

**PHASE III
ENVIRONMENTAL SITE ASSESSMENT**

931359

CONDUCTED AT

**Former Gracey Roofing Site
87-111 Archibald Street
Burlington Vermont**

FOR

Lake Champlain Housing Development Corp.

Prepared By

CON-TEST, INC.

PROJECT #93250119

November, 10, 1993

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1.0 INTRODUCTION

Refer to Site Location Map, Figure 1.

This report represents the Final Phase of three investigations to characterize the environmental quality of the subject site. The site area is located at 87-111 Archibald Street, Burlington, Vermont and was most recently operated by Gracey Roofing, Co. Inc. The site has been utilized as a junk and scrap yard. Refer to the Appendix G for Excerpts from the original Phase I Investigation, Site History.

This report is being prepared and completed from the Lake Champlain Housing Development Corporation, LCHDC. The LCHDC plans to raze the existing buildings on-site and construct residential housing. This work will require; demolition, earthwork and site grading in order to prepare the site for the new building.

2.0 SITE GEOLOGY/HYDROGEOLOGY

2.1 Site Geology

The site overlies the Adams and Windsor loamy sands as described by the soils survey of Chittenden County, Vermont. This soil consists of deep, loose, well draining sand. The is underlain by stratified sand, gravel, sandy loam, loam glacial till, clay silt and or bedrock. Review of previous test borings indicates that a ravine runs westerly through the south western portion of the site. This ravine has been filled with ash and other fill materials. This ravine may reflect a bedrock valley. The following section on groundwater hydrology suggests that groundwater flows in the direction of this ravine.

2.2 Site Hydrogeology

The groundwater flow has been approximated to be westerly towards Lake Champlain. This is based on review of the ground water depth at MW-3 and the fact that MW-2 and MW-3 are dry. In calculating groundwater flow and contours it was assumed that the water table was at the bottom of wells MW-2 & 3. Refer to Figure 4.

It is possible that the groundwater is flowing in an old ravine that has been filled with ash and other fill materials. This flow pattern may be very local and the surrounding properties may be influenced by the general topography. Refer to Figure 4 for Groundwater Contour Map and related data.

(Review of geographic features would otherwise indicate a flow direction that was north-northwest and influenced by; low lying lands, wetlands and Lake Champlain, all located to the north and west of the site and approximately 140 ft vertically below the site)

3.0 BACKGROUND

An Expanded Environmental Site Assessment ESA was conducted between June 1, 1993 and June 19, 1993 to address concerns noted in the Environmental Site Assessment dated October 30, 1993. These concerns included the possible presence of polychlorinated biphenyls, organochlorine pesticides, purgable aromatic halocarbons and lead in the site soils. The following summarizes the conclusions and recommendations of this Assessment.

3.1 Conclusions, June 1993 Assessment

3.1.1 Prior Site Investigations indicate evidence of past releases/spills at the subject site.

3.1.2 Screening with an OVM at 16 locations throughout the site did not indicate significant VOC contamination based on head space analysis of collected soil samples. Samples were collected with a split spoon sampler at depths of 1 to 3 feet.

Refer to Figure 2 for Sample Point (SP 1-16) locations.

3.1.3 Soil samples analyzed for volatile organic compounds using EPA Method 8010/8020 indicated elevated levels of trichloroethylene, TCE, and Toluene.

TCE SP-11 13.3 ug/kg, SP-12 **2,990 ug/kg.**
Toluene SP 12 159 ug/kg.

The level of TCE in soils at SP-12 was considered significant.

3.1.4 XRF Screening in the field and subsequent correlation with laboratory analysis indicated that lead levels in soil are above the average background level of 1300 mg/kg that has been established for this area by CON-TEST. This average background level was established by CON-TEST by reviewing data that has been collected for Lead Based Paint Surveys within a one mile radius of the site and averaging the results. Soils lead levels occurring from a low of 25 mg/kg to a high of 6000 mg/kg were used in the averaging. Refer to Excerpt from CON-TEST June 25, 1993 Report, Appendix B.

3.1.5 5 Sample Points, SP-5, 7, 8, 10 & 14, were chosen for screening the site for PCB's & Pesticides and RCRA Metals. Samples were taken in the 1 ft to 3 ft range.

PCB 1016 was detected at 2 of 5 Sample Points, (SP-5 & 7), at levels above State of Vermont "DRAFT " Enforcement Standards.

No Pesticides were detected. Analysis for 8 RCRA Metals indicated the presence of barium, cadmium, chromium, lead, mercury and silver at all 5 sample points. Silver exceeded the "Draft" Enforcement Standard at one sample point, barium exceeded the "Draft" at 4 sample points and cadmium, chromium, lead & mercury exceeded the "Draft" at all 5 sample points.

3.1.6 Analysis of analytical data collected at the subject site indicate that although elevated levels of 8 RCRA Metals are present the concentrations are at levels that do not present a significant threat to the groundwater or potential receptors with the possible exception of lead. The following parameters and physical conditions were considered in making this determination:

- a. Background metal concentrations are currently unknown. The possibility exists that the concentrations of metals are within background levels for these metals with the possible exception of lead, which occurred at 1440 mg/kg at SP-15. This is above the CON-TEST background average for soils in this area (1300mg/kg).
- b. The concentration of metals may be at background levels with the exception noted for lead.
- c. The depth to groundwater is approximately 80 ft.
- d. The groundwater is not being used for public water supply.
- e. The nearest potable well is located over 1/2 mile from the subject site.
- f. Total constituents versus TCLP leachate analysis for dry weight indicate a low leachate potential for metals.

3.1.7 The potential contaminants at the subject site include trichloroethylene, toluene, RCRA Metals particularly lead and PCB's.

3.1.8 Potential exposure routes are through inhalation and direct contact with contaminants. Toluene and Trichloroethylene present an inhalation risk through volatilization. These contaminants appear at only 2 of 16 sample points (# 11 and # 12). Direct soil contact exposure exists throughout the site with elevated levels of lead, and near a loading dock at the adjacent site with the presence of 8 RCRA metals and elevated levels of lead.

3.2 Recommendations, June 1993 Assessment

- 3.2.1 Notify the State of Vermont that a release has occurred at the subject site. Provide the state with a copy of the Expanded Site Assessment dated June 25, 1993.
- 3.2.2 Schedule a meeting with the State of Vermont to review the findings of the June 1993 Assessment and plan continued investigation in addition to establishing clean up requirements for the effected media.

4.0 STATE RECOMMENDATIONS FOR ADDITIONAL SITE ACTIVITIES

4.1 Summary of State Comments

The State of Vermont reviewed the Expanded Phase I Environmental Site Assessment and responded to this report with comments dated July 22, 1993. The States comments are included as Appendix C.

The State noted that the groundwaters at the subject site has been contaminated with TCE as is evident by a level of 25.7 ug/kg in a groundwater sample from Monitoring Well MW-3. TCE contaminated soils have been observed at 2 locations at the subject site. The State recommended that the LCHDC undertake a study to determine if there is a past or present source of TCE contamination to the groundwater in the area where TCE has been identified in soils at sample points # 11 & 12.

The State determined that none of the soils contaminated by the compounds that are present are a hazardous waste with the exception of TCE. The State recommended that any soils excavated that contain TCE will have to have a TCLP analysis performed on them to assure that they are not a hazardous waste.

- 4.1.1 The State indicated that soils exhibiting Lead Hot Spots could be excavated and removed for disposal at a lined landfill. The State has determined that these soils based on TCLP analysis have been rendered NON-Hazardous.
- 4.1.2 The State indicated that the remaining soils at the site that have exhibited elevated concentrations of RCRA metals can be capped with clean fill and blacktop. If this is performed no further characterization of metal contaminated soils will be necessary.
- 4.1.3 The State requested additional information and methodology on how CON-TEST established background levels for lead in the Burlington, Vermont area. The additional information should include; soil sample locations, sampling methodology, statistical methods used.
- 4.1.4 The State indicated that the LCHDC, through their consultant, should investigate the past usage of selenium at the subject site. The State also recommended that follow up soil samples be analyzed at a laboratory that will provide lower detection limits for selenium.
- 4.1.5 The State noted that PCB levels at Sample Point 7 are slightly greater than ten times the ingestion based health risk level. Because of this, soils in the area of sample point 7 will need to be further characterized or excavated down at least 2 feet and replaced with at least 2 feet of clean fill.
- 4.1.6 The State recommended that the underground storage tank located inside the front gate, the toluene drums and asbestos containing materials be removed as outlined in the VT DEC SMS letter dated February 22, 1993.

5.0 NEW CONCERNS/SUSPECTED PCB LACED OIL DISPOSAL WELL

During August, 1993 new information regarding past activities at the site developed.

In articles in the local News Paper it was reported that PCB contaminated oil had been poured down a pipe located in a vacant area at the south west portion of the property. The article was based on information supplied by a Mr. Larry Besset whom had worked at the Gracey Roofing site and the adjacent Klinkostein site many years ago. Mr. Besset reported that one or more pipes, approximately 6 inches in diameter and 30 feet long had been pushed into the soils at the site. This is not implausible because the underlying soils consists of an ash filled ravine overlain by a thin layer of gravel fill. It would be fairly easy to push or hammer a pipe into the ash fill which has little bearing capacity. Representatives met Mr. Besset at the site where he provided us with additional insight to this occurrence and he also pointed out to the best of his recollection where these activities occurred. This information was considered important and it was included in this investigation.

6.0 AREAS OF CONCERN (AOC)

LCHDC through the CON-TEST reviewed the comments prepared by the State of VT DEC SMS and developed a strategy to resolve the issues presented by the State. This was done with continued consultation with the state representatives. The following strategy was developed. Areas of concern were identified that required further field investigation/sampling and analysis.

AOC #1 This area shall include the area where levels of trichloroethylene have been detected in the site soils, sampling points 11 & 12. The investigation in this area will address concerns of the State identified in Section 3.1. The contaminants of concern, COC is Trichloroethylene (TCE).

AOC #2 This area will address concerns in regards to the suspected disposal of PCB contaminated oil into the suspected pipes pushed into the site soils. The contaminants of concern, COC's, include: petroleum hydrocarbons, PCB's, waste oils, full range of solvents (although PCB contaminated oil is suspected of being discharged we are assuming if this type of disposal took place other wastes were involved).

AOC #3 This area shall include the re-evaluation of the groundwater at the site. Past analysis of the ground water has indicated low levels of VOC contamination. The results of water samples obtained from MW-3 in September 1992 indicated TCE at 25.7 ug/kg and tetrachloroethylene (PERC) at 4.6 ug/kg.

This sample was also analyzed for TPH, EPA Method 8270 and TCLP Metals. All analites for these methods were NON Detect.

7.0 ADMINISTRATIVE CONCERNS (AC's)

The following Administrative Concerns, AC, have also been identified as requiring action at the site. These concerns do not require field investigation activities.

- AC #1 Lead hot spots in surficial soils. Refer to Section 4.1.2
- AC #2 Soils contaminated with elevated levels of RCRA Metals. Refer to Section 4.1.3
- AC #3 Establishment of background levels for lead in the Burlington area soils. Refer to Section 4.1.4
- AC #4 Additional sampling for Selenium. Refer to Section 4.1.5
- AC #5 PCB's occurring in surficial soils. Refer to Section 4.1.6
- AC #6 Removal of the underground storage tank, toluene drums and asbestos-containing materials. Refer to Section 4.1.7

8.0 PHASE III SITE INVESTIGATION

LCHDC contracted CON-TEST, Inc. to consult with the VT DEC SMS, in order to determine the AOC's and AC's as outlined herein and address each issue.

CON-TEST prepared a Field Sampling and Analysis Plan to address the AOC's. The Field Sampling and Analysis Plan is included as Appendix D.

8.1 Area of Concern # 1, Suspected TCE Contamination.

Field Investigation

The investigation consisted of establishing a 20 ft by 20 ft sampling grid at the suspected TCE contaminated soils area. Refer to Figure 3. The area of suspected TCE contamination is in the paved area between the warehouse building and the residential building. Soil samples were obtained at 5 ft intervals to a depth of 10 feet. A sample was taken at the 1-3 ft interval, 5-7 ft interval, and 10-12 ft interval.

Samples were identified by the boring # and depth as follows:

SP1-3 SP-1 indicates boring # 1

SP1-3 -3 indicates sample depth, ie: -1 = 5-7ft, -2 = 10-12 ft, -3 = 15-17 ft, -4 = 20-22 ft, and continuing at 5 ft intervals

Soil samples were obtained with a truck mount auger used to advance the boring to the required elevation. A split spoon sampler was driven by a hammer to collect the sample.

The samples were screened with a PID in the field.

Soil investigation and screening methodology.

- i. Core through the necessary asphalt, earth and/or concrete for placement of the soil gas points.
- ii. Bore to a depth of 10 feet utilizing an auger and collect samples using a split spoon sampler at depths of 1', 5', and 10'.

Samples collected at each depth will be screened for soil gas using a Photoionization Detector(PID).

- iii. If any of the soil gas survey points indicate elevated VOC's at the 10' sampling depth, the borings and sampling will be advanced at 5' intervals until two consecutive soil samples show non-detect with a PID.

10% of the collected samples indicating the highest PID levels will be submitted to the Con-test Lab for analysis of Volatile Organic Compounds (VOC's). Terminus samples from sampling points that exhibit elevated PID readings will also be selected for analysis for VOC's.

- iv. If any of the perimeter sampling points indicate elevated levels of VOC's additional borings may be needed to quantify the horizontal extent of contamination.

SAMPLE COLLECTION

Sample collection followed the following procedure:

The split spoon sampler was withdrawn from the bore hole and delivered to the on-site Environmental Hygienist. The samples were immediately taken for organic vapor analysis and volatile organic analysis following proper sample collection protocols for this type of work.

SAMPLE ANALYSIS

Soil samples selected for analysis were submitted to the CON-TEST Laboratory for Volatile Organic Compounds using EPA Method 8010/8020.

JUSTIFICATION

No other contaminants are suspected in this area. The COC's are TCE and toluene which require both the 8010 and 8020 scan.

RESULTS

Review of the PID readings during the screening process indicated irregular reading in the 0.0 to 10 ppm range. These readings were considered to be background and due to moisture or other disturbances in the atmosphere. These readings, however, were not considered satisfactory for normal instrument operation. Readings exceeding 10 ppm were considered to be actual readings of organic vapor in the site soils that could be a result of VOC's in the site soils. Soil samples were selected for analysis based on the highest PID readings. Terminus samples at locations where suspected VOC contamination was present were also selected for analysis. Refer to Appendix E for PID readings.

The soil exploration did not uncover any other areas of TCE contamination. Based on this analysis it has been determined that TCE contamination is limited to isolated areas at Sample Points 11 & 12.

At one location SP11-7 ethybenzene and xylenes were found at concentrations of 17 ppm and 108 ppm respectively. This was unusual because it was found at a terminus sample that was

expected to be clean based on PID screening. The terminus sample was 25 ft below an elevated PID reading in this boring location. The terminus sample was taken to confirm that there was no contamination at this depth. What was unusual is that the sample with the elevated PID reading, SP11-2, was free of VOC's based on the 8010/8020 analysis and the terminus sample we expected to be clean had elevated levels of ethylbenzene and xylenes. We have considered that the two samples differed in ID # by a 2 and 7. It is possible that the 2 and 7 could have been misidentified or some how mixed up.

The presence of these contaminants was discussed with the VT DEC SMS. It was decided that the occurrence was not explainable, but because the levels in soils were low and the occurrence was isolated, the presence of these compounds would not require further consideration.

DETERMINATIONS

Based on the above results CON-TEST has determined that there is not a source of TCE or VOC's in the site soils that has contributed to groundwater contamination in the area. TCE, ethylbenzene and xylene that have been identified in the site soils are probably the results of a small release that has not migrated. These areas are considered minor. Because construction activities are planned that will disturb the surficial soils the TCE soil contamination at sample point #12 should be removed and disposed of properly.

Information regarding this should be included in the specifications for any Site Work that will be performed at the site.

8.2 PCB CONTAMINATED OIL DISPOSAL

Field Investigation

The field investigation was initiated with a meeting with Mr. Besset. Mr. Besset pointed out 3 areas that the suspected disposal well might have existed. The investigation included 4 test borings located in the area of the suspected wells. This was in the vacant area to the south of the warehouse building. Refer to Figure 3, Site Map.

The boring and sampling strategy was as follows:

- i. Core through the necessary asphalt, earth and/or concrete for placement of sampling points.
- ii. Bore to a depth of 40' utilizing an auger and collect samples at 25', 30', 35', and 40'.
- iii. Screen the samples with a PID in order to select samples for analysis at the CON-TEST Lab. It was anticipated that if PCB Contaminated Oil was disposed of in this location other organic materials could also have been disposed of.

SAMPLE COLLECTION

Sample collection procedures is as follows:

The split spoon sampler was withdrawn from the bore hole and delivered to the on-site Environmental Hygienist. The samples were immediately taken for organic vapor analysis and VOC analysis following proper sample collection protocols for this type of work. 4 to 8 samples will be taken for analysis. Samples were identified by the boring # and depth as follows:

SB1-3 SB1 indicates boring # 1

SB1-3 -3 indicates sample depth, ie: -1 = 25-27 ft, -2 = 30-32 ft, -3 = 35-37 ft,
-4 = 40-42 ft

SAMPLE ANALYSIS

The following EPA methods will be used; Method 8080 for PCB's, Method 8010/8020 for VOC's and Method 8015 for Total Petroleum Hydrocarbons.

JUSTIFICATION

PCB's VOC's and oils are the only COC's at this study area.

RESULTS

Soil sample screening with the PID indicated no detection for any organic vapors all samples at SB-1, (SB1-1 through 4). The soil samples from this location were visually inspected. The soil material consisted of fill in the #1 sample and clean sand in the deeper samples. No sample was submitted for analysis.

The following soil samples were selected for analysis because they exhibited the highest Soil-Vapor PID instrument reading, (although the readings were low):

SB2-4 PID = 2.2 ppm

SB3-4 PID = 4.3 ppm

SB4-3 PID = 2.8 ppm

Results of VOC Analysis indicated No Detection for all samples.

Results of PCB analysis indicated a Trace (<0.025 mg/kg) of Aroclor 1260 at SB2-4 .
No PCB's were detection at SB3-4 and SB4-3.

Although there was only a trace of Aroclor at SB2-4 (the 40 ft deep sample), the sample at a depth of 35 ft depth, SB2-3, was submitted for PCB and TPH analysis. Analysis for this sample indicated No Detection for either method.

DETERMINATIONS

Based on the above field investigations and analysis, CON-TEST has determined that there is no supporting field or analytical evidence to support an opinion that disposal of PCB contaminated oil occurred in this area by the means of pouring oils or other wastes into the subsurface soils through some type of pipe. The trace level of PCB's in soils at sample SB2-3 is considered not significant to the degree to warrant further investigation.

8.3 Groundwater Field Investigation

Three monitoring wells exist on-site and are identified as MW-1, MW-2, MW-3. MW-1 & 2 have historically been dry.

Water samples were collected following proper protocols and procedures for this work. CON-TEST also supervised the installation of a replacement monitoring well for MW #3. The proposed construction of a new building requires the replacement of this well. This well will not be sampled at this time. It is being installed for future monitoring of the groundwater at the request of the VT DEC SMS. The new designation is MW-4.

ANALYSIS

Water samples will be analyzed for VOC's using EPA Method 601/602 and PCB's using EPA Method 8080.

JUSTIFICATION

VOC analysis is being performed in order to continue to monitor historically identified contaminants in the water at this site. PCB analysis is being performed in order to assess the presence of these contaminants in light of the suspected disposal of PCB Contaminated Oil, Section 6.2.

RESULTS

Analysis for VOC's and PCB's indicated the following contaminants occurring at MW-3 and the respective concentrations for the recent September 1992 sampling event:

<u>Contaminant</u>	<u>Sept. 93</u>	<u>Sept. 92</u>
Chloroform	1.5 ug/kg	non-detect
Trichloroethylene	14.0 ug/kg	25.7 ug/kg
Tetrachloroethylene	4.3 ug/kg	4.6 ug/kg
Toluene	1.1 ug/kg	non-detect
PCB, Aroclor 1260	non-detect	non-detect

These results indicate that VOC levels are consistent with the previous results. Trichloroethylene has actually dropped. Chloroform and toluene, although present in the recent analysis, are occurring at concentrations that are below the detection limit for EPA Method 8240 used in the 1992 sampling event. No PCB's were detected in the groundwater.

DETERMINATIONS

VOC contamination has occurred to the groundwater as is evident by elevated levels of trichloroethylene and tetrachloroethylene. Low levels of toluene and chloroform are not considered a significant contaminant. The level of trichloroethylene has actually dropped and tetrachloroethylene has remained essentially unchanged.

9.0 ADMINISTRATIVE CONCERNS (AC's)

The following actions are necessary to comply with the requirements and guidance provided by the VT DEC SMS. These actions pertain to the AC's identified in Section 7.0

AC #1 The LCHDC intends to remove lead contaminated soils as specified by the VT DEC SMS. The LCHDC will include in the specifications for the proposed site work the specific requirements for this work. The Site plans will include the horizontal and vertical limits for this removal. The VT DEC SMS will be provided with these plans and specifications for their approval prior to the start of work.

AC #2 The LCHDC intends to remove soils contaminated with RCRA metals as specified by the VT DEC SMS. The LCHDC will include in the specifications for the proposed site work the specific requirements for this work. The Site plans will include the horizontal and vertical limits for this removal. The VT DEC SMS will be provided these plans and specifications for their approval prior to the start of work.

AC #3 CON-TEST has provided in Appendix B, excerpts from previous reports, discussing the establishment of background levels for lead. Additional site specific information on the locations that background samples were taken are being investigated at this time. When this information is available it will be provided as an Addendum to this report.

AC #4 CON-TEST in further consultation with the VT DEC SMS dropped selenium as a contaminant requiring additional analysis.

AC #5 The LCHDC intends to remove soils contaminated with PCB's as specified by the VT DEC SMS. The LCHDC will include in the specifications for the proposed site work the specific requirements for this work. The Site plans will include the horizontal and vertical limits for this removal. The VT DEC SMS will be provided these plans and specifications for their approval prior to the start of work.

AC #6 The LCHDC will undertake the removal of the Underground Storage Tank, Toluene drums and asbestos as outlined by the VT DEC SMS. Note: soil samples obtained from around the tank area indicate that there has not been a release of tank contents to the soils.

10.0 CONCLUSIONS AND RECOMMENDATIONS

10.1 Areas of Concern (AOC)

AOC # 1

TCE/VOC Contaminated Soils Investigation

Elevated levels of trichloroethylene, ethylbenzene and xylenes have been identified in the site soils during this investigations. The level of TCE (2,990 ug/kg) was considered significant and warranted additional investigation to determine if trichloroethylene from this site was a source of groundwater contamination. This was justified because groundwater at this site has been degraded with trichloroethylene and tetrachloroethylene.

This investigation has determined through field sampling and analysis that there is no source of TCE at the site that is contributing to groundwater contamination. CON-TEST is confident that the areas where TCE has been found, as well as ethylbenzene and xylene, are isolated and probably the result of localized spills. No tetrachloroethylene was found in the soils, and this is a principle contaminant in the groundwater suggesting that the tetrachloroethylene as well as trichloroethylene are migrating from an off-site source.

Recommendations

CON-TEST is confident that the source of VOC contamination is from an upgradient groundwater source. This could be east, south-east or south of the subject site depending on the groundwater flow direction.

CON-TEST recommends that no further site investigation be performed and that sufficient information has been collected and evaluated to determine that the subject site and site soils are not a past or present source of groundwater contamination.

AOC # 2

PCB Contaminated Disposal Area

The investigation produced no evidence of any disposal of PCB OIL or other waste materials of the nature described in this report.

Recommendations

CON-TEST recommends that this area be dropped as a site concern and that no further site investigation activities be conducted.

AOC # 3

Groundwater Quality

The investigation included resampling groundwater and analyzing for Volatile Organic Compounds and PCB's. The results of the analysis indicated that PCB's are not present in the groundwater and that low levels of trichloroethylene and tetrachloroethylene are present at levels over the EPA Maximum Contaminant Levels. The levels of trichloroethylene appear to be dropping and tetrachloroethylene remains essentially unchanged when compared to previous sampling events.

Recommendations

CON-TEST has determined that the VOC contamination to the groundwater is not from on-site sources and is probably migrating from a location that is to the east, south-east or south of the site.

CON-TEST recommends that no further groundwater investigation be undertaken at the subject site. The existing monitoring wells should be maintained and access should be provided to the State of Vermont, DEC, SMS.

10.2 Administrative Concerns (AC's)

AC #1 through 6.

Recommendations

CON-TEST recommends that the required administrative actions that have been outlined in Section 8.0 of this report be followed by the LCHDC. No further field activities or investigations will be required.

FIGURES

- Figure 1 Site Location Map
- Figure 2 Site Plan, June 1993 Assessment
- Figure 3 Site Plan
- Figure 4 Groundwater Hydrology/Monitoring Wells

FIGURES

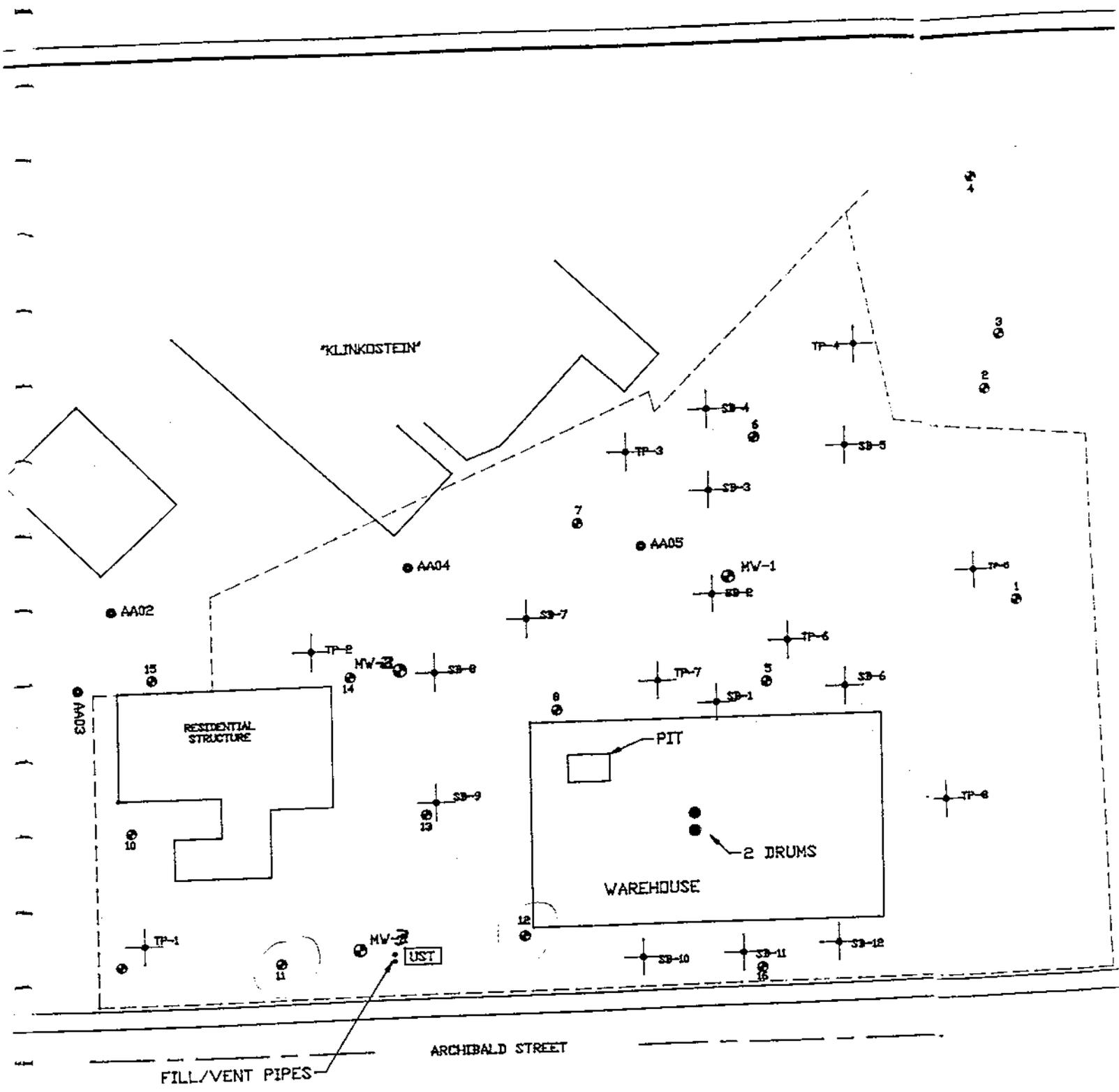
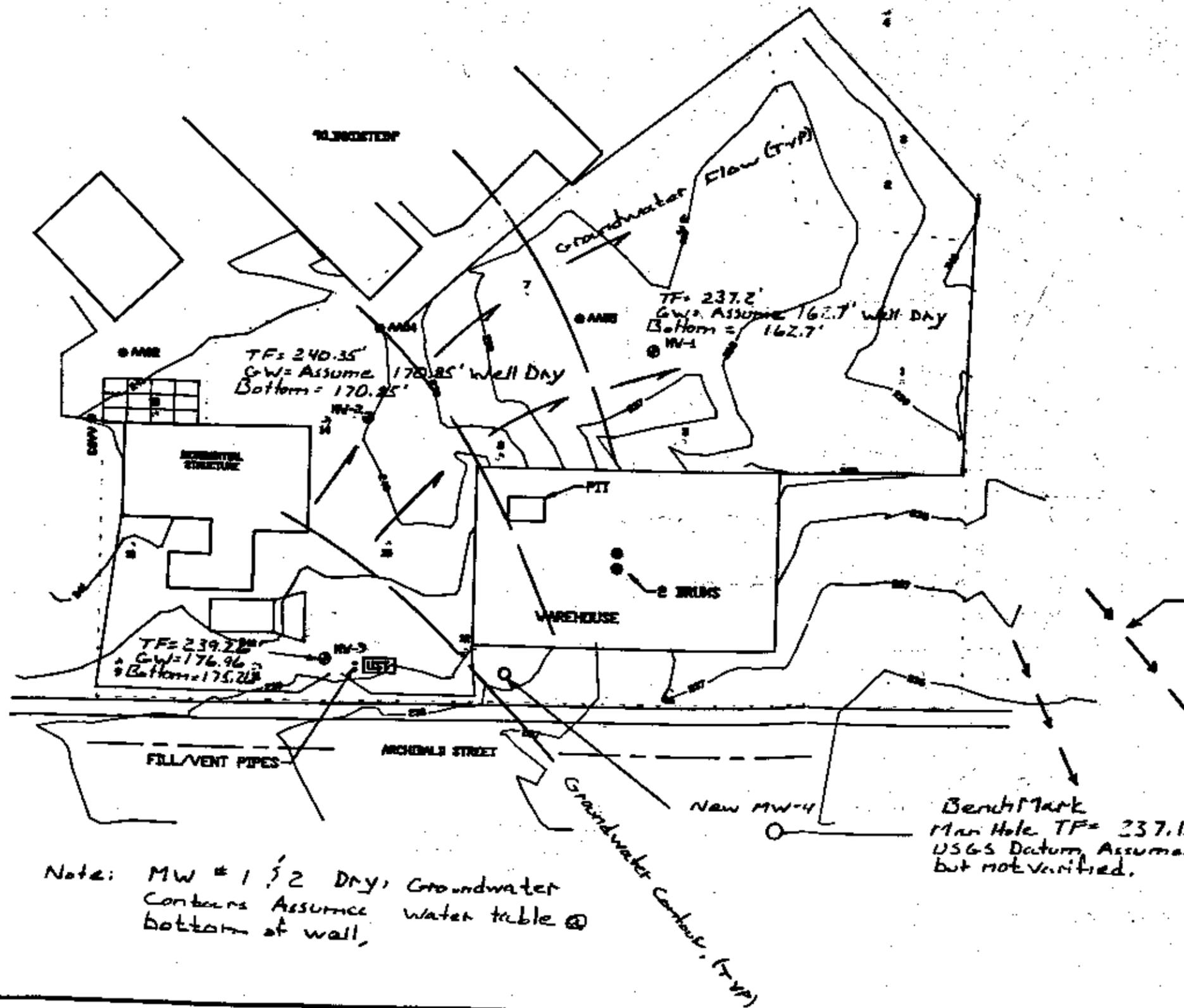


FIGURE 2

FIGURE 9



- LEGEND**
- - - - - BANK CENTER
 - - - - - PROPERTY LINE
 - - - - - STRUCTURE LINE
 - - - - - FENCE LOCATION
 - - - - - CONCRETE PAD
 - AAO - EXL. SAMPLE
- | | | | |
|--|--|--|--|
| | | | |
| | | | |
| | | | |
| | | | |

 - COMPOSITE GRID OF SUSPECT BATTERY STORAGE AREA. SAMPLE NUMBER AA-01 AND LD-01 WERE TAKEN FROM THIS AREA
- SAMPLE POINT

Note: MW # 1 & 2 Dry, Groundwater Contains Assume water table @ bottom of wall,

111-97 ARCHIBALD STREET
BURLINGTON, VT

CON-TEST INC.
39 SPRUCE - P.O. BOX 591
EAST LONGMEADOW, MA 01028

DRAWN BY: CHRIS BAUER
DATE: 6/23/93 REVISED 9/13/93

APPROVED BY:

SITE PLAN

SCALE: 1"=480' DWG: ENV TSP2

NEWS PAPER ARTICLE

APPENDIX A

Waste yard retiree recalls chemical dumps

Housing project planned on Old North End site

By John Howland Jr.
The Free Press Staff Writer

When it comes to measuring the contamination that has stalled development of two former industrial sites in the Old North End, Larry Bessette's memory might be an important guide.

The retired foreman of Burlington Waste and Metal on North Winsoski Avenue estimated Thursday that 200 tons of waste oil, much of it laced with hazardous PCB chemicals found in old electrical transformers, were dumped in the company yard and on an adjacent lot during his 33 years working there.

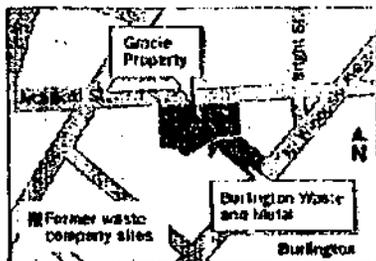
The magnitude of the implied cleanup depends upon the level of the dangerous chemicals in the waste fluids, but those who know Bessette, who lives nearby, said they take him at his word.

"He was there," said John McLaurin, longtime neighbor. "He would know."

Starksboro truck driver Rodney Lushford said that when he worked with Bessette during the mid-1980s, "he talked about stuff like that," although Lushford said he never saw the dumping at later years.

Bessette estimated that 100 tons of fluids were dumped on the Burlington Waste and Metal property and an equal amount in the Burlington Paper Stock yard, now known as the Gracie Roofing property, which faces Archibald Street.

A group of non-profit housing development groups, including Burlington Land Trust, has lined up \$2.3 million to



clean up and redevelop the two properties and several others in the neighborhood.

Land Trust Director Brenda Torpy said engineering tests have found contaminants including PCBs and TCE — a common dry cleaning and degreasing solvent — on both sites but that further tests are necessary.

Torpy's organization has offered to buy the Burlington Waste and Metal property from the estate of Howard Klinkostein, its former owner, for \$100,000. The budget for decontaminating the lot, she said, was \$50,000.

Torpy declined to appraise Bessette's estimate of what was dumped over the years. Burlington Waste and Metal closed in 1988.

"It's what's left there to deal with that's of concern to us," she said. "We have to rely on engineers."

Vermont Attorney General Jeffrey
See WASTE, 21

Chemical dumps alleged in Old North End

Continued from Page 1A

Amstutz said his office is evaluating the legal consequences of pollution, cleanup and liability on the sites but said he could provide no details.



Larry Bessette

Housing advocates have sought state approval of a cleanup plan that would relieve banks and other investors in their project from facing future liability for pre-existing problems.

Burlington Housing Inspector Donald Robear visited the two properties Thursday because of present liability concerns.

Several structures on both lots show evidence of having been broken into, and Robear surprised a young couple making a temporary home in one of the Gracie buildings. The couple left without incident.

Robear said he will arrange to have the buildings boarded up and the lots cleared to assist police patrols.

Bessette directed Robear to several waste wells on the Klinkostein property that were used for fluid disposal, including one hidden in the grassy back yard of a vacant three-unit apartment building at 259-261 N Winsoski Ave.

The hole was lined with three steel drums welded together to form a 12-foot pipe.

"Oil, PCB, you name it and it's there," Bessette told Robear. "All dangerous stuff."

The electrical transformers, he said, would come from Burlington Electric Department. Green Mountain Power and other sources and would be emptied and stripped down for scrap.

Waste fluids of other sorts would come from General Electric, among others — "40 or 50 barrels for each truckload, and sometimes there'd be two truckloads a week," he said.

Pollutants

Among the pollutants found on the Gracie and Burlington Waste and Metal properties are:

■ **Polychlorinated biphenyls** — PCBs are a family of organic compounds that have been used in electrical transformers, lubricants, ink solvents, textile coatings, pesticides and adhesives. PCBs are extremely persistent in the environment and do not break down into less harmful substances. The federal Environmental Protection Agency banned the manufacture of PCBs after July 1979. Long-term exposure can cause liver damage and other adverse health effects.

■ **Tetrachloroethylene** — A non-flammable solvent used in dry cleaning and degreasing, TCE is a common groundwater contaminant at hazardous waste sites because it moves from the soil into groundwater. Long-term exposure to low levels has been shown to cause liver damage in humans.

"Oil, PCB, you name it and it's there. All dangerous stuff."

Larry Bessette,
retired foreman

Dumping such waste, he said, was standard practice in the old days, with many dumping similar materials at the Archibald Street site now occupied by Burgess Electrical Supply, across from the Gracie property.

"I've heard this before and it doesn't surprise me," said Dale Taggart, an Archibald Street neighbor. "But I think it should be known."

The big question, said Torpy, is "what will happen here if we don't get the opportunity to clean this up while we have \$2 million."



Burlington Building Inspector Donald Robear inspects well that might contain toxic wastes Thursday at lot on North Winsoski Avenue.

HOUSING: Problems delay Archibald Street project

Continued from Page 28

"The concept," said Jeff Glassberg, Housing Vermont vice president, is "relieving future liability in return for alleviating present problems."

Waiting in the wings is Howard Bank, with almost \$1 million of its own ready to invest and additional money for loans. Other money sources include the city, the federal government, and the Vermont Housing Conservation Board.

The entire project, as outlined in a Federal Home Loan Bank grant application that won approval, encompasses five properties:

■ Gracie Roofing property on Archibald Street. All buildings would be taken down, and contaminated soil would be removed; 20 units of cooperative housing would be built. Cost: \$1,727,934.

■ Bergman property next door on Archibald. Three units would be fixed up, and a fourth, in a former garage, would be removed. Cost: \$187,000.

■ Property across the street at 112-114 Archibald. Nine apartments would be touched up. Cost: \$15,000.

■ Burlington Waste and Metal property at 255-261 N. Winoski Ave. Four units would be fixed up. A garage would be sold to the new co-op for a maintenance building, and other buildings would be removed. Contaminated soil would be removed. Cost: \$313,650.

■ The Triangle Building, a structure on the small triangle at Bright and Archibald streets. The building would be removed and the land given to the city, which would close off the adjacent short section of Bright Street and make a small park. Cost: \$100,000.

Glassberg expressed confidence that both the agreement with the state and a deal with the FDIC could be wound up soon.

"We have a meeting of the minds, and we will accomplish this," he said.

Howard Bank Vice President Philip Daniels said the bank is ready. "We're here with the money," Daniels said. "If it looks good to us, we'll put the money in. And they're trying to make it look good."

Brenda Torpy, director of the land trust, said the project could proceed without the Burlington Waste and Metal property, but expressed exasperation at the progress of the Klinkostein estate.

"It's been a textbook lesson about how neighborhoods go down. Someone dies and leaves a dump, and people fight over it and nothing gets done."

"We really have all this money," Torpy said, in reference to the entire project, "and no one can seem to move. It's unconscionable."

Dale Taggart, an Archibald Street homeowner for 13 years, said the lack of movement is fine with him.

Taggart blames neighborhood problems on absentee landlords who "don't care for anything but their rent checks," but doesn't look forward to an additional 20 co-op homeowners across the street from him.

"It's a high-density area already," Taggart said. "It's already overcrowded and we don't need to be overcrowded any more by building these new units."

He said he would prefer to see light industry move in.

His friend McLaurin at the corner store disagreed.

"I think the plan is a very good idea," McLaurin said. "Most people would like to see something happen."

With the summer construction season half over, the housing advocates are setting their sights on next spring and keeping their fingers crossed.

North End housing on hold

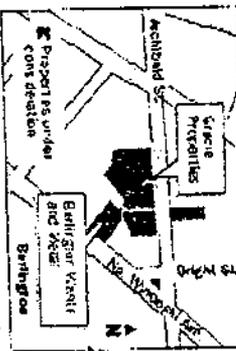
By John Howland Jr.
For The Burlington Free Press

Archibald Street still is waiting.

More than a year after affordable housing advocates gathered at an abandoned industrial site to announce plans for an ambitious, well-financed effort to rehabilitate a half-dozen properties, tangible results in this old North End neighborhood are now here to be seen.

Organizers say they have been situated by a bank failure, a plan that can't be carried out, and the tangled legal issue of cleaning up property contaminated by the routine industrial practices of bygone days.

Meanwhile, dilapidated buildings that once were home to Gracie Roofing



and Burlington Waste and Metal now house the homeless.

"The street people hang out there and drink and have fun," said John McLaurin, co-owner of J.A. McLaurin on the corner of Intramur Avenue and Archibald.

child. "They go back there to stay out of the sight of the public."

At night, half a dozen can be found sleeping there — "more if it's raining," he said.

Housing advocates who want people sleeping in clean, new apartments have lined up \$2.3 million to build 20 units in the neighborhood and rehabilitate 18 more.

Here's how it hasn't happened:
 ■ Owners of the Gracie property turned it over to Caladorea Bank, which otherwise would have foreclosed on a delinquent mortgage. The bank planned to sell the property to Lake Champlain Housing Development Corp., a partner in the project, but the bank failed.

The bank's interest then passed to

the Federal Deposit Insurance Corp., which technically doesn't own the real estate but controls the title. The project representatives had to begin negotiations anew with the FDIC.

■ Burlington, Community Land Trust, another participant in the project, has made an offer to buy the Burlington Wang and Metal property, which shares a back boundary with the Gracie land. But that real estate at 35-261 N. Winoski Ave. is tied up in the estate of its former owner, Howard Klinkostein, and is the subject of a lawsuit.

■ Housing Vermont, another non-profit participant, is seeking the state's approval for its plan to clean up pollution on the two industrial sites.
 See HOUSING, B

Post-it™ brand fax transmittal memo 7671 # of pages 2

To: Joe Boyer	From: John Davis
Co: CSN-TEST	Co: Lake Champlain Housing
Dept:	Phone # (802) 863-5298
Fax # (413) 525-8229	Fax # (802) 864-0734

**EXCERPTS
JUNE 93 ASSESSMENT
REGARDING LEAD IN SOILS**

APPENDIX B

CORRESPONDENCE

APPENDIX C



Department of Fish and Wildlife
Department of Forests, Parks and Recreation
Department of Environmental Conservation
State Geologist
Natural Resources Conservation Council

Hazardous Materials Management Division
103 South Main Street/West Building
Waterbury, Vermont 05671-0404
(802) 241-3888
fax (802) 244-5141

July 22, 1993

Ms. Amy Wright
Lake Champlain Housing Development Corp.
220 Riverside Avenue
Burlington, VT 05401

RE: Former Gracie Roofing, Burlington (site # 93-1359)

Dear Ms. Wright:

The Vermont Department of Environmental Conservation, Sites Management Section (SMS) has received and reviewed the June 25, 1993 Con-test report pertaining to the expanded site assessment for 87-111 Archibald Street (Former Gracie Roofing) in Burlington.

The results of this report strongly support the findings of the initial environmental site assessment. Based on the findings of this report and conditions at the site, the SMS offers the following comments:

- the attorneys are working on an agreement to address your concerns about liability for the contaminated groundwater under the site. TCE was detected in the groundwater under the site in MW-3 at a concentration of 25.7 ug/L. TCE was also detected in soils near the driveway onto the site at concentrations of 13.3 and 2,990 ug/kg. Although there may not be any connection between these two, the possibility does exist. Your consultant should come up with a plan to determine if the contaminants detected in groundwater under the site is originating from the soils under the site.
- the lead contaminated "hot spot" can be excavated and disposed of at a lined landfill. These soils have been shown to be non-hazardous by TCLP. If the rest of the site is capped with clean fill and blacktop, then no other work need be performed in relations to the metals in the soils. Otherwise, a clearer definition of what soil has elevated concentrations of lead and what soil does not have elevated concentrations of lead will need to be performed. The SMS needs more information as to the methodology used by Con-test in determining the background concentrations for lead in Burlington. This information includes sampling methodology, sample locations, and the statistics used. In addition to this work, your consultant should investigate any past land use practices to determine whether or not there were any potential sources for selenium. You may also consider having your consultant perform some follow-up sampling with analysis at a lab with a better detection limit for selenium.
- Con-test is mistaken in stating that PCB's, TCE, silver, and toluene detected in soils under the site are regulated as a hazardous waste in accordance with Section 7-213, Appendix II, of the Vermont Hazardous Waste Regulations. PCB's and silver are not even included in Appendix III. Con-test copied Appendix II in their report, and these compounds do occur on this Appendix. Section 7-213 applies to wastes which are off-spec and intended for disposal. This section

TDD: 1-800-253-0191

does not apply to wastes in soils. For these wastes, Sections 7-204 through 7-209 apply. This means that none of the compounds found in the soils at this site are a hazardous waste by definition, with the possible exception of TCE. Any soils excavated that contain TCE will need to have a TCLP performed on them in order to determine if they are a hazardous waste. However, PCB levels at sample location 7 are at a level of concern (slightly greater than ten times the ingestion based health risk level). Because of this, the soils around sample point 7 will need to be either further characterized, excavated down at least two feet, or covered with at least two feet of clean fill.

- removal of the underground storage tanks, the toluene drums, and asbestos should follow the plans outlined in my February 22, 1993 letter to you.

I trust that this letter gives you the guidance that you need. Please let me know if you plan to have the work requested in this letter performed. If you have any further questions, please feel free to contact me at 241-3888.

Sincerely,



Richard Spiese, Site Coordinator
Sites Management Section

rfs/79311.1359
cc: Gary Urich

FIELD SAMPLING PLAN

APPENDIX D

I. FIELD SAMPLING PLAN

A. PURPOSE OF PLAN

The purpose of the Phase III environmental site assesment is to quantify the extent of previously confirmed contamination in conjunction with the State of Vermont's Department of Environmental Conservation response letter dated July 22, 1993 and subsequent communications with the client and the state representative for the above referenced site.

B. FIELD PROCEDURES

TCE ASSESSMENT

i. Determine a datum point at the site and layout a 20' by 20' sampling grid in the area of sampling points # 12 and 14. (refer to figure 3, Previous Phase II Site Assessment Sampling Plan)

ii. Physically locate the 16 sampling gas points as shown on the attached "Phase III Site Assessment Field Sampling Plan", Figure 4.

SUSPECTED PCB LACED OIL DISPOSAL WELL

iii. Suspected "PCB Laced Oil Disposal Well" location. The location of the well will be investigated by interviewing, if possible, the individual whom recalls the well installation and disposal activities that occured in addition to the use of a metal detector to scan the area for any metal objects that could indicate a metallic well casing.

II. CHARACTER OF THE EXTENT OF CONTAMINATION

A. DRILL BORINGS AND SOIL SAMPLING

TCE ASSESSMENT

Soil Gas Survey - Lateral Extent

i. Core through the necessary asphalt, earth and/or concrete for placement of the soil gas points.

ii. Bore to a depth of 10 feet utilizing an auger and collect samples using a split spoon sampler at depths of 1', 5', and 10'. Samples collected at each depth will be screened for soil gas using a Photoionization Detector (PID). 10% of the collected samples indicating the highest PID levels will be submitted to the Con-test Lab for analysis of Volatile Organic Compounds (VOC's).

iii. If any of the perimeter sampling points indicate elevated levels of VOC's additional borings may be needed to quantify the horizontal extent of contamination.

Deep Soil Sampling - Vertical Extent

iv. If any of the soil gas survey points indicate elevated VOC's at the 10' sampling depth, the borings and sampling will be advanced at 5' intervals until two consecutive soil samples show non-detect with a PID. The terminous sample at this point will be collected and analyzed for VOC's using EPA method 8010/8021.

SUSPECTED "PCB LACED OIL DISPOSAL WELL"

v. Core through the necessary asphalt, earth and/or concrete for placement of sampling points.

vi. Bore to a depth of 40' utilizing an auger and collect samples at 25', 30', 35', and 40'. Sample locations will be based on use of a metal detector and interviews with the individual who recalls the installation of the well and the disposal activities that occurred.

B. GROUNDWATER SAMPLING

i. Gauge and record the depth to groundwater in each of the three existing wells with an Interface Probe (IP). Ground water depths will be used to calculate groundwater elevations. A groundwater contour map will be prepared to assist in estimating the direction of groundwater flow.

ii. Redevelop each well by removing atleast 3 volumes of water from the well.

iii. Collect one sample from each of the wells for analysis.

iv. Supervise the installation of a replacement monitoring well for MW # 2 as is necessary if required. (proposed construction of a building may require the replacement of this well)

C. LABORATORY ANALYSIS

TCE ASSESSMENT

- i. Samples will be analyzed in the field using a PID or FID in order to select samples for laboratory analysis.
- ii. Terminus samples obtained from the bottom of Deep Borings will be analyzed for VOC's using EPA method 8010/8020.
- iii. Ten Percent (10%) of the soil samples collected from the sampling points (SP1-SP16) that exhibit the highest levels of VOC's, using a PID or FID, will be analyzed for VOC's using EPA method 8010/8020. The two samples with the highest VOC's levels will be analyzed for TCE using the TCLP analysis. Samples will be retained for 30 days beyond the date of receipt.
- iv. Analyze one groundwater sample in each of the wells for VOC's and PCB's using EPA methods 601/602 and 8080 resectivly.

Suspected PCB Contaminated Soil Disposal Well

- i. Samples will be analyzed in the field using a PID in order to select samples for laboratory analysis. The following EPA methods will be used; method 8080 for PCB's and method 8010/8020 for VOC's. The consultant will use a metal detector to assist in locating the suspected well in each suspected area.

FIGURE 1- PROJECT DATA

CON-TEST, Inc., environmental consulting-testing provides the following information on the Phase III Environmental Site Assessment of 87-111 Archibald Street, Burlington, VT:

SITE: 87-111 Archibald Street
Burlington, VT

SITE OWNER: LAKE CHAMPLAIN HOUSING DEVELOPMENT
CORP.
220 Riverside Avenue,
Burlington, VT 05401
(802) 863-5248
contact: Amy Wright

CONSULTANT: CON-TEST, INC.
environmental consulting-testing
18 Blair Park Road, P.O. Box 925
Williston, VT 05495
(802) 879-3008
contact: Ed Lydod

PROFESSIONAL ENGINEERS: Joe L. Boyer, PE
E. Peter Burger, PE

LABORATORY: CON-TEST ENVIRONMENTAL LABORATORY
39 Spruce Street
East Longmeadow, MA 01028
(413) 525-1198

DRILLER: TRI STATE DRILLING & BORING, INC.
RFD # 2, BOX 113,
West Burke, VT 05871
(802) 467 3123
contact: Neil Faulkner

SOIL GAS SURVEY

APPENDIX E

**LCHDC
SOIL GAS SURVEY ANALYSIS**

SAMPLE	METER READING (ppm)		SAMPLE	METER READING (ppm)
SP1-1	2.2		SP10-1	0.6
SP1-1	0.0		SP10-2	0.1
SP1-2	2.1		SP10-3	0.4
SP1-2	0.0		SP11-1	14.5
SP1-3	3.4		SP11-2	40.1
SP1-3	0.0		SP11-3	12.5
SP2-1	0.0		SP11-4	3.7
SP2-2	0.4		SP11-5	2.9
SP2-3	0.2		SP11-6	0.7
SP4-1	1.4		SP11-7	0.0
SP4-2	4.2		SP12-1	0.10
SP4-3	0.0		SP12-2	0.2
SP4-4	0.0		SP12-3	0.2
SP7-1	19.0		SP13-1	0.0
SP7-2	9.0		SP13-2	0.0
SP7-3	0.7		SP13-3	0.0
SP7-4	0.0		SP14-1	0.0
SP8-1	3.0		SP14-2	0.0
SP8-2	1.7		SP14-3	0.0
SP8-3	0.6		SP15-1	0.0
SP9-1	5.1		SP15-2	0.0
SP9-2	25.1		SP15-3	0.0
SP9-3	7.6		SP16-1	6.8
SP9-4	9.3		SP16-2	18.2
SP9-5	3.0		SP16-3	3.0
SP9-6	2.6		SP16-4	7.1
SP9-7	11.2		SP16-5	0.5
SP9-8	7.0		SP16-6	0.2
SP9-9	3.0			
SP9-10	3.0			

LCHDC
SOIL GAS SURVEY ANALYSIS

SAMPLE	METER READING (ppm)		SAMPLE	METER READING (ppm)
SB1-1	0.1		SB3-1	0.0
SB1-2	0.0		SB3-2	1.5
SB1-3	0.0		SB3-3	2.7
SB1-4	0.1		SB3-4	4.3
SB2-1	1.4		SB4-1	2.2
SB2-2	0.6		SB4-2	-----
SB2-3	0.6		SB4-3	2.8
SB2-4	2.2		SB4-4	1.0

REFERENCES

APPENDIX F

REFERENCES

Environmental Site Assessment
87-111 Archibald Street
Burlington, Vermont
Dated October 30, 1992
Prepared for: Lake Champlain Housing Development Corporation
Prepared by : CON-TEST, Inc.

FINAL REPORT

Expanded Site Assessment of 87-111 Archibald Street
Dated June 25, 1993
Prepared for: Lake Champlain Housing Development Corporation
Prepared by: CON-TEST, Inc.

**CHAIN OF CUSTODY
SAMPLE ANALYSIS**

APPENDIX G

Proj. No.		Project Name				Analysis Required	
930250119		Lake Champlain Housing Development Corporation, Burlington, VT.					
Samplers (Signature)							
E. Peter Burger							
Sample Location	Date	Time	Comp.	Grab	Sample Description/lab#	No. of Containers	
SP11-2 ^{OL}	9/22/93				SOIL - 93B16993	(2) 40ml	SO10/2020 ✓
SP11-7 ^{OL}	9/22/93				SOIL - 16994	"	601/602 ✓
SP9-2 ^{OL}	9/22/93				SOIL - 16995	"	PCB/8080 ✓
SP9-10 ^{OL}	9/24/93				SOIL - 16996	"	TCE by TCLP ✓
SP7-1 ^{OL}	9/29/22/93				SOIL - 16997	1 bottle only	
SP7-4 ^{OL}	9/22/93				SOIL - 16998	"	
SP16-2 ^{OL}	9/23/93				SOIL - 16999	"	
SP16-6 ^{OL}	9/23/93				SOIL - 17000	"	
SP4-2 ^{OL}	9/23/93				SOIL - 17001	"	
SP8-1 ^{OL}	9/23/93				SOIL - 17002	"	
MW-2	9/22/93				Water - 17003	"	X
MW-2	9/22/93				Water - 17004	2-1 liter Amber Glass	X
SP4-4 ^{OL}	9/23/93				SOIL - 17005	"	✓
SP8-3 ^{OL}	9/23/93				SOIL - 17006	"	✓

* Analyze two soil samples w/ highest TOC's by ~~SO10/2020~~ SO10/2020 for ~~PCB/8080~~ TCE by TCLP

There was not enough soil material for 2 sample bottles

Relinquished by: (Signature) <i>E. Peter Burger</i>	Date Time 9/27/93 5:45pm	Received by: (Signature) <i>Edward Denson</i>	Lab Remarks: <u>Requested verbals by Oct. 4, 1993.</u>
Relinquished by: (Signature)	Date Time	Received by: (Signature)	
Relinquished by: (Signature)	Date Time	Received for Laboratory by: (Signature)	



October 20, 1993
Page 1 of 8

Peter Burger
Con-Test Environmental

Invoice #93-250-119
Date Sampled: 10/07/93
Date Received: 10/11/93
Date Analyzed: 10/14/93

Ref: Lake Champlain Housing Development
Burlington, VT

Matrix: Soil

The results of analyses requested are listed below:

M I C R O G R A M S / K I L O G R A M

<i>Lab #</i>	<i>93B17943</i>	<i>93B17944</i>	
<i>Sample #</i>	<i>(SB2-4)</i>	<i>(SB3-4)</i>	<i>LOD</i>
Dichlorodifluoromethane	ND	ND	5.0
Chloromethane	ND	ND	5.0
Bromomethane	ND	ND	5.0
Vinyl Chloride	ND	ND	5.0
Chloroethane	ND	ND	5.0
Methylene Chloride	ND	ND	5.0
Trichlorofluoromethane	ND	ND	5.0
1,1-Dichloroethylene	ND	ND	5.0
1,1-Dichloroethane	ND	ND	5.0
Trans-1,2-Dichloroethylene	ND	ND	5.0
Chloroform	ND	ND	5.0
1,2-Dichloroethane	ND	ND	1.0
1,1,1-Trichloroethane	ND	ND	5.0
Carbon Tetrachloride	ND	ND	5.0

LOD = Limit of Detection
ND = Not Detected

Analytical Method(s): SW846-8010/8020

Analyzed By: MFF

Page 2 of 8

Peter Burger
Con-Test Environmental

Invoice #93-250-119
Date Sampled: 10/07/93
Date Received: 10/11/93
Date Analyzed: 10/14/93

Ref: Lake Champlain Housing Development
Burlington, VT

Matrix: Soil

The results of analyses requested are listed below:

M I C R O G R A M S / K I L O G R A M

<i>Lab #</i> <i>Sample #</i>	<i>93B17943</i> <i>(SB2-4)</i>	<i>93B17944</i> <i>(SB3-4)</i>	<i>LOD</i>
Bromodichloromethane	ND	ND	5.0
1,2-Dichloropropane	ND	ND	5.0
Cis-1,3-Dichloropropene	ND	ND	5.0
Trichloroethylene	ND	ND	5.0
Benzene	ND	ND	1.0
Chlorodibromomethane	ND	ND	5.0
Trans-1,3-Dichloropropene	ND	ND	5.0
1,1,2-Trichloroethane	ND	ND	5.0
2-Chloroethylvinyl Ether	ND	ND	25
Bromoform	ND	ND	5.0
1,1,2,2-Tetrachloroethane	ND	ND	5.0
Tetrachloroethylene	ND	ND	5.0
Toluene	ND	ND	5.0
Chlorobenzene	ND	ND	5.0
Ethylbenzene	ND	ND	5.0
Xylenes	ND	ND	15

LOD = Limit of Detection
ND = Not Detected

Analytical Method(s): SW846-8010/8020

Analyzed By: MFF

Page 3 of 8

Peter Burger
Con-Test Environmental

Invoice #93-250-119
Date Sampled: 10/07/93
Date Received: 10/11/93
Date Analyzed: 10/14/93

Ref: Lake Champlain Housing Development
Burlington, VT

Matrix: Soil

The results of analyses requested are listed below:

M I C R O G R A M S / K I L O G R A M

<i>Lab #</i> <i>Sample #</i>	<i>93B17943</i> <i>(SB2-4)</i>	<i>93B17944</i> <i>(SB3-4)</i>	<i>LOD</i>
Dichlorobenzenes	ND	ND	15
Dibromomethane	ND	ND	10
1-Chlorohexane	ND	ND	10
1,1,1,2-Tetrachloroethane	ND	ND	10
1,2,3-Trichloropropane	ND	ND	10
Bromobenzene	ND	ND	10
2-Chlorotoluene	ND	ND	10
Benzyl Chloride	ND	ND	10
MTBE	ND	ND	5.0

LOD = Limit of Detection
ND = Not Detected

Analytical Method(s): SW846-8010/8020

Analyzed By: MFF

Page 4 of 8

 Peter Burger
 Con-Test Environmental

 Invoice #93-250-119
 Date Sampled: 10/07/93
 Date Received: 10/11/93
 Date Analyzed: 10/14/93

 Ref: Lake Champlain Housing Development
 Burlington, VT

Matrix: Soil

The results of analyses requested are listed below:

MICROGRAMS/KILOGRAM

Lab # Sample #	93B17945 (SB4-3)	93B17943 (Duplicate)	LOD
Dichlorodifluoromethane	ND	ND	5.0
Chloromethane	ND	ND	5.0
Bromomethane	ND	ND	5.0
Vinyl Chloride	ND	ND	5.0
Chloroethane	ND	ND	5.0
Methylene Chloride	ND	ND	5.0
Trichlorofluoromethane	ND	ND	5.0
1,1-Dichloroethylene	ND	ND	5.0
1,1-Dichloroethane	ND	ND	5.0
Trans-1,2-Dichloroethylene	ND	ND	5.0
Chloroform	ND	ND	5.0
1,2-Dichloroethane	ND	ND	1.0
1,1,1-Trichloroethane	ND	ND	5.0
Carbon Tetrachloride	ND	ND	5.0

 LOD = Limit of Detection
 ND = Not Detected

Analytical Method(s): SW846-8010/8020

Analyzed By: MFF

Page 5 of 8

Peter Burger
Con-Test Environmental

Invoice #93-250-119
Date Sampled: 10/07/93
Date Received: 10/11/93
Date Analyzed: 10/14/93

Ref: Lake Champlain Housing Development
Burlington, VT

Matrix: Soil

The results of analyses requested are listed below:

M I C R O G R A M S / K I L O G R A M

<i>Lab #</i> <i>Sample #</i>	<i>93B17945</i> <i>(SB4-3)</i>	<i>93B17943</i> <i>(Duplicate)</i>	<i>LOD</i>
Bromodichloromethane	ND	ND	5.0
1,2-Dichloropropane	ND	ND	5.0
Cis-1,3-Dichloropropene	ND	ND	5.0
Trichloroethylene	ND	ND	5.0
Benzene	ND	ND	1.0
Chlorodibromomethane	ND	ND	5.0
Trans-1,3-Dichloropropene	ND	ND	5.0
1,1,2-Trichloroethane	ND	ND	5.0
2-Chloroethylvinyl Ether	ND	ND	25
Bromoform	ND	ND	5.0
1,1,2,2-Tetrachloroethane	ND	ND	5.0
Tetrachloroethylene	ND	ND	5.0
Toluene	ND	ND	5.0
Chlorobenzene	ND	ND	5.0
Ethylbenzene	ND	ND	5.0
Xylenes	ND	ND	15

LOD = Limit of Detection

ND = Not Detected

Analytical Method(s): SW846-8010/8020

Analyzed By: MFF

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Peter Burger
Con-Test Environmental

Invoice #93-250-119
Date Sampled: 10/07/93
Date Received: 10/11/93
Date Analyzed: 10/14/93

Ref: Lake Champlain Housing Development
Burlington, VT

Matrix: Soil

The results of analyses requested are listed below:

M I C R O G R A M S / K I L O G R A M

<i>Lab #</i> <i>Sample #</i>	<i>93B17945</i> <i>(SB4-3)</i>	<i>93B17943</i> <i>(Duplicate)</i>	<i>LOD</i>
Dichlorobenzenes	ND	ND	15
Dibromomethane	ND	ND	10
1-Chlorohexane	ND	ND	10
1,1,1,2-Tetrachloroethane	ND	ND	10
1,2,3-Trichloropropane	ND	ND	10
Bromobenzene	ND	ND	10
2-Chlorotoluene	ND	ND	10
Benzyl Chloride	ND	ND	10
MTBE	ND	ND	5.0

LOD = Limit of Detection
ND = Not Detected

Analytical Method(s): SW846-8010/8020

Analyzed By: MFF

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Peter Burger
Con-Test EnvironmentalInvoice #93-250-119
Date Sampled: 10/14/93
Date Received: 10/11/93
Date Analyzed: 10/14/93Ref: Lake Champlain Housing Development
Burlington, VT

Matrix: Soil

The results of analyses requested are listed below:

<i>Lab# Sample#</i>	<i>PCB* (mg/kg)</i>	<i>Duplicate (mg/kg)</i>
93B17943 (SB2-4)	<0.025	<0.025
93B17944 (SB3-4)	ND	ND
93B17945 (SB4-4)	ND	ND

Comment(s): * = Aroclor 1260

Limit of Detection = 0.025 mg/kg
ND = Not Detected

Analytical Method: EPA 8080

Analyst: DRT

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Peter Burger
Con-Test Environmental

Invoice #93-250-119
Date Sampled: 10/14/93
Date Received: 10/11/93
Date Extracted: 10/13/93
Date Analyzed: 10/15/93

Ref: Lake Champlain Housing Development
Burlington, VT

Matrix: Water

The results of analyses requested are listed below:

<i>Lab#</i> <i>Sample#</i>	<i>PCB*</i> <i>(µg/l)</i>
93B17946 (MW-2)	ND

Limit of Detection = 0.05 µg/l
ND = Not Detected

Analytical Method: EPA 608

Analyst: DRT



Signature

Tod Kopyscinski
Laboratory Supervisor

Edward Denson
Laboratory Director



October 6, 1993
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Peter Berger
Con-Test Environmental

Invoice #93-250-119
Date Sampled: 09/22/93
Date Received: 09/27/93
Date Analyzed: 10/01/93

Ref: Lake Champlain Housing Development Corp.
Burlington, VT

Matrix: Soil

The results of analyses requested are listed below:

M I C R O G R A M S / K I L O G R A M

<i>Lab #</i> <i>Sample #</i>	<i>93B16993</i> <i>(SP-11-2)</i>	<i>93B16994</i> <i>(SP-11-7)</i>	<i>LOD</i>
Dichlorodifluoromethane	ND	ND	5.0
Chloromethane	ND	ND	5.0
Bromomethane	ND	ND	5.0
Vinyl Chloride	ND	ND	5.0
Chloroethane	ND	ND	5.0
Methylene Chloride	ND	ND	5.0
Trichlorofluoromethane	ND	ND	5.0
1,1-Dichloroethylene	ND	ND	5.0
1,1-Dichloroethane	ND	ND	5.0
Trans-1,2-Dichloroethylene	ND	ND	5.0
Chloroform	ND	ND	5.0
1,2-Dichloroethane	ND	ND	1.0
1,1,1-Trichloroethane	ND	ND	5.0
Carbon Tetrachloride	ND	ND	5.0

LOD = Limit of Detection

ND = Not Detected

Analytical Method(s): SW846-8010/8020

Analyzed By: MFF

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Peter Berger
Con-Test Environmental

Invoice #93-250-119
Date Sampled: 09/22/93
Date Received: 09/27/93
Date Analyzed: 10/01/93

Ref: Lake Champlain Housing Development Corp.
Burlington, VT

Matrix: Soil

The results of analyses requested are listed below:

M I C R O G R A M S / K I L O G R A M

<i>Lab #</i> <i>Sample #</i>	<i>93B16993</i> <i>(SP-11-2)</i>	<i>93B16994</i> <i>(SP-11-7)</i>	<i>LOD</i>
Bromodichloromethane	ND	ND	5.0
1,2-Dichloropropane	ND	ND	5.0
Cis-1,3-Dichloropropene	ND	ND	5.0
Trichloroethylene	ND	ND	5.0
Benzene	ND	ND	1.0
Chlorodibromomethane	ND	ND	5.0
Trans-1,3-Dichloropropene	ND	ND	5.0
1,1,2-Trichloroethane	ND	ND	5.0
2-Chloroethylvinyl Ether	ND	ND	25
Bromoform	ND	ND	5.0
1,1,2,2-Tetrachloroethane	ND	ND	5.0
Tetrachloroethylene	ND	ND	5.0
Toluene	ND	ND	5.0
Chlorobenzene	ND	ND	5.0
Ethylbenzene	ND	17	5.0
Xylenes	ND	108	15

LOD = Limit of Detection
ND = Not Detected

Analytical Method(s): SW846-8010/8020

Analyzed By: MFF

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Peter Berger
Con-Test Environmental

Invoice #93-250-119
Date Sampled: 09/22/93
Date Received: 09/27/93
Date Analyzed: 10/01/93

Ref: Lake Champlain Housing Development Corp.
Burlington, VT

Matrix: Soil

The results of analyses requested are listed below:

M I C R O G R A M S / K I L O G R A M

<i>Lab #</i>	<i>93B16993</i>	<i>93B16994</i>	
<i>Sample #</i>	<i>(SP-11-2)</i>	<i>(SP-11-7)</i>	<i>LOD</i>
Dichlorobenzenes	ND	ND	15
Dibromomethane	ND	ND	10
1-Chlorohexane	ND	ND	10
1,1,1,2-Tetrachloroethane	ND	ND	10
1,2,3-Trichloropropane	ND	ND	10
Bromobenzene	ND	ND	10
2-Chlorotoluene	ND	ND	10
Benzyl Chloride	ND	ND	10
MTBE	ND	ND	5.0

LOD = Limit of Detection
ND = Not Detected

Analytical Method(s): SW846-8010/8020

Analyzed By: MFF

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Peter Berger
Con-Test EnvironmentalInvoice #93-250-119
Date Sampled: 09/22/93
Date Received: 09/27/93
Date Analyzed: 10/01/93Ref: Lake Champlain Housing Development Corp.
Burlington, VT

Matrix: Soil

The results of analyses requested are listed below:

M I C R O G R A M S / K I L O G R A M

<i>Lab #</i> <i>Sample #</i>	<i>93B16995</i> <i>(SP-9-2)</i>	<i>93B16996</i> <i>(SP-9-10)</i>	<i>LOD</i>
Dichlorodifluoromethane	ND	ND	5.0
Chloromethane	ND	ND	5.0
Bromomethane	ND	ND	5.0
Vinyl Chloride	ND	ND	5.0
Chloroethane	ND	ND	5.0
Methylene Chloride	ND	ND	5.0
Trichlorofluoromethane	ND	ND	5.0
1,1-Dichloroethylene	ND	ND	5.0
1,1-Dichloroethane	ND	ND	5.0
Trans-1,2-Dichloroethylene	ND	ND	5.0
Chloroform	ND	ND	5.0
1,2-Dichloroethane	ND	ND	1.0
1,1,1-Trichloroethane	ND	ND	5.0
Carbon Tetrachloride	ND	ND	5.0

LOD = Limit of Detection
ND = Not Detected

Analytical Method(s): SW846-8010/8020

Analyzed By: MFF

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 Peter Berger
 Con-Test Environmental

 Invoice #93-250-119
 Date Sampled: 09/22/93
 Date Received: 09/27/93
 Date Analyzed: 10/01/93

 Ref: Lake Champlain Housing Development Corp.
 Burlington, VT

Matrix: Soil

The results of analyses requested are listed below:

MICROGRAMS/KILOGRAM

Lab # Sample #	93B16995 (SP-9-2)	93B16996 (SP-9-10)	LOD
Bromodichloromethane	ND	ND	5.0
1,2-Dichloropropane	ND	ND	5.0
Cis-1,3-Dichloropropene	ND	ND	5.0
Trichloroethylene	ND	ND	5.0
Benzene	ND	ND	1.0
Chlorodibromomethane	ND	ND	5.0
Trans-1,3-Dichloropropene	ND	ND	5.0
1,1,2-Trichloroethane	ND	ND	5.0
2-Chloroethylvinyl Ether	ND	ND	25
Bromoform	ND	ND	5.0
1,1,2,2-Tetrachloroethane	ND	ND	5.0
Tetrachloroethylene	ND	ND	5.0
Toluene	ND	ND	5.0
Chlorobenzene	ND	ND	5.0
Ethylbenzene	ND	ND	5.0
Xylenes	ND	ND	15

 LOD = Limit of Detection
 ND = Not Detected

Analytical Method(s): SW846-8010/8020

Analyzed By: MFF

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Peter Berger
Con-Test Environmental

Invoice #93-250-119
Date Sampled: 09/22/93
Date Received: 09/27/93
Date Analyzed: 10/01/93

Ref: Lake Champlain Housing Development Corp.
Burlington, VT

Matrix: Soil

The results of analyses requested are listed below:

M I C R O G R A M S / K I L O G R A M

<i>Lab #</i> <i>Sample #</i>	<i>93B16995</i> <i>(SP-9-2)</i>	<i>93B16996</i> <i>(SP-9-10)</i>	<i>LOD</i>
Dichlorobenzenes	ND	ND	15
Dibromomethane	ND	ND	10
1-Chlorohexane	ND	ND	10
1,1,1,2-Tetrachloroethane	ND	ND	10
1,2,3-Trichloropropane	ND	ND	10
Bromobenzene	ND	ND	10
2-Chlorotoluene	ND	ND	10
Benzyl Chloride	ND	ND	10
MTBE	ND	ND	5.0

LOD = Limit of Detection
ND = Not Detected

Analytical Method(s): SW846-8010/8020

Analyzed By: MFF

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Peter Berger
Con-Test Environmental

Invoice #93-250-119
Date Sampled: 09/22/93
Date Received: 09/27/93
Date Analyzed: 10/01/93

Ref: Lake Champlain Housing Development Corp.
Burlington, VT

Matrix: Soil

The results of analyses requested are listed below:

M I C R O G R A M S / K I L O G R A M

<i>Lab #</i> <i>Sample #</i>	<i>93B16997</i> <i>(SP7-1&2)</i>	<i>93B16998</i> <i>(SP7-4)</i>	<i>LOD</i>
Dichlorodifluoromethane	ND	ND	5.0
Chloromethane	ND	ND	5.0
Bromomethane	ND	ND	5.0
Vinyl Chloride	ND	ND	5.0
Chloroethane	ND	ND	5.0
Methylene Chloride	ND	ND	5.0
Trichlorofluoromethane	ND	ND	5.0
1,1-Dichloroethylene	ND	ND	5.0
1,1-Dichloroethane	ND	ND	5.0
Trans-1,2-Dichloroethylene	ND	ND	5.0
Chloroform	ND	ND	5.0
1,2-Dichloroethane	ND	ND	1.0
1,1,1-Trichloroethane	ND	ND	5.0
Carbon Tetrachloride	ND	ND	5.0

LOD = Limit of Detection
ND = Not Detected

Analytical Method(s): SW846-8010/8020

Analyzed By: MFF

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 Peter Berger
 Con-Test Environmental

 Invoice #93-250-119
 Date Sampled: 09/22/93
 Date Received: 09/27/93
 Date Analyzed: 10/01/93

 Ref: Lake Champlain Housing Development Corp.
 Burlington, VT

Matrix: Soil

The results of analyses requested are listed below:

MICROGRAMS/KILOGRAM

Lab # Sample #	93B16997 (SP7-1&2)	93B16998 (SP7-4)	LOD
Bromodichloromethane	ND	ND	5.0
1,2-Dichloropropane	ND	ND	5.0
Cis-1,3-Dichloropropene	ND	ND	5.0
Trichloroethylene	ND	ND	5.0
Benzene	ND	ND	1.0
Chlorodibromomethane	ND	ND	5.0
Trans-1,3-Dichloropropene	ND	ND	5.0
1,1,2-Trichloroethane	ND	ND	5.0
2-Chloroethylvinyl Ether	ND	ND	25
Bromoform	ND	ND	5.0
1,1,2,2-Tetrachloroethane	ND	ND	5.0
Tetrachloroethylene	ND	ND	5.0
Toluene	ND	ND	5.0
Chlorobenzene	ND	ND	5.0
Ethylbenzene	ND	ND	5.0
Xylenes	ND	ND	15

 LOD = Limit of Detection
 ND = Not Detected

Analytical Method(s): SW846-8010/8020

Analyzed By: MFF

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Peter Berger
Con-Test Environmental

Invoice #93-250-119
Date Sampled: 09/22/93
Date Received: 09/27/93
Date Analyzed: 10/01/93

Ref: Lake Champlain Housing Development Corp.
Burlington, VT

Matrix: Soil

The results of analyses requested are listed below:

M I C R O G R A M S / K I L O G R A M

<i>Lab #</i>	<i>93B16997</i>	<i>93B16998</i>	
<i>Sample #</i>	<i>(SP7-1&2)</i>	<i>(SP7-4)</i>	<i>LOD</i>
Dichlorobenzenes	ND	ND	15
Dibromomethane	ND	ND	10
1-Chlorohexane	ND	ND	10
1,1,1,2-Tetrachloroethane	ND	ND	10
1,2,3-Trichloropropane	ND	ND	10
Bromobenzene	ND	ND	10
2-Chlorotoluene	ND	ND	10
Benzyl Chloride	ND	ND	10
MTBE	ND	ND	5.0

LOD = Limit of Detection

ND = Not Detected

Analytical Method(s): SW846-8010/8020

Analyzed By: MFF

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 Peter Berger
 Con-Test Environmental

 Invoice #93-250-119
 Date Sampled: 09/23/93
 Date Received: 09/27/93
 Date Analyzed: 10/01/93

 Ref: Lake Champlain Housing Development Corp.
 Burlington, VT

Matrix: Soil

The results of analyses requested are listed below:

MICROGRAMS/KILOGRAM

Lab # Sample #	93B16999 (SP16-2)	93B17000 (SP16-6)	LOD
Dichlorodifluoromethane	ND	ND	5.0
Chloromethane	ND	ND	5.0
Bromomethane	ND	ND	5.0
Vinyl Chloride	ND	ND	5.0
Chloroethane	ND	ND	5.0
Methylene Chloride	ND	ND	5.0
Trichlorofluoromethane	ND	ND	5.0
1,1-Dichloroethylene	ND	ND	5.0
1,1-Dichloroethane	ND	ND	5.0
Trans-1,2-Dichloroethylene	ND	ND	5.0
Chloroform	ND	ND	5.0
1,2-Dichloroethane	ND	ND	1.0
1,1,1-Trichloroethane	ND	ND	5.0
Carbon Tetrachloride	ND	ND	5.0

 LOD = Limit of Detection
 ND = Not Detected

Analytical Method(s): SW846-8010/8020

Analyzed By: MFF

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 Peter Berger
 Con-Test Environmental

 Invoice #93-250-119
 Date Sampled: 09/23/93
 Date Received: 09/27/93
 Date Analyzed: 10/01/93

 Ref: Lake Champlain Housing Development Corp.
 Burlington, VT

Matrix: Soil

The results of analyses requested are listed below:

MICROGRAMS/KILOGRAM

Lab # Sample #	93B16999 (SP16-2)	93B17000 (SP16-6)	LOD
Bromodichloromethane	ND	ND	5.0
1,2-Dichloropropane	ND	ND	5.0
Cis-1,3-Dichloropropene	ND	ND	5.0
Trichloroethylene	ND	ND	5.0
Benzene	ND	ND	1.0
Chlorodibromomethane	ND	ND	5.0
Trans-1,3-Dichloropropene	ND	ND	5.0
1,1,2-Trichloroethane	ND	ND	5.0
2-Chloroethylvinyl Ether	ND	ND	25
Bromoform	ND	ND	5.0
1,1,2,2-Tetrachloroethane	ND	ND	5.0
Tetrachloroethylene	ND	ND	5.0
Toluene	ND	ND	5.0
Chlorobenzene	ND	ND	5.0
Ethylbenzene	ND	ND	5.0
Xylenes	ND	ND	15

LOD = Limit of Detection

ND = Not Detected

Analytical Method(s): SW846-8010/8020

Analyzed By: MFF

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Peter Berger
Con-Test Environmental

Invoice #93-250-119
Date Sampled: 09/23/93
Date Received: 09/27/93
Date Analyzed: 10/01/93

Ref: Lake Champlain Housing Development Corp.
Burlington, VT

Matrix: Soil

The results of analyses requested are listed below:

M I C R O G R A M S / K I L O G R A M

<i>Lab #</i>	<i>93B16999</i>	<i>93B17000</i>	
<i>Sample #</i>	<i>(SP16-2)</i>	<i>(SP16-6)</i>	<i>LOD</i>
Dichlorobenzenes	ND	ND	15
Dibromomethane	ND	ND	10
1-Chlorohexane	ND	ND	10
1,1,1,2-Tetrachloroethane	ND	ND	10
1,2,3-Trichloropropane	ND	ND	10
Bromobenzene	ND	ND	10
2-Chlorotoluene	ND	ND	10
Benzyl Chloride	ND	ND	10
MTBE	ND	ND	5.0

LOD = Limit of Detection
ND = Not Detected

Analytical Method(s): SW846-8010/8020

Analyzed By: MFF

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Peter Berger
Con-Test Environmental

Invoice #93-250-119
Date Sampled: 09/23/93
Date Received: 09/27/93
Date Analyzed: 10/01/93

Ref: Lake Champlain Housing Development Corp.
Burlington, VT

Matrix: Soil

The results of analyses requested are listed below:

M I C R O G R A M S / K I L O G R A M

<i>Lab #</i> <i>Sample #</i>	<i>93B17001</i> <i>(SP4-2)</i>	<i>93B17002</i> <i>(SP8-1)</i>	<i>LOD</i>
Dichlorodifluoromethane	ND	ND	5.0
Chloromethane	ND	ND	5.0
Bromomethane	ND	ND	5.0
Vinyl Chloride	ND	ND	5.0
Chloroethane	ND	ND	5.0
Methylene Chloride	ND	ND	5.0
Trichlorofluoromethane	ND	ND	5.0
1,1-Dichloroethylene	ND	ND	5.0
1,1-Dichloroethane	ND	ND	5.0
Trans-1,2-Dichloroethylene	ND	ND	5.0
Chloroform	ND	ND	5.0
1,2-Dichloroethane	ND	ND	1.0
1,1,1-Trichloroethane	ND	ND	5.0
Carbon Tetrachloride	ND	ND	5.0

LOD = Limit of Detection
ND = Not Detected

Analytical Method(s): SW846-8010/8020

Analyzed By: MFF

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 Peter Berger
 Con-Test Environmental

 Invoice #93-250-119
 Date Sampled: 09/23/93
 Date Received: 09/27/93
 Date Analyzed: 10/01/93

 Ref: Lake Champlain Housing Development Corp.
 Burlington, VT

Matrix: Soil

The results of analyses requested are listed below:

MICROGRAMS/KILOGRAM

Lab # Sample #	93B17001 (SP4-2)	93B17002 (SP8-1)	LOD
Bromodichloromethane	ND	ND	5.0
1,2-Dichloropropane	ND	ND	5.0
Cis-1,3-Dichloropropene	ND	ND	5.0
Trichloroethylene	ND	ND	5.0
Benzene	ND	ND	1.0
Chlorodibromomethane	ND	ND	5.0
Trans-1,3-Dichloropropene	ND	ND	5.0
1,1,2-Trichloroethane	ND	ND	5.0
2-Chloroethylvinyl Ether	ND	ND	25
Bromoform	ND	ND	5.0
1,1,2,2-Tetrachloroethane	ND	ND	5.0
Tetrachloroethylene	ND	ND	5.0
Toluene	ND	ND	5.0
Chlorobenzene	ND	ND	5.0
Ethylbenzene	ND	ND	5.0
Xylenes	ND	ND	15

 LOD = Limit of Detection
 ND = Not Detected

Analytical Method(s): SW846-8010/8020

Analyzed By: MFF

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Peter Berger
Con-Test Environmental

Invoice #93-250-119
Date Sampled: 09/23/93
Date Received: 09/27/93
Date Analyzed: 10/01/93

Ref: Lake Champlain Housing Development Corp.
Burlington, VT

Matrix: Soil

The results of analyses requested are listed below:

M I C R O G R A M S / K I L O G R A M

<i>Lab #</i> <i>Sample #</i>	<i>93B17001</i> <i>(SP4-2)</i>	<i>93B17002</i> <i>(SP8-1)</i>	<i>LOD</i>
Dichlorobenzenes	ND	ND	15
Dibromomethane	ND	ND	10
1-Chlorohexane	ND	ND	10
1,1,1,2-Tetrachloroethane	ND	ND	10
1,2,3-Trichloropropane	ND	ND	10
Bromobenzene	ND	ND	10
2-Chlorotoluene	ND	ND	10
Benzyl Chloride	ND	ND	10
MTBE	ND	ND	5.0

LOD = Limit of Detection

ND = Not Detected

Analytical Method(s): SW846-8010/8020

Analyzed By: MFF

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Peter Berger
Con-Test EnvironmentalInvoice #93-250-119
Date Sampled: 09/23/93
Date Received: 09/27/93
Date Analyzed: 10/01/93Ref: Lake Champlain Housing Development Corp.
Burlington, VT

Matrix: Soil

The results of analyses requested are listed below:

M I C R O G R A M S / K I L O G R A M

<i>Lab #</i> <i>Sample #</i>	<i>93B17005</i> <i>(SP4-4)</i>	<i>93B17006</i> <i>(SP8-3)</i>	<i>LOD</i>
Dichlorodifluoromethane	ND	ND	5.0
Chloromethane	ND	ND	5.0
Bromomethane	ND	ND	5.0
Vinyl Chloride	ND	ND	5.0
Chloroethane	ND	ND	5.0
Methylene Chloride	ND	ND	5.0
Trichlorofluoromethane	ND	ND	5.0
1,1-Dichloroethylene	ND	ND	5.0
1,1-Dichloroethane	ND	ND	5.0
Trans-1,2-Dichloroethylene	ND	ND	5.0
Chloroform	ND	ND	5.0
1,2-Dichloroethane	ND	ND	1.0
1,1,1-Trichloroethane	ND	ND	5.0
Carbon Tetrachloride	ND	ND	5.0

LOD = Limit of Detection

ND = Not Detected

Analytical Method(s): SW846-8010/8020

Analyzed By: MFF

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 Peter Berger
 Con-Test Environmental

 Invoice #93-250-119
 Date Sampled: 09/23/93
 Date Received: 09/27/93
 Date Analyzed: 10/01/93

 Ref: Lake Champlain Housing Development Corp.
 Burlington, VT

Matrix: Soil

The results of analyses requested are listed below:

MICROGRAMS/KILOGRAM

Lab # Sample #	93B17005 (SP4-4)	93B17006 (SP8-3)	LOD
Bromodichloromethane	ND	ND	5.0
1,2-Dichloropropane	ND	ND	5.0
Cis-1,3-Dichloropropene	ND	ND	5.0
Trichloroethylene	ND	ND	5.0
Benzene	ND	ND	1.0
Chlorodibromomethane	ND	ND	5.0
Trans-1,3-Dichloropropene	ND	ND	5.0
1,1,2-Trichloroethane	ND	ND	5.0
2-Chloroethylvinyl Ether	ND	ND	25
Bromoform	ND	ND	5.0
1,1,2,2-Tetrachloroethane	ND	ND	5.0
Tetrachloroethylene	ND	ND	5.0
Toluene	ND	ND	5.0
Chlorobenzene	ND	ND	5.0
Ethylbenzene	ND	ND	5.0
Xylenes	ND	ND	15

LOD = Limit of Detection

ND = Not Detected

Analytical Method(s): SW846-8010/8020

Analyzed By: MFF

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Peter Berger
Con-Test Environmental

Invoice #93-250-119
Date Sampled: 09/23/93
Date Received: 09/27/93
Date Analyzed: 10/01/93

Ref: Lake Champlain Housing Development Corp.
Burlington, VT

Matrix: Soil

The results of analyses requested are listed below:

M I C R O G R A M S / K I L O G R A M

<i>Lab #</i> <i>Sample #</i>	<i>93B17005</i> <i>(SP4-4)</i>	<i>93B17006</i> <i>(SP8-3)</i>	<i>LOD</i>
Dichlorobenzenes	ND	ND	15
Dibromomethane	ND	ND	10
1-Chlorohexane	ND	ND	10
1,1,1,2-Tetrachloroethane	ND	ND	10
1,2,3-Trichloropropane	ND	ND	10
Bromobenzene	ND	ND	10
2-Chlorotoluene	ND	ND	10
Benzyl Chloride	ND	ND	10
MTBE	ND	ND	5.0

LOD = Limit of Detection

ND = Not Detected

Analytical Method(s): SW846-8010/8020

Analyzed By: MFF

Page 19 of 21

 Peter Berger
 Con-Test Environmental

 Invoice #93-250-119
 Date Sampled: 09/22/93
 Date Received: 09/27/93
 Date Analyzed: 09/30/93

 Ref: Lake Champlain Housing Development Corp.
 Burlington, VT

Matrix: Water

The results of analyses requested are listed below:

MICROGRAMS/LITER

Lab # Sample #	93B17003 (MW-2)	93B17003 (Duplicate)	LOD
Dichlorodifluoromethane	ND	ND	1.0
Chloromethane	ND	ND	1.0
Bromomethane	ND	ND	1.0
Vinyl Chloride	ND	ND	1.0
Chloroethane	ND	ND	1.0
Methylene Chloride	ND	ND	1.0
Trichlorofluoromethane	ND	ND	1.0
1,1-Dichloroethylene	ND	ND	1.0
1,1-Dichloroethane	ND	ND	1.0
Trans-1,2-Dichloroethylene	ND	ND	1.0
Chloroform	1.5	1.6	1.0
1,2-Dichloroethane	ND	ND	1.0
1,1,1-Trichloroethane	ND	ND	1.0
Carbon Tetrachloride	ND	ND	1.0
Bromodichloromethane	ND	ND	1.0
1,2-Dichloropropane	ND	ND	1.0
Cis-1,3-Dichloropropene	ND	ND	1.0
Trichloroethylene	14	14	1.0
Benzene	ND	ND	1.0

LOD = Limit of Detection

ND = Not Detected

Analytical Method(s): EPA 601/602

Analyzed By: MFF

Page 20 of 21

Peter Berger
Con-Test Environmental

Invoice #93-250-119
Date Sampled: 09/22/93
Date Received: 09/27/93
Date Analyzed: 09/30/93

Ref: Lake Champlain Housing Development Corp.
Burlington, VT

Matrix: Water

The results of analyses requested are listed below:

M I C R O G R A M S / L I T E R

<i>Lab # Sample #</i>	<i>93B17003 (MW-2)</i>	<i>93B17003 (Duplicate)</i>	<i>LOD</i>
Chlorodibromomethane	ND	ND	1.0
Trans-1,3-Dichloropropene	ND	ND	1.0
1,1,2-Trichloroethane	ND	ND	1.0
2-Chloroethylvinyl Ether	ND	ND	5.0
Bromoform	ND	ND	1.0
1,1,2,2-Tetrachloroethane	ND	ND	1.0
Tetrachloroethylene	4.3	5.1	1.0
Toluene	1.1	1.1	1.0
Chlorobenzene	ND	ND	1.0
Ethylbenzene	ND	ND	1.0
Xylenes	ND	ND	3.0
Dichlorobenzene	ND	ND	3.0
MTBE	ND	ND	1.0

LOD = Limit of Detection
ND = Not Detected

Analytical Method(s): EPA 601/602

Analyzed By: MFF

Page 21 of 21

Peter Berger
Con-Test Environmental

Invoice #93-250-119
Date Sampled: 09/22/93
Date Received: 09/27/93
Date Extracted: 09/30/93
Date Analyzed: 10/04/93

Ref: Lake Champlain Housing Development Corp.
Burlington, VT

Matrix: Water

The results of analyses requested are listed below:

<i>Lab#</i> <i>Sample#</i>	<i>PCB</i> <i>(µg/l)</i>
93B17004 (MW-2)	ND

Limit of Detection = 0.05 µg/l
ND = Not Detected

Analytical Method: EPA 608

Analyst: DRT



Signature

Tod Kopyscinski
Laboratory Supervisor

Edward Denson
Laboratory Director

VOLATILES SURROGATE RECOVERY SUMMARY

 DATE: 10/14/93

 MATRIX: SOIL

LAB I.D.	601/8010 1-CHLORO-2 FLUOROBENZENE		602/8020 1-CHLORO-2 FLUOROBENZENE	
	PPB RANGE (10.5-19.7)*	PERCENT RANGE (70-131)	PPB RANGE (12.3-17.5)*	PERCENT RANGE (81-117)
METHOD BLANK	13.2	88	13.8	92
93B17943	13.8	92	13.7	91
93B17943	13.1	87	13.8	92
93B17944	12.9	86	13.8	92
93B17945	12.9	86	13.7	91
LAB SPIKE	13.2	88	13.9	93

* = TRUE VALUE: 15 PPB

 ANALYST: MFF
 DATE: 10/14/93

 QC APPROVAL: *Edward Demora*
 DATE: 10/14/93

PCB SURROGATE REPORT

DATE: 10/15/93

MATRIX: WATER

SAMPLE #	SURROGATE (DBC) % RECOVERY	RECOVERY LIMIT
METHOD BLANK	84	25-154%
93B17946	88	24-154%

COMMENT(S): _____

ANALYST : DRT
DATE : 10/15/93

QC APPROVAL : *Ted E. Kopyanski*
DATE : 10/18/93

PCB PESTICIDES SURROGATE REPORT

DATE: 10/14/93

MATRIX: SOIL

SAMPLE #	SURROGATE (DBC) % RECOVERY	RECOVERY LIMIT
METHOD BLANK	83	25-154%
93B17943	74	24-154%
93B17943	69	24-154%
93B17943	73	24-154%
93B17943	73	24-154%
93B17944	73	24-154%
93B17945	73	24-154%

COMMENT(S): _____

ANALYST : DRT
DATE : 10/14/93

QC APPROVAL : *Edward Deussen*
DATE : 10/14/93

PCB QA/QC SUMMARY

DATE: 10/14/93

MATRIX: SOIL

LAB I.D. #: 93B14943

Method Blank Result	ND
Conc. Spike Added	18.6 MG/KG
Sample Result	<0.025 MG/KG
Conc. MS	21.0 MG/KG
% Recovery	113%
Conc. MSD	22.0 MG/KG
% Recovery	118%
Recovery Limits	2.82-29.5 MG/KG
Relative % Difference	4.5

COMMENT(S): WP 026 CONC.2 AROCLOR 1260 TRUE 18.6 MG/KG RANGE 2.87-29.5 MG/KG

ANALYST: DRT
DATE: 10/14/93

QC APPROVAL: *Edward Deerson*
DATE: 10/14/93

October 25, 1993

Page 1 of 2

E. Peter Burger
Con-Test Environmental

Invoice #93-250-119

Date Sampled: 10/07/93

Date Received: 10/21/93

Date Extracted: 10/22/93

Date Analyzed: 10/25/93

Ref: Lake Champlain Housing Development Corp.

Sample Matrix: Soil

The results of analyses requested are listed below:

*TPH BY GC/FID
MILLIGRAMS/KILOGRAM*

<i>Lab #</i>	<i>93B18804</i>	
<i>Sample ID</i>	<i>(SB2-3)</i>	<i>LOD</i>
Gasoline	ND	3.34
Jet Fuel	ND	1.67
Kerosene	ND	1.67
#2/#4 Diesel Fuel Oil	ND	1.67
#6 Fuel Oil	ND	1.67
Motor Oil	ND	3.34
Other Hydrocarbons*	6.53	1.67

LOD = Limit of Detection

ND = Not Detected

Analytical Method: SW846-8015 Analyst: DRT

* = The sample chromatogram shows the presence of hydrocarbon peaks that appear to be petroleum in nature but do not match instrument standards. Sample quantitated as #2 fuel oil. Identification of these compounds are beyond the scope of this analysis.



E. Peter Burger
Con-Test Environmental

Invoice #93-250-119
Date Sampled: 10/07/93
Date Received: 10/21/93
Date Analyzed: 10/25/93

Ref: Lake Champlain Housing Development Corp.

Sample Matrix: Soil

The results of analyses requested are listed below:

<i>Lab # Sample ID</i>	<i>PCB mg/kg</i>	<i>LOD</i>
93B18804 (SB2-3)	ND	0.025

LOD = Limit of Detection
ND = Not Detected

Analytical Method: SW846-8080 Analyst: DRT

Signature

Tod Kopyscinski
Laboratory Supervisor

Edward Denson
Laboratory Director

PCB SURROGATE REPORT

DATE: 10/25/93

MATRIX: SOIL

SAMPLE #	SURROGATE (DBC) % RECOVERY	RECOVERY LIMIT
METHOD BLANK	80	24-154%
93B18804	76	24-154%
93B18804 DUP	81	24-154%
93B18804 MS	80	24-154%
93B18804 MSD	84	24-154%

COMMENT(S): _____

ANALYST : DRT
DATE : 10/25/93

QC APPROVAL : Tod E. Kopyev
DATE : 10/25/93



PCB QA/QC SUMMARY

DATE: 10/25/93

MATRIX: SOIL

LAB I.D. #: 93B18804

Method Blank Result	ND
Conc. Spike Added	18.6
Sample Result	ND
Conc. MS	18.4
% Recovery	99%
Conc. MSD	18.6
% Recovery	100
Recovery Limits	2.82-29.5 MG/KG
Relative % Difference	1.0

COMMENT(S): WP 26 CONC. 2 AROCLOR 1260 TRUE 18.6 MG/KG

ANALYST: DRT

DATE: 10/25/93

QC APPROVAL: _____

DATE: 10/25/93

VOLATILES SURROGATE RECOVERY SUMMARY

DATE: 09/30/93

MATRIX: WATER

LAB I.D.	602/8010 1-CHLORO-2 FLUOROBENZENE		602/8020 1-CHLORO-2 FLUOROBENZENE	
	PPB RANGE (10.5-19.7)*	PERCENT RANGE (70-131)	PPB RANGE (12.3-17.5)*	PERCENT RANGE (81-117)
METHOD BLANK	14.8	99	14.8	99
93B17003	14.8	99	14.8	99
93B17003	14.9	99	14.8	99

* = TRUE VALUE: 15 PPB

ANALYST: MF
DATE: 09/30/93

QC APPROVAL: Tal E. [Signature]
DATE: 09/30/93



VOLATILES SURROGATE RECOVERY SUMMARY

DATE: 09/29/93

MATRIX: SOIL

LAB I.D.	602/8010 1-CHLORO-2 FLUOROBENZENE		602/8020 1-CHLORO-2 FLUOROBENZENE	
	PPB RANGE (10.5-19.7)*	PERCENT RANGE (70-131)	PPB RANGE (12.3-17.5)*	PERCENT RANGE (81-117)
METHOD BLANK	16.5	110	14.1	97
93B16995	15.4	103	13.5	90
93B16993	13.8	92	13.1	87
93B16994	14.7	98	14.4	96

* = TRUE VALUE: 15 PPB

ANALYST: MFF
DATE: 09/29/93

QC APPROVAL: *Ted E. [Signature]*
DATE: 10/01/93

VOLATILES SURROGATE RECOVERY SUMMARY
DATE: 09/30/93
MATRIX: SOIL

LAB I.D.	602/8010 1-CHLORO-2 FLUOROBENZENE		602/8020 1-CHLORO-2 FLUOROBENZENE	
	PPB RANGE (10.5-19.7)*	PERCENT RANGE (70-131)	PPB RANGE (12.3-17.5)*	PERCENT RANGE (81-117)
METHOD BLANK	15.6	104	13.8	92
93B16996	15.3	102	14.6	97
93B16997	14.1	94	13.3	89
93B16998	14.7	98	14.2	95
93B16999	14.5	97	13.7	91
93B17000	14.9	99	14.5	97
93B17001	14.5	97	14.0	93
93B17002	13.5	90	12.5	83
LAB SPIKE	15.7	105	14.7	98

* = TRUE VALUE: 15 PPB

ANALYST: MFJ
DATE: 09/30/93
QC APPROVAL: *Ted E. [Signature]*
DATE: 10/01/93



VOLATILES SURROGATE RECOVERY SUMMARY

DATE: 10/01/93

MATRIX: SOIL

LAB I.D.	602/8010 1-CHLORO-2 FLUOROBENZENE		602/8020 1-CHLORO-2 FLUOROBENZENE	
	PPB RANGE (10.5-19.7)*	PERCENT RANGE (70-131)	PPB RANGE (12.3-17.5)*	PERCENT RANGE (81-117)
METHOD BLANK	15.8	105	14.2	95
93B17005	15.6	104	14.0	93
93B17006	15.1	101	14.1	94
LAB SPIKE	18.0	120	12.7	85

* = TRUE VALUE: 15 PPB

ANALYST: MEF
DATE: 10/01/93

QC APPROVAL: [Signature]
DATE: 10/01/93

PCB SURROGATE REPORT

DATE: 10/04/93

MATRIX: WATER

SAMPLE #	SURROGATE (DBC) % RECOVERY	RECOVERY LIMIT
METHOD BLANK	114	24-154%
93B17004	108	24-154%

COMMENT(S): _____

ANALYST : DRT
DATE : 10/04/93

QC APPROVAL : *Ted E. [Signature]*
DATE : 10/04/93

VOLATILES SURROGATE RECOVERY SUMMARY

DATE: 09/29/93

MATRIX: WATER

LAB I.D.	601/8010 1-CHLORO-2 FLUOROBENZENE		601/8020 1-CHLORO-2 FLUOROBENZENE	
	PPB RANGE (10.5-19.7)*	PERCENT RANGE (70-131)	PPB RANGE (12.3-17.5)*	PERCENT RANGE (81-117)
Method Blank	15.4	103	14.7	98
93B17003	14.6	97	14.8	99
LAB SPIKE	15.4	103	14.8	99
93B17003	14.6	97	14.8	99

* = TRUE VALUE: 15 PPB

ANALYST: MFJ
DATE: 09/29/93

Ted
QC APPROVAL: _____
DATE: 09/30/93

SOILS DATA

APPENDIX H

SOIL PROBE LOG

Page 1 of 5
 SB # 1
 Gracie Site
 Burlington, VT

TRI STATE
 DRILLING & BORING, INC.
 RFD #2, Box 113 West Burke, VT 05871
 (802) 467-3123

		SAMPLER	SOIL
		Continuous	Saturated
TYPE	HSA	SS	Wet
SIZE	2"		Moist
HAMMER	140#		Damp
FALL	30"		Slightly Damp

DATE STARTED: 10/07/93

DATE COMPLETED: 10/07/93

FOOTAGE
 DEPTH BLOW COUNTS REC DRILLER'S NOTES & COMMENTS

6 12 18 24

0-25'									Augured to 25', begin sampling.
5-27'	5	5	5	11					Moist. Light and dark brown fine to coarse sands.
10-32'	6	9	8	8					Sat'd. Light gray brown fine sands trace of silt, wet.
15-37'	11	17	37	46					Moist. Olive gray brown fine and very fine sands.
20-42'	23	24	13	11					Same as above.
									Steam spoons between samples.

Client: Lake Champlain Housing
 Development Authority
 Job Location: Burlington, VT
 Engineer: Con-Test, Inc.
 Williston, VT
 Inspector: Peter Burger
 P.O. #5628

Driller: Edward Westover
 Helper: Sean Hogan
 Materials: None.

SOIL PROBE LOG

Page 5 of 5
 MW # ?
 Gracie Site
 Burlington, VT

TRI STATE
 DRILLING & BORING, INC.
 RFD #2, Box 113 West Burke, VT 05871
 (802) 467-3123

		SAMPLER	SOIL
		Continuous	Saturated
TYPE	HSA	SS	Wet
SIZE	2"		Moist
HAMMER	140#		Damp
FALL	30"		Slightly Damp

DATE STARTED: 10/08/93

DATE COMPLETED: 10/08/93

FOOTAGE
 DEPTH BLOW COUNTS REC DRILLER'S NOTES & COMMENTS

6 12 18 24

20-22'	3	3	8	5	S/Damp.	Tan medium fine sands.
29-32'	7	15	20	26	S/Damp.	Same as above.
40-42'	5	9	13	14	S/Damp.	Light tan fine and very fine sands.

Augured to 79', set well.

Screen 79' to 64' below GS.
 Riser to surface.
 Sandpack 79' to 62' below GS.
 Hole plug 62' to 60' below GS.
 Backfill to 3' below GS.
 Hole plug 3' to 2' below GS.
 Installed road box.

Client: Lake Champlain Housing
 Development Authority
 Job Location: Burlington, VT
 Engineer: Con-Test, Inc.
 Williston, VT
 Inspector: Peter Burger
 P.O. #5628

Driller: Edward Westover
 Helper: Sean Hogan
 Materials: 15' screen, 64' riser,
 2 caps, 6 sand, 1.5 hole plug,
 1 road box.

SOIL PROBE LOG

Page 2 of 14
 SB # 14
 Gracie Site
 Burlington, VT

TRI STATE
 DRILLING & BORING, INC.
 RFD #2, Box 113 West Burke, VT 05871
 (802) 467-3123

		SAMPLER	SOIL
TYPE	HSA	Continuous	Saturated
SIZE	2"	SS	Wet
HAMMER	140#		Moist
FALL	30"		Damp
			Slightly Damp

DATE STARTED: 9/22/93

DATE COMPLETED: 9/22/93

FOOTAGE

DEPTH BLOW COUNTS REC

DRILLER'S NOTES & COMMENTS

6 12 18 24

1-3' ... 1 ... 3 | 4 | 6 | ... 2 | 24" | Dry.

Cinders or old trash.

3-7' ... 2 | 3 | 2 | ... 4 | 6" | Dry.

Same as above.

7-10' ... 2 | 2 | 1 | ... 3 | 15" | Dry.

Fine to medium brown sand.

EOB

Client: Lake Champlain Housing
 Development Authority
 Job Location: Burlington, VT
 Engineer: Con-Test, Inc.
 Williston, VT
 Inspector: Peter Burger
 P.O. #5628

Driller: Neal S. Faulkner
 Helper: Sean Hogan
 Materials: None.

SOIL PROBE LOG

Page 4 of 14

SB # 12

Gracie Site

Burlington, VT

TRI STATE
DRILLING & BORING, INC.

RFD #2, Box 113 West Burke, VT 05871
(802) 467-3123

		SAMPLER	SOIL
		Continuous	Saturated
TYPE	HSA	SS	Wet
SIZE	2"		Moist
HAMMER	140#		Damp
FALL	30"		Slightly Damp

DATE STARTED: 9/22/93

DATE COMPLETED: 9/22/93

FOOTAGE

DEPTH BLOW COUNTS REC

DRILLER'S NOTES & COMMENTS

6 12 18 24

0-3'	1	1	1	2	6"	Dry.	Fine to medium brown sand.
3-7'	2	2	1	2	18"	Dry.	6" of trash over fine to medium brown sand.
7-12'	5	6	6	5	14"	Dry.	Medium to coarse brown sand, some fine sand.
12-15'							
15-18'							
18-21'							
21-24'							

Client: Lake Champlain Housing
Development Authority
Job Location: Burlington, VT
Engineer: Con-Test, Inc.
Williston, VT
Inspector: Peter Burger
P.O. #5628

Driller: Neal S. Faulkner
Helper: Sean Hogan
Materials: None.

SOIL PROBE LOG

Page 6 of 14
 SB # 9
 Gracie Site
 Burlington, VT

TRI STATE
 DRILLING & BORING, INC.
 RFD #2, Box 113 West Burke, VT 05871
 (802) 467-3123

		SAMPLER	SOIL
		Continuous	Saturated
TYPE	HSA	SS	Wet
SIZE	2"		Moist
HAMMER	140#		Damp
FALL	30"		Slightly Damp

DATE STARTED: 9/22/98

DATE COMPLETED: 9/22/98

FOOTAGE

DEPTH BLOW COUNTS REC

DRILLER'S NOTES & COMMENTS

6 12 18 24

0-3'	7	9	7	10	12"	Dry.	Dark brown silty fine sand over 6" of brown fine sand.
3-7'	3	4	4	5	24"	Dry.	Brown medium to coarse sand with small pebbles.
7-12'	2	3	4	6	18"	Moist.	Brown medium to coarse sand.
12-17'	3	4	7	5	24"	Dry.	Light brown fine to medium sand.
17-22'	4	5	5	6	20"	Dry.	Same as above.
22-27'	7	8	12	11	20"	Dry.	Same as above.
27-32'	7	9	15	15	22"	Dry.	Light brown fine sand.
32-37'	4	5	7	7	22"	Dry.	Fine to medium sand.
37-42'	5	10	10	10	22"	Dry.	Same as above.
42-47'	5	8	8	10	22"	Dry.	Fine and very fine sand.

Client: Lake Champlain Housing
 Development Authority
 Job Location: Burlington, VT
 Engineer: Con-Test, Inc.
 Williston, VT
 Inspector: Peter Burger
 P.O. #5628

Driller: Neal S. Faulkner
 Helper: Sean Hogan
 Materials: None.

SOIL PROBE LOG

Page 8 of 14
 SB # 2
 Gracie Site
 Burlington, VT

TRI STATE
 DRILLING & BORING, INC.
 RFD #2, Box 113 West Burke, VT 05871
 (802) 467-3123

		SAMPLER	SOIL
TYPE	HSA	Continuous	Saturated
SIZE	2"	SS	Wet
HAMMER	140#		Moist
FALL	30"		Damp
			Slightly Damp

DATE STARTED: 9/23/93

DATE COMPLETED: 9/23/93

FOOTAGE

DEPTH BLOW COUNTS REC

DRILLER'S NOTES & COMMENTS

6 12 18 24

0-3'	5	8	10	12	14"	Dry.
3-7'	4	5	6	9	18"	Dry.
7-12'	3	4	4	5	20"	Dry.

Fine to medium brown sand.

Medium to coarse sand.

Same as above with pebbles.

Client: Lake Champlain Housing
 Development Authority
 Job Location: Burlington, VT
 Engineer: Con-Test, Inc.
 Williston, VT
 Inspector: Peter Burger
 P.O. #5628

Driller: Neal S. Faulkner
 Helper: Sean Hogan
 Materials: None.

SOIL PROBE LOG

Page 9 of 14

SB # 4

TRI STATE
DRILLING & BORING, INC.

Gracie Site

RFD #2, Box 113 West Burke, VT 05871
(802) 467-8123

Burlington, VT

		SAMPLER	SOIL
		Continuous	Saturated
TYPE	HSA	SS	Wet
SIZE	2"		Moist
HAMMER	140#		Damp
FALL	30"		Slightly Damp

DATE STARTED: 9/21/98

DATE COMPLETED: 9/21/98

FOOTAGE

DEPTH	BLOW COUNTS	REC	DRILLER'S NOTES & COMMENTS
-------	-------------	-----	----------------------------

6 12 18 24

0-3' 3 . 4 . 6 . 7 | 13" | Dry.

Red brown fine and medium sand.

3-7' 5 . 6 . 6 . 7 | 20" | Dry.

Coarse and medium sand.

7-12' 2 . 3 . 4 . 6 | 20" | Dry.

Same as above.

12-17' 5 . 6 . 6 . 6 | 20" | Dry.

Same as above.

Client: Lake Champlain Housing
Development Authority
Job Location: Burlington, VT
Engineer: Con-Test, Inc.
Williston, VT
Inspector: Peter Burger
P.O. #5628

Driller: Neal S. Faulkner
Helper: Sean Hogan
Materials: None.

SOIL PROBE LOG

Page 10 of 14
 SB # 11
 Gracie Site
 Burlington, VT

TRI STATE
 DRILLING & BORING, INC.
 RFD #2, Box 119 West Burke, VT 05871
 (802) 467-3123

		SAMPLER	SOIL
		Continuous	Saturated
TYPE	HSA	85	Wet
SIZE	2"		Moist
HAMMER	140#		Damp
FALL	30"		Slightly Damp

DATE STARTED: 9/23/93

DATE COMPLETED: 9/23/93

FOOTAGE DEPTH BLOW COUNTS REC DRILLER'S NOTES & COMMENTS

6 12 18 24

1-3'	3	4	6	5	19"	Dry.	Red brown fine sand.
3-7'	4	3	6	5	20"	Dry.	Dark red brown fine sand.
7-10'	3	3	5	6	20"	Dry.	Medium sand gray brown.
10-17'	4	5	5	5	20"	Dry.	Light brown fine sand.
17-22'	2	2	2	3	24"	Dry.	Fine sand in thin layers with few layers of silty fine sand perching small amounts of water, some orange stain near top of sample.
22-27'	5	6	8	10	24"	Dry.	Fine to medium sand.
27-32'	4	3	4	5	20"	Dry.	Medium and coarse sand.

Client: Lake Champlain Housing
 Development Authority
 Job Location: Burlington, VT
 Engineer: Con-Test, Inc.
 Williston, VT
 Inspector: Peter Burger
 P.O. #5628

Driller: Neal S. Faulkner
 Helper: Sean Hogan
 Materials: None.

SOIL PROBE LOG

TRI STATE
DRILLING & BORING, INC.

RFD #2, Box 113 West Burke, VT 05871
(802) 467-3123

		SAMPLER	SOIL
		Continuous	Saturated
TYPE	HSA	SS	Wet
SIZE	2"		Moist
HAMMER	140#		Damp
FALL	30"		Slightly Damp

DATE STARTED: 9/23/93

DATE COMPLETED: 9/23/93

FOOTAGE

DEPTH BLOW COUNTS REC

DRILLER'S NOTES & COMMENTS

6 12 18 24

1-6'	6	5	3	3	20"	Dry.	Old trash and cinders.
6-7'	6	7	7	9	18"	Dry.	Medium and coarse sand.
7-12'	5	5	5	5	20"	Dry.	Same as above.
12-17'	5	6	9	10	22"	Dry.	Fine and medium sand.
17-22'	4	4	4	5	22"	Dry.	Same as above.
22-27'	5	4	4	5	24"	Dry.	Fine sand with some orange stain.

Client: Lake Champlain Housing
Development Authority
Job Location: Burlington, VT
Engineer: Con-Test, Inc.
Williston, VT
Inspector: Peter Burger
P.O. #5628

Driller: Neal S. Faulkner
Helper: Sean Hogan
Materials: None.

SOIL PROBE LOG

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SB # 16-A
Gracie Site
Burlington, VT

TRI STATE
DRILLING & BORING, INC.
RFD #2, Box 113 West Burke, VT 05871
(802) 457-3123

		SAMPLER	SOIL
		Continuous	Saturated
TYPE	HSA	SS	Wet
SIZE	2"		Moist
HAMMER	140#		Damp
FALL	30"		Slightly Damp

DATE STARTED: 9/23/93

DATE COMPLETED: 9/23/93

FOOTAGE

DEPTH BLOW COUNTS REC

DRILLER'S NOTES & COMMENTS

6 12 18 24

1-3' . . . 1 . . . 2 . . . 2 . . . 3 . . . 3 | 20" | Dry.

5" of cinders and old trash over fine sand.

3-7' 4 . . . 5 . . . 6 . . . 6 | 20" | Dry.

Fine and medium sand.

7-12' 12 . . . 11 . . . 14 . . . 20 | 22" | Dry.

Fine sand.

Client: Lake Champlain Housing
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Helper: Sean Hogan
Materials: None.