



**SCI ENGINEERING, INC.**  
130 Point West Boulevard  
St. Charles, Missouri 63301  
636-949-8200  
[www.sciengineering.com](http://www.sciengineering.com)

**Phase One Environmental Site Assessment**

**16911 WILDHORSE CREEK ROAD  
CHESTERFIELD, MISSOURI**

**September 22, 2017**

**Prepared for:**

**CITY OF CHESTERFIELD**

**SCI No. 2017-0626.20 Task 001**



**SCI ENGINEERING, INC.**

**EARTH • SCIENCE • SOLUTIONS**

GEOTECHNICAL  
ENVIRONMENTAL  
NATURAL RESOURCES  
CULTURAL RESOURCES  
CONSTRUCTION SERVICES

September 22, 2017

Mr. Tom McCarthy  
City of Chesterfield  
690 Chesterfield Parkway West  
Chesterfield, Missouri 63017

RE: Phase One Environmental Site Assessment  
16911 Wildhorse Creek Road  
Chesterfield, Missouri  
SCI No. 2017-0626.20 Task 001

Dear Mr. McCarthy:

SCI Engineering, Inc. (SCI) has completed the Phase One Environmental Site Assessment at the above-referenced site, the report of which is contained herein. Phase One activities consisted of historical and public records research, historical review, interviews, and a reconnaissance survey.

Based on the activities which were performed in general accordance with the ASTM Practice E 1527-13 for Phase One Environmental Site Assessments, SCI identified no evidence of Recognized Environmental Conditions in connection with the subject site.

SCI appreciates being of service to you on this project. Please contact us if you have any questions or comments regarding this report.

Respectfully,

**SCI ENGINEERING, INC.**

A handwritten signature in black ink, appearing to read 'David L. Forseth'.

David L. Forseth  
Staff Scientist

A handwritten signature in black ink, appearing to read 'Edwin P. Grimmer'.

Edwin P. Grimmer, P.E.  
Vice President

DLF/EPG/hmm

Enclosure  
Phase One Report

\\2017-0626 16911 Wildhorse Creek Road\ES\20 Task 001\16911 Wildhorse Creek Rd. - Phase One Report.docx

## TABLE OF CONTENTS

<b>1.0</b>	<b>INTRODUCTION.....</b>	<b>1</b>
<b>2.0</b>	<b>SITE RECONNAISSANCE.....</b>	<b>2</b>
2.1	Site Use.....	2
2.2	Heating and Cooling Systems.....	2
2.3	Water and Sewage Systems.....	2
2.4	Wastewater Systems.....	2
2.5	Adjacent Property Use.....	3
2.6	Aboveground Storage Tanks (ASTs)/Underground Storage Tanks (USTs).....	3
2.7	Polychlorinated Biphenyl (PCB) Survey.....	3
2.8	Solid Waste/Hazardous Waste/Chemical Use.....	3
<b>3.0</b>	<b>PHYSICAL SETTING.....</b>	<b>4</b>
3.1	Topography.....	4
3.2	Hydrology and Hydrogeology.....	4
<b>4.0</b>	<b>HISTORICAL USE INFORMATION.....</b>	<b>5</b>
4.1	Owner Interview.....	5
4.2	Key Site Manager Interview.....	5
4.3	User Interview.....	6
4.4	Past Owner Interview.....	6
4.5	Local Fire Department Interview.....	6
4.6	Sanborn Map Review.....	6
4.7	Historical Aerial Photograph Review.....	7
4.8	City Directory Review.....	8
4.9	Historical Topographic Map Review.....	8
4.10	Title Review.....	10
<b>5.0</b>	<b>REGULATORY AGENCY RECORDS REVIEW.....</b>	<b>10</b>
5.1	Federal NPL.....	11
5.1.1	<i>Federal Delisted NPL.....</i>	<i>12</i>
5.2	Federal CERCLIS.....	12
5.2.1	<i>Federal NFRAP.....</i>	<i>12</i>
5.3	Federal RCRIS.....	13
5.4	Federal CORRACTS.....	13
5.5	Federal ERNS.....	13
5.6	Federal IC/EC.....	14
5.7	Missouri Hazardous Waste Sites List.....	14
5.8	Missouri Solid Waste Landfill List.....	14
5.9	Missouri LUST List.....	14
5.10	Missouri Registered UST List.....	15
5.11	Missouri IC/EC.....	15
5.12	Additional Environmental Record Sources.....	15
<b>6.0</b>	<b>VAPOR ENCROACHMENT SCREENING.....</b>	<b>15</b>
<b>7.0</b>	<b>ADDITIONAL INVESTIGATIONS.....</b>	<b>16</b>
<b>8.0</b>	<b>FINDINGS.....</b>	<b>16</b>
<b>9.0</b>	<b>DATA GAPS.....</b>	<b>17</b>
<b>10.0</b>	<b>CONCLUSIONS.....</b>	<b>17</b>

**11.0 ENVIRONMENTAL PROFESSIONAL STATEMENT..... 17**  
**12.0 REFERENCES CITED..... 18**  
**13.0 LIMITATIONS..... 18**

**TABLES**

Table 4.1 - Historical Aerial Photograph Summary..... 7  
Table 4.2 - Historical Topographic Map Summary ..... 9  
Table 5.1 - Environmental Record Sources ..... 10

**FIGURES**

- Figure 1 - Vicinity and Topographic Map
- Figure 2 - Site/Surrounding Properties Map
- Figure 3 - Aerial Photograph

**APPENDICES**

- Appendix A - Photo-Documentation
- Appendix B - Questionnaires
- Appendix C - Fire Department Correspondence
- Appendix D - Aerial Photographs
- Appendix E - EDR City Directory
- Appendix F - EDR Topographic Maps
- Appendix G - EDR Radius Report
- Appendix H - Resumes

## **Phase One Environmental Site Assessment**

### **16911 WILDHORSE CREEK ROAD CHESTERFIELD, MISSOURI**

#### **1.0 INTRODUCTION**

SCI Engineering, Inc. (SCI) was retained by Mr. Tom McCarthy, City of Chesterfield, to perform a Phase One Environmental Site Assessment (Phase One) on approximately 12 acres of undeveloped property which was primarily wooded land addressed at 16911 Wildhorse Creek Road in the city of Chesterfield, Missouri (site or subject site). These services were performed in accordance with our proposal, dated August 18, 2017.

The purpose of this assessment was to explore for evidence of the presence of Recognized Environmental Conditions (RECs), in accordance with the ASTM Practice E 1527-13 for Phase One Environmental Site Assessments. An REC means 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. The term includes hazardous substances or petroleum products even under conditions in compliance with laws. The term is not intended to include *de minimis* conditions that generally do not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of the appropriate governmental agencies.

The performance of this assessment may also identify Historical Recognized Environmental Conditions (HRECs) and/or Controlled Recognized Environmental Conditions (CRECs). An HREC is defined as a past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority, or meeting unrestricted residential use criteria established by a regulatory authority, without subjecting the property to any required controls (for example property use restrictions, Activity and Use Limitations, Institutional Controls, or Engineering Controls). A CREC is identified as a Recognized Environmental Condition, which involves a past release of hazardous substances, or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority and that is subject to activity and use limitations.

Phase One activities included historical and public records research, interviews, and a reconnaissance (walkover) survey. The details of these activities are outlined herein.

## **2.0 SITE RECONNAISSANCE**

A site reconnaissance was conducted by Mr. David L. Forseth, of SCI on September 14, 2017, under the direction of Environmental Professional, Mr. Edwin P. Grimmer, P.E., of SCI. The reconnaissance was performed by walking the perimeter and across portions of the remainder of the site. The purpose of the site reconnaissance was to assess the physical conditions at and adjacent to the site. A *Vicinity and Topographic Map*, Figure 1, a *Site/Surrounding Properties Map*, Figure 2, and an *Aerial Photograph*, Figure 3, are enclosed. Photographic documentation is contained in Appendix A.

### **2.1 Site Use**

At the time of SCI's site reconnaissance, the subject site consisted of primarily undeveloped wooded land. No structures were present on-site. No evidence of stressed vegetation, stained soil or pavement, or wastewater was observed on-site.

### **2.2 Heating and Cooling Systems**

No structures were found to be present during SCI's site reconnaissance. Therefore, no heating or cooling systems were found on-site. However, as further discussed in Section 4.9, a structure was previously located on-site. The heating source for this former structure is unknown, but may have been heating oil contained in an aboveground storage tank (AST) or an underground storage tank (UST). If a heating oil AST or UST is encountered during future site development, it should be properly removed and disposed of, along with any associated impact.

### **2.3 Water and Sewage Systems**

No structures were observed on the subject site during SCI's site reconnaissance. Therefore, no water or sewage systems were observed.

### **2.4 Wastewater Systems**

No structures were observed on the subject site during SCI's site reconnaissance. Therefore, no wastewater system was observed.

## **2.5 Adjacent Property Use**

The subject site was bound to the north by a drainageway, beyond which was undeveloped wooded and grass-covered land. Adjacent to the east of the site was a drainageway, residences and undeveloped wooded land, beyond which was a residential subdivision. Adjacent to the south of the site was Wildhorse Creek Road, beyond which were residences and undeveloped wooded land. Adjacent to the west of the site was a drainageway, pond, a farmstead and undeveloped wooded land.

## **2.6 Aboveground Storage Tanks (ASTs)/Underground Storage Tanks (USTs)**

No evidence of ASTs or USTs was observed on the subject site during the site reconnaissance.

## **2.7 Polychlorinated Biphenyl (PCB) Survey**

SCI conducted a survey of the subject site for evidence of PCB-containing transformers, equipment, drums, storage containers, etc. Several pole-mounted transformers were observed in the general vicinity of the subject site. These transformers appeared to be in good condition with no signs of staining or leakage and, therefore, do not represent an REC to the subject site. No other suspect PCB-containing equipment was observed on site.

Under EPA rules, transformers are assumed to contain fluid containing 50 to 499 parts per million (ppm) PCBs unless tested. The local utility company should be consulted should leakage from any of the transformers in the vicinity of the subject site be observed in the future. Any impact resulting from these transformers would be the responsibility of the utility company which owns them.

## **2.8 Solid Waste/Hazardous Waste/Chemical Use**

During SCI's reconnaissance, no solid waste, hazardous waste, or chemical use was observed on-site, with the exception that an automotive tire was noted on the western portion of the site. Additionally, general litter debris was noted throughout the subject site. Due to the non-hazardous nature of this material, it does not represent an REC.

Although no evidence of a farm dump was observed during the site reconnaissance or the historical review, a farm dump that has been subsequently covered over could be present on-site. Municipal trash service was typically not available in most rural areas until recently. Dumps of this nature are typically small, consist of household trash, and scrap metal and lumber. Dumps of this nature are generally not an environmental concern, but some cost can be incurred for their removal if required for site development. If trash from off-site sources has been dumped on-site, the potential size of a dump, if present, is much

larger. Intrusive investigations would need to be performed to ascertain dump quantities, if present, and these investigations were not part of our assessment. In the event a farm dump is encountered during site development, SCI would be pleased to assist you with quantity estimation and disposal options.

### **3.0 PHYSICAL SETTING**

#### **3.1 Topography**

The elevation of the subject site ranges from approximately 460 feet above mean sea level (msl) on the central, southern and western portion of the site to approximately 500 feet above msl on the northeastern portion of the site, according to the *Vicinity and Topographic Map*, contained as Figure 1. This map is a reproduction of a portion of the United States Geological Survey (USGS) topographic map for the Chesterfield, Missouri quadrangle, dated 1994. The subject site was primarily located within a flood plain, except for a small hill located on the northeastern portion of the site. The site slopes primarily downgradient to the west and to the north on the northern portion of the site.

SCI was not provided with a boundary survey for the subject site in which depicted topographic contours. Therefore, SCI was unable to compare the actual topography to that on the USGS map, which is useful in determining whether substantial filling has occurred.

#### **3.2 Hydrology and Hydrogeology**

SCI did not observe evidence of ponds, lakes or rivers during the site reconnaissance. However, a drainageway was noted through the central portion of the site running west and east/southeast. Additionally, Caulks Creek was noted on the western and northern boundaries of the subject site. The subject site is located within a flood plain and, therefore, surface runoff on the subject site would flow in any direction, but will likely flow to the west/north towards Caulks Creek. There is potential for the subject site to receive surface runoff from the properties east. As previously mentioned, this property consisted of residences and wooded land. Based on the lack of evidence of petroleum, toxic, or hazardous materials at this adjacent property, surface runoff onto the site does not represent an REC.

The presence and flow direction of a perched groundwater table can only be conclusively verified by subsurface investigation. However, if present, its flow direction would normally parallel the undisturbed surface topography. Therefore, groundwater flow on the subject site would likely flow in any direction. However, groundwater flow will likely be to the west/north towards Caulks Creek. The site will likely



receive groundwater flow from the adjoining property to the east and south, which consisted of residences and undeveloped land. Due to the non-hazardous nature of these properties, groundwater flow onto the subject site is not an REC.

According to *Water Resources of the St. Louis Area, Missouri*, prepared by the Missouri Geological Survey, the site is located in the post-Maquoketa aquifer group. This group includes all bedrock units above the Maquoketa shale. This bedrock aquifer receives recharge from direct precipitation in the area. Movement of water from the soil and subsoil into the bedrock takes place along fractures and openings in the rock. Mississippian system rocks at the upper boundary of this group are relatively impermeable and yield very little water to wells.

#### **4.0 HISTORICAL USE INFORMATION**

Historical records are used to determine past uses of the subject site and whether these past uses may be an environmental concern. The standard to which this report was conducted requires the identification of all past uses of the site, from the present to the first developed use. SCI used as many practically reviewable sources as necessary to identify the past uses of the subject site.

##### **4.1 Owner Interview**

SCI submitted an *Environmental Assessment Questionnaire* (EAQ) to Mr. Ron Meier, Tom Shaw Realtors, the current owner's representative. Mr. Thomas Gamma, the current owner, completed the questionnaire. Mr. Gamma indicated that he purchased the property approximately 14 years ago, and that he believes the previous owners have since passed away. Mr. Gamma indicated that there was a gravel driveway located on-site. Mr. Gamma indicated that he was not aware of a farm dump located on-site. To the best of his knowledge, Mr. Gamma was not aware of any hazardous substances, petroleum products, unidentified waste materials, tires, automotive or industrial batteries, or any other waste materials that have been discharged, dumped above grade, buried, disposed, and/or burned on the subject site. A copy of the completed EAQ is contained in Appendix B.

##### **4.2 Key Site Manager Interview**

Please refer to Section 4.1.

#### **4.3 User Interview**

SCI interviewed and submitted an *Assessment User Questionnaire* (AUQ) to Mr. Tom McCarthy, Parks, Recreation and Art Director, City of Chesterfield, the user of this report. Mr. McCarthy indicated that he was requesting the Phase One to qualify for the following Landowner Liability Protection: innocent landowner. Mr. McCarthy stated that he wanted to make sure there will be no liabilities or issues for the city. SCI questioned Mr. McCarthy concerning any specialized knowledge or actual knowledge, regarding the usage of the property, which is material in identifying RECs. Mr. McCarthy indicated that he did not possess any such knowledge. SCI also questioned Mr. McCarthy concerning any environmental liens and activity and use limitations (AULs). Mr. McCarthy indicated that the title work has not yet been finalized, but that he was unaware of any environmental liens or AULs. SCI also questioned Mr. McCarthy concerning the proposed sale price and its relationship to the fair market value. Mr. McCarthy indicated that he believed that the proposed purchase price reflected fair market value. A copy of the completed user questionnaire is contained in Appendix B.

#### **4.4 Past Owner Interview**

As mentioned above, the current owner of the subject site acquired the property approximately 14 years ago. They believe the previous property owners have since passed away. Therefore, a past owner interview was not conducted.

#### **4.5 Local Fire Department Interview**

SCI submitted a letter of request to the Monarch Fire Protection District regarding storage or spillage of petroleum, toxic, or hazardous materials on or adjacent to the subject site. As of the date of this report, SCI has not received a response. Should a response of concern be received, SCI will notify you immediately. A copy of SCI's request to the fire department is contained in Appendix C.

#### **4.6 Sanborn Map Review**

Sanborn fire insurance maps were produced for the insurance industry starting in the late 1800s to assist in evaluating the fire risks of a building or area. Sanborn maps show structure locations and typically indicate the usage of the structure, whether it be a dwelling, store, or a manufacturing plant. The actual name of the company operating the facility is also sometimes given. These maps show the type of construction of buildings, and show locations of USTs and ASTs used for the storage of highly flammable materials including solvents, paint, and motor fuels. The identification of USTs on Sanborn maps often makes them one of the only ways to identify past UST sites. Most large older towns and cities have some Sanborn coverage. Typically, the larger and older the area, the better the coverage.

SCI obtained a Certified Sanborn® Map Report for the subject site and surrounding properties from Environmental Data Resources, Inc. (EDR). The EDR report indicated that there were no fire insurance maps available.

**4.7 Historical Aerial Photograph Review**

Aerial photographs are an important source for showing past conditions on a site. Vegetation and developments like structures, water bodies, or land disturbance are generally readily apparent. However, vegetation can often obscure from view activities taking place under the canopy of trees. The aerial photographs typically available for review as part of a Phase One are usually large-scale black and white photographs. For these reasons, small details may be difficult to discern.

SCI reviewed aerial photographs at the St. Louis County GIS Mapping Services for the years 2015, 2014, 2012, 2010, 2008, 2006, 2004, 2002, 2000, 1997, 1981, 1970, 1966, 1955 and 1937. A summary of this review is contained in Table 4.1.

**Table 4.1 - Historical Aerial Photograph Summary**

Year	Observations
2015	The subject site appeared similar to that observed during the site reconnaissance. The subject site consists of primarily undeveloped wooded land. A drainageway was noted running west and east/southeast through the central portion of the site. A drainageway was noted along the western and northern property boundaries, beyond which was undeveloped land. Adjacent to the east of the site was undeveloped land and residences. Adjacent to the south of the site was a roadway, beyond which were residences.
2014 and 2012	The subject site and surrounding properties appeared similar to the 2015 aerial photograph.
2010	The subject site and surrounding properties appeared similar to the 2012 aerial photograph, with the exception that to the south of the site, beyond the roadway, there were fewer residences.
2008	The subject site and surrounding properties appeared similar to the 2010 aerial photograph, with the exception that to the south of the site, beyond the roadway, was recently graded land.
2006	The subject site and surrounding properties appeared similar to the 2008 aerial photograph, with the exception that to the south of the site, beyond the roadway, was undeveloped wooded land.
2004, 2002 and 2000	The subject site and surrounding properties appeared similar to the 2006 aerial photograph.
1997	The subject site and surrounding properties appeared similar to the 2000 aerial photograph, with the exception that the east-central portion of the site appeared to be grass-covered land. Additionally, one of the residences to the east of the site was no longer present.
1981	The subject site and surrounding properties appeared to be similar to the 1997 aerial photograph, with the exception that more of the site appeared to be grass-covered land.
1970	The subject site and surrounding properties appeared similar to the 1981 aerial photograph, with the exception that to the east of the site was undeveloped wooded land and agricultural land.

**Table 4.1 - Historical Aerial Photograph Summary (continued)**

Year	Observations
1966	The subject site and surrounding properties appeared similar to the 1970 aerial photograph, with the exception that the site appeared to be primarily agricultural land.
1955	The subject site and surrounding properties appeared similar to the 1966 aerial photograph.
1937	The subject site and surrounding properties appeared similar to the 1955 aerial photograph, with the exception that the western portion of the site appeared to be undeveloped wooded land. The remainder of the property appeared to be agricultural land.

This review of historical aerial photographs identified no evidence of environmental conditions in connection with the subject site. It is noted the subject site appeared to be agricultural and wooded land in 1937. Copies of the aerial photographs are contained in Appendix D.

#### **4.8 City Directory Review**

City directories, such as Polk or Hanes Criss-Cross directories are useful tools in determining the past use of urban properties. Most larger urban areas have had city directories published. City directories were published from the late 1800s until today. The most useful portion of the city directory for property research is the criss-cross directory, which lists each street within the municipality, and what is located at each address on that street. City directories are only useful for urban areas and are generally not published for rural or small municipalities.

SCI obtained a *City Directory Image Report* for the subject site and surrounding properties from Environmental Data Resources, Inc. (EDR). A copy of the EDR report is contained in Appendix E. City directories were reviewed on approximate five-year intervals between the years 1930 and 2014 for the subject site and adjacent properties. However, based on the historically rural nature of the subject site, historic city directories are not always useful. Surrounding properties include various residential listings as well as Wild Horse Spring Landscaping in 1986, located at 300 Griffith Lane. Based on the non-hazardous nature of this listing, it does not represent an REC.

#### **4.9 Historical Topographic Map Review**

Historical topographic maps can be used to identify changes in site topography as well as site development and usage. Differences in the topographic lines on the maps from one edition to the next can indicate areas where fill may have been placed on the subject site or show areas where soil may have been removed or cut. Most topographic maps depict man-made structures as well as natural features including wooded areas, streams, rivers, lakes, and ponds. However, if a property is located in an urban setting, the topographic map may not show individual structures.

SCI obtained *The EDR Historical Topographic Map Report* from EDR for the subject site and adjacent properties. A copy of the EDR report is contained in Appendix F. SCI reviewed 7.5-minute topographic maps for the years 2015, 1994, 1982, 1974, 1968, 1954, 1947 and 1932. SCI also reviewed a 30-minute topographic map for the year 1903. A summary of this review is contained in Table 4.2.

**Table 4.2 - Historical Topographic Map Summary**

Year	Observations
2015	The elevation of the subject site ranges from approximately 460 feet above mean sea level (msl) on the central, southern, and western portions of the site to approximately 500 feet above msl on the northeastern portion of the site. A drainageway was noted running west and east/southeast through the central portion of the site. A drainageway was noted on the western and northern portions of the site. Adjacent to the south of the site was a roadway. No structures were depicted on the topographic map.
1994	The subject site appeared similar to the 2015 topographic map. Adjacent to the west of the site was a drainageway and a pond. Adjacent to the north of the site was a drainageway, beyond which was undeveloped land. Adjacent to the east of the site was undeveloped land, residences and a drainageway. Adjacent to the south of the site was a roadway, beyond which was undeveloped land.
1982 and 1974	The subject site and surrounding properties appeared similar to the 1994 topographic map.
1968	The subject site and surrounding properties appeared similar to the 1974 topographic map, with the exception that the residences to the east of the site were no longer present.
1954	The subject site and surrounding properties appeared similar to the 1968 topographic map.
1947	The subject site and surrounding properties appeared similar to the 1954 topographic map, with the exception that a residence was noted on the northern portion of the subject site. Additionally, a residence was noted to the east of the site.
1932	The subject site and surrounding properties appeared similar to the 1947 topographic map.
1903 (30-minute)	The subject site and surrounding properties appeared similar to the 1932 topographic map, with the exception that the subject site was undeveloped land. Additionally, the residence to the east of the site was no longer present.

This historical topographic map review has revealed no evidence of environmental conditions in connection with the subject site. Review of historic topographic maps identified that a residence was previously located on-site. Although not an REC, debris from this former structure may be buried on-site. Additionally, the heating source for this structure is unknown, but may have been heating oil contained in an AST or a UST. If a heating oil UST is encountered during future site development, it should be removed and disposed of, along with any associated impact. Furthermore, it is noted the subject site was developed between 1932 and 1947 and was undeveloped in 1903.

**4.10 Title Review**

Land title records contain information about historical fee ownership, which may include leases, contracts, and/or AULs. This information is recorded in the place where land title records are, by law or custom, recorded for the local jurisdiction in which the property is located. Often this source will provide only names of previous owners, lessees, easement holders, etc. but when employed in combination with another source may provide helpful information about uses of the property.

SCI was not provided with the current title for the subject site. However, as indicated in the attached AUQ, Mr. Tom McCarthy, Parks, Recreation and Art Director, City of Chesterfield, indicated that the title work has not been finalized yet, but that he is not aware of any environmental cleanup liens against the subject site that were filed under federal, tribal, state, or local law. Mr. McCarthy also indicated that he is not aware of AULs, engineering controls, or land use restrictions that have been recorded on the title for the property.

**5.0 REGULATORY AGENCY RECORDS REVIEW**

SCI reviewed environmental records obtained from EDR. A copy of the report is contained in Appendix G. This search covered all lists required by ASTM E 1527-13 to the required approximate minimum search distance as shown on Table 5.1.

**Table 5.1 - Environmental Record Sources**

<b>Records Sources<sup>1</sup></b>	<b>Approximate Minimum Search Distance</b>	<b>Properties Identified</b>
Federal National Priorities List (NPL)	1.0 mile	0
Federal Delisted NPL	0.5 mile	0
Federal Comprehensive Environmental Response, Compensation, & Liability Information System (CERCLIS)	0.5 mile	0
Federal CERCLIS No Further Remedial Action Planned (NFRAP)	0.5 mile	2
Federal Resource Conservation & Recovery Information System (RCRIS): Treatment, Storage, and Disposal (TSD)	0.5 mile	0
Federal Resource Conservation & Recovery Information System (RCRIS): Facilities List and Generators List	Site and adjacent properties	0
Federal RCRA TSD Facilities with Corrective Action Activities (CORRACTS)	1.0 mile	0
Federal Emergency Response Notification System (ERNS)	Site only	0
Federal Institutional/Engineering Control (IC/EC) Registries	Property only	0

<sup>1</sup>SCI is not aware of any environmental tribal records in the St. Louis area.

**Table 5.1 - Environmental Record Sources (continued)**

<b>Records Sources<sup>1</sup></b>	<b>Approximate Minimum Search Distance</b>	<b>Properties Identified</b>
Missouri Hazardous Waste Sites List	1.0 mile	0
Missouri Solid Waste Landfill List	0.5 mile	0
Missouri Leaking Underground Storage Tank (LUST) List	0.5 mile	0
Missouri Registered UST List	Site and adjacent properties	0
Missouri Institutional/Engineering Control (IC/EC) Registries	Property only	0
Additional Environmental Record Sources <sup>2</sup>	1.0 mile	0

<sup>1</sup>SCI is not aware of any environmental tribal records in the St. Louis area.

<sup>2</sup>Missouri confirmed dioxin sites, former manufactured gas plants, former USDA grain bins, lead and zinc smelters, wood treatment sites, and Voluntary Cleanup Program sites.

The EDR report lists two orphan sites, which are listings in a database that could not be mapped due to poor or inadequate information. Although the exact locations of the orphan sites are frequently unknown, SCI attempts to evaluate the potential adverse environmental impact that these sites may have on the subject site. This evaluation consists of reviewing street names in an effort to learn whether the street on which the site is located lies within the radius of the subject site, a drive-by view of surrounding properties during the site visit, and/or evaluating the site type and information provided by government agencies. Of these two orphan sites, one was included in the previous table since SCI expects it to be located within the applicable minimum search distance.

**5.1 Federal NPL**

Section 105(a)(8)(B) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) requires the preparation of the NPL. The NPL is a list of national priorities among the known or threatened releases of hazardous substances, pollutants, or contaminants throughout the United States. The identification of a site for the NPL is intended to guide the USEPA in: determining which sites warrant further investigation to assess the nature and extent of the human health and environmental risks associated with a site; identifying what CERCLA-financed remedial actions may be appropriate; notifying the public of sites USEPA believes warrant further investigation; and serving notice to potentially responsible parties that USEPA may initiate CERCLA-financed remedial action.

No listings were encountered during the review of the NPL database within the ASTM-prescribed minimum search distance of the subject site.

### **5.1.1 Federal Delisted NPL**

The National Oil and Hazardous Substance Pollution Contingency Act (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425(e), sites may be deleted from the NPL where no further response is appropriate.

No listings were encountered during the review of the delisted NPL database within the ASTM-prescribed minimum search distance of the subject site.

## **5.2 Federal CERCLIS**

The Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) is the official repository for site and non-site specific Superfund data in support of CERCLA. It contains information on hazardous waste site assessments and remediation from 1983 to the present. In 2016, the CERCLIS database was retired in favor of the Superfund Enterprise Management System (SEMS), which combines existing CERCLIS data with other resources.

No listings were encountered during the review of the CERCLIS database within the ASTM-prescribed minimum search distance of the subject site.

### **5.2.1 Federal NFRAP**

As of February 1995, CERCLIS sites designated “No Further Remedial Action Planned” (NFRAP) have been removed from CERCLIS. NFRAP sites may be sites where, following an initial investigation, no contamination was found, contamination was removed quickly without the need for the site to be placed on the NPL, or the contamination was not serious enough to require Federal Superfund action or NPL consideration. In 2016, the CERCLIS database was retired in favor of the SEMS, which combines existing CERCLIS data with other resources.

Two listings were encountered on the NFRAP list within the ASTM-prescribed minimum search distance of the subject site. Of these two listings, one of them was located more than 2,000 feet from the subject site. Due to the distance of this listing from the subject site, SCI does not consider it to represent an REC. The remaining listing is identified below.



Voss residence, located off Wildhorse Creek Road, was listed as an orphan and identified as a SEMS-ARCHIVE. According to EDR this listing is located at 16725 Wild Horse Creek Road. When this address is mapped, it is located approximately 2,000 feet to the northeast of the site. Based on the distance of this listing from the subject site, it does not represent an REC.

### **5.3 Federal RCRIS**

Hazardous waste data is contained in the Resource Conservation and Recovery Information System (RCRIS) in support of the Resource Conservation and Recovery Act (RCRA). RCRA requires that generators and transporters of hazardous waste, as well as hazardous waste treatment, storage and disposal (TSD) facilities provide information concerning their activities to state environmental agencies. These agencies then provide information to regional and national USEPA offices. RCRIS is used by the USEPA to support its implementation of RCRA.

No listings were encountered during the review of the RCRIS database within the ASTM-prescribed minimum search distance of the subject site.

### **5.4 Federal CORRACTS**

The EPA maintains this database of RCRA TSD facilities that are undergoing corrective action. A corrective action order is issued pursuant to RCRA section 3008(h) if there has been a release of hazardous waste into the environment from a RCRA facility.

No listings were encountered during the review of the CORRACTS database within the ASTM-prescribed minimum search distance of the subject site.

### **5.5 Federal ERNS**

The Emergency Response Notification System (ERNS) is a database used to store information on notifications of oil discharges and hazardous substance releases. The ERNS program is a cooperative data sharing effort among the USEPA, the Department of Transportation, and the National Response Center. ERNS provides the most comprehensive data compiled on notifications of oil discharges and hazardous substance releases in the United States.

No listings were encountered during the review of the ERNS database within the ASTM-prescribed minimum search distance of the subject site.

## **5.6 Federal IC/EC**

Databases of institutional controls or engineering controls maintained by a federal agency for purposes of tracking sites that may contain residual contamination and activity and use limitations (AULs).

No listings were encountered during review of the IC/EC database within the ASTM-prescribed minimum search distance of the subject site.

## **5.7 Missouri Hazardous Waste Sites List**

The Missouri "Superfund Law" requires the Missouri Department of Natural Resources (MDNR) to annually publish a registry entitled *Missouri Registry Annual Report: Registry of Confirmed Abandoned or Uncontrolled Hazardous Waste Disposal Sites in Missouri*. The most current Registry was the Fiscal Year 2016 annual report.

No listings were encountered during the review of the Registry within the ASTM-prescribed minimum search distance of the subject site.

## **5.8 Missouri Solid Waste Landfill List**

The MDNR Solid Waste Management Program publishes and regularly updates the List of Sanitary Landfill Contacts in Missouri; the List of Demolition, Utility Waste and Special Waste Landfill Contacts (last updated August 29, 2016); the List of Transfer Station Contacts in Missouri; the List of Inactive Facilities; and the List of Closed Facilities.

No listings were encountered during the review of the landfill lists within the prescribed minimum search distance of the subject site.

## **5.9 Missouri LUST List**

The MDNR Hazardous Waste Program publishes and regularly updates a List of Leaking Underground Storage Tanks Active Sites. This list was last published in December 6, 2016.

No listings were encountered during the review of the LUST database within the ASTM-prescribed minimum search distance of the subject site.

#### **5.10 Missouri Registered UST List**

The MDNR maintains a regularly updated database of Registered USTs. This database was last updated in December 6, 2016.

No listings were encountered during the review of the registered UST database within the ASTM-prescribed minimum search distance of the subject site.

#### **5.11 Missouri IC/EC**

Databases of institutional controls or engineering controls maintained by a state agency for purposes of tracking sites that may contain residual contamination and AULs.

No listings were encountered during review of the IC/EC database within the ASTM-prescribed minimum search distance of the subject site.

#### **5.12 Additional Environmental Record Sources**

A review of the latest listing of *Confirmed Dioxin Sites Tracking List*, January 1999, supplied by the MDNR, revealed no known dioxin-contaminated properties within a one-mile radius of the subject site.

SCI also reviewed listings of wood treatment sites, former manufactured gas plants, lead and zinc treatment facilities, drycleaners, and VCP sites. None were found within a one-mile radius of the subject site.

### **6.0 VAPOR ENCROACHMENT SCREENING**

In accordance with ASTM Practice E 1527-13, SCI conducted an initial vapor encroachment screening to determine if there is a potential for vapors to occur in the subsurface below existing and/or proposed on-site structures, as a result of the presence of petroleum, hazardous or toxic materials that may contain volatile or semi-volatile organic compounds (VOCs/SVOCs). The initial vapor encroachment screening was performed using a “non-invasive” screening process, which consists of a site reconnaissance as well as a review of regulatory database and historical resources. If the initial vapor encroachment screening determines that there is a potential vapor encroachment condition (pVEC) the pVEC should be identified as an REC to the subject site.

SCI has performed the vapor encroachment screening as part of the Phase One activities outlined herein. No pVECs were identified on-site during the initial vapor encroachment screening.

## 7.0 ADDITIONAL INVESTIGATIONS

SCI is unaware of any former or current geotechnical or environmental investigations performed on-site.

## 8.0 FINDINGS

In the course of SCI's scope of service, we have identified the following environmental conditions in connection with the subject site:

- A structure was previously located on-site. Although not an REC, debris from the former structure may be buried on-site. Additionally, the heating source for this former structure is unknown, but may have been heating oil contained in an AST or UST. If a heating oil AST or UST is encountered during future site development, it should be properly removed and disposed of, along with any associated impact. (Sections 2.2 and Section 4.9)
- SCI conducted a survey of the subject site for evidence of PCB-containing transformers, equipment, drums, storage containers, etc. Several pole-mounted transformers were observed in the general vicinity of the subject site. These transformers appeared to be in good condition with no signs of staining or leakage and, therefore, do not represent an REC to the subject site. No other suspect PCB-containing equipment was observed on site. (Section 2.7)
- During SCI's reconnaissance, no solid waste, hazardous waste, or chemical use was observed on-site, with the exception that an automotive tire was noted on the western portion of the site. Additionally, general litter debris was noted throughout the subject site. Due to the non-hazardous nature of this material, it does not represent an REC. (Section 2.8)
- Although no evidence of a farm dump was observed during the site reconnaissance or the historical review, a farm dump that has been subsequently covered over could be present on-site. Municipal trash service was typically not available in most rural areas until recently. Dumps of this nature are typically small, consist of household trash, and scrap metal and lumber. Dumps of this nature are generally not an environmental concern, but some cost can be incurred for their removal if required for site development. If trash from off-site sources has been dumped on-site, the potential size of a dump, if present, is much larger. Intrusive investigations would need to be performed to ascertain dump quantities, if present, and these investigations were not part of our assessment. In the event a farm dump is encountered during site development, SCI would be pleased to assist you with quantity estimation and disposal options. (Section 2.8)
- During the review of city directories, surrounding properties include various residential listings as well as Wild Horse Spring Landscaping in 1986, located at 300 Griffith Lane. Based on the non-hazardous nature of this listing, it does not represent an REC. (Section 4.8)
- Voss residence, located off Wildhorse Creek Road, was listed as an orphan and identified as a SEMS-ARCHIVE. According to EDR this listing is located at 16725 Wild Horse Creek Road. When this address is mapped, it is located approximately 2,000 feet to the northeast of the site. Based on the distance of this listing from the subject site, it does not represent an REC. (Section 5.2.1)
- One additional NFRAP listing was identified within the ASTM-prescribed minimum search distance from the subject site. However, this listing was located over 2,000 feet from the subject site. Therefore, this listing does not represent an REC. (Section 5.2.1)

## 9.0 DATA GAPS

A data gap is a lack of or inability to obtain information required by this practice despite good faith efforts to gather such data. In completing this Phase One, SCI encountered no data gaps with the exception of the following:

- SCI was unable to obtain an interview with the previous property owner. However, based on the historical review of aerial photographs and topographic maps the past use of the subject site appears to have been agricultural and residential. Based on the non-hazardous nature of the past use of the subject site, this data gap is not considered significant.
- SCI was not provided with the current title for the subject site. However, as indicated in the attached AUQ, Mr. Tom McCarthy, Parks, Recreation and Art Director, City of Chesterfield, indicated that the title work has not been finalized yet, but that he is not aware of any environmental cleanup liens against the subject site that were filed under federal, tribal, state, or local law. Mr. McCarthy also indicated that he is not aware of AULs, engineering controls, or land use restrictions that have been recorded on the title for the property. Additionally, based on the current and historic use of the subject site as agricultural and residential, it is unlikely that environmental liens or AULs were filed for the subject site. Therefore, this data gap is not significant.

## 10.0 CONCLUSIONS

Phase One activities consisted of historical and public records research, historical review, interviews, and a reconnaissance survey. Based on the activities that were performed in general accordance with the ASTM Practice E 1527-13 for Phase One Environmental Site Assessments, SCI has identified no evidence of RECs in connection with the subject site.

## 11.0 ENVIRONMENTAL PROFESSIONAL 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 the appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312. Resumes for myself, and Mr. Benjamin Butterfield, who reviewed this report, and Mr. David Forseth, who performed the site reconnaissance, are contained in Appendix H.

## 12.0 REFERENCES CITED

ASTM International, 2013, *Standard Practice for Environmental Assessments: Phase I Environmental Site Assessment Process*, "Designation: E 1527-13," West Conshohocken, PA.

Environmental Data Resources, Inc., August 30, 2017, *Certified Sanborn® Map Report*.

Environmental Data Resources, Inc., August 30, 2017, *The EDR-City Directory Abstract*.

Environmental Data Resources, Inc., August 30, 2017, *EDR Historical Topographic Map Report*.

Environmental Data Resources, Inc., August 30, 2017, *The EDR Radius Map™ Report*.

United States Geological Survey, Chesterfield, Missouri Quadrangle, dated 1994, 7.5-Minute Series (Topographic).

St. Louis County GIS Mapping Services, electronic document <http://map.stlouisco.com>, 2015, 2014, 2012, 2010, 2008, 2006, 2004, 2002, 2000, 1997, 1981, 1970, 1966, 1955, and 1937 (Aerial Photographs), accessed August 30, 2017.

Missouri, *Missouri Registry Annual Report: Registry of Confirmed Abandoned or Uncontrolled Hazardous Waste Disposal Sites in Missouri*, Fiscal Year 1999, Jefferson City, Mo: Missouri Dept. of Natural Resources, Division of Environmental Quality, Hazardous Waste Program.

Miller, Don E., et al., 1974, *Water Resources of the St. Louis Area, Missouri*, Missouri Geological Survey and Water Resources, Water Resources Report No. 30, pp. 1-22.

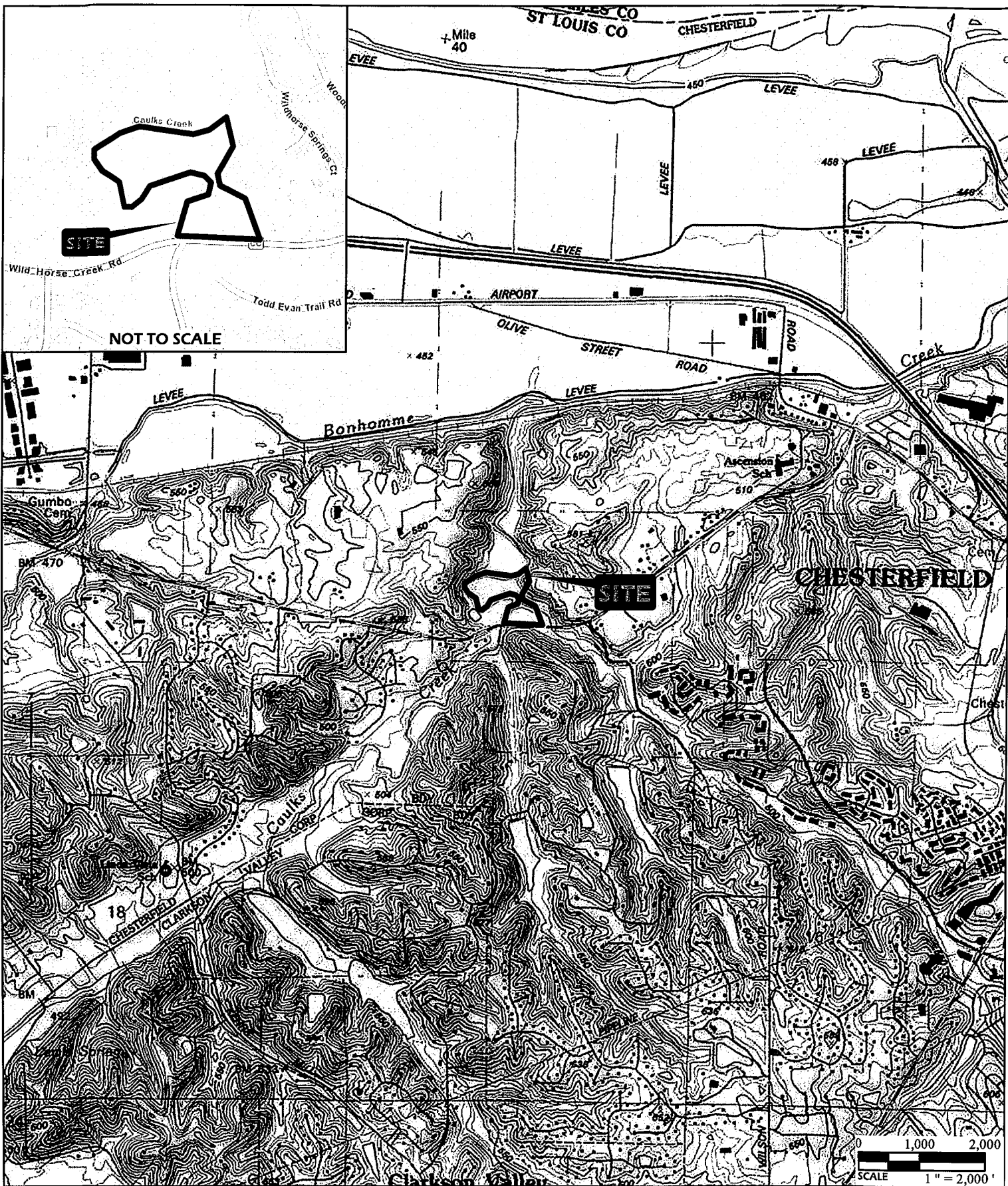
## 13.0 LIMITATIONS

This report has been prepared for the exclusive use of City of Chesterfield. Our services were performed in accordance with a specific scope of work and are subject to the terms and conditions agreed to as part of that scope of work. SCI is not responsible for independent conclusions or recommendations made by others. Furthermore, written consent must be provided by SCI should anyone other than our client wish to excerpt, or rely on, the contents of this report. The services performed are generally consistent with those outlined in ASTM Practice E 1527-13. The findings of this report are valid as of the present date of the assessment.

Changes in surface and subsurface conditions of a property can occur with the passage of time, whether due to natural processes or the works of man on this or adjacent properties. In addition, changes in applicable or appropriate standards may occur, whether they result from legislation, the broadening of knowledge, or other reasons. Accordingly, the findings of this report may be invalidated in whole or in part by changes outside our control.

SCI should be contacted with any known or suspected variations from the conditions described herein. If further development of this site indicates the presence of hazardous, toxic, or petroleum materials, or other concerns of an environmental nature, SCI should be notified to perform a re-evaluation of the environmental conditions.

The following assumptions are made by SCI in this report. SCI relied on information derived from secondary sources including government agencies, the client, designated representatives of the client, property contact, property owner, property owner representatives, computer databases, and personal interviews. Except as set forth in this report, SCI has made no independent investigation as to the accuracy and completeness of the information derived from secondary sources including government agencies, the client, designated representatives of the client, property contact, property owner, property owner representatives, computer databases, or personal interviews and has assumed that such information is accurate and complete. SCI assumes information provided by or obtained from governmental agencies including information obtained from government websites is accurate and complete. Groundwater flow and depth to groundwater, unless otherwise specified by on-property well data, are assumed based on contours depicted on the United States Geological Survey topographic maps. SCI assumes the client, designated representative of the client, property contact, property owner and property owner's representatives have correctly and accurately identified the property.



PROJECT NAME  
 16911 WILDHORSE CREEK ROAD  
 CHESTERFIELD, MISSOURI

VICINITY AND TOPOGRAPHIC MAP		
DRAWN BY	RCV	DATE
CHECKED BY	DLF	09/2017
		JOB NUMBER
		2017-0626.20

GENERAL NOTES/LEGEND  
 USGS TOPOGRAPHIC MAP  
 CHESTERFIELD, MISSOURI QUADRANGLE  
 DATED 1994  
 10' CONTOURS

STREET MAP  
[HTTP://GOTO.ARCGISONLINE.COM/MAPS/WORLD\\_STREET\\_MAP](http://goto.arcgisonline.com/maps/world_street_map)

SCALE 1" = 2,000'

FIGURE  
 1



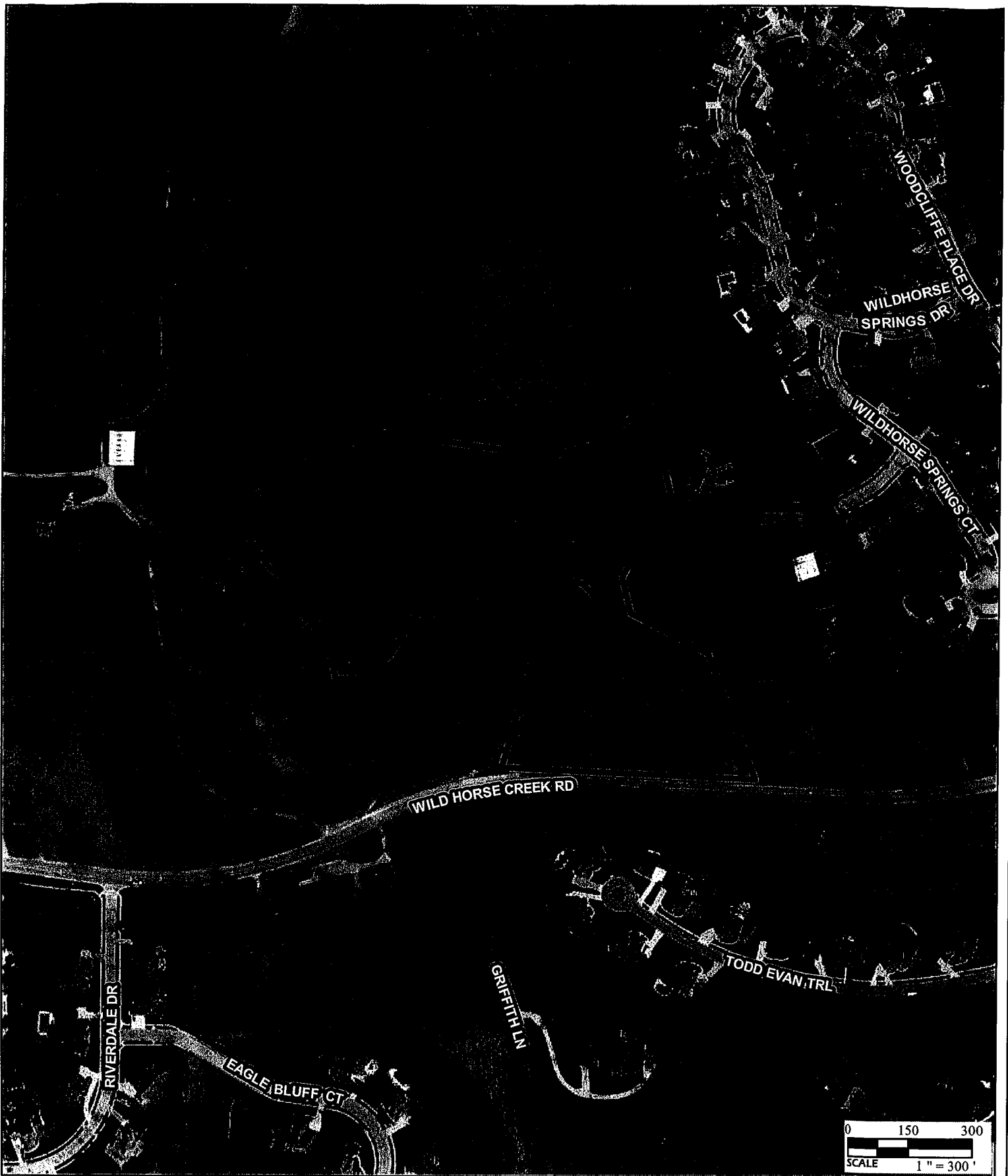


<b>PROJECT NAME</b> 16911 WILDHORSE CREEK ROAD CHESTERFIELD, MISSOURI			
<b>SITE/SURROUNDING PROPERTIES MAP</b>			
<b>DRAWN BY</b>	RCV	<b>DATE</b>	<b>JOB NUMBER</b>
<b>CHECKED BY</b>	DLF	09/2017	2017-0626.20

**GENERAL NOTES/LEGEND**

DIMENSIONS AND LOCATIONS ARE APPROXIMATE; ACTUAL MAY VARY.  
 DRAWING SHALL NOT BE USED OUTSIDE THE CONTEXT OF THE REPORT  
 FOR WHICH IT WAS GENERATED.

**FIGURE**  
2



PROJECT NAME			
16911 WILDHORSE CREEK ROAD CHESTERFIELD, MISSOURI			
AERIAL PHOTOGRAPH			
DRAWN BY	RCV	DATE	JOB NUMBER
CHECKED BY	DLF	09/2017	2017-0626.20

GENERAL NOTES/LEGEND

AERIAL PHOTOGRAPH OBTAINED FROM ARCGIS ONLINE, WORLD IMAGERY.

FIGURE  
3