

Ambient Air Quality Testing Report Chase Land, LLC Properties Jessup, Maryland 21044

Prepared for

Bureau of Environmental Services Howard County Department of Public Works 6751 Columbia Gateway Drive, Suite 514 Columbia, Maryland 21046

Prepared by

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July 2017

EA Project No. 1483547

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LIST OF ACRONYMS

AIHA	American Industrial Hygiene Association
AHERA	Asbestos Hazard Emergency Response Act
CAA	Clean Air Act
CFR	Code of Federal Regulations
COC	Chain of Custody
COMAR	Code of Maryland Regulations
EA	EA Engineering, Science, and Technology, Inc., PBC
EPCRA	Emergency Planning and Community Right to Know Act
ESA	Environmental Site Assessment
F/cc	Fibers per Cubic Centimeter
g/m ³	Grams per Cubic Meter
L/min	Liters per Minute
MCE	Mixed Cellulose Ester
MDE	Maryland Department of the Environment
µg/m ³	Micrograms per Cubic Meter
mg/m ³	Milligrams per Cubic Meter
µm	Micron (1x 10 ⁻⁶ meters)
mm	Millimeter (1x 10 ⁻³ meters)
NOAA	National Oceanic and Atmospheric Administration
NVLAP	National Voluntary Laboratory Accreditation Program
OSHA	Occupational Safety and Health Administration
PCM	Phase Contrast Microscopy
PEL	Permissible Exposure Limit
PIA	Public Information Act
PPI	Parallel Particle Impactor
ppm	Parts per million
QC	Quality Control
RH	Relative Humidity
T	Temperature
TRI	Toxic Release Inventory
TWA	Time Weighted Average
U.S. EPA	United States Environmental Protection Agency

EXECUTIVE SUMMARY

EA Engineering, Science, and Technology, Inc., PBC (EA) conducted an ambient air quality assessment at the Chase Lands Properties (the subject site) located in Jessup, Howard County, Maryland. Howard County intends to construct schools and associated recreational fields at the subject site.

The subject site consists of, either in whole or in part, five individual parcels totaling approximately 79.06 acres of land comprised of one residence, the site of a former farmhouse, and unimproved woodland with small streams. Surrounding properties consist of residential and industrial lands, including the Savage Stone granite quarry. The quarry produces crushed stone, gravel, sand, fill, clay, and associated materials and conducts blasting operations approximately 1-2 times per week.

Based on the intended future use of the subject site, Howard County requested evaluation of ambient air quality at the site to assess the potential for impacts from the adjacent quarry or other off-site sources. This assessment included:

- Review of quarry documents (permits, monitoring and compliance reports)
- Review of existing data (collected by the Maryland Department of Environment, MDE) regarding background concentrations of particulate matter in the area of the site.
- Ambient air sampling at the site

No ongoing compliance issues were identified via review of available permit, monitoring, and reporting information for Savage Stone quarry.

Review of MDE station data (2.25 miles west-southwest of the site) indicated that the 2016 24hour data for fine particulate matter (PM_{2.5}) and coarse particulate matter (PM₁₀) are within the federally established health-based limits (the National Ambient Air Quality Standard, NAAQS).

Samples of ambient air were collected at four on-site locations and analyzed for respirable crystalline silica, airborne fibers (including asbestos), respirable dust (PM4), fine particulate matter (PM2.5) and coarse particulate matter (PM10). The wind directions observed on day of sampling (from the west/northwest) were typical for this area, with the site being upwind of the quarry.

All of the results from the on-site ambient air sampling were within health-based limits established by the U.S. Environmental Protection Agency (EPA) and/or the Occupational Safety and Health Administration (OSHA).

Thus, this assessment indicated no adverse impacts to air quality at the subject property from either quarry operations (including blasting) or other off-site sources.

Note that site testing data represent observed, existing conditions documented on the selected test date. Site conditions may change, particularly during site development. Additional air sampling could be performed to further assess worker exposure during site development and at the conclusion of school facilities construction.



FINAL

Phase I Environmental Site Assessment Report Chase Lands Jessup, Maryland 21044

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LIST OF ACRONYMS AND ABBREVIATIONS

ADOC	Appropriate distance of concern
ASTM	ASTM International
AUL	Activity and use limitation
BGE	Baltimore Gas and Electric Company
CERCLIS CFR COC CORRACTS CREC	Comprehensive Environmental Response, Compensation, and Liability Information System Code of Federal Regulations Chemical of Concern RCRA Information System-Corrective Action Sites Controlled recognized environmental condition
DPW	Department of Public Works
EA	EA Engineering, Science, and Technology, Inc., PBC
EDR	Environmental Data Resources, Inc.
EPA	United States Environmental Protection Agency
ESA	Environmental Site Assessment
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
ft	Foot (feet)
HREC	Historical recognized environmental condition
LUST	Leaking Underground Storage Tank
MDAT RPD	Maryland Department of Assessment and Taxation Real Property Database
MDE	Maryland Department of the Environment
NFRAP	No Further Remedial Action Planned (Delisted CERCLA Site)
NPL	National Priorities List
NWI	National Wetland Inventory
OCP	Oil Control Program
OCPCASES	Maryland Oil Control Program Cases
PCB	Polychlorinated biphenyl
pCi/L	Picocuries per liter
PIA	Public Information Act
ppm	Part(s) per million

LIST OF ACRONYMS AND ABBREVIATIONS (Continued)

- RCRA Resource Conservation and Recovery Act of 1976
- REC Recognized environmental condition
- ROC Record of communication
- TSD Treatment, storage, and disposal
- USDA United States Department of Agriculture
- USDI United States Department of the Interior
- USGS United States Geological Survey
- UST Underground storage tank

EXECUTIVE SUMMARY

The subject of this Phase I Environmental Site Assessment (ESA), hereafter referred to as the study area, is composed, either in whole or in part, of the lands of five individual parcels, totaling 79.06 +/- acres of land. The study area is located in Jessup, Howard County, Maryland within an area of varying property uses including residential, industrial and commercial properties. Also, each of the parcels have different historical uses, as summarized below. The majority of the study area is unimproved wooded land, with the exception of Parcel 349, which contains four structures.

Tax Map	Tax Parcel	Total Size of Parcel	Area of Phase I ESA	Owner	Tax Address	Generalized History
42	102	4 acres	4 acres	Chase Land, LLC	Mission Road	Parcel is undeveloped wooded land. No other uses have been identified.
42	349	8.2 acres	8.2 acres	Chase Land, LLC	8717 Mission Road	This parcel was undeveloped wooded and agricultural land until 1968 when the water well and residential structure improved the parcel.
43	235	228 acres	+/- 65 acres	Chase Land, LLC	8601 Washington Boulevard	This parcel has remained undeveloped wooded land, with the exception of a farmhouse built in the mid- 1940s and the sewer easement installed in the mid-1970s. This easement transects the parcel from the west to northeast before it intersects with Mission Road.
47	384	39.4 acres	0.87 acres	Konterra	SE Pine Road	The portion of this parcel included in the study area has remained undeveloped wooded land.

EA Engineering, Science, and Technology, Inc., PBC

48	548/ Parcel B	0.99 acres	0.99 acres	Chase Land, LLC	8552 Washington Boulevard	This parcel was undeveloped wooded land until 1957. In 1957 a structure was built in the northeast corner, which remained until 1980. After 1980 the site was undeveloped
						1980 the site was undeveloped and became overgrown.

EA Engineering, Science, and Technology, Inc., PBC (EA) has performed this Phase I ESA, in conformance with the scope and limitations of ASTM International E1527-13, of study area described above in Jessup, Howard County, Maryland. Any exceptions to, or deletions from, this practice are described in Section 1.4. This ESA has revealed no evidence of recognized environmental conditions in connection with the property, except:

- Parcel 235: Wastes were observed within the large pile observed northwest of the sewer easement and additionally were strewn in a northerly and easterly direction along this easement and into the wetland ravine.
- Parcel 235: Soil mounds with evidence of improper non-household waste disposal observed along the sewer easement and strewn along the northern side of the mining access road.
- Parcel 349: A partially filled plastic 55-gallon drum of used oil and approximately 10 less than five gallon portable gasoline cans; a lead-acid battery was observed on the ground surface along the exterior wall of the shop beneath a plastic tarp.



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Phase I Environmental Site Assessment Report Addendum for Data Gap Resolution Chase Land, LLC Properties Tax Map 42 Jessup, Maryland 21044

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> October 2017 EA Project No. 1483552

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LIST OF ACRONYMS AND ABBREVIATIONS

ASTM	ASTM International
BGE	Baltimore Gas and Electric Company
CREC	Controlled recognized environmental condition
DRO	Diesel range organics
EA	EA Engineering, Science, and Technology, Inc., PBC
EPA	U.S. Environmental Protection Agency
ESA	Environmental Site Assessment
HHRA	Human Health Risk Assessment
HREC	Historical recognized environmental condition
MDE	Maryland Department of the Environment
mg/kg	Milligram(s) per kilogram
PAH	Polycyclic aromatic hydrocarbon
PCB	Polychlorinated biphenyl
REC	Recognized environmental condition
RSL	Risk-based screening level
TPH	Total petroleum hydrocarbons
USGS	United States Geological Survey

EXECUTIVE SUMMARY

The study area is in Jessup, Howard County, Maryland, within an area of varying property uses including residential, industrial, and commercial properties. The entire area of the November 2016 Phase I Environmental Site Assessment (ESA) was referred to as the study area, and is comprised, either in whole or in part, of the lands of five individual parcels, totaling 79.06± acres of land. This Addendum pertains only to Parcel 349, an 8.2-acre wooded residential parcel addressed as 8717 Mission Road. Parcel 349 is referred to as the "subject site" hereafter in this Addendum, whereas "study area" refers to the larger area assessed in November 2016. Study area details are provided in Table ES-1.

This Addendum summarizes observations of the residential living quarters on Parcel 349, which are no longer occupied; includes verification that conditions on Parcel 349 did not materially change since the November 2016 Phase I ESA; and documents resolution of data gaps associated with the study area.

Historical research conducted during the initial Phase I ESA was not updated for the Addendum; therefore, it is not presented herein.

No new recognized environmental conditions (RECs) were identified during the 1 September 2017 site reconnaissance. The REC previously identified for Parcel 349 remains and was updated to reflect current conditions:

• Parcel 349: A deteriorating 5-gallon container of roofing compound, a partially filled plastic 55-gallon drum of used oil, and approximately 10 less-than-5-gallon portable gasoline cans and two lead-acid batteries were observed on the ground surface. Additionally, a small area of soil staining was observed beneath the dump truck.

Tax Map	Tax Parcel	Total Size of Parcel	Area of Phase I ESA	Owner	Tax Address	Generalized History
42	102	4 acres	4 acres	Chase Land, LLC	Mission Road	Parcel is undeveloped wooded land. No other uses have been identified.
42	349	8.2 acres	8.2 acres	Chase Land, LLC	8717 Mission Road	This parcel was undeveloped wooded and agricultural land until 1968 when the water well and residential structure improved the parcel.
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47	384	39.4 acres	0.87 acre	Konterra	SE Pine Road	The portion of this parcel included in the study area has remained undeveloped wooded land.
48	548/ Parcel B	0.99 acre	0.99 acre	Chase Land, LLC	8552 Washington Boulevard	This parcel was undeveloped wooded land until 1957. In 1957 a structure was built in the northeast corner, which remained until 1980. After 1980 the subject site was undeveloped and became overgrown.
(a)	(a) Subject site information is shown in boldface.					

November 2016 data gaps are presented in Table ES-2 for reference, including the resolution achieved during this Addendum.

November 2016		November 2016	
Data Gap / Limiting	November 2016	Significance and	September 2017
Condition	Reason for Occurrence	Rationale	Status
Partial response from the Howard County Bureau of Environmental Health Well and Septic Program.	The Howard County Bureau of Environmental Health Well and Septic Program did not respond to the Public Information Act request before the time of publication.	Moderate. This source is likely to provide information regarding the status of the onsite well and septic system associated with 8717 Mission Road.	No response was received from the Well and Septic Program in response to the prior EA request. No further inquiry was deemed warranted, because relevant information regarding well construction was obtained from the MDE Well Database.
Reduced visibility of multiple portions of the study area.	Heavy vegetation growth prevented access to some areas.	Low. This source is unlikely to result in the identification of additional RECs.	Vegetated areas not observed in the November 2016 Phase I ESA were not revisited due to the likely presence of heavy summer vegetation. Additionally, the May 2017 Phase II ESA report documented work conducted to assess areas of concern within the study area, but did not include assessment of Parcel 349.
Laurel Lumber MDE files were incomplete.	MDE files pertaining to Laurel Lumber operations are no longer available due to file purging procedures, except for the reclamation files.	Low. This source could potentially provide information regarding history of Laurel Lumber operations but is unlikely to result in the identification of an additional REC.	Available Laurel Lumber files were reviewed in June 2017 by EA and were summarized under separate cover. Did not result in the identification of an additional REC.
No observation of Tansill residence.	Tansill residence not observed to maintain resident privacy.	Low. This source is unlikely to result in the identification of new RECs.	Residential living spaces and attached garage were observed by EA during the September 2017 site reconnaissance.

 Table ES-2
 November 2016 Data Gap Resolution



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Phase II Environmental Site Assessment Report Portion of Chase Land, LLC Properties Jessup, Maryland 21044

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EA Project No. 1483546

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LIST OF ACRONYMS

ABS	Dermal Absorption Factor
ADAF	Age-Dependent Adjustment Factor
ADI	Average Daily Intake
AF	Adherence Factor
ASTM	American Society for Testing and Materials
AT	Average Time
ATC	Anticipated Typical Concentration
BW	Body Weight
CF	Conversion Factor
COC	Chain of Custody
COPC	Constituent of Potential Concern
CSM	Conceptual Site Map
DBCP	1,2-Dibromo-3-Chloropropane
dL	Deciliter
DPW	Department of Public Works
DRO	Diesel Range Organics
EA	EA Engineering, Science, and Technology, Inc., PBC
EC	Exposure Concentration
ED	Exposure Duration
EDB	1,2-Dibromoethane
EF	Exposure Frequency
EFH	EPA Exposure Factors Handbook
EPC	Exposure Point Concentration
ESA	Environmental Site Assessment
ET	Exposure Time
GIABS	Gastrointestinal Dermal Absorption Factor
GPS	Global Positioning System
GRO	Gasoline Range Organics
HASP	Health and Safety Plan
HHRA	Human Health Risk Assessment
HQ	Hazard Quotient
IDW	Investigation Derived Waste
IR	Ingestion Rate
ISM	Intermittent Soil Mounds Area

LIST OF ACRONYMS (continued)

IUR	Inhalation Unit Risk
LADI	Lifetime Average Daily Intake
MB	Method Blank
MDE	Maryland Department of the Environment
μg/kg	Micrograms per kilogram
μg/L	Micrograms per liter
mg/kg	Milligrams per kilogram
mg/L	Milligrams per liter
MS/MSD	Matrix Spike/Matrix Spike Duplicate
NOAEL	No Observed Adverse Effect Level
PAH	Polycyclic Aromatic Hydrocarbons
PCB	Polychlorinated Biphenyls
PEF	Particulate Emissions Factor
PID	Photo-ionization Detector
PPE	Personal Protective Equipment
ppm	Parts per million
QC	Quality Control
RBA	Relative Bioavailability Factor
RfC	Reference Concentration
RfD	Reference Dose
RL	Reporting Limit
RME	Reasonable Maximum Exposure
RSL	U.S. EPA Regional Screening Level
SA	Surface Area for Contact
SAW	Sprawling Area of Waste
SDG	Sample Delivery Group
SF	Slope Factor
SOP	Standard Operating Procedure
SVOC	Semi-volatile Organic Compounds
SW	Surface Water
TAT	Turn Around Time
TB	Trip Blank
TPH	Total Petroleum Hydrocarbons

LIST OF ACRONYMS (continued)

UCLM	Upper Confidence Limit on the Mean
UF	Uncertainty Factor
USCS	Unified Soil Classification System
U.S. EPA	United States Environmental Protection Agency

VOC Volatile Organic Compound

EXECUTIVE SUMMARY

EA Engineering, Science, and Technology, Inc., PBC (EA) completed a Phase II Environmental Site Assessment (ESA) at the Chase Lands Properties. The subject site consists of, either in whole or in part, the lands of five individual parcels, totaling 79.06 +/- acres of land located in Jessup, Howard County, Maryland. The subject site primarily currently consists of unimproved wooded land. Parcel 349, which is owned by Chase Land, LLC, is part of the subject site that was to be evaluated, but it was omitted from the Phase II ESA because it was occupied at the time of assessment. "Site", when used in this report, is defined as the subject site for future school development. As part of the process, EA completed a Phase I ESA in November 2016. Based on the findings identified in the Phase I ESA Report, Howard County requested a Phase II ESA to assist the County with making informed decisions regarding the future use of the property.

The Phase II ESA included test pit excavation of mounded soil, as well as soil and surface water sampling across the Site. It is anticipated that the mounded soil will be removed during site development. Assessment of groundwater was not included in this investigation, because the Phase I ESA did not identify potential concerns associated with groundwater. Further, it is not anticipated that groundwater will be used as a drinking water source in the future at this site. Figures depicting the Chase Lands Properties and areas of investigation are included as Appendix A. Tabulated laboratory analytical data and summarized field observations are included as Appendix B.

An eight-day field investigation was performed that included surveying and sample location selection activities, utility avoidance activities, test pit excavation, and the collection of soil and surface water samples for laboratory analysis. Reported concentrations of arsenic, lead, chromium, polycyclic aromatic hydrocarbons (PAHs), and petroleum were detected in soil samples collected during the Phase II ESA.

As part of the Phase II ESA, chemicals with reported concentrations exceeding the U.S. Environmental Protection Agency (EPA) residential soil risk-based screening levels (RSLs) were evaluated to assess potential concerns for human exposures at the Site. The RSLs are periodically reviewed and updated by EPA to incorporate revised toxicity values and other information for Human Health Risk Assessments (HHRA). The 2008 Maryland Cleanup Standards for Soil and Groundwater were based on EPA Risk-Based Concentrations that were current at the time, and Maryland's Standards can be used as an initial screen for contamination at a site. Because a risk assessment was completed for the Site, EA deferred to the updated (May 2016) EPA RSLs for screening as the basis of the risk-based analysis. EPA does not have an RSL for Total Petroleum Hydrocarbons (TPH), because TPH encompasses the entire group of hydrocarbons, rather than an individual chemical; therefore, the 2008 Maryland Cleanup Standards were used for screening TPH results.

An HHRA was performed to determine potential carcinogenic risks and non-carcinogenic hazards based upon EPA and MDE risk assessment methodology and for the expected future use. The carcinogenic risk results for the evaluated receptors (elementary, middle, high school, and adult recreational users) are less than the Maryland Department of the Environment (MDE) remedial action level of 10⁻⁵. Non-carcinogenic hazards for all receptors are below the MDE target threshold of 1. Additionally, the risk results are consistent throughout the exposure areas evaluated. This indicates that overall exposures across the Site are consistent and not a concern for human health.

The EPA has not published toxicity values for lead, so potential human health concerns cannot be determined in a manner like other chemicals evaluated in the HHRA. Instead, blood lead levels are the indicator of excess lead exposure in humans. The maximum detected concentration of lead exceeded the EPA residential soil RSL of 400 mg/kg at three sample locations: GS-S-03 (543 milligram per kilogram [mg/kg]), SE-S-08 (563 mg/kg), and SE-S-09 (432 mg/kg). Sample location GS-S-03 is located within the northern area grab samples exposure area. The arithmetic mean concentration of lead for this area is 135.5 mg/kg. Sample locations SE-S-8 and SE-S-09 are located within the sewer easement exposure area. The arithmetic mean concentration of lead for this area is 140 mg/kg. For both areas, the mean lead concentration is less than the EPA residential soil RSL. This indicates that overall exposures to lead at the Site are not a concern for human health, since effective exposures are to average concentrations, not those at one point.

It was noted that arsenic concentrations across the Site were within an order of magnitude of the United States Geological Survey (USGS) anticipated typical concentration (ATC) for Central Maryland and are considered a naturally occurring product of site geology.

Detections of total petroleum hydrocarbons – diesel range organics (TPH-DRO) at reported concentrations greater than the screening criteria could not be included in the risk assessment because TPH includes a range of organic compounds, rather than individual compound results that are required for the HHRA analysis. TPH-DRO was reported at concentrations exceeding screening levels in one sample collected from the Intermittent Soil Mounds (ISM) area and one sample collected from the Sprawling Area of Waste (SAW). The exceedances in these areas do not appear to be correlated with the presence of either soil mounds or surficial waste. In

addition, the exceedances were 2.6 and 3.2 times the screening level, with no individual VOCs or PAHs exceeding MDE generic numeric screening criteria at those locations. MDE guidance (2008) provides for attainment of a soil cleanup standard when at least 10 soil samples are collected from a soil horizon and 75 percent of all samples collected are equal or less than the standard and no individual sample exceeds 10 times the standard. Therefore, in conformance with MDE guidance, no further action is required or recommended for the TPH-DRO detections within the ISM area and the SAW area.

TPH-DRO was reported at concentrations exceeding screening levels in two samples collected within the sewer easement. The exceedances in this area appear to be associated with observed surficial waste. In addition, the exceedances were 3.0 and 5.4 times the screening level, with several PAHs exceeding MDE generic numeric screening criteria at those locations. It is recommended that soil be removed from the locations within the sewer easement where TPH-DRO concentrations exceeded screening levels. Confirmatory sampling is recommended following soil excavation activities.

Phase I Environmental Site Assessment



Rockburn Branch Park Northwest Corner of Montgomery Road and Landing Road Elkridge, MD 21075





Prepared For

Howard County Public School System 8045 Harriet Tubman Lane Columbia, MD 21044

Prepared By *KCI Technologies Inc. 936 Ridgebrook Road Sparks, Maryland 21152*

October 17, 2017



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Phase I Environmental Site Assessment

FOR

Rockburn Branch Park Northwest Corner of Montgomery Road and Landing Road Elkridge, Maryland 21075

Prepared For:

Howard County Public School System 8045 Harriet Tubman Lane Columbia, MD 21044

Prepared By:

KCI Technologies, Inc. 936 Ridgebrook Road Sparks, Maryland 21152 KCI Project: 121704751

October 17, 2017





ENGINEERS . PLANNERS . SCIENTISTS . CONSTRUCTION MANAGERS

936 Ridgebrook Road · Sparks, MD 21152 · Phone 410-316-7800 · Fax 410-316-7817

October 17, 2017

Mr. Dan Lubeley Howard County Public School System 8045 Harriet Tubman Lane Columbia, MD 21044

RE: Phase I Environmental Site Assessment **Rockburn Branch Park** Northwest Corner of Montgomery Road and Landing Road Elkridge, Maryland 21075 KCI Project No. 121704751

Dear Mr. Lubeley,

KCI Technologies, Inc. (KCI) appreciates the opportunity to provide our services on this project. Herein is a report of our findings from the Phase I Environmental Site Assessment of the above referenced property. This report was prepared in accordance with ASTM Standard E 1527-13: "*Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*". If you have any questions with regard to this report or any other aspect of our services, please feel free to contact us at 410-316-7800.

Sincerely, KCI Technologies, Inc.

Michelle Kounis

Michelle L. Gounaris Environmental Scientist Hazardous Waste and Environmental Compliance

Environmental Professional's Statement

I declare that, to the best of my professional knowledge and belief, I meet the definition of "Environmental Professional" as defined in §312.10 of 40 CFR 312. I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. I have developed and performed all appropriate inquiries in conformance with the standards and practices set in 40 CFR 12.

MichelletComis

Michelle L. Gounaris Environmental Scientist Hazardous Waste and Environmental Compliance

Executive Summary

Howard County Public School System (Client) retained KCI Technologies, Inc. (KCI) to perform a Phase I Environmental Site Assessment (ESA) for Rockburn Branch Park, which is located at the northwest corner of Montgomery Road and Landing Road, Elkridge, Maryland 21075 (subject site). KCI's Phase I ESA will satisfy one of the prerequisites for Leadership in Energy and Environmental Design (LEED) accreditation described in the US Green Building Council's "*LEED for schools for New Construction and Major Renovations*" (Approved November 2008, Updated April 2013). This Phase I ESA was conducted in accordance with ASTM Standard E 1527-13: "*Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process.*"

The subject site is currently part of Rockburn Branch Regional Park and consists of 96.797 acres of wooded and brush-covered land. The site contains walking and biking paths and registered historic ruins are located onsite. The findings from this assessment are summarized as follows:

- KCI's review of historic topographic maps and aerial photographs suggests that the subject site has been developed with historic structures since at least 1907. A 1938 and 1943 aerial photograph revealed that the site was primarily pasture land; however, apparent agriculture land/orchards was visible at the western portion of the site. In general, agricultural and orchard uses of land typically involve the applications of herbicides and pesticides, and can result in the contamination of soils, and sometimes groundwater, by these treatment chemicals. Although no indication of the misapplication of such chemicals (i.e., stressed vegetation, stained soil or vegetation) was observed during KCI's reconnaissance, experience has demonstrated that contamination from agricultural chemicals can persist over long periods in the soil. Therefore, KCI concludes that the former agricultural/orchard use of the subject site represents a REC.
- The review of the environmental databases did not suggest that any nearby properties listed in environmental databases would represent a REC to the subject site.
- The completion of a Vapor Encroachment Screening has not identified any Vapor Encroachment Conditions (VECs) at the subject site.
- No evidence of Environmental Liens or other Activity and Use Limitations (AULs) were identified in connection with the subject site.
- KCI did not identify any Data Gaps during the completion of this Phase I ESA that would materially affect our ability to render professional opinions regarding the subject site. ASTM defines a data gap as a "lack or inability to obtain information via the practice despite good faith efforts by the environmental professional to gather such information".

If the Client requires additional certainty regarding the potential for contamination of herbicides and pesticides at the subject site, then additional investigation (i.e. soil and groundwater sampling) would be required.

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