ENTERED

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY – REMEDIATION AND REDEVELOPMENT DIVISION
PO BOX 30426, LANSING, MI 48909-7926, Phone 517-284-5087, Fax 517-241-9581

LEAKING UNDERGROUND STORAGE TANK INITIAL ASSESSMENT REPORT COVER SHEET

X NEW or ☐ **AMENDMENT TO INITIAL ASSESSMENT REPORT**

INSTRUCTIONS: COMPLETION OF THIS REPORT WITH ALL APPLICABLE INFORMATION IS MANDATORY pursuant to Part 213, Section 324.21308a and 324.21308a(2)(b) of the Leaking Underground Storage Tanks, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. **Check one of the boxes above to indicate whether this is a new or amended submittal.** Please provide the completed Initial Assessment Report and the associated Table of Contents, Form EQP4006, to the appropriate RRD District Office within 180 days after a release has been discovered.

SITE NAME: Beacon & Bridge Market #8			FACILITY ID NUMBER: 00002778
STREET ADDRESS: 110 E Broad St			
CITY: Linden	ZIP: 48451		COUNTY: Genesee
DATE(S) RELEASE(S) DISCOVERED: 11/14/2014	CONFIRMED RELEASE NUMBER(S): C-0162-14		
O/O NAME: Quick-Sav Food Stores Ltd	O/O EMAIL ADDRESS: bcarpentier@quicksav.com		
O/O STREET ADDRESS: 6285 Taylor Dr	CITY: Flint	STATE: MI	ZIP: 48507
CONTACT PERSON: Bob Carpentier	PHONE: 810.835.4341	FAX: 810.835.4330	

Permission is given for the Department of Environmental Quality to contact the Qualified Consultant: ☒YES ☐NO

INITIAL ASSESSMENT REPORT INFORMATION: Answer All Questions (DO NOT LEAVE BLANKS)

1. Site classification (1-4): 1 Previous site classification (1-4): Type of RBCA evaluation: ☒ Tier I ☐ Tier II ☐ Tier III

2. Substance(s) released: ☒ Gasoline ☐ Diesel ☐ Ethanol: E-10☐ or E-85☐ ☐ Other:

3. Has contamination migrated off-site above Tier 1 Residential RBSLs? ☒YES ☐NO
   If YES, have off-site impacted parties been notified per Section 324.21309a(3) of Part 213? ☐YES ☒NO Refer to Section 7.1

4. Predominant groundwater flow direction: Multi-directional Depth to groundwater: 9.3-10.7

5. Is mobile NAPL present: Currently? ☒YES ☐NO Previously? ☒YES ☐NO

   If present, was it recovered? ☒YES ☐NO If recoverable, total gallons recovered since last reported: 0.3 to date: 0.3

6. Is migrating NAPL present: ☐YES ☒NO If yes, are actions being taken to stop NAPL migration? ☐YES ☐NO

7. Since last report: cubic yards of soil remediated: 0 gallons of groundwater remediated: 1.8

   Totals to date: cubic yards of soil remediated: 0 gallons of groundwater remediated: 1.8

8. Have toxic or explosive vapors been identified in any confined spaces (basement, sewer, etc.)? ☐YES ☒NO None have been confirmed in association with the subject Site

9. Drinking water supply affected? Currently: ☐YES ☒NO Previously: ☐YES ☒NO

   Indicate type and # of wells affected: ☐ Private # ☐ Public Type II/III # ☐ Municipal #

10. Has the release affected surface water or wetlands? ☐YES ☒NO

11. Estimated distance and direction from point of release to nearest: Private well: 740 feet NW Municipal well: 0.25 mile NW

    Surface water/wetland: 425 feet north Is site within a wellhead protection zone? ☐YES ☒NO

12. Has the UST(s) been emptied? ☐YES ☒NO Has the UST System(s) been properly closed? ☐YES ☒NO

    If NO, explain why? UST system tested tight, except for one unleaded gas UST due to corrosion present on the riser at the top of the tank.

RECEIVED

MAY 13 2015

MDEQ-RD
LANSING DISTRICT OFFICE

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY – REMEDIATION AND REDEVELOPMENT DIVISION
PO BOX 30426, LANSING, MI 48909-7926, Phone 517-284-5087, Fax 517-241-9581

LEAKING UNDERGROUND STORAGE TANK INITIAL ASSESSMENT REPORT COVER SHEET

(Continued)

This Initial Assessment Report (IAR), which was completed in accordance with Part 213, Leaking Underground Storage Tanks, of the Natural Resources and Environmental Protection Act, 1994 PA451, as amended, is submitted by:

SIGNATURE OF OWNER/OPERATOR (O/O)		
Robert B Carpentier	Robert Carpentier	5/13/15
O/O or AUTHORIZED REPRESENTATIVE SIGNATURE	PRINT NAME	DATE

SIGNATURE OF QUALIFIED UST CONSULTANT (QC)		
Christie L Santiago	Christie L. Santiago	5/13/15
QC SIGNATURE*	PRINT NAME	DATE

*** By signing this form I certify that I meet the qualified underground storage tank consultant requirements identified in section 324.21325 of Part 213, Leaking Underground Storage Tanks, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.**

PM Environmental, Inc.	4080 West Eleven Mile Road, Berkley, Michigan 48072	
QC COMPANY NAME	QC ADDRESS, CITY, STATE, ZIP	
248.336.9988	877.884.6775	santiago@pmenv.com
QC PHONE	QC FAX NUMBER	QC EMAIL ADDRESS

Instructions - Utilize the following Table of Contents (TOC) to ensure that all information required by Part 213, Leaking Underground Storage Tanks, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, is provided in the Initial Assessment Report (IAR). RBCA is defined in Part 213 as the ASTM standards E 1739-95 (2010), E 2081-00 (2010), and E 2531-06. Information in these standards must be provided, as applicable per site conditions. The Department of Environmental Quality (DEQ) may request supporting documentation to the data and conclusions of the IAR, which may include information in the ASTM standards referenced above.

Complete the IAR report cover sheet and pages 1 through 5 of the TOC. The order and format in which the information is provided is at the submitter's discretion. Each page of the report, including appendices, should be consecutively numbered. The column labeled as "Page(s)" should be completed with the range of page numbers for each section. You may reference previously submitted material by specifying where the information is located within the referenced document.

Initial Assessment REPORT TABLE OF CONTENTS (Page 1 of 6)		PAGE(S)
A. EXECUTIVE SUMMARY (OPTIONAL)		
1.	An executive summary with a brief description of initial assessment activities.	Pages i and ii
	References: ASTM E1739-95 (Reapproved 2010), Section 6.11.1	
B. SITE INFORMATION		
1.	The property address.	Page i and 1
2.	The name of the business, if applicable.	Page i and 1
3.	The name, address, and telephone number of a contact person for the owner or operator.	Page i and 1
4.	The time and date of release discovery.	Page i and 1
5.	The time and date the release was reported to the department.	Page i and 1
6.	A description of how the release was discovered.	Page i and 1
7.	A list of regulated substances the underground storage tank system contained when the release occurred.	Section 1.0 page 1
8.	A list of the regulated substances the underground storage tank system contained in the past.	Section 1.0 page 1
9.	The component of the underground storage tank system from which the release occurred.	Pages 1-3
10.	A review of historical records of site activities and past releases and potential source areas.	Pages 1-3
References: Part 213, Section 21308a(1)(b); ASTM E1739-95 (Reapproved 2010), Section 6.2.1.1		
C. INITIAL RESPONSE ACTIONS and INTERIM REMEDIAL ACTION		
1.	Was the underground storage tank system emptied to prevent further release?	Pages 1-4
2.	The extent to which all or part of the underground storage tank system or soil, or both, was removed.	Pages 1-4
3.	Results of initial response actions taken under Part 213, Section 21307(2).	Pages 3-4
4.	Identify the steps taken to mitigate immediate fire, explosion hazards, and acute vapor hazards.	NA no immediate threats
5.	Description of the actions taken to prevent further release of the regulated substance into the environment, including removing the regulated substance from the underground storage tank system that is causing the release.	Pages 3-4
6.	Describe the steps taken that were necessary and feasible, to address unacceptable immediate risk regarding Non-Aqueous Phase Liquid (NAPL), using the process outlined by Risk-Based Corrective Action (RBCA).	Pages 4-5, 14, and 15
7.	Amount of soil excavated, contained, treated, or disposed, above the water table, that were visibly contaminated and likely to cause a fire hazard.	NA no immediate threats
8.	Any other actions taken to abate an immediate threat to public health, safety, or welfare, or the environment.	Pages 3-4
9.	A description of what other steps were taken to prevent further migration of the regulated substance into the soil or ground water.	Pages 3-5, 14, and 15
10.	Whether toxic or explosive vapors, or migrating or mobile NAPL was found, the steps that were taken to evaluate those conditions, and the current levels of toxic or explosive vapors or migrating or mobile NAPL in nearby structures.	Pages 4-5 and 14-15
11.	Data from analytical testing of soil and ground water samples.	Tables 1-3 Pages 11-14
References: Part 213, Section 21308a(1)(a), Section 21308a(1)(b), and Section 21307(2)		

D.		**MOBILE or MIGRATING NAPL INVESTIGATION**	
1.		A description of the mobile or migrating NAPL investigation, and an evaluation conducted pursuant to Part 213, Section 21307(2)(c).	Section 3.0 pages 3-5
2.		A description of NAPL removal, if NAPL is recoverable and removal is necessary to abate an unacceptable risk pursuant to the provisions outlined in RBCA.	Pages 4 and 5 and 14-15
3.		A description of the actions taken to remove any NAPL.	Pages 4 and 5 and 14-15
4.		The name of the person or persons responsible for implementing the NAPL removal measures.	Page 1
5.		The estimated quantity, type, and thickness of NAPL observed or measured in wells,boreholes, and excavations.	Table 4 and Page 14-15
6.		The type of NAPL recovery system used.	Page 14-15
7.		Discharge location, if any discharge will take place on or off site during the recovery operation.	NA no discharge
8.		The type of treatment applied to, and the effluent quality expected from, any discharge.	NA no discharge
9.		The steps that have been or are being taken, to obtain necessary permits for any discharge.	NA no discharge
10.		The quantity and disposition of the recovered NAPL.	Pages 4 and 5 and 14-15
11.		Please note the following: If migrating or mobile NAPL is discovered at a site after the submittal of an IAR pursuant to Part 213, Section 21308(1), the owner or operator shall do both of the following:	
	a.	Perform initial actions identified in Part 213, Section 21307(2)(c).	NA
	b.	Submit to the Department an amendment to the IAR within 30 days of discovery of the migrating or mobile NAPL that describes response actions taken as a result of the migrating or mobile NAPL discovery.	NA
		References: Part 213, Section 21308a(1)(b), and Section 21308a(2)	
E.		**INITIAL SITE ASSESSMENT**	
1.		Describe the site.	Page 1
2.		Provide a summary of the site ownership and use; historical records of site activities;past releases; and potential source areas.	Pages 1-3
3.		Provide a summary of the current and completed site activities.	Pages 5-11
4.		Provide an estimate of the horizontal and vertical extent of on-site and off-site soil contamination exceeding the applicable Risk-Based Screening Level (RBSL) for Tier I sites, or the applicable Site Specific Target Level (SSTL) for Tier II or Tier III sites.	Section 4.2.3 Figure 3 (soil)
5.		Estimate the amount of contaminated soil in the vadose zone.	Section 4.2.3 Figure 3 (soil)
6.		Describe the steps that have been taken or will be taken, including an implementation schedule, to expeditiously secure access to off-site properties, to complete the delineation of the extent of the release if the contamination exceeds the applicable RBSL or the applicable SSTL..	Section 7 Pages 18-20
7.		Describe and depict the vertical distribution of contaminants.	Figures 8 and 9 pages 12-14
8.		Identify any other contamination on the site not resulting from the release and the source.	Section 4.2.4 (Soil) p13 Section 4.3.5 (GW) p14
9.		Identify the Chemical(s) of Concern (CoC), location of major sources of the CoC, and location of maximum concentrations of CoC in soil, ground water, air, soil gas,surface water, and sediments.	Section 4.2.3 (Soil) p12-13 Section 4.3.4 (GW) p14 Section 4.5 (Air) p15 Tables 1-3 Figures 3-5

10.	Determine the regional hydrogeologic and geologic characteristics (i.e., depth to ground water, aquifer thickness, flow rate, direction, gradient, description of confining units, and ground water quality).	Figures 6-9 pages 11-13
11.	Identify potential migration and exposure pathways and receptors.	Section 6.0 Pages 16-18
12.	Determine the location of humans and the environmental receptors that could be impacted (i.e., point(s) of exposure).	Section 6.0 Pages 16-18
13.	Identify the location of nearby surface waters, wetlands, nearby underground sewers, and utility lines.	Section 6.0 Pages 16-18
14.	Evaluate the impacts to environmental receptors.	Section 6.0 Pages 16-18
15.	Provide a summary of the analytical data and the appropriate RBSL or SSTL used.	Section 4.2.3 (Soil) p12-13 Section 4.3.4 (GW) p14 Section 4.5 (Air) p15 Tables 1-3 Figures 3-5
16.	Provide a summary of the ecological assessment and beneficial uses.	Section 6.0 Pages 16-18
17.	Provide site photos.	NA
18.	Conduct a pathway analysis by identifying potentially significant transport and human and ecological exposure pathways (i.e., ground water transport, vapor migration through soils and utilities).	Section 6.0 Pages 16-18
19.	Describe the current and reasonably anticipated future use of the site and surrounding land, including ground water resources, surface water, relevant ecological receptors, and habitats.	Section 6.0 Pages 16-18
20.	If appropriate, calculate an appropriate upper confidence limit for the CoC.	NA
21.	Determine background concentrations of CoC in the environment.	NA
	References: Part 213, Section 21308a(1)(b); and ASTM E1739-95 (Reapproved 2010), Section 6.2 and 6.11; ASTM E2081-00 (2010), Section 6.5 and 6.17	

F.	**CONCEPTUAL SITE MODEL (CSM)**	
1.	Provide a written and/or pictorial overview of the site.	Figures 2 through 10
2.	Conduct the exposure pathway evaluation, inventory the exposure pathways evaluated, and determine the status of the exposure pathways as incomplete,potentially complete, or complete.	Section 6.0 Pages 16-18
3.	Identify response actions.	Section 2.0 p3-4 Section 4.4 p14-15
4.	Update the CSM as additional information is gathered throughout the RBCA process.	Section 3.0 p4
	Reference: CSMs: ASTM E2081-00 (2010), Section 3.2.52 and Section 6.3 (CSM)	

G.	**TIER I EVALUATION**	
1.	Compare Site Conditions and Data with Tier 1 RBSL	Tables 1 through 3
a.	Identify potential exposure scenario(s), which are based on site assessment information.	Section 6.0 Pages 16-18
b.	Identify primary and secondary sources, transport mechanisms, and exposure pathways.	Section 6.0 Pages 16-18
c.	Identify receptors based on current/anticipated future use. Take into consideration land use restrictions and surrounding land use.	Section 6.0 Pages 16-18
d.	Identify exposure scenarios where the concentrations of the CoC are above the RBSL.	Section 6.0 Pages 16-18
2.	Exposure Evaluation	Section 6.0 Pages 16-18
a.	Characterize the sources and exposure pathways at the site.	Section 6.0 Pages 16-18
b.	Compare the site conditions with Tier 1 RBSLs for each identified receptor.	Section 6.0 Pages 16-18
c.	Identify potential corrective actions that reduce or eliminate exposure to the CoC.	Section 6.0 Pages 16-18
	Reference: Part 213, Section 21308a(1)(b)(*xxii*) and Section 21308a(1)(d); ASTM E1739-95 (2010), Section 5.5, 6.5 through Section 6.7	

H.	**H. TIER II EVALUATION (Optional)**	NA Tier 2 not conducted
1.	If SSTLs are generated, provide all information and an explanation of the calculation of the SSTLs.	NA Tier 2 not conducted
2.	If relying upon alternative points of compliance, provide the reasoning and information supporting their selection.	NA Tier 2 not conducted
3.	Gather additional site assessment information to develop or identify corrective	NA Tier 2 not conducted
4.	Complete a Tier II evaluation on potentially complete exposure pathways.	NA Tier 2 not conducted
5.	Obtain site-specific hydrogeologic and geologic characteristics to aid in generation of the SSTLs.	NA Tier 2 not conducted
6.	Define the extent of CoC relative to the RBSL or SSTL, as appropriate.	NA Tier 2 not conducted
7.	Evaluate the changes in concentrations of CoC over time to determine if they are stable, increasing, and/or decreasing.	NA Tier 2 not conducted
8.	Determine the CoC measured at the point(s) of exposure, (i.e. in drinking water wells, sewers, surface water bodies).	NA Tier 2 not conducted
9.	Complete mathematical models to generate SSTLs based on the measured and predicted attenuation of the CoC away from the source area(s).	NA Tier 2 not conducted
10.	Compare the concentrations of the CoC, at the point(s) of compliance, to the RBSLs or SSTLs to determine if corrective action, interim remedial action, or further tier evaluation should be implemented.	NA Tier 2 not conducted
	Reference: Part 213, Section 21308a(1)(b)(xxii), and Section 21308a(1)(d); ASTM E1739-95 (2010), Section 5.6, Section 6.2, Section 6.7 thru Section 6.7.3, and Section 6.8 thru Section 6.83	
I.	**SITE CLASSIFICATION**	
1.	Classify the site according to the Michigan site classification system which is based upon the classification process outlined in RBCA.	Section 5.0 Page 16
	Reference: Part 213, Section 21308a(1)(c) and Section 21314a; ASTM E1739-95 (Reapproved 2010), Section 5.4, Section 6.3, and Table 1	
J.	**WORK PLAN and PROPOSED FOLLOW-UP ACTIVITIES**	
1.	If off-site soil or ground water may be affected, report the steps that have been taken or will be taken including an implementation schedule to expeditiously secure access to off-site properties to complete the delineation of the extent of the release.	Section 7 Pages 18-19
2.	Include a work plan, including an implementation schedule for conducting a final assessment report, to determine the vertical and horizontal extent of the contamination that exceeds the applicable RBSL or applicable SSTL as necessary for preparation of the corrective action plan.	Section 7 Pages 18-19
	Reference: Part 213, Section 21308a(1)(b)(xxiv), and Section 21308a(1)(e)	

K.		**SITE MAPS**	
1.		Provide site map(s) that includes all of the following:	Yes
	a.	The location of each underground storage tank in the leaking underground storage tank system.	Figure 2
	b.	The location of any other known current or former underground storage tank system on the site.	Figure 2
	c.	The location of fill ports, dispensers, and other pertinent system components for known current or former underground storage tank systems on the site.	Figure 2
	d.	Soil and ground water sample locations, if applicable.	Figures 3 and 3A (soil) Figures 4 and 4A (GW)
	e.	The locations of nearby buildings, roadways, paved areas, or other structures, aboveground storage tanks, underground storage tanks, buried utilities and conduits, suspected/confirmed sources, groundwater supply wells, and the location of human and environmental receptors that could be impacted by the CoC.	Figure 2
	f.	A map depicting the ground water elevation/ potentiometric surface.	Figures 6 and 7
	g.	A map depicting the geologic cross section(s).	Figures 8 and 9
	h.	A map of the dissolved plume map(s) with the CoC.	NA
	i.	A concentration map(s) showing the CoC in the appropriate environmental media.	Figures 3 and 3A (soil) Figures 4 and 4A (GW) Figure 5 (soil gas)
		Reference: Part 213, Section 21308a(1)(b)(vi)(A-E); ASTM E1739-95 (Reapproved 2010), Section 6.2.1.5, Section 6.11; and ASTM E2081 - 00 (2010), Section 6.17.18	

L.		**ANALYTICAL RESULTS and TABLES**	
1.		Provide laboratory analytical data.	Table 1 (soil) Table 2 (GW) Table 3 (soil gas) Appendix C
2.		Provide a summary of the analytical data and the corrective action goals used.	Table 1 (soil) Table 2 (GW) Table 3 (soil gas) Appendix C and E
3.		Compare the concentrations of the CoC to the RBSLs or SSTLs, include sitespecific hydrogeologic conditions (i.e., depth to ground water, static water elevation). Tabular form is preferred.	Table 1 (soil) Table 2 (GW) Table 3 (soil gas) Table 4 (Hydrogeologic Conditions) Appendix C
		Reference: Part 213 Section 21308a(1)(b)(xxvi); ASTM E1739-95 (Reapproved 2010) Section 6.2.2.1 and Section 6.7	

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Risk Well Managed

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May 2015

Ms. Marjorie Frisch
Michigan Department of Environmental Quality
Lansing District Office
525 West Allegan
Constitution Hall, 1S
P.O. Box 30242
Lansing, Michigan 48909-7742

Re: Initial Assessment Report (IAR) for the Beacon & Bridge Market #8
Located at 110 East Broad Street, Linden, Michigan
Facility ID 00002778, Release ID C-0162-14
PM Environmental, Inc. Project No. 01-4892-0

Dear Ms. Frisch:

PM Environmental, Inc. (PM) has completed this Initial Assessment Report (IAR) for the Beacon & Bridge Market #8 located at 110 East Broad Street, Linden, Michigan (Site). The Site is listed with the Michigan Department of Environmental Quality (MDEQ) as Facility ID 00002778 with a Leaking Underground Storage Tank (LUST) open release (C-0162-14) discovered November 14, 2014. The attached IAR is a summary of the field investigative techniques and results of the release assessment activities conducted pursuant to the Part 213, LUST, of the Michigan Natural Resources and Environmental Protection Act (NREPA), Public Act 451 of 1994, as amended (Part 213).

If you have any question or concerns, please feel free to contact our office at (517) 321-3331.

Sincerely,
PM ENVIRONMENTAL, INC.

Christie L. Santiago, Q.C.
Senior Engineer

J. Adam Patton, C.H.M.M., Q.C.
Manager of Site Investigation Services

Enclosure

EXECUTIVE SUMMARY

This Initial Assessment Report (IAR) summarizes the results of the site investigation and initial response activities conducted by PM Environmental, Inc. (PM) for the Beacon & Bridge #8 property located at 110 East Broad Street, in Linden, Michigan (hereafter referred to as the "Site"). The site is owned by Rare Family Partnership, located at 110 East Broad Street, in Linden, Michigan 48451. This IAR was prepared relative to the confirmed release (C-0162-14) pursuant to the Part 213, Leaking Underground Storage Tank (LUST), of the Michigan Natural Resources and Environmental Protection Act (NREPA), Public Act 451 of 1994, as amended (Part 213).

Release C-0168-14 was confirmed based upon analytical results forwarded to Beacon & Bridge on November 14, 2014, from the Michigan Department of Environmental Quality (MDEQ) site investigation activities completed in the vicinity of the Site during July and August 2014, indicating a release may have occurred at the Site.

The MDEQ - Remediation and Redevelopment Division (MDEQ-RRD) retained Environmental Consulting & Technology, Inc. (ECT) to assess benzene contamination identified in the commercial structures and the sub-grade storm sewer system along a two-block section of Bridge Street, south of the Shiawassee River and north of Hickory Street in Linden, Michigan. During July and August 2014, ECT sampled indoor air from 109 North Bridge Street and from two storm sewer structures along the east side of North Bridge Street. Additionally, soil borings were completed along with soil and groundwater sampling and analysis. Based on the indoor air results, a vapor mitigation system was installed at 109 North Bridge Street.

Visual and/or analytical evidence of light non-aqueous phase liquids (LNAPL) saturation was identified by ECT in six soil borings, five of which were south of the intersection of Bridge and Broad Streets. One of the locations, GP-3, was northeast of the Bridge and Broad Streets intersection. Approximately 0.07 feet of LNAPL was identified in GP-15, directly west of the current underground storage tank (UST) system associated with the subject Site.

Soil and groundwater analytical results from the ECT investigation identified petroleum volatile organic compound (VOC) concentrations above the Part 213 Tier 1 Residential and Nonresidential Drinking Water/Drinking Water Protection (DW/DWP) and Groundwater Surface Water Interface/Groundwater Surface Water Interface Protection (GSI/GSIP) Risk Based Screening Levels (RBSLs) and the Soil Saturation Screening Levels (Csat). Due to the shallow nature of the groundwater present at the Site, soil and groundwater concentrations were also compared to the Residential and Nonresidential Vapor Intrusion Screening Levels (VISLs). The extent of soil and groundwater impacts was not fully defined.

Based on the identified soil and groundwater impact and the presence of LNAPL in the right of way adjacent to the subject Site, a confirmed release was reported to the MDEQ on November 14, 2014, by PM. Although other investigation was conducted by ECT in the vicinity of the subject Site; this IAR is limited to the subject Site investigation activities conducted on behalf of Beacon and Bridge between December 2014 and April 2015 until further investigation documents whether additional sources may be reasonable for or contributing to the impact identified by ECT.

The UST system was tested by Tankology, Inc. on November 20, 2014. All tanks, product lines, and leak detectors were tested, except the product line for the kerosene UST, which is a suction system. Results indicated that all tanks, lines, and leak detectors passed, except the no lead

UST closest to the fuel dispensers failed due to corrosion present on the riser at the top of the tank. On April 27, 2015, the submersible riser, submersible pump, and manhole were removed from the tank that previously failed the tightness test.

The interim remedial actions conducted at the Site have included manual bailing of the LNAPL. Manual bailing of NAPL was conducted on December 24, 2014 and April 27, 2015. There are no immediate threats to public health, safety, or the environment at the Site.

During December 2014, PM completed site investigation activities that consisted of advancing eight soil borings (SB-1 through SB-8), installation of five monitoring wells (MW-1 through MW-5), and installing one sub-slab soil gas monitoring point (SG-1).

Soil contamination resulting from confirmed release C-0162-14 exists at the Site at concentrations that exceed the MDEQ Part 213 Tier 1 RBSLs for Residential and Nonresidential DWP, GSIP, and Ambient Air Infinite Source Volatile Soil Inhalation (VSI), the Residential and Nonresidential VISLs, and the MDEQ LNAPL screening levels. The vertical extent of soil impact is defined by the water table and the confining clay unit. The horizontal extent of impact associated with the 2014 release is not defined in any direction.

Groundwater contamination resulting from confirmed release C-0162-14 exists at the Site at concentrations that exceed the MDEQ Part 213 Tier 1 RBSLs for Residential and Nonresidential DW and GSI RBSLs. Measurable LNAPL was identified in permanent monitoring wells MW-2 and MW-3, at thicknesses ranging from 0.01-feet to 0.61-feet. The horizontal extent of groundwater impacts associated with the 2014 release is not defined in any direction. The vertical extent of groundwater impact is defined by the lower clay unit.

No sub-slab soil gas concentrations were identified above the MDEQ Residential and Nonresidential VISLs.

In accordance with MDEQ Policy and Procedure #RRD-21, LUST Site Classification System dated October 11, 2013, the Site is classified as a Class 1 LUST site due to the presence of LNAPL at the Site.

This report has been reviewed for its completeness and accuracy. Please feel free to contact our office at (800) 313-2966 to discuss this report.

Report Prepared By:

Christie L. Santiago, Q.C.
Senior Engineer

Report Reviewed By:

J. Adam Patton, C.H.M.M., Q.C.
Manager of Site Investigation Services

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1.0 INTRODUCTION

This Initial Assessment Report (IAR) summarizes the results of the site investigation and initial response activities conducted by PM Environmental, Inc. (PM) for the Beacon & Bridge Market #8 located at 110 East Broad Street, in Linden, Michigan (hereafter referred to as the "Site"). Refer to Figure 1 for the location of the Site and Figure 2 for a generalized diagram of the Site and adjoining properties. The site is owned by Rare Family Partnership, doing business as Beacon & Bridge Market #8, located at 6285 Taylor Drive, in Flint, Michigan 48507.

This IAR was prepared relative to the confirmed release (C-00162-14) pursuant to the Part 213, Leaking Underground Storage Tank (LUST), of the Michigan Natural Resources and Environmental Protection Act (NREPA), Public Act 451 of 1994, as amended (Part 213). Release C-0168-14 was confirmed based upon analytical results forwarded to Beacon & Bridge on November 14, 2014, from the Michigan Department of Environmental Quality (MDEQ) relative to site investigation activities completed in the vicinity of the Site during July and August 2014, indicating a release may have occurred at the Site.

The subject property consists of one parcel of land totaling 0.27 acres located at the southeast corner of East Broad Street and South Bridge Street in Linden, Michigan (Figures 1 and 2). The subject property is occupied by one approximate 2,240 square foot, single story, slab-on-grade convenience store building that is heated and cooled via packaged (i.e., roof mounted), natural-gas fired heating, ventilation, and air conditioning (HVAC) units that source return air from within the building.

The Site currently has four USTs in service. Three 10,000 gallon gasoline USTs are located approximately 12 feet north of the Site building and provide gasoline to the two dispensers located northeast of the Site gasoline UST basin (Figure 2). A 2,000 gallon kerosene UST is present west of the building with a single fuel dispenser direct east of the UST. The following table lists the current and historic USTs located at the Site with the sizes and contents of each UST:

Tank ID	Installation Date	Tank Status	Capacity (in gallons)	Substance Stored
1	5/1/1956	Removed from Ground	8,000	Gasoline
2	5/1/1956	Removed from Ground	4,000	Gasoline
3	5/1/1956	Removed from Ground	3,000	Gasoline
4	5/1/1956	Removed from Ground	6,000	Gasoline
5	1/1/1987	Removed from Ground	10,000	Gasoline
6	1/1/1987	Currently in Use	10,000	Gasoline
7	1/1/1987	Currently in Use	10,000	Gasoline
8	1/1/1987	Currently in Use	10,000	Gasoline
1-A	1/1/1960	Removed from Ground	8,000	Gasoline
2-A	1/1/1960	Removed from Ground	4,000	Gasoline
3-A	1/1/1960	Removed from Ground	3,000	Gasoline
4-A	1/1/1960	Removed from Ground	6,000	Gasoline
8-A	1/1/1987	Currently in Use	2,000	Kerosene

As indicated above, the MDEQ - Remediation and Redevelopment Division (RRD) retained Environmental Consulting & Technology, Inc. (ECT) to assess benzene contamination identified in the commercial structures and the sub-grade storm sewer system along a two-block section of

Bridge Street, south of the Shiawassee River and north of Hickory Street in Linden, Michigan. During July and August 2014, ECT sampled indoor air from 109 North Bridge Street and from two storm sewer structures along the east side of North Bridge Street. Additionally, soil borings were completed along with soil and groundwater sampling and analysis. Based on the indoor air results, a vapor mitigation system was installed at 109 North Bridge Street.

Visual and/or analytical evidence of light non-aqueous phase liquids (LNAPL) saturation was identified by ECT in six soil borings, five of which were south of the intersection of Bridge and Broad Streets. One of the locations, GP-3, was northeast of the Bridge and Broad Streets intersection. Approximately 0.07 feet of LNAPL was identified in GP-15, directly west of the current UST system associated with the subject Site.

Soil and groundwater analytical results from the ECT investigation identified petroleum volatile organic compound (VOC) concentrations above the Part 213 Tier 1 Residential and Nonresidential Drinking Water/Drinking Water Protection (DW/DWP) and Groundwater Surface Water Interface/Groundwater Surface Water Interface Protection (GSI/GSIP) Risk Based Screening Levels (RBSLs) and the Soil Saturation Screening Levels (Csat). Due to the shallow groundwater, soil and groundwater analytical results were also compared to the Residential and Nonresidential Vapor Intrusion Screening Levels (VISLs). The extent of soil and groundwater impacts was not fully defined.

Based on the identified soil and groundwater impact and the presence of LNAPL in the right of way adjacent to the subject Site, a confirmed release was reported to the MDEQ on November 14, 2014, by PM.

The purpose of this report is to provide the results of the initial site assessment and response activities completed at the Site; identify acute hazard(s) relative to the release from the gasoline underground storage tank (UST) system; and evaluate applicable exposure pathways using the MDEQ Risk Based Corrective Action (RBCA) process. Although other investigation was conducted by ECT in the vicinity of the subject Site; this IAR is limited to the subject Site investigation activities conducted on behalf of Beacon and Bridge between December 2014 and April 2015 until further investigation documents whether additional sources may be reasonable for or contributing to the impact identified by ECT. The RBCA evaluation was conducted according to procedures established in American Society for Testing and Materials (ASTM) E1739 to obtain the most technologically feasible and cost effective means to address the contamination resulting from the confirmed release from the UST system at the Site.

PM advanced eight soil borings (SB-1 through SB-8), installed five monitoring wells (MW-1 through MW-5), and installed one sub-slab soil gas point (SG-1) on December 18 and 19, 2014. The December 2014 sample results are summarized in Tables 1 through 3 and on Figures 3 through 5.

Contaminant concentrations identified in soil samples collected by PM in December 2014 were compared to the following applicable MDEQ Part 213 Tier 1 Risk Based Screening Levels (RBSLs): Residential and Nonresidential DWP, GSIP, Soil Direct Contact (SDC), Residential Ambient Air Infinite Source Volatile Soil Inhalation (Res VSI), Nonresidential Ambient Air Infinite Source Volatile Soil Inhalation (Nonres VSI), and Residential Ambient Air Finite Source Volatile Soil Inhalation for 5 Meter Source Thickness (Res VSI 5m) (Table 1 and Figure 3). Contaminant concentrations identified in groundwater samples collected in December 2014 were compared to

the Residential and Nonresidential DW and GSI RBSLs (Table 2 and Figure 4). Contaminant concentrations identified in soil gas samples collected in December 2014 were compared to the Residential and Nonresidential VISLs. An exposure pathway evaluation is included in Section 6.0.

In accordance with the May 2013 MDEQ Guidance Document for the Vapor Intrusion Pathway, subject properties with groundwater shallower than 10-feet below ground surface (bgs) in the source area require a site-specific evaluation, including evaluation of soil gas and/or comparison of soil and groundwater concentrations to soil and groundwater VISLs. Based upon the presence of shallow groundwater, the generic Soil Volatilization to Indoor Air Inhalation (SVII) and Groundwater Volatilization to Indoor Air Inhalation (GVII) RBSLs are not applicable to the Site. Therefore, target analyte concentrations identified in soil, groundwater, and soil gas are compared to the MDEQ May 2013 Residential and Nonresidential VISLs (Tables 1 through 3).

2.0 INITIAL RESPONSE ACTIONS

Confirmed release C-00162-14 was based on the identified soil and groundwater impact and the presence of 0.07 feet of LNAPL in the right of way adjacent to the subject Site, following site investigation activities completed by the MDEQ. A confirmed release was reported to the MDEQ by PM on November 14, 2014, following review of analytical results provided in Environmental Consulting & Technology, Inc.'s (ECT's) Technical Memorandum Conceptual Site Model and Preliminary Pathway Evaluation (hereafter referred to as the Technical Memorandum), dated November 2014, which is available from MDEQ files. Soil and groundwater data sourced from the November 2014 Technical Memorandum prepared by ECT have been included on Tables 1 and 2 of this report, and are presented on Figures 3A and 4A. However, as indicated on Page 2, it is unknown whether additional contaminant sources stemming from the historical uses of nearby and adjoining properties may be responsible for or contributing to the impacts identified by ECT, including properties west of Bridge Street, north of East Broad Street, and on properties to the south and east. Additional investigation activities are proposed in Section 7.1 to further investigate these surrounding areas in general accordance with Part 213.

The UST system was tested by Tankology, Inc. on November 20, 2014 (Appendix A). All tanks, product lines, and leak detectors were tested, except the product line for the kerosene UST, which is a suction system. Results indicated that all tanks, lines, and leak detectors passed, except the no lead UST closest to the fuel dispensers failed due to corrosion present on the riser at the top of the tank.

On April 27, 2015, the submersible riser, submersible pump and manhole were removed from the no-lead tank that previously failed the tightness test. Additionally the fuel dispensers were replaced. The two no lead tanks were manifolded together so both would function on the remaining submersible pump. Piping under the dispensers was also modified to accommodate the different location of piping to meters under the new fuel dispensers. One soil sample (MS-1) was collected during the repair activities adjacent to the corroded riser (Table 1 and Figure 3). Soil analytical results identified concentrations of toluene, xylenes, 1,2,3-trimethylbenzene (TMB), 1,3,5-TMB, and naphthalene above laboratory method detection levels (MDLs), but below the applicable Residential and Nonresidential DWP and GSIP RBSLs. A concentration of 1,2,4-TMB was identified above the GSIP RSBLs; therefore, synthetic precipitate leachate procedure (SPLP) analysis was conducted to determine if the impact would leach above the DW or GSI RBSLs.

Results of the SPLP analysis indicate 1,2,4-TMB concentrations will not leach above the DW or GSI RBSLs (Table 2 and Figure 4).

While LNAPL exists in soils at Site, ambient air monitoring with a photoionization detector (PID) conducted during Site work activities during December 2014 did not exceed safe work screening levels (outlined in a site-specific health and safety plan). A protective concrete or asphalt barrier exists at the ground surface above the LNAPL. Therefore, there are no known fire and explosion hazards due to released hazardous substances present at the Site. One soil vapor sample was collected beneath the convenience store building, closest to the UST system, with results below the Nonresidential VISLs.

The interim remedial actions conducted at the Site have included manual bailing of the LNAPL. Manual bailing of NAPL was conducted on December 24, 2014 and April 27, 2015. No interim remedial actions were conducted at the Site for contaminated soil.

3.0 INVESTIGATION OF MOBILE OR MIGRATING NON-AQUEOUS PHASE LIQUIDS

Measurable LNAPL was identified in MW-2 and MW-3 during the site investigations that were conducted at the Site by PM in December 2014 and April 2015. Therefore, an LNAPL Conceptual Site Model (LCSM) was developed using the ASTM Standard Guide for Development of Conceptual Site Models and Remediation Strategies for LNAPLs Release to the Subsurface (ASTM E2531-06).

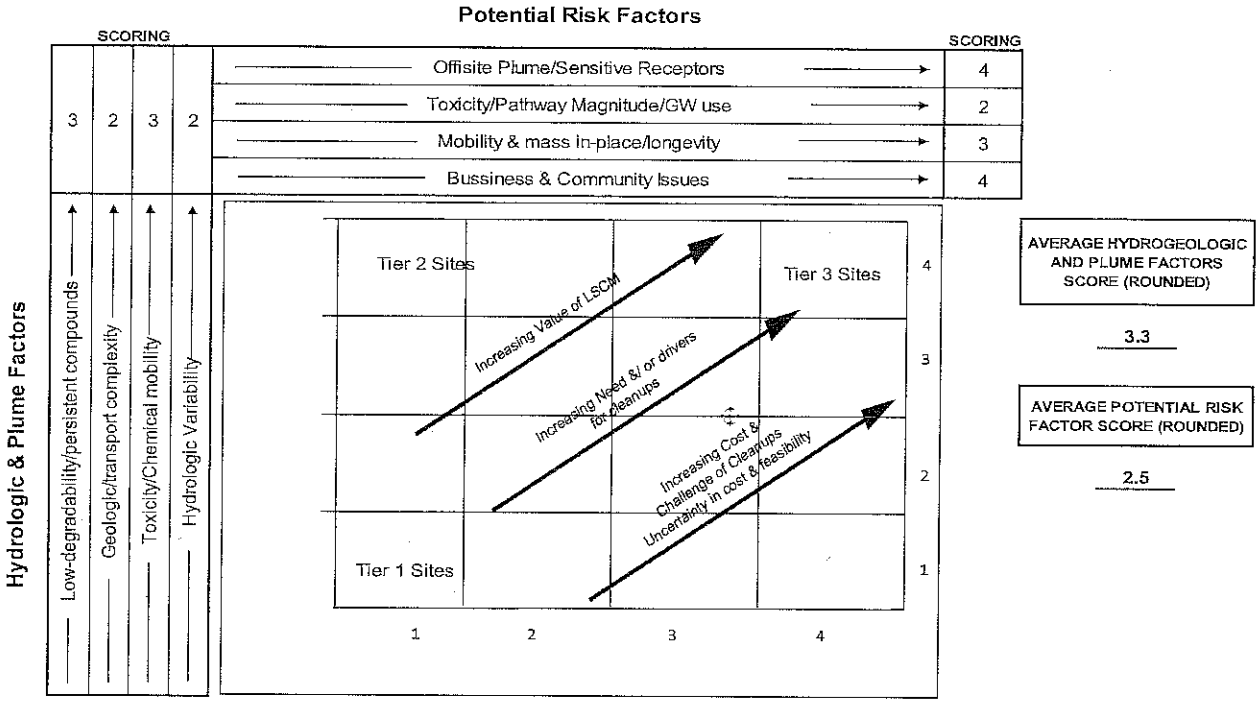
As defined in the December 2009 Interstate Technology and Regulatory Council (ITRC) Technical/Regulatory Guidance for Evaluating LNAPL Remedial Technologies for Achieving Project Goals, three LNAPL conditions generally exist:

- Migrating LNAPL
- Mobile LNAPL
- Residual LNAPL Saturation

Migrating LNAPL is defined as an LNAPL body that is observed to spread or expand laterally or vertically or otherwise result in an increased volume of the LNAPL extent, usually indicated by time-series data – the LNAPL body is migrating due to LNAPL head. Mobile LNAPL is defined as LNAPL that exceeds residual saturation – LNAPL may move but it is no longer migrating (spreading) laterally. Residual LNAPL saturation is defined as the range of LNAPL saturation at which LNAPL capillary pressure equals pore entry pressures – this includes the maximum LNAPL saturation, below which LNAPL is discontinuous and immobile under the applied gradient.

In accordance with the June 2014 MDEQ–RRD Resource Materials-25-2014-01 Non Aqueous Phase Liquid (NAPL) Characterization, Remediation, and Management for Petroleum Releases document, soil gasoline range organics (GRO) concentrations associated with the 2014 gasoline release exceeding 250,000 µg/kg (i.e. at soil borings SB-1 through SB-3, and SB-5 through SB-8) at the Site are representative of residual LNAPL saturation (Section 4.2.3). Mobile LNAPL was identified during the IAR site investigation activities in monitoring wells MW-2 and MW-3 (Table 4 and Figure 4).

The LNAPL site objectives include identification of acute hazard(s) associated with the Site relative to release C-0162-14, delineation of LNAPL if present, LNAPL risk evaluation, and development of a plan to reduce hazards and risks associated with the LNAPL release. A RBCA tiered evaluation was conducted to identify potential receptors, exposure pathways, and risk drivers. Plume factors and non-risk factors were evaluated in the chart below:



Refer to ASTM Standard Guide for Development of Conceptual Site Models and Remediation Strategies for Light Nonaqueous-Phase Liquids Released to the Subsurface E2531-06

Due to the presence of mobile LNAPL, the plume factors and potential risk factors score moderately to high. Therefore, the overall site conditions represent a Tier 2, or moderate risk site. A more detailed RBCA Evaluation was completed for the entire Site in Section 6.0.

The LCSM is a dynamic model that will be reevaluated, and updated if necessary, as new information is obtained relative to the LNAPL present at the site. If the mobile LNAPL is migrating or additional LNAPL is discovered at the Site, the owner/operator shall implement response activities per Part 213 Section 21307(2) and submit an amendment to the IAR that describes those initial response activities, within 30 days of discovery.

4.0 SITE CHARACTERIZATION

4.1 Site investigation Activities

PM completed subsurface investigation activities in December 2014 to characterize current soil, groundwater, and soil gas concentrations, following the November 2014 gasoline release and associated response activities.

The scope of the December 2014 site investigation included the advancement of eight soil borings (SB-1 through SB-8), installation of five permanent monitoring wells (MW-1 through MW-5), and the installation of one sub-slab soil gas point (SG-1) (Figures 3 through 5) to collect soil, groundwater, and soil gas samples. The soil and groundwater samples were submitted for analysis of gasoline VOCs, with soil also analyzed for GRO. The soil gas sample was submitted for analysis of VOCs.

ECT was present during the December 2014 investigation and collected split samples for soil and groundwater on behalf of the MDEQ, the results of which are summarized on Tables 1 and 2 and Figures 3 and 4.

Specifically, the site investigation activities were conducted in the following areas of the Site:

Description of Soil Boring/Monitoring Well Locations

Location and Total Depth (feet bgs)	Soil Sample Depth (feet bgs)	Analysis	Objectives	Sample Selection (justification)	Monitoring Well Installed (Screen Interval)
SB/MW-1 (20.0)	9.0-10.0, 11.0-12.0, and 19.0-20.0	Gasoline VOCs and GRO	Assess contaminant concentrations southwest of the gasoline UST basin	**Soil**: Sampled at the highest PID reading (1,875 ppm) above the water table, highest PID within the saturated zone (1,231 ppm), and from a deeper, unsaturated interval, for vertical definition **Groundwater:** Sampled	MW-1 (9.0-14.0)
SB/MW-2 (20.0)	9.0-10.0, 10.0-11, and 19.0-20.0	Gasoline VOCs and GRO	Assess contaminant concentrations west of the UST basin	**Soil**: Sampled at the highest PID reading (1,923 ppm) above the water table, highest PID within the saturated zone (1,159 ppm), and from a deeper, unsaturated interval, for vertical definition **Groundwater:** Sampled	MW-2 (9.14-14.14)
SB/MW-3 (20.0)	9.0-10.0 and 10.0-11.0	Gasoline VOCs and GRO	Assess contaminant concentrations north of the UST basin	**Soil**: Sampled at the highest PID reading (1,175ppm) above the water table, highest PID within the saturated zone (1,425ppm), and from a deeper, unsaturated interval, for vertical definition **Groundwater:** Sampled	MW-3 (8.80-13.80)

Location and Total Depth (feet bgs)	Soil Sample Depth (feet bgs)	Analysis	Objectives	Sample Selection (justification)	Monitoring Well Installed (Screen Interval)
SB/MW-4 (20.0)	10.0-11 and 19.0-20.0	Gasoline VOCs and GRO	Assess contaminant concentrations at the northeastern property boundary	**Soil**: Sampled at the highest PID reading (275 ppm) above the water table and the highest PID within the saturated zone (958 ppm) **Groundwater:** Sampled	MW-4 (7.90-12.90)
SB/MW-5 (20.0)	8.0-9.0 and 9.0-10.0	Gasoline VOCs and GRO	Assess contaminant concentrations up-gradient of the UST system	**Soil**: Sampled at the highest PID reading (327.6 ppm) above the water table and the highest PID within the saturated zone (1,521 ppm) **Groundwater:** Sampled	MW-5 (8.10-13.10)
SB-6 (20.0)	9.0-10.0, 12.0-13.0, and 19.0-20.0	Gasoline VOCs and GRO	Assess contaminant concentrations northeast of UST basin and directly north of fuel dispensers	**Soil**: Sampled at the highest PID reading (1,671 ppm) above the water table, highest PID within the saturated zone (861 ppm), and from a deeper, unsaturated interval, for vertical definition **Groundwater:** Not Sampled	Not Applicable
SB-7 (20.0)	10.0-11.0, 11.0-12.0, and 19.0-20.0	Gasoline VOCs and GRO	Assess contaminant concentrations east of UST basin and directly south of fuel dispensers	**Soil**: Sampled at the highest PID reading (1,603 ppm) above the water table, highest PID within the saturated zone (1,480 ppm), and from a deeper, unsaturated interval, for vertical definition **Groundwater:** Not Sampled	Not Applicable

Location and Total Depth (feet bgs)	Soil Sample Depth (feet bgs)	Analysis	Objectives	Sample Selection (justification)	Monitoring Well Installed (Screen Interval)
SB-8 (20.0)	9.0-10.0, 10.0-11, and 19.0-20.0	Gasoline VOCs and GRO	Assess contaminant concentrations east of the fuel dispensers	**Soil**: Sampled at the highest PID reading (1,521 ppm) above the water table, highest PID within the saturated zone (1,024 ppm), and from a deeper, unsaturated interval, for vertical definition **Groundwater**: Not Sampled	Not Applicable

PID = Photoionization detector
PPM = parts per million

The soil boring, monitoring well, and soil gas locations were selected to further characterize the extent and magnitude of contaminants at the Site relative to release C-0162-14. Figures 3 through 5 depict the sample locations on scaled maps.

The soil analytical results (Table 1 Figure 3, Section 4.2.3) contained concentrations at levels greater than the applicable Residential and Nonresidential MDEQ Part 213 Tier 1 RBSLs for DWP, GSIP, and VSI, the Residential and Nonresidential soil VISLs, and the MDEQ LNAPL screening levels.

The groundwater analytical results (Table 2, Figures 4, and Section 4.3.4) contained concentrations at levels greater than the applicable MDEQ Part 213 RBSLs for DW and GSI, and the Residential and Nonresidential groundwater VISLs. Measurable LNAPL was identified in permanent monitoring wells MW-2 and MW-3, at thicknesses ranging from 0.01 foot and 0.62 feet between December 2014 and April 2014.

The soil gas analytical results (Table 3, Figures 5, and Section 4.5) contained concentrations of VOCs at levels above laboratory MDLs, but below the Residential and Nonresidential MDEQ soil gas VISLs.

4.1.1 Subsurface Investigation Techniques

The soil borings were advanced to the desired depth using either a hand auger equipped with a stainless steel bucket and/or a Geoprobe® drill rig. Soil sampling was performed for soil classification, verification of subsurface geologic conditions, and for investigating the potential and/or extent of soil and groundwater contamination at the Site. Soil samples were generally collected on a continuous basis using a stainless steel bucket in the case of the hand auger or a 5-foot long macro-core sampler in the case of the Geoprobe® drill rig. Refer to Appendix B for a copy of the soil boring logs.

During drilling operations, the drilling equipment was cleaned to minimize the possibility of cross contamination. These procedures included cleaning equipment with a phosphate free solution (i.e., Alkanox®) and rinsing with distilled water after each sample collection. Drilling and sampling equipment was also cleaned in this manner prior to initiating field activities.

Soil collected from 2-foot sample intervals was screened using a PID to determine if VOCs were present. Soil from specific depths was placed in plastic bags and allowed to volatilize. The headspace within each bag was then monitored with the PID. The PID is able to detect trace levels of organic compounds in the air space within the plastic bag. The PID utilizes a 10.2 electron volts (eV) lamp.

Soil samples for VOC analysis were preserved with methanol in accordance with United States Environmental Protection Agency (USEPA) Method 5035 modified and then placed in appropriately labeled containers with Teflon® lined lids and/or sanitized glass jars. The soil samples were placed in appropriate sample containers placed in a cooler and transported under chain of custody procedures for laboratory analysis within applicable holding times.

Soil gas samples for VOC analysis were collected in vacuum sample containers in general accordance with procedures outlined in the May 2013 MDEQ Guidance Document for the Vapor Intrusion Pathway.

This included purging three gas point/sand pack volumes at low-flow (200 ml/minute or less) from the soil gas monitoring point, followed by the collection of one soil gas sample, using 1-liter canisters, for laboratory analysis of VOCs. The canisters were regulated with a flow rate of 200 ml/minute, which was pre-set at the laboratory. Additionally, an isolation chamber was utilized during soil gas sample collection, which was placed over each soil gas sample location to confirm the system was tight and representative samples were collected. Helium gas (i.e., as a tracer gas) was pumped into each bucket chamber and monitored in the field during the collection of each soil gas sample to assess the integrity of the surface seal and piping associated with each sample point. The canisters were transported under chain of custody procedures for laboratory analysis within applicable holding times.

The soil, groundwater, and soil gas samples collected by PM were submitted to Brighton Analytical, LLC (Brighton), Brighton, Michigan for chemical analysis. Refer to Tables 1 through 3 for summaries of the 2014 soil and groundwater analytical results and a comparison to the MDEQ Part 213 Residential and Nonresidential RBSLs, and Residential and Nonresidential VISLs. Figures 3 through 5 depict the 2014 soil, groundwater, and soil gas analytical results on scaled site diagrams. Complete laboratory reports for samples collected by PM are presented in Appendix C.

4.1.2 Well Installation & Groundwater Sampling

Monitoring wells (MW-1 through MW-5) installed by PM (Figure 4) were constructed of two-inch diameter, schedule 40 PVC casing with 5.0 foot long, 0.010-inch or 0.020 slotted screens. After the well casings and sand filter pack were in place, the wells were developed using a peristaltic pump equipped with new 3/8-inch polyethylene tubing. Well development was performed by purging until clear, sediment-free water was obtained from the wells. Groundwater purged from the wells and equipment decontamination fluids were contained in labeled, 55-gallon drums which were sealed, labeled, dated, and stored on the Site until final disposal could be arranged.

After development, a seal consisting of at least 1 foot of hydrated bentonite pellets was placed above the sand filter pack for the permanent monitoring wells. The permanent monitoring wells were capped and the remaining annulus was backfilled to ground surface with a bentonite or

cement/bentonite grout. The permanent monitoring wells were then fitted with a 5-inch diameter, 1 foot long, steel protective covers that were flush-mounted to the ground surface. Well depths, well materials, and screened intervals are documented on the soil boring logs presented in Appendix B.

Mobile LNAPL was identified in monitoring well MW-2 installed by PM; therefore, a groundwater sample was not collected from this well. Groundwater samples were collected from the remaining monitoring wells with care taken to avoid the potential for cross contamination between the samples and to prevent loss of volatiles to the atmosphere. The groundwater samples were collected using low flow techniques without being filtered in general accordance with the October 22, 2004 MDEQ Operational Memorandum No. 2 Sampling and Analysis, Attachment 5 Collection of Samples for Comparison to Generic Criteria. Groundwater samples were transferred from the low-flow pump discharge line directly into appropriately labeled sample containers with Teflon lined lids.

The groundwater samples collected by PM were submitted to Brighton, Brighton, Michigan for chemical analysis. Refer to Table 2 for summaries of the December 2014 groundwater analytical results and a comparison to the MDEQ Part 213 Residential and Nonresidential RBSLs, and the Residential and Nonresidential groundwater VISLs. Figure 4 depicts the December 2014 groundwater analytical results on a scaled site diagram. Complete laboratory reports for samples collected by PM are presented in Appendix C.

4.1.3 Quality Assurance and Quality Control

During drilling operations, the drilling equipment was cleaned to minimize the possibility of cross contamination. These procedures included cleaning equipment with a phosphate free solution (i.e., Alconox®) and rinsing with distilled water after each sample collection. Drilling and sampling equipment was also cleaned in this manner prior to initiating field activities.

Soil samples for VOC analysis were preserved with methanol in accordance with USEPA method 5035 modified and then placed in appropriately labeled containers with Teflon® lined lids and/or sanitized glass jars, placed in an ice packed cooler and transported under chain of custody procedures for laboratory analysis within applicable holding times.

Quality Assurance/Quality Control (QA/QC) samples were submitted for sampling activities that were conducted by PM in December 2014 as follows:

- A-1 Trip Blank (methanol)
- A-2 Co-Located (SB-4 at 9.0-10.0')
- A-3 Co-Located (SB-7 at 19.0-20.0')

The QA/QC samples were submitted for laboratory analysis of gasoline VOCs. In general, the results of the QA/QC samples were similar in concentration indicating analysis reproducibility and no cross contamination occurred (Appendix C).

4.1.4 Surveying

All of the monitoring wells installed in December 2014 (MW-1 through MW-5) were surveyed using a total station, including ground surface and top of well casing elevations. Site survey data and groundwater elevations are included in Table 4.

4.1.5 Groundwater Elevation Measurements

Groundwater levels were measured in Site monitoring wells on December 24, 2014 and April 27, 2015. Groundwater levels were recorded to the nearest 0.01-foot using an electronic interface probe (IP) capable of also measuring for the presence of LNAPL. The IP was decontaminated by washing with a phosphate free solution (i.e. Alconox®) and rinsing between each use to avoid the potential for cross contamination. Groundwater elevations were recorded by measuring the depth to water from the top of casing in each well. A summary of the groundwater elevation measurements is presented in Table 4. Groundwater potentiometric surface contour maps based on the groundwater elevations measured on December 24, 2014 and April 27, 2015 are presented on Figures 6 and 7. Groundwater flow was calculated to be multi-directional with components to the northeast, northwest, and west.

4.2 Soil Conditions and Characteristics

4.2.1 Regional Topography and Geology

A review of the 7.5 Minute, Linden, Michigan Quadrangle, Map (Figure 1) prepared by the United States Geologic Survey (USGS), 1983 indicates that the subject property is approximately 880 feet elevation relative to the National Geodetic Vertical Datum, (NGVD) and slopes gently to the northeast. The immediate subject property area appears to be relatively flat.

According to the Quaternary Geology of Southern Michigan, Michigan, compiled in 1984 by W.R. Farrand and published by the Department of Geological Services of the University of Michigan in Ann Arbor, Michigan, the regional geology in the vicinity of the site consists of the following soil type:

- **Glacial outwash sand and gravel and postglacial alluvium**: pale brown to pale reddish brown, fine to coarse sand alternating with layers of small gravel to heavy cobbles, mixed lithology of sedimentary, igneous, and metamorphic rocks, well- to poorly-sorted, well-stratified, in places crossbedded. Thickness of this geology varies between 101 to 200 feet.

The nearest surface water body is the Shiawassee River, located approximately 425 feet north of the Site (Figure 1). The storm sewers in Linden are separate from the sanitary sewers and, therefore, are subject to storm water regulations regarding elimination of illicit discharges. Although recent Part 201 amendments (Section 20120e(6)) do not classify enclosed sewers or utility lines as GSI receptors, current MDEQ guidance continues to support that the storm sewers must be considered in compliance point determinations. The storm sewers are located at depths that are shallower (higher elevation) than the groundwater table. Therefore, they do not represent a potential exposure pathway to GSI.

A water well search was conducted for the site and surrounding area using the MDEQ Water Well Viewer web site. Twenty-one water wells were identified within approximately 0.5 miles of the Site (Appendix D). In general, at least 17 to 165 feet of clay overlies the sand, gravel, and/or sandstone water bearing units the wells were screened within. Water well uses documented on the logs include household, domestic, test well, and Type I Public. Review of MDEQ Water Well Viewer web site indicates the subject property is not located within a wellhead protection zone.

4.2.2 Local Geology

The subsurface geology underlying the Site, based on the PM soil boring logs (Appendix B) generally consists of 8.0 to 10.0 feet of sand followed by 3.5 to 5.0 feet of gravelly sand/sand and gravel and then clay to at least 20.0 feet bgs, the maximum depth explored. This is consistent with geology identified during the MDEQ investigation during July and August 2014 in the area of the Site. Geological cross sections for the Site were prepared and are included as Figures 8 and 9.

The groundwater is representative of an "aquifer" as defined in MDEQ Peer Review Draft Operational Memorandum Number 4, Attachment 10, "Groundwater Not in an Aquifer," dated February 2007. Review of MDEQ Wellhead Protection Program documents indicates the Site is not located within a wellhead protection zone.

4.2.3 Soil Contamination

On December 18 and 19, 2014, PM advanced eight soil borings (SB-1 through SB-8) to evaluate current soil concentrations following the November 2014 release (Figure 3). Results of the soil boring sampling activities conducted by PM in December 2014 (i.e. including split samples collected by ECT) are summarized in Table 1 and Figure 3. The contaminant concentrations for each target analyte were compared to the applicable (Section 6.0) Part 213 Tier 1 RBSLs, soil VISLs, and MDEQ LNAPL screeing levels in the above-referenced tables.

Soil analytical results (Table 1 and Figure 3) identified concentrations of various VOCs above the applicable Part 213 Residential and Nonresidential DWP, GSIP, and/or VSI RBSLs at soil borings SB-1 through SB-8. Concentrations of petroleum VOCs exceeded the Residential and Nonresidential soil VISLs in soil samples collected from soil borings SB-1 through SB-8. The vapor intrusion exposure pathway was further evaluated with a soil gas sample as discussed in Section 4.5 below.

Concentrations of GRO were identified above the MDEQ June 2014 Screening Level (250,000 µg/kg) potentially indicative of the presence of residual LNAPL saturation and Soil Volatilization to Indoor Air Inhalation (350,000 µg/kg) at soil borings SB-1 through SB-3 and SB-5 through SB-8. GRO concentrations were also identified above the MDEQ Screening Level representative of a soil direct contact risk (900,000 µg/kg) at SB-1, SB-2, SB-3, SB-5, SB-6, and SB-8.

Based on the cumulative soil data, the vertical extent of soil impacts exceeding the Part 213 RBSLs associated with the 2014 release is defined by the shallow groundwater table and the lack of VOC concentrations exceeding RBSLs in the soil samples collected from unsaturated clay soils below the saturated sand, except at SB-8, located up-gradient from the source area.

The horizontal extent of soil impact associated with the 2014 release, is not fully defined to within the Part 213 Tier 1 Residential and Nonresidential RBSLs or June 2014 MDEQ DRO Screening Levels in any direction. Additional delineation activities will be conducted to further define the extent of soil impacts associated with the 2014 release (Section 7.0) and determine if any additional offsite sources exist in the vicinity of the Site.

4.2.4 Soil Contamination Not Related to the Release and Source

Soil impacted at concentrations greater than the MDEQ RBSLs and GRO Screening Levels is present in monitoring well SB/MW-5, located up-gradient from the UST system (Figure 3). As indicted in Section 1.0, it is unknown whether additional contaminant sources stemming from the historical uses of nearby and adjoining properties may be responsible for or contributing to the soil impacts identified by ECT in July and August 2014. Additional investigation activities are proposed in Section 7.1 to further investigate surrounding areas in general accordance with Part 213.

4.3 Groundwater Conditions and Characteristics

4.3.1 Hydrogeology

Based on the soil boring logs, the general geology generally consists of 8.0 to 10.0 feet of sand followed by 3.5 to 5.0 feet of gravelly sand/sand and gravel and then clay to at least 20.0 feet bgs, the maximum depth explored. This is consistent with geology identified during the MDEQ investigation during July and August 2014 in the area of the Site. The soil boring logs are included in Appendix B, which consist of site specific geology, sample depths, monitoring well screen intervals, and PID readings.

Groundwater was generally encountered within the sand and gravel zone at depths between 9.3 and 10.7 feet bgs. Groundwater flow was calculated to be multi-directional with components to the northeast, northwest, and west (Figures 6 and 7).

4.3.2 Regional Groundwater Flow Conditions

The nearest surface water body is the Shiawassee River, located approximately 425 feet north of the Site (Figure 1). Based on review of the topographic features and expressions of the water table (i.e., rivers, streams, lakes, wetlands etc.), regional groundwater flow in the vicinity of the subject Site likely has a general northwestern component.

4.3.3 Estimated Hydraulic Conductivity, Porosity, & Groundwater Velocity

The effective hydraulic conductivity and porosity of the soils was not measured during site investigation activities. The estimated the hydraulic conductivity of the sand and gravel aquifer is estimate to be 1×10^{-3} cm/sec to 1×10^{-1} cm/sec, the effective porosity to be 0.25 (unitless), and the hydraulic gradient to be 0.0027 feet/foot. Thus the approximate groundwater velocity at the Site is approximately 11.3 feet per year to 1,130 feet per year.

4.3.4 Groundwater Contamination

On December 24, 2014 PM sampled five new monitoring wells (MW-1, through MW-5) to evaluate current conditions at the Site (Figure 4). Monitoring well MW-2, directly west of the UST basin was not sampled because mobile LNAPL was present in the well. Results of the December 2014 groundwater sampling activities are summarized in Table 2 and Figure 4. The contaminant concentrations for each target analyte were compared to the applicable (Section 6.0) MDEQ Part 213 Tier 1 RBSLs and VISLs.

Groundwater analytical results (Table 2 and Figure 4) identified concentrations of various VOCs above the Part 213 Nonresidential DW and GSI RBSLs and/or MDEQ Residential and Nonresidential groundwater VISLs at permanent monitoring wells MW-1 through MW-5. The vapor intrusion exposure pathway was further evaluated with a soil gas sample as discussed in Section 4.4 below.

Measurable LNAPL was identified in permanent monitoring well MW-2 at thickness of 0.01-feet during the December 2014 sampling event (Table 4). Measurable LNAPL was identified in the monitoring wells MW-2 and MW-3 at thicknesses of 0.61-feet and 0.62-feet, respectively during the April 2015 gauging event (Table 4).

Based on the groundwater data, the horizontal extent of groundwater impacts (including mobile LNAPL) associated with the 2014 release at the Site is not fully defined to the Part 213 RBSLs to in any direction. The vertical extent of groundwater impact is defined by the continuous lower clay unit underlying the Site.

Additional delineation and monitoring activities will be conducted to further define the extent of groundwater impacts (i.e., including mobile LNAPL) associated with the 2014 release (Section 7.0).

4.3.5 Groundwater Contamination Not Related to Release or Source

Groundwater impacted at concentrations greater than the MDEQ RBSLs and VISLs is present in monitoring well MW-5, located up-gradient from the UST system (Figure 4). As indicted in Section 1.0, it is unknown whether additional contaminant sources stemming from the historical uses of nearby and adjoining properties may be responsible for or contributing to the groundwater impacts identified by ECT in July and August 2014. Additional investigation activities are proposed in Section 7.1 to further investigate surrounding areas in general accordance with Part 213.

4.4 LNAPL Evaluation

As defined in the December 2009 ITRC Technical/Regulatory Guidance for Evaluating LNAPL Remedial Technologies for Achieving Project Goals, three LNAPL conditions generally exist:

- Migrating LNAPL
- Mobile LNAPL
- Residual LNAPL Saturation

Migrating LNAPL will continue to migrate laterally until the release is stopped and the LNAPL head dissipates. Mobile LNAPL accumulates in a well installed in the LNAPL body, but the LNAPL

is no longer migrating laterally. Residual LNAPL saturation will not accumulate in a well installed in the LNAPL body unless the water table drops and the LNAPL trapped below the water table can flow into the well.

Current LNAPL guidance from the MDEQ indicates the following:

1 Sources to migrating LNAPL should be eliminated and recovery of migrating LNAPL should be initiated to reduce potential risks associated with a migrating LNAPL plume.

   a. The UST system was tested on November 20, 2014 and all tanks, lines, and leak detectors passed, except the no lead UST closest to the fuel dispensers failed due to corrosion present on the riser at the top of the tank.

2 Mobile LNAPL should be recovered to the extent feasible.

   a. Hand bailing was used to remove LNAPL from monitoring wells MW-2 in December 2014 and in MW-2 and MW-3 in April 2015.

3 Residual LNAPL saturation may be managed in place if exposure pathways have been eliminated or managed such that exposure risks are below acceptable levels.

   a. Exposure pathways and corrective actions for the LNAPL plume will be further evaluated in the FAR after the LNAPL plume is fully delineated.

4 If migrating or mobile NAPL is discovered at a site after the submittal of an IAR pursuant to Part 213, Section 21308(1), the owner or operator shall do both of the following:

   a. Perform initial actions identified in Part 213, Section 21307(2)(c); and

   b. Submit to MDEQ, an amendment to the IAR within 30 days of discovery of the migrating or mobile NAPL that describes response actions taken as a result of the migrating or mobile NAPL discovery.

LNAPL was bailed from the (up to two) monitoring wells that exhibited measurable amounts of LNAPL during the monitoring/sampling/recovery events conducted by PM in December 2014 and April 2015. Approximately 0.3 gallons of LNAPL and 1.8 gallons of water were recovered from MW-2 and/or MW-3 on December 24, 2014 and April 27, 2015. LNAPL that was removed via hand bailing was stored within an appropriately labeled 55-gallon Department of Transportation (DOT) approved drum, and stored at the Site.

4.5 Soil Vapor Conditions and Characteristics

On December 19, 2014, PM collected one sub-slab soil gas sample (SG-1) inside the subject building to document soil gas concentrations following the November 2014 gasoline release. The soil gas results are summarized in Table 4 and on Figure 5. Concentrations of various VOCs were identified above laboratory MDLs, but were below the Residential and Nonresidential soil gas VISLs. As such there were no impacts associated with the gasoline release identified in other environmental media.

Additional soil gas sampling activities will be conducted to further evaluate the vapor intrusion exposure pathway as outlined in Section 7.0.

5.0 SITE CLASSIFICATION

In accordance with MDEQ Policy and Procedure #RRD-21, Leaking Underground Storage Tank Site Classification System dated October 11, 2013, the Site is classified as a Class 1 LUST site for release C-0162-14, discovered on November 14, 2014, based on the presence of mobile LNAPL at monitoring wells MW-2 and MW-3, which is not fully defined.

Additional assessment will be conducted (Section 7.0) to fully define the extent of soil, groundwater, and mobile LNAPL impacts associated with the 2014 release.

6.0 RISK BASED CORRECTIVE ACTION EVALUATION

The purpose of this section is to evaluate exposure risk by assessing both exposure and toxicity to a receptor through exposure route analyses. Each of the applicable pathways is evaluated below. Contaminant concentrations identified in soil and groundwater are compared to the December 2013 MDEQ Part 201 Cleanup Criteria and Part 213 RBSLs, MDEQ VISLs, and MDEQ LNAPL screening levels.

The following exposure pathways and potential transport mechanisms were considered for the Exposure Scenario Evaluation:

Potential Source(s):
- LNAPL
- Impacted Soils
- Dissolved Groundwater Plume

Potential Transport Mechanism(s):
- Volatilization and Atmospheric Dispersion
- Volatilization and Enclosed Space Accumulation
- Leaching and Groundwater Transport
- Utility Corridors

Potential Exposure Routes:
- Ingestion of Soil and Groundwater
- Inhalation of Volatiles
- Direct Contact with Soil and Groundwater

Potential Receptors:
- Construction Worker
- Structures
- Utilities
- Site Occupants
- Surface Water Bodies

The following exposure pathways were evaluated, including: groundwater ingestion, soil leaching to groundwater, groundwater surface water interface, direct contact, and ambient and indoor air inhalation from contaminated soil and groundwater. The elimination of exposure pathways demonstrates that unacceptable exposures do not exist and that corrective actions are not required to prevent or mitigate unacceptable exposures.

The Site is currently zoned commercial, which is consistent with a Nonresidential property use in accordance with Part 213. Based upon the current zoning and planned Nonresidential use of the Site, the Part 213 Nonresidential RBSLs are applicable to the Site.

In accordance with the May 2013 MDEQ Guidance Document for the Vapor Intrusion Pathway, subject properties with non-homogeneous soils and/or groundwater shallower than 10-feet bgs in the source area require a site-specific evaluation, including evaluation of soil gas and/or comparison of soil and groundwater concentrations to soil and groundwater VISLs. Based upon the presence of shallow groundwater, the generic SVII and GVII RBSLs are not applicable to the Site. Target analyte concentrations identified in soil, groundwater, and soil gas are compared to the Residential and Nonresidential VISLs in Tables 1 through 3. A conceptual site model for vapor intrusion is included in Appendix E.

HUMAN EXPOSURE PATHWAYS								
Pathway	**Exposure Pathway Relevant?**		**If Pathway Is Relevant, Are Applicable RBSLs Exceeded?** (Applicable Criteria)					
			Res			**Nonres**		
	Yes/No	**Justification**	**Soil**	**GW**	**Soil Gas**	**Soil**	**GW**	**Soil Gas**
Groundwater Ingestion	Yes	• Site and area are Connected to the municipal water supply; • No water supply wells present onsite; • Shallow groundwater is underlain by a continuous clay layer, and is representative of an aquifer;	Yes (LNAPL)	Yes (LNAPL)	NA	Yes (LNAPL)	Yes (LNAPL)	NA
Groundwater Surface Water Interface	Yes	• Storm sewers are present at depths above the water table; • Distance considerations to the nearby Shiawassee River; • Continuous nature of the groundwater	Yes (LNAPL)	Yes (LNAPL)	NA	Yes (LNAPL)	Yes (LNAPL)	NA
Indoor Air Inhalation	Yes	• Building structure is present; • Shallow groundwater is present;	Yes[1] (LNAPL)	Yes[2] (LNAPL)	No	Yes[1] (LNAPL)	Yes[2] (LNAPL)	No

HUMAN EXPOSURE PATHWAYS									
Pathway	Exposure Pathway Relevant?		If Pathway Is Relevant, Are Applicable RBSLs Exceeded? (Applicable Criteria)						
			Res			Nonres			
	Yes/No	Justification	Soil	GW	Soil Gas	Soil	GW	Soil Gas
Ambient Air Inhalation	Yes	• Potential exposure if surface cover removed; • Residual and Mobile LNAPL is present;	Yes (LNAPL)	Yes (LNAPL)	NA	Yes (LNAPL)	Yes (LNAPL)	NA
Direct Contact	Yes	• Potential exposure to parties performing subsurface work; • Residual and Mobile LNAPL is present	Yes (LNAPL)	Yes (LNAPL)	NA	Yes (LNAPL)	Yes (LNAPL)	NA

NA – Not Applicable
Res – Residential
Nonres – Nonresidential
GW – Groundwater
LNAPL –residual and mobile LNAPL is present in soil and groundwater, respectively
[1] Target analytes were identified in soil above the Part 213 Residential and Nonresidential VISLs, and soil impacts are representative of residual LNAPL saturation.
[2] Target analytes were identified in groundwater above the Residential and Nonresidential VISLs and mobile LNAPL was identified.

OTHER PATHWAYS	
Migration Via Utility Corridors or other means	Utility corridors on or adjacent to the Site may represent pathways for contaminant migration. Utility corridors may additionally act as a conduit for direct contact exposure to third parties completing subsurface work. Additional investigation is proposed within adjoining utility corridors, as outlined in Section 7.0.
Fire and Explosion Hazards	Although mobile LNAPL was identified, no known fire and explosion hazards have been identified (Section 2.0). Additional investigation is proposed to delineate and further assess the extent of mobile LNAPL at the site, as outlined in Section 7.0.

6.1 Tier 2 Evaluation

A Tier 2 evaluation was not completed as part of the IAR site investigation(s).

7.0 WORK PLAN AND PROPOSED FOLLOWUP ACTIVITIES

On December 18 and 19, 2014, PM advanced eight soil borings (SB-1 through SB-8), installed five permanent monitoring wells (MW-1 through MW-5), and installed one sub-slab soil gas sample point (SG-1) to collect soil, groundwater, and soil gas samples to assess current contaminant concentrations following the 2014 release and characterize the horizontal and vertical of soil and groundwater impact at the Site.

Soil contamination resulting from confirmed release C-0162-14 exists at the Site at concentrations that exceed the MDEQ Part 213 Tier 1 RBSLs for Residential and Nonresidential DWP, GSIP, and VSI RBSLs, the Residential and Nonresidential VISLs, and the MDEQ LNAPL screening levels. The vertical extent of soil impact is defined by the water table and the horizontal extent of impact associated with the 2014 release is not defined in any direction (Table 1 and Figure 3).

Groundwater contamination resulting from confirmed release C-0162-14 exists at the Site at concentrations that exceed the MDEQ Part 213 Tier 1 RBSLs for Residential and Nonresidential DW and GSI RBSLs. Measurable LNAPL was identified in permanent monitoring wells MW-2 and MW-3, at thicknesses ranging from 0.01-feet to 0.61-feet. The horizontal extent of groundwater impacts associated with the 2014 release is not defined in any direction. The vertical extent of groundwater impact is defined by the lower clay unit (Table 2 and Figure 4).

No concentrations of VOCs were identified in the sub-slab soil gas sample (SG-1) above the MDEQ Residential and Nonresidential VISLs (Table 3 and Figure 5).

7.1 Proposed Work Plan Activities

The proposed follow-up final assessment work plan activities are presented below. The locations of proposed additional soil boring and monitor well locations are presented in Figure 10.

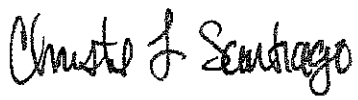
- Conduct a regulatory review of local and MDEQ files relative to the historical uses of adjoining and nearby properties.
- Obtain a right of way permit from the City of Linden to advance soil borings and install permanent monitoring wells/soil gas points in East/West Broad Street and East/North Bridge Street right of ways.
- Obtain access to the east and south adjoining properties to advance one soil boring, install one monitoring well, and install one soil gas monitoring point at each adjoining property.
- Conduct monthly LNAPL inspections of all onsite wells for the presence of mobile LNAPL and to determine whether LNAPL at the subject property may be migrating.
- Conduct LNAPL bail down testing on monitoring wells MW-2 and MW-3 to determine appropriate LNAPL recovery methods.
- Install passive LNAPL recovery measures in MW-2 and MW-3 (e.g., sorbent socks) to recover mobile LNAPL. The absorbent socks will be maintained and replaced during the monthly LNAPL inspections, as needed.
- Install one sub-slab soil gas point within the eastern portion of the building (SG-2).
- Advance up to 11 soil borings, install up to 11 permanent monitoring wells (MW-6 through MW-16), and install up to 10 permanent soil gas monitoring points (SG-3 through SG-12), to delineate the extent of both soil and groundwater impacts associated with the 2014 release to the MDEQ Part 213 Tier 1 RBSLs (Figure 10), and to further assess the vapor intrusion pathway.

  Soil samples will be collected and analyzed for petroleum VOCs and GRO.
- Evaluate soil impacts for use in feasibility study of dual phase extraction and/or other potential corrective actions.

- Groundwater samples from five existing (MW-1 through MW-5) and 11 newly installed monitoring wells (MW-6 through MW-16) will be collected and analyzed for petroleum VOCs in accordance with MDEQ guidance relative to a gasoline release.
- Sample the existing sub-slab soil gas point (SG-1) in the Site building and 11 newly installed soil gas monitoring points (SG-2 through SG-12) to further evaluate soil vapor conditions and the vapor intrusion pathway relative to the 2014 release.
- Notices to impacted parties will be prepared pursuant to Section 3424.21309a(3) and included within the Final Assessment Report. Notices will be provided to owners of properties impacted by the contamination including: easement holders, utility owners, highway authorities, and tenants.
- Prepare and submit the Final Assessment Report on or before November 14, 2015.

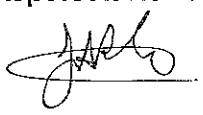
This report has been reviewed for its completeness and accuracy. Please feel free to contact our office at (800) 313-2966 to discuss this report.

Report Prepared By:



Christie L. Santiago, Q.C.
Senior Engineer

Report Reviewed By:



J. Adam Patton, C.H.M.M., Q.C.
Manager of Site Investigation Services

5.0 SITE CLASSIFICATION

In accordance with MDEQ Policy and Procedure #RRD-21, Leaking Underground Storage Tank Site Classification System dated October 11, 2013, the Site is classified as a Class 1 LUST site for release C-0162-14, discovered on November 14, 2014, based on the presence of mobile LNAPL at monitoring wells MW-2 and MW-3, which is not fully defined.

Additional assessment will be conducted (Section 7.0) to fully define the extent of soil, groundwater, and mobile LNAPL impacts associated with the 2014 release.

6.0 RISK BASED CORRECTIVE ACTION EVALUATION

The purpose of this section is to evaluate exposure risk by assessing both exposure and toxicity to a receptor through exposure route analyses. Each of the applicable pathways is evaluated below. Contaminant concentrations identified in soil and groundwater are compared to the December 2013 MDEQ Part 201 Cleanup Criteria and Part 213 RBSLs, MDEQ VISLs, and MDEQ LNAPL screening levels.

The following exposure pathways and potential transport mechanisms were considered for the Exposure Scenario Evaluation:

Potential Source(s):
- LNAPL
- Impacted Soils
- Dissolved Groundwater Plume

Potential Transport Mechanism(s):
- Volatilization and Atmospheric Dispersion
- Volatilization and Enclosed Space Accumulation
- Leaching and Groundwater Transport
- Utility Corridors

Potential Exposure Routes:
- Ingestion of Soil and Groundwater
- Inhalation of Volatiles
- Direct Contact with Soil and Groundwater

Potential Receptors:
- Construction Worker
- Structures
- Utilities
- Site Occupants
- Surface Water Bodies

The following exposure pathways were evaluated, including: groundwater ingestion, soil leaching to groundwater, groundwater surface water interface, direct contact, and ambient and indoor air inhalation from contaminated soil and groundwater. The elimination of exposure pathways demonstrates that unacceptable exposures do not exist and that corrective actions are not required to prevent or mitigate unacceptable exposures.

The Site is currently zoned commercial, which is consistent with a Nonresidential property use in accordance with Part 213. Based upon the current zoning and planned Nonresidential use of the Site, the Part 213 Nonresidential RBSLs are applicable to the Site.

In accordance with the May 2013 MDEQ Guidance Document for the Vapor Intrusion Pathway, subject properties with non-homogeneous soils and/or groundwater shallower than 10-feet bgs in the source area require a site-specific evaluation, including evaluation of soil gas and/or comparison of soil and groundwater concentrations to soil and groundwater VISLs. Based upon the presence of shallow groundwater, the generic SVII and GVII RBSLs are not applicable to the Site. Target analyte concentrations identified in soil, groundwater, and soil gas are compared to the Residential and Nonresidential VISLs in Tables 1 through 3. A conceptual site model for vapor intrusion is included in Appendix E.

HUMAN EXPOSURE PATHWAYS								
Pathway	**Exposure Pathway Relevant?**		**If Pathway Is Relevant, Are Applicable RBSLs Exceeded?** (Applicable Criteria)					
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	Yes/No	**Justification**	**Soil**	**GW**	**Soil Gas**	**Soil**	**GW**	**Soil Gas**
Groundwater Ingestion	Yes	• Site and area are Connected to the municipal water supply; • No water supply wells present onsite; • Shallow groundwater is underlain by a continuous clay layer, and is representative of an aquifer;	Yes (LNAPL)	Yes (LNAPL)	NA	Yes (LNAPL)	Yes (LNAPL)	NA
Groundwater Surface Water Interface	Yes	• Storm sewers are present at depths above the water table; • Distance considerations to the nearby Shiawassee River; • Continuous nature of the groundwater	Yes (LNAPL)	Yes (LNAPL)	NA	Yes (LNAPL)	Yes (LNAPL)	NA
Indoor Air Inhalation	Yes	• Building structure is present; • Shallow groundwater is present;	Yes[1] (LNAPL)	Yes[2] (LNAPL)	No	Yes[1] (LNAPL)	Yes[2] (LNAPL)	No

HUMAN EXPOSURE PATHWAYS									
Pathway	Exposure Pathway Relevant?		If Pathway Is Relevant, Are Applicable RBSLs Exceeded? (Applicable Criteria)						
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	Yes/No	Justification	Soil	GW	Soil Gas	Soil	GW	Soil Gas	
Ambient Air Inhalation	Yes	• Potential exposure if surface cover removed; • Residual and Mobile LNAPL is present;	Yes (LNAPL)	Yes (LNAPL)	NA	Yes (LNAPL)	Yes (LNAPL)	NA	
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NA – Not Applicable
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Fire and Explosion Hazards	Although mobile LNAPL was identified, no known fire and explosion hazards have been identified (Section 2.0). Additional investigation is proposed to delineate and further assess the extent of mobile LNAPL at the site, as outlined in Section 7.0.

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A Tier 2 evaluation was not completed as part of the IAR site investigation(s).

7.0 WORK PLAN AND PROPOSED FOLLOWUP ACTIVITIES

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Soil contamination resulting from confirmed release C-0162-14 exists at the Site at concentrations that exceed the MDEQ Part 213 Tier 1 RBSLs for Residential and Nonresidential DWP, GSIP, and VSI RBSLs, the Residential and Nonresidential VISLs, and the MDEQ LNAPL screening levels. The vertical extent of soil impact is defined by the water table and the horizontal extent of impact associated with the 2014 release is not defined in any direction (Table 1 and Figure 3).

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- Conduct monthly LNAPL inspections of all onsite wells for the presence of mobile LNAPL and to determine whether LNAPL at the subject property may be migrating.
- Conduct LNAPL bail down testing on monitoring wells MW-2 and MW-3 to determine appropriate LNAPL recovery methods.
- Install passive LNAPL recovery measures in MW-2 and MW-3 (e.g., sorbent socks) to recover mobile LNAPL. The absorbent socks will be maintained and replaced during the monthly LNAPL inspections, as needed.
- Install one sub-slab soil gas point within the eastern portion of the building (SG-2).
- Advance up to 11 soil borings, install up to 11 permanent monitoring wells (MW-6 through MW-16), and install up to 10 permanent soil gas monitoring points (SG-3 through SG-12), to delineate the extent of both soil and groundwater impacts associated with the 2014 release to the MDEQ Part 213 Tier 1 RBSLs (Figure 10), and to further assess the vapor intrusion pathway.

  Soil samples will be collected and analyzed for petroleum VOCs and GRO.
- Evaluate soil impacts for use in feasibility study of dual phase extraction and/or other potential corrective actions.

- Groundwater samples from five existing (MW-1 through MW-5) and 11 newly installed monitoring wells (MW-6 through MW-16) will be collected and analyzed for petroleum VOCs in accordance with MDEQ guidance relative to a gasoline release.
- Sample the existing sub-slab soil gas point (SG-1) in the Site building and 11 newly installed soil gas monitoring points (SG-2 through SG-12) to further evaluate soil vapor conditions and the vapor intrusion pathway relative to the 2014 release.
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This report has been reviewed for its completeness and accuracy. Please feel free to contact our office at (800) 313-2966 to discuss this report.

Report Prepared By:

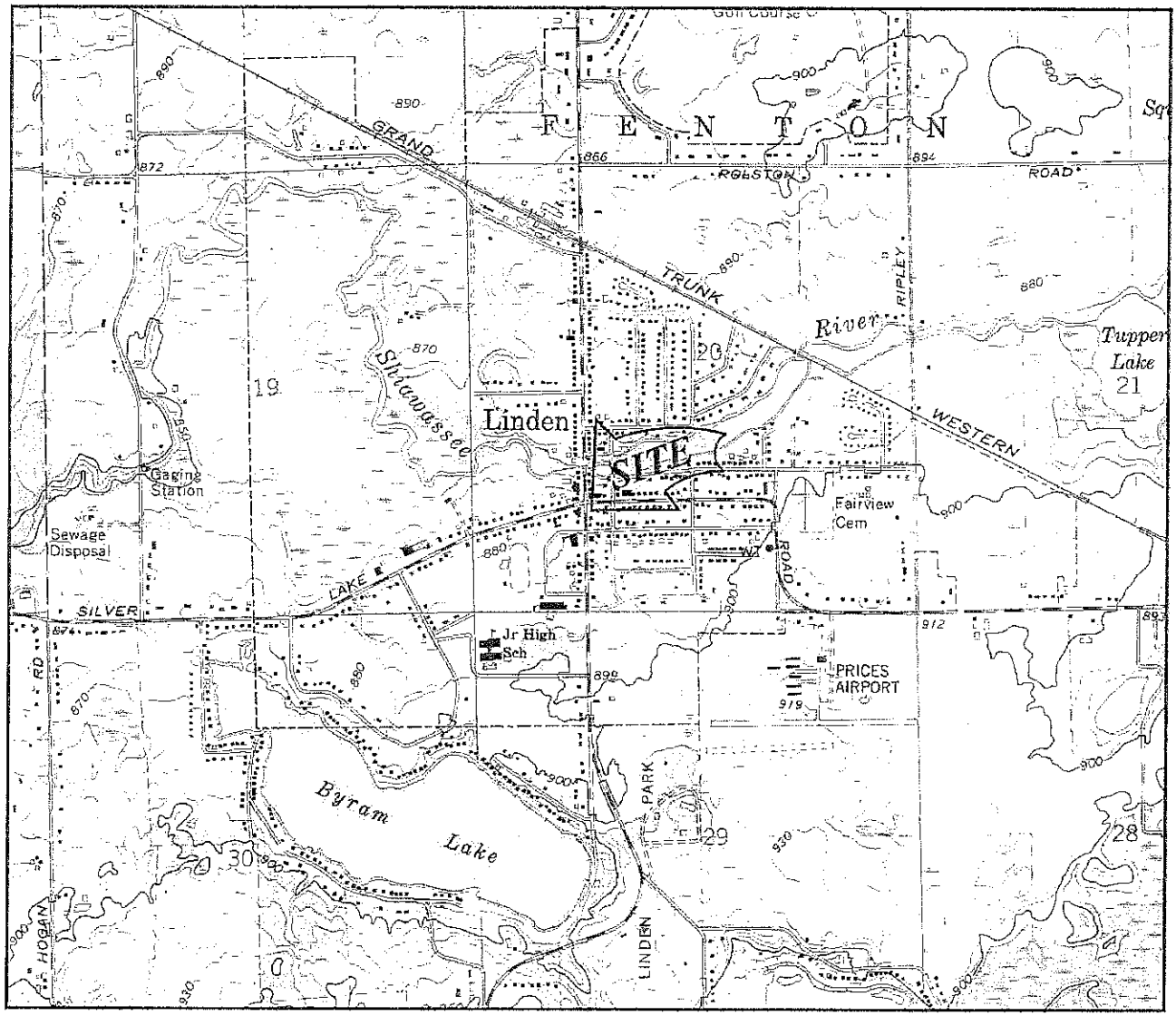
Christie L. Santiago, Q.C.
Senior Engineer

Report Reviewed By:

J. Adam Patton, C.H.M.M., Q.C.
Manager of Site Investigation Services

Figures

PM ENVIRONMENTAL | Environmental & Engineering Services



MICHIGAN QUADRANGLE LOCATION

GENESEE COUNTY

SCALE 1:24,000

1 MILE 1/2 MILE 0 1 MILE

FIGURE 1

PROPERTY VICINITY MAP

USGS, 7.5 MINUTE SERIES

LINDEN, MI QUADRANGLE, 1969. PHOTO REVISED 1983.

PM ENVIRONMENTAL | Environmental & Engineering Services

PROJ:
GASOLINE DISPENSING STATION
110 EAST BROAD STREET
LINDEN, MI

THIS IS NOT A LEGAL SURVEY

VERIFY SCALE
0 2,000'
IF NOT 1" ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRN BY: ES/KS	DATE: 5/13/2015
CHKD BY: CS	SCALE: 1" = 2,000'
FILE NAME: 01-4982-0F01R00	

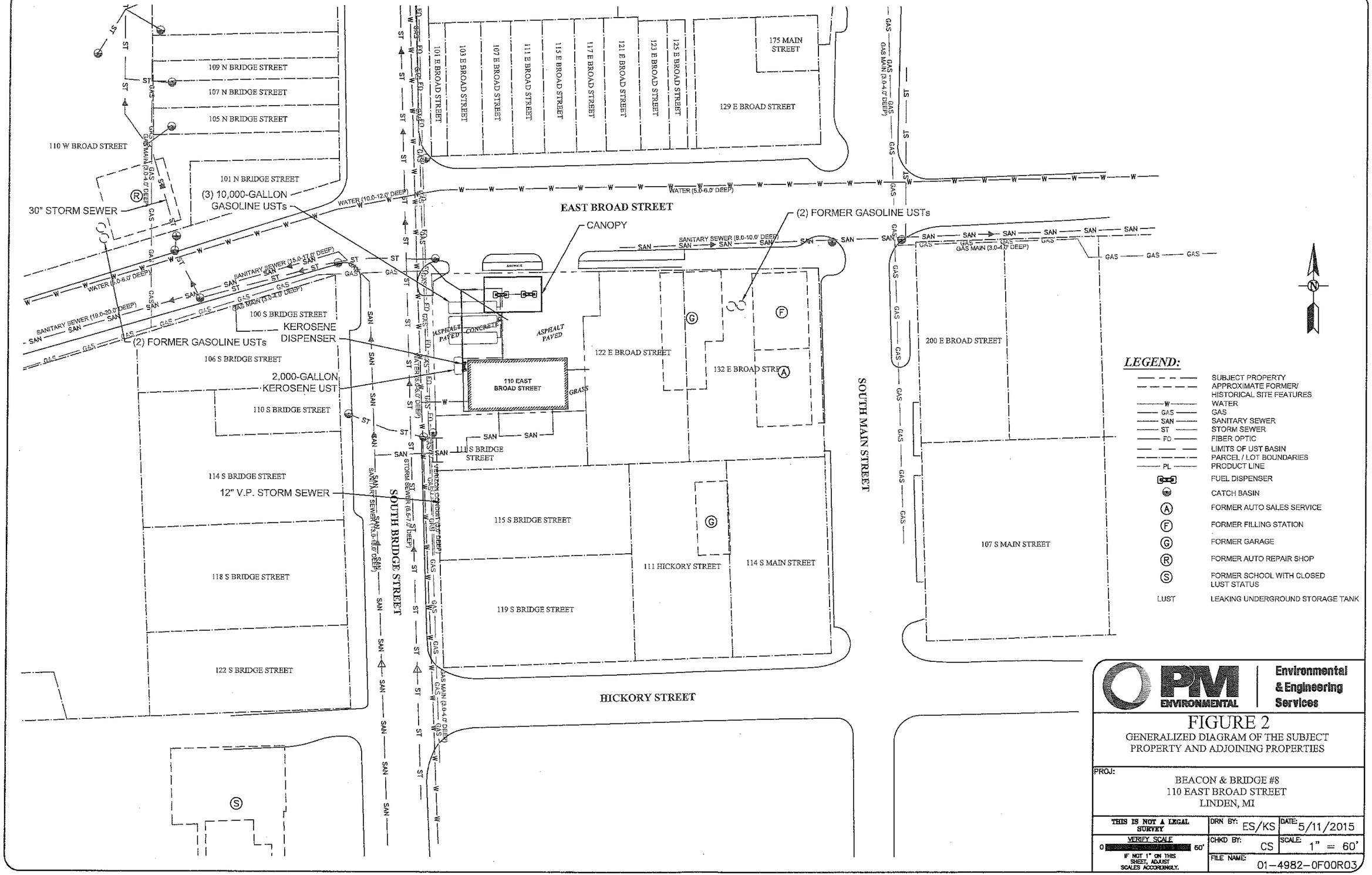


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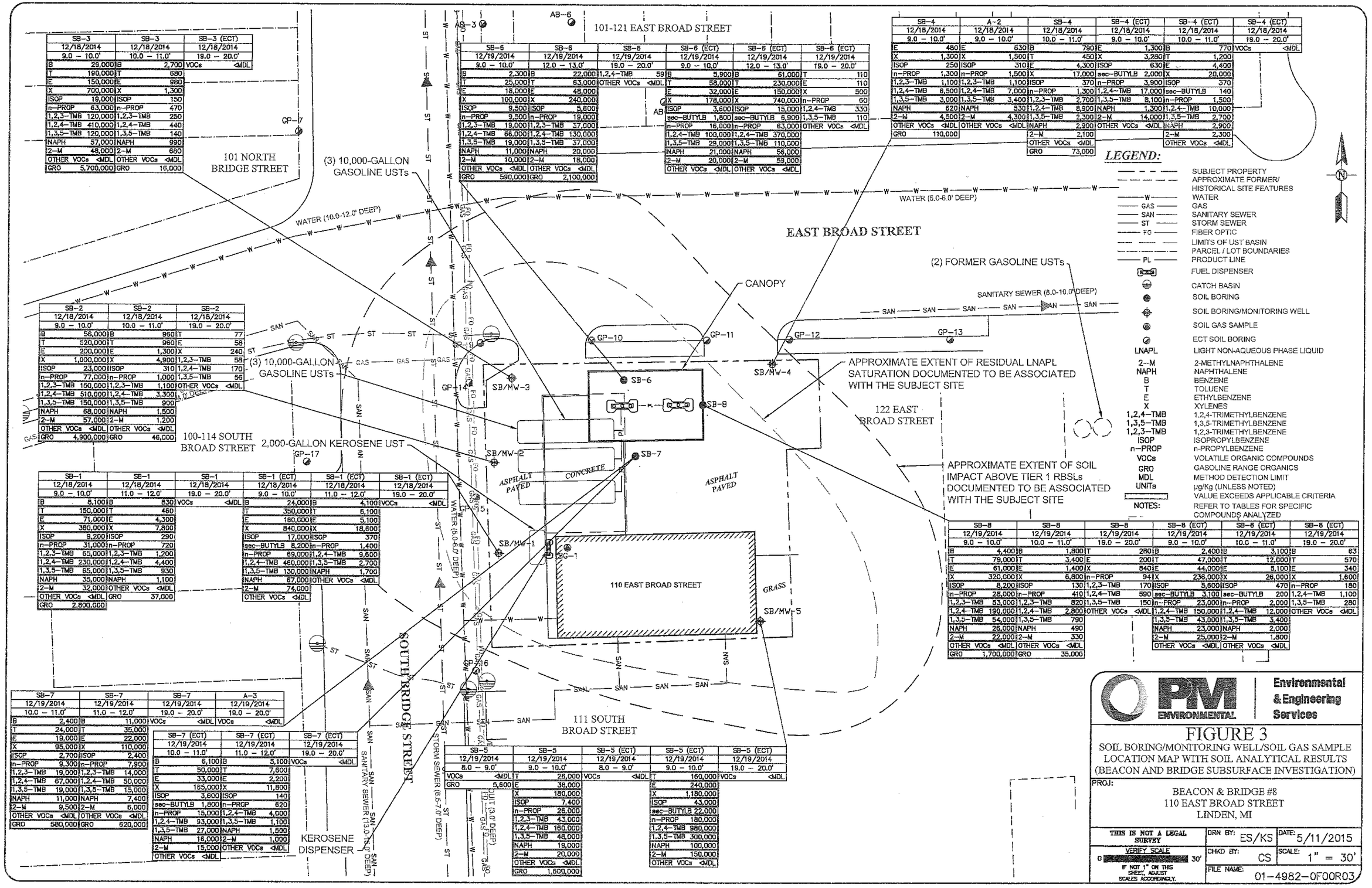
FIGURE 2

GENERALIZED DIAGRAM OF THE SUBJECT PROPERTY AND ADJOINING PROPERTIES

PROJ:

BEACON & BRIDGE #8
110 EAST BROAD STREET
LINDEN, MI

THIS IS NOT A LEGAL SURVEY	DRN BY: ES/KS	DATE: 5/11/2015
VERIFY SCALE 0 60' IF NOT 1" ON THIS SHEET, ADJUST SCALES ACCORDINGLY.	CHKD BY: CS	SCALE: 1" = 60'
	FILE NAME: 01-4982-0F00R03	



SB-3 12/18/2014 9.0 – 10.0'		SB-3 12/18/2014 10.0 – 11.0'		SB-3 (ECT) 12/18/2014 19.0 – 20.0'	
B	29,000	B	2,700	VOCs	<MDL
T	190,000	T	680		
E	150,000	E	980		
X	700,000	X	1,300		
ISOP	19,000	ISOP	150		
n-PROP	63,000	n-PROP	470		
1,2,3-TMB	120,000	1,2,3-TMB	250		
1,2,4-TMB	410,000	1,2,4-TMB	440		
1,3,5-TMB	120,000	1,3,5-TMB	140		
NAPH	57,000	NAPH	990		
2-M	48,000	2-M	680		
OTHER VOCs	<MDL	OTHER VOCs	<MDL		
GRO	5,700,000	GRO	16,000		

SB-6 12/19/2014 9.0 – 10.0'		SB-6 12/19/2014 12.0 – 13.0'		SB-6 12/19/2014 19.0 – 20.0'	
B	2,300	B	22,000	1,2,4-TMB	59
T	25,000	T	63,000	OTHER VOCs	<MDL
E	18,000	E	48,000		
X	100,000	X	240,000		
ISOP	9,500	ISOP	5,600		
n-PROP	9,500	n-PROP	19,000		
1,2,3-TMB	19,000	1,2,3-TMB	37,000		
1,2,4-TMB	66,000	1,2,4-TMB	130,000		
1,3,5-TMB	19,000	1,3,5-TMB	37,000		
NAPH	11,000	NAPH	20,000		
2-M	10,000	2-M	18,000		
OTHER VOCs	<MDL	OTHER VOCs	<MDL		
GRO	590,000	GRO	2,100,000		

SB-6 (ECT) 12/19/2014 9.0 – 10.0'		SB-6 (ECT) 12/19/2014 12.0 – 13.0'		SB-6 (ECT) 12/19/2014 19.0 – 20.0'	
B	5,900	B	61,000	T	110
T	58,000	T	230,000	E	110
E	32,000	E	150,000	X	500
X	178,000	X	740,000	n-PROP	60
ISOP	3,600	ISOP	15,000	1,2,4-TMB	330
sec-BUTYLB	1,800	sec-BUTYLB	6,900	1,3,5-TMB	110
n-PROP	16,000	n-PROP	63,000	OTHER VOCs	<MDL
1,2,4-TMB	100,000	1,2,4-TMB	370,000		
1,3,5-TMB	29,000	1,3,5-TMB	110,000		
NAPH	21,000	NAPH	56,000		
2-M	20,000	2-M	59,000		
OTHER VOCs	<MDL	OTHER VOCs	<MDL		

SB-4 12/18/2014 9.0 – 10.0'		A-2 12/18/2014 9.0 – 10.0'		SB-4 12/18/2014 10.0 – 11.0'		SB-4 (ECT) 12/18/2014 9.0 – 10.0'		SB-4 (ECT) 12/18/2014 10.0 – 11.0'		SB-4 (ECT) 12/18/2014 19.0 – 20.0'	
E	480	E	630	B	790	E	1,300	B	770	VOCs	<MDL
X	1,300	X	1,500	T	450	X	3,250	T	1,200		
ISOP	250	ISOP	310	E	4,300	ISOP	630	E	4,400		
n-PROP	1,300	n-PROP	1,500	X	17,000	sec-BUTYLB	2,000	X	20,000		
1,2,3-TMB	1,100	1,2,3-TMB	1,100	ISOP	370	n-PROP	3,900	ISOP	370		
1,2,4-TMB	6,500	1,2,4-TMB	7,000	n-PROP	1,300	1,2,4-TMB	17,000	sec-BUTYLB	140		
1,3,5-TMB	3,000	1,3,5-TMB	3,400	1,2,3-TMB	2,700	1,3,5-TMB	8,100	n-PROP	1,500		
NAPH	620	NAPH	530	1,2,4-TMB	8,900	NAPH	1,300	1,2,4-TMB	10,000		
2-M	4,500	2-M	4,300	1,3,5-TMB	2,300	2-M	14,000	1,3,5-TMB	2,700		
OTHER VOCs	<MDL	OTHER VOCs	<MDL	NAPH	2,900	OTHER VOCs	<MDL	NAPH	2,900		
GRO	110,000			2-M	2,100			2-M	2,300		
				OTHER VOCs	<MDL			OTHER VOCs	<MDL		
				GRO	73,000						

SB-2 12/18/2014 9.0 – 10.0'		SB-2 12/18/2014 10.0 – 11.0'		SB-2 12/18/2014 19.0 – 20.0'	
B	56,000	B	960	T	77
T	520,000	T	960	E	58
E	200,000	E	1,300	X	240
X	1,000,000	X	4,900	1,2,3-TMB	58
ISOP	23,000	ISOP	310	1,2,4-TMB	170
n-PROP	77,000	n-PROP	1,000	1,3,5-TMB	56
1,2,3-TMB	150,000	1,2,3-TMB	1,100	OTHER VOCs	<MDL
1,2,4-TMB	510,000	1,2,4-TMB	3,300		
1,3,5-TMB	150,000	1,3,5-TMB	900		
NAPH	68,000	NAPH	1,500		
2-M	57,000	2-M	1,200		
OTHER VOCs	<MDL	OTHER VOCs	<MDL		
GRO	4,900,000	GRO	46,000		

SB-1 12/18/2014 9.0 – 10.0'		SB-1 12/18/2014 11.0 – 12.0'		SB-1 12/18/2014 19.0 – 20.0'	
B	8,100	B	830	VOCs	<MDL
T	150,000	T	460		
E	71,000	E	4,300		
X	380,000	X	7,800		
ISOP	9,200	ISOP	290		
n-PROP	31,000	n-PROP	720		
1,2,3-TMB	65,000	1,2,3-TMB	1,200		
1,2,4-TMB	230,000	1,2,4-TMB	4,400		
1,3,5-TMB	65,000	1,3,5-TMB	930		
NAPH	35,000	NAPH	1,100		
2-M	32,000	OTHER VOCs	<MDL		
OTHER VOCs	<MDL	GRO	37,000		
GRO	2,800,000				

SB-1 (ECT) 12/18/2014 9.0 – 10.0'		SB-1 (ECT) 12/18/2014 11.0 – 12.0'		SB-1 (ECT) 12/18/2014 19.0 – 20.0'	
B	24,000	B	4,100	VOCs	<MDL
T	350,000	T	6,100		
E	160,000	E	5,100		
X	840,000	X	18,600		
ISOP	17,000	ISOP	370		
sec-BUTYLB	8,200	n-PROP	1,400		
n-PROP	69,000	1,2,4-TMB	9,600		
1,2,4-TMB	460,000	1,3,5-TMB	2,700		
1,3,5-TMB	130,000	NAPH	1,700		
NAPH	67,000	OTHER VOCs	<MDL		
2-M	74,000				
OTHER VOCs	<MDL				

SB-8 12/19/2014 9.0 – 10.0'		SB-8 12/19/2014 10.0 – 11.0'		SB-8 12/19/2014 19.0 – 20.0'		SB-8 (ECT) 12/19/2014 9.0 – 10.0'		SB-8 (ECT) 12/19/2014 10.0 – 11.0'		SB-8 (ECT) 12/19/2014 19.0 – 20.0'	
B	4,400	B	1,800	T	280	B	2,400	B	3,100	B	63
T	79,000	T	3,400	E	200	T	47,000	T	12,000	T	570
E	61,000	E	1,400	X	840	E	44,000	E	5,100	E	340
X	320,000	X	6,800	n-PROP	94	X	236,000	X	26,000	X	1,600
ISOP	8,200	ISOP	130	1,2,3-TMB	170	ISOP	5,600	ISOP	470	n-PROP	180
n-PROP	28,000	n-PROP	410	1,2,4-TMB	590	sec-BUTYLB	3,100	sec-BUTYLB	200	1,2,4-TMB	1,100
1,2,3-TMB	53,000	1,2,3-TMB	820	1,3,5-TMB	150	n-PROP	23,000	n-PROP	2,000	1,3,5-TMB	280
1,2,4-TMB	190,000	1,2,4-TMB	2,800	OTHER VOCs	<MDL	1,2,4-TMB	150,000	1,2,4-TMB	12,000	OTHER VOCs	<MDL
1,3,5-TMB	54,000	1,3,5-TMB	790			1,3,5-TMB	43,000	1,3,5-TMB	3,400		
NAPH	26,000	NAPH	490			NAPH	23,000	NAPH	2,000		
2-M	22,000	2-M	330			2-M	25,000	2-M	1,800		
OTHER VOCs	<MDL	OTHER VOCs	<MDL			OTHER VOCs	<MDL	OTHER VOCs	<MDL		
GRO	1,700,000	GRO	35,000								

SB-7 12/19/2014 10.0 – 11.0'		SB-7 12/19/2014 11.0 – 12.0'		SB-7 12/19/2014 19.0 – 20.0'		A-3 12/19/2014 19.0 – 20.0'	
B	2,400	B	11,000	VOCs	<MDL	VOCs	<MDL
T	24,000	T	35,000				
E	19,000	E	22,000				
X	95,000	X	110,000				
ISOP	2,700	ISOP	2,400				
n-PROP	9,300	n-PROP	7,900				
1,2,3-TMB	19,000	1,2,3-TMB	14,000				
1,2,4-TMB	67,000	1,2,4-TMB	50,000				
1,3,5-TMB	19,000	1,3,5-TMB	15,000				
NAPH	11,000	NAPH	7,400				
2-M	9,500	2-M	6,000				
OTHER VOCs	<MDL	OTHER VOCs	<MDL				
GRO	580,000	GRO	620,000				

SB-7 (ECT) 12/19/2014 10.0 – 11.0'		SB-7 (ECT) 12/19/2014 11.0 – 12.0'		SB-7 (ECT) 12/19/2014 19.0 – 20.0'	
B	6,100	B	5,100	VOCs	<MDL
T	50,000	T	7,600		
E	33,000	E	2,200		
X	165,000	X	11,800		
ISOP	3,600	ISOP	140		
sec-BUTYLB	1,800	n-PROP	620		
n-PROP	15,000	1,2,4-TMB	4,000		
1,2,4-TMB	93,000	1,3,5-TMB	1,100		
1,3,5-TMB	27,000	NAPH	1,500		
NAPH	16,000	2-M	1,000		
2-M	15,000	OTHER VOCs	<MDL		
OTHER VOCs	<MDL				

SB-5 12/19/2014 8.0 – 9.0'		SB-5 12/19/2014 9.0 – 10.0'		SB-5 (ECT) 12/19/2014 8.0 – 9.0'		SB-5 (ECT) 12/19/2014 9.0 – 10.0'		SB-5 (ECT) 12/19/2014 19.0 – 20.0'	
VOCs	<MDL	T	26,000	VOCs	<MDL	T	160,000	VOCs	<MDL
GRO	5,600	E	38,000			E	240,000		
		X	180,000			X	1,180,000		
		ISOP	7,400			ISOP	43,000		
		n-PROP	26,000			sec-BUTYLB	22,000		
		1,2,3-TMB	43,000			n-PROP	180,000		
		1,2,4-TMB	160,000			1,2,4-TMB	980,000		
		1,3,5-TMB	48,000			1,3,5-TMB	300,000		
		NAPH	19,000			NAPH	100,000		
		2-M	20,000			2-M	150,000		
		OTHER VOCs	<MDL			OTHER VOCs	<MDL		
		GRO	1,600,000						

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FIGURE 3

SOIL BORING/MONITORING WELL/SOIL GAS SAMPLE LOCATION MAP WITH SOIL ANALYTICAL RESULTS (BEACON AND BRIDGE SUBSURFACE INVESTIGATION)

PROJ:

BEACON & BRIDGE #8
110 EAST BROAD STREET
LINDEN, MI

THIS IS NOT A LEGAL SURVEY

VERIFY SCALE
0 30'
IF NOT 1" ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRN BY: ES/KS | DATE: 5/11/2015
CHKD BY: CS | SCALE: 1" = 30'
FILE NAME: 01-4982-0F00R03

GP-6	
7/30/2014	7/30/2014
8.0'	10.0'
VOCs	<MDL VOCs <MDL
PNAs	<MDL PNAs <MDL

GP-5	
7/30/2014	7/30/2014
8.0'	13.0'
VOCs	<MDL VOCs <MDL
PNAs	<MDL PNAs <MDL

GP-3	
7/30/2014	7/30/2014
7.0 – 8.0'	15.0'
B 940	T 120
T 2,900	E 130
E 13,000	X 1,120
X 253,000	n-PROP 79
ISOP 2,600	1,2,3-TMB 130
n-PROP 9,000	1,2,4-TMB 620
1,2,3-TMB 35,000	1,3,5-TMB 190
1,2,4-TMB 150,000	OTHER VOCs <MDL
1,3,5-TMB 45,000	PNAs <MDL
NAPH 21,000	
2-M 21,000	
OTHER VOCs <MDL	
2-M 11,000	
NAPH 9,200	
OTHER PNAs <MDL	

GP-2	
7/30/2014	7/30/2014
9.0 – 10.0'	14.0'
B 1,500	VOCs <MDL
E 370	PNAs <MDL
n-PROP 110	
1,2,3-TMB 93	
OTHER VOCs <MDL	
PNAs <MDL	

GP-8
7/31/2014
9.0'
VOCs <MDL
PNAs <MDL

GP-10	
7/31/2014	7/31/2014
5.0 – 6.0'	10.0'
B 530	B 22,000
T 80	T 220,000
E 730	E 80,000
X 3,070	X 480,000
ISOP 61	ISOP 8,100
n-PROP 280	n-PROP 35,000
1,2,3-TMB 320	1,2,3-TMB 42,000
1,2,4-TMB 1,600	1,2,4-TMB 230,000
1,3,5-TMB 440	1,3,5-TMB 53,000
OTHER VOCs <MDL	NAPH 30,000
PNAs <MDL	2-M 27,000
	OTHER VOCs <MDL
	PNAs <MDL

GP-11
7/31/2014
10.0'
B 1,100
T 2,700
E 3,000
X 14,000
ISOP 360
n-PROP 1,700
1,2,3-TMB 2,500
1,2,4-TMB 10,000
1,3,5-TMB 3,000
NAPH 2,400
2-M 3,000
OTHER VOCs <MDL
PNAs <MDL

GP-20
7/31/2014
9.0'
VOCs <MDL
PNAs <MDL

GP-4
7/30/2014
9.0'
VOCs <MDL
PNAs <MDL

GP-18	
7/31/2014	7/31/2014
9.0 – 10.0'	15.0'
VOCs <MDL	VOCs <MDL
PNAs <MDL	PNAs <MDL

GP-1	
7/30/2014	7/30/2014
8.5 – 9.0'	13.0'
VOCs <MDL	VOCs <MDL
PNAs <MDL	PNAs <MDL

GP-7	
7/31/2014	7/31/2014
9.0'	15.0'
B 1,100	VOCs <MDL
E 80	PNAs <MDL
OTHER VOCs <MDL	
PNAs <MDL	

GP-19
7/31/2014
9.0'
VOCs <MDL
PNAs <MDL

GP-17	
7/31/2014	
9.5'	
B 2,800	
T 14,000	
E 4,400	
X 21,100	
ISOP 400	
n-PROP 1,700	
1,2,3-TMB 2,200	
1,2,4-TMB 9,400	
1,3,5-TMB 2,800	
NAPH 1,900	
2-M 1,700	
OTHER VOCs <MDL	
2-M 24,000	
NAPH 23,000	
Ph 260	
OTHER PNAs <MDL	

GP-9	
7/31/2014	
9.5'	
B 4,800	
T 9,600	
E 12,000	
X 67,000	
ISOP 1,600	
n-PROP 6,800	
1,2,3-TMB 8,500	
1,2,4-TMB 45,000	
1,3,5-TMB 10,000	
NAPH 8,900	
2-M 8,100	
OTHER VOCs <MDL	
2-M 1,300	
NAPH 1,100	
OTHER PNAs <MDL	

GP-14	
8/1/2014	
10.0'	
B 31,000	
T 290,000	
E 110,000	
X 540,000	
ISOP 10,000	
n-PROP 44,000	
1,2,3-TMB 55,000	
1,2,4-TMB 240,000	
1,3,5-TMB 71,000	
NAPH 39,000	
2-M 33,000	
OTHER VOCs <MDL	
2-M 17,000	
NAPH 13,000	
OTHER PNAs <MDL	

GP-12	
7/31/2014	
10.0'	
X 221	
1,2,4-TMB 400	
1,3,5-TMB 170	
OTHER VOCs <MDL	
PNAs <MDL	

GP-13
8/1/2014
14.5'
VOCs <MDL
PNAs <MDL

GP-15	
7/31/2014	7/31/2014
10.0'	17.0'
B 67,000	VOCs <MDL
T 400,000	PNAs <MDL
E 140,000	
X 690,000	
ISOP 13,000	
n-PROP 56,000	
1,2,3-TMB 71,000	
1,2,4-TMB 300,000	
1,3,5-TMB 92,000	
NAPH 50,000	
2-M 43,000	
OTHER VOCs <MDL	
ACE 280	
2-M 70,000	
NAPH 66,000	
Ph 510	
OTHER PNAs <MDL	

GP-16
7/31/2014
10.0'
VOCs <MDL
PNAs <MDL

GP-1 GP-2 GP-3 GP-4 GP-5 GP-6 GP-7 GP-8 GP-9 GP-10 GP-11 GP-12 GP-13 GP-14 GP-15 GP-16 GP-17 GP-18 GP-19 GP-20

AB-2 AB-4 AB-5 AB-6

SB/MW-1 SB/MW-2 SB/MW-3 SB/MW-4 SB/MW-5 SB-6 SB-7 SB-8

101 NORTH BRIDGE STREET

101-121 EAST BROAD STREET

100-114 SOUTH BROAD STREET

111 SOUTH BROAD STREET

110 EAST BROAD STREET

122 EAST BROAD STREET

(3) 10,000-GALLON GASOLINE USTs

(2) FORMER GASOLINE USTs

2,000-GALLON KEROSENE UST

KEROSENE DISPENSER

CANOPY

ASPHALT PAVED

CONCRETE

GRASS

WATER (10.0-12.0' DEEP)

WATER (5.0-6.0' DEEP)

WATER (6.0-6.6' DEEP)

WATER (5.0-17.0' DEEP)

WATER (3.0-6.0' DEEP)

SANITARY SEWER (8.0-10.0' DEEP)

SEWER (19.0-20.0' DEEP)

SANITARY SEWER (13.0-15.0' DEEP)

STORM SEWER (6.5-7.0' DEEP)

GAS MAIN (3.0-4.0' DEEP)

VERIZON CONDUIT (3.0' DEEP)

APPROXIMATE EXTENT OF SOIL IMPACT ABOVE TIER 1 RBSLs DOCUMENTED TO BE ASSOCIATED WITH THE SUBJECT SITE

APPROXIMATE EXTENT OF RESIDUAL LNAPL SATURATION DOCUMENTED TO BE ASSOCIATED WITH THE SUBJECT SITE

LEGEND:

- SUBJECT PROPERTY
- APPROXIMATE FORMER/ HISTORICAL SITE FEATURES
- W — WATER
- GAS — GAS
- SAN — SANITARY SEWER
- ST — STORM SEWER
- FO — FIBER OPTIC
- LIMITS OF UST BASIN
- PARCEL / LOT BOUNDARIES
- PL — PRODUCT LINE
- FUEL DISPENSER
- SOIL BORING
- SOIL BORING/MONITORING WELL
- SOIL GAS SAMPLE
- ECT SOIL BORING
- CATCH BASIN

2-M	2-METHYLNAPHTHALENE
NAPH	NAPHTHALENE
Ph	PHENANTHRENE
B	BENZENE
T	TOLUENE
E	ETHYLBENZENE
X	XYLENES
1,2,4-TMB	1,2,4-TRIMETHYLBENZENE
1,3,5-TMB	1,3,5-TRIMETHYLBENZENE
1,2,3-TMB	1,2,3-TRIMETHYLBENZENE
ISOP	ISOPROPYLBENZENE
n-PROP	n-PROPYLBENZENE
sec-BUTYLB	sec-BUTYLBENZENE
VOCs	VOLATILE ORGANIC COMPOUNDS
PNAs	POLYNUCLEAR AROMATIC COMPOUNDS
MDL	METHOD DETECTION LIMIT
UNITs	µg/Kg (UNLESS NOTED)
	VALUE EXCEEDS APPLICABLE CRITERIA
NOTES:	REFER TO TABLES FOR SPECIFIC COMPOUNDS ANALYZED

PM ENVIRONMENTAL | Environmental & Engineering Services

FIGURE 3A

SOIL BORING/MONITORING WELL/SOIL GAS SAMPLE LOCATION MAP WITH SOIL ANALYTICAL RESULTS (MDEQ 2014 SUBSURFACE INVESTIGATION)

PROJ:

BEACON & BRIDGE #8
110 EAST BROAD STREET
LINDEN, MI

THIS IS NOT A LEGAL SURVEY	DRN BY: ES/KS	DATE: 5/11/2015
VERIFY SCALE 0 30' IF NOT 1" ON THIS SHEET, ADJUST SCALES ACCORDINGLY.	CHKD BY: CS	SCALE: 1" = 30'
	FILE NAME: 01-4982-0F00R03	

MW-3 (ECT)	
12/24/2014	
8.80 – 13.80' SCREEN	
B	15,000
T	530
E	1,600
X	1,580
ISOP	72
n-PROP	190
1,2,3-TMB	240
1,2,4-TMB	250
1,3,5-TMB	61
NAPH	430
OTHER VOCs	<MDL

MW-3	
12/24/2014	
8.80 – 13.80' SCREEN	
B	14,000
T	430
E	1,700
X	1,300
ISOP	81
n-PROP	180
1,2,4-TMB	160
NAPH	320
OTHER VOCs	<MDL

A-2	
12/24/2014	
8.80 – 13.80' SCREEN	
B	15,000
T	460
E	1,800
X	1,400
ISOP	88
n-PROP	190
1,2,3-TMB	320
1,2,4-TMB	190
NAPH	350
OTHER VOCs	<MDL

MW-5	
12/24/2014	
8.10 – 13.10' SCREEN	
B	310
T	14,000
E	4,600
X	20,000
ISOP	160
n-PROP	390
1,2,3-TMB	1,100
1,2,4-TMB	3,100
1,3,5-TMB	750
NAPH	780
OTHER VOCs	<MDL

MW-5 (ECT)	
12/24/2014	
8.10 – 13.10' SCREEN	
B	260
T	13,000
E	3,900
X	16,400
ISOP	130
n-PROP	390
1,2,3-TMB	730
1,2,4-TMB	2,700
1,3,5-TMB	640
NAPH	850
2-M	160
OTHER VOCs	<MDL

MW-4	
12/24/2014	
7.90 – 12.90' SCREEN	
B	4,500
T	1,200
E	4,000
X	14,000
ISOP	130
n-PROP	310
1,2,3-TMB	890
1,2,4-TMB	2,600
1,3,5-TMB	610
NAPH	630
OTHER VOCs	<MDL

MW-4 (ECT)	
12/24/2014	
7.90 – 12.90' SCREEN	
B	4,400
T	1,200
E	3,500
X	12,500
ISOP	110
n-PROP	330
1,2,3-TMB	630
1,2,4-TMB	2,200
1,3,5-TMB	550
NAPH	730
2-M	140
OTHER VOCs	<MDL

MW-2	
12/24/2014	
9.14 – 14.14' SCREEN	
LNAPL	

MW-1 (ECT)	
12/24/2014	
9.00 – 14.00' SCREEN	
B	97
T	260
E	110
X	430
ISOP	6
n-PROP	21
1,2,3-TMB	32
1,2,4-TMB	130
1,3,5-TMB	36
NAPH	23
2-M	9
OTHER VOCs	<MDL

MW-1	
12/24/2014	
9.00 – 14.0' SCREEN	
B	130
T	420
E	150
X	660
ISOP	10
n-PROP	25
1,2,3-TMB	60
1,2,4-TMB	190
1,3,5-TMB	51
NAPH	30
OTHER VOCs	<MDL

101 NORTH BRIDGE STREET

101-121 EAST BROAD STREET

EAST BROAD STREET

100-114 SOUTH BROAD STREET

122 EAST BROAD STREET

110 EAST BROAD STREET

111 SOUTH BROAD STREET

SOUTH BRIDGE STREET

WATER (10.0-12.0' DEEP)

WATER (5.0-6.0' DEEP)

SANITARY SEWER (15.0-17.0' DEEP)

SANITARY SEWER (8.0-10.0' DEEP)

GAS MAIN (3.0-4.0' DEEP)

(3) 10,000-GALLON GASOLINE USTs

2,000-GALLON KEROSENE UST

CANOPY

KEROSENE DISPENSER

ESTIMATED EXTENT OF MOBILE LNAPL DOCUMENTED TO BE ASSOCIATED WITH THE SUBJECT SITE

ESTIMATED EXTENT OF GROUNDWATER IMPACT ABOVE RBSLs DOCUMENTED TO BE ASSOCIATED WITH THE SUBJECT SITE

ASPHALT PAVED

CONCRETE

GRASS

VERIZON CONDUIT (3.0' DEEP)

STORM SEWER (6.5-7.0' DEEP)

SANITARY SEWER (13.0-15.0' DEEP)

AB-2 AB-3 AB-4 AB-5 AB-6

GP-1 GP-4 GP-7 GP-10 GP-11 GP-12 GP-13 GP-14 GP-16 GP-17

SB/MW-1 SB/MW-2 SB/MW-3 SB/MW-4 SB/MW-5 SB-6 SB-7 SB-8

LEGEND:

- SUBJECT PROPERTY
- APPROXIMATE FORMER/ HISTORICAL SITE FEATURES
- W — WATER
- GAS — GAS
- SAN — SANITARY SEWER
- ST — STORM SEWER
- FO — FIBER OPTIC
- LIMITS OF UST BASIN
- PARCEL / LOT BOUNDARIES
- PL — PRODUCT LINE
- FUEL DISPENSER
- CATCH BASIN
- SOIL BORING
- SOIL BORING/MONITORING WELL
- SOIL GAS SAMPLE
- ECT SOIL BORING

NAPH	NAPHTHALENE
2-M	2-METHYLNAPHTHALENE
B	BENZENE
T	TOLUENE
E	ETHYLBENZENE
X	XYLENES
1,2,4-TMB	1,2,4-TRIMETHYLBENZENE
1,3,5-TMB	1,3,5-TRIMETHYLBENZENE
1,2,3-TMB	1,2,3-TRIMETHYLBENZENE
ISOP	ISOPROPYLBENZENE
n-PROP	n-PROPYLBENZENE
VOCs	VOLATILE ORGANIC COMPOUNDS
LNAPL	LIGHT NON-AQUEOUS PHASE LIQUID
MDL	METHOD DETECTION LIMIT
UNITs	µg/L (UNLESS NOTED)
	VALUE EXCEEDS APPLICABLE CRITERIA

NOTES: REFER TO TABLES FOR SPECIFIC COMPOUNDS ANALYZED

PM ENVIRONMENTAL | Environmental & Engineering Services

FIGURE 4

SOIL BORING/MONITORING WELL/SOIL GAS SAMPLE LOCATION MAP WITH GROUNDWATER ANALYTICAL RESULTS (BEACON AND BRIDGE SUBSURFACE INVESTIGATION)

PROJ:

BEACON & BRIDGE #8
110 EAST BROAD STREET
LINDEN, MI

THIS IS NOT A LEGAL SURVEY	DRN BY: ES/KS	DATE: 5/11/2015
VERIFY SCALE: 0 30' IF NOT 1" ON THIS SHEET, ADJUST SCALES ACCORDINGLY.	CHKD BY: CS	SCALE: 1" = 30'
	FILE NAME: 01-4982-0F00R03	

GP-18W	
8/1/2014	
12.5 – 15.0'	SCREEN
VOCs	<MDL

GP-8W	
7/31/2014	
7.0 – 10.5'	SCREEN
MTBE	28
OTHER VOCs	<MDL
PNAs	<MDL

GP-2W	
7/30/2014	
9.0 – 12.5'	SCREEN
B	4,100
E	610
X	200
ISOP	34
n-PROP	83
1,2,4-TMB	410
NAPH	100
OTHER VOCs	<MDL
NAPH	74
OTHER PNAs	<MDL

GP-1W		GP-1W (DUP)		GP-1/TMW	
7/30/2014		7/30/2014		8/21/2014	
7.0 – 12.0'	SCREEN	7.0 – 12.0'	SCREEN	7.0 – 12.0'	SCREEN
B	1,900	B	2,300	B	1,900
E	94	E	52	E	85
X	91	X	84	X	84
n-PROP	20	MTBE	11	n-PROP	19
1,2,4-TMB	110	n-PROP	22	1,2,4-TMB	93
OTHER VOCs	<MDL	1,2,3-TMB	19	OTHER VOCs	<MDL
NAPH	27	1,2,4-TMB	100		
OTHER PNAs	<MDL	OTHER VOCs	<MDL		
		NAPH	28		
		OTHER PNAs	<MDL		

GP-4W	
7/30/2014	
12.5 – 15.0'	SCREEN
B	4,200
T	80
E	280
X	254
MTBE	5
ISOP	17
n-PROP	27
1,2,4-TMB	130
1,3,5-TMB	2
NAPH	77
OTHER VOCs	<MDL
NAPH	33
OTHER PNAs	<MDL

GP-7W	
7/31/2014	
6.0 – 9.5'	SCREEN
B	5,000
T	110
E	88
X	109
MTBE	4
ISOP	9
n-PROP	12
1,2,4-TMB	35
1,3,5-TMB	3
NAPH	38
OTHER VOCs	<MDL
NAPH	24
OTHER PNAs	<MDL

GP-9W		GP-9/TMW	
7/31/2014		8/21/2014	
7.0 – 12.0'	SCREEN	7.0 – 12.0'	SCREEN
B	13,000	B	14,000
T	6,400	T	2,400
E	2,900	E	1,900
X	10,300	X	4,500
ISOP	110	ISOP	92
n-PROP	290	n-PROP	300
1,2,4-TMB	2,000	1,2,3-TMB	420
1,3,5-TMB	530	1,2,4-TMB	1,200
NAPH	760	1,3,5-TMB	310
ST	110	NAPH	600
OTHER VOCs	<MDL	2-M	140
2-M	110	CYCLOHEXANE	160
NAPH	490	OTHER VOCs	<MDL
OTHER PNAs	<MDL		

GP-14W	
8/1/2014	
6.0 – 11.0'	SCREEN
B	9,900
T	24,000
E	1,800
X	8,700
n-PROP	210
1,2,4-TMB	1,700
1,3,5-TMB	500
OTHER VOCs	<MDL

GP-17W	
8/1/2014	
7.0 – 12.0'	SCREEN
B	5,000
T	6,800
E	1,500
X	6,300
ISOP	82
n-PROP	210
1,2,4-TMB	1,400
1,3,5-TMB	390
NAPH	250
OTHER VOCs	<MDL

GP-16W		GP-16W (DUP)		GP-16/TMW		GP-16/TMW (DUP)	
8/1/2014		8/1/2014		8/21/2014		8/21/2014	
7.0 – 12.0'	SCREEN	7.0 – 12.0'	SCREEN	7.0 – 12.0'	SCREEN	7.0 – 12.0'	SCREEN
B	2	B	2	VOCs	<MDL	VOCs	<MDL
OTHER VOCs	<MDL	OTHER VOCs	<MDL				

GP-6W	
7/30/2014	
6.0 – 9.5'	SCREEN
VOCs	<MDL
PNAs	<MDL

GP-5W	
7/30/2014	
7.0 – 15.0'	SCREEN
MTBE	1
OTHER VOCs	<MDL
PNAs	<MDL

GP-3W	
7/30/2014	
7.5 – 11.0'	SCREEN
B	3,500
T	1,800
E	1,900
X	25,500
ISOP	97
n-PROP	220
1,2,4-TMB	4,100
1,3,5-TMB	1,100
NAPH	950
OTHER VOCs	<MDL
2-M	340
FL	14
NAPH	720
Ph	10
Py	13
OTHER PNAs	<MDL

GP-10W	
7/31/2014	
7.25 – 12.5'	SCREEN
B	10,000
T	8,200
E	3,200
X	9,900
ISOP	100
n-PROP	270
1,2,4-TMB	2,200
1,3,5-TMB	350
NAPH	670
OTHER VOCs	<MDL
2-M	89
NAPH	370
OTHER PNAs	<MDL

GP-13W		GP-13/TMW		GP-13/TMW (DUP)	
8/1/2014		8/21/2014		8/21/2014	
7.5 – 12.5'	SCREEN	7.5 – 12.5'	SCREEN	7.5 – 12.5'	SCREEN
B	31	B	35	B	35
T	2	T	2.2	T	2.1
E	110	E	97	E	98
ISOP	21	ISOP	20	ISOP	22
n-PROP	40	n-PROP	39	n-PROP	41
1,2,4-TMB	18	1,2,3-TMB	11	1,2,3-TMB	12
sec-BUTYLB	4	1,2,4-TMB	1.7	1,2,4-TMB	2
OTHER VOCs	<MDL	MEK	8.4	MEK	6.2
		CYCLOHEXANE	7.4	CYCLOHEXANE	7.5
		sec-BUTYLB	3.5	sec-BUTYLB	3.8
		OTHER VOCs	<MDL	OTHER VOCs	<MDL

GP-18, GP-8, GP-2, GP-1, GP-6, GP-5, GP-4, GP-7, GP-3, GP-17, GP-10, GP-11, GP-12, GP-13, GP-15, GP-16

AB-1, AB-2, AB-3, AB-4, AB-5, AB-6

SB/MW-1, SB/MW-2, SB/MW-3, SB/MW-4, SB/MW-5, SB-6, SB-7, SB-8

101 NORTH BRIGDE STREET

101-121 EAST BROAD STREET

100-114 SOUTH BROAD STREET

110 EAST BROAD STREET

122 EAST BROAD STREET

(3) 10,000-GALLON GASOLINE USTs

(2) FORMER GASOLINE USTs

2,000-GALLONE KEROSENE UST

KEROSENE DISPENSER

CANOPY

SIDEWALK

ASPHALT PAVED

CONCRETE

GRASS

WATER (10.0-12.0' DEEP)

WATER (6.0-6.5' DEEP)

WATER (5.0-6.0' DEEP)

GAS MAIN (3.0-4.0' DEEP)

SANITARY SEWER (8.0-10.0' DEEP)

SANITARY SEWER (13.0-15.0' DEEP)

STORM SEWER (6.5-7.0' DEEP)

VERIZON CONDUIT (3.0' DEEP)

ESTIMATED EXTENT OF MOBILE LNAPL DOCUMENTED TO BE ASSOCIATED WITH THE SUBJECT SITE

ESTIMATED EXTENT OF GROUNDWATER IMPACT ABOVE RBSLs DOCUMENTED TO BE ASSOCIATED WITH THE SUBJECT SITE

LEGEND:

- SUBJECT PROPERTY
- APPROXIMATE FORMER/ HISTORICAL SITE FEATURES
- W — WATER
- GAS — GAS
- SAN — SANITARY SEWER
- ST — STORM SEWER
- FO — FIBER OPTIC
- LIMITS OF UST BASIN
- PARCEL / LOT BOUNDARIES
- PL — PRODUCT LINE
- FUEL DISPENSER
- CATCH BASIN
- SOIL BORING
- SOIL BORING/MONITORING WELL
- SOIL GAS SAMPLE
- ECT SOIL BORING
- LNAPL — LIGHT NON-AQUEOUS PHASE LIQUID
- 2-M — 2-METHYLNAPHTHALENE
- NAPH — NAPHTHALENE
- Ph — PHENANTHRENE
- B — BENZENE
- T — TOLUENE
- E — ETHYLBENZENE
- X — XYLENES
- 1,2,4-TMB — 1,2,4-TRIMETHYLBENZENE
- 1,3,5-TMB — 1,3,5-TRIMETHYLBENZENE
- 1,2,3-TMB — 1,2,3-TRIMETHYLBENZENE
- FL — FLUORANTHENE
- Py — PYRENE
- MTBE — METHYL TERT BUTYL ETHER
- MEK — 2-BUTANONE (MEK)
- ISOP — ISOPROPYLBENZENE
- n-PROP — n-PROPYLBENZENE
- sec-BUTYLB — sec-BUTYLBENZENE
- VOCs — VOLATILE ORGANIC COMPOUNDS
- PNAs — POLYNUCLEAR AROMATIC COMPOUNDS
- MDL — METHOD DETECTION LIMIT
- UNITs — µg/L (UNLESS NOTED)
- VALUE EXCEEDS APPLICABLE CRITERIA
- NOTES: REFER TO TABLES FOR SPECIFIC COMPOUNDS ANALYZED

PM ENVIRONMENTAL — Environmental & Engineering Services

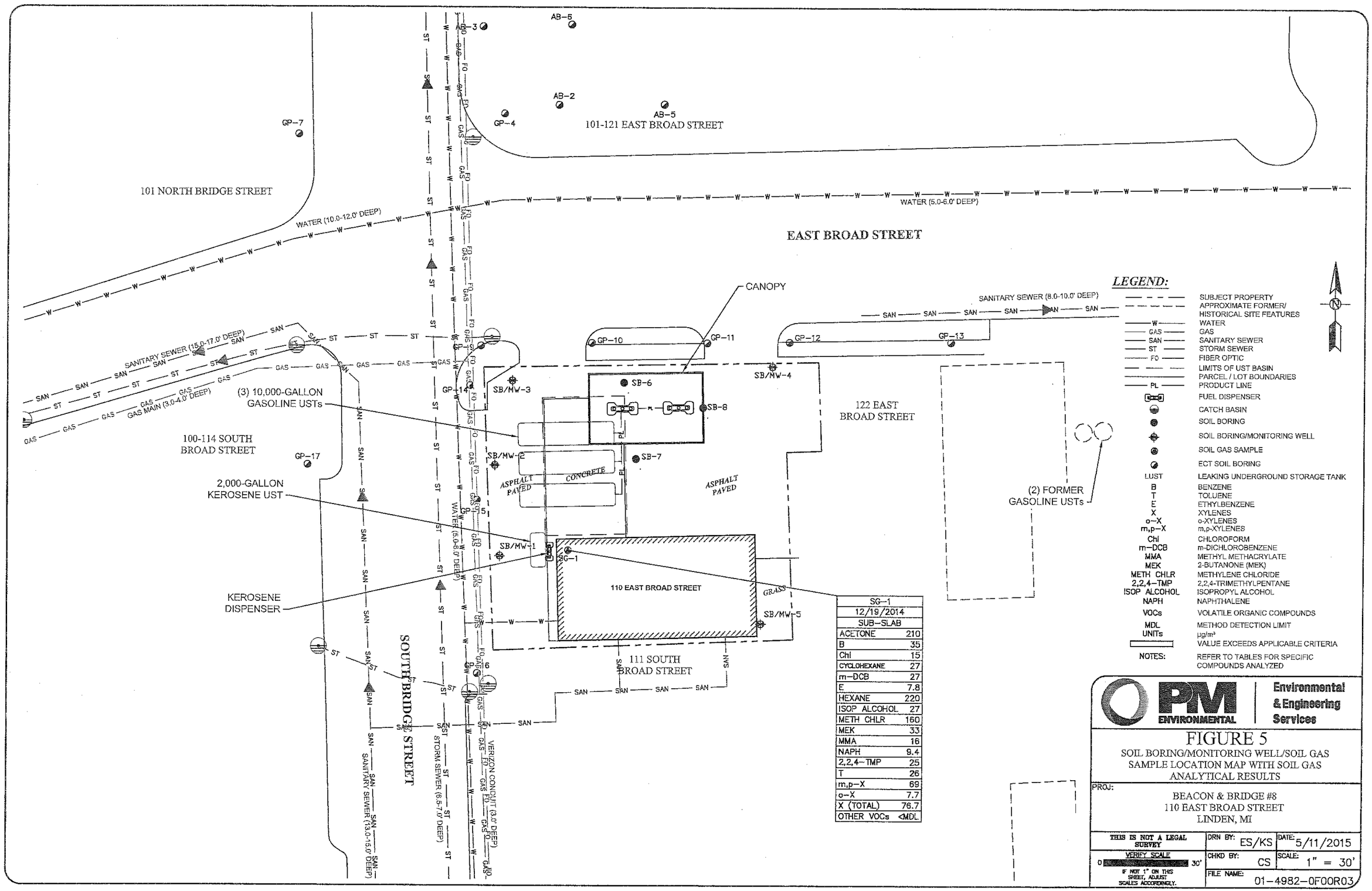
FIGURE 4A

SOIL BORING/MONITORING WELL/SOIL GAS SAMPLE LOCATION MAP WITH GROUNDWATER ANALYTICAL RESULTS (MDEQ 2014 SUBSURFACE INVESTIGATION)

PROJ:

BEACON & BRIDGE #8
110 EAST BROAD STREET
LINDEN, MI

THIS IS NOT A LEGAL SURVEY	DRN BY: ES/KS	DATE: 5/11/2015
VERIFY SCALE 0 — 40' IF NOT 1" ON THIS SHEET, ADJUST SCALES ACCORDINGLY.	CHKD BY: CS	SCALE: 1" = 40'
	FILE NAME: 01-4982-0F00R03	



SG-1	
12/19/2014	
SUB-SLAB	
ACETONE	210
B	35
Chl	15
CYCLOHEXANE	27
m-DCB	27
E	7.8
HEXANE	220
ISOP ALCOHOL	27
METH CHLR	160
MEK	33
MMA	16
NAPH	9.4
2,2,4-TMP	25
T	26
m,p-X	69
o-X	7.7
X (TOTAL)	76.7
OTHER VOCs	<MDL

LEGEND:

	SUBJECT PROPERTY
	APPROXIMATE FORMER/ HISTORICAL SITE FEATURES
W	WATER
GAS	GAS
SAN	SANITARY SEWER
ST	STORM SEWER
FO	FIBER OPTIC
	LIMITS OF UST BASIN
	PARCEL / LOT BOUNDARIES
PL	PRODUCT LINE
	FUEL DISPENSER
	CATCH BASIN
	SOIL BORING
	SOIL BORING/MONITORING WELL
	SOIL GAS SAMPLE
	ECT SOIL BORING
LUST	LEAKING UNDERGROUND STORAGE TANK
B	BENZENE
T	TOLUENE
E	ETHYLBENZENE
X	XYLENES
o-X	o-XYLENES
m,p-X	m,p-XYLENES
Chl	CHLOROFORM
m-DCB	m-DICHLOROBENZENE
MMA	METHYL METHACRYLATE
MEK	2-BUTANONE (MEK)
METH CHLR	METHYLENE CHLORIDE
2,2,4-TMP	2,2,4-TRIMETHYLPENTANE
ISOP ALCOHOL	ISOPROPYL ALCOHOL
NAPH	NAPHTHALENE
VOCs	VOLATILE ORGANIC COMPOUNDS
MDL	METHOD DETECTION LIMIT
UNITs	µg/m³
	VALUE EXCEEDS APPLICABLE CRITERIA
NOTES:	REFER TO TABLES FOR SPECIFIC COMPOUNDS ANALYZED

PM ENVIRONMENTAL — Environmental & Engineering Services

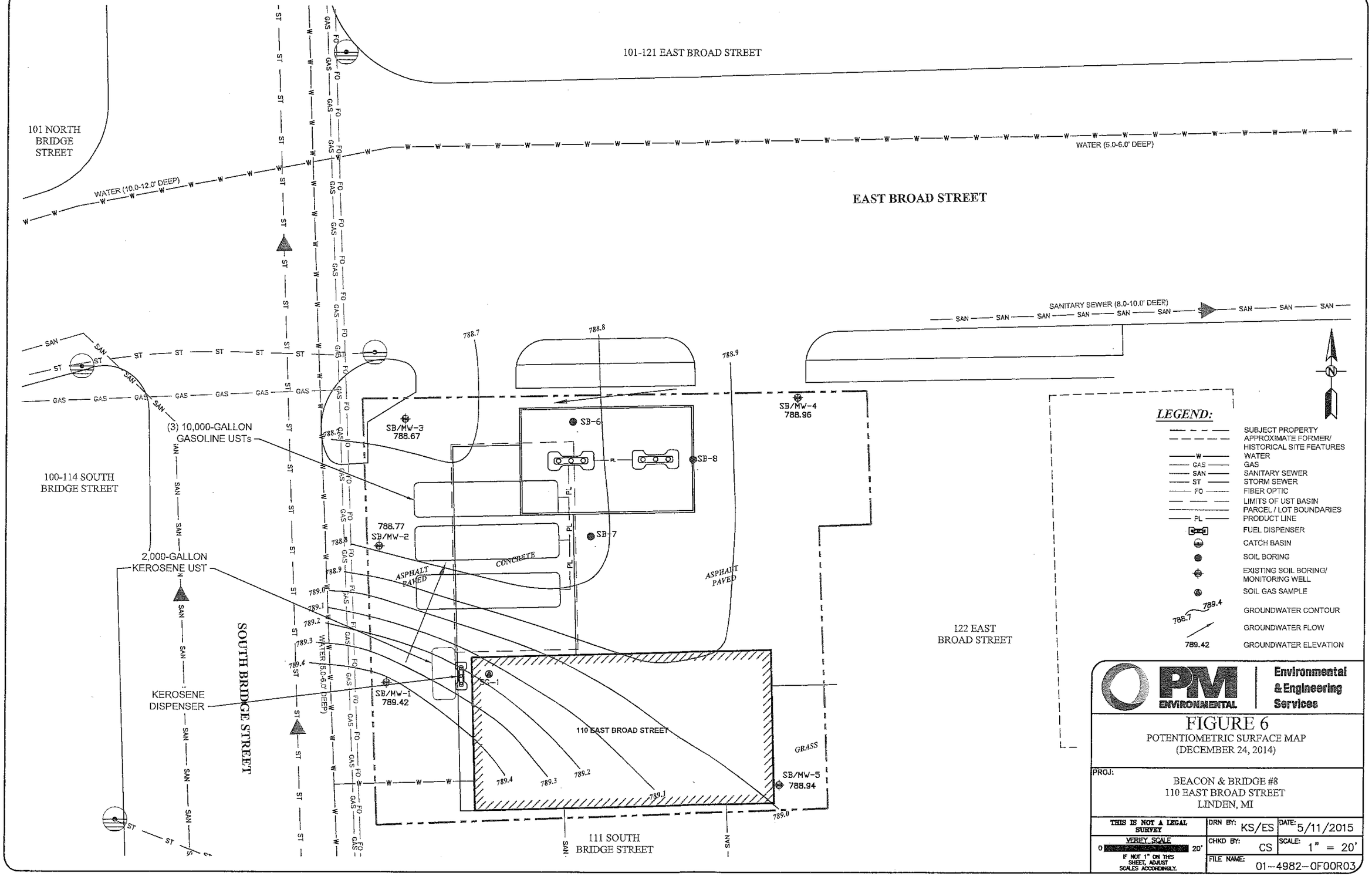
FIGURE 5

SOIL BORING/MONITORING WELL/SOIL GAS SAMPLE LOCATION MAP WITH SOIL GAS ANALYTICAL RESULTS

PROJ:

BEACON & BRIDGE #8
110 EAST BROAD STREET
LINDEN, MI

THIS IS NOT A LEGAL SURVEY	DRN BY: ES/KS	DATE: 5/11/2015
VERIFY SCALE 0 30' IF NOT 1" ON THIS SHEET, ADJUST SCALES ACCORDINGLY.	CHKD BY: CS	SCALE: 1" = 30'
	FILE NAME: 01-4982-0F00R03	



PM ENVIRONMENTAL | Environmental & Engineering Services

FIGURE 6

POTENTIOMETRIC SURFACE MAP
(DECEMBER 24, 2014)

PROJ:
BEACON & BRIDGE #8
110 EAST BROAD STREET
LINDEN, MI

THIS IS NOT A LEGAL SURVEY	DRN BY: KS/ES	DATE: 5/11/2015
VERIFY SCALE 0 20' IF NOT 1" ON THIS SHEET, ADJUST SCALES ACCORDINGLY.	CHKD BY: CS	SCALE: 1" = 20'
	FILE NAME: 01-4982-0F00R03	

101-121 EAST BROAD STREET

101 NORTH BRIDGE STREET

WATER (10.0-12.0' DEEP)

WATER (5.0-6.0' DEEP)

EAST BROAD STREET

SANITARY SEWER (8.0-10.0' DEEP)

(3) 10,000-GALLON GASOLINE USTs

100-114 SOUTH BRIDGE STREET

KEROSENE DISPENSER

SOUTH BRIDGE STREET

2,000-GALLON KEROSENE UST

SB/MW-3 785.91

SB/MW-4 789.22

SB-6

SB-8

SB-7

789.01 SB/MW-2

SB/MW-1 789.60

SB/MW-5 789.23

789.0

789.1

789.2

789.3

789.4

789.5

789.6

ASPHALT PAVED

CONCRETE

GRASS

110 EAST BROAD STREET

111 SOUTH BRIDGE STREET

122 EAST BROAD STREET

WATER (5.0-6.0' DEEP)

LEGEND:

- SUBJECT PROPERTY
- APPROXIMATE FORMER/ HISTORICAL SITE FEATURES
- WATER
- GAS
- SANITARY SEWER
- STORM SEWER
- FIBER OPTIC
- LIMITS OF UST BASIN
- PARCEL / LOT BOUNDARIES
- PRODUCT LINE
- FUEL DISPENSER
- CATCH BASIN
- SOIL BORING
- EXISTING SOIL BORING/ MONITORING WELL
- SOIL GAS SAMPLE
- 789.4 / 788.7 GROUNDWATER CONTOUR
- GROUNDWATER FLOW
- 789.42 GROUNDWATER ELEVATION

PM ENVIRONMENTAL | Environmental & Engineering Services

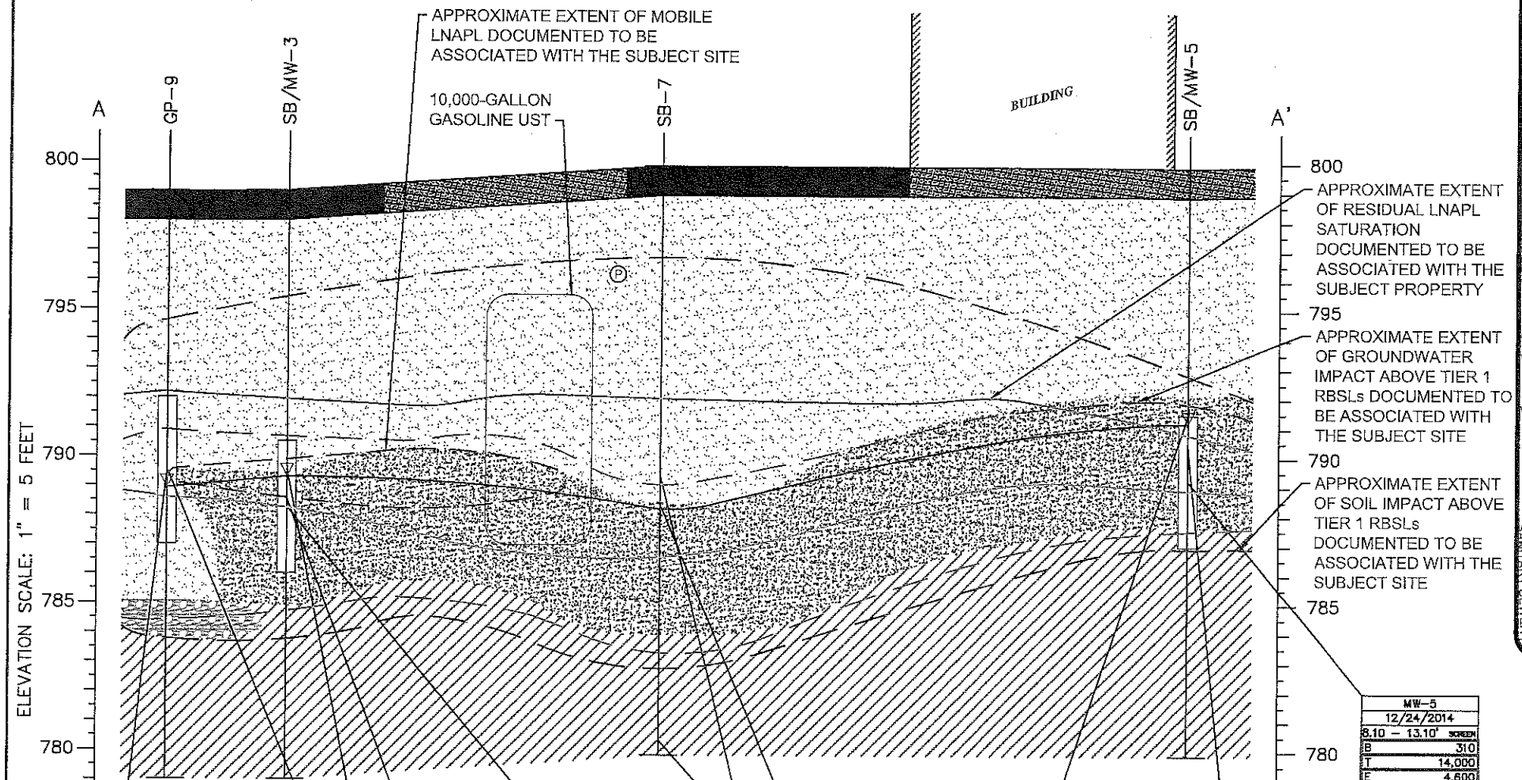
FIGURE 7

POTENTIOMETRIC SURFACE MAP
(APRIL 27,2015)

PROJ:

BEACON & BRIDGE #8
110 EAST BROAD STREET
LINDEN, MI

THIS IS NOT A LEGAL SURVEY	DRN BY: KS/ES	DATE: 5/11/2015
VERIFY SCALE 0 20' IF NOT 1" ON THIS SHEET, ADJUST SCALES ACCORDINGLY.	CHKD BY: CS	SCALE: 1" = 20'
	FILE NAME: 01-4982-0F00R03	



MW-5	
12/24/2014	
8.10 – 13.10' SCREEN	
B	310
T	14,000
E	4,600
X	20,000
ISOP	160
n-PROP	390
1,2,3-TMB	1,100
1,2,4-TMB	3,100
1,3,5-TMB	750
NAPH	780
OTHER VOCs	<MDL

GP-9	
7/31/2014	
9.5'	
B	4,800
T	9,600
E	12,000
X	67,000
ISOP	1,600
n-PROP	6,800
1,2,3-TMB	8,500
1,2,4-TMB	45,000
1,3,5-TMB	10,000
NAPH	8,900
2-M	8,100
OTHER VOCs	<MDL
2-M	1,300
NAPH	1,100
OTHER PNAs	<MDL

MW-3	
12/24/2014	
8.80 – 13.80' SCREEN	
B	14,000
T	430
E	1,700
X	1,300
ISOP	81
n-PROP	180
1,2,4-TMB	160
NAPH	320
OTHER VOCs	<MDL

A-2	
12/24/2014	
8.80 – 13.80' SCREEN	
B	15,000
T	460
E	1,800
X	1,400
ISOP	88
n-PROP	190
1,2,3-TMB	320
1,2,4-TMB	190
NAPH	350
OTHER VOCs	<MDL

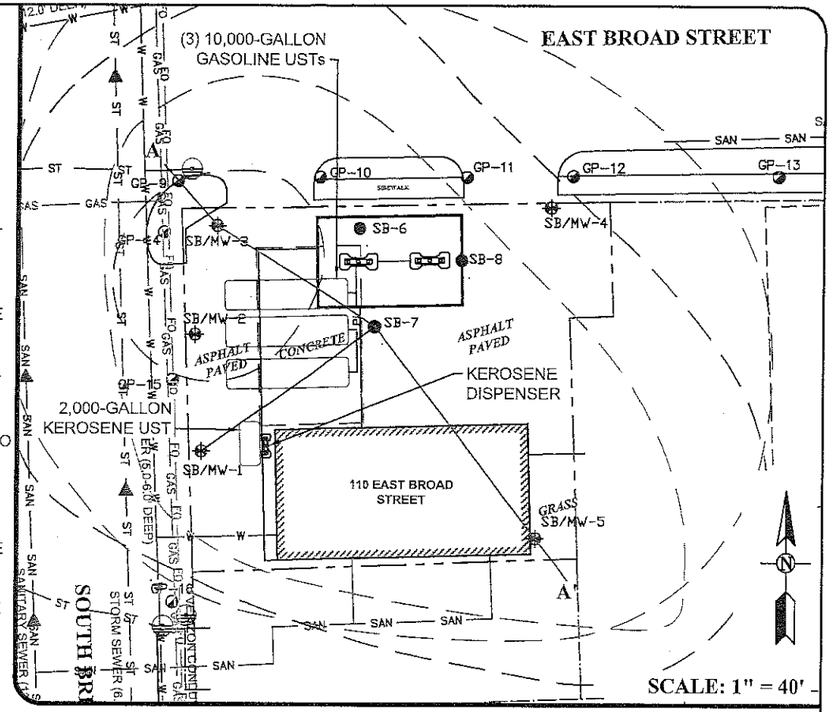
SB-5		SB-5 (ECT)		SB-5 (ECT)	
12/19/2014		12/19/2014		12/19/2014	
8.0 – 9.0'		9.0 – 10.0'		19.0 – 20.0'	
VOCs	<MDL	T	26,000	T	160,000
GRO	5,600	E	38,000	E	240,000
		X	180,000	X	1,180,000
		ISOP	7,400	ISOP	43,000
		n-PROP	26,000	sec-BUTYLB	22,000
		1,2,3-TMB	43,000	n-PROP	180,000
		1,2,4-TMB	160,000	1,2,4-TMB	980,000
		1,3,5-TMB	48,000	1,3,5-TMB	300,000
		NAPH	19,000	NAPH	100,000
		2-M	20,000	2-M	150,000
		OTHER VOCs	<MDL	OTHER VOCs	<MDL
		GRO	1,600,000		

GP-9W		GP-9/MW	
7/31/2014		8/21/2014	
7.0 – 12.0' SCREEN		7.0 – 12.0' SCREEN	
B	13,000	B	14,000
T	6,400	T	2,400
E	2,900	E	1,900
X	10,300	X	4,500
ISOP	110	ISOP	92
n-PROP	290	n-PROP	300
1,2,4-TMB	2,000	1,2,3-TMB	420
1,3,5-TMB	530	1,2,4-TMB	1,200
NAPH	760	1,3,5-TMB	310
ST	110	NAPH	600
OTHER VOCs	<MDL	2-M	140
2-M	110	CYCLOHEXANE	160
NAPH	490	OTHER VOCs	<MDL
OTHER PNAs	<MDL		

SB-3		SB-3		SB-3 (ECT)	
12/18/2014		12/18/2014		12/18/2014	
9.0 – 10.0'		10.0 – 11.0'		19.0 – 20.0'	
B	29,000	B	2,700	VOCs	<MDL
T	190,000	T	680		
E	150,000	E	980		
X	700,000	X	1,300		
ISOP	19,000	ISOP	150		
n-PROP	63,000	n-PROP	470		
1,2,3-TMB	120,000	1,2,3-TMB	250		
1,2,4-TMB	410,000	1,2,4-TMB	440		
1,3,5-TMB	120,000	1,3,5-TMB	140		
NAPH	57,000	NAPH	990		
2-M	48,000	2-M	680		
OTHER VOCs	<MDL	OTHER VOCs	<MDL		
GRO	5,700,000	GRO	16,000		

SB-7		SB-7		SB-7		A-3	
12/19/2014		12/19/2014		12/19/2014		12/19/2014	
10.0 – 11.0'		11.0 – 12.0'		19.0 – 20.0'		19.0 – 20.0'	
B	2,400	B	11,000	VOCs	<MDL	VOCs	<MDL
T	24,000	T	35,000				
E	19,000	E	22,000				
X	95,000	X	110,000				
ISOP	2,700	ISOP	2,400				
n-PROP	9,300	n-PROP	7,900				
1,2,3-TMB	19,000	1,2,3-TMB	14,000				
1,2,4-TMB	67,000	1,2,4-TMB	50,000				
1,3,5-TMB	19,000	1,3,5-TMB	15,000				
NAPH	11,000	NAPH	7,400				
2-M	9,500	2-M	6,000				
OTHER VOCs	<MDL	OTHER VOCs	<MDL				
GRO	580,000	GRO	620,000				

SB-7 (ECT)		SB-7 (ECT)		SB-7 (ECT)	
12/19/2014		12/19/2014		12/19/2014	
10.0 – 11.0'		11.0 – 12.0'		19.0 – 20.0'	
B	6,100	B	5,100	VOCs	<MDL
T	50,000	T	7,600		
E	33,000	E	2,200		
X	165,000	X	11,800		
ISOP	3,600	ISOP	140		
sec-BUTYLB	1,800	n-PROP	620		
n-PROP	15,500	1,2,4-TMB	4,000		
1,2,4-TMB	93,000	1,3,5-TMB	1,100		
1,3,5-TMB	27,000	NAPH	1,500		
NAPH	16,000	2-M	1,000		
2-M	15,000	OTHER VOCs	<MDL		
OTHER VOCs	<MDL				



LEGEND:

	FILL OR ASPHALT	2-M	2-METHYLNAPHTHALENE
	SAND	NAPH	NAPHTHALENE
	CLAY	B	BENZENE
	GRAVEL AND SAND	T	TOLUENE
	GRAVEL	E	ETHYLBENZENE
	CONCRETE	X	XYLENES
Ⓟ	PRODUCT LINE	1,2,4-TMB	1,2,4-TRIMETHYLBENZENE
		1,3,5-TMB	1,3,5-TRIMETHYLBENZENE
	SCREEN	1,2,3-TMB	1,2,3-TRIMETHYLBENZENE
		ISOP	ISOPROPYLBENZENE
	GROUNDWATER ELEVATION (DECEMBER 2014)	n-PROP	n-PROPYLBENZENE
		VOCs	VOLATILE ORGANIC COMPOUNDS
		GRO	GASOLINE RANGE ORGANICS
		MDL	METHOD DETECTION LIMIT
		UNITs	µg/Kg (UNLESS NOTED)
			VALUE EXCEEDS APPLICABLE CRITERIA
LNAPL	LIGHT NON-AQUEOUS PHASE LIQUIDS	NOTES:	REFER TO TABLES FOR SPECIFIC COMPOUNDS ANALYZED
RBSLs	RISK BASED SCREENING LEVELS		

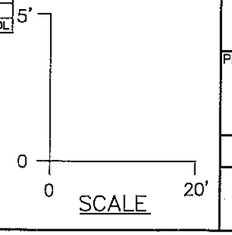


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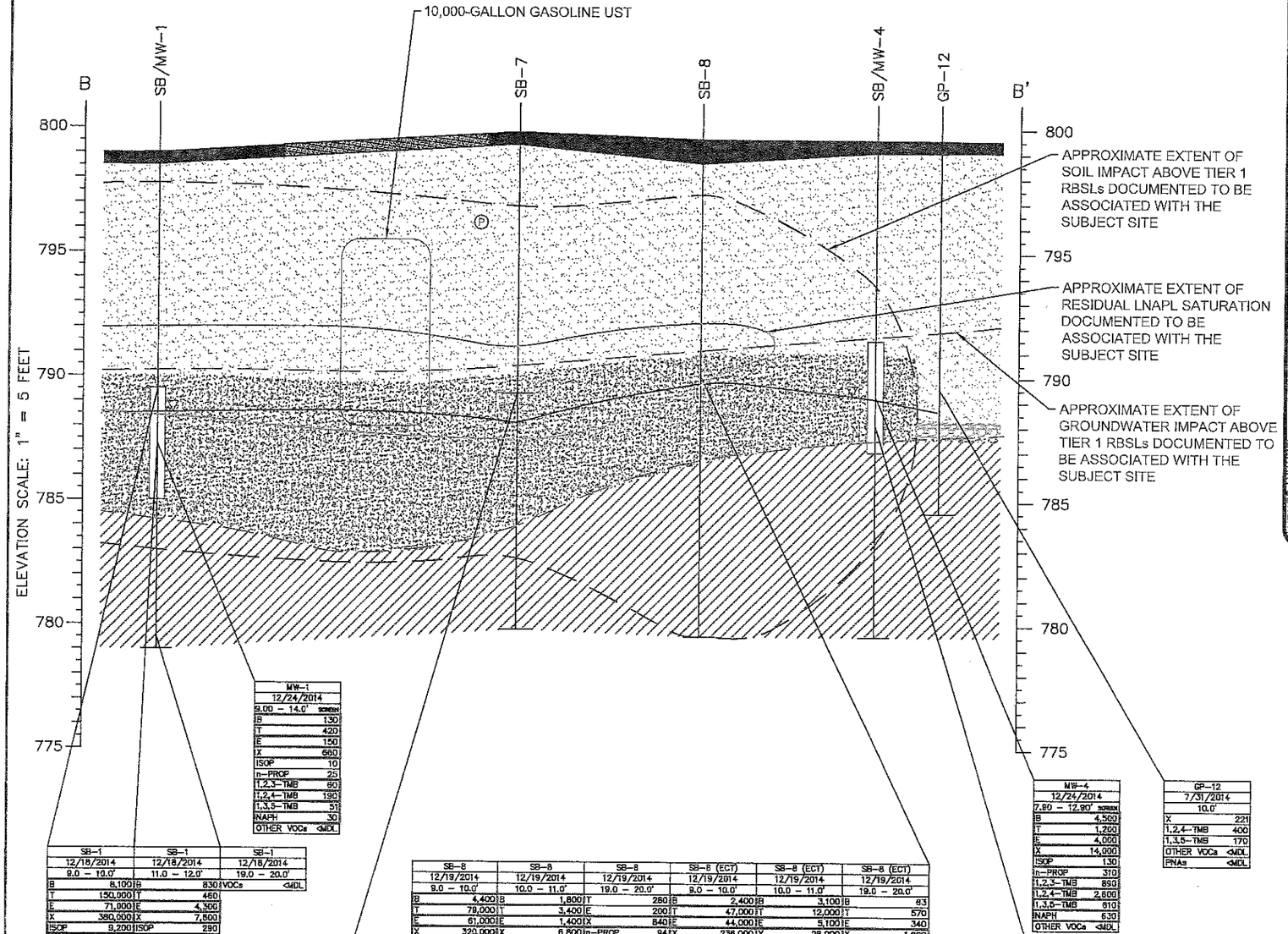
FIGURE 8

GEOLOGIC CROSS SECTION A-A'

PROJ:

BEACON & BRIDGE #8
110 EAST BROAD STREET
LINDEN, MI

THIS IS NOT A LEGAL SURVEY	DRN BY: ES/KS	DATE: 5/11/2015
VERIFY SCALE 0 NOTED IF NOT 1" ON THIS SHEET, ADJUST SCALES ACCORDINGLY.	CHKD BY: CS	SCALE: NOTED
	FILE NAME: 01-4982-0F00R03	



MW-1	
12/24/2014	
9.00 – 14.0'	SCREEN
B	130
T	420
E	150
X	660
ISOP	10
n-PROP	25
1,2,3-TMB	60
1,2,4-TMB	190
1,3,5-TMB	30
NAPH	30
OTHER VOCs	<MDL

MW-4	
12/24/2014	
7.90 – 12.90'	SCREEN
B	4,500
T	1,200
E	4,000
X	14,000
ISOP	130
n-PROP	310
1,2,3-TMB	890
1,2,4-TMB	2,600
1,3,5-TMB	810
NAPH	630
OTHER VOCs	<MDL

GP-12	
7/31/2014	
10.0'	
X	221
1,2,4-TMB	400
1,3,5-TMB	170
OTHER VOCs	<MDL
PNAs	<MDL

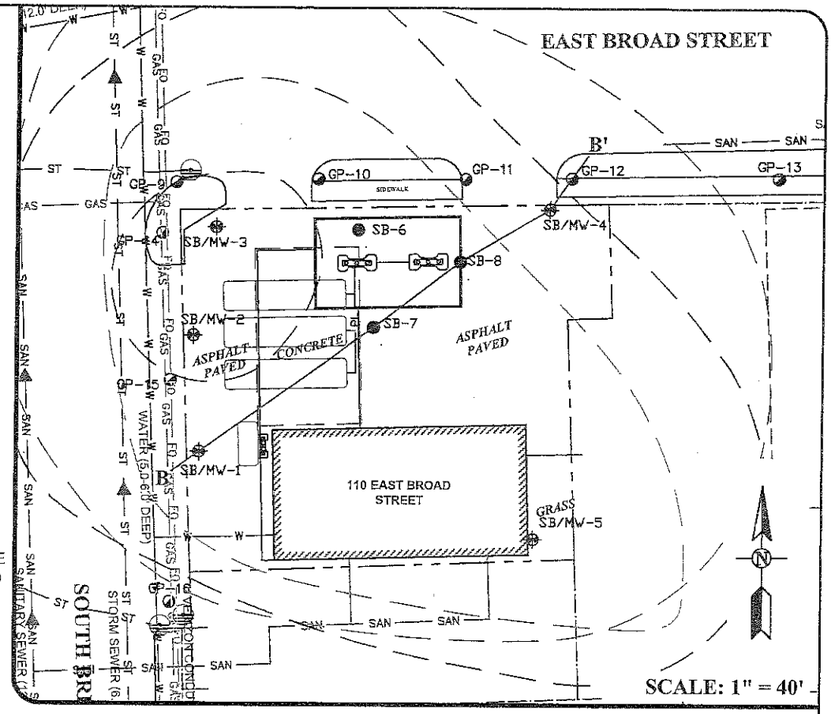
SB-1	SB-1	SB-1	
12/18/2014	12/18/2014	12/18/2014	
9.0 – 10.0'	11.0 – 12.0'	19.0 – 20.0'	
B	8,100	B	830	VOCs	<MDL
T	150,000	T	460		
E	71,000	E	4,300		
X	380,000	X	7,500		
ISOP	9,200	ISOP	290		
n-PROP	31,000	n-PROP	720		
1,2,3-TMB	85,000	1,2,3-TMB	1,200		
1,2,4-TMB	230,000	1,2,4-TMB	4,400		
1,3,5-TMB	65,000	1,3,5-TMB	930		
NAPH	35,000	NAPH	1,100		
2-M	32,000	OTHER VOCs	<MDL		
OTHER VOCs	<MDL	GRO	37,000		
GRO	2,800,000				

SB-8	SB-8	SB-8	SB-8 (ECT)	SB-8 (ECT)	SB-8 (ECT)	
12/19/2014	12/19/2014	12/19/2014	12/19/2014	12/19/2014	12/19/2014	
9.0 – 10.0'	10.0 – 11.0'	19.0 – 20.0'	9.0 – 10.0'	10.0 – 11.0'	19.0 – 20.0'	
B	4,400	B	1,800	T	280	B	2,400	B	3,100	B	63	
T	79,000	T	3,400	E	200	T	47,000	T	12,000	T	570	
E	61,000	E	1,400	X	840	E	44,000	E	5,100	E	340	
X	320,000	X	6,800	n-PROP	94	X	238,000	X	28,000	X	1,900	
ISOP	8,200	ISOP	130	1,2,3-TMB	170	ISOP	5,800	ISOP	470	n-PROP	180	
n-PROP	28,000	n-PROP	410	1,2,4-TMB	590	sec-BUTYLB	3,100	sec-BUTYLB	200	1,2,4-TMB	1,100	
1,2,3-TMB	53,000	1,2,3-TMB	820	1,3,5-TMB	150	n-PROP	23,000	n-PROP	2,000	1,3,5-TMB	280	
1,2,4-TMB	190,000	1,2,4-TMB	2,800	OTHER VOCs	<MDL	1,2,4-TMB	150,000	1,2,4-TMB	12,000	OTHER VOCs	<MDL
1,3,5-TMB	54,000	1,3,5-TMB	780			1,3,5-TMB	43,000	1,3,5-TMB	3,400		
NAPH	25,000	NAPH	480			NAPH	23,000	NAPH	2,000		
2-M	22,000	2-M	330			2-M	25,000	2-M	1,800		
OTHER VOCs	<MDL	OTHER VOCs	<MDL			OTHER VOCs	<MDL	OTHER VOCs	<MDL		
GRO	1,700,000	GRO	35,000								

SB-4	A-2	SB-4	SB-4 (ECT)	SB-4 (ECT)	SB-4 (ECT)	
12/18/2014	12/18/2014	12/18/2014	12/18/2014	12/18/2014	12/18/2014	
9.0 – 10.0'	9.0 – 10.0'	10.0 – 11.0'	9.0 – 10.0'	10.0 – 11.0'	19.0 – 20.0'	
E	480	E	630	B	790	E	1,300	B	770	VOCs	<MDL
X	1,300	X	1,500	T	450	X	3,250	T	1,200		
ISOP	250	ISOP	310	E	4,300	ISOP	630	E	4,400		
n-PROP	1,300	n-PROP	1,500	X	17,000	sec-BUTYLB	2,000	X	20,000		
1,2,3-TMB	1,100	1,2,3-TMB	1,100	ISOP	370	n-PROP	3,900	ISOP	370		
1,2,4-TMB	5,500	1,2,4-TMB	7,000	n-PROP	1,300	1,2,4-TMB	17,000	sec-BUTYLB	140		
1,3,5-TMB	3,000	1,3,5-TMB	3,400	1,2,3-TMB	2,700	1,3,5-TMB	8,100	n-PROP	1,500		
NAPH	620	NAPH	530	1,2,4-TMB	8,800	NAPH	1,300	1,2,4-TMB	10,000		
2-M	4,500	2-M	4,300	1,3,5-TMB	2,300	2-M	14,000	1,3,5-TMB	2,700		
OTHER VOCs	<MDL	OTHER VOCs	<MDL	NAPH	2,900	OTHER VOCs	<MDL	NAPH	2,800		
GRO	110,000			2-M	2,100			2-M	2,300		
				OTHER VOCs	<MDL			OTHER VOCs	<MDL		
				GRO	73,000						

SB-1 (ECT)	SB-1 (ECT)	SB-1 (ECT)	
12/18/2014	12/18/2014	12/18/2014	
9.0 – 10.0'	11.0 – 12.0'	19.0 – 20.0'	
B	24,000	B	4,100	VOCs	<MDL
T	350,000	T	6,100		
E	160,000	E	5,100		
X	840,000	X	18,600		
ISOP	17,000	ISOP	370		
sec-BUTYLB	8,200	n-PROP	1,400		
n-PROP	89,000	1,2,4-TMB	9,600		
1,2,4-TMB	460,000	1,3,5-TMB	2,700		
1,3,5-TMB	130,000	NAPH	1,700		
NAPH	87,000	OTHER VOCs	<MDL		
2-M	74,000				
OTHER VOCs	<MDL				

SB-7	SB-7	SB-7	A-3	SB-7 (ECT)	SB-7 (ECT)	SB-7 (ECT)	
12/19/2014	12/19/2014	12/19/2014	12/19/2014	12/19/2014	12/19/2014	12/19/2014	
10.0 – 11.0'	11.0 – 12.0'	19.0 – 20.0'	19.0 – 20.0'	10.0 – 11.0'	11.0 – 12.0'	19.0 – 20.0'	
B	2,400	B	11,000	VOCs	<MDL	VOCs	<MDL	B	6,100	B	5,100	VOCs	<MDL
T	24,000	T	35,000					T	50,000	T	7,600		
E	19,000	E	22,000					E	33,000	E	2,200		
X	85,000	X	110,000					X	185,000	X	11,800		
ISOP	2,700	ISOP	2,400					ISOP	3,600	ISOP	140		
n-PROP	9,300	n-PROP	7,900					sec-BUTYLB	1,800	n-PROP	620		
1,2,3-TMB	19,000	1,2,3-TMB	14,000					n-PROP	15,500	1,2,4-TMB	4,000		
1,2,4-TMB	67,000	1,2,4-TMB	50,000					1,2,4-TMB	93,000	1,3,5-TMB	1,100		
1,3,5-TMB	19,000	1,3,5-TMB	15,000					1,3,5-TMB	27,000	NAPH	1,500		
NAPH	11,000	NAPH	7,400					NAPH	18,000	2-M	1,000		
2-M	9,500	2-M	6,000					2-M	15,000	OTHER VOCs	<MDL		
OTHER VOCs	<MDL	OTHER VOCs	<MDL					OTHER VOCs	<MDL				
GRO	580,000	GRO	620,000										



LEGEND:

	FILL OR ASPHALT	2-M	2-METHYLNAPHTHALENE
	SAND	NAPH	NAPHTHALENE
	CLAY	B	BENZENE
	GRAVEL AND SAND	T	TOLUENE
	GRAVEL	E	ETHYLBENZENE
	CONCRETE	X	XYLENES
Ⓟ	PRODUCT LINE	1,2,4-TMB	1,2,4-TRIMETHYLBENZENE
		1,3,5-TMB	1,3,5-TRIMETHYLBENZENE
	SCREEN	1,2,3-TMB	1,2,3-TRIMETHYLBENZENE
		ISOP	ISOPROPYLBENZENE
▽	GROUNDWATER ELEVATION (DECEMBER 2014)	n-PROP	n-PROPYLBENZENE
		VOCs	VOLATILE ORGANIC COMPOUNDS
LNAPL	LIGHT NON-AQUEOUS PHASE LIQUIDS	GRO	GASOLINE RANGE ORGANICS
RBSLs	RISK BASED SCREENING LEVELS	MDL	METHOD DETECTION LIMIT
		UNITs	µg/Kg (UNLESS NOTED)
			VALUE EXCEEDS APPLICABLE CRITERIA
		NOTES:	REFER TO TABLES FOR SPECIFIC COMPOUNDS ANALYZED

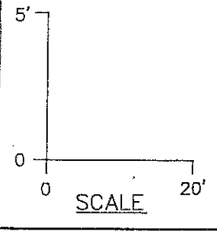


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FIGURE 9

GEOLOGIC CROSS SECTION B-B'

PROJ:

BEACON & BRIDGE #8
110 EAST BROAD STREET
LINDEN, MI

THIS IS NOT A LEGAL SURVEY	DRN BY: ES/KS	DATE: 5/11/2015
VERIFY SCALE 0 NOTED IF NOT 1" ON THIS SHEET, ADJUST SCALES ACCORDINGLY.	CHKD BY: CS	SCALE: NOTED
	FILE NAME: 01-4982-0F00R03	

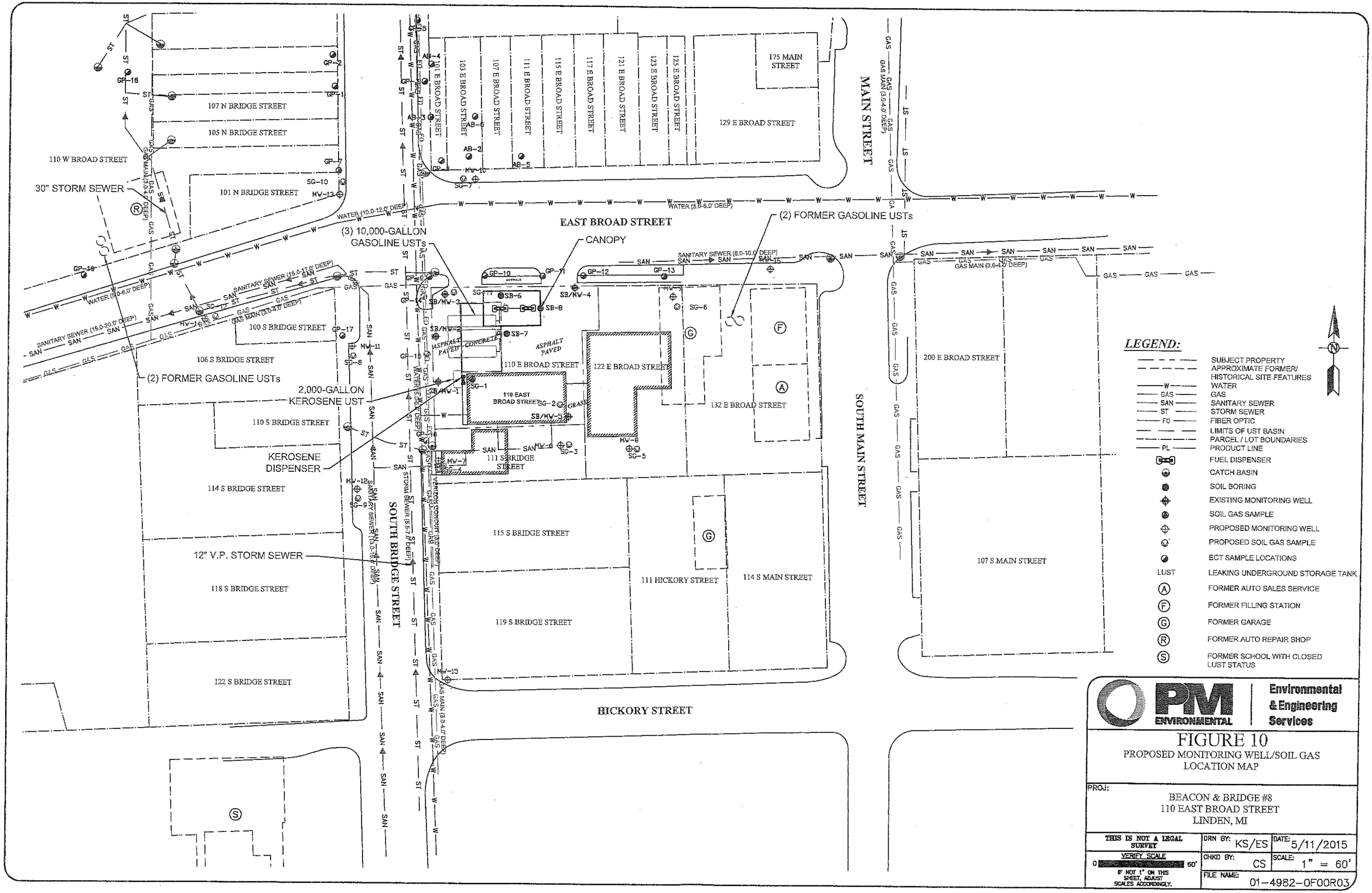

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FIGURE 10

PROPOSED MONITORING WELL/SOIL GAS LOCATION MAP

PROJ:

BEACON & BRIDGE #8
110 EAST BROAD STREET
LINDEN, MI

THIS IS NOT A LEGAL SURVEY	DRN BY: KS/ES	DATE: 5/11/2015
VERIFY SCALE 0 60' IF NOT 1" ON THIS SHEET, ADJUST SCALES ACCORDINGLY.	CHKD BY: CS	SCALE: 1" = 60'
	FILE NAME: 01-4982-0F00R03	

Tables

PM ENVIRONMENTAL Environmental & Engineering Services

TABLE 1 (1 OF 1)
SUMMARY OF SOIL ANALYTICAL RESULTS
GASOLINE VOCs,GASOLINE RANGE ORGANICS, and PNAs
110 EAST BROAD STREET, LINDEN, MICHIGAN
PM PROJECT # 01-4982-0

Volatile Organic Compounds (VOCs), Gasoline Range Organics (GRO), and Polynuclear Aromatic Compounds (PNAs) (µg/Kg)			Benzene	Toluene	Ethylbenzene	Xylenes	Methyl-tert-butyl ether (MTBE)	Ethylene dibromide (EDB) (1,2-Dibromoethane)	1,2-Dichloroethane	Isopropyl benzene	Sec-butylbenzene	n-Propylbenzene	1,2,3-Trimethylbenzene [1]	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Naphthalene	2-Methylnaphthalene	Other VOCs	Gasoline Range Organics	Acenaphthene	1-Methylnaphthalene	Naphthalene	Phenanthrene	Other PNAs
Chemical Abstract Service Number (CAS#)			71432	108883	100414	1330207	1634044	106934	107062	98828	135988	103651	526738	95636	108678	91203	91576	Various		83329	91576	91203	85018	Various
Sample ID	Sample Date	Sample Depth (feet bgs)	VOCs																GRO	PNAs				
SB-1 (PM)	12/18/14	9-10'	8,100	150,000	71,000	380,000	<2500	<1000	<2500	9,200	NA	31,000	65,000	230,000	55,000	35,000	32,000	NA	2,800,000	NA	NA	NA	NA	NA
SB-1 (ECT)			24,000	350,000	150,000	840,000	NA	NA	NA	17,000	5,200	59,000	NA	460,000	130,000	67,000	74,000	ND	NA	NA	NA	NA	NA	NA
SB-1 (PM)	12/18/14	11-12'	830	460	4,300	7,800	<50	<20	<50	290	NA	720	1,200	4,400	930	1,100	<250	NA	37,000	NA	NA	NA	NA	NA
SB-1 (ECT)			4,100	6,100	5,100	18,000	NA	NA	NA	370	<250	1,400	NA	9,600	2,700	1,700	<1,300	ND	NA	NA	NA	NA	NA	NA
SB-1 (PM)	12/18/14	19-20'	<50	<50	<50	<150	<50	<20	<50	<50	NA	<50	<50	<50	<50	<250	<250	NA	NA	NA	NA	NA	NA	NA
SB-1 (ECT)			<71	<71	<71	<140	NA	NA	NA	<71	<71	<71	<71	<71	<71	<360	<360	ND	NA	NA	NA	NA	NA	NA
SB-2	12/18/14	9-10'	56,000	520,000	220,000	1,000,000	<2500	<1000	<2500	23,000	NA	77,000	150,000	510,000	150,000	68,000	57,000	NA	4,900,000	NA	NA	NA	NA	NA
SB-2	12/18/14	10-11'	960	960	1,300	4,800	<50	<20	<50	310	NA	1,000	1,100	3,300	900	1,500	1,200	NA	46,000	NA	NA	NA	NA	NA
SB-2	12/18/14	19-20'	<50	77	58	240	<50	<20	<50	<50	NA	<50	58	170	56	<250	<250	NA	NA	NA	NA	NA	NA	NA
SB-3 (PM)	12/18/14	9-10'	29,000	190,000	150,000	700,000	<5000	<2000	<5000	19,000	NA	63,000	120,000	410,000	120,000	57,000	48,000	NA	5,700,000	NA	NA	NA	NA	NA
SB-3 (ECT)	12/18/14	10-11'	2,700	650	980	1,300	<50	<20	<50	160	NA	470	250	440	140	990	880	NA	16,000	NA	NA	NA	NA	NA
SB-3 (ECT)		19-20'	<72	<72	<72	<140	NA	NA	NA	<72	<72	<72	<72	<72	<72	<360	<360	ND	NA	NA	NA	NA	NA	NA
SB-4 (PM)	12/18/14	9-10'	<50	<50	480	1,300	<50	<20	<50	250	NA	1,300	1,100	6,500	3,000	620	4,500	NA	110,000	NA	NA	NA	NA	NA
A-2 (Co-located SB-4)			<50	<50	630	1,500	<50	<20	<50	310	NA	1,500	1,100	7,000	3,400	530	4,300	NA	NA	NA	NA	NA	NA	NA
SB-4 (ECT)			<130	<130	1,300	3,280	NA	NA	NA	830	2,000	3,900		17,000	8,100	1,300	14,000	ND	NA	NA	NA	NA	NA	NA
SB-4 (PM)	12/18/14	10-11'	790	450	4,300	17,000	<50	<20	<50	370	NA	1,300	2,700	8,900	2,300	2,900	2,100	NA	73,000	NA	NA	NA	NA	NA
SB-4 (ECT)			770	1,200	4,400	20,000	NA	NA	NA	370	140	1,500		10,000	2,700	2,900	2,300	ND	NA	NA	NA	NA	NA	NA
SB-4 (ECT)	12/18/14	19-20'	<70	<70	<70	<140	<70	<70	<70	<70	<70	<70	<70	<70	<70	<350	<350	ND	NA	NA	NA	NA	NA	NA
SB-5 (PM)	12/19/14	8-9'	<50	<50	<50	<150	<50	<20	<50	<50	NA	<50	<50	<50	<50	<250	<250	NA	5,600	NA	NA	NA	NA	NA
SB-5 (ECT)			<64	<64	<64	<140	<64	<64	<64	<64	<64	<64	<64	<64	<64	<350	<350	ND	NA	NA	NA	NA	NA	NA
SB-5 (PM)	12/19/14	9-10'	<500	26,000	38,000	180,000	<500	<200	<500	7,400	NA	26,000	43,000	150,000	48,000	19,000	20,000	NA	1,600,000	NA	NA	NA	NA	NA
SB-5 (ECT)			<3,000	180,000	240,000	1,180,000	NA	NA	NA	43,000	22,000	180,000		980,000	300,000	100,000	150,000	ND	NA	NA	NA	NA	NA	NA
SB-5 (PM)	12/18/14	19-20'	<73	<73	<73	<150	<73	<73	<73	<73	<73	<73	<73	<73	<73	<370	<370	ND	NA	NA	NA	NA	NA	NA
SB-6 (PM)	12/19/14	9-10'	2,300	25,000	15,000	100,000	<500	<200	<500	9,500	NA	9,500	19,000	66,000	19,000	11,000	10,000	NA	590,000	NA	NA	NA	NA	NA
SB-6 (ECT)			5,900	58,000	32,000	178,000	NA	NA	NA	NA	1,800	15,000	NA	100,000	29,000	21,000	20,000	ND	NA	NA	NA	NA	NA	NA
SB-6 (PM)	12/19/14	12-13'	22,000	63,000	48,000	240,000	<2500	<1000	<2500	5,600	NA	19,000	37,000	130,000	37,000	20,000	18,000	NA	2,100,000	NA	NA	NA	NA	NA
SB-6 (ECT)			61,000	230,000	150,000	740,000	NA	NA	NA	15,000	5,900	63,000	NA	370,000	110,000	66,000	59,000	ND	NA	NA	NA	NA	NA	NA
SB-6 (PM)	12/19/14	19-20'	<60	<60	<60	<150	<60	<20	<50	<50	NA	<50	<50	59	<50	<250	<250	NA	NA	NA	NA	NA	NA	NA
SB-6 (ECT)			<62	110	110	600	NA	NA	NA	<62	<62	80	NA	330	110	<310	<310	ND	NA	NA	NA	NA	NA	NA
SB-7 (PM)	12/19/14	10-11'	2,400	24,000	19,000	95,000	<1000	<400	<1000	2,700	NA	9,300	19,000	67,000	19,000	11,000	9,500	NA	580,000	NA	NA	NA	NA	NA
SB-7 (ECT)			5,100	59,000	33,000	165,000	NA	NA	NA	3,600	1,800	15,000	NA	93,000	27,000	16,000	15,000	ND	NA	NA	NA	NA	NA	NA
SB-7 (PM)	12/19/14	11-12'	11,000	35,000	22,000	110,000	<1000	<400	<1000	2,400	NA	7,900	14,000	50,000	15,000	7,400	6,000	NA	620,000	NA	NA	NA	NA	NA
SB-7 (ECT)			5,100	7,600	2,200	11,600	NA	NA	NA	140	<55	620	NA	4,000	1,100	1,500	1,000	ND	NA	NA	NA	NA	NA	NA
A-3 (Co-Located SB-7)	12/19/14	19-20'	<60	<60	<60	<150	<60	<20	<50	<50	NA	<50	<50	<50	<50	<250	<250	NA	NA	NA	NA	NA	NA	NA
SB-7 (ECT)			<60	<60	<60	<150	<60	<20	<50	<50	NA	<50	<50	<60	<50	<250	<250	NA	NA	NA	NA	NA	NA	NA
SB-8 (PM)	12/19/14	9-10'	<68	<69	<69	<140	<68	<69	<69	<69	<69	<69	<69	<69	<69	<340	<340	ND	NA	NA	NA	NA	NA	NA
SB-8 (ECT)			4,400	79,000	51,000	320,000	<1000	<400	<1000	8,200	NA	29,000	53,000	190,000	54,000	26,000	22,000	NA	1,700,000	NA	NA	NA	NA	NA
SB-8 (PM)	12/19/14	10-11'	2,400	47,000	44,000	235,000	NA	NA	NA	5,600	3,100	23,000	NA	150,000	43,000	23,000	25,000	ND	NA	NA	NA	NA	NA	NA
SB-8 (ECT)			1,800	3,400	1,400	6,800	<50	<20	<50	130	NA	410	820	2,800	790	490	330	NA	35,000	NA	NA	NA	NA	NA
SB-8 (PM)	12/19/14	19-20'	3,100	12,000	5,100	26,000	NA	NA	NA	470	200	2,000	NA	12,000	3,400	2,000	1,800	ND	NA	NA	NA	NA	NA	NA
SB-8 (ECT)			<50	280	200	840	<50	<20	<50	<50	NA	94	170	590	150	<250	<250	NA	NA	NA	NA	NA	NA	NA
MS-1	4/27/2015	3'	63	570	340	1,660	NA	NA	NA	<62	<62	180	NA	1,100	280	<310	<310	ND	NA	NA	NA	NA	NA	NA
			<50	66	<50	350	<50	<50	<50	<50	NA	<50	370	600	260	360	<250	NA	NA	NA	NA	NA	NA	NA
ECT Samples - MDEQ 2014 Substurface Investigation																								
GP-1	07/30/14	8.5-9.0'	<61	<61	<61	<181	<61	<61	<61	<61	<61	<61	<61	<61	<61	<300	<300	ND	NA	<220	<550	<220	<220	ND
GP-1	07/30/14	13.0'	<51	<61	<61	<181	<61	<61	<61	<61	<61	<61	<61	<61	<61	<310	<310	ND	NA	<220	<550	<220	<220	ND
GP-2	07/30/14	9.0-10.0'	1,500	<61	370	<181	<61	<61	<61	<61	<61	110	93	<61	<61	<310	<310	ND	NA	<220	<550	<220	<220	ND
GP-2	07/30/14	14.0'	<59	<59	<59	<179	<59	<59	<59	<59	<59	<59	<59	<59	<59	<300	<300	ND	NA	NA	NA	NA	NA	NA
GP-3	07/30/14	7.0-8.0'	940	2,900	13,000	253,000	<110	<110	<110	2,600	<110	9,000	35,000	150,000	45,000	21,000	21,000	ND	NA	NA	NA	NA	NA	NA
GP-3	07/30/14	15.0'	<60	120	130	1,210	<60	<60	<60	<60	<60	79	130	820	190	<300	<300	ND	NA	<210	11,000	9,200	<210	ND
GP-4	07/30/14	9.0'	<67	<67	<67	<197	<67	<67	<67	<67	<67	<67	<67	<67	<67	<330	<330	ND	NA	<220	<550	<220	<220	ND
GP-5	07/30/14	8.0'	<60	<60	<60	<180	<60	<60	<60	<60	<60	<60	<60	<60	<60	<300	<300	ND	NA	NA	NA	NA	NA	NA
GP-5	07/30/14	13.0'	<61	<61	<61	<181	<61	<61	<61	<61	<61	<61	<61	<61	<61	<310	<310	ND	NA	NA	NA	NA	NA	NA
GP-6	07/30/14	8.0'	<60	<60	<60	<180	<60	<60	<60	<60	<60	<60	<60	<60	<60	<300	<300	ND	NA	NA	NA	NA	NA	NA
GP-6	07/30/14	10.0'	<61	<61	<61	<181	<61	<61	<61	<61	<61	<61	<61	<61	<61	<310	<310	ND	NA	NA	NA	NA	NA	NA
GP-7	07/31/14	9.0'	1,100	<67	80	<197	<67	<67	<67	<67	<67	<67	<67	<67	<67	<330	<330	ND	NA	<230	<580	<230	<230	ND
GP-7	07/31/14	15.0'	<62	<62	<62	<182	<62	<62	<62	<62	<62	<62	<62	<62	<62	<310	<310	ND	NA	<220	<550	<220	<220	ND
GP-8	07/31/14	9.0'	<60	<60	<60	<180	<60	<60	<60	<60	<60	<60	<60	<60	<60	<300	<300	ND	NA	<220	<550	<220	<220	ND
GP-9	07/31/14	9.5'	4,800	9,900	12,000	97,000	<68	<68	<68	1,600	<68	5,800	8,500	45,000	10,000	5,900	6,100	ND	NA	NA	NA	NA	NA	NA
GP-10	07/31/14	5.0-5.5'	530	80	730	3,070	<64	<64	<64	61	<64	280	320	1,900	440	<320	<320	ND	NA	<240	1,300	1,100	<240	ND
GP-10	07/31/14	10.0'	22,000	220,000	80,000	480,000	<550	<550	<550	8,100	<550	35,000	42,000	230,000	63,000	32,000	27,000	ND	NA	<230	<570	<230	<230	ND
GP-11	07/31/14	10.0'	1,100	2,700	3,000	14,000	<59	<58	<59	360	<59	1,700	2,600	10,000	3,000	2,400	3,000	ND	NA	NA	NA	NA	NA	NA
GP-12	07/31/14	10.0'	<71	<71	<71	221	<71	<71	<71	<71	<71	<71	<71	400	170	<350	<350	ND	NA	NA	NA	NA	NA	NA
GP-13	08/01/14	14.5'	<69	<69	<69	<209	<69	<69	<69	<69	<69	<69	<69	<89	<89	<350	<350	ND	NA	NA	NA	NA	NA	NA
GP-14	08/01/14	10.0'	31,000	290,000	110,000	540,000	<2600	<2600	<2600	10,000	<2600	44,000	55,000	240,000	71,000	39,000	33,000	ND	NA	<240	<610	<240	<240	ND
GP-15	08/01/14	10.0'	67,000	400,000	140,000	990,000	<2500	<2500	<2500	13,000	<2500	56,000	71,000	300,000	92,000	50,000	43,000	ND	NA	<230	17,000	13,000	<230	ND
GP-15	08/01/14	17.0'	<62	<62	<62	<182	<62	<62	<62	<62	<62	<62	<62	<92	<62	<310	<310	ND	NA	280	70,000	66,000	510	ND
GP-16	08/01/14	10.0'	<61	<61	<61	<181	<61	<61	<61	<61	<61	<61	<61	<91	<61	<300	<300	ND	NA	<220	<550	<220	<220	ND
GP-17	08/01/14	9.5'	2,800	14,000	4,400	21,100	<66	<66	<66	400	<66	1,700	2,200	9,400	2,800	1,900	1,700	ND	NA	<220	<550	<220	<220	ND
GP-18	08/01/14	9.0-10.0'	<62	<62	<62	<182	<62	<62	<62	<62	<62	<62	<62	<62	<62	<310	<310	ND	NA	<230	24,000	23,000	280	ND
GP-18	08/01/14	15.0'	<57	<57	<57	<167	<57	<57	<57	<57	<57	<57	<57	<57	<57	<280	<280	ND	NA	<220	<560	<220	<220	ND
GP-19	08/01/14	9.0'	<62	<62	<62	<182	<62	<62	<62	<62	<62	<62	<62	<62	<62	<310	<310	ND	NA	<220	<540	<220	<220	ND
GP-20	08/01/14	9.0'	<59	<59	<59	<209	<59	<59	<59	<59	<59	<59	<59	<59	<59	<350	<350	ND	NA	<110	<280	<110	<110	ND
																				NA	NA	NA	NA	NA

Cleanup Criteria Requirements for Response Activity (R 299.1 - R 299.50)
Generic Soil Cleanup Criteria Tables 2 and 3: Residential and Non-Residential Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Risk-Based Screening Levels, December 30, 2013
MDEQ Guidance Document For The Vapor Intrusion Pathway, Policy and Procedure Number: 09-017, Appendix D Vapor Intrusion Screening Values, May 2013

	Residential (µg/Kg)																							
Statewide Default Background Levels	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Drinking Water Protection (Res DWP)	100	16,000	1,500	5,800	800	20 (M)	100	1,800	1,800	91,000	1,800	2,100	1,800	35,000	57,000	Various	NA	3.60E+05	57,600	36,000	55,000	Various		
Groundwater Surface Water Interface Protection (GSIP)	4,000 (X)	5,400	350	820	1.40E+05 (X)	110 (X)	7,200 (X)	ID	ID	3,200	570	570	1,100	730	4,200	Various	NA	8,700	4,200	730	2,100	Various		
Soil Volatilization to Indoor Air Inhalation (Res SVII)	1,600	3.3E+05 (C)	87,000	6.3E+05 (C)	9.9E+05 (C)	570	2,100	ID	ID	4.0E+05 (C)	2.5E+05 (C)	4.3E+05 (C)	2.8E+05 (C)	2.50E+05	2.70E+05	Various	390,000*	1.9E+08	2.70E+05	2.5E+05	2.5E+05	Various		
Ambient Air Infinite Source Volatile Soil Inhalation (Res VSI)	13,000	2.8E+05	7.2E+05	4.5E+07	2.5E+07	1,700	6,200	ID	ID	1.70E+06	1.5E+07	2.1E+07	1.5E+07	3.0E+05	1.5E+05	Various	NA	8.1E+07	1.5E+06	3.0E+05	1.5E+05	Various		
Ambient Air Finite VSI for 5 Meter Source Thickness	34,000	5.1E+05	1.6E+06	6.1E+07	3.9E+07	1,700	11,000	ID	ID	1.70E+06	3.8E+06	5.0E+06	3.8E+06	3.0E+05	1.5E+05	Various	NA	8.1E+07	1.5E+06	3.0E+05	1.5E+05	Various		
Ambient Air Finite VSI for 2 Meter Source Thickness	79,000	1.2E+06	2.2E+06	1.3E+08	5.7E+07	3,300	26,000	ID	ID	2.60E+06	3.8E+06	5.0E+06	3.8E+06	3.0E+05	1.5E+05	Various	NA	8.1E+07	1.5E+06	3.0E+05	1.5E+05	Various		
Ambient Air Particulate Soil Inhalation (Res PSI)	3.80E+08	2.7E+10	1.0E+10	2.9E+11	2.0E+11	1.40E+07	1.2E+08	1.3E+09	4.0E+08	5.8E+09	6.2E+10	5.2E+10	6.2E+10	2.0E+08	9.7E+08	Various	NA	1.4E+10	5.7E+08	2.0E+08	5.7E+08	Various		
Direct Contact (Res DC)	1.6E+05	5.0E+07 (C)	2.2E+07 (C)	4.1E+08 (C)	1.5E+09	92	91,000	2.5E+06	2.5E+06	2.5E+07 (C)	3.2E+07 (C)	3.2E+07 (C)	3.2E+07 (C)	1.6E+07	8.1E+06	Various	900,000*	4.1E+07	8.1E+06	1.5E+07	1.8E+08	Various		
	Nonresidential (µg/Kg)																							
Drinking Water Protection (Nonres DWP)	100	16,000	1,500	5,800	800	20 (M)	100	4,600	4,600	2.60E+05	1,800	2,100	1,800	1.00E+05	1.70E+05	Various	NA	8.60E+05	1.70E+05	1.00E+05	1.60E+05	Various		
Soil Volatilization to Indoor Air Inhalation (Nonres SVII)	8,400	8.1E+05 (C)	4.6E+05 (C)	1.2E+07 (C)	1.5E+07 (C)	3,600	11,000	ID	ID	7.3E+05 (C)	4.5E+05 (C)	8.0E+05 (C)	4.5E+05 (C)	4.70E+05	4.90E+05	Various	NA	3.6E+08	4.90E+05	4.70E+05	5.1E+05	Various		
Ambient Air Infinite VSI for 5 Meter Source Thickness	49,000	3.30E+05	2.40E+06	5.4E+07	3.0E+07	5,600	21,000	ID	ID	2.00E+06	1.60E+07	2.5E+07	1.9E+07	3.50E+05	1.80E+05	Various	NA	9.7E+07	1.80E+06	3.50E+05	1.80E+05	Various		
Ambient Air Finite VSI for 2 Meter Source Thickness	99,000	3.60E+07	3.1E+08	8.6E+07	4.1E+07	9,800	34,000	ID	ID	2.00E+06	4.60E+06	6.00E+06	4.50E+06	3.80E+05	1.80E+05	Various	NA	9.7E+07	1.80E+06	3.50E+05	1.80E+05	Various		
Ambient Air Particulate Soil Inhalation (Nonres PSI)	2.30E+05	3.60E+07	6.50E+05	1.3E+08	8.9E+07	9,800	74,000	ID	ID	3.00E+06	4.60E+06	6.00E+06	4.60E+06	3.50E+05	1.80E+05	Various	NA	9.7E+07	1.80E+06	3.50E+05	1.80E+05	Various		
Direct Contact (Nonres DC)	4.70E+06	1.20E+10	1.30E+10	1.3E+11	8.6E+10	1.80E+07	1.60E+06	5.90E+06	ID	2.60E+06	3.60E+10	3.60E+10	3.60E+10	6.80E+07	2.90E+08	Various	NA	9.2E+09	2.90E+08	8.8E+07	2.9E+08	Various		
	8.40E+05 (C)	1.6E+08 (C)	7.1E+07 (C)	1.0E+09 (C)	7.1E+08 (C)	430	4.20E+05	8.00E+05	8.00E+05	8.0E+07 (C)	1.0E+08 (C)	1.0E+08 (C)	1.0E+08 (C)	5.20E+07	2.80E+07	Various	NA	1.3E+08	2.60E+07	5.2E+07	5.2E+08	Various		
	Screening Levels (µg/Kg)																							
Soil Saturation Concentration Screening Levels (Csat)	4.00E+05	2.50E+05	1.40E+05	1.50E+05	5.80E+05	8.90E+05	1.20E+06	3.90E+06	1.60E+07	1.00E+07	94,000	1.10E+05	94,000	NA	NA	NA	250,000*	NA	NA	NA	NA	NA		
Residential Vapor Intrusion Soil Screening Levels (S_{VIcres})	60	10,000	200	200	14,000	20	50	250	60	140	3,200	2,200	1,700	440	7,900	Various	NA	4.32E+05	7,800	440	5,100	Various		
Nonresidential Vapor Intrusion Soil Screening Levels (S_{VIcnr})	84.5	1.65E+05	4,000	4,000	2.35E+05	20	83.7	300	740	2,400	53,000	37,000	28,000	9,900	1.55E+05	Various	NA	7.28E+06	1.26E+05	9,900	86,000	Various		

Applicable Criterion/RBSL Exceeded

BOLD Value Exceeds Applicable Criterion/RBSL

bgs Below Ground Surface (feet)

1 1,2,3-Trimethylbenzene RBSLs based on the more restrictive of 1,2,4-trimethylbenzene and 1,3,5-trimethylbenzene.

2 Maximum of analyzed or calculated total lead value.

ND Non-detected at levels above laboratory method detection limit (MDL)

NA Not Applicable/Not Analyzed

NL Not Listed

NLL Not Likely to Leach

NLV Not Likely to Volatilize

ID Insufficient Data

(ECT) Soils sampled collected by Environmental Consulting and Technology, Inc. on behalf of the Michigan Department of Environmental Quality (MDEQ).

* MDEQ LNAPL Screening Level above which Residual LNAPL is assumed to be present, or above which the Tier 1 Soil Volatilization to Indoor Air Inhalation (SVII) and/or Direct Contact (DC) Risk-Based Screening Levels (RBSLs) no longer apply.

TABLE 2 (1 OF 1)
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS
VOCs AND PNAs
110 EAST BROAD STREET, LINDEN, MICHIGAN
PM PROJECT # 01-4982-8

Volatile Organic Compounds (VOCs) and Polynuclear Aromatic Compounds (PNAs) (µg/L)				Benzene	Toluene	Ethylbenzene	Xylenes	Methyl-tert-butyl ether (MTBE)	Ethylene dibromide (EDB) (1,2-Dibromoethane)	1,2-Dichloroethane	Isopropyl benzene	n-Propylbenzene	1,2,3-Trimethylbenzene [5]	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Naphthalene	2-Methylnaphthalene	2-Butanone (MEK)	Cyclohexane	Sec-Butylbenzene	Styrene	Other VOCs	2-Methylnaphthalene	Fluoranthene	Naphthalene	Phenanthrene	Pyrene	Other PNAs
Chemical Abstract Service Number (CAS#)				71432	108883	100414	1330207	1634044	106934	107062	98828	103651	526738	95636	108678	91203	91576	78933	110827	135988	100425	Various	91576	206440	91203	85018	129000	Various
Sample ID	Sample Date	Screen Depth (feet bgs)	Depth to Groundwater (feet bgs)	VOCs																			PNAs					
MW-1 (PM)	12/24/14	9.00-14.00	9.3	130	420	150	660	<5	<5	<5	10	25	60	190	51	30	<30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-1 (ECT)				97	260	110	430	<1	NA	NA	6	21	32	130	36	23	9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-2	12/24/814	9.14-14.14	10.10	LNAPL	LNAPL	LNAPL	LNAPL	LNAPL	LNAPL	LNAPL	LNAPL	LNAPL	LNAPL	LNAPL	LNAPL	LNAPL	LNAPL	LNAPL	LNAPL	LNAPL	LNAPL	NA	NA	NA	NA	NA	NA	NA
MW-3 (PM)	12/24/14	8.80-13.80	9.95	14,000	430	1,700	1,300	<50	<50	<50	81	180	<50	160	<50	320	<300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
A-2 (Co-Locate MW-3)				15,000	460	1,800	1,400	<50	<50	<50	88	190	320	190	<50	350	<300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-3 (ECT)				15,000	530	1,600	1,580	<20	NA	NA	72	190	240	250	61	430	<100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-4 (PM)	12/24/14	7.90-12.90	10.71	4,500	1,200	4,000	14,000	<50	<50	<50	130	310	890	2,600	610	630	<300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-4 (ECT)				4,400	1,200	3,600	12,500	<10	NA	NA	110	330	630	2,200	550	730	140	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-5 (PM)	12/24/14	8.10-13.10	10.24	310	14,000	4,600	20,000	<50	<50	<50	160	390	1,100	3,100	750	780	<300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-5 (ECT)				250	13,000	3,900	16,400	<5	NA	NA	130	390	730	2,700	640	850	160	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ECT Samples - MDEQ 2014 Subsurface Investigation																												
GP-1W	07/30/14	7.0-12.0	NA	1,900	<10	94	91	<10	<10	<10	<10	20	<10	110	<10	<50	<50	<50	<50	<10	<10	ND	<5	<1	27	<1	<1	ND
GP-1W dup				2,300	<10	62	84	11	<10	<10	<10	22	19	100	<10	<50	<50	<50	<50	<10	<10	ND	<5	<1	28	<1	<1	ND
GP-1/TMW	08/21/14	7.0-12.0	6.22	1,900	<10	85	84	<10	<10	<10	<10	19	<10	93	<10	<50	<50	<50	<50	<10	<10	ND	NA	NA	NA	NA	NA	NA
GP-2W	07/30/14	9.0-12.5	NA	4,100	<20	610	200	<20	<20	<20	34	83	<20	410	<20	100	<100	<100	<100	<20	<20	ND	<5	<1	74	<1	<1	ND
GP-3W	07/30/14	7.5-11	NA	3,500	1,800	1,900	25,500	<50	<50	<50	97	220	<50	4,100	1,100	930	<250	<250	<250	<50	<50	ND	340	14	720	10	13	ND
GP-4W	07/30/14	12.5-15	NA	4,200	80	280	254	5	<1	<1	17	27	<1	130	2	77	<5	<5	<5	<1	<1	ND	<5	<1	33	<1	<1	ND
GP-5W	07/30/14	7.0-10.5	NA	<1	<1	<1	<3	1	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<5	<1	<1	ND	<5	<1	<1	<1	<1	ND
GP-6W	07/30/14	6.0-9.5	NA	<1	<1	<1	<3	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<5	<1	<1	ND	<5	<1	<1	<1	<1	ND
GP-7W	07/31/14	6.0-9.5	NA	5,000	110	88	109	4	<1	<1	9	12	<1	35	3	38	<5	<5	<5	<1	<1	ND	<5	<1	24	<1	<1	ND
GP-8W	07/31/14	7.0-10.5	NA	<1	<1	<1	<3	28	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<5	<1	<1	ND	<5	<1	<1	<1	<1	ND
GP-9W	07/31/14	7.0-12.0	NA	13,000	6,400	2,900	10,300	<20	<20	<20	110	290	<20	2,000	530	760	<100	<100	<5	<20	110	ND	110	<10	490	<10	<10	ND
GP-9/TMW	08/21/14	7.0-12.0	9.06	14,000	2,400	1,900	4,500	<20	<20	<20	92	300	420	1,200	310	600	140	<100	160	<20	<20	ND	NA	NA	NA	NA	NA	NA
GP-10W	07/31/14	7.25-12.5	NA	10,000	8,200	3,200	9,900	<50	<50	<50	100	270	<50	2,200	350	670	<250	<250	<250	<50	<50	ND	89	<10	370	<10	<10	ND
GP-13W	08/01/14	7.5-12.5	NA	31	2	110	<3	<1	<1	<1	21	40	<1	18	<1	<5	<5	<5	<5	4	<1	ND	NA	NA	NA	NA	NA	NA
GP-13/TMW	08/21/14	7.5-12.5	10.64	35	2.2	97	<3	<1	<1	<1	20	39	11	1.7	<1	<5	<5	8.4	7.4	3.5	<1	ND	NA	NA	NA	NA	NA	NA
GP-13/TMW dup				35	2.1	98	<3	<1	<1	<1	22	41	12	2	<1	<5	<5	6.2	7.5	3.6	<1	ND	NA	NA	NA	NA	NA	NA
GP-14W	08/01/14	6.0-11.0	NA	9,900	24,000	1,800	8,700	<100	<100	<100	<100	210	<100	1,700	500	<500	<500	<500	<500	<100	<100	ND	NA	NA	NA	NA	NA	NA
GP-16W	08/01/14	7.0-12.0	NA	2	<1	<1	<3	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<5	<1	<1	ND	NA	NA	NA	NA	NA	NA
GP-16W Dup				2	<1	<1	<3	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<5	<1	<1	ND	NA	NA	NA	NA	NA	NA
GP-16/TMW	08/21/14	7.0-12.0	8.98	<1	<1	<1	<3	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<5	<1	<1	ND	NA	NA	NA	NA	NA	NA
GP-16/TMW dup				<1	<1	<1	<3	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<5	<1	<1	ND	NA	NA	NA	NA	NA	NA
GP-17W	08/01/14	7.0-12.0	NA	5,000	6,800	1,900	8,300	<50	<50	<50	82	210	<1	1,400	390	250	<250	<250	<250	<50	<50	ND	NA	NA	NA	NA	NA	NA
GP-18W	08/01/14	12.5-15	NA	<1	<1	<1	<3	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<5	<1	<1	ND	NA	NA	NA	NA	NA	NA
GP-19W	08/01/14	7.0-12.0	NA	<1	<1	<1	<3	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<5	<1	<1	ND	NA	NA	NA	NA	NA	NA
GP-19/TMW	08/20/14	7.0-12.0	8.08	<1	<1	<1	<3	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<5	<1	<1	ND	NA	NA	NA	NA	NA	NA
Cleanup Criteria Requirements for Response Activity (R 299.1 - R 299.50)																												
Generic Groundwater Cleanup Criteria Table 1: Residential and Non-Residential Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Risk-Based Screening Levels, December 30, 2013																												
MDEQ Guidance Document For The Vapor Intrusion Pathway, Policy and Procedure Number: 09-017, Appendix D Vapor Intrusion Screening Values, May 2013																												
Residential/Nonresidential (µg/L)																												
Residential Drinking Water (Res DW)				5.0 (A)	790 (E)	74 (E)	280 (E)	40 (E)	0.050 (A)	5.0 (A)	800	80	63 (E)	63 (E)	72 (E)	520	260	960	NL	80	100 (A)	Various	260	210 (S)	520	62	140 (S)	Various
Residential Health Based Drinking Water Values				NL	1,000 (E)	700 (E)	10,000 (E)	240 (E)	NL	NL	NL	NL	NL	1,000 (E)	1,000 (E)	NL	NL	NL	NL	NL	NL	Various	NL	NL	NL	NL	NL	Various
Nonresidential Drinking Water (Nonres DW)				5.0 (A)	790 (E)	74 (E)	280 (E)	40 (E)	0.050 (A)	5.0 (A)	2,300	230	63 (E)	63 (E)	72 (E)	1,500	750	2,700	NL	230	100 (A)	Various	750	210 (S)	1,500	150	140 (S)	Various
Nonresidential Health Based Drinking Water Values				NL	1,000 (E)	700 (E)	10,000 (E)	880 (E)	NL	NL	NL	NL	NL	2,900 (E)	2,900 (E)	NL	NL	NL	NL	NL	NL	Various	NL	NL	NL	NL	NL	Various
Groundwater Surface Water Interface (GSI)				200 (X)	270	18	41	7,100 (X)	5.7 (X)	360 (X)	ID	ID	17	17	45	11	19	9,800 (X)	NL	ID	80 (X)	Various	18	1.8	11	2.0 (B); 1.4	ID	Various
Residential Groundwater Volatilization to Indoor Air Inhalation (Res GVII) [1]				5,600	5.3E+5 (S)	1.1E+05	1.9E+5 (S)	4.7E+7 (S)	2,400	8,500	86,000 (S)	ID	58,000 (S)	58,000 (S)	61,000 (S)	31,000 (S)	25,000 (S)	NLV	NL	ID	1.7E+05	Various	25,000 (S)	210 (S)	31,000 (S)	1,000 (S)	140 (S)	Various
Nonresidential Groundwater Volatilization to Indoor Air Inhalation (Nonres GVII) [2]				35,000	5.3E+5 (S)	1.7E+5 (S)	1.9E+5 (S)	4.7E+7 (S)	15,000	59,000	86,000 (S)	ID	58,000 (S)	58,000 (S)	61,000 (S)	31,000 (S)	25,000 (S)	NLV	NL	ID	3.1E+5 (S)	Various	25,000 (S)	210 (S)	31,000 (S)	1,000 (S)	140 (S)	Various
Screening Levels (µg/L)																												
Residential Groundwater Vapor Intrusion Screening Levels (GW_{VI-res}) [3]				27	35,000	700	10,000	2.50E+05	3.2	41	16	92	2,400	1,700	1,200	240	940	NL	NL	16	500	Various	940	NL	240	110	4.10E+05	Various
Nonresidential Groundwater Vapor Intrusion Screening Levels (GW_{VI-nr})[3]				140	1.50E+05	2,600	10,000	1.00E+06	16	210	53	350	10,000	7,300	5,100	1,200	3,900	NL	NL	68	4,100	Various	3,900	NL	1,200	480	1.7E+06	Various
Residential Vapor Intrusion Shallow Groundwater Screening Levels ($GW_{VI-sump-res}$)[4]				5.0	1,000	700	10,000	250	0.050	5.0	5.0	1.0	5.0	1.7	1.2	5.0	5.0	NL	NL	1.0	100	Various	5.0	NL	5.0	2.0	410	Various
Nonresidential Vapor Intrusion Shallow Groundwater Screening Levels ($GW_{VI-sump-nr}$)[4]				5.0	1,000	700	10,000	1,000	0.050	5.0	5.0	1.0	10	7.3	5.1	5.0	5.0	NL	NL	1.0	100	Various	5.0	NL	5.0	2.0	1,700	Various
Water Solubility				1.75E+06	5.35E+05	1.69E+05	1.86E+05	4.8E+07	4.20E+05	8.52E+06	56,000	NA	NL	56,000	61,000	31,000	25,000	7.40E+07	NL	NA	3.10E+05	Various	25,000	210	31,000	1,000	140	Various
Flammability and Explosivity Screening Level				58,000	61,000	43,000	70,000	ID	ID	2.50E+06	29,000	ID	NL	56,000 (S)	ID	NA	ID	4.70E+07	NL	ID	1.40E+05	Various	ID	ID	NA	ID	ID	Various
DRAFT Acute Vapor Intrusion Screening Levels for Groundwater (µg/L)																												
IRASL Groundwater (AGW_{vi})				11,000	2.58E+05	NL	1.54E+05	5.70E+05	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	3.6E+05	Various	NL	NL	NL	NL	NL	NL
IRASL Groundwater In Contact With Structure ($AGW_{vi\text{-}comp}$)				11	260	NL	150	570	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	350	Various	NL	NL	NL	NL	NL	NL

Applicable Criteria/RBSL Exceeded

BOLD Value Exceeds Applicable Criteria

bgs Below Ground Surface (feet)

ND Not detected at levels above the laboratory Method Detection Limit (MDL) or Minimum Quantitative Level (MQL)

[1] Rule 323.1057 of Part 4 Water Quality Standards

[2] Tier 1 GVII Criteria based on 3 meter (or greater) groundwater depth

[3] (2013 Vapor Intrusion Guidance) Screening Levels based on depth to groundwater less than 1.5 meters and not in contact with building foundation

[4] (2013 Vapor Intrusion Guidance) Screening levels based on groundwater in contact with the building foundation or within a sump

[5] 1,2,3-Trimethylbenzene RBSLs based on the more restrictive of 1,2,4-trimethylbenzene and 1,3,5-trimethylbenzene.

NL Not Listed

LNAPL Measurable Light Non-Aqueous Phase Liquid present in well

ID Insufficient Data

NA Not available or not applicable

(ECT) Split samples collected by Environmental Consulting and Technology, Inc. on behalf of the Michigan Department of Environmental Quality (MDEQ)

TABLE 3 (1 OF 1)
SUMMARY OF SOIL VAPOR ANALYTICAL RESULTS
VOLATILE ORGANIC COMPOUNDS
110 EAST BROAD STREET, LINDEN, MICHIGAN
PME PROJECT # 01-4982-0

VOLATILE ORGANIC COMPOUNDS ($\mu g/m^3$)				Acetone	Benzene	Chloroform	Cyclohexane	m-Dichlorobenzene	Ethylbenzene	Hexane	Isopropyl Alcohol	Methylene chloride	Methyl ethyl ketone	Methylmethacrylate	Naphthalene	2,2,4-Trimethylpentane	Toluene	m,p-Xylene	o-Xylene	Xylenes (total)	Other VOCs
Chemical Abstract Service Number (CAS#)				67641	71432	67663	110827	541731	100414	110543	67630	75092	78933	80626	91203	540841	108883	1330207	95476	1330207	Various
Sample ID	Sample Date	Sample Duration (min)	Flow Rate (ml/min)	VOCs																	
SG-1	12/19/14	5	200	210	35	15	27	27	7.8	220	27	160	33	16	9.4	25	26	69	7.7	76.7	<MDL
MDEQ Guidance Document For The Vapor Intrusion Pathway, Policy and Procedure Number: 09-017, Appendix D Vapor Intrusion Screening Values, May 2013																					
Residential Screening Levels ($\mu g/m^3$)																					
Vapor Intrusion Indoor Air Screening Levels (IA_{VI})				6,200	3.3	11	6,300	3.1	87	730	NDC	58	5,200	NDC	2.3	3,700	5,200	100	100	100	Various
Vapor Intrusion Shallow Sub-Slab Soil Gas Screening Levels (≤ 1.5m bgs) (SG_{VI-SS})				2.10E+05	110	380	2.10E+05	100	2,900	24,000	NDC	1,900	1.70E+05	NDC	75	1.20E+05	1.70E+05	3,500	3,500	3,500	Various
Vapor Intrusion Deep Soil Gas Screening Levels (SG_{VI})				2.10E+06	1,100	3,800	2.10E+06	1,000	29,000	2.40E+05	NDC	19,000	1.70E+06	NDC	750	1.20E+06	1.70E+06	35,000	35,000	35,000	Various
Nonresidential Screening Levels ($\mu g/m^3$)																					
Vapor Intrusion Indoor Air Screening Levels (IA_{VI})				26,000	16	57	26,000	13	440	3100	NDC	290	22,000	NDC	11	15,000	22,000	440	440	440	Various
Vapor Intrusion Shallow Sub-Slab Soil Gas Screening Levels (≤ 1.5m bgs) (SG_{VI-SS})				3.40E+06	2,200	7,600	3.50E+06	1,800	59,000	4.10E+05	NDC	39,000	2.90E+06	NDC	1,500	2.00E+06	2.90E+06	58,000	58,000	58,000	Various
Vapor Intrusion Deep Soil Gas Screening Levels (SG_{VI})				3.40E+07	22,000	76,000	3.50E+07	18,000	5.90E+05	4.1E+06	NDC	3.90E+05	2.90E+07	NDC	1.50E+04	2.00E+07	2.90E+07	5.80E+05	5.80E+05	5.80E+05	Various
DRAFT Acute Vapor Intrusion Screening Levels for Indoor Air and Soil Gas; Residential and Nonresidential Land Use, February 2013 ($\mu g/m^3$)																					
IRASL Indoor Air (AIA_{VI})				62,000	1,300	150	NDC	NDC	NDC	NDC	NDC	14,000	13,000	NDC	NDC	NDC	37,000	22,000	22,000	22,000	Various
IRASL Soil Gas (ASG_{VI})				2.07E+06	43,000	5,000	NDC	NDC	NDC	NDC	NDC	4.67E+05	4.33E+05	NDC	NDC	NDC	1.23E+06	7.33E+05	7.33E+05	7.33E+05	Various

Soil Gas Screening Level Exceeded

BOLD Value Exceeds Applicable Criteria

bgs Below Ground Surface (feet)

ND Not detected at levels above the laboratory Method Detection Limit (MDL) or Minimum Quantitative Level (MQL)

NLV A hazardous substance is "Not Likely to Volatilize". This designation is given to any hazardous substance with a Henry's Law Constant of less than 1.0×10^{-5} atm-m^3/mol.

ID "Insufficient Data" was available to the MDEQ in order to develop a criterion at the date of publication.

NDC "No Defined Criteria" by the Michigan Department of Environmental Quality (MDEQ)

[1] The IAC and SGC presented in this table are health-based values. The applicable IAC and SGC are based on the higher of the health-based value and the appropriate analytical reporting limit.

IRASL Immediate Response Acute Vapor Intrusion Screening Levels

RL Reporting Limit

TABLE 4
SUMMARY OF GROUNDWATER POTENTIOMETRIC SURFACE DATA
BEACON AND BRIDGE - 110 EAST BROAD STREET, LINDEN, MICHIGAN
PM PROJECT NO. 01-4982-0

Well ID	Top of Casing Elevation (Feet)	Depth to Product	Depth to Water	LNAPL Thickness	Potentiometric Surface Elevation (Feet)	Depth to Product	Depth to Water	LNAPL Thickness	Potentiometric Surface Elevation (Feet)
Date		24-Dec-14				27-Apr-15			
MW-1	798.72	0.00	9.30	0.00	789.42	0.00	9.12	0.00	789.60
MW-2	798.86	10.09	10.10	0.01	788.77	9.69	10.30	0.61	789.01
MW-3	798.62	0.00	9.95	0.00	788.67	9.54	10.16	0.62	788.91
MW-4	799.67	0.00	10.71	0.00	788.96	0.00	10.45	0.00	789.22
MW-5	799.18	0.00	10.24	0.00	788.94	0.00	9.95	0.00	789.23

LNAPL Light Non-Aqueous Phase Liquid

Appendix A

PM ENVIRONMENTAL Environmental & Engineering Services

Tanknology — Testing and Inspection Certificate

Tanknology Inc.
11000 North MoPac Expressway, Suite 500, Austin, TX 78759
800-800-4633 www.tanknology.com

Test Date	11/20/2014	Tanknology WO#	MW2-6274187
Test Purpose	REQUEST	Customer PO#	WO #37587

Customer
R.W. MERCER
P.O. BOX 180
2322 BROOKLYN ROAD
JACKSON, MI 49204
Attn: JIM BREIDINGER
(616) 723-1331

Location
BEACON & BRIDGE #8 (BEACON&BRIDGE 8)
110 E BROAD ST
LINDEN, MI 48451
Attn:
()

Test / Inspection Description	Item Tested	Date Tested	Result
Precision Tank Tightness	Tank 1 KEROSENE	11/20/2014	Pass
Precision Tank Tightness	Tank 2 PREMIUM	11/20/2014	Pass
Precision Tank Tightness	Tank 3 REG UNLEAD	11/20/2014	Pass
Precision Tank Tightness	Tank 4 REG UNLEAD	11/20/2014	Fail
Precision Line Tightness (.1 GPH)	Tank 1 Line 1 KEROSENE	11/20/2014	Test Not Done
Precision Line Tightness (.1 GPH)	Tank 2 Line 1 PREMIUM	11/20/2014	Pass
Precision Line Tightness (.1 GPH)	Tank 3 Line 1 REG UNLEAD	11/20/2014	Pass
Precision Line Tightness (.1 GPH)	Tank 4 Line 1 REG UNLEAD	11/20/2014	Pass
Line Leak Detector (3 GPH)	Tank 2 Line 1 PREMIUM	11/20/2014	Pass
Line Leak Detector (3 GPH)	Tank 3 Line 1 REG UNLEAD	11/20/2014	Pass
Line Leak Detector (3 GPH)	Tank 4 Line 1 REG UNLEAD	11/20/2014	Pass
Impact Valve Inspection	See test report for details	11/20/2014	Pass

Tanknology Representative:
Telephone:
Technician: Matt Cleeves
Technician Certification: (See forms)

Tanknology

VacuTect
Tank Tightness Test

Work Order: 6274167 Date: 11/20/2014

Site Name/ID: BEACON & BRIDGE #8

Address: 110 E BROAD ST

City: LINDEN State: MI Zip: 48451

Tank Information	1 KEROSENE	2 PREMIUM	3 REG UNLEAD	4 REG UNLEAD		
Customer Tank ID	1		3	4		
Regulatory Tank ID		2				
Product Category	Kerosene	Gasoline - Premium	Gasoline - Regular	Gasoline - Regular		
Product Name	KEROSENE	PREMIUM	REG UNLEAD	REG UNLEAD		
Gallons Capacity	2000	10000	10000	10000		
Tank Type	Steel	Steel	Steel	Steel		
Tank Walls	Singlewall	Singlewall	Singlewall	Singlewall		
Compartmentalized	No	No	No	No		
Siphon Tank	No	No	No	No		
Vents included with test	with this tank	with this tank	with this tank	with this tank		
Test Start Time	14:02:00	14:02:00	10:04:00	10:04:00		
Test End Time	17:22:00	17:22:00	13:10:00	10:34:00		
Water Ingress (Y/N)	No	No	No	Yes		
Bubble Ingress (Y/N)	No	No	No	No		
Ullage Ingress (Y/N)	No	No	No	Yes		
Test Result (P/F/I)	**Pass**	**Pass**	**Pass**	**Fail**		

☑ Yes ☐ No diagnostic only - Test was performed per 3rd party certifications as specified in 40 CFR parts 280 and 281.

Technician Comments :

Technician Name: Matt Cleeves Certification #: 92948

Technician Signature:

Environmental Compliance for Petroleum Systems

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Tanknology

Product Line Tightness Test

Work Order: 6274187 **Date:** 11/20/2014

Site Name/ID: BEACON & BRIDGE #8 / BEACON&BRIDGE 8

Address: 110 E BROAD ST

City: LINDEN **State:** MI **Zip:** 48451

Tank Information	Tank # 1 Line # 1	Tank # 2 Line # 1	Tank # 3 Line # 1	Tank # 4 Line # 1	Tank # Line #	Tank # Line #
Test Method	VacuTect	TLD-1	TLD-1	TLD-1		
Customer Tank ID	1		3	4		
Product Name	KEROSENE	PREMIUM	REG UNLEAD	REG UNLEAD		
Delivery Type	European Suction (Safer suction)	Pressure	Pressure	Pressure		
Test Pressure	-0.25	60	60	60		
Test Start Time		11:43	11:43	13:18		
Test End Time		12:43	12:43	14:18		
Final Leak Rate		0.00	0.00	0.00		
Test Result(P/F/I)	Test Not Done	Pass	Pass	Pass		
Test was performed per 3rd party certifications as specified in 40 CFR parts 280 and 281	Yes	Yes	Yes	Yes		

Technician Comments:

Technician Name: Matt Cleeves **Certification #:** 92942 exp: 1/16/2016

Technician Signature: Matthew S Cleeves

Environmental Compliance for Petroleum Systems

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Tanknology

Product Line Tightness Test

TANCS Data Entry Form

forPrimary Product Line

W.O. : 6274187

Date: 11/20/2014

Tank # - Line #: 1 1 KEROSENE				P/F Threshold: 0.025		Delivery: European Suction (Safer suction)	Pump Make:
Material : Unknown	Length (ft) : 15			Diameter (in) : 1.5		Test PSI : -0.25	Pipe Volume : 1.38
LINE TEST	Reading #	Time	Level (cm)	Level Chg.	Vol. Chg.	Proj. GPH	Compression Test & Bleedback
	START		0.0	(cm)	x 0.00549	x 6	Zero Pressure Level:
Tested from:	1st 10-min		0.0	0.00000	0.00000	0.00000	Test Pressure Level: 0.0
Other	2nd 10-min		0.0	0.00000	0.00000	0.00000	Level Change (cm):
	3rd 10-min		0.0	0.00000	0.00000	0.00000	End Zero Pressure Level:
Fueling Position:	4th 10-min		0.0	0.00000	0.00000	0.00000	Bleedback (cm):
5	5th 10-min		0.0	0.00000	0.00000	0.00000	Final Leak Rate GPH: Test Not Done
	6th 10-min		0.0	0.00000	0.00000	0.00000	Line Test Result (P/F): Test Not Done

Yes Test was performed per 3rd party certifications as specified in 40 CFR parts 280 and 281

Tank # - Line #: 2 1 PREMIUM				P/F Threshold: 0.02		Delivery: Pressure	Pump Make: Red Jacket
Material : Flexible	Length (ft) : 50			Diameter (in) : 1.5		Test PSI : 60	Pipe Volume : 4.59
LINE TEST	Reading #	Time	Level (cm)	Level Chg.	Vol. Chg.	Proj. GPH	Compression Test & Bleedback
	START	11:43	21.7	(cm)	x 0.00549	x 6	Zero Pressure Level: 48.0
Tested from:	1st 10-min	11:53	20.1	-1.60000	-0.00878	-0.05268	Test Pressure Level: 21.7
Impact Valve	2nd 10-min	12:03	18.9	-1.20000	-0.00659	-0.03954	Level Change (cm): 26.30000
	3rd 10-min	12:13	18.3	-0.60000	-0.00329	-0.01974	End Zero Pressure Level: 48.00000
Fueling Position:	4th 10-min	12:23	17.7	-0.60000	-0.00329	-0.01974	Bleedback (cm): 31.00000
1	5th 10-min	12:33	17.2	-0.50000	-0.00274	-0.01644	Final Leak Rate GPH: -0.0066
	6th 10-min	12:43	17.0	-0.20000	-0.00110	-0.00660	Line Test Result (P/F): Pass

Yes Test was performed per 3rd party certifications as specified in 40 CFR parts 280 and 281

Tank # - Line #: 3 1 REG UNLEAD				P/F Threshold: 0.02		Delivery: Pressure	Pump Make: Red Jacket
Material : Flexible	Length (ft) : 50			Diameter (in) : 1.5		Test PSI : 60	Pipe Volume : 4.59
LINE TEST	Reading #	Time	Level (cm)	Level Chg.	Vol. Chg.	Proj. GPH	Compression Test & Bleedback
	START	11:43	21.7	(cm)	x 0.00549	x 6	Zero Pressure Level: 48.0
Tested from:	1st 10-min	11:53	20.1	-1.60000	-0.00878	-0.05268	Test Pressure Level: 21.7
Impact Valve	2nd 10-min	12:03	18.9	-1.20000	-0.00659	-0.03954	Level Change (cm): 26.30000
	3rd 10-min	12:13	18.3	-0.60000	-0.00329	-0.01974	End Zero Pressure Level: 48.00000
Fueling Position:	4th 10-min	12:23	17.7	-0.60000	-0.00329	-0.01974	Bleedback (cm): 31.00000
1	5th 10-min	12:33	17.2	-0.50000	-0.00274	-0.01644	Final Leak Rate GPH: -0.0066
	6th 10-min	12:43	17.0	-0.20000	-0.00110	-0.00660	Line Test Result (P/F): Pass

Yes Test was performed per 3rd party certifications as specified in 40 CFR parts 280 and 281

Tanknology

Product Line Tightness Test

TANCS Data Entry Form

forPrimary Product Line

W.O. : 6274187

Date: 11/20/2014

Tank # - Line #: 4 1 REG UNLEAD			P/F Threshold: 0.02		Delivery: Pressure		Pump Make: Red Jacket
Material : Flexible	Length (ft) : 50		Diameter (in) : 1.5		Test PSI : 60		Pipe Volume : 4.59

LINE TEST	Reading #	Time	Level (cm)	Level Chg.	Vol. Chg.	Proj. GPH	Compression Test & Bleedback	
	START	13:18	19.2	(cm)	x 0.00549	x 6	Zero Pressure Level:	48.0
Tested from: Impact Valve	1st 10-min	13:28	17.9	-1.30000	-0.00714	-0.04284	Test Pressure Level:	19.2
	2nd 10-min	13:38	17.1	-0.80000	-0.00439	-0.02634	Level Change (cm):	28.80000
Fueling Position: 1	3rd 10-min	13:48	16.4	-0.70000	-0.00384	-0.02304	End Zero Pressure Level:	48.00000
	4th 10-min	13:58	15.8	-0.60000	-0.00329	-0.01974	Bleedback (cm):	32.90000
	5th 10-min	14:08	15.4	-0.40000	-0.00220	-0.01320	Final Leak Rate GPH:	-0.0099
	6th 10-min	14:18	15.1	-0.30000	-0.00165	-0.00990	Line Test Result (P/F):	Pass

Yes Test was performed per 3rd party certifications as specified in 40 CFR parts 280 and 281

Tank # - Line #:			P/F Threshold:		Delivery:		Pump Make:
Material :	Length (ft) :		Diameter (in) :		Test PSI :		Pipe Volume :

LINE TEST	Reading #	Time	Level (cm)	Level Chg.	Vol. Chg.	Proj. GPH	Compression Test & Bleedback	
	START			(cm)	x 0.00549	x 6	Zero Pressure Level:	
Tested from:	1st 10-min						Test Pressure Level:	
	2nd 10-min						Level Change (cm):	
	3rd 10-min						End Zero Pressure Level:	
Fueling Position:	4th 10-min						Bleedback (cm):	
	5th 10-min						Final Leak Rate GPH:	
	6th 10-min						Line Test Result (P/F):	

Test was performed per 3rd party certifications as specified in 40 CFR parts 280 and 281

Tank # - Line #:			P/F Threshold:		Delivery:		Pump Make:
Material :	Length (ft) :		Diameter (in) :		Test PSI :		Pipe Volume :

LINE TEST	Reading #	Time	Level (cm)	Level Chg.	Vol. Chg.	Proj. GPH	Compression Test & Bleedback	
	START			(cm)	x 0.00549	x 6	Zero Pressure Level:	
Tested from:	1st 10-min						Test Pressure Level:	
	2nd 10-min						Level Change (cm):	
	3rd 10-min						End Zero Pressure Level:	
Fueling Position:	4th 10-min						Bleedback (cm):	
	5th 10-min						Final Leak Rate GPH:	
	6th 10-min						Line Test Result (P/F):	

Test was performed per 3rd party certifications as specified in 40 CFR parts 280 and 281

Tanknology

LDT 5000 Field Test Apparatus
Line Leak Detector Test

Work Order: 6274187 Date: 11/20/2014
Site Name / ID: BEACON & BRIDGE #8 / BEACON&BRIDGE 8
Address: 110 E BROAD ST
City: LINDEN State: MI Zip: 48451

Tank ID	2	3	4			
Product	PREMIUM	REG UNLEAD	REG UNLEAD			
Product Line	1	1	1			
Tested From	1	1	3			
Existing/New	Existing	Existing	Existing			
Mechanical/Electronic	Mechanical	Mechanical	Mechanical			
Manufacturer/Model	Red Jacket FX1V	Red Jacket FX1V	Red Jacket FX1V			
Serial No.						
Pump Operating Pressure (psi)	29.00	27.00	31.00			
Calibrated Leak (ml/min)	189.0	189.0	189.0			
Calibrated Leak (gph)	3.00	3.00	3.00			
Holding PSI *N/A for Electronic LD's	20.00	18.00	24.00			
Resiliency (ml) *N/A for Electronic LD's	100.00	100.00	100.00			
Metering PSI *N/A for Electronic LD's	12	10	12			
Opening Time (sec) *N/A for Electronic LD's	7	3	5			
Test Results	Pass	Pass	Pass			

Technician Comments:

Technician Name: Matt Cleeves **Certification #:** 92937

Technician Signature: Matt Cleeves **Expire Date:** 1/16/2016

Environmental Compliance for Petroleum Systems

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Tanknology

Impact Valve Inspection

Impact Valve Operational Inspection

Work Order: 6274187 Date: 11/20/2014
Site Name/ID: BEACON & BRIDGE #8
Address: 110 E BROAD ST
City: LINDEN State: MI Zip: 48451

Dispenser Number	Grade	Secure Mount?	Valve Lock?	Pass/ Fail	Comments
1/2	87	☑	☑	(•) Pass ( ) Fail ( ) Not Tested	
1/2	93	☑	☑	(•) Pass ( ) Fail ( ) Not Tested	
3/4	87	☑	☑	(•) Pass ( ) Fail ( ) Not Tested	
3/4	93	☑	☑	(•) Pass ( ) Fail ( ) Not Tested	
5/	48	☑	☑	( ) Pass ( ) Fail (•) Not Tested	EURO SUCTION

Technician Comments:

Technician Name: Matt Cleeves

Signature: Matt Cleeves

Environmental Compliance for Petroleum Systems
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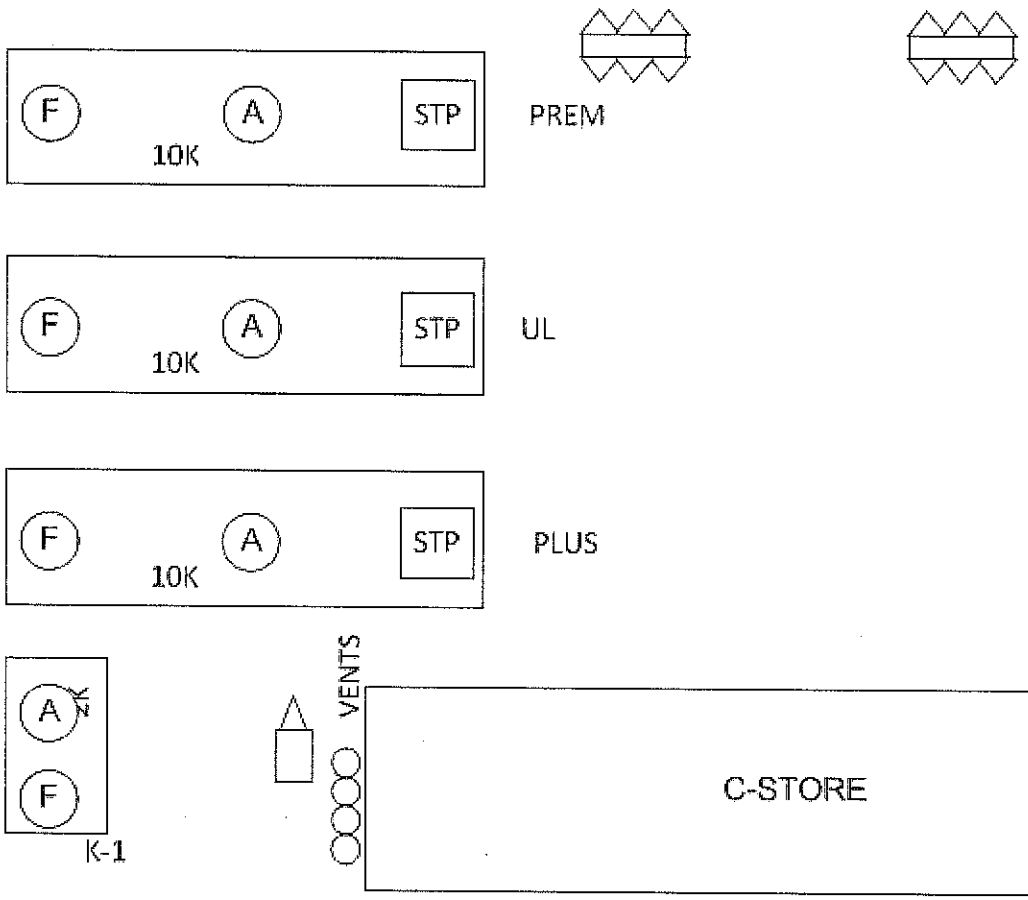
Tanknology

Site Diagram

(This site diagram is for reference only and is not drawn to scale)

Work Order: 6274187
Site ID / Name: BEACON&BRIDGE 8 / BEACON & BRIDGE #8
Address: 110 E BROAD ST
City: LINDEN State: MI Zip: 48451



Appendix B

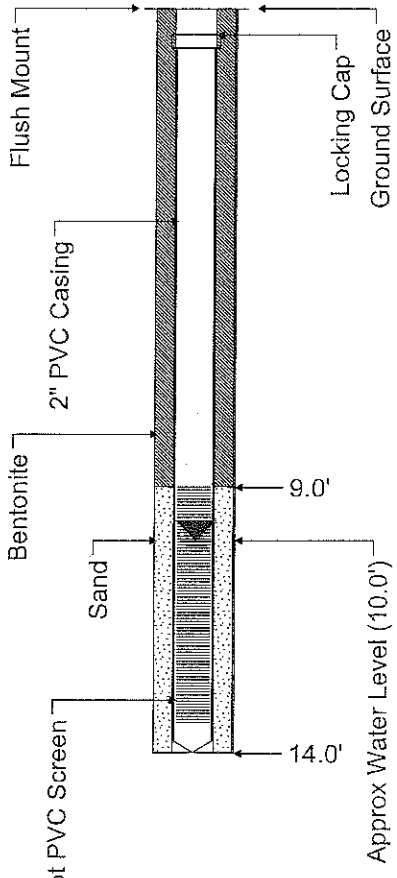
PM ENVIRONMENTAL | Environmental & Engineering Services

Well Log .

Project No.: 01-4982-0
Well No.: SB/MW-1
Project Name: General Consulting
Date Drilled: 12/18/2014
Facility ID#:
Drill Rig: HA & 6712 DT
Logged By: BTL
Sampling Method: Grab

PM ENVIRONMENTAL

Depth (ft.)	Boring Profile	Description and Comments	Sample # Depth	Blow Counts	PID (ppm)
		Ground Surface			
0		*ASPHALT*		-	0.0
		SM- (Loose) SAND (moist) Brown, fine		-	372
2				-	175.1
				-	215.2
4				-	291.1
				-	315
6				-	716.2
				-	1440
8				-	1776
			SS-1 9.0-10.0'	-	1875
10		*GP- (Loose) GRAVELLY SAND (saturated)* Brown, coarse		-	1215
			SS-2 11.0-12.0'	-	1231
12				-	1115
				-	1110
14		*CL- (Medium Stiff) CLAY (moist)* Brown/Gray		-	49.6
				-	66.1
16				-	97.5
				-	75.1
18				-	43.6
			SS-3 19.0-20.0'	-	57.1
20					



Completion Notes: EOB @ 20' bgs. Hole filled with bentonite.

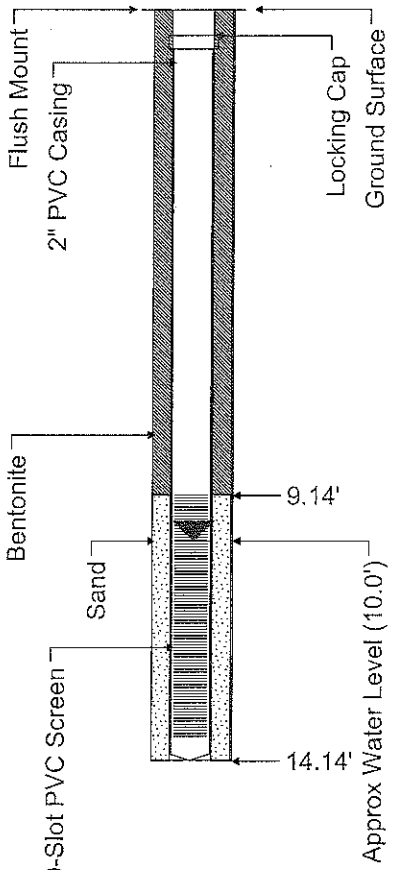
1. The indicated stratification lines are approximate in situ. The transitions between materials may be gradual.
2. Boring backfilled with natural soils unless otherwise noted

Sheet: 1 of 1

Well Log .

Project No.: 01-4982-0
Well No.: SB/MW-2
Project Name: General Consulting
Date Drilled: 12/18/2014
Facility ID#:
Drill Rig: HA & 6712 DT
Logged By: BTL
Sampling Method: Grab

Depth (ft.)	Description and Comments	Sample # / Depth	Blow Counts	PID (ppm)
	Ground Surface			
0	*ASPHALT*		-	1.2
	CONCRETE/GRAVEL		-	20.2
2	*SM- (Loose) SAND (moist)* Brown, fine		-	30.1
			-	46.4
4			-	18.7
	SM- (Loose) SAND (moist) Brown/Gray, fine		-	50.2
6			-	63.1
			-	1184
8			-	1429
		SS-1 9.0-10.0'	-	1923
10	*GP- (Loose) GRAVELLY SAND (saturated)* Brown/Black, coarse	SS-2 10.0-11.0'	-	1159
			-	90.2
12			-	56.2
			-	71.1
14	*CL- (Medium Stiff) CLAY (moist)* Gray		-	62.4
			-	45.9
16			-	38.7
			-	31.2
18			-	29.5
		SS-3 19.0-20.0'	-	24.6
20				



Groundwater Well Completion Details

Completion Notes: EOB @ 20' bgs. Hole filled with bentonite.

1. The indicated stratification lines are approximate in situ. The transitions between materials may be gradual.
2. Boring backfilled with natural soils unless otherwise noted

Well Log .

PM ENVIRONMENTAL

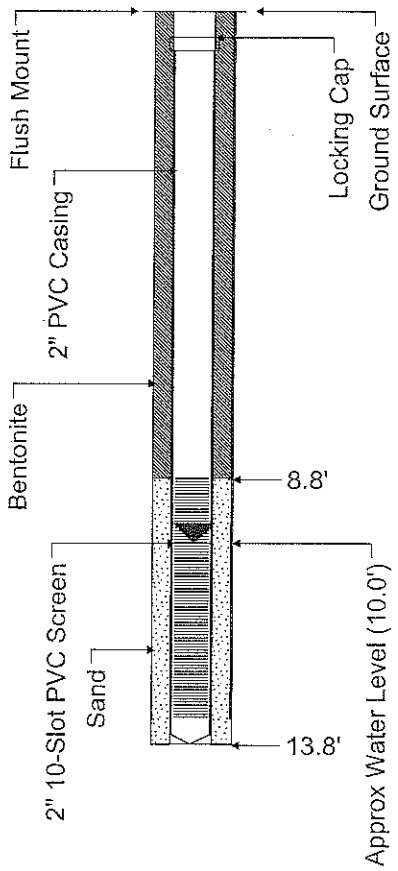
Project No.: 01-4982-0 ***Well No.:*** SB/MW-3

Project Name: General Consulting ***Date Drilled:*** 12/18/2014

Facility ID#: ***Drill Rig:*** HA & 6712 DT

Logged By: BTL ***Sampling Method:*** Grab

Depth (ft.)	Boring Profile	Description and Comments	Sample # Depth	Blow Counts	PID (ppm)
		SUBSURFACE PROFILE	**SAMPLE**		
0		Ground Surface			
		ASPHALT		-	2.1
		CONCRETE		-	56.2
2		***SM- (Loose) SAND (moist)*** Brown, fine		-	66.8
				-	62.4
4				-	40.7
		SM- (Loose) SAND (moist) Light Brown, fine		-	156.2
6				-	180.1
				-	225.1
8				-	283
			SS-1 9.0-10.0'	-	1175
10		***GP- (Medium Dense) SAND (saturated)*** Brown, medium fine, trace gravel	SS-2 10.0-11.0'	-	1425
				-	852
12				-	724
				-	389.1
14		***CL- (Medium Stiff) CLAY (moist)*** Brown/Gray		-	45.2
				-	20.2
16				-	18.4
				-	10.9
18				-	6.6
			SS-3 19.0-20.0'	-	5.1
20					



Completion Notes: EOB @ 20' bgs. Hole filled with bentonite.

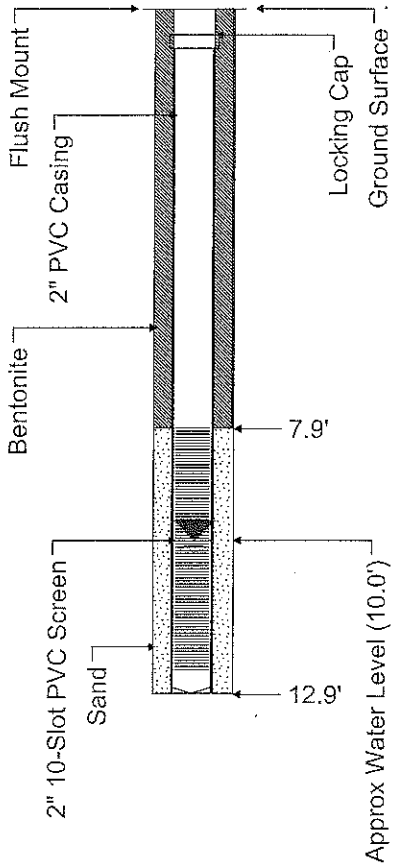
1. The indicated stratification lines are approximate in situ. The transitions between materials may be gradual.
2. Boring backfilled with natural soils unless otherwise noted

Sheet: 1 of 1

Well Log .

Project No.: 01-4982-0
Well No.: SB/MW-4
Project Name: General Consulting
Date Drilled: 12/18/2014
Facility ID#:
Drill Rig: HA & 6712 DT
Logged By: BTL
Sampling Method: Grab

Depth (ft.)	Boring Profile	Description and Comments	Sample # Depth	Blow Counts	PID (ppm)
		Ground Surface			
0		*ASPHALT*		-	1.1
		SM- (Loose) SAND (moist) Brown/Gray, fine		-	6.3
2				-	9.5
				-	14.4
4				-	20.2
				-	15.3
6				-	22.5
				-	39.6
8				-	71.4
			SS-1 9.0-10.0'	-	275
10		*SM- (Loose) SAND (saturated)* Brown, coarse, with gravel	SS-2 10.0-11.0'	-	958
				-	401
12		*CL- (Medium Stiff) CLAY (moist)* Gray		-	45.1
				-	30.6
14				-	43.5
				-	152.6
16				-	57.6
				-	45.9
18				-	39.8
			SS-3 19.0-20.0'	-	29.0
20					



Completion Notes: EOB @ 20' bgs. Hole filled with bentonite.

1. The indicated stratification lines are approximate in situ. The transitions between materials may be gradual.
2. Boring backfilled with natural soils unless otherwise noted

Sheet: 1 of 1

Well Log .

PM ENVIRONMENTAL

Project No.: 01-4982-0 ***Well No.:*** SB/MW-5

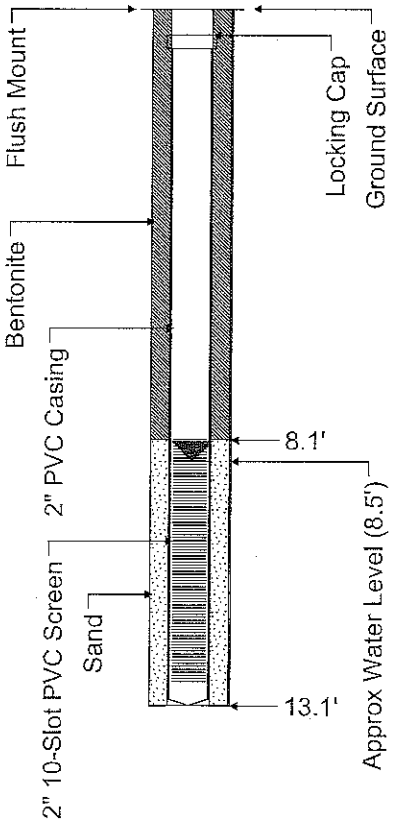
Project Name: General Consulting ***Date Drilled:*** 12/18/2014

Facility ID#: ***Drill Rig:*** HA & 6712 DT

Logged By: BTL ***Sampling Method:*** Grab

Depth (ft.)	Boring Profile	Description and Comments	Sample # / Depth	Blow Counts	PID (ppm)
0		Ground Surface			
		GRASS/TOPSOIL		-	0.0
2		***SM- (Medium Dense) SAND (moist)*** Dark Brown, fine		-	0.0
				-	0.0
4		***SM- (Loose) SAND (moist)*** Brown, fine to medium		-	0.1
				-	0.4
6				-	0.9
				-	2.4
8				-	6.7
		GP- (Loose) SAND (saturated) Brown, medium to coarse, with gravel	SS-1 8.0-9.0'	-	327.6
10			SS-2 9.0-10.0'	-	1521
				-	274
12		***CL- (Medium Stiff) CLAY (moist)*** Brown/Gray		-	212
				-	55.9
14				-	23.4
				-	12.4
16				-	5.9
				-	4.1
18				-	3.8
				-	2.9
20			SS-3 19.0-20.0'	-	2.1

Groundwater Well Completion Details



Completion Notes: EOB @ 20' bgs. Hole filled with bentonite.

1. The indicated stratification lines are approximate in situ. The transitions between materials may be gradual.
2. Boring backfilled with natural soils unless otherwise noted

Boring Log .

ENVIRONMENTAL

Project No.: 01-4982-0 ***Boring No.:*** SB-6

Project Name: General Consulting ***Date Drilled:*** 12/18/2014

Facility ID#: ***Drill Rig:*** HA & 6712 DT

Logged By: BTL ***Sampling Method:*** Grab

SUBSURFACE PROFILE			SAMPLE			
Depth (ft.)	Boring Profile	Description and Comments	Sample # Depth	Blow Counts	PID (ppm)	No Well Installed
		Ground Surface				
0		*ASPHALT*		-	2.1	
		CONCRETE		-	10.2	
2		*SM- (Loose) SAND (moist)* Brown/Black, fine		-	67.9	
				-	55.9	
4				-	48.7	
				-	99.9	
6				-	125.1	
		SM- (Loose) SAND (moist) Light Brown, medium		-	158.9	
8				-	487	
			SS-1 9.0-10.0'	-	1671	
10				-	780	
		GP- (Loose) SAND (saturated) Black/Brown, medium to coarse, with gravel		-	837	
12			SS-2 12.0-13.0'	-	861	
				-	791	
14				-	774	
		CL- (Medium Stiff) CLAY (moist) Gray		-	451	
16				-	389	
				-	291	
18				-	229	
			SS-3 19.0-20.0'	-	145	
20						

Completion Notes: EOB @ 20' bgs. Hole filled with bentonite.

1. The indicated stratification lines are approximate in situ. The transitions between materials may be gradual.
2. Boring backfilled with natural soils unless otherwise noted.

Boring Log .

ENVIRONMENTAL

Project No.: 01-4982-0 ***Boring No.:*** SB-7

Project Name: General Consulting ***Date Drilled:*** 12/19/2014

Facility ID#: ***Drill Rig:*** HA & 6712 DT

Logged By: BTL ***Sampling Method:*** Grab

SUBSURFACE PROFILE			SAMPLE			
Depth (ft.)	Boring Profile	Description and Comments	Sample # Depth	Blow Counts	PID (ppm)	No Well Installed
0		Ground Surface				
		ASPHALT		-	25.1	
		SM- (Loose) SAND (moist) Brown/Black, fine, trace debris		-	63.9	
2				-	102.4	
				-	192.1	
4				-	199.8	
				-	396	
6				-	492	
		SM- (Loose) SAND (moist) Light Brown, medium		-	521	
8				-	615	
				-	1524	
10			SS-1 10.0-11.0'	-	1603	
		GP- (Loose) SAND (saturated) Brown, coarse, with gravel	SS-2 11.0-12.0'	-	1480	
12				-	446	
				-	153	
14				-	81.4	
				-	68.1	
16		*CL- (Medium Stiff) CLAY (moist)* Gray		-	59.7	
				-	48.9	
18				-	50.2	
			SS-3 19.0-20.0'	-	37.7	
20						

Completion Notes: EOB @ 20' bgs. Hole filled with bentonite.

1. The indicated stratification lines are approximate in situ. The transitions between materials may be gradual.
2. Boring backfilled with natural soils unless otherwise noted.

Boring Log .

PM ENVIRONMENTAL

Project No.: 01-4982-0 | ***Boring No.:*** SB-8

Project Name: General Consulting | ***Date Drilled:*** 12/19/2014

Facility ID#: | ***Drill Rig:*** HA & 6712 DT

Logged By: BTL | ***Sampling Method:*** Grab

SUBSURFACE PROFILE			SAMPLE			
Depth (ft.)	Boring Profile	Description and Comments	Sample # Depth	Blow Counts	PID (ppm)	No Well Installed
		Ground Surface				
0		*ASPHALT*		-	23.9	
		CONCRETE		-	121	
2		*SM- (Loose) SAND (moist)* Brown, fine		-	212	
				-	189	
4				-	178	
				-	229	
6				-	414	
				-	563	
8				-	1206	
			SS-1 9.0-10.0'	-	1521	
10		*GP- (Loose) SAND (saturated)* Brown, coarse, with gravel	SS-2 10.0-11.0'	-	1024	
				-	829	
12				-	421	
				-	498	
14		*CL- (Medium Stiff) CLAY (moist)* Gray		-	317	
				-	241	
16				-	86.9	
				-	57.5	
18				-	90.1	
			SS-3 19.0-20.0'	-	114.9	
20						

Completion Notes: EOB @ 20' bgs. Hole filled with bentonite.

1. The indicated stratification lines are approximate in situ. The transitions between materials may be gradual.
2. Boring backfilled with natural soils unless otherwise noted.

Appendix C

PM ENVIRONMENTAL | Environmental & Engineering Services

Brighton Analytical, L.L.C.™
Email: bai-brighton@sbcglobal.net
2105 Pless Drive
Brighton, MI 48114
Phone: 810-229-7575
Fax: 810-229-8650

BA PROJECT #: 32862

ABBREVIATIONS FOR MATRIX
S = Solid
L = Liquid
DW = Drinking H_2O
O = Oil
P = Wipe
A = Air (Tedlar Bag)
F = Filter
T = Tube
M = Misc.

PROJECT NAME: General Consulting

PROJECT #: 01-4982-0

PO #: (PLEASE NOTE IF DIFFERENT BILLING ADDRESS)

Sample collected by: Bruce T Lemmon

REQUESTED TURNAROUND: (circle one)
Rush: 1-3 business days (verify with lab & specify date needed)
1 Day = 2.5X Cost 2 Day = 2X Cost 3 Day = 1.5X Cost
Standard: 5 business days

If RUSH, approved by: _____

Sample Coll.

Container Type & Quantity

Brighton ID #	Sample Description	Date	Time	VOA'S (PRES) Y N N/A	HDPE UNPRESERVED	HDPE HNO_3	HDPE H_2SO_4	HDPE NAOH	AMBER PRESERVED?	GLASS, ND PRESERVATIVE	STERILIZED BACTERIA	MEOH Preserved Y N	Sample Matrix	GAS VOC's	GRO						HOLD
1) 9184	SB-1 ~ 9-10'	12-18-19	11:06							1		1	S	X	X						
2) 85	SB-1 ~ 11-12'		11:10											X	X						
3) 86	SB-1 ~ 19-20'		11:14											X	X						X
4) 87	SB-2 ~ 9-10'		12:10											X	X						
5) 88	SB-2 ~ 10-11'		12:13											X	X						
6) 89	SB-2 ~ 19-20'		12:16											X							
7) 90	SB-3 ~ 9-10'		13:13											X	X						
8) 91	SB-3 ~ 10-11'		13:16											X	X						
9) 92	SB-3 ~ 19-20'		13:19																		X
10) 93	SB-4 ~ 9-10'		16:00											X	X						

METHANOL EPA 8015

26 PME

Special Instructions:

COMPANY/MAILING ADDRESS:
PM Berkley
4080 11 Mile Rd
Berkley, MI 48072
ATTN: Christie Santiago
PHONE: 248-336-9988
FAX OR EMAIL: 877-884-6775

Samples received within hold time? yes ☒ no ☐
Temperature of samples °C: 4
pHs verified in login? yes ☐ no ☒
Headspace/bubbles in VOA's? yes ☐ no ☐ n/a ☒
Sample containers and COC match? yes ☒ no ☐

BILLING ADDRESS (IF REQUIRED):
run SB-1 19-20 gas VOCs

Drinking H_2O:
Fax to LCHD? yes ☐ no ☐
Chlorinated Water Supply? yes ☐ no ☐
AMT.: _____

MCL Failure: yes ☐ no ☐
Client Notified (date/time/initials): _____

Please fill out the Chain of Custody completely and review. Incorrect or incomplete information will result in a "hold" on all analyses.

Trans. #	RELINQUISHED BY:	RECEIVED BY:	DATE:	TIME:	Trans. #	RELINQUISHED BY:	RECEIVED BY:	DATE:	TIME:
1	Bruce T Lemmon	PM Cold Storage	12-19-14	16:30	3	[illegible]	[illegible]	12-22-14	11:35 pm
2	PM Cold Storage	[illegible]	12/22/14	10am	4				

Brighton Analytical, L.L.C.™
Email: bai-brighton@sbcglobal.net
2105 Pless Drive
Brighton, MI 48114
Phone: 810-229-7575
Fax: 810-229-8650

BA PROJECT #: 32862

ABBREVIATIONS FOR MATRIX
S = Solid
L = Liquid
DW = Drinking H_2O
O = Oil
P = Wipe
A = Air (Tedlar Bag)
F = Filter
T = Tube
M = Misc.

PROJECT NAME: General Consulting

PROJECT #: 01-4982-0

PO #: (PLEASE NOTE IF DIFFERENT BILLING ADDRESS)

Sample collected by: Bruce T Lemmon

REQUESTED TURNAROUND: (circle one)
Rush: 1-3 business days (verify with lab & specify date needed)
1 Day = 2.5X Cost 2 Day = 2X Cost 3 Day = 1.5X Cost
Standard: 5 business days

If RUSH, approved by: _____

Analysis Requested/Method

Brighton ID #	Sample Description	Sample Coll. Date	Sample Coll. Time	VOA'S (PRES) Y N N/A	HDPE UNPRESERVED	HDPE HNO_3	HDPE H_2SO_4	HDPE NAOH	AMBER PRESERVED?	GLASS, NO PRESERVATIVE	STERILIZED BACTERIA	MEOH Preserved N	Sample Matrix	GAS VOC's, GRO	GEO VOCs						HOLD
1) 9194	SB-4 ✓ 10-11'	12-18-14	16:03							1		1	S	X							
2) 95	SB-4 ✓ 19-20'	12-18-14	16:06																		X
3) 96	SB-5 ✓ 8-9'	12-19-14	9:59											X							
4) 97	SB-5 ✓ 9-10'		10:02											X							
5) 98	SB-5 ✓ 19-20'		10:05																		X
6) 99	SB-6 ✓ 9-10'		11:00											X							
9200	SB-6 ✓ 12-13'		11:03											X							
8) 01	SB-6 ✓ 19-20'		11:06												X						
9) 02	SB-7 ✓ 10-11'		11:41											X							
10) 03	SB-7 ✓ 11-12'		11:43											X							

METHANOL EPA 5035

(2) PMC

Special Instructions:

COMPANY/MAILING ADDRESS:
PM Berkley
4080 11 Mile Rd
Berkley, MI 48072
ATTN: Christie Santiago
PHONE: 248-336-9988
FAX OR EMAIL: 877-884-6775

Samples received within hold time? yes ☐ no ☐
Temperature of samples °C:
pHs verified in login? yes ☐ no ☐
Headspace/bubbles in VOA's? yes ☐ no ☐ n/a ☐
Sample containers and COC match? yes ☐ no ☐

BILLING ADDRESS (IF REQUIRED):

Drinking H_2O:
Fax to LCHD? yes ☐ no ☐
Chlorinated Water Supply? yes ☐ no ☐
AMT.: _____

MCL Failure: yes ☐ no ☐
Client Notified (date/time/initials): _____

Please fill out the Chain of Custody completely and review. Incorrect or incomplete information will result in a "hold" on all analyses.

Trans. #	RELINQUISHED BY:	RECEIVED BY:	DATE:	TIME:	Trans. #	RELINQUISHED BY:	RECEIVED BY:	DATE:	TIME:
1	Bruce T Lemmon	PM Cold Storage	12-19-14	16:30	3	TWT.	[signature]	12-22-14	11:30am
2	PM COLD STORAGE	TWT.	12/22/14	10 am	4				

Brighton Analytical, L.L.C.™
Email: bai-brighton@sbcglobal.net
2105 Pless Drive
Brighton, MI 48114
Phone: 810-229-7575
Fax: 810-229-8650

BA PROJECT #: 32862

ABBREVIATIONS FOR MATRIX
S = Solid
L = Liquid
DW = Drinking H_2O
O = Oil
P = Wipe
A = Air (Tedlar Bag)
F = Filter
T = Tube
M = Misc.

PROJECT NAME: General Consulting

PROJECT #: 01-4982-0

PO #: (PLEASE NOTE IF DIFFERENT BILLING ADDRESS)

Sample collected by: Bruce T Lemmon

REQUESTED TURNAROUND: (circle one)
Rush: 1-3 business days (verify with lab & specify date needed)
1 Day = 2.5X Cost 2 Day = 2X Cost 3 Day = 1.5X Cost
Standard: 5 business days

If RUSH, approved by: _____

Analysis Requested/Method

Brighton ID #	Sample Description	Sample Coll. Date	Sample Coll. Time	VOA'S (PRES) Y N N/A	HDPE UNPRESERVED	HDPE HNO_3	HDPE H_2SO_4	HDPE NAOH	AMBER PRESERVED?	GLASS, NO PRESERVATIVE	STERILIZED BACTERIA	MEOH Preserved Y N	Sample Matrix	GAS VOC's, GRO	VOC's	GAS VOCs					HOLD
1) CAS 1204	SB-7 ~ 19-20'	12-19-14	11:46							1		1	S			X					
2) 05	SB-8 ~ 9-10'	↓	12:15							↓		↓	↓	X							
3) 06	SB-8 ~ 10-11'	↓	12:18							↓		↓	↓	X							
4) 07	SB-8 ~ 19-20'	↓	12:21							↓		↓	↓			X					
5) 08	A-1	12-18-14	10:35										O			X					
6) 09	A-2	12-18-14	—							1		↓	S	X							
7) 10	A-3	12-19-14	—							1		↓	S			X					
8) 11	SG-1	12-19-14	14:01										Soil vapor		X						
9)																					
10)																					

METHANOL EPA 5035

(26) PLUE

Special Instructions:

COMPANY/MAILING ADDRESS:
PM Berkley
4080 11 Mile
Berkley, MI 48072
ATTN: Christie Santiago
PHONE: 248-336-9988
FAX OR EMAIL: 877-884-6775

Samples received within hold time? yes ☐ no ☐
Temperature of samples °C:
pHs verified in login? yes ☐ no ☐
Headspace/bubbles in VOA's? yes ☐ no ☐ n/a ☐
Sample containers and COC match? yes ☐ no ☐

BILLING ADDRESS (IF REQUIRED):

Drinking H_2O:
Fax to LCHD? yes ☐ no ☐
Chlorinated Water Supply? yes ☐ no ☐
AMT.: _____

MCL Failure: yes ☐ no ☐
Client Notified (date/time/initials): _____

Please fill out the Chain of Custody completely and review. Incorrect or incomplete information will result in a "hold" on all analyses.

Trans. #	RELINQUISHED BY:	RECEIVED BY:	DATE:	TIME:	Trans. #	RELINQUISHED BY:	RECEIVED BY:	DATE:	TIME:
1	Bruce T Lemmon	PM Cold Storage	12-19-14	16:30	3	TWT	[signature]	12-22-14	11:30 pm
2	PM Cold Storage	TWT	12/22/14	10 am	4				

Brighton Analytical L.L.C.
2105 Pless Drive
Brighton, Michigan 48116
Phone: (810) 229-7575 FAX: (810) 229-8650
e-mail: bai-brighton@sbcglobal.net

To: PM Environmental, Inc.
4080 W. 11 Mile Rd.
Berkley, MI 48072

Sample Date: 12/18/2014
Submit Date: 12/22/2014
Report Date: 12/30/2014

BA Report Number: **32862**
BA Sample ID: **CA09184**

Project Name: **General Consulting**
Project Number: **01-4982-0**
Sample ID: **SB-1 @ 9-10'**

Parameters	Results	Units	DL	Method Reference	Analyst	Analysis Date
GRO Analysis						
GRO (Methanol Preserved)	**2800000**	ug/Kg	80000	SW846 8015	BY	12/29/2014
Volatile Analysis(Methanol Preserved)						
Benzene	**8100**	ug/Kg	2500	SW846 8260B	CW	12/23/2014
1,2-Dibromoethane(Ethylene Dibromide)	**<1000**	ug/Kg	1000	SW846 8260B	CW	12/23/2014
1,2-Dichloroethane	**<2500**	ug/Kg	2500	SW846 8260B	CW	12/23/2014
Ethanol (Ethyl alcohol)	**<125000**	ug/Kg	125000	SW846 8260B	CW	12/23/2014
Ethylbenzene	**71000**	ug/Kg	2500	SW846 8260B	CW	12/23/2014
Isopropylbenzene	**9200**	ug/Kg	2500	SW846 8260B	CW	12/23/2014
2-Methylnaphthalene	**32000**	ug/Kg	12500	SW846 8260B	CW	12/23/2014
MTBE	**<2500**	ug/Kg	2500	SW846 8260B	CW	12/23/2014
Naphthalene	**35000**	ug/Kg	12500	SW846 8260B	CW	12/23/2014
n-Propylbenzene	**31000**	ug/Kg	2500	SW846 8260B	CW	12/23/2014
Toluene	**150000**	ug/Kg	2500	SW846 8260B	CW	12/23/2014
1,2,3-Trimethylbenzene	**65000**	ug/Kg	2500	SW846 8260B	CW	12/23/2014
1,2,4-Trimethylbenzene	**230000**	ug/Kg	2500	SW846 8260B	CW	12/23/2014
1,3,5-Trimethylbenzene	**65000**	ug/Kg	2500	SW846 8260B	CW	12/23/2014
Xylenes(total)	**380000**	ug/Kg	7500	SW846 8260B	CW	12/23/2014
EPA Method 5035 Methanol Preserv	**Extracted**			EPA 5035	PME	12/18/2014
%Solid	**93**	%		ASTM D2216	HD	12/22/2014

All soil results based on dry weight.

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

Released by:

Date: 12/30/14

Elevated GRO & volatile dl due to sample matrix.

Brighton Analytical, L.L.C.
2105 Pless Drive
Brighton, Michigan 48116
Phone: (810) 229-7575 FAX: (810) 229-8650
e-mail: bai-brighton@sbcglobal.net

To: PM Environmental, Inc.
4080 W. 11 Mile Rd.
Berkley, MI 48072

Sample Date: 12/18/2014
Submit Date: 12/22/2014
Report Date: 12/30/2014

BA Report Number: **32862**
BA Sample ID: **CA09185**

Project Name: **General Consulting**
Project Number: **01-4982-0**
Sample ID: **SB-1 @ 11-12'**

Parameters	Results	Units	DL	Method Reference	Analyst	Analysis Date
GRO Analysis						
GRO (Methanol Preserved)	37000	ug/Kg	4000	SW846 8015	BY	12/29/2014
Volatile Analysis(Methanol Preserved)						
Benzene	**830**	ug/Kg	50	SW846 8260B	CW	12/23/2014
1,2-Dibromoethane(Ethylene Dibromide)	**<20**	ug/Kg	20	SW846 8260B	CW	12/23/2014
1,2-Dichloroethane	**<50**	ug/Kg	50	SW846 8260B	CW	12/23/2014
Ethanol (Ethyl alcohol)	**<2500**	ug/Kg	2500	SW846 8260B	CW	12/23/2014
Ethylbenzene	**4300**	ug/Kg	50	SW846 8260B	CW	12/23/2014
Isopropylbenzene	**290**	ug/Kg	50	SW846 8260B	CW	12/23/2014
2-Methylnaphthalene	**<250**	ug/Kg	250	SW846 8260B	CW	12/23/2014
MTBE	**<50**	ug/Kg	50	SW846 8260B	CW	12/23/2014
Naphthalene	**1100**	ug/Kg	250	SW846 8260B	CW	12/23/2014
n-Propylbenzene	**720**	ug/Kg	50	SW846 8260B	CW	12/23/2014
Toluene	**460**	ug/Kg	50	SW846 8260B	CW	12/23/2014
1,2,3-Trimethylbenzene	**1200**	ug/Kg	50	SW846 8260B	CW	12/23/2014
1,2,4-Trimethylbenzene	**4400**	ug/Kg	50	SW846 8260B	CW	12/23/2014
1,3,5-Trimethylbenzene	**930**	ug/Kg	50	SW846 8260B	CW	12/23/2014
Xylenes(total)	**7800**	ug/Kg	150	SW846 8260B	CW	12/23/2014
EPA Method 5035 Methanol Preserv	**Extracted**			EPA 5035	PME	12/18/2014
%Solid	**93**	%		ASTM D2216	HD	12/22/2014

All soil results based on dry weight.

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

Released by:

Date: 12/30/14

Brighton Analytical, L.L.C.
2105 Pless Drive
Brighton, Michigan 48116
Phone: (810) 229-7575 FAX: (810) 229-8650
e-mail: bai-brighton@sbcglobal.net

To: PM Environmental, Inc.
4080 W. 11 Mile Rd.
Berkley, MI 48072

Sample Date: 12/18/2014
Submit Date: 12/22/2014
Report Date: 12/26/2014

BA Report Number: **32862**
BA Sample ID: **CA09186**

Project Name: **General Consulting**
Project Number: **01-4982-0**
Sample ID: **SB-1 @ 19-20'**

Parameters	Results	Units	DL	Method Reference	Analyst	Analysis Date
Volatile Analysis(Methanol Preserved)						
Benzene	**<50**	ug/Kg	50	SW846 8260B	CW	12/23/2014
1,2-Dibromoethane(Ethylene Dibromide)	**<20**	ug/Kg	20	SW846 8260B	CW	12/23/2014
1,2-Dichloroethane	**<50**	ug/Kg	50	SW846 8260B	CW	12/23/2014
Ethanol (Ethyl alcohol)	**<2500**	ug/Kg	2500	SW846 8260B	CW	12/23/2014
Ethylbenzene	**<50**	ug/Kg	50	SW846 8260B	CW	12/23/2014
Isopropylbenzene	**<50**	ug/Kg	50	SW846 8260B	CW	12/23/2014
2-Methylnaphthalene	**<250**	ug/Kg	250	SW846 8260B	CW	12/23/2014
MTBE	**<50**	ug/Kg	50	SW846 8260B	CW	12/23/2014
Naphthalene	**<250**	ug/Kg	250	SW846 8260B	CW	12/23/2014
n-Propylbenzene	**<50**	ug/Kg	50	SW846 8260B	CW	12/23/2014
Toluene	**<50**	ug/Kg	50	SW846 8260B	CW	12/23/2014
1,2,3-Trimethylbenzene	**<50**	ug/Kg	50	SW846 8260B	CW	12/23/2014
1,2,4-Trimethylbenzene	**<50**	ug/Kg	50	SW846 8260B	CW	12/23/2014
1,3,5-Trimethylbenzene	**<50**	ug/Kg	50	SW846 8260B	CW	12/23/2014
Xylenes(total)	**<150**	ug/Kg	150	SW846 8260B	CW	12/23/2014
EPA Method 5035 Methanol Preserv	**Extracted**			EPA 5035	PME	12/18/2014
%Solid	**91**	%		ASTM D2216	HD	12/22/2014

All soil results based on dry weight.

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

Released by:

Date: 12/30/14

Brighton Analytical, L.L.C.
2105 Pless Drive
Brighton, Michigan 48116
Phone: (810) 229-7575 FAX: (810) 229-8650
e-mail: bai-brighton@sbcglobal.net

To: PM Environmental, Inc.
4080 W. 11 Mile Rd.
Berkley, MI 48072

Sample Date: 12/18/2014
Submit Date: 12/22/2014
Report Date: 12/30/2014

BA Report Number: **32862**
BA Sample ID: **CA09187**

Project Name: **General Consulting**
Project Number: **01-4982-0**
Sample ID: **SB-2 @ 9-10'**

Parameters	Results	Units	DL	Method Reference	Analyst	Analysis Date
GRO Analysis						
GRO (Methanol Preserved)	**4900000**	ug/Kg	80000	SW846 8015	BY	12/29/2014
Volatile Analysis(Methanol Preserved)						
Benzene	**56000**	ug/Kg	2500	SW846 8260B	CW	12/26/2014
1,2-Dibromoethane(Ethylene Dibromide)	**<1000**	ug/Kg	1000	SW846 8260B	CW	12/26/2014
1,2-Dichloroethane	**<2500**	ug/Kg	2500	SW846 8260B	CW	12/26/2014
Ethanol (Ethyl alcohol)	**<125000**	ug/Kg	125000	SW846 8260B	CW	12/26/2014
Ethylbenzene	**200000**	ug/Kg	2500	SW846 8260B	CW	12/26/2014
Isopropylbenzene	**23000**	ug/Kg	2500	SW846 8260B	CW	12/26/2014
2-Methylnaphthalene	**57000**	ug/Kg	12500	SW846 8260B	CW	12/26/2014
MTBE	**<2500**	ug/Kg	2500	SW846 8260B	CW	12/26/2014
Naphthalene	**68000**	ug/Kg	12500	SW846 8260B	CW	12/26/2014
n-Propylbenzene	**77000**	ug/Kg	2500	SW846 8260B	CW	12/26/2014
Toluene	**520000**	ug/Kg	2500	SW846 8260B	CW	12/26/2014
1,2,3-Trimethylbenzene	**150000**	ug/Kg	2500	SW846 8260B	CW	12/26/2014
1,2,4-Trimethylbenzene	**510000**	ug/Kg	2500	SW846 8260B	CW	12/26/2014
1,3,5-Trimethylbenzene	**150000**	ug/Kg	2500	SW846 8260B	CW	12/26/2014
Xylenes(total)	**1000000**	ug/Kg	7500	SW846 8260B	CW	12/26/2014
EPA Method 5035 Methanol Preserv	**Extracted**			EPA 5035	PME	12/18/2014
%Solid	**90**	%		ASTM D2216	HD	12/22/2014

All soil results based on dry weight.

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

Released by:

Date: 12/30/14

Elevated GRO & volatile dl due to sample matrix.

Brighton Analytical L.L.C. ™
Brighton Analytical, L.L.C.
2105 Pless Drive
Brighton, Michigan 48116
Phone: (810) 229-7575 FAX: (810) 229-8650
e-mail: bai-brighton@sbcglobal.net

To: PM Environmental, Inc.
4080 W. 11 Mile Rd.
Berkley, MI 48072

Sample Date: 12/18/2014
Submit Date: 12/22/2014
Report Date: 12/30/2014

BA Report Number: **32862**
BA Sample ID: **CA09188**

Project Name: **General Consulting**
Project Number: **01-4982-0**
Sample ID: **SB-2 @ 10-11'**

Parameters	Results	Units	DL	Method Reference	Analyst	Analysis Date
GRO Analysis						
GRO (Methanol Preserved)	46000	ug/Kg	4000	SW846 8015	BY	12/29/2014
Volatile Analysis(Methanol Preserved)						
Benzene	**960**	ug/Kg	50	SW846 8260B	CW	12/22/2014
1,2-Dibromoethane(Ethylene Dibromide)	**<20**	ug/Kg	20	SW846 8260B	CW	12/22/2014
1,2-Dichloroethane	**<50**	ug/Kg	50	SW846 8260B	CW	12/22/2014
Ethanol (Ethyl alcohol)	**<2500**	ug/Kg	2500	SW846 8260B	CW	12/22/2014
Ethylbenzene	**1300**	ug/Kg	50	SW846 8260B	CW	12/22/2014
Isopropylbenzene	**310**	ug/Kg	50	SW846 8260B	CW	12/22/2014
2-Methylnaphthalene	**1200**	ug/Kg	250	SW846 8260B	CW	12/22/2014
MTBE	**<50**	ug/Kg	50	SW846 8260B	CW	12/22/2014
Naphthalene	**1500**	ug/Kg	250	SW846 8260B	CW	12/22/2014
n-Propylbenzene	**1000**	ug/Kg	50	SW846 8260B	CW	12/22/2014
Toluene	**960**	ug/Kg	50	SW846 8260B	CW	12/22/2014
1,2,3-Trimethylbenzene	**1100**	ug/Kg	50	SW846 8260B	CW	12/22/2014
1,2,4-Trimethylbenzene	**3300**	ug/Kg	50	SW846 8260B	CW	12/22/2014
1,3,5-Trimethylbenzene	**900**	ug/Kg	50	SW846 8260B	CW	12/22/2014
Xylenes(total)	**4900**	ug/Kg	150	SW846 8260B	CW	12/22/2014
EPA Method 5035 Methanol Preserv	**Extracted**			EPA 5035	PME	12/18/2014
%Solid	**92**	%		ASTM D2216	HD	12/22/2014

All soil results based on dry weight.

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

Released by:

Date: 12/30/14

Brighton Analytical L.L.C.

Brighton Analytical, L.L.C.
2105 Pless Drive
Brighton, Michigan 48116
Phone: (810) 229-7575 FAX: (810) 229-8650
e-mail: bai-brighton@sbcglobal.net

To: PM Environmental, Inc.
4080 W. 11 Mile Rd.
Berkley, MI 48072

Sample Date: 12/18/2014
Submit Date: 12/22/2014
Report Date: 12/29/2014

BA Report Number: **32862**
BA Sample ID: **CA09189**

Project Name: **General Consulting**
Project Number: **01-4982-0**
Sample ID: **SB-2 @ 19-20'**

Parameters	Results	Units	DL	Method Reference	Analyst	Analysis Date
Volatile Analysis(Methanol Preserved)						
Benzene	**<50**	ug/Kg	50	SW846 8260B	CW	12/26/2014
1,2-Dibromoethane(Ethylene Dibromide)	**<20**	ug/Kg	20	SW846 8260B	CW	12/26/2014
1,2-Dichloroethane	**<50**	ug/Kg	50	SW846 8260B	CW	12/26/2014
Ethanol (Ethyl alcohol)	**<2500**	ug/Kg	2500	SW846 8260B	CW	12/26/2014
Ethylbenzene	**58**	ug/Kg	50	SW846 8260B	CW	12/26/2014
Isopropylbenzene	**<50**	ug/Kg	50	SW846 8260B	CW	12/26/2014
2-Methylnaphthalene	**<250**	ug/Kg	250	SW846 8260B	CW	12/26/2014
MTBE	**<50**	ug/Kg	50	SW846 8260B	CW	12/26/2014
Naphthalene	**<250**	ug/Kg	250	SW846 8260B	CW	12/26/2014
n-Propylbenzene	**<50**	ug/Kg	50	SW846 8260B	CW	12/26/2014
Toluene	**77**	ug/Kg	50	SW846 8260B	CW	12/26/2014
1,2,3-Trimethylbenzene	**58**	ug/Kg	50	SW846 8260B	CW	12/26/2014
1,2,4-Trimethylbenzene	**170**	ug/Kg	50	SW846 8260B	CW	12/26/2014
1,3,5-Trimethylbenzene	**56**	ug/Kg	50	SW846 8260B	CW	12/26/2014
Xylenes(total)	**240**	ug/Kg	150	SW846 8260B	CW	12/26/2014
EPA Method 5035 Methanol Preserv	**Extracted**			EPA 5035	PME	12/18/2014
%Solid	**88**	%		ASTM D2216	HD	12/22/2014

All soil results based on dry weight.

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

Released by:

Date: 12/30/14

Brighton Analytical L.L.C.™
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Sample Date: 12/18/2014
Submit Date: 12/22/2014
Report Date: 12/30/2014

To: PM Environmental, Inc.
4080 W. 11 Mile Rd.
Berkley, MI 48072

BA Report Number: **32862**
BA Sample ID: **CA09190**

Project Name: **General Consulting**
Project Number: **01-4982-0**
Sample ID: **SB-3 @ 9-10'**

Parameters	Results	Units	DL	Method Reference	Analyst	Analysis Date
GRO Analysis						
GRO (Methanol Preserved)	**5700000**	ug/Kg	80000	SW846 8015	BY	12/29/2014
Volatile Analysis(Methanol Preserved)						
Benzene	**29000**	ug/Kg	5000	SW846 8260B	CW	12/23/2014
1,2-Dibromoethane(Ethylene Dibromide)	**<2000**	ug/Kg	2000	SW846 8260B	CW	12/23/2014
1,2-Dichloroethane	**<5000**	ug/Kg	5000	SW846 8260B	CW	12/23/2014
Ethanol (Ethyl alcohol)	**<250000**	ug/Kg	250000	SW846 8260B	CW	12/23/2014
Ethylbenzene	**150000**	ug/Kg	5000	SW846 8260B	CW	12/23/2014
Isopropylbenzene	**19000**	ug/Kg	5000	SW846 8260B	CW	12/23/2014
2-Methylnaphthalene	**48000**	ug/Kg	25000	SW846 8260B	CW	12/23/2014
MTBE	**<5000**	ug/Kg	5000	SW846 8260B	CW	12/23/2014
Naphthalene	**57000**	ug/Kg	25000	SW846 8260B	CW	12/23/2014
n-Propylbenzene	**63000**	ug/Kg	5000	SW846 8260B	CW	12/23/2014
Toluene	**190000**	ug/Kg	5000	SW846 8260B	CW	12/23/2014
1,2,3-Trimethylbenzene	**120000**	ug/Kg	5000	SW846 8260B	CW	12/23/2014
1,2,4-Trimethylbenzene	**410000**	ug/Kg	5000	SW846 8260B	CW	12/23/2014
1,3,5-Trimethylbenzene	**120000**	ug/Kg	5000	SW846 8260B	CW	12/23/2014
Xylenes(total)	**700000**	ug/Kg	15000	SW846 8260B	CW	12/23/2014
EPA Method 5035 Methanol Preserv	**Extracted**			EPA 5035	PME	12/18/2014
%Solid	**92**	%		ASTM D2216	HD	12/22/2014

All soil results based on dry weight.

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

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Elevated GRO & volatile dl due to sample matrix.

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To: PM Environmental, Inc.
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Berkley, MI 48072

Sample Date: 12/18/2014
Submit Date: 12/22/2014
Report Date: 12/30/2014

BA Report Number: **32862**
BA Sample ID: **CA09191**

Project Name: **General Consulting**
Project Number: **01-4982-0**
Sample ID: **SB-3 @ 10-11'**

Parameters	Results	Units	DL	Method Reference	Analyst	Analysis Date
GRO Analysis						
GRO (Methanol Preserved)	**16000**	ug/Kg	4000	SW846 8015	BY	12/29/2014
Volatile Analysis(Methanol Preserved)						
Benzene	**2700**	ug/Kg	50	SW846 8260B	CW	12/22/2014
1,2-Dibromoethane(Ethylene Dibromide)	**<20**	ug/Kg	20	SW846 8260B	CW	12/22/2014
1,2-Dichloroethane	**<50**	ug/Kg	50	SW846 8260B	CW	12/22/2014
Ethanol (Ethyl alcohol)	**<2500**	ug/Kg	2500	SW846 8260B	CW	12/22/2014
Ethylbenzene	**980**	ug/Kg	50	SW846 8260B	CW	12/22/2014
Isopropylbenzene	**150**	ug/Kg	50	SW846 8260B	CW	12/22/2014
2-Methylnaphthalene	**680**	ug/Kg	250	SW846 8260B	CW	12/22/2014
MTBE	**<50**	ug/Kg	50	SW846 8260B	CW	12/22/2014
Naphthalene	**990**	ug/Kg	250	SW846 8260B	CW	12/22/2014
n-Propylbenzene	**470**	ug/Kg	50	SW846 8260B	CW	12/22/2014
Toluene	**680**	ug/Kg	50	SW846 8260B	CW	12/22/2014
1,2,3-Trimethylbenzene	**250**	ug/Kg	50	SW846 8260B	CW	12/22/2014
1,2,4-Trimethylbenzene	**440**	ug/Kg	50	SW846 8260B	CW	12/22/2014
1,3,5-Trimethylbenzene	**140**	ug/Kg	50	SW846 8260B	CW	12/22/2014
Xylenes(total)	**1300**	ug/Kg	150	SW846 8260B	CW	12/22/2014
EPA Method 5035 Methanol Preserv	**Extracted**			EPA 5035	PME	12/18/2014
%Solid	**82**	%		ASTM D2216	HD	12/22/2014

All soil results based on dry weight.

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

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Date: 12/30/14

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Berkley, MI 48072

Sample Date: 12/18/2014
Submit Date: 12/22/2014
Report Date: 12/30/2014

BA Report Number: **32862**
BA Sample ID: **CA09193**

Project Name: **General Consulting**
Project Number: **01-4982-0**
Sample ID: **SB-4 @ 9-10'**

Parameters	Results	Units	DL	Method Reference	Analyst	Analysis Date
GRO Analysis						
GRO (Methanol Preserved)	**110000**	ug/Kg	8000	SW846 8015	BY	12/29/2014
Volatile Analysis(Methanol Preserved)						
Benzene	**<50**	ug/Kg	50	SW846 8260B	CW	12/22/2014
1,2-Dibromoethane(Ethylene Dibromide)	**<20**	ug/Kg	20	SW846 8260B	CW	12/22/2014
1,2-Dichloroethane	**<50**	ug/Kg	50	SW846 8260B	CW	12/22/2014
Ethanol (Ethyl alcohol)	**<2500**	ug/Kg	2500	SW846 8260B	CW	12/22/2014
Ethylbenzene	**480**	ug/Kg	50	SW846 8260B	CW	12/22/2014
Isopropylbenzene	**250**	ug/Kg	50	SW846 8260B	CW	12/22/2014
2-Methylnaphthalene	**4500**	ug/Kg	250	SW846 8260B	CW	12/22/2014
MTBE	**<50**	ug/Kg	50	SW846 8260B	CW	12/22/2014
Naphthalene	**620**	ug/Kg	250	SW846 8260B	CW	12/22/2014
n-Propylbenzene	**1300**	ug/Kg	50	SW846 8260B	CW	12/22/2014
Toluene	**<50**	ug/Kg	50	SW846 8260B	CW	12/22/2014
1,2,3-Trimethylbenzene	**1100**	ug/Kg	50	SW846 8260B	CW	12/22/2014
1,2,4-Trimethylbenzene	**6500**	ug/Kg	50	SW846 8260B	CW	12/22/2014
1,3,5-Trimethylbenzene	**3000**	ug/Kg	50	SW846 8260B	CW	12/22/2014
Xylenes(total)	**1300**	ug/Kg	150	SW846 8260B	CW	12/22/2014
EPA Method 5035 Methanol Preserv	**Extracted**			EPA 5035	PME	12/18/2014
%Solid	**91**	%		ASTM D2216	HD	12/22/2014

All soil results based on dry weight.

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

Released by:

Date: 12/30/14

Elevated GRO dl due to sample matrix.

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Berkley, MI 48072

Sample Date: 12/18/2014
Submit Date: 12/22/2014
Report Date: 12/30/2014

BA Report Number: **32862**
BA Sample ID: **CA09194**

Project Name: **General Consulting**
Project Number: **01-4982-0**
Sample ID: **SB-4 @ 10-11'**

Parameters	Results	Units	DL	Method Reference	Analyst	Analysis Date
GRO Analysis						
GRO (Methanol Preserved)	**73000**	ug/Kg	4000	SW846 8015	BY	12/29/2014
Volatile Analysis(Methanol Preserved)						
Benzene	**790**	ug/Kg	50	SW846 8260B	CW	12/22/2014
1,2-Dibromoethane(Ethylene Dibromide)	**<20**	ug/Kg	20	SW846 8260B	CW	12/22/2014
1,2-Dichloroethane	**<50**	ug/Kg	50	SW846 8260B	CW	12/22/2014
Ethanol (Ethyl alcohol)	**<2500**	ug/Kg	2500	SW846 8260B	CW	12/22/2014
Ethylbenzene	**4300**	ug/Kg	50	SW846 8260B	CW	12/22/2014
Isopropylbenzene	**370**	ug/Kg	50	SW846 8260B	CW	12/22/2014
2-Methylnaphthalene	**2100**	ug/Kg	250	SW846 8260B	CW	12/22/2014
MTBE	**<50**	ug/Kg	50	SW846 8260B	CW	12/22/2014
Naphthalene	**2900**	ug/Kg	250	SW846 8260B	CW	12/22/2014
n-Propylbenzene	**1300**	ug/Kg	50	SW846 8260B	CW	12/22/2014
Toluene	**450**	ug/Kg	50	SW846 8260B	CW	12/22/2014
1,2,3-Trimethylbenzene	**2700**	ug/Kg	50	SW846 8260B	CW	12/22/2014
1,2,4-Trimethylbenzene	**8900**	ug/Kg	50	SW846 8260B	CW	12/22/2014
1,3,5-Trimethylbenzene	**2300**	ug/Kg	50	SW846 8260B	CW	12/22/2014
Xylenes(total)	**17000**	ug/Kg	150	SW846 8260B	CW	12/22/2014
EPA Method 5035 Methanol Preserv	**Extracted**			EPA 5035	PME	12/18/2014
%Solid	**92**	%		ASTM D2216	HD	12/22/2014

All soil results based on dry weight.

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

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Date: 12/30/14

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Berkley, MI 48072

Sample Date: 12/19/2014
Submit Date: 12/22/2014
Report Date: 12/30/2014

BA Report Number: **32862**
BA Sample ID: **CA09196**

Project Name: **General Consulting**
Project Number: **01-4982-0**
Sample ID: **SB-5 @ 8-9'**

Parameters	Results	Units	DL	Method Reference	Analyst	Analysis Date
GRO Analysis						
GRO (Methanol Preserved)	**5600**	ug/Kg	4000	SW846 8015	BY	12/29/2014
Volatile Analysis(Methanol Preserved)						
Benzene	**<50**	ug/Kg	50	SW846 8260B	CW	12/23/2014
1,2-Dibromoethane(Ethylene Dibromide)	**<20**	ug/Kg	20	SW846 8260B	CW	12/23/2014
1,2-Dichloroethane	**<50**	ug/Kg	50	SW846 8260B	CW	12/23/2014
Ethanol (Ethyl alcohol)	**<2500**	ug/Kg	2500	SW846 8260B	CW	12/23/2014
Ethylbenzene	**<50**	ug/Kg	50	SW846 8260B	CW	12/23/2014
Isopropylbenzene	**<50**	ug/Kg	50	SW846 8260B	CW	12/23/2014
2-Methylnaphthalene	**<250**	ug/Kg	250	SW846 8260B	CW	12/23/2014
MTBE	**<50**	ug/Kg	50	SW846 8260B	CW	12/23/2014
Naphthalene	**<250**	ug/Kg	250	SW846 8260B	CW	12/23/2014
n-Propylbenzene	**<50**	ug/Kg	50	SW846 8260B	CW	12/23/2014
Toluene	**<50**	ug/Kg	50	SW846 8260B	CW	12/23/2014
1,2,3-Trimethylbenzene	**<50**	ug/Kg	50	SW846 8260B	CW	12/23/2014
1,2,4-Trimethylbenzene	**<50**	ug/Kg	50	SW846 8260B	CW	12/23/2014
1,3,5-Trimethylbenzene	**<50**	ug/Kg	50	SW846 8260B	CW	12/23/2014
Xylenes(total)	**<150**	ug/Kg	150	SW846 8260B	CW	12/23/2014
EPA Method 5035 Methanol Preserv	**Extracted**			EPA 5035	PME	12/19/2014
%Solid	**88**	%		ASTM D2216	HD	12/22/2014

All soil results based on dry weight.

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

Released by:

Date: 12/30/14

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Berkley, MI 48072

Sample Date: 12/19/2014
Submit Date: 12/22/2014
Report Date: 12/30/2014

BA Report Number: **32862**
BA Sample ID: **CA09197**

Project Name: **General Consulting**
Project Number: **01-4982-0**
Sample ID: **SB-5 @ 9-10'**

Parameters	Results	Units	DL	Method Reference	Analyst	Analysis Date
GRO Analysis						
GRO (Methanol Preserved)	**1600000**	ug/Kg	80000	SW846 8015	BY	12/29/2014
Volatile Analysis(Methanol Preserved)						
Benzene	**<500**	ug/Kg	500	SW846 8260B	CW	12/23/2014
1,2-Dibromoethane(Ethylene Dibromide)	**<200**	ug/Kg	200	SW846 8260B	CW	12/23/2014
1,2-Dichloroethane	**<500**	ug/Kg	500	SW846 8260B	CW	12/23/2014
Ethanol (Ethyl alcohol)	**<25000**	ug/Kg	25000	SW846 8260B	CW	12/23/2014
Ethylbenzene	**38000**	ug/Kg	500	SW846 8260B	CW	12/23/2014
Isopropylbenzene	**7400**	ug/Kg	500	SW846 8260B	CW	12/23/2014
2-Methylnaphthalene	**20000**	ug/Kg	2500	SW846 8260B	CW	12/23/2014
MTBE	**<500**	ug/Kg	500	SW846 8260B	CW	12/23/2014
Naphthalene	**19000**	ug/Kg	2500	SW846 8260B	CW	12/23/2014
n-Propylbenzene	**26000**	ug/Kg	500	SW846 8260B	CW	12/23/2014
Toluene	**26000**	ug/Kg	500	SW846 8260B	CW	12/23/2014
1,2,3-Trimethylbenzene	**43000**	ug/Kg	500	SW846 8260B	CW	12/23/2014
1,2,4-Trimethylbenzene	**160000**	ug/Kg	500	SW846 8260B	CW	12/23/2014
1,3,5-Trimethylbenzene	**48000**	ug/Kg	500	SW846 8260B	CW	12/23/2014
Xylenes(total)	**180000**	ug/Kg	1500	SW846 8260B	CW	12/23/2014
EPA Method 5035 Methanol Preserv	**Extracted**			EPA 5035	PME	12/19/2014
%Solid	**88**	%		ASTM D2216	HD	12/22/2014

All soil results based on dry weight.

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

Released by:

Date: 12/30/14

Elevated GRO & volatile dl due to sample matrix.

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To: PM Environmental, Inc.
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Berkley, MI 48072

Sample Date: 12/19/2014
Submit Date: 12/22/2014
Report Date: 12/30/2014

BA Report Number: **32862**
BA Sample ID: **CA09199**

Project Name: **General Consulting**
Project Number: **01-4982-0**
Sample ID: **SB-6 @ 9-10'**

Parameters	Results	Units	DL	Method Reference	Analyst	Analysis Date
GRO Analysis						
GRO (Methanol Preserved)	**590000**	ug/Kg	32000	SW846 8015	BY	12/29/2014
Volatile Analysis(Methanol Preserved)						
Benzene	**2300**	ug/Kg	500	SW846 8260B	CW	12/23/2014
1,2-Dibromoethane(Ethylene Dibromide)	**<200**	ug/Kg	200	SW846 8260B	CW	12/23/2014
1,2-Dichloroethane	**<500**	ug/Kg	500	SW846 8260B	CW	12/23/2014
Ethanol (Ethyl alcohol)	**<25000**	ug/Kg	25000	SW846 8260B	CW	12/23/2014
Ethylbenzene	**18000**	ug/Kg	500	SW846 8260B	CW	12/23/2014
Isopropylbenzene	**2600**	ug/Kg	500	SW846 8260B	CW	12/23/2014
2-Methylnaphthalene	**10000**	ug/Kg	2500	SW846 8260B	CW	12/23/2014
MTBE	**<500**	ug/Kg	500	SW846 8260B	CW	12/23/2014
Naphthalene	**11000**	ug/Kg	2500	SW846 8260B	CW	12/23/2014
n-Propylbenzene	**9500**	ug/Kg	500	SW846 8260B	CW	12/23/2014
Toluene	**25000**	ug/Kg	500	SW846 8260B	CW	12/23/2014
1,2,3-Trimethylbenzene	**19000**	ug/Kg	500	SW846 8260B	CW	12/23/2014
1,2,4-Trimethylbenzene	**66000**	ug/Kg	500	SW846 8260B	CW	12/23/2014
1,3,5-Trimethylbenzene	**19000**	ug/Kg	500	SW846 8260B	CW	12/23/2014
Xylenes(total)	**100000**	ug/Kg	1500	SW846 8260B	CW	12/23/2014
EPA Method 5035 Methanol Preserv	**Extracted**			EPA 5035	PME	12/19/2014
%Solid	**95**	%		ASTM D2216	HD	12/22/2014

All soil results based on dry weight.

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

Released by:

Date: 12/30/14

Elevated GRO & volatile dl due to sample matrix.

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Berkley, MI 48072

Sample Date: 12/19/2014
Submit Date: 12/22/2014
Report Date: 12/30/2014

BA Report Number: **32862**
BA Sample ID: **CA09200**

Project Name: **General Consulting**
Project Number: **01-4982-0**
Sample ID: **SB-6 @ 12-13'**

Parameters	Results	Units	DL	Method Reference	Analyst	Analysis Date
GRO Analysis						
GRO (Methanol Preserved)	**2100000**	ug/Kg	80000	SW846 8015	BY	12/29/2014
Volatile Analysis(Methanol Preserved)						
Benzene	**22000**	ug/Kg	2500	SW846 8260B	CW	12/23/2014
1,2-Dibromoethane(Ethylene Dibromide)	**<1000**	ug/Kg	1000	SW846 8260B	CW	12/23/2014
1,2-Dichloroethane	**<2500**	ug/Kg	2500	SW846 8260B	CW	12/23/2014
Ethanol (Ethyl alcohol)	**<125000**	ug/Kg	125000	SW846 8260B	CW	12/23/2014
Ethylbenzene	**48000**	ug/Kg	2500	SW846 8260B	CW	12/23/2014
Isopropylbenzene	**5600**	ug/Kg	2500	SW846 8260B	CW	12/23/2014
2-Methylnaphthalene	**18000**	ug/Kg	12500	SW846 8260B	CW	12/23/2014
MTBE	**<2500**	ug/Kg	2500	SW846 8260B	CW	12/23/2014
Naphthalene	**20000**	ug/Kg	12500	SW846 8260B	CW	12/23/2014
n-Propylbenzene	**19000**	ug/Kg	2500	SW846 8260B	CW	12/23/2014
Toluene	**63000**	ug/Kg	2500	SW846 8260B	CW	12/23/2014
1,2,3-Trimethylbenzene	**37000**	ug/Kg	2500	SW846 8260B	CW	12/23/2014
1,2,4-Trimethylbenzene	**130000**	ug/Kg	2500	SW846 8260B	CW	12/23/2014
1,3,5-Trimethylbenzene	**37000**	ug/Kg	2500	SW846 8260B	CW	12/23/2014
Xylenes(total)	**240000**	ug/Kg	7500	SW846 8260B	CW	12/23/2014
EPA Method 5035 Methanol Preserv	**Extracted**			EPA 5035	PME	12/19/2014
%Solid	**84**	%		ASTM D2216	HD	12/22/2014

All soil results based on dry weight.

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

Released by:

Date: 12/30/14

Elevated GRO & volatile dl due to sample matrix.

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Berkley, MI 48072

Sample Date: 12/19/2014
Submit Date: 12/22/2014
Report Date: 12/26/2014

BA Report Number: **32862**
BA Sample ID: **CA09201**

Project Name: **General Consulting**
Project Number: **01-4982-0**
Sample ID: **SB-6 @ 19-20'**

Parameters	Results	Units	DL	Method Reference	Analyst	Analysis Date
Volatile Analysis(Methanol Preserved)						
Benzene	**<50**	ug/Kg	50	SW846 8260B	CW	12/23/2014
1,2-Dibromoethane(Ethylene Dibromide)	**<20**	ug/Kg	20	SW846 8260B	CW	12/23/2014
1,2-Dichloroethane	**<50**	ug/Kg	50	SW846 8260B	CW	12/23/2014
Ethanol (Ethyl alcohol)	**<2500**	ug/Kg	2500	SW846 8260B	CW	12/23/2014
Ethylbenzene	**<50**	ug/Kg	50	SW846 8260B	CW	12/23/2014
Isopropylbenzene	**<50**	ug/Kg	50	SW846 8260B	CW	12/23/2014
2-Methylnaphthalene	**<250**	ug/Kg	250	SW846 8260B	CW	12/23/2014
MTBE	**<50**	ug/Kg	50	SW846 8260B	CW	12/23/2014
Naphthalene	**<250**	ug/Kg	250	SW846 8260B	CW	12/23/2014
n-Propylbenzene	**<50**	ug/Kg	50	SW846 8260B	CW	12/23/2014
Toluene	**<50**	ug/Kg	50	SW846 8260B	CW	12/23/2014
1,2,3-Trimethylbenzene	**<50**	ug/Kg	50	SW846 8260B	CW	12/23/2014
1,2,4-Trimethylbenzene	**59**	ug/Kg	50	SW846 8260B	CW	12/23/2014
1,3,5-Trimethylbenzene	**<50**	ug/Kg	50	SW846 8260B	CW	12/23/2014
Xylenes(total)	**<150**	ug/Kg	150	SW846 8260B	CW	12/23/2014
EPA Method 5035 Methanol Preserv	**Extracted**			EPA 5035	PME	12/19/2014
%Solid	**87**	%		ASTM D2216	HD	12/22/2014

All soil results based on dry weight.

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

Released by:

Date: 12/30/14

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To: PM Environmental, Inc.
4080 W. 11 Mile Rd.
Berkley, MI 48072

Sample Date: 12/19/2014
Submit Date: 12/22/2014
Report Date: 12/30/2014

BA Report Number: **32862**
BA Sample ID: **CA09202**

Project Name: **General Consulting**
Project Number: **01-4982-0**
Sample ID: **SB-7 @ 10-11'**

Parameters	Results	Units	DL	Method Reference	Analyst	Analysis Date
GRO Analysis						
GRO (Methanol Preserved)	**580000**	ug/Kg	40000	SW846 8015	BY	12/29/2014
Volatile Analysis(Methanol Preserved)						
Benzene	**2400**	ug/Kg	1000	SW846 8260B	CW	12/23/2014
1,2-Dibromoethane(Ethylene Dibromide)	**<400**	ug/Kg	400	SW846 8260B	CW	12/23/2014
1,2-Dichloroethane	**<1000**	ug/Kg	1000	SW846 8260B	CW	12/23/2014
Ethanol (Ethyl alcohol)	**<50000**	ug/Kg	50000	SW846 8260B	CW	12/23/2014
Ethylbenzene	**19000**	ug/Kg	1000	SW846 8260B	CW	12/23/2014
Isopropylbenzene	**2700**	ug/Kg	1000	SW846 8260B	CW	12/23/2014
2-Methylnaphthalene	**9500**	ug/Kg	5000	SW846 8260B	CW	12/23/2014
MTBE	**<1000**	ug/Kg	1000	SW846 8260B	CW	12/23/2014
Naphthalene	**11000**	ug/Kg	5000	SW846 8260B	CW	12/23/2014
n-Propylbenzene	**9300**	ug/Kg	1000	SW846 8260B	CW	12/23/2014
Toluene	**24000**	ug/Kg	1000	SW846 8260B	CW	12/23/2014
1,2,3-Trimethylbenzene	**19000**	ug/Kg	1000	SW846 8260B	CW	12/23/2014
1,2,4-Trimethylbenzene	**67000**	ug/Kg	1000	SW846 8260B	CW	12/23/2014
1,3,5-Trimethylbenzene	**19000**	ug/Kg	1000	SW846 8260B	CW	12/23/2014
Xylenes(total)	**95000**	ug/Kg	3000	SW846 8260B	CW	12/23/2014
EPA Method 5035 Methanol Preserv	**Extracted**			EPA 5035	PME	12/19/2014
%Solid	**91**	%		ASTM D2216	HD	12/22/2014

All soil results based on dry weight.

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

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Date: 12/30/14

Elevated GRO & volatile dl due to sample matrix.

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Sample Date: 12/19/2014
Submit Date: 12/22/2014
Report Date: 12/30/2014

To: PM Environmental, Inc.
4080 W. 11 Mile Rd.
Berkley, MI 48072

BA Report Number: **32862**
BA Sample ID: **CA09203**

Project Name: **General Consulting**
Project Number: **01-4982-0**
Sample ID: **SB-7 @ 11-12'**

Parameters	Results	Units	DL	Method Reference	Analyst	Analysis Date
GRO Analysis						
GRO (Methanol Preserved)	**620000**	ug/Kg	40000	SW846 8015	BY	12/29/2014
Volatile Analysis(Methanol Preserved)						
Benzene	**11000**	ug/Kg	1000	SW846 8260B	CW	12/23/2014
1,2-Dibromoethane(Ethylene Dibromide)	**<400**	ug/Kg	400	SW846 8260B	CW	12/23/2014
1,2-Dichloroethane	**<1000**	ug/Kg	1000	SW846 8260B	CW	12/23/2014
Ethanol (Ethyl alcohol)	**<50000**	ug/Kg	50000	SW846 8260B	CW	12/23/2014
Ethylbenzene	**22000**	ug/Kg	1000	SW846 8260B	CW	12/23/2014
Isopropylbenzene	**2400**	ug/Kg	1000	SW846 8260B	CW	12/23/2014
2-Methylnaphthalene	**6000**	ug/Kg	5000	SW846 8260B	CW	12/23/2014
MTBE	**<1000**	ug/Kg	1000	SW846 8260B	CW	12/23/2014
Naphthalene	**7400**	ug/Kg	5000	SW846 8260B	CW	12/23/2014
n-Propylbenzene	**7900**	ug/Kg	1000	SW846 8260B	CW	12/23/2014
Toluene	**35000**	ug/Kg	1000	SW846 8260B	CW	12/23/2014
1,2,3-Trimethylbenzene	**14000**	ug/Kg	1000	SW846 8260B	CW	12/23/2014
1,2,4-Trimethylbenzene	**50000**	ug/Kg	1000	SW846 8260B	CW	12/23/2014
1,3,5-Trimethylbenzene	**15000**	ug/Kg	1000	SW846 8260B	CW	12/23/2014
Xylenes(total)	**110000**	ug/Kg	3000	SW846 8260B	CW	12/23/2014
EPA Method 5035 Methanol Preserv	**Extracted**			EPA 5035	PME	12/19/2014
%Solid	**89**	%		ASTM D2216	HD	12/22/2014

All soil results based on dry weight.

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

Released by:

Date: 12/30/14

Elevated GRO & volatile dl due to sample matrix.

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To: PM Environmental, Inc.
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Berkley, MI 48072

Sample Date: 12/19/2014
Submit Date: 12/22/2014
Report Date: 12/26/2014

BA Report Number: **32862**
BA Sample ID: **CA09204**

Project Name: **General Consulting**
Project Number: **01-4982-0**
Sample ID: **SB-7 @ 19-20'**

Parameters	Results	Units	DL	Method Reference	Analyst	Analysis Date
Volatile Analysis(Methanol Preserved)						
Benzene	**<50**	ug/Kg	50	SW846 8260B	CW	12/23/2014
1,2-Dibromoethane(Ethylene Dibromide)	**<20**	ug/Kg	20	SW846 8260B	CW	12/23/2014
1,2-Dichloroethane	**<50**	ug/Kg	50	SW846 8260B	CW	12/23/2014
Ethanol (Ethyl alcohol)	**<2500**	ug/Kg	2500	SW846 8260B	CW	12/23/2014
Ethylbenzene	**<50**	ug/Kg	50	SW846 8260B	CW	12/23/2014
Isopropylbenzene	**<50**	ug/Kg	50	SW846 8260B	CW	12/23/2014
2-Methylnaphthalene	**<250**	ug/Kg	250	SW846 8260B	CW	12/23/2014
MTBE	**<50**	ug/Kg	50	SW846 8260B	CW	12/23/2014
Naphthalene	**<250**	ug/Kg	250	SW846 8260B	CW	12/23/2014
n-Propylbenzene	**<50**	ug/Kg	50	SW846 8260B	CW	12/23/2014
Toluene	**<50**	ug/Kg	50	SW846 8260B	CW	12/23/2014
1,2,3-Trimethylbenzene	**<50**	ug/Kg	50	SW846 8260B	CW	12/23/2014
1,2,4-Trimethylbenzene	**<50**	ug/Kg	50	SW846 8260B	CW	12/23/2014
1,3,5-Trimethylbenzene	**<50**	ug/Kg	50	SW846 8260B	CW	12/23/2014
Xylenes(total)	**<150**	ug/Kg	150	SW846 8260B	CW	12/23/2014
EPA Method 5035 Methanol Preserv	**Extracted**			EPA 5035	PME	12/19/2014
%Solid	**88**	%		ASTM D2216	HD	12/22/2014

All soil results based on dry weight.

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

Released by:

Date: 12/30/14

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Sample Date: 12/19/2014
Submit Date: 12/22/2014
Report Date: 12/30/2014

To: PM Environmental, Inc.
4080 W. 11 Mile Rd.
Berkley, MI 48072

BA Report Number: **32862**
BA Sample ID: **CA09205**

Project Name: **General Consulting**
Project Number: **01-4982-0**
Sample ID: **SB-8 @ 9-10'**

Parameters	Results	Units	DL	Method Reference	Analyst	Analysis Date
GRO Analysis						
GRO (Methanol Preserved)	**1700000**	ug/Kg	80000	SW846 8015	BY	12/29/2014
Volatile Analysis(Methanol Preserved)						
Benzene	**4400**	ug/Kg	1000	SW846 8260B	CW	12/23/2014
1,2-Dibromoethane(Ethylene Dibromide)	**<400**	ug/Kg	400	SW846 8260B	CW	12/23/2014
1,2-Dichloroethane	**<1000**	ug/Kg	1000	SW846 8260B	CW	12/23/2014
Ethanol (Ethyl alcohol)	**<50000**	ug/Kg	50000	SW846 8260B	CW	12/23/2014
Ethylbenzene	**61000**	ug/Kg	1000	SW846 8260B	CW	12/23/2014
Isopropylbenzene	**8200**	ug/Kg	1000	SW846 8260B	CW	12/23/2014
2-Methylnaphthalene	**22000**	ug/Kg	5000	SW846 8260B	CW	12/23/2014
MTBE	**<1000**	ug/Kg	1000	SW846 8260B	CW	12/23/2014
Naphthalene	**26000**	ug/Kg	5000	SW846 8260B	CW	12/23/2014
n-Propylbenzene	**28000**	ug/Kg	1000	SW846 8260B	CW	12/23/2014
Toluene	**79000**	ug/Kg	1000	SW846 8260B	CW	12/23/2014
1,2,3-Trimethylbenzene	**53000**	ug/Kg	1000	SW846 8260B	CW	12/23/2014
1,2,4-Trimethylbenzene	**190000**	ug/Kg	1000	SW846 8260B	CW	12/23/2014
1,3,5-Trimethylbenzene	**54000**	ug/Kg	1000	SW846 8260B	CW	12/23/2014
Xylenes(total)	**320000**	ug/Kg	3000	SW846 8260B	CW	12/23/2014
EPA Method 5035 Methanol Preserv	**Extracted**			EPA 5035	PME	12/19/2014
%Solid	**96**	%		ASTM D2216	HD	12/22/2014

All soil results based on dry weight.

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

Released by:

Date: 12/30/14

Elevated GRO & volatile dl due to sample matrix.

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To: PM Environmental, Inc.
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Berkley, MI 48072

Sample Date: 12/19/2014
Submit Date: 12/22/2014
Report Date: 12/30/2014

BA Report Number: **32862**
BA Sample ID: **CA09206**

Project Name: **General Consulting**
Project Number: **01-4982-0**
Sample ID: **SB-8 @ 10-11'**

Parameters	Results	Units	DL	Method Reference	Analyst	Analysis Date
GRO Analysis						
GRO (Methanol Preserved)	**35000**	ug/Kg	4000	SW846 8015	BY	12/29/2014
Volatile Analysis(Methanol Preserved)						
Benzene	**1800**	ug/Kg	50	SW846 8260B	CW	12/23/2014
1,2-Dibromoethane(Ethylene Dibromide)	**<20**	ug/Kg	20	SW846 8260B	CW	12/23/2014
1,2-Dichloroethane	**<50**	ug/Kg	50	SW846 8260B	CW	12/23/2014
Ethanol (Ethyl alcohol)	**<2500**	ug/Kg	2500	SW846 8260B	CW	12/23/2014
Ethylbenzene	**1400**	ug/Kg	50	SW846 8260B	CW	12/23/2014
Isopropylbenzene	**130**	ug/Kg	50	SW846 8260B	CW	12/23/2014
2-Methylnaphthalene	**330**	ug/Kg	250	SW846 8260B	CW	12/23/2014
MTBE	**<50**	ug/Kg	50	SW846 8260B	CW	12/23/2014
Naphthalene	**490**	ug/Kg	250	SW846 8260B	CW	12/23/2014
n-Propylbenzene	**410**	ug/Kg	50	SW846 8260B	CW	12/23/2014
Toluene	**3400**	ug/Kg	50	SW846 8260B	CW	12/23/2014
1,2,3-Trimethylbenzene	**820**	ug/Kg	50	SW846 8260B	CW	12/23/2014
1,2,4-Trimethylbenzene	**2800**	ug/Kg	50	SW846 8260B	CW	12/23/2014
1,3,5-Trimethylbenzene	**790**	ug/Kg	50	SW846 8260B	CW	12/23/2014
Xylenes(total)	**6800**	ug/Kg	150	SW846 8260B	CW	12/23/2014
EPA Method 5035 Methanol Preserv	**Extracted**			EPA 5035	PME	12/19/2014
%Solid	**89**	%		ASTM D2216	HD	12/22/2014

All soil results based on dry weight.

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

Released by:

Date: 12/30/14

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To: PM Environmental, Inc.
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Berkley, MI 48072

Sample Date: 12/19/2014
Submit Date: 12/22/2014
Report Date: 12/26/2014

BA Report Number: **32862**
BA Sample ID: **CA09207**

Project Name: **General Consulting**
Project Number: **01-4982-0**
Sample ID: **SB-8 @ 19-20'**

Parameters	Results	Units	DL	Method Reference	Analyst	Analysis Date
Volatile Analysis(Methanol Preserved)						
Benzene	**<50**	ug/Kg	50	SW846 8260B	CW	12/23/2014
1,2-Dibromoethane(Ethylene Dibromide)	**<20**	ug/Kg	20	SW846 8260B	CW	12/23/2014
1,2-Dichloroethane	**<50**	ug/Kg	50	SW846 8260B	CW	12/23/2014
Ethanol (Ethyl alcohol)	**<2500**	ug/Kg	2500	SW846 8260B	CW	12/23/2014
Ethylbenzene	**200**	ug/Kg	50	SW846 8260B	CW	12/23/2014
Isopropylbenzene	**<50**	ug/Kg	50	SW846 8260B	CW	12/23/2014
2-Methylnaphthalene	**<250**	ug/Kg	250	SW846 8260B	CW	12/23/2014
MTBE	**<50**	ug/Kg	50	SW846 8260B	CW	12/23/2014
Naphthalene	**<250**	ug/Kg	250	SW846 8260B	CW	12/23/2014
n-Propylbenzene	**94**	ug/Kg	50	SW846 8260B	CW	12/23/2014
Toluene	**280**	ug/Kg	50	SW846 8260B	CW	12/23/2014
1,2,3-Trimethylbenzene	**170**	ug/Kg	50	SW846 8260B	CW	12/23/2014
1,2,4-Trimethylbenzene	**590**	ug/Kg	50	SW846 8260B	CW	12/23/2014
1,3,5-Trimethylbenzene	**150**	ug/Kg	50	SW846 8260B	CW	12/23/2014
Xylenes(total)	**840**	ug/Kg	150	SW846 8260B	CW	12/23/2014
EPA Method 5035 Methanol Preserv	**Extracted**			EPA 5035	PME	12/19/2014
%Solid	**87**	%		ASTM D2216	HD	12/22/2014

All soil results based on dry weight.

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

Released by:

Date: 12/30/14

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Berkley, MI 48072

Sample Date: 12/18/2014
Submit Date: 12/22/2014
Report Date: 12/26/2014

BA Report Number: **32862**
BA Sample ID: **CA09208**

Project Name: **General Consulting**
Project Number: **01-4982-0**
Sample ID: **A-1**

Parameters	Results	Units	DL	Method Reference	Analyst	Analysis Date
Volatile Analysis(Methanol Preserved)						
Benzene	**<50**	ug/Kg	50	SW846 8260B	CW	12/23/2014
1,2-Dibromoethane(Ethylene Dibromide)	**<20**	ug/Kg	20	SW846 8260B	CW	12/23/2014
1,2-Dichloroethane	**<50**	ug/Kg	50	SW846 8260B	CW	12/23/2014
Ethanol (Ethyl alcohol)	**<2500**	ug/Kg	2500	SW846 8260B	CW	12/23/2014
Ethylbenzene	**<50**	ug/Kg	50	SW846 8260B	CW	12/23/2014
Isopropylbenzene	**<50**	ug/Kg	50	SW846 8260B	CW	12/23/2014
2-Methylnaphthalene	**<250**	ug/Kg	250	SW846 8260B	CW	12/23/2014
MTBE	**<50**	ug/Kg	50	SW846 8260B	CW	12/23/2014
Naphthalene	**<250**	ug/Kg	250	SW846 8260B	CW	12/23/2014
n-Propylbenzene	**<50**	ug/Kg	50	SW846 8260B	CW	12/23/2014
Toluene	**<50**	ug/Kg	50	SW846 8260B	CW	12/23/2014
1,2,3-Trimethylbenzene	**<50**	ug/Kg	50	SW846 8260B	CW	12/23/2014
1,2,4-Trimethylbenzene	**<50**	ug/Kg	50	SW846 8260B	CW	12/23/2014
1,3,5-Trimethylbenzene	**<50**	ug/Kg	50	SW846 8260B	CW	12/23/2014
Xylenes(total)	**<150**	ug/Kg	150	SW846 8260B	CW	12/23/2014

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

Released by:

Date: 12/30/14

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Sample Date: 12/18/2014
Submit Date: 12/22/2014
Report Date: 12/30/2014

To: PM Environmental, Inc.
4080 W. 11 Mile Rd.
Berkley, MI 48072

BA Report Number: **32862**
BA Sample ID: **CA09209**

Project Name: **General Consulting**
Project Number: **01-4982-0**
Sample ID: **A-2**

Parameters	Results	Units	DL	Method Reference	Analyst	Analysis Date
GRO Analysis						
GRO (Methanol Preserved)	**130000**	ug/Kg	8000	SW846 8015	BY	12/29/2014
Volatile Analysis(Methanol Preserved)						
Benzene	**<50**	ug/Kg	50	SW846 8260B	CW	12/23/2014
1,2-Dibromoethane(Ethylene Dibromide)	**<20**	ug/Kg	20	SW846 8260B	CW	12/23/2014
1,2-Dichloroethane	**<50**	ug/Kg	50	SW846 8260B	CW	12/23/2014
Ethanol (Ethyl alcohol)	**<2500**	ug/Kg	2500	SW846 8260B	CW	12/23/2014
Ethylbenzene	**630**	ug/Kg	50	SW846 8260B	CW	12/23/2014
Isopropylbenzene	**310**	ug/Kg	50	SW846 8260B	CW	12/23/2014
2-Methylnaphthalene	**4300**	ug/Kg	250	SW846 8260B	CW	12/23/2014
MTBE	**<50**	ug/Kg	50	SW846 8260B	CW	12/23/2014
Naphthalene	**530**	ug/Kg	250	SW846 8260B	CW	12/23/2014
n-Propylbenzene	**1500**	ug/Kg	50	SW846 8260B	CW	12/23/2014
Toluene	**<50**	ug/Kg	50	SW846 8260B	CW	12/23/2014
1,2,3-Trimethylbenzene	**1100**	ug/Kg	50	SW846 8260B	CW	12/23/2014
1,2,4-Trimethylbenzene	**7000**	ug/Kg	50	SW846 8260B	CW	12/23/2014
1,3,5-Trimethylbenzene	**3400**	ug/Kg	50	SW846 8260B	CW	12/23/2014
Xylenes(total)	**1500**	ug/Kg	150	SW846 8260B	CW	12/23/2014
EPA Method 5035 Methanol Preserv	**Extracted**			EPA 5035	PME	12/18/2014
%Solid	**95**	%		ASTM D2216	HD	12/22/2014

All soil results based on dry weight.

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

Released by:

Date: 12/30/14

Elevated GRO dl due to sample matrix.

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Berkley, MI 48072

Sample Date: 12/19/2014
Submit Date: 12/22/2014
Report Date: 12/29/2014

BA Report Number: **32862**
BA Sample ID: **CA09210**

Project Name: **General Consulting**
Project Number: **01-4982-0**
Sample ID: **A-3**

Parameters	Results	Units	DL	Method Reference	Analyst	Analysis Date
Volatile Analysis(Methanol Preserved)						
Benzene	**<50**	ug/Kg	50	SW846 8260B	CW	12/26/2014
1,2-Dibromoethane(Ethylene Dibromide)	**<20**	ug/Kg	20	SW846 8260B	CW	12/26/2014
1,2-Dichloroethane	**<50**	ug/Kg	50	SW846 8260B	CW	12/26/2014
Ethanol (Ethyl alcohol)	**<2500**	ug/Kg	2500	SW846 8260B	CW	12/26/2014
Ethylbenzene	**<50**	ug/Kg	50	SW846 8260B	CW	12/26/2014
Isopropylbenzene	**<50**	ug/Kg	50	SW846 8260B	CW	12/26/2014
2-Methylnaphthalene	**<250**	ug/Kg	250	SW846 8260B	CW	12/26/2014
MTBE	**<50**	ug/Kg	50	SW846 8260B	CW	12/26/2014
Naphthalene	**<250**	ug/Kg	250	SW846 8260B	CW	12/26/2014
n-Propylbenzene	**<50**	ug/Kg	50	SW846 8260B	CW	12/26/2014
Toluene	**<50**	ug/Kg	50	SW846 8260B	CW	12/26/2014
1,2,3-Trimethylbenzene	**<50**	ug/Kg	50	SW846 8260B	CW	12/26/2014
1,2,4-Trimethylbenzene	**<50**	ug/Kg	50	SW846 8260B	CW	12/26/2014
1,3,5-Trimethylbenzene	**<50**	ug/Kg	50	SW846 8260B	CW	12/26/2014
Xylenes(total)	**<150**	ug/Kg	150	SW846 8260B	CW	12/26/2014
EPA Method 5035 Methanol Preserv	**Extracted**			EPA 5035	PME	12/19/2014
%Solid	**88**	%		ASTM D2216	HD	12/22/2014

All soil results based on dry weight.

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

Released by:

Date: 12/30/14

Brighton Analytical L.L.C.

BRIGHTON ANALYTICAL, LLC

QUALITY ASSURANCE/QUALITY CONTROL

GC/MS

VOLATILE METHOD 8260/624

REPRESENTATIVE BATCH PRECISION AND ACCURACY QUALITY CONTROL SUMMARY

Analysis Date: December 26, 2014 Spike Std. ID: 2370.2 Inst./Detec: HP7890/5975 Vol6

Laboratory ID: CA09364 Matrix: Meoh Soil Analyst: CW

	Matrix Spike - Precision			Matrix spike - Accuracy						
	Spike 1 ug/L	Spike 2 ug/L	Relative Percent Difference +/- 20%	Spk Conc ug/L	%Recovery	% Recovery	Range (%)	Sample background ug/L	LCS +/- 20%	Method Blank
d4-1,2-Dichloroethane	50.8	47.5	6.7	50	102	95	70-130	100%	99%	103%
d8-Toluene	48.0	48.6	1.2	50	96	97	70-130	97%	93%	96%
4-Bromofluorobenzene	41.5	43.1	3.8	50	83	86	70-130	97%	90%	97%
COMPOUNDS										
1,1- Dichloroethene	66.6	67.9	1.9	50	133%	136%	70-130	<1	106%	<1
1,1- Dichloroethane	60.3	59.9	0.7	50	121%	120%	70-130	<1	108%	<1
Chloroform	64.9	63.8	1.7	50	130%	128%	70-130	<1	114%	<1
1,2- Dichloroethane	57.9	55.8	3.7	50	116%	112%	70-130	<1	100%	<1
Carbon tetrachloride	69.7	71.4	2.4	50	139%	143%	70-130	<1	110%	<1
1,2- Dichloropropane	56.0	57.4	2.5	50	112%	115%	70-130	<1	93%	<1
cis- 1,3 -dichloropropene	58.0	60.1	3.6	50	116%	120%	70-130	<1	103%	<1
Trichloroethene	61.1	63.5	3.8	50	122%	127%	70-130	<1	100%	<1
Dibromochloromethane	63.0	65.1	3.3	50	126%	130%	70-130	<1	113%	<1
1,1,2- Trichloroethane	59.9	61.5	2.7	50	120%	123%	70-130	<1	100%	<1
Tetrachloroethane	63.0	64.1	1.8	50	126%	128%	70-130	<1	109%	<1
1,1,2,2 -Tetrachloroethane	57.3	59.2	3.2	50	115%	118%	70-130	<1	101%	<1
Chlorobenzene	50.3	55.3	9.5	50	101%	111%	70-130	<1	87%	<1
1,3- Dichlorobenzene	51.3	56.1	8.9	50	103%	112%	70-130	<1	91%	<1
1,4- Dichlorobenzene	53.1	57.6	8.1	50	106%	115%	70-130	<1	91%	<1
1,2-Dichlorobenzene	52.4	57.1	8.6	50	105%	114%	70-130	<1	90%	<1

ug/L is equivalent to ppb

Comments: High percent recovery due to matrix interference.

GC/MS

VOLATILE METHOD 8260/624

REPRESENTATIVE BATCH PRECISION AND ACCURACY QUALITY CONTROL SUMMARY

Analysis Date: December 23, 2014 Spike Std. ID: 2370.2 Inst./Detec: HP7890/5975 Vol6

Laboratory ID: CA09210 Matrix: Meoh Soil Analyst: CW

	Matrix Spike - Precision			Matrix spike - Accuracy						
	Spike 1 ug/L	Spike 2 ug/L	Relative Percent Difference +/- 20%	Spk Conc ug/L	%Recovery	% Recovery	Range (%)	Sample background ug/L	LCS +/- 20%	Method Blank
d4-1,2-Dichloroethane	54.1	54.4	0.4	50	108	109	70-130	110%	109%	108%
d8-Toluene	49.2	48.4	1.5	50	98	97	70-130	98%	97%	98%
4-Bromofluorobenzene	46.2	46.5	0.6	50	92	93	70-130	98%	92%	97%
COMPOUNDS										
1,1- Dichloroethene	40.7	42.1	3.5	50	81%	84%	70-130	<1	89%	<1
1,1- Dichloroethane	39.9	40.8	2.2	50	80%	82%	70-130	<1	86%	<1
Chloroform	42.2	43.2	2.4	50	84%	86%	70-130	<1	96%	<1
1,2- Dichlororethane	44.9	46.4	3.1	50	90%	93%	70-130	<1	99%	<1
Carbon tetrachloride	44.0	44.5	1.3	50	88%	89%	70-130	<1	98%	<1
1,2- Dichloropropane	38.0	38.2	0.3	50	76%	76%	70-130	<1	81%	<1
cis- 1,3 -dichloropropene	38.2	38.8	1.3	50	76%	78%	70-130	<1	84%	<1
Trichloroethene	41.0	41.9	2.4	50	82%	84%	70-130	<1	95%	<1
Dibromochloromethane	42.6	43.1	1.1	50	85%	86%	70-130	<1	95%	<1
1,1,2- Trichloroehtane	41.3	41.1	0.4	50	83%	82%	70-130	<1	89%	<1
Tetrachloroethane	40.2	40.8	1.5	50	80%	82%	70-130	<1	96%	<1
1,1,2,2 -Tetrachloroethane	41.4	41.4	0.1	50	83%	83%	70-130	<1	80%	<1
Chlorobenzene	39.3	39.7	1.1	50	79%	79%	70-130	<1	83%	<1
1,3- Dichlorobenzene	39.3	40.5	2.8	50	79%	81%	70-130	<1	86%	<1
1,4- Dichlorobenzene	40.8	41.2	0.8	50	82%	82%	70-130	<1	87%	<1
1,2-Dichlorobenzene	40.6	41.1	1.1	50	81%	82%	70-130	<1	86%	<1

ug/L is equivalent to ppb

Comments: _____

GC/MS

VOLATILE METHOD 8260/624

REPRESENTATIVE BATCH PRECISION AND ACCURACY QUALITY CONTROL SUMMARY

Analysis Date: December 22, 2014 Spike Std. ID: 2323.5 Inst./Detec: HP7890/5975 Vol6

Laboratory ID: CA09174 Matrix: SOIL Analyst: RG

	Matrix Spike - Precision			Matrix spike - Accuracy						
	Spike 1 ug/L	Spike 2 ug/L	Relative Percent Difference +/- 20%	Spk Conc ug/L	%Recovery	% Recovery	Range (%)	Sample background ug/L	LCS +/- 20%	Method Blank
d4-1,2-Dichloroethane	51.9	51.8	0.2	50	104	104	70-130	101%	104%	106%
d8-Toluene	49.4	49.2	0.4	50	99	98	70-130	100%	98%	98%
4-Bromofluorobenzene	47.7	47.5	0.4	50	95	95	70-130	100%	98%	99%
COMPOUNDS										
1,1- Dichloroethene	41.6	43.3	4.0	50	83%	87%	70-130	<1	93%	<1
1,1- Dichloroethane	40.0	41.9	4.6	50	80%	84%	70-130	<1	80%	<1
Chloroform	41.1	42.5	3.3	50	82%	85%	70-130	<1	93%	<1
1,2- Dichlororethane	42.2	42.4	0.5	50	84%	85%	70-130	<1	97%	<1
Carbon tetrachloride	43.5	45.7	4.9	50	87%	91%	70-130	<1	103%	<1
1,2- Dichloropropane	39.3	41.0	4.2	50	79%	82%	70-130	<1	86%	<1
cis- 1,3 -dichloropropene	37.6	38.6	2.6	50	75%	77%	70-130	<1	91%	<1
Trichloroethene	43.3	43.8	1.1	50	87%	88%	70-130	<1	93%	<1
Dibromochloromethane	40.1	42.1	4.9	50	80%	84%	70-130	<1	96%	<1
1,1,2- Trichloroehtane	40.1	41.2	2.7	50	80%	82%	70-130	<1	89%	<1
Tetrachloroethane	38.0	40.4	6.1	50	76%	81%	70-130	<1	99%	<1
1,1,2,2 -Tetrachloroethane	37.0	38.6	4.2	50	74%	77%	70-130	<1	86%	<1
Chlorobenzene	39.5	41.0	3.7	50	79%	82%	70-130	<1	91%	<1
1,3- Dichlorobenzene	38.9	40.8	4.8	50	78%	82%	70-130	<1	96%	<1
1,4- Dichlorobenzene	40.3	41.7	3.4	50	81%	83%	70-130	<1	94%	<1
1,2-Dichlorobenzene	40.0	41.5	3.7	50	80%	83%	70-130	<1	94%	<1

ug/L is equivalent to ppb

Comments: _____

REPRESENTATIVE BATCH QUALITY CONTROL

Accuracy & Precision

Analyst: BY

Parameter: GRO

Analysis Date: 12/29/2014

Method Reference: EPA 8015

Matrix: Soil

Inst./Detector : HP-3/FID

SPIKE - ACCURACY					
Laboratory ID CA09191	Spike Conc. (µg/mL)	Background (µg/mL)	% Recovery	Acceptable Range (%)	Method Blank Concentration
2-Bromochlorobenzene (S_2)	30	ND	95 / 91	60 - 130	96%
GRO	110	13	102 / 99	60 - 130	<100 µg/L

SPIKE - PRECISION					
Laboratory ID CA09191	Observed A (µg/mL)	Observed B (µg/mL)	RPD	Acceptable Range	
2-Bromochlorobenzene (S_2)	28.5	27.3	4.3	≤ 20%	
GRO	125.1	122.8	1.9	≤ 20%	

MISCELLANEOUS		
	Standard ID #	
2-Bromochlorobenzene (S_2)	#2287	
GRO	#1935.1	

COMMENTS: Background due to sample matrix.

Brighton Analytical L.L.C.
2105 Pless Drive · Brighton, Michigan 48114 · Phone (810) 229-7575 · Fax (810) 229-8650 · E-mail bai-brighton@sbcglobal.net

December 30, 2014

PM Environmental, Inc.
4080 W. 11 Mile Rd.
Berkley, MI 48072

Subject: Beacon and Bridge #6
01-4982-0

Dear Ms. Santiago :

Thank you for making Brighton Analytical, L.L.C. your laboratory of choice. Attached are the results for the samples submitted on 12/26/2014 for the above mentioned project. NELAP/TNI Accredited Analysis and MDEQ Drinking Water Certified Analysis will be identified in their respective reporting formats. Hard copies can be supplied at your request for a fee of $20.00 per copy.

The invoice for this project will be emailed separately. If you have any questions concerning the data or invoice, please don't hesitate to contact our office. Please reference Brighton Analytical, L.L.C. Project ID 32908 when calling or emailing. We thank you for this opportunity to partner with you on this project and hope to work with you again in the future.

Sincerely,
Brighton Analytical, L.L.C.

DEQ
NELAP ACCREDITED TNI LABORATORY
Certified WBENC Women's Business Enterprise

Brighton Analytical, L.L.C.™
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2105 Pless Drive
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Phone: 810-229-7575
Fax: 810-229-8650

BA PROJECT #: 32908

PAGE 1 OF 1

ABBREVIATIONS FOR MATRIX
S = Solid
L = Liquid
DW = Drinking H_2O
O = Oil
P = Wipe
A = Air (Tedlar Bag)
F = Filter
T = Tube
M = Misc.

PROJECT NAME: Beacon and Bridge #6

PROJECT #: 01-4982-0

PO #: (PLEASE NOTE IF DIFFERENT BILLING ADDRESS)

Sample collected by: Zach McEvoy

REQUESTED TURNAROUND: (circle one)
Rush: 1-3 business days (verify with lab & specify date needed)
1 Day = 2.5X Cost 2 Day = 2X Cost 3 Day = 1.5X Cost
Standard: 5 business days

If RUSH, approved by: _____

Analysis Requested/Method

Brighton ID #	Sample Description	Sample Coll. Date	Sample Coll. Time	VOA'S (PRES) Y N N/A	HDPE UNPRESERVED	HDPE HNO_3	HDPE H_2SO_4	HDPE NAOH	AMBER PRESERVED?	GLASS, NO PRESERVATIVE	STERILIZED BACTERIA	MEOH Preserved Y N	Sample Matrix	Gasoline VOCs
1) CA09391	MW-1	12/24/14	11:06	3									L	/
2) 92	MW-3	↓	10:18	↓									↓	/
3) 93	MW-4	↓	9:40	↓									↓	/
4) 94	MW-5	↓	8:58	↓									↓	/
5) 95	A-1	↓	8:40	↓									↓	/
6) 96	A-2	↓		↓									↓	/
7)														
8)														
9)														
10)														

COMPANY/MAILING ADDRESS: PM Environmental

ATTN: Christie Santiago

PHONE:

FAX OR EMAIL: Santiago@pmenv.com

Samples received within hold time? yes ☒ no ☐

Temperature of samples °C: 4

pHs verified in login? yes ☐ no ☒

Headspace/bubbles in VOA's? yes ☐ no ☒ n/a ☐

Sample containers and COC match? yes ☒ no ☐

BILLING ADDRESS (IF REQUIRED):

Drinking H_2O:
Fax to LCHD? yes ☐ no ☐
Chlorinated Water Supply? yes ☐ no ☐
AMT.: _____

MCL Failure: yes ☐ no ☐
Client Notified (date/time/initials): _____

Special Instructions:

Please fill out the Chain of Custody completely and review. Incorrect or incomplete information will result in a "hold" on all analyses.

Trans. #	RELINQUISHED BY:	RECEIVED BY:	DATE:	TIME:	Trans. #	RELINQUISHED BY:	RECEIVED BY:	DATE:	TIME:
1	Zach McEvoy	PM Environmental	12/24/14	1:30	3	Pre Store	[signature]	12/26/14	1100
2	[signature]	[signature]	12/26/14	11:30	4				

Brighton Analytical, L.L.C.
2105 Pless Drive
Brighton, Michigan 48116
Phone: (810) 229-7575 FAX: (810) 229-8650
e-mail: bai-brighton@sbcglobal.net

To: PM Environmental, Inc.
4080 W. 11 Mile Rd.
Berkley, MI 48072

Sample Date: 12/24/2014
Submit Date: 12/26/2014
Report Date: 12/30/2014

BA Report Number: **32908**
BA Sample ID: **CA09391**

Project Name: **Beacon and Bridge #6**
Project Number: **01-4982-0**
Sample ID: **MW-1**

Parameters	Results	Units	DL	Method Reference	Analyst	Analysis Date
Volatile Analysis						
Benzene	**130**	ug/L	5	SW846 8260B	RG	12/29/2014
1,2-Dibromoethane	**<5**	ug/L	5	SW846 8260B	RG	12/29/2014
1,2-Dichloroethane	**<5**	ug/L	5	SW846 8260B	RG	12/29/2014
Ethanol(Ethyl alcohol)	**<5000**	ug/L	5000	SW846 8260B	RG	12/29/2014
Ethylbenzene	**150**	ug/L	5	SW846 8260B	RG	12/29/2014
Isopropylbenzene	**10**	ug/L	5	SW846 8260B	RG	12/29/2014
2-Methylnaphthalene	**<30**	ug/L	30	SW846 8260B	RG	12/29/2014
MTBE	**<5**	ug/L	5	SW846 8260B	RG	12/29/2014
Naphthalene	**30**	ug/L	30	SW846 8260B	RG	12/29/2014
n-Propylbenzene	**25**	ug/L	5	SW846 8260B	RG	12/29/2014
Toluene	**420**	ug/L	5	SW846 8260B	RG	12/29/2014
1,2,3-Trimethylbenzene	**60**	ug/L	5	SW846 8260B	RG	12/29/2014
1,2,4-Trimethylbenzene	**190**	ug/L	5	SW846 8260B	RG	12/29/2014
1,3,5-Trimethylbenzene	**51**	ug/L	5	SW846 8260B	RG	12/29/2014
Xylenes(total)	**660**	ug/L	20	SW846 8260B	RG	12/29/2014

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

Released by:

Date: 12/30/14

Elevated volatile dl due to sample matrix.

Brighton Analytical L.L.C. ™

Brighton Analytical, L.L.C.
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Sample Date: 12/24/2014
Submit Date: 12/26/2014
Report Date: 12/30/2014

To: PM Environmental, Inc.
4080 W. 11 Mile Rd.
Berkley, MI 48072

BA Report Number: **32908**
BA Sample ID: **CA09392**

Project Name: **Beacon and Bridge #6**
Project Number: **01-4982-0**
Sample ID: **MW-3**

Parameters	Results	Units	DL	Method Reference	Analyst	Analysis Date
Volatile Analysis						
Benzene	**14000**	ug/L	50	SW846 8260B	RG	12/29/2014
1,2-Dibromoethane	**<50**	ug/L	50	SW846 8260B	RG	12/29/2014
1,2-Dichloroethane	**<50**	ug/L	50	SW846 8260B	RG	12/29/2014
Ethanol(Ethyl alcohol)	**<50000**	ug/L	50000	SW846 8260B	RG	12/29/2014
Ethylbenzene	**1700**	ug/L	50	SW846 8260B	RG	12/29/2014
Isopropylbenzene	**81**	ug/L	50	SW846 8260B	RG	12/29/2014
2-Methylnaphthalene	**<300**	ug/L	300	SW846 8260B	RG	12/29/2014
MTBE	**<50**	ug/L	50	SW846 8260B	RG	12/29/2014
Naphthalene	**320**	ug/L	300	SW846 8260B	RG	12/29/2014
n-Propylbenzene	**180**	ug/L	50	SW846 8260B	RG	12/29/2014
Toluene	**430**	ug/L	50	SW846 8260B	RG	12/29/2014
1,2,3-Trimethylbenzene	**<50**	ug/L	50	SW846 8260B	RG	12/29/2014
1,2,4-Trimethylbenzene	**160**	ug/L	50	SW846 8260B	RG	12/29/2014
1,3,5-Trimethylbenzene	**<50**	ug/L	50	SW846 8260B	RG	12/29/2014
Xylenes(total)	**1300**	ug/L	200	SW846 8260B	RG	12/29/2014

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

Released by:

Date: 12/30/14

Elevated volatile dl due to sample matrix.

Brighton Analytical L.L.C. ™

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To: PM Environmental, Inc.
4080 W. 11 Mile Rd.
Berkley, MI 48072

Sample Date: 12/24/2014
Submit Date: 12/26/2014
Report Date: 12/30/2014

BA Report Number: **32908**
BA Sample ID: **CA09393**

Project Name: **Beacon and Bridge #6**
Project Number: **01-4982-0**
Sample ID: **MW-4**

Parameters	Results	Units	DL	Method Reference	Analyst	Analysis Date
Volatile Analysis						
Benzene	**4500**	ug/L	50	SW846 8260B	RG	12/29/2014
1,2-Dibromoethane	**<50**	ug/L	50	SW846 8260B	RG	12/29/2014
1,2-Dichloroethane	**<50**	ug/L	50	SW846 8260B	RG	12/29/2014
Ethanol(Ethyl alcohol)	**<50000**	ug/L	50000	SW846 8260B	RG	12/29/2014
Ethylbenzene	**4000**	ug/L	50	SW846 8260B	RG	12/29/2014
Isopropylbenzene	**130**	ug/L	50	SW846 8260B	RG	12/29/2014
2-Methylnaphthalene	**<300**	ug/L	300	SW846 8260B	RG	12/29/2014
MTBE	**<50**	ug/L	50	SW846 8260B	RG	12/29/2014
Naphthalene	**630**	ug/L	300	SW846 8260B	RG	12/29/2014
n-Propylbenzene	**310**	ug/L	50	SW846 8260B	RG	12/29/2014
Toluene	**1200**	ug/L	50	SW846 8260B	RG	12/29/2014
1,2,3-Trimethylbenzene	**890**	ug/L	50	SW846 8260B	RG	12/29/2014
1,2,4-Trimethylbenzene	**2600**	ug/L	50	SW846 8260B	RG	12/29/2014
1,3,5-Trimethylbenzene	**610**	ug/L	50	SW846 8260B	RG	12/29/2014
Xylenes(total)	**14000**	ug/L	200	SW846 8260B	RG	12/29/2014

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

Released by: [signature]
Date: 12/30/14

Elevated volatile dl due to sample matrix.

Brighton Analytical L.L.C. ™
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To: PM Environmental, Inc.
4080 W. 11 Mile Rd.
Berkley, MI 48072

Sample Date: 12/24/2014
Submit Date: 12/26/2014
Report Date: 12/30/2014

BA Report Number: **32908**
BA Sample ID: **CA09394**

Project Name: **Beacon and Bridge #6**
Project Number: **01-4982-0**
Sample ID: **MW-5**

Parameters	Results	Units	DL	Method Reference	Analyst	Analysis Date
Volatile Analysis						
Benzene	**310**	ug/L	50	SW846 8260B	RG	12/29/2014
1,2-Dibromoethane	**<50**	ug/L	50	SW846 8260B	RG	12/29/2014
1,2-Dichloroethane	**<50**	ug/L	50	SW846 8260B	RG	12/29/2014
Ethanol(Ethyl alcohol)	**<50000**	ug/L	50000	SW846 8260B	RG	12/29/2014
Ethylbenzene	**4600**	ug/L	50	SW846 8260B	RG	12/29/2014
Isopropylbenzene	**160**	ug/L	50	SW846 8260B	RG	12/29/2014
2-Methylnaphthalene	**<300**	ug/L	300	SW846 8260B	RG	12/29/2014
MTBE	**<50**	ug/L	50	SW846 8260B	RG	12/29/2014
Naphthalene	**780**	ug/L	300	SW846 8260B	RG	12/29/2014
n-Propylbenzene	**390**	ug/L	50	SW846 8260B	RG	12/29/2014
Toluene	**14000**	ug/L	50	SW846 8260B	RG	12/29/2014
1,2,3-Trimethylbenzene	**1100**	ug/L	50	SW846 8260B	RG	12/29/2014
1,2,4-Trimethylbenzene	**3100**	ug/L	50	SW846 8260B	RG	12/29/2014
1,3,5-Trimethylbenzene	**750**	ug/L	50	SW846 8260B	RG	12/29/2014
Xylenes(total)	**20000**	ug/L	200	SW846 8260B	RG	12/29/2014

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

Released by:

Date: 12/30/14

Elevated volatile dl due to sample matrix.

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Phone: (810) 229-7575 FAX: (810) 229-8650
e-mail: bai-brighton@sbcglobal.net

To: PM Environmental, Inc.
4080 W. 11 Mile Rd.
Berkley, MI 48072

Sample Date: 12/24/2014
Submit Date: 12/26/2014
Report Date: 12/30/2014

BA Report Number: **32908**
BA Sample ID: **CA09395**

Project Name: **Beacon and Bridge #6**
Project Number: **01-4982-0**
Sample ID: **A-1**

Parameters	Results	Units	DL	Method Reference	Analyst	Analysis Date
Volatile Analysis						
Benzene	<1	ug/L	1	SW846 8260B	RG	12/29/2014
1,2-Dibromoethane	<1	ug/L	1	SW846 8260B	RG	12/29/2014
1,2-Dichloroethane	<1	ug/L	1	SW846 8260B	RG	12/29/2014
Ethanol(Ethyl alcohol)	<1000	ug/L	1000	SW846 8260B	RG	12/29/2014
Ethylbenzene	<1	ug/L	1	SW846 8260B	RG	12/29/2014
Isopropylbenzene	<1	ug/L	1	SW846 8260B	RG	12/29/2014
2-Methylnaphthalene	<5	ug/L	5	SW846 8260B	RG	12/29/2014
MTBE	<1	ug/L	1	SW846 8260B	RG	12/29/2014
Naphthalene	<5	ug/L	5	SW846 8260B	RG	12/29/2014
n-Propylbenzene	<1	ug/L	1	SW846 8260B	RG	12/29/2014
Toluene	<1	ug/L	1	SW846 8260B	RG	12/29/2014
1,2,3-Trimethylbenzene	<1	ug/L	1	SW846 8260B	RG	12/29/2014
1,2,4-Trimethylbenzene	<1	ug/L	1	SW846 8260B	RG	12/29/2014
1,3,5-Trimethylbenzene	<1	ug/L	1	SW846 8260B	RG	12/29/2014
Xylenes(total)	<3	ug/L	3	SW846 8260B	RG	12/29/2014

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

Released by:

Date: 12/30/14

Brighton Analytical, L.L.C.
2105 Pless Drive
Brighton, Michigan 48116
Phone: (810) 229-7575 FAX: (810) 229-8650
e-mail: bai-brighton@sbcglobal.net

To: PM Environmental, Inc.
4080 W. 11 Mile Rd.
Berkley, MI 48072

Sample Date: 12/24/2014
Submit Date: 12/26/2014
Report Date: 12/30/2014

BA Report Number: **32908**
BA Sample ID: **CA09396**

Project Name: **Beacon and Bridge #6**
Project Number: **01-4982-0**
Sample ID: **A-2**

Parameters	Results	Units	DL	Method Reference	Analyst	Analysis Date
Volatile Analysis						
Benzene	**15000**	ug/L	50	SW846 8260B	RG	12/29/2014
1,2-Dibromoethane	**<50**	ug/L	50	SW846 8260B	RG	12/29/2014
1,2-Dichloroethane	**<50**	ug/L	50	SW846 8260B	RG	12/29/2014
Ethanol(Ethyl alcohol)	**<50000**	ug/L	50000	SW846 8260B	RG	12/29/2014
Ethylbenzene	**1800**	ug/L	50	SW846 8260B	RG	12/29/2014
Isopropylbenzene	**88**	ug/L	50	SW846 8260B	RG	12/29/2014
2-Methylnaphthalene	**<300**	ug/L	300	SW846 8260B	RG	12/29/2014
MTBE	**<50**	ug/L	50	SW846 8260B	RG	12/29/2014
Naphthalene	**350**	ug/L	300	SW846 8260B	RG	12/29/2014
n-Propylbenzene	**190**	ug/L	50	SW846 8260B	RG	12/29/2014
Toluene	**460**	ug/L	50	SW846 8260B	RG	12/29/2014
1,2,3-Trimethylbenzene	**320**	ug/L	50	SW846 8260B	RG	12/29/2014
1,2,4-Trimethylbenzene	**190**	ug/L	50	SW846 8260B	RG	12/29/2014
1,3,5-Trimethylbenzene	**<50**	ug/L	50	SW846 8260B	RG	12/29/2014
Xylenes(total)	**1400**	ug/L	200	SW846 8260B	RG	12/29/2014

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

Released by:

Date: 12/30/14

Elevated volatile dl due to sample matrix.

Brighton Analytical L.L.C.

BRIGHTON ANALYTICAL, LLC

QUALITY ASSURANCE/QUALITY CONTROL

GC/MS

VOLATILE METHOD 8260/624

REPRESENTATIVE BATCH PRECISION AND ACCURACY QUALITY CONTROL SUMMARY

Analysis Data: December 29, 2014 Spike Std. ID: 2370,2 Inst./Detec: HP7890/5975 Vol5

Laboratory ID: CA09396 Matrix: Water Analyst: RG

	Matrix Spike - Precision			Matrix spike - Accuracy						
	Spike 1 ug/L	Spike 2 ug/L	Relative Percent Difference +/- 20%	Spk Conc ug/L	% Recovery	% Recovery	Range (%)	Sample background ug/L	LCS +/- 20%	Method Blank
d4-1,2-Dichloroethane	48.0	48.5	1.0	50	96	97	70-130	96%	96%	97%
d8-Toluene	50.9	50.6	0.6	50	102	101	70-130	100%	100%	101%
4-Bromofluorobenzene	49.6	50.5	1.8	50	99	101	70-130	112%	98%	111%
COMPOUNDS										
1,1- Dichloroethene	45.5	45.8	0.7	50	91%	92%	70-130	<1	100%	<1
1,1- Dichloroethane	45.9	46.5	1.3	50	92%	93%	70-130	<1	97%	<1
Chloroform	44.6	45.1	1.1	50	89%	90%	70-130	<1	97%	<1
1,2- Dichlororethane	50.7	51.4	1.4	50	101%	103%	70-130	<1	96%	<1
Carbon tetrachloride	45.6	46.7	2.4	50	91%	93%	70-130	<1	100%	<1
1,2- Dichloropropane	47.7	48.3	1.2	50	95%	97%	70-130	<1	97%	<1
cis- 1,3 -dichloropropene	43.1	43.6	1.2	50	86%	87%	70-130	<1	99%	<1
Trichloroethene	45.0	45.2	0.4	50	90%	90%	70-130	<1	98%	<1
Dibromochloromethane	46.0	45.3	1.5	50	92%	91%	70-130	<1	100%	<1
1,1,2- Trichloroehtane	45.7	46.5	1.7	50	91%	93%	70-130	<1	95%	<1
Tetrachloroethane	42.2	42.0	0.5	50	84%	84%	70-130	<1	101%	<1
1,1,2,2 -Tetrachloroethane	45.5	46.5	2.2	50	91%	93%	70-130	<1	89%	<1
Chlorobenzene	46.6	46.7	0.2	50	93%	93%	70-130	<1	94%	<1
1,3- Dichlorobenzene	44.7	45.2	1.1	50	89%	90%	70-130	<1	96%	<1
1,4- Dichlorobenzene	45.0	46.1	2.4	50	90%	92%	70-130	<1	94%	<1
1,2-Dichlorobenzene	45.8	46.9	2.4	50	92%	94%	70-130	<1	93%	<1

ug/L is equivalent to ppb

Comments: _____

Brighton Analytical L.L.C.™
2105 Pless Drive · Brighton, Michigan 48114 · Phone (810) 229-7575 · Fax (810) 229-8650 · E-mail bai-brighton@sbcglobal.net

December 31, 2014

PM Environmental, Inc.
4080 W. 11 Mile Rd.
Berkley, MI 48072

Subject: General Consulting
01-4982-0

Dear Ms. Santiago :

Thank you for making Brighton Analytical, L.L.C. your laboratory of choice. Attached are the results for the samples submitted on 12/22/2014 for the above mentioned project. NELAP/TNI Accredited Analysis and MDEQ Drinking Water Certified Analysis will be identified in their respective reporting formats. Hard copies can be supplied at your request for a fee of $20.00 per copy.

The invoice for this project will be emailed separately. If you have any questions concerning the data or invoice, please don't hesitate to contact our office. Please reference Brighton Analytical, L.L.C. Project ID 32862 when calling or emailing. We thank you for this opportunity to partner with you on this project and hope to work with you again in the future.

Sincerely,
Brighton Analytical, L.L.C.

DEQ
NELAP ACCREDITED LABORATORY
Certified WBENC Women's Business Enterprise

Brighton Analytical LLC
2105 Piess Drive
Brighton, Michigan 48114
Phone: (810)229-7575 (810)229-8650
e-mail:bai-brighton@sbcglobal.net
MDNRE Certified #9404
NELAC Accredited #176507

Sample Date 12/19/2014
Submit Date 12/22/2014
Report Date: 12/31/2014

PM Environmental, Inc.
4080 W. 11 Mile Rd.
Berkley, MI 48072

BA Project # **32862**
BA Sample ID **CA09211**
Method **TO15**

Project Name: **General Consulting**
Project Number: **01-4982-0**
Sample ID: **SG-1**

Analyte Name	ppbv Result	Units	RL	CAS Number	ug/m3 Result	Date Analyzed	Analyst
Volatile TO15 Analysis							
Acetone	89	ppbv	0.80	67-64-1	210	12/30/201	CW
Benzene	11	ppbv	0.80	71-43-2	35	12/30/201	CW
Benzyl Chloride	<0.80	ppbv	0.80	100-44-7	<4.1	12/30/201	CW
Bromodichloromethane	<0.80	ppbv	0.80	75-27-4	<5.4	12/30/201	CW
Bromoethene	<0.80	ppbv	0.80	593-60-2	<3.5	12/30/201	CW
Bromoform	<0.80	ppbv	0.80	75-25-2	<8.3	12/30/201	CW
Bromomethane	<0.80	ppbv	0.80	74-83-9	<3.1	12/30/201	CW
1,3-Butadiene	<0.80	ppbv	0.80	106-99-0	<1.8	12/30/201	CW
Carbon disulfide	<0.80	ppbv	0.80	75-15-0	<2.5	12/30/201	CW
Carbon tetrachloride	<0.80	ppbv	0.80	56-23-5	<5.0	12/30/201	CW
Chlorobenzene	<0.80	ppbv	0.80	108-90-7	<3.7	12/30/201	CW
Chloroethane	<0.80	ppbv	0.80	75-00-3	<2.1	12/30/201	CW
Chloroform	3.0	ppbv	0.80	67-66-3	15	12/30/201	CW
Chloromethane	<0.80	ppbv	0.80	74-87-3	<1.7	12/30/201	CW
3-Chloropropene	<0.80	ppbv	0.80	107-05-1	<2.5	12/30/201	CW
2-Chlorotoluene	<0.80	ppbv	0.80	95-49-8	<4.1	12/30/201	CW
cis-1,2-Dichloroethylene	<0.80	ppbv	0.80	156-59-2	<3.2	12/30/201	CW
cis-1,3-Dichloropropene	<0.80	ppbv	0.80	10061-01-5	<3.6	12/30/201	CW
Cyclohexane	7.9	ppbv	0.80	110-82-7	27	12/30/201	CW
Dibromochloromethane	<0.80	ppbv	0.80	124-48-1	<6.8	12/30/201	CW
1,2-Dibromoethane	<0.80	ppbv	0.80	106-93-4	<6.1	12/30/201	CW
1,3-Dichlorobenzene	4.5	ppbv	0.80	541-73-1	27	12/30/201	CW
1,2-Dichlorobenzene	<0.80	ppbv	0.80	95-50-1	<4.8	12/30/201	CW
1,4-Dichlorobenzene	<0.80	ppbv	0.80	106-46-7	<4.8	12/30/201	CW
Dichlorodifluoromethane	<0.80	ppbv	0.80	75-71-8	<4.0	12/30/201	CW
1,2-Dichloroethane	<0.80	ppbv	0.80	107-06-2	<3.2	12/30/201	CW
1,1-Dichloroethane	<0.80	ppbv	0.80	75-34-3	<3.2	12/30/201	CW
1,1-Dichloroethylene	<0.80	ppbv	0.80	75-35-4	<3.2	12/30/201	CW

Brighton Analytical LLC
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e-mail:bai-brighton@sbcglobal.net
MDNRE Certified #9404
NELAC Accredited #176507

Sample Date 12/19/2014
Submit Date 12/22/2014
Report Date: 12/31/2014

PM Environmental, Inc.
4080 W. 11 Mile Rd.
Berkley, MI 48072

BA Project # **32862**
BA Sample ID **CA09211**
Method **TO15**

Project Name: **General Consulting**
Project Number: **01-4982-0**
Sample ID: **SG-1**

Analyte Name	ppbv Result	Units	RL	CAS Number	ug/m3 Result	Date Analyzed	Analyst
Volatile TO15 Analysis							
1,2-Dichloropropane	<0.80	ppbv	0.80	78-87-5	<3.7	12/30/201	CW
Dichlorotetrafluoroethane(Freon114)	<0.80	ppbv	0.80	76-14-2	<5.6	12/30/201	CW
1,4-Dioxane	<0.80	ppbv	0.80	123-91-1	<2.9	12/30/201	CW
Ethanol	<2.0	ppbv	2.0	64-17-5	<3.8	12/30/201	CW
Ethyl Acetate	<0.80	ppbv	0.80	141-78-6	<2.9	12/30/201	CW
Ethylbenzene	1.8	ppbv	0.80	100-41-4	7.8	12/30/201	CW
4-Ethyltoluene	<0.80	ppbv	0.80	622-96-8	<3.9	12/30/201	CW
Heptane	<0.80	ppbv	0.80	142-82-5	<3.3	12/30/201	CW
Hexachlorobutadiene	<0.80	ppbv	0.80	87-68-3	<8.5	12/30/201	CW
Hexane	62	ppbv	0.80	110-54-3	220	12/30/201	CW
2-Hexanone	<0.80	ppbv	0.80	591-78-6	<3.3	12/30/201	CW
Isopropyl Alcohol	11	ppbv	0.80	67-63-0	27	12/30/201	CW
Methyl ethyl ketone	11	ppbv	0.80	78-93-3	33	12/30/201	CW
Methyl Isobutyl Ketone	<0.80	ppbv	0.80	108-10-1	<3.3	12/30/201	CW
Methyl Tert Butyl Ether	<0.80	ppbv	0.80	1634-04-4	<2.9	12/30/201	CW
Methylene chloride	45	ppbv	0.80	75-09-2	160	12/30/201	CW
Methylmethacrylate	3.9	ppbv	0.80	80-62-6	16	12/30/201	CW
m,p-Xylene	16	ppbv	0.80	108-38-3/106-42-3	69	12/30/201	CW
Naphthalene	1.8	ppbv	0.80	91-20-3	9.4	12/30/201	CW
o-Xylene	1.8	ppbv	0.80	95-47-6	7.7	12/30/201	CW
Propylene	<2.0	ppbv	2.0	115-07-1	<3.4	12/30/201	CW
Styrene	<0.80	ppbv	0.80	100-42-5	<3.4	12/30/201	CW
Tertiary Butyl Alcohol	<0.80	ppbv	0.80	75-65-0	<2.4	12/30/201	CW
1,1,2,2-Tetrachloroethane	<0.80	ppbv	0.80	79-34-5	<5.5	12/30/201	CW
Tetrachloroethylene	<0.16	ppbv	0.16	127-18-4	<1.1	12/30/201	CW
Tetrahydrofuran	<0.80	ppbv	0.80	109-99-9	<2.4	12/30/201	CW
Toluene	6.9	ppbv	0.80	108-88-3	26	12/30/201	CW
trans-1,2-Dichloroethylene	<0.80	ppbv	0.80	156-60-5	<3.2	12/30/201	CW

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Sample Date 12/19/2014
Submit Date 12/22/2014
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PM Environmental, Inc.
4080 W. 11 Mile Rd.
Berkley, MI 48072

BA Project # **32862**
BA Sample ID **CA09211**
Method **TO15**

Project Name: **General Consulting**
Project Number: **01-4982-0**
Sample ID: **SG-1**

Analyte Name	ppbv Result	Units	RL	CAS Number	ug/m3 Result	Date Analyzed	Analyst
Volatile TO15 Analysis							
trans-1,3-Dichloropropene	<0.80	ppbv	0.80	10061-02-6	<3.6	12/30/201	CW
1,2,4-Trichlorobenzene	<0.80	ppbv	0.80	120-82-1	<5.9	12/30/201	CW
1,1,2-Trichloroethane	<0.80	ppbv	0.80	79-00-5	<4.4	12/30/201	CW
1,1,1-Trichloroethane	<0.80	ppbv	0.80	71-55-6	<4.4	12/30/201	CW
Trichloroethylene	<0.16	ppbv	0.16	79-01-6	<0.86	12/30/201	CW
Trichlorofluoromethane	<0.80	ppbv	0.80	75-69-4	<4.5	12/30/201	CW
1,1,2-Trichlorotrifluoroethane(Freon113)	<0.80	ppbv	0.80	76-13-1	<6.1	12/30/201	CW
1,2,4-Trimethylbenzene	<0.80	ppbv	0.80	95-63-6	<3.9	12/30/201	CW
1,3,5-Trimethylbenzene	<0.80	ppbv	0.80	108-67-8	<3.9	12/30/201	CW
2,2,4-Trimethylpentane	5.3	ppbv	0.80	540-84-1	25	12/30/201	CW
Vinyl Acetate	<0.80	ppbv	0.80	108-05-4	<2.8	12/30/201	CW
Vinyl chloride	<0.80	ppbv	0.80	75-01-4	<2.0	12/30/201	CW
Xylenes(total)	17.8	ppbv	0.80	1330-20-7	76.7	12/30/201	CW

RL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

Released by _____
Date 12/31/14

Brighton Analytical, L.L.C.™

Email: bal-brighton@sbcglobal.net
2105 Pless Drive — Phone: 810-229-7575
Brighton, MI 48114 — Fax: 810-229-8650

BA PROJECT #: 52862

PAGE 1 OF 3

PROJECT NAME: General Consulting
PROJECT #: 01-4982-0
PO #: (PLEASE NOTE IF DIFFERENT BILLING ADDRESS)

Sample collected by: Bruce T Lemmon

ABBREVIATIONS FOR MATRIX
S = Solid
L = Liquid
DW = Drinking H_2O
O = Oil
P = Wipe
A = Air (Tedlar Bag)
F = Filter
T = Tube
M = Misc.

REQUESTED TURNAROUND: (circle one)
Rush: 1-3 business days (verify with lab & specify date needed)
1 Day = 2.5X Cost 2 Day = 2X Cost 3 Day = 1.5X Cost
Standard = 5 business days

If RUSH, approved by: _____

Sample Coll.

Brighton ID #	Sample Description	Date	Time	Container Type & Quantity: VOA'S (PRES) Y N N/A	HDPE UNPRESERVED	HDPE HNO3	HDPE H2SO4	HDPE NAOH	AMBER PRESERVED?	GLASS, NO PRESERVATIVE	STERILIZED BACTERIA	MEOH Preserved Y N	Sample Matrix	Analysis Requested/Method: GAS VOC's, GRO	6-pack						
1) 9184	SB-1 @ 9-10'	12-18-19	11:06							1		1	S	X	X						HOLD
2) 85	SB-1 @ 11-12'		11:10											X	X						
3) 86	SB-1 @ 19-20'		11:14											X	X						
4) 87	SB-2 @ 9-10'		12:10											X	X						
5) 88	SB-2 @ 10-11'		12:13											X	X						
6) 89	SB-2 @ 19-20'		12:16											X							
7) 90	SB-3 @ 9-10'		13:13											X	X						
8) 91	SB-3 @ 10-11'		13:16											X	X						
9) 92	SB-3 @ 19-20'		13:19																		X
10) 93	SB-4 @ 9-10'		16:00											X	X						

Special Instructions:

METHANOL PRESERVATIVE
2 VOA PAIRS
PACE

COMPANY/MAILING ADDRESS:
PM Beverly
4080 11 Mile Rd
Berkley, MI 48072
ATTN: Christie Santiago
PHONE: 248-336-9988
FAX OR EMAIL: 877-884-6775

Samples received within hold time? yes ☒ no ☐
Temperature of samples °C: 4
pHs verified in login? yes ☐ no ☒
Headspace/bubbles in VOA's? yes ☐ no ☐ n/a ☒
Sample containers and COC match? yes ☒ no ☐

BILLING ADDRESS (IF REQUIRED):
run SB1 9-20 gas VOCs

Drinking H_2O:
Fax to LCHD? yes ☐ no ☐
Chlorinated Water Supply? yes ☐ no ☐
AMT.: _____

MCL Failure: yes ☐ no ☐
Client Notified (date/time/initials): _____

Please fill out the Chain of Custody completely and review. Incorrect or incomplete information will result in a "hold" on all analyses.

Trans. #	RELINQUISHED BY:	RECEIVED BY:	DATE:	TIME:	Trans. #	RELINQUISHED BY:	RECEIVED BY:	DATE:	TIME:
1	Bruce T Lemmon	PM Cold Storage	12-19-19	16:30	3	TNT	[illegible]	12-22-19	11:35am
2	PM Cold Storage	TNT	12/22/19	10am	4				

Brighton Analytical, L.L.C.™
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2105 Pless Drive
Brighton, MI 48114
Phone: 810-229-7575
Fax: 810-229-8650

BA PROJECT #: 32862

ABBREVIATIONS FOR MATRIX
S = Solid
L = Liquid
DW = Drinking H_2O
O = Oil
P = Wipe
A = Air (Tedlar Bag)
F = Filter
T = Tube
M = Misc.

PROJECT NAME: General Consulting

PROJECT #: 01-4982-0

PO #: (PLEASE NOTE IF DIFFERENT BILLING ADDRESS)

Sample collected by: Bruce T Lemmon

REQUESTED TURNAROUND: (circle one)
Rush: 1-3 business days (verify with lab & specify date needed)
1 Day = 2.5X Cost 2 Day = 2X Cost 3 Day = 1.5X Cost
Standard: 5 business days

If RUSH, approved by: _____

Analysis Requested/Method

Brighton ID #	Sample Description	Sample Coll. Date	Sample Coll. Time	VOA'S (PRES) Y N N/A	HDPE UNPRESERVED	HDPE HNO_3	HDPE H_2SO_4	HDPE NAOH	AMBER PRESERVED?	GLASS, NO PRESERVATIVE	STERILIZED BACTERIA	MEOH Preserved N	Sample Matrix	GAS VOC's, GRO	GOO VOCs						HOLD
1) 9194	SB-4 ✓ 10-11'	12-18-14	16:03							1		1	S	X							
2) 95	SB-4 ✓ 19-20'	12-18-14	16:06																		X
3) 96	SB-5 ✓ 8-9'	12-19-14	9:59											X							
4) 97	SB-5 ✓ 9-10'		10:02											X							
5) 98	SB-5 ✓ 19-20'		10:05																		X
6) 99	SB-6 ✓ 9-10'		11:00											X							
9200	SB-6 ✓ 12-13'		11:03											X							
8) 01	SB-6 ✓ 19-20'		11:06												X						
9) 02	SB-7 ✓ 10-11'		11:41											X							
10) 03	SB-7 ✓ 11-12'		11:43											X							

METHANOL EPA 5035

(26) PME

COMPANY/MAILING ADDRESS:
PM Berkley
4080 11 Mile Rd
Berkley, MI 48072
ATTN: Christie Santiago
PHONE: 248-336-9988
FAX OR EMAIL: 877-884-6775

Samples received within hold time? yes ☐ no ☐
Temperature of samples °C:
pHs verified in login? yes ☐ no ☐
Headspace/bubbles in VOA's? yes ☐ no ☐ n/a ☐
Sample containers and COC match? yes ☐ no ☐

BILLING ADDRESS (IF REQUIRED):

Drinking H_2O:
Fax to LCHD? yes ☐ no ☐
Chlorinated Water Supply? yes ☐ no ☐
AMT.: _____

MCL Failure: yes ☐ no ☐
Client Notified (date/time/initials): _____

Special Instructions:

Please fill out the Chain of Custody completely and review. Incorrect or incomplete information will result in a "hold" on all analyses.

Trans. #	RELINQUISHED BY:	RECEIVED BY:	DATE:	TIME:	Trans. #	RELINQUISHED BY:	RECEIVED BY:	DATE:	TIME:
1	Bruce T Lemmon	PM Cold Storage	12-19-14	16:30	3	TWT.	[signature]	12-22-14	11:30am
2	PM COLD STORAGE	TWT.	12/22/14	10 am	4				

Brighton Analytical, L.L.C.™
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Phone: 810-229-7575
Fax: 810-229-8650

BA PROJECT #: 32862

ABBREVIATIONS FOR MATRIX
S = Solid
L = Liquid
DW = Drinking H_2O
O = Oil
P = Wipe
A = Air (Tedlar Bag)
F = Filter
T = Tube
M = Misc.

PROJECT NAME: General Consulting

PROJECT #: 01-4982-0

PO #: (PLEASE NOTE IF DIFFERENT BILLING ADDRESS)

Sample collected by: Bruce T Lemmon

REQUESTED TURNAROUND: (circle one)
Rush: 1-3 business days (verify with lab & specify date needed)
1 Day = 2.5X Cost 2 Day = 2X Cost 3 Day = 1.5X Cost
Standard: 5 business days

If RUSH, approved by: _____

Container Type & Quantity

Brighton ID #	Sample Description	Sample Coll. Date	Sample Coll. Time	VOA'S (PRES) Y N N/A	HDPE UNPRESERVED	HDPE HNO_3	HDPE H_2SO_4	HDPE NAOH	AMBER PRESERVED?	GLASS, NO PRESERVATIVE	STERILIZED BACTERIA	MEOH Preserved Y N	Sample Matrix	GAS VOC's, GRO	VOC's	GAS VOCs					HOLD
1) GAS 9204	SB-7 ~ 19-20'	12-19-14	11:46							1		1	S			X					
2) 05	SB-8 ~ 9-10'	↓	12:15							↓		↓	↓	X							
3) 06	SB-8 ~ 10-11'	↓	12:18							↓		↓	↓	X							
4) 07	SB-8 ~ 19-20'	↓	12:21							↓		↓	↓			X					
5) 08	A-1	12-18-14	10:35										O			X					
6) 09	A-2	12-18-14	—							1		↓	S	X							
7) 10	A-3	12-19-14	—							1		↓	S			X					
8) 11	SG-1	12-19-14	14:01										soil vapor		X						
9)																					
10)																					

Analysis Requested/Method

COMPANY/MAILING ADDRESS:
PM Berkley
4080 11 Mile
Berkley, MI 48072
ATTN: Christie Santrago
PHONE: 248-336-9988
FAX OR EMAIL: 877-884-6775

Samples received within hold time? yes ☐ no ☐
Temperature of samples °C:
pHs verified in login? yes ☐ no ☐
Headspace/bubbles in VOA's? yes ☐ no ☐ n/a ☐
Sample containers and COC match? yes ☐ no ☐

BILLING ADDRESS (IF REQUIRED):

METHANOL EPA 5035

(26) PLUE

Drinking H_2O:
Fax to LCHD? yes ☐ no ☐
Chlorinated Water Supply? yes ☐ no ☐
AMT.: _____

MCL Failure: yes ☐ no ☐
Client Notified (date/time/initials): _____

Special Instructions:

Please fill out the Chain of Custody completely and review. Incorrect or incomplete information will result in a "hold" on all analyses.

Trans. #	RELINQUISHED BY:	RECEIVED BY:	DATE:	TIME:	Trans. #	RELINQUISHED BY:	RECEIVED BY:	DATE:	TIME:
1	Bruce T Lemmon	PM Cold Storage	12-19-14	16:30	3	TWT	[signature]	12-22-14	11:30 pm
2	PM Cold Storage	TWT	12/22/14	10am	4				

Brighton Analytical L.L.C.

COC ADDENDA

DATE 12-17-14

COMPANY PM

CONTAINER AND SERIAL # 1 L Summa J1902 w 5 min samples

CONTAINER CLEANED 12-4-14 SIGNED [illegible]

VACUUM OUT 27" hg 12-17-14 SIGNED [illegible]

SAMPLE DATE/REPRESENTATIVE 12/19/14 / NL

Project Name/Number ~~01-4468-0~~ 01-4982-0

Sample ID	Time Start	Time End	Vacuum Start	Vacuum End	Volume	Flow Rate
S6-1	14:01	14:05	25.0	5.0		

LAB ID _____ _____ PROJECT # _____

9211

Brighton Analytical L.L.C.™
2105 Pless Drive · Brighton, Michigan 48114 · Phone (810) 229-7575 · Fax (810) 229-8650 · E-mail bai-brighton@sbcglobal.net

May 08, 2015

PM Environmental, Inc.
4080 W. 11 Mile Rd.
Berkley, MI 48072

Subject: Beacon & Bridge #8
01-4982-0

Dear Ms. Santiago :

Thank you for making Brighton Analytical, L.L.C. your laboratory of choice. Attached are the results for the samples submitted on 04/28/2015 for the above mentioned project. NELAP/TNI Accredited Analysis and MDEQ Drinking Water Certified Analysis will be identified in their respective reporting formats. Hard copies can be supplied at your request for a fee of $20.00 per copy.

The invoice for this project will be emailed separately. If you have any questions concerning the data or invoice, please don't hesitate to contact our office. Please reference Brighton Analytical, L.L.C. Project ID 34256B when calling or emailing. We thank you for this opportunity to partner with you on this project and hope to work with you again in the future.

Sincerely,
Brighton Analytical, L.L.C.

DEQ
NELAP ACCREDITED LABORATORY
Certified WBENC Women's Business Enterprise

Subject: RE: 01-4982-0 QC to follow

From: Christie Santiago (santiago@pmenv.com)

To: bai-brighton@sbcglobal.net;

Date: Friday, May 1, 2015 3:09 PM

Please run SPLP on MS-1 for 1,2,4-TMB.

Please confirm receipt of this email.

Thanks,

Christie Santiago | *Senior Project Engineer*
PM ENVIRONMENTAL, INC.
4080 West Eleven Mile Road | Berkley, MI 48072 | www.pmenv.com
p: 248-414-1431 | f: 877-884-6775 | Santiago@pmenv.com
Environmental & Engineering Services Nationwide
2014 Winner of Crain's "COOL PLACES TO WORK"

From: Brighton Analytical [mailto:bai-brighton@sbcglobal.net]
Sent: Friday, May 1, 2015 2:01 PM
To: Christie Santiago
Subject: 01-4982-0 QC to follow

Brighton Analytical, LLC

2105 Pless Dr.
Brighton, MI 48114
(810) 229-7575
www.brightonanalytical.net

Brighton Analytical L.L.C.
2105 Pless Drive
Brighton, Michigan 48116
Phone: (810) 229-7575 FAX: (810) 229-8650
e-mail: bai-brighton@sbcglobal.net

To: PM Environmental, Inc.
4080 W. 11 Mile Rd.
Berkley, MI 48072

Sample Date: 4/27/2015
Submit Date: 4/28/2015
Report Date: 5/11/2015

BA Report Number: **34256B**
BA Sample ID: **CB04119**

Project Name: **Beacon & Bridge #8**
Project Number: **01-4982-0**
Sample ID: **MS-1 3'**

Parameters	Results	Units	DL	Method Reference	Analyst	Analysis Date
Volatile Analysis(Methanol Preserved)						
Benzene	**<50**	ug/Kg	50	SW846 8260B	CW	4/29/2015
1,2-Dibromoethane(Ethylene Dibromide)	**<20**	ug/Kg	20	SW846 8260B	CW	4/29/2015
1,2-Dichloroethane	**<50**	ug/Kg	50	SW846 8260B	CW	4/29/2015
Ethylbenzene	**<50**	ug/Kg	50	SW846 8260B	CW	4/29/2015
Isopropylbenzene	**<50**	ug/Kg	50	SW846 8260B	CW	4/29/2015
2-Methylnaphthalene	**<250**	ug/Kg	250	SW846 8260B	CW	4/29/2015
MTBE	**<50**	ug/Kg	50	SW846 8260B	CW	4/29/2015
Naphthalene	**360**	ug/Kg	250	SW846 8260B	CW	4/29/2015
n-Propylbenzene	**<50**	ug/Kg	50	SW846 8260B	CW	4/29/2015
Toluene	**66**	ug/Kg	50	SW846 8260B	CW	4/29/2015
1,2,3-Trimethylbenzene	**370**	ug/Kg	50	SW846 8260B	CW	4/29/2015
1,2,4-Trimethylbenzene	**600**	ug/Kg	50	SW846 8260B	CW	4/29/2015
1,3,5-Trimethylbenzene	**260**	ug/Kg	50	SW846 8260B	CW	4/29/2015
Xylenes(total)	**350**	ug/Kg	150	SW846 8260B	CW	4/29/2015
SPLP Volatile Analysis						
SPLP 1,2,4-Trimethylbenzene	**11**	ug/L	1	SW846 8260B	CW	5/7/2015
EPA Method 5035 Methanol Preserv	**Extracted**			EPA 5035	PME	4/27/2015
%Solid	**95**	%		ASTM D2216	HD	4/29/2015

All soil results based on dry weight.

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

*Elevated ethanol dl due to sample matrix.

Released by:

Date: 5/11/15

Brighton Analytical L.L.C.

BRIGHTON ANALYTICAL, LLC

QUALITY ASSURANCE/QUALITY CONTROL

GC/MS

VOLATILE METHOD 8260/624

REPRESENTATIVE BATCH PRECISION AND ACCURACY QUALITY CONTROL SUMMARY

Analysis Date: May 7, 2015 Spike Std. ID: 2427.3 Inst./Detec: HP7890/5975 Vol6

Laboratory ID: CB04439 Matrix: Water Analyst: CW

	Matrix Spike - Precision			Matrix spike - Accuracy						
	Spike 1 ug/L	Spike 2 ug/L	Relative Percent Difference +/- 20%	Spk Conc ug/L	% Recovery	% Recovery	Range (%)	Sample background ug/L	LCS +/- 20%	Method Blank
d4-1,2-Dichloroethane	49.1	49.4	0.6	50	98	99	70-130	103%	100%	100%
d8-Toluene	51.2	51.2	0.1	50	102	102	70-130	101%	102%	101%
4-Bromofluorobenzene	51.2	51.2	0.1	50	102	102	70-130	111%	100%	112%
COMPOUNDS										
1,1- Dichloroethene	39.0	42.7	9.1	50	78%	85%	70-130	<1	90%	<1
1,1- Dichloroethane	38.3	41.8	8.7	50	77%	84%	70-130	<1	89%	<1
Chloroform	37.4	40.6	8.3	50	75%	81%	70-130	<1	85%	<1
1,2- Dichloroethane	36.5	39.6	8.1	50	73%	79%	70-130	<1	86%	<1
Carbon tetrachloride	43.3	47.4	9.0	50	87%	95%	70-130	<1	96%	<1
1,2- Dichloropropane	38.8	42.1	8.2	50	78%	84%	70-130	<1	86%	<1
cis- 1,3 -dichloropropene	38.6	42.0	8.4	50	77%	84%	70-130	<1	96%	<1
Trichloroethene	40.8	44.2	8.0	50	82%	88%	70-130	<1	92%	<1
Dibromochloromethane	37.9	40.5	6.6	50	76%	81%	70-130	<1	94%	<1
1,1,2- Trichloroehtane	38.4	41.0	6.5	50	77%	82%	70-130	<1	93%	<1
Tetrachloroethane	36.5	38.8	6.1	50	73%	78%	70-130	<1	96%	<1
1,1,2,2 -Tetrachloroethane	34.9	37.5	7.2	50	70%	75%	70-130	<1	87%	<1
Chlorobenzene	42.0	45.0	6.9	50	84%	90%	70-130	<1	95%	<1
1,3- Dichlorobenzene	41.7	44.7	7.0	50	83%	89%	70-130	<1	99%	<1
1,4- Dichlorobenzene	42.1	45.2	7.1	50	84%	90%	70-130	<1	99%	<1
1,2-Dichlorobenzene	41.7	44.8	7.2	50	83%	90%	70-130	<1	99%	<1

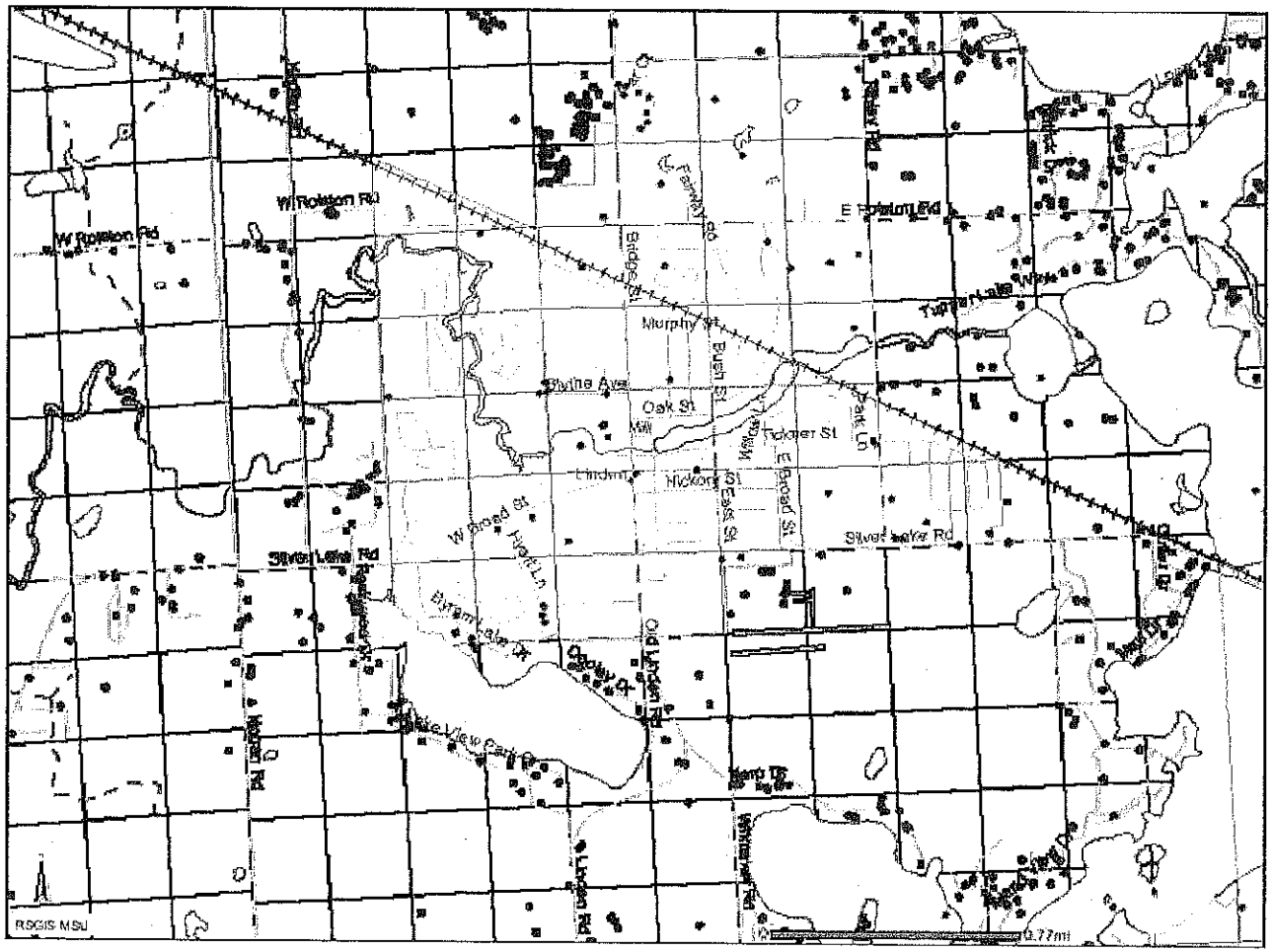
ug/L is equivalent to ppb

Comments: _____

Appendix D

PM ENVIRONMENTAL | Environmental & Engineering Services

Groundwater Viewer



Geological Survey No

MICHIGAN DEPARTMENT OF PUBLIC HEALTH
WATER WELL AND PUMP RECORD

Permit No. Page 1 of 1

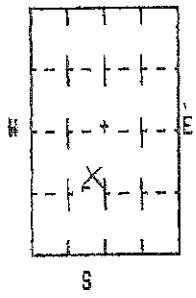
County	Township Name	Fraction	Section No	Town No	Range Number
GENESEE	FENTON	SE 1/4 NE 1/4 SW 1/4	20	5 N	6 E

Distance And Direction From Road Intersection
1/4 MILE WEST OF JENNINGS ROAD ON THE SOUTH SIDE OF RALSTON ROAD

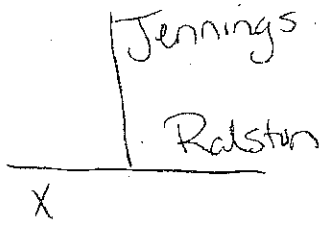
Well Addr: 4033 RALSTON ROAD .

Owner of Well KILTON WARREN
Address 15420 JENNINGS ROAD
FENTON MI 48430
Address Same as Well Location? NO

Locate with 'X' in Sec. Below



Sketch Map



Depth	Date Compl	This is a:
56 ft.	01/18/95	NEW WELL

Equipment Used: ROTARY
Well Use: DOMESTIC

Casing Type: PLASTIC — Connection: THREADED
Diam. — Height ABOVE
5 in. to 46 ft. — Surface 1 ft
in. to ft. — Weight lb./ft.
Grouted Drill Hole — Drive Shoe NO
8 1/2 in. to 57 ft.
in. to ft.

Formation Description	Thickness	Depth
BROWN CLAY	10	10
GRAY CLAY	25	35
GRAVEL	22	57

Screen Type: SAW SLOTTED — Diam: 5 — [_] Not Inst.
SLOT 15 — Length: 10
Set Between 46 ft. and 56 ft.
Fittings: [_] Blank above scrn: ft.

Static Level: 15 ft. — Flow: NO

Pumping Level below land surface:
50 ft. after 1 hrs. @ 20 GPM
ft. after hrs. @ 0 GPM

Well Head Completion: PITLESS ADAPTER

Grouted from 46 to 0 ft. Material: BENSEAL
Cement: 5 bags Additive:

Nearest source of possible contamination:
Type: SANITARY Distance: 10 ft.
Direction: WEST
Well disinfected on completion? YES Old well plugged? NO

Pump: [_] Not Installed [_] Installation Only
Manufacturer's Name: BURKS
Model: 75SN88B HP: 0.75 Voltage: 230
Drop pipe: 40 ft. Capacity: 18 GPM
Pump type: SUBMERSIBLE
Pressure Tank Manufacturer's Name : WELL X-TROL
Model: 251 Capacity: 19 Gal.

Remarks, elevation, source of data, etc.
PUMP - ANDY BIRCHMEIER

Rig Operator's Name
BARRY BROWN

RECEIVED
JAN 24 1997
MICH. DEPT. OF PUBLIC HEALTH

WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
Registered Bus. Name ED BIRKMEIER WELL DRILLING LTD 1607
Business Address 10655 Easton Road New Lothrop MI 48460

Signature Edward Birkmeier — 01/31/95
Authorized Representative — Date

Authority: Act 368 PA 1978
Completion: Required
Penalty: Conviction of a violation of any provision is a misdemeanor.

GEOLOGICAL SURVEY COPY — Mich. Dept. of Public Health Auth. No. 89-12-001

GEOLOGICAL SURVEY SAMPLE No.

MAR 05 1979

WATER WELL RECORD

ACT 294 PA 1965

MICHIGAN DEPARTMENT OF PUBLIC HEALTH

1 LOCATION OF WELL

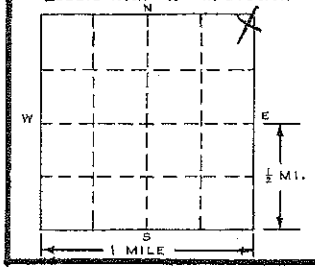
County	Township Name	Fraction	Section Number	Town Number	Range Number
Genesee	Fenton	NE ¼ NE ¼ NE ¼	20	5 N/S.	6 E/W.

Distance And Direction from Road Intersections

1401 Ripley Rd. - Linden
½ mi. south of Lahring Rd. on west side.

Street address & City of Well Location

Locate with "X" in section below



Sketch Map:

3 OWNER OF WELL:

Robert R. Davis Const. Inc.
Address 14003 Fenton Rd.
Fenton, Michigan 48430

4 WELL DEPTH: (completed) 200 ft. Date of Completion 12-15-78

5 ☐ Cable tool ☒ Rotary ☐ Driven ☐ Dug ☐ Hollow rod ☐ Jetted ☐ Bored ☐ ____

6 USE: ☒ Domestic ☐ Public Supply ☐ Industry ☐ Irrigation ☐ Air Conditioning ☐ Commercial ☐ Test Well ☐ ____

7 CASING: Threaded ☒ Welded ☐ Diam. 4 in. to 108 ft. Depth; ____ in. to ____ ft. Depth. Height: Above Surface 1 ft. Weight 11 lbs./ft. Drive Shoe? Yes ☒ No ☐

2 FORMATION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Clay	20	20
Gravel	60	80
Clay	20	100
Sandstone & shale	100	200

USE A 2ND SHEET IF NEEDED

8 SCREEN:
Type: ____ Dia.: ____
Slot/Gauze ____ Length ____
Set between ____ ft. and ____ ft.
Fittings:

9 STATIC WATER LEVEL
50 ft. below land surface

10 PUMPING LEVEL below land surface
80 ft. after 2 hrs. pumping 1200 g.p.m.
____ ft. after ____ hrs. pumping ____ g.p.m.

11 WATER QUALITY in Parts Per Million:
Iron (Fe) ____ Chlorides (Cl) ____
Hardness ____ Other ____

12 WELL HEAD COMPLETION: ☐ In Approved Pit ☒ Pitless Adapter ☐ 12" Above Grade

13 Well Grouted? ☒ Yes ☐ No ☐ Neat Cement ☒ Bentonite ☐ ____ Depth: From 21 ft. to 108 ft.

14 Nearest Source of possible contamination
50 feet ____ Direction Septic Type
Well disinfected upon completion ☒ Yes ☐ No

15 PUMP: ☐ Not installed
Manufacturer's Name Flint & Walling
Model Number ____ HP ½ Volts 220
Length of Drop Pipe 84 ft. capacity 10 G.P.M.
Type: ☒ Submersible ☐ Jet ☐ Reciprocating

16 Remarks, elevation, source of data, etc.
ADDED INFO BY DRILLER, ITEM NO.
*CORRECTED BY MCB
**ADDITION BY
ELEVATION
DEPTH TO ROCK

17 WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
Burns Well Drilling (REGISTERED BUSINESS NAME) 0099 (REGISTRATION NO.)
Address 5370 Corunna Rd. Flint, Mich. 48504
Signed Marianne Burns (AUTHORIZED REPRESENTATIVE) Date 12-18-78

D67d 100M (Rev. 12-68)

GEOLOGICAL SURVEY COPY

GEOLOGICAL SURVEY SAMPLE No.

3 DEC 05 1978

WATER WELL RECORD

ACT 294 PA 1965

MICHIGAN DEPARTMENT OF PUBLIC HEALTH

NE SE SE

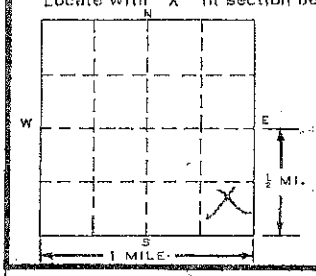
1 LOCATION OF WELL

County	Township Name	Fraction	Section Number	Town Number	Range Number
Genesee	Fenton	~~SE¼ SE¼ NE¼~~	20	T5 N/S.	R6 E/W.

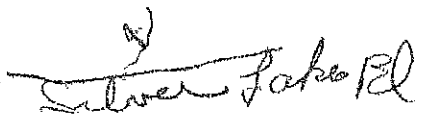
Distance And Direction from Road Intersections: 1/4 mile N of Silver Lake Rd

Street address & City of Well Location: 218 Kelley Rd Linden

Locate with "X" in section below



Sketch Map:



3 OWNER OF WELL:

Address: Harold Kinyon Squire Bridge Linden Mich

4 WELL DEPTH: (completed)

56 ft. Date of Completion Sept 1978

5

☐ Cable tool ☐ Rotary ☐ Driven ☐ Dug

☒ Hollow rod ☐ Jetted ☐ Bored ☐ ____

6 USE:

☒ Domestic ☐ Public Supply ☐ Industry

☐ Irrigation ☐ Air Conditioning ☐ Commercial

☐ Test Well ☐ ____

7 CASING:

Threaded ☒ Welded ☐

Diam. 2 in. to 53 ft. Depth

____ in. to ____ ft. Depth

Height: Above/Below Surface 1 ft.

Weight ____ lbs./ft.

Drive Shoe? Yes ☒ No ☐

8 SCREEN:

Type: Stainless Dia.: 1¼"

~~Slot~~/Gauze 60 Length 42"

Set between 53 ft. and 56 ft.

Fittings: ¼ coupl Checkvalve

9 STATIC WATER LEVEL

30 ft. below land surface

10 PUMPING LEVEL below land surface

36 ft. after 1 hrs. pumping 10 g.p.m.

____ ft. after ____ hrs. pumping ____ g.p.m.

11 WATER QUALITY in Parts Per Million:

Iron (Fe) ____ Chlorides (Cl) ____

Hardness ____ Other ____

12 WELL HEAD COMPLETION:

☐ In Approved Pit

☒ Pitless Adapter ☐ 12" Above Grade

13 Well Grouted?

☐ Yes ☐ No

☐ Neat Cement ☐ Bentonite ☐ ____

Depth: From ____ ft. to ____ ft.

14 Nearest Source of possible contamination

10 feet S Direction Septic Type

Well disinfected upon completion ☒ Yes ☐ No

15 PUMP:

☐ Not installed

Manufacturer's Name F&W

Model Number ____ HP ½ Volts 110

Length of Drop Pipe 42 ft. capacity 7 G.P.M.

Type: ☐ Submersible

☒ Jet ☐ Reciprocating

2 FORMATION

FORMATION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Caly + Sand	20	20
Clay	30	50
Water sand	6	56

USE A 2ND SHEET IF NEEDED

16 Remarks, elevation, source of data, etc.

ADDED INFO BY DRILLER, ITEM NO.

*CORRECTED BY MJS

**ADDITION BY

ELEVATION

DEPTH TO ROCK

17 WATER WELL CONTRACTOR'S CERTIFICATION:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Ken Lee Well Drilling 0654

REGISTERED BUSINESS NAME REGISTRATION NO.

Address 412 N Bridge

Signed Robert Lathrop Jr. Date Sept 15 78

AUTHORIZED REPRESENTATIVE

D67d 100M (Rev. 12-68)

GEOLOGICAL SURVEY COPY

GEOLOGICAL SURVEY SAMPLE No.

3 OCT 21 1976

WATER WELL RECORD
ACT 294 PA 1965

MICHIGAN DEPARTMENT OF PUBLIC HEALTH

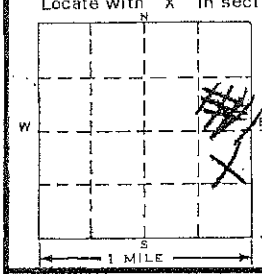
1 LOCATION OF WELL

County	Township Name	Fraction	Section Number	Town Number	Range Number
Genesee	Fenton	SE¼ NE¼ SE¼	20	5 N/S.	6 E/W.

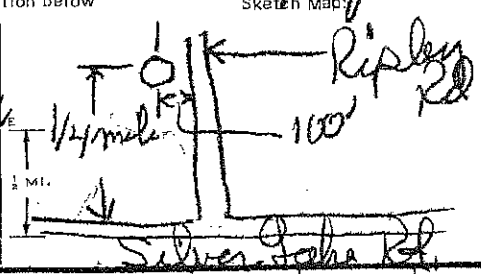
Distance And Direction from Road Intersections: about ½ mile N of Silver Lake Rd 100' W of Ripley Rd 324 Ripley Rd. Fenton

Street address & City of Well Location

Locate with "X" in section below



Sketch Map:



3 OWNER OF WELL: Harold Kenyon

Address: 119 S. Bridge St. Linden

4 WELL DEPTH: (completed) 55 ft. Date of Completion 8-31-76

5 ☐ Cable tool ☐ Rotary ☐ Driven ☐ Dug ☒ Hollow rod ☒ Jetted ☐ Bored ☐ ____

6 USE: ☒ Domestic ☐ Public Supply ☐ Industry ☐ Irrigation ☐ Air Conditioning ☐ Commercial ☐ Test Well ☐

7 CASING: Threaded ☐ Welded ☐ Diam. 2 in. to 52 ft. Depth; ____ in. to ____ ft. Depth. Height: Above/Below Surface / ft. Weight 3.75 lbs./ft. Drive Shoe? ☐ Yes ☒ No

8 SCREEN: Type: SS Jacket Dia.: 1¼" Slot/Gauze ____ Length 4.2 Set between 53 ft. and 55 ft. Fittings: ¼ tail piece, 2 Bronze

9 STATIC WATER LEVEL: 30 ft. below land surface

10 PUMPING LEVEL below land surface: 36 ft. after 1 hrs. pumping 10 g.p.m.; ____ ft. after ____ hrs. pumping ____ g.p.m.

11 WATER QUALITY in Parts Per Million: Iron (Fe) ____ Chlorides (Cl) ____ Hardness ____ Other ____

12 WELL HEAD COMPLETION: ☐ in Approved Pit ☐ Pitless Adapter ☒ 12" Above Grade

13 Well Grouted? ☐ Yes ☒ No ☐ Neat Cement ☐ Bentonite ☐ ____ Depth: From ____ ft. to ____ ft.

14 Nearest Source of possible contamination: 30 feet N Direction Sewer line Type. Well disinfected upon completion ☒ Yes ☐ No

15 PUMP: ☒ Not installed. Manufacturer's Name ____ Model Number ____ HP ____ Volts ____ Length of Drop Pipe ____ ft. capacity ____ G.P.M. Type: ☐ Submersible ☐ Jet ☐ Reciprocating

2 FORMATION

FORMATION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Yellow clay	13	13
Blue clay with gravel	23	36
Water gravel + Sand	16	52
Water gravel (fine)	3	55

USE A 2ND SHEET IF NEEDED

16 Remarks, elevation, source of data, etc.

ADDED INFO BY DRILLER, ITEM NO.
*CORRECTED BY MSD
**ADDITION BY
ELEVATION
DEPTH TO ROCK

17 WATER WELL CONTRACTOR'S CERTIFICATION: 0654

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Ken Lee Well Drilling 0645
REGISTERED BUSINESS NAME — REGISTRATION NO.

Address 412 N. Bridge St Linden

Signed Harold W. Kenyon Date 9-1-76
AUTHORIZED REPRESENTATIVE

D67d 100M (Rev. 12-68)

GEOLOGICAL SURVEY COPY

GEOLOGICAL SURVEY NO.

MICHIGAN DEPARTMENT OF PUBLIC HEALTH

WATER WELL AND PUMP RECORD

PERMIT NUMBER

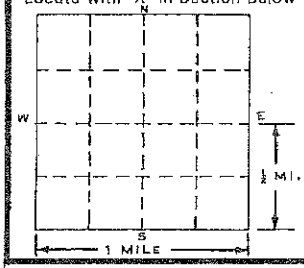
1 LOCATION OF WELL

County	Township Name	Fraction	Section Number	Town Number	Range Number
Genesee	Fenton	ne ¼ ne ¼ ne ¼	20	T 5 N N/S	R 6 E E/W

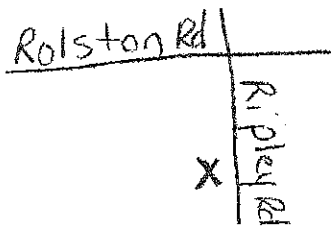
Distance And Direction From Road Intersection: 1/2 mile S. of Rolston on W. Side

Street Address & City of Well Location

Locate with "X" in Section Below



Sketch Map:



3 OWNER OF WELL: Michael Stevens
Address: 14184 Ripley Rd. Linden, MI 48451
Address Same As Well Location? [X] Yes [ ] No

4 WELL DEPTH: 42 FT. Date Completed MO. 7 DAY 24 YEAR 91 [ ] New Well [X] Replacement Well

5 [ ] Cable tool [X] Rotary [ ] Driven [ ] Dug [ ] Hollow rod [ ] Auger [ ] Jetted [ ]

6 USE: [X] Domestic [ ] Type I Public [ ] Type III Public [ ] Irrigation [ ] Type IIa Public [ ] Heat pump [ ] Test Well [ ] Type IIb Public [ ]

7 CASING: Diameter [ ] Steel [ ] Threaded [X] Plastic [ ] Welded
5 in. to 37 ft. depth
in. to ft. depth
Grouted Drill Hole Diameter
8½ in. to 37 ft. depth
in. to ft. depth
Height: Above/Below
Surface 1 ft.
Weight lbs./ft.
Drive Shoe [ ] Yes [X] No

8 SCREEN: [ ] Not Installed
Type PVC Diameter
Slot/Gauze 20 Length
Set between 37 ft. and 42 ft.
FITTINGS: [ ] K-Packer [ ] Lead Packer [ ] Bremer Check [ ] Blank above screen ft. Other

2 FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Clay	5	5
Sand	5	10
Clay	12	22
Sand and Gravel	20	42

9 STATIC WATER LEVEL: 20 ft. below land surface [ ] Flow

10 PUMPING LEVEL: below land surface
35 ft. after 1 hrs. pumping at 20 G.P.M.
ft. after hrs. pumping at G.P.M.

11 WELL HEAD COMPLETION: [X] Pitless adapter [ ] 12" above grade [ ] Basement offset [ ] Approved pit

12 WELL GROUTED? [ ] No [X] Yes From ft. to ft.
[ ] Neat cement [X] Bentonite [ ] Other
No. of bags of cement Additives

13 Nearest source of possible contamination
Type Septic Distance 50 ft. Direction E
Well disinfected upon completion? [X] Yes [ ] No
Was old well plugged? [ ] Yes [ ] No

14 PUMP: [ ] Not Installed [ ] Pump Installation Only
Manufacturer's name Red Jacket
Model number HP Volts
Length of Drop Pipe ft. capacity G.P.M.
TYPE: [X] Submersible [ ] Jet
PRESSURE TANK:
Manufacturer's name Well-X-Trol
Model number 202 Capacity 40 Gallons

USE A 2ND SHEET IF NEEDED

RECEIVED
Mich. Dept. of Public Health
AUG 14 1991

15. Remarks, elevation, source of data, etc.:

16. WATER WELL CONTRACTOR'S CERTIFICATION: This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Ken Lee Well Drilling (REGISTERED BUSINESS NAME) 0654 (REGISTRATION NO.)
Address P.O. Box 342 Linden, MI 48451
Signed (AUTHORIZED REPRESENTATIVE) Date 7-25-91

17. Rig Operator's Name:

BUREAU OF ENVIRONMENTAL AND OCCUPATIONAL HEALTH-GWQS

D57d 2/89

Authority: Act 368 PA 1978
Completion: Required
Penalty: Conviction of a violation of any provision is a misdemeanor.

GEOLOGICAL SURVEY COPY

TAX NO:

MICHIGAN DEPARTMENT OF PUBLIC HEALTH
WATER WELL AND PUMP RECORD

PERMIT NO:

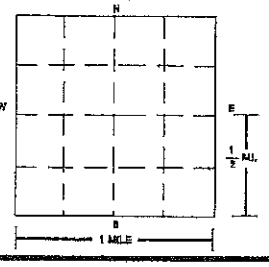
1. LOCATION OF WELL

County	Township Name	Fraction	Section No.	Town No.	Range No.
Genesee	Fenton	se 1/4 1/4 1/4	20	5n	6e

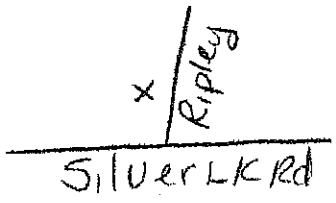
Distance and Direction from Road Intersection
3/16 mile N of Silver Lk Rd on W side of Ripley Rd.

Street Address & City of Well Location

Locate with 'x' in Section Below



Sketch Map



3. OWNER OF WELL
Address: Will & Sons (creekwood)
1212 Ripley Rd
Linden, MI 48451
Address Same as Well Location ☒ Yes ☐ No

4. WELL DEPTH: 76 ft. | Date Completed 9/19/95 | ☒ New Well ☐ Replacement Well

5. ☐ Cable Tool ☒ Rotary ☐ Driven ☐ Dug ☐ Hollow Rod ☐ Auger/Bored ☐ Jetted ☐ ____

6. USE: ☒ Household ☐ Type I Public ☐ Type III Public ☐ Irrigation ☐ Type IIa Public ☐ Heat Pump ☐ Test Well ☐ Type IIb Public ☐ ____

7. CASING: ☐ Steel ☐ Threaded ☒ Plastic ☐ Welded ☐ Other ____
Height: Above/Below Surface: 1 ft
Diameter: 5 in. to 71 ft. depth
____ in. to ____ ft. depth
Weight SDR21 lbs./ft.
BORE HOLE:
Diameter: 8½ in. to 76 ft. depth
____ in. to ____ ft. depth
☐ Drive Shoe ☐ Shale Packer

2. FORMATION DESCRIPTION

FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Clay	5	5
Peat mass	5	10
Clay	10	20
Sand and clay	20	40
Clay	22	62
Gravel	14	76

USE A 2ND SHEET IF NEEDED

8. SCREEN: ☐ Not Installed ☐ Gravel-Packed
Type PVC Diameter 5 in.
Slot/Gauze 20 Length: 5 ft.
Set Between 71 ft. and 76 ft.
FITTINGS: ☐ K-Packer ☐ Bremer Check
☐ Blank Above Screen ____ ft. Other ____

9. STATIC WATER LEVEL:
20 ft. Below Land Surface ☐ Flowing

10. PUMPING LEVEL: Below Land Surface
60 ft. After 1 hrs. Pumping at 25 G.P.M.
☐ Plunger ☐ Bailer ☐ Air ☒ Test Pump

11. WELL HEAD COMPLETION:
☒ Pitless Adapter ☐ 12" Above Grade
☐ Basement Offset ☐ Well House

12. WELL GROUTED? ☐ No ☒ Yes From 0 to 65 ft.
☐ Neat Cement ☒ Bentonite ☒ Other pressure
No. of Bags 7 Additives benseal

13. NEAREST SOURCE OF POSSIBLE CONTAMINATION:
Type Sewer Distance 20 ft. Direction S
Type ____ Distance ____ ft. Direction ____

14. PUMP: ☐ Not Installed ☐ Pump Installation Only
Manufacturer's Name Red Jacket
Model Number 50rtw1-mn9bd HP ½ Volts 220
Length of Drop Pipe 61 ft. Capacity 10 G.P.M.
TYPE: ☒ Submersible ☐ Jet ☐ Other ____
PRESSURE TANK:
Manufacturer's Name Well-Rite
Model Number 202 pc-66 Capacity 20 Gallons 6.6

15. ABANDONED WELL PLUGGED? ☐ Yes ☐ No
Casing Diameter ____ in. Depth ____ ft.
PLUGGING MATERIAL: ☐ Neat Cement ☐ Bentonite Slurry ☐ Cement/Bentonite Slurry ☐ Concrete Grout ☐ Bentonite Chips
No. of Bags ____ Casing Removed? ☐ Yes ☐ No

16. REMARKS: (Elevation, Source of Data, etc.)

15. WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Ken Lee Well Drilling (REGISTERED BUSINESS NAME) 0654 (REGISTRATION NO.)
Address P.O. box 342 Linden, MI 48451
Signed ____ (AUTHORIZED REPRESENTATIVE) Date 9-21-95

17. DRILLING MACHINE OPERATOR:
☒ Employee ☐ Subcontractor
Name Percy Buck

GW-2-228 9/93

GEOLOGICAL SURVEY COPY

Authority: Act 368 PA 1978
Completion: Required
Penalty: Conviction of a violation of any provision is a misdemeanor.

GEOLOGICAL SURVEY SAMPLE No. _____

WATER WELL RECORD

ACT 294 PA 1965

MICHIGAN DEPARTMENT OF PUBLIC HEALTH

1 LOCATION OF WELL

County	Twp.	Fraction	Section No.	Town	Range
Genesse	Fenton	¼SE¼NW¼	20	5 N/S	6 E/W M

Distance And Direction from Road Intersections: 741 Franklin St. Linden, Michigan

Street address & City of Well Location

OWNER No. _____

3 OWNER OF WELL:

Address: Bowles, Robert P.O. Box 567, Linden, Mich.

2 FORMATION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Clay	30	30
Stone	1	31
Soft sand	12	43
Sand	4	47

4 WELL DEPTH: (completed) 47 ft. **Date of Completion** July 1968

5 ☐ Cable tool ☐ Rotary ☐ Driven ☐ Dug ☒ Hollow rod ☐ Jetted ☐ Bored ☐ ___

6 USE: ☒ Domestic ☐ Public Supply ☐ Industry ☐ Irrigation ☐ Air Conditioning ☐ Commercial ☐ Test Well ☐ _____

7 CASING: Threaded ☒ Welded ☐

Dia. 2 in. to 44½ ft. Depth

___ in. to ___ ft. Depth

Height: Above/Below surface _____ ft.

Weight 3.75 lbs/ft.

Drive Shoe? Yes ☒ No ☐

8 SCREEN:

Type: wire wound Dia. 1¼"

Slot/Gauze Gauze Length 2½'

Set between 44½ ft. and 47 ft.

Fittings: standard

9 STATIC WATER LEVEL

_____ ft. below land surface

10 PUMPING LEVEL below land surface

D/W ft. after 1 hrs. pumping 15 g.p.m.

_____ ft. after _____ hrs. pumping _____ g.p.m.

11 WATER QUALITY in Parts Per Million:

Iron (Fe) _____ Chlorides (Cl) _____

Hardness _____

12 WELL HEAD COMPLETION: ☐ In Approved Pit ☐ Pitless Adapter ☒ 12" Above Grade

13 GROUTING:

Well Grouted? ☐ Yes ☒ No

Material: ☐ Neat Cement ☐ _____

Depth: From _____ ft. to _____ ft.

14 SANITARY:

Nearest Source of possible contamination

75 feet _____ Direction septic tank

Well disinfected upon completion ☒ Yes ☐ No

15 PUMP:

Manufacturer's Name not installed

Model Number _____ HP _____

Length of Drop Pipe 43 ft. Capacity 1 G.P.M.

Type: ☐ Submersible ☐ _____ ☐ Jet ☐ Reciprocating

16 Remarks, elevation, source of data, etc.

ADDED INFO. BY DRILLER, ITEM No.

*CORRECTED BY:

**ADDITION BY:

17 WATER WELL CONTRACTOR'S CERTIFICATION:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Brown Drilling Co. (REGISTERED BUSINESS NAME) 26 (REGISTRATION NO.)

Address Howell, Michigan

Signed Harry R Brown (AUTHORIZED REPRESENTATIVE) Date Oct 68

D57D 100M 6-66

JUN 2 1969

GEOLOGICAL SURVEY COPY

GEOLOGICAL SURVEY SAMPLE No. [ ]

WATER WELL RECORD
ACT 294 PA 1965

MICHIGAN DEPARTMENT OF PUBLIC HEALTH

20

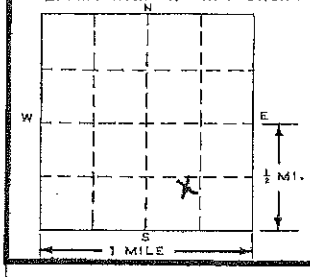
1 LOCATION OF WELL

County	Township Name	Fraction	Section Number	Town Number	Range Number
Genesee	Fenton	¼ ¼ ¼		5N N/S.	6E E/W.

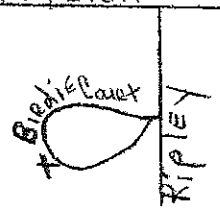
Distance And Direction from Road Intersections: Lahting & Ralston off Ripley

Street address & City of Well Location: 1325 Birdie Court, Linden

Locate with "X" in section below



Sketch Map:



3 OWNER OF WELL: Ed Hintz
Address: 1325 Birdie Court, Linden, MI

4 WELL DEPTH: (completed) 202 ft. Date of Completion: Sept. 25, 1978

5 ☐ Cable tool ☒ Rotary ☐ Driven ☐ Dug ☐ Hollow rod ☐ Jetted ☐ Bored ☐ ____

6 USE: ☒ Domestic ☐ Public Supply ☐ Industry ☐ Irrigation ☐ Air Conditioning ☐ Commercial ☐ Test Well ☐

7 CASING: Threaded ☒ Welded ☐ Diam. 4 in. to 108 ft. Depth; ____ in. to ____ ft. Depth
Height: Above/Below Surface 1 ft. Weight 11 lbs./ft. Drive Shoe? Yes ☒ No ☐

8 SCREEN: Type: ____ Dia.: ____ Slot/Gauze ____ Length ____ Set between ____ ft. and ____ ft. Fittings:

9 STATIC WATER LEVEL 35 ft. below land surface

10 PUMPING LEVEL below land surface: 110 ft. after 3 hrs. pumping 33 g.p.m.; ____ ft. after ____ hrs. pumping ____ g.p.m.

11 WATER QUALITY in Parts Per Million: Iron (Fe) ____ Chlorides (Cl) ____ Hardness ____ Other ____

12 WELL HEAD COMPLETION: ☐ In Approved Pit ☒ Pitless Adapter ☐ 12" Above Grade

13 Well Grouted? ☒ Yes ☐ No ☐ Neat Cement ☒ Bentonite ☐ ____ Depth: From 1 ft. to 108 ft.

14 Nearest Source of possible contamination: 50 feet SE Direction septic Type
Well disinfected upon completion ☒ Yes ☐ No

15 PUMP: ☐ Not installed
Manufacturer's Name: Webtrol
Model Number ____ HP 1 Volts 230
Length of Drop Pipe 100 ft. capacity ____ G.P.M.
Type: ☒ Submersible ☐ Jet ☐ Reciprocating

2 FORMATION

FORMATION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Clay & Gravel	40'	40'
Gravel	40'	80'
Clay & Gravel	28'	108'
Sandstone	30'	138'
Sandy Shale	44'	182'
Sandstone	20'	202'

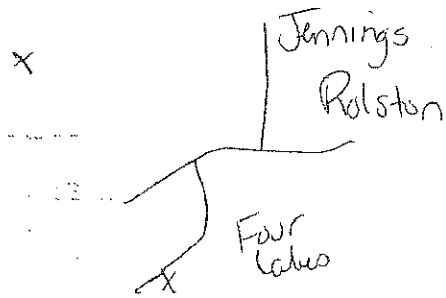
USE A 2ND SHEET IF NEEDED

16 Remarks, elevation, source of data, etc.

17 WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief,
LYONS WELL DRILLING (REGISTERED BUSINESS NAME) 0032 (REGISTRATION NO.)
Address G-8107 N. Dort Hwy. Mt. Morris, MI
Signed Kenneth W. Lyons (AUTHORIZED REPRESENTATIVE) Date Oct. 23, 1978

D67d 100M (Rev. 12-68)

GEOLOGICAL SURVEY COPY



RECEIVED
MICH. DEPT. OF PUBLIC HEALTH
APR 20 95
BUREAU OF ENVIRONMENTAL
AND OCCUPATIONAL HEALTH

Edward Bishnevic

TAX NO:

MICHIGAN DEPARTMENT OF PUBLIC HEALTH
WATER WELL AND PUMP RECORD

PERMIT NO:

1. LOCATION OF WELL

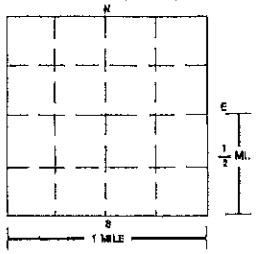
County	Township Name	Fraction	Section No.	Town No.	Range No.
Genesee	Fenton	SE 1/4 SW 1/4 SE 1/4	20	5N	6E

Distance and Direction from Road Intersection

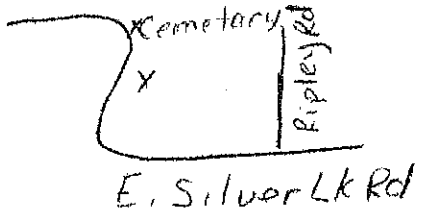
1 mile N-W of Ripley Rd. on E side of E. Silver Ld. Rd.

Street Address & City of Well Location

Locate with 'x' in Section Below



Sketch Map



3. OWNER OF WELL

Address: Robert C. Lathrop Jr.
355 E. Silver LK. RD.
Linden, MI 48451

Address Same as Well Location [X] Yes [ ] No

4. WELL DEPTH: 180 ft. Date Completed 7 / 18 / 94 [X] New Well [ ] Replacement Well

5. [ ] Cable Tool [X] Rotary [ ] Driven [ ] Dug [ ] Hollow Rod [ ] Auger/Bored [ ] Jetted [ ] _____

6. USE: [X] Household [ ] Type I Public [ ] Type III Public [ ] Irrigation [ ] Type IIa Public [ ] Heat Pump [ ] Test Well [ ] Type IIb Public [ ] _____

7. CASING: [ ] Steel [ ] Threaded [X] Plastic [ ] Welded [ ] Other _____
Diameter: 5 in. to 130 ft. depth; _____ in. to _____ ft. depth
Height: Above/Below Surface: 1 ft
Weight: Sdr21 lbs./ft.
BORE HOLE: Diameter: 8½ in. to 130 ft. depth; 4½ in. to 180 ft. depth
[ ] Drive Shoe [ ] Shale Packer

2. FORMATION DESCRIPTION

	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Clay	10	10
Sand	40	50
Clay	20	70
Sand	25	95
Gravel	25	120
Bedrock	60	180

USE A 2ND SHEET IF NEEDED

8. SCREEN: [ ] Not Installed [ ] Gravel-Packed
Type Rock Diameter 5" Slot/Gauze _____ Length: _____
Set Between _____ ft. and _____ ft.
FITTINGS: [ ] K-Packer [ ] Bremer Check [ ] Blank Above Screen _____ ft. Other _____

9. STATIC WATER LEVEL: 25 ft. Below Land Surface [ ] Flowing

10. PUMPING LEVEL: Below Land Surface
180 ft. After 1 hrs. Pumping at 30 G.P.M.
[ ] Plunger [ ] Bailer [ ] Air [ ] Test Pump

11. WELL HEAD COMPLETION:
[X] Pitless Adapter [ ] 12" Above Grade [ ] Basement Offset [ ] Well House

12. WELL GROUTED? [ ] No [X] Yes From 0 to 100 ft.
[ ] Neat Cement [X] Bentonite [X] Other pressure
No. of Bags 6 Additives Benseal

13. NEAREST SOURCE OF POSSIBLE CONTAMINATION:
Type Sewer Distance 60 ft. Direction S-W
Type _____ Distance _____ ft. Direction _____

14. PUMP: [ ] Not Installed [ ] Pump Installation Only
Manufacturer's Name Red Jacket
Model Number _____ HP 1 Volts 220
Length of Drop Pipe 120 ft. Capacity 22 G.P.M.
TYPE: [X] Submersible [ ] Jet [ ] Other _____
PRESSURE TANK:
Manufacturer's Name Well-rite
Model Number WX-252 Capacity _____ Gallons _____

15. ABANDONED WELL PLUGGED? [ ] Yes [ ] No
Casing Diameter _____ In. Depth _____ ft.
PLUGGING MATERIAL: [ ] Neat Cement [ ] Bentonite Slurry [ ] Cement/Bentonite Slurry [ ] Concrete Grout [ ] Bentonite Chips
No. of Bags _____ Casing Removed? [ ] Yes [ ] No

16. REMARKS: (Elevation, Source of Data, etc.)

17. DRILLING MACHINE OPERATOR:
[ ] Employee [ ] Subcontractor
Name _____

15. WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Ken Lee Well Drilling (REGISTERED BUSINESS NAME) 0654 (REGISTRATION NO.)
Address P.O. Box 342 Linden, MI 48451
Signed _____ (AUTHORIZED REPRESENTATIVE) Date 7-22-94

GW-2-228 9/93

GEOLOGICAL SURVEY COPY

Authority: Act 368 PA 1978
Completion: Required
Penalty: Conviction of a violation of any provision is a misdemeanor.

GEOLOGICAL SURVEY NO.

MICHIGAN DEPARTMENT OF PUBLIC HEALTH
WATER WELL AND PUMP RECORD

PERMIT NUMBER

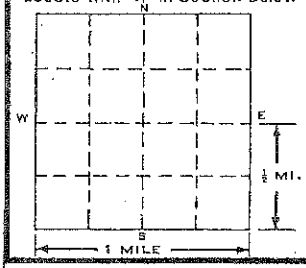
1 LOCATION OF WELL

County	Township Name	Fraction	Section Number	Town Number	Range Number
Genesee	Fenton	NE ¼ SE ¼ NE ¼	20	5 N/S	6 E/W

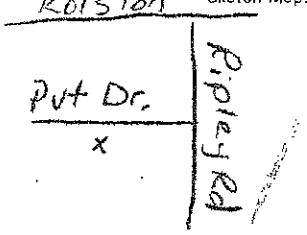
Distance And Direction From Road Intersection: 200' W. off Ripley Rd. ¼ mile S. of Ralston Rd.

Street Address & City of Well Location

Locate with "X" in Section Below



Sketch Map:



3 OWNER OF WELL: Neil Leunberg
Address: 14182 Ripley Linden, mi 48451
Address Same As Well Location? ☒ Yes ☐ No

4 WELL DEPTH: 33 FT. Date Completed MO 3 DAY 31 YEAR 94 ☐ New Well ☒ Replacement Well

5 ☐ Cable tool ☒ Rotary ☐ Driven ☐ Dug ☐ Hollow rod ☐ Auger ☐ Jetted ☐ _____

6 USE: ☒ Domestic ☐ Type I Public ☐ Type III Public ☐ Irrigation ☐ Type IIa Public ☐ Heat pump ☐ Test Well ☐ Type IIb Public ☐ _____

7 CASING: Diameter ☐ Steel ☐ Threaded ☒ Plastic ☐ Welded
5 in. to 28 ft. depth
_____ in. to _____ ft. depth
Grouted Drill Hole Diameter 8½ in. to 28 ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface 1 ft.
Weight SDR21 lbs./ft.
Drive Shoe ☐ Yes ☒ No

8 SCREEN: ☐ Not Installed
Type PVC Diameter 5"
Slot/Gauze 20 Length 5'
Set between 28 ft. and 33 ft.
FITTINGS: ☐ K-Packer ☐ Lead Packer ☐ Bremer Check ☐ Blank above screen _____ ft. Other _____

9 STATIC WATER LEVEL: 10 ft. below land surface ☐ Flow

10 PUMPING LEVEL: below land surface
30 ft. after 1 hrs. pumping at 18 G.P.M.
_____ ft. after _____ hrs. pumping at _____ G.P.M.

11 WELL HEAD COMPLETION: ☒ Pitless adapter ☐ 12" above grade ☐ Basement offset ☐ Approved pit

12 WELL GROUTED? ☐ No ☒ Yes From 0 to 25 ft.
☐ Neat cement ☒ Bentonite ☒ Other pressure
No. of bags of cement 2 Additives Bonseal

13 Nearest source of possible contamination
Type Septic Distance 60 ft. Direction N-W
Well disinfected upon completion? ☒ Yes ☐ No
Was old well plugged? ☐ Yes ☐ No

14 PUMP: ☐ Not Installed ☐ Pump Installation Only
Manufacturer's name Red Jacket
Model number SUP(N)1-M4PBC HP ½ Volts 220
Length of Drop Pipe 18 ft. capacity 10 G.P.M.
TYPE: ☒ Submersible ☐ Jet _____
PRESSURE TANK:
Manufacturer's name well-rite
Model number 202 PC-66 Capacity 7 Gallons

2 FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Sand	4	4
Clay	21	25
Sand & gravel	8	33

USE A 2ND SHEET IF NEEDED

RECEIVED
MICH. DEPT. OF PUBLIC HEALTH
MAY 1 94
BUREAU OF ENVIRONMENTAL
AND OCCUPATIONAL HEALTH

15. Remarks, elevation, source of data, etc.

17. Rig Operator's Name:

16. WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
Ken Lee Well Drilling 0654
REGISTERED BUSINESS NAME REGISTRATION NO.
Address P.O. Box 342 Linden, MI 48451
Signed Robert Lee Date 4-4-94
AUTHORIZED REPRESENTATIVE

Authority: Act 368 PA 1978
Completion: Required
Penalty: Conviction of a violation of any provision is a misdemeanor.

D67d 2/89

GEOLOGICAL SURVEY COPY

GEOLOGICAL SURVEY NO. [ ]

MICHIGAN DEPARTMENT OF PUBLIC HEALTH

WATER WELL AND PUMP RECORD

PERMIT NUMBER [ ][ ][ ][ ][ ][ ][ ][ ][ ][ ]

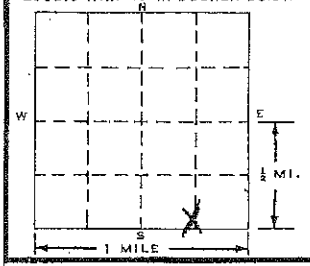
1 LOCATION OF WELL

County	Township Name	Fraction	Section Number	Town Number	Range Number
Genesee	Fenton	se ¼ SW ¼ se ¼	20	5n N/S	6e E/W

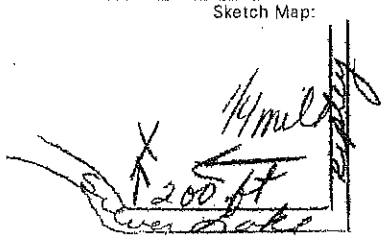
Distance And Direction From Road Intersection: about ½ mile west of Ribley and about 200 feet north of Silver Lake

Street Address & City of Well Location: 639 Silver Lake Linden

Locate with "X" in Section Below



Sketch Map:



3 OWNER OF WELL:

Address: Ted Tharp, 639 Silver Lake, Linden, MI

Address Same As Well Location? [X] Yes [ ] No

4 WELL DEPTH:

180 FT.

Date Completed: MO. 9 DAY 30 YEAR 92

[ ] New Well [X] Replacement Well

5

[X] Cable tool [ ] Rotary [ ] Driven [ ] Dug
[ ] Hollow rod [ ] Auger [ ] Jetted [ ]

6 USE:

[X] Domestic [ ] Type I Public [ ] Type III Public
[ ] Irrigation [ ] Type IIa Public [ ] Heat pump
[ ] Test Well [ ] Type IIb Public [ ]

7 CASING:

Diameter: [ ] Steel [ ] Threaded [X] Plastic [ ] Welded

5 in. to 129 ft. depth

in. to ft. depth

Grouted Drill Hole Diameter: 7 7/8 in. to 129 ft. depth

in. to ft. depth

Height: Above/Below Surface ft.

Weight 2.92 lbs./ft.

Drive Shoe: [X] Yes [ ] No

8 SCREEN:

[XX] Not Installed

Type Diameter

Slot/Gauze Length

Set between ft. and ft.

FITTINGS: [ ] K-Packer [ ] Lead Packer [ ] Bremer Check

[ ] Blank above screen ft. Other

9 STATIC WATER LEVEL:

40 ft. below land surface [ ] Flow

10 PUMPING LEVEL: below land surface

80 ft. after 2 hrs. pumping at 1000 G.P.M. GPH

ft. after hrs. pumping at G.P.M.

11 WELL HEAD COMPLETION:

[X] Pitless adapter [ ] 12" above grade
[ ] Basement offset [ ] Approved pit

12 WELL GROUTED?

[ ] No [X] Yes From 0 to 129 ft.

[ ] Neat cement [X] Bentonite [ ] Other

No. of bags of cement Additives

13 Nearest source of possible contamination

Type Distance ft. Direction

Well disinfected upon completion? [X] Yes [ ] No

Was old well plugged? [X] Yes [ ] No

14 PUMP:

[ ] Not Installed [ ] Pump Installation Only

Manufacturer's name Tait

Model number 5DL210F HP ½ Volts 115

Length of Drop Pipe 75 ft. capacity 10 G.P.M.

TYPE: [X] Submersible [ ] Jet

PRESSURE TANK:

Manufacturer's name Challenger

Model number PC66 Capacity 20 Gallons

2 FORMATION DESCRIPTION

FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Yellow Clay	16	16
Blue Clay	30	46
Sand & Gravel	30	76
Sandy Clay	26	102
Blue Clay	16	118
Broken Rock	7	125
Sandstone	55	180

USE A 2ND SHEET IF NEEDED

RECEIVED
Mich. Dept. of Public Health
FEB 24 1993
BUREAU OF ENVIRONMENTAL AND OCCUPATIONAL HEALTH-GWQS

15. Remarks, elevation, source of data, etc.

16. WATER WELL CONTRACTOR'S CERTIFICATION:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Gil Sunde Well Drilling 1710
REGISTERED BUSINESS NAME REGISTRATION NO.

Address 6478035 Corunna Rd Flint, MI

Signed [signature] Date 2-30-93
AUTHORIZED REPRESENTATIVE

17. Rig Operator's Name:

Brian Sunde

D67d 2/89

Authority: Act 368 PA 1978
Completion: Required
Penalty: Conviction of a violation of any provision is a misdemeanor.

GEOLOGICAL SURVEY COPY

GEOLOGICAL SURVEY SAMPLE No.

SEP 29 1972

WATER WELL RECORD

ACT 294 PA 1965

NE NW NW

MICHIGAN DEPARTMENT OF PUBLIC HEALTH

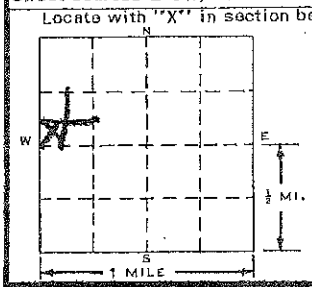
1 LOCATION OF WELL

County	Township Name	Fraction	Section Number	Town Number	Range Number
Genesee	Fenton	~~SW¼ SW¼ NW¼~~	~~17~~ 20	5 ~~W~~/S.	6 ~~W~~/W.

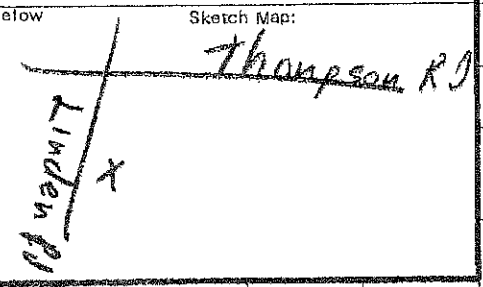
Distance And Direction from Road Intersections: 1 Mile So of Thompson Rd + 100 ft. E of Linden Rd.

Street address & City of Well Location

Locate with "X" in section below



Sketch Map:



3 OWNER OF WELL: Larry Morton

Address 12078 Linden Rd. Fenton, Mich

4 WELL DEPTH: (completed) 160 ft. Date of Completion Sept. 71

5 ☐ Cable tool ☒ Rotary ☐ Driven ☐ Dug ☐ Hollow rod ☐ Jetted ☐ Bored ☐ ____

6 USE: ☒ Domestic ☐ Public Supply ☐ Industry ☐ Irrigation ☐ Air Conditioning ☐ Commercial ☐ Test Well ☐ ____

7 CASING: Threaded ☐ Welded ☐ Diam. 2 in. to 110 ft. Depth ____ in. to ____ ft. Depth

Height: Above/~~Below~~ Surface 1 ft. Weight 3.75 lbs./ft. Drive Shoe? Yes ☒ No ☐

2 FORMATION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Clay	40	40
Sand	13	53
Clay	40	93
Shale	17	110
Rock	50	160

USE A 2ND SHEET IF NEEDED

8 SCREEN:

Type: ____ Dia.: ____

Slot/Gauze ____ Length ____

Set between ____ ft. and ____ ft.

Fittings:

9 STATIC WATER LEVEL

25 ft. below land surface

10 PUMPING LEVEL below land surface

42 ft. after 1 hrs. pumping 11 g.p.m.

____ ft. after ____ hrs. pumping ____ g.p.m.

11 WATER QUALITY in Parts Per Million:

Iron (Fe) ____ Chlorides (Cl) ____

Hardness ____ Other ____

12 WELL HEAD COMPLETION: ☐ In Approved Pit ☒ Pitless Adapter ☒ 12" Above Grade

13 Well Grouted? ☒ Yes ☐ No ☐ Neat Cement ☒ Bentonite ☐ ____

Depth: From 0 ft. to 110 ft.

14 Nearest Source of possible contamination

50 feet N Direction Septic Type

Well disinfected upon completion ☒ Yes ☐ No

15 PUMP: ☐ Not installed

Manufacturer's Name Rapidaytor

Model Number 7E2 HP 3/4 Volts 110

Length of Drop Pipe 42 ft. capacity 8 G.P.M.

Type: ☐ Submersible ☒ Jet ☐ Reciprocating

16 Remarks, elevation, source of data, etc.

ADDED INFO. BY DRILLER, ITEM NO.

CORRECTED BY: 18

ADDITION BY:

17 WATER WELL CONTRACTOR'S CERTIFICATION:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Robert Coon Well Drilg 0283

REGISTERED BUSINESS NAME REGISTRATION NO.

Address G-1111 Jefferson Dr. Flint 48551

Signed Robert Coon Date Sept 71

AUTHORIZED REPRESENTATIVE

D67d 100M (Rev. 12-68)

GEOLOGICAL SURVEY COPY

GEOLOGICAL SURVEY SAMPLE No. NOV 24 1980

4

WATER WELL RECORD
ACT 294 PA 1965

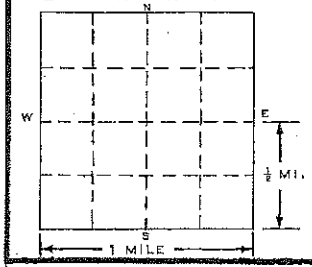
MICHIGAN DEPARTMENT OF PUBLIC HEALTH

1 LOCATION OF WELL

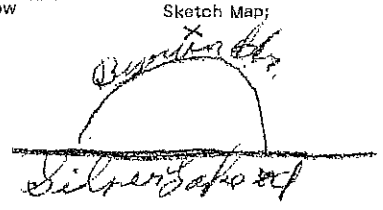
County	Township Name	Fraction	Section Number	Town Number	Range Number
Genesee	Fenton	¼ ¼ S½ ¼	20	5 N S.	6 E W.

Distance And Direction from Road Intersections
½ mile N. Linden Rd. & Lloyd Rd.
6105 Bigmouth Lake Linden
Street address & City of Well Location

Locate with "X" in section below



Sketch Map:



3 OWNER OF WELL: TED ZAJAS
Address 2252 - 18th - Wyandotte Mich. 48192

4 WELL DEPTH: (completed) 180 ft. Date of Completion 10-24-80

5 ☒ Cable tool ☐ Rotary ☐ Driven ☐ Dug ☐ Hollow rod ☐ Jetted ☐ Bored ☐ ____

6 USE: ☒ Domestic ☐ Public Supply ☐ Industry ☐ Irrigation ☐ Air Conditioning ☐ Commercial ☐ Test Well ☐ ____

7 CASING: Threaded ☐ Welded ☐
Diam. 4 in. to 178 ft. Depth
____ in. to ____ ft. Depth
Height: Above/Below Surface ____ ft.
Weight ____ lbs./ft.
Drive Shoe? Yes ☐ No ☐

2 FORMATION

FORMATION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
clay	60	60
sandy clay	15	15
clay	20	20
sandy clay	76	80
shale	14	14
Rock	41	

USE A 2ND SHEET IF NEEDED

8 SCREEN:
Type: Pipe Dia.: ____
Slot/Gauze ____ Length ____
Set between ____ ft. and ____ ft.
Fittings:

9 STATIC WATER LEVEL
40 ft. below land surface

10 PUMPING LEVEL below land surface
30 ft. after 1 hrs. pumping 5 g.p.m.
____ ft. after ____ hrs. pumping ____ g.p.m.

11 WATER QUALITY in Parts Per Million:
Iron (Fe) ____ Chlorides (Cl) ____
Hardness ____ Other ____

12 WELL HEAD COMPLETION: ☐ In Approved Pit ☒ Pitless Adapter ☒ 12" Above Grade

13 Well Grouted? ☐ Yes ☐ No ☐ Neat Cement ☐ Bentonite ☐ ____
Depth: From ____ ft. to ____ ft.

14 Nearest Source of possible contamination:
100 feet S Direction Sew Type
Well disinfected upon completion ☒ Yes ☐ No

15 PUMP: ☐ Not installed
Manufacturer's Name AMK
Model Number ____ HP ½ Volts 110
Length of Drop Pipe 80 ft. capacity 5 G.P.M.
Type: ☒ Submersible ☐ Jet ☐ Reciprocating

16 Remarks, elevation, source of data, etc.
ADDED INFO BY DRILLER (JOE NE)
CORRECTED BY
ADDITION BY Comm
ELEVATION
DEPTH TO ROCK

17 WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
Kenlee Welldrilling 0654
REGISTERED BUSINESS NAME REGISTRATION NO.
Address 412 N Bridge 0654
Signed Kenneth Lee Date 10-25-80
AUTHORIZED REPRESENTATIVE

D67d 100M (Rev. 12-68)

GEOLOGICAL SURVEY COPY

TAX NO:

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
WATER WELL AND PUMP RECORD

PERMIT NO:

1. LOCATION OF WELL

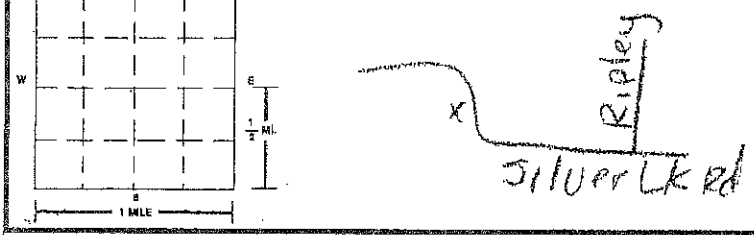
County	Township Name	Fraction	Section No.	Town No.	Range No.
Genesee	Fenton	ne 1/4 sw 1/4 se 1/4	20	5e	6e

Distance and Direction from Road Intersection
½ ½ mile W of Ripley Rd on W side of Silver Lk Rd.

Street Address & City of Well Location

Locate with 'x' in Section Below

Sketch Map



3. OWNER OF WELL: Rick Holtslander
Address: 222 E Silver Lk Rd, Linden, MI 48451

Address Same as Well Location ☒ Yes ☐ No

4. WELL DEPTH: 63 ft. | Date Completed: 8/6/97 | ☒ New Well ☐ Replacement Well

5. ☐ Cable Tool ☒ Rotary ☐ Driven ☐ Dug ☐ Hollow Rod ☐ Auger/Bored ☐ Jetted ☐ ____

6. USE: ☒ Household ☐ Type I Public ☐ Type III Public ☐ Irrigation ☐ Type IIa Public ☐ Heat Pump ☐ Test Well ☐ Type IIb Public ☐ ____

7. CASING: ☒ Steel ☐ Threaded ☐ Plastic ☐ Welded ☐ Other ____
Diameter: 5 in. to 59 ft. depth; ____ in. to ____ ft. depth
Height: Above/Below Surface: 1 ft
Weight: SDR21 lbs./ft.
BORE HOLE: Diameter: 8½ in. to 63 ft. depth; ____ in. to ____ ft. depth
☐ Drive Shoe ☐ Shale Packer

2. FORMATION DESCRIPTION

FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Clay	15	15
Clay and sand	20	35
Clay	15	50
Sand and gravel	13	63

USE A 2ND SHEET IF NEEDED

8. SCREEN: ☐ Not Installed ☐ Gravel-Packed
Type: S.S. Diameter: 4"
Slot/Gauze: 10 Length: 4'
Set Between: 59 ft. and 63 ft.
FITTINGS: ☐ K-Packer ☐ Bremer Check ☐ Blank Above Screen ____ ft. Other ____

9. STATIC WATER LEVEL: 20 ft. Below Land Surface ☐ Flowing

10. PUMPING LEVEL: Below Land Surface
60 ft. After 1 hrs. Pumping at 15 G.P.M.
☐ Plunger ☐ Bailer ☐ Air ☐ Test Pump

11. WELL HEAD COMPLETION:
☒ Pitless Adapter ☐ 12" Above Grade ☐ Basement Offset ☐ Well House

12. WELL GROUTED? ☐ No ☒ Yes From 0 to 50 ft.
☐ Neat Cement ☒ Bentonite ☒ Other pressure
No. of Bags 5 Additives benseal

13. NEAREST SOURCE OF POSSIBLE CONTAMINATION:
Type Sewer Distance 52 ft. Direction SE
Type ____ Distance ____ ft. Direction ____

14. PUMP: ☐ Not Installed ☐ Pump Installation Only
Manufacturer's Name: Red Jacket
Model Number: 50rtw1-mn9bc HP: ½ Volts: 220
Length of Drop Pipe: 49 ft. Capacity: 10 G.P.M.
TYPE: ☒ Submersible ☐ Jet ☐ Other ____
PRESSURE TANK:
Manufacturer's Name: Well-Rite
Model Number: pc-88 Capacity ____ Gallons 0

15. ABANDONED WELL PLUGGED? ☐ Yes ☐ No
Casing Diameter ____ in. Depth ____ ft.
PLUGGING MATERIAL: ☐ Neat Cement ☐ Bentonite Slurry ☐ Cement/Bentonite Slurry ☐ Concrete Grout ☐ Bentonite Chips
No. of Bags ____ Casing Removed? ☐ Yes ☐ No

16. REMARKS: (Elevation, Source of Data, etc.)

17. DRILLING MACHINE OPERATOR:
☒ Employee ☐ Subcontractor
Name: Percy Buck

18. WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Ron Lee Well Drilling (REGISTERED BUSINESS NAME) 0654 (REGISTRATION NO.)
Address: P.O. Box 342 Linden, MI 48451
Signed: ____ (AUTHORIZED REPRESENTATIVE) Date: 8-7-97

GW-2228 9/93

GEOLOGICAL SURVEY COPY

Authority: Act 368, PA 1978 Completion: Required
Penalty: Conviction of a violation of any provision is a misdemeanor.

TAX NO:

MICHIGAN DEPARTMENT OF PUBLIC HEALTH
WATER WELL AND PUMP RECORD

PERMIT NO:

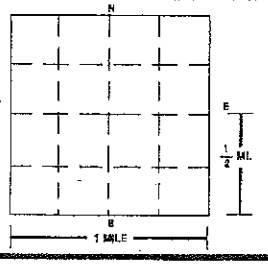
1. LOCATION OF WELL

County	Township Name	Fraction	Section No.	Town No.	Range No.
Genesee	Fenton	se 1/4 se 1/4 sd/4	20	3n	6e

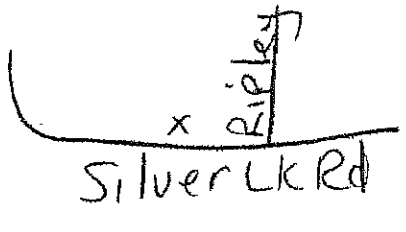
Distance and Direction from Road Intersection: 1/8 mile W of Ripley Rd on N side of Silver Lk Rd.

Street Address & City of Well Location

Locate with 'x' in Section Below



Sketch Map



3. OWNER OF WELL — Address: Dave Johnson, 713 Silver Lk Rd, Linden, MI 48451

Address Same as Well Location ☒ Yes ☐ No

4. WELL DEPTH: 80 ft. | Date Completed: 11/02/95 | ☐ New Well ☒ Replacement Well

5. ☐ Cable Tool ☒ Rotary ☐ Driven ☐ Dug ☐ Hollow Rod ☐ Auger/Bored ☐ Jetted ☐

6. USE: ☒ Household ☐ Type I Public ☐ Type III Public ☐ Irrigation ☐ Type IIa Public ☐ Heat Pump ☐ Test Well ☐ Type IIb Public ☐

7. CASING: ☐ Steel ☐ Threaded ☒ Plastic ☐ Welded ☐ Other
Diameter: 5 in. to 75 ft. depth; ___ in. to ___ ft. depth
Height: Above/Below Surface: 1 ft
Weight: sdr21 lbs./ft.
BORE HOLE: Diameter: 8½ in. to 80 ft. depth; ___ in. to ___ ft. depth
☐ Drive Shoe ☐ Shale Packer

2. FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Clay	15	15
Clay and Sand	10	25
Clay	15	40
Sand	20	60
Sand and gravel	20	80

RECEIVED
Mich. Dept. of Public Health
JAN 16 1996
BUREAU OF ENVIRONMENTAL AND OCCUPATIONAL HEALTH-GWQS

USE A 2ND SHEET IF NEEDED

8. SCREEN: ☐ Not Installed ☐ Gravel-Packed
Type PVC Diameter 5 in.
Slot/Gauze 20 Length: 5 ft.
Set Between 75 ft. and 80 ft.
FITTINGS: ☐ K-Packer ☐ Bremer Check ☐ Blank Above Screen ___ ft. Other ___

9. STATIC WATER LEVEL: 30 ft. Below Land Surface ☐ Flowing

10. PUMPING LEVEL: Below Land Surface
60 ft. After 1 hrs. Pumping at 25 G.P.M.
☐ Plunger ☐ Bailer ☐ Air ☐ Test Pump

11. WELL HEAD COMPLETION:
☒ Pitless Adapter ☐ 12" Above Grade ☐ Basement Offset ☐ Well House

12. WELL GROUTED? ☐ No ☒ Yes From 0 to 70 ft.
☐ Neat Cement ☒ Bentonite ☒ Other pressure
No. of Bags 7 Additives benseal

13. NEAREST SOURCE OF POSSIBLE CONTAMINATION:
Type Sewer Distance 40 ft. Direction E
Type ___ Distance ___ ft. Direction ___

14. PUMP: ☐ Not Installed ☐ Pump Installation Only
Manufacturer's Name Red Jacket
Model Number 50rtw1-mn9bc HP ½ Volts 220
Length of Drop Pipe 65 ft. Capacity 10 G.P.M.
TYPE: ☒ Submersible ☐ Jet ☐ Other ___
PRESSURE TANK:
Manufacturer's Name Well-Rite
Model Number 202 pc-66 Capacity 20 Gallons 6.6

15. ABANDONED WELL PLUGGED? ☐ Yes ☐ No
Casing Diameter ___ in. Depth ___ ft.
PLUGGING MATERIAL: ☐ Neat Cement ☐ Bentonite Slurry ☐ Cement/Bentonite Slurry ☐ Concrete Grout ☐ Bentonite Chips
No. of Bags ___ Casing Removed? ☐ Yes ☐ No

16. REMARKS: (Elevation, Source of Data, etc.)

17. DRILLING MACHINE OPERATOR:
☒ Employee ☐ Subcontractor
Name Percy Buck

15. WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
Ken Lee Well Drilling — REGISTERED BUSINESS NAME — 0654 — REGISTRATION NO.
Address P.O. Box 342 Linden, MI 48451
Signed [signature] — AUTHORIZED REPRESENTATIVE — Date 11-7-95

GW-2-228 8/93

GEOLOGICAL SURVEY COPY

Authority: Act 368 PA 1978
Completion: Required
Penalty: Conviction of a violation of any provision is a misdemeanor.

TAX NO:

MICHIGAN DEPARTMENT OF PUBLIC HEALTH
WATER WELL AND PUMP RECORD

PERMIT NO:

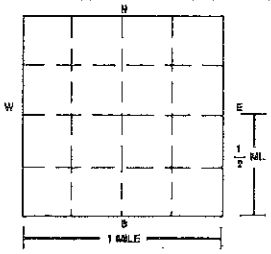
1. LOCATION OF WELL

County	Township Name	Fraction	Section No.	Town No.	Range No.
Genesee	Fenton	se 1/4 sc 1/4 c 1/4	20	5n	6e

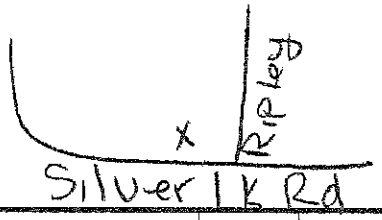
Distance and Direction from Road Intersection
1/16 mile W of Ripley Rd on N side of Siover lk Rd.

Street Address & City of Well Location

Locate with 'x' in Section Below



Sketch Map



3. OWNER OF WELL
Address: Ron Heldisen
805 Silver Lk RD
Linden, MI 48451

Address Same as Well Location ☒ Yes ☐ No

4. WELL DEPTH: 67 ft. | Date Completed 11/02/95 | ☐ New Well ☒ Replacement Well

5. ☐ Cable Tool ☒ Rotary ☐ Driven ☐ Dug ☐ Hollow Rod ☐ Auger/Bored ☐ Jetted ☐ ____

6. USE: ☒ Household ☐ Type I Public ☐ Type III Public ☐ Irrigation ☐ Type IIa Public ☐ Heat Pump ☐ Test Well ☐ Type IIb Public ☐ ____

7. CASING: ☐ Steel ☐ Threaded ☒ Plastic ☐ Welded ☐ Other ____
Diameter: 5 in. to 62 ft. depth
____ in. to ____ ft. depth
BORE HOLE:
Diameter: 8½ in. to 67 ft. depth
____ in. to ____ ft. depth
Height: Above/Below Surface: 1 ft
Weight: sdr21 lbs./ft.
☐ Drive Shoe ☐ Shale Packer

2. FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Clay	20	20
Sand	20	40
Sand and gravel	27	67

RECEIVED
Mich. Dept. of Public Health
JAN 16 1996
BUREAU OF ENVIRONMENTAL AND OCCUPATIONAL HEALTH-GWQS

USE A 2ND SHEET IF NEEDED

8. SCREEN: ☐ Not Installed ☐ Gravel-Packed
Type PVC Diameter 5"
Slot/Gauze 20 Length: 5'
Set Between 62 ft. and 67 ft.
FITTINGS: ☐ K-Packer ☐ Bremer Check
☐ Blank Above Screen ____ ft. Other ____

9. STATIC WATER LEVEL:
30 ft. Below Land Surface ☐ Flowing

10. PUMPING LEVEL: Below Land Surface
60 ft. After 1 hrs. Pumping at 25 G.P.M.
☐ Plunger ☐ Bailer ☐ Air ☐ Test Pump

11. WELL HEAD COMPLETION:
☒ Pitless Adapter ☐ 12" Above Grade
☐ Basement Offset ☐ Well House

12. WELL GROUTED? ☐ No ☒ Yes From 0 to 58 ft.
☐ Neat Cement ☒ Bentonite ☒ Other pressure
No. of Bags 6 Additives benseal

13. NEAREST SOURCE OF POSSIBLE CONTAMINATION:
Type Sewer Distance 50 ft. Direction S
Type ____ Distance ____ ft. Direction ____

14. PUMP: ☐ Not Installed ☐ Pump Installation Only
Manufacturer's Name Red Jacket
Model Number 50rtw1-mn9bc HP ½ Volts 220
Length of Drop Pipe 52 ft. Capacity 10 G.P.M.
TYPE: ☒ Submersible ☐ Jet ☐ Other ____
PRESSURE TANK:
Manufacturer's Name Well-Rite
Model Number 202 pc-66 Capacity 20 Gallons 6.6

15. ABANDONED WELL PLUGGED? ☐ Yes ☐ No
Casing Diameter ____ in. Depth ____ ft.
PLUGGING MATERIAL: ☐ Neat Cement ☐ Bentonite Slurry ☐ Cement/Bentonite Slurry ☐ Concrete Grout ☐ Bentonite Chips
No. of Bags ____ Casing Removed? ☐ Yes ☐ No

16. REMARKS: (Elevation, Source of Data, etc.)

15. WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Ken Lee Well Drilling — REGISTERED BUSINESS NAME
0654 — REGISTRATION NO.
Address P.O. Box 342 Linden, MI 48451
Signed ____ (AUTHORIZED REPRESENTATIVE) Date 11-7-95

17. DRILLING MACHINE OPERATOR:
☒ Employee ☐ Subcontractor
Name Percy Buck

GW-2-226 9/93

GEOLOGICAL SURVEY COPY

Authority: Act 368 PA 1978
Completion: Required
Penalty: Conviction of a violation of any provision is a misdemeanor.

GEOLOGICAL SURVEY SAMPLE No.

MAR 2 6 1980

WATER WELL RECORD
ACT 294 PA 1965

MICHIGAN DEPARTMENT OF PUBLIC HEALTH

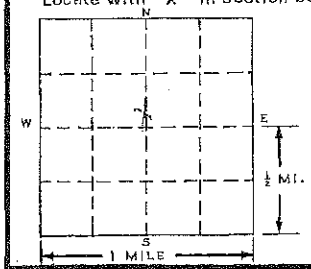
1 LOCATION OF WELL

County	Township Name	Fraction	Section Number	Town Number	Range Number
Genesee	Fenton	¼ ¼ ¼	20	5 (N) S.	6 (E) W.

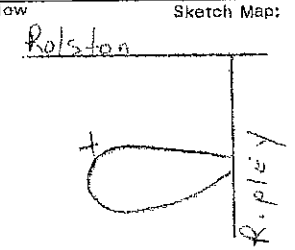
Distance And Direction from Road Intersections: Lahring & Rolston off Ripley

Street address & City of Well Location: 1329 Birdie Ct. Linden

Locate with "X" in section below



Sketch Map:



3 OWNER OF WELL:
George Nichols
Address: 11465 Torry Rd.
Fenton, MI

4 WELL DEPTH: (completed) Date of Completion
202 ft. Dec. 28, 1979

5
☐ Cable tool ☒ Rotary ☐ Driven ☐ Dug
☐ Hollow rod ☐ Jetted ☐ Bored ☐ ____

6 USE:
☒ Domestic ☐ Public Supply ☐ Industry
☐ Irrigation ☐ Air Conditioning ☐ Commercial
☐ Test Well ☐ ____

7 CASING:
Threaded ☒ Welded ☐
4 in. to 108 ft. Depth
____ in. to ____ ft. Depth
Height: Above/Below Surface 1 ft.
Weight 11 lbs./ft.
Drive Shoe? Yes ☒ No ☐

2 FORMATION

FORMATION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Clay	30'	30'
Sand	25'	55'
Clay & Gravel	35'	90'
Gravel	10'	100'
Shale	8'	108'
Sandstone	34'	142'
Shale	8'	150'
Sandstone	52'	202'

USE A 2ND SHEET IF NEEDED

8 SCREEN:
Type: ____ Dia.: ____
Slot/Gauze ____ Length ____
Set between ____ ft. and ____ ft.
Fittings:

9 STATIC WATER LEVEL
30 ft. below land surface

10 PUMPING LEVEL below land surface
200 ft. after 3 hrs. pumping 50 g.p.m.
____ ft. after ____ hrs. pumping ____ g.p.m.

11 WATER QUALITY in Parts Per Million:
Iron (Fe) ____ Chlorides (Cl) ____
Hardness ____ Other ____

12 WELL HEAD COMPLETION:
☐ In Approved Pit
☒ Pitless Adapter ☐ 12" Above Grade

13 Well Grouted? ☒ Yes ☐ No
☐ Neat Cement ☒ Bentonite ☐ ____
Depth: From 1 ft. to 108 ft.

14 Nearest Source of possible contamination
55 feet NW Direction septic Type
Well disinfected upon completion ☒ Yes ☐ No

15 PUMP:
☐ Not installed
Manufacturer's Name: Goulds
Model Number 25EL10422 HP 1 Volts 230
Length of Drop Pipe 100 ft. capacity 25 G.P.M.
Type: ☒ Submersible
☐ Jet ☐ Reciprocating

16 Remarks, elevation, source of data, etc.
ADDED INFO BY DRILLER, ITEM NO.
*CORRECTED BY
**ADDITION BY
ELEVATION
DEPTH TO ROCK

17 WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

LYONS WELL DRILLING INC. 0032
REGISTERED BUSINESS NAME REGISTRATION NO.

Address G-8107 N. Dort Hwy. Mt. Morris, MI

Signed [signature] Date Jan 2, 1980
AUTHORIZED REPRESENTATIVE

D67d 100M (Rev. 12-68)

GEOLOGICAL SURVEY COPY

TAX NO:

MICHIGAN DEPARTMENT OF PUBLIC HEALTH
WATER WELL AND PUMP RECORD

PERMIT NO:

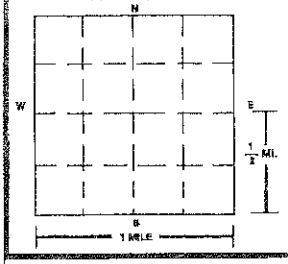
1. LOCATION OF WELL

County	Township Name	Fraction	Section No.	Town No.	Range No.
Genesee	Fenton	se 1/4 nw 1/4 nw 1/4	20	5n	6e

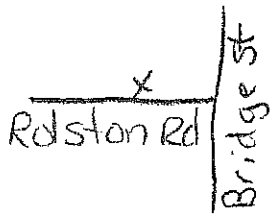
Distance and Direction from Road Intersection
500; W of Bridge St on N side of Rolston.

Street Address & City of Well Location

Locate with 'x' in Section Below



Sketch Map



3. OWNER OF WELL Grady Harris
Address 202 Rolston Rd.
Linden, MI 48451

Address Same as Well Location [X] Yes [ ] No

4. WELL DEPTH: 165 ft. | Date Completed 6 / 16 / 95 | [ ] New Well [X] Replacement Well

5. [ ] Cable Tool [X] Rotary [ ] Driven [ ] Dug [ ] Hollow Rod [ ] Auger/Bored [ ] Jetted [ ] _____

6. USE: [X] Household [ ] Type I Public [ ] Type III Public [ ] Irrigation [ ] Type IIa Public [ ] Heat Pump [ ] Test Well [ ] Type IIb Public [ ] _____

7. CASING: [ ] Steel [ ] Threaded [X] Plastic [ ] Welded [ ] Other _____
Diameter: 5 in. to 116 ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface: 1 ft
Weight sdr21 lbs./ft.
BORE HOLE:
Diameter: 8½ in. to 116 ft. depth
4½ in. to 165 ft. depth
[ ] Drive Shoe [ ] Shale Packer

2. FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Clay	20	20
Gravel	5	25
Clay	45	70
Gravel	35	105
Bedrock	60	165
USE A 2ND SHEET IF NEEDED		

RECEIVED
MICH. DEPT. OF PUBLIC HEALTH
AUG -1 95
BUREAU OF ENVIRONMENTAL AND OCCUPATIONAL HEALTH

8. SCREEN: [ ] Not Installed [ ] Gravel-Packed
Type Rock Diameter 5"
Slot/Gauze _____ Length: _____
Set Between _____ ft. and _____ ft.
FITTINGS: [ ] K-Packer [ ] Bremer Check
[ ] Blank Above Screen _____ ft. Other _____

9. STATIC WATER LEVEL:
20 ft. Below Land Surface [ ] Flowing

10. PUMPING LEVEL: Below Land Surface
165 ft. After 1 hrs. Pumping at 70 G.P.M.
[ ] Plunger [ ] Bailer [ ] Air [ ] Test Pump

11. WELL HEAD COMPLETION:
[X] Pitless Adapter [ ] 12" Above Grade
[ ] Basement Offset [ ] Well House

12. WELL GROUTED? [ ] No [X] Yes From 0 to 110 ft.
[ ] Neat Cement [X] Bentonite [X] Other pressure
No. of Bags 11 Additives Benseal

13. NEAREST SOURCE OF POSSIBLE CONTAMINATION:
Type Septic Distance 50 ft. Direction S
Type _____ Distance _____ ft. Direction _____

14. PUMP: [ ] Not Installed [ ] Pump Installation Only
Manufacturer's Name Red Jacket
Model Number 50rtw1-mn9bc HP ½ Volts 220
Length of Drop Pipe 106 ft. Capacity 10 G.P.M.
TYPE: [X] Submersible [ ] Jet [ ] Other _____
PRESSURE TANK:
Manufacturer's Name Well-Rite
Model Number 202 pc-66 Capacity 20 Gallons 6.6

15. ABANDONED WELL PLUGGED? [X] Yes [ ] No
Casing Diameter 2 in. Depth _____ ft.
PLUGGING MATERIAL: [ ] Neat Cement [ ] Bentonite Slurry
[ ] Cement/Bentonite Slurry [ ] Concrete Grout [ ] Bentonite Chips
No. of Bags 3 benseal Casing Removed? [ ] Yes [ ] No

16. REMARKS: (Elevation, Source of Data, etc.)

17. DRILLING MACHINE OPERATOR:
[X] Employee [ ] Subcontractor
Name Percy Buck

15. WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Ken Lee WellDrilling — 0654
REGISTERED BUSINESS NAME — REGISTRATION NO.
Address P.O. Box 342 Linden, MI 48451
Signed Robert Scott Jr. — Date 6-22-95
AUTHORIZED REPRESENTATIVE

GW-2-228 9/93

GEOLOGICAL SURVEY COPY

Authority: Act 368 PA 1978
Completion: Required
Penalty: Conviction of a violation of any provision is a misdemeanor.

GEOLOGICAL SURVEY SAMPLE No. _____

WATER WELL RECORD

ACT 294 PA 1965

MICHIGAN DEPARTMENT OF PUBLIC HEALTH

1 LOCATION OF WELL

County	Twp.	Fraction	Section No.	Town	Range
GENESEE	FENTON	¼ ¼ SW	20	5 (N) S.	6 (E) W.

Distance And Direction from Road Intersections: City of LINDEN

OWNER No. _____

Street address & City of Well Location

3 OWNER OF WELL: James Hogan

Address 753 W. Broad St. Linden

2 FORMATION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Clay.		
Gravely.		
Gravel. Water Bearing.		87

4 WELL DEPTH: (completed) 87 ft. Date of Completion 3-21-67

5 ☐ Cable tool ☐ Rotary ☐ Driven ☐ Dug ☒ Hollow rod ☐ Jetted ☐ Bored ☐ ____

6 USE: ☒ Domestic ☐ Public Supply ☐ Industry ☐ Irrigation ☐ Air Conditioning ☐ Commercial ☐ Test Well ☐ _____

7 CASING: Diam. 2 in. to 84 ft. Depth; Threaded ☒ Welded ☐; ____ in. to ____ ft. Depth

Height: Above/Below surface _____ ft.; Weight 3.75 lbs/ft.; Drive Shoe? Yes ☒ No ☐

8 SCREEN: Type: _____ Dia.: 1¼

Slot/~~Gauge~~ 10 Length 36

Set between 84 ft. and 87 ft.

Fittings:

9 STATIC WATER LEVEL _____ ft. below land surface

10 PUMPING LEVEL below land surface

_____ ft. after ____ hrs. pumping _____ g.p.m.

_____ ft. after ____ hrs. pumping _____ g.p.m.

11 WATER QUALITY in Parts Per Million:

Iron (Fe) _____ Chlorides (Cl) _____

Hardness _____

12 WELL HEAD COMPLETION: ☐ In Approved Pit ☐ Pitless Adapter ☐ 12" Above Grade No

13 GROUTING: Well Grouted? ☒ Yes ☐ No

Material: ☐ Neat Cement ☐ _____

Depth: From ____ ft. to ____ ft.

14 SANITARY:

Nearest Source of possible contamination

____ feet ____ Direction ____ Type

Well disinfected upon completion ☒ Yes ☐ No

15 PUMP:

Manufacturer's Name Mc Donald

Model Number _____ HP ½

Length of Drop Pipe _____ ft. capacity _____ G.P.M.

Type: ☐ Submersible ☐ _____ ☒ Jet ☐ Reciprocating

16 Remarks, elevation, source of data, etc.

ADDED INFO. BY DRILLER, ITEM No. 1, 2, 7, 12, 13, 14

*CORRECTED BY:

**ADDITION BY:

17 WATER WELL CONTRACTOR'S CERTIFICATION:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Bob's Well Drilling — REGISTERED BUSINESS NAME

0284 — REGISTRATION NO.

Address Linden

Signed R. C. Kelley — AUTHORIZED REPRESENTATIVE

Date June 12, 67

D67D 100M 6-66 JUN 30

GEOLOGICAL SURVEY COPY

GEOLOGICAL SURVEY SAMPLE No. [ ]

AUG 16 1976

3

WATER WELL RECORD
ACT 294 PA 1965

MICHIGAN DEPARTMENT OF PUBLIC HEALTH

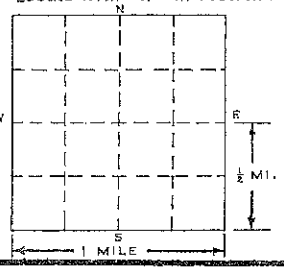
1 LOCATION OF WELL

County	Township Name	Fraction	Section Number	Town Number	Range Number
Genesee	Fenton	NE ¼ NE ¼ NE ¼	20	5 N/S.	6 E/W.

Distance And Direction from Road Intersections
1417 Ripley Rd. - Linden
1/2 mi. east of Lindem Rd. & 3/4 mi.
Street address & City of Well Location south of Lahring Rd.

Locate with "X" in section below

Sketch Map:



3 OWNER OF WELL:
Address: Auker Homes
6642 Kings Pointe
Grand Blanc, Michigan

4 WELL DEPTH: (completed) Date of Completion
160 ft. 6-25-76

5
☐ Cable tool ☐ Rotary ☐ Driven ☐ Dug
☒ Hollow rod ☐ Jetted ☐ Bored ☐ ____

6 USE:
☒ Domestic ☐ Public Supply ☐ Industry
☐ Irrigation ☐ Air Conditioning ☐ Commercial
☐ Test Well ☐

7 CASING:
Threaded ☒ Welded ☐
Diam. 2 in. to 106 ft. Depth
____ in. to ____ ft. Depth
Height: Above/~~Below~~ Surface 1 ft.
Weight 3.75 lbs./ft.
Drive Shoe? Yes ☒ No ☐

2 FORMATION

FORMATION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Clay	30	30
Gravel & clay	40	70
Gravel	20	90
Sandstone	70	160

USE A 2ND SHEET IF NEEDED

8 SCREEN:
Type: ____ Dia.: ____
Slot/Gauze ____ Length ____
Set between ____ ft. and ____ ft.
Fittings:

9 STATIC WATER LEVEL
40 ft. below land surface

10 PUMPING LEVEL below land surface
60 ft. after 2 hrs. pumping 600 g.p.m.
____ ft. after ____ hrs. pumping ____ g.p.m.

11 WATER QUALITY in Parts Per Million:
Iron (Fe) ____ Chlorides (Cl) ____
Hardness ____ Other ____

12 WELL HEAD COMPLETION:
☐ In Approved Pit
☒ Pitless Adapter ☐ 12" Above Grade

13 Well Grouted? ☒ Yes ☐ No
☐ Neat Cement ☒ Bentonite ☐ ____
Depth: From 21 ft. to 106 ft.

14 Nearest Source of possible contamination
50 feet W Direction Septic Type
Well disinfected upon completion ☒ Yes ☐ No

15 PUMP:
☐ Not installed
Manufacturer's Name Flint & Walling
Model Number C6269W HP 1 Volts 230
Length of Drop Pipe 84 ft. capacity 8 G.P.M.
Type: ☐ Submersible
☒ Jet ☐ Reciprocating

16 Remarks, elevation, source of data, etc.
ADDED INFO BY DRILLER, ITEM NO.
*CORRECTED BY 6
**ADDITION BY
ELEVATION
DEPTH TO ROCK

17 WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Burns Well Drilling — REGISTERED BUSINESS NAME
0099 — REGISTRATION NO.

Address 5370 Corunna Rd. Flint, Mich. 48504

Signed Marianne Burns — AUTHORIZED REPRESENTATIVE
Date 7-13-76

D67d 100M (Rev. 12-68)

GEOLOGICAL SURVEY COPY

GEOLOGICAL SURVEY SAMPLE No. _____

WATER WELL RECORD

ACT 294 PA 1965

MICHIGAN DEPARTMENT OF PUBLIC HEALTH

1 LOCATION OF WELL

County	Twp.	Fraction	Section No.	Town	Range
GENESEE	FENTON	¼ ¼ WE¼	20	5 (N)S.	6 (E)W.

Distance And Direction from Road Intersections

OWNER No. _____

city of LINDEN

Street address & City of Well Location

3 OWNER OF WELL: Martin Heeber

Address 409 Franklin St. Linden.

2 FORMATION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Clay Gravel		
Clay Sand		
Gravel w/ Bearing		60ft.

4 WELL DEPTH: (completed) 60 ft. Date of Completion

5 ☐ Cable tool ☐ Rotary ☐ Driven ☐ Dug ☒ Hollow rod ☐ Jetted ☐ Bored ☐ ___

6 USE: ☒ Domestic ☐ Public Supply ☐ Industry ☐ Irrigation ☐ Air Conditioning ☐ Commercial ☐ Test Well ☐ _____

7 CASING: Diam. 2 in. to 56 ft. Depth; Threaded ☒ Welded ☐; Height: Above/Below surface _____ ft.; Weight _____ lbs/ft.; Drive Shoe? Yes ☒ No ☐

_____ in. to _____ ft. Depth

8 SCREEN:

Type: _____ Dia.: _____

Slot/Gauze 10 - Length 36 in.

Set between 57 ft. and 60 ft.

Fittings:

9 STATIC WATER LEVEL

30 ft. below land surface

10 PUMPING LEVEL below land surface

_____ ft. after _____ hrs. pumping _____ g.p.m.

_____ ft. after _____ hrs. pumping _____ g.p.m.

11 WATER QUALITY in Parts Per Million:

Iron (Fe) _____ Chlorides (Cl) _____

Hardness _____

12 WELL HEAD COMPLETION: ☐ In Approved Pit ☐ Pitless Adapter ☐ 12" Above Grade

13 GROUTING:

Well Grouted? ☐ Yes ☒ No

Material: ☐ Neat Cement ☐ _____

Depth: From _____ ft. to _____ ft.

14 SANITARY:

Nearest Source of possible contamination

_____ feet _____ Direction _____ Type

Well disinfected upon completion ☒ Yes ☐ No

15 PUMP:

Manufacturer's Name Not installed

Model Number _____ HP _____

Length of Drop Pipe _____ ft. capacity _____ G.P.M.

Type: ☐ Submersible ☐ _____ ☐ Jet ☐ Reciprocating

16 Remarks, elevation, source of data, etc.

ADDED INFO. BY DRILLER, ITEM NO. 1, 7, 13, 15

*CORRECTED BY:

**ADDITION BY:

17 WATER WELL CONTRACTOR'S CERTIFICATION:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Bob's Well Drill — REGISTERED BUSINESS NAME

0784 — REGISTRATION NO.

Address Linden

Signed R. C. Kelley — AUTHORIZED REPRESENTATIVE

Date June 13, 67

D67D 100M 6-66 JUN 30

GEOLOGICAL SURVEY COPY

GEOLOGICAL SURVEY SAMPLE No.

WATER WELL RECORD

ACT 294 PA 1965

MICHIGAN DEPARTMENT OF PUBLIC HEALTH

1 LOCATION OF WELL

County	Twp.	Fraction	Section No.	Town	Range
GENESEE	FENTON	NE¼ SW¼ NE¼	20	5 ☒N. ☐S.	6 ☒E. ☐W.

Distance And Direction from Road Intersections

OWNER No.

Street address & City of Well Location

3 OWNER OF WELL: Robert Bowles.

Address 600 Franklin St. Linden

2 FORMATION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Clay,		
Sand,		
Gravel,		
Gravel Water Bearing.		55

4 WELL DEPTH: (completed) 55 ft. Date of Completion May 29, 67

5 ☐ Cable tool ☐ Rotary ☐ Driven ☐ Dug ☒ Hollow rod ☐ Jetted ☐ Bored ☐ ___

6 USE: ☒ Domestic ☐ Public Supply ☐ Industry ☐ Irrigation ☐ Air Conditioning ☐ Commercial ☐ Test Well ☐ ___

7 CASING: Diam. 2 in. to 52 ft. Depth; Threaded ☒ Welded ☐; Height: Above/Below surface ___ ft.; Weight ___ lbs/ft.; Drive Shoe? Yes ☒ No ☐

___ in. to ___ ft. Depth

8 SCREEN: Type: steel Dia.: 1¼

Slot ~~Gauge~~ 12 Length 3L

Set between 52 ft. and 55 ft.

Fittings:

9 STATIC WATER LEVEL 18 ft. below land surface

10 PUMPING LEVEL below land surface

___ ft. after ___ hrs. pumping ___ g.p.m.

___ ft. after ___ hrs. pumping ___ g.p.m.

11 WATER QUALITY in Parts Per Million:

Iron (Fe) ___ Chlorides (Cl) ___

Hardness ___

12 WELL HEAD COMPLETION: ☐ In Approved Pit ☒ Pitless Adapter ☒ 12" Above Grade

13 GROUTING:

Well Grouted? ☒ Yes ☐ No

Material: ☐ Neat Cement ☐ ___

Depth: From ___ ft. to ___ ft.

14 SANITARY:

Nearest Source of possible contamination

50 feet ___ Direction ___ Type

Well disinfected upon completion ☒ Yes ☐ No

15 PUMP:

Manufacturer's Name Rapidaxtom.

Model Number ___ HP 3/4

Length of Drop Pipe ___ ft. capacity ___ G.P.M.

Type: ☐ Submersible ☐ 2 Steel

☒ Jet ☐ Reciprocating

16 Remarks, elevation, source of data, etc.

ADDED INFO. BY DRILLER, ITEM NO. 1, 8, 13, 14

*CORRECTED BY:

**ADDITION BY:

17 WATER WELL CONTRACTOR'S CERTIFICATION:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Bob's Well Drilling 0784

REGISTERED BUSINESS NAME — REGISTRATION NO.

Address Linden

Signed R. C. Keathley Date June 19, 67.

AUTHORIZED REPRESENTATIVE

D67D 100M 6-66

JUN 30

GEOLOGICAL SURVEY COPY

GEOLOGICAL SURVEY NO.

MICHIGAN DEPARTMENT OF PUBLIC HEALTH
WATER WELL AND PUMP RECORD

PERMIT NUMBER

1 LOCATION OF WELL

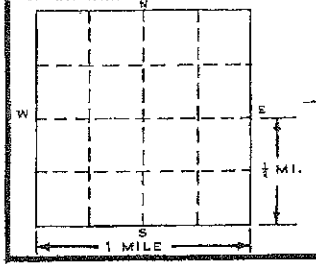
County	Township Name	Fraction	Section Number	Town Number	Range Number
Genesee	Fenton	¼ ¼ ¼	20	5 N/S	6 E/W

Distance And Direction From Road Intersection

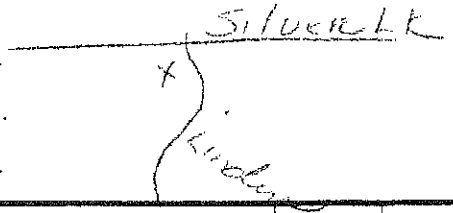
½mi. S. of Silver Lake Rd. W. Side

Street Address & City of Well Location 15146 S. Linden Rd.

Locate with "X" in Section Below



Sketch Map:



3 OWNER OF WELL:

Herb Thayer
Address 11106 Main
Fenton, MI. 48430

Address Same As Well Location? ☐ Yes ☒ No

4 WELL DEPTH: 160 ft. | Date Completed MO. 5 DAY 16 YEAR 88 | ☒ New Well ☐ Replacement Well

5 ☐ Cable tool ☒ Rotary ☐ Driven ☐ Dug ☐ Hollow rod ☐ Auger ☐ Jetted ☐ _____

6 USE: ☒ Domestic ☐ Type I Public ☐ Type III Public ☐ Irrigation ☐ Type IIa Public ☐ Heat pump ☐ Test Well ☐ Type IIb Public ☐ _____

7 CASING: Diameter ☐ Steel ☐ Threaded ☒ Plastic ☐ Welded

5 in. to 141 ft. depth
_____ in. to _____ ft. depth
Grouted Drill Hole Diameter
8 in. to 141 ft. depth
_____ in. to _____ ft. depth

Height: Above/Below
Surface _____ ft.
Weight _____ lbs./ft.
SDR 21
Drive Shoe ☐ Yes ☐ No
Shale Boot

8 SCREEN: ☐ Not Installed

Type _____ Diameter _____
Slot/Gauze _____ Length _____
Set between _____ ft. and _____ ft.
FITTINGS: ☐ K-Packer ☐ Lead Packer ☐ Bremer Check ☐ Blank above screen _____ ft. Other _____

9 STATIC WATER LEVEL:

30 ft. below land surface ☐ Flow

10 PUMPING LEVEL: below land surface

158 ft. after 2 hrs. pumping at 83 G.P.M.
_____ ft. after _____ hrs. pumping at _____ G.P.M.

11 WELL HEAD COMPLETION: ☐ Pitless adapter ☐ 12" above grade ☐ Basement offset ☐ Approved pit

12 WELL GROUTED? ☐ No ☒ Yes From 1 to 141 ft.

☐ Neat cement ☒ Bentonite ☐ Other _____
No. of bags of cement _____ Additives _____

13 Nearest source of possible contamination

Type SEWER Distance _____ ft. Direction _____
Well disinfected upon completion? ☒ Yes ☐ No
Was old well plugged? ☐ Yes ☐ No

14 PUMP: ☒ Not Installed ☐ Pump Installation Only

Manufacturer's name _____
Model number _____ HP _____ Volts _____
Length of Drop Pipe _____ ft. capacity _____ G.P.M.
TYPE: ☐ Submersible ☐ Jet _____
PRESSURE TANK:
Manufacturer's name _____
Model number _____ Capacity _____ Gallons

2 FORMATION DESCRIPTION

FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Clay	95'	95'
Fine Gravel	10'	105'
Clay and Gravel	25'	130'
Gray Sandstone	30'	160'

USE A 2ND SHEET IF NEEDED

RECEIVED
Mich. Dept. of Public Health
JUN 06 1988
Bureau of Environmental and Occupational Health, GWQS

15. Remarks, elevation, source of data, etc.

16. WATER WELL CONTRACTOR'S CERTIFICATION:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

LYONS WELL DRILLING INC. 1886
REGISTERED BUSINESS NAME REGISTRATION NO.

Address G-8107 N. Dort. Hwy. Mt. Morris, MI

Signed _____ Date 5-20-88
AUTHORIZED REPRESENTATIVE

17. Rig Operator's Name:

D67d 12/85

Authority: Act 368 PA 1978
Completion: Required
Penalty: Conviction of a violation of any provision is a misdemeanor.

GEOLOGICAL SURVEY COPY

TAX NO:

MICHIGAN DEPARTMENT OF PUBLIC HEALTH
WATER WELL AND PUMP RECORD

PERMIT NO:

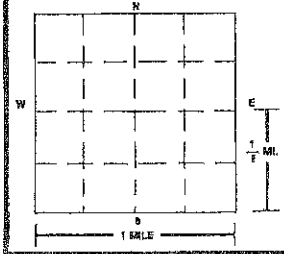
1. LOCATION OF WELL

County	Township Name	Fraction	Section No.	Town No.	Range No.
Genesee	Fenton	NW 1/4 NW SE 1/4	20	5N	6E

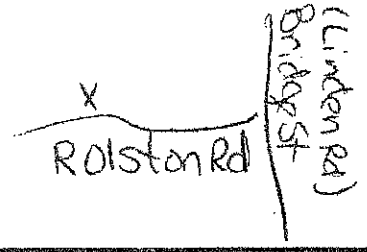
Distance and Direction from Road Intersection: 1 mile W. of Bridge St on N. Side of Rolston Rd.

Street Address & City of Well Location

Locate with 'x' in Section Below



Sketch Map



3. OWNER OF WELL
Address: Mark Hyde, 1570 W. Rolston Rd, Linden, Mi 48451
Address Same as Well Location ☒ Yes ☐ No

4. WELL DEPTH: 150 ft. Date Completed 8/30/94 ☐ New Well ☒ Replacement Well

5. ☐ Cable Tool ☒ Rotary ☐ Driven ☐ Dug ☐ Hollow Rod ☐ Auger/Bored ☐ Jetted ☐ ____

6. USE: ☒ Household ☐ Type I Public ☐ Type III Public ☐ Irrigation ☐ Type IIa Public ☐ Heat Pump ☐ Test Well ☐ Type IIb Public ☐ ____

7. CASING: ☐ Steel ☐ Threaded ☒ Plastic ☐ Welded ☐ Other ____
Diameter: 5 in. to 115 ft. depth; ____ in. to ____ ft. depth
BORE HOLE: Diameter: 8 1/2 in. to 115 ft. depth; 4 1/2 in. to 150 ft. depth
Height: Above/Below Surface: 1 ft
Weight: ____ lbs./ft.
☐ Drive Shoe ☐ Shale Packer

2. FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Sand	15	15
Clay	10	25
gravel	15	40
Clay	65	105
Bedrock & gravel	5	110
Bedrock	40	150

USE A 2ND SHEET IF NEEDED

8. SCREEN: ☐ Not Installed ☐ Gravel-Packed
Type: Rock Diameter: 5"
Slot/Gauze ____ Length: ____
Set Between ____ ft. and ____ ft.
FITTINGS: ☐ K-Packer ☐ Bremer Check
☐ Blank Above Screen ____ ft. Other ____

9. STATIC WATER LEVEL: 20 ft. Below Land Surface ☐ Flowing

10. PUMPING LEVEL: Below Land Surface 150 ft. After 1 hrs. Pumping at 45 G.P.M.
☐ Plunger ☐ Bailer ☐ Air ☐ Test Pump

11. WELL HEAD COMPLETION:
☒ Pitless Adapter ☐ 12" Above Grade
☐ Basement Offset ☐ Well House

12. WELL GROUTED? ☐ No ☒ Yes From 0 to 100 ft.
☐ Neat Cement ☒ Bentonite ☒ Other Pressure
No. of Bags 10 Additives Benseal

13. NEAREST SOURCE OF POSSIBLE CONTAMINATION:
Type Septic Distance 60 ft. Direction S-W
Type ____ Distance ____ ft. Direction ____

14. PUMP: ☐ Not Installed ☐ Pump Installation Only
Manufacturer's Name Red Jacket
Model Number ____ HP 1/2 Volts 220
Length of Drop Pipe 105 ft. Capacity 10 G.P.M.
TYPE: ☒ Submersible ☐ Jet ☐ Other ____
PRESSURE TANK:
Manufacturer's Name Well-rite
Model Number 202 pc 66 Capacity ____ Gallons ____

15. ABANDONED WELL PLUGGED? ☐ Yes ☐ No
Casing Diameter ____ in. Depth ____ ft.
PLUGGING MATERIAL: ☐ Neat Cement ☐ Bentonite Slurry ☐ Cement/Bentonite Slurry ☐ Concrete Grout ☐ Bentonite Chips
No. of Bags ____ Casing Removed? ☐ Yes ☐ No

16. REMARKS: (Elevation, Source of Data, etc.)

17. DRILLING MACHINE OPERATOR:
☐ Employee ☐ Subcontractor
Name ____

15. WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
Ken Lee Well Drilling 0654
REGISTERED BUSINESS NAME REGISTRATION NO.
Address P.O. Box 342 Linden, Mi 48451
Signed [signature] Date 8-31-94
AUTHORIZED REPRESENTATIVE

GW-2-226 9/93

Authority: Act 368 PA 1978
Completion: Required
Penalty: Conviction of a violation of any provision is a misdemeanor.

GEOLOGICAL SURVEY COPY

MICHIGAN DEPARTMENT OF PUBLIC HEALTH

GEOLOGICAL SURVEY NO. SEP 23 1981

WATER WELL AND PUMP RECORD

PART 127 ACT 368, P.A. 1978

PERMIT NUMBER

1 LOCATION OF WELL

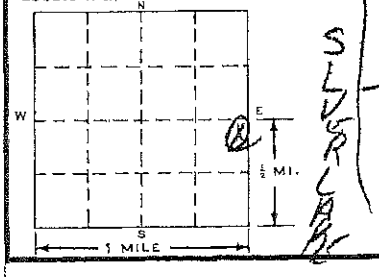
County	Township Name	Fraction	Section Number	Town Number	Range Number
GENESEE	~~Fenton~~ LINDEN VILLAGE	SE 1/4 NE 1/4 NE 1/4	20	6 N/~~S~~	6 E/~~W~~

Distance And Direction From Road Intersection: 1/4 MILE NORTH SILVER LAKE ROAD & RIPLEY

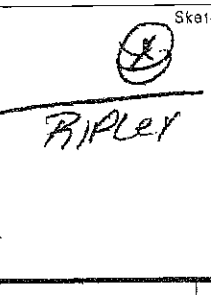
202 RIPLEY ROAD LINDEN

Street Address & City of Well Location

Locate with "X" in Section Below



Sketch Map:



3 OWNER OF WELL: CHARLES SMITHWICK

Address: 202 RIPLEY ROAD LINDEN

Address Same As Well Location? [X] Yes [ ] No

4 WELL DEPTH: (completed) 61 ft. Date of Completion: Aug 4, 1981

5 [X] Cable tool [ ] Rotary [X] Driven [ ] Dug [ ] Hollow rod [ ] Auger [ ] Jetted [ ] ____

6 USE: [X] Domestic [ ] Type I Public [ ] Type III Public [ ] Irrigation [ ] Type IIa Public [ ] Heat pump [ ] Test Well [ ] Type IIb Public [ ] ____

7 CASING: Diameter [X] Steel [ ] Threaded [ ] Plastic [X] Welded

4 in. to 57 ft. depth

____ in. to ____ ft. depth

Grouted Drill Hole Diameter

____ in. to ____ ft. depth

____ in. to ____ ft. depth

Height: Above/~~Below~~ Surface 1 ft.

Weight 11 lbs./ft.

Drive Shoe [X] Yes [ ] No

8 SCREEN: [ ] Not Installed

Type STAINLESS Diameter 3

Slot/~~Gauze~~ 10 Length 4

Set between 57 ft. and 61 ft.

FITTINGS: [X] K-Packer [ ] Lead Packer [ ] Bremer Check

[X] Blank above screen 1 ft. Other ____

9 STATIC WATER LEVEL: 33 ft. below land surface [ ] Flow

10 PUMPING LEVEL: below land surface

50 ft. after 2 hrs. pumping at 15 G.P.M.

____ ft. after ____ hrs. pumping at ____ G.P.M.

11 WELL HEAD COMPLETION: [X] Pitless adapter [X] 12" above grade [ ] Basement offset [ ] Approved pit

12 WELL GROUTED? [ ] No [ ] Yes From ____ to ____ ft.

[ ] Neat cement [ ] Bentonite [ ] Other ____

No. of bags of cement ____ Additives ____

13 Nearest source of possible contamination

Type SEPTIC Distance 60 ft. Direction WEST

Well disinfected upon completion? [X] Yes [ ] No

14 PUMP: [ ] Not Installed [X] Pump Installation Only

Manufacturer's name TAIT

Model number 50L 210 HP 1/2 Volts 230

Length of Drop Pipe 50 ft. capacity 12 G.P.M.

TYPE: [X] Submersible [ ] Jet

PRESSURE TANK:

Manufacturer's name Well X TROL

Model number 202 Capacity 40 Gallons

2 FORMATION DESCRIPTION

FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Brown sandy clay	15	15
Grey clay & gravel	40	55
Water bearing sand	6	61

USE A 2ND SHEET IF NEEDED

15. Remarks, elevation, source of data, etc.

ADDED INFO. BY DRILLER, ITEM NO.

*CORRECTED BY:

++ADDITION BY:

16. WATER WELL CONTRACTOR'S CERTIFICATION:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Ken Lee Well Drilling 0654

REGISTERED BUSINESS NAME REGISTRATION NO.

Address [illegible]

Signed [illegible] Date Aug 5, 1981

AUTHORIZED REPRESENTATIVE

D67d (Rev. 10-80)

GEOLOGICAL SURVEY COPY

GEOLOGICAL SURVEY NO.

MICHIGAN DEPARTMENT OF PUBLIC HEALTH
WATER WELL AND PUMP RECORD

PERMIT NUMBER

SE

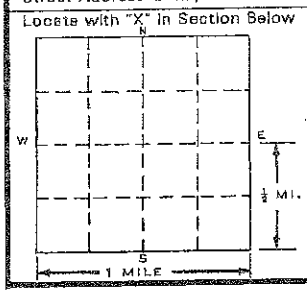
1 LOCATION OF WELL

County	Township Name	Fraction	Section Number	Town Number	Range Number
Genesee	Fenton	1/4 1/4 1/4	2120	5 N/S	6 E/W

Distance And Direction From Road Intersection: off Silverlake Rd on Rippley

Street Address & City of Well Location

Locate with "X" in Section Below



Sketch Map: Silver Lake

3 OWNER OF WELL: Steve Spencer

Address: 14471 Rippley Rd Linden 48451

Address Same As Well Location? ☒ Yes ☐ No

4 WELL DEPTH: 200 FT. Date Completed MO. 9 DAY 30 YEAR 89 ☒ New Well ☐ Replacement Well

5 ☐ Cable tool ☒ Rotary ☐ Driven ☐ Dug ☐ Hollow rod ☐ Auger ☐ Jetted ☐

6 USE: ☒ Domestic ☐ Type I Public ☐ Type III Public ☐ Irrigation ☐ Type IIa Public ☐ Heat pump ☐ Test Well ☐ Type IIb Public ☐

7 CASING: Diameter ☐ Steel ☐ Threaded ☒ Plastic ☐ Welded

5 in. to 138 ft. depth

in. to ft. depth

Grouted Drill Hole Diameter 7 1/8 in. to 138 ft. depth

in. to ft. depth

Height: Above/Below Surface 1 ft. Weight 3 lbs./ft.

Drive Shoe ☐ Yes ☒ No

8 SCREEN: ☒ Not Installed

Type Diameter

Slot/Gauze Length

Set between ft. and ft.

FITTINGS: ☐ K-Packer ☐ Lead Packer ☐ Bremer Check ☐ Blank above screen ft. Other

9 STATIC WATER LEVEL: 30 ft. below land surface ☐ Flow

10 PUMPING LEVEL: below land surface

200 ft. after 1 hrs. pumping at 150 G.P.M.

ft. after hrs. pumping at G.P.M.

11 WELL HEAD COMPLETION: ☒ Pitless adapter ☒ 12" above grade ☐ Basement offset ☐ Approved pit

12 WELL GROUTED? ☐ No ☒ Yes From 0 to 25 ft.

☐ Neat cement ☐ Bentonite ☒ Other Vulplug

No. of bags of cement Additives

13 Nearest source of possible contamination

Type septic Distance 50 ft. Direction

Well disinfected upon completion? ☒ Yes ☐ No

Was old well plugged? ☐ Yes ☐ No

14 PUMP: ☐ Not Installed ☐ Pump Installation Only

Manufacturer's name Burks

Model number 105NB10C HP 1 Volts 230

Length of Drop Pipe 105 ft. capacity 19 G.P.M.

TYPE: ☒ Submersible ☐ Jet

PRESSURE TANK: Manufacturer's name well xtral

Model number 251 Capacity 19.5 Gallons

2 FORMATION DESCRIPTION

FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
clay	0	20
sand gravel	60	80
clay	45	125
white shale	15	130
sand rock	70	200

USE A 2ND SHEET IF NEEDED

15. Remarks, elevation, source of data, etc.

16. WATER WELL CONTRACTOR'S CERTIFICATION:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Podgrin Well Drilling Inc. 25 1893

REGISTERED BUSINESS NAME REGISTRATION NO.

Address 3334 Ramona Dr Fenton 48430

Signed [signature] Date 9-30-89

AUTHORIZED REPRESENTATIVE

17. Rig Operator's Name: Stacy L. Podgrin

D67d 12/85

Authority: Act 368 PA 1978
Completion: Required
Penalty: Conviction of a violation of any provision is a misdemeanor.

GEOLOGICAL SURVEY COPY

GEOLOGICAL SURVEY NO.

MICHIGAN DEPARTMENT OF PUBLIC HEALTH

WATER WELL AND PUMP RECORD

PERMIT NUMBER

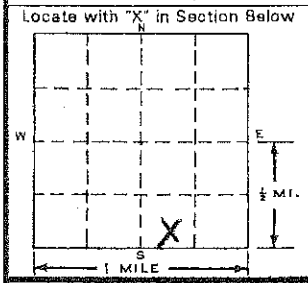
1 LOCATION OF WELL

County	Township Name	Fraction	Section Number	Town Number	Range Number
Genesee	Fenton	SE ¼ SW ¼ SE ¼	20	5 N/S	6 E/W

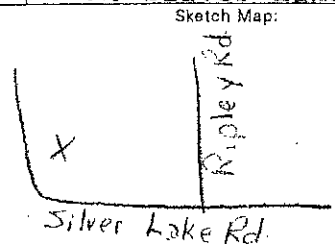
Distance And Direction From Road Intersection: ½ mi. West of Ripley Rd. on the East side of Silver Lake Rd.

Street Address & City of Well Location: 401 E. Silver Lake Rd.

Locate with "X" in Section Below



Sketch Map:



3 OWNER OF WELL:

Address: Tom Mc Connell, 401 E. Silver Lake Rd., Linden, MI 48451

Address Same As Well Location? [X] Yes [ ] No

4 WELL DEPTH: 180 FT. Date Completed: MO. 4 DAY 21 YEAR 89 [ ] New Well [X] Replacement Well

5 [ ] Cable tool [X] Rotary [ ] Driven [ ] Dug [ ] Hollow rod [ ] Auger [ ] Jetted [ ]

6 USE: [X] Domestic [ ] Type I Public [ ] Type III Public [ ] Irrigation [ ] Type IIa Public [ ] Heat pump [ ] Test Well [ ] Type IIb Public [ ]

7 CASING: Diameter [ ] Steel [ ] Threaded [X] Plastic [ ] Welded

5 in. to 133 ft. depth

___ in. to ___ ft. depth

Grouted Drill Hole Diameter

8½ in. to 133 ft. depth

4½ in. to 180 ft. depth

Height: Above/~~Below~~ Surface 1 ft.

Weight ___ lbs./ft.

Drive Shoe [ ] Yes [X] No

2 FORMATION DESCRIPTION

FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Yellow Sand	10	10
Gray Clay	20	30
Yellow Sand	30	60
Gray Clay	68	128
Sandrock	52	180

8 SCREEN: [X] Not Installed

Type ___ Diameter ___

Slot/Gauze ___ Length ___

Set between ___ ft. and ___ ft.

FITTINGS: [ ] K-Packer [ ] Lead Packer [ ] Bremer Check

[ ] Blank above screen ___ ft. Other ___

9 STATIC WATER LEVEL: 40 ft. below land surface [ ] Flow

10 PUMPING LEVEL: below land surface

Air 180 ft. after ½ hrs. pumping at 40+ G.P.M.

___ ft. after ___ hrs. pumping at ___ G.P.M.

11 WELL HEAD COMPLETION: [X] Pitless adapter [ ] 12" above grade [ ] Basement offset [ ] Approved pit

12 WELL GROUTED? [ ] No [X] Yes From 0 to 133 ft.

[ ] Neat cement [X] Bentonite [X] Other ~~Clay Cuttings~~

No. of bags of cement ___ Additives ___

13 Nearest source of possible contamination

Type Sanitary Distance 65 ft. Direction ___

Well disinfected upon completion? [X] Yes [ ] No

Was old well plugged? [ ] Yes [ ] No

14 PUMP: [ ] Not Installed [ ] Pump Installation Only

Manufacturer's name Webtool

Model number 102558B HP ½ Volts 220

Length of Drop Pipe 80 ft. capacity 10 G.P.M.

TYPE: [X] Submersible [ ] Jet

PRESSURE TANK:

Manufacturer's name Amtrol

Model number 203 Capacity 10 Gallons

RECEIVED
Mich. Dept. of Public Health
MAY 3 1 1989
Bureau of Environmental and Occupational Health - GWOS

USE A 2ND SHEET IF NEEDED

15. Remarks, elevation, source of data, etc.

16. WATER WELL CONTRACTOR'S CERTIFICATION:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Ed Birkmeier Well Drilling Ltd. 1607

REGISTERED BUSINESS NAME REGISTRATION NO.

Address 10655 Easton Rd., New Lothrop, MI 48460

Signed Edward Birkmeier Date 4-21-89

AUTHORIZED REPRESENTATIVE

17. Rig Operator's Name: Mike Scott & Andy & Dean

D67d 12/85

Authority: Act 368 PA 1978
Completion: Required
Penalty: Conviction of a violation of any provision is a misdemeanor.

GEOLOGICAL SURVEY COPY

AUG 22 1983

GEOLOGICAL SURVEY NO.

MICHIGAN DEPARTMENT OF PUBLIC HEALTH

WATER WELL AND PUMP RECORD

PART 127 ACT 368, P.A. 1978

PERMIT NUMBER

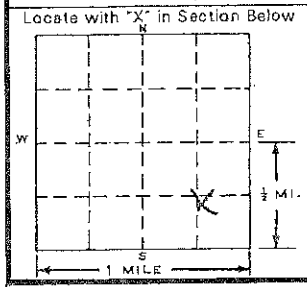
1 LOCATION OF WELL

County	Township Name	Fraction	Section Number	Town Number	Range Number
Genesee	Fenton	SE¼ SE¼ SE¼	20	T5 N/S	R6 E/W

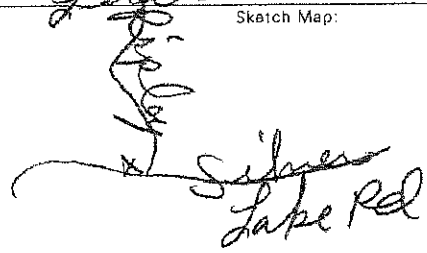
Distance And Direction From Road Intersection: of Ripley Rd & N. West Lake Rd 40' N. Silver Lake Rd.

Street Address & City of Well Location: 821 E Silver Lake Rd. Linden

Locate with "X" in Section Below



Sketch Map:



3 OWNER OF WELL: L. E. Lorang

Address: 821 E Silver Lake Rd Linden

Address Same As Well Location? ☒ Yes ☐ No

4 WELL DEPTH: (completed) 58 ft.

Date of Completion: June 2083

5 ☐ Cable tool ☐ Rotary ☐ Driven ☐ Dug ☒ Hollow rod ☐ Auger ☐ Jetted ☐

6 USE: ☒ Domestic ☐ Type I Public ☐ Type III Public ☐ Irrigation ☐ Type IIa Public ☐ Heat pump ☐ Test Well ☐ Type IIb Public ☐

7 CASING: Diameter ☒ Steel ☒ Threaded ☐ Plastic ☐ Welded

2 in. to 54 ft. depth

in. to ft. depth

Grouted Drill Hole Diameter

in. to ft. depth

in. to ft. depth

Height: Above/~~Below~~

Surface ft.

Weight lbs./ft.

Drive Shoe ☐ Yes ☒ No

2 FORMATION DESCRIPTION

FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Clay + sand	30	30
gravel	22	52
Water gravel	6	58

8 SCREEN: ☐ Not Installed

Type Stabile steel Diameter 1¼"

~~Slot~~/Gauze 60 Length 42"

Set between 54 ft. and 58 ft.

FITTINGS: ☐ K-Packer ☐ Lead Packer ☒ Bremer Check

☐ Blank above screen 0 ft. Other 1¼ Cap

9 STATIC WATER LEVEL: 38 ft. below land surface ☐ Flow

10 PUMPING LEVEL: below land surface

50 ft. after 1 hrs. pumping at 10 G.P.M.

ft. after hrs. pumping at G.P.M.

11 WELL HEAD COMPLETION: ☒ Pitless adapter ☐ 12" above grade ☐ Basement offset ☐ Approved pit

12 WELL GROUTED? ☐ No ☐ Yes From to ft.

☐ Neat cement ☐ Bentonite ☐ Other

No. of bags of cement Additives

13 Nearest source of possible contamination

Type Sanitary Distance 15 ft. Direction W

Well disinfected upon completion? ☒ Yes ☐ No

14 PUMP: ☐ Not Installed ☐ Pump Installation Only

Manufacturer's name

Model number HP Volts

Length of Drop Pipe 42 ft. capacity G.P.M.

TYPE: ☐ Submersible ☒ Jet

PRESSURE TANK:

Manufacturer's name

Model number Capacity Gallons

RECEIVED
Mich. Dept. of Public Health
AUG 1 1983
Environmental and Occupational Health Services Administration

USE A 2ND SHEET IF NEEDED

15. Remarks, elevation, source of data, etc.

ADDED INFO BY DRILLER, ITEM NO.
*CORRECTED BY
**ADDITION BY
ELEVATION
DEPTH TO ROCK

16. WATER WELL CONTRACTOR'S CERTIFICATION:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Ken Lee Well Driller 0654

REGISTERED BUSINESS NAME REGISTRATION NO.

Address P.O. 342 Linden Mich

Signed Robert Lathrop Date July 583

AUTHORIZED REPRESENTATIVE

D67d (Rev. 10-80)

GEOLOGICAL SURVEY COPY

GEOLOGICAL SURVEY SAMPLE No. SEP 23 1981

WATER WELL RECORD
ACT 294 PA 1965

MICHIGAN DEPARTMENT OF PUBLIC HEALTH

1 LOCATION OF WELL

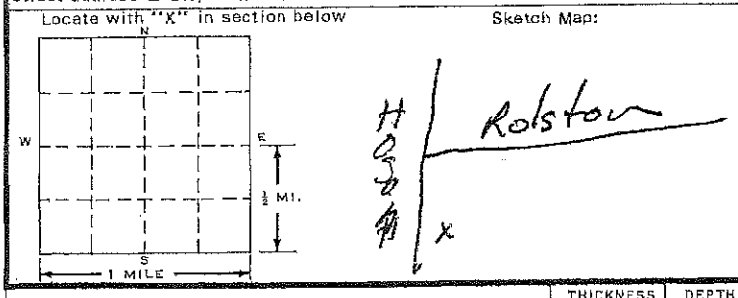
County	Township Name	Fraction	Section Number	Town Number	Range Number
Genesee	Fenton	¼ ¼ ¼	19	5 N/S	6 E/W

Distance And Direction from Road Intersections: ½ mi S of ~~Lohring~~ Rolston on Hogan Rd.

Street address & City of Well Location

Locate with "X" in section below

Sketch Map:



3 OWNER OF WELL: Jim Gould

Address 14149 Hogan

4 WELL DEPTH: (completed) 115 ft. Date of Completion April 14 81

5 [X] Cable tool [ ] Rotary [ ] Driven [ ] Dug [ ] Hollow rod [ ] Jetted [ ] Bored [ ]

6 USE: [X] Domestic [ ] Public Supply [ ] Industry [ ] Irrigation [ ] Air Conditioning [ ] Commercial [ ] Test Well [ ]

7 CASING: Threaded [ ] Welded [X] Height: Above/Below Surface 1 ft.

Diam. 4 in. to 114 ft. Depth

___ in. to ___ ft. Depth

Weight ___ lbs./ft.

Drive Shoe? Yes [X] No [ ]

2 FORMATION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
clay	80	80
sand + clay	10	90
layer rock	5	95
gravel + clay	10	105
gravel	13	118

USE A 2ND SHEET IF NEEDED

8 SCREEN:

Type Stainless steel Dia.: 3"

Slot/Gauze Slot Length 4'

Set between 114 ft. and 118 ft.

Fittings: Kpaker Tailpipe Plug

9 STATIC WATER LEVEL 20 ft. below land surface

10 PUMPING LEVEL below land surface 25 ft. after 1 hrs. pumping 10 g.p.m.

___ ft. after ___ hrs. pumping ___ g.p.m.

11 WATER QUALITY in Parts Per Million:

Iron (Fe) ___ Chlorides (Cl) ___

Hardness ___ Other ___

12 WELL HEAD COMPLETION: [ ] In Approved Pit [X] Pitless Adapter [ ] 12" Above Grade

13 Well Grouted? [ ] Yes [X] No

[ ] Neat Cement [ ] Bentonite [ ] ___

Depth: From ___ ft. to ___ ft.

14 Nearest Source of possible contamination 55 feet 10 Direction Septic Type

Well disinfected upon completion [X] Yes [ ] No

15 PUMP: [ ] Not installed

Manufacturer's Name FTW

Model Number ___ HP ½ Volts 230

Length of Drop Pipe 42 ft. capacity 10 G.P.M.

Type: [X] Submersible [ ] Jet [ ] Reciprocating

16 Remarks, elevation, source of data, etc.

ADDED INFO. BY DRILLER, ITEM NO.

CORRECTED BY

ADDITION BY

17 WATER WELL CONTRACTOR'S CERTIFICATION:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Ken Lee — REGISTERED BUSINESS NAME

0654 — REGISTRATION NO.

Address Box 342 Linden

Signed [signature] AUTHORIZED REPRESENTATIVE

Date April - 81

D67d 100M (Rev. 12-68)

GEOLOGICAL SURVEY COPY

GEOLOGICAL SURVEY SAMPLE No.

MAY 10 1984

WATER WELL RECORD
ACT 294 PA 1965

MICHIGAN DEPARTMENT OF PUBLIC HEALTH

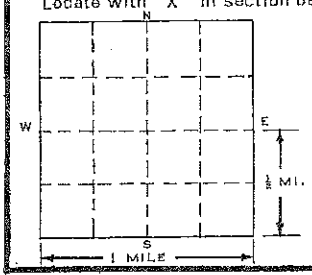
1 LOCATION OF WELL

County	Township Name	Fraction	Section Number	Town Number	Range Number
Genesee	Fenton	¼ ¼ ¼	19	5 N/S.	6 E/W.

Distance And Direction from Road Intersections
½ mile north of Silver Lake Rd,

Street address & City of Well Location

Locate with "X" in section below — Sketch Map:



3 OWNER OF WELL: Podjun Well Drilling
Address 14303 Hogun Rd.
Linden, Mi 48451

4 WELL DEPTH: (completed) 92 ft. Date of Completion 8-6-83

5 ☐ Cable tool ☒ Rotary ☐ Driven ☐ Dug ☐ Hollow rod ☐ Jetted ☐ Bored ☐ ____

6 USE: ☒ Domestic ☐ Public Supply ☐ Industry ☐ Irrigation ☐ Air Conditioning ☐ Commercial ☐ Test Well ☐ ____

7 CASING: Threaded ☒ Welded ☐ Height: Above/Below ___
Diam. 4 in. to 88 ft. Depth — Surface 1 ft.
____ in. to ____ ft. Depth — Weight 11.00 lbs./ft.
Drive Shoe? Yes ☐ No ☐

2 FORMATION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Clay	60	60
Fine Sand	20	88
Gravel	12	92

8 SCREEN:
Type: Johnson Dia.: 3"
Slot/Gauze 25 Length 48"
Set between 88 ft. and 92 ft.
Fittings: 3x4 Bushing

9 STATIC WATER LEVEL
10 ft. below land surface

10 PUMPING LEVEL below land surface
10 ft. after 1 hrs. pumping 30 g.p.m.
____ ft. after ____ hrs. pumping ____ g.p.m.

11 WATER QUALITY in Parts Per Million:
Iron (Fe) ____ Chlorides (Cl) ____
Hardness ____ Other ____

12 WELL HEAD COMPLETION: ☐ In Approved Pit ☐ Pitless Adapter ☒ 12" Above Grade

13 Well Grouted? ☐ Yes ☒ No ☐ Neat Cement ☐ Bentonite ☐ ____
Depth: From ____ ft. to ____ ft.

14 Nearest Source of possible contamination
60 feet E Direction Septic Tank Type
Well disinfected upon completion ☒ Yes ☐ No

15 PUMP: ☒ Not installed
Manufacturer's Name ____
Model Number ____ HP ____ Volts ____
Length of Drop Pipe ____ ft. capacity ____ G.P.M.
Type: ☐ Submersible ☐ Jet ☐ Reciprocating

USE A 2ND SHEET IF NEEDED

16 Remarks, elevation, source of data, etc.

ADDED INFO BY DRILLER, ITEM NO.
*CORRECTED BY
**ADDITION BY
ELEVATION
DEPTH TO ROCK

17 WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Robert Coon Well Drilling — 0283
REGISTERED BUSINESS NAME — REGISTRATION NO.

Address 2265 Rollins St. Flint, MI 48507

Signed ____ Date ____
AUTHORIZED REPRESENTATIVE

D67d 100M (Rev. 12-68)

GEOLOGICAL SURVEY COPY

GEOLOGICAL SURVEY SAMPLE No. [ ]

WATER WELL RECORD
ACT 294 PA 1965

MICHIGAN DEPARTMENT OF PUBLIC HEALTH

OCT 02 1981

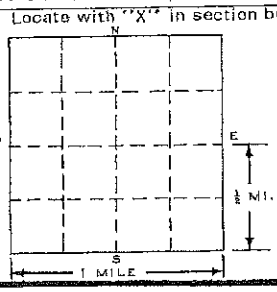
1 LOCATION OF WELL

County	Township Name	Fraction	Section Number	Town Number	Range Number
Genesee	Fenton	¼ ¼ ¼	19	5 N/S	6 E/W

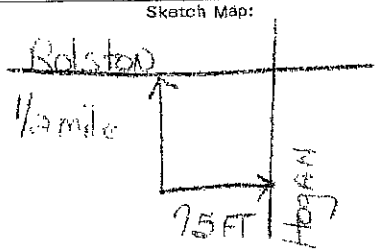
Distance And Direction from Road Intersections
1/2 mile South of Rolston Rd; 75 ft West of Hogan

Street address & City of Well Location 14222 Hogan

Locate with "X" in section below



Sketch Map:



3 OWNER OF WELL:
Mr. and Mrs. Joel Castiglione
Address 14222 Hogan
Linden, Michigan

4 WELL DEPTH: (completed) Date of Completion
192 ft. June 24, 1981

5
☐ Cable tool ☒ Rotary ☐ Driven ☐ Dug
☐ Hollow rod ☐ Jetted ☐ Bored ☐ ____

6 USE:
☒ Domestic ☐ Public Supply ☐ Industry
☐ Irrigation ☐ Air Conditioning ☐ Commercial
☐ Test Well ☐

7 CASING:
Threaded ☐ Welded ☒
5 in. to 132 ft. Depth
____ in. to ____ ft. Depth
Height: Above/Below Surface 1 ft.
Weight 2.5 lbs./ft.
Drive Shoe? Yes ☒ No ☐

2 FORMATION

FORMATION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Yellow clay	10	10
Blue clay	15	25
Sand and gravel	15	40
Blue clay	35	75
Sand and gravel	45	120
Blue clay	10	130
Shale	8	138
Sandstone	47	185
Shale	7	192

USE A 2ND SHEET IF NEEDED

8 SCREEN:
Type: ____ Dia.: ____
Slot/Gauze ____ Length ____
Set between ____ ft. and ____ ft.
Fittings:

9 STATIC WATER LEVEL
25 ft. below land surface

10 PUMPING LEVEL below land surface
____ ft. after ____ hrs. pumping 30 g.p.m.
____ ft. after ____ hrs. pumping ____ g.p.m.

11 WATER QUALITY in Parts Per Million:
Iron (Fe) ____ Chlorides (Cl) ____
Hardness ____ Other ____

12 WELL HEAD COMPLETION:
☐ In Approved Pit
☒ Pitless Adapter ☒ 12" Above Grade

13 Well Grouted? ☒ Yes ☐ No
☐ Neat Cement ☒ Bentonite ☐ ____
Depth: From 0 ft. to 132 ft.

14 Nearest Source of possible contamination
75 feet W Direction septic Type
Well disinfected upon completion ☒ Yes ☐ No

15 PUMP:
☐ Not installed
Manufacturer's Name McDonald
Model Number 18050K3LB HP ½ Volts 230
Length of Drop Pipe 60 ft. capacity 10 G.P.M.
Type: ☒ Submersible
☐ Jet ☐ Reciprocating

16 Remarks, elevation, source of data, etc.
ADDED INFO. BY DRILLER, ITEM NO.
*CORRECTED BY:
**ADDITION BY:

17 WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Tri-County Well Drillers (REGISTERED BUSINESS NAME) 1634 (REGISTRATION NO.)

Address 5154 East M-21 Corunna, MI

Signed [signature] (AUTHORIZED REPRESENTATIVE) Date 6/25/81

D67d 100M (Rev. 12-68)

GEOLOGICAL SURVEY COPY

GEOLOGICAL SURVEY NO. [ ]

MICHIGAN DEPARTMENT OF PUBLIC HEALTH

WATER WELL AND PUMP RECORD

PERMIT NUMBER [ ]

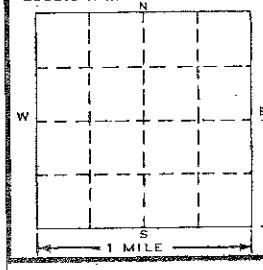
1 LOCATION OF WELL

County	Township Name	Fraction	Section Number	Town Number	Range Number
Genesee	Fenton	NE¼ NE¼ SW¼	19	5 N/S	6 E/W

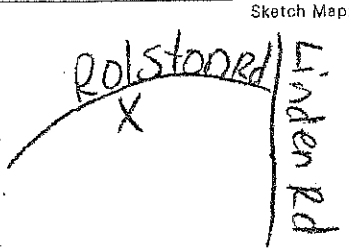
Distance And Direction From Road Intersection: 3/4 mile W of Linden Rd on S Side of Rolston Rd

Street Address & City of Well Location

Locate with "X" in Section Below



Sketch Map:



3 OWNER OF WELL: Dan Shinsky

Address: 1565 Rolston Rd, Linden, MI 48451

Address Same As Well Location? [X] Yes [ ] No

4 WELL DEPTH: 61 FT. Date Completed: MO. 4 DAY 15 YEAR 92 [ ] New Well [X] Replacement Well

5 [ ] Cable tool [X] Rotary [ ] Driven [ ] Dug [ ] Hollow rod [ ] Auger [ ] Jetted [ ]

6 USE: [X] Domestic [ ] Type I Public [ ] Type III Public [ ] Irrigation [ ] Type IIa Public [ ] Heat pump [ ] Test Well [ ] Type IIb Public [ ]

7 CASING: Diameter [ ] Steel [ ] Threaded [X] Plastic [ ] Welded

5 in. to 56 ft. depth

in. to ft. depth

Grouted Drill Hole Diameter

8½ in. to 56 ft. depth

in. to ft. depth

Height: Above/Below Surface 1 ft.

Weight SDR21 lbs./ft.

Drive Shoe [ ] Yes [X] No

2 FORMATION DESCRIPTION

FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Clay	12	12
Gravel	13	25
Clay	15	40
Sand	21	61

USE A 2ND SHEET IF NEEDED

8 SCREEN: [ ] Not Installed

Type PVC Diameter 5"

Slot/Gauze 20 Length 5'

Set between 56 ft. and 61 ft.

FITTINGS: [ ] K-Packer [ ] Lead Packer [ ] Bremer Check

[ ] Blank above screen ft. Other

9 STATIC WATER LEVEL: 25 ft. below land surface [ ] Flow

10 PUMPING LEVEL: below land surface

45 ft. after 1 hrs. pumping at 23 G.P.M.

ft. after hrs. pumping at G.P.M.

11 WELL HEAD COMPLETION: [X] Pitless adapter [ ] 12" above grade [ ] Basement offset [ ] Approved pit

12 WELL GROUTED? [ ] No [X] Yes From 0 to 25 ft.

[ ] Neat cement [X] Bentonite [X] Other Pressure

No. of bags of cement 2 Additives Benseal

13 Nearest source of possible contamination

Type Septic Distance 75 ft. Direction S

Well disinfected upon completion? [X] Yes [ ] No

Was old well plugged? [ ] Yes [ ] No

14 PUMP: [ ] Not Installed [ ] Pump Installation Only

Manufacturer's name Red Jacket

Model number HP Volts

Length of Drop Pipe ft. capacity G.P.M.

TYPE: [X] Submersible [ ] Jet

PRESSURE TANK:

Manufacturer's name Well - X-Trol

Model number 202 Capacity 40 Gallons

RECEIVED Mich. Dept. of Public Health JUN 2 1992 BUREAU OF ENVIRONMENTAL AND OCCUPATIONAL HEALTH-RWQS

15. Remarks, elevation, source of data, etc.

16. WATER WELL CONTRACTOR'S CERTIFICATION:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Ken Lee Well Drilling (REGISTERED BUSINESS NAME) 0654 (REGISTRATION NO.)

Address PO Box 342 Linden, MI 48451

Signed [signature] (AUTHORIZED REPRESENTATIVE) Date 4-20-92

17. Rig Operator's Name:

D67d 2/89

Authority: Act 368 PA 1978
Completion: Required
Penalty: Conviction of a violation of any provision is a misdemeanor.

GEOLOGICAL SURVEY COPY

GEOLOGICAL SURVEY NO.

MICHIGAN DEPARTMENT OF PUBLIC HEALTH
WATER WELL AND PUMP RECORD

PART 127 ACT 368, P.A. 1978

PERMIT NUMBER

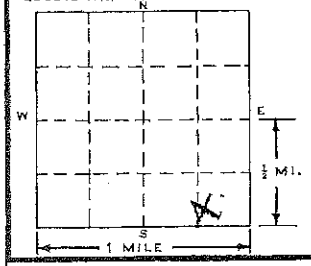
1 LOCATION OF WELL

County	Township Name	Fraction	Section Number	Town Number	Range Number
Gen	Fenton	SE ¼ SE ¼ SE ¼	19	5 N/S	6 E/W

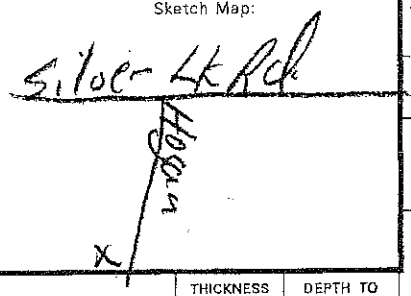
Distance And Direction From Road Intersection: ½ mi N of Silver Lk Rd on Hogan

Street Address & City of Well Location

Locate with "X" in Section Below



Sketch Map:



3 OWNER OF WELL:

Wayne Fenton

Address: 12283 Hogan Rd Linden

Address Same As Well Location? ☑ Yes ☐ No

4 WELL DEPTH: (completed)

200 ft.

Date of Completion: 12-30-85

5

☐ Cable tool ☑ Rotary ☐ Driven ☐ Dug
☐ Hollow rod ☐ Auger ☐ Jetted ☐

6 USE:

☑ Domestic ☐ Type I Public ☐ Type III Public
☐ Irrigation ☐ Type IIa Public ☐ Heat pump
☐ Test Well ☐ Type IIb Public ☐

7 CASING:

Diameter ☐ Steel ☐ Threaded
☑ Plastic ☑ Welded

5 in. to 145 ft. depth
____ in. to ____ ft. depth

Grouted Drill Hole Diameter
5 in. to 145 ft. depth
____ in. to ____ ft. depth

Height: Above/Below
Surface ____ ft.
Weight ____ lbs./ft.
Drive Shoe ☐ Yes ☐ No

2 FORMATION DESCRIPTION

FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
clay	60	60
clay & gravel	40	100
shale	30	130
rock sandstone	15	145
rock sandstone & shale	55	200

USE A 2ND SHEET IF NEEDED

8 SCREEN:

☑ Not Installed

Type ____ Diameter ____
Slot/Gauze ____ Length ____
Set between ____ ft. and ____ ft.
FITTINGS: ☐ K-Packer ☐ Lead Packer ☐ Bremer Check
☐ Blank above screen ____ ft. Other ____

9 STATIC WATER LEVEL:

15 ft. below land surface ☐ Flow

10 PUMPING LEVEL: below land surface

60 ft. after 1 hrs. pumping at 12 G.P.M.
____ ft. after ____ hrs. pumping at ____ G.P.M.

11 WELL HEAD COMPLETION:

☑ Pitless adapter ☐ 12" above grade
☐ Basement offset ☐ Approved pit

12 WELL GROUTED?

☐ No ☑ Yes From 0 to 145 ft.
☐ Neat cement ☑ Bentonite ☐ Other ____
No. of bags of cement ____ Additives ____

13 Nearest source of possible contamination

Type Sewer Distance 30 ft. Direction S

Well disinfected upon completion? ☑ Yes ☐ No

14 PUMP:

☐ Not Installed ☐ Pump Installation Only
Manufacturer's name Tait
Model number ____ HP ½ Volts 230
Length of Drop Pipe 60 ft. capacity 10 G.P.M.
TYPE: ☑ Submersible ☐ Jet ____
PRESSURE TANK:
Manufacturer's name Amtrol
Model number 202 Capacity 40 Gallons

RECEIVED
Mich. Dept. of Public Health
JAN 27 1986
Environmental Health - GWQS

15. Remarks, elevation, source of data, etc.

16. WATER WELL CONTRACTOR'S CERTIFICATION:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Kewaunee WD — REGISTERED BUSINESS NAME
0654 — REGISTRATION NO.
Address Lyndon
Signed ____ AUTHORIZED REPRESENTATIVE
Date 12-30-85

D67d (Rev. 10-80)

GEOLOGICAL SURVEY COPY

GEOLOGICAL SURVEY NO.

MICHIGAN DEPARTMENT OF PUBLIC HEALTH

WATER WELL AND PUMP RECORD

PART 127 ACT 368, P.A. 1978

PERMIT NUMBER

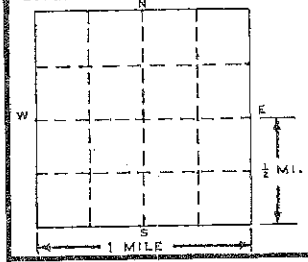
1 LOCATION OF WELL

County	Township Name	Fraction	Section Number	Town Number	Range Number
Genesee	Fenton	NE ¼ NE ¼ SE ¼	19	5 N/S	6 E/W

Distance And Direction From Road Intersection
150' ± West of West End of Blythe Avenue

Street Address & City of Well Location

Locate with "X" in Section Below



Sketch Map

3 OWNER OF WELL:
Address: Village of Linden, 132 E. Broad Street, Linden, Mi. 48451
Address Same As Well Location? ☐ Yes ☒ No

4 WELL DEPTH: (completed) 187 ft. | **Date of Completion** 5-23-85

5 ☐ Cable tool ☒ Rotary ☐ Driven ☐ Dug ☐ Hollow rod ☐ Auger ☐ Jetted ☐ _____

6 USE: ☐ Domestic ☐ Type I Public ☐ Type III Public ☐ Irrigation ☐ Type IIa Public ☐ Heat pump ☒ Test Well ☐ Type IIb Public ☐ _____

7 CASING: Diameter ☒ Steel ☐ Threaded ☐ Plastic ☐ Welded
6 in. to 94 ft. depth
_____ in. to _____ ft. depth
Grouted Drill Hole Diameter
10 in. to 94 ft. depth
_____ in. to _____ ft. depth
Height: Above/~~Below~~ Surface 2 ft. ±
Weight 19.45 lbs./ft.
Drive Shoe ☒ Yes ☐ No

8 SCREEN: ☒ Not Installed
Type _____ Diameter _____
Slot/Gauze _____ Length _____
Set between _____ ft. and _____ ft.
FITTINGS: ☐ K-Packer ☐ Lead Packer ☐ Bremer Check
☐ Blank above screen _____ ft. Other _____

9 STATIC WATER LEVEL:
_____ ft. below land surface ☒ Flow

10 PUMPING LEVEL: below land surface
15.59 ft. after 3 hrs. pumping at 112 G.P.M.
16.89 ft. after 11 hrs. pumping at 112 G.P.M.

11 WELL HEAD COMPLETION: ☐ Pitless adapter ☒ 12" above grade ☐ Basement offset ☐ Approved pit

12 WELL GROUTED? ☐ No ☐ Yes From _____ to _____ ft.
☐ Neat cement ☒ Bentonite ☐ Other _____
No. of bags of cement _____ Additives _____

13 Nearest source of possible contamination
Type Septic Distance 250+ ft. Direction N.W.
Well disinfected upon completion? ☒ Yes ☐ No

14 PUMP: ☒ Not Installed ☐ Pump Installation Only
Manufacturer's name _____
Model number _____ HP _____ Volts _____
Length of Drop Pipe _____ ft. capacity _____ G.P.M.
TYPE: ☐ Submersible ☐ Jet _____
PRESSURE TANK:
Manufacturer's name _____
Model number _____ Capacity _____ Gallons

2 FORMATION DESCRIPTION

FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Topsoil	5	5
Brown clay	10	15
Sand	4	19
Gray clay & gravel	18	37
Large sand	3	40
Gray clay & gravel	25	65
Gravel & sand w/ gray clay	6	71
Boulder	1	72
Gray clay	15	87
White sand stone	48	135
Layered shale & sand stone	5	140
Gray Shale	15	155
Black shale	8	163
Sand stone	18	181
Black shale	6	187

USE A 2ND SHEET IF NEEDED

RECEIVED
Mich. Dept. of Public Health
NOV 26 1985
Bureau of Environmental and Occupational Health - GWQS

15. Remarks, elevation, source of data, etc.
One section of drill rod plus the drill bit stuck in bottom of hole from 170 foot depth to bottom.

16. WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Brown Drilling Co., Inc. 26
REGISTERED BUSINESS NAME REGISTRATION NO.

Address Howell, Mi.

Signed Harry R Brown Date 6-17-85
AUTHORIZED REPRESENTATIVE

D87d (Rev. 10-80)

GEOLOGICAL SURVEY COPY

GEOLOGICAL SURVEY NO.

MICHIGAN DEPARTMENT OF PUBLIC HEALTH

WATER WELL AND PUMP RECORD

PERMIT NUMBER

1 LOCATION OF WELL

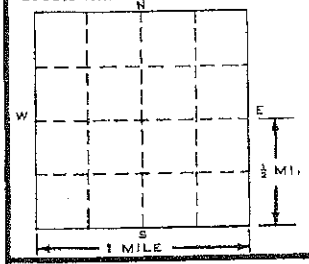
County: Genesee | Township Name: Fenton | Fraction: 1/4 1/4 1/4 | Section Number: 19 | Town Number: T 5 N/S | Range Number: E 6 E/W

Distance And Direction From Road Intersection: 1/4 mi E. of Hogan on Silver Lk Rd.

Street Address & City of Well Location

Locate with "X" in Section Below

Sketch Map:



3 OWNER OF WELL: Frederick White

Address: 6489 Silver Lk Rd Mich Linden

Address Same As Well Location? ☑ Yes ☐ No

4 WELL DEPTH: (completed) 145 ft. | **Date of Completion** 9-21-86

5 ☐ Cable tool ☑ Rotary ☐ Driven ☐ Dug ☐ Hollow rod ☐ Auger ☐ Jetted ☐ _____

6 USE: ☑ Domestic ☐ Type I Public ☐ Type III Public ☐ Irrigation ☐ Type IIa Public ☐ Heat pump ☐ Test Well ☐ Type IIb Public ☐ _____

7 CASING: Diameter ☐ Steel ☐ Threaded ☑ Plastic ☐ Welded

5 in. to 124 ft. depth

_____ in. to _____ ft. depth

Grouted Drill Hole Diameter

_____ in. to _____ ft. depth

_____ in. to _____ ft. depth

Height: Above/Below Surface 1 ft.

Weight _____ lbs./ft.

Drive Shoe ☐ Yes ☑ No

8 SCREEN: ☑ Not Installed

Type _____ Diameter _____

Slot/Gauze _____ Length _____

Set between _____ ft. and _____ ft.

FITTINGS: ☐ K-Packer ☐ Lead Packer ☐ Bremer Check ☐ Blank above screen _____ ft. Other _____

9 STATIC WATER LEVEL: 20 ft. below land surface ☐ Flow

10 PUMPING LEVEL: below land surface

40 ft. after 1 hrs. pumping at 15 G.P.M.

_____ ft. after _____ hrs. pumping at _____ G.P.M.

11 WELL HEAD COMPLETION: ☑ Pitless adapter ☐ 12" above grade ☐ Basement offset ☐ Approved pit

12 WELL GROUTED? ☐ No ☑ Yes From 0 to 25 ft.

☐ Neat cement ☑ Bentonite ☐ Other _____

No. of bags of cement _____ Additives _____

13 Nearest source of possible contamination

Type Sewer Distance 10 ft. Direction E

Well disinfected upon completion? ☑ Yes ☐ No

14 PUMP: ☐ Not Installed ☐ Pump Installation Only

Manufacturer's name Red Jacket

Model number _____ HP 1/2 Volts 220

Length of Drop Pipe 45 ft. capacity 10 G.P.M.

TYPE: ☑ Submersible ☐ Jet _____

PRESSURE TANK:

Manufacturer's name Amtrol

Model number 202 Capacity 40 Gallons

2 FORMATION DESCRIPTION

FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Sand & Gravel	35	35
Clay	10	45
Gravel	50	95
Shale	10	105
Rock	30	135

RECEIVED
Mich. Dept. of Public Health
NOV 17 1986
Bureau of Environmental and Occupational Health - GWOS

USE A 2ND SHEET IF NEEDED

15. Remarks, elevation, source of data, etc.

16. WATER WELL CONTRACTOR'S CERTIFICATION:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Ken Lee — REGISTERED BUSINESS NAME | 0654 — REGISTRATION NO.

Address Byron

Signed _____ AUTHORIZED REPRESENTATIVE Date 9-23-86

D67d 2/84

GEOLOGICAL SURVEY COPY

Authority: Act 368 PA 1978
Completion: Required
Penalty: Conviction of a violation of any provision is a misdemeanor.

GEOLOGICAL SURVEY NO. [ ]

MICHIGAN DEPARTMENT OF PUBLIC HEALTH
WATER WELL AND PUMP RECORD

PART 127 ACT 368, P.A. 1978

PERMIT NUMBER [ ][ ][ ][ ][ ][ ][ ][ ][ ][ ]

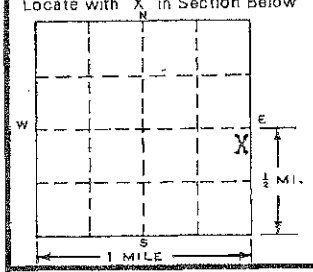
1 LOCATION OF WELL

County	Township Name	Fraction	Section Number	Town Number	Range Number
Genesee	Fenton	NE ¼NE ¼SE ¼	19	5 N/S	6 E/W

Distance And Direction From Road Intersection: 150' ± West of West End of Blythe Ave.

Street Address & City of Well Location:

Locate with "X" in Section Below



Sketch Map: This well is 31 feet North of the 6" test well.

3 OWNER OF WELL:
Address: Village of Linden, 132 E. Broad St., Linden, Mi. 48451
Address Same As Well Location? ☐ Yes ☒ No

4 WELL DEPTH: (completed) 180 ft. | **Date of Completion** 7-30-85

5 ☐ Cable tool ☒ Rotary ☐ Driven ☐ Dug ☐ Hollow rod ☐ Auger ☐ Jetted ☐ ____

6 USE: ☐ Domestic ☒ Type I Public ☐ Type III Public ☐ Irrigation ☐ Type IIa Public ☐ Heat pump ☐ Test Well ☐ Type IIb Public ☐ ____

7 CASING: Diameter ☒ Steel ☐ Threaded ☐ Plastic ☒ Welded
10 in. to 92 ft. depth
____ in. to ____ ft. depth
Grouted Drill Hole Diameter
15 in. to 93 ft. depth
9-7/8 in. to 180 ft. depth
Height: Above/Below
Surface 3.1 ft
Weight 40.48 lbs./ft.
Drive Shoe ☐ Yes ☒ No

8 SCREEN: ☒ Not Installed
Type ____ Diameter ____
Slot/Gauze ____ Length ____
Set between ____ ft. and ____ ft.
FITTINGS: ☐ K-Packer ☐ Lead Packer ☐ Bremer Check
☐ Blank above screen ____ ft. Other ____

9 STATIC WATER LEVEL:
4.9 ft. below land surface ☐ Flow

10 PUMPING LEVEL: below land surface
22.1 ft. after 12 hrs. pumping at 400 G.P.M.
____ ft. after ____ hrs. pumping at ____ G.P.M.

11 WELL HEAD COMPLETION: ☐ Pitless adapter ☒ 12" above grade ☐ Basement offset ☐ Approved pit

12 WELL GROUTED? ☐ No ☒ Yes From 0 to 93 ft.
☒ Neat cement ☐ Bentonite ☐ Other ____
No. of bags of cement 56 Additives ____

13 Nearest source of possible contamination
Type ____ Distance ____ ft. Direction ____
Well disinfected upon completion? ☒ Yes ☐ No

14 PUMP: ☒ Not Installed ☐ Pump Installation Only
Manufacturer's name ____
Model number ____ HP ____ Volts ____
Length of Drop Pipe ____ ft. capacity ____ G.P.M.
TYPE: ☐ Submersible ☐ Jet ____
PRESSURE TANK:
Manufacturer's name ____
Model number ____ Capacity ____ Gallons

2 FORMATION DESCRIPTION

FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Sand	5	5
Gray clay	10	15
Gray clay with sand lenses	7	22
Gray clay	21	43
Large sand	3	46
Gray clay & gravel	21	67
Dirty sand	4	71
Very sandy clay & gravel	18	89
White sandstone	46	135
Gray sandstone with gray shale lenses	15	150
Black shale	15	165
Gray shale	8	173
Black shale	7	180

RECEIVED Mich. Dept. of Public Health NOV 26 1985 Bureau of Environmental and Occupational Health - GWQS

USE A 2ND SHEET IF NEEDED

15. Remarks, elevation, source of data, etc.

16. WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Brown Drilling Co., Inc. (REGISTERED BUSINESS NAME) 26 (REGISTRATION NO.)
Address Howell
Signed Larry R. Brown (AUTHORIZED REPRESENTATIVE) Date 8-16-85

D87d (Rev. 10-80)

GEOLOGICAL SURVEY COPY

GEOLOGICAL SURVEY NO.

MICHIGAN DEPARTMENT OF PUBLIC HEALTH

WATER WELL AND PUMP RECORD

PERMIT NUMBER

1 LOCATION OF WELL

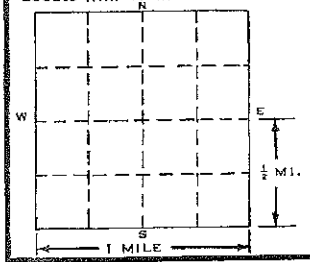
County	Township Name	Fraction	Section Number	Town Number	Range Number
Genesee	Fenton	NE ¼ NE ¼ SE ¼	19	5 N/S	6 E/W

Distance And Direction From Road Intersection

150' ± West of West End of Blythe Avenue

Street Address & City of Well Location

Locate with "X" in Section Below



Sketch Map:

Page 2 of 2

3 OWNER OF WELL:

Village of Linden
Address 132 E. Broad Street
Linden, Mi. 48451

Address Same As Well Location? ☐ Yes ☒ No

4 WELL DEPTH: FT.

Date Completed MO. 1 DAY 8 YEAR 87

☐ New Well ☐ Replacement Well

5 ☐ Cable tool ☐ Rotary ☐ Driven ☐ Dug ☐ Hollow rod ☐ Auger ☐ Jetted ☐

6 USE: ☐ Domestic ☐ Type I Public ☐ Type III Public ☐ Irrigation ☐ Type IIa Public ☐ Heat pump ☐ Test Well ☐ Type IIb Public ☐

7 CASING: Diameter ☐ Steel ☐ Threaded ☐ Plastic ☐ Welded

____ in. to ____ ft. depth

____ in. to ____ ft. depth

Grouted Drill Hole Diameter

____ in. to ____ ft. depth

____ in. to ____ ft. depth

Height: Above/Below

Surface ____ ft.

Weight ____ lbs./ft.

Drive Shoe ☐ Yes ☐ No

2 FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
The 6" Test Well on Page 1		
was abandoned on 1/8/87		
as follows:		
Cut off casing below		
ground		2'
Concrete	3	5
Sand	62	67
Neat Cement	33	100
Sand	65	165
Neat Cement	22	187

RECEIVED
Mich. Dept. of Public Health
NOV 24 1987
Bureau of Environmental and Occupational Health - GWQS

USE A 2ND SHEET IF NEEDED

8 SCREEN: ☐ Not Installed

Type ____ Diameter ____

Slot/Gauze ____ Length ____

Set between ____ ft. and ____ ft.

FITTINGS: ☐ K-Packer ☐ Lead Packer ☐ Bremer Check ☐ Blank above screen ____ ft. Other ____

9 STATIC WATER LEVEL:

____ ft. below land surface ☐ Flow

10 PUMPING LEVEL: below land surface

____ ft. after ____ hrs. pumping at ____ G.P.M.

____ ft. after ____ hrs. pumping at ____ G.P.M.

11 WELL HEAD COMPLETION: ☐ Pitless adapter ☐ 12" above grade ☐ Basement offset ☐ Approved pit

12 WELL GROUTED? ☐ No ☐ Yes From ____ to ____ ft.

☐ Neat cement ☐ Bentonite ☐ Other ____

No. of bags of cement ____ Additives ____

13 Nearest source of possible contamination

Type ____ Distance ____ ft. Direction ____

Well disinfected upon completion? ☐ Yes ☐ No

Was old well plugged? ☐ Yes ☐ No

14 PUMP: ☐ Not Installed ☐ Pump Installation Only

Manufacturer's name ____

Model number ____ HP ____ Volts ____

Length of Drop Pipe ____ ft. capacity ____ G.P.M.

TYPE: ☐ Submersible ☐ Jet ____

PRESSURE TANK:

Manufacturer's name ____

Model number ____ Capacity ____ Gallons

15. Remarks, elevation, source of data, etc.

16. WATER WELL CONTRACTOR'S CERTIFICATION:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Brown Drilling Co., Inc. 26
REGISTERED BUSINESS NAME REGISTRATION NO.

Address Howell

Signed ____ Date 11-7-87
AUTHORIZED REPRESENTATIVE

17. Rig Operator's Name:

D67d 12/85

Authority: Act 368 PA 1978
Completion: Required
Penalty: Conviction of a violation of any provision is a misdemeanor.

GEOLOGICAL SURVEY COPY

GEOLOGICAL SURVEY NO.

MICHIGAN DEPARTMENT OF PUBLIC HEALTH

WATER WELL AND PUMP RECORD

PERMIT NUMBER

SE

1 LOCATION OF WELL

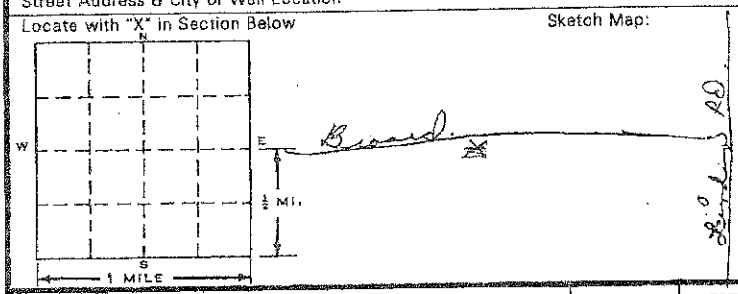
County	Township Name	Fraction	Section Number	Town Number	Range Number
Genesee	~~Linden~~ Fenton	1/4 1/4 1/4	19	5 N/S	6 E/W

Distance And Direction From Road Intersection: In City, across Mall on S. side

Street Address & City of Well Location

Locate with "X" in Section Below

Sketch Map:



3 OWNER OF WELL: S. Schultz

Address: 495 W. Broad St. Linden, Mi. 48451

Address Same As Well Location? [X] Yes [ ] No

4 WELL DEPTH: 220 FT. Date Completed MO. 9 DAY 30 YEAR 89 [ ] New Well [X] Replacement Well

5 [ ] Cable tool [X] Rotary [ ] Driven [ ] Dug [ ] Hollow rod [ ] Auger [ ] Jetted [ ]

6 USE: [X] Domestic [ ] Type I Public [ ] Type III Public [ ] Irrigation [ ] Type IIa Public [ ] Heat pump [ ] Test Well [ ] Type IIb Public [ ]

7 CASING: Diameter [ ] Steel [ ] Threaded [X] Plastic [ ] Welded

5 in. to 120 ft. depth

in. to ft. depth

Grouted Drill Hole Diameter 7 1/8 in. to 120 ft. depth

in. to ft. depth

Height: Above/Below Surface 1 ft. Weight 3 lbs./ft. Drive Shoe [ ] Yes [X] No

8 SCREEN: [X] Not Installed

Type ____ Diameter ____

Slot/Gauze ____ Length ____

Set between ____ ft. and ____ ft.

FITTINGS: [ ] K-Packer [ ] Lead Packer [ ] Bremer Check

[ ] Blank above screen ____ ft. Other ____

9 STATIC WATER LEVEL: 20 ft. below land surface [ ] Flow

10 PUMPING LEVEL: below land surface

220 ft. after 1 hrs. pumping at 25 G.P.M.

____ ft. after ____ hrs. pumping at ____ G.P.M.

11 WELL HEAD COMPLETION: [X] Pitless adapter [X] 12" above grade [ ] Basement offset [ ] Approved pit

12 WELL GROUTED? [ ] No [X] Yes From 0 to 25 ft.

[ ] Neat cement [ ] Bentonite [X] Other Valpley

No. of bags of cement 4 Additives ____

13 Nearest source of possible contamination

Type Sanitary Distance 50 ft. Direction ____

Well disinfected upon completion? [X] Yes [ ] No

Was old well plugged? [X] Yes [X] No

14 PUMP: [ ] Not Installed [ ] Pump Installation Only

Manufacturer's name Burks

Model number 10SH310C HP 1 Volts 230

Length of Drop Pipe 100 ft. capacity 19 G.P.M.

TYPE: [X] Submersible [ ] Jet ____

PRESSURE TANK:

Manufacturer's name Well X Tool

Model number 251 Capacity 19.5 Gallons

2 FORMATION DESCRIPTION

FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Clay	0	37
gravel	8	45
clay	38	83
fine sand	35	88
clay	20	108
shale, sand rock	112	220

USE A 2ND SHEET IF NEEDED

15. Remarks, elevation, source of data, etc:

16. WATER WELL CONTRACTOR'S CERTIFICATION:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Podgers Well Drilling Inc. 25-1893

REGISTERED BUSINESS NAME REGISTRATION NO.

Address 12334 Minnesota Dr. Fenton 48430

Signed [signature] Date 9-30-89

AUTHORIZED REPRESENTATIVE

17. Rig Operator's Name: Stacy L. Podgers

D67d 12/85

Authority: Act 368 PA 1978
Completion: Required
Penalty: Conviction of a violation of any provision is a misdemeanor.

GEOLOGICAL SURVEY COPY

GEOLOGICAL SURVEY SAMPLE No.

EP 01 1970 19-1

WATER WELL RECORD

ACT 294 PA 1965

MICHIGAN DEPARTMENT OF PUBLIC HEALTH

1 LOCATION OF WELL

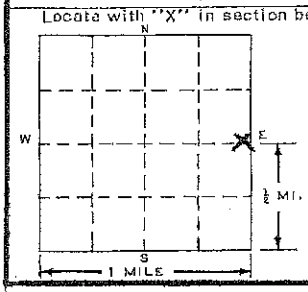
County	Township Name	Fraction	Section Number	Town Number	Range Number
Genesee	Fenton	NE ¼ NW ¼NW ¼	19	5 N/S.	6 E/W.

Distance And Direction from Road Intersections

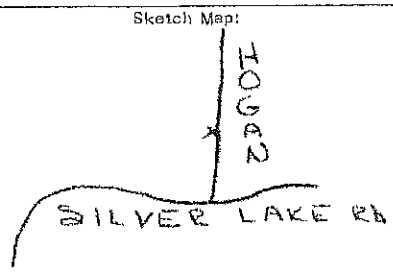
14038 Hogan Rd.

Street address & City of Well Location

Locate with "X" in section below



Sketch Map:



3 OWNER OF WELL:

Address Mr. Coleman
14038 Hogan Rd.
Linden, Michigan

4 WELL DEPTH: (completed) 120 ft. Date of Completion 2-3-71

5 ☐ Cable tool ☐ Rotary ☐ Driven ☐ Dug ☒ Hollow rod ☐ Jetted ☐ Bored ☐

6 USE: ☒ Domestic ☐ Public Supply ☐ Industry ☐ Irrigation ☐ Air Conditioning ☐ Commercial ☐ Test Well ☐

7 CASING: Threaded ☒ Welded ☐ Diam. 2 in. to 116 ft. Depth ___ in. to ___ ft. Depth

Height: Above/~~Below~~ Surface 1 ft. Weight 3.75 lbs./ft. Drive Shoe? Yes ☒ No ☐

2 FORMATION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Red Clay	12	12
Blue Clay	12	24
Gravel (Med)	8	32
BLUE CLAY	61	93
SAND W/GRAVEL	27	120

USE A 2ND SHEET IF NEEDED

8 SCREEN:

Type: Johnson Dia.: 1¼

Slot/~~Gauze~~ 12 Length 48"

Set between 116 ft. and 120 ft.

Fittings:

9 STATIC WATER LEVEL

20 ft. below land surface

10 PUMPING LEVEL below land surface

60 ft. after 1 hrs. pumping 10 g.p.m.

___ ft. after ___ hrs. pumping ___ g.p.m.

11 WATER QUALITY in Parts Per Million:

Iron (Fe) ___ Chlorides (Cl) ___

Hardness ___ Other ___

12 WELL HEAD COMPLETION: ☐ In Approved Pit ☐ Pitless Adapter ☐ 12" Above Grade

13 Well Grouted? ☒ Yes ☐ No ☐ Neat Cement ☒ Bentonite ☐

Depth: From 116 ft. to 65 ft.

14 Nearest Source of possible contamination

60 feet West Direction Septic Type

Well disinfected upon completion ☒ Yes ☐ No

15 PUMP: ☒ Not installed

Manufacturer's Name ___

Model Number ___ HP ___ Volts ___

Length of Drop Pipe ___ ft. capacity ___ G.P.M.

Type: ☐ Submersible ☐ Jet ☐ Reciprocating

16 Remarks, elevation, source of data, etc.

ADDED INFO. BY DRILLER, ITEM NO.

CORRECTED BY:

ADDITION BY:

elev ~870'

17 WATER WELL CONTRACTOR'S CERTIFICATION:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Burns Well Drilling — REGISTERED BUSINESS NAME

0099 — REGISTRATION NO.

Address 5370 Corunna Rd.

Signed Wm J Campbell — AUTHORIZED REPRESENTATIVE

Date 3-26-71

D67d 100M (Rev. 12-68)

GEOLOGICAL SURVEY COPY

TAX NO:

MICHIGAN DEPARTMENT OF PUBLIC HEALTH
WATER WELL AND PUMP RECORD

PERMIT NO:

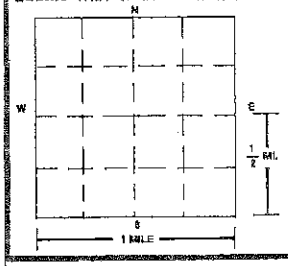
1. LOCATION OF WELL

County	Township Name	Fraction (1/4 1/4 1/4)	Section No.	Town No.	Range No.
Genesee	Fenton		19	5N.	6E.

Distance and Direction from Road Intersection
½ Mile South of Rolston Rd. on the West side of Hogan Rd.

Street Address & City of Well Location Same

Locate with 'x' in Section Below — Sketch Map



3. OWNER OF WELL
Address Fran Morea
14166 Hogan Rd. Linden Mi.48451
Address Same as Well Location ☒ Yes ☐ No

4. WELL DEPTH: 200 ft. — Date Completed 12/14/95 — ☒ New Well ☐ Replacement Well

5. ☐ Cable Tool ☒ Rotary ☐ Driven ☐ Dug ☐ Hollow Rod ☐ Auger/Bored ☐ Jetted ☐ _____

6. USE: ☒ Household ☐ Type I Public ☐ Type III Public ☐ Irrigation ☐ Type IIa Public ☐ Heat Pump ☐ Test Well ☐ Type IIb Public ☐ _____

7. CASING: ☐ Steel ☐ Threaded ☒ Plastic ☐ Welded ☐ Other _____
Diameter: 5 in. to 150 depth; _____ in. to _____ ft. depth
BORE HOLE: Diameter: 8 in. to 150 ft. depth; 4.5 in. to 200 ft. depth
Height: Above/Below Surface: 1 ft
Weight SDR21 lbs./ft.
☐ Drive Shoe ☒ Shale Packer

2. FORMATION DESCRIPTION

FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Clay	80	80
Coarse Sand	14	94
Clay	36	130
Sand Rock	70	200

USE A 2ND SHEET IF NEEDED

8. SCREEN: ☒ Not Installed ☐ Gravel-Packed
Type _____ Diameter _____
Slot/Gauze _____ Length: _____
Set Between _____ ft. and _____ ft.
FITTINGS: ☐ K-Packer ☐ Bremer Check ☐ Blank Above Screen _____ ft. ☐ Other _____

9. STATIC WATER LEVEL: 39 ft. Below Land Surface ☐ Flowing

10. PUMPING LEVEL: Below Land Surface
200 ft. After 2 hrs. Pumping at 45 G.P.M.
☐ Plunger ☐ Bailer ☒ Air ☐ Test Pump

11. WELL HEAD COMPLETION:
☒ Pitless Adapter ☐ 12" Above Grade ☐ Basement Offset ☐ Well House

12. WELL GROUTED? ☐ No ☒ Yes From 0 to 130 ft.
☐ Neat Cement ☒ Bentonite ☐ Other _____
No. of Bags 7 Additives EZ Mud

13. NEAREST SOURCE OF POSSIBLE CONTAMINATION:
Type Septic Distance E. ft. Direction 60
Type _____ Distance _____ ft. Direction _____

14. PUMP: ☐ Not Installed ☐ Pump Installation Only
Manufacturer's Name Myers
Model Number _____ HP ½ Volts 230
Length of Drop Pipe 100 ft. Capacity 12 G.P.M.
TYPE: ☒ Submersible ☐ Jet ☐ Other _____
PRESSURE TANK:
Manufacturer's Name Clayton Mark
Model Number 203 Capacity 10 Gallons

15. ABANDONED WELL PLUGGED? ☐ Yes ☐ No
Casing Diameter _____ in. Depth _____ ft.
PLUGGING MATERIAL: ☐ Neat Cement ☐ Bentonite Slurry ☐ Cement/Bentonite Slurry ☐ Concrete Grout ☐ Bentonite Chips
No. of Bags _____ Casing Removed? ☐ Yes ☐ No

16. REMARKS: (Elevation, Source of Data, etc.)

17. DRILLING MACHINE OPERATOR:
☒ Employee ☐ Subcontractor
Name Stacy F. Podjun

15. WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Podjun Well Drilling Inc. 25-1893
REGISTERED BUSINESS NAME — REGISTRATION NO.

Address 13296 Pomona Dr. Fenton Mi. 48430

Signed _____ Date 12/14/96
AUTHORIZED REPRESENTATIVE

GW-2-228 9/93

GEOLOGICAL SURVEY COPY

Authority: Act 368 PA 1978
Completion: Required
Penalty: Conviction of a violation of any provision is a misdemeanor.

TAX NO:

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
WATER WELL AND PUMP RECORD

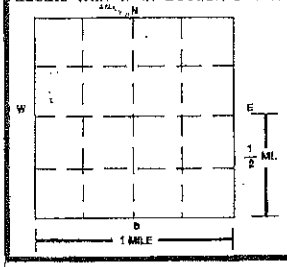
PERMIT NO:

1. LOCATION OF WELL

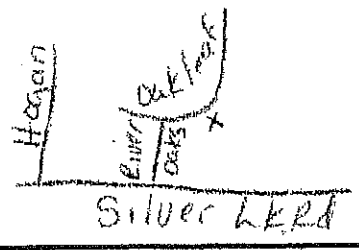
County	Township Name	Fraction	Section No.	Town No.	Range No.
Genesee	Fenton	NW 1/4 SE 1/4 SW 1/4	19	5n	6e

Distance and Direction from Road Intersection
600' E of River Oaks on s side of Oak Leaf Tr.
Street Address & City of Well Location

Locate with 'x' in Section Below



Sketch Map



3. OWNER OF WELL: Ron Harrold
Address: 6331 OakLeaf Tr, Linden, MI 48451
Address Same as Well Location [X] Yes [ ] No

4. WELL DEPTH: 55 ft. Date Completed 9 / 2 /97
[X] New Well [ ] Replacement Well

5. [ ] Cable Tool [X] Rotary [ ] Driven [ ] Dug
[ ] Hollow Rod [ ] Auger/Bored [ ] Jetted [ ]

6. USE: [X] Household [ ] Type I Public [ ] Type III Public
[ ] Irrigation [ ] Type IIa Public [ ] Heat Pump
[ ] Test Well [ ] Type IIb Public [ ]

7. CASING: [X] Steel [ ] Threaded [ ] Plastic [ ] Welded [ ] Other
Diameter: 5 in. to 51 ft. depth
in. to ft. depth
BORE HOLE: Diameter: 8¼ in. to 55 ft. depth
in. to ft. depth
Height: Above/Below Surface: 1 ft
Weight SDR21 lbs./ft.
[ ] Drive Shoe [ ] Shale Packer

2. FORMATION DESCRIPTION

FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Sand and gravel	15	15
Clay	30	45
Sand	10	55

USE A 2ND SHEET IF NEEDED

8. SCREEN: [ ] Not Installed [ ] Gravel-Packed
Type S.S. Diameter 4"
Slot/Gauge 7 Length: 4'
Set Between 51 ft. and 55 ft.
FITTINGS: [ ] K-Packer [ ] Bremer Check
[ ] Blank Above Screen ft. Other

9. STATIC WATER LEVEL:
20 ft. Below Land Surface [ ] Flowing

10. PUMPING LEVEL: Below Land Surface
50 ft. After 1 hrs. Pumping at 12 G.P.M.
[ ] Plunger [ ] Bailer [ ] Air [ ] Test Pump

11. WELL HEAD COMPLETION:
[X] Pitless Adapter [ ] 12" Above Grade
[ ] Basement Offset [ ] Well House

12. WELL GROUTED? [ ] No [X] Yes From 0 to 42 ft.
[ ] Neat Cement [X] Bentonite [X] Other pressure
No. of Bags 4 Additives Benseal

13. NEAREST SOURCE OF POSSIBLE CONTAMINATION:
Type Sewer Distance 30 ft. Direction N
Type Distance ft. Direction

14. PUMP: [ ] Not Installed [ ] Pump Installation Only
Manufacturer's Name RED Jacket
Model Number 50rtw1-mn9bdp ½ Volts 220
Length of Drop Pipe 41 ft. Capacity 10 G.P.M.
TYPE: [X] Submersible [ ] Jet [ ] Other
PRESSURE TANK:
Manufacturer's Name Well-Rite
Model Number 203 pc-122 Capacity 60 Gallons 12.2

15. ABANDONED WELL PLUGGED? [ ] Yes [ ] No
Casing Diameter in. Depth ft.
PLUGGING MATERIAL: [ ] Neat Cement [ ] Bentonite Slurry
[ ] Cement/Bentonite Slurry [ ] Concrete Grout [ ] Bentonite Chips
No. of Bags Casing Removed? [ ] Yes [ ] No

16. REMARKS: (Elevation, Source of Data, etc.)

17. DRILLING MACHINE OPERATOR:
[X] Employee [ ] Subcontractor
Name Percy Buck

18. WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
Ken Lee Well Drilling (REGISTERED BUSINESS NAME) 0654 (REGISTRATION NO.)
Address P.O. Box 342, Linden, MI 48451
Signed (AUTHORIZED REPRESENTATIVE) Date 9-4-97

GW-2-228 9/93

GEOLOGICAL SURVEY COPY

Authority: Act 368 PA 1978
Completion: Required
Penalty: Conviction of a violation of any provision is a misdemeanor.

TAX NO:

MICHIGAN DEPARTMENT OF PUBLIC HEALTH
WATER WELL AND PUMP RECORD

PERMIT NO:

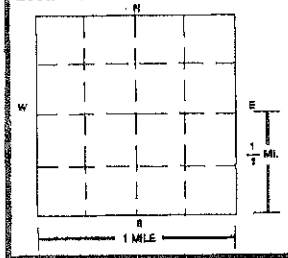
1. LOCATION OF WELL

County	Township Name	Fraction	Section No.	Town No.	Range No.
Genesee	Grand Blanc	1/4 1/4 1/4	19	5 N	6 E

Distance and Direction from Road Intersection: North West corner of Cook Rd. and Fletcher Rd.

Street Address & City of Well Location: 1513 E. Cook Rd.

Locate with 'x' in Section Below — Sketch Map



3. OWNER OF WELL: Roger Lamoureax
Address: 1513 E. Cook Rd. Grand Blanc, MI 48439
Address Same as Well Location: [X] Yes [ ] No

4. WELL DEPTH: 240 ft. | Date Completed: 11/02/95 | [ ] New Well [X] Replacement Well

5. [ ] Cable Tool [X] Rotary [ ] Driven [ ] Dug [ ] Hollow Rod [ ] Auger/Bored [ ] Jetted [ ] _____

6. USE: [X] Household [ ] Type I Public [ ] Type III Public [ ] Irrigation [ ] Type IIa Public [ ] Heat Pump [ ] Test Well [ ] Type IIb Public [ ] _____

7. CASING: [ ] Steel [ ] Threaded [X] Plastic [ ] Welded [ ] Other _____
Diameter: 5 in. to 160 ft. depth; _____ in. to _____ ft. depth
Height: Above/Below Surface: 1 ft
Weight: SDR21 lbs./ft.
BORE HOLE: Diameter: 8 in. to 160 ft. depth; 4½ in. to 240 ft. depth
[ ] Drive Shoe [X] Shale Packer

2. FORMATION DESCRIPTION

FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Clay	115	115
Shale	80	195
Sand Rock	45	240

USE A 2ND SHEET IF NEEDED

8. SCREEN: [X] Not Installed [ ] Gravel-Packed
Type _____ Diameter _____
Slot/Gauze _____ Length: _____
Set Between _____ ft. and _____ ft.
FITTINGS: [ ] K-Packer [ ] Bremer Check
[ ] Blank Above Screen _____ ft. Other _____

9. STATIC WATER LEVEL: 45 ft. Below Land Surface [ ] Flowing

10. PUMPING LEVEL: Below Land Surface
240 ft. After 2 hrs. Pumping at 30 G.P.M.
[ ] Plunger [ ] Bailer [X] Air [ ] Test Pump

11. WELL HEAD COMPLETION:
[X] Pitless Adapter [ ] 12" Above Grade
[ ] Basement Offset [ ] Well House

12. WELL GROUTED? [ ] No [X] Yes From 0 to 130 ft.
[ ] Neat Cement [X] Bentonite [ ] Other _____
No. of Bags 6 Additives E Z Mud

13. NEAREST SOURCE OF POSSIBLE CONTAMINATION:
Type sewer Distance 20 ft. Direction W
Type _____ Distance _____ ft. Direction _____

14. PUMP: [ ] Not Installed [ ] Pump Installation Only
Manufacturer's Name Myers
Model Number 2NFL52-12 HP ½ Volts 230
Length of Drop Pipe 100 ft. Capacity 12 G.P.M.
TYPE: [X] Submersible [ ] Jet [ ] Other _____
PRESSURE TANK:
Manufacturer's Name Aqua-Air
Model Number V100 Capacity 10 Gallons

15. ABANDONED WELL PLUGGED? [X] Yes [ ] No
Casing Diameter 2 in. Depth 140 ft.
PLUGGING MATERIAL: [X] Neat Cement [ ] Bentonite Slurry [ ] Cement/Bentonite Slurry [ ] Concrete Grout [ ] Bentonite Chips
No. of Bags 4 Casing Removed? [ ] Yes [X] No

16. REMARKS: (Elevation, Source of Data, etc.)

17. DRILLING MACHINE OPERATOR:
[X] Employee [ ] Subcontractor
Name Stacy F. Podjun

15. WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
Podjun Well Drilling Inc. 25-1893
REGISTERED BUSINESS NAME REGISTRATION NO.
Address 13296 Pomona Dr., Fenton, MI 48430
Signed _____ (AUTHORIZED REPRESENTATIVE) Date 11/2/95

RECEIVED
Mich. Dept. of Public Health
NOV 27 1996
BUREAU OF ENVIRONMENTAL AND OCCUPATIONAL HEALTH-GWQS

GEOLOGICAL SURVEY COPY

GW-2-228 9/93

Authority: Act 368 PA 1978
Completion: Required
Penalty: Conviction of a violation of any provision is a misdemeanor.

GEOLOGICAL SURVEY SAMPLE No.

WATER WELL RECORD

ACT 294 PA 1965

Please verify

MICHIGAN DEPARTMENT OF PUBLIC HEALTH

1 LOCATION OF WELL

County	Twp.	Fraction	Section No.	Town	Range
GENESEE	FENTON	NE¼ NE¼ NW¼	19	5 N/S	6 E/W

Distance And Direction from Road Intersections

OWNER No.

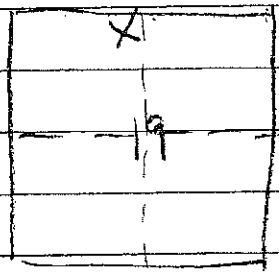
6551 Rolston Rd.
Linden, Michigan

Street address & City of Well Location

3 OWNER OF WELL:

Gray's Custom Homes
Address 6491 Flushing Rd.
Flushing, Michigan

2 FORMATION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
CLAY	80	80
SAND & GRAVEL	6	86



4 WELL DEPTH: (completed) 86 ft. Date of Completion 9/18/68

5 ☐ Cable tool ☒ Rotary ☐ Driven ☐ Dug ☐ Hollow rod ☐ Jetted ☐ Bored ☐ ___

6 USE: ☒ Domestic ☐ Public Supply ☐ Industry ☐ Irrigation ☐ Air Conditioning ☐ Commercial ☐ Test Well ☐ ___

7 CASING: Diam. 2 in. to 83 ft. Depth; ___ in. to ___ ft. Depth; Threaded ☒ Welded ☐; Height: Above/Below surface 1 ft.; Weight 3.75 lbs/ft.; Drive Shoe? Yes ☒ No ☐

8 SCREEN:

Type: BRASS Dia.: 1¼"
Slot/Gauze 60 Length 4'-11"
Set between 83 ft. and 86 ft.
Fittings:

9 STATIC WATER LEVEL

20 ft. below land surface

10 PUMPING LEVEL below land surface

40 ft. after 1 hrs. pumping 17 g.p.m.
40 ft. after 2 hrs. pumping 17 g.p.m.

11 WATER QUALITY in Parts Per Million:

Iron (Fe) ___ Chlorides (Cl) ___
Hardness ___

12 WELL HEAD COMPLETION: ☐ In Approved Pit ☒ Pitless Adapter ☐ 12" Above Grade

13 GROUTING:

Well Grouted? ☒ Yes ☐ No
Material: ☐ Neat Cement ☐ Rotary Mud
Depth: From 0 ft. to 83 ft.

14 SANITARY:

Nearest Source of possible contamination
50 feet S Direction SEPTIC Type
Well disinfected upon completion ☒ Yes ☐ No

15 PUMP:

Manufacturer's Name Rapidayton
Model Number 5E1 HP 1/2
Length of Drop Pipe 42 ft. capacity 9 G.P.M.
Type: ☐ Submersible ☐ ___ ☒ Jet ☐ Reciprocating

16 Remarks, elevation, source of data, etc.

ADDED [illegible] DRILLER, ITEM NO.

CORRECTED BY: MSB

ADDITION BY:

17 WATER WELL CONTRACTOR'S CERTIFICATION:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Taylor Well Drilling — REGISTERED BUSINESS NAME
0038 — REGISTRATION NO.

Address 11081 S. Clio Rd. Clio, Mich.

Signed ___ — AUTHORIZED REPRESENTATIVE
Date 10/18/68

D67D 100M 6-66

JUN 19 1969

GEOLOGICAL SURVEY COPY

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
DRINKING WATER & RADIOLOGICAL PROTECTION DIVISION

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978
Failure to comply is a misdemeanor

TAX NO:

PERMIT NO:

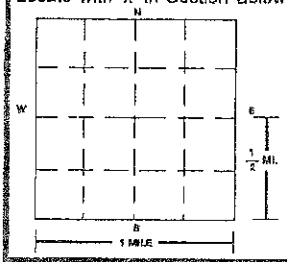
1. LOCATION OF WELL

County	Township Name	Fraction	Section No.	Town No.	Range No.
~~Genesee~~	Fenton	ne 1/4 SW 1/4 SW1/4	19	5n	6e

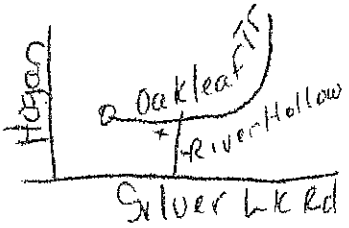
Distance and Direction from Road Intersection
On S-W corner of Oak Leaf Tr. and River Hollow.

Street Address & City of Well Location

Locate with 'x' in Section Below



Sketch Map



3. OWNER OF WELL: Ron Harrold
Address: 6381 Oak Leaf Tr.
Linden, MI 48451

Address Same as Well Location [X] Yes [ ] No

4. WELL DEPTH: 55 ft. | Date Completed: 11/19/97 | [X] New Well [ ] Replacement Well

5. [ ] Cable Tool [X] Rotary [ ] Driven [ ] Dug [ ] Hollow Rod [ ] Auger/Bored [ ] Jetted [ ]

6. USE: [X] Household [ ] Type I Public [ ] Type III Public [ ] Irrigation [ ] Type IIa Public [ ] Heat Pump [ ] Test Well [ ] Type IIb Public [ ]

7. CASING: [X] Steel [ ] Threaded [ ] Plastic [ ] Welded [ ] Other
Diameter: 5 in. to 51 ft. depth
in. to ft. depth
Height: Above/Below Surface: 1 ft
Weight SDR21 lbs./ft.
BORE HOLE:
Diameter: 8 1/2 in. to 55 ft. depth
in. to ft. depth
[ ] Drive Shoe [ ] Shale Packer

8. SCREEN: [ ] Not Installed [ ] Gravel-Packed
Type S.S. Diameter 4"
Slot/Gauze 10 Length: 4'
Set Between 51 ft. and 55 ft.
FITTINGS: [ ] K-Packer [ ] Bremer Check
[ ] Blank Above Screen ft. Other

9. STATIC WATER LEVEL:
15 ft. Below Land Surface [ ] Flowing

10. PUMPING LEVEL: Below Land Surface
50 ft. After 1 hrs. Pumping at 18 G.P.M.
[ ] Plunger [ ] Bailer [ ] Air [ ] Test Pump

11. WELL HEAD COMPLETION:
[X] Pitless Adapter [ ] 12" Above Grade
[ ] Basement Offset [ ] Well House

12. WELL GROUTED? [ ] No [X] Yes From 0 to 43 ft.
[ ] Neat Cement [X] Bentonite [X] Other pressure
No. of Bags 4 Additives benseal

13. NEAREST SOURCE OF POSSIBLE CONTAMINATION:
Type M Sewer Distance 35 ft. Direction N
Type Distance ft. Direction

14. PUMP: [ ] Not Installed [ ] Pump Installation Only
Manufacturer's Name Red Jacket
Model Number 50rtw1-mn9bd HP 1/2 Volts 220
Length of Drop Pipe 41 ft. Capacity 10 G.P.M.
TYPE: [X] Submersible [ ] Jet [ ] Other
PRESSURE TANK:
Manufacturer's Name Well-Rite
Model Number 203 pc-122 Capacity 60 Gallons 12.2

2. FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
clay	7	7
gravel	8	15
clay	10	25
Sand	5	30
Clay	15	45
sand	10	55

RECEIVED MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY JAN 23 98 GROUND WATER SUPPLY SEC.

USE A 2ND SHEET IF NEEDED

15. ABANDONED WELL PLUGGED? [ ] Yes [ ] No
Casing Diameter in. Depth ft.
PLUGGING MATERIAL: [ ] Neat Cement [ ] Bentonite Slurry [ ] Cement/Bentonite Slurry [ ] Concrete Grout [ ] Bentonite Chips
No. of Bags Casing Removed? [ ] Yes [ ] No

16. REMARKS: (Elevation, Source of Data, etc.)

17. DRILLING MACHINE OPERATOR:
[X] Employee [ ] Subcontractor
Name Percy ~~M~~ Buck

18. WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Ken Lee Well Drilling (REGISTERED BUSINESS NAME) 0654 (REGISTRATION NO.)
Address P.O. Box 342 Linden, MI 48451
Signed (AUTHORIZED REPRESENTATIVE) Date 11-20-97

GEOLOGICAL SURVEY COPY

EQP 2017 (12/96)

TAX NO:

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
WATER WELL AND PUMP RECORD

PERMIT NO:

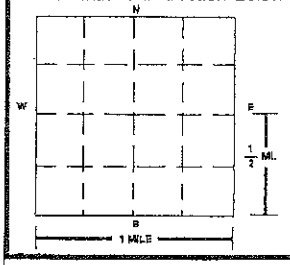
1. LOCATION OF WELL

County	Township Name	Fraction	Section No.	Town No.	Range No.
Genesee	Fenton	nw 1/4 1/4 1/4	19	5n	6e

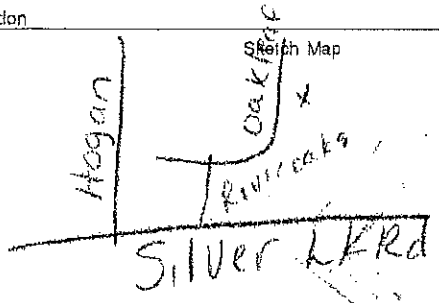
Distance and Direction from Road Intersection
¼ mile N of Silver Lk Rd on E side of Oakleaf Tr.

Street Address & City of Well Location

Locate with 'x' in Section Below



Sketch Map



3. OWNER OF WELL: Ron Harrold
Address: 14359 Oak Leaf Tr. Linden, MI 48451

Address Same as Well Location ☒ Yes ☐ No

4. WELL DEPTH: 180 ft. Date Completed 10/21/97 ☒ New Well ☐ Replacement Well

5. ☐ Cable Tool ☒ Rotary ☐ Driven ☐ Dug ☐ Hollow Rod ☐ Auger/Bored ☐ Jetted ☐

6. USE: ☒ Household ☐ Type I Public ☐ Type III Public ☐ Irrigation ☐ Type IIa Public ☐ Heat Pump ☐ Test Well ☐ Type IIb Public ☐

7. CASING: ☐ Steel ☐ Threaded ☒ Plastic ☐ Welded ☐ Other
Diameter: 5 in. to 130 ft. depth; ___ in. to ___ ft. depth
Height: Above/Below Surface: 1 ft
Weight: SDR21 lbs./ft.
BORE HOLE: Diameter: 8¼ in. to 130 ft. depth; 4½ in. to 180 ft. depth
☐ Drive Shoe ☐ Shale Packer

2. FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Clay	15	15
Sand	10	25
Clay	30	55
Clay and gravel	15	70
Clay	30	100
Gravel	20	120
Bedrock	60	180

USE A 2ND SHEET IF NEEDED

8. SCREEN: ☐ Not Installed ☐ Gravel-Packed
Type Rock Diameter 5u
Slot/Gauze ___ Length: ___
Set Between ___ ft. and ___ ft.
FITTINGS: ☐ K-Packer ☐ Bremer Check ☐ Blank Above Screen ___ ft. Other ___

9. STATIC WATER LEVEL: 18 ft. Below Land Surface ☐ Flowing

10. PUMPING LEVEL: Below Land Surface
180 ft. After 1 hrs. Pumping at 30 G.P.M.
☐ Plunger ☐ Bailer ☐ Air ☒ Test Pump

11. WELL HEAD COMPLETION:
☒ Pitless Adapter ☐ 12" Above Grade ☐ Basement Offset ☐ Well House

12. WELL GROUTED? ☐ No ☒ Yes From 0 to 121 ft.
☐ Neat Cement ☒ Bentonite ☒ Other pressure
No. of Bags 10 Additives bonseal

13. NEAREST SOURCE OF POSSIBLE CONTAMINATION:
Type Sewer Distance 25 ft. Direction SW
Type ___ Distance ___ ft. Direction ___

14. PUMP: ☐ Not Installed ☐ Pump Installation Only
Manufacturer's Name Red Jacket
Model Number 50rtw1-mn9bc HP ½ Volts 220
Length of Drop Pipe 120 ft. Capacity 10 G.P.M.
TYPE: ☒ Submersible ☐ Jet ☐ Other ___
PRESSURE TANK:
Manufacturer's Name Well-Rite
Model Number pc-122203 Capacity 60 Gallons 12.2

15. ABANDONED WELL PLUGGED? ☐ Yes ☐ No
Casing Diameter ___ in. Depth ___ ft.
PLUGGING MATERIAL: ☐ Neat Cement ☐ Bentonite Slurry ☐ Cement/Bentonite Slurry ☐ Concrete Grout ☐ Bentonite Chips
No. of Bags ___ Casing Removed? ☐ Yes ☐ No

16. REMARKS: (Elevation, Source of Data, etc.)

17. DRILLING MACHINE OPERATOR:
☒ Employee ☐ Subcontractor
Name Percy Buck

18. WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Ken Lee Well Drilling 0654
REGISTERED BUSINESS NAME REGISTRATION NO.

Address P.O. Box ax342 Linden, MI 48451

Signed [signature] AUTHORIZED REPRESENTATIVE Date 10-23-97

RECEIVED
MICH DEPT OF ENVIRONMENTAL QUALITY
JAN 06 1998
Drinking Water & Radiological Protection Division
Ground Water Supply Section
WELL CONSTRUCTION UNIT

GW-2-22a 9/93

GEOLOGICAL SURVEY COPY

Authority: Act 368 PA 1978
Completion: Required
Penalty: Conviction of a violation of any provision is a misdemeanor.

TAX NO:

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
WATER WELL AND PUMP RECORD

PERMIT NO:

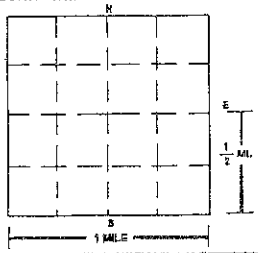
1. LOCATION OF WELL

County	Township Name	Fraction	Section No.	Town No.	Range No.
Genesee	Fenton	SW 1/4 of 1/4 of SW 1/4	19	5n	6e

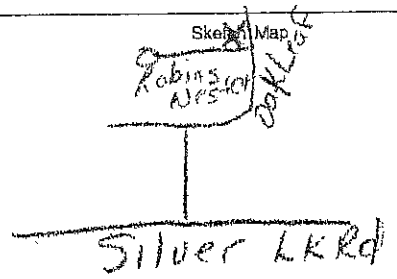
Distance and Direction from Road Intersection
On N-W corner of Robins Nest Ct and Oak Leaf.

Street Address & City of Well Location

Locate with 'x' in Section Below



Sketch Map



3. OWNER OF WELL: Ron Harrold
Address: 6344 Robins Nest Ct. Linden, MI 48451

Address Same as Well Location [X] Yes [ ] No

4. WELL DEPTH: 210 ft. | Date Completed 3 / 5 / 97 | [X] New Well [ ] Replacement Well

5. [ ] Cable Tool [X] Rotary [ ] Driven [ ] Dug [ ] Hollow Rod [ ] Auger/Bored [ ] Jetted [ ]

6. USE: [X] Household [ ] Type I Public [ ] Type III Public [ ] Irrigation [ ] Type IIa Public [ ] Heat Pump [ ] Test Well [ ] Type IIb Public [ ]

7. CASING: [ ] Steel [ ] Threaded [X] Plastic [ ] Welded [ ] Other
Diameter: 5 in. to 125 depth; in. to ft. depth
Height: Above/Below Surface: 1 ft
Weight SDR21 lbs/ft.
BORE HOLE: Diameter: 8½ in. to 125 ft. depth; 4½ in. to 210 ft. depth
[ ] Drive Shoe [ ] Shale Packer

8. SCREEN: [ ] Not Installed [ ] Gravel-Packed
Type Rock Diameter 5"
Slot/Gauze Length:
Set Between ft. and ft.
FITTINGS: [ ] K-Packer [ ] Bremer Check [ ] Blank Above Screen ft. Other

9. STATIC WATER LEVEL: 20 ft. Below Land Surface [ ] Flowing

10. PUMPING LEVEL: Below Land Surface
210 ft. After 1 hrs. Pumping at 65 G.P.M.
[ ] Plunger [ ] Bailer [ ] Air [ ] Test Pump

11. WELL HEAD COMPLETION:
[X] Pitless Adapter [ ] 12" Above Grade [ ] Basement Offset [ ] Well House

12. WELL GROUTED? [ ] No [X] Yes From 0 to 115 ft.
[ ] Neat Cement [X] Bentonite [X] Other pressure
No. of Bags 10 Additives benseal

13. NEAREST SOURCE OF POSSIBLE CONTAMINATION:
Type Sewerr Distance 35 ft. Direction S
Type Distance ft. Direction

14. PUMP: [ ] Not Installed [ ] Pump Installation Only
Manufacturer's Name Red Jacket
Model Number 50rtw1-mn9bc HP ½ Volts 220
Length of Drop Pipe 115 ft. Capacity 10 G.P.M.
TYPE: [X] Submersible [ ] Jet [ ] Other
PRESSURE TANK:
Manufacturer's Name Well-Rite
Model Number 203 pc-120 apacity 60 Gallons 12.2

2. FORMATION DESCRIPTION

FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Sand	10	10
Clay	25	35
Sand	5	40
Clay	56	96
Gravel	14	110
Bedrock	100	210

USE A 2ND SHEET IF NEEDED

15. ABANDONED WELL PLUGGED? [ ] Yes [ ] No
Casing Diameter in. Depth ft.
PLUGGING MATERIAL: [ ] Neat Cement [ ] Bentonite Slurry [ ] Cement/Bentonite Slurry [ ] Concrete Grout [ ] Bentonite Chips
No. of Bags Casing Removed? [ ] Yes [ ] No

16. REMARKS: (Elevation, Source of Data, etc.)

17. DRILLING MACHINE OPERATOR:
[X] Employee [ ] Subcontractor
Name Percy Buck

18. WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Ken Lee Well Drilling — REGISTERED BUSINESS NAME
0654 — REGISTRATION NO.
Address P.O. Box 342 Linden, MI 48451
Signed — AUTHORIZED REPRESENTATIVE
Date 3-13-97

GW-2-228 9/93

GEOLOGICAL SURVEY COPY

Authority: Act 368 PA 1978
Completion: Required
Penalty: Conviction of a violation of any provision is a misdemeanor.

TAX NO:

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
WATER WELL AND PUMP RECORD

PERMIT NO:

1. LOCATION OF WELL

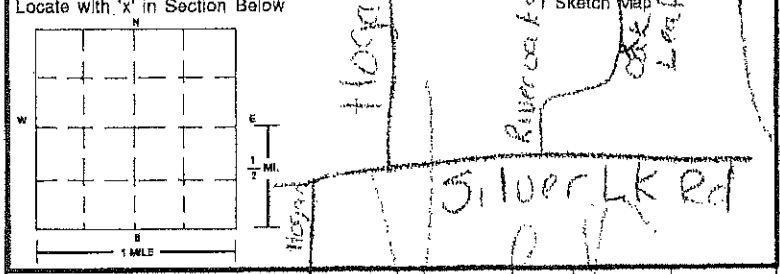
County	Township Name	Fraction	Section No.	Town No.	Range No.
Genesee	Fenton	nw 1/4 se 1/4 sw 1/4	19	5n	6e

Distance and Direction from Road Intersection
1/8 mile N of Silver Lk Rd on E side of Oak Leaf Tr.

Street Address & City of Well Location

Locate with 'x' in Section Below

Sketch Map



3. OWNER OF WELL Ron Harrold
Address 14389 Oak Leaf tr.
Linden, MI 48451
Address Same as Well Location [X] Yes [ ] No

4. WELL DEPTH: 225 ft. Date Completed 4/26/97 [X] New Well [ ] Replacement Well

5. [ ] Cable Tool [X] Rotary [ ] Driven [ ] Dug [ ] Hollow Rod [ ] Auger/Bored [ ] Jetted [ ]

6. USE: [X] Household [ ] Type I Public [ ] Type III Public [ ] Irrigation [ ] Type IIa Public [ ] Heat Pump [ ] Test Well [ ] Type IIb Public [ ]

7. CASING: [ ] Steel [ ] Threaded [X] Plastic [ ] Welded [ ] Other
Diameter: 5 in. to 140 ft. depth
in. to ft. depth
BORE HOLE: Diameter: 8½ in. to 140 ft. depth
4½ in. to 225 ft. depth
Height: Above/Below Surface: 1 ft
Weight SDR21 lbs./ft.
[ ] Drive Shoe [ ] Shale Packer

2. FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Clay	5	5
Gravel	15	20
Clay	60	80
Gravel	55	115
Clay	10	125
Bedrock	5	130
Shale	8	138
Bedrock	87	225

USE A 2ND SHEET IF NEEDED

8. SCREEN: [ ] Not Installed [ ] Gravel-Packed
Type Rock Diameter 5"
Slot/Gauze Length:
Set Between ft. and ft.
FITTINGS: [ ] K-Packer [ ] Bremer Check
[ ] Blank Above Screen ft. Other

9. STATIC WATER LEVEL: 10 ft. Below Land Surface [ ] Flowing

10. PUMPING LEVEL: Below Land Surface 225 ft. After 1 hrs. Pumping at 100 G.P.M.
[ ] Plunger [ ] Bailer [ ] Air [ ] Test Pump

11. WELL HEAD COMPLETION:
[X] Pitless Adapter [ ] 12" Above Grade
[ ] Basement Offset [ ] Well House

12. WELL GROUTED? [ ] No [X] Yes From 0 to 135 ft.
[ ] Neat Cement [X] Bentonite [X] Other pressure
No. of Bags 8 Additives benseal

13. NEAREST SOURCE OF POSSIBLE CONTAMINATION:
Type Sewere Distance 10 ft. Direction S
Type Distance ft. Direction

14. PUMP: [ ] Not Installed [ ] Pump Installation Only
Manufacturer's Name Red Jacket
Model Number 50rtw1-mn9bc HP ½ Volts 220
Length of Drop Pipe 130 ft. Capacity 10 G.P.M.
TYPE: [X] Submersible [ ] Jet [ ] Other
PRESSURE TANK:
Manufacturer's Name Well-Rite
Model Number pc-122 203 Capacity 60 Gallons 12.2

15. ABANDONED WELL PLUGGED? [ ] Yes [ ] No
Casing Diameter in. Depth ft.
PLUGGING MATERIAL: [ ] Neat Cement [ ] Bentonite Slurry
[ ] Cement/Bentonite Slurry [ ] Concrete Grout [ ] Bentonite Chips
No. of Bags Casing Removed? [ ] Yes [ ] No

16. REMARKS: (Elevation, Source of Data, etc.)

17. DRILLING MACHINE OPERATOR:
[X] Employee [ ] Subcontractor
Name Percy Buck

18. WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
Ken Lee well Drilling 0654
REGISTERED BUSINESS NAME REGISTRATION NO.
Address P.O. box [illegible] Linden, MI 48451
Signed [signature] Date 5-1-97
AUTHORIZED REPRESENTATIVE

GW-2-228 9/93

GEOLOGICAL SURVEY COPY

Authority: Act 368 PA 1978
Completion: Required
Penalty: Conviction of a violation of any provision is a misdemeanor.

TAX NO:

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
WATER WELL AND PUMP RECORD

PERMIT NO:

1. LOCATION OF WELL

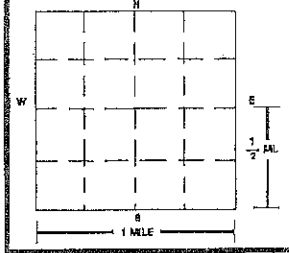
County	Township Name	Fraction	Section No.	Town No.	Range No.
Genesee	Fenton	NW 1/4 SE 1/4 SW 1/4	19	5n	6e

Distance and Direction from Road Intersection

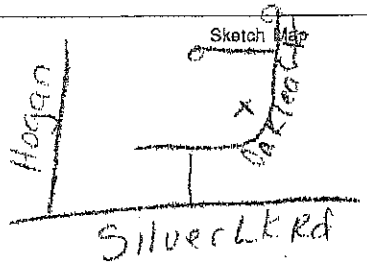
1/16 mile N of Silver Lk Rd on W side of Oakleaf Tr.

Street Address & City of Well Location

Locate with 'x' in Section Below



Sketch Map



8. OWNER OF WELL: Ron Harrold
Address: 14458 Oakleaf Tr.
Linden, MI 48451
Address Same as Well Location: [X] Yes [ ] No

4. WELL DEPTH: 60 ft. | Date Completed: 7 / 21 / 97 | [X] New Well [ ] Replacement Well

5. [ ] Cable Tool [X] Rotary [ ] Driven [ ] Dug [ ] Hollow Rod [ ] Auger/Bored [ ] Jetted [ ]

6. USE: [X] Household [ ] Type I Public [ ] Type III Public [ ] Irrigation [ ] Type IIa Public [ ] Heat Pump [ ] Test Well [ ] Type IIb Public [ ]

7. CASING: [X] Steel [ ] Threaded [ ] Plastic [ ] Welded [ ] Other
Diameter: 5 in. to 56 ft. depth
in. to ft. depth
BORE HOLE:
Diameter: 8½ in. to 60 ft. depth
in. to ft. depth
Height: Above/Below Surface: 1 ft
Weight: SDR21 lbs./ft.
[ ] Drive Shoe [ ] Shale Packer

8. SCREEN: [ ] Not Installed [ ] Gravel-Packed
Type: S.S. Diameter: 4"
Slot/Gauge: 7 Length: 4'
Set Between: 56 ft. and 60 ft.
FITTINGS: [ ] K-Packer [ ] Bremer Check
[ ] Blank Above Screen ft. Other

9. STATIC WATER LEVEL:
20 ft. Below Land Surface [ ] Flowing

10. PUMPING LEVEL: Below Land Surface
55 ft. After 1 hrs. Pumping at 12 G.P.M.
[ ] Plunger [ ] Bailer [ ] Air [ ] Test Pump

11. WELL HEAD COMPLETION:
[X] Pitless Adapter [ ] 12" Above Grade
[ ] Basement Offset [ ] Well House

12. WELL GROUTED? [ ] No [X] Yes From 0 to 42 ft.
[ ] Neat Cement [X] Bentonite [X] Other pressure
No. of Bags 4 Additives benseal

13. NEAREST SOURCE OF POSSIBLE CONTAMINATION:
Type Sewer Distance 40 ft. Direction E
Type Distance ft. Direction

14. PUMP: [ ] Not Installed [ ] Pump Installation Only
Manufacturer's Name: Red Jacket
Model Number: 50rtwl-mn9bq HP ½ Volts 220
Length of Drop Pipe 46 ft. Capacity 10 G.P.M.
TYPE: [X] Submersible [ ] Jet [ ] Other
PRESSURE TANK:
Manufacturer's Name: Well-Rite
Model Number: pa-122 Capacity 60 Gallons 12.2

2. FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Clay	5	5
Gravel	5	10
Clay	10	20
Gravel	5	25
Clay	20	45
Sand and gravel	15	60

USE A 2ND SHEET IF NEEDED

15. ABANDONED WELL PLUGGED? [ ] Yes [ ] No
Casing Diameter in. Depth ft.
PLUGGING MATERIAL: [ ] Neat Cement [ ] Bentonite Slurry [ ] Cement/Bentonite Slurry [ ] Concrete Grout [ ] Bentonite Chips
No. of Bags Casing Removed? [ ] Yes [ ] No

16. REMARKS: (Elevation, Source of Data, etc.)

17. DRILLING MACHINE OPERATOR:
[X] Employee [ ] Subcontractor
Name Percy Buck

18. WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
Ken Lee Well drilling (REGISTERED BUSINESS NAME) 0654 (REGISTRATION NO.)
Address P.O. Box 342 Linden, MI 48451
Signed (AUTHORIZED REPRESENTATIVE) Date 7-24-97

GW-2-226 9/93

GEOLOGICAL SURVEY COPY

Authority: Act 368 PA 1978
Completion: Required
Penalty: Conviction of a violation of any provision is a misdemeanor.

TAX NO:

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
WATER WELL AND PUMP RECORD

PERMIT NO:

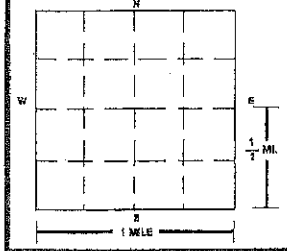
1. LOCATION OF WELL

County	Township Name	Fraction	Section No.	Town No.	Range No.
Genesee	Fenton	nw 1/4 se 1/4 sw 1/4	19	5n	6e

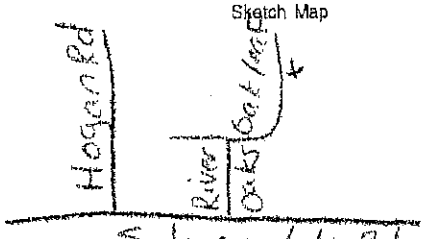
Distance and Direction from Road Intersection
¼X ½ mile N of River Oaks ~~on~~ on E side Oak Leaf Tr.

Street Address & City of Well Location

Locate with 'x' In Section Below



Sketch Map



3. OWNER OF WELL
Address of
Ron Harrold
14419 Oak Leaf Tr.
Linden, MI 48451

Address Same as Well Location ☒ Yes ☐ No

4. WELL DEPTH: 225 ft. | Date Completed 9 / 3 / 97 | ☒ New Well ☐ Replacement Well

5. ☐ Cable Tool ☒ Rotary ☐ Driven ☐ Dug ☐ Hollow Rod ☐ Auger/Bored ☐ Jetted ☐ _____

6. USE: ☒ Household ☐ Type I Public ☐ Type III Public ☐ Irrigation ☐ Type IIa Public ☐ Heat Pump ☐ Test Well ☐ Type IIb Public ☐ _____

7. CASING: ☐ Steel ☐ Threaded ☒ Plastic ☐ Welded ☐ Other _____
Diameter: 5 in. to 160 ft. depth
_____ in. to _____ ft. depth
BORE HOLE: Diameter: ~~8½~~ 4½ in. to 160 ft. depth
_____ in. to 225 ft. depth
Height: Above/Below Surface: 1 ft
Weight: SDR21 lbs./ft.
☐ Drive Shoe ☐ Shale Packer

2. FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Clay	10	10
Gravel	20	30
Clay	70	100
Gravel	25	125
Shale	35	160
Bedrock	65	225
USE A 2ND SHEET IF NEEDED		

8. SCREEN: ☐ Not Installed ☐ Gravel-Packed
Type Rock Diameter 5"
Slot/Gauze _____ Length: _____
Set Between _____ ft. and _____ ft.
FITTINGS: ☐ K-Packer ☐ Bremer Check
☐ Blank Above Screen _____ ft. Other _____

9. STATIC WATER LEVEL:
20 ft. Below Land Surface ☐ Flowing

10. PUMPING LEVEL: Below Land Surface
225 ft. After 1 hrs. Pumping at 52 G.P.M.
☐ Plunger ☐ Bailer ☐ Air ☐ Test Pump

11. WELL HEAD COMPLETION:
☒ Pitless Adapter ☐ 12" Above Grade
☐ Basement Offset ☐ Well House

12. WELL GROUTED? ☐ No ☒ Yes From 0 to 151 ft.
☐ Neat Cement ☒ Bentonite ☒ Other pressure
No. of Bags 11 Additives bensaal

13. NEAREST SOURCE OF POSSIBLE CONTAMINATION:
Type Sewer Distance 18 ft. Direction N
Type _____ Distance _____ ft. Direction _____

14. PUMP: ☐ Not Installed ☐ Pump Installation Only
Manufacturer's Name Red Jacket
Model Number 50rtw1-mn9bc HP ½ Volts 220
Length of Drop Pipe 158 ft. Capacity 10 G.P.M.
TYPE: ☒ Submersible ☐ Jet ☐ Other _____
PRESSURE TANK:
Manufacturer's Name Well-Rite
Model Number 203 pc-122 Capacity 60 Gallons 12.2

15. ABANDONED WELL PLUGGED? ☐ Yes ☐ No
Casing Diameter _____ in. Depth _____ ft.
PLUGGING MATERIAL: ☐ Neat Cement ☐ Bentonite Slurry ☐ Cement/Bentonite Slurry ☐ Concrete Grout ☐ Bentonite Chips
No. of Bags _____ Casing Removed? ☐ Yes ☐ No

16. REMARKS: (Elevation, Source of Data, etc.)

17. DRILLING MACHINE OPERATOR:
☒ Employee ☐ Subcontractor
Name Percy Buck

18. WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
Ken Lee Well Drilling 0654
REGISTERED BUSINESS NAME REGISTRATION NO.
Address P.O. Box ~~XXX~~342 Linden, MI 48451
Signed _____ Date 9-4-97
AUTHORIZED REPRESENTATIVE

GW-2-228 9/93

GEOLOGICAL SURVEY COPY

Authority: Act 368 PA 1978
Completion: Required
Penalty: Conviction of a violation of any provision is a misdemeanor.

TAX NO:

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
WATER WELL AND PUMP RECORD

PERMIT NO:

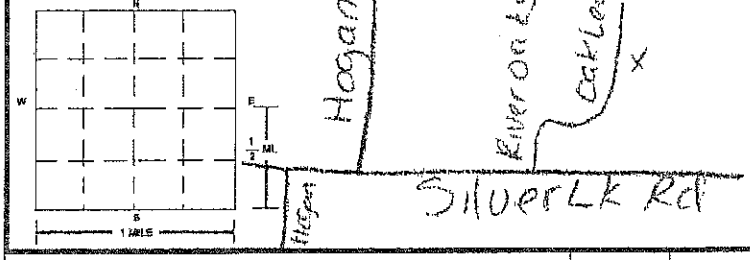
1. LOCATION OF WELL

County	Township Name	Fraction	Section No.	Town No.	Range No.
Genesee	Fenton	NW 1/4 SE 1/4 SW 1/4	19	5n	6e

Distance and Direction from Road Intersection
1/16 mile N of Silver Lk Rd on E side of Oak Leaf Dr.

Street Address & City of Well Location

Locate with 'x' in Section Below



Skeleton Map

3. OWNER OF WELL: Ron Harrold
Address: 14409 Oak Leaf Tr.
Linden, MI 48451

Address Same as Well Location ☒ Yes ☐ No

4. WELL DEPTH: 225 ft. | Date Completed: 4 / 25 / 97 | ☒ New Well ☐ Replacement Well

5. ☐ Cable Tool ☒ Rotary ☐ Driven ☐ Dug ☐ Hollow Rod ☐ Auger/Bored ☐ Jetted ☐ _____

6. USE: ☒ Household ☐ Type I Public ☐ Type III Public ☐ Irrigation ☐ Type IIa Public ☐ Heat Pump ☐ Test Well ☐ Type IIb Public ☐ _____

7. CASING: ☐ Steel ☐ Threaded ☒ Plastic ☐ Welded ☐ Other _____
Diameter: 5 in. to 161 ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface: 1 ft
Weight SDR 21 lbs./ft.
BORE HOLE:
Diameter: 8½ in. to 161 ft. depth
4½ in. to 225 ft. depth
☐ Drive Shoe ☐ Shale Packer

2. FORMATION DESCRIPTION

FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Clay	15	15
Gravel	10	25
Clay	60	85
Clay and gravel	30	115
Clay	20	135
Shale	20	155
Bedrock	70	225

RECEIVED JUN 30 '97 DEQ GROUND WATER SUPPLY SEC.

USE A 2ND SHEET IF NEEDED

8. SCREEN: ☐ Not Installed ☐ Gravel-Packed
Type Rock Diameter 5"
Slot/Gauze _____ Length: _____
Set Between _____ ft. and _____ ft.
FITTINGS: ☐ K-Packer ☐ Bremer Check
☐ Blank Above Screen _____ ft. Other _____

9. STATIC WATER LEVEL:
12 ft. Below Land Surface ☐ Flowing

10. PUMPING LEVEL: Below Land Surface
225 ft. After 1 hrs. Pumping at 60 G.P.M.
☐ Plunger ☐ Baller ☐ Air ☐ Test Pump

11. WELL HEAD COMPLETION:
☒ Pitless Adapter ☐ 12" Above Grade
☐ Basement Offset ☐ Well House

12. WELL GROUTED? ☐ No ☒ Yes From 0 to 148 ft.
☐ Neat Cement ☒ Bentonite ☒ Other pressure
No. of Bags 11 Additives benseal

13. NEAREST SOURCE OF POSSIBLE CONTAMINATION:
Type Sewer Distance 35 ft. Direction W-W
Type _____ Distance _____ ft. Direction _____

14. PUMP: ☐ Not Installed ☐ Pump Installation Only
Manufacturer's Name Red Jacket
Model Number 50rtw1-mn9bg ½ Volts 220
Length of Drop Pipe 151 ft. Capacity 10 G.P.M.
TYPE: ☒ Submersible ☐ Jet ☐ Other _____
PRESSURE TANK:
Manufacturer's Name Well-Rite
Model Number pc-122 20 Capacity 60 Gallons 12.2

15. ABANDONED WELL PLUGGED? ☐ Yes ☐ No
Casing Diameter _____ in. Depth _____ ft.
PLUGGING MATERIAL: ☐ Neat Cement ☐ Bentonite Slurry
☐ Cement/Bentonite Slurry ☐ Concrete Grout ☐ Bentonite Chips
No. of Bags _____ Casing Removed? ☐ Yes ☐ No

16. REMARKS: (Elevation, Source of Data, etc.)

17. DRILLING MACHINE OPERATOR:
☒ Employee ☐ Subcontractor
Name Percy Buck

18. WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Ken Lee Well Drilling 0654
REGISTERED BUSINESS NAME REGISTRATION NO.
Address P.O. Box 342 Linden, MI 48451
Signed _____ Date 5-1-97
AUTHORIZED REPRESENTATIVE

GW-2-228 9/93

GEOLOGICAL SURVEY COPY

Authority: Act 368 PA 1978
Completion: Required
Penalty: Conviction of a violation of any provision is a misdemeanor.

TAX NO:

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
WATER WELL AND PUMP RECORD

PERMIT NO:

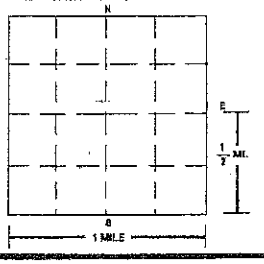
1. LOCATION OF WELL

County	Township Name	Fraction	Section No.	Town No.	Range No.
Genesee	Argentine	SW 1/4 of NW 1/4	19	5n	6e

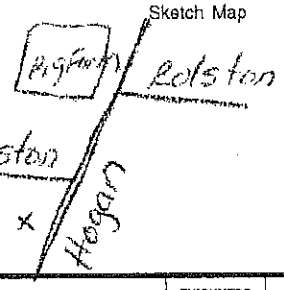
Distance and Direction from Road Intersection
20* S of Rolston Rd on W side of Hogan RD

Street Address & City of Well Location

Locate with 'x' in Section Below



Sketch Map



3. OWNER OF WELL Mark Freeman
Address 1407 Hogan Rd.
Linden, MI 48451

Address Same as Well Location ☒ Yes ☐ No

4. WELL DEPTH: 180 ft. Date Completed 8 / 13 / 97
☒ New Well ☐ Replacement Well

5. ☐ Cable Tool ☒ Rotary ☐ Driven ☐ Dug
☐ Hollow Rod ☐ Auger/Bored ☐ Jetted ☐ _____

6. USE: ☒ Household ☐ Type I Public ☐ Type III Public
☐ Irrigation ☐ Type IIa Public ☐ Heat Pump
☐ Test Well ☐ Type IIb Public ☐ _____

7. CASING: ☐ Steel ☐ Threaded
☒ Plastic ☐ Welded
☐ Other _____
Diameter: 5 in. to 120 ft. depth
_____ in. to _____ ft. depth
BORE HOLE: 120
Diameter: 8½ in. to ~~180~~ ft. depth
4½ in. to 180 ft. depth
Height: Above/Below Surface: 1 ft
Weight SDR21 lbs./ft.
☐ Drive Shoe
☐ Shale Packer

8. SCREEN: ☐ Not Installed ☐ Gravel-Packed
Type Rock Diameter 5"
Slot/Gauze _____ Length: _____
Set Between _____ ft. and _____ ft.
FITTINGS: ☐ K-Packer ☐ Bremer Check
☐ Blank Above Screen _____ ft. Other _____

9. STATIC WATER LEVEL:
30 ft. Below Land Surface ☐ Flowing

10. PUMPING LEVEL: Below Land Surface
100 ft. After 1 hrs. Pumping at 30 G.P.M.
☐ Plunger ☐ Bailer ☐ Air ☐ Test Pump

11. WELL HEAD COMPLETION:
☒ Pitless Adapter ☐ 12" Above Grade
☐ Basement Offset ☐ Well House

12. WELL GROUTED? ☐ No ☒ Yes From 0 to 100 ft.
☐ Neat Cement ☒ Bentonite ☒ Other pressure
No. of Bags 3 Additives bensseal

13. NEAREST SOURCE OF POSSIBLE CONTAMINATION:
Type Sewer Distance 75 ft. Direction E
Type _____ Distance _____ ft. Direction _____

14. PUMP: ☐ Not Installed ☐ Pump Installation Only
Manufacturer's Name Red Jacket
Model Number 50rtw1-mn9bc HP ½ Volts 220
Length of Drop Pipe 110 ft. Capacity 10 G.P.M.
TYPE: ☒ Submersible ☐ Jet ☐ Other _____
PRESSURE TANK:
Manufacturer's Name Well-Rite
Model Number pc-88 Capacity _____ Gallons 8

2. FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Sand	10	10
Clay	40	50
Clay and sand	40	90
Clay	10	100
Sand stone	80	180
USE A 2ND SHEET IF NEEDED		

15. ABANDONED WELL PLUGGED? ☐ Yes ☐ No
Casing Diameter _____ in. Depth _____ ft.
PLUGGING MATERIAL: ☐ Neat Cement ☐ Bentonite Slurry
☐ Cement/Bentonite Slurry ☐ Concrete Grout ☐ Bentonite Chips
No. of Bags _____ Casing Removed? ☐ Yes ☐ No

16. REMARKS: (Elevation, Source of Data, etc.)

17. DRILLING MACHINE OPERATOR:
☒ Employee ☐ Subcontractor
Name Percy Buck

18. WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Ken Lee Well Drilling 0654
REGISTERED BUSINESS NAME REGISTRATION NO.
Address P.O. Box 342 Linden, MI 48451
Signed _____ Date 8-14-97
AUTHORIZED REPRESENTATIVE

GW-2-228 9/93

GEOLOGICAL SURVEY COPY

Authority: Act 368 PA 1978
Completion: Required
Penalty: Conviction of a violation of any provision is a misdemeanor.

TAX NO:

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
WATER WELL AND PUMP RECORD

PERMIT NO:

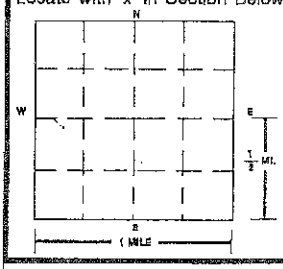
1. LOCATION OF WELL

County	Township Name	Fraction	Section No.	Town No.	Range No.
Genesee	Fenton	nw 1/4 se 1/4 sw 1/4	19	5n	6e

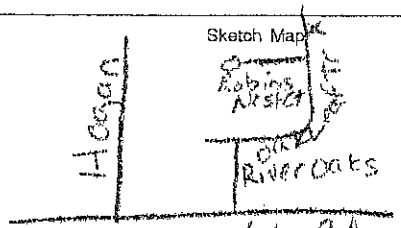
Distance and Direction from Road Intersection
1/8 mile N of River Oaks on E side of Oak Leaf Tr.

Street Address & City of Well Location

Locate with 'x' in Section Below



Sketch Map



3. OWNER OF WELL: Ron Harrold
Address: 14339 Oak Leaf Tr. Linden, MI 48451

Address Same as Well Location ☒ Yes ☐ No

4. WELL DEPTH: 210 ft. | Date Completed: 5/17/97 | ☒ New Well ☐ Replacement Well

5. ☐ Cable Tool ☒ Rotary ☐ Driven ☐ Dug ☐ Hollow Rod ☐ Auger/Bored ☐ Jetted ☐ _____

6. USE: ☒ Household ☐ Type I Public ☐ Type III Public ☐ Irrigation ☐ Type IIa Public ☐ Heat Pump ☐ Test Well ☐ Type IIb Public ☐ _____

7. CASING: ☐ Steel ☐ Threaded ☒ Plastic ☐ Welded ☐ Other _____
Diameter: 5 in. to 125 ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface: 1 ft
Weight: SDR21 lbs./ft.
BORE HOLE:
Diameter: 8½ in. to 125 ft. depth
4½ in. to 210 ft. depth
☐ Drive Shoe ☐ Shale Packer

2. FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Clay	50	50
Gravel	10	60
Clay	55	115
Bedrock	95	210
USE A 2ND SHEET IF NEEDED		

8. SCREEN: ☐ Not Installed ☐ Gravel-Packed
Type: Rock Diameter: 5"
Slot/Gauze: _____ Length: _____
Set Between _____ ft. and _____ ft.
FITTINGS: ☐ K-Packer ☐ Bremer Check
☐ Blank Above Screen _____ ft. Other _____

9. STATIC WATER LEVEL:
20 ft. Below Land Surface ☐ Flowing

10. PUMPING LEVEL: Below Land Surface
210 ft. After 1 hrs. Pumping at 35 G.P.M.
☐ Plunger ☐ Baller ☐ Air ☐ Test Pump

11. WELL HEAD COMPLETION:
☒ Pitless Adapter ☐ 12" Above Grade
☐ Basement Offset ☐ Well House

12. WELL GROUTED? ☐ No ☒ Yes From 0 to 118 ft.
☐ Neat Cement ☒ Bentonite ☒ Other pressure
No. of Bags 11 Additives benseal

13. NEAREST SOURCE OF POSSIBLE CONTAMINATION:
Type Sewer Distance 30 ft. Direction W
Type _____ Distance _____ ft. Direction _____

14. PUMP: ☐ Not Installed ☐ Pump Installation Only
Manufacturer's Name: Red Jacket
Model Number: 50rtw1-mn9bm ½ Volts 220
Length of Drop Pipe 115 ft. Capacity 10 G.P.M.
TYPE: ☒ Submersible ☐ Jet ☐ Other _____
PRESSURE TANK:
Manufacturer's Name: Well-Rite
Model Number: pc-122 203 Capacity 100 Gallons 12.2

15. ABANDONED WELL PLUGGED? ☐ Yes ☐ No
Casing Diameter _____ in. Depth _____ ft.
PLUGGING MATERIAL: ☐ Neat Cement ☐ Bentonite Slurry ☐ Cement/Bentonite Slurry ☐ Concrete Grout ☐ Bentonite Chips
No. of Bags _____ Casing Removed? ☐ Yes ☐ No

16. REMARKS: (Elevation, Source of Data, etc.)

17. DRILLING MACHINE OPERATOR:
☒ Employee ☐ Subcontractor
Name: Percy Buck

18. WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
Ken Lee Well Drilling 0654
REGISTERED BUSINESS NAME REGISTRATION NO.
Address: P.O. box 342 Linden, MI 48451
Signed: _____ (AUTHORIZED REPRESENTATIVE) Date: 5-22-97

GW-2-228 9/93

GEOLOGICAL SURVEY COPY

Authority: Act 336 PA 1978
Completion: Required
Penalty: Conviction of a violation of any provision is a misdemeanor.

TAX NO:

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
WATER WELL AND PUMP RECORD

PERMIT NO:

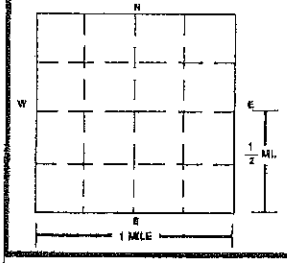
1. LOCATION OF WELL

County	Township Name	Fraction	Section No.	Town No.	Range No.
Genesee	Fenton	nw 1/4 se 1/4 sw 1/4	19	5n	6e

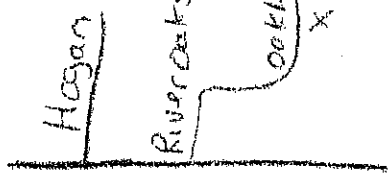
Distance and Direction from Road Intersection
¼ mile N of Silver Lk Rd on E side of Oak Leaf Tr.

Street Address & City of Well Location

Locate with 'x' in Section Below



Sketch Map



3. OWNER OF WELL: Ron Harrold
Address: 14429 Oak Leaf Tr. Linden, MI 48451

Address Same as Well Location ☒ Yes ☐ No

4. WELL DEPTH: 225 ft. | Date Completed: 5/28/97 | ☒ New Well ☐ Replacement Well

5. ☐ Cable Tool ☒ Rotary ☐ Driven ☐ Dug ☐ Hollow Rod ☐ Auger/Bored ☐ Jetted ☐ _____

6. USE: ☒ Household ☐ Type I Public ☐ Type III Public ☐ Irrigation ☐ Type IIa Public ☐ Heat Pump ☐ Test Well ☐ Type IIb Public ☐ _____

7. CASING: ☐ Steel ☐ Threaded ☒ Plastic ☐ Welded ☐ Other
Diameter: 5 in. to 160 ft. depth
_____ in. to _____ ft. depth
BORE HOLE: Diameter: 8½ in. to 160 ft. depth; 4½ in. to 225 ft. depth
Height: Above/Below Surface: 1 ft
Weight: SDR21 lbs./ft.
☐ Drive Shoe ☐ Shale Packer

8. SCREEN: ☐ Not Installed ☐ Gravel-Packed
Type: Rock Diameter: 5"
Slot/Gauze: _____ Length: _____
Set Between _____ ft. and _____ ft.
FITTINGS: ☐ K-Packer ☐ Bremer Check ☐ Blank Above Screen _____ ft. Other _____

9. STATIC WATER LEVEL: 20 ft. Below Land Surface ☐ Flowing

10. PUMPING LEVEL: Below Land Surface: 225 ft. After 1 hrs. Pumping at 105 G.P.M.
☐ Plunger ☐ Bailer ☐ Air ☐ Test Pump

11. WELL HEAD COMPLETION:
☒ Pitless Adapter ☐ 12" Above Grade ☐ Basement Offset ☐ Well House

12. WELL GROUTED? ☐ No ☒ Yes From 0 to 148 ft.
☐ Neat Cement ☒ Bentonite ☒ Other pressure
No. of Bags 11 Additives benseal

13. NEAREST SOURCE OF POSSIBLE CONTAMINATION:
Type Sewer Distance 12 ft. Direction S
Type _____ Distance _____ ft. Direction _____

14. PUMP: ☐ Not Installed ☐ Pump Installation Only
Manufacturer's Name: Red Jacket
Model Number: 50rtw1-mn9bc HP ½ Volts 220
Length of Drop Pipe 150 ft. Capacity 10 G.P.M.
TYPE: ☒ Submersible ☐ Jet ☐ Other _____
PRESSURE TANK:
Manufacturer's Name: Well-Rite
Model Number: pc-122203 Capacity _____ Gallons 12.2

2. FORMATION DESCRIPTION

FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Clay	10	10
Gravel	20	30
Clay	10	40
Clay and gravel	15	55
Caly	45	100
Gravel	48	148
Shale	10	158
Bedrock	67	225

USE A 2ND SHEET IF NEEDED

15. ABANDONED WELL PLUGGED? ☐ Yes ☐ No
Casing Diameter _____ in. Depth _____ ft.
PLUGGING MATERIAL: ☐ Neat Cement ☐ Bentonite Slurry ☐ Cement/Bentonite Slurry ☐ Concrete Grout ☐ Bentonite Chips
No. of Bags _____ Casing Removed? ☐ Yes ☐ No

16. REMARKS: (Elevation, Source of Data, etc.)

17. DRILLING MACHINE OPERATOR:
☒ Employee ☐ Subcontractor
Name Percy Buck

18. WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Ken Lee Well Drilling (REGISTERED BUSINESS NAME) 0654 (REGISTRATION NO.)
Address P.O. Box 342 Linden, MI 48451
Signed _____ (AUTHORIZED REPRESENTATIVE) Date 5-29-97

GW-2-228 9/93

GEOLOGICAL SURVEY COPY

Authority: Act 368 PA 1978 Completion: Required
Penalty: Conviction of violation of any provision is a misdemeanor.

TAX NO:

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
WATER WELL AND PUMP RECORD

PERMIT NO:

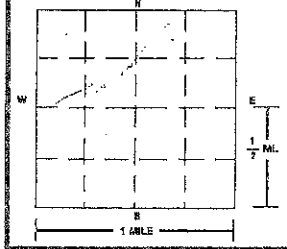
1. LOCATION OF WELL

County	Township Name	Fraction	Section No.	Town No.	Range No.
Genesee	Fenton	nw 1/4 se 1/4 sw 1/4	19	5n	6e

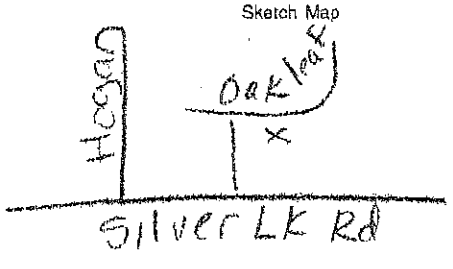
Distance and Direction from Road Intersection
1/16 mile N of Silver Lk Rd on S side of OakLeaf.

Street Address & City of Well Location

Locate with 'x' in Section Below



Sketch Map



3. OWNER OF WELL: Ron Harrold
Address: 6353 Oak Leaf, Linden, MI 48451
Address Same as Well Location ☒ Yes ☐ No

4. WELL DEPTH: 60 ft. | Date Completed: 3/27/97 | ☒ New Well ☐ Replacement Well

5. ☐ Cable Tool ☒ Rotary ☐ Driven ☐ Dug ☐ Hollow Rod ☐ Auger/Bored ☐ Jetted ☐ _____

6. USE: ☒ Household ☐ Type I Public ☐ Type III Public ☐ Irrigation ☐ Type IIa Public ☐ Heat Pump ☐ Test Well ☐ Type IIb Public ☐ _____

7. CASING: ☒ Steel ☐ Threaded ☐ Plastic ☐ Welded ☐ Other _____
Diameter: 5 in. to 56 ft. depth; _____ in. to _____ ft. depth
BORE HOLE: Diameter: 8½ in. to 60 ft. depth; _____ in. to _____ ft. depth
Height: Above/Below Surface: 1 ft
Weight: SDR21 lbs./ft.
☐ Drive Shoe ☐ Shale Packer

8. SCREEN: ☐ Not Installed ☐ Gravel-Packed
Type S.S. Diameter 4"
Slot/Gauze 10 Length: 4'
Set Between 56 ft. and 60 ft.
FITTINGS: ☐ K-Packer ☐ Bremer Check ☐ Blank Above Screen _____ ft. ☐ Other _____

9. STATIC WATER LEVEL: 25 ft. Below Land Surface ☐ Flowing

10. PUMPING LEVEL: Below Land Surface
55 ft. After 1 hrs. Pumping at 18 G.P.M.
☐ Plunger ☐ Bailer ☐ Air ☒ Test Pump

11. WELL HEAD COMPLETION:
☒ Pitless Adapter ☐ 12" Above Grade ☐ Basement Offset ☐ Well House

12. WELL GROUTED? ☐ No ☒ Yes From 0 to 48 ft.
☐ Neat Cement ☒ Bentonite ☒ Other pressure
No. of Bags 4 Additives benseal

13. NEAREST SOURCE OF POSSIBLE CONTAMINATION:
Type Sewer Distance 35 ft. Direction NW
Type _____ Distance _____ ft. Direction _____

14. PUMP: ☐ Not Installed ☐ Pump Installation Only
Manufacturer's Name Red Jacket
Model Number 50rtw1-mn9bcp HP ½ Volts 220
Length of Drop Pipe 46 ft. Capacity 10 G.P.M.
TYPE: ☒ Submersible ☐ Jet ☐ Other _____
PRESSURE TANK:
Manufacturer's Name Well-Rite
Model Number 203 pc-122 Capacity 60 Gallons 2.2

2. FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Sand	12	12
Clay	24	36
Sand	10	46
Sand and gravel	14	60

USE A 2ND SHEET IF NEEDED

RECEIVED MICHIGAN DEPT. OF ENVIRONMENTAL QUALITY MAY 30 97 GROUND WATER SUPPLY SEC.

15. ABANDONED WELL PLUGGED? ☐ Yes ☐ No
Casing Diameter _____ in. Depth _____ ft.
PLUGGING MATERIAL: ☐ Neat Cement ☐ Bentonite Slurry ☐ Cement/Bentonite Slurry ☐ Concrete Grout ☐ Bentonite Chips
No. of Bags _____ Casing Removed? ☐ Yes ☐ No

16. REMARKS: (Elevation, Source of Data, etc.)

17. DRILLING MACHINE OPERATOR:
☒ Employee ☐ Subcontractor
Name Percy Buck

18. WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
Ken Lee Well Drilling 0654
REGISTERED BUSINESS NAME REGISTRATION NO.
Address P.O. Box 342 Linden, MI 48451
Signed _____ Date 3-31-97
AUTHORIZED REPRESENTATIVE

GW-2-228 9/93

GEOLOGICAL SURVEY COPY

Authority: Act 368 PA 1978
Completion: Required
Penalty: Conviction of a violation of any provision is a misdemeanor.

GEOLOGICAL SURVEY SAMPLE No.

SEP 11 1972

19-2

WATER WELL RECORD

ACT 294 PA 1965

NE SW SW

MICHIGAN DEPARTMENT OF PUBLIC HEALTH

1 LOCATION OF WELL

County	Township Name	Fraction	Section Number	Town Number	Range Number
Genesee	Fenton	NW ¼ NE ¼ SW ¼	19	5 N.S.	6 E.W.

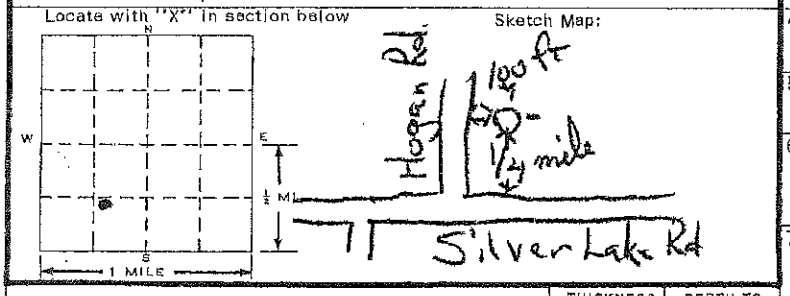
Distance And Direction from Road Intersections: ¼ mile N. Silver Lake Rd. 100 ft. E of Hogan Rd.

1H469 Hogan Rd. Linden

Street address & City of Well Location

Locate with "X" in section below

Sketch Map:



3 OWNER OF WELL: Leonard Simpson

Address: 409 W. Broad St. Linden

4 WELL DEPTH: (completed) 53 ft. Date of Completion 8/14/72

5 ☐ Cable tool ☐ Rotary ☐ Driven ☐ Dug ☒ Hollow rod ☐ Jetted ☐ Bored ☐

6 USE: ☒ Domestic ☐ Public Supply ☐ Industry ☐ Irrigation ☐ Air Conditioning ☐ Commercial ☐ Test Well ☐

7 CASING: Threaded ☐ Welded ☐ Diam. 2 in. to 50 ft. Depth; ___ in. to ___ ft. Depth

Height: Above/Below Surface 6 ft. Weight 3.6 lbs./ft. Drive Shoe? Yes ☒ No ☐

2 FORMATION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
SURFACE Dirt	20	20
CLAY	18	38
WATER SAND & GRAVEL	15	53

8 SCREEN: Type: 125 Dia.: 1¼ ~~Slot~~/Gauze 60 Length 42 Set between 50 ft. and 53 ft. Fittings: 2 Couplings 1¼, 1 Ft Standpipe 1¼, check valve

9 STATIC WATER LEVEL: 15 ft. below land surface

10 PUMPING LEVEL below land surface: 31 ft. after ¾ hrs. pumping 8 g.p.m.; ___ ft. after ___ hrs. pumping ___ g.p.m.

11 WATER QUALITY in Parts Per Million: Iron (Fe) ___ Chlorides (Cl) ___ Hardness ___ Other ___

12 WELL HEAD COMPLETION: ☐ In Approved Pit ☒ Pitless Adapter ☒ 12" Above Grade

13 Well Grouted? ☒ Yes ☒ No ☐ Neat Cement ☐ Bentonite ☐ ___ Depth: From ___ ft. to ___ ft.

14 Nearest Source of possible contamination: 50 feet East Direction Septic Type. Well disinfected upon completion ☒ Yes ☐ No

15 PUMP: ☐ Not installed. Manufacturer's Name Rapidayton. Model Number SE2 HP ½ Volts 110. Length of Drop Pipe 31 ft. capacity 3-8 G.P.M. Type: ☐ Submersible ☒ Jet ☐ Reciprocating

USE A 2ND SHEET IF NEEDED

16 Remarks, elevation, source of data, etc.

ADDED INFO. BY DRILLER, ITEM No.

CORRECTED BY: KB

ADDITION BY:

elev 4872'

17 WATER WELL CONTRACTOR'S CERTIFICATION: 0654

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Kens Well Drilling 0645

REGISTERED BUSINESS NAME REGISTRATION NO.

Address 412 N. Brigde St. Linden

Signed G. W. McKenzie Date 8-30-72

AUTHORIZED REPRESENTATIVE

D67d 100M (Rev. 12-68)

GEOLOGICAL SURVEY COPY

GEOLOGICAL SURVEY SAMPLE No.

SEP 11 1972

19-3

WATER WELL RECORD

ACT 294 1965

NE SW SW*

MICHIGAN DEPARTMENT OF PUBLIC HEALTH

1 LOCATION OF WELL

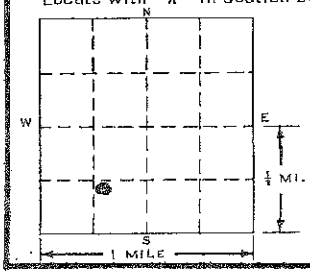
County	Township Name	Fraction	Section Number	Town Number	Range Number
Genesee	Fenton	~~NW ¼ NW ¼ SW ¼~~	19	5 N/S.	6 E/W.

Distance And Direction from Road Intersections: ¼ mile N. of Silver Lake Rd. 100 ft W. of Hogan Rd

14479 Hogan Rd. Linden

Street address & City of Well Location

Locate with "X" in section below



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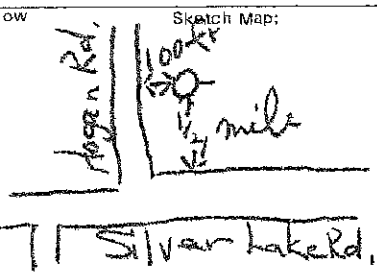


3 OWNER OF WELL: Leonard Simpson

Address: 409 W. Broad St Linden

4 WELL DEPTH: (completed) 50 ft. Date of Completion 8/7/72

5 ☐ Cable tool ☐ Rotary ☐ Driven ☐ Dug ☒ Hollow rod ☐ Jetted ☐ Bored ☐

6 USE: ☒ Domestic ☐ Public Supply ☐ Industry ☐ Irrigation ☐ Air Conditioning ☐ Commercial ☐ Test Well ☐

7 CASING: Threaded ☒ Welded ☐ Diam. 2 in. to 47 ft. Depth; ___ in. to ___ ft. Depth

Height: Above/Below Surface 1 ft. Weight 3 1/15 lbs./ft. Drive Shoe? Yes ☒ No ☐

2 FORMATION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
SURFACE Dirt	20	20
CLAY	15	35
WATER SAND + GRAVEL	15	50

8 SCREEN: Type: 125 Dia.: 1¼ ~~Slot~~/Gauze 60 Length 42

Set between 47 ft. and 50 ft.

Fittings: 1 Coupling Check Valve

9 STATIC WATER LEVEL 15 ft. below land surface

10 PUMPING LEVEL below land surface 31 ft. after ½ hrs. pumping 8 g.p.m.

___ ft. after ___ hrs. pumping ___ g.p.m.

11 WATER QUALITY in Parts Per Million: Iron (Fe) ___ Chlorides (Cl) ___ Hardness ___ Other ___

12 WELL HEAD COMPLETION: ☐ In Approved Pit ☒ Pitless Adapter ☒ 12" Above Grade

13 Well Grouted? ☐ Yes ☒ No ☐ Neat Cement ☐ Bentonite ☐ MATERIAL

Depth: From ___ ft. to ___ ft.

14 Nearest Source of possible contamination 50 feet East Direction Septic Type

Well disinfected upon completion ☒ Yes ☐ No

15 PUMP: ☐ Not Installed

Manufacturer's Name Rapidayton

Model Number 5E2 HP ½ Volts 110

Length of Drop Pipe 31 ft. capacity 8 G.P.M.

Type: ☐ Submersible ☒ Jet ☐ Reciprocating

USE A 2ND SHEET IF NEEDED

16 Remarks, elevation, source of data, etc.

ADDED INFO. BY DRILLER, ITEM NO.

CORRECTED BY: KB

ADDITION BY:

elev 870'

17 WATER WELL CONTRACTOR'S CERTIFICATION: 0654

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Kens Well Drilling ~~0645~~

REGISTERED BUSINESS NAME REGISTRATION NO.

Address 412 N. Brigde St Linden

Signed G. W. McKenzie Date 8-30-72

AUTHORIZED REPRESENTATIVE

D67d 100M (Rev. 12-68)

GEOLOGICAL SURVEY COPY

DEQ MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
DRINKING WATER & RADIOLOGICAL PROTECTION DIVISION

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978
Failure to comply is a misdemeanor

TAX NO:

PERMIT NO:

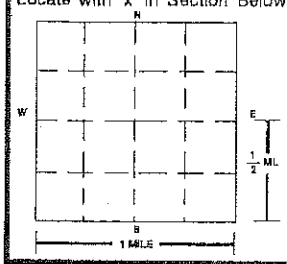
1. LOCATION OF WELL

County	Township Name	Fraction	Section No.	Town No.	Range No.
Genesee	Fenton	NW1/4 SE1/4 SW1/4	19	5N	6E

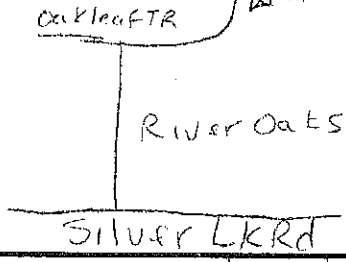
Distance and Direction from Road Intersection: 500' NE of River Oaks on W side of Oakleaf TR.

Street Address & City of Well Location

Locate with 'x' in Section Below



Sketch Map



3. OWNER OF WELL
Address: Ron Harrold, 14469 Oakleaf TR., Linden, MI 48451
Address Same as Well Location ☒ Yes ☐ No

4. WELL DEPTH: 60 ft. Date Completed: 4/8/98 ☒ New Well ☐ Replacement Well

5. ☐ Cable Tool ☒ Rotary ☐ Driven ☐ Dug ☐ Hollow Rod ☐ Auger/Bored ☐ Jetted ☐ ____

6. USE: ☒ Household ☐ Type I Public ☐ Type III Public ☐ Irrigation ☐ Type IIa Public ☐ Heat Pump ☐ Test Well ☐ Type IIb Public ☐ ____

7. CASING: ☐ Steel ☐ Threaded ☒ Plastic ☐ Welded ☐ Other ____
Diameter: 5 in. to 56 ft. depth; ____ in. to ____ ft. depth
Height: Above/Below Surface: 1 ft
Weight: SDR21 lbs./ft.
BORE HOLE: Diameter: 8 1/2 in. to 60 ft. depth; ____ in. to ____ ft. depth
☐ Drive Shoe ☐ Shale Packer

2. FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Gravel	25	25
Gravel and clay	15	40
Gravel	20	60

MICH DEPT OF ENVIRONMENTAL QUALITY
MAY 15 1998
Drinking Water & Radiological Protection Division
Ground Water Supply Section
WELL CONSTRUCTION UNIT

USE A 2ND SHEET IF NEEDED

8. SCREEN: ☐ Not Installed ☐ Gravel-Packed
Type: S.S. Diameter: 4"
Slot/Gauze: 10 Length: 4'
Set Between: 56 ft. and 60 ft.
FITTINGS: ☐ K-Packer ☐ Bremer Check
☐ Blank Above Screen ____ ft. Other ____

9. STATIC WATER LEVEL: 10 ft. Below Land Surface ☐ Flowing

10. PUMPING LEVEL: Below Land Surface 50 ft. After 1 hrs. Pumping at 40 G.P.M.
☐ Plunger ☐ Bailer ☐ Air ☐ Test Pump

11. WELL HEAD COMPLETION:
☒ Pitless Adapter ☐ 12" Above Grade
☐ Basement Offset ☐ Well House

12. WELL GROUTED? ☐ No ☒ Yes From 0 to 50 ft.
☐ Neat Cement ☒ Bentonite ☒ Other Pressure
No. of Bags: 3 Additives: Benseal

13. NEAREST SOURCE OF POSSIBLE CONTAMINATION:
Type: Sewer Distance: 50 ft. Direction: W
Type: ____ Distance: ____ ft. Direction: ____

14. PUMP: ☐ Not Installed ☐ Pump Installation Only
Manufacturer's Name: Red Jacket
Model Number: 50RFW1-MN98 HP: 1/2 Volts: 220
Length of Drop Pipe: 46 ft. Capacity: 10 G.P.M.
TYPE: ☒ Submersible ☐ Jet ☐ Other ____
PRESSURE TANK:
Manufacturer's Name: Well-Rite
Model Number: PC-122 Capacity: ____ Gallons: ____

15. ABANDONED WELL PLUGGED? ☐ Yes ☐ No
Casing Diameter ____ in. Depth ____ ft.
PLUGGING MATERIAL: ☐ Neat Cement ☐ Bentonite Slurry ☐ Cement/Bentonite Slurry ☐ Concrete Grout ☐ Bentonite Chips
No. of Bags ____ Casing Removed? ☐ Yes ☐ No

16. REMARKS: (Elevation, Source of Data, etc.)

17. DRILLING MACHINE OPERATOR:
☒ Employee ☐ Subcontractor
Name: James Lathrop

18. WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
Ken Lee Well Drilling 0654
REGISTERED BUSINESS NAME REGISTRATION NO.
Address: P.O. Box 342 Linden, MI 48451
Signed: [signature] Date: 4-10-98
AUTHORIZED REPRESENTATIVE

GEOLOGICAL SURVEY COPY

EQP 2017 (12/96)

DEQ MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
DRINKING WATER & RADIOLOGICAL PROTECTION DIVISION

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978
Failure to comply is a misdemeanor

TAX NO:

PERMIT NO:

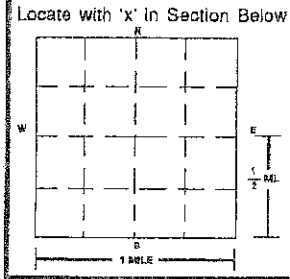
1. LOCATION OF WELL

County	Township Name	Fraction	Section No.	Town No.	Range No.
Genesee	Fenton	NW1/4 SE1/4 SW1/4	19	5N	6E

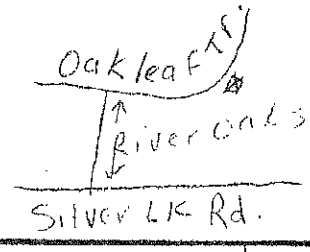
Distance and Direction from Road Intersection
450' E of Riveroaks on E side of Oakleaf Tr.

Street Address & City of Well Location

Locate with 'x' in Section Below



Sketch Map



3. OWNER OF WELL
Address: Ron Harrold
14489 Oakleaf Tr.
Linden, MI 48451
Address Same as Well Location ☒ Yes ☐ No

4. WELL DEPTH: 60 ft. Date Completed 4/9/98 ☒ New Well ☐ Replacement Well

5. ☐ Cable Tool ☒ Rotary ☐ Driven ☐ Dug ☐ Hollow Rod ☐ Auger/Bored ☐ Jetted ☐ ____

6. USE: ☒ Household ☐ Type I Public ☐ Type III Public ☐ Irrigation ☐ Type IIa Public ☐ Heat Pump ☐ Test Well ☐ Type IIb Public ☐ ____

7. CASING: ☐ Steel ☐ Threaded ☒ Plastic ☐ Welded ☐ Other ____
Diameter: 5 in. to 56 ft. depth
____ in. to ____ ft. depth
BORE HOLE:
Diameter: 8 1/2 in. to 60 ft. depth
____ in. to ____ ft. depth
Height: Above/Below Surface: 1 ft
Weight: SDR21 lbs./ft.
☐ Drive Shoe
☐ Shale Packer

2. FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Gravel	20	20
Clay and gravel	5	25
Clay and Sand	15	40
Gravel	20	60

RECEIVED
MICH DEPT OF ENVIRONMENTAL QUALITY
MAY 15 1998
Drinking Water & Radiological Protection Division
Ground Water Supply Section
WELL CONSTRUCTION UNIT

USE A 2ND SHEET IF NEEDED

8. SCREEN: ☐ Not Installed ☐ Gravel-Packed
Type S.S. Diameter 4"
Slot/Gauze 7 Length: 4'
Set Between 56 ft. and 60 ft.
FITTINGS: ☐ K-Packer ☐ Bremer Check
☐ Blank Above Screen ____ ft. Other ____

9. STATIC WATER LEVEL:
10 ft. Below Land Surface ☐ Flowing

10. PUMPING LEVEL: Below Land Surface
60 ft. After 1 hrs. Pumping at 35-40 G.P.M.
☐ Plunger ☐ Bailer ☐ Air ☐ Test Pump

11. WELL HEAD COMPLETION:
☒ Pitless Adapter ☐ 12" Above Grade
☐ Basement Offset ☐ Well House

12. WELL GROUTED? ☐ No ☒ Yes From 0 to 50 ft.
☐ Neat Cement ☒ Bentonite ☒ Other pressure
No. of Bags 5 Additives Benseal

13. NEAREST SOURCE OF POSSIBLE CONTAMINATION:
Type Sewer Distance 70 ft. Direction NW
Type ____ Distance ____ ft. Direction ____

14. PUMP: ☐ Not Installed ☐ Pump Installation Only
Manufacturer's Name Red Jacket
Model Number 50RtW1-MN98C HP 1/2 Volts 220
Length of Drop Pipe 46 ft. Capacity 10 G.P.M.
TYPE: ☒ Submersible ☐ Jet ☐ Other ____
PRESSURE TANK:
Manufacturer's Name Well-Rite
Model Number PC-122 Capacity ____ Gallons ____

15. ABANDONED WELL PLUGGED? ☐ Yes ☐ No
Casing Diameter ____ in. Depth ____ ft.
PLUGGING MATERIAL: ☐ Neat Cement ☐ Bentonite Slurry
☐ Cement/Bentonite Slurry ☐ Concrete Grout ☐ Bentonite Chips
No. of Bags ____ Casing Removed? ☐ Yes ☐ No

16. REMARKS: (Elevation, Source of Data, etc.)

17. DRILLING MACHINE OPERATOR:
☒ Employee ☐ Subcontractor
Name James Lathrop

18. WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
Ken Lee Well Drilling 0654
REGISTERED BUSINESS NAME REGISTRATION NO.
Address P.O. Box 342 Linden, MI 48451
Signed [signature] Date 4-10-98
AUTHORIZED REPRESENTATIVE

GEOLOGICAL SURVEY COPY

EQP 2017 (12/96)

DEQ MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
DRINKING WATER & RADIOLOGICAL PROTECTION DIVISION

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978
Failure to comply is a misdemeanor

TAX NO:

PERMIT NO:

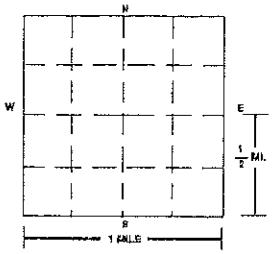
1. LOCATION OF WELL

County	Township Name	Fraction	Section No.	Town No.	Range No.
Genesee	Fenton	SW 1/4 SE 1/4 SW 1/4	19	5N	6E

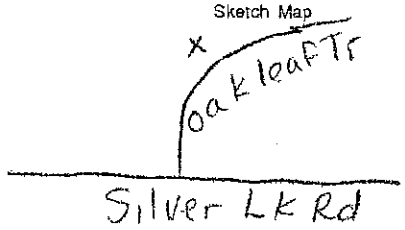
Distance and Direction from Road Intersection: 100 yards N of Silver Lk Rd on W Side of Oakleaf Tr.

Street Address & City of Well Location

Locate with 'x' in Section Below



Sketch Map



3. OWNER OF WELL
Address: Ron Harrold, 6391 Oakleaf, Linden, MI 48451
Address Same as Well Location ☒ Yes ☐ No

4. WELL DEPTH: 60 ft. | Date Completed: 11/3/98 | ☒ New Well ☐ Replacement Well

5. ☐ Cable Tool ☒ Rotary ☐ Driven ☐ Dug ☐ Hollow Rod ☐ Auger/Bored ☐ Jetted ☐ _____

6. USE: ☒ Household ☐ Type I Public ☐ Type III Public ☐ Irrigation ☐ Type IIa Public ☐ Heat Pump ☐ Test Well ☐ Type IIb Public ☐ _____

7. CASING: ☐ Steel ☐ Threaded ☒ Plastic ☐ Welded ☐ Other _____
Diameter: 5 in. to 56 ft. depth; _____ in. to _____ ft. depth
BORE HOLE: Diameter: 8 1/2 in. to 60 ft. depth; _____ in. to _____ ft. depth
Height: Above/Below Surface: 1 ft
Weight: SDR21 lbs./ft.
☐ Drive Shoe ☐ Shale Packer

8. SCREEN: ☐ Not Installed ☐ Gravel-Packed
Type: S.S. Diameter: 4"
Slot/Gauze: 12 Length: 4'
Set Between: 56 ft. and 60 ft.
FITTINGS: ☐ K-Packer ☐ Bremer Check
☐ Blank Above Screen _____ ft. Other _____

9. STATIC WATER LEVEL: 10 ft. Below Land Surface ☐ Flowing

10. PUMPING LEVEL: Below Land Surface: 55 ft. After 1 hrs. Pumping at 15 G.P.M.
☐ Plunger ☐ Bailer ☐ Air ☐ Test Pump

11. WELL HEAD COMPLETION:
☒ Pitless Adapter ☐ 12" Above Grade ☐ Basement Offset ☐ Well House

12. WELL GROUTED? ☐ No ☒ Yes From 0 to 46 ft.
☐ Neat Cement ☒ Bentonite ☒ Other Pressure
No. of Bags 3 Additives Benseal

13. NEAREST SOURCE OF POSSIBLE CONTAMINATION:
Type Sewer Distance 40 ft. Direction N
Type _____ Distance _____ ft. Direction _____

14. PUMP: ☐ Not Installed ☐ Pump Installation Only
Manufacturer's Name: Red Jacket
Model Number: 50RSWI-MMBC HP 1/2 Volts 220
Length of Drop Pipe 46 ft. Capacity 10 G.P.M.
TYPE: ☒ Submersible ☐ Jet ☐ Other _____
PRESSURE TANK:
Manufacturer's Name: Well-Rite
Model Number: PC144 Capacity 110 Gallons

2. FORMATION DESCRIPTION

FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Clay	20	20
Gravel and Clay	20	40
Sand	20	60

USE A 2ND SHEET IF NEEDED

15. ABANDONED WELL PLUGGED? ☐ Yes ☐ No
Casing Diameter _____ in. Depth _____ ft.
PLUGGING MATERIAL: ☐ Neat Cement ☐ Bentonite Slurry ☐ Cement/Bentonite Slurry ☐ Concrete Grout ☐ Bentonite Chips
No. of Bags _____ Casing Removed? ☐ Yes ☐ No

16. REMARKS: (Elevation, Source of Data, etc.)

17. DRILLING MACHINE OPERATOR:
☒ Employee ☐ Subcontractor
Name: James Lathrop

18. WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
Ken Lee Well Drilling (REGISTERED BUSINESS NAME) 0054 (REGISTRATION NO.)
Address: P.O. Box 342 Linden, MI 48451
Signed: _____ (AUTHORIZED REPRESENTATIVE) Date: 11-5-98

GEOLOGICAL SURVEY COPY

EQP 2017 (12/96)

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
DRINKING WATER & RADIOLOGICAL PROTECTION DIVISION

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978
Failure to comply is a misdemeanor

TAX NO:

PERMIT NO:

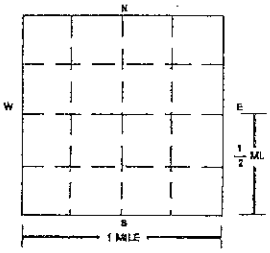
1. LOCATION OF WELL

County	Township Name	Fraction	Section No.	Town No.	Range No.
Genesee	Fenton	SW1/4 SE1/4 SW1/4	19	5N	6E

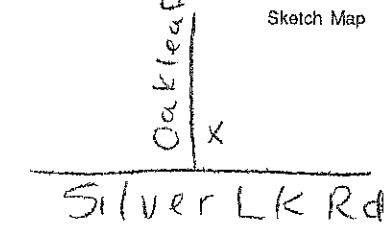
Distance and Direction from Road Intersection
On N-E Corner of Silver Lk Rd and Oakleaf Tr.

Street Address & City of Well Location

Locate with 'x' in Section Below



Sketch Map



3. OWNER OF WELL
Address: Ron Harrold, 6361 Oakleaf Tr, Linden, MI 48451

Address Same as Well Location ☒ Yes ☐ No

4. WELL DEPTH: 60 ft. | Date Completed 11/18/98 | ☒ New Well ☐ Replacement Well

5. ☐ Cable Tool ☒ Rotary ☐ Driven ☐ Dug ☐ Hollow Rod ☐ Auger/Bored ☐ Jetted ☐

6. USE: ☒ Household ☐ Type I Public ☐ Type III Public ☐ Irrigation ☐ Type IIa Public ☐ Heat Pump ☐ Test Well ☐ Type IIb Public ☐

7. CASING: ☐ Steel ☐ Threaded ☒ Plastic ☐ Welded ☐ Other
Diameter: 5 in. to 56 ft. depth
in. to ft. depth
BORE HOLE: Diameter: 8 1/2 in. to 60 ft. depth
in. to ft. depth
Height: Above/Below Surface: 1 ft
Weight: Sch 21 lbs/ft.
☐ Drive Shoe ☐ Shale Packer

8. SCREEN: ☐ Not Installed ☐ Gravel-Packed
Type S.S. Diameter 4"
Slot/Gauze 10 Length: 4'
Set Between 56 ft. and 60 ft.
FITTINGS: ☐ K-Packer ☐ Bremer Check ☐ Blank Above Screen ft. Other

9. STATIC WATER LEVEL:
25 ft. Below Land Surface ☐ Flowing

10. PUMPING LEVEL: Below Land Surface
40 ft. After 1 hrs. Pumping at 35 G.P.M.
☐ Plunger ☐ Bailer ☐ Air ☐ Test Pump

11. WELL HEAD COMPLETION:
☒ Pitless Adapter ☐ 12" Above Grade ☐ Basement Offset ☐ Well House

12. WELL GROUTED? ☐ No ☒ Yes From 0 to 45 ft.
☐ Neat Cement ☒ Bentonite ☒ Other pressure
No. of Bags 4 Additives Bensen

13. NEAREST SOURCE OF POSSIBLE CONTAMINATION:
Type Sewer Distance 45 ft. Direction N
Type Distance ft. Direction

14. PUMP: ☐ Not Installed ☐ Pump Installation Only
Manufacturer's Name Red Jacket
Model Number SP2-16M-MMRC HP 1/2 Volts 220
Length of Drop Pipe 46 ft. Capacity 10 G.P.M.
TYPE: ☒ Submersible ☐ Jet ☐ Other
PRESSURE TANK:
Manufacturer's Name Well-Rite
Model Number PC 14/4.25 Capacity 100 Gallons K/

2. FORMATION DESCRIPTION

FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Clay and Sand	15	15
Clay	20	35
Sand and clay	15	50
Sand	10	60

USE A 2ND SHEET IF NEEDED

15. ABANDONED WELL PLUGGED? ☐ Yes ☐ No
Casing Diameter in. Depth ft.
PLUGGING MATERIAL: ☐ Neat Cement ☐ Bentonite Slurry ☐ Cement/Bentonite Slurry ☐ Concrete Grout ☐ Bentonite Chips
No. of Bags Casing Removed? ☐ Yes ☐ No

16. REMARKS: (Elevation, Source of Data, etc.)

17. DRILLING MACHINE OPERATOR:
☒ Employee ☐ Subcontractor
Name James Lathrop

18. WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
Kenlee Well Drilling (REGISTERED BUSINESS NAME) 0165 4 (REGISTRATION NO.)
Address P.O. Box 342 Linden MI 48451
Signed (AUTHORIZED REPRESENTATIVE) Date 11-23-98

GEOLOGICAL SURVEY COPY

EQP 2017 (12/96)

DEQ MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
DRINKING WATER & RADIOLOGICAL PROTECTION DIVISION

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978
Failure to comply is a misdemeanor

TAX NO:

PERMIT NO:

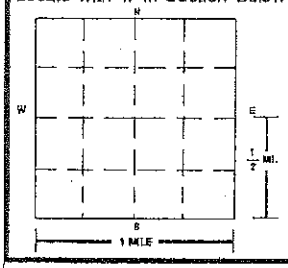
1. LOCATION OF WELL

County	Township Name	Fraction	Section No.	Town No.	Range No.
Genesee	Fenton	SE 1/4 SW 1/4 NW 1/4	19	5N	6E

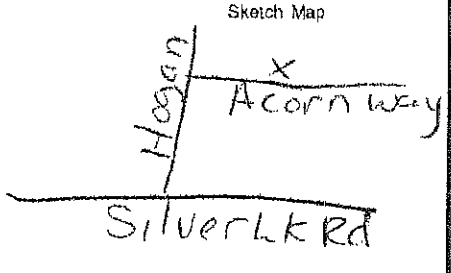
Distance and Direction from Road Intersection: 1/4 mile E of Hogan Rd on N side of Acorn Way.

Street Address & City of Well Location

Locate with 'x' in Section Below



Sketch Map



3. OWNER OF WELL
Address: Ron Harrold, 6356 Acorn Way, Linden, MI 48451
Address Same as Well Location ☒ Yes ☐ No

4. WELL DEPTH: 180 ft. Date Completed 12/7/98 ☒ New Well ☐ Replacement Well

5. ☐ Cable Tool ☒ Rotary ☐ Driven ☐ Dug ☐ Hollow Rod ☐ Auger/Bored ☐ Jetted ☐

6. USE: ☒ Household ☐ Type I Public ☐ Type III Public ☐ Irrigation ☐ Type IIa Public ☐ Heat Pump ☐ Test Well ☐ Type IIb Public ☐

7. CASING: ☐ Steel ☐ Threaded ☒ Plastic ☐ Welded ☐ Other
Diameter: 5 in. to 140 ft. depth
in. to ft. depth
BORE HOLE: Diameter: 8 1/2 in. to 140 ft. depth
4 1/2 in. to 180 ft. depth
Height: Above/Below Surface: 1 ft
Weight: SDR21 lbs./ft.
☐ Drive Shoe ☐ Shale Packer

2. FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Gravel and Clay	20	20
Clay	70	90
Clay and Sand	10	100
Gravel and Clay	30	130
Rock	50	180

USE A 2ND SHEET IF NEEDED

RECEIVED
MICH DEPT OF ENVIRONMENTAL QUALITY
JAN 29 1999
Drinking Water & Radiological Protection Division
Ground Water Supply Section
WELL CONSTRUCTION UNIT

8. SCREEN: ☐ Not Installed ☐ Gravel-Packed
Type Rock Diameter 5"
Slot/Gauze Length:
Set Between ft. and ft.
FITTINGS: ☐ K-Packer ☐ Bremer Check
☐ Blank Above Screen ft. Other

9. STATIC WATER LEVEL: 10 ft. Below Land Surface ☐ Flowing

10. PUMPING LEVEL: Below Land Surface 100 ft. After 1 hrs. Pumping at 30 G.P.M.
☐ Plunger ☐ Bailer ☐ Air ☐ Test Pump

11. WELL HEAD COMPLETION:
☒ Pitless Adapter ☐ 12" Above Grade
☐ Basement Offset ☐ Well House

12. WELL GROUTED? ☐ No ☒ Yes From 0 to 130 ft.
☐ Neat Cement ☒ Bentonite ☒ Other Pressure
No. of Bags 7 Additives Benseal

13. NEAREST SOURCE OF POSSIBLE CONTAMINATION:
Type Sewer Distance 50 ft. Direction S
Type Distance ft. Direction

14. PUMP: ☐ Not Installed ☐ Pump Installation Only
Manufacturer's Name Red Jacket
Model Number SCRT-W1-MNGR 1/2 Volts 220
Length of Drop Pipe 130 ft. Capacity 10 G.P.M.
TYPE: ☒ Submersible ☐ Jet ☐ Other
PRESSURE TANK:
Manufacturer's Name Well-Rite
Model Number PC 122 203 Capacity 60 Gallons 2.2

15. ABANDONED WELL PLUGGED? ☐ Yes ☐ No
Casing Diameter in. Depth ft.
PLUGGING MATERIAL: ☐ Neat Cement ☐ Bentonite Slurry ☐ Cement/Bentonite Slurry ☐ Concrete Grout ☐ Bentonite Chips
No. of Bags Casing Removed? ☐ Yes ☐ No

16. REMARKS: (Elevation, Source of Data, etc.)

17. DRILLING MACHINE OPERATOR:
☒ Employee ☐ Subcontractor
Name James Lathrop

18. WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
Ken Lee Well Drilling 0654
REGISTERED BUSINESS NAME REGISTRATION NO.
Address P.O. Box 342 Linden, MI 48451
Signed [signature] Date 12-10-98
AUTHORIZED REPRESENTATIVE

GEOLOGICAL SURVEY COPY

EQP 2017 (12/96)

GEOLOGICAL SURVEY SAMPLE No. 19-4

WATER WELL RECORD

ACT 294 PA 1965

MICHIGAN DEPARTMENT OF PUBLIC HEALTH

1 LOCATION OF WELL

County	Twp.	Fraction	Section No.	Town	Range
Genesee	Fenton	SW¼ SE¼ SE¼	19	5 N/S.	6 E/W.

Distance And Direction from Road Intersections: Richard Oram, 625 W. Broad, Linden, Mich.

Street address & City of Well Location

OWNER No.

3 OWNER OF WELL:

Address SAME

2 FORMATION

FORMATION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Surface Sand & Clay	15	15
Water Bearing gravel	3	18
Clay Sandy	15	33
Water Bearing Gravel	3	36

4 WELL DEPTH: (completed) 36 ft. Date of Completion

5 ☐ Cable tool ☐ Rotary ☐ Driven ☐ Dug ☐ Hollow rod ☐ Jetted ☐ Bored ☐

6 USE: ☒ Domestic ☐ Public Supply ☐ Industry ☐ Irrigation ☐ Air Conditioning ☐ Commercial ☐ Test Well ☐

7 CASING: Diam. 2 in. to ___ ft. Depth; ___ in. to ___ ft. Depth. Threaded ☒ Welded ☐. Height: Above/Below surface ___ ft. Weight ___ lbs/ft. Drive Shoe? Yes ☒ No ☐

8 SCREEN: Type: Slotted Dia.: 1¼ Slot/~~Gage~~ 10 Length 36 Set between ___ ft. and ___ ft. Fittings:

9 STATIC WATER LEVEL 12 ft. below land surface

10 PUMPING LEVEL below land surface ___ ft. after ___ hrs. pumping ___ g.p.m. ___ ft. after ___ hrs. pumping ___ g.p.m.

11 WATER QUALITY in Parts Per Million: Iron (Fe) ___ Chlorides (Cl) ___ Hardness ___

12 WELL HEAD COMPLETION: ☐ In Approved Pit ☐ Pitless Adapter ☒ 12" Above Grade

13 GROUTING: Well Grouted? ☐ Yes ☒ No Material: ☐ Neat Cement ☐ ___ Depth: From ___ ft. to ___ ft.

14 SANITARY: Nearest Source of possible contamination ___ feet ___ Direction ___ Type Well disinfected upon completion ☒ Yes ☐ No

15 PUMP: Manufacturer's Name A.Y. McDonald Model Number Single Stage HP 1/2 Length of Drop Pipe 31 ft. capacity – G.P.M. Type: ☐ Submersible ☐ ___ ☒ Jet ☐ Reciprocating

16 Remarks, elevation, source of data, etc.

ADDED INFO. BY DRILLER. ITEM NO. map 13

*CORRECTED BY:

**ADDITION BY:

e/Pr 4885

17 WATER WELL CONTRACTOR'S CERTIFICATION:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Bob's Well Drilling — REGISTERED BUSINESS NAME

0784 — REGISTRATION NO.

Address 305 E. Broad St. Linden, Mich

Signed R. C. Kathrop — AUTHORIZED REPRESENTATIVE

Date 4-1-68

D67D 100M 6-66

MAY 31 1968

GEOLOGICAL SURVEY COPY

DEQ MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
DRINKING WATER & RADIOLOGICAL PROTECTION DIVISION

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978
Failure to comply is a misdemeanor

TAX NO:

PERMIT NO:

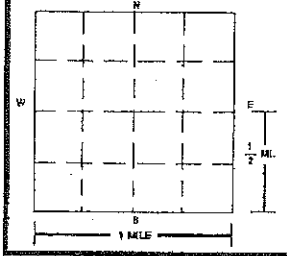
1. LOCATION OF WELL

County	Township Name	Fraction	Section No.	Town No.	Range No.
Genesee	Fenton	SE 1/4 SW 1/4 NW 1/4	19	5N	6E

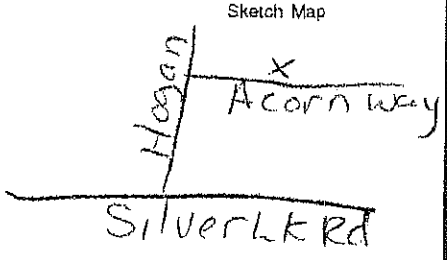
Distance and Direction from Road Intersection: 1/4 mile E of Hogan Rd on N side of Acorn Way.

Street Address & City of Well Location

Locate with 'x' in Section Below



Sketch Map



3. OWNER OF WELL
Address: Ron Harrold, 6356 Acorn Way, Linden, MI 48451
Address Same as Well Location ☒ Yes ☐ No

4. WELL DEPTH: 180 ft. Date Completed 12/7/98 ☒ New Well ☐ Replacement Well

5. ☐ Cable Tool ☒ Rotary ☐ Driven ☐ Dug ☐ Hollow Rod ☐ Auger/Bored ☐ Jetted ☐ ____

6. USE: ☒ Household ☐ Type I Public ☐ Type III Public ☐ Irrigation ☐ Type IIa Public ☐ Heat Pump ☐ Test Well ☐ Type IIb Public ☐ ____

7. CASING: ☐ Steel ☐ Threaded ☒ Plastic ☐ Welded ☐ Other ____
Diameter: 5 in. to 140 ft. depth; ____ in. to ____ ft. depth
BORE HOLE: Diameter: 8 1/2 in. to 140 ft. depth; 4 1/2 in. to 180 ft. depth
Height: Above/Below Surface: 1 ft
Weight: SDR21 lbs./ft.
☐ Drive Shoe ☐ Shale Packer

8. SCREEN: ☐ Not Installed ☐ Gravel-Packed
Type Rock Diameter 5"
Slot/Gauze ____ Length: ____
Set Between ____ ft. and ____ ft.
FITTINGS: ☐ K-Packer ☐ Bremer Check
☐ Blank Above Screen ____ ft. Other ____

9. STATIC WATER LEVEL: 10 ft. Below Land Surface ☐ Flowing

10. PUMPING LEVEL: Below Land Surface 100 ft. After 1 hrs. Pumping at 30 G.P.M.
☐ Plunger ☐ Bailer ☐ Air ☐ Test Pump

11. WELL HEAD COMPLETION:
☒ Pitless Adapter ☐ 12" Above Grade
☐ Basement Offset ☐ Well House

12. WELL GROUTED? ☐ No ☒ Yes From 0 to 130 ft.
☐ Neat Cement ☒ Bentonite ☒ Other Pressure
No. of Bags 7 Additives Benseal

13. NEAREST SOURCE OF POSSIBLE CONTAMINATION:
Type Sewer Distance 50 ft. Direction S
Type ____ Distance ____ ft. Direction ____

14. PUMP: ☐ Not Installed ☐ Pump Installation Only
Manufacturer's Name Red Jacket
Model Number SCRTW1-MNGR 1/2 Volts 230
Length of Drop Pipe 130 ft. Capacity 10 G.P.M.
TYPE: ☒ Submersible ☐ Jet ☐ Other ____
PRESSURE TANK:
Manufacturer's Name Well-Rite
Model Number PC122203 Capacity 60 Gallons 2.2

2. FORMATION DESCRIPTION

	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Gravel and Clay	20	20
Clay	70	90
Clay and Sand	10	100
Gravel and Clay	30	130
Rock	50	180

USE A 2ND SHEET IF NEEDED

RECEIVED MICH DEPT OF ENVIRONMENTAL QUALITY JAN 29 1999 Drinking Water & Radiological Protection Division Ground Water Security Section WELL CONSTRUCTION UNIT

15. ABANDONED WELL PLUGGED? ☐ Yes ☐ No
Casing Diameter ____ in. Depth ____ ft.
PLUGGING MATERIAL: ☐ Neat Cement ☐ Bentonite Slurry ☐ Cement/Bentonite Slurry ☐ Concrete Grout ☐ Bentonite Chips
No. of Bags ____ Casing Removed? ☐ Yes ☐ No

16. REMARKS: (Elevation, Source of Data, etc.)

17. DRILLING MACHINE OPERATOR:
☒ Employee ☐ Subcontractor
Name James Lathrop

18. WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
Ken Lee Well Drilling 0654
REGISTERED BUSINESS NAME REGISTRATION NO.
Address P.O. Box 342 Linden, MI 48451
Signed [signature] AUTHORIZED REPRESENTATIVE Date 12-10-98

GEOLOGICAL SURVEY COPY

EQP 2017 (12/96)

GEOLOGICAL SURVEY SAMPLE No. 19-4

WATER WELL RECORD
ACT 294 PA 1965

MICHIGAN DEPARTMENT OF PUBLIC HEALTH

1 LOCATION OF WELL

County	Twp.	Fraction	Section No.	Town	Range
Genesee	Fenton	SW¼ SE¼ SE¼	19	5 N/S.	6 E/W.

Distance And Direction from Road Intersections
Richard Oram
625 W. Broad
Linden, Mich.
Street address & City of well location

OWNER No.

3 OWNER OF WELL:
Address SAME

2 FORMATION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Surface Sand & Clay	15	15
Water Bearing gravel	3	18
Clay Sandy	15	33
Water Bearing Gravel	3	36

4 WELL DEPTH: (completed) 36 ft. Date of Completion

5 ☐ Cable tool ☐ Rotary ☐ Driven ☐ Dug ☐ Hollow rod ☐ Jetted ☐ Bored ☐ ___

6 USE: ☒ Domestic ☐ Public Supply ☐ Industry ☐ Irrigation ☐ Air Conditioning ☐ Commercial ☐ Test Well ☐ ___

7 CASING: Threaded ☒ Welded ☐
2 in. to ___ ft. Depth
___ in. to ___ ft. Depth
Height: Above/Below surface ___ ft.
Weight ___ lbs/ft.
Drive Shoe? Yes ☒ No ☐

8 SCREEN:
Type: Slotted Dia.: 1¼
Slot/~~Gauge~~ 10 Length 36
Set between ___ ft. and ___ ft.
Fittings:

9 STATIC WATER LEVEL 12 ft. below land surface

10 PUMPING LEVEL below land surface
___ ft. after ___ hrs. pumping ___ g.p.m.
___ ft. after ___ hrs. pumping ___ g.p.m.

11 WATER QUALITY in Parts Per Million:
Iron (Fe) ___ Chlorides (Cl) ___
Hardness ___

12 WELL HEAD COMPLETION: ☐ In Approved Pit ☐ Pitless Adapter ☒ 12" Above Grade

13 GROUTING:
Well Grouted? ☐ Yes ☒ No
Material: ☐ Neat Cement ☐ ___
Depth: From ___ ft. to ___ ft.

14 SANITARY:
Nearest Source of possible contamination
___ feet ___ Direction ___ Type
Well disinfected upon completion ☒ Yes ☐ No

15 PUMP:
Manufacturer's Name A.Y. McDonald
Model Number Single Stage HP 1/2
Length of Drop Pipe 31 ft. capacity — G.P.M.
Type: ☐ Submersible ☐ ___
☒ Jet ☐ Reciprocating

16 Remarks, elevation, source of data, etc.
ADDED INFO. BY DRILLER, ITEM NO. map 13
elev 883'
*CORRECTED BY:
**ADDITION BY:

17 WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Bob's Well Drilling — REGISTERED BUSINESS NAME
0784 — REGISTRATION NO.
Address 305 E. Broad St. Linden, Mich
Signed R.C. Kellogg — AUTHORIZED REPRESENTATIVE
Date 4-1-68

D67D 100M 6-66

MAY 31 1968

GEOLOGICAL SURVEY COPY

DEQ MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
DRINKING WATER & RADIOLOGICAL PROTECTION DIVISION

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978
Failure to comply is a misdemeanor

TAX NO:

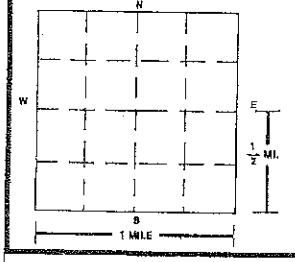
PERMIT NO:

1. LOCATION OF WELL

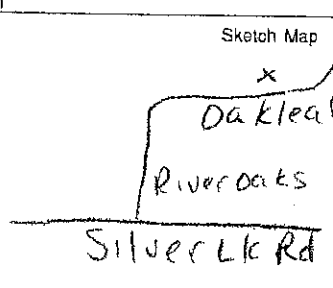
County	Township Name	Fraction	Section No.	Town No.	Range No.
Genesee	Fenton	NW1/4 SE1/4 SW1/4	19	5N	6E

Distance and Direction from Road Intersection
1/8 mile N of Silver Lk Rd on N Side of Oakleaf Tr.
Street Address & City of Well Location

Locate with 'x' in Section Below



Sketch Map



3. OWNER OF WELL
Address: Ron Harrold, 14448 Oakleaf, Linden, MI 48451
Address Same as Well Location ☒ Yes ☐ No

4. WELL DEPTH: 60 ft. Date Completed 10/29/98 ☒ New Well ☐ Replacement Well

5. ☐ Cable Tool ☒ Rotary ☐ Driven ☐ Dug ☐ Hollow Rod ☐ Auger/Bored ☐ Jetted ☐

6. USE: ☒ Household ☐ Type I Public ☐ Type III Public ☐ Irrigation ☐ Type IIa Public ☐ Heat Pump ☐ Test Well ☐ Type IIb Public ☐

7. CASING: ☐ Steel ☐ Threaded ☒ Plastic ☐ Welded ☐ Other
Diameter: 5 in. to 56 ft. depth; ____ in. to ____ ft. depth
Height: Above/Below Surface: 1 ft
Weight: SDR21 lbs./ft.
BORE HOLE: Diameter: 8 1/2 in. to 60 ft. depth; ____ in. to ____ ft. depth
☐ Drive Shoe ☐ Shale Packer

2. FORMATION DESCRIPTION

FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Sand	8	8
Gravel	12	20
Clay	20	40
Sand	20	60

USE A 2ND SHEET IF NEEDED

8. SCREEN: ☐ Not Installed ☐ Gravel-Packed
Type SS. Diameter 4"
Slot/Gauze 10 Length: 4'
Set Between 56 ft. and 60 ft.
FITTINGS: ☐ K-Packer ☐ Bremer Check
☐ Blank Above Screen ____ ft. Other ____

9. STATIC WATER LEVEL: 40 ft. Below Land Surface ☐ Flowing

10. PUMPING LEVEL: Below Land Surface
50 ft. After 1 hrs. Pumping at 20 G.P.M.
☐ Plunger ☐ Bailer ☐ Air ☐ Test Pump

11. WELL HEAD COMPLETION:
☒ Pitless Adapter ☐ 12" Above Grade
☐ Basement Offset ☐ Well House

12. WELL GROUTED? ☐ No ☒ Yes From 0 to 46 ft.
☐ Neat Cement ☒ Bentonite ☒ Other Pressure
No. of Bags 5 Additives Bensea1

13. NEAREST SOURCE OF POSSIBLE CONTAMINATION:
Type Sewer Distance 70 ft. Direction E
Type ____ Distance ____ ft. Direction ____

14. PUMP: ☐ Not Installed ☐ Pump Installation Only
Manufacturer's Name Red Jacket
Model Number 75CNW2-4M-FF 3/4 Volts 220
Length of Drop Pipe 38 ft. Capacity 18 G.P.M.
TYPE: ☒ Submersible ☐ Jet ☐ Other
PRESSURE TANK:
Manufacturer's Name Well-Rite
Model Number 250pc14A Capacity 100 Gallons 4

15. ABANDONED WELL PLUGGED? ☐ Yes ☐ No
Casing Diameter ____ in. Depth ____ ft.
PLUGGING MATERIAL: ☐ Neat Cement ☐ Bentonite Slurry ☐ Cement/Bentonite Slurry ☐ Concrete Grout ☐ Bentonite Chips
No. of Bags ____ Casing Removed? ☐ Yes ☐ No

16. REMARKS: (Elevation, Source of Data, etc.)

17. DRILLING MACHINE OPERATOR:
☒ Employee ☐ Subcontractor
Name James Lathrop

18. WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
Ken Lee Well Drilling 0654
REGISTERED BUSINESS NAME — REGISTRATION NO.
Address P.O. Box 342 Linden, MI 48451
Signed ____ AUTHORIZED REPRESENTATIVE Date 7-16-98

GEOLOGICAL SURVEY COPY

EQP 2017 (12/96)

TAX NO:

MICHIGAN DEPARTMENT OF PUBLIC HEALTH
WATER WELL AND PUMP RECORD

PERMIT NO:

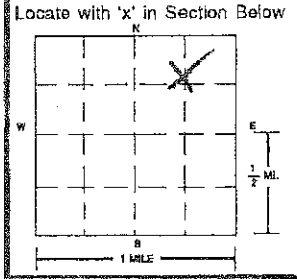
1. LOCATION OF WELL

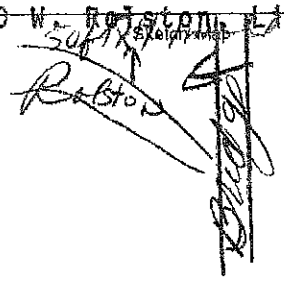
County	Township Name	Fraction	Section No.	Town No.	Range No.
Genesee	Fenton	ne 1/4 nw 1/4 se 1/4	19	5n	6e

Distance and Direction from Road Intersection
about ½ mile west of Bridge and about 50 feet north of Rolston

Street Address & City of Well Location 1560 W. Rolston, Linden

Locate with 'x' in Section Below





3. OWNER OF WELL
Address Tom Dutcher
1560 W. Rolston
Linden, MI 48451
Address Same as Well Location [X] Yes [ ] No

4. WELL DEPTH: 180 ft. | Date Completed 5/24/95 | [ ] New Well [X] Replacement Well

5. [ ] Cable Tool [X] Rotary [ ] Driven [ ] Dug [ ] Hollow Rod [ ] Auger/Bored [ ] Jetted [ ]

6. USE: [X] Household [ ] Type I Public [ ] Type III Public [ ] Irrigation [ ] Type IIa Public [ ] Heat Pump [ ] Test Well [ ] Type IIb Public [ ]

7. CASING: [ ] Steel [ ] Threaded [X] Plastic [ ] Welded [ ] Other
Diameter: 5 in. to 120 ft. depth; ___ in. to ___ ft. depth
Height: Above/Below Surface: ___ ft
Weight: 2.92 lbs./ft.
BORE HOLE: Diameter 7 7/8 in. to 120 ft. depth; ___ in. to ___ ft. depth
[ ] Drive Shoe [ ] Shale Packer

8. SCREEN: [X] Not Installed [ ] Gravel-Packed
Type ___ Diameter ___
Slot/Gauze ___ Length: ___
Set Between ___ ft. and ___ ft.
FITTINGS: [ ] K-Packer [ ] Bremer Check [ ] Blank Above Screen ___ ft. Other ___

9. STATIC WATER LEVEL: 30 ft. Below Land Surface [ ] Flowing

10. PUMPING LEVEL: Below Land Surface
100 ft. After 2 hrs. Pumping at 20 G.P.M.
[ ] Plunger [ ] Bailer [X] Air [X] Test Pump

11. WELL HEAD COMPLETION:
[X] Pitless Adapter [ ] 12" Above Grade [ ] Basement Offset [ ] Well House

12. WELL GROUTED? [ ] No [X] Yes From 0 to 120 ft.
[ ] Neat Cement [X] Bentonite [ ] Other
No. of Bags 6 Additives ezmud

13. NEAREST SOURCE OF POSSIBLE CONTAMINATION:
Type ___ Distance ___ ft. Direction ___
Type ___ Distance ___ ft. Direction ___

14. PUMP: [ ] Not Installed [ ] Pump Installation Only
Manufacturer's Name Sta-Rite
Model Number 10SP4C01T HP ½ Volts 115
Length of Drop Pipe 80 ft. Capacity 10 G.P.M.
TYPE: [X] Submersible [ ] Jet [ ] Other
PRESSURE TANK:
Manufacturer's Name Amtrol
Model Number WX203 Capacity 32 Gallons 8.6

2. FORMATION DESCRIPTION

FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Yellow Clay	12	12
Blue Clay	61	73
Sandy Clay	15	88
Sand	21	109
Sandy Clay	8	117
Sandstone	63	180

RECEIVED JUL 6 95 MICH. DEPT. OF PUBLIC HEALTH
BUREAU OF ENVIRONMENTAL AND OCCUPATIONAL HEALTH

USE A 2ND SHEET IF NEEDED

15. ABANDONED WELL PLUGGED? [ ] Yes [X] No Inaccessible
Casing Diameter ___ in. Depth ___ ft.
PLUGGING MATERIAL: [ ] Neat Cement [ ] Bentonite Slurry [ ] Cement/Bentonite Slurry [ ] Concrete Grout [ ] Bentonite Chips
No. of Bags ___ Casing Removed? [ ] Yes [ ] No

16. REMARKS: (Elevation, Source of Data, etc.)

17. DRILLING MACHINE OPERATOR:
[X] Employee [ ] Subcontractor
Name Gary SChomber

18. WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
REGISTERED BUSINESS NAME Gil Sunde Well drilling Inc REGISTRATION NO. 0169
Address 6-8035 Corunna Rd Flint, MI 48532
Signed ___ Date 7-6-95
AUTHORIZED REPRESENTATIVE

GW-2-228 9/93

GEOLOGICAL SURVEY COPY

Authority: Act 368 PA 1978
Completion: Required
Penalty: Conviction of a violation of any provision is a misdemeanor.

GEOLOGICAL SURVEY SAMPLE No. DEC 2 1974

3

19-6

WATER WELL RECORD

ACT 294 PA 1965

NE NW SW

MICHIGAN DEPARTMENT OF PUBLIC HEALTH

1 LOCATION OF WELL

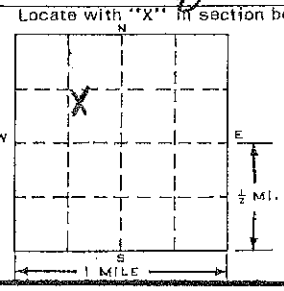
County	Township Name	Fraction	Section Number	Town Number	Range Number
Genesee	Fenton	[illegible]	19	5 N	6 E

Distance And Direction from Road Intersections: 14303 Hogan Rd. 4/10 MN of Silver Lake Rd.

Street address & City of Well Location

Locate with "X" in section below

Sketch Map:



3 OWNER OF WELL: Rider Custom Homes Flint

Address: G6422 Fenton Rd Mich

4 WELL DEPTH: (completed) 90 ft. Date of Completion 9-12-73

5 ☐ Cable tool ☒ Rotary ☐ Driven ☐ Dug ☒ Hollow rod ☐ Jetted ☐ Bored ☐

6 USE: ☒ Domestic ☐ Public Supply ☐ Industry ☐ Irrigation ☐ Air Conditioning ☐ Commercial ☐ Test Well ☐

7 CASING: Threaded ☒ Welded ☐ Diam. 2 in. to 83 ft. Depth ___ in. to ___ ft. Depth

Height: Above/Below Surface 1 ft. Weight 375 lbs./ft. Drive Shoe? Yes ☒ No ☐

8 SCREEN: Type: Johnson Dia.: 1¼" I.D. Gauze #60 Length 7 Ft. Set between 83 ft. and 90 ft. Fittings: 2 ft x 1¼ Standpipe Drop Check Valve Seal

9 STATIC WATER LEVEL 18 ft. below land surface

10 PUMPING LEVEL below land surface 40 ft. after 1 hrs. pumping 800 g.p.m. 4

— ft. after — hrs. pumping — g.p.m.

11 WATER QUALITY in Parts Per Million: Iron (Fe) — Chlorides (Cl) — Hardness — Other —

12 WELL HEAD COMPLETION: ☐ In Approved Pit ☐ Pitless Adapter ☐ 12" Above Grade

13 Well Grouted? ☒ Yes ☐ No JETTED MUD ☐ Neat Cement ☐ Bentonite ☐ Depth: From 1 ft. to 80 ft.

14 Nearest Source of possible contamination ___ feet ___ Direction ___ Type

Well disinfected upon completion ☒ Yes ☐ No

15 PUMP: ☒ Not Installed

Manufacturer's Name ___

Model Number ___ HP ___ Volts ___

Length of Drop Pipe ___ ft. capacity ___ G.P.M.

Type: ☐ Submersible ☐ Jet ☐ Reciprocating

2

FORMATION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
sand	25	25
soft clay	30	55
sand	26	81
Clay	2	83
sand	7	90

USE A 2ND SHEET IF NEEDED

16 Remarks, elevation, source of data, etc.

[illegible] BY DRILLER, ITEM NO. [illegible] BY CP [illegible] BY ELEVATION 9862' DEPTH TO ROCK

17 WATER WELL CONTRACTOR'S CERTIFICATION:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

HEMES WELL DRILLING 0345

REGISTERED BUSINESS NAME REGISTRATION NO.

Address 2278 Lincoln Manor DR.

Signed George Heme Date 9-12-73

AUTHORIZED REPRESENTATIVE

D67d 100M (Rev. 12-68)

GEOLOGICAL SURVEY COPY

GEOLOGICAL SURVEY SAMPLE No. [ ]

SEP - 8 1976

WATER WELL RECORD

ACT 294 PA 1965

MICHIGAN DEPARTMENT OF PUBLIC HEALTH

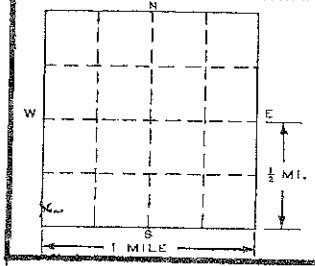
1 LOCATION OF WELL

County	Township Name	Fraction	Section Number	Town Number	Range Number
Gen See	Fenton	SW SE SW	19	T 5 N/S.	R 5 E/W.

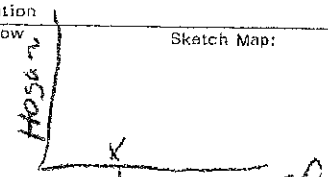
Distance And Direction from Road Intersections

Street address & City of Well Location

Locate with "X" in section below



Sketch Map:



3 OWNER OF WELL: Dr. Staples

Address: Silver Lk Rd.

4 WELL DEPTH: (completed) 44 ft. Date of Completion June 24-76

5 ☑ Cable tool ☐ Rotary ☐ Driven ☐ Dug ☐ Hollow rod ☐ Jetted ☐ Bored ☐ ____

6 USE: ☑ Domestic ☐ Public Supply ☐ Industry ☐ Irrigation ☐ Air Conditioning ☐ Commercial ☐ Test Well ☐ ____

7 CASING: Threaded ☐ Welded ☐ Diam. 4 in. to 40 ft. Depth; ____ in. to ____ ft. Depth. Height: Above/Below Surface ____ ft. Weight ____ lbs./ft. Drive Shoe? Yes ☐ No ☐

8 SCREEN: Type: Slot Dia.: 3" Slot/Gauze ____ Length ____ Set between 40 ft. and 45 ft. Fittings: K Baker

9 STATIC WATER LEVEL 25 ft. below land surface

10 PUMPING LEVEL below land surface 30 ft. after 1 hrs. pumping 20 g.p.m.; ____ ft. after ____ hrs. pumping ____ g.p.m.

11 WATER QUALITY in Parts Per Million: Iron (Fe) ____ Chlorides (Cl) ____ Hardness ____ Other ____

12 WELL HEAD COMPLETION: ☐ In Approved Pit ☑ Pitless Adapter ☐ 12" Above Grade

13 Well Grouted? ☐ Yes ☑ No ☐ Neat Cement ☐ Bentonite ☐ ____ Depth: From ____ ft. to ____ ft.

14 Nearest Source of possible contamination 50 feet W Direction Septic Type. Well disinfected upon completion ☑ Yes ☐ No

15 PUMP: ☑ Not installed. Manufacturer's Name ____ Model Number ____ HP ____ Volts ____ Length of Drop Pipe ____ ft. capacity ____ G.P.M. Type: ☐ Submersible ☐ Jet ☐ Reciprocating

2 FORMATION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Sand	20	20
clay	10	30
water bearing Sand	14	44

USE A 2ND SHEET IF NEEDED

16 Remarks, elevation, source of data, etc.

elev 1875'

17 WATER WELL CONTRACTOR'S CERTIFICATION:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Ken Lee Well Drilling — REGISTERED BUSINESS NAME — 0654 — REGISTRATION NO.

Address 412 W Bridge Linden

Signed [signature] — AUTHORIZED REPRESENTATIVE — Date June 29-76

D67d 100M (Rev. 12-68)

GEOLOGICAL SURVEY COPY

D6

TAX NO:

MICHIGAN DEPARTMENT OF PUBLIC HEALTH
WATER WELL AND PUMP RECORD

PERMIT NO:

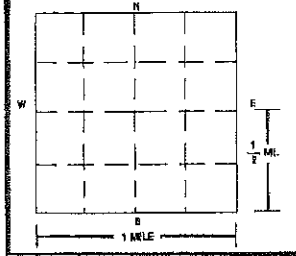
1. LOCATION OF WELL

County	Township Name	Fraction	Section No.	Town No.	Range No.
Genesee	Fenton	SW 1/4 NW 1/4 NW 1/4	19	5n	6e

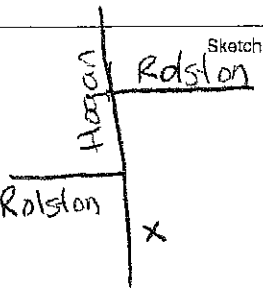
Distance and Direction from Road Intersection
500' S of Rolston Rd on E sdie of Hogan.

Street Address & City of Well Location

Locate with 'x' in Section Below



Sketch Map



3. OWNER OF WELL: Paul Turovich
Address: 14037 Hogan Rd
Linden, MI 48451

Address Same as Well Location ☒ Yes ☐ No

4. WELL DEPTH: 180 ft. | Date Completed: 1/22/96 | ☒ New Well ☐ Replacement Well

5. ☐ Cable Tool ☒ Rotary ☐ Driven ☐ Dug ☐ Hollow Rod ☐ Auger/Bored ☐ Jetted ☐ _____

6. USE: ☒ Household ☐ Type I Public ☐ Type III Public ☐ Irrigation ☐ Type IIa Public ☐ Heat Pump ☐ Test Well ☐ Type IIb Public ☐ _____

7. CASING: ☐ Steel ☐ Threaded ☒ Plastic ☐ Welded ☐ Other _____
Diameter: 5 in. to 133 ft. depth; _____ in. to _____ ft. depth
Height: Above/Below Surface: 1 ft
Weight SDR21 lbs./ft.
BORE HOLE: Diameter: 8½ in. to 133 ft. depth; 4½ in. to 180 ft. depth
☐ Drive Shoe ☐ Shale Packer

8. SCREEN: ☐ Not Installed ☐ Gravel-Packed
Type Rock Diameter 5"
Slot/Gauze _____ Length: _____
Set Between _____ ft. and _____ ft.
FITTINGS: ☐ K-Packer ☐ Bremer Check ☐ Blank Above Screen _____ ft. Other _____

9. STATIC WATER LEVEL: 20 ft. Below Land Surface ☐ Flowing

10. PUMPING LEVEL: Below Land Surface
180 ft. After 1 hrs. Pumping at 50 G.P.M.
☐ Plunger ☐ Bailer ☐ Air ☐ Test Pump

11. WELL HEAD COMPLETION:
☒ Pitless Adapter ☐ 12" Above Grade ☐ Basement Offset ☐ Well House

12. WELL GROUTED? ☐ No ☒ Yes From 0 to 120 ft.
☐ Neat Cement ☒ Bentonite ☒ Other pressure
No. of Bags 10 Additives benseal

13. NEAREST SOURCE OF POSSIBLE CONTAMINATION:
Type Septic Distance 60 ft. Direction W
Type _____ Distance _____ ft. Direction _____

14. PUMP: ☐ Not Installed ☐ Pump Installation Only
Manufacturer's Name Red Jacket
Model Number 50rtw1-mn9bhp ½ Volts 220
Length of Drop Pipe 123 ft. Capacity 10 G.P.M.
TYPE: ☒ Submersible ☐ Jet ☐ Other _____
PRESSURE TANK:
Manufacturer's Name Well-Rite
Model Number 202 pc-66 Capacity 20 Gallons 6.6

2. FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Sand	5	5
Clay	15	20
Gravel	15	35
Clay	65	100
Shale	25	125
Bedrock	55	180

USE A 2ND SHEET IF NEEDED

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Mich. Dept. of Public Health
FEB 22 1996
BUREAU OF ENVIRONMENTAL AND OCCUPATIONAL HEALTH-GWQS

15. ABANDONED WELL PLUGGED? ☐ Yes ☐ No
Casing Diameter _____ in. Depth _____ ft.
PLUGGING MATERIAL: ☐ Neat Cement ☐ Bentonite Slurry ☐ Cement/Bentonite Slurry ☐ Concrete Grout ☐ Bentonite Chips
No. of Bags _____ Casing Removed? ☐ Yes ☐ No

16. REMARKS: (Elevation, Source of Data, etc.)

17. DRILLING MACHINE OPERATOR:
☒ Employee ☐ Subcontractor
Name Percy Buck

15. WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Ken Lee Well Drilling — REGISTERED BUSINESS NAME
0654 — REGISTRATION NO.
Address P.O. Box 342 Linden, MI 48451
Signed _____ AUTHORIZED REPRESENTATIVE
Date 1-22-96

GW-2-228 9/93

GEOLOGICAL SURVEY COPY

Authority: Act 368 PA 1978
Completion: Required
Penalty: Conviction of a violation of any provision is a misdemeanor.

GEOLOGICAL SURVEY SAMPLE No. [ ]

JUL 2 8 1978

WATER WELL RECORD
ACT 294 PA 1965

MICHIGAN DEPARTMENT OF PUBLIC HEALTH

1 LOCATION OF WELL

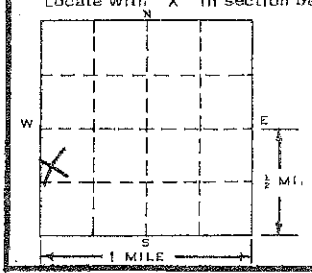
County	Township Name	Fraction	Section Number	Town Number	Range Number
Genesee	Fenton	E½ NW¼ SW¼	19	5 N	6 E

Distance And Direction from Road Intersections

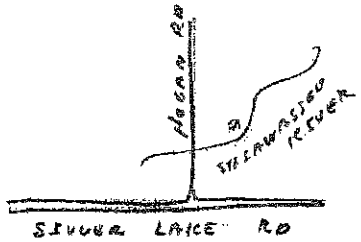
Hogan Rd.

Street address & City of Well Location

Locate with "X" in section below



Sketch Map:



3 OWNER OF WELL:

Address: Lutey Home Builders
15492 Lobdell Rd.
Linden, Michigan 48451

4 WELL DEPTH: (completed) 85 ft. Date of Completion Jan., 1978

5 [X] Cable tool [ ] Rotary [ ] Driven [ ] Dug [ ] Hollow rod [ ] Jetted [ ] Bored [ ]

6 USE: [X] Domestic [ ] Public Supply [ ] Industry [ ] Irrigation [ ] Air Conditioning [ ] Commercial [ ] Test Well [ ]

7 CASING: Threaded [ ] Welded [X] Height: Above Surface 1 ft.
Diam. 4 in. to 81 ft. Depth Weight 10.79 lbs./ft.
in. to ft. Depth Drive Shoe? Yes [X] No [ ]

2 FORMATION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Brown clay & sand	16'	16'
Blue clay & sand	07'	23'
Blue clay	12'	35'
Fine sand & clay	23'	58'
Fine sand	08'	66'
Blue clay	15'	81'
Water-bearing sand	04'	85'

USE A 2ND SHEET IF NEEDED

8 SCREEN:
Type: Stainless Dia.: 3 5/8"
Slot/Gauge 12 Length 4'
Set between 81 ft. and 85 ft.
Fittings: K-Packer - Nipple - Plug

9 STATIC WATER LEVEL
01 ft. below land surface

10 PUMPING LEVEL below land surface
16 ft. after 2 hrs. pumping 30 g.p.m.
ft. after hrs. pumping g.p.m.

11 WATER QUALITY in Parts Per Million:
Iron (Fe) Chlorides (Cl)
Hardness Other

12 WELL HEAD COMPLETION: [ ] In Approved Pit [X] Pitless Adapter [ ] 12" Above Grade

13 Well Grouted? [ ] Yes [X] No
[ ] Neat Cement [ ] Bentonite [ ]
Depth: From ft. to ft.

14 Nearest Source of possible contamination
50 feet E Direction Septic Type
Well disinfected upon completion [X] Yes [ ] No

15 PUMP: [ ] Not installed
Manufacturer's Name Sta-Rite
Model Number 20P4C02S HP ½ Volts 230
Length of Drop Pipe 21 ft. capacity 20 G.P.M.
Type: [X] Submersible [ ] Jet [ ] Reciprocating

16 Remarks, elevation, source of data, etc.

ADDED INFO BY DRILLER, ITEM NO.
*CORRECTED BY MSB
**ADDITION BY
ELEVATION
DEPTH TO ROCK

17 WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

James N. Layman — REGISTERED BUSINESS NAME
0645 — REGISTRATION NO.

Address 10275 Eagle Rd., Davisburg, Michigan

Signed James N Layman — AUTHORIZED REPRESENTATIVE
Date 1/23/79

D67d 100M (Rev. 12-68)

GEOLOGICAL SURVEY COPY

TAX NO:

MICHIGAN DEPARTMENT OF PUBLIC HEALTH
WATER WELL AND PUMP RECORD

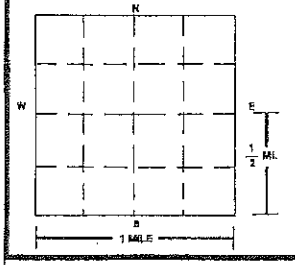
PERMIT NO:

1. LOCATION OF WELL

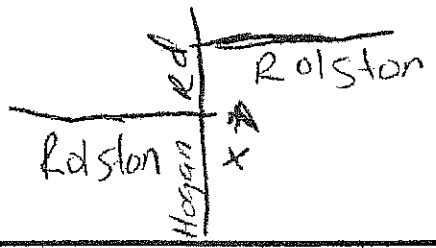
County	Township Name	Fraction	Section No.	Town No.	Range No.
Genesee	Fenton	SW 1/4 NW 1/4 NW 1/4	19	5n	6e

Distance and Direction from Road Intersection
1/16 mile S of Rolston Rd on E side of Hogan Rd.
Street Address & City of Well Location

Locate with 'x' in Section Below



Sketch Map



3. OWNER OF WELL
Address: Paul Turovich, 14051 Hogan Rd., Linden, MI 48451
Address Same as Well Location [X] Yes [ ] No

4. WELL DEPTH: 180 ft. | Date Completed 7/23/96 | [X] New Well [ ] Replacement Well

5. [ ] Cable Tool [X] Rotary [ ] Driven [ ] Dug
[ ] Hollow Rod [ ] Auger/Bored [ ] Jetted [ ]

6. USE: [X] Household [ ] Type I Public [ ] Type III Public
[ ] Irrigation [ ] Type IIa Public [ ] Heat Pump
[ ] Test Well [ ] Type IIb Public [ ]

7. CASING: [ ] Steel [ ] Threaded [X] Plastic [ ] Welded [X] Other
Diameter: 5 in. to 130 ft. depth; ___ in. to ___ ft. depth
Height: Above/Below Surface: 1 ft
Weight: SDR21 lbs./ft.
BORE HOLE: Diameter: 8½ in. to 130 ft. depth; 4½ in. to 180 ft. depth
[ ] Drive Shoe [ ] Shale Packer

2. FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Sand	10	10
Clay	50	60
Clay and gravel	25	85
Clay	35	120
Bedrock	60	180

RECEIVED
Mich. Dept. of Public Health
NOV 27 1996
BUREAU OF ENVIRONMENTAL AND OCCUPATIONAL HEALTH

USE A 2ND SHEET IF NEEDED

8. SCREEN: [ ] Not Installed [ ] Gravel-Packed
Type: rock Diameter: 5"
Slot/Gauze: ___ Length: ___
Set Between ___ ft. and ___ ft.
FITTINGS: [ ] K-Packer [ ] Bremer Check
[ ] Blank Above Screen ___ ft. Other ___

9. STATIC WATER LEVEL: 30 ft. Below Land Surface [ ] Flowing

10. PUMPING LEVEL: Below Land Surface
180 ft. After 1 hrs. Pumping at 45 G.P.M.
[ ] Plunger [ ] Bailer [ ] Air [ ] Test Pump

11. WELL HEAD COMPLETION:
[X] Pitless Adapter [ ] 12" Above Grade
[ ] Basement Offset [ ] Well House

12. WELL GROUTED? [ ] No [X] Yes From 0 to 125 ft.
[ ] Neat Cement [X] Bentonite [X] Other pressure
No. of Bags 9 Additives benseal

13. NEAREST SOURCE OF POSSIBLE CONTAMINATION:
Type Septic Distance 60 ft. Direction S
Type ___ Distance ___ ft. Direction ___

14. PUMP: [ ] Not Installed [ ] Pump Installation Only
Manufacturer's Name: Red Jacket
Model Number: 50rtwl-mn9bd HP ½ Volts 220
Length of Drop Pipe 120 ft. Capacity 10 G.P.M.
TYPE: [X] Submersible [ ] Jet [ ] Other ___
PRESSURE TANK:
Manufacturer's Name: Well-Rite
Model Number 202 pc-66 Capacity 20 Gallons 6.6

15. ABANDONED WELL PLUGGED? [ ] Yes [ ] No
Casing Diameter ___ in. Depth ___ ft.
PLUGGING MATERIAL: [ ] Neat Cement [ ] Bentonite Slurry
[ ] Cement/Bentonite Slurry [ ] Concrete Grout [ ] Bentonite Chips
No. of Bags ___ Casing Removed? [ ] Yes [ ] No

16. REMARKS: (Elevation, Source of Data, etc.)

15. WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Ken Lee Well Drilling (REGISTERED BUSINESS NAME) 0654 (REGISTRATION NO.)
Address P.O. Box 342 Linden, MI 48451
Signed ___ (AUTHORIZED REPRESENTATIVE) Date 7-25-96

17. DRILLING MACHINE OPERATOR:
[X] Employee [ ] Subcontractor
Name Percy Buck

GW-2-228 9/93

GEOLOGICAL SURVEY COPY

Authority: Act 368 PA 1978
Completion: Required
Penalty: Conviction of a violation of any provision is a misdemeanor.

TAX NO:

MICHIGAN DEPARTMENT OF PUBLIC HEALTH
WATER WELL AND PUMP RECORD

PERMIT NO:

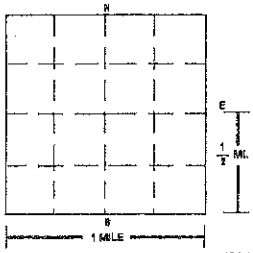
1. LOCATION OF WELL

County	Township Name	Fraction	Section No.	Town No.	Range No.
Genesee	Fenton	ne 1/4 se 1/4 nw 1/4	19	5n	6e

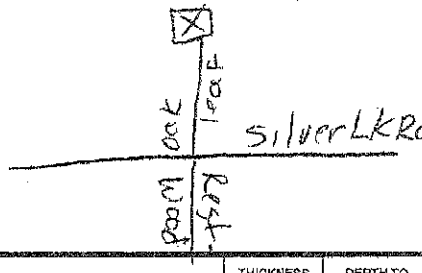
Distance and Direction from Road Intersection: 1/8 mile N of Silver Lk Rd on N side of Oakleaf.

Street Address & City of Well Location

Locate with 'x' in Section Below



Sketch Map



3. OWNER OF WELL: Ron Harrold
Address: 6372 Oakleaf, Linean, MI 48451

Address Same as Well Location ☒ Yes ☐ No

4. WELL DEPTH: 55 ft. Date Completed: 12 / 9 / 96 ☒ New Well ☐ Replacement Well

5. ☐ Cable Tool ☒ Rotary ☐ Driven ☐ Dug ☐ Hollow Rod ☐ Auger/Bored ☐ Jetted ☐ _____

6. USE: ☒ Household ☐ Type I Public ☐ Type III Public ☐ Irrigation ☐ Type IIa Public ☐ Heat Pump ☐ Test Well ☐ Type IIb Public ☐ _____

7. CASING: ☐ Steel ☐ Threaded ☒ Plastic ☐ Welded ☐ Other _____
Diameter: 5 in. to 50 ft. depth; _____ in. to _____ ft. depth
Height: Above/Below Surface: 1 ft
Weight: SDR21 lbs/ft.
BORE HOLE: Diameter: 8½ in. to 55 ft. depth; _____ in. to _____ ft. depth
☐ Drive Shoe ☐ Shale Packer

2. FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Gravel	10	10
Clay and sand	10	20
Clay	25	45
Sand	10	55

USE A 2ND SHEET IF NEEDED

RECEIVED
Mich. Dept. of Public Health
JAN 13 1997
Geological Survey Division

8. SCREEN: ☐ Not Installed ☐ Gravel-Packed
Type PVC Diameter 5"
Slot/Gauze 20 Length: 5'
Set Between 50 ft. and 55 ft.
FITTINGS: ☐ K-Packer ☐ Bremer Check ☐ Blank Above Screen _____ ft. Other _____

9. STATIC WATER LEVEL: 15 ft. Below Land Surface ☐ Flowing

10. PUMPING LEVEL: Below Land Surface
45 ft. After 1 hrs. Pumping at 30 G.P.M.
☐ Plunger ☐ Bailer ☐ Air ☐ Test Pump

11. WELL HEAD COMPLETION:
☒ Pitless Adapter ☐ 12" Above Grade ☐ Basement Offset ☐ Well House

12. WELL GROUTED? ☐ No ☒ Yes From 0 to _____ ft.
☐ Neat Cement ☒ Bentonite ☒ Other pressure
No. of Bags 5 Additives benseal

13. NEAREST SOURCE OF POSSIBLE CONTAMINATION:
Type Sewer Distance 50 ft. Direction S
Type _____ Distance _____ ft. Direction _____

14. PUMP: ☐ Not Installed ☐ Pump Installation Only
Manufacturer's Name Red Jacket
Model Number 75cnw1-cn6cd HP 3/4 Volts 220
Length of Drop Pipe 32 ft. Capacity 18 G.P.M.
TYPE: ☒ Submersible ☐ Jet ☐ Other _____
PRESSURE TANK:
Manufacturer's Name Well-Rite
Model Number wr-140-01 Capacity 100 Gallons 14

15. ABANDONED WELL PLUGGED? ☐ Yes ☐ No
Casing Diameter _____ in. Depth _____ ft.
PLUGGING MATERIAL: ☐ Neat Cement ☐ Bentonite Slurry ☐ Cement/Bentonite Slurry ☐ Concrete Grout ☐ Bentonite Chips
No. of Bags _____ Casing Removed? ☐ Yes ☐ No

16. REMARKS: (Elevation, Source of Data, etc.)

17. DRILLING MACHINE OPERATOR:
☒ Employee ☐ Subcontractor
Name Percy Buck

15. WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Ken Lee Well drilling (REGISTERED BUSINESS NAME) 0554 (REGISTRATION NO.)
Address P.O. Box 342 Linden, MI 48451
Signed _____ (AUTHORIZED REPRESENTATIVE) Date 12-12-96

GW-2-225 9/93

GEOLOGICAL SURVEY COPY

Authority: Act 368 PA 1978
Completion: Required
Penalty: Conviction of a violation of any provision is a misdemeanor.

DEQ MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
DRINKING WATER & RADIOLOGICAL PROTECTION DIVISION

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978
Failure to comply is a misdemeanor

TAX NO:

PERMIT NO:

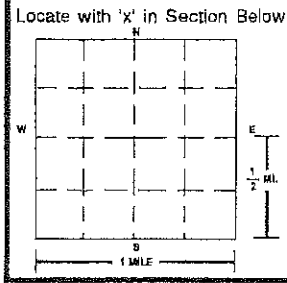
1. LOCATION OF WELL

County	Township Name	Fraction	Section No.	Town No.	Range No.
Genesee	Fenton	SE 1/4 NW 1/4 SW 1/4	19	5N	6E

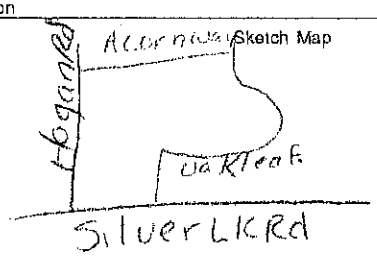
Distance and Direction from Road Intersection: 1/8 mile E of Hogan Rd on S side of Acorn Way.

Street Address & City of Well Location

Locate with 'x' in Section Below



Sketch Map



3. OWNER OF WELL
Address: Ron Harrold, 6362 Acorn Way, Linden, MI 48451
Address Same as Well Location ☒ Yes ☐ No

4. WELL DEPTH: 180 ft. Date Completed 8/16/98 ☒ New Well ☐ Replacement Well

5. ☐ Cable Tool ☒ Rotary ☐ Driven ☐ Dug ☐ Hollow Rod ☐ Auger/Bored ☐ Jetted ☐ ____

6. USE: ☒ Household ☐ Type I Public ☐ Type III Public ☐ Irrigation ☐ Type IIa Public ☐ Heat Pump ☐ Test Well ☐ Type IIb Public ☐ ____

7. CASING: ☐ Steel ☐ Threaded ☒ Plastic ☐ Welded ☐ Other ____
Diameter: 5 in. to 130 ft. depth; ____ in. to ____ ft. depth
BORE HOLE: Diameter: 8 1/2 in. to 130 ft. depth; 4 1/2 in. to 180 ft. depth
Height: Above/Below Surface: 1 ft
Weight: Sdez1 lbs./ft.
☐ Drive Shoe ☐ Shale Packer

2. FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Sand	50	50
Clay	25	75
Clay and sand	25	100
Gravel	25	125
Sandstone	55	180

USE A 2ND SHEET IF NEEDED

8. SCREEN: ☐ Not Installed ☐ Gravel-Packed
Type: Rock Diameter: 5"
Slot/Gauze: ____ Length: ____
Set Between ____ ft. and ____ ft.
FITTINGS: ☐ K-Packer ☐ Bremer Check
☐ Blank Above Screen ____ ft. Other ____

9. STATIC WATER LEVEL: 40 ft. Below Land Surface ☐ Flowing

10. PUMPING LEVEL: Below Land Surface 100 ft. After 1 hrs. Pumping at 40 G.P.M.
☐ Plunger ☐ Bailer ☐ Air ☐ Test Pump

11. WELL HEAD COMPLETION:
☒ Pitless Adapter ☐ 12" Above Grade
☐ Basement Offset ☐ Well House

12. WELL GROUTED? ☐ No ☒ Yes From 0 to 125 ft.
☐ Neat Cement ☒ Bentonite ☒ Other Pressure
No. of Bags 7 Additives Benseal

13. NEAREST SOURCE OF POSSIBLE CONTAMINATION:
Type Sewer Distance 60 ft. Direction S
Type ____ Distance ____ ft. Direction ____

14. PUMP: ☐ Not Installed ☐ Pump Installation Only
Manufacturer's Name Red Jacket
Model Number 50PHW1-MMAX HP 1/2 Volts 220
Length of Drop Pipe 120 ft. Capacity 10 G.P.M.
TYPE: ☒ Submersible ☐ Jet ☐ Other ____
PRESSURE TANK:
Manufacturer's Name Well-Rite
Model Number PC122 203 Capacity 60 Gallons 12.2

15. ABANDONED WELL PLUGGED? ☐ Yes ☐ No
Casing Diameter ____ in. Depth ____ ft.
PLUGGING MATERIAL: ☐ Neat Cement ☐ Bentonite Slurry ☐ Cement/Bentonite Slurry ☐ Concrete Grout ☐ Bentonite Chips
No. of Bags ____ Casing Removed? ☐ Yes ☐ No

16. REMARKS: (Elevation, Source of Data, etc.)

17. DRILLING MACHINE OPERATOR:
☒ Employee ☐ Subcontractor
Name James Luthcap

18. WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
Ken Lee Well Drilling 0654
REGISTERED BUSINESS NAME REGISTRATION NO.
Address P.O. Box 342 Linden MI 48451
Signed [signature] Date 8-24-98
AUTHORIZED REPRESENTATIVE

GEOLOGICAL SURVEY COPY

EQP 2017 (12/96)

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
DRINKING WATER & RADIOLOGICAL PROTECTION DIVISION

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978
Failure to comply is a misdemeanor

TAX NO:

PERMIT NO: 01562

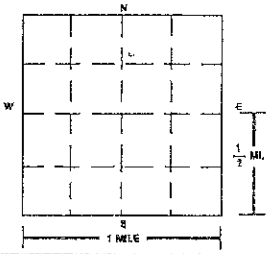
1. LOCATION OF WELL

County	Township Name	Fraction	Section No.	Town No.	Range No.
GENESEE	FENTON	SE 1/4 1/4 1/4	19	T5N	R6E

Distance and Direction from Road Intersection
50yds. WEST OF RIVER OAKS ON THE SOUTH SIDE OF OAK LEAF TR.

Street Address & City of Well Location

Locate with 'x' in Section Below — Sketch Map



3. OWNER OF WELL
Address: HAROLD DEVELOPMENT
6354 OAK LEAF TR.
LINDEN MI 48451
Address Same as Well Location ☒ Yes ☐ No

4. WELL DEPTH: 67 ft. — Date Completed: 0903 99 — ☒ New Well ☐ Replacement Well

5. ☐ Cable Tool ☒ Rotary ☐ Driven ☐ Dug ☐ Hollow Rod ☐ Auger/Bored ☐ Jetted ☐ ____

6. USE: ☐ Household ☐ Type I Public ☐ Type III Public ☒ Irrigation ☐ Type IIa Public ☐ Heat Pump ☐ Test Well ☐ Type IIb Public ☐ ____

7. CASING: ☐ Steel ☐ Threaded ☐ Plastic ☐ Welded ☒ Other ____
Diameter: 5 in. to 57 ft. depth; ____ in. to ____ ft. depth
Height: Above/Below Surface: 1 ft
Weight: SDR21 lbs./ft.
BORE HOLE: Diameter: ____ in. to ____ ft. depth; ____ in. to ____ ft. depth
☐ Drive Shoe ☐ Shale Packer

8. SCREEN: ☐ Not Installed ☒ Gravel-Packed
Type PLASTIC Diameter 5
Slot/Gauze 12 SLOT Length: 10
Set Between 57 ft. and 67 ft.
FITTINGS: ☐ K-Packer ☐ Bremer Check ☐ Blank Above Screen ____ ft. Other ____

9. STATIC WATER LEVEL: 25 ft. Below Land Surface ☐ Flowing

10. PUMPING LEVEL: Below Land Surface
65 ft. After 1 hrs. Pumping at 50 G.P.M.
☐ Plunger ☐ Bailer ☐ Air ☒ Test Pump

11. WELL HEAD COMPLETION:
☒ Pitless Adapter ☐ 12" Above Grade ☐ Basement Offset ☐ Well House

12. WELL GROUTED? ☐ No ☒ Yes From 0 to 57 ft.
☐ Neat Cement ☐ Bentonite ☐ Other ____
No. of Bags 5 Additives ____

13. NEAREST SOURCE OF POSSIBLE CONTAMINATION:
Type ____ Distance ____ ft. Direction ____
Type SEWER Distance 60 ft. Direction S

2. FORMATION DESCRIPTION

FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
SAND/GRAVEL	20	20
CLAY	20	40
GRAVEL	27	67

USE A 2ND SHEET IF NEEDED

RECEIVED
MICH DEPT OF ENVIRONMENTAL QUALITY
NOV 30 1999

14. PUMP: ☐ Not Installed ☒ Pump Installation Only
Manufacturer's Name ____
Model Number RED JACKET HP 1 Volts 220
Length of Drop Pipe 40 ft. Capacity 10 G.P.M.
TYPE: ☒ Submersible ☐ Jet ☐ Other ____
PRESSURE TANK:
Manufacturer's Name CHALLENGER
Model Number PC122 Capacity ____ Gallons ____

15. ABANDONED WELL PLUGGED? ☐ Yes ☐ No
Casing Diameter ____ in. Depth ____ ft.
PLUGGING MATERIAL: ☐ Neat Cement ☐ Bentonite Slurry ☐ Cement/Bentonite Slurry ☐ Concrete Grout ☐ Bentonite Chips
No. of Bags ____ Casing Removed? ☐ Yes ☐ No

Drinking Water & Radiological Protection Division
WELL CONSTRUCTION UNIT

16. REMARKS: (Elevation, Source of Data, etc.)

17. DRILLING MACHINE OPERATOR:
☐ Employee ☒ Subcontractor
Name JAMES LATHROP

18. WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
KEN LEE WELL DRILLING (REGISTERED BUSINESS NAME) 0654 (REGISTRATION NO.)
Address PO BOX 342 LINDEN MI 48451
Signed ____ (AUTHORIZED REPRESENTATIVE) Date 9-27-99

GEOLOGICAL SURVEY COPY

EQP 2017 (12/96)

DEQ MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
DRINKING WATER & RADIOLOGICAL PROTECTION DIVISION

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978
Failure to comply is a misdemeanor

TAX NO:

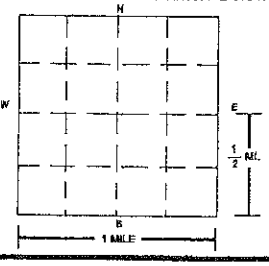
PERMIT NO: 01561

1. LOCATION OF WELL

County	Township Name	Fraction	Section No.	Town No.	Range No.
GENESEE	FENTON	SE 1/4 1/4 1/4	19	T5N	R6E

Distance and Direction from Road Intersection
300ft NORTH OF SILVER LAKE RD.
ON THE NORTH SIDE OF ACORN WAT
Street Address' & City of Well Location

Locate with 'x' in Section Below — Sketch Map



3. OWNER OF WELL
Address: HAROLD DEVELOPMENT
6409 ACORN WAY
LINDEN MI 48451
Address Same as Well Location ☐ Yes ☐ No

4. WELL DEPTH: 68 ft. | Date Completed: 09 15 99 | ☐ New Well ☒ Replacement Well

5. ☐ Cable Tool ☒ Rotary ☐ Driven ☐ Dug ☐ Hollow Rod ☒ Auger/Bored ☐ Jetted ☐ ____

6. USE: ☒ Household ☐ Type I Public ☐ Type III Public ☐ Irrigation ☐ Type IIa Public ☐ Heat Pump ☐ Test Well ☐ Type IIb Public ☐ ____

7. CASING: ☐ Steel ☐ Threaded ☐ Plastic ☐ Welded ☒ Other ____
Diameter: 5 in. to 55 ft. depth
____ in. to ____ ft. depth
Height: Above/Below Surface: 1 ft
Weight: SDR21 lbs./ft.
BORE HOLE:
Diameter: 8.5b in. to 68 ft. depth
____ in. to ____ ft. depth
☐ Drive Shoe ☐ Shale Packer

8. SCREEN: ☐ Not Installed ☒ Gravel-Packed
Type: PLASTIC Diameter: 5
Slot/Gauze: 12 SLOT Length: 18
Set Between: 55 ft. and 68 ft.
FITTINGS: ☐ K-Packer ☐ Bremer Check ☐ Blank Above Screen ____ ft. Other ____

9. STATIC WATER LEVEL:
35 ft. Below Land Surface ☐ Flowing

10. PUMPING LEVEL: Below Land Surface
60 ft. After 1 hrs. Pumping at 60 G.P.M.
☐ Plunger ☐ Bailer ☐ Air ☐ Test Pump

11. WELL HEAD COMPLETION:
☐ Pitless Adapter ☐ 12" Above Grade
☒ Basement Offset ☐ Well House

12. WELL GROUTED? ☐ No ☒ Yes From 0 to 58 ft.
☐ Neat Cement ☐ Bentonite ☐ Other ____
No. of Bags 4 Additives ____

13. NEAREST SOURCE OF POSSIBLE CONTAMINATION:
Type SEWER Distance 50 ft. Direction N
Type ____ Distance ____ ft. Direction ____

2. FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
CLAY	25	25
SAND/CLAY	20	45
CLAY	8	53
SAND	15	68

RECEIVED
MICH DEPT OF ENVIRONMENTAL QUALITY
USE A 2ND SHEET IF NEEDED

14. PUMP: ☐ Not Installed ☐ Pump Installation Only
Manufacturer's Name: RED JACKET
Model Number ____ HP 1/2 Volts 220
Length of Drop Pipe 55 ft. Capacity 10 G.P.M.
TYPE: ☒ Submersible ☐ Jet ☐ Other ____
PRESSURE TANK:
Manufacturer's Name: CHALLENGER
Model Number PC 122 Capacity ____ Gallons ____

15. ABANDONED WELL PLUGGED? ☐ Yes ☐ No
Casing Diameter ____ in. Depth ____ ft.
PLUGGING MATERIAL:
☐ Cement/Bentonite Slurry ☐ Neat Cement ☐ Bentonite Slurry
☐ Concrete Grout ☐ Bentonite Chips
No. of Bags ____ Casing Removed? ☐ Yes ☐ No

NOV 30 1999
Drinking Water & Radiological Protection Division
Drinking Water Supply Section
WELL CONSTRUCTION UNIT

16. REMARKS: (Elevation, Source of Data, etc.)

17. DRILLING MACHINE OPERATOR:
☐ Employee ☐ Subcontractor
Name JAMES LATHROP

18. WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
KEN LEE WELL DRILLING (REGISTERED BUSINESS NAME) 0654 (REGISTRATION NO.)
Address PO BOX 342 LINDEN MI 48451
Signed ____ (AUTHORIZED REPRESENTATIVE) Date 9-27-99

GEOLOGICAL SURVEY COPY

EQP 2017 (12/96)

DEQ MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
DRINKING WATER & RADIOLOGICAL PROTECTION DIVISION

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978
Failure to comply is a misdemeanor

TAX NO:

PERMIT NO:

1. LOCATION OF WELL

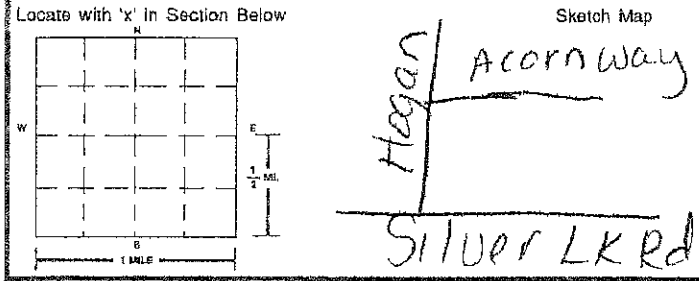
County	Township Name	Fraction	Section No.	Town No.	Range No.
Genesee	Fenton	SE 1/4 SW 1/4 NW 1/4	19	5N	6E

Distance and Direction from Road Intersection

Street Address & City of Well Location

Locate with 'x' in Section Below

Sketch Map



3. OWNER OF WELL
Address: Ron Harrold, 6390 Acorn Way, Linden, MI 48451
Address Same as Well Location ☒ Yes ☐ No

4. WELL DEPTH: 210 ft. Date Completed 2/6/99 ☒ New Well ☐ Replacement Well

5. ☐ Cable Tool ☒ Rotary ☐ Driven ☐ Dug ☐ Hollow Rod ☐ Auger/Bored ☐ Jetted ☐

6. USE: ☒ Household ☐ Type I Public ☐ Type III Public ☐ Irrigation ☐ Type IIa Public ☐ Heat Pump ☐ Test Well ☐ Type IIb Public ☐

7. CASING: ☐ Steel ☐ Threaded ☒ Plastic ☐ Welded ☐ Other
Diameter: 5 in. to 160 ft. depth; in. to ft. depth
BORE HOLE: Diameter: 8 1/2 in. to 160 ft. depth; 4 1/2 in. to 210 ft. depth
Height: Above/Below Surface: 1 ft
Weight: SDR21 lbs./ft.
☐ Drive Shoe ☐ Shale Packer

2. FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Gravel and clay	20	20
Clay	75	95
Clay and Sand	10	105
Gravel and Clay	35	140
Rock	70	210
USE A 2ND SHEET IF NEEDED		

8. SCREEN: ☐ Not Installed ☐ Gravel-Packed
Type: Rock Diameter: 5"
Slot/Gauze: Length:
Set Between ft. and ft.
FITTINGS: ☐ K-Packer ☐ Bremer Check
☐ Blank Above Screen ft. Other

9. STATIC WATER LEVEL: 70 ft. Below Land Surface ☐ Flowing

10. PUMPING LEVEL: Below Land Surface 100 ft. After 1 hrs. Pumping at 30 G.P.M.
☐ Plunger ☐ Bailer ☐ Air ☐ Test Pump

11. WELL HEAD COMPLETION:
☒ Pitless Adapter ☐ 12" Above Grade ☐ Basement Offset ☐ Well House

12. WELL GROUTED? ☐ No ☒ Yes From 0 to 150 ft.
☐ Neat Cement ☒ Bentonite ☒ Other Pressure
No. of Bags 8 Additives Benseal

13. NEAREST SOURCE OF POSSIBLE CONTAMINATION:
Type Sewer Distance 20 ft. Direction W
Type Distance ft. Direction

14. PUMP: ☐ Not Installed ☐ Pump Installation Only
Manufacturer's Name Red Jacket
Model Number SGRT W1 MN9BG HP 1/2 Volts 220
Length of Drop Pipe 150 ft. Capacity 10 G.P.M.
TYPE: ☒ Submersible ☐ Jet ☐ Other
PRESSURE TANK:
Manufacturer's Name Well-Rite
Model Number PC122 Capacity Gallons 80

15. ABANDONED WELL PLUGGED? ☐ Yes ☐ No
Casing Diameter in. Depth ft.
PLUGGING MATERIAL: ☐ Neat Cement ☐ Bentonite Slurry ☐ Cement/Bentonite Slurry ☐ Concrete Grout ☐ Bentonite Chips
No. of Bags Casing Removed? ☐ Yes ☐ No

16. REMARKS: (Elevation, Source of Data, etc.)

17. DRILLING MACHINE OPERATOR:
☒ Employee ☐ Subcontractor
Name James Lathrop

18. WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
Ken Lee Well Drilling 0654
REGISTERED BUSINESS NAME REGISTRATION NO.
Address P.O. Box 342 Linden, MI 48451
Signed [signature] Date 2-8-99
AUTHORIZED REPRESENTATIVE

GEOLOGICAL SURVEY COPY

EQP 2017 (12/96)

DEQ MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
DRINKING WATER & RADIOLOGICAL PROTECTION DIVISION

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978
Failure to comply is a misdemeanor

TAX NO:

PERMIT NO:

1. LOCATION OF WELL

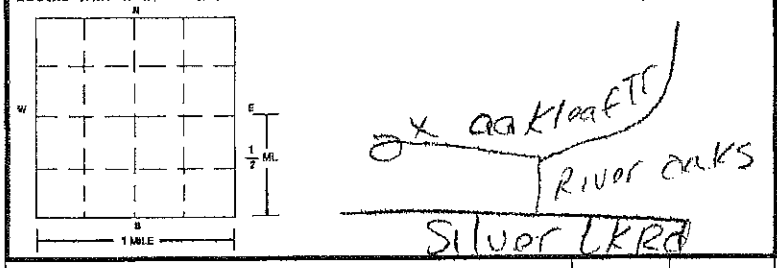
County	Township Name	Fraction	Section No.	Town No.	Range No.
Genesee	Fenton	SW 1/4 SE 1/4 SW 1/4	19	5N	6E

Distance and Direction from Road Intersection: yards W of River Oaks on N side of Oakleaf tr.

Street Address & City of Well Location

Locate with 'x' in Section Below

Sketch Map



3. OWNER OF WELL
Address: Ron Harrold, 6404 Oakleaf Tr, Linden, MI 48451
Address Same as Well Location: ☒ Yes ☐ No

4. WELL DEPTH: 61 ft. Date Completed: 3/16/99 ☒ New Well ☐ Replacement Well

5. ☐ Cable Tool ☒ Rotary ☐ Driven ☐ Dug ☐ Hollow Rod ☐ Auger/Bored ☐ Jetted ☐ ____

6. USE: ☒ Household ☐ Type I Public ☐ Type III Public ☐ Irrigation ☐ Type IIa Public ☐ Heat Pump ☐ Test Well ☐ Type IIb Public ☐ ____

7. CASING: ☐ Steel ☐ Threaded ☒ Plastic ☐ Welded ☐ Other ____
Diameter: 5 in. to 57 ft. depth; ____ in. to ____ ft. depth
BORE HOLE: Diameter: 8 1/2 in. to 61 ft. depth; ____ in. to ____ ft. depth
Height: Above/Below Surface: 1 ft
Weight: SDR21 lbs./ft.
☐ Drive Shoe ☐ Shale Packer

8. SCREEN: ☐ Not Installed ☐ Gravel-Packed
Type: Grey Plastic Diameter: 4"
Slot/Gauze: 12 Length: 4'
Set Between 57 ft. and 61 ft.
FITTINGS: ☐ K-Packer ☐ Bremer Check
☐ Blank Above Screen ____ ft. Other ____

9. STATIC WATER LEVEL: 35 ft. Below Land Surface ☐ Flowing

10. PUMPING LEVEL: Below Land Surface 60 ft. After 1 hrs. Pumping at 50 G.P.M.
☐ Plunger ☐ Bailer ☐ Air ☐ Test Pump

11. WELL HEAD COMPLETION:
☒ Pitless Adapter ☐ 12" Above Grade ☐ Basement Offset ☐ Well House

12. WELL GROUTED? ☐ No ☒ Yes From 0 to 47 ft.
☐ Neat Cement ☒ Bentonite ☒ Other Pressure
No. of Bags 5 Additives Benseal

13. NEAREST SOURCE OF POSSIBLE CONTAMINATION:
Type Sewer Distance 40 ft. Direction S
Type ____ Distance ____ ft. Direction ____

14. PUMP: ☐ Not Installed ☐ Pump Installation Only
Manufacturer's Name Red Jacket
Model Number 50RT W1-MAN HP 1/2 Volts 220
Length of Drop Pipe 47 ft. Capacity 10 G.P.M.
TYPE: ☒ Submersible ☐ Jet ☐ Other ____
PRESSURE TANK:
Manufacturer's Name Well-Rite
Model Number PC122203 Capacity 60 Gallons 12.2

2. FORMATION DESCRIPTION

	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Clay and Sand	30	30
Gravel	20	50
Clay	5	55
Sand	10	65

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Drinking Water & Radiological Protection Division
Ground Water Supply Section
WELL CONSTRUCTION UNIT

USE A 2ND SHEET IF NEEDED

15. ABANDONED WELL PLUGGED? ☐ Yes ☐ No
Casing Diameter ____ in. Depth ____ ft.
PLUGGING MATERIAL: ☐ Neat Cement ☐ Bentonite Slurry ☐ Cement/Bentonite Slurry ☐ Concrete Grout ☐ Bentonite Chips
No. of Bags ____ Casing Removed? ☐ Yes ☐ No

16. REMARKS: (Elevation, Source of Data, etc.)

17. DRILLING MACHINE OPERATOR:
☒ Employee ☐ Subcontractor
Name James Lathrop

18. WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
Ken Lee Well Drilling 0654
REGISTERED BUSINESS NAME REGISTRATION NO.
Address P.O. Box 342 Linden, MI 48451
Signed [signature] AUTHORIZED REPRESENTATIVE Date 3-18-99

EQP 2017 (12/96)

GEOLOGICAL SURVEY COPY

DEQ MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
DRINKING WATER & RADIOLOGICAL PROTECTION DIVISION

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978
Failure to comply is a misdemeanor

TAX NO:

PERMIT NO:

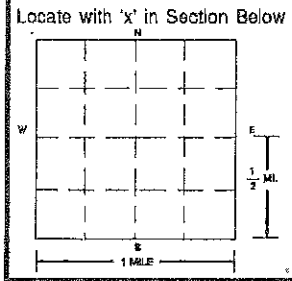
1. LOCATION OF WELL

County	Township Name	Fraction	Section No.	Town No.	Range No.
Genesee	Fenton	SW 1/4 SE 1/4 SW 1/4	19	5N	6E

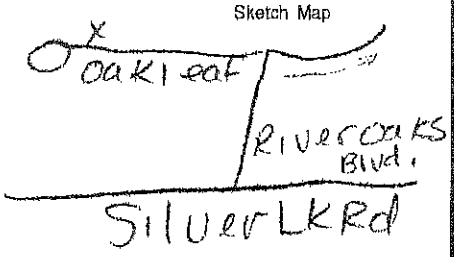
Distance and Direction from Road Intersection: 100 yards W of River oaks on N side of oakleaf Tr.

Street Address & City of Well Location

Locate with 'x' in Section Below



Sketch Map



3. OWNER OF WELL
Address: Ron Harrold, 6392 Oakleaf Tr, Linden, MI 48451
Address Same as Well Location [X] Yes [ ] No

4. WELL DEPTH: 67 ft. Date Completed: 3/15/99 [X] New Well [ ] Replacement Well

5. [ ] Cable Tool [X] Rotary [ ] Driven [ ] Dug [ ] Hollow Rod [ ] Auger/Bored [ ] Jetted [ ] ____

6. USE: [X] Household [ ] Type I Public [ ] Type III Public [ ] Irrigation [ ] Type IIa Public [ ] Heat Pump [ ] Test Well [ ] Type IIb Public [ ] ____

7. CASING: [ ] Steel [ ] Threaded [X] Plastic [ ] Welded [ ] Other ____
Diameter: 5 in. to 63 ft. depth; ____ in. to ____ ft. depth
BORE HOLE: Diameter: 8 1/2 in. to 67 ft. depth; ____ in. to ____ ft. depth
Height: Above/Below Surface: 1 ft
Weight: SDR21 lbs./ft.
[ ] Drive Shoe [ ] Shale Packer

2. FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Sand and gravel	25	25
Sand and Clay	30	55
Sand	12	67

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Ground Water Supply Section
WELL CONSTRUCTION UNIT

USE A 2ND SHEET IF NEEDED

8. SCREEN: [ ] Not Installed [ ] Gravel-Packed
Type: S.S. Diameter: 4"
Slot/Gauze: 10 Length: 4'
Set Between 63 ft. and 67 ft.
FITTINGS: [ ] K-Packer [ ] Bremer Check
[ ] Blank Above Screen ____ ft. Other ____

9. STATIC WATER LEVEL: 35 ft. Below Land Surface [ ] Flowing

10. PUMPING LEVEL: Below Land Surface 60 ft. After 1 hrs. Pumping at 40 G.P.M.
[ ] Plunger [ ] Bailer [ ] Air [ ] Test Pump

11. WELL HEAD COMPLETION:
[X] Pitless Adapter [ ] 12" Above Grade
[ ] Basement Offset [ ] Well House

12. WELL GROUTED? [ ] No [X] Yes From 0 to 53 ft.
[ ] Neat Cement [X] Bentonite [X] Other Pressure
No. of Bags 4 Additives Benseal

13. NEAREST SOURCE OF POSSIBLE CONTAMINATION:
Type Sewer Distance 40 ft. Direction S
Type ____ Distance ____ ft. Direction ____

14. PUMP: [ ] Not Installed [ ] Pump Installation Only
Manufacturer's Name Red Jacket
Model Number 50R4W1 - MN48C HP 1/2 Volts 220
Length of Drop Pipe 53 ft. Capacity 10 G.P.M.
TYPE: [X] Submersible [ ] Jet [ ] Other ____
PRESSURE TANK:
Manufacturer's Name Well-Rite
Model Number PC122203 Capacity 60 Gallons 12.2

15. ABANDONED WELL PLUGGED? [ ] Yes [ ] No
Casing Diameter ____ in. Depth ____ ft.
PLUGGING MATERIAL: [ ] Neat Cement [ ] Bentonite Slurry [ ] Cement/Bentonite Slurry [ ] Concrete Grout [ ] Bentonite Chips
No. of Bags ____ Casing Removed? [ ] Yes [ ] No

16. REMARKS: (Elevation, Source of Data, etc.)

17. DRILLING MACHINE OPERATOR:
[X] Employee [ ] Subcontractor
Name James Lathrop

18. WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
Ken Lee Well Drilling D654
REGISTERED BUSINESS NAME REGISTRATION NO.
Address P.O. Box 342 Linden, MI 48451
Signed [signature] AUTHORIZED REPRESENTATIVE Date 3-18-99

GEOLOGICAL SURVEY COPY

EQP 2017 (12/96)

DEQ MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
DRINKING WATER & RADIOLOGICAL PROTECTION DIVISION

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978
Failure to comply is a misdemeanor

TAX NO:

PERMIT NO:

1. LOCATION OF WELL

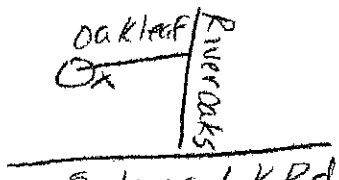
County	Township Name	Fraction	Section No.	Town No.	Range No.
Genesee	Fenton	SW 1/4 SE 1/4 SW 1/4	19	5N	6E

Distance and Direction from Road Intersection: 200' W of River Oaks on S. Side of Oakleaf Tr.

Street Address & City of Well Location

Locate with 'x' in Section Below

Sketch Map



3. OWNER OF WELL: Ron Harrold
Address: 6389 Oakleaf Tr. Linden, MI 48451
Address Same as Well Location ☒ Yes ☐ No

4. WELL DEPTH: 60 ft. | Date Completed: 2/23/99 | ☒ New Well ☐ Replacement Well

5. ☐ Cable Tool ☒ Rotary ☐ Driven ☐ Dug ☐ Hollow Rod ☐ Auger/Bored ☐ Jetted ☐ _____

6. USE: ☒ Household ☐ Type I Public ☐ Type III Public ☐ Irrigation ☐ Type IIa Public ☐ Heat Pump ☐ Test Well ☐ Type IIb Public ☐ _____

7. CASING: ☐ Steel ☐ Threaded ☒ Plastic ☐ Welded ☐ Other _____
Diameter: 5 in. to 56 ft. depth; _____ in. to _____ ft. depth
BORE HOLE: Diameter: 8½ in. to 60 ft. depth; _____ in. to _____ ft. depth
Height: Above/Below Surface: 1 ft
Weight: SDR21 lbs./ft.
☐ Drive Shoe ☐ Shale Packer

2. FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Gravel	20	20
Clay	20	40
Sand	20	60

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Drinking Water & Radiological Protection Division
Ground Water Supply Section
WELL CONSTRUCTION UNIT

USE A 2ND SHEET IF NEEDED

8. SCREEN: ☐ Not Installed ☐ Gravel-Packed
Type: S.S. Diameter: 4"
Slot/Gauze: 12 Length: 4'
Set Between: 56 ft. and 60 ft.
FITTINGS: ☐ K-Packer ☐ Bremer Check ☐ Blank Above Screen _____ ft. Other _____

9. STATIC WATER LEVEL: 12 ft. Below Land Surface ☐ Flowing

10. PUMPING LEVEL: Below Land Surface: 50 ft. After 1 hrs. Pumping at 25 G.P.M.
☐ Plunger ☐ Bailer ☐ Air ☐ Test Pump

11. WELL HEAD COMPLETION:
☒ Pitless Adapter ☐ 12" Above Grade ☐ Basement Offset ☐ Well House

12. WELL GROUTED? ☐ No ☒ Yes From 0 to 46 ft.
☐ Neat Cement ☒ Bentonite ☒ Other pressure
No. of Bags: 4 Additives: Benseal

13. NEAREST SOURCE OF POSSIBLE CONTAMINATION:
Type: Sewer Distance: 46 ft. Direction: W
Type: _____ Distance: _____ ft. Direction: _____

14. PUMP: ☐ Not Installed ☐ Pump Installation Only
Manufacturer's Name: Red Jacket
Model Number: 50PWL-MN9BC HP: ½ Volts: 220
Length of Drop Pipe: 46 ft. Capacity: 10 G.P.M.
TYPE: ☒ Submersible ☐ Jet ☐ Other _____
PRESSURE TANK:
Manufacturer's Name: Well-Rite
Model Number: PC144.250 Capacity: 100 Gallons: 17

15. ABANDONED WELL PLUGGED? ☐ Yes ☐ No
Casing Diameter _____ In. Depth _____ ft.
PLUGGING MATERIAL: ☐ Neat Cement ☐ Bentonite Slurry ☐ Cement/Bentonite Slurry ☐ Concrete Grout ☐ Bentonite Chips
No. of Bags _____ Casing Removed? ☐ Yes ☐ No

16. REMARKS: (Elevation, Source of Data, etc.)

17. DRILLING MACHINE OPERATOR:
☒ Employee ☐ Subcontractor
Name: James Lathrop

18. WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
Ken Lee Well Drilling 0654
REGISTERED BUSINESS NAME REGISTRATION NO.
Address: P.O. Box 342 Linden, MI 48451
Signed: Robert Lathrop (AUTHORIZED REPRESENTATIVE) Date: 2-25-99

GEOLOGICAL SURVEY COPY

EQP 2017 (12/96)

DEQ MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
DRINKING WATER & RADIOLOGICAL PROTECTION DIVISION

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978
Failure to comply is a misdemeanor

TAX NO:

PERMIT NO:

1. LOCATION OF WELL

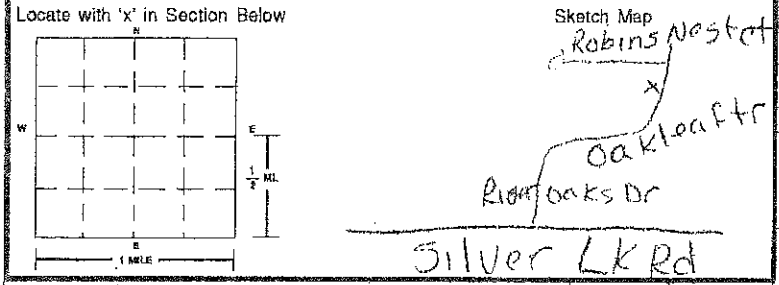
County	Township Name	Fraction	Section No.	Town No.	Range No.
Genesee	Fenton	SW 1/4 SE 1/4 SW 1/4	19	5N	6E

Distance and Direction from Road Intersection

Street Address & City of Well Location

Locate with 'x' in Section Below

Sketch Map



3. OWNER OF WELL
Address: Ron Harrold, 6343 Oakleaf Tr, Linden, MI 48451
Address Same as Well Location: [X] Yes [ ] No

4. WELL DEPTH: 165 ft. Date Completed: 3/10/99 [X] New Well [ ] Replacement Well

5. [ ] Cable Tool [X] Rotary [ ] Driven [ ] Dug [ ] Hollow Rod [ ] Auger/Bored [ ] Jetted [ ]

6. USE: [X] Household [ ] Type I Public [ ] Type III Public [ ] Irrigation [ ] Type IIa Public [ ] Heat Pump [ ] Test Well [ ] Type IIb Public [ ]

7. CASING: [ ] Steel [ ] Threaded [X] Plastic [ ] Welded [ ] Other
Diameter: 5 in. to 115 ft. depth; in. to ft. depth
BORE HOLE: Diameter: 8 1/2 in. to 165 ft. depth; in. to ft. depth
Height: Above/Below Surface: 1 ft
Weight: SDR21 lbs./ft.
[ ] Drive Shoe [ ] Shale Packer

2. FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Gravel and Clay	30	30
Clay	60	90
Rock	105	195

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Drinking Water & Radiological Protection Division
Ground Water Supply Section
WELL CONSTRUCTION UNIT

USE A 2ND SHEET IF NEEDED

8. SCREEN: [ ] Not Installed [ ] Gravel-Packed
Type: Rock Diameter: 5"
Slot/Gauze: Length:
Set Between ft. and ft.
FITTINGS: [ ] K-Packer [ ] Bremer Check
[ ] Blank Above Screen ft. Other

9. STATIC WATER LEVEL: 20 ft. Below Land Surface [ ] Flowing

10. PUMPING LEVEL: Below Land Surface 100 ft. After 1 hrs. Pumping at 40 G.P.M.
[ ] Plunger [ ] Bailer [ ] Air [ ] Test Pump

11. WELL HEAD COMPLETION:
[X] Pitless Adapter [ ] 12" Above Grade
[ ] Basement Offset [ ] Well House

12. WELL GROUTED? [ ] No [X] Yes From 0 to 105 ft.
[ ] Neat Cement [X] Bentonite [X] Other Pressure
No. of Bags 8 Additives Benseal

13. NEAREST SOURCE OF POSSIBLE CONTAMINATION:
Type Sewer Distance 12 ft. Direction SW
Type Distance ft. Direction

14. PUMP: [ ] Not Installed [ ] Pump Installation Only
Manufacturer's Name: Red Jacket
Model Number: 50RHW1-MAX9B HP: 1/2 Volts: 220
Length of Drop Pipe: 105 ft. Capacity: 10 G.P.M.
TYPE: [X] Submersible [ ] Jet [ ] Other
PRESSURE TANK:
Manufacturer's Name: Well-Rite
Model Number: PC122203 Capacity: 60 Gallons: 12.2

15. ABANDONED WELL PLUGGED? [ ] Yes [ ] No
Casing Diameter in. Depth ft.
PLUGGING MATERIAL: [ ] Neat Cement [ ] Bentonite Slurry
[ ] Cement/Bentonite Slurry [ ] Concrete Grout [ ] Bentonite Chips
No. of Bags Casing Removed? [ ] Yes [ ] No

16. REMARKS: (Elevation, Source of Data, etc.)

17. DRILLING MACHINE OPERATOR:
[X] Employee [ ] Subcontractor
Name: James Lathrop

18. WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
REGISTERED BUSINESS NAME: Ken Lee Well Drilling REGISTRATION NO.: 0654
Address: P.O. Box 342 Linden, MI 48451
Signed: [signature] AUTHORIZED REPRESENTATIVE Date: 3-11-99

EQP 2017 (12/96)

GEOLOGICAL SURVEY COPY

MICHIGAN DEPARTMENT OF PUBLIC HEALTH
WATER WELL AND PUMP RECORD

PERMIT NUMBER:

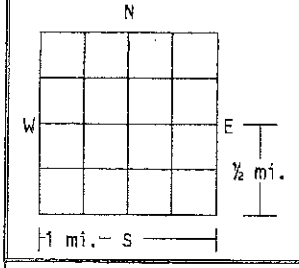
1 LOCATION OF WELL 25057619002 | Tax Parcel No.

County	Township Name	Fraction	Section No.	Town No.	Range No.
GENESEE	FENTON	SW 1/4 1/4 SW 1/4	19	05 N	06 E

Distance And Direction From Road Intersection
500 FT E OF RIVER OAKS ON SOUTH SIDE RIVER OAKS
6342 OAK LEAF, LINDEN 48451
Street Address & City of Well Location

3 OWNER OF WELL RON HARROLD
Address 6342 OAK LEAF
LINDEN, MI 48451
Address Same As Well Location? [x] Yes [ ] No

Locate with 'x' in Section Below



Sketch Map:

ELEVATION 577.00 msl

4 WELL DEPTH: 65.0 ft. | Date Completed 04/12/99 | [x] New Well [ ] Replacement Well

5 [ ] Cable tool [x] Rotary [ ] Driven [ ] Dug
[ ] Hollow rod [ ] Auger/Bored [ ] Jetted _____

6 USE [x]Domestic [ ]Type I Public [ ]Type III Public
[ ]Irrigation [ ]Type II Public [ ]Heat Pump
[ ]Test Well [ ]Type IIb Public [ ]_____

7 CASING: [ ] Steel [ ] Threaded [x] Plastic [x] Welded
Diameter
5.00 in. to 60.0 ft. depth
0.00 in. to 0.0 ft. depth
Grouted Drill Hole Diameter
8.50 in. to 55.0 ft. depth
0.00 in. to 0.0 ft. depth
Height: Above Surface 1.0 ft.
Weight __ lbs/ft.
Drive Shoe [ ] Yes [x] No

2 FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
SAND	25.0	25.0
CLAY	25.0	50.0
SAND	15.0	65.0

8 SCREEN [ ] Not Installed
Type Plastic/PVC Diameter 5.00
SLOT 15.000 Length 5.0
Set between 60.00 ft. and 65.00 ft.
FITTINGS: [ ]K-Packer [ ]Lead Packer [ ]Bremmer Check
[ ] Blank above screen 0.0 ft. Other

9 STATIC WATER LEVEL:
40.00 ft. below land surface [ ] Flow

10 PUMPING LEVEL: below land surface
60 ft.after 0.1 hrs.pumping at 30 G.P.M.
0 ft.after 0.0 hrs.pumping at 0 G.P.M.

11 WELL HEAD COMPLETION: [x]Pitless adapter [ ]12'' above grade
[ ]Basement offset [x]Approved pit

12 WELL GROUTED? [ ]No [x]Yes From 0.0 to 55.0 ft.
[ ]Neat cement [x]Bentonite [ ]Other_____
No. of bags of cement 5 Additives _____

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Drinking Water & Radiological Protection Division
Ground Water Supply Section
WELL CONSTRUCTION UNIT

13 Nearest source of possible contamination
Type Sewer Distance 50 ft. Direction S
Well disinfected upon completion? [x]Yes [ ]No
Was old well plugged? [ ]Yes [x]No

14 PUMP: [ ]Not Installed [ ]Pump Installation Only
Manufacturer's name RED JACKET
Model number HP 1/2h Volts
Length of Drop Pipe 40 ft. capacity 10 G.P.M.
TYPE: [x]Submersible [ ]Jet
PRESSURE TANK:
Manufacturers name
Model number 7212 Capacity 10 Gallons

15 Remarks, elevation, source of data, etc.

Data Source:

16 WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

LEE, KEN WELL DRILLING 0654
REGISTERED BUSINESS NAME REGISTRATION NO.

Address 412 N BRIDGE STREET LINDEN, MI 48451

Signed _____ Date 4-30-99
AUTHORIZED REPRESENTATIVE

17 Rig Operator's Name:
JAMES LATHROP

AUTHORITY: Act 368 PA 1978 COMPLETION: Required PENALTY: Conviction of a violation of any provision is a misdemeanor

DEQ MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
DRINKING WATER & RADIOLOGICAL PROTECTION DIVISION

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978
Failure to comply is a misdemeanor

TAX NO:

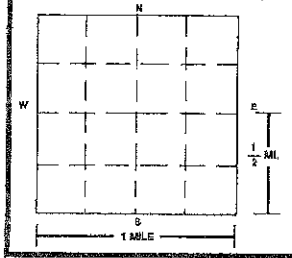
PERMIT NO:

1. LOCATION OF WELL

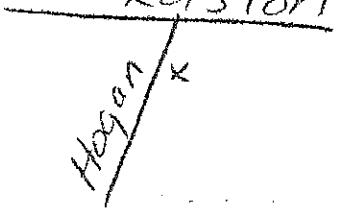
County	Township Name	Fraction	Section No.	Town No.	Range No.
Genesee	Fenton	SE 1/4 of NW1/4 of NW1/4	19	5N	6E

Distance and Direction from Road Intersection
1/2 mile S of Rolston on E Side of Hogan Rd.
Street Address & City of Well Location

Locate with 'x' in Section Below



Sketch Map



3. OWNER OF WELL
Address: Paul Turovich, 14083 Hogan, Linden, MI 48451
Address Same as Well Location ☒ Yes ☐ No

4. WELL DEPTH: 195 ft. | Date Completed: 3/23/99 | ☒ New Well ☐ Replacement Well

5. ☐ Cable Tool ☒ Rotary ☐ Driven ☐ Dug ☐ Hollow Rod ☐ Auger/Bored ☐ Jetted ☐ ____

6. USE: ☒ Household ☐ Type I Public ☐ Type III Public ☐ Irrigation ☐ Type IIa Public ☐ Heat Pump ☐ Test Well ☐ Type IIb Public ☐ ____

7. CASING: ☐ Steel ☐ Threaded ☒ Plastic ☐ Welded ☐ Other ____
Diameter: 5 in. to 145 ft. depth; ____ in. to ____ ft. depth
Height: Above/Below Surface: 1 ft
Weight: 5021 lbs./ft.
BORE HOLE: Diameter: 8 1/2 in. to 45 ft. depth; 4 1/2 in. to 195 ft. depth
☐ Drive Shoe ☐ Shale Packer

8. SCREEN: ☐ Not Installed ☐ Gravel-Packed
Type Rock Diameter 5"
Slot/Gauze ____ Length: ____
Set Between ____ ft. and ____ ft.
FITTINGS: ☐ K-Packer ☐ Bremer Check ☐ Blank Above Screen ____ ft. Other ____

9. STATIC WATER LEVEL: 40 ft. Below Land Surface ☐ Flowing

10. PUMPING LEVEL: Below Land Surface
100 ft. After 1 hrs. Pumping at 50 G.P.M.
☐ Plunger ☐ Bailer ☐ Air ☐ Test Pump

11. WELL HEAD COMPLETION:
☒ Pitless Adapter ☐ 12" Above Grade ☐ Basement Offset ☐ Well House

12. WELL GROUTED? ☐ No ☒ Yes From 0 to 135 ft.
☐ Neat Cement ☒ Bentonite ☒ Other Pressure
No. of Bags 8 Additives Bunsoil

13. NEAREST SOURCE OF POSSIBLE CONTAMINATION:
Type Septic Distance 50 ft. Direction W
Type ____ Distance ____ ft. Direction ____

14. PUMP: ☐ Not Installed ☐ Pump Installation Only
Manufacturer's Name Red Jacket
Model Number SQE4M-MW98 HP 1/2 Volts 220
Length of Drop Pipe 135 ft. Capacity 10 G.P.M.
TYPE: ☒ Submersible ☐ Jet ☐ Other ____
PRESSURE TANK:
Manufacturer's Name Well-Rite
Model Number PC 88 Capacity ____ Gallons 8

2. FORMATION DESCRIPTION

FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Sand	25	25
Clay and Sand	70	95
Clay	40	135
Rock	60	195

RECEIVED
MICH DEPT OF ENVIRONMENTAL QUALITY
MAY 13 1999
Drinking Water & Radiological Protection Division
Ground Water Supply Section
WELL CONSTRUCTION UNIT

USE A 2ND SHEET IF NEEDED

15. ABANDONED WELL PLUGGED? ☐ Yes ☐ No
Casing Diameter ____ in. Depth ____ ft.
PLUGGING MATERIAL: ☐ Neat Cement ☐ Bentonite Slurry ☐ Cement/Bentonite Slurry ☐ Concrete Grout ☐ Bentonite Chips
No. of Bags ____ Casing Removed? ☐ Yes ☐ No

16. REMARKS: (Elevation, Source of Data, etc.)

17. DRILLING MACHINE OPERATOR:
☒ Employee ☐ Subcontractor
Name James Lathrop

18. WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
REGISTERED BUSINESS NAME: Ken Lee Well Drilling | REGISTRATION NO. 0654
Address: P.O. Box 342 Linden, MI 48451
Signed: Pat Tuttle (AUTHORIZED REPRESENTATIVE) Date: 3-25-99

GEOLOGICAL SURVEY COPY

EQP 2017 (12/96)

MICHIGAN DEPARTMENT OF PUBLIC HEALTH
WATER WELL AND PUMP RECORD

PERMIT NUMBER:

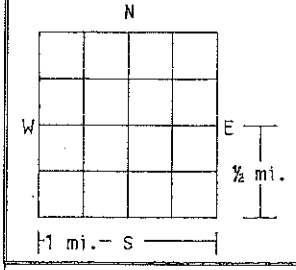
1 LOCATION OF WELL 25057619003 | Tax Parcel No.

County	Township Name	Fraction	Section No.	Town No.	Range No.
GENESEE	FENTON	1/4 1/4 SW 1/4	19	05 N	06 E

Distance And Direction From Road Intersection
1/4 MI E OF ROLSTON RD ON S SIDE OF ACORN WAY
6341 ACORN WAY, LINDEN 48451
Street Address & City of Well Location

3 OWNER OF WELL HARROLD DEVELOPMENT
Address 6341 ACORN WAY
LINDEN, MI 48451
Address Same As Well Location? [x] Yes [ ] No

Locate with 'x' in Section Below



Sketch Map:

ELEVATION 577.00 msl

4 WELL DEPTH: 200.0 ft. | Date Completed 04/27/99 | [x] New Well [ ] Replacement Well

5 [ ] Cable tool [x] Rotary [ ] Driven [ ] Dug
[ ] Hollow rod [ ] Auger/Bored [ ] Jetted _____

6 USE [x]Domestic [ ]Type I Public [ ]Type III Public
[ ]Irrigation [ ]Type II Public [ ]Heat Pump
[ ]Test Well [ ]Type IIb Public [ ]_____

7 CASING: [ ] Steel [ ] Threaded [x] Plastic [x] Welded
Diameter
5.00 in. to 139.0 ft. depth
0.00 in. to 0.0 ft. depth
Grouted Drill Hole Diameter
8.50 in. to 139.0 ft. depth
0.00 in. to 0.0 ft. depth
Height: Above Surface 1.0 ft.
Weight __ lbs/ft.
Drive Shoe [ ] Yes [x] No

2 FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
GRAVEL	40.0	40.0
CLAY/SAND	20.0	60.0
CLAY	70.0	130.0
ROCK	70.0	200.0

8 SCREEN [x] Not Installed
Type None Diameter 0.00
Unkn 0.000 Length 0.0
Set between 0.00 ft. and 0.00 ft.
FITTINGS: [ ]K-Packer [ ]Lead Packer [ ]Bremmer Check
[ ] Blank above screen 0.0 ft. Other

9 STATIC WATER LEVEL:
45.00 ft. below land surface [ ] Flow

10 PUMPING LEVEL: below land surface
100 ft.after 1.0 hrs.pumping at 40 G.P.M.
0 ft.after 0.0 hrs.pumping at 0 G.P.M.

11 WELL HEAD COMPLETION: [x]Pitless adapter [ ]12" above grade
[ ]Basement offset [ ]Approved pit

12 WELL GROUTED? [ ]No [x]Yes From 0.0 to 139.0 ft.
[ ]Neat cement [x]Bentonite [ ]Other_____
No. of bags of cement 6 Additives _____

13 Nearest source of possible contamination
Type Sewer Distance 35 ft. Direction W
Well disinfected upon completion? [x]Yes [ ]No
Was old well plugged? [ ]Yes [ ]No

14 PUMP: [ ]Not Installed [ ]Pump Installation Only
Manufacturer's name RED JACKET
Model number HP 1/2h Volts
Length of Drop Pipe 100 ft. capacity 10 G.P.M.
TYPE: [x]Submersible [ ]Jet
PRESSURE TANK:
Manufacturers name
Model number Capacity 10 Gallons

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Drinking Water & Radiological Protection Division
Ground Water Supply Section
WELL CONSTRUCTION UNIT

15 Remarks, elevation, source of data, etc.

Data Source: MDNR

17 Rig Operator's Name:
JAMES LATHROP

16 WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

LEE, KEN WELL DRILLING 0654
REGISTERED BUSINESS NAME REGISTRATION NO.

Address 412 N BRIDGE STREET LINDEN, MI 48451

Signed Ken Lee Date 4-30-99
AUTHORIZED REPRESENTATIVE

AUTHORITY: Act 368 PA 1978 COMPLETION: Required PENALTY: Conviction of a violation of any provision is a misdemeanor

DEQ MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
DRINKING WATER & RADIOLOGICAL PROTECTION DIVISION

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978
Failure to comply is a misdemeanor

TAX NO:

PERMIT NO:

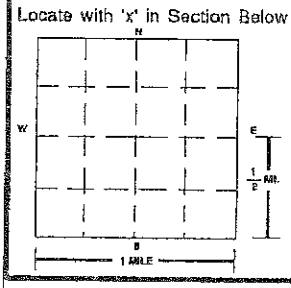
1. LOCATION OF WELL

County	Township Name	Fraction	Section No.	Town No.	Range No.
Genesee	Fenton Linden City	NW 1/4 NE 1/4 SE 1/4	19	5N	6E

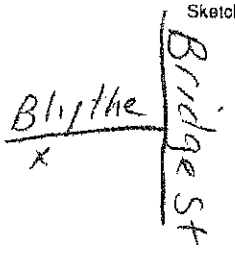
Distance and Direction from Road Intersection
1/4 mile W of Bridge St (Linden Rd) on S side of Blythe.

Street Address & City of Well Location

Locate with 'x' in Section Below



Sketch Map



3. OWNER OF WELL
Address: Dave Freeman
261 Blythe Ave
Linden, MI 48451
Address Same as Well Location ☒ Yes ☐ No

4. WELL DEPTH: 150 ft. Date Completed 2/18/99 ☒ New Well ☐ Replacement Well

5. ☐ Cable Tool ☒ Rotary ☐ Driven ☐ Dug ☐ Hollow Rod ☐ Auger/Bored ☐ Jetted ☐

6. USE: ☒ Household ☐ Type I Public ☐ Type III Public ☐ Irrigation ☐ Type IIa Public ☐ Heat Pump ☐ Test Well ☐ Type IIb Public ☐

7. CASING: ☐ Steel ☐ Threaded ☒ Plastic ☐ Welded ☐ Other
Diameter: 5 in. to 90 ft. depth
in. to ft. depth
BORE HOLE: Diameter: 8 1/2 in. to 90 ft. depth
4 1/2 in. to 150 ft. depth
Height: Above/Below Surface: 1 ft
Weight: SDR21 lbs./ft.
☐ Drive Shoe ☐ Shale Packer

2. FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Clay	20	20
Sand	5	25
Clay	55	80
Rock	70	150

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MAY 13 1999
Drinking Water & Radiological Protection Division
Ground Water Supply Section
WELL CONSTRUCTION UNIT

USE A 2ND SHEET IF NEEDED

8. SCREEN: ☐ Not Installed ☐ Gravel-Packed
Type Rock Diameter 5"
Slot/Gauze Length:
Set Between ft. and ft.
FITTINGS: ☐ K-Packer ☐ Bremer Check
☐ Blank Above Screen ft. Other

9. STATIC WATER LEVEL: 35 ft. Below Land Surface ☐ Flowing

10. PUMPING LEVEL: Below Land Surface 90 ft. After 1 hrs. Pumping at 75 G.P.M.
☐ Plunger ☐ Bailer ☐ Air ☐ Test Pump

11. WELL HEAD COMPLETION:
☒ Pitless Adapter ☐ 12" Above Grade
☐ Basement Offset ☐ Well House

12. WELL GROUTED? ☐ No ☒ Yes From 0 to 80 ft.
☐ Neat Cement ☒ Bentonite ☒ Other Pressure
No. of Bags 5 Additives Benseal

13. NEAREST SOURCE OF POSSIBLE CONTAMINATION:
Type Sewer Distance 50 ft. Direction N
Type Distance ft. Direction

14. PUMP: ☐ Not Installed ☐ Pump Installation Only
Manufacturer's Name Red Jacket
Model Number 75CNW1-CNGCC HP 3/4 Volts 220
Length of Drop Pipe 22 ft. Capacity 18 G.P.M.
TYPE: ☒ Submersible ☐ Jet ☐ Other
PRESSURE TANK:
Manufacturer's Name Well-Rite
Model Number 250 pc144 Capacity 100 Gallons 14

15. ABANDONED WELL PLUGGED? ☐ Yes ☐ No
Casing Diameter in. Depth ft.
PLUGGING MATERIAL: ☐ Neat Cement ☐ Bentonite Slurry
☐ Cement/Bentonite Slurry ☐ Concrete Grout ☐ Bentonite Chips
No. of Bags Casing Removed? ☐ Yes ☐ No

16. REMARKS: (Elevation, Source of Data, etc.)

17. DRILLING MACHINE OPERATOR:
☒ Employee ☐ Subcontractor
Name James Lathrop

18. WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
Ken Lee Well Drilling 0654
REGISTERED BUSINESS NAME REGISTRATION NO.
Address P.O. Box 342 Linden, MI 48451
Signed [signature] Date 2-22-99
AUTHORIZED REPRESENTATIVE

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EQP 2017 (12/96)

MICHIGAN DEPARTMENT OF PUBLIC HEALTH
WATER WELL AND PUMP RECORD

PERMIT NUMBER:

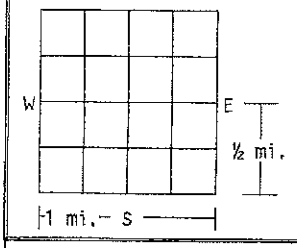
1 LOCATION OF WELL 25057619004 | Tax Parcel No.

County	Township Name	Fraction	Section No.	Town No.	Range No.
GENESEE	FENTON	1/4 1/4 NW 1/4	19	05 N	06 E

Distance And Direction From Road Intersection
1/4 MI E OF FENTON RD ON N SIDE OF FENTONWOOD
1362 FENTONWOOD, FENTON 48430
Street Address & City of Well Location

3 OWNER OF WELL KEN HAZEL
Address 1362 FENTONWOOD
FENTON, MI 48430
Address Same As Well Location? [x] Yes [ ] No

Locate with 'x' in Section Below



Sketch Map:

ELEVATION 577.00 msl

4 WELL DEPTH: 166.0 ft. | Date Completed 04/28/99 | [x] New Well [ ] Replacement Well

5 [ ] Cable tool [x] Rotary [ ] Driven [ ] Dug
[ ] Hollow rod [ ] Auger/Bored [ ] Jetted

6 USE [x]Domestic [ ]Type I Public [ ]Type III Public
[ ]Irrigation [ ]Type II Public [ ]Heat Pump
[ ]Test Well [ ]Type IIb Public [ ]

7 CASING: [ ] Steel [ ] Threaded [x] Plastic [x] Welded
Diameter
5.00 in. to 161.0 ft. depth
0.00 in. to 0.0 ft. depth
Grouted Drill Hole Diameter
8.50 in. to 151.0 ft. depth
0.00 in. to 0.0 ft. depth
Height: Above Surface 1.0 ft.
Weight __ lbs/ft.
Drive Shoe [ ] Yes [x] No

2

FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
CLAY	60.0	60.0
GRAVEL/CLAY	40.0	100.0
SAND/CLAY	50.0	150.0
SAND	26.0	166.0

8 SCREEN [ ] Not Installed
Type Plastic/PVC Diameter 5.00
SLOT 12.000 Length 5.0
Set between 161.00 ft. and 166.00 ft.
FITTINGS: [ ]K-Packer [ ]Lead Packer [ ]Bremmer Check
[ ] Blank above screen 0.0 ft. Other

9 STATIC WATER LEVEL:
50.00 ft. below land surface [ ] Flow

10 PUMPING LEVEL: below land surface
125 ft.after 1.0 hrs.pumping at 35 G.P.M.
0 ft.after 0.0 hrs.pumping at 0 G.P.M.

11 WELL HEAD COMPLETION: [x]Pitless adapter [ ]12'' above grade
[ ]Basement offset [ ]Approved pit

12 WELL GROUTED? [ ]No [x]Yes From 0.0 to 151.0 ft.
[ ]Neat cement [x]Bentonite [ ]Other
No. of bags of cement 8 Additives

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Ground Water Supply Section
WELL CONSTRUCTION UNIT

13 Nearest source of possible contamination
Type Sewer Distance 50 ft. Direction S
Well disinfected upon completion? [x]Yes [ ]No
Was old well plugged? [ ]Yes [ ]No

14 PUMP: [ ]Not Installed [ ]Pump Installation Only
Manufacturer's name RED JACKET
Model number HP 1/2h Volts
Length of Drop Pipe 75 ft. capacity 10 G.P.M.
TYPE: [x]Submersible [ ]Jet
PRESSURE TANK:
Manufacturers name
Model number Capacity 10 Gallons

15 Remarks, elevation, source of data, etc.

Data Source: MDNR

16 WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

LEE, KEN WELL DRILLING 0654
REGISTERED BUSINESS NAME REGISTRATION NO.

Address 412 N BRIDGE STREET LINDEN, MI 48451

Signed [signature] Date 4-30-99
AUTHORIZED REPRESENTATIVE

17 Rig Operator's Name:
JAMES LATHROP

AUTHORITY: Act 368 PA 1978 COMPLETION: Required PENALTY: Conviction of a violation of any provision is a misdemeanor

TAX NO:

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
WATER WELL AND PUMP RECORD

PERMIT NO:

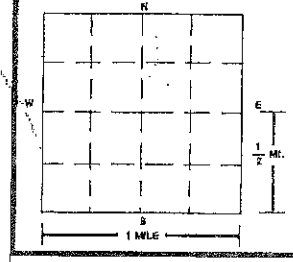
1. LOCATION OF WELL

County	Township Name	Fraction	Section No.	Town No.	Range No.
Genesee	Grand Blanc	1/4 1/4 1/4	19	5 N	6 E

Distance and Direction from Road Intersection: ½ Mile North of Grand Blanc Rd., on the East side of Fenton Rd.

Street Address & City of Well Location: 1034 Barbara St.

Locate with 'x' in Section Below — Sketch Map



3. OWNER OF WELL: Pam Bruce
Address: 1034 Barbara St. Grand Blanc, MI 48439
Address Same as Well Location: [X] Yes [ ] No

4. WELL DEPTH: 172 ft. | Date Completed: 9/15/95 | [X] New Well [ ] Replacement Well

5. [ ] Cable Tool [X] Rotary [ ] Driven [ ] Dug [ ] Hollow Rod [ ] Auger/Bored [ ] Jetted [ ] _____

6. USE: [X] Household [ ] Type I Public [ ] Type III Public [ ] Irrigation [ ] Type IIa Public [ ] Heat Pump [ ] Test Well [ ] Type IIb Public [ ] _____

7. CASING: [ ] Steel [ ] Threaded [X] Plastic [ ] Welded [ ] Other _____
Diameter: 5 in. to 168 ft. depth; _____ in. to _____ ft. depth
Height: Above/Below Surface: 1 ft
Weight: SDR21 lbs./ft.
BORE HOLE: Diameter: 8 in. to 172 ft. depth; _____ in. to _____ ft. depth
[ ] Drive Shoe [ ] Shale Packer

2. FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
XClay	150	150
Fine Sand	10	160
Medium Sand	12	172
USE A 2ND SHEET IF NEEDED		

8. SCREEN: [ ] Not Installed [X] Gravel-Packed
Type: Stainless steel Diameter: 4"
Slot/Gauze: 20 slot Length: 4'
Set Between: 168 ft. and 172 ft.
FITTINGS: [ ] K-Packer [ ] Bremer Check
[ ] Blank Above Screen _____ ft. Other: 5"x3" bushing

9. STATIC WATER LEVEL: 60 ft. Below Land Surface [ ] Flowing

10. PUMPING LEVEL: Below Land Surface
172 ft. After 2 hrs. Pumping at 125 G.P.M.
[ ] Plunger [ ] Bailer [X] Air [ ] Test Pump

11. WELL HEAD COMPLETION:
[X] Pitless Adapter [ ] 12" Above Grade [ ] Basement Offset [ ] Well House

12. WELL GROUTED? [ ] No [X] Yes From 0 to 150 ft.
[ ] Neat Cement [X] Bentonite [ ] Other _____
No. of Bags 7 Additives: B 2 Mud

13. NEAREST SOURCE OF POSSIBLE CONTAMINATION:
Type: sewer Distance: 15 ft. Direction: N
Type _____ Distance _____ ft. Direction _____

14. PUMP: [ ] Not Installed [ ] Pump Installation Only
Manufacturer's Name: Sta-Rite
Model Number: 10SP4C02J HP: ½ Volts: 230
Length of Drop Pipe: 100 ft. Capacity: 12 G.P.M.
TYPE: [X] Submersible [ ] Jet [ ] Other _____
PRESSURE TANK:
Manufacturer's Name: Clayton Mark
Model Number: 0003 Capacity: 10 Gallons

15. ABANDONED WELL PLUGGED? [ ] Yes [ ] No
Casing Diameter _____ in. Depth _____ ft.
PLUGGING MATERIAL: [ ] Neat Cement [ ] Bentonite Slurry [ ] Cement/Bentonite Slurry [ ] Concrete Grout [ ] Bentonite Chips
No. of Bags _____ Casing Removed? [ ] Yes [ ] No

16. REMARKS: (Elevation, Source of Data, etc.)

17. DRILLING MACHINE OPERATOR:
[X] Employee [ ] Subcontractor
Name: Stacy F. Podjun

18. WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
Podjun Well Drilling Inc. 25-1893
REGISTERED BUSINESS NAME REGISTRATION NO.
Address: 15296 Pomona Dr., Fenton, MI 48430
Signed: Stacy F. Podjun (AUTHORIZED REPRESENTATIVE) Date: 9/15/95

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GW-2-228 9/93

Authority: Act 368 PA 1978
Completion: Required
Penalty: Conviction of a violation of any provision is a misdemeanor.

DEQ MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
DRINKING WATER & RADIOLOGICAL PROTECTION DIVISION

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978
Failure to comply is a misdemeanor

TAX NO:

PERMIT NO:

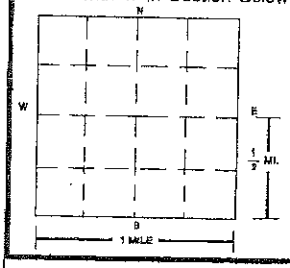
1. LOCATION OF WELL

County	Township Name	Fraction	Section No.	Town No.	Range No.
Genesee	City of Linden	1/4 1/4 1/4	19	5 N	6 E

Distance and Direction from Road Intersection
½ Mile West of Bridge St. on the South side of Rolston Rd.

Street Address & City of Well Location 1573 W. Rolston Rd.

Locate with 'x' in Section Below — Sketch Map



3. OWNER OF WELL
Address: Virgil Ates
1573 W. Rolston Rd.
Linden, MI 48451
Address Same as Well Location [X] Yes [ ] No

4. WELL DEPTH: 200 ft. | Date Completed 3/30/99 | [ ] New Well [X] Replacement Well

5. [ ] Cable Tool [X] Rotary [ ] Driven [ ] Dug [ ] Hollow Rod [ ] Auger/Bored [ ] Jetted [ ] _____

6. USE: [X] Household [ ] Type I Public [ ] Type III Public [ ] Irrigation [ ] Type IIa Public [ ] Heat Pump [ ] Test Well [ ] Type IIb Public [ ] _____

7. CASING: [ ] Steel [ ] Threaded [X] Plastic [ ] Welded [ ] Other _____
Diameter: 5 in. to 140 ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface: 1 ft
Weight: SDR21 lbs./ft.
BORE HOLE:
Diameter: 8 in. to 140 ft. depth
4½ in. to 200 ft. depth
[ ] Drive Shoe [X] Shale Packer

8. SCREEN: [X] Not Installed [ ] Gravel-Packed
Type _____ Diameter _____
Slot/Gauze _____ Length: _____
Set Between _____ ft. and _____ ft.
FITTINGS: [ ] K-Packer [ ] Bremer Check
[ ] Blank Above Screen _____ ft. Other _____

9. STATIC WATER LEVEL:
15 ft. Below Land Surface [ ] Flowing

10. PUMPING LEVEL: Below Land Surface
200 ft. After 2 hrs. Pumping at 60 G.P.M.
[ ] Plunger [ ] Bailer [X] Air [ ] Test Pump

11. WELL HEAD COMPLETION:
[X] Pitless Adapter [ ] 12" Above Grade
[ ] Basement Offset [ ] Well House

12. WELL GROUTED? [ ] No [X] Yes From 0 to 140 ft.
[ ] Neat Cement [X] Bentonite [ ] Other _____
No. of Bags 7 Additives E Z Mud

13. NEAREST SOURCE OF POSSIBLE CONTAMINATION:
Type septic Distance 55 ft. Direction NNE
Type _____ Distance _____ ft. Direction _____

2. FORMATION DESCRIPTION

FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Sandy Gravely Clay	18	18
Clay	97	115
Shale & Sand Rock	10	125
Sand Rock	27	152
Shale & strips of Sand Rock	48	200

USE A 2ND SHEET IF NEEDED

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Ground Water Supply Section
WELL CONSTRUCTION UNIT

14. PUMP: [ ] Not Installed [ ] Pump Installation Only
Manufacturer's Name Myers
Model Number 2NFL52-12 HP ½ Volts 230
Length of Drop Pipe 100 ft. Capacity 12 G.P.M.
TYPE: [X] Submersible [ ] Jet [ ] Other _____
PRESSURE TANK:
Manufacturer's Name Goulds
Model Number V-100 Capacity 10 Gallons

15. ABANDONED WELL PLUGGED? [X] Yes [ ] No
Casing Diameter 2 in. Depth 46 ft.
PLUGGING MATERIAL:
[ ] Neat Cement [X] Bentonite Slurry
[ ] Cement/Bentonite Slurry [ ] Concrete Grout [ ] Bentonite Chips
No. of Bags 1 Casing Removed? [ ] Yes [X] No

16. REMARKS: (Elevation, Source of Data, etc.)

17. DRILLING MACHINE OPERATOR:
[X] Employee [ ] Subcontractor
Name Stacy F. Podjun

18. WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
Podjun Well Drilling, Inc. (REGISTERED BUSINESS NAME) 25 1893 (REGISTRATION NO.)
Address 13296 Pomona Dr., Fenton, MI 48430
Signed _____ (AUTHORIZED REPRESENTATIVE) Date 3/30/99

GEOLOGICAL SURVEY COPY

EQP 2017 (12/96)

Appendix E

PM ENVIRONMENTAL Environmental & Engineering Services

Conceptual Site Model for Vapor Intrusion

Below is a summary of the recommended information as outlined in the May 2013 MDEQ Guidance Document for the Vapor Intrusion Pathway and the location in the information in the Closure Report, when applicable.

UTILITIES AND PROCESS PIPING	
Maps, figures, and cross-sections of the building providing the location and depths of all underground utilities and/or process piping near the soil or groundwater impacts	**Fig. 2-10**
All utilities that connect contaminated areas to buildings are shown and described	**Fig. 2-10**
BUILDINGS (RECEPTORS)	
Maps identify:	
Existing or proposed buildings	**Fig 2**
Vacant parcels	**Fig 2**
Property boundaries	**Fig 2**
Description of the occupancy and use of all properties/buildings	**1.0 (p. 1-3)**
Construction of each structure is provided and includes:	
General construction style	**1.0 (p. 1-3)**
Floor Construction	**1.0 (p. 1-3)**
Depth below grade of the lowest floor	**1.0 (p. 1-3)**
Building Layout	**1.0 (p. 1-3)**
Height (and number of floors)	**1.0 (p. 1-3)**
Sumps or foundation drains	**1.0 (p. 1-3)**
Alternate ventilation system	**1.0 (p. 1-3)**
Elevators(s)	**None Present**
Heating, ventilation, or air condition system in each structure is described and includes (if applicable):	
Type	**1.0 (p. 1-3)**
Equipment location	**1.0 (p. 1-3)**
Source of return air	**1.0 (p. 1-3)**
System design consideration relating to indoor air pressure	**None Specified**
All sub-slab ventilation systems or moisture barriers present are described; identified on all building cross-sections; and mapped, if only a portion of the structure	**None Present**
SOURCE AREA(S)	
Brief description and known history of the release	**1.0 (p. 1-3)**
Maps and figures identify and show the location of vapor source(s) in relation to each structure (including the presence, distribution, and composite of any non-aqueous phase liquid at the site).	**Fig. 3-5**
Select cross-sections showing example building, construction styles, and relationship to source of vapors are provided	**Fig. 8-9**
Description of the potential migration characteristics for the distribution of contaminants is provided	**4.2.3 and 4.3.4 and 4.4, (p. 12-13)**

Conceptual Site Model for Vapor Intrusion

GEOLOGY/HYDROGEOLOGY	
Maps, figures, cross-sections, and/or description identifying soil lithology and characteristics:	**App. B, 4.2.2 (p. 11), Figures 8-9**
Heterogeneity/homogeneity of soils and the lithologic units encountered including:	
Depth and lateral continuity of any confining units that may impede contaminant migration	**App. B, 4.2.2 (p. 11)**
Depth and lateral continuity of any highly transmissive units that may enhance contaminant migration	**App. B, 4.2.2 (p. 11)**
Depth of vadose zone, capillary fringe, and phreatic zone including:	
Any seasonal water table fluctuations	**Not Applicable**
Groundwater flow direction	**4.2.1 (p. 10-11), Figure 6**
Presence of any perched groundwater	**4.2.1 (p. 14), Figures 6-7**
Note where the water table intersects the well screen interval or the presence of a submerged screen	**Appendix B**
Description and location of distinct strata (soil type and moisture contact) and the depth intervals.	**App. B, 4.2.2, (p. 11)**
Description and location of all fill and non-native materials	**App. B, 4.2.2 (p. 11)**
Depth to groundwater identified on all cross-sections	**Figures 8-9**
General groundwater characteristics provided (e.g., seasonal fluctuation, hydraulic gradient).	**4.3.1 (p. 12-13)**
SITE CHARACTERISTICS	
Map of the site (to scale) showing all paved areas, surface cover, locations of all structures, and ground cover.	**Fig. 2**
Map identifying all potential sources of vapors	**Fig. 3-9**