Appendix T

Geophysical Survey Report

Atlas Scrap Yard

GEOPHYSICAL REPORT

GEOPHYSICAL INVESTIGATION
ATLAS SCRAP YARD,
RAVENNA ARMY
AMMUNITNION PLANT,
RAVENNA, OHIO

Submitted to:

US ARMY TACOM
BRAC Technical Support Office
Rock Island, Illinois 61299-7630

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November 10, 2004

Contents

1.0 Introduction

1.1 Project Objectives

This report covers the procedures and results of an electromagnetic (EM) geophysical survey conducted in the Atlas Scrap Yard at Ravenna Army Ammunition Plant (RVAAP), Ravenna, Ohio. The work was performed by MKM Engineers, Inc. (MKM) during August 2004.

The objective of the geophysical survey was to perform a non-intrusive investigation to locate subsurface metallic targets that could be underground storage tanks (USTs). Following the geophysical survey, a secondary objective was to provide a coordinate list for all possible USTs to support future verification by excavation activities planned at the site.

1.2 Site Description

The survey area includes two sites that were previously occupied by filling stations. Photographs of the survey sites are located in Appendix A.

Site 1 is comprised of approximately 1.4 acres of open terrain. Cultural features present at the site include metal posts, an electrical box, and a pile of rocks and concrete. Additionally, numerous small metal items were scattered across the surface of the site at the time of the geophysical survey. Electromagnetic measurements are influenced by electrical power lines and surface metal. Because of this, it may not be possible to detect subsurface metallic items, such as USTs, that are buried in the vicinity of these items.

Site 2 is located north of Site 1. It comprises roughly one-half acre of partially wooded terrain. The surface is covered with similar metallic items as found in Site 1. Concrete slabs are present at the site.

An archival drawing of the filling stations is located in Appendix B. The drawing depicts the layout of the filling stations and their proximity to the roads. According to the drawing, three different types of storage tanks were located at the filling stations:

- Under Gas Tank, 1,000 gallons, approximately 10 feet by 7 feet in size;
- Under Kerosene and Fuel Oil Tank, combined total of 3,000 gallons, approximately 10 feet by 10 feet in size;
- Raised Supply Storage Gas Tank, 10,000 gallons, approximately 15 feet by 9 feet in size.

2.0 Survey Logistics

2.1 Equipment

2.1.1 Geonics EM61 MK2

The Geonics EM61 MK2 is a time-domain electromagnetic (EM) metal detector which detects both ferrous and non-ferrous metal objects (Figure 2-1). It consists of a single set of one-half by one-meter coils. The transmitter generates a pulsed primary magnetic field in the earth which induces eddy currents in nearby metallic objects. The eddy current decay produces a secondary magnetic field which is measured by the receiver coils. The responses are recorded and displayed by an integrated data logger.

The EM61 MK2 is designed so that a low level and/or constant signal is received when no metal is present. When metal is present, an increased signal is received. This signal is generally highest when the coils are located directly over the metal object. Gridded and contoured EM61 data will produce a "bulls-eye" type anomaly for isolated metal objects.

Figure 2-1: EM61 MK2 and Operator

2.1.2 Geonics EM31 MK2

The Geonics EM31 MK2 is an electromagnetic terrain conductivity meter (Figure 2-2). The EM31 maps geological variations, groundwater contaminants, or any subsurface feature associated with changes in ground conductivity. The instrument consists of a four meter boom with an internal transmitter coil on one end and a receiver coil on the other. The effective depth of exploration is about six meters.

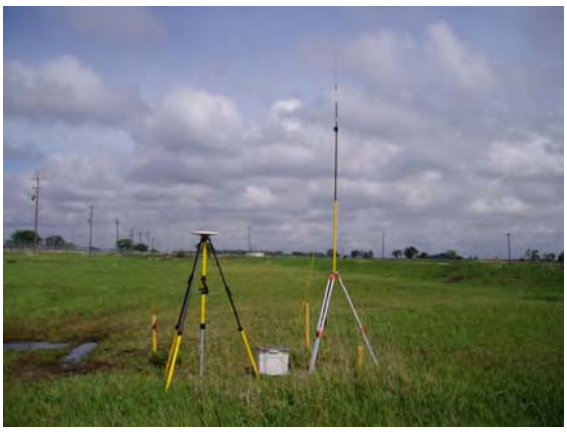
Ground conductivity and in-phase measurements can be read directly from the data logger screen. Small changes in ground conductivity can be measured while the equipment operator traverses the survey area. The in-phase component is especially useful for detecting buried metal hazardous waste.

Figure 2-2: EM31 MK2 and Operator

2.1.3 Global Positioning System (GPS)

The Trimble GPS Total Station 5700® with 5800 RTK Rover was used to provide survey control at the Atlas Scrap Yard (Figure 2-3). The GPS base station was located within one to two miles, line of site, from the survey area. The base station receiver was set up over a known control point and spatial positional corrections were transmitted in real time to the GPS rover receiver via a radio modem. This system can provide positional accuracy of about 3 cm for stacked, stationary readings.

Figure 2-3: Trimble 5700 Base Station



2.2 Data Collection

A grid system measuring 100 feet by 100 feet was laid out at each survey site. The positions of the grid corners were collected with the Trimble 5700/5800 GPS System. One survey control point, labeled "NAVD88", was utilized during the survey. Site 1 was divided into six grids and Site 2 was divided into two grids. At Site 1, all twelve grid corners were measured with GPS. Because of dense tree cover at Site 2, only two grid points were measured with GPS (A201 and A202). Positions for the remaining stakes were obtained with a tape measure. A list containing the State Plane coordinates for each measured grid point is located in Appendix C.

Electromagnetic data were collected with the EM61 along N-S survey lines spaced five feet apart. Positional data for the survey were provided by an integrated wheel counter set to record distance traveled as a function of wheel rotation. With this system, a data point was collected every 0.6 feet along survey lines. During data processing, local grid coordinates were warped into State Plane coordinates using the grid corner positions acquired during the GPS survey. Positional accuracy for this system is estimated at about three feet along survey lines and five feet perpendicular to survey lines in areas of open terrain. A lesser degree of positional accuracy is expected for data collected in areas with thick brush and trees.

EM31 data were collected at two grids within Site 1 and one grid within Site 2. Survey grids were selected for EM31 data collection based on the expected location of USTs as well as the results of the EM61 survey. Data were collected with the EM31 along N-S lines spaced 5 feet apart with a data point collected every five feet. Supplementary EM31 data were collected along E-W survey lines. All E-W lines were spaced ten feet apart and a data point was collected every ten feet. Local grid coordinates were warped into State Plane coordinates during data processing. Positional accuracy for this system is estimated at about five to ten feet in areas of open terrain. A lesser degree of positional accuracy is expected for data collected in areas with thick brush and trees.

2.3 Data Processing

Data were downloaded from the data loggers to a field laptop at the end of each day. The DAT61 and DAT31 software applications were used to set the survey geometry for each data file in local grid coordinates. Data were exported from DAT61 and DAT31 in xyz format and imported into Geosoft's Oasis montaj© mapping software for analysis. All data files were checked for correctness and completeness. Local coordinates were warped into Ohio State Plane coordinates utilizing the grid corner positions acquired during the GPS survey. A drift correction was applied to the EM61 data to remove the effects of DC bias and sensor drift. Since the EM31 provides a measurement of ground conductivity, no drift correction was applied to the EM31 data files.

All EM data were gridded and displayed as color maps for interpretation by the processor. Electromagnetic anomalies interpreted as buried metal were picked from the EM61 data. To accomplish this, a peak-picking algorithm with a threshold of 10mV was used. With this method, the peak positions of anomalies exhibiting readings of 10mV or higher were digitized. Anomalies exhibiting characteristics consistent with that of a UST were selected for further investigation. Because artifacts resulting from the gridding process can be misleading, data profiles were carefully examined during interpretation.

3.0 Results

3.1 General

Figures 3-1 through 3-6 show color maps of the electromagnetic data collected at two sites within the Atlas Scrap Yard. A total of 20 anomalies were selected for further investigation. It is expected that the EM response from a UST will result in an anomaly that is slightly larger in diameter than the UST itself. The size of the anomaly is dependent on the depth of the item. For example, a UST located at greater depth will produce an EM anomaly that is larger in diameter but smaller in magnitude than a similar size UST at a more shallow depth. Based on an archival drawing of the service station (Appendix B), the minimum tank size is expected to be about 10-feet by 7-feet. Because of this, all EM anomalies with a minimum diameter of about 12-feet by 10-feet were selected for further investigation. These anomalies are outlined on the figures. It is possible that some of these anomalies may correspond to surface metal items and can, therefore, be eliminated from further investigation.

Several smaller anomalies are also present in the data. Many of these anomalies are expected to correspond to surface or near-surface metal items. Even though these anomalies do not meet the size criteria of a possible UST, there is a possibility that they may be masking buried items, such as USTs, that are located at greater depth. A tabulated list of these anomalies can be found in Appendix D.

3.2 Site 1

Figure 3-1 shows a color map of the EM61 data collected at Site 1. The figure depicts Channel 1 of the EM61 data in Ohio State Plane coordinates. The color scale has been selected in order to minimize the appearance of small anomalies that are not expected to correspond to possible USTs. A total of 371 anomalies were selected from the EM61 data. Eleven of the anomalies fit the size criteria for possible USTs and have been selected for further investigation. Table 1 provides details concerning these eleven anomalies. A list containing coordinates for the remaining anomalies can be found in Appendix D.

Table 1: Site 1 EM61 Anomalies Selected for Further Investigation

Anomaly ID	*Easting (survey feet)	*Northing (survey feet)	Amplitude (mV)	Approx. Size (feet)
1	2366986.75	557083.98	659.0	22 x 12
2	2367004.17	557097.45	790.9	20 x 18
3	2367046.20	557097.91	563.0	15 x 17
4	2367119.58	557103.02	138.0	22 x 12
5	2367061.99	557156.90	278.4	12 x 10
6	2367091.95	557163.40	293.3	25 x 10
7	2367107.04	557150.63	193.2	12 x 11
8	2367120.04	557169.21	1141.1	12 x 12
9	2367097.98	557216.35	2220.5	17 x 15
10	2367098.68	557313.65	800.0	30 x 15
11	2367006.49	557363.81	1417.9	17 x 15

*NAD83 Ohio North Zone, State Plane Coordinates

The majority of anomalies selected for further investigation are located in the southern half of the site. It is possible that some of these anomalies are caused my multiple, closely spaced metal objects. The locations of anomalies 1 and 2 correspond to mapped surface features, but the size of the anomalies suggests that buried metal may also be present at these locations. Several of the anomalies (6, 7, 8, and 10) are located in areas where individual anomaly boundaries are difficult to define due to the presence of overlapping anomalies.

Figures 3-2 and 3-3 show color maps of the EM31 data collected over the two southern grids. Based on the location of the road and the results of the EM61 survey, it is believed that this portion of Site 1 represents the area that is most likely to contain USTs. On the maps, yellow and green colors represent background readings. Blue and pink colors indicate anomalously low or high readings associated with changes in subsurface conductivity. The anomalous high area along the western edge of the site corresponds to the location of the road. The locations of anomalies picked from the EM61 data are superimposed on the figures. No additional anomalies were selected from the EM31 data.

3.3 Site 2

A color map of the EM61 data collected at Site 2 is displayed in Figure 3-4. There are two gaps in the data coverage due to the presence of surface obstacles. A total of 109 anomalies were selected from the EM61 data. Nine of the anomalies fit the size criteria for possible USTs and have been selected for further investigation. These anomalies are outlined on the figure and listed in Table 2. In addition, the outline of one anomaly picked from the EM31 is superimposed on the figure. A list containing coordinates for the remaining anomalies picked from the EM61 data can be found in Appendix D.

Table 2: Site 2 EM61 Anomalies Selected for Further Investigation

Anomaly ID	*Easting (survey feet)	*Northing (survey feet)	Amplitude (mV)	Approx. Size (feet)
372	2366923.80	557960.63	165.6	22 x 8
373	2366928.51	557940.88	139.5	22 x 12
374	2366959.13	557938.89	349.5	16 x 12
375	2366948.08	557955.38	281.0	30 x 10
376	2366964.39	557985.46	533.9	15 x 12
377	2366945.36	557998.32	480.0	17 x 15
378	2366967.29	558008.65	131.3	12 x 10
379	2367006.07	557966.98	88.8	10 x 8
380	2367097.21	557981.83	163.1	13 x 12

*NAD83 Ohio North Zone, State Plane Coordinates

All but one of anomalies selected for further investigation are located in the western half of the site. It is possible that some of these anomalies are caused my multiple, closely spaced buried objects. Anomaly 379 is slightly smaller than the size criteria defined for possible USTs. However, this anomaly was selected for further investigation due to the limited EM61 data coverage near the anomaly and the fact that the EM31 data shows an anomaly in this area.

Figures 3-5 and 3-6 show color maps of the EM31 data collected at Site 2. One anomaly was selected from the EM31 data. Although the anomaly appears too large to be associated with a UST, the exact size cannot be determined because it appears to extend beyond the boundaries of the EM31 data collection. The EM61 data does not show an analogous anomaly at this location. It is possible

that the anomaly is the result of influence from a non-metallic buried feature that cannot be detected with the EM61, like a building foundation or non-metallic pipe. Another possibility is that the anomaly is caused by the influence of buried metal that is located beyond the depth detection capabilities of the EM61.

4.0 Conclusions

A geophysical survey was performed at two sites within the Atlas Scrap Yard to locate subsurface metallic targets that could be underground storage tanks. The Geonics EM61 MK2 metal detector was used to map approximately 2 acres of terrain. Based on the results of the EM61 survey, approximately three-fourths of an acre was mapped with the Geonics EM31 terrain conductivity meter. Color maps of the EM data are shown in Figures 3-1 through 3-6. A total of 480 anomalies were picked from the EM61 data (Appendix D). Twenty anomalies fitting the size criteria for a possible UST were selected for further investigation (Tables 1 and 2). One additional anomaly was picked from the EM31 data collected at Site 2. Although this anomaly does not fit the expected size of a buried UST, it may correspond to remnants of structures associated with the filling station.

Photograph 1: Atlas Scrap Yard, Site 1.

Photograph 2: Metal Lids at Site 1.

Photograph 3: Pipe and electrical wire at Site 1.

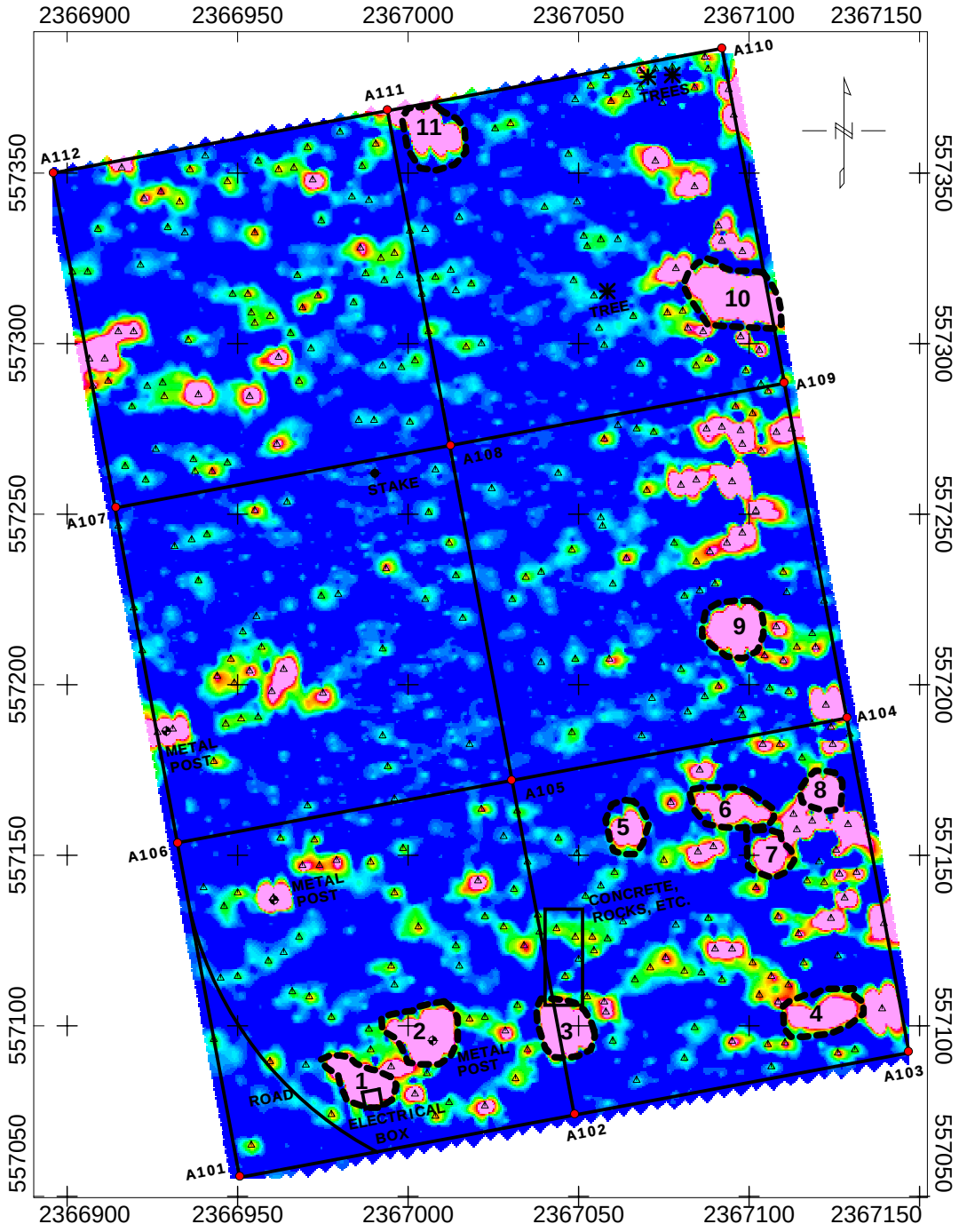
Photograph 4: Pile of concrete and rocks at Site 1.

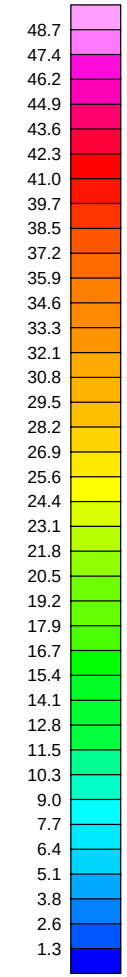
Photograph 5: Atlas Scrap Yard, Site 2.

Photograph 6: Another View of Atlas Scrap Yard, Site 2.

Photograph 7: Concrete pads at Site 2.

Photograph 8: Another view of concrete pads at Site 2.





Legend

- EM61 Anomalies ≥ 10 mV
- EM61 Anomalies Selected for Further Investigation

Scale 1:600

25 0 25 50 75

US survey foot

NAD83(CSRS98) / Ohio CS83 North zone

Figure 3-1
Ravenna Army Ammunition Plant
Atlas Scrap Yard
Site 1

EM61 Results
Channel 1
10/19/2004

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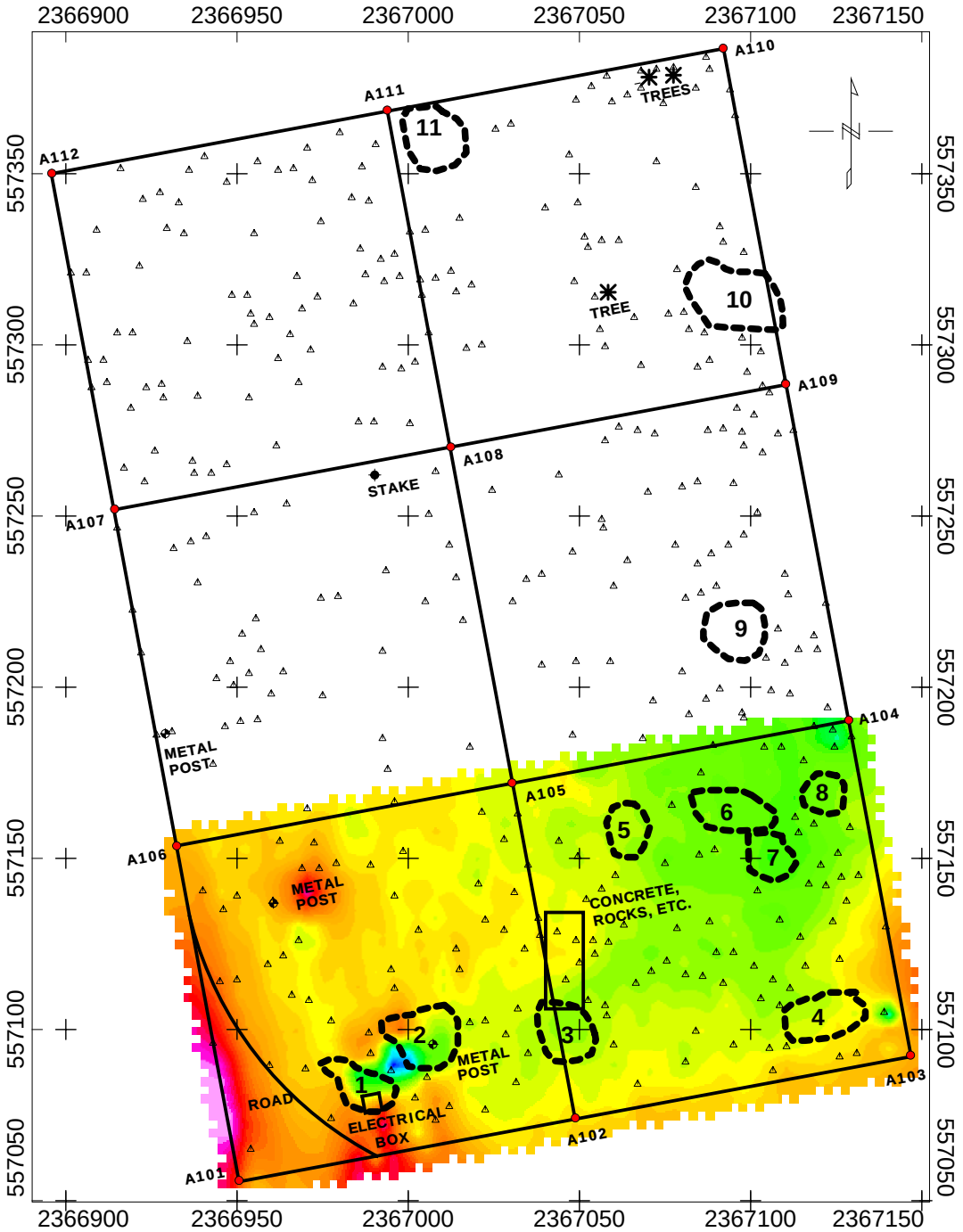

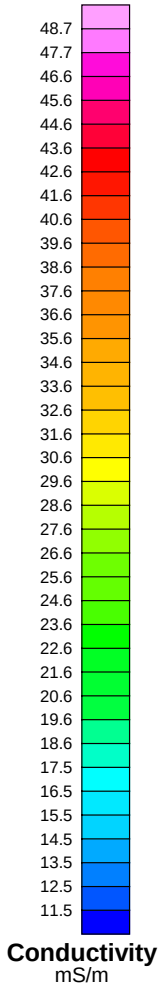

Legend

- EM61 Anomalies ≥ 10 mV
- EM61 Anomalies Selected for Further Investigation

Scale 1:600

25 0 25 50 75

US survey foot

NAD83(CSRS98) / Ohio CS83 North zone

Figure 3-2
Ravenna Army Ammunition Plant
Atlas Scrap Yard
Site 1

EM31 Results
Conductivity

10/19/2004

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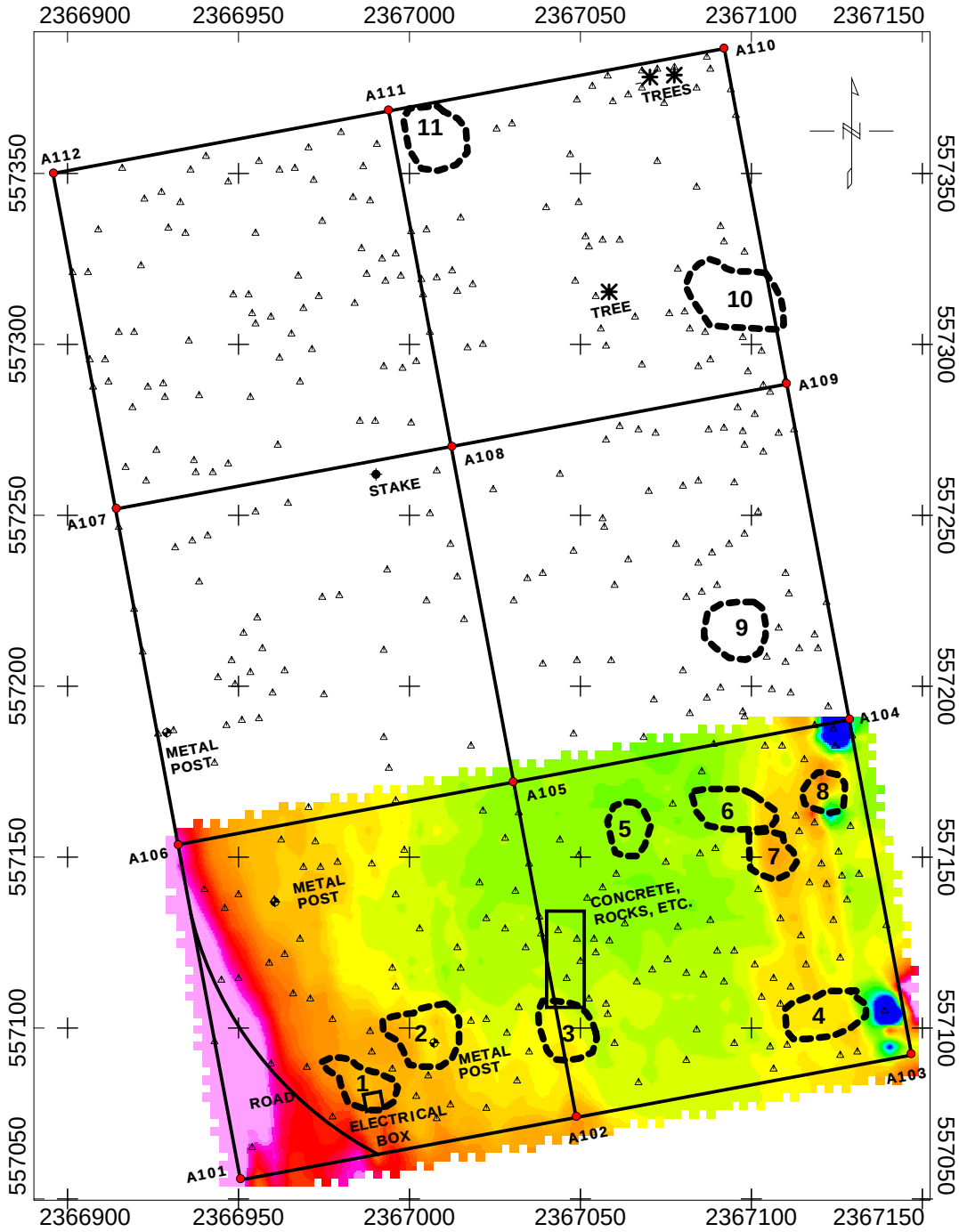
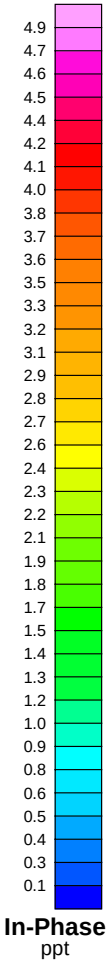
4153 Bluebonnet Drive
Stafford, Texas 77077





Legend

- EM61 Anomalies ≥ 10 mV
- EM61 Anomalies Selected for Further Investigation

Scale 1:600

25 0 25 50 75

US survey foot

NAD83(CSRS98) / Ohio CS83 North zone

Figure 3-3
Ravenna Army Ammunition Plant
Atlas Scrap Yard
Site 1

EM31 Results
In-Phase

10/19/2004

MKM Engineers, Inc.
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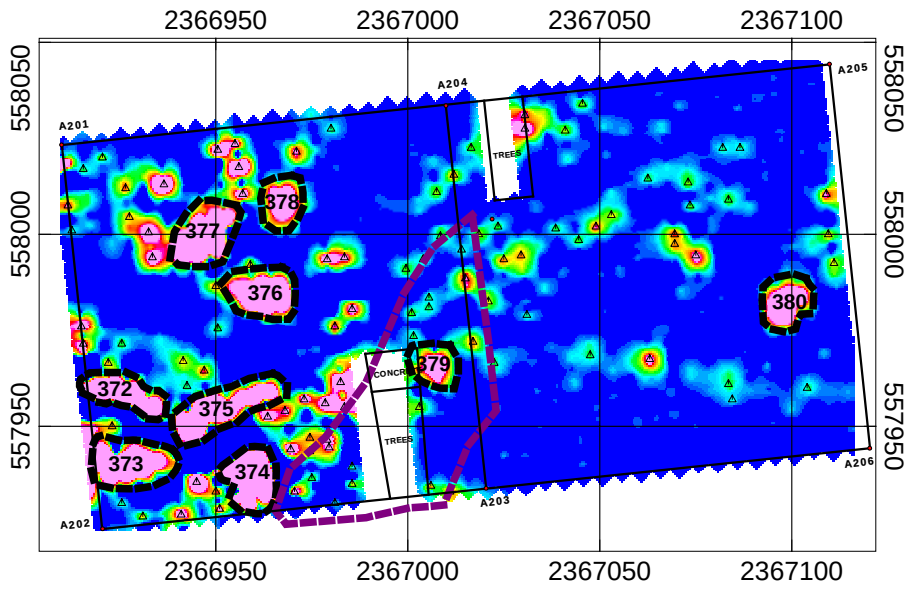
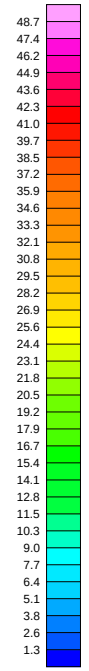
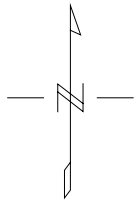
Stafford, Texas 77077

MKM







Legend

- EM61 Anomalies ≥ 10 mV
- EM61 Anomalies Selected for Further Investigation
- EM31 Anomaly

Scale 1:600

25 0 25 50 75

US survey foot

NAD83(CSRS98) / Ohio CS83 North zone

Figure 3-4

Ravenna Army Ammunition Plant
Atlas Scrap Yard
Site 2

EM61 Results
Channel 1

10/19/2004

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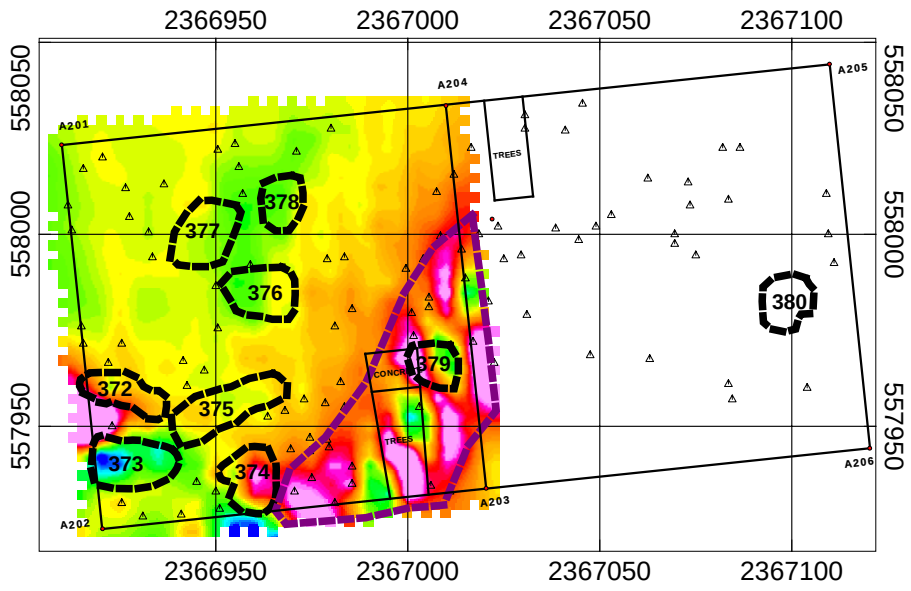

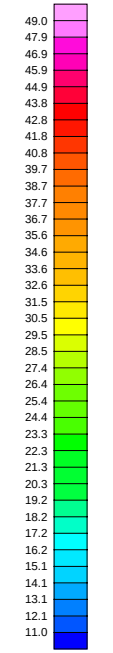

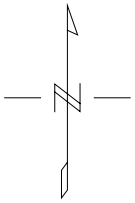

Legend

- EM61 Anomalies ≥ 10 mV
- EM61 Anomalies Selected for Further Investigation
- EM31 Anomaly

Scale 1:600

25 0 25 50 75

US survey foot

NAD83(CSRS98) / Ohio CS83 North zone

Figure 3-5
Ravenna Army Ammunition Plant
Atlas Scrap Yard
Site 2

EM31 Results
Conductivity

10/19/2004

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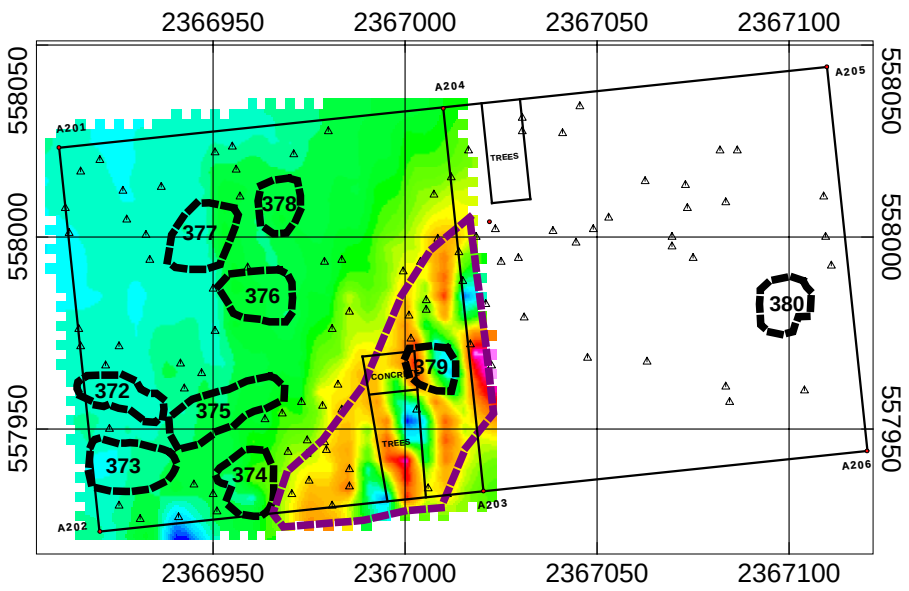
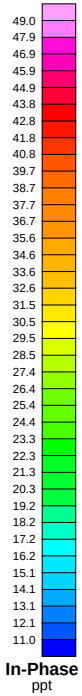
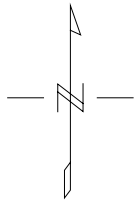
Stafford, Texas 77077

MKM







Legend

- EM61 Anomalies ≥ 10 mV
- EM61 Anomalies Selected for Further Investigation
- EM31 Anomaly

Scale 1:600

25 0 25 50 75

US survey foot

NAD83(CSRS98) / Ohio CS83 North zone

Figure 3-6
Ravenna Army Ammunition Plant
Atlas Scrap Yard
Site 2

EM31 Results
In-Phase

10/19/2004

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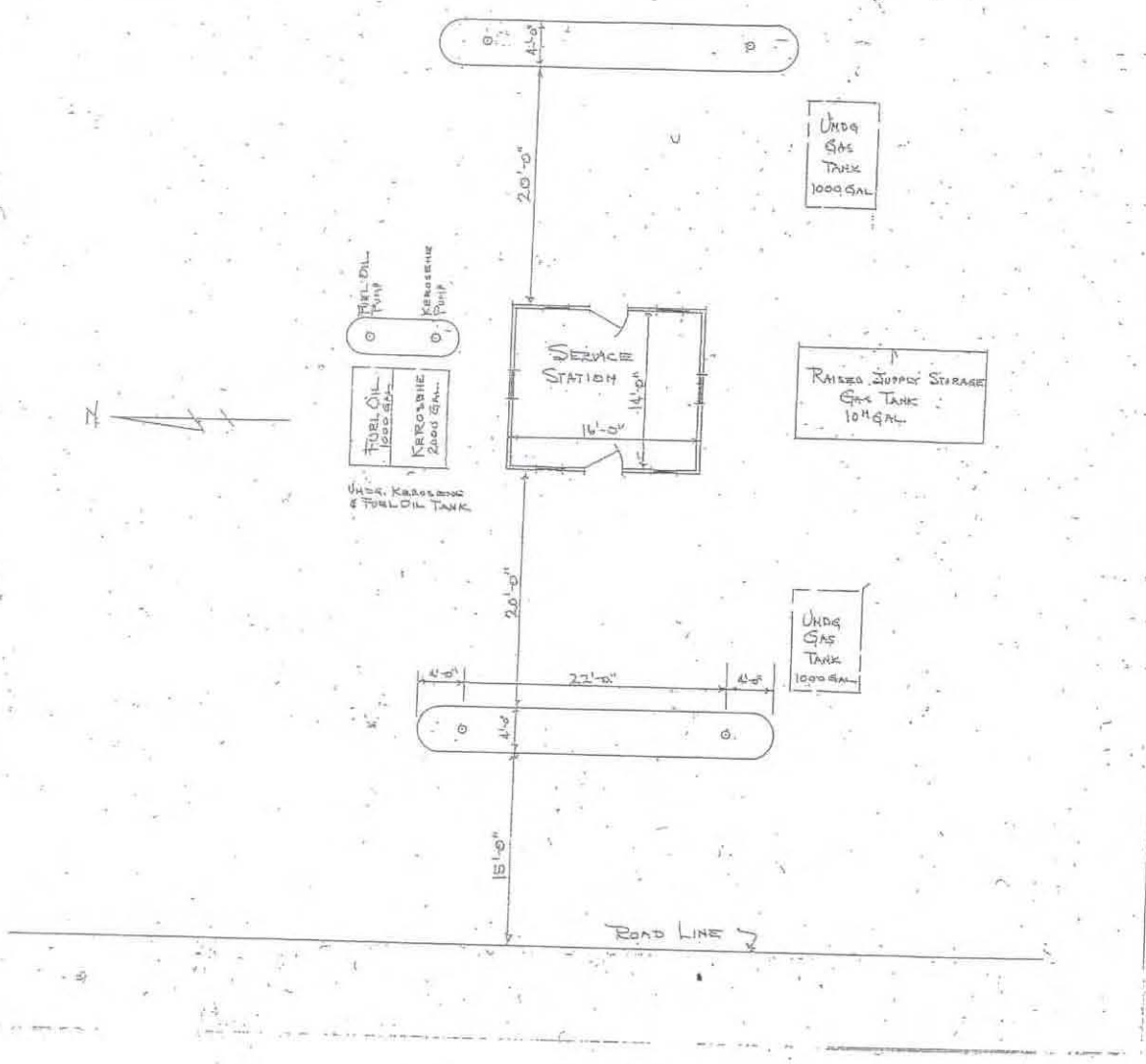
MKM



Scale 1/16" = 1'0"

Figure 7A: Underground Storage Tanks Associated with Service Stations at the Atlas Scrap Yard

Appendix C
Atlas Scrap Yard
Grid Coordinates

Point ID	*Easting (survey feet)	*Northing (survey feet)	*Elevation (survey feet)	Description
NAVD88	2367417.83	555004.36	983.84	GPS Base Station
A101	2366950.59	557055.52	980.37	Site 1
A102	2367048.62	557073.70	980.07	Site 1
A103	2367146.38	557091.85	979.57	Site 1
A104	2367128.73	557189.83	979.45	Site 1
A105	2367030.49	557171.92	979.33	Site 1
A106	2366932.65	557153.79	980.72	Site 1
A107	2366914.35	557251.97	980.28	Site 1
A108	2367012.35	557270.27	979.42	Site 1
A109	2367110.35	557287.88	979.61	Site 1
A110	2367092.43	557386.48	979.50	Site 1
A111	2366993.71	557368.18	979.78	Site 1
A112	2366897.04	557350.22	981.31	Site 1
A201	2366909.90	558023.25	980.88	Site 2
A202	2366921.13	557923.34	988.87	Site 2

*NAD83 Ohio North Zone, State Plane Coordinates

Appendix D
Atlas Scrap Yard
EM61 Anomalies ≥ 10mV

Anomaly ID	*Easting (survey feet)	*Northing (survey feet)	Amplitude (mV)	Location
1	2366986.75	557083.98	659.0	Site 1
2	2367004.17	557097.45	790.9	Site 1
3	2367046.20	557097.91	563.0	Site 1
4	2367119.58	557103.02	138.0	Site 1
5	2367061.99	557156.90	278.4	Site 1
6	2367091.95	557163.40	293.3	Site 1
7	2367107.04	557150.63	193.2	Site 1
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9	2367097.98	557216.35	2220.5	Site 1
10	2367098.68	557313.65	800.0	Site 1
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12	2366954.00	557065.00	36.3	Site 1
13	2367008.00	557073.50	37.5	Site 1
14	2366977.50	557074.00	33.7	Site 1
15	2367022.50	557076.50	153.4	Site 1
16	2367012.00	557077.50	15.3	Site 1
17	2367002.00	557080.00	151.3	Site 1
18	2367067.00	557084.00	11.3	Site 1
19	2367031.50	557084.50	34.8	Site 1
20	2367005.50	557086.00	22.9	Site 1
21	2366995.00	557088.00	153.2	Site 1
22	2367106.50	557088.00	15.2	Site 1
23	2366970.00	557088.50	10.7	Site 1
24	2366959.50	557089.50	40.0	Site 1
25	2367081.00	557090.50	15.4	Site 1
26	2367126.00	557092.00	56.0	Site 1
27	2366989.00	557093.00	27.0	Site 1
28	2367035.00	557093.00	45.0	Site 1
29	2367131.00	557093.00	24.1	Site 1
30	2367105.50	557094.50	44.2	Site 1
31	2367110.50	557095.00	55.0	Site 1
32	2367060.00	557095.50	13.1	Site 1
33	2367095.00	557095.50	75.1	Site 1
34	2366943.00	557096.00	15.5	Site 1
35	2367028.50	557098.50	95.8	Site 1
36	2366988.50	557099.00	15.8	Site 1
37	2367084.00	557099.50	15.3	Site 1
38	2367018.00	557102.00	34.3	Site 1
39	2366977.50	557102.50	23.3	Site 1
40	2367022.50	557102.50	19.6	Site 1
41	2367058.00	557104.00	92.6	Site 1
42	2367139.00	557105.00	4230.0	Site 1
43	2367032.00	557106.00	23.0	Site 1
44	2367057.50	557107.00	89.1	Site 1

Anomaly ID	*Easting (survey feet)	*Northing (survey feet)	Amplitude (mV)	Location
45	2367108.50	557107.00	61.6	Site 1
46	2366971.00	557108.50	33.1	Site 1
47	2367052.50	557108.50	28.2	Site 1
48	2367103.00	557109.00	39.0	Site 1
49	2366966.00	557110.00	17.8	Site 1
50	2366996.00	557112.00	12.2	Site 1
51	2367111.50	557112.00	42.7	Site 1
52	2367066.50	557113.50	18.0	Site 1
53	2367092.00	557113.50	19.9	Site 1
54	2366945.00	557114.00	11.8	Site 1
55	2366950.00	557114.50	16.1	Site 1
56	2367046.00	557114.50	31.4	Site 1
57	2367106.50	557114.50	54.8	Site 1
58	2367086.00	557115.50	13.9	Site 1
59	2367081.00	557116.00	25.8	Site 1
60	2367071.00	557117.00	32.0	Site 1
61	2366995.00	557117.50	35.5	Site 1
62	2367015.00	557117.50	12.0	Site 1
63	2367101.00	557118.50	38.1	Site 1
64	2367116.00	557118.50	33.4	Site 1
65	2366959.00	557119.00	14.6	Site 1
66	2367050.00	557119.50	14.6	Site 1
67	2367075.50	557120.00	51.9	Site 1
68	2367126.00	557120.50	13.1	Site 1
69	2366963.50	557121.50	10.2	Site 1
70	2367054.50	557122.00	30.7	Site 1
71	2367090.00	557122.50	163.5	Site 1
72	2367095.00	557122.50	133.9	Site 1
73	2367014.00	557123.50	17.0	Site 1
74	2367034.00	557123.50	50.7	Site 1
75	2367058.50	557125.50	14.5	Site 1
76	2366968.00	557126.00	12.6	Site 1
77	2367049.00	557126.00	25.2	Site 1
78	2367054.00	557126.00	37.1	Site 1
79	2367114.50	557127.00	70.3	Site 1
80	2367038.50	557127.50	17.3	Site 1
81	2367043.50	557128.50	34.5	Site 1
82	2367003.00	557129.00	35.7	Site 1
83	2367028.00	557129.00	26.5	Site 1
84	2367078.50	557129.50	10.0	Site 1
85	2367139.50	557130.00	389.5	Site 1
86	2367063.00	557130.50	13.0	Site 1
87	2367088.00	557131.50	20.6	Site 1
88	2367124.00	557131.50	278.4	Site 1
89	2367022.50	557132.00	20.7	Site 1
90	2367108.50	557132.00	62.7	Site 1
91	2367038.00	557132.50	20.7	Site 1
92	2366946.00	557135.00	16.9	Site 1

Anomaly ID	*Easting (survey feet)	*Northing (survey feet)	Amplitude (mV)	Location
93	2366960.50	557137.50	2464.0	Site 1
94	2367128.00	557137.50	283.0	Site 1
95	2367052.00	557138.00	14.9	Site 1
96	2366950.00	557139.00	30.6	Site 1
97	2366996.00	557139.00	37.2	Site 1
98	2367031.00	557140.00	20.4	Site 1
99	2366940.00	557140.50	10.2	Site 1
100	2367102.00	557140.50	50.4	Site 1
101	2367056.50	557141.00	13.8	Site 1
102	2367122.00	557142.00	29.9	Site 1
103	2367020.50	557142.50	122.2	Site 1
104	2367117.00	557142.50	26.8	Site 1
105	2367126.50	557144.50	130.6	Site 1
106	2367060.50	557145.00	20.2	Site 1
107	2367131.50	557145.00	97.0	Site 1
108	2366969.00	557147.00	94.9	Site 1
109	2366974.00	557147.00	48.0	Site 1
110	2366989.00	557148.00	33.9	Site 1
111	2367035.00	557148.00	12.1	Site 1
112	2367120.50	557148.00	11.9	Site 1
113	2366979.00	557148.50	70.9	Site 1
114	2367075.00	557148.50	29.4	Site 1
115	2367049.50	557150.50	10.0	Site 1
116	2367085.00	557151.00	202.7	Site 1
117	2367125.50	557151.50	82.7	Site 1
118	2366998.50	557152.00	23.3	Site 1
119	2367089.50	557152.50	165.7	Site 1
120	2366972.50	557154.50	38.3	Site 1
121	2366962.50	557155.00	29.0	Site 1
122	2367044.00	557155.00	16.2	Site 1
123	2367028.00	557155.50	10.2	Site 1
124	2367114.00	557157.50	523.9	Site 1
125	2367129.00	557159.00	691.0	Site 1
126	2367118.50	557160.00	248.8	Site 1
127	2367113.00	557162.00	123.0	Site 1
128	2367032.00	557163.00	26.2	Site 1
129	2367021.50	557163.50	55.0	Site 1
130	2366970.50	557164.50	10.9	Site 1
131	2367077.00	557165.50	63.9	Site 1
132	2366996.00	557166.50	15.3	Site 1
133	2367085.50	557175.00	240.2	Site 1
134	2366994.00	557176.00	23.4	Site 1
135	2366943.00	557177.50	42.5	Site 1
136	2367115.50	557178.50	16.3	Site 1
137	2367018.00	557182.50	11.6	Site 1
138	2367104.00	557182.50	107.4	Site 1
139	2367109.00	557182.50	69.1	Site 1
140	2367124.50	557182.50	251.2	Site 1

Anomaly ID	*Easting (survey feet)	*Northing (survey feet)	Amplitude (mV)	Location
141	2367089.00	557183.00	25.8	Site 1
142	2366992.50	557185.00	11.5	Site 1
143	2367068.50	557185.00	13.2	Site 1
144	2367129.50	557185.50	14.9	Site 1
145	2366926.50	557186.00	661.0	Site 1
146	2367048.00	557186.00	18.0	Site 1
147	2366931.00	557187.00	492.8	Site 1
148	2367124.00	557187.50	73.2	Site 1
149	2366946.50	557188.50	21.6	Site 1
150	2367118.50	557188.50	41.3	Site 1
151	2366951.00	557190.00	29.7	Site 1
152	2366956.00	557190.50	18.9	Site 1
153	2367098.00	557191.00	13.3	Site 1
154	2367082.00	557192.00	12.8	Site 1
155	2367097.50	557192.50	14.7	Site 1
156	2367122.50	557194.00	1643.7	Site 1
157	2367071.50	557196.00	11.5	Site 1
158	2367087.00	557196.50	11.9	Site 1
159	2366975.00	557197.50	89.0	Site 1
160	2366960.00	557198.00	64.3	Site 1
161	2367111.50	557198.00	32.4	Site 1
162	2367106.00	557199.00	19.2	Site 1
163	2367091.00	557199.50	52.9	Site 1
164	2366949.00	557200.50	32.9	Site 1
165	2366944.00	557202.50	49.3	Site 1
166	2366953.50	557204.00	75.4	Site 1
167	2366963.50	557204.50	157.5	Site 1
168	2367080.00	557204.50	19.5	Site 1
169	2367039.00	557206.50	11.7	Site 1
170	2367110.00	557207.00	62.7	Site 1
171	2366948.00	557207.50	34.5	Site 1
172	2367049.00	557207.50	20.8	Site 1
173	2367059.00	557207.50	74.4	Site 1
174	2367104.50	557208.50	53.4	Site 1
175	2366922.00	557210.00	14.3	Site 1
176	2366992.50	557210.50	16.5	Site 1
177	2366957.00	557211.00	30.5	Site 1
178	2367114.00	557211.00	39.6	Site 1
179	2367119.50	557211.00	61.6	Site 1
180	2367118.50	557215.00	17.8	Site 1
181	2366951.50	557215.50	13.7	Site 1
182	2367108.00	557217.00	103.3	Site 1
183	2367016.00	557219.50	12.0	Site 1
184	2366955.50	557220.00	11.2	Site 1
185	2366919.50	557222.50	16.2	Site 1
186	2367122.00	557224.50	12.1	Site 1
187	2367005.00	557225.00	16.1	Site 1
188	2367030.50	557225.00	17.8	Site 1

Anomaly ID	*Easting (survey feet)	*Northing (survey feet)	Amplitude (mV)	Location
189	2366974.50	557226.00	17.0	Site 1
190	2367081.00	557226.00	18.2	Site 1
191	2366979.50	557226.50	11.8	Site 1
192	2367111.00	557227.00	11.3	Site 1
193	2367085.50	557227.50	10.5	Site 1
194	2367060.00	557229.50	12.0	Site 1
195	2367090.00	557229.50	23.4	Site 1
196	2366938.50	557230.50	17.4	Site 1
197	2367034.50	557231.50	31.6	Site 1
198	2367014.00	557232.00	13.2	Site 1
199	2367039.00	557233.00	13.9	Site 1
200	2367110.00	557233.00	40.5	Site 1
201	2366993.50	557234.00	61.3	Site 1
202	2367084.50	557236.00	33.5	Site 1
203	2367064.00	557237.00	52.8	Site 1
204	2367088.50	557239.00	72.1	Site 1
205	2367048.00	557239.50	27.7	Site 1
206	2366931.50	557240.50	16.2	Site 1
207	2367012.00	557241.50	26.9	Site 1
208	2367078.00	557241.50	17.7	Site 1
209	2367093.50	557241.50	125.8	Site 1
210	2366936.50	557242.50	10.4	Site 1
211	2366941.00	557244.00	17.2	Site 1
212	2367098.00	557244.50	264.9	Site 1
213	2366915.00	557246.50	12.2	Site 1
214	2367057.00	557246.50	12.6	Site 1
215	2367056.50	557249.00	11.7	Site 1
216	2367006.00	557250.50	18.0	Site 1
217	2366955.00	557251.00	55.3	Site 1
218	2367102.00	557251.00	199.8	Site 1
219	2366964.50	557253.50	14.2	Site 1
220	2367070.00	557257.00	37.0	Site 1
221	2367024.50	557257.50	11.6	Site 1
222	2367080.00	557258.50	355.9	Site 1
223	2367095.00	557259.50	1992.0	Site 1
224	2366923.00	557260.00	13.7	Site 1
225	2367084.50	557260.00	219.9	Site 1
226	2367044.00	557262.00	13.1	Site 1
227	2366937.50	557262.50	29.5	Site 1
228	2366942.50	557262.50	51.4	Site 1
229	2367008.00	557263.00	10.2	Site 1
230	2366917.00	557264.00	16.6	Site 1
231	2366947.00	557265.00	15.1	Site 1
232	2366937.00	557266.00	13.8	Site 1
233	2367103.50	557268.50	98.5	Site 1
234	2366926.00	557269.00	13.6	Site 1
235	2366961.50	557270.50	77.8	Site 1
236	2367098.00	557270.50	151.3	Site 1

Anomaly ID	*Easting (survey feet)	*Northing (survey feet)	Amplitude (mV)	Location
237	2367057.50	557272.00	45.1	Site 1
238	2367072.00	557274.00	22.6	Site 1
239	2367108.00	557274.00	123.6	Site 1
240	2367097.50	557274.50	214.7	Site 1
241	2367067.00	557275.00	21.9	Site 1
242	2367087.50	557275.00	106.4	Site 1
243	2367112.50	557275.00	214.4	Site 1
244	2367092.00	557275.50	134.6	Site 1
245	2367061.50	557276.00	11.2	Site 1
246	2367000.50	557277.00	13.2	Site 1
247	2366985.50	557277.50	12.8	Site 1
248	2366990.00	557277.50	10.7	Site 1
249	2367101.00	557279.50	40.7	Site 1
250	2366919.00	557281.50	18.6	Site 1
251	2367096.00	557281.50	50.6	Site 1
252	2366928.50	557284.50	25.3	Site 1
253	2366953.50	557284.50	127.2	Site 1
254	2366938.50	557285.00	245.3	Site 1
255	2367105.50	557286.00	79.2	Site 1
256	2366907.50	557287.50	65.5	Site 1
257	2366923.50	557287.50	10.5	Site 1
258	2367103.50	557288.00	11.9	Site 1
259	2366928.00	557288.50	15.6	Site 1
260	2366912.00	557289.00	44.6	Site 1
261	2366968.00	557289.00	23.5	Site 1
262	2367110.00	557289.50	47.8	Site 1
263	2367099.00	557292.00	35.9	Site 1
264	2366998.00	557293.00	12.9	Site 1
265	2366992.50	557293.50	11.1	Site 1
266	2367084.50	557293.50	22.4	Site 1
267	2367068.00	557294.00	13.8	Site 1
268	2367002.00	557295.00	19.9	Site 1
269	2366906.50	557295.50	103.6	Site 1
270	2366911.00	557295.50	195.7	Site 1
271	2367088.00	557295.50	51.4	Site 1
272	2366962.00	557296.00	114.0	Site 1
273	2367103.00	557298.00	90.7	Site 1
274	2366971.50	557298.50	12.9	Site 1
275	2367017.00	557299.00	26.8	Site 1
276	2367057.50	557299.50	11.8	Site 1
277	2367021.50	557300.00	12.4	Site 1
278	2366935.50	557301.00	30.7	Site 1
279	2367097.50	557302.00	171.0	Site 1
280	2366965.50	557303.00	16.6	Site 1
281	2366915.00	557303.50	71.9	Site 1
282	2366919.50	557303.50	71.4	Site 1
283	2367006.00	557303.50	30.1	Site 1
284	2367086.50	557303.50	103.6	Site 1

Anomaly ID	*Easting (survey feet)	*Northing (survey feet)	Amplitude (mV)	Location
285	2367056.00	557304.50	11.9	Site 1
286	2367082.00	557304.50	56.0	Site 1
287	2366955.00	557306.00	26.2	Site 1
288	2366959.50	557308.00	30.5	Site 1
289	2367066.00	557308.00	14.2	Site 1
290	2366954.00	557309.00	23.6	Site 1
291	2367076.00	557309.00	33.7	Site 1
292	2367080.50	557309.50	31.8	Site 1
293	2366969.00	557310.50	46.8	Site 1
294	2366984.00	557312.00	14.1	Site 1
295	2366973.50	557314.00	51.5	Site 1
296	2367054.50	557314.00	14.7	Site 1
297	2366948.50	557314.50	13.7	Site 1
298	2366953.00	557314.50	41.9	Site 1
299	2367004.00	557314.50	14.7	Site 1
300	2367014.00	557315.50	10.8	Site 1
301	2367018.50	557317.50	19.3	Site 1
302	2366993.00	557318.50	13.6	Site 1
303	2367048.50	557318.50	12.5	Site 1
304	2367003.50	557319.00	10.3	Site 1
305	2367008.00	557319.50	21.4	Site 1
306	2366967.50	557320.00	19.8	Site 1
307	2366997.50	557320.00	12.8	Site 1
308	2366987.50	557320.50	20.5	Site 1
309	2366901.50	557321.00	18.1	Site 1
310	2366906.00	557321.00	15.7	Site 1
311	2367012.50	557321.50	13.3	Site 1
312	2367078.50	557322.00	426.7	Site 1
313	2366921.50	557323.00	10.4	Site 1
314	2366992.00	557325.00	22.7	Site 1
315	2366996.00	557326.50	28.1	Site 1
316	2367098.00	557327.00	211.3	Site 1
317	2366986.00	557328.00	61.5	Site 1
318	2367052.50	557328.50	15.6	Site 1
319	2367092.00	557330.00	377.5	Site 1
320	2367056.50	557330.50	17.6	Site 1
321	2367061.50	557330.50	12.3	Site 1
322	2367051.50	557331.50	15.5	Site 1
323	2366934.50	557332.50	11.3	Site 1
324	2366955.00	557332.50	45.7	Site 1
325	2367000.50	557333.00	14.4	Site 1
326	2366909.00	557333.50	20.5	Site 1
327	2367005.00	557333.50	10.3	Site 1
328	2366929.50	557334.00	13.5	Site 1
329	2367091.00	557334.50	177.5	Site 1
330	2366974.50	557336.00	15.8	Site 1
331	2367015.00	557337.00	11.8	Site 1
332	2367040.00	557340.00	11.9	Site 1

Anomaly ID	*Easting (survey feet)	*Northing (survey feet)	Amplitude (mV)	Location
333	2366933.00	557341.50	28.1	Site 1
334	2367049.50	557341.50	11.5	Site 1
335	2366988.50	557342.00	11.8	Site 1
336	2366922.50	557342.50	66.4	Site 1
337	2366983.50	557343.00	12.9	Site 1
338	2366927.50	557344.50	47.9	Site 1
339	2367084.00	557346.00	302.0	Site 1
340	2366947.00	557347.50	28.2	Site 1
341	2366972.00	557348.00	150.7	Site 1
342	2366936.00	557351.00	35.1	Site 1
343	2366962.00	557351.00	28.4	Site 1
344	2366916.00	557351.50	171.2	Site 1
345	2366966.50	557351.50	26.4	Site 1
346	2366986.50	557352.00	18.5	Site 1
347	2366956.00	557353.50	16.3	Site 1
348	2367072.50	557353.50	247.8	Site 1
349	2366940.50	557355.00	10.1	Site 1
350	2367047.00	557355.50	16.1	Site 1
351	2366970.50	557357.50	24.1	Site 1
352	2366990.50	557358.50	40.3	Site 1
353	2366980.00	557362.00	15.7	Site 1
354	2367025.50	557363.00	14.6	Site 1
355	2367030.00	557364.50	31.6	Site 1
356	2367095.50	557367.00	427.6	Site 1
357	2366999.00	557368.00	909.6	Site 1
358	2367074.50	557370.50	31.1	Site 1
359	2367059.50	557371.00	38.2	Site 1
360	2367049.00	557371.50	11.4	Site 1
361	2367064.00	557373.00	24.9	Site 1
362	2367094.00	557374.50	364.2	Site 1
363	2367068.00	557375.00	13.9	Site 1
364	2367084.00	557375.00	47.9	Site 1
365	2367053.50	557375.50	26.7	Site 1
366	2367058.00	557378.50	24.5	Site 1
367	2367068.00	557380.00	81.7	Site 1
368	2367072.50	557380.50	16.9	Site 1
369	2367088.00	557380.50	26.3	Site 1
370	2367077.50	557381.00	25.1	Site 1
371	2367087.00	557384.00	126.7	Site 1
372	2366923.80	557960.63	165.6	Site 2
373	2366928.51	557940.88	139.5	Site 2
374	2366959.13	557938.89	349.5	Site 2
375	2366948.08	557955.38	281.0	Site 2
376	2366964.39	557985.46	533.9	Site 2
377	2366945.36	557998.32	480.0	Site 2
378	2366967.29	558008.65	131.3	Site 2
379	2367006.07	557966.98	88.8	Site 2
380	2367097.21	557981.83	163.1	Site 2

Anomaly ID	*Easting (survey feet)	*Northing (survey feet)	Amplitude (mV)	Location
381	2366931.00	557926.50	32.0	Site 2
382	2366941.00	557927.00	105.9	Site 2
383	2366951.00	557928.50	75.7	Site 2
384	2366925.50	557930.00	13.4	Site 2
385	2366981.00	557930.00	10.2	Site 2
386	2366950.00	557933.00	40.6	Site 2
387	2366970.50	557933.00	77.0	Site 2
388	2367011.00	557933.00	38.3	Site 2
389	2367006.00	557934.50	47.9	Site 2
390	2366985.50	557935.00	31.9	Site 2
391	2366945.00	557935.50	227.4	Site 2
392	2366975.00	557936.50	14.1	Site 2
393	2366985.50	557939.50	11.5	Site 2
394	2366974.50	557943.50	40.1	Site 2
395	2366969.50	557944.00	105.8	Site 2
396	2366979.50	557944.50	81.5	Site 2
397	2366979.00	557946.50	74.3	Site 2
398	2366974.50	557947.00	37.2	Site 2
399	2366923.00	557950.00	37.2	Site 2
400	2366963.50	557952.50	173.0	Site 2
401	2366968.00	557954.00	55.1	Site 2
402	2366983.50	557955.00	213.4	Site 2
403	2367003.00	557955.00	22.0	Site 2
404	2366978.50	557956.00	77.6	Site 2
405	2366973.00	557957.00	79.6	Site 2
406	2367084.50	557957.00	10.1	Site 2
407	2367104.00	557960.00	12.8	Site 2
408	2366942.50	557960.50	11.7	Site 2
409	2367083.50	557961.00	13.2	Site 2
410	2366982.50	557961.50	140.4	Site 2
411	2366947.00	557964.50	47.5	Site 2
412	2366922.00	557966.50	29.8	Site 2
413	2367022.50	557966.50	12.1	Site 2
414	2366941.50	557967.00	27.0	Site 2
415	2367063.00	557967.50	68.9	Site 2
416	2367047.50	557968.50	15.0	Site 2
417	2366915.50	557971.50	95.8	Site 2
418	2366925.50	557971.50	14.5	Site 2
419	2367017.00	557972.00	35.5	Site 2
420	2367001.50	557973.50	15.5	Site 2
421	2366950.50	557975.50	17.9	Site 2
422	2366915.00	557976.00	114.0	Site 2
423	2366981.00	557976.00	55.7	Site 2
424	2367031.00	557979.00	13.0	Site 2
425	2367001.00	557979.50	21.5	Site 2
426	2366985.50	557980.50	97.0	Site 2
427	2367005.50	557981.00	13.3	Site 2
428	2367021.00	557982.50	25.5	Site 2

Anomaly ID	*Easting (survey feet)	*Northing (survey feet)	Amplitude (mV)	Location
429	2367005.50	557983.50	15.3	Site 2
430	2366950.00	557986.50	32.3	Site 2
431	2367015.00	557988.50	52.7	Site 2
432	2366999.50	557991.00	18.0	Site 2
433	2366959.00	557992.00	35.2	Site 2
434	2367111.00	557992.50	24.4	Site 2
435	2366979.00	557993.50	107.8	Site 2
436	2367004.00	557993.50	13.8	Site 2
437	2367025.00	557993.50	34.9	Site 2
438	2366933.50	557994.00	78.5	Site 2
439	2366983.50	557994.00	59.8	Site 2
440	2367029.50	557994.50	42.9	Site 2
441	2367075.00	557994.50	73.1	Site 2
442	2367014.00	557996.00	10.1	Site 2
443	2367069.50	557997.50	36.2	Site 2
444	2367044.50	557998.50	16.7	Site 2
445	2367008.50	557999.50	16.7	Site 2
446	2367018.50	558000.00	24.7	Site 2
447	2367069.50	558000.00	47.5	Site 2
448	2367109.50	558000.00	31.2	Site 2
449	2366932.50	558000.50	97.2	Site 2
450	2366912.50	558001.00	11.4	Site 2
451	2367038.50	558001.50	15.0	Site 2
452	2367023.50	558002.00	18.0	Site 2
453	2367049.00	558002.00	54.1	Site 2
454	2366927.50	558004.50	30.8	Site 2
455	2367053.00	558005.00	23.9	Site 2
456	2366911.50	558007.50	58.9	Site 2
457	2367073.50	558007.50	24.4	Site 2
458	2367083.50	558009.00	16.5	Site 2
459	2366957.00	558010.50	124.9	Site 2
460	2367109.00	558010.50	50.1	Site 2
461	2367007.50	558011.00	22.3	Site 2
462	2366926.50	558012.00	40.0	Site 2
463	2366936.50	558013.00	176.4	Site 2
464	2367073.00	558013.50	19.3	Site 2
465	2367062.50	558014.50	13.9	Site 2
466	2367012.00	558015.50	35.6	Site 2
467	2366915.50	558017.00	15.2	Site 2
468	2366956.00	558017.50	197.9	Site 2
469	2366920.50	558020.00	28.5	Site 2
470	2366971.00	558021.50	53.2	Site 2
471	2366950.50	558022.00	170.8	Site 2
472	2367016.50	558022.50	17.7	Site 2
473	2367082.00	558022.50	12.5	Site 2
474	2367086.50	558022.50	10.9	Site 2
475	2366955.00	558023.50	56.6	Site 2
476	2367041.00	558027.00	23.3	Site 2

Anomaly ID	*Easting (survey feet)	*Northing (survey feet)	Amplitude (mV)	Location
477	2366980.00	558027.50	12.9	Site 2
478	2367030.50	558027.50	94.2	Site 2
479	2367030.50	558031.00	67.1	Site 2
480	2367045.50	558034.00	25.1	Site 2

- Anomalies Selected for Further Investigation