

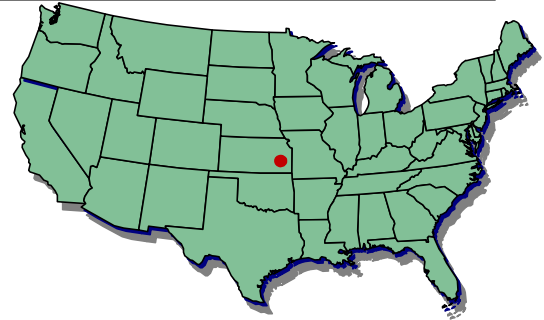
## **Geophysical and Remote Sensing Investigation of Potter's Field. Emporia, Kansas.**

### **Client Name:**

Charter Funerals, Maplewood Memorial Lawn Cemetery

### **Project Description**

FPM Geophysicists researched the feasibility of locating and delineating unmarked grave locations in Potter's Field (Maplewood Memorial Lawn Cemetery, Emporia Kansas) with geophysical and remote sensing technology. Historical documentation from the original burial ground reported approximately 700 graves historically marked with wooden stakes from 1871 to 1928. None of the graves had been cross referenced to a cemetery plot map. It is believed that a prairie fire swept through the cemetery in the 1920's. The fire destroyed the markers leaving the graves unmarked. The site has remained vacant with no further ground disturbance for more than 80 years. The project site included approximately 10 marked graves with dates contemporaneous with the unmarked graves. Geophysical investigations including a Geonics Ltd. EM-38 survey and kite aerial photography over the study area to locate and delineate the locations of unmarked burials in a 20 x 20 meter grid.



**Geonics Ltd. EM-38 Electromagnetic Conductivity System**

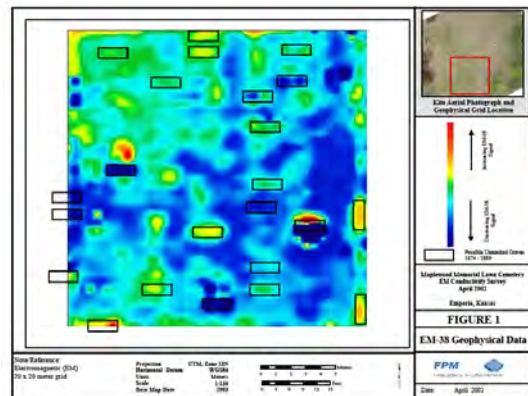
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### **Work Performed**

Geophysical surveys in the cemetery were conducted with a Geonics, Ltd., EM-38 along linear transects within a 20 x 20 meter grid-based survey area. The EM-38 was used to search for unmarked burial locations greater than 80 years old. The linear transects were oriented in a north/south manner to cross perpendicular to the east/west orientation of the graves. The grid-based survey setup enabled geophysical transects to be collected along straight lines in 1/2-meter intervals thereby optimizing the likelihood unmarked grave locations, including small child-size graves, would be encountered. Kite aerial photography was also conducted with a radio controlled 3.2 megapixel digital camera attached to a 1.7 x 2 meter kite. The kite aerial photography was used to identify slight vegetative tonal differences associated with grave patterns and orientations. Aerial photography was coupled to a sub-meter GPS to provide real-world positioning to accurately relocate vegetative anomalies associated with unmarked grave locations.

### **Analysis and Results**

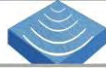
Approximately one-tenth and one-half of an acre of EM and aerial photography data were collected respectively. Several thousand geophysical readings were collected for the grid-based survey area and 72 photographs were acquired of the survey area. Twenty-two geophysical anomalies within the grid-based survey area strongly appeared to be related to unmarked graves while



**Processed EM-38 data with possible unmarked grave locations**

For more information, please contact:

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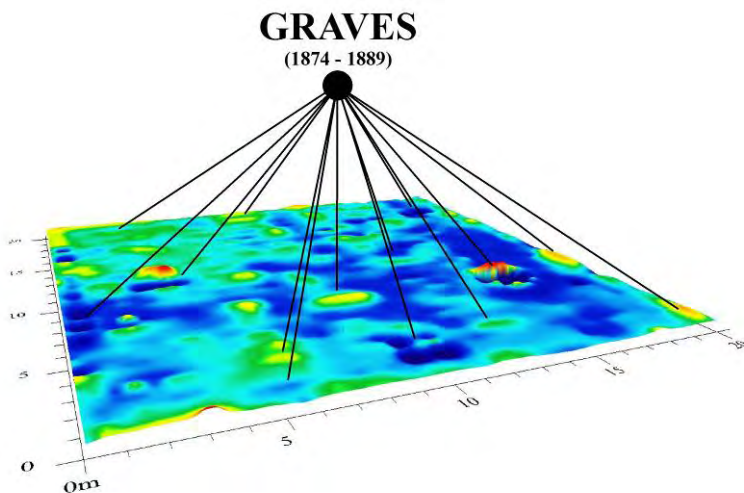
approximately 20 vegetative tonal differences apparent in kite aerial photographs were determined to be grave connected. Suspected unmarked graves were also identified outside of the original Potter's Field boundary. It was demonstrated that graves of this time-frame may be detected with geophysical technology but the age and amount of decomposition are factors in determining the success of unmarked grave location. Kite aerial photography provided high-resolution, low altitude images to identify spatial patterns indiscernible from the ground surface and revealed additional suspect areas which otherwise may have been overlooked.



**Kite Aerial Photography over project site. Aerial photography reveals vegetative tonal difference synonymous with grave patterns and orientations.**



**Panoramic aerial view over Maplewood Memorial Lawn Cemetery, Emporia Kansas**



**Interpretative EM-38 Geophysical data map illustrating unmarked grave locations**