HOFFER & ASSOCIATES
CONSULTING HYDROGEOLOGISTS

MAY 29 10 12 AM '97

RR 4, Box 2286
Montpelier, VT 05602
(802) 229 - 1113
fax: 229 - 2780

May 28, 1997

Chuck Schwer, Supervisor
Sites Management Section
Waste Management Division
103 South Main Street / West Building
Waterbury, VT 05671-0404

Re: UST Site Investigation Report
Topsham Telephone Company, Corinth, VT
97-2175

Dear Chuck:

On behalf of the Topsham Telephone Company, I am submitting the enclosed site investigation report.

Subsurface petroleum contamination was discovered at the Topsham Telephone Company property during the closure of two USTs in April of 1997. The initial site assessment report and the "expressway" notification form were submitted to your office on April 23, 1997.

If you have any questions, please feel free to call me at 229 - 1113, or Frank Sahlman, Sr., of the Topsham Telephone Co. at 439- 5325.

Sincerely,
HOFFER & ASSOCIATES

Jefferson P. Hoffer, P.G.
Principal Hydrogeologist

enc.

cc: Mr. Frank Sahlman, Sr., Topsham Telephone Company

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SITE INVESTIGATION REPORT

TOPSHAM TELEPHONE COMPANY, INC
CORINTH, VERMONT

MAY 1997

GROUNDWATER & ENVIRONMENTAL SERVICES

SITE INVESTIGATION REPORT

TOPSHAM TELEPHONE COMPANY, INC
CORINTH, VERMONT

May 1997

Prepared for:
Frank Sahlman, Sr., President
Topsham Telephone Company, Inc.
Box 1075
E. Corinth, VT 05075
(802) 439 - 5325

Prepared by:
Hoffer & Associates
Consulting Hydrogeologists
RR 4, Box 2286
Montpelier, Vermont 05602
(802) 229 - 1113

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EXECUTIVE SUMMARY

A site investigation was conducted at the Topsham Telephone Company in Corinth, Vermont, in response to subsurface petroleum contamination discovered during the removal of two underground storage tanks in April 1997. Small holes were found in a 500-gallon tank, which was used for gasoline storage between 1982 and 1997. The site investigation included the installation and sampling of three groundwater monitoring wells. Soils at the site consist of 30+ feet of fluvial sands, which become finer-grained with depth, and are underlain by bedrock. Groundwater occurs within the fluvial sediments below a depth of 25 feet below the former tank locations. Groundwater flow direction is northeastward toward the Waits River, which is approximately 300 feet from the former USTs.

Soil and groundwater contamination were found beneath the former gasoline UST location. Soil contamination was detected via PID screening of split-spoon samples down to the water-table beneath the location of the former gasoline tank. In addition, evidence of free-phase gasoline was found in a small silt lens at a depth of 16 feet. Laboratory analysis of groundwater from monitoring well MW-1, which was completed directly beneath the former gasoline UST, found significant concentrations of dissolved gasoline constituents. BTEX concentrations in MW-1 ranged from 36 ug/L for ethylbenzene to 612 ug/L for toluene. MTBE in MW-1 was detected at a concentration of 10,000 ug/L. Well MW-3 was installed about 80 feet northeast of the removed USTs, and is the furthest downgradient well at the site. Based on groundwater elevation data, this well is almost directly downgradient from the former UST. The only contamination detected in this well was 9 ug/L of MTBE. At present, the plume of contamination originating from the former UST appears to be confined to the property. A trace concentration of benzene (2 ug/L) was found in the unused bedrock well at the site. The water level in the bedrock well is nearly ten feet higher that the water table within the overlying fluvial sediments, indicating an upward gradient in the bedrock aquifer.

As presently defined, site contamination does not pose an immediate risk to water supplies, surface water, or indoor air quality.

To assess changes in groundwater levels and contaminant concentrations over time, we recommend sampling the three monitoring wells and unused bedrock well for BTEX/MTBE on a quarterly basis for a period of one year. If contaminant concentrations are found to be steady or decreasing over the next year, we recommend monitoring the site on an annual basis until contaminant concentrations in groundwater fall below regulatory standards.

We also recommend that the bedrock well not be used.

1.0 INTRODUCTION AND BACKGROUND

1.1 Introduction

This report summarizes a site investigation performed at the Topsham Telephone Company (TTC) in Corinth, Vermont. This investigation was performed under the Vermont Sites Management Section's "expressway" process, in response to subsurface petroleum contamination detected at the site during the removal of two underground storage tanks (USTs) in April 1997.

1.2 Background Information

The TTC property is a 2.5 +/- acre parcel at the intersection of Vermont Route 25 and Fairground Road in Corinth, Orange County, Vermont (see Figures 1 & 2). The TTC has been owned by the Sahlman family since 1953, and the current president is Frank Sahlman, Sr. The company provides telephone services to nearly 1400 customers in the towns of Corinth, Topsham, Newbury, Orange, Washington, and Bradford.

Two USTs were used at the site to store gasoline (500-gallon capacity) and diesel (550-gallon capacity) for the company's vehicles. The tanks were installed in 1982. These two tanks were taken out of service in early April of 1997, and were removed from the ground on April 22, 1997. Small holes were found in the bottom of the gasoline tank, and elevated photoionization detector (PID) readings were detected in soils from beneath the tank. No holes were observed in the diesel tank. A copy of the UST closure site assessment is provided in Appendix A.

1.3 Environmental Setting

Topographically, the site is situated on a terrace on the southern side of the Waits River, which flows southeastward to the Connecticut River. The buildings on the site are located on the flat southwestern portion of the property. Just north of the buildings, site topography drops off steeply toward Route 25. A small drainage swale is located near the eastern boundary of the site, and drains northward to the Waits River. Figure 3 illustrates the property layout and topography.

According to the Soil Survey of Orange County, Vermont (USDA, 1978), there are two soil units at the site. Soils on the flat portion of the site are mapped as Windsor loamy fine sands. These soils formed in water-deposited sand typically more than four feet deep and are often underlain by sand and gravel. Soils on the remaining portion of the site are mapped as Merrimac fine sandy loams, which are moderately steep soils located on dissected stream terraces.

According to the Surficial Geologic Map of Vermont, the site is underlain by littoral pebbly sands (Doll, 1970). The underlying bedrock is mapped as the Devonian Waits River formation (Doll, 1961), which consists of metamorphosed sedimentary rock types including schist, phyllite and marble.

1.4 Potential Receptors

Potential receptors of subsurface petroleum contamination near the TTC include water supplies, surface water, and indoor air quality.

Water Supplies

Water supplies in the vicinity of the TTC were identified by interviewing local persons and by reviewing the Vermont Water Supply Division's water well database. The locations of identified water supplies are included on Figure 2. Water is supplied to the TTC buildings from a spring located on the forested uplands across Fairground Road from the site. A bedrock well was drilled at the site in 1991 (see location on Figure 2 and 3). Despite two hydrofracking efforts, the well is unable to meet the demand of the facility. The well is equipped with a pump and is manifolded to the water system but is currently not providing water to the facility. The well

A residence (Sampson) located east of the TTC has a drilled bedrock well, as does a residence northwest of the site (Huntington). The East Corinth General Store, which is located to the northeast, has a shallow dug well. The residence located to the south of the TTC property reportedly has a spring. The property east of the East Corinth General Store (Shire Machine Shop) recently drilled a bedrock well. Locations of these wells are included on Figure 2, and available bedrock well logs are included in Appendix B.

Indoor Air Quality

The removed tanks were located adjacent to the TTC's main garage. This garage has a frost wall and an at-grade poured concrete floor with no floor drains, and is used to store and service the company's vehicles and equipment. The main office, which has a basement floored by concrete, is located approximately 50 feet west of the former tank locations. There are no floor drains in the main building, and the foundation was constructed with a plastic vapor barrier underneath the cement floors and walls. Subsurface utilities at the site include the facility's water lines and buried telephone cables.

Surface Waters

As mentioned above, the Waits River is located northeast of the site. At its nearest reach, the river is about 300 feet away from the former tank locations. A small drainage swale is located on the eastern portion of the TTC property and drains northward. There is a small low area between Route 25 and the drainage swale where standing water was observed during the site investigation. This area may contain permanent wetland areas.

2.0 SITE CHARACTERIZATION METHODS & RESULTS

2.1 Soil Boring/Monitoring Well Installations

Three groundwater monitoring wells were installed at the site on April 30, 1997. Well locations are shown on Figure 3. One well (MW-1) was installed in the former location of the gasoline tank, and two wells (MW-2 and MW-3) were sited as downgradient monitoring points. The borings were advanced using 4.25-inch hollow-stem augers. Split-spoon soil samples were collected every five feet. The split-spoon samples and soil cuttings returned on the augers were characterized for color, moisture, USDA texture, and were screened for volatile organic compounds using a PID. After drilling to approximately five feet below the water table, two-inch diameter PVC monitoring wells were installed. Logs of the borings and well construction details are provided in Appendix C.

2.1.1 Stratigraphy

Soils exposed in the tank excavation during the UST closures were stratified medium and coarse-grained sands. Soil samples collected during well installation efforts showed similar sandy soils, although the sand grain size generally decreased with depth. A thin zone of gravel and cobbles was encountered at shallow depths (6-8 feet in MW-1, 7.5-10 feet in MW-2, and 3-5 feet in MW-3). In MW-1, a thin (2 inch) layer of silt loam was found in the sample collected from 15 to 17 feet below grade. Based on soil moisture content and mottling, the depth to groundwater at MW-1 was estimated to be 22 to 25 feet, and between 27 and 30 feet at both MW-2 and MW-3. At MW-1, soil texture below the water table was fine/medium sand with some silt. At MW-2, soil texture below the water table was fine sand and silt. At MW-3, soil texture below the water table included fine to coarse sand, and silty fine sand. Thus at each of the three boring locations, the saturated soils were generally finer-grained sands and contained a higher percentage of silt, than the overlying unsaturated sands.

Auger refusal was encountered during the boring of MW-2 at a depth of 33.75 feet. This surface is believed to be bedrock, based on the presence of bedrock noted at a depth of 20 feet during drilling of the on-site bedrock well. Bedrock was not encountered at the other two well locations, which were drilled to total depths of 30 feet (MW-1) and 25 feet (MW-3) .

2.1.2 Soil Screening

Soil samples were screened for volatile organic compounds using a Photovac MicroTIP HL-2000, equipped with 10.6 eV lamp and calibrated to isobutylene. Headspace measurements were collected by placing soil in plastic zip-lock

bags and inserting the PID probe into the bags. Elevated PID readings indicative of petroleum contamination were found in soil samples from MW-1. PID readings exceeding the instrument's maximum (2500 parts per million - ppm) were detected in soil down to a depth of 16 feet. A reading of 308 ppm was measured for a sample from 20 to 22 feet, and a reading of 19.5 ppm was obtained for a saturated sample of soil collected from at depth of 25 to 26 feet.

As mentioned above, a thin layer of silt loam was found in the split-spoon sample collected from 15 to 17 feet in MW-1. This soil sample registered a PID reading of over 2500 ppm. A portion of this soil was mixed with water in a small vial. A small sheen was visible on the water surface, indicating that free-phase gasoline is present in soil at this depth.

2.2 Groundwater Elevations, Flow Direction, and Flow Rates

Groundwater levels in the monitoring wells were measured on the day of the well installation effort, and during groundwater sampling activities on May 5, 1997. These measurements are shown on Table 1, which also includes converted groundwater elevations based on survey data.

A water-table map for the May 5 data is provided on Figure 4, and depicts a northeast flow direction under a gradient of 0.06 ft/ft. We estimate the hydraulic conductivity (K) of the shallow groundwater zone is in the range of 10^{-5} to 10^{-4} cm/sec (0.028 to 0.28 ft/day). This estimate is based on published literature values for similar soil types (Freeze & Cherry, 1979, and Fetter, 1988), and our experience at similar sites where slug tests have been performed. Using these values, the measured hydraulic gradient of 0.06, and an effective porosity (n_e) estimate of 0.25, the average linear velocity (V_x) can be calculated from the equation $V_x = KI/n_e$, which indicates a range from 2.5 to 25 feet/year.

2.3 Groundwater Quality

Groundwater sampling was conducted on May 5, 1997. Samples were collected from the three monitoring wells and from the unused bedrock well. Prior to sampling, water levels were measured to calculate the volume of standing water in the wells. The monitoring wells were sampled with dedicated polyethylene bailers, and were purged of three well volumes prior to sample collection. The bedrock well was sampled with a polyethylene bailer without purging. Samples were transferred from the bailers into 40-mL glass vials provided by the laboratory. Two vials were filled for each sample location. The vials contained hydrochloric acid in order to preserve the samples. The sample vials were labeled with the sampling location, date, and time. After sample collection, the vials were placed into a cooler with ice for storage and transport to the laboratory. Quality Assurance/Quality Control samples included a trip blank, a field blank, and a field duplicate. The trip blank consisted of two sealed vials provided by the laboratory which remained in the sample cooler during the sampling event. The field blank was prepared

by pouring deionized water into two sample vials at the site at the conclusion of the sampling effort. For the duplicate, four sample vials were filled from well MW-3. Two of the vials were labeled as MW-3, and two of the vials were labeled MW-101 and were given a fictitious sampling time on the vials and laboratory chain-of-custody (COC). In addition to the laboratory COC, a groundwater sampling data sheet was used to document the sampling event. The data sheet and COC are in included with the laboratory report in Appendix D.

The samples were analyzed for benzene, toluene, ethylbenzene, xylenes (BTEX), and methyl-tert-butyl-ether (MTBE) using EPA Method 8020. The analyses were performed by SCITEST, Inc., of Randolph, Vermont.

The analytical results are given on Table 2. Contaminants were detected in MW-1, MW-3, and in the bedrock well. Regulatory standards were exceeded for benzene in MW-1 and the bedrock well, and for MTBE in MW-1. The highest concentrations were detected in MW-1, where all four BTEX constituents and MTBE were present. BTEX concentrations in MW-1 ranged from 36 ug/L of ethylbenzene and 612 ug/L of toluene. MTBE was detected at 10,000 ug/L in MW-1. In MW-3, the only parameter detected was MTBE, at a concentration of 9 micrograms per liter (ug/L). In the bedrock well sample, the only parameter detected was benzene, which was present at a concentration of 2 ug/L.

The distribution of groundwater contamination at the site is presented on Figure 5, which includes groundwater elevation and MTBE isoconcentration contours.

2.4 Indoor Air Quality

An indoor air quality survey was conducted with a PID in the basement of the TTC main office on April 5, 1997. No readings above background were detected, and TTC personnel have indicated that they have never smelled gasoline in the building.

3.0 DISCUSSION OF RESULTS

3.1 Hydrogeologic Setting

Figure 6 is a cross section which illustrates the hydrogeologic setting. The site is underlain by 30+ feet of fluvial sediments which overlie bedrock. The fluvial sediments are primarily sand, which become finer-grained with depth, and contain occasional discontinuous silt lenses. Groundwater occurs at a depth of 25 feet below grade in the vicinity of the former USTs. The fluvial sediments below the water-table surface consist of fine sand and silty fine sand. Groundwater elevations define a northeastward flow direction toward the Waits River, which is about 300 feet away from the former USTs. Groundwater flow rates are estimated to be in the range of 2.5 to 25 feet/year.

3.2 Source, Degree, and Extent of Contamination

Small holes were observed in the former gasoline tank which was removed in April 1997. The holes were located on the bottom of the tank, at the eastern end of the tank. Releases of gasoline from this tank have impacted soil and groundwater beneath the tank.

Soil contamination was detected via PID screening of split-spoon samples down to the water-table beneath the location of the former gasoline tank. In addition, evidence of free-phase gasoline was found in a thin silt lens at a depth of 16 feet. Laboratory analysis of a groundwater sample from monitoring well MW-1, which was completed directly beneath the former UST, found significant concentrations of dissolved gasoline constituents. BTEX concentrations in MW-1 ranged from 36 ug/L for ethylbenzene to 612 ug/L for toluene. MTBE was detected at a concentration of 10,000 ug/L. MW-3 is the furthest downgradient well at the TTC site, at a distance of about 80 feet from the former UST. Based on groundwater elevation data, this well is almost directly downgradient from the former UST. The only contamination detected in this well was 9 ug/L of MTBE. At present, the plume of contamination originating from the former UST appears to be confined to the property, as illustrated on Figure 5.

A low concentration of benzene (2 ug/L) was found in the sample collected from the unused bedrock well at the site. The source of this contamination is not clear. If the remaining BTEX constituents and MTBE had also been detected, then the source could more easily be attributed to the former gasoline UST. The bedrock well is located in a cross-gradient direction from the former gasoline UST, relative to the surficial water-table, and has not been pumped on a regular basis since 1991. The water level in the bedrock well is over 10 feet higher than the water-table surface for the unconsolidated aquifer tapped by the monitoring wells. Given this upward flow potential from the bedrock aquifer,

it is difficult to define a pathway for shallow contamination groundwater originating from the former UST to reach the bedrock well. Since benzene was detected at such a low concentration, it may have been introduced during the sampling procedures or resulted from laboratory contamination. Future monitoring of this well will likely resolve this issue.

3.3 Potential Receptors

As presently defined, subsurface petroleum contamination at the site does not pose a risk to existing water supplies, indoor air quality, or surface water. A low concentration of benzene (2 ug/L) was detected in a sample collected from the bedrock well at the site. This well is not used due to its low yield. There is a shallow well located at the Corinth General Store, approximately 600 feet east-northeast of the former USTs. Although the downgradient extent of groundwater contamination at the TTC site has not been completely defined, the flow direction is northeasterly toward the Waits River. If the plume of groundwater contamination extended off of the TTC property, it would likely discharge into the Waits River several hundred feet upgradient from the General Store well. The General Store has on-site USTs that are in close proximity to the shallow well, and these USTs likely pose a much greater risk to the shallow well than the contamination detected at the TTC.

No elevated PID readings were obtained in first floor or basement of the TTC main office. In addition, personnel have indicated that they have not detected gasoline odors in this building. Subsurface petroleum contamination in soil and groundwater at the site appears to be limited to a relatively small area immediately beneath (soil) and downgradient (groundwater) from the former UST. Although the contamination extends beneath the garage building, the garage has a poured concrete floor with no openings. Based on this information, site contamination does not appear to pose a risk to indoor air quality.

Groundwater elevation data indicate that the Waits River is the downgradient discharge zone for groundwater flowing beneath the former UST. Existing data suggests that the plume of groundwater contamination appears to be confined to the property, less than half of the distance between the former UST and the Waits River. Thus existing data does not indicate that the Waits River is presently being impacted. Future monitoring data will allow determination as to whether or not the plume has reached equilibrium, or may eventually reach the Waits River.

3.4 Conclusions and Recommendations

Releases of gasoline from a former UST have impacted subsurface soil and groundwater at the Topsham Telephone Company property in Corinth, Vermont. Elevated PID readings were detected in subsurface soil samples, and dissolved gasoline constituents were found in groundwater. Groundwater elevations and water quality analyses from three monitoring wells define a

relatively small plume of dissolved-phase contamination migrating northeastward from the former UST area toward the Waits River. The plume appears to be confined to the TTC property. As presently defined, site contamination does not appear to pose a risk to water supplies, indoor air quality, or surface water.

Periodic groundwater monitoring is recommended to monitor the concentrations and migration of impacted groundwater beneath the site. It is recommended that the three monitoring wells and unused bedrock well be monitored on a quarterly basis for a period of one year. Samples should be analyzed for BTEX and MTBE, and groundwater elevations should be recorded during sampling to allow preparation of water-table maps. If contaminant concentrations are found to be steady or decreasing over the next year, we recommend monitoring the site on an annual basis until contaminant concentrations in groundwater fall below regulatory standards.

The estimated costs for quarterly groundwater monitoring and reporting are presented on Table 4.

We also recommend that the bedrock well not be used.

REFERENCES

Doll, C.G. (editor), 1961, *Centennial Geologic Map of Vermont*, Office of the State Geologist.

Doll, C.G. (editor), 1970, *Surficial Geologic Map of Vermont*, Office of the State Geologist.

Fetter, C.W., 1988, Applied Hydrogeology, Merrill Publishing Company, Columbus, OH.

Freeze, R.A., and J.A. Cherry, 1979, Groundwater, Prentice-Hall, Englewood Cliffs, NJ.

USDA, 1978, Soil Survey of Orange County, Vermont, U.S. Department of Agriculture Soil Conservation Service, in cooperation with the Vermont Agency of Environmental Conservation and the Vermont Agricultural Experiment Station.

TABLE 1

Groundwater sampling results for May 5, 1997,
Topsham Telephone Company, Corinth, Vermont.

DEPTH TO WATER (feet below TOC)

Well ID	*Elevation of TOC (feet)*	*4/30/97*	*5/5/97*
Bedrock Supply Well*	705.00		16.30
MW-1	702.97	25.40	25.38
MW-2	701.22	28.10	27.81
MW-3	700.47	27.85	27.52

GROUNDWATER ELEVATIONS (feet)

WELL ID	*Elevation of TOC (feet)*	*4/30/97*	*5/5/97*
Bedrock Supply Well*	705.00		688.70
MW-1	702.97	677.57	677.59
MW-2	701.22	673.12	673.41
MW-3	700.47	672.62	672.95

Notes:

TOC = top of casing (PVC for monitoring wells, steel for supply well)
Elevations are in feet relative to bedrock well TOC = 705.0 feet, approx. USGS elevation
* well not in use due to low yield
4/30/97 water levels measured just after well installations

TABLE 2

Groundwater sampling results for May 5, 1997,
Topsham Telephone Company, Corinth, Vermont.

May 5, 1997 (results in ug/L)					
WELL ID	**Benzene**	**Toluene**	**Ethylbenzene**	**Xylenes**	**MTBE**
Bedrock Well	2	< 1	< 1	< 1	< 1
MW-1	432	612	36	124	10,000
MW-2	< 1	< 1	< 1	< 1	< 1
MW-3 / Duplicate	< 1 / < 1	< 1 / < 1	< 1 / < 1	< 1 / < 1	9 / 8
Field Blank	< 1	< 1	< 1	< 1	< 1
Trip Blank	< 1	< 1	< 1	< 1	< 1
REGULATORY THRESHOLDS					
Vermont Groundwater Enforcement Standard	5	2420	680	400	-
Vermont Preventative Action Limit	0.5	1210	340	200	-
Vermont Health Advisory	1	-	-	-	40
USEPA Maximum Contaminant Level (Drinking Water)	5	1000	700	10000	-

Notes:

< 1 = below a detection level of 1

9 / 8 = sample result / field duplicate result

TABLE 3

Cost estimate for quarterly groundwater monitoring and reporting,
Topsham Telephone Company, Corinth, Vermont.

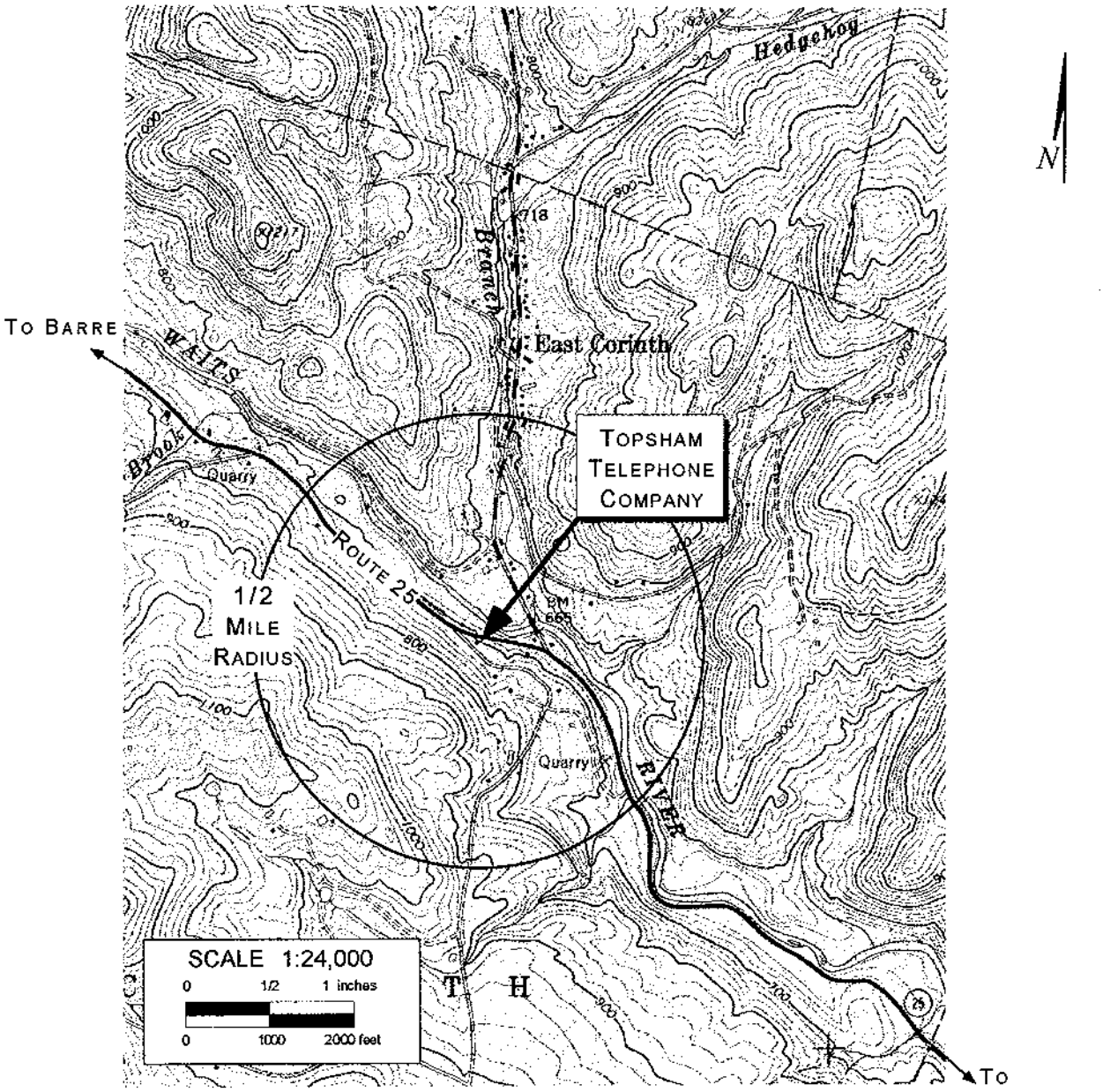
LABOR

Task	Hours	Rate	Amount	
Groundwater Sampling	6.00	$45.00	$270.00	
Data Tabulation/Figure Preparation/Report Generation	6.00	$45.00	$270.00	
			SUB-TOTAL LABOR	$540.00

EXPENSES

Expenses	Quantity	Rate	Mark Up	Amount	
Mileage - GW Sampling	60	$0.28	$0.00	$16.80	
Scitest Laboratory Services					
8020 Analyses for BTEX/MTBE (4 wells, 3 QA/QC)	7	$65.00	$0.00	$455.00	
				SUB-TOTAL EXPENSES	$471.80

Estimated Costs Per Quarterly Event	$1,011.80
Annual Cost for Quarterly Monitoring (4)	$4,047.20



BASE FROM U.S. GEOLOGICAL SURVEY, 1:24,000;
EAST CORINTH, VERMONT, 1973

FIGURE 1
SITE LOCATION MAP,
TOPSHAM TELEPHONE COMPANY, CORINTH, VERMONT.

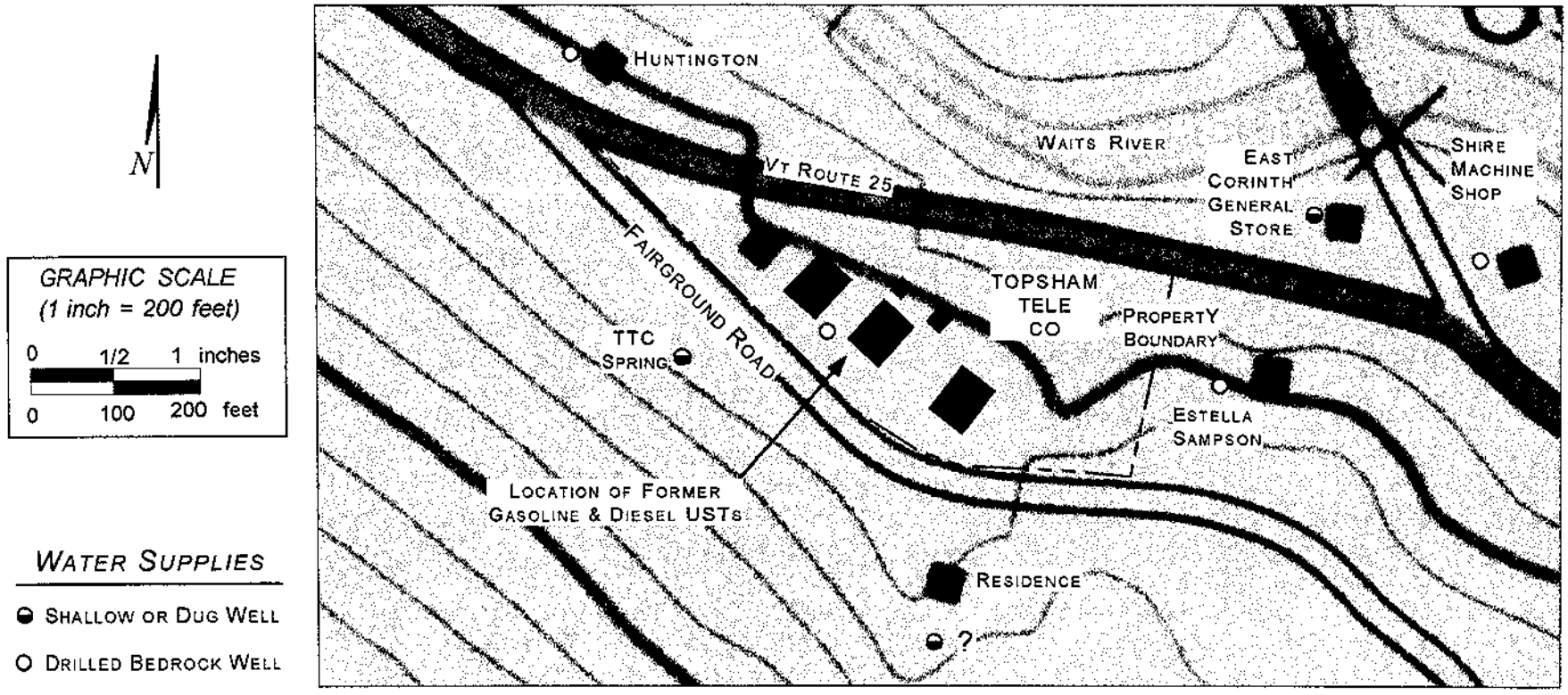


FIGURE 2
SITE VICINITY MAP,
TOPSHAM TELEPHONE COMPANY, CORINTH, VERMONT.

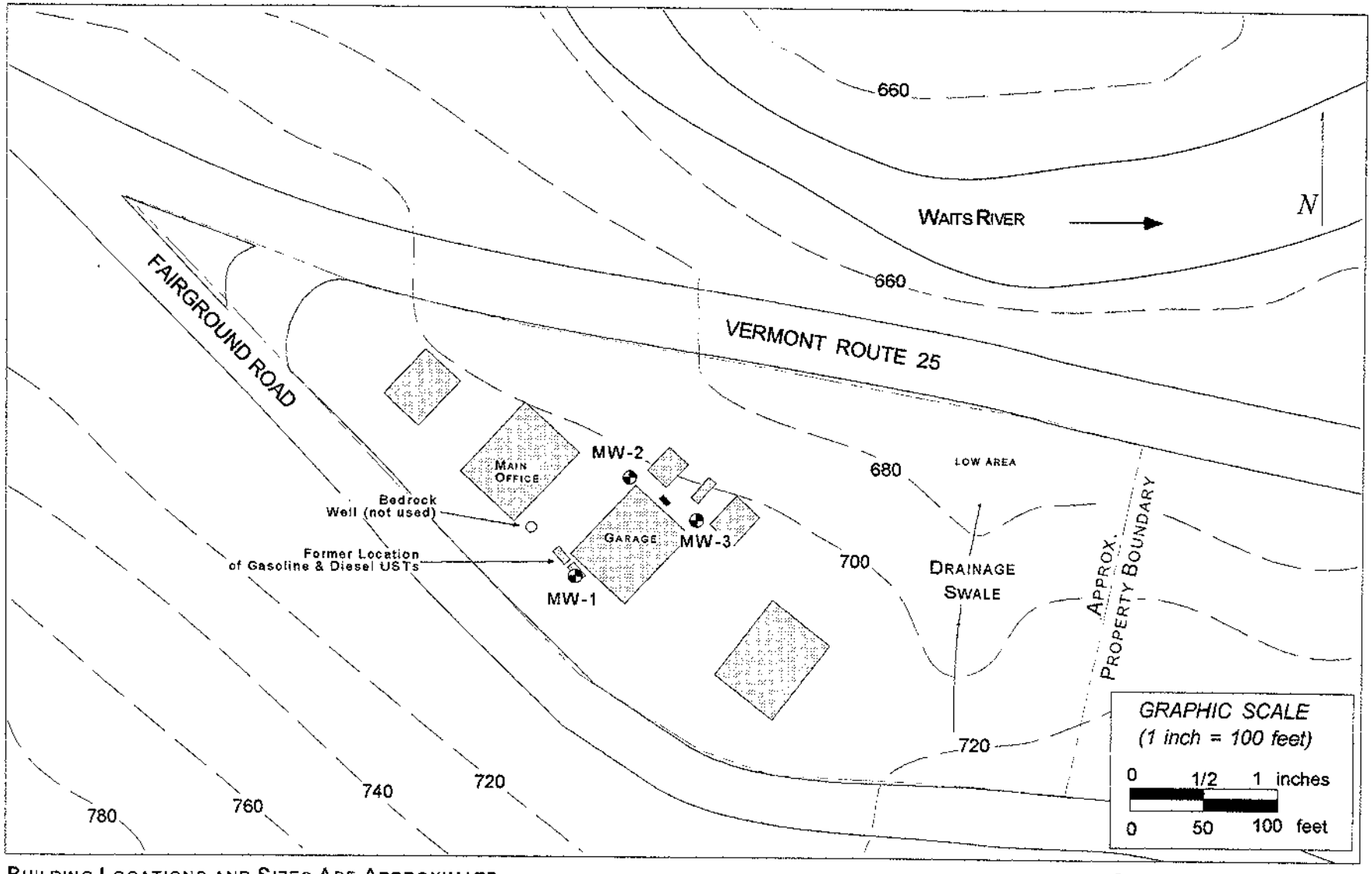


FIGURE 3

SITE MAP, TOPSHAM TELEPHONE COMPANY, CORINTH, VERMONT.

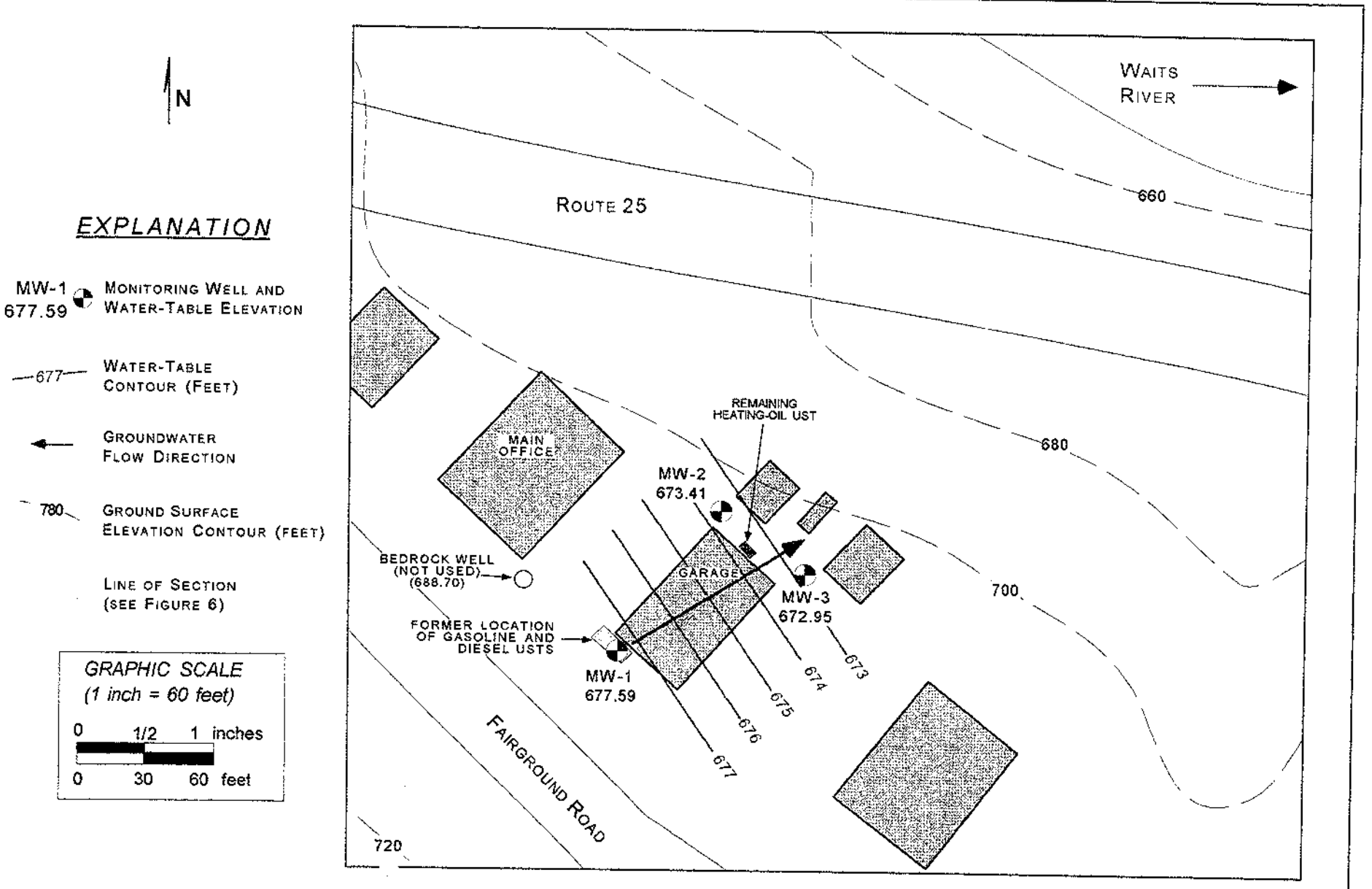


FIGURE 4
WATER-TABLE MAP SHALLOW GROUNDWATER, MAY 5, 1997,
TOPSHAM TELEPHONE COMPANY, E. CORINTH, VERMONT.

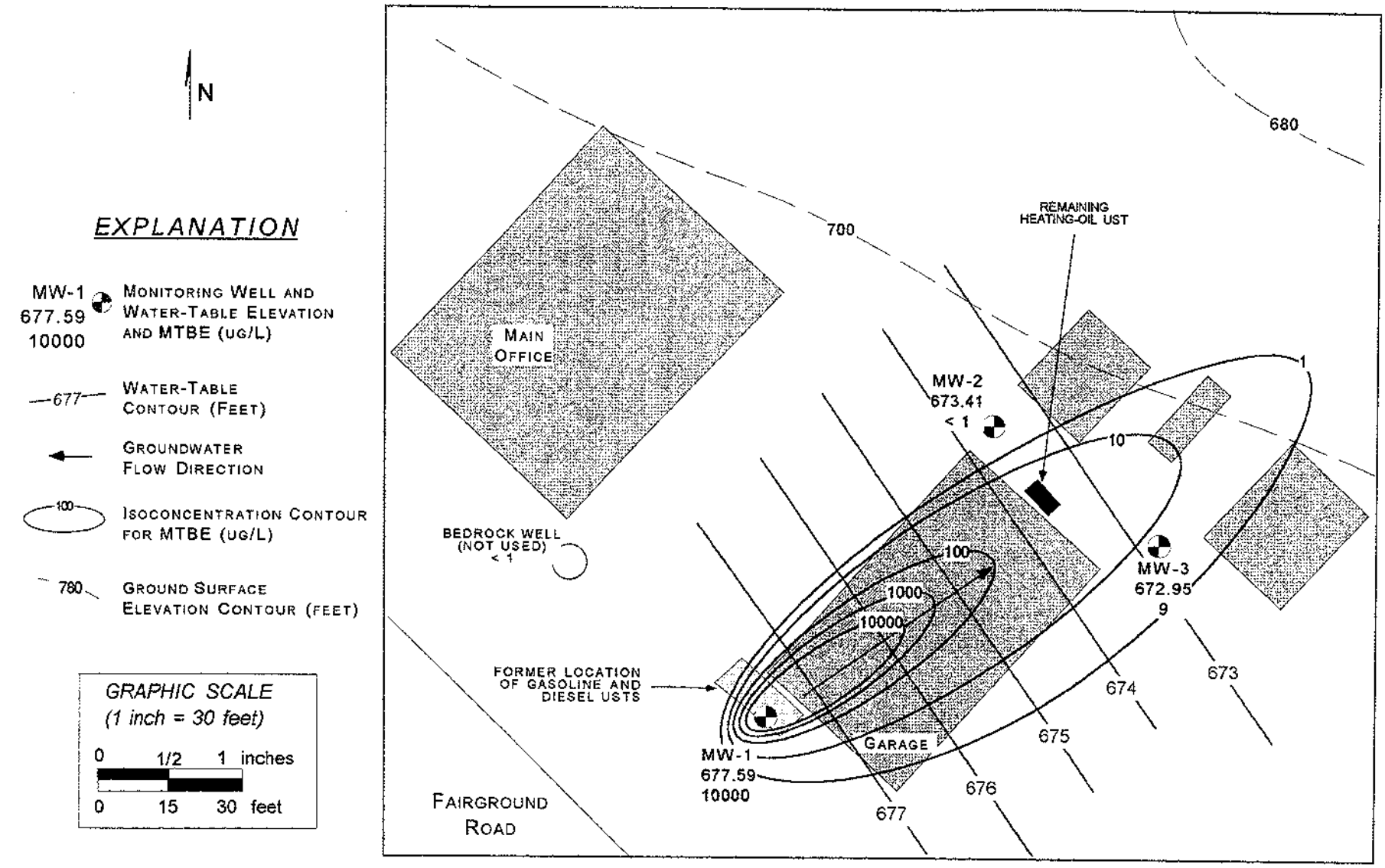


FIGURE 5
WATER-TABLE MAP AND MTBE ISOCONCENTRATION CONTOUR MAP FOR SHALLOW GROUNDWATER, MAY 5, 1997, TOPSHAM TELEPHONE COMPANY, E. CORINTH, VERMONT.

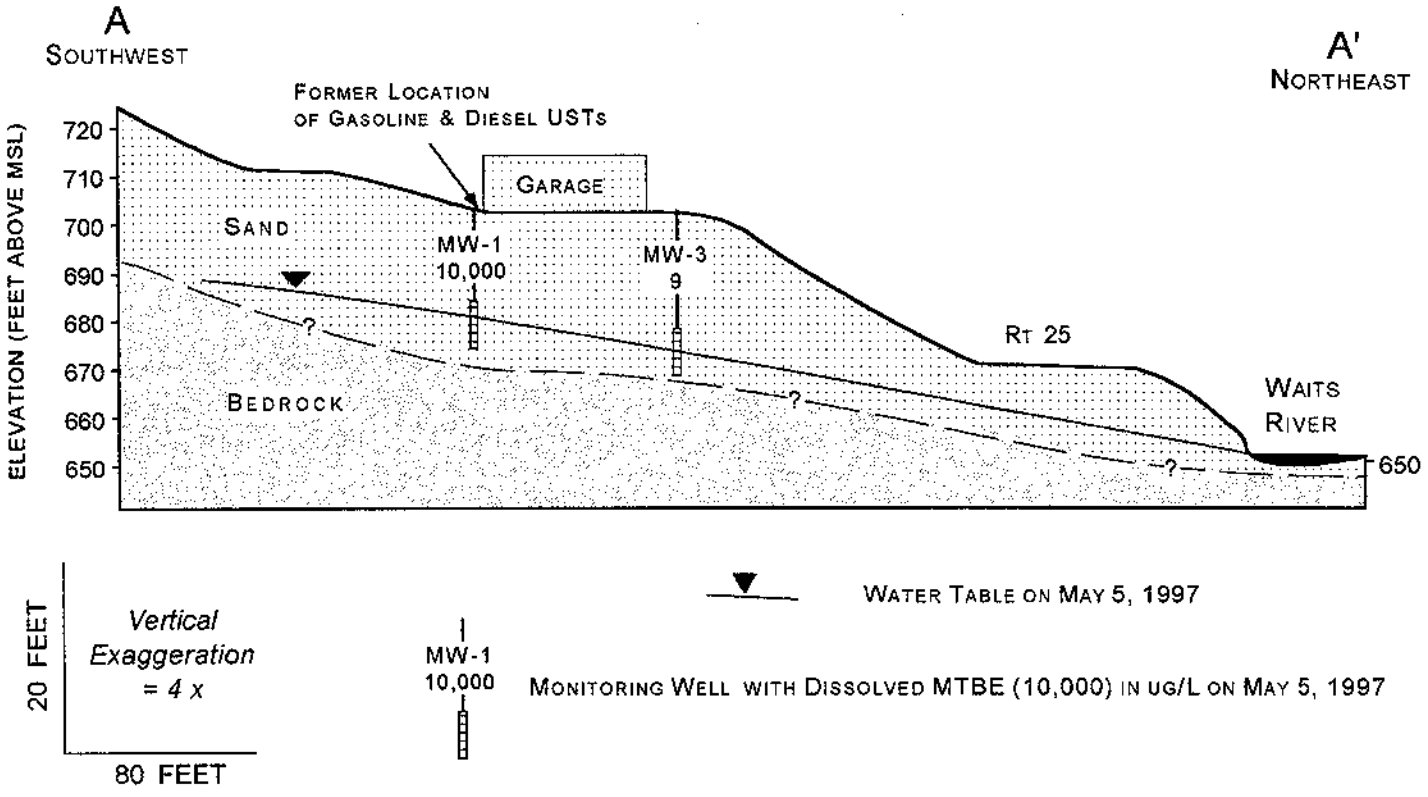


FIGURE 6

CROSS SECTION FROM SOUTHWEST TO NORTHEAST,
(SEE FIGURE 4 FOR LINE OF SECTION),
TOPSHAM TELEPHONE COMPANY, CORINTH, VERMONT.

HOFFER & ASSOCIATES
CONSULTING HYDROGEOLOGISTS

RR 4, Box 2286
Montpelier, VT 05602
(802) 229 - 1113
fax: 229 - 2780

April 23, 1997

Susan E. Thayer
Waste Management Division
103 South Main Street / West Building
Waterbury, VT 05671-0404

Re: UST Site Assessment, Topsham Telephone Company
East Corinth, Vermont

Dear Sue:

This letter presents a site assessment for the closure of two USTs owned by the Topsham Telephone Company in East Corinth, Vermont. The USTs included a 550-gallon tank used for diesel storage, and a 500-gallon tank used for gasoline storage. The tanks were closed on April 22, 1997. Tank cleaning/waste handling services were provided by North Country Environmental Services (NCES). Hoffer & Associates was responsible for providing this site assessment. The UST Program closure forms are enclosed.

Project Location/Background Information

The Topsham Telephone Company (TTC) is located at the intersection of Vermont Route 25 and Fairground Road in East Corinth, Orange County, Vermont (see Figure 1). The USTs had been used by the TTC to store diesel and gasoline for the company's vehicles and equipment. The subject tanks were located adjacent to a maintenance garage on the property (see Figure 2). Both tanks were singled-wall steel tanks which were installed about 15 years ago. The pump dispensers were located directly above the tanks.

Topographically, the site is situated on a terrace on the southern side of the Waits River, which flows southeastward toward the Connecticut River. Figure 2 includes 20-foot elevation contours at the site. The buildings on the site are located on the flatter southwestern portion of the property. Just north of the buildings, site topography drops off rather steeply toward Route 25. A small drainage swale is located near the eastern boundary of the site, and drains northward toward the Waits River.

According to the Orange County Soil Survey, there are two soil units at the site. Soils on the flat portion of the site are mapped as Windsor loamy fine sands. These soils formed in water-deposited sand typically more than four feet deep and are often underlain by sand and gravel. Soils on the remaining portion of the site are mapped as Merrimac fine sandy loams, which are moderately steep soils located on dissected stream terraces.

UST Removals and Observations

I arrived at the site at 8:00 AM on April 22, 1997. Prior to my arrival, the pump dispensers and piping had been removed, and soil had been removed from the tops of the tanks. The dispenser equipment and piping appeared to be in good shape. The soil which had been previously removed from the tops of the tanks was screened with a photoionization detector (PID)[1]. No readings above 20 ppm were detected.

Soil samples were collected from the excavation after the tanks were removed. As illustrated on the enclosed Figure 3, soil samples were retrieved from eight locations in the excavation. The samples were placed into plastic zip-lock bags. The PID probe was inserted into the plastic bags and the peak reading was recorded. Readings ranged from 0.9 to >2500 parts per million. The highest readings were found beneath the former gasoline tank. All of the soil exposed in the excavation consisted of medium to coarse-grained sand. After the tanks had been removed, the area beneath the gasoline tank was further excavated in an attempt to define the limits of contamination. A gravelly zone was encountered about one foot below the base of the former tanks, and elevated PID readings continued. Elevated PID readings were also detected in soil just beneath the building's footer, at a depth of four feet. Based on these efforts, it was apparent that soil contamination extended further than could be reached with the backhoe or safely removed due to the proximity of the building. All soil was backfilled into the excavation

A small hole (1/16 to 1/8 of an inch) was found in the bottom of the gasoline tank. Although most of the tank was in fairly good shape, there was a straight line of pitting and corrosion along the bottom of the tank. The diesel tank was in good condition and no holes were observed.

Potential Receptors

Based on the hole observed in the gasoline tank, and the elevated PID readings detected in underlying soil, gasoline has been released to the subsurface at the site. The extent of soil contamination could not be defined at the time of the tank closure.

Potential receptors in the vicinity include groundwater, surface water, and indoor air quality. The maintenance garage adjacent to the former tanks has a poured concrete floor and no basement. The main office located just west of the former tanks has a basement, and no petroleum odors have been reported.

[1] Photovac MicroTIP HL-2000, 10.6 eV lamp, calibrated with isobutylene, set to respond to benzene.

Water for the TTC buildings is provided from a spring located across Fairground Road and upslope from the site. A bedrock well was drilled at the site but does not yield enough water to meet the site's demand. The well is located about 25 feet west of the former tanks, and reportedly was constructed with 28 feet of casing. There are a number of private water supplies within a half-mile radius of the site. The nearest off-site water supply is a drilled bedrock well at a residence located northwest of the site, across Route 25. There are no structures or water supplies located between the former tanks and the Waits River. The channel banks along the Waits River expose cobbles and gravel. Based on the hydrogeologic setting, groundwater beneath the former tanks likely flows northward and discharges into the Waits River (300 feet from the former tanks). Based on this preliminary data, we do not believe that any water supplies are threatened.

A plume of groundwater contamination originating from the tank location could conceivably reach the Waits River. During the site assessment, no seeps or springs were noted between the tank locations. In addition, no evidence of petroleum discharge was observed along the river bank.

Conclusions and Recommendations

Two USTs were excavated and removed on 4/22/97 at the Topsham Telephone Company in East Corinth, Vermont. A small hole was found in the bottom of a tank used for gasoline storage, and elevated PID readings were found in soil underlying the tank.

Based on the hydrogeologic setting, no water supplies appear to be threatened. There is also no evidence of impact to indoor air quality. However, based on the evidence of soil contamination, additional investigation is needed to assess the potential impact to groundwater.

We recommend that a site investigation be implemented to define the extent of contamination to groundwater and further identify and evaluate potential receptors. We intend to proceed with a site investigation under the "Expressway" program. We plan to advance three soil borings using hollow-stem augers techniques at the locations shown on Figure 4. The drilled bedrock well at the site has 28 feet of casing, indicating that bedrock is present at some level above this depth. The difference in elevation between the Waits River and the ground surface at the tank location is over 60 feet. Based on this information, we anticipate that groundwater is present at a depth ranging from 25 to 40 feet. One of the soil borings will be completed within the former tank excavation. Split-spoon samples will be taken to assess the degree of soil contamination and to define soil and groundwater conditions. If the wells penetrate to bedrock prior to reaching groundwater, the split-spoon soil samples will provide information on the extent of contamination within the overburden. If groundwater is encountered within the overburden, monitoring wells will be installed. If wells are constructed, one round of groundwater monitoring will be performed. The three monitoring wells and the existing

bedrock well at the site will be sampled. The samples will be analyzed for the presence of gasoline-related compounds (BTEX & MTBE) using EPA Method 8020. In addition to these field efforts, the indoor air quality of adjacent buildings will be screened with a PID. Water supplies in the immediate vicinity will also be identified.

We note that the "Expressway" notification form now requires a signature from the Sites Management Section (SMS). We will not proceed with the site investigation efforts until we receive a copy of the notification form signed by the SMS.

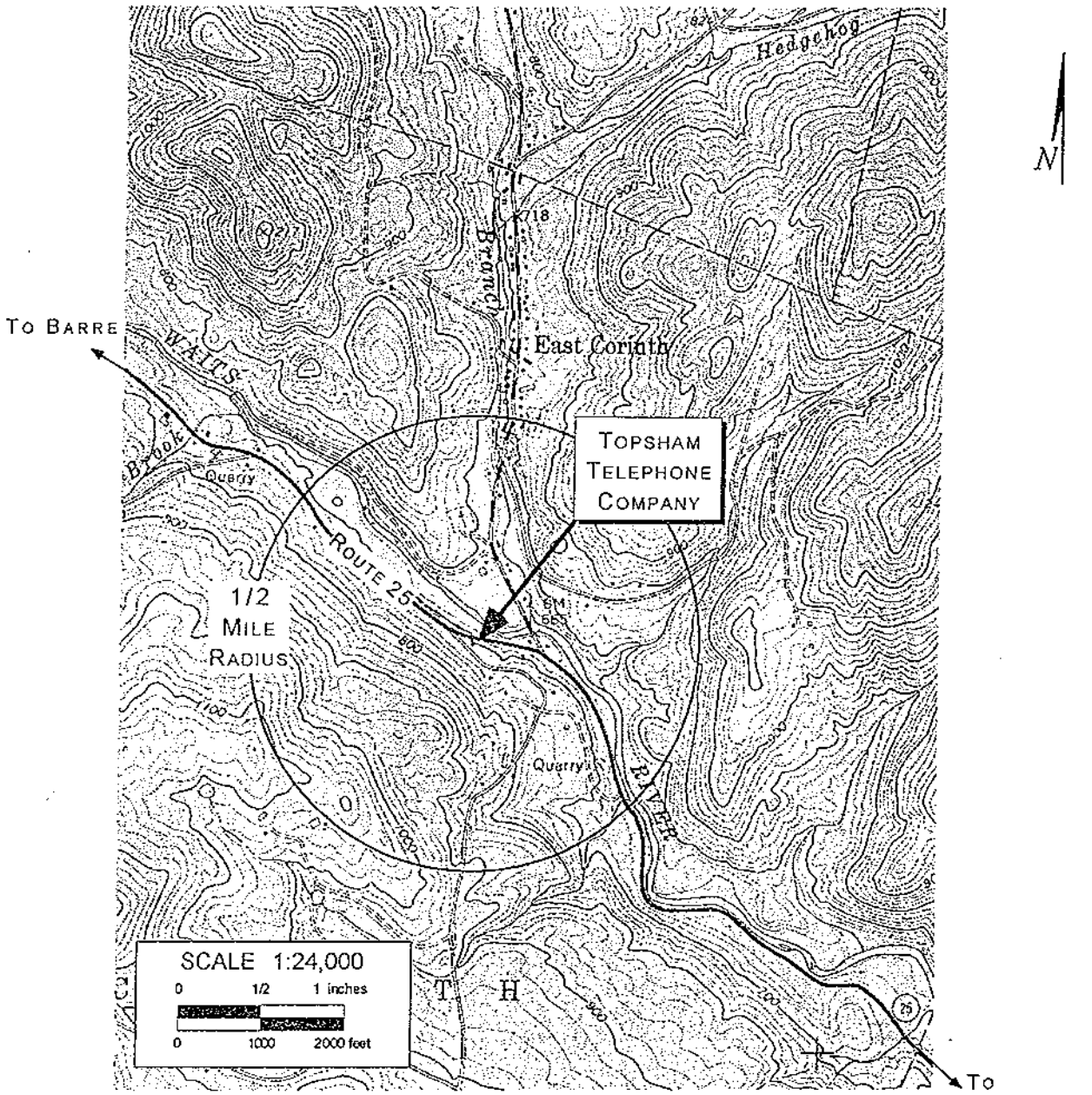
Please call either Hoffer & Associates (229 - 1113) or Topsham Telephone Company (439 - 5325) if you have any questions.

Sincerely,
HOFFER & ASSOCIATES

Jefferson P. Hoffer, P.G.
Principal Hydrogeologist

enc.

cc: Mr. Frank Sahlman, Sr., Topsham Telephone Company



Base from U.S. Geological Survey, 1:24,000;
East Corinth, Vermont, 1973

FIGURE 1
Site Location Map,
Topsham Telephone Company, Corinth, Vermont.

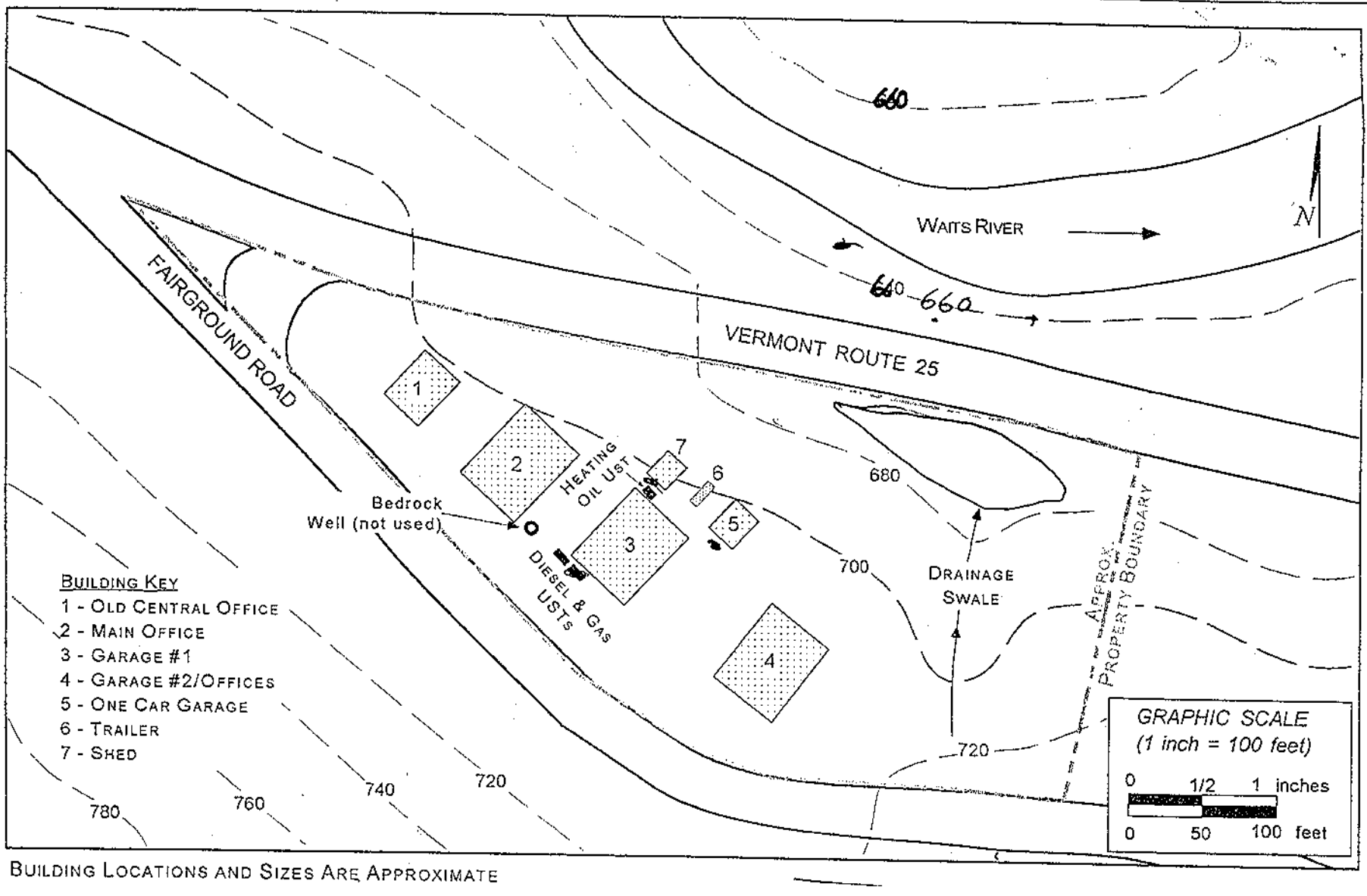


FIGURE 2

SITE MAP, TOPSHAM TELEPHONE COMPANY, CORINTH, VERMONT.

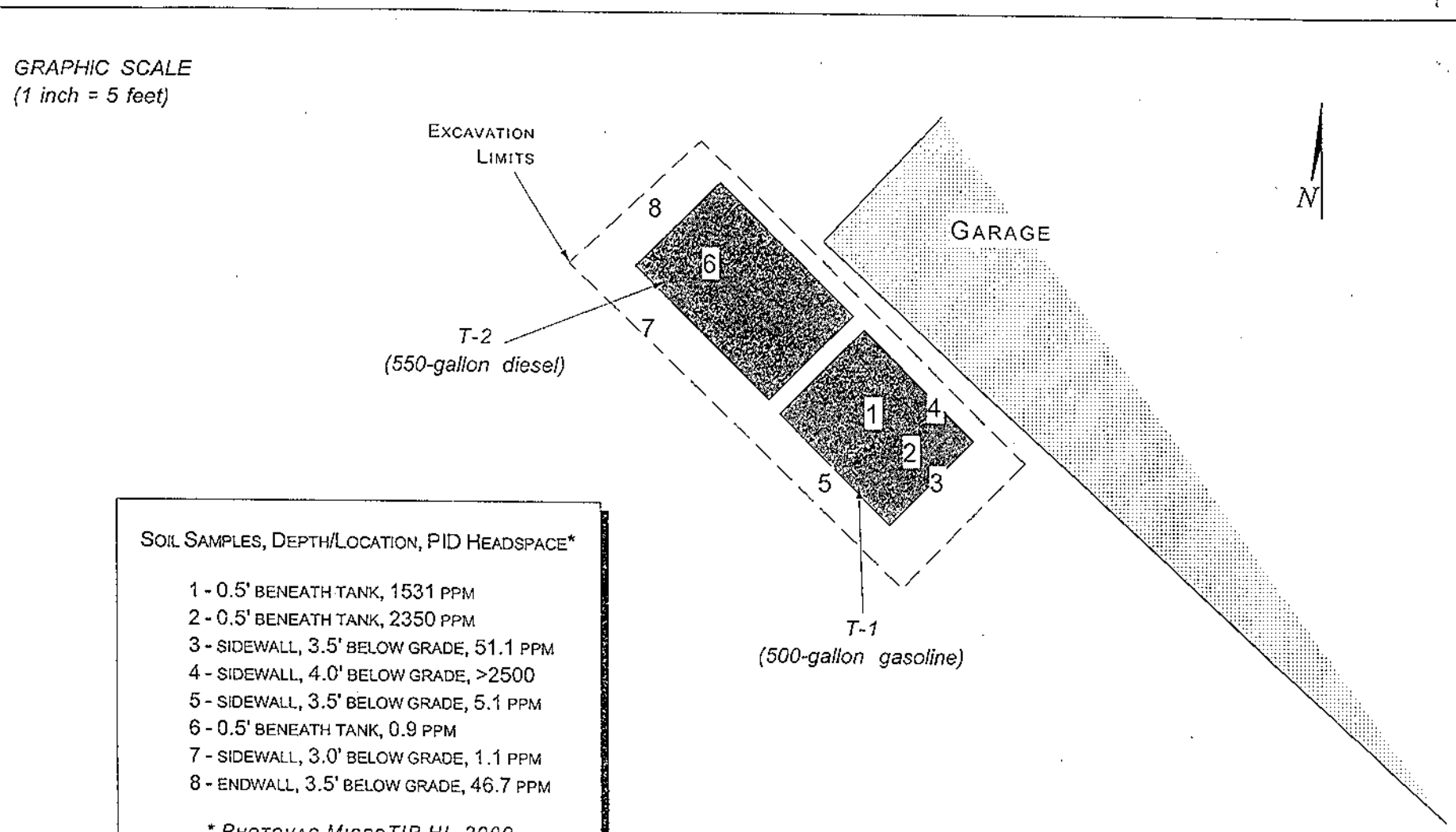


FIGURE 3
EXCAVATION AREA FOR 4/22/97 UST CLOSURES,
TOPSHAM TELEPHONE COMPANY, CORINTH, VERMONT.

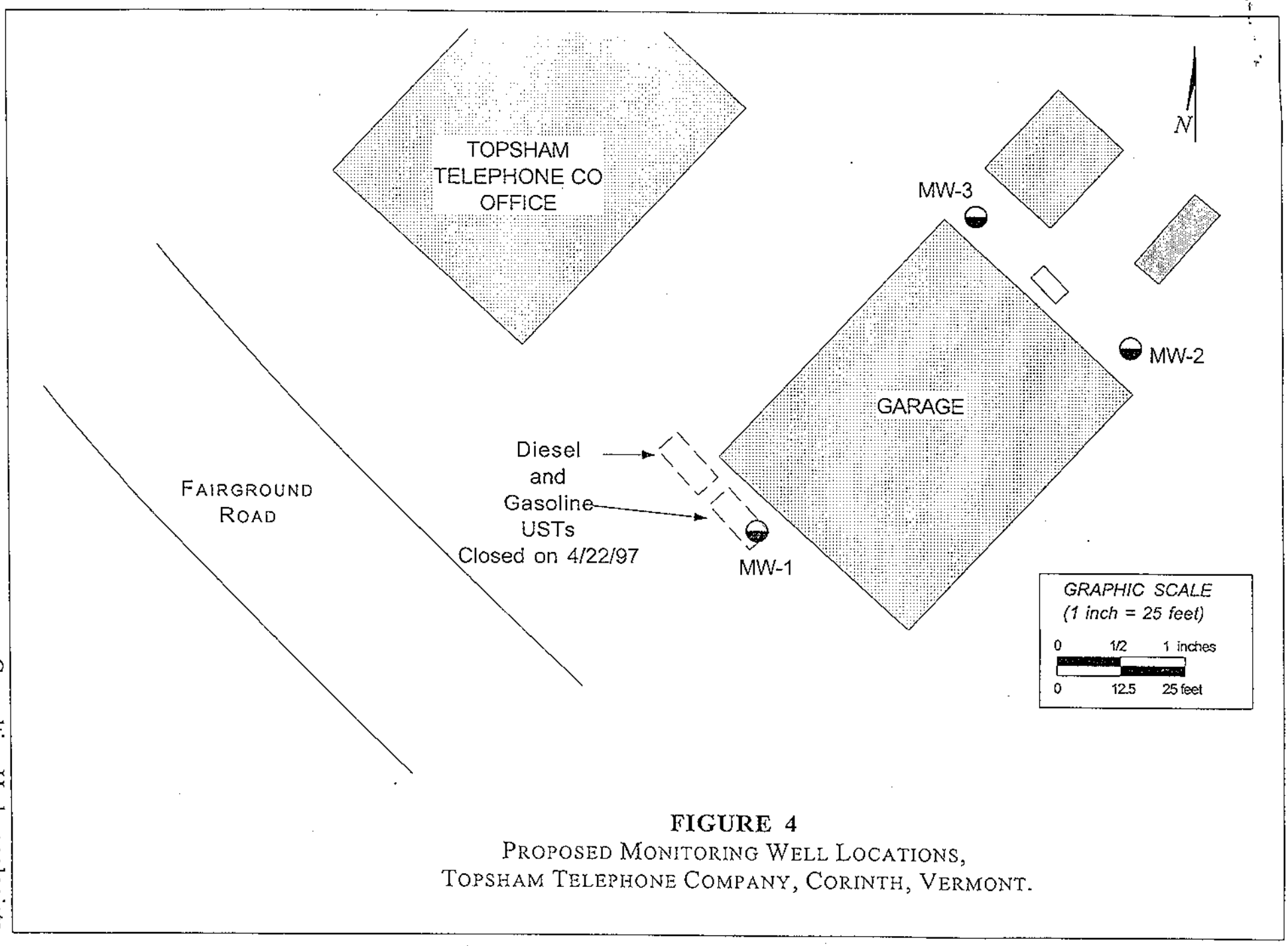


FIGURE 4
PROPOSED MONITORING WELL LOCATIONS,
TOPSHAM TELEPHONE COMPANY, CORINTH, VERMONT.

WELL NO. / TAG NO. 49

(For Driller's Use)

This report must be completed and submitted to the Department of Environmental Conservation 103 South Main Street (10N), Waterbury, Vt 05676 no later than 60 days after completion of the well.

State of Vermont
Dept. of Environmental Conservation
103 South Main Street (10N)
Waterbury, Vt. 05676

WELL COMPLETION REPORT

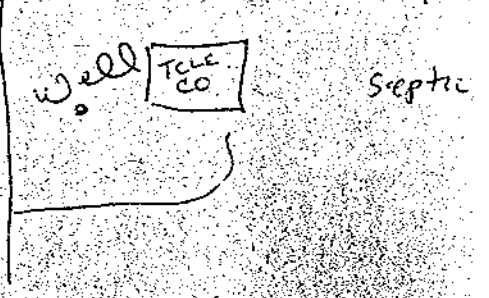
Location map attached to WCR ____

DEPARTMENT USE ONLY
E.C. 144 U.S.G.S. ____
Field Location ☐ Map area 54N 2
Latitude ____ ° ' " Elev. ____
Longitude ____ ° ' " Topo. ____
Scale: 62,500 ☐, 25,000 ☐, 24,000 ☐
Data in Town Files ☐ ____

1. WELL OWNER Topsham Telephone Co Box 1075 Corinth, Vt.
(Name) (Permanent Mailing Address)
OR
WELL PURCHASER ____ ____
(Name) (Permanent Mailing Address)
2. LOCATION OF WELL: TOWN Corinth SUBDIVISION ____ LOT NO. ____
3. DATE WELL WAS COMPLETED 8/12/91
4. PROPOSED USE OF WELL: ☒ Domestic, ☐ Other ____
5. REASON FOR DRILLING WELL: ☒ New Supply, ☐ Replace Existing Supply, ☐ Deepen Existing Well, ☐ Test or Exploration, ☐ Provide Additional Supply, ☐ Other ____
6. DRILLING EQUIPMENT: ☐ Cable Tool ☒ Rotary with A-P, ☐ Other ____
7. TYPE OF WELL: ☒ Open Hole in Bedrock, ☐ Open End Casing, ☐ Screened or Slotted, ☐ Other ____
8. TOTAL DEPTH OF WELL: 570 feet below land surface.
9. CASING FINISH: ☒ Above ground, Finished, ☐ Above ground, Unfinished, ☐ Buried, ☐ In Pit, ☐ Removed, ☐ None used, ☐ Other ____ Bedrock 20'
10. CASING DETAILS: Total length 30 ft Length below L.S 28 ft Dia. 6 in. Material Steel Wt. 17 lb./ft.
11. LINER OR INNER CASING DETAILS: Length used ____ ft Diameter ____ in. Material ____ Weight ____ lb./ft
12. METHOD OF SEALING CASING TO BEDROCK: ☒ Drive Shoe, ☐ Grout - type ____, Drilled ____ in. hole ____ ft in Bedrock ☐ Other ____
13. SCREEN DETAILS: Make and Type ____, Material ____, Length ____ ft, Diameter ____ in. Slot Size ____, Depth to top of screen in feet below land surface ____ ft., Gravel pack if used: Gravel Size or Type ____
14. YIELD TEST: ☐ Bailed, ☐ Pumped, ☒ Compressed Air, for 2 1/2 Hours at 2 Gallons per minute
Measured by ☒ Bucket, ☐ Orifice pipe, ☐ Weir, ☐ Meter ☐ Permanent Airline installed
15. STATIC WATER LEVEL: ____ feet below land surface, Date or Time measured ____, Overflows at ____ G P M
16. WATER ANALYSIS: Has the water been analyzed? ☐ Yes ☒ No. If Yes, Where ____
17. SPECIAL NOTES: ____
18. WELL LOG

Depth from Land Surface Feet	Depth from Land Surface Feet	Water Bearing	Formation Description	Sketch
Ground Surface	20		Sand	
20	570		Granite.	

19. SITE MAP
Show permanent structure such as buildings, septic tanks, and/or other land marks and indicate not less than two distances to the well. Indicate local street name and subdivision lot number.



20. TESTED YIELD
If the yield was tested at different depths during drilling, list below.

Feet	Gallons Per Minute
570	2

WELL DRILLED BY: Kevin Robinson
DOING BUSINESS AS: Valley Artesian Well Co. Inc
(Company or Business Name)
REPORT FILED BY: Kevin Robinson
(Authorized Signature)
DATE OF REPORT: 10/16/91 WELL DRILLERS LIC. NO. 121

WELL NUMBER
46
(For Driller's Use)

This report must be completed and submitted to the Department of Water Resources and Environmental Engineering, State Office Building, Montpelier, Vermont 05602, no later than 60 days after completion of the well.

State of Vermont
DEPARTMENT OF WATER RESOURCES
AND ENVIRONMENTAL ENGINEERING

WELL COMPLETION REPORT

NOV 1 1984

2" Wells

WATER RESOURCE USE ONLY
W.R. 69 U.S.G.S.
Field Location ☐ Map area 5402
Latitude ° ' " Elev.
Longitude ° ' " Topo.
Scale: 62,500 ☐, 25,000 ☐, 24,000 ☐
Location map attached to WCR 67 Data in Town Files ☐

1. WELL OWNER Joe Sampson (Name) (Permanent Mailing Address)
OR
WELL PURCHASER (Name) (Permanent Mailing Address)

2. LOCATION OF WELL: TOWN Corinth SUBDIVISION LOT NO.

3. DATE WELL WAS COMPLETED 9-25-84

4. PROPOSED USE OF WELL: ☒ Domestic, ☐ Other

5. REASON FOR DRILLING WELL: ☐ New Supply, ☒ Replace Existing Supply, ☐ Deepen Existing Well, ☐ Test or Exploration, ☐ Provide Additional Supply, ☐ Other

6. DRILLING EQUIPMENT: ☐ Cable Tool, ☒ Rotary with A-P, ☐ Other

7. TYPE OF WELL: ☒ Open Hole in Bedrock, ☐ Open End Casing, ☐ Screened or Slotted, ☐ Other

8. TOTAL DEPTH OF WELL: 340 feet below land surface.

9. CASING FINISH: ☒ Above ground, Finished, ☐ Above ground, Unfinished, ☐ Buried, ☐ In Pit, ☐ Removed, ☐ None used, ☐ Other

10. CASING DETAILS: Total length 89 ft. Length below L.S. 88 ft. Dia. 6 in. Material Steel Wt 17 lb./ft.

11. LINER OR INNER CASING DETAILS: Length used ft. Diameter in. Material Weight lb./ft.

12. METHOD OF SEALING CASING TO BEDROCK: ☐ Drive Shoe, ☐ Grout - type , Drilled 9 in. hole 10 ft. in Bedrock ☐ Other

13. SCREEN DETAILS: Make and Type , Material , Length ft., Diameter in., Slot Size , Depth to top of screen in feet below land surface ft., Gravel pack if used: Gravel Size or Type

14. YIELD TEST: ☐ Bailed, ☐ Pumped, ☒ Compressed Air, for 1 Hours at 1 Gallons per minute
Measured by ☒ Bucket, ☐ Orifice pipe, ☐ Weir, ☐ Meter ☐ Permanent Airline installed

15. STATIC WATER LEVEL: feet below land surface, Date or Time measured , Overflows at G.P.M.

16. WATER ANALYSIS: Has the water been analyzed? ☐ Yes ☒ No, If Yes, Where

17. SPECIAL NOTES:

18. WELL LOG

Depth from Land Surface Feet	Depth from Land Surface Feet	Water Bearing	Formation Description	Sketch
Ground Surface	78		sand - gravel	
78	88		Blue flint	
88	340		" "	

19. SITE MAP
Show permanent structure such as buildings, septic tanks, and/or other land marks and indicate not less than two distances to the well. Indicate local street name and subdivision lot number. N

20. TESTED YIELD
If the yield was tested at different depths during drilling, list below.

Feet	Gallons Per Minute

WELL DRILLED BY: Kim Johnson
DOING BUSINESS AS: E. Benedini well co (Company or Business Name)
REPORT FILED BY: Kim Johnson (Authorized Signature)
DATE OF REPORT: 10-28-84 WELL DRILLERS LIC. NO. 43

SOIL BORING / MONITORING WELL CONSTRUCTION LOG

WELL BORING ID: MW-1

Client / Site:	Topsham Telephone Company
Location:	Route 25, E. Corinth, Vermont
Project Number:	65-01
Driller:	Tri-State Drilling & Boring (T. Faulkner)
Drilling Method:	4.25-inch ID hollow-stem augers
Geologist:	Jeff Hoffer
Sampling Method:	2-inch split spoon
Date:	4/30/97
Weather:	Clear, 60 Degrees
Boring Location:	Location of Removed Gasoline UST

Well Construction Information	
Total Depth Drilled:	30.0'
Screen Type/Interval:	2-inch dia. PVC, 20-slot, 19 to 29' BGS
Riser Type/Interval:	2-inch dia. PVC, 0.3 to 19' BGS
Sandpack Type/Interval:	#1 sand / 18 - 28' BGS
Seal Type/Interval:	Bentonite chips /16 - 18' BGS
Water Level/Date-Time:	25.38' BTOC, 5/5/97
Elevation Ground:	703.25
Elevation TOC:	702.97
Development:	Bailed 6 to 7 gallons, good recovery, silty brown

Sample Interval (feet BGS)	Blow Counts & Recovery (feet)	Sample Depth (feet BGS) From	To	Sample Description	USDA / SCS Soil Classification	PID Reading* (ppm)
10.0 - 12.0	5/5/5/6 (0.1)	10	12	Brown, medium sand with 15% fine gravel, dry, petro odor	sand	>2500
15.0 - 17.0	4/6/7/11 (1.5)	15	15.75	Yellow, medium/coarse sand, dry, petro odor	sand	>2500
		15.75	16	Olive-brown silt loam, moist (sheen in wash sample), petro odor	silt loam	
		16	16.5	Yellow, medium/fine sand, dry, petro odor	sand	
20.0 - 22.0	3/4/6/7 (1.5)	20	21.5	Light olive-gray fine sand (75%), silt (25%)	loamy sand	308
				Fe-mottling in last 2 inches of sample (high gw?)		
25.0 - 27.0	2/2/3/2 (1.0)	25	26	Light brown medium/fine sand (75%), silt (25%), saturated	loamy sand	19.5

Generalized Geologic Log and Other Observations:

depth BGS	
0 - 6'	tank backfill, brown medium/coarse sand
6 - 8'	gravel/cobble layer
8 - 30'	predominantly sand (fining downward), up to 25% silt, small silt loam lense between 15 - 17', water between 22 and 25 feet BGS

Notes:

* = Peak Headspace Reading, Photovac MicroTIP HL-2000, calibrated to isobutylene.

BGS = Below Ground Surface, BTOC = Below Top Of Casing

SOIL BORING / MONITORING WELL CONSTRUCTION LOG

WELL BORING ID: MW-2

Client / Site:	Topsham Telephone Company
Location:	Route 25, E. Corinth, Vermont
Project Number:	65-01
Driller:	Tri-State Drilling & Boring (T. Faulkner)
Drilling Method:	4.25-inch ID hollow-stem augers
Geologist:	Jeff Hoffer
Sampling Method:	2-inch split spoon
Date:	4/30/97
Weather:	Clear, 60 Degrees
Boring Location:	downgradient from gasoline UST, in grass

Well Construction Information	
Total Depth Drilled:	33.75 (bedrock refusal)
Screen Type/Interval:	2-inch dia. PVC, 20-slot, 23.75 to 33.75
Riser Type/Interval:	2-inch dia. PVC, 0.6 to 23.75' BGS
Sandpack Type/Interval:	#1 sand / 22 - 33.75' BGS
Seal Type/Interval:	Bentonite chips /20 - 22' BGS
Water Level/Date-Time:	27.81' BTOC, 5/5/97
Elevation Ground:	701.84
Elevation TOC:	701.22
Development:	Bailed 3 to 4 gallons, good recovery (less than MW-1), silty brown

Sample Interval (feet BGS)	Blow Counts & Recovery (feet)	Sample Depth (feet BGS) From	To	Sample Description	USDA / SCS Soil Classification	PID Reading* (ppm)
10 - 12.0	5/6/6/8 (1.0)	10	10.5	yellow, fine/medium gravel (75%), sand (25%)	gravelly sand	
		10.5	11	yellow medium/coarse sand, dry	sand	7.3
15.0 - 17.0	2/8/9/6 (1.2)	15	16.2	yellow fine to coarse sand, some (<15%) fine gravel, dry	sand	8.9
20.0 - 22.0	24/5/5/5 (1.5)	20	21.5	yellow fine to coarse sand, well rounded, well sorted, <15% fine gravel, dry	sand	1.0
25.0 -27.0	6/9/13/9 (1.5)	25	26.5	yellow fine to coarse sand, well rounded, well sorted, 10 - 15% fine gravel, dry	sand	0.0
30 - 32	2/2/4/7 (2.0)	30	31	yellow fine to coarse sand, well rounded, well sorted, 10 - 15% fine gravel, wet, mottled in last two inches	sand	0
		31	32	Gray brown fine sand (50%) and silt (50%), saturated, some mottling	silt loam	0

Generalized Geologic Log and Other Observations:

depth BGS	
0 - 7.5'	brown medium/coarse sand
7.5 - 10'	brown medium/coarse sand with gravel/cobbles
10 - 31'	fine to coarse sand, some (<15%) fine gravel
31 - 33.75'	fine sand and silt (silt loam), saturated
33.75'	bedrock

Notes:

* = Peak Headspace Reading, Photovac MicroTIP HL-2000, calibrated to isobutylene.

BGS = Below Ground Surface, BTOC = Below Top Of Casing

SOIL BORING / MONITORING WELL CONSTRUCTION LOG

WELL BORING ID: MW-3

Client / Site:	Topsham Telephone Company
Location:	Route 25, E. Corinth, Vermont
Project Number:	65-01
Driller:	Tri-State Drilling & Boring (T. Faulkner)
Drilling Method:	4.25-inch ID hollow-stem augers
Geologist:	Jeff Hoffer
Sampling Method:	2-inch split spoon
Date:	4/30/97
Weather:	Clear, 60 Degrees
Boring Location:	downgradient from gasoline UST, in grass

Well Construction Information	
Total Depth Drilled:	35'
Screen Type/Interval:	2-inch dia. PVC, 20-slot, 25 to 35' BGS
Riser Type/Interval:	2-inch dia. PVC, 0.5 to 25' BGS
Sandpack Type/Interval:	#1 sand / 22 - 35' BGS
Seal Type/Interval:	Bentonite chips /20 - 22' BGS
Water Level/Date-Time:	27.52' BTOC, 5/5/97
Elevation Ground:	700.89
Elevation TOC:	700.47
Development:	Bailed 3 to 4 gallons, good recovery, silty brown

Sample Interval (feet BGS)	Blow Counts & Recovery (feet)	Sample Depth (feet BGS) From	To	Sample Description	USDA / SCS Soil Classification	PID Reading* (ppm)
10 - 12.0	2/3/3/4 (1.0)	10	11	yellow/brown, fine/coarse sand (70% medium), some (<15%) fine gravel	sand	0.8
15.0 - 17.0	3/3/3/3 (1.5)	15	16	yellow/brown, fine/coarse sand (70% medium), some (<15%) fine gravel	sand	
		16 - 17.5	16	white fine sand, uniform, dry	sand	0
20.0 - 22.0	2/3/3/5 (1.0)	20	21	yellow/brown, fine/coarse sand, some (<15%) fine gravel (silty in tip)	sand	0
25.0 -27.0	2/5/7/5/ (1.2)	25	25.2	brown silt loam, dry	silt loam	
		25.2	26.2	tan fine sand, uniform, dry	sand	0.8
30 - 32	2/2/2/4 (1.5)	30	31	brown fine to coarse sand, wet	sand	
		31	31.5	gray brown silt loam, (50% fine sand, 50% silt)	silt loam	2.2
35 -37.0	2/5/7/4 (1.5)	35	35.5	brown medium sand, wet	sand	0
		35.5	36.5	brown silty fine sand, wet	silt loam	

Generalized Geologic Log and Other Observations:

depth BGS

0 - 3'	brown medium/coarse sand
3 - 5'	brown medium/coarse sand with gravel/cobbles
10 - 35'	predominantly fine to coarse sand, some (<15%) fine gravel occasionally, some layers of uniform fine sand, some layers of silt loam
	water table between 27 and 30 feet BGS

Notes:

* = Peak Headspace Reading, Photovac MicroTIP HL-2000, calibrated to isobutylene.

BGS = Below Ground Surface, BTOC = Below Top Of Casing

SOIL PROBE LOG

MW # !___
Boring_____

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

		SAMPLER Continuous
TYPE	_____	_____
SIZE	_____	_____
HAMMER	_____	_____
FALL	_____	_____

SOIL
Saturated
Wet
Moist
Damp
Slightly Damp

DATE STARTED: 04/30/97 DATE COMPLETED: 04/30/97

FOOTAGE DEPTH	BLOW COUNTS (6 12 18 24)	REC		DRILLER'S NOTES & COMMENTS
10-12'	5 5 6 6	2"	DRY	Fine sand w/ small gravel/odor.
15-17'	4 6 7 11	10"	DRY	Fine to coarse sand w/2" silt layers/odor.
20-22'	3 4 6 7	23"	Damp	Very fine silty sand/ low odor.
25-27'	2 2 3 2	15"	WET	Very fine silty sand, layer into fine sand, traces silt.
				Augered to 30' (no sample) Set well at 30'.

Project:Topsham Phone Co.
Location: Topsham, VT.
Engineer: Hoffer & Assoc.
Inspector: Jeff Hoffer

Driller: Tharon Faulkner
Helper: Geoff Falso
Materials: 10' Screen. 20' Riser, 1 PVC Cap, 1 Lock Plug, 3 #1 Sand, .5 Hole Plug, 1 Cement, 1 Road Box.

SOIL PROBE LOG

MW __# 2__
Boring_____

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

	SAMPLER	Continuous
TYPE	_____	_____
SIZE	_____	_____
HAMMER	_____	_____
FALL	_____	_____

SOIL
Saturated
Wet
Moist
Damp
Slightly Damp

DATE STARTED: 04/30/97 DATE COMPLETED: 04/30/97

FOOTAGE DEPTH	BLOW COUNTS (6 12 18 24)	REC		DRILLER'S NOTES & COMMENTS
10-12'	5 6 6 8	13"	DRY	Fine to coarse sand & gravel.
15-17'	2 8 9 6	12"	DRY	Fine to coarse sand & gravel.
20-22'	3 8 5 5	12"	DRY	Same as above.
25-27'	6 8 13 9		DRY	Same as above.
30-32'	2 2 7		WET	Fine sand to very fine silty sand.

Augered to 35'.

Client:Topsham Phone Co.
Job Location:Topsham, VT.
Engineer:Hoffer & Assoc.
Inspector: Jeff Hoffer

Driller: Tharon Faulkner
Helper: Geoff Falso
Materials: 10'-10 slot screen, 22.5'Riser

1 PVC Cap, ! Lock Plug, 3 #1 Sand,
.5 Hole Plug, 1 Road Box.

SOIL PROBE LOG

MW __# 3___
Boring_____

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

	SAMPLER	SOIL
	Continuous	Saturated
TYPE	_____	Wet
SIZE	_____	Moist
HAMMER	_____	Damp
FALL	_____	Slightly Damp

DATE STARTED: 04/30/97 DATE COMPLETED: 04/30/97

FOOTAGE DEPTH	BLOW COUNTS REC		DRILLER'S NOTES & COMMENTS
	6 12 18 24		
10-12'	2 3 3 4 18"	DRY	Fine to coarse sand & gravel.
15-17'	3 3 3 3 12"	DRY	Medium to coarse sand to fine & very fine sand.
20-22'	2 3 3 5 14"	DRY	Fine to coarse sand & gravel.
25-27'	2 5 7 5 15"	DRY	Fine to very fine sand.
30-32'	2 2 3 4 14"	WET	Fine to medium Sand, to silt.
35-37'	2 5 7 4 ...	WET	Very fine silty sand.

Augered to 34'.

Client:Topsham Phone Co.
Job Location: Topsham, VT.
Engineer:Hoffer & Assoc.
Inspector: Jeff Hoffer

Driller: Tharon Faulkner
Helper: Geoff Falso
Materials: 10' Screen, 22.5' Riser, 1 PVC Cap, 1 Lock Plug, 3 #1 Sand, .5 Hole Plug. 1 Road Box.

SCITEST
LABORATORY SERVICES

ANALYTICAL REPORT

P.O. Box 339
Randolph, Vermont 05060-0339
(802) 728-6313

Jefferson Hoffer & Associates
RR 4 Box 2286
Montpelier VT, VT 05602

Jeff Hoffer

Work Order No.: 9705-01435

Project Name: Topsham Telephone Company
Customer Nos.: 070249

Date Received: 5/05/97
Date Reported: 5/08/97

Sample Desc.: BW-1
Sample Nos: 1

Sample Date: 5/05/97
Collection Time: 6:35

Test Performed	Method	Results	Units	Analyst	Analysis Date
Aromatic Volatile Organics	EPA 8020/602			JPM	5/06/97
Methyl Tertiary Butyl Ether	EPA 602/8020	BPQL	ug/L	JPM	5/06/97
Benzene	EPA 602/8020	2	ug/L	JPM	5/06/97
Toluene	EPA 602/8020	BPQL	ug/L	JPM	5/06/97
Ethyl Benzene	EPA 602/8020	BPQL	ug/L	JPM	5/06/97
Total Xylenes	EPA 602/8020	BPQL	ug/L	JPM	5/06/97
Chlorobenzene	EPA 602/8020	BPQL	ug/L	JPM	5/06/97
1,2-Dichlorobenzene	EPA 602/8020	BPQL	ug/L	JPM	5/06/97
1,3-Dichlorobenzene	EPA 602/8020	BPQL	ug/L	JPM	5/06/97
1,4-Dichlorobenzene	EPA 602/8020	BPQL	ug/L	JPM	5/06/97
Surrogate: 8020				JPM	5/06/97
***Bromofluorobenzene-8020		103	% Recovery	JPM	5/06/97

Sample Desc.: MW-2
Sample Nos: 2

Sample Date: 5/05/97
Collection Time: 6:45

Test Performed	Method	Results	Units	Analyst	Analysis Date
Aromatic Volatile Organics	EPA 8020/602			JPM	5/06/97
Methyl Tertiary Butyl Ether	EPA 602/8020	BPQL	ug/L	JPM	5/06/97
Benzene	EPA 602/8020	BPQL	ug/L	JPM	5/06/97
Toluene	EPA 602/8020	BPQL	ug/L	JPM	5/06/97
Ethyl Benzene	EPA 602/8020	BPQL	ug/L	JPM	5/06/97
Total Xylenes	EPA 602/8020	BPQL	ug/L	JPM	5/06/97
Chlorobenzene	EPA 602/8020	BPQL	ug/L	JPM	5/06/97
1,2-Dichlorobenzene	EPA 602/8020	BPQL	ug/L	JPM	5/06/97
1,3-Dichlorobenzene	EPA 602/8020	BPQL	ug/L	JPM	5/06/97
1,4-Dichlorobenzene	EPA 602/8020	BPQL	ug/L	JPM	5/06/97
Surrogate: 8020				JPM	5/06/97
***Bromofluorobenzene-8020		102	% Recovery	JPM	5/06/97

ANALYTICAL REPORT

Project Name: Topsham Telephone Company
Project No.: 070249

Work Order No.: 9705-01435

Sample Desc.: MW-3
Sample Nos: 3
Sample Date: 5/05/97
Collection Time: 7:10

Test Performed	Method	Results	Units	Analyst	Analysis Date
Aromatic Volatile Organics	EPA 8020/602			JPM	5/06/97
Methyl Tertiary Butyl Ether	EPA 602/8020	9	ug/L	JPM	5/06/97
Benzene	EPA 602/8020	BPQL	ug/L	JPM	5/06/97
Toluene	EPA 602/8020	BPQL	ug/L	JPM	5/06/97
Ethyl Benzene	EPA 602/8020	BPQL	ug/L	JPM	5/06/97
Total Xylenes	EPA 602/8020	BPQL	ug/L	JPM	5/06/97
Chlorobenzene	EPA 602/8020	BPQL	ug/L	JPM	5/06/97
1,2-Dichlorobenzene	EPA 602/8020	BPQL	ug/L	JPM	5/06/97
1,3-Dichlorobenzene	EPA 602/8020	BPQL	ug/L	JPM	5/06/97
1,4-Dichlorobenzene	EPA 602/8020	BPQL	ug/L	JPM	5/06/97
Surrogate: 8020				JPM	5/06/97
***Bromofluorobenzene-8020		91	% Recovery	JPM	5/06/97

Sample Desc.: MW-101
Sample Nos: 4
Sample Date: 5/05/97
Collection Time: 6:59

Test Performed	Method	Results	Units	Analyst	Analysis Date
Aromatic Volatile Organics	EPA 8020/602			JPM	5/06/97
Methyl Tertiary Butyl Ether	EPA 602/8020	8	ug/L	JPM	5/06/97
Benzene	EPA 602/8020	BPQL	ug/L	JPM	5/06/97
Toluene	EPA 602/8020	BPQL	ug/L	JPM	5/06/97
Ethyl Benzene	EPA 602/8020	BPQL	ug/L	JPM	5/06/97
Total Xylenes	EPA 602/8020	BPQL	ug/L	JPM	5/06/97
Chlorobenzene	EPA 602/8020	BPQL	ug/L	JPM	5/06/97
1,2-Dichlorobenzene	EPA 602/8020	BPQL	ug/L	JPM	5/06/97
1,3-Dichlorobenzene	EPA 602/8020	BPQL	ug/L	JPM	5/06/97
1,4-Dichlorobenzene	EPA 602/8020	BPQL	ug/L	JPM	5/06/97
Surrogate: 8020				JPM	5/06/97
***Bromofluorobenzene-8020		103	% Recovery	JPM	5/06/97

Sample Desc.: MW-1
Sample Nos: 5
Sample Date: 5/05/97
Collection Time: 7:35

Test Performed	Method	Results	Units	Analyst	Analysis Date
Aromatic Volatile Organics	EPA 8020/602			JPM	5/06/97
Methyl Tertiary Butyl Ether	EPA 602/8020	10000	ug/L	JPM	5/06/97
Benzene	EPA 602/8020	432	ug/L	JPM	5/06/97
Toluene	EPA 602/8020	612	ug/L	JPM	5/06/97
Ethyl Benzene	EPA 602/8020	36	ug/L	JPM	5/06/97
Total Xylenes	EPA 602/8020	124	ug/L	JPM	5/06/97

SCITEST
LABORATORY SERVICES

ANALYTICAL REPORT

Project Name: Topsham Telephone Company
Project No.: 070249

Work Order No.: 9705-01435

Sample Desc.: MW-1
Sample Nos: 5
Sample Date: 5/05/97
Collection Time: 7:35

Test Performed	Method	Results	Units	Analyst	Analysis Date
Chlorobenzene	EPA 602/8020	< 20	ug/L	JPM	5/06/97
1,2-Dichlorobenzene	EPA 602/8020	< 20	ug/L	JPM	5/06/97
1,3-Dichlorobenzene	EPA 602/8020	< 20	ug/L	JPM	5/06/97
1,4-Dichlorobenzene	EPA 602/8020	< 20	ug/L	JPM	5/06/97
Surrogate: 8020				JPM	5/06/97
***Bromofluorobenzene-8020		103	% Recovery	JPM	5/06/97

Sample Desc.: FB-1
Sample Nos: 6
Sample Date: 5/05/97
Collection Time: 7:51

Test Performed	Method	Results	Units	Analyst	Analysis Date
Aromatic Volatile Organics	EPA 8020/602			JPM	5/06/97
Methyl Tertiary Butyl Ether	EPA 602/8020	BPQL	ug/L	JPM	5/06/97
Benzene	EPA 602/8020	BPQL	ug/L	JPM	5/06/97
Toluene	EPA 602/8020	BPQL	ug/L	JPM	5/06/97
Ethyl Benzene	EPA 602/8020	BPQL	ug/L	JPM	5/06/97
Total Xylenes	EPA 602/8020	BPQL	ug/L	JPM	5/06/97
Chlorobenzene	EPA 602/8020	BPQL	ug/L	JPM	5/06/97
1,2-Dichlorobenzene	EPA 602/8020	BPQL	ug/L	JPM	5/06/97
1,3-Dichlorobenzene	EPA 602/8020	BPQL	ug/L	JPM	5/06/97
1,4-Dichlorobenzene	EPA 602/8020	BPQL	ug/L	JPM	5/06/97
Surrogate: 8020				JPM	5/06/97
***Bromofluorobenzene-8020		104	% Recovery	JPM	5/06/97

Sample Desc.: Trip Blank (5/2/97)
Sample Nos: 7
Sample Date: 5/05/97
Collection Time: 6:30

Test Performed	Method	Results	Units	Analyst	Analysis Date
Aromatic Volatile Organics	EPA 8020/602			JPM	5/06/97
Methyl Tertiary Butyl Ether	EPA 602/8020	BPQL	ug/L	JPM	5/06/97
Benzene	EPA 602/8020	BPQL	ug/L	JPM	5/06/97
Toluene	EPA 602/8020	BPQL	ug/L	JPM	5/06/97
Ethyl Benzene	EPA 602/8020	BPQL	ug/L	JPM	5/06/97
Total Xylenes	EPA 602/8020	BPQL	ug/L	JPM	5/06/97
Chlorobenzene	EPA 602/8020	BPQL	ug/L	JPM	5/06/97
1,2-Dichlorobenzene	EPA 602/8020	BPQL	ug/L	JPM	5/06/97
1,3-Dichlorobenzene	EPA 602/8020	BPQL	ug/L	JPM	5/06/97
1,4-Dichlorobenzene	EPA 602/8020	BPQL	ug/L	JPM	5/06/97
Surrogate: 8020				JPM	5/06/97
***Bromofluorobenzene-8020		103	% Recovery	JPM	5/06/97

SCITEST
LABORATORY SERVICES

ANALYTICAL REPORT

Project Name: Topsham Telephone Company
Project No.: 070249

Work Order No.: 9705-01435

BPQL = Below Practical Quantitation Limit; 1 ug/L

Authorized by: Joann S Wood

SCITEST
LABORATORY SERVICES

GROUNDWATER SAMPLING DATA SHEET

LOCATION: Topsham Telephone Co. SAMPLE METHOD: 2" Poly Bailers

DATE: 5/15/97 SAMPLING TEAM: JPH

WELL ID	PID Head Space (ppm)	Depth to Water (ft)	Total Well Depth (ft)	Water Column (ft)	3 Well Volumes* (gals)	Total Purged (gals)	Sample Time	Sample Type	Chain-of-Custody Number	Chain-of-Custody Time	Remarks
TB-1							06:30	Trip	TB-1	06:30	
BW-1		16.30				No Purge	06:35	Sample	BW-1	06:35	
MW-2		27.81	33.16	5.35	2.6	2.1	0645	Sample	MW-2	06:45	Began to sodey, Silty Brown
MW-3		27.52	34.50	6.98	3.4	3.5	07:10	Sample	MW-3	07:10	Silty Brown
MW-3		27.52	34.50	6.98	3.4	3.5	07:10	Duplicate	MW-101	06:59	" "
MW-1		25.38	28.75	3.37	1.6	1.6	07:35	Sample	MW-1	07:35	Silty Brown
FB-1								Field	FB-1	07:51	

(1.5" = 0.092 gals/ft, 2" = 0.16 gals/ft, 4" = 0.65 gals/ft, 6"=1.5 gals/ft)

REMARKS _____

Scitest, Inc.
P.O. Box 339
Route 66 Professional Center, Randolph, VT 05060
Phone: (802)728-6313 Fax: (802)728-6044

Sample Logged in By: BBB
Anomaly Sheet: Y ____ N ✓

Topsham Telephone Company
Preservative Check: no bubbles
Temperature Check: cold

Client: Jefferson P. Hoffer & Associates
Address: RR 4 Box 2286, Comstock Road
Montpelier, VT 05602

Contact: Jeff Hoffer
Phone No: 229-1113 ~~439-5907~~

Customer Nos: 70249
Project: Topsham Telephone Co.
Job Template:

Date requested: 05/01/9
Date shipped: Send with Rod
Date scheduled: 05/05/9

CHAIN OF CUSTODY

*Sampled by:** Jeff Hoffer	Date	Time	*Print Name Here:**	Date	Time
Relinquished by:			*Accepted by:*		
Relinquished by:			*Received by Scitest:* [signature]	5/5/97	9:00

Sample No:	Sample Description	Sample Date	Sample Time	Matrix	Preservative	Container Material	Container Volume	Containers per Sample	Parameters
1	BW-1	5-5-97	06:35	GW	HCl	Glass	40 mL	2	EPA 8020
2	MW-2	"	06:45	GW	HCl	Glass	40 mL	2	EPA 8020
3	MW-3	"	07:10	GW	HCl	Glass	40 mL	2	EPA 8020
4	MW-101	"	06:59	GW	HCl	Glass	40 mL	2	EPA 8020
5	MW-1	"	0735	GW	HCl	Glass	40 mL	2	EPA 8020 Hot ?
6	FB-1	"	07:51	GW	HCl	Glass	40 mL	2	EPA 8020
7	Trip Blank TB-01 5/2/97	"	06:30	GW	HCl	Glass	40 mL	2	EPA 8020
~~8~~	~~Extra~~	"	"	~~GW~~	~~HCl~~	~~Glass~~	~~40 mL~~	~~2~~	~~EPA 8020~~

SAMPLES MUST REACH THE LAB within ____ of sampling time to meet all holding times.

Parameters are correct as listed Client Initial: RS *
Please fill in ALL areas marked with an asterisk (*). Thank you.
Additional instruction if applicable are attached.

Scitest Work Order: