 3
Contaminants of Concern found in Parcel B
During the 1997 Phase 2 Remedial Investigation
and the
2000 Supplemental Groundwater Investigation

	Fuel Calibration Area	Engine Test House	Southern Area
Contaminant	Maximum Concentration Detected		
	Groundwater ug/l	Groundwater ug/l	Groundwater ug/l
chloroethane	720	152	7
1,1-dichloroethane	3600		220
1,1-dichloroethene	37	188	21
1,1,1-trichloroethane	2200	166	19
TCE	6		
ethyl benzene	27	1084	
toluene	180	337	
xylenes	570	196	

Higher concentrations have been observed in these areas in the initial stage of the RFI. Most of the historical, higher levels, however, have already been addressed by early remedial activities and natural degradation processes occurring in Parcel B. Accordingly, the more recent levels shown on table 3 present a more representative baseline for ongoing activities in Parcel B.

The groundwater sampling results exceeding Part 703 New York State Groundwater Quality Standards for Parcel B, in the investigations performed in 1997, 2004 and 2005, are shown graphically in Figures 8 through 12.

The historical and ongoing remedial efforts in Parcel B are discussed below:

B1:Site 6A - Fuel Calibration Area

The levels of groundwater contamination observed in the Fuel Calibration before and after remedial efforts are shown on table 1 as part of the discussion of groundwater contamination.
In addition, floating free product has been identified at the site in the area coincident to the area of the most

contaminated groundwater.

A groundwater recovery unit was installed in 1987 to address this contamination. This unit included a pumping well, an oil recovery well oil and an oil/water separator tank. Active Groundwater and free product extraction continued until 1993. After that, passive product recovery was initiated and continued until 1996. Free product recovery continued until 1997.

A pilot study was conducted for a Vacuum Oil Skimming Unit, in September 1999, to further address remnant free product (sheens) on the watertable surface. The pilot study has demonstrated that the volume of product available for recovery is too small and inconsistent for this type of system.

Passive free product recovery was restarted in 2000 and it continues today.

Parcel B1: Site 10B - Engine Test House

Based on the RFI 1994/ 1995 investigation and the 2nd phase RFI performed in 1997, Chlorinated VOC contaminated groundwater is present east of the Engine Test House. The most likely source of this contamination is discharge of contaminated groundwater from the Fuel Calibration Area via the drainage swale and culvert.

The groundwater sampling results for the Engine Test House Area, exceeding Part 703 New York State Groundwater Quality Standards, in the 2nd phase RFI performed in 1997, are shown graphically in Figures 8 through 12.

No Remedial efforts were required in the Engine Test House Area.

Parcel B2: Southern Area

The groundwater sampling results for the Southern Area, exceeding Part 703 New York State Groundwater Quality Standards, in the 2nd phase RFI performed in 1997, are shown graphically in Figures 8 through 12.

In 1997, during the Phase 2 RF1 at Sites 6A - Fuel Calibration Area and 10B - Engine Test House, the Navy identified two non-continuous areas of chlorinated VOC contamination at depth with the potential to migrate off site. This potential was confirmed when an offsite, Suffolk County monitoring well detected VOC contamination in the groundwater beyond the site boundary at depths of 5 to 45 feet below the water table. A Supplemental Groundwater Investigation was conducted between June 2000 and October 2000 to further delineate the extent of the groundwater plume both on site and offsite. The down gradient area, between the Fuel Calibration Area and the Peconic River, is referred to as the Southern Area.

Work completed in the RFI and the 2000 Supplemental Groundwater Investigation has identified solvent contamination as far as 6,000 feet down gradient of Site 6a. The contamination is not continuous. Large portions of the Southern area exist where contamination has not been found. Based upon these investigations the horizontal extent of the contamination had been adequately defined in the Southern area. However, there were outstanding questions regarding the vertical extent of the contamination, which still needed to be answered for the Southern area.

A second Supplemental Groundwater Investigation was conducted in 2004/2005 to answer these questions. Specifically, the investigation:

- Determined the extent of deep groundwater contamination at Site 6A;
- Delineated the extent of off-site groundwater contamination in the Pistol Range Area of the

Peconic River Sportsman's Club;
- Determined if contaminated groundwater migrates into or beneath the Peconic River, and
- Verified the southwestern extent of off-site contaminated groundwater near Swan Pond.

Parcel C: Site 7 - Fuel Depot

The RFI investigation conducted at the fuel depot area from 1994 to 2000 showed that the horizontal and vertical extent of groundwater contamination had been adequately characterized. The VOC-plume remains within the boundaries of the fuel depot area.

A pilot-scale air sparging/soil vapor extraction (AS/SVE) was installed to remove the fuel-VOC and Freon contamination at the fuel depot area in 2004. During the 1 year pilot program the AS/SVE system was estimated to have removed 4,500 pounds of total VOCs This system will be running for at least 2 to 5 years.

Parcel C: Site 10A- Jet Fuel Systems Laboratory

The groundwater contamination related to Site 10-A is being addressed in the remedial work performed in the Site 7- Fuel Depot Area.

Parcel D: Site 1 - Northeast Pond Disposal Area

As January 28, 2003, a Record of decision (ROD) was issued and approved by the United State Navy, with concurrence by the NYSDEC and New York State Department of Health. The selected remedy in this ROD consists of excavating all land filled waste materials, contaminated soil and contaminated sediment with subsequent off-site disposal. The removal was completed and groundwater sampling data has shown that NYS Groundwater Quality Standards are being met. Because the entire landfill has been removed and standards have been achieved, no further investigation or remedial work is planned for this site.

Parcel D: Site 9 - Electronic Countermeasures (ECM) Area

The contaminant source (building, equipment and soil) was removed as part of the Interim Corrective Action at Site 9. Subsequent to this removal, TCA and its breakdown product are no longer being detected at concentrations that exceed state drinking water standards in groundwater at or down-gradient of the site. or in down gradient areas. Based on the absence of contamination, no further investigation is recommended or warranted at this site.

Agricultural Out-Lease Area

All buildings tanks and associated fixtures were removed from the site in July, 1999. In addition, all the soil and adjacent to and underlying the buildings and tanks was excavated for offsite disposal.

Groundwater monitoring wells were installed in June 2000. Samples were analyzed for VOCs, semi-VOCs, pesticides and PCBs, metals and cyanide. None of these potential contaminants were detected in the groundwater samples. Based on the absence of contamination, no further investigation is recommended or warranted for this area.

4. Does "contaminated" groundwater **discharge** into **surface water** bodies?

__**X**__ If yes - continue after identifying potentially affected surface water bodies.

_____ If no - skip to #7 (and enter a "YE" status code in #8, if #7 = yes) after providing an explanation and/or referencing documentation supporting that groundwater "contamination" does not enter surface water bodies.

_____ If unknown - skip to #8 and enter "IN" status code.

Rationale:

Groundwater beneath the southern half (Site 6 - Fuel Calibration, Site 10B - Engine Test House and the Southern Area) of the facility flows to the southeast with the Peconic River as a potential discharge point. The nature of this contamination is sporadic so that contaminants are present in some localized portions of the Southern Area but not in others. Presently, wells closest to the Peconic River and surface water samples do not show the presence of site related contaminants. (See Figure 11 and 12)

This item could be checked as "no" because there is no current discharge. This item has been checked "yes," however, to reflect the potential impact.

References:

Tetra Tech Nus, September 2005, Site 6A - Fuel Calibration Area and Southern Area Data Summary Report for Naval Weapons Industrial Reserve Plant, Calverton, New York

5. Is the **discharge** of "contaminated" groundwater into surface water likely to be **"insignificant"** (i.e., the maximum concentration[3] of each contaminant discharging into surface water is less than 10 times their appropriate groundwater "level," and there are no other conditions (e.g., the nature, and number, of discharging contaminants, or environmental setting), which significantly increase the potential for unacceptable impacts to surface water, sediments, or eco-systems at these concentrations)?

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__X__ If yes - skip to #7 (and enter "YE" status code in #8 if #7 = yes), after documenting: 1) the maximum known or reasonably suspected concentration[3] of key contaminants discharged above their groundwater "level," the value of the appropriate "level(s)," and if there is evidence that the concentrations are increasing; and 2) provide a statement of professional judgement/explanation (or reference documentation) supporting that the discharge of groundwater contaminants into the surface water is not anticipated to have unacceptable impacts to the receiving surface water, sediments, or eco-system.

_____ If no - (the discharge of "contaminated" groundwater into surface water is potentially significant) - continue after documenting: 1) the maximum known or reasonably suspected concentration[3] of each contaminant discharged above its groundwater "level," the value of the appropriate "level(s)," and if there is evidence that the concentrations are increasing; and 2) for any contaminants discharging into surface water in concentrations[3] greater than 100 times their appropriate groundwater "levels," the estimated total amount (mass in kg/yr) of each of these contaminants that are being discharged (loaded) into the surface water body (at the time of the determination), and identify if there is evidence that the amount of discharging contaminants is increasing.

_____ If unknown - enter "IN" status code in #8.

Rationale and Reference(s):

Based on the results of the most recent groundwater and surface water sampling, wells along Connecticut Avenue do show the presence of site related contaminants at levels above Part 703 New York State Groundwater Quality standards. For example Well SA-PZ-123 contains 1,1 Dichloroethane at levels around 100 ug/l. Wells closer to the Peconic River, SA-PZ-118S and SA-PZ-118I and surface water samples in from the River SA-SW-101 and 103 are non-detect for this and all other site related VOCs. (See Figure 9 and Figure 10)

Currently, there is no known contaminant discharge into the Peconic River. While at some future date up-gradient contaminants have the potential to migrate to the river, their concentrations will likely be reduced to insignificant levels before they reach the river. In addition, the Navy is currently preparing a Corrective Measures Study (CMS) for the Site 6A - Fuel Calibration Area, Site 10B - Engine test House and the Southern Area. The Goals for this CMS are: Comply with New York State Groundwater Standards, Comply with New York State Surface Water Protection Standards for Peconic River. Meeting this goal will preclude a future significant impact.

References:

Tetra Tech Nus, September 2005, Site 6A - Fuel Calibration Area and Southern Area Data Summary Report for Naval Weapons Industrial Reserve Plant, Calverton, New York

[3] As measured in groundwater prior to entry to the groundwater-surface water/sediment interaction (e.g., hyporheic) zone.

6. Can the **discharge** of "contaminated" groundwater into surface water be shown to be "**currently acceptable**" (i.e., not cause impacts to surface water, sediments or eco-systems that should not be allowed to continue until a final remedy decision can be made and implemented[4])?

___ If yes - continue after either: 1) identifying the Final Remedy decision incorporating these conditions, or other site-specific criteria (developed for the protection of the site's surface water, sediments, and eco-systems), and referencing supporting documentation demonstrating that these criteria are not exceeded by the discharging groundwater; OR
2) providing or referencing an interim-assessment[5], appropriate to the potential for impact, that shows the discharge of groundwater contaminants into the surface water is (in the opinion of a trained specialists, including ecologist) adequately protective of receiving surface water, sediments, and eco-systems, until such time when a full assessment and final remedy decision can be made. Factors which should be considered in the interim-assessment (where appropriate to help identify the impact associated with discharging groundwater) include: surface water body size, flow, use/classification/habitats and contaminant loading limits, other sources of surface water/sediment contamination, surface water and sediment sample results and comparisons to available and appropriate surface water and sediment "levels," as well as any other factors, such as effects on ecological receptors (e.g., via bio-assays/benthic surveys or site-specific ecological Risk Assessments), that the overseeing regulatory agency would deem appropriate for making the EI determination.

_____ If no - (the discharge of "contaminated" groundwater can not be shown to be "**currently acceptable**") - skip to #8 and enter "NO" status code, after documenting the currently unacceptable impacts to the surface water body, sediments, and/or eco-systems.

_____ If unknown - skip to 8 and enter "IN" status code.

Rationale and Reference(s):

---

[4] Note, because areas of inflowing groundwater can be critical habitats (e.g., nurseries or thermal refugia) for many species, appropriate specialist (e.g., ecologist) should be included in management decisions that could eliminate these areas by significantly altering or reversing groundwater flow pathways near surface water bodies.

[5] The understanding of the impacts of contaminated groundwater discharges into surface water bodies is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration to be reasonably certain that discharges are not causing currently unacceptable impacts to the surface waters, sediments or eco-systems.

7. Will groundwater **monitoring** / measurement data (and surface water/sediment/ecological data, as necessary) be collected in the future to verify that contaminated groundwater has remained within the horizontal (or vertical, as necessary) dimensions of the "existing area of contaminated groundwater?"

__**X**__ If yes - continue after providing or citing documentation for planned activities or future sampling/measurement events. Specifically identify the well/measurement locations which will be tested in the future to verify the expectation (identified in #3) that groundwater contamination will not be migrating horizontally (or vertically, as necessary) beyond the "existing area of groundwater contamination."

_____ If no - enter "NO" status code in #8.

_____ If unknown - enter "IN" status code in #8.

Rationale and Reference(s):

The Navy is planning to continue groundwater monitoring to verify that contaminated groundwater has remained within the existing area of contaminated groundwater.

8. Check the appropriate RCRIS status codes for the Migration of Contaminated Groundwater Under Control EI (event code CA750), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (attach appropriate supporting documentation as well as a map of the facility).

__X__ YE - Yes, "Migration of Contaminated Groundwater Under Control" has been verified. Based on a review of the information contained in this EI determination, it has been determined that the "Migration of Contaminated Groundwater" is "Under Control" at the **NWIRP Calverton** facility , EPA ID # NYD003995198 , located at Grumman Boulevard, Calverton, NY 11933. Specifically, this determination indicates that the migration of "contaminated" groundwater is under control, and that monitoring will be conducted to confirm that contaminated groundwater remains within the "existing area of contaminated groundwater" This determination will be re-evaluated when the Agency becomes aware of significant changes at the facility.

_____ NO - Unacceptable migration of contaminated groundwater is observed or expected.

_____ IN - More information is needed to make a determination.

Completed by: \s\ Date: Sept 30, 2005
Henry Wilkie
Environmental Engineer I
New York State Department of Environmental Conservation

And

\s\ Date: Sept 30, 2005
Larry A. Rosenmann
Engineering Geologist II
New York State Department of Environmental Conservation

Supervisor: \s\ Date: Sept 30, 2005
Denise Radtke
Chief, Engineering Geology Section
New York State Department of Environmental Conservation

Director: Original signed by: \s\ Date: Sept 30, 2005
Ed Dassatti
Bureau of Hazardous Waste and Radiation Management
New York State Department of Environmental Conservation

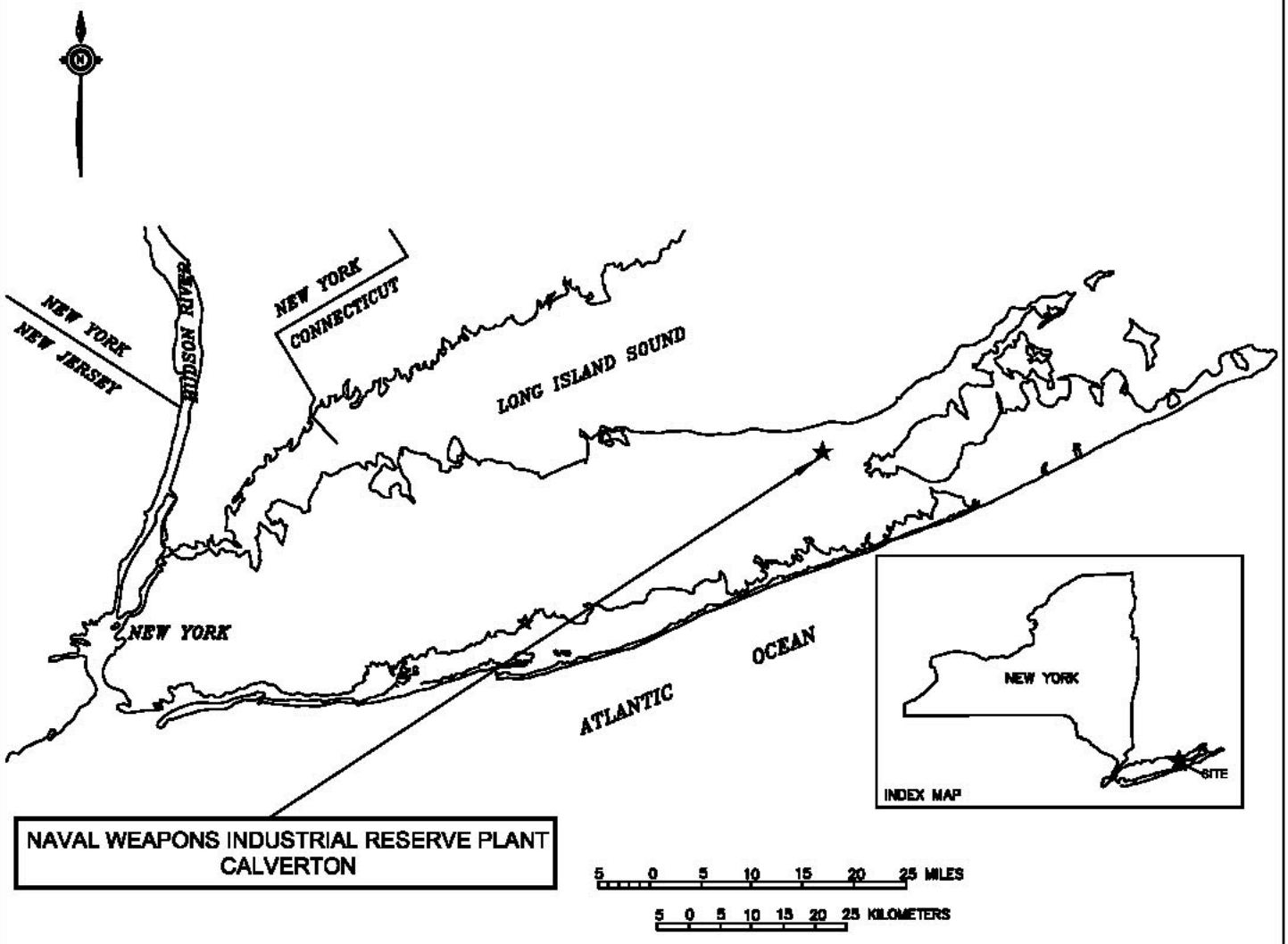
Locations where references may be found:

New York State Department of Environmental Conservation
Division of Solid and Hazardous Materials
625 Broadway
Albany, NY 12233-7258

Contact telephone number and e-mail address

Henry Wilkie	(518) 402-8594	hjwilkie@gw.dec.state.ny.us
Larry Rosenman	(518) 402-8594	larosenm@gw.dec.state.ny.us

Figures 1 - 12 follow:



THIS DRAWING PRODUCED ON AUTOCAD
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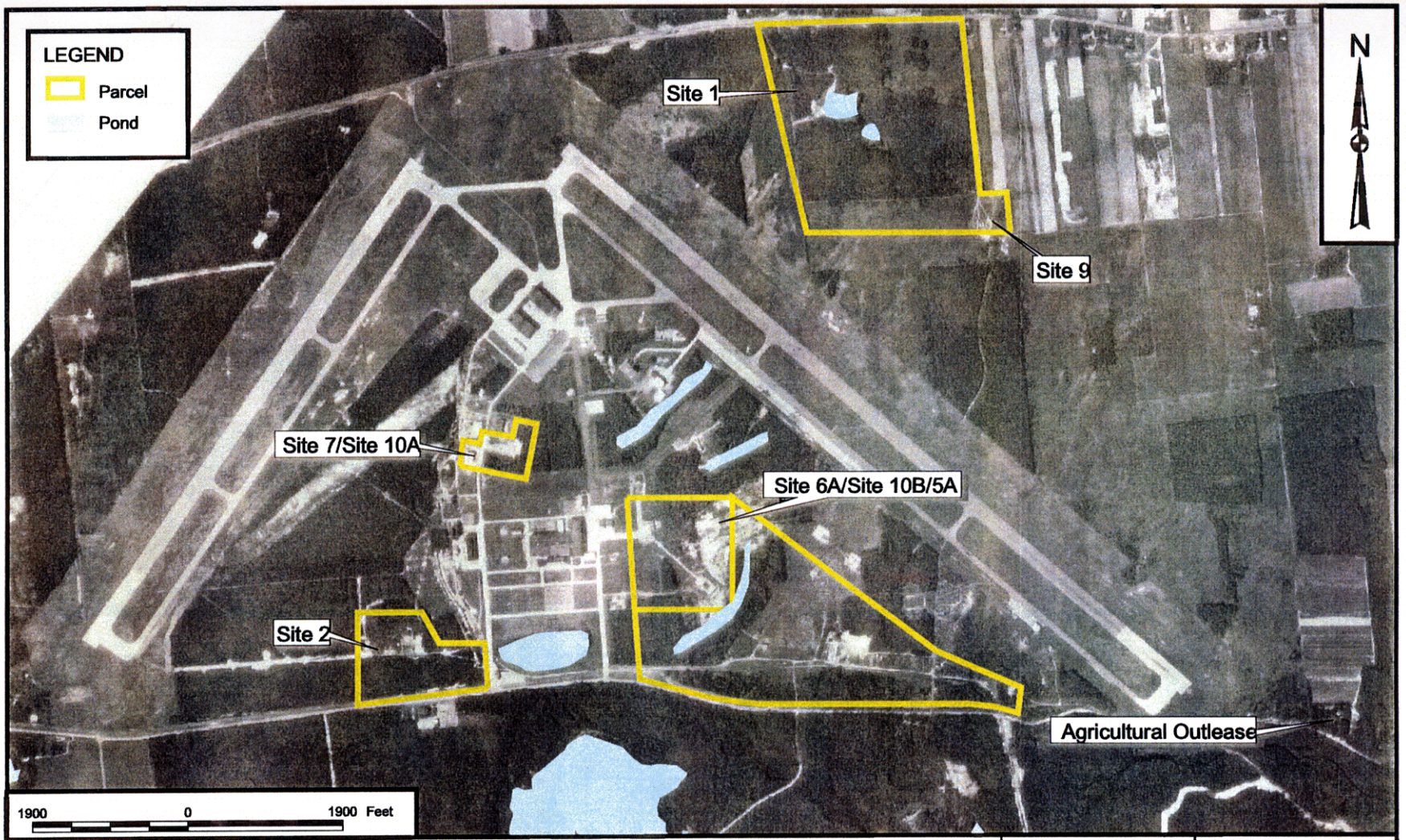
NAVAL WEAPONS INDUSTRIAL RESERVE PLANT
CALVERTON, NEW YORK

CA 750 Figure 1
SITE LOCATION MAP

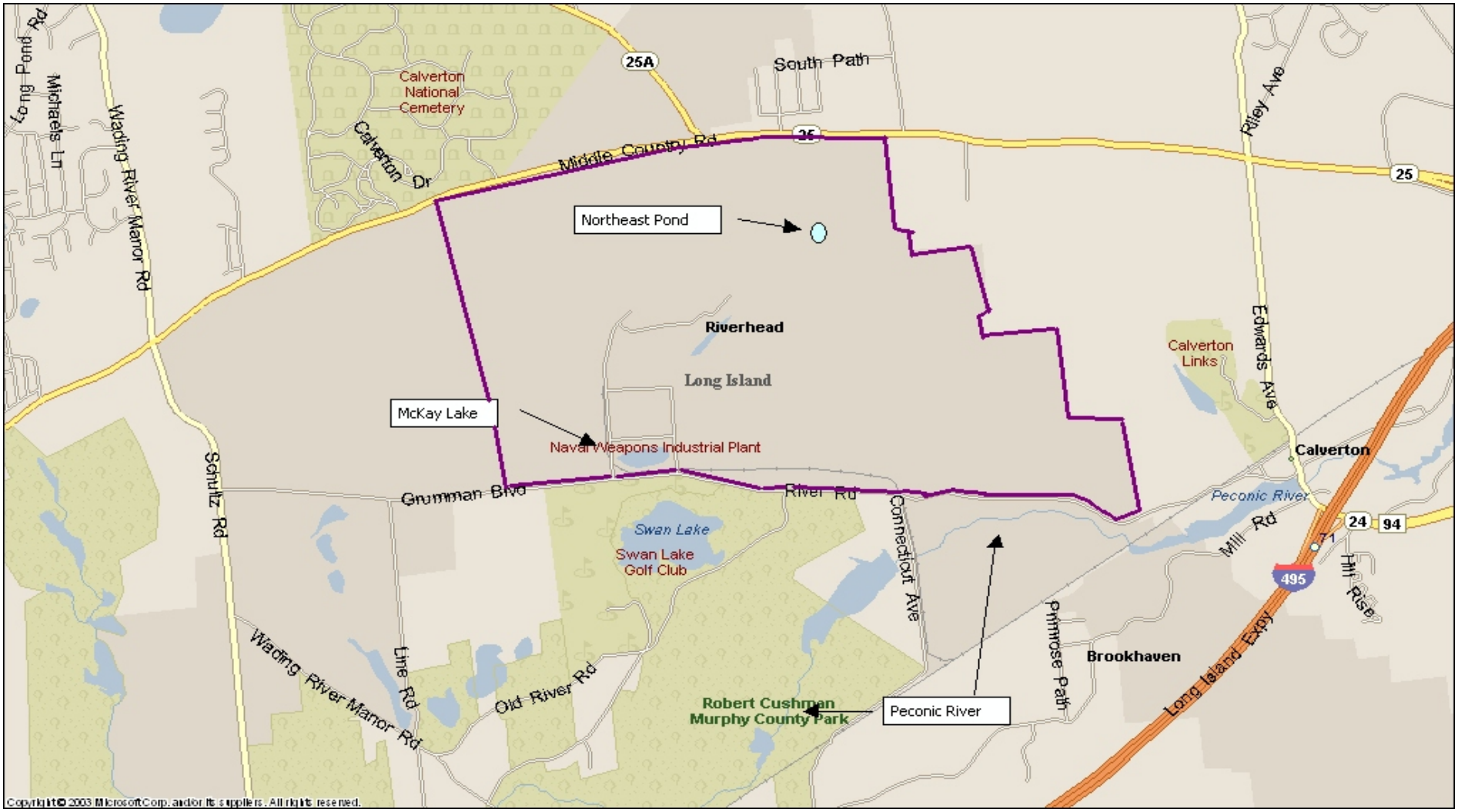
TETRA TECH FW, INC.
MORRIS PLAINS, NEW JERSEY

N:\GIS\CALVERTON\CALVERTON REPORT\FIGURE 1 051404.DWG



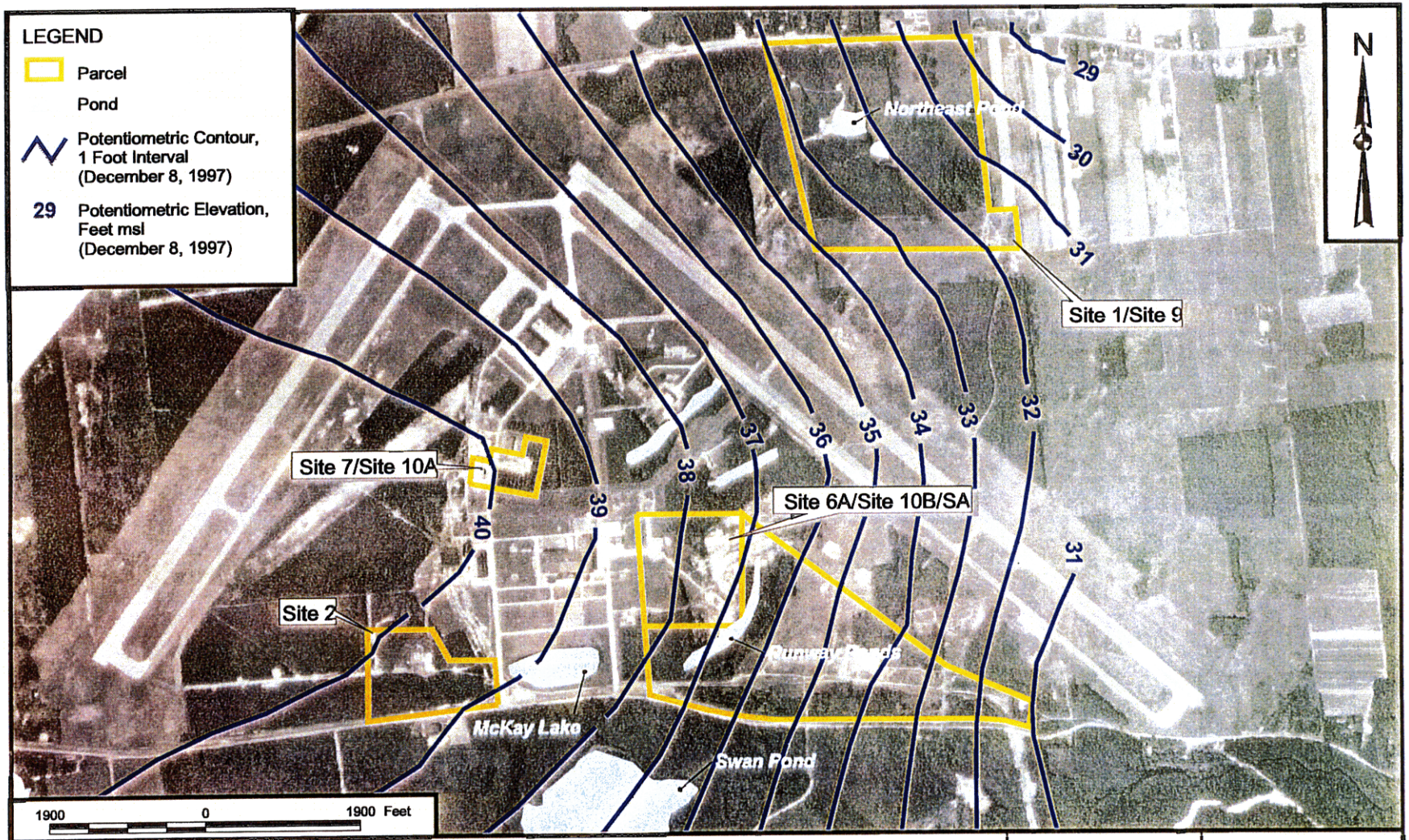
DRAWN BY J. LAMEY	DATE 4/2/01	Tetra Tech NUS, Inc.	CONTRACT NUMBER 7398 / OWNER NUMBER 0270
CHECKED BY —	DATE —	SITE LOCATION MAP NWIRP CALVERTON, NEW YORK	APPROVED BY — / DATE —
COST/SCHEDULE-AREA			APPROVED BY — / DATE —
SCALE AS NOTED			DRAWING NO CA 750 Figure 2 / REV 0

P:\GIS\NWIRP_CALVERTON\SURFACE_WATER_HYDROLOGY.APR SITE LOCATION MAP-AGRICULTURAL OUTLEASE 04/02/01 JAL



Surface Water

CA750 Figure 3



DRAWN BY J. LAMEY	DATE 4/24/01	Tetra Tech NUS, Inc.	CONTRACT NUMBER 7398 / OWNER NUMBER 0270
CHECKED BY	DATE	SURFACE WATER HYDROLOGY AND GROUNDWATER CONTOUR MAP SITES 6A AND 10B, AND SOUTHERN AREA PHASE 2 REMEDIAL INVESTIGATION NWIRP CALVERTON, NEW YORK	APPROVED BY / DATE
COST/SCHEDULE-AREA			APPROVED BY / DATE
SCALE AS NOTED			DRAWING NO CA 750 Figure 4 / REV 0

P:\GIS\NWIRP_CALVERTON\PH2_REMEDIAL_INVESTIGATION.APR SUFACE WATER HYDROLOGY 4/24/01 JAL

ACAD: 7398GM16.dwg 12/13/00 MF

FT-MW-02-S

CHEMICAL	AUG '94	AUG '94 DU	MAR '95	MAR '95 DU	AUG '95	SEPT '95	OCT '95	NOV '95	DEC '95	JAN '96	JUN '97
VINYL CHLORIDE	25	25	5 J	9 J	25				NA		
CHLORDETHANE	1,100	1,100	190	340	420	21	20	17	NA	40 J	
1,1-DICHLORETHENE	9 J	13 J			8		6		NA		
1,1-DICHLORETHENE	1,100	1,200	310	590	200	39	36	24	NA	69	58
1,2-DICHLORETHENE (total)	310	290	93	100 J	220	18	21	14	NA	53	78
2-BUTANONE	71 J		82	130 J	140				NA	100	69
1,1,1-TRICHLORDETHANE	120	140	50	58 J	59	20	41	26	NA	29 J	
TRICHLORDETHANE	7 J	9 J							NA		
BENZENE	14 J	15 J			8				NA		19 J
ACETONE			85 J	140 J	52				NA	280	250
TETRACHLORDETHENE	20	21	13		12	5	12	12	NA	37 J	
TOLUENE	280	320	200	320	250	78	75	62	NA	94	63
ETHYLBENZENE	16 J	21	18	18 J	13	13	12	10	NA		8.7 J
TOTAL XYLENES	180	230	180	150 J	110	120	120	100	NA	140	91
1,2-DICLORDBENZENE	8 J	7 J			5 J						NA
4-METHYLPHENOL	160	180	120	110	250	91				72 J	NA
TOTAL PAH'S	94 J	111 J	19	19	82	89	124	169	95	101	NA
TOTAL PHTHALATES								161			NA
PCB'S	18 J	17 J	4.4 JN	6.9 JN	26	10	9	8	2.6 J	20	
MANGANESE	459	436	519	519	NA	NA	NA	NA	NA	NA	NA
THALLIUM				3.5 J	NA	NA	NA	NA	NA	NA	NA

FT-MW-02-I

CHEMICAL	AUG '94	MAR '95	MAR '95 DU
PCB's			1.1
THALLIUM		6.3 J	

FT-MW-01-S

CHEMICAL	AUG '94	MAR '95
PCB's	1.38 JN	0.56 JN
LEAD	25.4 J	
MANGANESE	2340 J	1010

FT-MW-01-I

CHEMICAL	AUG '94	MAR '95
TCL/TAL		

FT-MW-03-S

CHEMICAL	AUG '94	AUG '94DU	MAR '95
1,1,1-TRICHLORDETHANE	5 J	5 J	6 J
TRICHLORDETHENE	51	48	87
PCB'S	0.83 JN	0.83 JN	
MANGANESE	1880 J	1810 J	854

FT-MW-04

CHEMICAL	AUG '94	MAR '95
PCB's	0.84 JN	0.615
MANGANESE	525	682

FT-MW-08-S

CHEMICAL	JUN '97	NOV '97
VOC's	ND	

FT-MW-08-I

CHEMICAL	JUN '97	NOV '97
CHLORDETHANE	91	30
1,1-DICHLORETHENE	110	55
1,2-DICHLORDETHANE (TOTAL)	5.2 J	3.7
1,1,1-TRICHLORDETHANE	13	3.8
TOTAL XYLENES	13	

FT-MW-05-S

CHEMICAL	AUG '94	MAR '95	JUN '97	NOV '97
VINYL CHLORIDE	4 J	4 J		
CHLORDETHANE	130	79		
1,1-DICHLORDETHANE	16	22		
1,2-DICHLORDETHENE (TOTAL)	26	26		
TOLUENE	23			
TOTAL XYLENES	17	8 J		
LEAD	30.8 J		NA	NA
MANGANESE	725 J	550	NA	NA

FT-MW-05-I

CHEMICAL	AUG '94	MAR '95	JUN '97	NOV '97
MANGANESE	3490 J	1340	NA	NA

FT-MW-06-I

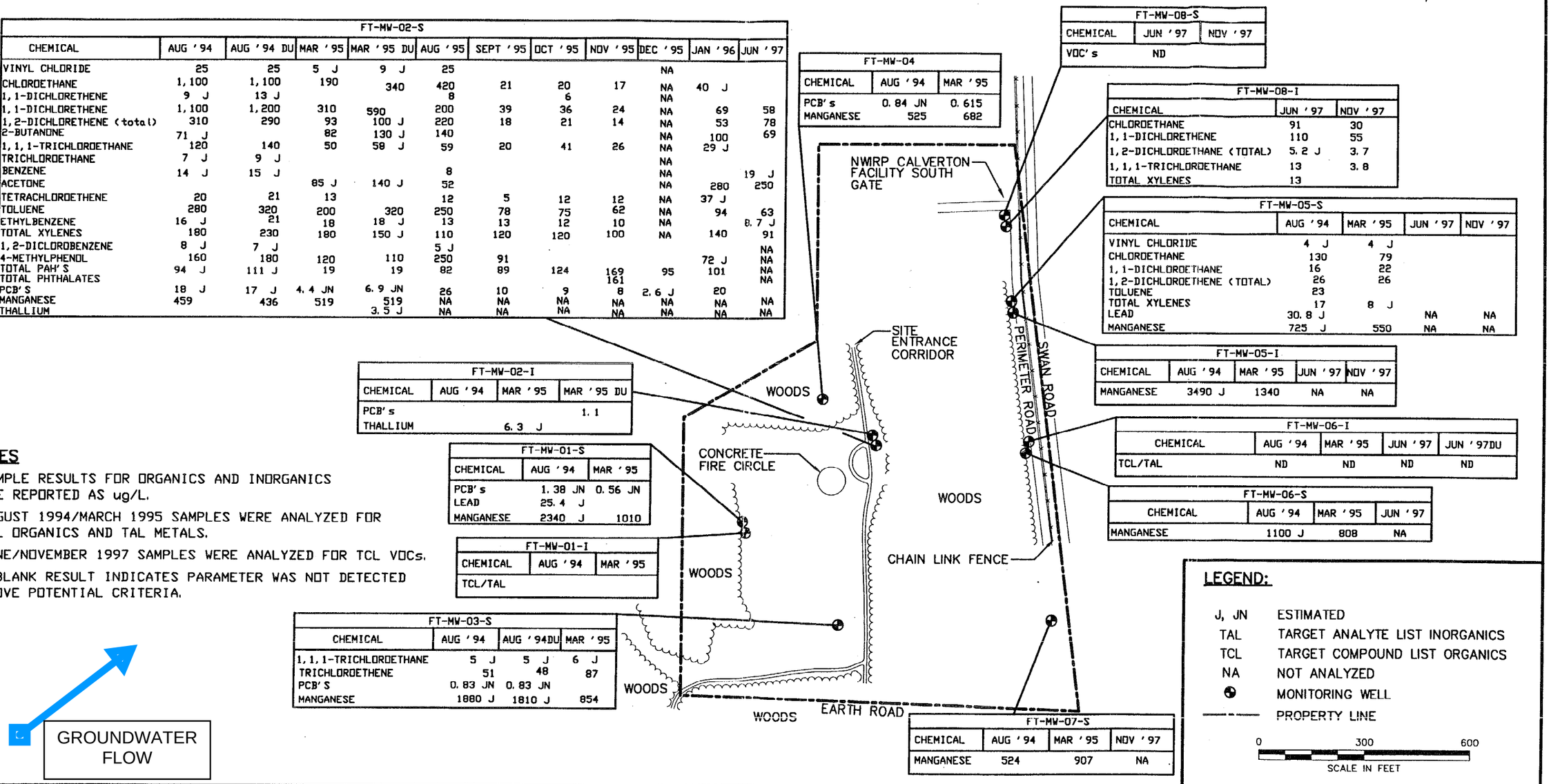
CHEMICAL	AUG '94	MAR '95	JUN '97	JUN '97DU
TCL/TAL	ND	ND	ND	ND

FT-MW-06-S

CHEMICAL	AUG '94	MAR '95	JUN '97
MANGANESE	1100 J	808	NA

FT-MW-07-S

CHEMICAL	AUG '94	MAR '95	NOV '97
MANGANESE	524	907	NA



NOTES

SAMPLE RESULTS FOR ORGANICS AND INORGANICS ARE REPORTED AS ug/L.

AUGUST 1994/MARCH 1995 SAMPLES WERE ANALYZED FOR TCL ORGANICS AND TAL METALS.

JUNE/NOVEMBER 1997 SAMPLES WERE ANALYZED FOR TCL VOCs.

A BLANK RESULT INDICATES PARAMETER WAS NOT DETECTED ABOVE POTENTIAL CRITERIA.

LEGEND:

J, JN	ESTIMATED
TAL	TARGET ANALYTE LIST INORGANICS
TCL	TARGET COMPOUND LIST ORGANICS
NA	NOT ANALYZED
◕	MONITORING WELL
———	PROPERTY LINE

0 300 600
SCALE IN FEET

NO.	DATE	REVISIONS	BY	CHKD	APPD	REFERENCES

DRAWN BY DATE: MF 12/12/00
CHECKED BY DATE:
COST/SCHED-AREA:
SCALE: AS NOTED

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE RESULTS EXCEEDING CRITERIA
SITE 2 – FIRE TRAINING AREA
PHASE 2, RI
NWIRP, CALVERTON, NEW YORK

CONTRACT NO. 7398
OWNER NO. ——
APPROVED BY DATE
APPROVED BY DATE
DRAWING NO. CA-750 Figure 5
REV. 0

FORM CADD NO. TtNUS_BH.DGN - REV 0 - 1/20/98

00589E042

ACAD: 7398GM15.dwg 12/13/00 MF

FT-TW-01		
SAMPLE DEPTH – (FT-BWT)	GROUNDWATER – (µg/L)	
	C-VOC	NC-VOCs
5	ND	ND
20	ND	ND

GC-TW-03		
SAMPLE DEPTH – (FT-BWT)	GROUNDWATER – (µg/L)	
	C-VOC	NC-VOCs
5	ND	1
20	ND	ND
40	1	ND

GC-TW-02		
SAMPLE DEPTH – (FT-BWT)	GROUNDWATER – (µg/L)	
	C-VOC	NC-VOCs
5	1	ND
20	ND	ND
40	ND	ND

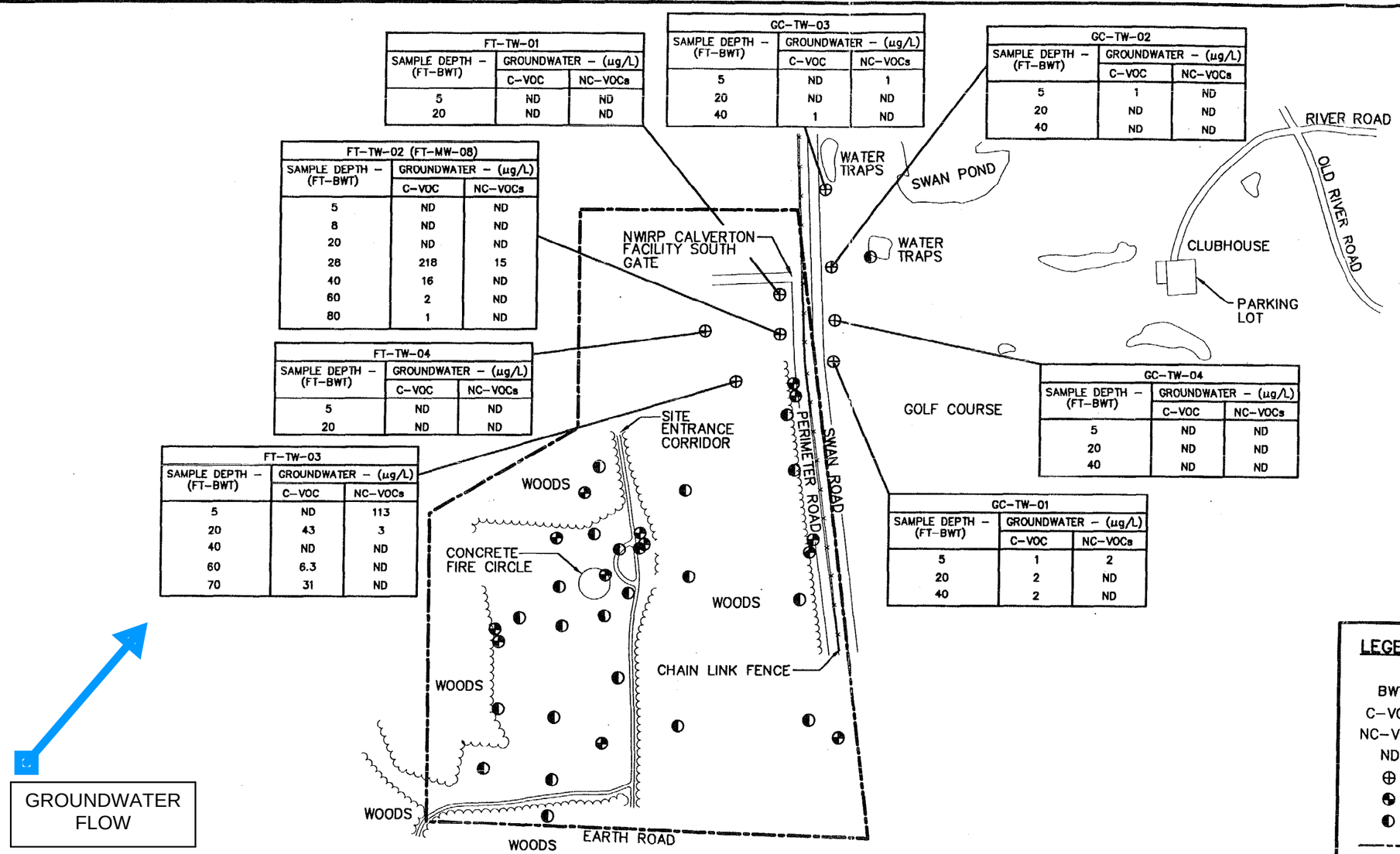
FT-TW-02 (FT-MW-08)		
SAMPLE DEPTH – (FT-BWT)	GROUNDWATER – (µg/L)	
	C-VOC	NC-VOCs
5	ND	ND
8	ND	ND
20	ND	ND
28	218	15
40	16	ND
60	2	ND
80	1	ND

FT-TW-04		
SAMPLE DEPTH – (FT-BWT)	GROUNDWATER – (µg/L)	
	C-VOC	NC-VOCs
5	ND	ND
20	ND	ND

FT-TW-03		
SAMPLE DEPTH – (FT-BWT)	GROUNDWATER – (µg/L)	
	C-VOC	NC-VOCs
5	ND	113
20	43	3
40	ND	ND
60	6.3	ND
70	31	ND

GC-TW-04		
SAMPLE DEPTH – (FT-BWT)	GROUNDWATER – (µg/L)	
	C-VOC	NC-VOCs
5	ND	ND
20	ND	ND
40	ND	ND

GC-TW-01		
SAMPLE DEPTH – (FT-BWT)	GROUNDWATER – (µg/L)	
	C-VOC	NC-VOCs
5	1	2
20	2	ND
40	2	ND



LEGEND:

BWT	BELOW WATER TABLE
C-VOCs	CHLORINATED VOCs
NC-VOCs	NON-CHLORINATED VOCs
ND	NOT DETECTED
⊕	TEMPORARY MONITORING WELL (1997)
◕	MONITORING WELL
◐	TEMPORARY MONITORING WELL (1994)
———	PROPERTY LINE

0 300 600
SCALE IN FEET

NO.	DATE	REVISIONS	BY	CHKD	APPD	REFERENCES

DRAWN BY MF DATE 12/12/00
CHECKED BY DATE
COST/SCHED-AREA
SCALE AS NOTED

Tetra Tech NUS, Inc.

TEMPORARY MONITORING WELL RESULTS (VOCs)
SITE 2 – FIRE TRAINING AREA
PHASE 2, RI
NWIRP, CALVERTON, NEW YORK

CONTRACT NO. 7398
OWNER NO. ———
APPROVED BY DATE
APPROVED BY DATE
DRAWING NO. CA 750 Figure 6
REV. 0

FORM CADD NO. TtNUS_BH.DGN - REV 0 - 1/20/98

00589E032

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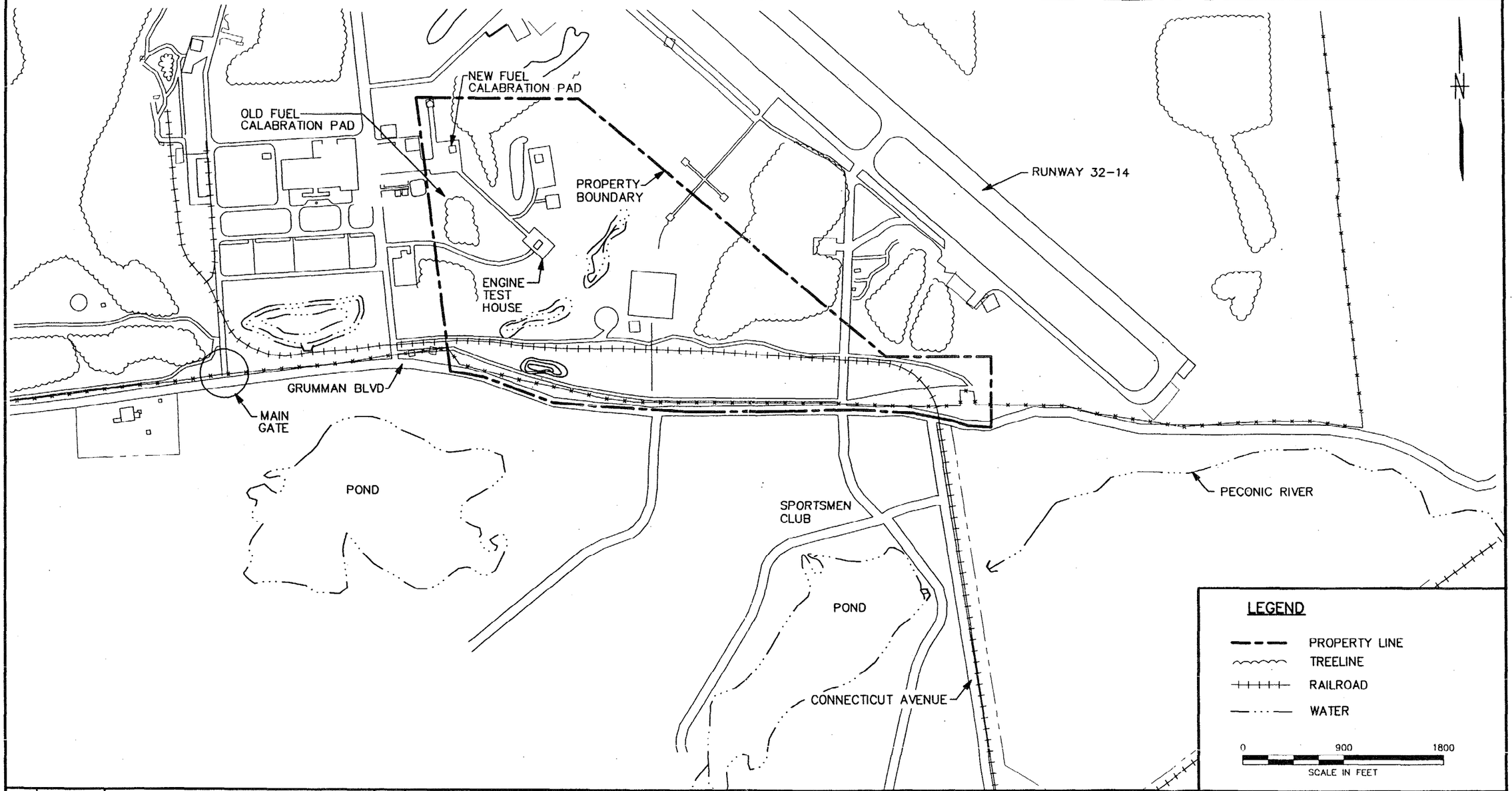


NO.	DATE	REVISIONS	BY	CHKD	APPD	REFERENCES

DRAWN BY HJP DATE 1/3/01
CHECKED BY DATE
COST/SCHED-AREA
SCALE AS NOTED

Tetra Tech NUS, Inc.

STUDY AREA
SITES 6A AND10B, AND SOUTHERN AREA
PHASE 2 – REMEDIAL INVESTIGATION
NWIRP, CALVERTON, NY

CONTRACT NO. 7398
OWNER NO. 0270
APPROVED BY DATE
APPROVED BY DATE
DRAWING NO. CA 750 Figure 7
REV. 0

FORM CADD NO. T:\NUS_BH.DGN - REV 0 - 1/20/98

ACAD:1610CP25.dwg 07/05/05 DM PIT

FC-VPB-112
FC-PZ-106D2

FC-MW-01-I

FC-MW-01-S

N

FC-MW-02-I	DATE				
PARAMETER (ug/L)	1994	1995	2000	2005	LIL-2005
1,1,1-TRICHLOROETHANE	210				
1,1-DICHLOROETHANE	95				
1,1-DICHLOROETHENE	2				

FC-PZ-02D2	DATE
PARAMETER (ug/L)	LIL-2005
VOCs	NO DETECTIONS

FC-PZ-02D	DATE
PARAMETER (ug/L)	LIL-2005
VOCs	NO DETECTIONS

FC-PZ-102D	DATE
PARAMETER (ug/L)	LIL-2005
VOCs	NO DETECTIONS

FC-PZ-103D	DATE
PARAMETER (ug/L)	LIL-2005
VOCs	NO DETECTIONS

FC-PZ-02D1	DATE
PARAMETER (ug/L)	LIL-2005
VOCs	NO DETECTIONS

FC-MW-08-S	DATE			
PARAMETER (ug/L)	1997	1998	2005	LIL-2005
1,1-DICHLOROETHANE	19			
1,1-DICHLOROETHENE	21			

FC-MW-04-I	DATE		
PARAMETER (ug/L)	1994	1995	LIL-2005
1,1,1-TRICHLOROETHANE	3		

FC-MW-04-S	DATE		
PARAMETER (ug/L)	1994	1995	LIL-2005
1,1,1-TRICHLOROETHANE	4		
1,1-DICHLOROETHANE		26	1.5
1,1-DICHLOROETHENE			1.5
CHLOROETHANE		26	

FC-MW-07-S	DATE			
PARAMETER (ug/L)	1997	1998	2005	LIL-2005
VOCs	NO DETECTIONS			

FUEL CALIBRATION AREA

FC-PZ-101D	DATE
PARAMETER (ug/L)	LIL-2005
VOCs	NO DETECTIONS

FC-MW-02-S	DATE				
PARAMETER (ug/L)	1994	1995	2000	2005	LIL-2005
1,1,1-TRICHLOROETHANE	15,000	12,000	2,200	12	24
1,1-DICHLOROETHANE	5,800	4,800	3,600	29	41
1,1-DICHLOROETHENE	380	110	37	1.1	1.9
BENZENE		6	1		
CHLOROETHANE	320	360	720	20	26
ETHYLBENZENE		88	27	1.1	
TOLUENE	330	190	180	3.8	2.6
XYLENE	390	690	570	17	15

FC-PZ-104D2	DATE
PARAMETER (ug/L)	LIL-2005
VOCs	NO DETECTIONS

FC-PZ-104D1	DATE
PARAMETER (ug/L)	LIL-2005
VOCs	NO DETECTIONS

FC-TW-09A

FC-MW-03-S	DATE			
PARAMETER (ug/L)	1994	1995	2000	LIL-2005
1,1-DICHLOROETHANE	2	2		
CHLOROETHANE	110	2		
ETHYLBENZENE	33	15	81	
TOLUENE			1	
XYLENE	310	120	430	

FC-MW-06-S	DATE		
PARAMETER (ug/L)	1994	1995	LIL-2005
1,1,1-TRICHLOROETHANE	2		
TOLUENE	2		

FC-PZ-104D	DATE
PARAMETER (ug/L)	LIL-2005
VOCs	NO DETECTIONS

FC-MW-05-I	DATE		
PARAMETER (ug/L)	1994	1995	LIL-2005
1,1,1-TRICHLOROETHANE	2		

FC-MW-05-S	DATE		
PARAMETER (ug/L)	1994	1995	LIL-2005
1,1,1-TRICHLOROETHANE	4		

FC-PZ-105D1

FC-PZ-105D2

LEGEND:

- PIEZOMETER LOCATION
- EXISTING PERMANENT MONITORING WELL
- PROPERTY LINE
- TREELINE
- RAILROAD
- WATER

0 100 200
GRAPHIC SCALE IN FEET

DRAWN BY	DATE
DM	6/28/05
CHECKED BY	DATE
REVISED BY	DATE
SCALE	
AS NOTED	

Tetra Tech NUS, Inc.

GROUNDWATER RESULTS
MONITORING WELLS AND PIEZOMETERS
SITES 6A - FUEL CALIBRATION AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

CONTRACT NO.	
1610	
OWNER NO.	
0000	
APPROVED BY	DATE
DRAWING NO.	REV.
CA750 Figure 8	0

FORM CADD NO. TTNUS-BH.DWG - REV 1 - 9/10/98

ACAD:1610CP29.dwg 07/26/05 DM PIT

ENGINE TEST HOUSE

SA-TW-102
SA-TW-103
SA-TW-105
SA-TW-101
SA-TW-104
SA-TW-106
SA-TW-107

PECONIC RIVER SPORTSMEN CLUB ACCESS ROAD

SA-PZ-101S,I,D
SA-TW-108
SA-PZ-104S,I,D

RIVER ROAD

SA-PZ-120S

SA-SW-103

PECONIC RIVER

SA-PZ-122D

SA-PZ-123I

SWAN POND

SEE INSET A

SA-TW-111

SA-TW-112

SA-PZ-115D
SA-PZ-114D
SA-PZ-116D

SA-PZ-102S,I,D
SA-PZ-102

SA-PZ-118S
SA-PZ-118I

SA-SW-101

SA-PZ-118D

RESTRICTED DIRT ROAD

POND

SA-TW-109

SA-PZ-121S
SA-PZ-121I
SA-PZ-121D

SA-PZ-103S,I,D

CONNECTICUT AVENUE

SA-TW-110

N

SA-VPB-120 (DEPTH-FT.BGS)				
PARAMETER (ug/L)	12	30	50	70
VOCs	NO DETECTIONS			

SA-VPB-122 (DEPTH – FEET BGS)								
PARAMETER (ug/L)	15	30	50	70	90	110	130	150
1,1,1-TRICHLOROETHANE				0.6				
1,1-DICHLOROETHANE				20		0.9		
1,1-DICHLOROETHENE					1.1			

SA-VPB-123 (DEPTH – FEET BGS)								
PARAMETER (ug/L)	20	30	50	70	90	110	130	150
1,1-DICHLOROETHANE				32	13			

SA-VPB-118 (DEPTH-FT.BGS)				
PARAMETER (ug/L)	10	30	50	70
VOCs	NO DETECTIONS			

SA-VPB-117 (DEPTH – FEET BGS)				
PARAMETER (ug/L)	13	30	50	70
1,1-DICHLOROETHENE			0.6	

SA-VPB-114 (DEPTH – FEET BGS)								
PARAMETER (ug/L)	22	32	52	72	92	112	132	152
1,1,1-TRICHLOROETHANE					21.1			
1,1-DICHLOROETHANE				2.0	292			0.9
1,2-DICHLOROETHANE					1.1			
1,4-DICHLOROBENZENE					1.3			
BENZENE					1.4			
CHLOROETHANE					7.9			
CIS-1,2-DICHLOROETHENE					0.6			

SA-VPB-115 (DEPTH – FEET BGS)								
PARAMETER (ug/L)	15	32	52	72	92	112	132	152
1,1-DICHLOROETHANE			0.5	0.6	7.0	11.7	5.4	4.5
1,1-DICHLOROETHENE					1.2	3.1	1.4	0.8

SA-VPB-116 (DEPTH – FEET BGS)										
PARAMETER (ug/L)	15	32	52	72	92	112	132	152	172	192
1,1,1-TRICHLOROETHANE			1.06	14.8				0.7		
1,1-DICHLOROETHANE			12.5	130.0	1.7		1.5	8.4		
1,1-DICHLOROETHENE			1.21	19.1				1.1		
1,2-DICHLOROETHANE				0.7						
1,4-DICHLOROBENZENE				1.2						
CHLOROETHANE				2.8						
MTBE			7.45							

INSET A

0 200 400
GRAPHIC SCALE IN FEET

LEGEND:

- FORMER TEMPORARY WELL/ PIEZOMETER SAMPLE POINTS (ABANDONED)
- PIEZOMETER LOCATION/ VERTICAL PROFILE BORING LOCATION 2004/2005
- SURFACE WATER SAMPLE (2005)
- PROPERTY LINE
- FENCE LINE
- TREELINE
- RAILROAD
- WATER

0 600 1200
GRAPHIC SCALE IN FEET

DRAWN BY DM	DATE 6/24/05
CHECKED BY	DATE
REVISED BY	DATE
SCALE AS NOTED	

Tetra Tech NUS, Inc.

GROUNDWATER RESULTS VERTICAL PROFILE BORING SOUTHERN AREA NWIRP CALVERTON CALVERTON, NEW YORK

CONTRACT NO.	1610
OWNER NO.	0000
APPROVED BY	DATE
DRAWING NO.	CA750 Figure 9
REV.	0

FORM CADD NO. TTNUS-BH.DWG - REV 1 - 9/10/98

ACAD:1610CP27.dwg 07/26/05 DM PIT

ENGINE TEST HOUSE

SA-TW-103

SWAN POND

PECONIC RIVER SPORTSMEN CLUB ACCESS ROAD

SEE INSET A

SA-VPB-117

SA-VPB-122

SA-VPB-120

SA-VPB-123

SA-PZ-115D

SA-PZ-114D

SA-PZ-116D

SA-PZ-121S

SA-PZ-121I

SA-PZ-121D

RIVER ROAD

PECONIC RIVER

RESTRICTED DIRT ROAD

POND

CONNECTICUT AVENUE

SA-PZ-122D	DATE	
PARAMETER (ug/L)	2005	LIL-2005
1,1-DICHLOROETHANE	1.1	2.48

SA-PZ-123I	DATE	
PARAMETER (ug/L)	2005	LIL-2005
1,1,1-TRICHLOROETHANE	7.6	
1,1-DICHLOROETHANE	97	125
1,1-DICHLOROETHENE	20	22
CHLOROETHANE	4.1	3.6
BENZENE	0.5	
TOLUENE		10.1

SA-PZ-120S	DATE
PARAMETER (ug/L)	LIL-2005
VOCs	NO DETECTIONS

SA-SW-103	DATE	
PARAMETER (ug/L)	2005	LIL-2005
VOCs	NO DETECTIONS	NO DETECTIONS

SA-SW-101	DATE	
PARAMETER (ug/L)	2005	LIL-2005
VOCs	NO DETECTIONS	NO DETECTIONS

SA-PZ-118D	DATE
PARAMETER (ug/L)	LIL-2005
VOCs	NO DETECTIONS

SA-PZ-114D	DATE
PARAMETER (ug/L)	LIL-2005
VOCs	NO DETECTIONS

SA-PZ-118S	DATE
PARAMETER (ug/L)	LIL-2005
VOCs	NO DETECTIONS

SA-PZ-118I	DATE
PARAMETER (ug/L)	LIL-2005
VOCs	NO DETECTIONS

SA-PZ-115D	DATE
PARAMETER (ug/L)	LIL-2005
VOCs	NO DETECTIONS

SA-PZ-116D	DATE
PARAMETER (ug/L)	LIL-2005
VOCs	NO DETECTIONS

INSET A

0 200 400

GRAPHIC SCALE IN FEET

N

LEGEND:

- PIEZOMETER LOCATION/ VERTICAL PROFILE BORING LOCATION 2004/2005
- SURFACE WATER SAMPLE (2005)
- PROPERTY LINE
- FENCE LINE
- TREELINE
- RAILROAD
- WATER

0 600 1200

GRAPHIC SCALE IN FEET

DRAWN BY DM	DATE 6/24/05
CHECKED BY	DATE
REVISED BY	DATE
SCALE AS NOTED	

Tetra Tech NUS, Inc.

GROUNDWATER AND SURFACE WATER RESULTS
PIEZOMETERS
SOUTHERN AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

CONTRACT NO.	1610
OWNER NO.	0000
APPROVED BY	DATE
DRAWING NO.	CA750 Figure 10
REV.	0

FORM CADD NO. TTNUS-BH.DWG - REV 1 - 9/10/98

ACAD:1610CP24.dwg 07/27/05 DM PIT

FD-MW-04I
FC-TW-20
FC-MW02/TW04
FC-TW-09
FC-TW-07
FC-MW-05
ET-TW-11
ET-TW-06
SA-PZ-101D
SA-PZ-104D
SA-PZ-120S
SA-PZ-123I
SA-PZ-122D
SA-PZ-114
SA-TW-111
SA-TW-112
SA-PZ-118

CONIC RIVER AIRPORT
Water Tanks
49
McKay Lake
44
45
POND
139
ROAD
Wells Cem
RIVER
50
Swan Pond
37
ROAD
Cranberry Bogs
AVENUE
BM 30

N

LEGEND:

- GROUNDWATER WELLS
- PIEZOMETER
- CULVERT
- AREAS WHERE CONTAMINATED GROUNDWATER HAVE BEEN FOUND
- AREAS WHERE CONTAMINATED GROUNDWATER IS POSSIBLE

0 900 1800
GRAPHIC SCALE IN FEET

DRAWN BY DM	DATE 7/27/05
CHECKED BY	DATE
REVISED BY	DATE
SCALE AS NOTED	

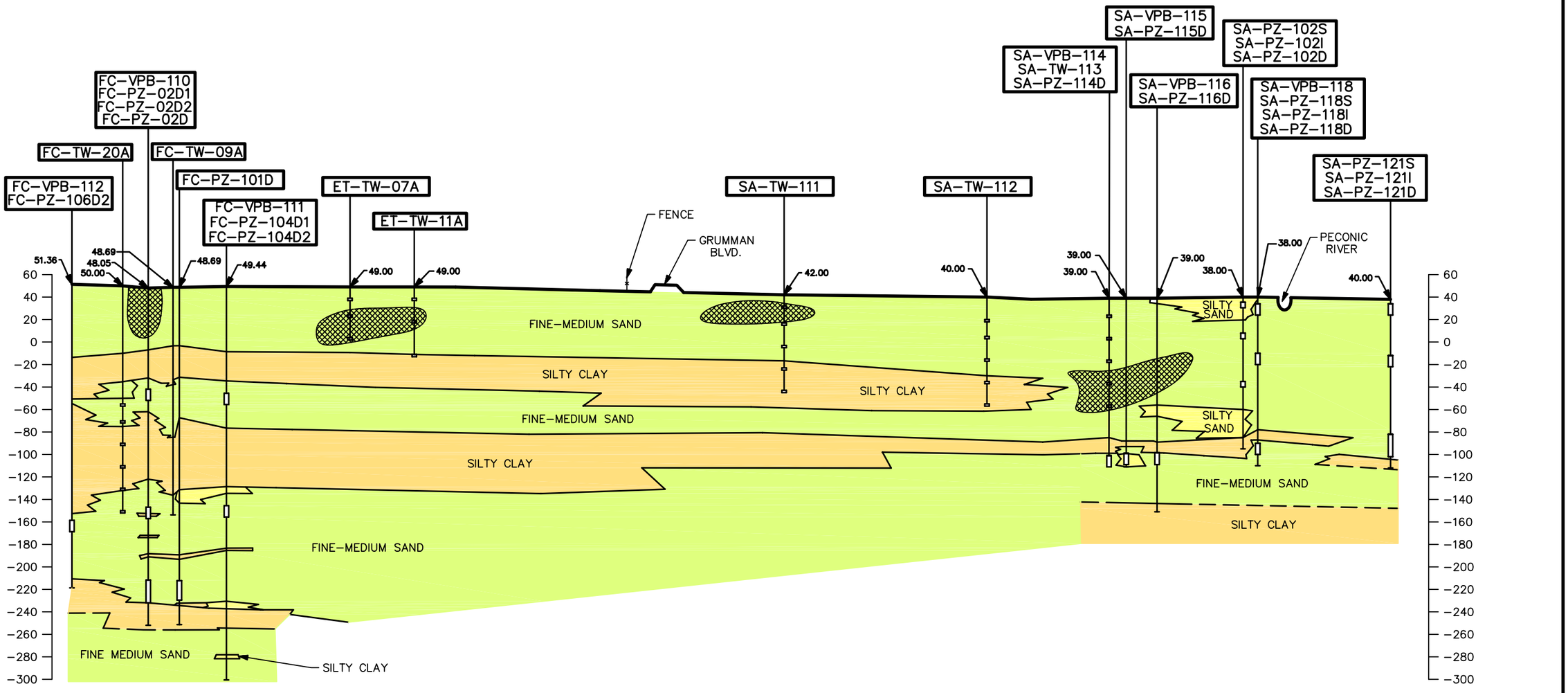
Tetra Tech NUS, Inc.

GROUNDWATER PLUME MAP
SITE 6A AND SOUTHERN AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

CONTRACT NO. 1610	
OWNER NO. 0000	
APPROVED BY	DATE
DRAWING NO. CA750 Figure 11	REV. 0

FORM CADD NO. TTNUS-BH.DWG - REV 1 - 9/10/98

ACAD:1610GX05.dwg 07/28/05 DM PIT



0 700 1400
HORIZONTAL SCALE IN FEET (APPROX.)

0 100 200
VERTICAL SCALE IN FEET (APPROX.)

LEGEND:

- SILTY SAND
- FINE–MEDIUM SAND
- SILTY CLAY
- CONTAMINATED AREA

DRAWN BY DM	DATE 7/27/05
CHECKED BY	DATE
REVISED BY	DATE
SCALE AS NOTED	

Tetra Tech NUS, Inc.

GENERALIZED CROSS SECTION MAP
SITE 6A AND SOUTHERN AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

CONTRACT NO. 1610	
OWNER NO. 0000	
APPROVED BY	DATE
DRAWING NO. CA750 Figure 12	REV. 0