



April 29, 1999

Ms. Lynda Provencher
VTDEC/ANR/WMD
103 South Main Street, West Building
Waterbury, VT 05671-0404

SITE #
99-2590

WASTE MANAGEMENT

Apr 30 10 22 AM '99

Re: Site Investigation Report, Why-Not Farms #2
Whiting, Vermont

Dear Ms. Provencher:

Enclosed please find the document titled *Report on the Investigation of Subsurface Petroleum Contamination, Why-Not-Farms #2, 249 Shoreham-Whiting Road, Whiting, Vermont*. This report has been submitted for your review on behalf of Why-Not-Farms, Inc., of Boston, Massachusetts.

If you have any questions or comments, please feel free to call me at (802) 865-4288. As we discussed yesterday, your expeditious review and comment regarding this document would be greatly appreciated. Thank you for your time.

Sincerely,

Willis Doe
Environmental Engineer
Att

cc: File 29941473

**REPORT ON THE
INVESTIGATION OF SUBSURFACE
PETROLEUM CONTAMINATION
at
WHY-NOT-FARM #2
249 SHOREHAM-WHITING ROAD
WHITING, VERMONT**

~~00~~ 99-2590

April, 1999

Prepared for:

Why-Not-Farms, Inc.

**7 Louisburg Square
Boston, MA 02108-1236**

Prepared by:



**P.O. Box 943
Williston, Vermont 05495
(802) 865-4288**

Griffin Project #: 29941473

WASTE MANAGEMENT
DIVISION

APR 30 10 22 AM '99

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I. INTRODUCTION

This report summarizes the investigation of subsurface petroleum contamination at Why-Not-Farm #2, located at 249 Shoreham-Whiting Road in Whiting, Vermont (see Site Location Map, Appendix A). The facility is owned by Why-Not-Farms, Inc., (WNF) of Boston, Massachusetts. The following investigation has been conducted to define more clearly the degree and extent of petroleum contamination detected in the soils and groundwater at this site during the removal of one (1) 1000 gallon diesel fuel underground storage tank (UST) on February 3, 1999. Included in the report are the findings from the soil borings and the results of subsequent groundwater sampling conducted at the property, an evaluation of potential sensitive receptors in the area, conclusions drawn from data collected at the site, and recommendations regarding future work at the site.

This work has been completed for WNF by Griffin International, Inc. (Griffin) under the Vermont Department of Environmental Conservation (VTDEC) Expressway process and in accordance with the Work Plan and Cost Estimate for Investigation of Subsurface Petroleum Contamination dated February 26, 1999.

II. HISTORICAL BACKGROUND

On February 3, 1999, one (1) 1000 gallon diesel fuel/#2 fuel oil UST was removed from the subsurface at the aforementioned property.¹ During the removal, petroleum contamination was detected in soil and groundwater in the vicinity of the UST. An H-Nu Model PI-101 photoionization device (PID) equipped with a 10.2 eV bulb was utilized to perform headspace screening of soil samples. A maximum total organic vapor (TOV) concentration of greater than 200 ppm was recorded from 4' to 8' below grade in the UST excavation. The removed UST was noted to be in poor condition with several holes throughout.

A regional groundwater table was not immediately evident at the depth excavated during the UST removal. However, perched groundwater was observed entering the excavation from thawing frost and snow. Mobile light-non-aqueous-phase-liquid (LNAPL) was observed in the excavation. The LNAPL was floated from the below the UST as water entered the excavation from near the surface. The LNAPL exhibited a color (dark amber) and odor similar to #2 fuel oil. Excavated contaminated soils were backfilled in the former UST grave. Clean fill was utilized to return the excavation to grade.

A report detailing the findings of this UST closure was submitted by Laurie Reed of Griffin on February 9, 1999. In response to the soil and groundwater contamination detected during the removal of the UST, Griffin submitted a Site Investigation Expressway Notification Form to the VTDEC on behalf of Why-Not-Farms, Inc., on February 9, 1999. Approval to proceed with the Expressway investigation was granted in a telephone conversation with Mr. Chuck Schwer of the VTDEC on April 7, 1999. The

following report presents the findings from Griffin's Site Investigation conducted in March, 1999.

III. SITE DESCRIPTION

The site is located at 249 Shoreham-Whiting Road in Whiting, Vermont. The surrounding area is primarily cultivated farmland. Local terrain slopes downward and northwest toward Sawmill Brook, which is approximately 1000 feet from the release area. The elevation of the site is approximately 280 feet above mean sea level². The residence at the site is supplied with water by a bedrock well located approximately 60 feet east of the location of the former UST.

The Surficial Geologic Map of Vermont depicts the surrounding area as lake bottom sediments, specifically silt, silty clay, and/or clay.³ Actual subsurface materials encountered during drilling were consistent with this description. The Centennial Geologic Map of Vermont depicts bedrock beneath the site as part of the Hortonville formation, consisting primarily of black carbonaceous and pyritic slate and phyllite.⁴ Bedrock was not encountered during excavation or drilling activities at the site.

IV. SUBSURFACE INVESTIGATION

On March 16, 1999, five (5) soil borings were advanced into the subsurface at the site by Adams Engineering, Inc., of Underhill, Vermont, using a truck-mounted, vibratory-driven sampling device. Monitoring wells were installed in four of the five borings. The monitoring wells, designated MW-1 through MW-4, were installed to help define the degree and extent of petroleum contamination in the vicinity of the former diesel fuel/#2 fuel UST.

The borings for MW-1 and MW-2 were advanced approximately 20' and 5' west of the former UST excavation, respectively, in a direction assumed downgradient of the former UST excavation. The boring for MW-3 was advanced approximately 5' north of the former UST excavation, and the boring for MW-4 was advanced east of the former UST location upgradient (assumed) of the release area. One soil boring, designated SB-5, was advanced directly through the former UST pit. The locations of these borings and the former location of the UST are shown on the Site Map in Appendix A.

Soil samples were collected continuously from each boring using a 2.5" inside diameter (ID), five-foot long, vibratory-driven sampler. The sampler was decontaminated in the field with a solution of Alconox (a detergent) and water between boreholes to prevent potential cross-contamination. Soil samples were screened for TOV using an H-Nu Model HW-101 PID equipped with a 10.2 eV bulb. In addition, soil characteristics were recorded in boring logs by the Griffin drilling supervisor.

All of the monitoring wells are constructed of newly threaded, flush-joint, schedule 40, 1.5" ID, polyvinyl chloride (PVC) riser attached to a 0.010-slot, 1.5" ID PVC screen.

The screen is attached to the riser by a watertight, threaded, flush-joint coupling. The riser extends to approximately 3' above grade and is capped with a lockable expansion plug. The screened interval in wells MW-1 and MW-2 is from 5' to 20' below grade, and MW-3 and MW-4 are screened from 5' to 15' below grade. A silica sand pack was placed around the screened portion of each well and a bentonite seal was placed in the annulus immediately above the sand pack. Please refer to the Well Logs in Appendix B for details on the construction of each well.

Samples collected from the borings generally consisted of olive gray and dark gray, dense clay. In borings MW-3 and MW-4, gravelly lenses were observed in the interval from 6' to 7' and 12' to 12.5' below grade. Bedrock refusal was not encountered in any of the borings. Groundwater was not present in any of the borings on the day they were advanced.

Soil samples collected from borings MW-1, MW-2, and MW-4 contained no visual or olfactory evidence of petroleum contamination, and TOV was not detected with the pid. In boring MW-3, a maximum TOV concentration of 150 ppm was observed in the gravelly lens at 6' to 6.5' below grade. In boring SB-5, a maximum TOV concentration of 140 ppm was recorded from soils at a depth of 4' below grade. TOV concentrations in this boring, which was advanced directly through the former UST excavation, decreased with depth. At 6' below grade a TOV concentration of 58 ppm was recorded with the PID. By 7' below grade, concentrations has dropped to 40 ppm, and no TOV was detected with the PID at 10' below grade.

LNAPL was not detected in any of the soil borings or during the installation of monitoring wells on March 16.

V. SOIL SAMPLE COLLECTION AND ANALYSIS

During the advancement of the borings on March 16, 1999, one soil sample was collected from each borehole and submitted to Endyne, Inc. (Endyne), of Williston, Vermont, to be analyzed for the presence of volatile organic compounds (VOCs) by EPA Method 8021B and for diesel-range total petroleum hydrocarbons (TPH) by EPA Method 8015 DRO. In borings MW-1 through MW-4, one soil sample was collected from the bottom of each borehole at approximately 20' below grade. One sample was collected from boring SB-5 at approximately 10' below grade, about 1' below the vertical extent of petroleum contamination as delineated by PID screening. Soil samples were collected from borings MW-1 through MW-4 due to uncertainty whether water would develop in the wells.

TPH and VOCs were not detected in any of the submitted samples in concentrations above laboratory detection limits. The Endyne laboratory report detailing the results of the aforementioned soil sampling is included in Appendix E. All samples were collected in accordance with Griffin protocols which comply with applicable state and industry standards.

VI. SUPPLY WELL SAMPLE COLLECTION AND ANALYSIS

On March 16, 1999, one water sample was collected from the supply well located approximately 60' east of the former location of the UST at the site. The sample was submitted to Endyne to be analyzed for the presence of VOCs by EPA Method 524.2. VOCs were not detected in the sample above method detection limits, Vermont Groundwater Enforcement Standards (VGES), or Vermont Preventative Action Levels (PALs). Supply well sample collection and analysis were performed in accordance with Griffin protocols which comply with state and industry standards.

VII. WATER LEVELS AND WATER QUALITY

A. Water Table Elevations

Water table elevation measurements were collected from MW-1 through MW-4 on March 30, 1999. In addition, the monitoring wells were surveyed in azimuth and elevation relative to the top of the PVC riser pipe of MW-4, which has been assigned an arbitrary elevation of 100.00 feet. Liquid level monitoring data are presented in Appendix C.

Water table elevations have been plotted to illustrate the estimated gradient and direction of groundwater flow beneath the site (see Groundwater Elevation Map, Appendix A). According to these data, groundwater is estimated to be flowing to the west-northwest beneath the site at a hydraulic gradient of 20%.

The west-northwesterly flow of groundwater beneath the site corresponds with the topography of the site. MW-4 is upgradient of the former UST pit, MW-2 and MW-3 are located downgradient of the former UST pit, and MW-1 is located crossgradient from the former UST pit. The placement of the monitoring wells at the site adequately defines the areal and vertical extent of dissolved petroleum contamination released from the former 1000 gallon diesel/#2 fuel oil UST removed on February 3, 1999.

B. Water Quality

Griffin collected groundwater samples at the site from each of the monitoring wells on March 30, 1999. The groundwater samples were analyzed for the presence of VOCs by EPA Method 8021B and diesel-range total petroleum hydrocarbons (TPH) by EPA Method 8015B. The analytical results have been plotted to show the distribution of dissolved petroleum compounds in groundwater at the site (see Contaminant Concentration Map, Appendix A).

Benzene, toluene, ethylbenzene, and xylenes (BTEX), methyl tert-butyl ether (MTBE), naphthalene, 1,3,5 trimethyl benzene, 1,2,4 trimethyl benzene, and TPH were not detected in quantities above method detection limits or VGES in the samples collected from MW-1 through MW-4. A groundwater quality summary for this sampling event is

presented in Appendix D. The Endyne laboratory report detailing the results of groundwater monitoring is also included in Appendix E.

The trip blank and duplicate sample analytical results indicate that proper quality assurance and quality control were maintained during the sampling and analysis. All samples were collected in accordance with Griffin protocols which comply with applicable state and industry standards.

VIII. RECEPTOR RISK ASSESSMENT

A receptor risk assessment was conducted to identify known and potential receptors of the petroleum contamination detected at the site. A visual survey was performed at the time of UST removal and again on the day of monitoring well installation. A determination of the potential risk to identified receptors was conducted based on proximity to the source area, strength of the source area, groundwater flow direction and gradient, subsurface geologic conditions, and contaminant concentration levels.

Water Supplies

Based on visual observation and discussions with the current resident at the site, the supply well east of the former location of the UST is the only well present at the property and services the residence at the site. A sample was collected from this well on March 16, 1999, and submitted to Endyne for analysis by EPA Method 524.2. VOCs were not detected in the supply well at this time above method detection limits or applicable enforcement standards. Due to the upgradient location of this well relative to shallow groundwater flow direction and the lack of detectable concentrations of VOCs in the sample collected from the well on March 16, the supply well does not appear to be at significant risk at this time from the contamination present in the former UST grave. However, due to the proximity of the well, risk of impact cannot be ruled out.

Overflow from the supply well passes through a drain line constructed on one-inch diameter polyethylene pipe. This pipe was observed in the northeast corner of the UST excavation and outfalls approximately 75' west of the former tank location (see Site Map, Appendix A). During UST removal activities on February 3, 1999, soils in the vicinity of this outfall were screened with a PID to determine if the overflow line was acting as a preferential pathway for the downgradient transport of LNAPL or dissolved petroleum compounds from the tank pit. No TOV were detected with the PID at this time. The overflow pipe does not appear to aid contaminant migration from the former UST excavation at this time.

Surface Water

The closest surface water to the source area is a small pond approximately 250' north of the source area. Additionally, Sawmill Brook is located approximately 1000' northwest of the UST grave. Given the distance from the source area and the low-permeability of

the overburden formation (clay), neither the pond nor Sawmill Brook are likely at risk of impact from the petroleum contamination present at the site at this time.

Buildings in the Vicinity

The residence and associated basement are located approximately 50' northeast and upgradient of the former location of the UST at the site. The shed located south of the former UST location has no basement for the accumulation of petroleum vapors. Neither structure appears to be at risk from the contamination present in the subsurface at the site.

IX. CONCLUSIONS

Based on the investigation at this site, Griffin has reached the following conclusions:

1. There has been a release of petroleum at this site. The duration and quantity of the release are unknown.
2. Subsurface materials intersected by the five (5) soil borings advanced at the site are clay with minor gravel lenses present.
3. The water table elevation beneath the site, as measured using the interface probe, ranged from approximately 1.23' to 9.99' below grade on March 30, 1999. Based on the water table elevation data collected at that time, groundwater beneath the site is flowing west-northwest at a hydraulic gradient of approximately 20%.
4. Dissolved VOCs were not detected in concentrations above laboratory detection limits or applicable health or enforcement standards in the sample collected from the supply well at the site on March 16, 1999.
5. Dissolved VOCs were not detected in concentrations above laboratory detection limits or VGES in groundwater samples collected from each of the monitoring wells at the site on March 30, 1999.
6. Soil samples collected from MW-1 through MW-4 on March 16, 1999 and submitted for laboratory analysis did not exhibit concentrations of petroleum compounds above laboratory detection limits, indicating the depth of contamination is limited.
7. PID screening of soils from boring SB-5 indicated decreasing TOV concentrations with depth in the former UST excavation. No TOV were detected at a depth of 10' below grade in this boring. One sample was collected from soil at this depth and submitted for laboratory analysis. VOCs and TPH were not detected in the submitted sample above laboratory detection limits.
8. The overflow pipe from the supply well, which passes through the northeast corner of the former UST excavation, does not appear to provide a preferential pathway for the downgradient migration of LNAPL or dissolved petroleum constituents at this time.
9. The risk assessment for this site has determined that there is likely negligible risk to on-site structures and surface waters.
10. The supply well at the site is at low to moderate risk due to its proximity to the former location of the UST.

X. RECOMMENDATIONS

Based on the above conclusions, Griffin recommends the following:

1. Because of the low to moderate risk posed to the supply well at the site, contaminated soils present in the former UST grave should be excavated and removed from the site for proper disposal. Soil and groundwater samples indicate the limits of contamination are confined to the former UST excavation at this time, however, the presence of free product in the excavation during the UST removal warrants the removal of these soils. Removal of petroleum contaminated soil will significantly reduce or eliminate the potential for contaminant migration beyond the UST pit in the future. Please refer to the *Work Plan and Cost Estimate for the Removal of Contaminated Soils* included in Attachment I of this report for a task summary and cost estimate for this recommended work.

REFERENCES

1. Reed, Laurie, Griffin International, Inc., February 9, 1999, *UST Closure Report, Why-Not-Farm #2*.
2. USGS Topographical Map, Sudbury Quadrangle, Vermont, 1946.
3. Doll, Charles G., ed., 1970, *Surficial Geologic Map of Vermont*, State of Vermont.
4. Doll, Charles G., ed., 1961, *Centennial Geologic Map of Vermont*, State of Vermont.

APPENDICES

APPENDIX A

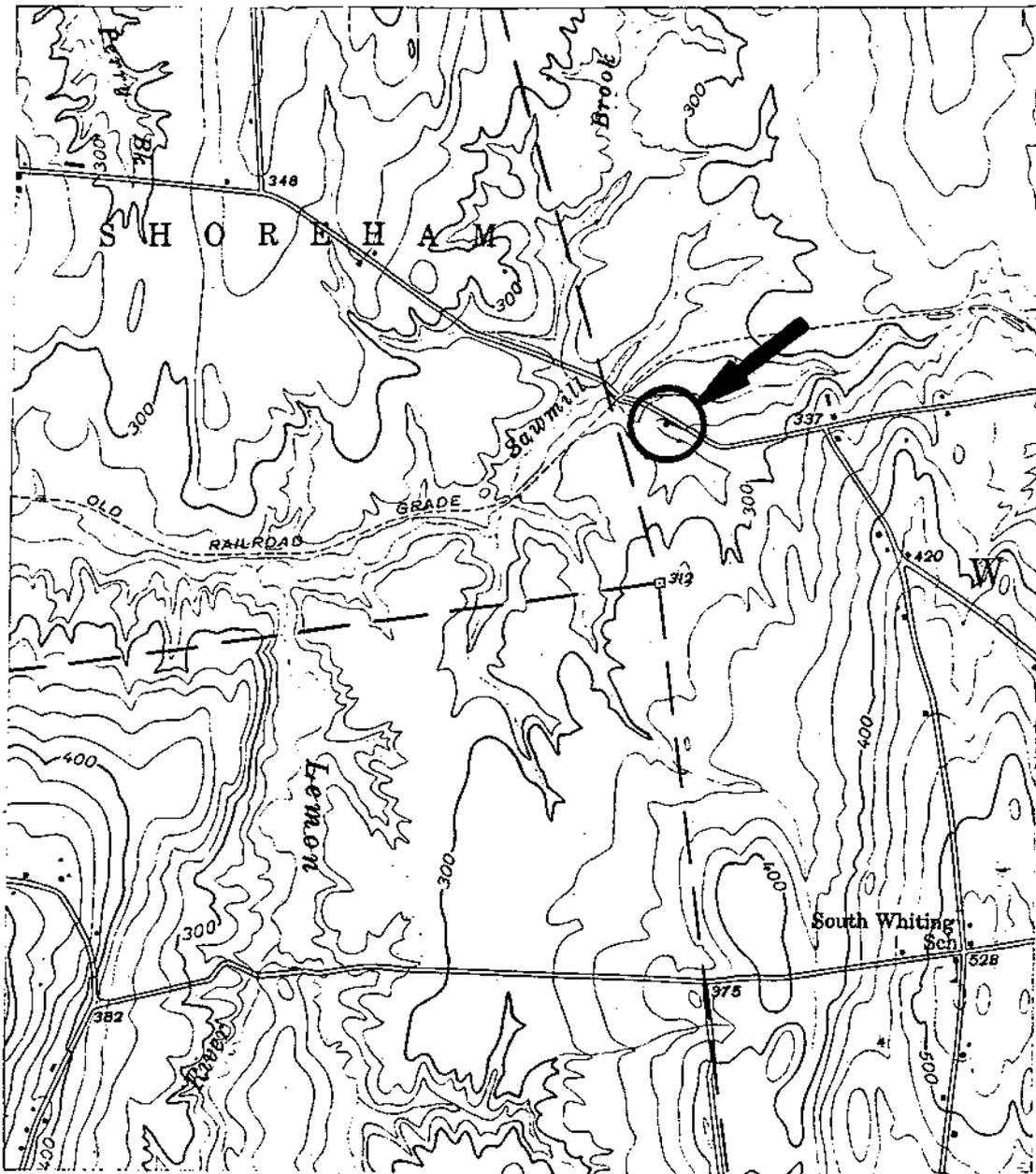
Maps

Site Location Map

Site Map

Groundwater Contour Map

Contaminant Concentration Map



SOURCE: USGS- SUDBURY, VERMONT QUADRANGLE



JOB #:29941473

WHY NOT FARM #2

WHITING, VERMONT

SITE LOCATION MAP

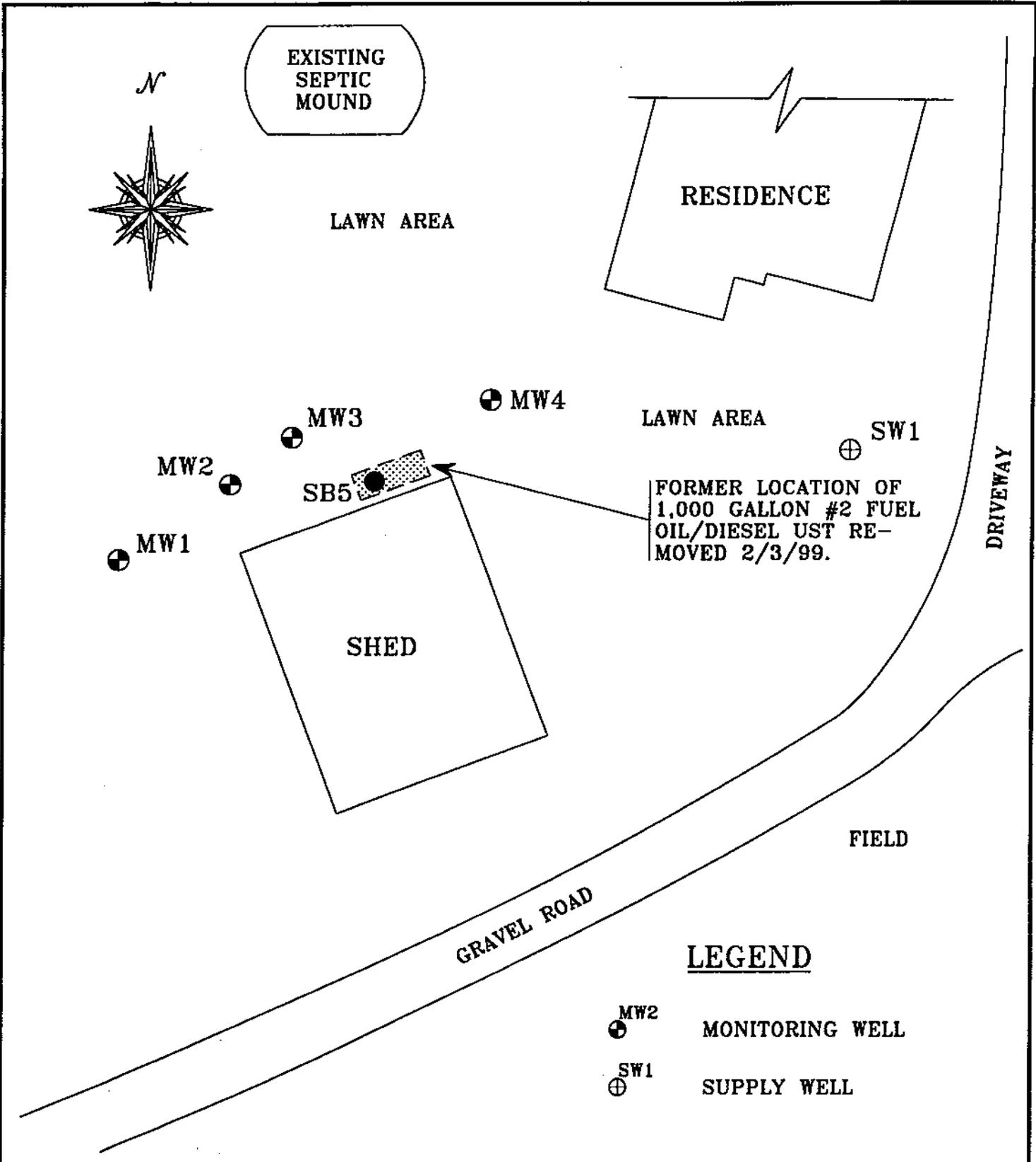
DATE: 4/20/99

DWG.#:1

SCALE: 1:24000

DRN.:SB

APP.:WD



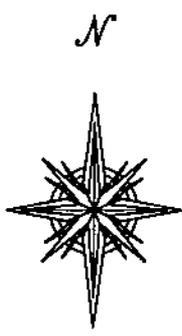
JOB #: 29941473

WHY NOT FARM #2

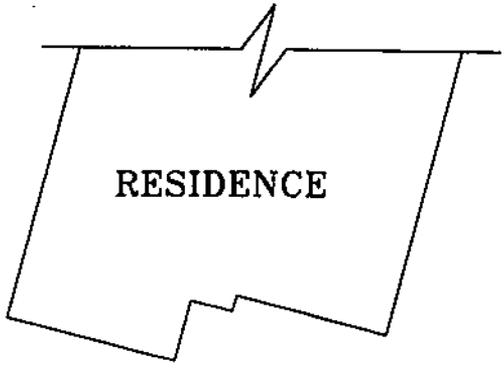
WHITING, VERMONT

SITE MAP

DATE: 4/20/99	DWG.#:2	SCALE: 1"=20'	DRN.:SB	APP.:WD
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EXISTING SEPTIC MOUND



LAWN AREA

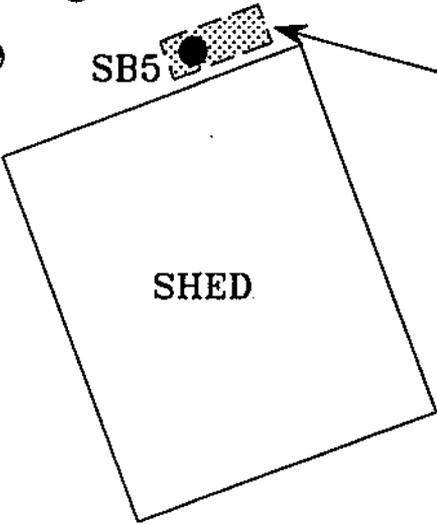
RESIDENCE

APPROX. DIRECTION OF GROUNDWATER FLOW

MW2 84.12'
MW3 87.48'
MW4 96.15'
MW1 86.08'

LAWN AREA

SW1



FORMER LOCATION OF 1,000 GALLON #2 FUEL OIL/DIESEL UST REMOVED 2/3/99.

SB5

SHED

DRIVEWAY

FIELD

GRAVEL ROAD

LEGEND

- MW2 84.12' MONITORING WELL AND GROUND-WATER ELEVATION IN FEET
- SW1 SUPPLY WELL



JOB #: 29941473

WHY NOT FARM #2

WHITING, VERMONT

GROUNDWATER ELEVATION MAP
MEASUREMENT DATE: 3/30/99

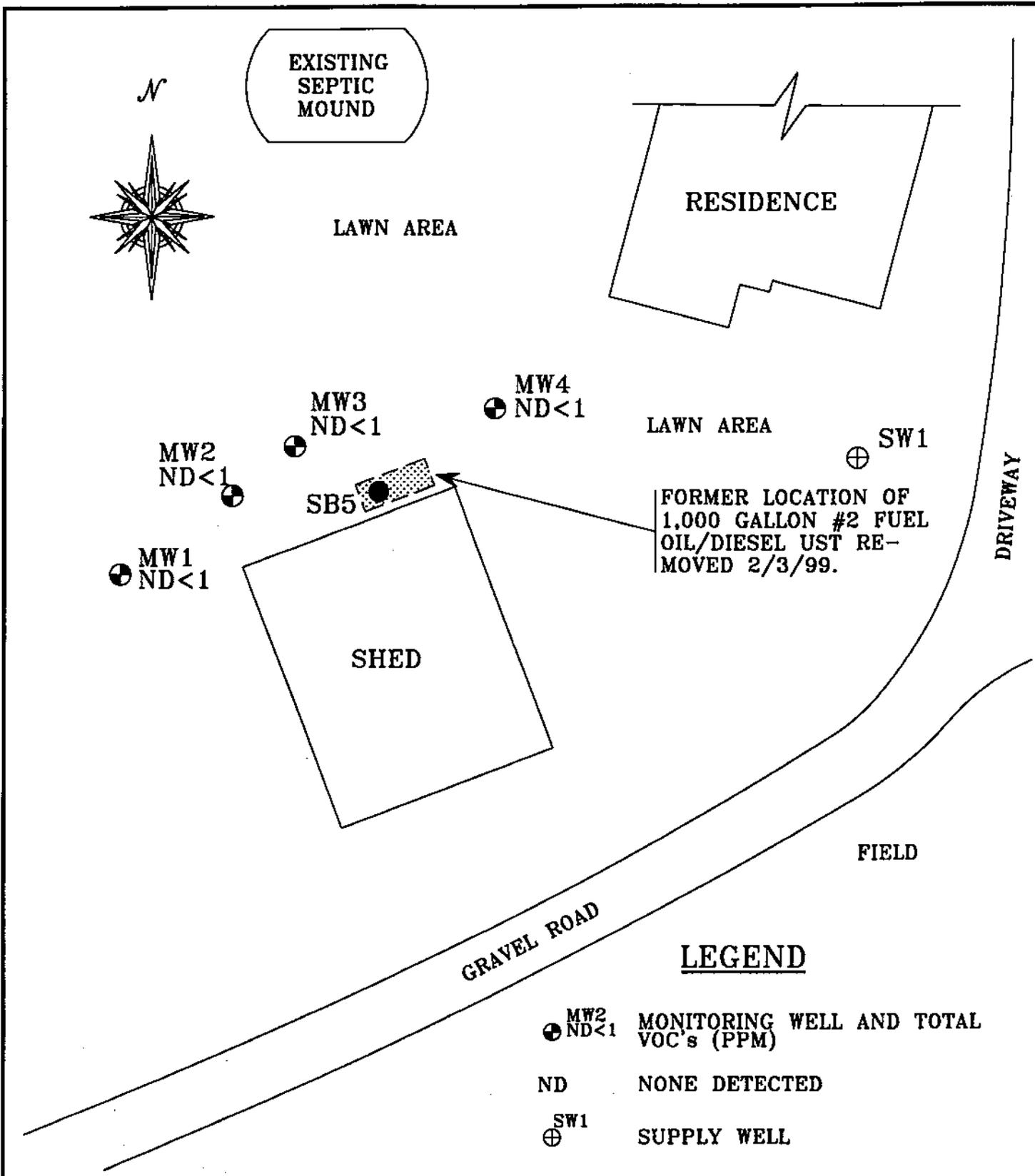
DATE: 4/20/99

DWG.#:3

SCALE: 1"=20'

DRN.:SB

APP.:WD



LEGEND

- _{ND<1} MW2 MONITORING WELL AND TOTAL VOC's (PPM)
- ND NONE DETECTED
- ⊕_{SW1} SUPPLY WELL

JOB #: 29841473

GRIFFIN
INTERNATIONAL^{INC}

WHY NOT FARM #2

WHITING, VERMONT

CONTAMINANT CONCENTRATION MAP
SAMPLE DATE: 3/30/99

DATE: 4/20/99	DWG.#:4	SCALE: 1"=20'	DRN.:SB	APP.:WD
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APPENDIX B

Well Logs

PROJECT WHY NOT FARM #2

LOCATION WHITING, VERMONT

DATE DRILLED 3/16/99 TOTAL DEPTH OF HOLE 20.0'

DIAMETER 2.75"

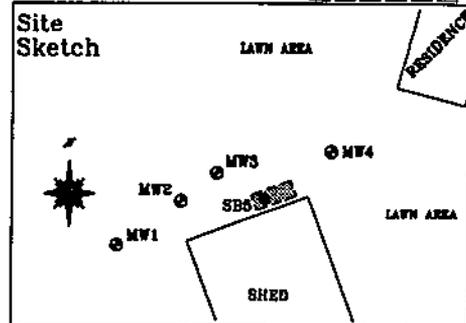
SCREEN DIA. 1.5" LENGTH 15.0' SLOT SIZE 0.010"

CASING DIA. 1.5" LENGTH 18.0' TYPE sch 40 pvc

DRILLING CO. ADAMS ENGR. DRILLING METHOD VIBRATORY

DRILLER GERRY ADAMS LOG BY W. DOE

WELL NUMBER MW1



GRIFFIN INTERNATIONAL, INC

DEPTH IN FEET	WELL CONSTRUCTION	NOTES	BLOWS PER 6" OF SPOON & PID READINGS	DESCRIPTION/SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)	DEPTH IN FEET
3		LOCKING WELL CAP			3
2					2
1					1
0					0
1				FAT CLAY (CH)- 100% clay, moist, olive gray.	1
2	NATIVE BACKFILL		0'-4.3' 0 ppm		2
3	BENTONITE				3
4	WELL RISER				4
5				LEAN CLAY (CL)- 100% clay, moist, olive gray.	5
6					6
7			4.3'-9.2' 0 ppm		7
8					8
9					9
10	SAND PACK			FAT CLAY (CH)- 100% clay, moist, olive gray.	10
11					11
12					12
13					13
14	WELL SCREEN				14
15				FAT CLAY (CH)- 100% clay, moist, olive gray.	15
16					16
17					17
18			15'-20' 0 ppm		18
19	BOTTOM CAP				19
20	UNDISTURBED NATIVE SOIL			BASE OF WELL AT 20' END OF EXPLORATION AT 20'	20
21					21
22					22

PROJECT WHY NOT FARM #2

WELL NUMBER MW2

LOCATION WHITING, VERMONT

DATE DRILLED 3/16/99 TOTAL DEPTH OF HOLE 20.0'

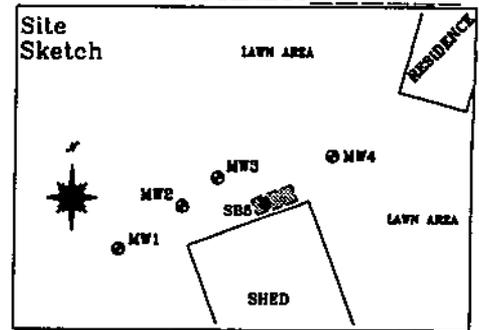
DIAMETER 2.75"

SCREEN DIA. 1.5" LENGTH 15.0' SLOT SIZE 0.010"

CASING DIA. 1.5" LENGTH 18.0' TYPE sch 40 pvc

DRILLING CO. ADAMS ENGR. DRILLING METHOD VIBRATORY

DRILLER GERRY ADAMS LOG BY W. DOE



GRIFFIN INTERNATIONAL, INC

DEPTH IN FEET	WELL CONSTRUCTION	NOTES	BLOWS PER 6" OF SPOON & PID READINGS	DESCRIPTION/SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)	DEPTH IN FEET
3		LOCKING WELL CAP			3
2					2
1					1
0					0
1				FAT CLAY (CH)- 100% clay, moist, olive gray.	1
2		NATIVE BACKFILL	0'-5' 0 ppm		2
3		BENTONITE			3
4		WELL RISER			4
5				FAT CLAY (CH)- 95% clay, 5% gravel, (lens from 7'-7.5' below grade), moist, olive gray.	5
6			5'-10' 0 ppm		6
7					7
8					8
9					9
10		SAND PACK		FAT CLAY (CH)- 100% clay, moist, olive gray.	10
11					11
12			10'-15' 0 ppm		12
13					13
14		WELL SCREEN			14
15				FAT CLAY (CH)- 100% clay, moist, dark gray.	15
16					16
17			15'-20' 0 ppm		17
18					18
19		BOTTOM CAP			19
20		UNDISTURBED NATIVE SOIL		BASE OF WELL AT 20' END OF EXPLORATION AT 20'	20
21					21
22					22

PROJECT WHY NOT FARM #2

LOCATION WHITING, VERMONT

DATE DRILLED 3/16/99 TOTAL DEPTH OF HOLE 20.0'

DIAMETER 2.75"

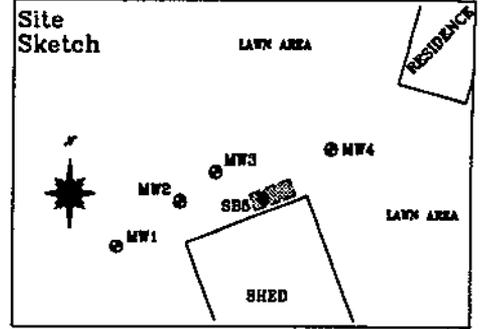
SCREEN DIA. 1.5" LENGTH 10.0' SLOT SIZE 0.010"

CASING DIA. 1.5" LENGTH 18.0' TYPE sch 40 pvc

DRILLING CO. ADAMS ENGR. DRILLING METHOD VIBRATORY

DRILLER GERRY ADAMS LOG BY W. DOE

WELL NUMBER MW3



GRIFFIN INTERNATIONAL, INC

DEPTH IN FEET	WELL CONSTRUCTION	NOTES	BLOWS PER 6" OF SPOON & PID READINGS	DESCRIPTION/SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)	DEPTH IN FEET
3		LOCKING WELL CAP			3
2					2
1					1
0					0
1				FAT TO LEAN CLAY (CH/CL)- 100% clay, moist, light gray.	1
2		NATIVE BACKFILL	0'-5' 15 ppm		2
3		BENTONITE			3
4		WELL RISER			4
5			5'-6.5' 15 ppm	FAT CLAY (CH)- 95% clay, 5% gravel, (lens from 6.5' to 7.0' below grade), moist, olive gray.	5
6			6.5'-7' 150 ppm		6
7		WELL SCREEN			7
8			7'-10' 15 ppm		8
9					9
10		SAND PACK		FAT CLAY (CH)- 95% clay, 5% gravel (lens from 12' to 12.5' below grade), moist, olive gray.	10
11			10'-15' 0 ppm		11
12					12
13					13
14		BOTTOM CAP			14
15			15'-20' 0 ppm	FAT CLAY (CH)- 100% clay, moist, dark gray.	15
16					16
17					17
18					18
19					19
20		UNDISTURBED NATIVE SOIL		BASE OF WELL AT 15' END OF EXPLORATION AT 20'	20
21					21
22					22

PROJECT WHY NOT FARM #2

LOCATION WHITING, VERMONT

DATE DRILLED 3/16/99 TOTAL DEPTH OF HOLE 20.0'

DIAMETER 2.75"

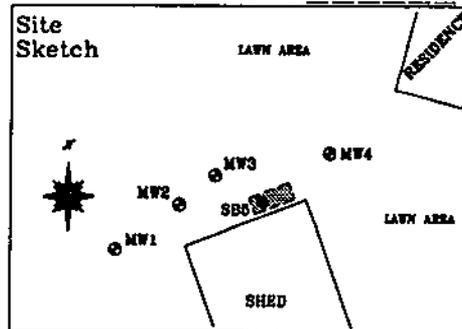
SCREEN DIA. 1.5" LENGTH 10.0' SLOT SIZE 0.010"

CASING DIA. 1.5" LENGTH 18.0' TYPE sch 40 pvc

DRILLING CO. ADAMS ENGR. DRILLING METHOD VIBRATORY

DRILLER GERRY ADAMS LOG BY W. DOE

WELL NUMBER MW4



GRIFFIN INTERNATIONAL, INC

DEPTH IN FEET	WELL CONSTRUCTION	NOTES	BLOWS PER 6" OF SPOON & PID READINGS	DESCRIPTION/SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)	DEPTH IN FEET
3		LOCKING WELL CAP			3
2					2
1					1
0					0
1				FAT TO LEAN CLAY (CH/CL)- 100% clay, moist, olive gray.	1
2	NATIVE BACKFILL		0'-5' 0 ppm		2
3	BENTONITE				3
4	WELL RISER				4
5				FAT CLAY (CH)- 95% clay, 5% gravel (lens from 8.5' to 7.0' below grade), moist, olive gray.	5
6			5'-10' 0 ppm		6
7					7
8	SAND PACK				8
9					9
10				FAT CLAY (CH)- 95% clay, 5% gravel (lens from 12' to 12.5' below grade), moist, olive/dark gray.	10
11	WELL SCREEN		10'-15' 0 ppm		11
12					12
13					13
14	BOTTOM CAP				14
15			15'-20' 0 ppm	FAT CLAY (CH)- 100% clay, moist, dark gray.	15
16					16
17					17
18					18
19					19
20				BASE OF WELL AT 15' END OF EXPLORATION AT 20'	20
21	UNDISTURBED NATIVE SOIL				21
22					22

PROJECT WHY NOT FARM #2

LOCATION WHITING, VERMONT

DATE DRILLED 3/16/99 TOTAL DEPTH OF HOLE 20.0'

DIAMETER 2.75"

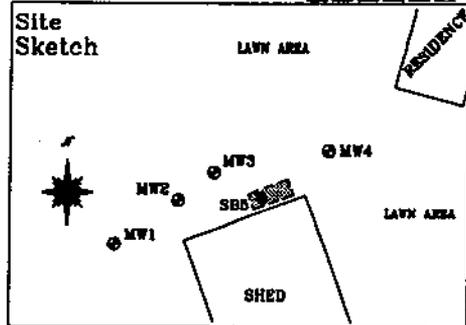
SCREEN DIA. NA LENGTH NA SLOT SIZE NA

CASING DIA. NA LENGTH NA TYPE NA

DRILLING CO. ADAMS ENGR. DRILLING METHOD VIBRATORY

DRILLER GERRY ADAMS LOG BY W. DOE

WELL NUMBER SB5



GRIFFIN INTERNATIONAL, INC

DEPTH IN FEET	WELL CONSTRUCTION	NOTES	BLOWS PER 6" OF SPOON & PID READINGS	DESCRIPTION/SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)	DEPTH IN FEET	
0	[Hatched area representing well construction]	NATIVE BACKFILL	0'-5' 140 PPM	FAT CLAY (CH)- 95% clay, 5% SAND, moist, light gray.	0	
1					1	
2					2	
3					3	
4					4	
5				6' 58 ppm	FAT TO LEAN CLAY (CH/CL)- 100% clay, moist, yellow/orange.	5
6					6	
7				7' 40 ppm		7
8						8
9						9
10		9.5'-10' 0 ppm	FAT CLAY (CH)- 100% clay, moist, olive gray.	10		
11			11			
12			12			
13		10'-15' 0 ppm		13		
14			14			
15			15			
16		15'-20' 0 ppm	FAT CLAY (CH)- 100% clay, moist, olive gray.	16		
17			17			
18			18			
19				19		
20				20		
21	[Pattern representing casing]	UNDISTURBED NATIVE SOIL		END OF EXPLORATION AT 20'	21	
22					22	

APPENDIX C

Liquid Level Monitoring Data

Liquid Level Monitoring Data
Why-Not-Farm #2, Whiting, VT

3/30/99

Well I.D.	Top of Casing Elevation	Depth To Product	Depth To Water	Product Thickness	Specific Gravity Of Product	Water Equivalent	Corrected Depth To Water	Corrected Water Table Elevation
MW-1	95.83		9.75				9.75	86.08
MW-2	97.14		13.02				13.02	84.12
MW-3	97.44		9.96				9.96	87.48
MW-4	100.00		3.85				3.85	96.15

All Values Reported in Feet

Top-of-Casing Elevations Measured in Feet Relative to MW-4 set at 100.00'

Survey Date: 3/30/99

Surveyed By: Griffin International

APPENDIX D

Groundwater Quality Summary

**Groundwater Quality Summary
Why-Not-Farm #2, Whiting, Vermont**

MW-1

PARAMETER	VGES	Date of Sample Collection		
		3/30/99		
Benzene	5 ppb	<1		
Toluene	1000 ppb	<1		
Ethylbenzene	700 ppb	<1		
Xylenes	10,000 ppb	<1		
1,3,5 Trimethyl Benzene	4 ppb	<1		
1,2,4 Trimethyl Benzene	5 ppb	<1		
Napthalene	20 ppb	<1		
Total BTEX	no standard	<1		
MTBE	40 ppb	<10		
BTEX + MTBE	no standard	<10		
TPH	no standard	< 0.4		

MW-2

PARAMETER	VGES	Date of Sample Collection		
		3/30/99		
Benzene	5 ppb	<1		
Toluene	1000 ppb	<1		
Ethylbenzene	700 ppb	<1		
Xylenes	10,000 ppb	<1		
1,3,5 Trimethyl Benzene	4 ppb	<1		
1,2,4 Trimethyl Benzene	5 ppb	<1		
Napthalene	20 ppb	<1		
Total BTEX	no standard	<1		
MTBE	40 ppb	<10		
BTEX + MTBE	no standard	<10		
TPH	no standard	< 0.4		

MW-3

PARAMETER	VGES	Date of Sample Collection		
		3/30/99		
Benzene	5 ppb	<1		
Toluene	1000 ppb	<1		
Ethylbenzene	700 ppb	TBQ <1		
Xylenes	10,000 ppb	<1		
1,3,5 Trimethyl Benzene	4 ppb	<1		
1,2,4 Trimethyl Benzene	5 ppb	<1		
Napthalene	20 ppb	<1		
Total BTEX	no standard	<1		
MTBE	40 ppb	<10		
BTEX + MTBE	no standard	<10		
TPH	no standard	< 0.4		

MW-4

PARAMETER	VGES	Date of Sample Collection		
		3/30/99		
Benzene	5 ppb	<1		
Toluene	1000 ppb	<1		
Ethylbenzene	700 ppb	<1		
Xylenes	10,000 ppb	<1		
1,3,5 Trimethyl Benzene	4 ppb	<1		
1,2,4 Trimethyl Benzene	5 ppb	<1		
Napthalene	20 ppb	<1		
Total BTEX	no standard	<1		
MTBE	40 ppb	<10		
BTEX + MTBE	no standard	<10		
TPH	no standard	< 0.4		

Analysis for VOCs by EPA 8021B. Analysis for TPH by EPA 8015 DRO.
 All Values Reported in ug/L (ppb), Except TPH. TPH reported in mg/L (ppm)
 ND - None Detected
 TBQ - Trace Below Quatification
 VGES - Vermont Groundwater Enforcement Standard
 > VGES

**Groundwater Quality Summary
Why-Not-Farm #2, Whiting, Vermont**

TRIP BLANK

PARAMETER	VGES	Date of Sample Collection			
		3/30/99			
Benzene	5 ppb	<1			
Toluene	1000 ppb	<1			
Ethylbenzene	700 ppb	<1			
Xylenes	10,000 ppb	<1			
1,3,5 Trimethyl Benzene	4 ppb	<1			
1,2,4 Trimethyl Benzene	5 ppb	<1			
Napthalene	20 ppb	<1			
Total BTEX	no standard	<1			
MTBE	40 ppb	<10			
BTEX + MTBE	no standard	<10			
TPH	no standard	< 0.4			

DUPLICATE

PARAMETER	WELL ID	VGES	Date of Sample Collection			
			MW-3			
			3/30/99			
Benzene		5 ppb	<1			
Toluene		1000 ppb	<1			
Ethylbenzene		700 ppb	TBQ <1			
Xylenes		10,000 ppb	<1			
1,3,5 Trimethyl Benzene		4 ppb	<1			
1,2,4 Trimethyl Benzene		5 ppb	<1			
Napthalene		20 ppb	<1			
Total BTEX		no standard	<1			
MTBE		40 ppb	<10			
BTEX + MTBE		no standard	<10			
TPH		no standard	< 0.4			

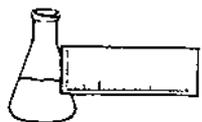
Analysis for VOCs by EPA 8021B. Analysis for TPH by EPA 8015 DRO.
 All Values Reported in ug/L (ppb), Except TPH. TPH reported in mg/L (ppm)
 NAC - Sample not analyzed for constituent
 ND - None Detected
 TBQ - Trace Below Quantification
 VGES - Vermont Groundwater Enforcement Standard

>VGES

APPENDIX E

Laboratory Report

Supply Well Sample
Soil Samples
Groundwater Samples



ENDYNE, INC.

Laboratory Services

32 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

LABORATORY REPORT

CLIENT: Griffin International
PROJECT: Whynot Farm
REPORT DATE: April 2, 1999

ORDER ID: 1630
DATE RECEIVED: March 17, 1999

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody. Different groups of analyses may be reported under separate cover.

All samples were prepared and analyzed by requirements outlined in the referenced methods and within the specified holding times.

All instrumentation was calibrated with the appropriate frequency and verified by the requirements outlined in the referenced methods.

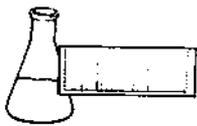
Blank contamination was not observed at levels affecting the analytical results.

Analytical method precision and accuracy was monitored by laboratory control standards which included matrix spike, duplicate and quality control analyses. These standards were determined to be within established laboratory method acceptance limits, unless otherwise noted.

Reviewed by,

Harry B. Locker, Ph.D.
Laboratory Director

enclosures



ENDYNE, INC.

Laboratory Services

32 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

LABORATORY REPORT

CLIENT: Griffin International
PROJECT: Whynot Farm
REPORT DATE: March 25, 1999

ORDER ID: 1630
DATE RECEIVED: March 17, 1999

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody. Different groups of analyses may be reported under separate cover.

All samples were prepared and analyzed by requirements outlined in the referenced methods and within the specified holding times.

All instrumentation was calibrated with the appropriate frequency and verified by the requirements outlined in the referenced methods.

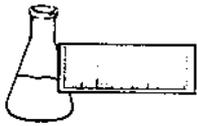
Blank contamination was not observed at levels affecting the analytical results.

Analytical method precision and accuracy was monitored by laboratory control standards which included matrix spike, duplicate and quality control analyses. These standards were determined to be within established laboratory method acceptance limits, unless otherwise noted.

Reviewed by,

Harry B. Locker, Ph.D.
Laboratory Director

enclosures



32 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

LABORATORY REPORT

EPA 524.2

CLIENT: Griffin International
PROJECT: Whynot Farm
SITE: Supply Well
DATE RECEIVED: March 17, 1999
REPORT DATE: March 25, 1999
ANALYSIS DATE: March 24, 1999

ORDER ID: 1630
REFERENCE NUMBER: 135621
DATE SAMPLED: March 16, 1999
TIME SAMPLED: 6:30 PM
SAMPLER: WJD
ANALYST: 725

Parameter	Result ug/L	Parameter	Result ug/L
Benzene	< 0.5	Hexachlorobutadiene	< 0.5
Bromobenzene	< 0.5	Isopropylbenzene	< 0.5
Bromochloromethane	< 0.5	4-Isopropyltoluene	< 0.5
Bromomethane	< 0.5	MTBE	< 1.0
n-Butylbenzene	< 0.5	Naphthalene	< 1.0
sec-Butylbenzene	< 0.5	n-Propylbenzene	< 0.5
tert-Butylbenzene	< 0.5	Styrene	< 0.5
Carbon tetrachloride	< 0.5	1,1,1,2-Tetrachloroethane	< 0.5
Chlorobenzene	< 0.5	1,1,2,2-Tetrachloroethane	< 1.0
Chloroethane	< 0.5	Tetrachloroethene	< 0.5
Chloromethane	< 0.5	Toluene	< 0.5
2-Chlorotoluene	< 0.5	1,2,3-Trichlorobenzene	< 0.5
4-Chlorotoluene	< 0.5	1,2,4-Trichlorobenzene	< 0.5
Dibromomethane	< 1.0	1,1,1-Trichloroethane	< 0.5
1,2-Dichlorobenzene	< 0.5	1,1,2-Trichloroethane	< 0.5
1,3-Dichlorobenzene	< 0.5	Trichloroethene	< 0.5
1,4-Dichlorobenzene	< 0.5	Trichlorofluoromethane	< 1.0
Dichlorodifluoromethane	< 0.5	1,2,3-Trichloropropane	< 0.5
1,1-Dichloroethane	< 0.5	1,2,4-Trimethylbenzene	< 0.5
1,2-Dichloroethane	< 0.5	1,3,5-Trimethylbenzene	< 0.5
1,1-Dichloroethene	< 0.5	Vinyl Chloride	< 0.5
cis-1,2-Dichloroethene	< 0.5	Xylenes, Total	< 1.0
trans-1,2-Dichloroethene	< 0.5	Bromodichloromethane	< 0.5
Dichloromethane	< 1.0	Bromoform	< 0.5
1,2-Dichloropropane	< 0.5	Chloroform	< 0.5
1,3-Dichloropropane	< 0.5	Dibromochloromethane	< 0.5
2,2-Dichloropropane	< 0.5	Total Trihalomethanes	< 0.5
1,1-Dichloropropene	< 0.5	Surrogate 1	97.0%
cis-1,3-Dichloropropene	< 0.5	Surrogate 2	108.0%
trans-1,3-Dichloropropene	< 0.5	UIP's	0.
Ethylbenzene	< 0.5		

CHAIN-OF-CUSTODY RECORD

29946

29941473

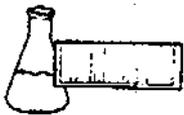
Project Name: WHYNOT FARM Site Location: WHITING VT	Reporting Address: GRIFFIN	Billing Address: GRIFFIN
Endyne Project Number: 1630	Company: GRIFFIN Contact Name/Phone #: WILLIS DOE EUF 4280	Sampler Name: WJD Phone #: 865 4288

Lab #	Sample Location	Matrix	G R A B	C O M P	Date/Time	Sample Containers		Field Results/Remarks	Analysis Required	Sample Preservation	Rush
						No.	Type/Size				
135621	SUPPLY WELL	GW	✓		3-16-99 18:30	3	VOA	RUSH SAMPLE/PCF IBB	524.2	HU/ICE	✓
135622	MW-1	SOIL	↓		10:14	2	203 SOIL		2021 B TPH DRO	ICE	
135623	MW-2	↓	↓		11:55	↓			↓	↓	
135624	MW-3	↓	↓		14:30	↓			↓	↓	
135625	MW-4	↓	↓		16:35	↓			↓	↓	
135626	SB-5	↓	↓		18:12	↓			↓	↓	

Relinquished by: Signature <i>Willis Doe</i>	Received by: Signature <i>Tina Desrochers</i>	Date/Time 2-17-99 09:00
Relinquished by: Signature <i>Tina Desrochers</i>	Received by: Signature <i>Alison Howeci</i>	Date/Time 3-17-99 10:20am

 New York State Project: Yes No Requested Analyses

1	pH	6	TKN	11	Total Solids	16	Metals (Specify)	21	EPA 624	26	EPA 8270 B/N or Acid
2	Chloride	7	Total P	12	TSS	17	Coliform (Specify)	22	EPA 625 B/N or A	27	EPA 8010/8020
3	Ammonia N	8	Total Diss. P	13	TDS	18	COD	23	EPA 418.1	28	EPA 8080 Pest/PCB
4	Nitrite N	9	BOD ₅	14	Turbidity	19	BTEX	24	EPA 608 Pest/PCB		
5	Nitrate N	10	Alkalinity	15	Conductivity	20	EPA 601/602	25	EPA 8240		
29	TCLP (Specify: volatiles, semi-volatiles, metals, pesticides, herbicides)										
30	Other (Specify):										



ENDYNE, INC.

Laboratory Services

32 James Brown Drive
 Williston, Vermont 05495
 (802) 879-4333
 FAX 879-7103

LABORATORY REPORT

CLIENT: Griffin International
 PROJECT: Whynot Farm
 REPORT DATE: April 2, 1999

ORDER ID: 1630
 DATE RECEIVED: March 17, 1999
 SAMPLER: WJD
 ANALYST: 820

Ref. Number: 135622 Site: MW #1 Date Sampled: March 16, 1999 Time: 10:10 AM

<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>	<u>Analysis Date</u>
TPH 8015 DRO	< 5.0	mg/Kg	SW 8015B	4/1/99

Ref. Number: 135623 Site: MW #2 Date Sampled: March 16, 1999 Time: 11:55 AM

<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>	<u>Analysis Date</u>
TPH 8015 DRO	< 5.0	mg/Kg	SW 8015B	4/1/99

Ref. Number: 135624 Site: MW #3 Date Sampled: March 16, 1999 Time: 2:30 PM

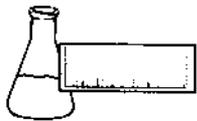
<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>	<u>Analysis Date</u>
TPH 8015 DRO	< 5.0	mg/Kg	SW 8015B	4/2/99

Ref. Number: 135625 Site: MW #4 Date Sampled: March 16, 1999 Time: 4:35 PM

<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>	<u>Analysis Date</u>
TPH 8015 DRO	< 5.0	mg/Kg	SW 8015B	4/2/99

Ref. Number: 135626 Site: SB 5 Date Sampled: March 16, 1999 Time: 6:12 PM

<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>	<u>Analysis Date</u>
TPH 8015 DRO	< 5.0	mg/Kg	SW 8015B	4/2/99



LABORATORY REPORT

CLIENT: Griffin International
PROJECT: Whynot Farm
REPORT DATE: April 2, 1999

ORDER ID: 1630
DATE RECEIVED: March 17, 1999
SAMPLER: WJD
ANALYST: 820

Ref. Number: 135622 Site: MW #1 Date Sampled: March 16, 1999 Time: 10:10 AM

<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>	<u>Analysis Date</u>
TPH 8015 DRO	< 5.0	mg/Kg	SW 8015B	4/1/99

Ref. Number: 135623 Site: MW #2 Date Sampled: March 16, 1999 Time: 11:55 AM

<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>	<u>Analysis Date</u>
TPH 8015 DRO	< 5.0	mg/Kg	SW 8015B	4/1/99

Ref. Number: 135624 Site: MW #3 Date Sampled: March 16, 1999 Time: 2:30 PM

<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>	<u>Analysis Date</u>
TPH 8015 DRO	< 5.0	mg/Kg	SW 8015B	4/2/99

Ref. Number: 135625 Site: MW #4 Date Sampled: March 16, 1999 Time: 4:35 PM

<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>	<u>Analysis Date</u>
TPH 8015 DRO	< 5.0	mg/Kg	SW 8015B	4/2/99

Ref. Number: 135626 Site: SB 5 Date Sampled: March 16, 1999 Time: 6:12 PM

<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>	<u>Analysis Date</u>
TPH 8015 DRO	< 5.0	mg/Kg	SW 8015B	4/2/99

29941473

CHAIN-OF-CUSTODY RECORD

29946

Project Name: **WHYNOT FARM**
Site Location: **WHITING VT**

Reporting Address:
GRIFFIN

Billing Address:
GRIFFIN

Endyne Project Number:
1630

Company: **GRIFFIN**
Contact Name/Phone #: **WILLIS DOE 865 4280**

Sampler Name: **WJD**
Phone #: **865 4288**

3019

Lab #	Sample Location	Matrix	G R A B	C O M P	Date/Time	Sample Containers		Field Results/Remarks	Analysis Required	Sample Preservation	Rush
						No.	Type/Size				
135621	SUPPLY WELL	GW	✓		3-16-99						
135622	MW-1	SOIL			1830	3	VOA	RUSH SAMPLE/PCF JOB	624.2	HU/ICE	✓
135623	MW-2				1010	2	4oz soil		8021 B	ICE	
135624	MW-3				1155				TPH DBO		
135625	MW-4				1430						
135626	SB-5				1635						
					1812						

Relinquished by: Signature *Willis Doe*

Received by: Signature *Tina Desrosiers*

Relinquished by: Signature *Just Desrosiers*

Received by: Signature *Alicia Houcei*

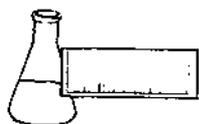
Date/Time **3-17-99 0800**

New York State Project: Yes No

Date/Time **3-17-99 10:20am**

Requested Analyses

1	pH	6	TKN	11	Total Solids	16	Metals (Specify)	21	EPA 624	26	EPA 8270 B/N or Acid
2	Chloride	7	Total P	12	TSS	17	Coliform (Specify)	22	EPA 625 B/N or A	27	EPA 8010/8020
3	Ammonia N	8	Total Diss. P	13	TDS	18	COD	23	EPA 418.1	28	EPA 8080 Pest/PCB
4	Nitrite N	9	BOD ₅	14	Turbidity	19	BTEX	24	EPA 608 Pest/PCB		
5	Nitrate N	10	Alkalinity	15	Conductivity	20	EPA 601/602	25	EPA 8240		
29	TCLP (Specify: volatiles, semi-volatiles, metals, pesticides, herbicides)										
30	Other (Specify):										



ENDYNE, INC.

Laboratory Services

32 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

LABORATORY REPORT

CLIENT: Griffin International
PROJECT: Whynot Farm
REPORT DATE: March 22, 1999

ORDER ID: 1630
DATE RECEIVED: March 17, 1999

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody. Different groups of analyses may be reported under separate cover.

All samples were prepared and analyzed by requirements outlined in the referenced methods and within the specified holding times.

All instrumentation was calibrated with the appropriate frequency and verified by the requirements outlined in the referenced methods.

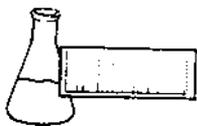
Blank contamination was not observed at levels affecting the analytical results.

Analytical method precision and accuracy was monitored by laboratory control standards which included matrix spike, duplicate and quality control analyses. These standards were determined to be within established laboratory method acceptance limits, unless otherwise noted.

Reviewed by,

Harry B. Locker, Ph.D.
Laboratory Director

enclosures

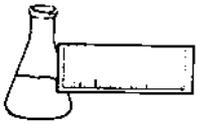
**LABORATORY REPORT**CLIENT: Griffin International
PROJECT: Whynot Farm
REPORT DATE: March 22, 1999ORDER ID: 1630
DATE RECEIVED: March 17, 1999
SAMPLER: WJD
ANALYST: 725

Ref. Number: 135622 Site: MW #1 Date Sampled: March 16, 1999 Time: 10:10 AM

<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>	<u>Analysis Date</u>
Naphthalene	< 75.0	ug/kg, dry	SW 8021B	3/19/99
MTBE	< 30.0	ug/kg, dry	SW 8021B	3/19/99
Benzene	< 15.0	ug/kg, dry	SW 8021B	3/19/99
Toluene	< 15.0	ug/kg, dry	SW 8021B	3/19/99
Ethylbenzene	< 15.0	ug/kg, dry	SW 8021B	3/19/99
Xylenes, Total	< 30.0	ug/kg, dry	SW 8021B	3/19/99
1,3,5 Trimethyl Benzene	< 15.0	ug/kg, dry	SW 8021B	3/19/99
1,2,4 Trimethyl Benzene	< 15.0	ug/kg, dry	SW 8021B	3/19/99
UIP's	0.		SW 8021B	3/19/99
Percent Solid	68.	%	SW 8021B	3/19/99
Surrogate 1	97.0%	%	SW 8021B	3/19/99

Ref. Number: 135623 Site: MW #2 Date Sampled: March 16, 1999 Time: 11:55 AM

<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>	<u>Analysis Date</u>
Naphthalene	< 75.0	ug/kg, dry	SW 8021B	3/19/99
MTBE	< 30.0	ug/kg, dry	SW 8021B	3/19/99
Benzene	< 15.0	ug/kg, dry	SW 8021B	3/19/99
Toluene	< 15.0	ug/kg, dry	SW 8021B	3/19/99
Ethylbenzene	< 15.0	ug/kg, dry	SW 8021B	3/19/99
Xylenes, Total	< 30.0	ug/kg, dry	SW 8021B	3/19/99
1,3,5 Trimethyl Benzene	< 15.0	ug/kg, dry	SW 8021B	3/19/99
1,2,4 Trimethyl Benzene	< 15.0	ug/kg, dry	SW 8021B	3/19/99
UIP's	0.		SW 8021B	3/19/99
Percent Solid	71.	%	SW 8021B	3/19/99
Surrogate 1	93.0%	%	SW 8021B	3/19/99



ENDYNE, INC.

Laboratory Services

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Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

Ref. Number: 135624

Site: MW #3

Date Sampled: March 16, 1999

Time: 2:30 PM

<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>	<u>Analysis Date</u>
Naphthalene	< 75.0	ug/kg, dry	SW 8021B	3/19/99
MTBE	< 30.0	ug/kg, dry	SW 8021B	3/19/99
Benzene	< 15.0	ug/kg, dry	SW 8021B	3/19/99
Toluene	< 15.0	ug/kg, dry	SW 8021B	3/19/99
Ethylbenzene	< 15.0	ug/kg, dry	SW 8021B	3/19/99
Xylenes, Total	< 30.0	ug/kg, dry	SW 8021B	3/19/99
1,3,5 Trimethyl Benzene	< 15.0	ug/kg, dry	SW 8021B	3/19/99
1,2,4 Trimethyl Benzene	< 15.0	ug/kg, dry	SW 8021B	3/19/99
UIP's	0.		SW 8021B	3/19/99
Percent Solid	71.	%	SW 8021B	3/19/99
Surrogate 1	91.%	%	SW 8021B	3/19/99

Ref. Number: 135625

Site: MW #4

Date Sampled: March 16, 1999

Time: 4:35 PM

<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>	<u>Analysis Date</u>
Naphthalene	< 75.0	ug/kg, dry	SW 8021B	3/19/99
MTBE	< 30.0	ug/kg, dry	SW 8021B	3/19/99
Benzene	< 15.0	ug/kg, dry	SW 8021B	3/19/99
Toluene	< 15.0	ug/kg, dry	SW 8021B	3/19/99
Ethylbenzene	< 15.0	ug/kg, dry	SW 8021B	3/19/99
Xylenes, Total	< 30.0	ug/kg, dry	SW 8021B	3/19/99
1,3,5 Trimethyl Benzene	< 15.0	ug/kg, dry	SW 8021B	3/19/99
1,2,4 Trimethyl Benzene	< 15.0	ug/kg, dry	SW 8021B	3/19/99
UIP's	0.		SW 8021B	3/19/99
Percent Solid	70.	%	SW 8021B	3/19/99
Surrogate 1	100.%	%	SW 8021B	3/19/99



Ref. Number: 135626

Site: SB 5

Date Sampled: March 16, 1999

Time: 6:12 PM

<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>	<u>Analysis Date</u>
Naphthalene	< 75.0	ug/kg, dry	SW 8021B	3/19/99
MTBE	< 30.0	ug/kg, dry	SW 8021B	3/19/99
Benzene	< 15.0	ug/kg, dry	SW 8021B	3/19/99
Toluene	< 15.0	ug/kg, dry	SW 8021B	3/19/99
Ethylbenzene	< 15.0	ug/kg, dry	SW 8021B	3/19/99
Xylenes, Total	< 30.0	ug/kg, dry	SW 8021B	3/19/99
1,3,5 Trimethyl Benzene	< 15.0	ug/kg, dry	SW 8021B	3/19/99
1,2,4 Trimethyl Benzene	< 15.0	ug/kg, dry	SW 8021B	3/19/99
UIP's	0.		SW 8021B	3/19/99
Percent Solid	70.	%	SW 8021B	3/19/99
Surrogate 1	99.0%	%	SW 8021B	3/19/99

CHAIN-OF-CUSTODY RECORD

3 014

Project Name: WHYNOT FARM Site Location: WHITING VT	Reporting Address: GRIFFIN	Billing Address: GRIFFIN
Endyne Project Number: 1630	Company: GRIFFIN Contact Name/Phone #: WILLIS DICE E65 9280	Sampler Name: WJD Phone #: E65 9283

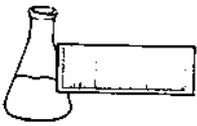
Lab #	Sample Location	Matrix	G R A B	C O M P	Date/Time	Sample Containers		Field Results/Remarks	Analysis Required	Sample Preservation	Rush
						No.	Type/Size				
135621	SUPPLY WELL	GW	✓		3-16-99 1830	3	VOA	RUSH SAMPLE/PCF JOB	624.2	HU/ICE	✓
135622	MW-1	SOIL	↓		10 ¹⁰	2	4oz SOIL		0021 B TPH DRG	ICE	
135623	MW-2	↓	↓		1155	↓			↓	↓	
135624	MW-3	↓	↓		1430	↓			↓	↓	
135625	MW-4	↓	↓		1635	↓			↓	↓	
135626	SB-5	↓	↓		1812	↓			↓	↓	

Relinquished by: Signature <i>Willis Dice</i>	Received by: Signature <i>Tina Desrosiers</i>	Date/Time 3-17-99 0800
---	---	-------------------------------

Relinquished by: Signature <i>Tina Desrosiers</i>	Received by: Signature <i>William House</i>	Date/Time 3-17-99 10:20am
---	---	----------------------------------

 New York State Project: Yes No
Requested Analyses

1	pH	6	TKN	11	Total Solids	16	Metals (Specify)	21	EPA 624	26	EPA 8270 B/N or Acid
2	Chloride	7	Total P	12	TSS	17	Coliform (Specify)	22	EPA 625 B/N or A	27	EPA 8010/8020
3	Ammonia N	8	Total Diss. P	13	TDS	18	COD	23	EPA 418.1	28	EPA 8080 Pest/PCB
4	Nitric N	9	BOD ₅	14	Turbidity	19	BTEX	24	EPA 608 Pest/PCB		
5	Nitrate N	10	Alkalinity	15	Conductivity	20	EPA 601/602	25	EPA 8240		
29	TCLP (Specify: volatiles, semi-volatiles, metals, pesticides, herbicides)										
30	Other (Specify):										



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32 James Brown Drive
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(802) 879-4333
FAX 879-7103

REPORT OF LABORATORY ANALYSIS

CLIENT: Griffin International

ORDER ID: 1776

PROJECT NAME: Whynot Farm/#29941473

REF.#: 136,074 - 136,079

REPORT DATE: April 1, 1999

DATE SAMPLED: March 31, 1999

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody. Chain of custody indicated sample preservation with HCl.

All samples were prepared and analyzed by requirements outlined in the referenced method and within the specified holding times. All instrumentation was calibrated with the appropriate frequency and verified by the requirements outlined in the referenced method. Blank contamination was not observed at levels affecting the analytical results.

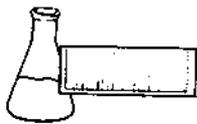
Analytical method precision and accuracy was monitored by laboratory control standards which included matrix spike, duplicate and quality control analyses. These standards were determined to be within established laboratory method acceptance limits.

Individual sample performance was monitored by the addition of surrogate analytes to each sample. All surrogate recovery data was determined to be within laboratory QA/QC guidelines unless otherwise noted.

Reviewed by,

Harry B. Locker, Ph.D.
Laboratory Director

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32 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

EPA METHOD 8021B--PURGEABLE AROMATICS

CLIENT: Griffin International

DATE RECEIVED: March 31, 1999

PROJECT NAME: Whynot Farm/#29941473

REPORT DATE: April 1, 1999

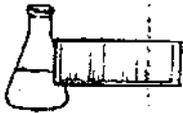
CLIENT PROJ. #: 29941473

ORDER ID: 1776

Ref. #:	136,074	136,075	136,076	136,077	136,078
Site:	Trip Blank	MW-2	MW-1	MW-4	MW-3
Date Sampled:	3/31/99	3/31/99	3/31/99	3/31/99	3/31/99
Time Sampled:	7:50	11:28	11:45	12:00	12:30
Sampler:	T.K. & L.C.				
Date Analyzed:	4/1/99	4/1/99	4/1/99	4/1/99	4/1/99
UIP Count:	0	0	0	0	>10
Dil. Factor (%):	100	100	100	100	100
Surr % Rec. (%):	87	89	82	80	93
Parameter	Conc. (ug/L)				
MTBE	<10	<10	<10	<10	<10
Benzene	<1	<1	<1	<1	<1
Toluene	<1	<1	<1	<1	<1
Ethylbenzene	<1	<1	<1	<1	TBQ <1
Xylenes	<1	<1	<1	<1	<1
1,3,5 Trimethyl Benzene	<1	<1	<1	<1	<1
1,2,4 Trimethyl Benzene	<1	<1	<1	<1	<1
Naphthalene	<1	<1	<1	<1	<1

Ref. #:	136,079				
Site:	MW-3 Duplicate				
Date Sampled:	3/31/99				
Time Sampled:	12:30				
Sampler:	T.K. & L.C.				
Date Analyzed:	4/1/99				
UIP Count:	>10				
Dil. Factor (%):	100				
Surr % Rec. (%):	89				
Parameter	Conc. (ug/L)				
MTBE	<10				
Benzene	<1				
Toluene	<1				
Ethylbenzene	TBQ <1				
Xylenes	<1				
1,3,5 Trimethyl Benzene	<1				
1,2,4 Trimethyl Benzene	<1				
Naphthalene	<1				

Note: UIP = Unidentified Peaks TBQ = Trace Below Quantitation NI = Not Indicated



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32 James Brown Drive
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 (802) 879-4333
 FAX 879-7103

EPA METHOD 8021B--PURGEABLE AROMATICS

CLIENT: Griffin International	DATE RECEIVED: March 31, 1999
PROJECT NAME: Whynot Farm/#29941473	REPORT DATE: April 1, 1999
CLIENT PROJ. #: 29941473	ORDER ID: 1776

Ref. #:	136,074	136,075	136,076	136,077	136,078
Site:	Trip Blank	MW-2	MW-1	MW-4	MW-3
Date Sampled:	3/31/99	3/31/99	3/31/99	3/31/99	3/31/99
Time Sampled:	7:50	11:28	11:45	12:00	12:30
Sampler:	T.K. & L.C.				
Date Analyzed:	4/1/99	4/1/99	4/1/99	4/1/99	4/1/99
UIP Count:	0	0	0	0	>10
Dil. Factor (%):	100	100	100	100	100
Surr % Rec. (%):	87	89	82	80	93
Parameter	Conc. (ug/L)				
MTBE	<10	<10	<10	<10	<10
Benzene	<1	<1	<1	<1	<1
Toluene	<1	<1	<1	<1	<1
Ethylbenzene	<1	<1	<1	<1	TBQ <1
Xylenes	<1	<1	<1	<1	<1
1,3,5 Trimethyl Benzene	<1	<1	<1	<1	<1
1,2,4 Trimethyl Benzene	<1	<1	<1	<1	<1
Naphthalene	<1	<1	<1	<1	<1

Ref. #:	136,079				
Site:	MW-3 Duplicate				
Date Sampled:	3/31/99				
Time Sampled:	12:30				
Sampler:	T.K. & L.C.				
Date Analyzed:	4/1/99				
UIP Count:	>10				
Dil. Factor (%):	100				
Surr % Rec. (%):	89				
Parameter	Conc. (ug/L)				
MTBE	<10				
Benzene	<1				
Toluene	<1				
Ethylbenzene	TBQ <1				
Xylenes	<1				
1,3,5 Trimethyl Benzene	<1				
1,2,4 Trimethyl Benzene	<1				
Naphthalene	<1				

Note: UIP = Unidentified Peaks TBQ = Trace Below Quantitation NI = Not Indicated



ENDYNE, INC.

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32 James Brown Drive
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(802) 879-4333
FAX 879-7103

LABORATORY REPORT

CLIENT: Griffin International
PROJECT: Whynot Farm/#29941473
REPORT DATE: April 2, 1999

ORDER ID: 1776
DATE RECEIVED: March 31, 1999

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody. Different groups of analyses may be reported under separate cover.

All samples were prepared and analyzed by requirements outlined in the referenced methods and within the specified holding times.

All instrumentation was calibrated with the appropriate frequency and verified by the requirements outlined in the referenced methods.

Blank contamination was not observed at levels affecting the analytical results.

Analytical method precision and accuracy was monitored by laboratory control standards which included matrix spike, duplicate and quality control analyses. These standards were determined to be within established laboratory method acceptance limits, unless otherwise noted.

Reviewed by,

Harry B. Locker, Ph.D.
Laboratory Director

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32 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

LABORATORY REPORT

CLIENT: Griffin International
PROJECT: Whynot Farm/#29941473
REPORT DATE: April 2, 1999

ORDER ID: 1776
DATE RECEIVED: March 31, 1999
SAMPLER: TK/LC
ANALYST: 820

Ref. Number: 136075 Site: MW-2 Date Sampled: March 31, 1999 Time: 11:28 AM

<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>	<u>Analysis Date</u>
TPH 8015 DRO	< 0.40	mg/L	SW 8015B	4/2/99

Ref. Number: 136076 Site: MW-1 Date Sampled: March 31, 1999 Time: 11:45 AM

<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>	<u>Analysis Date</u>
TPH 8015 DRO	< 0.40	mg/L	SW 8015B	4/2/99

Ref. Number: 136077 Site: MW-4 Date Sampled: March 31, 1999 Time: 12:00 PM

<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>	<u>Analysis Date</u>
TPH 8015 DRO	< 0.40	mg/L	SW 8015B	4/2/99

Ref. Number: 136078 Site: MW-3 Date Sampled: March 31, 1999 Time: 12:30 PM

<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>	<u>Analysis Date</u>
TPH 8015 DRO	< 0.40	mg/L	SW 8015B	4/2/99

29941473

RUSH!

CHAIN OF CUSTODY RECORD

Kush
Friday

29967
2-ORL

Project Name: <i>Why not Farm</i>	Reporting Address: <i>Griffin</i>	Billing Address: <i>Griffin</i>
Site Location: <i>Whiting, VT</i>		
Endyne Project Number: <i>1776</i>	Company: <i>Griffin</i>	Sampler Name: <i>Trely/Anna Campbell</i>
	Contact Name/Phone #: <i>Willis Doe 865-4288</i>	Phone #: <i>865-4288</i>

Lab #	Sample Location	Matrix	G R A B	C O M P	Date/Time	Sample Containers		Field Results/Remarks	Analysis Required	Sample Preservation	Rush
						No.	Type/Size				
136074	Trip blank	water	✓		3/31/99 0750	2	40ml		8021B	HCl	X
136075	MW2	↓	✓		1128	4	40ml		8021B HCl TPH		
136076	MW1	↓	✓		1145	3	↓		8021B 2100 TPH		
136077	MW4	↓	✓		1200	4	↓		8021B HCl TPH		
136078	MW3	↓	✓		1230	3	↓		8021B HCl TPH		
136079	MW3 Duplicate	↓	✓		1230	1	↓		8021B	↓	

Relinquished by: Signature <i>Trely/Anna Campbell</i>	Received by: Signature <i>Willis Doe</i>	Date/Time <i>3-31-99 10:30</i>
Relinquished by: Signature <i>Willis Doe</i>	Received by: Signature <i>Alison Horner</i>	Date/Time <i>3/31/99 10:30</i>

New York State Project: Yes No Requested Analyses

1	pH	6	TKN	11	Total Solids	16	Metals (Specify)	21	EPA 624	26	EPA 8270 B/N or Acid
2	Chloride	7	Total P	12	TSS	17	Coliform (Specify)	22	EPA 625 B/N or A	27	EPA 8010/8020
3	Ammonia N	8	Total Diss. P	13	YDS	18	COD	23	EPA 418.1	28	EPA 8080 Pest/PCB
4	Nitrite N	9	BOD ₅	14	Turbidity	19	BTEX	24	EPA 608 Pest/PCB		
5	Nitrate N	10	Alkalinity	15	Conductivity	20	EPA 601/602	25	EPA 8240		
29	TC1.P (Specify: volatiles, semi-volatiles, metals, pesticides, herbicides)										
30	Other (Specify):										

ATTACHMENT I

**Work Plan and Cost Estimate for Removal of
Contaminated Soil, Why-Not-Farm #2, Whiting,
Vermont.**

WORK PLAN AND COST ESTIMATE
CONTAMINATED SOIL REMOVAL

at

WHY-NOT-FARM #2
SHOREHAM-WHITING ROAD
WHITING, VERMONT

April, 1999

Prepared for:

Mr. James Duffy
Why-Not-Farms, Inc.
7 Louisburg Square
Boston, MA 02108-1236

Prepared by:



PO Box 943
Williston, Vermont
(802) 865-4288

INTRODUCTION

The following Work Plan and Budgetary Estimate for removing diesel fuel contaminated soil has been prepared in response to the findings outlined in Griffin International's (Griffin) *Report on the Investigation of Subsurface Petroleum Contamination at Why-Not-Farms #2, Whiting, Vermont*. Both free-phase and residual-phase subsurface petroleum contamination was discovered at the property during the removal of one (1) 1,000 gallon diesel fuel/#2 oil underground storage tank (UST) on February 3, 1999. A subsequent follow-on investigation was conducted at the site on March 16, 1999, to better determine the degree and extent of petroleum contamination relative to the removed UST.

During soil boring activities at the site on March 16, 1999, samples from soil within in the former UST pit were collected using a truck-mounted, vibratory-driven, 2.5 inch diameter, five-foot long, stainless steel sampling device. Residual-phase diesel fuel/#2 fuel oil was present in the soils from a depth of approximately 1.5' to approximately 8.5' below grade. No free-phase petroleum was encountered in any of the borings. The area of contaminated soils has been fully defined by the installation of monitoring wells and collection and analysis of groundwater and soil samples from each boring, and appears to be confined to the original UST excavation at this time.

SOIL EXCAVATION AND DISPOSAL

An excavation approximately 15' x 8' x 10' deep will be required to remove the residual and free-phase petroleum contamination in the former UST grave. The volume of soil removed from an excavation this size is approximately 45 cubic yards. Depending on the moisture content, the removed soil would probably weigh between 80 and 90 tons. More or less soil may require removal.

The soil will be excavated using a track mounted excavator under the supervision of a Griffin geologist or engineer. Soil will be screened during removal with a photo ionization detector (PID). If practical, all soils exhibiting a total organic vapor concentration of over 1.0-ppm will be removed. Soil will be temporarily stockpiled on site. The stockpile will be placed on and covered with polyethylene sheeting, in accordance with VTDEC guidelines.

Due to the proximity of the shed at the site to the area to be excavated, there is a chance that the integrity of the shed could be compromised by the excavation. Griffin will take whatever precautions we deem appropriate to protect the structure at the time of the excavation, but we will not assume any responsibility for damage to the shed structure.

Per the requirements of the treatment facility, a composite sample will be collected from the soil stockpile, at a frequency of one sample per 200 tons. The sample(s) will be analyzed for total petroleum hydrocarbons and fuel identification by modified method EPA Method 8100. Upon receipt of the laboratory results, and assuming treatment facility acceptance, the soils will be transported to Environmental Soil Management, Inc., (EMSI) in Loudon, New Hampshire or Fort Edward, New York, where they will be treated by thermal-desorption. Upon treatment, EMSI will provide a certificate of

treatment for the soils. The soils will be stored on site for approximately 2 to 3 weeks during the laboratory analysis and EMSI acceptance period.

Griffin will coordinate all necessary labor, contractors, and equipment materials to conduct the work. A Griffin geologist or engineer will oversee the work. We will coordinate with the VTDEC for approval of the work.

Upon completion of excavation, two soil samples will be collected from the limits of the excavation to define the concentration of any fuel remaining in the soil, as per VTDEC requirements. There is a chance that some fuel contamination will remain in detectable concentration. However, it is likely that the bulk of the contaminant mass and the most significantly contaminated soils will be removed.

The two confirmatory soil samples will be submitted to Endyne, Inc., of Williston, Vermont, for analysis of VOCs by EPA Method 8021B and diesel range organics per EPA Method 8015B, modified. All soil sampling will be conducted per Griffin's standard protocols which are consistent with state and industry standards.

After the soils are excavated, the excavation will be backfilled with clean fill. The fill will be machine compacted.

Upon completion of the excavation work and receipt of the results of all analysis, Griffin will prepare a short report on the investigation, which will include the following:

- Descriptions of activities,
- Laboratory reports,
- Site Map Showing excavated area and sampling locations,
- Bills of Lading and Treatment Certificate for soils, and
- Conclusions and Recommendations.

BUDGETARY COST ESTIMATE

Due to the nature of soil excavation, some variables are inevitable. The following estimate is based on what is reasonably expected, but exact quantities are not known. All work will be conducted on a time-and-materials basis. Net payment is due within 15 days of invoice date.

The following assumptions may affect the price:

1. The weight of 1.8 tons per cubic yard for the soil (moist, dense clay) is assumed.
2. It is assumed that all work can be conducted in one working day by machinery. The costs include six (6) trailer dump loads (maximum 24 tons/ load) of soil to be hauled to EMSI.
3. Griffin has approximated the costs of the tasks marked by *, the costs may be slightly more or less.

The following estimate shows the anticipated costs.

COST ESTIMATE

1. Project Coordination:	\$342.00
2. Griffin Labor and Expenses for Soil Removal:	\$819.00
3. Laboratory Analysis, Stockpile and Confirmatory:	\$275.00
4. Excavator to remove soil:*	790.00
5. Replacement Backfill (45 cubic yards):*	1,240.00
6. Place/Compact Backfill and Load Trucks:*	790.00
7. Transportation of soil, 81 Tons @ 9.35 per ton: (24 tons minimum per truck - Minimum total Charge: \$330)	\$758.00
8. Disposal of Soil (Assumes 45 cubic yards @1.8 tons/cubic yard):	\$2,139.00
9. Supply Well Sample Analysis:	\$148.00
<u>10. Report Preparation:</u>	<u>\$228.00</u>
	Estimated Total: \$7,529.00

- will excavation destroy mws?

- need to comply w/OSHA reqs

- shoring
next to
structure?