

**EXHIBIT ONE**  
**EVIDENCE OF HISTORICAL MINING ACTIVITIES**  
**CLOSED COLLINSVILLE LANDFILL**  
**COLLINSVILLE, ILLINOIS**

**EXHIBIT 1-1**

**Deed to Landfill Site Showing Historical Presence of Coal Mining**

WARRANTY DEED <sup>BOOK 2013 PAGE 357</sup>

149-1132

THIS INDENTURE WITNESSETH, that the Grantor, Lumaghi Coal Company, a corporation created and existing under and by virtue of the laws of the State of Illinois duly authorized to transact business in the State of Illinois, and pursuant to authority given by the Board of Directors of said corporation, for and in consideration of the sum of ONE THOUSAND (\$1000.00) DOLLARS, in hand paid, CONVEYS AND WARRANTS unto City of Collinsville, a Municipal Corporation of the Counties of Madison and Saint Clair, State of Illinois, the following described real estate, to-wit:

A tract of land situated in the Northeast Quarter of the Northwest Quarter of Section Thirty-six (36), Township Three (3) North, Range Eight (8) West, of the Third Principal Meridian, described as follows: The West Twenty-Two (22) acres off of the West side of the Northeast Quarter of the Northwest Quarter of said Section 36, excepting therefrom 5.165 acres more or less described in warranty deed recorded and filed in Book 360, page 191, in the Office of the Recorder of Madison County, Illinois, situate in the County of Madison and State of Illinois.

IN WITNESS WHEREOF, said Grantor has caused its corporate seal to be hereto affixed, and has caused its name to be signed to these presents by its President, and attested by its Secretary, this 21<sup>st</sup> day of June, A. D., 1960.



LUMAGHI COAL COMPANY

By Louis V. Lumaghi, Jr.  
President

Attest: Claude B. Martin  
Secretary



STATE OF Missouri )  
COUNTY OF St. Louis ) SS

I, W. C. Long, a Notary Public, in and for said County, in the State aforesaid, do hereby certify that Louis F. Lumaghi personally known to me to be the President of Lumaghi Coal Company, a corporation, and Claude D. Mason personally known to me to be the Secretary of said corporation, and personally known to me to be the same persons whose names are subscribed to the foregoing instrument, appeared before me this day in person and severally acknowledged that as such President and Secretary, they signed and delivered the said instrument as President and Secretary of said corporation, and caused the corporate seal of said corporation to be affixed thereto, pursuant to authority, given by the Board of Directors of said corporation as their free and voluntary act, and as the free and voluntary act and deed of said corporation, for the uses and purposes therein set forth.

Given under my hand and notarial seal this 24<sup>th</sup> day of July, 1960.



W. C. Long  
Notary Public

My Commission Expires 7/1/61

LED FOR RECORD THIS 17 DAY OF July A.D. 19 60 AT 3 O'CLOCK P.M.

**EXHIBIT 1-2**

**Aerial Photos with Notations of Historical Activities**

## **1-2 RESULTS OF AERIAL PHOTOGRAPH EVALUATION** **(EXCERPT FROM ASSESSMENT MONITORING REPORT, CLOSED** **COLLINSVILLE LANDFILL, JANUARY 2008, TETRA TECH, SUPPLEMENTAL** **PERMIT NO. 2008-019-SP)**

### **1-2.1 Aerial Photographic Evaluation Results**

Nine historical aerial photographs were obtained from the U.S. Geological Survey (USGS) and the Madison and St. Clair County Natural Resources Soil Conservation Service (NRSCS) offices. Figures based on the nine attached aerial photographs and are described below. The results of the aerial photo evaluation were included in the 2006 Addendum to the Assessment Monitoring Work Plan and the January 2009 Assessment Monitoring Report. The report and addenda were approved by the Illinois Environmental Protection Agency as Supplemental Permit No. 2008-019 – SP on November 21, 2009.

The project site occupies a parcel of land covering approximately 14 acres bounded by Canteen Creek to the north, an unnamed southern tributary to the west, an ephemeral drainageway to the south (represented by a tree line) and a distinct tree line to the east. The current property boundaries are shown in Figures B-1 through B-12 as green (creeks) or purple lines (property boundary lines). The greatest extent of the landfilled waste is indicated by a solid yellow line and areas where the boundaries of the landfilled waste are not well defined are shown as dashed yellow lines.

#### **1-2.1.1 1941 Aerial Photograph (Figure B-1)**

The earliest available aerial photograph, dated 1941, showed no landfill activity at the project site. Forested areas, open fields, cultivated areas and several disturbed areas surrounded Canteen Creek and the project site. Several farms or homesteads were visible west of project site, but the housing area known as Lumaghi Heights was not present. Using the 1941 photo, Tetra Tech identified disturbed areas described below. Areas 1 through 3 are shown in Figure B-1.

#### **Area 1, Coal/Gob Storage Area**

A coal or gob storage area was present on both sides of Canteen Creek south of Lebanon Road. In 1941, this area measured approximately 400 feet by 125 feet and was located along the northern perimeter of the current project site. Details of this area are not apparent in the photo.

#### **Area 2, Disturbed Areas Associated with Canteen Mine Number 2**

The Lumaghi Coal Company owned the project site and surrounding land and mined coal on their property from 1900 until 1950. The mine covered the entire project site and was known as Canteen Mine Number 2 (Figure 3). The mine shafts for Canteen Mine Number 2 and two other mines were located northwest of the project site and are not shown in Figure B-1. Disturbed areas, debris piles and heavily scarred land with many structures were present north and

northwest of the project site and attested to the mining activities in the area. A small portion of Area 2, shown in Figure B-1, is located northwest of the site, north of Lebanon Road.

### **Area 3, Small Disturbed Area or Pond**

A small disturbed area that may represent a small pond was visible just outside the southeast corner of the project site near the current location of MW-3. Cultivated fields were adjacent to this area.

#### **1-2.1.2 1956 Aerial Photograph (Figure B-2)**

Based on an analysis of 1941 and 1956 aerial photos, few changes in land use occurred between 1941 and 1956 and no landfill activity was apparent. However, the size of the Coal/Gob Storage Area expanded to an area measuring approximately 200 feet by 600 feet (Figure B2). The material stored south of Canteen Creek is visually different than the material stored north of the creek. The area south of the creek appears as a linear feature in the photo. The expansion of this storage area most likely occurred between 1941 and closure of the mine in 1950.

The residential area, Lumaghi Heights, was apparent on the 1956 aerial photograph and a small portion of the disturbed area associated with the mine shaft (Area 2) and the possible pond (Area 3) remained visible.

#### **1-2.1.3 1968 Aerial Photograph (Figures B-3 through B-5)**

According to records, the Closed Collinsville Landfill began operation under IEPA Permit Number 1972-71 in the early 1970s. However, extensive activity, characterized by disturbed and denuded soil, was visible in the 1968 aerial photograph. Based on the warranty deed for the property, the Lumaghi Coal Company sold the property to the City of Collinsville in 1960 (Exhibit 4-1). The activity shown in the 1968 aerial photo, occurred in the southeast quadrant of the project site. In the 1968 photo (Figure B-3), trenches, pits, roads and vehicles were visible in this area and some old scarring was apparent in the far southwest corner of the project site.

Based on the presence of vehicles, pits, ridges and dirt road, the working boundaries of the landfill appeared to extend from the center of the project site to an area close to the southeastern tip of property boundary and immediately adjacent to southern property boundary. The back slope of a ridge located near the eastern property boundary appeared near on the property line. No evidence of disposal was apparent along this back slope. The top of the slope was a roadway. In 1968, the small disturbed area located well outside the southeast corner of the site (Area 3) was covered with trees and not visible. No activity was apparent in this area. Forested areas were present along the western perimeter of the landfill.

The coal/gob storage area (Area 1) remained visible along the northern boundary of the property, but trees and vegetation encroached on the southern perimeter. This photograph has better resolution than the other aerials and shows greater details. Area 1 appears to consist of two distinct and different areas – one smaller area on the north side of Canteen

Creek and a substantially larger area located south of the creek (Figures B-3 through B-5). The smaller coal/gob area north of the creek appears dark in color and the dendritic drainage and erosion patterns are more typical of fine-grained material such as coal. The material present in the larger area south of the creek appears as sinuous ridges more characteristic of gob.

Gob is a coal mine waste that originates from the initial physical processing of coal that strips off the undesirable high sulfur pyrite. Coal associated with the Herrin Number 5 coal seam mined at Canteen Mine Number 2 contained three percent sulfur (USGS, 2002). Coal waste such as gob contains a higher percentage of pyrite and other sulfide minerals than the processed coal. The sulfur-containing waste produces acid mine drainage (AMD) when exposed to oxidation and contact with surface water or groundwater (Anderson, et.al., 2000; Rose and Cravotta, 1998; USGS, 2004).

Adjacent to the western boundary of project site, new structures were visible on the west side of the unnamed southern tributary and the north side of Canteen Creek. The lake currently present south of the Closed Collinsville Landfill, but not visible on the 1956 aerial photograph, was apparent in 1968. Disturbed Area 2 associated with the mine shaft northwest of the project site remained visible in 1968 and an extremely large gob pile measuring approximately 750 feet by 500 feet was located further west near the intersection of Lebanon Road and Clay School Road. Area 2 is shown in Figure B4 and details of Area 1 are shown in Figure B-5.

#### **1-2.1.4 1974 Aerial Photograph (Figure B-6)**

By 1974 (Figure B-6), the activity at the landfill shifted to the northern and eastern portions of the project site. This area appeared disturbed and no vegetation was visible. Canteen creek marked the northern extent of the landfill and the northwestern edge of the landfill extended to within 50 to 100 feet of the unnamed southern tributary. During this time, the southwestern edge of the landfill was approximately 150 feet from the southern ephemeral drainageway. The eastern edge of the landfill did not appear to extend beyond the eastern property boundary. The majority of the former gob storage area located on the south side of Canteen Creek (Area 1) was incorporated into the northern half of the landfill and only the northeast corner of Area 1 (coal area) remained visible. The southeastern quadrant of the project site appeared vegetated, but scarred. Area 3, identified in 1941 and 1956, was again visible, but was much larger. Erosional features surrounding Area 3 make the area appear even larger. According to City of Collinsville personnel, Area 3 was not a part of the landfill, but the area may have provided fill or cover during landfill operation (Tognarelli and Clark, 2006). The large gob pile and disturbed area located near the former mine shaft (Area 2, Figure B-4) remained visible, but a larger percentage of the area was converted to cultivated fields.

#### **1-2.1.5 1978 Aerial Photograph (Figure B-7)**

In 1978, landfill activities were concentrated in the center and northern half of the project site (Figure A-7). In the northwest and southeast corners of the site, no activity was observed, but scarring was apparent. In the northwest corner, linear scars representing trenches, extended to within approximately five to 10 feet of Canteen Creek in the area that formerly stored gob (Area 1). To the south, linear scars extended to the property boundary. The western half of the site appeared graded, vegetated and partially forested. However, no activity was visible in the

southwest corner of the project site. This area remained forested. The northeast corner of the coal/gob storage area (Area 1) remained visible. Disturbed Area 3, surrounded by woods, an open field and an orchard, was visible as a rectangular area similar to a barrow pit. The large gob pile located northwest of the site remained visible (not shown), but Area 2 was smaller and was vegetated or cultivated (not shown).

#### **1-2.1.6 1986 Aerial Photograph (Figure B-8)**

By 1986, no vehicles or landfill activities were apparent (Figure B-8). The configuration of the closed landfill was similar to the current configuration. With the exception of remnants of a road and patches of sparse vegetation in the southeast quadrant, no scarring of the land surface was visible in the 1986 aerial photo. New vegetation covered the entire landfill surface bordering Canteen Creek, the unnamed southern tributary, the ephemeral southern drainageway and the eastern property boundary. The southwest corner of the landfill that appeared forested in 1978 was also graded and vegetated. The perimeter of the graded landfill appeared to extend to within 10 to 50 feet of the surrounding creeks and drainageway. On the western side of the southern tributary, the borrow area used for the landfill cap was visible in this photo. This area measured approximately 400 feet by 150 feet. Based on a comparison of the earlier aerial photographs to the 1986 aerial, the development of the landfill altered the course of Canteen Creek and the unnamed southern tributary. In 1986, Area 3 was visible as a pond but only the northeast corner of Area 1 was visible. The large gob pile located northwest of the project site appeared graded and vegetated and the disturbed Area 2 was present but less distinct (Area 2 not shown). A residential development was visible in the 1986 photograph south of the lake and landfill and new structures were present north of the railroad tracks.

#### **1-2.1.7 1988 Aerial Photograph (Figure B-9)**

By 1988 (Figure B-9), the vegetated surface of the landfill and borrow area appeared well established and traces of roads and scarred areas were absent. Area 3 remained a pond and details of the northeast corner of Area 1 were not apparent due to the blurred image. Residential development continued south of the project site. The disturbed areas associated with Area 2 appeared smaller and vegetation was well established.

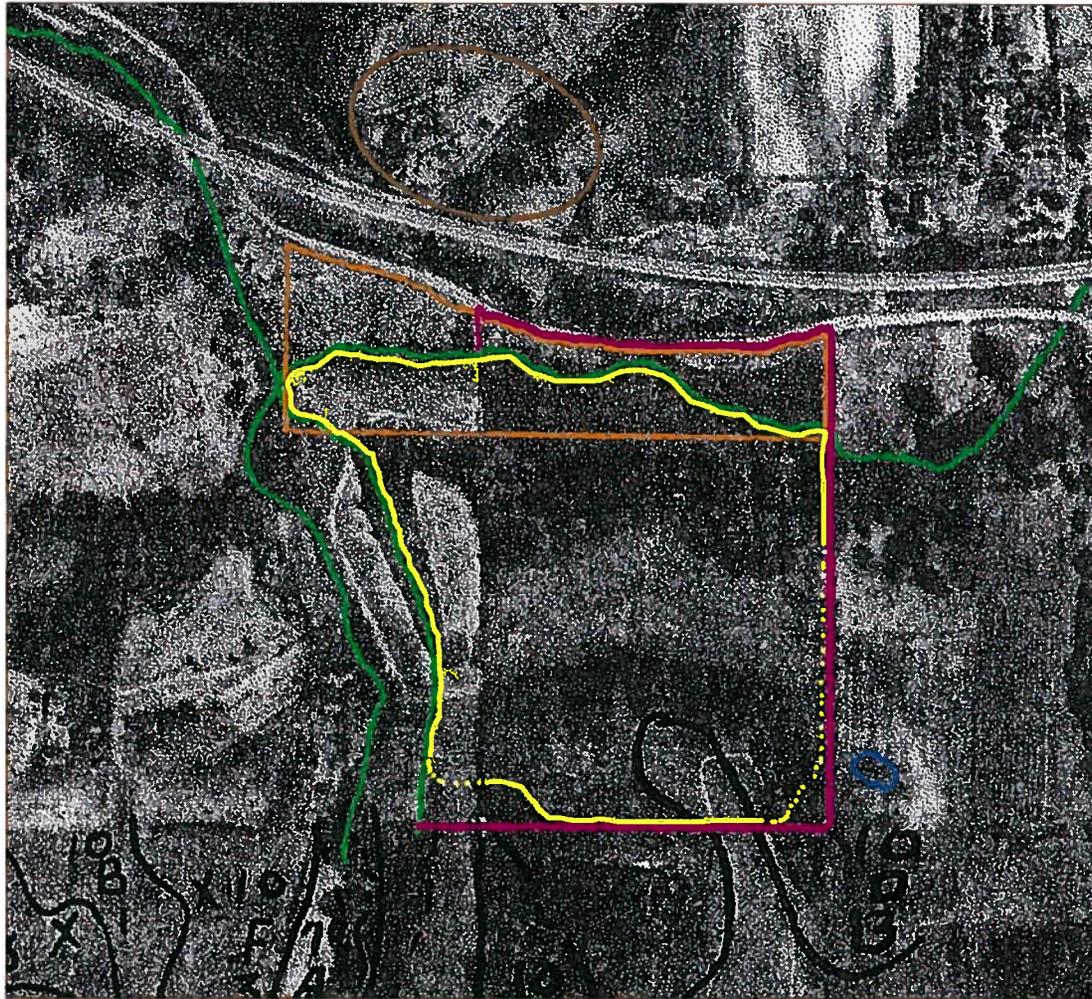
#### **1-2.1.8 1993 Aerial Photograph (Figure B-10)**

As shown in Figure B-10, conditions at the Closed Collinsville Landfill in 1993 were nearly identical to current conditions. An access road, two leachate extraction buildings and one shed were visible at the project site. A forested area covered the northeast corner of the former coal/gob storage area (Area 1) and the remainder of the coal/gob storage area was beneath or incorporated into the landfill. The pond located adjacent to but outside of the southeast corner of the project site (Area 3) remained visible. The restored gob pile and the former disturbed areas near the mine shaft (Area 2) were not included in this portion of the aerial photograph. Additional residential development south of the landfill and lake was apparent.

#### **1-2.1.9 1998 Aerial Photograph (Figures B-11 and B-12)**

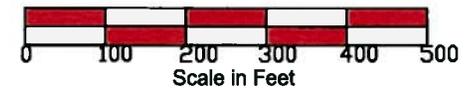
The 1998 aerial photo is identical to the 1993 photo except that the vegetation on the landfill cap is well developed and a residence has been constructed on the property to the east of the

landfill. The locations of the borings proposed in the addendum to the work plan are shown in Figure B-12 and the actual boundary of the landfilled waste is outlined with a solid red line.



### Legend

- ..... Uncertain Boundary of Waste
- Boundary of Waste
- Southern/Eastern Landfill Property Boundary
- Extent Area 1 Coal/Gob Storage
- Extent Area 3 Pond
- Creeks/Tributary
- Portion of Area 2. Largest portion of Area 2 is west of the site and off the map.



**NORTH**



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1634 Eastport Plaza Drive  
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Drawing Description

1941 Aerial Photograph

Collinsville Landfill  
Madison County, Illinois

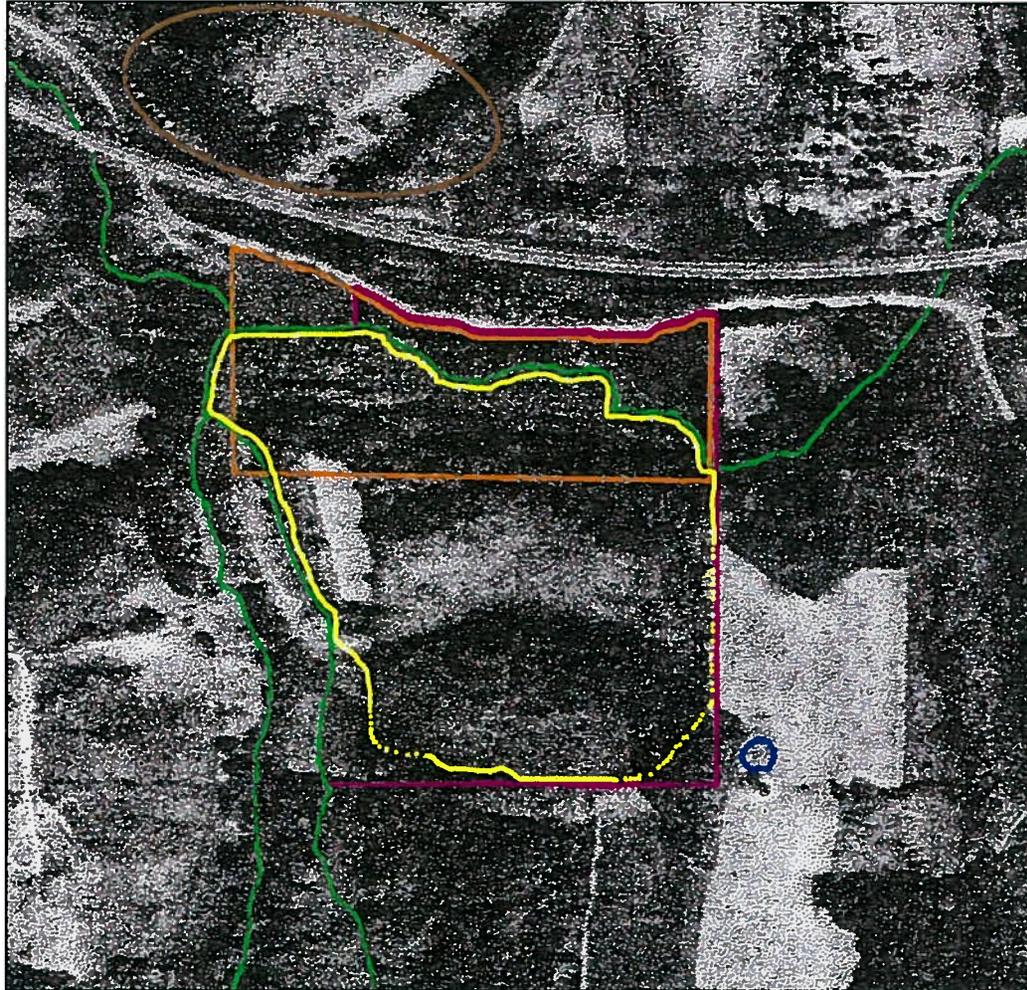
Project No.: 17841

Date: January 2008

Drawn By: DWC

Figure Number

**B-I**



**Legend**

- ..... Uncertain Boundary of Waste
- Boundary of Waste
- Southern/Eastern Landfill Property Boundary
- Extent Area 1 Coal/Gob Storage
- Extent Area 3 Pond
- Creeks/Tributary
- Portion of Area 2. Largest portion of Area 2 is west of the site and off the map



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Drawing Description

1956 Aerial Photograph

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Madison County, Illinois

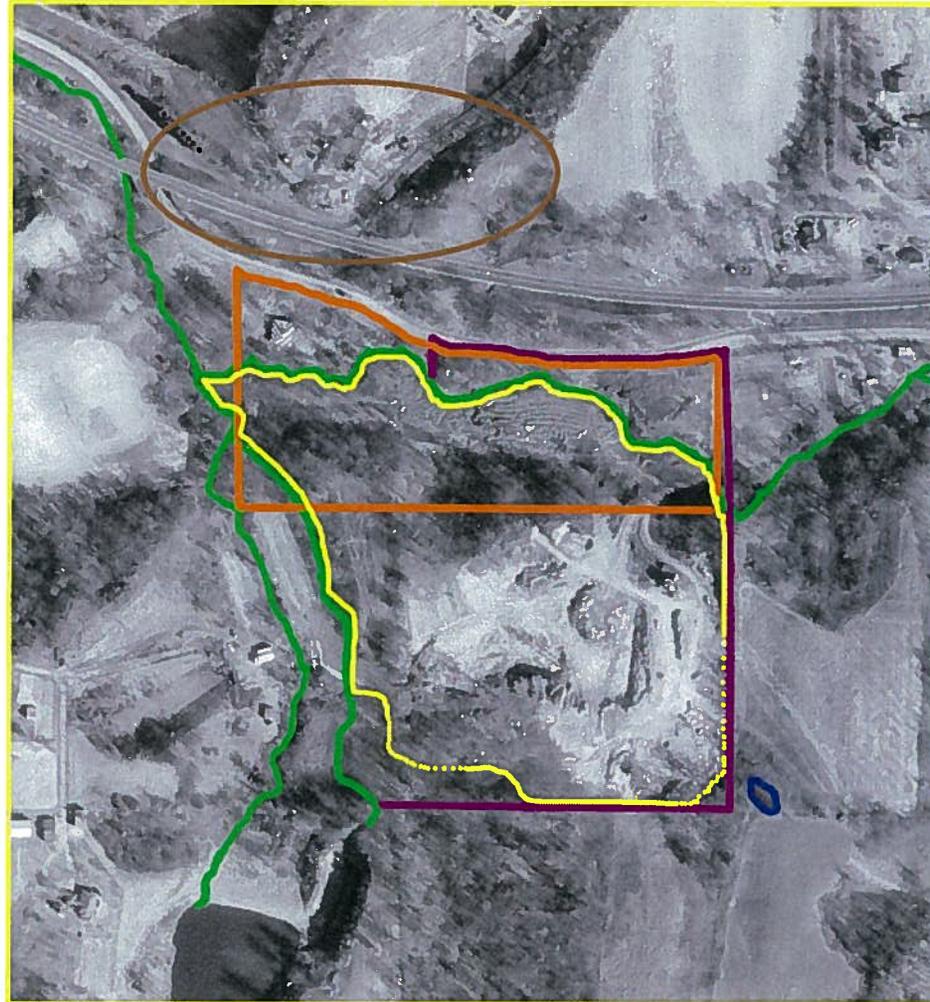
Project No.: 17841

Date: January 2008

Drawn By: DWC

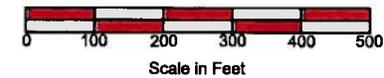
Figure Number

**B-2**



**Legend**

- ⋯ Uncertain Boundary of Waste
- Boundary of Waste
- Southern/Eastern Landfill Property Boundary
- Extent Area 1 Coal/Gob Storage
- Extent Area 3 Pond
- Creeks/Tributary
- Portion of Area 2. Largest portion of Area 2 is west of the site and off the map



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Drawing Description  
1968 Aerial Photograph

Collinsville Landfill  
Madison County, Illinois

Project No.: 17841  
Date: January 2008  
Drawn By: DWC

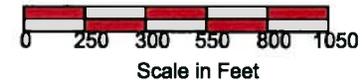
Figure Number

**B-3**



### Legend

- ..... Uncertain Boundary of Waste
- Boundary of Waste
- Southern/Eastern Landfill Property Boundary
- Extent Area 1 Coal/Gob Storage
- Extent Area 3 Pond
- Creeks/Tributary
- Area 2 Surface Disturbances associated with mine
- Mine Shaft Locations



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Drawing Description

1968 Aerial Photograph

Collinsville Landfill  
Madison County, Illinois

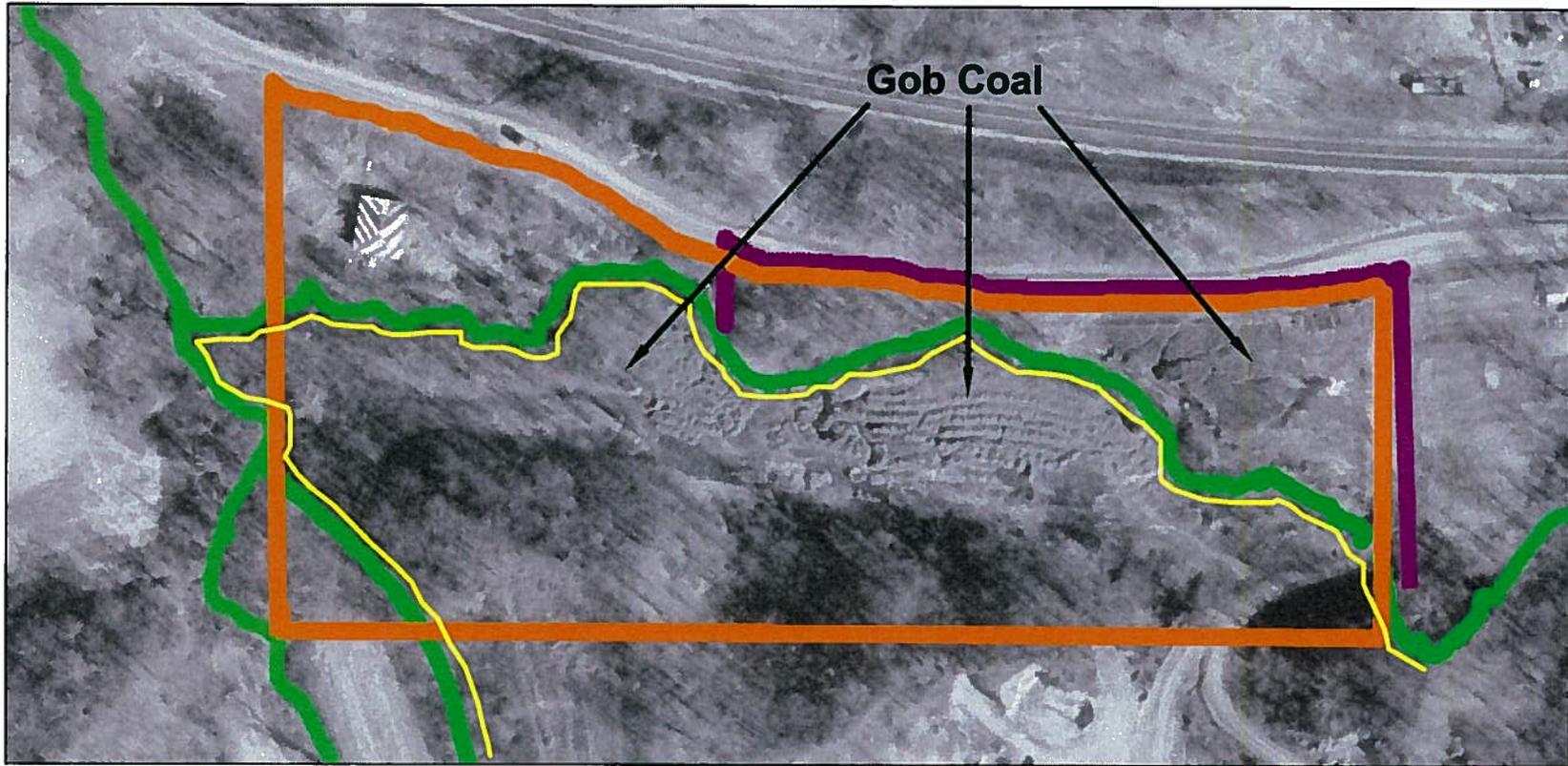
Project No.: 17841

Date: January 2008

Drawn By: DWC

Figure Number

**B-4**



**Legend**

- Boundary of Waste
- Southern/Eastern Landfill Property Boundary
- Extent Area 1 Coal/Gob Storage
- Creeks/Tributary



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Drawing Description

1968 Aerial Photograph

Collinsville Landfill  
Madison County, Illinois

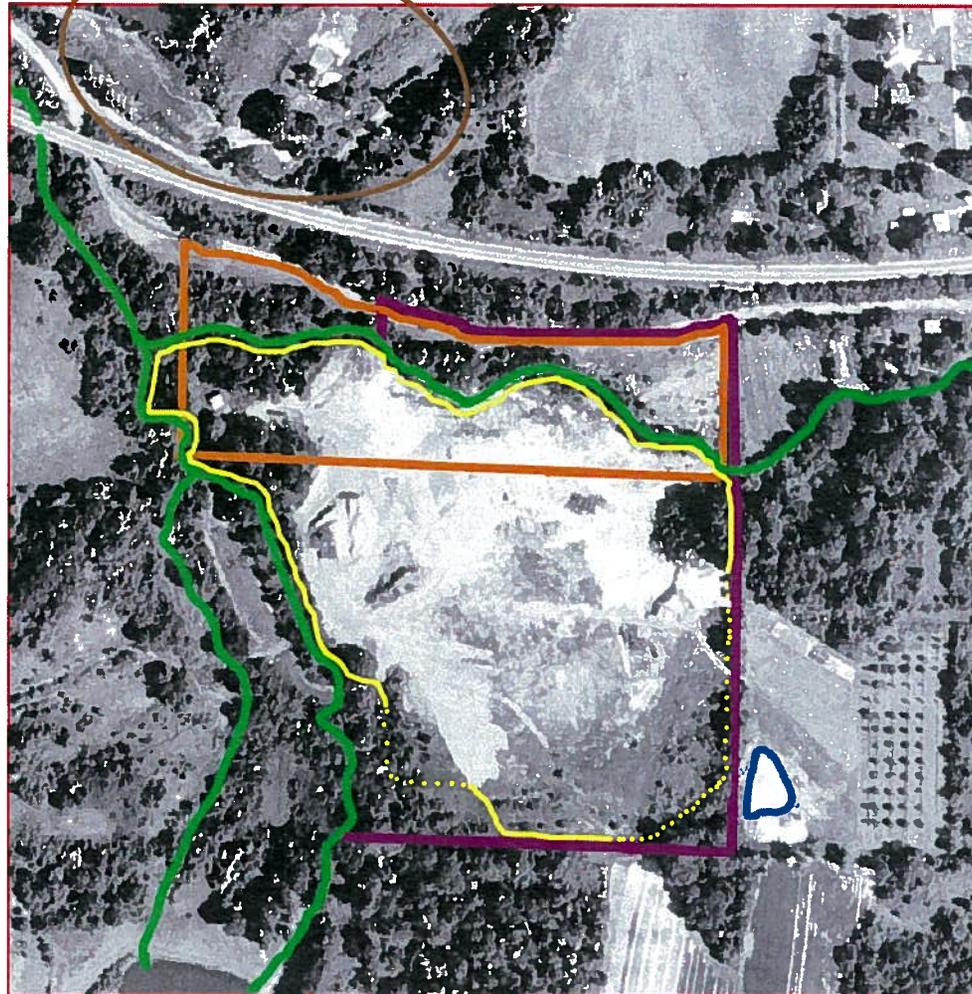
Project No.: 17841

Date: January 2008

Drawn By: DWC

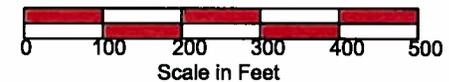
Figure Number

**B-5**



### Legend

- ..... Uncertain Boundary of Waste
- Boundary of Waste
- Southern/Eastern Landfill Property Boundary
- Extent Area 1 Coal/Gob Storage
- Extent Area 3 Pond
- Creeks/Tributary
- Former Area 2



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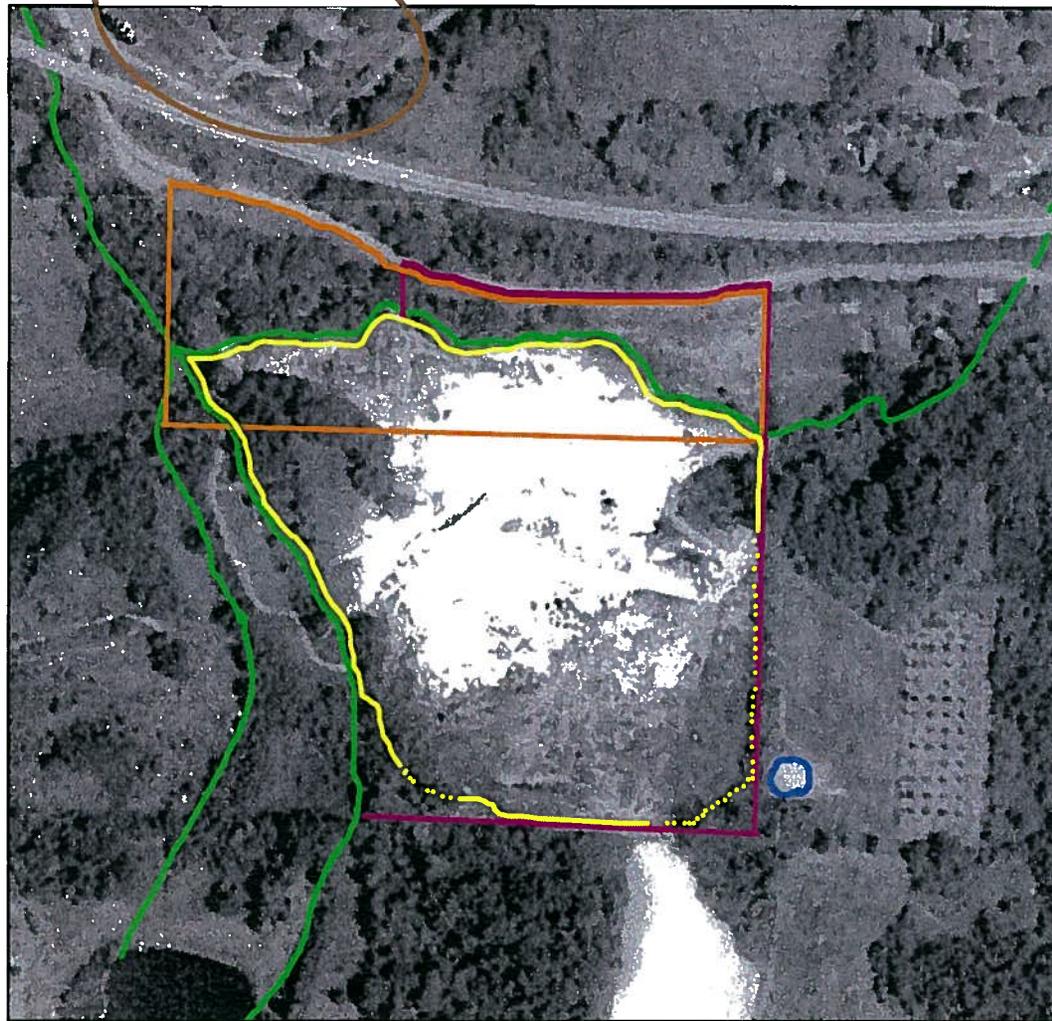
Drawing Description  
1974 Aerial Photograph

Collinsville Landfill  
Madison County, Illinois

Project No.: 17841  
Date: January 2008  
Drawn By: DWC

Figure Number

**B-6**



### Legend

- ..... Uncertain Boundary of Waste
- Boundary of Waste
- Southern/Eastern Landfill Property Boundary
- Extent Area 1 Coal/Gob Storage
- Extent Area 3 Pond
- Creeks/Tributary
- Former Area 2



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Drawing Description

1978 Aerial Photograph

Collinsville Landfill  
Madison County, Illinois

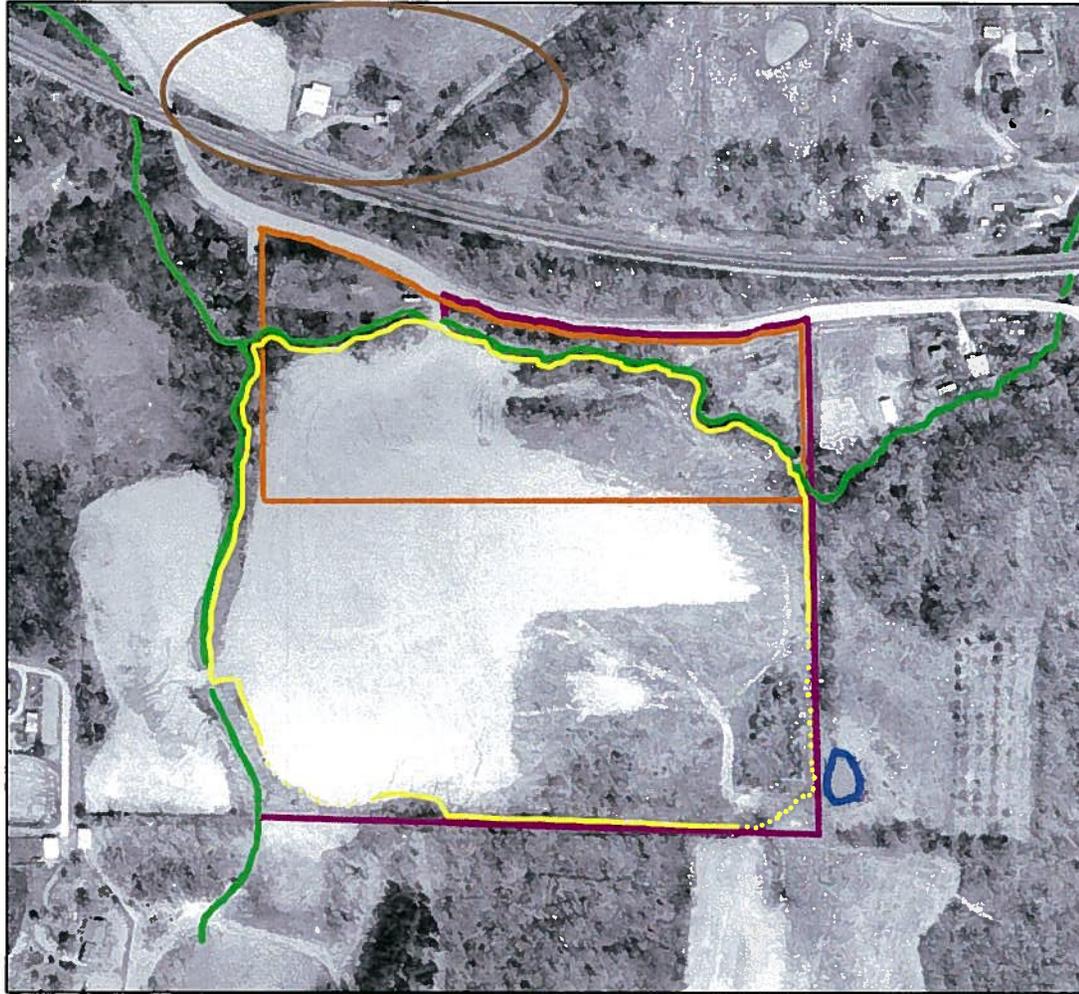
Project No.: 17841

Date: January 2008

Drawn By: DWC

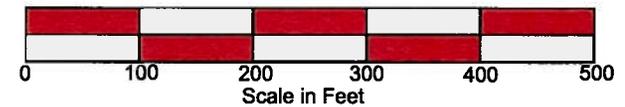
Figure Number

**B-7**



### Legend

- ..... Uncertain Boundary of Waste
- Boundary of Waste
- Southern/Eastern Landfill Property Boundary
- Extent Area 1 Coal/Gob Storage
- Extent Area 3 Pond
- Creeks/Tributary
- Former Area 2



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Drawing Description

1986 Aerial Photograph

Collinsville Landfill  
Madison County, Illinois

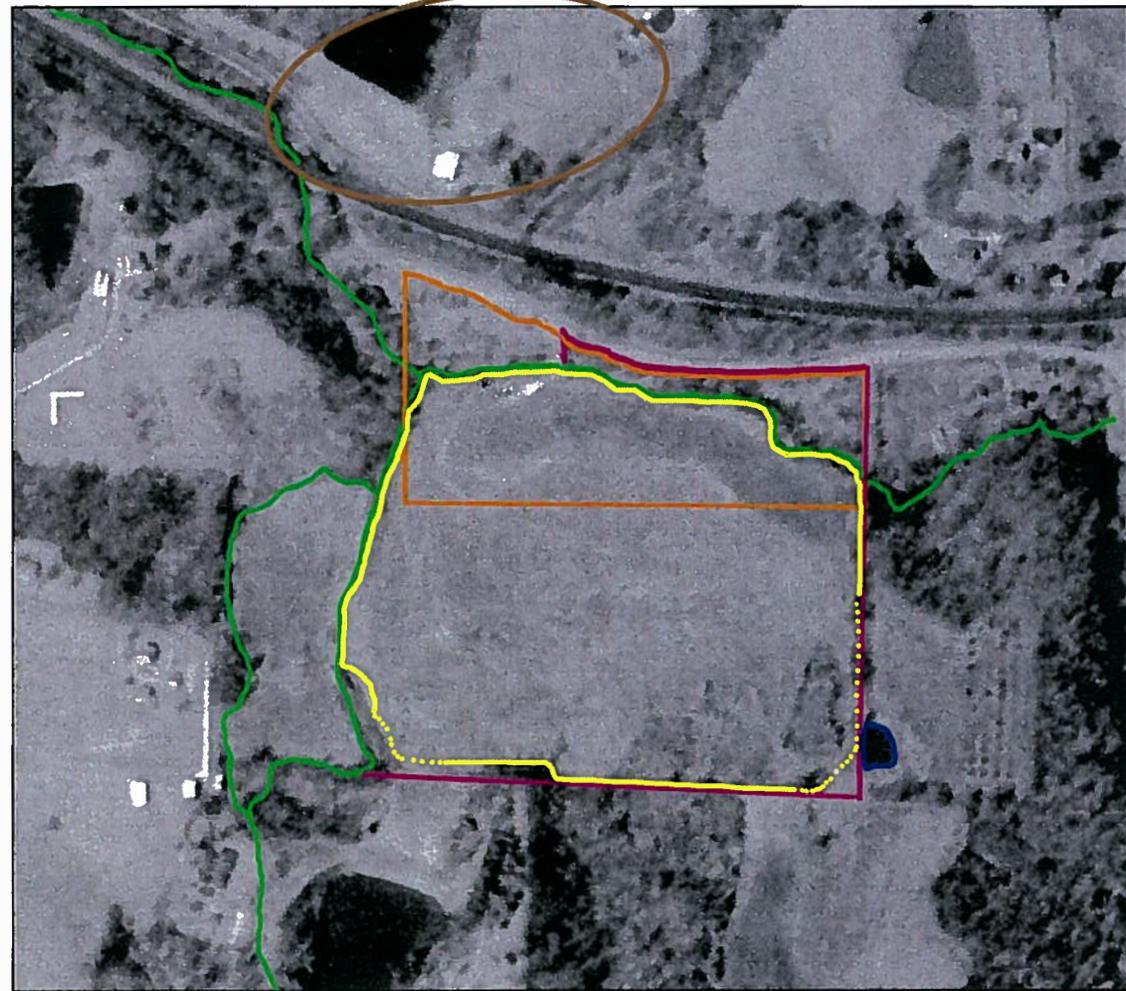
Project No.: 17841

Date: January 2008

Drawn By: DWC

Figure Number

**B-8**



### Legend

- ..... Uncertain Boundary of Waste
- Boundary of Waste
- Southern/Eastern Landfill Proper Boundary
- Extent Area 1 Coal/Gob Storage
- Extent Area 3 Pond
- Creeks/Tributary
- Former Area 2



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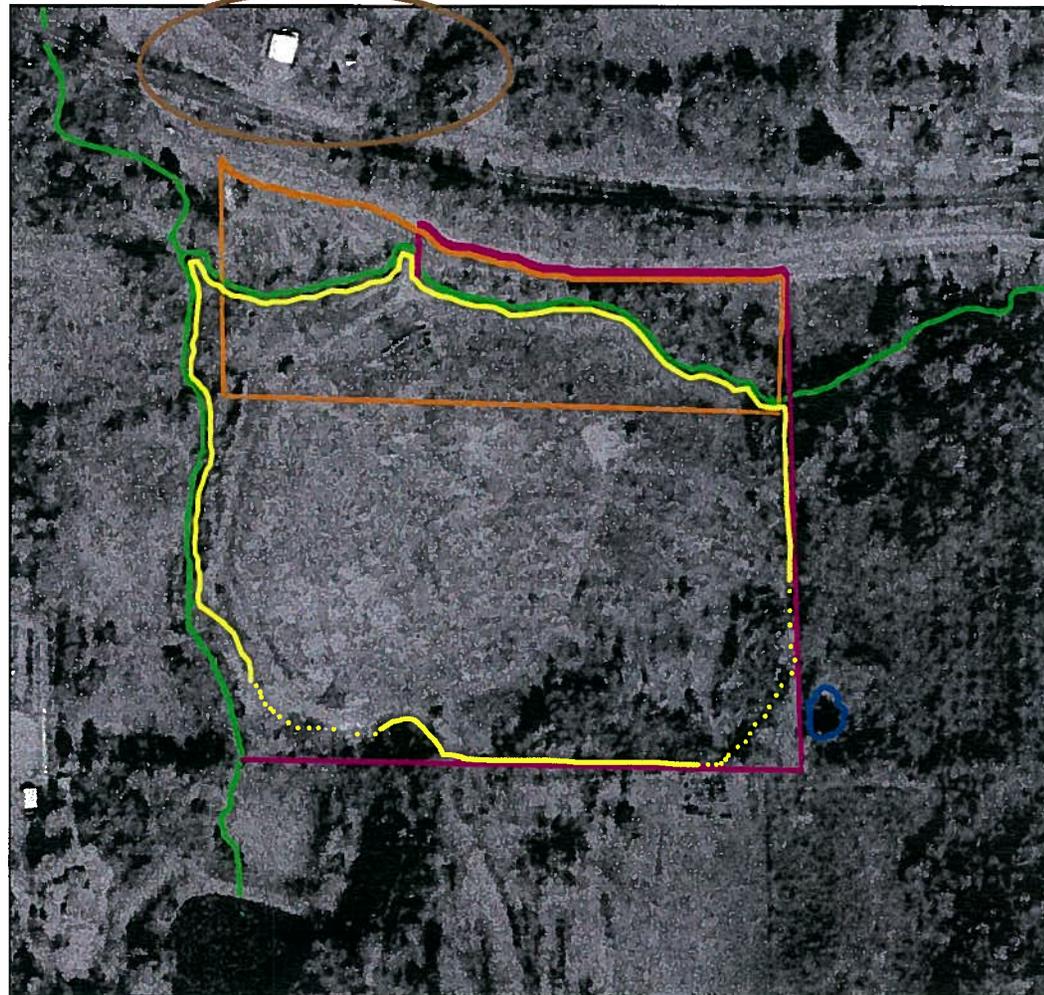
Drawing Description  
1988 Aerial Photograph

Collinsville Landfill  
Madison County, Illinois

Project No.: 17841  
Date: January 2008  
Drawn By: DWC

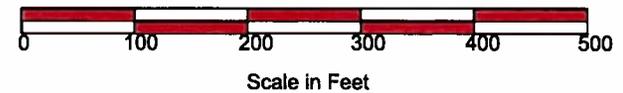
Figure Number

**B-9**



### Legend

- ..... Uncertain Boundary of Waste
- Boundary of Waste
- Southern/Eastern Landfill Property Boundary
- Extent Area 1 Coal/Gob Storage
- Extent Area 3 Pond
- Creeks/Tributary
- Former Area 2



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Drawing Description

1993 Aerial Photograph

Collinsville Landfill  
Madison County, Illinois

Project No.: 17841

Date: January 2008

Drawn By: DWC

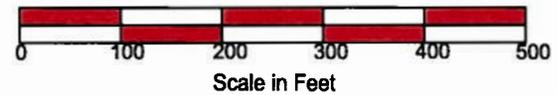
Figure Number

**B-10**



### Legend

- ..... Uncertain Boundary of Waste
- Boundary of Waste
- Southern/Eastern Landfill Property Boundary
- Extent Area 1 Coal/Gob Storage
- Extent Area 3 Pond
- Creeks/Tributary
- Former Area 2



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Drawing Description

1998 Aerial Photograph

Collinsville Landfill  
Madison County, Illinois

Project No.: 17841

Date: January 2008

Drawn By: DWC

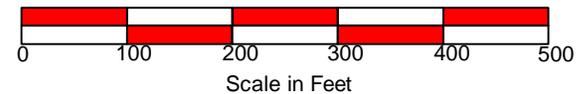
Figure Number

**B-11**



### Legend

- Boundary of Waste
- Southern/Eastern Landfill Property Boundary
- Extent Area 1 Coal/Gob Storage
- Extent Area 3 Pond
- Creeks/Tributary
- Former Area 2
- Additional 2006-2008 Assessment Monitoring Sample Locations
- Current Sample Locations
- S - Surface Sample
- P - Piezometer
- MW - Monitoring Well
- SB - Soil Boring



Petition for Adjusted Standards, 2013



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**Drawing Description**  
1998 Aerial Photograph  
Sample Locations

Collinsville Landfill  
Madison County, Illinois

**Project No.:** 31891

**Date:** January 2008 Rev: 2013

**Drawn By:** DWC; REB

**Figure Number**

**B-12**