FINAL

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

Prepared for

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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	Comprehensive Environmental Response, Compensation, and Liability Information System
CFR	Code of Federal Regulations
COC	Chemical of Concern
CORRACTS	RCRA Information System-Corrective Action Sites
CREC	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.

Table ES-1 Study Area Details

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.

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 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.

1. INTRODUCTION

1.1 LOCATION AND LEGAL DESCRIPTION

The approximate study area location as depicted on a U.S. Geological Survey (USGS) Savage Quadrangle Topographic Map is shown on Figure 1 (Appendix A). The study area is located in Jessup, Maryland and is identified on the Maryland Department of Assessments and Taxation Real Property Database (MDAT RPD) website as five individual parcels:

Table 1-1 Study Area Summary

Tax Map	Tax Parcel	Total Size of Parcel	Area of Phase I ESA	Owner	Tax Address
42	102	4 acres	4 acres	Chase Land, LLC	Mission Road
42	349	8.2 acres	8.2 acres	Chase Land, LLC	8717 Mission Road
43	235	228 acres	+/- 65 acres	Chase Land, LLC	8601 Washington Boulevard
47	384	39.4 acres	0.87 acres	Konterra	SE Pine Road
48	548/Parcel B	0.99 acres	0.99 acres	Chase Land, LLC	8552 Washington Boulevard

The study area depicted on Figure 2 was provided by Howard County (Appendix A). Legal descriptions of the tax parcels, as stated in the current deeds are presented in Appendix D.

1.2 PURPOSE

The purpose of the Phase I ESA is to identify, to the extent feasible pursuant to the process prescribed in ASTM International (ASTM) E1527-13, Recognized Environmental Conditions (RECs), in connection with the study area. The term REC is defined as "the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to any release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment. *De minimis* conditions are not recognized environmental conditions." This report reflects the observations, information, and data collected by EA from 20 July 2016 to 24 October 2016.

Supporting documentation is provided in the appendices as follows:

- Appendix A—Figures
- Appendix B—Photograph Logs
- Appendix C—Historical Research Documentation
- Appendix D—Supporting Documentation
- Appendix E—Environmental Data Resources Inc. Database Report
- Appendix F—Regulatory Records Documentation
- Appendix G—Resumes

At the request of Howard County, a paper copy of Appendices C, D, E, F, and G are not appended in the paper version of this report; however, these appendices are provided on the attached compact disk.

1.3 DETAILED SCOPE OF SERVICES

EA prepared this Phase I ESA in accordance with EA Proposal No. 0751413, dated 20 July 2016, under the November 2010 Consulting Services Agreement CA#11-10, between Howard County, Maryland and EA. This Phase I ESA was performed in accordance with ASTM E1527-13 (Standard Practice for ESAs: Phase I ESA Process) and Exhibit A – Scope of Work from the November 2010 Consulting Services Agreement CA#11-10 between Howard County, Maryland and EA. The assessment consists of a review of current and historical activities and conditions at the property and surrounding properties, including a non-intrusive visual inspection of the property; review of local, state, and federal regulatory database records; review of available historical records; and a survey of adjacent land uses. This Phase I ESA did not include sampling or chemical analysis of soils, soil vapor, surface water, or groundwater.

1.4 LIMITING CONDITIONS, DELETIONS, AND DEVIATIONS

To maintain resident privacy, the house on Parcel 349 was not observed by EA. EA made reasonable attempts to observe accessible areas of the study area. The majority of the study area is wooded land. However, several areas of site were obscured by heavy vegetation and downed trees, most notably: portions of the northeast corner of Parcel 235, near the razed house between Parcel 349 and the railroad tracks adjacent to Parcel 235. These areas were heavily covered with briars and vines. Parcel B was heavily overgrown with vines and fallen trees, which obscured detailed observations beyond the vegetated perimeter.

1.5 LIMITATIONS AND EXCEPTIONS

EA does not warrant that there are no toxic or hazardous materials or contamination, nor does EA accept any liability if such are found at some future time, or could have been found if additional sampling or studies were conducted. EA does not assume responsibility for other environmental issues that may be associated with this subject property.

In view of the rapidly changing status of environmental laws, regulations, and guidelines, EA cannot be responsible for changes in laws, regulations, or guidelines that occur after the study has been completed and that may affect the subject property.

This report is not intended to serve as a bidding document, nor as a project specification document; actual site conditions and quantities should be field-verified. Additionally, the passage of time may result in a change in the environmental characteristics at this site. The results, findings, conclusions, and recommendations expressed in this report are based only on conditions that were observed during EA's inspection of the site.

This report was prepared for Howard County by EA and is based in part on third-party information not within the control of Howard County or EA. While it is believed that the third-party information contained herein will be reliable under the conditions and subject to the limitations set forth herein, neither Howard County nor EA guarantee the accuracy thereof.

1.6 SIGNIFICANT ASSUMPTIONS

In expressing the opinions stated in this report, EA has exercised the degree of skill and care ordinarily exercised by a reasonably prudent Environmental Professional in the same community and in the same time frame given the same or similar facts and circumstances. EA assumes that the client, as set forth in the contractual agreement, is also the User as defined by ASTM E1527-13. Documentation and data provided by the User, designated representatives thereof, or other interested third parties, or from the public domain, and referred to in the preparation of this assessment, were used and referenced. Consequently, EA assumes no responsibility or liability for the accuracy of such documentation or data.

The independent conclusions in this report represent EA's professional judgment based on information and data available to EA during the course of this assignment. The factual information regarding operations, conditions, and data provided by the User, their representatives, or other interested third parties are assumed to be correct and complete. The conclusions presented are based on the data provided and reviewed, observations, and conditions that existed on the date of the onsite visits.

1.7 SPECIAL TERMS AND CONDITIONS

None.

1.8 USER RELIANCE

This report is exclusively for the use and benefit of Howard County as shown on the cover page of this report. This report is not for the use or benefit of, nor may it be relied upon by, any other person or entity without the advance written consent of EA.

2. USER PROVIDED INFORMATION

A copy of the ASTM E1527-13 User Questionnaire was submitted to Ms. Niti Blackwell with the Howard County Department of Public Works (DPW), Bureau of Environmental Services. Ms. Blackwell completed the User Questionnaire and returned it to EA. A copy of the completed questionnaire is included in Appendix D. Information obtained from the questionnaire was incorporated into Section 2.

2.1 REASON FOR PERFORMING THE PHASE I ESA

According to the User, this Phase I ESA is being performed prior to the transfer of the property to Howard County for subsequent construction of a high school and park.

2.2 ENVIRONMENTAL LIENS

Ms. Blackwell indicated that, to the best of her knowledge, she is not aware of any environmental cleanup liens against the study area that are filed or recorded under federal, tribal, state, or local law.

2.3 ACTIVITY AND USE LIMITATIONS

Ms. Blackwell also indicated that, to the best of her knowledge, she is not aware of any activity and use (AUL) limitations, such as engineering controls, land use restrictions, or institutional controls that are in place at the study area and/or have been filed or recorded in a registry under federal, tribal, state, or local law.

2.4 SPECIALIZED KNOWLEDGE OR EXPERIENCE

Ms. Blackwell indicated that she does not have any specialized knowledge of the operations conducted on the study area or nearby properties with regard to hazardous materials or petroleum products.

2.5 RELATIONSHIP OF PURCHASE PRICE TO FAIR MARKET VALUE

Ms. Blackwell indicated that it was unknown whether purchase price being paid for the study area reasonably reflects fair market value of the property.

2.6 COMMONLY KNOWN OR REASONABLY ASCERTAINABLE INFORMATION

Ms. Blackwell was questioned regarding commonly known or reasonably ascertainable information about the study area that would help the Environmental Professional to identify conditions indicative of releases or threatened releases such as past uses of the study area, specific chemicals that are present or once were present at the study area, spills or other chemical releases that have taken place on the study area, or any environmental cleanups that have taken place at the study area. Ms. Blackwell indicated that she does not have any commonly known or

reasonably ascertainable information regarding the study area except for past uses of the study area parcels. According to Ms. Blackwell, parcel 349 is currently a residence, the northwest portion of parcel 235 (fronting to Mission Road) formerly used as a family farm. Ms. Blackwell also indicated that a sewer easement routes through parcel 235, which is also bordered on the east by railroad tracks and a quarry.

2.7 OBVIOUS INDICATORS OF CONTAMINATION

Ms. Blackwell indicated that there are many piles of trash and mounds within Parcel 235. Ms. Blackwell also indicated that Parcel 349, which is currently a residence, is served by well and septic; Parcel 349 currently contains a house, several outbuildings, vehicles, and equipment stored on the property.

2.8 OTHER

2.8.1 Owner, Property Manager, and Occupant Information

The Howard County DPW Bureau of Environmental Services indicated the study area is currently owned by Chase Land, LLC (Chase Land) and Konterra. Howard County provided EA with a survey map, wetland maps, site photos and other miscellaneous documents to assist the environmental professionals performing this Phase I ESA.

2.8.2 Title Records

A chain-of-title report, copy of the current deed, and legal description of the study area was provided for review by the User as part of this investigation. A discussion of these documents is included in Section 3.3.6. A copy of the documentation, as provided by the User, is provided in Appendix D.

3. RECORDS REVIEW

3.1 PHYSICAL SETTING SOURCES

3.1.1 Topography

The study area is located on the USGS Savage, Maryland 7.5-minute topographic quadrangle map, dated 2014, as shown on Figure 1, Site Location Map, in Appendix A. The elevation of the study area is an average of 300 feet (ft) above mean sea level. The nearest surface water features as noted on the topographic map is an unnamed tributary of Dorsey Run to the northeast and east as well as the unnamed tributary to the south-southwest. Based on topography, the groundwater flow direction for the majority of the study area is anticipated to be to the east/southeast towards Dorsey Run.

3.1.2 Geology

Review of the Geologic Map of Maryland, compiled by E.T. Cleaves, J. Edwards, Jr., and J.D. Glaser for the Maryland Geological Survey, and dated 1968, indicates the study area is underlain by two geologic formations: the Potomac Group and the Baltimore Gabbro Complex. The Potomac is a formation of Cretaceous age interbedded quartzose gravels, described as:

> "Interbedded quartzose gravels; protoquartzitic to orthoquartzitic argillaceous sands; and white, dark gray, and multicolored silts and clays; thickness 0 to 800 feet."

The Baltimore Gabbro Complex is a formation of Late Precambrian to Early Paleozoic age metamorphic rocks, described as:

> "Hypersthene gabbro with subordinate amounts of olivine gabbro, norite, anorthositic gabbro, and pyroxenite; igneous minerals and textures well preserved in some rocks, other rocks exhibit varying degrees of alteration and recrystallization with a new metamorphic mineral assemblage."

Mapped geologic formations appeared consistent with observed ground features during the site reconnaissance. Mounds of sand and gravel were observed throughout Parcels 235, 102 and 384, while large boulders of gabbro were observed in the eastern portion of the study area, adjacent to the railroad tracks, and along the perimeter of the mining access road to the water tower.

3.1.3 Groundwater

Wells depicted within the study area in the Environmental Data Resources, Inc. (EDR) Radius Report are not located in the study area based on information provided. In addition, EA searched the 2007 Unsecured Maryland Department of the Environment (MDE) Well Database, which provided information on the observed well associated with Parcel 349. EA also submitted a Public Information Act (PIA) request to the Howard County Health Department, Bureau of Environmental Health, Wells and Septic Program for information regarding the onsite well. To

date, a response has not been received. Documentation of the PIA request is located in Appendix F. Groundwater flow is expected to mimic surface topography, which would be towards the east/southeast.

3.1.4 Soils

Review of the Web Soil Survey (Natural Resources Conservation Service, http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx), indicates that the study area is underlain by eight different soil types: Chillum loam, Croom and Evesboro soils, Evesboro loamy sand, Fallsington sandy loams, Russett and Beltsville soils (2 to 5 and 5 to 10 percent slopes), Sassafras gravelly sandy loam, and Sassafras and Croom soils. The Russett and Beltsville soils and Sassafras and Croom soils comprise the majority of the study area.

- Russett and Beltsville, 2 to 5 percent slopes, is composed of approximately 50 percent Russett and similar soils, 35 percent Beltsville and similar soils and 15 percent minor components. The soils grade from a fine sandy loam (0 inches) to a silty clay loam (77 inches) and is moderately well drained.
- Russett and Beltsville, 5 to 10 percent slopes, is composed of approximately 55 percent Russett and similar soils, 30 percent Beltsville and similar soils and 15 percent minor components. The soils grade from a fine sandy loam (0 inches) to a silty clay loam (77 inches) and is moderately well drained.
- Sassafras and Croom soils, 5 to 10 percent slopes, is composed of approximately 55 percent Sassafras and similar soils, 35 percent Croom and similar soils and 10 percent minor components. The soils grade from a loam (0 inches) to a loamy sand (80 inches) and is well drained.

Review of the EDR Geocheck report (Appendix E) indicates the dominant soil in the general area of the study area is Russett soils. Russet soils is defined as having slow infiltration rates, soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

3.2 RECORD SOURCES

A Radius Map report was obtained from EDR for use in preparation of this Phase I ESA report. The EDR report was obtained to fulfill the requirements pertaining to standard environmental record source. The report also contains supplementary information, which is considered the additional environmental records. Acronyms associated with the database names presented below are defined in the List of Acronyms and Abbreviations portion of this report. Explanations of the content of the databases are provided directly within the EDR report in Appendix E.

3.2.1 Standard Federal, State, and Tribal Environmental Record Sources

The following standard federal, state and tribal environmental record sources were reviewed as part of this Phase I ESA:

- Federal National Priorities List (NPL)
- Federal Delisted NPL site list
- Federal Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) list
- Federal CERCLIS-No Further Remedial Action Planned (NFRAP) site list
- Federal Resource Conservation and Conservation Act (RCRA) Corrective Action Sites (CORRACTS) facilities list
- Federal RCRA non-CORRACTS Treatment, Storage, and Disposal (TSD) facilities list
- Federal RCRA generators list
- Federal Institutional Control/Engineering Control registries
- Federal Emergency Response Notification System (ERNS)
- State- and Tribal-equivalent CERCLIS
- State and Tribal Landfill and/or Solid Waste Disposal sites lists
- State and Tribal Leaking Storage Tanks (LUST) list
- State and Tribal Registered Storage Tanks (UST) list
- State and Tribal Institutional Control/Engineering Control registries
- State and Tribal Voluntary Cleanup sites
- State and Tribal Brownfield sites.

A complete listing of all databases associated with these standard environmental record sources is provided directly within the EDR Radius Map report in Appendix E. Database findings indicate that there are 47 listings within the ASTM recommended search distances of the study area associated with the standard environmental records sources.

The facilities listed in the EDR database report, standard record source databases, are not anticipated to have an adverse environmental impact on the study area based on various factors such as distance from the study area, topographic relationship to the study area, estimated

groundwater flow direction, and/or regulatory status. Based on the available information, a regulatory file review is not warranted for the remaining facilities.

3.2.2 Additional Federal, State, Tribal, and Local Environmental Record Sources

In addition to the standard environmental record sources (Section 3.2.1), additional environmental record sources were provided in the Radius Map report. A complete listing and explanations of the content of the databases associated with the additional environmental record sources are provided directly within the EDR Radius Map report in Appendix E.

The facilities listed in the EDR database report as included additional records are not anticipated to have an adverse environmental impact on the study area based on various factors such as distance from the study area, topographic relations, estimated groundwater flow, and/or regulatory status. Based on the available information, a regulatory file review was not warranted for these remaining facilities.

3.2.3 Vapor Encroachment Screening

The EDR database findings discussed in Section 3.2.1 and 3.2.2 are used, in conjunction with other available information, to assess whether a given facility/site has the potential to impact the study area via vapor encroachment. The vapor encroachment screening process includes a review of the proximity of a source of chemicals of concern[1] (COCs), and the subset of COCs referred to as petroleum COCs, to the boundary of the study area. The EDR Vapor Encroachment Screen report in Appendix E documents the evaluation performed for each database listing where a possible vapor encroachment concern was identified.

The appropriate distances of concern (ADOCs) noted below, which were applied as part of this screening exercise, are those established by the ASTM E2600-10 standard in conjunction with related industry guidance. The ADOCs assume that no information is known regarding the length or width of the contaminant plume. Note that ADOCs differ based on the hydrogeologic/topographic position relative to the subject property and contaminants identified at a particular site. Additionally, ADOCs can be expanded or reduced at the discretion of the environmental professional with documented justification.

- ADOC for upgradient sites: 528 ft (1/10-mile) for sites with petroleum hydrocarbon COCs, and 1,760 ft (1/3-mile) for sites with volatile or semi-volatile COCs.
- ADOC for cross-gradient sites: 165 ft for sites with petroleum hydrocarbon COCs, and 365 ft for sites with non-petroleum volatile or semi-volatile COCs.

[1] COCs are chemicals with volatile or semi-volatile properties and petroleum COCs are those listed in Table X6.1 of the Standard Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transactions (E2600-10), such as benzene, xylene, etc. These compounds are segregated from COCs because of their ability to readily biodegrade to carbon dioxide or water by soil microbes in aerated environments.

- ADOC for downgradient sites: 100 ft for COCs and light non-aqueous phase liquid COCs; 30 ft for dissolved-phase petroleum hydrocarbon COCs.

The results of this screening indicate that vapor encroachment at the study area can be ruled out. Even though the study area is currently undeveloped, future development was taken into consideration with regards to vapor encroachment.

3.2.4 State Regulatory Environmental Department Records

EA submitted a PIA request to MDE for information regarding petroleum storage and releases of hazardous materials and/or petroleum products or other environmental issues at the study area. An acknowledgement of the PIA request was issued by MDE on 25 August 2016 and assigned tracking number 2016-67185. On 3 October 2016, EA was informed that the Science Services Administration, Water Management Administration, Air and Radiation Management, and Land Management Administration have information and data available on the study area. On 20 October 2016, EA performed a file review of available documents unavailable electronically. The majority of the files did not pertain to the study area and were therefore not reviewed thoroughly.

An additional PIA request was submitted to MDE for information on mining activities on adjacent properties. On 17 October 2016, EA was informed that some files were available for review. EA coordinated with appropriate personnel for available files to be reviewed during the 20 October 2016 regulatory MDE file review. Files pertaining to the former Laurel Lumber site reclamation were also provided and reviewed. The reclamation of the Laurel Lumber site occurred in 2006, in which the sediment trap/pond, located within the study area on Parcel 235, was constructed. It was also determined that based on the reclamation plan, no reclamation activities were performed outside the limit of disturbance and within the study area portion of Parcel 384. Historical mining activities within the study area portion of Parcel 384 were unobtainable since older files associated with the mining performed at the Laurel Lumber site had been destroyed by MDE. Documentation of the PIA requests, correspondence with MDE and provided files are located in Appendix F.

3.2.5 Fire Department Records

EA submitted a PIA request to the Howard County Office of Public Information regarding releases of hazardous materials and/or petroleum products or other environmental issues at the study area. According to Ms. Karen Spicer, no environmentally relevant records were found in relation to the PIA request. Documentation of the PIA request and response is located in Appendix F.

3.3 HISTORICAL USE INFORMATION

The following discussions in this section are presented for the purpose of compiling historical information on the activities that occurred on the study area and adjacent properties.

Table 3-1 Historical Use Summary

Tax Map	Parcel	Owner	Tax Address	Generalized History
42	102	Chase Land, LLC	Mission Road	Parcel is undeveloped wooded land. No other uses have been identified.
42	349	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	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	Konterra	SE Pine Road	The portion of this parcel included in the study area has remained undeveloped wooded land.
48	548/ Parcel B	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 and became overgrown.

3.3.1 USGS Topographic Maps

Historical USGS topographic maps dated 1892, 1894, 1897, 1907, 1908, 1926, 1942, 1949, 1950, 1957, 1966, 1974, and 2014 were reviewed as part of this assessment. Copies of the topographic maps are presented in Appendix C.1. The results of this review are included in Table 3-2.

Table 3-2 Historical Topographic Map Summary

Date	Source	Study Area	Adjacent Properties
1892	EDR	The study area is depicted as undeveloped land. Parcel B is bounded to the south by a road which is consistent with the current orientation of Washington Boulevard.	The adjacent properties are depicted as undeveloped land.
1894	EDR	The study area appears similar to the 1892 map.	The adjacent properties appear similar to the 1892 map.
1897	EDR	The study area appears similar to the 1894 map.	The adjacent properties appear similar to the 1894 map.

Table 3-2 Historical Topographic Map Summary

Date	Source	Study Area	Adjacent Properties
1907	EDR	The study area appears to be similar to the 1894 map except for the addition of Mission Road. An unpaved road is depicted transecting the northeast corner of the study area (Parcel 235); this road coincides with paths observed on the aerial photographs in 1938.	The adjacent properties appear similar to the 1897 map except for the addition of several structures to the north along Mission Road. A structure is depicted to the east of Parcel B, along Washington Boulevard. An unpaved road transecting the northeast corner of the study area (Parcel 235) connects Mission Road and Washington Boulevard; several structures are depicted along this road.
1908	EDR	The study area appears similar to the 1907 map.	The adjacent properties appear similar to the 1907 map.
1926	EDR	The study area appears similar to the 1908 map.	The adjacent properties appear similar to the 1908 map.
1942	EDR	The study area appears similar to the 1926 map. The road coincides with a path observed on the aerial photograph in 1943.	The adjacent properties appear similar to the 1926 map except for the disappearance of the unpaved road transecting the northeast corner of the site, connecting Mission Road and Washington Boulevard, as well as several structures along the previous road.
1949	EDR	The study area appears similar to the 1942 map except for the addition of several unpaved roads transecting the study area in the north and from the east to south, which appears to connect to Parcel B; these paths coincide with paths observed on the 1943 and 1951 aerial photographs. A structure is also depicted for the first time in the northeast corner of the study area (Parcel 235).	The adjacent properties appear similar to the 1942 map except for the reappearance of the unpaved road to the east of the study area. Two additional unpaved roads are depicted diverging from the original unpaved road. More structures are present to the north along Mission Road.
1950	EDR	The study area appears similar to the 1949 map.	The adjacent properties appear similar to the 1949 map.
1957	EDR	The study area appears similar to the 1950 map except for the addition of three structures depicted in the northeast corner of the study area (Parcel 235) and the unpaved roads previously identified transecting Parcel 235 are no longer present.	The adjacent properties appear similar to the 1950 map except for the disappearance of the unpaved roads to the east of the study area. A gravel pit is depicted northeast of the study area. An orchard is depicted adjacent to the southeast boundary. Several structures are depicted to the east and west of Parcel B. A gravel pit is depicted south of Parcel B, across Washington Boulevard.
1966	EDR	The study area appears similar to the 1957 map.	The adjacent properties appear similar to the 1957 map.

Table 3-2 Historical Topographic Map Summary

Date	Source	Study Area	Adjacent Properties
1974	EDR	The study area appears similar to the 1966 map except for an unmarked road transecting the study area from west to northeast which is consistent with the current orientation of the sewer easement.	The adjacent properties appear similar to the 1966 map except for the addition of railroad tracks adjacent to the east of the study area. The orchard is no longer depicted adjacent to the southeast boundary (Parcel 235). The gravel pit is no longer depicted northeast of the study area or south of Parcel B.
2014	EDR	The study area appears similar to the 1974 map except the structures and unpaved roads previously identified throughout the study area are no longer present.	The adjacent properties appear similar to the 1974 map except for the addition of the residential neighborhood to the west of the study area (Parcel 102 and Parcel 235). Structures are no longer depicted on the topographic map.

3.3.2 Aerial Photographs

Aerial photographs dated 1938, 1943, 1951, 1952, 1957, 1963, 1966, 1970, 1977, 1980, 1981, 1982, 1988, 1993, 1998, 2000, 2002, 2004, 2005, 2006, 2007, 2009, 2011, 2013, 2014, and 2016 were reviewed as part of this assessment. Copies of the reviewed aerial photographs are presented in Appendix C.2. Key observations made from the reviewed aerial photographs are presented in Table 3-3.

Table 3-3 Aerial Photograph Summary

Date	Source	Study Area	Adjacent Properties
1938	EDR	The study area appears to be primarily undeveloped wooded land. The site is bounded to the north by a road (Mission Road). The northern portion of Parcel 235 is cleared. A dirt road is present transecting from Mission Road through the northeast portion of Parcel 235 towards the southeast; this coincides with the unpaved road depicted on the 1942 topographic map. A possible small structure faintly appears in this vicinity. A small portion in the southeast corner of Parcel 235 is cleared and appears to have trees in a grid pattern, similar to an orchard. Parcel 384 appears to be completely wooded. The northwest portion of Parcel 349 is cleared. Parcel B is not completely depicted on the provided aerial photograph.	The adjacent properties appear to be mostly undeveloped land. The land to the west is undeveloped wooded land. The adjacent land to the east is undeveloped wooded land and cleared land which is connected to the cleared land within the southeast corner of Parcel 235; an orchard is present in the southwest corner. Some structures are present to the north along Mission Road. The adjacent land south of Parcel 235 is mainly undeveloped wooded land. The lands surrounding Parcel 384 and Parcel B appear to be undeveloped wooded land.

Table 3-3 Aerial Photograph Summary

Date	Source	Study Area	Adjacent Properties
1943	EDR[2]	The study area appears similar to the 1938 aerial photograph except for the northern portion of the study area, along Mission Road, is cleared and multiple roads are depicted in the area; the paths coincide with unpaved roads observed on the 1942 topographic map. A cleared trail is apparent within the cleared area in the southern portion of Parcel 235. Parcel B is clearly depicted as cleared land with sparse vegetation.	The adjacent properties appear similar to the 1938 aerial photograph. The adjacent properties to the north appear to have more structures along Mission Road, but are cut off next to the northeast corner of the study area. A structure is present adjacent to the western boundary of Parcel B (formerly Parcel 90[3]); the area south of Parcel B, across Washington Boulevard is cleared.
1951	EDR	The study area appears similar to the 1943 aerial photograph except for multiple disturbed areas in the south central portion of Parcel 235 are now evident. A possible structure is present in the northeast corner of Parcel 235. Parcel B appears to be cleared of vegetation. The cleared area on Parcel 349 appears narrower than in 1943.	The adjacent properties appear similar to the 1943 aerial photograph except the area immediately east of Parcel B and immediately south of Parcel 235 are both disturbed.
1952	Howard County GIS	The study area appears similar to the 1951 aerial photograph except for the disturbed area in the south of Parcel 235 appears to be overgrown.	The adjacent properties appear similar to the 1951 aerial photograph.
1957	EDR	The study area appears similar to the 1952 aerial photograph except for the northeast corner of Parcel B is disturbed and a structure is present. Parcel 102 appears to have been partially cleared.	The adjacent properties appear similar to the 1952 aerial photograph except the addition of the roads in the residential neighborhood to the west of the study area and a road from Parcel B to Parcel 384.
1963	Howard County GIS/EDR	The study area appears similar to the 1957 aerial photograph except for the northern portion of the study area (Parcel 102, Parcel 235, and Parcel 349) is overgrown with less cleared land. The southern portion of the site is once again cleared and mounded areas with a distinct road from Washington Boulevard is clearly visible. Parcel B no longer has disturbed land in the northeast corner; the structure in the northeast corner is clearly depicted.	The adjacent properties appear similar to the 1957 aerial photograph except a disturbed area east of Parcel B. Several houses are depicted in the residential neighborhood to the west.

[2] The 1943 aerial provided by EDR was clearer than the 1943 aerial on the Howard County GIS website. Therefore, only the 1943 EDR aerial observations were included in Table 3-3.
[3] Parcel B historically Parcel 91, Parcel 114, and Parcel 90 based on the Columbia Junction Section 3 Subdivision Plat for Parcels 'A' and 'B' dated July 23, 2001.

Table 3-3 Aerial Photograph Summary

Date	Source	Study Area	Adjacent Properties
1966	EDR	The study area appears similar to the 1963 aerial photograph except for the overgrowth of the cleared areas in the northern portion of the study area along Mission Road.	The adjacent properties appear similar to the 1963 aerial photograph.
1970	Howard County GIS/EDR	The study area appears similar to the 1966 aerial photograph. Parcel B is more clearly depicted on the EDR aerial photograph, and the northwest corner is disturbed. A structure is present on Parcel 349. Several areas are disturbed east of the structure on Parcels 349 and the northeast corner of Parcel 235. A disturbed path is depicted surrounding the cleared area in the southern portion of Parcel 235.	The adjacent properties appear similar to the 1966 aerial photograph except the disturbed area immediately adjacent to the eastern boundary of the study area (Parcel 235), consistent with the current location of the railroad tracks. Further to the north and west disturbed roads are apparent, consistent with the current locations of I-95 and MD 32 interchange. A large area between Parcel 384 and Parcel B is cleared. To the south of Parcel B, multiple structures appear to be present within the disturbed area adjacent to Washington Boulevard.
1977	Howard County GIS	The study area appears similar to the 1970 aerial photograph except the addition of a cleared path transecting Parcel 235 from west to northeast, consistent with the current location of the sewer easement. The northern and southern cleared portions of study area (Parcel 102, Parcel 235, and Parcel 349) are more overgrown with trees.	The adjacent properties appear similar to the 1970 aerial photographs. To the south of Parcel B, the land is less disturbed and multiple structures are now present.
1980	Howard County GIS	The study area appears similar to the 1977 aerial photograph. The majority of the site appears as wooded land, similar to current conditions. The Laurel Lumber pit encroaches onto Parcel 384.	The adjacent properties appear similar to the 1977 aerial photographs except the land immediately west of Parcel 384, consistent with the current location of the Laurel Lumber reclaimed surface mine on Parcel 384. More structures are present to the west in the residential neighborhood.
1981	EDR	The study area appears similar to the 1980 aerial photograph. The onsite structures on Parcel 349 are clearly present, consistent with their current locations. The structure present in the northeast corner of Parcel B is no longer depicted.	The adjacent properties appear similar to the 1980 aerial photograph except the apparent completion of I-95 to the north. The access road and the water tower are now present adjacent to Parcel B and Parcel 384.
1982	Howard County GIS	The study area appears similar to the 1981 aerial photograph.	The adjacent properties appear similar to the 1981 aerial photograph. I-95 and MD 32 interchange appear to be completed.

Table 3-3 Aerial Photograph Summary

Date	Source	Study Area	Adjacent Properties
1988	Howard County GIS/EDR	The study area appears similar to the 1982 aerial photograph.	The adjacent properties appear similar to the 1982 aerial photograph except the appearance of the water tower to the south/southeast of Parcel 384. The residential housing development is now present to the north of Mission Road. Land to the west of Parcel B, along Washington Boulevard, is disturbed with apparent construction.
1993	Howard County GIS/EDR	The study area appears similar to the 1988 aerial photographs.	The adjacent properties appear similar to the 1988 aerial photographs except the lands west of Parcel 384 and Parcel B are no longer disturbed. The surface mine to the west of Parcel 384 is clearly depicted.
1998	Howard County GIS/EDR	The study area appears similar to the 1993 aerial photograph.	The adjacent properties appear similar to the 1993 aerial photograph.
2000	EDR	The study area appears similar to the 1998 aerial photographs.	The adjacent properties appear similar to the 1998 aerial photographs.
2002	Howard County GIS/EDR	The study area appears similar to the 2000 aerial photograph.	The adjacent properties appear similar to the 2000 aerial photographs.
2004	Howard County GIS	The study area appears similar to the 2002 aerial photographs.	The adjacent properties appear similar to the 2002 aerial photographs except the completion of MD 32 south of the I-95 and MD 32 interchange.
2005	EDR	The study area appears similar to the 2004 aerial photograph. Parcel B appears to be fully wooded in this aerial photograph, similar to current site conditions.	The adjacent properties appear similar to the 2004 aerial photograph except the addition of the surface mine to the east of the study area (Parcel 235) and the railroad tracks.
2006	EDR	The study area appears similar to the 2005 aerial photograph.	The adjacent properties appear similar to the 2005 aerial photograph. Mining equipment is now present in the surface mine east of the study area (Parcel 235).

Table 3-3 Aerial Photograph Summary

Date	Source	Study Area	Adjacent Properties
2007	Howard County GIS/EDR	The study area appears similar to the 2006 aerial photograph. The sediment trap/pond is more clearly visible in the southeast portion of Parcel 235 on the EDR aerial photograph.	The adjacent properties appear similar to the 2006 aerial photograph except the land immediately west of the southern and southwest corner of Parcel 235 is disturbed, consistent with the location of the adjacent residential street (Hub Garth) and the mining access road and the southern retention pond. The construction on Hub Garth is more clearly depicted on the EDR aerial photograph. The rectangular clearing is the Jones Road Development on Hub Garth. The land immediately west of Parcel 384 is also disturbed, consistent with the location of the Laurel Lumber surface mine reclamation. On the EDR aerial photograph, stockpiles are clearly depicted on the Laurel Lumber surface mine site, most likely associated with reclamation activities.
2009	EDR	The study area appears similar to the 2007 aerial photographs except the completion of the sediment trap/pond in the southeast portion of Parcel 235. Site conditions on Parcel 235 appear similar to current site conditions.	The adjacent properties appear similar to the 2007 aerial photographs. More mining equipment, stockpiles and ponds are present in the strip mine east of the study area (Parcel 235). The Laurel Lumber strip mine reclamation west of Parcel 384 appears almost complete.
2011	EDR	The study area appears similar to the 2009 aerial photograph.	The adjacent properties appear similar to the 2009 aerial photograph except appearance of some residential houses on the Jones Road Development. The Laurel Lumber surface mine reclamation site appears to be grass-covered with minimal disturbed trails.
2013	Howard County GIS	The study area appears similar to the 2011 aerial photograph.	The adjacent properties appear similar to the 2011 aerial photograph except the appearance of more residential houses on Hub Garth.
2014	Howard County GIS	The study area appears similar to the 2013 aerial photograph.	The adjacent properties appear similar to the 2013 aerial photograph.
2016	Howard County GIS	The study area appears similar to the 2014 aerial photograph.	The adjacent properties appear similar to the 2014 aerial photograph.

3.3.3 Fire Insurance Maps

The complete holdings of the Sanborn Library, LLC collection were searched by EDR based on target property information. No Sanborn fire insurance maps covering the target property were found.

3.3.4 Local Street Directories

Stewart's Criss-Cross city directories dated 1975, 1980, and 1985 and the Cole Information Services city directories dated 1992, 1995, 1999, 2003, 2008, and 2013 were reviewed through a search conducted by EDR. The full report is presented in Appendix D. Additional city directories from 1968, 1969, 1970, 1971, 1972, 1973, 1974, 1975, 1977, 1978, 1979, 1980, 1981, 1982, 1983, and 1984 were researched at the Enoch Pratt Library in Baltimore, Maryland. A summary of key findings is presented below.

3.3.4.1 Study Area

Listings obtained from 1975 through 2003 list Charles Tansill as the occupant of 8717 Mission Road (Parcel 349). The city directories for 2008 and 2013 report "Occupant Unknown"; however, Mr. Charles Tansill still resides on the property. Additional city directories searched indicated that Mr. Tansill was listed, albeit without a street number, on Mission Road as early as 1968. The city directories contained no information regarding the other addresses associated with study area parcels along Mission Road or Washington Boulevard. The closest address along Washington Boulevard was present in 1974 as 8550 Washington Boulevard and 8554 Washington Boulevard.

3.3.4.2 Adjoining Properties

The northern adjoining properties along Mission Road identified within the city directory report and the additional city directories searched included residential listings from 1968 through 2013. The additional city directories searched did not provide listings for adjoining properties, with the exception of 8414 Washington Boulevard. The following adjacent properties were identified within the city directories and are summarized in Table 3-4.

Table 3-4 Adjacent Property City Directory Listings

Adjoining Property Address	Direction	Year	Listings
8402 Washington Boulevard	East/Southeast	1985	Eastern Stair Builders of MD Inc.
		1992	Unlisted
		1995	Eastern Stair Builders Inc.
		1999	Eastern Stair Builders, Inc.
		2003	Eastern Stair Builders, Inc.
			Occupant Unknown
		2008	Eastern Stair Builders, Inc.
8406 Washington Boulevard	Southeast	1980	Laupert Oscar
			Laupert's Inn
		1985	Robinson's Country Inn
		1992	Sites, Raymond L.
		1995	Robinson's Country Inn
			Sites, Raymond L.
		1999	Robinsons Country Inn

Table 3-4 Adjacent Property City Directory Listings

Adjoining Property Address	Direction	Year	Listings
		2003	Raymond Sites
			RCI
		2008	RCI
8414 Washington Boulevard	Southeast	1972-1985	Baker's Garage Towing
		1995	Baker, Robert
			Hollerbach Equipment Co
		1999	Concrete Slab Jacking Incorporated
			Hollerbach Equipment Company Incorporated
			Jack Baker
		2003	Concrete Slab Jacking Inc
			Jack Baker
		2008	Hollerbach Equipment Co Inc
8418 Washington Boulevard	Southeast	1985	Walsh, Leonard F
8422 Washington Boulevard	Southeast	2008	Laurel Sand & Gravel
8600 Washington Boulevard	Southwest	2008	Wachovia Bank National Assn
8610 Washington Boulevard	Southwest	1995	Lerer, David/Star Liquors
		1999	C Plus/China Dragon/Eric Hilpler/Excel Cleaners/Hair Center Plus/The Hanger Custom Framing & Gallery/ Hipler, Eric/ Information Sys/KC Resources Creative Solutions Incorporated/Star Liquors/Subway Sandwiches and Salads/TGI Fridays/TGS Video
8610 Washington Boulevard	Southwest	2003	Albert Bedlyon/Asarco International Food Store Inc/Beautifloral/China Dragon/Communication Link Inc/Erin Grumbach/Excel Cleaners/Hair Ctr Plus/Hytech Exchange/Ildiko Barath/Infosys Networks Inc/Nails by Cindy/Posteles/Rainbow Spa/Robert Corley/Robert Jager/Sapphire Nails Inc/Sapphire Tan Inc/Siddique Sheikh M/Singh Bim/Star Liquors/Walter Cook/Youngs Barber Shop II
		2008	Advantage Environmental Consultants/Aegis/Albert Bedlyon/Basma Communications F Jssp/Beauti Floral/China Dragon/Curves/Driver Source Inc/Glass Key Inc/Ildiko Barath/Infosys Networks/Robert Jager/Savoy Brown Food Service Consultants/Singh Bim/Star Liquors Inc/Steven Rochelle/Subway/Thats Dancing

3.3.5 Property Tax Files

Limited information pertaining to the study area was obtained online from the MDAT RPD. The information available through MDAT RPD pertains to current owner, current deed, parcel size, and in some cases a limited history of ownership. Pertinent information obtained from MDAT

RPD is presented in Section 1.1. A copy of each of the five MDAT Real Property Data sheets are presented in Appendix D of this report.

Additionally, 2016 County Real Property Tax Bills from the Howard County Department of Finance, Property Tax Division were reviewed for four of the parcels on the Howard County "Real Property Tax Look Up" website for the study area. Tax bills are reviewed as a potential indicator of property abandonment or absentee ownership. No such indicators were observed during review. The 2016 Tax Bill for Parcel 102 could not be located on the website. No environmentally relevant information was gathered from the documents. Copies of the four County Real Property Tax Bills are presented in Appendix D of this report.

3.3.6 Recorded Land Title Records

A chain-of-title report for the study area was provided by the User. Information obtained from the chain-of-title report and from Maryland Land Records website, which provides access to current and archived land records, is summarized below:

Four of the five study area parcels are currently owned by Chase Lands, LLC; the remaining study area parcel (Parcel 384) is owned by Konterra. According to information from Howard County, the study area will transferred to Howard County to be developed with a high school and park.

Table 3-5 Parcel 349 Chain-of-Title Summary

Date	Liber	Folio	Grantor	Grantee
9/8/2006	10242	162	Charles R. Tansill and Mary C. Tansill	Chase Lands, LLC
1976	766	56	Charles R. Tansill and Mary C. Tansill	Charles R. Tansill and Mary C. Tansill
5/21/1965	435	417	Lawrence J. Crone and Mary E. Crone	Charles R. Tansill and Mary C. Tansill
11/23/1934	150	271	The Nordau Loan, Building and Savings Corporation of Baltimore City	Lawrence J. Crone

Table 3-6 Parcel 102 Chain-of-Title Summary

Date	Liber	Folio	Grantor	Grantee
11/29/2004	8821	536	Kingdon Gould Jr	Chase Limited Partnership
8/21/1984	1278	690	M. Elizabeth Crone	Kingdon Gould Jr.
11/9/1940	168	350	Philip T. Sybert	Lawrence J. Crone and M. Elizabeth Crone

Table 3-7 Parcel 235 Chain-of-Title Summary

Date	Liber	Folio	Grantor	Grantee
11/3/1996	5867	368	Kingdon Gould	Chase Limited Partnership
7/8/1981	1061	406	Thomas J. Hartigan	Kingdon Gould Jr.
1973	625	738	James H. Berkey and Marian B. Berkey	Trustees of Chase Manhattan Mortgage and Realty Trust
10/27/1965	444	512	C. Harvey Sealing and Irene I. Sealing and Maryland Grain and Storage, Inc.	James H. Berkey and Marian B. Berkey
9/15/1959	339	384	Charlotte Elizabeth Crone and Bernard A. Crone	C. Harvey Sealing and Irene I. Sealing

Table 3-8 Parcel 384 Chain-of-Title Summary

Date	Liber	Folio	Grantor	Grantee
1/3/1996	5867	368	Kingdon Gould	Chase Limited Partnership
6/8/1981	1061	406	Thomas J. Hartigan	Kingdon Gould Jr.
1973	625	738	James H. Berkey and Marian B. Berkey	Trustees of Chase Manhattan Mortgage and Realty Trust
10-27-1965	444	512	C. Harvey Sealing and Irene I. Sealing and Maryland Grain and Storage, Inc.	James H. Berkey and Marian B. Berkey
9/15/1959	339	384	Charlotte Elizabeth Crone	C. Harvey Sealing and

			and Bernard A. Crone	Irene I. Sealing

Table 3-9 Parcel B Chain-of-Title Summary

Date	Liber	Folio	Grantor	Grantee
12/2/2002	6697	319	Caleb C. Gould and James R. Moxley III	KONTERRA
10/1/1999	4910	323	Ronald P. Rish and Gregory L. Reed	Caleb C. Gould and James R. Moxley III
6/30/1986	1495	101	Lionel Epstein	Ronald P. Fish and Gregory L. Reed
12/10/1980	1040	613/618/622 [4]	Alvin Friedman	Lionel Epstein
1/7/1974	666	288	Jack Barton and Constance Barton	Alvin Friedman
1/7/1974	666	277	John Beall and Ada Barton	Alvin Friedman
1/7/1974	666	266	John M. Barton and Ada M. Barton	Alvin Friedman
2/17/1963	396	681	Florence I. Beall	John E. Beall and Ada M. Barton
10/17/1957	306	105	Florence I. Beall	John M. Barton and Ada M. Barton
10/7/1954	261	251	Florence I. Beall	Jack B. Barton and Constance V. Barton
11/23/1927	HBN 132	296	Stephen W. Gambrill and Edna A. Gambrill	Ernest W. Beall and Florence I. Beall

A deed was obtained from Maryland Land Records website for the sewer easement transecting Parcel 235, which states "to construct and maintain sanitary sewers and/or industrial waste sewers and related appurtenances." However, no environmental liens or AULs are noted in the chain-of-title report. The chain-of-title report did not reveal a history of industrial use, with the exception of Konterra, Chase Land LLC, and Laurel Sand and Gravel. A copy of the chain-of-title report is included in Appendix D.

3.3.7 Health Department Records

[4] Historically Parcel B comprised of three separate parcels (Parcel 90, Parcel 91 and Parcel 114).

EA submitted a PIA request to the Howard County Health Department, Bureau of Environmental Health, for information regarding environmentally-related files pertaining to the study area. The request was made specifically for information regarding wells and septic systems at the site. EA submitted the PIA requests on 24 August 2016. To date, no response has been received from the Bureau of Environmental Health or the Well and Septic Program. Documentation of the PIA request, relevant correspondence, and response is located in Appendix F.

3.3.8 Prior Environmental Reports

None.

3.3.9 Other Records

None.

4. SITE RECONNAISSANCE

4.1 METHODOLOGY AND LIMITING CONDITIONS

Due to the large size of the property, EA conducted two reconnaissances: one on 7 September 2016 and one on 16 September 2016. Onsite activities were conducted by Ms. Victoria Pitman and Ms. Elizabeth Eyer of EA. Observations of the study area were made on foot and from vantage points along adjacent railroad tracks. Observations of adjacent properties were made from the study area and public thoroughfares, where accessible. Ms. Niti Blackwell, of the Howard County DPW Bureau of Environmental Services, accompanied EA personnel during the morning hours of each site reconnaissance. Based on the nature of the site, a systematic approach using a GPS tracking smartphone application was used to document areas covered during the site reconnaissances.

Weather conditions on 7 September 2016, at the time of the assessment were sunny. The temperatures ranged from the upper-80s to mid-90s (degrees Fahrenheit) with high humidity during the site visit. On 16 September 2016, weather conditions were sunny with highs in the upper-70s (degrees Fahrenheit) with mild humidity. A map showing key site features was generated from the site reconnaissances and is provided as Figure 3 (Appendix A).

The majority of the study area consists of wooded land. As such, the ground surface throughout the property was covered with leaf litter and other natural debris materials (twigs, branches, stones, etc.). In some locations of the site, downed trees, thick brush, heavy vines and briars limited EA's site observations and access by foot. Of note, particularly dense vines and briars were observed in the northeast corner of Parcel 235, in the area that reportedly contained a former dwelling between the Tansill Residence (Parcel 349) and the railroad tracks to the east. Parcel B presented similar hazards from dense vines and the area east of the sediment trap/pond on Parcel 235 presented similar hazards from thick and thorny briars. Areas with thick briars and vines were initially attempted to be traversed, but presented greater tripping hazards than one would typically encounter in wooded land, therefore these areas were avoided. In these areas, observations were made from accessible perimeters.

4.2 SITE AND VICINITY GENERAL CHARACTERISTICS

The study area is located within a mixed used area of Jessup in Howard County, Maryland. As shown on Figure 2 (Appendix A), Parcel 102, Parcel 349, and Parcel 235 are bound to the north by Mission Road. Parcel 235 is bound to the east by railroad tracks, to the south by a mining access road, and to the west by residences and wooded land. Additionally, Parcel 384, the 0.87 acre irregularly shaped parcel, is adjacent to the existing Howard County water tower to its south, and bounded to the east by wooded land, to the north and west by a mining access road. This area is slated to be added by Howard County to the existing water tower parcel. Parcel B is irregularly shaped and is the southernmost parcel in the study area; bounded to the south by Washington Boulevard (MD Route 1). The majority of the adjacent property surrounding Parcel B is wooded land. The parcel containing the water tower and access road is owned by Howard County. The total property land area is approximately 79.06 acres.

4.3 CURRENT USE OF THE PROPERTY

- Parcel 349 – Wooded land, residence and associated outbuildings of Charles Tansill.
- Parcel 102 – Undeveloped wooded land.
- Parcel 235 – Wooded land bisected by a Howard County domestic and industrial wastewater easement.
- Parcel 384 – Undeveloped wooded land.
- Parcel B – Wooded land and vacant parcel with remnants of former improvements.

4.4 DESCRIPTION OF ONSITE STRUCTURES, ROADS, AND IMPROVEMENTS

A photograph log is included in Appendix B; a site features map (Figure 3) is provided in Appendix A.

- Parcel 349 – Currently improved with a residence and four outbuildings (wellhouse, playhouse, pink shed and shop). The residence is served by a private well (HO-98-0150) and septic system.
- Parcel 102 – Unimproved wooded land.
- Parcel 235 – Wooded land bisected by a Howard County domestic and industrial wastewater easement; sediment trap/pond installed in 2007 as part of the Laurel Lumber mine reclamation project.
- Parcel 384 – Unimproved wooded land; westernmost portion is part of Laurel Lumber mine reclamation land.
- Parcel B – Unimproved wooded land with remnants of former structure.

4.5 ONSITE OBSERVATIONS

Parcel 102

Parcel 102 is undeveloped wooded land without improvements. Intermittent occurrences of roadside trash were observed along the northern boundary along Mission Road. Several non-distinct pathways were encountered that had fewer trees and brush that were coincident with the unpaved pathways observed on aerial photographs. Along the western side of the central pathway, several low-relief soil mounds were observed, but no waste was observed around or

atop the soil piles. The piles are suspected to be present as a result of historical tree/blush clearing and leveling of the central pathway. No significant anthropogenic impacts or remnants of former structures were observed on Parcel 102.

Parcel 349

Five structures were noted on Parcel 349 during the site reconnaissance: a one-story brick house with an attached garage, a small brick well house, a small vinyl-sided play house, a one-story wooden shed (painted pink), and a one-story wood frame structure, referred to by Mr. Tansill as the 'shop'. The structures are accessible from Mission Road via a stone driveway. Mr. Tansill conveyed to EA that the home was built approximately 49 years ago. Mr. Tansill's recollection was corroborated through aerial photographs where the home first appears in 1970. The residential structure was not entered during the site reconnaissance to maintain resident privacy. At the rear of the residence, a small concrete circular feature was observed. This feature marks the location of the concrete septic tank. The drain field is located southeast of the house in a grassy area. An empty white plastic 55-gallon drum was observed in the vicinity of the drain field.

The shop structure located west of the residence and of the driveway is served by electricity, does not have indoor plumbing and is heated by a woodstove. Mr. Tansill reported this structure is approximately twelve years old. The shop was filled with various home, lawn, and automotive maintenance items including a box of unopened petroleum products and various related hazardous substances and petroleum products used for automobile maintenance and repair, each container less than five gallon in size. Most space within the shop was obscured from view by the stored materials. North of the shop a pink painted wooden shed was observed that contained primarily dry goods. The shed could not be entered or observed from the interior due to the stored materials within the space. An additional inaccessible shed (collapsed roof) was located north of the pink shed and was observed from its perimeter to contain several discarded petroleum product containers less than five gallons in size (exact contents unknown). Southeast of the shop is a small brick well house. The well house was constructed of brick and contained the private onsite well and associated equipment. Mr. Tansill conveyed that the well is approximately 86 to 90 feet deep, which was corroborated by the Maryland Wells Database records that indicated the well (HO-68-0150) was installed in 1968 and is 85 feet deep. A pole-mounted transformer was observed adjacent to the well house (pole # BGE 461941). The transformer was labeled with a blue non- Polychlorinated biphenyl (PCB) placard indicating the transformer oil contains less than 50 parts per million (ppm) PCBs therefore no inquiry was placed to Baltimore Gas and Electric Company (BGE) to determine PCB concentration of the transformer oil. One plastic 55-gallon drum was observed south of the shop structure that was partially filled with used oil. Approximately ten partially-filled plastic gasoline containers, less than five gallons in size, were observed east of the pink shed and throughout the developed area of this parcel. Additionally, approximately eleven empty petroleum product containers (less than 5 gallons in size) were observed scattered on the ground surrounding the shop and pink shed. One lead-acid battery was observed on the ground surface along the exterior wall of the shop beneath a plastic tarp. Southeast of the well house, a small white shed/child's playhouse was observed.

The portions of Parcel 349 between the home and the sewer easement upon Parcel 235 contains mapped wetland areas, further described in Section 7.1.1.

Parcel 235

The majority of Parcel 235 is wooded land. Along Mission Road, isolated instances of roadside trash and debris were observed as well as piles of grass cuttings. Parcel 235 is bisected by a Howard County sewer easement that extends from west to a northeast direction before reaching Mission Road on the parcel's eastern side. Approximately 50 tires were observed along the northern portion of the sewer easement before it intersects with Mission Road. Conversations between EA and Mr. Tansill and his daughter (Ms. Davison) during the mid-2016 EA proposal site visit revealed that an ancestor of Mr. Tansill's family operated a family farm on the site historically. The former farmhouse discussed by the Tansills was described to be located between the current Tansill improvements and the railroad tracks, and more specifically, between the Tansill improvements and the sewer easement. The historical farmhouse was reported by Ms. Davison to be served by a spring, but she was unsure about septic waste disposal at the farmhouse. EA noted a cleared area on aerial photographs in the vicinity of the area described by the Tansills and during the site reconnaissance this area was observed to be largely clear of trees, but heavily obscured by vines and underbrush. Observations were instead made from the perimeter of this area versus within. Along the southern perimeter of this area, metal debris, including corrugated metal and remnants of a collapsed shed were observed upon the ground surface. Farther south of this area towards the sewer easement a possible spring was observed. The spring then continued east into a small ravine before traveling beneath the railroad tracks. Along the edges of the ravine, various metal debris from an old tractor, an old motorcycle/bicycle were observed. Large diameter (approximately 3 ft) concrete piping was also observed in this vicinity, which was similar in appearance to the concrete piping that channels water beneath the railroad tracks. North of the ravine, remnants of a former small structure, potentially the cow shed or other small farm related outbuildings mentioned by the Tansills, was observed as well as a few large boulders. North of the sewer easement, in the vicinity of the mapped wetlands, an approximate 12-inch diameter suspected asbestos concrete 10-foot +/- transite pipe segment was observed. An additional pipe segment was observed northeast of the collapsed shed on Parcel 235.

Additionally, a sprawling area of waste north of the mining road at the southern boundary of Parcel 235 was observed. This area extended west from the sediment trap/pond and continued west until reaching the toe of the slope at the southwestern corner of Parcel 235. It is unknown if these materials were deposited upon the surface or consolidated during installation of the sediment trap/pond and mining access road. Approximately 30 to 40 tires were noted in this area.

West of the railroad tracks and north / northwest of the sediment trap/pond, an extensive area of intermittent mounded soil piles without surficial evidence of debris/waste were observed. Piles ranged from low relief (one to two feet above ground surface) to moderate relief (3 to 4 feet

above ground surface). Many piles were observed to have mature trees growing upon them, indicating that the ground disturbance or deposition was unlikely recent. The origin of these piles is unclear based on observations made during the site reconnaissance. However, paths observed on aerial photographs from 1943 to 1970 lead into this area, suggesting that surficial deposition of soil and/or wastes occurred over time. This area is also coincident with stands of trees that were present in the 1938 aerial photographs, but by 1943 are absent, suggesting the possibility of selective timber harvesting onsite. However, EA was unable to corroborate these historical possible origins of the observed mounds through other sources reviewed and consulted during the investigation. Of note, the mound at the toe of the slope in the southwestern corner of Parcel 235 contained an empty 10-gallon drum, a metal trash can, several gallon-sized paint cans, metal debris, and a few tires. A small pile of automotive waste and tires was also observed farther to the west of this mound near the western property boundary. Additionally, farther north of this pile and along the western boundary, was a small area of nuisance waste and debris including a discarded refrigerator. Similar isolated small piles of nuisance wastes were observed throughout the study area.

Along the entirety of the sewer easement, evidence of improper waste deposition was observed. Waste observed is primarily categorized as residentially-originated (i.e. household wastes) versus waste originating from industrial or commercial businesses. These residential wastes were observed to include discarded automotive tires, a vehicle hood, empty small quantity petroleum containers, children's toys and stuffed animals, clothing, shoes, broken small appliances, and other household goods and metallic debris. An exception to these observed wastes was the large pile observed north of the sewer easement that contained unspecified metal debris, several large filament light bulbs, a portion of a former wood light or electrical pole and numerous discarded "telephone/telegraph tiles[5]". The origin of this material is unknown and is speculated to have either be a remnant of a former structure or discarded by a commercial/industrial entity.

Parcel 384 (0.87 acre portion thereof)

An excavation and associated soil pile was observed in the northwest corner of the study area portion of Parcel 384. A piece of metal debris was observed along the fence line surrounding the water tower maintained by Howard County.

Parcel B

Parcel B was partly obscured by heavy vegetation and vines during the site reconnaissances. Parcel B historically was composed of portions of Parcel 90, 91 and Parcel 114 as shown on the Columbia Junction Section 3 Subdivision Plat for Parcels 'A' and 'B' plat dated 23 July 2001 located within Appendix D. Aerial photographs from 1957 through 1980 depict former structures upon historical parcel 114 and historical Parcel 90. The historical structure

[5] Telephone/telegraph tiles are made of vitrified terracotta that were manufactured for containing and protecting underground communication cables. Although not manufactured for structural use in buildings, these materials have been known to be used as siding, and as barn siding. (http://historicbldgs.com/telephone_tile.htm)

located on former Parcel 90 is not part of Parcel B, but the historical structure located upon former Parcel 114 is included in Parcel B. Remnants of prior improvements were noted at the northern portion of Parcel B such as partially buried cinderblocks, metal piping, and terracotta piping.

It should also be noted that historically, pathways were visible on aerial photographs that provided access from Washington Boulevard and historical parcels associated with Parcel B to the interior of Parcel 235.

4.6 CURRENT USE OF ADJOINING PROPERTIES

The following information documents the exterior observations of the adjacent properties made from the study area and public thoroughfares:

- North/Northwest — bounded by Mission Road followed by residential subdivision (Heritage Woods)
- Northeast/East – CSX Transportation railroad tracks followed by Savage Stone quarry (8420 Washington Blvd)
- West – residential homes, former Laurel Lumber mining site and wooded land
- South – bounded by Washington Boulevard followed by commercial and industrial properties

5. INTERVIEWS

5.1 OWNER

EA contacted Mr. Caleb Gould, owner of the property. A record of communication (ROC) with, and an Owner Questionnaire from Mr. Gould, is included in Appendix D. Mr. Gould indicated that he is generally familiar with the property since the early 1980s when his company purchased the study area. Mr. Gould indicated that the sewer easement was installed prior to his ownership of the study area. Mr. Gould gave some insight into the relationship between the offsite Laurel Lumber site and the study area, explaining that Laurel Lumber was owned by Contee Sand and Gravel Company; the adjacent site was no longer an active mine and was acquired as part of the purchase of several other Contee properties located elsewhere.

As part of the reclamation of the Laurel Lumber site, overburden from adjacent Savage Stone quarry was used. Mr. Gould described the areas now developed (along Pine Road, Mary Land, etc.) as "junky", meaning it was not uncommon for junk autos and other discarded materials to find their way onto undeveloped properties. Mr. Gould noted this as a continuing nuisance and discarded materials may have been pushed aside during construction of the sediment trap/pond. He recalled that prior to reclamation of the Laurel Lumber site his company spent effort hauling such materials to the landfill, such as burned out cars and automobiles. Mr. Gould added that the area was not a junkyard, but rather attracted nuisance dumping.

Mr. Gould clarified to EA that Mr. Tansill has a life-lease/life-estate upon Parcel 349 with Chase Lands LLC.

5.2 KEY SITE MANAGER

See Section 5.1

5.3 OPERATOR / OCCUPANT

EA spoke with Mr. Tansill, current life-tenant, and his daughter, Ms. Francis Davison during the proposal visit in July 2016. Key information conveyed at that time is referenced throughout this report.

5.4 STATE AND/OR LOCAL GOVERNMENT OFFICIAL

EA contacted the Savage Volunteer Fire Department at 8521 Corridor Road to determine if personnel in the office had particular knowledge of the study area. Fire Department personnel stated that they did not recall any significant responses at the study area. Documentation of the correspondence is included in Appendix D.

5.5 ADDITIONAL INTERVIEWS

Jeff Hobbs – Chief Surveyor with Howard County Bureau of Engineering
EA contacted Mr. Jeff Hobbs Chief Surveyor with Howard County Bureau of Engineering, who was the assigned surveyor for this project and responsible for staking the property boundaries of the study area.

EA inquired about the length of time that he is familiar with the property/general area. Mr. Hobbs responded that his familiarity with the site extends only into the past year while working for Howard County. Mr. Hobbs has reviewed the Howard County aerials for the site and conveyed that the portion of the site along Washington Boulevard may have been developed as a motel at one point in time.

EA asked about the soil mounds observed on the property. Mr. Hobbs relayed concerns regarding mounds of soil at the site as evidence of possible dumping, referencing aerials of the site.

EA inquired if Mr. Hobbs knew of other personnel in the area who could be interviewed about the history of the site as part of this environmental assessment. Mr. Hobbs states that he was unaware of anyone locally that would have historical knowledge.

Ed Larrimore – MDE Mining Program Manager

EA contacted Mr. Ed Larrimore, to inquire about the history of the site and mining in the area. Mr. Larrimore indicated that he was generally familiar with the area since the late 1970s; when Laurel Lumber was an active permit holder [Laurel Lumber is a former operator of the offsite adjacent property to the west]. He recalled having visited the Laurel Lumber site periodically beginning in the late 1970s. Mr. Larrimore explained that Laurel Lumber, a company that mined sand and gravel, was active in the 1970s when the Maryland surface mine law went into effect. After operations ended, Laurel Lumber left conditions warranting reclamation. Mr. Larrimore indicated that the Laurel Lumber site was backfilled with overburden soil material from Savage Stone property using excess overburden. No rubble fill/tires was permitted; only overburden.

A copy of the ROCs are included in Appendix D.

6. EVALUATION

6.1 FINDINGS

The findings presented below identify known or suspected recognized environmental conditions (RECs), known or suspected historical RECs, known or suspected controlled RECs, and *de minimis* conditions.

6.1.1 *De Minimis* Conditions

- Parcel 235: Evidence of improper residentially-originated waste (i.e. household waste) deposition most notably along the sewer easement.
- Mounded soil observed without evidence of intermingled waste materials.

6.1.2 Controlled Recognized Environmental Conditions (CREC)

No controlled RECs are identified.

6.1.3 Historical Recognized Environmental Conditions (HREC)

No historical RECs are identified.

6.1.4 Recognized Environmental Conditions

- 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.

6.2 OPINION

Based on the results of this Phase I ESA, the RECs, known or suspected historical RECs, known or suspected controlled RECs, and *de minimis* conditions noted above in Section 6.1 are classified as such based on the following information:

- Various small piles of discarded household wastes throughout the study area, most noticeably along the sewer easement within Parcel 235 (i.e. small quantities of automotive waste/metal, children's toys and stuffed animals, isolated automobile tires, clothing, unspecified metal debris). The presence of these materials is not indicative of a release of petroleum products or hazardous substances and therefore is considered a *de minimis* condition.

- Mounded soil observed within the interior of the study area without signs of improper waste disposal. No surficial evidence was observed to indicate that materials are indicative of a release of hazardous substances or petroleum products, therefore the presence of mounded soil piles that consist of native soils are considered a *de minimis* condition.

- Wastes observed within the large pile observed northwest of the sewer easement and additionally strewn in a northerly and easterly direction along this easement and into the wetland ravine contained unspecified metal debris, 30-40 automotive tires, several large light bulbs, a portion of a former wood light or electrical pole and numerous large discarded "telephone/telegraph tiles". The origin of these materials is unknown and appears to either be a remnant of a former structure whose demolition debris was allowed to remain onsite or are materials discarded by an off-site entity at some point in history. Based on the size of the pile and materials observed, the waste in these areas has a greater potential to contain hazardous substances or petroleum products and therefore is considered a REC.

- Wastes observed strewn along the northern side of the mining access road amongst mounds of soil on Parcel 235 contained unspecified metal debris, a 10-gallon drum, rusty 1-gallon paint cans, 40-50 automotive tires and other unspecified wastes. The origin and current disposition of these materials is unknown and appears to either be a remnant of sediment trap/pond construction, or deposited over time as results of illegal dumping by area residents or businesses via pathways observed on aerial photographs. Based on the extent of the waste area, the greater percentage of automotive wastes in these areas versus other areas, the waste in these areas has a greater potential to contain hazardous substances or petroleum products and therefore is considered a REC.

- Parcel 349: A partially filled plastic 55-gallon drum of used oil, approximately 10 less than five gallon portable gasoline cans, and a lead-acid battery were observed near the Tansill sheds and outbuildings on the ground surface. No evidence of release or leakage was observed during the site reconnaissance, however, no secondary containment was observed and the drum present the potential for a material threat of release based on observed conditions and therefore is a REC.

6.3 CONCLUSIONS

EA has performed this Phase I ESA of the study area in conformance with the scope and limitations of ASTM E1527-13. Any exceptions to, or deletions from, this practice are described in Sections 1.3 and 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.

6.4 DATA GAPS

A data gap is defined by ASTM E1527-13 as a lack of or inability to obtain information required by this practice despite good faith efforts by the Environmental Professional to gather such information. Data gaps may result from the incompleteness in any of the activities required by this practice including, but not limited to, the site reconnaissance, interviews, and historical research. Failure to achieve the historical research objectives identified in the standard is termed a data failure and is a type of data gap. Data gaps are identified in Table 6-1.

Table 6-1 Data Gaps

Data Gap	Reason for Occurrence	Significance and Rationale
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.
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.
Laurel Lumber MDE files were incomplete.	MDE files pertaining to Laurel Lumber operations are no longer available due to file purging procedures, with the exception of 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.
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.

SIGNATURE(S) OF THE ENVIRONMENTAL PROFESSIONAL(S)

I declare that, to the best of my professional knowledge and belief, I meet the definition of an Environmental Professional as defined in Section 312.10 of 40 Code of Federal Regulations (CFR) 312. I have the specific qualifications based on education, training, and expertise to assess a property of the nature, history, and setting of the subject property. I have developed and performed the All Appropriate Inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

Victoria M. Pitman, P.G. 30 November 2016
Project Manager/Environmental Professional

James Hulbert 30 November 2016
Senior Technical Reviewer/Environmental Professional

7. NON-SCOPE CONSIDERATIONS

7.1 ADDITIONAL SERVICES

7.1.1 Wetlands and Floodplain

A review of information from the United States Department of the Interior (USDI) National Wetland Inventory (NWI) Digital Database Map of Maryland indicates no wetland areas are located within the study area. A copy of the NWI map is presented in Appendix D. However, the owner of the study area commissioned CNA to perform a wetlands survey in 2016, which depicts non-tidal wetlands within the study area; this information coincides with survey flags observed during the site reconnaissance.

The study area is located on the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Panels 0165D and 0170D. The study area is not depicted within the 500-year floodplain. FEMA has updated the FIRM maps for Howard County into digital format. Review of the digital FIRM on the Howard County website (http://data.howardcountymd.gov/gdfirm/) confirms the study area is outside of the 500-year floodplain. A copy of the FEMA panels and the digital FIRM is presented in Appendix D.

7.1.2 Radon

The United States Environmental Protection Agency (US EPA) Map of Radon Zones in Maryland was reviewed on the US EPA website to determine the Radon Zone assigned to the study area. According to the EPA Map of Radon Zones in Maryland, Howard County is located in Zone 1: Highest Potential. Zone 1 has a predicted average indoor radon screening level greater than 4 picocuries per liter (pCi/L). According to Howard County, existing structures will be razed as part of future development.

8. REFERENCES

The following sources of information were consulted as a part of this ESA:

- Cleaves, E.T., J. Edwards, Jr., and J.D. Glaser. Maryland Geological Survey. 1968. Geologic Map of Maryland.

- EA Engineering, Science, and Technology, Inc. 2016. Site reconnaissance by Ms. Victoria Pitman and Ms. Elizabeth Eyer. 7 September and 16 September 2016.

- EDR, Inc. 2016. EDR Regulatory Report, Inquiry Number 4712749.2s; Aerial Photographs Dated: 1938, 1943, 1951, 1957, 1963, 1966, 1970, 1981, 1988, 1993, 1998, 2000, 2002, 2005, 2006, 2007, 2009, and 2011, Inquiry Number 4712749.9; Historical Topographic Quadrangles Dated: 1892, 1894, 1897, 1907, 1908, 1926, 1942, 1949, 1950, 1957, 1966, 1974, and 2014, Inquiry Number 4712749.4; No Coverage Sanborn Map Report, Inquiry Number 4712749.3; City Directory Image Report, Inquiry Number 4714272.1; Vapor Encroachment Screen Report, Inquiry Number 4712749.6s.

- Enoch Pratt Library, Stewart Criss-Cross Directories: 1968 through 1975, 1977, 1978 through 1984.

- FEMA Flood Map Service Center, October 2016. (http://map1.msc.fema.gov/idms/IntraView.cgi?ROT=0&O_X=10214&O_Y=8253&O_ZM=0.154588&O_SX=1294&O_SY=640&O_DPI=400&O_TH=95812454&O_EN=95941379&O_PG=1&O_MP=1&CT=0&DI=0&WD=14400&HT=10350&JX=1432&JY=700&MPT=0&MPS=0&ACT=0&KEY=95812340&ITEM=1&ZOOM_FIT.x=1; http://map1.msc.fema.gov/idms/IntraView.cgi?ROT=0&O_X=10214&O_Y=6803&O_ZM=0.154588&O_SX=1294&O_SY=640&O_DPI=400&O_TH=95503472&O_EN=96207839&O_PG=1&O_MP=1&CT=0&DI=0&WD=14400&HT=10350&JX=1432&JY=700&MPT=0&MPS=0&ACT=0&KEY=95503365&ITEM=1&ZOOM_FIT.x=1)

- Historic Buildings website (http://historicbldgs.com/telephone_tile.htm)

- Howard County Digital Flood Insurance Map website (https://data.howardcountymd.gov/gdfirm/).

- Howard County GIS Interactive Maps website (https://data.howardcountymd.gov/InteractiveMapV3.html).

- Howard County Real Property Tax Look Up website (https://howardcountymd.munisselfservice.com/citizens/RealEstate/ViewBill.aspx).

- Maryland Department of Assessment and Taxation website (http://sdat.dat.maryland.gov/RealProperty/Pages/default.aspx)

- MDLandRec.Net website. A Digital Image Retrieval System for Land Records in Maryland. (http://mdlandrec.net/main/index.cfm).

- National Wetlands Inventory Mapper, October 2016. (http://www.fws.gov/wetlands/Data/Mapper.html).

- U.S. Department of Agriculture, Natural Resource Conservation Service. 2016. Web Soil Survey of Howard County, Maryland (http://websoilsurvey.nrcs.usda.gov/app/).

- U.S. Environmental Protection Agency, Radon Map. 2016. (https://www.epa.gov/radon/find-information-about-local-radon-zones-and-state-contact-information#radonmap).