DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

Interim Final 2/5/99

RCRA Corrective Action
Environmental Indicator (EI) RCRIS code (CA750)

Migration of Contaminated Groundwater Under Control

Facility Name: **Lockheed Martin**
Facility Address: **Electronics Park, Liverpool, NY**
Facility EPA ID #: **NYD059385120**

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 RCRIS national database ONLY as long as they remain true (i.e., RCRIS 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 and Reference(s):

Footnotes:

[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).

Site History

The Lockheed Martin Corporation, Electronics Park (EP) facility is located on Electronics Parkway in the Town of Salina, New York (see Figure 1). The EP facility was constructed in the mid-1940's by the General Electric (GE) Company. The ownership was transferred by GE to Martin Marietta Corporation in April 1993. In March 1995, Marin Marietta merged with Lockheed Corporation. As a result, the Martin Marietta Corporation became a wholly-owned subsidiary of Lockheed Martin Corporation. In September 1996, the property was transferred to the Empire State Development Corporation, however, Lockheed Martin is responsible for completing the necessary corrective actions and for cleaning up contamination both on and off-site of the Electronics Park facility.

In the past, various electronic components were manufactured at the EP facility. These included television picture tubes, semi-conductors, transmitters and receivers, and specialty products. Presently, sonar and radar systems are manufactured at the facility.

CONTAMINATION ON-SITE and in BLOODY BROOK

As a result of past manufacturing and operations, a variety of chemicals used at the EP facility have impacted soils, sediment and groundwater. These include volatile organic compounds (VOCs), polychlorinated biphenyls (PCBs), heavy metals, and hazardous constituents found in petroleum based products (BTEX). Below is a summary of the locations and type of contaminants found on-site and off-site in Bloody Brook:

Table 1

AREAS IMPACTED BY CONTAMINATION

Location	Type of Contamination found at that Location	Media Impacted
Bloody Brook (west branch)	Cadmium, PCBs	Stream sediments
On-Site Groundwater	Volatile Organic Compounds (including trichloroethene, 1,2,dichloroethene, and vinyl chloride, PCBs	Groundwater
Former Gasoline Storage Area	Petroleum based compounds (benzene, toluene, ethylbenzene, and xylene)	Soil & Groundwater
Former Drum Storage Area	Volatile Organic Compounds and Petroleum based compounds	Soils
Storm Sewers	Volatile Organic Compounds	Groundwater & Surface Water

RCRA FACILITY INVESTIGATION

Beginning in the 1980's, Lockheed Martin initiated a series of voluntary investigations to identify the impacts from hazardous waste or constituents. Extensive soil and groundwater investigations were conducted to evaluate all Solid Waste Management Units (SWMUs) and process areas at the EP facility. In addition a sediment sampling program was conducted in both the Middle and West Branches of Bloody Brook at locations upstream and downstream of the facility and within the facility boundaries. The purpose of these investigations was to determine the presence, nature, rate, and extent of releases of contamination at the EP facility and in Bloody Brook. Once enough data was gathered to define the extent of any impacts at the EP facility so that corrective measure alternatives could be chosen, RCRA Facility Investigation (RFI) Reports were completed, summarizing this information. With respect to Bloody Brook, a separate technical evaluation was completed. This information was used to help make the final recommendations for corrective measures at the EP facility and Bloody Brook. The results of those investigations are summarized below:

EP Facility Investigations

Lockheed Martin has voluntarily undertaken a series of soil and groundwater investigations at and near the EP facility. A Phase I groundwater investigation was conducted to evaluate groundwater conditions near Building EP-7A. The findings of this investigation are presented in the "Phase I Ground-Water Investigation Report" prepared by Malcolm Pirnie, Inc., dated September 1990. A Phase II groundwater investigation was conducted to evaluate the foundation drain and sump systems throughout the facility. A "Phase II Ground-Water Investigation Report", dated August 1991, summarizing the findings of this investigation was prepared by Law Environmental. A Phase III investigation was conducted by Blasland, Bouck & Lee, Inc. (BB&L) in 1992. This investigation included the evaluation of the physical, chemical, and hydraulic characteristics of the overburden groundwater system at the facility. The results of the Phase III investigation are presented in the "Phase III Ground-Water Investigation Report", dated April 1993, and the "Supplemental Phase III Ground-Water Investigation Report", dated October 1993.

Several additional groundwater-related investigations were conducted by BB&L from 1992 to 1994. The results of these investigations are documented in the following reports: "Storm Sewer Action Plan", dated October 1992; "Storm Sewer Investigations", dated December 1992; "West Electronics Park Ground-Water Investigation Report", dated February 1994; the "Supplemental West Electronics Park Ground-Water Investigation Report", dated September 1994; and "Additional Ground-Water Investigation Report, Building EP-5", dated November 1996. These reports are collectively referred to as the 'previously referenced reports' in subsequent sections of this Statement of Basis (SB). Lockheed Martin is continuing to monitor site-wide groundwater quality on a periodic basis through a sampling and analysis program conducted at select monitoring wells and sumps.

The investigations identified above have provided a hydrogeologic database consisting of soil gas, subsurface geologic, groundwater hydraulic and groundwater quality data, as well as information pertaining to the hydraulic influence of building sumps and subsurface utilities at the EP facility.

Site Geology

Based on the results of the investigations listed above, the general stratigraphy beneath the site is interpreted as consisting of the following geologic units (in descending order from ground surface):

- A heterogeneous upper overburden unit composed primarily of brown silt, sand, and gravel;
- Greenish-gray shaley/silty till;
- Brown silty to clayey till; and
- Gray to green Vernon Shale bedrock.

The site geology is detailed in the previously referenced reports.

Site Hydrogeology

Groundwater investigations at the site have generated data on the upper silt, sand, and gravel overburden unit of the site as well as the underlying Vernon Shale bedrock.

In general, the overburden groundwater flow system at the site is comprised primarily of the silt, sand and gravel unit underlain by a till unit. Owing to its density, fine grain size, and compact nature, the till unit acts as a hydraulic confining unit between the silt, sand and gravel unit, and the underlying bedrock formation.

Overburden groundwater elevation data obtained from the existing groundwater monitoring network (including monitoring wells, piezometers and sumps) demonstrates that groundwater underlying the central portion of the site converges upon the upper/lower sump located in Building EP-7. This hydraulic control, evidenced by a continuous groundwater depression centered near the upper/lower sump, is attributed to the active pumping (at approximately 30-50 gallons per minute) from the sump. Water pumped from the upper/lower sump, as well as other building sumps, is combined and treated in the Long Term Treatment System (discussed below).

Groundwater elevation data indicates that the hydraulic control of the sump network influences overburden groundwater flow throughout interior areas of the site, including the Former Gasoline Storage Tank Area, and the Storm Sewers. Overburden groundwater is not present in the western portion of the site known as the Former Drum Storage Area. **(See Attached Figure - Groundwater Elevation Contours).**

Bedrock monitoring wells installed along the southern and western boundaries of EP indicate that the top of the Vernon Shale is highly fractured but has a relatively low permeability.

The site hydrogeology is detailed in the previously referenced reports. Variations to the general site hydrogeology may be encountered in each area of the site; pertinent hydrogeologic variations will be described in subsequent sections.

Site Chemical Characterization

Groundwater

Previous investigations have identified VOCs, including trichloroethylene (TCE) and potential degradation products (1,2-dichloroethene [1,2-DCE] and vinyl chloride [VC]) in water samples collected from the building sumps and storm sewers at the site and in overburden groundwater samples obtained from the monitoring wells located within the site boundaries. Other VOCs, including petroleum-related compounds (benzene, toluene, ethylbenzene, and xylenes, collectively referred to as BTEX), were detected in groundwater near the former location of two underground storage tanks used for gasoline and diesel fuel storage near EP-9 (known as the Former Gasoline Storage Tank Area). Based on analytical

data obtained from monitoring wells installed at the perimeter of the site, the Department believes that VOC-impacted groundwater has not migrated off-site.

Semi-volatile organic compounds (SVOCs) have been detected in the overburden groundwater at monitoring wells located near Building EP-15 and EP-9, and at an upgradient monitoring well location at the eastern perimeter of the facility. No organochlorine pesticides have been detected in the groundwater at the facility. PCBs have been detected at two monitoring wells located near Buildings EP-15 and EP-5; the PCBs were identified in unfiltered water samples and may be related to PCB-impacted soils.

Groundwater samples obtained from the bedrock formation contained no VOCs (except for common laboratory contamination), SVOCs, pesticides or PCBs. No dissolved inorganics were present at concentrations exceeding Department Class GA standards. The bedrock groundwater analytical results support the interpretation that VOC impacts to groundwater are limited to the overburden (primarily the silt, sand and gravel unit above the till) groundwater system within the site perimeter.

(See accompanying Figures.)

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]). **(See attached potentiometric surface map.)**

_____ 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):

Remedial Measures (Groundwater Capture Systems) have been implemented at the facility. The capture zone associated with the capture system extends throughout the area of groundwater contamination. The groundwater remedial program is discussed below:

Groundwater Pump &Treatment

A series of foundation drains and sumps exist throughout the EP facility. The purpose of these drains and sumps is to collect and control groundwater in and around subgrade structures (primarily utility tunnels and basements) at the facility. Originally, groundwater collected in these sumps was discharged to the storm or sanitary sewer systems. Based on these findings, Lockheed Martin designed and constructed the Long-Term Treatment System which is intended to collect and treat groundwater from those building sumps found to be impacted by VOCs. The Long-Term Treatment System consists of duplex pumping systems installed in the following building sumps **(See Attached Figure)**:

- EP-5 Office Sump;
- EP-5 Artesian Well Sump (including artesian well flow);
- EP-6 Office Sump;
- EP-6 Basement Sump; and
- EP-7 Upper/Lower Sump.

The pumping systems serving these sumps discharge into a dedicated piping system which conveys water to Building EP-10 for treatment.

Ongoing monitoring has indicated that the groundwater remedial system is effective in capturing and controlling VOC-impacted groundwater occurring within the overburden in the central portion of the EP facility. Furthermore, the Long-Term Treatment System seems to be effectively controlling VOC-impacted groundwater within the facility boundaries, thus preventing off-site migration.

Lockheed Martin has developed and instituted a periodic groundwater quality and elevation monitoring program to ensure continued hydraulic control and treatment of VOC-impacted groundwater from the Gasoline Storage Tank Area and other EP areas. The most recent groundwater elevation data (1999) obtained by this program supports previous conclusions that the site-wide groundwater is being hydraulically controlled by the upper/lower sump located in Building EP-7 and that impacted groundwater has not migrated off-site.

1. Remedial Goals

A. Groundwater

i. Remediation of the overburden groundwater contamination and restoration of the overburden groundwater through the development and operation of a groundwater extraction system;

ii. Containment and control of the VOC contamination of overburden groundwater to prevent its migration off–site of the facility;

iii. Containment and control of contaminated groundwater infiltration into on–site

storm sewers through the development of a groundwater collection system or an alternative system as needed;

Termination of the groundwater remedial system will be based upon achieving the groundwater protection standards specified below:

PARAMETER	CAS#	GROUNDWATER PROTECTION STANDARD (ug/L)
Volatile Organic Compounds		
Trichloroethylene	79–01–6	5.0
1,1,1–Trichloroethane	71–55–6	5.0
Acetone	67–64–1	50.0
1,2–Dichloroethylene (total)	75–35–4	5.0
Vinyl chloride	75–01–4	2.0
1,1–Dichloroethane	75–34–4	5.0
Xylene (total)	1330–20–7	5.0
Chloroform	67–66–3	7.0
Toluene	108–88–3	5.0
Benzene	71–43–2	0.7
Ethylbenzene	100–41–4	5.0
p–Dichlorobenzene	106–46–7	4.7
o–Dichlorobenzene	95–50–1	4.7

[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.

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

_____ If yes - continue after identifying potentially affected surface water bodies.

__X__ 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 and Reference(s) **There have been documented instances of discharge of the contaminated groundwater to the storm sewers, and ultimately to Bloody Brook. LMC has implemented a remedial program to address areas of known infiltration, and a monitoring program to assure that any future instances of contaminant infiltration are detected and corrected. (See discussion below.)**

Storm Sewers

An on-site network of storm sewers exists at Electronics Park which discharges to the Middle and West Branches of Bloody Brook, both of which are Class C streams. Currently, surface water discharges to the storm sewers are regulated under the terms of SPDES Permit No. NYD002101.

Sampling and analysis of dry weather flows within the storm sewers at Electronics Park identified specific sections which were being impacted by the infiltration of VOC contaminated groundwater. The storm sewer sampling program identified four sections of pipeline that were being impacted by VOC-contaminated groundwater. These sections included:

1. An 18-inch diameter section located north of Building EP-10;
2. A 36-inch diameter section located west of Building EP-7;
3. A 27-inch diameter section located east of Building EP-6; and
4. Two 36-inch diameter sections and one 48-inch diameter section located west of Building EP-15 (West Branch of Bloody Brook).

As a result of these identified VOC impacts to the storm sewers, Lockheed Martin has undertaken a series of voluntary remedial measures which address impacted groundwater infiltration and discharge. In addition, Lockheed Martin is required to routinely monitor the storm sewer network to ensure that surface-water discharges from the facility meet applicable New York State surface-water quality standards, State Pollution Discharge Elimination System (SPDES) discharge limitations, and Department guidance levels.

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)?

   _____ 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):___ 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):_

An ongoing monitoring program (hydraulic and chemical) is required under the Order on Consent between LMC and the NYSDEC. In addition, LMC is required to report the results of the monitoring program to the NYSDEC. Details of the program include:

Reporting

i. System Down Time – The long term groundwater treatment and soil remedial

systems are operated on a continuous basis. If any part of the system is inoperable (down) for a period of more than 3 days consecutively or 5 days in a 30 day period (except for the purposes of routine maintenance), Lockheed Martin shall give written notification to the Department. The notification will include a plan for restoring system operation as quickly as possible.

ii. Semiannual Reports – Each June and December, Lockheed Martin submits a written report containing performance data collected during the previous 6 month sampling period. Data are provided as hard copy and in an acceptable digital format (such as Excel, Word or Lotus, 3.55 inch 1.44 Mg floppy disk) for input into the Department's computers. In addition, these reports summarize system operation data for the previous period, the cause and duration of system upsets requiring notification, corrective action taken or to be taken to resolve recurrent operational difficulties.

iii. Annual Reporting - Annually Lockheed Martin submits a summary report of all sampling results obtained during the preceding year. The Annual Report is due by June 1 of each year and contains a summary of all data and evaluations as required for semiannual reports.

In addition, the following information is contained in the Annual Report:

(1) Lockheed Martin determines the groundwater flow rate and direction;

and

(2) Lockheed Martin submits a proposal for any changes to the Groundwater Monitoring Plan.

and

3) Lockheed Martin includes any adjustments that may have been made to the groundwater or soils remedial systems.

C. Modification of the Remedial Systems

i. If, after review of the performance monitoring data, the Department determines that the design or operation of the remedial systems is not sufficient to achieve the remedial criteria, the Department may require Lockheed Martin to modify the design or operation of the systems so as to achieve the remedial criteria.

ii. Lockheed Martin may implement, without prior Department approval, minor adjustments to the groundwater recovery system or soils remedial systems that will facilitate or improve groundwater control and cleanup or soil cleanup. The description of any adjustments shall be included in the annual report. The Department shall be notified in writing prior to any major adjustments to the

system.

Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750)

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 Lockheed Martin Electronics Park facility , EPA ID # **NYD059385120**, located at Liverpool, NY. 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 (signature) William E Wertz Date 9/29/99
(print) William E. Wertz, Ph.D.
(title) Senior Engineering Geologist

Supervisor (signature) Paul J. Merges Date 9/30/99
(print) Paul J. Merges
(title) Director, Bureau of Radiation &Hazardous Site Management
(EPA Region or State) NYSDEC

Locations where References may be found:
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Division of Solid & Hazardous Materials
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Albany NY 12233

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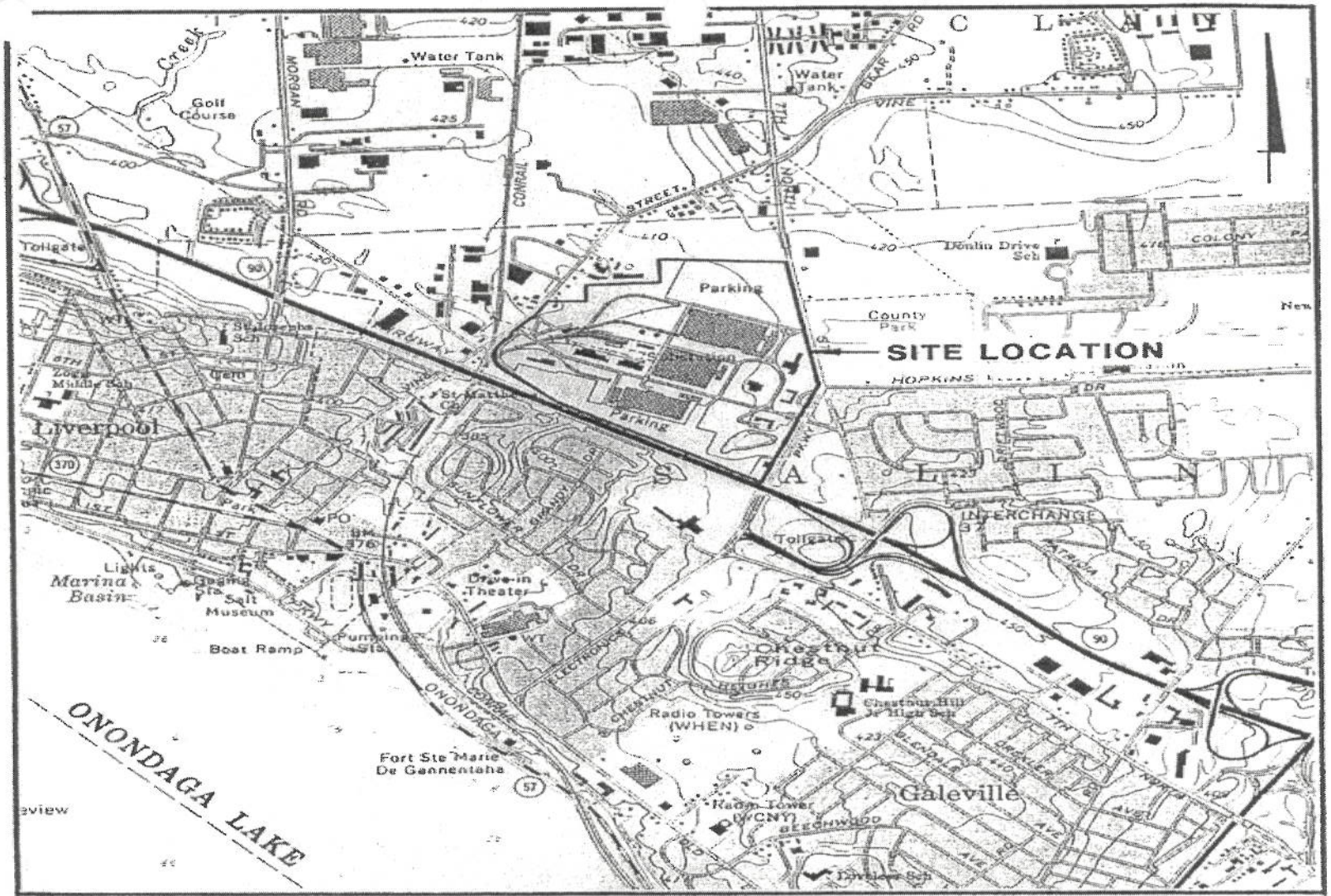
e-mail) wewertz@gw.dec.state.ny.us



ELECTRONICS PARK FACILITY
SYRACUSE, NEW YORK

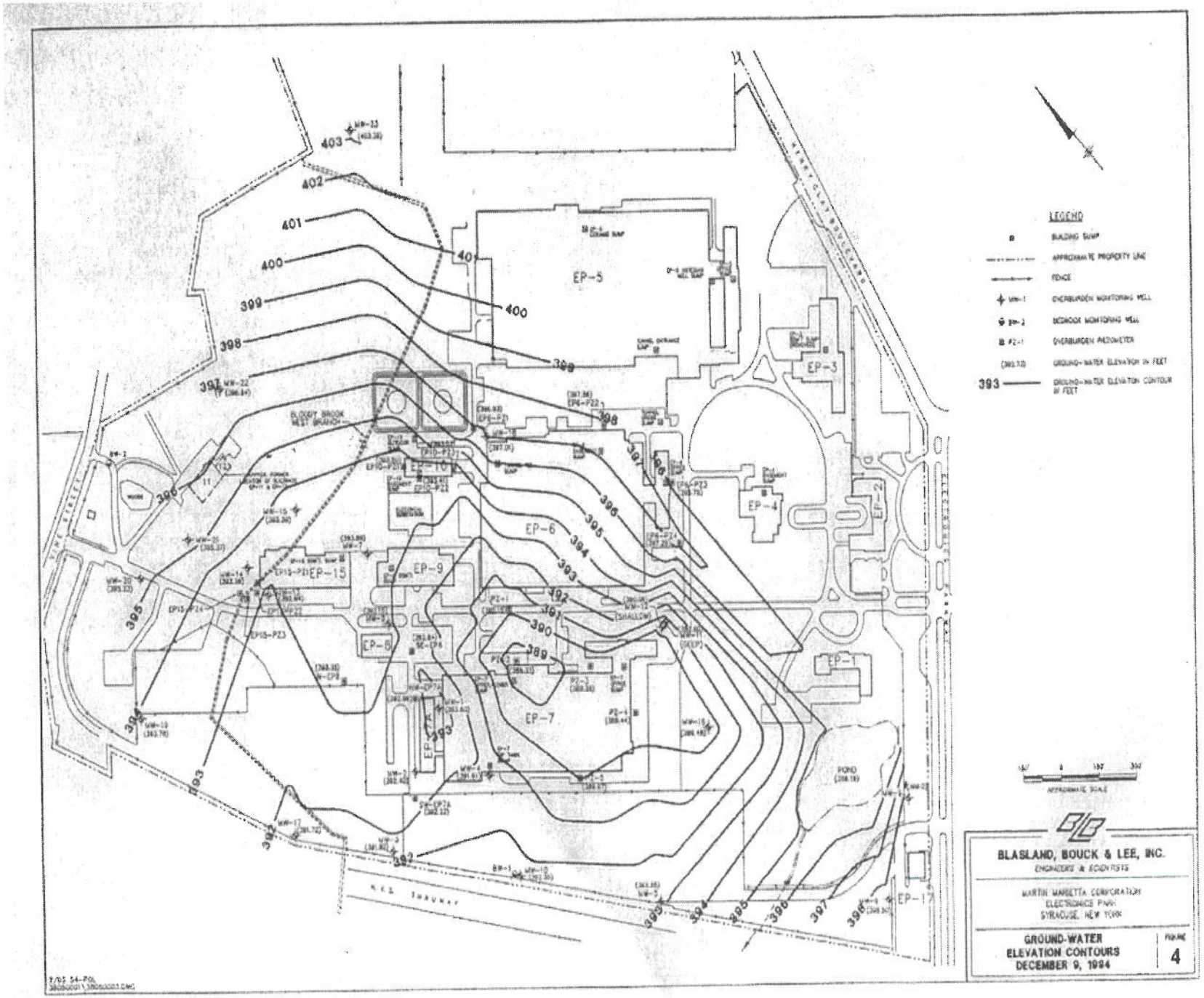
SITE LOCATION MAP

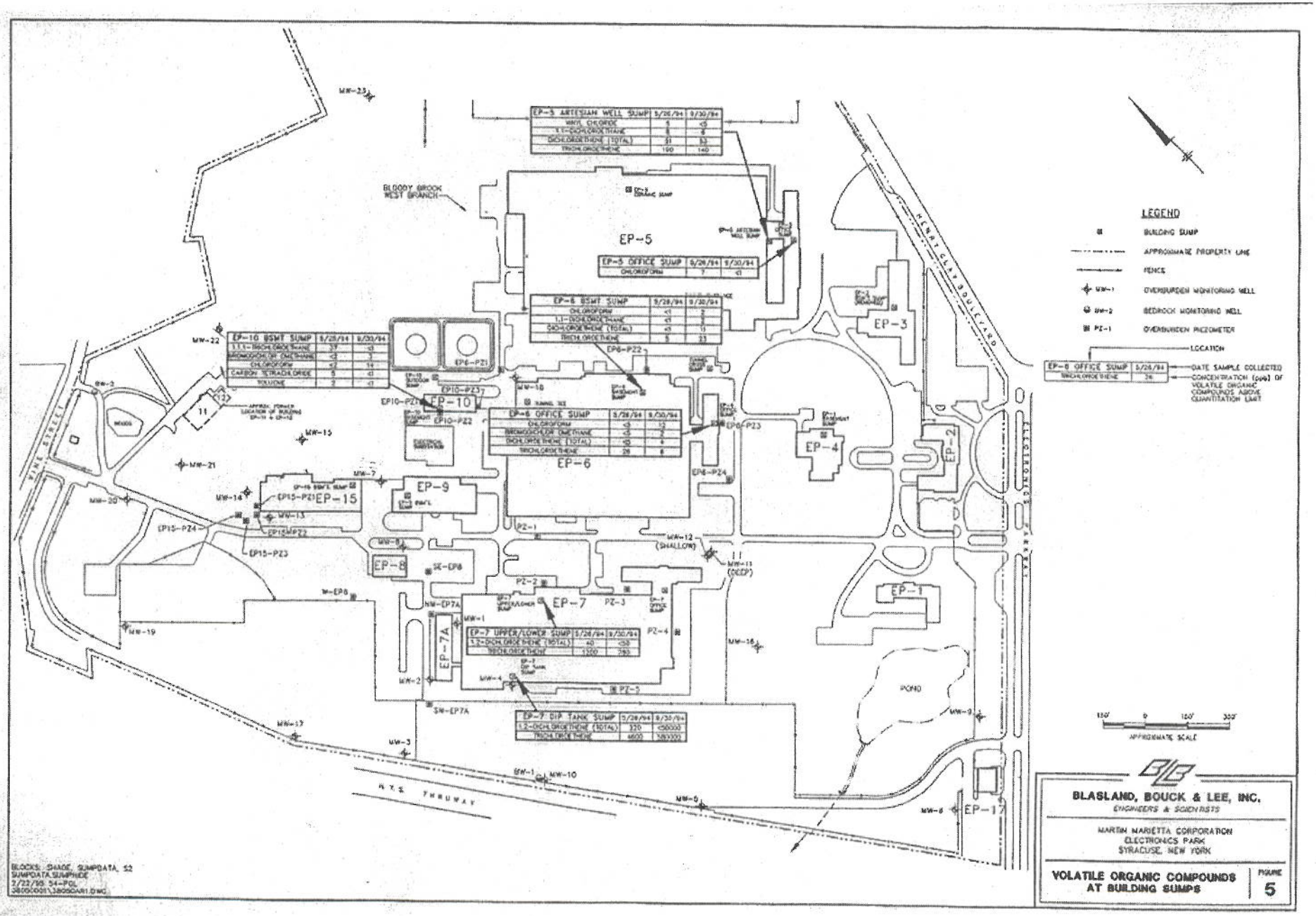
SCALE:

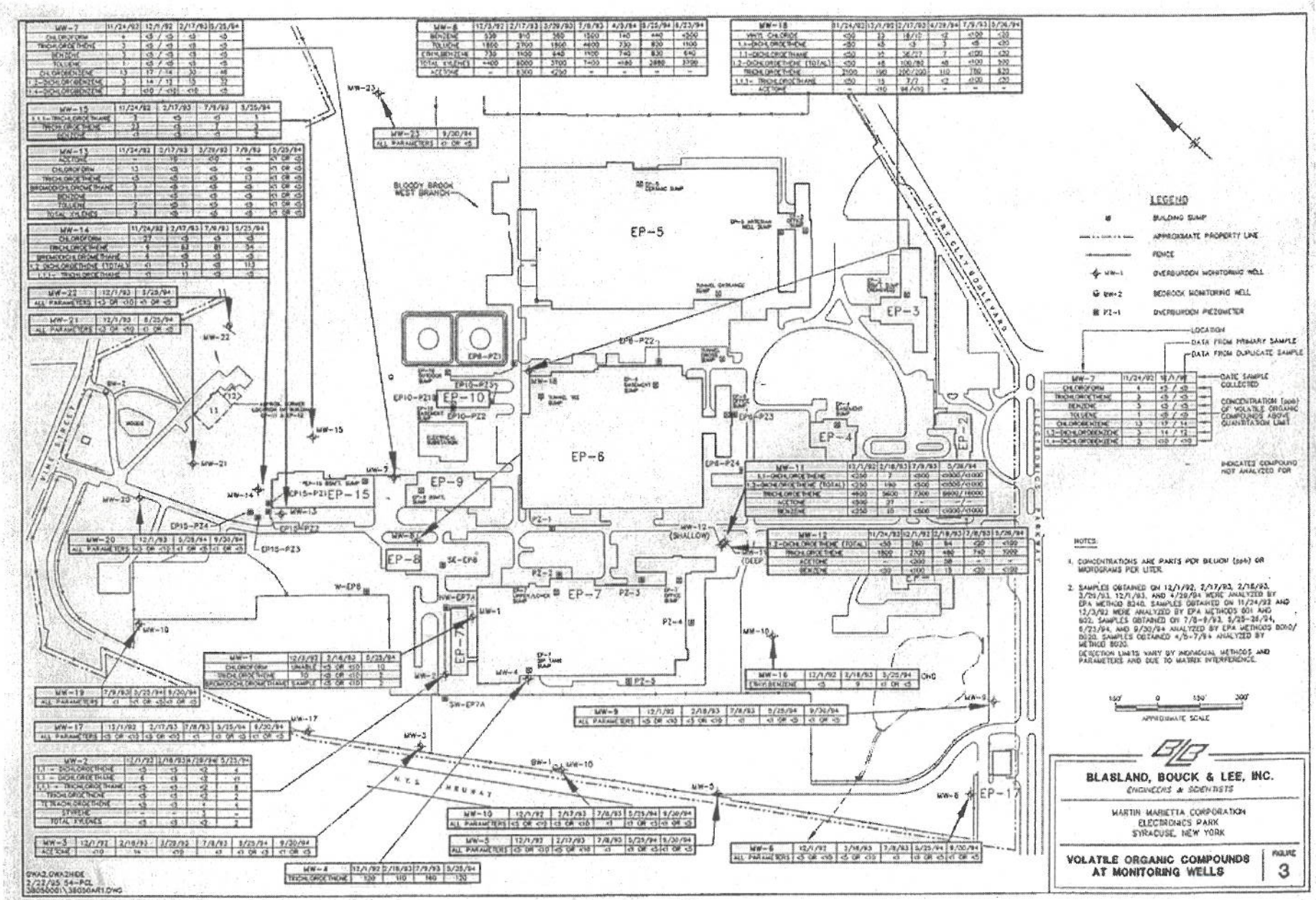
2000' 0 2000'

SOURCE: USGS 7 1/2 MINUTE TOPOGRAPHIC QUADRANGLE:
SYRACUSE WEST, NY, 1978

BLASLAND & BOUCK ENGINEERS, P.C.


LEGEND
BUILDING SUMP
APPROXIMATE PROPERTY LINE
FENCE
OVERBURDEN MONITORING WELL
BEDROCK MONITORING WELL
OVERBURDEN PIEZOMETER
GROUND-WATER ELEVATION IN FEET
GROUND-WATER ELEVATION CONTOUR IN FEET
393
EP-5
EP-3
EP-4
EP-6
EP-10
EP-9
EP-15
EP-8
EP-7
EP-1
EP-2
EP-12
POND
BLASLAND, BOUCK & LEE, INC.
ENGINEERS & SCIENTISTS
MARTIN MARIETTA CORPORATION
ELECTRONICS PARK
SYRACUSE, NEW YORK
GROUND-WATER
ELEVATION CONTOURS
DECEMBER 9, 1994
FIGURE
4


EP-5 ARTESIAN WELL SUMP
EP-5
EP-5 OFFICE SUMP
EP-6 BSMT SUMP
EP-6
EP-6 OFFICE SUMP
EP-10 BSMT SUMP
EP-10
EP-7 UPPER/LOWER SUMP
EP-7 DIP TANK SUMP
EP-7
EP-7A
EP-8
EP-9
EP-15
EP-3
EP-4
EP-2
EP-1
EP-17
BLOODY BROOK WEST BRANCH
HENRY CLAY BOULEVARD
PINE STREET
N.Y.S. THRUWAY
POND
LEGEND
BUILDING SUMP
APPROXIMATE PROPERTY LINE
FENCE
OVERBURDEN MONITORING WELL
BEDROCK MONITORING WELL
OVERBURDEN PIEZOMETER
LOCATION
DATE SAMPLE COLLECTED
CONCENTRATION (ppb) OF VOLATILE ORGANIC COMPOUNDS ABOVE QUANTITATION LIMIT
APPROXIMATE SCALE
BLASLAND, BOUCK & LEE, INC.
ENGINEERS & SCIENTISTS
MARTIN MARIETTA CORPORATION
ELECTRONICS PARK
SYRACUSE, NEW YORK
VOLATILE ORGANIC COMPOUNDS AT BUILDING SUMPS
FIGURE 5


EP-5
EP-3
EP-6
EP-4
EP-2
EP-10
EP-9
EP-15
EP-8
EP-7
EP-1
BLOODY BROOK WEST BRANCH
HEART CLAY MOULEVARD
WINE STREET
N.Y.S. THRUWAY
LEGEND
BUILDING SUMP
APPROXIMATE PROPERTY LINE
FENCE
OVERBURDEN MONITORING WELL
BEDROCK MONITORING WELL
OVERBURDEN PIEZOMETER
LOCATION
DATA FROM PRIMARY SAMPLE
DATA FROM DUPLICATE SAMPLE
DATE SAMPLE COLLECTED
CONCENTRATION (ppb) OF VOLATILE ORGANIC COMPOUNDS ABOVE QUANTITATION LIMIT
INDICATES COMPOUND NOT ANALYZED FOR
NOTES:
1. CONCENTRATIONS ARE PARTS PER BILLION (ppb) OR MICROGRAMS PER LITER.
2. SAMPLES OBTAINED ON 12/1/92, 2/17/93, 2/18/93, 3/25/93, 12/1/93, AND 4/28/94 WERE ANALYZED BY EPA METHOD 8240. SAMPLES OBTAINED ON 11/24/92 AND 12/3/92 WERE ANALYZED BY EPA METHODS 601 AND 602. SAMPLES OBTAINED ON 7/8-9/93, 5/25-26/94, 6/23/94, AND 9/30/94 ANALYZED BY EPA METHODS 8010/8020. SAMPLES OBTAINED 4/5-7/94 ANALYZED BY METHOD 8020.
DETECTION LIMITS VARY BY INDIVIDUAL METHODS AND PARAMETERS AND DUE TO MATRIX INTERFERENCE.
150' 0 150' 300'
APPROXIMATE SCALE
BLASLAND, BOUCK & LEE, INC.
ENGINEERS & SCIENTISTS
MARTIN MARIETTA CORPORATION
ELECTRONICS PARK
SYRACUSE, NEW YORK
VOLATILE ORGANIC COMPOUNDS AT MONITORING WELLS
FIGURE 3

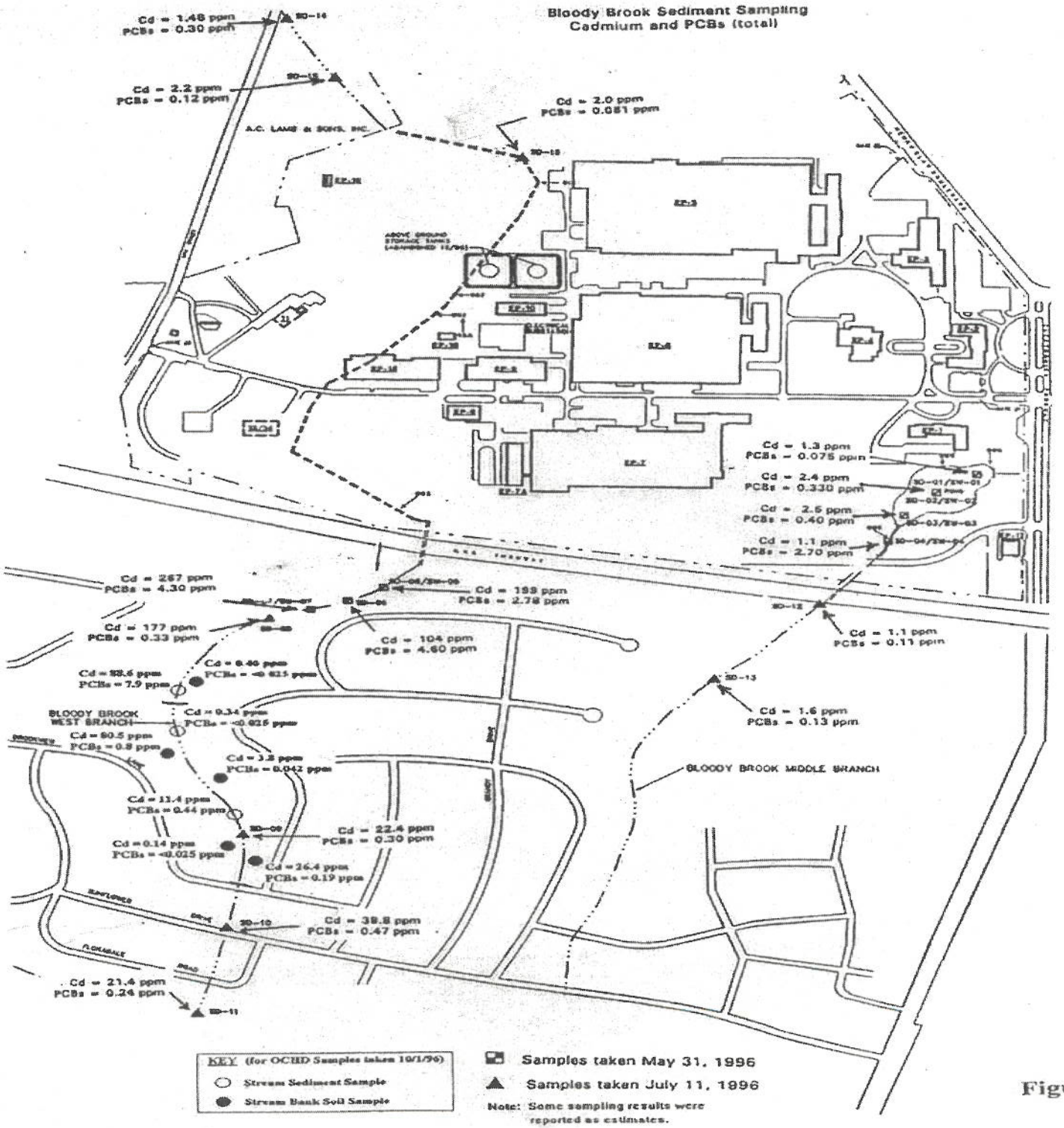

Bloody Brook Sediment Sampling
Cadmium and PCBs (total)
Cd = 1.48 ppm
PCBs = 0.30 ppm
Cd = 2.2 ppm
PCBs = 0.12 ppm
Cd = 2.0 ppm
PCBs = 0.081 ppm
A.C. LAMB & SONS, INC.
Cd = 1.3 ppm
PCBs = 0.075 ppm
Cd = 2.4 ppm
PCBs = 0.330 ppm
Cd = 2.5 ppm
PCBs = 0.40 ppm
Cd = 1.1 ppm
PCBs = 2.70 ppm
Cd = 267 ppm
PCBs = 4.30 ppm
Cd = 199 ppm
PCBs = 2.78 ppm
Cd = 177 ppm
PCBs = 0.33 ppm
Cd = 104 ppm
PCBs = 4.60 ppm
Cd = 1.1 ppm
PCBs = 0.11 ppm
Cd = 1.6 ppm
PCBs = 0.13 ppm
BLOODY BROOK
WEST BRANCH
BLOODY BROOK MIDDLE BRANCH
Cd = 22.4 ppm
PCBs = 0.30 ppm
Cd = 26.4 ppm
PCBs = 0.19 ppm
Cd = 39.8 ppm
PCBs = 0.47 ppm
Cd = 21.4 ppm
PCBs = 0.24 ppm
KEY (for OCHD Samples taken 10/1/96)
Stream Sediment Sample
Stream Bank Soil Sample
Samples taken May 31, 1996
Samples taken July 11, 1996
Note: Some sampling results were reported as estimates.

Figure 4