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WASTE MANAGEMENT
DIVISION
OCT 16 10 04 AM '98

October 14, 1998

Mr. Richard Spiese
State of Vermont
Department of Environmental Conservation
Waste Management Division
103 South Main Street/ West Building
Waterbury, VT 05671-0404

RE: Site Investigation Report for Colonial Mart, St. Albans, VT
(VTDEC Site #97-2270)

Dear Mr. Spiese:

Enclosed please find Griffin's Site Investigation Report for the Colonial Mart in St. Albans, Vermont. This report presents the findings from the drilling and groundwater sampling conducted in June.

If you have any questions concerning this project, please call.

Sincerely,

Kevin McGraw
Hydrogeologist

Enclosure

cc: GI Project #89741076

**REPORT ON THE
INVESTIGATION OF SUBSURFACE
PETROLEUM CONTAMINATION**

at
**COLONIAL MART
ROUTE 7
ST. ALBANS, VERMONT**

SEPTEMBER 8, 1998

Prepared for:

Champlain Oil Company, Inc.
P.O. Box 2126
South Burlington, VT 05407

Prepared by:



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Williston, Vermont 05495
(802) 865-4288

Griffin Project #89741076

WASTE MANAGEMENT
DIVISION

Oct 15 10 04 AM '98

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I. INTRODUCTION

This report summarizes the investigation of subsurface petroleum contamination at Colonial Mart located on Route 7 in St. Albans, Vermont (see Site Location Map and Area Map, Appendix A). The following investigation has been conducted to define more clearly the degree and extent of petroleum contamination which was detected in the soils at this site during the piping replacement for three gasoline underground storage tanks (USTs) and the removal of two additional USTs in September of 1997. Included in the report are the findings from the vibratory core drilling along with the results of subsequent groundwater sampling conducted at the property. This work has been completed for the Champlain Oil Company, Inc. by Griffin International, Inc. (Griffin) in accordance with the approved work plan dated April 15, 1998.

II. HISTORICAL BACKGROUND

On September 22, 23, and 24, 1997, gasoline piping was replaced and two USTs were removed from the subsurface at Colonial Mart on Swanton Road (Route 7) in St. Albans, Vermont. Three gasoline USTs were not being replaced: one (1) 10,000-gallon UST and two (2) 6,000-gallon USTs. A 3,000-gallon diesel tank and a 3,000-gallon kerosene tank were removed. The galvanized steel piping for the three gasoline tanks was replaced with new double wall Environ™ plastic piping. The former locations of the diesel and kerosene USTs and the three existing gasoline USTs are shown on the Site Map in Appendix A.

Soil samples were collected during the excavation and screened for volatile organic compounds (VOCs) using a portable photoionization detector (PID). Gasoline contamination was observed adjacent to the piping, particularly on the western ends of the gasoline USTs. Minimal contamination (<10 ppm) was observed in the soils adjacent to the diesel and kerosene tanks. Groundwater was encountered at approximately 9 feet below grade. Since the extent of the gasoline contamination could not be determined without disturbing the gasoline tanks, all soils from the excavations were backfilled.

In response to the soil contamination detected during the replacement of the gasoline piping, the Vermont Department of Environmental Conservation (VTDEC) requested a site investigation to further define the degree and extent of contamination at the site. This request was contained in a letter dated January 13, 1998. The following report presents the findings from Griffin's Site Investigation conducted in June, 1998.

III. SITE DESCRIPTION

The St. Albans Colonial Mart is situated on the eastern fringe of the Champlain Valley between Route 89 and the center of the city of St. Albans. An unnamed tributary of the Stevens Brook is located approximately 1,100 feet north and east of the property. Stevens Brook flows west into Lake Champlain. Local terrain is relatively level. The elevation of the site is approximately 380 feet above mean sea level.

The area surrounding the site is used primarily for commercial uses. The area, including Colonial Mart, is served by the municipal water supply. There are no known private water supply wells in the area but there may reportedly be some private wells greater than 1,000 feet north of the site, according to the store operator. The onsite building does have a basement.

The Surficial Geologic Map of Vermont maps the surrounding area as marine beach gravel (Ref. 1). According to the Centennial Geologic Map of Vermont (Ref. 2), the overburden deposits at the site are underlain by Hungerford slate which is a black slate.

IV. SUBSURFACE INVESTIGATION

On June 9, 1998, four monitoring wells were installed by Adams Engineering using a truck-mounted vibratory core drill rig. 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 gasoline piping. MW-1 was installed on the east side of the gasoline tanks. The boring for MW-2 was drilled on the north side of the property, north of the pump island. Both of these wells were installed in presumed downgradient locations from the former gasoline piping based on review of site topography and the location of the unnamed tributary to Stevens Brook. MW-3 was installed in the estimated upgradient direction from the former gasoline piping, and MW-4 was installed to the south of the existing gasoline tanks in a possible upgradient or cross-gradient direction. The locations of the wells are shown on the Site Map in Appendix A.

Continuous five-foot core samples were collected in each boring to the maximum depth of advancement. Soil samples were screened for VOCs using an HNU (Model HW-101) photoionization device. In addition, soil characteristics were recorded in detailed boring logs by the supervising Griffin engineer.

In the boring for MW-1, sand, gravel, silt, and clay were observed. Soils from grade to 14 feet below grade were very heterogeneous (see boring log, Appendix B). Groundwater was encountered at approximately 8 feet below grade. A maximum PID reading of 57 ppm was recorded for a soil sample collected from approximately 13 feet below grade.

Soils retrieved from the boring for MW-2 consisted of fine to coarse sand with some fine gravel from grade to 8 feet below grade. Silt and silty clay were observed from approximately 9 to 12 feet below grade. Groundwater was encountered at approximately 6 feet below grade. A maximum PID reading of 162 ppm was recorded for a soil sample collected from 7 to 8 feet below grade.

In the boring for MW-3, fine to coarse sand with some fine gravel and varying proportions of silt was observed from approximately 3 to 7 feet below grade. Silt, fine to coarse sand, and gravel were observed from 8 to 11 feet below grade. Silty clay was encountered at 12 feet below grade. Groundwater was encountered at approximately 6.0 feet below grade. Elevated PID readings were not observed in any of the soil samples screened from this boring.

Soils retrieved from the boring for MW-4 primarily consisted of fine to coarse sand. Silt was also observed in the soils collected between 9 and 12 feet below grade. Groundwater was encountered at approximately 8 feet below grade. Elevated PID readings were not observed in any of the soil samples screened from this boring.

The screens in monitoring wells MW-1 and MW-2 were set from 3 to 13 feet below grade and 3 to 11.7 feet below grade, respectively; the screens in wells MW-3 and MW-4 were set from 2 to 12 feet below grade. The monitoring wells were constructed with 1.5-inch diameter, Schedule 40 PVC riser and 0.010" slotted screen. 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. To complete the construction of each well, a road box was set in concrete at grade level. In addition, a locking well cap was placed on each monitoring well. The boring logs and well construction details for these wells are included in Appendix B.

V. WATER LEVELS AND WATER QUALITY

A. Water Table Elevations

Water table elevation measurements were collected from MW-1 through MW-4 on June 16, 1998. In addition, the monitoring wells were surveyed in azimuth and elevation relative to the top-of-casing of MW-3 which has been assigned an arbitrary elevation of 100.00 feet. Liquid level monitoring data are presented in Appendix C.

Groundwater was measured at approximately four to six feet below grade in the onsite monitoring wells. Water table elevations have been plotted and contoured to illustrate the estimated gradient and direction of groundwater flow beneath the site (see Groundwater Contour Map, Appendix A). According to these data, groundwater in the vicinity of the gasoline USTs and the former piping is flowing to the north or northeast at a hydraulic gradient of approximately 0.036.

B. Water Quality

Griffin collected groundwater samples at the site from all four monitoring wells. The groundwater samples were analyzed for petroleum compounds by EPA Method 602. The analytical results have been plotted to show the distribution of dissolved contamination across the site (see Contaminant Concentration Map, Appendix A).

Relatively low levels of dissolved benzene, toluene, ethylbenzene and xylenes (BTEX) were detected in the samples from MW-1 and MW-2. The Vermont Groundwater Enforcement Standard (VGES) for benzene was exceeded in these two samples. The VGES for MTBE was exceeded in the sample collected from MW-1. Dissolved BTEX and MTBE were not detected in the groundwater samples collected from MW-3 and MW-4. A groundwater quality summary for this sampling event is presented in Appendix D. The Endyne laboratory analytical report is also included in this appendix.

The trip blank and duplicate sample analytical results indicate that proper quality assurance and quality control were maintained during the sampling and analysis.

VI. RECEPTOR RISK ASSESSMENT

A receptor risk assessment was conducted to identify known and potential receptors of the petroleum contamination detected at the St. Albans Colonial Mart. A visual survey was conducted at the time of monitoring well installation and during the UST closure/piping replacement inspection. A determination of the potential risk to identified receptors was conducted based on proximity, groundwater flow direction and gradient, and contaminant concentration levels.

Water Supplies

As outlined in Section III of this report, the area in the vicinity of the St. Albans Colonial Mart is served by the municipal water system. St. Albans obtains its water from the St. Albans Reservoir which is located approximately five miles south of the site. Given its location and distance from the subject site, this public water supply source is not at risk from the contamination observed at the Colonial Mart.

There also do not appear to be any private drinking water supply wells in the immediate vicinity of the site.

Buildings in the Vicinity

The Colonial Mart has a basement for the potential accumulation of petroleum vapors. This basement is located directly adjacent to and north of the gasoline tank area. On September 2, 1998, the basement was screened using a PID. No elevated levels of VOCs were measured on this date and no petroleum odors were observed. Based on the

estimated groundwater flow direction to the north or northeast, the contamination in the subsurface may pose a risk to the basement of the Colonial Mart. Given their sufficient distance, other buildings in the area are not likely at risk from the onsite gasoline contamination.

Surface Water

An unnamed tributary to the Stevens Brook is the nearest surface water to the site, located approximately 1,100 feet east and north of Colonial Mart. Based on the degree of dissolved groundwater contamination detected at the site, it appears that there is likely minimal risk to this surface water.

VII. CONCLUSIONS

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

1. In each of the four soil borings, heterogeneous soils consisting of sand, gravel, silt and clay were observed. Adsorbed petroleum contamination was detected in two of the four soil borings advanced for this site investigation (MW-1 and MW-2).
2. The water table elevation beneath the site ranged from approximately 4 to 6 feet below grade. Based on the water table elevation data collected in June 1998, groundwater is estimated to be flowing north or northeast at a hydraulic gradient of 0.036.
3. Relatively low levels of dissolved BTEX contamination were detected in the groundwater samples collected from MW-1 and MW-2, located roughly downgradient from the gasoline USTs and the pump island, respectively. The VGES for benzene was exceeded in these two samples. The VGES for MTBE was exceeded in the sample from MW-1. Dissolved contamination was not detected in the groundwater samples collected from MW-3 and MW-4 which are located upgradient of the pump island and gasoline USTs, respectively. The groundwater analytical results suggest that the downgradient extent of contamination has not been determined.
4. The risk assessment for this site has determined that the only receptor which appears to be at risk at this time is the Colonial Mart basement. Petroleum vapors were not detected in the basement during this site investigation which may indicate that the risk to this receptor is low. There do not appear to be any public or private drinking water supplies at risk from the onsite petroleum contamination. In addition, the risk posed to the nearest surface water appears to be minimal.

VIII. RECOMMENDATIONS

Based on the above conclusions, Griffin recommends that a semi-annual groundwater monitoring schedule be implemented to document the fluctuations in dissolved contaminant concentrations in the monitoring wells. Water table elevations should be measured in each well prior to sampling. Groundwater from the four monitoring wells should be sampled and analyzed for BTEX and MTBE by EPA Method 602. In addition, the basement of the Colonial Mart building should be rescreened for petroleum vapors during the next semi-annual site visit.

At the conclusion of each monitoring event, a semi-annual groundwater monitoring report should be prepared and submitted to the VTDEC. This report will include a groundwater contour map, a contaminant concentration map, current and historical groundwater analytical data, conclusions and recommendations. The first semi-annual monitoring should occur in October, 1998. Groundwater monitoring should continue at the site until the concentrations of BTEX and MTBE are all below the Vermont Groundwater Enforcement Standards.

REFERENCES

1. Doll, Charles G., ed., 1970, *Surficial Geologic Map of Vermont*, State of Vermont.
2. Doll, Charles G., ed., 1961, *Centennial Geologic Map of Vermont*, State of Vermont.

APPENDICES

APPENDIX A

Maps

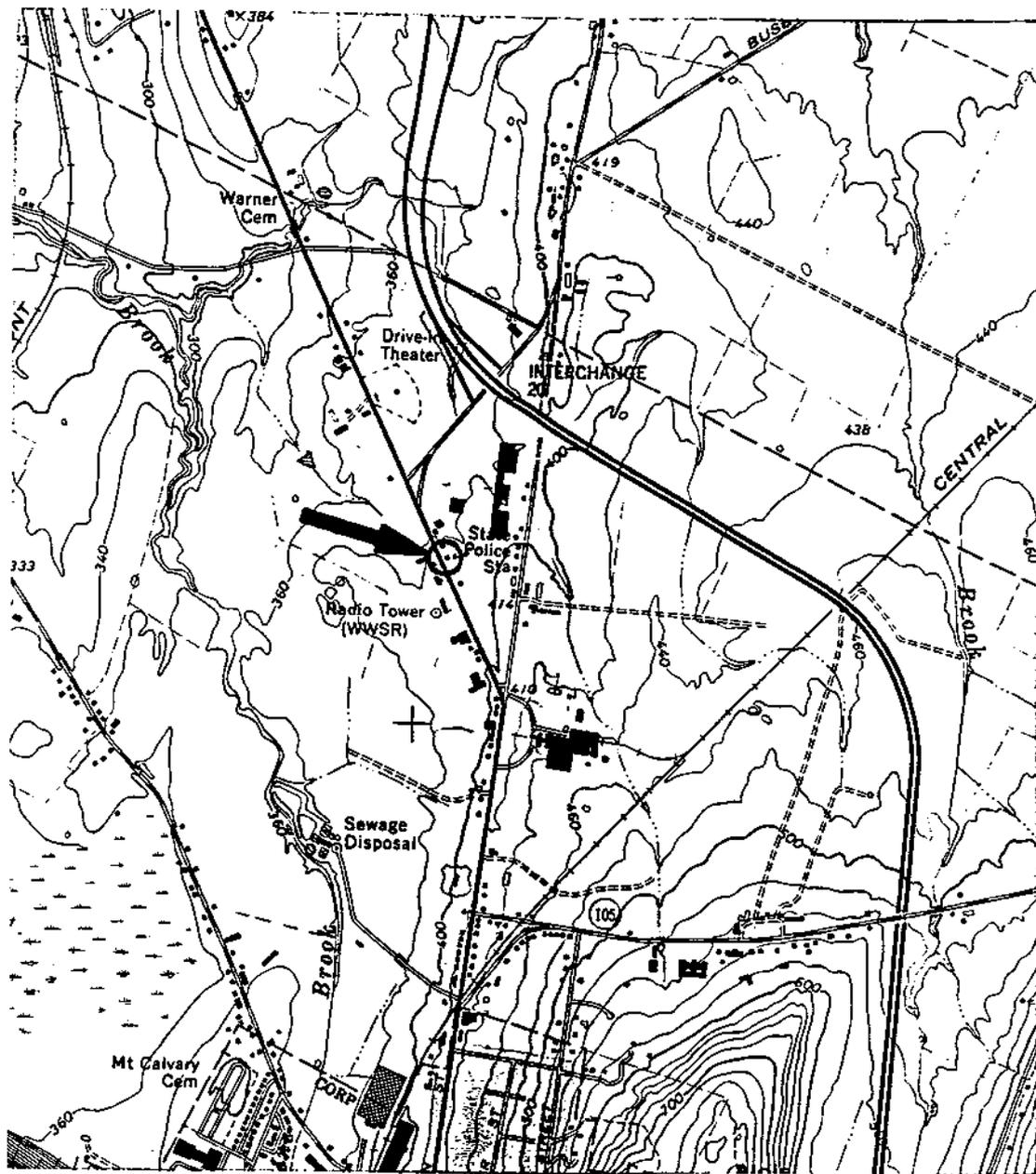
Site Location Map

Area Map

Site Map

Groundwater Contour Map

Contaminant Concentration Map



JOB #: 89741078

SOURCE: USGS- ST. ALBANS, VERMONT QUADRANGLE



COLONIAL MART

ST. ALBANS, VERMONT

SITE LOCATION MAP

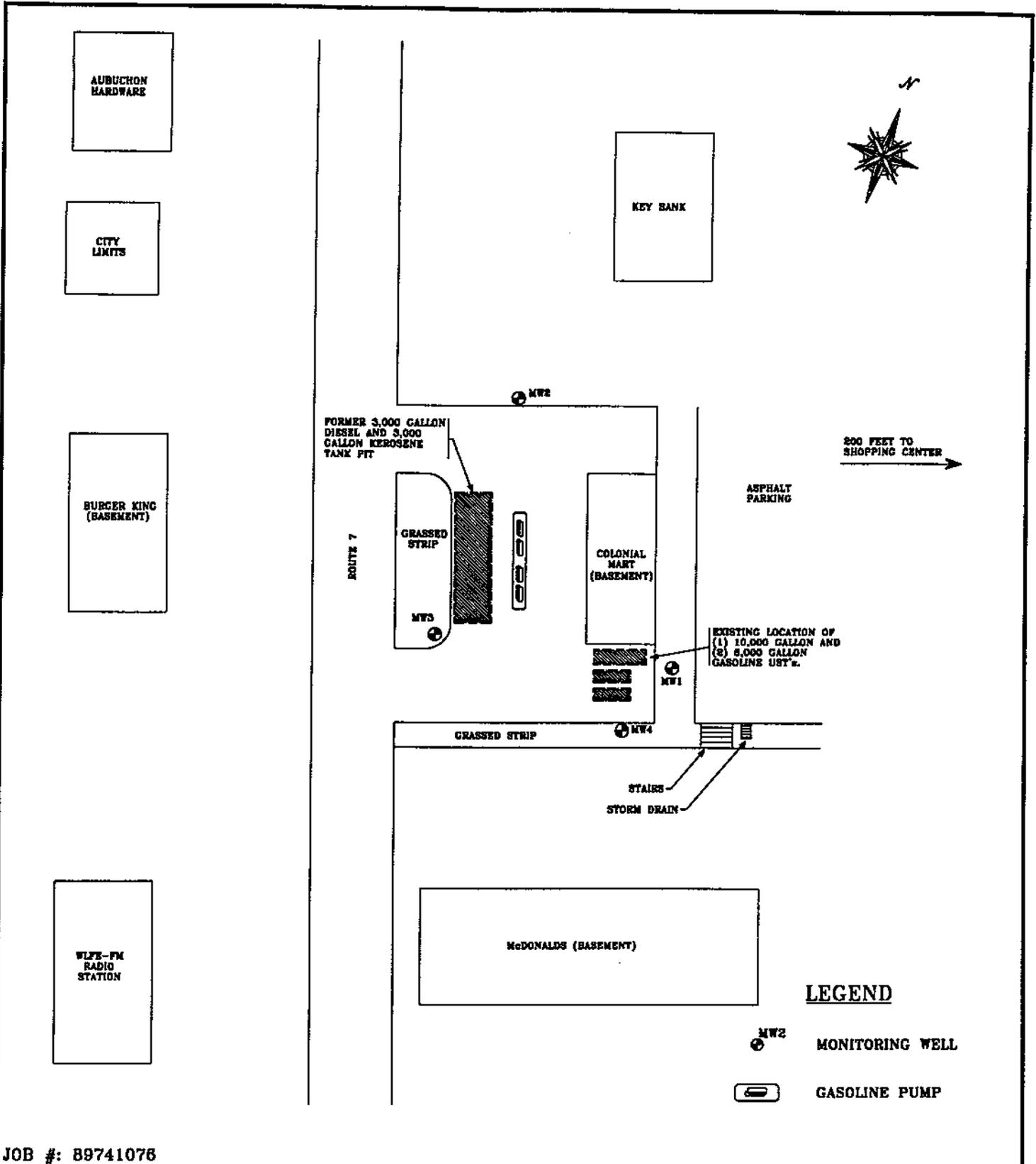
DATE: 8/27/98

DWG.#:1

SCALE: 1:24000

DRN.:SB

APP.:KM



JOB #: 89741076

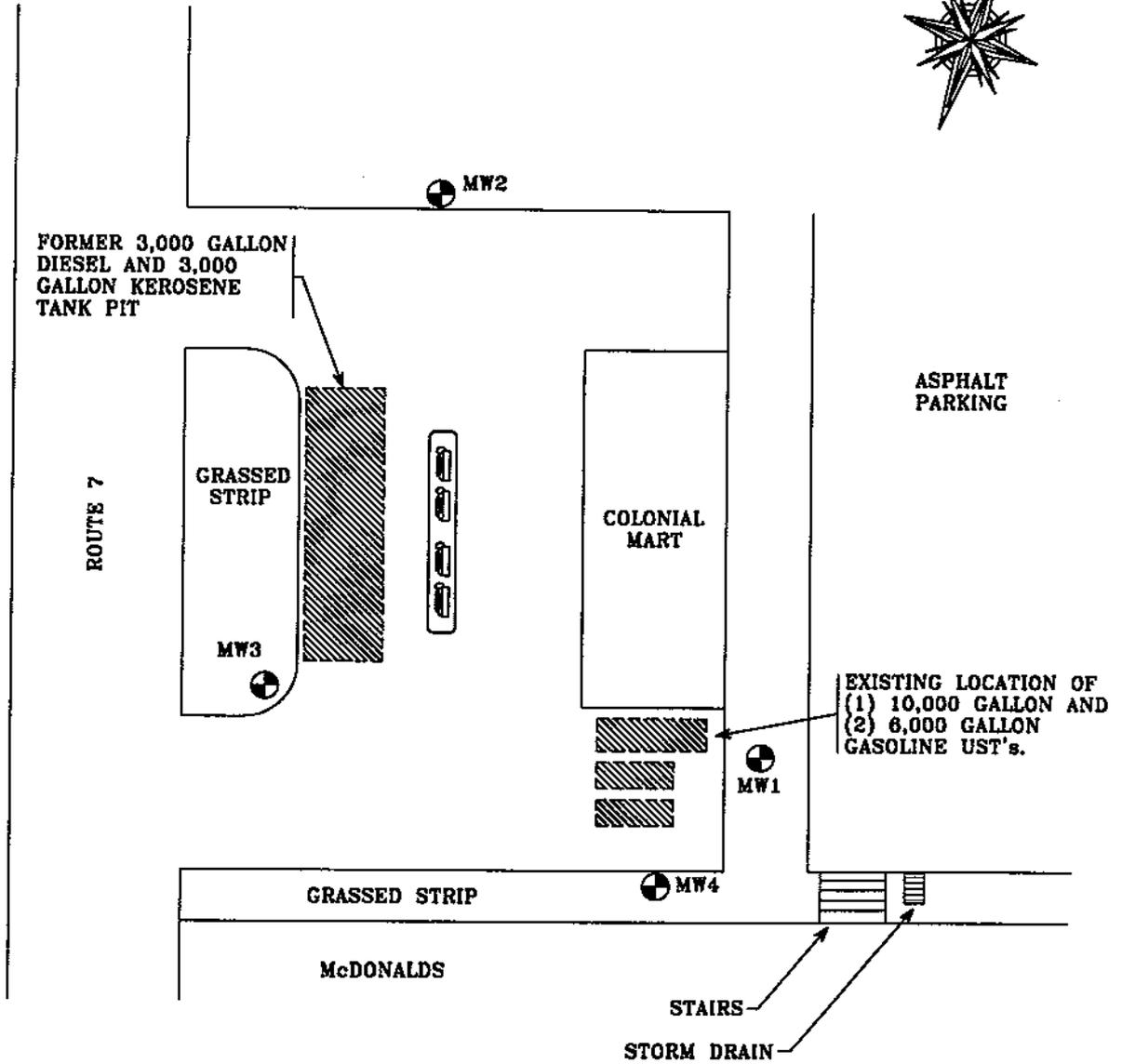


COLONIAL MART

ST. ALBANS, VERMONT

AREA MAP

DATE: 9/3/98	DWG.#:2	SCALE: NONE	DRN.:SB	APP.:KM
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LEGEND

-  MW2 MONITORING WELL
-  GASOLINE PUMP

JOB #: 89741076

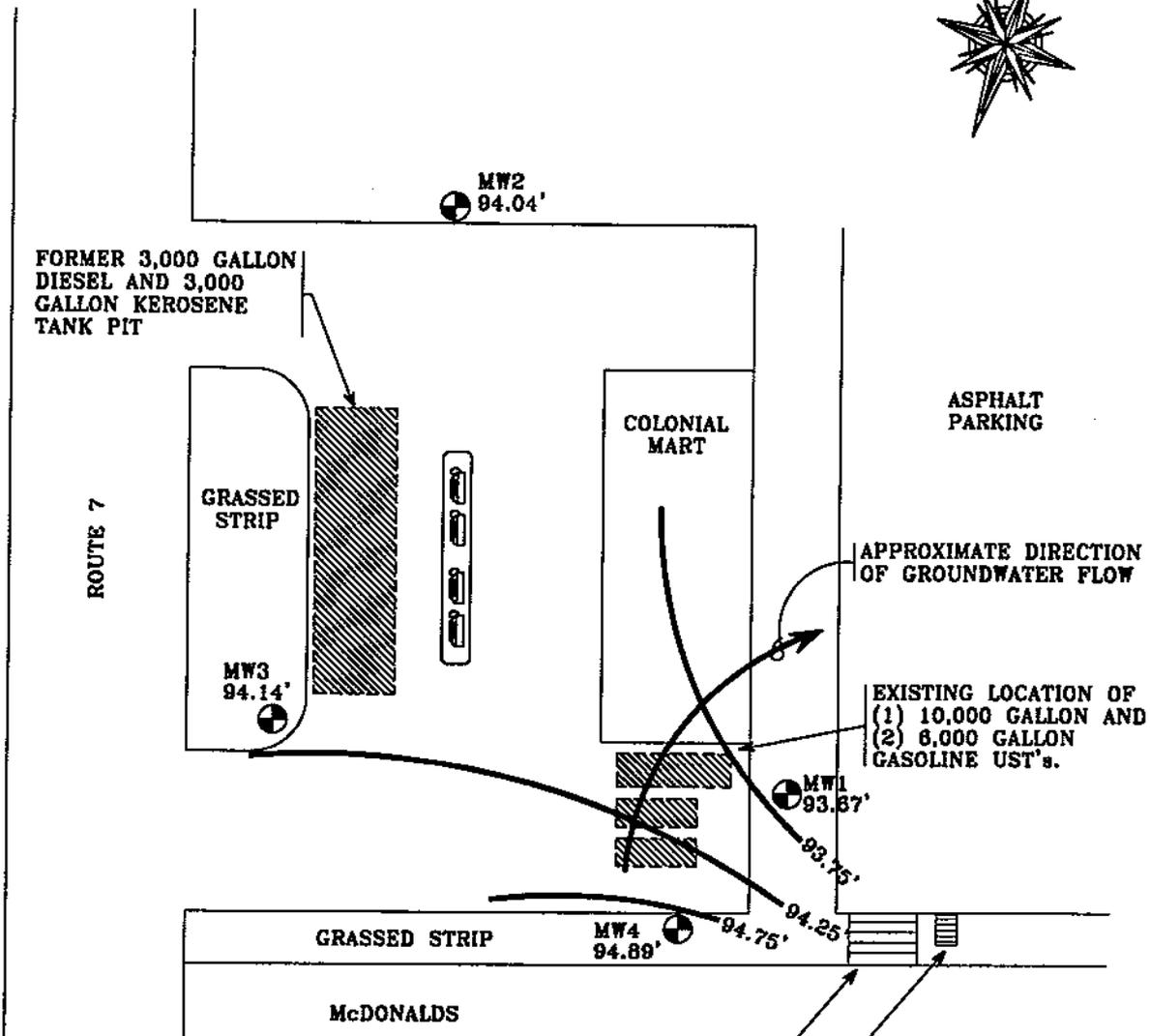


COLONIAL MART

ST. ALBANS, VERMONT

SITE MAP

DATE: 8/27/98	DWG.#:3	SCALE: 1"=40'	DRN.:SB	APP.:KM
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LEGEND

- MW2, MONITORING WELL AND WATER TABLE ELEVATION IN FEET
- 94.25' GROUNDWATER CONTOUR IN FEET (DASHED WHERE INFERRED)
- GASOLINE PUMP

JOB #: 89741076

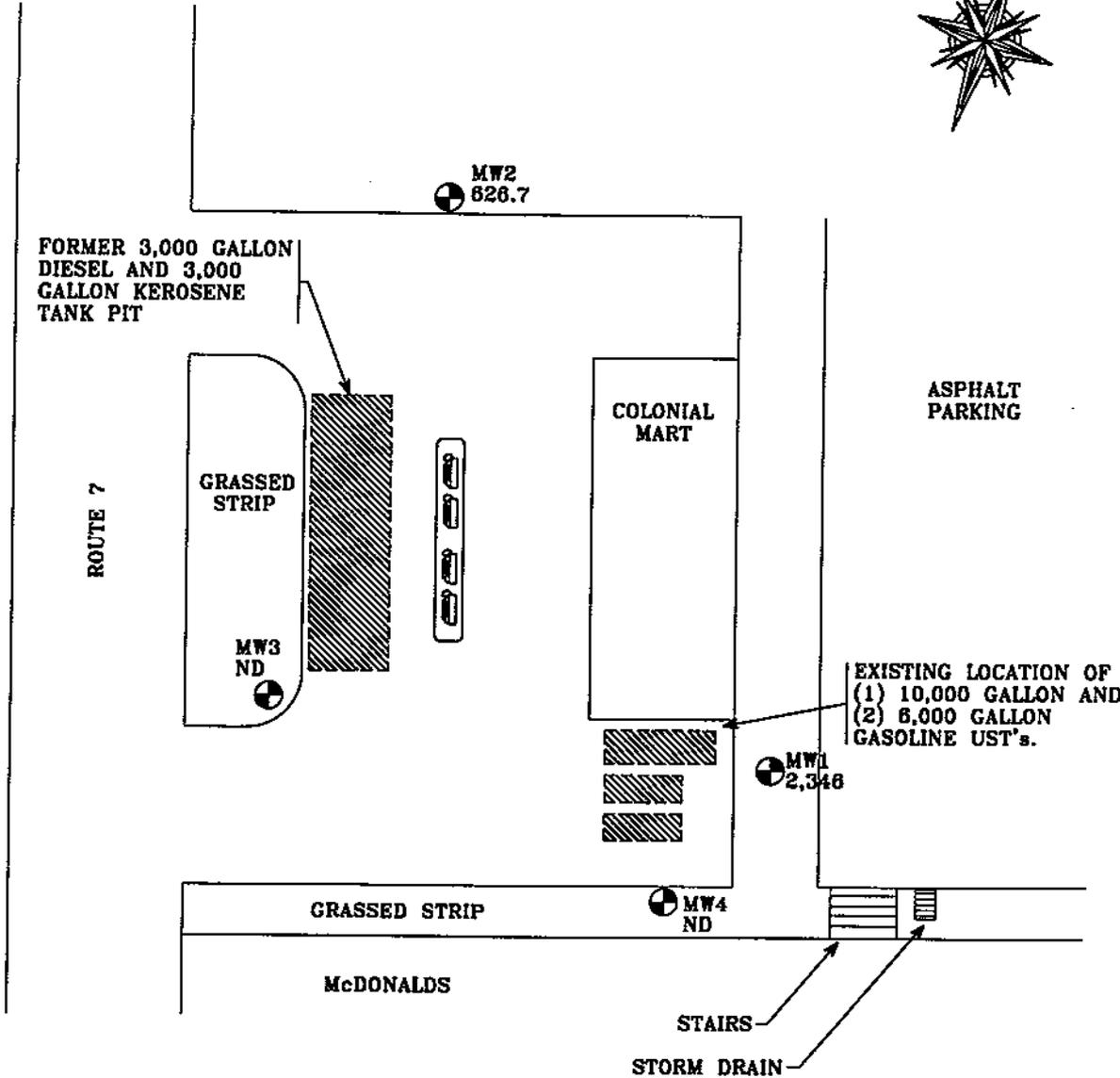


COLONIAL MART

ST. ALBANS, VERMONT

GROUNDWATER CONTOUR MAP
MEASUREMENT DATE: 6/16/98

DATE: 8/28/98	DWG.#:4	SCALE: 1"=40'	DRN.:SB	APP.:KM
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LEGEND

-  MW2 MONITORING WELL AND TOTAL BTEX AND MTBE CONCENTRATION (ppb) 626.7
-  GASOLINE PUMP

JOB #: 89741076



COLONIAL MART

ST. ALBANS, VERMONT

CONTAMINANT CONCENTRATION MAP
SAMPLE DATE: 6/16/98

DATE: 8/28/98	DWG.#:5	SCALE: 1"=40'	DRN.:SB	APP.:KM
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APPENDIX B

Well Logs

PROJECT COLONIAL MART

LOCATION 119 SWANTON ROAD, ST. ALBANS, VERMONT

DATE DRILLED 6/9/98 TOTAL DEPTH OF HOLE 14.0'

DIAMETER 2.75"

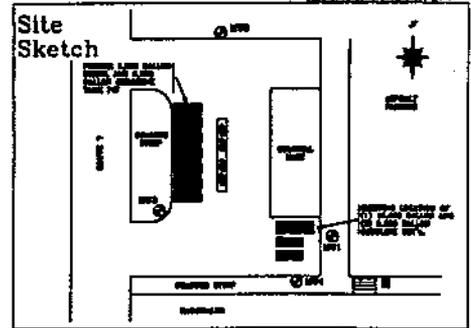
SCREEN DIA. 1.5" LENGTH 10.0' SLOT SIZE 0.010"

CASING DIA. 1.5" LENGTH 2.5' TYPE sch 40 pvc

DRILLING CO. ADAMS ENGR. DRILLING METHOD VIBRATORY

DRILLER GERRY ADAMS LOG BY W. DOE

WELL NUMBER MW1

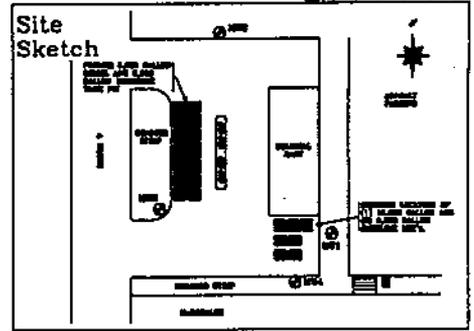


GRIFFIN INTERNATIONAL, INC

DEPTH IN FEET	WELL CONSTRUCTION	NOTES	BLOWS PER 6" OF SPOON & PID READINGS	DESCRIPTION/SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)	DEPTH IN FEET
0	ROAD BOX				0
0	LOCKING WELL CAP				0
1	CONCRETE				1
1	NATIVE BACKFILL				1
2	BENTONITE		1'-5'		2
3	WELL RISER		0.8 ppm		3
4					4
5			5'-6'		5
5			3.3 ppm	Brown, medium/coarse SAND, some fine to coarse gravel, moist.	5
6	SAND PACK		6'-7'	Gray/black, fine to coarse SAND, some silty clay, little coarse gravel, moist.	6
6			46 ppm	Gray, silty CLAY with some fine to medium sand, some coarse gravel, moist.	6
7			7'-8'		7
7			9.2 ppm		7
8					8
9	WELL SCREEN			8.0' WATER TABLE	9
10					10
11			11'		11
11			45 ppm		11
12	BOTTOM CAP		13'	Gray, fine to coarse SAND with trace silt and coarse gravel, wet.	12
12			57 ppm	Gray, fine to medium SAND, some silt, some coarse gravel, moist.	12
13	NATIVE BACKFILL		14'		13
13	UNDISTURBED NATIVE SOIL		28 ppm		13
14				BASE OF WELL AT 13'	14
14				END OF EXPLORATION AT 14'	14
15					15
16					16
17					17
18					18
19					19
20					20
21					21
22					22
23					23
24					24
25					25

WELL NUMBER MW2

PROJECT COLONIAL MART
 LOCATION 119 SWANTON ROAD, ST. ALBANS, VERMONT
 DATE DRILLED 6/9/98 TOTAL DEPTH OF HOLE 12.0'
 DIAMETER 2.75"
 SCREEN DIA. 1.5" LENGTH 10.0' SLOT SIZE 0.010"
 CASING DIA. 1.5" LENGTH 1.2' 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
0	ROAD BOX LOCKING WELL CAP				0
1	CONCRETE NATIVE BACKFILL		0'-2' 0.6 ppm	Gray/black fine to coarse SAND with some fine gravel, trace silt, dry.	1
2	BENTONITE		2'-3' 0 ppm	Brown, fine to coarse SAND with some silt, some fine gravel, moist.	2
3	WELL RISER				3
4					4
5			5'-6' 0.2 ppm	Brown/black fine to coarse SAND, with some silt, little fine gravel, moist.	5
6	SAND PACK			6.0' WATER TABLE	6
7			7'-8' 162 ppm	Black fine to coarse SAND with some fine gravel and trace silt, wet.	7
8	WELL SCREEN				8
9			9'-10' 5.6 ppm	Brown SILT with some fine sand, trace clay, trace fine gravel, dry.	9
10			10'-11' 160 ppm	Gray/brown silty CLAY with some fine to coarse sand.	10
11	BOTTOM CAP			Same as above.	11
12	NATIVE BACKFILL		12' 27 ppm		12
13	UNDISTURBED NATIVE SOIL			BASE OF WELL AT 11.7' END OF EXPLORATION AT 12'	13
14					14
15					15
16					16
17					17
18					18
19					19
20					20
21					21
22					22
23					23
24					24
25					25

WELL NUMBER MW3

PROJECT COLONIAL MART

LOCATION 119 SWANTON ROAD, ST. ALBANS, VERMONT

DATE DRILLED 6/9/98 TOTAL DEPTH OF HOLE 12.5'

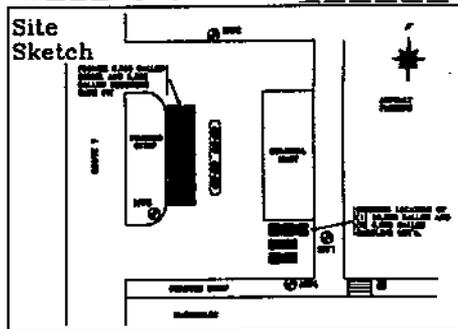
DIAMETER 2.75"

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

CASING DIA. 1.5" LENGTH 1.5' 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
0	ROAD BOX LOCKING WELL CAP CONCRETE				0
1	BENTONITE				1
2	WELL RISER				2
3			3'-4' 0 ppm	Brown, fine to coarse SAND with some silt, some fine gravel, dry.	3
4					4
5	SAND PACK				5
6			6'-7' 0 ppm	6.0' WATER TABLE	6
7	WELL SCREEN			Brown, fine to coarse SAND with little silt, some fine gravel, moist.	7
8			8'-9' 0 ppm	Brown SILT with fine to coarse SAND, some fine gravel, dry.	8
9					9
10			10'-11' 0 ppm	Brown, fine to coarse SAND with some silt, some fine gravel, moist.	10
11	BOTTOM CAP				11
12	NATIVE BACKFILL		12'-12.5' 0 ppm	Gray silty CLAY with little fine to medium sand, little fine gravel.	12
13	UNDISTURBED NATIVE SOIL			BASE OF WELL AT 12.0' END OF EXPLORATION AT 12.5'	13
14					14
15					15
16					16
17					17
18					18
19					19
20					20
21					21
22					22
23					23
24					24
25					25

PROJECT COLONIAL MART

LOCATION 119 SWANTON ROAD, ST. ALBANS, VERMONT

DATE DRILLED 6/9/98 TOTAL DEPTH OF HOLE 15.0'

DIAMETER 2.75"

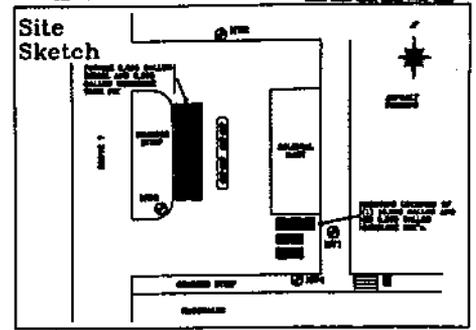
SCREEN DIA. 1.5" LENGTH 10.0' SLOT SIZE 0.010"

CASING DIA. 1.5" LENGTH 1.5' 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
0		ROAD BOX			0
0		LOCKING WELL CAP			0
0		CONCRETE			0
1		NATIVE BACKFILL			1
1		BENTONITE			1
2		WELL RISER	2'-3' 0 ppm	Brown, fine to coarse SAND, dry.	2
3					3
4					4
5		SAND PACK			5
6			6'-7' 0 ppm	Brown, fine to coarse SAND, trace fine gravel, dry.	6
7		WELL SCREEN			7
8			8'-10' 0 ppm	8.0' WATER TABLE	8
9				Brown SILT with some fine to coarse SAND, some fine gravel.	9
10					10
11		BOTTOM CAP	11'-12' 0 ppm	Gray, fine to medium SAND with some silt, little fine to coarse gravel.	11
12			14'-15' 0 ppm		12
13		NATIVE BACKFILL			13
14				Same as above.	14
15		UNDISTURBED NATIVE SOIL		BASE OF WELL AT 12. END OF EXPLORATION AT 15'	15
16					16
17					17
18					18
19					19
20					20
21					21
22					22
23					23
24					24
25					25

APPENDIX C

Liquid Level Monitoring Data

**Liquid Level Monitoring Data
Colonial Mart, St. Albans, Vermont**

6/16/98

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	99.27		5.60					93.67
MW-2	99.03		4.99					94.04
MW-3	100.00		5.86					94.14
MW-4	98.61		3.72					94.89

All Values Reported in Feet

Top-of-Casing Elevations Measured in Feet Relative to MW-3 set at 100.00'

APPENDIX D

Groundwater Quality Summary

Laboratory Report

**Groundwater Quality Summary
Colonial Mart
St. Albans, Vermont**

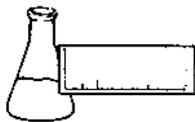
June 16, 1998

PARAMETER	Sample Point						VGES
	MW-1	MW-2	MW-3	MW-4	Duplicate of MW-4	Trip Blank	
Benzene	434.	66.9	ND	ND	ND	ND	5.
Chlorobenzene	ND	ND	ND	ND	ND	ND	100.
1,2-DCB	ND	ND	ND	ND	ND	ND	600.
1,3-DCB	ND	ND	ND	ND	ND	ND	600.
1,4-DCB	ND	ND	ND	ND	ND	ND	75.
Ethylbenzene	352.	293.	ND	ND	ND	ND	700.
Toluene	ND	9.8	ND	ND	ND	ND	1,000.
Xylenes	930.	257.	ND	ND	ND	ND	10,000.
Total BTEX	1,716.	626.7	ND	ND	ND	ND	-
MTBE	630.	ND	ND	ND	ND	ND	40.
BTEX+MTBE	2,346.	626.7	ND	ND	ND	ND	-

All Values Reported in ug/L (ppb)

VGES - Vermont Groundwater Enforcement Standard

ND - None Detected



ENDYNE, INC.

Laboratory Services

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

REPORT OF LABORATORY ANALYSIS

CLIENT: Griffin International
PROJECT NAME: Colonial Mart
REPORT DATE: June 24, 1998
DATE SAMPLED: June 16, 1998

PROJECT CODE: GICM1251
REF.#: 122,760 - 122,765

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.

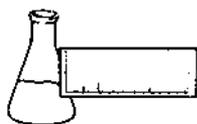
Analytical method precision and accuracy was monitored by laboratory control standards which included matrix spike, duplicate and quality control analyses. These standards were determined to be within established laboratory method acceptance limits.

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

enclosures



32 James Brown Drive
 Williston, Vermont 05495
 (802) 879-4333
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EPA METHOD 602--PURGEABLE AROMATICS

CLIENT: Griffin International

DATE RECEIVED: June 17, 1998

PROJECT NAME: Colonial Mart

REPORT DATE: June 24, 1998

CLIENT PROJ. #: 89741076

PROJECT CODE: GICM1251

Ref. #:	122,760	122,761	122,762	122,763	122,764
Site:	Trip Blank	MW-1	MW-4	Duplicate (MW-4)	MW-3
Date Sampled:	6/16/98	6/16/98	6/16/98	6/16/98	6/16/98
Time Sampled:	7:40	12:15	12:22	12:22	12:28
Sampler:	R. Basile	R. Basile	R. Basile	R. Basile	R. Basile
Date Analyzed:	6/22/98	6/23/98	6/22/98	6/23/98	6/22/98
UIP Count:	0	>10	0	0	0
Dil. Factor (%):	100	10	100	100	100
Surr % Rec. (%):	90	111	87	95	88
Parameter	Conc. (ug/L)	Conc. (ug/L)	Conc. (ug/L)	Conc. (ug/L)	Conc. (ug/L)
Benzene	<1	434.	<1	<1	<1
Chlorobenzene	<1	<10	<1	<1	<1
1,2-Dichlorobenzene	<1	<10	<1	<1	<1
1,3-Dichlorobenzene	<1	<10	<1	<1	<1
1,4-Dichlorobenzene	<1	<10	<1	<1	<1
Ethylbenzene	<1	352.	<1	<1	<1
Toluene	<1	<10	<1	<1	<1
Xylenes	<1	930.	<1	<1	<1
MTBE	<10	630.	<10	<10	<10

Ref. #:	122,765				
Site:	MW-2				
Date Sampled:	6/16/98				
Time Sampled:	12:34				
Sampler:	R. Basile				
Date Analyzed:	6/23/98				
UIP Count:	>10				
Dil. Factor (%):	20				
Surr % Rec. (%):	84				
Parameter	Conc. (ug/L)				
Benzene	66.9				
Chlorobenzene	<5				
1,2-Dichlorobenzene	<5				
1,3-Dichlorobenzene	<5				
1,4-Dichlorobenzene	<5				
Ethylbenzene	293.				
Toluene	9.8				
Xylenes	257.				
MTBE	<50				

Griffin copy

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



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Job # 89791076

CHAIN-OF-CUSTODY RECORD

27250

Project Name: COLONIAL MART Site Location: ST. ALBANS, VT	Reporting Address: GRIFFIN	Billing Address:
Endyne Project Number:	Company: Contact Name/Phone #: K. M. GRATTI	Sampler Name: ROB BASILE Phone #:

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				
	TKN BLANK	H ₂ O	Yes		6/16/98 7:40	2	40L		8020	HCl	
	MW-1	↓	↓		13:15	↓	↓		↓	↓	
	MW-4	↓	↓		13:22	↓	↓		↓	↓	
	DUPLICATE (MW-4)	↓	↓		12:32	↓	↓		↓	↓	
	MW-3	↓	↓		13:28	↓	↓		↓	↓	
	MW-2	↓	↓		13:34	↓	↓		↓	↓	

Relinquished by: Signature <i>[Signature]</i>	Received by: Signature <i>[Signature]</i>	Date/Time 6-17-98 11:15
Relinquished by: Signature <i>[Signature]</i>	Received by: Signature <i>[Signature]</i>	Date/Time 6/17 11:15

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):										