Request for Bid

Fixed-Price Defined Scope of Work

Interim Remedial Action (IRA) Activities and Additional Site Characterization Activities

Solicitor

PCR Realty, LLC

Lake Mart Facility

455 Route 247, Greenfield Township, Lackawanna County, Pennsylvania 18407

PADEP Facility ID #: 35-34675 PAUSTIF Claim #: 2012-0026(S)

Date of Issuance

April 4, 2013

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The Pennsylvania Underground Storage Tank Indemnification Fund (PAUSTIF), on behalf of the claimant who hereafter is referred to as the Client or Solicitor, is providing this Request for Bid (RFB) to prepare and submit a bid to complete the Scope of Work (SOW) for the referenced site. The Solicitor has an open claim with the PAUSTIF and the corrective action work will be completed under this claim. Reimbursement of Solicitor-approved, reasonable and necessary costs up to claim limits for the corrective action work described in this RFB will be provided by the PAUSTIF. The Solicitor is responsible to pay any applicable deductible and/or proration.

Each bid response will be considered individually and consistent with the evaluation process described in the PAUSTIF Competitive Bidding Fact Sheet, which can be downloaded from the PAUSTIF's website at http://www.insurance.pa.gov.

Calendar of Events

Activity	**Date and Time**
Notification of Intent to Attend Site Visit	April 17, 2013 by 5 p.m.
Mandatory Pre-Bid Site Visit	April 18, 2013 at 1 p.m.
Deadline to Submit Questions	April 25, 2013 by 5 p.m.
Bid Due Date and Time	May 2, 2013 by 3 p.m.

Contact Information

ICF International	Solicitor	Technical Contact
Linda Melvin ICF International 4000 Vine Street Middletown, PA 17057	William Powell PCR Realty, LLC 455 Route 247 Greenfield, PA 18407	David L. Reusswig, P.G. Groundwater Sciences Corporation 2601 Market Place Street Suite 310 Harrisburg, PA 17110 dreusswig@groundwatersciences.com

All questions regarding this Request for Bid (RFB) and the subject site conditions must be directed via e-mail to the Technical Contact identified above with the understanding that all questions and answers will be provided to all bidders. The email subject line must be "Lake Mart, 2012-0026(S) – RFB QUESTION". Bidders must neither contact nor discuss this RFB with the Solicitor, the PAUSTIF, the Pennsylvania Department of Environmental Protection (PADEP), or ICF International (ICF) unless approved by the Technical Contact. Bidders may discuss this RFB with subcontractors and vendors to the extent required for preparing the bid response.

Requirements

Mandatory Pre-Bid Site Meeting

The Solicitor, the Technical Contact, or their designee will hold a mandatory site visit on the date and time listed in the calendar of events to answer questions and conduct a site tour for one participant per bidding company. This meeting is mandatory for all bidders, no exceptions. This meeting will allow each bidding company to inspect the site and evaluate site conditions. **A notice of the bidder's intent to attend this meeting is requested to be provided to the Technical Contact via email by the date listed in the calendar of events with the subject "Lake Mart, 2012-0026(S) – SITE MEETING ATTENDANCE NOTIFICATION".** The name and contact information of the company participant should be included in the body of the e-mail.

Submission of Bids

To be considered for selection, **one hard copy of the signed bid package and one electronic copy (one PDF file on a compact disk (CD) included with the hard copy) must be provided directly to the PAUSTIF's third party administrator, ICF, to the attention of the Contracts Administrator.** The Contracts Administrator will be responsible for opening the bids and providing copies to the Technical Contact and the Solicitor. Bid responses will only be accepted from those companies that attended the mandatory pre-bid site meeting. **The ground address for overnight/next-day deliveries is ICF International, 4000 Vine Street, Middletown, PA 17057, Attention: Contracts Administrator. The outside of the shipping package containing the bid must be clearly marked and labeled with "Bid – Claim # 2012-0026(S)".** Please note that the use of U.S. Mail, FedEx, UPS, or other delivery method does not guarantee delivery to this address by the due date and time listed in the Calendar of Events for submission. Companies mailing bids should allow adequate delivery time to ensure timely receipt of their bid.

The bid must be received by 3 p.m., on the due date shown in the Calendar of Events. Bids will be opened immediately after the 3 p.m. deadline on the due date. Any bids received after this due date and time will be time-stamped and returned. If, due to inclement weather, natural disaster, or any other cause, the PAUSTIF's third party administrator, ICF's office is closed on the bid due date, the deadline for submission will automatically be extended to the next business day on which the office is open. The PAUSTIF's third party administrator, ICF, may notify all companies that attended the mandatory site meeting of an extended due date. The hour for submission of bids shall remain the same. Submitted bid responses are subject to Pennsylvania Right-to-Know Law.

Bid Requirements

The Solicitor wishes to execute a mutually agreeable contract with the selected consultant ("Remediation Agreement"). The Remediation Agreement is included as Attachment 1 to this Request for Bid. The bidder must identify and document in their bid any modifications that they wish to propose to the Remediation Agreement language in Attachment 1 other than obvious modifications to fit this RFB (e.g., names, dates and descriptions of milestones). The number and scope of any modifications to the standard agreement language will be one of the criteria used to evaluate the bid. **Any bid that does not clearly and unambiguously state whether the bidder accepts the Remediation Agreement language in Attachment 1 "as is", or that does not provide a cross-referenced list of requested changes to this agreement, will be considered non-responsive.** This statement should be made in a Section in the bid entitled "Remediation Agreement". Any proposed changes to the agreement should be specified in the bid; however, these changes will need to be reviewed and agreed upon by both the Solicitor and the PAUSTIF.

The selected consultant will be provided an electronic copy (template) of the draft Remediation Agreement in Microsoft Word format to allow agreement-specific information to be added. The selected consultant shall complete the agreement-specific portions of the draft Remediation Agreement and return the document to the Technical Contact within 10 business days from date of receipt.

The Remediation Agreement fixed costs shall be based on unit prices for labor, equipment, materials, subcontractors/vendors and other direct costs. The total cost quoted in the bid by the selected consultant will be the maximum amount to be paid by the Solicitor unless a change in scope is authorized and determined to be reasonable and necessary. There may be deviations from and modifications to this Scope of Work (SOW) during the project. The Remediation Agreement states that any significant changes to the SOW will require approval by the Solicitor, the PAUSTIF, and the PADEP. NOTE: Any request for PAUSTIF reimbursement of the reasonable costs to repair or replace a well will be considered on a case-by-case basis.

The bidder shall provide its bid cost using the Bid Cost Spreadsheet (included as Attachment 2) with descriptions for each task provided in the body of the bid document. Please note if costs are provided within the text of the submitted bid and there is a discrepancy between costs listed in the Bid Cost Spreadsheet and in the text, the costs listed within the Bid Cost Spreadsheet will be used in the evaluation of the bid and in the Remediation Agreement with the selected consultant. Bidders are responsible to ensure spreadsheet calculations are accurate.

In addition, the bidder shall provide:

1. The bidder's proposed unit cost rates for each expected labor category, subcontractors, other direct costs, and equipment;

2. The bidder's proposed markup on other direct costs and subcontractors (if any);

3. The bidder's estimated total cost by task consistent with the proposed SOW identifying all level-of-effort and costing assumptions; and

4. A unit rate schedule that will be used for any out-of-scope work on this project.

Each bid will be assumed to be valid for a period of up to 120 days after receipt unless otherwise noted. The costs quoted in the Bid Cost Spreadsheet will be assumed to be valid for the duration of the Remediation Agreement.

Please note that the total fixed-price bid must include all costs, including those cost items that the bidder may regard as "variable". These variable cost items will not be handled outside of the total fixed price quoted for the SOW. Any bid that disregards this requirement will be considered non-responsive to the bid requirements and, as a result, will be rejected and will not be evaluated.

Each bid response document must include at least the following:

1. Demonstration of the bidder's understanding of the site information provided in this RFB, standard industry practices, and objectives of the project.

2. A clear description, specific details, and original language of how the proposed work scope will be completed for each milestone. The bid should specifically discuss all tasks that will be completed under the Remediation Agreement and what is included (e.g., explain groundwater purging/sampling methods, which guidance documents will be followed, what will be completed as part of the site-specific work scope/SCR/RAP implementation). Recommendations for changes/additions to the Scope of Work proposed in this RFB shall be discussed, quantified, and priced separately; however, failure to bid the SOW "as is" may result in a bid not being considered.

3. A copy of an insurance certificate that shows the bidder's level of insurance consistent with the requirements of the Remediation Agreement. Note: The selected consultant shall submit evidence to the Solicitor before beginning work that they have procured and will maintain Workers Compensation; commercial general and contractual liability; commercial automobile liability; and professional liability insurance commensurate with the level stated in the Remediation Agreement and for the work to be performed.

4. The names and brief resumes/qualifications of the proposed project team including the proposed Professional Geologist and Professional Engineer (if applicable) who will be responsible for overseeing the work and applying a professional seal to the project deliverables (including any major subcontractor(s)).

5. Responses to the following specific questions:

    a. Does your company employ a Pennsylvania-licensed Professional Geologist that is designated as the proposed project manager? How many years of experience does this person have?
    b. How many Pennsylvania Chapter 245 projects is your company currently the consultant for in the PADEP Region where the site is located? Please list up to ten.
    c. How many Pennsylvania Chapter 245 Corrective Action projects involving an approved SCR, RAP and RACR has your company and/or the Pennsylvania-licensed Professional Geologist closed (i.e., obtained Relief from Liability from the PADEP) using any standard?
    d. Has your firm ever been a party to a terminated PAUSTIF-funded Fixed-Price (FP) or Pay-for-Performance (PFP) contract without attaining all of the Milestones? If so, please explain.

6. A description of subcontractor involvement by task. Identify and describe the involvement and provide actual cost quotations/bids/proposals from all significant specialized subcontracted services (e.g., drilling/well installations, laboratory, vac-out, etc.). If a bidder chooses to prepare its bid without securing bids for specialty subcontract services, it does so at its own risk. Added costs resulting from bid errors, omissions, or faulty assumptions will not be considered for PAUSTIF reimbursement.

7. A detailed schedule of activities for completing the proposed SOW including reasonable assumptions regarding the timing and duration of Solicitor reviews (if any) needed to complete the SOW. Each bid must provide a schedule that begins with execution of the Remediation Agreement with the Solicitor and ends with completion of the final Milestone proposed in this RFB. Schedules must also indicate the approximate start and end of each of the tasks/milestones specified in the Scope of Work, and indicate the timing of all proposed key milestone activities.

8. A description of how the Solicitor, ICF and the PAUSTIF will be kept informed as to project progress and developments, and how the Solicitor (or designee) will be informed of and participate in evaluating technical issues that may arise during this project.

9. A description of your approach to working with the PADEP. Describe how the PADEP would be involved proactively in the resolution of technical issues and how the PADEP case team will be kept informed of activities at the site.

10. Key exceptions, assumptions, or special conditions applicable to the proposed SOW and/or used in formulating the proposed cost estimate. Please note that referencing

extremely narrow or unreasonable assumptions, special conditions and exceptions may result in the bid response being deemed “unresponsive”.

General Site Background and Description

Each bidder should carefully review the existing information and documentation provided in Attachment 3. The information and documentation has not been independently verified. Bidders may wish to seek out other appropriate sources of information and documentation specific to this site. If there is any conflict between the general site background and description provided herein and the source documents within Attachment 3, the bidder should defer to the source documents.

Site Name/Address

Lake Mart, 455 Route 247, Greenfield Township, Lackawanna County, Pennsylvania 18407. The location of the site is shown on the portions of the Clifford and Carbondale, Pennsylvania 7.5-minute USGS Quadrangles map provided as Figure 1.

PAUSTIF Eligibility

Following the documented release from the unleaded gasoline UST system in 2012, the Solicitor filed a claim with the Pennsylvania Underground Storage Tank Indemnification Fund (PAUSTIF) and eligibility was granted under PAUSTIF Claim No. 2012-0026(S). The PAUSTIF has agreed to 100% reimbursement of Solicitor-approved reasonable, necessary and appropriate costs up to claim limits for the corrective action work described in this RFB.

Site Property Ownership and Operations History

The site property is currently owned by PCR Realty, LLC. PCR Realty, LLC also owns the two active UST systems at the site property. According to the current site property co-owner, Mr. William Powell, the site property has operated as a petroleum dispensing facility as early as 1990, when the current USTs were installed. According to Mr. Powell, the site property has operated as the Lake Mart convenience store and petroleum dispensing facility since 2010. From 2005 through 2010 the site property was vacant and in foreclosure. From 1998 through 2005, the site property operated as CJ's Minimarts, and from 1990 through 1998, the site property operated as US Minimart, under previous owners. Prior to 1990 and as early as the 1950's, the site property operated as Geroulo's Ice Cream Shop.

USTs and ASTs Currently on Site Property

Currently, there are two active UST systems (one 4,000-gallon (UST #002) and one 8,000-gallon (UST #001)) located within the northern portion of the site property (Figure 2). A third UST (4,000-gallon; designated as UST #003), located within the same tank grave and the suspected source of the 2012 reportable release, was closed by removal in 2012. All three USTs were installed at the site in July of 1990.

According to the site property co-owner, Mr. William Powell, the only other known tank present at the site is a 1,000-gallon propane tank used for heating the site building.

Site Description

The site property is 0.85 acre in size and consists of one parcel. The site property currently consists of two dispenser islands with a canopy, two UST systems, and a single-story convenience store with an unfinished basement. The majority of the site property is asphalt-paved. A site map showing pertinent site features is provided as Figure 2.

The site is located in a rural area with commercial and residential properties. The site property is surrounded by a commercial property to the north, a residential property to the south, and vacant land to the east (beyond Route 247) and west. A scaled aerial photograph showing the site property and surrounding properties is provided as Figure 3.

The site property is located at an elevation of approximately 1,685 feet above mean sea level (famsl) and is located near a topographic divide (Figure 1). The ground surface on-site slopes to the north/northwest. The closest surface water body is Newton Lake, located approximately 2,000 feet northeast of the site. A tributary of Dundaff Creek (a Cold Water Fishery) is located approximately 3,400 feet west of the site. Southeast and northeast of the topographic divide are wetland areas.

The site and surrounding properties are served by public sanitary sewer, overhead electric, and private water supply wells. Information regarding the site's potable water supply is provided below.

<u>On-site Potable Water Supply Well</u>

The site property's potable water supply well is located inside the convenience store (Figure 2). The site's potable water supply is designated by the PADEP as a "transient public water supply" because it serves more than 25 non-resident persons as part of the store's restaurant operations. The water supply is currently permitted as a public water supply under the PaDEP's Drinking Water Program (PWS #2350394) and required sampling is conducted on a quarterly basis.

According to the November 2012 SCR (Attachment 3c), "there are no construction details for the site potable well, and it is not known who completed the installation of this well as the well is believed to be greater than 20 years old. However, the depth of the well was determined to be approximately 100 feet deep."

The Technical Contact has no documentation of the specific construction of the on-site potable water supply well other than the limited information provided in the SCR (Attachment 3c) and the PAGWIS well search database (Table 1). This well is likely one of the two wells listed on the PAGWIS database that has been drilled at or in the immediate vicinity of the site property (highlighted on Table 1; Figure 1). One well was reportedly drilled in 1969 (Well ID #22534) and

was owned by “G&S Sales Geroulo”. This well had a reported depth-to-bedrock of 460 feet and a static water level of 242 feet, and was reported as a “domestic” well. The other well (Well ID #247883) was reportedly owned by “C.J.’s Restaurant and Mini-Mart”, had a reported depth-to-bedrock of 265 feet, had no reported static water level, and was reported as a “commercial well”. The existing on-site potable water supply well also may be the well that is designated as Well #278 on the Groundwater Contour Map (Figure 4).

It is unclear at this point which of the above-mentioned wells is the existing on-site potable water supply well. There is no specific static water level data available for the existing on-site potable water supply well. Based on available information regarding depth-to-bedrock (265-460 feet) and static water level (242 feet) provided in the PAGWIS well search database (Table 1), the reported water elevation for Well #278 (shown on Figure 4) and approximate depth-to-water of (1,685 surface elevation – 1,438 groundwater elevation =) 247 fbg, and the depth of the well reported in the SCR, it is suspected that the on-site potable water supply well is screened in overburden, above the top of bedrock. Drilling/installing at least one deeper groundwater monitoring well at the site (as part of the SOW for this RFB) will confirm whether bedrock at the site exists at a depth less than 100 fbg and whether the existing on-site potable water supply well (assuming it is 100 feet deep as reported) is drilled/screened in overburden or bedrock.

Physiography

In Lackawanna County, the northern Glaciated Low Plateau Section and the southern Pocono Plateau Section of the Appalachian Plateaus Physiographic Province is separated by the Anthracite Valley Section of the Valley and Ridge Physiographic Province (Figure 5). As shown on the geographic-physiographic relationships map included as Figure 5, the site is located within the Glaciated Low Plateau Section of the Appalachian Plateaus Physiographic Province.

Regional Geology

According to *Groundwater Resources Report 41, Groundwater Resources of Lackawanna County, Pennsylvania* (Hollowell, J.R., and Koester, H.E., Pennsylvania Geological Survey, 1975), the bedrock beneath the site consists of the Devonian-aged Catskill Formation (Figure 6). The Catskill Formation is composed of dark-grayish-red to reddish-brown shale, claystone, and siltstone; greenish-gray and dark-grayish-red, fine- to coarse-grained sandstone and conglomerate. Small amounts of grayish-brown calcareous conglomerate and greenish-gray conglomerate mudstone are present locally. Crossbedding, channeling, and cut-and-fill features are typical of the sandstone and conglomerate units. According to the PAGWIS well search database (Table 1), the reported depth to bedrock is 140-500 fbg.

The unconsolidated deposits overlying the bedrock are mostly glacial deposits in the form of till, moraine, outwash, and kame terraces; post-glacial alluvial deposits The deposits of clay, silt, sand, and gravel that cover most of the bedrock were deposited by glacial or glaciofluvial action during the Pleistocene Epoch and underlie the thinner Holocene deposits in stream valleys.

Structurally, the Lackawanna Syncline is the major geologic structure of the region. The flat-lying rocks of the plateaus adjacent to the Lackawanna Valley are downfolded under the Lackawanna Valley and underlie the younger, more resistant units that form the mountains flanking the valley. The dips of the rocks flanking the syncline are less than ten degrees at the northeast end, in the general area of the site (Figure 6). The area included in the Anthracite Valley Section of the Valley and Ridge Physiographic Province (Figure 5) is underlain by folded rocks in and adjacent to the Lackawanna Valley. The rocks that underlie the Lackawanna Valley to the east of the site are downfolded into a canoe-shaped trough that contains the eastern half of the Northern Anthracite field. Mining of coal from this trough has created a vast underground network of interconnected voids that filled with water after cessation of mining (Figures 4 and 6) (Water Resources Report 41, *Groundwater Resources of Lackawanna County, Pennsylvania*, Hollowell, J.R., and Koester, H.E., Pennsylvania Topographic and Geologic Survey, 1975).

Regional Hydrogeology

The water table in the vicinity of the site as well as throughout the county, in general, conforms to the topography, as shown by the contour map (Plate 2) included in *Groundwater Resources Report 41, Groundwater Resources of Lackawanna County, Pennsylvania* (Hollowell, J.R., and Koester, H.E., Pennsylvania Geological Survey, 1975) (Figure 4). In most valleys the wells are artesian or have shallow water tables, and in hilltop areas the wells have deeper water levels.

Within the region, development of water supplies has occurred from both unconsolidated (i.e., glacial overburden) and consolidated (i.e., bedrock) aquifers. Based on information provided in *Groundwater Resources Report 41, Groundwater Resources of Lackawanna County, Pennsylvania (Hollowell, J.R., and Koester, H.E., Pennsylvania Geological Survey, 1975)* and the PAGWIS well search database, there are several wells that have been drilled in the vicinity of the site. According to the PAGWIS well search database (Table 1), the reported depth to static water level in the water supply wells located within a ½-mile radius of the site is 10-300 fbg.

Site Geology

Based on observations made by James P. Sposito Associates during drilling activities, soil at the site consists of brown silt and gravel. Bedrock was not encountered during the drilling activities supervised by James P. Sposito Associates. Depth to bedrock at the site is unknown, but depth to bedrock is greater than a depth of twenty-five (25) feet below grade (fbg), the maximum depth of the four soil groundwater wells installed at the site. Depth to bedrock at the site may be determined from the drilling/monitoring well installation activities included as part of the SOW for this RFB (if bedrock is encountered less than 100 fbg).

Site Hydrogeology

Based on previous groundwater gauging data provided by James P. Sposito Associates (Attachments 3c and 3d), the depth to the water table is six to 12 fbg. Shallow groundwater flow beneath the site is generally to the west-southwest.

Nature of Confirmed Release and Subsequent Site Characterization Activities

Site characterization was initiated following the confirmation of an unleaded gasoline release during the removal of a 4,000-gallon UST (UST #003) in 2012. The following is a brief summary of corrective action activities at the site:

- On October 3, 2011, Francis Smith & Sons completed a routine facility operation inspection of the underground tank system. During the inspection, gasoline and water was discovered in the interstitial space of one of the 4,000-gallon USTs (i.e., UST #003). The sensors monitoring the interstitial space of UST #003 were later found to be inoperative. This was the first indication that a product release may have occurred at the facility. It was reported that approximately 50 gallons of gasoline was believed to have been lost in September or October of 2011, however, the approximate volume of product released to soil and groundwater is unknown.

- On November 22, 2011, UST #003 was temporarily removed from service, and the gasoline/water within the interstitial space of the tank walls was reportedly pumped out.

- On January 18, 2012, UST #003 was closed by removal. Two longwall soil samples (TES-01[4.0] and TES-02[4.0]), and two samples of the water encountered within the tank grave (TEW-01[4.0] and TEW-02[4.0]) were collected from the UST excavation following the removal of the tank. Laboratory analytical results, summarized on Table 2, showed that unleaded gasoline target analyte concentrations in the two soil samples were below laboratory detection limits, however, benzene, 1,2,4-trimethylbenzene (124-TMB), and 1,3,5-trimethylbenzene (135-TMB) concentrations in both water samples were greater than the Residential, Used Aquifer (RUA) Medium-Specific Concentrations (MSCs), indicating extensive contamination as defined in the PADEP UST Closure Guidance. A copy of the UST Closure Report, dated February 2012, is provided as Attachment 3a.

- A Notice of Contamination was submitted to the PADEP on February 13, 2012 (Attachment 3b).

- On June 26, 2012, four (4) soil borings (SB-1 through SB-4; Figure 2) were drilled to the depth of approximately twelve (12) feet below grade (fbg) using Geoprobe® direct push methods. Laboratory analytical results, summarized on Table 3, showed that unleaded

gasoline target analyte concentrations in the four soil samples collected were below laboratory detection limits.

- In July and September of 2012, eight two-inch diameter soil groundwater monitoring wells were drilled/installed to a depth of approximately 25 fbg (MW-1 through MW-8; Figure 2), under the supervision of James P. Sposito Associates, to characterize soil groundwater conditions at the site and attempt to delineate groundwater impacts at the site.

- In September-October of 2012, James P. Sposito Associates supervised the installation of two soil vapor monitoring points (SG-1 and SG-2; Figure 2; exacts dates of installation not specified in submitted SCR). A soil vapor sampling event was conducted by James P. Sposito Associates on October 12, 2012. Laboratory analytical results of the soil vapor samples, summarized on Table 4, indicate that soil vapor concentrations of target unleaded gasoline analytes are below applicable RUA Soil Vapor MSCs.

- James P. Sposito Associates conducted groundwater gauging/sampling on July 24, 2012 (MW-1 through MW-4), September 20, 2012 (MW-5 through MW-8), December 28, 2012 (MW-1 through MW-8), and January 31, 2013 (MW-1 through MW-8). Groundwater analytical data is summarized on Table 5. Groundwater elevation contour maps for the December 28, 2012 and January 31, 2012 gauging events are included as Figures 7 and 8, respectively. Groundwater concentration contour maps for the December 28, 2012 and January 31, 2012 sampling events are included as Figures 9 and 10, respectively.

- James P. Sposito Associates conducted sampling of the potable water supply well on July 24, 2012, December 28, 2012, January 2, 2013, and January 31, 2013 (Attachments 3c and 3d). Laboratory analytical results from these sampling events, summarized on Table 5, indicate that the potable water supply contains dissolved-phase methyl tert-butyl ether (MTBE) concentrations ranging from 15.6 micrograms per liter (ug/l) to 17.5 ug/l. These concentrations are less than the applicable RUA MSC for MTBE but are greater than the laboratory detection limit and/or Practical Quantitation Limit (PQL) for MTBE, indicating that the private water supply is affected or diminished and requires treatment, pursuant to 245.307(a).

- James P. Sposito Associates submitted a Site Characterization Report and Remedial Action Plan for the site in November of 2012 (Attachment 3c). In correspondence dated December 18, 2012 (Attachment 3e), the PADEP found the report deficient and determined that additional characterization and sampling is needed to further characterize all impacted media of concern in order to satisfy Chapter 245. The specific

reasons for the PADEP finding the report deficient are listed in their correspondence in Attachment 3b.

- As required by the PADEP in their December 18, 2012 correspondence (Attachment 3e), the permitting/installation of a granular activated carbon (GAC) treatment system for the potable water supply well is pending and the system is expected to be operational prior to the execution of the Remediation Agreement. Information pertaining to the GAC treatment system, including the Piping and Instrumentation Diagram (P & ID), the permit application, and system sampling results will be provided to the selected bidder following execution of the Remediation Agreement.

Scope of Work (SOW)

This RFB seeks competitive bids from qualified contractors to perform the activities in the Scope of Work (SOW) specified herein. The Technical Consultant has discussed the SOW with the PADEP Case Manager, Rebecca Albert, P.G., and the PADEP has reviewed and commented on the SOW. The PADEP's comments have been considered in the preparation of this SOW.

Objective

The objective of this RFB is to complete IRA and site characterization activities, and to submit a Site Characterization Report (SCR) to the PADEP. At this time, the Solicitor, who is also the site property owner, has selected the Statewide Health Standard (SHS) as the remedial goal for the site, using the RUA MSCs as the numerical standard for which attainment of the SHS would be demonstrated. Relief from Liability would ultimately be obtained for the unleaded gasoline release, without the use of any activity and use limitations.

This RFB Solicitation is for a Defined SOW where a specific SOW is presented to the bidders who prepare their bids on the basis of that scope. There are specific milestones outlined in this RFB designed to assist the bidder in preparing their bid. Each bid must detail the approach and specific methods for achieving the milestone objectives. In reviewing the quality of bids submitted under a defined SOW-type bid solicitation, there is an increased emphasis placed on cost.

Constituents of Concern (COCs)

The COCs for this site are the constituents included in the PADEP's New Shortlist of Unleaded Gasoline constituents (i.e., benzene, toluene, ethylbenzene, total xylenes, cumene, naphthalene, methyl tertiary-butyl ether (MTBE), 124-TMB and 135-TMB. Based on the most recent groundwater sampling event conducted on January 31, 2013, dissolved-phase benzene and MTBE concentrations in soil groundwater are greater than applicable RUA MSCs, and dissolved-phase MTBE concentrations in the water supply well are greater than PQLs but less than the RUA MSC.

General SOW Requirements

The bidder's approach to completing the SOW shall be in accordance with generally accepted industry standards/practices and all applicable federal, state, and local rules, regulations, guidance, and directives. The latter include, but are not limited to, meeting the applicable requirements of the following:

- The Storage Tank and Spill Prevention Act (Act 32 of 1989, as amended),
- Pennsylvania Code, Title 25, Chapter 245 - Administration of the Storage Tank Spill and Prevention Program,
- The Land Recycling and Environmental Remediation Standards Act of 1995 (Act 2), as amended),
- Pennsylvania Code, Chapter 250 - Administration of Land Recycling Program, and
- Pennsylvania's Underground Utility Line Protection Law, Act 287 of 1974, as amended by Act 121 of 2008.

During completion of the milestone objectives specified below and throughout implementation of the project, the selected consultant shall:[1]

- Conduct necessary, reasonable, and appropriate project planning and management activities until the project (i.e., Remediation Agreement) is completed. Such activities may include Solicitor communications/updates, meetings, record keeping, subcontracting, personnel and subcontractor management, quality assurance/quality control, scheduling, and other activities (e.g., utility location). Project planning and management activities will also include preparing and implementing plans for Health and Safety, Waste Management, Field Sampling/Analysis, and/or other plans that are necessary and appropriate to complete the SOW, and shall also include activities related to establishing any necessary access agreements. Project planning and management shall include identifying and taking appropriate safety precautions to not disturb site utilities; including but not limited to, contacting Pennsylvania One Call as required prior to any ground-invasive work. As appropriate, project management costs shall be included in each bidder's pricing to complete the milestones specified below.

- Be responsible for coordinating, managing, and completing the proper management, characterization, handling, treatment, and/or disposal of all impacted soils, water, and derivative wastes generated during the implementation of this SOW. The investigation-derived wastes, including purge water shall be disposed of in accordance with standard

[1] As such, all bids shall include the costs of these activities and associated functions within the quote for applicable tasks/milestones.

industry practices and applicable laws, regulations, guidance, and PADEP directives. Waste characterization and disposal documentation (e.g., manifests) shall be maintained and provided to the Solicitor and the PAUSTIF upon request. All investigation-derived wastes shall be handled and disposed of per PADEP's Regional Office guidance. It is the selected consultant's responsibility to conform to current PADEP Regional Office guidance requirements in the region where the site is located.

- Be responsible for providing the Solicitor and facility operator with adequate advance notice prior to each visit to the property. The purpose of this notification is to coordinate with the Solicitor and facility operator to ensure that appropriate areas of the property are accessible. Return visits to the site will not constitute a change in the selected consultant's SOW or result in additional compensation under the Remediation Agreement.

Site –Specific Milestones

Interim Remedial Action (IRA) Activities

Milestone A: Quarterly Operations & Maintenance (O&M) and Sampling of On-Site Potable Water Supply Treatment System for Two Quarters

The selected bidder shall conduct quarterly O&M and sampling of the on-site potable water supply treatment system for two quarters. The potable water supply will be treated with granular activated carbon (GAC) units that remove the dissolved-phase MTBE that has been detected in the untreated water supply at a maximum concentration of 17.5 micrograms per liter (ug/l). Information pertaining to the potable water supply treatment system, including but not limited to the P & ID, equipment-specific information, and the approved permit and requirements, will be provided to the selected bidder following execution of the Remediation Agreement.

During each quarterly system sampling event, a raw groundwater sample (collected at the influent sampling port prior to treatment), a mid-point sample (collected at the sampling port between the two GAC units), and an endpoint sample (collected at the sampling port after the two GAC units) would be collected. The samples, along with a trip blank, shall be analyzed for the PaDEP's New List of Unleaded Gasoline parameters in accordance with EPA Method 524.2. The treatment system samples shall be analyzed by a laboratory certified in the analysis of drinking water, in accordance with the existing permit, and results shall be reported to the PaDEP's Department of Drinking Water Quality and to the PaDEP's Tank Section at the Northeast Regional Office.

Milestone B: Carbon Change-out and Disposal

In order to receive consistent bids, bidders shall assume that one carbon change-out will occur during the duration of the Remediation Agreement. Thus, bidders shall provide a separate fixed price under this milestone to conduct a change-out (e.g., re-bedding or complete unit change-out) of two 2½ $ft.^3$ GAC units and appropriate disposal, to be performed in conjunction with one of the quarterly system O & M/ sampling events under Milestone A.

Milestone C: Monthly Vac-out Events on Monitoring Wells MW-1, MW-2 and MW-4 for Three Months (i.e., One Quarter)

The selected bidder shall implement a three-month vac-out program that will consist of monthly vac-out events on wells MW-1, MW-2 and MW-4. The purpose of the vac-outs is to attempt to reduce dissolved-phase benzene and MTBE concentrations in these wells and initiate groundwater attainment sampling more quickly by 1) removing impacted groundwater/soil vapor, 2) volatilizing sorbed hydrocarbons, and 3) introducing oxygen into the subsurface in the vicinity of wells MW-1, MW-2 and MW-4.

During each monthly vac-out event, the three monitoring wells shall be connected to the vacuum truck by a manifold, and the well bores shall be continuously and simultaneously evacuated for six hours using the vacuum truck. Well evacuation can be achieved by a drop tube to the bottom of the well. Each well head shall be adequately sealed to alleviate the potential for short-circuiting of ambient air into the well from the surface. The total depth of wells MW-1, MW-2 and MW-4 is approximately 25 fbg. Well construction logs and groundwater concentration trend graphs for wells MW-1, MW-2 and MW-4 are provided in Attachment 3d.

Data collected during each vac-out event shall include:

- Total vacuum applied to all wells;
- Vacuum at each wellhead;
- Start and stop time of vac-out and total duration of vac-out; and,
- Total number of gallons of water removed during the vac-out event.

For bidding purposes, and in order to provide consistent bids based on similar assumptions, bidders shall assume the following:

- 1,200 gallons will be removed during each monthly vac-out event; and,
- The wastewater will be classified as Non-Hazardous.

The selected bidder shall provide a fixed-price cost to conduct the three monthly vac-out events, based on the assumed total volume of groundwater removed. Bidder shall provide a fixed unit cost per gallon of groundwater removed/disposed based on the assumption that 1,200 gallons of groundwater will be removed/disposed during each vac-out event, because

it is too difficult to gauge how much groundwater will actually be removed during each vac-out event. The total cost for the vac-out subcontractor for all three monthly vac-out events, which includes the disposal cost of the assumed number of gallons to be removed (i.e., 1,200 gallons per vac-out event), is to be included as a unit cost in the Bid Cost Spreadsheet (Attachment 2), therefore including the costs in the bidder's total cost to be used by the bid evaluation committee when scoring the bid. The bidder shall fill in their fixed unit cost for disposal in the appropriate column and in the box at the bottom of the Bid Cost Spreadsheet (Attachment 2). Bidders should understand that, although an assumed number of units is being included for purposes of bid cost comparison, the remediation agreement will state that the selected bidder will invoice and be reimbursed for the actual number of gallons removed/disposed at the selected consultant's fixed unit cost per gallon. The contract will include the fixed unit cost specified in the selected bidder's bid response but the total milestone amount will be "TBD" (to be determined) based on the actual groundwater volume removed/disposed.

A detailed description of each vac-out event, all data collected from these activities, and all supporting documentation including disposal manifests, shall be presented in the SCR (Milestone I).

Additional Site Characterization Activities

Milestone D: Installation, Surveying, Development and Initial Sampling of One Deep Groundwater Monitoring Well (MW-4D) and Sampling of On-Site Potable Water Supply Well

The selected consultant shall install one deep monitoring well (MW-4D; Figure 11) to further characterize deep groundwater in the vicinity of shallow well MW-4 (the most impacted well historically). If any unleaded gasoline target analyte is detected at concentrations greater than the applicable RUA MSC during at least one of the two groundwater characterization sampling rounds in Milestones E and F, then bidders shall proceed with Milestones J and K. If all unleaded gasoline target analyte concentrations are less than the applicable RUA MSCs during the two sampling rounds in Milestones E and F, then bidders shall not proceed with Milestone J and K.

Based on the reported depth of the on-site potable water supply well, and the well depths and water levels in surrounding wells (documented in the PAGWIS well search database and the Groundwater Table Map included in *Groundwater Resources Report 41 (Plate 2), Groundwater Resources of Lackawanna County, Pennsylvania* (Hollowell, J.R., and Koester, H.E., Pennsylvania Geological Survey, 1975)), bidders shall assume for bidding purposes that the deep groundwater well shall be installed with the following characteristics:

a. The deep groundwater monitoring well will be installed and screened in unconsolidated overburden;

b. Continuous soil/overburden characterization shall be conducted and boring logs shall be prepared for each well using appropriate classification systems;

c. No soil screening with a photoionization detector (PID) is necessary;

d. The well shall be drilled to a depth of 100 fbg;

e. An eight-inch diameter borehole shall be drilled to 50 fbg using air rotary methods;

f. Six-inch steel surface casing shall be installed or driven to 50 fbg to prevent borehole collapse;

g. A six-inch diameter borehole shall be drilled from 50-100 fbg;

h. The well shall be constructed of two-inch diameter, threaded, flush-joint, schedule 40 PVC riser and 25 feet of 0.010-inch slot width well screen (from 75-100 fbg);

i. The well shall be constructed such that there is two feet of #00 sand pack around the screen that extends to two feet above the top of the screen, and there is one foot of #00N choker sand on top of the #00 sand;

j. Approximately five feet of bentonite chips shall be placed on top of the #00N choker sand;

k. The remainder of the annulus between the PVC well and the borehole wall shall be tremie-grouted to one foot below grade, and the steel casing shall be removed prior to setting of the grout;

l. The well shall be completed at the surface with an eight-inch diameter manhole that is set in a concrete pad that is flush with the ground surface. A locking, pressure fit, watertight cap shall be secured on the top of the PVC well inside the manhole to further restrict access by unauthorized individuals; and,

m. A monitoring well construction log shall be prepared for the well.

Following the installation of the above-referenced well, the selected bidder shall develop the well. A minimum of ten well volumes shall be removed from each well during development.

The selected bidder shall conduct initial sampling of the new deep groundwater monitoring well at least two weeks following well development and not within 30 days of a vac-out event. A water level measurement shall be taken from the new well using a water level indicator. The depth-to-water shall be recorded. The casing elevation of the well shall be surveyed within +/- 0.01 foot relative to an arbitrary benchmark already established at the site. The benchmark elevation shall be obtained by referencing the approximate ground surface elevation of the property or from an available benchmark from the USGS topographic map or benchmark elevation marker located at the site if one exists. Depth-to-water data (measured from the top of casing) shall then be subtracted from the respective casing elevation to determine the water level elevation relative to the arbitrary benchmark such that the groundwater elevation within the well can be determined. It is assumed that

SPL will not be encountered in the well and so it should not be necessary to correct for product thickness when calculating the static groundwater elevation or potentiometric surface within the well.

The selected bidder shall collect an initial groundwater characterization sample from the new well to determine the concentration of target dissolved-phase unleaded gasoline constituents. Prior to sampling, the monitoring well shall be purged of three well volumes using a dedicated, two-inch diameter submersible pump, such as a Grundfos® pump. Low-flow purging/sampling, or the collection of groundwater quality parameters, is not required. Bidders shall assume that the well will not evacuate and/or will recover within a reasonable timeframe. The well shall be allowed to recover fully before sampling. At the conclusion of purging, a groundwater sample shall be collected using a dedicated bailer.

Sampling of the potable water supply well (by collecting a sample from the influent sampling port prior to the first GAC unit of the water supply treatment system) shall also be conducted at this time.

Groundwater sampling and analysis shall be conducted in accordance with generally accepted practices as outlined in the PADEP's Groundwater Monitoring Guidance Manual, dated December 1, 2001 (Document # 383-3000-001). All groundwater samples shall be transferred into laboratory-supplied sample containers and kept chilled (i.e., < 4° C) through delivery to the analytical laboratory. All samples shall be analyzed for the COCs listed on Page 15 of this RFB.

<u>Milestone E: Comprehensive Gauging and Sampling of Nine Groundwater Monitoring Wells (MW-1 through MW-8; MW-4D) and Sampling of On-Site Potable Water Supply Well</u>

Between 30-45 days following the initial sampling of well MW-4D, and also not within 30 days following a vac-out event, the selected bidder shall conduct confirmatory gauging and sampling of the new deep groundwater monitoring well (MW-4D), sampling of the potable water supply well (by collecting a sample from the influent sampling port prior to the first GAC unit as part of a quarterly O & M event under Milestone A), and gauging and sampling of the eight shallow groundwater monitoring wells (MW-1 through MW-8). The gauging/sampling of the groundwater monitoring wells shall be conducted at least 12 hours following the shutdown of the potable water supply well pump and treatment system to allow for full recovery of groundwater within each of the wells to ensure accurate static water level readings in the wells and an accurate representation of hydraulic gradient and groundwater flow direction under static conditions.

Following the gauging of the wells, the water supply well pump and treatment system shall be reactivated, and the quarterly treatment system sampling shall be conducted. This will allow an influent (raw) groundwater sample to be collected on the same day as the sampling of the monitoring wells.

Water level measurements in the monitoring wells, and sampling and analyses shall be conducted in the same manner as described for Milestone D. Purging of the shallow wells shall be conducted using hand-bailing, and purging of the deep well shall be conducted in the same manner as described for Milestone D. The depth-to-water data collected during this comprehensive groundwater monitoring round shall be used to determine groundwater elevations (shallow wells) and potentiometric surfaces (deep wells) that can be used to create groundwater elevation/potentiometric surface contour maps and determine groundwater flow direction for both the shallow groundwater and the deep groundwater. Groundwater concentration contour maps for all constituents that exceed the applicable RUA MSCs, for both the shallow groundwater and the deep groundwater, shall be prepared using the data from this sampling event, and these maps shall be included in the SCR referenced below.

Milestone F: Conduct Single Well Hydraulic Conductivity Tests (Slug Tests)

The selected bidder shall conduct rising head slug tests in shallow groundwater monitoring wells MW-5, MW-6 and MW-8. These slug tests shall not be conducted within 30 days following a vac-out or groundwater sampling event. As an alternative, slug testing can be performed prior to the implementation of the vac-outs (Milestone C) and groundwater sampling (Milestone E) at the site.

During each test, a pressure transducer/datalogger shall be placed below the top of the water surface such that the pressure transducer does not interfere with the insertion and/or removal of the slug. The depth to water in the well shall be measured manually several times over a period of time to properly calibrate the pressure transducer. The rising head test shall be used instead of the falling head test because when the water level is below the top of screen, the falling water drains both into the saturated soil and unsaturated portion of the aquifer and overestimates the hydraulic conductivity.

For the rising head tests, the slug shall be inserted into the well until it is just below the original static water surface. After the well has returned to static conditions, the slug shall be removed quickly and smoothly. The datalogger shall be started immediately before the slug is removed to ensure that the entire test is recorded. Transducer data shall be collected during each test for a sufficient period of time to ensure that the well has returned to static conditions.

The transducer data shall be analyzed using an appropriate analytical method (e.g., Bouwer and Rice, 1976, rev. 1989) for the rising head portion of the test at each well. The hydraulic conductivities shall be calculated and then compared to values that would be expected for the soil types encountered at this site. Slug test data and interpretations shall be presented in the SCR. The values for soil hydraulic conductivity in each of the wells shall be reported as well as the average soil hydraulic conductivity value calculated from the soil well slug test data. Also, the estimated groundwater flow velocity shall be calculated, based on the

calculated average gradient and an appropriate effective soil porosity value for the site, and presented in the SCR. Supporting analytical method software output data and graphs shall also be presented in the SCR.

Milestone G: Conduct Confirmatory Round of Soil Vapor Sampling

A confirmatory round of soil vapor sampling shall be conducted to determine whether soil vapor intrusion into the on-site occupied building is an issue. Soil vapor monitoring points SG-1 and SG-2 shall be collected using Summa canisters. Soil vapor point sampling and analyses shall be conducted in accordance with the PADEP's *Technical Guidance Manual - Section IV.A.4. Vapor Intrusion into Buildings from Groundwater and Soil under Act 2 Statewide Health Standard (January 24, 2004).*

The soil vapor samples shall be analyzed for the PADEP's New Shortlist of unleaded gasoline constituents (i.e., benzene, toluene, ethylbenzene, total xylenes, cumene, MTBE, naphthalene, 124-TMB and 135-TMB) using EPA Method TO15. The above-mentioned PADEP guidance shall be used to assist in evaluating the soil vapor sample results. The guidance specifies that soil vapor shall be compared to 100 times the Residential Indoor Air MSCs to account for attenuation effects.

Details of the vapor intrusion assessment, including analytical results and a detailed evaluation of the vapor intrusion potential, shall be included in the SCR.

Milestone H: Preparation and Submittal of SCR or Site Characterization Progress Report

The selected bidder shall prepare a SCR (if soil and groundwater delineation is considered complete) or a Site Characterization Progress Report (if soil and/or groundwater is not considered complete) in accordance with 25 Pa Code §245.310. The selected bidder shall prepare the report in draft form for review and comment by the Solicitor and the PAUSTIF. The bidders' schedules shall provide two weeks for this review. The selected bidder shall address all of the comments received by the Solicitor and the PAUSTIF before submission to the PADEP.

The selected bidder shall prepare a SCR or Site Characterization Progress Report that documents and discusses the data obtained and the conclusions drawn from the completion of Milestones A through H (and possibly Milestones J and K). The report shall include a detailed Conceptual Site Model in accordance with 245.310(a)(23) and a discussion and evaluation, to the extent necessary, of the feasibility of remedial alternatives for meeting the selected remedial goal for soil and groundwater at the site. The report shall also include an ecological evaluation. Tables, figures and other attachments that support the text shall include, at a minimum, the following:

- Updated historical groundwater elevation data;
- Updated historical groundwater analytical data;

- Historical soil analytical data;
- Historical soil vapor analytical data;
- A USGS Quadrangle map showing site location;
- Site map (showing site boundaries and pertinent site features) (AutoCAD files will be provided to selected bidder by Technical Consultant);
- Monitoring well, soil boring and soil vapor point location map (showing existing and new locations);
- Groundwater elevation contour map for shallow groundwater (for the comprehensive sampling round(s);
- Potentiometric surface contour map for deep groundwater (for the comprehensive sampling round(s);
- Shallow groundwater concentration contour maps for all constituents found to be above the RUA MSCs in any sample (for comprehensive sampling round(s));
- Deep groundwater concentration contour maps for all constituents found to be above the RUA MSCs in any sample (for comprehensive sampling round(s));
- Trend graphs for those constituents that exhibit concentrations greater than the applicable RUA MSCs;
- Laboratory analytical reports for soil, soil vapor and groundwater with supporting chains of custody and field sampling documentation;
- Soil boring logs, soil vapor monitoring point construction logs, and construction logs for new deep groundwater monitoring wells and existing soil groundwater monitoring wells;
- Data from IRA activities; and,
- PAGWIS well search database summary table (copy included in this RFB).

<u>Milestone I (Contingent Cost Adder): Installation, Surveying, Development and Initial Sampling of Two Additional Deep Groundwater Monitoring Wells (MW-9D and MW-10D) and Sampling of On-Site Potable Water Supply Well</u>

Bidders shall provide a fixed price to install, survey, develop and sample two additional deep groundwater monitoring wells (MW-9D and MW-10D; Figure 11) as Milestone J (contingent cost adder). This milestone is contingent upon the sample results for monitoring well MW-4D. The selected bidder shall only conduct this work if any unleaded gasoline target analyte is detected at a concentration greater than the applicable RUA MSC in well MW-4D during any of the two groundwater characterization sampling rounds (under Milestones D and E). The selected bidder shall install, survey, develop and sample these additional two wells in the same manner as described for Milestone D. Sampling of these wells shall not be conducted within 30 days following a vac-out event.

Sampling of the potable water supply well (by collecting a sample from the influent sampling port prior to the first GAC unit of the water supply treatment system) shall also be conducted at this time.

Milestone J (Contingent Cost Adder): Additional Comprehensive Gauging and Sampling of 11 Groundwater Monitoring Wells (MW-1 through MW-8; MW-4D, MW-9D and MW-10D) and On-Site Potable Water Supply Well

Bidders shall provide a fixed price to conduct gauging and sampling of 11 groundwater monitoring wells. This milestone is contingent upon the sample results for monitoring well MW-4D. The selected bidder shall only conduct this work if any unleaded gasoline target analyte is detected at a concentration greater than the applicable RUA MSC in well MW-4D during any of the two groundwater characterization sampling rounds (under Milestones D and E). Between 30-45 days following the initial sampling of wells MW-9D and MW-10D, and also not within 30 days following a vac-out event, the selected bidder shall conduct confirmatory gauging and sampling of the eight shallow groundwater monitoring wells, gauging and sampling of the three deep groundwater monitoring wells (MW-4D, MW-9D and MW-10D), and sampling of the potable water supply well by collecting a sample from the influent sampling port prior to the first GAC unit of the water supply treatment system (as part of a quarterly O & M event under Milestone A). Water level measurements in the monitoring wells, purging, sampling and analyses shall be conducted in the same manner as described for Milestone E. The depth-to-water data collected during this comprehensive groundwater monitoring round shall be used to determine groundwater elevations (shallow wells) and potentiometric surfaces (deep wells) that can be used to create groundwater elevation/potentiometric surface contour maps, and determine groundwater flow direction, for both the shallow groundwater and the deep groundwater. Groundwater concentration contour maps for all constituents that exceed the applicable RUA MSCs, for both the shallow groundwater and the deep groundwater, shall be prepared using the data from this sampling event, and these maps shall be included in the SCR referenced below.

Additional Information

In order to facilitate PAUSTIF's review and reimbursement of invoices submitted under this claim, the Solicitor requires that project costs be invoiced by the milestone tasks identified in the bid. The standard practice of tracking total cumulative costs by milestone will also be required to facilitate invoice review. Actual milestone payments will occur only after successful and documented completion of the work defined for each milestone. The selected consultant will perform only those tasks/milestones that are necessary to reach the Objective identified in this RFB. Selected consultant will not perform, invoice, or be reimbursed for any unnecessary work completed under a Milestone.

Any "new conditions", as defined in Attachment 1, arising during the execution of the SOW for any of the milestones may result in termination of or amendments to the Remediation Agreement. All necessary modifications to the executed Remediation Agreement will require

the prior written approval of the Solicitor and the PAUSTIF. PADEP approval may also be required.

List of Attachments

1. Remediation Agreement
2. Bid Cost Spreadsheet
3. Site Information/Historic Documents
    a. UST Closure Report (DMS Environmental, Inc.; February 2012)
    b. Notice of Contamination
    c. Site Characterization Report and Remedial Action Plan (James P. Sposito Associates; November 2012)
    d. Additional Site Data
    e. Correspondence

Tables

Table 1
PAGWIS Well Search Information - 1/2-mile Radius of Site

Lake Mart Facility
455 Route 247
Greenfield Township, Lackawanna County, Pennsylvania 18407
PaDEP Facility ID No. 35-34675
USTIF Claim No. 2012-0026(S)

Well ID	Date Drilled	Type of Activity	Well Address	Well Zip Code	County	Quad Name	Municipality
22531	12/1/1956				LACKAWANNA	CARBONDALE	GREENFIELD TWP.
22534	10/9/1969				LACKAWANNA	CARBONDALE	GREENFIELD TWP.
260827	10/1/1999	NEW WELL			LACKAWANNA		GREENFIELD TWP.
260828	10/1/1999	NEW WELL			LACKAWANNA		GREENFIELD TWP.
496031	6/24/2010	NEW WELL	22 Hendrick Lane	18407	LACKAWANNA		
480998	6/8/2010	NEW WELL	497 Rt 247	18407	LACKAWANNA		
480901	6/7/2010	NEW WELL	497 Rt 247	18407	LACKAWANNA		
480900	6/3/2010	NEW WELL	497 Rt 247	18407	LACKAWANNA		
122073	2/7/1977	NEW WELL			LACKAWANNA	CARBONDALE	GREENFIELD TWP.
122137	1/1/1972	NEW WELL			LACKAWANNA	CLIFFORD	GREENFIELD TWP.
122133	1/1/1972	NEW WELL			LACKAWANNA	CLIFFORD	GREENFIELD TWP.
122134	1/1/1972	NEW WELL			LACKAWANNA	CLIFFORD	GREENFIELD TWP.
122136	1/1/1972	NEW WELL			LACKAWANNA	CLIFFORD	GREENFIELD TWP.
122139	1/1/1970	NEW WELL			LACKAWANNA	CLIFFORD	GREENFIELD TWP.
122138	1/1/1969	NEW WELL			LACKAWANNA	CLIFFORD	GREENFIELD TWP.
122141	1/1/1966	NEW WELL			LACKAWANNA	CLIFFORD	GREENFIELD TWP.
122151		NEW WELL			LACKAWANNA	CLIFFORD	GREENFIELD TWP.
122164		NEW WELL			LACKAWANNA	CLIFFORD	GREENFIELD TWP.
247883					LACKAWANNA	CLIFFORD	GREENFIELD TWP.

Table 1 (Continued)
PAGWIS Well Search Information - 1/2-mile Radius of Site

Lake Mart Facility
455 Route 247
Greenfield Township, Lackawanna County, Pennsylvania 18407
PaDEP Facility ID No. 35-34675
USTIF Claim No. 2012-0026(S)

Well ID	Latitude	Longitude	Drillers Well ID	Driller	Licensee
22531	41.61722	-75.55694		31	CRESSWELL DRILLING CO INC
22534	41.62444	-75.55639		31	CRESSWELL DRILLING CO INC
260827	41.63028	-75.55944	MGB2505	9994	
260828	41.63028	-75.55917	MGB2506	9994	
496031	41.62902	-75.55581	SPALL GEO2	96	MYERS DRILLING INC.
480998	41.62904	-75.55573	SMITH WM GEO3	96	MYERS DRILLING INC.
480901	41.62907	-75.55586	SMITH WM GEO2	96	MYERS DRILLING INC.
480900	41.62902	-75.55581	SMITH WM GEO1	96	MYERS DRILLING INC.
122073	41.61917	-75.5575		1277	WOLFE WELL DRILLING
122137	41.63056	-75.55222		836	WILLIAM H WOLFE
122133	41.63056	-75.55222		836	WILLIAM H WOLFE
122134	41.63056	-75.55222		836	WILLIAM H WOLFE
122136	41.63056	-75.55222		836	WILLIAM H WOLFE
122139	41.63056	-75.55222		836	WILLIAM H WOLFE
122138	41.63056	-75.55222		836	WILLIAM H WOLFE
122141	41.63056	-75.55222		666	TULLY DRILLING CO INC
122151	41.63111	-75.5525		521	GEORGE J REED & SON
122164	41.62861	-75.55306		666	TULLY DRILLING CO INC
247883	41.62417	-75.55639			

Table 1 (Continued)
PAGWIS Well Search Information - 1/2-mile Radius of Site

Lake Mart Facility
455 Route 247
Greenfield Township, Lackawanna County, Pennsylvania 18407
PaDEP Facility ID No. 35-34675
USTIF Claim No. 2012-0026(S)

Well ID	Owner	Depth to Bedrock	Yield Measurement Method	Static Water Level
22531	MONROE GEORGE	395	BAILER	300
22534	G&S SALES GEROULO	460	VOLUMETRIC WATCH & BUCKET	242
260827	CORNELL	320	ESTIMATED	
260828	O'HARA	500	ESTIMATED	
496031	SPALL	300		108
480998	SMITH	300		128
480901	SMITH	300		128
480900	SMITH	300		128
122073	IGNATOVICH PETE	290	BAILER	140
122137	LYNCK STEPHEN	140	UNKNOWN	40
122133	CARTER EDWIN E	142	UNKNOWN	35
122134	ATKINSON BOB	194	UNKNOWN	70
122136	CASJARO JOS	200		40
122139	HOBBS GEORGE	200	UNKNOWN	80
122138	DEFAZIO PETER	184	UNKNOWN	32
122141	KUEEGEL FRED	140		40
122151	BLESSINGTON J	325		10
122164	EVANCHO ROBERT	175		43
247883	C.J.'S RESTAURANT & MINI-MART	265		

Table 1 (Continued)
PAGWIS Well Search Information - 1/2-mile Radius of Site

Lake Mart Facility
455 Route 247
Greenfield Township, Lackawanna County, Pennsylvania 18407
PaDEP Facility ID No. 35-34675
USTIF Claim No. 2012-0026(S)

Well ID	Water Level after Yield Test	Length of Test	Well Use	Water Use
22531			WITHDRAWAL	PUBLIC SUPPLY
22534			WITHDRAWAL	DOMESTIC
260827				DOMESTIC
260828				DOMESTIC
496031				
480998				
480901				
480900				
122073	280	1.5	WITHDRAWAL	DOMESTIC
122137		2	WITHDRAWAL	DOMESTIC
122133		2	WITHDRAWAL	DOMESTIC
122134		2	WITHDRAWAL	DOMESTIC
122136		1	WITHDRAWAL	DOMESTIC
122139		2	WITHDRAWAL	DOMESTIC
122138		2	WITHDRAWAL	DOMESTIC
122141			WITHDRAWAL	DOMESTIC
122151			WITHDRAWAL	DOMESTIC
122164			WITHDRAWAL	DOMESTIC
247883			WITHDRAWAL	COMMERCIAL

Notes:
Source: Groundwater Information System; Pennsylvania Topographic and Geologic Survey.
PAGWIS = Pennsylvania Groundwater Information System.

Table 2
Soil and Groundwater Analytical Results
UST Closure Activities - January 2012

Lake Mart Facility
455 Route 247
Greenfield Township, Lackawanna County, Pennsylvania 18407
PaDEP Facility ID No. 35-34675
PAUSTIF Claim No. 2012-0026(S)

Soil Samples

Sample ID/Location	Sample Depth (fbg)	Benzene (ug/kg)	Toluene (ug/kg)	Ethylbenzene (ug/kg)	Total Xylenes (ug/kg)	Cumene (ug/kg)	MTBE (ug/kg)	Naphthalene (ug/kg)	1,2,4-TMB Xylenes (ug/kg)	1,3,5-TMB (ug/kg)
TES-01[4.0]	4.0	ND@0.020	ND@0.020	ND@0.020	ND@0.020	ND@0.020	ND@0.020	ND@0.020	ND@0.020	ND@0.020
TES-02[4.0]	4.0	ND@0.020	ND@0.020	ND@0.020	ND@0.020	ND@0.020	ND@0.020	ND@0.020	ND@0.020	ND@0.020
Act 2 SHS (PaDEP MSC: Soil-to-Groundwater Numeric Values)										
Residential, Used Aquifer Unsaturated		*500*	*100,000*	*70,000*	*1,000,000*	*25,000*	*2,000*	*100,000*	*1,000,000*	*3,000,000*

Groundwater Samples

Sample ID/Location	Sample Depth (fbg)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)	Cumene (ug/L)	MTBE (ug/L)	Naphthalene (ug/L)	1,2,4-TMB (ug/L)	1,3,5-TMB (ug/L)
TEW-01[4.0]	4.0	**110**	13	61	94	10	9.4	20	**170**	**33**
TEW-02[4.0]	4.0	**160**	37	140	270	22	11	42	**350**	**69**
Act 2 SHS (PaDEP MSCs)										
Residential, Used Aquifer (TDS ≤ 2,500 ug/L)		*5*	*1,000*	*700*	*10,000*	*840*	*20*	*100*	*15*	*13*

Notes:
fbg = Feet below grade.
MTBE = Methyl tert-butyl ether.
ND = Not detected or not detected at specified laboratory method detection limit.
NA = Not applicable.
ug/kg = micrograms per kilogram.
SHS = Statewide Health Standards.
PaDEP = Pennsylvania Department of Environmental Protection.
PAUSTIF = Pennsylvania Underground Storage Tank Indemnification Fund.
MSC = Applicable PADEP Medium-Specific Concentration for regulated organic substance.
TDS = Total dissolved solids.
ug/L = micrograms per liter.
1,2,4-TMB = 1,2,4-trimethylbenzene.
1,3,5-TMB = 1,3,5-trimethylbenzene.
Bolded values are greater than applicable MSC.

Table 3
Soil Analytical Results
Site Characterization Activities - June 2012

Lake Mart Facility
455 Route 247
Greenfield Township, Lackawanna County, Pennsylvania 18407
PaDEP Facility ID No. 35-34675
PAUSTIF Claim No. 2012-0026(S)

Sample ID/Location	Sample Date	Sample Depth (fbg)	Benzene (ug/kg)	Toluene (ug/kg)	Ethylbenzene (ug/kg)	Total Xylenes (ug/kg)	Cumene (ug/kg)	MTBE (ug/kg)	Naphthalene (ug/kg)	1,2,4-TMB Xylenes (ug/kg)	1,3,5-TMB (ug/kg)
SB-1 4-8	6/26/2012	4-8	ND @ 193	ND @ 193	ND @ 193	ND @ 579	ND @ 193	ND @ 193	ND @ 1,450	ND @ 193	ND @ 193
SB-1 8-12	6/26/2012	8-12	ND @ 166	ND @ 166	ND @ 166	ND @ 497	ND @ 166	ND @ 166	ND @ 1,240	ND@0.166	ND @ 166
SB-2 4-8	6/26/2012	4-8	ND @ 160	ND @ 160	ND @ 160	ND @ 479	ND @ 160	ND @ 160	ND @ 1,200	ND @ 160	ND @ 160
SB-2 8-12	6/26/2012	8-12	ND @ 173	ND @ 173	ND @ 173	ND @ 520	ND @ 173	ND @ 173	ND @ 1,300	ND @ 173	ND @ 173
SB-3 4-8	6/26/2012	4-8	ND @ 159	ND @ 159	ND @ 159	ND @ 476	ND @ 159	ND @ 159	ND @ 1,190	ND @ 159	ND @ 159
SB-3 8-12	6/26/2012	8-12	ND @ 176	ND @ 176	ND @ 176	ND @ 528	ND @ 176	ND @ 176	ND @ 1,320	ND @ 176	ND @ 176
SB-4 4-8	6/26/2012	4-8	ND @ 170	ND @ 170	ND @ 170	ND @ 511	ND @ 170	ND @ 170	ND @ 1,280	ND @ 170	ND @ 170
SB-4 8-12	6/26/2012	8-12	ND @ 157	ND @ 157	ND @ 157	ND @ 470	ND @ 157	ND @ 157	ND @ 1,180	ND @ 157	ND @ 157

Act 2 SHS (PaDEP MSC: Soil-to-Groundwater Numeric Values)

Residential, Used Aquifer Unsaturated	*500*	*100,000*	*70,000*	*1,000,000*	*25,000*	*2,000*	*100,000*	*1,000,000*	*3,000,000*

Notes:
fbg = Feet below grade.
MTBE = Methyl tert-butyl ether.
ND = Not detected at specified laboratory method detection limit.
NA = Not applicable.
ug/kg = Micrograms per kilogram.
SHS = Statewide Health Standards.
PaDEP = Pennsylvania Department of Environmental Protection.
PAUSTIF = Pennsylvania Underground Storage Tank Indemnification Fund.
MSC = Applicable PaDEP Medium-Specific Concentration for regulated organic substance.
ug/L = micrograms per liter.
1,2,4-TMB = 1,2,4-trimethylbenzene.
1,3,5-TMB = 1,3,5-trimethylbenzene.

Table 4
Soil Vapor Sampling Results

Lake Mart Facility
455 Route 247
Greenfield Township, Lackawanna County, Pennsylvania 18407
PaDEP Facility ID No. 35-34675
PAUSTIF Claim No. 2012-0026(S)

Analyte	Residential IAQ Standard (mg/m^3)	Soil Vapor MSC* (mg/m^3)	November 20, 2008			
			SG-1		SG-2	
			(ppbv)	(mg/m3)	(ppbv)	(mg/m3)
Benzene	0.0027	0.27	ND @ 0.00050	ND @ 0.0000016	ND @ 0.00050	ND @ 0.0000016
Ethylbenzene	0.019	1.9	ND @ 0.00050	ND @ 0.0000022	ND @ 0.00050	ND @ 0.0000022
Cumene	0.54	54	ND @ 0.00050	ND @ 0.0000025	ND @ 0.00050	ND @ 0.0000025
MTBE	0.081	8.1	ND @ 0.00050	ND @ 0.0000018	ND @ 0.00050	ND @ 0.0000018
Naphthalene	0.0042	0.42	ND @ 0.00050	ND @ 0.0000026	ND @ 0.00050	ND @ 0.0000026
Toluene	0.56	56	ND @ 0.00050	ND @ 0.0000019	ND @ 0.00050	ND @ 0.0000019
Total Xylenes	0.14	14	ND @ 0.00050	ND @ 0.0000022	ND @ 0.00050	ND @ 0.0000022
124-TMB	0.0083	0.83	ND @ 0.00050	ND @ 0.0000022	ND @ 0.00050	ND @ 0.0000022
135-TMB	0.0083	0.83	ND @ 0.00050	ND @ 0.0000022	ND @ 0.00050	ND @ 0.0000022

Notes:
MSC = Medium-Specific Concentration.
MTBE = Methyl tert-butyl ether.
mg/m^3 = milligrams per cubic meter.
ppbv = parts per billion vapor.
IAQ = Indoor Air Quality.
* The soil vapor MSC represents an attenuation factor of 100 times the Residential IAQ Standard.
ND = Not detected at specified laboratory detection limit.
124-TMB = 1,2,4-trimethylbenzene.
135-TMB = 1,3,5-trimethylbenzene.

Table 5
Historical Groundwater Monitoring Data

Lake Mart
455 Route 247
Greenfield Township, Lackawanna County, Pennsylvania 18407
PaDEP Facility ID No. 35-34675; PAUSTIF Claim No. 2012-0026(S)

Monitoring Well Location/ID	Top of Casing Elevation (famsl)	Sample Date	Depth to Water (fbtoc)	Groundwater Elevation (famsl)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	Isopropyl Benzene (µg/L)	Naphthalene (µg/L)	124-TMB (ug/L)	135-TMB (ug/L)
MW-1	498.99	7/24/2012	7.04	491.95	ND @ 1.00	ND @ 2.00	ND @ 2.00	ND @ 6.00	**22.2**	ND @ 2.00	ND @ 10.0	ND @ 2.00	ND @ 2.00
		9/20/2012	7.28	491.71	NS	NS	NS	NS	NS	NS	NS	NS	NS
		12/28/2012	5.57	493.42	ND @ 1.00	ND @ 2.00	ND @ 2.00	ND @ 6.00	**29.1**	ND @ 2.00	ND @ 10.0	ND @ 2.00	ND @ 2.00
		1/31/2013	5.44	493.55	ND @ 1.00	ND @ 2.00	ND @ 2.00	ND @ 6.00	**28.2**	ND @ 2.00	ND @ 10.0	ND @ 2.00	ND @ 2.00
MW-2	500.40	7/24/2012	6.84	493.56	**35.2**	ND @ 2.00	ND @ 2.00	ND @ 6.00	**40.7**	14.3	63.8	ND @ 2.00	ND @ 2.00
		9/20/2012	7.48	492.92	NS	NS	NS	NS	NS	NS	NS	NS	NS
		12/28/2012	5.76	494.64	ND @ 1.00	ND @ 2.00	ND @ 2.00	ND @ 6.00	17.8	ND @ 2.00	ND @ 10.0	ND @ 2.00	ND @ 2.00
		1/31/2013	5.66	494.74	ND @ 1.00	ND @ 2.00	ND @ 2.00	ND @ 6.00	**22.1**	ND @ 2.00	ND @ 10.0	ND @ 2.00	ND @ 2.00
MW-3	501.07	7/24/2012	11.43	489.64	ND @ 1.00	ND @ 2.00	ND @ 2.00	ND @ 6.00	16.6	ND @ 2.00	ND @ 10.0	ND @ 2.00	ND @ 2.00
		9/20/2012	11.65	489.42	NS	NS	NS	NS	NS	NS	NS	NS	NS
		12/28/2012	7.96	493.11	ND @ 1.00	ND @ 2.00	ND @ 2.00	ND @ 6.00	ND @ 2.00	ND @ 2.00	ND @ 10.0	ND @ 2.00	ND @ 2.00
		1/31/2013	7.89	493.18	ND @ 1.00	ND @ 2.00	ND @ 2.00	ND @ 6.00	ND @ 2.00	ND @ 2.00	ND @ 10.0	ND @ 2.00	ND @ 2.00
MW-4	499.58	7/24/2012	8.21	491.37	ND @ 1.00	ND @ 2.00	ND @ 2.00	ND @ 6.00	**43.9**	ND @ 2.00	ND @ 10.0	ND @ 2.00	ND @ 2.00
		9/20/2012	8.92	490.66	NS	NS	NS	NS	NS	NS	NS	NS	NS
		12/28/2012	7.62	491.96	ND @ 1.00	ND @ 2.00	ND @ 2.00	ND @ 6.00	**42.3**	ND @ 2.00	ND @ 10.0	ND @ 2.00	ND @ 2.00
		1/31/2013	7.16	492.42	ND @ 1.00	ND @ 2.00	ND @ 2.00	ND @ 6.00	**27.0**	ND @ 2.00	ND @ 10.0	ND @ 2.00	ND @ 2.00
MW-5	500.02	9/20/2012	8.85	491.17	ND @ 1.00	ND @ 2.00	ND @ 2.00	ND @ 6.00	ND @ 3.00	ND @ 2.00	ND @ 10.0	ND @ 2.00	ND @ 2.00
		12/28/2012	7.82	492.20	ND @ 1.00	ND @ 2.00	ND @ 2.00	ND @ 6.00	ND @ 2.00	ND @ 2.00	ND @ 10.0	ND @ 2.00	ND @ 2.00
		1/31/2013	7.03	492.99	ND @ 1.00	ND @ 2.00	ND @ 2.00	ND @ 6.00	ND @ 2.00	ND @ 2.00	ND @ 10.0	ND @ 2.00	ND @ 2.00
MW-6	498.80	9/20/2012	11.57	487.23	ND @ 1.00	ND @ 2.00	ND @ 2.00	ND @ 6.00	ND @ 3.00	ND @ 2.00	ND @ 10.0	ND @ 2.00	ND @ 2.00
		12/28/2012	8.76	490.04	ND @ 1.00	ND @ 2.00	ND @ 2.00	ND @ 6.00	ND @ 2.00	ND @ 2.00	ND @ 10.0	ND @ 2.00	ND @ 2.00
		1/31/2013	7.23	491.57	ND @ 1.00	ND @ 2.00	ND @ 2.00	ND @ 6.00	ND @ 2.00	ND @ 2.00	ND @ 10.0	ND @ 2.00	ND @ 2.00
MW-7	497.89	9/20/2012	6.62	491.27	ND @ 1.00	ND @ 2.00	ND @ 2.00	ND @ 6.00	ND @ 3.00	ND @ 2.00	ND @ 10.0	ND @ 2.00	ND @ 2.00
		12/28/2012	5.22	492.67	ND @ 1.00	ND @ 2.00	ND @ 2.00	ND @ 6.00	ND @ 2.00	ND @ 2.00	ND @ 10.0	ND @ 2.00	ND @ 2.00
		1/31/2013	5.03	492.86	ND @ 1.00	ND @ 2.00	ND @ 2.00	ND @ 6.00	ND @ 2.00	ND @ 2.00	ND @ 10.0	ND @ 2.00	ND @ 2.00
MW-8	500.27	9/20/2012	8.45	491.82	ND @ 1.00	ND @ 2.00	ND @ 2.00	ND @ 6.00	ND @ 3.00	ND @ 2.00	ND @ 10.0	ND @ 2.00	ND @ 2.00
		12/28/2012	6.83	493.44	ND @ 1.00	ND @ 2.00	ND @ 2.00	ND @ 6.00	ND @ 2.00	ND @ 2.00	ND @ 10.0	ND @ 2.00	ND @ 2.00
		1/31/2013	6.07	494.20	ND @ 1.00	ND @ 2.00	ND @ 2.00	ND @ 6.00	ND @ 2.00	ND @ 2.00	ND @ 10.0	ND @ 2.00	ND @ 2.00
Potable Well	NA	7/24/2012	NM	NA	ND @ 1.00	ND @ 2.00	ND @ 2.00	ND @ 6.00	17.5	ND @ 2.00	ND @ 10.0	ND @ 2.00	ND @ 2.00
		1/2/2013	NM	NA	ND @ 0.50	ND @ 0.50	ND @ 0.50	ND @ 1.50	15.6	na	na	na	na
		1/31/2013	NM	NA	ND @ 0.50	ND @ 0.50	ND @ 0.50	ND @ 1.50	ND @ 0.50	na	na	na	na
Act 2 RUA MSCS (Total Dissolved Solids ≤ 2,500 ug/L)					***5***	***1,000***	***700***	***10,000***	***20***	***1,100***	***100***	***15***	***13***

Notes:
ND (x)= Not detected at laboratory detection limit x.
MTBE= Methyl tertiary-butyl ether.
µg/L= Micrograms per liter.
fbtoc= Feet below top of casing.
famsl= Feet above mean sea level.
Bolded values greater than Residential, Used Aquifer Medium-Specific Concentrations (RUA MSCs).
NA = Not available.
NS = Not sampled.
NG = Not gauged.
na = Not analyzed.

Figures

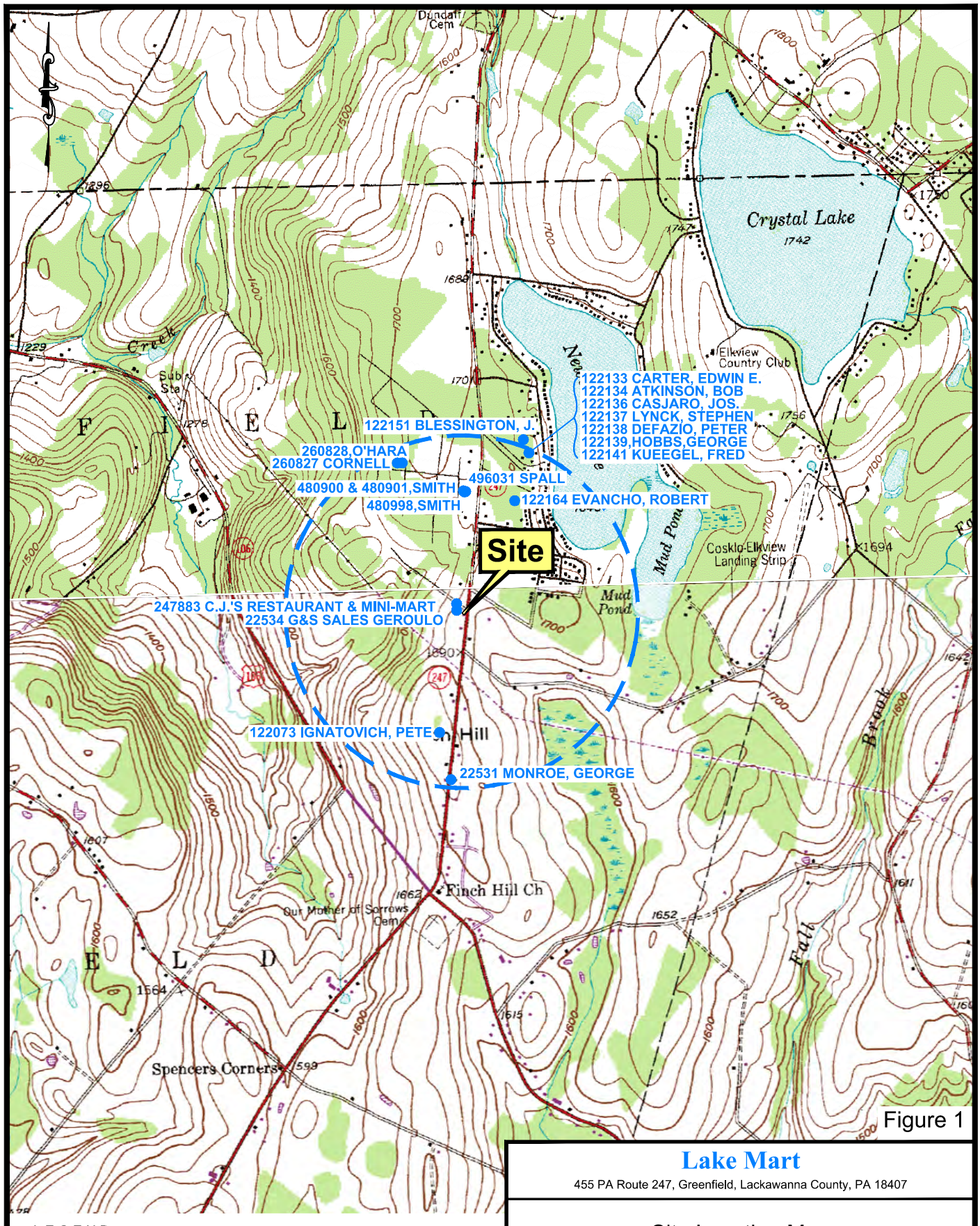

Figure 1

Lake Mart

455 PA Route 247, Greenfield, Lackawanna County, PA 18407

Site Location Map
Showing Surrounding Wells

LEGEND

- 1/2-mile Radii
- 496031 SPALL ● - PA ID no., Well Owner

Source: Portions of the Clifford and Carbondale, PA 7.5-minute USGS Quadrangles
(Clifford: 1994)
(Carbondale: 1980)

Scale
0 1000' 2000'

DRAWN BY: MHM	DATE: 3/6/13	DRAWING NO. lakemart12009-005-A1
CHECKED & APPROVED BY: DLR		

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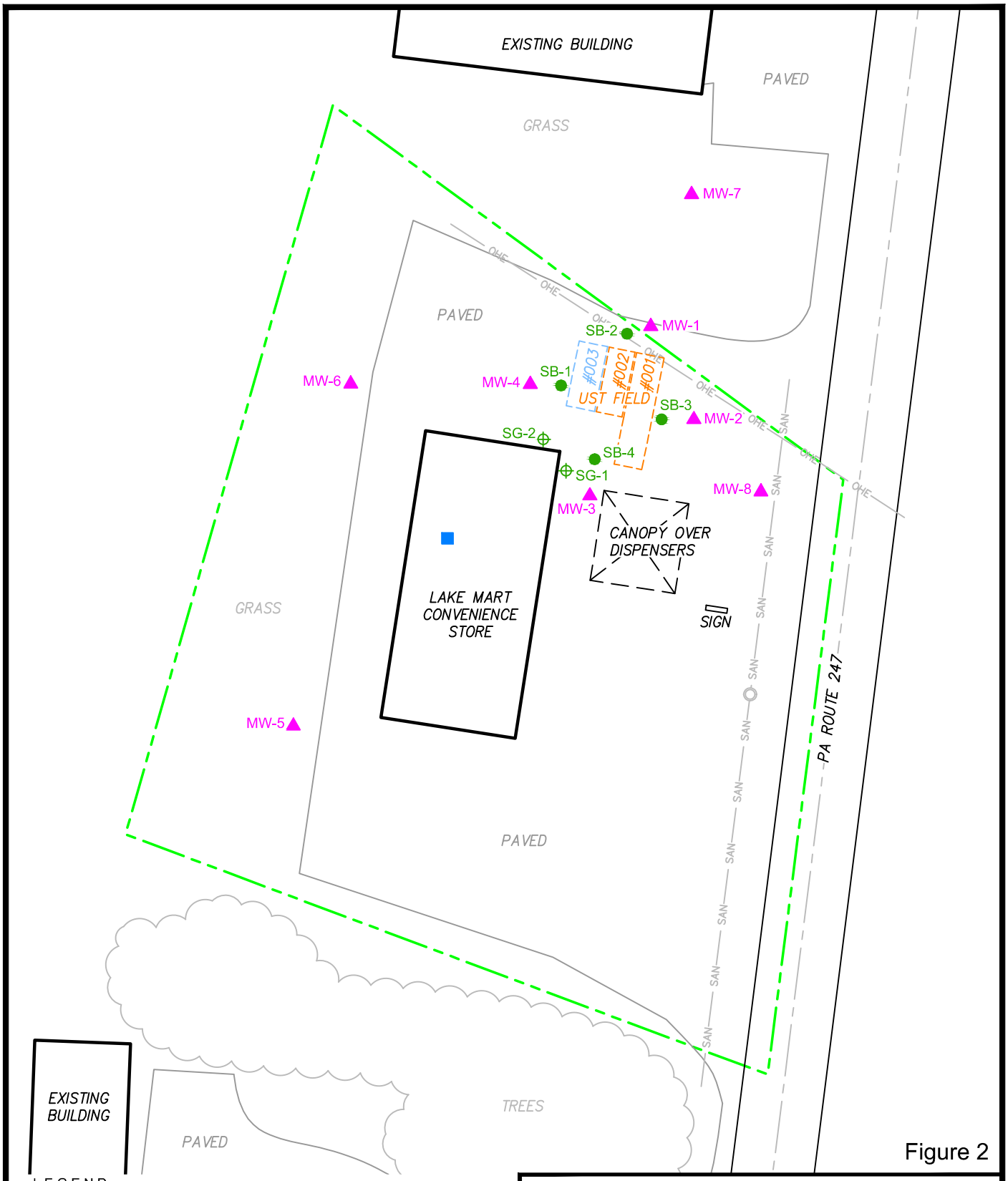

EXISTING BUILDING
PAVED
GRASS
MW-7
OHE
PAVED
SB-2
MW-1
#003
#002
#001
MW-6
MW-4
SB-1
UST FIELD
SB-3
MW-2
SAN
SG-2
SB-4
SG-1
MW-8
MW-3
CANOPY OVER DISPENSERS
LAKE MART CONVENIENCE STORE
SIGN
GRASS
MW-5
PA ROUTE 247
PAVED
EXISTING BUILDING
TREES
PAVED
LEGEND
- Shallow Monitoring Well (Sposito Associates, 2012)
- Potable Water Supply Well
- Soil Boring
- Soil Vapor Monitoring Point
- Property Line (approx.)
- Underground Storage Tank (UST) Closed by Removal
SAN - Sanitary Sewer with Manhole
OHE - Overhead Electric Line
Map Sources:
James P. Sposito Associates (Carbondale, PA; "Figure 4 / Site Map", dated Oct. 31, 2012).
PASDA aerial photo, dated April 2008.
Scale
0
20'
40'
Figure 2
Lake Mart
455 PA Route 247, Greenfield, Lackawanna County, PA 18407
Site Map
DRAWN BY: JPB/MHM
DATE: 3/7/13
CHECKED & APPROVED BY: DLR
DRAWING NO.
lakemart12009-002-A1
GROUNDWATER SCIENCES CORPORATION

Figure 3

LEGEND

- Property Line (approx.)

Scale

0 100'

Map Sources:
James P. Sposito Associates (Carbondale, PA; "Figure 4 / Site Map", dated Oct. 31, 2012).
PASDA aerial photo, dated April 2008.

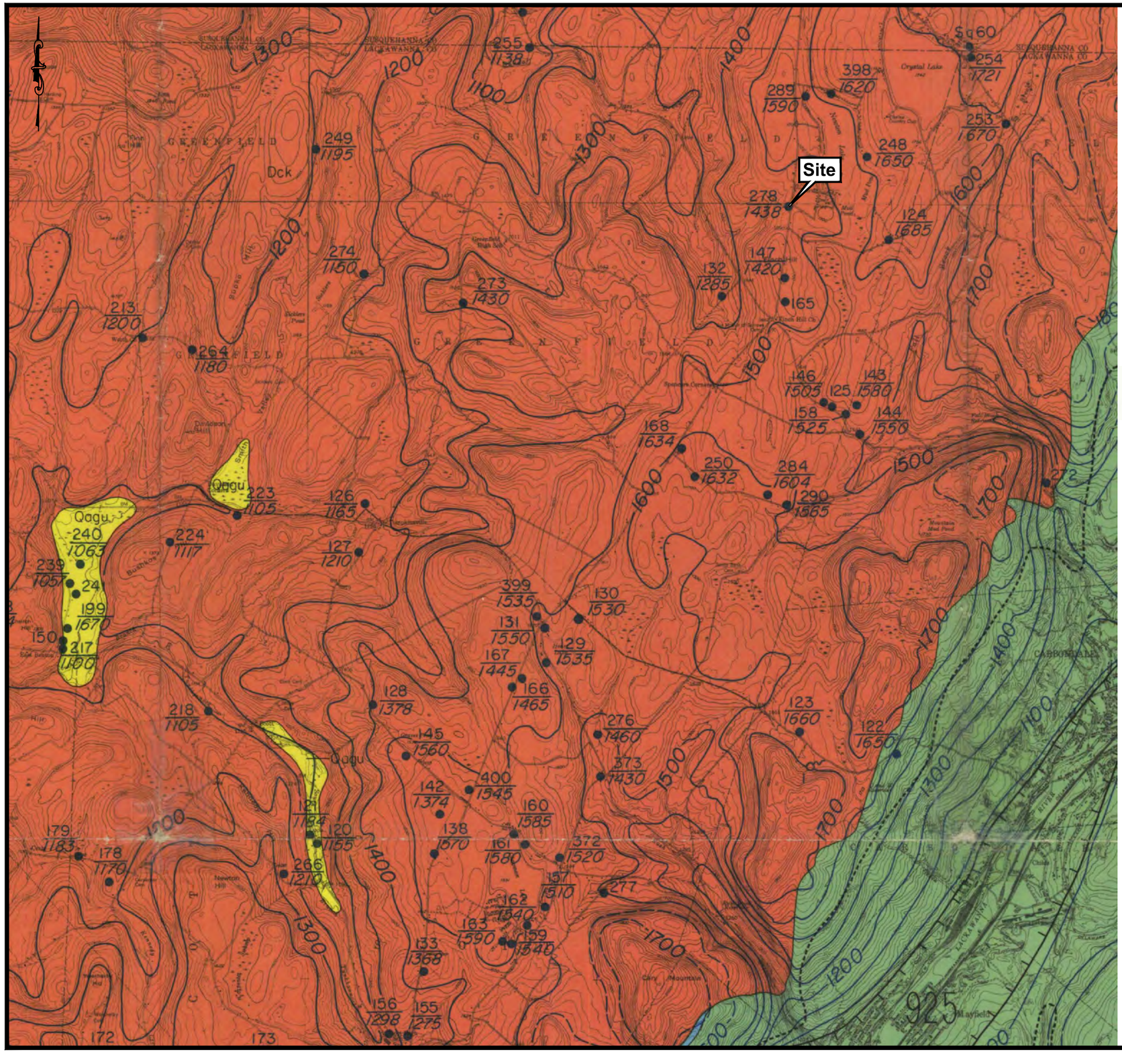
Lake Mart

455 PA Route 247, Greenfield, Lackawanna County, PA 18407

Aerial Map Showing Site and Surrounding Properties

DRAWN BY: JPB	DATE: 1/14/13	DRAWING NO. lakemart12009-001-A2
CHECKED & APPROVED BY: DLR		

GROUNDWATER SCIENCES CORPORATION



EXPLANATION

261 / 1430 well number / elevation
Water well
Showing Lackawanna County well number and elevation of water level, in feet.

120
Stream measurement site
Showing number of measurement.

Wy65
Water well
Showing well number for county other than Lackawanna.

5360
U.S. Geological Survey stream gaging station
Showing station number.

Sp 2
Spring
Showing Lackawanna County spring number.

600
Mine shaft
Showing elevation of pool during December 1971, in feet.

1200
Potentiometric-surface contour
Dashed where approximate. Contour interval 100 feet.

600
Borehole
Showing elevation of pool during December 1971, in feet.

Limit of lowest mined coal bed

Mine overflow

550
Approximate shoreline of mined pool
Showing approximate elevation of pool, in feet.

Plan Section
Barrier pillar
Controls level of pool; dashed where barrier removed but mine conditions restrict water flow.

Qagu
ALLUVIUM AND GLACIAL OUTWASH, UNDIFFERENTIATED
Chiefly a well-sorted sand and gravel deposit that ranges from 40 to 150 ft in thickness. Well yields of as much as 300 gpm (gallons per minute) of good-quality water. Only those areas where the unit is thought to be of sufficient thickness to develop water supplies are shown.
QUATERNARY

Pp(Ll)
LLEWELLYN AND POTTSVILLE FORMATIONS, UNDIFFERENTIATED
Llewellyn—gray sandstone and shale containing numerous thick beds of anthracite coal. Contains some beds of conglomerate. Extensively mined, and most wells would encounter mine water that has a high concentration of dissolved solids.
Pottsville—a hard, coarse sandstone and conglomerate with some shale and thin coal beds. Yields moderate supplies of good-quality water, but is not exploited because of its small extent and its location in the Lackawanna Valley.
PENNSYLVANIAN

Mdp
MAUCH CHUNK AND POCONO FORMATIONS, UNDIFFERENTIATED
Mauch Chunk—red calcareous shale, a few feet thick, present only in western part of county.
Pocono—a thick- bedded, gray, coarse sandstone and conglomerate, containing siltstone. Locally, a light-brown mudstone and siltstone are present as a basal unit. Yields small supplies of good-quality water, but is not exploited because of its small areal extent.
MISSISSIPPIAN-DEVONIAN

Dck
CATSKILL FORMATION
Chiefly a red and gray shale and sandstone with some conglomerate. Adequately supplies most wells in the county; better wells yield 50 to 300 gpm of good-quality water.
DEVONIAN

Source:Water-Table Contour Map of Lackawanna County Showing Well Locations by Jerrald R. Hollowell and Harry E. Koester, 1975

Pennsylvania Bureau of Topographic and Geologic Survey Atlas; W 41, plate 2

Pennsylvania State University, Earth and Mineral Sciences Library, Digital Collections

http://collection1.libraries.psu.edu/cdm/singleitem/collection/pageol/id/51978/rec/2

Figure 4

Scale
0 2000' 4000'

Lake Mart
455 PA Route 247, Greenfield, Lackawanna County, PA 18407

Water-Table Contour Map of Lackawanna County Showing Well Locations

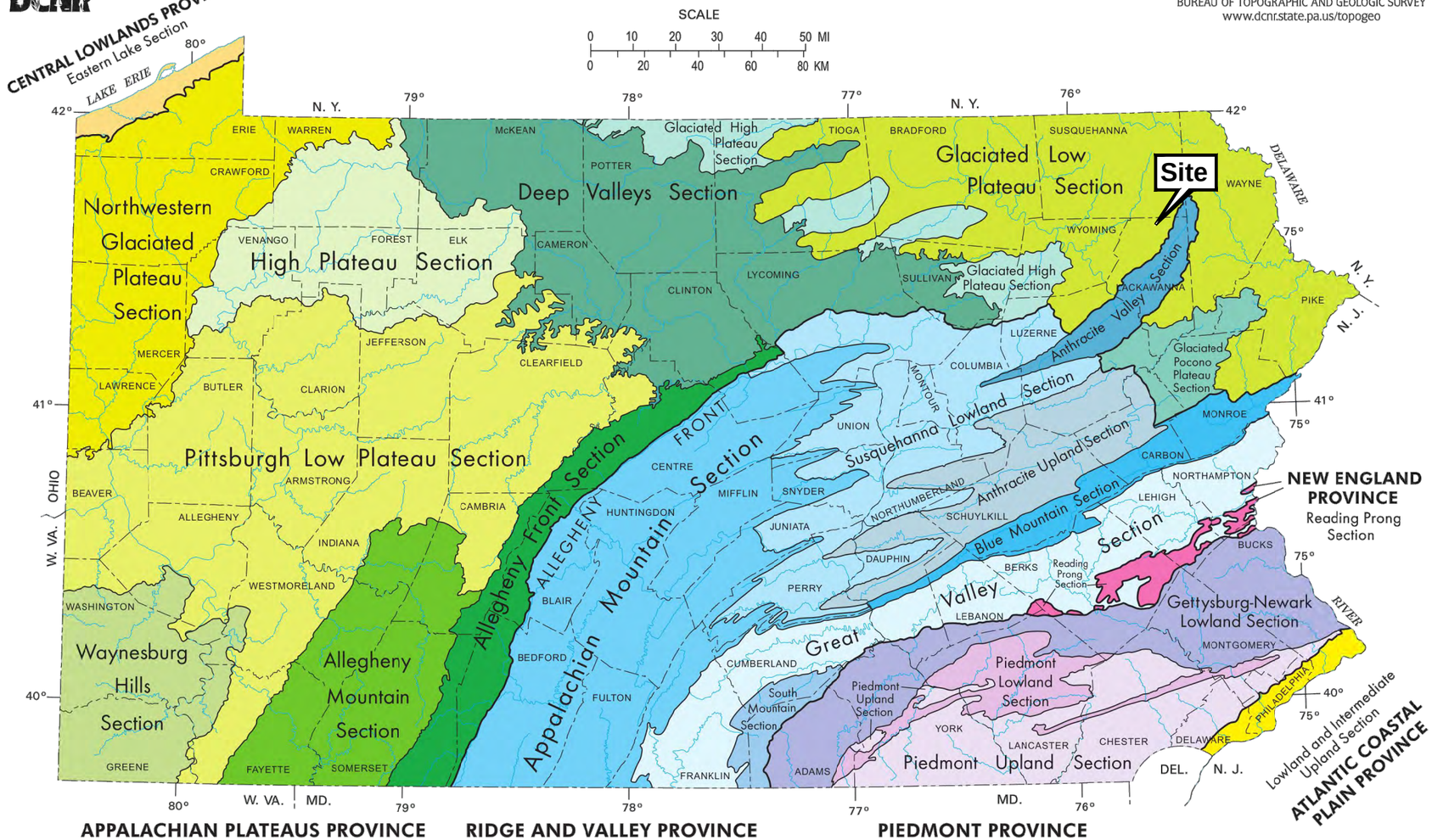
DRAWN BY: MHM	DATE: 3/8/13	DRAWING NO. lakemart12009-006-A1
CHECKED & APPROVED BY: DLR		

GROUNDWATER SCIENCES CORPORATION

MAP 13

PHYSIOGRAPHIC PROVINCES OF PENNSYLVANIA

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF
CONSERVATION AND NATURAL RESOURCES
BUREAU OF TOPOGRAPHIC AND GEOLOGIC SURVEY
www.dcnr.state.pa.us/topogeo



EXPLANATION

CENTRAL LOWLANDS PROVINCE: Eastern Lake Section

APPALACHIAN PLATEAUS PROVINCE: Northwestern Glaciated Plateau Section; High Plateau Section; Pittsburgh Low Plateau Section; Waynesburg Hills Section; Allegheny Mountain Section; Allegheny Front Section; Deep Valleys Section; Glaciated High Plateau Section; Glaciated Low Plateau Section; Glaciated Pocono Plateau Section

RIDGE AND VALLEY PROVINCE: Appalachian Mountain Section; Susquehanna Lowland Section; Anthracite Valley Section; Anthracite Upland Section; Blue Mountain Section; Great Valley Section; South Mountain Section

NEW ENGLAND PROVINCE: Reading Prong Section

PIEDMONT PROVINCE: Gettysburg-Newark Lowland Section; Piedmont Lowland Section; Piedmont Upland Section

ATLANTIC COASTAL PLAIN PROVINCE: Lowland and Intermediate Upland Section

SYMBOLS
- Approximate boundary between physiographic provinces
- Approximate boundary between physiographic sections

Compiled by W. D. Sevon. Fourth Edition, 2000.

Source: Pennsylvania Department of Conservation and Natural Resources
http://www.dcnr.state.pa.us/cs/groups/public/documents/document/dcnr_016202.pdf

Figure 5

Lake Mart
455 PA Route 247, Greenfield, Lackawanna County, PA 18407

Physiographic Provinces of Pennsylvania

DRAWN BY: MHM	DATE: 3/7/13	DRAWING NO. lakemart12009-008-A1
CHECKED & APPROVED BY: DLR		

GROUNDWATER SCIENCES CORPORATION

EXPLANATION

Qagu

ALLUVIUM AND GLACIAL OUTWASH, UNDIFFERENTIATED — QUATERNARY

Chiefly a well-sorted sand and gravel deposit that ranges from 40 to 150 ft in thickness. Well yields of as much as 300 gpm (gallons per minute) of good-quality water. Only those areas where the unit is thought to be of sufficient thickness to develop water supplies are shown.

Pplu

LLEWELLYN AND POTTSVILLE FORMATIONS, UNDIFFERENTIATED — PENNSYLVANIAN

Llewellyn—gray sandstone and shale containing numerous thick beds of anthracite coal. Contains some beds of conglomerate. Extensively mined, and most wells would encounter mine water that has a high concentration of dissolved solids.

Pottsville—a hard, coarse sandstone and conglomerate with some shale and thin coal beds. Yields moderate supplies of good-quality water, but is not exploited because of its small extent and its location in the Lackawanna Valley.

MDp

MAUCH CHUNK AND POCONO FORMATIONS, UNDIFFERENTIATED — MISSISSIPPIAN-DEVONIAN

Mauch Chunk—red calcareous shale, a few feet thick, present only in western part of county.

Pocono—a thick- bedded, gray, coarse sandstone and conglomerate, containing siltstone. Locally, a light-brown mudstone and siltstone are present as a basal unit. Yields small supplies of good-quality water, but is not exploited because of its small areal extent.

Dck

CATSKILL FORMATION — DEVONIAN

Chiefly a red and gray shale and sandstone with some conlgomerate. Adequately supplies most wells in the county; better wells yield 50 to 300 gpm of good-quality water.

SYMBOLS

Contact
Dashed where approximate.

Primary fracture trace

Secondary fracture trace

Strike of vertical joint

Limit of lowest mined coal bed

Source: Geologic Map of Lackawanna County, Pennsylvania
by Jerrald R. Hollowell and Harry E. Koester, 1975

Pennsylvania Bureau of Topographic and Geologic Survey Atlas; W 41, plate 1

Scale
0 2000' 4000'

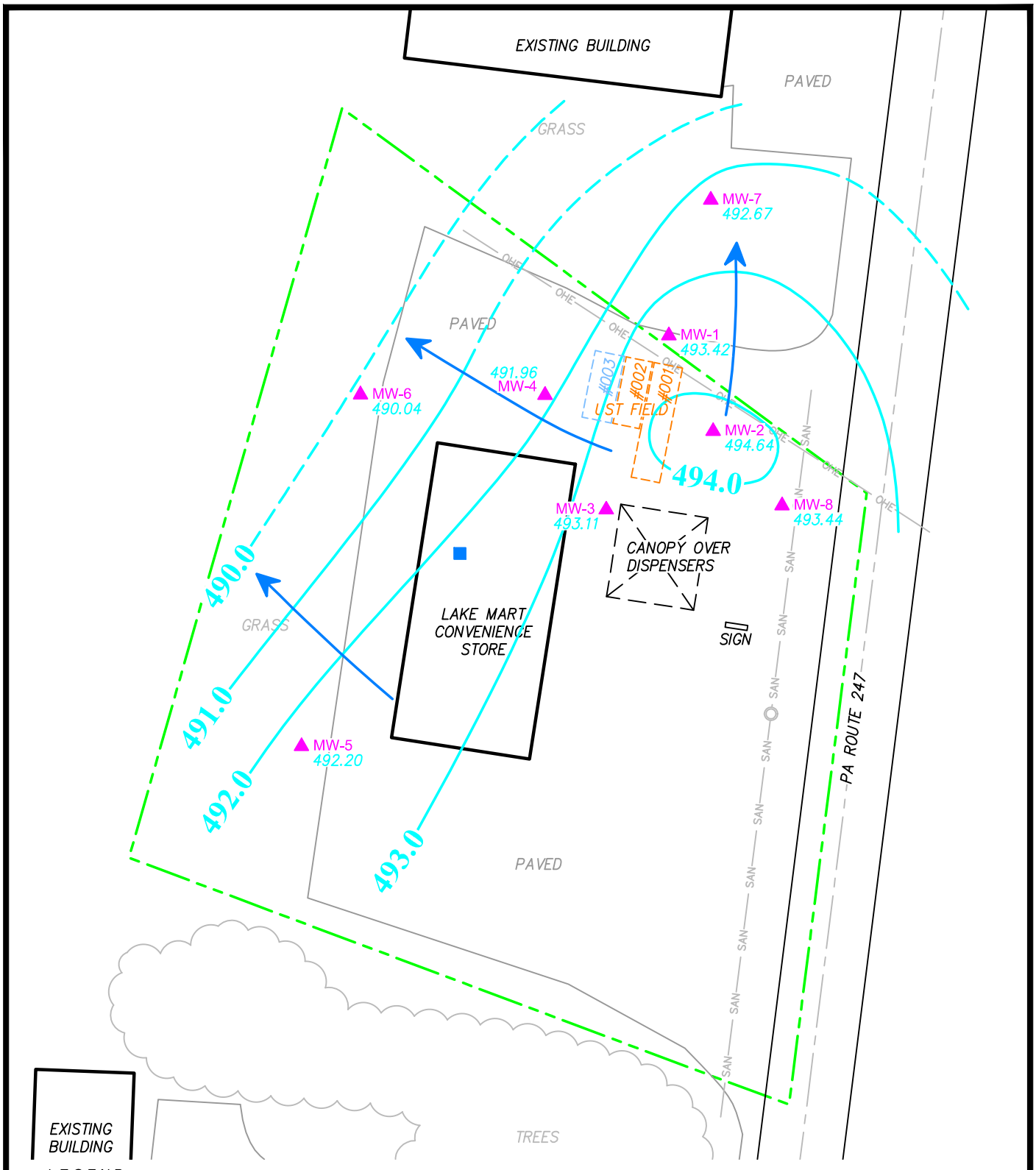
Figure 6

Lake Mart
455 PA Route 247, Greenfield, Lackawanna County, PA 18407

Geologic Map of Lackawanna County, Pennsylvania

DRAWN BY: MHM	DATE: 3/8/13	DRAWING NO. lakemart12009-007-A1
CHECKED & APPROVED BY: DLR		

GROUNDWATER SCIENCES CORPORATION



LEGEND

- 490.0 — Approximate Groundwater Elevation Contour (feet) (Dashed Where Inferred)
- 493.11 — Groundwater Elevation (feet)
- Inferred Groundwater Flow Direction
- ▲ Shallow Monitoring Well (Sposito Associates, 2012)
- ■ Potable Water Supply Well
- Property Line (approx.)
- Underground Storage Tank (UST) Closed by Removal
- SAN — Sanitary Sewer with Manhole
- OHE — Overhead Electric Line

Figure 7

Lake Mart

455 PA Route 247, Greenfield, Lackawanna County, PA 18407

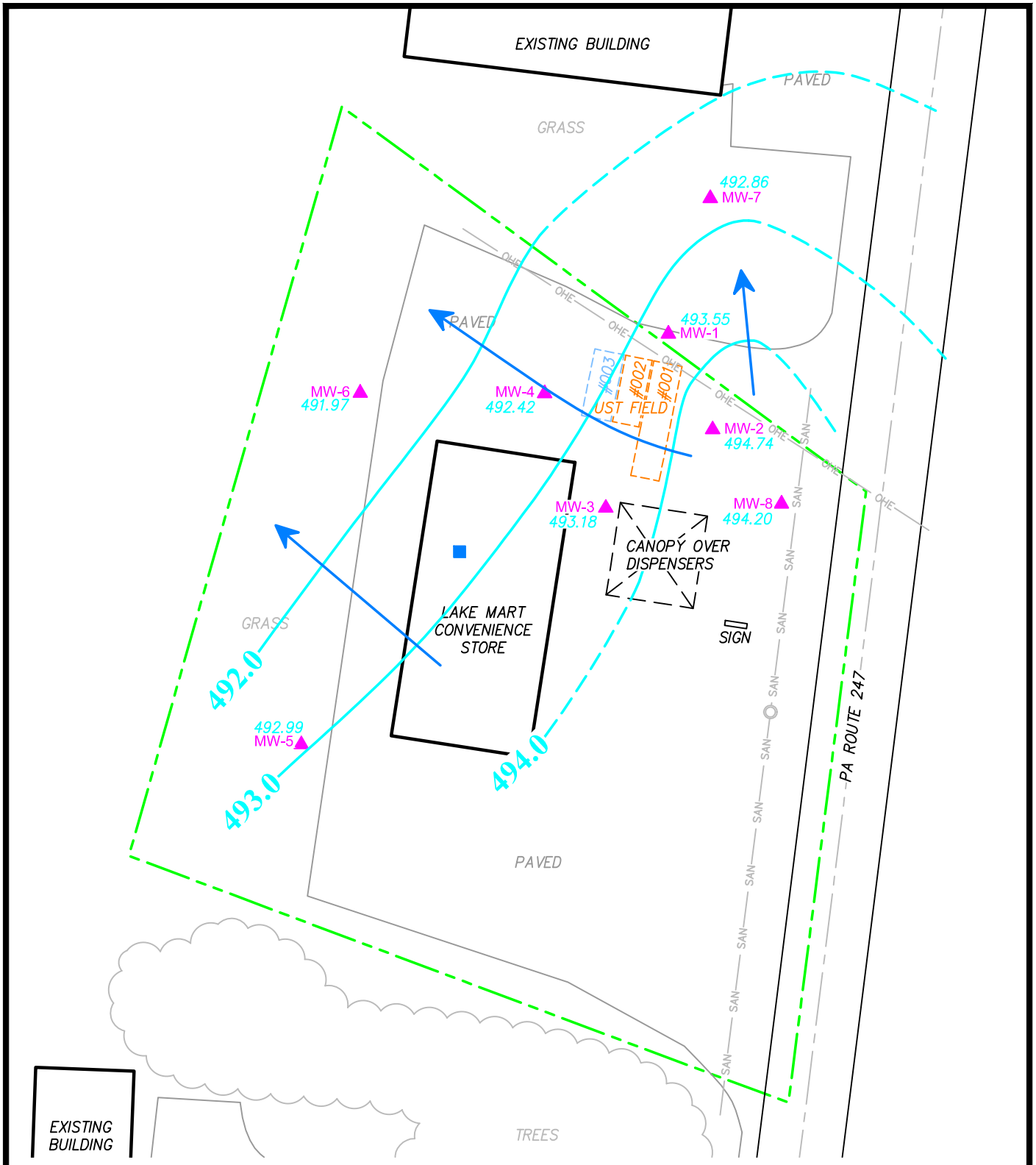
Groundwater Elevation Contour Map
December 28, 2012

DRAWN BY: JPB/MHM	DATE: 3/7/13	DRAWING NO. lakemart12009-003-B1
CHECKED & APPROVED BY: DLR		

GROUNDWATER SCIENCES CORPORATION

Map Sources:
James P. Sposito Associates (Carbondale, PA; "Figure 4 / Site Map", dated Oct. 31, 2012).
PASDA aerial photo, dated April 2008.

Scale
0 20' 40'



LEGEND

- 492.0 — Approximate Groundwater Elevation Contour (feet) (Dashed Where Inferred)
- 492.99 - Groundwater Elevation (feet)
- Inferred Groundwater Flow Direction
- ▲ - Shallow Monitoring Well (Sposito Associates, 2012)
- ■ - Potable Water Supply Well
- Property Line (approx.)
- Underground Storage Tank (UST) Closed by Removal
- SAN — Sanitary Sewer with Manhole
- OHE — Overhead Electric Line

Figure 8

Lake Mart

455 PA Route 247, Greenfield, Lackawanna County, PA 18407

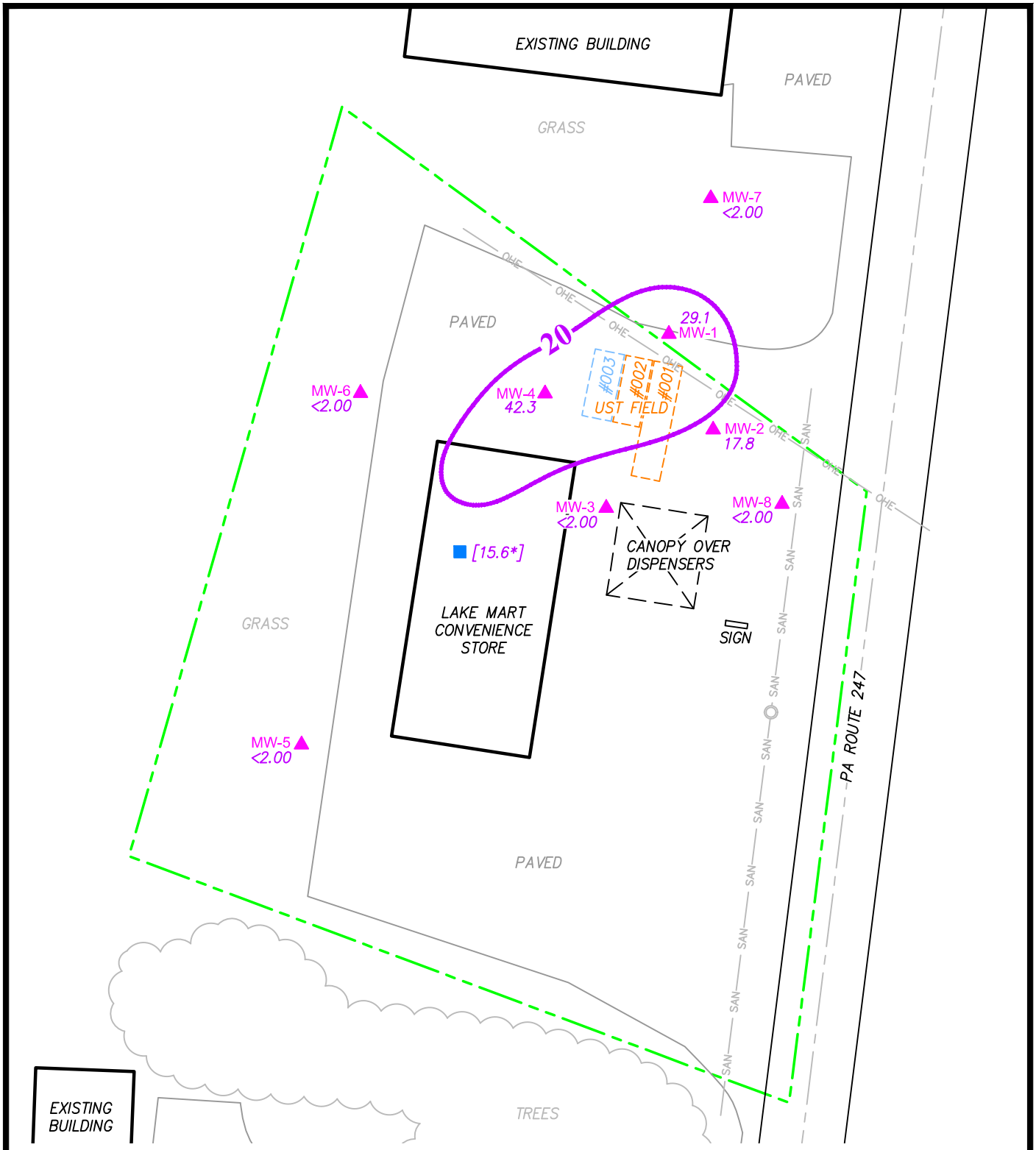
Groundwater Elevation Contour Map
January 31, 2013

DRAWN BY: JPB/MHM	DATE: 3/7/13	DRAWING NO.
CHECKED & APPROVED BY: DLR		lakemart12009-003-C1

GROUNDWATER SCIENCES CORPORATION

Map Sources:
James P. Sposito Associates (Carbondale, PA; "Figure 4 / Site Map", dated Oct. 31, 2012).
PASDA aerial photo, dated April 2008.

Scale
0 20' 40'



LEGEND

MTBE - Methyl Tert.-Butyl Ether
20 - Approximate MTBE Concentration Contour (µg/L)
42.3 - MTBE Concentration (µg/L)
[15.6*] - Presumed to Represent Deep Groundwater; MTBE Concentration Not Considered in Development of Shallow Groundwater Concentration Contours
▲ - Shallow Monitoring Well (Sposito Associates, 2012)
■ - Potable Water Supply Well
- Property Line (approx.)
- Underground Storage Tank (UST) Closed by Removal
SAN - Sanitary Sewer with Manhole
OHE - Overhead Electric Line

Map Sources:
James P. Sposito Associates (Carbondale, PA; "Figure 4 / Site Map", dated Oct. 31, 2012).
PASDA aerial photo, dated April 2008.

Scale
0 20' 40'

Figure 9

Lake Mart
455 PA Route 247, Greenfield, Lackawanna County, PA 18407

Dissolved-Phase MTBE Concentration Contour Map - Soil Groundwater
December 28, 2012

DRAWN BY: JPB/MHM	DATE: 3/8/13	DRAWING NO.
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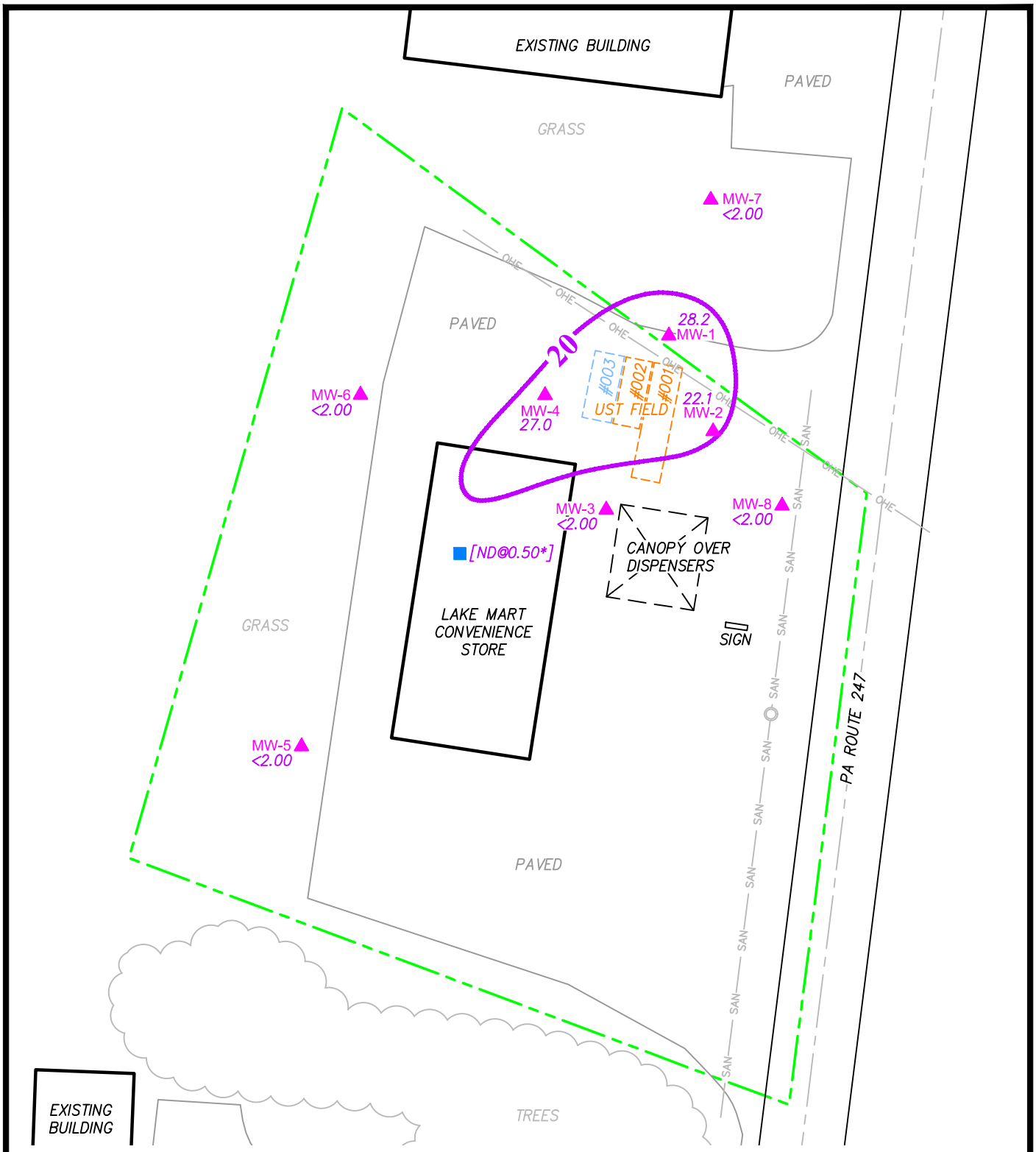

LEGEND

MTBE - Methyl Tert.-Butyl Ether
20 - Approximate MTBE Concentration Contour (µg/L)
22.1 - MTBE Concentration (µg/L)
[ND@0.50*] - Presumed to Represent Deep Groundwater; MTBE Concentration Not Considered in Development of Shallow Groundwater Concentration Contours
▲ - Shallow Monitoring Well (Sposito Associates, 2012)
■ - Potable Water Supply Well
- Property Line (approx.)
- Underground Storage Tank (UST) Closed by Removal
SAN - Sanitary Sewer with Manhole
OHE - Overhead Electric Line

Map Sources:
James P. Sposito Associates (Carbondale, PA; "Figure 4 / Site Map", dated Oct. 31, 2012).
PASDA aerial photo, dated April 2008.

Scale
0 20' 40'

Figure 10

Lake Mart
455 PA Route 247, Greenfield, Lackawanna County, PA 18407

Dissolved-Phase MTBE Concentration Contour Map - Soil Groundwater
January 31, 2012

DRAWN BY: MHM	DATE: 3/8/13	DRAWING NO.
CHECKED & APPROVED BY: DLR		lakemart12009-004-B1

GROUNDWATER SCIENCES CORPORATION

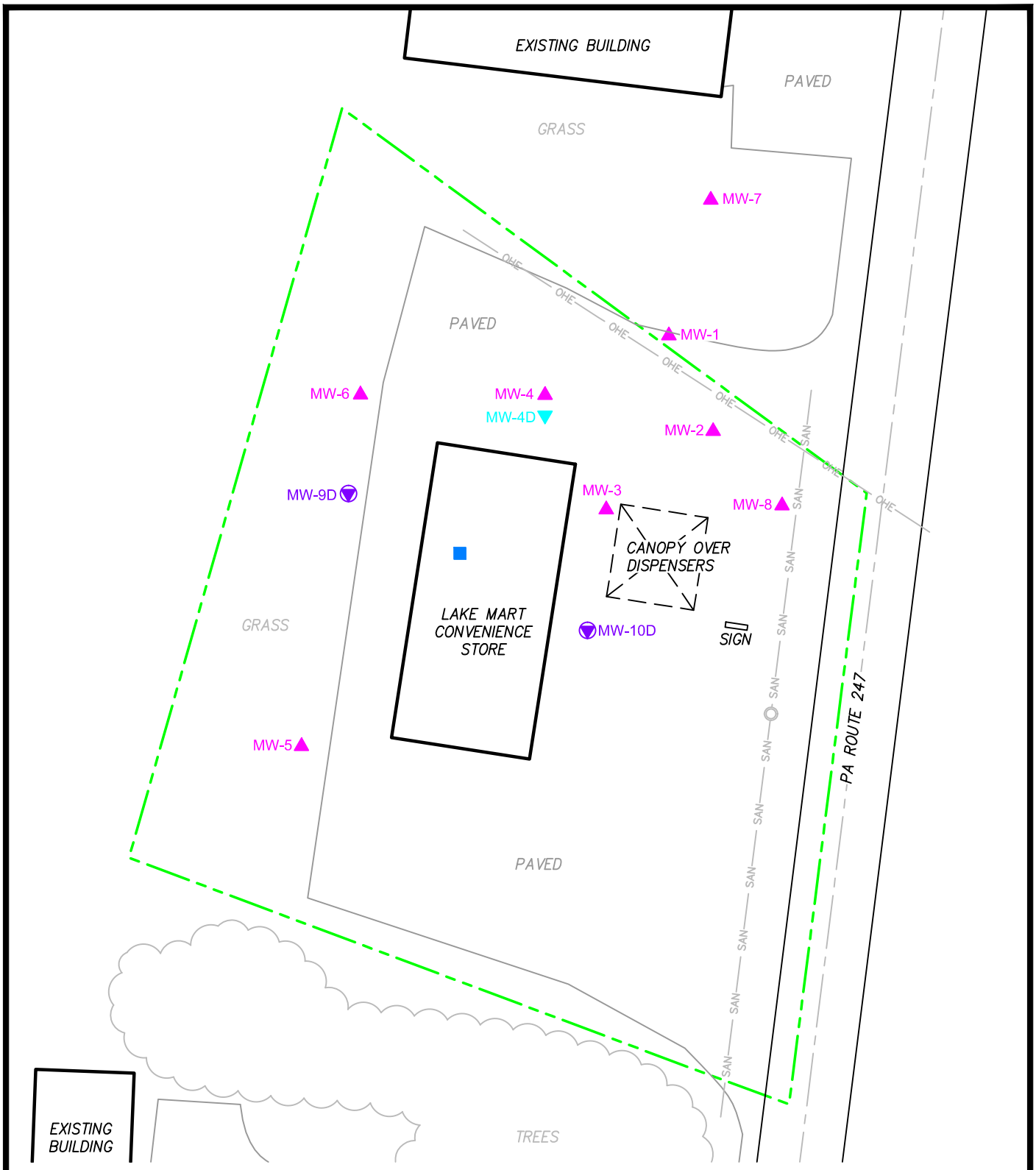

Figure 11

LEGEND

- ▲ - Shallow Groundwater Monitoring Well (Sposito Associates, 2012)
- ■ - Potable Water Supply Well
- ▼ - Planned Deep Groundwater Monitoring Well
- ▼ - Planned Deep Groundwater Monitoring Well (installation contingent upon results for well MW-4D)
- Property Line (approx.)
- SAN - Sanitary Sewer with Manhole
- OHE - Overhead Electric Line

Map Sources:
James P. Sposito Associates (Carbondale, PA; "Figure 4 / Site Map", dated Oct. 31, 2012).
PASDA aerial photo, dated April 2008.

Scale
0 20' 40'

Lake Mart
455 PA Route 247, Greenfield, Lackawanna County, PA 18407

Site Map Showing Bedrock Groundwater Monitoring Wells to be Installed

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