N Y S D E C

1996 CLEAN WATER / CLEAN AIR BOND ACT
ENVIRONMENTAL RESTORATION PROJECTS
T I T L E 5

MUNICIPAL ASSISTANCE BROWNFIELD PROGRAM
ENVIRONMENTAL RESTORATION PROJECT

ADDENDUM #2
to the
FINAL SITE INVESTIGATION WORK PLAN

FOR THE
FORMER AMERICAN LaFRANCE SITE
100 EAST LaFRANCE STREET
ELMIRA, NEW YORK

SUBMITTED TO:

NYS DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF ENVIRONMENTAL REMEDIATION
AND
NYS DEPARTMENT OF HEALTH

SUBMITTED BY:

CITY OF ELMIRA
ELMIRA, NEW YORK

JULY 1999

ADDENDUM #2
to the
FINAL SITE INVESTIGATION WORK PLAN
FORMER AMERICAN LaFRANCE SITE

WORK PLAN:

The EM-31 geophysical survey has identified numerous anomalies which require further investigation. Please refer to the July 2, 1999 Geomatrix report herein included as Appendix A and made a part of Addendum #2.

This additional investigation shall follow all guidelines set forth in the ALF Final Site Investigation Work Plan dated September, 1998.

NEW SECTION	DESCRIPTION
2.1.6	Test Pits/Trenches (New Section)

1. Geophysical anomaly locations will be surveyed.

2. A backhoe will be utilized to excavate 15 test pits corresponding to the geophysical anomaly locations.

   Subcontractors will provide OSHA 40 Hour HAZWOPER trained personnel, establish work zones and provide for the proper disposal of generatede decon waste streams.

   Subcontractor will maintain Level B PPE preparedness.

3. Visibly stained soil or soil exhibiting atypical characteristics will be sampled for full TCL analysis.

4. Decontamination of equipment will occur subsequent to each test pit location. Decon rinsate shall be stored in 55-gallon drums, analyzed, and properly disposed of.

5. All excavated soil shall be returned to the excavation in reverse order of excavation.

The following changes are made to the ALF Final Site Investigation Work Plan dated September, 1998:

ADDENDUM #2
to the
FINAL SITE INVESTIGATION WORK PLAN
FORMER AMERICAN LaFRANCE SITE

WORK PLAN:

SECTION	REVISION
Figure 1	Revised Figure 1 showing NYSDOH surface soil sample locations surveyed in.

ERIE STREET

E. LA FRANCE ST.

MANDEL'S RESTAURANT PROPERTY

FORMER FACTORY BUILDING

N.Y.S.D.O.T. JOB TRAILER

PAINT SHOP

PAINTING

MACHINE SHOP

SMOKE STACK AREA

PAVED AREAS

FORMER FACTORY BUILDING

FOUNDRY

PAVED AREAS

FORMER FACTORY BUILDING

MACHINE SHOP

FORMER FACTORY BUILDING

SPRAY BOOTH AREA

FORMER FACTORY BUILDING

CONSOLIDATED RAIL

HOME STREET

LEGEND

- C — GEOPROBE LOCATIONS (18)
- G/W — GROUNDWATER SUPPLY LOCATIONS (5)
- H — SURFACE SOIL SAMPLES, DOH (4)
- PROPOSED MONITORING WELL LOCATIONS (3)
- C/T — GEOPROBE AT TAR TANK (1)
- G/B — GEOPROBE BACKGROUND LOCATIONS (2)
- GRID SPACING = 50'
- PROPERTY BOUNDARY
- PCB — FORMER PCB CLEAN-UP AREA

FORMER FACTORY BUILDING LOCATION REFERENCE :

NEW YORK STATE DEPARTMENT OF TRANSPORTATION
CITY OF ELMIRA NORTH – SOUTH ARTERIAL
PENNSYLVANIA AVENUE TO CEDAR STREET
MAP # 2, SHEET 1. DATED : MAY 1980.
FORMER BUILDING LOCATIONS ARE APPROXIMATE
AS SITE IS CURRENTLY VACANT.

AMERICAN LA FRANCE BROWNFIELDS SITE

REVISED: JULY 20, 1999

FORMER AMERICAN-LAFRANCE PROPERTY
TAX MAP # 99.12-2-1.1
ELMIRA, NEW YORK
AUGUST 1998

FIGURE 1
PROPOSED WORK PLAN

SCALE : 1"=60'

FAGAN ENGINEERS
Environmental Consultants
FILE: 7150-2 JOB # 97.150

APPENDIX A

GEOMATRIX GEOPHYSICAL REPORT

338 Harris Hill Road, Suite 201
Williamsville, New York 14221
(716) 565-0624 • FAX (716) 565-0625

GEOMATRIX

July 2, 1999

B5414

Stephen G. Degerdon
Fagan Engineers, PC
113 E. Chemung Place
Elmira, NY 14904

Subject: Geophysical Survey Results, American La France Brownfield Site, Elmira, NY

Dear Mr. Degerdon:

This letter report presents the results of the EM31 geophysical investigation performed at the American La France Brownfield Site located in Elmira, New York (Site). This investigation was designed to map the distribution of buried metals in an attempt to identify anomalies indicative of underground storage tanks (USTs). The information provided herein is designed to assist Fagan Engineers with their assessment of potential environmental concerns at the Site.

1.0 INTRODUCTION

A frequency domain electromagnetic (EM) survey was performed at the Site to map the distribution of buried metals in an attempt to identify potential USTs. Geomatrix Consultants performed the data acquisition portion of this work on May 25, 1999.

The Site is the former location of an industrial facility owned by American La France. Above ground structures associated with this facility have since been removed. At the time the geophysical survey was conducted, the site was a grass covered field. A NY State Department of Transportation (NYSDOT) job-site trailer was present along the eastern portion of the survey area. The site is bounded on the south and east by Rome Street and Erie Street, respectively. An above grade railway forms the western boundary. A restaurant and associated parking area is located to the north of the site.

Geophysical techniques used during this investigation identify the presence of buried metal objects and variations in ground conductivity. The limitations of these techniques are discussed below in Section 4. The geophysical data presented herein are intended to serve as a guide to, and focus for, future intrusive investigations, if warranted. Additional collaborative data, such as test pits, is generally warranted to confirm geophysical anomalies suggestive of buried USTs.

2.0 METHODOLOGY

The following sections present the geophysical methodology utilized for this investigation.

2.1 Reference Grid

A reference grid was installed by Geomatrix and Fagan Engineers personnel to facilitate data acquisition along lines spaced 12.5 feet apart. The grid consisted of alternating red and yellow 36-inch wire pin flags placed at 25 ft by 100 ft intervals. The survey grid was referenced to existing Site features to allow for the Site CADD map to be overlain onto the geophysical survey result figures. Grid coordinate 0N, 1000E was established at the base of a Stop sign located at the intersection of Rome and Erie Streets. "Grid north" was taken as the trend parallel to Erie Street. Surface features were annotated on-site to assist with geophysical data interpretation.

2.2 Electromagnetic Survey Methodology

A Geonics EM31 Terrain Conductivity meter was used to measure and record the quadrature component (ground conductivity) and the inphase component of the EM field along the survey lines. The quadrature component of the EM field is a measurement of the apparent ground conductivity. The inphase component of the EM field is sensitive to metallic objects. Comparison of the quadrature component of the EM field data (expressed in units of milliSiemens per meter (mS/m)) and the inphase component data (expressed in units of parts per thousand (ppt)) results in increased anomaly definition. The character of the EM response, low or high, is partially dependent on the orientation of the buried target relative to the orientation of the EM31 instrument during data acquisition, and the survey direction. A buried metal pipe, for example, will exhibit a high valued response when the trend of the pipe is parallel to the survey direction. Alternatively, when a survey line crosses a buried metal pipe whose trend is perpendicular to the survey direction, it is characterized by a low response. Similarly, other complex buried metal anomalies are indicated by a coupling of a high and low response.

All readings were taken with the instrument oriented parallel to the direction of travel, in the vertical dipole mode and with the instrument at waist height. The depth of penetration with the instrument in this configuration is approximately 12 to 15 feet below ground surface. Data were collected and stored in a solid state memory data logger during the survey. The data logger was interfaced to a portable computer and the data were transferred to a floppy disk for subsequent processing and interpretation. A survey base station was established on-site and was revisited throughout the survey to check for instrument drift and malfunction. No significant drift or malfunction was observed.

The terrain conductivity and inphase data were initially edited and then plotted as profile lines for interpretation. Contour maps of the data were then constructed and utilized for final interpretation. The geophysical data are presented in final form as a series of color contour maps. The color maps allow for a complete and rapid illustration of detected anomalies that are associated with conductive materials such as buried metals, wastes, fill, utilities, and changes in soil texture and/or moisture content.

3.0 RESULTS

The geophysical conductivity and inphase data for the American La France Brownfield Site are presented as color contour maps in Figure 1 and 2, respectively. Actual data measurement points are superimposed on the maps and are shown as closely spaced tick marks. Interpreted linear anomalies are indicated by dashed white lines on the figures.

The conductivity data are presented in Figure 1. Conductivity values at the site were observed to range from approximately 0 to over 100 mS/m. Background conductivity at this site is interpreted to be approximately 10 to 20 mS/m and is shown in shades of green on Figure 1. In general, measured conductivity variations from this background range are indicative of conductive fill material and/or buried metals. Additionally, this variation in conductivity may be related to:

- A change in soil or fill type. For example, an increase in relative clay content may increase the measured conductivity;
- A change in soil moisture.
- A change in pore fluid specific conductance.
- Interference from surface metallic anthropogenic features such as powerlines, fences, pipes, and metallic structures.

The EM-31 inphase data are presented in Figure 2. The inphase component of the electromagnetic field, measured by the EM-31, is most sensitive to buried metals. The inphase response is proportional to the conductivity response in areas of high conductivity. This presents an interpretation challenge at sites such as this one where the conductivity is highly variable over a relatively short lateral distance. Areas exhibiting an inphase response of approximately 0.0 ppt, shown in shades of yellow on Figure 2, are likely free of buried metals within the depth of investigation of the EM-31 (12-15 feet).

The following labeled anomalies are interpreted to be significant relative to the objective of this investigation. Additional, anomalies were observed in the data set, however they are interpreted to be comparatively minor, related to adjacent anomalies, or related to metals at the surface.

Anomalies A, B, C, D, and E are characterized as a conductivity low response and are best observed in the conductivity data set of Figure 1. Anomalies A and D are also observed as inphase lows on Figure 2. Each of these anomalies may represent USTs or other buried metals.

Anomalies F, G, L, M, N, O and P are characterized as inphase low response anomalies and are best observed in Figure 2. These anomalies may represent USTs or other buried metals.

Anomaly I, J and K are characterized as aerially extensive conductivity highs shown in shades of pink on Figure 2. These anomalies represent remnant foundations containing re-enforced concrete, conductive fill material, and or large USTs.

Anomaly H is a conductivity and inphase low response in the area of the former tar tank. There were some surface metallic debris observed in this area however the aerial extent of this anomaly extends beyond the area of observed surface metals. Anomaly H may represent a UST or other buried or surface metals.

Any of the geophysical anomalies within the data set may represent USTs. The following anomalies are most suggestive of USTs: A, D, F, G, H, and L. This interpretation is based on our analysis of the inphase and conductivity data sets, coupled with our experience in anomaly interpretation.

4.0 LIMITATIONS

The geophysical methods used during this survey are established, indirect techniques for non-destructive subsurface reconnaissance exploration. As these instruments utilize indirect methods, they are subject to inherent limitations and ambiguities. Metallic surface features (electrical wires, scrap metal, etc.) preclude reliable non-invasive data/results beneath, and in the immediate vicinity of, the surface features. Targets such as buried drums, buried tanks, conduits, etc. are detectable only if they produce recognizable anomalies or patterns against the background geophysical data collected. As with any remote sensing technique, the anomalies identified during a geophysical survey should be further investigated by other techniques such as historical aerial photography, test pitting and/or test boring, if warranted.

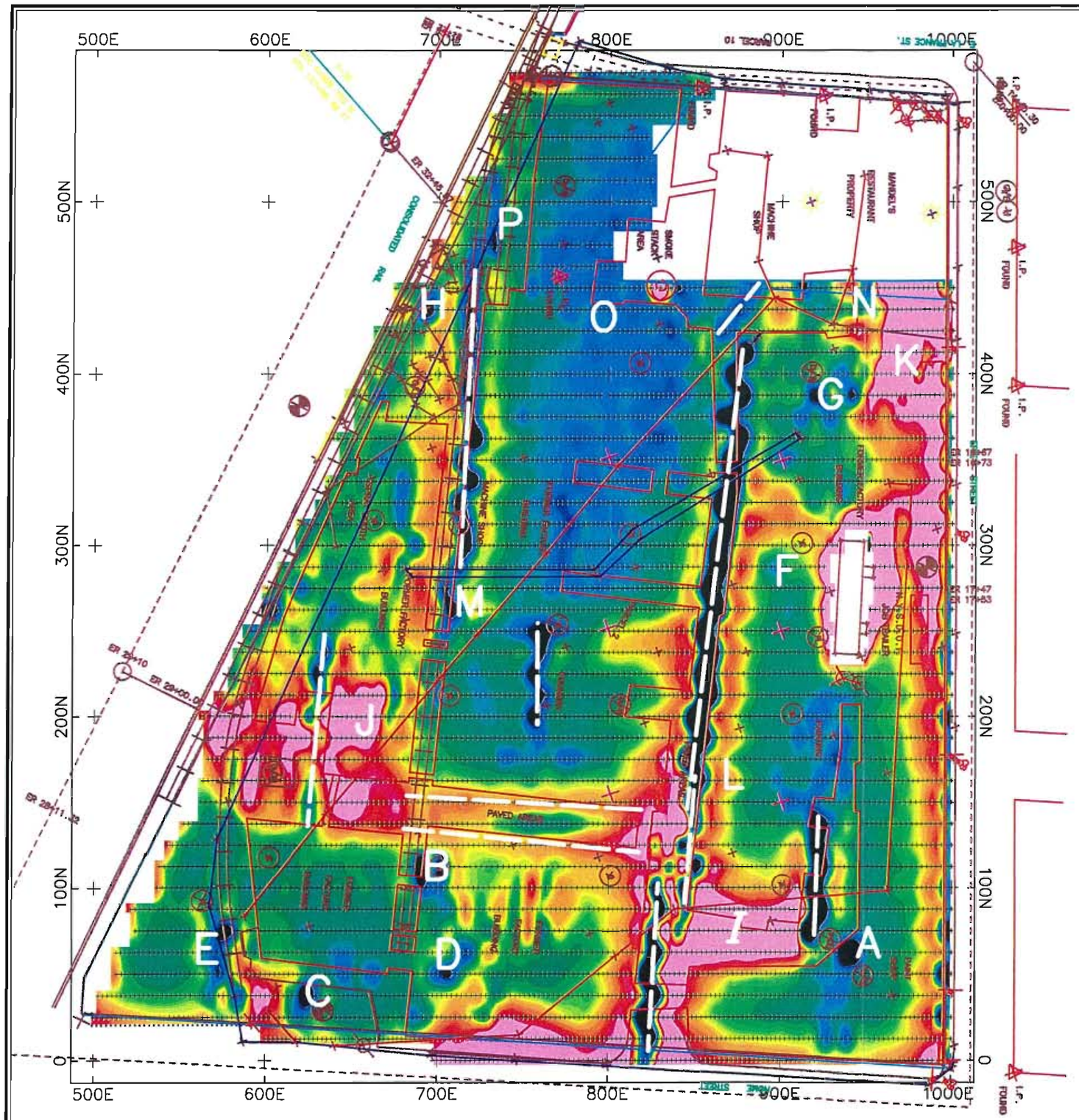
5.0 CONCLUSIONS

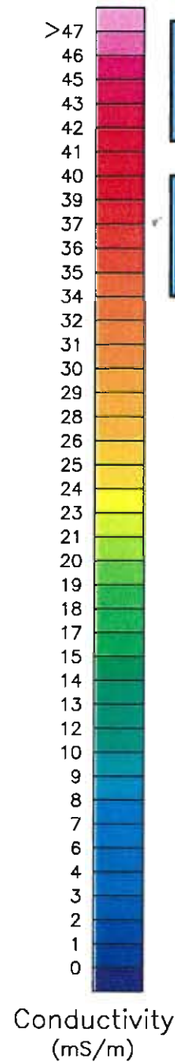
The geophysical survey at the American La France Brownfield Site appears to have been successful in identifying areas containing buried metals. A total of 16 major buried metal anomalies were identified. These anomalies are labeled A through P on Figures 1 and 2. Of those 16 anomalies, 6 anomalies are most suggestive of USTs. Several linear anomalies were observed in the data and are denoted with dashed white lines on the figures. These linear anomalies may be related to buried pipes, utilities, or the remnants of railroad rails.

We trust the information contained in this report is sufficient for your present needs. Please do not hesitate to contact us if you have any questions or require additional information.

Sincerely yours,
GEOMATRIX CONSULTANTS, INC.

John Luttinger
Project Geophysicist





A — Geophysical Anomaly discussed in report

Interpreted linear anomaly

Geophysical survey line location and measurement point. 12.5 ft line spacing, 2.5 ft station spacing.

LEGEND

- GEOPROBE LOCATIONS (18)
- GROUNDWATER SUPPLY LOCATIONS (5)
- SURFACE SOIL SAMPLES, 0GH (4)
- PROPOSED MONITORING WELL LOCATIONS (3)
- GEOPROBE AT TAR TANK (1)
- GEOPROBE BACKGROUND LOCATIONS (2)
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MAP # 2, SHEET 1 DATED: MAY 1980
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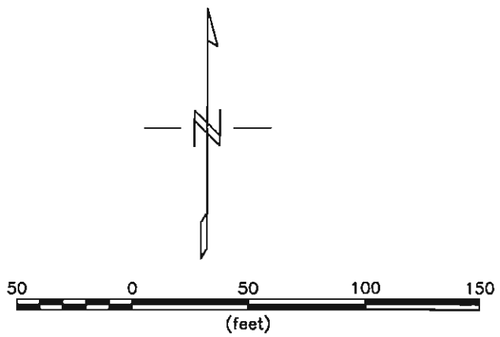

Figure 1

Geophysical Survey Results
EM31 Conductivity Data
(mS/m)

American La France
Brownfields Site
Elmira, NY
FAGAN ENGINEERS

Geomatrix (716) 565-0624

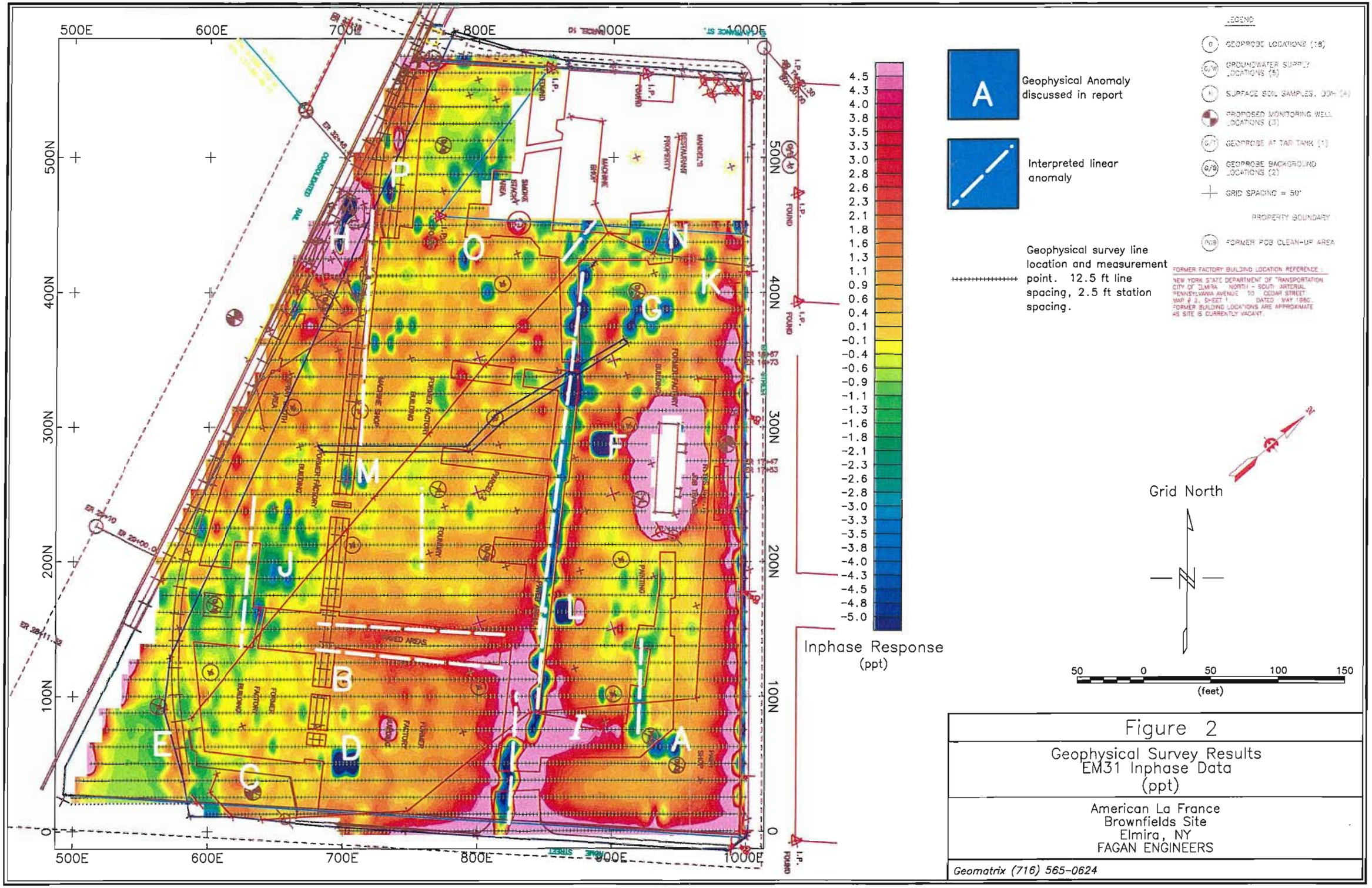

Figure 2

Geophysical Survey Results
EM31 Inphase Data
(ppt)

American La France
Brownfields Site
Elmira, NY
FAGAN ENGINEERS

Geomatrix (716) 565-0624