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*Rochester*

**UNDERGROUND STORAGE TANK REMEDIAL INVESTIGATION**

**TRIMONT NUWAY COOPERATIVE  
TRIMONT, MINNESOTA  
LEAK #00001670**

*1697*

**PREPARED FOR:  
TRIMONT NUWAY COOPERATIVE**

**PREPARED BY:  
LAND O'LAKES, INC. ENGINEERING  
FEBRUARY, 1990**

  
**James R. Hestad  
Project Manager**

  
**Larry A. Berndt  
Hydrogeologist**

**RECEIVED**

FEB 26 1990

Minn. Pollution Control Agency  
ROCHESTER, MINNESOTA

**RECEIVED**

FEB 20 1990

APCA, HAZARDOUS  
WASTE DIVISION

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PHASE I

## 1.0

### INTRODUCTION

During the month of August, 1989, Trimont NuWay Cooperative (Co-op) began an Underground Storage Tank (UST) investigation in conjunction with the removal of old and the installation of new UST's. As part of the tank investigation, Twin City Testing Corporation was retained by the Co-op to perform soil screening and soil sample collection as to determine subsurface soil conditions. The NuWay Co-op is located at the southeast corner of Main Street and Broadway Street in Trimont, Minnesota. Figure 1 illustrates the general site location.

Following the reporting process by TCT to the Minnesota Pollution Control Agency (MPCA) concerning the subsurface soil conditions, it was determined by the Agency that data presented was inconclusive.

In October, 1989, the Co-op retained the Engineering Division of Land O'Lakes, Inc., (LOL) to continue the UST investigation and provide conclusive evidence of subsurface soil conditions.

Phase I of this report presents information provided by TCT including information regarding field screening results and laboratory results of collected soil samples and tank conditions upon removal. Phase II of this report presents additional information concerning subsurface soil conditions identified during Phase II of the UST investigation.

## 2.0

### SCOPE OF (PHASE I) TCT INVESTIGATION

On August 31, 1989, TCT was retained to provide field screening and sample collection of exposed soils in the bottom of an UST excavation hole. Sample screening and collection was conducted to provide evidence of the existence or absence of petroleum hydrocarbon contamination in the soils. Soils were screened with an hNU Portable Photoionization Analyzer (PID), equipped with a 10.2 eV ultraviolet lamp calibrated for direct readings of parts per million per volume of benzene. Jar headspace analytical procedures were utilized to determine organic vapor content. Table 1 presents a summary of Jar headspace results. TCT was contacted and provided approximate jar headspace sample locations. These sample

locations are presented on Figure 6.

### 3.0 UNDERGROUND STORAGE TANK INVESTIGATION

Information pertaining to tank removal and soil conditions is presented in the TCT report dated September 26, 1989.

Supplements to the report containing chemical analysis results were later forwarded by TCT on September 28 and October 11, 1989. Copies of this report were sent to Mr. Jim Lorentz of the Co-op, Mr. David Scheer at the MP&CA and the City of Trimont Building Inspector. Copies of the TCT reports are presented in Appendix A.

### 4.0 ANALYTICAL RESULTS

A total of four soil samples were collected by TCT and submitted for chemical analysis. Analytical parameters included total hydrocarbons as gasoline, Benzene, Toluene, Xylene, Ethylbenzene and Methyl-tert-butyl ether. The soil samples as indicated in the TCT reports were labeled S-1/1, S-1/2, S-1/3, S-1/4. Table 2 presents a summary of analytical test results run on the soil sample. As indicated in the TCT report, samples S-1/1, S-1/2 and S-3/1 were collected from a depth of 12 feet, 6 feet and 9 feet respectively. No indication of sampling depth was provided for soil sample S-4/1. As presented on Table 2, Benzene, ethylene, Toluene and Xylene (BETX) as well as total hydrocarbons and methyl-tert-butyl ether was detected in the collected soil samples.

Section 5.0 (Results), Paragraph 3 of the September 26, 1989, TCT report indicates that the excavation was approximately 12' feet deep. Discussions with Co-op personnel conformed that the excavation was a minimum 12 feet deep and may have been as deep as 15 feet. During excavation of soils, upon detection organic vapors, TCT directed the excavator to continue removing soil until field screening instruments indicated a non-detection reading. At this point (Final excavation bottom) soil samples should have been collected to confirm field screening indications, however, this was not done. Soil samples S-1/1, S-1/2 and S-1/3, therefore, do not indicate soil conditions at the bottom of the excavation. This data, however, was reported by TCT and inadvertently concluded

that subsurface contamination was not completely remediated.

## **5.0 PHASE I INVESTIGATION SUMMARY**

Following a review of the TCT reports by the MPCA, it was determined that additional site investigations would be necessary to define the extent of contamination. Further investigation would provide documentation that the impacted soils were actually removed during the initial investigation and excavation.

**PHASE II**



## 6.0

### SCOPE OF PHASE II INVESTIGATION

On November 30, 1989, a letter was submitted to the MPCA presenting proposed Phase II investigative actions. A copy of the letter is presented in Appendix B. A total of two soil borings were proposed to determine if all impacted soil had previously been removed during the Phase I investigation. The Phase II investigation included: supervision of soil boring completion; collection of soil samples for field screening purposes and for analytical testing; monitoring of breathing zone conditions during drilling operations using an organic vapor monitor (OVM); and headspace analysis of collected soil samples utilizing MPCA guidelines and the OVM. The purpose of this Phase II report is to document and summarize the results of the soil boring investigation.

## 7.0

### SOIL BORING INVESTIGATION

In response to the detected petroleum hydrocarbons in the soil as determined by the Phase 1 investigation, a soil boring program was conducted at the site to: characterize the apparent extent of soil contamination from the apparent release; determine if and confirm that impacted soils were removed during the Phase 1 investigation.

Twin City Testing (Mankato branch) was retained to complete the soil borings. The soil boring investigation was conducted on December 11, 1989. Soil borings B-1 and B-2 are presented on Figure 3, soil boring logs are presented in Appendix C.

A total of two (2) soil borings were completed at the site. Soil borings were completed by using a minimum 4 inch inside diameter, I.D. hollow stem augers (HSA). Soil samples were obtained in each borehole by the split barrel method in accordance with ASTM D1586. Soil samples were classified in the field following the Unified Soil Classification System (USCS) using visual-manual procedures. Soil samples were collected at 5 foot intervals and at major changes in lithology. Headspace analyses were conducted following MPCA procedures (see Appendix D) on collected soil samples in the field by LOL contract personnel using an OVM to identify the presence of organic vapors down to 0.1 ppm. Air quality was

periodically monitored using the OVM both in the breathing zone and at the top of the auger during drilling operations. Background OVM readings during drilling were less than 0.1 ppm.

The soil borings target depth was 15 to 20 feet. This estimate was based upon the approximate depth of the Phase 1 investigation. During the soil boring and sampling procedures at each borehole, the split spoon sampler was rinsed with clean water prior to the collection of the next sample. All tools and drilling equipment were steam cleaned between boring locations.

## 7.1

### SITE STRATIGRAPHY

The site stratigraphy consists of approximately 6 inches of concrete underlain by approximately 2 feet of sandy lean clay and gravel fill mixture. Soil conditions existing from approximately 2.5 feet below grade to 21 feet below grade consist of sandy lean clay with gravel (Till). Figure 4 indicates the location of cross-section A-A'. Cross-section A-A' is presented on Figure 5. Headspace analysis conducted on split spoon samples did not detect the presence of any organic vapors. Samples collected from the 4 foot to 6 foot interval from both soil borings indicated a slight petroleum smell. Due to this detection, an additional sample was collected utilizing continuous sampling techniques. The underlying sample collected from 6 feet to 8 feet had no odor.

Table 3 presents the results of headspace analysis conducted on collected soil sample.

Following the completion of the Phase 1 investigation, the excavation was backfilled with clean fill. The main objective of the Phase II soil boring investigation was to obtain a sample of the native soils below the fill material. To ensure that native soils were collected, the sample interval from 19 feet to 21 feet was submitted for analysis.

## ANALYTICAL RESULTS

Chem-Bio Corporation (CBC) located in Oak Creek, Wisconsin, was retained to analyze soil samples for selected parameters. Collected soil samples were analyzed for Benzene, Ethyl Benzene, Toluene and Xylene (BETX), Total Petroleum Hydrocarbons (TPH) and Lead. Appendix E contains copies of analytical reports and chain of custody forms.

Table 3 presents a summary of analytical results from soil borings B-1 and B-2. As evident from the analytical data, native soils collected from beneath the fill material appear to have trace amounts of Benzene, Toluene and Xylene. A trace amount of ethyl benzene was also detected in soil collected from soil boring 1. Total Petroleum hydrocarbons were not detected in the soil samples at or above the method detection limits (MDL).

## 8.0 CONCLUSIONS

Soils are considered clean and not impacted by a release when: 1) visibly stained soils are not observed; 2) odors are not detected by olfactory processes; and 3) headspace analyses do not indicate the presence of detectable organic vapors. Based on this criteria, an apparent release has occurred at this site. The MPCA was notified of the probable release promptly after the discovery of petroleum impacted soil.

Following the removal of the USTs, as reported by TCT, the sidewalls of the excavation were terminated at the property boundaries. hNu reading of the sidewalls in the area of the two (2) 500 gallon "orphaned" tanks ranged from 35 ppm to 180 ppm. TCT collected samples beneath each UST, indicating the presence of contamination. Analytical results on the collected samples was presented with the TCT September 26, 1989 report. Soil excavation was continued until native soils did not indicate the detection of organic vapors. Soil samples of final depth of the excavation, however, were not collected. The data presented by TCT in their report dated September 26, 1989, did not adequately define the extent of contamination.

On November 30, 1989, LOL proposed the completion of two (2) soil borings on the property boundary of the site. The purpose of the soil boring investigation was: to screen soil samples using jar headspace analytical techniques and to collect native soil samples representative of soil conditions beneath the excavation fill material. (i.e. the bottom of the Phase 1 tank excavation).

Analytical results of samples collected provided conclusive evidence that the impacted soils were removed during the Phase 1 investigation.

## **9.0**

### **RECOMMENDATIONS**

Based upon the information presented in this report, it is apparent that the site has been properly remediated. Therefore, no further actions are required.

**TABLES**

TABLE 1

TWIN CITY TESTING HEADSPACE ANALYSIS RESULTS

| <u>Sampling Location</u> | <u>Depth (Ft.)</u> | <u>Headspace Analysis (ppm)</u> |
|--------------------------|--------------------|---------------------------------|
| A                        | 5                  | 25                              |
| B                        | 9                  | 25                              |
| C                        | 6                  | 110                             |
| D                        | 7                  | 1160                            |
| E                        | 7                  | 35                              |
| F                        | 7                  | 120                             |
| G                        | 7                  | 180                             |
| H                        | 4                  | 64                              |
| I                        | 6                  | 110                             |
| J                        | 6                  | 200                             |
| K                        | 4                  | 13                              |
| L                        | 4                  | 11                              |
| M                        | 3                  | 2                               |
| N                        | 8                  | 0                               |
| O                        | 8                  | 0                               |
| P                        | 8                  | 0                               |
| Q                        | 8                  | 0                               |
| R                        | 8                  | 0                               |
| S                        | 12                 | 0                               |

**NOTE:** Information pertaining to Twin City Testing Headspace Analysis provided to Land O'Lakes upon request.

Actual sample locations provided by Twin City Testing. Unique sample locations indicated by (A,B,C...) issued by Land O'Lakes.

Table 1 corresponds to Figure 6.

TABLE 2

SUMMARY OF TCT SOIL SAMPLE ANALYTICAL RESULTS

(Results Presented in parts per million)

|               | S-1/1<br>@ 12' | S-2/1<br>@ 6' | S-3/1<br>@ 9' | S-4/1<br>* |
|---------------|----------------|---------------|---------------|------------|
| Benzene       | 9.1            | 40.0          | ND            | 0.8        |
| Ethyl Benzene | 8.2            | 65.0          | ND            | 0.042      |
| Toluene       | 11.0           | 93.0          | ND            | 0.15       |
| Xylene        | 36.0           | 330.0         | ND            | 0.27       |
| THC           | 510.0          | 4000.0        | ND            | 7.3        |
| MTBE          | 86.0           | NA            | ND            | NA         |
| Lead          | NA             | NA            | 23.0          | 20.0       |

NA Not Analyzed  
 ND Not Detected  
 \* No Indication of Sample Depth  
 THC Total Hydrocarbons as Gasoline  
 MTBE Methyl-tert-butyl-ether

**TABLE 3**

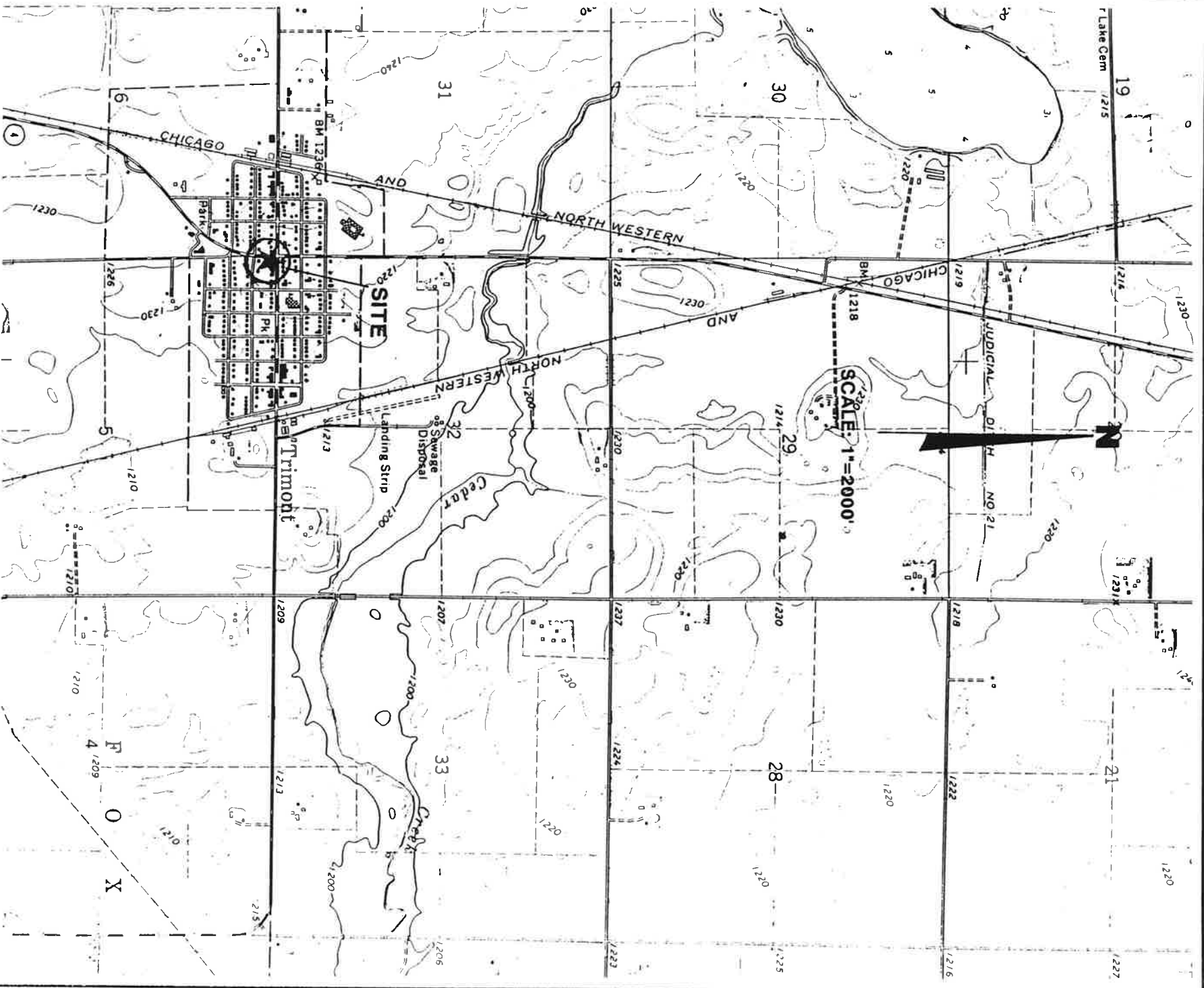
**SUMMARY OF PHASE II INVESTIGATION ANALYTICAL DATA**

**(PPM)**

|                      | <u>Soil Boring - 1</u><br><u>at 19-21 Ft.</u> | <u>Soil Boring - 2</u><br><u>at 19-21 Ft.</u> |
|----------------------|---|---|
| <b>Benzene</b>       | 0.004   | 0.021   |
| <b>Ethyl Benzene</b> | 0.003   | <0.002  |
| <b>Toluene</b>       | 0.025   | 0.031   |
| <b>Xylene</b>        | 0.021   | 0.044   |
| <b>TPH</b>           | <4.0  | <4.0  |
| <b>Lead</b>          | 11  | 23  |
| <b>TPH</b>           | <b>Total Petroleum Hydrocarbons</b>           |   |
| <b>PPM</b>           | <b>Parts Per Million</b>                      |   |



**FIGURES**



**LAND O' LAKES ENGINEERING**

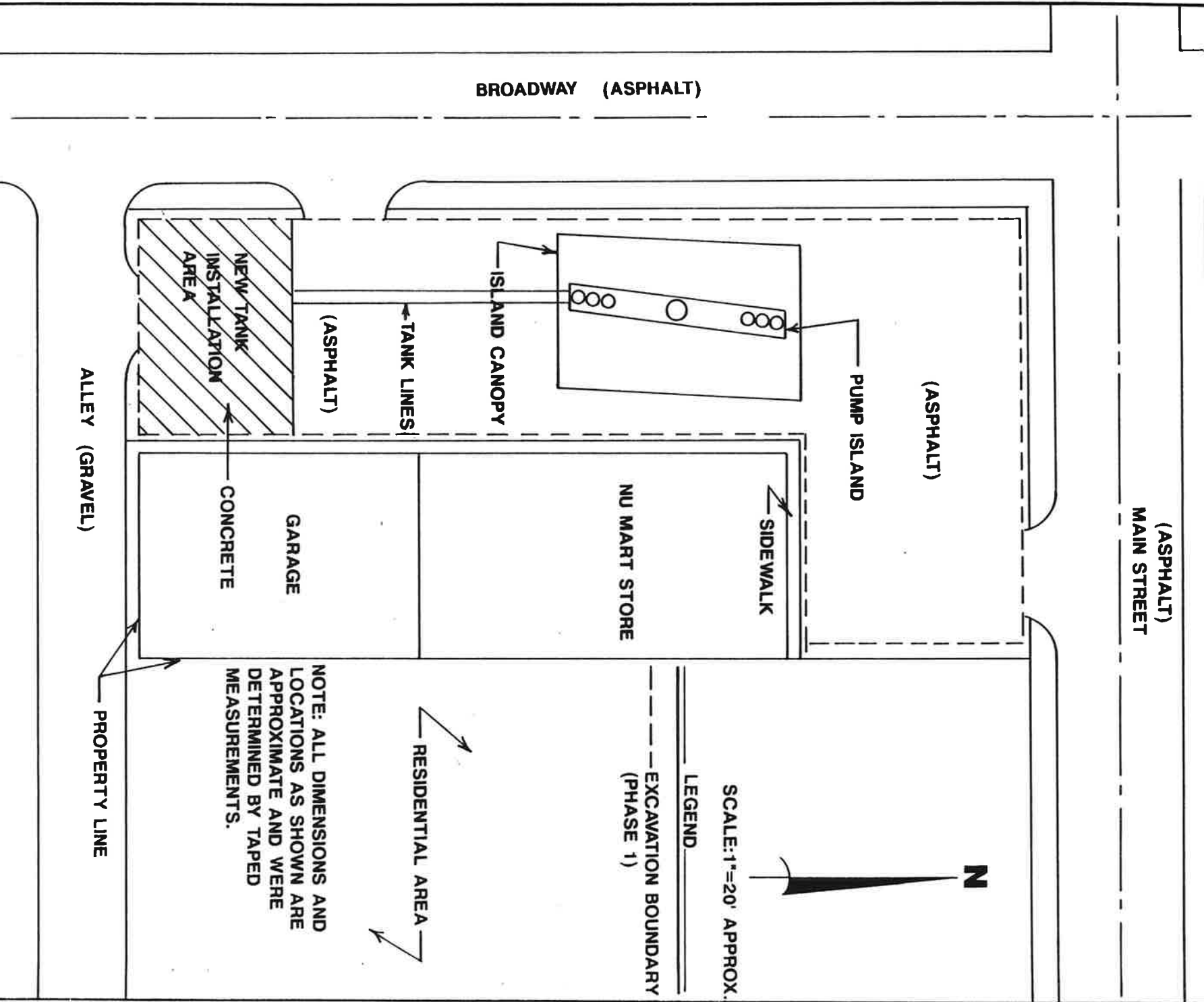
4001 LEXINGTON AVENUE NORTH  
ARDEN HILLS, MINNESOTA 55216  
TELEPHONE: (612) 481-2740

**TRIMONT NU-WAY CO-CP**

**SITE LOCATION MAP**

**JAN 90**

**FIG. 1**



LAND O' LAKES ENGINEERING

4001 LEXINGTON AVENUE NORTH  
ARDEN HILLS, MINNESOTA 55216  
TELEPHONE: (612) 481-2740

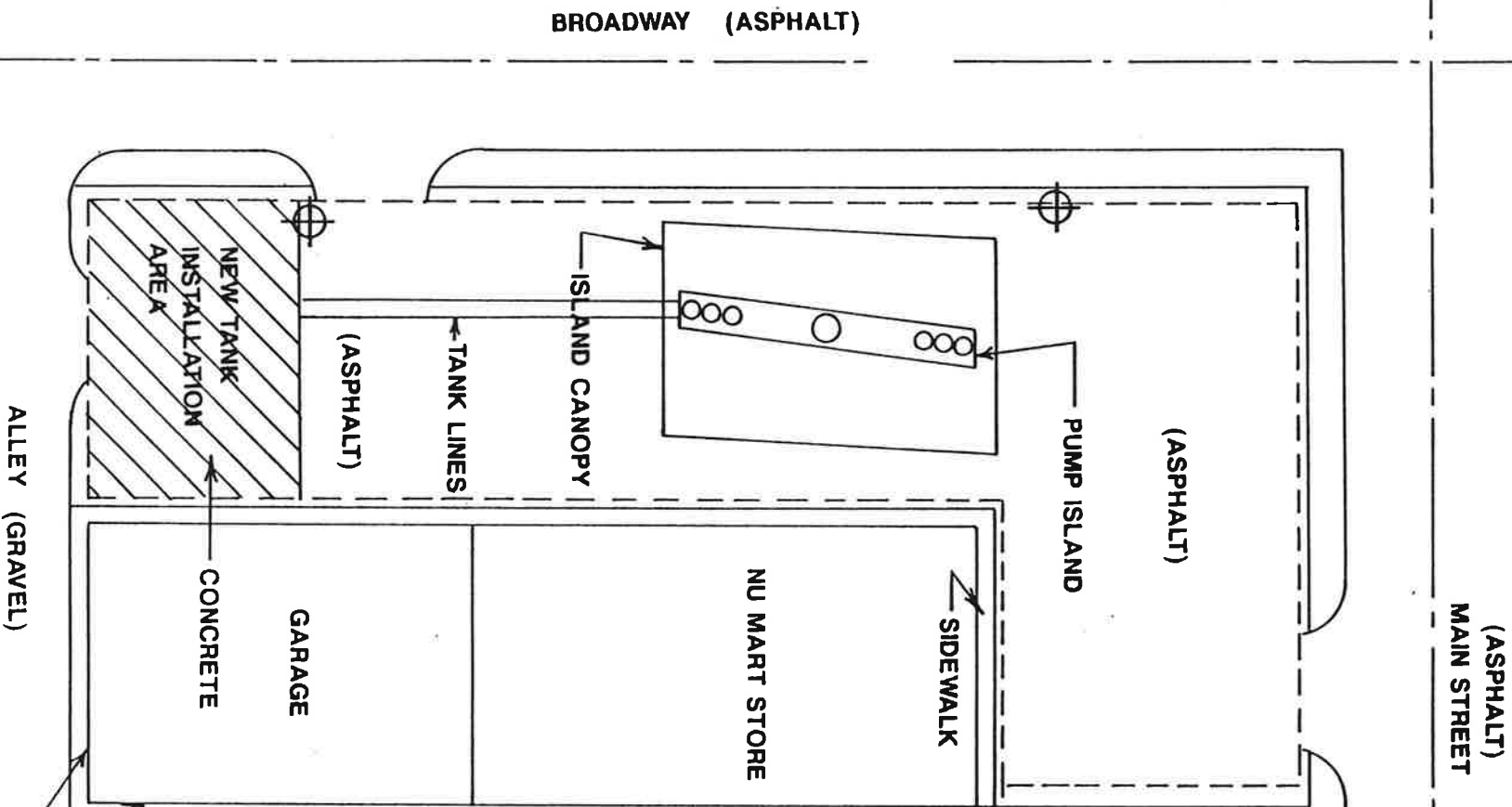
TRIMONT NU WAY CO-OP

SITE PLAN

JAN 90

FIG.

2



NOTE: ALL DIMENSIONS AND LOCATIONS AS SHOWN ARE APPROXIMATE AND WERE DETERMINED BY TAPED MEASUREMENTS.

SCALE: 1"=20' APPROX.

LEGEND

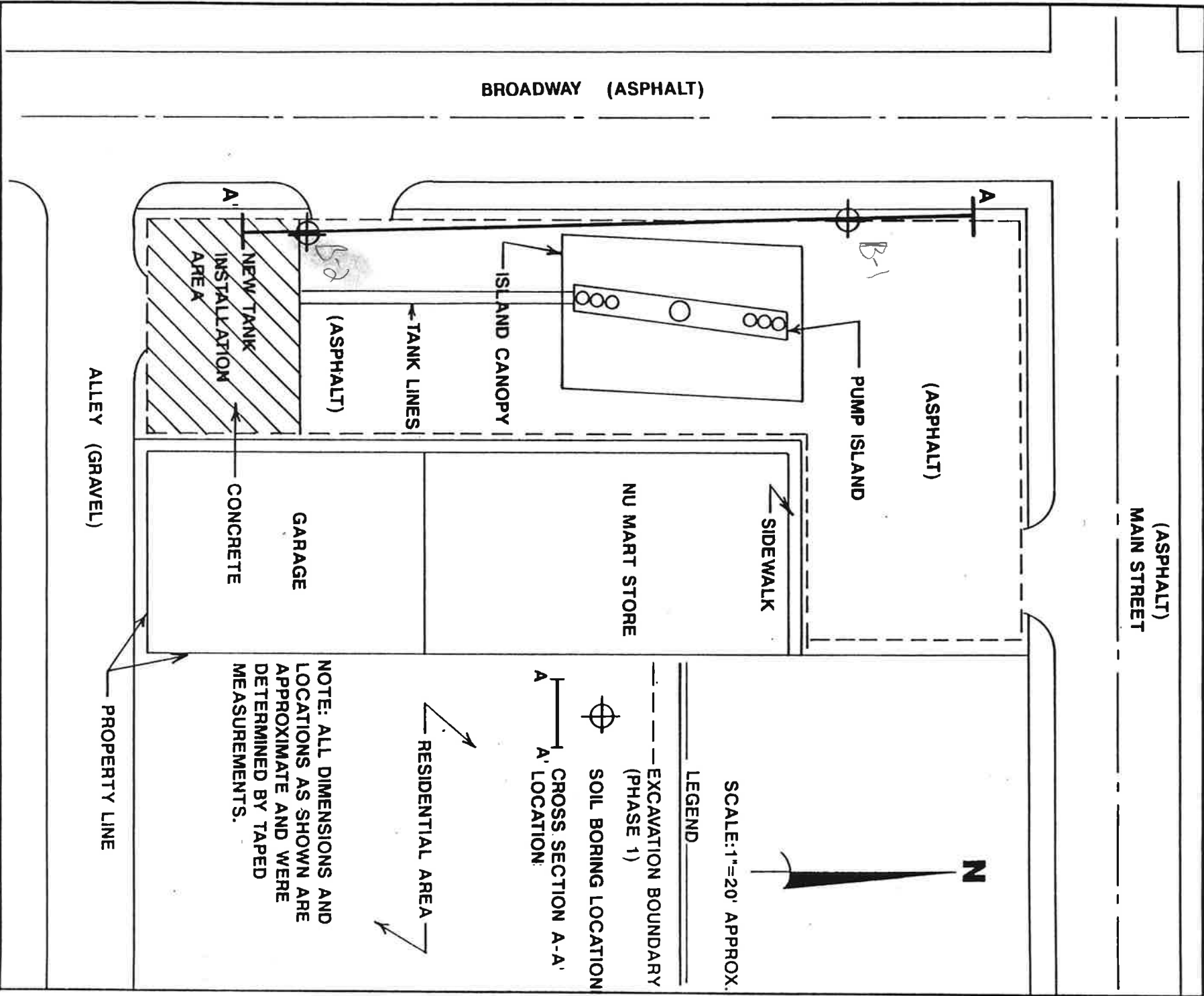
--- EXCAVATION BOUNDARY (PHASE 1)



LAND O' LAKES ENGINEERING  
 4001 LEXINGTON AVENUE NORTH  
 ARDEN HILLS, MINNESOTA 55216  
 TELEPHONE: (612) 481-2740

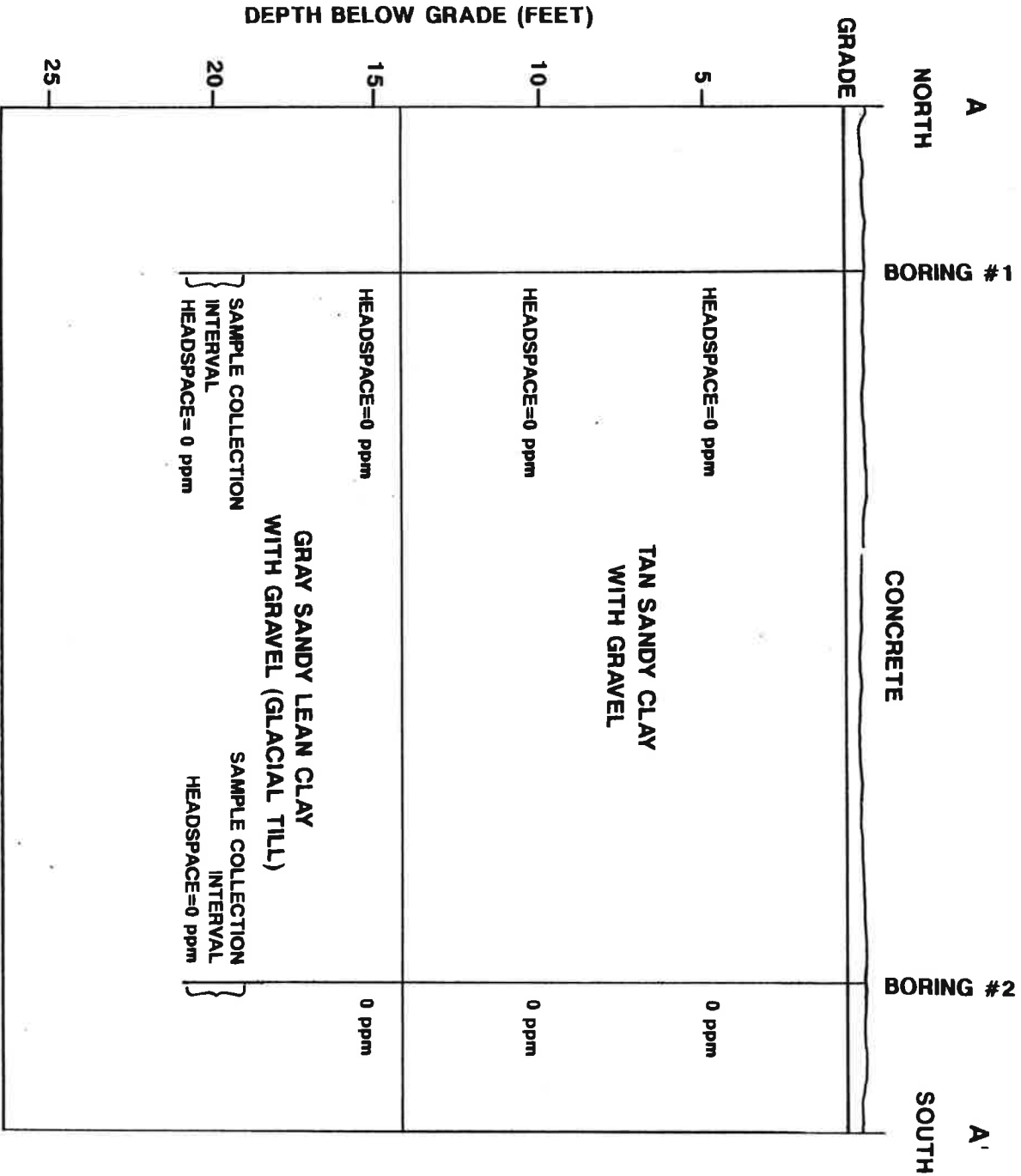
TRIMONT NU WAY CO-OP  
 SOIL BORING LOCATIONS

JAN 90  
 FIG. 3



**LAND O' LAKES ENGINEERING**  
 4001 LEXINGTON AVENUE NORTH  
 ARDEN HILLS, MINNESOTA 55216  
 TELEPHONE: (612) 481-2740

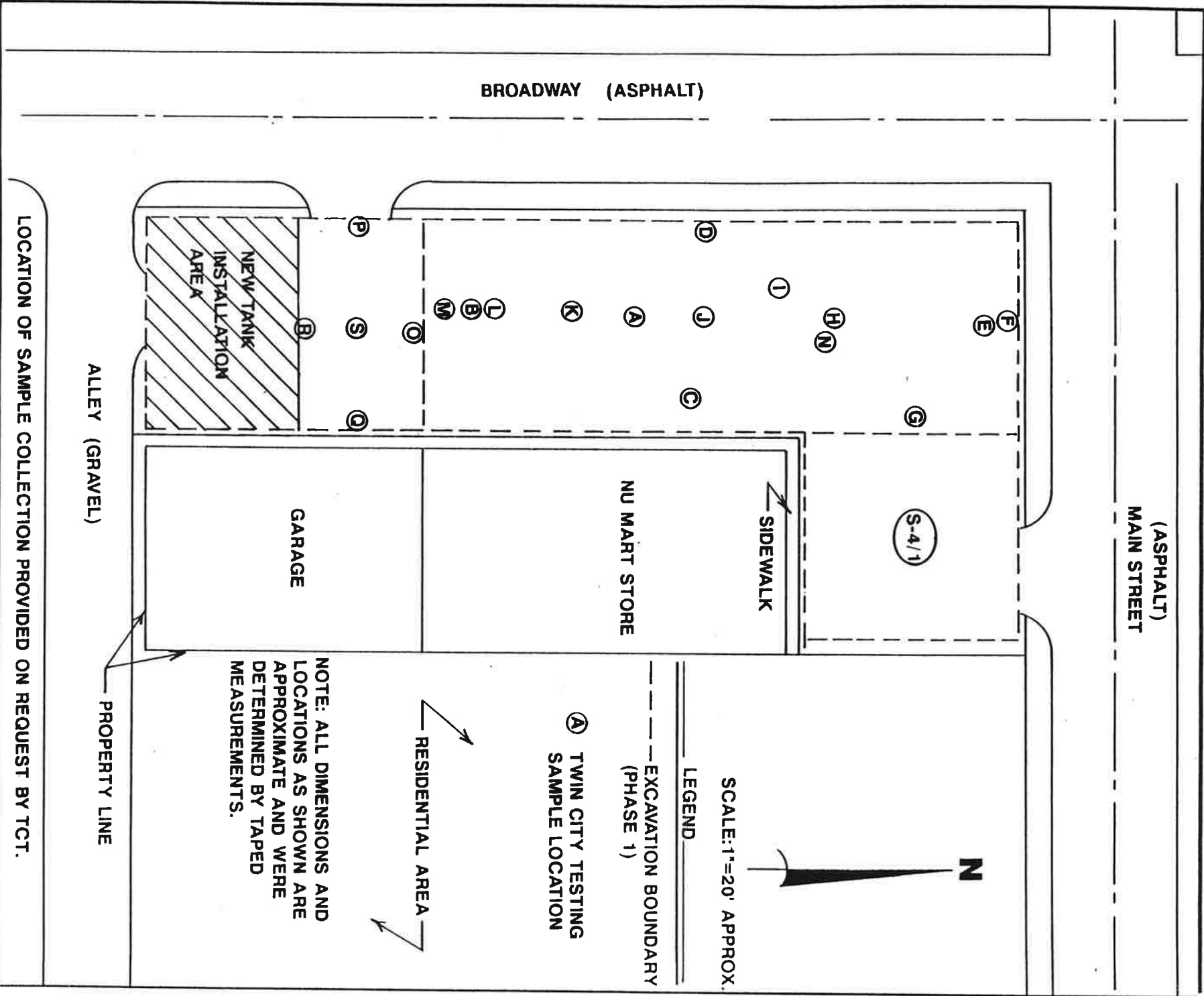
|                                |        |
|--------------------------------|--------|
| TRIMONT NU WAY CO-OP           | JAN 90 |
| LOCATION OF CROSS SECTION A-A' | FIG. 4 |



} SAMPLE COLLECTION INTERVAL - SAMPLE COLLECTED AND TESTED IN LABORATORY

**NOTE: GROUND WATER WAS NOT ENCOUNTERED DURING BORING PROCEDURES.**

|  |               |  |
|--|---------------|--|
| <b>LAND O' LAKES ENGINEERING</b>   |               |  |
| 4001 LEXINGTON AVENUE NORTH<br>ARDEN HILLS, MINNESOTA 55216<br>TELEPHONE: (612) 481-2740 |               |  |
| <b>TRIMONT NU WAY CO-OP</b>  | <b>JAN 90</b> |  |
| <b>GEOLOGIC CROSS SECTION A-A'</b>   | <b>FIG. 5</b> |  |



SCALE: 1"=20' APPROX.  
 LEGEND  
 --- EXCAVATION BOUNDARY (PHASE 1)  
 (A) TWIN CITY TESTING SAMPLE LOCATION

NOTE: ALL DIMENSIONS AND LOCATIONS AS SHOWN ARE APPROXIMATE AND WERE DETERMINED BY TAPED MEASUREMENTS.

LOCATION OF SAMPLE COLLECTION PROVIDED ON REQUEST BY TCT.

|   |  |                      |        |
|---|--|----------------------|--------|
| LAND O' LAKES ENGINEERING<br>4001 LEXINGTON AVENUE NORTH<br>ARDEN HILLS, MINNESOTA 55216<br>TELEPHONE: (612) 481-2740 |  | TRIMONT NU WAY CO-OP | JAN 90 |
| TWIN CITY TESTING SAMPLE LOCATIONS  |  | FIG. 6               |        |

# APPENDIX A





**TWIN CITY TESTING**  
CORPORATION

3 MILES NO. ON COUNTY ROAD 5  
BOX 18, ROUTE 5  
MANKATO, MN 56001-9303  
PHONE 507/625-8211

September 26, 1989

Zahl Equipment Service  
1832 N Riverfront Drive  
Mankato, MN 56001

Attn: Mr. Pat Arntzen

SUBJECT: Nuway Co-op  
Trimont, Minnesota  
#4900 89-816

Dear Mr. Arntzen:

1.0 Introduction

On August 31, 1989, Twin City Testing Corporation was contacted by Mr. Pat Arntzen of Zahl Equipment Service to perform a soil screening of the soils exposed in the open tank excavation at the Nuway Co-op Station located at corner of Main Street and Broadway Street in Trimont, Minnesota.

2.0 Scope of Work

The scope of our work was limited to scanning the exposed soils in the bottom of the excavations for the presence of hydrocarbon contamination and obtaining soil samples for chemical analysis.

3.0 Methodology

The soils at the project site were scanned with an hNu Portable Photoionization Analyzer (PID), equipped with a 10.2 eV ultraviolet lamp calibrated for direct readings of ppm volume per volume of benzene. Soil samples were screened with jar headspace analytical screening procedures.

Soil samples were collected and will be chemically analyzed in accordance with our quality assurance procedures. A detailed summary of the procedures used is available upon request.

#### 4.0 Background

The following information was provided to us:

| <u>Date of Excavation</u> | <u>Size</u>   | <u>Approximate Age</u> | <u>Contents</u>         |
|---------------------------|---------------|------------------------|-------------------------|
| 9/5/89                    | 12,000 gallon | 14 years               | Super Unleaded Gasoline |
| 9/7/89                    | 500 gallon    | Unknown                | Leaded Gasoline         |
|                           | 500 gallon    | Unknown                | Unleaded Gasoline       |
| 9/11/89                   | 1,000 gallon  | Unknown                | Leaded Gasoline         |
|                           | 500 gallon    | Unknown                | #2 Diesel               |

Please refer to the attached site sketch for previous tank locations.

#### 5.0 Results

Twin City Testing Corporation visited the project site on September 5, 1989 to observe the exhumed 12,000 gallon tank and the soils exposed in the excavation.

Visual observations of the tank indicated that it appeared to be in servicable condition with only minor pitting.

The excavation was about 12' deep. The surrounding soils consisted of natural clay till and the tank was bedded in granular type backfill. No water was present in the excavation.

No contaminated soils were evident when screened with the hNu PID. Soil samples were taken of the soil below the tank for chemical analysis. Four new underground storage tanks were installed in the excavation.

On September 7, 1989, during excavation for the new pump island and canopy, some soil contamination was present from the west side of the building to the west and from the previous excavation to the north property line. After discussions with MPCA, the apparently

Zahl Equipment Service

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#4900 89-816

contaminated soils with PID readings greater than 10 ppm were excavated to the property lines. The excavation ranged in depth from 5' in the southern portion to 0' in the northern portion. Two (2) 500 gallon "orphaned" tanks were found and exhumed from an old building foundation. The tanks were in poor condition having the appearance of "swiss cheese". These tanks were suspected of having the appearance leaded and/or unleaded gasoline. Therefore, when an hnu reading of under 10 ppm was encountered the excavation was terminated at that depth.

~~At the bottom of the excavation, the PID readings ranged from 35 ppm to 180 ppm. Soils~~  
~~highest PID level soils.~~ The excavation was backfilled so construction could continue.

On September 11, 1989, Twin City Testing Corporation was contacted by Mr. Jim Rentz of Nuway Co-op. Two (2) additional tanks (1,000 gallon, leaded gasoline and a 500 gallon, diesel) to the north of the existing Nuway Co-op were being excavated. Both tanks appeared in serviceable condition with only minor pitting.

~~Because of prior commitments, an hnu~~  
~~was not available at the project site.~~

~~The excavation was backfilled so further construction could take place.~~

According to the contractor, about 1,000 cubic yards of soil was excavated and stockpiled on other property holdings of the Co-op's.

In our opinion, it appears that the likely source of contamination was from the two (2) "orphaned" tanks that were present on site.

The results of all chemical analysis will be forwarded as soon as they become available.

#### 6.0 Remarks

State law requires that detection of a hydrocarbon leak or spill must be immediately reported to the MPCA. We understand that notification has been made. Some hydrocarbon remediation expenses may be reimbursable by a Minnesota state fund.

A formal request for soil disposition should be submitted to MPCA for approval. Approved disposition methods include incineration, mixing with aggregate base material and land farming. A remedial assessment

Zahl Equipment Service

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September 26, 1989

#4900 89-816

Will probably be required by MPCA for this site. Please find attached a copy of the "Background Information Part I" of the MPCA "Contents of Petroleum Tank Release Corrective Action Report". This should be completed and submitted to MPCA with a copy to us.

Copies of this report have been sent as noted below.

If you have any questions concerning this report or we can be of further assistance please contact us.

Very truly yours,

*Mark D. Redlin*

Mark D. Redlin  
Senior Engineering Technician

*Michael R. Schmidt*  
Michael R. Schmidt, P.E.  
Manager-Mankato Branch

MDR/MRS/lmh

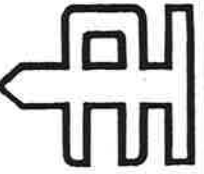
Enclosures

cc: City of Trimont

Attn: Building Inspector

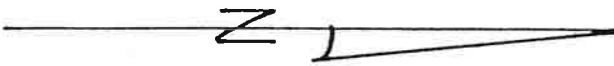
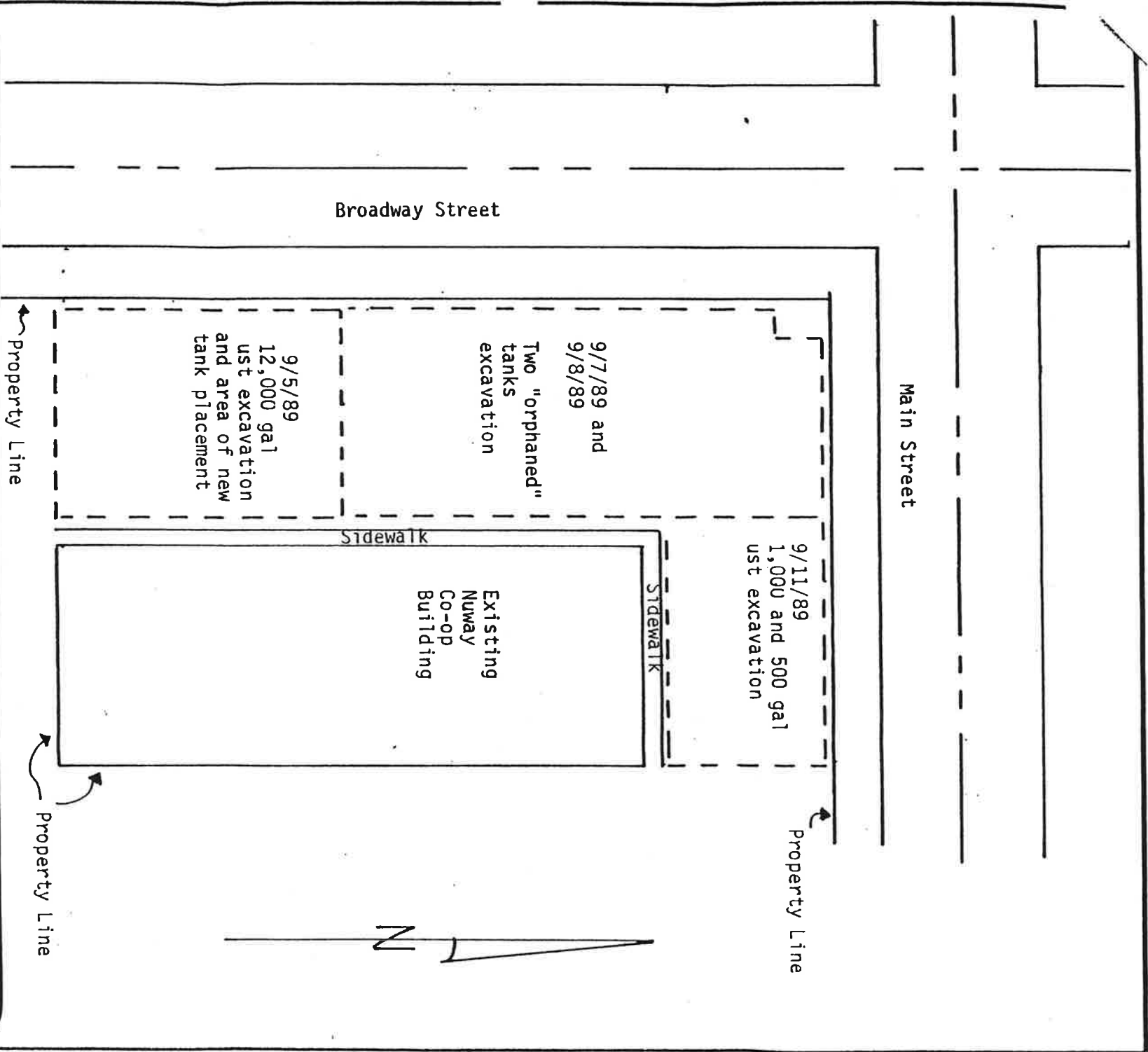
MPCA

Attn: David Sheer



NUMAY CO-OP  
TRIMONT, MINNESOTA

|              |             |        |   |
|--------------|-------------|--------|---|
| DATE         | 9/26/89     | FIGURE | 1 |
| PROJECT #    | 4900 89-816 |        |   |
| REVIEWED BY: | MRS         |        |   |
| DRAWN BY:    | MDR         |        |   |
| SCALE        | N/I         |        |   |



**SOIL SAMPLING FORM**

Boring N/A Project Nuway Co-op W.O. # 4900 89-816 Recorded by Frost

Location Trimont, Minnesota Cleaning N/A Date September 5, 1989

Describe Sampling Point Underground storage tank excavations Reviewed by Schmidt

Sampling Method Grab Organic Vapor Detector hNu w/10.2 ev lamp

| Depth | Sample ID     | Soil Type       | Samples Collected for head  | Organic Vapors (ppm) | Odor    | Contamination Observations     | Location          |
|-------|---------------|-----------------|-----------------------------|----------------------|---------|--------------------------------|-------------------|
| 8'    | --            | Sandy Lean Clay | jar sample for head space   | 0                    | No odor |                                | North<br>sidewall |
| 8'    | --            | Sandy Lean Clay | jar sample for head space   | 0                    | No odor |                                | West<br>sidewall  |
| 8'    | --            | Sandy Lean Clay | jar sample for head space   | 0                    | No odor |                                | East<br>sidewall  |
| 8'    | --            | Sandy Lean Clay | jar sample for head space   | 0                    | No odor |                                | South<br>sidewall |
| 8'    | --            | Sandy Lean Clay | Purge and trap and soil jar | 0                    | No odor | Composite of bottom excavation |                   |
| 12'   | <u>S-4115</u> | Sand            |                             |                      |         |                                |                   |

Depth to Ground Water N/A Boring Abandonment Method N/A

Comments \_\_\_\_\_

**SOIL SAMPLING FORM**

Boring N/A Project Nuray Co-op W.O. # 4900 89-816 Recorded by Redlin  
 Location Trimont, Minnesota Cleaning N/A Date September 7, 1989  
 Describe Sampling Point Underground storage tank excavations Reviewed by Schmidt  
 Sampling Method Grab Organic Vapor Detector hNu w/10.2 ev lamp

| Depth | Sample ID                 | Soil Type       | Samples Collected for head                   | Organic Vapors (ppm) | Odor          | Contamination Observations           | Location   |
|-------|---------------------------|-----------------|--|----------------------|---------------|--------------------------------------|------------|
| 4'    | --                        | Organic Clay    | jar sample for head space                    | 64                   | Moderate odor | 20'W of NW corner of building        | 17'W & 8'N |
| 6'    | --                        | Sandy Lean Clay | Purge and trap and jar sample for head space | 110                  | Strong odor   | 20'W & 10'S of NW corner of building |            |
| 6'    | <del>S-211</del><br>S-211 | Sandy Lean Clay | jar sample for head soil jar                 | 200                  | Strong odor   | 20'W & 22'S of NW corner of building |            |
| 4'    | --                        | Sandy Lean Clay | jar sample for head space                    | 13                   | Slight odor   | 20'W & 35'S of NW corner of building |            |
| 4'    | --                        | Sandy Lean Clay | jar sample for head space                    | 11                   | Slight odor   | 20'W & 50'S of NW corner of building |            |
| 3'    | --                        | Sandy Lean Clay | jar sample for head space                    | 2                    | Slight odor   | 17'W & 8'N of NW corner of building  |            |
| 8'    | --                        | Sandy Lean Clay | jar sample for head space                    | 0                    | No odor       | 20'W & 8'N of NW corner of building  |            |

Depth to Ground Water N/A Boring Abandonment Method N/A  
 Comments \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**SOIL SAMPLING FORM**

Boring N/A Project Nuway Co-op W.O. # 4900 89-816 Recorded by Redlin

Location Trimont, Minnesota Cleaning N/A Date September 11, 1989

Describe Sampling Point Underground storage tank excavations Reviewed by Schmidt

Sampling Method Grab Organic Vapor Detector hNu w/10.2 eV lamp

| Depth | Sample ID          | Soil Type       | Samples Collected           | Organic Vapors (ppm) | Odor          | Contamination Observations                  | Location                                 |
|-------|--------------------|-----------------|-----------------------------|----------------------|---------------|---|--|
| 5'    | --                 | Sandy Lean Clay | jar sample for head         | 25                   | Moderate odor | 40'S & 20'W of NW corner of building btm    | 20'W & 20'S                              |
|       |                    |                 | Purge and trap and soil jar |                      |               |   |  |
| 9'    | <del>5-31, 8</del> | Sandy Lean Clay | jar sample for head         | 25                   | Moderate odor | 15'S & 11'W of NW corner of building bottom | 15'S & 11'W of NW corner of NW corner    |
| 6'    | --                 | Sandy Lean Clay | jar sample for head         | 110                  | Strong odor   | E sidewalk                                  | 30'W & 8'S of NW corner                  |
| 7'    | --                 | Sandy Lean Clay | jar sample for head         | 160                  | Strong odor   | W sidewalk                                  | 20'N & 20'W of NW corner of NW corner of |
| 7'    | --                 | Sandy Lean Clay | jar sample for head         | 35                   | Slight odor   | N sidewalk                                  | 24'N & 20'W of NW corner of building     |
| 7'    | --                 | Sandy Lean Clay | jar sample for head         | 120                  | Strong odor   | 15'N & 10'W of - NW corner of building      |  |
| 7'    | --                 | Sandy Lean Clay | jar sample for head         | 180                  | Strong odor   |   |  |

Depth to Ground Water N/A Boring Abandonment Method N/A

Comments \_\_\_\_\_





**twin city testing**  
corporation

3 MILES NO. ON COUNTY ROAD 5  
BOX 18, ROUTE 5  
MANKATO, MN 56001-9303  
PHONE 507/625-8211

RECEIVED

OCT 2 1989

REGISTERED MAIL

September 28, 1989

Zahl Equipment Service  
1832 N Riverfront Drive  
Mankato, MN 56001

Attn: Mr. Pat Arntzen

SUBJECT: Chemistry Analysis  
Nuway Co-op  
Trimont, Minnesota  
#4900 89-816

Dear Mr. Arntzen:

Please find attached the chemical analysis for the Nuway Co-op Station located at corner of Main Street and Broadway Street in Trimont, Minnesota.

Very truly yours,

*Michael R Schmidt*  
Michael R. Schmidt, P.E.  
Manager-Mankato Branch

MRS/lmh

Enclosures

cc: City of Trimont  
Attn: Building Inspector  
MPCA  
Attn: David Sheer  
Nuway Co-op  
Attn: Jim Rentz



662 CROMWELL AVENUE  
ST PAUL, MN 55114  
PHONE 612/645-3601

REPORT OF: CHEMICAL ANALYSIS

PROJECT: NU-WAY CO-OP, 4900 89-816 DATE: September 25, 1989

REPORTED TO: Twin City Testing  
Attn: Mark Redelin  
Box 18  
Mankato, MN 56001-9303

LABORATORY No. 4410 89-6394

INTRODUCTION

This report presents the results of the analysis of one soil sample received on September 7, 1989 from a representative of Twin City Testing Corporation. The scope of our work was the determination of total hydrocarbons as gasoline, benzene, toluene, xylenes, ethyl benzene and methyl-tert-butyl ether using gas chromatographic techniques.

SAMPLE IDENTIFICATION

S-1/1 - TCT #147248

METHODOLOGY

Gasoline concentrations were determined using methods similar to EPA SW-846 Method 5030. A portion of the sample was weighed and extracted with methanol. The extract was then analyzed with a Tekmar LSC-2 Liquid Sample Concentrator on an HP5890A gas chromatograph equipped with a flame ionization detector. Compounds were identified by column retention time and quantified by peak area comparisons to those of known standards using a VG Laboratory data system.

RESULTS

The results are listed in Table 1.

REMARKS

The sample was taken September 5, 1989. The sample was analyzed on September 18, 1989. The sample was consumed in the analysis.

TWIN CITY TESTING CORPORATION

*Maureen Murray*  
Maureen Murray  
Volatiles Group Leader

*Chris Bremer*  
Chris Bremer, Manager  
Chromatography Section

MM/CB/tc

TABLE 1

VOIATILE ANALYSIS

| <u>Parameter</u>                  | <u>S-1/1</u> | <u>MDL (ug/Kg)</u> |
|-----------------------------------|--------------|--------------------|
| Total Hydrocarbons<br>as Gasoline | 510,000      | 50                 |
| Benzene                           | 9,100        | 50                 |
| Toluene                           | 11,000       | 50                 |
| Xylenes                           | 36,000       | 50                 |
| Ethyl Benzene                     | 8,200        | 50                 |
| Methyl-tert-butyl ether           | 86,000       | 50                 |

All values are in ug/Kg. ug/Kg is equal to parts-per-billion.

MDL - Method Detection Limit

Laboratory No 4410 89-6394



**Twin City Testing**  
Corporation

214-LES NO ON 1000011 5040 5  
BOX 15, 207TH S  
WANKATO, MN 55003-1823  
PHONE 507-822-8211

October 11, 1989

Zahi Equipment Service  
1832 N Riverfront Drive  
Mankato, MN 56001

Attn: Mr. Pat Arntzen

SUBJECT: Chemistry Analysis  
Nuway Co-op  
Trimont, Minnesota  
#4900 89-816

Dear Mr. Arntzen:

Please find attached the chemical analysis that were taken on September 7, 1989 for the Nuway Co-op Station located at corner of Main Street and Broadway Street in Trimont, Minnesota.

Very truly yours,

*Michael R Schmidt*  
Michael R. Schmidt, P.E.  
Manager-Mankato Branch

MRS/lmh

Enclosures

cc: City of Trimont  
Attn: Building Inspector  
MPCA  
Attn: David Sheer  
Nuway Co-op  
Attn: Jim Rentz



**TWIN CITY TESTING**  
CORPORATION

662 CROLAWELL AVENUE  
ST. PAUL, MN 55114  
PHONE 612/645-3600

REPORT OF: **CHEMICAL ANALYSIS**

PROJECT: NU-WAY COOP - TRIMONT 4500-89-816

DATE: October 2, 1989

REPORTED TO: Twin City Testing  
Attn: Mark Redelin  
Box 18  
Mankato, MN 56001-9303

LABORATORY No. 4410 89-7299

INTRODUCTION

This report presents the results of the analyses of three soil samples received on September 12, 1989 from a representative of Twin City Testing Corporation-Mankato. The scope of our work was the determination of the parameters listed below.

SAMPLE IDENTIFICATION

S-2/1 - TCT #148296  
S-3/1 - TCT #148297  
S-4/1 - TCT #148298

METHODOLOGY

Volatiles

Gasoline concentrations were determined using methods similar to EPA Method 8020 with a Tekmar Liquid Sample Concentrator on an HP5890A gas chromatograph equipped with a flame ionization detector. Compounds were identified by column retention time and quantified by peak area comparisons to those of known standards using a VG Laboratory data system.

High Concentration Volatiles

Gasoline concentrations were determined using methods similar to EPA SW-846 Method 5030. A portion of the sample was weighed and extracted with methanol. The extract was then analyzed with a Tekmar LSC-2 Liquid Sample Concentrator on an HP5890A gas chromatograph equipped with a flame ionization detector. Compounds were identified by column retention time and quantified by peak area comparisons to those of known standards using a VG Laboratory data system.

#2 Fuel Oil

The sample was extracted with methylene chloride, dehydrated with anhydrous sodium sulfate, and concentrated to less than five milliliters in a Kuderna-Danish Concentrator on a steam bath. The extract was then analyzed using an HP5890A gas chromatograph equipped with a flame ionization detector. #2 fuel oil was identified by column retention time and quantified by peak area comparisons to those of a known standard using a VG Laboratory data system.



662 CROMWELL AVENUE  
ST. PAUL, MN. 55114  
PHONE 612/645-3601

REPORT OF: CHEMICAL ANALYSIS

LABORATORY No. 4410 89-7299

DATE: October 2, 1989

PAGE: 2

Lead

Lead content was determined based on EPA Test Methods for Evaluating Solid Wastes, SW-846, Method #7420.

RESULTS

The results are listed in Table 1.

REMARKS

The samples were taken September 7, 1989. The samples were analyzed for lead on September 22, 1989. The samples were analyzed for volatiles September 21 through September 23, 1989. They were extracted for #2 fuel oil September 19, 1989 and analyzed September 22, 1989. The samples were consumed in the analyses.

TWIN CITY TESTING CORPORATION

*Maureen Murray*  
Maureen Murray  
Volatiles Group Leader

*Chris Bremer*  
Chris Bremer, Manager  
Chromatography Section

MM/CB/tc

TABLE 1

CHEMICAL ANALYSIS

| <u>Parameter</u>                  |        |        | MDL<br>(ug/Kg) |
|-----------------------------------|--------|--------|----------------|
| Total Hydrocarbons<br>as Gasoline | ND     | 7,300  | 1              |
| Benzene                           | ND     | 800    | 1              |
| Toluene                           | ND     | 150    | 1              |
| Xylenes                           | ND     | 270    | 1              |
| Ethyl Benzene                     | ND     | 42     | 1              |
| Lead                              | 23,000 | 20,000 | 5,000          |
| #2 Fuel Oil                       | NA     | ND     | 1,000          |

All values are in ug/Kg. ug/Kg is equal to parts-per-billion.

ND - Not Detected

MDL - Method Detection Limit

\* Higher boiling Hydrocarbons present, non-typical of gasoline.

TABLE 2

HIGH CONCENTRATION VOLATILE ANALYSIS

| <u>Parameter</u>                  |             | <u>MDL</u><br><u>(ug/Kg)</u> |
|-----------------------------------|-------------|------------------------------|
| Total Hydrocarbons<br>as Gasoline | 4, 000, 000 | 250                          |
| Benzene                           | 40, 000     | 250                          |
| Toluene                           | 93, 000     | 250                          |
| Xylenes                           | 330, 000    | 250                          |
| Ethyl Benzene                     | 65, 000     | 250                          |

All values are in ug/Kg. ug/Kg is equal to parts-per-billion.

ND - Not Detected

MDL - Method Detection Limit

\* Higher boiling Hydrocarbons present, non-typical of gasoline.

Laboratory No 4410 89-7299



## **APPENDIX B**

# Land O'Lakes, Inc.

4001 LEXINGTON AVE. N., ARDEN HILLS, MINNESOTA

Mailing address: P.O. Box 116, Minneapolis, MN 55440-0116  
Telephone: (612) 481-2222

November 30, 1989

Mr. Mark Biros  
Minnesota Pollution Control Agency  
Hazardous Waste Division  
Tanks and Spills Section  
520 Lafayette Road  
St. Paul, Minnesota 55155

RE: Tank removal and soil contamination investigation at the Nu-way Co-op in  
Trimount, Minnesota.

Dear Mr. Biros:

This letter is to follow up and summarize our meeting held November 28, 1989.

Do to the lack of information presented by the Twin City Testing reports pertaining to soil sampling, soil analysis and detailed descriptions of the excavations, it appeared that much more on-site remedial investigations would be necessary.

However, following a detailed review of additional information provided upon request of Twin City Testing, it appears that much of this anticipated field work has already been completed.

Apparently, soil samples were collected beneath the abandoned tanks. These samples indicated the detection of organic vapors both in the field and by laboratory analysis. Upon detection of organic vapors in the field, twin city testing directed the excavator to continue removing soil until field screening instruments indicated a non-detection reading. At this point a soil sample should have been collected and analyzed for total petroleum hydrocarbons and B,T,E,X, however this was not done.

Land O' Lakes proposes conducting a soil boring investigation to determine the apparent vertical & horizontal extent of soil and groundwater impacts. Initially, a total of two soil borings will be installed utilizing hollow stem augers (HSA) collecting split-spoon samples as the borehole progresses until organic vapors are not detected by jar head space analysis. At this point, a soil sample will be collected and analyzed in a certified laboratory.

Mr. Mark Biros

Page Two

November 30, 1989

A Hydrogeologist representing Land O' Lakes, Inc., will be on-site to supervise the soil boring investigation and provide on-site monitoring of soil and air quality during the advancement of HSA utilizing a Thermo Instrument organic vapor monitor (OVM). The OVM (11.8 e.v. Photo Ionization Detector) will be used in the field to identify the presence of organic vapors in the 0.1 parts per million (ppm) range. The potentially detectable organic compounds include constituents associated with gasoline, diesel fuel and fuel oil.

The soil borings will provide site geology and stratigraphy, vertical & horizontal extent and level of impacts to the soil from the apparent release. As discussed in our meeting, the intent of the borings are to verify that all impacted soils were removed at the time of the initial soil excavation. Should the soil borings identify soil contamination to a depth in which ground water is encountered, the soil boring program will be expanded to determine vertical & horizontal extent of groundwater contamination.

After completion of the soil boring installations, Land O' Lakes will provide a summary report which will include field observations, OVM results, laboratory test results and recommendations for further corrective actions, if required. This report will be prepared following MPCA guidelines.

It is estimated that the installation of the two soil borings will require approximately one field day.

In addition to the field investigations, a review of city records will be preformed to identify any possible routes of contamination which may exist. (ie: utility lines, etc.)

Please contact me with your comments and/or concerns should you have any at 612/559-1423.

Sincerely,

A handwritten signature in black ink, appearing to read 'L. Berndt', with a stylized flourish at the end.

Larry A. Berndt  
Hydrogeologist

LAB/klf

cc: Mr. Jim Lorentz, Nu-way Co-op, Trimount MN.

Mr. Jim Hestad - Engineering

R53:L0LMARK

## **APPENDIX C**

FIELD DATA SHEET

Drilling No. 1 Job No. 4700 90-185 Crew Chief Robert [Signature]

Vehicle Required Truck - All Terrain

BLOWS

| Sample No / Depth | Set        |            | Total | Rec. in Inch |
|-------------------|------------|------------|-------|--------------|
|                   | 1st 1/2 FT | 2nd 1/2 FT |       |              |

SOIL CLASSIFICATION

| Sample No / Depth | Set 1st 1/2 FT | Set 2nd 1/2 FT | Total | Rec. in Inch | SOIL CLASSIFICATION   |
|-------------------|----------------|----------------|-------|--------------|---|
| 1/2 0-2           |                |                | 3     | HA           | Fill, silty sand w/ gravel, brn mixtur, (6' concrete pad)   |
| 2/4-6             | 2/1            | 2              | 3     |              | Fill, clayey sand & sandy lean clay mixture, w/ all the gravel, a brn. mixture, moist                 |
| 3/9-11            | 2/5            | 4              | 9     |              | Sandy lean clay, a little gravel, brn. material, a few lenses of moist sand, rather stiff (CH) (Till) |
| 4/14-16           | 3/5            | 4              | 9     |              | Sandy lean clay, w/ all the gravel, grey, moist, rather stiff, (CH) (Till) No clay                    |
| 5/19-21           | 3/5            | 5              | 10    |              |   |
| /                 |                |                |       |              |   |
| /                 |                |                |       |              |   |
| /                 |                |                |       |              |   |
| /                 |                |                |       |              |   |
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| /                 |                |                |       |              |   |
| /                 |                |                |       |              |   |
| /                 |                |                |       |              |   |
| /                 |                |                |       |              |   |
| /                 |                |                |       |              |   |



FIELD DATA SHEET

Boring No. 2

Job No. 4900 Pa - 183

Crew Chief Robert [Signature]

Vehicle Required: (Truck) - All Terrain

SOIL CLASSIFICATION

| Sample No / Depth | BLOWS |           |           | Rec. in Inch |
|-------------------|-------|-----------|-----------|--------------|
|                   | Set   | 1st 1/4FT | 2nd 1/4FT |              |

2 / 0-2      3 1/2 H.A.

Fill, silty sand, w/ gravel, brn. (6' conc. Pad)

4 1/2 / 4-6      3/4      3      3      6

Fill, a sandy brown clay w/ clayey sand mixture, all the gravel, a brn. yellowish mixture, moist

11 1/2 / 9-11      2/4      4      5      9

sandy brown clay, all the gravel, brn. mortar, a few lenses of moist sand, rather stiff (fill) fill

1-21 / 19-16      3/4      5      6      11

Sandy brown clay, all the gravel, grey, moist, rather stiff (fill) fill

5 / 9-21      3/5      4      6      10

No odor

**Water Level Information**

| Boring No.              | Date     | Time  |
|-------------------------|----------|-------|
| Boring Started          | 12-11-89 | 10:05 |
| Boring Completed        |          | 11:10 |
| Finished Pulling Casing |          | 11:20 |
| 810V1ed Boring Filled   |          | 11:35 |
| Depth to Frost          |          |       |

**W.L. Checks During Boring Progress**

| Date | Time | Casing In | Sampled To | W.L. * | Depth To Cave In |
|------|------|-----------|------------|--------|------------------|
|      |      |           |            |        |                  |
|      |      |           |            |        |                  |
|      |      |           |            |        |                  |

**Method of Advancing Boring**

Continuous Sampling From 4 To 21

34 In. Flite Auger To \_\_\_\_\_  
 In. Hollow Stem Auger to 19.0  
 In. Casing To \_\_\_\_\_  
 In. Casing To \_\_\_\_\_

P. D. or C. O. Tube From \_\_\_\_\_ To \_\_\_\_\_  
 Jet With Water From \_\_\_\_\_ To \_\_\_\_\_  
 Jet with Drilling Mud From \_\_\_\_\_ To \_\_\_\_\_

**W.L. Rechecks After Completion of Boring**

| Date          | Time  | Date  | Time | Casing in Grnd | W.L. * |
|---------------|-------|-------|------|----------------|--------|
| At Completion | 12-11 | 11:10 | 19.0 | Nov            |        |
| 1st Recheck   |       | 11:35 | Nov  |                |        |
| 2nd Recheck   |       |       |      |                |        |
| 3rd Recheck   |       |       |      |                |        |
| 4th Recheck   |       |       |      |                |        |

W.L. Remarks no water encountered

\* (Clarify measurements influenced by drilling fluid)

| Depth of Layer | Depth Sample Taken | Blows      |            |       | Rec in Total Inch |
|----------------|--------------------|------------|------------|-------|-------------------|
|                |                    | Set 1/2 ft | 2nd 1/2 ft | Total |                   |
|                |                    |            |            |       |                   |
|                |                    |            |            |       |                   |
|                |                    |            |            |       |                   |
|                |                    |            |            |       |                   |
|                |                    |            |            |       |                   |
|                |                    |            |            |       |                   |
|                |                    |            |            |       |                   |
|                |                    |            |            |       |                   |
|                |                    |            |            |       |                   |
|                |                    |            |            |       |                   |
|                |                    |            |            |       |                   |

LOG CONTINUED  
SOIL CLASSIFICATION



## **APPENDIX D**

Minnesota Pollution Control Agency  
Hazardous Waste Division  
Tanks and Spills Section

INTERIM GUIDELINES  
JAR HEADSPACE ANALYTICAL SCREENING PROCEDURE

The following are recommended procedures for conducting analytical screening of gasoline contaminated soil utilizing a portable Photoionization Detector (PID) or Flame Ionization Detector (FID):

1. Half-fill two clean glass jars with the sample to be analyzed. Quickly cover each open top with one or two sheets of clean aluminum foil and subsequently apply screw caps to tightly seal the jars. Sixteen ounce (oz.) (approx. 500 ml) soil or "mason" type jars are preferred; jars less than 8 oz. (approx. 250 ml) total capacity may not be used.
2. Allow headspace development for at least 10 minutes. Vigorously shake jars for 15 seconds both at the beginning and end of the headspace development period. Where ambient temperatures are below 32° F (0° C) headspace development should be within a heated vehicle or building.
3. Subsequent to headspace development, remove screw lid/expose foil seal. Quickly puncture foil seal with instrument sampling probe, to a point about one-half of the headspace depth. Exercise care to avoid uptake of water droplets or soil particulates.  
As an alternative, syringe withdrawal of a headspace sample with subsequent injection to instrument probe or septum-fitted inlet is acceptable contingent upon verification of methodology accuracy using a test gas standard.
4. Following probe insertion through foil seal and/or sample injection to probe, record highest meter response as the jar headspace concentration. Using foil seal/probe insertion method, maximum response should occur between 2 and 5 seconds. Erratic meter response may occur at high organic vapor concentrations or conditions of elevated headspace moisture, in which case headspace data should be discounted.
5. The headspace screening data from both jar samples should be recorded and compared; generally, replicate values should be consistent to plus or minus 20 percent.
6. PID and FID field instruments shall be operated and calibrated to yield "total organic vapors" in parts per million (v/v) as benzene. PID instruments should be operated with a 10.2 eV (+/-) lamp source. Operation, maintenance, and calibration shall be performed in accordance with the manufacturer's specifications. For jar headspace analysis, instrument calibration shall be checked/adjusted no less than once every 10 analyses, or daily, whichever is greater.

7. Instrumentation with digital (LED/LCD) displays may not be able to discern maximum headspace response unless equipped with a "maximum hold" feature or strip-chart recorder.

Deviations, departures and/or additions to the above procedures will be considered on a case-by-case basis by the Minnesota Pollution Control Agency Tanks and Spills Section staff. In such cases, compelling technical justification must be presented and documented by the methodology proponent.

## **APPENDIX E**



# BRUCE A. LIESCH ASSOCIATES, INC.

3020 Harbor Lane Minneapolis, MN 55447 - 612-559-1423

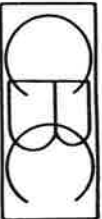
FIELD COORDINATOR

L. BERNOT

## CHAIN OF CUSTODY RECORD

| PROJ. NO.                                  |       | PROJECT NAME  |      |      |                    |   | NUMBER<br>OF<br>CONTAINERS | B,<br>T,<br>E,<br>X | T<br>P<br>H | L<br>E<br>A<br>D |  |  |  |  |             | REMARKS |
|--|-------|---------------|------|------|--------------------|---|----------------------------|---------------------|-------------|------------------|--|--|--|--|-------------|---------|
| 91036.03                                   |       | LOL / TRIMONT |      |      |                    |   |                            |                     |             |                  |  |  |  |  |             |         |
| SAMPLERS (Signature)<br><i>[Signature]</i> |       |               |      |      |                    |   |                            |                     |             |                  |  |  |  |  |             |         |
| STA. NO.                                   | DATE  | TIME          | COMP | GRAB | STATION LOCATION   |   |                            |                     |             |                  |  |  |  |  |             |         |
| B-1 @<br>19-21                             | 12/11 |               |      | ✓    | Boring 1 @ 19'-21' | 3 | ✓                          | ✓                   | ✓           |                  |  |  |  |  | SOIL SAMPLE |         |
| B-2<br>19-21                               | 12/11 |               |      | ✓    | Boring 2 @ 19'-21' | 3 | ✓                          | ✓                   | ✓           |                  |  |  |  |  | SOIL SAMPLE |         |
|  |       |               |      |      |                    |   |                            |                     |             |                  |  |  |  |  |             |         |
|  |       |               |      |      |                    |   |                            |                     |             |                  |  |  |  |  |             |         |
|  |       |               |      |      |                    |   |                            |                     |             |                  |  |  |  |  |             |         |
|  |       |               |      |      |                    |   |                            |                     |             |                  |  |  |  |  |             |         |
|  |       |               |      |      |                    |   |                            |                     |             |                  |  |  |  |  |             |         |
|  |       |               |      |      |                    |   |                            |                     |             |                  |  |  |  |  |             |         |
|  |       |               |      |      |                    |   |                            |                     |             |                  |  |  |  |  |             |         |
|  |       |               |      |      |                    |   |                            |                     |             |                  |  |  |  |  |             |         |
|  |       |               |      |      |                    |   |                            |                     |             |                  |  |  |  |  |             |         |
|  |       |               |      |      |                    |   |                            |                     |             |                  |  |  |  |  |             |         |
|  |       |               |      |      |                    |   |                            |                     |             |                  |  |  |  |  |             |         |
|  |       |               |      |      |                    |   |                            |                     |             |                  |  |  |  |  |             |         |
|  |       |               |      |      |                    |   |                            |                     |             |                  |  |  |  |  |             |         |

|  |  |               |      |  |  |                              |      |         |      |                          |  |
|--|--|---------------|------|--|--|------------------------------|------|---------|------|--------------------------|--|
| Relinquished by: (Signature)<br><i>[Signature]</i> |  | Date<br>12/12 | Time | Received by: (Signature)                   |  | Relinquished by: (Signature) |      | Date    | Time | Received by: (Signature) |  |
| Relinquished by: (Signature)<br><i>[Signature]</i> |  | Date<br>12/12 | Time | Received by: (Signature)                   |  | Relinquished by: (Signature) |      | Date    | Time | Received by: (Signature) |  |
| Relinquished by: (Signature)                       |  | Date          | Time | Received for Laboratory by:<br>(Signature) |  | Date                         | Time | Remarks |      |                          |  |



# ENVIRONMENTAL SERVICES

CHEM-BIO CORPORATION  
140 EAST RYAN ROAD OAK CREEK, WI 53154-4599 (414) 764-7005  
01/10/90 LABORATORY REPORT

PAGE 1

B516 8443808 W61

B.A. LIESCH ASSOCIATES, INC.  
3020 HARBOR LANE  
MINNEAPOLIS ,MN 55447  
ATTN: L. BERNDT

SAMPLE 89347-B12558 SOIL/PROJECT # 91036.03/LOL-TRIMONT/B-1/19-21.  
DATE COLLECTED 12/11/89 DATE RECEIVED 12/13/89

| TEST NAME                    | RESULT | UNITS |
|------------------------------|--------|-------|
| BENZENE                      | 0.004  | PPM   |
| TOLUENE                      | 0.025  | PPM   |
| XYLENE                       | 0.021  | PPM   |
| TOTAL PETROLEUM HYDROCARBONS | <4.0   | PPM   |
| ETHYLBENZENE                 | 0.003  | PPM   |
| LEAD - TOTAL                 | 11     | PPM   |

METHODS FOR CHEMICAL ANALYSIS OF WATER AND WASTES, 1979, EPA-600/4-79-020.

TEST METHODS FOR EVALUATING SOLID WASTE, PHYSICAL/CHEMICAL METHODS, 1982, EPA SW846.

PLEASE CONTACT OUR CLIENT SERVICE DEPARTMENT WITH QUESTIONS. REMAINING WASTE SAMPLES WILL  
BE RETURNED 6 WEEKS FROM THE RECEIVING DATE OF SAMPLE. WATER SAMPLES ARE DISPOSED OF 30  
DAYS AFTER RECEIPT. WI DNR LAB CERTIFICATION #241283020/A.I.H.A. ACCREDITED.

i = REPRINT N/T = NOT TESTED N/A = NOT APPLICABLE APPROVAL \_\_\_\_\_

FAX #414-764-0486

WI DNR LAB CERTIFICATION #241283020

1-800-365-3840



# ENVIRONMENTAL SERVICES

CHEM-BIO CORPORATION  
140 EAST RYAN ROAD OAK CREEK, WI 53154-4599 (414) 764-7005  
01/10/90 LABORATORY REPORT

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B516 8443808 W61

B.A. LIESCH ASSOCIATES, INC.  
3020 HARBOR LANE  
MINNEAPOLIS ,MN 55447  
ATTN: L. BERNDT

SAMPLE 89347-B12559 SOIL/PROJECT # 91036.03/LOL-TRIMONT/B-2/19-21'  
DATE COLLECTED 12/11/89 DATE RECEIVED 12/13/89

| TEST NAME                    | RESULT | UNITS |
|------------------------------|--------|-------|
| BENZENE                      | 0.021  | PPM   |
| TOLUENE                      | 0.031  | PPM   |
| XYLENE                       | 0.044  | PPM   |
| TOTAL PETROLEUM HYDROCARBONS | <4.0   | PPM   |
| ETHYLBENZENE                 | <0.002 | PPM   |
| LEAD - TOTAL                 | 23     | PPM   |

METHODS FOR CHEMICAL ANALYSIS OF WATER AND WASTES, 1979, EPA-600/4-79-020.

TEST METHODS FOR EVALUATING SOLID WASTE, PHYSICAL/CHEMICAL METHODS, 1982, EPA SW846.

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