

October 11, 2010

Mr. Scott Miller
Remedial Project Manager
U.S. Environmental Protection Agency
Region IV, Superfund North Florida Section
61 Forsyth Street, SW
Atlanta, GA 30303-3104

Subject: Transmittal of the workplan entitled: *“Field Investigation of Historical Linear Features Identified from Aerial Photographs and Potential Drum-Disposal Areas, Koppers Inc. Site, Gainesville, Florida”*.

Dear Mr. Miller:

On behalf of Beazer East, Inc. (Beazer), attached is a copy of the workplan entitled: *“Field Investigation of Historical Linear Features Identified from Aerial Photographs and Potential Drum-Disposal Areas, Koppers Inc. Site, Gainesville, Florida”*. The objective of this workplan is to investigate areas of the Koppers Inc. site (the Site) where aerial photographs show historical linear features in the northern portion of the Site and an area suspected of alleged drum disposal from recent verbal descriptions. Specifically, the areas to be investigated include what appear to be: 1) Six linear features in the northern portion of the Site that appear on historical aerial photographs; 2) An area to the west of the former North Lagoon where there is an anomalous “eyewitness” account of after-hours drum disposal; 3) The southwestern area of the Site where there is a separate anomalous account of potential drum and/or waste disposal; and 4) Historical disturbed areas in the northwestern area of the Site.

This workplan describes the approach to perform additional field investigations in the areas of the Site discussed above. Beazer will implement the workplan upon approval from the EPA. Should you require additional information, please feel free to contact me at (303) 665-4390.

Sincerely,



James R. Erickson, P.G.
Principal Hydrogeologist

Enclosure

cc: W. O’Steen, U.S. EPA
K. Helton, FDEP
J. Mousa, ACEPD
R. Hutton, GRU
M. Brouman, BEI
G. Council, GT

**FIELD INVESTIGATION OF HISTORICAL LINEAR
FEATURES IDENTIFIED FROM AERIAL
PHOTOGRAPHS AND POTENTIAL DRUM-DISPOSAL
AREAS
KOPPERS INC. SITE,
GAINESVILLE, FLORIDA**

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October 11, 2010

TABLE OF CONTENTS

1.0	INTRODUCTION.....	1
1.1	SITE DESCRIPTION	1
2.0	INVESTIGATION OBJECTIVES AND APPROACH	2
2.1	OBJECTIVE.....	2
2.2	REMOTE SENSING.....	2
2.2.1	GROUND PENETRATING RADAR INVESTIGATION	2
2.2.2	ELECTROMAGNETIC SURVEY INVESTIGATION.....	3
2.3	TRENCH EXCAVATIONS	4
2.4	DRUMS AND WASTE CONTAINER HANDLING.....	4
2.5	AREAS OF INVESTIGATION.....	4
2.5.1	DRUM INVESTIGATION FORMER NORTH LAGOON AREA.....	5
2.5.2	DRUM INVESTIGATION SOUTHWEST AREA	5
2.5.3	LINEAR FEATURES INVESTIGATION NORTH-CENTRAL AREA.....	6
2.5.4	SAW DUST/BARK AREAS INVESTIGATION NORTHWESTERN AREA	6
3.0	DATA ANALYSIS AND REPORTING	7

LIST OF FIGURES

- Figure 1. Site location map.
Figure 2. Investigation areas.

1.0 INTRODUCTION

This workplan describes the approach to the investigation of former disturbed areas and the “eyewitness” account of buried-drum disposal at the Cabot Carbon/Koppers Superfund Site (the Site) in Gainesville, Florida. This workplan includes a description of the proposed remote sensing electromagnetic (EM) and ground-penetrating radar (GPR) surveys and confirmation trenching.

1.1 SITE DESCRIPTION

The Site is located in the City of Gainesville, in Alachua County, Florida (Figure 1). The Site encompasses approximately 90 acres and has been used as an active wood-treating facility for approximately 90 years. Adjacent properties include the former Cabot Carbon portion of the Superfund Site and commercial facilities to the east, private residences to the west and northwest, and commercial facilities and private residences to the north and south.

Aerial photographs of the plant (1961 to 1974) show areas of disturbance and linear features in the north central area of the Site. Specifically the dates and conditions observed on the images are:

- A 1961 image showing an area in the northwest corner of the site that has apparently been cleared, but shows no other clear indication of disturbance;
- A 1965 image showing a potentially disturbed area immediately southeast of the area noted on the 1961 image. The area noted in the 1961 image appears to be vegetated and undisturbed in 1964;
- A 1968 image in the north central part of the site, near the present-day bark-stripping operation and to the north of the former North Lagoon showing what appears to be six parallel linear features;
- Two 1971 images and a 1974 image showing the same linear features that are noted on the 1968 image. Beginning in 1971, areas of disturbance (believed to be sawdust piles) are noted in the woods to the north of the linear features. The areas in the woods are known as the Sawdust/Bark Areas.

Recently, an “anomalous eyewitness” has reported seeing on July 4, 1968 after-hours disposal of 55-gallon drums into an open hole or pit, which was subsequently buried. The reported location of this hole or pit was on the western side of the former North Lagoon. In addition, there has been a separate anomalous account of potential drum/waste disposal along the west property boundary in the southwest area of the Site. No specific date or time-period was provided for the purported disposal in the southwestern area of the Site. Much of this information was presented to Beazer representatives at a Site meeting held on June 15, 2010. Citizens from the local community, as well as representatives from Alachua County Environmental Protection Division (ACEPD) explained these accounts.

2.0 INVESTIGATION OBJECTIVES AND APPROACH

2.1 OBJECTIVE

The objective of this workplan is to detail the approach to be used to investigate historical linear features and disturbed areas identified from aerial photographs, and a potential drum-disposal area at the Site. The investigation approach includes: 1) Conduct ground penetrating radar (GPR) and electromagnetic (EM) surveys over the suspected areas where potential buried drum disposal occurred; 2) Based on data generated during the GPR and EM surveys, perform trench excavations to confirm or refute the results of the GPR and EM surveys and to identify buried materials, if present; 3) Perform trench excavations in the area of the six historical linear features identified on aerial photographs; and 4) Perform test-pit excavations in the three disturbed areas in the northwestern portion of the Site. In addition, since there have been numerous surface and subsurface studies performed at and in the immediate vicinity of the areas to be investigated, the following existing information will be researched and evaluated: 1) Existing borehole lithologic logs, including references to NAPLs, odor, staining and/or PID detections; 2) Analytical data from shallow soil samples; 3) Shallow and deep groundwater analytical data; and 4) Aerial photos from 1961 to 1974.

The following subsections describe the methodologies to be used in the field investigation and the areas to be surveyed.

2.2 REMOTE SENSING

2.2.1 GROUND PENETRATING RADAR INVESTIGATION

The GPR is a non-invasive geophysical investigative technique deployed to detect and identify subsurface features, conditions, and objects characterized by a contrast in dielectric properties. This technique involves the transmission of microwave radiation into the ground from a receiver-transmitter antenna system that travels along the ground surface. Subsurface contrasts in the dielectric properties of varying materials present a surface from which reflections are generated. Accordingly, contacts between rock types, physical features such as cavities or disrupted sedimentary layers, and/or man-made objects such as metallic drums or pipes cause reflections that are recorded at the surface.

The intensity of the reflected signal is affected by the contrast in dielectric properties of materials, the electromagnetic conductivity of the medium through which the waves traverse, and the frequency of the signal. Digital signals are recorded and stored in a recorder for on-site visual color display and/or transferred to a computer for analysis. The radar survey will be conducted in general accordance with ASTM Standard D6432-99.

The GPR equipment to be used for this investigation is a Geophysical Survey Systems, Inc., (GSSI) SIR System-3000 radar device. This is a portable, digital-radar signal recorder. A 200-megahertz transceiver antenna will be used with a two-way travel time range of approximately 100 to 250 nanoseconds (site dependant). The nanosecond range will likely

require Site-specific adjustments to obtain maximum signal strength and penetration. Penetration depths for GPR signals are a function of lithologic type (with greater signal attenuation in clayey materials or brackish water) and frequency (with greater signal attenuation in higher frequency antenna systems). Actual depth of penetration varies based on local geology and subsurface conditions; however, the estimated penetration depth at this Site is expected to be approximately 12 to 15 feet.

For mapping and post-data acquisition anomaly identification purposes, the beginning and end of each GPR traverse will be recorded utilizing a Trimble GeoXT GPS unit. The Trimble GeoXT GPS unit provides sub-meter accuracy. GPR traverses will be conducted and data acquired in a uniaxial pattern at 10-foot line spacing for each section. This traverse configuration would provide 100 percent lateral coverage at signal penetration depths greater than approximately 7 feet; and will only result in approximately 20 percent of lateral coverage loss at a signal penetration depth of approximately 5 feet.

2.2.2 ELECTROMAGNETIC SURVEY INVESTIGATION

The EM survey will be performed using a GSSI Profiler EMP-400 transmitter-receiver instrument. The EMP-400 is a portable electromagnetic meter that measures apparent subsurface conductivity of deposits and metallic buried objects. The EMP-400 contains two sets of coils that are located on opposite sides of the transmitter-receiver instrument. One set of coils is used to transmit a primary magnetic field, which generates an electrical current in the ground. The electrical current generates a secondary magnetic field, which is sensed by the coils in the receiver end of the instrument.

The fundamental principle of electromagnetic induction is the measurement of the change in mutual impedance “ Q ” (or mutual coupling) between a pair of coils above the earth. Symmetrical source dipole-dipole frequency domain instruments are used to measure subsurface conductivity while the instrument is being advanced along the established transect. A receiver coil is positioned on or near the surface of the earth some distance away from the transmitter coil. The transmitted time-varying magnetic field generated by the transmitter coil induces secondary currents to flow in the subsurface, which in turn generate a secondary (*induced*) magnetic field. Both the induced secondary field, along with the primary field, is detected and recorded at the receiver coil.

Electromagnetic penetration depths are a function of lithologic type (conductive soils increase EM penetration) and frequency (generally greater penetration and reduced sensitivity with lower frequency). Up to three discrete frequencies can be simultaneously measured and recorded utilizing the EMP-400. Electromagnetic anomalies detected at the 10,000 Hz frequency may generally be associated with surficial or shallow buried metallic objects, while electromagnetic anomalies detected at the 2,000 Hz frequency may in general be associated with more deeply buried objects.

For purposes of identifying buried metallic objects located at unknown depths, a spread of frequencies (i.e. 2,000, 6,000, and 10,000Hz) will provide adequate coverage. Traverses will be conducted and data acquired in a uniaxial pattern at 5-foot line spacing per section. This

traverse configuration will provide less than 20 percent of lateral coverage loss. Based on surficial geology, the depth capability at the Site is estimated to be approximately 9 to 12 feet. The starting and ending locations for each EM traverse will be recorded utilizing a Trimble GeoXT GPS unit integrated with the EMP-400 unit, which provides sub-meter accuracy.

2.3 TRENCH EXCAVATIONS

In addition to the remote sensing performed in the area to the west of the former North Lagoon, a single trench will be installed in the central area of the alleged drum disposal area to further investigate the potential presence of drums (Figure 2). A single trench will also be installed perpendicular to the six linear features indentified in the north-central part of the Site to further investigate potential impacts in this area (Figure 2). Excavations will be performed at EM/GPR prioritized target locations to the west of the former North Lagoon, in the southwestern portion of the Site to investigate significant anomalies identified by the EM and GPR surveys, and in the northwestern area of the Site to investigate historically disturbed areas. Prioritized target excavation locations will be developed based on the results of the remote sensing analysis. Once completed, all trench and test pit locations will be surveyed to document and verify locations.

Prior to trenching, Sunshine One Call will be contacted to clear the areas for utilities. Trenching will be performed using a conventional excavator or backhoe utilizing a narrow bucket (1-foot) to minimize excavated soil generation. Trenches will be installed to a maximum depth of 8 feet or to the top of the water table, whichever is shallower. As trenching progresses, the observed subsurface lithology will be logged and photographically documented by a geologist. Excavated material will be screened for volatile organic vapors using a photoionization detector (PID), and evidence of staining, odor, NAPLs or other non-native conditions or materials will be noted. All excavated soils generated from the trenching operation will be placed back in the trench to be used as backfill material when the excavation is completed.

2.4 DRUMS AND WASTE CONTAINER HANDLING

If drums or other waste containers are encountered, a sample of the impacted soil surrounding the drum will be collected for SVOCs, VOCs analysis and waste disposal parameters. At the completion of the investigation all trenches will be backfilled and a new workplan will be developed to address additional characterization or remedial actions, if needed.

2.5 AREAS OF INVESTIGATION

The primary areas to be investigated are identified on Figure 2. Other areas that are shown as having been cleared or disturbed in historical aerial images will be investigated or characterized using existing borehole, soil analytical and/or groundwater quality data (as described in Section 2.0). The following sections describe the areas to be investigated and field methods to be used at each individual area.

2.5.1 DRUM INVESTIGATION FORMER NORTH LAGOON AREA

The area immediately west of North Lagoon was identified by an anomalous person as a potential drum disposal area. To better define the area of disposal, this area will be surveyed simultaneously using a combination of GPR and EM methods. Because of degradation of the drum's metallic properties over time (in excess of 40 years), both methods will be used to complement one another and to minimize the effects of potential interferences. Interpreted data from these surveys will be used to evaluate targets for further investigation and confirmation by trenching. This area is approximately 100 feet wide 250 feet long and is anticipated to require approximately 11 GPR transects and 21 EM transects along 250-foot lines. Prior to the surveys taking place, traverse lines will be established on 10-foot centers to guide the data collection.

In addition to the remote sensing surveys, a confirmation trench is anticipated to be advanced in the area to west of North lagoon. The trenches will extend to a maximum depth of 8 feet, or until the water table is encountered. The trenches will provide visual confirmation of the presence or absence of drums at that location. Trench location(s) will be determined after evaluation of the remote sensing survey data. Data anomalies will be used to prioritize potential trenching target locations.

2.5.2 DRUM INVESTIGATION SOUTHWEST AREA

The strip of land along the property boundary in the southwest portion of the Site was also identified by an anomalous person as having been used for drum or waste disposal. Because this area is heavily vegetated with trees and/or covered with debris such as poles and railroad ties, access is limited and survey of the entire area is not possible. This area covers approximately 300 feet by 1,250 feet. The geophysical contractor estimates that approximately 20 to 25 percent of this area will be accessible to remote sensing. Prior to the survey taking place, areas that can be surveyed will be identified and traverse lines will be established to guide data collection.

The accessible portions of this area will be surveyed using EM. If anomalies are identified, they will be marked with a stake or pin flag, then investigated with GPR (if the area is accessible to GPR). If data indicate, a confirmation trench will be excavated at the marked location. Depending on the results of the initial survey, site clearing and additional remote sensing may be performed using the methods described above.

Confirmation trenches may be advanced in this part of the Site based on the results of the remote sensing survey. The trenches will extend to a maximum depth of 8 feet or until the water table is encountered. The trenches will provide visual confirmation of the presence or absence of drums, debris, disturbance or other impacts. Data anomalies will be used to prioritize potential trenching target locations.

2.5.3 LINEAR FEATURES INVESTIGATION NORTH-CENTRAL AREA

Because the locations of the historical linear features are well-defined in this area by a number of aerial photographs, remote sensing is not necessary to identify the area of disturbance. Based on the aerial images, the locations for one confirmation trench will be surveyed to guide the excavation locations. The exploratory trenches will be oriented perpendicular to the six linear features and will be advanced to a maximum depth of 8 feet for visual and odor impacts consisting of NAPL staining, organic odors, and elevated PID detections.

2.5.4 SAW DUST/BARK AREAS INVESTIGATION NORTHWESTERN AREA

Several wells are located in and/or adjacent to this area in the north-central and northwest portion of the site. Lithologic samples were collected at all of the well locations, including core samples. The lithologic logs from wells and several near-surface soil samples do not indicate historical waste disposal in this area. The shapes of the piles observed on the aerial photographs for this area of the site are consistent with those of present-day sawdust and bark disposal. Based on the recent use of these areas for bark and raw (unpreserved and unprocessed) wood shaving disposal, we believe that use of this area has been limited to sawdust and bark disposal.

One shallow test pits will be installed in each of the three historical disturbed areas identified in the northwestern area of the Site (Figure 2). The test pits will be advanced to a maximum depth of 8 feet or until the water table is encountered. Deposits from these test pits will be screened for visual and odor impacts consisting of NAPL staining, organic odors, and elevated PID detections. Samples of excavated soils with visual NAPL staining and/or elevated PID detections will be collected for laboratory analysis of volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs).

3.0 DATA ANALYSIS AND REPORTING

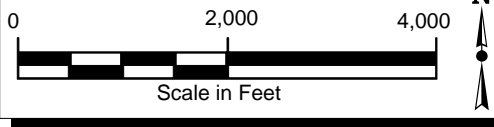
The data and observations generated during this investigation will be documented and if necessary, used to plan remedial actions related to this investigation.

A final report detailing the data collection and trenching results will be prepared approximately 6 weeks following the completion of the investigation.

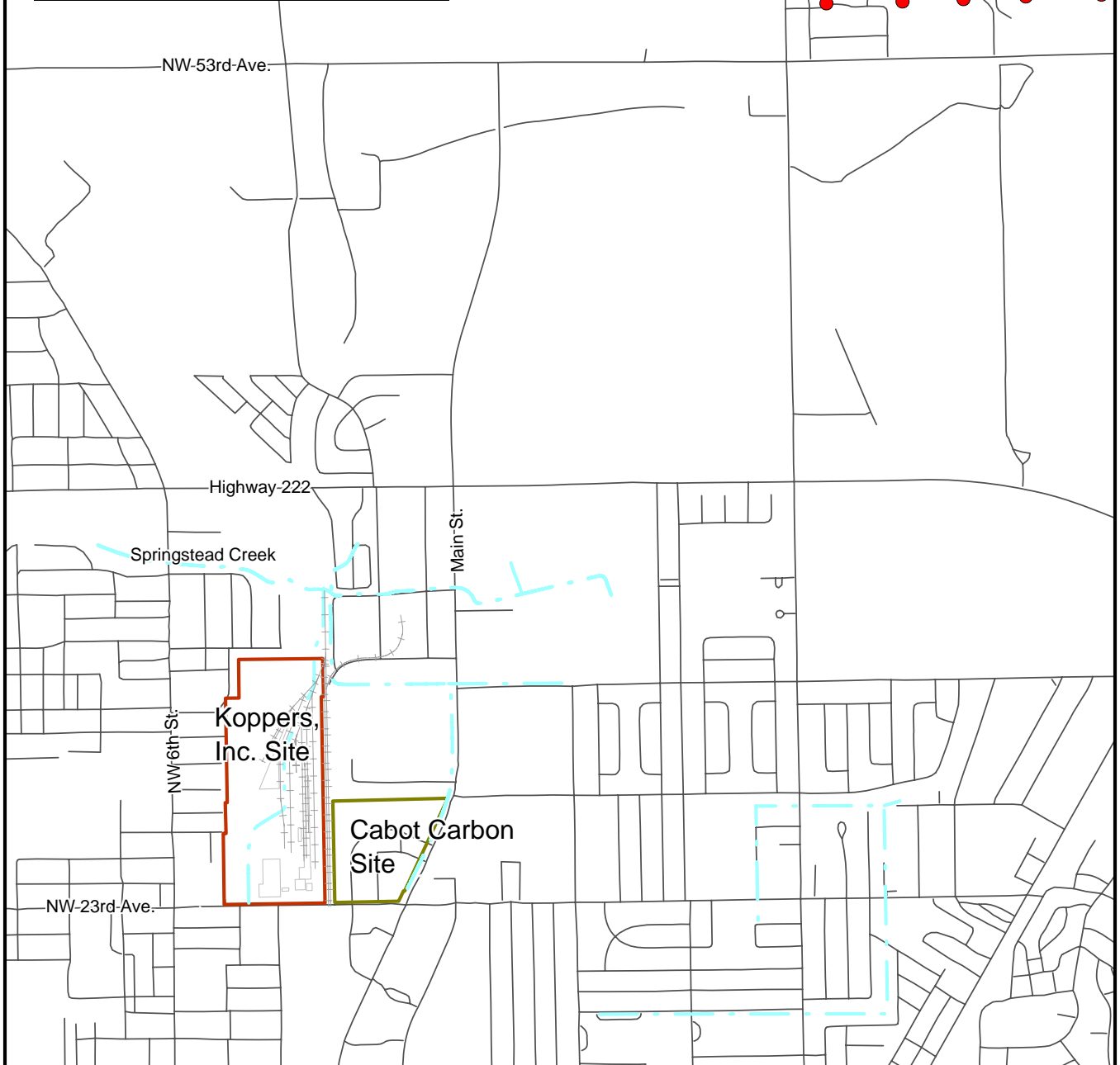
FIGURES

Explanation

- KI Site Boundary
- Cabot/Carbon Site Boundary
- Drainage Ditch
- + Railroad
- Street
- Water Treatment Plant pumping well



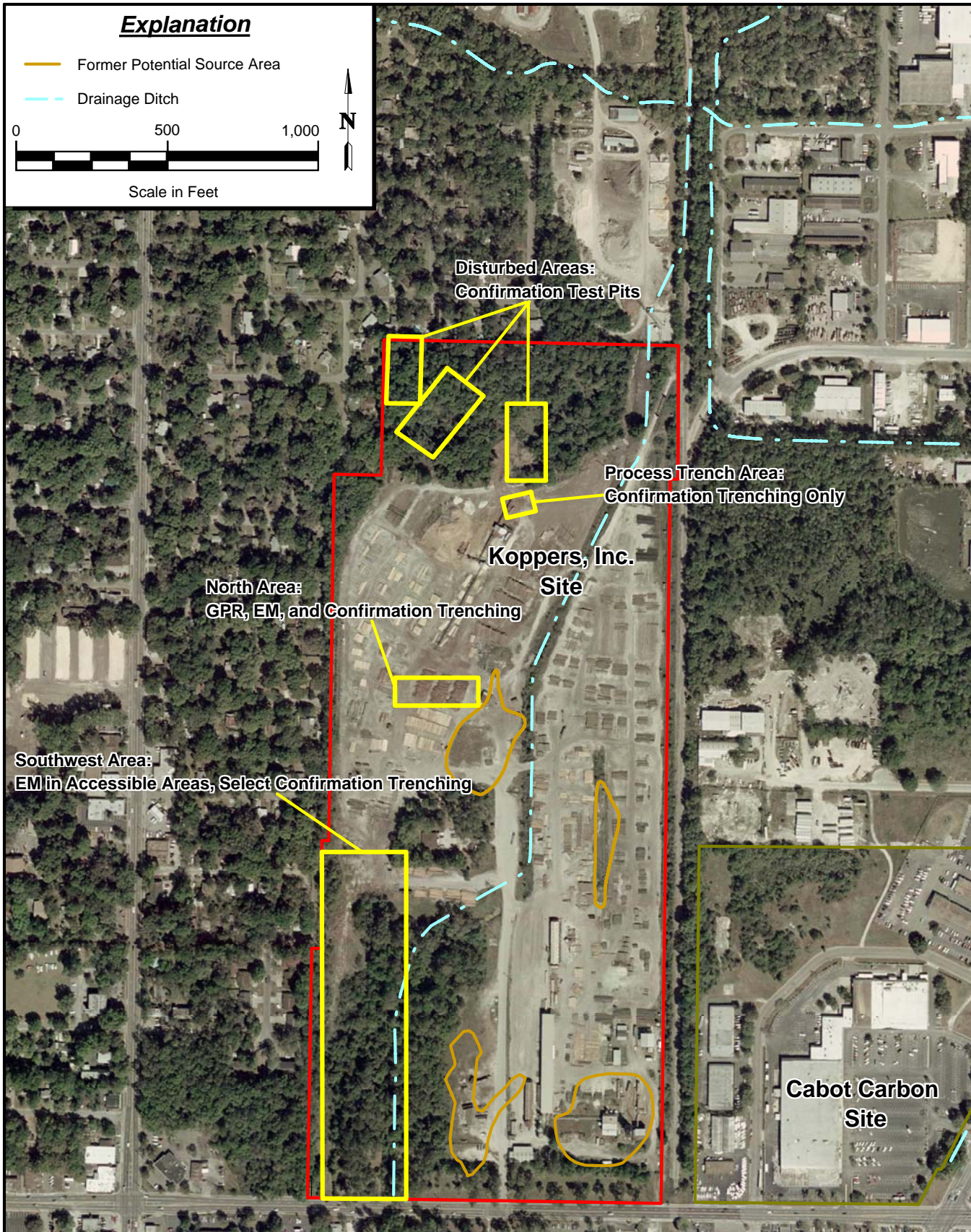
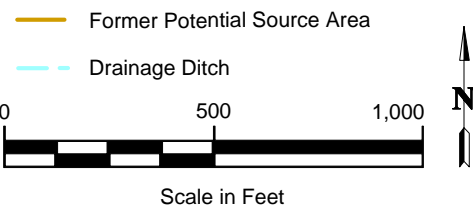
Murphree Well Field



TITLE:		SITE LOCATION MAP	
LOCATION:		Cabot Carbon/Koppers Superfund Site, Gainesville, Florida	
CHECKED	JRE	FIGURE:	
DRAFTED	SKU	1	
FILE	Figure 1-1.WOR		
DATE	07-14-06		



Explanation



TITLE: Investigation Areas.

LOCATION: Cabot Carbon/Koppers Superfund Site, Gainesville, Florida



CHECKED	JRE
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FILE	InvestigationAreas
DATE	10/11/2010

FIGURE:
2

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