GRIFFIN INTERNATIONAL INC.

JUN 10 9 40 AM '99

June 9, 1999

Mr. Chuck Schwer
Vermont ANR/DEC
Waste Management Division
103 South Main St. /West Building
Waterbury, VT 05671-0404

RE: Initial Investigation of Subsurface Petroleum Contamination
Paulin, Inc., Shaftsbury, Vermont (VT DEC Site #98-2530)

Dear Mr. Schwer:

Enclosed please find the summary report for the initial site investigation conducted at the above referenced site. This report has been forwarded to the Vermont Department of Environmental Conservation (VTDEC), as required, at the request of Mr. Art Paulin.

Mr. Paulin is in the process of refinancing his property, and would like to have state review of this report before his closing date, which is June 14, 1999. We would appreciate any extra effort you could make to help him meet this deadline.

Please contact me if you have any questions or comments regarding this report.

Sincerely,

Elizabeth Stopford
Environmental Engineer

Enclosure

cc: GI#49941525

P.O. Box 943 • Williston, VT 05495 • Phone/Fax 802-865-4288
59 Clinton Street • Plattsburgh, NY 12901 • 518-562-4666 • Fax 518-561-6832

INITIAL INVESTIGATION OF SUBSURFACE PETROLEUM CONTAMINATION AT PAULIN, INC.

JUNE 8, 1999

Site Location:

Paulin, Inc.
1250 VT Route 7A
Shaftsbury, VT

VTDEC SITE #98-2530
GI Project # 49941525

Prepared For:

Mr. Art Paulin
Paulin, Inc.
P.O. Box 213
Shaftsbury, VT 05262

Prepared By:

GRIFFIN INTERNATIONAL

P.O. Box 943 / 20 Commerce Street Williston, VT 05495 (802) 865-4288

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APPENDICES

I. INTRODUCTION

This report summarizes the initial investigation of suspected subsurface contamination at Paulin, Inc., located at 1250 VT Route 7A in Shaftsbury, VT (see site location map in Appendix A). This investigation was conducted by Griffin International, Inc. (Griffin) for Mr. Art Paulin of Paulin, Inc., to address petroleum contamination detected during the October 1998 permanent closure of three gasoline underground storage tanks (USTs). Mr. Chuck Schwer of the Vermont Department of Environmental Conservation (VTDEC) requested that this work be completed in a letter to Mr. Art Paulin of Paulin, Inc. dated December 16, 1998. The site (VTDEC Site #98-2530) is owned by Art Paulin of Shaftsbury, VT.

Work conducted at the site included the installation of four groundwater monitoring wells and the collection and laboratory analysis of groundwater samples from these monitoring wells. In addition, a sensitive receptor risk assessment was conducted to assess the risk that subsurface contamination at the site may pose to potentially sensitive receptors identified in the site vicinity. Work has been conducted in accordance with Griffin's *Work Plan and Cost Estimate for a Subsurface Investigation at Paulin, Inc.* dated January 14, 1999. The Work Plan was approved by Art Paulin of Paulin, Inc. in a telephone conversation with Ms. Beth Stopford of Griffin on April 23, 1999, and by Mr. Chuck Schwer of the VTDEC in a letter to Griffin dated April 29, 1999.

II. SITE BACKGROUND

A. Site History

Subsurface petroleum contamination was detected in soils at Paulin, Inc. during the closure of (1) 6,000-gallon gasoline, and (2) 6,380-gallon gasoline USTs on October 2, 1998. The tanks were taken out of service in September, 1998, and replaced with an above ground storage tank (AST) system. The removed USTs had originally been installed as ASTs, due to the high water table in the immediate site vicinity. Soils were later bermed around the tanks, resulting in their designation as USTs. Details of the closure inspection are outlined in the Underground Storage Tank Permanent Closure Form, which was submitted to the VTDEC on October 8, 1998 by Griffin International [1]. Adsorbed petroleum contamination at concentrations between 0 and 240 parts per million (ppm) was detected in soils in the vicinity of the three gasoline USTs, as measured with a photoionization detector (PID). The maximum reading was detected in soils from approximately 1 foot below grade in the vicinity of the fill pipe for UST #2. No holes were observed in the USTs or associated piping removed. A slight sheen was observed on groundwater encountered during the excavation. Following UST removal activities, all soils were backfilled into the excavation [1].

In compliance with a request from the VTDEC that additional work be conducted at this site in order to determine the degree and extent of subsurface contamination, Mr. Art Paulin retained the services of Griffin to conduct this initial site investigation.

B. Site Description

Paulin, Inc. is located at 1250 VT Route 7A in Shaftsbury, VT, just north of the village of South Shaftsbury. The area consists of primarily commercial properties and wetland. The subject property is bordered by Route 7A to the west; Wade's Deli and a construction staging area are located on the opposite side of Route 7A. A concrete and sand and gravel business (Dailey, Inc.) is located to the north of the subject site, a Central Vermont Public Service Substation and an unnamed stream are located to the south. The property is bordered by wetland to the east; the wetland drains into the stream. Several residences are located to the south of the subject property, on the opposite side of the stream. The stream drains to the southwest into another wetland area.

There is one building on the subject property. It is currently occupied by a gas station, a convenience store, and office space. The majority of the site is gravel; the area in front of the building is paved.

According to Art Paulin, water for the station and store is supplied by the Town of Shaftsbury. Water for surrounding residences and businesses is also supplied by the Town of Shaftsbury. The town water source is a reservoir located on East Road in Shaftsbury, which is east of the subject property. According to the UST Permanent Closure Form [1], a supply well is located north of Wade's Deli (i.e., approximately 300 feet northwest of the former gasoline USTs on the Paulin, Inc. property).

C. Site Geologic Setting

According to the Surficial Geologic Map of Vermont [2], the site is underlain by outwash; horizontally bedded glaciofluvial gravel. Soils encountered during monitoring well installation consisted primarily of well-graded sand, silty sand, and silts. Bedrock at the site is mapped as Winooski dolomite [3]; however bedrock was not encountered during this initial site investigation.

Based on visual observation and review of the USGS topographic map [4], groundwater in the vicinity of Paulin, Inc. would be expected to flow to the southwest toward Paran Creek, following topographic contours.

III. INVESTIGATIVE PROCEDURES

A. Monitoring Well Installation

On May 5, 1999 four shallow monitoring wells were installed by Adams Engineering of Underhill, Vermont, using a vibratory drill rig. Drilling and well construction were directly

supervised by a Griffin engineer. Soil samples were collected continuously from each boring. Each soil sample was screened for volatile organic compounds (VOCs) using a HNu Model PI-101 photoionization detector (PID) equipped with a 10.2 eV bulb. Soils were screened using the Griffin Jar/Polyethylene Bag Headspace Screening Protocol, which conforms to state and industry standards. Contaminant concentrations and soil characteristics were recorded in detailed boring logs by the supervising Griffin engineer (see the Well Logs in Appendix B).

The monitoring wells (MW-1, MW-2, MW-3, and MW-4) were installed to help better define groundwater flow direction and gradient and the degree and extent of suspected petroleum contamination at the site. MW-1 was placed in the vicinity of the former UST system, in a presumed upgradient direction. MW-2 was installed in a presumed cross-gradient direction from the UST system. MW-3 was installed in a presumed downgradient direction of the UST system. MW-4 was located in a presumed upgradient direction of the former UST system.

MW-1 and MW-3 were constructed of 1.5-inch diameter Schedule 40 PVC riser and 0.010-inch factory slotted, well screen. MW-2, and MW-4 were constructed of 1.5-inch diameter 0.010-inch factory slotted, well screen. Two-inch diameter Schedule 40 PVC riser was placed around the top of the well screen, and the space between the screen and the riser was sealed with bentonite. The length of the riser and the screened section of pipe varied depending on the depth of the well. The annulus between the well screen and the borehole was filled with a sand pack to 1-foot above the well screen. A bentonite seal was placed above the sand pack. To complete the construction of each well, a road box was set at grade level. In addition, locking well caps were placed on the monitoring wells. Specific well construction details are displayed in the detailed well logs included in Appendix B.

MW-1

The boring for MW-1 was advanced to 12.5 feet below grade. Soils from the boring from MW-1 consisted of dry, well-graded sand from 0 to 4.5 feet below grade. Wet, olive gray and brown layers of silt was observed between 4.5 and 12 feet below grade. Soil samples collected for PID screening contained VOC concentrations between 0.8 and 3.4 parts per million (ppm). Petroleum odors were not observed in the boring for MW-1. The maximum PID reading was measured between 0 and 4.5 feet below grade.

Groundwater was encountered at approximately 3.5 feet below grade. The screened section of the well was installed to 12.5 feet below the ground surface.

MW-2

The boring for MW-2 was advanced to 11 feet below grade. Soils from the boring consisted of moist, brown and light brown, silty sand from 0 to 4.5 feet below grade. Wet, brown, well graded gravel and sand was observed between 4.5 and 9.5 feet below grade. Petroleum odors were not observed in this boring. Soil samples collected for PID screening contained VOC concentrations between 0.2 and 0.7 ppm.

Groundwater was encountered at approximately 3.5 feet below grade. The screened section of the well was installed to 11 feet below the ground surface.

MW-3

The boring for MW-3 was advanced to 11 feet below grade. Soils from the boring consisted of well-graded gravel and sand from 0 and 4.8 feet below grade. Wet, olive gray and brown, silt was observed from 4.8 to 7 feet below grade. Soils from 9.5 to 11 feet below grade consisted of wet sand and gravel, which caved back into the boring during advancement of the boring. Petroleum odors were not observed in the soils from this boring. Soil samples collected for PID screening contained VOC concentrations between 0 and 5.4 ppm. The maximum reading was measured in soils collected between 0 and 4.8 feet below grade.

Groundwater was encountered at approximately 1 foot below grade. The screened section of the well was installed to 7 feet below the ground surface, following borehole collapse.

MW-4

The boring for MW-4 was advanced to 11.3 feet below grade. Soils from the boring consisted of well-graded gravel and sand from 0 and 4 feet below grade. Wet, olive gray, silt was observed from 4 to 4.5 feet below grade. Soils from 4.5 to 9.5 feet below grade consisted of wet, olive gray, silt. Petroleum odors were not observed in the soils from this boring. Soil samples collected for PID screening contained VOC concentrations between 0 and 1.8 ppm. The maximum reading was measured in soils collected between 0 and 4 feet below grade.

Groundwater was encountered at approximately 3.5 feet below grade. The screened section of the well was installed to 11.3 feet below the ground surface.

B. Determination of Groundwater Flow Direction and Gradient

Water table elevation measurements were collected from all monitoring wells on May 18, 1999 using a Keck™ interface probe. These measurements were subtracted from the top of casing elevations, which were determined relative to an arbitrary datum of 100 feet at grade at MW-4, to determine the water table elevation at each of the wells. Groundwater level data are recorded in Appendix C. No free phase petroleum product was observed in any of the monitoring wells gauged on May 18, 1999.

As displayed in the groundwater contour map included in Appendix A, the groundwater flow direction for May 18, 1999 was estimated to be to the southwest at a hydraulic gradient of approximately 3.0%. Under this groundwater flow regime, MW-1 is located slightly upgradient of the source area (i.e., the former UST system), MW-4 is located crossgradient of the source area. MW-2 is located down and crossgradient of the source area, and MW-3 is located downgradient of the source area.

C. Groundwater Sample Collection and Analysis

Groundwater samples were collected from each monitoring well immediately following well gauging on May 18, 1999. Samples were analyzed for the presence of VOCs per EPA Method 8021B.

Benzene was detected in MW-4 at a concentration of 6.9 parts per billion (ppb), which slightly exceeds its Vermont Groundwater Enforcement Standard (VGES) of 5 ppb. None of the other compounds targeted by the method of analysis were detected at levels above their respective VGESs, in the groundwater samples collected on May 18, 1999. Results of the laboratory analyses are summarized in Appendix D. Laboratory report forms are presented in Appendix E.

All samples were collected according to Griffin's groundwater sampling protocol, which complies with industry and state standards. Results from the analyses of the trip blank and duplicate sample indicate that adequate quality assurance and control (QA/QC) were maintained during sample collection and analysis.

D. Sensitive Receptor Risk Assessment

A receptor risk assessment was conducted to identify known and potential receptors of the contamination detected at Paulin, Inc. A visual survey was conducted during monitoring well installation and during well-gauging and sampling activities. Based on these observations, a determination of the potential risk to identified receptors was conducted based on proximity to the expected source area (i.e., former gasoline UST systems), groundwater flow direction, and contaminant concentration levels in groundwater.

Water Supplies

The subject site and buildings in the area are supplied by town water. According to information obtained from the UST Permanent Closure Report, a supply well is located northwest of the subject site, crossgradient of the Paulin site. Because of its crossgradient location, and distance from the source area, as well as the apparent low source area concentrations, the supply well is deemed at minimal risk of impact, based on currently available data.

Buildings in the Vicinity

Paulin, Inc. is the only building located on the subject property. The building is down and cross gradient of the source area, but is constructed on a slab, which would tend to minimize potential risk of vapor impact to the building.

Properties in the vicinity of Paulin, Inc. are primarily commercial. Dailey, Inc., located to the north of the subject site, is upgradient of the source area. Wade's Deli is located crossgradient of

the source area. Given that concentrations of petroleum constituents detected in groundwater at Paulin, Inc. were below enforceable standards (except for benzene in MW4), and considering that the area is serviced by municipal water, the risk of petroleum impact to the neighboring properties is considered minimal.

Surface Water

The nearest surface waters to the site are an unnamed stream located adjacent to the subject property to the south, and a wetlands area, which is located to the east of the site and drains to the unnamed stream. The stream flows to the southwest and drains into another wetland area. Based on the estimated direction of groundwater flow (May 18, 1999), the stream is downgradient of the source area. The wetlands to the east of the site are located up and crossgradient of the source area, and therefore are not considered at significant risk of impact from the former UST source area.

A perimeter drain runs around the on-site building, and drains to a cistern, and then to the stream. During well installation activities on May 5, 1999, the cistern was measured for VOCs using a PID and a reading of 16 ppm was measured in the cistern. A visual survey was made of the stream, a sheen was observed on the water surface, although VOCs were not detected. These observations were made immediately following a heavy rain. It was believed that surface runoff from the parking lot into the stream and into the curtain drain were responsible for elevated VOCs in the cistern and the sheens on the stream. These locations were rescreened on May 18, 1999 during well gauging and sampling activities. At that time no elevated VOCs were measured in the cistern, and sheens were not observed on the stream.

Given that concentrations of petroleum constituents detected in groundwater at Paulin, Inc. were low, or below enforceable standards, the stream is not considered to be at significant risk of petroleum contamination from the Paulin, Inc. site.

IV. CONCLUSIONS

Based on the initial site investigation of petroleum contamination at Paulin, Inc., the following conclusions are offered:

1. There has been an apparent release of petroleum at the subject site, although limited in degree and extent. Subsurface contamination was encountered during the closure of (1) 6,000-gallon gasoline, and (2) 6,380-gallon gasoline USTs on October 2, 1998. These tanks were removed and replaced with an above ground fuel storage system.

2. Four shallow monitoring wells were installed in the site vicinity on May 5, 1999. These wells were utilized to evaluate the degree and extent of subsurface contamination encountered during the UST closure inspection.

3. Water table elevation data collected on May 18, 1999, indicate that groundwater in the overburden aquifer beneath the site flows in a southwesterly direction toward an unnamed stream at a hydraulic gradient of approximately 3%.

4. VOC readings of soils collected during monitoring well installation on May 5, 1999 indicate that adsorbed petroleum compounds are present in the soils at Paulin Inc. VOC concentrations ranged from 0 to 5.4 ppm, the highest levels were observed in the vicinity of the former UST system, and in the down gradient soil boring, at depths of 0 to 4.5 feet below grade. With the source USTs removed, it is expected that adsorbed petroleum compound concentrations well decrease over time with the progressive action of natural mitigative processes including biodegradation, volatilization, and diffusion.

5. Very low levels of napthalene and benzene were detected in groundwater samples collected from the on-site monitoring wells on May 18, 1999. The detected concentrations of napthalene in the four monitoring wells were below the VGES. Benzene detected in MW4 slightly exceeded its VGES. Concentrations detected in the groundwater sample collected from MW-3, the furthest downgradient well, were below the VGES. These results indicate that the downgradient extent of dissolved contamination relative to the former USTs system has been defined, and is limited to the vicinity of the former USTs, well within the property boundary.

6. The subject site and buildings in the site vicinity (with one exception) are serviced by municipal water. A supply well is located northwest of the Paulin site, in a crossgradient direction. Based on the low level of dissolved petroleum contamination detected at the site, it does not appear likely that water supplies in the vicinity of Paulin, Inc. are at significant risk of petroleum contamination from the site.

7. The petroleum contamination source area location at the Paulin, Inc. site has been permanently removed and replaced with an AST system. The on-site building is located approximately 60 feet west of the area of detected contamination. The building is constructed upon a slab foundation. Given the low source area strength, the potential impact to the indoor air of the building from migration of VOCs from soils and groundwater through the concrete slab foundation is considered minimal.

8. No receptors in the vicinity of the site have been identified as being at significant risk of impact from petroleum contamination at the subject property.

V. RECOMMENDATION

Based on the results of this site investigation, and pending removal of the on-site soil stockpile, Griffin recommends that Paulin, Inc. in Shaftsbury, Vermont be removed from the VTDEC Active Hazardous Waste Sites List. This recommendation is offered based upon achievement of the following closure criteria, as per the VTDEC Site Management Activity Completed (SMAC) Checklist (dated December 1, 1997):

1) The source(s), nature, and extent of the petroleum contamination at the site have been adequately defined.

   See Conclusions #1, #2, #4, and #5.

2) Source(s) has been removed, remediated, or adequately contained.

   See Conclusions #1 and #4.

3) Levels of contaminants in soil and groundwater shall be stable, falling, or non-detectable.

   See Conclusions #4 and #5.

4) Groundwater enforcement standards are met at the following compliance points:

   Any point of present use of groundwater as a source of potable water: See Conclusion #5. Also, the site and area properties located downgradient of the site in close vicinity are serviced by municipal water, not on-site groundwater sources.

   Any point at or within the boundary of any Class I groundwater area: The Paulin, Inc. site is not within a Class I groundwater area.

   Any point at the boundary of the property on which the contaminant source is located: See Conclusion #4.

5) Soil guideline levels are met. If not, engineering or institutional controls are in place.

   See Conclusion #4.

6) No unacceptable threat to human health or the environment exists on site.

   See Conclusions #4, #5, #6, #7, and #8.

7) Site meets RCRA requirements.

   Available records indicate that Paulin, Inc. is not in violation of the Resource Conservation and Recovery Act (RCRA) as defined in 40 CFR 264.

8) Site meets CERCLA requirements.

   Available records indicate that Paulin, Inc. is not in violation of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) as defined in 40 CFR 300.

VI. REFERENCES

1. Griffin International Inc., October 8, 1998. UST Closure Letter Report from Don Tourangeau to Susan Thayer (VTDEC) re: Paulin, Inc. UST Closure Inspection, UST Facility 4422879.

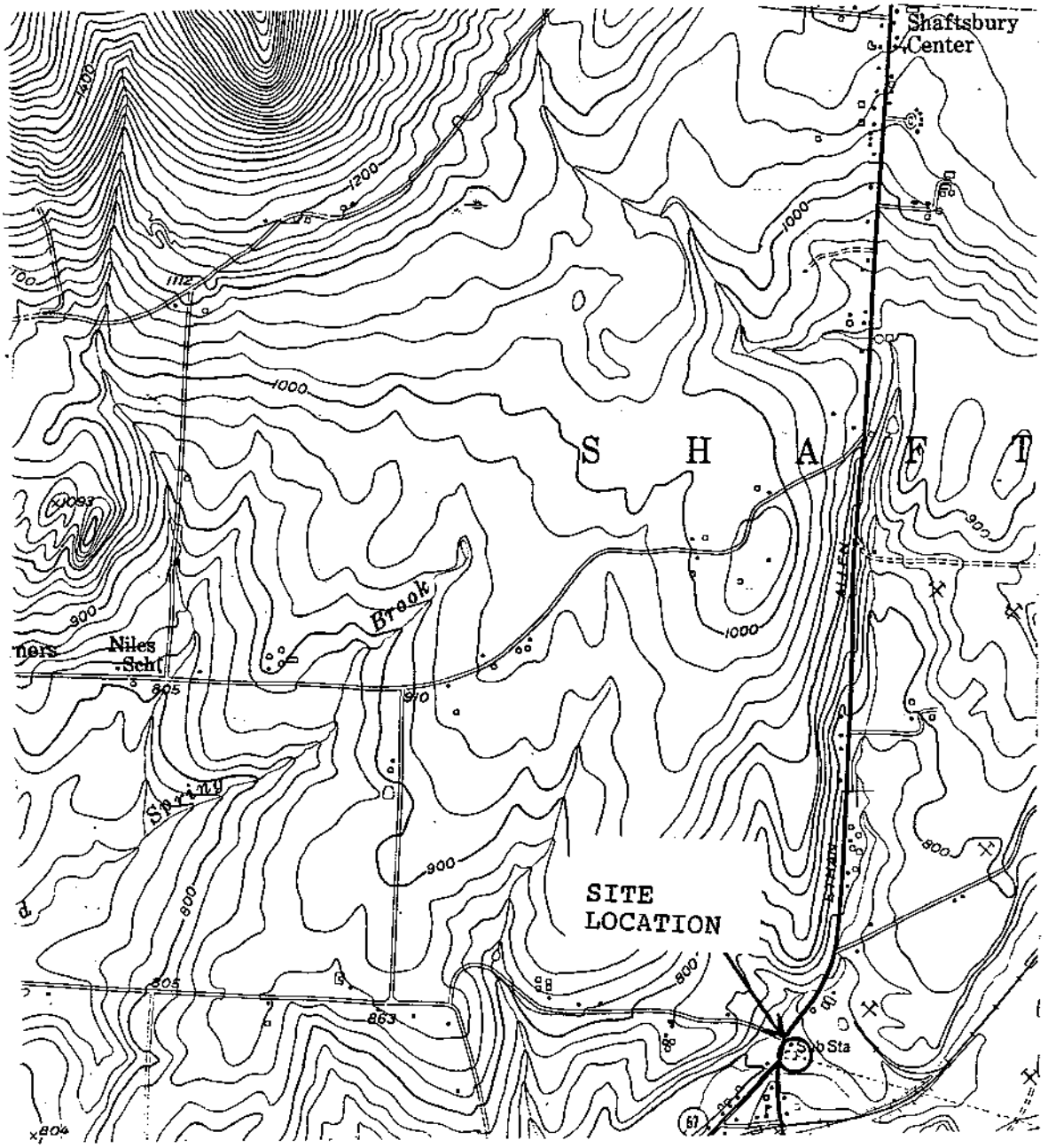
2. Doll, Charles G., ed., 1970, *Surficial Geologic Map of Vermont*, State of Vermont.

3. Doll, Charles G., ed., 1961, *Centennial Geologic Map of Vermont*, State of Vermont.

4. USGS 7.5 Minute Topographic Quadrangle Map. 1954. Bennington, Vermont.

APPENDIX A

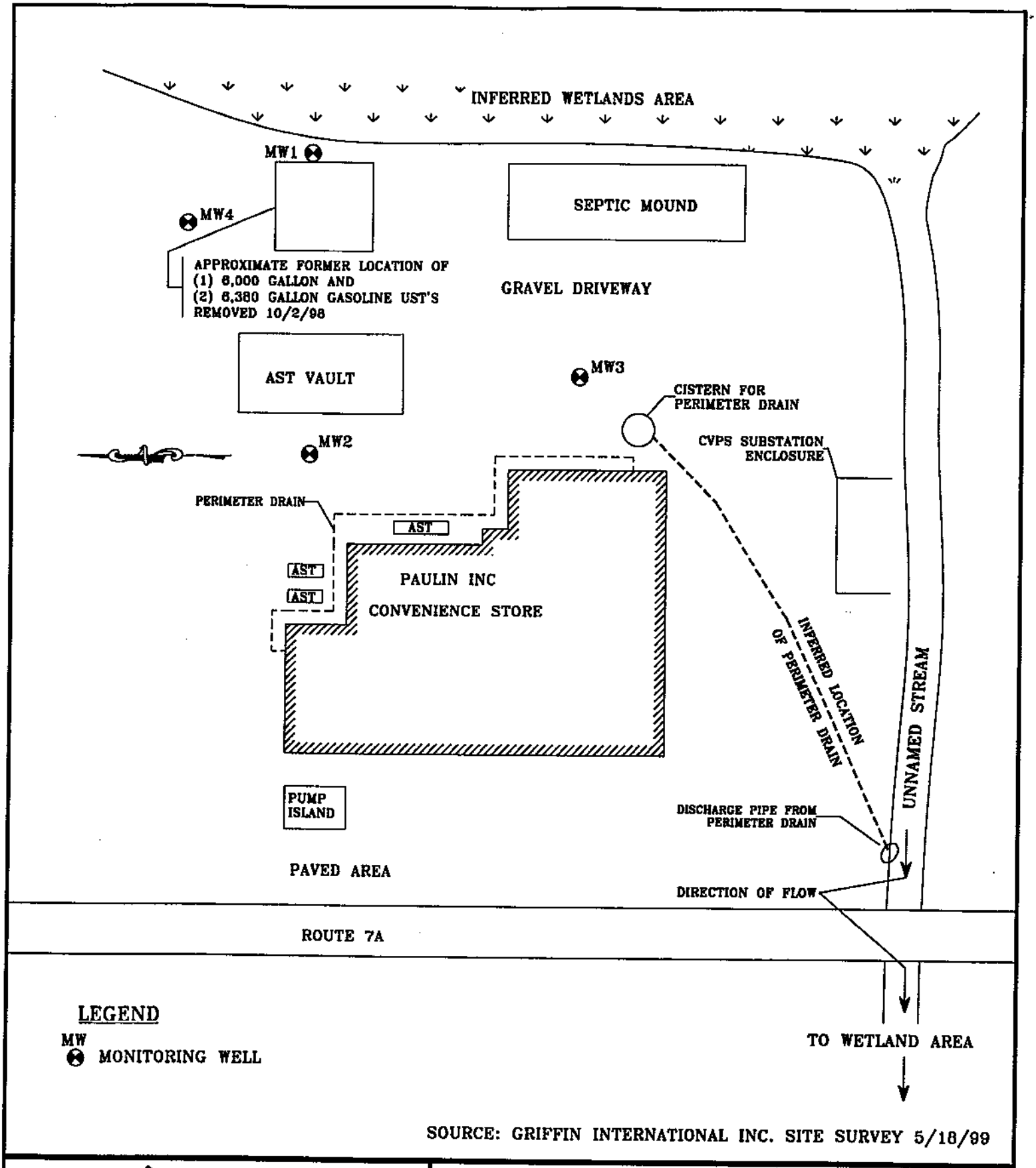
Maps



SITE LOCATION MAP – PAULIN, INC

Shaftsbury, Vermont

Source: Bennington, Vermont, USGS 7.5-minute Topographic Quadrangle, 1954.



SOURCE: GRIFFIN INTERNATIONAL INC. SITE SURVEY 5/18/99

JOB #: 49941525

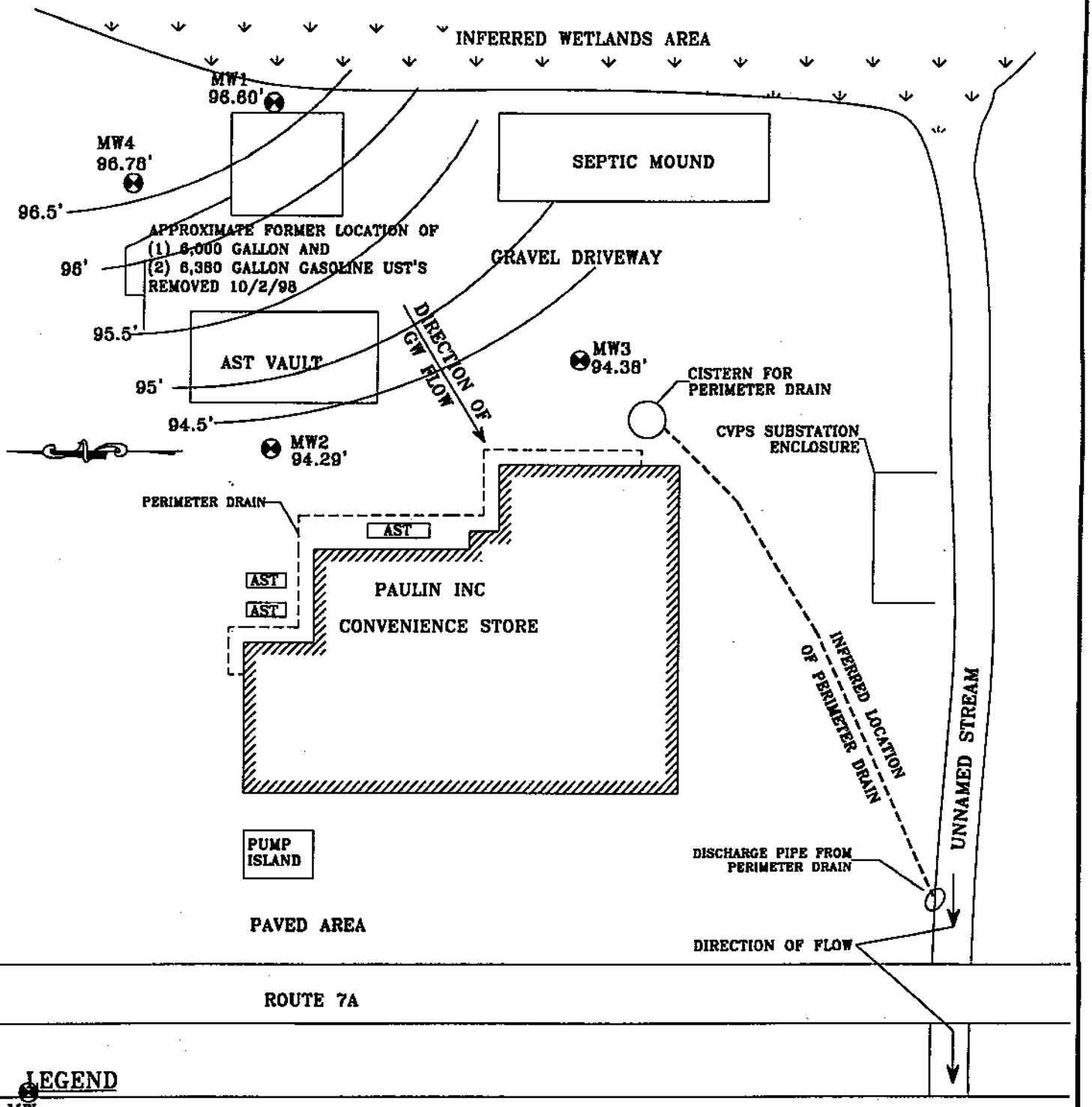
GRIFFIN INTERNATIONAL INC

PAULIN, INC.

ROUTE 7A
SHAFTSBURY, VT

SITE MAP

DATE: 5/25/99	DWG.#:1	SCALE: 1" = 32'	DRN.:TG	APP.:BS



SOURCE: GRIFFIN INTERNATIONAL INC. SITE SURVEY 5/18/99

JOB #: 49941525

GRIFFIN INTERNATIONAL INC

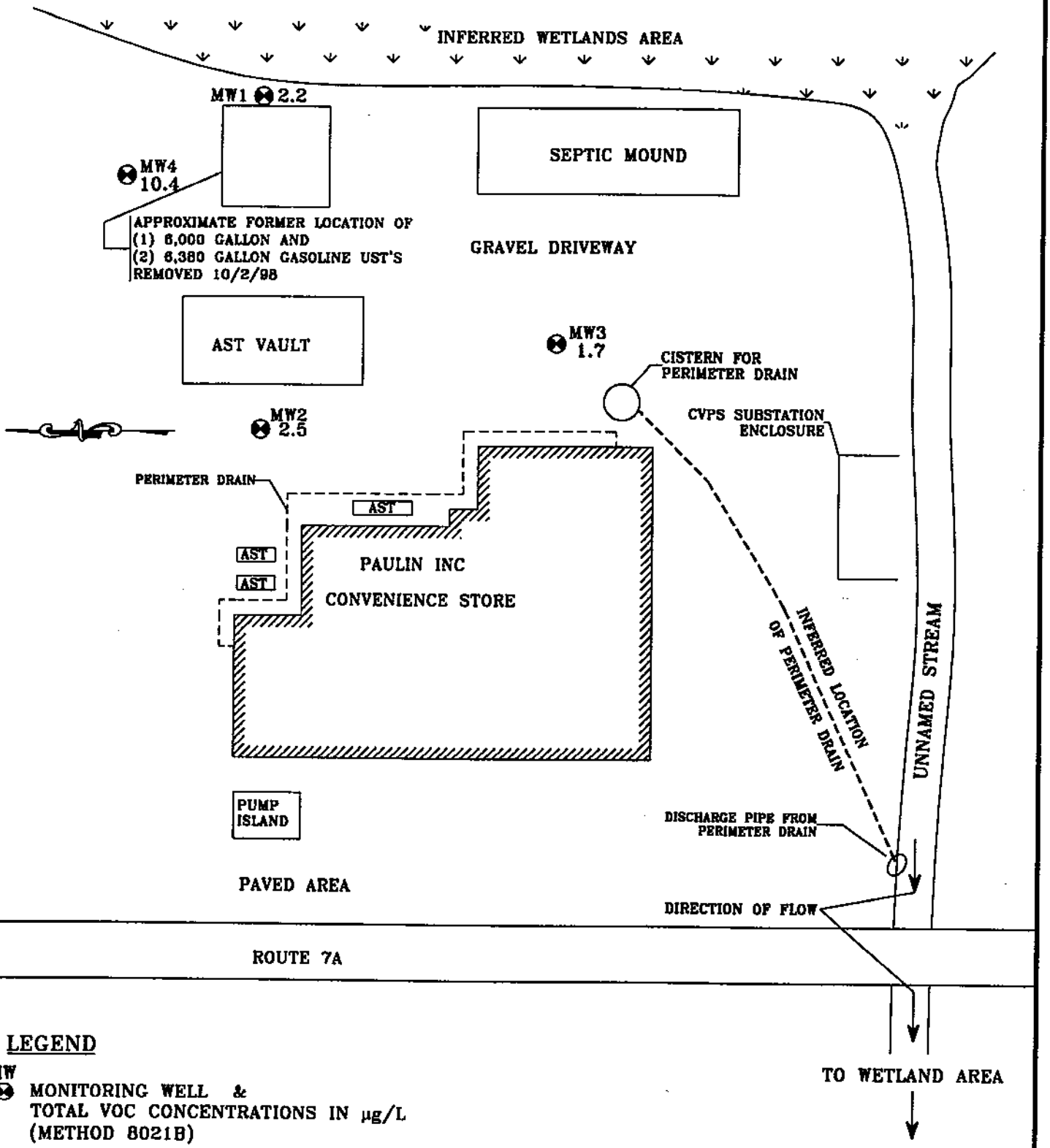
PAULIN, INC.

ROUTE 7A
SHAFTSBURY, VT

GROUNDWATER CONTOUR MAP

MEASURED 5/18/99

DATE: 5/25/99	DWG.#:1	SCALE: 1" = 32'	DRN.:TG	APP.:BS



LEGEND

MW ⊗ MONITORING WELL & TOTAL VOC CONCENTRATIONS IN µg/L (METHOD 8021B)

SOURCE: GRIFFIN INTERNATIONAL INC. SITE SURVEY 5/18/99

JOB #: 49941525

GRIFFIN INTERNATIONAL INC

PAULIN, INC.

ROUTE 7A
SHAFTSBURY, VT

CONTAMINANT CONCENTRATION MAP

SAMPLE DATE: 5/18/99

DATE: 5/25/99	DWG.#:1	SCALE: 1" = 32'	DRN.:TG	APP.:BS

APPENDIX B

Well Logs

PROJECT 49941525 PAULIN, INC

LOCATION SHAFTSBURY, VT

DATE DRILLED 5/5/99 TOTAL DEPTH OF HOLE 12.5'

DIAMETER 2.75"

SCREEN DIA. 1.5" LENGTH 10' SLOT SIZE 0.010"

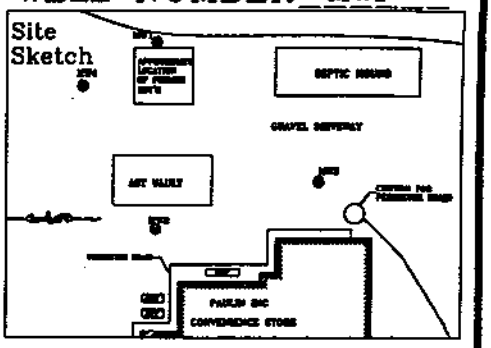
CASING DIA. 1.5" LENGTH 2' TYPE sch 40 pvc

DRILLING CO. ADAMS ENG. DRILLING METHOD VIBRATORY

DRILLER GERRY ADAMS LOG BY BETH STOPFORD

WELL NUMBER MW1

Site Sketch



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 NATURAL FILL			0
1		BENTONITE	0 – 4.5' 3.4 ppm	WELL GRADED SAND (SW) 100% MEDIUM SAND, DRY, LT BROWN	1
2		WELL RISER			2
3				3.5' WATER TABLE	3
4					4
5					5
6			4.5'–9.5' 1.4 ppm	SILT (ML) 10% MEDIUM SAND, 90% SILT, WET, OLIVE GRAY & BROWN LAYERS	6
7					7
8					8
9		SAND PACK WELL SCREEN			9
10					10
11			9.5' – 12.5' 0.8 ppm	SILT (ML) – 10% FINE SAND, 90% SILT, WET OLIVE GRAY & BROWN LAYERS	11
12		BOTTOM CAP			12
13		UNDISTURBED NATIVE SOIL		BASE OF WELL AT 12.5' 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 49941525 PAULIN, INC

LOCATION SHAFTSBURY, VT

DATE DRILLED 5/5/99 TOTAL DEPTH OF HOLE 11'

DIAMETER 2.75"

SCREEN DIA. 1.5" LENGTH 10' SLOT SIZE 0.010"

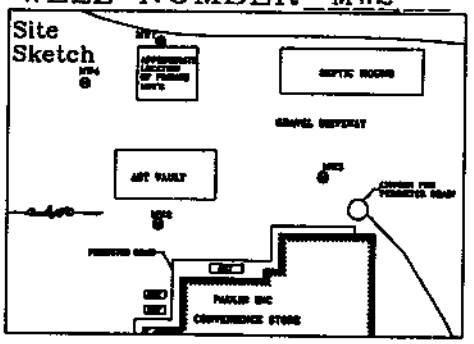
CASING DIA. 2" LENGTH 2' TYPE sch 40 pvc

DRILLING CO. ADAMS ENG. DRILLING METHOD VIBRATORY

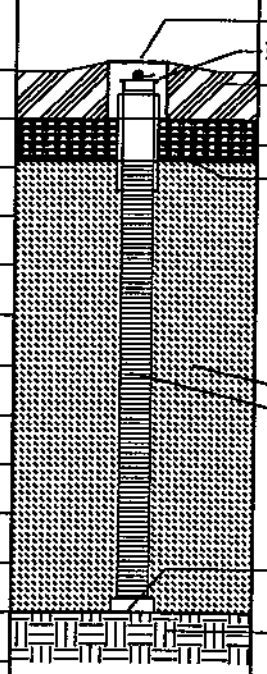
DRILLER GERRY ADAMS LOG BY BETH STOPFORD

WELL NUMBER MW2

Site Sketch



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 NATURAL FILL			0
1			0 – 4.5' 0.2 ppm	SILTY SAND (SM) 35% SILT, 60% MEDIUM SAND, 5% FINE GRAVEL, MOIST, BROWN & LT BROWN	1
2		BENTONITE WELL RISER			2
3				3.5' WATER TABLE	3
4					4
5					5
6			4.5'–9.5' 0.7 ppm	WELL GRADED GRAVEL & SAND (GW–SW) 50% SAND, 50% GRAVEL, WET, BROWN	6
7		SAND PACK WELL SCREEN			7
8					8
9					9
10		BOTTOM CAP			10
11		UNDISTURBED NATIVE SOIL		BASE OF WELL AT 11' END OF EXPLORATION AT 11'	11
12					12
13					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 49941525 PAULIN, INC

LOCATION SHAFTSBURY, VT

DATE DRILLED 5/5/99 TOTAL DEPTH OF HOLE 7'

DIAMETER 2.75"

SCREEN DIA. 1.5" LENGTH 5' SLOT SIZE 0.010"

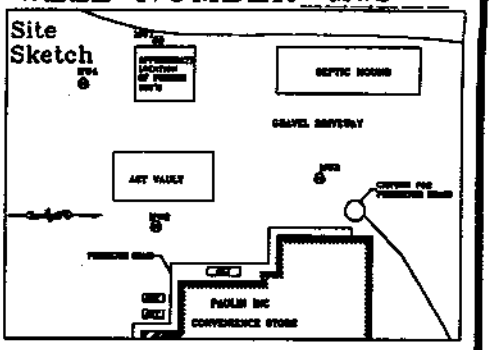
CASING DIA. 1.5" LENGTH 2' TYPE sch 40 pvc

DRILLING CO. ADAMS ENG. DRILLING METHOD VIBRATORY

DRILLER GERRY ADAMS LOG BY BETH STOPFORD

WELL NUMBER MW3

Site Sketch



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 NATURAL FILL			0
1		BENTONITE		1.0' WATER TABLE	1
2		WELL RISER	0 – 4.8 5.4 ppm	WELL GRADED GRAVEL & SAND (GW-SW) 50% SAND, 50% GRAVEL, DRY, BROWN & OLIVE GRAY, PETROLEUM ODOR	2
3					3
4					4
5		SAND PACK WELL SCREEN			5
6		BOTTOM CAP	4.8'–7' 0.0 ppm	SILT (ML) 90% SILT, 10% SAND, WET, OLIVE GRAY & BROWN	6
7					7
8		BORE HOLE COLLAPSE			8
9					9
10			9.5'–11' 0.5 ppm	50% SAND, 50% GRAVEL, WET (FILL MATERIAL CAVING INTO BORING)	10
11					11
12		UNDISTURBED NATIVE SOIL		BASE OF WELL AT 7' END OF EXPLORATION AT 11'	12
13					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 49941525 PAULIN, INC

LOCATION SHAFTSBURY, VT

DATE DRILLED 5/5/99 TOTAL DEPTH OF HOLE 11.3'

DIAMETER 2.75"

SCREEN DIA. 1.5" LENGTH 10' SLOT SIZE 0.010"

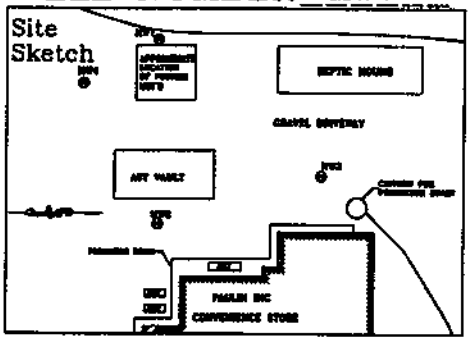
CASING DIA. 2" LENGTH 1.5' TYPE sch 40 pvc

DRILLING CO. ADAMS ENG. DRILLING METHOD VIBRATORY

DRILLER GERRY ADAMS LOG BY BETH STOPFORD

WELL NUMBER MW4

Site Sketch



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 NATURAL FILL			0
1		BENTONITE WELL RISER	0 -4' 1.8 ppm	WELL GRADED SAND & GRAVEL (SW-GW)- 50% SAND, 50% GRAVEL, DRY, LT. BROWN	1
2					2
3				3.5' WATER TABLE	3
4			4'-4.5' 1.6 ppm	SILT (ML)- 100% SILT, WET, OLIVE GRAY	4
5					5
6					6
7		SAND PACK WELL SCREEN	4.5'-9.5' 0 ppm	SILT (ML)- 100% SILT, WET, OLIVE GRAY	7
8					8
9					9
10					10
11		BOTTOM CAP			11
12		UNDISTURBED NATIVE SOIL		BASE OF WELL AT 11.3' END OF EXPLORATION AT 11.3'	12
13					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

APPENDIX C

Liquid Level Monitoring Data

Paulin Inc.
Route 7A
Shaftsbury, Vermont

Liquid Level Data

Sample Date: 5/18/99

Well I.D.	Well Depth btoc	Top of Casing Elevation	Depth To Product btoc	Depth To Water btoc	Product Thickness	Specific Gravity Of Product	Water Equivalent	Corrected Depth To Water	Corrected Water Table Elevation
MW1	11.6	99.60	-	3.00	-	-	-	3.00	**96.60**
MW2	9.9	97.33	-	3.04	-	-	-	3.04	**94.29**
MW3	6.5	94.78	-	0.40	-	-	-	0.40	**94.38**
MW4	9.8	100.00	-	3.22	-	-	-	3.22	**96.78**

All Values Reported in Feet

btoc - Below Top of Casing

Elevations determined relative to top of casing of MW4, which was arbitrarily set at 100'. Surveyed May 18, 199 by Griffin International.

nm - not measured

Modified 6/7/99

APPENDIX D

Groundwater Quality Summary Reports

Paulin, Inc.
Route 7A
Shaftsbury, Vermont

Groundwater Quality Summary Data

PARAMETER	Sample Date: May 18, 1999				VGES
	MW1	MW2	MW3	MW4	
Benzene	ND>1	ND>1	ND>1	**6.9**	5
Toluene	ND>1	ND>1	ND>1	ND>2	1,000
Ethylbenzene	ND>1	ND>1	ND>1	ND>2	700
Xylenes	ND>1	ND>1	ND>1	ND>2	10,000
1,3,5 Trimethyl Benzene	ND>1	ND>1	ND>1	ND>2	4
1,2,4 Trimethyl Benzene	ND>1	ND>1	ND>1	ND>2	5
Napthalene	**2.2**	**2.5**	**1.7**	**3.5**	20
Total 8021B VOCs	**2.2**	**2.5**	**1.7**	**10.4**	-
MTBE	ND>10	ND>10	ND>10	ND>20	40
Total 8021B VOCs +MTBE	**2.2**	**2.5**	**1.7**	**10.4**	-

Analysis by EPA Method 8021B

All Values Reported in ug/L (ppb)
ND>1 - None Detected above Detection Limit
TBQ<1 - Trace Below Quantitation Limit
Blank Cell - Not Analyzed

VGES = Vermont Groundwater Enforcement Standards (Vermont Groundwater Protection Rule and Strategy, 11/15/97)

Paulin, Inc.
Route 7A
Shaftsbury, Vermont

QA/QC Data

Sample Date: May 18, 1999

PARAMETER	Trip Blank	Duplicate MW-3
Benzene	ND>1	ND>1
Toluene	ND>1	ND>1
Ethylbenzene	ND>1	ND>1
Xylenes	ND>1	ND>1
1,3,5 Trimethyl Benzene	ND>1	ND>1
1,2,4 Trimethyl Benzene	ND>1	ND>1
Napthalene	ND>1	1.7
Total 8021B VOCs	0.0	1.7
MTBE	ND>10	ND>10
Total 8021B VOCs +MTBE	0.0	1.7

Analysis by EPA Method 8021B

APPENDIX E

Laboratory Analysis Reports

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: Paulin Inc/#49941525
REPORT DATE: May 27, 1999
DATE SAMPLED: May 18, 1999

ORDER ID: 2392
REF.#: 138,655 - 138,660

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

ENDYNE, INC.

Laboratory Services

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

EPA METHOD 8021B--PURGEABLE AROMATICS

CLIENT: Griffin International
PROJECT NAME: Paulin Inc/#49941525
CLIENT PROJ. #: 49941525

DATE RECEIVED: May 19, 1999
REPORT DATE: May 27, 1999
ORDER ID: 2392

Ref. #:	138,655	138,656	138,657	138,658	138,659
Site:	MW 1	MW 2	MW 3	Duplicate	MW 4
Date Sampled:	5/18/99	5/18/99	5/18/99	5/18/99	5/18/99
Time Sampled:	1:18	1:30	1:15	1:15	1:05
Sampler:	DT	DT	DT	DT	DT
Date Analyzed:	5/27/99	5/26/99	5/26/99	5/26/99	5/27/99
UIP Count:	>10	>10	>10	>10	>10
Dil. Factor (%):	100	100	100	100	50
Surr % Rec. (%):	95	107	106	100	93
Parameter	Conc. (ug/L)	Conc. (ug/L)	Conc. (ug/L)	Conc. (ug/L)	Conc. (ug/L)
MTBE	<10	<10	<10	<10	<20
Benzene	<1	<1	<1	<1	6.9
Toluene	<1	<1	<1	<1	<2
Ethylbenzene	<1	<1	<1	<1	<2
Xylenes	<1	<1	<1	<1	<2
1,3,5 Trimethyl Benzene	<1	<1	<1	<1	<2
1,2,4 Trimethyl Benzene	<1	<1	<1	<1	<2
Naphthalene	2.2	2.5	1.7	1.7	3.5

Ref. #:	138,660
Site:	Trip Blank
Date Sampled:	5/18/99
Time Sampled:	7:15
Sampler:	DT
Date Analyzed:	5/27/99
UIP Count:	0
Dil. Factor (%):	100
Surr % Rec. (%):	103
Parameter	Conc. (ug/L)
MTBE	<10
Benzene	<1
Toluene	<1
Ethylbenzene	<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.

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

61#4991525

1 of 2

31727

CHAIN-OF-CUSTODY RECORD

Project Name: Paulin Inc. Site Location: Shaftsbury VT	Reporting Address: Griffin	Billing Address:
Endyne Project Number: 2392	Company: Bem Stapleford Contact Name/Phone #:	Sampler Name: Don Tourangeau Phone #: Tina Aust

Lab #	Sample Location	Matrix	GRAB	COMP	Date/Time	Sample Containers No.	Sample Containers Type/Size	Field Results/Remarks	Analysis Required	Sample Preservation	Rush
138655	MW1	H2O	X		5/18 1319	2	VOA		8021B	HCL	
138656	MW2				1330						
138657	MW3				1315						
138658	MW3 DUP				1315						
138659	MW4				1305						
138660	Trip Blank				0715						

Relinquished by: Signature	Received by: Signature	Date/Time 5-19-99 10:15
Relinquished by: Signature	Received by: Signature	Date/Time 5/19/99 10:15

New York State Project: Yes ___ No X

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):										