EVALUATION OF STRUCTURAL VAPOR INTRUSION POTENTIAL WORK PLAN

FOR

R. D. PATE ESTATE

101 East Main Street
Pikeville, Wayne County, North Carolina

SITE ID: NONCD0002795

December 10, 2013

PREPARED FOR
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EA Project No. 07-7019.10

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R.D. Pate Estate
101 East Main Street
Pikeville, Wayne County, North Carolina
IHSB Number: NONCD0002795
EA Project No. 07-7019.10
December 10, 2013

1.0 INTRODUCTION

This Evaluation of Structural Vapor Intrusion Potential Work Plan describes a Vapor Intrusion Investigation to be completed at the R.D. Pate Estate site located at 101 East Main Street, Pikeville, Wayne County, North Carolina (hereinafter referred to as "the Project," Subject Site or Site). The purpose of this Evaluation of Structural Vapor Intrusion Potential (ESVIP) Work Plan is to describe the approach and methods to be used to investigate and assess potential structural vapor intrusion concerns for current off-site structures located within 100 feet of the identified solvent-contaminated groundwater plume associated with the R.D. Pate Estate site.

The Site currently consists of an approximately 0.12 acre parcel of vacant land located at 101 East Main Street in Pikeville, Wayne County, North Carolina. The Site location is depicted on the attached **Figure 1**. The Site was formerly improved with an approximately 3,397 square foot one-story building, which was constructed in phases throughout the 1940s and 1950s. The former on-site building was demolished in 2011.

The Site is surrounded by commercial development to the north, undeveloped land then residences to the east, East Main Street then residences to the south and Northeast Railroad Street to the west, beyond which are a railroad, Northwest Railroad Street and commercial properties further west.

The proposed ESVIP investigation will be focused on the residential properties to the south and east of the site and the commercial properties to the north and west of the Site. The extent of the ESVIP investigation is primarily based on previous soil and groundwater investigations conducted at the Project. Refer to **Section 3.0** for a discussion of the Project history and a summary of previously conducted environmental investigations at the Project. The ESVIP investigation will include the following activities: (1) Indoor Air Quality Questionnaires and Building Surveys; (2) Sub-slab sampling of off-site buildings; and (3) indoor air sampling of off-site buildings.

Refer to **Section 5.0** for details pertaining to the proposed investigation activities.

2.0 PURPOSE

Previous groundwater sampling events have revealed concentrations of solvent and/or petroleum-related constituents exceeding the current (October 2013) NCDENR, Division of Waste Management, Residential and/or Non-Residential Vapor Intrusion Ground Water Screening Levels (GWSLs). The purpose of the ESVIP assessment is to investigate vapor intrusion potential at off-site properties known or anticipated to be located within 100 feet of the contaminated groundwater plume exceeding the Vapor Intrusion GWSLs. A summary of Groundwater Analytical Results with Vapor Intrusion Ground Water Screening Levels (GWSLs) is included in **Table 1**. Monitoring Well Construction and Water Level Information is included in **Table 2**. Summaries of the October 2013 and March 2013 Groundwater Analytical Results with Vapor Intrusion GWSLs are depicted on **Figures 3A** and **4B**, respectively.

Based on the presence of elevated VOC concentrations in several on-site and off-site monitoring wells, and shallow groundwater in the Project area, there exists a relatively high probability that groundwater exists less

than 5 feet below ground surface and soil gas sampling along the perimeter of the buildings would detect VOC concentrations exceeding IHSB Residential and/or Industrial/Commercial Vapor Intrusion Screening Levels. Sub-slab sampling is a Step 4 criteria and indoor air sampling is a Step 5 criteria detailed in the "*Supplemental Guidelines for the Evaluation of Structural Vapor Intrusion*" in the event soil gas sampling outside the building (Step 3) fails. Therefore, this work plan includes interior sub-slab sampling and indoor air sampling and at the nearby off-site properties.

3.0 SITE INFORMATION

3.1 Site Description

The subject site ("the Site") currently consists of an approximately 0.12 acre parcel of vacant land located at 101 East Main Street in Pikeville, Wayne County, North Carolina. The Site location is depicted on the attached **Figures 1** and Site Plan – Overview, **Figure 2**. The Site was formerly improved with an approximately 3,397 square foot one-story building, which was constructed in phases throughout the 1940s and 1950s. The former on-site building was demolished in 2011.

The Site is surrounded by commercial development to the north, undeveloped land then residences to the east, East Main Street then residences to the south and Northeast Railroad Street to the west, beyond which are a railroad, Northwest Railroad Street and commercial properties further west.

3.2 Site Geology and Surrounding Area Features

The subject Site is located in the Yorktown Formation of the Coastal Plain Geologic Belt of North Carolina. The Yorktown Formation is of Pliocene age (2 to 5 million years) and consists primarily of fossiliferous clay with varying amounts of fine grained sand and bluish gray shell material commonly concentrated in lenses. This region of the Coastal Plain is typically underlain by schist, granite or volcanic basement rock varying in thickness from a few feet near bedrock outcrops to over 500 feet in some areas. Based on the soil borings performed at the property, the soils at the Site consist of dark brown silty clay to light brown silty sand from the surface to approximately four feet below ground level.

The Yorktown Formation generally dips to the east with varying thickness and functions as a confining layer. The hydrogeologic unit for this region is the Black Creek Aquifer, which has been shown to be very effectively confined by Lautier (2001). Most of the recharge to the Black Creek aquifer occurs near its westward limit where it is close to the surface, and covered exclusively by Quaternary age deposits. The Black Creek Aquifer is underlain by bedrock consisting of igneous and metamorphic rocks and is typical of the Piedmont in the western portion of the county. The shallow water table is mainly present in the surficial Quaternary deposits that eventually serve as recharge to the lower aquifer through the leaky confining layers of the Yorktown Formation.

Soils encountered during the drilling processes typically included a surficial silty clayey sand layer ranging from ground surface to approximately 4 feet bgs (MW-16) to 7 feet bgs (MW-6). Below this layer, a permeable zone of fine to course sand (70 – 90 %) with minor amounts of silt and clay was encountered with thickness ranging from 3 feet (MW-6 and MW-14) to 6 feet (MW-16). This layer comprises the lower, highly

permeable portion of the surficial aquifer of the site. Groundwater is generally present at depths ranging from three to five feet bgs. Below the permeable sand layer, a mottled, stiff (plastic) clay layer with fine sandy lenses was encountered at depths from 9 feet bgs (MW-19 and borings/wells in the former building area of the Site) to 14 feet bgs (MW-22). Boring/deep well DW-2 encountered clay with varying amounts of sand to the boring termination depth of 60 feet bgs. Bedrock was not encountered. Subsurface conditions encountered are similar to those described in the Soil Survey of Wayne County and other references and NCDENR databases.

Groundwater elevation data from monitoring wells MW-1 through MW-7, MW-12, and MW-14 through MW-22 screened within the permeable sand layer indicate a general southwest shallow groundwater flow direction in the vicinity of the Site. The underlying slope and character of the top of the clay unit may also locally influence shallow groundwater flow characteristics.

Based on the potentiometric contour maps for the October 2013 groundwater sampling event (**Figure 4A**) and the March 2013 groundwater sampling event (**Figure 4B**), shallow groundwater flow beneath the Site is generally towards the southwest. The October 2013 groundwater data indicated an average hydraulic gradient of 0.011 feet/foot, with hydraulic gradients ranging from 0.005 ft/ft to 0.016 ft/ft across Site and vicinity. The March 2013 groundwater data indicated an average hydraulic gradient of 0.010 feet/foot, with hydraulic gradients ranging from 0.001 ft/ft to 0.024 ft/ft across Site and vicinity. In addition, separate localized or temporal groundwater flow components may exist to the north and southeast. The underlying slope, subsurface variations of the permeable sand/clay unit interface, and slow recharge rates for several wells may also locally influence shallow groundwater flow characteristics.

The nearest surface water body is *Granny Branch*, an intermittent drainage feature of *The Slough*, located approximately 1,500 feet south of the source area of release (**Figure 1**). The site is situated within the Middle Neuse River watershed which consists of several major drainage basins that eventually flow into Pamlico Sound to the southeast.

4.0 PROPOSED INVESTIGATION ACTIVITIES

4.1 Pre-Assessment Activities

Prior to mobilizing to the Site area to implement the Evaluation of Structural Vapor Intrusion Potential (ESVIP) Work Plan, the following activities will be completed. Some of the listed pre-assessment activities have been completed prior to the submittal of this Work Plan.

4.1.1 Background Information

EA personnel will obtain and compile background information for the off-site properties and associated buildings in order to develop the ESVIP Work Plan. Background information will include, but will not be limited to, site topography; site geology; building construction; basement and/or crawl space locations; locations of on-site utilities and potential subsurface vapor intrusion pathways; locations of current and/or historical underground storage tanks and septic systems; historical release incidents and/or spills; areas of localized flooding; and information provided by property/building owners and/or occupants.

4.1.2 Utility Identification and Clearance

Determining the location of underground utilities is critical to develop an adequate ESVIP Work Plan. Detailed underground utility mapping has been previously conducted in the project area. Therefore, EA will utilize the public NC One Call utility locating services to update underground utilities at the subject properties prior to conducting sampling activities. Details of currently known underground utilities in the project area are depicted on the attached **Figure 2**.

4.1.3 Access Agreements

Access agreements will be obtained from the individual property/structure owners prior to the start of ESVIP activities.

4.1.4 Notification

EA personnel with notify property/building owners and occupants by telephone at least three (3) days prior to starting field work.

4.1.5 Pre-sampling Site Reconnaissance Activities

Prior to conducting ESVIP sampling activities, EA will perform site reconnaissance of off-site properties. In addition to providing background information, site reconnaissance activities will provide details regarding the types of building construction, the types of building foundation, the layout of the buildings and exterior areas of the properties and the types of heating and cooling systems utilized in the off-site buildings. During the site reconnaissance activities, surveys for potential vapor entry points (sumps, drains, perforations through building floors and/or walls, etc.) will be conducted. Information obtained during the site reconnaissance activities will be utilized to determine suitable sub-slab sample locations and indoor air sample locations. However, it may be necessary to modify final sample locations in the field based on conditions encountered in the field.

In addition, EA will complete indoor air quality questionnaires with property owners and/or occupants. The purpose of the questionnaires is to obtain information regarding building construction, heating and cooling systems, activities conducted at the properties and/or inventory chemicals and products typically stored and/or utilized in the buildings. The presence of chemicals including volatile organic compounds (VOCs) have the potential to impact the ambient air quality of the buildings and will be taken into consideration when evaluating the laboratory results of the indoor air samples, if analyzed.

4.2 Sample Collection

4.2.1 Sub-slab Sampling

EA proposes to install up to eight (8) interior sub-slab sample point locations. The sub-slab sample points will be advanced through the foundation or concrete slab of the off-site buildings. However, the actual number of sub-slab samples will be determined in the field, may change based on additional information

obtained during pre-sampling activities and will be dependent upon off-site property access agreements. The sample locations will be advanced in areas of the buildings where occupants spend a majority of their time on-site or are most likely to be impacted by exposure to potential vapor intrusion (in the vicinity of concrete expansion joints, foundation seams/cracks, drains, utility entrance points, etc.). Proposed sub-slab sample point locations are shown on the attached **Figure 5**. However, the actual sample locations will be determined in the field, may change based on additional information obtained during pre-sampling activities and will be dependent upon individual stipulations of off-site property access agreements.

One (1) sub-slab air sample will be collected from each of the sub-slab sample point locations. In addition, one (1) duplicate sample will be collected from one (1) of the sub-slab sample point locations for quality control.

At each sub-slab sample location, an electric rotary impact drill will be utilized to advance a one-inch diameter boring through the concrete slab (or appropriate foundation) of the buildings. Sampling probes will be constructed for each sub-slab sample location using small diameter inert tubing (Teflon, polyethylene or equivalent) with a filter at the base, which will be inserted into the boring and beneath the slab to ensure exposure to potential vapor intrusion pathways. Sand will be poured into the boring and around the sampling probe. Appropriate sealing material (hydrated bentonite) will be utilized to seal the top of each boring from the atmosphere and each boring will be allowed to properly stabilize prior to sample collection.

Laboratory-certified helium will be utilized as a tracer compound for leak detection purposes to ensure a competent seal and indoor ambient air is not intruded into the sub-slab sample.

Each sub-slab sample will be collected in an evacuated one-liter (L) Summa “mini” canister equipped with a dedicated pneumatic flow controller. The Summa canisters will be received from the laboratory leak checked, cleaned, tested for contamination, evacuated, and certified for use.

Prior to collecting a sample, at least four (4) tubing volumes (i.e. volume of air in tubing plus inlet of sub-slab vapor probe) will be purged from the sample tubing using a hand-operated graduated syringe. To prepare the canister prior to sample collection, the brass caps will be removed from the pneumatic flow controller and canister and the flow controller will be connected to the canister by inserting the canister connection to the canister inlet and hand-tightening the Swagelok® nut. A sample line (i.e. ¼-inch outer diameter Teflon tubing) will then be attached to the canister inlet using a Swagelok® nut and set of nylon ferrules. The sampling line will be attached to the tubing in the sub-slab sampling probe (typically 3/8-inch outer diameter tubing) using new silicon tubing. The pneumatic flow controller will be set so that the canister fills at a calibrated rate for approximately 30 minutes. The canisters will be equipped with a pressure gauge to monitor vacuum and an in-line moisture trap to prevent moisture from entering the canister.
To begin sampling, the valve on the flow regulator will be opened. The vacuum of the canister (as measured with the pressure gauge), the sample identification, and the start time of sampling will be recorded on the sample identification tag on the applicable canister and on a sample log. During the sample collection, the pressure gauge will be monitored to check the progress of the canister filling and to ensure an adequate volume of sample is collected. Once the pressure gauge indicates the canister is full, or the required time has elapsed for an adequate volume of soil vapor to be collected, the canister valve will be closed. The canister pressure at the end of sampling will be recorded on the sample identification tag for the applicable canister and on the sampling log. Sample equipment components will be disassembled in reverse order, returned to

the original canister cartons, and repackaged in preparation for transportation to the laboratory.

Upon sample collection, each sub-slab boring will be abandoned and the building foundation restored (i.e. concrete patched with grout, if building foundation is concrete pad). EA personnel will restore flooring materials to their original condition to the extent possible.

The samples will be transported/shipped to Pace Analytical Services, Inc., an appropriately certified laboratory. The laboratory will analyze the samples for volatile organic compounds (VOCs) using USEPA Method TO-15. All laboratory results will be reporting in micrograms per cubic meter ($\mu g/m^3$**).**

4.2.2 Indoor Air Sampling

EA proposes to collect up to eight (8) indoor air samples from interior areas of the Project building. In addition, one (1) background outdoor air sample will be collected in the Site area, in the vicinity of a HVAC air intake, if possible. For quality control, one (1) duplicate sample canister will be placed in the sampling area in the same location as another canister to provide data on the variability of the sampling results, including potential sampling and/or analytical bias. Proposed indoor air and background air sample locations are detailed on the attached **Figure 5**.

Prior to sampling, sources of background vapors (cleaning products, glue guns, scented candles, air fresheners, hair spray, etc.) will be removed (where practical) from interior sampling areas . Upon removal of background vapor sources, the Project building will be well ventilated to remove potential vapors from background sources. Windows and doors will then remain closed prior to indoor air sampling.

Indoor air samples will be collected over a 24-hour time period with inert 6 liter Summa canisters prepared by the laboratory for the specific Project. The canisters will be received from the laboratory cleaned, evacuated, inspected for contamination, and prepared for sample collection. Each canister will be fitted with a pneumatic flow controller that is sized to allow a sample to be collected over a 24-hour time period.

The indoor air samples will be collected in areas of the buildings where occupants are most likely to be impacted by potential vapors. The samples will be collected near suspected vapor entry points identified during the site reconnaissance. Final sample locations will be determined in the field during the indoor air sampling activities. Canisters will be placed approximately 3-5 feet above the floor of the buildings, representing a typical breathing zone.

To begin the indoor air sampling, the valve on the canister will be opened. The pressure of the canister and the start time of the sampling will be recorded on the sample identification tag and in a sampling log. Once the sampling begins and the canister is verified to be properly operating and filling at the appropriate rate, the canister will be left to fill. Personnel will return in approximately 20-24 hours to ensure the canisters are operating correctly. When the pressure of the canisters reaches approximately -5 to -6 inches mercury or after the 24-hour sampling time has elapsed (whichever comes first), the valve on the canister will be closed. The final pressure and the time at which sampling was stopped will be recorded on the sample identification tag and in a sampling log. The sample identification, the starting and ending date and time, the starting and ending canister pressure and sampler identification will be recorded on each sample canister and in a sampling log.

After the 24-hour sampling time is complete, the canisters will be removed from their respective buildings, repackaged, and transported to the laboratory. A chain of custody will be maintained for all canisters from the time of receipt from the laboratory to time of analysis. The laboratory will analyze the indoor air samples for VOCs by USEPA Method TO-15 SIM, a modified method which allows for lower laboratory detection limits to meet more stringent Acceptable Indoor Air Concentrations. Laboratory results will be reporting in micrograms per cubic meter ($\mu g/m^3$). **The laboratory will be instructed not to analyze the indoor air samples until analysis of all sub-slab samples has been completed. Upon review of laboratory analysis of the sub-slab samples, EA and/or IHSB personnel will determine a restricted list of specific target constituents for laboratory analysis of the indoor air samples by USEA TO-15 SIM. Specifically, the indoor air samples will be analyzed for the interim default constituents listed in the table below, in addition to any constituents detected in the sub-slab samples.**

INTERIM DEFAULT CONSTITUENTS
Benzene
Ethylbenzene
Naphthalene
1,1,2,2-Tetrachloroethane
Tetrachloroethene (PCE)
1,1,2-Trichloroethane
Trichloroethene (PCE)
1,2,4-Trimethylbenzene
Xylenes

5.0 QUALITY CONTROL

All Summa canisters received from the laboratory will be individually or batch certified by the laboratory prior to delivery. One (1) duplicate sub-slab sample will be collected from one of the sub-slab sample locations. One (1) duplicate indoor air sample will be collected in the same location as one of the indoor air samples one of the buildings. One (1) background (i.e. ambient) outdoor air sample will be collected near the HVAC air intake of one of the buildings.

In order to avoid cross contamination, new disposable tubing, syringes, and fittings will be utilized at each sample location. Laboratory-certified helium will be utilized as a tracer compound for leak detection purposes. For each sample, start and stop times will be recorded along with their associated vacuum pressure gauge readings.

Analysis by USEPA Method TO-15 will follow laboratory-specific standard operating procedures (SOP) for the analysis of whole air samples for VOCs by gas chromatography/mass spectrometry. The analytical detection limits are sufficient to allow for a comparison to NCDENR, Division of Waste Management Residential and Non-Residential Sub-Slab and Soil-Gas Screening Levels (SGSLs), and Indoor Air and Crawl Space Screening Levels (IASLs).

6.0 DATA ANALYSIS

Upon receipt of the laboratory analytical results, EA will compare concentrations of detected analytes in sub-slab samples to NCDENR, Division of Waste Management, Residential and Non-Residential SGSLs. Concentrations of detected analytes in indoor air samples will be compared to NCDENR, Division of Waste Management, Residential and Non-Residential IASLs. If analytes are detected that are not listed in NCDENR, Division of Waste Management Vapor Intrusion Screening Tables, EA will contact the IHSB to determine site-specific SGSLs and/or IASLs.

In addition, the laboratory results will be compared to information obtained from the *Indoor Air Quality Questionnaire and Building Surveys* and lists of chemicals at their respective buildings to evaluate potential "false positive" readings of assimilated compounds from site occupant activities as compared to actual vapor intrusion from groundwater contamination.

EA will complete an "*Evaluation of Structural Vapor Intrusion Potential Report"* which will include recommendations, if warranted, based on the findings of the investigation. The report will be submitted to the IHSB for review and the IHSB will have final determination regarding additional assessment activities, if necessary.

7.0 SCHEDULE

The following schedule has been developed for the Evaluation of Structural Vapor Intrusion Potential (ESVIP) Investigation at the R.D. Pate Estate site:

Submission of ESVIP Work Plan to NCDENR	12/2013
Implementation of ESVIP Investigation and Upon Securing All Structural Access Agreements	30-days from Work Plan Approval by IHSB
Submission of ESVIP Investigation Report	30-days from Receipt of Laboratory Results

8.0 CERTIFICATIONS

For Remediating Party and REC certification statements, please review the following pages.

REC PROGRAM DOCUMENT CERTIFICATION FORM - PAGE 1 OF 2

IHSB SITE NAME R.D. Pate Estate

DATE & NAME OF DOCUMENT ESVIP Work Plan December 2013

TYPE OF SUBMITTAL (circle all that apply): Report, Work plan, Work Phase Comp. Statement, Schedule Change

REMEDIATING PARTY DOCUMENT CERTIFICATION STATEMENT (.0306(B)(2))

"I certify under penalty of law that I have personally examined and am familiar with the information contained in this submittal, including any and all documents accompanying this certification, and that, based on my inquiry of those individuals immediately responsible for obtaining the information, the material and information contained herein is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for willfully submitting false, inaccurate or incomplete information."

Branch Banking and Trust Company, Trustee
Ever Owens, Vice President, Personal Trust Specialist

Name of Remediating Party

Signature of Remediating Party

12-16-2013

Date

NOTARIZATION

NC (Enter State)

Wake **COUNTY**

I, Teresa A. Ferrelli, a Notary Public of said County and State, do hereby certify that Ever Owens did personally appear and sign before me this day, produced proper identification in the form of Drivers License was duly sworn or affirmed, and declared that, to the best of his or her knowledge and belief, after thorough investigation, the information contained in the above certification is true and accurate, and he or she then signed this Certification in my presence.

WITNESS ~~my~~ hand and official seal this 16 day of December, 2013.

Notary Public (signature)

(OFFICIAL SEAL)

TERESA A. FERRELLI NOTARY PUBLIC MY COMMISSION EXPIRES 11/19/2017 WAKE COUNTY, NC

My commission expires: 11-19-17

IHSB SITE NAME R.D. Pate Estate
DATE & NAME OF DOCUMENT ESVIP Work Plan December 2013
TYPE OF SUBMITTAL (circle all that apply): Report, Work plan, Work Phase Comp. Statement, Schedule Change

REGISTERED SITE MANAGER CERTIFICATION OF SIGNATURES

As the Registered Environmental Consultant for the Site for which this filing is made, I certify that the signatures included herewith are genuine and authentic original handwritten signatures and/or true, accurate, and complete copies of the genuine and authentic original handwritten signatures of the persons who purport to sign for this filing. I further certify that I have collected through reliable means the originals and/or copies of said signatures from the persons authorized to sign for this filing who, in fact, signed the originals thereof. Those persons and I understand and agree that any copies of signatures have the same legally binding effect as original handwritten signatures, and I certify that any person for whom I am submitting a copy of their signature has provided me with their express consent to submit said copy. Additionally, I certify that I am authorized to attest to the genuineness and authenticity of the signatures, both originals and any copies, being submitted herewith and that by signing below, I do in fact attest to the genuineness and authenticity of all the signatures, both originals and copies, being submitted for this filing.

GARY K. SAWYER
Name of Registered Site Manager

Signature of Registered Site Manager Date 12-19-2013

REGISTERED SITE MANAGER DOCUMENT CERTIFICATION STATEMENT (.0306(b)(1))

"I certify under penalty of law that I am personally familiar with the information contained in this submittal, including any and all supporting documents accompanying this certification, and that the material and information contained herein is, to the best of my knowledge and belief, true, accurate and complete and complies with the Inactive Hazardous Sites Response Act N.C.G.S. 130A-310, et seq, and the remedial action program Rules 15A NCAC 13C .0300. I am aware that there are significant penalties for willfully submitting false, inaccurate or incomplete information."

GARY K. SAWYER
Name of Registered Site Manager

Signature of Registered Site Manager Date 12-19-2013

NOTARIZATION

North Carolina (Enter State)

Union COUNTY

I, Addie J. Wynn, a Notary Public of said County and State, do hereby certify that Gary K. Sawyer did personally appear and sign before me this day, produced proper identification in the form of _____, was duly sworn or affirmed, and declared that, he or she is the duly authorized environmental consultant of the remediating party of the property referenced above and that, to the best of his or her knowledge and belief, after thorough investigation, the information contained in the above certifications is true and accurate, and he or she then signed these Certifications in my presence.

WITNESS my hand and official seal this 19 day of December 2013.

(OFFICIAL SEAL)

Notary Public (signature)

My commission expires: November 08, 2015

ADDIE J. WYNN NOTARY PUBLIC UNION COUNTY, N.C.

FIGURES

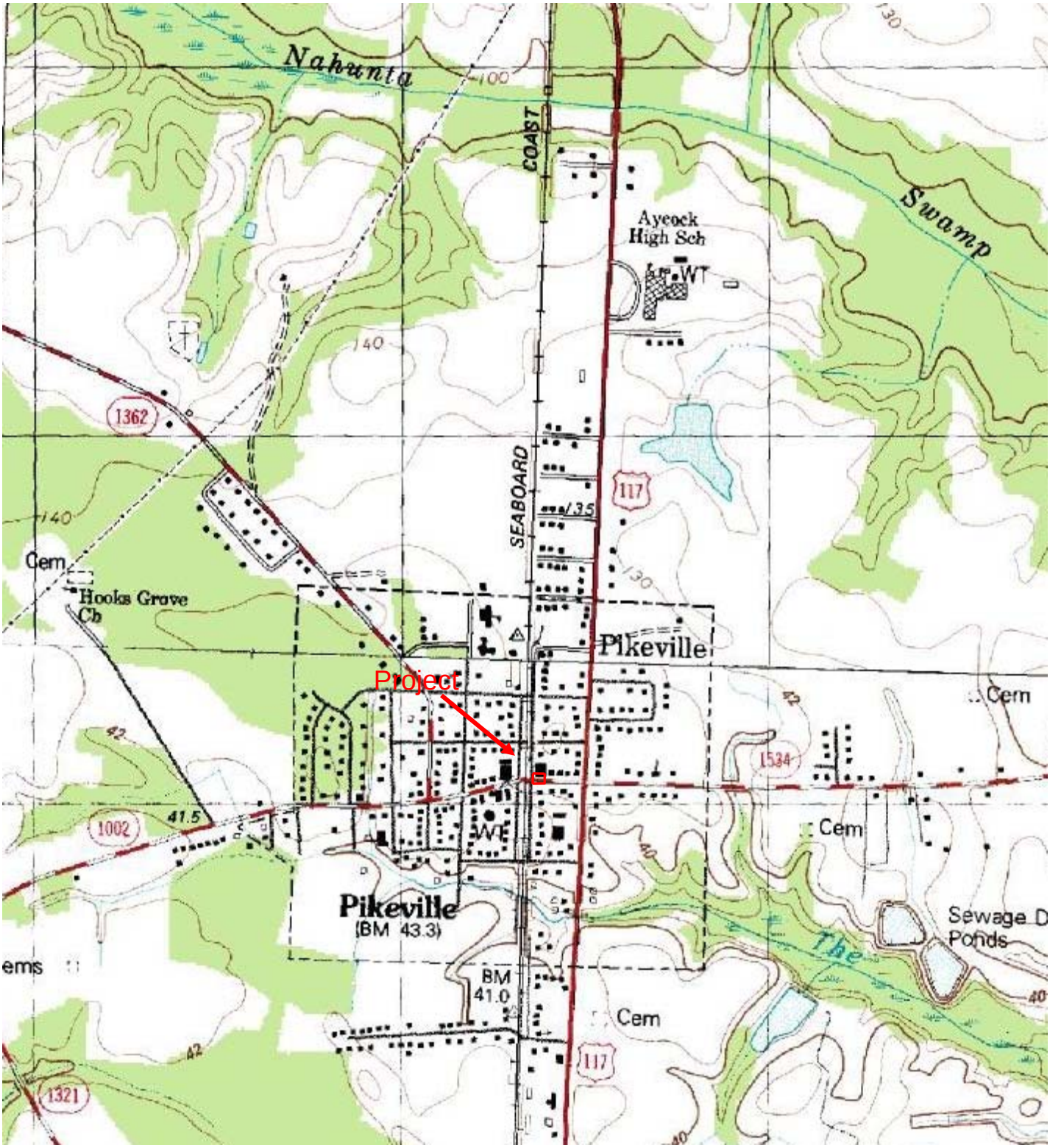

Figure 1 – Site Location Map

Source: USGS 7.5 Minute Topographic Map Pikeville North Carolina Quadrangle 1988

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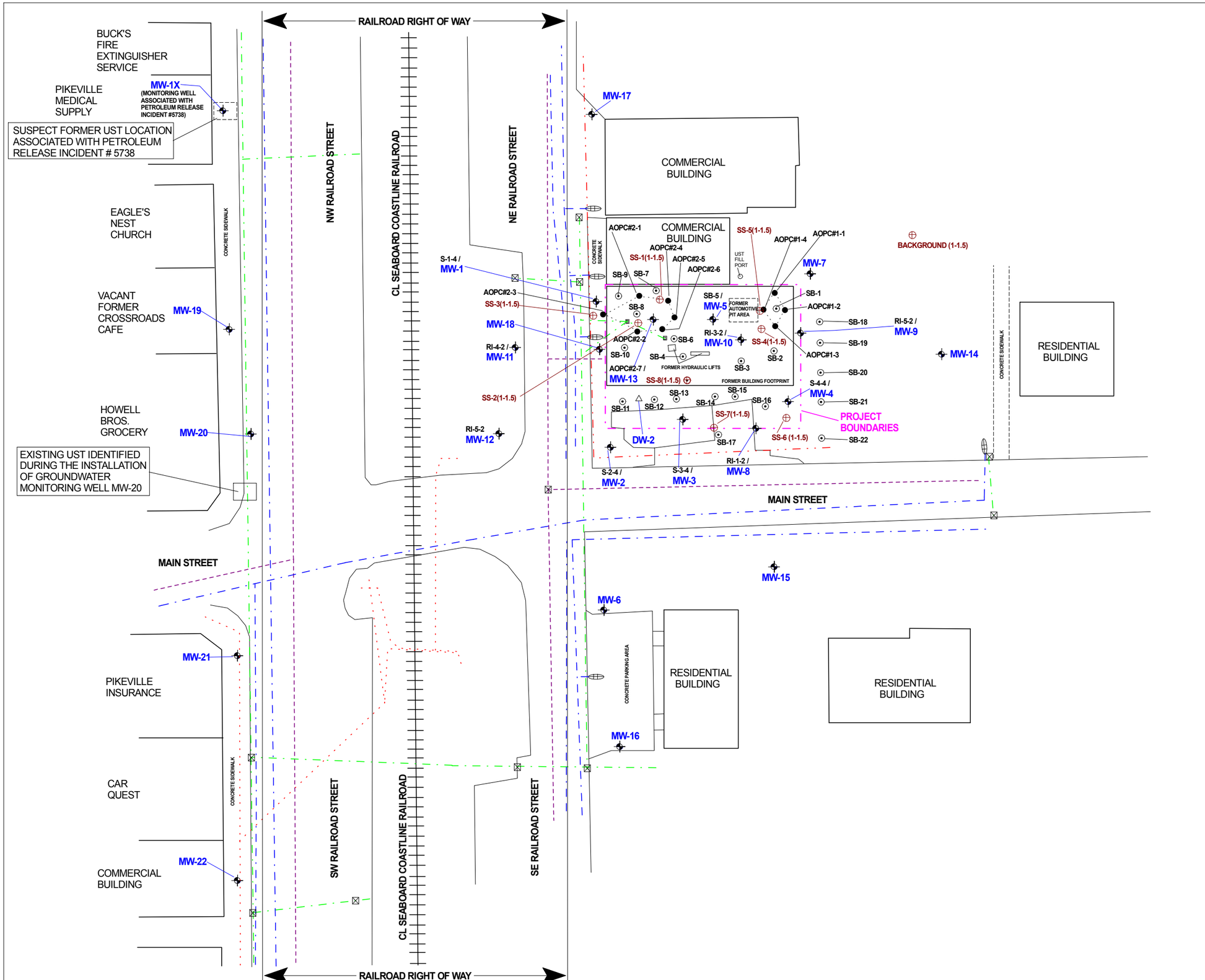
Site Name: **R.D. Pate Estate**
101 East Main Street
Pikeville, North Carolina

BB&T Project Number: ESA071433
EA Project Number: 07-7019.10



SITE PLAN - OVERVIEW

R.D. PATE ESTATE
101 EAST MAIN STREET
PIKEVILLE, NORTH CAROLINA
EA PROJECT NUMBER 07-7019.10

FIGURE: 2	DATE: DECEMBER 2013

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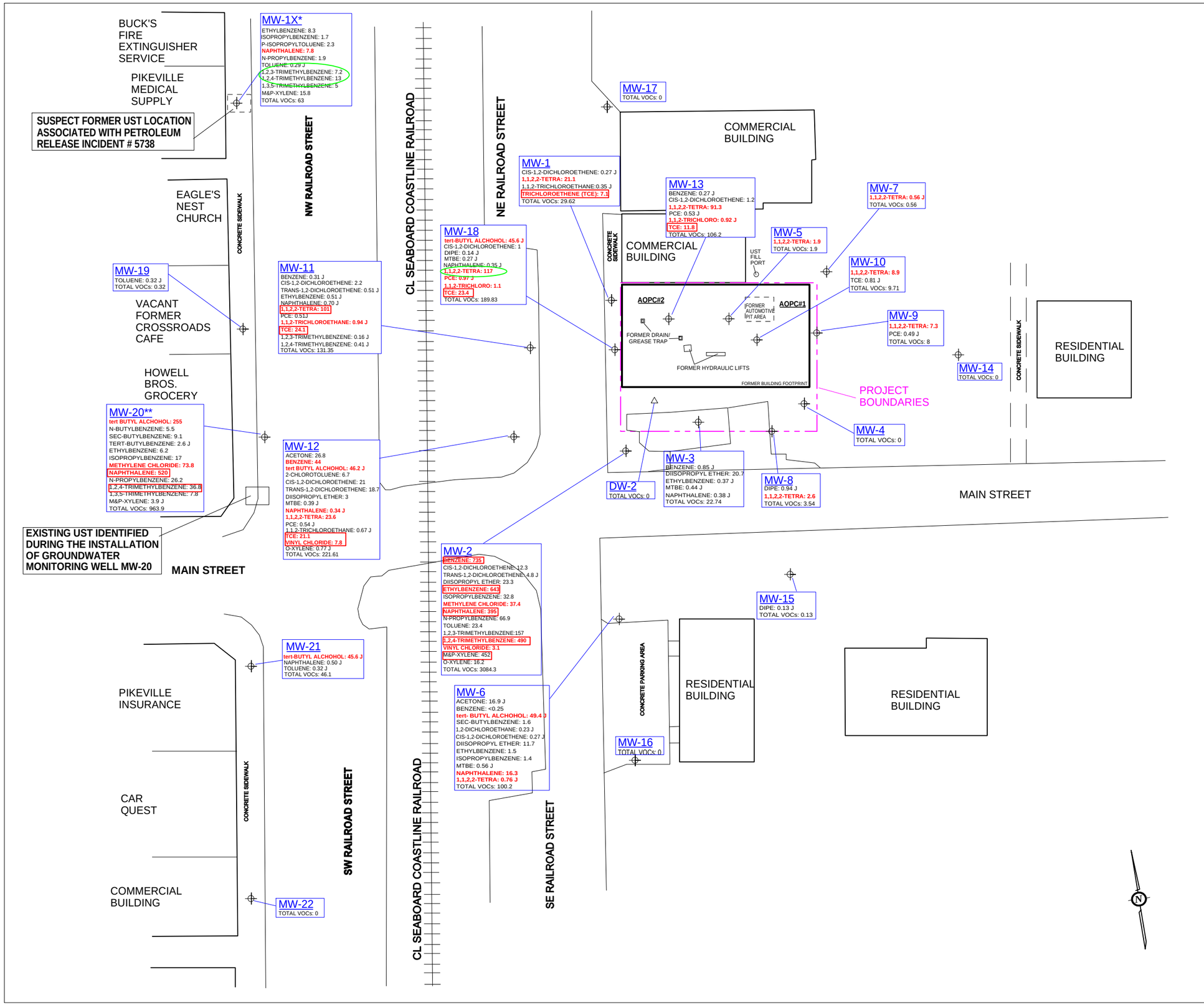
LEGEND

- TYPE II GROUNDWATER MONITORING WELL LOCATION
- TYPE III GROUNDWATER MONITORING WELL LOCATION
- 2013 SOIL BORINGS (SS-1 THROUGH SS-8 &BACKGROUND SOIL BORINGS)
- 2011 SOIL BORINGS (AOPC# 1; AOPC#2 & RI SOIL BORINGS)
- 2008 SOIL BORINGS (SS-1 THROUGH SS-22 SOIL BORINGS)
- UNDERGROUND ELECTRICAL LINES
- OVERHEAD ELECTRICAL LINES
- MUNICIPAL WATER LINE
- MUNICIPAL STORM SEWER LINE
- MUNICIPAL SANITARY SEWER LINE
- FORMER DRAIN/GREASE TRAP
- WATER METER
- DROP INLET

N

0 40 80

Scale: 1"=40'



SUMMARY OF OCTOBER 2013 GROUNDWATER ANALYTICAL RESULTS WITH VAPOR INTRUSION GROUND WATER SCREENING LEVELS

R.D. PATE ESTATE
101 EAST MAIN STREET
PIKEVILLE, NORTH CAROLINA
EA PROJECT NUMBER 07-7019.10

FIGURE: 3A | DATE: DECEMBER 2013

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LEGEND

TYPE II GROUNDWATER MONITORING WELL LOCATION

TYPE III GROUNDWATER MONITORING WELL LOCATION

FORMER DRAIN/GREASE TRAP

DIPE	DIISOPROPYL ETHER
1,1,2,2-TETRA	1,1,2,2-TETRACHLOROETHANE
1,1,2-TRICHLORO	1,1,2-TRICHLOROETHANE
TCE	TRICHLOROETHENE
PCE	TETRACHLOROETHENE
MTBE	METHYL TERT-BUTYL ETHER

< MDLs = ALL TARGET ANALYTE CONCENTRATIONS ARE LESS THAN LABORATORY METHOD DETECTION LIMITS (MDLs)

ALL GROUNDWATER CONCENTRATIONS ARE REPORTED IN MICROGRAMS PER LITER (ug/L).

BOLD RESULTS EXCEED NCAC 2L GROUNDWATER STANDARDS

J = ESTIMATED CONCENTRATION EXCEEDING LABORATORY METHOD DETECTION LIMITS AND BELOW LABORATORY REPORTING LIMITS.

RESULT EXCEEDS RESIDENTIAL VAPOR INTRUSION GROUND WATER SCREENING LEVEL (GWSL)

RESULT EXCEEDS NON-RESIDENTIAL VAPOR INTRUSION GROUND WATER SCREENING LEVEL (GWSL)

* DETECTED CONCENTRATIONS ARE LIKELY ASSOCIATED WITH PETROLEUM RELEASE INCIDENT #5738 AND NOT THE R.D. PATE SOLVENT RELEASE

** DETECTED CONCENTRATIONS ARE LIKELY ASSOCIATED WITH A SUSPECTED PETROLEUM RELEASE ASSOCIATED WITH THE RECENTLY DISCOVERED USTNEAR THE HOWELL BROS. GROCERY PROPERTY

0 40 80

Scale: 1"=40'

SUMMARY OF MARCH 2013 GROUNDWATER ANALYTICAL RESULTS WITH VAPOR INTRUSION GROUND WATER SCREENING LEVELS

R.D. PATE ESTATE
101 EAST MAIN STREET
PIKEVILLE, NORTH CAROLINA
EA PROJECT NUMBER 07-7019.10

FIGURE: 3B | DATE: DECEMBER 2013

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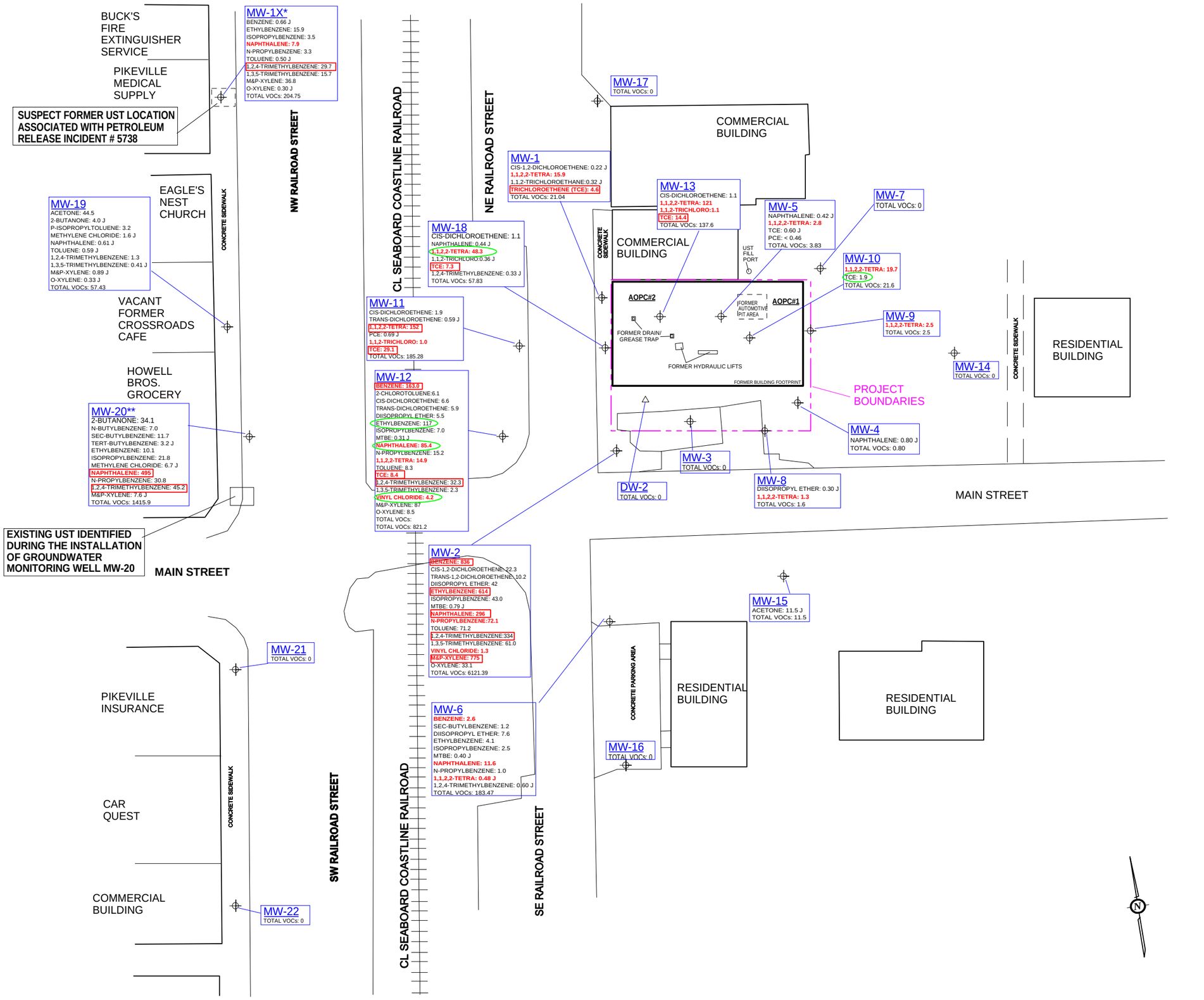

LEGEND

TYPE II GROUNDWATER MONITORING WELL LOCATION

TYPE III GROUNDWATER MONITORING WELL LOCATION

FORMER DRAIN/GREASE TRAP

1,1,2,2-TETRA	1,1,2,2-TETRACHLOROETHANE
1,1,2-TRICHLORO	1,1,2-TRICHLOROETHANE
TCE	TRICHLOROETHENE
PCE	TETRACHLOROETHENE
MTBE	METHYL TERT-BUTYL ETHER

< MDLs = ALL TARGET ANALYTE CONCENTRATIONS ARE LESS THAN LABORATORY METHOD DETECTION LIMITS (MDLs)

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0 40 80

Scale: 1"=40'

POTENTIOMETRIC CONTOUR MAP
OCTOBER 2013

R.D. PATE ESTATE
101 EAST MAIN STREET
PIKEVILLE, NORTH CAROLINA
EA PROJECT NUMBER 07-7019.10

FIGURE: 4A | DATE: DECEMBER 2013

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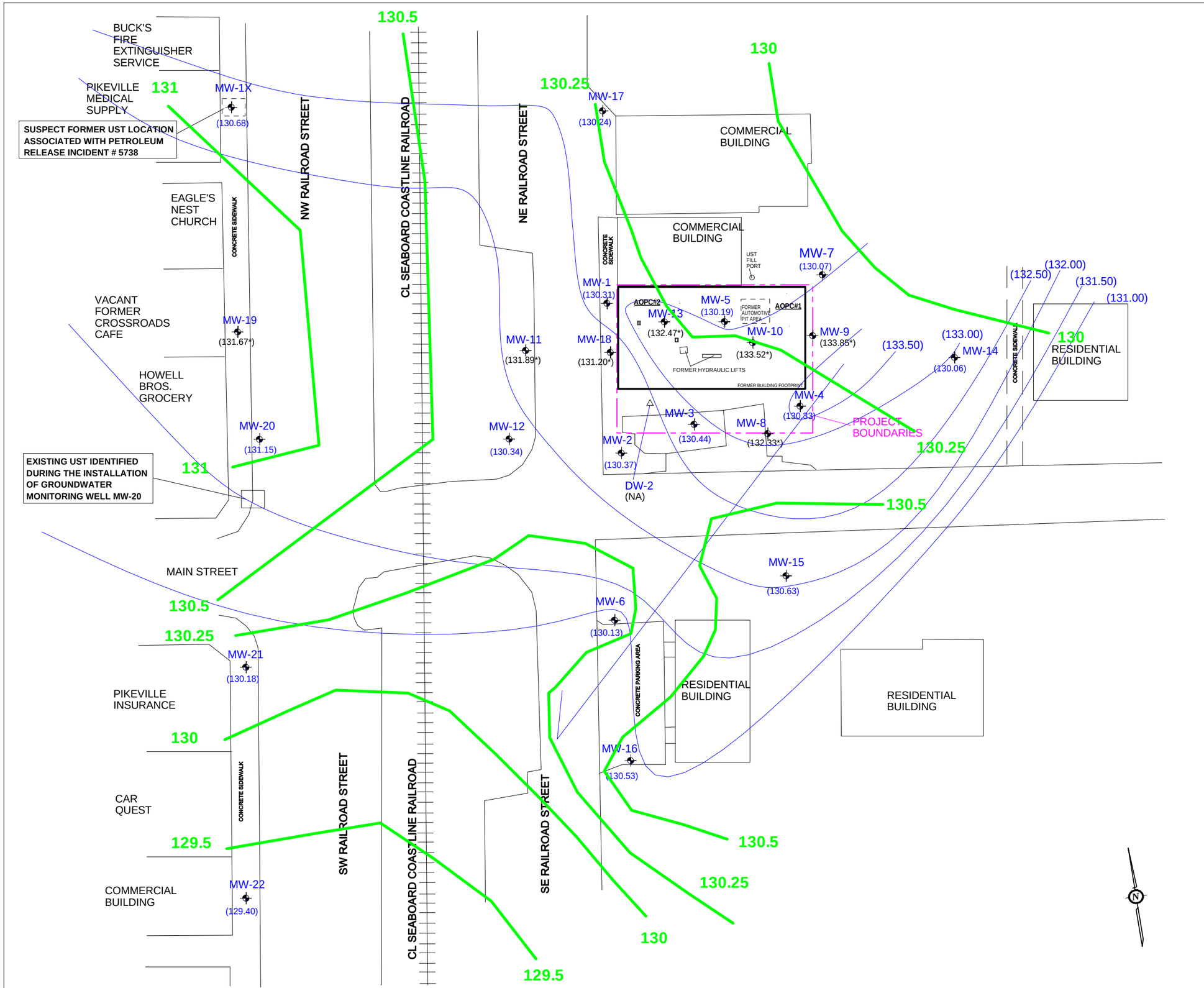

LEGEND

- TYPE II GROUNDWATER MONITORING WELL LOCATION
- TYPE III GROUNDWATER MONITORING WELL LOCATION
- FORMER DRAIN/GREASE TRAP
- (132.71) GROUNDWATER ELEVATON 10-8-2013)
- (132.00) POTENTIOMETRIC CONTOUR LINE
- SHALLOW GROUNDWATER FLOW DIRECTION

*MW-8, MW-9, MW-10, MW-11, MW-13, MW-18, MW-19 & DW-2 NOT USED FOR CONTOURING PURPOSES DUE TO SLOW GROUNDWATER RECHARGE ASSOCIATED WITH TIGHT CLAYS IN SOILS SURROUNDING THE WELLS.

0 40 80

Scale: 1"=40'

POTENTIOMETRIC CONTOUR MAP
MARCH 2013

R.D. PATE ESTATE
101 EAST MAIN STREET
PIKEVILLE, NORTH CAROLINA
EA PROJECT NUMBER 07-7019.10

FIGURE: 4B | DATE:DECEMBER 2013

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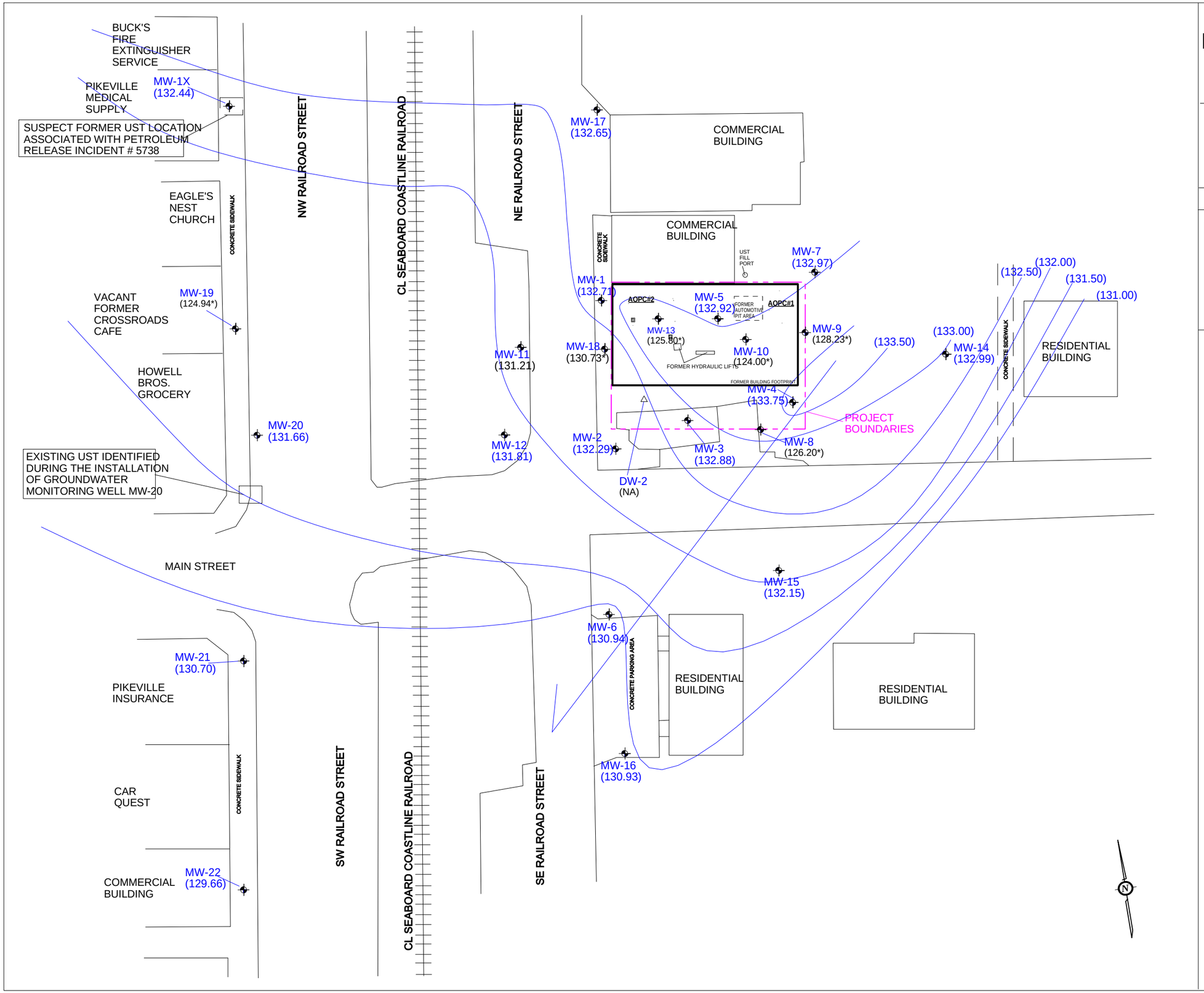


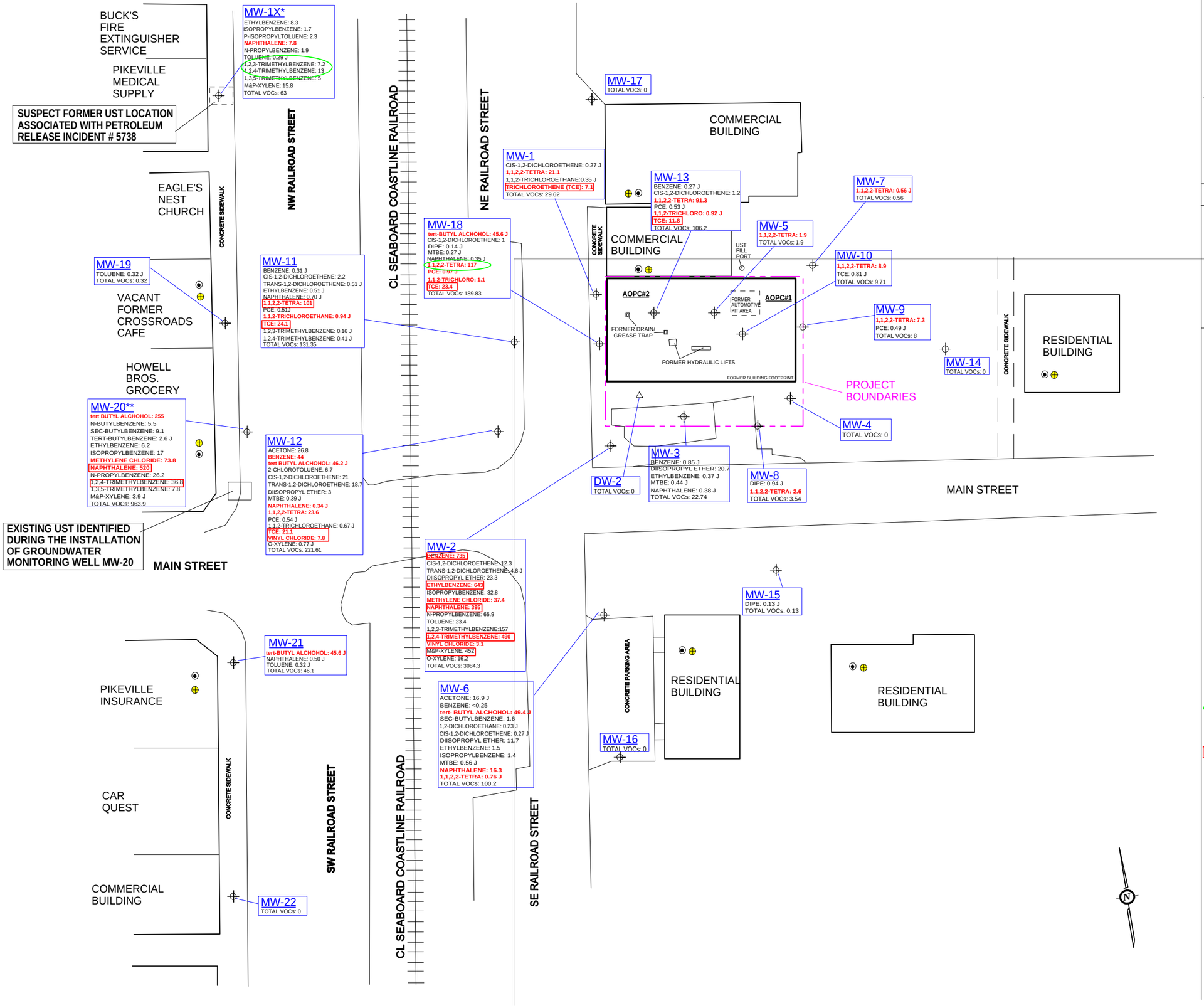
LEGEND

- TYPE II GROUNDWATER MONITORING WELL LOCATION
- TYPE III GROUNDWATER MONITORING WELL LOCATION
- FORMER DRAIN/GREASE TRAP
- (132.71) GROUNDWATER ELEVATON (3-18-2013)
- (132.00) POTENTIOMETRIC CONTOUR LINE
- SHALLOW GROUNDWATER FLOW DIRECTION

*MW-8, MW-9, MW-10, MW-11, MW-13, MW-18, MW-19 & DW-2 NOT USED FOR CONTOURING PURPOSES DUE TO SLOW GROUNDWATER RECHARGE ASSOCIATED WITH TIGHT CLAYS IN SOILS SURROUNDING THE WELLS.

0 40 80

Scale: 1"=40'



PROPOSED VAPOR INTRUSION SAMPLE LOCATIONS

R.D. PATE ESTATE
101 EAST MAIN STREET
PIKEVILLE, NORTH CAROLINA
EA PROJECT NUMBER 07-7019.10

FIGURE: 5 | DATE: DECEMBER 2013

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LEGEND

- TYPE II GROUNDWATER MONITORING WELL LOCATION
- TYPE III GROUNDWATER MONITORING WELL LOCATION
- FORMER DRAIN/GREASE TRAP

DIPE	DIISOPROPYL ETHER
1,1,2,2-TETRA	1,1,2,2-TETRACHLOROETHANE
1,1,2-TRICHLORO	1,1,2-TRICHLOROETHANE
TCE	TRICHLOROETHENE
PCE	TETRACHLOROETHENE
MTBE	METHYL TERT-BUTYL ETHER

< MDLs = ALL TARGET ANALYTE CONCENTRATIONS ARE LESS THAN LABORATORY METHOD DETECTION LIMITS (MDLs)

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BOLD RESULTS EXCEED NCAC 2L GROUNDWATER STANDARDS

J = ESTIMATED CONCENTRATION EXCEEDING LABORATORY METHOD DETECTION LIMITS AND BELOW LABORATORY REPORTING LIMITS.

RESULT EXCEEDS RESIDENTIAL VAPOR INTRUSION GROUND WATER SCREENING LEVEL (GWSL)

RESULT EXCEEDS NON-RESIDENTIAL VAPOR INTRUSION GROUND WATER SCREENING LEVEL (GWSL)

- PROPOSED SUB-SLAB VAPOR SAMPLE LOCATION
- PROPOSED INDOOR AIR VAPOR SAMPLE LOCATION

* DETECTED CONCENTRATIONS ARE LIKELY ASSOCIATED WITH PETROLEUM RELEASE INCIDENT #5738 AND NOT THE R.D. PATE SOLVENT RELEASE

** DETECTED CONCENTRATIONS ARE LIKELY ASSOCIATED WITH A SUSPECTED PETROLEUM RELEASE ASSOCIATED WITH THE RECENTLY DISCOVERED USTNEAR THE HOWELL BROS. GROCERY PROPERTY

0 40 80

Scale: 1"=40'

TABLES

TABLE 1

SUMMARY OF GROUNDWATER ANALYTICAL RESULTS WITH VAPOR INTRUSION GROUND WATER SCREENING LEVELS (GWSLs)
R.D. PATE ESTATE
SITE ID: NONCD0002795
101 EAST MAIN STREET
PIKEVILLE, WAYNE COUNTY, NORTH CAROLINA
ENVIROASSESSMENTS, PLLC PROJECT NO. 07-7019.10

																								Division of Waste Management Vapor Intrusion Ground Water Screening Levels (GWSLs)		North Carolina 2L Groundwater Quality Standards
Sample ID	Analytical	MW-1						MW-2					MW-3						MW-4					Residential GWSL	Non-Residential GWSL	
Collection Date	Method	9/11/2007	6/3/2008	4/5/2011	2/19/2013	3/19/2013	10/9/2013	9/11/2007	6/3/2008	4/6/2011	3/16/2013	10/9/2013	9/11/2007	6/3/2008	4/1/2011	2/19/2013	3/16/2013	10/8/2013	9/11/2007	6/3/2008	4/1/2011	3/15/2013	10/8/2013			
Volatile Organic Compounds (VOCs) by EPA Method 8260B Plus TICs																										
Acetone	8260B	< 10.0	< 10.0	< 25.0	< 25.0	< 25.0	<10.0	< 10.0	< 20.0	334	< 25.0	<50.0	< 100.0	< 10.0	< 25.0	< 25.0	< 25.0	< 10.0	< 10.0	< 10.0	< 25.0	< 25.0	< 10.0	4520000	19000000	6000
Acrolein	8260B	< 10.0*	< 10.0*	< 1.6	< 1.6	< 1.6	<1.6	< 10.0*	< 20.0*	< 8.0*	< 1.6	<8.0	< 100.0*	< 10.0*	< 1.6	< 1.6	< 1.6	<1.6	< 10.0*	< 10.0*	< 1.6	< 1.6	<1.6	0.837	3.51	4
Benzene	8260B	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<0.25	**418**	**1850**	**946**	**836**	**735**	**155**	**103**	**21.1**	**54.3**	< 1.0	0.85J	< 1.0	< 1.0	< 1.0	< 1.0	<0.25	13.8	69.3	1
Bromodichloromethane	8260B	< 0.60	< 0.60	< 0.18	< 0.18	< 0.18	<0.18	< 0.60	< 20.0*	< 0.90*	< 0.18	<0.90	< 6.0*	< 0.60	< 0.18	< 0.18	< 0.18	< 0.18	< 0.60	< 0.60	< 0.18	< 0.18	< 0.18	7.59	38.3	0.6
2-Butanone (MEK)	8260B	< 10.0	< 10.0	< 5.0	< 5.0	< 5.0	<0.96	< 10.0	< 20.0	98.0	< 5.0	<4.8	< 100.0	< 10.0	< 5.0	< 5.0	< 5.0	<0.96	< 10.0	< 10.0	< 5.0	< 5.0	<0.96	448000	1880000	4000
tert-Butyl Alcohol	8260B	na	na	na	na	na	<3.6	na	na	na	na	<18.1	na	na	na	na	na	<3.6	na	na	na	na	<3.6	111000	466000	10
n-Butylbenzene	8260B	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<0.41	< 1.0	< 20.0	< 5.0	< 1.0	<2.0	< 10.0	2.61	< 1.0	< 1.0	< 1.0	<0.41	24	< 1.0	< 1.0	< 1.0	<0.41	NE	NE	70
sec-Butylbenzene	8260B	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<0.38	< 1.0	< 20.0	< 5.0	< 1.0	<1.9	< 10.0	1.64	< 1.0	< 1.0	< 1.0	<0.38	< 1.0	< 1.0	< 1.0	< 1.0	<0.38	NE	NE	70
tert-Butylbenzene	8260B	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<0.40	< 1.0	< 20.0	< 5.0	< 1.0	<2.0	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	<0.40	< 1.0	< 1.0	< 1.0	< 1.0	<0.40	NE	NE	70
Chlorobenzene	8260B	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<0.23	< 10.0	< 20.0	< 5.0	< 1.0	<1.2	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	<0.23	< 1.0	< 1.0	< 1.0	< 1.0	<0.23	82.0	345	50
Chloroform	8260B	< 1.0	< 1.0	< 1.0	0.18J	< 1.0	<0.14	< 1.0	< 20.0	< 5.0	< 1.0	<0.70	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	<0.14	< 1.0	< 1.0	< 1.0	< 1.0	<0.14	7.05	35.5	70
2-Chlorotoluene	8260B	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<0.35	< 1.0	< 20.0	< 5.0	< 1.0	<1.8	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	<0.35	< 1.0	< 1.0	< 1.0	< 1.0	<0.35	NE	NE	100
Dibromochloromethane	8260B	< 1.0*	< 1.0*	< 0.21	< 0.21	< 0.21	<0.21	< 1.0*	< 20.0*	< 0.21	< 0.21	<1.0	< 10.0*	< 1.0*	< 0.21	< 0.21	< 0.21	<0.21	< 1.0*	< 1.0*	< 0.21	< 0.21	<0.21	28.2	142	0.4
Dichlorodifluoromethane	8260B	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<0.21	< 1.0	< 20.0	< 5.0	< 1.0	<1.0	< 10.0	< 1.0	0.38 J	1.5	< 1.0	<0.21	< 1.0	< 1.0	< 1.0	< 1.0	<0.21	1.49	6.25	1000
1,2-Dichloroethane	8260B	< 1.0*	< 1.0*	< 0.12	< 0.12	< 0.12	<0.12	< 1.0*	< 20.0*	< 0.60*	< 0.12	<0.60	< 10.0*	< 1.0*	< 0.12	0.31J	< 1.0	<0.12	< 1.0*	< 1.0*	< 0.12	< 0.12	<0.12	19.4	97.8	0.4
cis-1,2-Dichloroethene	8260B	< 1.0	< 1.0	< 1.0	1.4	0.22J	0.27J	< 1.0	< 20.0	17.6	22.3	12.3	< 10.0	< 1.0	1.0	1.5	< 1.0	<0.19	< 1.0	< 1.0	< 1.0	< 1.0	<0.19	NE	NE	70
trans-1,2-Dichloroethene	8260B	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<0.49	< 1.0	< 20.0	10.2	10.2	4.8J	< 10.0	< 1.0	0.89 J	0.91J	< 1.0	<0.49	< 1.0	< 1.0	< 1.0	< 1.0	<0.49	75.0	315	100
Diisopropyl ether	8260B	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<0.12	< 1.0	< 20.0	57.8	42	23.3	**73.5**	NT	20.9	37.3	< 1.0	20.7	< 1.0	< 1.0	< 1.0	< 1.0	<0.12	1400	5860	70
Ethylbenzene	8260B	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<0.30	96.4	**982**	**732**	**614**	**643**	75.4	281	0.30 J	19.4	< 1.0	0.37J	166	15.5	< 1.0	< 1.0	<0.30	30.2	152	600
Isopropylbenzene	8260B	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<0.40	< 1.0	39.6	38.4	43.0	32.8	< 10.0	15.4	0.92 J	1.6	< 1.0	<0.40	15.1	1.28	< 1.0	< 1.0	<0.40	177	745	70
p-Isopropyltoluene	8260B	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<0.31	< 1.0	< 20.0	< 5.0	< 1.0	<1.6	< 10.0	3.66	< 1.0	< 1.0	< 1.0	<0.31	2.94	< 1.0	< 1.0	< 1.0	<0.31	NE	NE	25
Methylene Chloride	8260B	< 5.0	< 5.0	< 2.0	< 2.0	< 2.0	<0.97	< 5.0	< 20.0*	**8.2 J**	< 2.0	**37.4**	< 50.0*	< 5.0	< 2.0	< 2.0	< 2.0	<0.97	< 5.0	< 5.0	< 2.0	< 2.0	<0.97	942	3960	5
4-Methyl-2-pentanone (MIBK)	8260B	< 10.0	< 10.0	< 5.0	< 5.0	< 5.0	<0.33	< 10.0	< 20.0	< 25.0	< 5.0	<1.6	< 100.0	< 10.0	< 5.0	< 5.0	< 5.0	<0.33	< 10.0	< 10.0	< 5.0	< 5.0	<0.33	111000	466000	100
Methyl tert-butyl ether (MTBE)	8260B	1.7	1.14	< 1.0	< 1.0	< 1.0	<0.21	< 10.0	< 20.0	1.0 J	0.79 J	<1.0	< 10.0	< 1.0	0.52 J	0.89J	< 1.0	0.44J	< 1.0	< 1.0	< 1.0	< 1.0	<0.21	3900	19700	20
Naphthalene	8260B	< 1.0	< 1.0	0.45 J	0.25J	< 1.0	<0.24	**15.1**	**330**	**420**	**296**	**395**	**30**	**178**	4.8	**20.9**	< 1.0	0.38J	**81.2**	**12.1**	< 1.0	0.80J	<0.24	34.8	146	6
n-Propylbenzene	8260B	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<0.42	< 1.0	**72.8**	66.3	**72.1**	66.9	< 10.0	25.1	< 1.0	2.8	< 1.0	<0.42	42	3.28	< 1.0	< 1.0	<0.42	486	2040	70
Styrene	8260B	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<0.26	< 1.0	20.6	< 5.0	< 1.0	<1.3	< 10.0	< 1.0	< 1.0	< 1.0	< 1.0	<0.26	3.76	< 1.0	< 1.0	< 1.0	<0.26	1860	7790	70
1,1,2,2-Tetrachloroethane	8260B	**49.4**	**9.78**	**3.2**	**41.8**	**15.9**	**21.1**	**134**	< 20.0*	< 2.0*	< 0.40*	<2.0	< 10.0*	< 1.0*	**0.74 J**	**1.6**	< 0.40*	<0.40	< 1.0*	< 1.0*	< 0.40*	< 0.40*	<0.40*	28.0	141	0.2
Tetrachloroethene (PCE)	8260B	< 1.0*	< 1.0*	< 0.46	**0.75J**	< 0.46	<0.46	< 1.0*	< 20.0*	< 2.3*	< 0.46	<2.3	< 10.0*	< 1.0*	< 0.46	< 0.46	< 0.46	<0.46	< 1.0*	< 1.0*	< 0.46	< 0.46	<0.46	11.5	48.4	0.7
Toluene	8260B	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<0.26	530	**2360**	112	71.2	23.4	315	1.66	0.83 J	1.7	< 1.0	<0.26	49.1	< 1.0	< 1.0	< 1.0	<0.26	3840	16100	600
1,1,2-Trichloroethane	8260B	< 1.0*	< 1.0*	< 0.29	**1.4**	0.32J	0.35J	< 1.0*	< 20.0*	< 1.4*	< 0.29	<1.4	< 10.0*	< 1.0*	< 0.29	< 0.29	< 0.29	<0.29	< 1.0*	< 1.0*	< 0.29	< 0.29	<0.29	1.24	5.2	0.6
Trichloroethene (TCE)	8260B	**9.51**	2.71	0.74 J	**10.8**	**4.6**	**7.9**	**21.5**	< 20.0*	< 2.4	< 1.0	<2.4	< 10.0*	< 1.0	0.72 J	0.87J	< 1.0	<0.47	< 1.0	< 1.0	< 1.0	< 1.0	<0.47	1.04	4.35	3
1,2,3-Trimethylbenzene	8260B	na	na	na	na	na	<0.090	na	na	na	na	157	na	na	na	na	na	<0.090	na	na	na	na	<0.090	5.85	24.6	NE
1,2,4-Trimethylbenzene	8260B	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<0.31	34.7	**631**	397	334	**490**	35.4	50.6	1.1	3.0	< 1.0	<0.31	331	22.9	< 1.0	< 1.0	<0.31	5.80	24.4	400
1,3,5-Trimethylbenzene	8260B	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<0.36	16.2	126	77.8	61.0	<1.8	12	30.4	< 1.0	< 1.0	< 1.0	<0.36	122	4.33	< 1.0	< 1.0	<0.36	NE	NE	400
Vinyl chloride	8260B	< 1.0*	< 1.0*	< 0.62*	< 0.62*	< 0.62*	<0.62	< 1.0*	< 20.0*	< 3.1*	**1.3**	<3.1*	< 10.0*	< 1.0*	< 0.62*	< 0.62*	< 0.62*	<0.62	< 1.0*	< 1.0*	< 0.62*	< 0.62*	<0.62*	1.42	24.5	0.03
m&p-Xylene	8260B	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	<0.66	171	**1800**	**1110**	**775**	452	161	< 2.0	< 2.0	1.0J	< 2.0	<0.66	**645**	45.9	< 2.0	< 2.0	<0.66	71.1 (m) / 74.0 (p)	298 (m) / 311	500
o-Xylene	8260B	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<0.23	126	**982**	99.5	33.1	16.2	95.9	< 1.0	1.1	0.94J	< 1.0	<0.23	285	15	< 1.0	< 1.0	<0.23	98.5	414	500
Xylenes - Total	8260B	0	0	0	0	0	0	297	2782	1209.5	808.1	468.2	256.9	0	1.1	0	0	0	930	60.9	0	0	0	NE	NE	500
Total TICs	8260B	NT	NT	0	NT	0	NT	NT	NT	4015.8	2909.4	NT	NT	NT	0.17775	NT	0	NT	NT	NT	0	0	NT	NE	NE	NE
Total VOCs	8260B	60.61	13.63	4.39	56.58	21.04	29.62	1859.9	11976	8541.6	6121.39	3084.3	1210.1	693.07	55.47775	149.52	0	22.74	2697.1	181.19	0	0.80	0.00	NE	NE	NA
Total BTEX	8260B	0	0	0	0	0	0	1341.4	7974	2999.5	2329.3	1869.6	802.3	385.66	23.33	77.34	0	1.22	1145.1	76.4	0	0	0	NE	NE	NA
Semi-Volatile Organic Compounds (SVOCs) by EPA Method 8270 Plus TICs																										
Acenaphthene	8270	< 10.0	NT	< 10.0	NT	NT	NT	< 10.0	NT	1.9 J	NT	NT	< 10.0	NT	< 10.0	NT	NT	NT	< 10.0	NT	< 11.8	NT	NT	NE	NE	80
Benzyl Alcohol	8270	< 10.0	NT	< 20.0	NT	NT	NT	< 10.0	NT	< 23.5	NT	NT	12	NT	< 10.0	NT	NT	NT	< 10.0	NT	< 23.5	NT	NT	NE	NE	700
bis(2-Ethylhexyl)phthalate	8270	< 4.0*	NT	< 0.79	NT	NT	NT	< 4.0*	NT	1.9 J	NT	NT	< 4.0*	NT	< 2.4	NT	NT	NT	< 4.0*	NT	< 0.93	NT	NT	NE	NE	3
Dibenzofuran	8270	< 10.0	NT	< 10.0	NT	NT	NT	< 10.0	NT	2.6 J	NT	NT	< 10.0	NT	< 10.0	NT	NT	NT	< 10.0	NT	< 11.8	NT	NT	NE	NE	28
Fluorene	8270	< 10.0	NT	< 10.0	NT	NT	NT	< 10.0	NT	4.1 J	NT	NT	< 10.0	NT	< 10.0	NT	NT	NT	< 10.0	NT	< 11.8	NT	NT	NE	NE	300
1-Methylnaphthalene	8270	< 10.0*	NT	< 0.32	NT	NT	NT	< 10.0*	NT	**17.2**	NT	NT	< 10.0*	NT	< 0.32	NT	NT	NT	< 10.0*	NT	< 0.38	NT	NT	NE	NE	1
2-Methylnaphthalene	8270	< 10.0	NT	< 10.0	NT	NT	NT	< 10.0	NT	23.2	NT	NT	< 10.0	NT	< 10.0	NT	NT	NT	< 10.0	NT	< 11.8	NT	NT	NE	NE	30
2-Methylphenol	8270	< 10.0	NT	< 10.0	NT	NT	NT	18.3	NT	< 11.8	NT	NT	< 10.0	NT	< 10.0	NT	NT	NT	< 10.0	NT	< 11.8	NT	NT	NE	NE	400
Naphthalene	8270	< 10.0*	NT	< 0.34	NT	NT	NT	< 10.0*	NT	**155**	NT	NT	**15.5**	NT	2.5 J	NT	NT	NT	**15.5**	NT	< 0.40	NT	NT	34.8	146	6
Phenanthrene	8270	< 10.0	NT	< 10.0	NT	NT	NT	< 10.0	NT	4.4 J	NT	NT	< 10.0	NT	< 10.0	NT	NT	NT	< 10.0	NT	< 11.8	NT	NT	NE	NE	200
Total TICs	8270	NT	NT	68.46	NT	NT	NT	NT	NT	735.6	NT	NT	NT	NT	78.41	NT	NT	NT	NT	NT	109.46	NT	NT	NE	NE	NE
Totals Metals by EPA Method 6010B																										
Antimony	6010	NT	< 18.0*	< 2.6*	NT	NT	NT	NT	< 18.0*	< 2.6*	NT	NT	NT	< 18.0*	< 2.6*	NT	NT	NT	NT	< 18.0*	< 2.6*	NT	NT	NE	NE	1
Arsenic	6010	NT	< 9.1	< 5.0	NT	NT	NT	NT	< 9.1	2.8 J	NT	NT	NT	< 9.1	< 5.0	NT	NT	NT	NT	< 9.1	< 5.0	NT	NT	NE	NE	10
Beryllium	6010	NT	< 3.6	< 1.0	NT	NT	NT	NT	< 3.6	< 1.0	NT	NT	NT	< 3.6	< 1.0	NT	NT	NT	NT	< 3.6	< 1.0	NT	NT	NE	NE	4
Cadmium	6010	NT	< 4.6*	< 0.50	NT	NT	NT	NT	< 4.6*	< 0.50	NT	NT	NT	< 4.6*	< 1.0	NT	NT	NT	NT	< 4.6*	< 1.0	NT	NT	NE	NE	2
Chromium	6010	NT	NT	< 5.0	NT	NT	NT	NT	NT	< 5.0	NT	NT	NT	NT	< 5.0	NT	NT	NT	NT	NT	5.8	NT	NT	NE	NE	10
Copper	6010	NT	< 9.1	7.5	NT	NT	NT	NT	16	< 5.0	NT	NT	NT	< 9.1	< 5.0	NT	NT	NT	NT	44.7	13.7	NT	NT	NE	NE	1000
Lead	6010	10.9	7.67	< 5.0	NT	NT	NT	13.7	**63.6**	< 5.0	NT	NT	13.1	**18.7**	< 5.0	NT	NT	NT	**131**	**241**	14.8	NT	NT	NE	NE	15
Manganese	6010	NT	17	NT	NT	NT	NT	NT	**73.9**	NT	NT	NT	NT	**285**	NT	NT	NT	NT	NT	**132**	NT	NT	NT	NE	NE	50
Nickel	6010	NT	< 9.1	< 5.0	NT	NT	NT	NT	< 9.1	< 5.0	NT	NT	NT	< 9.1	< 5.0	NT	NT	NT	NT	< 9.1	2.6 J	NT	NT	NE	NE	100
Selenium	6010	NT	< 27*	< 10.0	NT	NT	NT	NT	< 27*	< 10.0	NT	NT	NT	< 27*	< 10.0	NT	NT	NT	NT	< 27*	< 10.0	NT	NT	NE	NE	20
Silver	6010	NT	< 18.0	< 5.0	NT	NT	NT	NT	< 18.0	< 5.0	NT	NT	NT	< 18.0	< 5.0	NT	NT	NT	NT	< 18.0	< 5.0	NT	NT	NE	NE	20
Thallium	6010	NT	< 18.0*	< 5.0*	NT	NT	NT	NT	< 18.0*	< 5.0*	NT	NT	NT	< 18.0*	<5.0*	NT	NT	NT	NT	< 18.0*	<5.0*	NT	NT	NE	NE	0.2
Zinc	6010	NT	377	200	NT	NT	NT	NT	52.6	8.7 J	NT	NT	NT	29.6	< 10.0	NT	NT	NT	NT	219	53.5	NT	NT	NE	NE	1000
Mercury by EPA Method 7471																										
Mercury	7471	NT	<0.20	<0.10	NT	NT	NT	NT	<0.20	<0.20	NT	NT	NT	<0.20	<0.20	NT	NT	NT	NT	<0.20	<0.20	NT	NT	0.134	0.563	1

Notes:
All concentrations are reported in micrograms per liter (ug/L).
ft, bgs - feet below ground surface
NE - Not Established
NT - Not Tested
ND - Not Detected
NA - Not Applicable
Bold results exceed NCAC 2L Standards.
Bold results exceed Gross Contamination Levels (GCLs) for Groundwate

= Exceeds NCDENR, Division of Waste Management, Residential Vapor Intrusion Ground Water Screening Level (GWSL)
= Exceeds NCDENR, Division of Waste Management, Non-Residential Vapor Intrusion Ground Water Screening Level (GWSL)

PWS = Private Water Supply Well Sample
DW-2 = Type III Well (Well Identified on Well Construction Record as DMW-1; however has always been refered to as DW-2 since installation)
D/DUP = Duplicate Sample
RB = Rinse Blank
TB = Trip Blank
FB = Field Blank

"J" value indicates an estimated concentration exceeding the laboratory method detection limit and below the laboratory reporting limit.
* Laboratory reporting limit and/or method detection limit exceeds the NCAC 2L Groundwater Standard
2/19/2013 Sampling event was for screening purposes only. Samples not collected according to RI Workplan
MW-1 (X)** = Off-site Well associated with petroleum Release Incident #5738
na - not analyzed by laboratory based on test method criteria

TABLE 1 (CONTINUED)

SUMMARY OF GROUNDWATER ANALYTICAL RESULTS WITH VAPOR INTRUSION GROUND WATER SCREENING LEVELS (GWSLs)
R.D. PATE ESTATE
SITE ID: NONCD0002795
101 EAST MAIN STREET
PIKEVILLE, WAYNE COUNTY, NORTH CAROLINA
ENVIROASSESSMENTS, PLLC PROJECT NO. 07-7019.10

Sample ID	Analytical	MW-5				MW-6					MW-7					MW-8			MW-9				Division of Waste Management Vapor Intrusion Ground Water Screening Levels (GWSLs)		North Carolina 2L Groundwater Quality Standards
Collection Date	Method	6/3/2008	3/30/2011	3/16/2013	10/8/2013	6/3/2008	4/5/2011	2/19/2013	3/18/2013	10/9/2013	6/3/2008	4/1/2011	2/19/2013	3/18/2013	10/9/2013	4/6/2011	3/15/2013	10/8/2013	4/6/2011	2/19/2013	3/15/2013	10/8/2013	Residential GWSL	Non-Residential GWSL	
Volatile Organic Compounds (VOCs) by EPA Method 8260B Plus TICs																									
Acetone	8260B	< 10.0	< 25.0	< 25.0	< 10.0	< 10.0	< 25.0	< 25.0	< 25.0	16.9J	16	< 25.0	< 25.0	< 25.0	<10.0	41.0	< 25.0	<10.0	13.8 J	< 25.0	< 25.0	<10.0	4520000	19000000	6000
Acrolein	8260B	< 10.0*	< 1.6	< 1.6	<1.6	< 10.0*	< 1.6	< 1.6	< 1.6	<1.6	**117**	< 1.6	< 1.6	< 1.6	<1.6	< 1.6	< 1.6	<1.6	< 1.6	< 1.6	< 1.6	<1.6	0.837	3.51	4
Benzene	8260B	< 1.0	< 1.0	< 1.0	<0.25	**2.14**	**3.1**	**1.8**	**2.6**	<0.25	< 1.0	< 1.0	< 1.0	< 1.0	<0.25	**3.7**	< 1.0	<0.25	**1.3**	< 1.0	< 1.0	<0.25	13.8	69.3	1
Bromodichloromethane	8260B	< 0.60	< 0.18	< 0.18	< 0.18	< 0.60	< 0.18	< 0.18	< 0.18	<0.18	< 20.0*	< 0.18	< 0.18	< 6.0*	<0.18	< 0.18	< 0.18	<0.18	< 0.18	< 0.18	< 0.18	<0.18	7.59	38.3	0.6
2-Butanone (MEK)	8260B	< 10.0	< 5.0	< 5.0	<0.96	< 10.0	< 5.0	< 5.0	< 5.0	<0.96	< 10.0	< 5.0	< 5.0	< 5.0	<0.96	7.1	< 5.0	<0.96	< 5.0	< 5.0	< 5.0	<0.96	448000	1880000	4000
tert-Butyl Alcohol	8260B	na	na	na	<3.6	na	na	na	na	**49.4J**	na	na	na	na	<3.6	na	na	<3.6	na	na	na	<3.6	111000	466000	10
n-Butylbenzene	8260B	< 1.0	< 1.0	< 1.0	<0.41	< 1.0	< 1.0	< 1.0	< 1.0	<0.41	15.7	< 1.0	< 1.0	< 1.0	<0.41	< 1.0	< 1.0	<0.41	< 1.0	< 1.0	< 1.0	<0.41	NE	NE	70
sec-Butylbenzene	8260B	< 1.0	0.86 J	< 1.0	<0.38	< 1.0	1.3	0.95 J	1.2	1.6	10.8	< 1.0	< 1.0	< 1.0	<0.38	< 1.0	< 1.0	<0.38	< 1.0	< 1.0	< 1.0	<0.38	NE	NE	70
tert-Butylbenzene	8260B	< 1.0	< 1.0	< 1.0	<0.40	< 1.0	< 1.0	< 1.0	< 1.0	<0.40	1.86	< 1.0	< 1.0	< 1.0	<0.40	< 1.0	< 1.0	<0.40	< 1.0	< 1.0	< 1.0	<0.40	NE	NE	70
Chlorobenzene	8260B	< 1.0	< 1.0	< 1.0	<0.23	< 1.0	< 1.0	< 1.0	< 1.0	<0.23	< 1.0	< 1.0	< 1.0	< 1.0	<0.23	< 1.0	< 1.0	<0.23	< 1.0	< 1.0	< 1.0	<0.23	82.0	345	50
Chloroform	8260B	< 1.0	< 1.0	< 1.0	<0.14	< 1.0	< 1.0	< 1.0	< 1.0	<0.14	< 1.0	< 1.0	< 1.0	< 1.0	<0.14	< 1.0	< 1.0	<0.14	< 1.0	< 1.0	< 1.0	<0.14	7.05	35.5	70
2-Chlorotoluene	8260B	< 1.0	< 1.0	< 1.0	<0.35	< 1.0	< 1.0	< 1.0	< 1.0	<0.35	< 1.0	< 1.0	< 1.0	< 1.0	<0.35	< 1.0	< 1.0	<0.35	< 1.0	< 1.0	< 1.0	<0.35	NE	NE	100
Dibromochloromethane	8260B	< 1.0*	< 0.21	< 0.21	<0.21	< 1.0*	< 0.21	< 0.21	< 0.21	<0.21	< 1.0*	< 0.21	< 0.21	< 0.21	<0.21	< 0.21	< 0.21	<0.21	< 0.21	< 0.21	< 0.21	<0.21	28.2	142	0.4
Dichlorodifluoromethane	8260B	< 1.0	< 1.0	< 1.0	<0.21	< 1.0	< 1.0	< 1.0	< 1.0	<0.21	< 1.0	< 1.0	< 1.0	< 1.0	<0.21	< 1.0	< 1.0	<0.21	< 1.0	< 1.0	< 1.0	<0.21	1.49	6.25	1000
1,2-Dichloroethane	8260B	< 1.0*	< 0.12	< 0.12	<0.12	< 1.0*	0.14 J	0.15J	< 0.12	0.23J	< 1.0*	< 0.12	< 0.12	< 0.12	<0.12	< 0.12	< 0.12	<0.12	< 0.12	< 0.12	< 0.12	<0.12	19.4	97.8	0.4
cis-1,2-Dichloroethene	8260B	< 1.0	< 1.0	< 1.0	<0.19	< 1.0	< 1.0	< 1.0	< 1.0	0.27J	< 1.0	< 1.0	< 1.0	< 1.0	<0.19	< 1.0	< 1.0	<0.19	< 1.0	< 1.0	< 1.0	<0.19	NE	NE	70
trans-1,2-Dichloroethene	8260B	< 1.0	< 1.0	< 1.0	<0.49	< 1.0	< 1.0	< 1.0	< 1.0	<0.49	< 1.0	< 1.0	< 1.0	< 1.0	<0.49	< 1.0	< 1.0	<0.49	< 1.0	< 1.0	< 1.0	<0.49	75.0	315	100
Diisopropyl ether	8260B	< 1.0	< 1.0	< 1.0	<0.12	NT	8.7	7.7	7.6	11.7	NT	< 1.0	< 1.0	< 1.0	<0.12	1.7	0.30J	0.94J	< 1.0	< 1.0	< 1.0	0.21J	1400	5860	70
Ethylbenzene	8260B	< 1.0	< 1.0	< 1.0	<0.30	2.19	3.6	2.8	4.1	1.5	15.3	< 1.0	< 1.0	< 1.0	<0.30	12.4	< 1.0	<0.30	0.31 J	< 1.0	< 1.0	<0.30	30.2	152	600
Isopropylbenzene	8260B	< 1.0	< 1.0	< 1.0	<0.40	1.79	3.4	1.8	2.5	1.4	7.57	< 1.0	< 1.0	< 1.0	<0.40	1.9	< 1.0	<0.40	< 1.0	< 1.0	< 1.0	<0.40	177	745	70
p-Isopropyltoluene	8260B	< 1.0	< 1.0	< 1.0	<0.31	< 1.0	< 1.0	< 1.0	< 1.0	<0.31	**47.2**	< 1.0	< 1.0	< 1.0	<0.31	< 1.0	< 1.0	<0.31	< 1.0	< 1.0	< 1.0	<0.31	NE	NE	25
Methylene Chloride	8260B	< 5.0	< 2.0	< 2.0	<0.97	< 5.0	< 2.0	< 2.0	< 2.0	<0.97	< 5.0	< 2.0	< 2.0	< 2.0	<0.97	< 2.0	< 2.0	<0.97	< 2.0	< 2.0	< 2.0	<0.97	942	3960	5
4-Methyl-2-pentanone (MIBK)	8260B	< 10.0	< 5.0	< 5.0	<0.33	< 10.0	< 5.0	< 5.0	< 5.0	<0.33	< 10.0	< 5.0	< 5.0	< 5.0	<0.33	1.1 J	< 5.0	<0.33	< 5.0	< 5.0	< 5.0	<0.33	111000	466000	100
Methyl tert-butyl ether (MTBE)	8260B	< 1.0	1.4	< 1.0	<0.21	< 1.0	0.66 J	0.46J	0.40J	0.56J	< 1.0	< 1.0	< 1.0	< 1.0	<0.21	< 1.0	< 1.0	<0.21	< 1.0	< 1.0	< 1.0	<0.21	3900	19700	20
Naphthalene	8260B	1.63	< 1.0	0.42J	<0.24	4.47	**14.8**	**7.1**	**11.6**	**16.3**	**21.7**	< 1.0	< 1.0	< 1.0	<0.24	2.2	< 1.0	<0.24	< 1.0	< 1.0	< 1.0	<0.24	34.8	146	6
n-Propylbenzene	8260B	< 1.0	< 1.0	< 1.0	<0.42	< 1.0	0.55 J	0.61 J	1.0	<0.42	15.3	< 1.0	< 1.0	< 1.0	<0.42	2.5	< 1.0	<0.42	< 1.0	< 1.0	< 1.0	<0.42	486	2040	70
Styrene	8260B	< 1.0	< 1.0	< 1.0	<0.26	< 1.0	< 1.0	< 1.0	< 1.0	<0.26	< 1.0	< 1.0	< 1.0	< 1.0	<0.26	< 1.0	< 1.0	<0.26	< 1.0	< 1.0	< 1.0	<0.26	1860	7790	70
1,1,2,2-Tetrachloroethane	8260B	< 1.0*	**3.7**	**2.8**	**1.9**	< 1.0*	< 0.40*	**0.58J**	**0.48J**	**0.76J**	< 1.0*	< 0.40*	< 0.40*	< 0.40*	**0.56J***	**0.89 J**	**1.3**	**2.6**	**4.8**	**14.3**	**2.5**	**7.3**	28.0	141	0.2
Tetrachloroethene (PCE)	8260B	< 1.0*	< 0.46	< 0.46	<0.46	< 1.0*	< 0.46	< 0.46	< 0.46	<0.46	< 1.0*	< 0.46	< 0.46	< 0.46	<0.46	< 0.46	< 0.46	<0.46	< 0.46	< 0.46	< 0.46	0.49J	11.5	48.4	0.7
Toluene	8260B	< 1.0	< 1.0	< 1.0	<0.26	< 1.0	< 1.0	< 1.0	< 1.0	<0.26	< 1.0	< 1.0	< 1.0	< 1.0	<0.26	0.44 J	< 1.0	<0.26	0.53 J	< 1.0	< 1.0	<0.26	3840	16100	600
1,1,2-Trichloroethane	8260B	< 1.0*	< 0.29	< 0.29	<0.29	< 1.0*	< 0.29	< 0.29	< 0.29	<0.29	< 1.0*	< 0.29	< 0.29	< 0.29	<0.29	< 0.29	< 0.29	<0.29	< 0.29	< 1.0	< 0.29	<0.29	1.24	5.2	0.6
Trichloroethene (TCE)	8260B	< 1.0	1.1	0.60J	<0.47	< 1.0	< 1.0	ND	< 1.0	<0.47	< 1.0	< 0.29	< 1.0	< 1.0	<0.47	< 1.0	< 1.0	<0.47	< 1.0	1.4	< 1.0	<0.47	1.04	4.35	3
1,2,3-Trimethylbenzene	8260B	na	na	na	<0.090	na	na	na	na	<0.090	na	na	na	na	<0.090	na	na	<0.090	na	na	na	<0.090	5.85	24.6	NE
1,2,4-Trimethylbenzene	8260B	< 1.0	< 1.0	< 1.0	<0.31	< 1.0	0.48 J	0.39 J	0.60 J	<0.31	145	< 1.0	< 1.0	< 1.0	<0.31	29.3	< 1.0	<0.31	0.69 J	< 1.0	< 1.0	<0.31	5.80	24.4	400
1,3,5-Trimethylbenzene	8260B	< 1.0	< 1.0	< 1.0	<0.36	< 1.0	< 1.0	< 1.0	< 1.0	<0.36	55.4	< 1.0	< 1.0	< 1.0	<0.36	18.6	< 1.0	<0.36	< 1.0	< 1.0	< 1.0	<0.36	NE	NE	400
Vinyl chloride	8260B	< 1.0*	< 0.62*	< 0.62*	<0.62	< 1.0*	< 0.62*	< 0.62*	< 0.62*	<0.62	< 1.0*	< 0.62*	< 0.62*	< 0.62*	<0.62	< 0.62*	< 0.62*	<0.62	< 0.62*	< 0.62*	< 0.62*	<0.62	1.42	24.5	0.03
m&p-Xylene	8260B	< 2.0	< 2.0	< 2.0	<0.66	< 2.0	< 2.0	< 2.0	< 2.0	<0.66	40	< 2.0	< 2.0	< 2.0	<0.66	27.9	< 2.0	<0.66	< 2.0	< 2.0	< 2.0	<0.66	71.1 (m) / 74.0 (p)	298 (m) / 311	500
o-Xylene	8260B	< 1.0	< 1.0	< 1.0	<0.23	< 1.0	0.24 J	< 1.0	< 1.0	<0.23	1.05	< 1.0	< 1.0	< 1.0	<0.23	1.0	< 1.0	<0.23	< 1.0	< 1.0	< 1.0	<0.23	98.5	414	500
Xylenes - Total	8260B	0	0	0	0	0	0	0	0	0	41.05	0	0	0	0	28.9	0	0	0	0	0	0	NE	NE	500
Total TICs	8260B	NT	0	0	NT	NT	282.42	NT	151.39	NT	NT	0	NT	0	NT	164.37	0	NT	0	NT	0	NT	NE	NE	NE
Total VOCs	8260B	1.63	7.06	3.83	1.9	10.59	319.39	24.34	183.47	100.62	550.93	0	0	0	0.56	316.1	1.6	3.54	21.43	15.7	2.5	8	NE	NE	NA
Total BTEX	8260B	0	0	0	0	4.33	6.94	4.6	6.7	1.5	56.35	0	0	0	0	45.44	0	0	2.14	0	0	0	NE	NE	NA
Semi-Volatile Organic Compounds (SVOCs) by EPA Method 8270 Plus TICs																									
Acenaphthene	8270	NT	< 10.0	NT	NT	NT	< 11.1	NT	NT	NT	NT	< 10.9	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NE	NE	80
Benzyl Alcohol	8270	NT	< 20.0	NT	NT	NT	< 22.2	NT	NT	NT	NT	< 21.7	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NE	NE	700
bis(2-Ethylhexyl)phthalate	8270	NT	1.1 J	NT	NT	NT	< 0.99	NT	NT	NT	NT	< 0.86	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NE	NE	3
Dibenzofuran	8270	NT	< 10.0	NT	NT	NT	< 11.1	NT	NT	NT	NT	< 10.9	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NE	NE	28
Fluorene	8270	NT	< 10.0	NT	NT	NT	< 11.1	NT	NT	NT	NT	< 10.9	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NE	NE	300
1-Methylnaphthalene	8270	NT	< 0.32	NT	NT	NT	**1.2 J**	NT	NT	NT	NT	< 0.35	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NE	NE	1
2-Methylnaphthalene	8270	NT	< 10.0	NT	NT	NT	< 11.1	NT	NT	NT	NT	< 10.9	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NE	NE	30
2-Methylphenol	8270	NT	< 10.0	NT	NT	NT	< 11.1	NT	NT	NT	NT	< 10.9	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NE	NE	400
Naphthalene	8270	NT	< 0.34	NT	NT	NT	4.6 J	NT	NT	NT	NT	< 0.37	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	34.8	146	6
Phenanthrene	8270	NT	< 10.0	NT	NT	NT	< 11.1	NT	NT	NT	NT	< 10.9	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NE	NE	200
Total TICs	8270	NT	76.72	NT	NT	NT	59.69	NT	NT	NT	NT	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NE	NE	NE
Totals Metals by EPA Method 6010B																									
Antimony	6010	< 18.0*	< 2.6*	NT	NT	< 18.0*	< 2.6*	NT	NT	NT	< 18.0*	< 2.6*	NT	NT	NT	< 2.6*	NT	NT	< 2.6*	NT	NT	NT	NE	NE	1
Arsenic	6010	< 9.1	< 5.0	NT	NT	< 9.1	< 5.0	NT	NT	NT	< 9.1	< 5.0	NT	NT	NT	< 5.0	NT	NT	< 5.0	NT	NT	NT	NE	NE	10
Beryllium	6010	< 3.6	< 1.0	NT	NT	< 3.6	< 1.0	NT	NT	NT	< 3.6	< 1.0	NT	NT	NT	< 1.0	NT	NT	< 1.0	NT	NT	NT	NE	NE	4
Cadmium	6010	< 4.6*	< 1.0	NT	NT	< 4.6*	< 1.0	NT	NT	NT	< 4.6*	< 1.0	NT	NT	NT	< 1.0	NT	NT	< 1.0	NT	NT	NT	NE	NE	2
Chromium	6010	NT	< 5.0	NT	NT	NT	< 5.0	NT	NT	NT	NT	< 5.0	NT	NT	NT	< 5.0	NT	NT	< 5.0	NT	NT	NT	NE	NE	10
Copper	6010	30.2	3.0 J	NT	NT	< 9.1	< 5.0	NT	NT	NT	< 9.1	2.1 J	NT	NT	NT	< 5.0	NT	NT	3.4 J	NT	NT	NT	NE	NE	1000
Lead	6010	**30.5**	< 5.0	NT	NT	< 5.5	< 5.0	NT	NT	NT	**53.9**	< 5.0	NT	NT	NT	< 5.0	NT	NT	< 5.0	NT	NT	NT	NE	NE	15
Manganese	6010	**54.1**	NT	NT	NT	28.1	NT	NT	NT	NT	15.2	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NE	NE	50
Nickel	6010	11.8	< 5.0	NT	NT	< 9.1	< 5.0	NT	NT	NT	< 9.1	< 5.0	NT	NT	NT	17.0	NT	NT	13.9	NT	NT	NT	NE	NE	100
Selenium	6010	< 27*	< 10.0	NT	NT	< 27*	< 10.0	NT	NT	NT	< 27*	< 10.0	NT	NT	NT	< 10.0	NT	NT	< 10.0	NT	NT	NT	NE	NE	20
Silver	6010	< 18.0	< 5.0	NT	NT	< 18.0	< 5.0	NT	NT	NT	< 18.0	< 5.0	NT	NT	NT	< 5.0	NT	NT	< 5.0	NT	NT	NT	NE	NE	20
Thallium	6010	< 18.0*	< 5.0*	NT	NT	< 18.0*	< 5.0*	NT	NT	NT	< 18.0*	< 5.0*	NT	NT	NT	< 5.0*	NT	NT	< 5.0*	NT	NT	NT	NE	NE	0.2
Zinc	6010	322	19.0	NT	NT	61.8	13.2	NT	NT	NT	< 23.0	16.9	NT	NT	NT	60.4	NT	NT	94.3	NT	NT	NT	NE	NE	1000
Mercury by EPA Method 7471																									
Mercury	7471	<0.20	<0.20	NT	NT	<0.20	<0.20	NT	NT	NT	<0.20	<0.20	NT	NT	NT	< 0.20	NT	NT	<0.20	NT	NT	NT	0.134	0.563	1

Notes:
All concentrations are reported in micrograms per liter (ug/L).
ft, bgs - feet below ground surface
NE - Not Established
NT - Not Tested
ND - Not Detected
NA - Not Applicable
Bold results exceed NCAC 2L Standards.
Bold results exceed Gross Contamination Levels (GCLs) for Groundwater.
"J" value indicates an estimated concentration exceeding the laboratory method detection limit and below the laboratory reporting limit
* Laboratory reporting limit and/or method detection limit exceeds the NCAC 2L Groundwater Standard
2/19/2013 Sampling event was for screening purposes only. Samples not collected according to RI Workplan

'= Exceeds NCDENR, Division of Waste Management, Residential Vapor Intrusion Ground Water Screening Level (GWSL)
= Exceeds NCDENR, Division of Waste Management, Non-Residential Vapor Intrusion Ground Water Screening Level (GWSL)

PWS = Private Water Supply Well Sample
DW-2 = Type III Well (Well Identified on Well Construction Record as DMW-1; however has always been refered to as DW-2 since installation)
D/DUP = Duplicate Sample
RB = Rinse Blank
TB = Trip Blank
FB = Field Blank
MW-1 (X)** = Off-site Well associated with petroleum Release Incident #5738
na - not analyzed by laboratory based on test method criteria

TABLE 1 (CONTINUED)

SUMMARY OF GROUNDWATER ANALYTICAL RESULTS WITH VAPOR INTRUSION GROUND WATER SCREENING LEVELS (GWSLs)
R.D. PATE ESTATE
SITE ID: NONCD0002795
101 EAST MAIN STREET
PIKEVILLE, WAYNE COUNTY, NORTH CAROLINA
ENVIROASSESSMENTS, PLLC PROJECT NO. 07-7019.10

Sample ID	Analytical	MW-10			MW-11				MW-12				MW-13			DW-2				PWS	MW-1 (X)**			Division of Waste Management Vapor Intrusion Ground Water Screening Levels (GWSLs)		North Carolina 2L Groundwater Quality Standards
Collection Date	Method	4/5&6/2011	3/16/2013	10/8/2013	4/6/2011	2/19/2013	3/19/2013	10/9/2013	4/6/2011	2/19/2013	3/19/2013	10/9/2013	4/6/2011	3/16/2013	10/9/2013	4/1/2011	2/19/2013	3/16/2013	10/8/2013	4/6/2011	2/19/2013	3/18/2013	10/8/2013	Residential GWSL	Non-Residential GWSL	
Volatile Organic Compounds (VOCs) by EPA Method 8260B Plus TICs																										
Acetone	8260B	10.7 J	< 25.0	< 10.0	10.9J	< 25.0	< 25.0	<10.0	< 25.0	< 25.0	< 25.0	26.8	33.3	< 25.0	<10.0	< 25.0	< 25.0	< 25.0	< 10.0	< 25.0	10.5J	< 25.0	< 10.0	4520000	19000000	6000
Acrolein	8260B	< 1.6	< 1.6	<1.6	< 1.6	< 1.6	< 1.6	<1.6	< 1.6	< 1.6	< 1.6	<1.6	< 1.6	< 1.6	<1.6	< 1.6	< 1.6	< 1.6	<1.6	< 1.6	< 1.6	< 1.6	<1.6	0.837	3.51	4
Benzene	8260B	< 1.0	< 1.0	<0.25	< 1.0	< 1.0	< 1.0	0.31J	**75.0**	**67.7**	**163.0**	**44**	< 1.0	< 1.0	0.27J	< 1.0	< 1.0	< 1.0	<0.25	< 1.0	0.35J	0.66J	<0.25	13.8	69.3	1
Bromodichloromethane	8260B	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	<0.18	< 0.18	< 0.18	< 20.0*	<0.18	< 0.18	< 0.18	<0.18	< 6.0*	< 0.18	< 0.18	< 0.18	**1.5**	< 0.18	< 0.18	< 0.18	7.59	38.3	0.6
2-Butanone (MEK)	8260B	< 5.0	< 5.0	<0.96	< 5.0	< 5.0	< 5.0	<0.96	< 5.0	< 5.0	< 5.0	<0.96	< 5.0	< 5.0	<0.96	< 5.0	< 5.0	< 5.0	<0.96	< 5.0	< 5.0	< 5.0	<0.96	448000	1880000	4000
tert-Butyl Alcohol	8260B	na	na	<3.6	na	na	na	<3.6	na	na	na	**46.2J**	na	na	<3.6	na	na	na	<3.6	na	na	na	<3.6	111000	466000	10
n-Butylbenzene	8260B	< 1.0	< 1.0	<0.41	< 1.0	< 1.0	< 1.0	<0.41	< 1.0	< 1.0	< 1.0	<0.41	< 1.0	< 1.0	<0.41	< 1.0	< 1.0	< 1.0	<0.41	< 1.0	< 1.0	< 1.0	<0.41	NE	NE	70
sec-Butylbenzene	8260B	< 1.0	< 1.0	<0.38	< 1.0	< 1.0	< 1.0	<0.38	< 1.0	< 1.0	< 1.0	<0.38	< 1.0	< 1.0	<0.38	< 1.0	< 1.0	< 1.0	<0.38	< 1.0	< 1.0	< 1.0	<0.38	NE	NE	70
tert-Butylbenzene	8260B	< 1.0	< 1.0	<0.40	< 1.0	< 1.0	< 1.0	<0.40	< 1.0	< 1.0	< 1.0	<0.40	< 1.0	< 1.0	<0.40	< 1.0	< 1.0	< 1.0	<0.40	< 1.0	< 1.0	< 1.0	<0.40	NE	NE	70
Chlorobenzene	8260B	< 1.0	< 1.0	<0.23	< 1.0	< 1.0	< 1.0	<0.23	< 1.0	1.4	< 1.0	<0.23	< 1.0	< 1.0	<0.23	< 1.0	< 1.0	< 1.0	<0.23	< 1.0	0.37J	< 1.0	<0.23	82.0	345	50
Chloroform	8260B	< 1.0	< 1.0	<0.14	0.55J	< 1.0	< 1.0	<0.14	< 1.0	< 1.0	< 1.0	<0.14	< 1.0	< 1.0	<0.14	< 1.0	< 1.0	< 1.0	<0.14	4.3	< 1.0	< 1.0	<0.14	7.05	35.5	70
2-Chlorotoluene	8260B	< 1.0	< 1.0	<0.35	< 1.0	< 1.0	< 1.0	<0.35	4.6	9.2	6.1	6.7	< 1.0	< 1.0	<0.35	< 1.0	< 1.0	< 1.0	<0.35	< 1.0	< 1.0	< 1.0	<0.35	NE	NE	100
Dibromochloromethane	8260B	< 0.21	< 0.21	<0.21	< 0.21	< 0.21	< 0.21	<0.21	< 0.21	< 0.21	< 0.21	<0.21	< 0.21	< 0.21	<0.21	< 0.21	< 0.21	< 0.21	<0.21	0.71 J	< 0.21	< 0.21	<0.21	28.2	142	0.4
Dichlorodifluoromethane	8260B	< 1.0	< 1.0	<0.21	< 1.0	< 1.0	< 1.0	<0.21	< 1.0	< 1.0	< 1.0	<0.21	< 1.0	< 1.0	<0.21	< 1.0	< 1.0	< 1.0	<0.21	< 1.0	< 1.0	< 1.0	<0.21	1.49	6.25	1000
1,2-Dichloroethane	8260B	< 0.12	< 0.12	<0.12	< 0.12	< 0.12	< 0.12	<0.12	< 0.12	< 0.12	< 0.12	<0.12	< 0.12	< 0.12	<0.12	< 0.12	< 0.12	< 0.12	<0.12	< 0.12	< 0.12	< 0.12	<0.12	19.4	97.8	0.4
cis-1,2-Dichloroethene	8260B	< 1.0	< 1.0	<0.19	1.9	1.7	1.9	2.2	9.9	21.0	6.6	21	< 1.0	1.1	1.2	< 1.0	< 1.0	< 1.0	<0.19	< 1.0	< 1.0	< 1.0	<0.19	NE	NE	70
trans-1,2-Dichloroethene	8260B	< 1.0	< 1.0	<0.49	0.97J	< 1.0	0.59J	0.51J	6.5	17.7	5.9	18.7	< 1.0	< 1.0	<0.49	< 1.0	< 1.0	< 1.0	<0.49	< 1.0	< 1.0	< 1.0	<0.49	75.0	315	100
Diisopropyl ether	8260B	< 1.0	< 1.0	<0.12	< 1.0	< 1.0	< 1.0	<0.12	3.3	4.3	5.5	3	< 1.0	< 1.0	<0.12	< 1.0	< 1.0	< 1.0	<0.12	< 1.0	< 1.0	< 1.0	<0.12	1400	5860	70
Ethylbenzene	8260B	< 1.0	< 1.0	<0.30	< 1.0	< 1.0	< 1.0	0.51J	16.9	20.9	117	<0.30	< 1.0	< 1.0	<0.30	< 1.0	< 1.0	< 1.0	<0.30	< 1.0	18.2	15.9	8.3	30.2	152	600
Isopropylbenzene	8260B	< 1.0	< 1.0	<0.40	< 1.0	< 1.0	< 1.0	<0.40	1.4	< 1.0	7.0	<0.40	< 1.0	< 1.0	<0.40	< 1.0	< 1.0	< 1.0	<0.40	< 1.0	3.4	3.5	1.7	177	745	70
p-Isopropyltoluene	8260B	< 1.0	< 1.0	<0.31	< 1.0	< 1.0	< 1.0	<0.31	< 1.0	< 1.0	< 1.0	<0.31	< 1.0	< 1.0	<0.31	< 1.0	< 1.0	< 1.0	<0.31	< 1.0	5.3	< 1.0	2.3	NE	NE	25
Methylene Chloride	8260B	< 2.0	< 2.0	<0.97	< 2.0	< 2.0	< 2.0	<0.97	< 2.0	< 2.0	< 2.0	<0.97	< 2.0	< 2.0	<0.97	< 2.0	< 2.0	< 2.0	<0.97	< 2.0	< 2.0	< 2.0	<0.97	942	3960	5
4-Methyl-2-pentanone (MIBK)	8260B	< 5.0	< 5.0	<0.33	< 5.0	< 5.0	< 5.0	<0.33	< 5.0	< 5.0	< 5.0	<0.33	< 5.0	< 5.0	<0.33	< 5.0	< 5.0	< 5.0	<0.33	< 5.0	< 5.0	< 5.0	<0.33	111000	466000	100
Methyl tert-butyl ether (MTBE)	8260B	< 1.0	< 1.0	<0.21	< 1.0	< 1.0	< 1.0	<0.21	0.59 J	0.45J	0.31J	0.39J	< 1.0	< 1.0	<0.21	< 1.0	< 1.0	< 1.0	<0.21	< 1.0	< 1.0	< 1.0	<0.21	3900	19700	20
Naphthalene	8260B	< 1.0	< 1.0	<0.24	< 1.0	< 1.0	< 1.0	0.70J	2.6	**13.6**	**85.4**	0.34J	< 1.0	< 1.0	<0.24	< 1.0	< 1.0	< 1.0	<0.24	< 1.0	**7.9**	**7.9**	**7.8**	34.8	146	6
n-Propylbenzene	8260B	< 1.0	< 1.0	<0.42	< 1.0	< 1.0	< 1.0	<0.42	1.8	2.6	15.2	<0.42	< 1.0	< 1.0	<0.42	< 1.0	< 1.0	< 1.0	<0.42	< 1.0	3.8	3.3	1.9	486	2040	70
Styrene	8260B	< 1.0	< 1.0	<0.26	< 1.0	< 1.0	< 1.0	<0.26	< 1.0	< 1.0	< 1.0	<0.26	< 1.0	< 1.0	<0.26	< 1.0	< 1.0	< 1.0	<0.26	< 1.0	< 1.0	< 1.0	<0.26	1860	7790	70
1,1,2,2-Tetrachloroethane	8260B	**7.4**	**19.7**	**8.9**	**418**	**111**	**152**	**101**	**47.3**	**71.4**	**14.9**	**23.6**	**19.9**	**121**	**91.3**	< 0.40*	< 0.40*	< 0.40*	<0.40*	< 0.40*	< 0.40*	< 0.40*	<0.40*	28.0	141	0.2
Tetrachloroethene (PCE)	8260B	< 0.46*	< 0.46*	<0.46	**2**	0.60J	0.69J	0.51J	< 0.46*	**0.86J**	< 0.46	0.54J	< 0.46*	< 0.46	0.53J	< 0.46*	< 0.46*	< 0.46*	<0.46	< 0.46*	< 0.46*	< 0.46*	<0.46	11.5	48.4	0.7
Toluene	8260B	0.28 J	< 1.0	<0.26	0.39J	< 1.0	< 1.0	<0.26	1.2	1.7	8.3	<0.26	0.75 J	< 1.0	<0.26	< 1.0	< 1.0	< 1.0	<0.26	< 1.0	0.46J	0.50J	0.29J	3840	16100	600
1,1,2-Trichloroethane	8260B	< 0.29	< 0.29	<0.29	**2.5**	**0.87J**	**1.0**	**0.94J**	**0.79 J**	**1.4**	< 0.29	**0.67J**	< 0.29	**1.1**	**0.92J**	< 0.29	< 0.29	< 0.29	<0.29	< 0.29	< 0.29	< 0.29	<0.29	1.24	5.2	0.6
Trichloroethene (TCE)	8260B	0.55 J	1.9	0.81J	**55.5**	**23.0**	**29.1**	**24.1**	**12.1**	**28.3**	**8.4**	**21.1**	**3.4**	**14.4**	**11.8**	< 1.0	< 1.0	< 1.0	<0.47	< 1.0	< 1.0	< 1.0	<0.47	1.04	4.35	3
1,2,3-Trimethylbenzene	8260B	na	na	<0.090	na	na	na	0.16J	na	na	na	<0.090	na	na	<0.090	na	na	na	<0.090	na	na	na	7.2	5.85	24.6	NE
1,2,4-Trimethylbenzene	8260B	< 1.0	< 1.0	<0.31	< 1.0	< 1.0	< 1.0	0.41J	0.73 J	3.3	32.3	<0.31	< 1.0	< 1.0	<0.31	< 1.0	< 1.0	< 1.0	<0.31	< 1.0	38.1	29.7	13	5.80	24.4	400
1,3,5-Trimethylbenzene	8260B	< 1.0	< 1.0	<0.36	< 1.0	< 1.0	< 1.0	<0.090	< 1.0	< 1.0	2.3	<0.36	< 1.0	< 1.0	<0.36	< 1.0	< 1.0	< 1.0	<0.36	< 1.0	24.6	15.7	5	NE	NE	400
Vinyl chloride	8260B	< 0.62*	< 0.62*	<0.62	< 0.62*	< 0.62*	< 0.62*	<0.62*	**1.4**	**7.5**	**4.2**	**7.8**	< 0.62*	< 0.62*	<0.62	< 0.62*	< 0.62*	< 0.62*	<0.62*	< 0.62*	< 0.62*	< 0.62*	<0.62*	1.42	24.5	0.03
m&p-Xylene	8260B	< 2.0	< 2.0	<0.66	< 2.0	< 2.0	< 2.0	<0.66	3.3	11.1	87	<0.66	< 2.0	< 2.0	<0.66	< 2.0	< 2.0	< 2.0	<0.66	< 2.0	47.3	36.8	15.8	71.1 (m) / 74.0 (p)	298 (m) / 311	500
o-Xylene	8260B	< 1.0	< 1.0	<0.23	< 1.0	< 1.0	< 1.0	<0.23	3.0	1.8	8.5	0.77J	< 1.0	< 1.0	<0.66	< 1.0	< 1.0	< 1.0	<0.23	< 1.0	0.36J	0.30J	<0.23	98.5	414	500
Xylenes - Total	8260B	0	0	0	0	0	0	0	6.3	12.9	95.5	0.0	0	0	0	0	0	0	0	0	47.3	36.8	15.8	NE	NE	500
Total TICs	8260B	0	0	NT	0	NT	0	NT	145.42	NT	243.29	NT	0	0	NT	0	NT	0	NT	0	NT	90.49	NT	NE	NE	NE
Total VOCs	8260B	18.93	21.6	9.71	492.71	137.17	185.28	131.35	337.83	286.21	821.2	221.61	57.35	137.6	106.02	0	0	0	0.00	6.51	160.607	204.75	63	NE	NE	NA
Total BTEX	8260B	0.28	0	0	0.39	0	0	0.82	99.4	103.2	383.8	44.77	0.75	0	0.27	0	0	0	0	0	66.67	54.16	24.1	NE	NE	NA
Semi-Volatile Organic Compounds (SVOCs) by EPA Method 8270 Plus TICs																										
Acenaphthene	8270	NT	NT	NT	< 11.9	NT	NT	NT	< 12.5	NT	NT	NT	NT	NT	NT	< 10.0	NT	NT	NT	NT	NT	NT	NT	NE	NE	80
Benzyl Alcohol	8270	NT	NT	NT	< 23.8	NT	NT	NT	< 25.0	NT	NT	NT	NT	NT	NT	< 20.0	NT	NT	NT	NT	NT	NT	NT	NE	NE	700
bis(2-Ethylhexyl)phthalate	8270	NT	NT	NT	< 0.94	NT	NT	NT	< 7.5	NT	NT	NT	NT	NT	NT	< 0.79	NT	NT	NT	NT	NT	NT	NT	NE	NE	3
Dibenzofuran	8270	NT	NT	NT	< 11.9	NT	NT	NT	< 12.5	NT	NT	NT	NT	NT	NT	< 10.0	NT	NT	NT	NT	NT	NT	NT	NE	NE	28
Fluorene	8270	NT	NT	NT	< 11.9	NT	NT	NT	< 12.5	NT	NT	NT	NT	NT	NT	< 10.0	NT	NT	NT	NT	NT	NT	NT	NE	NE	300
1-Methylnaphthalene	8270	NT	NT	NT	< 0.38	NT	NT	NT	< 12.5	NT	NT	NT	NT	NT	NT	< 0.32	NT	NT	NT	NT	NT	NT	NT	NE	NE	1
2-Methylnaphthalene	8270	NT	NT	NT	< 11.9	NT	NT	NT	< 12.5	NT	NT	NT	NT	NT	NT	< 10.0	NT	NT	NT	NT	NT	NT	NT	NE	NE	30
2-Methylphenol	8270	NT	NT	NT	< 11.9	NT	NT	NT	< 12.5	NT	NT	NT	NT	NT	NT	< 10.0	NT	NT	NT	NT	NT	NT	NT	NE	NE	400
Naphthalene	8270	NT	NT	NT	< 0.40	NT	NT	NT	< 12.5	NT	NT	NT	NT	NT	NT	< 0.34	NT	NT	NT	NT	NT	NT	NT	34.8	146	6
Phenanthrene	8270	NT	NT	NT	< 11.9	NT	NT	NT	< 12.5	NT	NT	NT	NT	NT	NT	< 10.0	NT	NT	NT	NT	NT	NT	NT	NE	NE	200
Total TICs	8270	NT	NT	NT	163.8	NT	NT	NT	113.23	NT	NT	NT	NT	NT	NT	86.6	NT	NT	NT	NT	NT	NT	NT	NE	NE	NE
Totals Metals by EPA Method 6010B																										
Antimony	6010	< 2.6*	NT	NT	< 2.6*	NT	NT	NT	< 2.6*	NT	NT	NT	< 2.6*	NT	NT	< 2.6*	NT	NT	NT	NT	NT	NT	NT	NE	NE	1
Arsenic	6010	< 5.0	NT	NT	< 5.0	NT	NT	NT	< 5.0	NT	NT	NT	< 5.0	NT	NT	< 5.0	NT	NT	NT	NT	NT	NT	NT	NE	NE	10
Beryllium	6010	< 1.0	NT	NT	< 1.0	NT	NT	NT	< 1.0	NT	NT	NT	< 1.0	NT	NT	**4.1**	NT	NT	NT	NT	NT	NT	NT	NE	NE	4
Cadmium	6010	< 1.0	NT	NT	< 1.0	NT	NT	NT	< 1.0	NT	NT	NT	< 1.0	NT	NT	< 1.0	NT	NT	NT	NT	NT	NT	NT	NE	NE	2
Chromium	6010	< 5.0	NT	NT	< 5.0	NT	NT	NT	< 5.0	NT	NT	NT	< 5.0	NT	NT	< 5.0	NT	NT	NT	NT	NT	NT	NT	NE	NE	10
Copper	6010	< 5.0	NT	NT	3.4 J	NT	NT	NT	< 5.0	NT	NT	NT	< 5.0	NT	NT	< 5.0	NT	NT	NT	NT	NT	NT	NT	NE	NE	1000
Lead	6010	< 5.0	NT	NT	< 5.0	NT	NT	NT	< 5.0	NT	NT	NT	< 5.0	NT	NT	< 5.0	NT	NT	NT	NT	NT	NT	NT	NE	NE	15
Manganese	6010	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NE	NE	50
Nickel	6010	21.4	NT	NT	7.3	NT	NT	NT	7.8	NT	NT	NT	13.5	NT	NT	17.0	NT	NT	NT	NT	NT	NT	NT	NE	NE	100
Selenium	6010	< 10.0	NT	NT	< 10.0	NT	NT	NT	< 10.0	NT	NT	NT	< 10.0	NT	NT	< 10.0	NT	NT	NT	NT	NT	NT	NT	NE	NE	20
Silver	6010	< 5.0	NT	NT	< 5.0	NT	NT	NT	< 5.0	NT	NT	NT	< 5.0	NT	NT	< 5.0	NT	NT	NT	NT	NT	NT	NT	NE	NE	20
Thallium	6010	< 5.0*	NT	NT	< 5.0*	NT	NT	NT	< 5.0*	NT	NT	NT	< 5.0*	NT	NT	< 5.0*	NT	NT	NT	NT	NT	NT	NT	NE	NE	0.2
Zinc	6010	86.6	NT	NT	31.8	NT	NT	NT	45.3	NT	NT	NT	32.0	NT	NT	56.2	NT	NT	NT	NT	NT	NT	NT	NE	NE	1000
Mercury by EPA Method 7471																										
Mercury	7471	< 0.20	NT	NT	< 0.20	NT	NT	NT	< 0.20	NT	NT	NT	< 0.20	NT	NT	< 0.20	NT	NT	NT	NT	NT	NT	NT	0.134	0.563	1

Notes:
All concentrations are reported in micrograms per liter (ug/L).
ft, bgs - feet below ground surface
NE - Not Established
NT - Not Tested
ND - Not Detected
NA - Not Applicable
Bold results exceed NCAC 2L Standards.
Bold results exceed Gross Contamination Levels (GCLs) for Groundwater.
"J" value indicates an estimated concentration exceeding the laboratory method detection limit and below the laboratory reporting limit.
* Laboratory reporting limit and/or method detection limit exceeds the NCAC 2L Groundwater Standard
2/19/2013 Sampling event was for screening purposes only. Samples not collected according to RI Workplan

= Exceeds NCDENR, Division of Waste Management, Residential Vapor Intrusion Ground Water Screening Level (GWSL)
= Exceeds NCDENR, Division of Waste Management, Non-Residential Vapor Intrusion Ground Water Screening Level (GWSL)

PWS = Private Water Supply Well Sample
DW-2 = Type III Well (Well Identified on Well Construction Record as DMW-1; however has always been refered to as DW-2 since installation)
D/DUP = Duplicate Sample RB = Rinse Blank TB = Trip Blank FB = Field Blank
MW-1 (X)** = Off-site Well associated with petroleum Release Incident #5738
na - not analyzed by laboratory based on test method criteria

TABLE 1 (CONTINUED)

SUMMARY OF GROUNDWATER ANALYTICAL RESULTS WITH VAPOR INTRUSION GROUND WATER SCREENING LEVELS (GWSLs)
R.D. PATE ESTATE
SITE ID: NONCD0002795
101 EAST MAIN STREET
PIKEVILLE, WAYNE COUNTY, NORTH CAROLINA
ENVIROASSESSMENTS, PLLC PROJECT NO. 07-7019.10

																				Division of Waste Management Vapor Intrusion Ground Water Screening Levels (GWSLs)		North Carolina 2L Groundwater Quality Standards
Sample ID	Analytical	MW-14		MW-15		MW-16		MW-17		MW-18		MW-19		MW-20		MW-21		MW-22		Residential GWSL	Non-Residential GWSL	
Collection Date	Method	3/17/2013	10/8/2013	3/17/2013	10/8/2013	3/17/2013	10/8/2013	3/17/2013	10/8/2013	3/18/2013	10/9/2013	3/18/2013	10/8/2013	3/19/2013	10/8/2013	3/18/2013	10/8/2013	3/18/2013	10/9/2013			
Volatile Organic Compounds (VOCs) by EPA Method 8260B Plus TICs																						
Acetone	8260B	< 25.0	< 10.0	11.5 J	< 10.0	< 25.0	< 10.0	< 25.0	< 10.0	< 25.0	<10.0	44.5	< 10.0	< 25.0	<10.0	< 25.0	<10.0	< 25.0	<10.0	4520000	19000000	6000
Acrolein	8260B	< 1.6	<1.6	< 1.6	<1.6	< 1.6	<1.6	< 1.6	<1.6	< 1.6	<1.6	< 1.6	<1.6	< 8.0*	<1.6	< 1.6	<1.6	< 1.6	<1.6	0.837	3.51	4
Benzene	8260B	< 1.0	<0.25	< 1.0	<0.25	< 1.0	<0.25	< 1.0	<0.25	< 1.0	<0.25	< 1.0	<0.25	< 1.0	<0.25	< 1.0	<0.25	< 1.0	<0.25	13.8	69.3	1
Bromodichloromethane	8260B	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	<0.18	< 0.18	< 0.18	< 20.0*	<0.18	< 0.18	<0.18	< 6.0*	<0.18	7.59	38.3	0.6
2-Butanone (MEK)	8260B	< 5.0	<0.96	< 5.0	<0.96	< 5.0	<0.96	< 5.0	<0.96	< 5.0	<0.96	4.0J	<0.96	34.1	<0.96	< 5.0	<0.96	< 5.0	<0.96	448000	1880000	4000
tert-Butyl Alcohol	8260B	na	<3.6	na	<3.6	na	<3.6	na	<3.6	na	**45.6J**	na	<3.6	na	**255**	na	**45.6J**	na	<3.6	111000	466000	10
n-Butylbenzene	8260B	< 1.0	<0.41	< 1.0	<0.41	< 1.0	<0.41	< 1.0	<0.41	< 1.0	<0.41	< 1.0	<0.41	7.0	5.5	< 1.0	<0.41	< 1.0	<0.41	NE	NE	70
sec-Butylbenzene	8260B	< 1.0	<0.38	< 1.0	<0.38	< 1.0	<0.38	< 1.0	<0.38	< 1.0	<0.38	< 1.0	<0.38	11.7	9.1	< 1.0	<0.38	< 1.0	<0.38	NE	NE	70
tert-Butylbenzene	8260B	< 1.0	<0.40	< 1.0	<0.40	< 1.0	<0.40	< 1.0	<0.40	< 1.0	<0.40	< 1.0	<0.40	3.2 J	2.6J	< 1.0	<0.40	< 1.0	<0.40	NE	NE	70
Chlorobenzene	8260B	< 1.0	<0.23	< 1.0	<0.23	< 1.0	<0.23	< 1.0	<0.23	< 1.0	<0.23	< 1.0	<0.23	< 1.0	<0.23	< 1.0	<0.23	< 1.0	<0.23	82.0	345	50
Chloroform	8260B	< 1.0	<0.14	< 1.0	<0.14	< 1.0	<0.14	< 1.0	<0.14	< 1.0	<0.14	< 1.0	<0.14	< 1.0	<0.14	< 1.0	<0.14	< 1.0	<0.14	7.05	35.5	70
2-Chlorotoluene	8260B	< 1.0	<0.35	< 1.0	<0.35	< 1.0	<0.35	< 1.0	<0.35	< 1.0	<0.35	< 1.0	<0.35	< 1.0	<0.35	< 1.0	<0.35	< 1.0	<0.35	NE	NE	100
Dibromochloromethane	8260B	< 0.21	<0.21	< 0.21	<0.21	< 0.21	<0.21	< 0.21	<0.21	< 0.21	<0.21	< 0.21	<0.21	< 0.21	<0.21	< 0.21	<0.21	< 0.21	<0.21	28.2	142	0.4
Dichlorodifluoromethane	8260B	< 1.0	<0.21	< 1.0	<0.21	< 1.0	<0.21	< 1.0	<0.21	< 1.0	<0.21	< 1.0	<0.21	< 1.0	<0.21	< 1.0	<0.21	< 1.0	<0.21	1.49	6.25	1000
1,2-Dichloroethane	8260B	< 0.12	<0.12	< 0.12	<0.12	< 0.12	<0.12	< 0.12	<0.12	< 0.12	<0.12	< 0.12	<0.12	< 0.12	<0.12	< 0.12	<0.12	< 0.12	<0.12	19.4	97.8	0.4
cis-1,2-Dichloroethene	8260B	< 1.0	<0.19	< 1.0	<0.19	< 1.0	<0.19	< 1.0	<0.19	1.1	1	< 1.0	<0.19	< 1.0	<0.19	< 1.0	<0.19	< 1.0	<0.19	NE	NE	70
trans-1,2-Dichloroethene	8260B	< 1.0	<0.49	< 1.0	<0.49	< 1.0	<0.49	< 1.0	<0.49	< 1.0	<0.49	< 1.0	<0.49	< 1.0	<0.49	< 1.0	<0.49	< 1.0	<0.49	75.0	315	100
Diisopropyl ether	8260B	< 1.0	<0.12	< 1.0	0.13J	< 1.0	<0.12	< 1.0	<0.12	< 1.0	0.14J	< 1.0	<0.12	< 1.0	<0.12	< 1.0	<0.12	< 1.0	<0.12	1400	5860	70
Ethylbenzene	8260B	< 1.0	<0.30	< 1.0	<0.30	< 1.0	<0.30	< 1.0	<0.30	< 1.0	<0.30	< 1.0	<0.30	10.1	6.2	< 1.0	<0.30	< 1.0	<0.30	30.2	152	600
Isopropylbenzene	8260B	< 1.0	<0.40	< 1.0	<0.40	< 1.0	<0.40	< 1.0	<0.40	< 1.0	<0.40	< 1.0	<0.40	21.8	17	< 1.0	<0.40	< 1.0	<0.40	177	745	70
p-Isopropyltoluene	8260B	< 1.0	<0.31	< 1.0	<0.31	< 1.0	<0.31	< 1.0	<0.31	< 1.0	<0.31	3.2	<0.31	< 1.0	<0.31	< 1.0	<0.31	< 1.0	<0.31	NE	NE	25
Methylene Chloride	8260B	< 2.0	<0.97	< 2.0	<0.97	< 2.0	<0.97	< 2.0	<0.97	< 2.0	<0.97	1.6J	<0.97	6.7J	**73.8**	< 2.0	<0.97	< 2.0	<0.97	942	3960	5
4-Methyl-2-pentanone (MIBK)	8260B	< 5.0	<0.33	< 5.0	<0.33	< 5.0	<0.33	< 5.0	<0.33	< 5.0	<0.33	< 5.0	<0.33	< 5.0	<0.33	< 5.0	<0.33	< 5.0	<0.33	111000	466000	100
Methyl tert-butyl ether (MTBE)	8260B	< 1.0	<0.21	< 1.0	<0.21	< 1.0	<0.21	< 1.0	<0.21	< 1.0	0.27J	< 1.0	<0.21	< 1.0	<0.21	< 1.0	<0.21	< 1.0	<0.21	3900	19700	20
Naphthalene	8260B	< 1.0	<0.24	< 1.0	<0.24	< 1.0	<0.24	< 1.0	<0.24	0.44J	0.35J	0.61J	<0.24	**495**	**520**	< 1.0	0.50J	< 1.0	<0.24	34.8	146	6
n-Propylbenzene	8260B	< 1.0	<0.42	< 1.0	<0.42	< 1.0	<0.42	< 1.0	<0.42	< 1.0	<0.42	< 1.0	<0.42	30.8	26.2	< 1.0	<0.42	< 1.0	<0.42	486	2040	70
Styrene	8260B	< 1.0	<0.26	< 1.0	<0.26	< 1.0	<0.26	< 1.0	<0.26	< 1.0	<0.26	< 1.0	<0.26	< 5.0	<0.26	< 1.0	<0.26	< 1.0	<0.26	1860	7790	70
1,1,2,2-Tetrachloroethane	8260B	< 0.40*	<0.40*	< 0.40*	<0.40*	< 0.40*	<0.40*	< 0.40*	<0.40*	**48.3**	**117**	< 0.40*	<0.40*	< 0.40*	<0.40*	< 0.40*	<0.40*	< 0.40*	<0.40	28.0	141	0.2
Tetrachloroethene (PCE)	8260B	< 0.46*	<0.46	< 0.46*	<0.46	< 0.46*	<0.46	< 0.46*	<0.46	< 0.46*	**0.97J**	< 0.46*	<0.46	< 0.46*	<0.46	< 0.46*	<0.46	< 0.46*	<0.46	11.5	48.4	0.7
Toluene	8260B	< 1.0	<0.26	< 1.0	<0.26	< 1.0	<0.26	< 1.0	<0.26	< 1.0	<0.26	0.59J	0.32J	< 1.0	<0.26	< 1.0	0.32J	< 1.0	<0.26	3840	16100	600
1,1,2-Trichloroethane	8260B	< 1.0	<0.29	< 1.0	<0.29	< 1.0	<0.29	< 1.0	<0.29	0.36J	**1.1**	< 1.0	<0.29	< 1.0	<0.29	< 1.0	<0.29	< 1.0	<0.29	1.24	5.2	0.6
Trichloroethene (TCE)	8260B	< 1.0	<0.47	< 1.0	<0.47	< 1.0	<0.47	< 1.0	<0.47	**7.3**	**23.4**	< 1.0	<0.47	< 1.0	<0.47	< 1.0	<0.47	< 1.0	<0.47	1.04	4.35	3
1,2,3-Trimethylbenzene	8260B	na	<0.090	na	<0.090	na	<0.090	na	<0.090	na	<0.090	na	<0.090	na	<0.090	na	<0.090	na	<0.090	5.85	24.6	NE
1,2,4-Trimethylbenzene	8260B	< 1.0	<0.31	< 1.0	<0.31	< 1.0	<0.31	< 1.0	<0.31	0.33 J	<0.31	1.3	<0.31	45.2	36.8	< 1.0	<0.31	< 1.0	<0.31	5.80	24.4	400
1,3,5-Trimethylbenzene	8260B	< 1.0	<0.36	< 1.0	<0.36	< 1.0	<0.36	< 1.0	<0.36	< 1.0	<0.36	0.41 J	<0.36	< 5.0	7.8	< 1.0	<0.36	< 1.0	<0.36	NE	NE	400
Vinyl chloride	8260B	< 0.62*	<0.62*	< 0.62*	<0.62*	< 0.62*	<0.62*	< 0.62*	<0.62*	< 0.62*	<0.62	< 0.62*	<0.62*	< 0.62*	<0.62*	< 0.62*	<0.62*	< 0.62*	<0.62	1.42	24.5	0.03
m&p-Xylene	8260B	< 2.0	<0.66	< 2.0	<0.66	< 2.0	<0.66	< 2.0	<0.66	< 2.0	<0.66	0.89J	<0.66	7.6J	3.9J	< 2.0	<0.66	< 2.0	<0.66	71.1 (m) / 74.0 (p)	298 (m) / 311	500
o-Xylene	8260B	< 1.0	<0.23	< 1.0	<0.23	< 1.0	<0.23	< 1.0	<0.23	< 1.0	<0.23	0.33J	<0.23	< 1.0	<0.23	< 1.0	<0.23	< 1.0	<0.23	98.5	414	500
Xylenes - Total	8260B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NE	NE	500
Total TICs	8260B	0	NT	0	NT	0	NT	0	NT	0	NT	0	NT	742.7	NT	0	NT	0	NT	NE	NE	NE
Total VOCs	8260B	0	0.00	11.5	0.13	0	0.00	0	0.00	57.83	189.83	57.43	0.32	1415.9	963.90	0	46.1	0	0	NE	NE	NA
Total BTEX	8260B	0	0	0	0	0	0	0	0	0	0	1.81	0.32	17.7	10.1	0	0	0	0	NE	NE	NA
Semi-Volatile Organic Compounds (SVOCs) by EPA Method 8270 Plus TICs																						
Acenaphthene	8270	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NE	NE	80
Benzyl Alcohol	8270	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NE	NE	700
bis(2-Ethylhexyl)phthalate	8270	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NE	NE	3
Dibenzofuran	8270	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NE	NE	28
Fluorene	8270	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NE	NE	300
1-Methylnaphthalene	8270	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NE	NE	1
2-Methylnaphthalene	8270	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NE	NE	30
2-Methylphenol	8270	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NE	NE	400
Naphthalene	8270	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	34.8	146	6
Phenanthrene	8270	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NE	NE	200
Total TICs	8270	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NE	NE	NE
Totals Metals by EPA Method 6010B																						
Antimony	6010	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NE	NE	1
Arsenic	6010	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NE	NE	10
Beryllium	6010	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NE	NE	4
Cadmium	6010	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NE	NE	2
Chromium	6010	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NE	NE	10
Copper	6010	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NE	NE	1000
Lead	6010	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NE	NE	15
Manganese	6010	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NE	NE	50
Nickel	6010	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NE	NE	100
Selenium	6010	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NE	NE	20
Silver	6010	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NE	NE	20
Thallium	6010	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NE	NE	0.2
Zinc	6010	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NE	NE	1000
Mercury by EPA Method 7471																						
Mercury	7471	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.134	0.563	1

Notes:
All concentrations are reported in micrograms per liter (ug/L).
ft, bgs - feet below ground surface
NE - Not Established
NT - Not Tested
ND - Not Detected
NA - Not Applicable
Bold results exceed NCAC 2L Standards.
Bold results exceed Gross Contamination Levels (GCLs) for Groundwater.
"J" value indicates an estimated concentration exceeding the laboratory method detection limit and below the laboratory reporting limit
* Laboratory reporting limit and/or method detection limit exceeds the NCAC 2L Groundwater Standard
2/19/2013 Sampling event was for screening purposes only. Samples not collected according to RI Workplan

= Exceeds NCDENR, Division of Waste Management, Residential Vapor Intrusion Ground Water Screening Level (GWSL)
= Exceeds NCDENR, Division of Waste Management, Non-Residential Vapor Intrusion Ground Water Screening Level (GWSL)

PWS = Private Water Supply Well Sample
DW-2 = Type III Well (Well Identified on Well Construction Record as DMW-1; however has always been refered to as DW-2 since installation)
D/DUP = Duplicate Sample
RB = Rinse TB = Trip Blank
FB = Field Blank
MW-1 (X)** = Off-site Well associated with petroleum Release Incident #5738

TABLE 1 (CONTINUED)

SUMMARY OF GROUNDWATER ANALYTICAL RESULTS WITH VAPOR INTRUSION GROUND WATER SCREENING LEVELS (GWSLs)
R.D. PATE ESTATE
SITE ID: NONCD0002795
101 EAST MAIN STREET
PIKEVILLE, WAYNE COUNTY, NORTH CAROLINA
ENVIROASSESSMENTS, PLLC PROJECT NO. 07-7019.10

																						Division of Waste Management Vapor Intrusion Ground Water Screening Levels (GWSLs)		
Sample ID	Analytical Method	MW-1D	RB-MW-11	TB-1	TB-2	TB-4	MW-15 DUP	MW-21 DUP	TRIP BLANK	TRIP BLANK 2	EQUIP RINSE BLANK	EQUIP RINSE BLANK 2	FIELD RINSATE BLANK (MW-1X)	MW-13 DUP	MW-16 DUP	TB-1	TB-2	RB-1	RB-2	FB-1	FB-2	Residential GWSL	Non-Residential GWSL	North Carolina 2L Groundwater Quality Standards
Collection Date		4/5/2011	3/31/2011	4/6/2011	4/6/2011	4/1/2011	3/17/2013	3/18/2013	3/16/2013	3/18/2013	3/15/2013	3/16/2013	3/18/2013	10/9/2013	10/8/2013	10/8/2013	10/9/2013	10/8/2013	10/9/2013	10/8/2013	10/9/2013			
Volatile Organic Compounds (VOCs) by EPA Method 8260B Plus TICs																								
Acetone	8260B	< 25.0	5.2 J	11.7 J	16.4 J	13.4 J	10.4 J	< 25.0	< 25.0	< 25.0	< 25.0	< 25.0	< 25.0	<10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	4520000	19000000	6000
Acrolein	8260B	< 1.6	< 1.6	< 1.6	< 1.6	< 1.6	< 1.6	< 1.6	< 1.6	< 1.6	< 1.6	< 1.6	< 1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	0.837	3.51	4
Benzene	8260B	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	13.8	69.3	1
Bromodichloromethane	8260B	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	<0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	7.59	38.3	0.6
2-Butanone (MEK)	8260B	< 5.0	< 5.0	5.3	6.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<0.96	<0.96	<0.96	<0.96	<0.96	<0.96	<0.96	<0.96	448000	1880000	4000
tert-Butyl Alcohol	8260B	na	na	na	na	na	na	na	na	na	na	na	na	<3.6	<3.6	<3.6	<3.6	<3.6	<3.6	<3.6	<3.6	111000	466000	10
n-Butylbenzene	8260B	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	NE	NE	70
sec-Butylbenzene	8260B	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	NE	NE	70
tert-Butylbenzene	8260B	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	NE	NE	70
Chlorobenzene	8260B	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23	82.0	345	50
Chloroform	8260B	< 1.0	< 1.0	< 1.0	0.36 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	7.05	35.5	70
2-Chlorotoluene	8260B	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35	NE	NE	100
Dibromochloromethane	8260B	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	28.2	142	0.4
Dichlorodifluoromethane	8260B	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	1.49	6.25	1000
1,2-Dichloroethane	8260B	< 0.12	< 0.12	< 0.12	< 0.12	< 0.12	< 0.12	< 0.12	< 0.12	< 0.12	< 0.12	< 0.12	< 0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	19.4	97.8	0.4
cis-1,2-Dichloroethene	8260B	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	1.2	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	NE	NE	70
trans-1,2-Dichloroethene	8260B	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<0.49	<0.49	<0.49	<0.49	<0.49	<0.49	<0.49	<0.49	75.0	315	100
Diisopropyl ether	8260B	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	1400	5860	70
Ethylbenzene	8260B	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	30.2	152	600
Isopropylbenzene	8260B	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	177	745	70
p-Isopropyltoluene	8260B	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	NE	NE	25
Methylene Chloride	8260B	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	1.9J	1.5J	< 2.0	< 2.0	< 2.0	<0.97	<0.97	<0.97	<0.97	<0.97	<0.97	<0.97	<0.97	942	3960	5
4-Methyl-2-pentanone (MIBK)	8260B	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	111000	466000	100
Methyl tert-butyl ether (MTBE)	8260B	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	3900	19700	20
Naphthalene	8260B	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	34.8	146	6
n-Propylbenzene	8260B	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<0.42	<0.42	<0.42	<0.42	<0.42	<0.42	<0.42	<0.42	486	2040	70
Styrene	8260B	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	1860	7790	70
1,1,2,2-Tetrachloroethane	8260B	**4.7**	< 0.40*	< 0.40*	< 0.40*	< 0.40*	< 0.40*	< 0.40*	< 0.40*	< 0.40*	< 0.40*	< 0.40*	< 0.40*	**91.3**	<0.40*	<0.40*	<0.40*	<0.40*	<0.40*	<0.40*	<0.40*	28.0	141	0.2
Tetrachloroethene (PCE)	8260B	< 0.46	< 0.46*	< 0.46*	< 0.46*	< 0.46*	< 0.46*	< 0.46	< 0.46	< 0.46	< 0.46	< 0.46	< 0.46	<0.46*	<0.46	<0.46	<0.46	<0.46	<0.46	<0.46	<0.46	11.5	48.4	0.7
Toluene	8260B	< 1.0	0.42 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<0.26	<0.26	<0.26	<0.26	<0.26	0.60J	<0.26	0.65J	3840	16100	600
1,1,2-Trichloroethane	8260B	< 0.29	< 1.0	< 0.29	< 0.29	< 0.29	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**0.88J**	<0.29	<0.29	<0.29	<0.29	<0.29	<0.29	<0.29	1.24	5.2	0.6
Trichloroethene (TCE)	8260B	1.3	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**11.2**	<0.47	<0.47	<0.47	<0.47	<0.47	<0.47	<0.47	1.04	4.35	3
1,2,3-Trimethylbenzene	8260B	na	na	na	na	na	na	na	na	na	na	na	na	<0.090	<0.090	<0.090	<0.090	<0.090	<0.090	<0.090	<0.090	5.85	24.6	NE
1,2,4-Trimethylbenzene	8260B	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	5.80	24.4	400
1,3,5-Trimethylbenzene	8260B	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<0.36	<0.36	<0.36	<0.36	<0.36	<0.36	<0.36	<0.36	NE	NE	400
Vinyl chloride	8260B	< 0.62*	< 0.62*	< 0.62*	< 0.62*	< 0.62*	< 0.62*	< 0.62*	< 0.62*	< 0.62*	< 0.62*	< 0.62*	< 0.62*	<0.62	<0.62*	<0.62*	<0.62*	<0.62*	<0.62*	<0.62*	<0.62*	1.42	24.5	0.03
m&p-Xylene	8260B	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	<0.66	71.1 (m) / 74.0 (p)	298 (m) / 311	500
o-Xylene	8260B	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<0.66	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23	98.5	414	500
Xylenes-Total	8260B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NE	NE	
Total TICs	8260B	0	0	0	0	0	0	0	0	0	0	0	0	NT	NT	NT	NT	NT	NT	NT	NT	NE	NE	NE
Total VOCs	8260B	6.0	5.62	17.0	22.76	13.4	10.4	0	1.9	1.5	0	0	0	104.58	0.00	0.00	0.00	0.00	0.60	0.00	0.65	NE	NE	NA
Total BTEX	8260B	0	0.42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.6	0	0.65	NE	NE	NA
Semi-Volatile Organic Compounds (SVOCs) by EPA Method 8270 Plus TICs																								
Acenaphthene	8270	< 11.2	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NE	NE	80
Benzyl Alcohol	8270	< 11.2	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NE	NE	700
bis(2-Ethylhexyl)phthalate	8270	< 0.89	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NE	NE	3
Dibenzofuran	8270	< 11.2	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NE	NE	28
Fluorene	8270	< 11.2	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NE	NE	300
1-Methylnaphthalene	8270	< 0.36	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NE	NE	1
2-Methylnaphthalene	8270	< 11.2	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NE	NE	30
2-Methylphenol	8270	< 11.2	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NE	NE	400
Naphthalene	8270	< 0.38	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	34.8	146	6
Phenanthrene	8270	< 11.2	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NE	NE	200
Total TICs	8270	51.77	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NE	NE	NE
Totals Metals by EPA Method 6010B																								
Antimony	6010	< 2.6*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NE	NE	1
Arsenic	6010	< 5.0	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NE	NE	10
Beryllium	6010	< 1.0	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NE	NE	4
Cadmium	6010	< 0.50	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NE	NE	2
Chromium	6010	< 5.0	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NE	NE	10
Copper	6010	4.7 J	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NE	NE	1000
Lead	6010	< 5.0	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NE	NE	15
Manganese	6010	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NE	NE	50
Nickel	6010	< 5.0	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NE	NE	100
Selenium	6010	< 10.0	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NE	NE	20
Silver	6010	< 5.0	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NE	NE	20
Thallium	6010	< 5.0*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NE	NE	0.2
Zinc	6010	175	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NE	NE	1000
Mercury by EPA Method 7471																								
Mercury	7471	<0.20	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.134	0.563	1

Notes:
All concentrations are reported in micrograms per liter (ug/L).
ft, bgs - feet below ground surface
NE - Not Established
NT - Not Tested
ND - Not Detected
NA - Not Applicable
Bold results exceed NCAC 2L Standards.
Bold results exceed Gross Contamination Levels (GCLs) for Groundwate
"J" value indicates an estimated concentration exceeding the laboratory method detection limit and below the laboratory reporting limit.
* Laboratory reporting limit and/or method detection limit exceeds the NCAC 2L Groundwater Standard
2/19/2013 Sampling event was for screening purposes only. Samples not collected according to RI Workplan

= Exceeds NCDENR, Division of Waste Management, Residential Vapor Intrusion Ground Water Screening Level (GWSL)
= Exceeds NCDENR, Division of Waste Management, Non-Residential Vapor Intrusion Ground Water Screening Level (GWSL)

D/DUP = Duplicate Sample
RB = Rinse Blank
TB = Trip Blank
FB = Field Blank
na - not analyzed by laboratory based on test method criteria

TABLE 2

MONITORING WELL CONSTRUCTION/WATER LEVEL INFORMATION
R.D. PATE ESTATE
IHSB Site ID NUMBER: NONCD0002795
PIKEVILLE, WAYNE COUNTY, NORTH CAROLINA
ENVIROASSESSMENTS, PLLC - PROJECT NO. 07-7019.10

Well I.D.	Installation Date	Well Inner Diameter (in.)	Total Well Depth (ft., bgs)	Screened Interval (ft., bgs)	Top of Casing Relative Elevation (ft.)	DTW 9/11/07 (ft., TOC)	Relative Water Table Elevation (ft.) 9/11/2007	DTW 4/5/2011 (ft., TOC)	Relative Water Table Elevation (ft.) 4/5/2011	DTW 2/19/2013 (ft., TOC)	Relative Water Table Elevation (ft.) 2/19/2013	DTW 3/18/2013 (ft., TOC)	Relative Water Table Elevation (ft.) 3/18/2013	DTW 10/8/2013 (ft., TOC)	Relative Water Table Elevation (ft.) 10/8/2013
MW-1	9/5/2007	2	14	4 to 14	136.15	6.59	129.56	3.70	132.45	3.34	132.81	3.44	132.71	5.84	130.31
MW-2	9/5/2007	2	14	4 to 14	135.45	5.88	129.57	3.50	131.95	nm	nm	3.16	132.29	5.08	130.37
MW-3	9/5/2007	2	14	4 to 14	135.70	6.10	129.60	3.89	131.81	3.22	132.48	2.82	132.88	5.26	130.44
MW-4	9/5/2007	2	14	4 to 14	135.75	5.70	130.05	2.43	133.32	nm	nm	2.00	133.75	5.42	130.33
MW-5	6/3/2008	1	14	4 to 14	136.30	na	na	3.85	132.45	nm	nm	3.38	132.92	6.11	130.19
MW-6	6/3/2008	1	14	4 to 14	135.16	na	na	3.94	131.22	3.93	131.23	4.22	130.94	5.03	130.13
MW-7	7/15/2008	2	15	5 to 15	136.76	na	na	4.13	132.63	3.59	133.17	3.79	132.97	6.69	130.07
MW-8	3/30/2011	1	28	18 to 28	135.81	na	na	19.15	116.66	4.25	131.56	9.61	126.20	3.48	132.33
MW-9	3/30/2011	1	28	18 to 28	136.60	na	na	14.43	122.17	4.92	131.68	8.37	128.23	2.75	133.85
MW-10	3/30/2011	1	28	18 to 28	136.45	na	na	21.54	114.91	nm	nm	12.45	124.00	2.93	133.52
MW-11	3/31/2011	1	28	18 to 28	136.26	na	na	10.51	125.75	4.32	131.94	5.05	131.21	4.37	131.89
MW-12	3/31/2011	1	15	5 to 15	136.20	na	na	4.56	131.64	4.21	131.99	4.39	131.81	5.86	130.34
MW-13	3/31/2011	1	28	18 to 28	136.38	na	na	18.66	117.72	nm	nm	10.58	125.80	3.91	132.47
MW-14	3/15/2013	1	15	5 to 15	136.35	na	na	na	na	na	na	3.36	132.99	6.29	130.06
MW-15	3/15/2013	1	15	5 to 15	135.66	na	na	na	na	na	na	3.51	132.15	5.03	130.63
MW-16	3/15/2013	1	15	5 to 15	134.82	na	na	na	na	na	na	3.89	130.93	4.29	130.53
MW-17	3/15/2013	1	15	5 to 15	136.54	na	na	na	na	na	na	3.89	132.65	6.30	130.24
MW-18	3/16/2013	1	15	5 to 15	136.17	na	na	na	na	na	na	5.44	130.73	4.97	131.20
MW-19	3/16/2013	1	15	5 to 15	135.46	na	na	na	na	na	na	10.52	124.94	3.79	131.67
MW-20	3/16/2013	1	15	5 to 15	135.31	na	na	na	na	na	na	3.65	131.66	4.16	131.15
MW-21	3/16/2013	1	15	5 to 15	135.20	na	na	na	na	na	na	4.50	130.70	5.02	130.18
MW-22	3/16/2013	1	15	5 to 15	134.96	na	na	na	na	na	na	5.30	129.66	5.56	129.40
DW-2*	7/15/2008	2	60	55 to 60	135.79	na	na	7.17	128.62	7.17	128.62	6.40	129.39	9.49	126.30
MW-1X	old existing	2	13	3 to 13	135.71	na	na	na	na	na	na	3.27	132.44	5.03	130.68

TOC = top of casing.

DTW = depth to water.

bgs = below ground surface

* = Type III Monitoring Well (Well identified on Well Construction Record as DMW-1; however, well has always been designed as DW-2 since installation